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Volume 3



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Damage Tolerant Design Handbook

A Compilation of Fracture and Crack-Growth Data
for High Strength Alloys

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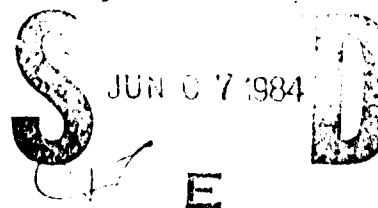
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This edition entirely revamps the 1975 edition. This edition is arranged by alloy rather than by property as in the previous addition. The data are presented in eight chapters and four volumes. Plane-strain fracture toughness (K_{IC}), critical plane stress fracture toughness, apparent fracture toughness, R-curve, fatigue crack growth rates, sustained-load crack growth rate and threshold stress intensity (K_{ISCC}) data are presented for stainless steels, titanium alloys, nickel-base alloys, alloy steels, 2000-, 6000- and 7000-series aluminum alloys.		

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Damage Tolerant Design Handbook

A Compilation of Fracture and Crack Growth
Data for High-Strength Alloys

Compiled by

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Sponsored by**Materials Laboratory**

Air Force Wright Aeronautical Laboratories

Wright-Patterson Air Force Base, Ohio 45433

December 1983

**Metals and Ceramics Information Center**

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MCIC is publishing this revised and expanded edition of the Damage Tolerant Design Handbook to increase the availability of information to the technical community. The loose leaf format was selected to facilitate updating the handbook as new information becomes available. This edition is a completely revised and expanded version of the original handbook first published by MCIC in 1972 and revised in 1973 and 1975.

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TABLE 1.4
ABBREVIATIONS FOR MATERIAL SYSTEMS

<u>Abbreviation</u>	<u>Materials</u>
ALUM	Aluminum Alloys
TITAN.	Titanium Alloys
NICKEL	Nickel-Base Alloys
STAIN. STEEL	Stainless Steel Alloys
ALLOY STEEL	Steel Alloys

TABLE 1.5
ABBREVIATIONS FOR ALLOY CONDITIONING AND HEAT TREATMENTS

<u>Abbreviation</u>	<u>Condition/Heat Treatment</u>
OQ	Oil Quenched
ABQ	Aus-Bay Quench
AC	Air Cool
WC	Water Quench
MA	Mill Anneal
BA	Beta Anneal
DA	Duplex Anneal
RA	Recrystallize Anneal
ST	Solution Treated
STA	Solution Treated and Aged

TABLE 1.6
ABBREVIATIONS FOR PRODUCT FORMS

<u>Abbreviations</u>	<u>Product Form</u>
S	Sheet
P	Plate
E	Extrusion
F	Forging
FB	Forged Bar
BT	Billet
BR	Round Bar
RB	Rolled Bar
C	Casting
W	Weldment
D	Disk
EB	Extruded Bar
B	Bar

TABLE 1.7
ABBREVIATIONS FOR ENVIRONMENTAL SYSTEMS

<u>Abbreviations</u>	<u>Environmental System</u>
R. T.	Room Temperature (65°F-80°F)
L. H. A.	Low Humidity Air (< 10% RH)
Dry Air	Low Humidity Air (< 10% RH)
H. H. A.	High Humidity Air (> 80% RH)
Lab. Air	Laboratory Air (% RH unspecified)
Dist. H ₂ O	Distilled Water
Dist. Water	Distilled Water
3.5 PCT NaCl	3.5% Salt Water Solution
JP.4	JP-4 Aircraft Fuel
JP.4 - Fuel	JP-4 Aircraft Fuel
S. T. W.	Sump Tank Water
S. S. W.	Simulated Sea Water
S. C. S.	Shop Cleaning Solvent
F. C. S.	Field Cleaning Solvent
Salt Fog	Salt Fog
Temp.	Temperature

TABLE 1.8
ABBREVIATIONS FOR SPECIMEN DESIGNS

<u>Abbreviations</u>	<u>Specimen Design*</u>
CT	Compact Tension
NB	3Pt. Notched Bend
WOL	Wedge Open Load
CCP	Center Cracked Panel
BWOL	Bolt Loaded-Wedge Open Load
CANT	Cantilever Beam
TDCB	Tapered Double Cantilever Beam
CHAR	Charpy
PTSC	Part Through Surface Crack
SENT	Single Edge Notch Tension
K _B BAR	K _B Bar
4-NB	4 Pt. Notched Bend
MCT	Modified Compact Tension
CNT	Center Notched Tension
DCB	Double Cantilever Beam
BDCB	Bolt Loaded Double Cantilever Beam

*Also note that when "SG" is used in conjunction with a specimen design, the specimen is side-grooved along the path of the crack.

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TABLE 7.0.1
AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/HT	PRODUCT FORM	KIC	KC	R	CURVES	DA/DN	DA/DT	KISCC
2014	T451	PLATE					X		
	T6	FORGING	X						X
		FORGED BAR	X				X		
		SHEET		X			X		
		PLATE		X					
		ROLLED BAR					X		
	T61	FORGING	X						
	T611	FORGING	X						
	T651	PLATE	X	X				X	X
	T652	FORGING	X						
2020	T6	PLATE	X						
		EXTRUSION	X						
		SHEET		X			X		
	T651	PLATE	X	X			X		X
2020 (ALCLAD)	T6	SHEET		X					
	T81	PLATE	X						X
		PLATE							X
		PLATE	X						
2021	T81 OVERHEATED WELD	PLATE							X
	T81 REPAIR WELD + AGE WITH 2319 FILLER WIRE								
	T81 REPAIRED WELD AGED 16HR 325F WELD FUSION LINE	PLATE							X
	T81 REPAIRED WELD AGED 16HR 325F WELD CENTER LINE	PLATE							X
	T81 REPAIRED WELD AGED 16HR 325F HEAT AFFECTED ZONE	PLATE							X
	T81 WELD + AGE WITH 2319 FILLER WIRE	PLATE	X						

TABLE 7.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/HT	PRODUCT FORM	MIC	KC	R	CURVES	DA/DN	DA/DT	KIBCC
2021	T81 WELDED AGED 16HR 325F HEAT AFFECTED ZONE	PLATE							X
	T81 WELDED AGED 16HR 325F WELD CENTER LINE	PLATE							X
	T81 WELDED AGED 16HR 325F FUSION LINE	PLATE							X
	T8151	PLATE	X						
2024	T3	SHEET PLATE		X X			X X		
	T351	PLATE EXTRUSION FORGED BAR SHEET	X X X	X	X		X X	X	X
	T3511	EXTRUSION	X				X		
	T352	FORGING							X
	T36	SHEET		X					
	T4	SHEET FORGING		X				X	
	T42	PLATE					X		
	T6	SHEET		X					
	T62	SHEET						X	
	T62 (00)	SHEET PLATE		X					
	T62 (W0)	SHEET PLATE		X			X		
	T81	SHEET PLATE		X				X	
	T851	PLATE SHEET	X X	X X			X X		X
	T8510	EXTRUSION	X						

TABLE 7.0.1 (con't)
AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/HT	PRODUCT FORM	M1C	M2	R	CURVES	DA/DN	DA/DT	M1SCC
2024	T8511	EXTRUSION	X						
	T852	FORGING	X				X		X
	T86	SHEET		X					
	T861	SHEET PLATE					X X		
2024 (ALCLAD)	T3	SHEET		X			X		
	T86	SHEET		X					
2048	T851	PLATE	X				X		
	T351 (417)	PLATE	X						
2124	T851	PLATE	X	X			X		X
	T851 (8P)	PLATE	X						
	T851 (417)	PLATE	X						
	T651	PLATE	X						
2214	T651 (417)	PLATE	X						
	T37	PLATE						X	X
2219	T81	SHEET		X					
	T851	PLATE	X	X					X
		FORGING	X						
		SHEET		X				X	

TABLE 7.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/HT	PRODUCT FORM	KIC	KC	R	CURVES	DA/DN	DA/DT	KISCC
2219	T8511	EXTRUDED BAR					X		
		FORGING BILLET	X				X		
		PLATE SHEET	X	X	X				X
		PLATE	X						
2324	T39	PLATE					X		
		PLATE	X				X		
		SHEET			X				
		PLATE	X						
2419	T61	SHEET							
		PLATE	X						
		SHEET					X		
		SHEET							
2618	T61	SHEET							
		PLATE	X						
		SHEET							
		SHEET							
6061	T6	PLATE							
		FORGED BAR	X	X			X		X
		FORGING	X						
		FORGING	X						

TABLE 7.0.2

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/ HT	PRODUCT FORM	RANGE OF PRODUCT THICKNESSES (IN)	K _{IC} (KSI SQRT(IN))					
				L-T			T-L		
				SPECIMEN THICK #	MEAN	STD DEV.	SPECIMEN THICK #	MEAN	STD DEV.
2014	T6	FORGING	0.89-8.00	0.71	27.9	0.8	0.25	17.4	1.7
		FORGED BAR	4.50	---	---	---	0.25	16.7	0.6
	T611	FORGING	1.00	---	---	---	---	---	---
	T651	PLATE	1.00-5.00	1.00	23.3	1.0	1.00	21.4	1.2
	T652	FORGING	2.00-6.00	0.75	28.8	3.6	0.75	21.9	3.2
2020	T651	PLATE	1.37	1.00	23.0	2.4	1.00	17.2	0.3
2021	T81	PLATE	1.00	0.99	27.0	0.5	---	---	---
		PLATE	1.00	---	---	---	1.00	15.8	0.7
	T81 REPAIR WELD + AGE WITH 2319 FILLER WIRE			---	---	---	---	---	---
2024	T351	PLATE	2.00-3.00	1.00	35.0	7.1	---	---	---
		EXTRUSION	3.00-5.00	---	---	---	1.50	25.0	0.9
	T3511	EXTRUSION	---	1.20	38.0	2.6	---	---	---
	T851	PLATE	0.37-4.00	0.38	23.3	2.4	0.38	20.7	1.9
	T8510	EXTRUSION	2.76-4.50	1.86	30.4	2.7	2.00	16.5	1.0
	T8511	EXTRUSION	3.50	1.00	24.1	0.4	1.00	16.0	0.0
	T852	FORGING	2.00-6.00	0.75	29.2	5.2	0.75	18.9	2.6
2048	T851	PLATE	1.00-4.00	1.00	37.9	1.9	1.00	30.6	2.5

* MINIMUM SPECIMEN THICKNESS (IN)

TABLE 7.0.2 (con't)

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/ HT	PRODUCT FORM	RANGE OF PRODUCT THICKNESSES (IN)	K _{IC} SORT (IN)					
				I-T			T-L		
				SPECIMEN THICK *	MEAN	STD DEV	SPECIMEN THICK *	MEAN	STD DEV
2124	T851	PLATE	0.62-6.00	0.50	29.7	2.8	0.50	25.1	2.3
	T851 (SP)	PLATE	2.00-6.00	0.75	27.2	4.7	0.75	23.1	2.7
	T851 (417)	PLATE	1.57-5.50	0.50	28.9	2.8	0.50	23.8	2.4
2214	T651	PLATE	1.50-2.37	1.00	35.3	2.7	1.00	31.8	0.9
	T651 (417)	PLATE	1.50-3.93	1.50	36.0	3.4	1.49	29.4	1.8
2219	T851	PLATE	1.00-3.25	0.97	33.4	2.3	0.75	29.7	3.2
		FORGING	-----	-----	-----	-----	-----	-----	-----
	T852	FORGING	2.00-7.50	1.50	39.2	3.2	1.50	27.1	2.2
T87	PLATE	PLATE	1.00-2.00	1.00	28.0	3.0	0.97	22.0	0.4
	T87-300F 100HRS	PLATE	1.50	1.47	34.8	0.4	-----	-----	-----
2419	T651	PLATE	1.75-3.00	1.50	42.6	5.3	1.40	37.2	4.2
	T651	PLATE	3.34	-----	-----	-----	-----	-----	-----
6061	T651	PLATE	1.50-2.50	-----	-----	-----	1.00	26.6	0.9

* MINIMUM SPECIMEN THICKNESS (IN)

TABLE 7.0.3.1
PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS OF
2000 AND 6000 SERIES ALUMINUM ALLOYS (WITH BUCKLING CONSTRAINTS)

ALLOY	CONDITION/HT	TEST TEMP., (°F)	SPECIMEN ORIENT	SPECIMEN WIDTH	YIELD STRENGTH (KSI)	SPECIMEN THICKNESS (IN.) = 0.063	K_{IC} (KSI $\sqrt{\text{IN.}}$)		
							0.100	0.125	0.200
2014	T6	-320	L-T	4.0	74.1	59.2/1.1(2)			
				18.0	74.1	74.2/3.2(4)			
		R. T.	L-T	16.0	68.4	65.0/3.4(5)			
				18.0	65.2	72.0/3.4(5)			
		-320	T-L	3.0	75.9	46.6/5.3(9)			
2024	T3 T62(GQ) T62(WQ)	R. T.	L-T	12.0	75.9	48.3/4.6(5)			
					75.9	49.7/3.9(15)			
		R. T.	L-T	30.0	51.9	108.9/8.2(3)			
			T-L	6.0	57.0		63.0/1.4(2)		
		R. T.	L-T	6.0	-----		77.1/5.8(2)		
2124	T81	R. T.	L-T	16.0	-----		139.2		
			T-L	6.0	-----		72.4/2.1(2)		
		R. T.	L-T	6.0	64.8		65.4/3.8(2)		
			T-L	6.0	64.1		57.3/2.0(3)		
	T851	R. T.	T-L	5.8	55.0				50.9/2.0(4)
2219	T87	-423	L-T	16.0	73.8	90.6/3.2(2)			
			L-T	24.0	58.5		90.6/15.0(6)		
		R. T.	L-T	48.0	58.5		109.8/12.1(7)		

Mean/Standard Deviation (Number of Specimens)

TABLE 7.0.3.2
 PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS
 OF 2000 AND 6000 SERIES ALUMINUM ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

ALLOY	CONDITION/H.T.	TEST TEMP. (°F)	SPECIMEN ORIENT	SPECIMEN WIDTH	YIELD STRENGTH (Ksi)	SPECIMEN THICKNESS (IN.) = 0.063	K _c (Ksi √in.)			
							0.127	0.250	0.400	1.000
2014	T6	-423	T-L	4.0	31.8	59.1/3.5(5)				
		R. T.	T-L	15.8	65.4	58.4/2.7(5)				
2020	T6	R. T.	L-T	2.0	76.5	34.6/7.0(5)				
				3.0	75.9	30.2/1.3(2)				
			T-L	15.8	76.9	36.9/2.9(4)				
				2.0	75.9	30.5/6.6(5)				
				3.0	75.8	27.8/0.8(2)				
		15.8	75.6	34.5/2.0(5)						
T651		R. T.	L-T	3.0	76.3		41.3/2.7(12)	26.4/0.3(3)		
				4.0	77.4			24.2/2.3(3)		
			T-L	20.0	76.3				30.5/2.5(11)	
				3.0	77.5		23.5/2.4(12)	17.2/2.6(3)		
				4.0	78.0			20.9/0.1(2)		19.4/0.8(12)
		20.0	78.0							
2020(Alclad)	T6	R. T.	L-T	15.8	68.0	34.1/1.8(2)				
				3.0	68.6		40.2/3.3(7)			
			T-L	15.8	67.2	33.9/1.2(2)				
				3.0	68.4		30.4/5.0(7)			

Mean/Standard Deviation (Number of Specimens)

TABLE 7.0.3.2 (con't)

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS
OF 2000 AND 6000 SERIES ALUMINUM ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

ALLOY	CONDITION/H.T.	TEST TEMP. (°F)	SPECIMEN ORIENT	SPECIMEN WIDTH	YIELD STRENGTH (Ksi)	SPECIMEN THICKNESS (IN.) = 0.063	K_{IC} (Ksi $\sqrt{\text{in.}}$)	0.127	0.250	0.400	1.000
2024	T351 31	R. T.	L-T	20.0	58.2						
		R. T.	T-L	6.0	62.0	57.9/3.2(2)					107.1/1.8(2)
				9.0	62.0	61.2/5.1(3)					
				15.0	62.0	54.6/0.0(2)					
				18.0	62.0	54.6/0.7(2)					
	T851			21.0	62.0	55.9/2.9(2)					
				24.0	62.0	52.2/0.9(2)					
		R. T.	L-T	20.0	66.0		44.8/1.7(9)		31.3/2.5(6)		48.4/3.8(12)
			T-L	3.0	65.4				47.1/8.1(7)		
				4.0	66.2						
2124	T86			20.0	65.0						33.7/1.9(12)
		R. T.	L-T	15.8	72.9	53.0/4.7(5)					
			T-L	2.0	71.6	42.5/0.6(4)					
2219	T851			15.8	71.2	45.9/2.3(5)					
		R. T.	L-T	6.0	55.0				68.9/2.3(2)		
			T-L	3.0	59			36.2/2.3(6)			
2219	T87	R. T.	L-T	20.0	51.1						84.7/9.0(10)
		R. T.	T-L	20.0	50.2						
2219	T87	R. T.	L-T	16.0	57.7	75.9/1.1(2)					66.3/4.2(12)
		R. T.	T-L	16.0	57.7						

Mean/Standard Deviation (Number of Specimens)

TABLE 7.0.4.1

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYS

TEST CONDITIONS

SPECIMEN ORIENTATION L-T ENVIRONMENT LAB AIR AT R.T.
STRESS RATIO: 0.00-0.10 FREQUENCY: 0.10-30.00HZ

ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEVELS (KSI SQRT(IN)) =				
					2.5	5.0	10.0	20.0	50.0
2014	T6	SHEET	0.05	2.00			6.41		
2020	T6	SHEET	0.00	13.30				104	
	T651	PLATE	0.00	5.20			3.45		
2024	T3	SHEET	0.00	13.30				28.6	
	T3	PLATE	0.05	20.00			4.36		
	T351	SHEET	0.00	3.00- 6.00			6.16	44.0	
	T351	PLATE	0.00	1.00- 16.00					2324
	T351	PLATE	0.00	5.00- 20.00		156			
	T351	PLATE	0.01	1.00- 10.00		205	7.09	39.8	
	T351	PLATE	0.01	20.00			5.98	52.1	
	T351	PLATE	0.10	3.00				55.0	
	T351	PLATE	0.10	20.00			8.62		
	T3511	EXTRUSION	0.05	9.00		129			
	T42	PLATE	0.02	10.00			4.25	23.6	1131
2124	T81	SHEET	0.05	2.00			8.08	68.1	
	T851	PLATE	0.02	1.00- 10.00			3.92	57.0	
	T851	PLATE	0.02	1.00- 30.00		0474	272	3.84	56.7

TABLE 7.0.4.1 (con't)

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYSTEST CONDITIONSSPECIMEN
ORIENTATION: L-T

ENVIRONMENT: LAB AIR AT R.T.

STRESS RATIO 0.00-0.10

FREQUENCY: 0.10-30.00HZ

ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEVELS (KSI SQRT(IN)) =					
					2.5	5.0	10.0	20.0	50.0	100.0
2219	T851	PLATE	0.00	5.20			8.25	54.8		
	T851	PLATE	0.00	6.00			4.33	34.6		
	T851	PLATE	0.01	3.00				44.5	1622	
	T851	PLATE	0.01	6.00				46.2	1788	
	T851	PLATE	0.01	1.00- 20.00				44.9		
	T851	PLATE	0.04	1.00- 20.00			4.24			
	T851	PLATE	0.05	1.00- 20.00			2.46	33.9		
	T851	PLATE	0.05	1.00- 20.00			3.58			
	T851	PLATE	0.05	1.00- 20.00			5.14	48.3		
	T851	PLATE	0.08	6.00			5.74			
	T851	PLATE	0.10	1.00- 20.00				44.9		
2419	T851	PLATE	0.10	30.00			6.30	53.9		
6061	T651	PLATE	0.00	10					57.4	

TABLE 7.0.4.2

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYS

TEST CONDITIONS

SPECIMEN
ORIENTATION T-L

ENVIRONMENT: LAB AIR AT R T

STRESS RATIO 0.00-0.10

FREQUENCY: 0.10-30.00HZ

ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEV S			
					2.5	5.0	10.0	100.0
2014	T6	SHEET	0.05	2.00				
	T6	FORGING	0.05	30.00				
2024	T3	SHEET	0.00	13.30				
	T3	SHEET	0.05	30.00				
	T861	SHEET	0.08	10-15.00				
	T861	SHEET	0.10	10-15.00				
	T861	SHEET	0.10	10-15.00				
	T861	SHEET	0.10	10-15.00				
	T861	SHEET	0.10	10-15.00				
	T861	SHEET	0.10	10-15.00				
	T861	SHEET	0.10	10-15.00				
	T861	PLATE	0.10	10-15.00				
	T861	PLATE	0.10	10-15.00				
2419	T851	PLATE	0.10	10-15.00				

TABLE 7.0.5

STRESS CORROSION CRACKING THRESHOLD DATA FOR 2000 AND 6000
SERIES ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/HT	PRODUCT FORM	SPECIMEN ORIENTATION	ENVIRONMENTS						K _{Isc} (Ksi $\sqrt{\text{in.}}$)	
				INDUSTRIAL ATMOSPHERE	SEACOAST ATMOSPHERE	SUMP TANK WATER	3.5% NaCl	SALT DICHROMATE ACETATE	SYNTHETIC SEAWATER		SHOP CLEANING SOLVENT
2014	T6	F	S-L								
	T651	P	S-L	7.0	7.0			7.0	16.0		
2020	T651	P	S-L				9.0				
2021	T81	P	S-L	19.0	19.0			19.0			
	T81-Overheated Weld	P	S-L				11.3				
	T81-Repaired Weld-Aged 16HR 325F-Weld Fusion Line						7.7				
	T81- Repaired Weld-Aged 16HR 325F-Heat Affected Zone	P	S-L				11.9				
	T81-Welded Aged 16HR 325F Weld Center Line	P	S-L				7.2				
	T81-Welded Aged 16HR 325F Heat Affected Zone	P	S-L				13.3				
	T81-Welded Aged 16HR 325F Fusion Line	P	S-L				8.5				

TABLE 7.0.5 (con't)

STRESS CORROSION CRACKING THRESHOLD DATA FOR 2000 AND 6000
SERIES ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/HT	PRODUCT FORM	SPECIMEN ORIENTATION	ENVIRONMENTS					K_{Iacc} (Ksi $\sqrt{in.}$)	
				INDUSTRIAL ATMOSPHERE	SEACOAST ATMOSPHERE	SUMP	TANK	WATER		
						3.5% NaCl	SALT DICHROMATE ACETATE	SYNTHETIC SEAWATER	SHOP CLEANING SOLVENT	
2024	T351	P	S-L	10.0	10.0			10.0	9.0	
	T851	P	L-T					21.5		
			S-L	16.0	16.0				15.0	
	T852	F	L-T				22.5(2)			28.1(2)
			T-L				20.2(2)			
			S-L				20.0			
2124	T851	L-T					26.6(3)			
		S-L					22.7(3)			
2219	T37	P	S-L	13.0	13.0				9.0	
	T851	P	L-T				34.5(2)			34.3(3)
			T-L				27.0			
	T87	P	S-L	19.0	19.0				19.0	
6061	T651	P	S-L	20.0	20.0				20.0	

TABLE 7.1.1.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2014 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SORT(IN)) DEVIATION	(NUMBER OF SPECIMENS)
PLATE		
	L-I	S-L
T651	23.3 ± 1.0 (10)	21.4 ± 1.2 (19) 17.8 ± 0.1 (2)
FORGING		
	L-I	S-L
T6	27.9 ± 0.8 (2)	17.4 ± 1.7 (4) 16.9 ± 1.9 (5)
T611	-----	----- 17.8 ± 0.6 (2)
T652	28.8 ± 3.6 (12)	21.9 ± 3.2 (13) 18.1 ± 1.4 (3)
FORGED BAR		
	L-I	S-L
T6	-----	16.7 ± 0.6 (2) -----

TABLE 7.1.1.2
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2014

TEST CONDITIONS

SPECIMEN
ORIENTATION 1-1

ENVIRONMENT LAB AIR
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2	5	10	20	50	100
T6	SHEET	0.05	2.00			6.41			
T6	SHEET	0.25	2.00			9.59			
T6	SHEET	0.40	2.00			13.7	13.5		
T6	SHEET	0.50	2.00			1.57			
T6	SHEET	0.57	2.00			1.02			

TABLE 7.1.1.3
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2014

TEST CONDITIONS		ENVIRONMENT		FATIGUE CRACK GROWTH RATES					
SPECIMEN ORIENTATION	TEST	LAB AIR AT R	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
CONDITION/HI	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	FATIGUE CRACK GROWTH RATES (MICR/10 CYCLE)					
T6	SHEET	0.05	2.00	7.03					
T6	SHEET	0.25	2.00	11.0					
T6	SHEET	0.40	2.00	1.29					
T6	SHEET	0.50	2.00	1.59					
T6	SHEET	0.57	2.00	1.25					
T6	FORGING	0.05	--	1.49					

TABLE 7.1.1.1.4
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2014

TEST CONDITIONS

SPECIMEN
ORIENTATION T-L

ENVIRONMENT H H A
A I R T

CONDITION/MT	PRODUCT FORM	STRESS RATIO	FREQ HZ	DELTA K LEVELS (KSI SQRT(IN))	2 5	5	10	20	50	100
T6	FORGING	0.05				1.20	22.0			
T6	FORGING	-1.00	9.00			1.26	17.4			

TABLE 7.1.2.1

CONDITION	ALUMINUM				2014				K(1C)					
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVB)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV	DATE	REFER	
						WIDTH (IN)	THICK (IN)							
T6	F	0.89 0.89	R.T.	L-T	63.8 63.8	1.500 1.500	0.714 0.713	NB NB	0.798 0.778	0.50 0.46	28.50 27.30	27.9/ 0.8	1973 1973	86213 86213
	F	0.89 0.89 0.89 0.89	R.T.	T-L	62.4 62.4 63.0 63.0	0.500 0.500 0.490 0.500	0.249 0.249 0.249 0.249	NB NB NB NB	0.266 0.269 0.258 0.266	0.15 0.17 0.23 0.21	15.50 16.50 19.20 18.20	17.4/ 1.7	1973 1973 1973 1973	86213 86213 86213 86213
	F	0.89	84	T-L	62.4	1.500	0.750	CT	0.753	0.14	14.90		1973	86213
T6	F	8.00 8.00 8.00	R.T.	S-T	61.0 61.0 61.0	2.000 2.000 2.000	1.000 1.000 1.000	NB NB NB	1.000 ----- 1.000	0.24 0.24 0.24	19.10 19.10 19.00	19.1/ 0.1	1972 1972 1972	82675 82675 82675
	F	8.00 8.00 1.00	R.T.	S-L	61.0 61.0 61.0 63.8	1.000 1.000 1.000 1.500	1.000 1.000 1.000 0.749	NB NB NB CT	0.500 ----- 0.500 0.778	0.18 0.17 0.18 0.17 0.25	16.40 15.70 16.40 15.70 20.30	16.9/ 1.9	1972 1972 1972 1972 1973	82675 82675 82675 82675 86213
	F	----- -----	R.T.	L-C	63.8 63.8	1.500 1.500	0.750 0.750	NB NB	0.750 0.750	0.50 0.46	28.50 27.30	27.9/ 0.8	1972 1972	82879 82879
T6	F	----- ----- ----- -----	R.T.	C-L	62.7 62.7 62.7 62.7	0.500 1.500 1.500 0.500	0.250 0.750 0.750 0.250	NB CT CT NB	0.250 0.750 0.750 0.250	0.21 0.14 0.13 0.23	18.20 15.10 14.30 19.20	16.7/ 2.4	1972 1972 1972 1972	82879 82879 82879 82879
	FB	4.50	R.T.	L-T	64.2	1.490	0.689	NB	0.737	0.49	28.40		1973	86213
	FB	4.50 4.50	R.T.	T-L	62.4 62.4	0.500 0.500	0.249 0.249	NB NB	0.258 0.267	0.19 0.17	17.10 16.30	16.7/ 0.6	1973 1973	86213 86213
T6	FB	4.50	82	T-L	62.4	1.500	0.749	CT	0.762	0.19	17.40		1973	86213
T6	FB	4.50 4.50	85	T-L	62.4 62.4	1.500 1.500	0.750 0.751	CT CT	0.783 0.749	0.21 0.18	17.90 16.60	17.3/ 0.9	1973 1973	86213 86213

TABLE 7.1.2.1 (Con't)

CONDITION	--PRODUCT--				ALUMINUM		2014			K(1C)		K(1C) STAN			DATE	REFER	
	FORM	THICK (IN)	TEMP (F)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	WIDTH (IN)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (IN)	K(1C)/TVS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	DEV				
							THICK (IN)	DESIGN									
T651	P	1.50	88	L-T	66.7	1.000	0.501	CT	0.495	0.21	19.50	0.2	1973	86213			
		1.50			66.7	1.000	0.501	CT	0.491	0.21	19.30		19.3/	1973	86213		
T651	P	1.50	88	T-S	63.2	1.000	0.500	CT	0.504	0.33	22.80	0.5	1973	86213			
		1.50			63.2	1.000	0.500	CT	0.506	0.30	21.80		21.80	1973	86213		
		1.50			63.2	1.000	0.501	CT	0.510	0.32	22.50		22.4/	1973	86213		
T651	P	1.00	- 320	T-L	75.0	2.000	1.020	NB	1.010	0.30	26.10	0.0	1971	84288			
		1.00			75.0	2.000	1.018	NB	1.008	0.30	26.10		26.1/	1973	86213		
T651	P	5.00	R.T.	T-L	57.8	2.000	1.000	NB	0.997	0.27	19.10		1973	86213			
		1.00			65.8	2.000	1.016	NB	0.981	0.23	20.10		1973	86213			
		1.00			65.8	2.000	1.016	NB	0.960	0.24	20.20		1973	86213			
		1.00			65.8	2.000	1.016	NB	0.989	0.26	20.90		1971	84288			
		1.00			65.8	2.000	1.016	NB	0.985	0.26	20.90		1971	84288			
		1.00			65.8	2.000	1.022	NB	1.008	0.27	21.80		1973	86213			
		1.00			65.8	1.990	1.023	NB	1.000	0.28	22.00		1973	86213			
		1.00			65.8	2.000	1.016	NB	0.966	0.24	20.30		1973	86213			
		1.00			65.8	2.000	1.000	CT	1.084	0.26	21.20		1973	86213			
		1.00			65.8	2.000	1.016	NB	0.970	0.25	21.00		1971	84288			
		1.00			65.8	2.000	1.023	NB	0.980	0.28	21.90		1973	86213			
		1.00			65.8	2.000	1.022	NB	1.023	0.29	22.30		1973	86213			
T651	P	1.00	84	T-L	65.8	2.000	1.023	NB	0.997	0.28	22.10	0.5	1973	86213			
		1.00			65.8	2.000	1.016	NB	0.961	0.25	20.70		1973	86213			
		1.00			65.8	2.000	1.016	NB	1.001	0.24	20.70		1971	84288			
		1.00			65.8	2.000	1.016	NB	0.998	0.29	22.60		1971	84288			
		1.75			66.2	2.000	0.997	NB	1.058	0.32	23.60		1973	86213			
		1.75			66.2	2.000	1.000	NB	0.980	0.29	22.50		1973	86213			
		1.75			66.2	2.000	1.000	NB	1.010	0.32	23.60		21.4/	1973	86213		
		1.00			63.5	2.000	1.002	CT	0.981	0.27	20.70		1973	86213			
		1.00			65.8	2.000	1.000	CT	0.984	0.22	19.50		1973	86213			
		1.00			65.8	2.000	1.001	CT	0.978	0.23	20.00		1973	86213			
		1.00			65.8	2.000	1.001	CT	0.964	0.22	19.60		20.0/	1973	86213		
		T651			P	1.50	88	T-L	63.2	1.000	0.500		CT	0.500	0.22	18.70	0.7
1.50	63.2		1.000	0.500		CT			0.519	0.24	19.70	19.2/	1973	86213			
T651	P	5.00	R.T.	S-L	55.0	1.000	0.501	NB	0.529	0.26	17.90		1973	86213			

TABLE 7.1.2.1 (Con't)

CONDITION	ALUMINUM						K(1C)								
	---PRODUCT--- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----			CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) STAN				
						WIDTH (IN)	THICK (IN)	DESIGN			K(1C) MEAN (KSI*SQRT IN)	DEV	DATE	REFER	
															W
T651	P	5.00	R.T.	S-L	55.0	1.000	0.498	NB	0.522	0.26	17.70	17.8/	0.1	1973	86213
T652	F	5.00	R.T.	L-T	60.7	3.000	1.500	NB	1.498	0.62	30.20			1970	77720
		5.00			60.7	3.000	1.500	NB	1.460	0.54	28.20			1970	77720
		5.00			60.7	3.000	1.500	NB	1.530	0.58	29.20			1970	77720
		4.00			62.5	3.000	1.502	NB	1.485	0.75	34.20			1970	77720
		4.00			62.5	3.000	1.502	NB	1.577	0.80	35.40			1970	77720
		4.00			62.5	3.000	1.502	NB	1.442	0.69	32.80			1970	77720
		3.00			66.2	2.000	1.000	NB	0.925	0.39	26.30			1970	77720
		3.00			66.2	1.990	1.000	NB	0.970	0.40	26.50			1970	77720
		3.00			66.2	2.000	1.000	NB	0.968	0.42	27.10			1970	77720
		2.00			66.5	1.500	0.750	NB	0.688	0.39	24.90			1970	77720
		2.00			66.5	1.500	0.752	NB	0.728	0.33	24.30			1970	77720
		2.00			66.5	1.500	0.751	NB	0.752	0.41	26.90	28.8/	3.6	1970	77720
T652	F	5.00	R.T.	T-L	57.3	3.000	1.500	NB	1.662	0.24	17.90			1970	77720
		5.00			57.3	3.000	1.500	NB	1.597	0.33	20.70			1970	77720
		5.00			57.3	3.000	1.500	NB	1.612	0.31	20.10			1970	77720
		6.00			57.7	4.000	2.005	NB	2.092	0.49	25.40			1970	77720
		6.00			57.7	4.000	2.004	NB	2.215	0.39	22.80			1970	77720
		6.00			57.7	4.000	2.003	NB	1.987	0.66	29.80			1970	77720
		4.00			59.2	3.000	1.502	NB	1.562	0.37	22.70			1970	77720
		4.00			59.2	3.000	1.502	NB	1.497	0.38	23.00			1970	77720
		4.00			59.2	3.000	1.502	NB	1.642	0.40	23.70			1970	77720
		2.00			64.9	1.500	0.754	NB	0.748	0.22	19.20			1970	77720
		2.00			64.9	1.500	0.753	NB	0.727	0.22	19.30			1970	77720
		3.00			65.1	2.000	0.999	NB	1.030	0.24	20.30			1970	77720
		3.00			65.1	1.990	0.999	NB	1.025	0.22	19.50	21.9/	3.2	1970	77720
T652	F	5.00	R.T.	S-L	56.1	1.000	0.500	NB	0.467	0.29	17.80			1970	77720
		5.00			56.1	1.000	0.501	NB	0.470	0.31	19.60			1970	77720
		5.00			56.1	1.000	0.498	NB	0.510	0.22	16.80	18.1/	1.4	1970	77720

TABLE 7.1.2.2

CONDITION	--PRODUCT-- FORM THICK TEMP OR (IN) (F)	TEST SPEC YIELD STR (KSI)	ALUMINUM			2014			K(C)						
			---SPECIMEN---			CRACK LENGTH CROSS STRESS									
			W	THICK (IN)	R	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI*SQRT IN)	STAN DEV	K(C) (KSI*SQRT IN)	K(C) STAN DEV	REFER	
															2A(O)
BUCKLING OF CRACK EDGES RESTRAINED															
T6	8	0 06	423	L-T	83.4	4.000	0.062	1.220	1.700	---	41.80	61.43	77.08*	1963	51527
	0 06	83.4	4.000	0.062	1.240	1.620	---	42.00	62.35	---	74.70*	1963	51527		
	0 06	83.4	4.000	0.063	1.230	1.450	---	40.50	59.82	---	73.02*	1963	51527		
	0 06	83.4	4.000	0.062	1.290	1.700	---	36.10	54.95	---	66.57	1963	51527		
	0 06	83.4	4.000	0.062	1.240	1.650	---	41.20	61.16	59 9/ 2 9	74.28*	---	1963	51527	
T6	8	0 06	320	L-T	74.1	3.950	0.062	1.230	1.660	---	40.70	60.21	73.95*	1963	51527
	0 06	74.1	3.990	0.063	1.230	1.420	---	37.00	54.67	---	60.02	1963	51527		
	0 06	74.1	3.990	0.063	1.230	1.740	---	39.80	58.80	---	74.77*	1963	51527		
	0 06	74.1	3.990	0.063	1.240	---	---	38.20	56.73	---	---	1963	51527		
	0 06	74.1	3.990	0.063	1.230	1.410	---	36.20	53.49	56 8/ 2 8	58.44	59 2/ 1 1	1963	51527	
T6	8	0 06	320	L-T	74.1	18.040	0.063	5.490	7.300	---	19.40	60.46	73.23	1963	51527
	0 06	74.1	18.040	0.063	5.480	7.100	---	19.40	60.39	---	71.77	1963	51527		
	0 06	74.1	18.040	0.064	5.480	6.980	---	19.90	61.95	---	72.73	1963	51527		
	0 06	74.1	18.050	0.064	5.480	---	---	---	---	---	---	1963	51527		
	0 06	74.1	18.060	0.063	5.480	7.400	---	20.70	64.43	61 8/ 1 9	78.91	74.2/ 3 2	1963	51527	
T6	8	0 06	R. T.	L-T	66.2	2.000	0.067	0.625	0.980	---	38.10	40.16*	55.78*	1973	86213
	0 06	67.5	2.000	0.064	0.625	0.770	---	38.60	40.68*	---	56.01*	1973	86213		
	0 06	67.5	2.000	0.065	0.620	0.860	---	40.10	42.09*	---	52.76*	1973	86213		
	0 06	67.5	2.000	0.064	0.625	1.020	---	38.30	40.37*	---	58.11*	1973	86213		
	0 06	67.5	2.000	0.065	0.624	0.860	---	39.80	41.95*	---	52.36*	1973	86213		
	0 06	67.5	2.000	0.065	0.622	0.890	---	40.10	42.18*	---	54.19*	1973	86213		
	0 06	67.6	2.000	0.064	0.624	0.950	---	38.90	41.00*	---	55.45*	1973	86213		
	0 06	67.6	2.000	0.064	0.622	0.850	---	39.50	41.55*	---	51.50*	1973	86213		
	0 06	67.6	2.000	0.064	0.623	0.840	38.90	38.90	40.72*	---	50.27*	1973	86213		
	8	0 06	R. T.	L-T	65.2	3.980	0.063	1.240	1.600	---	38.10	56.60*	67.23*	1963	51527
T6	0 06	65.2	3.990	0.063	1.240	1.540	---	38.20	56.73*	---	65.54*	1963	51527		
	0 06	65.2	3.990	0.063	1.230	1.540	---	36.90	54.52*	---	63.31*	1963	51527		
	0 06	65.2	3.990	0.063	1.230	1.550	---	37.80	55.85*	---	65.15*	1963	51527		
	0 06	65.2	4.000	0.063	1.250	1.550	---	37.90	56.55*	---	65.29*	1963	51527		
6	8	0 06	R. T.	L-T	68.4	15.810	0.063	6.000	7.020	---	16.40	55.35	62.20	1973	86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD DEV

TABLE 7.1.2.2 (Con't)

CONDITION	ALUMINUM		2014		K(C)	
	--PRODUCT--		--SPECIMEN--		CRACK LENGTH CROSS STRESS	
	FORM	THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	WIDTH (IN)	
					THICK (IN)	B
T6	S	0 06	R T L-T	68 4	15 810	0 064
T6	S	0 06	R T L-T	65 2	18 040	0 063
T6	S	0 06	- 320 T-L	75 9	3 000	0 038
T6	S	0 06	- 320 T-L	75 9	6 000	0 061

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV

TABLE 7.1.2.2 (Con't)

CONDITION	ALUMINUM			2014			K(C)			K(C)			K(C)			K(C)			
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	---SPECIMEN---			CRACK LENGTH			CROSS STRESS			K(APP) STAN			K(C) STAN		
					WIDTH (IN)	THICK (IN)	B	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI)	MEAN (KSI)	DEV (KSI)	K(C) (KSI)	MEAN (KSI)	DEV (KSI)	REFER	
16	S	0.06	-320	T-L	75.9	12.000	0.059	0.130	0.240	---	65.20	29.47*	40.04*	1967	68908				
					75.9	12.000	0.058	0.500	0.910	---	43.50	38.59	52.19	1967	68908				
					75.9	12.000	0.058	0.500	0.690	---	44.50	39.48	46.42	1967	68908				
					75.9	12.000	0.058	0.500	0.690	---	43.40	38.50	45.28	1967	68908				
					75.9	12.000	0.060	0.250	0.450	---	56.30	35.29	47.38	1967	68908				
					75.9	12.000	0.061	2.220	---	25.10	45.27	47.89	1967	68908					
					75.9	12.000	0.061	1.000	1.610	---	29.10	36.63	46.80	1967	68908				
					75.9	12.000	0.061	1.000	1.360	---	33.30	41.92	52.68	1967	68908				
					75.9	12.000	0.060	2.000	2.610	---	27.60	49.78	57.57	1967	68908				
					75.9	12.000	0.061	4.000	4.760	---	17.30	46.60	52.49	1967	68908				
					75.9	12.000	0.060	0.130	0.240	---	65.80	29.74*	40.41*	1967	68908				
					75.9	12.000	0.060	0.130	0.250	---	66.20	29.92*	41.50*	1967	68908				
					75.9	12.000	0.060	4.000	4.650	---	17.00	45.79	50.72	1967	68908				
					75.9	12.000	0.060	1.000	1.530	---	35.30	44.43	55.28	1967	68908				
					75.9	12.000	0.060	4.000	4.920	---	16.70	44.98	51.92	1967	68908				
					75.9	12.000	0.060	4.000	4.800	---	15.90	42.83	48.54	1967	68908				
75.9	12.010	0.039	0.250	0.440	---	53.90	33.79	41.47	48.85	1967	68908								

BUCKLING OF CRACK EDGES NOT RESTRAINED														
T6	S	0.12	R. T.	L-T	64.0	3.000	0.126	1.120	1.760	---	33.30	48.40*	71.21*	1973 86213
		0.12			64.0	3.000	0.126	1.090	1.900	---	34.90	49.78*	81.70*	1973 86213
T6	P	0.25	R. T.	L-T	65.0	3.000	0.247	1.100	1.720	---	31.60	45.36	65.90*	1973 86213
		0.25			65.0	3.000	0.247	1.220	1.810	---	29.20	45.11	64.45*	1973 86213
											45.2/	0.2	----	----
T6	S	0.06	-	423 T-L	81.8	4.000	0.063	1.230	1.370	---	36.00	53.17	56.99	1963 51527
		0.06			81.8	4.000	0.063	1.210	1.550	---	36.30	53.07	62.53	1963 51527
		0.06			81.8	4.000	0.063	1.230	1.250	---	37.80	55.83	56.40	1963 51527
		0.06			81.8	4.000	0.064	1.230	1.620	---	35.60	52.98	63.32	1963 51527
		0.06			81.8	4.000	0.063	1.230	1.450	---	34.30	50.46	53.1/	1963 51527
											53.1/	1.8	59.1/	3.5

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.1.2.2 (Con't)

CONDITION	ALUMINUM		2014		K(C)											
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	SPECIMEN		CRACK LENGTH CROSS STRESS				K(APP) STAN		K(C) STAN			
					WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI*SQRT IN)	MEAN DEV	K(C) (KSI*SQRT IN)	MEAN DEV	DATE	REFER
					W	B	2A(D)	2A(F)	S(D)	B(MAX)						
BUCKLING OF CRACK EDGES NOT RESTRAINED																
T6	S	0.06	320 T-L	69.3	4.000	0.062	1.230	---	---	35.30	52.14	---	---	---	---	1963 51527
		0.06		69.3	4.000	0.063	1.230	---	---	30.30	44.75	---	---	---	---	1963 51527
		0.06		69.3	4.000	0.063	1.230	1.740	---	35.90	53.03	---	---	---	---	1963 51527
		0.06		69.3	4.000	0.063	1.240	1.800	---	36.30	53.89	---	---	---	---	1963 51527
		0.06		69.3	4.000	0.063	1.230	1.860	---	36.70	54.21	51.6/ 3.9	72.68*	---	---	1963 51527
T6	S	0.06	R. T. T-L	64.3	2.000	0.065	0.624	0.790	---	36.90	38.89*	---	---	---	---	1973 86213
		0.06		64.3	2.000	0.064	0.625	0.930	---	36.30	38.26*	---	---	---	---	1973 86213
		0.06		64.3	2.000	0.065	0.623	0.850	---	37.60	39.55*	---	---	---	---	1973 86213
		0.06		64.3	2.000	0.064	0.623	0.910	---	36.20	38.16*	---	---	---	---	1973 86213
		0.06		64.3	2.000	0.065	0.623	0.900	---	37.40	39.34*	---	---	---	---	1973 86213
		0.06		64.3	2.000	0.065	0.623	0.830	---	37.50	39.45*	---	---	---	---	1973 86213
		0.06		65.6	2.000	0.067	0.625	0.760	---	35.60	37.52	---	---	---	---	1973 86213
		0.06		65.6	2.000	0.064	0.621	0.820	---	37.00	38.84*	---	---	---	---	1973 86213
		0.06		65.6	2.000	0.067	0.625	0.860	---	35.10	37.00	37.3/ 0.4	46.18*	---	---	1973 86213
T6	S	0.06	R. T. T-L	63.2	3.970	0.063	1.230	1.620	---	34.20	50.56	---	---	---	---	1963 51527
		0.06		63.2	3.970	0.063	1.240	1.480	---	33.60	49.93	---	---	---	---	1963 51527
		0.06		63.2	3.970	0.063	1.240	1.690	---	32.80	48.74	---	---	---	---	1963 51527
		0.06		63.2	3.980	0.063	1.230	1.680	---	33.80	49.76	---	---	---	---	1963 51527
		0.06		63.2	3.980	0.063	1.240	1.690	---	30.70	45.61	49.0/ 2.0	55.42*	---	---	1963 51527
T6	S	0.06	R. T. T-L	65.4	15.810	0.063	3.000	3.950	---	24.10	53.91	---	---	---	---	1973 86213
		0.06		65.4	15.810	0.064	4.000	4.830	---	20.40	53.25	---	---	---	---	1973 86213
		0.06		65.4	15.820	0.064	1.020	1.620	---	38.40	48.73	---	---	---	---	1973 86213
		0.06		65.4	15.820	0.064	6.010	6.860	---	14.60	49.32	---	---	---	---	1973 86213
		0.06		65.4	15.830	0.064	6.000	7.000	---	15.20	51.28	51.2/ 2.2	57.50	58.4/ 2.7	---	1973 86213
T6	S	0.12	R. T. T-L	62.2	3.000	0.126	1.130	1.620	---	29.40	42.99	---	---	---	---	1973 86213
		0.12		62.2	3.000	0.126	1.110	1.980	---	29.50	42.61	42.8/ 0.3	56.49*	---	---	1973 86213
T6	P	0.25	R. T. T-L	62.8	3.000	0.247	1.130	1.990	---	24.60	35.97	---	---	---	---	1973 86213
		0.25		62.8	3.000	0.247	1.160	1.640	---	24.00	35.75	35.9/ 0.2	47.65*	---	---	1973 86213

*NOTE- NET SECTION STRESS EXCEEDS BOX OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.1.2.2 (Con't)

CONDITION	ALUMINUM		2014		K(C)														
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	SPECIMEN				CRACK LENGTH				CROSS STRESS						
					WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI*80RT IN)	MEAN (KSI)	STAN DEV	K(C) (KSI*80RT IN)	STAN DEV	K(C) (KSI*80RT IN)	DATE	REFER	
																			W
BUCKLING OF CRACK EDGES NOT RESTRAINED																			
T651	P	0.25	R. T.	L-T	62.2	4.000	0.249	1.330	2.120	---	32.80	50.92	72.96*	---	---	---	---	1973	86213
		0.25			62.2	4.000	0.248	1.400	2.310	---	32.00	51.39	77.66*	---	---	---	---	1973	86213
		0.25			64.3	4.000	0.252	1.400	2.380	---	32.10	51.55	80.52*	---	---	---	---	1973	86213
		0.25			64.3	4.000	0.251	1.330	2.260	---	33.90	52.63	80.38*	---	---	---	---	1973	86213
		0.25			64.3	4.000	0.252	1.330	2.140	---	33.50	52.01	51.7/ 0.6	75.20*	---	---	---	1973	86213
T651	P	1.00	R. T.	L-T	66.4	20.000	1.000	6.950	9.950	---	14.50	51.82	68.04	---	---	---	---	1973	86213
T651	P	0.25	R. T.	T-L	60.7	4.000	0.250	1.420	2.110	---	26.20	42.48	58.02*	---	---	---	---	1973	86213
		0.25			60.7	4.000	0.250	1.330	1.960	---	27.20	42.23	56.32*	---	---	---	---	1973	86213
		0.25			62.2	4.000	0.252	1.330	1.840	---	27.10	42.07	53.20*	---	---	---	---	1973	86213
		0.25			62.2	4.000	0.252	1.410	2.140	---	25.90	41.79	58.14*	---	---	---	---	1973	86213
		0.25			62.2	4.000	0.252	1.330	1.900	---	27.20	42.23	42.2/ 0.3	54.84*	---	---	---	1973	86213
T651	P	1.00	R. T.	T-L	65.8	20.000	1.000	6.940	9.370	---	9.10	32.49	40.55	---	---	---	---	1973	86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.1.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.1.3.1 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2014			
CONDITION: T6					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.05	R=+0.25	R=+0.40	
DELTA K MIN	A:	5.69	.79		
	B:	5.86	2.14		
	C:	4.82		1.16	
	D:				
		5.00		1.37	
		6.00	1.06	2.27	2.74
		7.00	2.11	3.39	4.39
		8.00	3.38	4.90	6.46
		9.00	4.80	6.91	9.30
		10.00	6.41	9.59	13.5
		13.00	13.6	24.0	
DELTA K MAX	A:	13.77	16.4		
	B:	14.47	36.6		
	C:	11.62		26.0	
	D:				
ROOT MEAN SQUARE		8.62	9.37	5.28	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25	5	4	4	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T6
 FORM: 0.04- 0.06" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 2.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 67.0 KSI
 ULT. STRENGTH: 74.0 KSI
 SPECIMEN THK: 0.040- 0.064"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 86734

ALUM.
 ALLOY

2014

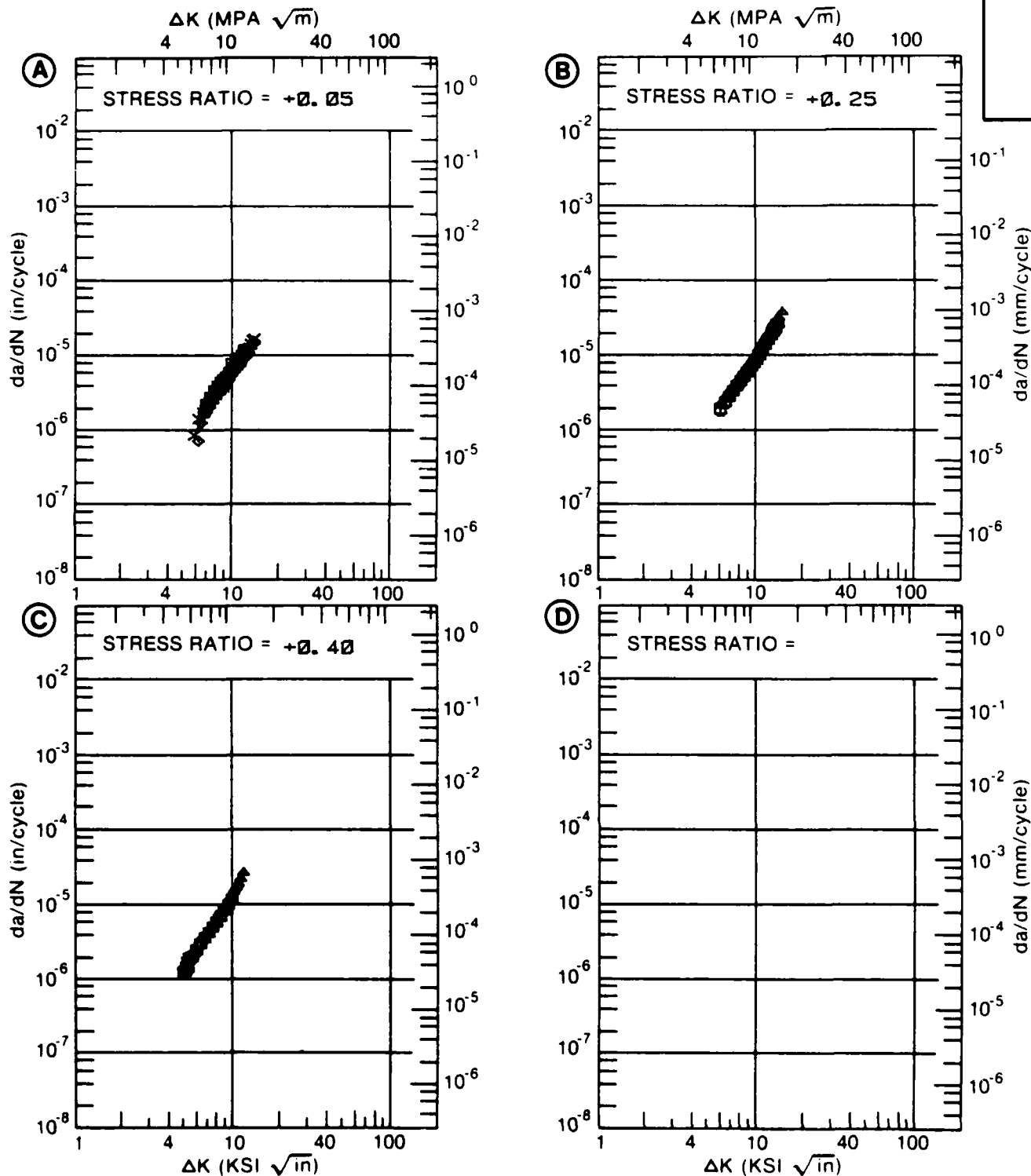


Figure 7.1.3.1

TABLE 7.1.3.2

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.1.3.2 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2014	
CONDITION: T6			
ENVIRONMENT: R. T. , LAB AIR			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)	
		A	B
		R=+0. 50	R=+0. 57
A: 4. 13		. 667	
DELTA K B: 4. 14			. 435
MIN C:			
D:			
5. 00		1. 57	1. 02
6. 00		2. 88	2. 01
7. 00		4. 58	3. 34
8. 00		7. 15	
A: 8. 87		10. 8	
DELTA K B: 7. 73			4. 59
MAX C:			
D:			
ROOT MEAN SQUARE		6. 27	6. 15
PERCENT ERROR			
LIFE	0. 0-0. 5		
PREDICTION	0. 5-0. 8		
RATIO	0. 8-1. 25	4	1
SUMMARY	1. 25-2. 0		1
(NP/NA)	>2. 0		

CONDITION/HT: T6
 FORM: 0.04- 0.06" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 2.00
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 67.0 KSI
 ULT. STRENGTH: 74.0 KSI
 SPECIMEN THK: 0.040- 0.063"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 96734

ALUM.
 ALLOY

2014

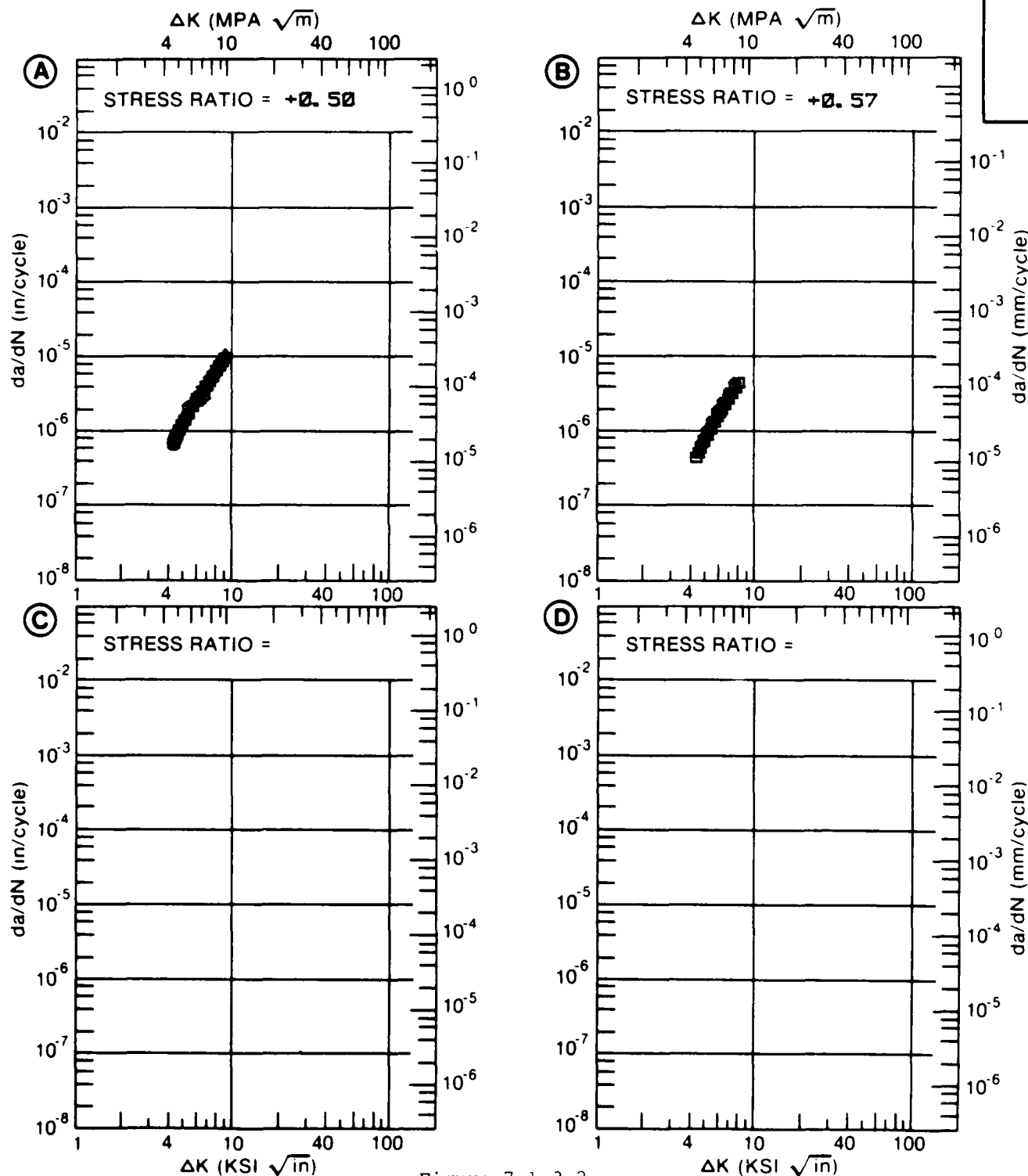


Figure 7.1.3.2

TABLE 7.1.3.3

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.1.3.3 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2014			
CONDITION: T6					
ENVIRONMENT: R. T., LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.05	R=+0.25	R=+0.40	
DELTA K MIN	A:	5.65	1.11		
	B:	5.54	1.61		
	C:	4.88		1.14	
	D:				
		5.00		1.29	
		6.00	1.39	2.10	2.70
		7.00	2.33	3.42	4.40
		8.00	3.50	5.18	6.66
		9.00	5.00	7.60	10.2
		10.00	7.03	11.0	16.3
		13.00	19.8		
DELTA K MAX	A:	13.51	23.9		
	B:	12.91	33.1		
	C:	11.48		36.6	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		12.89	12.95	13.84	
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25	3	4	4	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T6
 FORM: 0.04- 0.06" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 2.00
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 67.0 KSI
 ULT. STRENGTH: 74.0 KSI
 SPECIMEN THK: 0.040- 0.063"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 86734

ALUM.
 ALLOY

2014

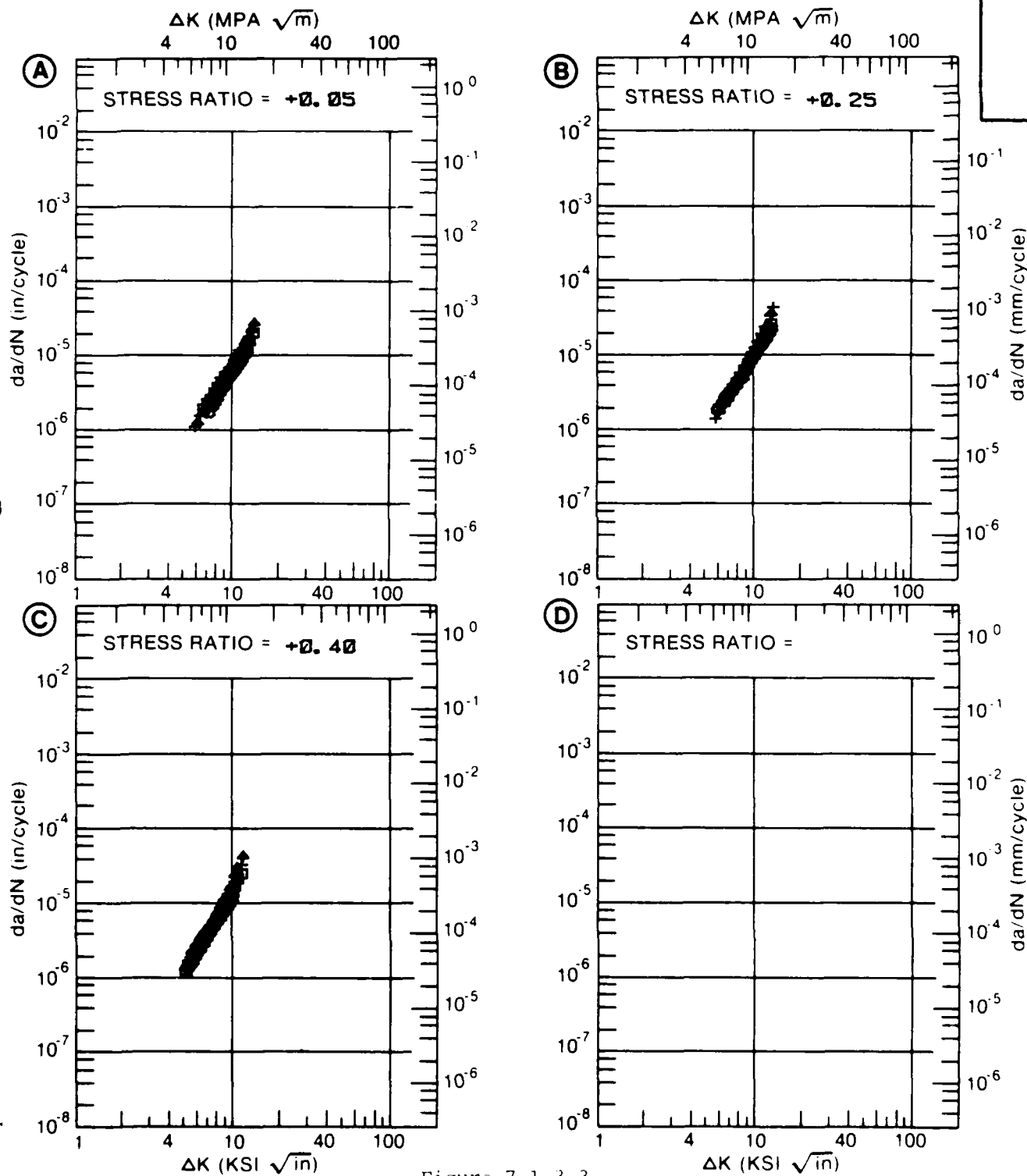


Figure 7.1.3.3

TABLE 7.1.3.4

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.1.3.4 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2014			
CONDITION: T6					
ENVIRONMENT: R. T., LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.50	R=+0.57		
DELTA K MIN	A: 4.17	.731			
	B: 3.66		.345		
	C:				
	D:				
	4.00		.497		
	5.00	1.59	1.25		
	6.00	3.10	2.56		
	7.00	5.36	4.39		
	8.00	8.87			
DELTA K MAX	A: 8.66	12.3			
	B: 7.88		6.28		
	C:				
	D:				
ROOT MEAN SQUARE		11.45	16.08		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25	3	4		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T6
 FORM: 0.04- 0.06" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 2.00
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 67.0 KSI
 ULT. STRENGTH: 74.0 KSI
 SPECIMEN THK: 0.040- 0.063"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 86734

ALUM.
 ALLOY

2014

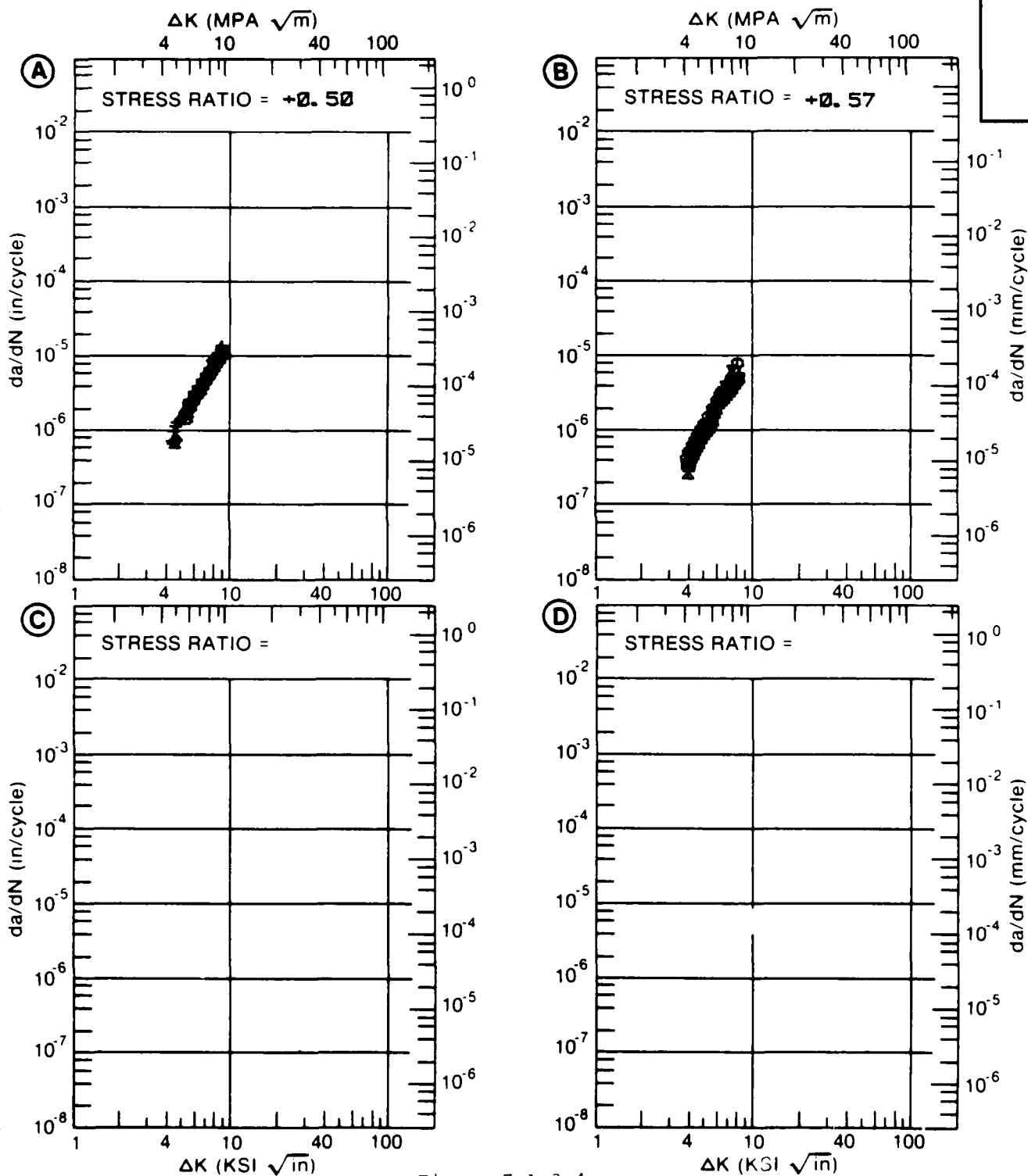


Figure 7.1.3.4

TABLE 7.1.3.5

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.1.3.5 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM
CONDITION: T6

2014

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. H. H. A.		
DELTA K MIN	A:	6.53	.315		
	B:	4.08	.543		
	C:				
	D:				
	5.00		1.20		
	6.00		2.41		
	7.00	.479	4.42		
	8.00	.885	7.73		
	9.00	1.35	13.2		
	10.00	1.93	22.0		
	13.00	7.89	97.4		
DELTA K MAX	A:	15.67	60.8		
	B:	15.39	309.		
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		18.38	21.24		

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T6
 FORM: FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.05
 FREQUENCY:

YIELD STRENGTH: 64.1 KSI
 ULT. STRENGTH: 69.2 KSI
 SPECIMEN THK: 0.400"
 SPECIMEN WIDTH: 2.000- 4.000"
 REFERENCES: BW001

ALUM.
 ALLOY

2014

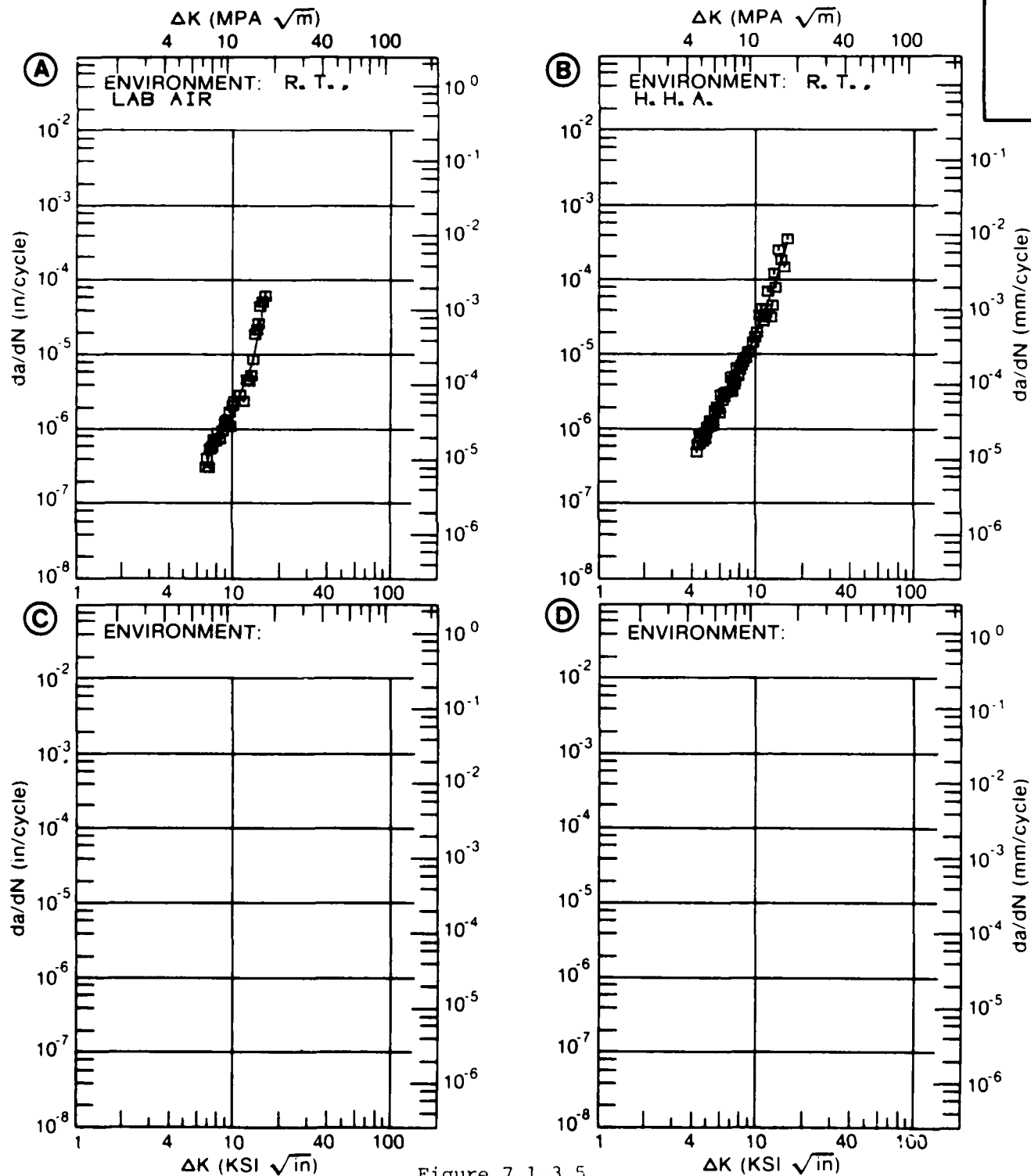


Figure 7.1.3.5

TABLE 7.1.3.6

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.1.3.6 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM 2014
CONDITION: T6
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-1.00			
A:	4.85	.662			
DELTA K B:					
MIN C:					
D:					
	5.00	.783			
	6.00	1.88			
	7.00	3.42			
	8.00	5.26			
	9.00	7.31			
	10.00	9.51			
	13.00	17.1			
	16.00	27.3			
	20.00	48.8			
A:	21.09	57.2			
DELTA K B:					
MAX C:					
D:					

ROOT MEAN SQUARE 8.35
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T6
 FORM: 5.00" TH FORGING
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 9.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.400"
 SPECIMEN WIDTH: 2.000"
 REFERENCES: BW001

ALUM.
 ALLOY

2014

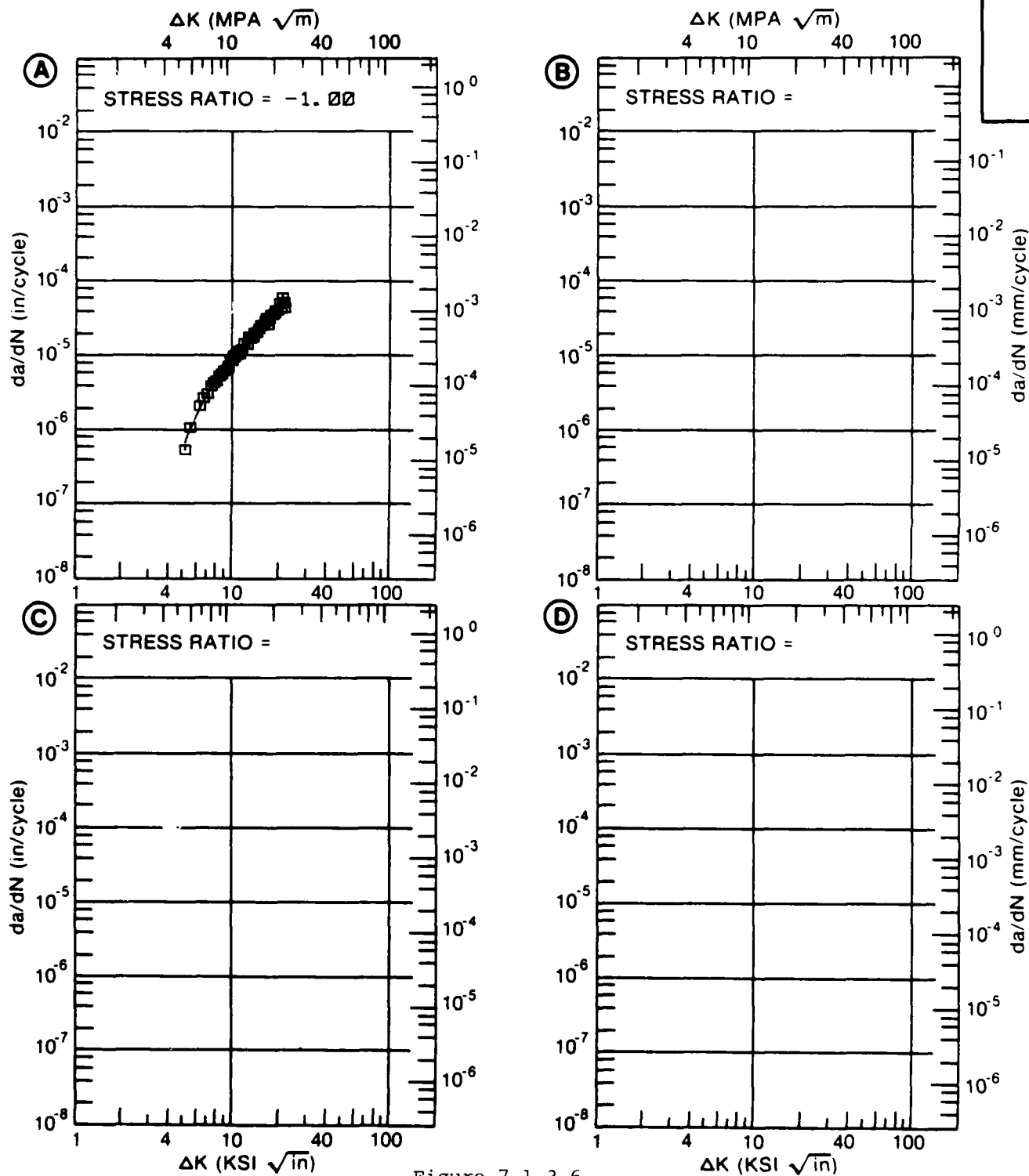


Figure 7.1.3.6

TABLE 7.1.3.7

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.1.3.7 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2014			
CONDITION: T6					
ENVIRONMENT: R. T. , H. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-1.00			
DELTA K MIN	A:	4.79	1.01		
	B:				
	C:				
	D:				
	5.00	1.26			
	6.00	2.86			
	7.00	5.18			
	8.00	8.23			
	9.00	12.1			
	10.00	17.4			
	13.00	58.2			
	16.00	224.			
DELTA K MAX	A:	17.10	284.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		26.13			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T6
 FORM: 5.00" TH FORGING
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 9.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 64.1 KSI
 ULT. STRENGTH: 68.2 KSI
 SPECIMEN THK: 0.400"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: BW001

ALUM.
 ALLOY

2014

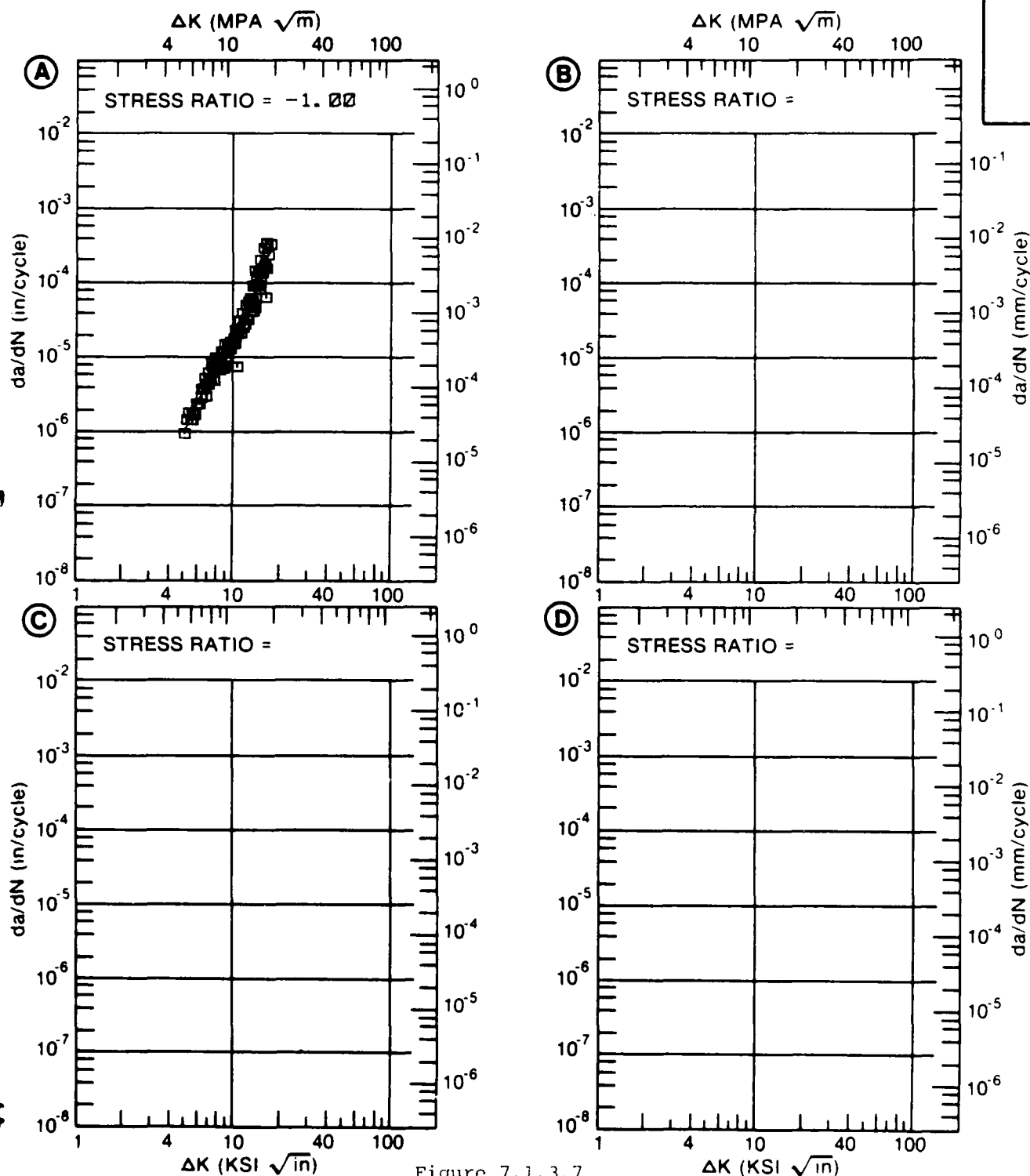


Figure 7.1.3.7

TABLE 7.1.3.8

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.1.3.8 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2014	
CONDITION: T6			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)	
		A	B C D
		E= R. T. LAB AIR	
DELTA K MIN	A:	24.55	196.
	B:		
	C:		
	D:		
		25.00	236.
		30.00	549.
		35.00	1271.
		40.00	1575.
DELTA K MAX	A:	46.11	2655.
	B:		
	C:		
	D:		
ROOT MEAN SQUARE		28.37	
PERCENT ERROR			
LIFE	0.0-0.3		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25	4	
SUMMARY	1.25-2.0		
(NP/NA)	>2.0		

CONDITION/HT: T6
 FORM: 1.00" TH ROLLED BAR
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.00
 FREQUENCY: 5.20 HZ

YIELD STRENGTH: 60.2- 60.5 KSI
 ULT. STRENGTH: 66.0- 67.3 KSI
 SPECIMEN THK: 0.253- 0.260"
 SPECIMEN WIDTH: 7.500- 7.517"
 REFERENCES: 86213

ALUM.
 ALLOY

2014

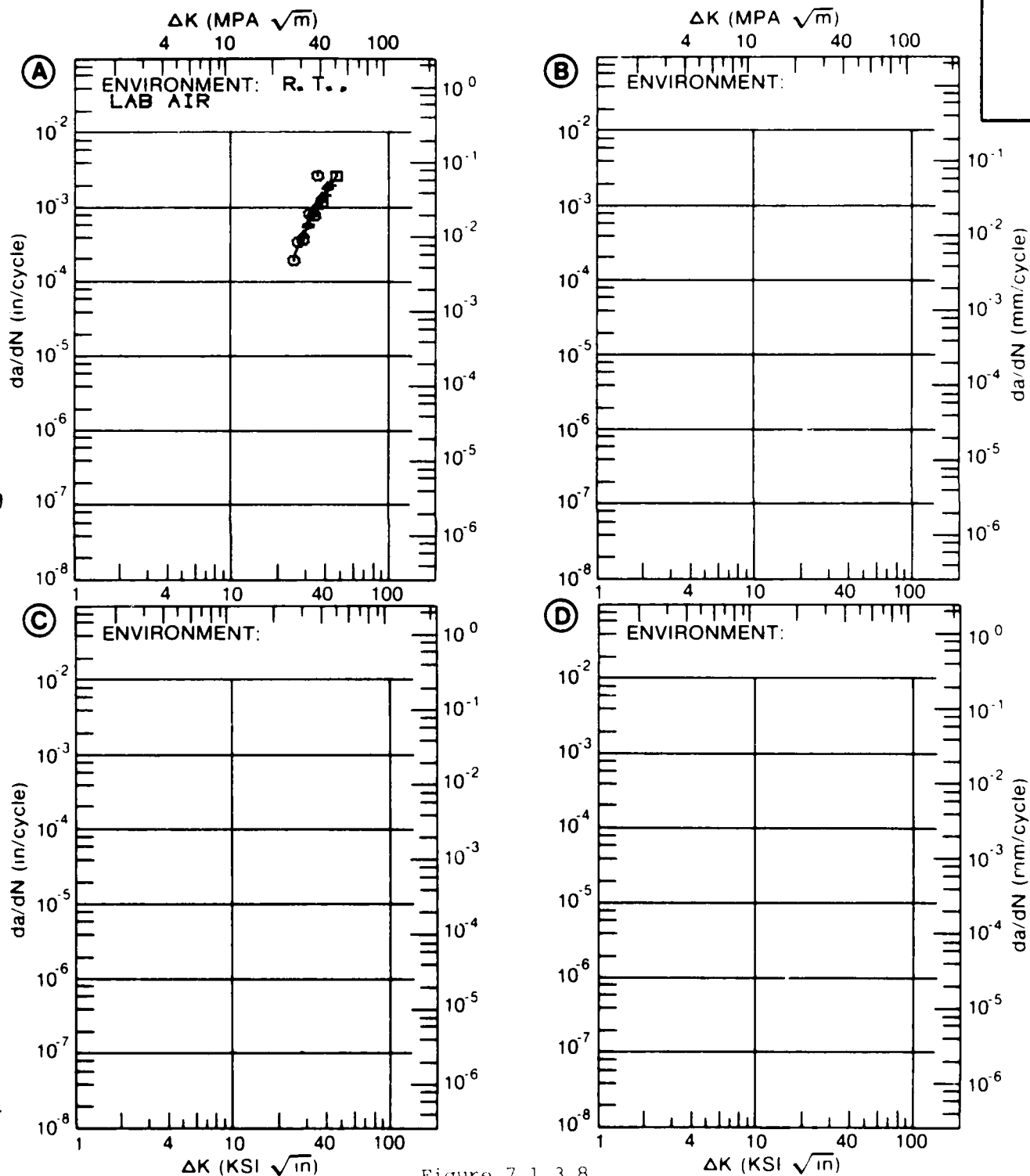


Figure 7.1.3.8

TABLE 7.1.3.10

SUSTAINED CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.1.3.10 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2014			
CONDITION: T451					
K MAX (KSI*IN**1/2)		DA/DT (10**-6 IN/HOUR)			
		A	B	C	D
		E= F 3X/DAY-3.5NACL			
K MAX	A:				
MIN	B:				
	C:				
	D:				
	200.00				
K MAX	A:				
MAX	B:				
	C:				
	D:				
ROOT MEAN SQUARE		0.00			
PERCENT ERROR					

CONDITION/HT: T451
 FORM: 1.5" TH PLATE
 SPECIMEN TYPE: DCB
 ORIENTATION: S-L
 YIELD STRENGTH:
 ULT. STRENGTH:

SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.000"
 CRACK LENGTH (A_0):
 K_{ISCC} :
 REFERENCES: 79313

ALUM.
 ALLOY

2014

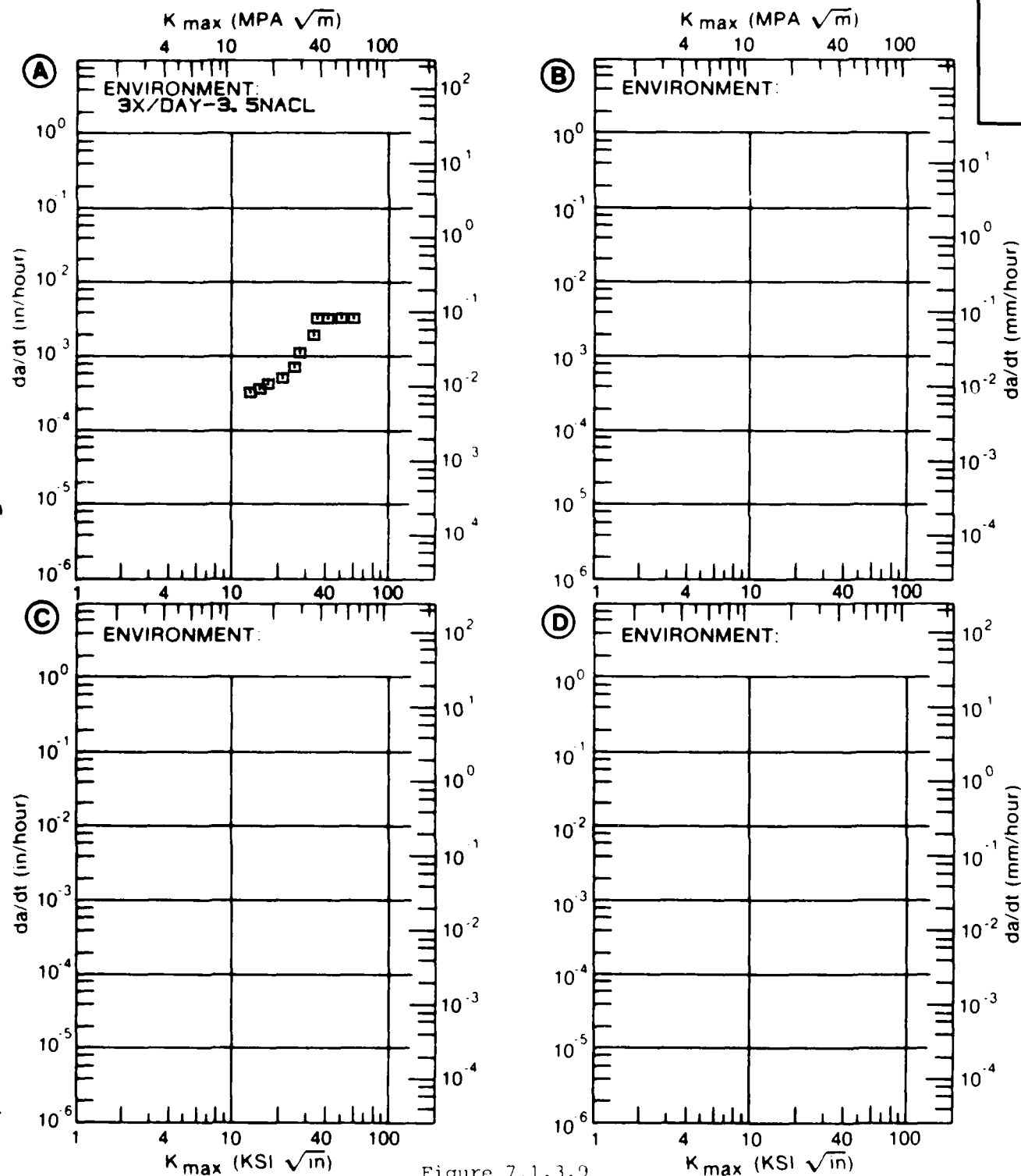


Figure 7.1.3.9

TABLE 7.1.3.9

SUSTAINED CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.1.3.9 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2014			
CONDITION: T651					
K MAX (KSI*IN**1/2)		DA/DT (10**-6 IN/HOUR)			
		A	B	C	D
		E= F			
		3X/DAY-3.5NACL			
K MAX	A:				
MIN	B:				
	C:				
	D:				
	200.00				
K MAX	A:				
MAX	B:				
	C:				
	D:				
ROOT MEAN SQUARE		0.00			
PERCENT ERROR					

CONDITION/HT: T651
 FORM: 2.0" TH PLATE
 SPECIMEN TYPE: DCB
 ORIENTATION: S-L
 YIELD STRENGTH:
 ULT. STRENGTH:

SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.000"
 CRACK LENGTH (A_0):
 K_{ISCC}:
 REFERENCES: 78313

ALUM.
 ALLOY

2014

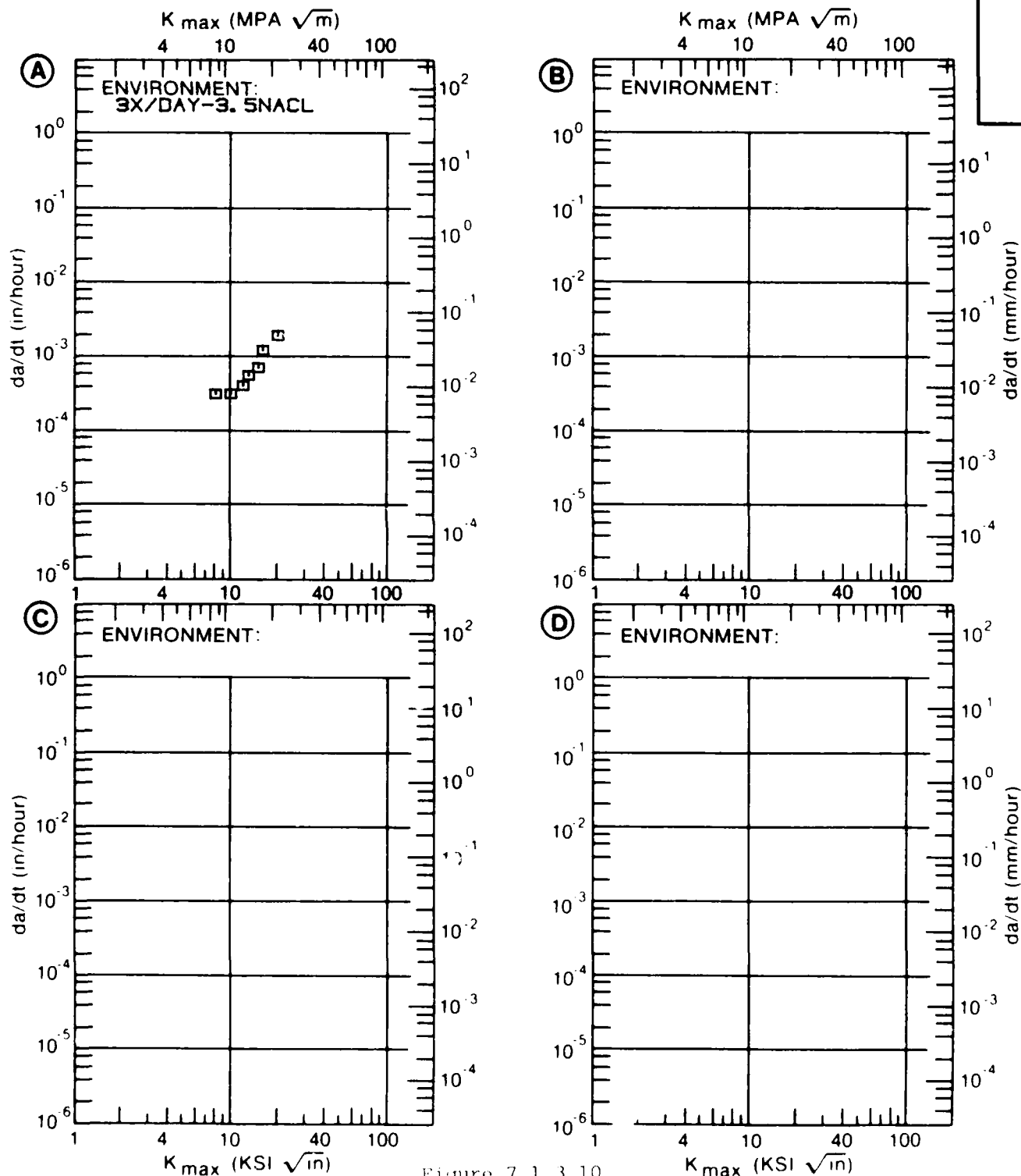


Figure 7.1.3.10

CONDITION	--PRODUCT--		TEST SPEC OR TEMP (F)	YIELD STR (KSI)	ENVIRONMENT	ALUMINUM		2014		K(ISSC)		STAN DEV	TEST TIME (MIN)	DATE REFER
	FORM	THICK (IN)				WIDTH (IN)	SPECIMEN-- THICK (IN)	DESIGN (IN) (**SC)	CRACK LENGTH (IN)	K(G) (KSI*SQRT IN)	MEAN			
T6	F	8.00	R.T.	5-L	61.0	SYNTH SEAWATER	2.000	1.000	CANT	----	19.00	16.00	----	1972 82675
T631	P	2.50	R.T.	8-L	59.6	INDUSTRIAL ATM	2.000	1.000	CT	----	18.70	7.00	----	1973 86688
T651	P	2.50	R.T.	5-L	59.6	SALT-DICHRD- MATE-ACETATE	2.000	1.000	CT	----	18.70	7.00	----	1973 86688
T651	P	2.50	R.T.	5-L	59.6	SEACOAST ATM	2.000	1.000	CT	----	18.70	7.00	----	1973 86688

TABLE 7.2.1.1
 MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
 ALUMINUM ALLOY 2020 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	I-T	I-L	S-L	
T651	23 0 ± 2 4 (8)	17 2 ± 0 3 (4)	-----	

TABLE 7.2.1.2
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS		ENVIRONMENT		LAB AIR	
SPECIMEN ORIENTATION	L-T	AT R.T.			
CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)
				2 5 10 20 50 100	
16	SHEET	0.00	1.5 20		104
1611	PLATE	0.50	5 20		3.22
1611	PLATE	0.60	5 20		3.45

TABLE 7.2.2.1

CONDITION	ALUMINUM				2020										K(1C)			
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----				CRACK		2.5*		K(1C)		STAN	REFER		
	FORM	THICK (IN)			THICK (IN)	DESIGN	LENGTH (IN)	A	K(1C)/TVS)**2 (KSI*SQRT IN)	MEAN DEV (KSI)								
											W (IN)	B (IN)						
T6	P	0.78	86	L-T	75.5	1.500	0.751	CT	0.745	0.18			20.50		1973	86213		
		0.78			75.5	1.500	0.752	CT	0.728	0.17			19.90		1973	86213		
		0.78			75.5	1.500	0.752	CT	0.697	0.18			20.00	20.1/	0.3	1973	86213	
T6	E	0.69	R.T.	L-T	75.5	1.500	0.652	NB	0.747	0.22			22.40		1973	86213		
T651	P	1.37	R.T.	L-T	76.3	3.000	1.376	NB	1.413	0.17			19.70		1973	86213		
		1.37			77.0	3.000	1.355	NB	1.390	0.18			20.90		1973	86213		
		1.37			77.5	3.000	1.375	NB	1.460	0.24			23.80		1973	86213		
		1.37			77.5	2.000	0.999	CT	0.967	0.22			22.90		1973	86213		
		1.37			77.5	3.000	1.375	NB	1.400	0.31			27.20		1973	86213		
		1.37			77.5	3.000	1.375	NB	1.450	0.23			23.60		1973	86213		
T651		1.37			77.5	3.000	1.375	NB	1.420	0.26			24.80		1973	86213		
		1.37			77.5	2.000	0.999	CT	1.007	0.19			21.10	23.0/	2.4	1973	86213	
	P	1.37	84	L-T	76.3	2.000	1.000	CT	0.963	0.18			20.30		1973	86213		
T651		1.37			76.3	2.000	1.000	CT	0.943	0.22			22.80		1973	86213		
		1.37			76.3	2.000	1.001	CT	0.950	0.18			20.50	21.2/	1.4	1973	86213	
	P	1.37	R.T.	T-L	77.4	3.000	1.379	NB	1.526	0.12			17.00		1973	86213		
T651		1.37			77.5	3.000	1.378	NB	1.560	0.12			16.80		1973	86213		
		1.37			78.4	2.000	0.999	CT	1.024	0.12			17.50		1973	86213		
		1.37			78.4	1.990	0.999	CT	0.964	0.12			17.40	17.2/	0.3	1973	86213	
T651	P	1.37	84	T-L	77.4	2.000	1.002	CT	1.019	0.12			17.00		1973	86213		
		1.37			77.4	2.000	1.002	CT	1.020	0.13			17.80		1973	86213		
		1.37			77.4	2.000	1.001	CT	1.021	0.12			17.10	17.3/	0.4	1973	86213	
T651	P	1.37	88	S-L	74.4	0.990	0.500	CT	0.506	0.11			15.30		1973	86213		
		1.37			74.4	1.000	0.500	CT	0.508	0.11			15.50	15.4/	0.1	1973	86213	

TABLE 7.2.2.2

CONDITION	ALUMINUM				2020				K(C)							
	--PRODUCT--				CRACK LENGTH				GROSS STRESS							
	FORM THICK TEMP OR				SPECIMEN				K (APP) STAN							
	(IN)	(F)	STR	YIELD	WIDTH	THICK	INIT	FINAL	MAX	K (APP)	STAN	K (C)	STAN			
		(KSI)	(KSI)	(IN)	(IN)	(IN)	2A(O)	2A(F)	S(O)	S(MAX)	(KSI+80RT IN)	MEAN DEV	MEAN DEV			
T6	S	0.06	R. T.	L-T	75.9	2.000	0.062	0.622	0.890	---	30.80	32.40	41.62	1973 86213		
		0.06			75.9	2.000	0.062	0.622	0.760	---	29.60	31.14	35.36	1973 86213		
		0.06			75.9	2.000	0.062	0.621	0.890	---	30.40	31.91	41.08	1973 86213		
		0.06			77.0	2.000	0.064	0.625	0.650	---	24.40	25.72	26.39	1973 86213		
		0.06			77.0	2.000	0.064	0.625	0.680	---	25.50	26.88	29.6/ 3.1	28.41	34.6/ 7.0	1973 86213
T6	S	0.06	R. T.	L-T	75.9	3.000	0.061	1.070	1.140	---	21.10	29.72	31.05	1973 86213		
		0.06			75.9	3.000	0.062	1.100	1.140	---	19.90	28.56	29.1/ 0.8	29.28	30.2/ 1.3	1973 86213
T6	S	0.06	R. T.	L-T	76.9	15.800	0.063	3.000	3.480	---	17.00	37.75	40.98	1973 86213		
		0.06			76.9	15.810	0.063	6.010	6.010	---	10.20	34.46	34.46	1973 86213		
		0.06			76.9	15.810	0.063	3.020	3.020	---	16.60	36.99	36.99	1973 86213		
		0.06			76.9	15.820	0.063	1.020	1.020	---	27.80	35.28	36.1/ 1.5	35.28	36.9/ 2.9	1973 86213
		0.06			76.0	2.000	0.064	0.625	0.660	---	21.70	22.87	25.9/ 2.8	22.87	30.5/ 6.6	1973 86213
T6	S	0.06	R. T.	T-L	75.8	2.000	0.062	0.622	0.870	---	26.60	27.98	35.31	1973 86213		
		0.06			75.8	2.000	0.062	0.622	0.880	---	27.20	28.61	36.43	1973 86213		
		0.06			75.8	2.000	0.062	0.624	0.870	---	25.60	26.98	33.98	1973 86213		
		0.06			76.0	2.000	0.064	0.625	0.660	---	21.70	22.87	23.71	1973 86213		
		0.06			76.0	2.000	0.064	0.625	0.625	---	21.70	22.87	25.9/ 2.8	22.87	30.5/ 6.6	1973 86213
T6	S	0.06	R. T.	T-L	75.8	3.000	0.061	1.190	1.240	---	17.40	26.40	27.21	1973 86213		
		0.06			75.8	3.000	0.062	1.070	1.120	---	19.50	27.47	26.9/ 0.8	28.34	27.8/ 0.8	1973 86213
T6	S	0.06	R. T.	T-L	75.6	15.810	0.063	6.000	6.000	---	9.30	31.39	31.39	1973 86213		
		0.06			75.6	15.810	0.063	3.010	3.010	---	16.10	35.81	35.81	1973 86213		
		0.06			75.6	15.820	0.063	1.020	1.020	---	28.00	35.53	35.53	1973 86213		
		0.06			75.6	15.820	0.063	4.010	4.010	---	13.80	36.07	36.07	1973 86213		
		0.06			75.6	15.820	0.063	6.000	6.000	---	10.00	33.74	34.5/ 2.0	33.74	34.5/ 2.0	1973 86213
BUCKLING OF CRACK EDGES NOT RESTRAINED																
T651	S	0.12	R. T.	L-T	76.1	3.000	0.127	1.060	1.310	---	25.50	35.69	41.58	1973 86213		
		0.12			76.1	3.000	0.127	1.080	1.300	---	25.80	36.37	41.82	1973 86213		
		0.12			76.1	3.000	0.127	1.070	1.400	---	27.30	38.45	46.96	1973 86213		

TABLE 7.2.2.2 (Con't)

CONDITION		ALUMINUM				2020		K(C)		CRACK LENGTH CROSS STRESS										K(C)				K(C)					
		--PRODUCT-- FORM		TEST SPEC THICK TEMP OR (IN) (F)		YIELD STR (KSI)		---SPECIMEN---		CRACK LENGTH		CROSS STRESS		K(C)		K(C)		K(C)		K(C)		K(C)							
								WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI)	STAN DEV (KSI)	K(C)	STAN DEV (KSI)	K(C)	STAN DEV (KSI)	K(C)	STAN DEV (KSI)	K(C)	STAN DEV (KSI)	K(C)	STAN DEV (KSI)	K(C)	STAN DEV (KSI)		
								W B		2A(D) 2A(F)		S(O) S(MAX)																	
BUCKLING OF CRACK EDGES NOT RESTRAINED																													
T651	S	0.12	R. T.	L-T	76.1	3.000	0.127	1.060	1.270	---	25.80	36.11	41.08	1973	86213														
		0.12			76.3	3.000	0.127	1.100	1.400	---	25.20	36.17	43.35	1973	86213														
		0.12			76.3	3.000	0.127	1.070	1.260	---	24.20	34.09	38.30	1973	86213														
		0.12			76.3	3.000	0.127	1.090	1.320	---	23.00	32.81	37.73	1973	86213														
		0.12			76.3	3.000	0.127	1.060	1.320	---	27.40	38.35	44.95	1973	86213														
		0.12			77.5	3.000	0.127	1.070	1.390	---	23.90	33.66	40.87	1973	86213														
		0.12			77.5	3.000	0.127	1.060	1.270	---	24.30	34.01	38.69	1973	86213														
		0.12			77.5	3.000	0.127	1.080	1.380	---	24.00	34.02	40.80	1973	86213														
		0.12			77.5	3.000	0.127	1.070	1.360	---	23.80	33.52	39.98	1973	86213														
		0.12			77.5	3.000	0.127	1.070	1.360	---	23.80	33.52	39.98	1973	86213														
T651	P	0.25	R. T.	L-T	77.4	3.000	0.256	1.200	1.490	---	14.50	22.13	26.31	1973	86213														
		0.25			77.4	3.000	0.256	1.170	1.420	---	15.00	22.48	26.11	1973	86213														
		0.25			77.4	3.000	0.255	1.000	1.310	---	16.40	22.09	26.74	1973	86213														
T651	P	0.25	R. T.	L-T	77.4	4.000	0.256	1.330	1.700	---	14.60	22.67	26.92	1973	86213														
		0.25			77.4	4.000	0.256	1.330	1.330	---	14.70	22.82	22.82	1973	86213														
		0.25			77.4	4.000	0.256	1.480	1.660	---	12.70	21.18	23.00	1973	86213														
T651	P	1.00	R. T.	L-T	76.1	20.000	1.000	7.000	8.600	---	7.60	27.29	31.42	1973	86213														
		1.00			76.1	20.000	1.000	7.000	10.090	---	7.00	25.14	33.14	1973	86213														
		1.00			76.1	20.000	1.000	7.000	9.040	---	7.50	26.93	32.45	1973	86213														
		1.00			76.1	20.000	1.000	7.000	9.080	---	7.90	26.93	32.57	1973	86213														
		1.00			76.3	20.000	1.000	7.000	7.600	---	7.50	26.93	32.49	1973	86213														
		1.00			76.3	20.000	1.000	7.000	8.890	---	7.60	27.29	32.33	1973	86213														
		1.00			76.3	20.000	1.000	7.000	8.900	---	7.50	26.93	30.92	1973	86213														
		1.00			76.3	20.000	1.000	7.000	8.400	---	7.60	27.29	31.06	1973	86213														
		1.00			77.5	20.000	1.000	7.000	8.450	---	6.90	24.78	28.32	1973	86213														
		1.00			77.5	20.000	1.000	7.000	8.500	---	7.30	26.21	30.10	1973	86213														
T651	S	0.12	R. T.	T-L	77.4	3.000	0.127	1.100	1.280	---	14.50	20.81	23.23	1973	86213														
		0.12			77.4	3.000	0.126	1.090	1.280	---	15.70	22.39	25.15	1973	86213														
		0.12			77.4	3.000	0.126	1.100	1.140	---	15.90	22.82	23.40	1973	86213														
		0.12			77.4	3.000	0.128	1.100	1.280	---	14.80	21.24	23.71	1973	86213														
		0.12			77.5	3.000	0.127	1.080	1.180	---	15.70	22.25	23.67	1973	86213														
		0.12			77.5	3.000	0.127	1.080	1.350	---	17.10	24.24	28.56	1973	86213														

TABLE 7.2.2.2 (Con't)

CONDITION	ALUMINUM		2020		K(C)												
	---PRODUCT--- FORM	THICK (IN)	TEST SPEC OR (F)	---SPECIMEN---		CRACK LENGTH				CROSS STRESS		K(APP) STAN		K(C) STAN			
				WIDTH (IN)	THICK (IN)	INIT 2A(0)	FINAL (IN)	ONSET (KBI)	MAX (KBI)	K(APP) (KBI*SQRT IN)	MEAN (KBI*SQRT IN)	K(C) (KBI*SQRT IN)	DEV	STAN			
T651	S	0.12	R.T.	T-L	77.5	3.000	0.127	1.090	1.170	---	17.00	24.25	25.48	1973	86213		
		0.12			77.5	3.000	0.126	1.080	1.110	---	15.90	22.54	22.97	1973	86213		
		0.12			78.4	3.000	0.127	1.070	1.150	---	14.60	20.57	21.62	1973	86213		
		0.12			78.4	3.000	0.127	1.090	1.090	---	14.60	20.83	20.83	1973	86213		
		0.12			78.4	3.000	0.127	1.080	1.320	---	14.90	21.12	24.44	1973	86213		
T651	P	0.12			78.4	3.000	0.127	1.090	1.100	---	13.30	18.97	21.8/ 1.5	19.09	23.5/ 2.4	1973	86213
		0.25	R.T.	T-L	78.0	3.000	0.256	1.120	1.140	---	10.70	15.55	15.74	1973	86213		
		0.25			78.0	3.000	0.256	1.000	1.000	---	15.00	20.20	20.20	1973	86213		
		0.25			78.0	3.000	0.256	1.140	1.140	---	10.70	15.74	17.2/ 2.6	15.74	17.2/ 2.6	1973	86213
		0.25	R.T.	T-L	78.0	4.000	0.256	1.330	1.330	---	13.50	20.96	20.96	1973	86213		
T651	P	0.25			78.0	4.000	0.257	1.330	1.330	---	13.40	20.80	20.9/ 0.1	20.80	20.9/ 0.1	1973	86213
		1.00	R.T.	T-L	77.4	20.000	1.000	7.000	7.000	---	5.40	19.39	19.39	1973	86213		
		1.00			77.4	20.000	1.000	7.000	7.000	---	5.60	20.11	20.11	1973	86213		
		1.00			77.4	20.000	1.000	7.000	7.000	---	5.90	21.19	21.19	1973	86213		
		1.00			77.4	20.000	1.000	7.000	7.000	---	5.60	20.11	20.11	1973	86213		
T651	P	1.00			77.5	20.000	1.000	7.000	7.000	---	5.40	19.39	19.39	1973	86213		
		1.00			77.5	20.000	1.000	7.000	7.000	---	5.40	19.39	19.39	1973	86213		
		1.00			77.5	20.000	1.000	7.000	7.000	---	5.40	19.39	19.39	1973	86213		
		1.00			77.5	20.000	1.000	7.000	7.000	---	5.40	19.39	19.39	1973	86213		
		1.00			77.5	20.000	1.000	7.000	7.000	---	5.40	19.39	19.39	1973	86213		
T651	P	1.00			78.4	20.000	1.000	7.000	7.000	---	5.50	19.75	19.75	1973	86213		
		1.00			78.4	20.000	1.000	7.000	7.000	---	5.20	18.67	18.67	1973	86213		
		1.00			78.4	20.000	1.000	7.000	7.000	---	5.30	19.03	19.03	1973	86213		
		1.00			78.4	20.000	1.000	7.000	7.000	---	5.10	18.31	18.31	1973	86213		
		1.00			78.4	20.000	1.000	7.000	7.000	---	5.10	18.31	19.4/ 0.8	18.31	19.4/ 0.8	1973	86213

TABLE 7.2.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.2.3.1 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM
CONDITION: T6

2020

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

E= R. T.
LAB AIR

DELTA K	A:	16.10	29.5
MIN	B:		
	C:		
	D:		

20.00

104.

DELTA K	A:	24.15	415.
MAX	B:		
	C:		
	D:		

ROOT MEAN SQUARE
PERCENT ERROR

27.51

LIFE	0.0-0.5	
PREDICTION	0.5-0.8	2
RATIO	0.8-1.25	2
SUMMARY	1.25-2.0	
(NP/NA)	>2.0	

CONDITION/HT: T6
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.00
 FREQUENCY: 13.30

YIELD STRENGTH: 78.4 KSI
 ULT. STRENGTH: 84.7 KSI
 SPECIMEN THK: 0.125- 0.126"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: 86213

ALUM.
 ALLOY

2020

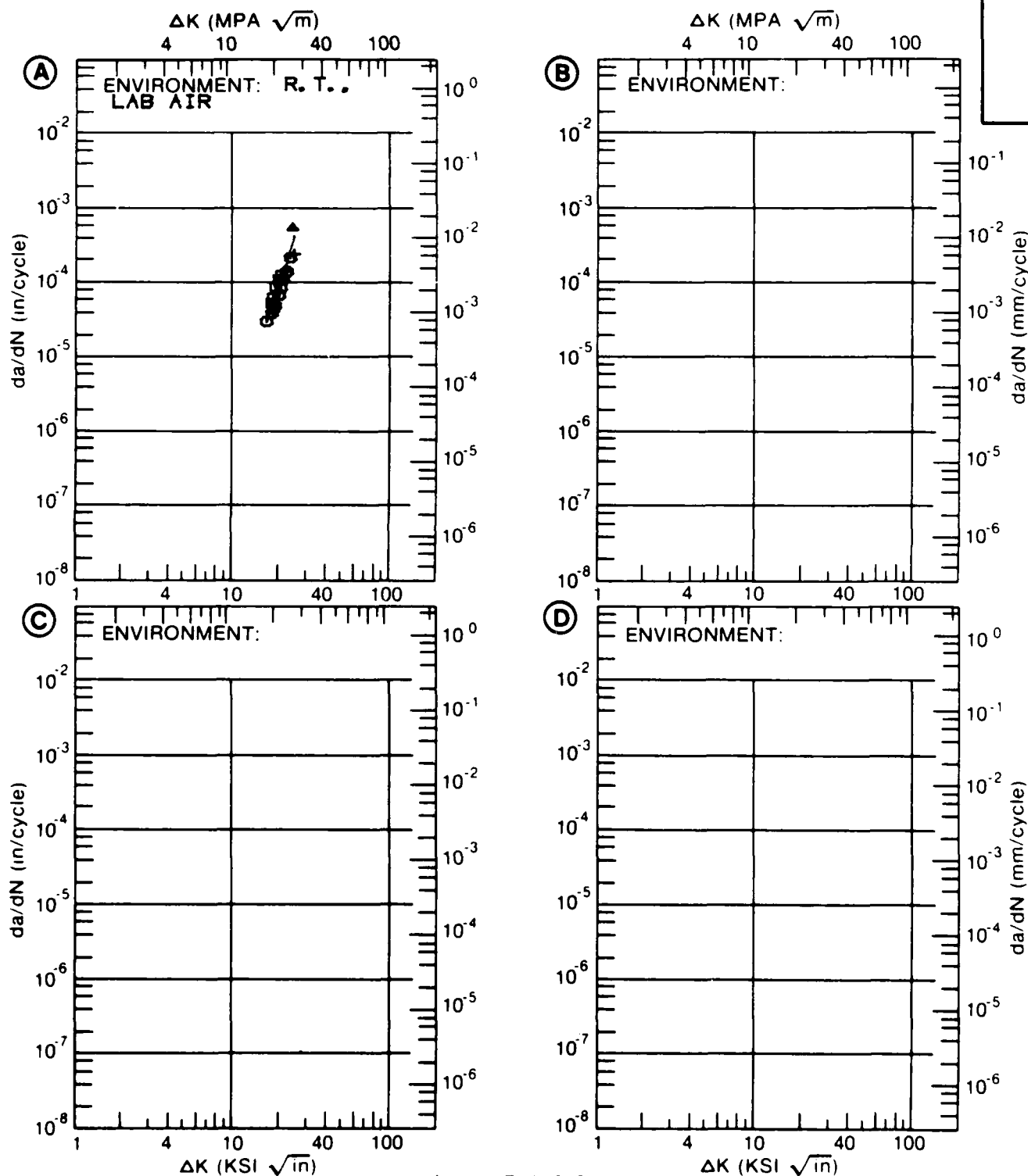


Figure 7.2.3.1

TABLE 7.2.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.2.3.2 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2020			
CONDITION: T651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. H. H. A.	E= R. T. H. H. A. - 25H2		
DELTA K	A: 3.15	.0956			
MIN	B: 3.72		.157		
	C:				
	D:				
	3.50	.205			
	4.00	.352	.203		
	5.00		.396		
	6.00		.704		
	7.00		1.25		
	8.00		2.12		
	9.00		3.33		
	10.00		4.61		
	13.00		9.17		
DELTA K	A: 4.98	.574			
MAX	B: 15.96		29.4		
	C:				
	D:				
ROOT MEAN SQUARE		17.57	12.36		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25		1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T651
 FORM: 1.28" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY:

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.248- 0.250"
 SPECIMEN WIDTH: 2.500- 2.501"
 REFERENCES: AL002

ALUM.
 ALLOY

2020

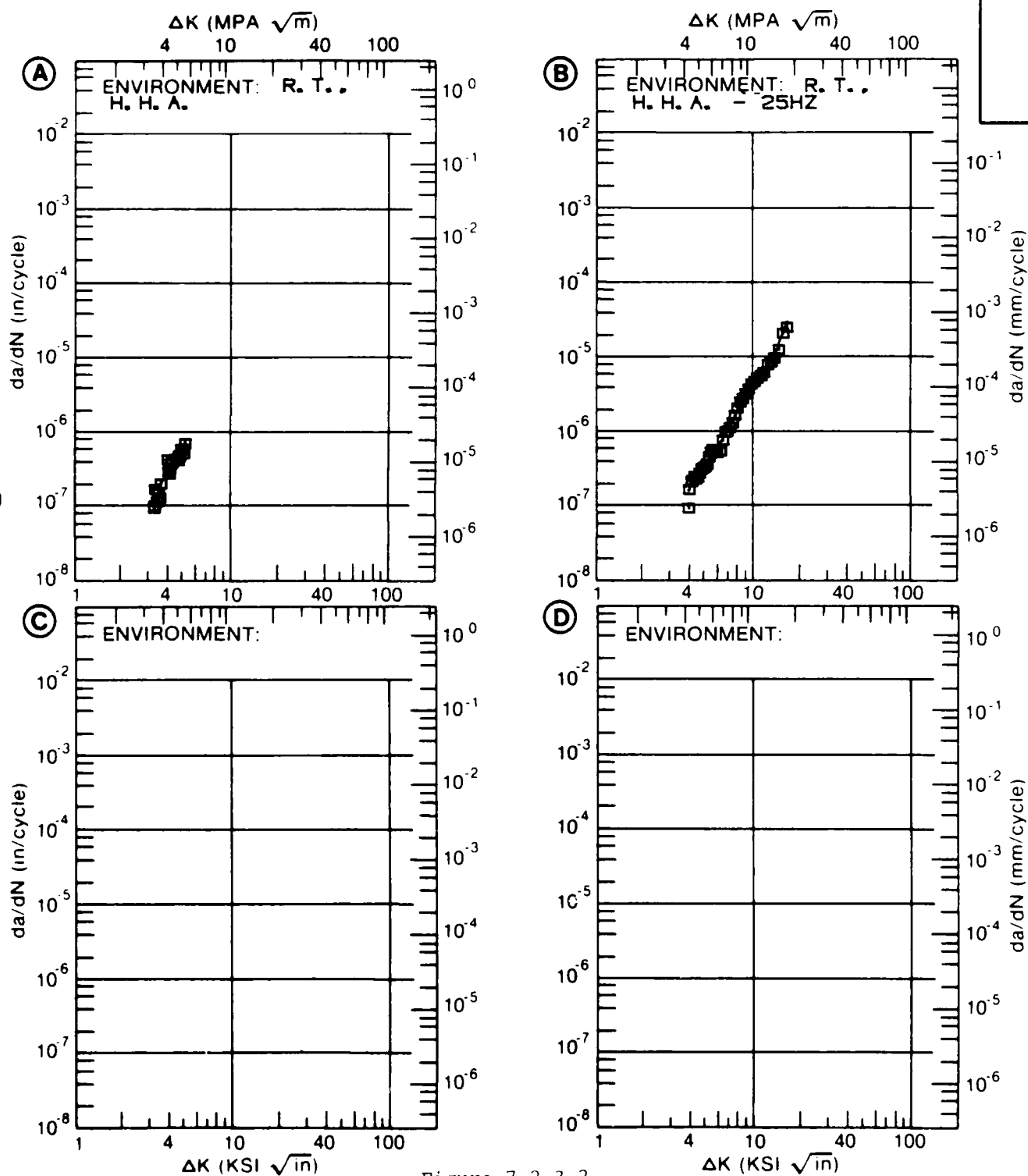


Figure 7.2.3.2

TABLE 7.2.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.2.3.3 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2020			
CONDITION: T651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T.			
		H. H. A.			
DELTA K MIN	A:	2.68	.027		
	B:	0			
	C:				
	D:				
		3.00	.0598		
		3.50	.147		
		4.00	.282		
		5.00	.706		
		6.00	1.42		
		7.00	2.67		
DELTA K MAX		8.00	4.99		
		9.00	9.49		
		10.00	18.5		
	A:	11.13	40.8		
DELTA K MAX	B:				
	C:				
	D:				
ROOT MEAN SQUARE		43.54			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T651
 FORM: 1.28" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 25.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.248"
 SPECIMEN WIDTH: 2.500"
 REFERENCES: AL002

ALUM.
 ALLOY

2020

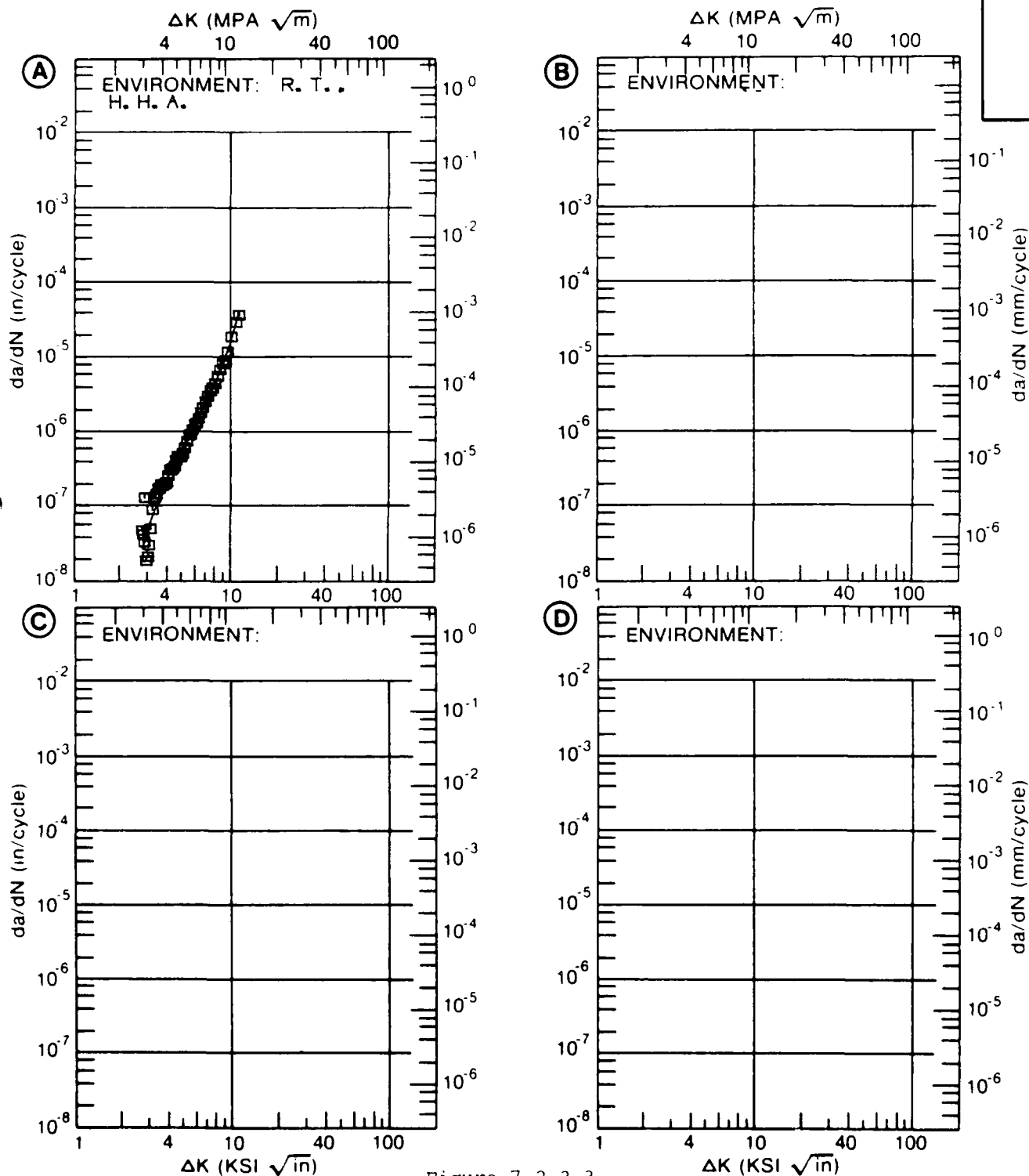


Figure 7.2.3.3

TABLE 7.2.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.2.3.4 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2020			
CONDITION: T651					
ENVIRONMENT: R.T., LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=-0.50	R=+0.00		
DELTA K MIN	A:	5.76	.549		
	B:	5.25	.0908		
	C:				
	D:				
	6.00	.580	.254		
	7.00	.840	.672		
	8.00	1.35	1.35		
	9.00	2.16	2.28		
	10.00	3.33	3.45		
	13.00	9.63	8.55		
	16.00	21.1	17.4		
DELTA K MAX	A:	18.95	64.6		
	B:	16.95	21.5		
	C:				
	D:				
ROOT MEAN SQUARE		36.60	32.02		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1	1		
RATIO	0.8-1.25	2	3		
SUMMARY	1.25-2.0	1	1		
(NP/NA)	>2.0				

CONDITION/HT: T651
 FORM: 1.38" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 5.20
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 76.2 KSI
 ULT. STRENGTH: 81.7 KSI
 SPECIMEN THK: 0.748- 0.754"
 SPECIMEN WIDTH: 2.997- 3.003"
 REFERENCES: 86213

ALUM.
 ALLOY

2020

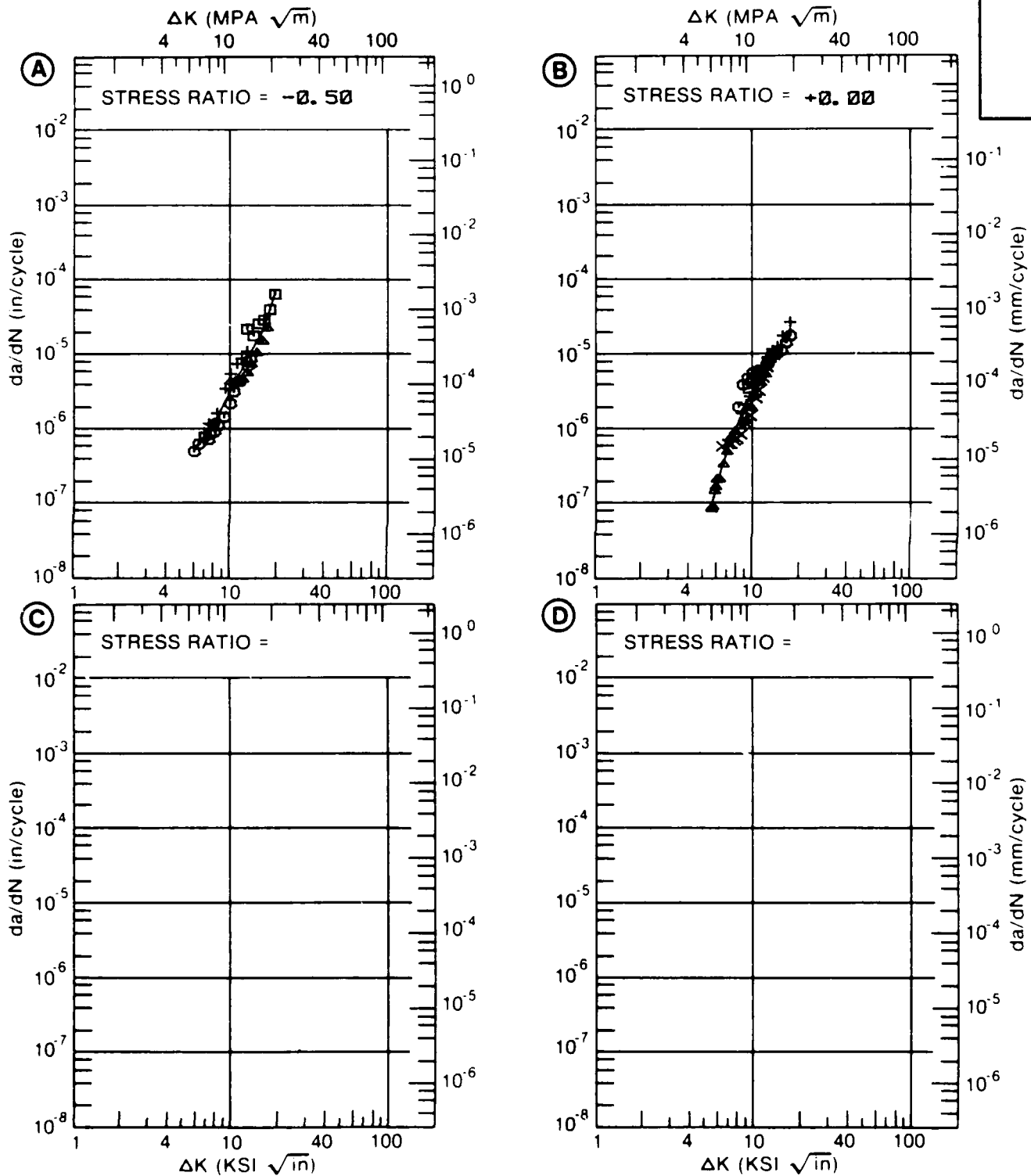


Figure 7.2.3.4

7.2-16

TABLE 7.3.2.1

CONDITION	ALUMINUM										2020 (ALCLAD)										K(C)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	---PRODUCT---					TEST SPEC					YIELD					CRACK LENGTH					GROSS STRESS					K(APP)					K(C)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	FORM					THICK					OR					W					INIT					ONSET					MAX					K(1/2)					K(1/2)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	(IN)					(IN)					(IN)					(IN)					(IN)					(IN)					(KSI)					(KSI)					(KSI)					(KSI)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

TABLE 7.4.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2021 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	L-T	I-T	S-L	
T81	27 0 ± 0.5 (3)	-----	-----	
T81 REPAIR WELD + AGE WITH 2319 FILLER WIRE	-----	15 8 ± 0.7 (6)	-----	
T81 WELD + AGE WITH 2319 FILLER WIRE	-----	19 4 ± 2.7 (9)	-----	

TABLE 7.4.2.1

CONDITION	ALUMINUM				2021				K(1C)				DATE	REFER
	--PRODUCT-- FORM	THICK (IN)	TEMP (F)	SPECIMEN ORIENT	YIELD (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV			
						WIDTH (IN)	THICK (IN)					DESIGN		
						W	B	A						
T81	P	1.00	R T	L-T	61.2	1.990	0.996	CT	0.937	0.47	26.60			1972 84363
		1.00			61.2	2.000	0.995	CT	0.933	0.50	27.50			1972 84363
		1.00			61.2	2.000	0.993	CT	0.961	0.48	26.80	27.0/	0.5	1972 84363
T81 REPAIR WELD + AGE WITH 2319 FILLER WIRE	P	1.00	R T	T-L	----	2.000	1.000	CT	1.000	0.15	15.90			1970 80073
		1.00			----	2.000	1.000	CT	1.010	0.14	15.20			1970 80073
		1.00			----	2.000	1.000	CT	0.990	0.14	15.20			1970 80073
		1.00			----	2.000	1.000	CT	1.030	0.16	16.00			1970 80073
		1.00			----	2.000	1.000	CT	1.040	0.14	15.20			1970 80073
		1.00			----	2.000	1.000	CT	1.020	0.18	17.00	15.8/	0.7	1970 80073
T81 WELD + AGE WITH 2319 FILLER WIRE	P	1.00	R T	T-L	----	2.000	1.000	CT	1.040	0.19	17.60			1970 80073
		1.00			----	2.000	1.000	CT	1.030	0.20	18.40			1970 80073
		1.00			----	2.000	1.000	CT	0.990	0.16	16.40			1970 80073
		1.00			----	2.000	1.000	CT	1.020	0.32	22.90			1970 80073
		1.00			----	2.000	1.000	CT	1.080	0.22	18.90			1970 80073
		1.00			----	2.000	1.000	CT	1.050	0.33	23.20			1970 80073
		1.00			----	2.000	1.000	CT	1.040	0.18	17.20			1970 80073
		1.00			----	2.000	1.000	CT	1.010	0.31	22.60			1970 80073
		1.00			----	2.000	1.000	CT	1.040	0.19	17.50	19.4/	2.7	1970 80073
T8151	P	1.00	84	L-T	64.8	1.500	0.749	CT	0.706	0.32	23.10			1973 86213
		1.00			64.8	1.500	0.749	CT	0.714	0.29	22.00	22.6/	0.8	1973 86213
T8151	P	1.00	84	T-L	63.4	1.500	0.731	CT	0.726	0.23	19.10			1973 86213

TABLE 7.4.3.1

CONDITION	ALUMINUM			2021		K (ISCC)		STAN DEV	TEST TIME (MIN)	DATE REFER	
	--PRODUCT-- FORM THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	ENVIRONMENT	SPECIMEN		CRACK				
					WIDTH (IN) W	THICK (IN) B	DESIGN (IN) (=SG)				LENGTH (IN) A
T81	P	2 50 R T S-L	59 1	INDUSTRIAL ATM	2 000	1 000 CT	----	19 60	19 00	----	1973 86688
T81	P	2 50 R T S-L	59 1	SALT-DICHRO- MATE-ACETATE	2 000	1 000 CT	----	19 60	19 00	----	1973 86688
T81	P	2 50 R T S-L	59 1	SEACOAST ATM	2 000	1 000 CT	----	19 60	19 00	----	1973 86688
T81 OVERHEATED WELD	P	1 00 R T S-L	18 3	3 5 PCT NACL	2 500	1 000 WDL	----	14 00	11 30	>	4320 1970 80073
T81 REPAIRED WELD AGED 16HR 325F WELD FUSION LINE	P	1 00 R T S-L	24 7	3 5 PCT NACL	2 500	1 000 WDL	----	14 00	7 70	>	4320 1970 80073
T81 REPAIRED WELD AGED 16HR 325F WELD CENTER LINE	P	1 00 R T S-L	24 7	3 5 PCT NACL	2 500	1 000 WDL	----	14 00	> 10 30	>	4320 1970 80073
T81 REPAIRED WELD AGED 16HR 325F HEAT AFFECTED ZONE	P	1 00 R T S-L	28 0	3 5 PCT NACL	2 500	1 000 WDL	----	14 00	11 90	>	4320 1970 80073
T81 WELDED AGED 16HR 325F HEAT AFFECTED ZONE	P	1 00 R T S-L	25 0	3 5 PCT NACL	2 500	1 000 WDL	----	14 00	13 30	>	4560 1970 80073
T81 WELDED AGED 16HR 325F WELD CENTER LINE	P	1 00 R T S-L	23 4	3 5 PCT NACL	2 500	1 000 WDL	----	17 00	7 20	>	4320 1970 80073
T81 WELDED AGED 16HR 325F FUSION LINE	P	1 00 R T S-L	23 4	3 5 PCT NACL	2 500	1 000 WDL	----	17 00	8 50	>	4320 1970 80073

TABLE 7.5.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2024 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION	(NUMBER OF SPECIMENS)
<u>PLATE</u>		
	<u>L-T</u>	<u>S-L</u>
T351	35.0 ± 1 (2)	-----
T851	27.3 ± 2.4 (65)	20.7 ± 1.9 (63)
<u>FORGING</u>		
	<u>L-T</u>	<u>S-L</u>
T852	29.2 ± 5.2 (24)	18.9 ± 2.6 (16)
		15.9 ± 0.8 (8)
<u>EXTRUSION</u>		
	<u>L-T</u>	<u>S-L</u>
T351	-----	25.0 ± 0.9 (5)
T3511	38.0 ± 2.6 (4)	-----
T8510	30.4 ± 2.7 (3)	16.5 ± 1.0 (3)
T8511	24.1 ± 0.4 (2)	16.0 ± 0.0 (2)
		19.7 ± 1.4 (3)

TABLE 7.5.1.2
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-SENVIRONMENT H H A
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T851	PLATE	0.10	20.00				0.50			
T851	PLATE	0.10	30.00				0.34			
T851	PLATE	0.10	20.00					5.84		

TABEL 7.5.1.3
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINIUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-T

ENVIRONMENT DRY AIR
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T81	SHEET	-0.25	6.00				4.17	46.1		
T81	SHEET	0.10	6.00				5.65	52.2		
T81	SHEET	0.30	6.00				10.2	66.4		
T81	SHEET	0.50	6.00				1.26	14.8	288	

TABLE 7.5.1.4

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-T

ENVIRONMENT

L H A
A T R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T81	SHEET	0.08	1.00					5.82	79.2	
T81	SHEET	0.08	6.00					4.78	71.8	
T81	SHEET	0.30	6.00					3.64	193	
T81	SHEET	0.50	6.00			1.26	17.6	686		
T851	PLATE	0.08	1.00	SPEC THK=0.50"				5.52		
T851	PLATE	0.08	1.00	SPEC THK=1.00"				7.27		
T851	PLATE	0.08	6.00	SPEC THK=1.00"				8.93		
T851	PLATE	0.30	1.00					12.9		
T852	FORGING	0.08	0.10					6.88		
T852	FORGING	0.08	1.00	SPEC THK=1.00"		1.06		9.01		
T852	FORGING	0.08	6.00	SPEC THK=0.25"-0.50"				3.72	27.4	

TABLE 7.5.1.5
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT AIR
AT - 65 F

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))		FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)		
				2.5	5	10	20	50 100
T351	SHEET	0.50	10			0.35	19.7	
T351	SHEET	0.80	10			20.4		
T351	PLATE	0.50	1.00 - 2.00					2098

TABLE 7.5.1.6

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT
LAB AIR
AT R.T.

CONDITION	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS (KSI SQRT(IN.))	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE)				
					2.5	5	10	20	50 100
T3	SHEET	0.00	13.30					28.6	
T3	SHEET	0.20	10.00		0.21	0.22	27.9		
T3	SHEET	0.33	9.33				188		
T3	PLATE	-1.00	20.00			9.29	70.3		
T3	PLATE	-0.50	20.00		0.14	13.2	67.2		
T3	PLATE	0.05	20.00			0.36			
T331	SHEET	0.00	3.00-6.00			0.15	44.0		
T331	SHEET	0.40	3.00-6.00				163		
T331	SHEET	0.80	3.00-6.00			39.2			
T331	PLATE	-1.00	1.00-16.00				74.6		
T331	PLATE	-1.00	3.00-5.00		0.27	5.44	41.3		
T331	PLATE	-0.50	3.00-5.00		0.25	7.67	47.2		
T331	PLATE	0.00	1.00-16.00					2324	
T331	PLATE	0.00	5.00-20.00		0.15				
T331	PLATE	0.01	1.00-10.00		0.20	7.09	39.8		
T331	PLATE	0.01	20.00			5.98	52.1		

TABLE 7.5.1.6 (Con't)
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT LAP AIR
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	2 S	5	10	20	50	100
T301	PLATE	0.10	3.00					55.0		
T301	PLATE	0.10	20.00				8.62			
T301	PLATE	0.30	20.00				10.4			
T301	PLATE	0.33	25.00				7.88			
T301	PLATE	0.40	1.00-10.00			0.70	11.7			
T301	PLATE	0.40	1.00-16.00					232		
T301	PLATE	0.40	5.00-20.00			0.47				
T301	PLATE	0.50	20.00				13.1			
T301	PLATE	0.60	1.00-10.00			0.88	13.8			
T301	PLATE	0.60	20.00				14.4			
T301	PLATE	0.80	1.00-16.00	SPEC THK=0.189-0.250"			40.9			
T301	PLATE	0.80	5.00-20.00	SPEC THK=0.250"			1.41			
T301	PLATE	0.80	1.00-10.00			1.71	23.2			
T301	EXTRUSION	0.05	9.00						127	
T301	EXTRUSION	0.50	9.00						0818	

TABLE 7.5.1.6 (Con't)

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L TENVIRONMENT LAB AIR
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T42	PLATE	-1.00	10.00				5.41	44.3	2809	
T42	PLATE	0.02	10.00				4.25	23.6	1131	
T42	PLATE	0.50	10.00				424	7.89	42.5	
T31	SHEET	0.05	2.00						68.1	
T31	SHEET	0.40	2.00						106	
T51	PLATE	0.02	1.00-10.00					3.90	57.0	

TABLE 7.5.1.7
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT AIR
AT 200 F

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T351	PLATE	0.01	20.00							
T351	PLATE	0.10	20.00							
T351	PLATE	0.30	20.00							
T351	PLATE	0.50	20.00							
T351	PLATE	0.60	20.00							

92
8.70
10.8
13.5
14.3

TABLE 7.5.1.8

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT AIR
AT 300 F

CONDITION/MT	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T351	PLATE	0.01	20.00				7.43			
T351	PLATE	0.10	20.00				9.35			
T351	PLATE	0.30	20.00				12.3			
T351	PLATE	0.50	20.00				13.6			
T351	PLATE	0.60	20.00				15.6			

TABLE 7.5.1.9
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION 1-1ENVIRONMENT AIR
AT 400 F

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T351	PLATE	0.01	20.00				6.89			
T351	PLATE	0.10	20.00				10.6			
T351	PLATE	0.30	20.00				12.4			
T351	PLATE	0.50	20.00			1.47	14.6			
T351	PLATE	0.60	20.00			1.56	17.6			

TABLE 7.5.1.10

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT H H A
A T R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T3	SHEET	0.05	2.00					35.3		
T351	SHEET	0.00	9.00				4.09			
T351	PLATE	0.33	25.00			0.35	10.8	96.4		
T351	PLATE	0.33	25.00			1.10	17.0			
T351	SHEET	0.70	9.00			0.63	8.42			
T3511	EXTRUSION	0.05	9.00			0.06	7.05			
T3511	EXTRUSION	0.50	9.00			0.43	4.35	62.3		
T3511	EXTRUSION	0.50	9.00		0.05					
T62	SHEET	0.10	1.00			0.31	4.68			
T62	SHEET	0.30	1.00			0.46	10.1	96.4		

TABLE 7.5.1.10 (Con't)
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION 1-7ENVIRONMENT H H A
AT R 7

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2 5	5	10	20	50	100
T81	SHEET	-0.25	1.00			0.28	6.45	51.3		
T81	SHEET	0.10	0.10				43.9			
T81	SHEET	0.10	1.00				8.15	70.1		
T81	SHEET	0.30	1.00			1.04	15.2			
T81	SHEET	0.50	1.00			1.50	17.2			
T851	PLATE	0.33	25.00			0.92	12.2			

TABLE 7.5.1.11
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-T

ENVIRONMENT J P 4
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
TB1	SHEET	0.08	1.00				7.53	72.0		
TB51	PLATE	0.08	1.00				8.55	108		

TABLE 7.5.1.12
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT S.T.W.
A.T.R.T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (H ⁷)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2.5	5	10	20	50	100
T351	SHEET	0.00	1.00-10.00			3.21			
T351	SHEET	0.33	1.00-10.00				113		
T62	SHEET	0.10	1.00		0.77	7.61			
T62	SHEET	0.50	1.00	0.13	1.43				
T62	SHEET	0.70	1.00		2.05				
T81	SHEET	-0.20	1.00		0.74	11.2			
T81	SHEET	0.08	1.00			8.00	94.0		
T81	SHEET	0.10	1.00		0.36	8.25			
T851	PLATE	0.08	1.00			7.92	112		

TABLE 7.5.1.13
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATIONENVIRONMENT
H H A
A T R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	2	5	1	50	100
T851	PLATE	0.10	20.00			0.57	4.87		
T851	PLATE	0.10	20.00			0.63	5.24		
T851	PLATE	0.50	2.00			0.99	11.7		
T851	PLATE	0.50	20.00		0.07	1.13	6.47		

TABLE 7.5.1.14
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION T-S

ENVIRONMENT 3.5% NaCl
AT R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
					2.5	5	10	20	50 100
T851	PLATE	0.10	20.00		1.18	5.81			
T851	PLATE	0.10	20.00			6.73			
T851	PLATE	0.10	20.00			5.92			
T851	PLATE	0.50	20.00			10.7	26.5		
T851	PLATE	0.50	20.00		0.96	10.0			

TABLE 7.5.1.15
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION T LENVIRONMENT
DRY AIR
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T62	SHEET	0.10	6.00			0.81	11.3			
T62	SHEET	0.30	6.00			0.71	11.3			
T62	SHEET	0.50	6.00		0.04	0.94	13.1			
T81	SHEET	0.25	6.00					3.81	48.3	
T81	SHEET	0.10	6.00					3.51		

TABLE 7.5.1.16
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS		ENVIRONMENT		L H A	
SPECIMEN ORIENTATION	1-L	AT R T			
CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)
				2 5	5 10 20 50 100
TS1	SHEET	0 08	1 00- 6 00	0 73	4 29 72 8
TS2	PLATE	0 08	1 00	5 90	
TS3	PLATE	0 08	6 00	5 45	

TABLE 7.5.1.17

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2024

TEST CONDITIONS
SPECIMEN
ORIENTATION

ENVIRONMENT

LAB AIR
AT R.T.

CONDITION	PROBABLE FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)					
					2.5	5	10	20	50	100
T3	SHEET	0.00	13.30				0.32	21.6		
T3	SHEET	0.05	30.00			0.25				
T3	SHEET	0.13	13.30				7.07	62.6		
T3	SHEET	0.40	30.00			0.94				
T3	SHEET	0.60	30.00			1.22				
TBS-	ROCKET	0.33	5.17				5.50			
TBS1	SHEET	0.08	0.10-15.00			0.71	5.10	395		
TBS1	SHEET	0.10	0.10-40					696		
TBS1	SHEET	0.10	1.00-10.00					542		
TBS1	SHEET	0.10	2.00-9.00				0.04	100		
TBS1	SHEET	0.10	10.00-13.00			0.99	3.34			
TBS1	SHEET	0.10	10.00-20.00			1.05	10.0			
TBS1	SHEET	0.40	10.00-15.00			1.23	11.5			
TBS1	PLATE	0.10	1.00-5.00					127		
TBS1	PLATE	0.10	10.00					5.91		

TABLE 7.5.1.18
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

TEMPERATURE 70 F

ENVIRONMENT AIR

AT 140 F

SPECIMEN	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))		FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)			
				2.5	5	10	20	50	100
SHEET		0.43	5.00-10.00		0.79	1.43			
		0.75	5.00-10.00		1.77	3.11			

TABLE 7.5.1.19
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION P-CENVIRONMENT H H A
AT R (

CONDITION/HI	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2 5	5	10	20	50	100
T62	SHEET	0 30	1 00			0 78	1 1 7			
T62	SHEET	0 50	1 00		0 12	1 26	1 4 5			
T81	SHEET	-0 25	1 00				4 89	6 4 7		
T81	SHEET	0 10	1 00				6 37	129		
T81	SHEET	0 50	1 00			1 44	22 2			
T851	PLATE	0 10	20 00				7 38	71 4		
T851	PLATE	0 10	20 00			0 50	9 04			
T851	PLATE	0 50	20 00		0 17	1 31	17 2			

TABLE 7.5.1.20
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION 1-LENVIRONMENT 3.5% NaCl
AT R. T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS:		FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				(KSI SQRT(IN))		2.5	5	10	20	50 100
T851	PLATE	0.10	0 10-10 00					18.2		
T851	PLATE	0.10	20.00			1.47	11.1	126		
T851	PLATE	0.10	20.00			0.91	9.93			
T851	PLATE	0.50	20.00			0.21	2.28	22.4		

TABLE 7.5.1.21
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2024

TEST CONDITIONS

SPECIMEN
ORIENTATION I-LENVIRONMENT S.T.W.
A.T.R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)					
					2	5	10	20	50	100
T62	SHEET	-0.25	1.00			0.86	4.87			
T62	SHEET	0.10	1.00			0.69	5.87			
T62	SHEET	0.30	1.00			1.24	17.0			
T62	SHEET	0.50	1.00		0.15	2.83	25.7			
T81	SHEET	0.08	1.00-6.00				6.90	96.3		
T81	SHEET	0.10	1.00			0.39	7.27	101		
T852	FORGING	0.08	1.00				5.19			

7.5-25

TABLE 7.5.2.1 (Con't)

CONDITION	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM			2024			K(1C)			K(1C) STAN	DATE	REFER
	FORM	THICK (IN)			THICK (IN)	WIDTH (IN)	THICK (IN)	DEBION (IN)	CRACK LENGTH (IN)	2.5* (IN)	K(1C)/TYS**2 (KSI*ORT IN)	K(1C) MEAN DEV (KSI*ORT IN)				
T351	FB	3.00	82	T-L	45.7	3.000	1.500	CT	1.480	0.69		24.00	24.5/	0.9	1973	86213
T351	FB	3.00	82	S-L	42.1	1.990	1.002	CT	0.963	0.75		23.00			1973	86213
		3.00			42.1	1.990	1.001	CT	0.970	0.73		22.70	22.9/	0.2	1973	86213
T351	E	----	R. T.	L-T	61.2	----	1.200	--	----	1.06		39.90			1978	84007
		----			61.2	----	1.200	--	----	1.03		39.30			1978	84007
		----			61.2	----	1.200	--	----	0.98		38.40			1978	84007
		----			61.2	----	1.200	--	----	0.78		34.20	38.0/	2.6	1978	84007
T851	P	3.00	65	L-B	64.4	1.500	0.750	CT	0.750	0.55		30.30			1972	83243
		3.00			64.4	1.500	0.750	CT	0.750	0.59		31.40			1972	83243
		3.00			64.4	1.500	0.750	CT	0.750	0.52		29.30	30.3/	1.1	1972	83243
T851	P	3.00	0	L-B	63.3	1.500	0.750	CT	0.750	0.63		31.70			1972	83243
		3.00			63.3	1.500	0.750	CT	0.750	0.62		31.40	31.6/	0.2	1972	83243
T851	P	3.00	R. T.	L-B	61.0	1.500	0.750	CT	0.750	0.69		32.20			1972	83243
		3.00			61.0	1.500	0.750	CT	0.750	0.67		31.70			1972	83243
		3.00			61.0	1.500	0.750	CT	0.750	0.61		30.00			1972	83243
		1.37			66.1	1.006	0.499	CT	0.513	0.27		21.90			1978	84001
		1.37			66.1	1.006	0.499	CT	0.493	0.28		22.90			1978	84001
		1.50			67.1	1.000	0.602	CT	0.623	0.38		26.20	27.5/	4.5	1973	86429
T851	P	1.37	86	L-B	65.9	1.000	0.500	CT	0.504	0.26		21.30			1973	86213
		1.37			65.8	1.000	0.500	CT	0.484	0.27		21.60			1973	86213
		1.37			65.8	1.000	0.500	CT	0.491	0.23		20.10	21.0/	0.8	1973	86213
T851	P	1.37	88	L-B	66.1	1.000	0.499	CT	0.493	0.31		23.40			1973	86213
		1.37			66.1	1.000	0.500	CT	0.513	0.29		22.40	22.9/	0.7	1973	86213
T851	P	3.00	200	L-B	56.4	1.500	0.750	CT	0.750	0.70		29.70			1972	83243
		3.00			56.4	1.500	0.750	CT	0.750	0.75		30.90	30.3/	0.8	1972	83243
T851	P	3.00	65	L-T	64.8	1.500	0.750	CT	0.750	0.39		26.50			1972	83243

TABLE 7.5.2.1 (Con't)

CONDITION	ALUMINUM				2024		K(1C)		K(1C) STAN DEV	REFER			
	--PRODUCT-- FORM		TEST SPECIMEN TEMP ORIENT		YIELD STRENGTH (KSI)		SPECIMEN THICK DESIGN				CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)
	(IN)	(IN)	(F)		(KSI)	(IN)	(IN)	A					
T851	P	1.37	R. T.	L-T	65.6	1.978	1.001	CT	1.059	0.30	23.20	1978 MPC01	
		1.37			65.6	2.980	1.383	NB	1.490	0.27	22.20	1978 MPC01	
		1.37			65.6	1.990	1.001	CT	0.975	0.28	22.50	1978 MPC01	
		1.37			65.6	3.020	1.383	NB	1.480	0.27	21.80	1978 MPC01	
		1.37			65.6	3.000	1.386	NB	1.545	0.31	23.20	1973 86213	
		1.37			65.6	3.000	1.383	NB	1.500	0.31	23.20	1973 86213	
		1.37			65.6	2.000	1.001	CT	1.048	0.30	22.80	1973 86213	
		1.37			65.6	3.000	1.386	NB	1.531	0.33	23.70	1973 86213	
		1.37			65.8	3.020	1.393	NB	1.510	0.36	25.40	1978 MPC01	
		1.37			65.8	2.980	1.393	NB	1.490	0.34	25.00	1978 MPC01	
		3.00			66.0	3.000	0.994	CT	1.540	0.33	24.00	1972 84306	
		3.00			66.0	3.000	0.797	CT	1.526	0.35	24.30	1973 85836	
		3.00			66.0	3.000	0.995	CT	1.533	0.32	23.50	1972 84306	
		1.37			66.1	2.990	1.400	NB	1.525	0.25	21.80	1978 MPC01	
		1.37			66.1	3.000	1.401	NB	1.445	0.25	20.90	1973 86213	
		1.37			66.1	3.000	1.400	NB	1.536	0.28	22.10	1973 86213	
		0.75			66.1	1.902	0.761	CT	0.781	0.27	22.10	1978 MPC01	
		1.37			66.1	3.008	1.401	NB	1.474	0.25	21.50	1978 MPC01	
		1.00			66.2	2.016	1.009	CT	1.149	0.25	21.50	1978 MPC01	
		T851	P	0.62			66.2	1.908	0.616	CT	0.769	0.25	21.50
4.00					66.5	2.000	1.020	NB	-----	0.24	20.40	1974 90981	
4.00					66.5	2.000	1.020	NB	-----	0.25	21.00	1974 90981	
0.75					67.0	1.900	0.709	CT	-----	0.27	22.00	1982 NC003	
0.75					67.0	1.900	0.709	CT	-----	0.27	22.00	1982 NC003	
0.50					67.1	1.906	0.481	CT	0.768	0.24	20.90	1978 MPC01	
0.90					67.1	1.900	0.518	CT	0.765	0.24	21.10	1978 MPC01	
0.37					67.1	1.000	0.375	CT	-----	0.26	21.90	1974 90981	
1.50					67.5	2.000	1.001	CT	1.018	0.35	25.20	1973 86429	
1.90					67.5	1.980	1.000	CT	1.004	0.33	24.60	1973 86429	
0.62					68.0	1.904	0.631	CT	0.767	0.28	23.60	1978 MPC01	
0.75					70.1	1.900	0.750	CT	-----	0.29	24.00	1974 90981	
0.75			70.1	1.900	0.750	CT	-----	0.26	22.80	1974 90981			
0.75			70.1	1.900	0.750	CT	-----	0.25	22.00	1974 90981			
									23.3/	2.4			
T851	P	1.37	82	L-T	65.6	2.000	1.002	CT	1.030	0.32	23.40	1973 86213	
		1.37			65.6	2.000	1.001	CT	0.975	0.29	22.50	1973 86213	
		1.37			65.6	2.000	1.002	CT	1.036	0.32	23.40	1973 86213	
		1.37			65.6	2.000	1.001	CT	0.981	0.29	22.40	1973 86213	
		1.37			65.6	2.000	1.001	CT	0.982	0.30	22.80	1973 86213	

TABLE 7.5.2.1 (Con't)

CONDITION	ALUMINUM				2024				K(1C)				K(1C)			
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----				CRACK LENGTH (IN)	2.5* (K(1C)/TVB)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV	DATE	REFER		
					WIDTH (IN)	THICK (IN)	DESIGN	A								
															B	
T851	P	1.37	82	L-T	65.4	2.000	1.002	CT	1.033	0.32	23.40	23.0/	0.5	1973	86213	
T851	P	1.75 1.00 1.00 1.00	84	L-T	65.0 68.9 68.9 68.9	2.990 1.500 1.500 1.500	1.007 0.750 0.750 0.750	CT CT CT CT	1.650 0.726 0.739 0.742	0.32 0.22 0.23 0.24	23.30 20.60 20.80 21.30			1972 1973 1973 1973	84306 86213 86213 86213	
T851	P	3.00 3.00 3.00	200	L-T	58.6 58.6 58.6	1.500 1.500 1.500	0.750 0.750 0.750	CT CT CT	0.750 0.750 0.750	0.49 0.56 0.52	25.90 27.80 26.80			1972 1972 1972	83243 83243 83243	
T851	P	3.00 3.00 3.00	300	L-T	54.9 54.9 54.9	1.500 1.500 1.500	0.750 0.750 0.750	CT CT CT	0.750 0.750 0.750	0.60 0.62 0.59	26.80 27.30 26.60		0.4	1972 1972 1972	83243 83243 83243	
T851	P	1.37	R. T.	T-8	65.4	0.996	0.500	CT	0.488	0.28	22.90			1978	MPC01	
T851	P	1.37	86	T-8	65.4	1.000	0.500	CT	0.510	0.30	22.90			1973	86213	
T851	P	1.37 1.37 1.37	88	T-8	65.5 65.5 65.5	1.000 1.000 1.000	0.500 0.500 0.500	CT CT CT	0.515 0.496 0.511	0.24 0.25 0.25	20.40 20.60 20.80		0.2	1973 1973 1973	86213 86213 86213	
T851	P	1.39 1.39	- 320	T-L	79.0 79.0	3.000 3.000	1.390 1.390	NB NB	1.490 1.480	0.20 0.20	22.10 22.20	22.2/	0.1	1971	84288	
T851	P	1.39 1.39	- 112	T-L	69.2 69.2	3.000 3.000	1.390 1.390	NB NB	1.520 1.570	0.24 0.27	21.30 22.70	22.0/	1.0	1971	84288	
T851	P	3.00	- 65	T-L	66.5	1.500	0.750	CT	0.750	0.31	23.30			1972	83243	
T851	P	3.00 3.00	0	T-L	65.5 65.5	1.500 1.500	0.750 0.750	CT CT	0.750 0.750	0.30 0.25	22.90 20.80	21.9/	1.5	1972	83243	
T851	P	4.00 4.00 3.00 3.00	R. T.	T-L	61.5 61.5 63.5 63.5	2.000 2.000 1.500 1.500	1.020 1.020 0.750 0.750	NB NB CT CT	----- ----- 0.750 0.750	0.26 0.26 0.32 0.24	19.80 19.90 22.40 19.70			1974 1974 1972 1972	90981 90981 83243 83243	

TABLE 7.5.2.1 (Con't)

CONDITION	ALUMINUM				2024			K(1C)			K(1C) STAN K(1C) MEAN DEV (KSI*80RT IN)	DATE	REFER																	
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)																						
					WIDTH (IN)	THICK (IN)																								
					W	B	A																							
T851	P	1.37	R. T.	T-L	65.0	3.024	1.392	NB	1.512	0.27	22.00	1978	MPC01																	
					66.0	3.000	1.392	NB	1.565	0.23	19.80	1973	86213																	
					65.2	1.494	0.761	CT	0.792	0.21	19.10	1978	MPC01																	
					65.3	3.018	1.400	NB	1.539	0.22	20.20	1978	MPC01																	
					65.5	2.000	0.999	CT	1.097	0.21	19.10	1973	86213																	
					65.9	2.000	0.999	CT	1.065	0.19	18.20	1973	86213																	
					65.9	3.000	1.400	NB	1.520	0.23	19.80	1973	86213																	
					65.6	2.978	1.385	NB	1.489	0.36	25.40	1978	MPC01																	
					65.7	2.016	0.987	CT	1.109	0.24	21.00	1978	MPC01																	
					65.7	1.498	0.616	CT	0.779	0.19	18.90	1978	MPC01																	
					65.9	1.490	0.481	CT	0.760	0.21	19.30	1978	MPC01																	
					66.6	1.000	0.375	CT	-----	0.28	22.10	1974	90981																	
					66.6	1.000	0.375	CT	-----	0.29	22.70	1974	90981																	
					66.6	1.000	0.375	CT	-----	0.32	23.80	1974	90981																	
					67.2	1.508	0.518	CT	0.784	0.21	19.50	1978	MPC01																	
T851	P	1.37	82	T-L	64.4	2.000	1.000	CT	1.010	0.24	19.90	1973	86213																	
					64.4	2.000	0.999	CT	1.021	0.24	20.00	1973	86213																	
					64.4	2.000	1.000	CT	0.992	0.24	20.00	1973	86213																	
					64.8	2.000	1.001	CT	1.058	0.25	20.40	1973	86213																	
					64.8	2.000	1.002	CT	1.032	0.25	20.90	1973	86213																	
					64.8	2.000	1.000	CT	1.049	0.24	20.10	20.2/	0.2	1973	86213															
					T851	P	1.00	84	T-L	67.6	1.500	0.750	CT	0.740	0.20	18.90	1973	86213												
										67.6	1.490	0.749	CT	0.754	0.19	18.80	1973	86213												
										67.6	1.500	0.750	CT	0.749	0.18	18.30	18.7/	0.3	1973	86213										
										T851	P	3.00	200	T-L	98.3	1.500	0.750	CT	0.750	0.32	20.70	1972	83243							
															98.3	1.500	0.750	CT	0.750	0.38	22.80	1972	83243							
															98.3	1.500	0.750	CT	0.750	0.35	21.80	21.8/	1.1	1972	83243					
															T851	P	3.00	300	T-L	94.1	1.500	0.750	CT	0.750	0.40	21.70	1972	83243		
																				94.1	1.500	0.750	CT	0.750	0.42	22.30	22.0/	0.4	1972	83243
																				T851	P	3.00	R. T.	8-T	64.0	2.500	0.750	CT	-----	0.35

TABLE 7.5.2.1 (Con't)

CONDITION	ALUMINUM										K(1C)		
	---PRODUCT---		TEST SPECIMEN		YIELD STRENGTH		SPECIMEN		CRACK		2.5*		K(1C) STAN
	FORM	THICK (IN)	TEMP (F)	ORIENT	(KSI)	W	WIDTH (IN)	THICK (IN)	DESIGN	LENGTH (IN)	(IN)	K(1C) MEAN DEV (KSI*SQRT IN)	
													DATE
													REFER
T851	P	1.37	86	S-T	64.2	1.000	0.500	CT	0.499	0.15	15.70		1973 86213
		1.37			64.2	1.000	0.500	CT	0.510	0.16	16.00		1973 86213
		1.37			64.2	1.000	0.500	CT	0.511	0.18	17.00	16.2/ 0.7	1973 86213
T851	P	1.37	88	S-T	64.1	1.000	0.500	CT	0.502	0.15	15.90		1973 86213
		1.37			64.1	1.000	0.500	CT	0.479	0.15	15.80		1973 86213
		1.37			64.1	1.000	0.500	CT	0.480	0.15	15.80	15.8/ 0.1	1973 86213
T851	P	1.37	88	S-L	64.1	1.000	0.501	CT	0.506	0.18	17.20		1973 86213
		1.37			64.1	1.000	0.500	CT	0.496	0.16	16.30		1973 86213
		1.37			64.1	1.000	0.501	CT	0.478	0.15	15.60	16.4/ 0.8	1973 86213
T8510	E	4.50	R.T.	L-T	58.9	4.023	2.000	CT	2.132	0.78	33.10		1978 MPC01
		4.00			61.8	3.981	1.838	CT	2.110	0.57	30.20		1978 MPC01
		2.76			63.2	4.018	2.000	CT	2.009	0.46	27.80	30.4/ 2.7	1978 MPC01
T8510	E	4.50	R.T.	T-L	58.9	5.042	2.500	CT	2.622	0.21	17.50		1978 MPC01
		4.00			60.5	5.034	2.499	CT	2.527	0.16	16.30		1978 MPC01
		2.76			61.8	4.018	1.999	CT	2.049	0.15	15.60	16.5/ 1.0	1978 MPC01
T8510	E	4.50	R.T.	S-L	56.6	3.022	1.500	CT	1.541	0.21	16.50		1978 MPC01
		4.00			58.2	2.998	1.498	CT	1.529	0.19	16.50		1978 MPC01
		2.76			59.6	2.018	0.999	CT	0.989	0.13	14.10	15.7/ 1.4	1978 MPC01
T8511	E	3.50	R.T.	L-T	66.5	1.996	1.000	CT	0.978	0.32	24.40		1978 MPC01
		3.50			66.5	2.004	1.000	CT	0.982	0.30	23.80	24.1/ 0.4	1978 MPC01
T8511	E	3.50	R.T.	T-L	61.8	2.015	1.000	CT	1.048	0.15	16.00		1978 MPC01
		3.50			61.8	1.980	1.000	CT	1.010	0.15	16.00	16.0/ 0.0	1978 MPC01
T8511	E	3.50	R.T.	S-T	61.6	2.014	1.001	CT	1.007	0.16	10		1978 MPC01
		3.50			61.6	2.014	1.001	CT	1.007	0.16	30	16.7/ 0.6	1978 MPC01

TABLE 7.5.2.1 (Con't)

CONDITION	ALUMINUM				2024		K(1C)		K(1C) MEAN (KBI*SQRT IN)	K(1C) STAN DEV	DATE	REFER
	--PRODUCT-- FORM		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN----- WIDTH THICK DESIGN (IN) (IN) (IN)		CRACK LENGTH (IN)	2.5* K(1C)/(TVS)**2 (IN)				
	THICK (IN)	THICK (IN)			W	B						
T852	F	4.75	84	L-S	64.4	2.000	0.997	CT	0.923	0.41	26.20	1973 86213
T852	F	5.00	R.T.	L-T	55.1	3.000	1.502	NB	1.400	0.56	26.10	1970 77720
		55.1			3.000	1.504	NB	1.542	0.66	28.30	1970 77720	
		55.1			3.000	1.503	NB	1.395	0.60	27.00	1970 77720	
		56.1			4.000	2.001	NB	2.008	0.76	30.80	1970 77720	
		56.1			4.000	1.999	NB	1.925	0.63	28.20	1970 77720	
		56.1			4.000	2.002	NB	2.202	0.75	30.80	1970 77720	
		58.0			2.500	1.254	CT	1.324	0.71	30.90	1973 85836	
		58.0			2.490	1.250	CT	1.279	0.55	27.20	1973 85836	
		58.0			2.490	1.247	CT	1.251	0.48	25.50	1973 85836	
		58.0			2.500	1.252	CT	1.295	0.99	36.90	1973 85836	
		58.0			2.500	1.252	CT	1.302	1.02	37.10	1973 85836	
		60.0			2.500	1.004	CT	1.265	0.99	37.80	1973 85836	
T852		2.00		1.500	0.752	NB	0.667	0.36	24.30	1970 77720		
		64.6	1.500	0.752	NB	0.707	0.30	22.60	1970 77720			
		64.6	1.500	0.751	NB	0.770	0.40	25.90	1970 77720			
		65.0	2.500	1.250	CT	-----	0.77	36.00	1974 90011			
		65.0	2.500	1.250	CT	-----	0.81	37.00	1974 90011			
		65.0	2.500	1.250	CT	-----	0.81	37.00	1974 90011			
		65.4	3.000	1.500	NB	1.445	0.49	28.90	1970 77720			
		65.4	3.000	1.500	NB	1.482	0.36	25.00	1970 77720			
		65.4	3.000	1.502	NB	1.645	0.46	28.10	1970 77720			
		66.7	2.000	1.007	NB	0.950	0.27	21.90	1970 77720			
		66.7	2.000	0.999	NB	0.940	0.29	22.60	1970 77720			
		66.7	1.990	1.000	NB	0.935	0.34	24.60	1970 77720			
T852	F	7.00	82	L-T	49.5	1.500	0.751	CT	0.706	0.70	26.20	1973 86213
		58.6			1.490	0.758	CT	0.719	0.28	19.70	1973 86213	
T852	F	7.00	83	L-T	58.6	1.500	0.753	CT	0.720	0.27	19.30	1973 86213
T852	F	5.00	84	L-T	61.9	1.490	0.750	CT	0.735	0.31	21.80	1973 86213
		64.4			2.000	0.999	CT	1.061	0.34	23.60	1973 86213	
T852	F	3.00	265	L-T	----	2.500	1.250	CT	-----	-----	31.00	1974 90011
		5.00			2.490	1.248	CT	1.485	0.90	38.90	1973 86210	
T852	F	4.75	84	T-S	65.2	2.000	0.997	CT	0.937	0.14	15.20	1973 86213

TABLE 7.5.2.1 (Con't)

CONDITION	ALUMINUM						K(1C)				DATE	REFER		
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV				
	FORM	THICK (IN)			THICK (IN)	THICK (IN)							DESIGN	
T852	F	5.00	R. T.	T-L	56.7	3.000	1.502	NB	1.507	0.25	17.80		1970	77720
		5.00			56.7	3.000	1.500	NB	1.422	0.23	17.30		1970	77720
		5.00			56.7	3.000	1.501	NB	1.553	0.24	17.60		1970	77720
		6.00			57.8	4.000	2.005	NB	2.005	0.17	15.10		1970	77720
		6.00			57.8	3.990	2.003	NB	2.035	0.25	18.10		1970	77720
		6.00			57.8	3.990	2.003	NB	2.035	0.25	18.20		1973	86213
		6.00			57.8	4.000	2.005	NB	2.005	0.17	15.20		1973	86213
		3.00			58.0	2.000	1.000	CT	-----	0.30	20.00		1974	90011
		3.00			58.0	2.000	1.000	CT	-----	0.33	21.00		1974	90011
		3.00			58.0	2.000	1.000	CT	-----	0.33	21.00		1974	90011
T852	F	7.00	82	T-L	59.0	1.500	0.750	CT	0.719	0.47	25.50		1973	86213
	F	7.00	83	T-L	53.2	1.500	0.754	CT	0.757	0.39	21.00		1973	86213
		7.00			59.5	1.500	0.753	CT	0.767	0.21	17.20	19.1/ 2.7	1973	86213
	F	5.00	84	T-L	62.9	1.490	0.750	CT	0.752	0.19	15.40		1973	86213
	F	3.00	265	T-L	-----	2.500	1.250	CT	-----	-----	24.00		1974	90011
	F	6.00	R. T.	S-T	53.9	1.400	0.700	NB	0.700	0.27	17.70		1972	82675
		6.00			53.9	1.400	0.700	NB	0.700	0.26	17.50	17.6/ 0.1	1972	82675
	F	7.00	83	S-T	50.1	1.000	0.506	CT	0.495	0.40	20.00		1973	86213
		7.00			50.5	1.000	0.499	CT	0.481	0.32	18.00		1973	86213
		7.00			57.2	1.000	0.505	CT	0.494	0.23	17.40	18.5/ 1.4	1973	86213
T852	F	5.00	84	S-T	57.6	0.990	0.501	CT	0.542	0.23	17.60		1973	86213
T852	F	6.00	R. T.	S-L	53.9	1.000	0.500	NB	0.512	0.23	16.40		1970	77720
		6.00			53.9	1.000	0.500	NB	0.505	0.19	14.80		1970	77720
		6.00			53.9	1.000	0.500	NB	0.507	0.26	17.30		1970	77720
		5.00			54.5	1.000	0.500	NB	0.490	0.22	16.00		1970	77720

TABLE 7.5.2.1 (Con't)

CONDITION	--PRODUCT--				ALUMINUM		2024		K(1C)		K(1C)				REFER
	FORM	THICK (IN)	TEMP (F)	TEST SPECIMEN ORIENT	YIELD (KSI)	STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5# K(1C)/TVS**2 (:4)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV	DATE		
							WIDTH (IN)	THICK (IN)						DESIGN	
TB52	F	5.00	R. T.	S-L	54.5	1.000	0.500	NB	0.473	0.21	15.80		1970 77720		
		4.00			60.6	0.500	0.250	NB	0.267	0.19	15.00		1970 77720		
		4.00			60.6	0.500	0.250	NB	0.272	0.17	15.80		1970 77720		
		4.00			60.6	0.500	0.250	NB	0.258	0.18	16.10	15.9/	0.8	1970 77720	
TB52	F	4.75	B4	S-L	60.9	2.000	0.997	CT	0.946	0.17	16.10		1973 86213		

TABLE 7.5.2.2

CONDITION	ALUMINUM		2024										K(C)		
	--PRODUCT-- FORM THICK TEMP OR (IN) (F)	YIELD STR (KSI)	---SPECIMEN---		CRACK LENGTH CROSS STRESS						K(APP) STAN		K(C) MEAN DEV (KSI*SQRT IN)	K(C) STAN MEAN DEV (KSI*SQRT IN)	DATE REFER
			WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI*SQRT IN)	STAN K(C)					
											2A(O) 2A(F)	5(O)			
T3	S	0.03	R. T.	L-T	52.0	20.000	0.032	0.640	1.200	47.60	48.50	48.66*	66.74*	1966 67821	
		0.03			52.0	20.000	0.032	1.120	2.060	43.10	47.00	62.46*	85.10*	1966 67821	
		0.03			52.0	20.000	0.032	7.460	9.300	16.30	22.40	84.00	100.98*	1966 67821	
		0.03			52.0	20.000	0.032	5.260	7.070	20.00	27.60	82.90	99.78*	1966 67821	
		0.03			52.0	20.000	0.032	3.450	4.860	22.80	36.40	86.33*	83.5/ 0.8 104.40*	1966 67821	
T3	S	0.04	R. T.	L-T	50.6	6.450	0.040	2.820	----	----	26.30	62.95*	----	1966 86734	
		0.04			50.6	6.450	0.040	2.650	----	----	26.70	60.95*	----	1966 86734	
		0.04			50.6	6.450	0.040	3.900	----	----	16.90	54.84*	----	1966 86734	
T3	S	0.04	R. T.	L-T	51.7	9.700	0.040	3.980	----	----	28.60	79.98*	----	1966 86734	
T3	S	0.05	R. T.	L-T	52.7	8.000	0.049	4.770	5.750	17.10	19.20	68.27*	88.25*	1970 78982	
		0.05			52.7	8.000	0.091	2.660	3.600	19.10	31.30	68.73*	85.36*	1970 78982	
T3	S	0.05	R. T.	L-T	52.7	24.000	0.049	7.000	13.500	17.00	27.60	96.64	159.57*	1970 78982	
		0.05			52.7	24.000	0.049	7.160	11.000	16.20	28.30	100.48	135.67*	1970 78982	
		0.05			52.7	24.000	0.049	14.270	18.000	12.70	16.50	101.30	141.83*	1970 78982	
		0.05			52.7	24.000	0.049	2.320	7.400	34.00	42.20	81.03*	99.5/ 2.5 152.94*	1970 78982	
T3	S	0.06	R. T.	L-T	51.9	12.000	0.063	4.720	9.420	24.40	27.70	83.54*	92.79*	1966 67821	
		0.06			51.9	12.000	0.063	3.080	3.810	23.30	33.20	76.14*	86.67*	1966 67821	
T3	S	0.06	R. T.	L-T	51.9	20.000	0.063	4.310	7.770	26.70	30.60	81.98	118.90*	1966 67821	
		0.06			51.9	20.000	0.063	0.870	2.200	43.60	43.60	51.03*	81.66*	1966 67821	
		0.06			51.9	20.000	0.063	7.200	13.500	23.20	23.20	84.91	152.84*	1966 67821	
		0.06			51.9	20.000	0.063	0.960	2.600	38.50	43.60	53.62*	89.04*	1966 67821	
		0.06			51.9	20.000	0.063	3.270	5.030	19.20	37.70	86.88*	110.30*	1966 67821	
		0.06			51.9	20.000	0.063	4.930	6.900	25.60	32.20	93.12*	83.4/ 2.1 114.53*	1966 67821	
T3	S	0.06	R. T.	L-T	51.9	30.000	0.063	7.130	10.710	19.80	26.40	91.56	117.67	1966 67821	
		0.06			51.9	30.000	0.063	5.730	8.090	22.00	28.80	88.40	107.53	1966 67821	
		0.06			51.9	30.000	0.063	3.670	6.710	27.50	39.70	96.21*	133.01*	1966 67821	
		0.06			51.9	30.000	0.063	10.860	14.400	17.60	18.20	81.89	87.3/ 4.9 101.38 108.9/ 8 2 1966 67821		

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV

TABLE 7.5.2.2 (Con't)

CONDITION	--PRODUCT-- FORM	THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	ALUMINUM		2024		K(C)		CRACK LENGTH CROSS STRESS				K(AFP) STAN		K(C) STAN	
					W	B	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(AFP) (KSI)	K(AFP) STAN MEAN DEV (KSI*SQRT IN)	K(C) STAN MEAN DEV (KSI*SQRT IN)	K(C) STAN DEV (KSI)	DATE REFER			
BUCKLING OF CRACK EDGES RESTRAINED																		
T3	S	0.08	R.T.	53.3	20.000	0.080	7.350	8.950	20.80	24.80	92.09					106.46*	1966 67821	
		0.08		53.3	20.000	0.080	5.090	6.450	21.30	29.00	85.44					98.71*	1966 67821	
		0.08		53.3	20.000	0.080	3.310	4.950	29.20	34.20	79.33					99.14*	1966 67821	
		0.08		53.3	20.000	0.080	1.270	1.900	46.46	48.00	67.96*					83.39*	1966 67821	
		0.08		53.3	20.000	0.080	0.700	1.440	51.90	51.80	54.36*	85.6/	6.4			78.16*	1966 67821	
T3	S	0.12	R.T.	53.8	4.000	0.122	2.390	3.100	---	20.30	51.17*					76.14*	1970 78982	
		0.12		53.8	4.000	0.123	1.190	1.800	---	35.20	50.93*					67.88*	1970 78982	
		0.12		53.8	4.000	0.123	2.340	2.900	---	20.50	50.46*					67.62*	1970 78982	
		0.12		53.8	4.000	0.123	0.390	1.000	---	46.00	36.22*					59.98*	1970 78982	
		0.12		53.8	4.000	0.123	2.400	---	---	44.90	113.71*					---	1970 78982	
		0.12		53.8	4.000	0.123	1.200	1.900	---	36.60	53.23*					73.79*	1970 78982	
T3	S	0.12	R.T.	53.8	8.000	0.123	0.800	1.900	---	46.40	52.34*					83.07*	1970 78982	
		0.12		53.8	8.000	0.124	2.600	3.300	---	34.30	74.21*					87.46*	1970 78982	
		0.12		53.8	8.000	0.123	4.700	4.900	---	20.50	71.70*					75.21*	1970 78982	
		0.12		53.8	8.000	0.123	4.740	5.260	---	19.60	69.20*					78.70*	1970 78982	
		0.12		53.8	8.000	0.123	0.800	2.000	---	46.40	52.34*					85.56*	1970 78982	
T3	S	0.12	R.T.	53.8	24.000	0.123	14.350	16.200	---	13.40	95.15					111.14*	1970 78982	
		0.12		53.8	24.000	0.123	14.390	17.800	---	13.10	81.20					110.23*	1970 78982	
		0.12		53.8	24.000	0.123	2.400	3.250	---	44.60	87.13*					101.93*	1970 78982	
		0.12		53.8	24.000	0.123	2.400	4.400	---	44.60	87.13*					119.74*	1970 78982	
		0.12		53.8	24.000	0.123	7.650	11.600	---	29.20	108.07					146.35*	1970 78982	
		0.12		53.8	24.000	0.123	6.220	11.800	---	28.00	91.33	93	9/11.1	142.43*	---	---	1970 78982	
T3	S	0.06	R.T.	43.4	6.000	0.060	2.000	2.350	---	30.25	57.62*					64.31*	1966 86734	
T3	S	0.06	R.T.	43.4	9.000	0.060	3.000	3.600	---	30.50	71.15*					80.64*	1966 86734	
T3	S	0.06	R.T.	43.4	15.000	0.060	5.000	5.800	---	28.00	84.32*					93.27*	1966 86734	
T3	S	0.06	R.T.	43.4	18.000	0.060	6.000	7.200	---	27.50	90.72*					102.82*	1966 86734	
T3	S	0.06	R.T.	43.4	21.000	0.060	7.000	8.600	---	27.40	97.63*					112.98*	1966 86734	

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.5.2.2 (Con't)

CONDITION	ALUMINUM		2024		K(C)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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T3	S	0.06	R.T.	T-L	43.4	24.000	0.060	8.000	9.600	---	26.70	101.71*	115.27*	1966	86734																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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B	IN	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)	(KSI)

TABLE 7.5.2.2 (Con't)

CONDITION	ALUMINUM				2024				K(C)								
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	CRACK LENGTH CROSS STRESS				K(C)								
					---SPECIMEN---		MAX		K(APP) STAN		K(C) STAN						
					WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI*SQRT IN)	MEAN DEV (IN)	K(C) (KSI*SQRT IN)	MEAN DEV (IN)			
	W	B	2A(O)	2A(F)	S(O)	S(MAX)											
BUCKLING OF CRACK EDGES NOT RESTRAINED																	
T3	S	0.09	R. T.	L-T	51.1	3.000	0.092	1.210	2.002	---	30.30	46.53*	76.06*	1973	86213		
		0.09			51.1	3.000	0.092	1.190	1.992	---	30.50	46.27*	76.02*	1973	86213		
		0.09			51.1	3.000	0.092	1.240	2.215	---	29.90	46.76*	88.16*	1973	86213		
T3	S	0.12	R. T.	L-T	53.7	3.000	0.124	1.143	2.080	17.10	32.40	47.73*	86.04*	1973	86213		
		0.12			53.7	3.000	0.124	1.223	2.040	17.40	31.20	48.26*	80.47*	1973	86213		
		0.12			53.7	3.000	0.124	1.123	1.940	19.90	33.30	48.46*	80.08*	1973	86213		
		0.12			53.8	3.000	0.125	1.167	1.830	16.30	32.30	48.29*	72.22*	1973	86213		
		0.12			53.8	3.000	0.127	1.140	1.760	15.70	33.10	48.70*	70.78*	1973	86213		
		0.12			53.8	3.000	0.126	1.190	1.790	15.00	31.60	47.94*	68.87*	1973	86213		
		0.12			53.8	3.000	0.129	1.165	1.780	16.70	32.30	48.23*	69.93*	1973	86213		
		0.12			53.8	3.000	0.130	1.257	1.840	15.10	29.70	46.89*	66.84*	1973	86213		
		0.12			53.8	3.000	0.130	1.150	1.800	17.80	32.50	48.12*	71.28*	1973	86213		
T3	S	0.12	R. T.	L-T	56.0	4.000	0.125	1.645	2.749	---	31.40	56.46*	94.95*	1973	86213		
		0.12			56.9	4.000	0.125	1.627	2.678	---	31.50	56.18*	91.72*	1973	86213		
T3	S	0.16	R. T.	L-T	50.4	3.000	0.160	1.140	1.780	15.90	31.10	45.76*	67.35*	1973	86213		
		0.16			50.4	3.000	0.161	1.163	1.820	16.90	30.40	45.34*	67.53*	1973	86213		
		0.16			50.4	3.000	0.162	1.162	1.850	17.80	30.50	45.49*	69.08*	1973	86213		
		0.16			50.6	3.000	0.163	1.163	1.780	17.70	30.50	45.49*	66.05*	1973	86213		
		0.16			50.6	3.000	0.163	1.255	1.710	15.70	28.70	45.26*	59.49*	1973	86213		
		0.16			50.6	3.000	0.163	1.130	1.760	17.20	31.20	46.19*	66.72*	1973	86213		
		0.16			53.8	3.000	0.163	1.140	1.840	16.60	32.80	48.26*	73.81*	1973	86213		
		0.16			53.8	3.000	0.163	1.162	1.810	16.10	32.10	47.88*	70.85*	1973	86213		
		0.16			53.8	3.000	0.164	1.127	1.800	17.10	33.10	48.28*	72.60*	1973	86213		
T3	S	0.16	R. T.	L-T	50.8	29.990	0.163	15.000	18.360	---	20.70	119.51*	146.96*	1962	62308		
		0.16			50.8	30.010	0.163	15.000	18.880	---	20.60	118.90*	151.24*	1962	62308		
T3	P	0.25	R. T.	L-T	53.6	15.000	0.255	7.500	11.440	---	21.50	87.76*	151.02*	1966	86734		
		0.25			53.6	15.000	0.253	7.500	11.250	---	21.30	86.94	144.74*	1966	86734		
T3	P	0.50	R. T.	L-T	54.8	7.960	0.509	4.820	5.000	12.80	18.00	64.99*	67.93*	1970	78982		
		0.50			54.8	8.000	0.500	2.600	2.770	21.00	30.60	66.20*	69.00*	1970	78982		

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.5.2.2 (Con't)

CONDITION	ALUMINUM				2024				K(C)					
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	CRACK LENGTH CROSS STRESS				K(C)					
					--SPECIMEN--		ONSET		K(APP)		K(C)			
					WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	K(APP) (KSI)	MEAN (KSI)	STAN DEV (IN)	MEAN (KSI)	STAN DEV (IN)	
	W	B	2A(O)	2A(F)	S(O)	S(MAX)								
BUCKLING OF CRACK EDGES NOT RESTRAINED														
T3	P	0.50	R. T.	L-T	54.8	8.050	0.509	4.850	4.900	13.20	18.00	64.98*	65.76*	1970 78982
T3	P	0.50	R. T.	L-T	53.4	15.000	0.517	7.500	10.080	---	18.70	76.33	106.01*	1966 86734
		0.50			55.4	15.000	0.515	7.500	10.420	---	18.70	76.33	76.3/ 0.0 111.37*	1966 86734
T3	P	0.50	R. T.	L-T	54.8	24.000	0.509	7.250	12.000	17.20	24.80	95.89	138.37*	1970 78982
		0.50			54.8	24.150	0.507	7.200	11.500	18.50	27.60	98.26	137.01*	1970 78982
		0.50			54.8	24.150	0.509	14.100	17.400	---	15.50	93.54	124.29*	1970 78982
		0.50			54.8	24.150	0.509	2.300	4.800	25.70	42.80	81.81*	95.9/ 2.4 120.47*	1970 78982
T3	S	0.06	R. T.	T-L	44.4	2.000	0.064	0.625	1.080	32.30	33.20	34.99*	53.17*	1973 86213
		0.06			44.4	2.000	0.063	0.626	1.030	28.30	34.10	36.01*	52.21*	1973 86213
		0.06			46.2	2.000	0.064	0.620	0.980	---	33.90	35.59*	49.63*	1973 86213
		0.06			47.8	2.000	0.061	0.623	0.900	---	35.40	37.24*	48.27*	1973 86213
		0.06			47.8	2.000	0.061	0.621	1.040	34.40	35.20	36.95*	54.38*	1973 86213
		0.06			47.8	2.000	0.062	0.625	1.050	28.00	34.70	36.57*	54.09*	1973 86213
T3	S	0.06	R. T.	T-L	46.0	15.810	0.064	6.010	---	---	22.50	76.02	---	1973 86213
		0.06			46.0	15.810	0.063	4.000	---	---	29.10	75.96*	---	1973 86213
		0.06			46.0	15.810	0.064	3.010	4.110	---	32.80	72.76*	86.99*	1973 86213
		0.06			46.0	15.820	0.064	1.020	1.780	---	43.00	54.57*	72.47*	1973 86213
T3	S	0.06	R. T.	T-L	44.0	24.000	0.063	8.000	9.600	---	27.80	105.90*	120.02*	1966 86734
		0.06			44.0	24.000	0.063	8.000	9.600	---	28.40	108.18*	122.61*	1966 86734
		0.06			44.0	24.000	0.063	8.000	9.600	---	27.20	103.61*	117.43*	1966 86734
		0.06			44.0	24.000	0.063	8.000	9.600	---	27.90	106.28*	120.45*	1966 86734
T3	S	0.09	R. T.	T-L	45.3	3.000	0.093	1.190	2.480	---	28.70	43.54*	109.23*	1973 86213
		0.09			45.3	3.000	0.093	1.200	2.336	---	28.60	43.66*	93.86*	1973 86213
		0.09			45.3	3.000	0.092	1.220	2.372	---	28.00	43.26*	95.11*	1973 86213
T3	S	0.12	R. T.	T-L	45.7	3.000	0.124	1.130	2.250	15.20	30.50	44.60*	92.69*	1973 86213
		0.12			45.7	3.000	0.124	1.178	---	16.60	29.30	44.13*	---	1973 86213
		0.12			45.7	3.000	0.124	1.148	---	16.90	28.80	44.06*	---	1973 86213
		0.12			46.0	3.000	0.127	1.180	2.250	14.80	29.50	42.98*	86.61*	1973 86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.5.2.2 (Con't)

CONDITION	--PRODUCT-- FORM THICK TEMP OR (IN) (F)	YIELD STR (KSI)	ALUMINUM		2024		K(C)					
			CRACK LENGTH CROSS STRESS				K(C)					
			---SPECIMEN---		K(APP) STAN		K(C) STAN					
			WIDTH (IN) W	THICK (IN) B	INIT (IN) 2A(D) 2A(F)	FINAL (IN) S(D) S(MAX)	MAX (KSI) S(D) S(MAX)	MEAN DEV (KSI+SQRT IN)	MEAN DEV (KSI+SQRT IN)			
BUCKLING OF CRACK EDGES NOT RESTRAINED												
T3	S	0.12 R.T. T-L	46.0	3.000	0.127	1.233	2.200	13.70	27.70	43.11*	80.74*	1973 86213
		0.12	46.0	3.000	0.128	1.137	2.160	15.00	29.50	43.30*	83.28*	1973 86213
		0.12	48.1	3.000	0.129	1.110	2.190	17.10	30.10	43.47*	87.03*	1973 86213
		0.12	48.1	3.000	0.129	1.107	2.110	16.90	30.10	43.37*	81.75*	1973 86213
T3	S	0.16 R.T. T-L	43.2	3.000	0.161	1.183	2.110	14.70	27.50	41.52*	74.69*	1973 86213
		0.16	43.2	3.000	0.161	1.260	2.120	15.50	26.00	41.15*	71.15*	1973 86213
		0.16	43.2	3.000	0.162	1.160	2.050	15.20	27.40	40.82*	71.18*	1973 86213
		0.16	43.5	3.000	0.162	1.137	2.090	14.40	28.10	41.24*	75.18*	1973 86213
		0.16	43.5	3.000	0.162	1.202	2.110	15.90	27.00	41.26*	73.33*	1973 86213
		0.16	43.5	3.000	0.162	1.242	2.070	14.20	26.10	40.86*	68.80*	1973 86213
		0.16	43.6	3.000	0.162	1.255	2.240	15.60	27.70	43.68*	83.47*	1973 86213
		0.16	43.6	3.000	0.162	1.117	2.110	16.90	30.30	43.93*	82.29*	1973 86213
		0.16	43.6	3.000	0.162	1.130	2.160	15.70	30.20	44.16*	85.23*	1973 86213
T3	S	0.16 R.T. T-L	43.4	30.000	0.164	13.000	18.900	---	18.20	103.06*	133.83*	1966 86734
		0.16	43.4	30.000	0.165	13.000	18.450	---	18.20	103.06*	129.94*	1966 86734
T3	S	0.09 84 T-L	44.3	16.000	0.095	4.000	6.420	18.10	29.80	77.71*	105.29*	1973 86213
		0.09	44.3	16.000	0.095	4.000	6.530	15.80	29.30	76.41*	104.82*	1973 86213
T3	P	0.25 R.T. T-L	47.3	15.000	0.255	7.500	9.950	---	19.40	79.19*	107.98*	1966 86734
		0.25	47.3	15.000	0.254	7.500	9.650	---	19.30	78.78*	103.08*	1966 86734
T3	P	0.50 R.T. T-L	49.2	15.000	0.519	7.500	10.400	---	16.20	66.12	96.20*	1966 86734
		0.50	49.2	15.000	0.516	7.500	10.350	---	15.70	64.08	92.54*	1966 86734
BUCKLING OF CRACK EDGES NOT RESTRAINED												
T351	P	0.25 R.T. L-T	55.4	4.000	0.246	1.733	2.627	---	29.00	54.25*	82.17*	1973 86213
		0.25	55.8	4.000	0.247	1.727	2.306	---	29.80	55.60*	88.08*	1973 86213
T351	P	0.50 R.T. L-T	49.0	4.000	0.498	1.789	---	---	28.00	53.70*	----	1966 86734

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD DEV

TABLE 7.5.2.2 (Con't)

CONDITION		ALUMINUM		2024		K(C)										
		---SPECIMEN---		CRACK LENGTH CROSS STRESS												
		FORM	THICK (IN)	TEST SPEC TEMP (F)	YIELD STR (KSI)	WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K (APP) MEAN DEV (KSI*SQRT IN)	BTAN DEV	K (C) MEAN DEV	BTAN DEV	REFER
BUCKLING OF CRACK EDGES NOT RESTRAINED																
T351	P	0.50	R. T.	L-T	49.0	4.000	0.503	1.880	---	---	28.00	55.95*	---	---	---	1966 86734
		0.50			54.0	4.000	0.507	1.673	---	---	15.80	30.30	55.17*	---	---	1973 86213
		0.50			54.3	4.000	0.508	1.653	---	---	15.70	30.70	55.40*	---	---	1973 86213
T351	P	0.50	R. T.	L-T	49.0	12.000	0.441	7.750	---	---	18.00	86.42*	---	---	---	1966 86734
		0.50			49.0	12.000	0.444	5.000	---	---	29.10	91.56*	---	---	---	1966 86734
		0.50			49.0	12.000	0.448	9.620	---	---	9.00	63.19*	---	---	---	1966 86734
T351	P	1.00	R. T.	L-T	58.2	20.000	1.023	4.850	7.950	---	28.00	80.21	---	105.89	---	1973 86213
		1.00			58.2	20.000	1.023	2.610	6.250	---	35.60	72.85	---	118.78*	---	1973 86213
		1.00			58.2	20.000	1.023	7.000	10.000	---	23.00	82.59	78.6/ 5.1	108.40 107.1/ 1.8	---	1973 86213
T351	P	0.25	R. T.	T-L	47.1	4.000	0.255	1.790	2.300	---	23.80	45.69*	---	63.28*	---	1973 86213
		0.25			47.1	4.000	0.255	1.860	2.240	---	22.90	45.35*	---	53.80*	---	1973 86213
T351	P	0.50	R. T.	T-L	48.6	14.970	0.507	4.970	7.900	---	23.80	71.41	---	102.00*	---	1973 86213
		0.50			48.6	15.000	0.507	5.000	8.600	---	23.50	70.77	71.1/ 0.5	109.59*	---	1973 86213
T351	P	1.00	R. T.	T-L	52.0	20.000	1.023	4.850	8.500	---	24.00	68.75	---	98.96*	---	1973 86213
		1.00			52.0	20.000	1.023	7.000	10.100	---	19.90	71.46	---	94.63	---	1973 86213
		1.00			52.0	20.000	1.023	2.610	6.450	---	30.90	63.23	67.8/ 4.2	105.18*	---	1973 86213
BUCKLING OF CRACK EDGES NOT RESTRAINED																
T36	S	0.06	R. T.	L-T	63.6	2.000	0.062	0.625	1.160	---	41.30	43.33*	---	71.21*	---	1973 86213
		0.06			63.6	2.000	0.062	0.625	1.250	---	41.90	44.16*	---	78.77*	---	1973 86213
T36	S	0.06	R. T.	T-L	56.4	2.000	0.062	0.625	1.280	---	37.40	39.42*	---	72.45*	---	1973 86213
		0.06			56.4	2.000	0.062	0.625	1.220	---	37.50	39.53*	---	68.46*	---	1973 86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD DEV

TABLE 7.5.2.2 (Con't)

CONDITION	--PRODUCT-- FORM THICK TEMP OR (IN) (F)	TEST SPEC YIELD STR (KSI)	ALUMINUM		2024		K(C)		CRACK LENGTH GROSS STRESS				K(APP) STAN				K(C) STAN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
			--SPECIMEN--		W		B		INIT		FINAL		ONSET		MAX		K(APP)		STAN		K(C)		STAN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
			WIDTH (IN)	THICK (IN)	WIDTH (IN)	THICK (IN)	2A(D)	2A(F)	S(O)	S(MAX)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI)	MEAN (KSI)	DEV (KSI)	STAN (KSI)	MEAN (KSI)	DEV (KSI)	STAN (KSI)	MEAN (KSI)	DEV (KSI)	STAN (KSI)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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T4	S	0.04	0.04	37.5	7.500	0.040	1.950	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---</

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.5.2.2 (Con't)

CONDITION	ALUMINUM				2024				K(C)								
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	CRACK LENGTH CROSS STRESS				K(APP) STAN				K(C) STAN				
					---SPECIMEN---				MAX				K(C) MEAN DEV		K(C) STAN (KSI*SQRT IN)	K(C) STAN (KSI*SQRT IN)	
					W	B	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	K(APP) (KSI*SQRT IN)	K(C) (KSI*SQRT IN)	STAN DEV				
														2A(D)			2A(F)
BUCKLING OF CRACK EDGES NOT RESTRAINED																	
T4	S	0.04	R. T. T-L	37.7	7.500	0.040	0.350	---	---	12.13	53.30*	---	---	---	---	1966 86734	1966 86734
		0.04		37.7	7.500	0.040	4.000	---	---	16.00	49.03*	---	---	---	---	1966 86734	1966 86734
		0.04		37.7	7.500	0.040	5.000	---	---	12.14	48.11*	---	---	---	---	1966 86734	1966 86734
T4	S	0.06	R. T. T-L	41.4	7.500	0.064	2.080	---	---	28.00	53.15*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	1.100	---	---	35.20	46.89*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	4.300	---	---	14.63	48.24*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	0.510	---	---	37.90	34.02*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	0.500	---	---	39.40	35.01*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	1.960	---	---	29.70	54.42*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	3.900	---	---	17.58	52.59*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	0.500	---	---	40.80	36.26*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	5.200	---	---	11.54	48.43*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	0.560	---	---	38.80	36.52*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	4.100	---	---	16.00	50.23*	---	---	---	---	1966 86734	1966 86734
		0.06		41.4	7.500	0.064	1.150	---	---	34.70	47.33*	---	---	---	---	1966 86734	1966 86734
BUCKLING OF CRACK EDGES NOT RESTRAINED																	
T6	S	0.06	R. T. L-T	54.7	2.000	0.062	0.621	0.860	---	39.10	41.05*	---	51.44*	---	---	1973 86213	1973 86213
		0.06		54.7	2.000	0.062	0.622	0.930	---	39.70	41.76*	---	55.60*	---	---	1973 86213	1973 86213
		0.06		54.7	2.000	0.062	0.624	0.850	---	39.30	41.42*	---	51.24*	---	---	1973 86213	1973 86213
T6	S	0.06	R. T. T-L	54.2	2.000	0.062	0.622	0.790	---	35.80	37.66*	---	44.21*	---	---	1973 86213	1973 86213
		0.06		54.2	2.000	0.062	0.623	0.840	---	36.00	37.87*	---	46.52*	---	---	1973 86213	1973 86213
		0.06		54.2	2.000	0.062	0.622	0.880	---	35.10	36.92*	---	47.01*	---	---	1973 86213	1973 86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.5.2.2 (Con't)

		ALUMINUM		2024		K(C)										
		--PRODUCT-- FORM THICK TEMP OR (IN) (F)		--SPECIMEN-- WIDTH THICK (IN) (IN)		CRACK LENGTH CROSS STRESS INIT FINAL ONSET MAX (IN) (IN) (KSI) (KSI) S(O) S(MAX)										
CONDITION	T81	S	0.06	R. T.	T-L	62.0	15.000	0.060	5.000	6.000	---	18.90	56.92	64.51	1966	86734
	T81	S	0.06	R. T.	T-L	62.0	18.000	0.060	6.000	7.000	---	18.50	61.03	67.78	1966	86734
	T81	S	0.06	R. T.	T-L	62.0	21.000	0.060	7.000	8.200	---	17.60	62.71	69.85	1966	86734
	T81	S	0.06	R. T.	T-L	62.0	24.000	0.060	8.000	9.100	---	16.40	62.47	68.15	1966	86734
	T81	S	0.13	R. T.	T-L	64.1	5.990	0.126	2.020	---	---	23.32	44.70	59.50	1978	GD005
	T81	S	0.13	R. T.	T-L	64.1	6.000	0.126	1.980	---	---	22.88	43.30	55.70	1978	GD005
	T81	S	0.13	R. T.	T-L	64.1	6.010	0.126	2.060	---	---	23.24	45.10	56.80	1978	GD005
				ALUMINUM		2024		K(C)								
				--PRODUCT-- FORM THICK TEMP OR (IN) (F)		--SPECIMEN-- WIDTH THICK (IN) (IN)		CRACK LENGTH CROSS STRESS INIT FINAL ONSET MAX (IN) (IN) (KSI) (KSI) S(O) S(MAX)		K(IAPP) STAN K(IAPP) MEAN DEV (KBI*SORT IN)		K(I) STAN K(I) MEAN DEV (KBI*SORT IN)		K(I) STAN K(I) MEAN DEV (KBI*SORT IN)		
CONDITION	T81	S	0.06	R. T.	L-T	67.0	9.000	0.065	2.950	---	---	28.50	65.76	---	1966	86734
	T81	S	0.06	R. T.	L-T	68.0	2.000	0.062	0.625	1.040	---	36.00	37.94	55.61*	1973	86213
	T81	S	0.06	R. T.	L-T	68.0	2.000	0.061	0.619	1.065	---	36.10	37.82	56.99*	1973	86213
	T81	S	0.06	R. T.	L-T	68.0	2.000	0.061	0.619	0.940	---	38.20	40.02*	53.97*	1973	86213
	T81	S	0.06	R. T.	L-T	68.0	2.000	0.061	0.617	1.040	---	36.60	38.26	56.54*	1973	86213
	T81	S	0.06	R. T.	L-T	68.0	2.000	0.061	0.625	0.970	---	35.40	37.31	51.37*	1973	86213
	T81	S	0.06	R. T.	L-T	68.0	2.000	0.061	0.620	1.070	---	37.00	38.84	58.73*	1973	86213
	T81	S	0.06	R. T.	L-T	69.1	2.000	0.062	0.624	0.840	---	35.90	37.84	46.39*	1973	86213
	T81	S	0.06	R. T.	L-T	69.1	2.000	0.062	0.623	0.870	---	35.40	37.24	46.99*	1973	86213
	T81	S	0.06	R. T.	L-T	69.1	2.000	0.062	0.623	0.960	---	36.50	38.39	52.50*	1973	86213
	T81	S	0.06	R. T.	L-T	59.0	9.000	0.064	3.320	---	---	27.70	69.15	---	1966	86734
	T81	S	0.06	R. T.	L-T	59.0	9.000	0.065	3.380	---	---	28.70	72.54	---	1966	86734
	T81	S	0.06	R. T.	L-T	59.0	20.000	0.065	11.500	---	---	14.00	75.62	---	1966	86734
	T81	S	0.06	R. T.	L-T	59.0	20.000	0.065	11.250	---	---	14.70	77.58	---	1966	86734

TABLE 7.5.2.2 (Con't)

CONDITION		--PRODUCT-- FORM THICK TEMP OR (IN) (F)		TEST SPEC YIELD STR (KSI)		ALUMINUM										K(C)		K(C)		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K(C) STAN MEAN DEV		K	
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*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.5.2.2 (Con't)

CONDITION		ALUMINUM		2024		K(C)								
		---SPECIMEN---		CRACK LENGTH		GROSS STRESS								
FORM	THICK (IN)	TEST TEMP (F)	SPEC YIELD STR (KSI)	W	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI*SQRT IN)	STAN MEAN DEV (IN)	K(C) MEAN DEV (KSI*SQRT IN)	STAN DEV DATE	REFER	
BUCKLING OF CRACK EDGES NOT RESTRAINED														
T851	P	0.25	R. T.	T-L	46.2	4.000	0.243	1.330	1.900	---	25.00	38.81	50.40	1973 86213
		0.25			66.2	4.000	0.243	1.440	1.940	---	23.30	38.14	47.82	1973 86213
		0.25			66.2	4.000	0.243	1.330	1.800	---	25.10	38.97	48.40	1973 86213
		0.25			65.8	4.000	0.256	1.330	1.860	---	28.00	43.47	55.45	1973 86213
		0.25			65.8	4.000	0.256	1.430	1.940	---	27.00	43.98	55.41	1973 86213
		0.25			68.0	4.000	0.256	1.400	1.670	---	19.30	31.00	35.11	1973 86213
T851	P	0.25			68.0	4.000	0.255	1.390	1.740	---	19.90	31.81	37.36	1973 86213
		1.00	R. T.	T-L	64.4	20.000	1.000	7.000	9.200	---	7.10	25.50	31.16	1973 86213
		1.00			64.4	20.000	1.000	7.000	9.230	---	7.40	26.57	32.57	1973 86213
		1.00			64.4	20.000	1.000	7.000	9.100	---	7.20	25.86	31.32	1973 86213
		1.00			64.4	20.000	1.000	7.000	9.000	---	7.50	26.93	32.34	1973 86213
		1.00			65.4	20.000	1.000	7.000	8.980	---	7.90	28.37	34.00	1973 86213
T86	S	0.06	R. T.	L-T	72.4	2.000	0.064	0.619	0.820	---	35.90	37.61	45.56*	1973 86213
		0.06			72.4	2.000	0.064	0.622	0.900	---	35.00	36.82	47.72*	1973 86213
		0.06			72.4	2.000	0.064	0.623	0.850	---	34.60	36.40	45.11*	1973 86213
		0.06			72.5	2.000	0.062	0.614	0.970	---	38.70	40.38	56.16*	1973 86213
		0.06			72.5	2.000	0.062	0.616	0.960	---	35.90	37.53	51.63*	1973 86213
		0.06			72.5	2.000	0.062	0.619	0.860	---	37.30	39.08	49.07*	1973 86213
T86	S	0.06			72.5	2.000	0.062	0.617	0.900	---	36.40	38.06	49.63*	1973 86213
		0.06			73.4	2.000	0.062	0.623	0.720	---	38.40	40.39	44.44*	1973 86213
		0.06			73.4	2.000	0.062	0.622	0.900	---	36.90	38.81	50.31*	1973 86213
		0.06			73.4	2.000	0.062	0.624	0.910	---	36.90	38.89	50.76*	1973 86213
		0.06			73.4	2.000	0.062	0.624	0.910	---	38.40	40.39	50.76*	1973 86213
		0.06			73.4	2.000	0.062	0.624	0.910	---	38.40	40.39	50.76*	1973 86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.5.2.2 (Con't)

CONDITION	--PRODUCT-- FORM	THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	ALUMINUM				2024				K(C)							
					---SPECIMEN---				CRACK LENGTH				CROSS STRESS							
					WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KBI)	K(APP) (KBI)	K(SORT (IN)	STAN DEV	K(C) (KSI)	MEAN (KBI)	STAN DEV	K(C) (KBI)	MEAN (KBI)	STAN DEV	DATE REFER
					W	B	2A(D)	2A(F)	S(O)	S(MAX)										
BUCKLING OF CRACK EDGES NOT RESTRAINED																				
T86	S	0.06	R. T.	L-T	72.9	15.800	0.064	3.000	3.400	---	22.20	49.29	52.82				1973	86213		
		0.06			72.9	15.810	0.063	6.010	6.930	---	16.10	54.40	60.45				1973	86213		
		0.06			72.9	15.810	0.064	3.990	4.660	---	18.20	47.44	52.06				1973	86213		
		0.06			72.9	15.820	0.064	5.990	6.800	---	12.80	43.14	47.35				1973	86213		
T86	S	0.06			72.9	15.820	0.064	1.010	1.420	---	34.70	43.82	47.6/	4.6			53.0/	4.7	1973	86213
		0.06	R. T.	T-L	70.8	2.000	0.064	0.624	0.870	---	32.20	33.94	42.75*				1973	86213		
		0.06			70.8	2.000	0.064	0.622	0.880	---	31.60	33.24	42.33				1973	86213		
		0.06			70.8	2.000	0.064	0.623	0.890	---	31.70	33.34	42.84*				1973	86213		
		0.06			71.6	2.000	0.062	0.615	0.915	---	32.40	33.80	44.73*				1973	86213		
		0.06			71.6	2.000	0.062	0.616	0.800	---	34.70	36.28	43.25*				1973	86213		
		0.06			71.6	2.000	0.062	0.618	0.875	---	33.20	34.78	44.23*				1973	86213		
		0.06			71.6	2.000	0.062	0.617	0.815	---	33.90	35.44	42.79				1973	86213		
		0.06			72.6	2.000	0.063	0.620	0.860	---	32.70	34.33	43.02				1973	86213		
		0.06			72.6	2.000	0.063	0.620	0.910	---	32.60	34.22	44.85*				1973	86213		
T86	S	0.06			72.6	2.000	0.063	0.623	0.820	---	32.90	34.61	34.4/	0.9			42.5/	0.6	1973	86213
		0.06	R. T.	T-L	71.2	15.810	0.063	3.010	3.430	---	19.70	43.82	47.10				1973	86213		
		0.06			71.2	15.810	0.064	6.020	6.630	---	11.80	39.92	42.82				1973	86213		
		0.06			71.2	15.820	0.063	3.020	3.360	---	21.90	47.91	50.81				1973	86213		
T86	S	0.06			71.2	15.820	0.064	4.000	4.620	---	15.70	40.98	44.67				45.9/	3.2	1973	86213
		0.06			71.2	15.820	0.064	1.000	1.200	---	31.90	40.08	42.5/	3.4			43.95		1973	86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

ALUM.
ALLOY

2024

SPECIMEN THK: .188"
SPECIMEN WIDTH: 4.000"
 K_C (KSI $\sqrt{\text{in}}$):
REFERENCE: DA001

CONDITION/HT: T351
FORM: .19" TH SHEET
SPECIMEN TYPE: CCP
ORIENTATION: L-T

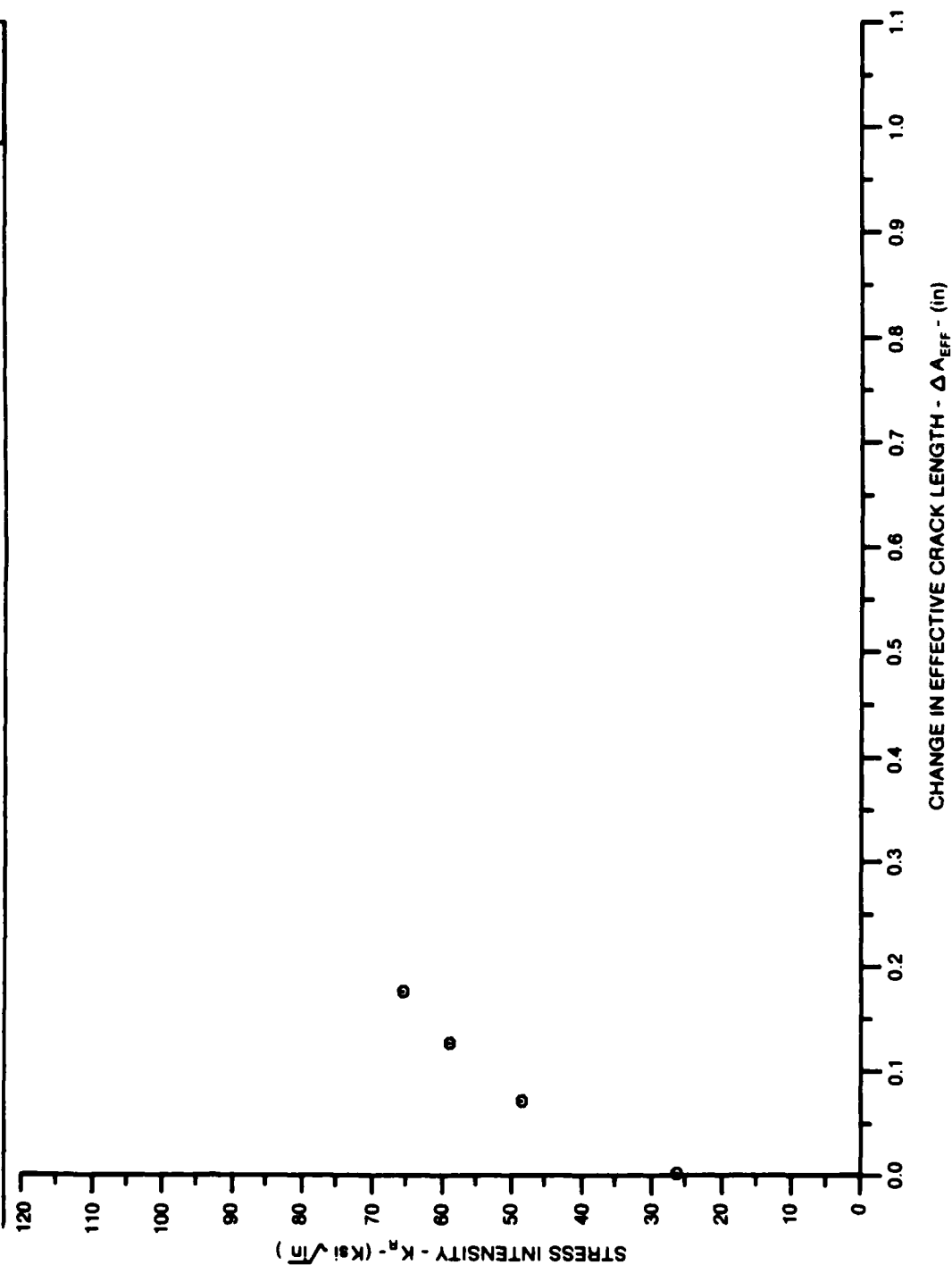


Figure 7.5.2.3

ALUM.
ALLOY

2024

SPECIMEN THK: .191"
SPECIMEN WIDTH: 4.000"
 K_{IC} (Ksi \sqrt{in}):
REFERENCE: DA001

CONDITION/HT: T351
FORM: .19" TH SHEET
SPECIMEN TYPE: CCP
ORIENTATION: L-T

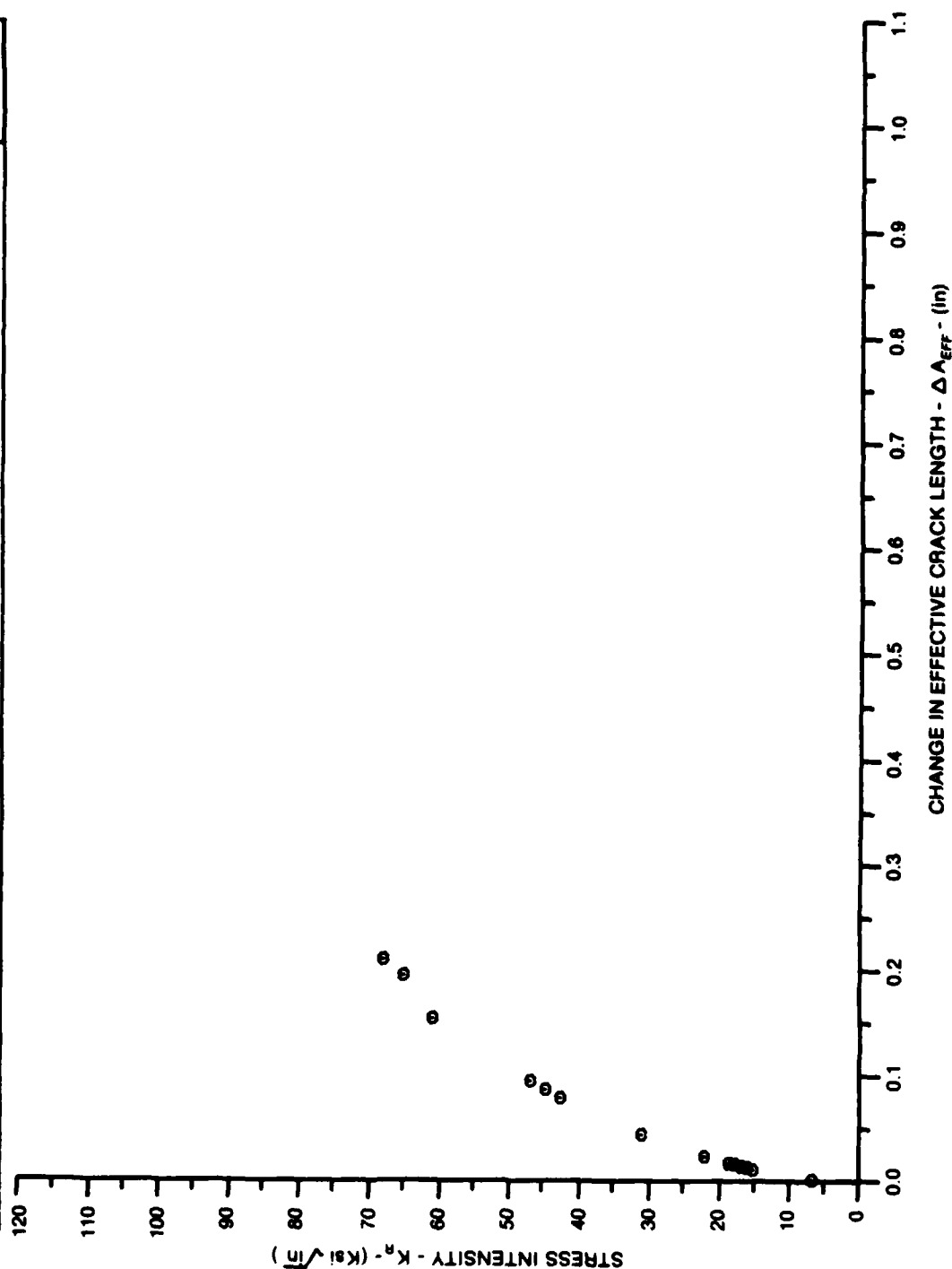


Figure 7.5.2.4

ALUM.
ALLOY

2024

SPECIMEN THK: 302"
 SPECIMEN WIDTH: 4.000"
 K_{IC} (Ksi \sqrt{in}):
 REFERENCE: DA001

CONDITION/HI: T351
 FORM: .19" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

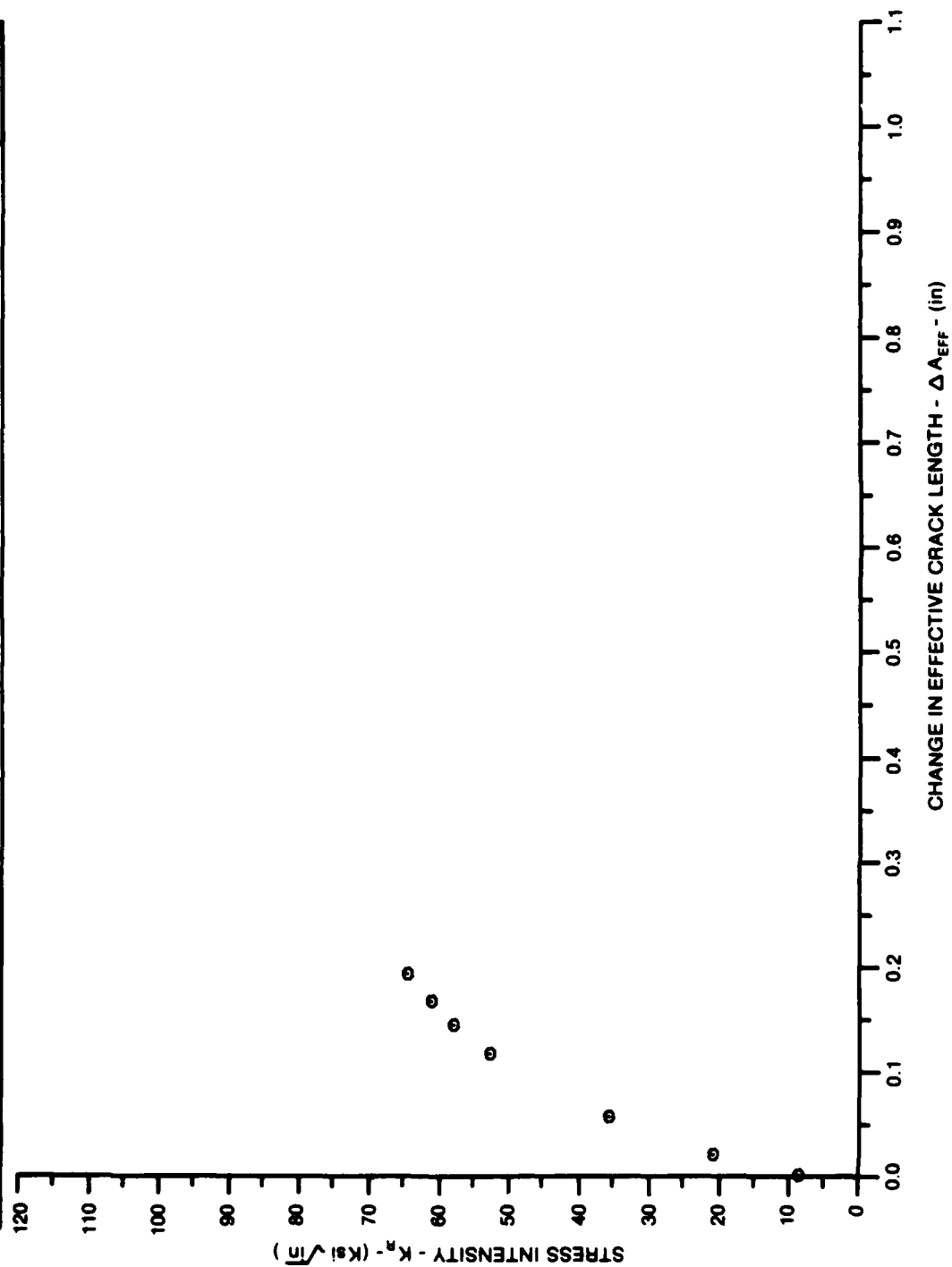


Figure 7.5.2.5

ALUM.
ALLOY

2024

SPECIMEN THK: .181"
SPECIMEN WIDTH: 11.888"
 K_{IC} (ksi \sqrt{in}):
REFERENCE: DA001

CONDITION/HT: T351
FORM: .19" TH SHEET
SPECIMEN TYPE: CCP
ORIENTATION: L-T

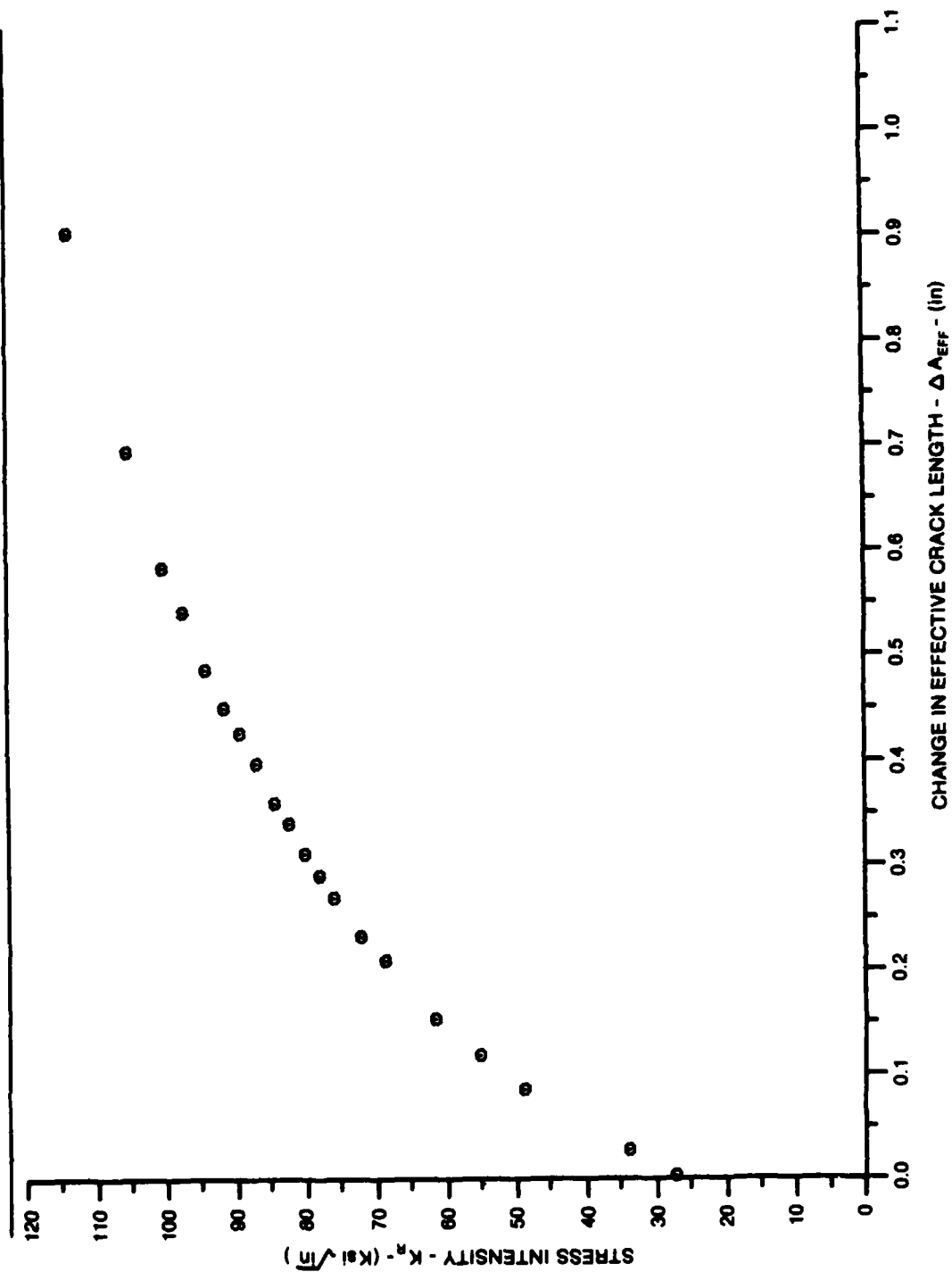


Figure 7.5.2.6

ALUM.
ALLOY

2024

SPECIMEN THK: .104"
SPECIMEN WIDTH: 12.002"
 $K_C (Ksi\sqrt{in})$:
REFERENCE: DAD01

CONDITION: T351
FORM: .10" TH SHEET
SPECIMEN TYPE: CCP
ORIENTATION: L-T

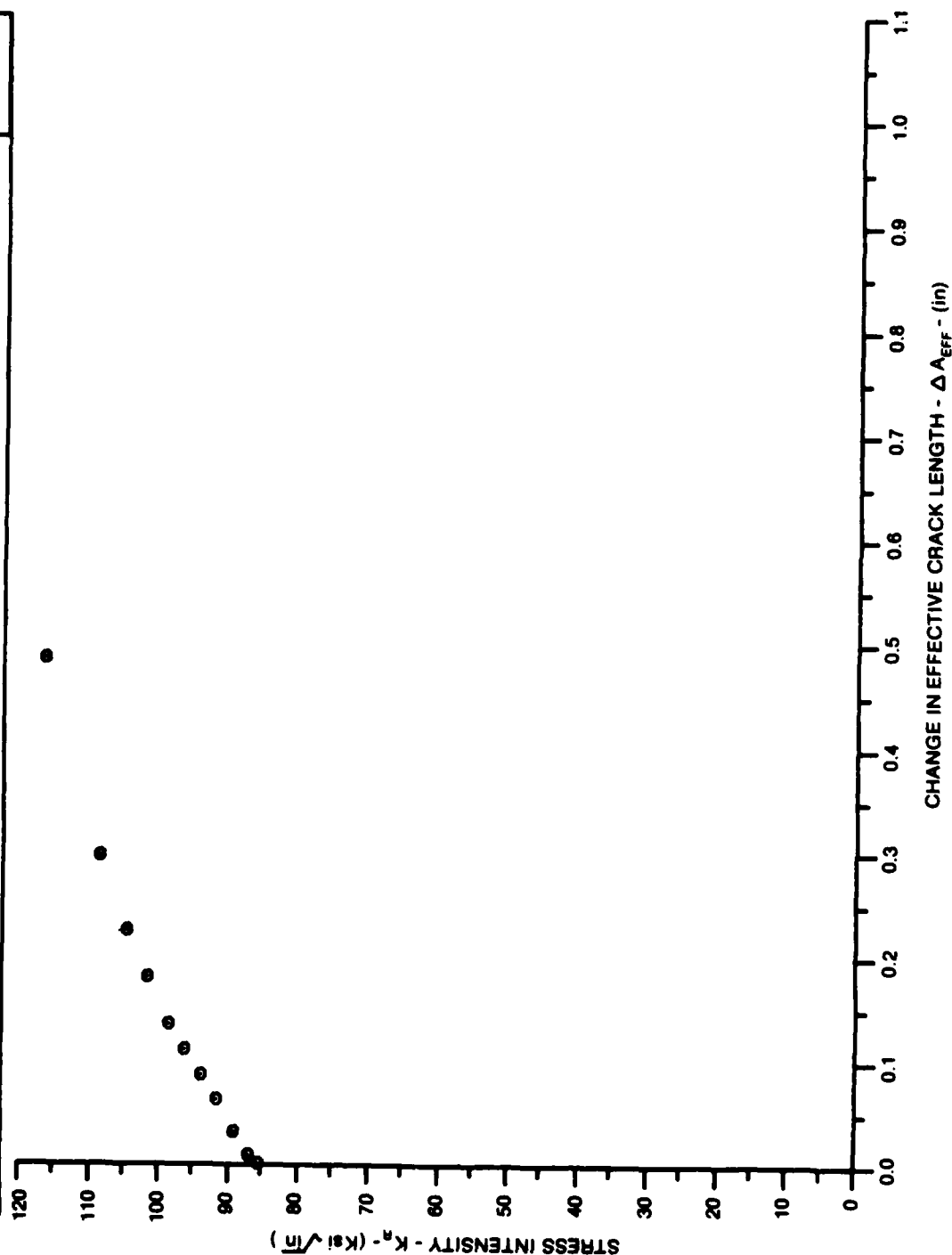


Figure 7.5.2.7

ALUM.
ALLOY

2024

SPECIMEN THK: .188"
SPECIMEN WIDTH: 11.997"
 K_{IC} (KSI \sqrt{in}):
REFERENCE: DA001

CONDITION/HT: T351
FORM: .19" TH SHEET
SPECIMEN TYPE: CCP
ORIENTATION: L-T

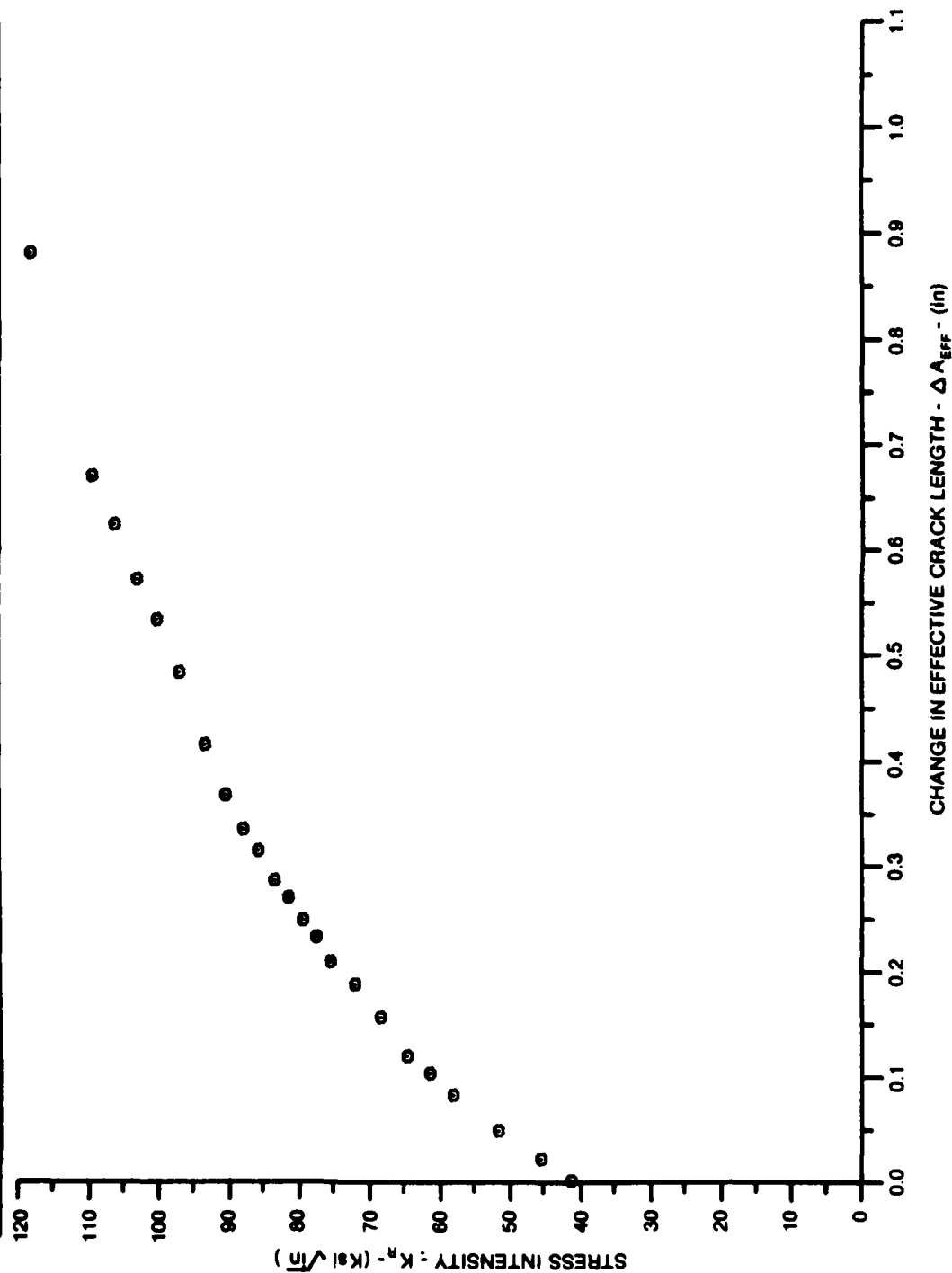


Figure 7.5.2.8

ALUM.
ALLOY

2024

SPECIMEN THK: .250"
SPECIMEN WIDTH: 4.000"
 K_{IC} (Ksi- $\sqrt{\text{in}}$):
REFERENCE: DA001

CONDITION/HT: T351
FORM: .25" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

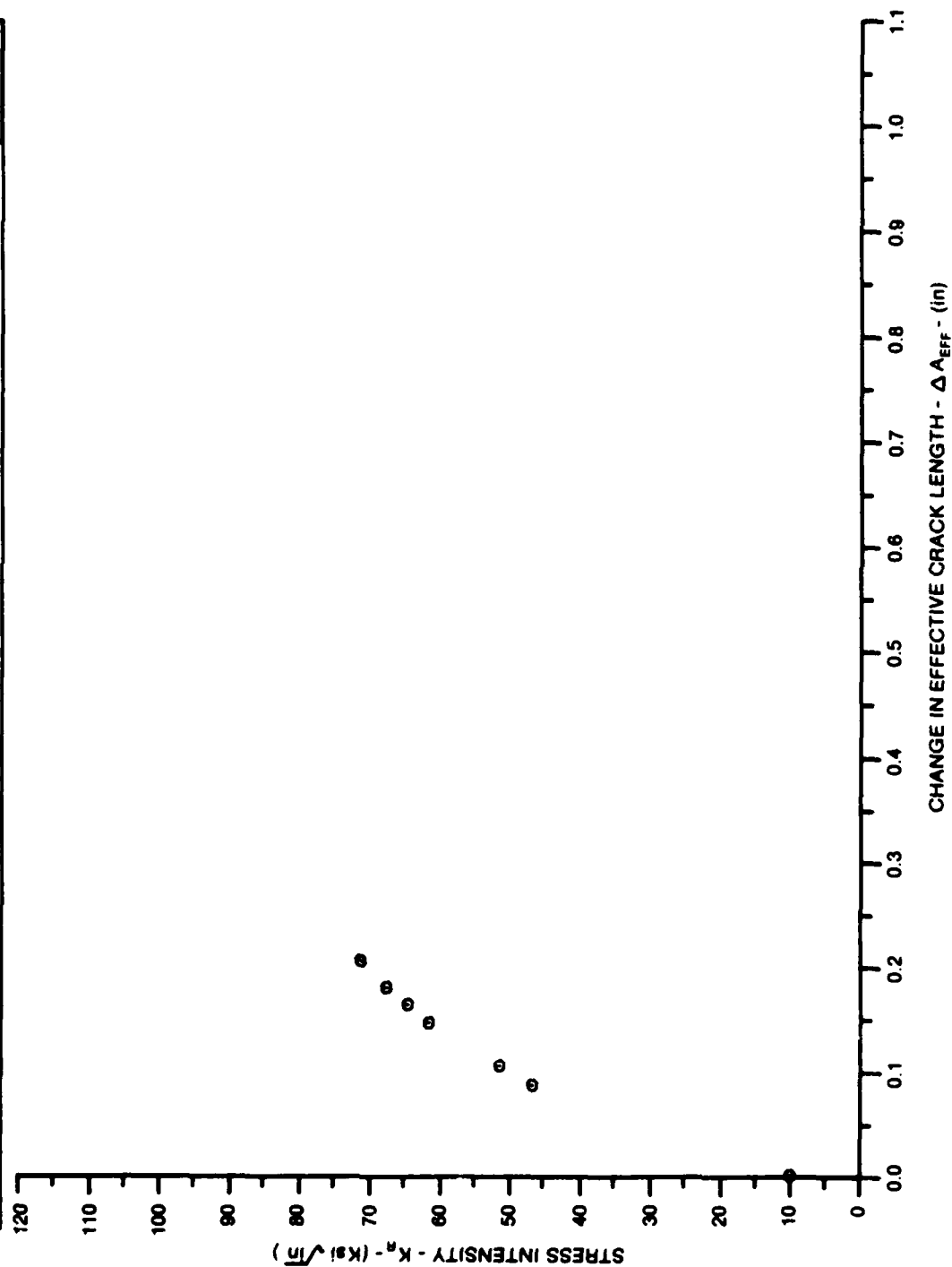


Figure 7.5.2.9

ALUM.
ALLOY

2024

SPECIMEN THK: .250"
SPECIMEN WIDTH: 4.002"
 K_{IC} (Ksi \sqrt{in}):
REFERENCE: DAB01

CONDITION/HT: T351
FORM: .25" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

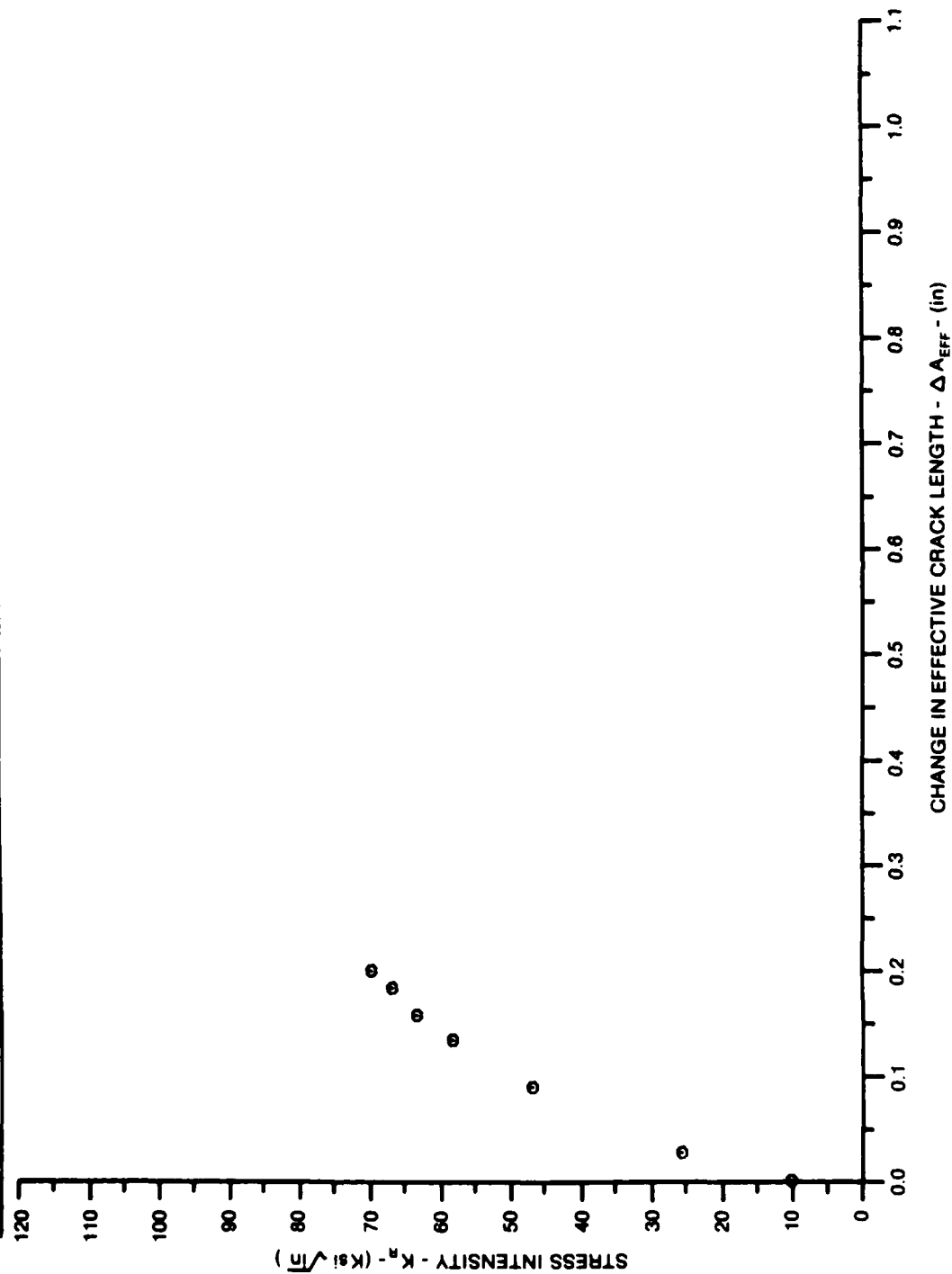


Figure 7.5.2.10

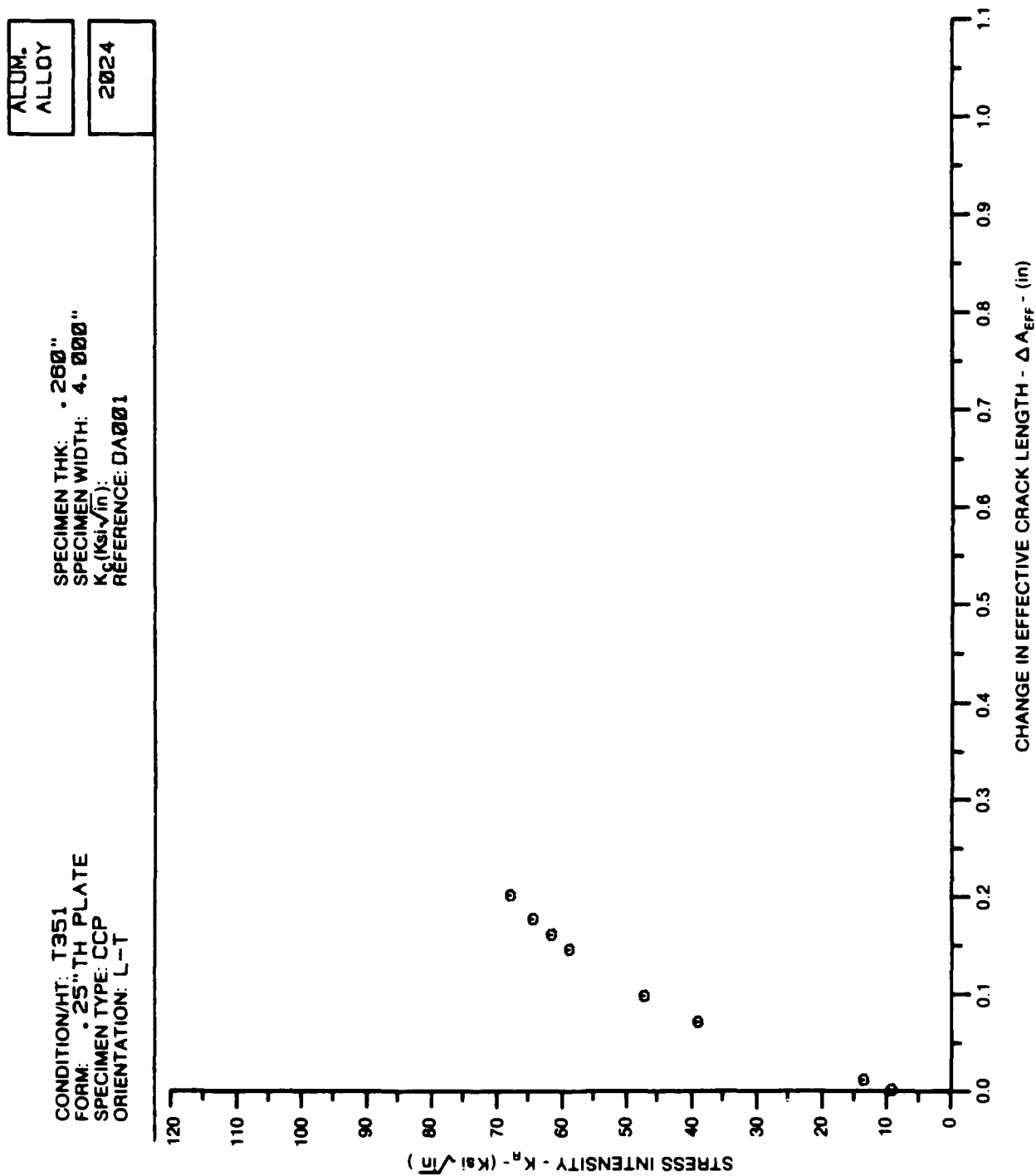


Figure 7.5.2.11

ALUM.
ALLOY

2024

SPECIMEN THK: .241"
 SPECIMEN WIDTH: 8.000"
 K_I (Ksi $\sqrt{\text{in}}$):
 REFERENCE: DA001

CONDITION/HT: T351
 FORM: .25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

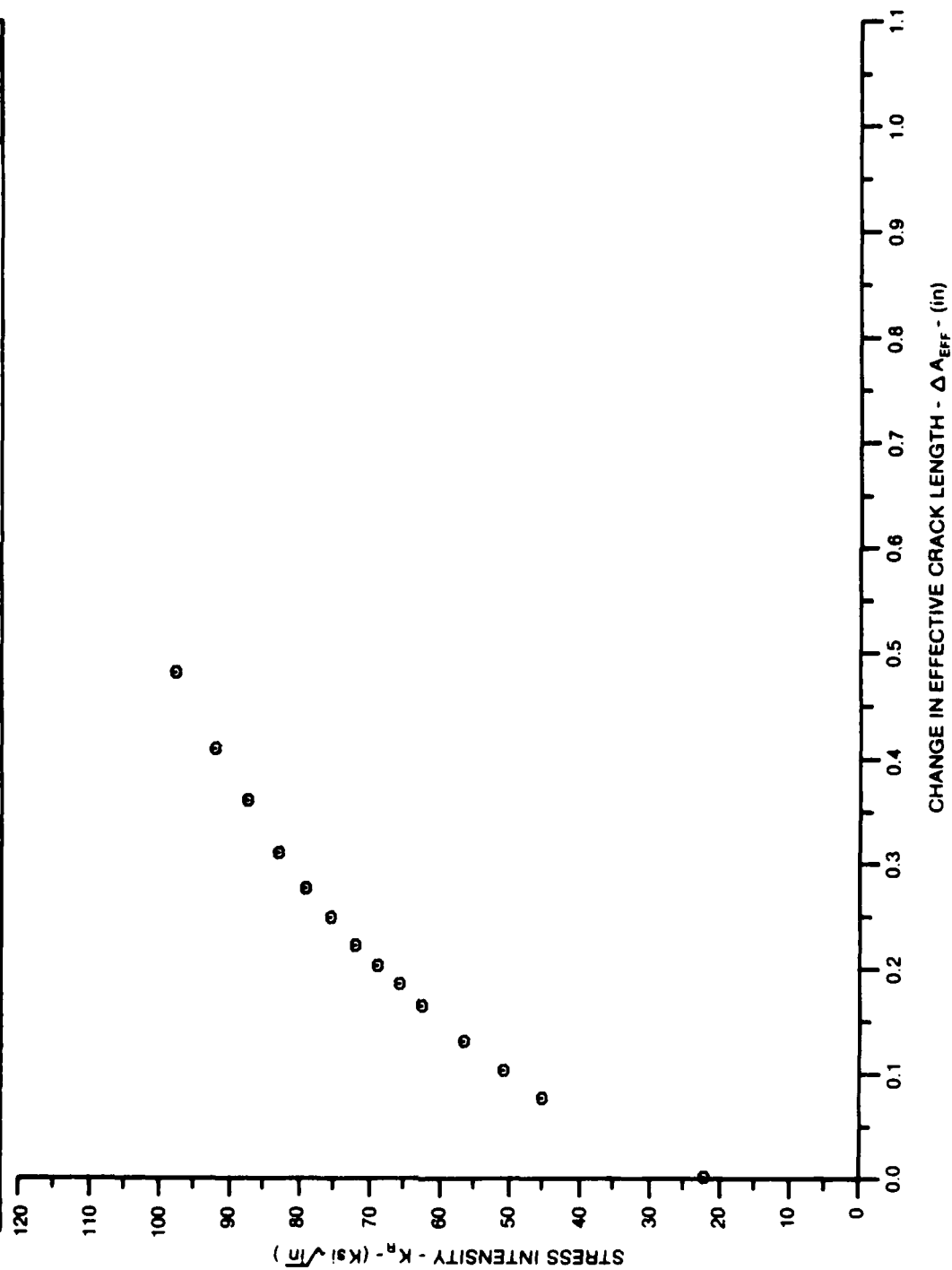


Figure 7.5.2.12

ALUM.
ALLOY

2024

SPECIMEN THK: .241"
SPECIMEN WIDTH: 9.000"
 K_C (KSI $\sqrt{\text{in}}$):
REFERENCE: DA001

CONDITION/HT: T351
FORM: .25" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

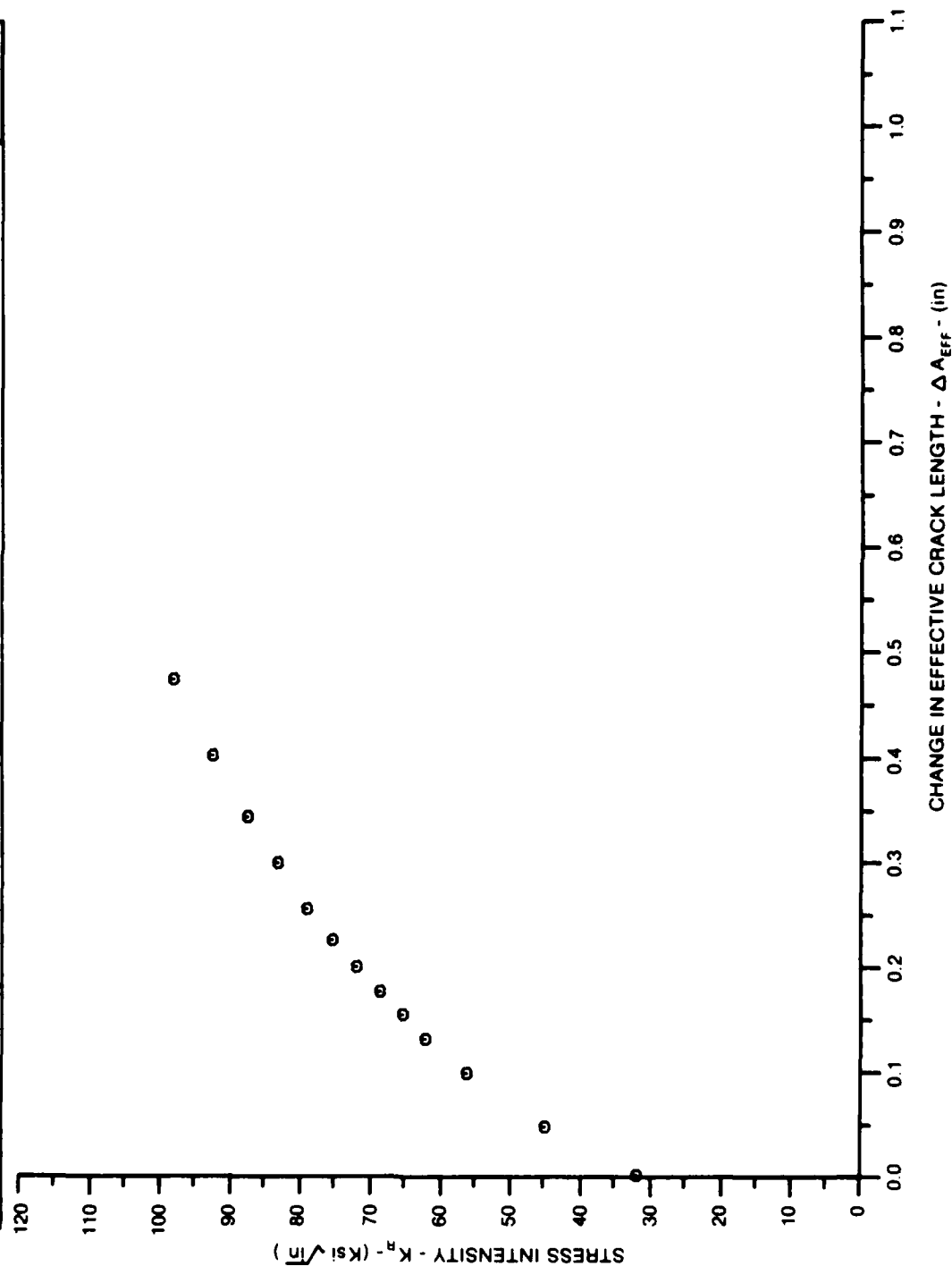


Figure 7.5.2.13

ALUM. ALLOY
2024

SPECIMEN THK: .241"
 SPECIMEN WIDTH: 9.000"
 K_{IC} (KSI \sqrt{IN}):
 REFERENCE: DA001

CONDITION/HT: T351
 FORM: .25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

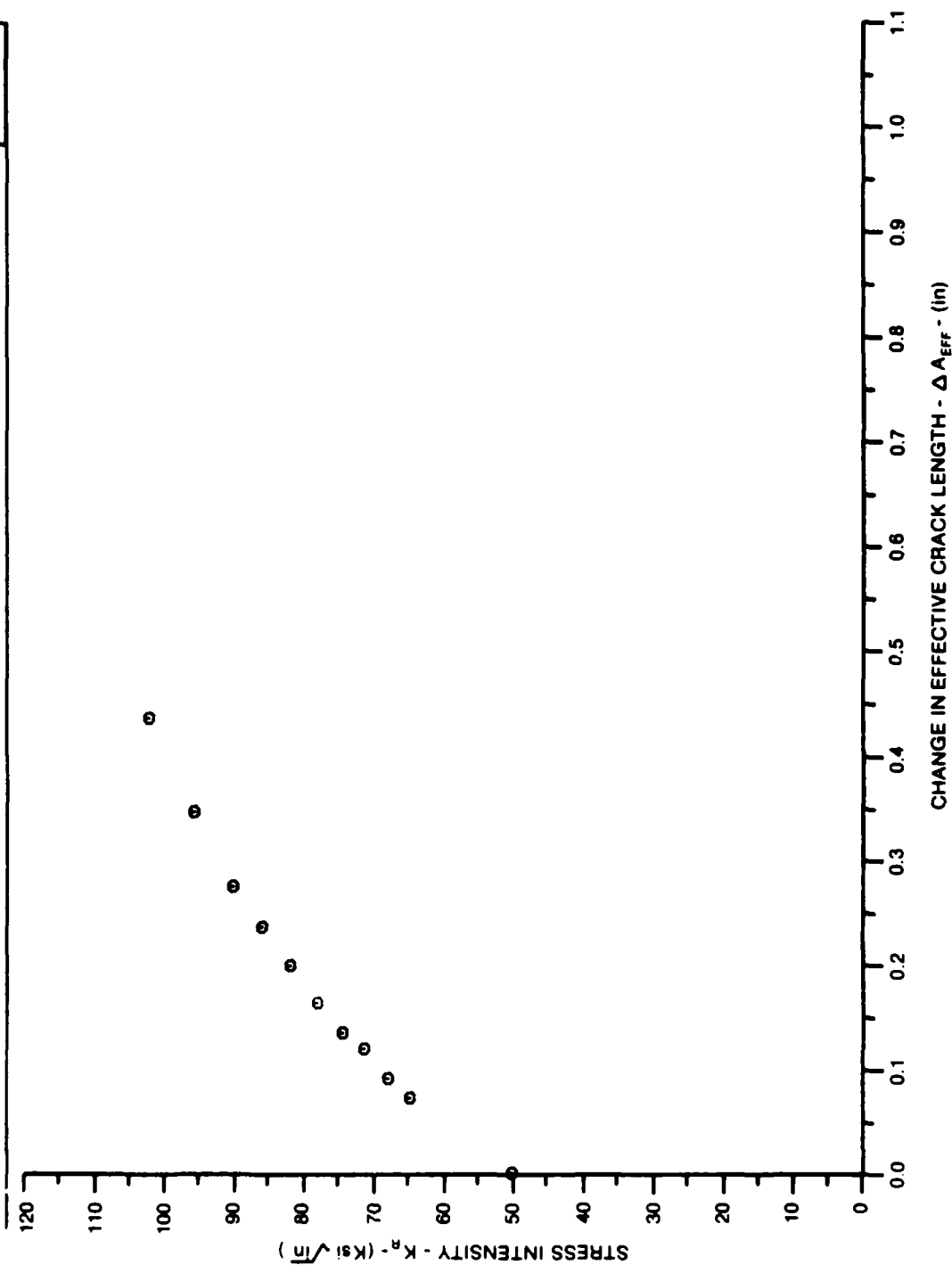


Figure 7.5.2.14

ALUM.
ALLOY

2024

SPECIMEN THK: .242"
 SPECIMEN WIDTH: 8.995"
 K_{IC} (Ksi $\sqrt{\text{in}}$):
 REFERENCE: DA0001

CONDITION/HT: T351
 FORM: .25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

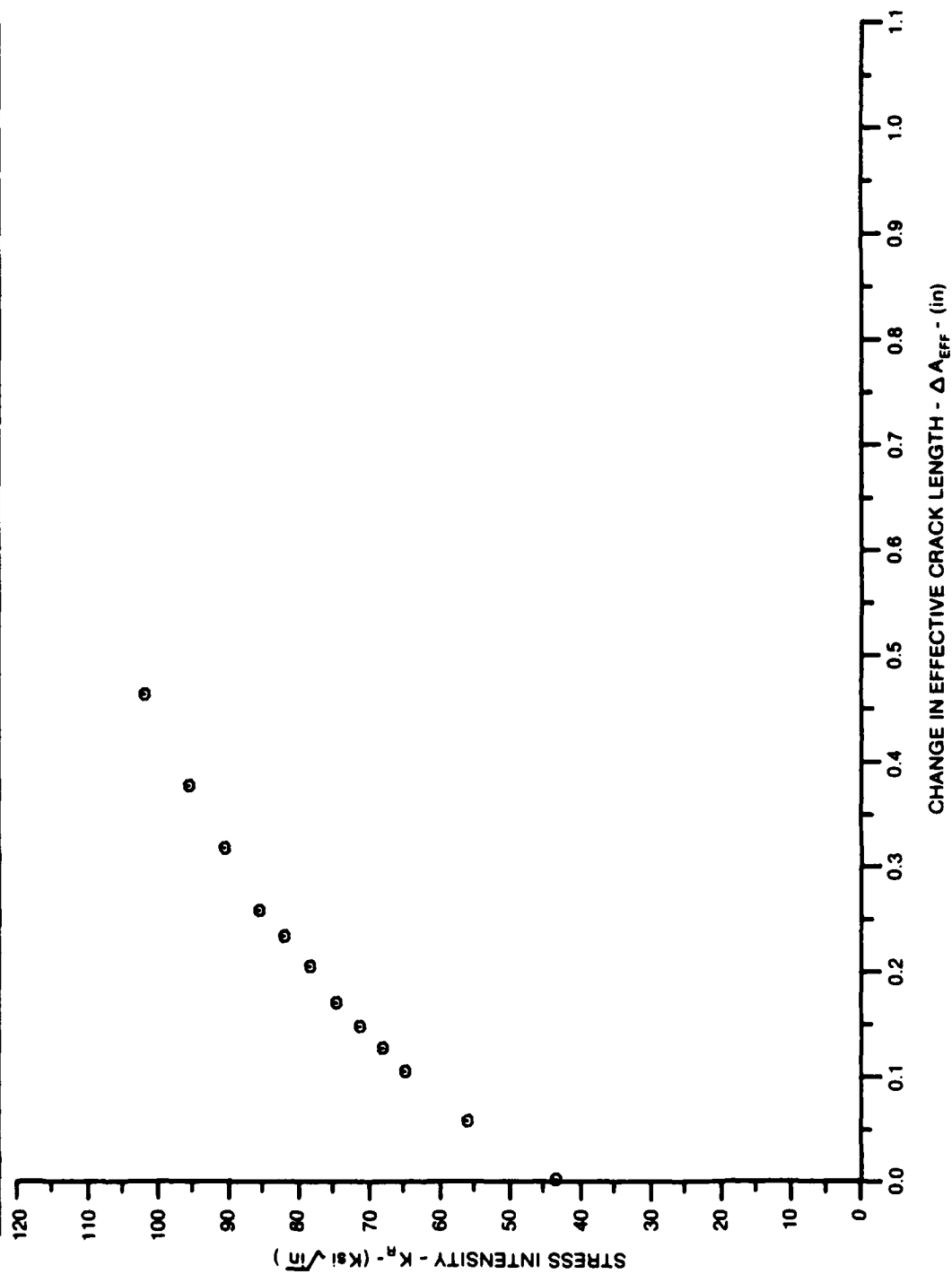


Figure 7.5.2.15

ALUM. ALLOY
2024

SPECIMEN THK: .242"
 SPECIMEN WIDTH: 9.000"
 K_0 (Ksi $\sqrt{\text{in}}$):
 REFERENCE: DA001

CONDITION/HT: T351
 FORM: .25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

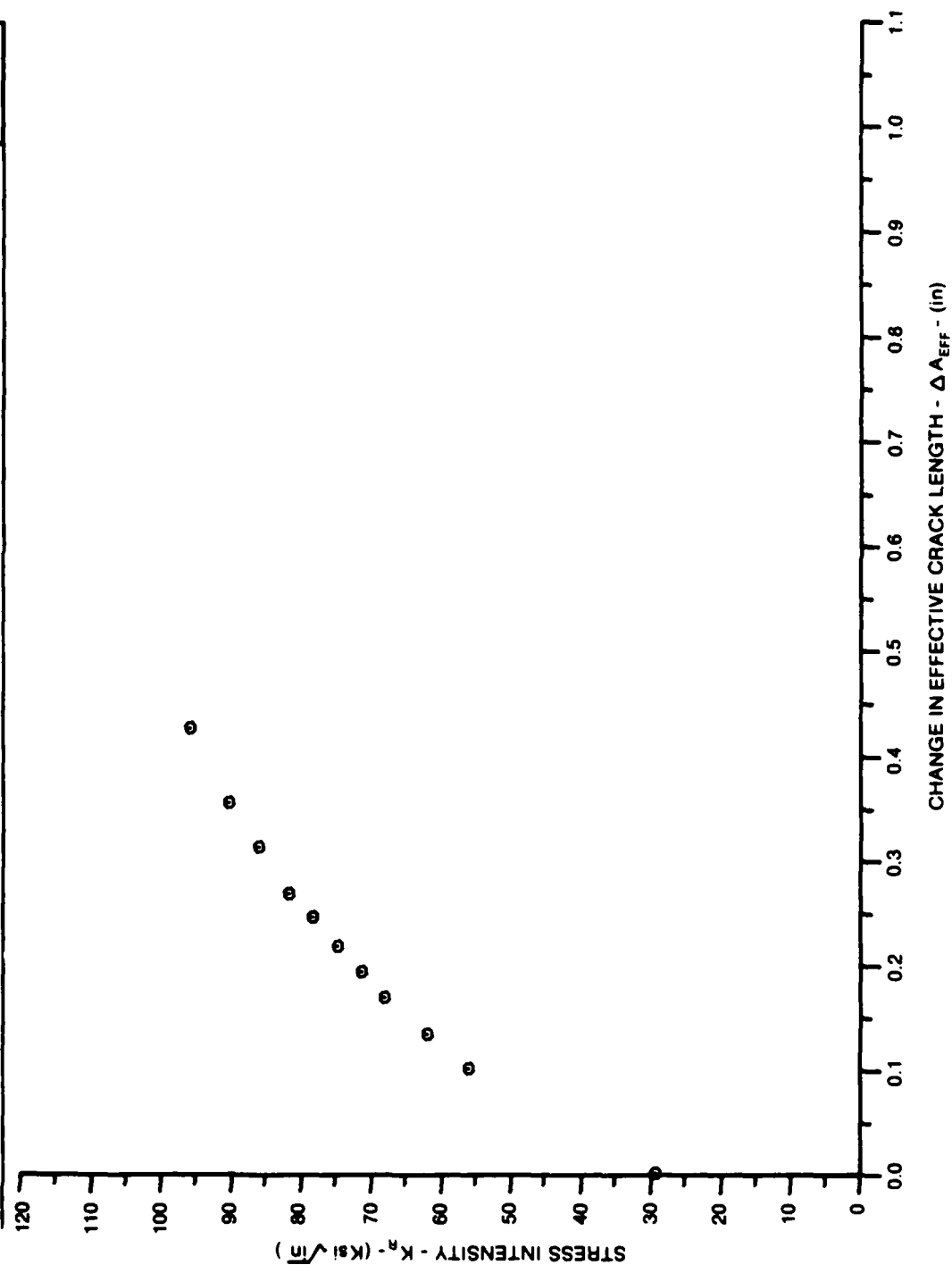


Figure 7.5.2.16

ALUM.
ALLOY

2024

SPECIMEN THK: .250"
 SPECIMEN WIDTH: 12.005"
 K_{IC} (KSI \sqrt{in}):
 REFERENCE: DA001

CONDITION/HT: T351
 FORM: .25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

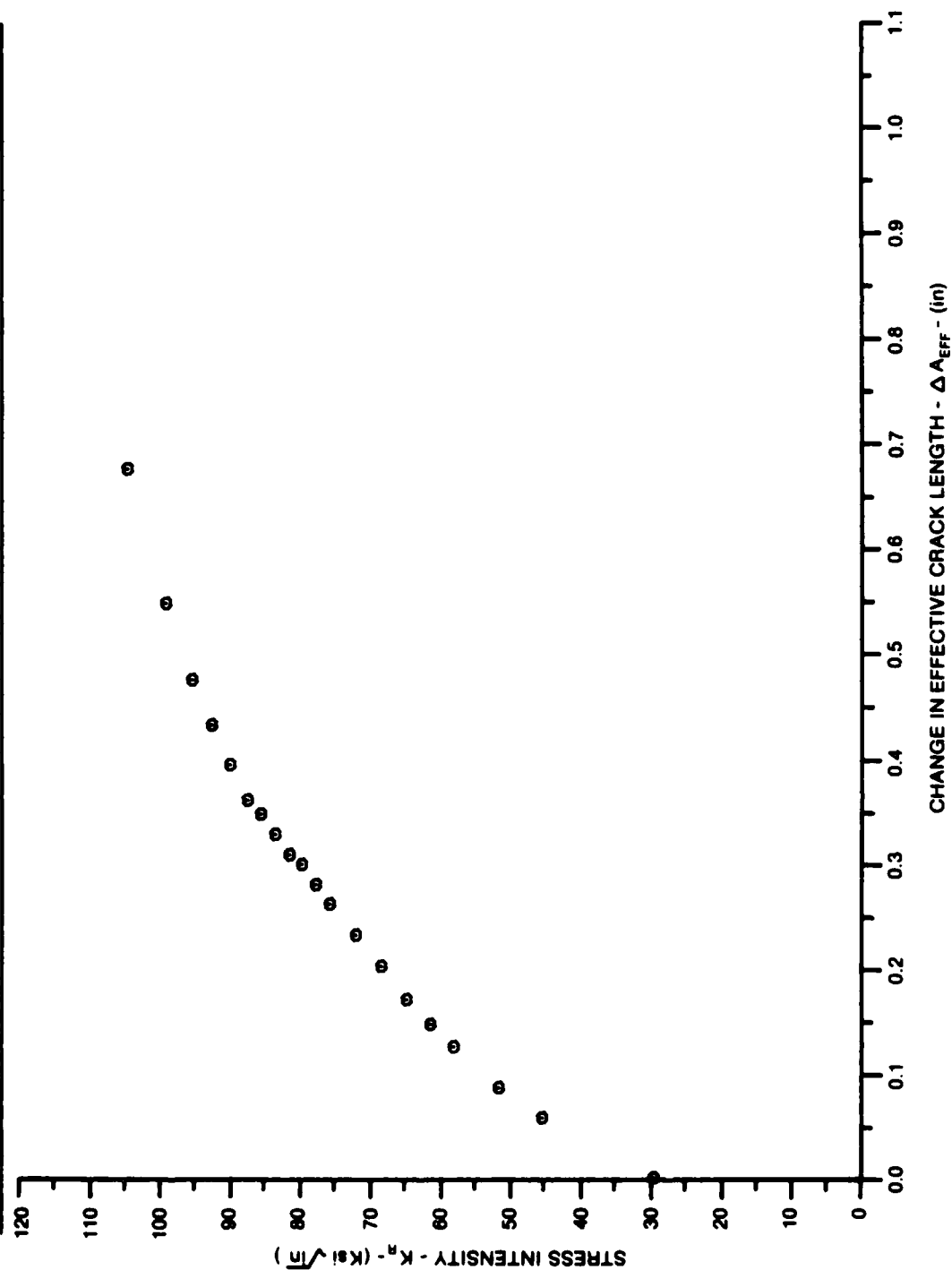


Figure 7.5.2.17

ALUM.
ALLOY

2024

SPECIMEN THK: .250"
SPECIMEN WIDTH: 12.007"
 K_{IC} (ksi√in):
REFERENCE: DA001

CONDITION/T: T351
FORM: .25" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

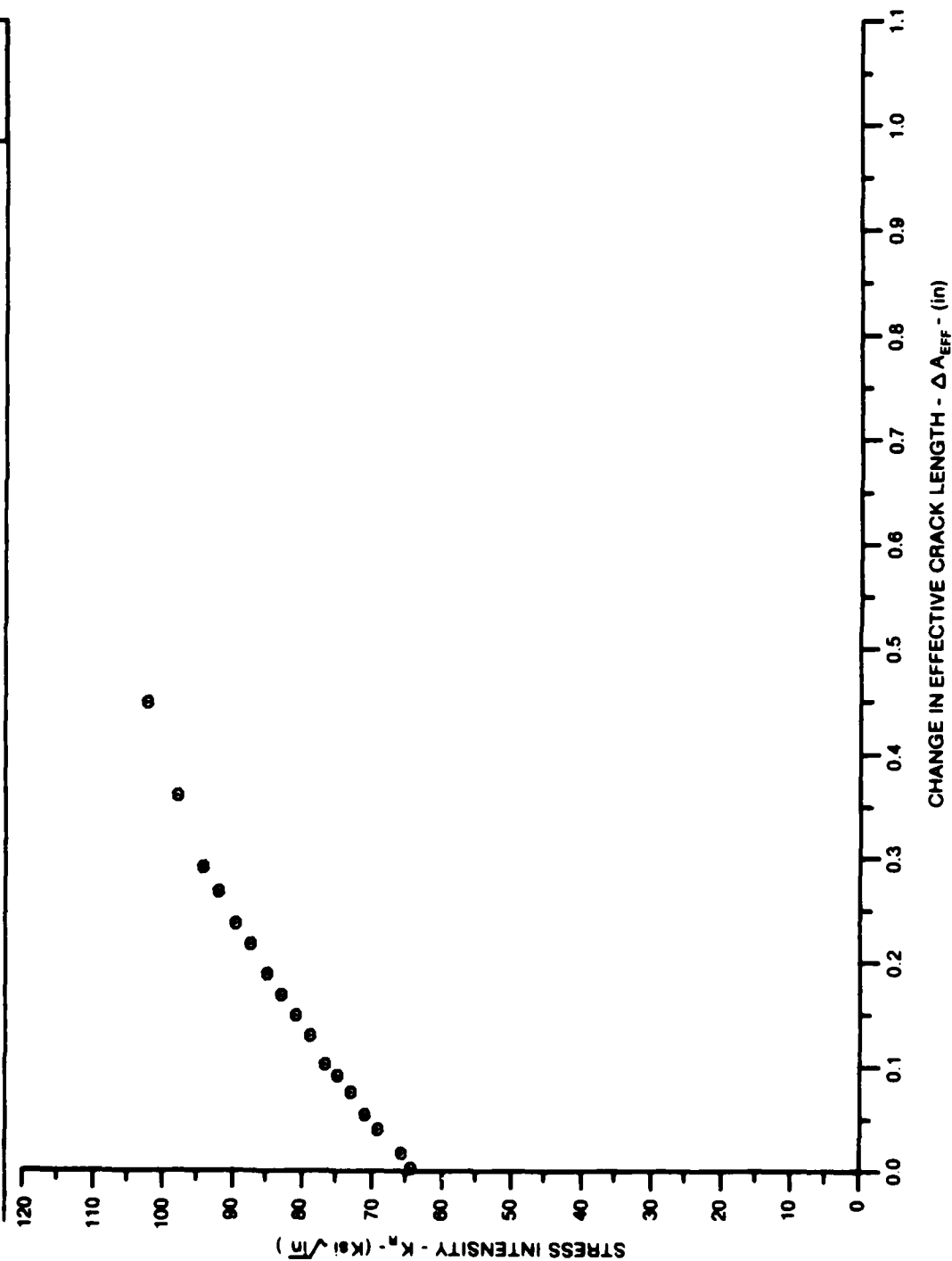


Figure 7.5.2.18

ALUM.
ALLOY

2024

SPECIMEN THK: .260"
SPECIMEN WIDTH: 12.007"
 K_I (Ksi \sqrt{in}):
REFERENCE: DA001

CONDITION: T351
FORM: .25" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

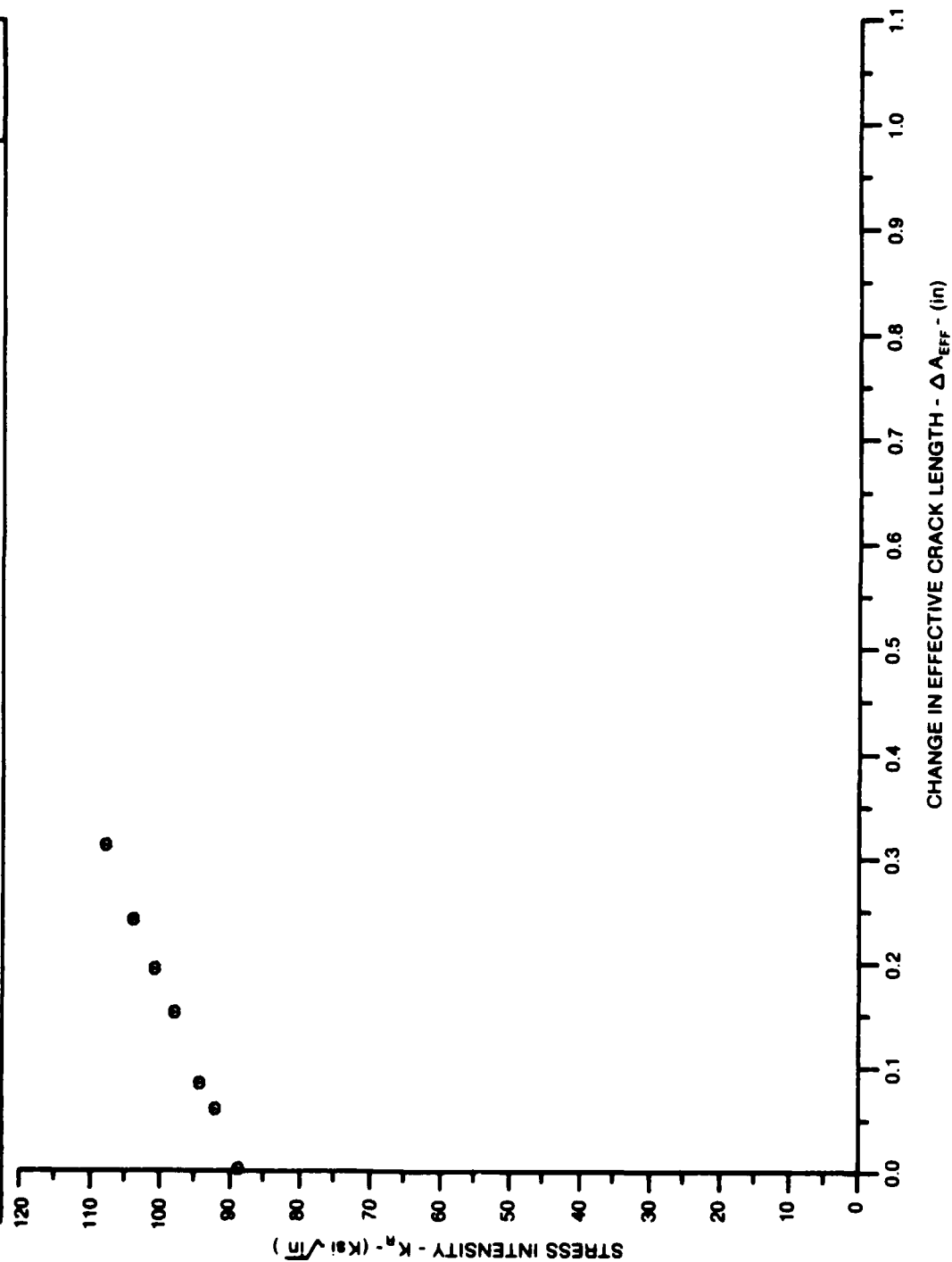


Figure 7.5.2.19

ALUM.
ALLOY

2024

SPECIMEN THK: .201"
SPECIMEN WIDTH: 12.007"
 K_{IC} (ksi \sqrt{in}):
REFERENCE: DA001

CONDITION/HIT: T351
FORM: .25" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

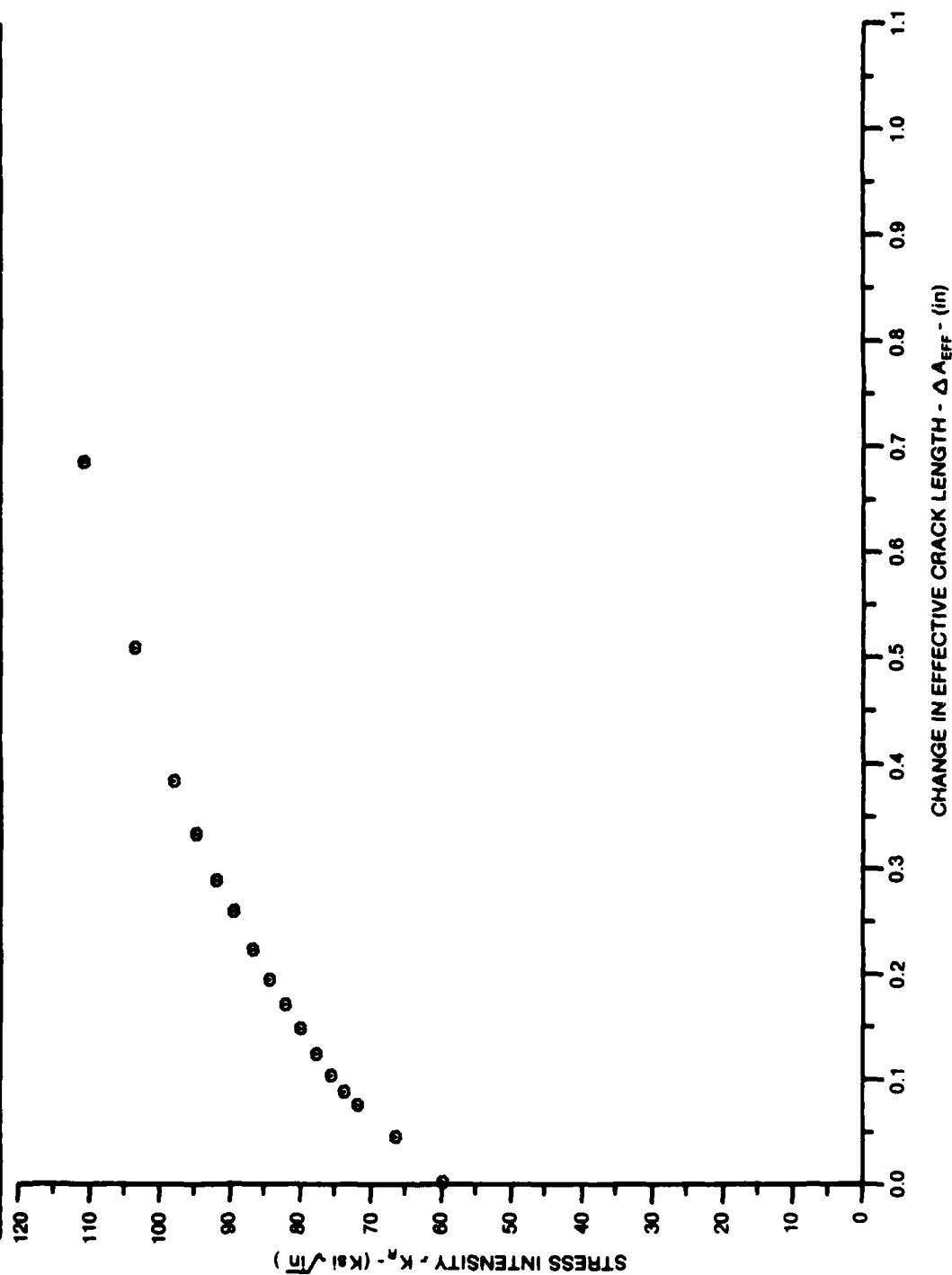


Figure 7.5.2.20

ALUM. ALLOY
2024

SPECIMEN THK: .120"
 SPECIMEN WIDTH: 5.980"
 K_{IC} (KSI \sqrt{in}): 91.8
 REFERENCE: GD005

CONDITION/HT: T62 (GG)
 FORM: .13" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

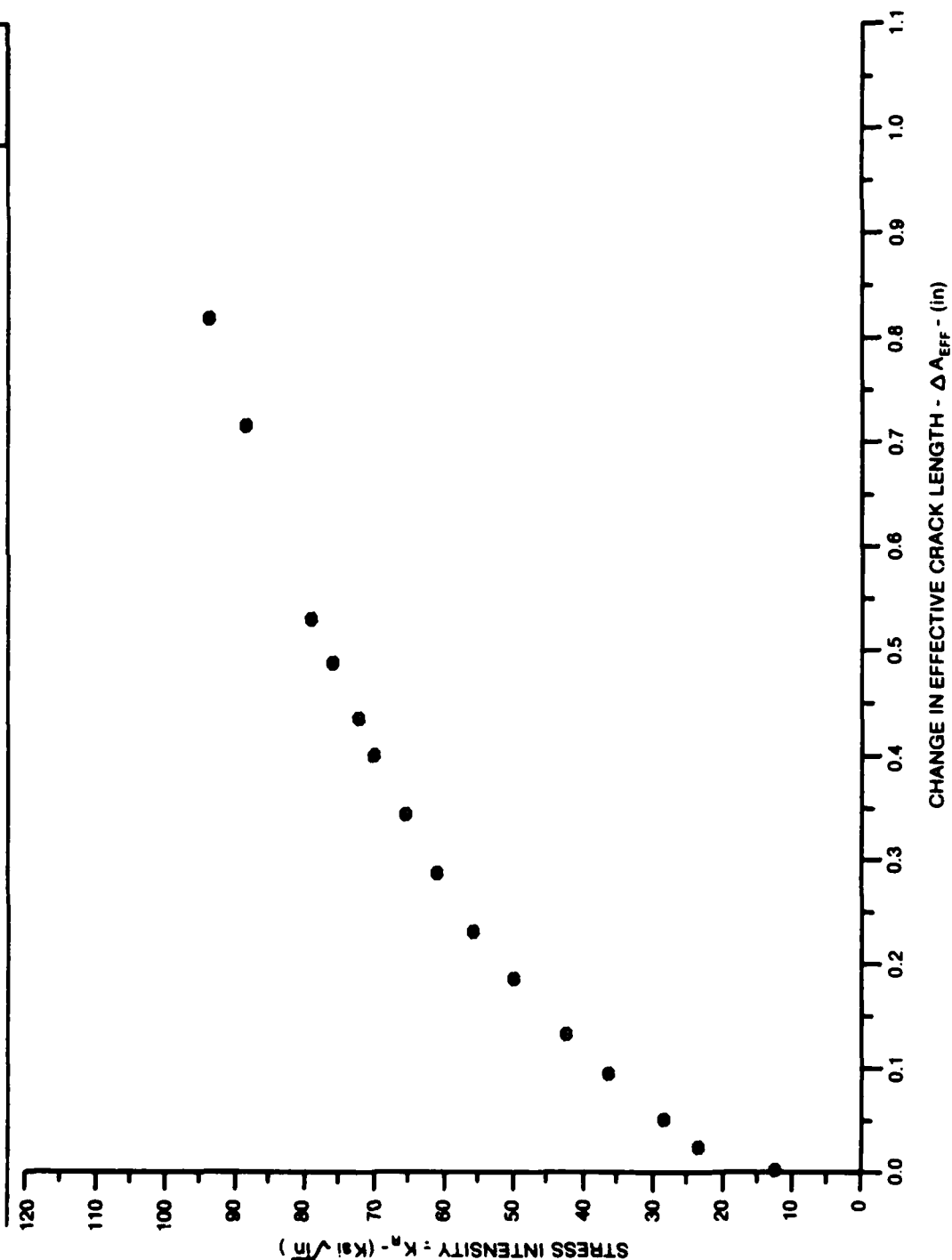


Figure 7.5.2.21

ALUM.
ALLOY

2024

SPECIMEN THK: .128"
SPECIMEN WIDTH: 15.978"
 K_{IC} (Ksi \sqrt{in}): 80.0
REFERENCE: GD005

CONDITION/HT: T62 (GQ)
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

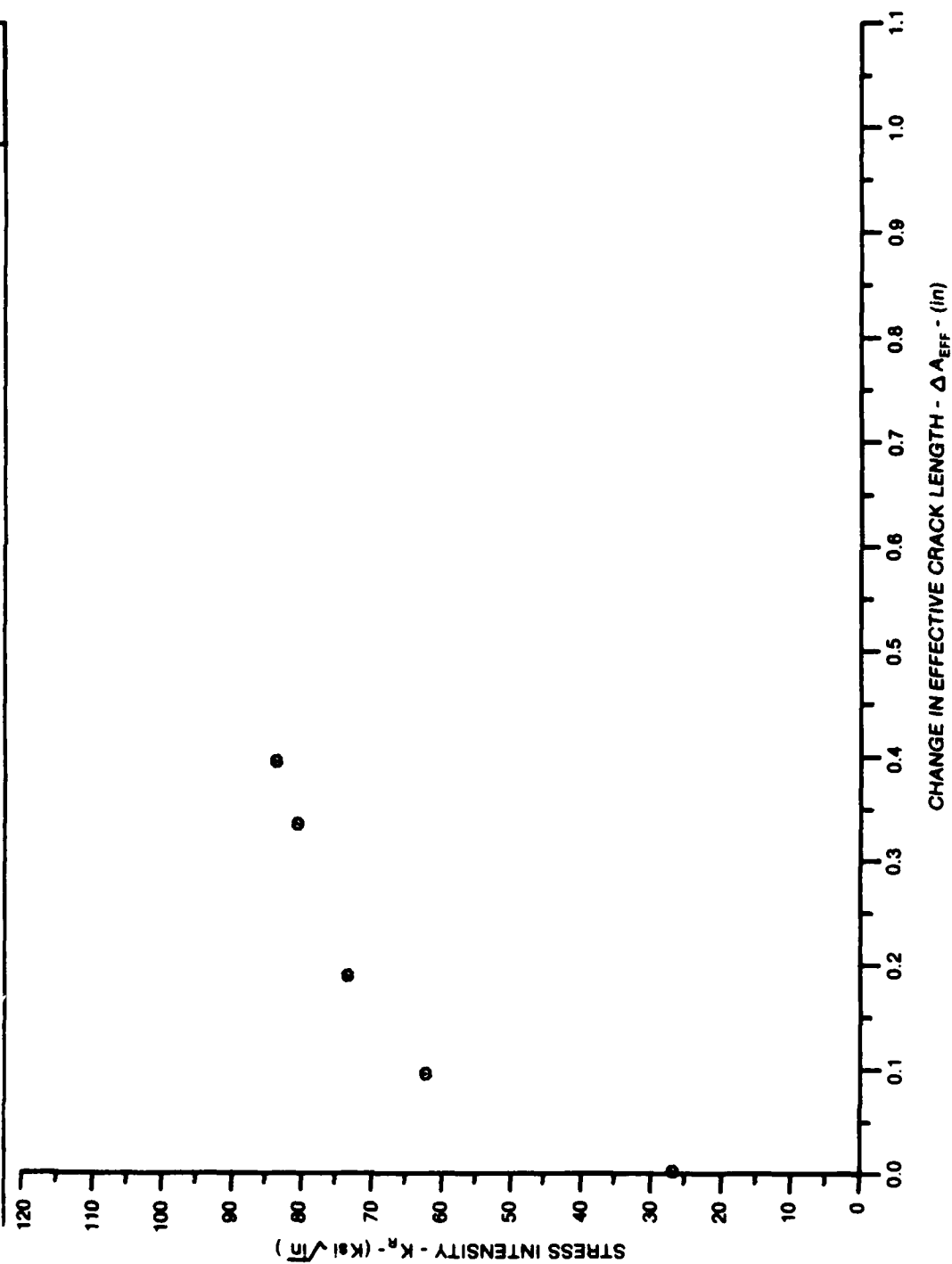


Figure 7.5.2.22

ALUM.
ALLOY

2024

SPECIMEN THK: .128"
SPECIMEN WIDTH: 10.000"
 $K_C(Ksi\sqrt{in})$: 136.0
REFERENCE: GD005

CONDITION: T62 (GD)
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

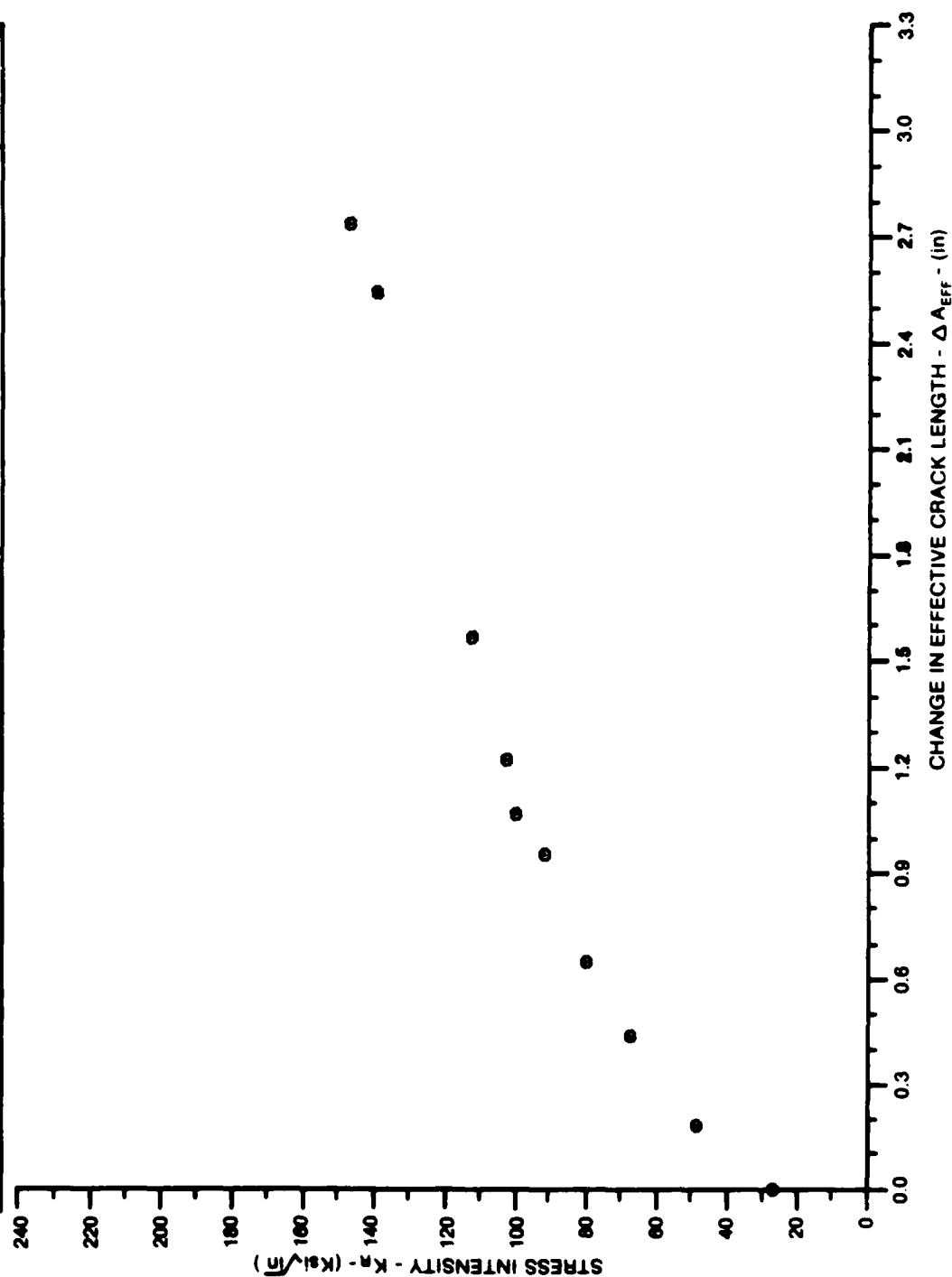


Figure 7.5.2.23

ALUM.
ALLOY

2024

SPECIMEN THK: .125"
SPECIMEN WIDTH: 5.998"
 K_{IC} (ksi \sqrt{in}): 82.8
REFERENCE: GD005

CONDITION/HT: T62 (GD)
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: T-L

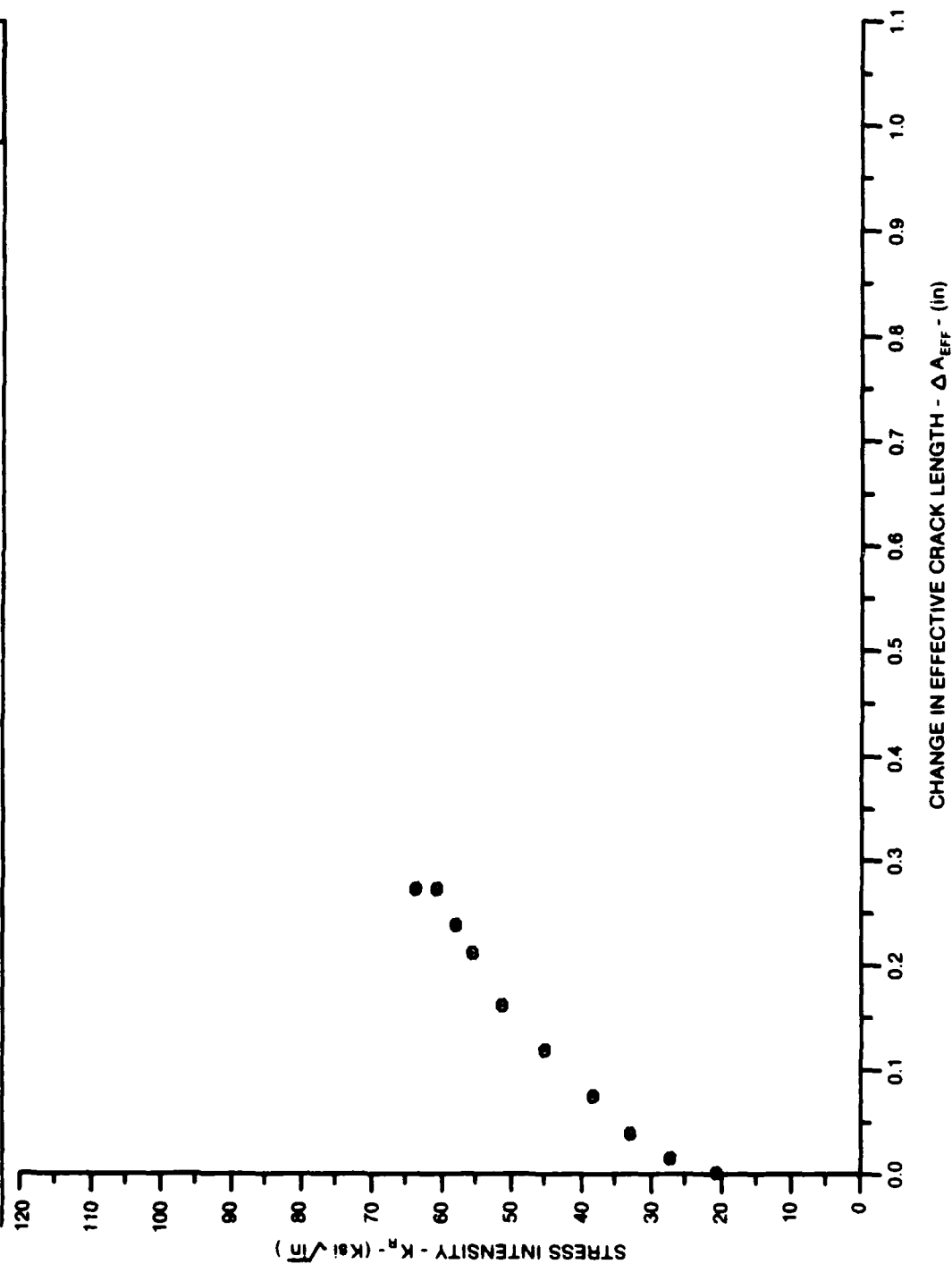


Figure 7.5.2.24

ALUM.
ALLOY

2024

SPECIMEN THK: .125"
SPECIMEN WIDTH: 5.000"
 K_{IC} (KSI \sqrt{in}): 84.8
REFERENCE: GD005

CONDITION/HT: T62 (GD)
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: T-L

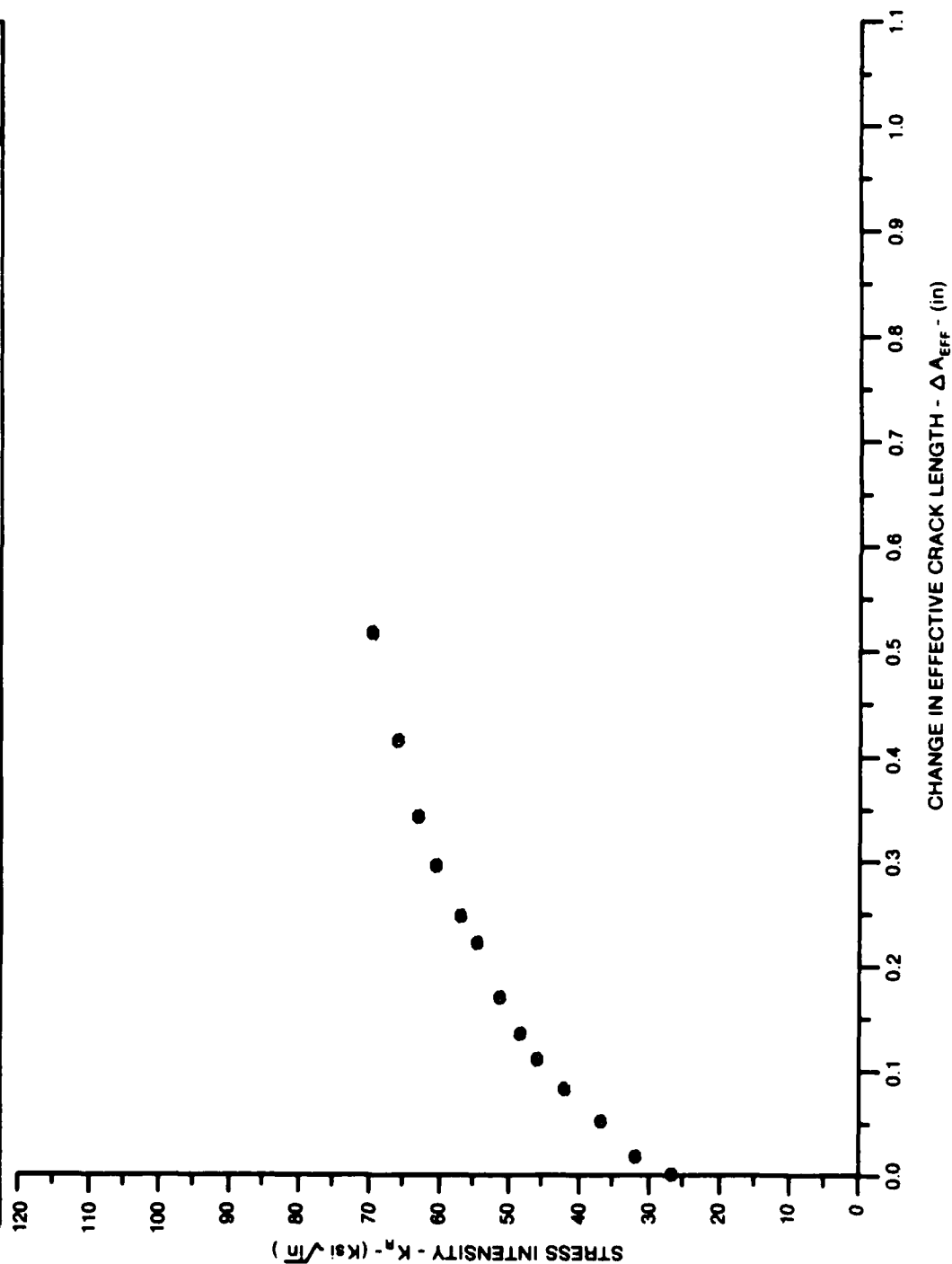


Figure 7.5.2.25

ALUM.
ALLOY

2024

SPECIMEN THK: .125"
 SPECIMEN WIDTH: 6.000"
 K_{IC} (Ksi $\sqrt{\text{in}}$): 74.0
 REFERENCE: GD005

CONDITION/HT: T62 (WQ)
 FORM: .13" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

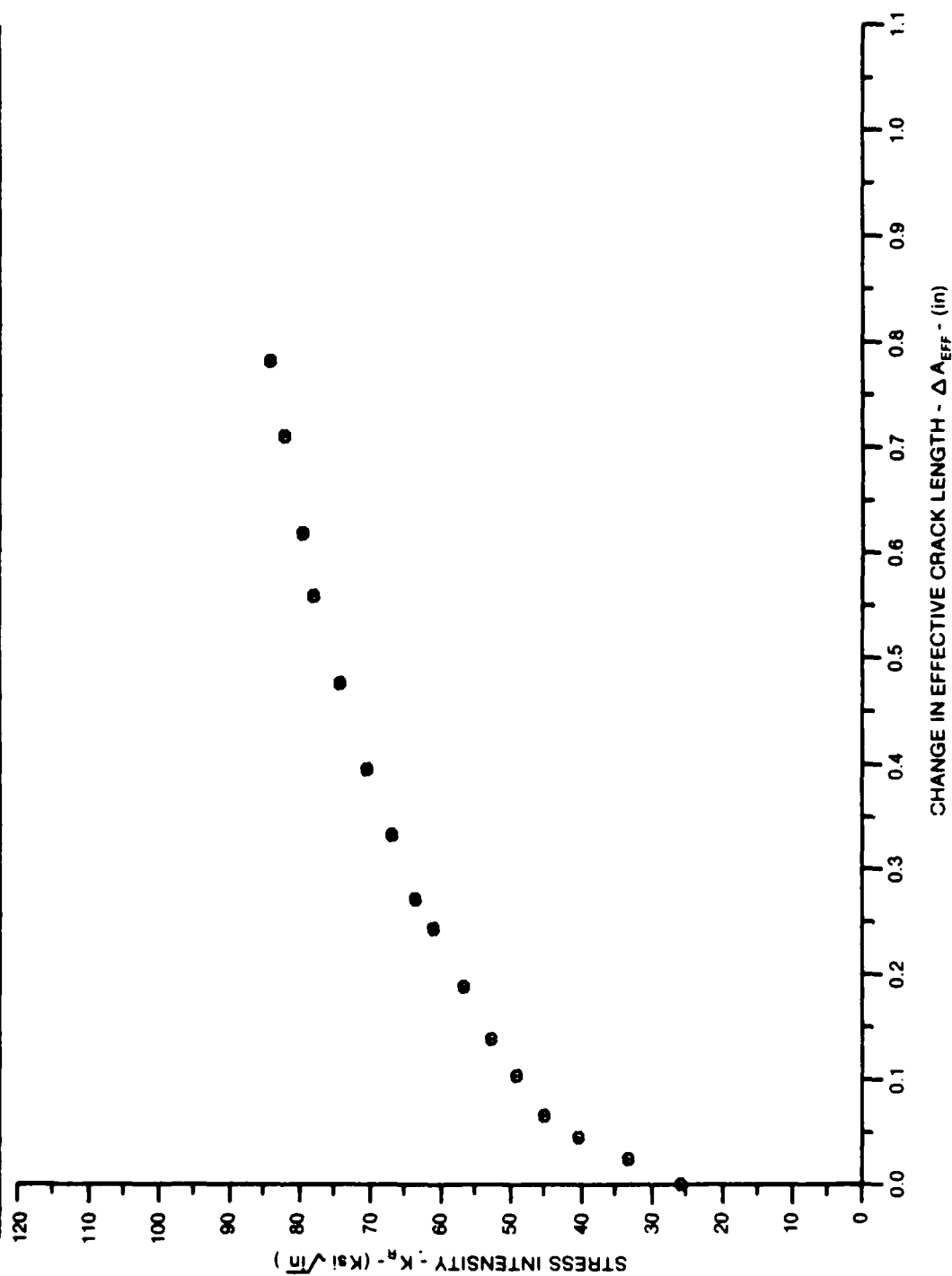


Figure 7.5.2.26

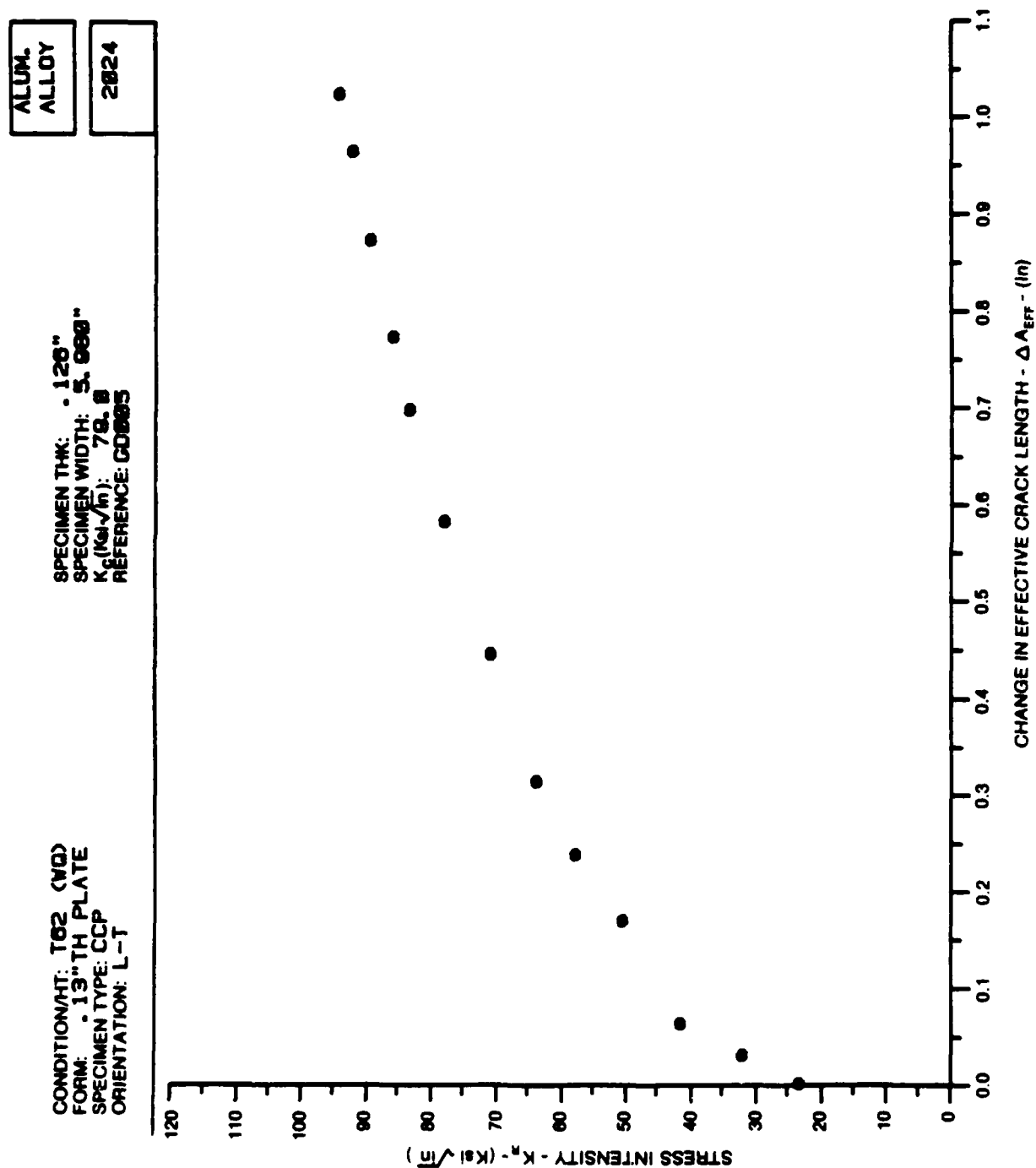


Figure 7.5.2.27

ALUM. ALLOY
2024

SPECIMEN THK: .126"
 SPECIMEN WIDTH: 15.999"
 K_Q (Ksi√in): 139.0
 REFERENCE: GD005

CONDITION/HT: T62 (WQ)
 FORM: .13" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

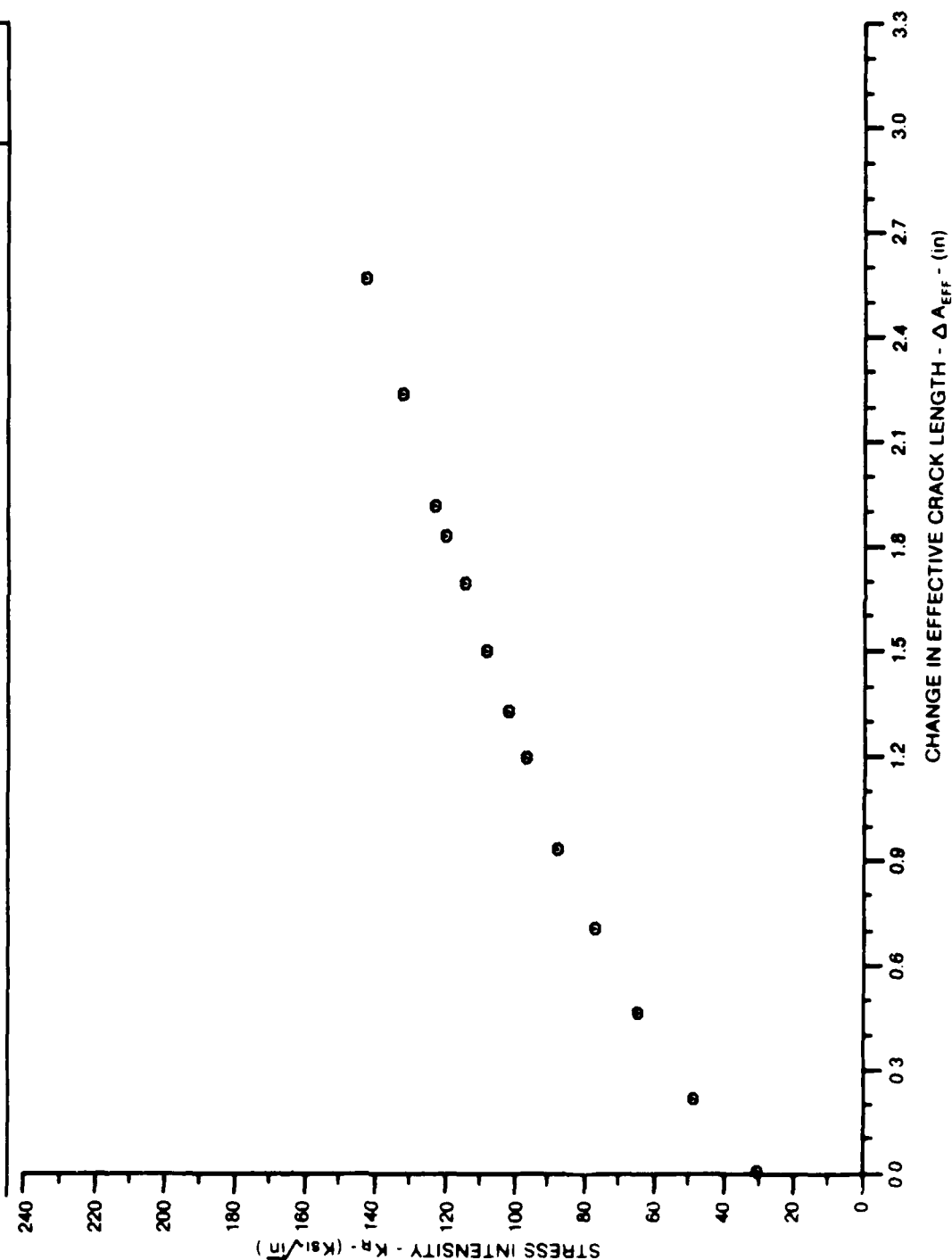


Figure 7.7.1.2a

ALUM.
ALLOY

2024

SPECIMEN THK: .126"
SPECIMEN WIDTH: 5.988"
 K_{IC} (Ksi $\sqrt{\text{in}}$): 70.9
REFERENCE: GD005

CONDITION/HT: T62 (WQ)
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: T-L

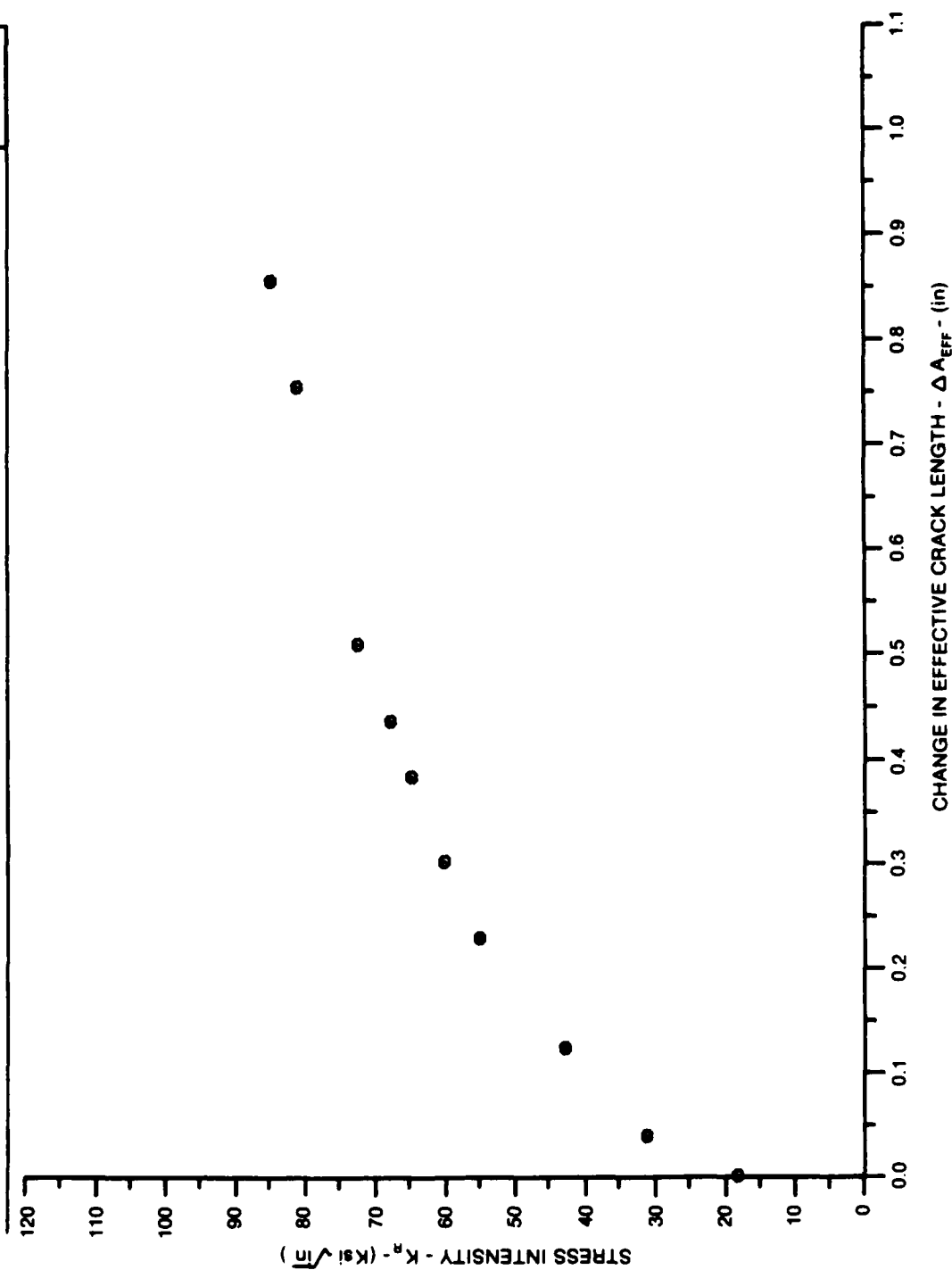


Figure 7.5.2.29

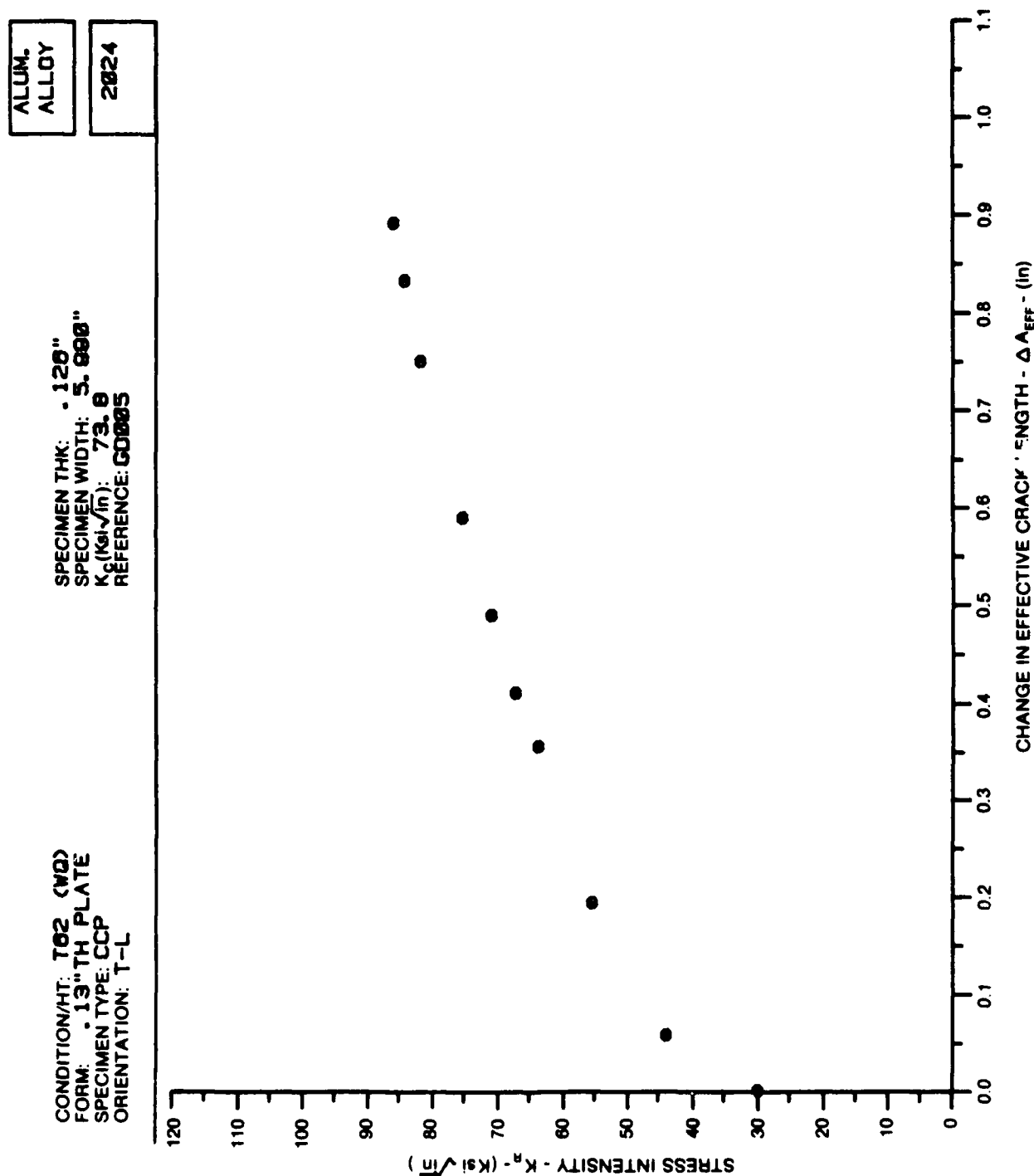


Figure 7.5.2.30

ALUM.
ALLOY

2024

SPECIMEN THK: .125"
SPECIMEN WIDTH: 5.988"
 K_{IC} (Ksi \sqrt{in}): 83.1
REFERENCE: GD005

CONDITION/HT: T81
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

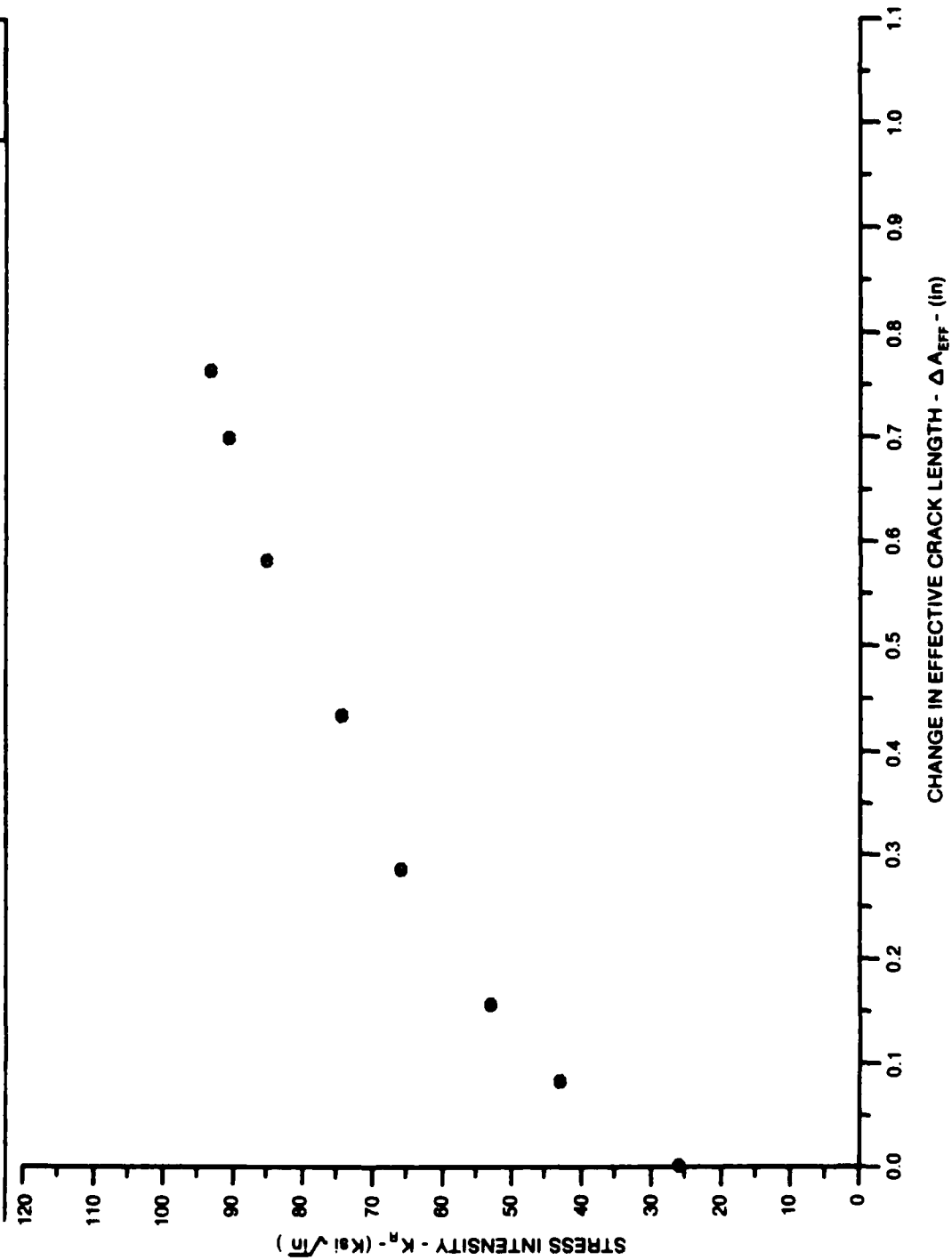


Figure 7.5.2.31

ALUM. ALLOY
2024

SPECIMEN THK: .126"
 SPECIMEN WIDTH: 5.998"
 K_Q (ksi $\sqrt{\text{in}}$): 82.6
 REFERENCE: GD005

CONDITION/HT: T81
 FORM: .13" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

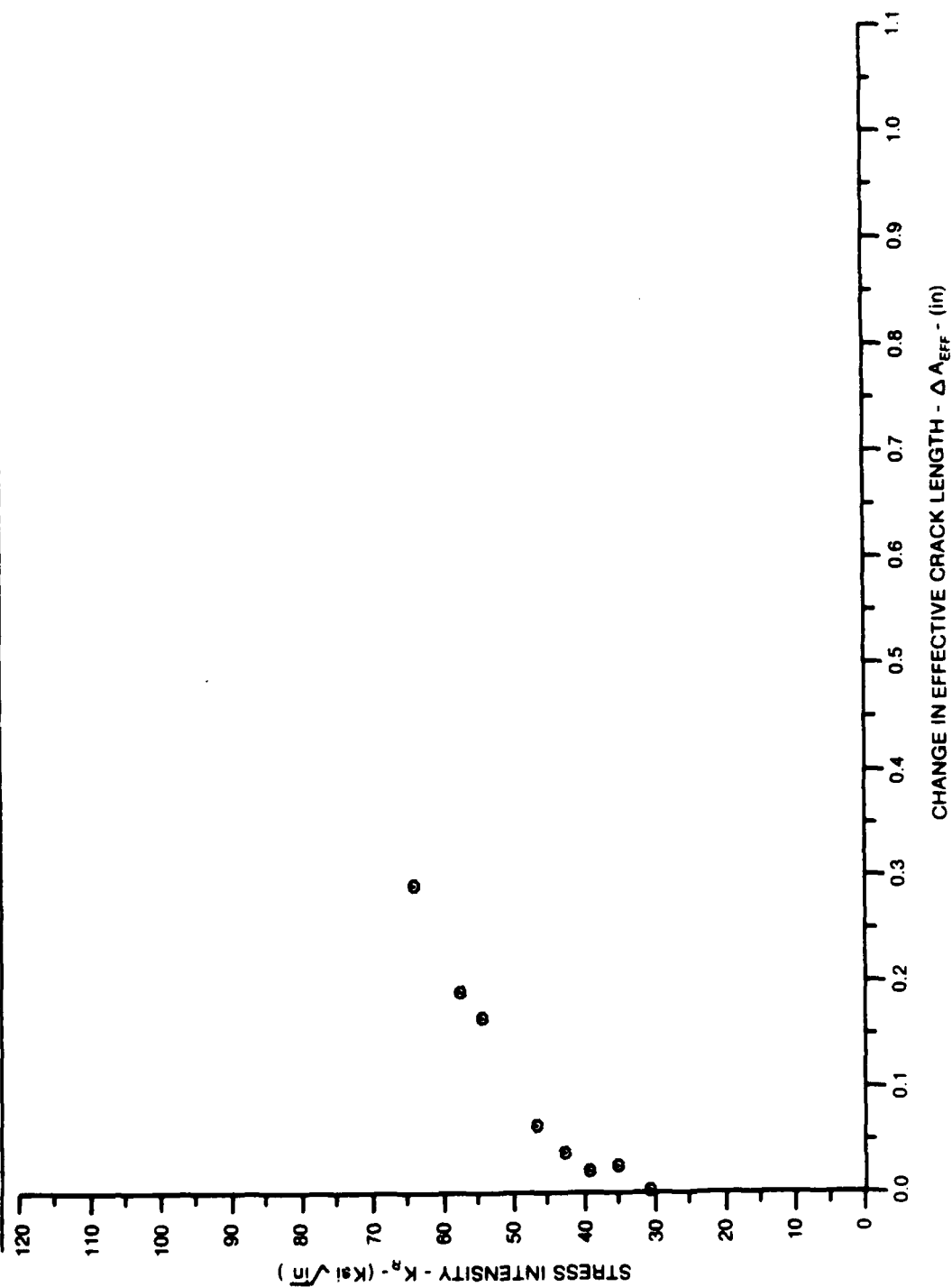


Figure 7.5.2.32

ALUM.
ALLOY

2024

SPECIMEN THK: .128"
SPECIMEN WIDTH: 5.998"
 K_0 (ksi \sqrt{in}): 88.0
REFERENCE: GD885

CONDITION/HT: T81
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: L-T

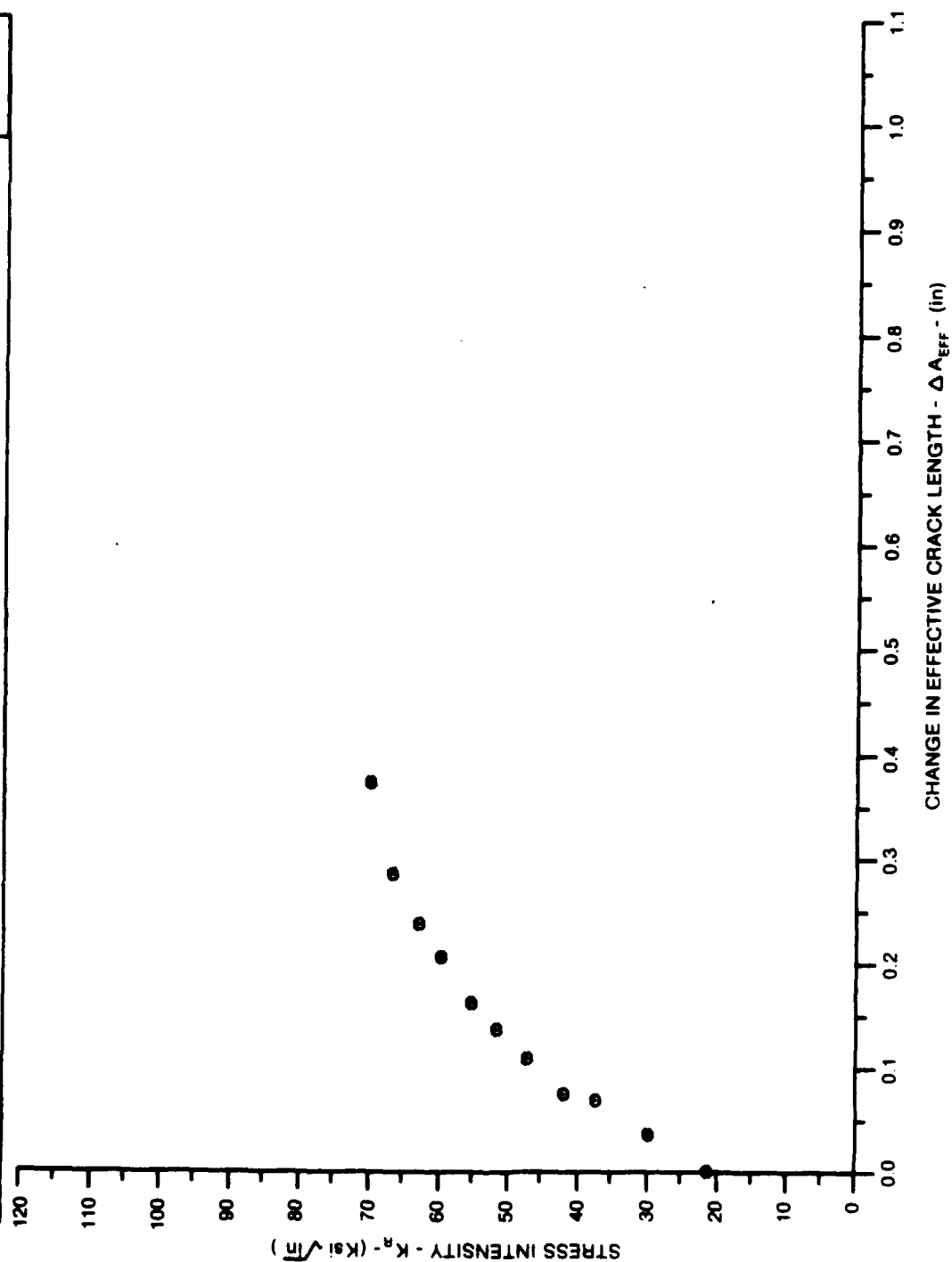


Figure 7.5.2.33

ALUM.
ALLOY

2024

SPECIMEN THK: .126"
SPECIMEN WIDTH: 5.000"
 $K_C (ksi\sqrt{in})$: 50.8
REFERENCE: G0005

CONDITION/HT: T81
FORM: .13" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: T-L

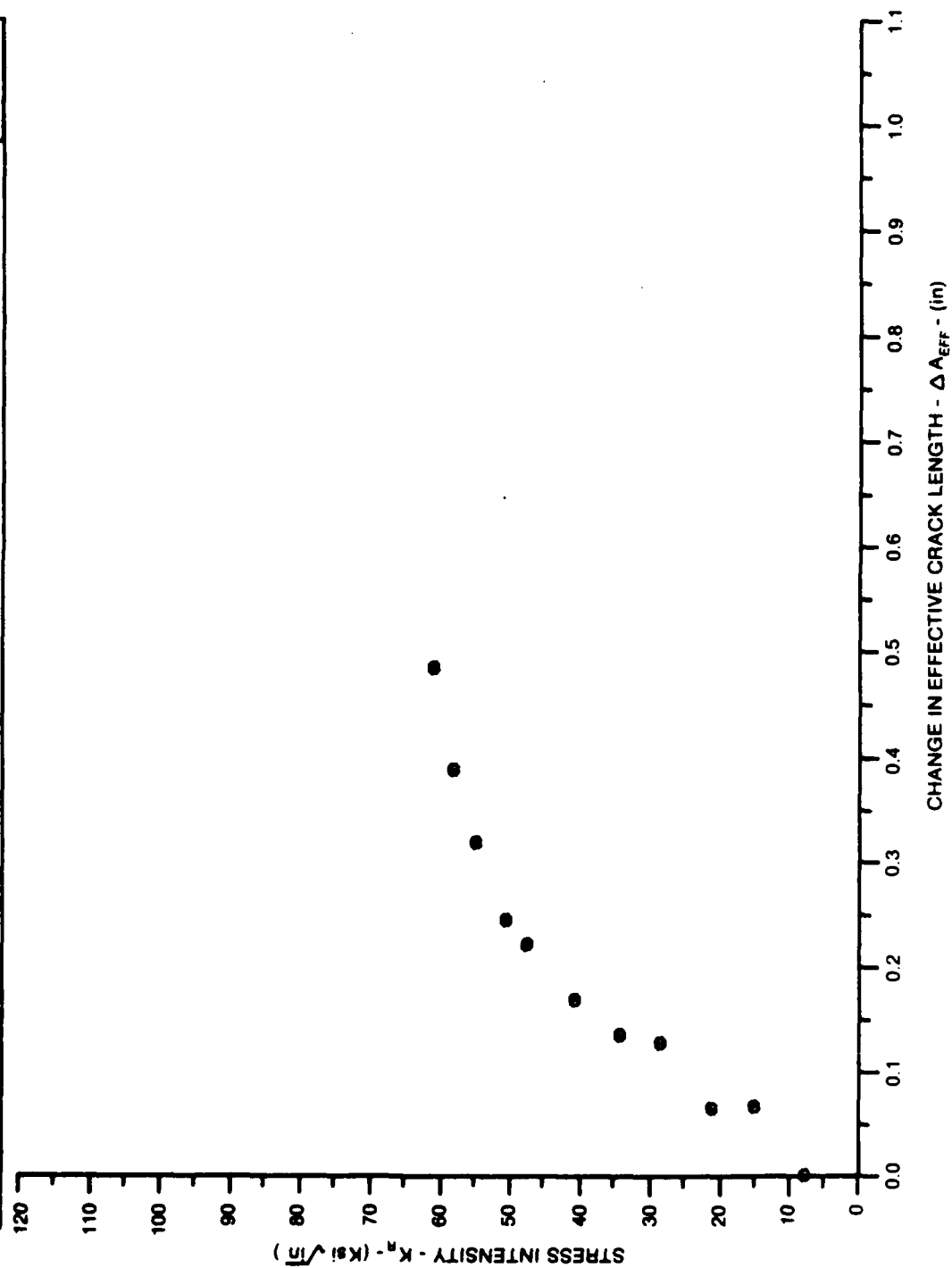


Figure 7.5.2.34

ALUM. ALLOY
2024

SPECIMEN THK: .126"
 SPECIMEN WIDTH: 6.010"
 K_{IC} (KSI \sqrt{in}): 58.8
 REFERENCE: GD0005

CONDITION/HT: T81
 FORM: .13" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L

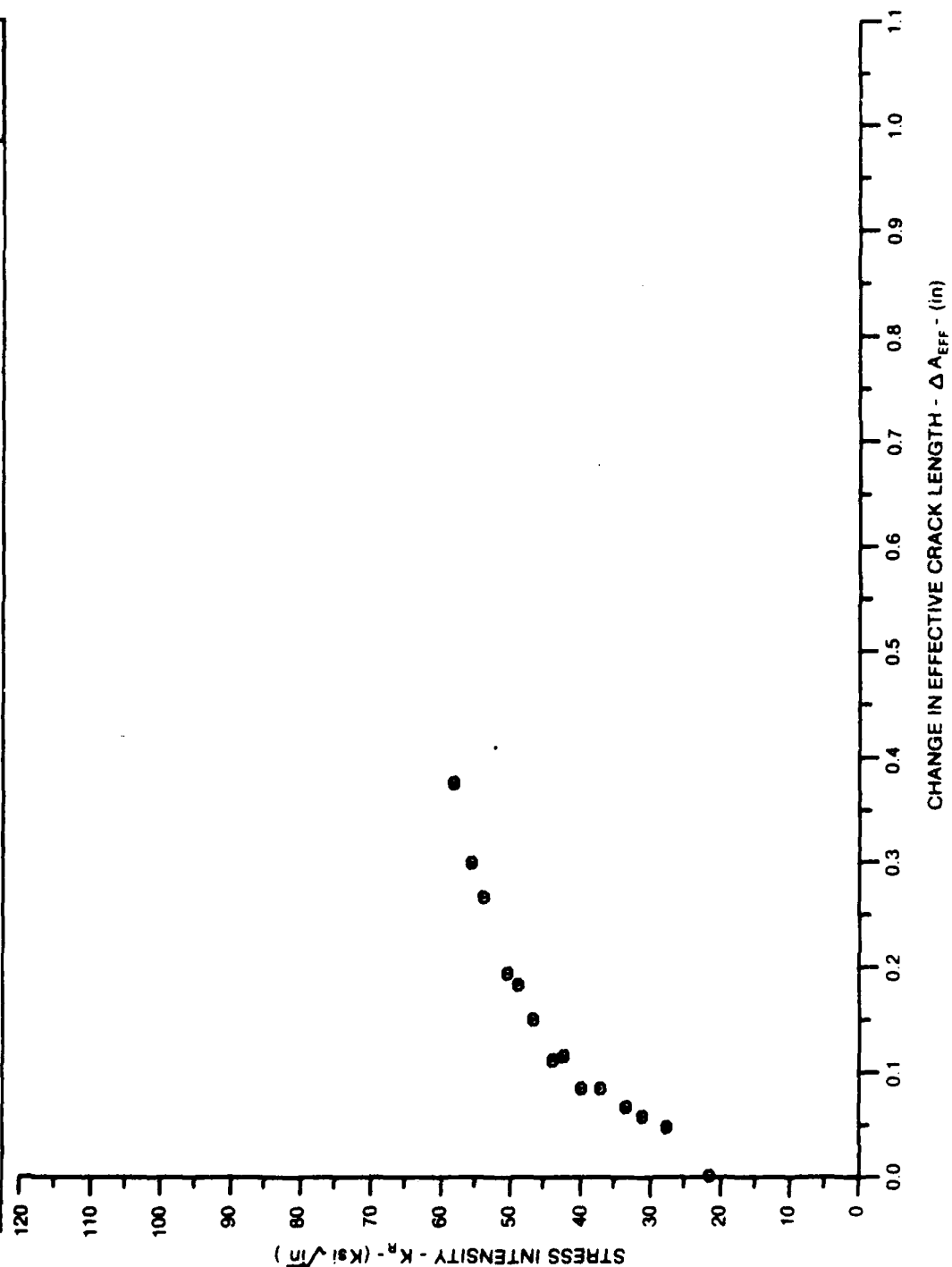


Figure 7.5.2.35

TABLE 7.5.3.1

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.5.3.1 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T3					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 05	R=+0. 40	R=+0. 60	
A:	2. 63 :	. 11			
DELTA K B:	4. 24 :		. 32		
MIN C:	3. 58 :			. 25	
D:					
	3. 00 :	. 110			
	3. 50 :	. 120			
	4. 00 :	. 146			
	5. 00 :	. 258	. 946	1. 22	
	6. 00 :	. 497	1. 92		
	7. 00 :	. 976			
	8. 00 :	1. 89			
	9. 00 :	3. 57			
A:	9. 56 :	5. 03			
DELTA K B:	6. 24 :		2. 19		
MAX C:	5. 02 :			1. 24	
D:					
ROOT MEAN SQUARE		33. 02	2. 95	8. 28	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8	1			
RATIO	0. 8-1. 25	3	1	1	
SUMMARY	1. 25-2. 0	1			
(NP/NA)	>2. 0				

CONDITION/HT: T3
 FORM: SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 30.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 47.2 KSI
 ULT. STRENGTH: 68.2 KSI
 SPECIMEN THK: 0.090"
 SPECIMEN WIDTH: 13.985- 14.030"
 REFERENCES: EFM01

ALUM.
 ALLOY

2024

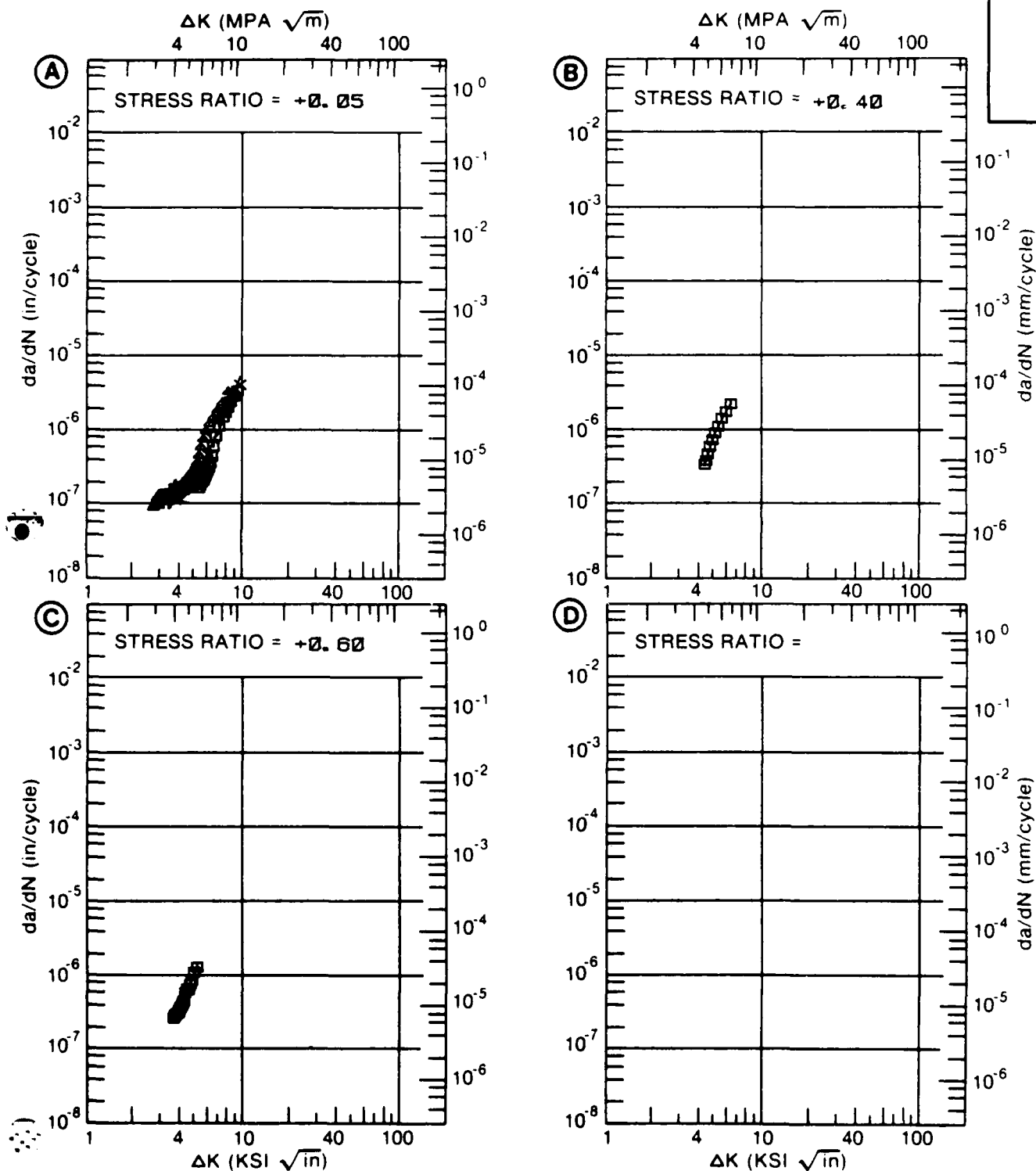


Figure 7.5.3.1

TABLE 7.5.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.2 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T3					
ENVIRONMENT: + 140F, AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.40	R=+0.70		
DELTA K MIN	A: 3.16	.131			
	B: 3.05		.151		
	C:				
	D:				
	3.50	.181	.343		
	4.00	.301	.679		
	5.00	.794	1.77		
	6.00	1.80	3.45		
	7.00	3.40	5.85		
	8.00	5.48	9.27		
	9.00	7.65	14.2		
	10.00	9.43	21.3		
DELTA K MAX	A: 11.11	10.5			
	B: 11.74		42.7		
	C:				
	D:				
ROOT MEAN SQUARE		15.62	7.32		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T3
 FORM: SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 5.00-10.00 HZ
 ENVIRONMENT: +140° F, AIR

YIELD STRENGTH: 47.2 KSI
 ULT. STRENGTH: 68.2 KSI
 SPECIMEN THK: 0.090"
 SPECIMEN WIDTH: 36.000"
 REFERENCES: EFM01

ALUM.
 ALLOY

2024

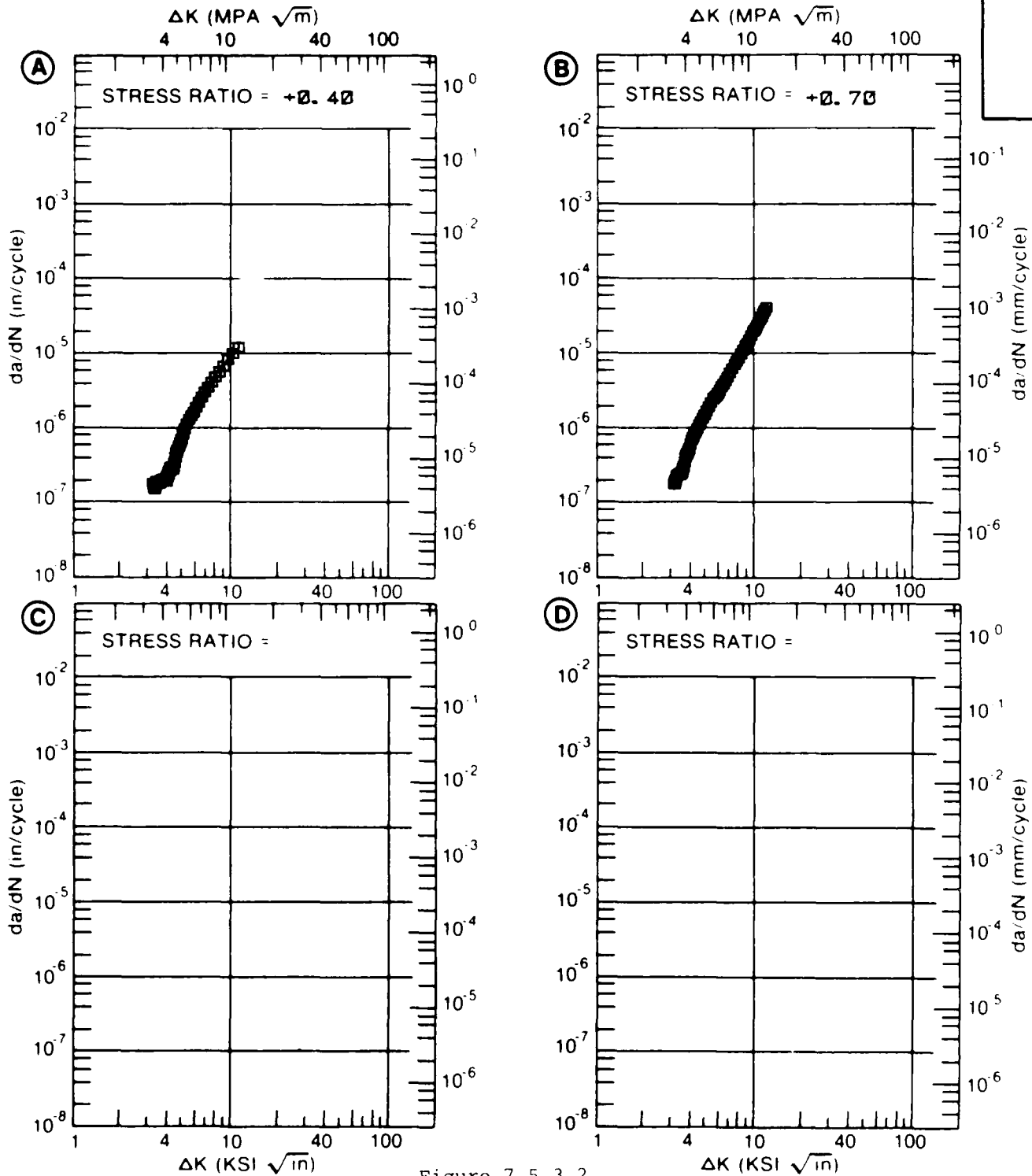


Figure 7.5.3.2

TABLE 7.5.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.3 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T3
ENVIRONMENT: R.T., LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10** ⁻⁶ IN. /CYCLE)			
		A	B	C	D
		R=+0.33			
DELTA K MIN	A:	12.30	16.4		
	B:				
	C:				
	D:				
		13.00	19.3		
		16.00	48.3		
DELTA K MAX		20.00	188.		
		25.00	887.		
		30.00	3138.		
	A:	31.48	4312.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 22.14
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8 2
RATIO 0.8-1.25 4
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T3
 FORM: 0.04" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 3.33 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 45.0 KSI
 ULT. STRENGTH: 69.0 KSI
 SPECIMEN THK: 0.039"
 SPECIMEN WIDTH: 15.000"
 REFERENCES: 87398

ALUM.
 ALLOY

2024

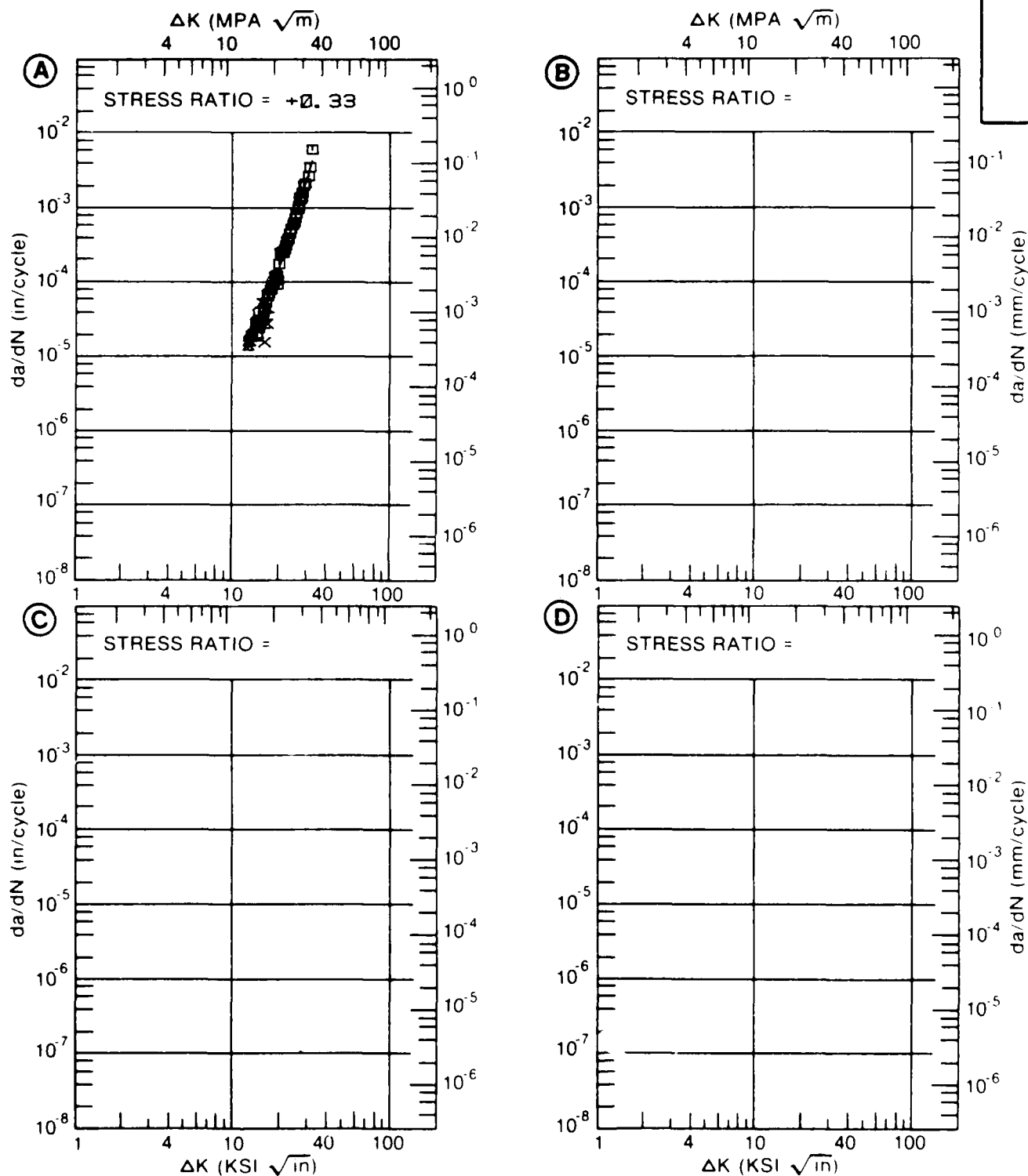


Figure 7.5.3.3

TABLE 7.5.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.4 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T3
ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.20			
DELTA K MIN	A: 4.73	.0896			
	B:				
	C:				
	D:				
	5.00	.219			
	6.00	2.20			
	7.00	4.76			
	8.00	6.90			
	9.00	8.55			
	10.00	9.72			
	13.00	12.1			
	16.00	15.6			
	20.00	27.9			
	25.00	85.0			
DELTA K MAX	A: 27.13	153.			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 17.00
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8 2
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T3
 FORM: 0.09" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 10.00 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.090"
 SPECIMEN WIDTH: 4.010"
 REFERENCES: FR001

ALUM.
 ALLOY

2024

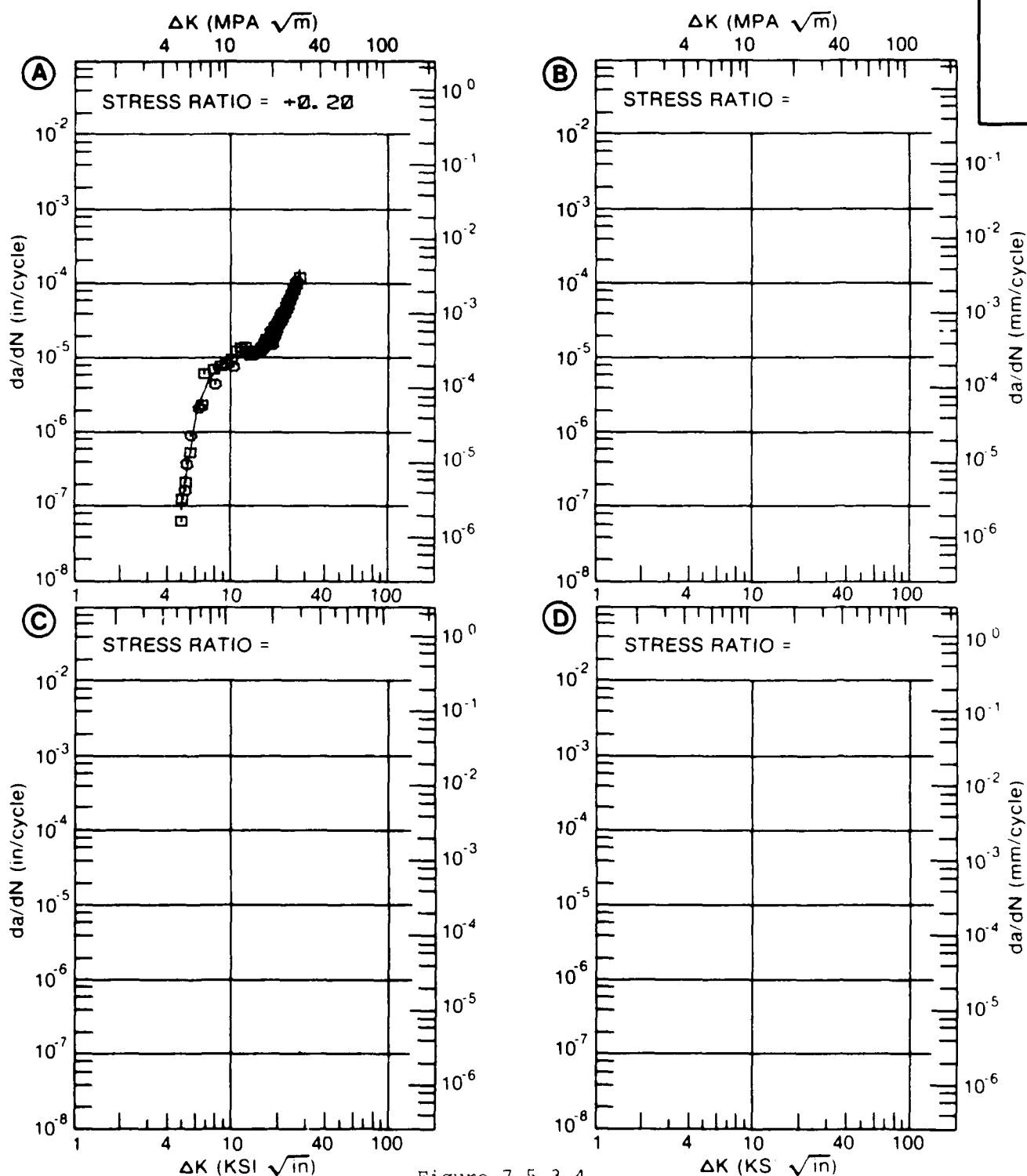


Figure 7.5.3.4

TABLE 7.5.3.5

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.5 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T3
ENVIRONMENT: R.T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.00			
DELTA K MIN	A:	16.84	15.3		
	B:				
	C:				
	D:				
		20.00	28.6		
		25.00	76.3		
		30.00	184.		
		35.00	390.		
DELTA K MAX	A:	35.36	410.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 19.64
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8 1
RATIO 0.8-1.25 7
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T3
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 13.30 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 68.2 KSI
 SPECIMEN THK: 0.125- 0.126"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: 86213

ALUM.
 ALLOY

2024

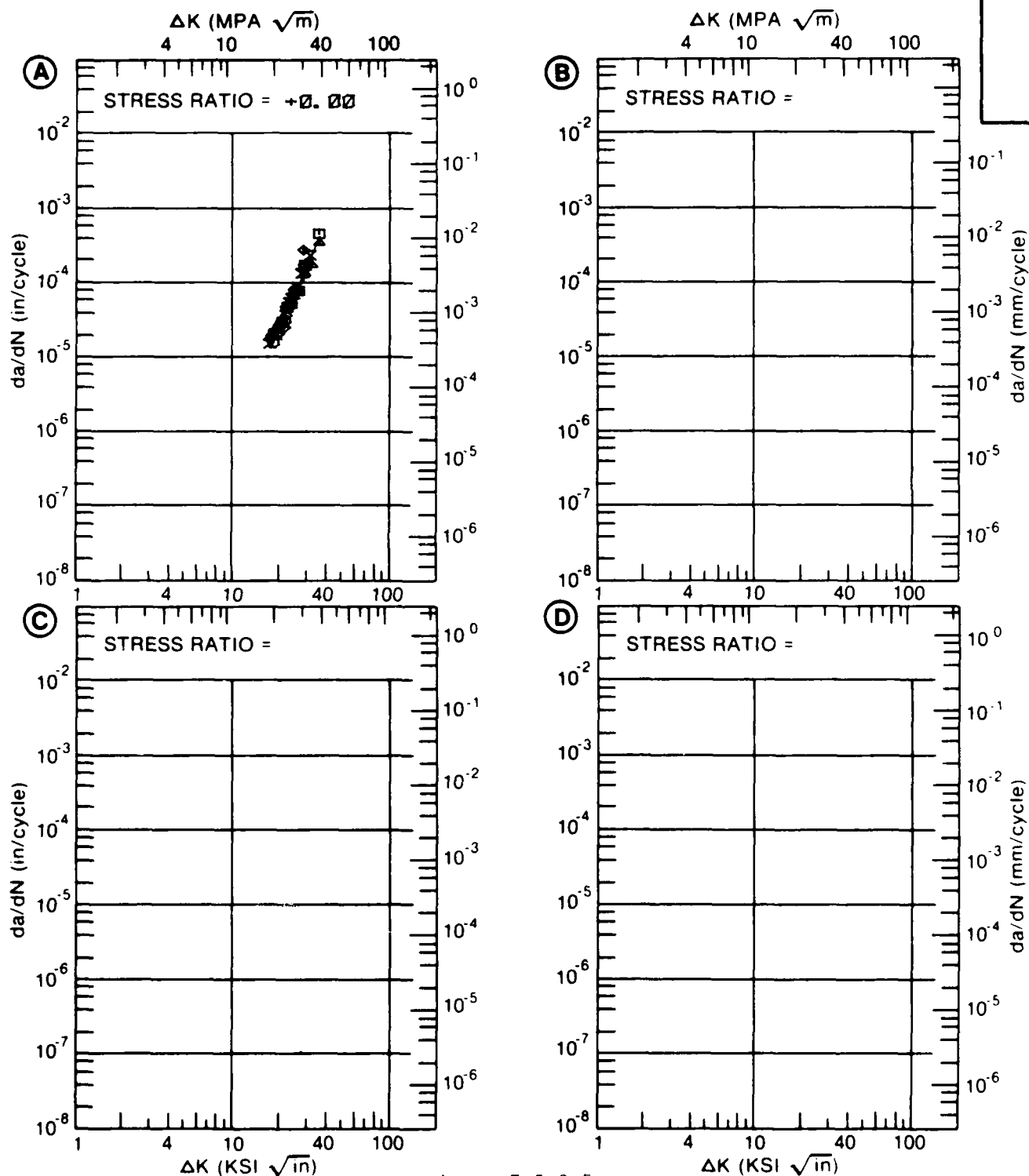


Figure 7.5.3.5

TABLE 7.5.3.6

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.6 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 2024
CONDITION: T3DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

E= R. T.
90% R. H.

DELTA K A:	13.10	10.6
MIN B:		
C:		
D:		
	16.00	18.4
	20.00	35.3
	25.00	71.3
	30.00	133.
	35.00	234.

DELTA K A:	37.88	318.
MAX B:		
C:		
D:		

ROOT MEAN SQUARE 21.03
PERCENT ERROR

LIFE	0.0-0.5
PREDICTION	0.5-0.8
RATIO	0.8-1.25
SUMMARY	1.25-2.0
(NP/NA)	>2.0

CONDITION/HT: T3
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.05
 FREQUENCY: 2.00 HZ

YIELD STRENGTH: 49.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.128"
 SPECIMEN WIDTH: 12.000"
 REFERENCES: 86212

ALUM.
 ALLOY

2024

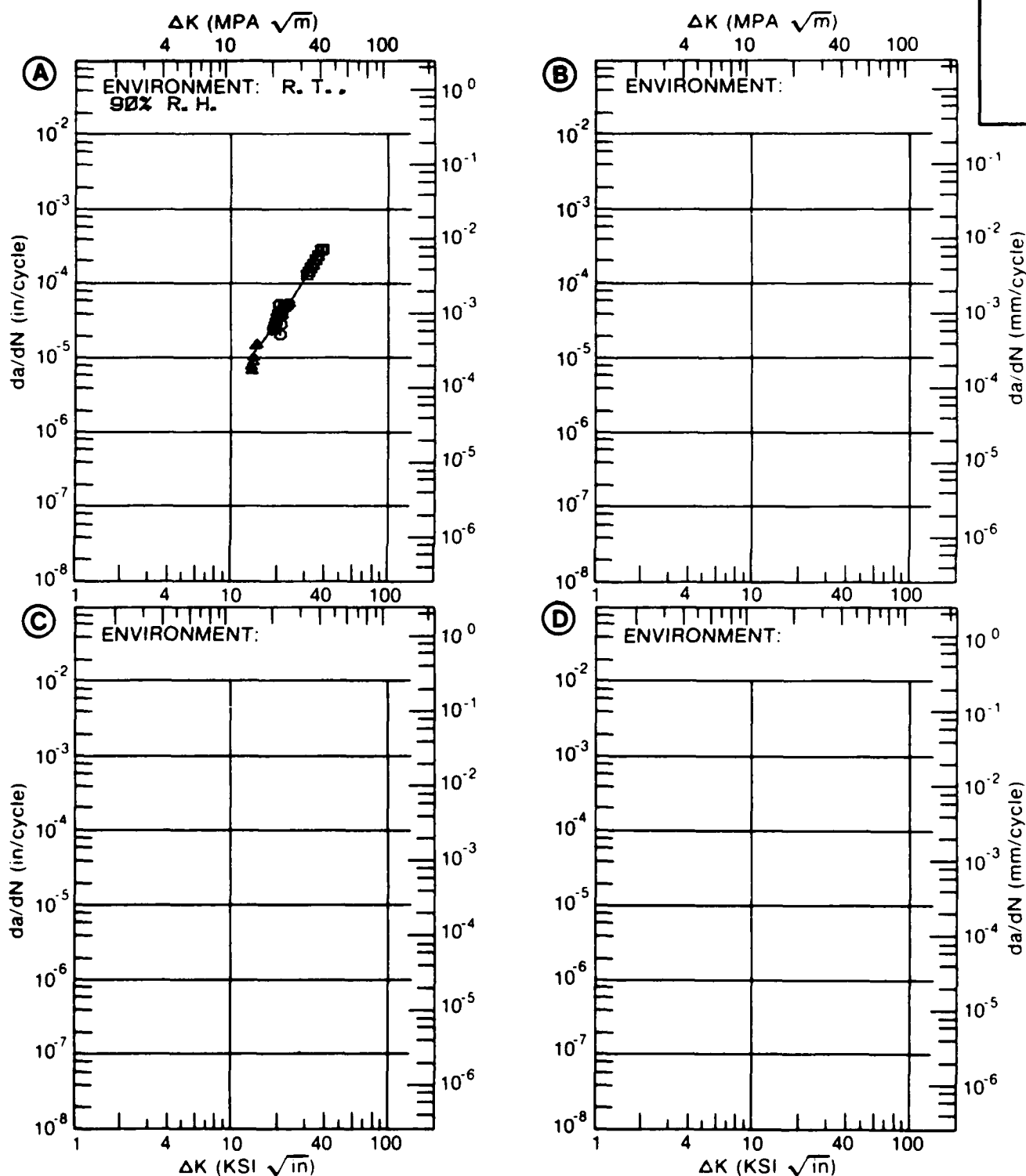


Figure 7.5.3.6

TABLE 7.5.3.7

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.7 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T3					
ENVIRONMENT: R.T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-1.00	R=-0.50	R=+0.05	
DELTA K MIN	A:	5.03	.119		
	B:	4.59	.129		
	C:	5.78		.238	
	D:				
	5.00		.144		
	6.00	.495	.755	.351	
	7.00	1.43	2.66	1.34	
	8.00	3.15	5.78	3.25	
	9.00	5.77	9.49	5.99	
	10.00	9.29	13.2	9.36	
	13.00	24.0	23.1	22.7	
	16.00	41.4	35.2	45.3	
	20.00	70.3	67.2		
DELTA K MAX	A:	24.85	264.		
	B:	24.91	175.		
	C:	19.55		102.	
	D:				
ROOT MEAN SQUARE		24.20	19.99	12.63	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T3
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 50.9 KSI
 ULT. STRENGTH: 68.5 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: UD006

ALUM.
 ALLOY

2024

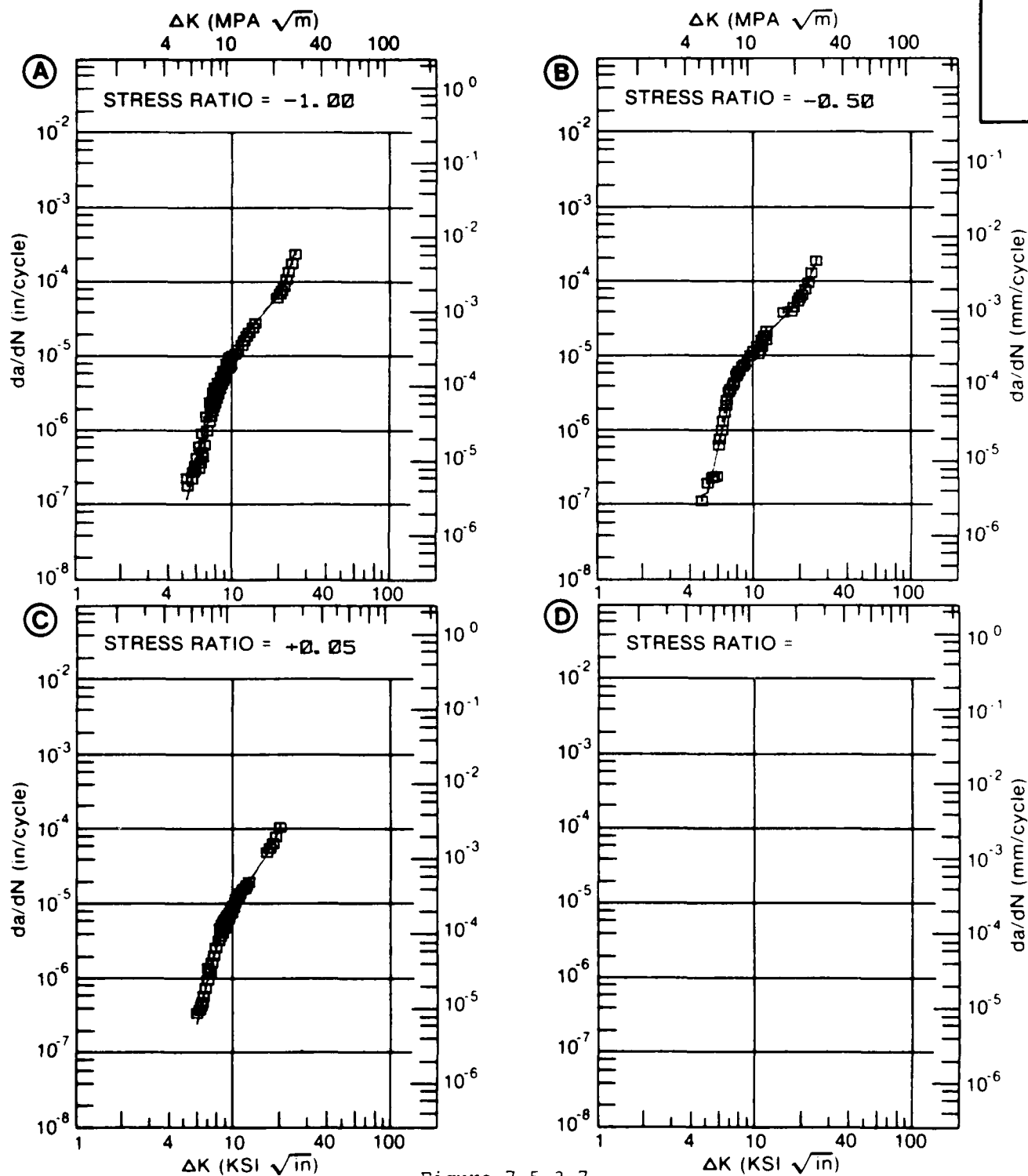


Figure 7.5.3.7

TABLE 7.5.3.8

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.8 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T351
ENVIRONMENT: - 65F, AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.00	R=+0.80		
DELTA K A:	9.84	.354			
MIN B:	6.02		.766		
C:					
D:					
	7.00		1.96		
	8.00		4.70		
	9.00		10.2		
	10.00	.360	20.4		
	13.00	1.06	102.		
	16.00	4.50	303.		
	20.00	19.7			
	25.00	69.4			
DELTA K A:	29.42	208.			
MAX B:	17.13		414.		
C:					
D:					
ROOT MEAN SQUARE		26.82	10.41		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25		1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T351
 FORM: SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY:
 ENVIRONMENT: - 65° F. AIR

YIELD STRENGTH: 56.9 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.184- 0.188"
 SPECIMEN WIDTH: 11.997- 12.000"
 REFERENCES: DA001

ALUM.
 ALLOY

2024

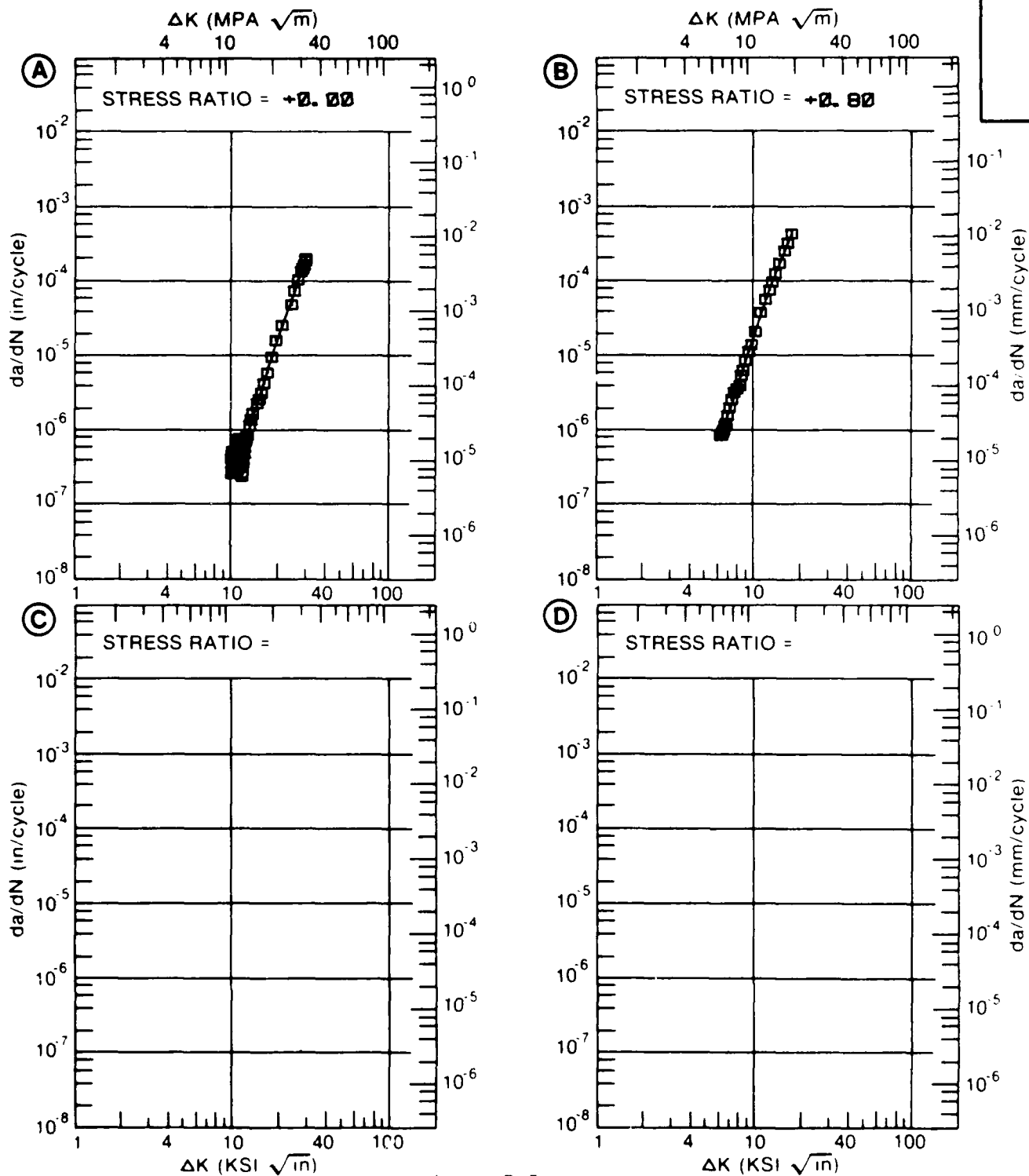


Figure 7.5.

TABLE 7.5.3.9

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.9 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T351					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.00	R=+0.40	R=+0.80	
DELTA K MIN	A: 9.51	5.14			
	B: 15.81		60.3		
	C: 7.98			13.8	
	D:				
	8.00			14.0	
	9.00			23.4	
	10.00	6.16		39.2	
	13.00	13.6		167.	
	16.00	23.5	63.5	553.	
	20.00	44.0	163.		
DELTA K MAX	25.00		419.		
	30.00		935.		
	A: 24.94	95.5			
	B: 33.80		1628.		
	C: 17.04			790.	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		3.46	5.76	15.15	
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T351

FORM: SHEET

SPECIMEN TYPE: CCP

ORIENTATION: L-T

FREQUENCY: 3.00- 6.00 HZ

ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 56.9 KSI

ULT. STRENGTH:

SPECIMEN THK: 0.181- 0.186"

SPECIMEN WIDTH: 11.998- 12.009"

REFERENCES: DA001

ALUM.
ALLOY

2024

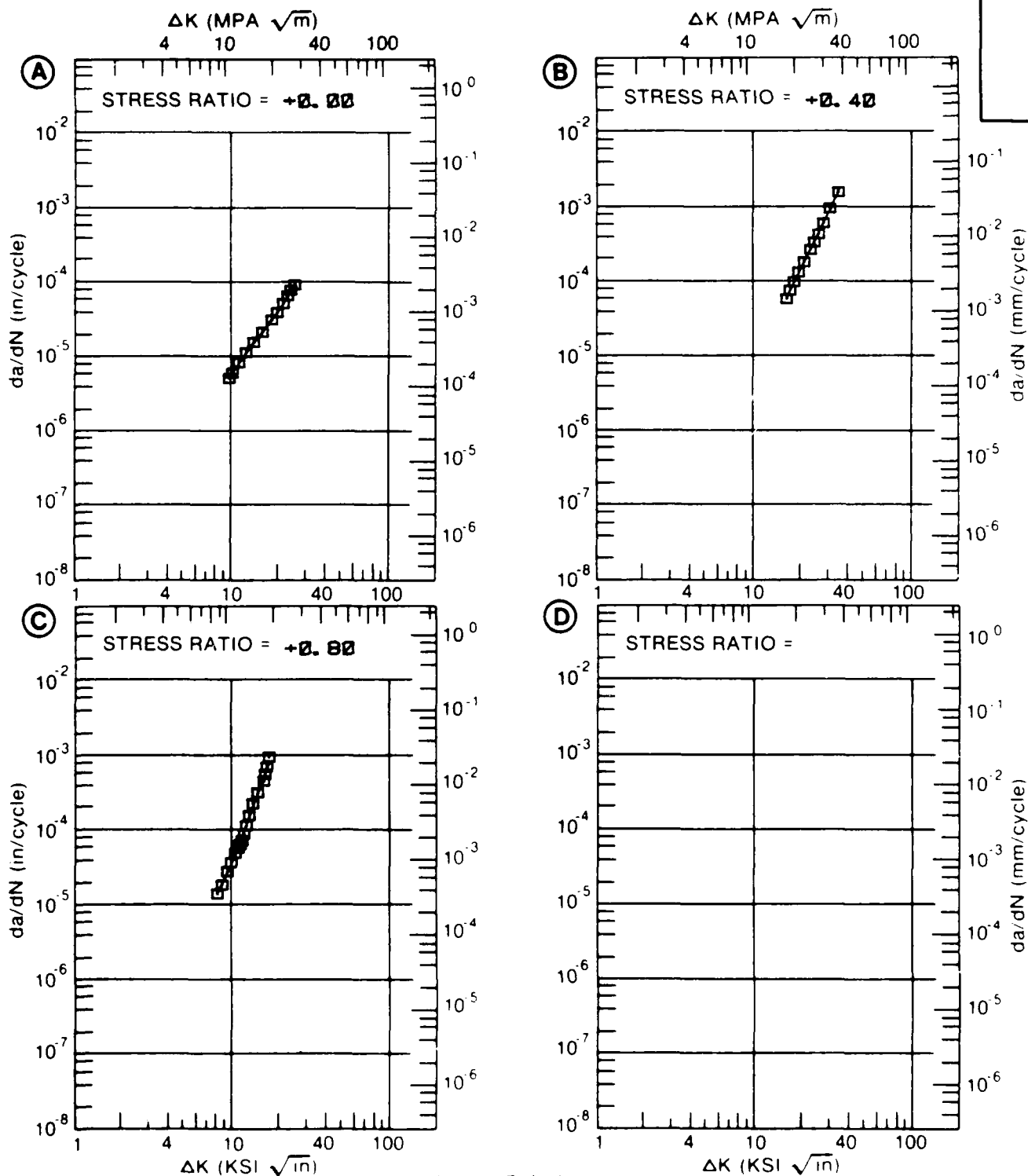


Figure 7.5.3.9

TABLE 7.5.3.10

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.10 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T351
 ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.00	R=+0.70		
DELTA K MIN	A: 7.32	1.35			
	B: 4.72		.464		
	C:				
	D:				
	5.00		.636		
	6.00		1.50		
	7.00		2.72		
	8.00	1.80	4.25		
	9.00	2.75	6.13		
	10.00	4.09	8.42		
	13.00	9.26	19.4		
DELTA K MAX	A: 15.05	11.4			
	B: 14.38		28.1		
	C:				
	D:				
ROOT MEAN SQUARE		18.10	14.22		
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T351
 FORM: SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 9.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.163"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: B7002

ALUM.
 ALLOY

2024

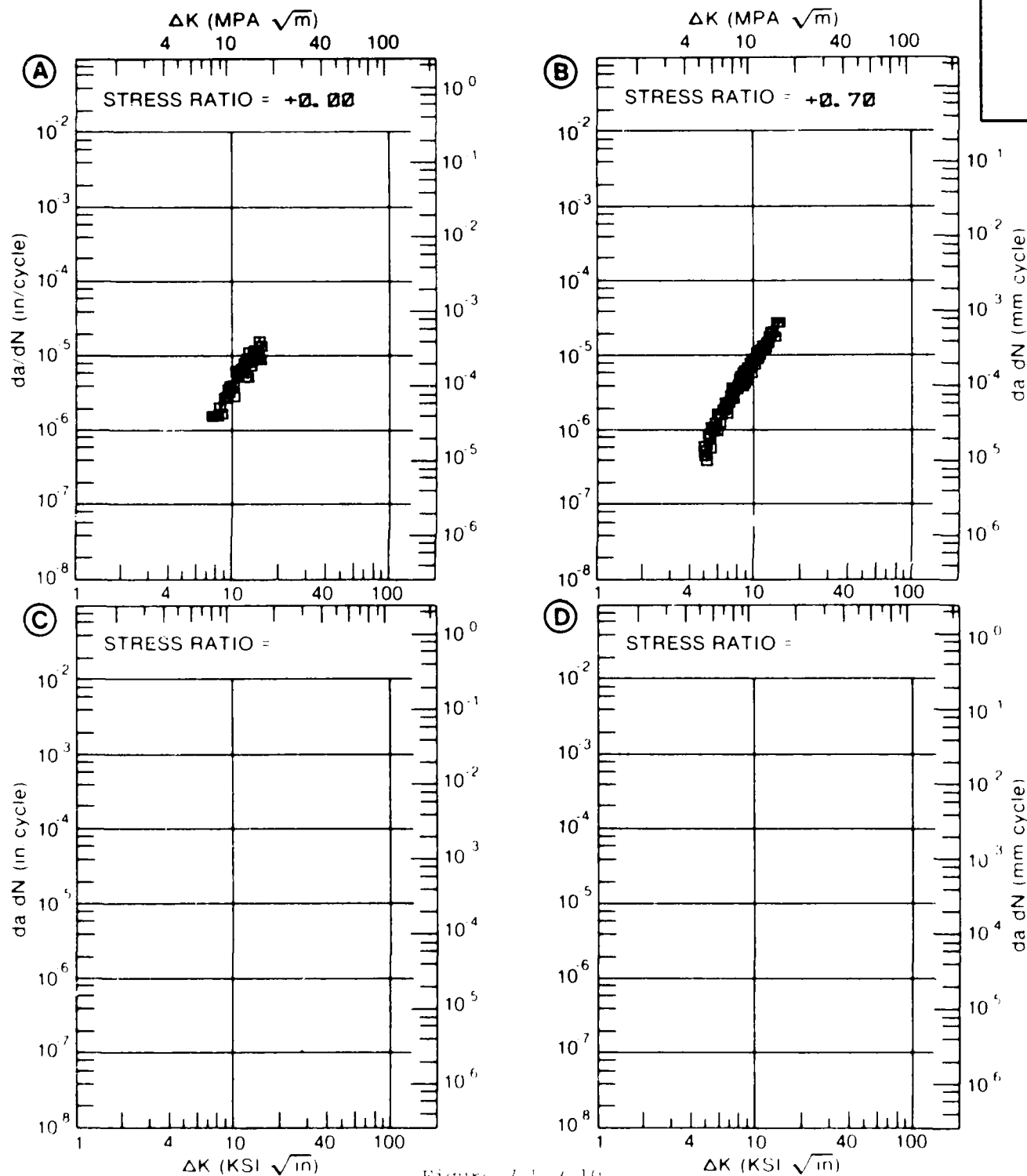


Figure 7.5.3.10

TABLE 7.5.3.11

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.11 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T351					
ENVIRONMENT: R. T. , S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.00	R=+0.33		
DELTA K MIN	A: 8.77	2.31			
	B: 11.68		19.2		
	C:				
	D:				
	9.00	2.46			
	10.00	3.21			
	13.00		25.1		
	16.00		49.6		
	20.00		113.		
DELTA K MAX	A: 11.81	7.19			
	B: 24.00		211.		
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		9.30	6.30		
LIFE		0.0-0.5			
PREDICTION		0.5-0.8			
RATIO		0.8-1.25	1	1	
SUMMARY		1.25-2.0			
(NP/NA)		>2.0			

CONDITION/HT: T351

FORM: SHEET

SPECIMEN TYPE: CCP

ORIENTATION: L-T

FREQUENCY: 1.00- 10.00 HZ

ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 56.9 KSI

ULT. STRENGTH:

SPECIMEN THK: 0.182- 0.192"

SPECIMEN WIDTH: 12.000"

REFERENCES: DA001

ALUM.
ALLOY

2024

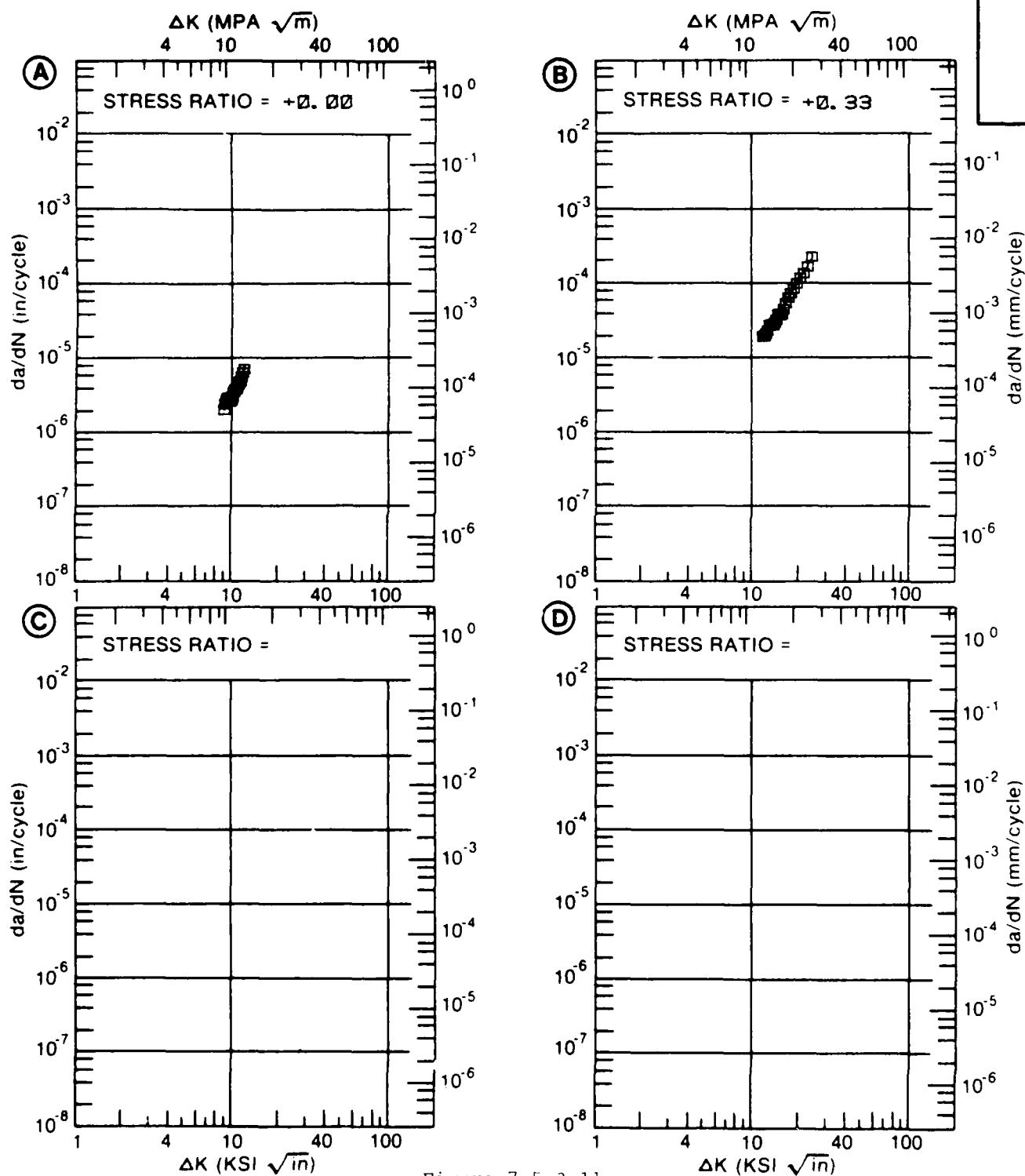


Figure 7.5.3.11

TABLE 7.5.3.12

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.12 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024	
CONDITION: T351			
ENVIRONMENT: R.T., LAB AIR			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)	
		A	B
		R=-1.00	R=-0.50
DELTA K MIN	A: 3.50	.159	
	B: 2.80		.0919
	C:		
	D:		
	3.00		.0936
	3.50	.159	.107
	4.00	.161	.133
	5.00	.270	.254
	6.00	.620	.575
	7.00	1.60	1.40
	8.00	3.91	3.04
	9.00	7.26	5.43
	10.00	9.44	7.87
	13.00	12.4	13.7
	16.00	27.3	21.0
	20.00	41.3	47.3
	25.00		115.
DELTA K MAX	A: 20.00	41.3	
	B: 27.15		140.
	C:		
	D:		
ROOT MEAN SQUARE		10.20	15.32
PERCENT ERROR			
LIFE	0.0-0.5		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25	1	1
SUMMARY	1.25-2.0		
(NP/NA)	>2.0		

CONDITION/HT: 351
 FORM: PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 3.00- 5.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 54.5 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.242"
 SPECIMEN WIDTH: 9.000"
 REFERENCES: DA001

ALUM.
 ALLOY

2024

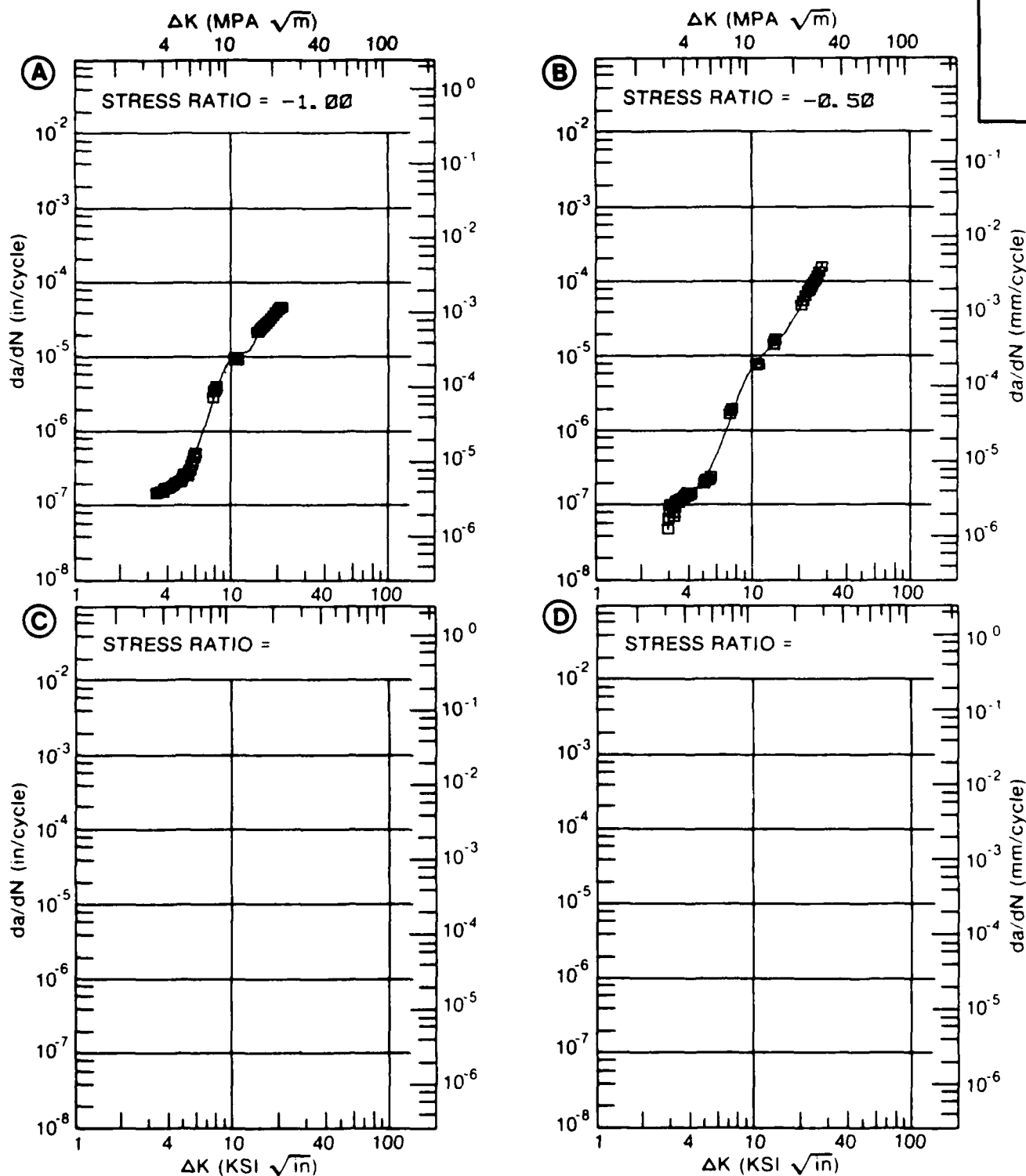


Figure 7.5.3.12

TABLE 7.5.3.13

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.13 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T351
 ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A R=+0.01	B R=+0.40	C R=+0.60	D R=+0.80
DELTA K MIN	A: 5.00	.205			
	B: 3.27		.182		
	C: 5.50			.161	
	D: 3.34				.316
	3.50		.177	.161	.327
	4.00		.235	.250	.520
	5.00	.205	.704	.878	1.71
	6.00	.521	2.00	2.15	3.89
	7.00	1.57	3.99	4.08	7.00
	8.00	3.19	6.24	6.60	11.4
	9.00	5.11	8.73	9.77	18.8
	10.00	7.09	11.7	13.8	33.2
	13.00	13.0	24.0	33.9	175.
	16.00	20.9	44.8	78.0	
	20.00	39.8			
	25.00	91.2			
	30.00	205.			
	35.00	389.			
DELTA K MAX	A: 39.11	546.			
	B: 17.04		55.1		
	C: 18.46			153.	
	D: 14.85				309.
ROOT MEAN SQUARE PERCENT ERROR		14.88	7.66	6.94	8.45
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	1
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T351

FORM: PLATE

SPECIMEN TYPE: CCP

ORIENTATION: L-T

FREQUENCY: 1.00- 10.00 HZ

ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 54.5 KSI

ULT. STRENGTH:

SPECIMEN THK: 0.241- 0.242"

SPECIMEN WIDTH: 8.995- 9.000"

REFERENCES: DA001

ALUM.
ALLOY

2024

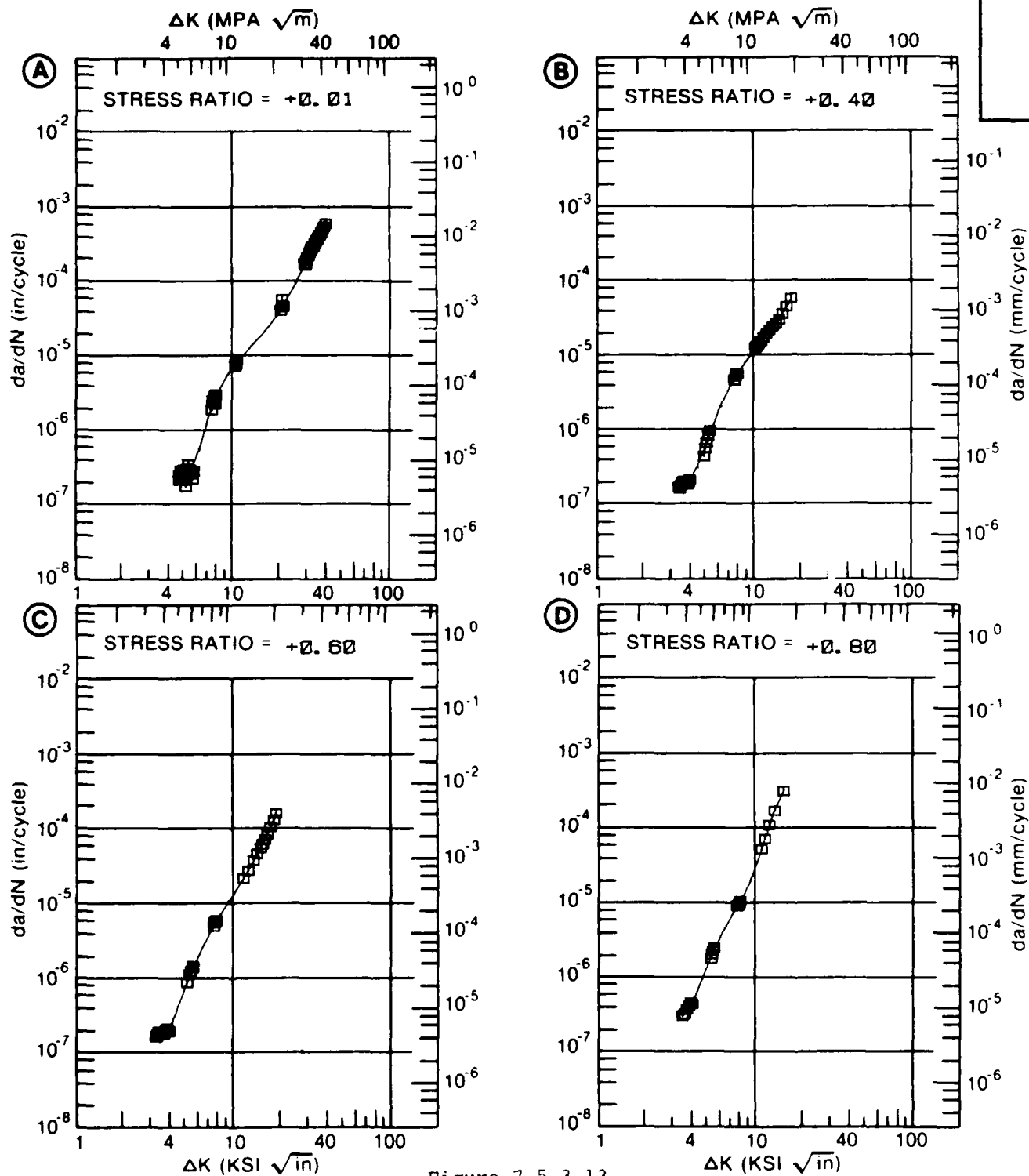


Figure 7.5.3.13

TABLE 7.5.3.14

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.14 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T351
 ENVIRONMENT: - 65F, AIR

DELTA K
 (KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

R=+0.00

DELTA K A: 27.49 : 176.
 MIN B:
 C:
 D:

30.00 : 261.
 35.00 : 503.
 40.00 : 866.
 50.00 : 2098.
 60.00 : 4367.

DELTA K A: 60.32 : 4463.
 MAX B:
 C:
 D:

ROOT MEAN SQUARE 7.04
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 1
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T351
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 1.00- 2.00 HZ
 ENVIRONMENT: - 65° F, AIR

YIELD STRENGTH: 56.9 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.259"
 SPECIMEN WIDTH: 12.002"
 REFERENCES: DA001

ALUM.
 ALLOY

2024

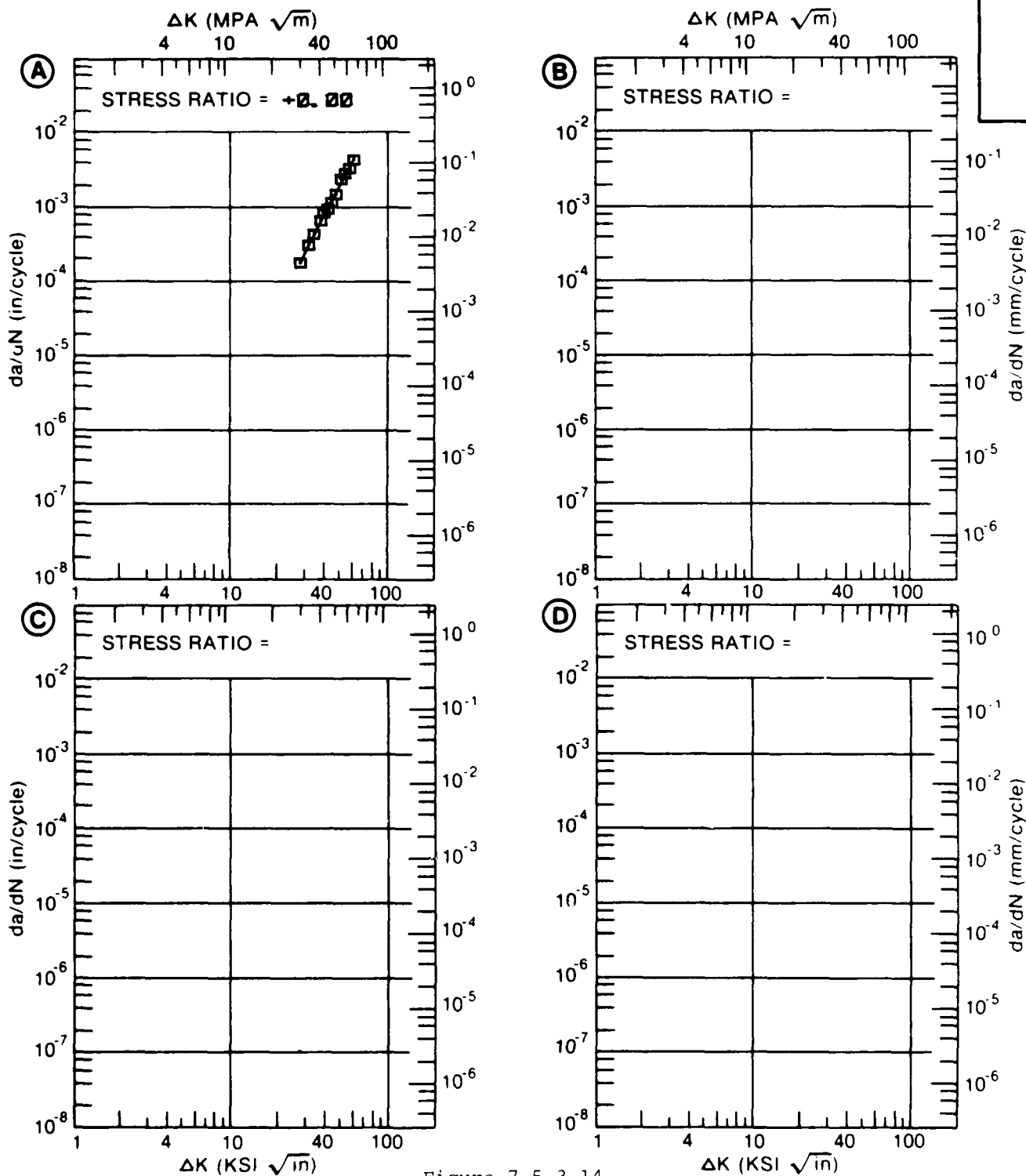


Figure 7.5.3.14

TABLE 7.5.3.15

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.15 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T351					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 00	R=+0. 40	R=+0. 80	
DELTA K MIN	A:	4. 49	. 109		
	B:	3. 67	. 219		
	C:	4. 71		1. 06	
	D:				
	4. 00		. 227		
	5. 00	. 156	. 478	1. 41	
	6. 00	. 244	1. 30	3. 08	
	7. 00	. 792	3. 07	5. 46	
	8. 00		5. 65		
	9. 00		7. 80		
DELTA K MAX	A:	7. 41	1. 79		
	B:	9. 80	8. 28		
	C:	7. 53		7. 04	
	D:				
ROOT MEAN SQUARE		15. 52	12. 18	2. 83	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25	1	1	1	
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T351
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 5.00- 20.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 56.9 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.188- 0.192"
 SPECIMEN WIDTH: 3.999- 4.003"
 REFERENCES: DA001

ALUM.
 ALLOY

2024

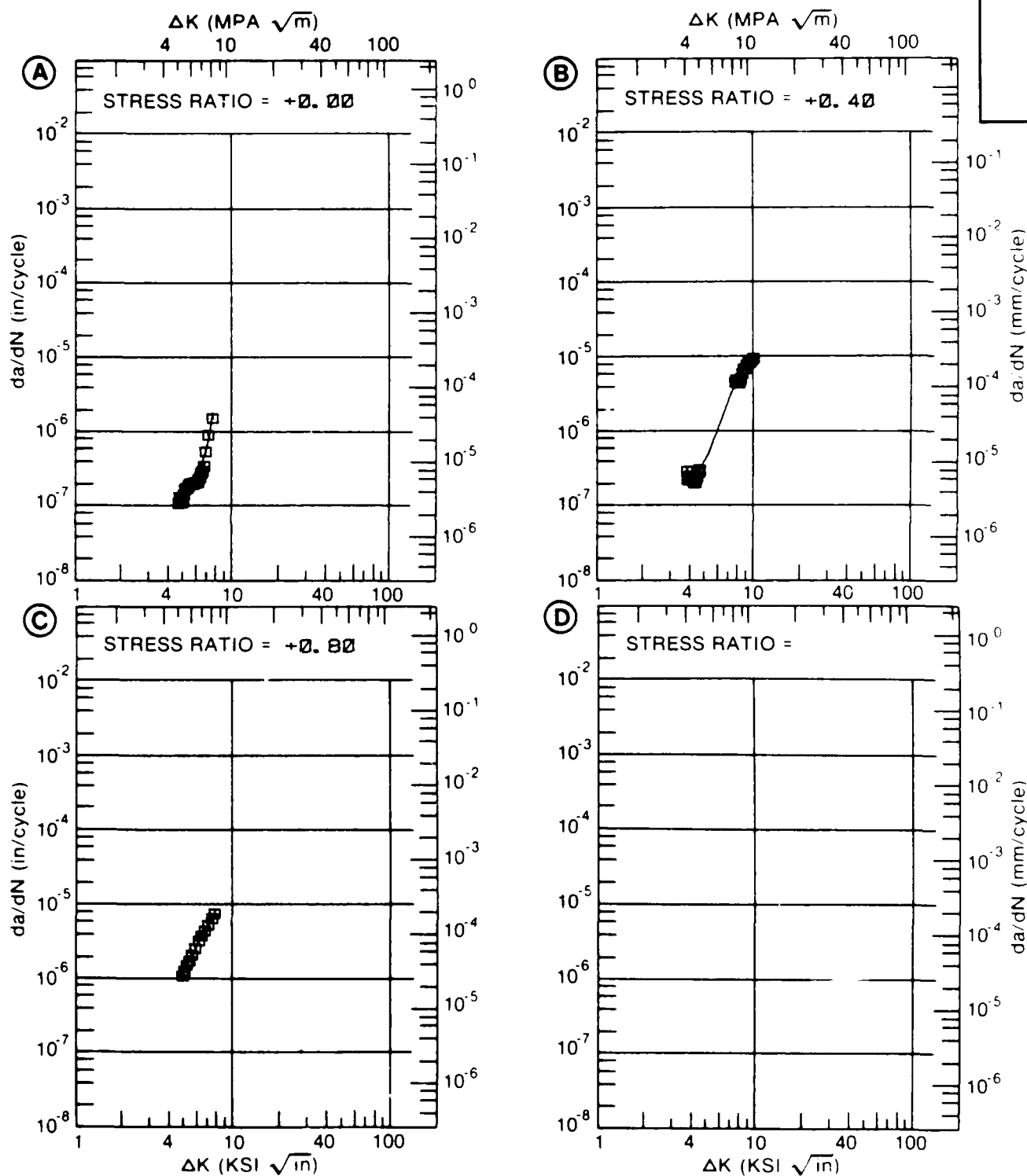


Figure 7.5.3.15

TABLE 7.5.3.16

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.16 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024			
CONDITION: T351					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-1.00	R=+0.00	R=+0.40	R=+0.80
DELTA K MIN	A:	11.83	12.2		
	B:	23.72	119.		
	C:	10.67		17.9	
	D:	5.32			2.68
		6.00			4.16
		7.00			8.61
		8.00			17.7
		9.00			34.2
		10.00			60.9
		13.00	17.5	28.0	204.
DELTA K MAX		16.00	36.2	70.2	
		20.00	74.6	232.	
		25.00	159.	148.	
		30.00	325.	306.	
		35.00	658.	552.	
		40.00		924.	
		50.00		2324.	
	A:	38.29	1051.		
	B:	52.44	2877.		
	C:	22.69		444.	
	D:	14.31			275.
ROOT MEAN SQUARE		17.03	3.77	7.82	9.27
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	1	1	1
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T351
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 1.00- 16.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 56.9 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.189- 0.261"
 SPECIMEN WIDTH: 11.997- 12.007"
 REFERENCES: DA001

ALUM.
 ALLOY

2024

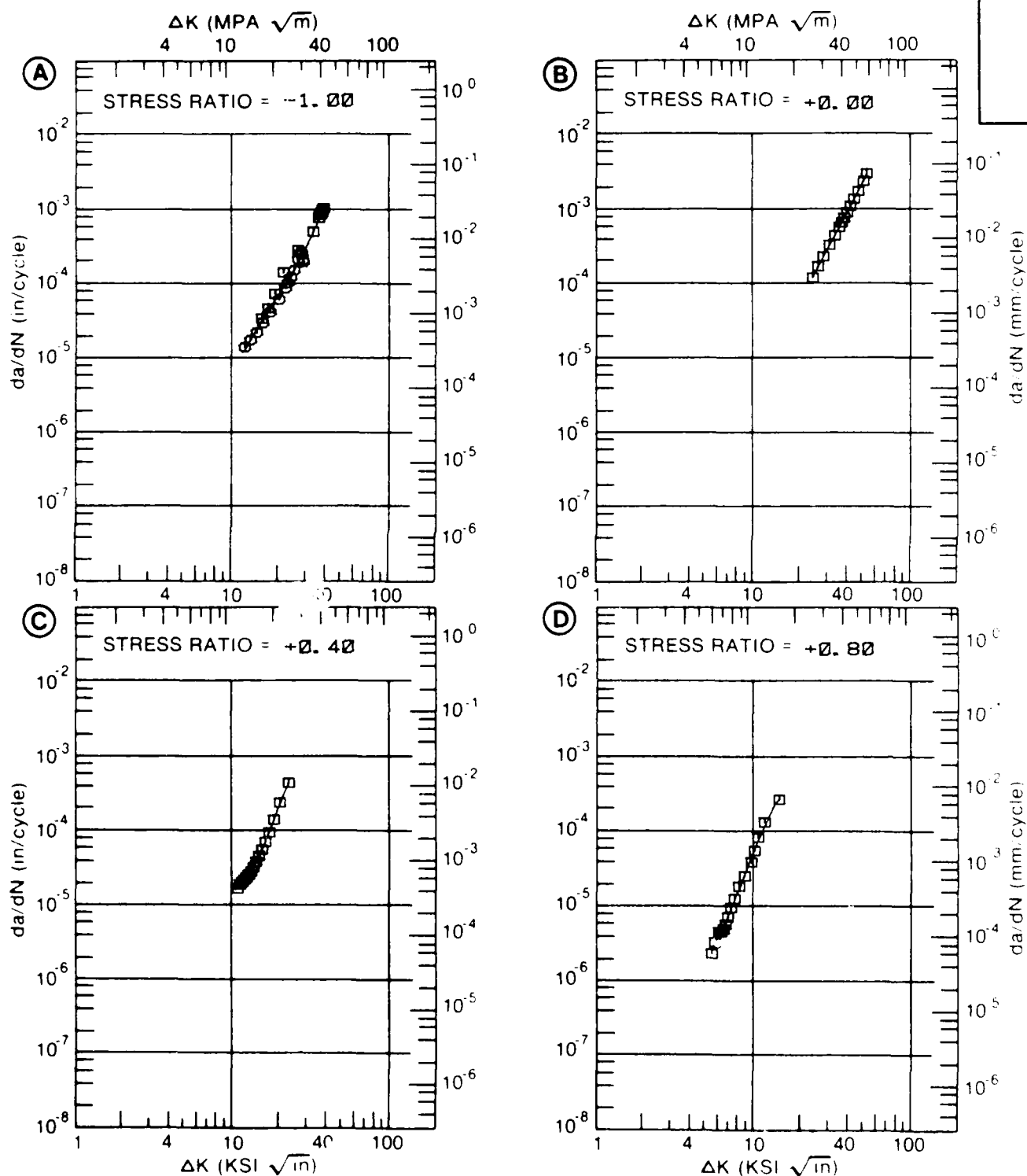


Figure 7.5.3.16

TABLE 7.5.3.17

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.17 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T351
ENVIRONMENT: R.T., LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A:	12.37	14.6		
	B:				
	C:				
	D:				
		13.00	17.5		
		16.00	29.5		
		20.00	55.0		
DELTA K MAX	A:	24.93	209.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 13.67
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T351
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 3.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: FR001

ALUM.
 ALLOY

2024

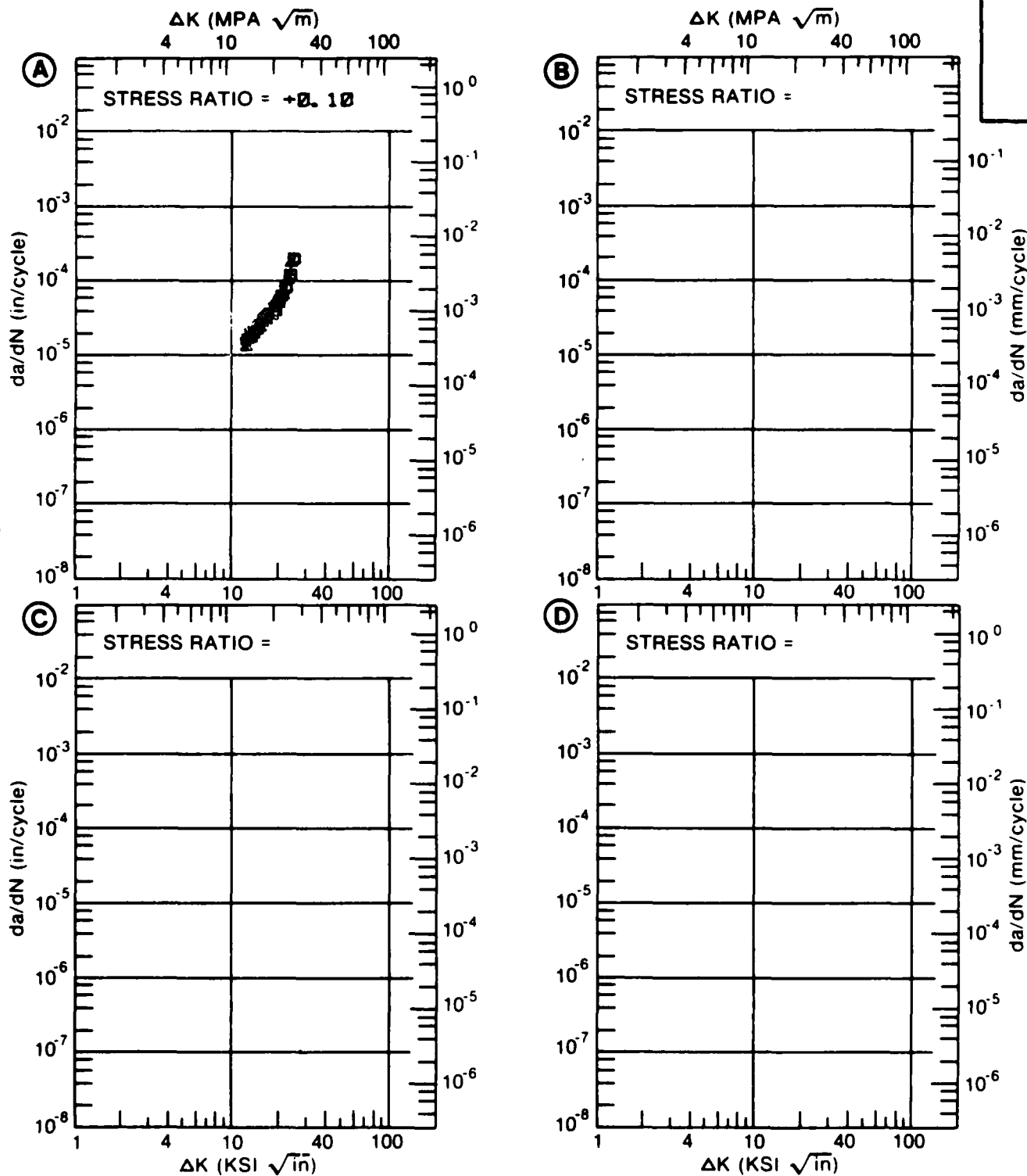


Figure 7.5.3.17

TABLE 7.5.3.18

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.18 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2024			
CONDITION: T351					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T.	E=+ 200F	E=+ 300F	E=+ 400F
		LAB AIR	AIR	AIR	AIR
DELTA K MIN	A:	8.19	2.84		
	B:	7.67	3.23		
	C:	6.72		2.15	
	D:	6.52			2.02
		7.00		2.38	2.44
		8.00	3.58	3.50	3.54
		9.00	4.06	5.14	4.99
		10.00	5.98	7.43	6.89
		13.00	14.8	19.2	16.4
		16.00	28.3	38.6	35.2
		20.00	52.1		
DELTA K MAX	A:	21.86	64.7		
	B:	16.64	42.7		
	C:	19.19		63.7	
	D:	19.04			70.9
ROOT MEAN SQUARE		12.74	10.27	10.95	17.31
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T351
 FORM: 0.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.01
 FREQUENCY: 20.00 HZ

YIELD STRENGTH: 51.5 KSI
 ULT. STRENGTH: 85.9 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 2.000"
 REFERENCES: U0000

ALUM.
 ALLOY

2024

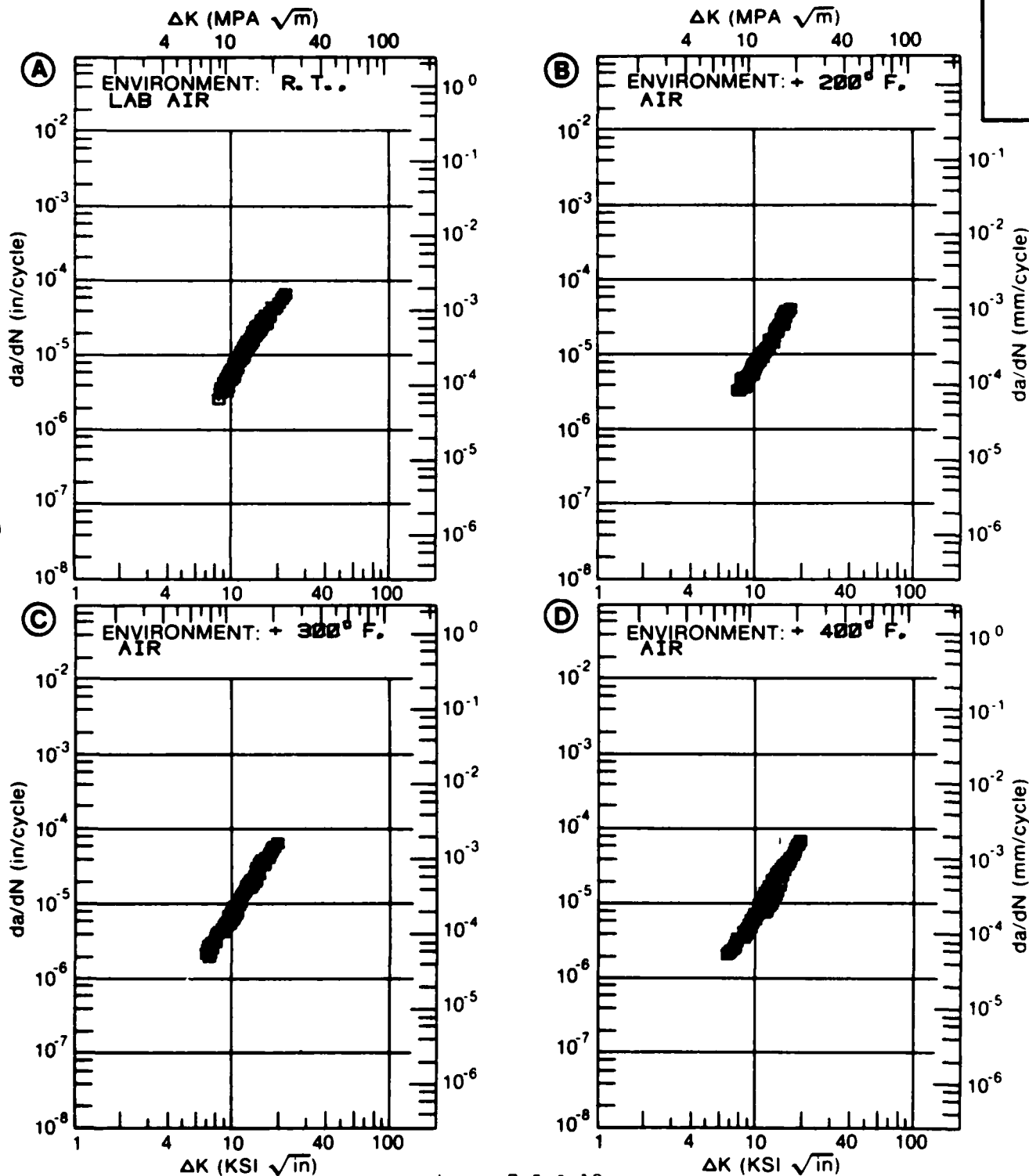


Figure 7.5.3.18

TABLE 7.5.3.19

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.19 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2024			
CONDITION: T351					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.	E=+ 200F	E=+ 300F	E=+ 400F
		LAB AIR	AIR	AIR	AIR
A:	7.96	4.07			
DELTA K B:	6.84		2.95		
MIN C:	6.93			2.44	
D:	6.68				2.73
	7.00		3.11	2.54	3.11
	8.00	4.14	4.37	4.28	4.77
	9.00	6.03	6.18	6.47	7.27
	10.00	8.62	8.70	9.35	10.6
	13.00	21.4	22.2		
A:	13.55	24.5			
DELTA K B:	13.54		25.8		
MAX C:	11.58			16.5	
D:	11.82				18.5
ROOT MEAN SQUARE		7.41	21.25	5.04	4.60
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T351
 FORM: 0.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 20.00 HZ

YIELD STRENGTH: 51.5 KSI
 ULT. STRENGTH: 65.9 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 2.000"
 REFERENCES: UD009

ALUM.
 ALLOY

2024

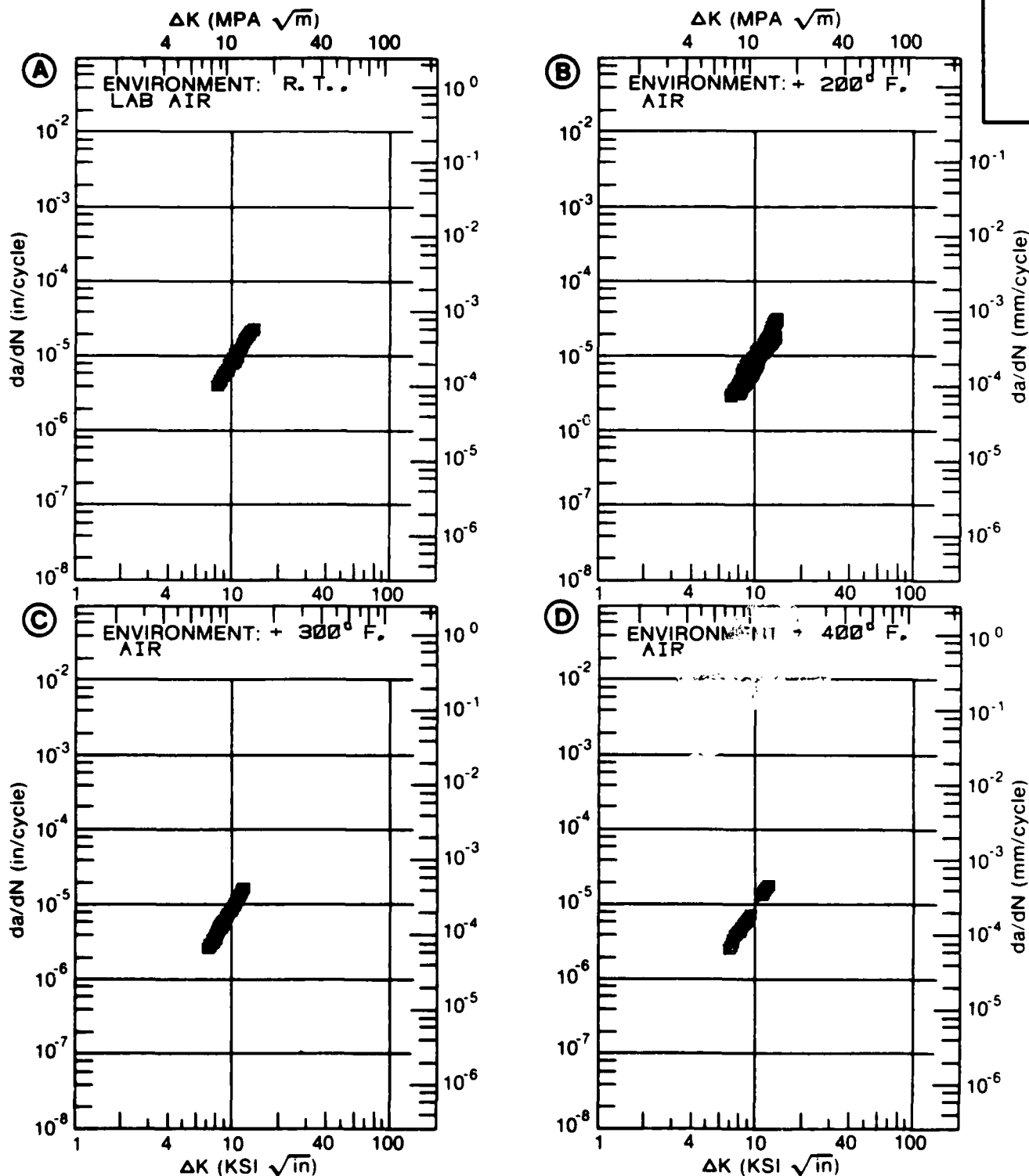


Figure 7.5.3.19

TABLE 7.5.3.20

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.5.3.20 INDICATING EFFECT

OF ENVIRONMENT

**MATERIAL: ALUMINUM
CONDITION: T351**

2024

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E=+ 200F AIR	E=+ 300F AIR	E=+ 400F AIR
DELTA K MIN	A: 6.16	1.90			
	B: 5.35		1.66		
	C: 5.60			1.47	
	D: 5.49				1.54
	6.00		2.11	1.94	2.17
	7.00	2.92	3.21	3.48	3.78
	8.00	4.67	4.93	5.65	5.96
	9.00	7.12	7.42	8.54	8.80
	10.00	10.4	10.8	12.3	12.4
	13.00	24.8	27.2	29.7	30.3
	16.00	43.5	50.2	59.8	
DELTA K MAX	A: 16.29	45.4			
	B: 17.32		60.7		
	C: 16.43			65.5	
	D: 15.83				62.8
ROOT MEAN SQUARE PERCENT ERROR		14.89	16.14	9.06	11.01

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T351
 FORM: 0.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.30
 FREQUENCY: 20.00 HZ

YIELD STRENGTH: 51.5 KSI
 ULT. STRENGTH: 65.9 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 2.000"
 REFERENCES: UD009

ALUM.
 ALLOY

2024

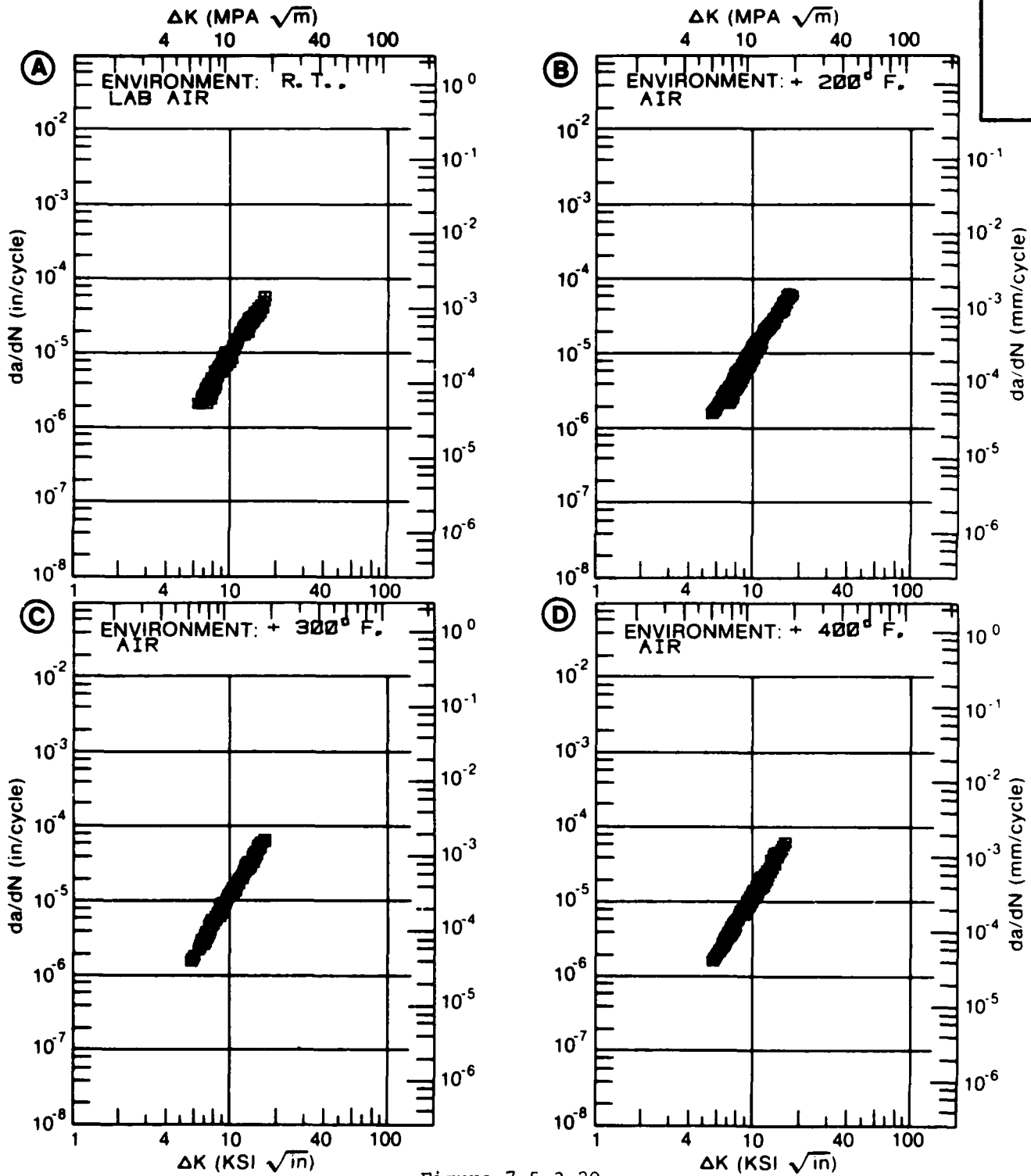


Figure 7.5.3.20

TABLE 7.5.3.21

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.21 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2024
CONDITION: T351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E=+ 200F AIR	E=+ 300F AIR	E=+ 400F AIR
DELTA K A:	5.77	1.92			
DELTA K B:	5.60		1.59		
MIN C:	5.46			1.62	
D:	4.93				1.41
	5.00				1.47
	6.00	2.25	2.09	2.35	2.57
	7.00	3.94	3.77	4.14	4.08
	8.00	6.13	6.13	6.55	6.27
	9.00	9.06	9.31	9.66	9.55
	10.00	13.1	13.5	13.6	14.6
	13.00		33.8	31.7	
DELTA K A:	12.59	35.0			
DELTA K B:	13.83		42.2		
MAX C:	13.79			38.6	
D:	12.26				39.4
ROOT MEAN SQUARE		15.96	7.06	7.78	17.54
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T351
 FORM: 0.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.50
 FREQUENCY: 20.00 HZ

YIELD STRENGTH: 51.5 KSI
 ULT. STRENGTH: 65.9 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 2.000"
 REFERENCES: UD009

ALUM.
 ALLOY

2024

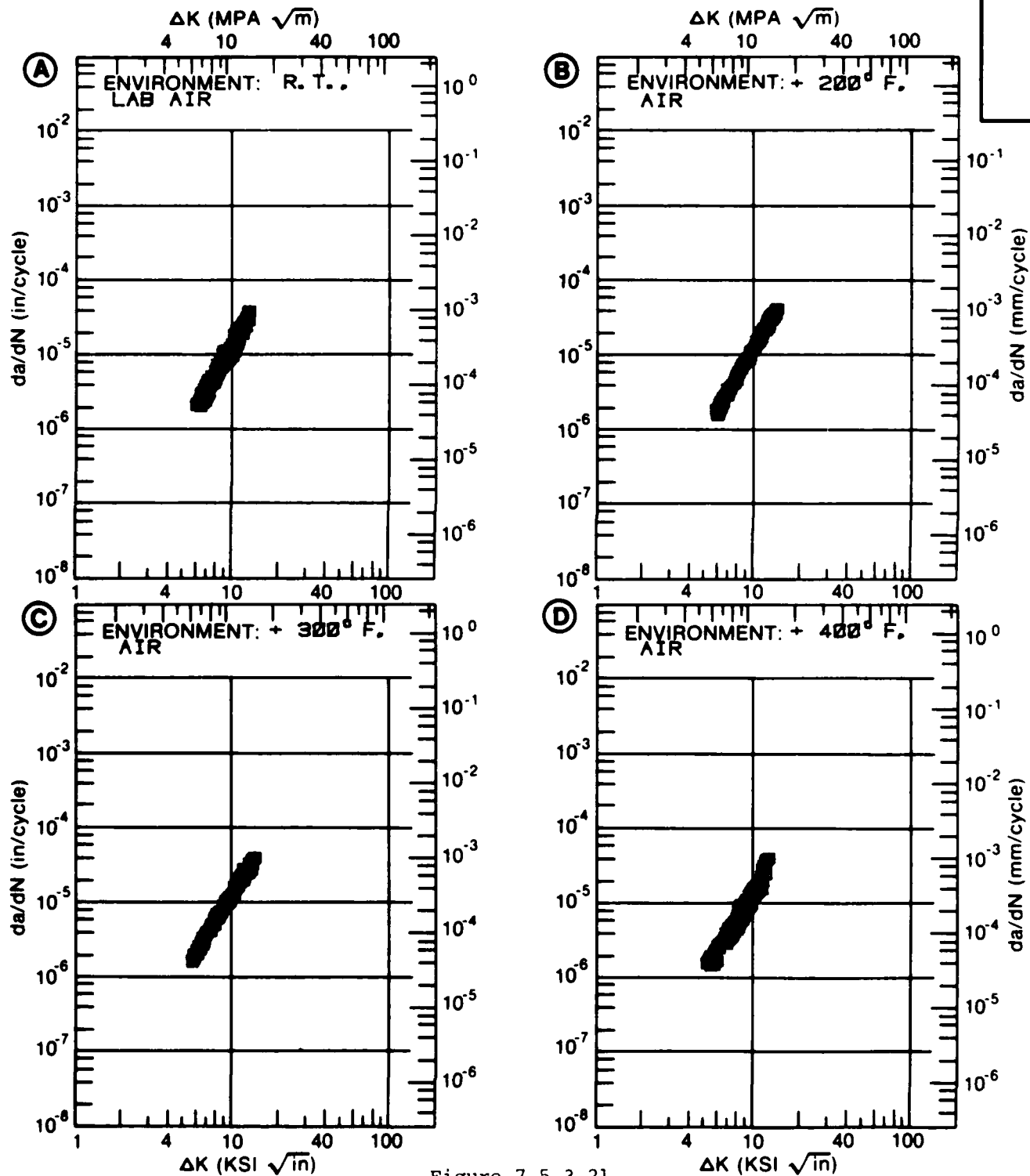


Figure 7.5.3.21

TABLE 7.5.3.22

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.5.3.22 INDICATING EFFECT

OF ENVIRONMENT

**MATERIAL: ALUMINUM
CONDITION: T351**

2024

**DELTA K
(KSI*IN**1/2)**

DA/DN (10-6 IN./CYCLE)**

A

B

C

D

E= R. T.

E=+ 200F

E=+ 300F

E=+ 400F

: LAB AIR

AIR

AIR

AIR

DELTA K A:	5.67	1.67			
DELTA K B:	6.63		3.96		
MIN C:	6.14			3.03	
D:	4.18				1.05
	5.00				1.56
	6.00	2.18			2.85
	7.00	4.10	4.44	4.62	5.10
	8.00	6.60	6.71	7.24	8.47
	9.00	9.89	10.2	10.9	12.8
	10.00	14.4	14.3	15.6	17.6
DELTA K A:	10.96	20.5			
B:	10.11		14.7		
MAX C:	10.71			19.8	
D:	10.12				18.2

**ROOT MEAN SQUARE
PERCENT ERROR**

6.39

5.54

6.01

15.04

**LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0**

CONDITION/HT: T351
 FORM: 0.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.60
 FREQUENCY: 20.00 HZ

YIELD STRENGTH: 51.5 KSI
 ULT. STRENGTH: 65.9 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 2.000"
 REFERENCES: UD009

ALUM.
 ALLOY

2024

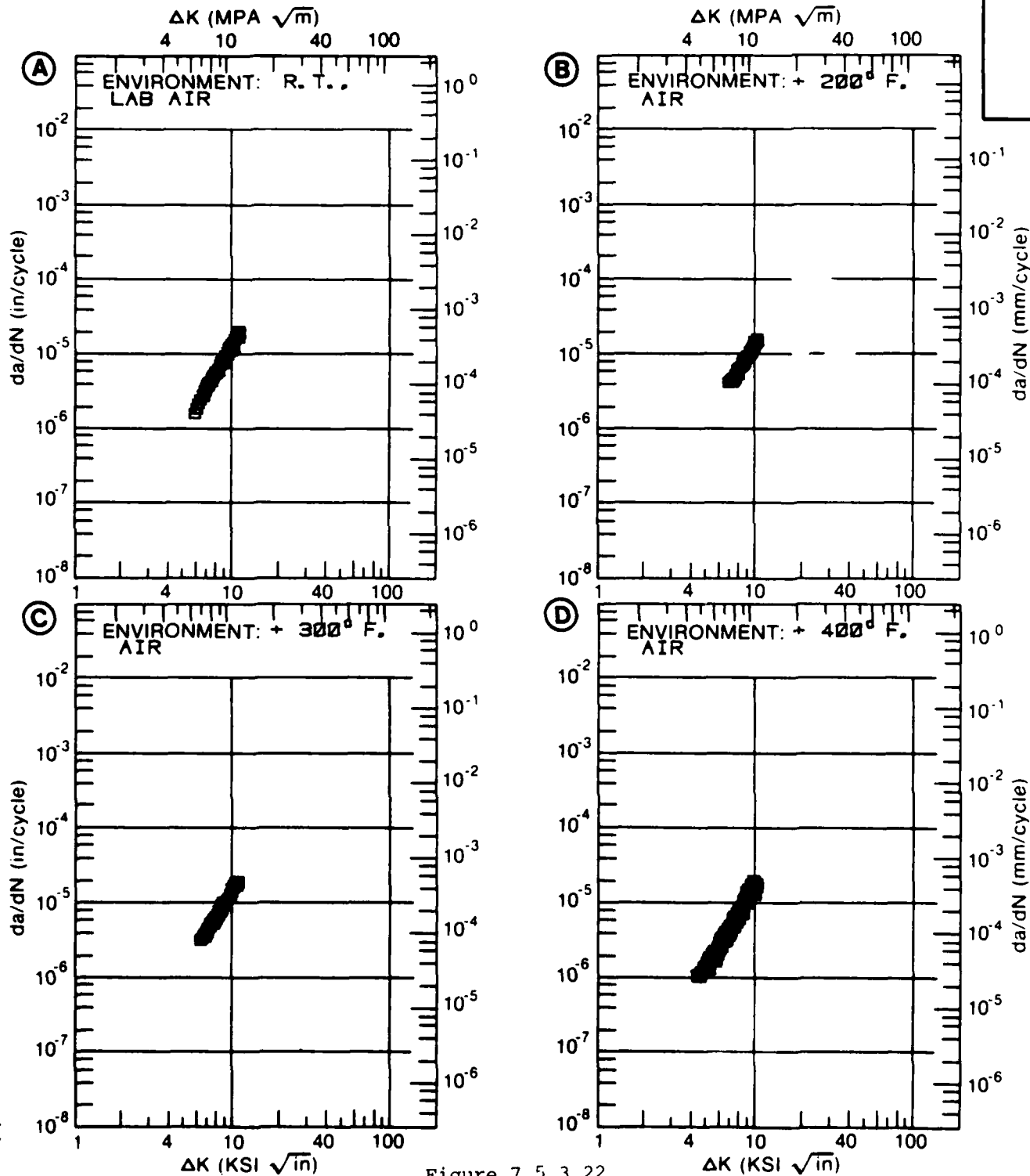


Figure 7.5.3.22

TABLE 7.5.3.23

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.23 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2024	
CONDITION: T351			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)	
		A	B
		C	D
		E= R. T.	
		LAB AIR	
DELTA K	A: 5.32	.130	
MIN	B:		
	C:		
	D:		
	6.00	.411	
	7.00	1.34	
	8.00	2.97	
	9.00	5.22	
	10.00	7.88	
	13.00	17.0	
	16.00	27.7	
DELTA K	A: 19.53	45.9	
MAX	B:		
	C:		
	D:		
ROOT MEAN SQUARE		18.92	
PERCENT ERROR			
LIFE	0.0-0.5		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25	1	
SUMMARY	1.25-2.0		
(NP/NA)	>2.0		

CONDITION/HT: T351
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 25.00 HZ

YIELD STRENGTH: 54.4 KSI
 ULT. STRENGTH: 69.3 KSI
 SPECIMEN THK: 0.248"
 SPECIMEN WIDTH: 2.500"
 REFERENCES: AL002

ALUM.
 ALLOY

2024

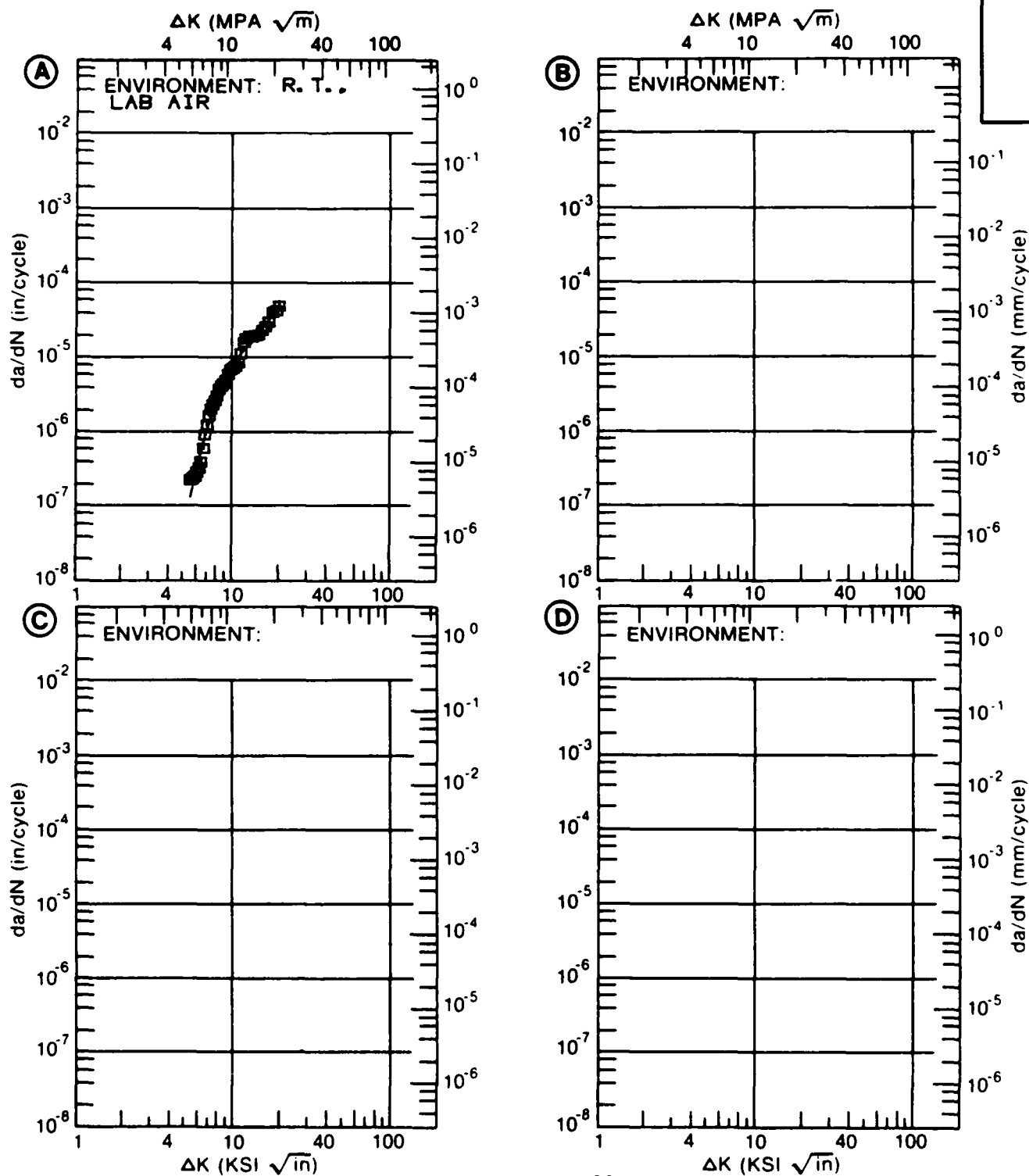


Figure 7.5.3.23

TABLE 7.5.3.24

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.24 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2024			
CONDITION: T351					
DELTA K		DA/DN (10**⁻⁶ IN. /CYCLE)			
(KSI*IN**1/2)		A	B	C	D
		E= R. T.			
		H. H. A.			
DELTA K	A: 3.11	.085			
	B: 5				
	C:				
	D:				
	3.50	.150			
	4.00	.183			
	5.00	.356			
	6.00	1.02			
	7.00	2.61			
	8.00	5.12			
	9.00	7.96			
DELTA K	10.00	10.8			
	13.00	20.2			
	16.00	36.3			
	20.00	96.4			
	A: 24.63	138.			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		18.66			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T351
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 25.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.249"
 SPECIMEN WIDTH: 2.546"
 REFERENCES: AL010

ALUM.
 ALLOY

2024

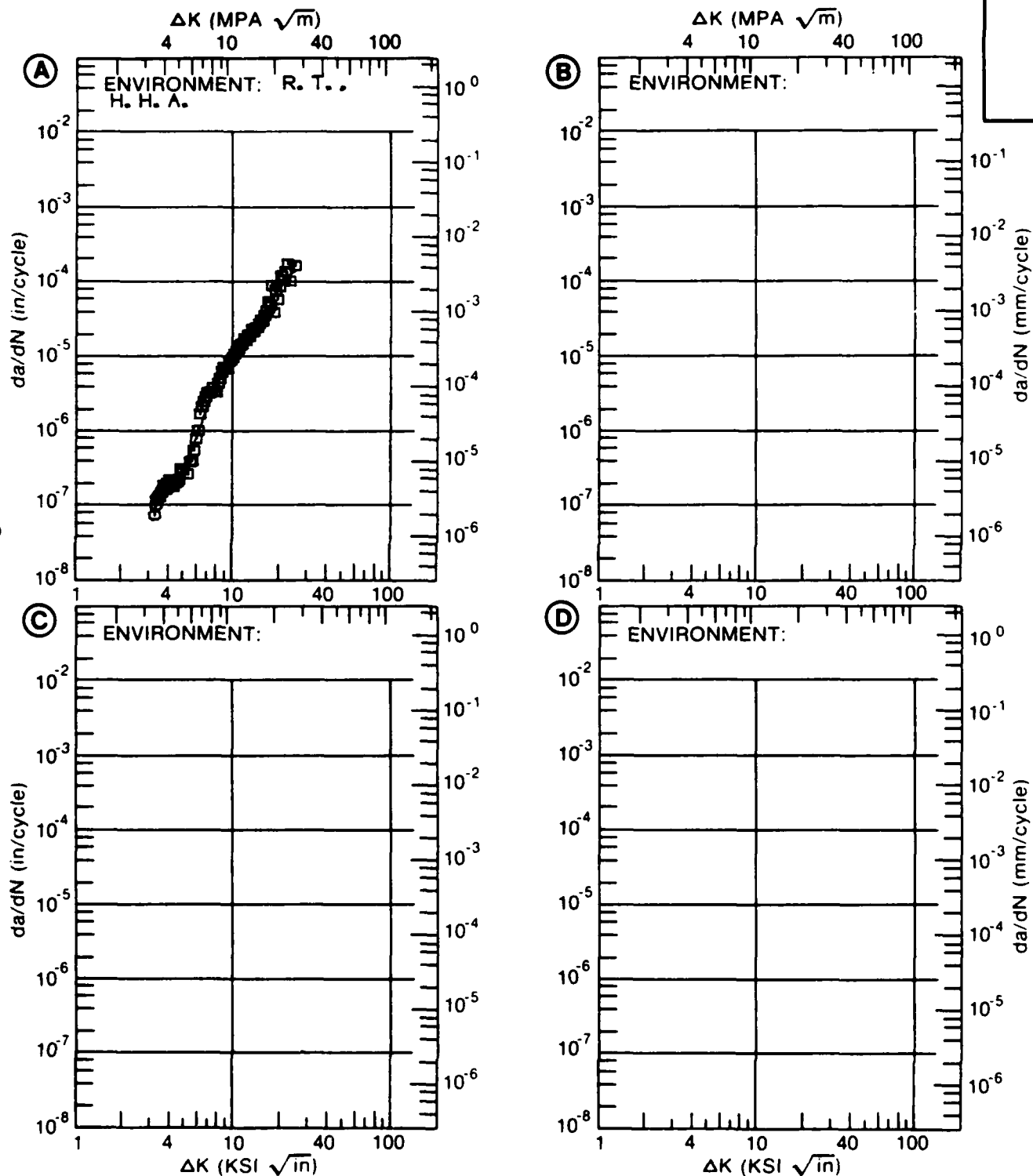


Figure 7.5.3.24

TABLE 7.5.3.25

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.25 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM 2024
CONDITION: T351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. H. H. A.			
DELTA K MIN	A: 3.20	.0726			
	B:				
	C:				
	D:				
	3.50	.139			
	4.00	.330			
	5.00	1.10			
	6.00	2.44			
	7.00	4.33			
	8.00	6.72			
	9.00	9.60			
	10.00	13.0			
	13.00	26.9			
	16.00	49.6			
DELTA K MAX	A: 16.73	57.1			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 26.03
PERCENT ERROR

LIFE	0.0-0.5	
PREDICTION	0.5-0.8	1
RATIO	0.8-1.25	1
SUMMARY	1.25-2.0	
(NP/NA)	>2.0	

CONDITION/HT: T351
 FORM: 1.25" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 25.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.248- 0.249"
 SPECIMEN WIDTH: 2.545- 2.546"
 REFERENCES: AL010

ALUM.
 ALLOY

2024

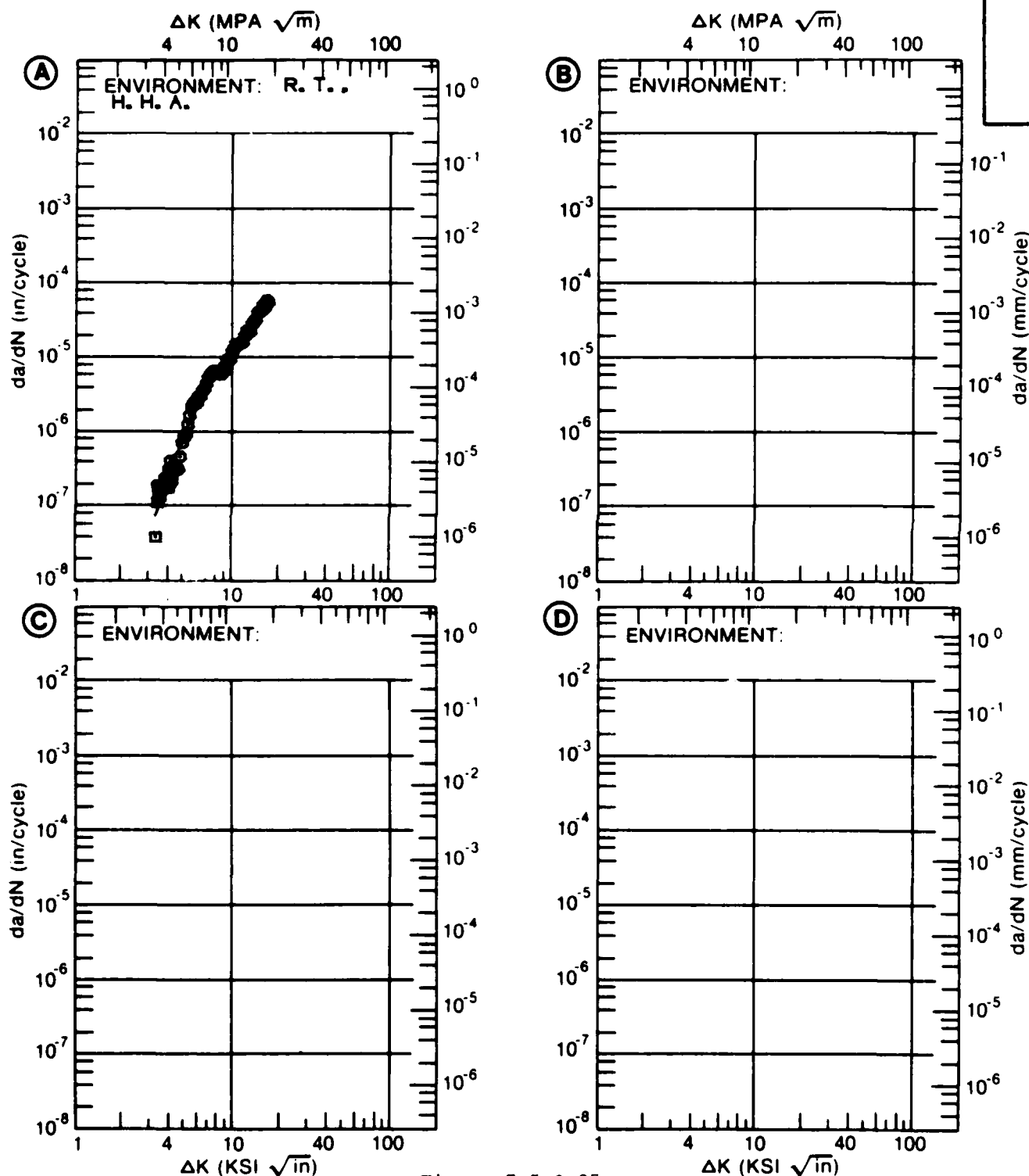


Figure 7.5.3.25

TABLE 7.5.3.26

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.5.3.26 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T3511					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K		DA/DN (10**⁻⁶ IN. /CYCLE)			
(KSI*IN**1/2)					
		A	B	C	D
		R=+0. 05	R=+0. 50		
DELTA K	A:	4. 39	. 0786		
	B:	2. 35	. 0724		
	MIN	C:			
	D:				
		2. 50	. 0818		
		3. 00	. 113		
		3. 50	. 144		
		4. 00	. 175		
DELTA K	A:	5. 00	. 129		
	B:	6. 00	. 177		
	MAX	7. 00	. 229		
	C:				
	D:				
		7. 98	. 361		
	B:	4. 49	. 204		
		C:			
		D:			
ROOT MEAN SQUARE		31. 67	22. 07		
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T3511
 FORM: EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 9.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 58.7 KSI
 ULT. STRENGTH: 79.3 KSI
 SPECIMEN THK: 0.370"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: BW001

ALUM.
 ALLOY

2024

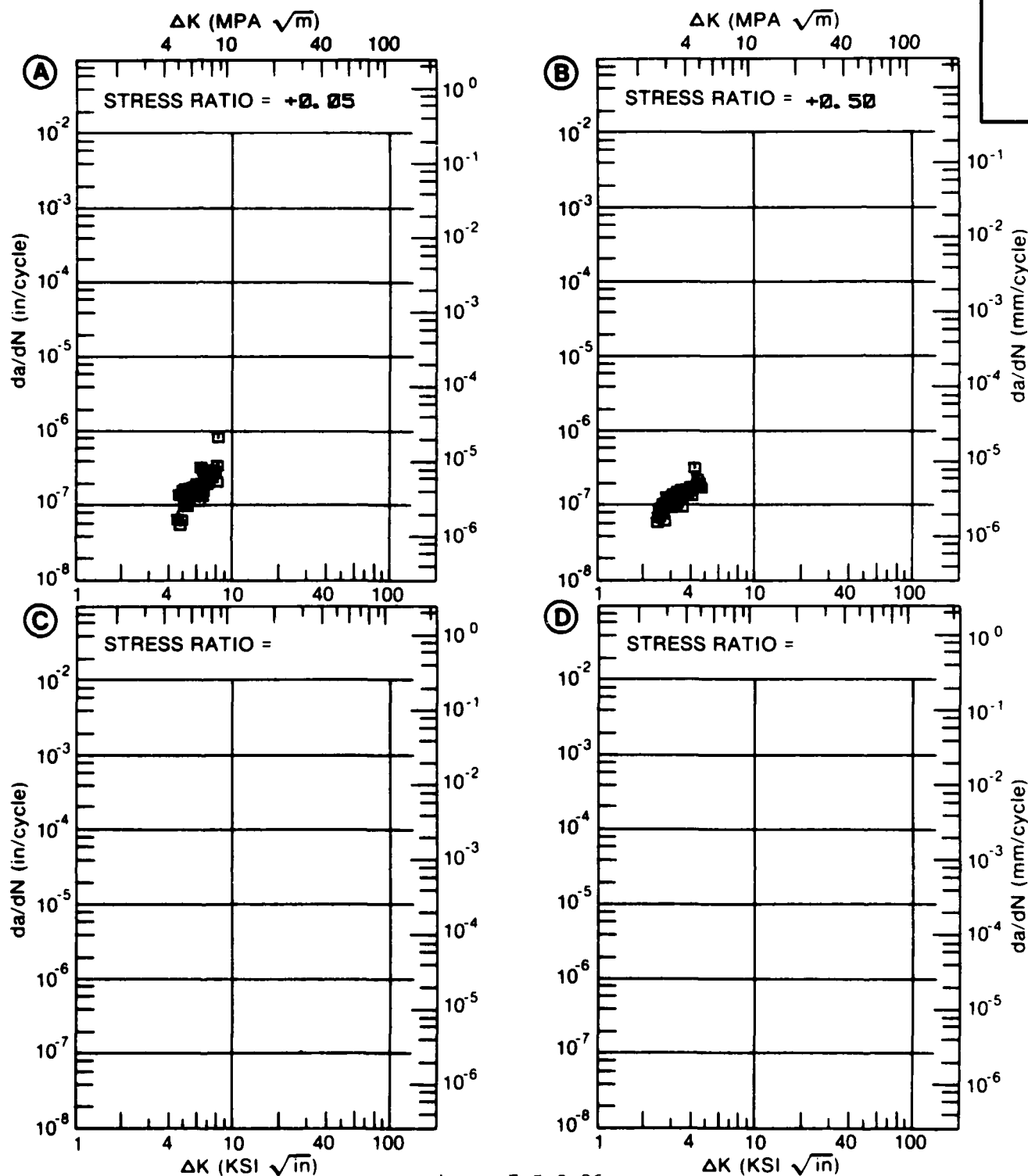


Figure 7.5.3.26

TABLE 7.5.3.27

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.5.3.27 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T3511
ENVIRONMENT: R. T. , H. H. A.

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

		A	B	C	D
		R=+0.05	R=+0.50		
DELTA K	A: 5.00	.0615			
MIN	B: 2.35		.0342		
	C:				
	D:				
	2.50		.0555		
	3.00		.114		
	3.50		.160		
	4.00		.280		
	5.00	.0615			
	6.00	.141			
	7.00	.514			
	8.00	1.72			
	9.00	4.22			
	10.00	7.05			
DELTA K	A: 10.62	7.90			
MAX	B: 4.18		.380		
	C:				
	D:				

ROOT MEAN SQUARE	33.49	26.13
PERCENT ERROR		

LIFE	0.0-0.5
PREDICTION	0.5-0.8
RATIO	0.8-1.25
SUMMARY	1.25-2.0
(NP/NA)	>2.0

CONDITION/HT: T3511
 FORM: EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 9.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 58.7 KSI
 ULT. STRENGTH: 79.3 KSI
 SPECIMEN THK: 0.370"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: BW001

ALUM.
 ALLOY

2024

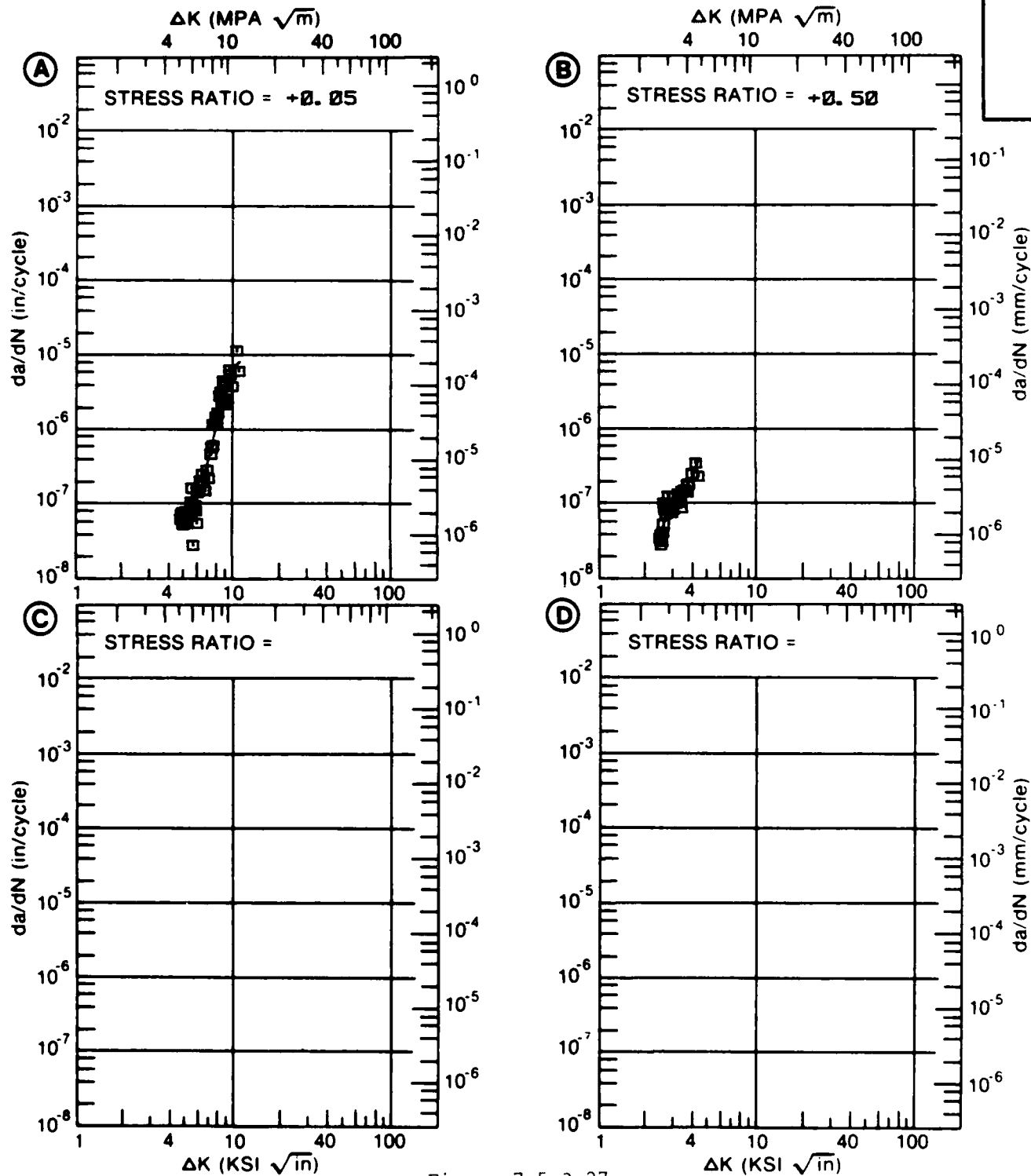


Figure 7.5.3.27

TABLE 7.5.3.28

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.28 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM 2024
CONDITION: T3511
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.50			
DELTA K	A: 3.57	.169			
MIN	B:				
	C:				
	D:				
	4.00	.164			
	5.00	.431			
	6.00	1.38			
	7.00	3.12			
	8.00	5.19			
	9.00	7.30			
	10.00	9.35			
	13.00	16.2			
	16.00	28.0			
	20.00	62.3			
	25.00	173.			
DELTA K	A: 28.79	239.			
MAX	B:				
	C:				
	D:				

ROOT MEAN SQUARE 29.74
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T3511
 FORM: EXTRUSION
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 9.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 58.7 KSI
 ULT. STRENGTH: 79.3 KSI
 SPECIMEN THK: 0.370"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: BW001

ALUM.
 ALLOY

2024

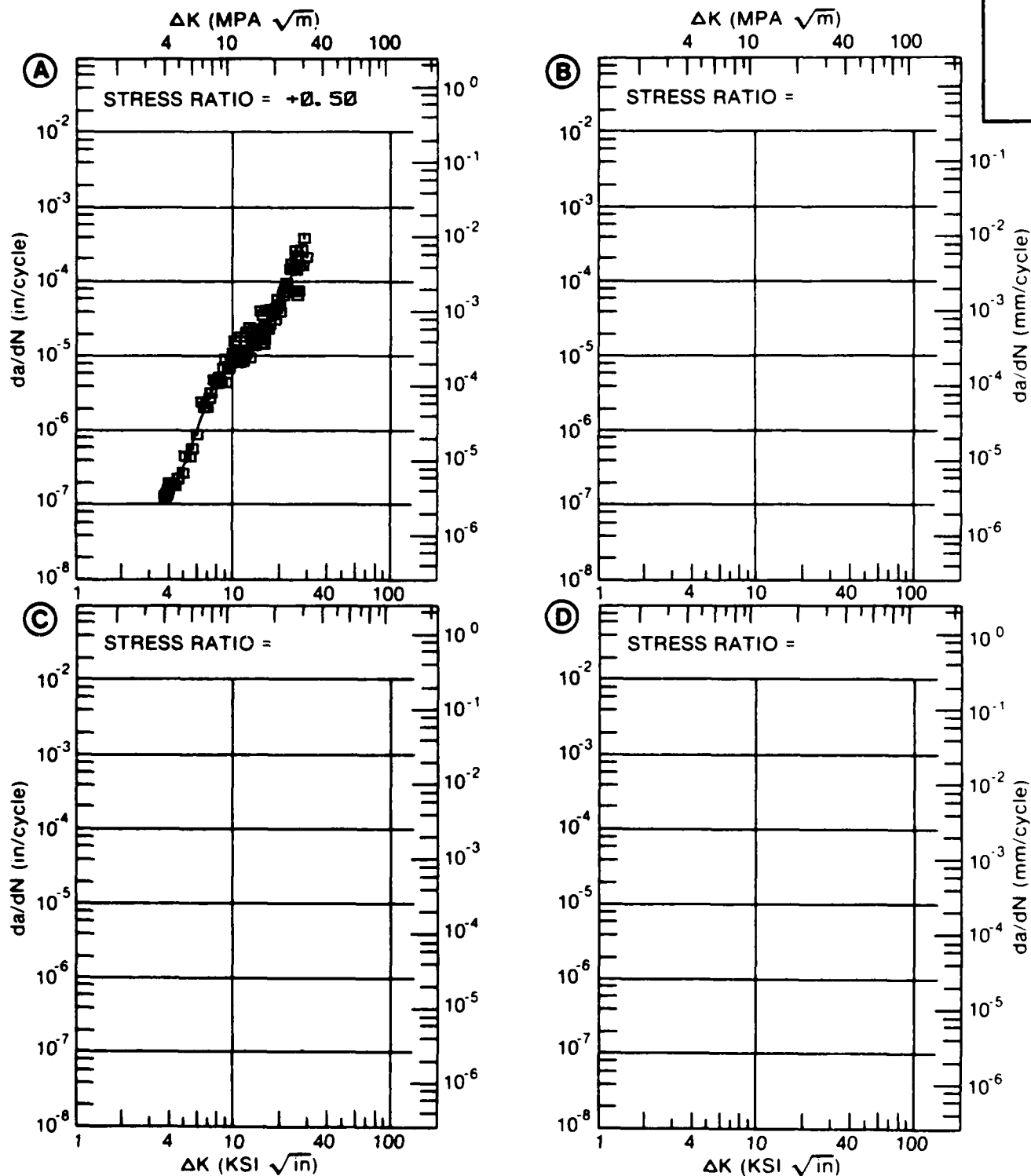


Figure 7.5.3.28

TABLE 7.5.3.29

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.29 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM 2024				
CONDITION: T3511				
ENVIRONMENT: R. T. , H. H. A.				
DELTA K (KSI*IN**1/2)	DA/DN (10**-6 IN. /CYCLE)			
	A	B	C	D
	R=-1.00	R=-0.20	R=+0.04	R=+0.40
A:				
DELTA K B:				
MIN C:				
D:				
200.00				
A:				
DELTA K B:				
MAX C:				
D:				
ROOT MEAN SQUARE	0.00	0.00	0.00	0.00
PERCENT ERROR				
LIFE	0.0-0.5			
PREDICTION	0.5-0.8			
RATIO	0.8-1.25			
SUMMARY	1.25-2.0			
(NP/NA)	>2.0			

CONDITION/HT: T3511
 FORM: 0.20" TH EXTRUSION
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 6.0 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 61.2 KSI
 ULT. STRENGTH: 80.4 KSI
 SPECIMEN THK:
 SPECIMEN WIDTH: 4.000"
 REFERENCES: BW005

ALUM.
 ALLOY

2024

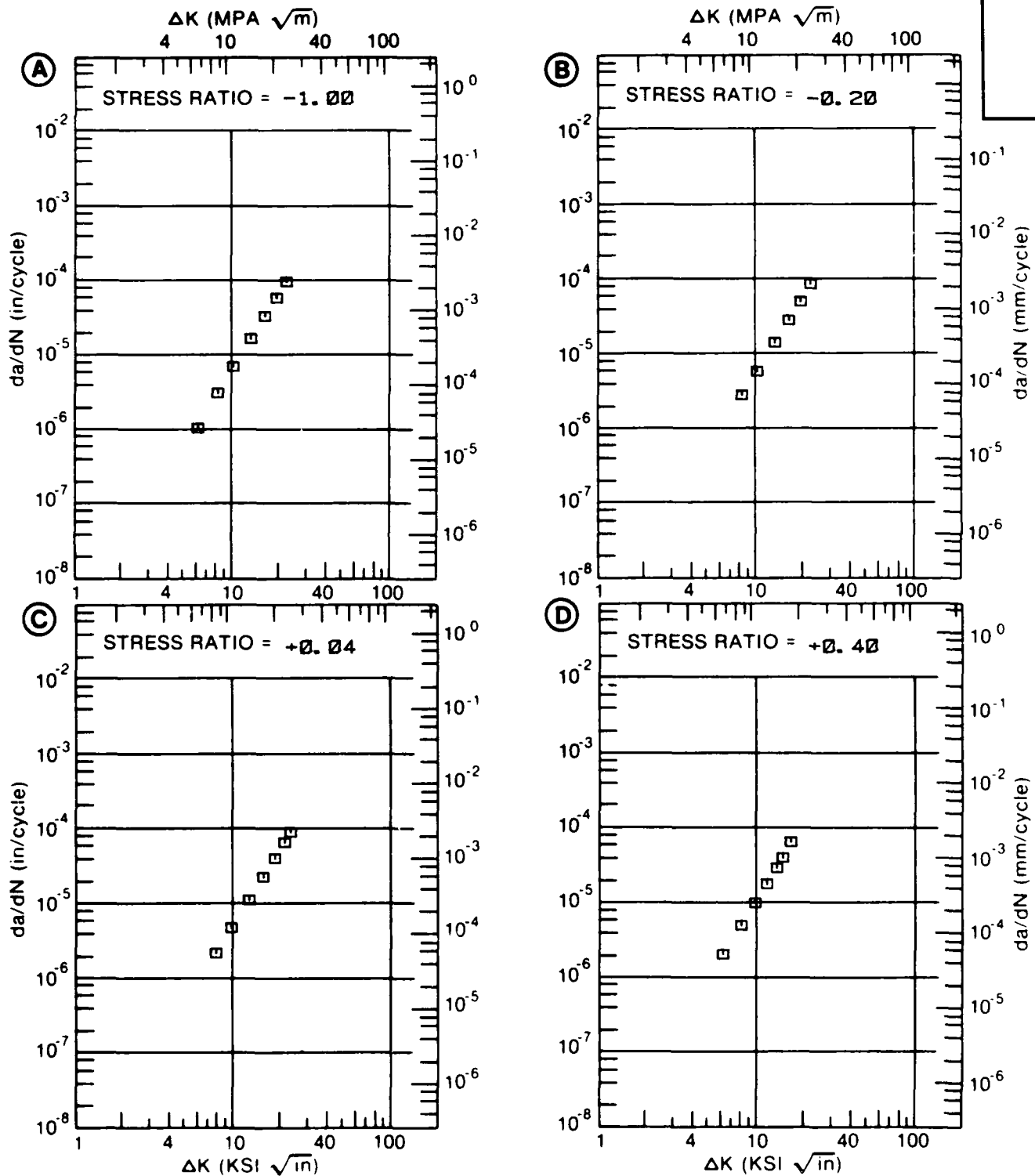


Figure 7.5.3.29

TABLE 7.5.3.30

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.30 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T42					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-1. 00	R=+0. 02	R=+0. 50	
DELTA K A:	5. 48	. 651			
MIN B:	5. 32		. 187		
C:	4. 18			. 187	
D:					
	5. 00			. 424	
	6. 00	1. 04	. 275	1. 20	
	7. 00	2. 03	. 685	2. 33	
	8. 00	3. 29	1. 53	3. 86	
	9. 00	4. 76	2. 75	5. 73	
	10. 00	6. 41	4. 25	7. 89	
	13. 00	12. 7	9. 49	15. 8	
	16. 00	22. 2	15. 1	25. 7	
	20. 00	44. 3	23. 6	42. 5	
	25. 00	101.	40. 0	72. 3	
	30. 00	223.	70. 9	118.	
	35. 00	468.	134.	188.	
	40. 00	939.	271.		
	50. 00	2809.	1131.		
	60. 00		3097.		
DELTA K A:	55. 92	4173.			
MAX B:	67. 71		4480.		
C:	39. 01			271.	
D:					
ROOT MEAN SQUARE		28. 64	47. 76	16. 10	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T42
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 10.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 45.4 KSI
 ULT. STRENGTH: 68.5 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: MA006

ALUM.
 ALLOY

2024

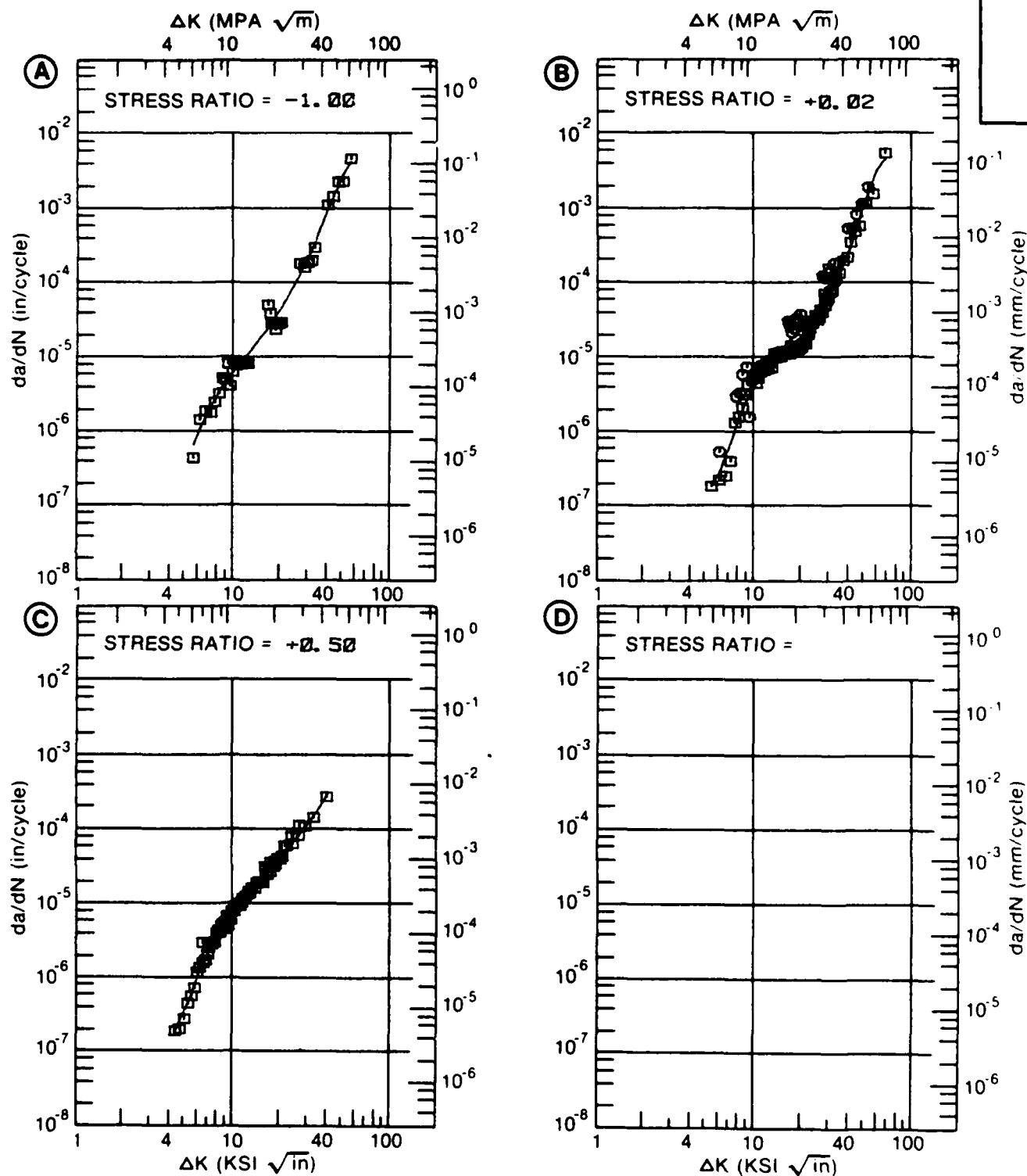


Figure 7.5.3.30

TABLE 7.5.3.31

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.31 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T62
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10	R=+0.30		
DELTA K	A: 4.12	.24			
MIN	B: 3.95		.08		
	C: 1				
	D:				
	4.00		.0912		
	5.00	.312	.465		
	6.00	.503	1.32		
	7.00	.916	2.74		
	8.00	1.74	4.68		
	9.00	3.03	7.13		
	10.00	4.68	10.1		
	13.00	11.8	22.4		
	16.00	23.1	42.8		
	20.00		96.4		
DELTA K	A: 19.00	37.5			
MAX	B: 20.04		97.2		
	C:				
	D:				
ROOT MEAN SQUARE		14.55	35.15		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1			
SUMMARY	1.25-2.0		1		
(NP/NA)	>2.0				

CONDITION/HT: T62
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 60.3 KSI
 ULT. STRENGTH: 74.9 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

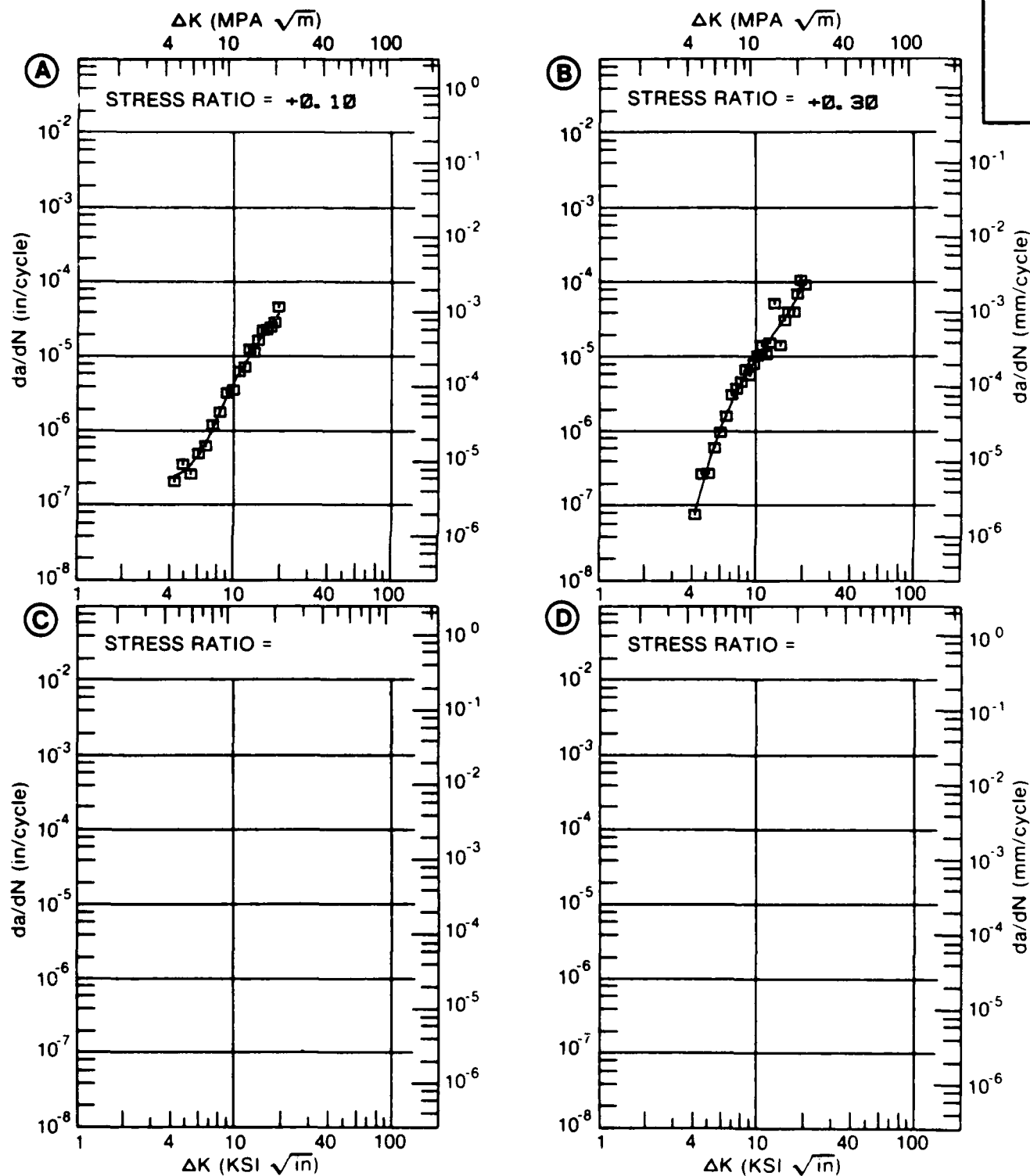


Figure 7.5.3.31

TABLE 7.5.3.32

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.32 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T62					
ENVIRONMENT: R. T. , S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 50	R=+0. 70	
DELTA K MIN	A: 4. 46	. 336			
	B: 2. 50		. 138		
	C: 2. 69			. 150	
	D:				
	3. 00		. 279	. 268	
	3. 50		. 374	. 413	
	4. 00		. 561	. 716	
	5. 00	. 772	1. 43	2. 05	
	6. 00	1. 73	3. 17	3. 66	
	7. 00	3. 63	5. 53	5. 78	
	8. 00	5. 17	7. 59	10. 7	
	9. 00	6. 29			
	10. 00	7. 61			
	13. 00	20. 8			
	16. 00	53. 1			
DELTA K MAX	A: 19. 67	57. 0			
	B: 8. 83		8. 35		
	C: 8. 21			12. 0	
	D:				
ROOT MEAN SQUARE		17. 67	32. 04	13. 00	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25			1	
SUMMARY	1. 25-2. 0	1	1		
(NP/NA)	>2. 0				

CONDITION/HT: T62
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 60.3 KSI
 ULT. STRENGTH: 74.9 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

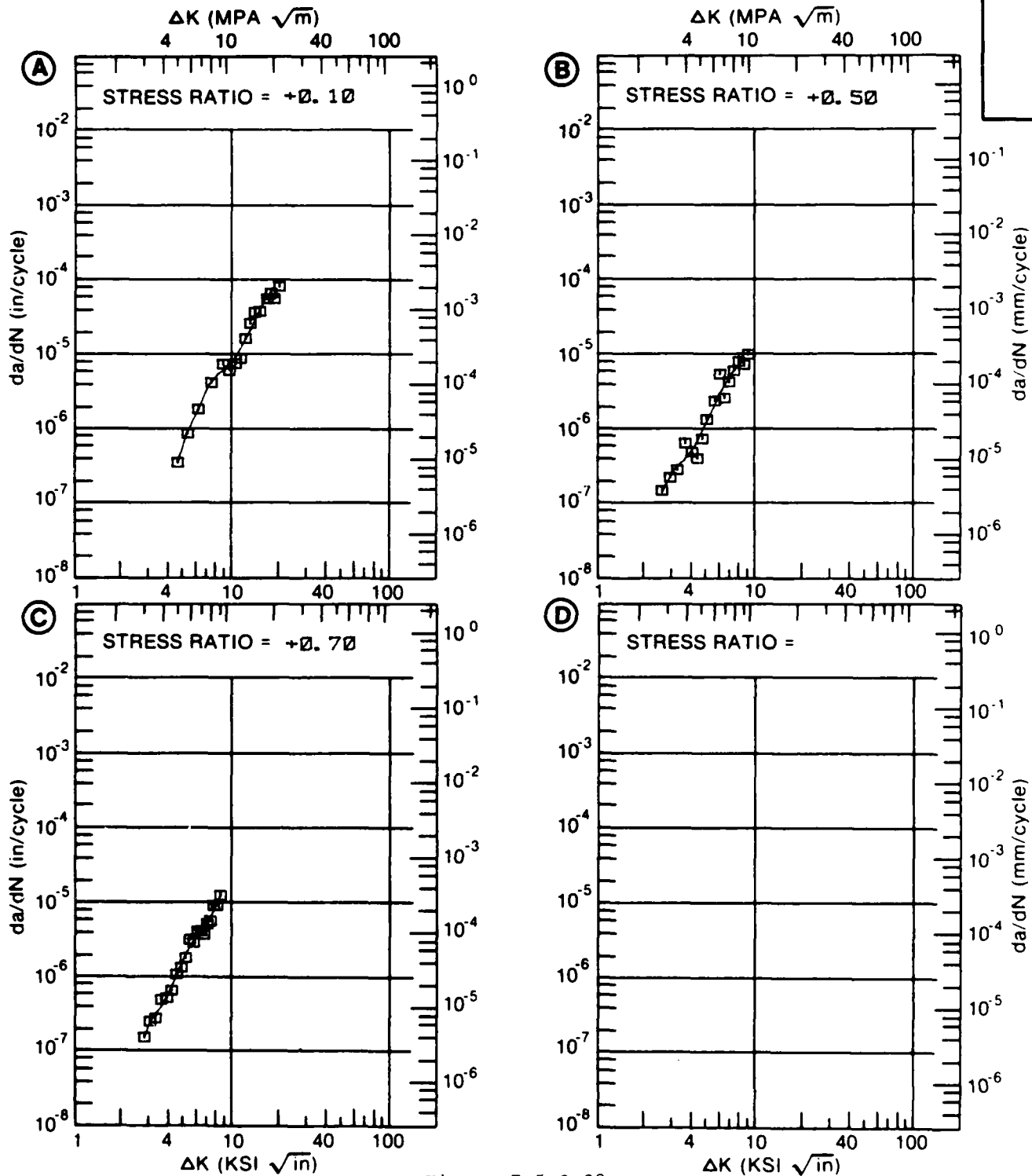


Figure 7.5.3.32

TABLE 7.5.3.33

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.33 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T62
 ENVIRONMENT: R. T. , DRY AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 30	R=+0. 50	
DELTA K MIN	A: 4. 17	. 299			
	B: 3. 56		. 129		
	C: 2. 36			. 0347	
	D:				
	2. 50			. 0456	
	3. 00			. 105	
	3. 50			. 206	
	4. 00		. 190	. 366	
	5. 00	. 812	. 711	. 947	
	6. 00	1. 89	1. 86	2. 07	
	7. 00	3. 47	3. 54	4. 08	
	8. 00	5. 56	5. 68	7. 43	
	9. 00	8. 15	8. 24	10. 6	
DELTA K MAX	10. 00	11. 3	11. 3	13. 1	
	13. 00	24. 6	25. 8		
	16. 00	46. 7	58. 9		
	A: 16. 21	48. 7			
	B: 19. 40		125.		
MAX	C: 12. 69			29. 0	
	D:				
ROOT MEAN SQUARE		10. 91	11. 42	22. 01	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0	1	1	1	
(NP/NA)	>2. 0				

CONDITION/HT: T62
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., DRY AIR

YIELD STRENGTH: 58.2 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

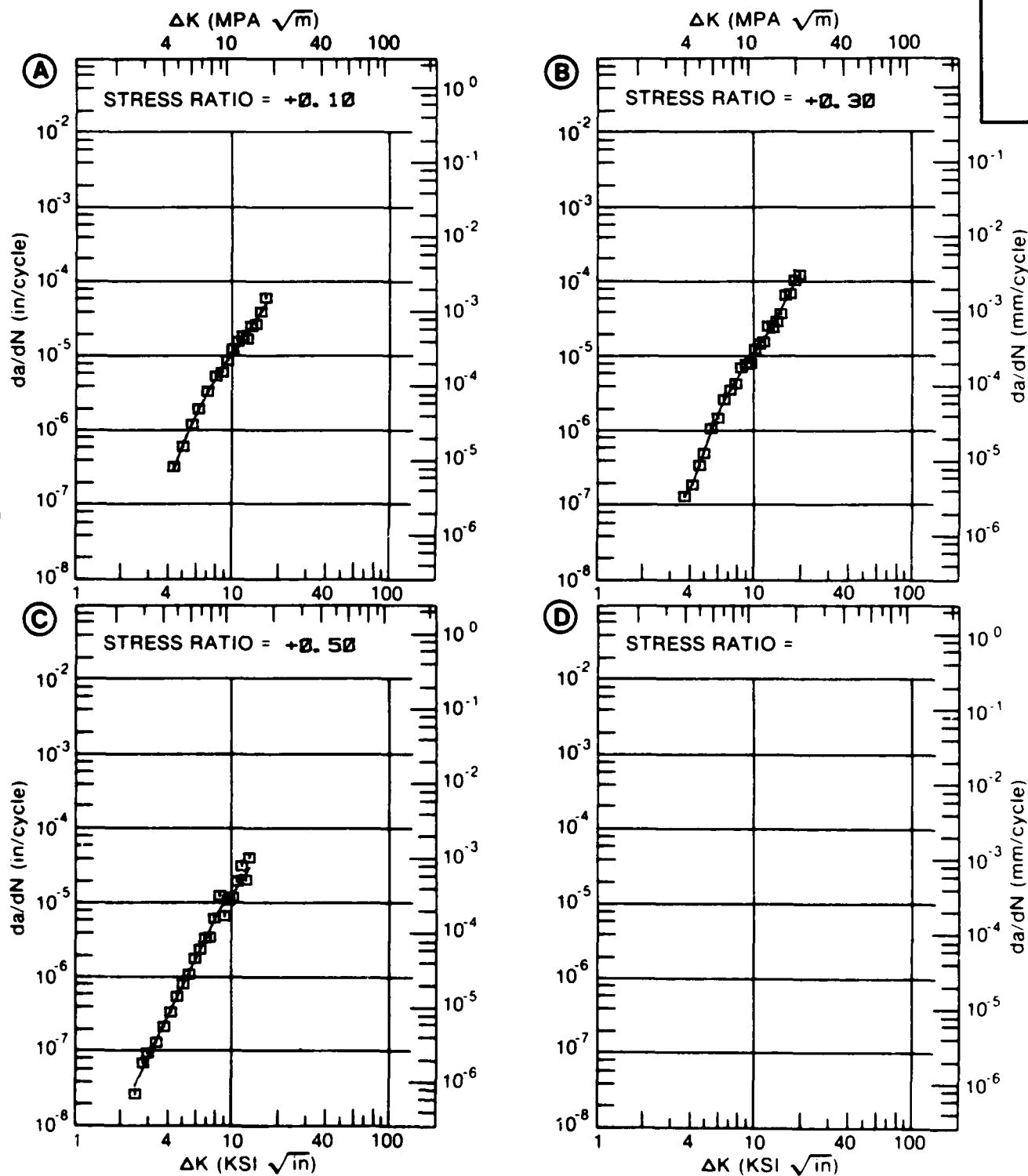


Figure 7.5.3.33

TABLE 7.5.3.34

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.34 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024			
CONDITION: T62					
ENVIRONMENT: R. T. , H. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**+6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 30	R=+0. 50	
A:					
DELTA K B:	4. 77		. 573		
MIN C:	2. 25			. 118	
D:					
	2. 50			. 126	
	3. 00			. 178	
	3. 50			. 289	
	4. 00			. 484	
	5. 00		. 787	1. 26	
	6. 00		2. 12	2. 70	
	7. 00		3. 94	4. 70	
	8. 00		6. 07	6. 84	
	9. 00		8. 59	9. 52	
	10. 00		11. 7	14. 5	
	13. 00		29. 9	48. 5	
A:					
DELTA K B:	13. 80		39. 3		
MAX C:	14. 13			56. 2	
D:					
ROOT MEAN SQUARE		0. 00	28. 43	19. 50	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25			1	
SUMMARY	1. 25-2. 0		1		
(NP/NA)	>2. 0				

CONDITION/HT: T62
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 58.2 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES GD004

ALUM.
 ALLOY

2024

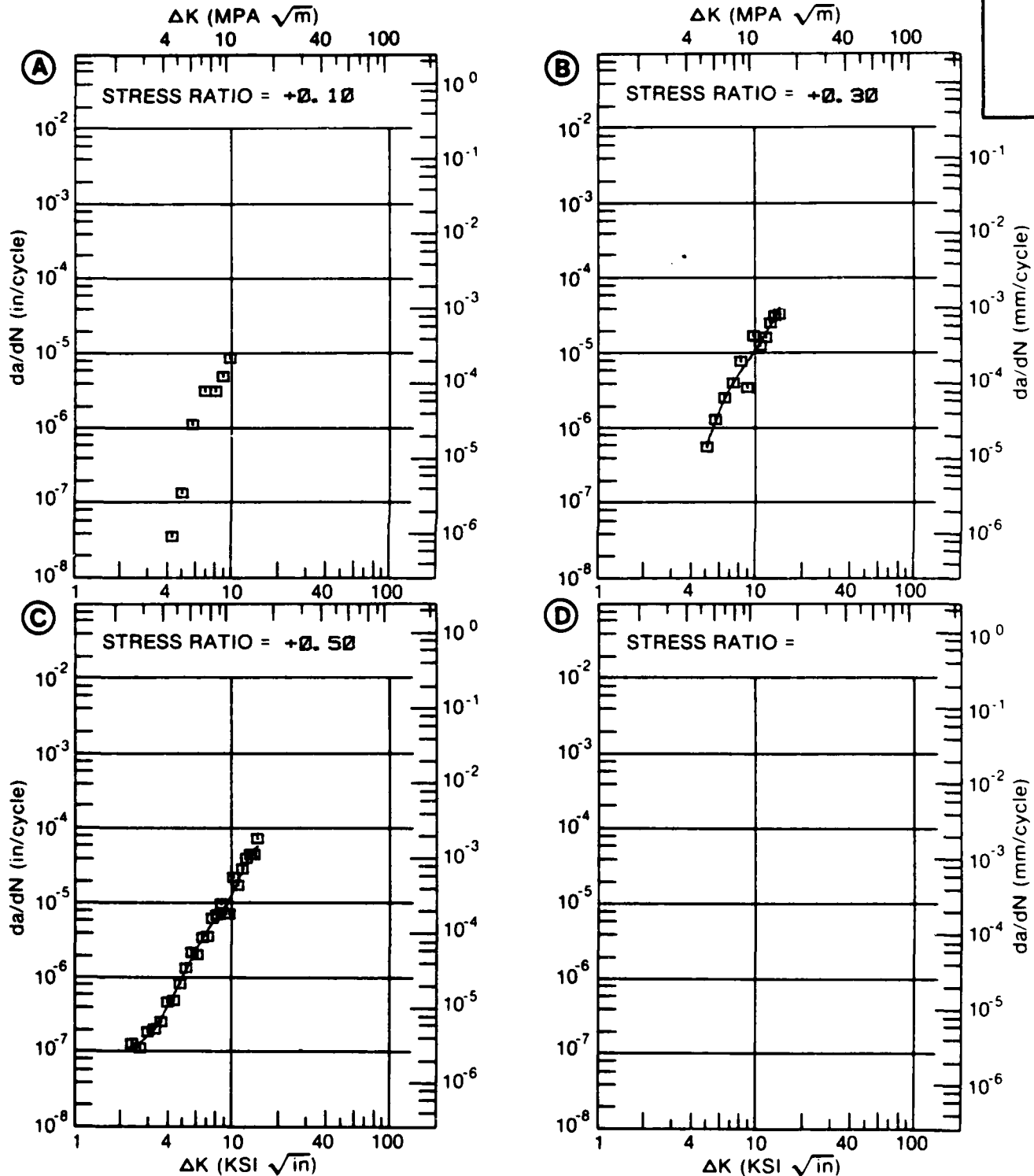


Figure 5.7.3.34

TABLE 7.5.3.35

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.35 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024			
CONDITION: T62					
ENVIRONMENT: R. T. , S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-0.25	R=+0.10	R=+0.30	R=+0.50
DELTA K MIN	A: 5.00	.862			
	B: 4.32		.573		
	C: 3.26			.385	
	D: 2.24				.0837
	2.50				.151
	3.00				.166
	3.50			.482	.294
	4.00			.665	.721
	5.00	.862	.696	1.24	2.83
	6.00	1.87	2.08	2.55	4.58
	7.00	3.43	3.91	4.96	6.03
	8.00	3.48	4.86	8.66	9.09
	9.00	3.55	5.26	13.1	15.6
	10.00	4.87	5.87	17.0	25.7
	13.00	23.6	17.0	29.2	
	16.00			92.6	
DELTA K MAX	A: 15.39	43.8			
	B: 15.29		22.2		
	C: 16.37			114.	
	D: 11.22				39.8
ROOT MEAN SQUARE		13.05	11.67	23.59	19.16
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0	1	1	1	1
(NP/NA)	>2.0				

CONDITION/HT: T62
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 58.2 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES GD004

ALUM.
 ALLOY

2024

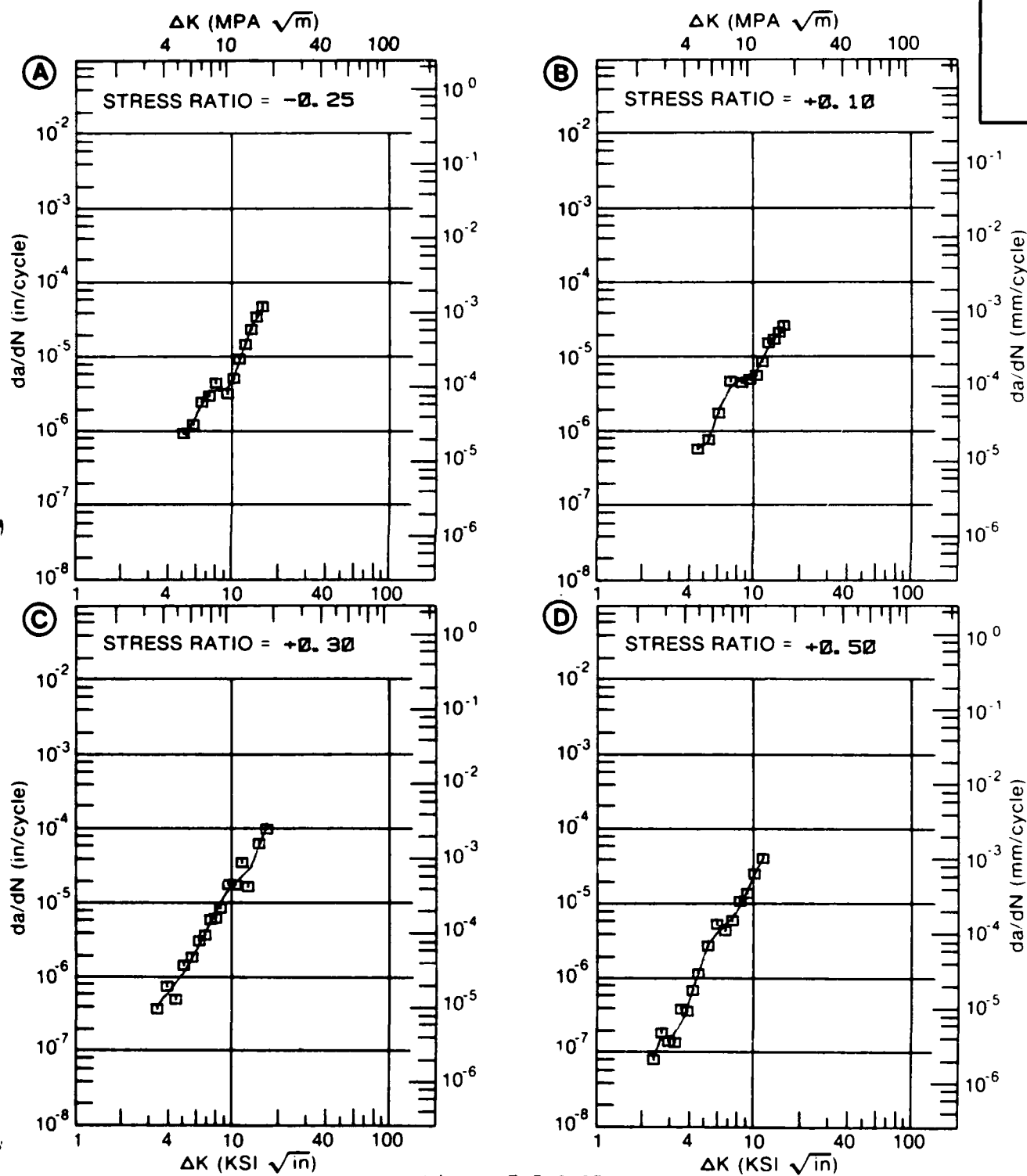


Figure 7.5.3.35

TABLE 7.5.3.36

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.36 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T81
ENVIRONMENT: R. T. , LAB AIR

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

A

B

C

D

R=+0.05

DELTA K A: 10.00
MIN B:
C:
D:

8.08

13.00

13.3

16.00

26.8

20.00

68.1

25.00

183.

30.00

392.

35.00

684.

DELTA K A: 36.74
MAX B:
C:
D:

795.

ROOT MEAN SQUARE
PERCENT ERROR

16.24

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

4

CONDITION/HT: T81
 FORM: 0.03- 0.04" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 2.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 64.4 KSI
 ULT. STRENGTH: 70.5 KSI
 SPECIMEN THK: 0.032- 0.040"
 SPECIMEN WIDTH: 6.000- 9.700"
 REFERENCES: 86734

ALUM.
 ALLOY

2024

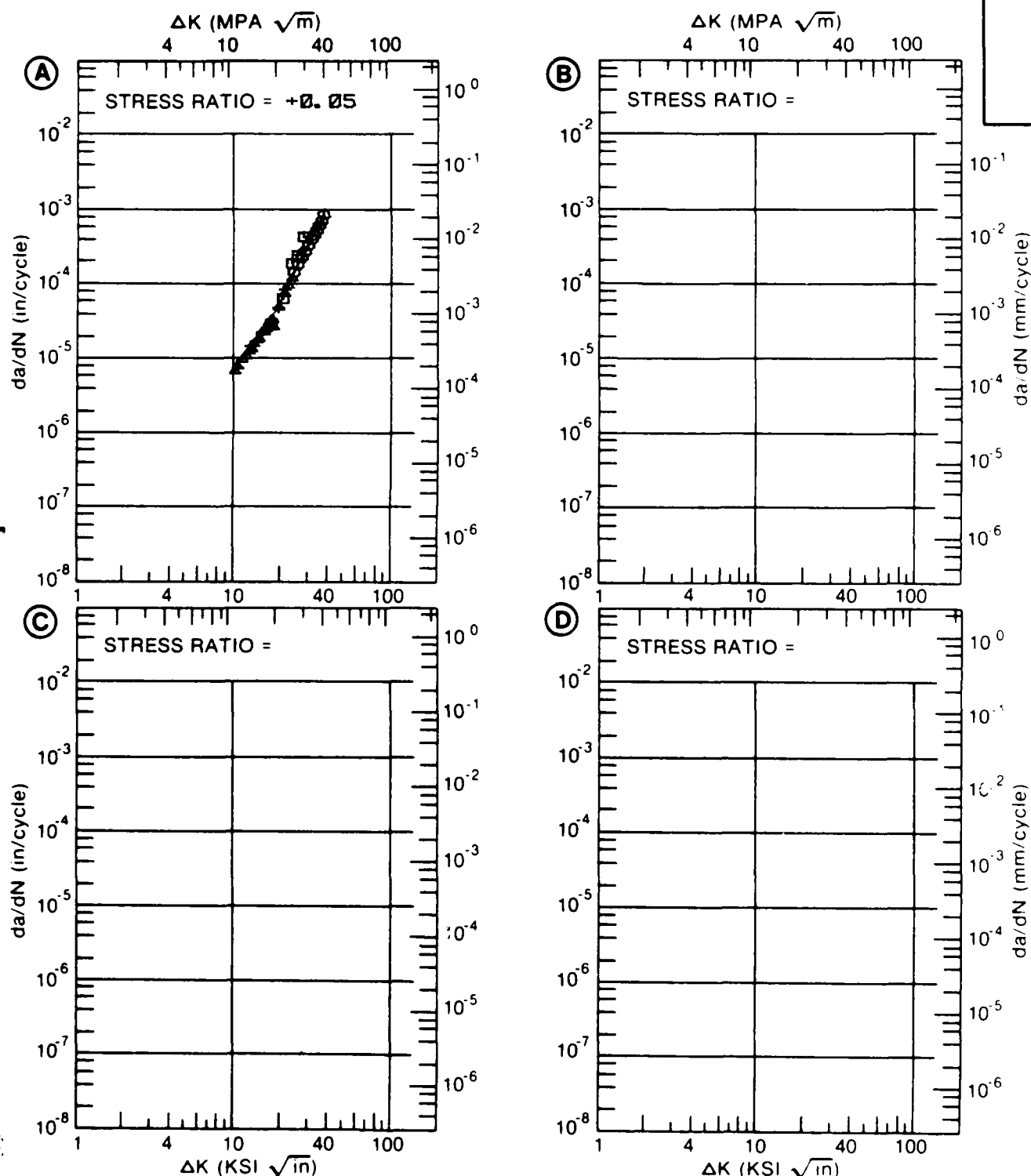


Figure 7.5.3.36

TABLE 7.5.3.37

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.37 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2024
CONDITION: T81

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR			
DELTA K MIN	A:	10.39	12.0		
	B:				
	C:				
	D:				
		13.00	28.7		
		16.00	58.8		
		20.00	106.		
DELTA K MAX	A:	21.09	117.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 3.94
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T81
 FORM: 0.07" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.40
 FREQUENCY: 2.00 HZ

YIELD STRENGTH: 64.4 KSI
 ULT. STRENGTH: 70.5 KSI
 SPECIMEN THK: 0.065"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: 86734

ALUM.
 ALLOY

2024

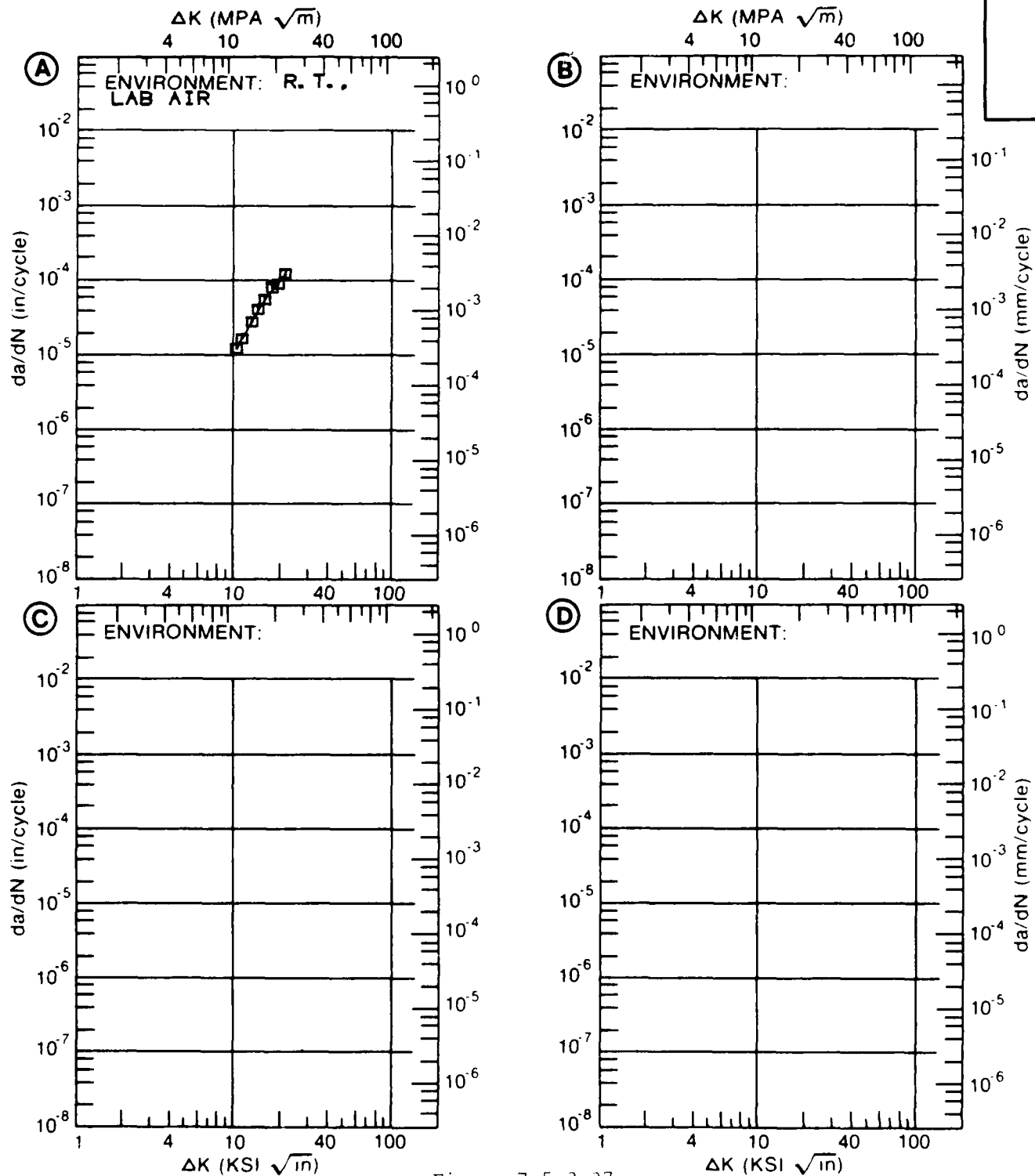


Figure 7.5.3.37

TABLE 7.5.3.38

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.38 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024			
CONDITION: T81					
ENVIRONMENT: R. T. , L. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.08	R=+0.30	R=+0.50	
A:	5.82	1.16			
DELTA K B:	6.20		1.81		
MIN C:	3.21			.125	
D:					
	3.50			.299	
	4.00			.533	
	5.00			1.26	
	6.00	1.28		2.46	
	7.00	1.98	3.00	4.31	
	8.00	2.77	4.67	7.11	
	9.00	3.68	6.51	11.3	
	10.00	4.78	8.64	17.6	
	13.00	10.3	19.9	61.3	
	16.00	23.4	54.3	202.	
	20.00	71.8	193.	686.	
	25.00	261.	355.		
	30.00	802.			
A:	32.00	1197.			
DELTA K B:	25.06		355.		
MAX C:	22.07			2750.	
D:					
ROOT MEAN SQUARE		11.07	21.88	19.67	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25		2	1	
SUMMARY	1.25-2.0	2		1	
(NP/NA)	>2.0				

CONDITION/HT: T81
 FORM: 0.10" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T. . L. H. A.

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.097- 0.101"
 SPECIMEN WIDTH: 23.660- 23.820"
 REFERENCES: 86575

ALUM.
 ALLOY

2024

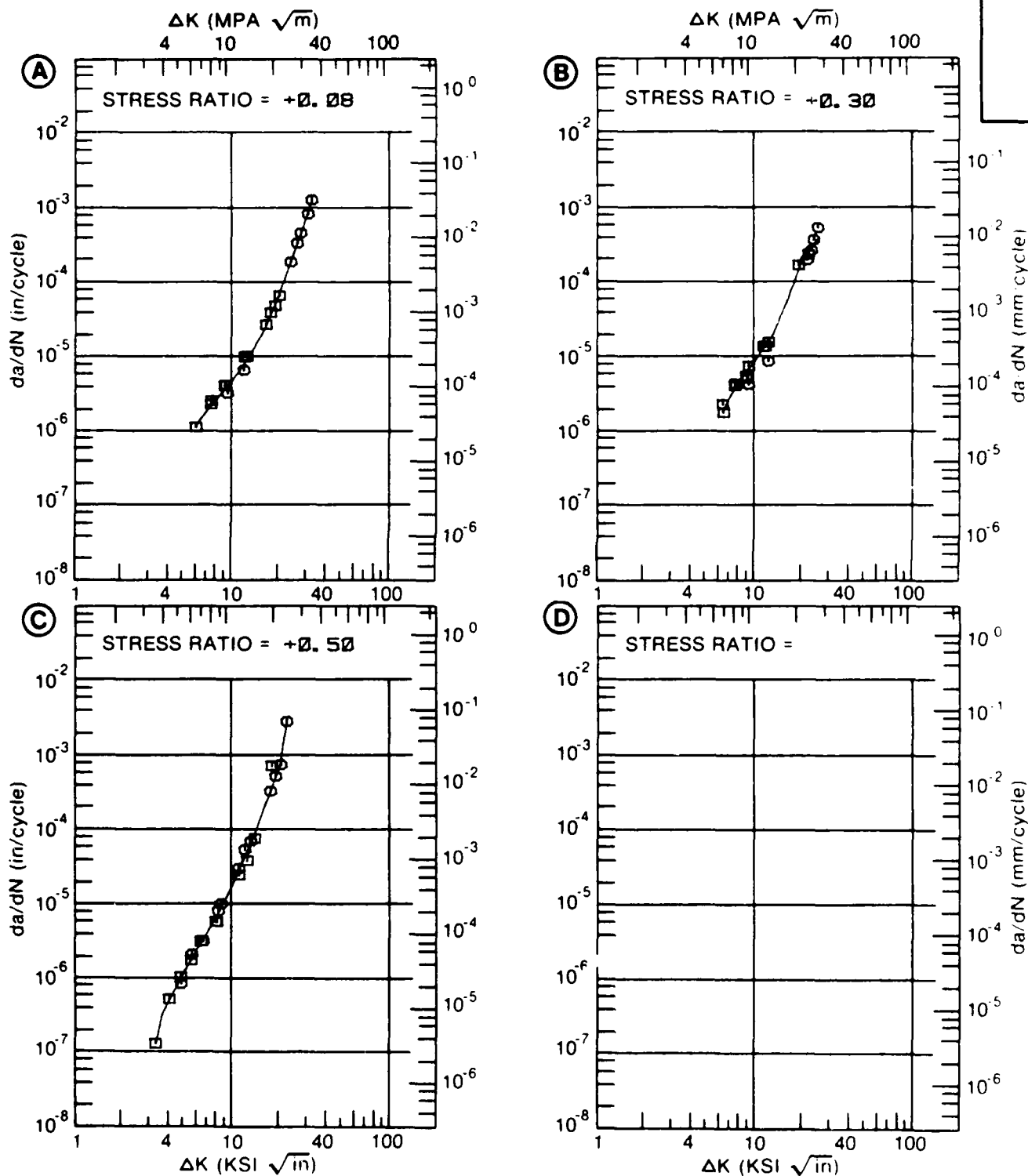


Figure 7.5.3.38

TABLE 7.5.3.39

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.5.3.39 INDICATING EFFECT

OF ENVIRONMENT

**MATERIAL: ALUMINUM
CONDITION: T81**

2024

**DELTA K
(KSI*IN**1/2)**

DA/DN (10-6 IN./CYCLE)**

A

B

C

D

E= R. T.

E= R. T.

E= R. T.

L. H. A.

J. P. 4

S. T. W.

DELTA K MIN
A: 6.04 : .769
B: 6.04 :
C: 6.24 :
D:

1.42

1.87

7.00 :	1.71	2.47	2.68
8.00 :	2.93	3.85	4.04
9.00 :	4.29	5.53	5.78
10.00 :	5.82	7.53	8.00
13.00 :	12.9	16.1	18.6
16.00 :	29.0	31.1	38.8
20.00 :	79.2	72.0	94.0
25.00 :	230.	206.	260.
30.00 :	489.	602.	

DELTA K MAX
A: 34.01 : 710.
B: 34.23 :
C: 29.89 :
D:

1510.

663.

**ROOT MEAN SQUARE
PERCENT ERROR**

22.88

18.36

17.00

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

1

1

1

1

1

1

CONDITION/HT: T81
 FORM: 0.10" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 1.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.098- 0.101"
 SPECIMEN WIDTH: 23.660- 23.820"
 REFERENCES: 86575

ALUM.
 ALLOY

2024

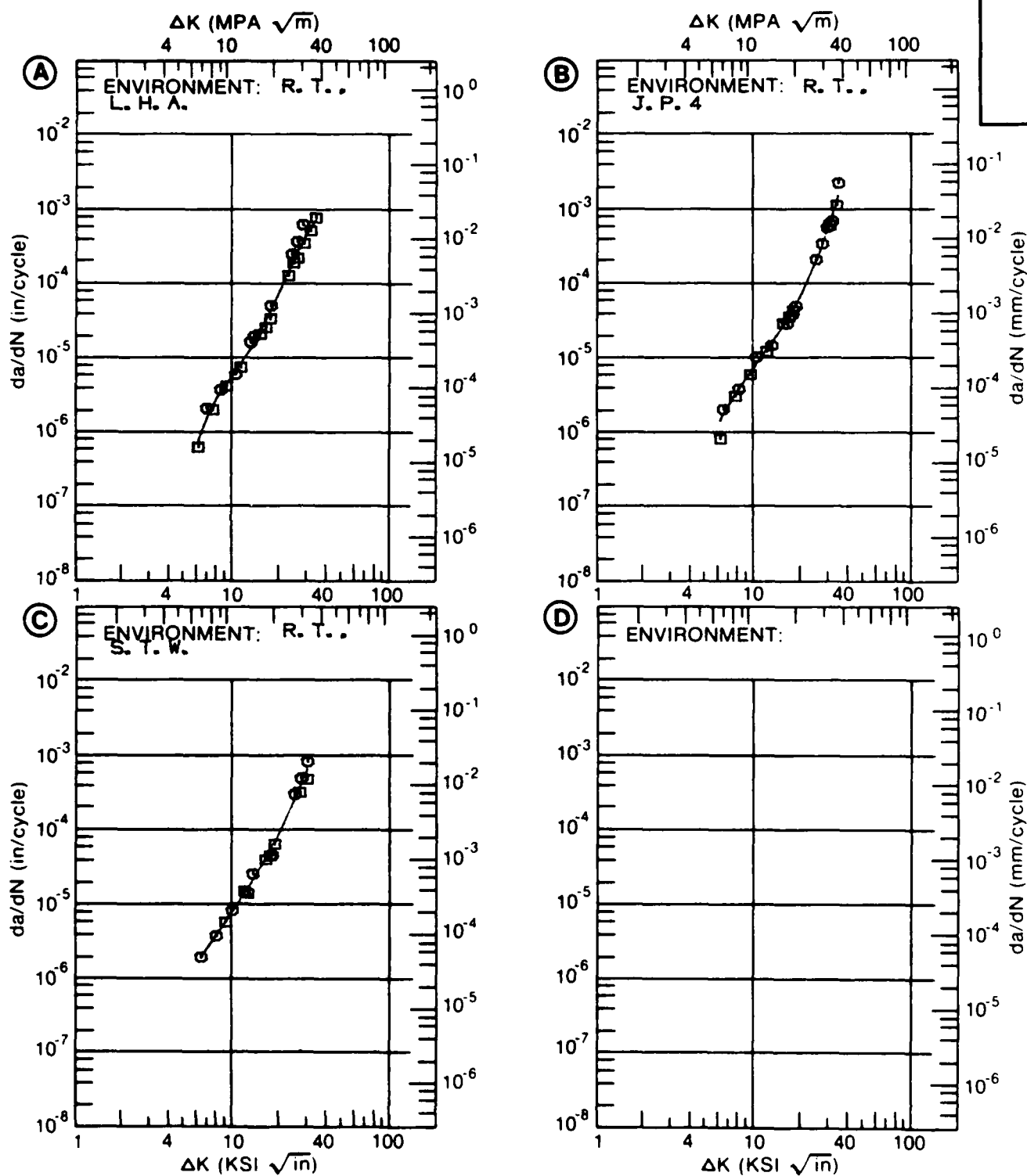


Figure 7.5.3.39

TABLE 7.5.3.40

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.40 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2024			
CONDITION: TB1					
DELTA K		DA/DN (10**-6 IN. /CYCLE)			
(KSI*IN**1/2)					
		A	B	C	D
		E= R. T.	E= R. T.		
		L. H. A.	S. T. W.		
		6HZ	1HZ		
A:	6.20	1.20			
DELTA K B:	5.70		.75/		
MIN C:					
D:					
	6.00		1.03		
	7.00	1.80	2.18		
	8.00	2.69	3.57		
	9.00	3.56	5.11		
	10.00	4.34	6.83		
	13.00	8.21	14.3		
	16.00	20.6	30.7		
	20.00	74.0	97.9		
	25.00	303.	456.		
	30.00	997.	979.		
A:	31.13	1271.			
DELTA K B:	31.22		983.		
MAX C:					
D:					
ROOT MEAN SQUARE		23.21	14.91		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	2		
SUMMARY	1.25-2.0	1			
(NP/NA)	>2.0				

CONDITION/HT: T81
 FORM: 0.10" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY:

YIELD STRENGTH: 67.0 KSI
 ULT. STRENGTH: 73.0 KSI
 SPECIMEN THK: 0.099- 0.100"
 SPECIMEN WIDTH: 23.810- 23.910"
 REFERENCES: 86575

ALUM.
 ALLOY

2024

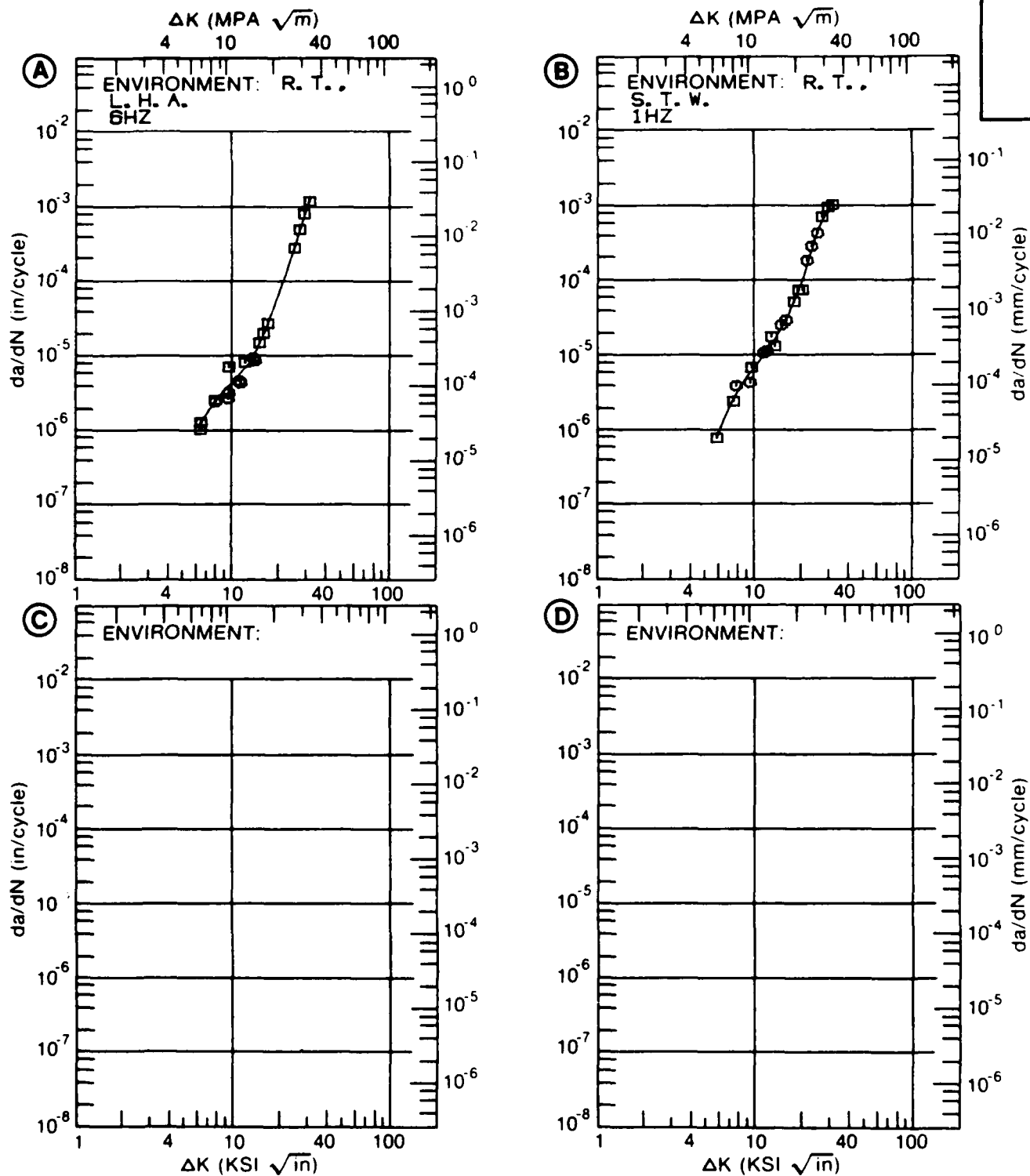


Figure 7.5.3.40

TABLE 7.5.3.41

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.41 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T81
 ENVIRONMENT: R. T. , DRY AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A R=-0.25	B R=+0.10	C R=+0.30	D R=+0.50
DELTA K MIN	A: 5.19	.542			
	B: 5.48		1.57		
	C: 5.14			1.02	
	D: 2.94				.151
	3.00				.182
	3.50				.496
	4.00				.777
	5.00				1.26
	6.00	.892	1.61	1.89	2.21
	7.00	1.44	2.01	3.31	3.95
	8.00	2.15	2.79	5.16	6.64
	9.00	3.05	3.99	7.45	10.2
	10.00	4.17	5.65	10.2	14.8
	13.00	9.35	13.2	21.1	37.0
	16.00	18.7	24.7	36.7	84.5
	20.00	46.1	52.2	66.4	288.
	25.00		138.		
DELTA K MAX	A: 24.54	146.			
	B: 26.90		204.		
	C: 21.75			83.4	
	D: 21.91				556.
ROOT MEAN SQUARE		10.78	20.94	24.98	24.30
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25		1	1	
SUMMARY	1.25-2.0	1			1
(NP/NA)	>2.0				

CONDITION/HT: T81
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., DRY AIR

YIELD STRENGTH: 65.3 KSI
 ULT. STRENGTH: 70.9 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES GD004

ALUM.
 ALLOY

2024

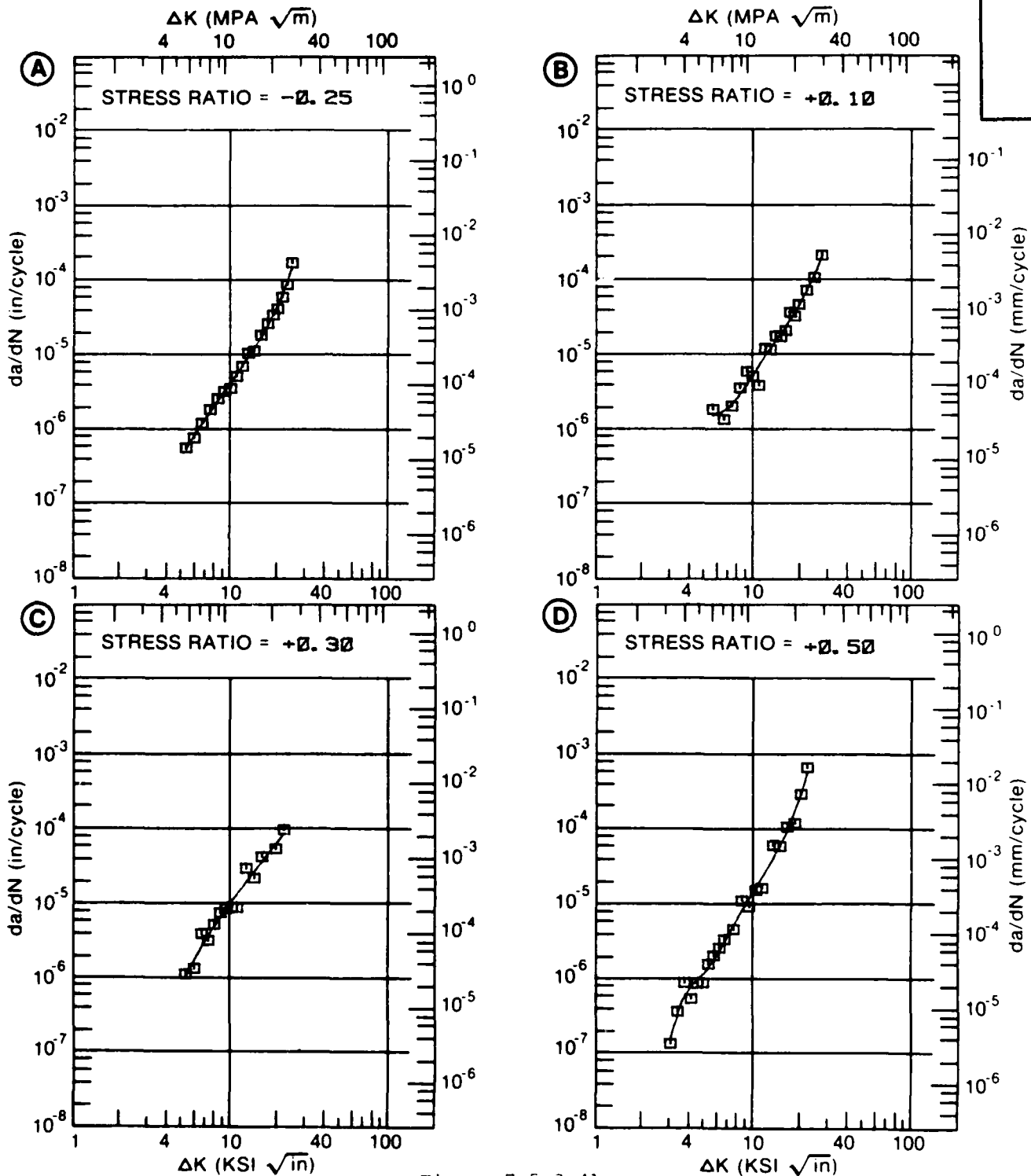


Figure 7.5.3.41

TABLE 7.5.3.42

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.42 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T81					
ENVIRONMENT: R. T. , H. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-0.25	R=+0.10	R=+0.30	R=+0.50
A:	4.56	.206			
DELTA K B:	5.09		.783		
MIN C:	3.52			.206	
D:	3.89				.612
	4.00			.464	.685
	5.00	.289		1.04	1.50
	6.00	.675	1.25	1.99	2.76
	7.00	1.46	2.17	4.25	4.72
	8.00	2.70	3.62	8.07	7.60
	9.00	4.37	5.64	12.2	11.7
	10.00	6.45	8.15	15.2	17.2
	13.00	15.0	18.0	22.9	46.7
	16.00	26.9	32.4		115.
	20.00	51.3	70.1		
	25.00	118.	216.		
	30.00	302.	572.		
A:	32.56	344.			
DELTA K B:	32.48		682.		
MAX C:	14.10			29.1	
D:	19.90				360.
ROOT MEAN SQUARE		14.71	13.39	25.78	15.27
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				1
SUMMARY	1.25-2.0	1	1	1	
(NP/NA)	>2.0				

CONDITION/HT: T81
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 65.3 KSI
 ULT. STRENGTH: 70.9 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

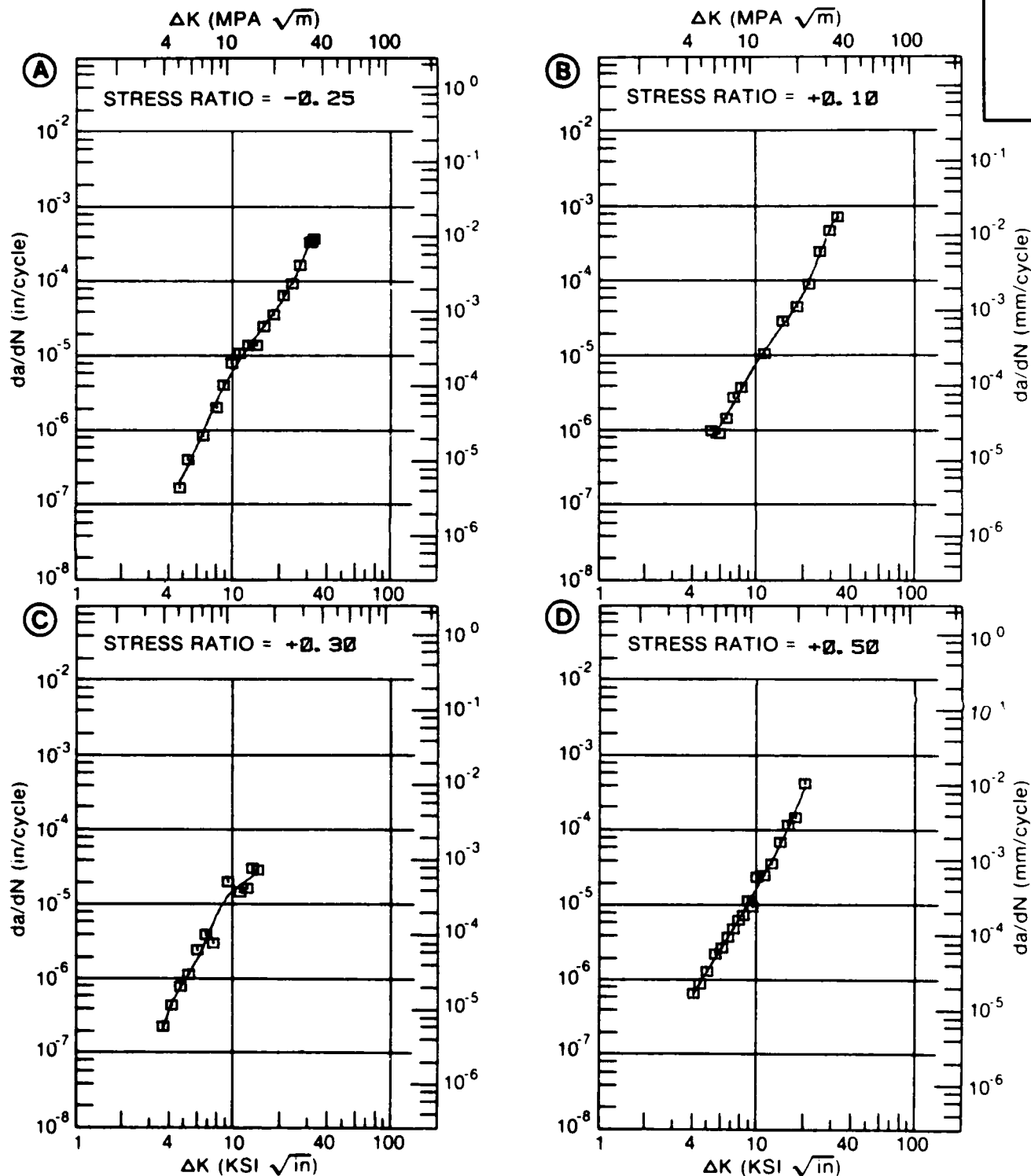


Figure 7.5.3.42

TABLE 7.5.3.43

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.43 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T81
ENVIRONMENT: R. T. , S. T. W.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=-0.20	R=+0.10		
DELTA K MIN	A: 4.03	.309			
	B: 4.55		.196		
	C:				
	D:				
	5.00	.749	.365		
	6.00	1.56	1.04		
	7.00	2.87	2.19		
	8.00	4.82	3.82		
	9.00	7.56	5.86		
	10.00	11.2	8.25		
	13.00	29.2	16.7		
	16.00		26.4		
DELTA K MAX	A: 15.95	59.3			
	B: 18.76		36.2		
	C:				
	D:				
ABS. MEAN SQUARE		16.72	34.46		
PERCENT					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0	1	1		
(NP/NA)	>2.0		1		

CONDITION/HT: T81
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 65.3 KSI
 ULT. STRENGTH: 70.9 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

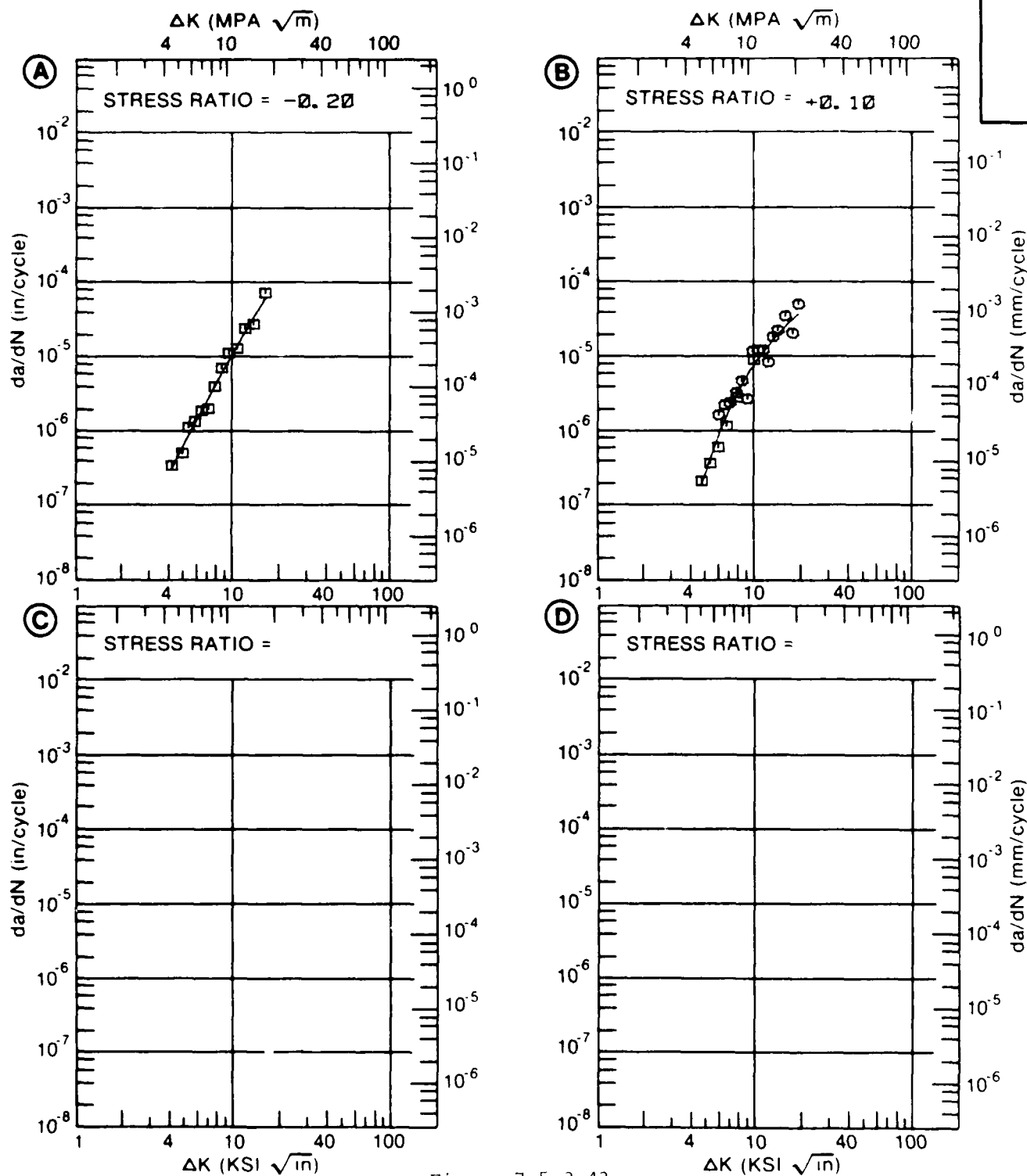


Figure 7.5.3.43

TABLE 7.5.3.44

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.44 INDICATING EFFECT
OF FREQUENCY

MATERIAL: ALUMINUM		2024	
CONDITION: T81			
ENVIRONMENT: R. T. , H. H. A.			
DELTA K		DA/DN (10**-6 IN. /CYCLE)	
(KSI*IN**1/2)			
		A	B
		C	D
		F(HZ)= 0.10	F(HZ)= 1.00
A:	5.09	1.14	
DELTA K B:	5.09	.785	
MIN C:			
D:			
	6.00	3.88	1.25
	7.00	9.64	2.17
	8.00	18.3	3.61
	9.00	29.8	5.63
	10.00	43.9	8.15
	13.00	107.	18.2
	16.00	232.	32.3
	20.00		69.4
	25.00		220.
	30.00		565.
A:	17.46	339.	
DELTA K B:	32.48	681.	
MAX C:			
D:			
ROOT MEAN SQUARE		43.37	13.16
PERCENT ERROR			
LIFE	0.0-0.5		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25		
SUMMARY	1.25-2.0	1	1
(NP/NA)	>2.0		

CONDITION/HT: T81
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 65.3 KSI
 ULT. STRENGTH: 70.9 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

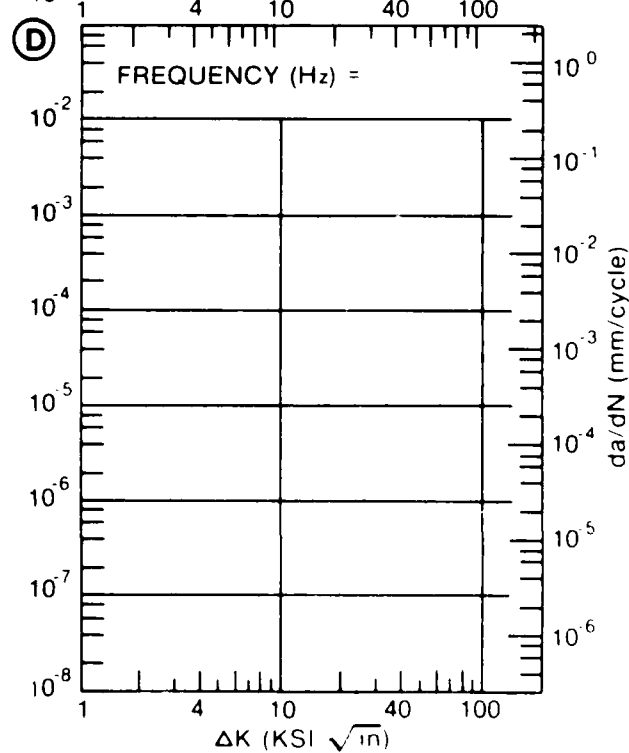
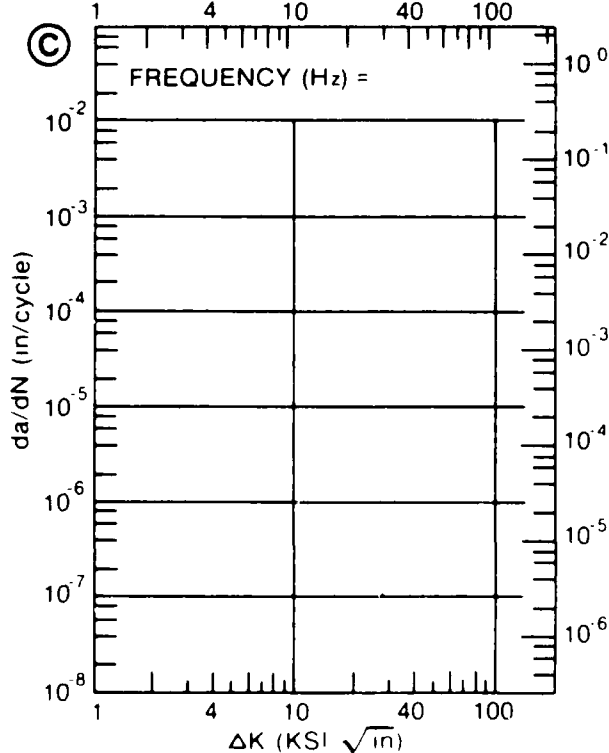
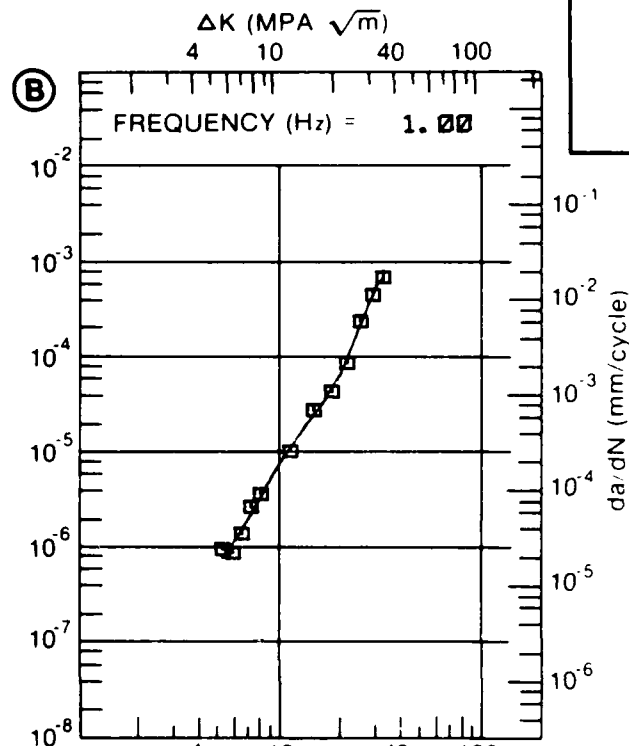
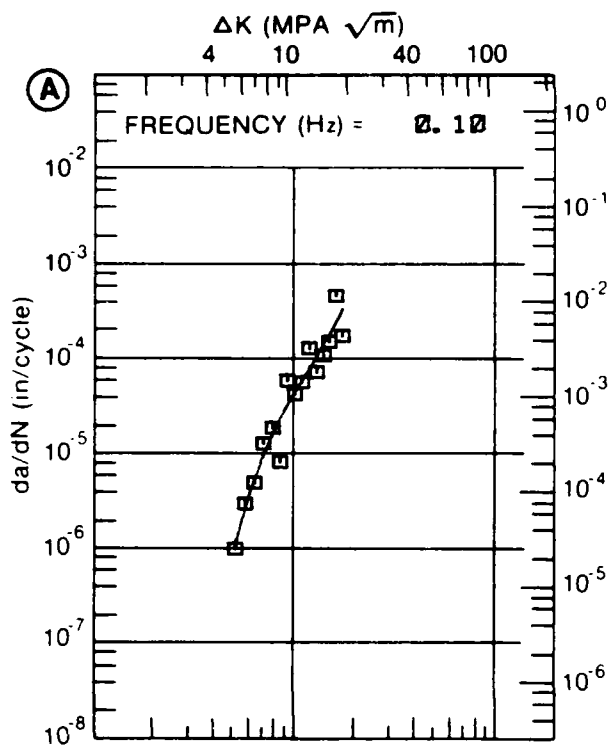


Figure 7.5.3.44

TABLE 7.5.3.45

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.45 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T81
ENVIRONMENT: R. T. , DRY AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-0.25	R=+0.10		
DELTA K MIN	A:	5.21	.472		
	B:	5.26	.266		
	C:				
	D:				
	6.00	.653	.472		
	7.00	1.21	.831		
	8.00	1.98	1.41		
	9.00	2.85	2.31		
	10.00	3.81	3.51		
	13.00	7.82	9.93		
	16.00	16.1			
	20.00	48.3			
	25.00	209.			
	30.00	719.			
DELTA K MAX	A:	33.50	1351.		
	B:	13.58	18.7		
	C:				
	D:				
ROOT MEAN SQUARE		13.58	10.33		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0	1	1		
(NP/NA)	>2.0				

CONDITION/HT: T81
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., DRY AIR

YIELD STRENGTH: 65.8 KSI
 ULT. STRENGTH: 73.1 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

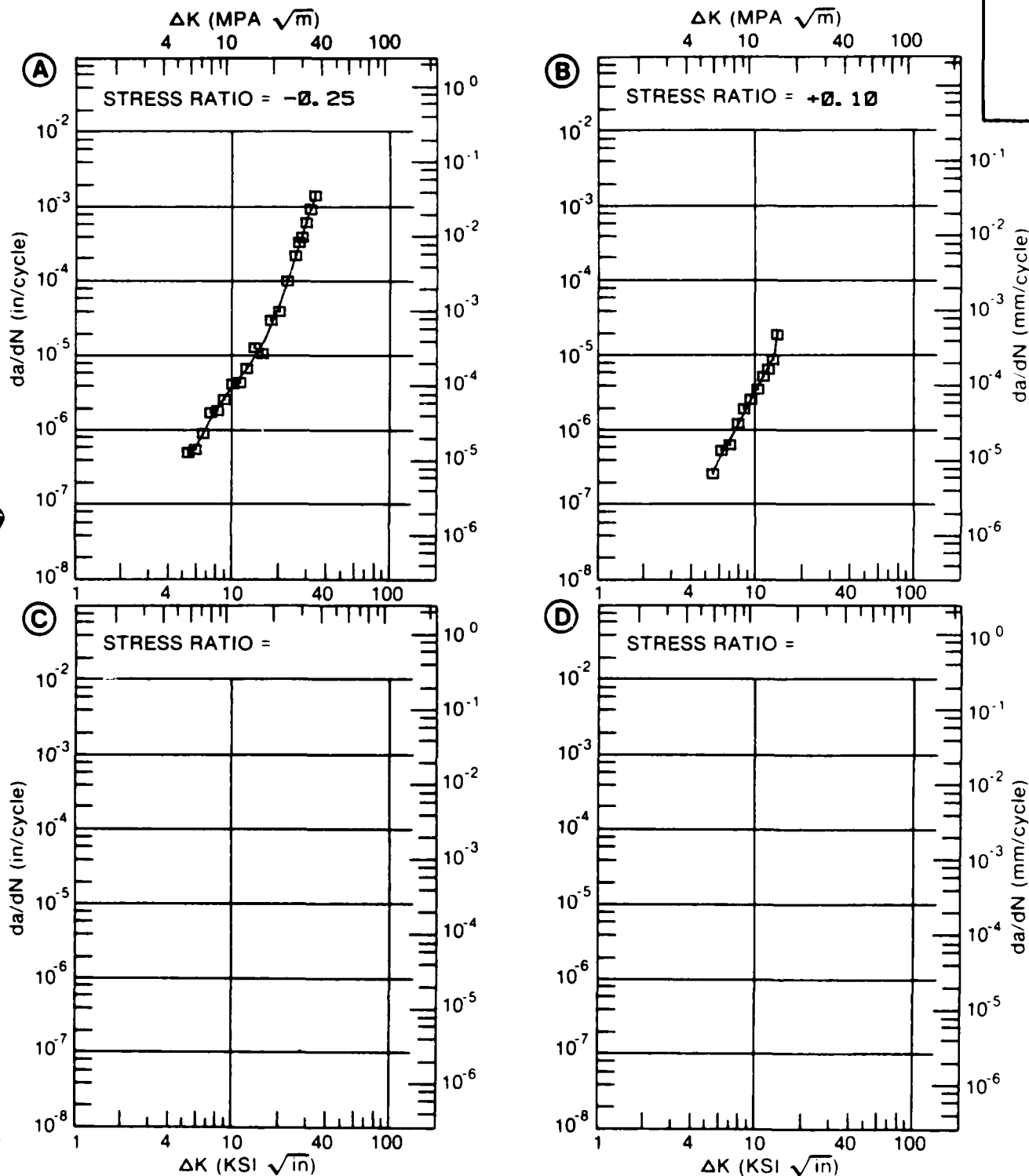


Figure 7.5.3.45

TABLE 7.5.3.46

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.46 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T81					
ENVIRONMENT: R. T. , H. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=-0.25	R=+0.10	R=+0.50	
DELTA K MIN	A:	5.22	1.04		
	B:	5.53	.551		
	C:	2.80		.0957	
	D:				
	3.00			.175	
	3.50			.451	
	4.00			.756	
	5.00			1.44	
	6.00	1.53	.870	2.66	
	7.00	2.13	1.86	4.78	
	8.00	2.77	3.16	8.20	
	9.00	3.62	4.66	13.6	
	10.00	4.89	6.37	22.2	
	13.00	13.8	14.4	90.5	
	16.00	32.8	35.8	283.	
	20.00	64.7	129.		
	25.00		435.		
DELTA K MAX	A:	23.07	121.		
	B:	28.46	634.		
	C:	18.14		467.	
	D:				
ROOT MEAN SQUARE		21.79	13.25	14.02	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0	1	1	1	
(NP/NA)	>2.0				

CONDITION/HT: T81
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 65.8 KSI
 ULT. STRENGTH: 73.1 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES GD004

ALUM.
 ALLOY

2024

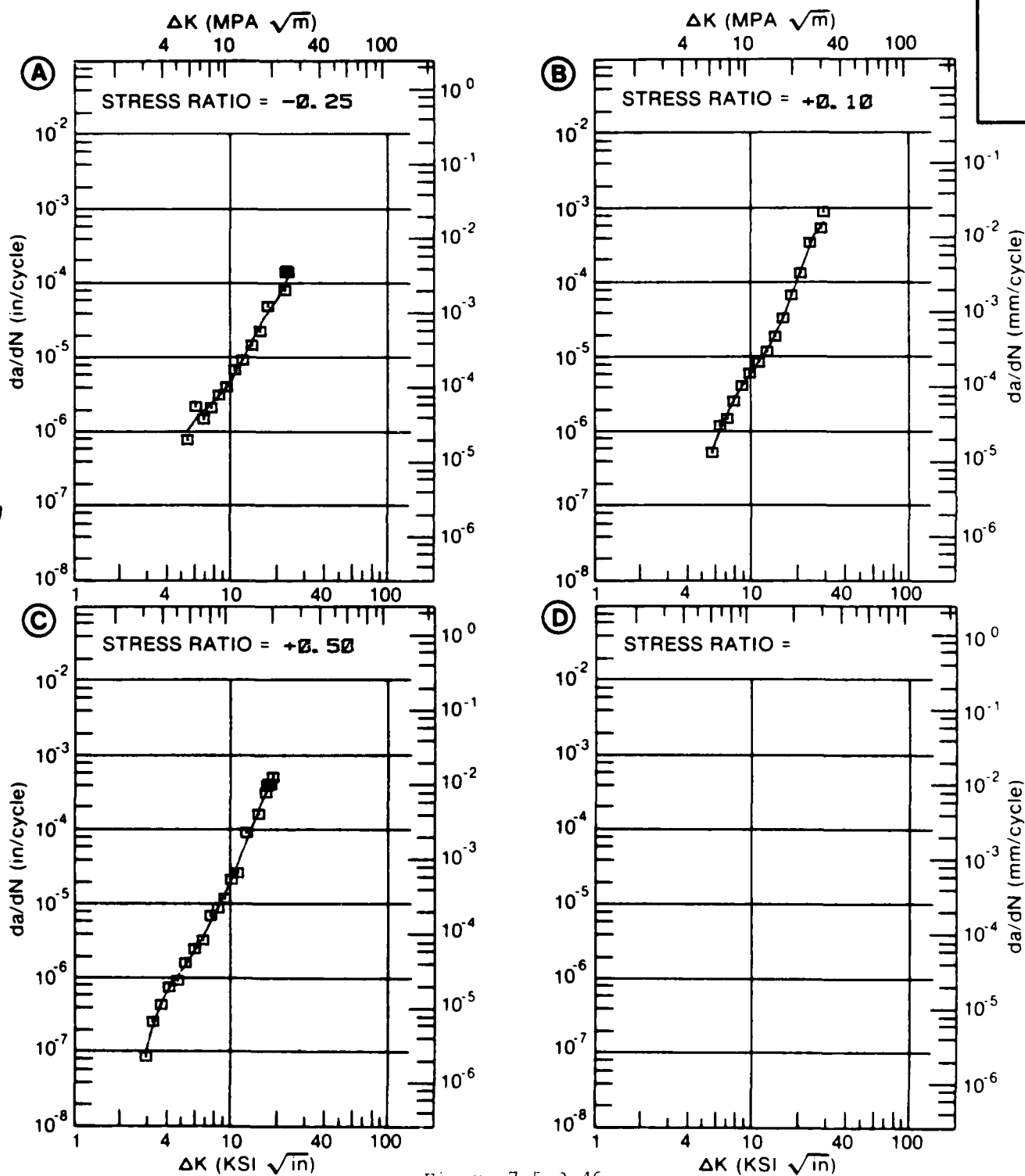


Figure 7.5.3.46

TABLE 7.5.3.47

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.47 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024	
CONDITION: TB1			
ENVIRONMENT: R. T. , S. T. W.			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)	
		A	B
		R=+0. 10	R=+0. 30
A: 4. 03		. 094	
DELTA K B: 7			
MIN C:			
D:			
5. 00		. 395	
6. 00		1. 03	
7. 00		2. 03	
8. 00		3. 38	
9. 00		5. 12	
10. 00		7. 27	
13. 00		17. 3	
16. 00		37. 2	
20. 00		101.	
A: 20. 39		111.	
DELTA K B:			
MAX C:			
D:			
ROOT MEAN SQUARE		34. 62	0. 00
PERCENT ERROR			
LIFE	0. 0-0. 5		
PREDICTION	0. 5-0. 8		
RATIO	0. 8-1. 25	1	
SUMMARY	1. 25-2. 0		
(NP/NA)	>2. 0	1	

CONDITION/HT: T81
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 65.8 KSI
 ULT. STRENGTH: 73.1 KSI
 SPECIMEN THK: 0.125"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: GD004

ALUM.
 ALLOY

2024

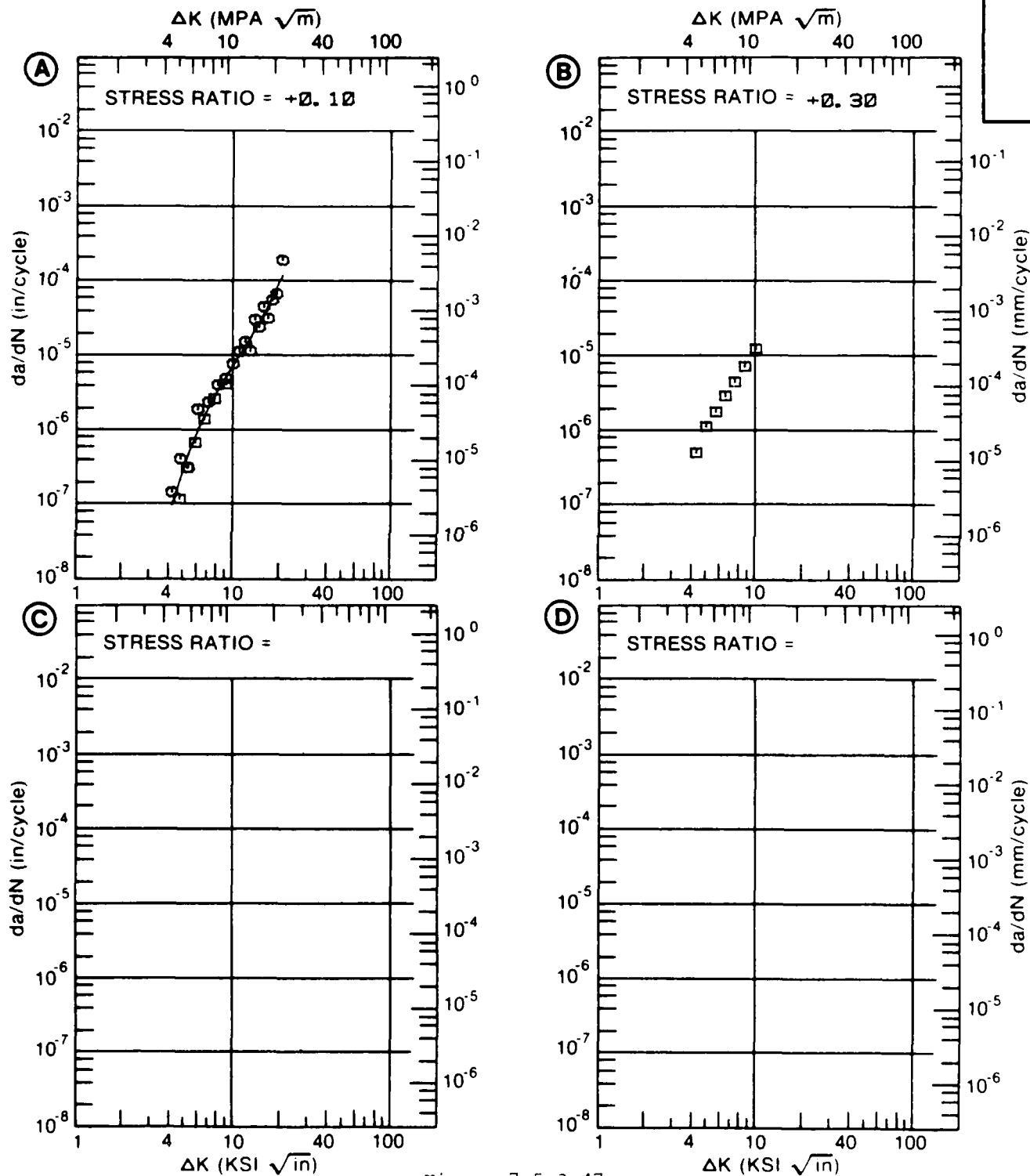


Figure 7.5.3.47

TABLE 7.5.3.48

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.48 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T851
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A: 5.47	.653			
	B:				
	C:				
	D:				
	6.00	1.37			
	7.00	3.08			
DELTA K MAX	8.00	4.49			
	9.00	5.33			
	10.00	5.84			
	13.00	8.06			
	A: 15.84	16.5			

ROOT MEAN SQUARE 11.86
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 0.38"TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: L-S
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.374- 0.377"
 SPECIMEN WIDTH: 5.004- 5.006"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

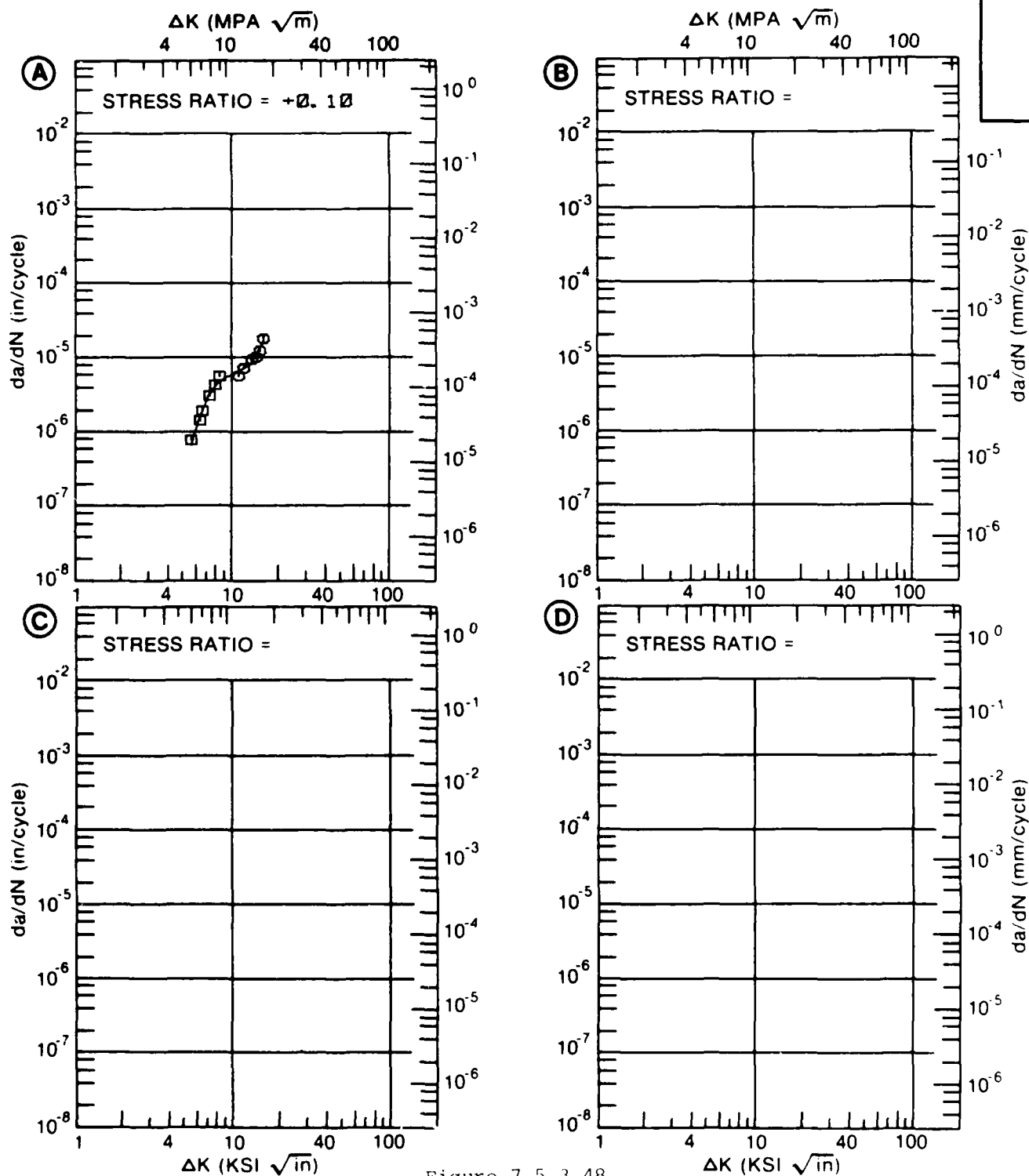


Figure 7.5.3.48

TABLE 7.5.3.49

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.49 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T851
 ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10	R=+0.50		
DELTA K MIN	A:	3.37	.24		
	B:				
	C:				
	D:				
	3.50	.259			
	4.00	.328			
	5.00	.576			
	6.00	1.01			
	7.00	1.66			
	8.00	2.55			
	9.00	3.65			
	10.00	4.87			
	13.00	9.08			
	16.00	17.2			
DELTA K MAX	A:	16.73	33.8		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		21.69	0.00		
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T851
 FORM: 0.38" TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: T-S
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.376- 0.380"
 SPECIMEN WIDTH: 5.003- 5.006"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

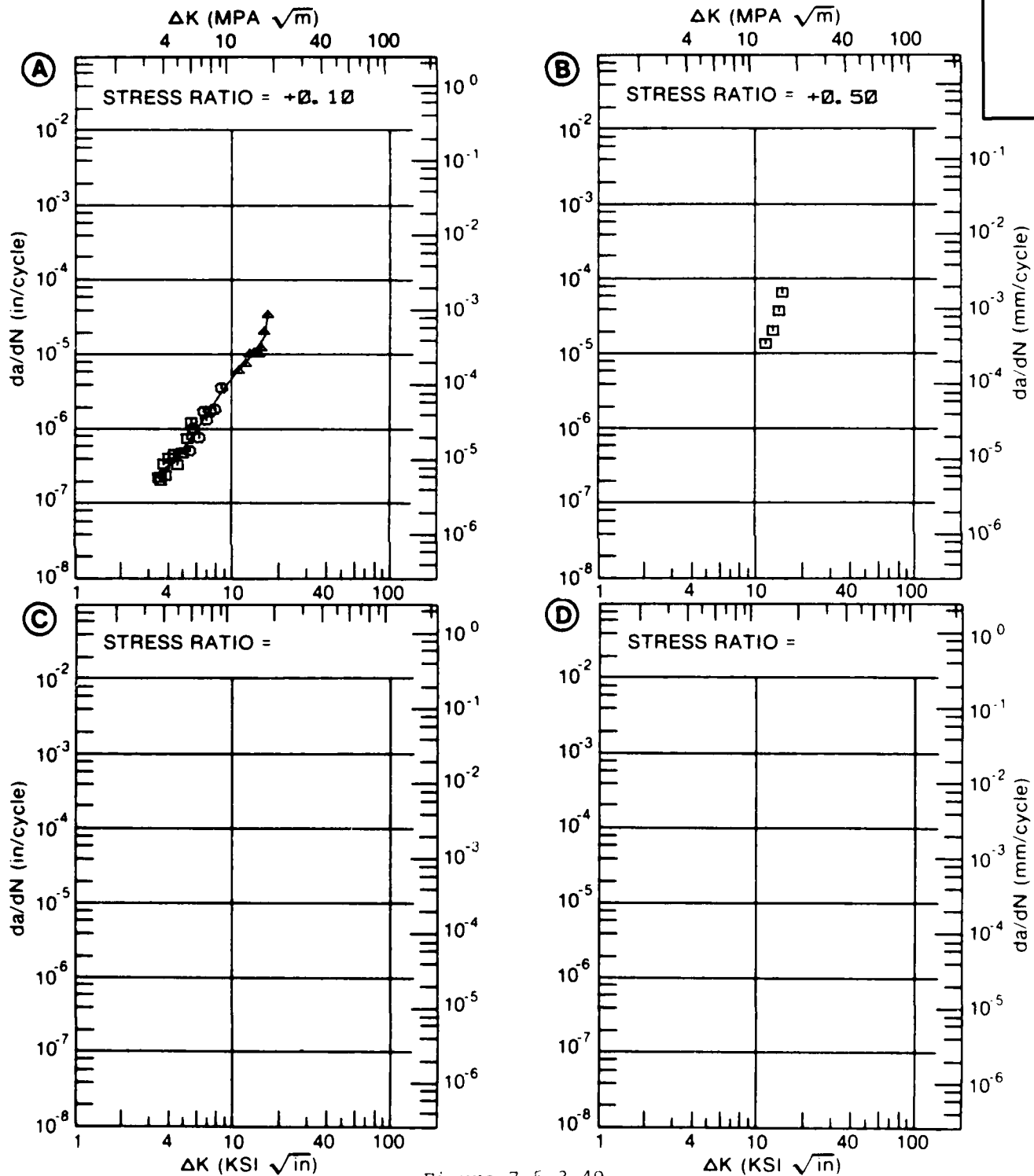


Figure 7.5.3.49

TABLE 7.5.3.50

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.50 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T851
ENVIRONMENT: R. T. , 3.5% NaCl

DELTA K (KSI*IN**1/2)		DA/DN (10**--6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10	R=+0.50		
DELTA K MIN	A: 5.15	.421			
	B: 3.28		.245		
	C:				
	D:				
	3.50		.286		
	4.00		.426		
	5.00		.960		
	6.00	.958	1.94		
	7.00	1.95	3.38		
	8.00	3.30	5.07		
	9.00	4.92	6.91		
	10.00	6.73	9.96		
	13.00	12.3			
DELTA K MAX	A: 13.84	13.8			
	B: 10.28		11.3		
	C:				
	D:				
ROOT MEAN SQUARE		33.64	26.04		
PERCENT ERROR					

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 0.38" TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: T-S
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., 3.5% NaCl

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.377- 0.380"
 SPECIMEN WIDTH: 5.002- 5.005"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

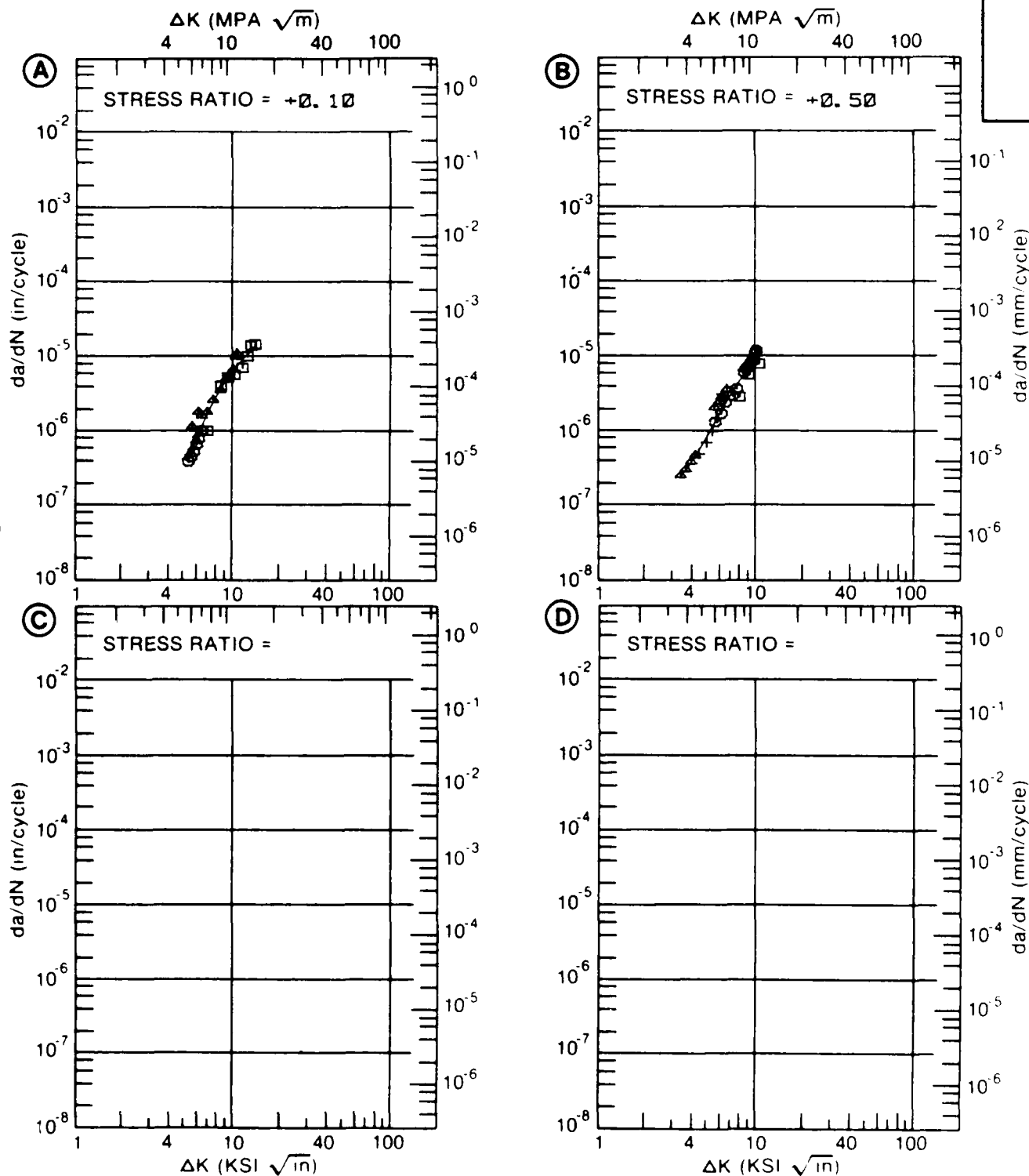


Figure 7.5.3.50

TABLE 7.5.3.51

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.51 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T851
 ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10	R=+0.50		
DELTA K MIN	A:	8.03	3.73		
	B:	2.48	.187		
	C:				
	D:				
		2.50	.176		
		3.00	.140		
		3.50	.298		
		4.00	.564		
		5.00	1.31		
		6.00	2.79		
		7.00	5.94		
		8.00	10.8		
		9.00	5.50	15.4	
		10.00	7.38	17.2	
		13.00	19.5		
		16.00	39.2		
		20.00	71.4		
DELTA K MAX	A:	22.79	166.		
	B:	10.53	16.5		
	C:				
	D:				

ROOT MEAN SQUARE 11.73 16.85
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 1 1
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T851
 FORM: 0.38" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 66.6 KSI
 ULT. STRENGTH: 72.0 KSI
 SPECIMEN THK: 0.375"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

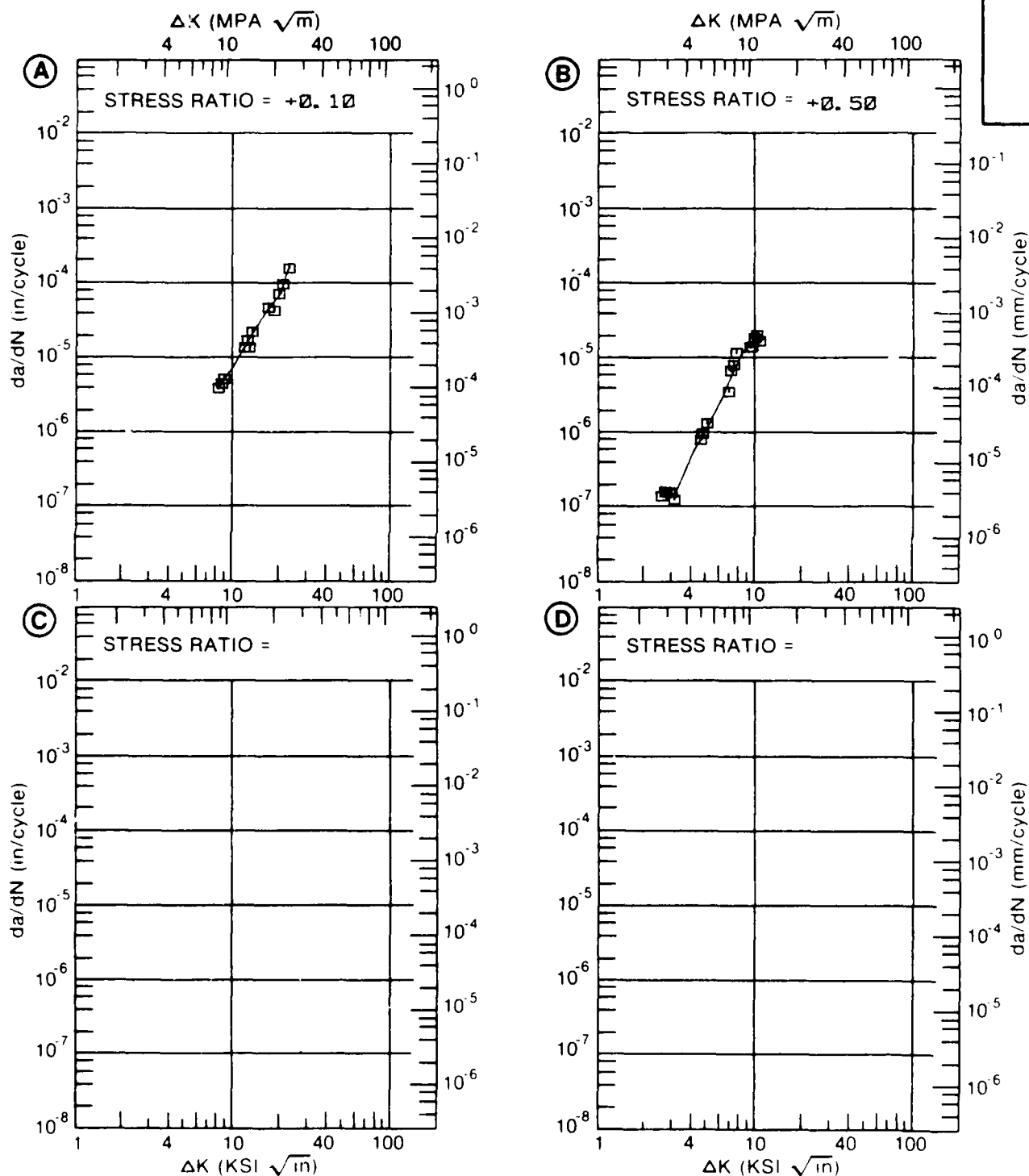


Figure 7.5.3.51

TABLE 7.5.3.52

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.52 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , 3. 5% NACL					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10			
DELTA K MIN	A:	4. 70	1. 16		
	B:				
	C:				
	D:				
	5. 00	1. 47			
	6. 00	2. 70			
	7. 00	4. 24			
	8. 00	6. 10			
	9. 00	8. 34			
	10. 00	11. 1			
	13. 00	23. 6			
	16. 00	48. 4			
	20. 00	126.			
	25. 00	428.			
DELTA K MAX	A:	28. 22	952.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		13. 07			
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25	1			
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 0.38" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., 3.5% NaCl

YIELD STRENGTH: 66.6 KSI
 ULT. STRENGTH: 72.0 KSI
 SPECIMEN THK: 0.375"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

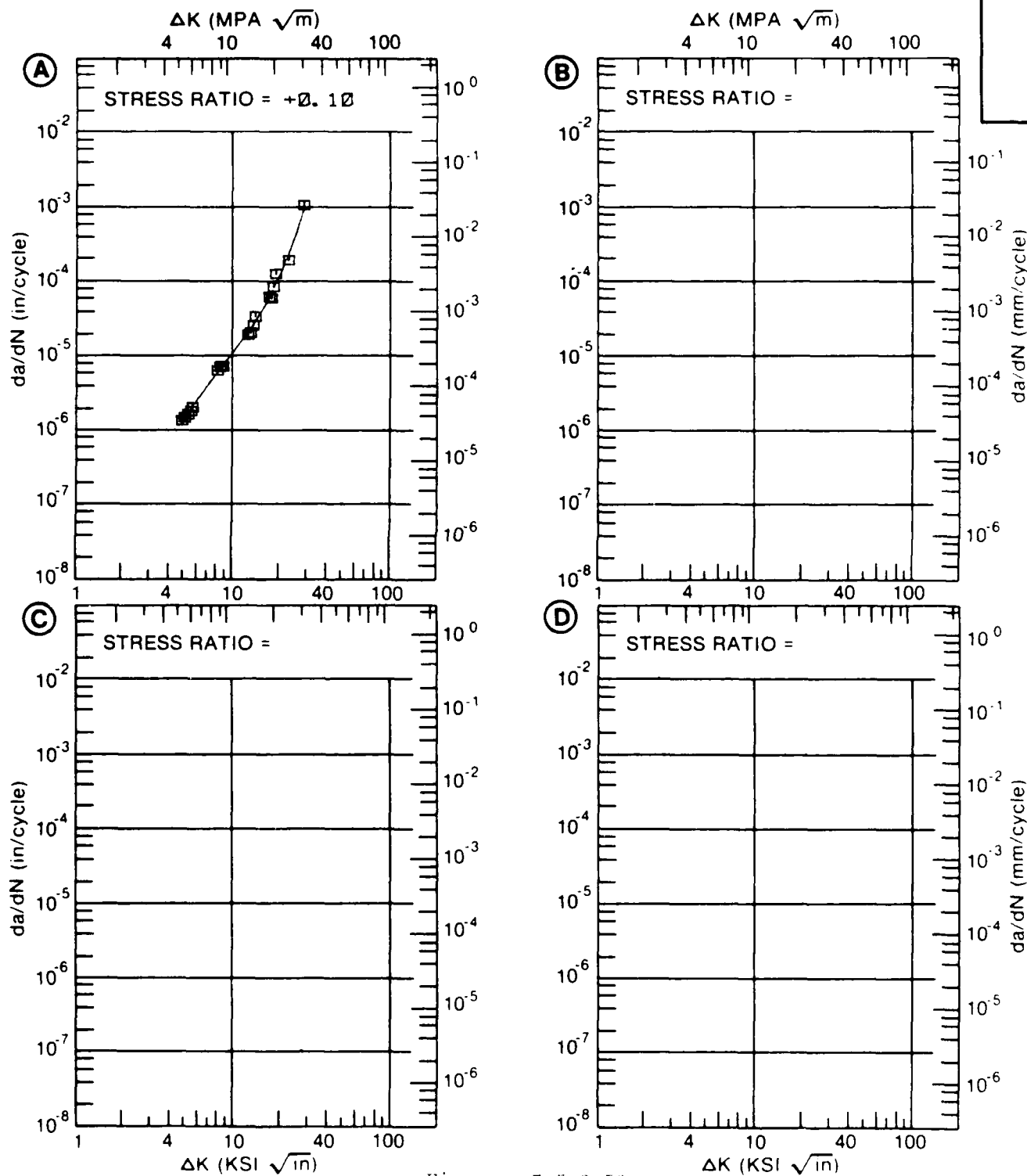


Figure 7.5.3.52

TABLE 7.5.3.53

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.53 INDICATING EFFECT
OF FREQUENCY

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , H. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		F(HZ)= 20.00 F(HZ)= 30.00			
DELTA K MIN	A:	4.52	.487		
	B:	4.77	.335		
	C:				
	D:				
		5.00	.501	.344	
		6.00	1.18	.492	
		7.00		.957	
		8.00		2.30	
		9.00		5.08	
DELTA K MAX	A:	6.88	2.95		
	B:	9.90	5.11		
	C:				
	D:				
ROOT MEAN SQUARE		13.49	12.28		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: Ø. 75" TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: L-S
 STRESS RATIO: +Ø. 1Ø
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: Ø. 759- Ø. 76Ø"
 SPECIMEN WIDTH: 5. ØØ3"
 REFERENCES: 9Ø981

ALUM.
 ALLOY

2Ø24

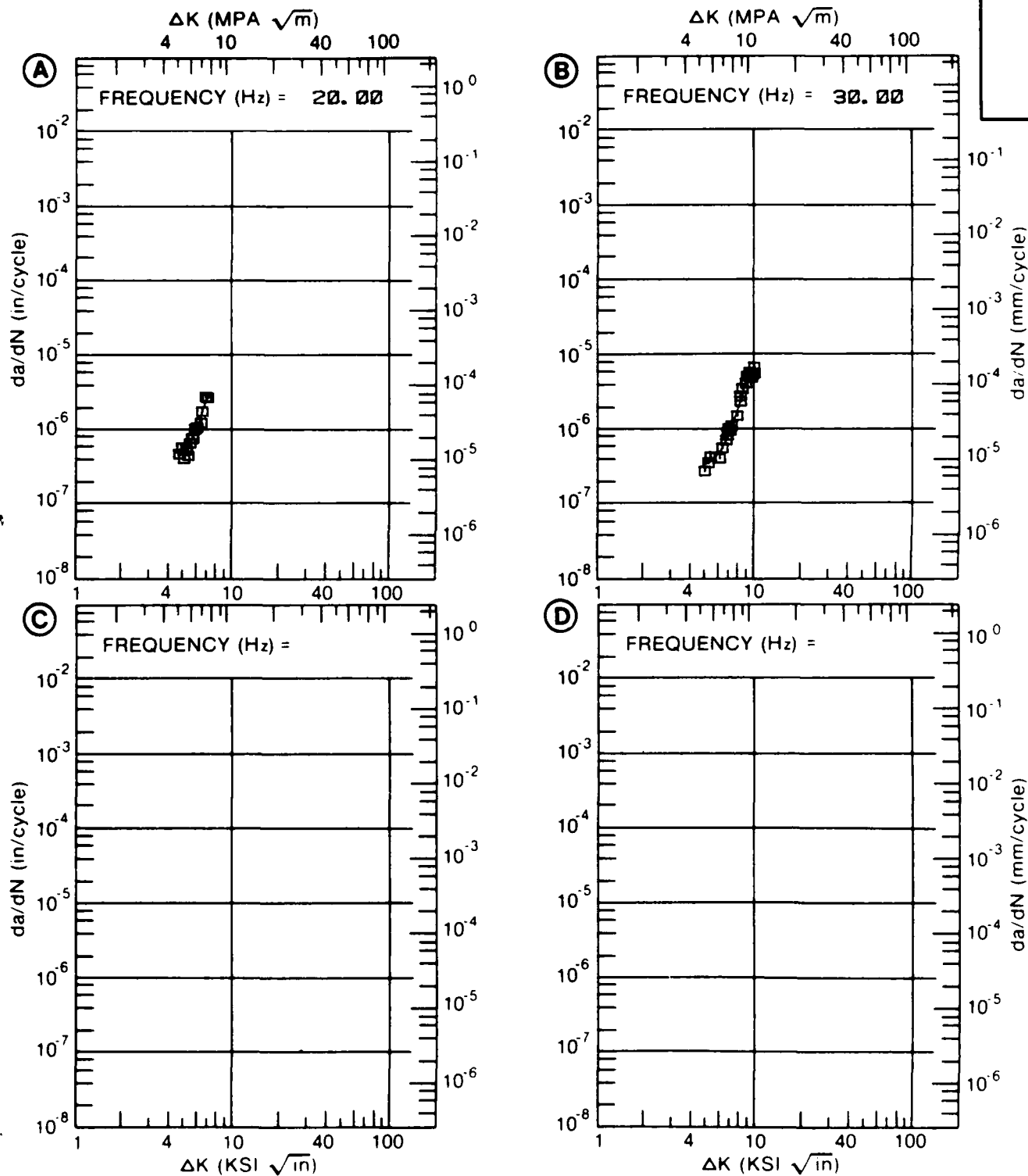


Figure 7.5.3.53

TABLE 7.5.3.54

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.54 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM
CONDITION: T851

2024

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

A

B

C

D

E= R. T.

H. H. A.

DELTA K	A:	2.75	:	.0113
MIN	B:		:	
	C:		:	
	D:		:	

3.00	:	.0269
3.50	:	.101
4.00	:	.261
5.00	:	.929
6.00	:	2.09
7.00	:	3.72
8.00	:	5.85
9.00	:	8.61
10.00	:	12.2
13.00	:	32.3
16.00	:	85.6

DELTA K	A:	16.67	:	107.
MAX	B:		:	
	C:		:	
	D:		:	

ROOT MEAN SQUARE
PERCENT ERROR

17.12

LIFE	0.0-0.5
PREDICTION	0.5-0.8
RATIO	0.8-1.25
SUMMARY	1.25-2.0
(NP/NA)	>2.0

CONDITION/HT: T851
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 25.00 HZ

YIELD STRENGTH: 67.0 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: NC003

ALUM.
 ALLOY

2024

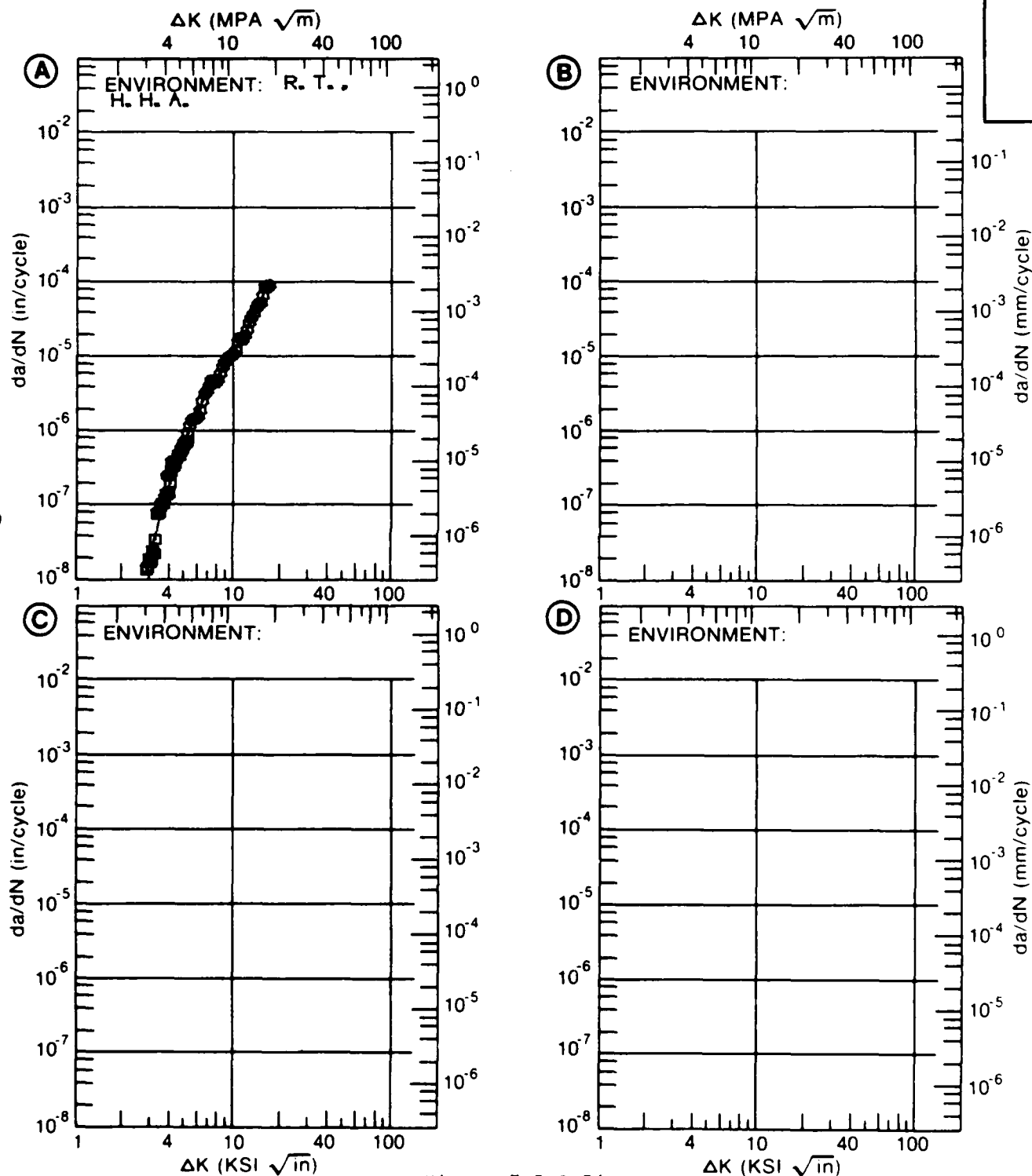


Figure 7.5.3.54

TABLE 7.5.3.55

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.55 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , H. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 50		
DELTA K A:	3. 22	. 16			
DELTA K B:	1. 82		. 04		
MIN C:	2				
D:					
	2. 00		. 0515		
	2. 50		. 0796		
	3. 00		. 142		
	3. 50	. 211	. 255		
	4. 00	. 314	. 443		
	5. 00	. 639	1. 13		
	6. 00	1. 16	2. 26		
	7. 00	1. 89	3. 70		
	8. 00	2. 84	5. 10		
	9. 00	3. 97	6. 09		
	10. 00	5. 24	6. 47		
	13. 00	9. 14			
	16. 00	12. 0			
DELTA K A:	18. 47	13. 0			
DELTA K B:	10. 31		6. 46		
MAX C:					
D:					
ROOT MEAN SQUARE		36. 98	35. 40		
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: T-S
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.758- 0.764"
 SPECIMEN WIDTH: 5.000- 5.005"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

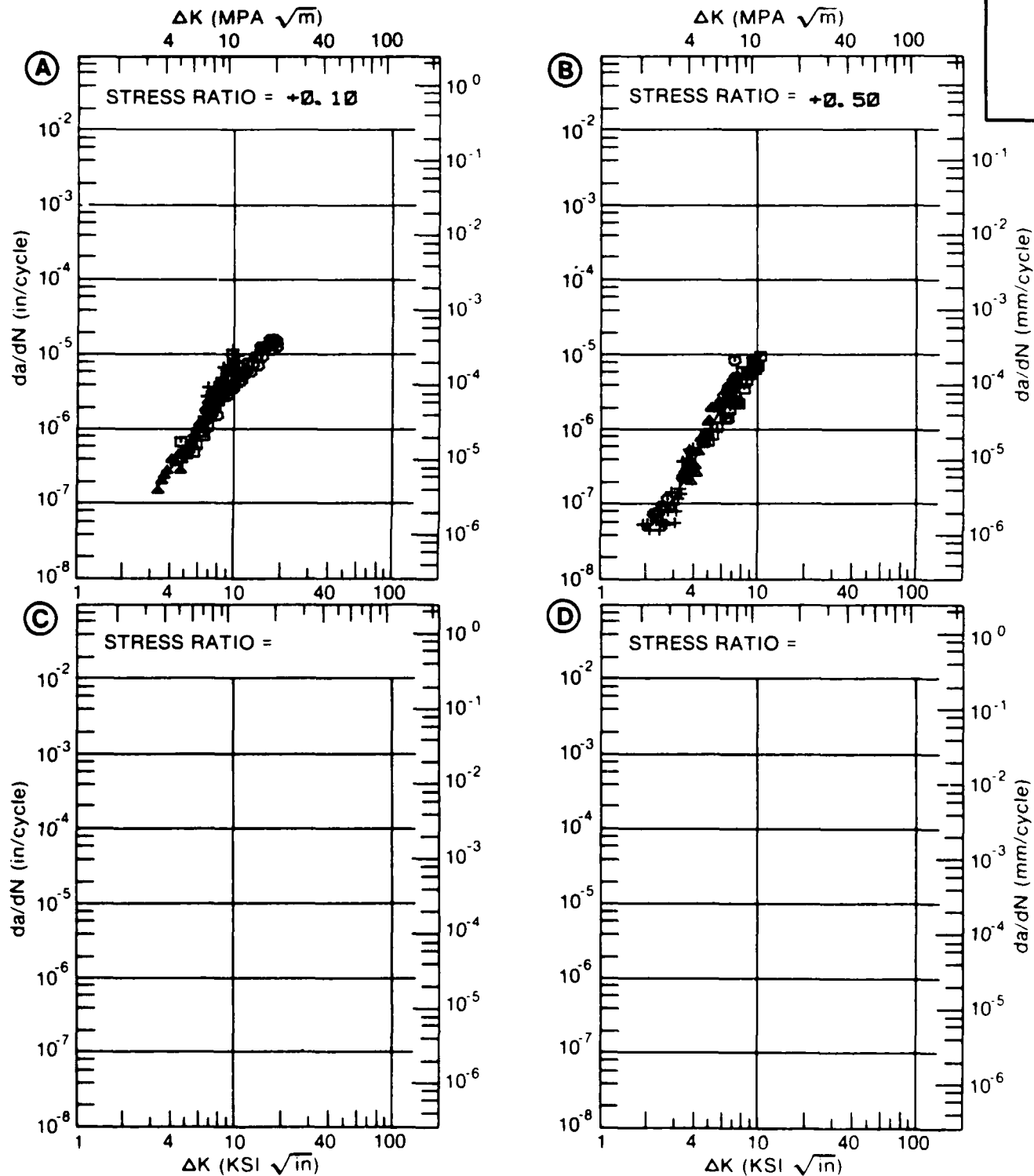


Figure 7.5.3.55

TABLE 7.5.3.56

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.5.3.56 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T851
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 50		
DELTA K MIN	A: 11. 66 :	7. 64			
	B: 4. 25 :		. 34		
	C:				
	D:				
	5. 00 :		. 991		
	6. 00 :		2. 04		
	7. 00 :		3. 05		
	8. 00 :		4. 37		
	9. 00 :		6. 73		
	10. 00 :		11. 7		
DELTA K MAX	13. 00 :	9. 86			
	16. 00 :	19. 7			
	A: 18. 52 :	52. 3			
	B: 10. 47 :		16. 0		
	C:				
	D:				
ROOT MEAN SQUARE		19. 13	22. 28		
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: T-S
 FREQUENCY: 2.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.759- 0.763"
 SPECIMEN WIDTH: 5.004- 5.006"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

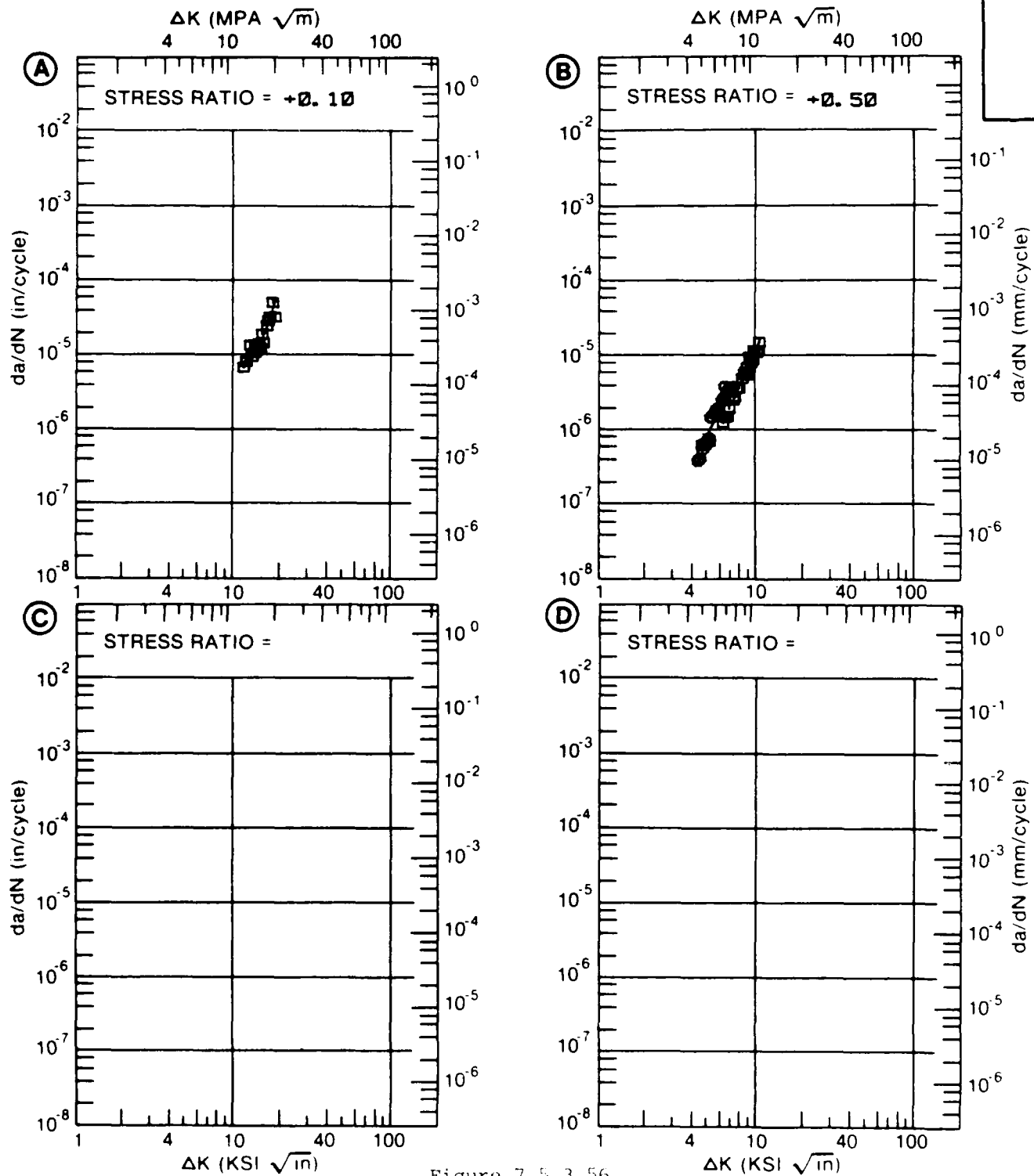


Figure 7.5.3.56

TABLE 7.5.3.57

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.57 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T851
ENVIRONMENT: R. T. , 3.5% NaCl

DELTA K (KSI*IN**1/2)		DA/DN (10** -6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A: 8.12	4.28			
	B:				
	C:				
	D:				
	9.00	5.11			
	10.00	5.92			
	13.00	10.6			
	16.00	33.0			
DELTA K MAX	A: 17.38	67.8			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 17.89
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: Ø. 76" TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: T-S
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T. . 3. 5% NaCl

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: Ø. 763"
 SPECIMEN WIDTH: 5.003"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

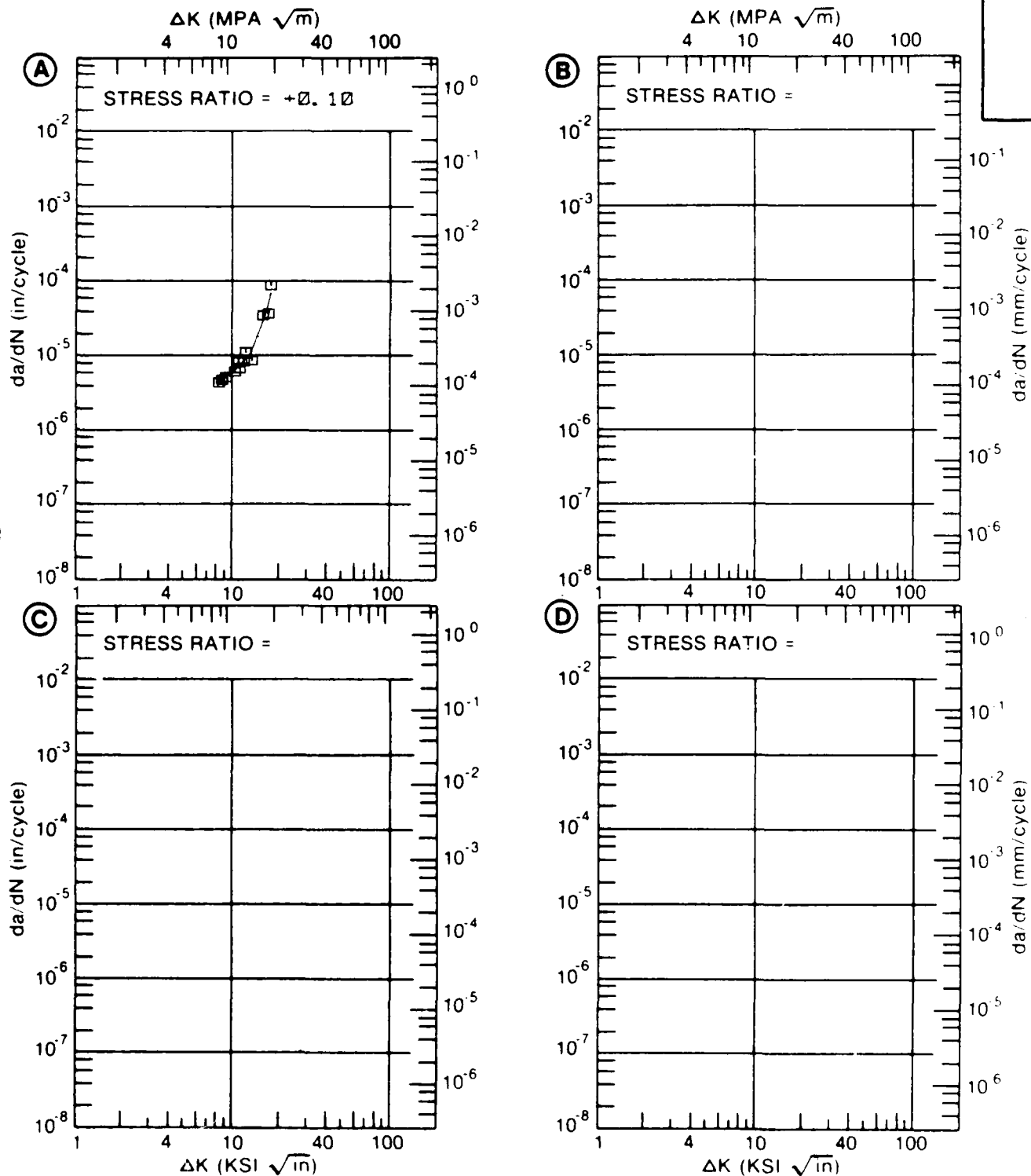


Figure 7.5.3.57

TABLE 7.5.3.58

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.58 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T851
 ENVIRONMENT: R. T. , 3. 5% NaCl

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 50		
A:	4. 82	. 988			
DELTA K B:	5. 20		968		
MIN C:					
D:					
	5. 00	1. 18			
	6. 00	2. 08	1. 78		
	7. 00	2. 68	3. 18		
	8. 00	3. 23	5. 04		
	9. 00	4. 12	7. 48		
	10. 00	5. 81	10. 7		
	13. 00		28. 3		
	16. 00		72. 8		
	20. 00		265.		
A:	11. 40	11. 5			
DELTA K B:	20. 76		340.		
MAX C:					
D:					
ROOT MEAN SQUARE		16. 87	21. 52		
PERCENT ERROR					

LIFE 0. 0-0. 5
 PREDICTION 0. 5-0. 8
 RATIO 0. 8-1. 25
 SUMMARY 1. 25-2. 0
 (NP/NA) >2. 0

CONDITION/HT: T851
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: PTSF
 ORIENTATION: T-S
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., 3.5% NaCl

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.750- 0.763"
 SPECIMEN WIDTH: 5.000- 5.005"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

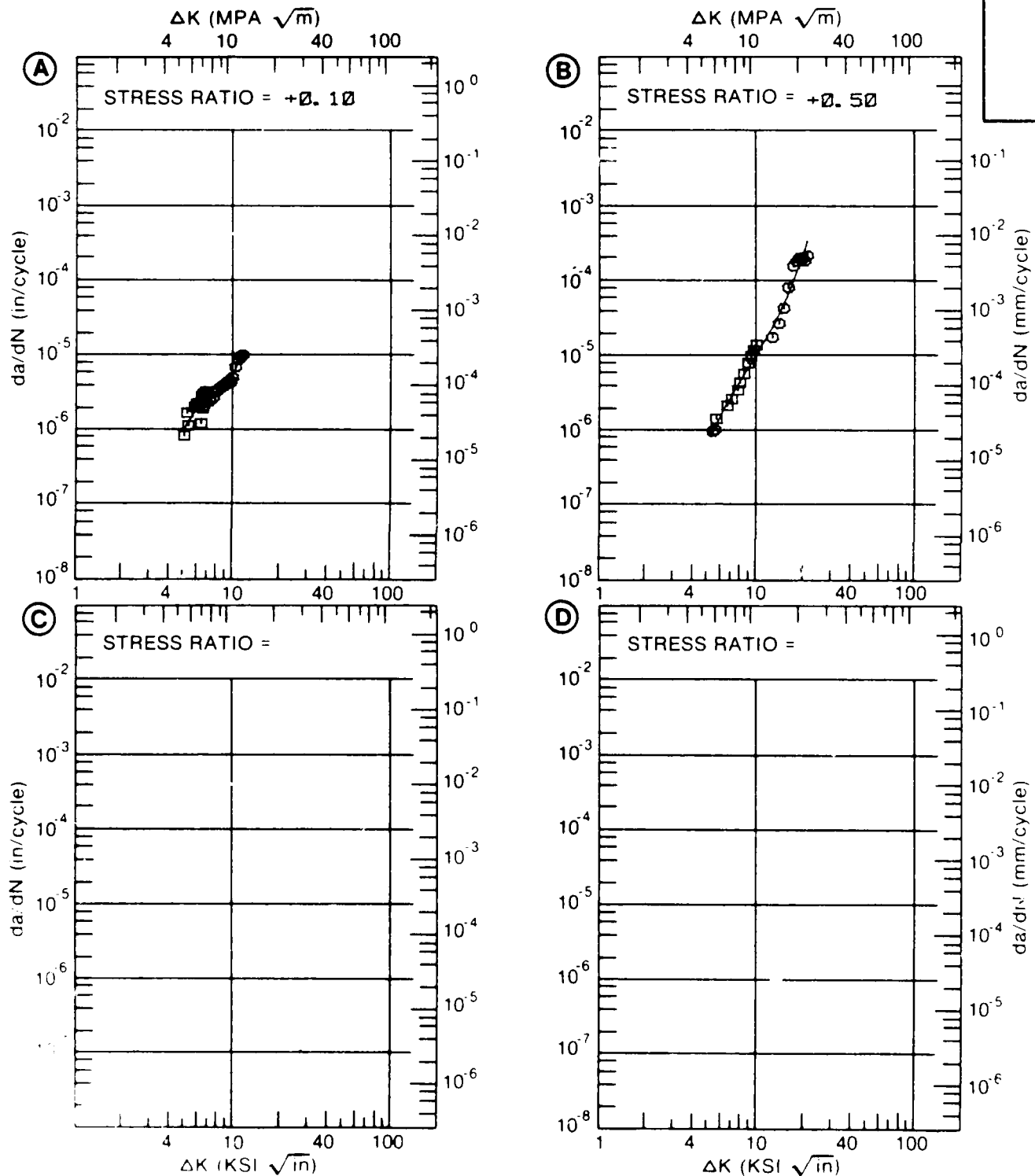


Figure 7.5.3.58

TABLE 7.5.3.59

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.59 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T851
ENVIRONMENT: R. T. , H. H. A.

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

A

B

C

D

R=+0.10

DELTA K A: 4.01 : .339
B:
MIN C:
D:

5.00 : .509
6.00 : 1.26
7.00 : 2.58
8.00 : 4.36
9.00 : 6.54
10.00 : 9.04
13.00 : 18.0
16.00 : 29.5

DELTA K A: 18.82 : 57.7
B:
MAX C:
D:

ROOT MEAN SQUARE 7.74
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 68.6 KSI
 ULT. STRENGTH: 73.0 KSI
 SPECIMEN THK: 0.761"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

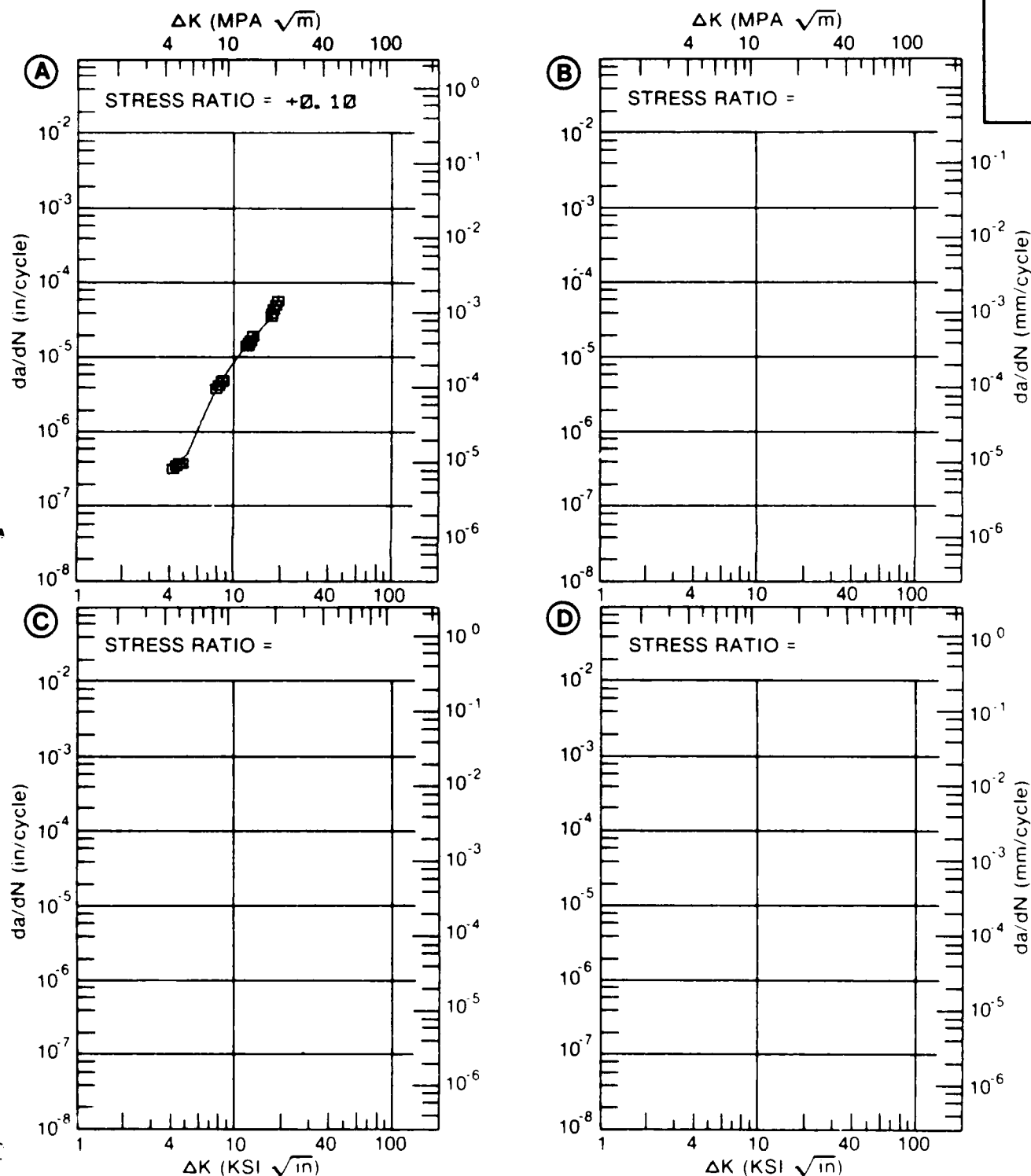


Figure 7.5.3.59

TABLE 7.5.3.60

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.60 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. H. H. A.	E= R. T. 3. 5% NACL		
DELTA K MIN	A:	11. 66	7. 64		
	B:				
	C:				
	D:				
		13. 00	9. 86		
		16. 00	19. 7		
DELTA K MAX	A:	18. 52	52. 3		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		19. 13	0. 00		
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: P-SF
 ORIENTATION: T-S
 STRESS RATIO: +0.10
 FREQUENCY: 2.00 HZ

YIELD STRENGTH: 70.1 KSI
 ULT. STRENGTH: 73.5 KSI
 SPECIMEN THK: 0.759- 0.763"
 SPECIMEN WIDTH: 5.003- 5.004"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

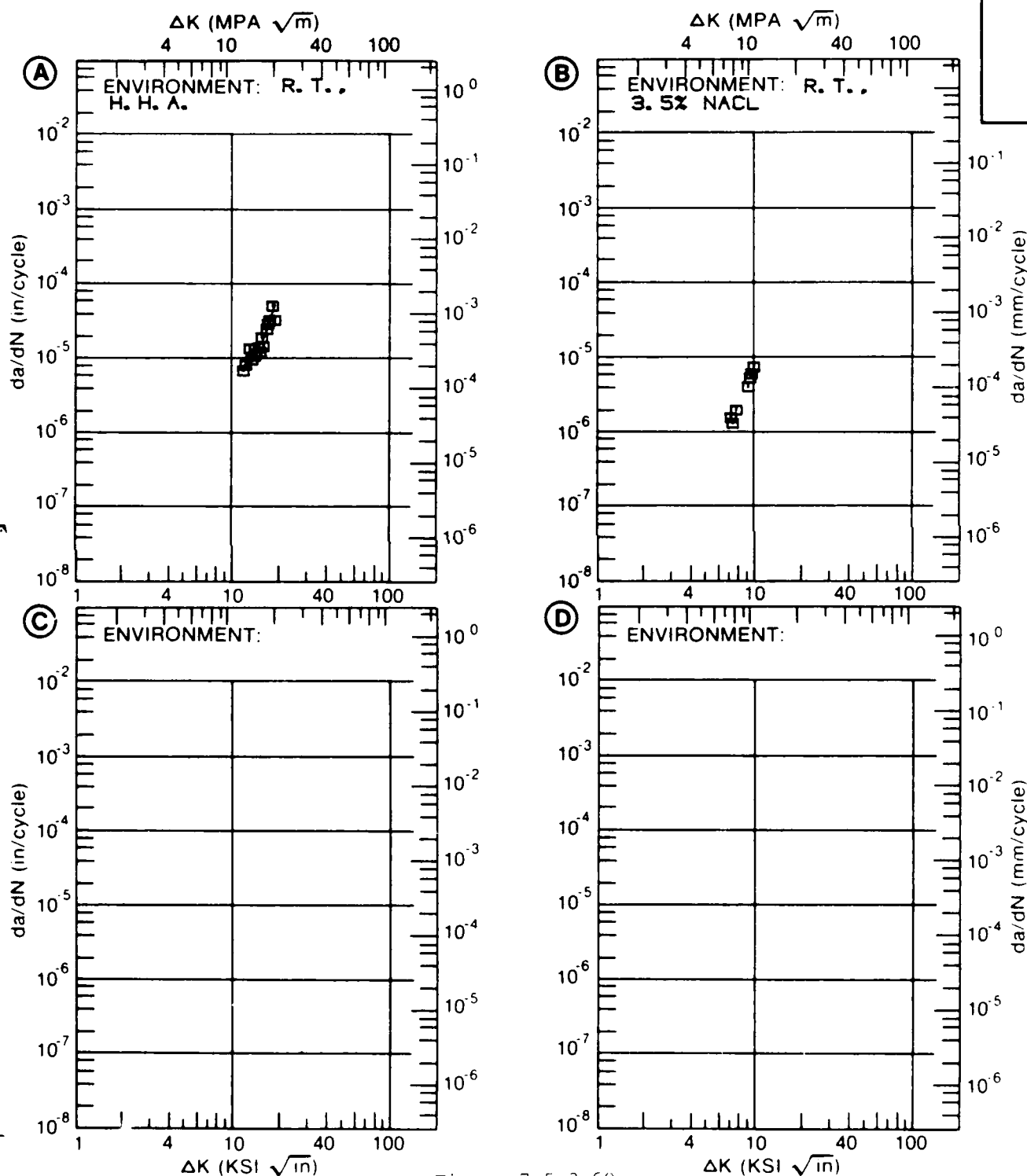


Figure 7.5.3.60

TABLE 7.5.3.61

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.61 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , 3. 5% NACL					

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 50		
DELTA K MIN	A:	3. 33	. 193		
	B:	2. 12	. 119		
	C:				
	D:				
	2. 50		. 215		
	3. 00		. 406		
	3. 50	. 236	. 689		
	4. 00	. 399	1. 08		
	5. 00	. 915	2. 28		
	6. 00	1. 75	4. 17		
	7. 00	2. 98	6. 93		
	8. 00	4. 68	10. 7		
	9. 00	6. 96	15. 8		
	10. 00	9. 93	22. 4		
	13. 00	24. 3			
	16. 00	50. 5			
DELTA K MAX	A:	16. 68	58. 8		
	B:	11. 10	31. 7		
	C:				
	D:				

ROOT MEAN SQUARE		22. 26	18. 87		
PERCENT ERROR					

LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25	1	1		
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 0.75" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 20.00 HZ
 ENVIRONMENT: R. T., 3.5% NaCl

YIELD STRENGTH: 68.6 KSI
 ULT. STRENGTH: 73.0 KSI
 SPECIMEN THK: 0.760"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

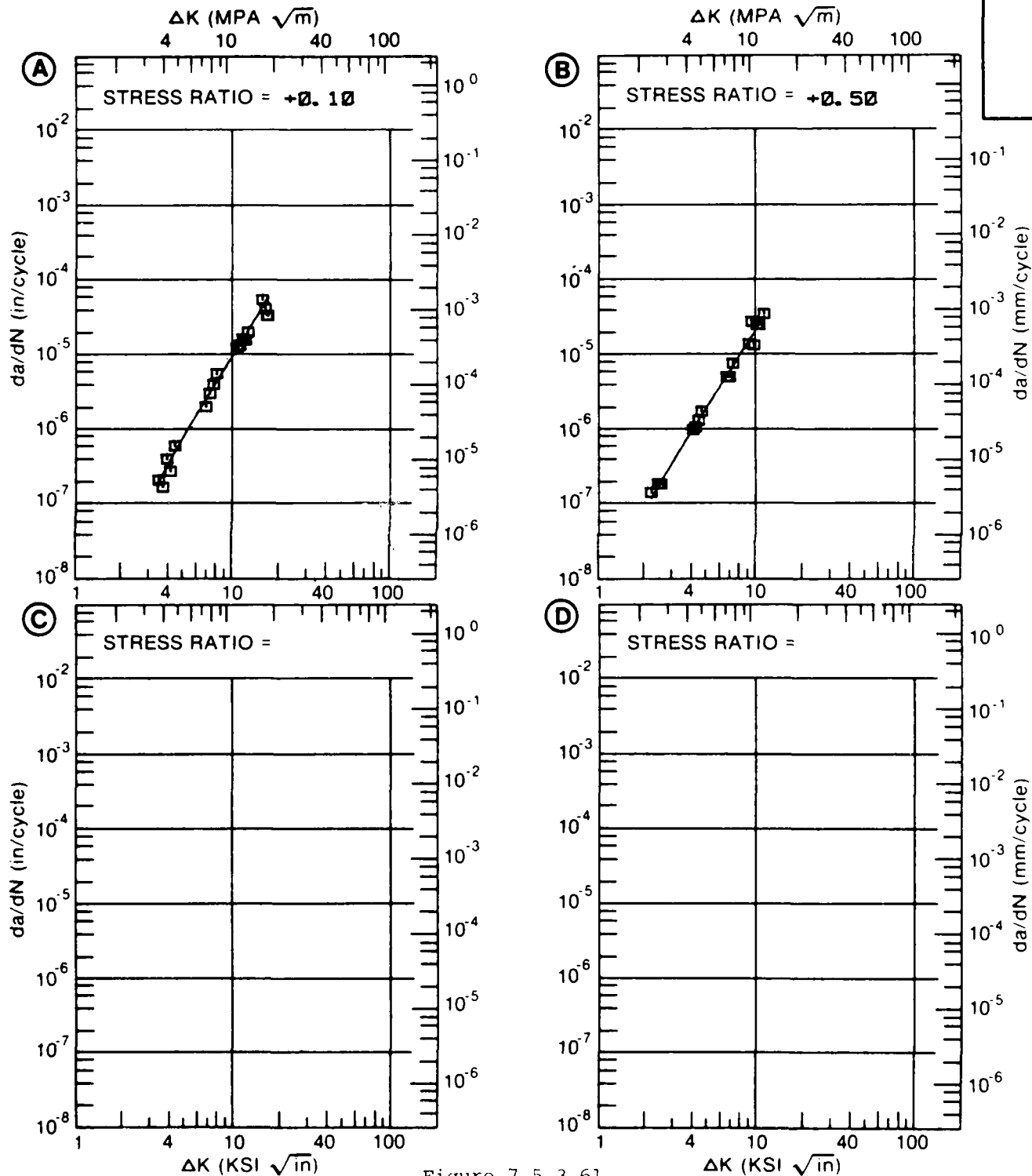


Figure 7.5.3.61

TABLE 7.5.3.62

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.62 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , DRY AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 20	R=+0. 40		
DELTA K	A:				
MIN	B:				
	C:				
	D:				
	200. 00				
DELTA K	A:				
MAX	B:				
	C:				
	D:				
ROOT MEAN SQUARE		0. 00	0. 00		
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: DCB
 ORIENTATION: L-T
 FREQUENCY: 10.00 HZ
 ENVIRONMENT: R. T., DRY AIR

YIELD STRENGTH: 64.0 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 0.750"
 SPECIMEN WIDTH: 5.500"
 REFERENCES: 84360

ALUM.
 ALLOY

2024

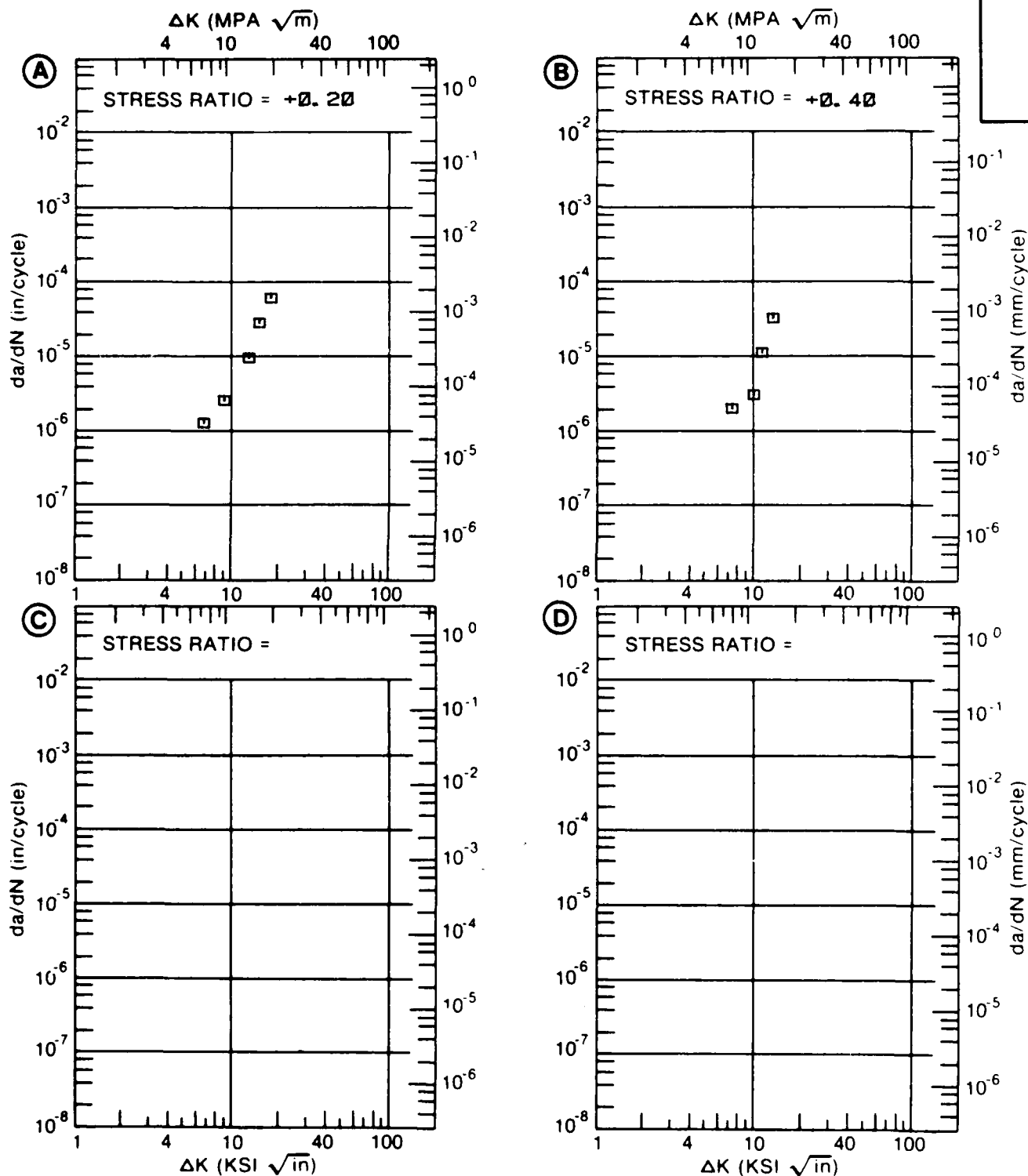


Figure 7.5.3.62

TABLE 7.5.3.63

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.63 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM
CONDITION: T851

2024

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

A

B

C

D

E= R. T.
DRY AIR

E= R. T.
LAB AIR

E= R. T.
JP-4 FUEL

DELTA K A:
MIN B: 6.40
C: 6.66
D:

1.10

.95

7.00
8.00
9.00
10.00
13.00
16.00
20.00
25.00

1.41
2.04
2.86
3.92
9.28
20.6
57.0
192.

1.19
2.14
3.50
5.36
14.4
29.3
58.8
109.

DELTA K A:
MAX B: 25.87
C: 29.26
D:

236.

162.

ROOT MEAN SQUARE
PERCENT ERROR

0.00

78.83

32.26

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT. T851
 FORM 2.00- 3.00" TH PLATE
 SPECIMEN TYPE DCB
 ORIENTATION L-T
 STRESS RATIO +0.02
 FREQUENCY 1.00- 10.00 HZ

YIELD STRENGTH: 59.0- 64.0 KSI
 ULT. STRENGTH: 66.0- 71.0 KSI
 SPECIMEN THK: 0.750- 1.000"
 SPECIMEN WIDTH: 5.500"
 REFERENCES: 84360

ALUM.
 ALLOY

2024

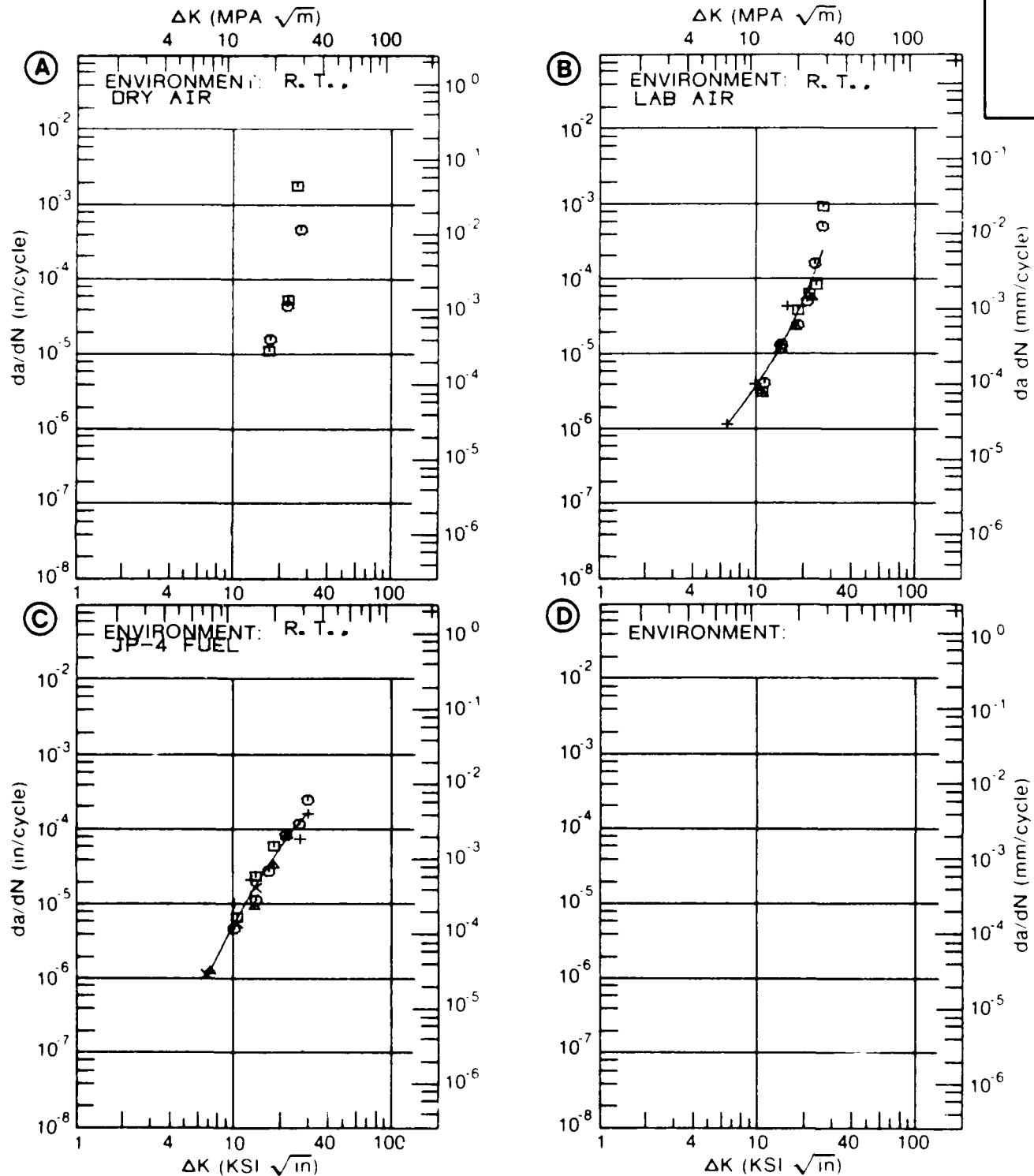


Figure 7.5.3.63

TABLE 7.5.3.64

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.64 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.	E= R. T.		
		3. 5% NACL	SIMULATED FUEL		
A:	9. 58	6. 74			
DELTA K B:	9. 62		5. 14		
MIN C:					
D:					
	10. 00	7. 28	6. 23		
	13. 00	14. 8	16. 7		
	16. 00	31. 5	34. 4		
	20. 00	74. 2			
A:	24. 72	156.			
DELTA K B:	19. 61		97. 2		
MAX C:					
D:					
ROOT MEAN SQUARE		37. 42	22. 28		
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 2.00- 3.00" TH PLATE
 SPECIMEN TYPE: DCB
 ORIENTATION: L-T
 STRESS RATIO: +0.02
 FREQUENCY: 1.00- 10.00 HZ

YIELD STRENGTH: 59.0- 64.0 KSI
 ULT. STRENGTH: 66.0- 71.0 KSI
 SPECIMEN THK: 0.625- 0.875"
 SPECIMEN WIDTH: 5.500"
 REFERENCES: 84360

ALUM.
 ALLOY

2024

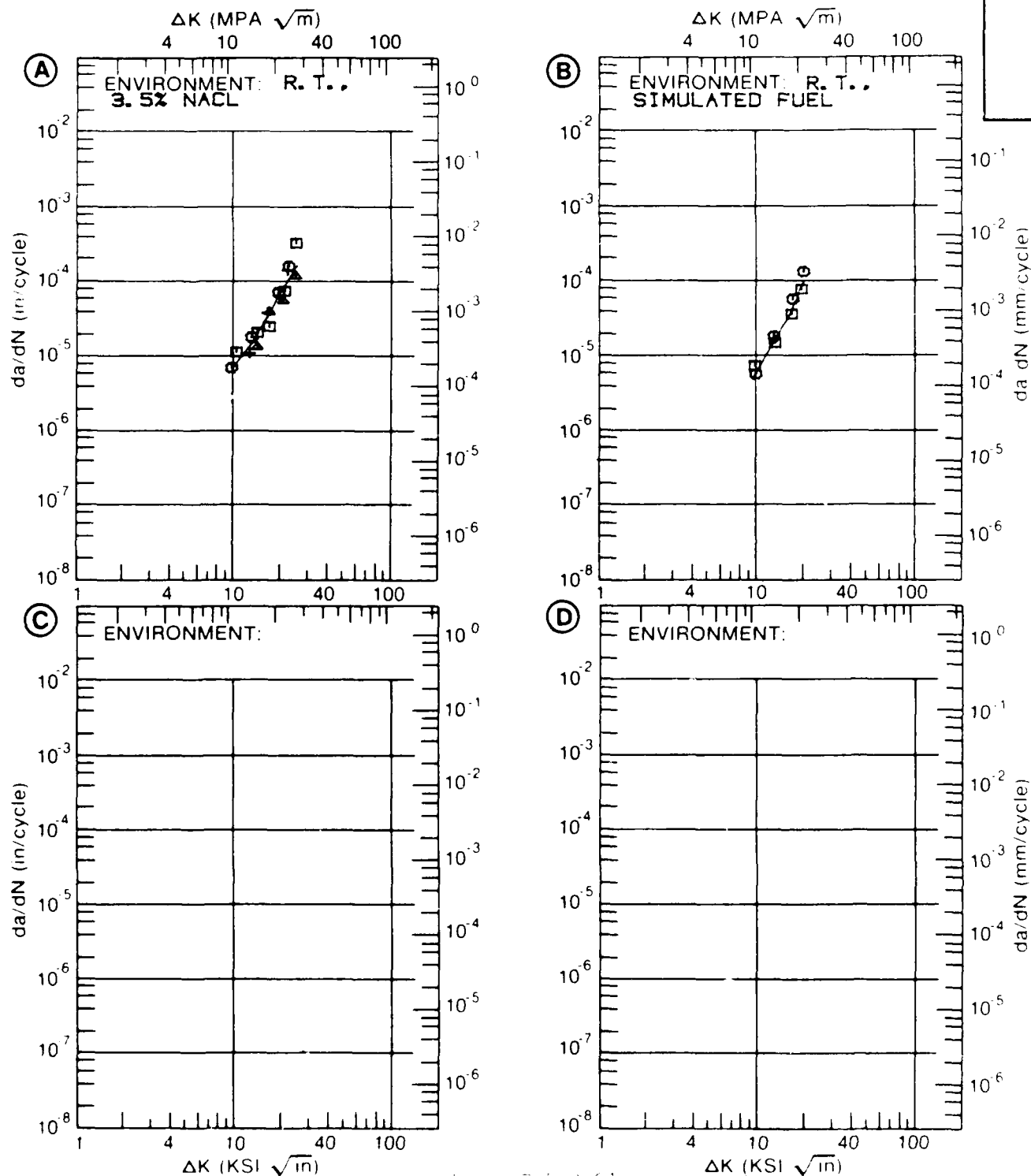


Figure 7.5.3.64

TABLE 7.5.3.65

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.65 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T851
 ENVIRONMENT: R. T. , L. H. A.

DELTA K
 (KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

A

B

C

D

R=+0.08

DELTA K A: 6.45
 B:
 MIN C:
 D:

7.00 : 2.06
 8.00 : 4.10
 9.00 : 6.40
 10.00 : 8.93
 13.00 : 22.1
 16.00 : 74.3

DELTA K A: 16.92
 B:
 MAX C:
 D:

140.

ROOT MEAN SQUARE 17.92
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

2

CONDITION/HT: T851
 FORM: 3.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 51.0- 66.0 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 0.990- 1.000"
 SPECIMEN WIDTH: 5.990- 6.010"
 REFERENCES 88579

ALUM.
 ALLOY

2024

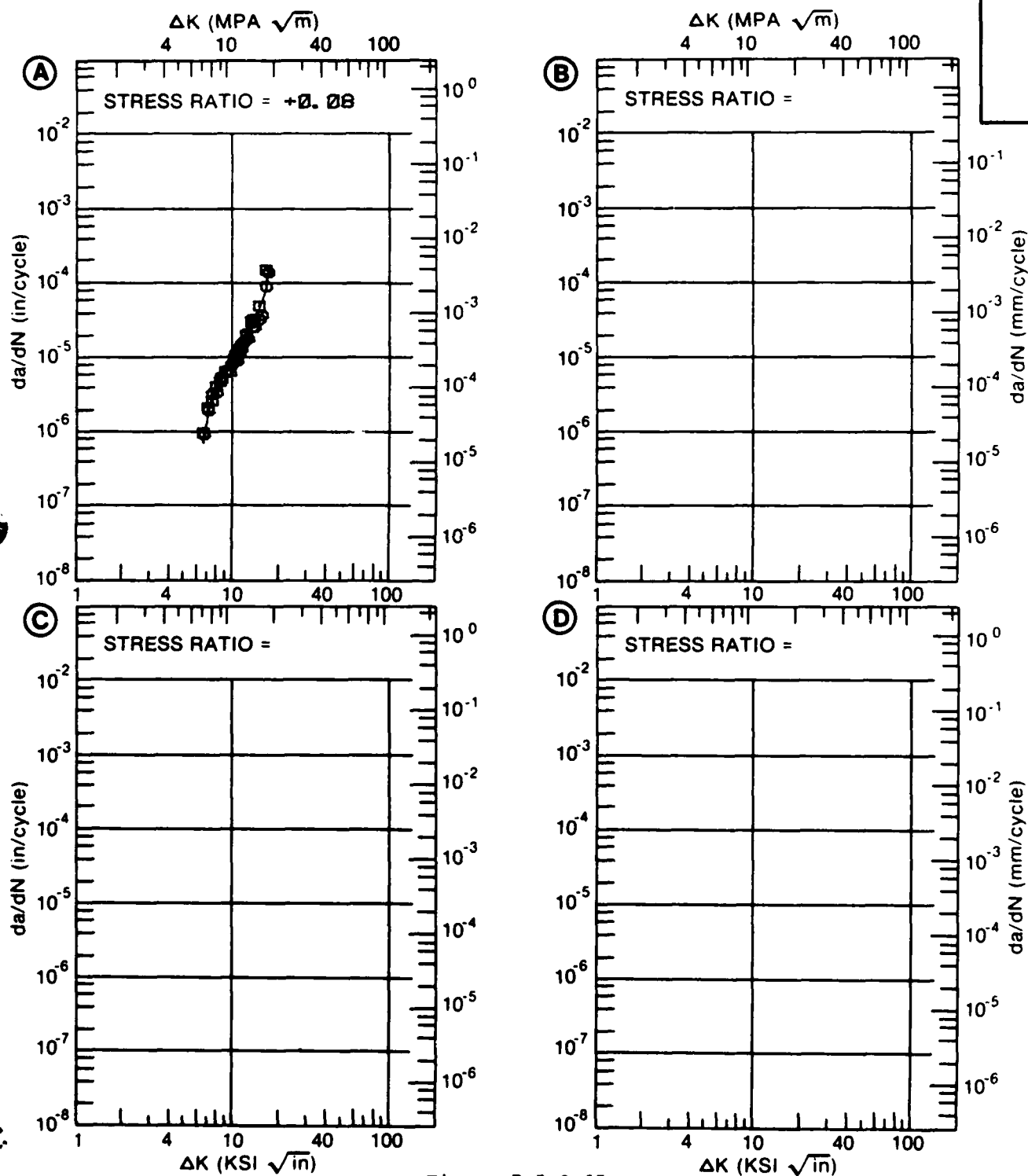


Figure 7.5.3.65

TABLE 7.5.3.66

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.66 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , L. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08			
DELTA K MIN	A:	7.09	1.36		
	B:				
	C:				
	D:				
		8.00	2.39		
		9.00	3.81		
		10.00	5.52		
		13.00	12.5		
		16.00	24.4		
DELTA K MAX	A:	19.44	52.0		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		5.86			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 3.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 66.0 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 0.494"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 85837

ALUM.
 ALLOY

2024

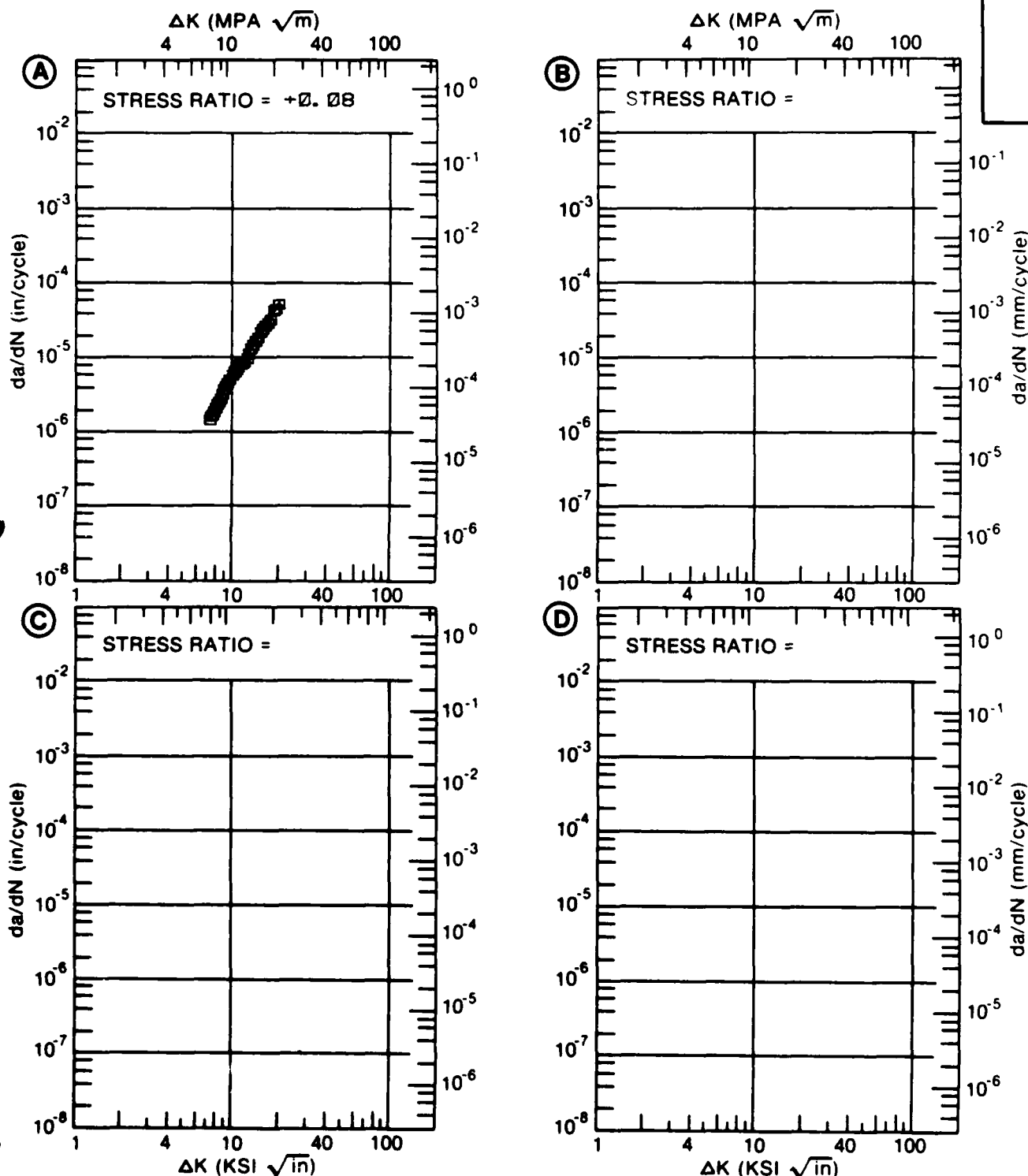


Figure 7.5.3.66

TABLE 7.5.3.67

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.67 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , L. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.30			
DELTA K MIN	A:	6.19	2.25		
	B:				
	C:				
	D:				
		7.00	3.42		
	8.00	5.46			
	9.00	8.45			
	10.00	12.9			
DELTA K MAX	A:	12.46	36.2		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		11.31			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0	1			
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 3.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 86.0 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 6.000"
 REFERENCES 98579

ALUM.
 ALLOY

2024

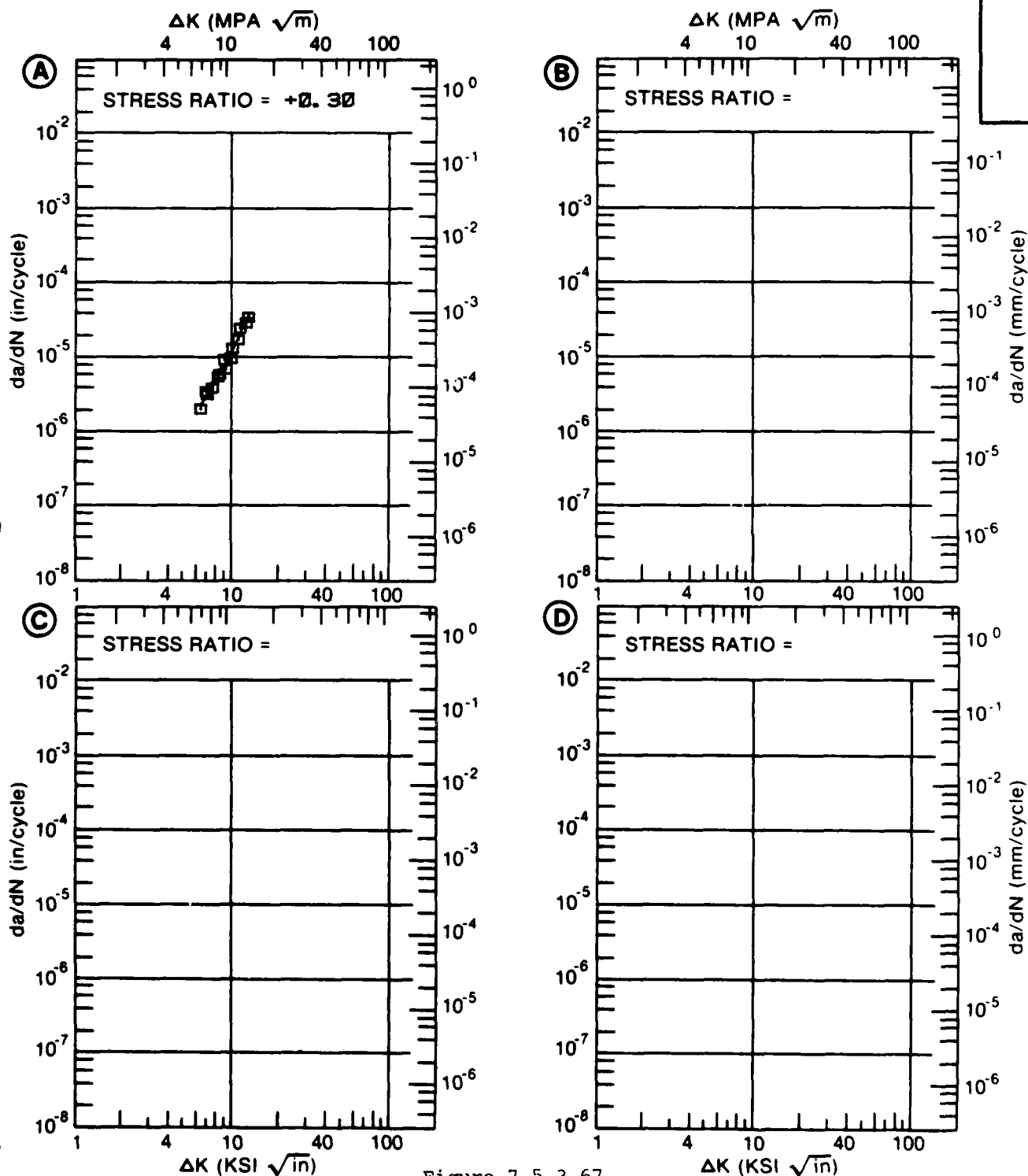


Figure 7.5.3.67

TABLE 7.5.3.68

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.68 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. J. P. 4	E= R. T. DIST. H2O	E= R. T. S. T. W.
DELTA K	A: 7.16	1.75			
MIN	B: 5.85		.987		
	C: 5.87			1.51	
	D: 7.37				2.71
	6.00		1.13	1.57	
	7.00		2.38	2.43	
	8.00	2.99	4.06	3.79	3.52
	9.00	4.91	6.12	5.22	5.34
	10.00	7.27	8.55	6.99	7.92
	13.00	17.4	19.	23.0	19.8
	16.00	34.8	39.5	112.	35.6
	20.00		108.		112.
DELTA K	A: 19.69	78.9			
MAX	B: 21.48		241.		
	C: 16.35			211.	
	D: 22.77				415.
ROOT MEAN SQUARE		15.20	10.17	21.77	15.52
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	1	1	2
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 3.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 1.00 HZ

YIELD STRENGTH: 59.0- 66.0 KSI
 ULT. STRENGTH: 71.0- 74.0 KSI
 SPECIMEN THK: 0.990- 1.000"
 SPECIMEN WIDTH: 5.990- 6.000"
 REFERENCES: 88579

ALUM.
 ALLOY

2024

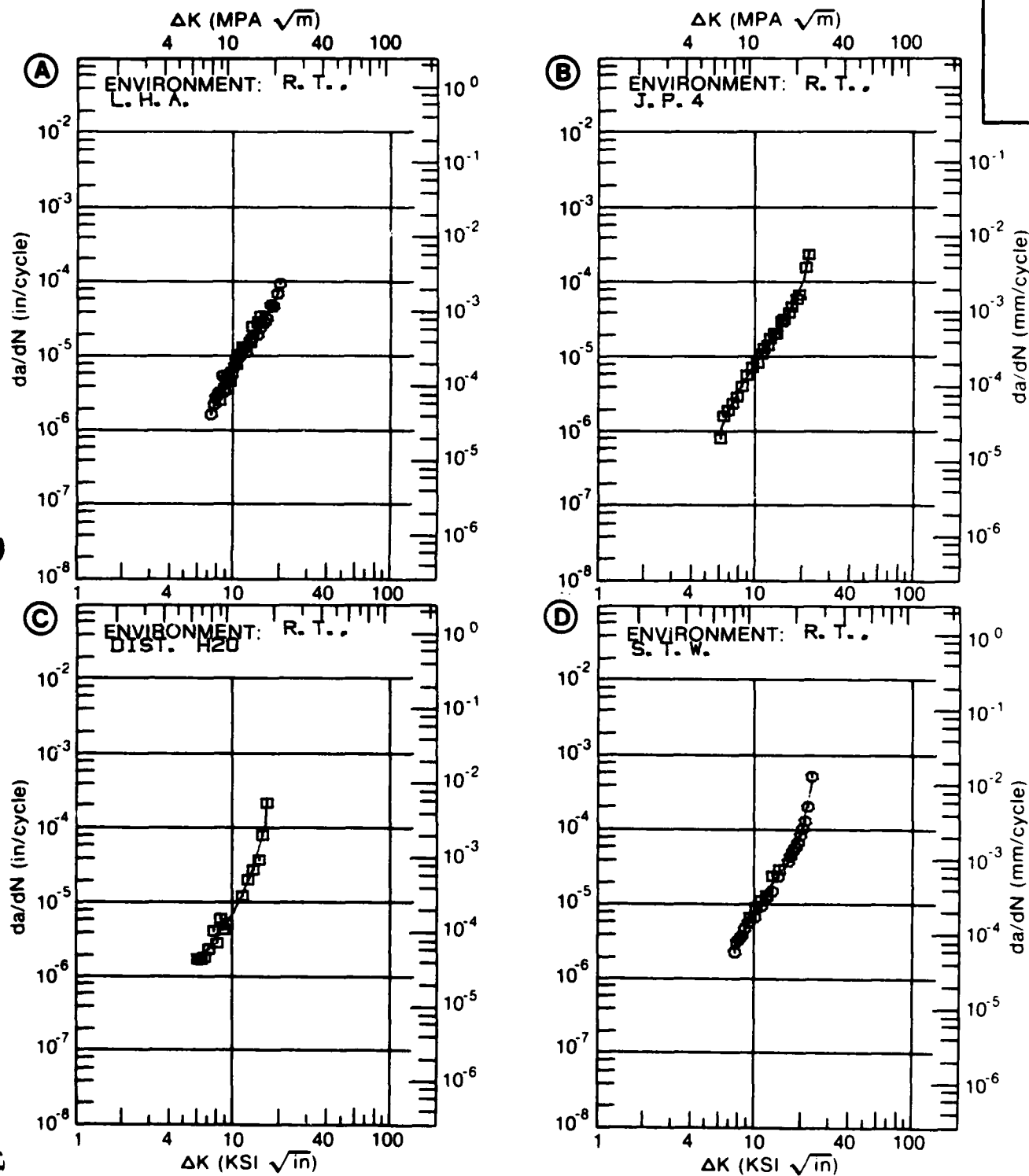


Figure 7.5.3.68

TABLE 7.5.3.69

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.69 INDICATING EFFECT
OF FREQUENCY**

MATERIAL: ALUMINUM 2024
CONDITION: T851
ENVIRONMENT: R. T. , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		F(HZ)= 1.00	F(HZ)= 6.00		
DELTA K MIN	A:	9.67	4.65		
	B:	6.86	1.67		
	C:				
	D:				
	7.00		1.92		
	8.00		4.12		
	9.00		6.66		
	10.00	5.90	9.45		
	13.00	17.6	24.5		
	16.00	50.2			
DELTA K MAX	A:	16.70	72.4		
	B:	15.93	88.2		
	C:				
	D:				
ROOT MEAN SQUARE		13.07	13.08		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 3.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 65.0 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.990- 6.000"
 REFERENCES: 88579

ALUM.
 ALLOY

2024

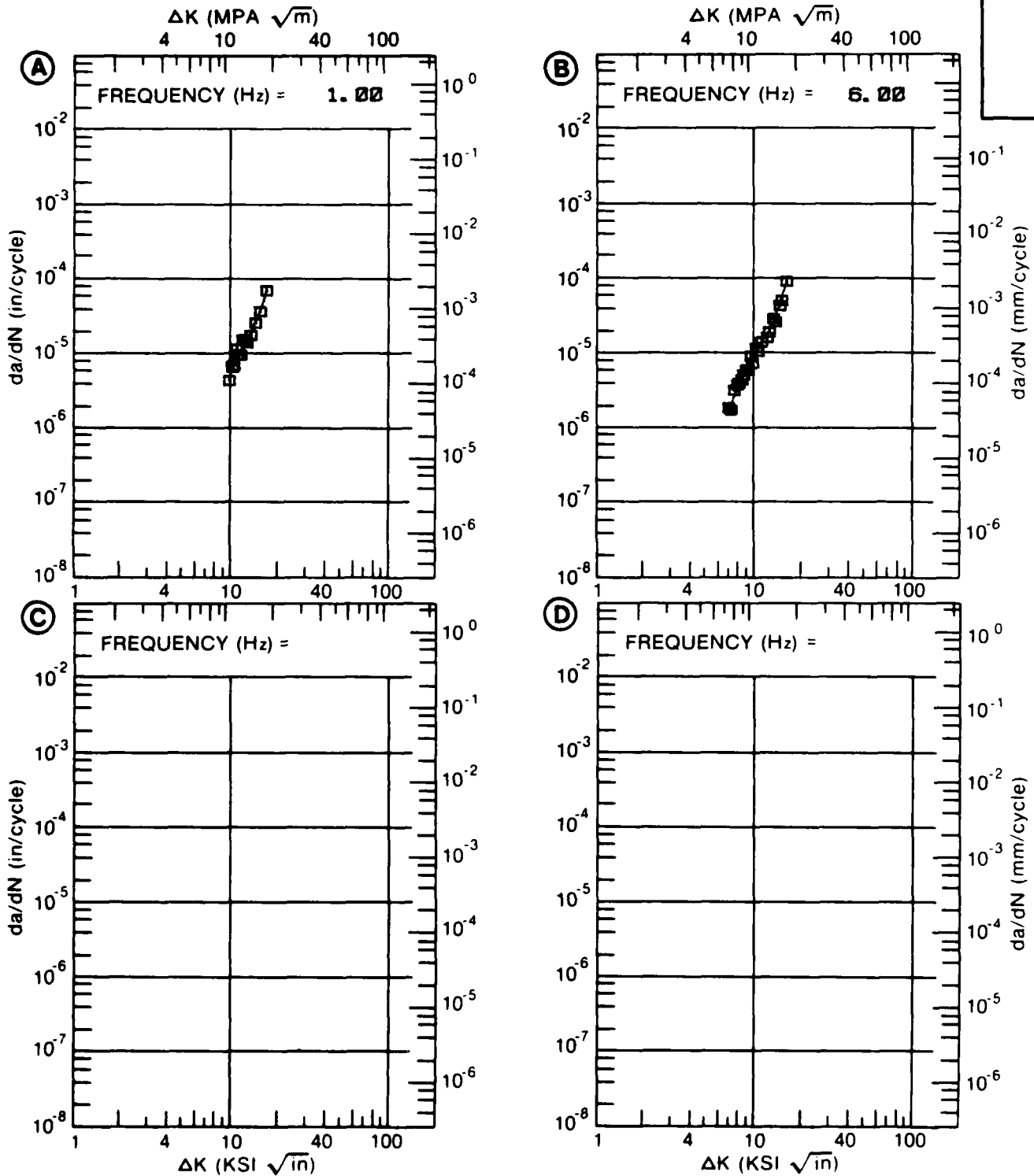


Figure 7.5.3.69

TABLE 7.5.3.70

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.70 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024			
CONDITION: T851					
ENVIRONMENT: R. T. , 3.5% NaCl					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A:	8.35	9.90		
	B:				
	C:				
	D:				
		9.00	10.5		
		10.00	18.2		
		13.00	62.2		
DELTA K MAX	A:	14.30	228.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		38.36			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	2			
RATIO	0.8-1.25	1			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 0.10- 10.00 HZ
 ENVIRONMENT: R. T., 3.5% NaCl

YIELD STRENGTH: 64.6 KSI
 ULT. STRENGTH: 71.3 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: 90981

ALUM.
 ALLOY

2024

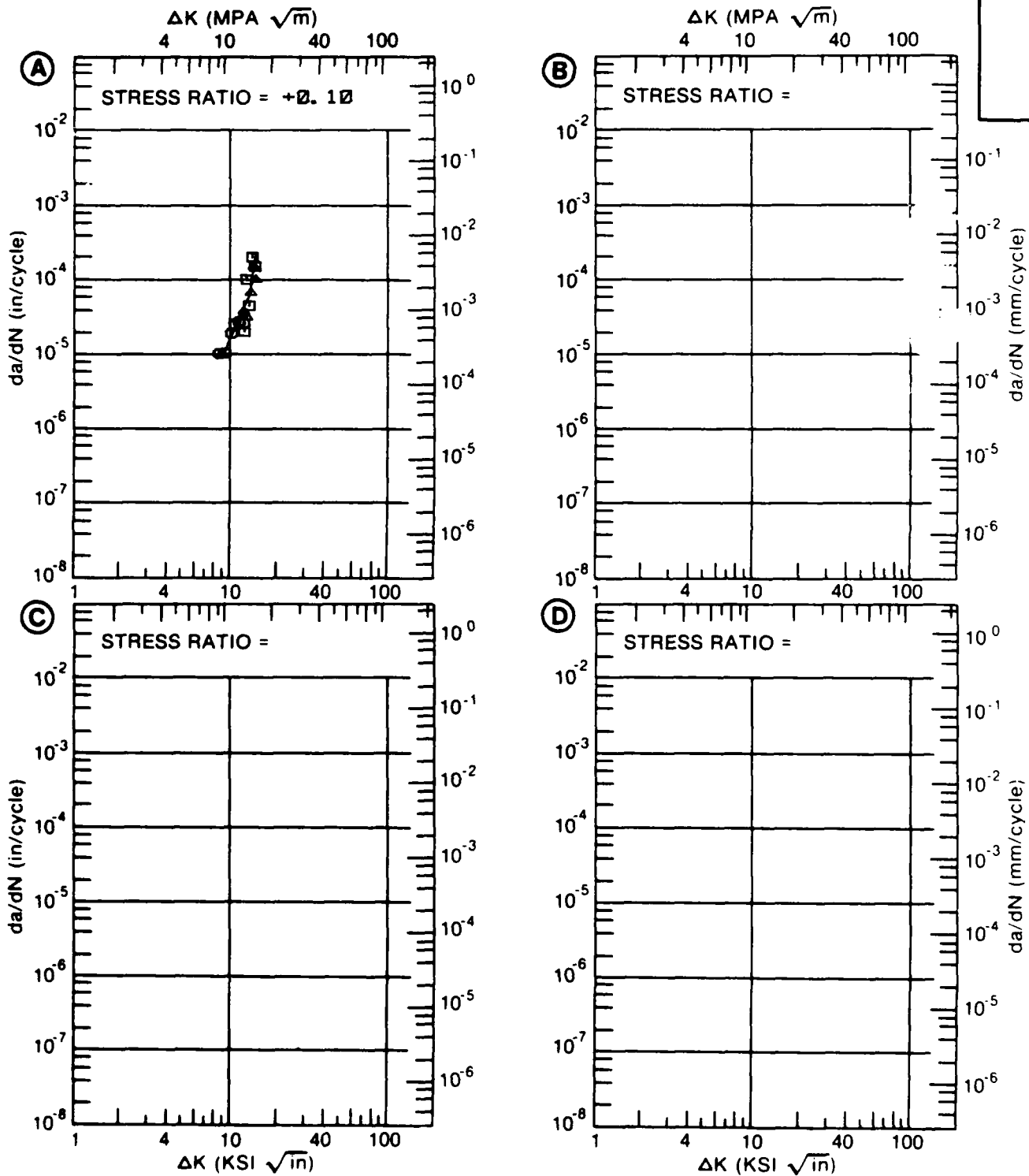


Figure 7.5.3.70

TABLE 7.5.3.71

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.71 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: T852
ENVIRONMENT: R. T. , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08			
DELTA K MIN	A:	5.43	1.19		
	B:				
	C:				
	D:				
	6.00	1.36			
	7.00	1.74			
	8.00	2.25			
	9.00	2.91			
	10.00	3.72			
	13.00	7.43			
	16.00	13.6			
	20.00	27.4			
DELTA K MAX	A:	21.81	36.3		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 19.83
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 3
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T852
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 53.0 KSI
 ULT. STRENGTH: 68.0- 70.0 KSI
 SPECIMEN THK: 0.250- 0.502"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 88579, 85837

ALUM.
 ALLOY

2024

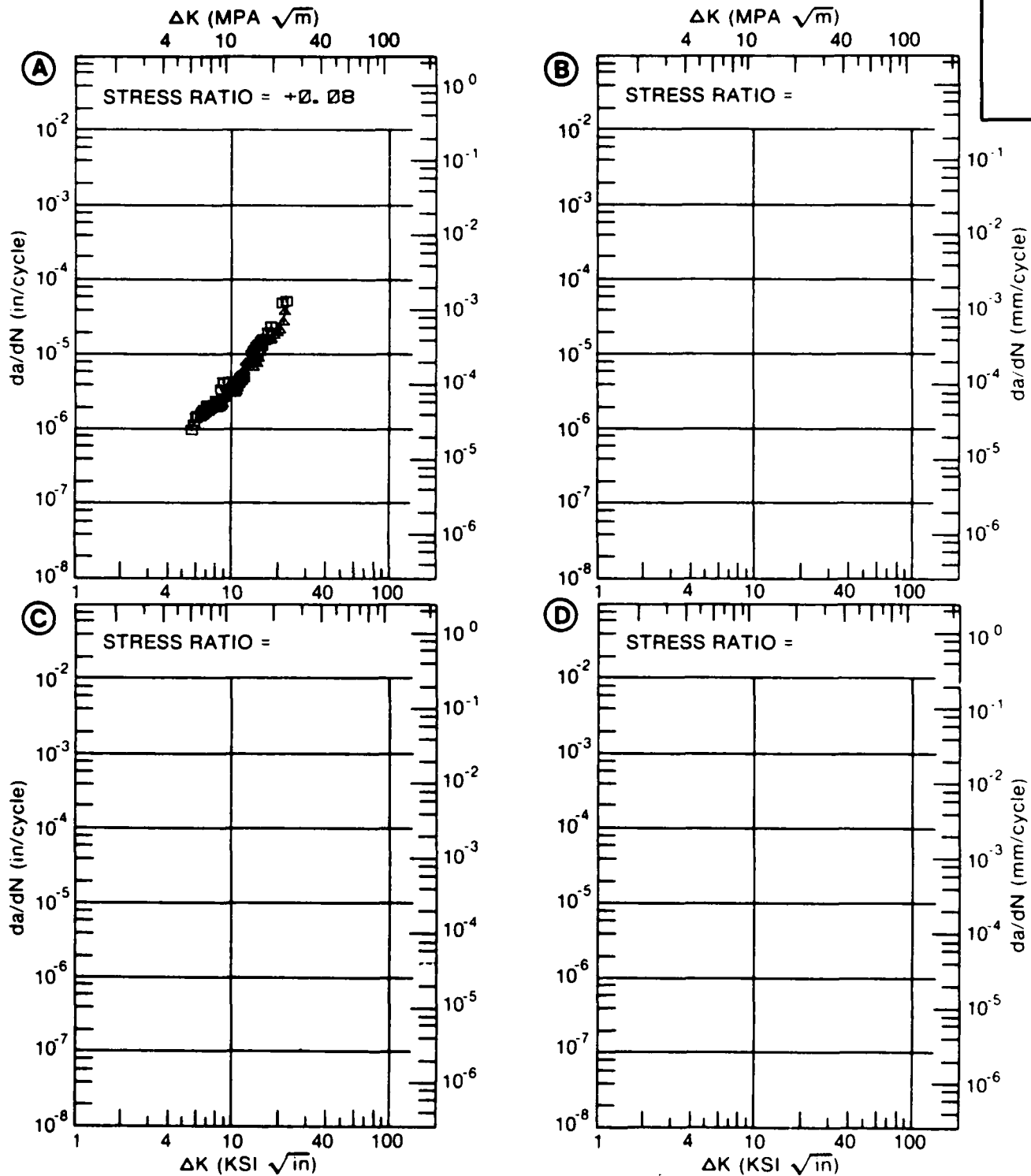


Figure 7.5.3.71

TABLE 7.5.3.72

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.72 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2024
CONDITION: T852

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. S. C. S.			
DELTA K MIN	A:	4.09	.688		
	B:				
	C:				
	D:				
		5.00	1.69		
		6.00	2.36		
		7.00	3.49		
DELTA K MAX		8.00	5.12		
		9.00	7.30		
		10.00	9.98		
		13.00	19.8		
	A:	14.86	25.5		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 9.72
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T852
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 1.00 HZ

YIELD STRENGTH: 53.0 KSI
 ULT. STRENGTH: 70.0 KSI
 SPECIMEN THK: 1.004"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

2024

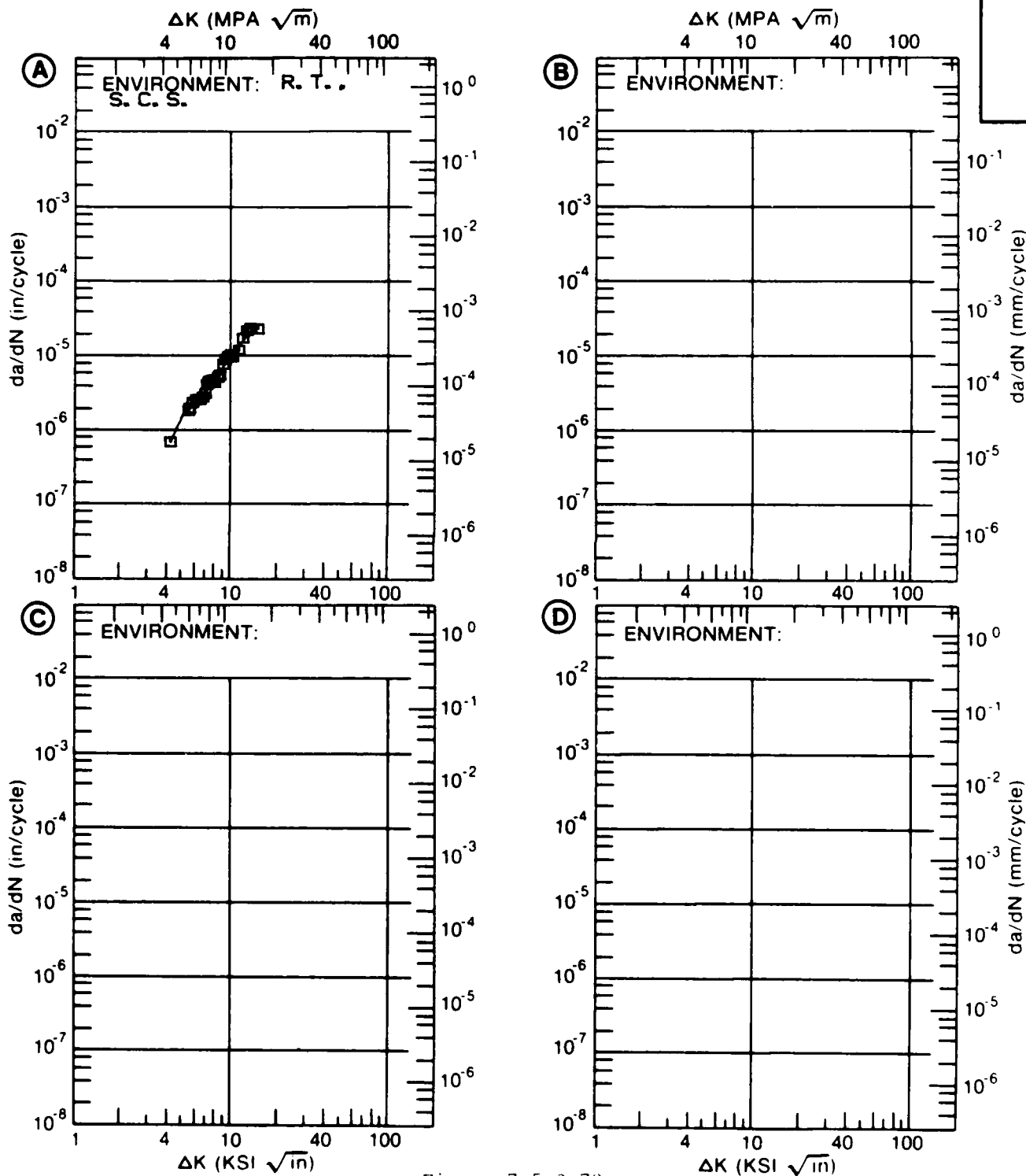


Figure 7.5.3.72

TABLE 7.5.3.73

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.73 INDICATING EFFECT
OF FREQUENCY

MATERIAL: ALUMINUM 2024
CONDITION: T852
ENVIRONMENT: R. T. , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		F(HZ)= 0.10		F(HZ)= 1.00	
DELTA K MIN	A: 6.91	1.57			
	B: 3.80		.373		
	C:				
	D:				
	4.00		.462		
	5.00		1.06		
	6.00		1.94		
	7.00	1.65	3.14		
	8.00	2.73	4.75		
	9.00	4.12	6.90		
DELTA K MAX	10.00	5.88	9.81		
	13.00	14.7	26.3		
	16.00	34.4			
	A: 16.31	37.6			
	B: 14.60		43.9		
	C:				
	D:				
ROOT MEAN SQUARE		6.74	17.41		
PERCENT ERROR					

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

1

1

CONDITION/HT: T852
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 53.0 KSI
 ULT. STRENGTH: 70.0 KSI
 SPECIMEN THK: 1.000- 1.002"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

2024

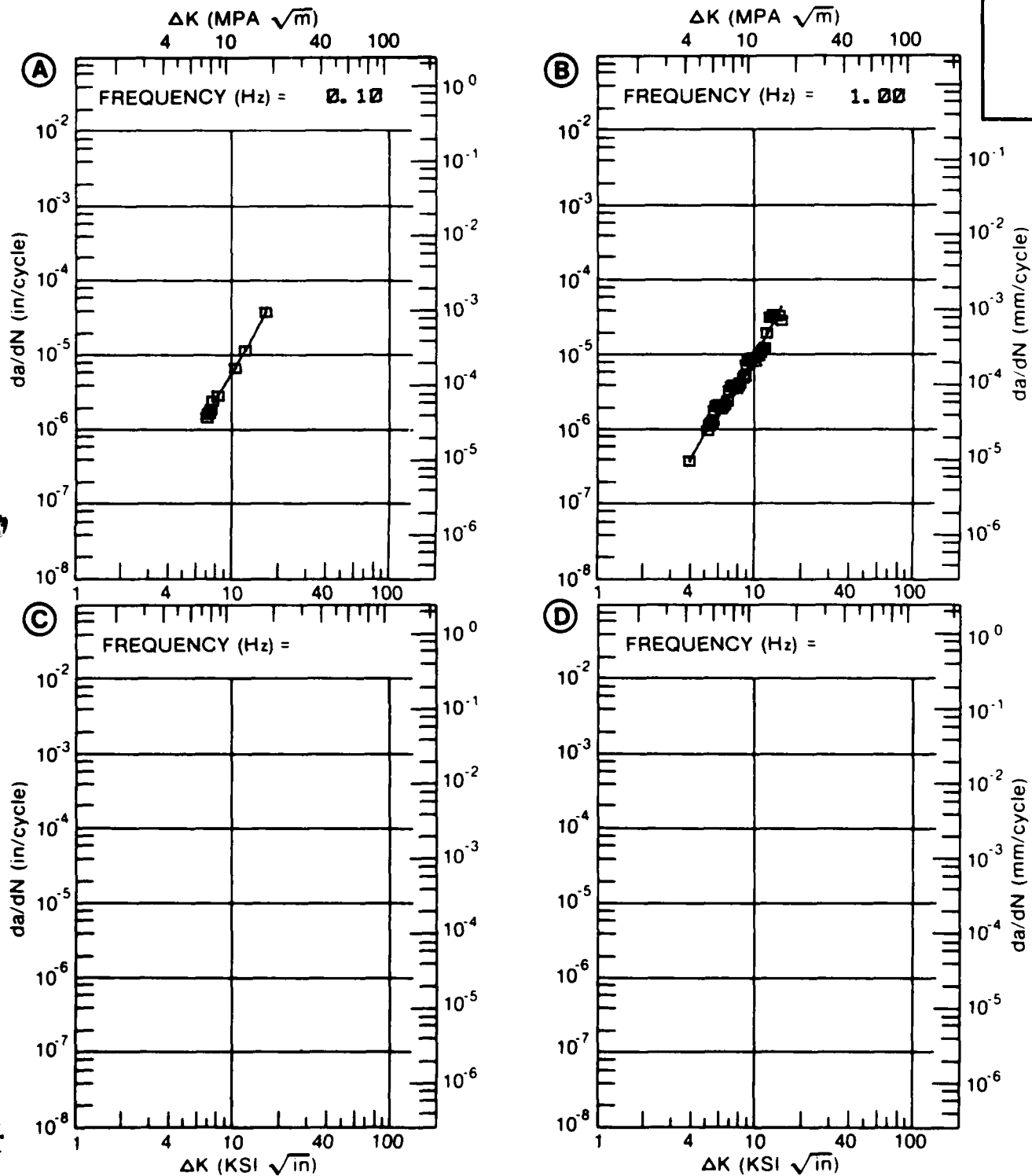


Figure 7.5.3.73

TABLE 7.5.3.74

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.74 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM 2024
CONDITION: T852

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

A

B

C

D

E=+ 265F

L. H. A

DELTA K A: 6.27 : 1.60
B:
MIN C:
D:

7.00 : 2.50
8.00 : 4.25
9.00 : 6.77
10.00 : 10.3
13.00 : 29.2
16.00 : 74.9

DELTA K A: 17.44 : 155.
B:
MAX C:
D:

ROOT MEAN SQUARE 15.22
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T852
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY: 6.00 HZ

YIELD STRENGTH: 54.0 KSI
 ULT. STRENGTH: 68.0 KSI
 SPECIMEN THK: 0.999"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

2024

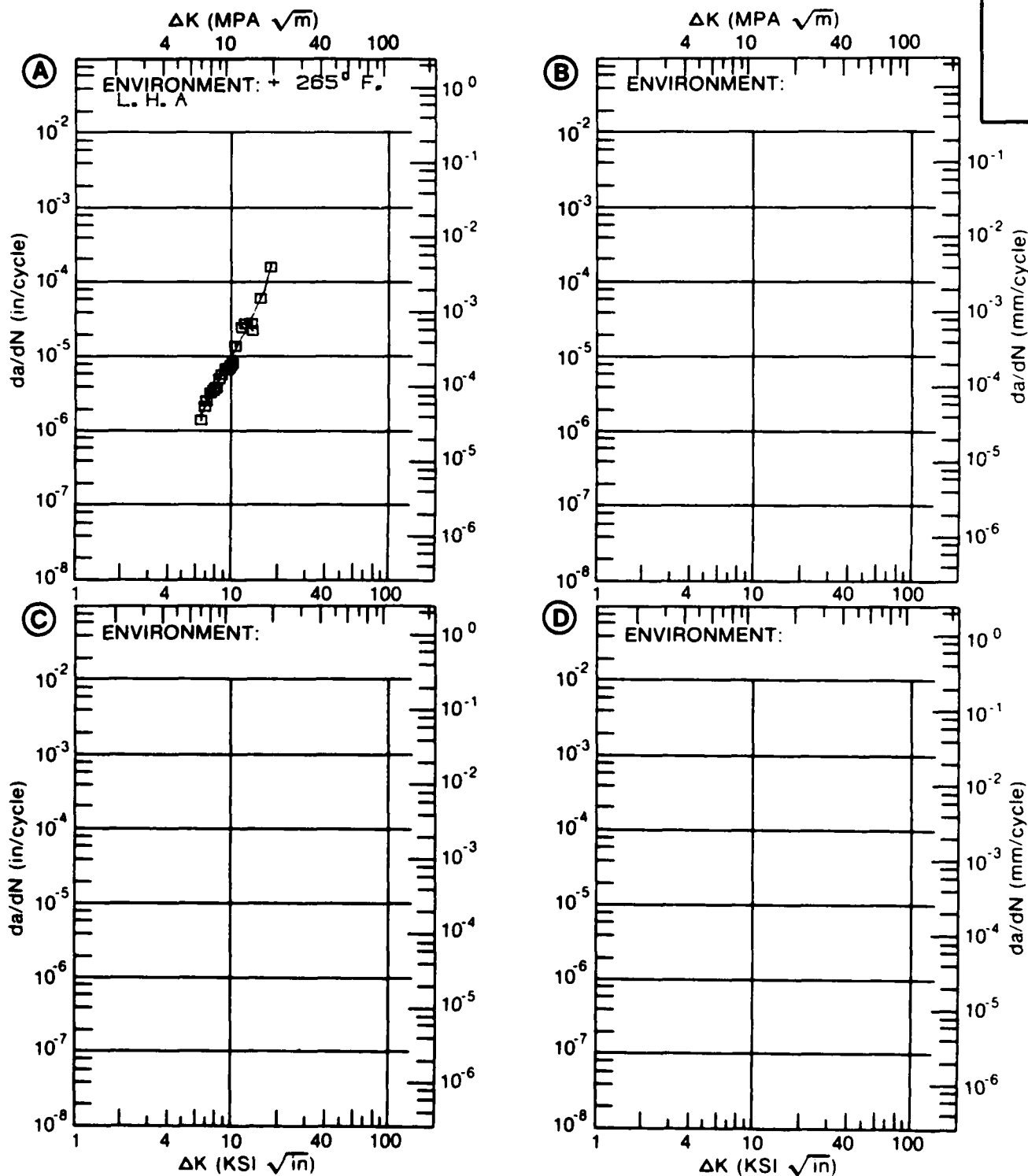


Figure 7.5.3.74

TABLE 7.5.3.75

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.75 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2024			
CONDITION: T852					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T.			
		S. T. W.			
DELTA K MIN	A:	8.03	2.81		
	B:				
	C:				
	D:				
		9.00	3.50		
		10.00	5.19		
		13.00	18.5		
DELTA K MAX	A:	15.99	36.5		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		22.22			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25	1			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T852
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY: 1.00 HZ

YIELD STRENGTH: 54.0 KSI
 ULT. STRENGTH: 68.0 KSI
 SPECIMEN THK: 0.998- 0.999"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

2024

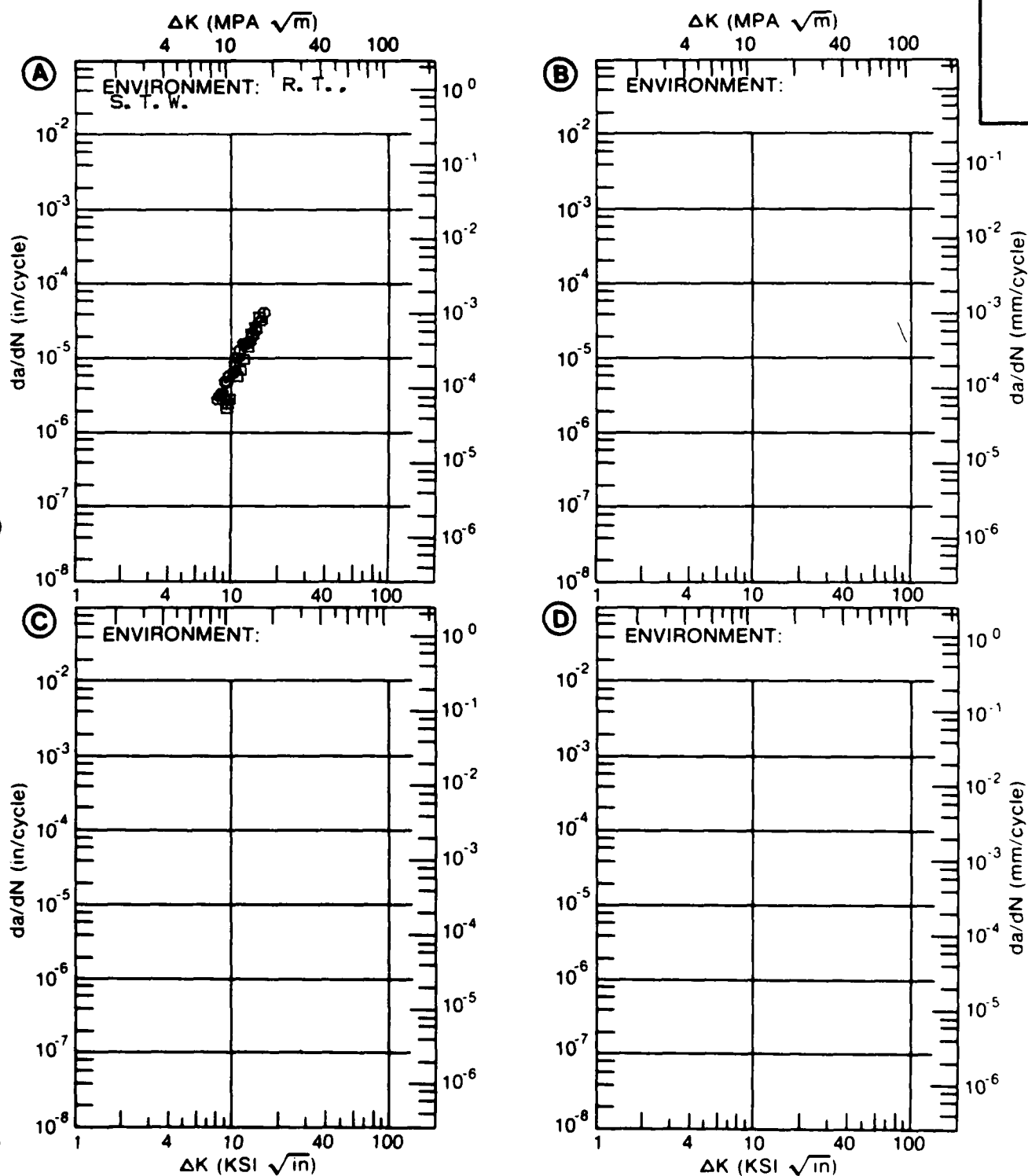


Figure 7.5.3.75

TABLE 7.5.3.76

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.5.3.76 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T852
 ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.33			
DELTA K MIN	A: 6.07	1.26			
	B:				
	C:				
	D:				
	7.00	2.13			
	8.00	3.14			
	9.00	4.25			
	10.00	5.59			
	13.00	13.5			
DELTA K MAX	A: 15.89	39.3			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 30.64
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8 1
 RATIO 0.8-1.25 4
 SUMMARY 1.25-2.0 1
 (NP/NA) >2.0

CONDITION/HT: T852
 FORM: 6.00" TH FORGING
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 5.17 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.750"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: 77720

ALUM.
 ALLOY

2024

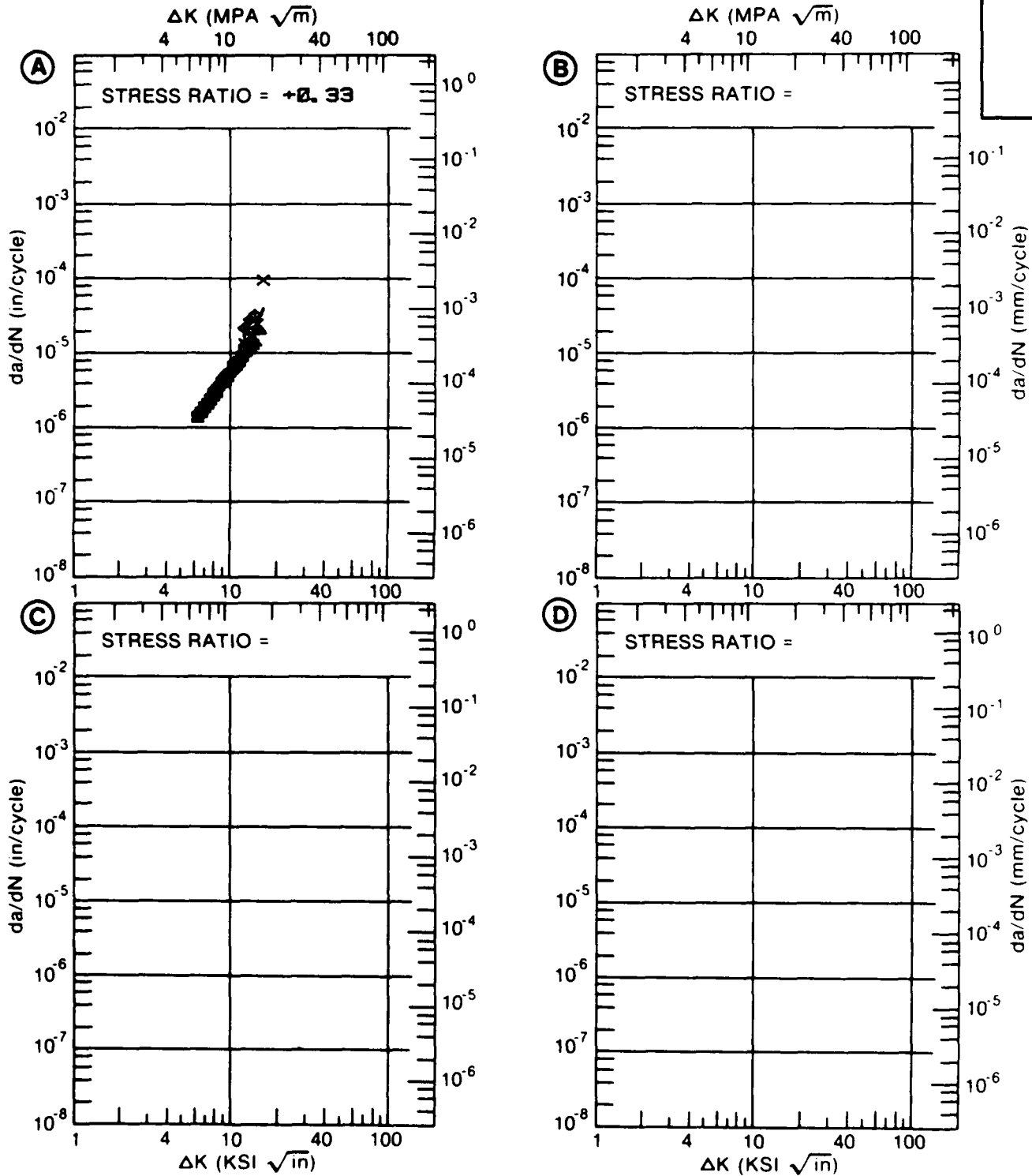


Figure 7.5.3.76

TABLE 7.5.3.77

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.77 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
CONDITION: TB61
ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A:	20.67	104.		
	B:				
	C:				
	D:				
		25.00	236.		
		30.00	570.		
		35.00	3094.		
DELTA K MAX	A:	38.64	20484.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 31.76
PERCENT ERROR

LIFE	0.0-0.5	1
PREDICTION	0.5-0.8	4
RATIO	0.8-1.25	3
SUMMARY	1.25-2.0	1
(NP/NA)	>2.0	

CONDITION/HT: T861
 FORM: 0.02" TH SHEET
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 0.10- 1.00 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 65.7 KSI
 ULT. STRENGTH: 70.8 KSI
 SPECIMEN THK: 0.020"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 88578

ALUM.
 ALLOY

2024

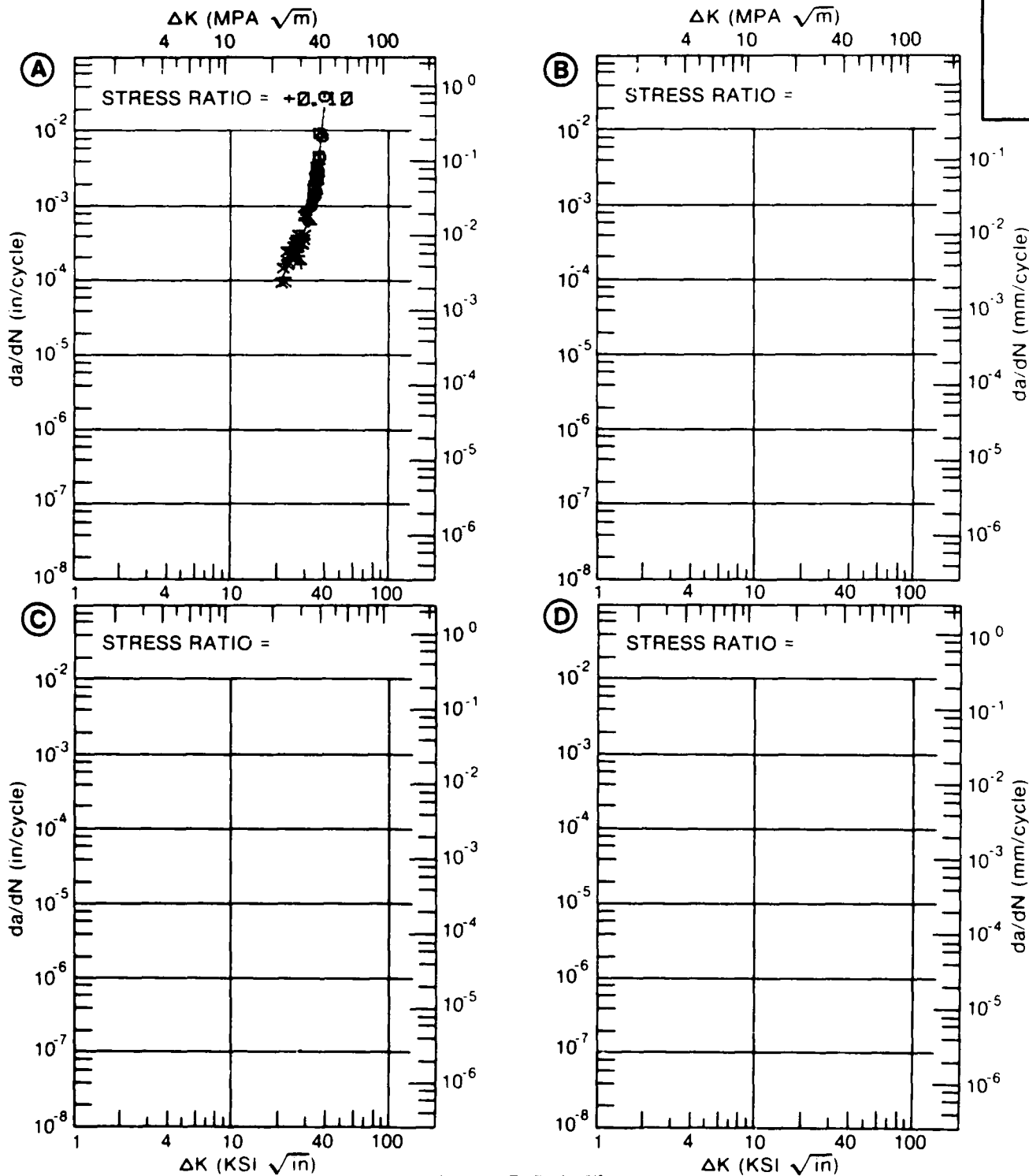


Figure 7.5.3.77

TABLE 7.5.3.78

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.78 INDICATING EFFECT
OF FREQUENCY

MATERIAL: ALUMINUM		2024	
CONDITION: T861			
ENVIRONMENT: R. T. , LAB AIR			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)	
		A	B
		F(HZ)= 2.00-9.00	F(HZ)= 10.00-13.00
DELTA K MIN	A:	8.65	4.75
	B:	3.38	.438
	C:		
	D:		
	3.50		.463
	4.00		.591
	5.00		.998
	6.00		1.68
	7.00		2.73
	8.00		4.27
	9.00	6.59	6.44
DELTA K MAX	10.00	8.06	9.37
	13.00	17.4	24.1
	16.00	40.3	49.8
	20.00	99.9	
	A:	22.81	156.
	B:	18.90	86.5
	C:		
	D:		
ROOT MEAN SQUARE		14.48	22.93
PERCENT ERROR			
LIFE	0.0-0.5		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25	4	9
SUMMARY	1.25-2.0		
(NP/NA)	>2.0		

CONDITION/HT: T861
 FORM: 0.02" TH SHEET
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.10
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 65.7 KSI
 ULT. STRENGTH: 70.8 KSI
 SPECIMEN THK: 0.020"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 88578

ALUM.
 ALLOY

2024

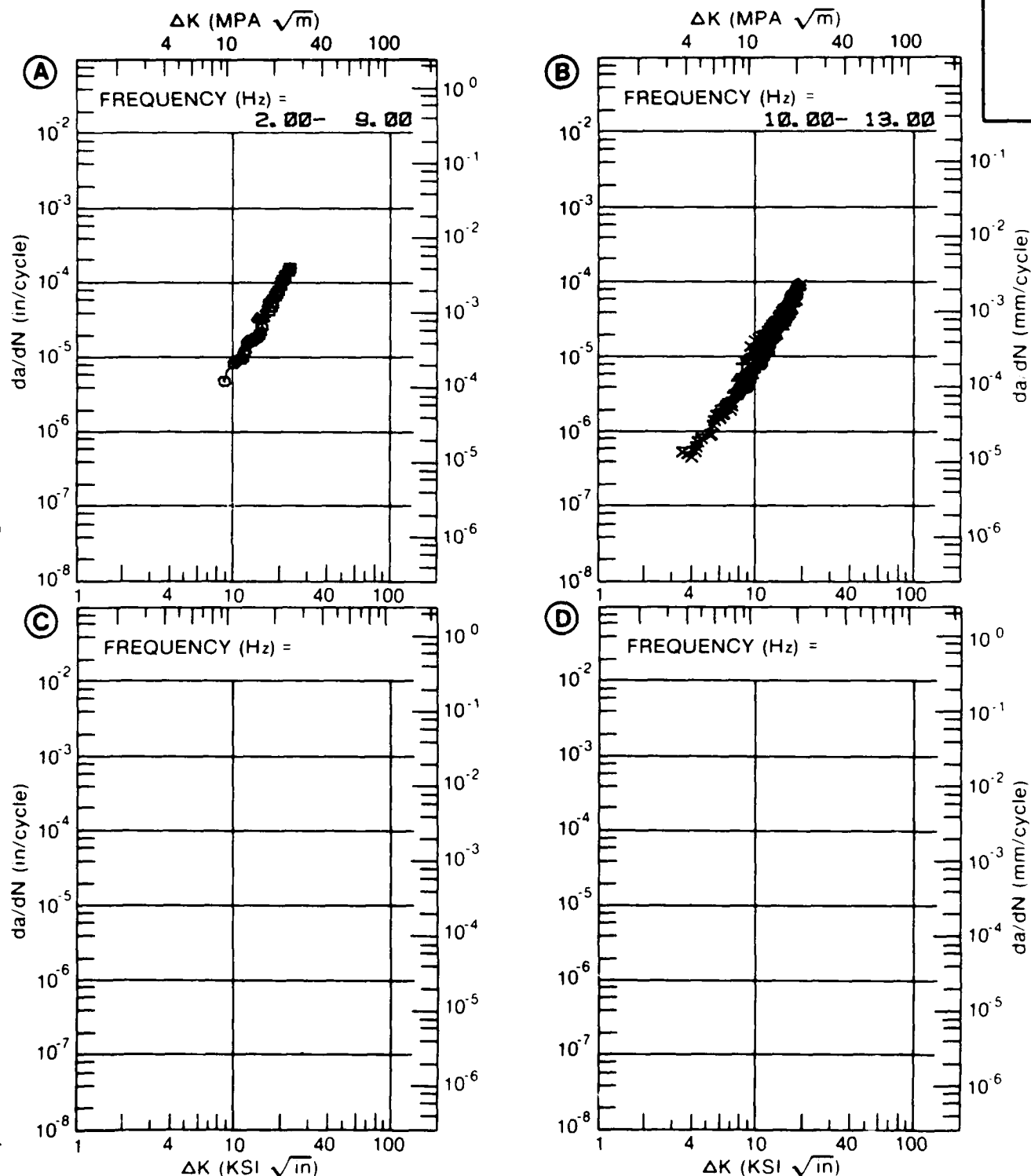


Figure 7.5.3.78

TABLE 7.5.3.79

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.79 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2024	
CONDITION: T861			
ENVIRONMENT: R. T. , LAB AIR			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)	
		A	B
		R=+0.08	R=+0.10
A: 4.55		.48	
DELTA K B:			
MIN C:			
D:			
5.00		.710	
6.00		1.40	
7.00		2.41	
8.00		3.87	
9.00		5.99	
10.00		9.12	
13.00		31.4	
16.00		111.	
20.00		595.	
25.00		2845.	
A: 26.94		11616.	
DELTA K B:			
MAX C:			
D:			
ROOT MEAN SQUARE		19.73	0.00
PERCENT ERROR			
LIFE 0.0-0.5			
PREDICTION 0.5-0.8			
RATIO 0.8-1.25		3	
SUMMARY 1.25-2.0			
(NP/NA) >2.0			

CONDITION/HT: T861
 FORM: 0.09" TH SHEET
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 0.10- 15.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 73.0 KSI
 ULT. STRENGTH: 76.6 KSI
 SPECIMEN THK: 0.090"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 88578

ALUM.
 ALLOY

2024

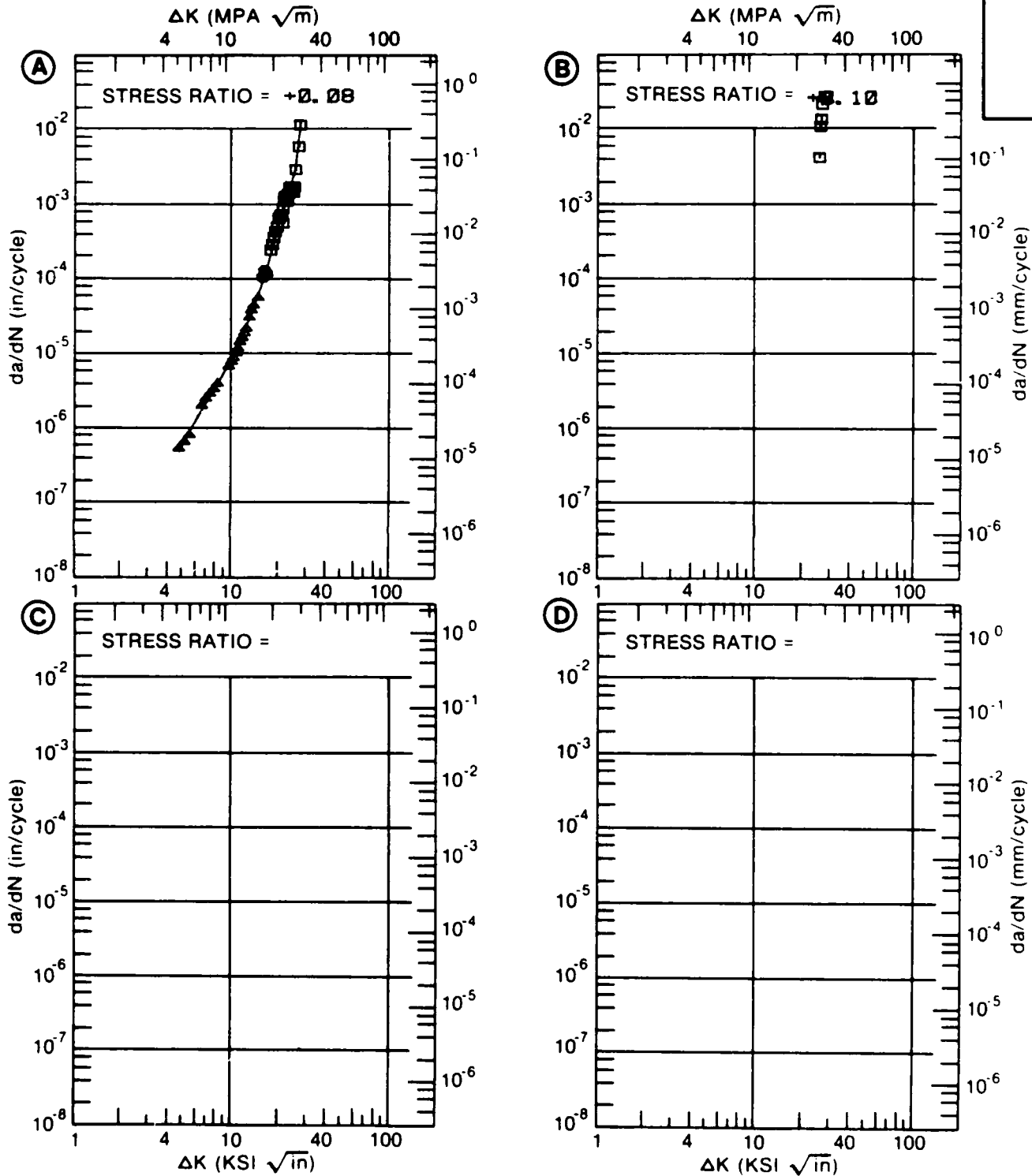


Figure 7.5.3.79

TABLE 7.5.3.80

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.80 INDICATING EFFECT
OF FREQUENCY**

MATERIAL: ALUMINUM		2024			
CONDITION: T861					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		F(HZ)= 0.10-0.40	F(HZ)= 1.00-10.00	F(HZ)= 10.00-20.00	
DELTA K	A: 16.87	167.			
MIN	B: 13.66		65.8		
	C: 4.64			.90	
	D:				
	5.00			1.05	
	6.00			1.63	
	7.00			2.57	
	8.00			4.06	
	9.00			6.40	
	10.00			10.0	
	13.00			36.3	
	16.00		175.	121.	
	20.00	696.	642.		
	25.00	6906.			
DELTA K	A: 27.35	22814.			
MAX	B: 20.30		893.		
	C: 17.18			190.	
	D:				
ROOT MEAN SQUARE		28.81	12.20	17.24	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8		1	1	
RATIO	0.8-1.25	2	3	6	
SUMMARY	1.25-2.0	1	1		
(NP/NA)	>2.0				

CONDITION/HT: T861
 FORM: 0.09" TH SHEET
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.10
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 73.0 KSI
 ULT. STRENGTH: 76.6 KSI
 SPECIMEN THK: 0.090"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 88578

ALUM.
 ALLOY

2024

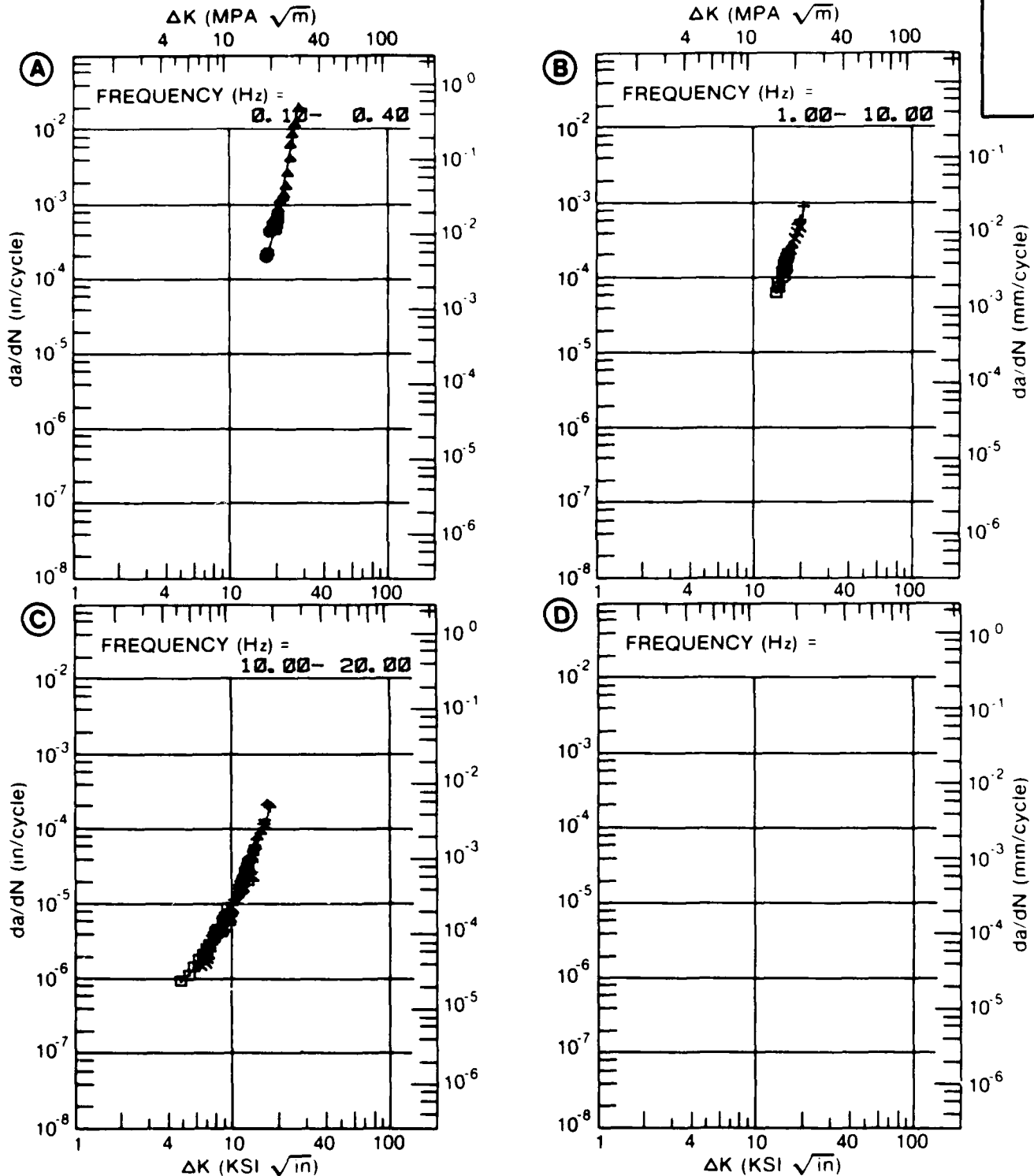


Figure 7.5.3.80

TABLE 7.5.3.81

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.81 INDICATING EFFECT
OF FREQUENCY**

MATERIAL: ALUMINUM 2024
CONDITION: T861
ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		F(HZ)= 0. 10	F(HZ)= 1. 00-5. 00	F(HZ)= 10. 00-15. 00	
DELTA K	A: 15. 86 :	762.			
MIN	B: 11. 86 :		121.		
	C: 4. 66 :			. 582	
	D:				
	5. 00 :			1. 23	
	6. 00 :			2. 79	
	7. 00 :			4. 68	
	8. 00 :			8. 57	
	9. 00 :			16. 4	
	10. 00 :			31. 8	
	13. 00 :		198.		
	16. 00 :	730.			
DELTA K	A: 18. 41 :	3233.			
MAX	B: 15. 02 :		536.		
	C: 10. 48 :			43. 7	
	D:				

ROOT MEAN SQUARE	25. 86	9. 54	8. 61
PERCENT ERROR			

LIFE	0. 0-0. 5			
PREDICTION	0. 5-0. 8			
RATIO	0. 8-1. 25	1	1	1
SUMMARY	1. 25-2. 0			
(NP/NA)	>2. 0			

CONDITION/HT: T861
 FORM: 0.09" TH SHEET
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.40
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 73.0 KSI
 ULT. STRENGTH: 76.6 KSI
 SPECIMEN THK: 0.090"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 88578

ALUM.
 ALLOY

2024

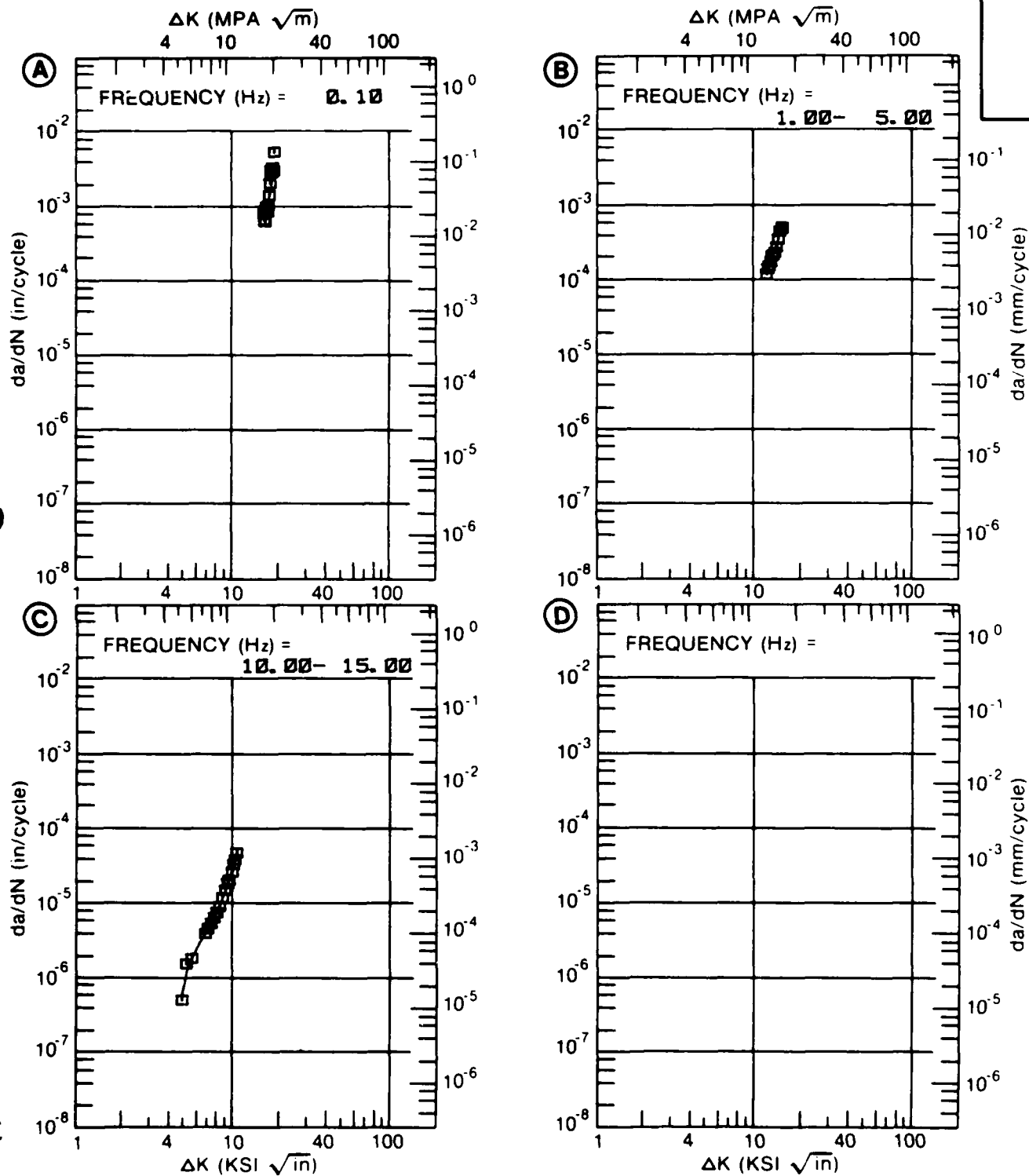


Figure 7.5.3.81

TABLE 7.5.3.82

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.82 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024				
CONDITION: T861						
ENVIRONMENT: R. T. , LAB AIR						
DELTA K (KSI*IN**1/2)			DA/DN (10**+6 IN. /CYCLE)			
			A	B	C	D
			R=+0.10			
DELTA K MIN	A:	9.69	6.16			
	B:					
	C:					
	D:					
		10.00	6.91			
		13.00	16.3			
		16.00	45.0			
DELTA K MAX	A:	17.41	84.3			
	B:					
	C:					
	D:					
ROOT MEAN SQUARE		16.15				
PERCENT ERROR						
LIFE	0.0-0.5					
PREDICTION	0.5-0.8					
RATIO	0.8-1.25	4				
SUMMARY	1.25-2.0					
(NP/NA)	>2.0					

CONDITION/HT: T061
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 10.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 70.8 KSI
 ULT. STRENGTH: 74.9 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 88578

ALUM.
 ALLOY

2024

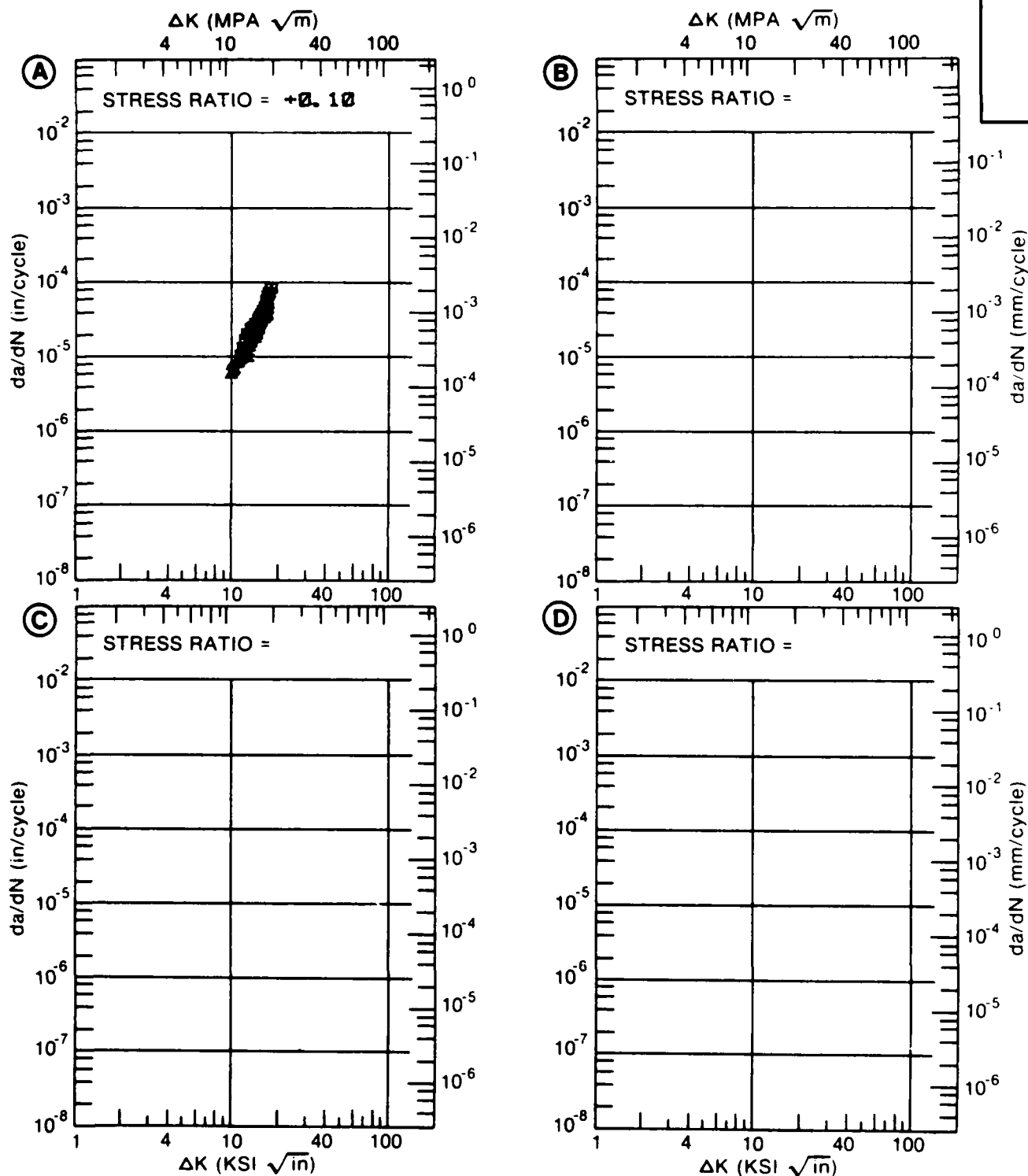


Figure 7.5.3.82

TABLE 7.5.3.83

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.5.3.83 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2024	
CONDITION: T861			
ENVIRONMENT: R. T. , LAB AIR			

DELTA K		DA/DN (10**-6 IN. /CYCLE)	
(KSI*IN**1/2)			
		A	B
			C
			D
		R=+0. 10	R=+0. 40
A:	11. 03 :	11. 8	
DELTA K B:	:		
MIN C:	:		
D:	:		
	:		
	13. 00 :	17. 4	
	16. 00 :	38. 5	
	20. 00 :	127.	
	25. 00 :	580.	
	30. 00 :	2479.	
	35. 00 :	9690.	
A:	36. 01 :	12618.	
DELTA K B:	:		
MAX C:	:		
D:	:		
	:		

ROOT MEAN SQUARE		21. 52	0. 00
PERCENT ERROR			

LIFE	0. 0-0. 5		
PREDICTION	0. 5-0. 8		
RATIO	0. 8-1. 25	3	
SUMMARY	1. 25-2. 0	1	
(NP/NA)	>2. 0		

CONDITION/HT: T881
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 1.00- 5.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 70.6 KSI
 ULT. STRENGTH: 74.9 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: 88578

ALUM.
 ALLOY

2024

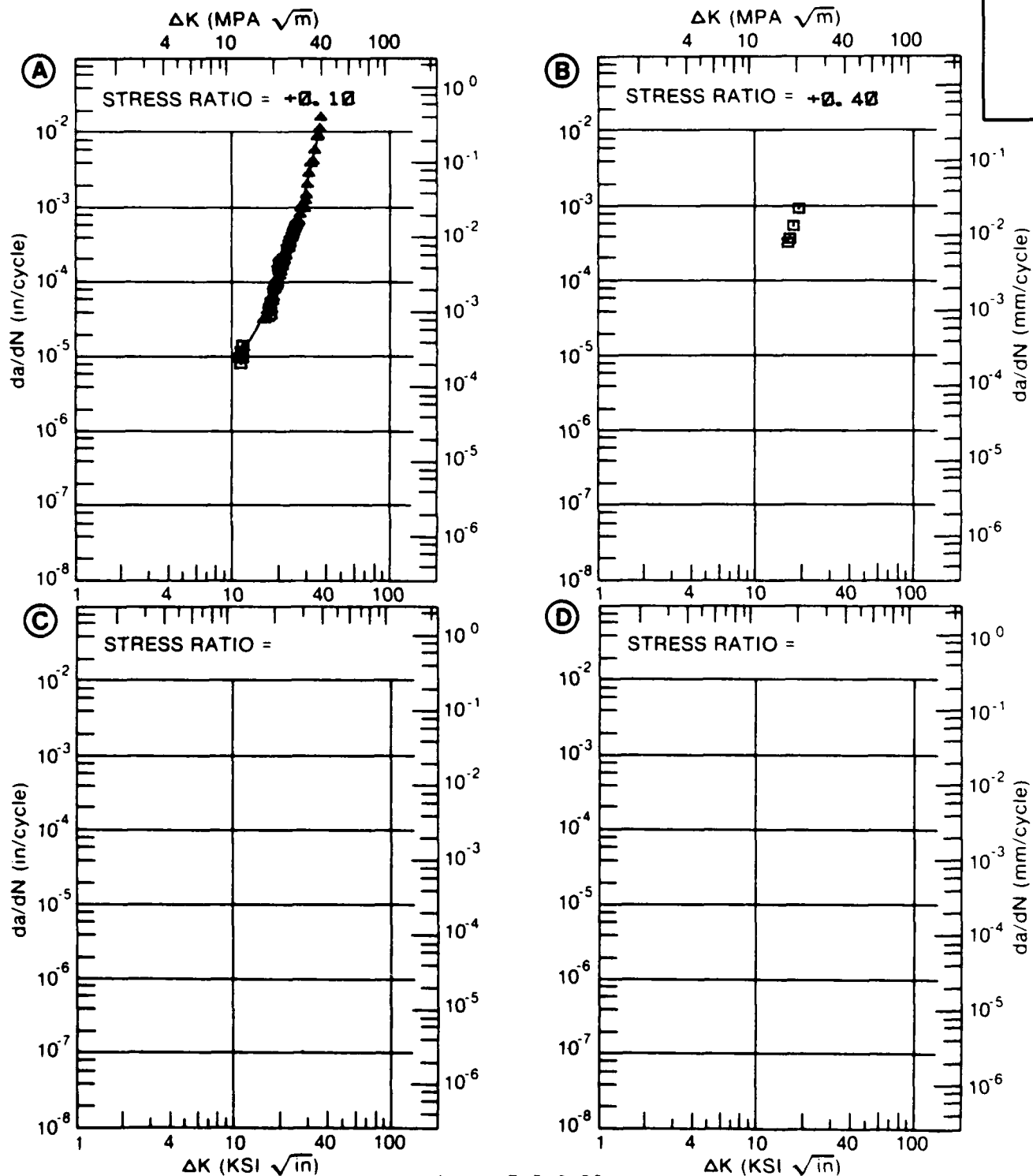


Figure 7.5.3.83

TABLE 7.5.3.84

SUSTAINED CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.84 INDICATING EFFECT

OF FORM

MATERIAL: ALUMINUM 2024
 CONDITION: T351
 ENVIRONMENT: 3X/DAY-3.5NACL

K MAX (KSI*IN**1/2)		DA/DT (10**-6 IN/HOUR)			
		A	B	C	D
		T(IN)= 1.0 PLATE	T(IN)= 1.2 PLATE	T(IN)= 2.0 PLATE	
K MAX MIN	A: 14.00	826.			
	B: 9.50		312.		
	C:				
	D:				
	10.00		337.		
	13.00		518.		
	16.00	875.	743.		
	20.00	1006.	1087.		
	25.00	1141.	1535.		
	30.00	1184.	1947.		
	35.00	1130.	2278.		
K MAX MAX	A: 40.00	1001.			
	B: 39.00		2472.		
	C:				
	D:				
ROOT MEAN SQUARE		17.25	2.55	0.00	
PERCENT ERROR					

CONDITION/HT: T351
 ENVIRONMENT: 3X/DAY-3.5NaCl
 SPECIMEN TYPE: DCB
 ORIENTATION: S-L
 YIELD STRENGTH:
 ULT. STRENGTH:

SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.000"
 CRACK LENGTH (A_0):
 K_{ISCC} :
 REFERENCES: 78313, 84284

ALUM.
 ALLOY

2024

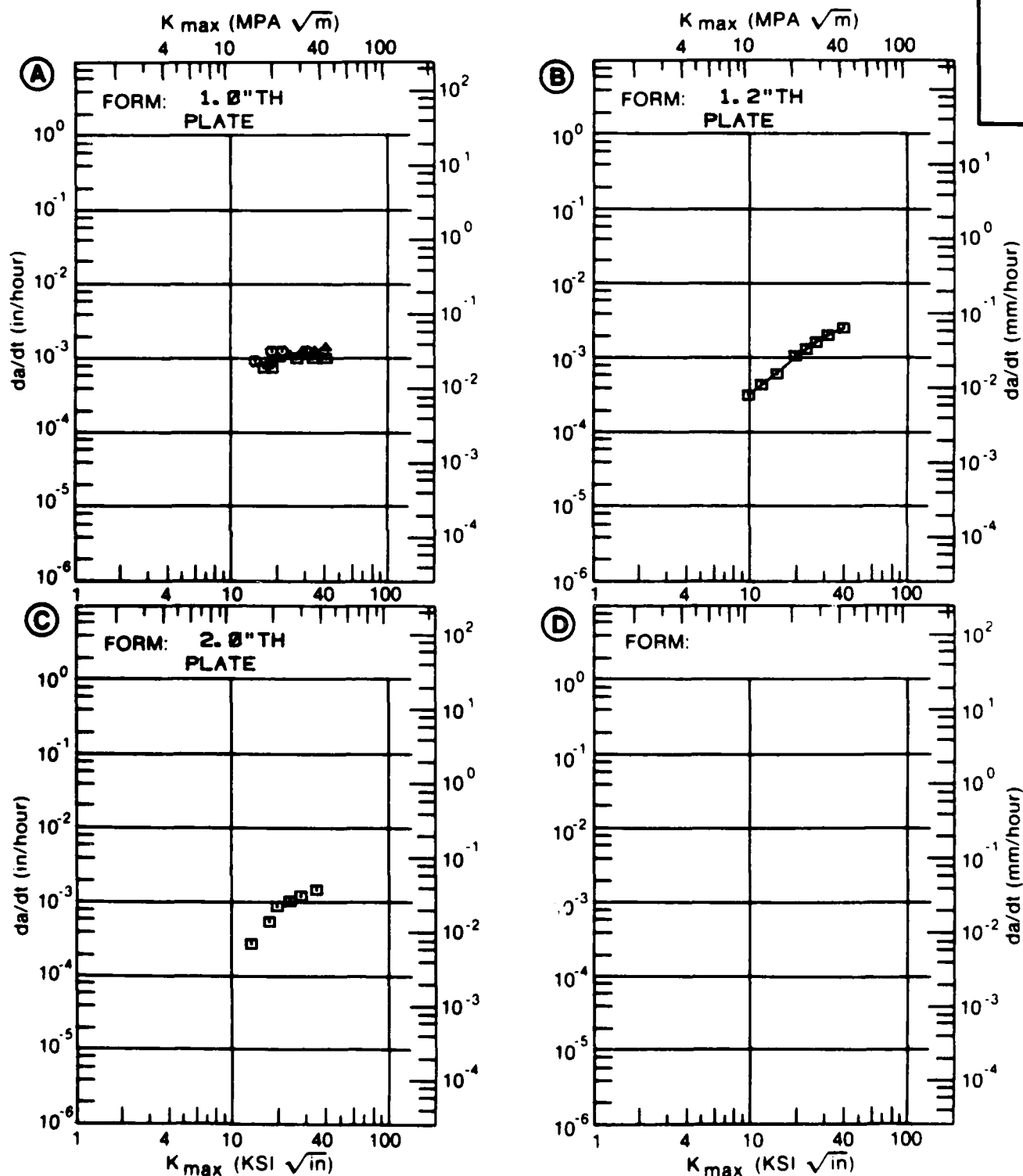


Figure 7.5.3.84

TABLE 7.5.3.85

SUSTAINED CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.5.3.85 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2024
CONDITION: T4

K MAX (KSI*IN**1/2)		DA/DT (10**-6 IN/HOUR)			
		A	B	C	D
		E= WET 3X/DAY WITH 3.5% NaCl			
K MAX MIN	A: 10.00	376.			
	B:				
	C:				
	D:				
	13.00	545.			
	16.00	654.			
	20.00	736.			
	25.00	788.			
	30.00	822.			
	35.00	856.			
K MAX MAX	40.00	897.			
	50.00	1013.			
	A: 60.00	1189.			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		8.21			
PERCENT ERROR					

CONDITION/HT: T4
 FORM: FORGING
 SPECIMEN TYPE: DCB
 ORIENTATION: S-L
 YIELD STRENGTH:
 ULT. STRENGTH:

SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.000"
 CRACK LENGTH (A_0):
 K_{ISCC} :
 REFERENCES: 78313

ALUM.
 ALLOY

2024

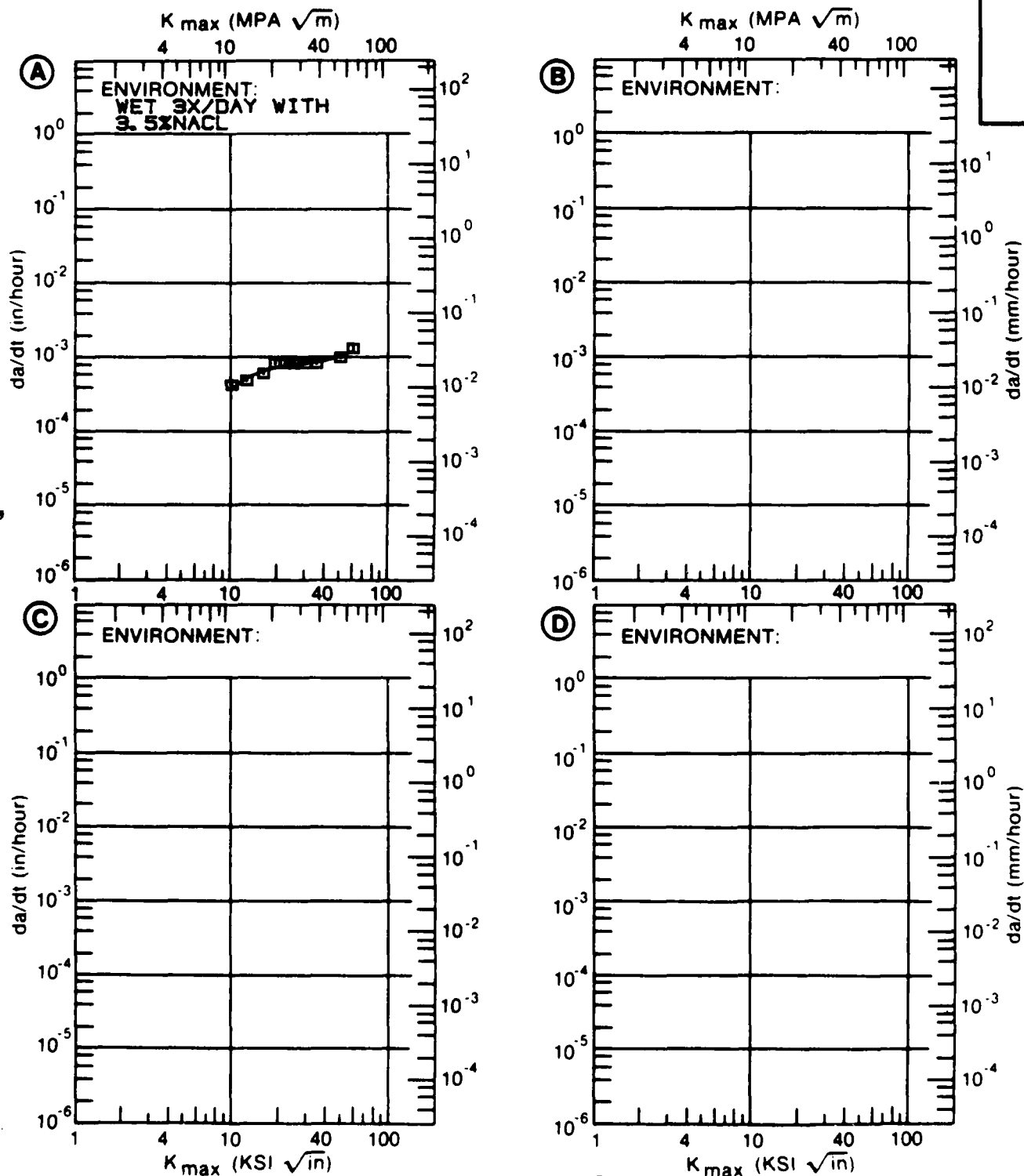


Figure 7.5.3.85

TABLE 7.5.3.86

CONDITION	--PRODUCT--			TEST SPEC OR STR (F)	YIELD (KSI)	ENVIRONMENT	ALUMINUM		2024	K (ISCC)				CRACK	SPECIMEN	WIDTH (IN)	THICK (IN)	DESIGN	LENGTH (IN)	K (ISCC)	K (ISCC)	MEAN	STAN DEV	TEST TIME (MIN)	DATE REFER		
	FORM	THICK (IN)	TEMP (F)				THICK (IN)	THICK (IN)		B	A	B	A													B	A
T351	P	2.50	R.T.	S-L	42.4	INDUSTRIAL ATM	2.000	1.000	CT	----	21.20	10.00	----	----	----	----	----	----	21.20	10.00	----	----	----	1973 86688			
T351	P	2.50	R.T.	S-L	42.4	SALT-DICHROMATE-ACETATE	2.000	1.000	CT	----	21.20	9.00	----	----	----	----	----	----	21.20	9.00	----	----	----	1973 86688			
T351	P	2.50	R.T.	S-L	42.4	SEACOAST ATM	2.000	1.000	CT	----	21.20	10.00	----	----	----	----	----	----	21.20	10.00	----	----	----	1973 86688			
T351	P	1.00	R.T.	S-L	47.0	3.5 PCT NACL	5.000	1.000	DCB	----	50.00	10.00	----	----	----	----	----	----	50.00	10.00	----	----	----	1969 78313			
T352	F	6.00	R.T.	S-L	43.3	SEAWATER	1.400	0.700	DCB	----	27.60	23.00*	----	----	----	----	----	----	27.60	23.00*	----	----	----	1972 82675			
T851	P	3.20	R.T.	L-T	59.3	AIR 78PCT RH	5.000	1.250	TDCB	----	18.60	22.70	----	----	----	----	----	----	18.60	22.70	----	----	----	1971 84360			
T851	P	3.20	R.T.	L-T	59.3	DIST WATER	5.000	1.250	TDCB	----	18.60	22.00	----	----	----	----	----	----	18.60	22.00	----	----	----	1971 84360			
T851	P	3.20	R.T.	L-T	59.3	JP-4 FUEL	5.000	1.250	TDCB	----	18.60	21.60	----	----	----	----	----	----	18.60	21.60	----	----	----	1971 84360			
T851	P	3.20	R.T.	L-T	59.3	3.5 PCT NACL	5.000	1.250	TDCB	----	18.60	21.50	----	----	----	----	----	----	18.60	21.50	----	----	----	1971 84360			
T851	P	2.50	R.T.	S-L	61.8	INDUSTRIAL ATM	2.000	1.000	CT	----	16.70	16.00	----	----	----	----	----	----	16.70	16.00	----	----	----	1973 86688			
T851	P	2.50	R.T.	S-L	61.8	SALT-DICHROMATE-ACETATE	2.000	1.000	CT	----	16.70	15.00	----	----	----	----	----	----	16.70	15.00	----	----	----	1973 86688			
T851	P	2.50	R.T.	S-L	61.8	SEACOAST ATM	2.000	1.000	CT	----	16.70	16.00	----	----	----	----	----	----	16.70	16.00	----	----	----	1973 86688			
T852	F	3.00	R.T.	L-T	53.0	S.C.S.	5.500	1.000	DCB	----	34.00	22.10	----	----	----	----	----	----	34.00	22.10	----	----	64920	1976 R1006			
		3.00			53.0		5.500	1.000	DCB	----	34.00	34.00	----	----	----	----	----	----	34.00	34.00	----	28.1/	8.4	61680	1976 R1006		
T852	F	3.00	R.T.	L-T	58.0	S.T.W.	5.500	1.000	DCB	----	37.00	22.50	----	----	----	----	----	----	37.00	22.50	----	----	76140	1976 R1006			
		3.00			58.0		5.500	1.000	DCB	----	37.00	23.50	----	----	----	----	----	----	37.00	23.50	----	----	76140	1976 R1006			
		3.00			58.0		5.500	1.000	DCB	----	37.00	22.50	----	----	----	----	----	----	37.00	22.50	----	22.5/	0.0	76140	1976 R1006		

*NOTE: DATA WHICH DO NOT MEET MINIMUM SPECIMEN THICKNESS REQUIREMENTS OF 2.5 (KISCC/TYS) SQUARED

TABLE 7.6.2.1

CONDITION	--PRODUCT-- FORM THICK TEMP OR (IN) (F)	TEST SPEC STR YIELD (KSI)	ALUMINUM		2024 (ALCLAD)										K(C)	STAN K(C)	STAN K(C)	MEAN DEV K(C)	DATE REFER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
			W	B	CRACK LENGTH CROSS STRESS				K(APP)				K(C)	STAN K(PSI)						MEAN DEV K(PSI)	STAN K(PSI)	MEAN DEV K(PSI)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					W	B	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI)	K(PSI)											K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(PSI)	K(

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

[illegible]

*NOTE-- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

CONDITION	--PRODUCT-- FORM THICK TEMP OR (IN) (F)	YIELD STR (KSI)	ALUMINUM		2024 (ALCLAD)		K(C)		CRACK LENGTH GROSS STRESS				K (APP) STAN				K (C) STAN				
			W	B	THICK (IN)	SPECIMEN		INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K (APP) (KSI*SQRT IN)	MEAN (KSI*SQRT IN)	DEV (KSI*SQRT IN)	K (C) (KSI*SQRT IN)	MEAN (KSI*SQRT IN)	DEV (KSI*SQRT IN)	DATE	REFER		
						W	B														
																				BUCKLING OF CRACK EDGES RESTRAINED	
T3	S	0.08	R. T.	L-T	53.0	0.079	0.790	---	45.00	50.69*	---	---	---	---	---	---	---	---	---	---	
					53.0	0.079	3.150	3.620	21.80	59.31*	---	---	---	---	---	---	---	---	---	---	---
					53.0	0.079	0.790	---	44.90	50.58*	---	---	---	---	---	---	---	---	---	---	---
					53.0	0.079	1.580	2.050	37.70	62.16*	---	---	---	---	---	---	---	---	---	---	---
					53.0	0.079	3.150	3.980	21.10	57.41*	---	---	---	---	---	---	---	---	---	---	---
					53.0	0.079	1.580	1.970	29.00	36.20	59.69*	---	---	---	---	---	---	---	---	---	---
T3	S	0.08	R. T.	L-T	51.8	0.079	1.770	2.480	30.50	41.90	70.83*	---	---	---	---	---	---	---	---	---	
					51.8	0.079	1.180	1.580	31.00	45.10	61.78*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	1.770	2.280	28.50	42.10	71.19*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	4.720	5.830	17.40	28.50	86.28*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	3.540	4.340	24.90	34.00	84.94*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	3.540	4.610	25.80	33.80	84.44*	---	---	---	---	---	---	---	---	---	---
T3	S	0.08	R. T.	L-T	51.8	0.079	4.720	5.710	17.20	28.30	85.67*	---	---	---	---	---	---	---	---	---	
					51.8	0.079	1.180	1.610	33.40	45.80	62.74*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	1.770	2.480	32.30	42.10	71.19*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	1.180	2.240	32.00	45.50	62.33*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	1.180	2.620	37.80	49.20	67.09*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	3.150	4.450	25.60	35.40	79.62	---	---	---	---	---	---	---	---	---	---
T3	S	0.08	R. T.	L-T	51.8	0.079	1.580	---	---	46.30	73.14*	---	---	---	---	---	---	---	---	---	
					51.8	0.079	1.580	2.520	40.70	48.60	76.78*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	4.720	5.750	22.20	29.80	83.20	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	6.300	9.450	18.00	30.90	101.71*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	8.660	11.720	13.20	25.20	101.50	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	15.750	---	---	13.70	96.46	---	---	---	---	---	---	---	---	---	---
T3	S	0.08	R. T.	L-T	51.8	0.079	1.580	2.440	40.71	47.00	74.23*	---	---	---	---	---	---	---	---	---	
					51.8	0.079	3.150	4.490	25.30	37.00	83.23*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	1.180	1.850	41.90	47.50	66.13*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	3.150	4.600	28.00	34.60	77.82	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	1.180	2.090	41.70	50.00	68.18*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	0.790	1.420	28.90	52.40	58.41*	---	---	---	---	---	---	---	---	---	---
T3	S	0.08	R. T.	L-T	51.8	0.079	1.690	46.20	50.40	56.18*	---	---	---	---	---	---	---	---	---	---	
					51.8	0.079	4.720	7.400	23.90	37.80	105.54*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	4.720	7.400	23.90	37.80	105.54*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	4.720	7.400	23.90	37.80	105.54*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	4.720	7.400	23.90	37.80	105.54*	---	---	---	---	---	---	---	---	---	---
					51.8	0.079	4.720	7.400	23.90	37.80	105.54*	---	---	---	---	---	---	---	---	---	---

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

		ALUMINUM		2024 (ALCLAD)										K(C)	
				CRACK LENGTH CROSS STRESS											
CONDITION	--PRODUCT-- FORM	THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	---SPECIMEN---			CRACK				K(AFP) STAN		K(C) STAN	
					WIDTH (IN)	THICK (IN)	B	INIT 2A(O)	FINAL 2A(F)	ONSET S(O)	MAX S(MAX)	MEAN (KSI+SGRT IN)	DEV (KSI+SGRT IN)	MEAN (KSI+SGRT IN)	DEV (KSI+SGRT IN)
T3	S	0.08	R.T.	L-T	51.8	23.600	0.079	1.970	3.190	32.60	45.10	79.68*	102.11*	1965 70485	
		0.08			51.8	23.600	0.079	6.300	9.050	15.90	31.90	105.00*	132.50*	1965 70485	
		0.08			51.8	23.600	0.079	11.800	12.520	12.70	20.20	103.42	109.24*	1965 70485	
		0.08			51.8	23.600	0.079	4.720	6.300	23.60	31.30	87.39	103.03*	1965 70485	
		0.08			51.8	23.600	0.079	0.790	---	---	49.80	55.51*	89.9/10.5	---	1965 70485
BUCKLING OF CRACK EDGES RESTRAINED															
T3	S	0.09	R.T.	L-T	56.0	5.900	0.095	0.790	1.060	46.40	47.60	53.62*	62.67*	1966 84366	
		0.09			56.0	5.900	0.095	1.580	2.240	25.80	38.20	62.99*	78.78*	1966 84366	
		0.09			56.0	5.900	0.095	1.580	2.400	31.80	38.20	62.99*	82.78*	1966 84366	
		0.09			56.0	5.900	0.095	3.150	3.900	20.30	23.80	64.73*	72.26*	1966 84366	
		0.09			56.0	5.900	0.095	3.150	3.740	21.60	23.60	64.21*	77.56*	1966 84366	
T3		0.09			56.0	5.900	0.095	0.790	1.100	46.40	47.50	53.51*	63.81*	1966 84366	
		0.09			56.0	5.900	0.095	1.180	1.540	39.80	43.00	60.03*	69.84*	1966 84366	
	S	0.11	R.T.	L-T	53.2	11.800	0.118	3.540	4.690	23.30	32.20	80.44*	97.03*	1966 70319	
		0.11			53.2	11.800	0.118	1.770	2.520	34.00	41.50	70.17*	84.97*	1966 70319	
		0.11			53.2	11.800	0.118	1.770	2.720	31.90	41.60	70.34*	88.92*	1966 70319	
T3		0.11			53.2	11.800	0.118	2.480	35.70	41.90	70.89*	85.03*	1966 70319		
		0.11			53.2	11.800	0.118	4.720	5.400	20.40	25.60	77.50*	85.95*	1966 70319	
		0.11			53.2	11.800	0.118	4.720	5.950	20.60	25.20	76.29	86.54*	1966 70319	
		0.11			53.2	11.800	0.118	1.180	1.730	38.70	45.00	61.65*	75.18*	1966 70319	
		0.11			53.2	11.800	0.118	3.540	4.560	25.20	32.20	80.44*	95.09*	1966 70319	
T3		0.11			53.2	11.800	0.118	1.180	1.810	37.80	44.30	60.69*	75.80*	1966 70319	
	S	0.16	R.T.	L-T	52.0	11.800	0.158	1.770	2.990	34.80	41.10	69.50*	92.77*	1966 70319	
		0.16			52.0	11.800	0.158	3.540	4.210	23.30	32.20	80.44*	89.97*	1966 70319	
		0.16			52.0	11.800	0.158	4.720	5.640	20.90	26.50	80.22*	92.24*	1966 70319	
		0.16			52.0	11.800	0.158	1.180	1.610	38.10	44.30	60.69*	71.27*	1966 70319	
T3		0.16			52.0	11.800	0.158	3.540	4.610	26.30	32.50	81.19*	96.72*	1966 70319	
		0.16			52.0	11.800	0.158	4.720	6.060	19.80	26.90	81.43*	99.78*	1966 70319	
		0.16			52.0	11.800	0.158	1.180	1.610	38.40	44.40	60.82*	71.43*	1966 70319	
		0.16			52.0	11.800	0.158	1.770	2.440	33.80	41.60	70.34*	83.66*	1966 70319	
		0.16			52.0	11.800	0.158	1.770	2.520	34.00	41.30	69.84*	84.56*	1966 70319	
T3	S	0.01	R.T.	T-L	46.0	14.990	0.009	7.500	9.510	---	20.80	84.92*	109.08*	1962 62308	

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

CONDITION	ALUMINUM		2024 (ALCLAD)		K(C)											
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	---SPECIMEN---		CRACK LENGTH		ORDRS		STRESS					
					W (IN)	B (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP)		K(C)		STAN	
											2A(D)	2A(F)	8(D)	8(MAX)	K(SORT IN)	K(SORT IN)
BUCKLING OF CRACK EDGES RESTRAINED																
T3	S	0.01	R. T.	46.0	14.990	0.010	7.500	9.060	---	21.20	86.56*		104.82*		1962	62308
T3	S	0.02	R. T.	46.5	15.000	0.020	7.500	8.680	---	20.40	83.27*		96.09*		1966	86734
T3	S	0.06	R. T.	44.9	48.000	0.061	24.000	28.650	---	17.10	124.86		149.12*		1966	86734
T3	S	0.08	R. T.	43.0	47.980	0.079	24.000	27.150	---	18.80	137.29*		154.64*		1966	86734
		0.08		43.0	47.980	0.080	24.000	27.810	---	18.90	138.02*		159.50*		1966	86734
BUCKLING OF CRACK EDGES NOT RESTRAINED																
T3	S	0.06	60 L-T	47.0	12.000	0.061	3.000	---	---	31.60	71.37*		---		1966	86734
		0.06		47.0	12.000	0.061	3.910	---	---	26.82	71.18*		---		1966	86734
		0.06		47.0	12.000	0.061	3.000	---	---	32.10	72.90*		---		1966	86734
		0.06		47.0	12.000	0.061	3.000	---	---	31.60	71.37*		---		1966	86734
T3	S	0.03	R. T. L-T	51.0	9.000	0.032	2.560	2.800	---	31.90	67.36*		71.20*		1965	62311
T3	S	0.04	R. T. L-T	44.3	7.500	0.040	3.000	---	---	21.30	51.41*		---		1966	86734
		0.04		44.4	7.500	0.040	3.000	---	---	21.90	52.85*		---		1966	86734
		0.04		46.1	7.500	0.040	1.050	---	---	37.20	48.36*		---		1966	86734
		0.04		46.1	7.500	0.040	4.700	---	---	12.14	44.34		---		1966	86734
		0.04		46.1	7.500	0.040	4.150	---	---	15.27	48.93		---		1966	86734
		0.04		46.1	7.500	0.040	2.000	---	---	29.90	55.45*		---		1966	86734
		0.04		46.1	7.500	0.040	4.700	---	---	12.14	44.34		---		1966	86734
		0.04		46.1	7.500	0.040	0.550	---	---	41.30	38.52*		---		1966	86734
		0.04		46.1	7.500	0.040	1.100	---	---	39.60	52.76*		---		1966	86734
		0.04		46.1	7.500	0.040	3.900	---	---	16.73	50.05		---		1966	86734
		0.04		46.1	7.500	0.040	1.050	---	---	37.10	48.23*		---		1966	86734
		0.04		46.1	7.500	0.040	2.100	---	---	28.70	54.80*		---		1966	86734
		0.04		46.1	7.500	0.040	0.950	---	---	41.60	38.79*		---		1966	86734
		0.04		46.1	7.500	0.040	0.500	---	---	42.10	37.41*		---		1966	86734

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

CONDITION	--PRODUCT-- FORM THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	ALUMINUM		2024 (ALCLAD)		K(C)							
				---SPECIMEN---		CRACK LENGTH CROSS STRESS									
				WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	MAX (KSI)	K (APP) (KSI*SQRT IN)	STAN DEV	K (C) (KSI*SQRT IN)	STAN DEV	REFER		
				W	B	2A(D)	2A(F)	S(D)	S(MAX)						
BUCKLING OF CRACK EDGES NOT RESTRAINED															
T3	S	0.04	R. T.	L-T	47.4	7.500	0.040	4.700	---	13.00	47.48	---	---	1966	86734
					47.4	7.500	0.040	4.200	---	15.80	50.83	---	---	1966	86734
					47.4	7.500	0.040	4.100	---	16.20	50.86	---	---	1966	86734
					47.4	7.500	0.040	0.950	---	42.40	52.31*	---	---	1966	86734
					47.4	7.500	0.040	0.500	---	44.90	39.70*	---	---	1966	86734
					47.4	7.500	0.040	2.200	---	30.70	60.30*	---	---	1966	86734
					47.4	7.500	0.040	0.750	---	43.40	47.40*	---	---	1966	86734
					47.4	7.500	0.040	4.000	---	17.33	53.10	---	---	1966	86734
					47.4	7.500	0.040	2.000	---	32.90	61.01*	---	---	1966	86734
					47.4	7.500	0.040	1.050	---	41.90	54.47*	---	---	1966	86734
					47.4	7.500	0.040	0.500	---	45.40	40.35*	---	---	1966	86734
					51.0	7.500	0.040	1.150	---	43.90	59.87*	---	---	1966	86734
					51.0	7.500	0.040	5.900	---	12.14	64.45*	---	---	1966	86734
					51.0	7.500	0.040	1.150	---	44.10	60.15*	---	---	1966	86734
					51.0	7.500	0.040	0.650	---	50.70	51.47*	---	---	1966	86734
					51.0	7.500	0.040	4.280	---	14.80	48.96	---	---	1966	86734
					51.0	7.500	0.040	0.810	---	48.70	55.33*	---	---	1966	86734
					T3	S	0.04	R. T.	L-T	51.0	9.000	0.040	4.420	4.880	18.10
51.0	9.000	0.040	6.280	6.300						9.60	9.90	45.99	48.66	1965	62311
51.0	9.000	0.040	6.220	6.620						9.20	10.90	49.89	55.33*	1965	62311
51.0	9.000	0.040	2.490	2.800						28.30	31.90	66.24*	71.20*	1965	62311
51.0	9.000	0.040	4.480	4.980						18.20	20.70	65.19*	72.06*	1965	62311
BUCKLING OF CRACK EDGES NOT RESTRAINED															
51.0	20.000	0.040	2.260	4.900						27.50	40.10	76.15*	115.56*	1965	62311
51.0	20.000	0.040	2.260	7.370						27.00	40.10	76.15*	149.12*	1965	62311
BUCKLING OF CRACK EDGES NOT RESTRAINED															
51.0	20.000	0.040	2.260	4.900						27.50	40.10	76.15*	115.56*	1965	62311
51.0	20.000	0.040	2.260	7.370						27.00	40.10	76.15*	149.12*	1965	62311
BUCKLING OF CRACK EDGES NOT RESTRAINED															
51.0	20.000	0.040	2.260	4.900						27.50	40.10	76.15*	115.56*	1965	62311
51.0	20.000	0.040	2.260	7.370						27.00	40.10	76.15*	149.12*	1965	62311
BUCKLING OF CRACK EDGES NOT RESTRAINED															
51.0	20.000	0.040	2.260	4.900						27.50	40.10	76.15*	115.56*	1965	62311
51.0	20.000	0.040	2.260	7.370						27.00	40.10	76.15*	149.12*	1965	62311

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV

TABLE 7.6.2.1 (Con't)

CONDITION	ALUMINUM		2024 (ALCLAD)										K(C)		
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	---SPECIMEN---		CRACK LENGTH CROSS STRESS				K(APP) STAN		K(C) (KSI*80RT IN)	K(C) STAN DEV (KSI*80RT IN)	DATE REFER
					WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	MAX (KSI)	MAX (KSI)			
					W	B	2A(O)	2A(F)	S(O)	S(MAX)					
BUCKLING OF CRACK EDGES NOT RESTRAINED															
T3	S	0.04	R. T.	L-T	30.000	0.040	15.000	19.700	---	17.70	102.17	137.40*	---	---	1966 86734
		0.04			30.000	0.040	15.000	17.700	---	18.30	105.44	124.53*	---	---	1966 86734
		0.04			30.000	0.040	6.000	---	---	27.80	87.51	---	---	---	1966 86734
		0.04			31.3	30.000	0.040	12.000	---	17.50	84.47	---	---	---	1966 86734
		0.04			31.6	30.000	0.040	12.000	---	17.41	84.04	---	---	---	1966 86734
		0.04			32.1	30.000	0.040	3.000	---	36.10	78.85	90.4/10.8	---	---	1966 86734
T3	S	0.06	R. T.	L-T	53.2	2.000	0.064	0.621	0.980	31.60	36.20	38.00*	53.00*	---	1973 86213
		0.06			53.2	2.000	0.064	0.622	1.020	33.30	36.20	38.08*	54.93*	---	1973 86213
T3	S	0.06	R. T.	L-T	44.2	7.500	0.064	3.760	---	---	19.75	57.14*	---	---	1966 86734
		0.06			44.2	7.500	0.064	1.080	---	---	41.80	55.15*	---	---	1966 86734
		0.06			44.2	7.500	0.064	3.910	---	---	18.83	56.47*	---	---	1966 86734
		0.06			44.2	7.500	0.064	4.900	---	---	12.13	46.76	---	---	1966 86734
		0.06			44.2	7.500	0.064	1.940	---	---	34.30	62.47*	---	---	1966 86734
		0.06			44.2	7.500	0.064	0.500	---	---	44.80	39.81*	---	---	1966 86734
		0.06			44.2	7.500	0.064	0.960	---	---	45.80	56.82*	---	---	1966 86734
		0.06			44.2	7.500	0.064	0.500	---	---	46.00	40.88*	---	---	1966 86734
		0.06			44.2	7.500	0.064	5.450	---	---	12.13	55.01*	---	---	1966 86734
		0.06			44.2	7.500	0.064	0.500	---	---	45.20	40.17*	---	---	1966 86734
		0.06			44.2	7.500	0.064	0.500	---	---	46.10	40.97*	---	---	1966 86734
		0.06			44.2	7.500	0.064	1.930	---	---	34.10	61.92*	---	---	1966 86734
T3	S	0.06	R. T.	L-T	52.7	15.810	0.065	3.000	4.370	---	36.10	80.15*	99.30*	---	1973 86213
		0.06			52.7	15.810	0.064	6.010	7.310	---	22.80	77.04	89.33*	---	1973 86213
		0.06			52.7	15.820	0.062	4.000	---	---	30.90	80.66	---	---	1973 86213
		0.06			52.7	15.820	0.063	1.020	1.500	---	47.10	59.77*	78.9/ 2.6	72.70*	1973 86213
T3	S	0.08	R. T.	L-T	49.4	47.990	0.079	24.000	27.300	---	19.60	143.12	162.14*	---	1966 86734
		0.08			49.4	47.990	0.080	24.000	27.450	---	19.60	143.12	143.1/ 0.0	163.08*	1966 86734
T3	S	0.09	R. T.	L-T	51.0	9.000	0.091	4.480	4.860	20.10	23.20	73.06*	78.82*	---	1965 62311
		0.09			51.0	9.000	0.091	2.500	3.040	28.10	34.90	72.65*	82.12*	---	1965 62311
		0.09			51.0	9.000	0.091	4.480	5.060	20.10	23.10	72.75*	81.74*	---	1965 62311
		0.09			51.0	9.000	0.091	2.560	2.920	28.10	35.70	75.38*	81.83*	---	1965 62311

*NOTE-- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

CONDITION	ALUMINUM		2024 (ALCLAD)										K(C)		CRACK LENGTH CROSS STRESS										K(APP)		K(C)		STAN DEV	K(C) MEAN (KSI*SQRT IN)	DATE	REFER
	--PRODUCT-- FORM THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)		---SPECIMEN---		W		B		THICK (IN)		INIT (IN)		FINAL (IN)		ONSET (KSI)		MAX (KSI)		S(0)		S(MAX)		K(APP) (KSI*SQRT IN)	STAN DEV	K(C) (KSI*SQRT IN)	MEAN DEV				
			THICK (IN)	SPECIMEN	W	B	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	S(0)	S(MAX)																			
BUCKLING OF CRACK EDGES NOT RESTRAINED																																
T3	S	0.09	R. T.	L-T	51.0	9.000	0.091	6.230	6.520	10.90	14.00	64.24*															69.18*			1965	62311	
		0.09			51.0	9.000	0.091	6.190	6.690	11.00	13.60	61.79*															69.61*			1965	62311	
T3	S	0.10	R. T.	L-T	51.0	9.000	0.102	2.100	2.340	32.10	36.10	67.86*															72.25*			1965	62311	
		0.10			51.0	9.000	0.102	1.700	---	---	39.20	----															65.50*			1965	62311	
T3	S	0.10	R. T.	L-T	52.7	35.000	0.102	17.850	---	---	13.60	86.33															----			1956	84367	
		0.10			52.7	35.000	0.102	1.480	---	---	48.10	73.42*															----			1956	84367	
		0.10			52.7	35.000	0.102	4.950	---	---	37.40	103.59*															----			1956	84367	
		0.10			52.7	35.000	0.102	17.900	---	---	19.10	121.55															----			1956	84367	
		0.10			52.7	35.000	0.102	1.070	---	---	49.60	64.34*															----			1956	84367	
		0.10			52.7	35.000	0.102	10.700	---	---	23.60	102.74	103	5/17.6													----			1956	84367	
T3	S	0.09	82	L-T	51.2	3.000	0.092	1.180	2.149	---	---	31.00	46.75*														86.69*			1973	86213	
		0.09			51.2	3.000	0.092	1.230	2.229	---	---	30.10	46.79*														89.79*			1973	86213	
		0.09			51.2	3.000	0.092	1.240	2.103	---	---	30.00	46.91*														80.99*			1973	86213	
		0.09			52.0	3.000	0.091	1.280	2.135	---	---	29.60	47.41*														81.88*			1973	86213	
		0.09			52.0	3.000	0.091	1.200	2.067	---	---	30.50	46.56*														80.16*			1973	86213	
		0.09			52.0	3.000	0.092	1.270	2.164	---	---	29.30	46.65*														82.97*			1973	86213	
		0.09			52.5	3.000	0.090	1.270	2.182	---	---	29.70	47.29*														85.32*			1973	86213	
		0.09			52.5	3.000	0.090	1.320	2.240	---	---	28.60	46.92*														86.18*			1973	86213	
		0.09			52.5	3.000	0.091	1.140	2.067	---	---	32.30	47.53*														84.89*			1973	86213	
T3	S	0.02	R. T.	T-L	46.5	15.000	0.020	7.500	9.350	---	---	19.80	80.82*														101.60*			1966	86734	
T3	S	0.03	R. T.	T-L	44.4	15.010	0.031	7.500	9.380	---	---	20.40	83.25*														105.05*			1962	62308	
		0.03			44.4	15.010	0.031	7.500	9.560	---	---	20.40	83.25*														107.99*			1962	62308	
T3	S	0.04	R. T.	T-L	59.5	7.500	0.040	0.970	---	---	40.10	50.02															----			1966	86734	
		0.04			59.5	7.500	0.040	1.300	---	---	36.80	53.58															----			1966	86734	
		0.04			59.5	7.500	0.040	4.060	---	---	15.07	46.85															----			1966	86734	
		0.04			59.5	7.500	0.040	2.000	---	---	30.10	55.82															----			1966	86734	
		0.04			59.5	7.500	0.040	0.750	---	---	44.70	48.82*															----			1966	86734	
		0.04			59.5	7.500	0.040	0.500	---	---	46.00	40.88*															----			1966	86734	
		0.04			59.5	7.500	0.040	4.200	---	---	12.14	39.06															----			1966	86734	

*NOTE-- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

CONDITION	--PRODUCT-- FORM THICK TEMP OR (IN) (F)	TEST SPEC YIELD STR (KSI)	ALUMINUM		2024 (ALCLAD)		K(C)		CRACK LENGTH GROSS STRESS					K(APP) STAN		K(C) STAN	
			WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(1) (KSI)	K(2) (KSI)	K(3) (KSI)	K(4) (KSI)	K(1) STAN (KSI)	K(2) STAN (KSI)	K(1) STAN (KSI)	K(2) STAN (KSI)	
BUCKLING OF CRACK EDGES NOT RESTRAINED																	
T3	S	0.04	R.T.	T-L	59.5	7.500	0.040	2.060	---	---	---	29.30	55.30	---	---	---	1966 86734
		0.04			59.5	7.500	0.040	0.500	---	---	---	45.70	40.61*	---	---	---	1966 86734
		0.04			59.5	7.500	0.040	0.500	---	---	---	45.00	41.97*	---	---	---	1966 86734
		0.04			59.5	7.500	0.040	4.000	---	---	---	15.76	48.29	---	---	---	1966 86734
		0.04			59.5	7.500	0.040	4.710	---	---	---	11.53	42.22	48 9/ 6.1	---	---	1966 86734
T3	S	0.04	R.T.	T-L	43.3	29.990	0.041	15.000	18.620	---	---	17.20	99.30	---	---	124.20*	1962 62308
		0.04			43.3	30.020	0.040	15.000	16.200	---	---	19.10	110.23*	---	---	118.44*	1962 62308
T3	S	0.06	R.T.	T-L	46.2	2.000	0.064	0.623	1.120	32.30	33.50	35.24*	---	---	---	55.65*	1973 86213
		0.06			46.2	2.000	0.064	0.622	1.100	32.00	33.50	35.24*	---	---	---	54.64*	1973 86213
T3	S	0.06	R.T.	T-L	43.4	6.000	0.060	2.000	2.200	---	---	29.30	55.81*	---	---	---	1966 86734
T3	S	0.06	R.T.	T-L	50.7	7.500	0.064	0.500	---	---	---	41.50	36.88*	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	4.400	---	---	---	14.63	49.46	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	4.500	---	---	---	12.14	42.10	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	4.090	---	---	---	16.15	50.58	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	2.000	---	---	---	30.50	56.56*	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	4.160	---	---	---	19.92	50.72	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	0.660	---	---	---	40.00	40.92*	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	0.500	---	---	---	42.00	37.32*	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	1.950	---	---	---	30.30	95.36*	---	---	---	1966 86734
		0.06			50.7	7.500	0.064	1.000	---	---	---	37.60	47.65*	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	0.500	---	---	---	42.90	38.12	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	0.750	---	---	---	42.30	46.20	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	2.300	---	---	---	44.40	39.46	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	1.000	---	---	---	27.10	54.72	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	2.170	---	---	---	40.30	51.07	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	1.110	---	---	---	30.00	58.43	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	0.750	---	---	---	37.50	50.20	---	---	---	1966 86734
		0.06			62.6	7.500	0.064	0.750	---	---	---	41.70	45.54	48 1/ 6.0	---	---	1966 86734
T3	S	0.06	R.T.	T-L	43.4	9.000	0.060	3.000	3.600	---	---	28.60	66.71*	---	---	75.61*	1966 86734

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

CONDITION	ALUMINUM		2024 (ALCLAD)		K(C)											
	---PRODUCT--- FORM THICK TEMP OR (IN) (F)	TEST SPEC YIELD STR (KSI)	SPECIMEN		CRACK LENGTH		GROSS STRESS		K(APP)		K(C)		STAN		K(C)	
			WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	MEAN (KSI)	DEV (KSI)	MEAN (KSI)	DEV (KSI)	MEAN (KSI)	DEV (KSI)	DATE	REFER
			W	B	2A(D)	2A(F)	S(D)	S(MAX)								
BUCKLING OF CRACK EDGES NOT RESTRAINED																
T3	S	0 06 R T T-L	43.4	15.000	0.060	5.000	5.900	---	23.70	71.37*	79.91*	---	---	---	1966	86734
		0 06	43.4	15.000	0.060	5.000	5.800	---	24.00	72.28*	79.94*	---	---	---	1966	86734
T3	S	0 06 R T T-L	46.6	15.810	0.064	4.000	---	---	28.40	74.14*	---	---	---	---	1973	86213
		0 06	46.6	15.810	0.064	3.000	---	---	32.10	71.27*	---	---	---	---	1973	86213
		0 06	46.6	15.810	0.065	6.010	7.140	---	21.20	71.63	81.51*	---	---	---	1973	86213
		0 06	46.6	15.820	0.064	1.010	1.920	---	46.40	58.59*	81.32*	---	---	---	1973	86213
T3	S	0 06 R T T-L	43.4	18.000	0.060	6.000	7.000	---	22.10	72.91	80.97*	---	---	---	1966	86734
		0 06	43.4	18.000	0.061	6.000	6.900	---	22.30	73.57	80.87*	---	---	---	1966	86734
T3	S	0 06 R T T-L	43.4	21.000	0.060	7.000	8.400	---	20.70	73.76	83.60	---	---	---	1966	86734
		0 06	43.4	21.000	0.060	7.000	8.600	---	21.05	75.01	86.49*	---	---	---	1966	86734
T3	S	0 06 R T T-L	43.4	24.000	0.061	8.000	9.600	---	21.60	82.28	93.25*	---	---	---	1966	86734
		0 06	43.4	24.000	0.060	8.000	9.500	---	20.80	79.23	89.12	---	---	---	1966	86734
T3	S	0 06 R T T-L	44.9	47.000	0.061	24.000	25.050	---	18.10	133.29*	138.76*	---	---	---	1966	86734
T3	S	0 09 82 T-L	44.3	3.000	0.092	1.230	2.473	---	27.60	42.90*	104.10*	---	---	---	1973	86213
		0 09	44.3	3.000	0.091	1.220	2.442	---	28.00	43.26*	102.18*	---	---	---	1973	86213
		0 09	44.3	3.000	0.092	1.220	2.514	---	28.00	43.26*	110.90*	---	---	---	1973	86213
		0 09	45.2	3.000	0.092	1.200	2.504	---	27.70	42.28*	108.41*	---	---	---	1973	86213
		0 09	45.2	3.000	0.092	1.200	2.480	---	27.10	41.37*	103.14*	---	---	---	1973	86213
		0 09	45.2	3.000	0.091	1.300	2.653	---	26.30	42.63*	126.10*	---	---	---	1973	86213
		0 09	45.4	3.000	0.092	1.250	2.539	---	26.90	42.32*	109.74*	---	---	---	1973	86213
		0 09	45.4	3.000	0.092	1.230	2.525	---	27.10	42.12*	108.65*	---	---	---	1973	86213
		0 09	45.4	3.000	0.092	1.220	2.381	---	27.80	42.95*	95.18*	---	---	---	1973	86213
BUCKLING OF CRACK EDGES NOT RESTRAINED																
T86	S	0 06 R T L-T	65.8	2.000	0.063	0.625	1.030	---	34.70	36.57	53.13*	---	---	---	1973	86213
		0 06	65.8	2.000	0.063	0.625	0.940	---	32.90	34.68	46.48*	---	---	---	1973	86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.2.1 (Con't)

CONDITION	ALUMINUM		2024 (ALCLAD)		K(C)											
	--PRODUCT--		TEST SPEC		YIELD											
	FORM THICK TEMP OR		STR		(KSI)											
	(IN)	(F)	(IN)	(IN)	(IN)	(IN)	W	B	2A(D)	2A(F)	S(D)	S(MAX)	MAX	K(APP)	STAN	K(C)
CRACK LENGTH CROSS STRESS																
SPECIMEN																
INIT FINAL ONSET																
K(C) STAN																
K(C) MEAN DEV DATE REFER																
(KSI*SQRT IN)																
K(C) STAN																
K(C) MEAN DEV DATE REFER																
(KSI*SQRT IN)																

BUCKLING OF CRACK EDGES NOT RESTRAINED

T86	S	0.06	R.T.	T-L	65.1	2.000	0.063	0.625	0.970	---	30.90	32.57	44.84*	32.3/	0.4	1973 86213
		0.06			65.1	2.000	0.063	0.625	0.860	---	30.30	31.94	39.86*	---		1973 86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.6.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.6.3.1 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2024
 CONDITION: T3
 ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.00	R=+0.33		
DELTA K MIN	A: 8.49	1.44			
	B: 5.87		1.12		
	C:				
	D:				
	6.00		1.23		
	7.00		2.32		
	8.00		3.67		
	9.00	2.02	5.25		
	10.00	3.32	7.07		
	13.00	7.71	14.4		
	16.00	12.3	27.0		
	20.00	21.6	62.6		
DELTA K MAX	25.00	51.1	192.		
	30.00	154.			
	A: 30.54	176.			
	B: 28.15		403.		
	C:				
	D:				
ROOT MEAN SQUARE		11.73	9.35		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	4		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T3
 FORM: 0.09" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 13.30 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 45.8 KSI
 ULT. STRENGTH: 66.6 KSI
 SPECIMEN THK: 0.090"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: 86213

ALUM.
 ALLOY

2024
 (ALCLAD)

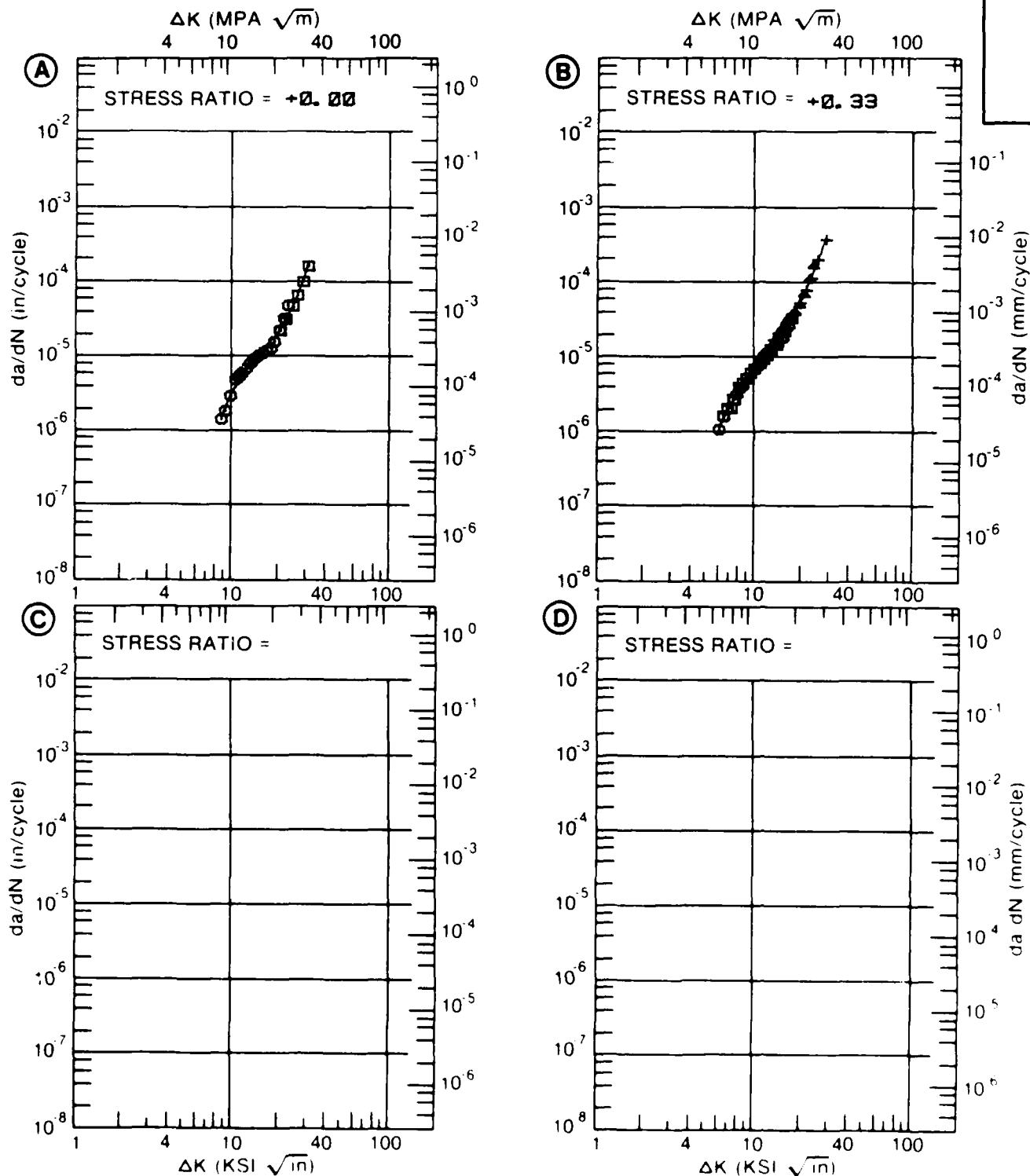


Figure 7.6.3.1

TABLE 7.7.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2048 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	I-I	I-I	I-I	S-I
T651	37 9 ± 1 9 (22)	30 6 ± 2 5 (24)	25 4 ± 1 9 (18)	

TABLE 7.7.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2048

TEST CONDITIONSSPECIMEN
ORIENTATION: L-TENVIRONMENT: DRY AIR
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)			
					2 5	5	10	50 100
T851	PLATE	0.33	2 00-20.00				4.99	56.3
T851	PLATE	0.33	2 00-20.00				3.24	

TABLE 7.7.1.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2048

TEST CONDITIONS

SPECIMEN

ORIENTATION

L-T

ENVIRONMENT

S.T.W.
AT R.T.

CONDITION/WT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T851	PLATE	0.33	2.00-20.00				9.14			
T851	PLATE	0.33	2.00-20.00				9.60			

TABLE 7.7.1.4
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2048

TEST CONDITIONS

SPECIMEN
ORIENTATION 1-LENVIRONMENT DRY AIR
AT R T

CONDITION/MT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	1	20	50	100
1051	PLATE	0.33	2 00-20 00							
1051	PLATE	0.33	2 00-30 00							

TABLE 7.7.1.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2048

TEST CONDITIONS

SPECIMEN
ORIENTATION T-LENVIRONMENT: S T W
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS: (KSI SQRT(IN))		FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2	5	5	10	20	50	100
T851	PLATE	0.33	2.00-30.00			0.08	0.82	11.9		
T851	PLATE	0.33	2.00-20.00				1.01	10.4		
T851	PLATE	0.67	2.00-30.00				1.52	24.6		

TABLE 7.7.2.1

CONDITION	ALUMINUM			2048		K(1C)		DATE	REFER					
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN----- WIDTH THICK DESIGN (IN) (IN)		CRACK LENGTH (IN)			2.5* (K(1C)/TVS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV		
					W	B							A	
T851	P	4.00	R.T.	L-T	59.1	4.000	2.000	CT	2.000	1.07	38.60		1977	AL001
		4.00			59.1	4.000	2.000	CT	2.040	1.06	38.40		1977	AL001
		4.00			59.1	4.000	2.000	CT	2.020	1.00	37.40		1977	AL001
		1.00			62.1	2.000	1.000	CT	1.030	0.97	38.70		1977	AL001
		2.00			63.7	4.000	1.980	CT	2.060	1.11	42.40		1977	AL001
		2.00			63.7	4.000	1.980	CT	2.070	0.97	39.60		1977	AL001
		2.00			63.7	4.000	1.980	CT	2.050	1.05	41.20		1977	AL001
		3.00			64.2	6.000	3.000	CT	3.120	0.80	36.40		1977	AL001
		4.00			64.2	4.000	2.000	CT	2.010	0.75	35.20		1977	AL001
		3.00			64.2	6.000	3.000	CT	3.140	0.84	37.20		1977	AL001
		4.00			64.2	4.000	2.000	CT	2.020	0.79	36.20		1977	AL001
		3.00			64.2	6.000	3.000	CT	3.120	0.83	37.00		1977	AL001
		4.00			64.2	4.000	2.000	CT	2.020	0.80	36.40		1977	AL001
		3.00			64.7	6.000	3.000	CT	3.060	0.89	38.50		1977	AL001
		3.00			64.7	6.000	3.000	CT	3.080	0.84	37.60		1977	AL001
		3.00			64.7	6.000	3.000	CT	3.070	0.90	38.80		1977	AL001
		2.00			65.4	4.000	1.980	CT	2.040	0.88	38.40		1977	AL001
		2.00			65.4	4.000	1.980	CT	2.040	0.90	39.30		1977	AL001
		2.00			65.4	4.000	1.980	CT	2.040	0.91	39.40		1977	AL001
		1.00			67.5	2.000	1.000	CT	1.040	0.70	35.70		1977	AL001
	1.00			67.5	2.000	1.000	CT	1.040	0.70	35.70		1977	AL001	
	1.00			67.5	2.000	1.000	CT	1.020	0.68	35.20	37.9/	1.9	1977	AL001
T851	P	4.00	R.T.	T-L	57.3	4.000	2.000	CT	2.020	0.61	28.40		1977	AL001
		4.00			57.3	4.000	2.000	CT	2.060	0.61	28.30		1977	AL001
		4.00			57.3	4.000	2.000	CT	2.030	0.60	28.00		1977	AL001
		1.00			61.1	2.000	1.000	CT	1.030	0.67	31.70		1977	AL001
		1.00			61.1	2.000	1.000	CT	1.030	0.67	31.70		1977	AL001
		1.00			61.1	2.000	1.000	CT	1.040	0.68	31.80		1977	AL001
		4.00			61.9	4.000	2.000	CT	2.030	0.45	26.20		1977	AL001
		4.00			61.9	4.000	2.000	CT	2.060	0.46	26.60		1977	AL001
		4.00			61.9	4.000	2.000	CT	2.040	0.48	27.00		1977	AL001
		2.00			62.6	4.000	1.980	CT	2.050	0.57	30.00		1977	AL001
		2.00			62.6	4.000	1.980	CT	2.060	0.55	29.40		1977	AL001
		2.00			62.6	4.000	1.980	CT	2.090	0.56	29.70		1977	AL001
		3.00			62.9	6.000	3.000	CT	3.100	0.70	33.30		1977	AL001
		3.00			62.9	6.000	3.000	CT	3.140	0.73	33.90		1977	AL001
		3.00			62.9	6.000	3.000	CT	3.070	0.71	33.60		1977	AL001
		3.00			63.9	6.000	3.000	CT	3.240	0.70	33.70		1977	AL001

TABLE 7.7.2.1 (Con't)

CONDITION	ALUMINUM		2048		K(1C)		CRACK		2.5*		K(1C) MEAN		K(1C) STAN		DATE		REFER	
	--PRODUCT-- FORM	THICK (IN)	YIELD STRENGTH (KSI)	SPECIMEN THICK (IN)	WIDTH (IN)	DEBION (IN)	LENGTH (IN)	A	2.5* (IN)	K(1C) STAN (KSI*SQRT IN)	K(1C) MEAN (KSI*SQRT IN)	K(1C) STAN (KSI*SQRT IN)	DATE	REFER				
T851	P	3.00	63.9	3.000	6.000	CT	3.280		0.72		34.30		1977	AL001				
		3.00	63.9	3.000	6.000	CT	3.240		0.73		34.90		1977	AL001				
		2.00	64.9	4.000	1.980	CT	2.090		0.52		29.90		1977	AL001				
		2.00	64.9	4.000	1.980	CT	2.070		0.55		30.40		1977	AL001				
		2.00	64.9	4.000	1.980	CT	2.050		0.53		29.90		1977	AL001				
		1.00	65.4	2.000	1.000	CT	1.060		0.56		30.90		1977	AL001				
T851	P	1.00	65.4	2.000	1.000	CT	1.050		0.55		30.70		1977	AL001				
		1.00	65.4	2.000	1.000	CT	1.050		0.56		31.00	30.6/	2.9	1977	AL001			
		4.00	56.0	3.000	1.500	CT	1.530		0.59		26.20		1977	AL001				
		4.00	56.0	3.000	1.500	CT	1.530		0.48		24.60		1977	AL001				
		4.00	56.0	3.000	1.500	CT	1.530		0.52		25.60		1977	AL001				
		3.00	58.5	2.500	1.250	CT	1.280		0.38		22.90		1977	AL001				
		3.00	58.5	2.500	1.250	CT	1.280		0.41		23.70		1977	AL001				
		3.00	58.5	2.500	1.250	CT	1.280		0.38		22.80		1977	AL001				
		3.00	58.9	2.500	1.250	CT	1.290		0.65		30.00		1977	AL001				
		3.00	58.9	2.500	1.250	CT	1.290		0.60		28.80		1977	AL001				
		3.00	58.9	2.500	1.250	CT	1.300		0.52		26.80		1977	AL001				
		2.00	59.3	1.500	0.750	CT	0.770		0.43		24.70		1977	AL001				
		2.00	59.3	1.500	0.750	CT	0.770		0.43		24.70		1977	AL001				
		2.00	59.3	1.500	0.750	CT	0.780		0.46		25.30		1977	AL001				
		4.00	59.5	3.000	1.500	CT	1.520		0.42		24.50		1977	AL001				
		4.00	59.5	3.000	1.500	CT	1.520		0.42		24.30		1977	AL001				
		4.00	59.5	3.000	1.500	CT	1.520		0.40		23.90		1977	AL001				
		2.00	59.9	1.500	0.750	CT	0.780		0.47		26.00		1977	AL001				
		2.00	59.9	1.500	0.750	CT	0.780		0.48		26.20	25.4/	1.9	1977	AL001			
		2.00	59.9	1.500	0.750	CT	0.780		0.48		26.20		1977	AL001				

TABLE 7.7.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.7.3.1 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2048			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. : DRY AIR	E= R. T. S. T. W.		
DELTA K	A: 5.67	.484			
MIN	B: 5.12		.924		
	C:				
	D:				
	6.00	.567	2.07		
	7.00	.909	3.56		
	8.00	1.43	5.32		
	9.00	2.19	7.58		
	10.00	3.24	9.60		
	13.00	8.78	14.5		
	16.00	19.0			
DELTA K	A: 19.95	40.4			
MAX	B: 14.65		23.7		
	C:				
	D:				
ROOT MEAN SQUARE		20.95	12.60		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 2.00-20.00 HZ

YIELD STRENGTH: 67.5 KSI
 ULT. STRENGTH: 71.4 KSI
 SPECIMEN THK: 1.00"
 SPECIMEN WIDTH: 3.905"
 REFERENCES: AL001

ALUM.
 ALLOY

2048

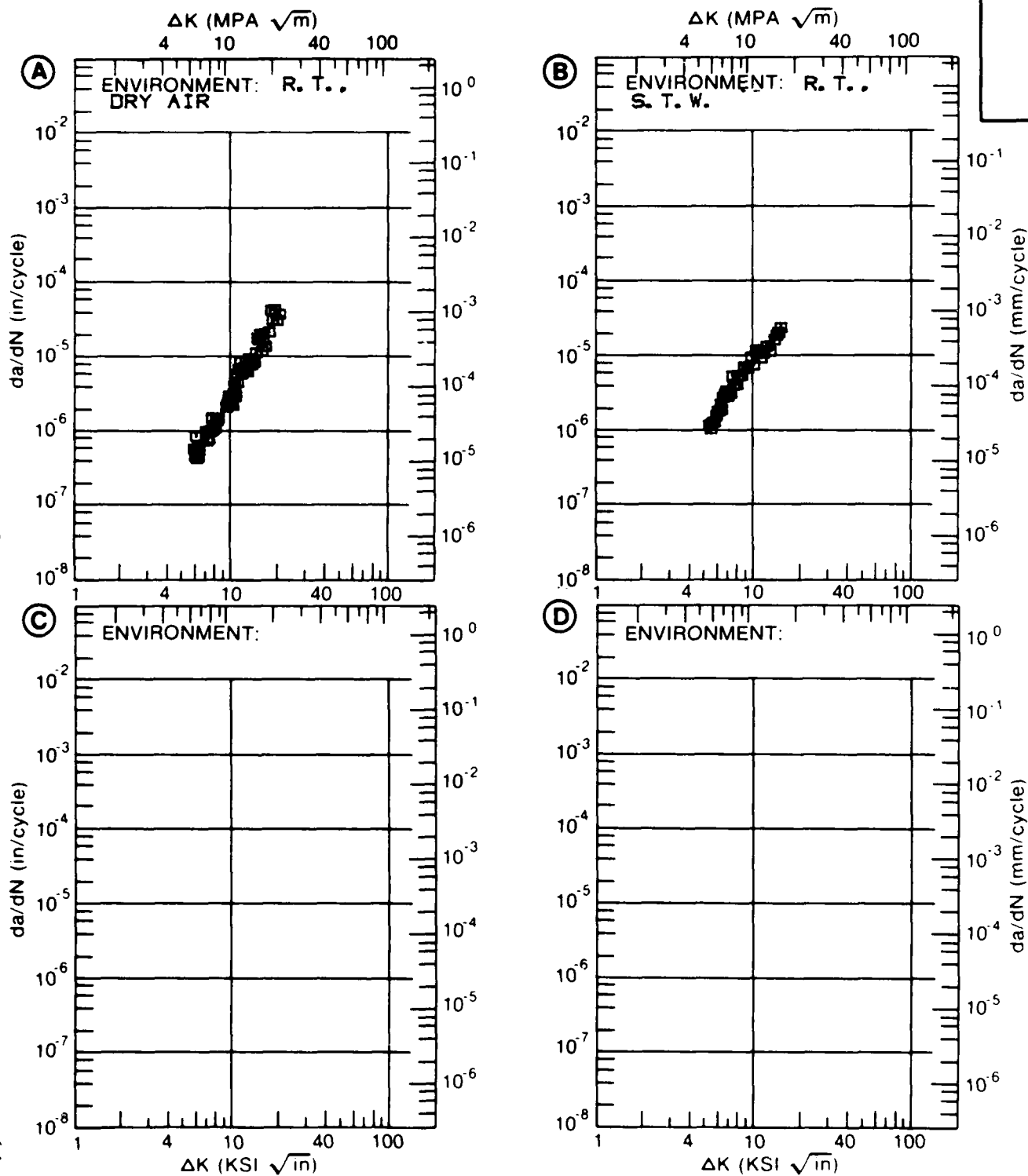


Figure 7.7.3.1

TABLE 7.7.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.7.3.2 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2048			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. S. T. W.	
DELTA K A:	5.67	.855			
DELTA K B:	5.67		1.36		
MIN C:	4.50			.843	
D:					
	5.00			1.01	
	6.00	.895	1.73	2.04	
	7.00	1.25	3.09	3.93	
	8.00	2.01	4.77	6.02	
	9.00	3.37	6.76	8.13	
	10.00	5.58	9.12	10.4	
	13.00	19.2	19.7	20.2	
	16.00	40.5	40.6		
DELTA K A:	19.81	152.			
DELTA K B:	18.55		76.1		
MAX C:	15.99			45.9	
D:					
ROOT MEAN SQUARE		22.75	13.68	13.37	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 2.00- 20.00 HZ

YIELD STRENGTH: 85.4 KSI
 ULT. STRENGTH: 70.5 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

2048

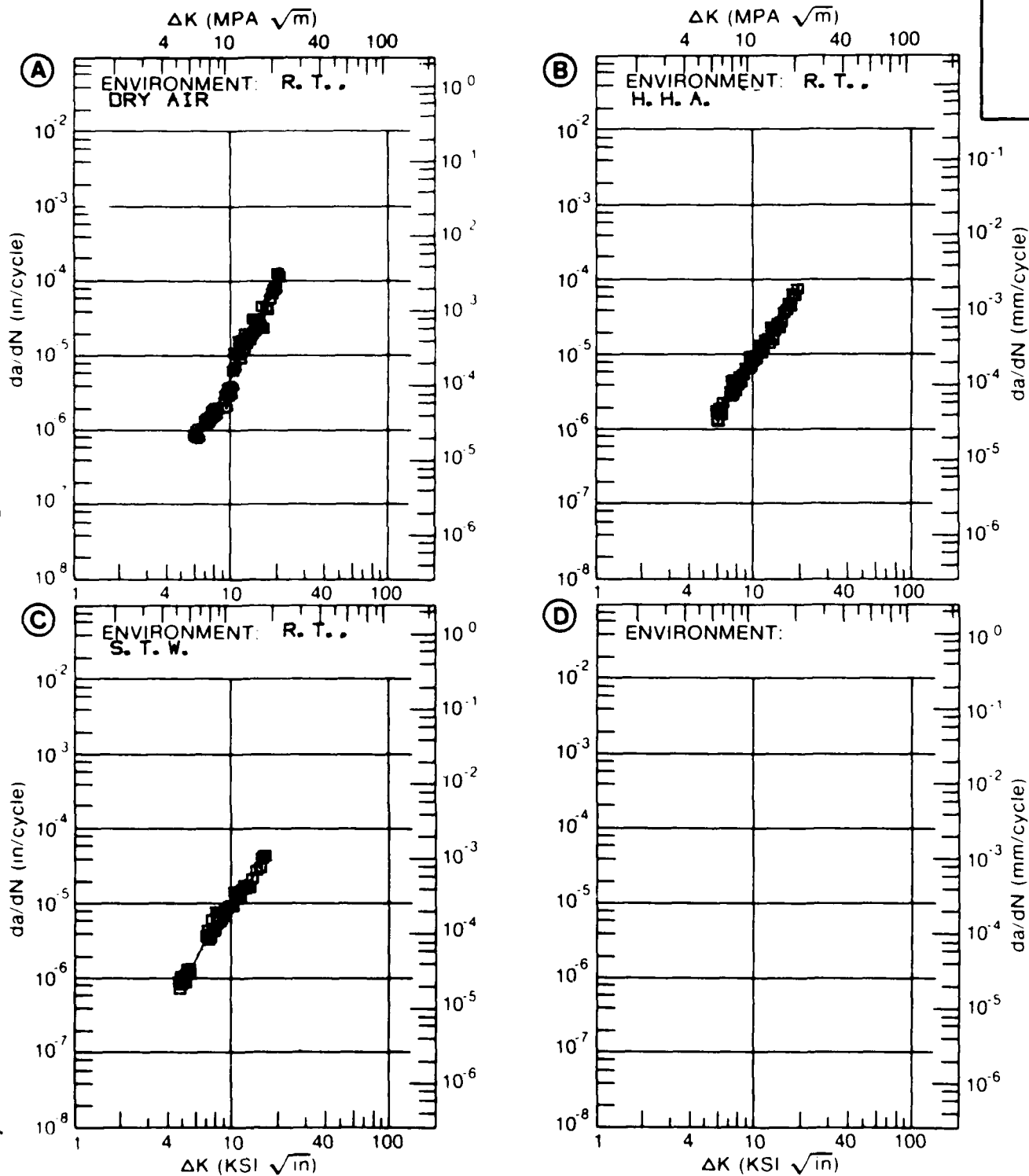


Figure 7.7.3.2

TABLE 7.7.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.7.3.3 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		2048			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. S. T. W.		
DELTA K A:	6.42	1.42			
DELTA K B:	5.10		.702		
MIN C:					
D:					
	6.00		1.67		
	7.00	1.36	3.21		
	8.00	2.51	5.06		
	9.00	3.89	7.06		
	10.00	4.99	9.14		
	13.00	8.78	15.9		
	16.00	19.9			
	20.00	56.3			
DELTA K A:	20.35	66.6			
DELTA K B:	14.76		20.5		
MAX C:					
D:					
ROOT MEAN SQUARE		18.85	17.65		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 2.00- 20.00 HZ

YIELD STRENGTH: 59.1 KSI
 ULT. STRENGTH: 64.4 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.100"
 REFERENCES: AL001

ALUM.
 ALLOY

2048

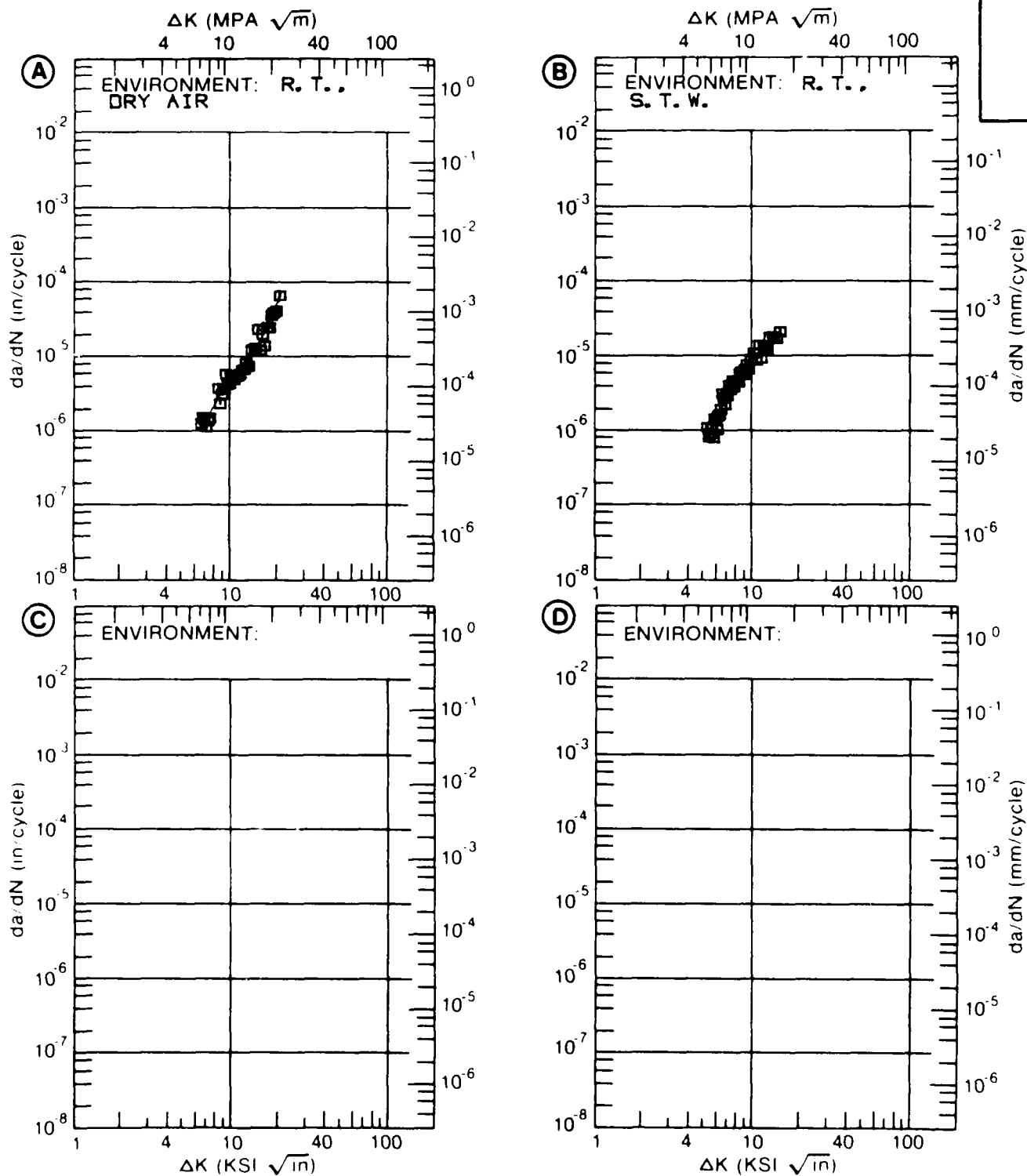


Figure 7.7.3.3

TABLE 7.7.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.7.3.4 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2048			
CONDITION: TB51					
ENVIRONMENT: R. T. , S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.33	R=+0.67		
DELTA K MIN	A: 2.46	.0795			
	B: 4.19		1.16		
	C:				
	D:				
	2.50	.0819			
	3.00	.128			
	3.50	.212			
	4.00	.344			
	5.00	.825	1.52		
	6.00	1.72	2.61		
	7.00	3.17	4.81		
	8.00	5.30	8.72		
	9.00	8.22	15.1		
	10.00	11.9	24.6		
	13.00	27.7	73.6		
	16.00	55.8			
DELTA K MAX	A: 16.89	118.			
	B: 13.10		75.7		
	C:				
	D:				
ROOT MEAN SQUARE		21.89	16.75		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 2.00- 30.00 HZ
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 57.3 KSI
 ULT. STRENGTH: 83.7 KSI
 SPECIMEN THK: 0.250- 1.000"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: AL001

ALUM.
 ALLOY

2048

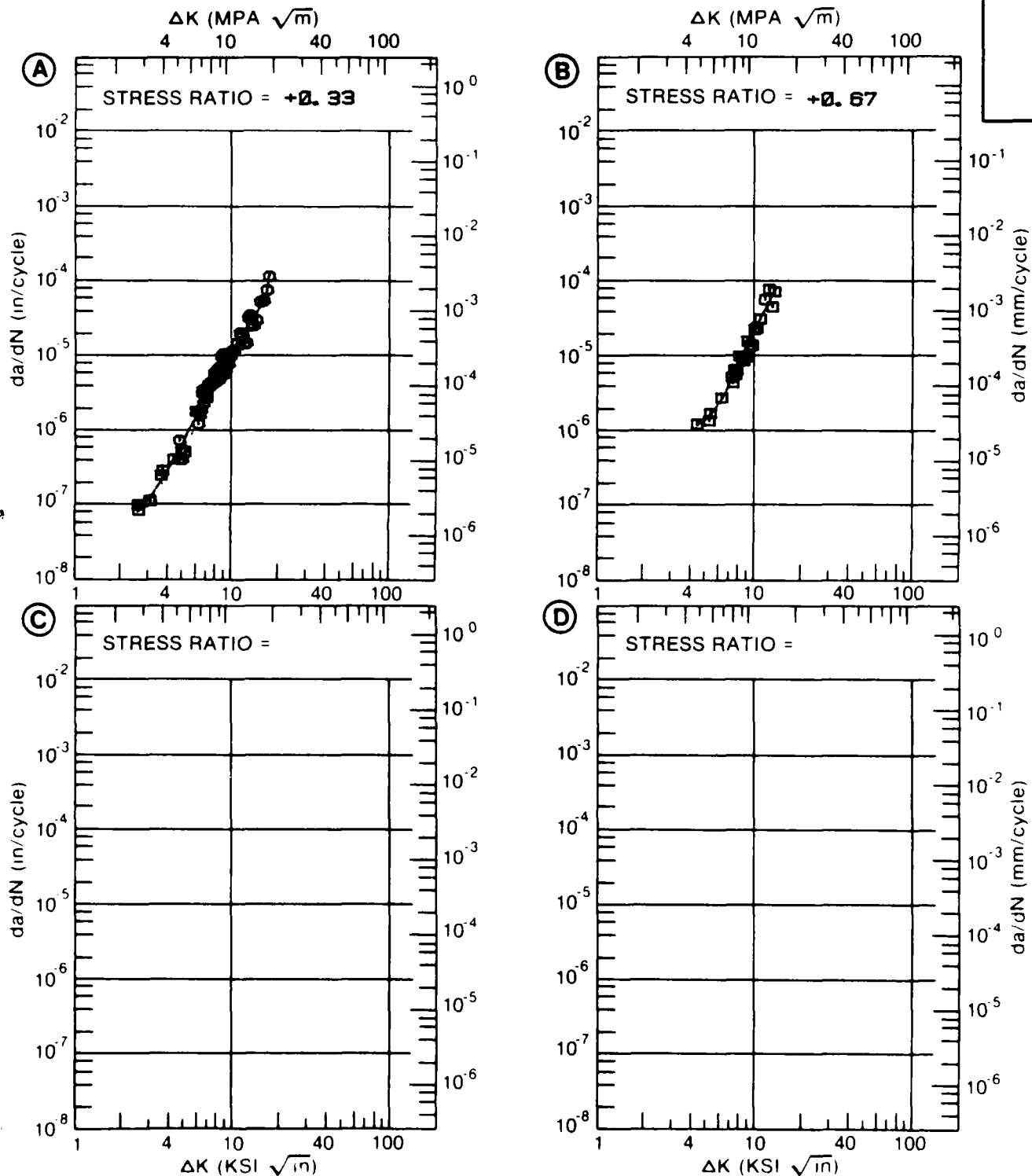


Figure 7.7.3.4

TABLE 7.7.3.5

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.7.3.5 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		2048			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. S. T. W.		
DELTA K A:	5.34	.416			
DELTA K B:	2.46		.0786		
MIN C:					
D:					
	2.50		.0816		
	3.00		.129		
	3.50		.208		
	4.00		.340		
	5.00		.841		
	6.00	.615	1.76		
	7.00	1.16	3.18		
	8.00	2.12	5.20		
	9.00	3.65	7.94		
	10.00	5.84	11.5		
	13.00	15.3	28.6		
	16.00	41.9	58.7		
DELTA K A:	18.10	148.			
DELTA K B:	16.89		70.9		
MAX C:					
D:					
ROOT MEAN SQUARE		26.02	23.71		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 2.00- 30.00 HZ

YIELD STRENGTH: 57.3 KSI
 ULT. STRENGTH: 83.7 KSI
 SPECIMEN THK: 0.250- 1.000"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: AL001

ALUM.
 ALLOY

2048

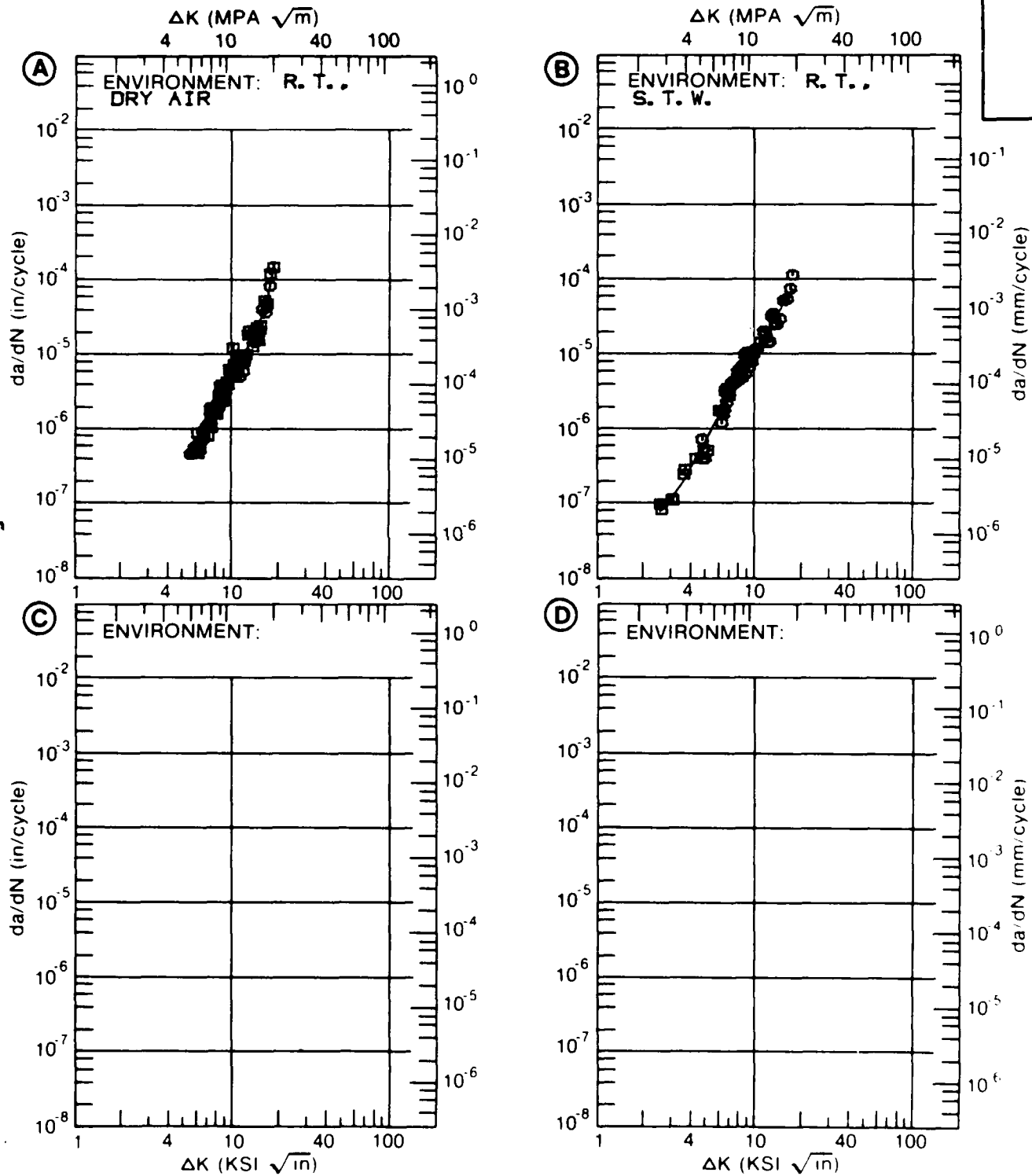


Figure 7.7.3.5

TABLE 7.7.3.6

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.7.3.6 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2048	
CONDITION: T851			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)	
		A	B
		E= R. T. H. H. A.	E= R. T. S. T. W.
DELTA K MIN	A:	5.60	1.18
	B:	4.50	1.08
	C:		
	D:		
	5.00		1.48
	6.00	1.70	2.51
	7.00	3.33	3.97
	8.00	5.39	6.06
	9.00	7.99	9.06
	10.00	11.5	13.4
	13.00	35.7	41.5
DELTA K MAX	A:	14.81	78.8
	B:	15.41	101.
	C:		
	D:		
ROOT MEAN SQUARE		17	15.46
PERCENT ERROR			
LIFE	0.0-0.5		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25		
SUMMARY	1.25-2.0		
(NP/NA)	>2.0		

CONDITION/HT: T851
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 STRESS RATIO: +0.33
 FREQUENCY: 2.00- 20.00 HZ

YIELD STRENGTH: 56.0 KSI
 ULT. STRENGTH: 62.5 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

2048

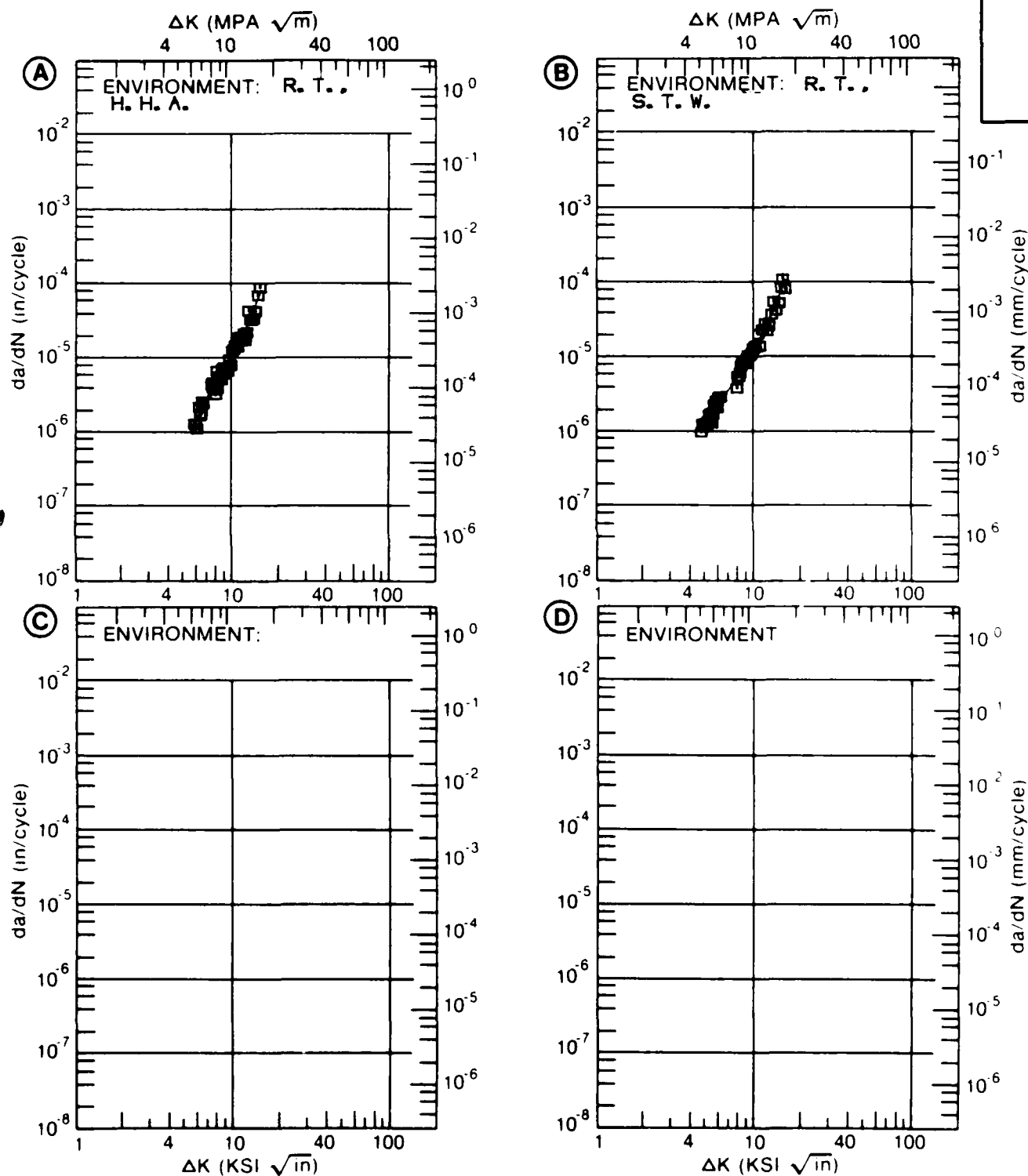


Figure 7.7.3.6

TABLE 7.8.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2124 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SORT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	L-I	I-L	S-L	
T851	29 7 ± 2 8 (364)	25 1 ± 2 3 (362)	21 7 ± 2 1 (393)	
T851 (SP)	27 2 ± 4 7 (10)	23 1 ± 2 7 (7)	21 4 ± 3 2 (10)	
T851 (417)	20 9 ± 2 8 (27)	23 8 ± 2 4 (28)	21 3 ± 2 0 (19)	

TABLE 7.8.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2124

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT L-H-A
AT R-T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))		FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)			
				2.5	5	10	20	50	100
T851	PLATE	0.10	30.00		0.01	0.26	2.69	44.6	
T851	PLATE	0.50	30.00		0.09	0.68	7.07		

TABLE 7.8.1.3
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2124

TEST CONDITIONS

SPECIMEN
ORIENTATION L-T

ENVIRONMENT: S.T.W.
AT R.T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS: (KSI SQRT(IN))	2.5	5	10	20	50	100
T851	PLATE	0.10	1.00			0.26	6.04	50.4		
T851	PLATE	0.30	1.00			0.64	8.37	119		
T851	PLATE	0.50	1.00			1.07	9.52			

TABLE 7.8.1.4

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2124

TEST CONDITIONS

SPECIMEN ORIENTATION T L ENVIRONMENT H H A AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T851	PLATE	0.10	1.00			0.23	5.53	92.9		
T851	PLATE	0.10	6.00-33.00			0.28	5.16			
T851	PLATE	0.25	6.00-33.00		0.03	0.75	6.15			
T851	PLATE	0.50	1.00			1.22	15.4			
T851	PLATE	0.50	6.00-33.00		0.13	1.17	28.8			

TABLE 7.8.1.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2124

TEST CONDITIONS

SPECIMEN
ORIENTATION T-LENVIRONMENT S T W
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T851	PLATE	0.10	1.00			0.37	7.71			
T851	PLATE	0.30	1.00			0.59	10.0			
T851	PLATE	0.50	1.00			1.08	18.5			

TABLE 7.8.1.6
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 2124

TEST CONDITIONS

SPECIMEN
ORIENTATION S-L

ENVIRONMENT S T W
A T R T

CONDITION/H ₁	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
TBS1	PLATE	0.10	1.00			0.44	7.59	156		
TBS1	PLATE	0.30	1.00			0.94	12.4			
TBS1	PLATE	0.50	1.00			1.35	19.4			

TABLE 7.8.2.1

CONDITION	ALUMINUM			2124	K(1C)			CRACK LENGTH (IN) A	2.5* (K(1C)/TYS)*2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV	DATE	REFER
	--PRODUCT--		YIELD STRENGTH (KSI)		-----SPECIMEN-----		DESIGN						
	FORM	THICK (IN)			THICK (IN)	WIDTH (IN)							
T351 (417)	P	2 50	82	T-L	44.2	3 990	1 999	CT	2 146	1 82	37 70	1973 86213	
T851	P	2 55	R.T.	L-T	52.8	6 047	2 504	CT	3 084	1 26	37 90	1978 MPC01	
		5 00			55.0	3 000	1 501	CT	1 545	0 95	34 00	1979 GD011	
		5 00			55.0	3 003	1 502	CT	1 632	0 93	33 70	1979 GD011	
		6 00			55.1	2 994	1 499	CT	1 497	1 02	35 30	1978 MPC01	
		5 00			55.2	3 011	1 500	CT	1 596	0 60	27 20	1978 MPC01	
		6 00			55.5	3 006	1 498	CT	1 503	0 70	29 90	1978 MPC01	
		5 50			56.3	3 010	1 498	CT	1 505	1 08	37 20	1978 MPC01	
		6 00			56.5	3 014	1 499	CT	1 767	0 81	32 90	1978 MPC01	
		5 50			56.7	2 999	1 500	CT	1 513	0 64	28 90	1980 RA001	
		5 50			56.8	3 020	1 493	CT	1 480	0 67	29 70	1978 MPC01	
		6 00			56.8	1 998	0 998	CT	1 048	0 57	27 20	1978 RA001	
		5 00			56.9	1 986	0 997	CT	1 013	0 65	29 50	1978 MPC01	
		5 12			56.9	3 000	1 498	CT	1 500	0 90	34 30	1978 MPC01	
		6 00			57.1	3 000	1 500	CT	1 550	0 67	29 70	1972 84368	
		6 00			57.1	3 000	1 500	CT	1 520	0 65	29 10	1972 84368	
		5 25			57.2	3 004	1 498	CT	1 502	0 65	29 30	1978 MPC01	
		5 00			57.2	3 029	1 496	CT	1 484	0 84	33 60	1978 MPC01	
		4 90			57.3	3 000	1 498	CT	1 530	0 77	32 00	1978 RA002	
		5 50			57.4	3 010	1 499	CT	1 565	0 78	32 30	1978 MPC01	
		4 50			57.4	3 001	1 499	CT	1 522	0 95	35 40	1980 RA001	
		5 00			57.6	3 000	1 499	CT	1 537	0 62	28 90	1979 RA001	
		5 25			57.7	2 973	1 502	CT	1 516	0 75	32 30	1978 MPC01	
		5 00			57.7	2 999	1 500	CT	1 499	0 63	29 10	1980 RA001	
		5 50			57.8	3 022	1 497	CT	1 481	0 65	29 50	1978 MPC01	
		5 00			57.8	2 997	1 497	CT	1 521	0 66	29 90	1979 RA001	
		4 62			57.9	2 998	1 500	CT	1 499	0 93	35 90	1978 MPC01	
		5 50			58.0	3 010	1 497	CT	1 445	0 60	28 80	1978 MPC01	
		5 50			58.1	2 971	1 498	CT	1 456	0 57	28 00	1978 MPC01	
		5 25			58.1	3 026	1 500	CT	1 513	0 90	35 20	1978 MPC01	
		5 00			58.1	3 000	1 498	CT	1 573	0 74	31 79	1978 RA001	
		5 50			58.1	2 984	1 500	CT	1 522	0 84	33 90	1978 MPC01	
		4 90			58.1	3 005	1 500	CT	1 498	0 57	27 90	1978 RA002	
		4 25			58.2	2 999	1 499	CT	1 551	0 65	29 70	1980 RA001	
		5 00			58.2	3 002	1 500	CT	1 561	0 48	25 90	1978 MPC01	
		5 50			58.3	2 988	1 499	CT	1 464	0 57	28 40	1978 MPC01	

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM			2124		K(1C)		CRACK LENGTH (IN)	2.5* (IN)	K(1C)/TYS**2 (KSI*SQRT IN)	K(1C) MEAN DEV (KSI*SQRT IN)	STAN DEV	DATE	REFER	
	---PRODUCT--- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	WIDTH (IN)	THICK (IN)	DESIGN								
1851	P	5.00	R	T	L-T	2.980	1.498	CT	1.490	0.67	30.90	30.90	1978	MPC01	
		3.50				3.004	1.498	CT	1.502	0.72	31.90	31.90	1978	MPC01	
		5.00				1.592	0.998	CT	1.016	0.50	26.80	26.80	1978	MPC01	
		2.50				3.000	1.498	CT	1.556	0.60	28.90	28.90	1980	RA001	
		6.00				2.000	0.999	CT	0.975	0.97	36.70	36.70	1980	RA001	
		4.50				2.982	1.498	CT	1.491	0.75	32.70	32.70	1978	MPC01	
		6.00				3.014	1.499	CT	1.537	0.67	30.90	30.90	1978	MPC01	
		4.50				3.016	1.499	CT	1.478	0.70	31.60	31.60	1978	MPC01	
		5.50				2.984	1.501	CT	1.523	0.57	28.60	28.60	1978	MPC01	
		4.55				3.001	1.496	CT	1.517	0.75	32.40	32.40	1980	RA001	
		5.50				3.000	1.501	CT	1.530	0.70	31.50	31.50	1978	MPC01	
		6.00				2.977	1.495	CT	1.518	0.70	31.80	31.80	1978	MPC01	
		6.00				2.986	1.493	CT	1.493	0.55	27.90	27.90	1978	MPC01	
		4.31				2.000	1.000	CT	1.000	0.50	26.50	26.50	1972	B4368	
		4.31				2.000	1.000	CT	0.990	0.52	27.00	27.00	1972	B4368	
		4.00				3.000	1.499	CT	1.542	0.61	29.50	29.50	1978	RA001	
		4.90				2.990	1.368	CT	1.465	0.57	29.00	29.00	1978	MPC01	
		4.00				2.000	1.000	CT	1.000	0.61	29.40	29.40	1972	B4368	
		4.00				2.000	1.000	CT	1.000	0.59	28.90	28.90	1972	B4368	
		4.62				2.988	1.478	CT	1.464	0.62	30.10	30.10	1978	MPC01	
		5.25				3.018	1.501	CT	1.509	0.81	34.50	34.50	1978	MPC01	
		6.00				1.998	0.998	CT	1.033	0.73	32.30	32.30	1978	RA001	
		4.00				2.999	1.499	CT	1.527	0.62	29.90	29.90	1980	RA001	
		4.00				3.002	1.498	CT	1.542	0.88	35.50	35.50	1980	RA001	
		4.50				2.997	1.498	CT	1.532	0.79	33.59	33.59	1979	RA001	
		4.50				3.012	1.499	CT	1.476	0.70	31.70	31.70	1978	MPC01	
		1.81				3.011	1.478	CT	1.626	0.60	29.80	29.80	1978	MPC01	
		4.50				3.000	1.500	CT	1.530	0.76	33.10	33.10	1972	B4368	
		4.50				3.000	1.500	CT	1.510	0.71	31.90	31.90	1972	B4368	
		6.00				3.004	1.499	CT	1.532	0.70	31.80	31.80	1978	MPC01	
		4.00				3.012	1.497	CT	1.566	0.70	32.30	32.30	1978	MPC01	
		5.00				2.999	1.499	CT	1.532	0.60	29.80	29.80	1978	MPC01	
		3.00				2.994	1.406	CT	1.529	0.66	30.79	30.79	1980	RA001	
		3.00				3.001	1.376	CT	1.484	0.60	29.40	29.40	1980	RA001	
		4.00				3.000	1.499	CT	1.489	0.62	29.90	29.90	1980	RA001	
		5.50				60.1	2.996	1.502	CT	1.528	0.97	29.40	29.40	1978	MPC01
		5.50				60.1	3.012	1.501	CT	1.504	0.52	27.70	27.70	1978	MPC01
		4.50				60.1	3.000	1.495	CT	1.533	0.69	31.60	31.60	1978	MPC01
		2.50				60.3	3.002	1.102	CT	1.510	0.44	25.50	25.50	1980	RA001

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM			YIELD STRENGTH (KSI)	SPECIMEN			THICK (IN)	TEST TEMP (F)	ORIENT	K(1C) STAN DEV (KSI*SQRT IN)	K(1C) MEAN (KSI*SQRT IN)	DATE	REFER
	FORM	THICK (IN)	THICK (IN)		WIDTH (IN)	THICK (IN)	DESIGN							
T851	P	4.50	60.3	3.000	1.499	CT	1.536	0.57	28.79	1978	RA002			
		5.00	60.4	2.000	1.001	CT	1.011	0.56	28.79	1978	RA002			
		5.50	60.4	3.016	1.500	CT	1.508	0.52	28.00	1978	MPC01			
		5.25	60.4	2.994	1.500	CT	1.497	0.75	33.50	1978	MPC01			
		5.50	60.4	3.002	1.500	CT	1.531	0.62	30.30	1978	MPC01			
		2.50	60.5	3.004	1.499	CT	1.523	0.44	25.40	1980	RA001			
		4.50	60.5	2.978	1.500	CT	1.489	0.65	31.00	1978	MPC01			
		5.50	60.6	3.004	1.500	CT	1.532	0.52	28.10	1978	MPC01			
		3.54	60.6	2.994	1.497	CT	1.587	0.62	30.70	1978	MPC01			
		5.50	60.6	3.026	1.500	CT	1.513	0.60	30.20	1978	MPC01			
		5.50	60.6	2.998	1.500	CT	1.529	0.48	26.90	1978	MPC01			
		2.75	60.6	3.001	1.499	CT	1.591	0.48	26.79	1978	RA002			
		3.00	60.6	3.000	1.400	CT	1.526	0.64	30.90	1980	RA001			
		5.50	60.8	3.008	1.497	CT	1.534	0.48	27.10	1978	MPC01			
		3.62	60.8	3.006	1.496	CT	1.473	0.65	31.40	1978	MPC01			
		3.50	60.8	3.004	1.496	CT	1.492	0.42	25.00	1980	RA001			
		5.50	60.9	2.980	1.500	CT	1.520	0.48	27.00	1978	MPC01			
		4.31	60.9	3.004	1.498	CT	1.592	0.52	28.10	1978	MPC01			
		5.00	60.9	3.010	1.500	CT	1.535	0.55	29.10	1978	MPC01			
		5.50	60.9	3.028	1.501	CT	1.514	0.70	32.70	1978	MPC01			
		4.00	60.9	2.999	1.499	CT	1.544	0.56	28.90	1978	RA001			
		6.00	61.0	2.998	1.500	CT	1.559	0.70	32.50	1978	MPC01			
		3.50	61.0	3.004	1.499	CT	1.502	0.72	33.00	1978	MPC01			
		3.50	61.0	2.982	1.499	CT	1.461	0.70	32.50	1978	MPC01			
		5.50	61.1	3.032	1.500	CT	1.516	0.48	26.90	1978	MPC01			
		4.25	61.1	1.985	0.998	CT	1.032	0.78	34.60	1978	MPC01			
		5.50	61.1	3.000	1.500	CT	1.500	0.53	28.10	1972	84368			
		5.50	61.1	3.000	1.500	CT	1.500	0.55	28.80	1972	84368			
		4.00	61.1	3.000	1.499	CT	1.571	0.73	33.09	1979	RA001			
		4.00	61.2	3.000	1.497	CT	1.586	0.92	37.20	1978	RA001			
		4.00	61.2	3.012	1.496	CT	1.536	0.67	31.90	1978	MPC01			
		2.70	61.3	2.008	1.000	CT	1.024	0.81	35.50	1978	MPC01			
		4.90	61.3	3.002	1.499	CT	1.550	0.50	27.50	1978	RA002			
		3.00	61.3	3.002	1.497	CT	1.522	0.65	31.40	1980	RA001			
		6.00	61.4	2.980	1.499	CT	1.520	0.70	32.80	1978	MPC01			
		2.50	61.4	3.020	1.186	CT	1.540	0.55	29.10	1978	MPC01			
		2.50	61.4	2.012	0.998	CT	1.006	0.44	26.00	1978	MPC01			
		5.50	61.4	3.031	1.500	CT	1.546	0.52	28.80	1978	MPC01			
		4.90	61.5	2.976	1.494	CT	1.488	0.48	27.50	1978	MPC01			

7.8-10

TABLE 7.8.2.1 (Con't)

CONDITION	--PRODUCT--			TEST SPECIMEN ORIENT (F)	YIELD (KSI)	ALUMINUM			K(1C)			K(1C) STAN DEV	DATE	REFER
	FORM	THICK (IN)	THICK (IN)			-----SPECIMEN-----			CRACK LENGTH (IN)	2.5* (IN)	K(1C)/TYB)**2 (KSI*SQRT IN)			
						WIDTH (IN)	THICK (IN)	DESIGN						
TBS1	P	3.25	R.T.	L-T	62.4	2.990	1.498	CT	1.435	0.72	34.00		1978	MPC01
		2.50			62.5	3.000	1.499	CT	1.600	0.60	30.79		1978	RA002
		6.00			62.5	3.010	1.499	CT	1.565	0.72	34.00		1978	MPC01
		4.90			62.5	3.000	1.499	CT	1.603	0.50	28.00		1978	RA002
		5.00			62.6	3.024	1.500	CT	1.542	0.48	28.00		1978	MPC01
		5.50			62.6	3.000	1.500	CT	2.100	0.56	29.70		1978	GD003
		5.50			62.6	3.000	1.500	CT	2.100	0.62	31.20		1978	GD003
		5.50			62.6	2.986	1.500	CT	1.523	0.52	28.80		1978	MPC01
		5.00			62.6	3.016	1.500	CT	1.508	0.44	26.90		1978	MPC01
		4.75			62.6	3.000	1.500	CT	1.546	0.66	32.20		1980	RA001
		5.50			62.6	3.000	1.500	CT	2.100	0.58	30.20		1978	GD003
		3.12			62.7	3.015	1.377	CT	1.447	0.65	32.00		1978	MPC01
		3.12			62.7	3.030	1.498	CT	1.515	0.62	31.60		1978	MPC01
		3.00			62.7	3.002	1.488	CT	1.581	0.51	28.50		1978	RA002
		3.75			62.8	3.029	1.497	CT	1.575	0.52	28.90		1978	MPC01
		4.00			62.8	3.001	1.251	CT	1.525	0.47	27.30		1980	RA001
		5.00			62.9	3.032	1.500	CT	1.516	0.48	28.20		1978	MPC01
		5.00			62.9	2.972	1.500	CT	1.486	0.46	27.20		1978	MPC01
		2.50			62.9	2.000	1.000	CT	----	0.67	32.10		1974	88742
		5.50			62.9	3.024	1.500	CT	1.512	0.48	28.00		1978	MPC01
		3.12			62.9	3.002	1.498	CT	1.514	0.67	32.59		1980	RA001
		4.25			62.9	3.039	1.500	CT	1.550	0.48	27.80		1978	MPC01
		2.50			62.9	2.000	1.000	CT	----	0.74	33.70		1974	88742
		2.50			62.9	2.000	1.000	CT	----	0.67	32.00		1974	88742
		3.12			63.0	3.025	1.498	CT	1.482	0.62	32.10		1978	MPC01
		4.25			63.0	3.010	1.500	CT	1.535	0.52	29.10		1978	MPC01
		6.00			63.1	3.002	1.499	CT	1.561	0.62	31.70		1978	MPC01
		2.00			63.1	3.006	1.500	CT	1.503	0.48	27.90		1978	MPC01
		2.50			63.1	2.970	1.201	CT	1.574	0.50	28.40		1978	MPC01
		2.00			63.1	3.020	1.499	CT	1.510	0.55	30.20		1978	MPC01
		4.25			63.2	2.977	1.500	CT	1.518	0.46	27.40		1978	MPC01
		4.50			63.2	3.016	1.500	CT	1.508	0.55	30.20		1978	MPC01
	4.50			63.2	2.984	1.500	CT	1.492	0.57	30.50		1978	MPC01	
	5.00			63.2	3.008	1.500	CT	1.534	0.60	31.40		1978	MPC01	
	4.50			63.2	3.012	1.500	CT	1.506	0.60	31.00		1978	MPC01	
	2.00			63.2	3.000	1.497	CT	1.591	0.50	28.50		1978	RA001	
	2.75			63.2	3.002	1.483	CT	1.520	0.50	28.29		1980	RA001	
	4.50			63.4	3.022	1.499	CT	1.511	0.55	30.30		1978	MPC01	
	4.50			63.4	3.000	1.500	CT	1.520	0.44	26.70		1972	84368	

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM		YIELD STRENGTH (KSI)	SPECIMEN		THICK TEMP ORIENT (F)	R T	L-T	W (IN)	THICK (IN)	DESIGN	CRACK		K(1C) 2.5* (KSI*SQRT IN)	K(1C) MEAN DEV (KSI*SQRT IN)	DATE	REFER
	FORM	THICK (IN)		WIDTH (IN)	THICK (IN)							LENGTH (IN)	2.5* (IN)				
T85:	P	4 50	63.4	3.000	1.500	CT			1.540			1.540	0.46	27.20		1972 B4368	
		1 50	63.4	3.000	1.483	CT			1.568			1.568	0.59	30.79		1980 RA001	
		4 25	63.5	2.986	1.500	CT			1.523			1.523	0.50	29.20		1978 MPC01	
		4 00	63.5	3.014	1.499	CT			1.567			1.567	0.60	31.60		1978 MPC01	
		1 75	63.5	3.004	1.500	CT			1.517			1.517	0.53	29.29		1978 RA002	
		1 75	63.6	3.001	1.496	CT			1.583			1.583	0.52	29.10		1978 RA001	
		3 00	63.6	1.998	0.999	CT			1.019			1.019	0.43	26.50		1979 RA001	
		2 75	63.6	2.999	1.496	CT			1.543			1.543	0.54	29.60		1980 RA001	
		3 00	63.6	2.986	1.499	CT			1.523			1.523	0.55	29.90		1978 MPC01	
		3 12	63.6	2.985	1.499	CT			1.582			1.582	0.70	33.80		1978 MPC01	
		2 50	63.7	3.002	1.499	CT			1.561			1.561	0.52	29.70		1978 MPC01	
		4 00	63.7	3.019	1.499	CT			1.570			1.570	0.42	26.70		1978 MPC01	
		2 50	63.7	3.001	1.495	CT			1.607			1.607	0.53	29.40		1978 RA002	
		2 00	63.8	3.016	1.498	CT			1.508			1.508	0.46	27.60		1978 MPC01	
		2 50	63.8	3.010	1.498	CT			1.535			1.535	0.52	29.40		1978 MPC01	
		3 62	63.8	2.995	1.499	CT			1.529			1.529	0.49	28.29		1980 RA001	
		2 50	63.8	3.000	1.499	CT			1.584			1.584	0.56	30.20		1978 RA002	
		3 50	63.9	3.000	1.500	CT			1.520			1.520	0.61	31.50		1972 B4368	
		2 35	63.9	3.001	1.500	CT			1.581			1.581	0.51	29.00		1978 RA002	
		3 00	63.9	3.000	1.397	CT			1.532			1.532	0.54	29.90		1980 RA001	
		4 25	63.9	3.014	1.501	CT			1.507			1.507	0.62	32.50		1978 MPC01	
		3 50	63.9	3.000	1.500	CT			1.910			1.910	0.61	31.60		1972 B4368	
		3 00	64.0	2.996	1.400	CT			1.618			1.618	0.50	29.40		1978 MPC01	
		4 25	64.0	3.020	1.500	CT			1.510			1.510	0.62	32.30		1978 MPC01	
		3 00	64.0	3.021	1.247	CT			1.450			1.450	0.44	27.50		1978 MPC01	
		4 90	64.0	3.000	1.499	CT			1.572			1.572	0.56	30.29		1978 RA002	
		5 50	64.0	2.977	1.500	CT			1.518			1.518	0.46	27.90		1978 MPC01	
		3 00	64.1	2.999	1.488	CT			1.574			1.574	0.69	33.70		1978 RA001	
		2 50	64.1	3.000	1.499	CT			1.623			1.623	0.56	30.40		1978 RA002	
		2 35	64.2	1.498	0.751	CT			0.790			0.790	0.20	18.29		1978 RA002	
		3 00	64.2	3.000	1.499	CT			1.548			1.548	0.57	30.70		1980 RA001	
		4 25	64.2	3.024	1.500	CT			1.512			1.512	0.46	27.90		1978 MPC01	
		2 00	64.2	2.000	1.002	CT			1.008			1.008	0.43	26.79		1978 RA002	
		3 50	64.2	2.999	1.499	CT			1.550			1.550	0.67	33.40		1978 RA001	
		2 25	64.2	2.989	0.999	CT			1.554			1.554	0.36	25.00		1978 MPC01	
		3 00	64.2	3.002	1.495	CT			1.533			1.533	0.40	25.70		1980 RA001	
		1 57	64.3	3.000	1.500	CT			1.590			1.590	0.46	27.40		1972 B4368	
		3 62	64.3	2.978	1.499	CT			1.608			1.608	0.46	27.80		1978 MPC01	
		3 54	64.3	3.014	1.498	CT			1.507			1.507	0.48	28.50		1978 MPC01	

TABLE 7.8.2.1 (Con't)

CONDITION	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM		SPECIMEN		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV	DATE	REFER
	FORM	THICK (IN)			THICK (IN)	DESIGN								
	W	B			A									
T851	P	2 35	R T	L-T	64.3	3.001	1.499	CT	1.527	0.51	29.20		1980 RA001	
		4 25			64.4	3.008	1.500	CT	1.534	0.55	30.80		1978 MPC01	
		3 00			64.4	2.975	1.300	CT	1.636	0.48	28.60		1978 MPC01	
		2 00			64.4	3.016	1.499	CT	1.538	0.50	29.90		1978 MPC01	
		4 50			64.4	3.024	1.500	CT	1.512	0.62	32.20		1978 MPC01	
		1 12			64.4	3.000	1.140	CT	1.537	0.53	29.79		1980 RA001	
		1 50			64.5	2.990	1.493	CT	1.525	0.57	31.60		1978 MPC01	
		4 25			64.5	3.008	1.500	CT	1.534	0.50	29.60		1978 MPC01	
		2 50			64.5	3.004	1.498	CT	1.546	0.44	27.10		1980 RA001	
		2 50			64.5	2.010	0.998	CT	1.005	0.34	24.00		1978 MPC01	
		2 50			64.5	2.510	1.249	CT	1.280	0.50	39.40		1978 MPC01	
		2 50			64.5	2.999	1.494	CT	1.536	0.39	25.70		1980 RA001	
		2 50			64.5	2.498	1.230	CT	1.274	0.48	28.90		1978 MPC01	
		4 25			64.7	3.026	1.499	CT	1.543	0.60	31.80		1978 MPC01	
		2 50			64.7	3.014	1.102	CT	1.567	0.40	26.50		1978 MPC01	
		2 75			64.7	3.024	1.500	CT	1.542	0.70	34.80		1978 MPC01	
		4 25			64.7	3.028	1.501	CT	1.514	0.62	32.50		1978 MPC01	
		3 00			64.8	3.000	1.499	CT	1.558	0.40	26.00		1979 RA001	
		2 00			64.8	3.002	1.496	CT	1.554	0.40	26.10		1980 RA001	
		2 20			64.8	3.001	1.498	CT	1.554	0.52	29.70		1980 RA001	
		2 50			64.9	2.010	1.000	CT	1.005	0.55	30.60		1978 MPC01	
		2 50			64.9	2.508	1.250	CT	1.279	0.42	27.20		1978 MPC01	
		2 50			64.9	2.486	1.250	CT	1.268	0.42	26.90		1978 MPC01	
		3 25			64.9	3.016	1.497	CT	1.508	0.70	34.40		1978 MPC01	
		1 81			64.9	2.982	1.493	CT	1.521	0.52	29.90		1978 MPC01	
		2 75			64.9	2.997	1.498	CT	1.610	0.60	32.00		1980 RA001	
		4 90			65.0	3.000	1.500	CT	1.591	0.49	28.90		1978 RA002	
		2 00			65.0	3.017	1.499	CT	1.569	0.57	31.20		1978 MPC01	
		0 62			65.1	1.006	0.500	CT	0.503	0.46	28.40		1978 MPC01	
		1 50			65.1	3.000	1.479	CT	1.532	0.52	29.90		1980 RA001	
		2 00			65.1	3.000	1.496	CT	1.581	0.59	31.79		1980 RA001	
		4 00			65.2	3.979	2.000	CT	2.069	0.50	29.40		1978 MPC01	
		2 00			65.2	2.008	0.999	CT	1.044	0.44	27.60		1978 MPC01	
		2 50			65.2	2.999	1.498	CT	1.555	0.48	28.70		1980 RA001	
		1 75			65.2	2.999	1.500	CT	1.567	0.61	32.30		1980 RA001	
		1 57			65.2	3.000	1.500	CT	1.530	0.73	35.20		1972 B4368	
		3 00			65.2	3.008	1.400	CT	1.594	0.48	28.90		1978 MPC01	
		1 57			65.2	3.000	1.500	CT	1.480	0.69	34.20		1972 B4368	
		3 00			65.2	2.001	0.997	CT	1.012	0.54	30.50		1978 RA002	

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				YIELD STRENGTH (KSI)	SPECIMEN				CRACK LENGTH (IN)	2.5* K(1C)/(TVS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV	DATE	REFER
	--PRODUCT--		TEST TEMP (F)	SPECIMEN ORIENT		THICK (IN)		DESIGN							
	FORM	THICK (IN)				WIDTH (IN)	THICK (IN)								
									W						
T851	P	2.35	R.T.	L-Y	65.2	2.016	1.001	CT		0.988	0.40	26.70	1978	MPC01	
		4.00			65.2	4.039	1.997	CT	2.060	0.48	29.10	1978	MPC01		
		2.50			65.3	3.000	1.499	CT	1.522	0.45	28.00	1980	RA001		
		2.00			65.3	1.994	0.999	CT	1.017	0.42	27.30	1978	MPC01		
		2.50			65.4	2.000	1.000	CT	1.010	0.44	27.30	1972	84368		
		2.04			65.4	1.500	0.750	CT	0.740	0.27	21.30	1972	84368		
		2.50			65.4	2.000	1.000	CT	1.020	0.43	27.10	1972	84368		
		1.81			65.4	2.012	0.998	CT	1.046	0.44	27.80	1978	MPC01		
		2.00			65.4	3.003	1.501	CT	1.568	0.54	30.40	1978	RA002		
		3.50			65.4	3.000	1.500	CT	1.540	0.44	27.90	1972	84368		
		2.04			65.4	1.500	0.750	CT	0.750	0.26	21.10	1972	84368		
		3.00			65.4	2.975	1.245	CT	1.517	0.55	30.80	1978	MPC01		
		2.00			65.4	3.030	1.500	CT	1.515	0.48	29.00	1978	MPC01		
		2.50			65.4	2.990	1.498	CT	1.525	0.55	30.90	1978	MPC01		
		3.00			65.5	1.997	0.998	CT	1.014	0.59	32.00	1979	RA001		
		2.50			65.5	1.998	0.998	CT	0.979	0.50	29.90	1978	MPC01		
		4.00			65.5	3.000	1.500	CT	1.580	0.31	23.00	1972	84368		
		4.00			65.5	3.000	1.500	CT	1.560	0.30	22.50	1972	84368		
		2.50			65.6	4.000	2.000	CT	2.100	0.78	36.70	1972	84368		
		2.50			65.6	4.000	2.000	CT	2.100	0.77	36.40	1972	84368		
		3.00			65.6	3.001	1.478	CT	1.574	0.49	29.20	1978	RA001		
		5.50			65.7	3.018	1.500	CT	1.509	0.44	28.10	1978	MPC01		
		2.50			65.7	2.983	1.499	CT	1.551	0.42	27.00	1978	MPC01		
		1.12			65.7	3.018	1.435	CT	1.479	0.34	24.70	1978	MPC01		
		3.00			65.8	3.028	1.400	CT	1.605	0.62	33.10	1978	MPC01		
		1.75			65.9	3.003	1.501	CT	1.583	0.60	32.90	1978	RA002		
		2.40			65.9	3.003	1.498	CT	1.534	0.49	29.40	1980	RA001		
		2.25			66.0	2.016	0.999	CT	1.068	0.38	26.30	1978	MPC01		
		1.50			66.0	3.000	1.500	CT	---	0.52	30.00	1982	NC003		
		3.00			66.0	2.400	0.755	CT	1.356	0.60	32.40	1972	84306		
		1.25			66.0	2.004	0.998	CT	1.083	0.44	28.20	1978	MPC01		
		2.50			66.0	3.003	1.478	CT	1.520	0.51	30.10	1978	RA002		
		1.50			66.0	3.000	1.500	CT	---	0.52	30.00	1982	NC003		
		1.50			66.1	3.001	1.476	CT	1.564	0.54	31.00	1980	RA001		
		2.50			66.2	4.000	2.000	CT	2.150	0.65	33.70	1972	84368		
		2.50			66.2	4.000	2.000	CT	2.160	0.69	34.90	1972	84368		
		2.00			66.2	3.000	1.500	CT	1.550	0.52	30.30	1972	84368		
		1.50			66.2	3.018	1.478	CT	1.509	0.50	29.80	1978	MPC01		
		1.12			66.2	2.004	1.000	CT	1.022	0.46	28.90	1978	MPC01		

7.8-15

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				K(1C)		K(1C) STAN	REFER						
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	WIDTH (IN)			THICK (IN)	DESIGN	CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	
1851	P	1.50	R.T.	L-T	67.2	2.509	1.252	CT	1.282	0.45	28.79	1981 MA002		
		1.50			67.2	2.512	1.253	CT	1.298	0.46	29.00	1981 MA002		
		1.50			67.6	2.997	1.494	CT	1.525	0.45	28.79	1978 RA001		
		1.55			67.7	3.000	1.501	CT	1.575	0.38	26.50	1979 RA001		
		2.00			67.7	3.029	1.498	CT	1.545	0.44	28.60	1978 MPC01		
		1.55			67.8	1.998	0.999	CT	1.019	0.40	27.70	1978 MPC01		
		1.50			67.9	1.985	0.999	CT	1.032	0.42	28.00	1978 MPC01		
		1.75			68.0	2.998	1.498	CT	1.589	0.55	32.40	1978 MPC01		
		1.37			68.2	2.984	1.376	CT	1.462	0.38	26.90	1978 MPC01		
		1.25			68.4	2.017	0.999	CT	1.089	0.38	26.90	1978 MPC01		
		1.73			68.4	3.003	1.503	CT	1.611	0.48	30.20	1978 RA002		
		1.62			68.8	3.001	1.451	CT	1.522	0.40	27.79	1980 RA001		
		1.50			69.1	3.002	1.492	CT	1.528	0.36	26.70	1980 RA001		
		1.75			69.5	2.998	1.500	CT	1.559	0.44	29.20	1978 MPC01		
		2.52			69.7	2.000	1.000	CT	0.960	0.34	25.50	1972 84368		
1851	P	2.52			69.7	2.000	1.000	CT	0.960	0.35	26.00	1972 84368		
		2.52			69.7	2.000	1.000	CT	0.940	0.33	25.20	1972 84368		
		3.50	81	L-T	64.4	3.000	1.500	CT	1.547	0.45	27.40	1973 86213		
		3.50			64.4	3.000	1.499	CT	1.533	0.53	29.60	1973 86213		
		1851	P	2.50	250	L-T	56.9	2.000	1.000	CT	----	0.85	33.30	1974 88742
2.50					56.9	2.000	1.000	CT	----	0.88	33.90	1974 88742		
2.50					56.9	2.000	1.000	CT	----	0.78	31.90	1974 88742		
1851	P			3.00	R.T.	T-L	----	3.014	1.372	CT	1.477	----	26.40	1978 MPC01
				5.00			53.0	3.004	1.502	CT	1.533	0.56	25.10	1979 GD011
		6.00			53.9	3.020	1.499	CT	1.510	0.44	23.10	1978 MPC01		
		5.50			54.2	2.973	1.497	CT	1.516	0.50	24.80	1978 MPC01		
		5.25			54.4	2.998	1.498	CT	1.559	0.50	24.80	1978 MPC01		
6.00			54.6	2.979	1.499	CT	1.579	0.57	26.60	1978 MPC01				
5.25			54.9	3.012	1.499	CT	1.536	0.42	22.90	1978 MPC01				
6.00			54.9	3.008	1.499	CT	1.594	0.55	26.00	1978 MPC01				
6.00			54.9	2.985	1.499	CT	1.552	0.67	28.80	1978 MPC01				
6.00			55.0	3.000	1.500	CT	1.580	0.48	24.10	1972 84368				
6.00			55.0	3.000	1.500	CT	1.560	0.46	23.70	1972 84368				
5.50			55.6	3.017	1.498	CT	1.569	0.70	29.90	1978 MPC01				
5.50			55.9	2.999	1.500	CT	1.582	0.50	25.00	1980 RA001				
5.75			56.4	2.001	0.995	CT	1.010	0.60	27.70	1980 RA001				

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM		YIELD STRENGTH (KSI)	SPECIMEN		W (IN)	THICK (IN)		DESIGN	CRACK LENGTH (IN)		2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	STAN DEV	DATE	REFER	
	--PRODUCT-- FORM	THICK (IN)		TEST TEMP (F)	ORIENT		R. T.	T-L		Y	B						A
T851	P	5 50	56.5	3.008	1.499	CT	1.564	0.55	27.00	1978	MPC01						
		6 00	56.7	3.004	1.499	CT	1.622	0.50	26.00	1978	MPC01						
		5 50	56.7	3.028	1.500	CT	1.544	0.48	25.10	1978	MPC01						
		5 50	56.8	3.010	1.498	CT	1.505	0.57	27.60	1978	MPC01						
		6 00	57.0	2.001	0.998	CT	1.000	0.56	27.20	1980	RA001						
		6 00	57.0	3.014	1.498	CT	1.537	0.38	22.30	1978	MPC01						
		5 00	57.0	3.010	1.498	CT	1.505	0.44	24.10	1978	MPC01						
		5 00	57.0	3.026	1.500	CT	1.604	0.42	23.90	1978	MPC01						
		4 90	57.1	3.000	1.498	CT	1.556	0.73	30.90	1978	RA002						
		6 00	57.1	3.026	1.494	CT	1.513	0.57	27.90	1978	MPC01						
		5 12	57.1	3.028	1.499	CT	1.544	0.55	27.20	1978	MPC01						
		5 00	57.2	2.996	1.497	CT	1.528	0.60	28.30	1978	MPC01						
		5 12	57.3	2.987	1.500	CT	1.583	0.70	30.90	1978	MPC01						
		4 62	57.4	2.981	1.500	CT	1.550	0.60	28.50	1978	MPC01						
		5 50	57.7	3.008	1.502	CT	1.564	0.36	22.40	1978	MPC01						
		5 50	57.7	2.994	1.500	CT	1.557	0.44	24.40	1978	MPC01						
		5 00	57.8	2.998	1.501	CT	1.585	0.51	26.29	1979	RA001						
		5 00	57.8	2.006	0.998	CT	1.043	0.46	25.30	1978	MPC01						
		6 00	57.9	1.998	0.997	CT	1.025	0.47	25.29	1978	RA001						
		4 62	57.9	3.020	1.499	CT	1.510	0.42	24.20	1978	MPC01						
		4 50	58.0	2.997	1.497	CT	1.548	0.47	25.40	1979	RA001						
		5 50	58.0	2.986	1.500	CT	1.463	0.48	26.00	1978	MPC01						
		5 50	58.1	3.006	1.501	CT	1.533	0.38	22.80	1978	MPC01						
		5 50	58.2	2.984	1.498	CT	1.492	0.52	27.00	1978	MPC01						
		5 00	58.4	3.001	1.498	CT	1.612	0.44	24.60	1978	RA001						
		4 25	58.4	3.000	1.499	CT	1.595	0.48	25.60	1980	RA001						
		5 00	58.4	2.996	1.499	CT	1.533	0.40	23.40	1979	RA001						
		5 00	58.5	3.020	1.498	CT	1.540	0.40	23.50	1978	MPC01						
		4 50	58.5	3.000	1.500	CT	1.570	0.51	26.90	1972	8436B						
		4 00	58.5	2.999	1.498	CT	1.560	0.43	24.29	1980	RA001						
		5 50	58.6	2.996	1.501	CT	1.528	0.44	25.10	1978	MPC01						
		5 00	58.6	2.972	1.499	CT	1.605	0.44	24.80	1978	MPC01						
		5 25	58.6	3.018	1.499	CT	1.509	0.52	27.20	1978	MPC01						
		4 00	58.7	1.998	0.998	CT	1.005	0.36	22.90	1979	RA001						
		5 50	58.7	2.982	1.500	CT	1.521	0.44	25.20	1978	MPC01						
		5 50	58.8	3.031	1.500	CT	1.546	0.36	22.70	1978	MPC01						
		5 50	58.8	3.008	1.500	CT	1.534	0.30	21.00	1978	MPC01						
		4 90	58.9	3.000	1.499	CT	1.623	0.40	23.79	1978	RA002						
4 00	58.9	3.006	1.492	CT	1.533	0.48	26.40	1978	MPC01								

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM			2124			K(IIC)			DATE	REFER	
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2 5* (IN)	K(IIC) MEAN DEV (KSI*SQRT IN)			
					WIDTH (IN)	THICK (IN)						A
T851	P	4 55	R T	T-L	58.9	3.001	1.500	CT	1.563	0.57	28.20	1980 RA001
		4 00			58.9	2.998	1.496	CT	1.589	0.38	23.00	1978 MPC01
		6 00			59.0	2.987	1.500	CT	1.553	0.62	29.50	1978 MPC01
		4 00			59.0	3.012	1.501	CT	1.566	0.42	24.50	1978 MPC01
		5 50			59.0	2.977	1.501	CT	1.548	0.48	26.50	1978 MPC01
		5 50			59.1	3.006	1.500	CT	1.533	0.40	23.70	1978 MPC01
		4 90			59.1	3.006	1.493	CT	1.503	0.44	25.30	1978 MPC01
		4 50			59.1	2.994	1.498	CT	1.587	0.55	28.20	1978 MPC01
		4 90			59.1	3.000	1.499	CT	1.613	0.47	25.79	1978 RA002
		4 00			59.1	3.003	1.498	CT	1.604	0.56	28.10	1980 RA001
		5 50			59.2	3.028	1.500	CT	1.544	0.36	22.80	1978 MPC01
		4 50			59.2	2.987	1.498	CT	1.553	0.38	23.20	1978 MPC01
		4 50			59.2	3.017	1.498	CT	1.599	0.55	28.20	1978 MPC01
		4 00			59.2	3.004	1.499	CT	1.562	0.34	22.40	1978 MPC01
		5 50			59.2	2.983	1.497	CT	1.551	0.30	21.00	1978 MPC01
		5 50			59.3	3.000	1.500	CT	1.510	0.34	21.80	1972 84368
		6 00			59.3	2.976	1.500	CT	1.577	0.60	29.60	1978 MPC01
		5 50			59.3	3.000	1.500	CT	1.540	0.35	22.30	1972 84368
		4 50			59.4	3.001	1.501	CT	1.583	0.36	22.79	1978 RA002
		5 50			59.6	3.016	1.500	CT	1.538	0.32	21.50	1978 MPC01
		5 50			59.6	3.016	1.499	CT	1.538	0.30	20.90	1978 MPC01
		5 50			59.6	3.008	1.502	CT	1.534	0.32	21.90	1978 MPC01
		5 00			59.7	2.000	1.001	CT	1.045	0.37	23.20	1978 RA002
		5 00			59.8	3.026	1.500	CT	1.543	0.38	23.50	1978 MPC01
		5 50			59.8	3.018	1.500	CT	1.539	0.40	24.20	1978 MPC01
		5 50			59.8	2.996	1.500	CT	1.558	0.40	24.10	1978 MPC01
		4 00			59.9	2.999	1.499	CT	1.570	0.38	23.40	1980 RA001
		6 00			59.9	3.012	1.499	CT	1.566	0.65	30.60	1978 MPC01
		4 90			59.9	3.003	1.500	CT	1.572	0.42	24.60	1978 RA002
		4 50			60.0	3.000	1.500	CT	1.500	0.57	28.80	1978 MPC01
		4 00			60.0	2.000	1.000	CT	1.030	0.38	23.40	1972 84368
		4 50			60.0	3.000	1.496	CT	1.604	0.41	24.29	1978 RA002
		5 50			60.1	2.994	1.501	CT	1.557	0.34	22.50	1978 MPC01
		4 00			60.1	2.999	1.500	CT	1.493	0.54	28.10	1980 RA001
		5 00			60.1	3.000	1.501	CT	1.530	0.38	23.80	1978 MPC01
		5 50			60.1	3.002	1.500	CT	1.530	0.30	21.50	1978 MPC01
		5 50			60.1	2.994	1.501	CT	1.527	0.32	22.10	1978 MPC01
		5 25			60.1	3.026	1.500	CT	1.513	0.44	25.30	1978 MPC01
		5 50			60.1	2.992	1.500	CT	1.526	0.40	24.30	1978 MPC01

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM		2124		K(1C)		DATE	REFER				
	FORM	THICK (IN)	TEST SPECIMEN ORIENT (F)	YIELD STRENGTH (KSI)	WIDTH (IN)	THICK (IN)			DESIGN (IN)	CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KBI*SQRT IN)
1851	P	4 00	R T	T-L	3 000	1.497	CT	1.636	0.41	24.40	1978	RA001
		5 50			2.988	1.500	CT	1.524	0.36	22.90	1978	MPC01
		4 00			3.020	1.498	CT	1.540	0.50	27.20	1978	MPC01
		4 25			1.981	0.997	CT	1.030	0.46	26.40	1978	MPC01
		4 00			2.998	1.373	CT	1.588	0.51	27.40	1978	RA001
		5 50			3.000	1.500	CT	1.500	0.36	23.30	1978	MPC01
		5 00			3.214	1.499	CT	1.539	0.36	23.40	1978	MPC01
		5 50			2.978	1.500	CT	1.519	0.38	23.60	1978	MPC01
		3 50			3.016	1.497	CT	1.478	0.46	26.50	1978	MPC01
		5 50			2.998	1.500	CT	1.529	0.28	21.20	1978	MPC01
		5 25			3.018	1.500	CT	1.539	0.50	27.70	1978	MPC01
		1 81			3.002	1.498	CT	1.651	0.44	25.70	1978	MPC01
		3 75			2.996	1.497	CT	1.528	0.48	27.00	1978	MPC01
		5 50			3.014	1.500	CT	1.537	0.36	23.50	1978	MPC01
		5 50			2.996	1.500	CT	1.528	0.34	23.00	1978	MPC01
		5 50			3.018	1.500	CT	1.539	0.32	22.20	1978	MPC01
		4 50			3.020	1.501	CT	1.510	0.46	26.70	1978	MPC01
		4 31			2.000	1.000	CT	1.000	0.38	23.60	1972	84368
	4 31			2.000	1.000	CT	0.990	0.39	23.90	1972	84368	
	5 00			2.988	1.500	CT	1.524	0.30	21.90	1978	MPC01	
	3 00			3.002	1.498	CT	1.567	0.57	29.29	1980	RA001	
	4 00			2.998	1.499	CT	1.608	0.43	25.29	1979	RA001	
	5 00			3.020	1.501	CT	1.631	0.46	26.60	1978	MPC01	
	3 00			3.001	1.418	CT	1.555	0.54	28.50	1980	RA001	
	5 50			3.004	1.490	CT	1.532	0.32	22.00	1978	MPC01	
	4 00			3.000	1.498	CT	1.562	0.59	29.70	1978	RA001	
	5 25			2.985	1.500	CT	1.552	0.42	25.50	1978	MPC01	
	3 00			2.999	1.498	CT	1.546	0.46	26.29	1980	RA001	
	5 50			2.988	1.501	CT	1.524	0.32	22.50	1978	MPC01	
	6 00			3.008	1.499	CT	1.594	0.67	31.80	1978	MPC01	
	4 25			3.020	1.500	CT	1.540	0.34	22.70	1978	MPC01	
	1 75			2.999	1.499	CT	1.563	0.40	24.70	1980	RA001	
	4 90			3.000	1.499	CT	1.625	0.44	25.79	1978	RA002	
	4 50			3.000	1.500	CT	1.570	0.36	23.30	1972	84368	
	4 50			3.000	1.500	CT	1.520	0.34	22.50	1972	84368	
	5 50			3.010	1.500	CT	1.535	0.32	22.30	1978	MPC01	
	4 50			3.030	1.500	CT	1.515	0.52	28.60	1978	MPC01	
	4 50			3.020	1.500	CT	1.510	0.50	27.70	1978	MPC01	
	3 00			3.001	1.438	CT	1.613	0.42	25.40	1978	RA001	

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM		2124		K(1C)		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) (KSI*SQRT IN)	K(1C) STAN MEAN DEV IN)	DATE	REFER		
	---PRODUCT--- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	WIDTH (IN)							THICK (IN)	DESIGN
1851	P	5 00	R T	T-L	61.4	3 028	1 500	CT	1 544	0 32	22 30	1978 MPC01		
		5 50			61.4	3 006	1 500	CT	1 533	0 28	21 30	1978 MPC01		
		4 50			61.4	3 014	1 500	CT	1 507	0 50	27 90	1978 MPC01		
		4 00			61.4	3 000	1 497	CT	1 657	0 50	27 70	1979 RA001		
		3 50			61.5	3 000	1 497	CT	1 602	0 55	29 00	1978 RA001		
		4 31			61.5	3 022	1 502	CT	1 632	0 42	25 90	1978 MPC01		
		5 00			61.5	3 000	1 499	CT	1 547	0 37	23 70	1980 RA001		
		2 25			61.6	2 994	1 502	CT	1 587	0 52	28 80	1978 MPC01		
		3 50			61.6	3 006	1 499	CT	1 533	0 50	28 30	1978 MPC01		
		4 90			61.6	3 030	1 494	CT	1 515	0 38	24 30	1978 MPC01		
		5 50			61.6	3 029	1 500	CT	1 545	0 32	22 60	1978 MPC01		
		3 50			61.6	2 990	1 497	CT	1 559	0 52	28 40	1978 MPC01		
		4 25			61.6	2 990	1 500	CT	1 525	0 32	22 30	1978 MPC01		
		4 00			61.7	2 994	1 499	CT	1 587	0 38	24 40	1978 MPC01		
		3 00			61.7	78	0 997	CT	1 031	0 37	24 00	1979 RA001		
		5 00			61.7	2 004	1 500	CT	1 562	0 34	23 00	1978 MPC01		
		3 00			61.7	2 003	1 404	CT	1 556	0 51	28 10	1980 RA001		
		2 70			61.7	2 017	0 999	CT	1 049	0 55	29 30	1978 MPC01		
		3 00			61.8	3 002	1 374	CT	1 505	0 37	23 79	1980 RA001		
		2 50			61.8	2 994	1 056	CT	1 557	0 38	24 90	1978 MPC01		
		2 50			61.8	3 000	1 499	CT	1 647	0 42	25 60	1978 RA001		
		4 25			61.9	3 026	1 502	CT	1 543	0 32	22 90	1978 MPC01		
		5 50			61.9	3 000	1 500	CT	2 100	0 44	26 00	1978 GD003		
		3 12			61.9	3 022	1 499	CT	1 511	0 50	27 90	1978 MPC01		
		5 50			61.9	3 000	1 500	CT	2 100	0 43	25 70	1978 GD003		
		5 50			61.9	3 000	1 500	CT	2 100	0 43	25 70	1978 GD003		
		2 50			61.9	3 000	1 499	CT	1 561	0 43	25 79	1978 RA002		
		4 25			61.9	3 002	1 500	CT	1 531	0 28	21 60	1978 MPC01		
		3 62			62 0	2 995	1 498	CT	1 544	0 34	22 90	1980 RA001		
		2 00			62 0	2 994	1 499	CT	1 597	0 53	28 70	1980 RA001		
		4 25			62 1	2 978	1 500	CT	1 519	0 36	24 00	1978 MPC01		
		4 50			62 1	3 006	1 500	CT	1 533	0 50	28 20	1978 MPC01		
		4 50			62 1	3 006	1 500	CT	1 503	0 55	29 40	1978 MPC01		
		4 50			62 1	2 994	1 501	CT	1 527	0 50	28 30	1978 MPC01		
		4 50			62 1	3 002	1 498	CT	1 600	0 48	27 40	1980 RA001		
		2 50			62 1	2 000	1 000	CT	---	0 47	26 70	1974 BB742		
		2 00			62 1	2 002	1 002	CT	1 052	0 32	22 29	1978 RA002		
		4 90			62 1	3 000	1 500	CT	1 617	0 40	25 10	1978 RA002		
	2 50			62 1	2 000	1 000	CT	---	0 47	26 90	1974 BB742			

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM					2124					K(IIC)			K(IIC) STAN DEV	DATE	REFER
	--PRODUCT-- FORM		THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* K(IIC)/TYS)**2 (IN)	K(IIC) MEAN (KSI*SQRT IN)					
	THICK (IN)	WIDTH (IN)					THICK (IN)	DESIGN								
1851	P	4 50	R T	T-L	62 1	3 016	1 500	CT	1 508	0 50	28 10	1978	MPC01			
		2 50			62 1	2 000	1 000	CT	----	0 52	28 20	1974	88742			
		2 50			62 2	3 021	0 869	CT	1 420	0 40	25 40	1978	MPC01			
		1 73			62 3	1 992	1 000	CT	1 016	0 36	24 10	1978	MPC01			
		3 50			62 3	3 001	1 500	CT	1 581	0 43	26 60	1979	RA001			
		2 50			62 3	2 989	1 498	CT	1 584	0 36	24 10	1978	MPC01			
		3 00			62 3	3 002	1 375	CT	1 551	0 61	31 00	1980	RA001			
		2 50			62 3	2 000	0 997	CT	1 040	0 30	21 90	1978	MPC01			
		4 00			62 4	3 002	1 251	CT	1 644	0 33	22 70	1980	RA001			
		5 50			62 4	2 988	1 499	CT	1 524	0 48	27 70	1978	MPC01			
		2 50			62 4	2 964	1 500	CT	1 926	0 42	25 70	1980	RA001			
		3 12			62 4	3 003	1 498	CT	1 565	0 50	28 10	1980	RA001			
		1 50			62 4	3 000	1 484	CT	1 556	0 42	25 60	1980	RA001			
		4 25			62 4	3 020	1 500	CT	1 540	0 34	23 10	1978	MPC01			
		3 00			62 4	3 008	1 482	CT	1 504	0 42	26 10	1978	MPC01			
		3 00			62 5	2 999	1 363	CT	1 568	0 35	23 60	1980	RA001			
		3 00			62 5	3 001	1 187	CT	1 641	0 39	25 00	1978	RA002			
		4 25			62 5	2 986	1 500	CT	1 523	0 34	23 30	1978	MPC01			
		2 75			62 5	3 000	1 496	CT	1 648	0 35	23 40	1978	RA002			
		4 50			62 6	3 012	1 501	CT	1 506	0 44	26 80	1978	MPC01			
		2 50			62 6	3 000	1 499	CT	1 592	0 41	25 60	1978	RA002			
		3 00			62 6	2 999	1 301	CT	1 515	0 43	26 20	1978	RA002			
	3 50			62 6	3 000	1 498	CT	1 559	0 35	23 60	1980	RA001				
	4 00			62 7	3 019	1 500	CT	1 630	0 42	26 10	1978	MPC01				
	3 50			62 7	3 000	1 500	CT	1 550	0 46	26 80	1972	84368				
	4 00			62 7	3 002	1 498	CT	1 591	0 46	27 20	1978	MPC01				
	3 50			62 7	3 000	1 500	CT	1 550	0 44	26 40	1972	84368				
	3 12			62 7	3 000	1 498	CT	1 594	0 54	29 40	1978	RA001				
	3 00			62 8	3 014	1 301	CT	1 567	0 46	27 20	1978	MPC01				
	3 00			62 8	3 000	1 498	CT	1 505	0 32	22 60	1980	RA001				
	4 25			62 8	2 977	1 500	CT	1 518	0 34	23 40	1978	MPC01				
	3 00			62 9	2 999	1 399	CT	1 523	0 55	29 70	1980	RA001				
	2 00			62 9	3 026	1 503	CT	1 513	0 38	25 00	1978	MPC01				
	5 00			62 9	2 981	1 500	CT	1 550	0 38	24 70	1978	MPC01				
	3 12			62 9	2 980	1 448	CT	1 609	0 48	28 20	1978	MPC01				
	4 25			62 9	2 990	1 500	CT	1 525	0 28	21 80	1978	MPC01				
	4 25			62 9	3 014	1 500	CT	1 537	0 36	24 00	1978	MPC01				
	2 00			62 9	3 016	1 497	CT	1 508	0 40	25 30	1978	MPC01				
	3 62			62 9	3 031	1 497	CT	1 485	0 40	25 20	1978	MPC01				

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM		2124		K(1C)		DATE	REFER				
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	SPECIMEN				CRACK LENGTH (IN)	2.5* (IN)	K(1C) STAN K(1C) MEAN K(1C) DEV	
					WIDTH (IN)	THICK (IN)						DESIGN
T851	P	2.50	R. T.	T-L	2.489	1.250	CT	1.294	0.40	25.70	1978	MPC01
		2.50			2.528	1.250	CT	1.289	0.40	25.50	1978	MPC01
		3.54			3.019	1.498	CT	1.630	0.46	27.40	1978	MPC01
		2.50			2.998	1.099	CT	1.589	0.36	24.20	1978	MPC01
		4.25			2.975	1.500	CT	1.547	0.32	22.90	1978	MPC01
		1.75			2.980	1.498	CT	1.490	0.28	22.00	1978	MPC01
		3.00			2.000	0.975	CT	1.036	0.41	25.90	1978	RA002
		3.25			3.027	1.499	CT	1.574	0.42	26.30	1978	MPC01
		2.25			2.985	1.503	CT	1.582	0.44	27.20	1978	MPC01
		4.25			2.983	1.499	CT	1.551	0.30	22.80	1978	MPC01
		5.50			2.988	1.500	CT	1.524	0.32	22.90	1978	MPC01
		1.37			1.996	0.978	CT	1.078	0.30	22.20	1978	MPC01
		2.50			3.001	1.496	CT	1.572	0.39	25.40	1980	RA001
		2.00			2.990	1.499	CT	1.555	0.32	23.40	1978	MPC01
		2.35			3.000	1.499	CT	1.541	0.39	24.00	1980	RA001
		3.12			3.027	1.499	CT	1.574	0.42	26.30	1978	MPC01
		2.50			3.001	1.499	CT	1.600	0.39	25.40	1978	RA002
		3.00			3.001	1.333	CT	1.574	0.33	23.40	1979	RA001
		2.90			2.992	0.996	CT	1.466	0.42	26.30	1978	MPC01
		3.54			3.000	1.497	CT	1.530	0.42	26.90	1978	MPC01
		3.00			3.004	1.400	CT	1.592	0.32	23.30	1978	MPC01
		2.75			2.999	1.498	CT	1.572	0.36	24.29	1980	RA001
		2.50			3.028	1.498	CT	1.544	0.36	24.30	1978	MPC01
		3.12			3.020	1.502	CT	1.480	0.46	27.60	1978	MPC01
		2.00			2.990	0.870	CT	1.465	0.34	24.20	1978	MPC01
		2.00			2.975	1.502	CT	1.517	0.44	27.20	1978	MPC01
		1.75			3.001	1.498	CT	1.554	0.33	23.29	1978	RA001
		2.50			2.989	1.499	CT	1.614	0.44	27.10	1978	MPC01
		5.00			3.028	1.498	CT	1.514	0.38	25.10	1978	MPC01
		3.00			1.998	0.978	CT	1.029	0.41	26.00	1979	RA001
	3.00			3.001	1.428	CT	1.591	0.43	26.60	1978	RA001	
	1.25			2.016	0.999	CT	1.028	0.34	23.80	1978	MPC01	
	2.50			2.999	1.498	CT	1.545	0.41	26.20	1980	RA001	
	2.75			3.000	1.496	CT	1.570	0.47	27.90	1980	RA001	
	3.50			3.000	1.500	CT	1.520	0.33	23.30	1972	84368	
	2.75			2.987	1.497	CT	1.553	0.44	27.30	1978	MPC01	
	3.00			3.017	1.496	CT	1.539	0.44	27.50	1978	MPC01	
	4.00			3.975	1.999	CT	2.067	0.42	26.60	1978	MPC01	
	3.50			3.000	1.500	CT	1.520	0.32	22.80	1972	84368	

TABLE 7.8.2.1 (Con't)

CONDITION	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM		2124		K(1C)		K(1C) MEAN DEV (KSI*SQRT IN)	DATE	REFER
	FORM	THICK (IN)			THICK (IN)	WIDTH (IN)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (IN)			
							DESIGN	THICK (IN)					
T851	P	4.00	R. T.	T-L	64.2	3.000	1.500	CT	1.590	0.26	20.80	1972	84368
		0.62			64.2	1.004	0.500	CT	0.512	0.46	28.00	1978	MPC01
		3.00			64.2	2.996	1.400	CT	1.648	0.34	24.20	1978	MPC01
		2.50			64.2	2.000	1.000	CT	1.040	0.42	26.30	1972	84368
		4.00			64.2	3.000	1.500	CT	1.590	0.27	21.00	1972	84368
		1.75			64.2	2.998	1.501	CT	1.588	0.44	27.20	1980	RA001
		4.00			64.2	4.004	2.000	CT	2.042	0.42	26.40	1978	MPC01
		1.75			64.2	2.996	0.751	CT	1.498	0.30	22.90	1978	MPC01
		2.50			64.2	3.001	1.497	CT	1.564	0.30	22.60	1980	RA001
		2.75			64.2	3.002	1.373	CT	1.539	0.39	23.60	1980	RA001
		2.00			64.2	3.003	1.495	CT	1.533	0.30	22.50	1980	RA001
		2.50			64.2	2.000	1.000	CT	1.050	0.41	26.10	1972	84368
		2.50			64.4	4.000	2.000	CT	2.170	0.54	29.90	1972	84368
		3.62			64.4	2.987	1.501	CT	1.643	0.30	22.80	1978	MPC01
		2.50			64.4	4.000	2.000	CT	2.180	0.54	30.00	1972	84368
		2.00			64.4	2.993	1.499	CT	1.616	0.36	25.00	1978	MPC01
		3.25			64.4	3.030	1.498	CT	1.515	0.38	25.60	1978	MPC01
		2.00			64.4	3.000	1.498	CT	1.551	0.41	26.10	1980	RA001
		3.00			64.4	3.007	1.400	CT	1.624	0.36	25.00	1978	MPC01
		1.50			64.5	3.002	1.499	CT	1.512	0.36	24.79	1980	RA001
		1.75			64.5	3.004	1.500	CT	1.500	0.36	24.60	1978	MPC01
		2.50			64.6	3.031	1.499	CT	1.576	0.32	23.40	1978	MPC01
		2.20			64.6	3.003	1.498	CT	1.553	0.35	24.20	1980	RA001
		2.50			64.6	2.998	1.500	CT	1.558	0.37	25.10	1980	RA001
		2.00			64.7	1.990	0.753	CT	1.029	0.32	23.20	1972	84306
		2.00			64.7	1.990	0.751	CT	1.004	0.29	21.90	1972	84306
		2.00			64.7	2.000	0.751	CT	1.038	0.33	23.40	1972	84306
		2.50			64.8	2.489	1.250	CT	1.294	0.44	27.30	1978	MPC01
		2.50			64.8	4.000	2.000	CT	2.130	0.46	27.70	1972	84368
		2.50			64.8	2.522	1.250	CT	1.286	0.42	27.10	1978	MPC01
		2.50			64.8	4.000	2.000	CT	2.150	0.47	28.10	1972	84368
		2.00			64.8	3.011	1.499	CT	1.596	0.42	27.00	1978	MPC01
		2.50			64.9	2.012	0.999	CT	0.986	0.25	21.10	1978	MPC01
		2.35			64.9	3.001	1.500	CT	1.546	0.36	24.79	1978	RA002
		3.54			64.9	3.016	1.504	CT	1.508	0.48	28.70	1978	MPC01
		2.25			64.9	1.996	0.998	CT	1.508	0.30	23.00	1978	MPC01
		2.35			65.0	2.018	0.996	CT	1.009	0.32	23.80	1978	MPC01
		2.50			65.1	2.037	0.998	CT	0.986	0.30	23.00	1978	MPC01
		3.00			65.1	2.988	1.247	CT	1.464	0.32	23.60	1978	MPC01

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM										K(IIC)		DATE	REFER
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----			CRACK LENGTH (IN)	2.5* K(IIC)/(TVS)**2 (IN)	K(IIC) MEAN DEV (KBI*SQRT IN)				
	FORM	THICK (IN)			THICK (IN)	DESIGN	B							
											W	A		
T851	P	1.12	R.T.	T-L	65.2	2.972	1.153	CT	1.486	0.28	22.20	1978	MPC01	
		2.04			65.2	1.500	0.750	CT	0.740	0.22	19.50	1972	84368	
		2.04			65.2	1.500	0.750	CT	0.730	0.22	19.40	1972	84368	
		3.00			65.2	2.998	1.400	CT	1.619	0.38	26.00	1978	MPC01	
		1.50			65.2	3.000	1.493	CT	1.500	0.38	26.00	1978	MPC01	
		2.00			65.2	3.018	1.500	CT	1.509	0.38	25.80	1978	MPC01	
		1.57			65.2	3.000	1.500	CT	1.520	0.51	29.40	1972	84368	
		1.57			65.2	3.000	1.500	CT	1.540	0.54	30.30	1972	84368	
		3.12			65.2	3.023	1.497	CT	1.602	0.44	27.70	1978	MPC01	
		1.12			65.3	3.029	1.136	CT	1.484	0.27	22.10	1978	MPC01	
		2.50			65.3	2.018	0.999	CT	1.009	0.55	30.80	1978	MPC01	
		1.50			65.4	2.996	1.478	CT	1.528	0.42	27.10	1978	MPC01	
		2.00			65.4	3.000	1.500	CT	1.540	0.34	24.10	1972	84368	
		1.75			65.4	3.028	1.499	CT	1.514	0.38	25.80	1978	MPC01	
		2.00			65.4	3.000	1.500	CT	1.540	0.35	24.40	1972	84368	
		1.50			65.4	3.020	1.441	CT	1.540	0.42	27.20	1978	MPC01	
		1.75			65.4	3.003	1.502	CT	1.568	0.40	26.20	1978	RA002	
		1.50			65.4	2.999	1.478	CT	1.531	0.37	25.40	1980	RA001	
		2.40			65.4	3.001	1.497	CT	1.554	0.32	23.70	1980	RA001	
		2.50			65.4	3.000	1.500	CT	1.551	0.38	25.79	1980	RA001	
1.62			65.4	3.001	1.500	CT	1.558	0.38	25.90	1978	RA002			
2.00			65.5	1.994	0.899	CT	1.057	0.32	24.00	1975	MPC01			
2.00			65.6	3.001	1.500	CT	1.561	0.33	23.90	1978	RA002			
1.81			65.6	2.015	0.999	CT	1.048	0.32	24.10	1978	MPC01			
1.75			65.7	3.000	1.500	CT	1.560	0.33	24.00	1972	84368			
3.12			65.7	2.981	1.400	CT	1.580	0.34	24.90	1978	MPC01			
1.75			65.7	3.000	1.500	CT	1.580	0.33	23.90	1972	84368			
2.03			65.7	3.014	1.501	CT	1.537	0.46	28.70	1978	MPC01			
2.50			65.7	2.973	1.099	CT	1.546	0.28	22.80	1978	MPC01			
2.00			65.7	3.000	1.497	CT	1.564	0.34	24.50	1978	RA001			
0.87			65.8	1.502	0.750	CT	0.766	0.40	26.90	1978	MPC01			
0.87			65.8	1.508	0.750	CT	0.769	0.34	24.60	1978	MPC01			
2.50			65.8	2.999	1.499	CT	1.579	0.32	23.70	1978	RA002			
2.50			65.8	3.002	1.100	CT	1.528	0.31	23.40	1980	RA001			
2.25			65.8	2.002	0.999	CT	1.041	0.32	24.30	1978	MPC01			
2.25			65.8	3.008	1.493	CT	1.504	0.30	23.50	1978	MPC01			
1.75			65.9	3.003	1.503	CT	1.552	0.36	25.20	1978	RA002			
2.50			66.0	3.017	0.999	CT	1.448	0.30	23.30	1978	MPC01			
3.00			66.0	2.500	0.754	CT	1.279	0.29	22.60	1972	84306			

TABLE 7.8.2.1 (Con't)

CONDITION	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT TEMP (F)	YIELD STRENGTH (KSI)	ALUMINUM		SPECIMEN		CRACK		2.5* (K(IC)/TVB)**2 (IN)	K(IC) MEAN (KSI*SQRT IN)	DATE	REFER
					WIDTH (IN)	THICK (IN)	DESIGN	LENGTH (IN)	K(IC)					
										A				
T851	P	2.03	R. T.	T-L	66.0	3.020	1.500	CT	1.510	0.50	30.20	1978	MPC01	
		3.00			66.0	2.500	0.795	CT	1.270	0.35	24.60	1972	B4306	
		3.00			66.0	3.026	1.247	CT	1.543	0.34	24.70	1978	MPC01	
		2.75			66.2	3.003	1.502	CT	1.584	0.43	27.70	1978	RA002	
		1.50			66.2	2.985	1.440	CT	1.552	0.40	26.60	1978	MPC01	
		1.50			66.2	2.988	1.441	CT	1.524	0.38	26.20	1978	MPC01	
		2.50			66.2	1.997	0.999	CT	1.035	0.27	22.10	1979	RA001	
		1.50			66.2	2.997	1.499	CT	1.543	0.34	24.90	1978	RA001	
		2.00			66.2	3.018	1.499	CT	1.539	0.38	26.10	1978	MPC01	
		2.00			66.4	1.998	0.997	CT	1.019	0.32	24.90	1978	MPC01	
		1.55			66.4	3.029	1.496	CT	1.484	0.30	23.70	1978	MPC01	
		1.55			66.4	2.981	1.500	CT	1.550	0.28	23.00	1978	MPC01	
		2.50			66.5	3.002	1.498	CT	1.544	0.36	25.90	1980	RA001	
		1.12			66.5	2.004	1.000	CT	1.022	0.36	25.40	1978	MPC01	
		1.81			66.5	2.990	1.497	CT	1.495	0.34	24.70	1978	MPC01	
		1.55			66.6	1.998	0.999	CT	1.014	0.28	23.30	1978	MPC01	
		1.25			66.6	1.981	1.000	CT	1.050	0.25	21.90	1978	MPC01	
		1.73			66.7	2.999	1.499	CT	1.517	0.32	24.10	1978	RA002	
		1.55			66.7	3.000	1.497	CT	1.522	0.31	23.60	1980	RA001	
		2.50			66.8	1.987	0.998	CT	1.033	0.42	27.40	1978	MPC01	
		1.50			66.9	1.983	0.999	CT	1.051	0.29	22.00	1978	MPC01	
		1.50			67.1	2.998	1.496	CT	1.485	0.29	23.00	1978	RA001	
		1.57			67.2	3.000	1.500	CT	1.590	0.35	25.10	1972	B4368	
		1.57			67.2	3.000	1.500	CT	1.560	0.32	24.00	1972	B4368	
		1.57			67.2	3.000	1.500	CT	1.560	0.32	24.00	1972	B4368	
		1.57			67.2	3.000	1.500	CT	1.590	0.35	25.30	1972	B4368	
		1.73			67.2	3.002	1.498	CT	1.550	0.32	24.10	1978	RA002	
		1.50			67.2	3.002	1.492	CT	1.524	0.29	23.20	1980	RA001	
		1.55			67.2	3.001	1.497	CT	1.563	0.28	22.90	1979	RA001	
		1.75			67.3	3.002	1.496	CT	1.518	0.31	23.79	1980	RA001	
		2.52			67.6	2.000	1.000	CT	0.980	0.29	23.10	1972	B4368	
		2.52			67.6	2.000	1.000	CT	0.960	0.28	22.60	1972	B4368	
		1.75			67.8	3.009	1.499	CT	1.595	0.28	23.60	1978	MPC01	
		1.50			67.8	3.002	1.400	CT	1.591	0.27	22.60	1978	MPC01	
		1.37			68.4	2.978	1.376	CT	1.489	0.25	22.90	1978	MPC01	
		1.62			69.6	3.000	1.491	CT	1.524	0.29	24.10	25.1/	2.3	1980
T851	P	3.50	81	T-L	63.7	3.000	1.498	CT	1.618	0.37	24.40	1973	86213	
		3.50			63.7	3.000	1.498	CT	1.601	0.39	25.00	24.7/	0.4	1973

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM			2124	K(1C)			CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV	DATE	REFER	
	--PRODUCT-- FORM	THICK (IN)	TEMP (F)		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	SPECIMEN							
							WIDTH (IN)							THICK (IN)
T851	P	2.50	250	T-L	57.3	2.000	1.000	CT	---	0.56	27.10	1974	88742	
		2.50			57.3	2.000	1.000	CT	---	0.56	26.90	1974	88742	
		2.50			57.3	2.000	1.000	CT	---	0.59	27.70	1974	88742	
T851	P	2.50	R. T.	S-T	62.3	2.000	1.000	CT	---	0.40	24.70	1974	88742	
		2.50			62.3	2.000	1.000	CT	---	0.43	25.80	1974	88742	
		2.50			62.3	2.000	1.000	CT	---	0.44	26.00	1974	88742	
T851	P	2.50	250	S-T	55.9	2.000	1.000	CT	---	0.53	26.20	1974	88742	
		2.50			55.9	2.000	1.000	CT	---	0.46	24.60	1974	88742	
T851	P	1.50	R. T.	S-L	---	1.001	0.501	CT	0.501	---	19.50	1978	RA001	
		1.50			---	1.001	0.502	CT	0.503	---	20.20	1978	RA001	
		1.50			---	1.002	0.498	CT	0.489	---	18.40	1980	RA001	
		1.50			---	1.001	0.497	CT	0.525	---	20.90	1980	RA001	
		1.50			---	1.001	0.497	CT	0.518	---	20.40	1980	RA001	
		6.00			52.7	2.015	0.999	CT	1.068	0.48	23.40	1978	MPC01	
		6.00			52.7	1.994	1.000	CT	0.977	0.44	22.30	1978	MPC01	
		6.00			52.8	1.998	0.997	CT	1.029	0.51	23.90	1978	RA001	
		6.00			53.0	2.000	1.000	CT	0.940	0.42	22.20	1978	MPC01	
		5.50			53.2	1.985	0.999	CT	1.052	0.44	22.90	1978	MPC01	
		5.50			53.9	2.014	1.000	CT	0.987	0.52	24.80	1978	MPC01	
		5.50			54.0	2.002	0.999	CT	1.021	0.50	24.60	1978	MPC01	
		5.00			54.1	1.992	1.002	CT	0.996	0.48	24.30	1978	MPC01	
		6.00			54.2	1.996	1.000	CT	0.998	0.34	20.10	1978	MPC01	
		4.90			54.2	3.000	1.498	CT	1.480	0.43	22.70	1978	RA002	
		5.00			54.2	2.004	0.998	CT	1.002	0.34	20.50	1978	MPC01	
		6.00			54.3	1.006	0.496	CT	0.533	0.34	20.50	1978	MPC01	
		5.50			54.3	2.019	0.999	CT	0.969	0.38	21.60	1978	MPC01	
		5.12			54.4	1.991	0.999	CT	1.075	0.40	21.80	1978	MPC01	
		4.90			54.4	1.988	1.000	CT	0.954	0.32	19.60	1978	MPC01	
		6.00			54.6	3.000	1.500	CT	1.500	0.44	23.10	1978	MPC01	
		5.75			54.6	1.999	0.996	CT	0.986	0.36	20.90	1980	RA001	
		5.00			54.6	1.992	0.996	CT	0.996	0.38	21.80	1978	MPC01	
		5.50			54.7	1.984	0.999	CT	0.972	0.42	22.80	1978	MPC01	
		6.00			54.8	3.000	1.500	CT	1.530	0.50	24.50	1972	84368	
		6.00			54.8	3.000	1.500	CT	1.530	0.50	24.90	1972	84368	
		5.00			54.9	2.984	1.199	CT	1.552	0.38	21.90	1978	MPC01	
		4.50			55.2	2.004	0.996	CT	0.973	0.43	23.10	1980	RA001	

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM		YIELD STRENGTH (KSI)	TEST SPECIMEN ORIENT	THICK (IN)	TEMP (F)	SPECIMEN		CRACK LENGTH (IN)	2.5* (K(IC)/TYS)**2 (IN)	K(IC) MEAN (KSI*SQRT IN)	K(IC) STAN DEV	DATE	REFER			
	FORM	THICK (IN)					WIDTH (IN)	DESIGN									
															W	B	A
T851	P	5.50	R.T.	S-L	55.2	1.988	1.000	CT	1.014	0.52	25.90	1978	MPC01				
		5.00			55.2	2.974	1.500	CT	1.576	0.46	23.90	1978	MPC01				
		5.12			55.2	2.015	0.978	CT	1.048	0.46	24.20	1978	MPC01				
		5.50			55.2	2.000	0.978	CT	0.978	0.35	20.90	1980	RA001				
		6.00			55.4	1.993	1.000	CT	1.056	0.48	24.60	1978	MPC01				
		6.00			55.7	1.996	1.000	CT	1.018	0.48	24.80	1978	MPC01				
		5.50			55.8	2.021	0.978	CT	0.970	0.40	22.40	1978	MPC01				
		5.00			55.8	1.998	1.000	CT	0.988	0.36	21.29	1979	RA001				
		4.90			55.8	3.005	1.500	CT	1.517	0.36	21.40	1978	RA002				
		5.00			55.9	2.972	1.498	CT	1.486	0.36	21.60	1978	MPC01				
		5.00			56.0	2.000	0.999	CT	0.997	0.36	21.29	1980	RA001				
		6.00			56.0	2.002	0.996	CT	1.002	0.44	23.60	1980	RA001				
		5.25			56.0	2.975	1.500	CT	1.547	0.38	22.00	1978	MPC01				
		5.50			56.0	2.010	1.000	CT	1.005	0.28	19.20	1978	MPC01				
		5.50			56.1	1.990	1.000	CT	1.035	0.32	20.30	1978	MPC01				
		6.00			56.2	1.982	1.000	CT	1.011	0.48	24.80	1978	MPC01				
		4.25			56.2	2.000	0.929	CT	0.957	0.33	20.60	1980	RA001				
		5.00			56.3	2.980	1.498	CT	1.490	0.38	22.10	1978	MPC01				
		5.50			56.3	2.010	1.000	CT	1.009	0.30	19.90	1978	MPC01				
		4.50			56.3	2.000	1.001	CT	0.992	0.38	22.00	1978	RA002				
		4.90			56.4	1.996	0.998	CT	1.018	0.32	20.60	1978	MPC01				
		5.25			56.4	2.016	1.000	CT	1.008	0.28	19.30	1978	MPC01				
		4.00			56.5	2.002	0.997	CT	1.026	0.38	22.29	1980	RA001				
		5.50			56.6	2.008	1.000	CT	1.004	0.46	24.40	1978	MPC01				
		5.50			56.6	1.994	0.999	CT	1.017	0.38	22.50	1978	MPC01				
		6.00			56.6	1.998	0.998	CT	0.998	0.43	23.50	1978	RA001				
		4.62			56.6	3.033	1.499	CT	1.456	0.46	24.70	1978	MPC01				
		5.50			56.6	2.000	1.000	CT	1.020	0.36	22.00	1978	MPC01				
		2.50			56.6	1.999	1.000	CT	1.052	0.39	21.29	1978	RA002				
		4.90			56.7	3.000	1.499	CT	1.596	0.43	23.60	1978	RA002				
		4.00			56.7	2.000	0.998	CT	0.980	0.36	21.60	1980	RA001				
		5.50			56.7	1.992	0.997	CT	0.956	0.32	20.70	1978	MPC01				
		4.50			56.7	1.998	0.998	CT	1.009	0.37	22.10	1979	RA001				
		5.50			56.8	2.012	1.000	CT	1.006	0.36	21.80	1978	MPC01				
		4.62			56.8	1.996	0.999	CT	0.996	0.30	20.20	1978	MPC01				
		5.50			56.8	2.008	1.000	CT	1.004	0.28	19.70	1978	MPC01				
		4.90			56.8	3.000	1.499	CT	1.526	0.37	22.00	1978	RA002				
		5.00			56.9	2.988	1.499	CT	1.494	0.38	22.60	1978	MPC01				
		5.00			56.9	1.997	0.998	CT	1.005	0.35	21.40	1979	RA001				

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				2124		K(1C)		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	K(1C) STAN DEV	DATE	REFER
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)							
	FORM	THICK (IN)			THICK (IN)	WIDTH (IN)		DESIGN						
T851	P	4 00	R. T.	B-L	56.9	2.002	0.999	CT	0.984	0.35	21.50		1980	RA001
		5 50			57.0	2.002	1.000	CT	1.001	0.28	19.70		1978	MPC01
		5 50			57.0	1.994	1.000	CT	1.017	0.24	17.70		1978	MPC01
		5 50			57.0	2.014	1.000	CT	1.007	0.25	18.30		1978	MPC01
		5 50			57.0	1.994	1.000	CT	0.997	0.25	18.50		1978	MPC01
		4 50			57.0	2.017	0.999	CT	1.069	0.42	23.50		1978	MPC01
		5 50			57.1	2.000	1.000	CT	1.000	0.27	19.00		1978	MPC01
		4 75			57.1	2.000	0.998	CT	0.980	0.59	22.79		1980	RA001
		5 50			57.1	1.998	1.000	CT	0.999	0.30	20.50		1978	MPC01
		2 20			57.1	1.503	0.748	CT	0.774	0.27	19.00		1980	RA001
		5 50			57.1	2.008	1.000	CT	1.004	0.34	21.60		1978	MPC01
		5 50			57.1	2.010	1.000	CT	1.005	0.34	21.60		1978	MPC01
		5 00			57.1	2.012	1.000	CT	1.006	0.40	23.20		1978	MPC01
		5 50			57.3	2.010	1.000	CT	1.005	0.28	19.70		1978	MPC01
		4 50			57.3	3.000	1.500	CT	1.540	0.51	25.80		1972	84368
		4 50			57.3	3.000	1.500	CT	1.540	0.47	24.70		1972	84368
		4 00			57.3	1.998	0.999	CT	1.022	0.34	21.20		1978	RA001
		5 50			57.5	3.000	1.500	CT	1.470	0.43	23.90		1972	84368
		5 50			57.5	3.000	1.500	CT	1.500	0.42	23.60		1972	84368
		5 50			57.5	1.998	1.000	CT	0.999	0.28	20.00		1978	MPC01
		4 00			57.5	2.000	0.999	CT	0.984	0.33	21.20		1980	RA001
		5 50			57.5	1.988	1.000	CT	1.014	0.42	23.70		1978	MPC01
		5 50			57.6	1.988	1.000	CT	1.014	0.28	19.90		1978	MPC01
		4 31			57.6	1.992	0.999	CT	1.036	0.34	21.60		1978	MPC01
5 50			57.6	2.006	0.999	CT	1.003	0.32	20.80		1978	MPC01		
4 00			57.6	3.001	1.500	CT	1.564	0.34	21.50		1978	RA001		
5 50			57.6	1.986	1.000	CT	0.993	0.34	21.60		1978	MPC01		
5 00			57.6	1.998	0.997	CT	0.997	0.36	22.10		1978	RA001		
5 00			57.6	1.992	1.000	CT	1.016	0.40	23.20		1978	MPC01		
4 55			57.6	2.004	0.999	CT	0.985	0.34	21.50		1980	RA001		
5 50			57.7	2.022	1.000	CT	1.011	0.30	20.20		1978	MPC01		
4 50			57.7	2.017	0.999	CT	1.049	0.38	22.70		1978	MPC01		
3 00			57.8	2.002	1.001	CT	1.001	0.30	20.70		1978	MPC01		
4 00			57.8	2.987	1.498	CT	1.643	0.40	23.50		1978	MPC01		
5 50			57.8	2.000	1.000	CT	1.000	0.36	22.00		1978	MPC01		
3 50			57.8	1.993	1.001	CT	1.096	0.32	21.00		1978	MPC01		
5 00			57.8	2.000	1.001	CT	1.009	0.29	19.70		1978	RA002		
5 50			57.8	1.984	1.000	CT	1.012	0.42	24.20		1978	MPC01		
5 50			57.9	1.992	1.000	CT	0.996	0.28	20.00		1978	MPC01		

TABLE 7.8.2.1 (Con't)

CONDITION	--PRODUCT--			TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM			K(1C)		CRACK LENGTH (IN)	2.5* K(1C)/(TYS)**2 (IN)	K(1C) MEAN DEV (KSI+SGRT IN)	K(1C) STAN DEV	DATE	REFER
	FORM	THICK (IN)	TEMP (F)			WIDTH (IN)	THICK (IN)	DESIGN	A	B						
1851	P	5.50	R. T.	S-L	57.9	2.008	1.000	CT	1.004	0.29	19.00			1978	MPC01	
		3.62			58.0	2.006	0.998	CT	1.003	0.32	21.30			1978	MPC01	
		5.50			58.0	3.008	1.501	CT	1.504	0.36	23.10			1978	MPC01	
		4.00			58.0	2.004	1.001	CT	1.002	0.38	22.30			1978	MPC01	
		5.00			58.1	2.010	1.000	CT	1.005	0.38	23.00			1978	MPC01	
		2.50			58.1	1.986	1.000	CT	1.013	0.40	23.80			1978	MPC01	
		5.50			58.1	2.016	1.000	CT	1.008	0.38	22.70			1978	MPC01	
		5.50			58.1	2.002	1.000	CT	1.001	0.40	23.40			1978	MPC01	
		5.50			58.1	3.024	1.500	CT	1.512	0.42	23.90			1978	MPC01	
		2.50			58.1	2.008	0.996	CT	1.004	0.30	20.50			1978	MPC01	
		5.00			58.1	1.992	1.000	CT	1.016	0.34	21.90			1978	MPC01	
		4.90			58.1	2.000	1.001	CT	1.010	0.34	21.60			1978	MPC01	
		2.50			58.1	2.018	1.000	CT	1.029	0.42	24.30			1978	MPC01	
		3.00			58.2	2.004	0.997	CT	1.030	0.31	20.70			1980	RAO01	
		5.50			58.2	2.010	1.000	CT	1.029	0.30	20.50			1978	MPC01	
		2.70			58.2	1.988	1.002	CT	0.974	0.42	24.10			1978	MPC01	
		5.00			58.2	2.004	0.999	CT	1.023	0.40	23.40			1978	MPC01	
		5.00			58.2	1.984	0.999	CT	1.012	0.38	22.90			1978	MPC01	
		5.50			58.2	3.008	1.500	CT	1.504	0.40	23.70			1978	MPC01	
		5.50			58.3	1.996	1.000	CT	0.998	0.30	20.60			1978	MPC01	
		5.25			58.3	3.020	1.500	CT	1.510	0.44	24.80			1978	MPC01	
		3.12			58.3	2.016	1.001	CT	0.988	0.36	22.40			1978	MPC01	
		5.50			58.3	1.998	1.000	CT	0.999	0.30	20.30			1978	MPC01	
		5.50			58.3	1.998	1.000	CT	0.999	0.30	20.60			1978	MPC01	
		5.50			58.3	2.014	1.000	CT	1.007	0.40	23.40			1978	MPC01	
		5.50			58.3	2.014	1.000	CT	1.007	0.28	20.00			1978	MPC01	
		3.00			58.3	2.000	0.998	CT	0.983	0.32	20.90			1980	RAO01	
		5.50			58.3	2.016	0.990	CT	1.008	0.30	20.90			1978	MPC01	
		5.50			58.3	2.004	0.999	CT	1.002	0.50	26.60			1978	MPC01	
		4.00			58.4	1.999	1.000	CT	1.015	0.28	19.79			1979	RAO01	
		1.81			58.4	1.502	0.748	CT	0.766	0.24	18.50			1978	MPC01	
		4.50			58.4	2.978	1.500	CT	1.489	0.46	29.20			1978	MPC01	
	5.50			58.4	2.020	0.997	CT	1.010	0.28	20.40			1978	MPC01		
	5.00			58.4	3.010	1.500	CT	1.565	0.40	23.40			1978	MPC01		
	2.50			58.5	1.996	1.000	CT	0.998	0.30	20.70			1978	MPC01		
	5.50			58.5	2.018	1.000	CT	1.009	0.34	22.00			1978	MPC01		
	4.25			58.5	1.987	0.999	CT	1.033	0.40	23.90			1978	MPC01		
	4.25			58.5	1.996	1.000	CT	0.998	0.27	19.60			1978	MPC01		
	5.00			58.6	1.983	0.999	CT	1.031	0.36	22.30			1978	MPC01		

TABLE 7.8.2.1 (Con't)

CONDITION	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM		-----SPECIMEN-----		K(1C)		K(1C) STAN DEV	DATE	REFER
	FORM	THICK (IN)			THICK (IN)	WIDTH (IN)	DESIGN	CRACK LENGTH (IN)	2.5% (IN)	K(1C)/TVS**2 (KSI*SQRT IN)			
T831	P	5.50	R. T.	S-L	58.6	2.006	0.999	CT	1.003	0.30	20.80	1978	MPC01
		3.50			58.6	2.008	1.000	CT	1.024	0.34	21.80	1978	MPC01
		5.00			58.6	1.988	1.000	CT	1.014	0.42	24.50	1978	MPC01
		5.50			58.6	2.008	1.000	CT	1.004	0.40	23.90	1978	MPC01
		4.50			58.6	2.996	1.500	CT	1.498	0.48	26.00	1978	MPC01
		5.00			58.6	1.994	0.999	CT	1.017	0.38	23.00	1978	MPC01
		4.00			58.6	1.996	0.999	CT	0.998	0.32	21.10	1978	MPC01
		5.50			58.6	1.998	1.000	CT	0.999	0.38	22.90	1978	MPC01
		5.50			58.6	2.018	0.999	CT	1.009	0.48	26.00	1978	MPC01
		5.50			58.7	2.010	1.000	CT	1.005	0.27	19.90	1978	MPC01
		3.54			58.7	1.998	0.997	CT	0.999	0.32	21.70	1978	MPC01
		5.50			58.8	2.016	1.000	CT	1.008	0.48	26.00	1978	MPC01
		5.50			58.8	2.004	0.998	CT	1.002	0.38	23.20	1978	MPC01
		5.50			58.8	2.000	1.000	CT	1.000	0.36	22.50	1978	MPC01
		4.25			58.8	2.002	1.000	CT	1.001	0.34	21.90	1978	MPC01
		3.50			58.8	1.996	1.000	CT	1.078	0.30	20.70	1978	MPC01
		5.50			58.8	2.014	1.000	CT	1.007	0.34	22.30	1978	MPC01
		4.50			58.8	2.999	1.500	CT	1.487	0.34	21.79	1978	RA002
		5.50			58.8	2.006	0.998	CT	1.003	0.40	23.80	1978	MPC01
		5.50			58.9	2.020	1.000	CT	1.010	0.28	20.50	1978	MPC01
		4.00			58.9	1.984	1.001	CT	1.012	0.38	23.10	1978	MPC01
		4.50			58.9	2.992	1.500	CT	1.496	0.44	25.00	1978	MPC01
		4.25			59.0	1.996	1.000	CT	1.018	0.36	23.00	1978	MPC01
		5.00			59.1	1.988	1.000	CT	1.014	0.34	22.00	1978	MPC01
		5.00			59.1	1.986	1.000	CT	1.013	0.34	22.00	1978	MPC01
		5.50			59.1	2.000	1.000	CT	1.400	0.30	20.79	1978	GD003
		5.50			59.1	2.002	1.000	CT	1.001	0.36	22.80	1978	MPC01
		5.50			59.1	2.000	1.000	CT	1.400	0.34	22.00	1978	GD003
		5.50			59.1	1.996	1.000	CT	0.998	0.28	20.20	1978	MPC01
		5.00			59.1	1.984	0.999	CT	1.012	0.32	21.60	1978	MPC01
		5.00			59.1	2.010	1.000	CT	1.005	0.36	23.00	1978	MPC01
		2.75			59.1	2.000	1.000	CT	1.013	0.29	20.29	1978	RA002
		5.50			59.1	1.980	1.000	CT	0.990	0.46	25.90	1978	MPC01
		5.50			59.1	2.000	1.000	CT	1.400	0.32	21.40	1978	GD003
		5.50			59.1	2.008	1.000	CT	1.004	0.42	24.50	1978	MPC01
		3.12			59.2	1.998	0.999	CT	1.004	0.40	23.70	1978	RA001
		5.00			59.2	1.986	1.001	CT	1.013	0.36	22.90	1978	MPC01
		3.12			59.2	2.018	0.996	CT	0.989	0.32	21.80	1978	MPC01
		4.50			59.2	2.998	1.500	CT	1.499	0.48	26.30	1978	MPC01

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				K(IIC)				DATE	REFER			
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	SPECIMEN		CRACK LENGTH (IN)	2.5* (K(IIC)/TVB)**2 (IN)			K(IIC) MEAN DEV (KSI*SQRT IN)		
	FORM	THICK (IN)			WIDTH (IN)	THICK (IN)						DESIGN	
			(F)	8-L	59.2	3.018	1.500	CT	1.509	0.48	26.10	1978 MPC01	
1851	P	4.50	R.T.		59.2	3.018	1.500	CT	1.509	0.48	26.10	1978 MPC01	
		5.00			59.2	2.024	1.001	CT	1.012	0.36	22.90	1978 MPC01	
		5.00			59.3	1.992	1.001	CT	1.016	0.40	23.90	1978 MPC01	
		5.50			59.3	1.998	1.000	CT	0.999	0.42	24.90	1978 MPC01	
		4.00			59.3	2.000	1.000	CT	0.980	0.38	23.40	1972 84368	
		4.25			59.3	1.990	0.987	CT	1.015	0.42	24.40	1978 MPC01	
		5.00			59.3	1.978	1.001	CT	1.009	0.42	24.70	1978 MPC01	
		4.00			59.3	2.000	1.000	CT	0.980	0.44	24.80	1972 84368	
		5.50			59.3	2.008	1.000	CT	1.024	0.50	26.90	1978 MPC01	
		4.25			59.3	2.024	1.000	CT	1.012	0.30	21.20	1978 MPC01	
		5.00			59.3	2.014	1.001	CT	1.007	0.40	24.00	1978 MPC01	
		5.50			59.4	2.018	1.000	CT	1.009	0.34	22.20	1978 MPC01	
		4.25			59.4	1.998	1.000	CT	0.999	0.40	23.90	1978 MPC01	
		4.25			59.4	1.994	1.000	CT	1.017	0.38	23.70	1978 MPC01	
		3.12			59.4	2.000	0.992	CT	1.000	0.30	21.20	1978 MPC01	
		2.50			59.4	2.000	1.001	CT	1.018	0.35	22.50	1978 RA002	
		4.25			59.4	1.994	1.001	CT	0.997	0.50	27.20	1978 MPC01	
		1.75			59.4	1.002	0.499	CT	0.511	0.30	20.70	1980 RA001	
		4.25			59.5	1.990	1.000	CT	1.015	0.48	26.30	1978 MPC01	
		5.50			59.5	2.006	1.000	CT	1.003	0.36	22.70	1978 MPC01	
		3.00			59.5	2.000	0.999	CT	1.000	0.30	21.00	1978 MPC01	
		5.25			59.5	3.012	1.500	CT	1.506	0.42	24.50	1978 MPC01	
		4.31			59.6	2.000	1.000	CT	0.970	0.42	24.50	1972 84368	
		5.50			59.6	1.977	1.000	CT	1.008	0.40	24.30	1978 MPC01	
	5.50			59.6	1.986	1.000	CT	1.013	0.32	21.80	1978 MPC01		
	5.50			59.6	2.010	1.000	CT	1.005	0.34	22.50	1978 MPC01		
	4.31			59.6	2.000	1.000	CT	0.950	0.41	24.10	1972 84368		
	3.00			59.6	1.997	0.998	CT	0.999	0.26	19.50	1978 RA001		
	4.25			59.7	2.014	1.002	CT	1.007	0.44	25.30	1978 MPC01		
	3.50			59.7	2.004	0.995	CT	0.999	0.27	19.70	1980 RA001		
	2.00			59.7	1.500	0.749	CT	0.756	0.38	23.29	1980 RA001		
	5.50			59.8	2.012	1.000	CT	1.006	0.34	22.50	1978 MPC01		
	3.50			59.8	1.998	0.998	CT	1.001	0.32	21.70	1979 RA001		
	3.25			59.8	1.989	0.999	CT	1.054	0.30	21.20	1978 MPC01		
	5.50			59.8	1.987	1.000	CT	1.033	0.28	20.50	1978 MPC01		
	4.50			59.8	3.000	1.500	CT	1.530	0.36	22.70	1972 84368		
	4.50			59.8	3.000	1.500	CT	1.520	0.35	22.50	1972 84368		
	3.54			59.8	2.014	1.000	CT	1.007	0.34	22.30	1978 MPC01		
	5.00			59.8	2.010	1.000	CT	1.005	0.36	23.10	1978 MPC01		

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				2124				K(1C)				DATE	REFER
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	SPECIMEN		CRACK LENGTH (IN)	2.5* K(1C)/(TVS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV			
						WIDTH (IN)	THICK (IN)					DESIGN		
T831	P	4.25	R. T.	S-L		W	B	A						
		2.00			59.9	1.994	1.000	CT	1.017	0.27	20.30		1978	MPC01
		2.00			59.9	1.502	0.751	CT	0.751	0.22	18.40		1978	MPC01
		2.50			59.9	1.498	0.744	CT	0.760	0.26	19.60		1980	RA001
		3.00			59.9	2.006	1.001	CT	1.003	0.27	19.80		1978	MPC01
		3.50			59.9	2.000	1.000	CT	0.990	0.27	19.80		1972	84368
		3.50			59.9	2.000	1.000	CT	0.990	0.32	21.40		1972	84368
		4.50			59.9	2.998	1.500	CT	1.499	0.48	26.50		1978	MPC01
		5.50			60.0	1.998	1.000	CT	0.999	0.28	20.40		1978	MPC01
		2.90			60.0	1.988	0.998	CT	0.974	0.30	21.00		1978	MPC01
		3.00			60.0	2.003	0.995	CT	1.004	0.39	23.70		1980	RA001
		5.00			60.1	1.996	0.999	CT	0.998	0.44	25.70		1978	MPC01
		4.00			60.1	2.002	0.998	CT	0.998	0.35	22.60		1980	RA001
		4.50			60.1	3.008	1.501	CT	1.504	0.38	23.80		1978	MPC01
		3.54			60.1	2.004	0.998	CT	1.002	0.42	24.80		1978	MPC01
		3.12			60.1	1.957	0.978	CT	1.019	0.36	23.40		1978	MPC01
		2.50			60.2	2.010	0.996	CT	1.005	0.32	22.00		1978	MPC01
		4.50			60.2	3.029	1.500	CT	1.484	0.42	24.70		1978	MPC01
		4.25			60.2	1.986	1.000	CT	1.013	0.32	21.70		1978	MPC01
		5.50			60.2	2.016	1.000	CT	1.008	0.24	19.00		1978	MPC01
		4.00			60.2	3.000	1.500	CT	1.540	0.27	20.00		1972	84368
		4.00			60.2	3.000	1.500	CT	1.560	0.27	19.90		1972	84368
		2.50			60.4	1.999	0.999	CT	1.096	0.28	20.40		1978	RA002
		4.00			60.5	2.014	0.999	CT	1.007	0.34	22.60		1978	MPC01
		5.00			60.6	1.996	0.999	CT	1.018	0.34	23.00		1978	MPC01
		5.50			60.6	2.004	0.999	CT	1.002	0.30	21.70		1978	MPC01
		5.00			60.6	2.004	0.999	CT	1.022	0.36	23.10		1978	MPC01
		3.00			60.6	1.999	1.000	CT	0.963	0.29	20.70		1978	RA002
		3.00			60.6	2.004	0.996	CT	0.998	0.29	20.90		1980	RA001
		3.00			60.6	1.999	0.998	CT	0.991	0.27	20.00		1980	RA001
		4.00			60.6	3.026	1.501	CT	1.513	0.38	23.70		1978	MPC01
		4.00			60.6	2.992	1.500	CT	1.526	0.36	23.70		1978	MPC01
		4.25			60.7	2.016	1.000	CT	1.008	0.28	20.30		1978	MPC01
		3.12			60.7	1.998	0.997	CT	1.039	0.30			1978	MPC01
		2.50			60.7	0.986	0.502	CT	0.498	0.22	8.10		1978	RA002
		3.00			60.7	1.992	0.999	CT	1.019	0.24	9.20		1978	MPC01
		3.00			60.8	1.997	0.998	CT	1.020	0.30	21.40		1978	RA001
		5.00			60.8	2.016	1.000	CT	1.008	0.25	20.00		1978	MPC01
		3.62			60.8	1.996	0.999	CT	0.979	0.25	19.50		1980	RA001
		3.00			60.9	2.006	1.001	CT	1.023	0.27	20.20		1978	MPC01

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				2124		K(1C)		DATE	REFER			
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)			K(1C) MEAN (KSI*SQRT IN)	K(1C) STAN DEV	
	FORM	THICK (IN)			THICK (IN)	DESIGN							WIDTH (IN)
T851	P	3.62	R.T.	S-L	60.9	3.014	1.499	CT	1.567	0.28	20.80	1978	MPC01
		4.25			60.9	1.984	1.000	CT	1.012	0.30	21.70	1978	MPC01
		3.00			60.9	2.016	0.997	CT	1.008	0.34	22.70	1978	MPC01
		3.00			60.9	2.000	1.000	CT	0.991	0.31	21.70	1978	RA002
		5.50			60.9	2.004	1.000	CT	1.002	0.27	20.30	1978	MPC01
		2.50			60.9	2.006	0.998	CT	1.003	0.28	21.30	1978	MPC01
		4.00			60.9	1.997	0.999	CT	1.002	0.36	23.20	1978	RA001
		2.00			61.0	1.498	0.751	CT	0.756	0.29	21.10	1978	RA002
		5.50			61.1	2.014	1.003	CT	1.007	0.32	22.30	1978	MPC01
		4.25			61.1	1.996	1.001	CT	0.998	0.36	23.90	1978	MPC01
		3.50			61.1	1.998	0.999	CT	1.022	0.33	22.20	1978	RA001
		1.62			61.2	0.986	0.503	CT	0.480	0.24	19.10	1978	RA002
		3.00			61.2	1.996	0.998	CT	1.018	0.25	19.70	1978	MPC01
		3.00			61.2	2.000	0.999	CT	0.980	0.28	20.79	1980	RA001
		3.75			61.3	3.016	1.499	CT	1.538	0.30	21.90	1978	MPC01
		2.50			61.3	1.499	0.745	CT	0.750	0.24	19.29	1980	RA001
		5.50			61.4	1.986	1.003	CT	1.013	0.34	23.00	1978	MPC01
		3.50			61.4	2.000	1.000	CT	0.990	0.43	25.40	1972	84368
		2.50			61.4	2.000	1.000	CT	1.100	0.27	20.80	1978	MPC01
		2.00			61.4	0.997	0.498	CT	0.504	0.25	19.60	1978	RA001
		3.50			61.4	2.000	1.000	CT	0.990	0.41	24.70	1972	84368
		4.90			61.4	3.000	1.500	CT	1.585	0.36	23.40	1978	RA002
		4.00			61.5	3.000	1.500	CT	1.530	0.30	21.70	1978	MPC01
		1.75			61.6	0.998	0.503	CT	0.520	0.21	17.90	1980	RA001
		3.00			61.6	2.000	1.001	CT	1.012	0.22	18.50	1978	RA002
		4.90			61.6	3.000	1.499	CT	1.592	0.35	23.10	1978	RA002
		5.50			61.6	1.986	1.000	CT	1.013	0.38	24.30	1978	MPC01
		2.35			61.7	1.502	0.750	CT	0.763	0.33	22.50	1980	RA001
		1.73			61.7	1.004	0.497	CT	0.542	0.21	18.40	1978	MPC01
		3.12			61.7	2.002	0.998	CT	0.996	0.29	21.29	1980	RA001
		3.00			61.8	1.999	0.994	CT	1.000	0.23	19.10	1980	RA001
		3.00			61.8	1.980	0.999	CT	1.010	0.27	20.80	1978	MPC01
		2.00			61.9	1.498	0.749	CT	0.794	0.25	20.10	1978	MPC01
		4.75			62.0	2.004	1.000	CT	1.002	0.25	20.40	1978	MPC01
		2.50			62.0	1.984	0.998	CT	1.012	0.24	19.70	1978	MPC01
		2.25			62.0	0.998	0.499	CT	0.539	0.24	19.80	1978	MPC01
		3.00			62.0	2.010	1.001	CT	1.005	0.27	20.80	1978	MPC01
		3.00			62.0	1.995	0.998	CT	0.960	0.30	21.60	1980	RA001
		3.00			62.0	1.997	0.999	CT	1.007	0.24	19.40	1979	RA001

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				2124				K(IIC)				DATE	REFER
	---PRODUCT--- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		DESIGN	CRACK LENGTH (IN)	2.5* (IN)	K(IIC)/TVS**2 (KSI*SQRT IN)	K(IIC) MEAN DEV (KSI)		
						WIDTH (IN)	THICK (IN)							
T851	P	2.50	R. T.	S-L	62.0	1.499	0.744	CT	0.741	0.23		18.90	1980	RA001
		5.50			62.1	2.001	1.000	CT	1.006	0.30		22.00	1978	MPC01
		2.50			62.1	2.000	1.000	CT	1.020	0.40		25.30	1978	MPC01
		2.50			62.1	2.000	1.000	CT	0.940	0.31		21.80	1972	84368
		3.00			62.1	1.997	0.998	CT	1.022	0.29		21.50	1979	RA001
		2.50			62.1	2.000	1.000	CT	0.960	0.34		22.90	1972	84368
		2.50			62.1	1.998	1.000	CT	1.019	0.38		24.50	1978	MPC01
		3.00			62.1	2.003	0.998	CT	0.995	0.29		21.50	1980	RA001
		1.50			62.2	0.996	0.501	CT	0.508	0.34		23.10	1978	MPC01
		2.00			62.2	1.489	0.746	CT	0.774	0.25		20.20	1978	MPC01
		2.75			62.2	1.988	1.001	CT	1.014	0.28		21.50	1978	MPC01
		2.75			62.2	2.004	0.996	CT	1.004	0.31		22.20	1980	RA001
		1.75			62.2	1.000	0.500	CT	0.503	0.21		18.10	1978	RA002
		1.50			62.2	0.998	0.501	CT	0.509	0.34		23.10	1978	MPC01
		2.50			62.2	1.502	0.750	CT	0.768	0.30		21.60	1980	RA001
		4.75			62.4	1.994	1.001	CT	1.017	0.30		22.40	1978	MPC01
		2.75			62.4	1.499	0.746	CT	0.755	0.33		22.79	1980	RA001
		2.50			62.5	2.000	1.001	CT	1.020	0.24		19.60	1978	MPC01
		5.50			62.6	2.000	1.000	CT	1.000	0.28		21.60	1978	MPC01
		1.75			62.6	0.979	0.500	CT	0.475	0.31		22.29	1978	RA002
		2.50			62.6	2.000	1.001	CT	0.979	0.28		21.10	1978	RA002
		5.50			62.6	2.000	1.000	CT	1.000	0.30		22.10	1978	MPC01
		2.50			62.6	2.020	0.998	CT	0.990	0.30		22.10	1978	MPC01
		2.00			62.6	1.512	0.751	CT	0.771	0.22		19.20	1978	MPC01
		2.04			62.7	1.500	0.750	CT	0.730	0.21		18.10	1972	84368
2.04			62.7	1.500	0.750	CT	0.730	0.20		17.60	1972	84368		
2.50			62.7	1.500	0.751	CT	0.776	0.22		18.70	1980	RA001		
2.50			62.7	1.500	0.747	CT	0.738	0.28		21.00	1980	RA001		
2.03			62.8	1.471	0.750	CT	0.764	0.32		23.00	1978	MPC01		
1.50			62.8	1.008	0.498	CT	0.534	0.28		21.40	1978	MPC01		
2.25			62.8	1.510	0.749	CT	0.785	0.21		18.50	1978	MPC01		
2.00			62.8	1.493	0.748	CT	0.791	0.29		20.60	1978	MPC01		
2.00			62.9	1.489	0.749	CT	0.774	0.28		21.50	1978	MPC01		
3.00			62.9	2.015	1.001	CT	1.048	0.30		22.60	1978	MPC01		
2.03			62.9	1.496	0.750	CT	0.763	0.36		24.10	1978	MPC01		
2.50			62.9	2.000	1.000	CT	0.930	0.28		21.20	1972	84368		
2.50			62.9	2.000	1.000	CT	0.930	0.28		21.10	1972	84368		
1.81			63.0	1.006	0.496	CT	0.533	0.18		17.10	1978	MPC01		
1.50			63.0	1.002	0.500	CT	0.521	0.32		22.80	1978	MPC01		

7.8-35

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				K(1C)												DATE	REFER
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----				CRACK LENGTH (IN)	2.5* K(1C)/TYS**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	STAN DEV						
	FORM	THICK (IN)			THICK (IN)	THICK (IN)	THICK (IN)											
	THICK (IN)	THICK (IN)			THICK (IN)	THICK (IN)	THICK (IN)											
T851	P	1.75	R. T.	S-L	65.3	1.000	0.500	CT	0.490	0.22	19.50	1972 84368						
		1.57			65.4	1.000	0.500	CT	0.470	0.21	18.80	1972 84368						
		2.25			65.5	1.489	0.749	CT	0.774	0.22	19.90	1978 MPC01						
		2.50			65.6	2.016	0.999	CT	1.028	0.21	19.60	1978 MPC01						
		2.25			65.6	1.504	0.749	CT	0.782	0.25	21.30	1978 MPC01						
		2.50			65.7	1.991	1.001	CT	1.055	0.24	21.00	1978 MPC01						
		1.55			65.8	0.996	0.500	CT	0.528	0.18	18.00	1978 MPC01						
		2.50			66.1	1.500	0.749	CT	0.760	0.16	16.79	1979 RA001						
		2.52			66.3	2.000	1.000	CT	0.970	0.24	20.60	1972 84368						
		2.52			66.3	2.000	1.000	CT	0.950	0.20	18.80	1972 84368						
T851	P	3.50	82	S-L	59.8	2.000	0.998	CT	0.986	0.35	22.40	1973 86213						
		3.50			59.8	2.000	0.998	CT	0.941	0.33	21.80	1973 86213						
		3.00	84	S-L	61.3	2.000	0.999	CT	0.931	0.38	23.90	1973 86213						
		3.00			61.6	2.000	0.999	CT	0.954	0.41	25.00	1973 86213						
T851 (SP)	P	6.00	R. T.	L-T	57.1	3.000	1.500	CT	1.522	0.65	29.10	1973 86213						
		6.00			57.1	3.000	1.500	CT	1.549	0.68	29.70	1973 86213						
		4.50			59.8	3.000	1.501	CT	1.532	0.77	33.10	1973 86213						
		4.50			59.8	3.000	1.500	CT	1.509	0.71	31.90	1973 86213						
		2.04			65.4	1.500	0.752	CT	0.752	0.26	21.10	1973 86213						
		2.04			65.4	1.500	0.752	CT	0.738	0.27	21.30	1973 86213						
		4.00			65.5	3.000	1.500	CT	1.578	0.31	23.00	1973 86213						
		4.00			65.5	2.990	1.501	CT	1.562	0.30	22.50	1973 86213						
		2.00			66.2	3.000	1.501	CT	1.555	0.52	30.30	1973 86213						
		2.00			66.2	3.000	1.502	CT	1.564	0.53	30.40	27.2/ 4.7	1973 86213					
T851 (SP)	P	6.00	R. T.	T-L	55.0	3.000	1.500	CT	1.563	0.46	23.70	1973 86213						
		6.00			55.0	3.000	1.500	CT	1.576	0.48	24.10	1973 86213						
		4.50			58.5	3.000	1.500	CT	1.567	0.51	26.50	1973 86213						
		2.04			65.2	1.500	0.752	CT	0.741	0.22	19.50	1973 86213						
2.04			65.2	1.500	0.751	CT	0.729	0.22	19.40	1973 86213								

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM										K (IC)		DATE	REFER		
	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----			W	B	A	CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)			K (1C) MEAN DEV (KSI*SQRT IN)	STAN DEV
	FORM	THICK (IN)			THICK (IN)	WIDTH (IN)	DESIGN									
T851 (SP)	P	2.00	R. T.	T-L	65.4	3.000	1.502	CT	1.542	0.35	24.40	23.1/	2.7	1973	86213	
		2.00			65.4	3.000	1.500	CT	1.541	0.34	24.10			1973	86213	
T851 (SP)	P	6.00	R. T.	S-L	54.8	3.000	1.500	CT	1.526	0.50	24.50			1973	86213	
		6.00			54.8	3.000	1.500	CT	1.539	0.50	24.50			1973	86213	
		4.50			57.3	3.000	1.502	CT	1.543	0.51	25.80			1973	86213	
		4.50			57.3	3.000	1.500	CT	1.542	0.47	24.90			1973	86213	
		4.00			60.2	3.000	1.502	CT	1.560	0.27	19.90			1973	86213	
		4.00			60.2	3.000	1.501	CT	1.540	0.28	20.00			1973	86213	
		2.04			62.7	1.500	0.752	CT	0.729	0.20	17.60			1973	86213	
		2.04			62.7	1.500	0.751	CT	0.726	0.21	18.10			1973	86213	
		2.00			64.9	1.500	0.750	CT	0.739	0.22	19.20			1973	86213	
		2.00			64.9	1.490	0.750	CT	0.739	0.22	19.10	21.4/	3.2	1973	86213	
T851 (417)	P	4.50	- 320	L-T	76.4	3.000	1.500	CT	1.478	0.44	31.90	32.7/	1.1	1973	86213	
		1.75			80.9	3.000	1.500	CT	1.641	0.43	33.50			1973	86213	
T851 (417)	P	4.50	- 112	L-T	67.6	3.000	1.501	CT	1.474	0.43	27.90	28.8/	1.2	1973	86213	
		1.75			73.2	3.000	1.499	CT	1.642	0.41	29.60			1973	86213	
T851 (417)	P	4.00	R. T.	L-T	60.6	2.000	1.000	NB	0.925	0.80	34.30			1973	86213	
		5.50			61.1	3.000	1.501	CT	1.495	0.56	28.80			1973	86213	
		5.50			61.1	3.000	1.501	CT	1.496	0.53	28.10			1973	86213	
		4.00			62.5	2.000	1.000	NB	0.932	0.65	31.90			1973	86213	
		4.00			62.5	2.000	1.000	NB	0.941	0.68	32.70			1973	86213	
		4.50			63.1	3.000	1.501	CT	1.479	0.44	26.60			1973	86213	
		4.50			63.4	3.000	1.500	CT	1.536	0.46	27.70			1973	86213	
		4.50			63.4	3.000	1.502	CT	1.518	0.44	26.70			1973	86213	
		3.50			63.9	3.000	1.501	CT	1.523	0.61	31.50			1973	86213	
		3.50			63.9	3.000	1.501	CT	1.510	0.61	31.60			1973	86213	
		1.57			64.2	3.000	1.501	CT	1.589	0.46	27.40			1973	86213	
		1.57			64.2	3.000	1.501	CT	1.581	0.48	28.00			1973	86213	
		1.57			65.2	3.000	1.500	CT	1.526	0.73	35.20			1973	86213	
		1.57			65.2	3.000	1.501	CT	1.477	0.69	34.20			1973	86213	
		3.00			65.4	3.000	1.412	CT	1.546	0.48	28.70			1973	86213	
		3.00			65.4	1.000	0.499	CT	0.519	0.36	24.80			1973	86213	
		3.00			65.4	2.000	0.999	CT	1.014	0.42	26.80			1973	86213	

7.8-38

TABLE 7.8.2.1 (Con't)

CONDITION	---PRODUCT---			TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM 2124		K(IIC)		K(IIC) STAN	REFER	
	FORM	THICK (IN)	THICK (IN)			WIDTH (IN)	THICK DESIGN (IN)	CRACK LENGTH (IN)	2.5* (IN)			K(IIC) MEAN (KSI*SQRT IN)
T851 (417)	P	2.52	82	L-T	69.7	2.000	0.998	CT	0.939	0.33	25.20	1973 86213
		2.52			69.7	2.000	1.001	CT	0.960	0.33	25.90	28.0/ 3.5
T851 (417)	P	1.75	- 320	T-L	78.1	3.000	1.500	CT	1.648	0.35	29.10	1973 86213
T851 (417)	P	4.50	- 112	T-L	66.0	3.000	1.498	CT	1.567	0.33	24.10	1973 86213
		1.75			70.7	3.000	1.500	CT	1.623	0.30	24.60	24.4/ 0.4
T851 (417)	P	5.50	R. T.	T-L	59.3	3.000	1.501	CT	1.514	0.34	21.80	1973 86213
		59.3			3.000	1.501	CT	1.540	0.35	22.30	1973 86213	
		4.00			59.4	2.000	1.001	NB	0.938	0.49	26.40	1973 86213
		4.50			61.4	3.000	1.501	CT	1.566	0.36	23.30	1973 86213
		4.50			61.4	3.000	1.501	CT	1.523	0.34	22.90	1973 86213
		4.50			61.5	3.000	1.500	CT	1.482	0.29	21.10	1973 86213
		4.00			62.6	2.000	0.998	NB	0.918	0.40	24.90	1973 86213
		3.50			62.7	3.000	1.501	CT	1.550	0.44	26.40	1973 86213
		3.50			62.7	3.000	1.501	CT	1.546	0.46	26.80	1973 86213
		3.00			64.4	3.000	0.998	CT	1.520	0.31	22.70	1973 86213
		3.00			64.4	1.000	0.499	CT	0.525	0.27	21.10	1973 86213
		3.00			64.4	2.000	0.999	CT	0.996	0.26	20.70	1973 86213
		3.00			64.4	3.000	1.412	CT	1.553	0.31	22.70	1973 86213
		3.00			64.4	3.000	0.498	CT	1.526	0.31	22.70	1973 86213
		3.00			64.8	3.000	1.412	CT	1.551	0.29	22.20	1973 86213
		3.00			64.8	1.000	0.498	CT	0.516	0.28	21.80	1973 86213
		3.00			64.8	3.000	0.998	CT	1.541	0.31	22.70	1973 86213
		3.00			64.8	3.000	0.497	CT	1.512	0.30	22.90	1973 86213
		3.00			64.8	2.000	0.998	CT	1.034	0.28	21.50	1973 86213
		T851 (417)			P	1.57	65.2	3.000	1.501	CT	1.522	0.51
1.97	65.2		3.000	1.501		CT	1.541	0.54	30.30	1973 86213		
1.75	65.7		3.000	1.500		CT	1.577	0.33	23.90	1973 86213		
1.75	65.7		3.000	1.502		CT	1.565	0.33	24.00	1973 86213		
T851 (417)	P	1.75	66.0	3.000	1.500	CT	1.643	0.34	24.50	1973 86213		
		1.57	67.2	3.000	1.502	CT	1.561	0.32	24.00	1973 86213		
		1.57	67.2	3.000	1.501	CT	1.591	0.35	25.30	1973 86213		
		1.57	67.2	3.000	1.502	CT	1.565	0.32	24.00	1973 86213		
T851 (417)	P	1.57	67.2	3.000	1.501	CT	1.591	0.35	25.10	23.8/ 2.4	1973 86213	
		3.50	64.2	3.000	1.498	CT	1.520	0.33	23.30	1973 86213		
T851 (417)	P	3.50	81	T-L	64.2	3.000	1.499	CT	1.545	0.32	22.90	1973 86213

TABLE 7.8.2.1 (Con't)

CONDITION	ALUMINUM				2124				K(1C)		K(1C) STAN DEV	DATE	REFER		
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.3* (IN)						
						WIDTH (IN)	THICK (IN)			A				B	
T851 (417)	P	2.00	81	T-L	65.3	4.000	2.000	CT	2.159	0.56	30.90	25.3/	3.8	1973 86213	
		2.00			66.7	4.000	1.999	CT	2.142	0.33	24.30				1973 86213
T851 (417)	P	3.75	82	T-L	59.2	2.000	0.999	CT	1.014	0.42	24.20			1973 86213	
		3.38			61.0	2.000	0.998	CT	0.958	0.54	28.40				1973 86213
		3.38			61.0	2.000	0.999	CT	0.974	0.51	27.50				1973 86213
		3.00			61.8	3.000	1.500	CT	1.560	0.29	21.10				1973 86213
		3.75			63.0	2.000	1.001	CT	1.005	0.34	23.30				1973 86213
		3.75			63.0	2.000	1.000	CT	0.999	0.34	23.20				1973 86213
		3.15			63.4	2.000	1.000	CT	1.000	0.43	26.30				1973 86213
		3.75			63.8	2.000	1.001	CT	1.011	0.34	23.50				1973 86213
		3.15			64.2	2.000	1.000	CT	1.003	0.38	24.90				1973 86213
		2.50			64.2	1.990	1.001	CT	1.039	0.42	26.30				1973 86213
		2.50			64.4	1.990	1.001	CT	1.055	0.41	26.10				1973 86213
		2.50			64.4	4.000	1.997	CT	2.099	0.35	24.00				1973 86213
		2.50			64.4	3.990	1.999	CT	2.172	0.54	29.90				1973 86213
		2.50			64.4	4.000	1.997	CT	2.183	0.54	30.00				1973 86213
		3.38			64.7	2.000	0.998	CT	0.989	0.41	26.10				1973 86213
		2.50			64.8	4.000	2.001	CT	2.134	0.46	27.70				1973 86213
		2.50			64.8	4.000	1.998	CT	2.153	0.47	28.10				1973 86213
		3.15			65.0	2.000	1.001	CT	0.982	0.37	25.00				1973 86213
		3.15			65.0	2.000	0.998	CT	0.995	0.36	24.60				1973 86213
		2.75			65.3	2.000	0.999	CT	0.968	0.35	24.30				1973 86213
1.62	65.4	3.000	1.500	CT	1.581	0.26	21.20	1973 86213							
2.75	66.1	2.000	1.000	CT	0.957	0.34	24.40	1973 86213							
2.75	66.1	2.000	1.001	CT	0.949	0.32	23.60	1973 86213							
2.75	66.9	2.000	0.998	CT	0.940	0.27	22.10	1973 86213							
2.52	67.0	2.000	0.998	CT	0.979	0.31	23.70	1973 86213							
2.52	67.6	2.000	0.998	CT	0.955	0.28	22.60	1973 86213							
2.52	67.6	2.000	1.000	CT	0.976	0.29	23.10	1973 86213							
2.52	68.6	2.000	0.995	CT	0.987	0.29	23.40	25.0/	2.4	1973 86213					
T851 (417)	P	4.50	- 320	S-L	72.3	3.000	1.501	CT	1.514	0.23	22.10			1973 86213	
T851 (417)	P	4.50	- 112	S-L	64.8	3.000	1.500	CT	1.461	0.27	21.30			1973 86213	
T851 (417)	P	5.50	R.T.	S-L	57.5	3.000	1.499	CT	1.500	0.42	23.60			1973 86213	
		5.50			57.5	3.000	1.501	CT	1.466	0.43	23.90				1973 86213
		4.00			59.3	2.000	0.997	CT	0.981	0.44	24.80				1973 86213

TABLE 7.8.2.1 (Con't)

CONDITION	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD (KSI)	ALUMINUM		2124		K(1C)		K(1C) STAN K(1C) MEAN DEV (KSI*SQRT IN)	DATE	REFER
					THICK (IN)	TEMP (F)	SPECIMEN		CRACK LENGTH (IN)	2.5* (IN)			
							WIDTH (IN)	THICK (IN)					
T851 (417)	P	4.50	R.T.	8-L	3.000	1.501	CT	1.523	0.35	22.50	1973	86213	
		4.50			3.000	1.501	CT	1.534	0.36	22.70	1973	86213	
		3.00			2.000	1.000	CT	1.015	0.29	20.40	1973	86213	
		4.50			3.000	1.501	CT	1.459	0.29	20.70	1973	86213	
		2.50			2.000	0.998	CT	0.939	0.31	21.80	1973	86213	
		2.50			2.000	0.996	CT	0.963	0.34	22.90	1973	86213	
		2.50			2.000	0.998	CT	0.931	0.28	21.20	1973	86213	
		2.50			2.000	0.998	CT	0.926	0.28	21.10	1973	86213	
		1.57			1.000	0.500	CT	0.493	0.29	21.60	1973	86213	
		1.57			1.000	0.501	CT	0.500	0.28	21.00	1973	86213	
		2.50			2.000	0.998	CT	0.929	0.26	20.30	1973	86213	
		1.57			1.000	0.500	CT	0.489	0.27	21.30	1973	86213	
		1.57			1.000	0.500	CT	0.499	0.25	20.50	1973	86213	
		1.75			0.990	0.501	CT	0.459	0.19	18.20	1973	86213	
		1.57			0.990	0.500	CT	0.471	0.21	18.80	1973	86213	
		1.62			1.000	0.500	CT	0.488	0.16	16.70	21.3/ 2.0	1973	86213
T851 (417)	P	3.75	82	8-L	2.000	1.000	CT	0.976	0.37	22.30	1973	86213	
		3.38			2.000	1.001	CT	0.947	0.40	23.90	1973	86213	
		3.50			2.000	0.998	CT	0.987	0.27	19.80	1973	86213	
		3.50			2.000	0.998	CT	0.992	0.32	21.40	1973	86213	
		3.50			1.990	1.001	CT	0.989	0.40	24.70	1973	86213	
		3.50			1.990	1.001	CT	0.988	0.43	25.40	1973	86213	
		3.38			2.000	0.998	CT	0.962	0.48	26.90	1973	86213	
		3.75			2.000	1.001	CT	0.983	0.36	23.60	1973	86213	
		3.15			2.000	1.000	CT	0.938	0.34	22.90	1973	86213	
		3.15			2.000	0.999	CT	0.955	0.33	22.90	1973	86213	
		2.75			2.000	1.000	CT	0.935	0.28	21.30	1973	86213	
		2.50			1.990	1.001	CT	0.965	0.29	21.80	1973	86213	
		2.50			1.990	1.001	CT	0.974	0.31	22.20	1973	86213	
		2.75			2.000	0.998	CT	0.929	0.25	20.50	1973	86213	
		2.52			2.000	1.000	CT	0.963	0.29	22.00	1973	86213	
		2.75			2.000	0.999	CT	0.948	0.18	17.80	1973	86213	
		2.52			2.000	0.998	CT	0.947	0.21	19.30	1973	86213	
		2.52			2.000	0.998	CT	0.945	0.20	18.80	1973	86213	
		2.52			2.000	0.998	CT	0.974	0.24	20.60	22.0/ 2.3	1973	86213
T851 (417)	P	3.75	84	8-L	2.000	0.998	CT	0.998	0.34	23.10	1973	86213	

TABLE 7.8.2.2

CONDITION	ALUMINUM		2124		K(C)	
	---SPECIMEN---		CRACK LENGTH		GROSS STRESS	
	FORM	THICK (IN)	TEST SPEC OR TEMP (F)	YIELD STR (KSI)	INIT (IN)	FINAL (IN)
	P	0.25	R. T.	T-L	W	B
					2A(O)	2A(F)
					8(O)	8(MAX)
					MAX (KSI)	K(APP) (KSI*80RT IN)
					STAN DEV	K(C) MEAN DEV (KSI*80RT IN)
						STAN DEV
						DATE
						REFER

BUCKLING OF CRACK EDGES NOT RESTRAINED

1851	P	0.25	R. T.	T-L	59.8	3.000	0.249	1.220	1.780	18.80	26.80	41.41	58.04*	1973	86213	
	0.25				62.9	3.000	0.249	1.240	1.700	13.40	18.60	29.09	38.31	1973	86213	
	0.25				55.4	3.000	0.250	1.127	1.755	14.30	21.70	31.66	46.23*	1973	86213	
	0.25				55.5	3.000	0.251	1.128	1.778	14.90	21.90	31.99	47.36*	1973	86213	
	0.25				57.4	3.000	0.250	1.210	1.720	14.70	20.90	32.10	43.59*	1973	86213	
	0.25				57.4	3.000	0.250	1.320	1.790	13.00	20.30	33.30	44.24*	1973	86213	
	0.25				57.4	3.000	0.251	1.220	1.740	15.30	18.50	28.58	39.07	1973	86213	
	0.25				59.7	3.000	0.250	1.190	1.700	16.40	25.00	37.93	51.50*	1973	86213	
	0.25				59.7	3.000	0.250	1.220	1.690	16.30	22.20	34.30	45.45*	1973	86213	
	0.25				59.8	3.000	0.252	1.220	1.680	16.80	23.40	36.46	54.52*	1973	86213	
	0.25				59.8	3.000	0.250	1.230	1.700	16.00	23.40	36.37	48.20*	1973	86213	
	0.25				59.9	3.000	0.250	1.220	1.700	14.00	20.90	32.29	43.09*	1973	86213	
	0.25				59.9	3.000	0.250	1.250	1.640	13.30	17.10	26.90	33.95	1973	86213	
	0.25				59.9	3.000	0.250	1.240	1.640	13.40	18.50	28.93	36.73	1973	86213	
	0.25				61.1	3.000	0.250	1.240	1.600	17.30	29.10	45.91*	63.82*	1973	86213	
	0.25				61.1	3.000	0.250	1.240	1.770	17.70	26.80	41.91	57.67*	1973	86213	
	0.25				61.1	3.000	0.250	1.240	1.710	18.80	26.60	41.60	55.13*	1973	86213	
	0.25				62.9	3.000	0.250	1.240	1.600	13.30	19.90	31.12	38.57	1973	86213	
	0.25				62.9	3.000	0.250	1.200	1.650	14.00	21.20	32.36	33.3/ 4.3	38.2/ 2.8	1973	86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

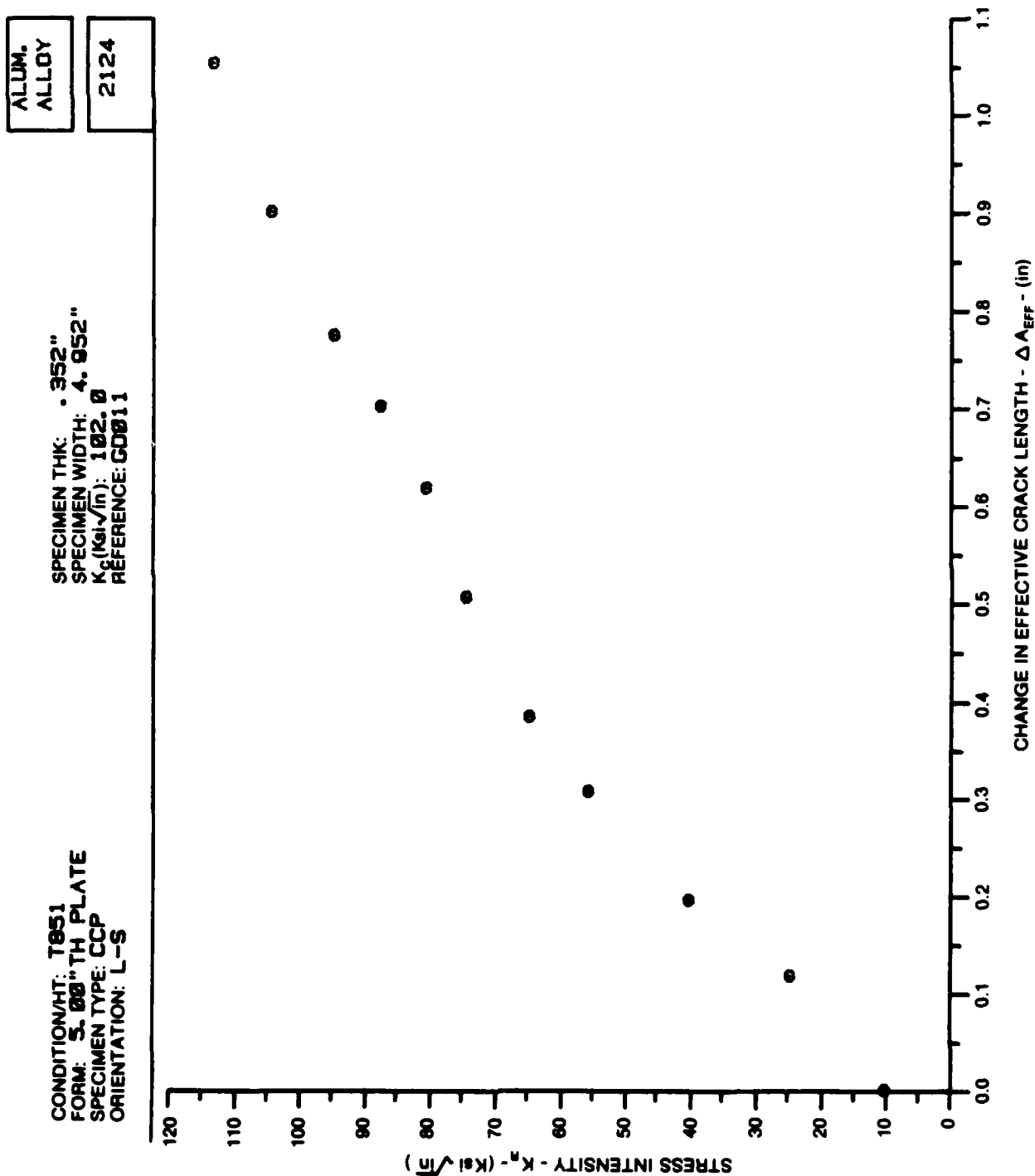


Figure 7.8.2.3

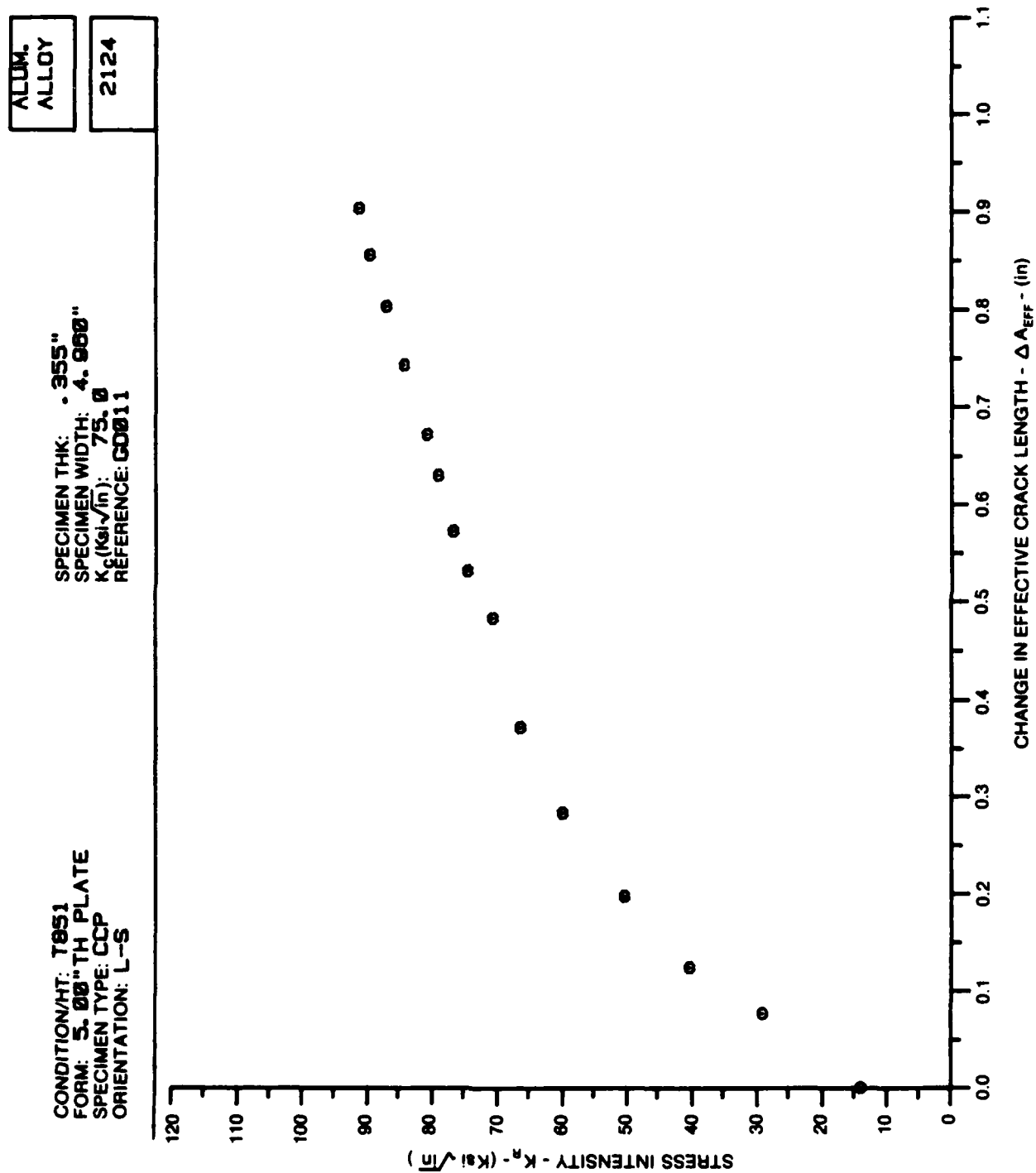


Figure 7.8.2.4

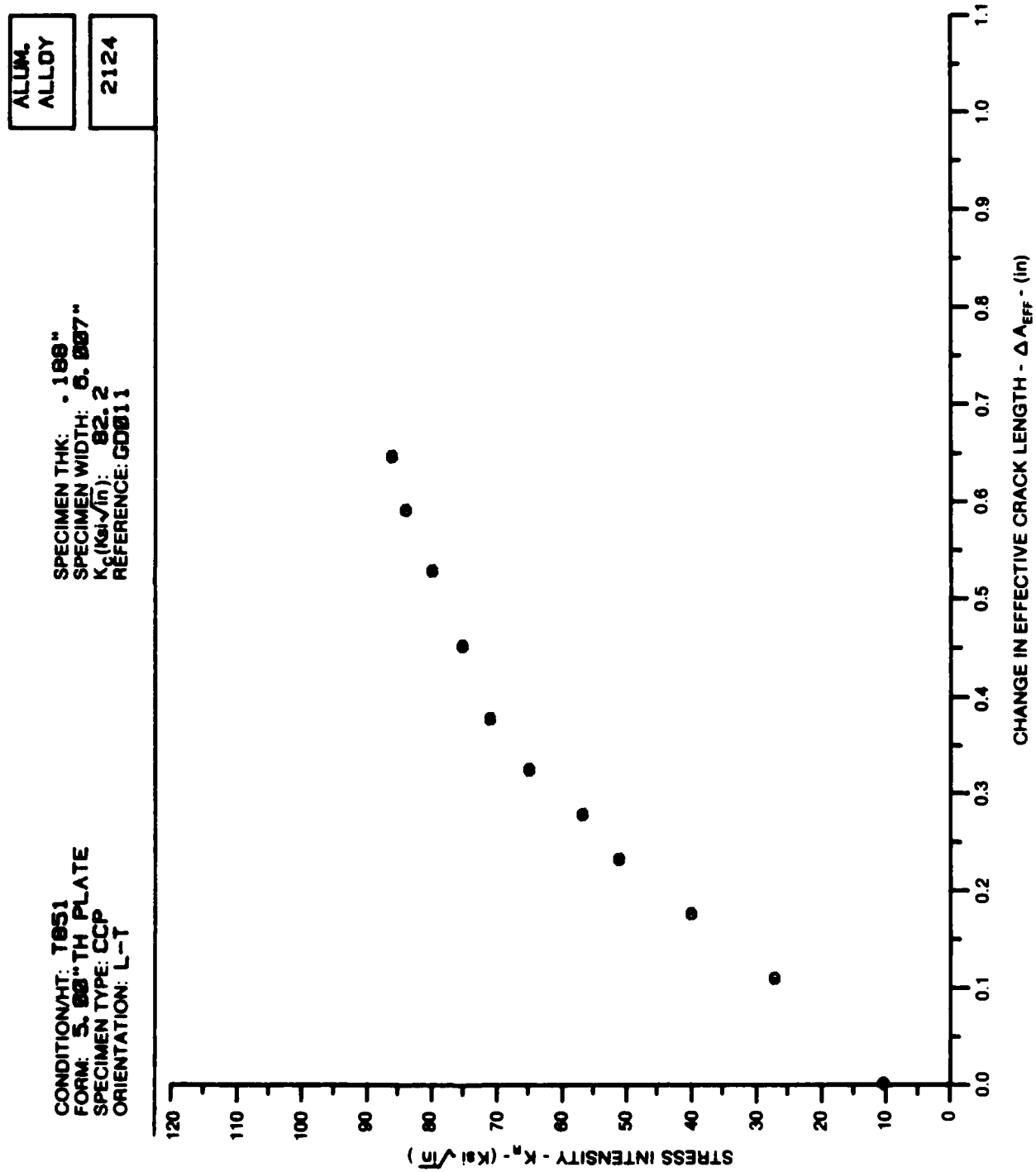


Figure 7.8.2.5

ALUM. ALLOY
2124

SPECIMEN THK: .195"
 SPECIMEN WIDTH: 8.010"
 K_I (Ksi $\sqrt{\text{in}}$): 73.2
 REFERENCE: GD011

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

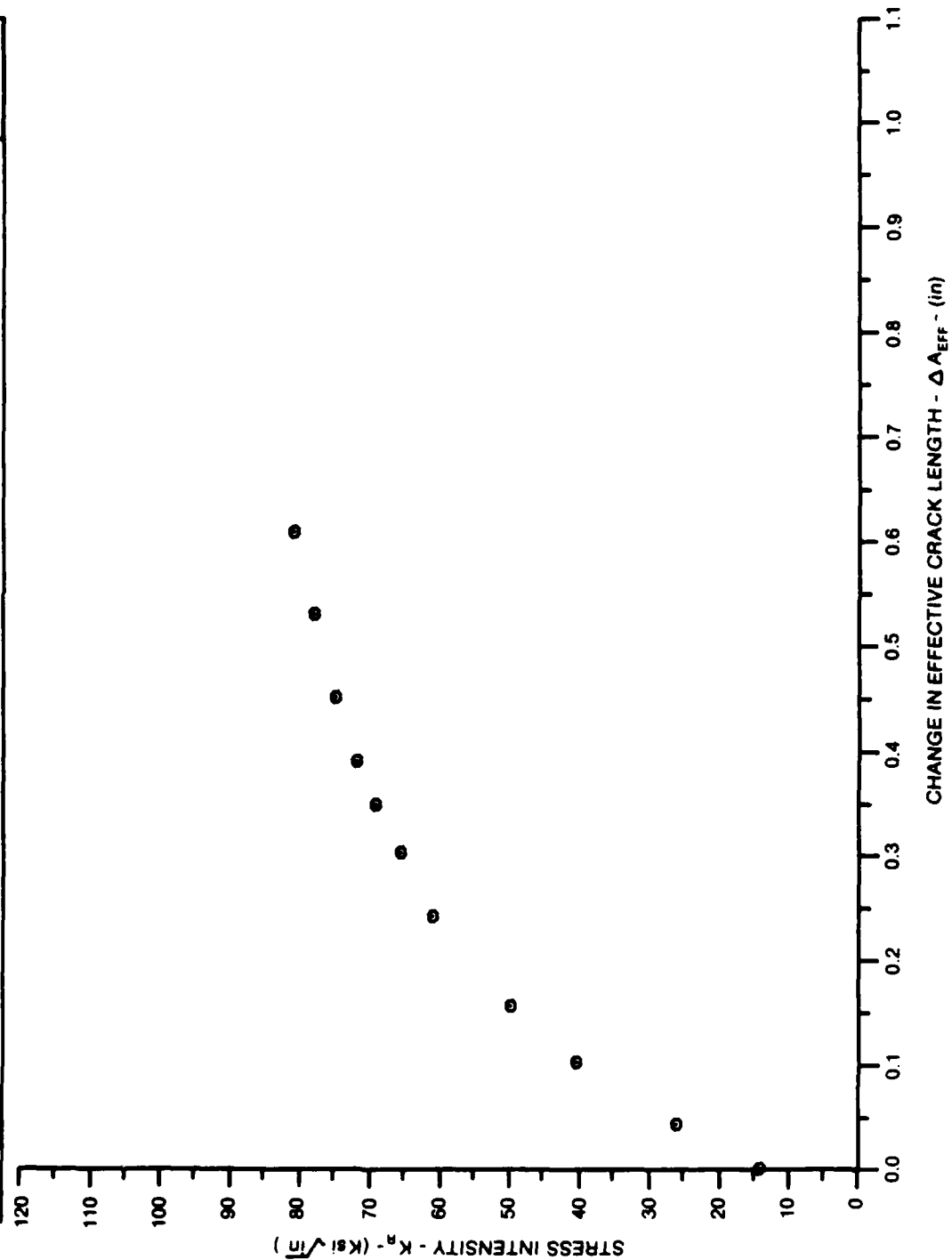


Figure 7.8.2.6

ALUM. ALLOY
2124

SPECIMEN THK: .193"
 SPECIMEN WIDTH: 6.885"
 K_{IC} (Ksi \sqrt{in}): 68.9
 REFERENCE: G0811

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

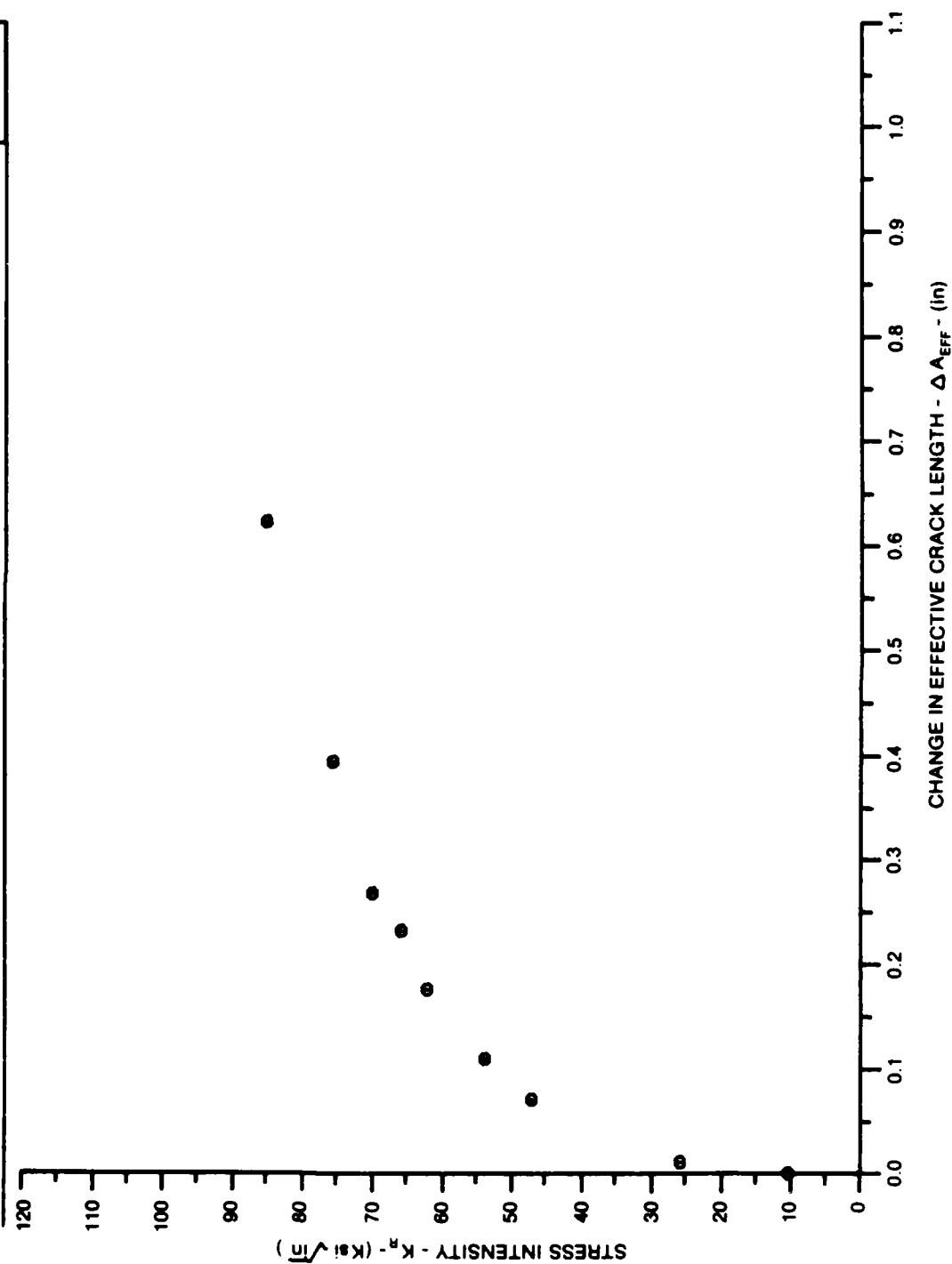


Figure 7.8.2.7

ALUM. ALLOY
2124

SPECIMEN THK: .406"
 SPECIMEN WIDTH: 6.003"
 K_{IC} (ksi $\sqrt{\text{in}}$): 70.5
 REFERENCE: GD011

CONDITION/HT: T851
 FORM: 5.00" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

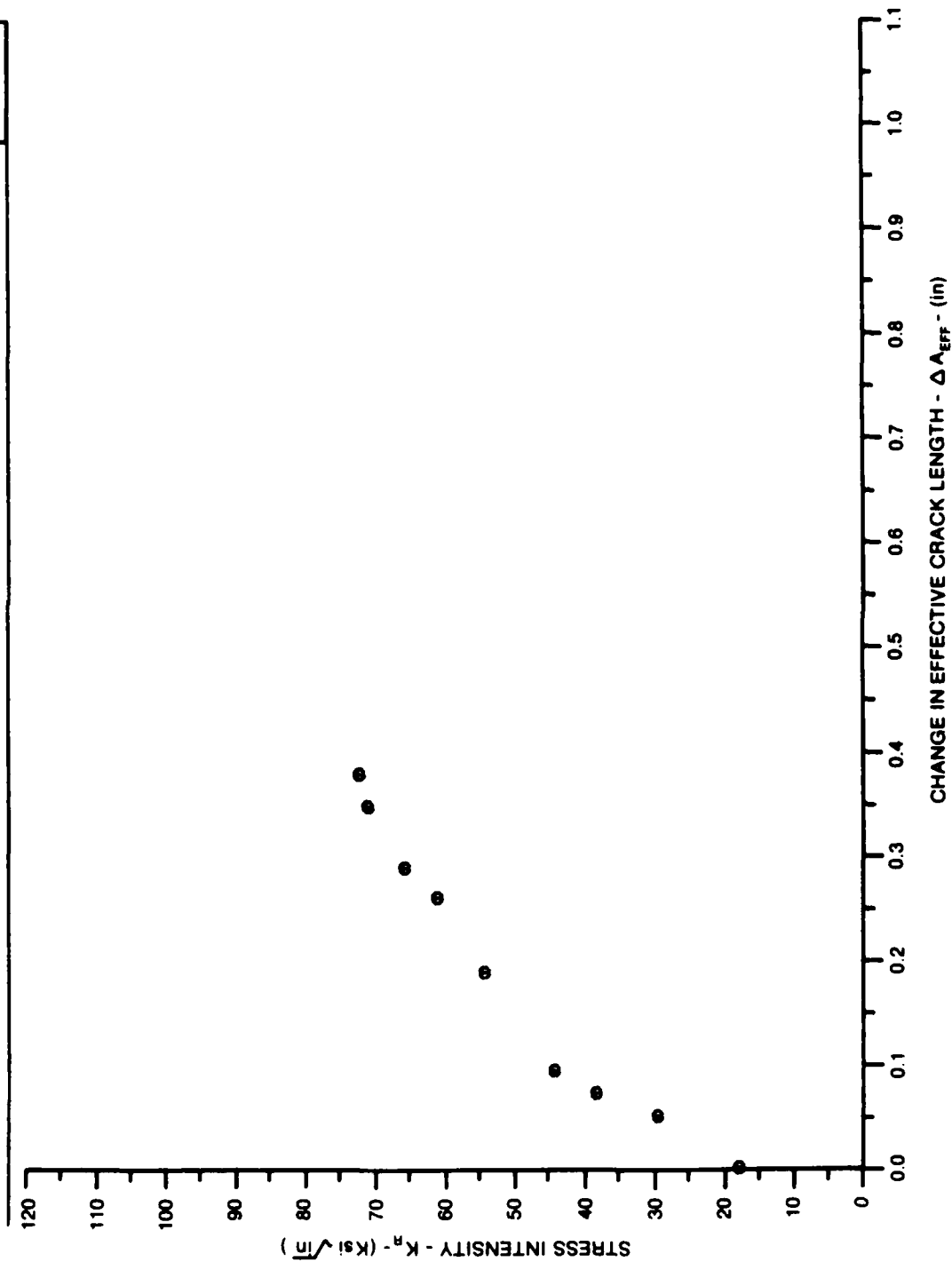


Figure 7.8.2.8

ALUM. ALLOY	SPECIMEN THK: .402"
2124	SPECIMEN WIDTH: 8.025"
	K _{IC} (KSI√in): 76.0
	REFERENCE: GD011

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

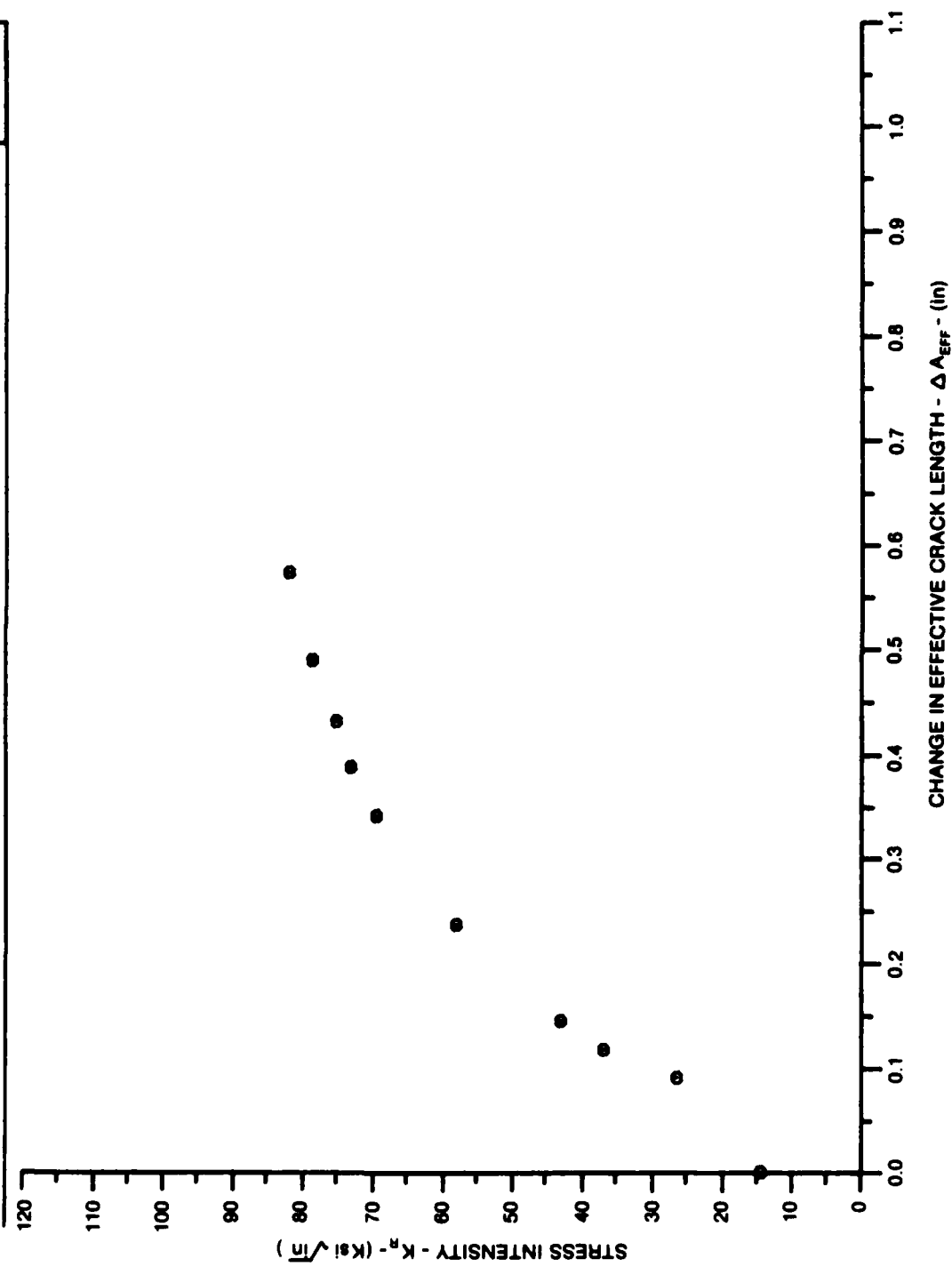


Figure 7.8.2.9

ALUM. ALLOY
2124

SPECIMEN THK: .482"
 SPECIMEN WIDTH: 6.828"
 K_{IC} (KSI \sqrt{in}): 73.1
 REFERENCE: GD011

CONDITION/HT: T651
 FORM: 5.58" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T

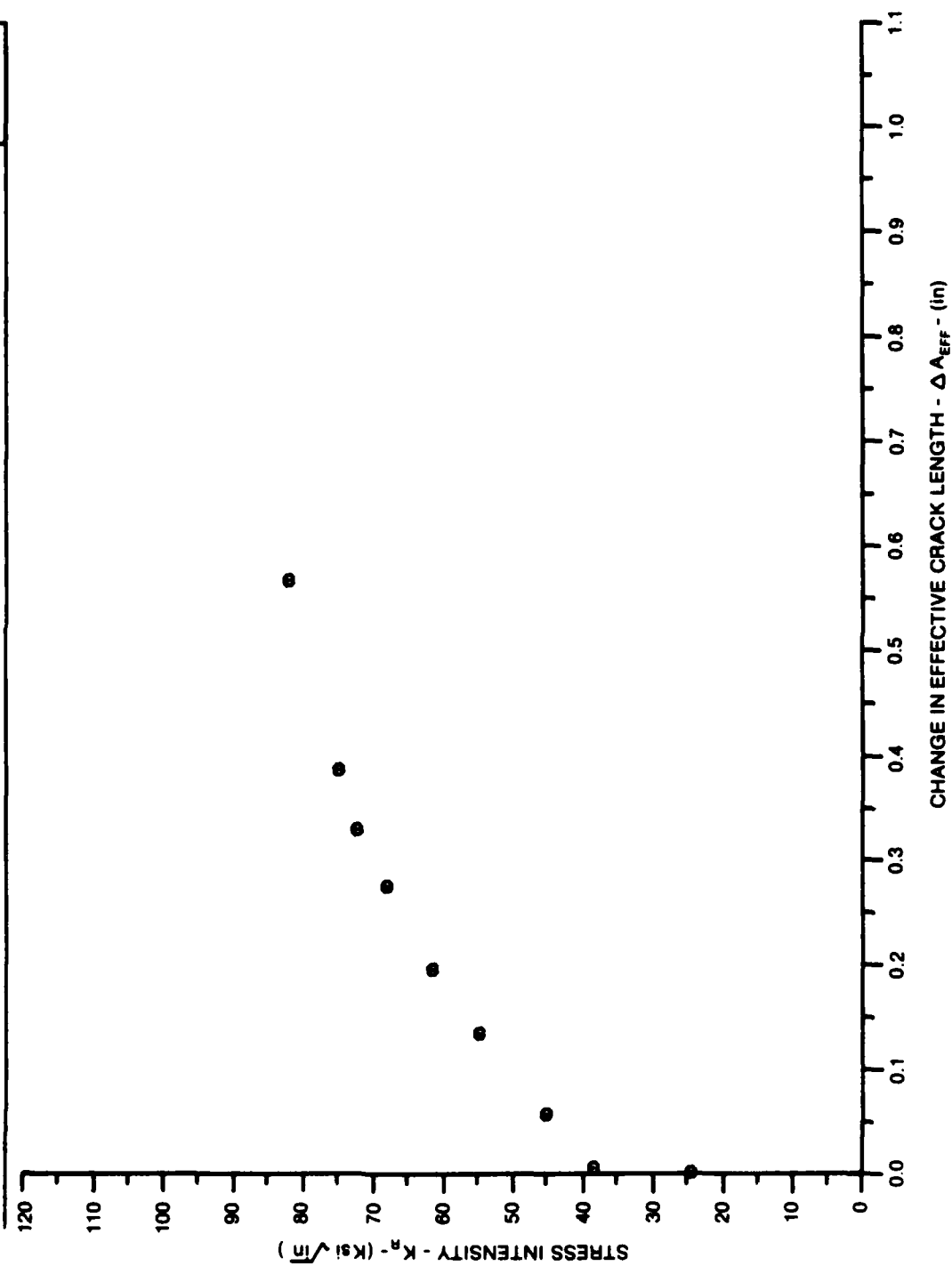


Figure 7.8.2.10

ALUM.
ALLOY

2124

SPECIMEN THK: .191"
SPECIMEN WIDTH: 5.800"
 K_{IC} (ksi√in): 53.8
REFERENCE: GD011

CONDITION/HT: T851
FORM: 5.00" TH PLATE
SPECIMEN TYPE: CCP
ORIENTATION: T-L

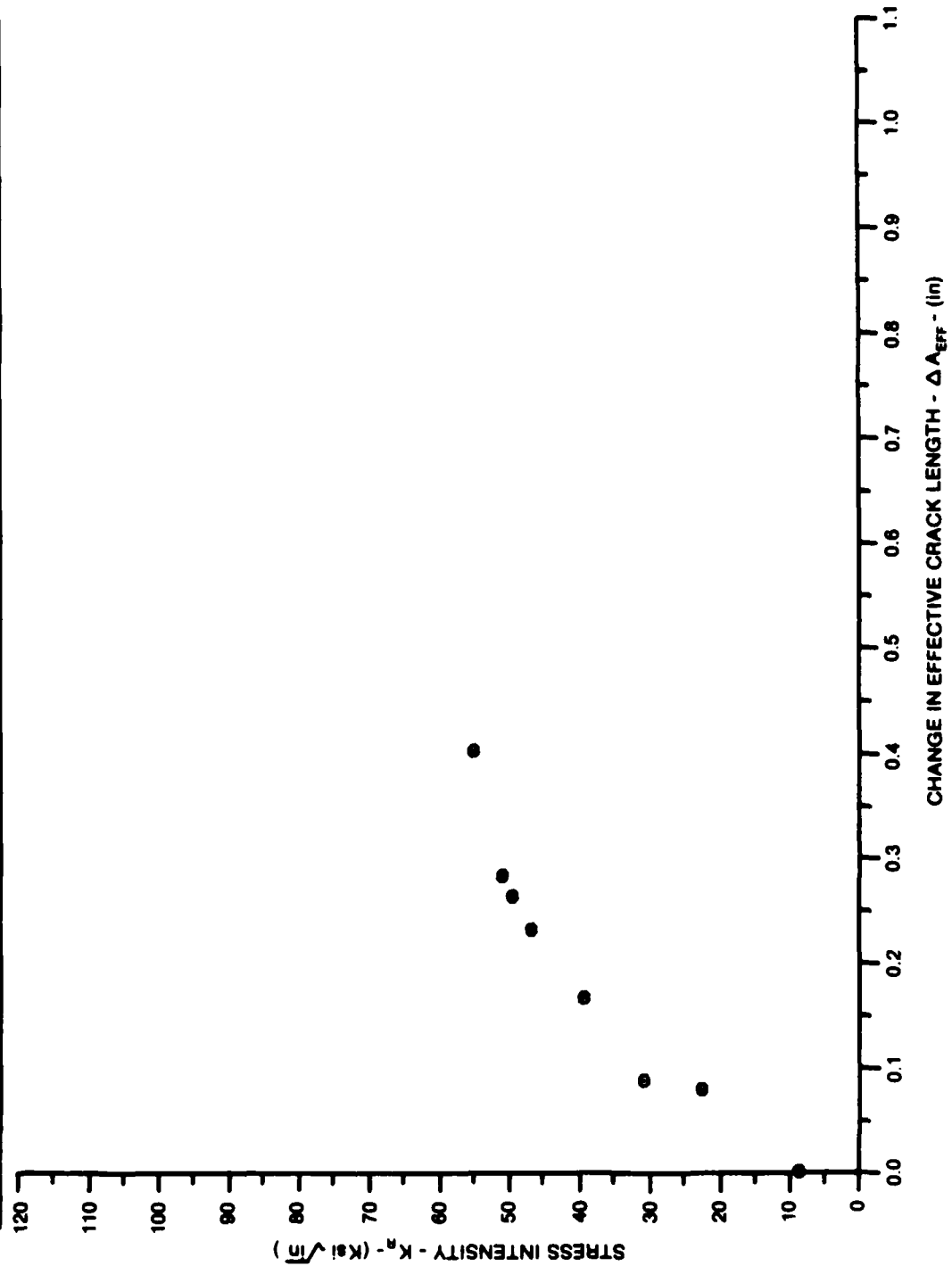


Figure 7.8.2.11

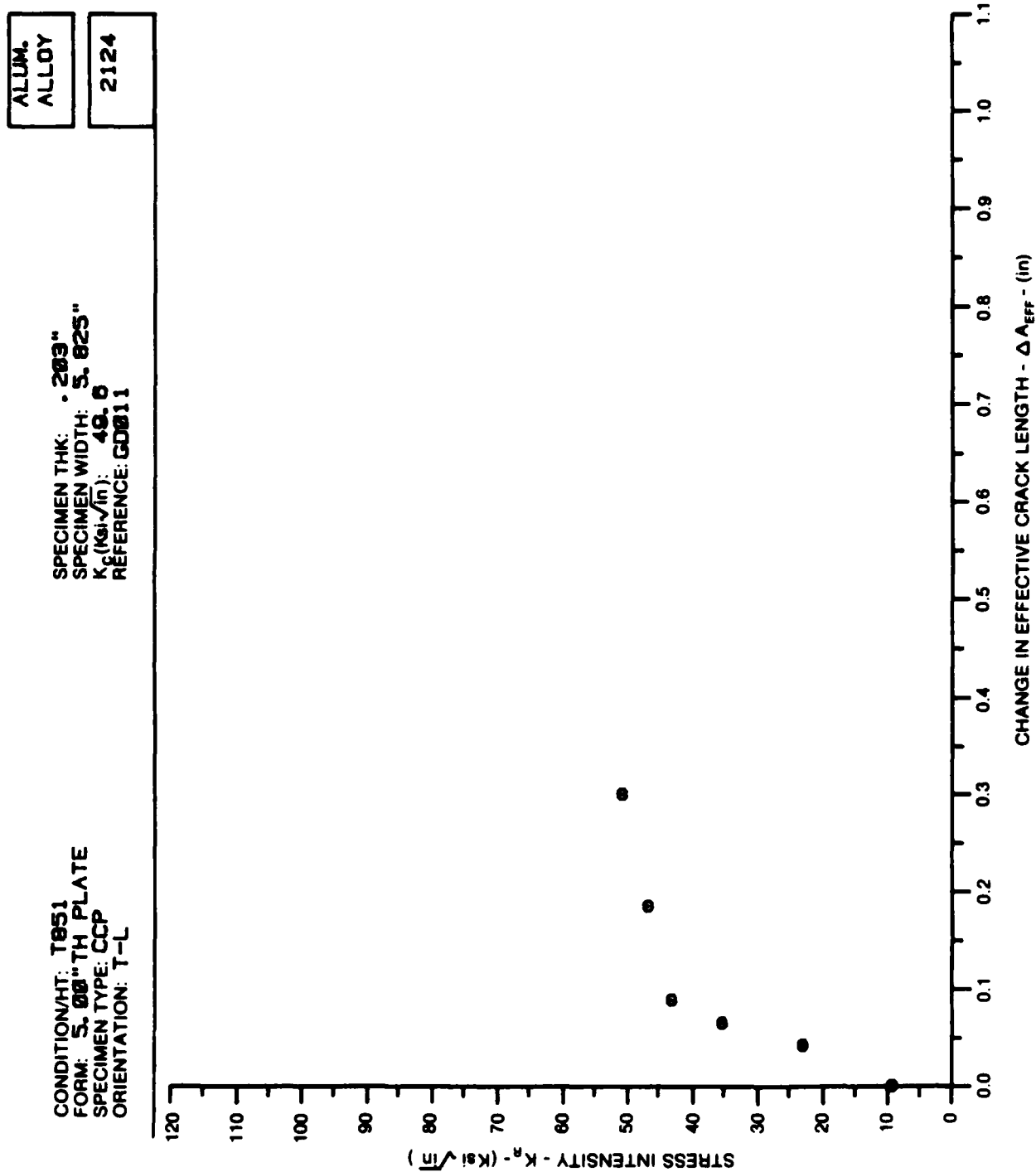


Figure 7.8.2.12

TABLE 7.8.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.8.3.1 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2124
CONDITION: T851
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.33			
DELTA K MIN	A:	2.11	.00883		
	B:				
	C:				
	D:				
	2.50	.0441			
	3.00	.149			
	3.50	.317			
	4.00	.549			
	5.00	1.33			
	6.00	2.60			
	7.00	4.24			
	8.00	6.22			
	9.00	8.61			
	10.00	11.5			
	13.00	24.4			
	16.00	49.6			
	20.00	168.			
DELTA K MAX	A:	20.19	182.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 12.91
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 1.50" TH PLATE
 SPECIMEN TYPE: WDL
 ORIENTATION: L-T
 FREQUENCY: 25.00
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 66.0 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: NC003

ALUM.
 ALLOY

2124

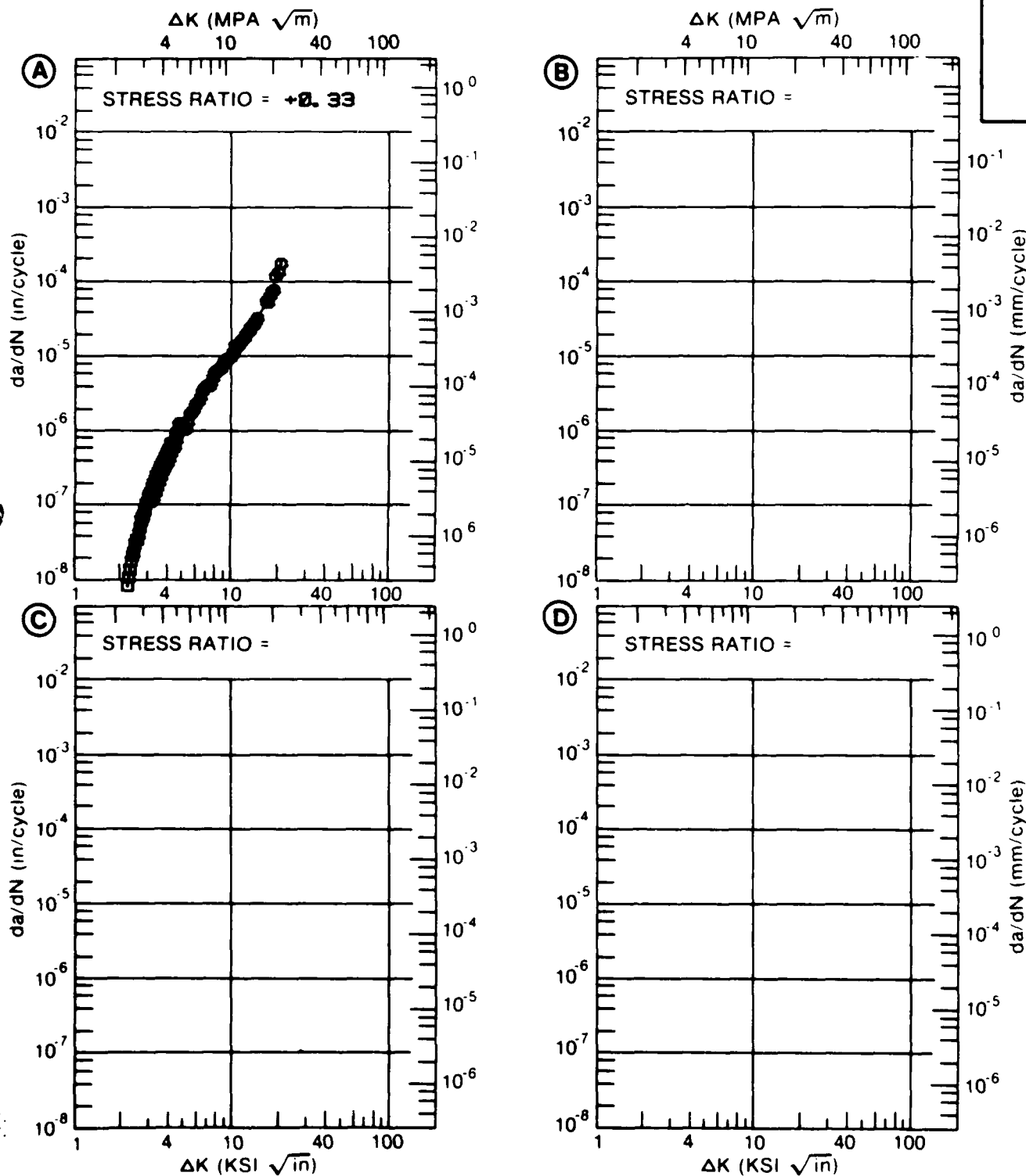


Figure 7.8.3.1

TABLE 7.8.3.2

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.8.3.2 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2124			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR			
DELTA K MIN	A: 2.05	.0155			
	B:				
	C:				
	D:				
	2.50	.0474			
	3.00	.0874			
	3.50	.115			
	4.00	.142			
	5.00	.272			
	6.00	.596			
	7.00	1.11			
	8.00	1.80			
	9.00	2.70			
DELTA K MAX	10.00	3.84			
	13.00	9.39			
	16.00	20.7			
	20.00	56.7			
	A: 22.02	93.8			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		32.48			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

ALUM.
ALLOY

2124

CONDITION/HT: T851
 FORM: 1.50" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.02
 FREQUENCY: 1.00- 30.00 HZ

YIELD STRENGTH: 67.2 KSI
 ULT. STRENGTH: 71.5 KSI
 SPECIMEN THK: 0.109- 0.111"
 SPECIMEN WIDTH: 3.950- 3.954"
 REFERENCES: MA002

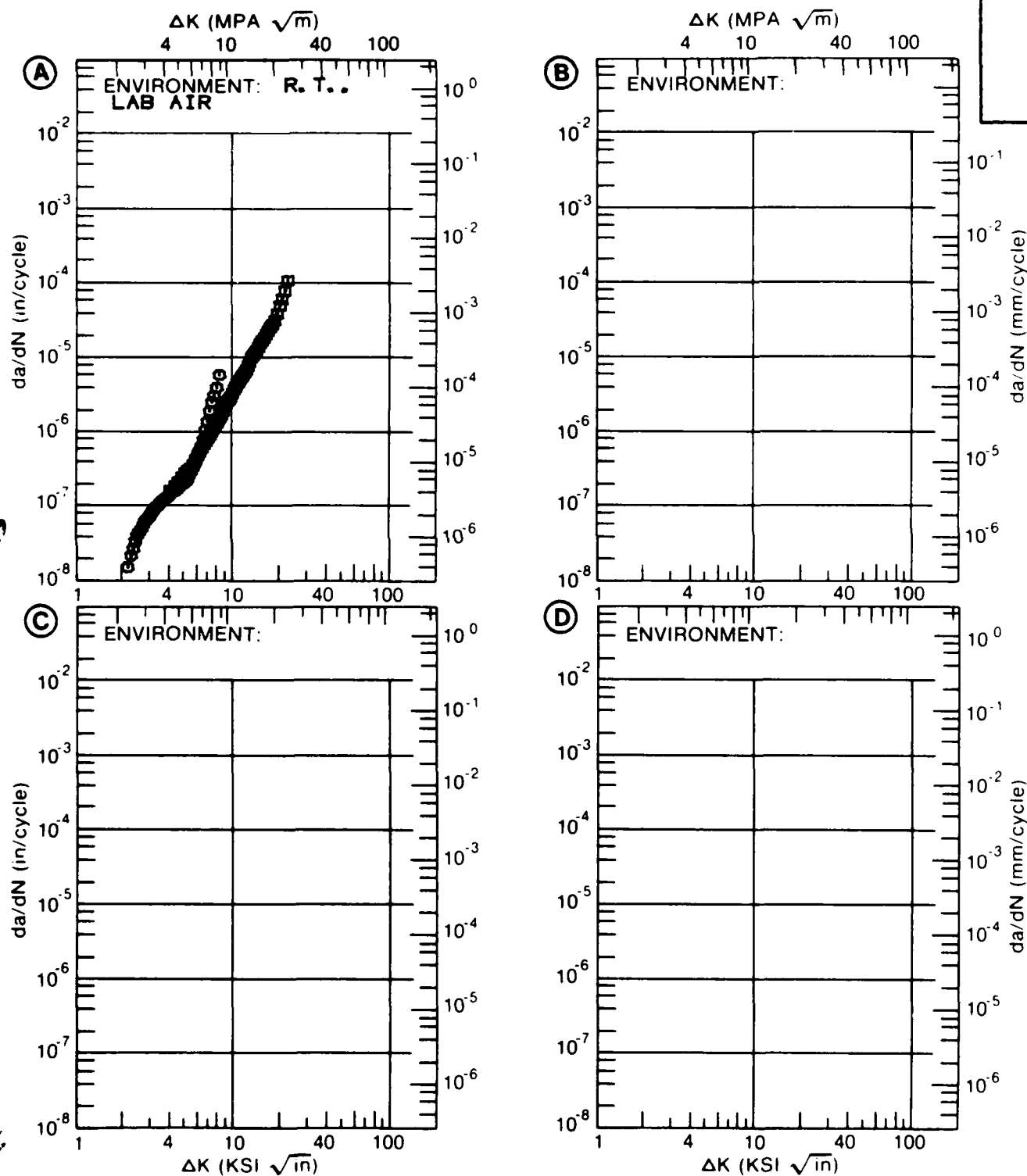


Figure 7.8.3.2

TABLE 7.8.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.8.3.3 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2124
 CONDITION: T851
 ENVIRONMENT: R. T., L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.10	R=+0.50		
DELTA K MIN	A:	2.42	.0147		
	B:	1.62	.00552		
	C:				
	D:				
	2.00		.0501		
	2.50	.0198	.0925		
	3.00	.0661	.111		
	3.50	.118	.173		
	4.00	.163	.295		
	5.00	.266	.682		
	6.00	.458	1.16		
	7.00	.776	1.78		
	8.00	1.25	2.72		
	9.00	1.89	4.29		
	10.00	2.69	7.07		
	13.00	6.60	34.6		
	16.00	15.1	83.9		
	20.00	44.6			
	25.00	133.			
DELTA K MAX	A:	26.67	174.		
	B:	16.28	86.4		
	C:				
	D:				
ROOT MEAN SQUARE		27.50	30.69		
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T851
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 30.00
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 86.4 KSI
 ULT. STRENGTH: 72.1 KSI
 SPECIMEN THK: 0.375- 1.500"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: UD005

ALUM.
 ALLOY

2124

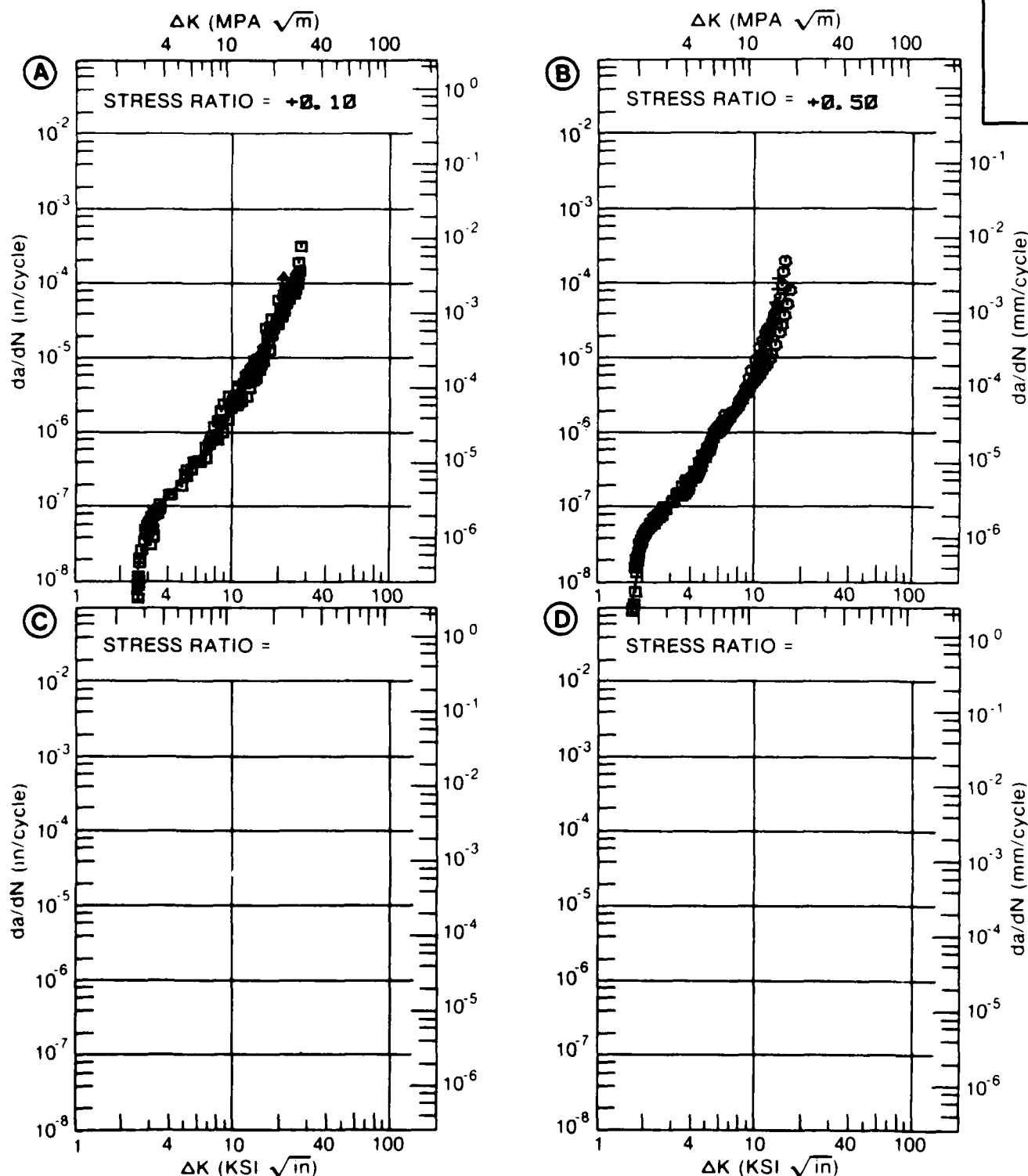


Figure 7.8.3.3

TABLE 7.8.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.8.3.4 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2124			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. SALT FOG		
A:	5.61	2.56			
DELTA K B:	7.00		6.99		
MIN C:					
D:					
	6.00	2.70			
	7.00	3.82	6.99		
	8.00	4.16	7.73		
	9.00	5.28	11.3		
	10.00	8.77	16.9		
	13.00	60.3	32.7		
A:	13.38	67.7			
DELTA K B:	13.38		42.7		
MAX C:					
D:					
ROOT MEAN SQUARE		13.83	6.22		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 4.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30

YIELD STRENGTH: 57.3 KSI
 ULT. STRENGTH: 64.1 KSI
 SPECIMEN THK: 1.489-1.491"
 SPECIMEN WIDTH: 3.800"
 REFERENCES: 86842

ALUM.
 ALLOY

2124

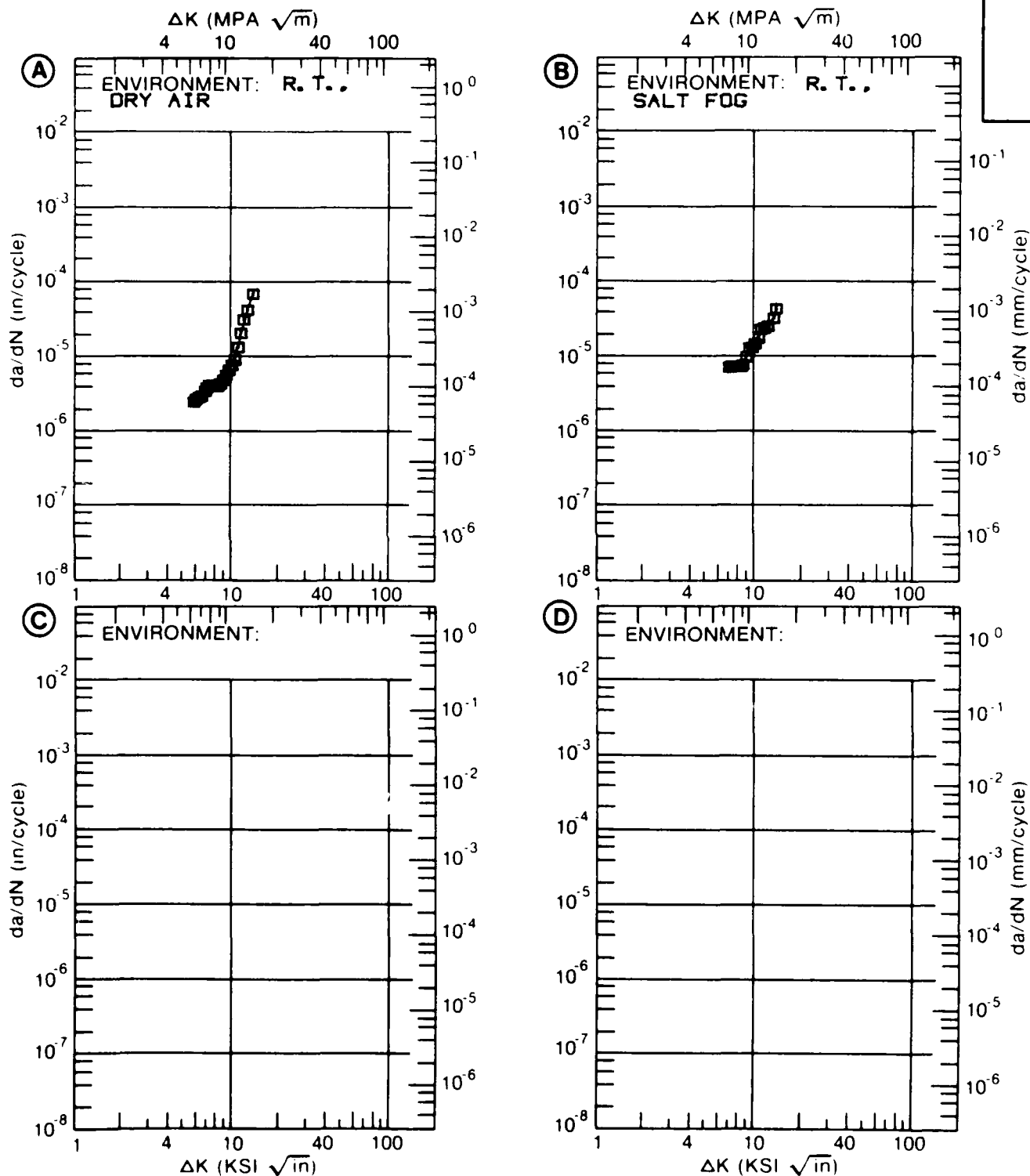


Figure 7.8.3.4

TABLE 7.8.3.5

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.8.3.5 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2124			
CONDITION: T851					
ENVIRONMENT: R. T., S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**+6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 30	R=+0. 50	
DELTA K MIN	A:	4. 36	. 105		
	B:	3. 34	. 135		
	C:	3. 24		. 199	
	D:				
	3. 50		. 143	. 267	
	4. 00		. 219	. 427	
	5. 00	. 265	. 646	1. 07	
	6. 00	. 458	1. 45	2. 27	
	7. 00	1. 16	2. 63	3. 64	
	8. 00	2. 48	4. 17	5. 16	
	9. 00	4. 15	6. 08	7. 02	
	10. 00	6. 04	8. 37	9. 52	
	13. 00	12. 6	17. 9	27. 1	
	16. 00	22. 2	33. 5		
	20. 00	50. 4	119.		
	25. 00	176.			
DELTA K MAX	A:	28. 12	436.		
	B:	20. 62	160.		
	C:	14. 78		90. 4	
	D:				
ROOT MEAN SQUARE		25. 63	14. 28	14. 02	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0	1	2	2	
(NP/NA)	>2. 0	1			

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 1.00
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 62.6 KSI
 ULT. STRENGTH: 89.4 KSI
 SPECIMEN THK: 0.744- 0.750"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: GD003

ALUM.
 ALLOY

2124

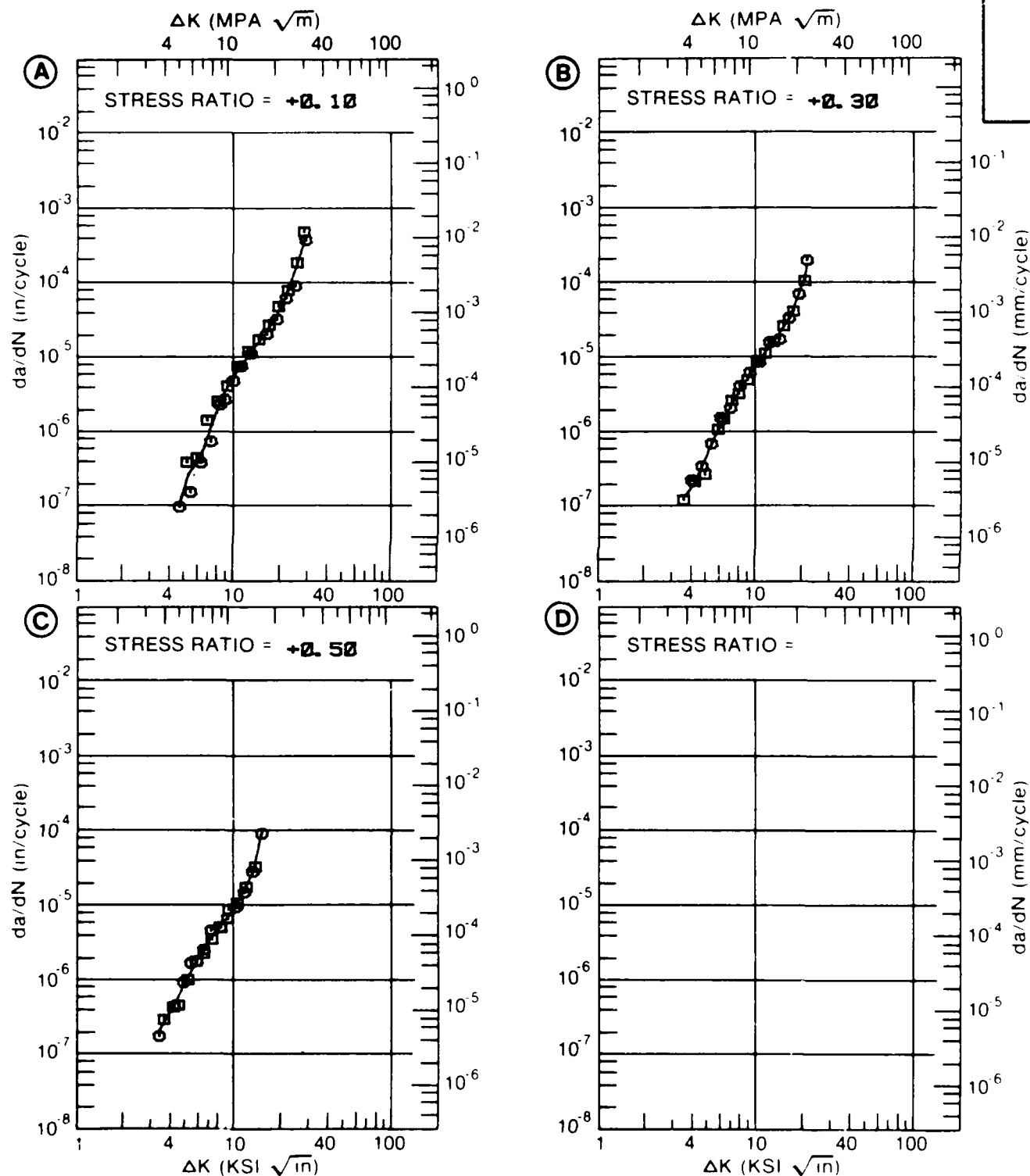


Figure 7.8.3.5

TABLE 7.8.3.6

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.8.3.6 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2124
CONDITION: T851
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.07			
DELTA K MIN	A:	2.71	.0317		
	B:				
	C:				
	D:				
3.00		.0952			
DELTA K MAX	A:	3.12	.0627		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 38.48
PERCENT ERROR

LIFE 0.0-0.5 1
PREDICTION 0.5-0.8 1
RATIO 0.8-1.25 2
SUMMARY 1 25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY:
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 57.0 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: BL002

ALUM.
 ALLOY

2124

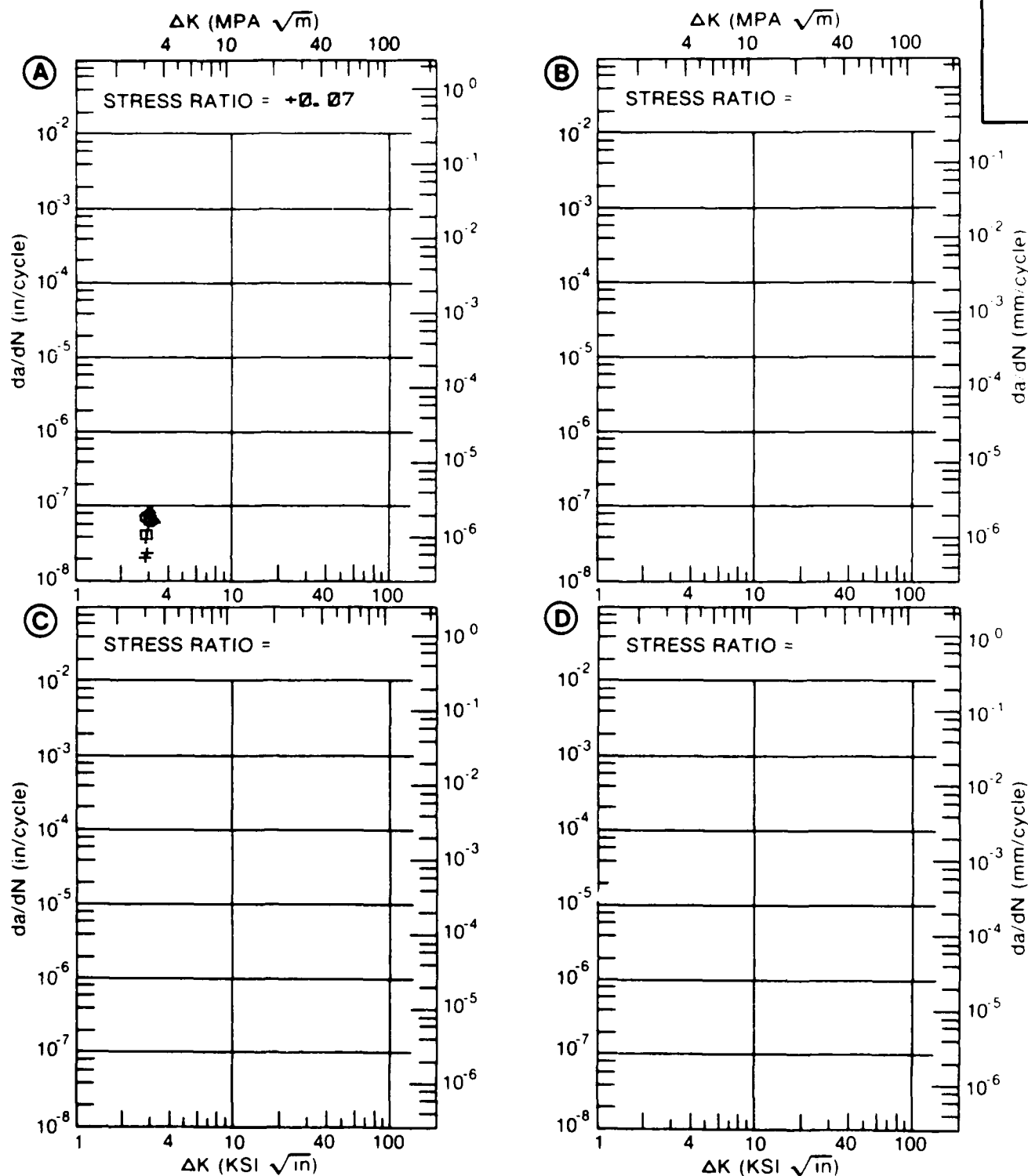


Figure 7.8.3.6

TABLE 7.8.3.7

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.8.3.7 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2124
CONDITION: T851
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 25	R=+0. 50	
DELTA K MIN	A: 3. 20	. 050			
	B: 2. 03		. 007		
	C: 1. 79			. 045	
	D: 8				
	2. 00			. 0664	
	2. 50		. 0341	. 133	
	3. 00		. 0986	. 230	
	3. 50	. 0646	. 206	. 365	
	4. 00	. 105	. 353	. 553	
	5. 00	. 287	. 751	1. 17	
	6. 00	. 698	1. 29	2. 33	
	7. 00	1. 43	1. 99	4. 49	
	8. 00	2. 48	2. 95	8. 47	
	9. 00	3. 73	4. 27	15. 7	
	10. 00	5. 16	6. 15	28. 8	
	13. 00	12. 1	18. 5		
	16. 00	31. 1	58. 3		
DELTA K MAX	A: 16. 24	33. 8			
	B: 17. 43		102.		
	C: 12. 09			98. 9	
	D:				
ROOT MEAN SQUARE		35. 59	22. 28	17. 25	
PERCENT ERROR					
LIFE	0. 0-0. 5		1		
PREDICTION	0. 5-0. 8	1			
RATIO	0. 8-1. 25	6	3	5	
SUMMARY	1. 25-2. 0	5	4	3	
(NP/NA)	>2. 0		1	3	

CONDITION/HT: T851

FORM: 5.50" TH PLATE

SPECIMEN TYPE: CCP

ORIENTATION: T-L

FREQUENCY: 6.00- 33.00 HZ

ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 63.2- 67.2 KSI

ULT. STRENGTH:

SPECIMEN THK: 0.500"

SPECIMEN WIDTH: 4.000- 6.000"

REFERENCES: BL002

ALUM.
ALLOY

2124

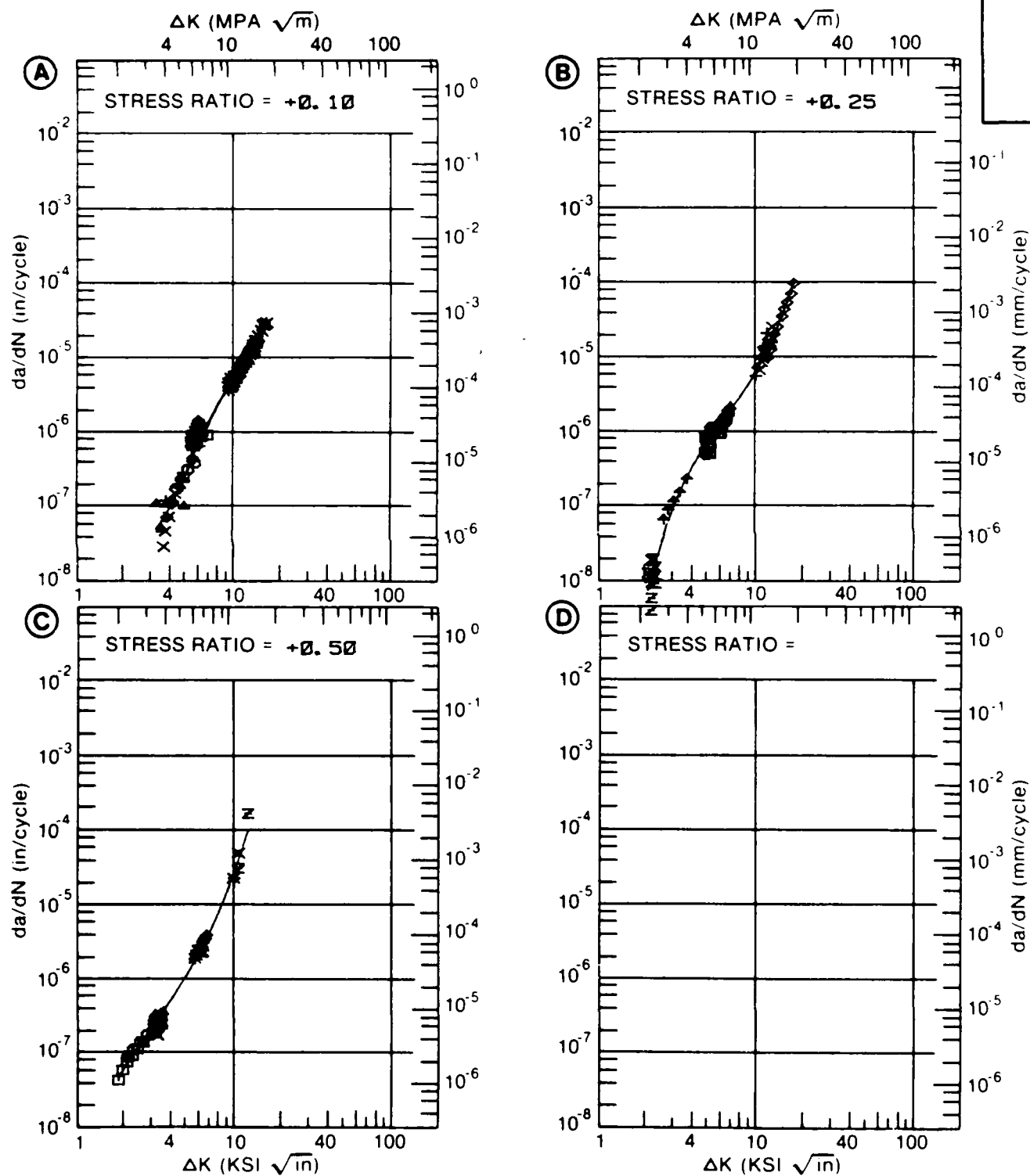


Figure 7.8.3.7

TABLE 7.8.3.8

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.8.3.8 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2124
CONDITION: T851
ENVIRONMENT: R. T. , H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 50		
DELTA K	A: 4.28	. 133			
MIN	B: 2.71		. 0917		
	C:				
	D:				
	3.00		. 150		
	3.50		. 302		
	4.00		. 527		
	5.00	. 239	1. 22		
	6.00	. 567	2. 27		
	7.00	1. 19	3. 73		
	8.00	2. 18	5. 87		
	9.00	3. 60	9. 23		
	10.00	5. 53	15. 4		
	13.00	15. 0			
	16.00	32. 0			
	20.00	92. 9			
DELTA K	A: 23.19	473.			
MAX	B: 12.38		82. 1		
	C:				
	D:				
ROOT MEAN SQUARE		17. 19	10. 35		
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25		1		
SUMMARY	1. 25-2. 0	1			
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 1.00
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 61.9 KSI
 ULT. STRENGTH: 89.0 KSI
 SPECIMEN THK: 0.750- 0.751"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: GD003

ALUM.
 ALLOY

2124

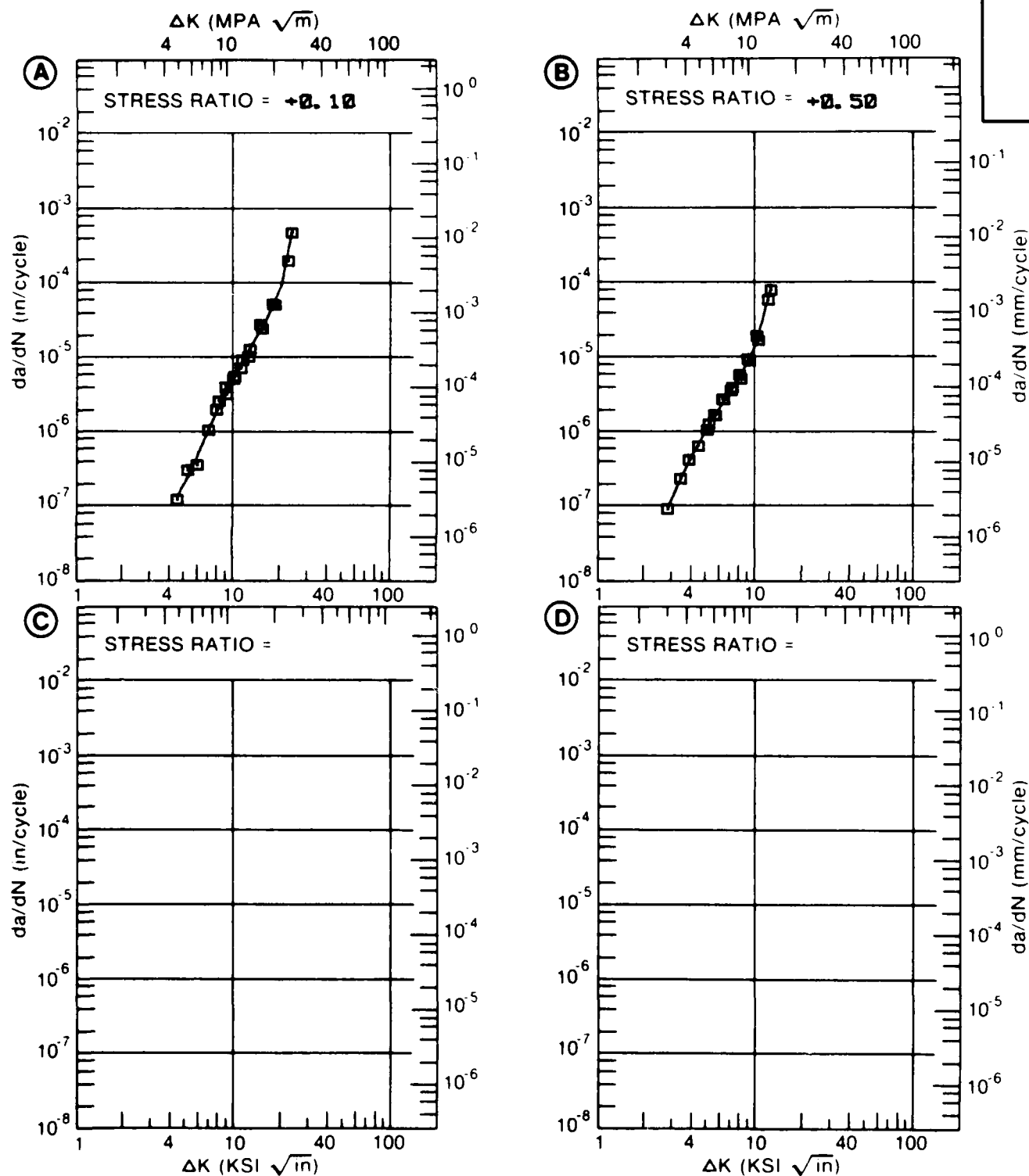


Figure 7.8.3.8

TABLE 7.8.3.9

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.8.3.9 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2124			
CONDITION: T851					
ENVIRONMENT: R. T., S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 30	R=+0. 50	
DELTA K A:	4. 18	. 240			
MIN B:	3. 55		. 214		
C:	2. 71			. 157	
D:					
	3. 00			. 184	
	3. 50			. 278	
	4. 00		. 312	. 443	
	5. 00	. 372	. 595	1. 08	
	6. 00	. 687	1. 39	2. 32	
	7. 00	1. 66	2. 98	4. 41	
	8. 00	3. 47	4. 94	7. 62	
	9. 00	5. 55	7. 18	12. 2	
	10. 00	7. 71	9. 97	18. 5	
	13. 00	16. 2	29. 2		
	16. 00	38. 8			
DELTA K A:	19. 20	140.			
MAX B:	15. 42		75. 8		
C:	12. 15			80. 0	
D:					
ROOT MEAN SQUARE		22. 48	12. 07	12. 52	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0	2	2	2	
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 1.00
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 61.9 KSI
 ULT. STRENGTH: 69.0 KSI
 SPECIMEN THK: 0.748-0.752"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: G0003

ALUM.
 ALLOY

2124

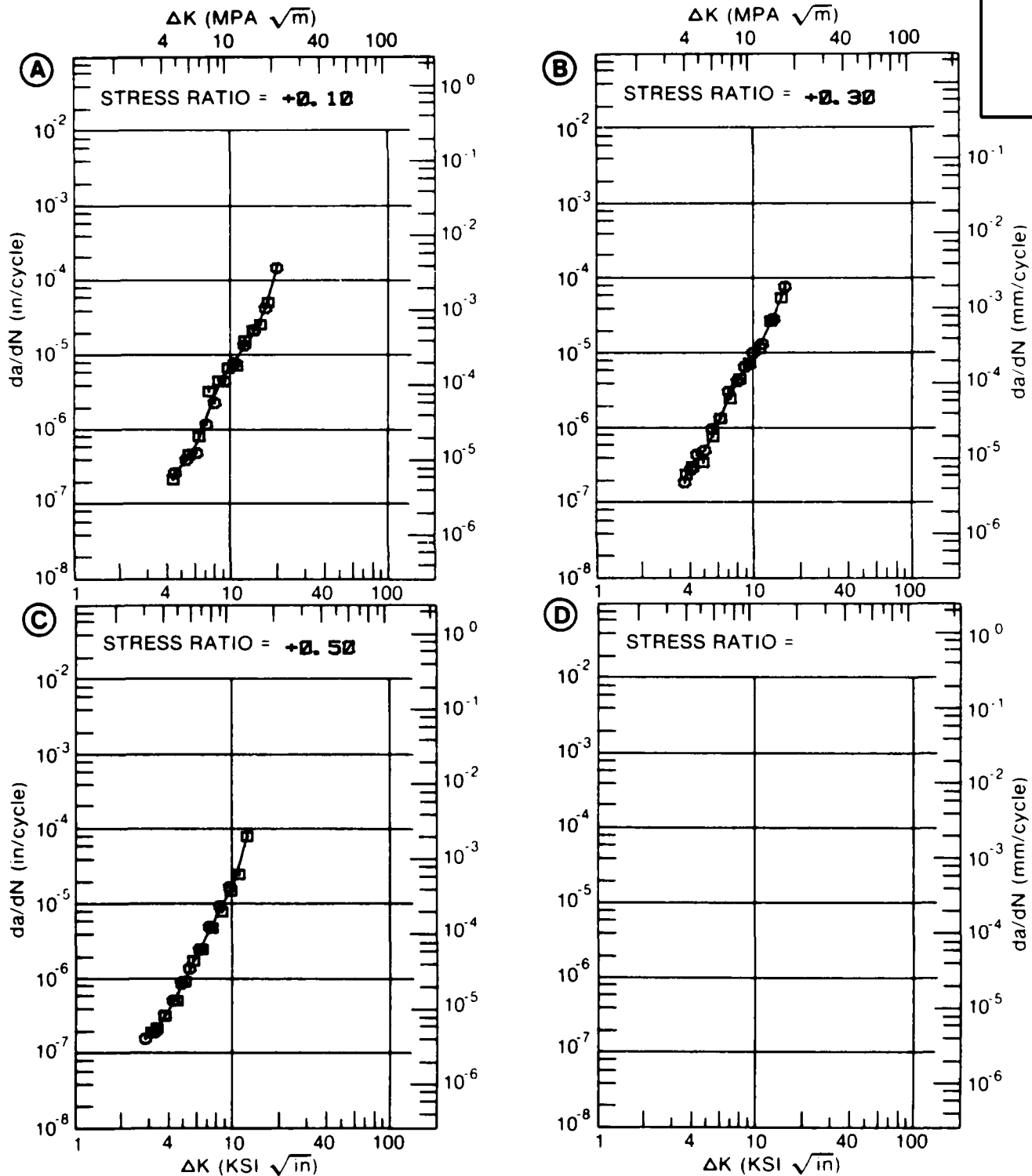


Figure 7.8.3.9

TABLE 7.8.3.10

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.8.3.10 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		2124			
CONDITION: T851					
ENVIRONMENT: R. T. , S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0. 10	R=+0. 30	R=+0. 50	
A:	4. 52	. 285			
DELTA K B:	3. 72		. 392		
MIN C:	2. 67			. 198	
D:					
	3. 00			. 217	
	3. 50			. 336	
	4. 00		. 480	. 568	
	5. 00	. 444	. 949	1. 35	
	6. 00	. 962	1. 76	2. 60	
	7. 00	1. 81	3. 07	4. 48	
	8. 00	3. 10	5. 10	7. 21	
	9. 00	4. 96	8. 10	11. 4	
	10. 00	7. 59	12. 4	19. 4	
	13. 00	22. 3	36. 8	229.	
	16. 00	55. 1			
	20. 00	156.			
A:	24. 53	443.			
DELTA K B:	14. 61		60. 5		
MAX C:	13. 21			310.	
D:					
ROOT MEAN SQUARE		14. 59	12. 20	20. 50	
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0	2	2	2	
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 5.50" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 59.1 KSI
 ULT. STRENGTH: 63.1 KSI
 SPECIMEN THK: 0.495- 0.501"
 SPECIMEN WIDTH: 3.990- 4.000"
 REFERENCES: GD003

ALUM.
 ALLOY

2124

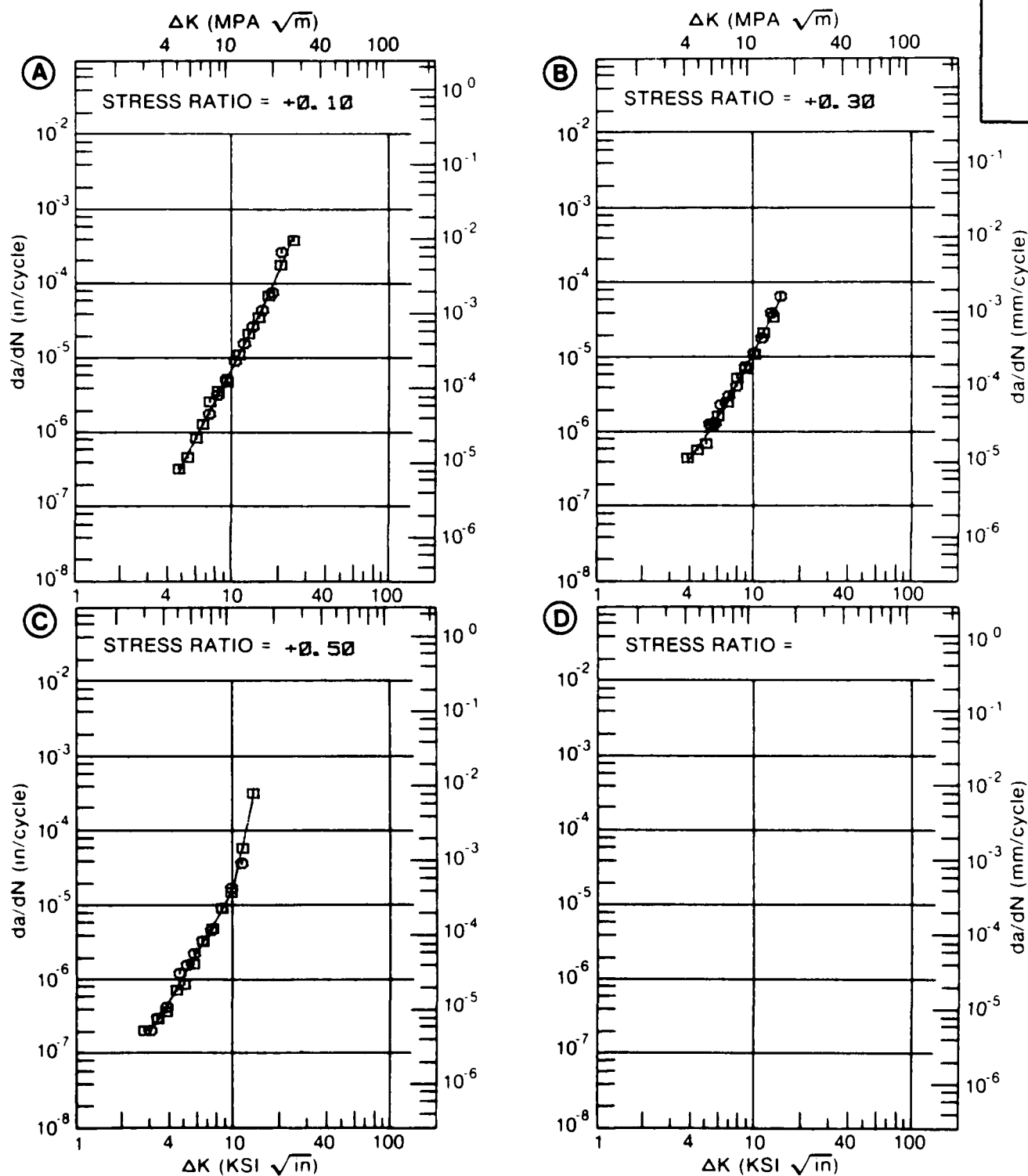


Figure 7.8.3.10

7.8-74

Table 7.9.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2214 AT ROOM TEMPERATURE

CONDITION/HT	MEAN KIC ± STANDARD (KCI SORT(IN)) DEVIATION	(NUMBER OF SPECIMENS)		
		PLATE		
		L-L	T-L	S-L
T651	35.3 ± 2.7 (11)	31.8 ± 0.9 (10)	-----	
T651 (417)	36.0 ± 3.4 (10)	29.4 ± 1.8 (15)	26.6 ± 1.8 (2)	

Table 7.9.2.1 (Con't)

CONDITION	ALUMINUM						2214		K(1C)		K(1C)				DATE	REFER
	PRODUCT FORM		TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	WIDTH (IN)		THICK (IN)		DESIGN	CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	P(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV		
	THICK (IN)	FORM				W	B	A								
T651 (417)	P	2 25	R T	L-T	66.5	4.000	1.998	CT	2.047	0.62	33.00	36.0/	3.4	1973	86213	
T651 (417)	P	3 00	R T	T-L	62.6	3.000	1.500	CT	1.540	0.49	27.70			1973	86213	
					62.6	3.000	1.501	CT	1.549	0.53	28.90			1973	86213	
					63.2	3.000	1.501	CT	1.592	0.57	30.10			1973	86213	
					63.2	3.000	1.501	CT	1.568	0.55	29.60			1973	86213	
					63.6	3.000	1.501	CT	1.598	0.58	30.60			1973	86213	
					63.6	3.000	1.491	CT	1.606	0.62	31.60			1973	86213	
					64.2	4.010	1.999	CT	2.122	0.47	27.90			1973	86213	
					64.2	3.000	1.500	CT	1.623	0.63	32.30			1973	86213	
					64.2	4.000	1.999	CT	2.141	0.43	26.60			1973	86213	
					64.2	4.000	1.999	CT	2.126	0.46	27.40			1973	86213	
					64.2	4.000	1.998	CT	2.179	0.48	28.00			1973	86213	
					64.7	4.000	1.999	CT	2.093	0.48	28.40			1973	86213	
					64.7	4.000	1.998	CT	2.150	0.48	28.40			1973	86213	
					64.9	3.000	1.501	CT	1.484	0.58	31.30			1973	86213	
					64.9	3.000	1.500	CT	1.484	0.60	31.70	29.4/	1.8	1973	86213	
T651 (417)	P	3 00	R T	S-L	59.8	2.000	1.001	CT	0.962	0.45	25.30			1973	86213	
		3 93			61.0	3.000	1.500	CT	1.532	0.52	27.90	26.6/	1.8	1973	86213	
T651 (417)	P	1 50	82	S-L	59.2	1.000	0.499	CT	0.486	0.41	24.00			1973	86213	
					59.2	1.000	0.500	CT	0.486	0.39	23.30			1973	86213	
					59.8	1.000	0.500	CT	0.490	0.32	21.30			1973	86213	
					59.8	1.000	0.498	CT	0.491	0.32	21.30			1973	86213	
					60.0	1.000	0.500	CT	0.479	0.35	22.60			1973	86213	
					60.0	1.000	0.501	CT	0.474	0.29	20.50			1973	86213	
					60.0	1.000	0.499	CT	0.480	0.34	22.00			1973	86213	
					60.0	1.000	0.500	CT	0.490	0.38	23.90			1973	86213	
					60.0	1.000	0.501	CT	0.477	0.38	23.40			1973	86213	
					60.2	1.000	0.500	CT	0.479	0.39	23.70			1973	86213	
					61.1	1.000	0.501	CT	0.475	0.39	24.00			1973	86213	
					61.1	1.000	0.499	CT	0.471	0.40	24.50	22.8/	1.3	1973	86213	
					63.4	1.500	0.749	CT	0.757	0.37	24.40			1973	86213	
					63.4	1.500	0.749	CT	0.770	0.37	24.30			1973	86213	
					64.5	1.500	0.750	CT	0.782	0.29	22.00			1973	86213	
64.5	1.500	0.749	CT	0.734	0.41	26.00			1973	86213						
65.3	1.500	0.750	CT	0.739	0.29	22.30			1973	86213						

Table 7.9.2.1 (Con't)

CONDITION	ALUMINUM										2214		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1C)		K(1	
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Table 7.10.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2219 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SORT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	L-I	I-L	S-L	
T851	33.4 ± 2.3 (48)	29.7 ± 3.2 (78)	23.0 ± 2.4 (14)	
T87	28.0 ± 3.0 (6)	22.0 ± 0.4 (2)	-----	
T87-300F 100HRS	34.8 ± 0.4 (2)	-----	-----	
FORGING				
	L-I	I-L	S-L	
T851	-----	-----	25.6 ± 3.1 (85)	
T852	39.2 ± 3.2 (25)	27.1 ± 2.2 (24)	25.3 ± 3.1 (60)	

Table 7.10.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2219

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT: L.H.A.
AT R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS: (KSI SQRT(IN))	2.5	5	10	20	50	100
T851	PLATE	0.08	0.10				7.10			
T851	PLATE	0.08	1.00	SPEC. THK=1.00"			7.60	94.0		
T851	PLATE	0.08	1.00				8.48			
T851	PLATE	0.08	6.00	SPEC. THK=1.00"			7.74	60.3		
T851	PLATE	0.08	6.00			0.40	4.77			
T851	PLATE	0.08	6.00	SPEC. THK=0.50"			3.52	26.5		
T851	PLATE	0.08	6.00				3.95	24.4		
T851	PLATE	0.08	63.30			0.28	4.67			
T851	PLATE	0.30	6.00			0.90				
T851	PLATE	0.50	6.00			0.72	8.15			
<hr/>										
T8511	EXTRUDED BAR	0.08	6.00			0.23	2.12			
T8511	EXTRUDED BAR	0.30	6.00				6.44			
<hr/>										
T852	BILLET	0.08	6.00				2.35			

Table 7.10.1.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2219

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT: LAB AIR
AT R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE)					
					2.5	5	10	20	50	100
T851	PLATE	-1.00	1.00-20.00				5.92	52.3		
T851	PLATE	-1.00	6.00				6.81			
T851	PLATE	-0.50	5.20				6.89			
T851	PLATE	-0.30	6.00				6.88	52.5	3617	
T851	PLATE	-0.10	6.00				6.79	44.9	3707	
T851	PLATE	0.00	5.20				8.25	54.8		
T851	PLATE	0.00	6.00				4.33	34.6		
T851	PLATE	0.01	3.00					44.5	1622	
T851	PLATE	0.01	6.00					46.2	1788	
T851	PLATE	0.04	1.00-20.00				4.24			
T851	PLATE	0.05	1.00-20.00				2.46	33.9		
T851	PLATE	0.05	1.00-20.00				3.58			
T851	PLATE	0.05	1.00-20.00				5.14	48.3		
T851	PLATE	0.08	6.00				5.74			
T851	PLATE	0.10	1.00-20.00					44.9		
T851	PLATE	0.20	6.00					90.9		
T851	PLATE	0.30	6.00			0.69	7.86	76.3		
T851	PLATE	0.50	1.00-20.00				10.1			
T851	PLATE	0.60	1.00-20.00				12.2			
T851	PLATE	0.70	6.00			1.37	17.8	1173		

Table 7.10.1.4

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2219

TEST CONDITIONS

SPECIMEN

ORIENTATION

L-T

ENVIRONMENT

S.T.W.

A.T.R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T851	PLATE	0.08	0.10					55.6		
T851	PLATE	0.08	1.00				7.14	64.0		
T851	PLATE	0.08	1.00			0.60				
T851	PLATE	0.08	6.00				10.6	59.5		
T851	PLATE	0.30	1.00				8.68	65.6		
T851	PLATE	0.50	1.00			0.80	11.6			
T851	EXTRUDED BAR	0.08	1.00				7.39			
T852	FORGING	0.33	20.00					6.28		
T852	FORGING	0.33	20.00					10.2		

Table 7.10.1.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2219

TEST CONDITIONSSPECIMEN
ORIENTATION T-LENVIRONMENT: DRY AIR
AT R. T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS: (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
					2.5	5	10	20	50 100
T852	FORGING	0.33	2 00-20.00				7.08	480	
T852	FORGING	0.33	2 00-20.00				6.78		
T852	FORGING	0.33	40.00			0.363	3.97		

Table 7.10.1.6

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2219

TEST CONDITIONSSPECIMEN
ORIENTATION 1-LENVIRONMENT: L.H.A.
AT R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS: (KSI SQRT(IN))		FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)			
				2.5	5	10	20	50	100
T851	PLATE	0.08	6.00			5.43	33.3		
T851	PLATE	0.08	6.00			8.71	100.		
T8511	EXTRUDED BAR	0.08	6.00			4.26			

Table 7.10.1.1.7

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2219

TEST CONDITIONSSPECIMEN
ORIENTATION T-LENVIRONMENT: H.H.A.
AT R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ. (HZ)	DELTA K LEVELS: (KSI SQRT(IN))	2.5	5	10	20	50	100
T852	FORGING	0.33	2 00-20 00				8.32			
T852	FORGING	0.33	2 00-20 00				13.0			

Table 7.10.1.1.8

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 2219

TEST CONDITIONS

SPECIMEN
ORIENTATION T-IENVIRONMENT S T W
A T R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)					
					2.5	5	10	20	50	100
T851	PLATE	0.08	1.00		1.02	10.8	81.5			
T8511	EXTRUDED BAR	0.08	1.00		0.64	7.37				
T852	FORGING	0.33	2.00-20.00				9.83	204		
T852	FORGING	0.33	2.00-20.00				16.5			
T852	FORGING	0.33	20.00				10.3			

Table 7.10.2.1

CONDITION	ALUMINUM		YIELD (KSI)	TEST SPECIMEN ORIENT (F)	R. T.	L-T	SPECIMEN		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV	DATE	REFER
	PRODUCT-- FORM	THICK (IN)					WIDTH (IN)	THICK (IN)						
T851	P	3.00	50.0				8.000	2.000	CT	---	1.22	35.00	1974	90011
		3.00	50.1				5.044	1.503	CT	2.623	1.29	36.50	1978	MPC01
		3.00	50.1				6.016	1.998	CT	3.068	1.36	37.10	1978	MPC01
		3.00	50.1				4.019	1.999	CT	2.090	1.33	36.90	1978	MPC01
		3.00	50.1				6.000	1.999	CT	3.137	1.45	38.10	1973	86213
		3.00	50.1				5.010	1.987	CT	2.703	1.28	35.90	1973	86213
		3.00	50.1				5.010	1.503	CT	2.623	1.33	36.50	1973	86213
		3.00	50.1				4.000	1.999	CT	2.090	1.28	35.90	1973	86213
		3.00	50.1				4.000	1.998	CT	2.095	1.28	35.80	1973	86213
		3.00	50.1				5.010	2.000	CT	2.680	1.28	35.90	1973	86213
		1.37	51.0				2.982	1.374	CT	1.521	0.93	31.30	1978	MPC01
		1.37	51.0				2.977	1.374	CT	1.518	0.93	31.30	1978	MPC01
		1.37	51.0				3.000	1.420	NB	1.550	1.16	34.80	1973	86213
		1.37	51.0				3.000	1.420	NB	1.600	1.40	38.10	1973	86213
		1.37	51.0				3.000	1.420	NB	1.520	1.14	34.50	1973	86213
		1.37	51.0				2.978	1.374	CT	1.519	0.87	30.40	1978	MPC01
		2.62	51.6				3.027	1.500	CT	1.574	0.93	31.80	1978	MPC01
		2.62	51.6				3.004	1.500	CT	1.562	0.87	30.90	1978	MPC01
		3.25	51.7				4.989	1.750	CT	2.594	1.12	34.90	1978	MPC01
		1.37	52.0				3.022	1.376	CT	1.481	0.87	30.70	1978	MPC01
		3.00	52.0				3.000	1.498	CT	2.566	1.20	36.00	1973	86213
		1.37	52.0				2.975	1.376	CT	1.547	0.90	31.20	1978	MPC01
		3.00	52.0				3.000	1.498	CT	2.567	1.08	34.20	1973	86213
		3.00	52.4				3.026	1.499	CT	1.543	0.99	33.20	1978	MPC01
		2.90	52.4				3.022	1.500	CT	1.632	0.96	32.80	1978	MPC01
		3.00	52.4				2.996	1.499	CT	1.558	0.96	32.80	1978	MPC01
		3.00	52.5				2.987	1.499	CT	1.553	1.02	33.80	1978	MPC01
		3.00	52.5				2.977	1.499	CT	1.548	1.02	33.80	1978	MPC01
		2.90	52.5				4.973	2.000	CT	2.586	0.99	33.40	1978	MPC01
		2.90	52.5				4.987	2.503	CT	2.743	1.02	33.60	1978	MPC01
		1.75	52.6				4.962	1.751	CT	2.630	0.84	30.80	1978	MPC01
		2.90	52.8				4.987	2.001	CT	2.593	0.90	31.80	1978	MPC01
		2.90	53.0				3.027	1.503	CT	1.665	0.81	30.70	1978	MPC01
		2.90	53.0				5.045	2.000	CT	2.573	0.90	32.20	1978	MPC01
		3.00	53.4				5.010	1.997	CT	2.672	0.87	31.50	1973	86213
		2.90	53.5				4.965	2.002	CT	2.582	0.87	31.60	1978	MPC01
		2.90	53.5				4.967	2.501	CT	2.682	0.93	32.90	1978	MPC01
		2.90	53.5				5.018	2.002	CT	2.559	0.90	32.20	1978	MPC01
		2.90	53.6				4.954	2.002	CT	2.576	0.96	33.60	1978	MPC01

Table 7.10.2.1 (Con't.)

CONDITION	ALUMINUM				2219				K(1C)				DATE	REFER	
	---PRODUCT--- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (IN)	K(1C) MEAN (KSI*SQRT IN)	K(1C) STAN DEV				
						WIDTH (IN)	THICK (IN)								
T851	P	2.90	R.T.	L-T	53.6	4.989	2.501	CT	2.644	0.99	33.80	1978	MPC01		
		3.00			53.7	4.010	1.998	CT	2.043	0.79	30.10	1973	86213		
		1.00			53.8	1.990	0.965	CT	1.035	0.81	30.90	1978	MPC01		
		1.00			53.8	2.016	0.965	CT	1.008	0.78	30.60	1978	MPC01		
		1.00			53.8	1.990	0.965	CT	1.015	0.78	30.60	1978	MPC01		
		3.00			54.0	8.000	1.996	CT	3.991	1.03	34.70	1973	85836		
		2.90			54.3	4.969	2.002	CT	2.584	0.81	31.20	1978	MPC01		
		2.90			54.3	5.006	2.501	CT	2.703	0.81	31.00	1978	MPC01		
		2.50			55.7	4.968	1.753	CT	2.633	0.96	34.60	1978	MPC01		
											33.4/	2.3			
T851	P	1.37	- 112	T-L	55.0	3.000	1.405	NB	1.612	1.00	34.70	1973	86213		
		T851	P	1.37	R.T.	T-L	46.2	3.000	1.402	NB	1.524	1.10	32.60	1973	86213
				1.37			47.4	1.994	1.000	CT	1.017	0.93	29.20	1978	MPC01
				1.75			48.0	3.000	1.508	CT	1.611	1.28	34.40	1972	84306
				1.75			48.0	5.000	1.504	CT	2.615	1.48	37.00	1972	84306
				1.75			48.0	5.000	1.504	CT	2.609	1.48	37.00	1972	84306
				1.75			48.0	2.990	1.508	CT	1.573	1.24	33.90	1972	84306
				1.37			49.2	2.985	1.405	NB	1.582	0.81	28.20	1978	MPC01
				1.37			49.2	3.016	1.402	NB	1.538	0.99	31.10	1978	MPC01
				1.37			49.2	2.974	1.402	NB	1.487	0.99	31.30	1978	MPC01
1.37					49.2	2.974	1.405	NB	1.487	0.84	28.70	1978	MPC01		
1.37			49.2	3.000	1.403	NB	1.526	1.09	32.50	1973	86213				
1.37			49.2	3.008	1.403	NB	1.534	1.08	32.80	1978	MPC01				
1.37			49.2	2.991	1.402	NB	1.585	1.08	32.80	1978	MPC01				
1.37			49.2	3.000	1.405	NB	1.535	0.94	30.20	1973	86213				
3.25			49.2	4.977	1.750	CT	2.638	0.84	28.90	1978	MPC01				
1.37			49.2	3.000	1.405	NB	1.634	0.92	29.90	1973	86213				
1.37			49.2	3.000	1.402	NB	1.584	1.10	32.70	1973	86213				
1.37			49.2	3.000	1.402	NB	1.605	1.16	33.50	1973	86213				
1.37			49.3	2.973	1.000	CT	1.546	0.90	29.70	1978	MPC01				
1.38			49.3	3.000	1.380	CT	1.538	0.88	29.30	1972	82880				
1.37			49.3	2.990	1.000	CT	1.555	0.96	30.80	1978	MPC01				
1.37			49.3	3.002	1.000	CT	1.561	0.90	29.80	1978	MPC01				
1.37			49.3	2.000	0.875	CT	1.020	0.81	28.30	1978	MPC01				
1.37			49.3	2.014	0.875	CT	1.007	0.78	27.90	1978	MPC01				
1.37			49.3	2.975	1.125	CT	1.547	0.87	29.50	1978	MPC01				
1.38			49.3	2.000	1.000	CT	1.057	0.79	27.70	1972	82880				
1.37			49.3	3.025	1.125	CT	1.573	0.87	29.30	1978	MPC01				

Table 7.10.2.1 (Con't)

CONDITION	--PRODUCT--			YIELD (KSI)	ALUMINUM		2219		K(1C)		CRACK LENGTH (IN)	2.5* (IN)	K(1C)/(TVS)**2 (KSI*SQRT IN)	K(1C) MEAN DEV (KSI*SQRT IN)	STAN DEV	DATE	REFER
	FORM	THICK (IN)	TEMP (F)		TEST SPECIMEN ORIENT	W	THICK (IN)	DESIGN	A	B							
T851	P	1.38	R	Y	49.3	2.000	1.000	CT	1.082	0.77	27.40	1972	B2880				
		1.38			49.3	3.000	1.380	CT	1.557	0.86	28.90	1972	B2880				
		1.37			49.3	2.012	0.875	CT	1.026	0.84	28.70	1978	MP01				
		3.00			49.3	4.000	2.001	CT	2.077	1.07	32.30	1973	B6213				
		1.38			49.3	3.000	1.380	CT	1.555	0.86	28.90	1972	B2880				
		1.37			49.3	1.494	0.750	CT	0.792	0.67	25.80	1978	MP01				
		1.37			49.3	3.006	1.125	CT	1.563	0.90	29.70	1978	MP01				
		1.38			49.3	2.000	1.000	CT	1.069	0.77	27.40	1972	B2880				
		3.00			49.3	4.000	1.999	CT	2.085	1.05	32.00	1973	B6213				
		1.37			49.7	2.004	1.000	CT	1.042	0.75	27.40	1978	MP01				
		1.37			49.7	2.010	1.000	CT	1.045	0.84	29.10	1978	MP01				
		1.37			49.7	2.004	0.999	CT	1.042	0.81	28.60	1978	MP01				
		2.00			50.0	5.000	1.500	CT	-----	1.30	36.00	1974	90011				
		3.00			50.0	8.000	2.000	CT	-----	1.15	34.00	1974	90011				
		2.00			50.0	5.000	1.500	CT	-----	1.15	34.00	1974	90011				
		3.25			50.1	4.959	1.750	CT	2.628	0.81	28.80	1978	MP01				
		3.00			50.6	3.000	1.498	CT	1.550	0.72	27.20	1973	B6213				
		3.00			50.6	5.000	1.497	CT	2.582	0.82	28.90	1973	B6213				
		3.00			50.6	3.000	1.498	CT	1.550	0.71	26.90	1973	B6213				
		1.37			50.8	3.026	1.375	CT	2.575	0.80	28.60	1973	B6213				
	1.37			50.8	3.000	1.420	NB	1.543	0.78	28.80	1978	MP01					
	1.37			50.8	2.980	1.420	NB	1.500	0.81	29.00	1978	MP01					
	1.37			50.8	2.981	1.420	NB	1.520	0.93	31.40	1978	MP01					
	1.37			50.8	2.973	1.375	CT	1.550	1.29	36.60	1978	MP01					
	1.37			50.8	2.973	1.375	CT	1.546	0.72	27.50	1978	MP01					
	1.00			51.2	3.000	1.420	NB	1.560	1.05	33.30	1978	MP01					
	1.00			51.2	1.993	0.965	CT	1.096	0.75	28.40	1978	MP01					
	1.00			51.2	2.013	0.963	CT	1.067	0.78	28.90	1978	MP01					
	1.00			51.2	1.986	0.964	CT	1.013	0.72	28.00	1978	MP01					
	2.90			51.6	2.991	1.249	CT	1.645	0.78	29.40	1978	MP01					
	2.90			51.8	4.993	2.501	CT	2.696	0.70	27.90	1978	MP01					
	2.90			51.8	4.975	2.002	CT	2.587	0.62	26.20	1978	MP01					
	2.90			51.9	3.030	1.504	CT	1.697	0.65	26.80	1978	MP01					
	2.90			51.9	5.017	2.002	CT	2.609	0.70	27.60	1978	MP01					
	2.90			52.0	4.996	2.002	CT	2.598	0.72	28.20	1978	MP01					
	2.90			52.0	5.033	2.002	CT	2.617	0.65	27.00	1978	MP01					
	2.90			52.0	5.013	2.501	CT	2.657	0.70	28.00	1978	MP01					
	2.90			52.0	7.990	1.992	CT	4.067	1.05	33.70	1973	B5836					

	2.90				52.2	5.008	2.002	CT	2.604	0.75	28.90	1978	MP01				

7.10-12

Table 7.10.2.1 (Cont.)

CONDITION	ALUMINUM										K(1C)		DATE	REFER
	PRODUCT FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	SPEECHEN			CRACK LENGTH (IN)	2 5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV		
						WIDTH (IN)	THICK (IN)	DESIGN						
						W	B	A						
T851	P	1.37	88	S-L	52.3	1.000	0.500	CT	0.496	0.39	20.60	21.2/	1.0	1973 R6213
T851	F	---	R T	L-S	41.9	3.001	1.501	CT	1.563	1.16	28.98			1976 MD001
					41.9	3.001	1.499	CT	1.542	1.16	28.64			1976 MD001
					41.9	3.001	1.499	CT	1.584	1.37	31.03			1976 MD001
					46.1	3.003	1.500	CT	1.566	1.02	29.59			1976 MD001
					46.4	3.001	1.500	CT	1.580	1.15	31.58			1976 MD001
					46.4	3.003	1.499	CT	1.569	1.08	30.60			1976 MD001
					50.1	3.005	1.500	CT	1.418	1.13	33.71			1976 MD001
					50.1	3.003	1.500	CT	1.444	1.18	34.55			1976 MD001
					50.9	1.998	1.001	CT	0.995	0.57	24.49	30.3/	3.0	1976 MD001
T851	F	---	R T	T-S	45.2	2.997	1.495	CT	1.589	0.64	22.91			1977 MD001
					47.5	1.998	1.001	CT	1.000	0.63	23.96			1976 MD001
					47.5	3.001	1.502	CT	1.619	0.50	21.42			1976 MD001
					47.7	1.999	1.000	CT	1.003	0.71	25.90			1976 MD001
					47.9	2.998	1.502	CT	1.607	0.92	29.13			1977 MD001
					48.1	2.000	1.001	CT	1.059	0.73	26.01			1977 MD001
					48.1	2.996	1.496	CT	1.615	0.79	27.04			1977 MD001
					48.2	3.001	1.501	CT	1.555	0.51	21.78			1976 MD001
					48.3	3.001	1.501	CT	1.531	0.67	25.13			1976 MD001
					48.4	3.000	1.501	CT	1.621	0.52	22.14			1976 MD001
					48.5	1.998	1.001	CT	1.047	0.86	28.90			1976 MD001
					48.7	1.995	1.001	CT	1.033	0.75	26.67			1976 MD001
					49.0	2.997	1.495	CT	1.596	0.64	24.84			1977 MD001
					49.2	1.996	1.001	CT	0.999	0.66	25.29			1976 MD001
					49.2	1.997	1.000	CT	1.031	0.56	23.35			1976 MD001
					50.1	1.999	0.997	CT	1.033	0.69	26.35			1977 MD001
					50.4	3.000	1.501	CT	1.562	0.76	27.86			1976 MD001
51.9	3.000	1.501	CT	1.563	0.71	27.77	25.3/	2.3	1976 MD001					
T851	F	---	R T	S-L	46.2	2.997	1.495	CT	1.643	0.67	24.00			1977 MD001
					46.2	2.996	1.495	CT	1.661	0.67	24.08			1977 MD001
					46.2	2.996	1.496	CT	1.616	0.68	24.13			1977 MD001
					46.2	2.996	1.495	CT	1.614	0.61	22.84			1977 MD001
					46.8	3.003	1.502	CT	1.556	0.62	23.40			1976 MD001
					46.8	3.001	1.501	CT	1.569	0.62	23.47			1976 MD001
					47.1	3.007	1.504	CT	1.700	0.69	24.75			1979 MD001
					47.7	1.999	1.001	CT	1.047	0.65	24.45		1977 MD001	

Table 7.10.2.1 (Con't)

CONDITION	ALUMINUM		2219		K(1C)		K(1C) STAN DEV	DATE	REFER				
	---PRODUCT--- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	CRACK					2.5* (IN)	K(1C) MEAN (KSI*SQRT IN)		
					W	B						LENGTH (IN)	A
T851	F	---	R T.	S-L	47.7	1.998	1.001	CT	1.070	0.67	24.72	1977	MD001
		---			47.8	3.001	1.501	CT	1.542	0.52	21.89	1976	MD001
		---			47.8	3.003	1.501	CT	1.532	0.64	24.27	1976	MD001
		---			47.9	2.997	1.501	CT	1.584	0.80	27.12	1977	MD001
		---			48.6	2.999	1.502	CT	1.617	0.77	27.14	1977	MD001
		---			48.7	1.997	1.001	CT	1.083	0.52	22.29	1976	MD001
		---			49.0	1.997	1.001	CT	1.026	0.74	26.83	1976	MD001
		---			49.0	1.998	1.001	CT	1.040	0.69	25.79	1976	MD001
		---			49.1	3.001	1.499	CT	1.575	0.77	27.41	1977	MD001
		---			49.1	1.998	1.000	CT	1.038	0.60	24.23	1976	MD001
		---			49.1	1.998	1.000	CT	1.039	0.63	24.70	1976	MD001
		---			49.1	2.999	1.502	CT	1.552	1.19	33.88	1977	MD001
		---			49.1	1.998	1.001	CT	1.050	0.58	23.79	1976	MD001
		---			49.1	2.000	1.001	CT	1.080	0.74	26.73	1977	MD001
		---			49.1	1.998	0.999	CT	1.033	0.64	24.89	1976	MD001
		---			49.1	3.001	1.501	CT	1.586	0.58	23.84	1976	MD001
		---			49.1	3.003	1.501	CT	1.572	0.62	24.90	1976	MD001
		---			49.1	1.997	1.000	CT	1.057	0.64	25.00	1976	MD001
		---			49.1	1.998	1.000	CT	1.035	0.62	24.51	1976	MD001
		---			49.1	3.001	1.502	CT	1.531	0.82	28.16	1977	MD001
		---			49.1	3.000	1.500	CT	1.636	0.58	23.85	1977	MD001
		---			49.1	1.998	1.001	CT	1.044	0.68	25.64	1977	MD001
		---			49.2	2.999	1.502	CT	1.602	0.46	21.19	1976	MD001
		---			49.2	3.003	1.501	CT	1.608	0.45	20.97	1976	MD001
		---			49.3	2.997	1.496	CT	1.592	0.92	29.96	1977	MD001
		---			49.3	2.996	1.496	CT	1.633	0.83	28.54	1977	MD001
		---			49.4	3.007	1.502	CT	1.516	0.94	30.42	1977	MD001
		---			49.5	3.001	1.501	CT	1.535	0.58	24.00	1976	MD001
		---			49.5	3.002	1.500	CT	1.528	0.77	27.60	1976	MD001
		---			49.7	2.999	1.500	CT	1.595	0.80	28.16	1977	MD001
		---			49.7	3.000	1.500	CT	1.634	0.79	28.03	1977	MD001
		---			49.7	3.000	1.504	CT	1.641	0.57	23.89	1978	MD001
		---			49.7	3.000	1.499	CT	1.626	0.82	28.62	1977	MD001
		---			49.7	3.000	1.501	CT	1.586	0.63	25.12	1978	MD001
		---			49.8	1.996	1.001	CT	1.010	0.38	19.90	1976	MD001
		---			49.8	1.996	1.001	CT	1.040	0.43	20.75	1976	MD001
		---			49.9	1.996	1.002	CT	1.071	0.71	26.69	1976	MD001
		---			49.9	2.000	1.001	CT	1.053	0.51	22.66	1977	MD001
		---			49.9	1.997	1.002	CT	1.065	0.66	25.79	1976	MD001

Table 7.10.2.1 (Con't)

CONDITION	ALUMINUM				2219		K(1C)		K(1C) STAN DEV	DATE	REFER		
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)					
					WIDTH (IN)	THICK (IN)						DESIGN (IN)	
					W	B	A						
T852	F	----	R T	L-S	43.4	2.999	1.499	CT	1.539	0.89	25.92	1977	MD001
		----			43.4	2.999	1.499	CT	1.507	0.91	26.22	1977	MD001
		----			48.5	3.001	1.502	CT	1.548	1.14	32.82	28 3/ 3.9	1976
T852	F	7.50	R T	L-T	41.9	5.000	2.500	CT	2.580	1.72	34.80	1977	AL001
		7.50			41.9	5.000	2.500	CT	2.550	1.55	33.00	1977	AL001
		7.50			41.9	5.000	2.500	CT	2.570	1.79	35.50	1977	AL001
		7.50			43.4	5.000	2.500	CT	2.560	1.98	38.60	1977	AL001
		5.50			44.6	5.000	2.500	CT	2.520	1.91	39.00	1977	AL001
		5.50			44.6	5.000	2.500	CT	2.550	2.08	40.70	1977	AL001
		5.50			44.6	5.000	2.500	CT	2.520	1.81	38.00	1977	AL001
		4.50			45.2	5.000	2.500	CT	2.550	1.51	35.10	1977	AL001
		4.50			45.2	5.000	2.500	CT	2.580	1.68	37.00	1977	AL001
		4.50			45.2	5.000	2.500	CT	2.560	1.63	36.50	1977	AL001
		5.50			49.2	5.000	2.500	CT	2.530	1.83	42.10	1977	AL001
		5.50			49.2	5.000	2.500	CT	2.550	1.58	39.10	1977	AL001
		5.50			49.2	5.000	2.500	CT	2.610	1.56	38.90	1977	AL001
		4.50			50.2	5.000	2.500	CT	2.600	1.69	41.30	1977	AL001
		4.50			50.2	5.000	2.500	CT	2.560	2.16	46.70	1977	AL001
		3.50			50.3	5.000	2.500	CT	2.570	1.67	41.10	1977	AL001
		3.50			50.3	5.000	2.500	CT	2.650	1.97	44.70	1977	AL001
		3.50			50.3	5.000	2.500	CT	2.560	1.78	42.40	1977	AL001
		2.50			50.4	5.000	2.490	CT	2.540	1.33	36.80	1977	AL001
		2.50			50.4	5.000	2.500	CT	2.450	1.35	37.00	1977	AL001
		2.50			50.4	5.000	2.490	CT	2.530	1.49	38.90	1977	AL001
		2.00			50.7	3.000	1.500	CT	1.570	1.48	39.00	1977	AL001
		3.50			51.2	5.000	2.500	CT	2.510	1.56	40.40	1977	AL001
		3.50			51.2	5.000	2.500	CT	2.580	1.69	42.10	1977	AL001
		3.50			51.2	5.000	2.500	CT	2.620	1.59	40.80	39.2/ 3.2	1977
T852	F	3.00	82	L-T	53.0	4.000	1.502	CT	2.055	0.99	33.30	1973	86213
T852	F	6.75	85	L-T	46.0	3.990	1.998	CT	1.985	1.41	34.60	1973	86213
		6.75			49.4	4.000	1.996	CT	1.970	1.27	35.20	1973	86213
		6.75			51.2	4.000	1.997	CT	1.978	1.20	35.50	35.1/ 0.5	1973
T852	F	----	R T	T-S	43.8	3.000	1.502	CT	1.617	1.06	28.53	1976	MD001
		----			45.7	2.998	1.500	CT	1.569	0.81	26.04	1976	MD001
		----			47.1	3.000	1.501	CT	1.566	1.30	34.08	1976	MD001

Table 7.10.2.1 (Con't)

CONDITION	ALUMINUM				2219		K(1C)		2.5* (IN)	K(1C)/TYS)**2 (KSI*SQRT IN)	K(1C) MEAN DEV (KSI*SQRT IN)	STAN DEV	DATE	REFER
	--PRODUCT-- FORM THICK (IN)		TEST SPECIMEN ORIENT (F)	YIELD STRENGTH (KSI)	-----SPECIMEN----- WIDTH THICK DESIGN (IN) (IN)		CRACK LENGTH (IN)	A						
	W	B												
T852	F	---	R. T.	T-S	47.2	3.000	1.500	CT	1.574	1.12	31.70	28.20	1976	MD001
		---			47.8	3.000	1.502	CT	1.562	0.77	26.66	28.60	1976	MD001
		---			47.9	2.999	1.501	CT	1.578	0.81	27.33	28.60	1976	MD001
		---			48.0	3.000	1.502	CT	1.549	0.91	29.10	29.1/ 2.9	1976	MD001
T852	F	5.50	R. T.	T-L	43.1	5.000	2.500	CT	2.620	1.07	28.20	28.20	1977	AL001
		5.50			43.1	5.000	2.500	CT	2.570	1.10	28.60	28.60	1977	AL001
		---			44.0	5.000	1.984	CT	2.502	0.75	24.10	24.10	1973	85836
		---			44.0	5.000	1.998	CT	2.271	0.63	22.20	22.20	1973	85836
		7.50			44.2	3.000	1.500	CT	1.540	0.81	25.10	25.10	1977	AL001
		7.50			44.2	3.000	1.500	CT	1.530	0.69	23.30	23.30	1977	AL001
		4.50			45.7	5.000	2.500	CT	2.540	0.95	28.10	28.10	1977	AL001
		4.50			45.7	5.000	2.500	CT	2.530	0.97	28.40	28.40	1977	AL001
		5.50			46.4	5.000	2.500	CT	2.520	0.74	25.20	25.20	1977	AL001
		3.50			49.8	5.000	2.500	CT	2.580	0.80	28.20	28.20	1977	AL001
		3.50			49.8	5.000	2.500	CT	2.560	0.83	28.70	28.70	1977	AL001
		3.50			49.8	5.000	2.500	CT	2.560	0.80	28.10	28.10	1977	AL001
		2.50			49.9	5.000	2.490	CT	2.570	0.68	26.00	26.00	1977	AL001
		2.50			49.9	5.000	2.500	CT	2.560	0.94	30.60	30.60	1977	AL001
		2.50			49.9	5.000	2.490	CT	2.510	0.68	26.10	26.10	1977	AL001
		3.50			50.2	5.000	2.500	CT	2.530	0.68	26.20	26.20	1977	AL001
		3.50			50.2	5.000	2.500	CT	2.520	0.67	26.00	26.00	1977	AL001
		3.50			50.2	5.000	2.500	CT	2.500	0.62	24.90	24.90	1977	AL001
		2.00			50.6	3.000	1.500	CT	1.510	0.84	39.40	39.40	1977	AL001
		4.50			50.6	5.000	2.500	CT	2.570	0.83	29.10	29.10	1977	AL001
	2.00			50.6	3.000	1.500	CT	1.560	0.79	28.50	28.50	1977	AL001	
	2.00			50.6	3.000	1.500	CT	1.560	0.83	29.20	29.20	1977	AL001	
	4.50			50.6	5.000	2.500	CT	2.510	0.87	29.80	29.80	1977	AL001	
	4.50			50.6	5.000	2.500	CT	2.510	0.74	27.50	27.1/ 2.2	1977	AL001	
T852	F	3.00	82	T-L	53.3	4.000	1.501	CT	2.037	0.43	22.00	22.00	1973	86213
T852	F	3.50	84	T-L	48.0	3.990	1.686	CT	2.077	0.87	28.30	28.30	1973	86213
T852	F	6.75	85	T-L	46.2	3.990	1.997	CT	2.067	0.89	27.50	27.50	1973	86213
		6.75			46.5	3.990	1.997	CT	2.127	0.95	28.70	28.70	1973	86213
		6.75			49.2	4.000	1.997	CT	2.080	0.56	23.30	23.30	1973	86213
		6.75			49.7	3.990	1.997	CT	1.987	0.62	24.70	24.70	1973	86213
	6.75			49.7	4.000	1.997	CT	2.019	0.51	22.50	25.3/ 2.7	1973	86213	

Table 7.10.2.1 (Con't)

CONDITION	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM		2219		K(1C)		K(1C) STAN MEAN DEV (KSI*SQRT IN)	DATE	REFER		
	FORM	THICK (IN)			THICK (IN)	WIDTH (IN)	SPECIMEN		CRACK LENGTH (IN)	2.5* (IN)					
							DESIGN	B						A	
T852	F	----	R. T.	S-T	43.0	3.000	1.502	CT	1.565	1.20	29.88	1976	MD001		
		44.7			2.999	1.501	CT	1.564	0.98	28.00	1976	MD001			
		45.2			2.999	1.500	CT	1.562	0.82	25.89	1976	MD001			
		48.8			3.000	1.502	CT	1.573	0.76	26.97	1976	MD001			
		49.1			3.000	1.501	CT	1.546	1.03	31.64	28.5/	2.3	1976	MD001	
T852	F	3.00	82	S-T	52.7	2.500	0.748	CT	1.244	0.46	22.60	1973	86213		
T852	F	3.50	84	S-T	50.0	2.500	1.000	CT	1.231	0.73	27.10	1973	86213		
T852	F	6.75	85	S-T	44.9	2.500	1.249	CT	1.233	0.67	23.30	1973	86213		
		46.7			2.500	1.249	CT	1.234	0.62	23.30	1973	86213			
		46.7			2.500	1.249	CT	1.243	0.69	24.60	1973	86213			
		48.7			2.500	0.998	CT	1.267	0.60	23.80	1973	86213			
		6.75			49.7	2.500	0.998	CT	1.185	0.51	22.50	23.5/	0.8	1973	86213
T852	F	----	R. T.	S-L	42.6	3.000	1.500	CT	1.594	0.59	20.72	1977	MD001		
		42.9			1.997	0.999	CT	1.077	0.72	23.09	1976	MD001			
		----			42.9	1.997	0.999	CT	1.047	0.69	22.65	1976	MD001		
		----			43.2	3.001	1.502	CT	1.632	0.92	26.28	1977	MD001		
		----			43.2	3.001	1.501	CT	1.666	0.77	24.02	1977	MD001		
		----			43.6	1.999	0.999	CT	1.077	0.67	22.73	1976	MD001		
		----			44.0	3.009	1.500	CT	1.570	0.66	22.66	1976	MD001		
		----			44.0	3.001	1.501	CT	1.586	0.63	22.46	1976	MD001		
		----			44.0	3.009	1.502	CT	1.586	0.68	22.96	1976	MD001		
		----			44.0	2.998	1.500	CT	1.596	0.88	26.25	1976	MD001		
		----			44.0	2.999	1.500	CT	1.570	0.83	25.39	1976	MD001		
		7.50			44.1	4.000	2.000	CT	2.050	0.88	26.10	1977	AL001		
		7.50			44.1	4.000	2.000	CT	2.020	0.87	26.00	1977	AL001		
		----			44.2	2.999	1.500	CT	1.614	0.88	26.37	1976	MD001		
		----			44.2	3.000	1.500	CT	1.590	1.20	30.73	1976	MD001		
		----			44.2	2.999	1.500	CT	1.598	0.81	25.17	1976	MD001		
		----			44.2	3.000	1.502	CT	1.568	0.91	26.71	1976	MD001		
		----			44.2	3.000	1.499	CT	1.594	1.36	32.71	1976	MD001		
		----			44.2	3.000	1.502	CT	1.566	0.90	26.65	1976	MD001		
		----			44.2	3.000	1.500	CT	1.603	1.41	33.20	1976	MD001		
		----			44.2	3.000	1.500	CT	1.572	1.19	30.95	1976	MD001		
		----			44.5	3.001	1.499	CT	1.597	0.54	20.84	1976	MD001		
		----			44.5	3.005	1.501	CT	1.586	0.62	22.32	1976	MD001		

Table 7.10.2.1 (Con't)

CONDITION	---PRODUCT---	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM		2219		K(1C)		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV	DATE	REFER
						WIDTH (IN)	THICK (IN)	DESIGN	A	B							
T852	F	---	R. T.	S-L	44.5	3.001	1.502	CT	1.468	1.07	29.23	1976	MD001				
		44.5			3.000	1.500	CT	1.591	0.62	22.23	1976	MD001					
		44.5			3.007	1.501	CT	1.607	0.60	21.91	1976	MD001					
		---			44.7	1.998	0.999	CT	1.079	0.64	22.75	1976	MD001				
		---			45.3	1.997	0.998	CT	1.097	0.68	23.66	1976	MD001				
		---			45.4	3.000	1.501	CT	1.571	1.01	28.90	1976	MD001				
		---			45.4	3.001	1.501	CT	1.582	0.95	28.07	1976	MD001				
		---			45.6	3.001	1.501	CT	1.478	1.01	28.99	1976	MD001				
		---			46.7	2.996	1.502	CT	1.486	1.43	35.32	1977	MD001				
		---			46.8	1.995	1.000	CT	1.063	0.63	23.61	1976	MD001				
		---			47.0	3.000	1.500	CT	1.510	0.56	22.20	1977	AL001				
		4 50			47.0	3.000	1.500	CT	1.550	0.67	24.40	1977	AL001				
		4 50			47.0	3.000	1.500	CT	1.530	0.67	24.30	1977	AL001				
		5 50			47.2	2.000	1.000	CT	1.030	0.61	23.40	1977	AL001				
		---			47.2	3.001	1.502	CT	1.514	0.90	28.45	1976	MD001				
		5 50			47.2	2.000	1.000	CT	1.030	0.63	23.60	1977	AL001				
		---			48.9	1.997	0.999	CT	1.051	0.58	23.67	1976	MD001				
		---			49.1	3.000	1.501	CT	1.616	0.67	25.44	1977	MD001				
		---			49.3	3.003	1.501	CT	1.586	0.81	28.09	1976	MD001				
		---			49.6	3.003	1.502	CT	1.628	0.54	23.07	1977	MD001				
		3 50			49.7	2.000	1.000	CT	1.030	0.65	25.30	1977	AL001				
		3 50			49.7	2.000	1.000	CT	1.020	0.67	25.80	1977	AL001				
		5 50			49.7	2.000	1.000	CT	1.040	0.64	25.10	1977	AL001				
		5 50			50.8	4.000	2.000	CT	2.040	0.60	24.90	1977	AL001				
		5 50			50.8	4.000	2.000	CT	2.050	0.69	26.60	1977	AL001				
		5 50			50.8	4.000	2.000	CT	2.040	0.59	24.70	1977	AL001				
		3 50			51.1	2.000	1.000	CT	1.040	0.62	25.90	1977	AL001				
		2 50			51.1	2.000	1.000	CT	1.010	0.44	21.40	1977	AL001				
		2 50			51.1	2.000	1.000	CT	1.010	0.43	21.20	1977	AL001				
		2 50			51.1	2.000	1.000	CT	1.010	0.49	22.60	1977	AL001				
		3 50			51.1	2.000	1.000	CT	1.020	0.61	25.20	1977	AL001				
		3 50			51.1	2.000	1.000	CT	1.010	0.54	23.80	1977	AL001				
		4 50			51.2	3.000	1.500	CT	1.570	0.52	23.40	1977	AL001				
		4 50			51.2	3.000	1.500	CT	1.530	0.68	26.70	1977	AL001				
		4 50			51.2	3.000	1.500	CT	1.570	0.63	25.70	1977	AL001				
		2 00			51.5	1.500	0.750	CT	0.800	0.62	25.60	1977	AL001				
		---			52.3	1.997	1.001	CT	1.044	0.60	25.63	1976	MD001				
							25.3/	3.1									

Table 7.10.2.1 (Con't)

CONDITION	ALUMINUM		2219		K(1C)		CRACK		2.5*		K(1C)/TVB)**2		K(1C) MEAN DEV		K(1C) STAN		DATE		REFER	
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN THICK TEMP (F)	ORIENT	YIELD (KSI)	WIDTH (IN)	THICK (IN)	DESIGN	A	B	LENGTH (IN)	(IN)	K(1C)*SQRT IN)	K(1C) STAN	DATE	REFER	K(1C) STAN	DATE	REFER	K(1C) STAN
T87	P	1.50	- 300	L-T	67.0	5.000	1.468	CT	2.528	0.95	41.30	0.95	41.30	1972	85631		41.30	1972	85631	
		1.50			67.0	5.000	1.470	CT	2.593	0.92	40.50	0.92	40.50	1972	85631		40.50	1972	85631	
T87	P	2.00	R.T.	L-T	56.7	2.000	0.999	CT	1.012	0.50	25.40	0.50	25.40	1973	86213		25.40	1973	86213	
		2.00			56.7	4.000	2.000	CT	2.039	0.59	27.50	0.59	27.50	1973	86688		27.50	1973	86688	
		2.00			56.7	4.000	2.000	CT	1.998	0.58	27.40	0.58	27.40	1973	86688		27.40	1973	86688	
		2.00			56.7	2.000	1.000	CT	1.003	0.54	26.30	0.54	26.30	1973	86213		26.30	1973	86213	
		2.00			56.7	4.000	2.000	CT	2.044	0.60	27.70	0.60	27.70	1973	86688		27.70	1973	86688	
		1.50			59.4	5.000	1.467	CT	2.570	0.82	33.90	0.82	33.90	1972	85631		33.90	1972	85631	
T87	P	1.50	300	L-T	---	5.000	1.466	CT	2.581	---	25.40	---	25.40	1972	85631		25.40	1972	85631	
		1.50			---	5.000	1.466	CT	2.573	---	34.40	---	34.40	1972	85631		34.40	1972	85631	
T87	P	2.50	- 423	T-S	---	2.000	1.252	CT	1.100	0.58	35.00	0.58	35.00	1972	84319		35.00	1972	84319	
		2.50			---	2.500	1.255	NB	1.220	1.00	47.20	1.00	47.20	1972	84319		47.20	1972	84319	
		2.50			73.0	2.500	1.253	NB	1.240	1.10	48.80	1.10	48.80	1972	84319		48.80	1972	84319	
		2.50			73.0	2.000	1.231	CT	1.110	0.51	33.00	0.51	33.00	1972	84319		33.00	1972	84319	
T87	P	2.50	- 320	T-S	---	2.000	1.249	CT	1.120	0.55	31.30	0.55	31.30	1972	84319		31.30	1972	84319	
		2.50			---	2.500	1.249	NB	1.220	1.00	43.30	1.00	43.30	1972	84319		43.30	1972	84319	
		2.50			67.0	2.000	1.231	CT	1.140	0.55	31.40	0.55	31.40	1972	84319		31.40	1972	84319	
		2.50			67.0	2.500	1.254	NB	1.230	1.00	41.60	1.00	41.60	1972	84319		41.60	1972	84319	
T87	P	2.50	R.T.	T-S	---	2.500	1.253	NB	1.240	1.10	36.40	1.10	36.40	1972	84319		36.40	1972	84319	
		2.50			---	2.000	1.252	CT	1.110	0.57	26.10	0.57	26.10	1972	84319		26.10	1972	84319	
		2.50			59.0	2.500	1.250	NB	1.270	1.10	36.20	1.10	36.20	1972	84319		36.20	1972	84319	
		2.50			59.0	2.000	1.252	CT	1.140	0.58	26.40	0.58	26.40	1972	84319		26.40	1972	84319	
T87	P	1.50	- 300	T-L	67.0	5.000	1.466	CT	2.671	---	32.50	---	32.50	1972	85631		32.50	1972	85631	
T87	P	1.00	R.T.	T-L	57.1	2.000	0.970	CT	1.050	0.36	21.70	0.36	21.70	1973	86213		21.70	1973	86213	
		1.00			57.1	2.000	0.970	CT	1.059	0.38	22.20	0.38	22.20	1973	86213		22.20	1973	86213	
T87	P	1.00	82	T-L	57.1	2.000	0.971	CT	1.034	0.40	22.70	0.40	22.70	1973	86213		22.70	1973	86213	
T87	P	1.00	84	T-L	57.1	2.000	0.971	CT	1.051	0.37	21.90	0.37	21.90	1973	86213		21.90	1973	86213	
		1.00			57.1	2.000	0.970	CT	1.052	0.36	21.80	0.36	21.80	1973	86213		21.80	1973	86213	
		1.00			57.1	2.000	0.970	CT	1.072	0.36	21.70	0.36	21.70	1973	86213		21.70	1973	86213	

Table 7.10.2.1 (Con't)

CONDITION	ALUMINUM									
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	TEMP (F)	YIELD (KSI)	SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) STAN K(1C) MEAN DEV (KSI*SQRT IN)
						WIDTH (IN)	THICK (IN)			
						W	B	A		
T87-300F 100HR P	1.50	R.T.	L-T	---	---	5.000	1.467	CT	2.560	34.50
	1.50					5.000	1.467	CT	2.572	35.10
										34.8/
										0.4
										1972 85631
										1972 85631

Table 7.10.2.2

CONDITION	ALUMINUM		2219		K(C)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	--PRODUCT--		TEST SPEC		YIELD		THICK		SPECIMEN		CRACK LENGTH		CROSS STRESS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	FORM	THICK (IN)	TEMP (F)	DR	STR (KSI)	W	THICK (IN)	B	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) MEAN DEV (KSI*SQRT IN)	STAN	K(C) MEAN DEV (KSI*SQRT IN)	K(C) STAN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

Table 7.10.2.2 (Con't)

CONDITION	ALUMINUM		2219		K(C)								
	---SPECIMEN---		CRACK LENGTH		GROSS STRESS								
	THICK (IN)	W	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)							
	FORM (IN)	THICK (IN)	W	2A(D) 2A(F)	S(O)	S(MAX)							
T851	S	0.12	3.000	0.126	1.100	1.680	---	30.10	43.20*	61.24*	1973	86213	
		0.12	49.3	3.000	0.127	1.090	1.560	---	29.20	41.65*	55.23*	1973	86213
		0.12	49.3	3.000	0.126	1.100	1.740	---	27.80	42.77*	62.93*	1973	86213
		0.12	49.3	3.000	0.127	1.100	1.560	---	29.50	42.34*	55.81*	1973	86213
		0.12	50.8	3.000	0.127	1.080	1.600	---	28.80	40.82*	55.82*	1973	86213
		0.12	50.8	3.000	0.127	1.100	1.620	---	30.00	43.06*	58.89*	1973	86213
		0.12	50.8	3.000	0.127	1.090	1.590	---	28.30	40.37*	54.52*	1973	86213
		0.12	50.8	3.000	0.127	1.080	1.560	---	30.40	43.09*	57.52*	1973	86213
		0.12	51.2	3.000	0.127	1.100	1.580	---	30.30	43.49*	58.02*	1973	86213
		0.12	51.2	3.000	0.127	1.080	1.590	---	30.30	42.95*	58.37*	1973	86213
		0.12	51.2	3.000	0.127	1.100	1.480	---	29.20	41.91*	52.67*	1973	86213
		0.12	51.2	3.000	0.127	1.120	1.600	---	29.20	42.44*	56.59*	1973	86213
T851	P	1.00	20.000	1.000	7.000	9.500	---	14.90	53.51	67.17	1973	86213	
		1.00	49.3	20.000	1.000	7.000	10.100	---	15.10	54.23	71.81	1973	86213
		1.00	49.3	20.000	1.000	7.000	10.000	---	14.70	52.79	69.28	1973	86213
		1.00	49.3	20.000	1.000	7.000	9.300	---	14.80	53.15	65.54	1973	86213
		1.00	50.2	20.000	1.000	7.000	10.050	---	13.00	46.68	61.59	1973	86213
		1.00	50.2	20.000	1.000	7.000	9.200	---	13.50	48.48	59.25	1973	86213
		1.00	50.2	20.000	1.000	7.000	9.990	---	13.40	48.12	63.10	1973	86213
		1.00	50.2	20.000	1.000	7.000	9.850	---	13.40	48.12	62.32	1973	86213
		1.00	51.2	20.000	1.000	7.000	9.650	---	14.10	50.63	64.42	1973	86213
		1.00	51.2	20.000	1.000	7.000	10.000	---	14.80	53.15	69.76	1973	86213
		1.00	51.2	20.000	1.000	7.000	10.000	---	15.00	53.87	70.70	1973	86213
		1.00	51.2	20.000	1.000	7.000	10.000	---	15.10	54.23	71.10	1973	86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

Table 7.10.2.2 (Con't)

CONDITION	ALUMINUM			2219		K(C)		CRACK LENGTH CROSS STRESS										K(APP) STAN		K(C) STAN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	---SPECIMEN---			INIT			FINAL			ONSET			K(APP)			K(C)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				W	B	8	2A(D)	2A(F)	S(O)	S(MAX)	K(SI)	(IN)	(IN)	(KSI)	K(SI*SQRT IN)	MEAN	DEV	(KSI*SQRT IN)	MEAN	DEV																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
																					THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)	THICK (IN)

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV

Table 7.10.2.2 (Con't)

CONDITION	ALUMINUM		K(C)		CRACK LENGTH CROSS STRESS										K(C) STAN		
	2219																
	---PRODUCT--- FORM THICK TEMP OR (IN) (F)	TEST SPEC YIELD STR (KSI)	W (IN)	THICK (IN)	W (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	MAX (KSI)	MAX (KSI)	MAX (KSI)	MAX (KSI)	MAX (KSI)	K(APP) (KSI*SORT IN)	MEAN DEV	STAN DEV
T87	S	0.10 R.T. L-T	58.5	24.000	0.100	0.100	8.000	9.580	---	24.00	91.42	103.46	1962 62306				
		0.10	58.5	24.000	0.100	0.100	18.000	19.430	---	7.40	63.61	75.31	1962 62306				
		0.10	58.5	24.000	0.100	0.100	18.000	18.620	---	8.40	72.20	77.36	1962 62306				
		0.10	58.5	24.000	0.100	0.100	12.000	13.650	---	17.80	91.90	104.11	1962 62306				
		0.10	58.5	24.000	0.100	0.100	2.000	2.590	---	42.40	75.48	86.14*	1962 62306				
		0.10	58.5	24.000	0.100	0.100	1.000	1.400	---	48.40	60.73*	71.93*	1962 62306				
T87	S	0.10 R.T. L-T	58.5	24.000	0.100	0.100	0.500	0.770	---	54.40	48.22*	78.8/11.1	1962 62306				
		0.10	58.5	30.000	0.100	0.100	18.000	19.700	---	12.50	86.70	97.03	1962 62306				
	S	0.10 R.T. L-T	58.5	36.000	0.100	0.100	4.000	5.450	---	34.00	85.88	100.91	1962 62306				
		0.10	58.5	48.000	0.100	0.100	4.000	5.580	---	34.90	87.86	104.19	1962 62306				
		0.10	58.5	48.000	0.100	0.100	12.000	13.030	---	23.20	104.79	120.17	1962 62306				
		0.10	58.5	48.000	0.100	0.100	36.000	37.170	---	7.90	96.03	102.47	1962 62306				
T87	S	0.10 R.T. L-T	58.5	48.000	0.100	0.100	41.900	43.180	---	4.30	78.34	89.35	1962 62306				
		0.10	58.5	48.000	0.100	0.100	24.000	25.720	---	15.40	112.45	119.93	1962 62306				
		0.10	58.5	48.000	0.100	0.100	8.000	9.250	---	28.20	101.71	110.02	1962 62306				
		0.10	58.5	48.000	0.100	0.100	12.000	14.200	---	24.50	110.66	98.8/12.4	1962 62306				
		0.10	58.5	48.000	0.100	0.100	12.000	14.200	---	24.50	110.66	98.8/12.4	1962 62306				
		0.10	58.5	48.000	0.100	0.100	12.000	14.200	---	24.50	110.66	98.8/12.4	1962 62306				

BUCKLING OF CRACK EDGES NOT RESTRAINED

T87	S	0.03 - 423 L-T	74.0	12.000	0.032	1.210	2.020	---	48.10	66.73	87.21	1966 66103
T87	S	0.03 - 423 L-T	74.0	16.000	0.032	4.240	7.030	---	27.80	75.02	105.20	1966 66103
T87	S	0.12 - 423 L-T	74.0	12.000	0.125	1.230	1.940	---	46.20	64.64	81.97	1966 66103
T87	S	0.12 - 423 L-T	74.0	16.000	0.125	4.830	6.310	---	26.90	78.55	93.86	1966 66103
T87	S	0.06 R.T. L-T	59.2	2.000	0.065	0.625	1.110	---	38.10	40.16*	62.72*	1973 86213
		0.06	59.2	2.000	0.064	0.622	0.810	---	38.10	40.08*	47.92*	1973 86213

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

Table 7.10.2.2 (Con't)

CONDITION	ALUMINUM		2219		K(C)														
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPEC OR	YIELD (KSI)	---SPECIMEN---		CRACK LENGTH				GROSS STRESS		K(C) STAN K(C) MEAN DEV (KSI*SQRT IN)	K(C) STAN K(C) MEAN DEV (KSI*SQRT IN)	DATE REFER			
						WIDTH (IN)	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP) (KSI*SQRT IN)	K(APP) (KSI*SQRT IN)				STAN DEV		
BUCKLING OF CRACK EDGES NOT RESTRAINED																			
T87	S	0.06	R.T.	T-L	59.0	2.000	0.064	0.625	0.980	---	36.50	38.47*			53.44*		1973 86213		
T87	S	0.12	R.T.	T-L	58.6	2.990	0.126	0.990	1.300	---	33.90	45.38*			55.00*		1973 86213		
		0.12			58.6	2.990	0.126	0.994	1.280	---	34.10	45.77*			54.67*		1973 86213		
		0.12			58.6	2.990	0.126	0.991	1.280	---	33.90	45.38*			54.35*		1973 86213		
		0.12			58.6	2.990	0.126	0.992	1.350	---	34.30	45.98*			57.34*		1973 86213		
		0.12			55.9	3.000	0.124	1.070	1.760	---	30.60	43.10*			65.43*		1973 86213		
		0.12			55.9	3.000	0.124	1.080	1.690	---	30.50	43.23*			62.44*		1973 86213		
T87	P	0.25	R.T.	T-L	57.2	3.000	0.247	1.000	1.530	---	32.00	43.10*			59.47*		1973 86213		
		0.25			57.2	3.000	0.247	1.160	1.740	---	29.20	43.50*			61.66*		1973 86213		
		0.25			57.2	3.000	0.247	1.120	1.710	---	30.40	44.18*			63.01*		1973 86213		
T87	P	0.25	R.T.	T-L	55.9	4.000	0.246	1.330	2.120	---	28.60	44.40			63.62*		1973 86213		
		0.25			55.9	4.000	0.246	1.330	2.060	---	28.70	44.56			62.14*		1973 86213		
		0.25			55.9	4.000	0.245	1.460	2.310	---	26.60	43.95			64.56*		1973 86213		
		0.25			57.2	4.000	0.246	1.330	2.040	---	30.80	47.82*			66.09*		1973 86213		
		0.25			57.2	4.000	0.246	1.440	2.170	---	29.00	47.47			65.99*		1973 86213		
		0.25			55.6	4.000	0.255	1.440	2.240	---	27.80	45.50			65.32*		1973 86213		
		0.25			55.6	4.000	0.255	1.330	2.060	---	28.90	44.87			62.57*		1973 86213		
		0.25			55.6	4.000	0.256	1.330	2.070	---	29.00	45.02	45.1/ 1.2	45.02	63.07*	----	1973 86213		

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.10.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.1 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2219
 CONDITION: T851
 ENVIRONMENT: R.T., LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.30	R=+0.50		
DELTA K MIN	A: 4.29	.417			
	B: 6.14		2.02		
	C:				
	D:				
	5.00	.741			
	6.00	1.38			
	7.00	2.23	2.81		
	8.00	3.34	4.10		
	9.00	4.76	6.05		
	10.00	6.55	9.15		
	13.00	15.2	36.8		
	16.00	32.5			
DELTA K MAX	A: 19.30	71.4			
	B: 15.80		161.		
	C:				
	D:				
ROOT MEAN SQUARE		9.32	21.19		
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T851
 FORM:
 SPECIMEN TYPE: CT
 ORIENTATION:
 FREQUENCY: 30.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.000"
 REFERENCES:UD010

ALUM.
 ALLOY

2219

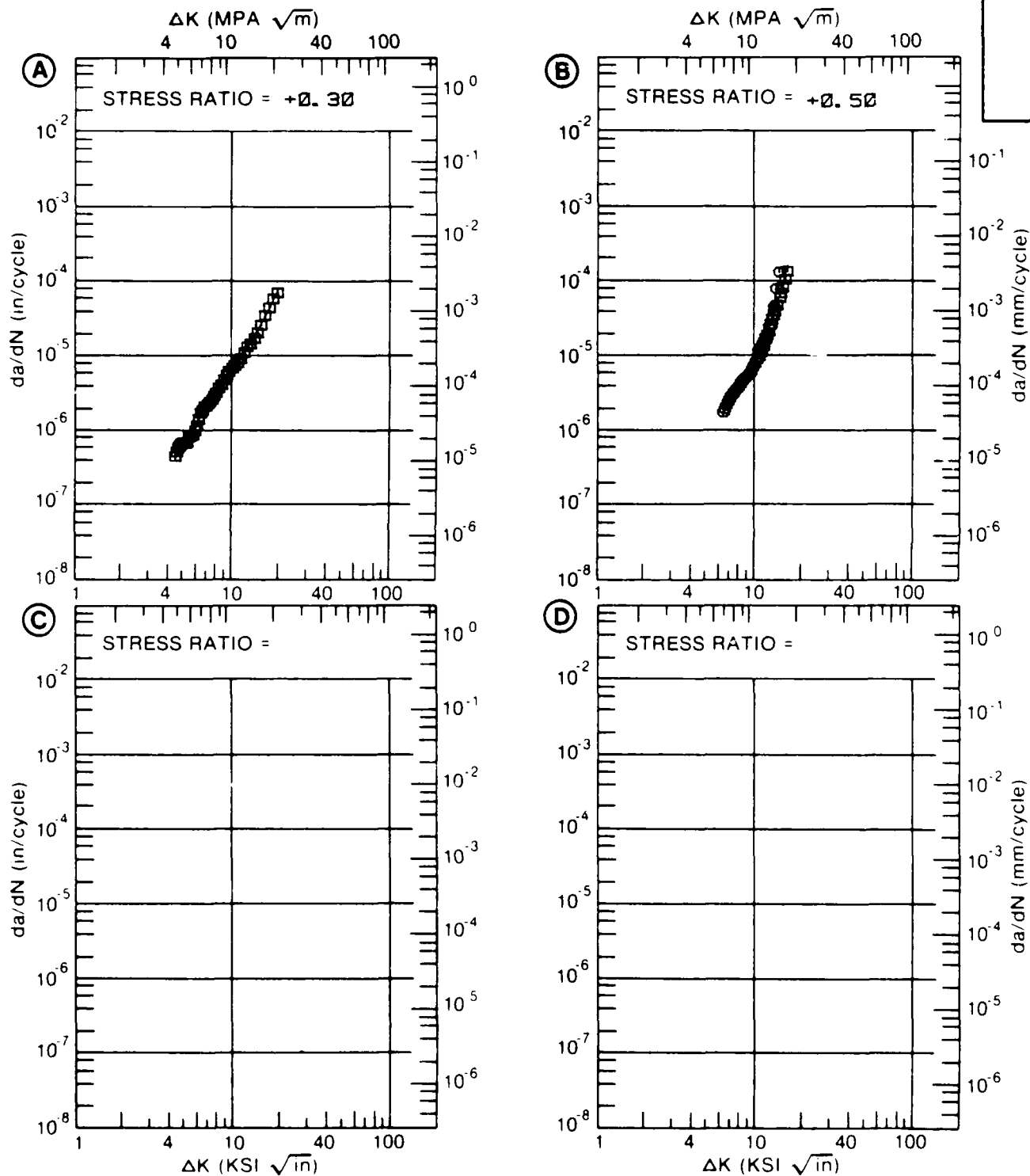


Figure 7.10.3.1

TABLE 7.10.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.2 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2219
CONDITION: T851
ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=-1.00			
DELTA K MIN	A: 5.84	.966			
	B:				
	C:				
	D:				
	6.00	1.06			
	7.00	1.71			
	8.00	2.44			
	9.00	3.23			
	10.00	4.09			
	13.00	7.45			
DELTA K MAX	16.00	13.1			
	20.00	28.5			
	A: 20.70	32.9			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 7.13
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM:
 SPECIMEN TYPE: CCP
 ORIENTATION:
 FREQUENCY: 5.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: UD010

ALUM.
 ALLOY

2219

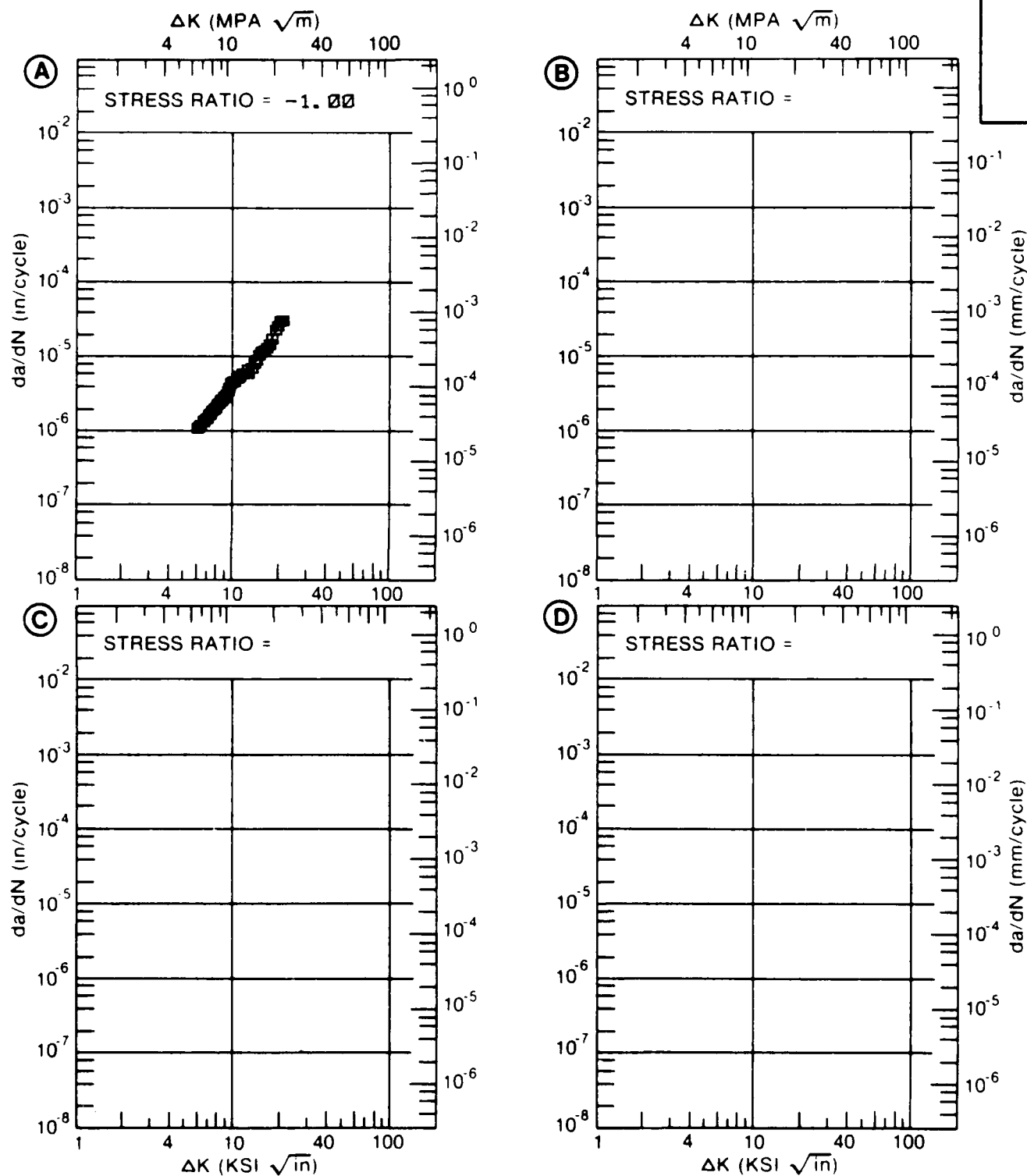


Figure 7.10.3.2

TABLE 7.10.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.3 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T.			
		LAB AIR			
DELTA K MIN	A: 2.93	.02			
	B: 1				
	C:				
	D:				
	3.00	.0239			
	3.50	.0669			
	4.00	.149			
	5.00	.477			
	6.00	1.09			
	7.00	2.03			
	8.00	3.35			
	9.00	5.10			
	10.00	7.33			
	13.00	17.8			
	16.00	36.9			
DELTA K MAX	A: 19.20	73.3			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		13.25			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	3			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM:
 SPECIMEN TYPE: CT
 ORIENTATION:
 STRESS RATIO: +0.10
 FREQUENCY: 5.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.000"
 REFERENCES:UD010

ALUM.
 ALLOY

2219

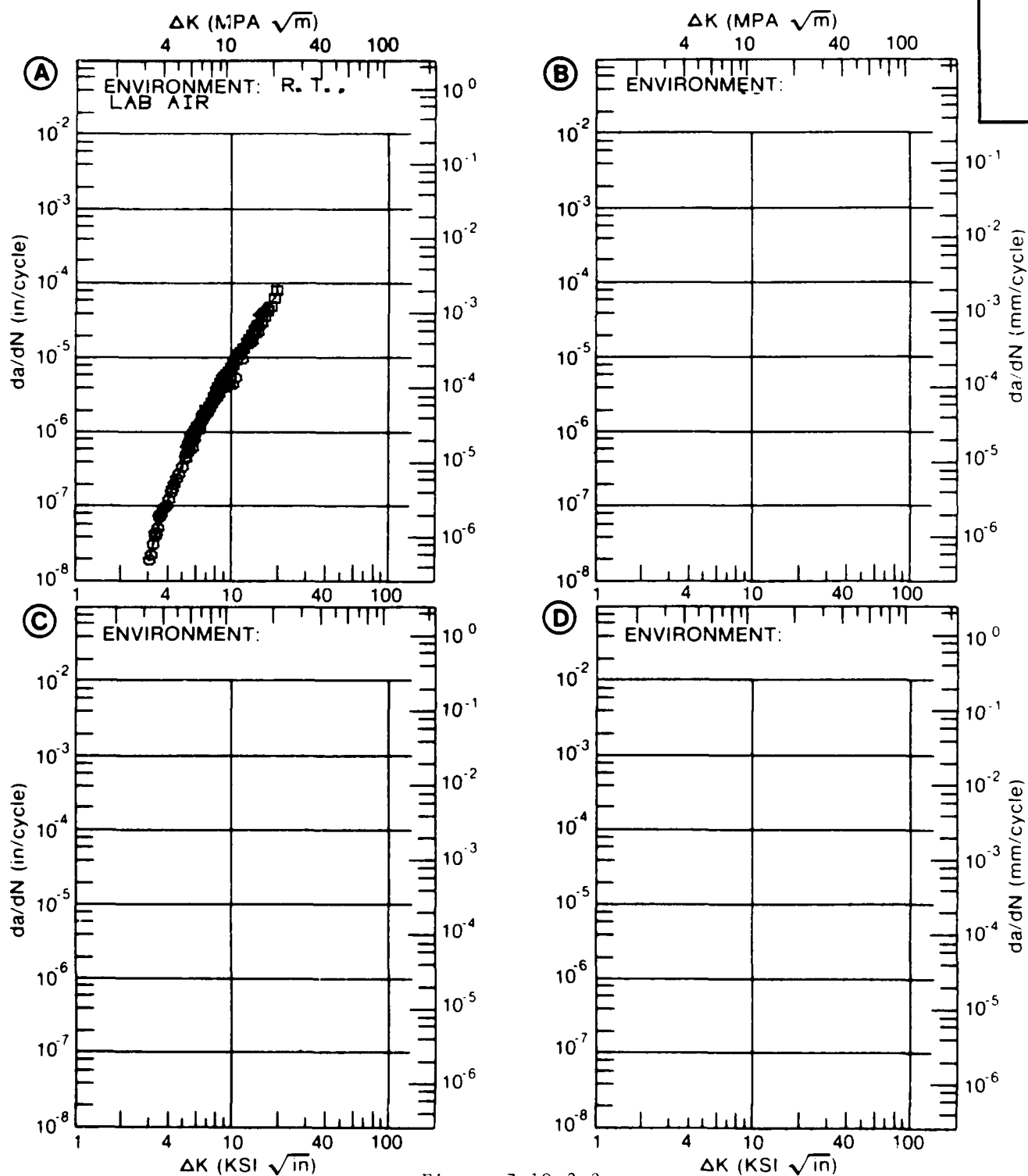


Figure 7.10.3.3

TABLE 7.10.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.4 INDICATING EFFECT

OF FREQUENCY

MATERIAL: ALUMINUM		2219	
CONDITION: T851			
ENVIRONMENT: R. T. , LAB AIR			

DELTA K		DA/DN (10**-6 IN. /CYCLE)	
(KSI*IN**1/2)			
		A	B
		C	D
		F(HZ)= 0.10 F(HZ)= 5.00	
A: 5.00		2.04	
DELTA K	B: 2.45		.111
MIN	C:		
	D:		
	2.50		.122
	3.00		.245
	3.50		.429
	4.00		.762
	5.00		3.08
	6.00	7.93	
	7.00	50.4	
A:	7.01	51.9	
DELTA K	B: 5.01		3.13
MAX	C:		
	D:		

ROOT MEAN SQUARE		22.21	11.84
PERCENT ERROR			

LIFE	0.0-0.5		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25		
SUMMARY	1.25-2.0		
(NP/NA)	>2.0		

CONDITION/HT: T851
 FORM:
 SPECIMEN TYPE: CT
 ORIENTATION:
 STRESS RATIO: +0.80
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.000"
 REFERENCES:UD010

ALUM.
 ALLOY

2219

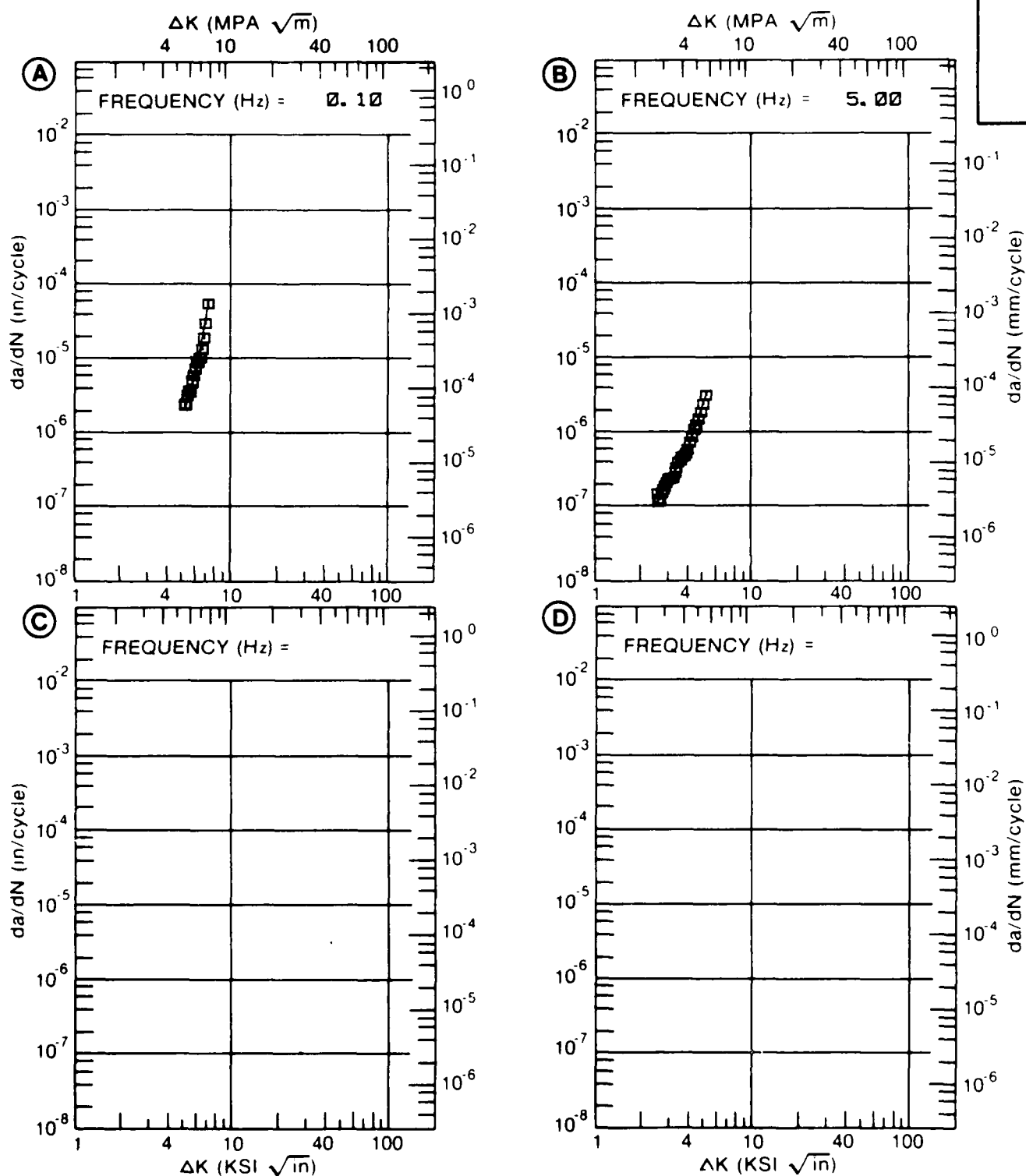


Figure 7.10.3.4

TABLE 7.10.3.5

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.10.3.5 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2219
CONDITION: T851
ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-1.00	R=-0.30	R=-0.10	R=+0.00
DELTA K MIN	A: 6.61 :	2.98			
	B: 6.34 :		1.80		
	C: 6.17 :			1.23	
	D: 6.25 :				.791
	7.00 :	2.86	2.37	2.07	1.25
	8.00 :	3.30	3.50	3.36	2.05
	9.00 :	4.61	4.99	4.94	3.08
	10.00 :	6.81	6.88	6.79	4.33
	13.00 :	17.7	15.2	13.9	9.59
	16.00 :		27.6	24.0	17.6
	20.00 :		52.5	44.9	34.6
	25.00 :		107.	93.6	
	30.00 :		214.	193.	
	35.00 :		428.	401.	
	40.00 :		865.	837.	
	50.00 :		3618.	3707.	
	60.00 :			16519.	
DELTA K MAX	A: 14.09 :	21.3			
	B: 59.68 :		14767.		
	C: 63.72 :			28766.	
	D: 23.46 :				58.2
ROOT MEAN SQUARE		18.45	38.38	20.98	4.31
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	2	3	1
SUMMARY	1.25-2.0				
(NP/NA)	>2.0		1		

CONDITION/HT: T851
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 46.0 KSI
 ULT. STRENGTH: 62.0 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: R1003

ALUM.
 ALLOY

2219

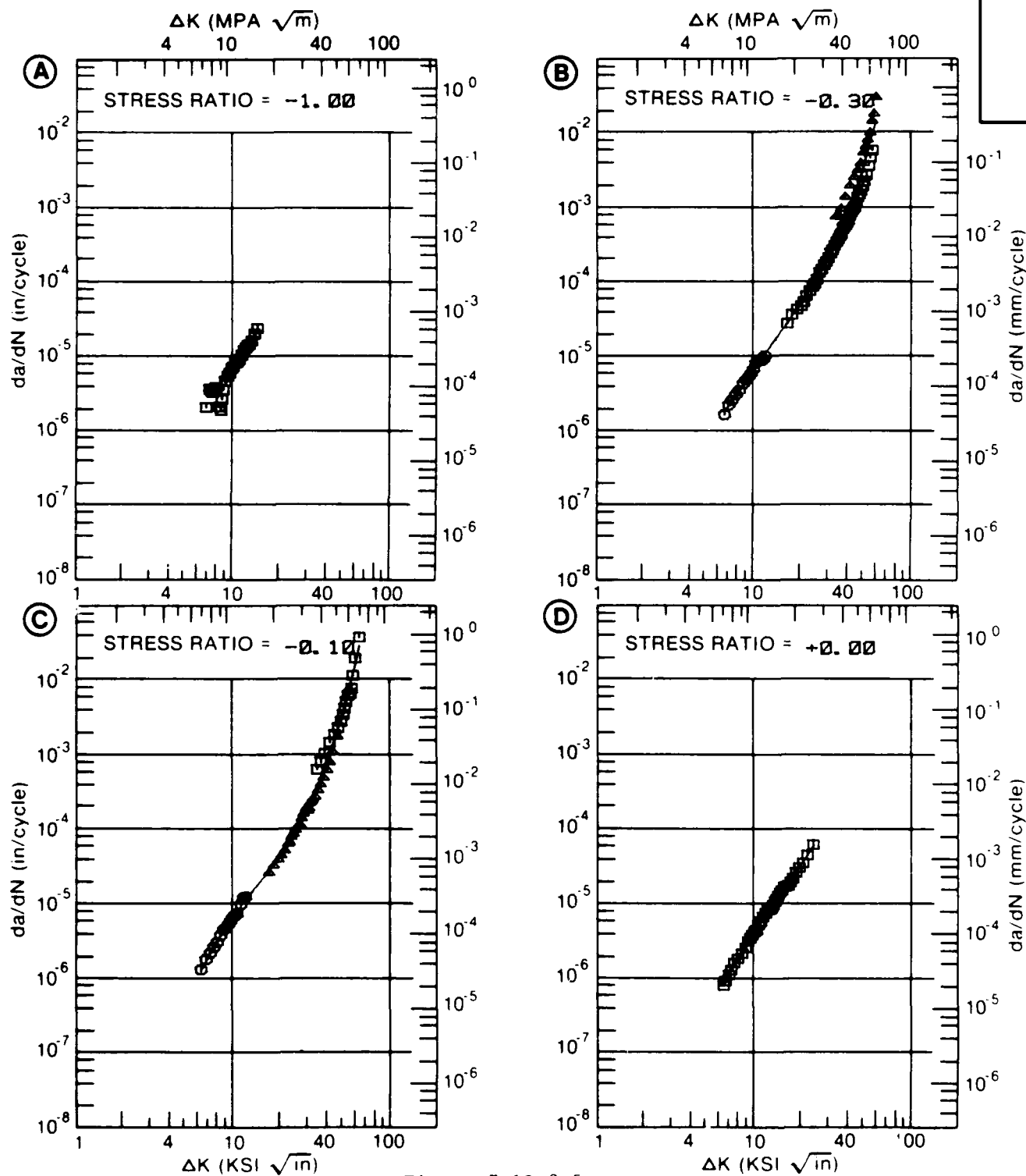


Figure 7.10.3.5

7.10-27

TABLE 7.10.3.6

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.6 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2219
CONDITION: T851
ENVIRONMENT: R. T. / LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A R=+0.01	B R=+0.20	C R=+0.30	D R=+0.70
DELTA K MIN	A: 15.91	24.3			
	B: 14.07		25.9		
	C: 3.99			332	
	D: 4.65				977
	4.00			334	
	5.00			698	1.39
	6.00			1.33	2.59
	7.00			2.32	3.94
	8.00			3.73	6.02
	9.00			5.56	10.1
	10.00			7.86	17.8
	13.00			18.2	60.1
	16.00	24.7	42.1	35.5	144.
	20.00	46.2	90.9	76.3	1174.
	25.00	95.0	196.	179.	
	30.00	185.	392.	392.	
	35.00	344.	771.	824.	
	40.00	614.	1523.		
	50.00	1788.			
	A: 50.85	1949.			
DELTA K MAX	B: 44.27		2745.		
	C: 35.53			890.	
	D: 20.24				1827.
ROOT MEAN SQUARE PERCENT ERROR		9.45	9.18	16.06	24.37

LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	3	1	3	2
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 46.0 KSI
 ULT. STRENGTH: 62.0 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: RI003

ALUM.
 ALLOY

2219

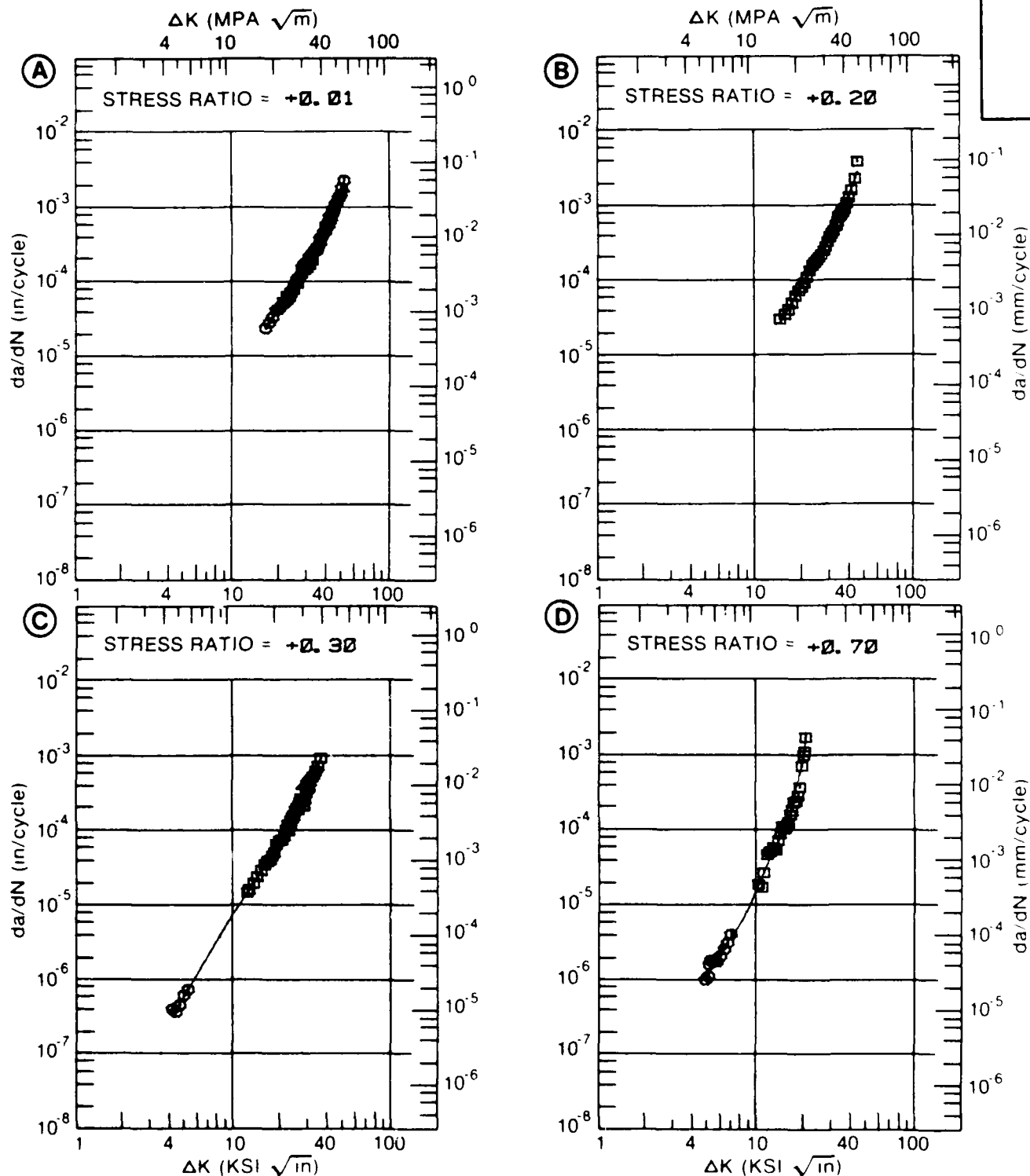


Figure 7.10.3.6

TABLE 7.10.3.7

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.7 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2219
CONDITION: T851

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

E= R. T.
LAB AIR

DELTA K	A:	14.80	:	15.1
MIN	B:		:	
	C:		:	
	D:		:	
		16.00	:	20.5
		20.00	:	44.5
		25.00	:	89.9
		30.00	:	163.
		35.00	:	287.
		40.00	:	505.
		50.00	:	1622.

DELTA K	A:	52.25	:	2126.
MAX	B:		:	
	C:		:	
	D:		:	

ROOT MEAN SQUARE 10.58
PERCENT ERROR

LIFE	0.0-0.5	
PREDICTION	0.5-0.8	
RATIO	0.8-1.25	1
SUMMARY	1.25-2.0	
(NP/NA)	>2.0	

CONDITION/HT: T851
 FORM: 0.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.01
 FREQUENCY: 3.00 HZ

YIELD STRENGTH: 46.0 KSI
 ULT. STRENGTH: 62.0 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: RI003

ALUM.
 ALLOY

2219

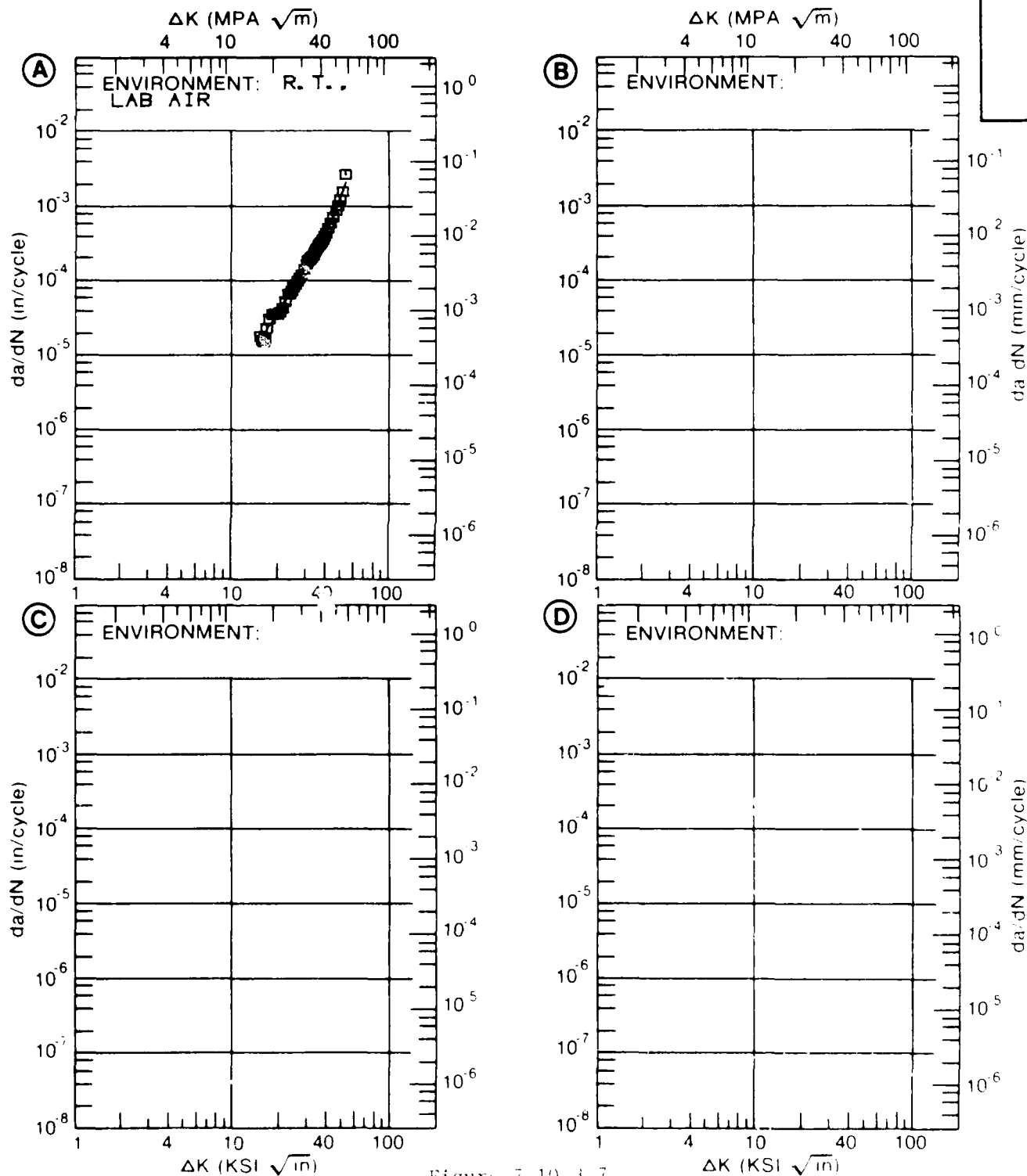


Figure 7.10-3.7

TABLE 7.10.3.8

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.8 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2219
 CONDITION: T851
 ENVIRONMENT: R. T. , LAB AIR

DELTA K
 (KSI*IN**1/2)

DA/DN (10**-6 IN. /CYCLE)

A

B

C

D

R=-0.10

R=+0.05

R=+0.10

DELTA K A: 25.44 :
 MIN B: 8.91 :
 C: 16.46 :
 D:

90.5

3.55

18.8

9.00 :

3.67

10.00 :

5.14

13.00 :

11.5

16.00 :

22.1

20.00 :

48.3

44.9

25.00 :

120.

81.0

30.00 :

230.

185.

DELTA K A: 33.66 :
 MAX B: 30.18 :
 C: 28.06 :
 D:

620.

184.

212.

ROOT MEAN SQUARE
 PERCENT ERROR

23.46

21.47

27.02

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

1

1

1

CONDITION/HT: T851
 FORM: 0.83" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 1.00-20.00 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 54.7 KSI
 ULT. STRENGTH: 66.9 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.500"
 REFERENCES: 88468

ALUM.
 ALLOY

2219

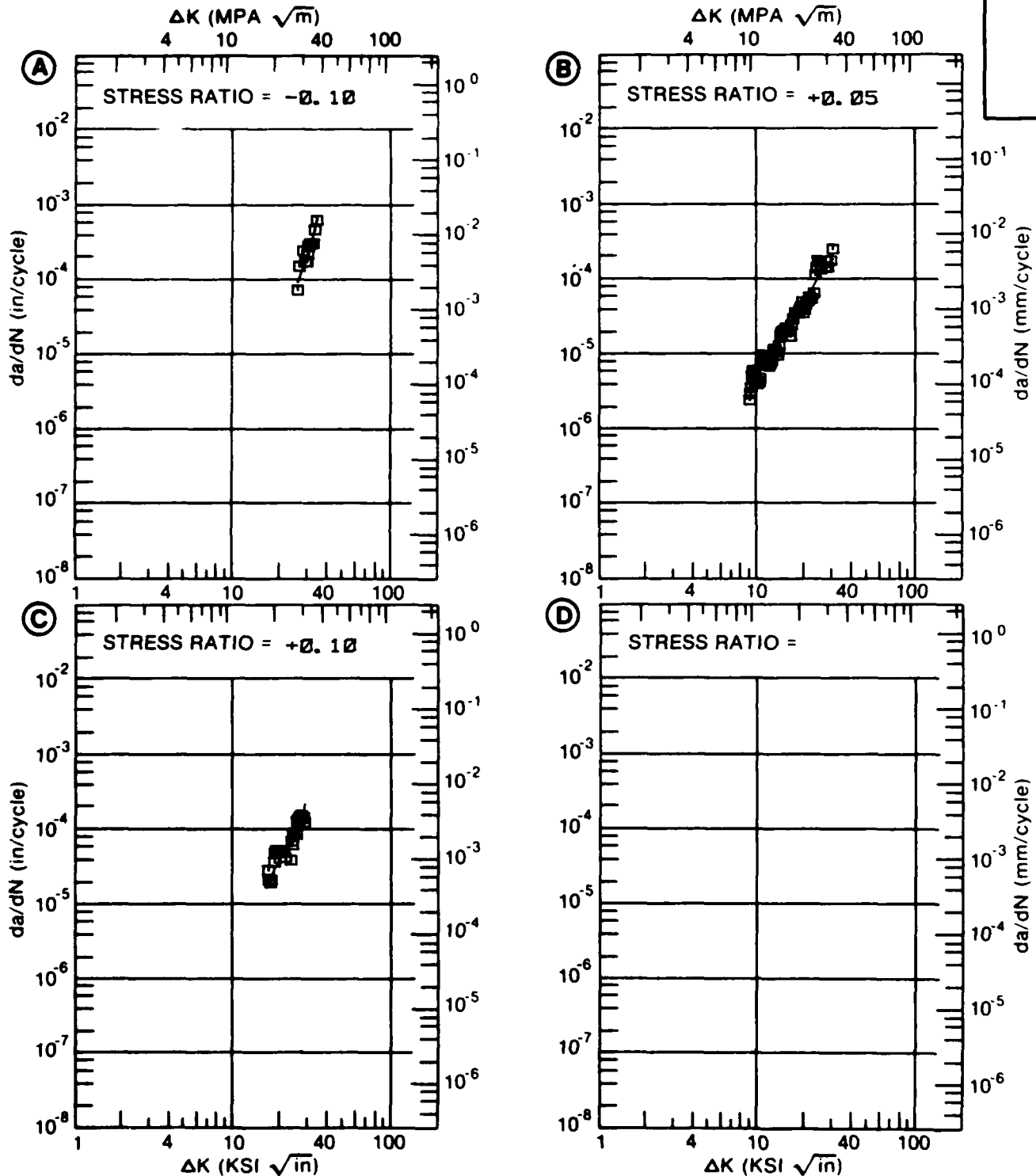


Figure 7.10-3.8

TABLE 7.10+3.9

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.9 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-1.00	R=+0.04	R=+0.05	R=+0.30
DELTA K MIN	A:	7.34	1.68		
	B:	7.42	.41		
	C:	8.55		.79	
	D:				
	8.00	2.50	1.01		
	9.00	4.04	2.57	1.18	
	10.00	5.92	4.24	2.46	
	13.00	13.6		9.40	
	16.00	25.2		19.1	
	20.00	52.3		33.9	
	25.00			57.6	
	30.00			95.9	
DELTA K MAX	A:	24.44	116.		
	B:	11.28	7.87		
	C:	33.48		140.	
	D:				
ROOT MEAN SQUARE		16.15	12.09	29.69	0.00
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1	1	1	
RATIO	0.8-1.25			1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851

FORM: 0.63" TH PLATE

SPECIMEN TYPE: CCP

ORIENTATION: L-T

FREQUENCY: 1.00- 20.00 HZ

ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 54.7 KSI

ULT. STRENGTH: 66.9 KSI

SPECIMEN THK: 0.250- 0.251"

SPECIMEN WIDTH: 6.005- 6.070"

REFERENCES: 89468

ALUM.
ALLOY

2219

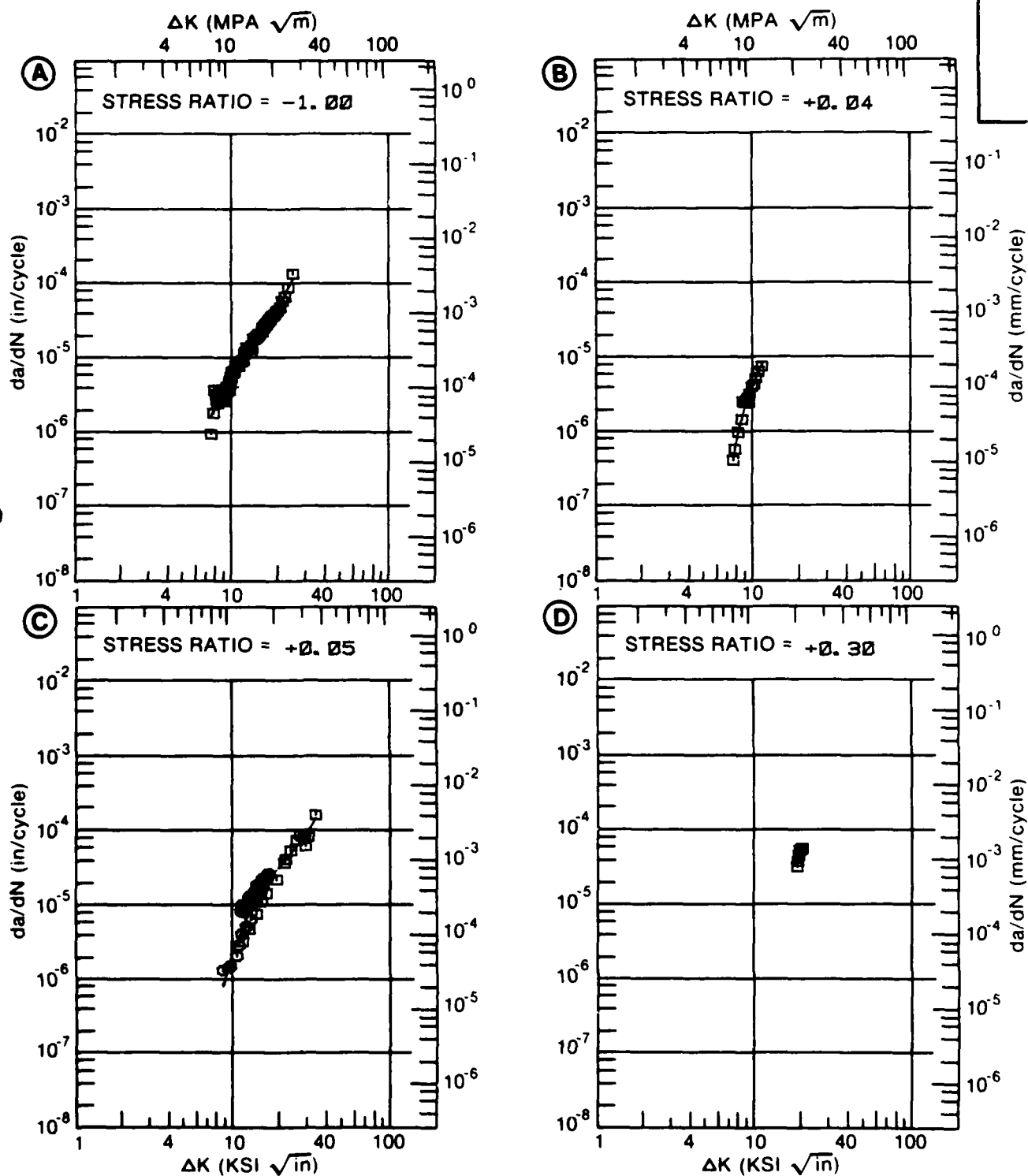


Figure 7.10.3.9

7.10-45

TABLE 7.10.3.10

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.10.3.10 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM 2219
CONDITION: T851
ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.05			
A:	9.79	3.55			
DELTA K B:					
MIN C:					
D:					
	10.00	3.58			
	13.00	13.2			
A:	15.96	77.1			
DELTA K B:					
MAX C:					
D:					

ROOT MEAN SQUARE 43.42
PERCENT ERROR

LIFE	0.0-0.5	
PREDICTION	0.5-0.8	1
RATIO	0.8-1.25	
SUMMARY	1.25-2.0	
(NP/NA)	>2.0	

CONDITION/HT: T851

FORM: 0.63" TH PLATE

SPECIMEN TYPE: CT

ORIENTATION: L-T

FREQUENCY: 1.00- 20.00 HZ

ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 54.7 KSI

ULT. STRENGTH: 66.9 KSI

SPECIMEN THK: 0.500"

SPECIMEN WIDTH: 2.500"

REFERENCES: 88468

ALUM.
ALLOY

2219

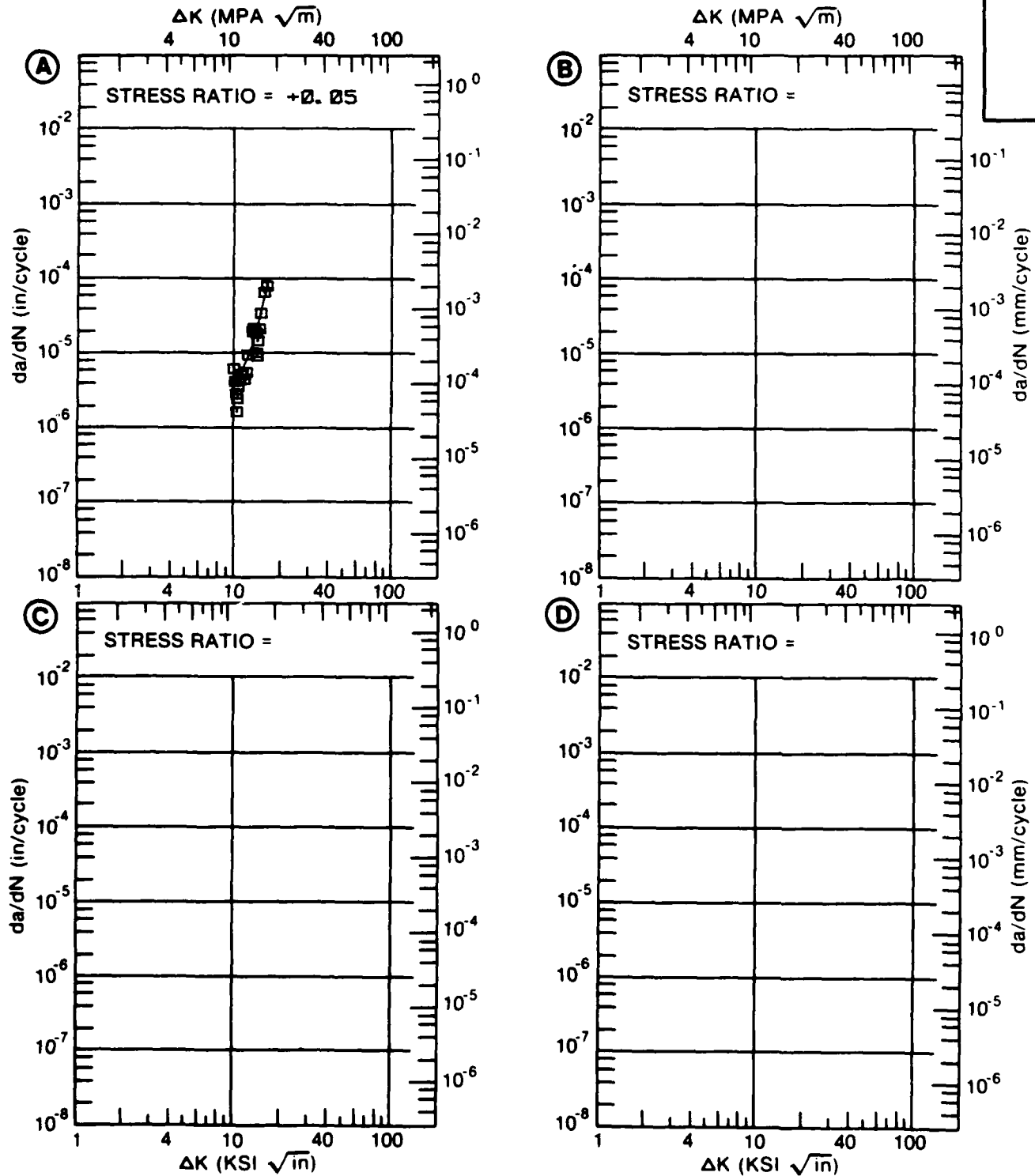


Figure 7.10.3.10

7.10-47

TABLE 7.10.3.11

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.10.3.11 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0. 40	R=+0. 50	R=+0. 60	R=+0. 70
DELTA K MIN	A: 13. 87	28. 6			
	B: 8. 00		4. 62		
	C: 7. 23			4. 35	
	D: 6. 44				3. 55
	7. 00				3. 79
	8. 00		4. 62	6. 09	6. 31
	9. 00		6. 15	8. 72	11. 6
	10. 00		10. 1	12. 2	
	13. 00			36. 9	
DELTA K MAX	A: 15. 45	44. 3			
	B: 10. 28		10. 6		
	C: 14. 98			91. 8	
	D: 9. 77				16. 7
ROOT MEAN SQUARE		17. 15	10. 21	24. 18	13. 13
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25	1	1	1	1
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T851
 FORM: 0.63" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 1.00- 20.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 54.7 KSI
 ULT. STRENGTH: 66.9 KSI
 SPECIMEN THK: 0.250- 0.251"
 SPECIMEN WIDTH: 6.005- 6.070"
 REFERENCES: 88468

ALUM.
 ALLOY

2219

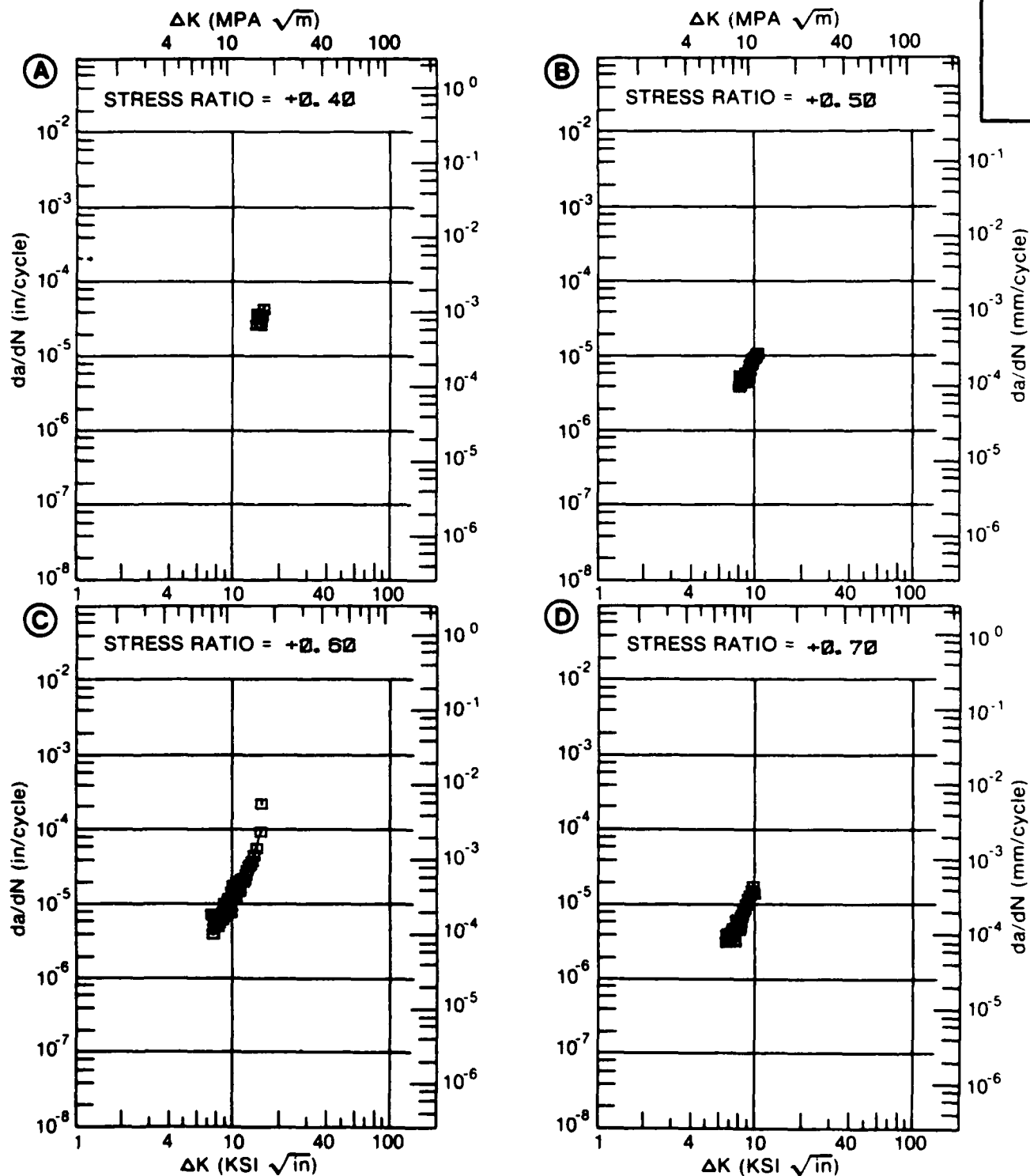


Figure 7.10.3.11

TABLE 7.10.3.12

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.10.3.12 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
ENVIRONMENT: R. T. , LAB AIR					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=-0.50	R=+0.00		
DELTA K MIN	A:	5.96	1.53		
	B:	5.21	.360		
	C:				
	D:				
	6.00	1.59	1.22		
	7.00	3.08	2.67		
	8.00	4.48	4.19		
	9.00	5.71	6.02		
	10.00	6.89	8.25		
	13.00	12.6	17.5		
	16.00		30.8		
	20.00		54.8		
DELTA K MAX	A:	15.70	28.1		
	B:	20.85	60.8		
	C:				
	D:				
ROOT MEAN SQUARE		19.95	9.86		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25	3	6		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.38" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 5.20 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 50.6 KSI
 ULT. STRENGTH: 86.4 KSI
 SPECIMEN THK: 0.748- 0.752"
 SPECIMEN WIDTH: 2.997- 3.003"
 REFERENCES: 96213

ALUM.
 ALLOY

2219

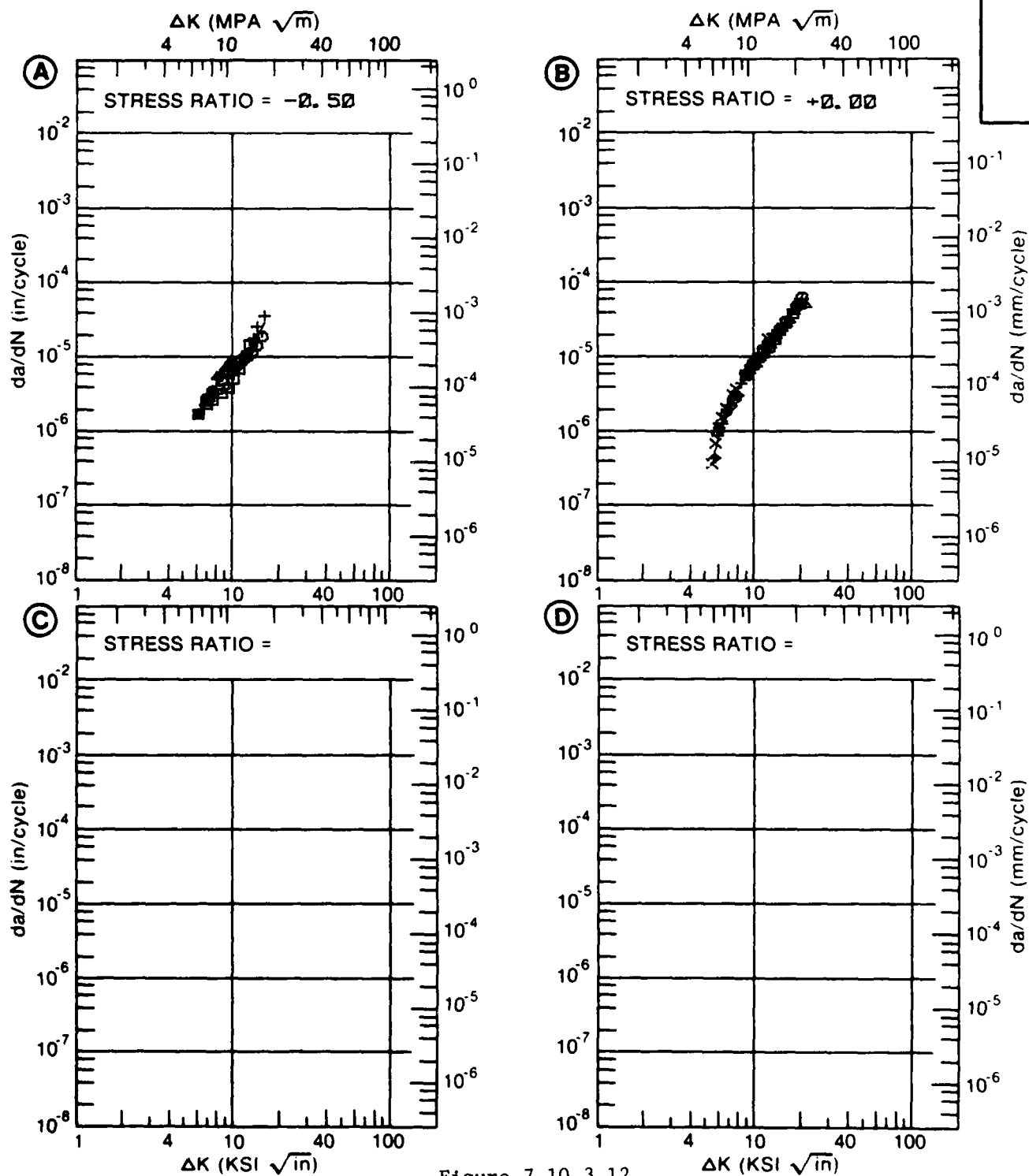


Figure 7.10.3.12

TABLE 7.10.3.13

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.13 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
ENVIRONMENT: R. T. , L. H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**+6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08	R=+0.30		
DELTA K MIN	A: 3.83	.232			
	B: 4.70		.673		
	C:				
	D:				
	4.00	.243			
	5.00	.407	.907		
	6.00	.779	1.84		
	7.00	1.40	3.11		
	8.00	2.25	5.19		
	9.00	3.36	9.20		
DELTA K MAX	10.00	4.77			
	13.00	11.2			
	16.00	22.6			
	A: 16.51	25.2			
	B: 9.78		15.2		
	C:				
	D:				
ROOT MEAN SQUARE		9.44	7.15		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 48.0- 49.6 KSI
 ULT. STRENGTH: 65.9- 66.2 KSI
 SPECIMEN THK: 0.993- 1.000"
 SPECIMEN WIDTH: 6.010- 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

2219

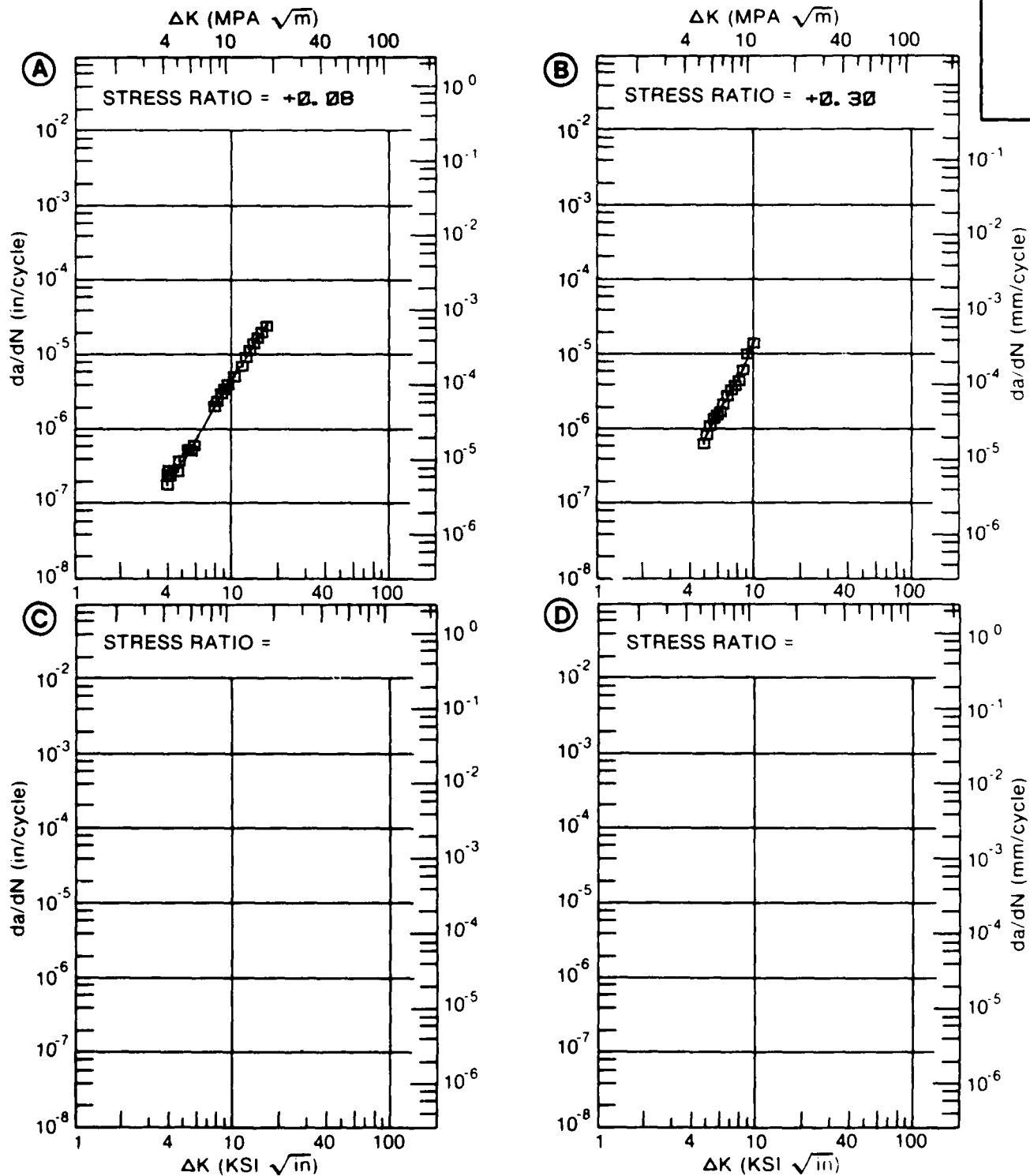


Figure 7.10.3.13

TABLE 7.10.3.14

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.14 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2219
CONDITION: T851
ENVIRONMENT: R. T. , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08			
DELTA K MIN	A:	6.98	1.33		
	B:				
	C:				
	D:				
		7.00	1.35		
		8.00	2.41		
		9.00	3.86		
		10.00	5.74		
		13.00	14.6		
DELTA K MAX	A:	15.01	24.3		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 6.99
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.995"
 SPECIMEN WIDTH: 2.000"
 REFERENCES: 85837

ALUM.
 ALLOY

2219

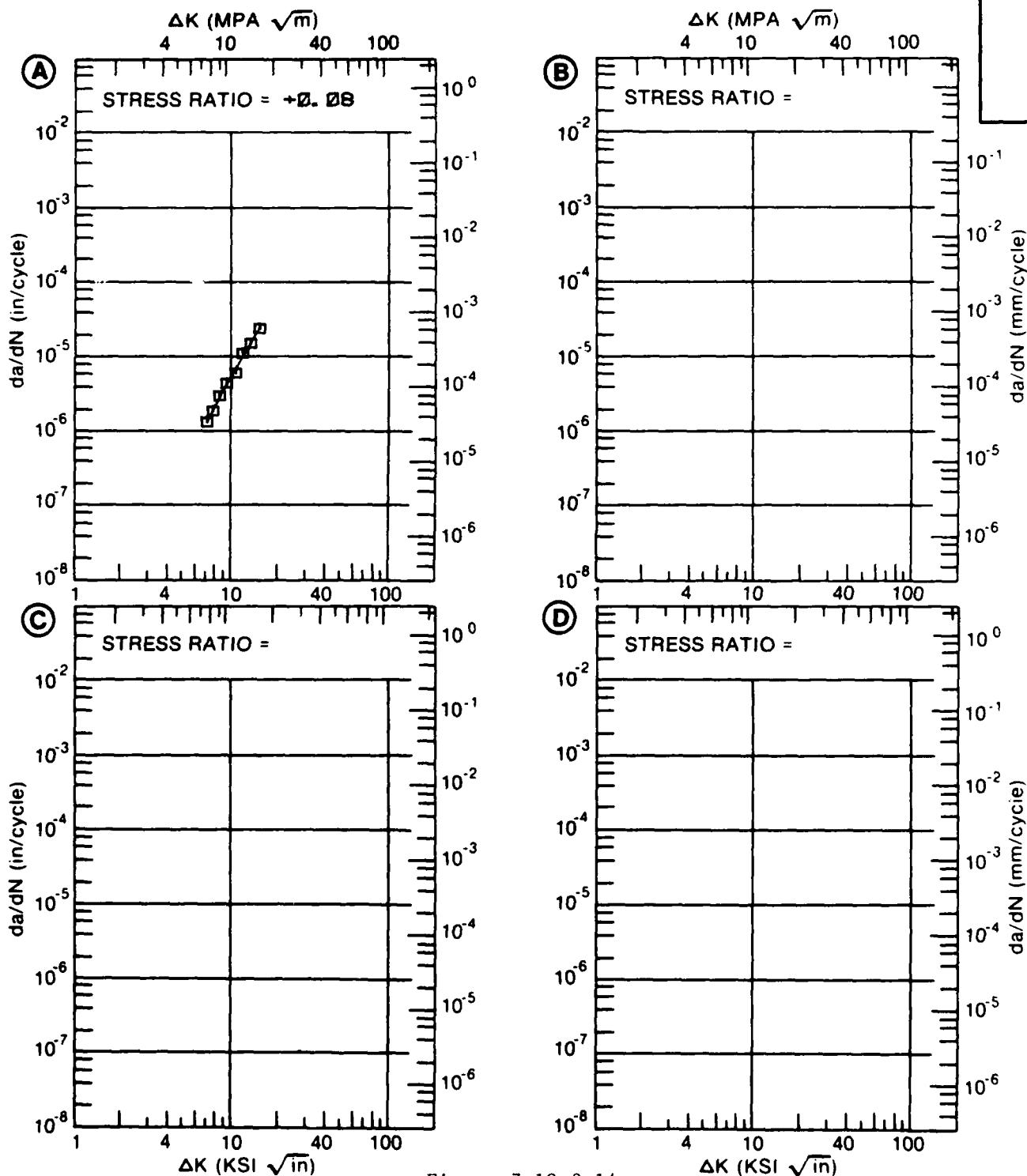


Figure 7.10.3.14

TABLE 7.10.3.15

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.10.3.15 INDICATING EFFECT
OF STRESS RATIO**

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
ENVIRONMENT: R. T. , S. T. W.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.30	R=+0.50		
DELTA K MIN	A:	5.54	.953		
	B:	4.67	.479		
	C:				
	D:				
	5.00		.809		
	6.00	1.33	2.09		
	7.00	2.46	3.88		
	8.00	4.04	6.06		
	9.00	6.10	8.62		
	10.00	8.68	11.6		
	13.00	19.7	25.1		
	16.00	35.7	53.6		
	20.00	65.6			
DELTA K MAX	A:	21.28	77.3		
	B:	16.41	59.7		
	C:				
	D:				
ROOT MEAN SQUARE		5.63	17.56		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25		1		
SUMMARY	1.25-2.0	1			
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T., S. T. W.

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.990- 1.000"
 SPECIMEN WIDTH: 6.000- 6.010"
 REFERENCES: 98579

ALUM.
 ALLOY

2219

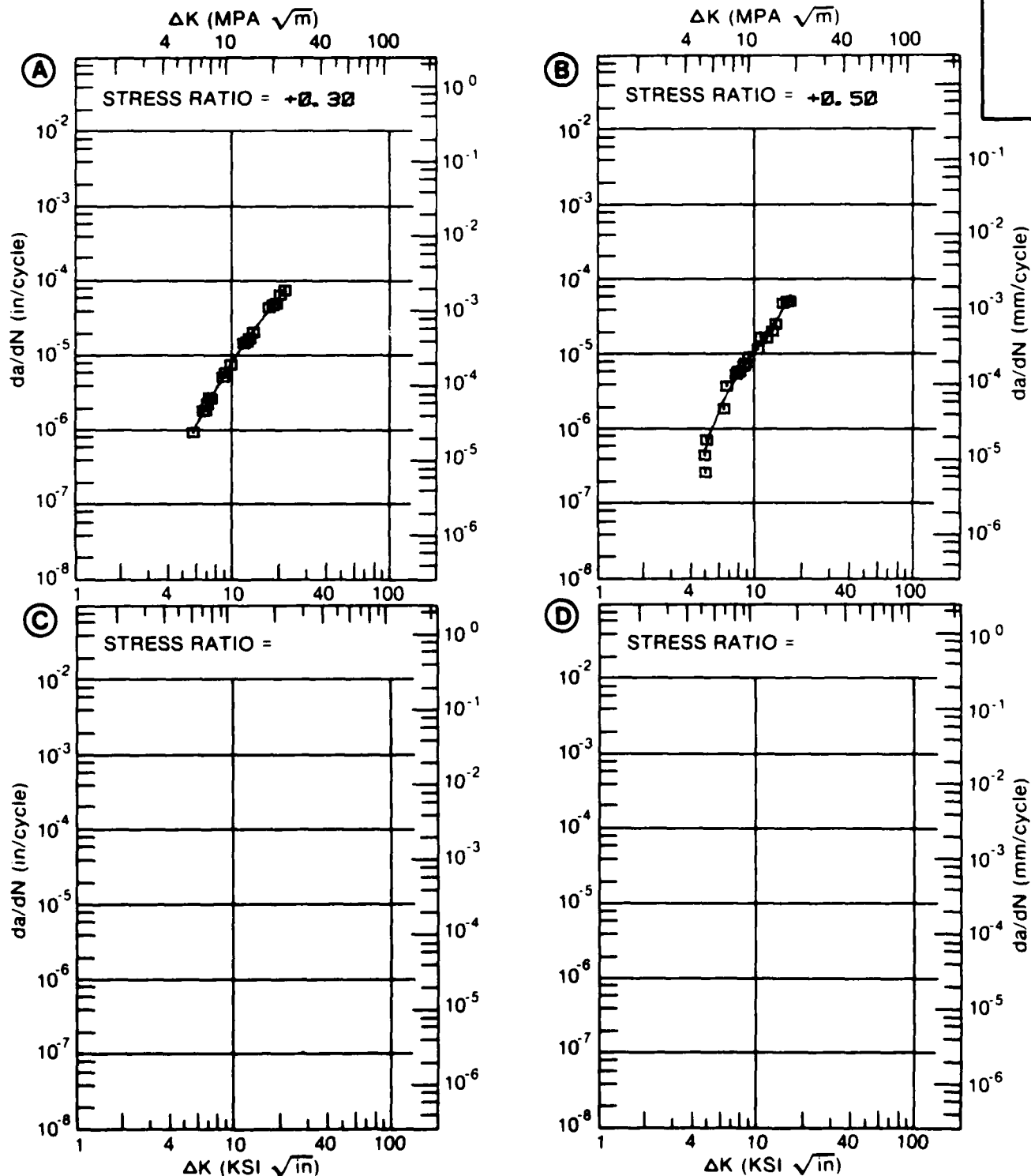


Figure 7.10.3.15

TABLE 7.10.3.16

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.10.3.16 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
DELTA K		DA/DN (10**-6 IN./CYCLE)			
(KSI*IN**1/2)					
		A	B	C	D
		E= R. T.			
		L. H. A.			
DELTA K	A:	6.84	.622		
	B:				
	C:				
	D:				
		7.00	.708		
		8.00	1.40		
		9.00	2.34		
		10.00	3.52		
		13.00	8.20		
		16.00	14.5		
		20.00	26.5		
		25.00	51.9		
		30.00	100.		
		35.00	197.		
		40.00	393.		
DELTA K	A:	48.41	1306.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		11.38			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 6.00 HZ

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.250- 0.500"
 SPECIMEN WIDTH: 5.990- 6.000"
 REFERENCES: 8579

ALUM.
 ALLOY

2219

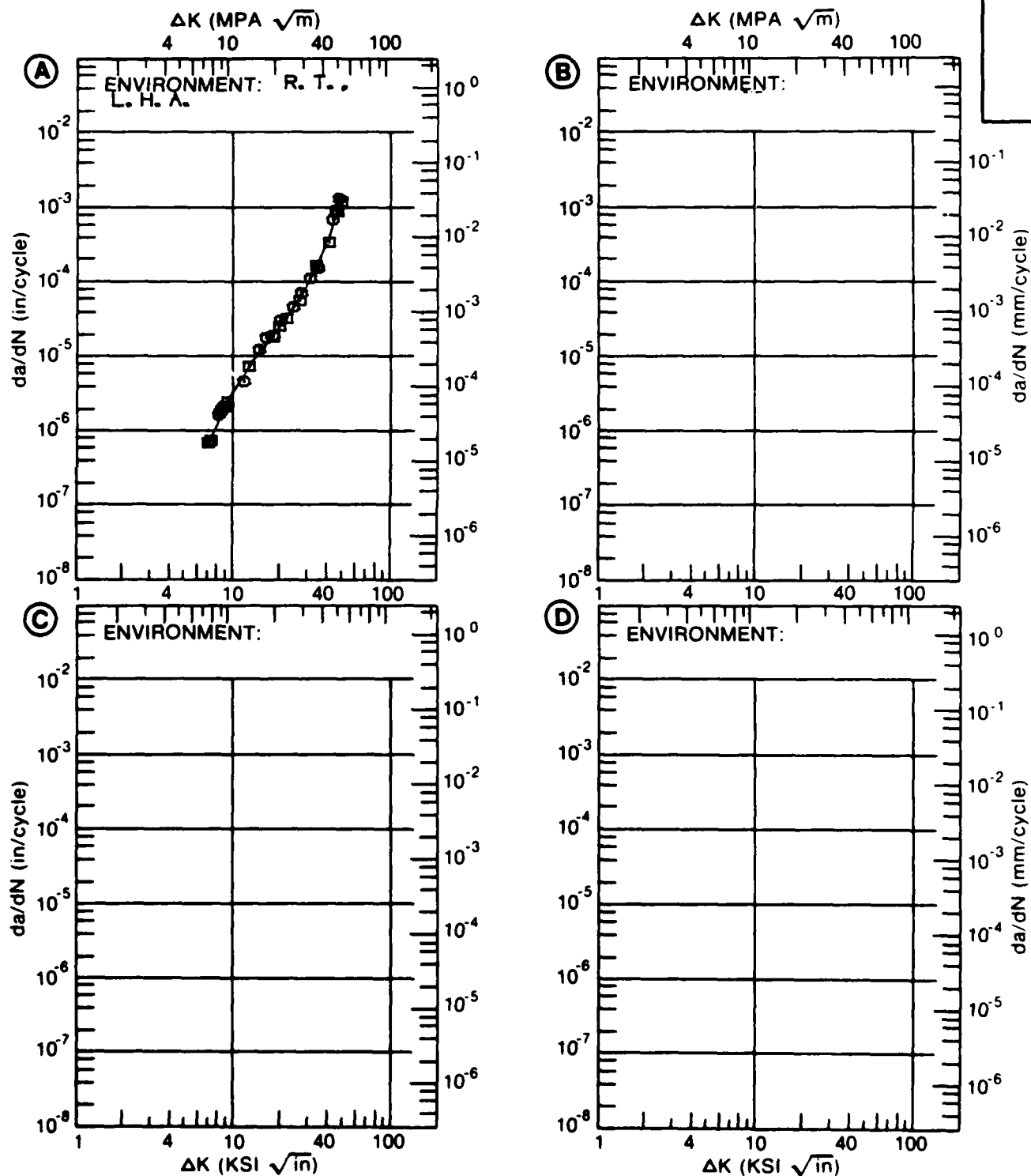


Figure 7.10.3.16

TABLE 7.10.3.17

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.17 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 2219
CONDITION: T851

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E=+ 265F			
		: L. H. A.			
DELTA K MIN	A:	6.74	2.06		
	B:				
	C:				
	D:				
	7.00	2.39			
	8.00	3.94			
	9.00	5.88			
	10.00	8.22			
	13.00	17.7			
	16.00	31.4			
DELTA K MAX	20.00	59.4			
	25.00	120.			
	A:	27.51	167.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 6.40
PERCENT ERRORLIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 6.00 HZ

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 86.0 KSI
 SPECIMEN THK: 0.990"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 88579

ALUM.
 ALLOY

2219

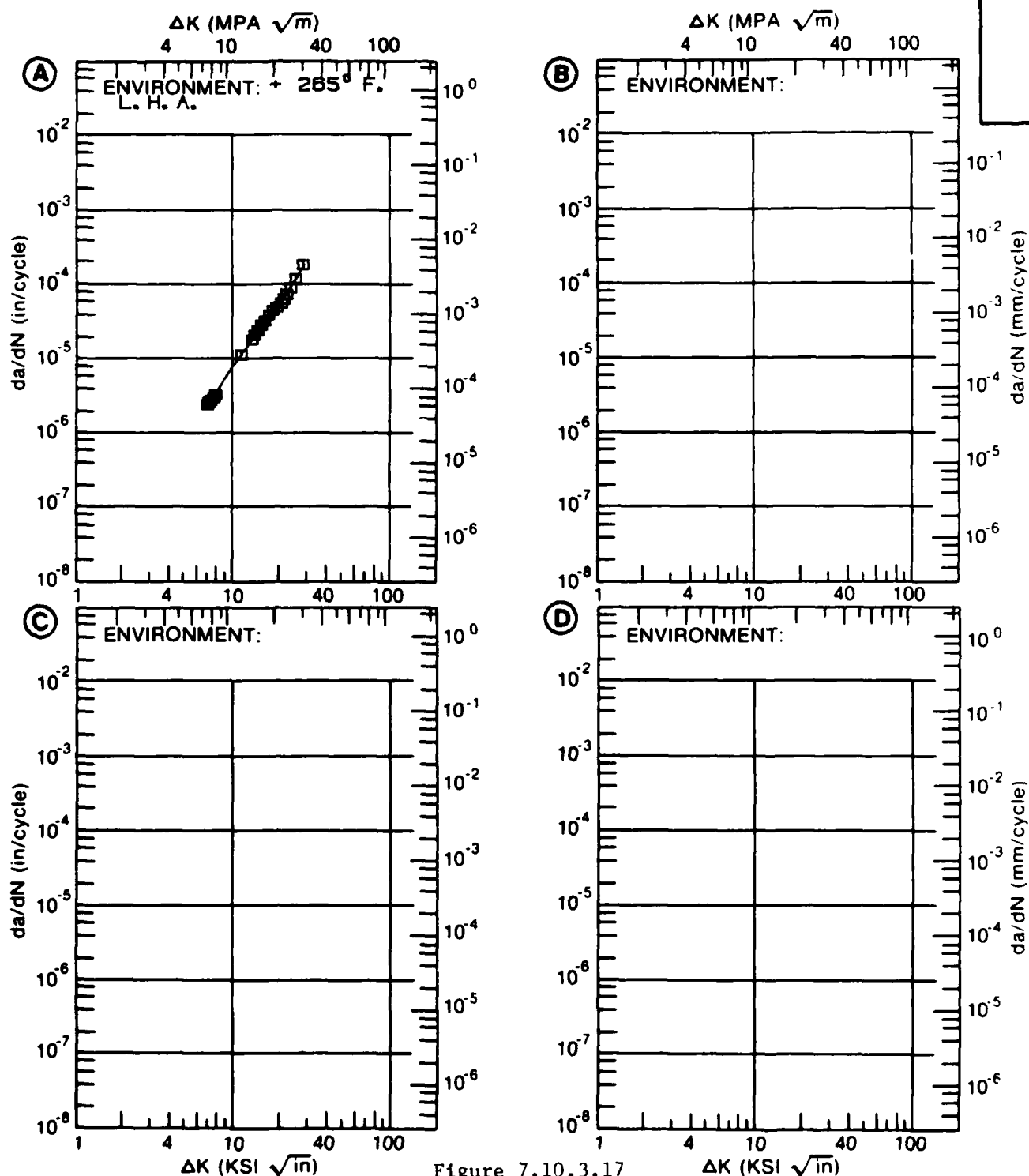


Figure 7.10.3.17

TABLE 7.10.3.18

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.10.3.18 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM 2219
CONDITION: T851

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. S. T. W.	E=+ 150F S. T. W.	
DELTA K MIN	A: 6.23	1.37			
	B: 4.99		.599		
	C: 6.17			2.57	
	D:				
	5.00		.605		
	6.00		1.41		
	7.00	2.57	2.52	3.76	
	8.00	4.43	4.08	6.90	
	9.00	6.40		11.5	
	10.00	8.48		15.3	
	13.00	17.7		18.8	
DELTA K MAX	A: 15.42	35.6			
	B: 8.98		6.46		
	C: 14.97			32.2	
	D:				
ROOT MEAN SQUARE		11.91	7.75	12.49	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 1.00 HZ

YIELD STRENGTH: 49.6 KSI
 ULT. STRENGTH: 66.2 KSI
 SPECIMEN THK: 0.992- 0.998"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

2219

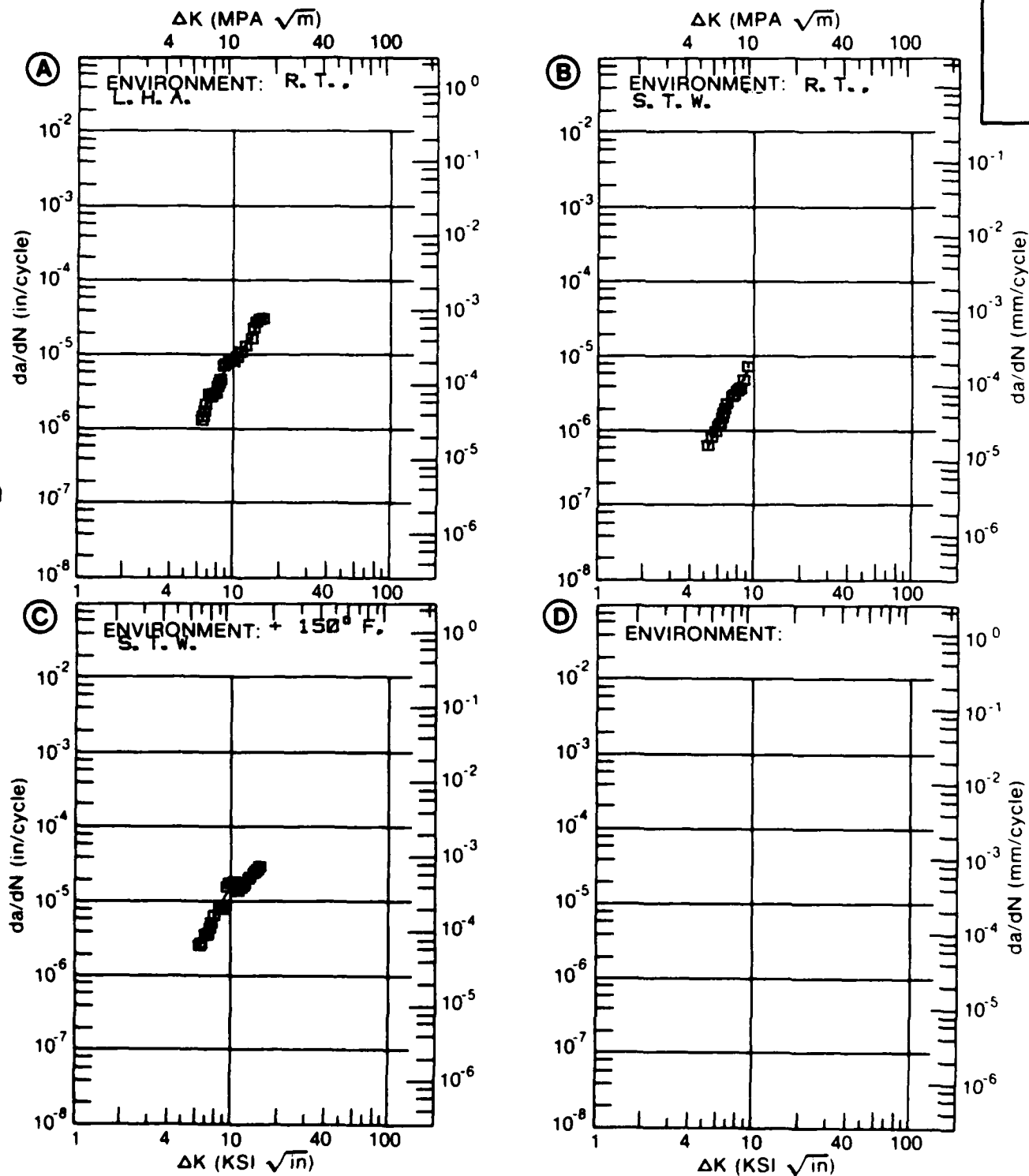


Figure 7.10.3.18

7.10-63

TABLE 7.10.3.19

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.19 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.	E= R. T.		
		F. C. S.	S. C. S.		
DELTA K	A: 6.31	1.68			
MIN	B: 6.13		1.62		
	C:				
	D:				
	7.00	2.43	2.48		
	8.00	3.76	3.77		
	9.00	5.37	5.41		
	10.00	7.26	7.42		
	13.00	14.8	15.9		
	16.00	26.1	28.4		
	20.00	50.0			
	25.00	104.			
	30.00	210.			
DELTA K	A: 33.42	334.			
MAX	B: 18.70		43.5		
	C:				
	D:				
ROOT MEAN SQUARE		12.94	4.49		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 1.00 HZ

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.990"
 SPECIMEN WIDTH: 6.010"
 REFERENCES: 88579

ALUM.
 ALLOY

2219

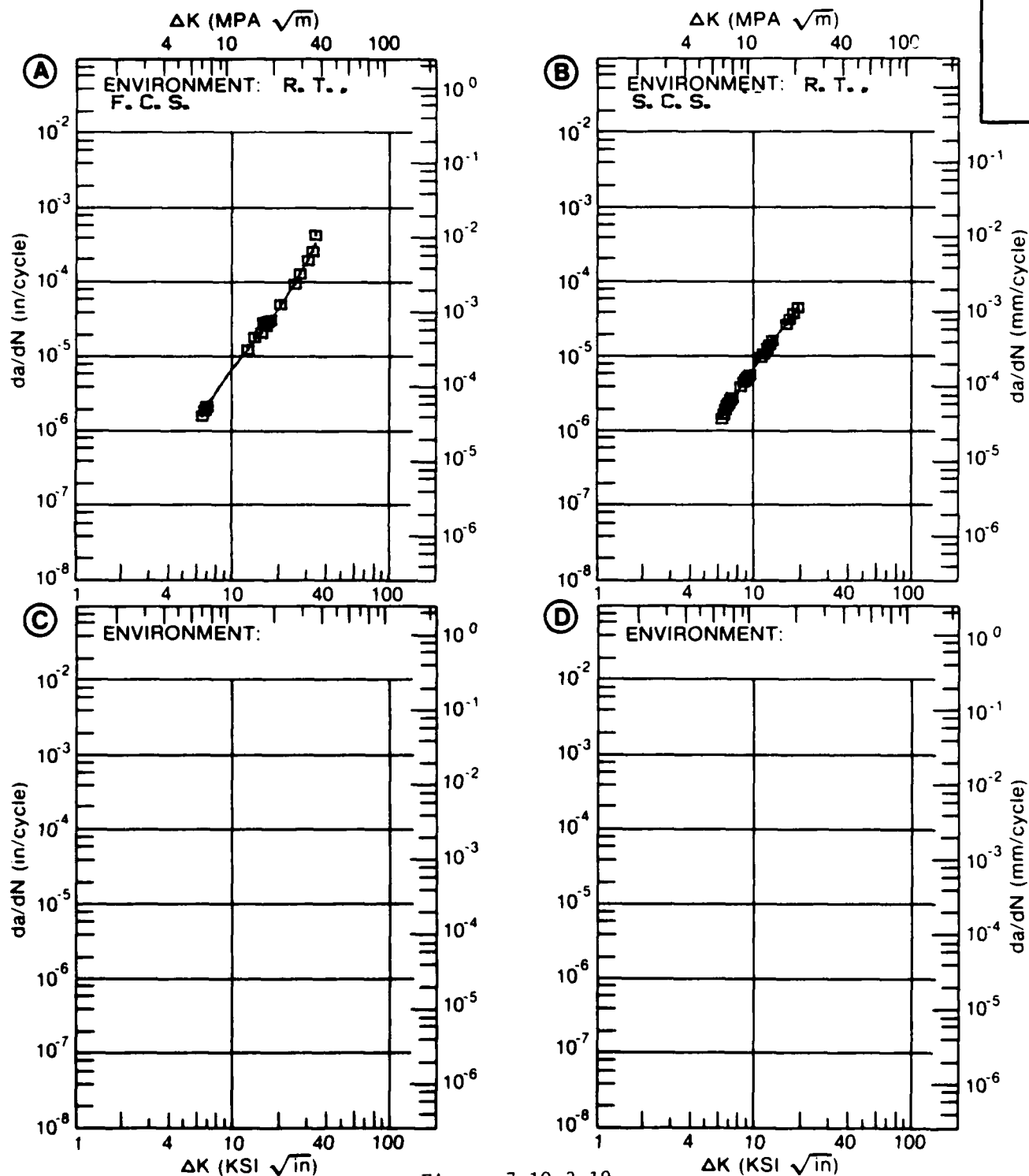


Figure 7.10.3.19

TABLE 7.10.3.20

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.20 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 2219
CONDITION: TB51

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. S. T. W.		
DELTA K MIN	A: 6.98	1.58			
	B: 13.00		11.8		
	C:				
	D:				
	7.00	1.60			
	8.00	3.03			
	9.00	4.89			
	10.00	7.10			
	13.00	15.5	11.8		
	16.00	26.9	22.9		
	20.00		55.6		
	25.00		115.		
	30.00		245.		
DELTA K MAX	A: 18.26	38.9			
	B: 30.86		300.		
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		6.74	8.86		

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

1

1

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 0.10 HZ

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.994- 1.000"
 SPECIMEN WIDTH: 6.000- 6.010"
 REFERENCES: 98579

ALUM.
 ALLOY

2219

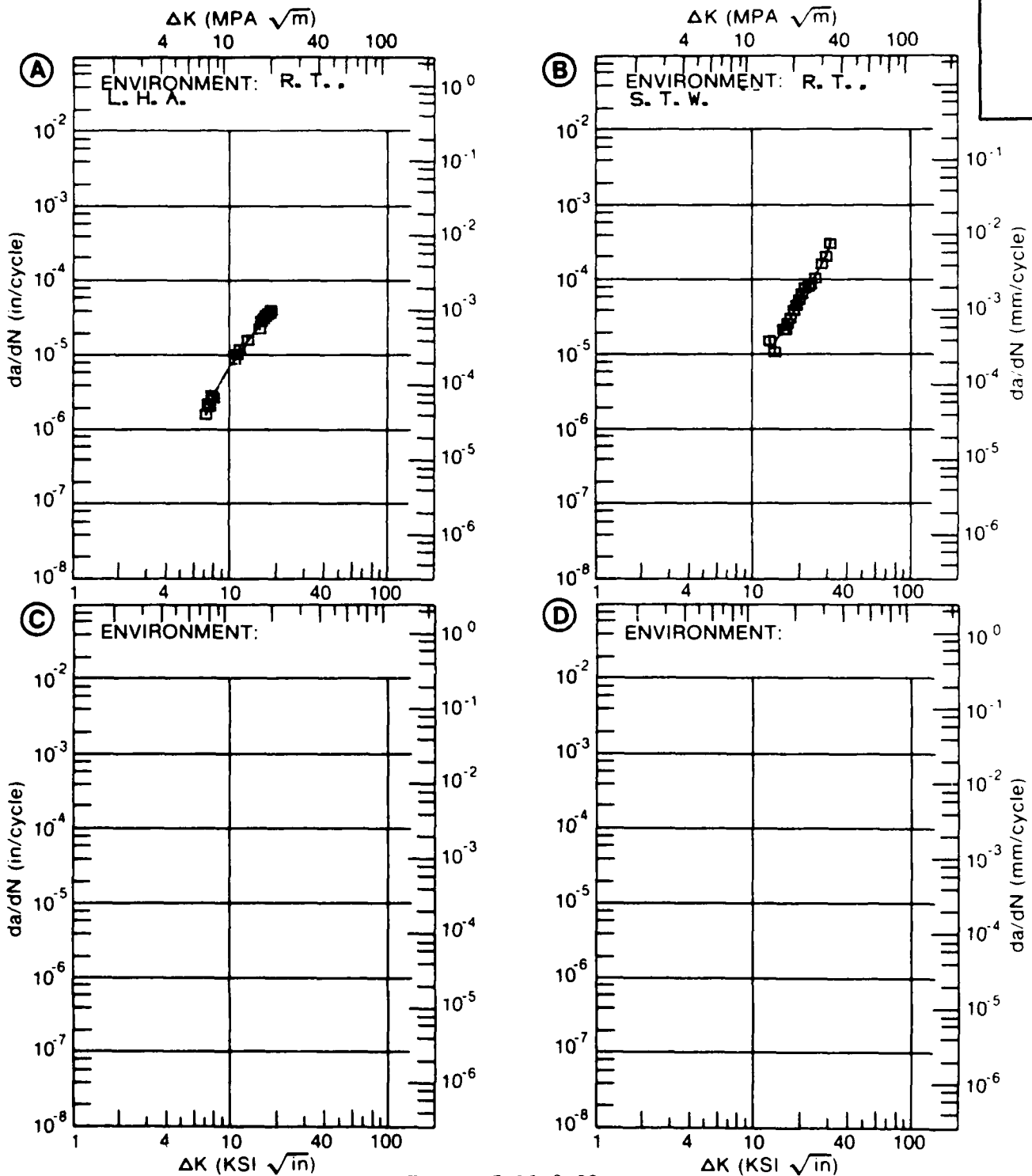


Figure 7.10.3.20

TABLE 7.10.3.21

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.21 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 2219
CONDITION: T851

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.			
DELTA K MIN	A: 3.09	.223			
	B:				
	C:				
	D:				
	3.50	.256			
	4.00	.344			
	5.00	.723			
	6.00	1.49			
	7.00	2.76			
	8.00	4.49			
DELTA K MAX	9.00	6.41			
	10.00	8.15			
	A: 10.70	9.05			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 13.61
PERCENT ERRORLIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.50
 FREQUENCY: 6.00 HZ

YIELD STRENGTH: 49.6 KSI
 ULT. STRENGTH: 66.2 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 85837

ALUM.
 ALLOY

2219

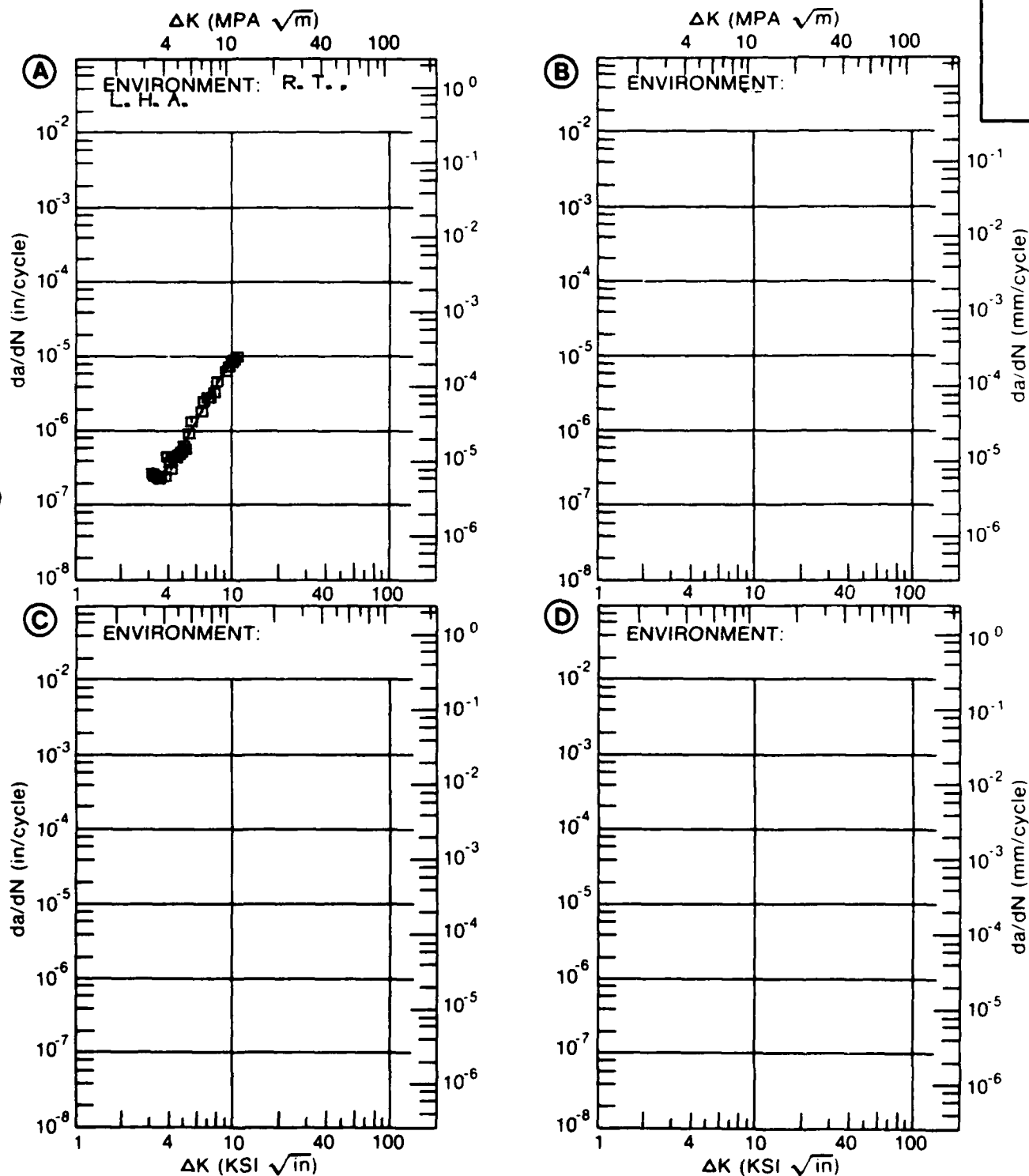


Figure 7.10-3.21
 7.10-69

TABLE 7.10.3.22

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.22 INDICATING EFFECT
OF FREQUENCY

MATERIAL: ALUMINUM 2219
 CONDITION: T851
 ENVIRONMENT: R. T. , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**~6 IN. /CYCLE)			
		A	B	C	D
		F(HZ)= 63.30			
DELTA K MIN	A: 3.34	.0853			
	B:				
	C:				
	D:				
	3.50	.0823			
	4.00	.119			
	5.00	.282			
	6.00	.600			
	7.00	1.17			
	8.00	2.08			
	9.00	3.30			
	10.00	4.67			
DELTA K MAX	A: 11.59	6.57			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 19.22
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 1
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 49.6 KSI
 ULT. STRENGTH: 66.2 KSI
 SPECIMEN THK: 0.993"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

2219

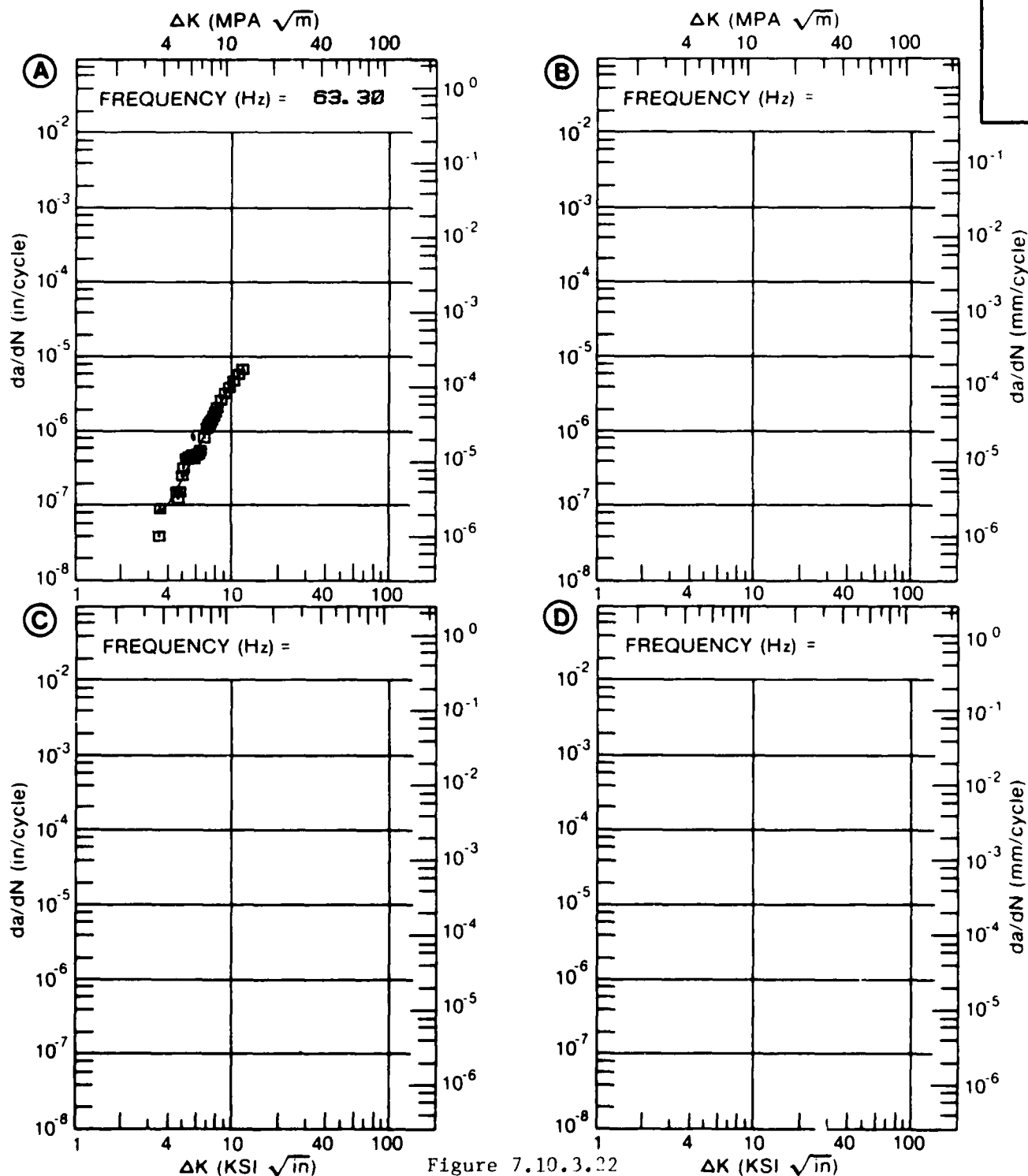


Figure 7.10.3.22

TABLE 7.10.3.23

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.23 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM
CONDITION: T851

2219

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

E= R. T.

E=+ 265F

E= R. T.

L. H. A., 6HZ

L. H. A., 6HZ

S. T. W., 1HZ

DELTA K	A:	7.12	1.40		
MIN	B:	6.69	1.96		
	C:	4.01		.246	
	D:				
		5.00		1.02	
		6.00		2.42	
		7.00	2.36	4.24	
		8.00	3.90	6.28	
		9.00	5.88	8.46	
		10.00	8.32	10.8	
		13.00	19.2	19.8	
		16.00	38.2	35.2	
		20.00	88.6	81.5	
		25.00	244.	268.	
		30.00	616.		
DELTA K	A:	32.50	1536.		
MAX	B:	25.72	282.		
	C:	29.24		815.	
	D:				

ROOT MEAN SQUARE
PERCENT ERROR

11.01

9.22

23.95

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

1

1

1

CONDITION/HT: T851
 FORM: 1.75" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY:

YIELD STRENGTH: 48.0 KSI
 ULT. STRENGTH: 85.9- 88.0 KSI
 SPECIMEN THK: 0.995- 1.000"
 SPECIMEN WIDTH: 8.000- 8.010"
 REFERENCES: 88579, 88587

ALUM.
 ALLOY

2219

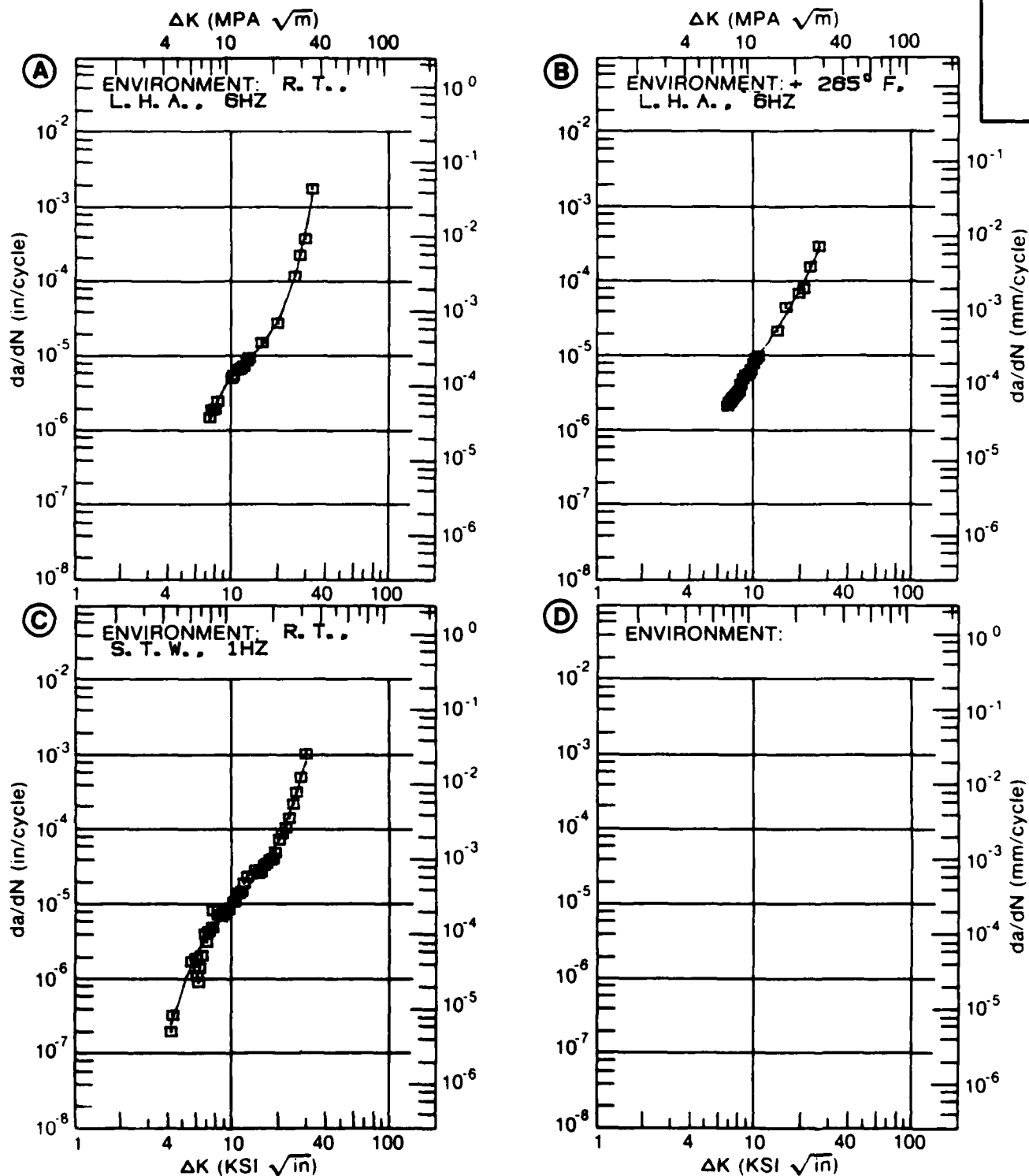


Figure 7.10.3.23

TABLE 7.10.3.24

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.24 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T.	E= R. T.		
		L. H. A.	S. T. W.		
DELTA K MIN	A:	5.95	1.30		
	B:	6.48		1.21	
	C:				
	D:				
		6.00	1.35		
		7.00	2.51	2.02	
		8.00	3.98	4.25	
		9.00	5.72	7.20	
		10.00	7.74	10.6	
		13.00	15.8	22.1	
		16.00	28.5	35.1	
		20.00	60.3	59.5	
DELTA K MAX		25.00	155.	119.	
		30.00	411.		
	A:	32.68	700.		
	B:	27.75		183.	
	C:				
	D:				
ROOT MEAN SQUARE		32.94	13.81		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8	1			
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 6.00 HZ

YIELD STRENGTH: 49.6- 50.0 KSI
 ULT. STRENGTH: 86.2- 88.0 KSI
 SPECIMEN THK: 0.993- 1.000"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 88579, 85837

ALUM.
 ALLOY

2219

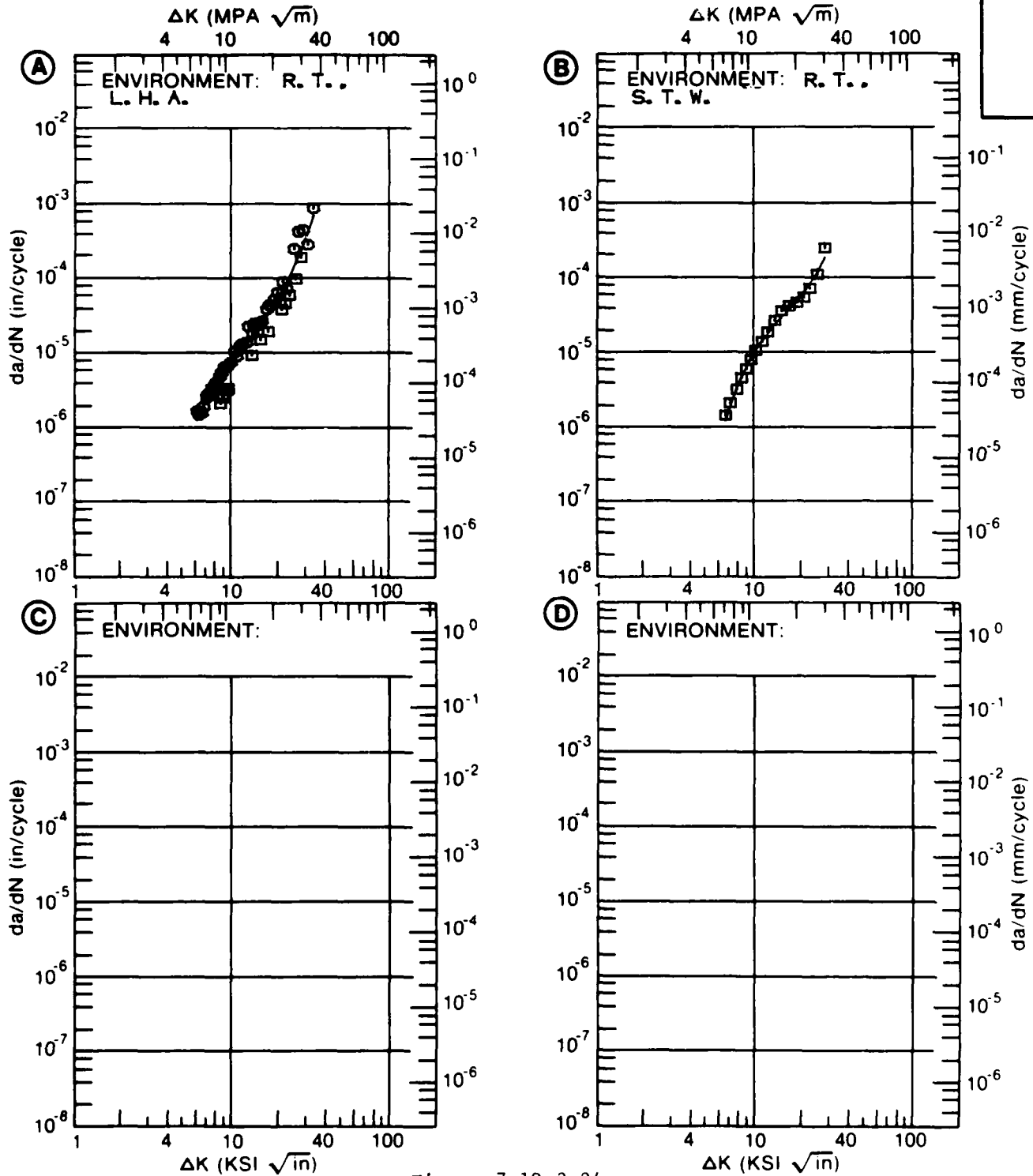


Figure 7.10.3.24

TABLE 7.10.3.25

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.25 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2219	
CONDITION: T851			
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)	
		A	B
		E= R. T. L. H. A.	E= R. T. DIST. H2O
DELTA K MIN	A: 5.66	.982	
	B: 6.07		1.39
	C:		
	D:		
	6.00	1.19	
	7.00	2.03	2.51
	8.00	3.35	4.06
	9.00	5.18	5.93
	10.00	7.60	8.09
	13.00	18.0	16.4
	16.00	30.8	28.6
	20.00	54.0	55.7
	25.00	125.	124.
	30.00	347.	304.
	35.00	1218.	1118.
DELTA K MAX	A: 35.37	1401.	
	B: 36.90		2114.
	C:		
	D:		
ROOT MEAN SQUARE		16.22	10.10
PERCENT ERROR			
LIFE	0.0-0.5		
PREDICTION	0.5-0.8		
RATIO	0.8-1.25	1	2
SUMMARY	1.25-2.0		
(NP/NA)	>2.0		

CONDITION/HT: T851
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY: 1.00 HZ

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 68.0 KSI
 SPECIMEN THK: 0.990"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 88579

ALUM.
 ALLOY

2219

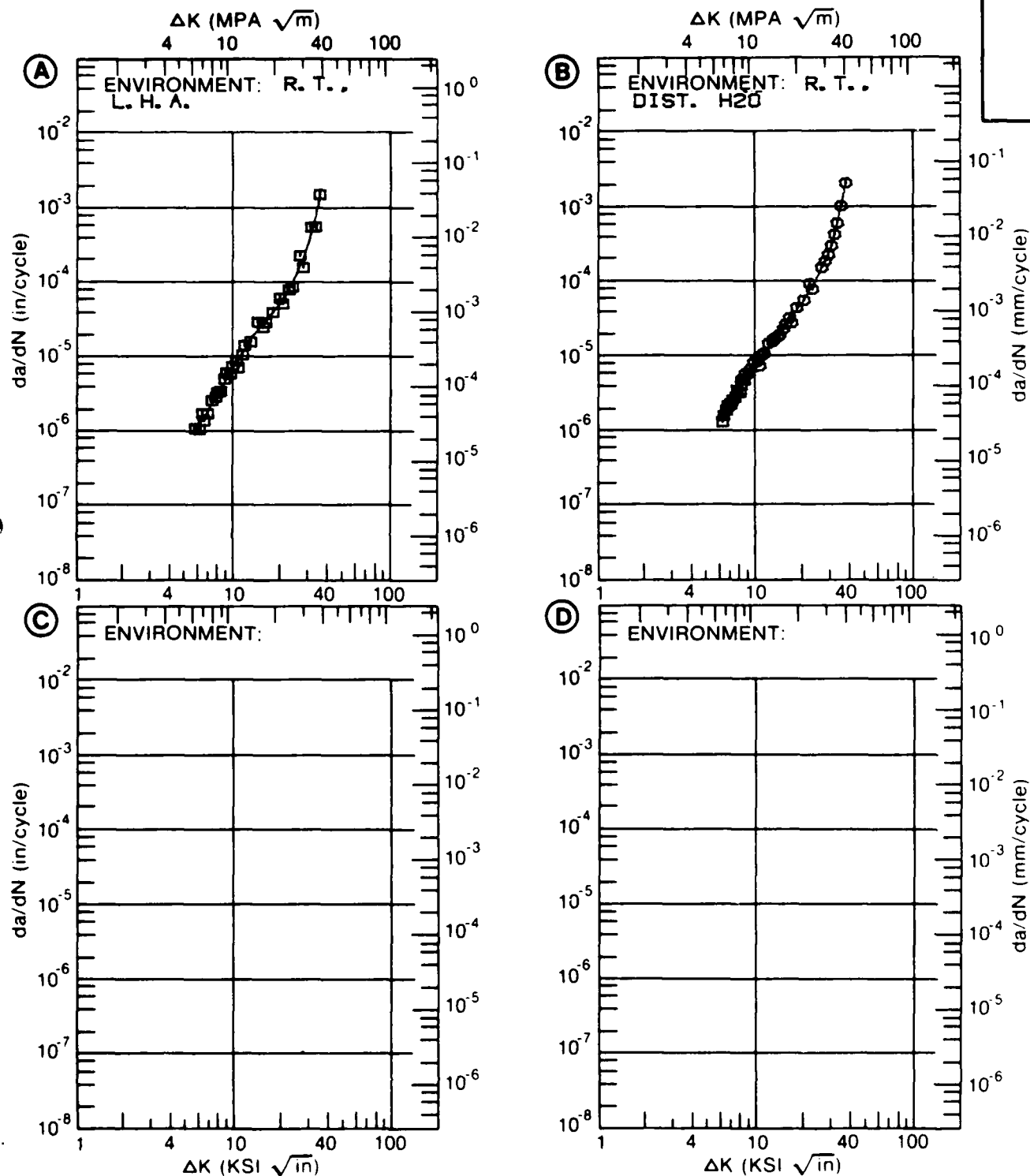


Figure 7.10.3.25

TABLE 7.10.3.26

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.26 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2219
CONDITION: T851

DELTA K (KSI*IN**1/2)	DA/DN (10**-6 IN./CYCLE)			
	A	B	C	D
	E= R. T. L. H. A.			
DELTA K A: 5.67	1.43			
MIN B:				
C:				
D:				
6.00	1.76			
7.00	2.97			
8.00	4.50			
9.00	6.39			
10.00	8.71			
13.00	19.3			
16.00	39.6			
20.00	100.			
25.00	317.			
DELTA K A: 29.91	989.			
MIN B:				
C:				
D:				

ROOT MEAN SQUARE 32.37
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY: 6.00 HZ

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 88.0 KSI
 SPECIMEN THK: 0.990"
 SPECIMEN WIDTH: 5.990"
 REFERENCES: 88579

ALUM.
 ALLOY

2219

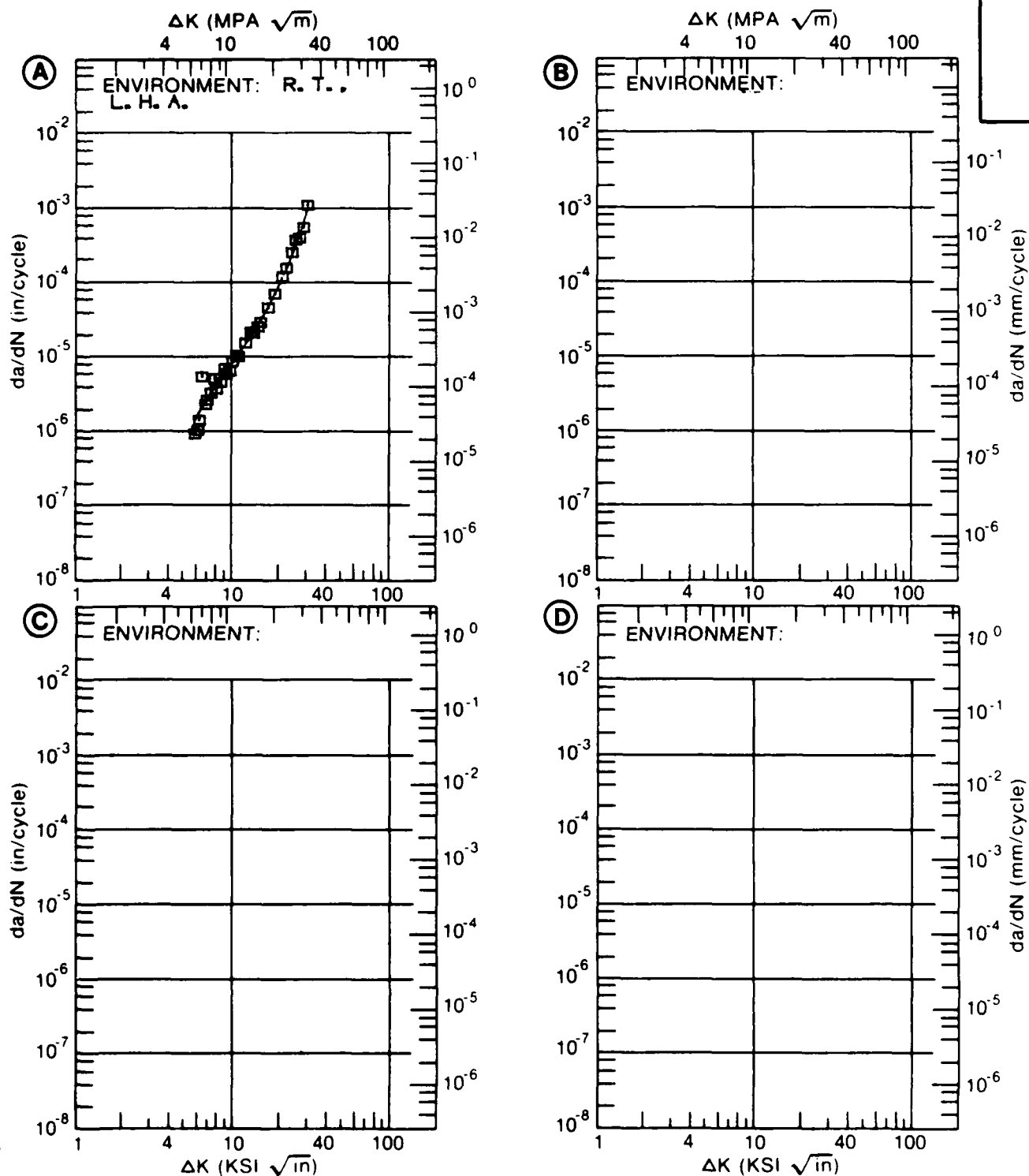


Figure 7.10.3.26

TABLE 7.10.3.27

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.10.3.27 INDICATING EFFECT

OF ENVIRONMENT

**MATERIAL: ALUMINUM
CONDITION: T851**

2219

**DELTA K
(KSI*IN**1/2)**

DA/DN (10-6 IN./CYCLE)**

A

B

C

D

E= R. T.

E= R. T.

**L. H. A.
6HZ**

**S. T. W.
1HZ**

**DELTA K A: 6.28 :
MIN B: 8.43 :
C: :
D: :**

1.31

3.46

7.00 :

1.65

8.00 :

2.25

9.00 :

3.01

4.60

10.00 :

3.95

7.14

13.00 :

7.96

17.6

16.00 :

13.8

30.1

20.00 :

24.4

64.0

25.00 :

67.4

206.

**DELTA K A: 28.98 :
MAX B: 28.46 :
C: :
D: :**

267.

386.

**ROOT MEAN SQUARE
PERCENT ERROR**

32.80

14.62

**LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0**

2

1

CONDITION/HT: T851
 FORM: 3.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY:

YIELD STRENGTH: 53.0- 54.0 KSI
 ULT. STRENGTH: 67.0- 69.0 KSI
 SPECIMEN THK: 0.990- 1.000"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 88579

ALUM.
 ALLOY

2219

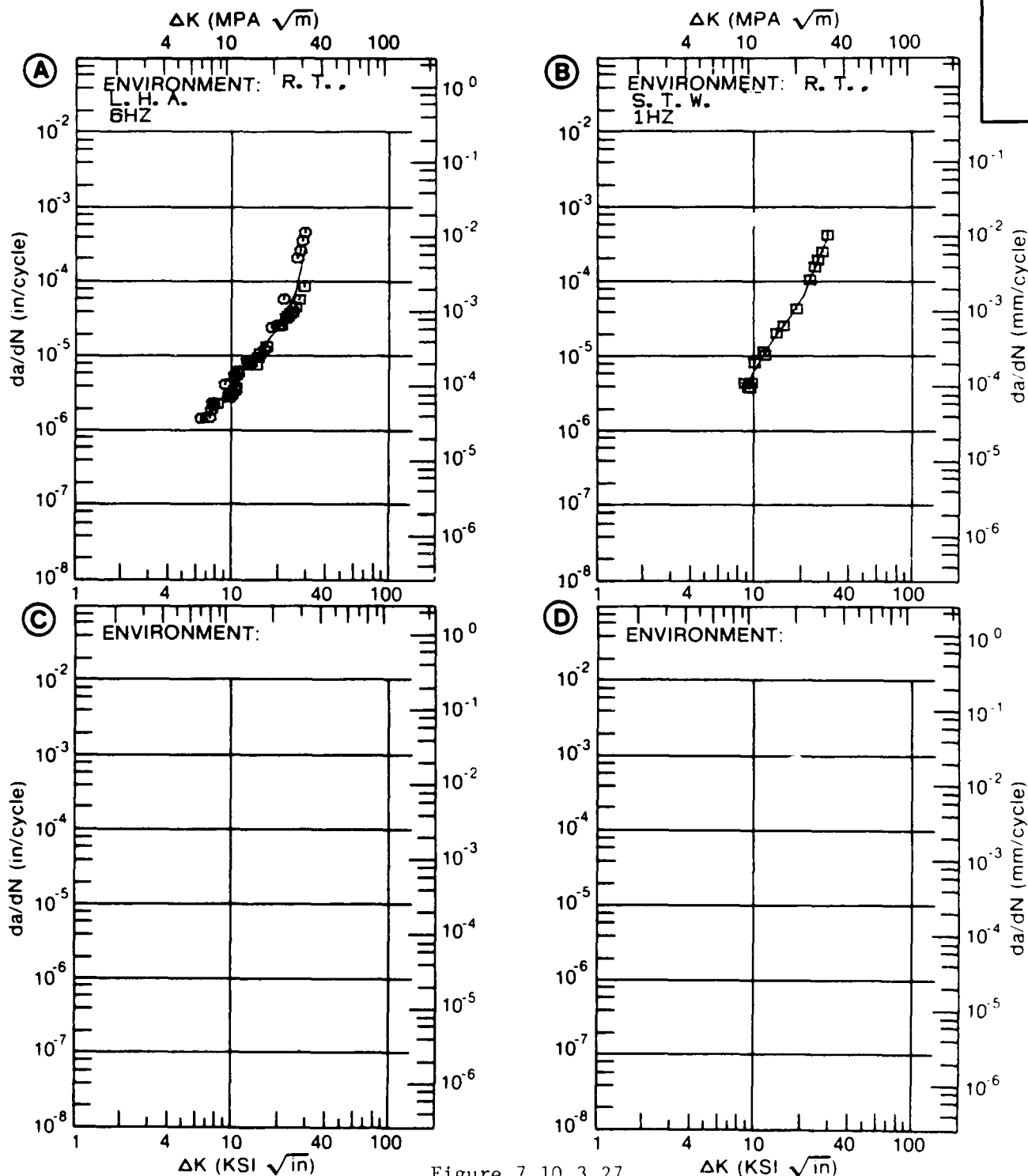


Figure 7.10.3.27

TABLE 7.10.3.28

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.28 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2219
CONDITION: T851
ENVIRONMENT: R. T. , S. T. W.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08			
DELTA K MIN	A: 10.27	13.7			
	B:				
	C:				
	D:				
13.00		22.3			
DELTA K MAX	A: 15.94	45.7			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 8.57
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T851
 FORM: 3.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T. . S. T. W.

YIELD STRENGTH: 53.0 KSI
 ULT. STRENGTH: 68.0 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 98579

ALUM.
 ALLOY

2219

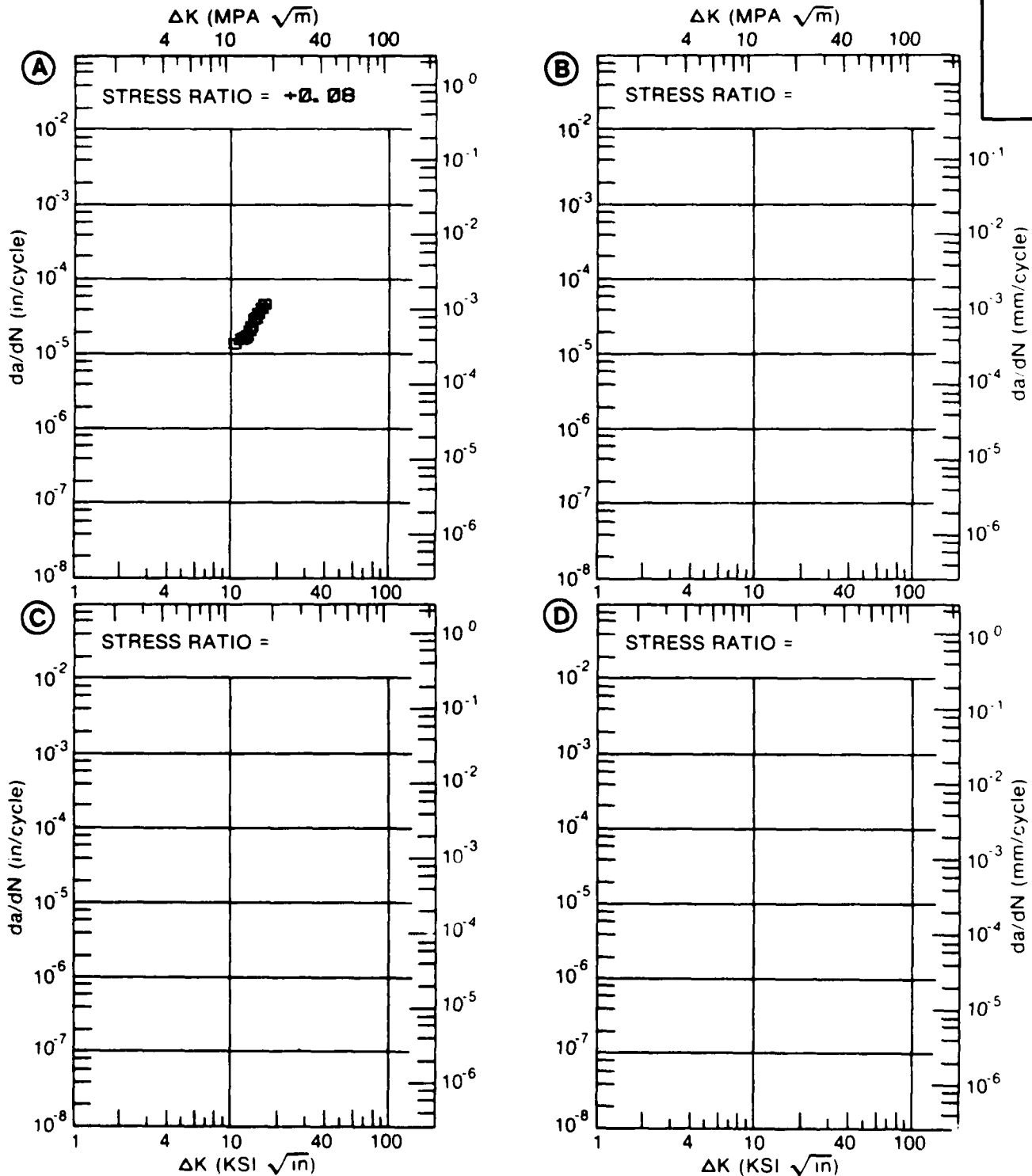


Figure 7.10.3.28

TABLE 7.10.3.29

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.29 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 2219
 CONDITION: T8511
 ENVIRONMENT: R. T. , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08	R=+0.30		
DELTA K A:	4.70	.155			
MIN B:	5.64		.629		
C:					
D:					
	5.00	.234			
	6.00	.415	.747		
	7.00	.622	1.30		
	8.00	.908	2.32		
	9.00	1.36	3.99		
	10.00	2.12	6.44		
	13.00	9.11	17.6		
	16.00	22.1	26.5		
DELTA K A:	18.71	23.1			
MAX B:	17.17		27.2		
C:					
D:					

ROOT MEAN SQUARE 15.28 9.31
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

1

1

CONDITION/HT: T8511
 FORM: 1.75" TH EXTRUDED BAR
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 51.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.992-0.993"
 SPECIMEN WIDTH: 6.000"
 REFERENCES 85837

ALUM.
 ALLOY

2219

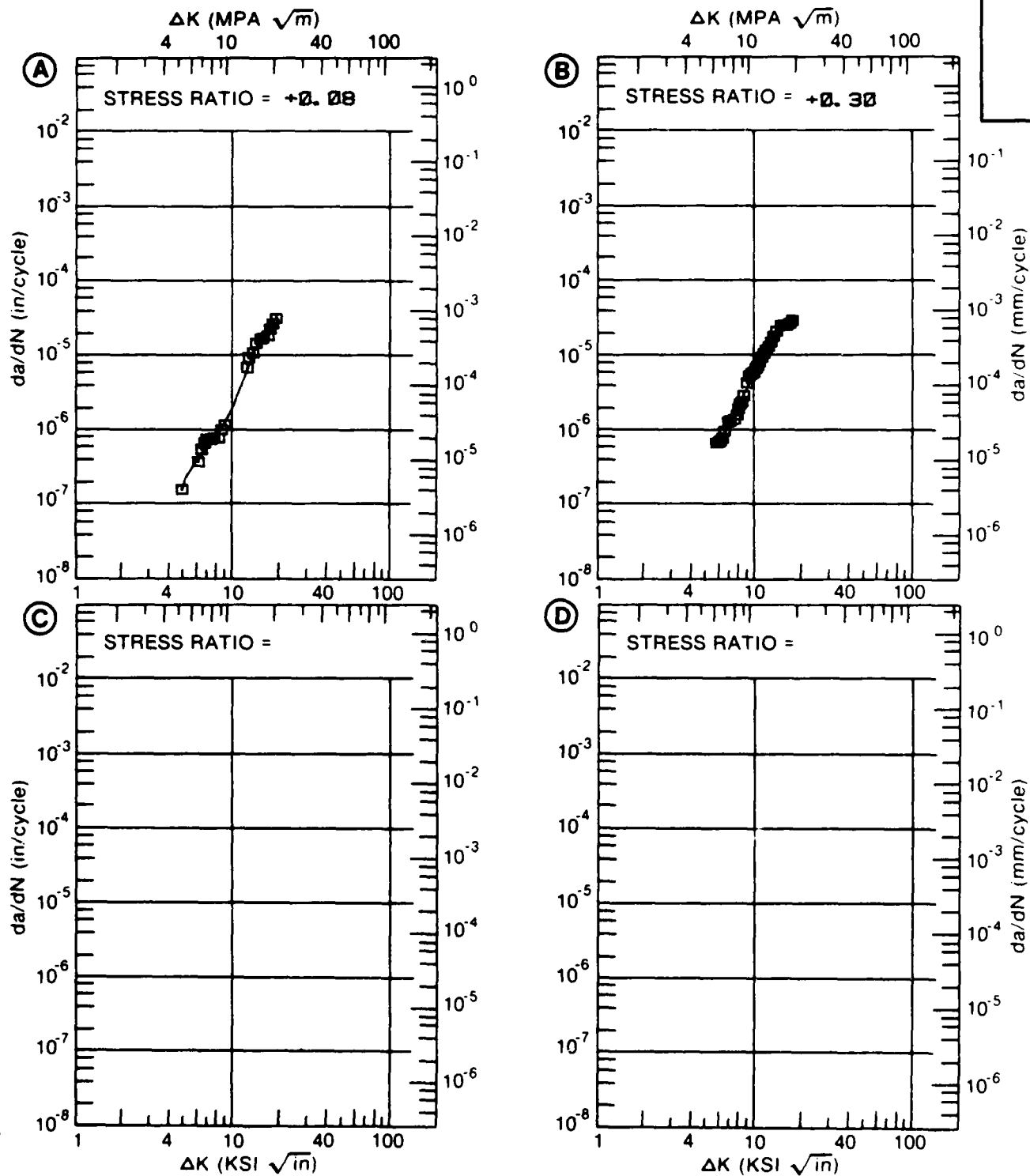


Figure 7.10.3.29

TABLE 7.10.3.30

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.30 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2219
 CONDITION: T8511
 ENVIRONMENT: R. T. , S. T. W.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08			
DELTA K MIN	A:	7.84	2.76		
	B:				
	C:				
	D:				
		8.00	2.98		
		9.00	4.78		
		10.00	7.39		
		13.00	19.8		
DELTA K MAX	A:	14.17	25.4		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 12.05
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 1
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T8511
 FORM: 1.75" TH EXTRUDED BAR
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 1.00 HZ
 ENVIRONMENT: R. T. . S. T. W.

YIELD STRENGTH: 51.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.992"
 SPECIMEN WIDTH: 6.000"
 REFERENCES 85837

ALUM.
 ALLOY

2219

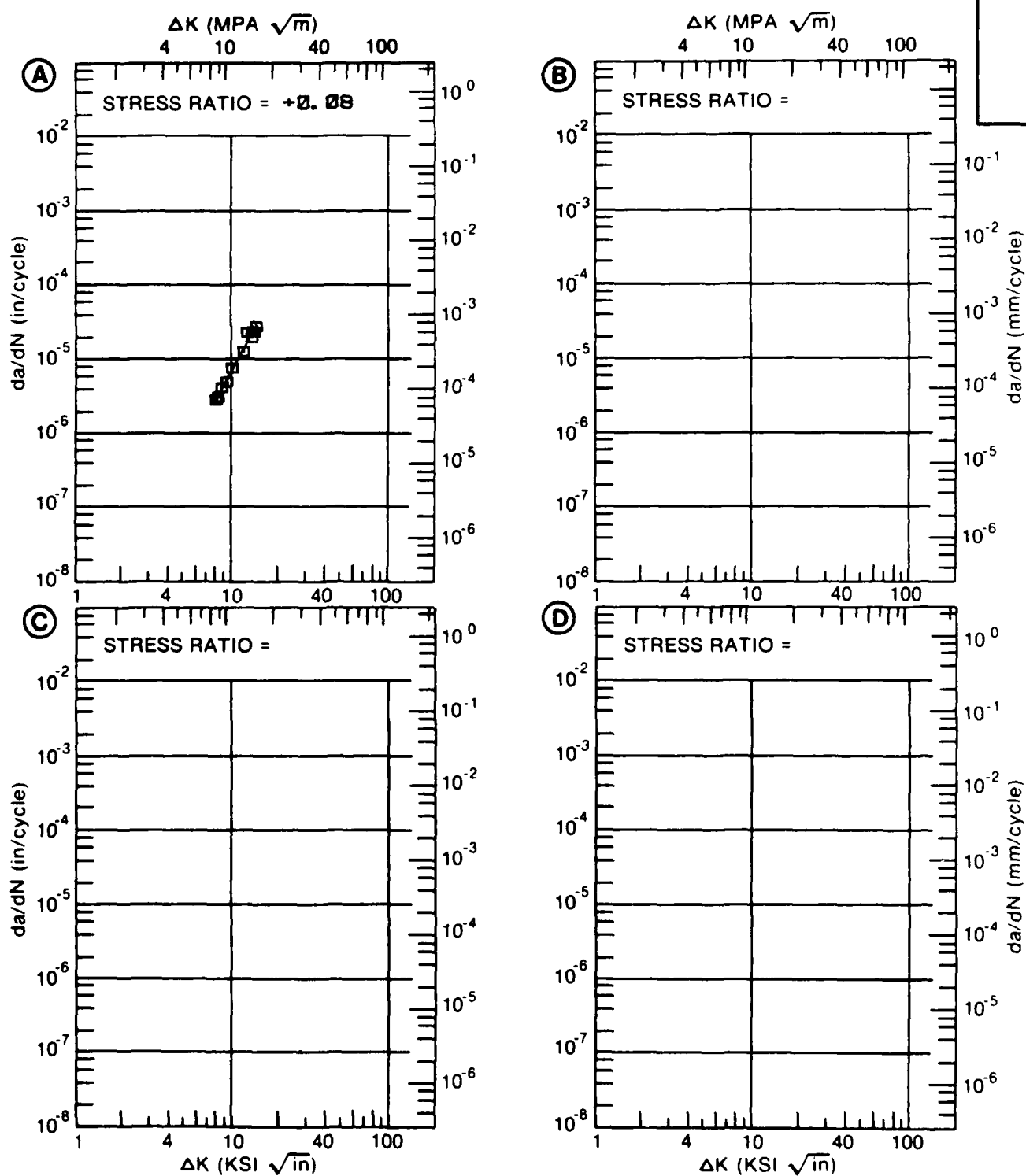


Figure 7.10.3.30

TABLE 7.10.3.31

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.31 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T8511					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.	E= R. T.		
		L. H. A.	S. T. W.		
		6HZ	1HZ		
A:	5.85	.685			
DELTA K B:	4.86		.562		
MIN C:					
D:					
	5.00		.645		
	6.00	.763	1.42		
	7.00	1.37	2.47		
	8.00	2.14	3.79		
	9.00	3.08	5.40		
	10.00	4.26	7.37		
	13.00	10.5	16.7		
	16.00	26.5			
A:	16.35	29.6			
DELTA K B:	15.36		30.6		
MAX C:					
D:					
ROOT MEAN SQUARE		7.85	7.26		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T8511
 FORM: 1.75" TH EXTRUDED BAR
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY:

YIELD STRENGTH: 51.0 KSI
 ULT. STRENGTH: 66.0 KSI
 SPECIMEN THK: 0.990-0.995"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 85937

ALUM.
 ALLOY

2219

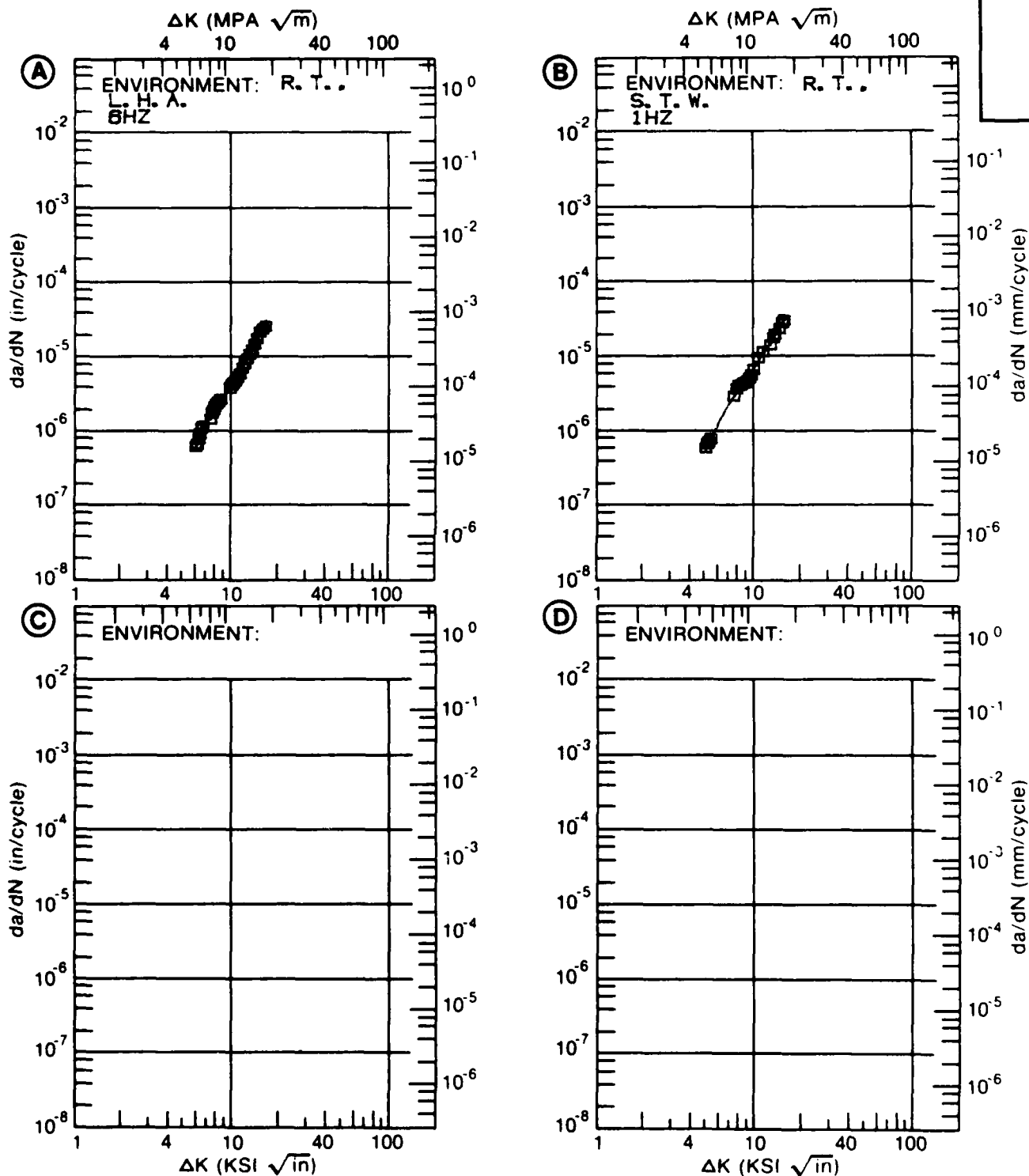


Figure 7.10.3.31

TABLE 7.10.3.32

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.10.3.32 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2219
CONDITION: T852
ENVIRONMENT: R. T. , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.08			
DELTA K MIN	A: 6.55	1.29			
	B:				
	C:				
	D:				
	7.00	1.36			
	8.00	1.58			
	9.00	1.90			
	10.00	2.35			
	13.00	5.00			
DELTA K MAX	A: 14.88	8.55			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 18.44
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T852
 FORM: 6.00" TH BILLET
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 50.0 KSI
 ULT. STRENGTH: 65.0 KSI
 SPECIMEN THK: 0.997"
 SPECIMEN WIDTH: 6.190"
 REFERENCES: 85837

ALUM.
 ALLOY

2219

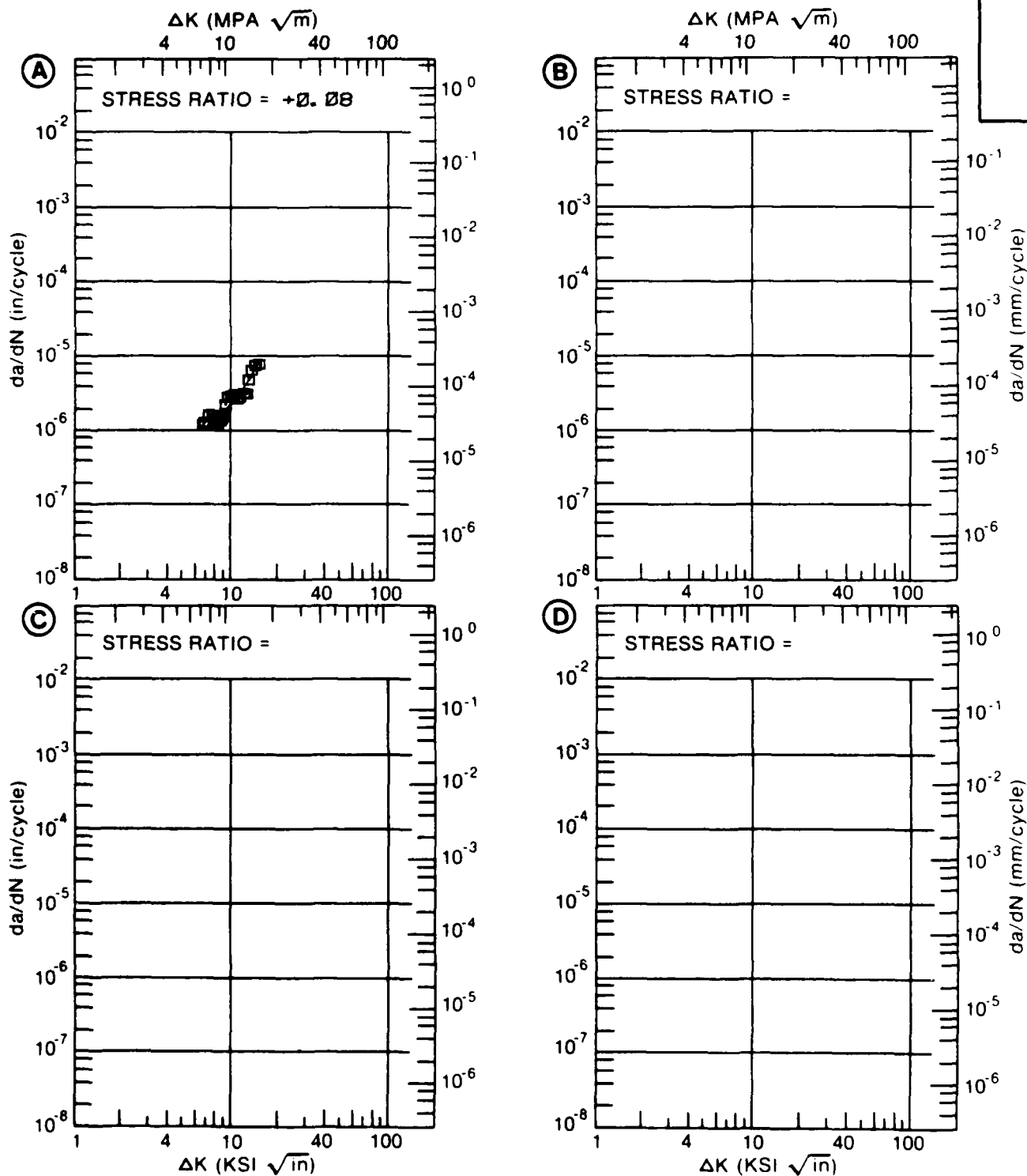


Figure 7.10.3.32

TABLE 7.10.3.33

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.33 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T852					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR, 2-20HZ	E= R. T. S. T. W. , 20HZ		
DELTA K MIN	A:	5.73	.518		
	B:	5.20	1.60		
	C:				
	D:				
	6.00	.633	2.38		
	7.00	1.25	3.70		
	8.00	2.22	5.42		
	9.00	3.63	7.58		
	10.00	5.49	10.2		
	13.00	13.3	20.1		
DELTA K MAX	16.00	21.6	32.2		
	20.00	27.7			
	A:	20.09	27.7		
	B:	16.06	32.4		
	C:				
	D:				
ROOT MEAN SQUARE		24.73	16.63		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T852
 FORM: 2.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY:

YIELD STRENGTH: 50.7 KSI
 ULT. STRENGTH: 65.0 KSI
 SPECIMEN THK: 0.750- 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

2219

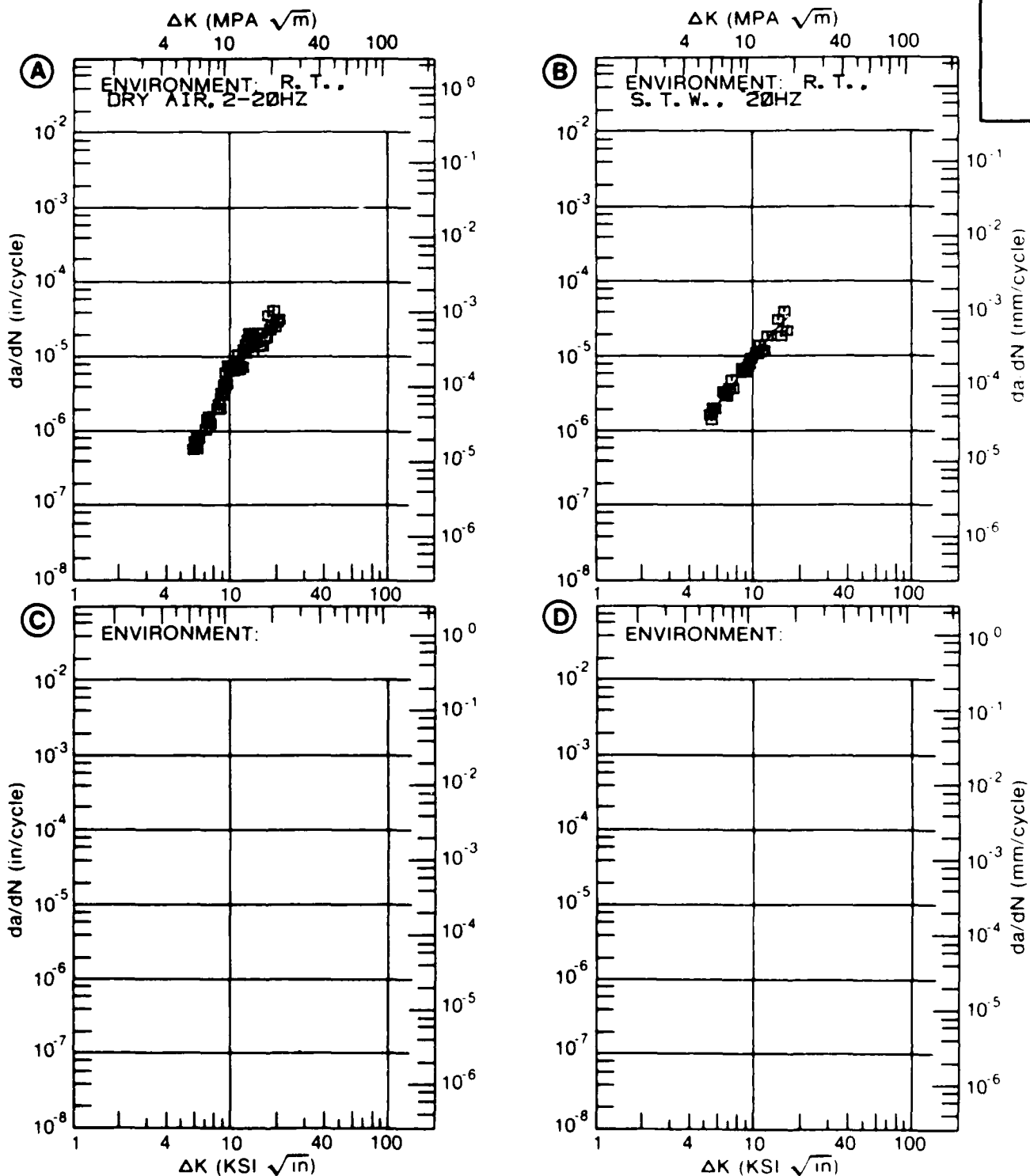


Figure 7.10.3.33

TABLE 7.10.3.34

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.34 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM
CONDITION: T852

2219

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. S. T. W.	
DELTA K	A: 5.72	.560			
MIN	B: 5.75		.963		
	C: 5.70			1.96	
	D:				
	6.00	.762	1.17	2.28	
	7.00	1.75	2.20	3.54	
	8.00	3.10	3.63	5.13	
	9.00	4.84	5.58	7.17	
	10.00	7.08	8.32	9.83	
	13.00	20.8	26.8	24.3	
	16.00	69.7	92.8	59.8	
	20.00	480.		204.	
DELTA K	A: 20.32	568.			
MAX	B: 19.72		500.		
	C: 20.69			253.	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		27.82	28.49	27.22	

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T852
 FORM: 2.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 2.00- 20.00 HZ

YIELD STRENGTH: 50.6 KSI
 ULT. STRENGTH: 66.5 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

2219

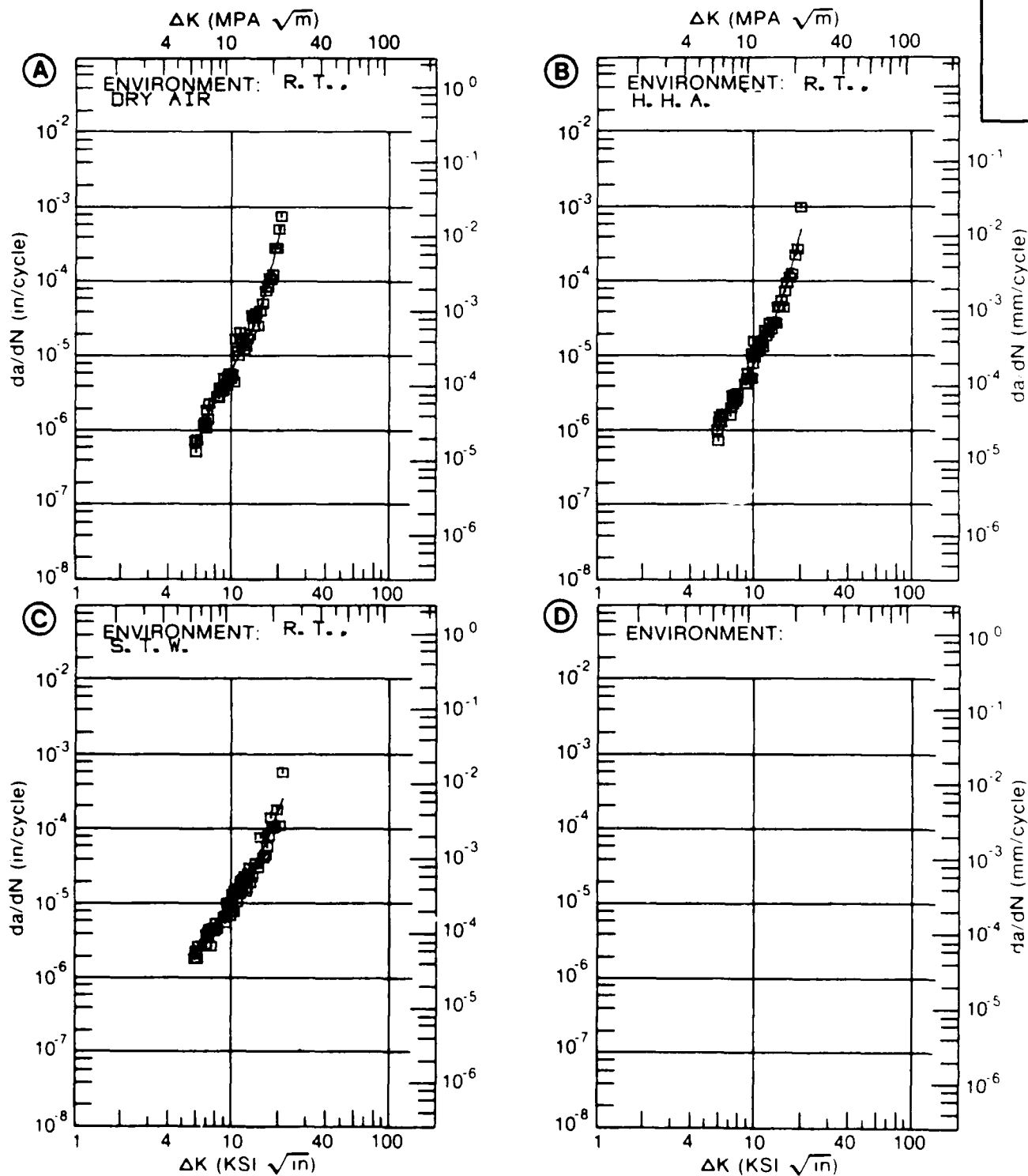


Figure 7.10.3.24

TABLE 7.10.3.35

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 7.10.3.35 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T852					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.	E= R. T.		
		DRY AIR	S. T. W.		
DELTA K MIN	A:	5.69	.482		
	B:	5.69		1.34	
	C:				
	D:				
	6.00	.615	1.64		
	7.00	1.08	2.71		
	8.00	1.53	3.89		
	9.00	1.96	5.09		
	10.00	2.38	6.28		
	13.00	4.01	9.87		
DELTA K MAX	A:	14.60	5.51		
	B:	16.00		13.9	
	C:				
	D:				
ROOT MEAN SQUARE		12.80	16.11		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T852
 FORM: 5.50" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 20.00 HZ

YIELD STRENGTH: 49.2 KSI
 ULT. STRENGTH: 62.5 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

2219

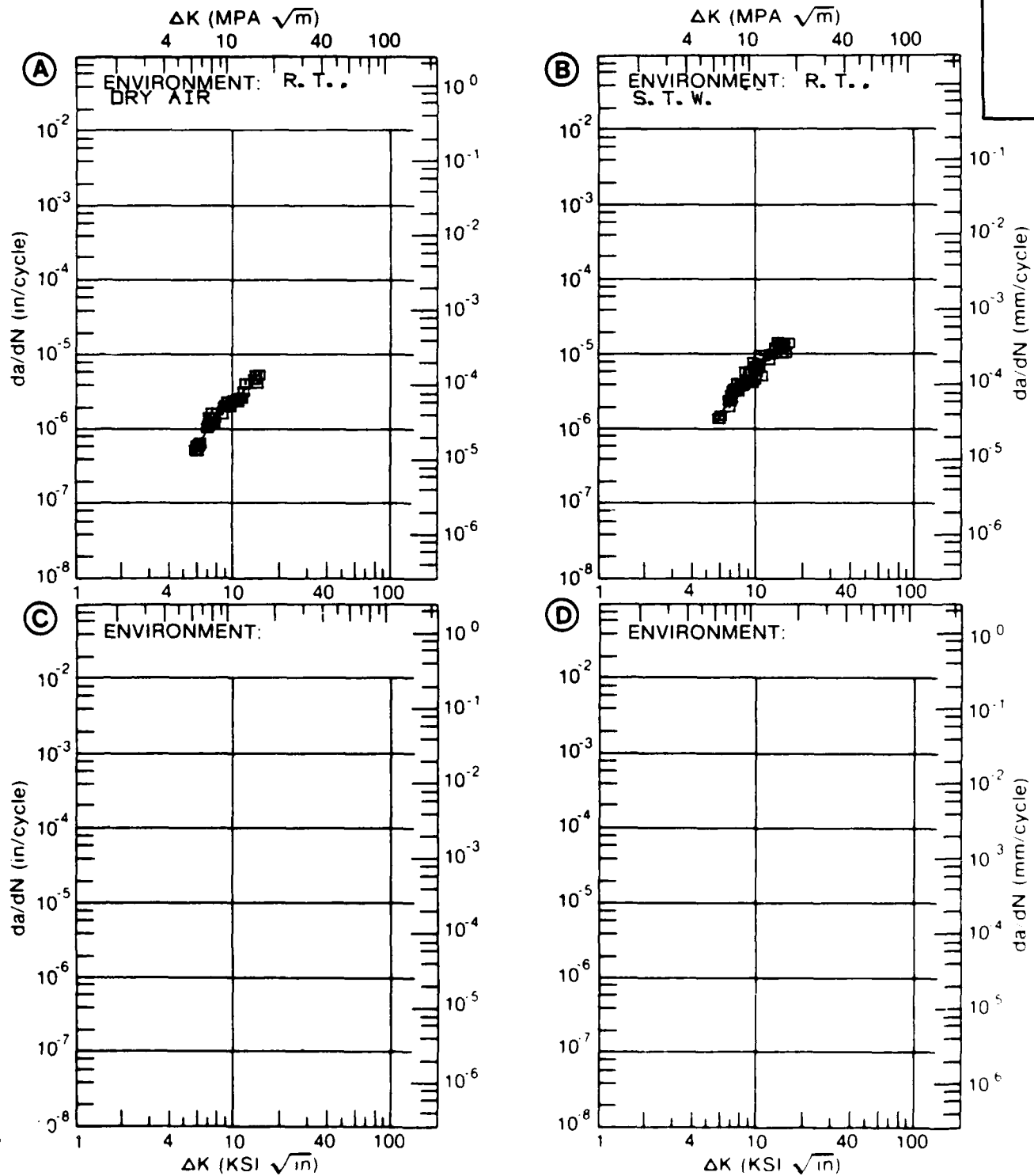


Figure 7.10.3.5

TABLE 7.10.3.36

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.36 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T852					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T.	E= R. T.		
		DRY AIR, 40HZ	S. T. W., 20HZ		
DELTA K	A: 3.22	.0513			
MIN	B: 9.03		6.82		
	C:				
	D:				
	3.50	.0854			
	4.00	.165			
	5.00	.363			
	6.00	.599			
	7.00	.920			
	8.00	1.43			
	9.00	2.32			
	10.00	3.97	10.3		
	13.00	23.3	32.2		
	16.00	138.			
DELTA K	A: 17.51	250.			
MAX	B: 15.40		53.6		
	C:				
	D:				
ROOT MEAN SQUARE		29.30	20.39		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

ALUM.
ALLOY

2219

CONDITION/HT: T852
 FORM: 5.50" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY:

YIELD STRENGTH: 46.4 KSI
 ULT. STRENGTH: 61.6 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: AL001

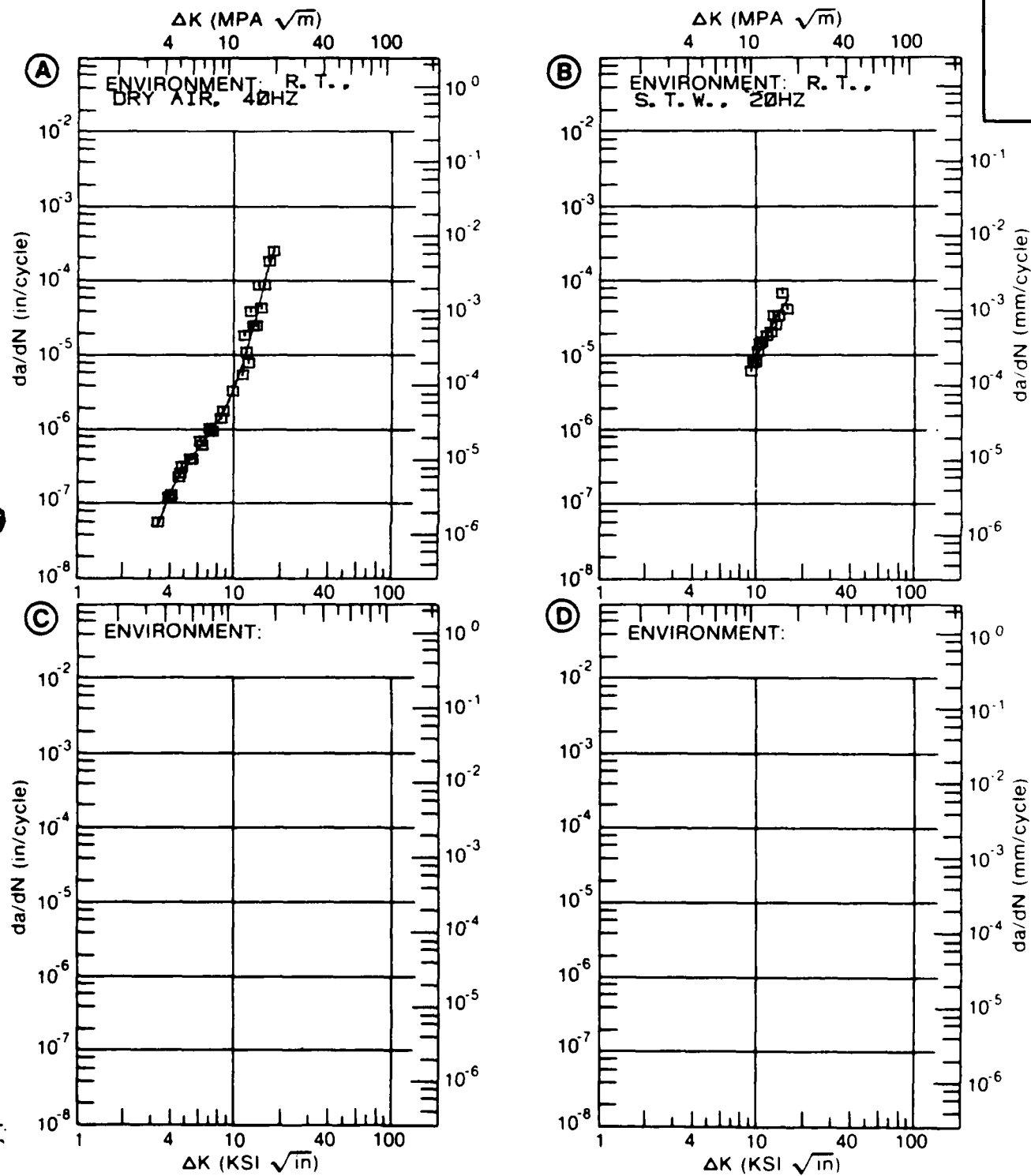


Figure 7.10.3.36

TABLE 7.10.3.37

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.37 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		2219			
CONDITION: T852					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. : DRY AIR	E= R. T. H. H. A.	E= R. T. S. T. W.	
DELTA K	A: 5.69	.708			
MIN	B: 5.75		1.50		
	C: 5.61			2.40	
	D:				
	6.00	.956	1.84	3.15	
	7.00	1.89	3.44	5.25	
	8.00	3.00	5.55	7.74	
	9.00	4.48	8.51	11.1	
	10.00	6.78	13.0	16.5	
	13.00	34.2	56.2	74.1	
	16.00	340.		670.	
DELTA K	A: 16.06	359.			
MAX	B: 15.13		197.		
	C: 16.29			1021.	
	D:				
ROOT MEAN SQUARE		30.43	23.20	18.36	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T852
 FORM: 5.50" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 2.00- 20.00 HZ

YIELD STRENGTH: 46.4 KSI
 ULT. STRENGTH: 61.6 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

2219

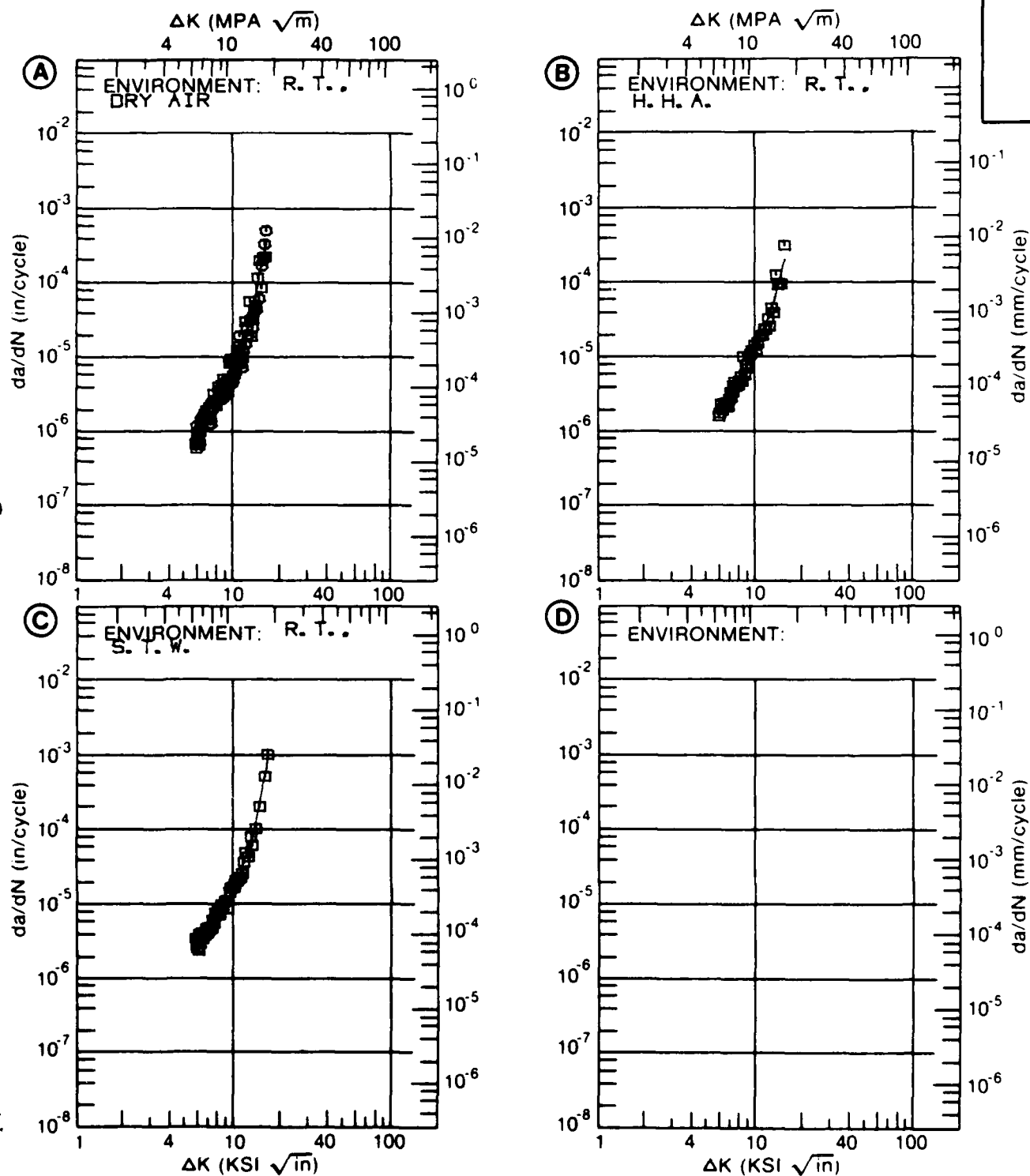


Figure 7.10.3.37

TABLE 7.10.3.38

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.10.3.38 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2219			
CONDITION: T852					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. S. T. W.	
DELTA K MIN	A:	5.73	.915		
	B:	5.75	1.40		
	C:	5.72		2.15	
	D:				
	6.00	1.19	1.88	2.91	
	7.00	2.29	4.19	5.89	
	8.00	3.46	6.71	8.78	
	9.00	4.93	9.56	12.0	
	10.00	7.32	13.5	16.6	
	13.00	41.9	54.7	74.6	
	16.00		477.		
DELTA K MAX	A:	15.83	517.		
	B:	16.06	502.		
	C:	15.97		835.	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		30.74	25.21	27.85	
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T852
 FORM: 5.50" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 STRESS RATIO: +0.33
 FREQUENCY: 2.00- 20.00 HZ

YIELD STRENGTH: 47.2 KSI
 ULT. STRENGTH: 62.3 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH:
 REFERENCES: AL001

ALUM.
 ALLOY

2219

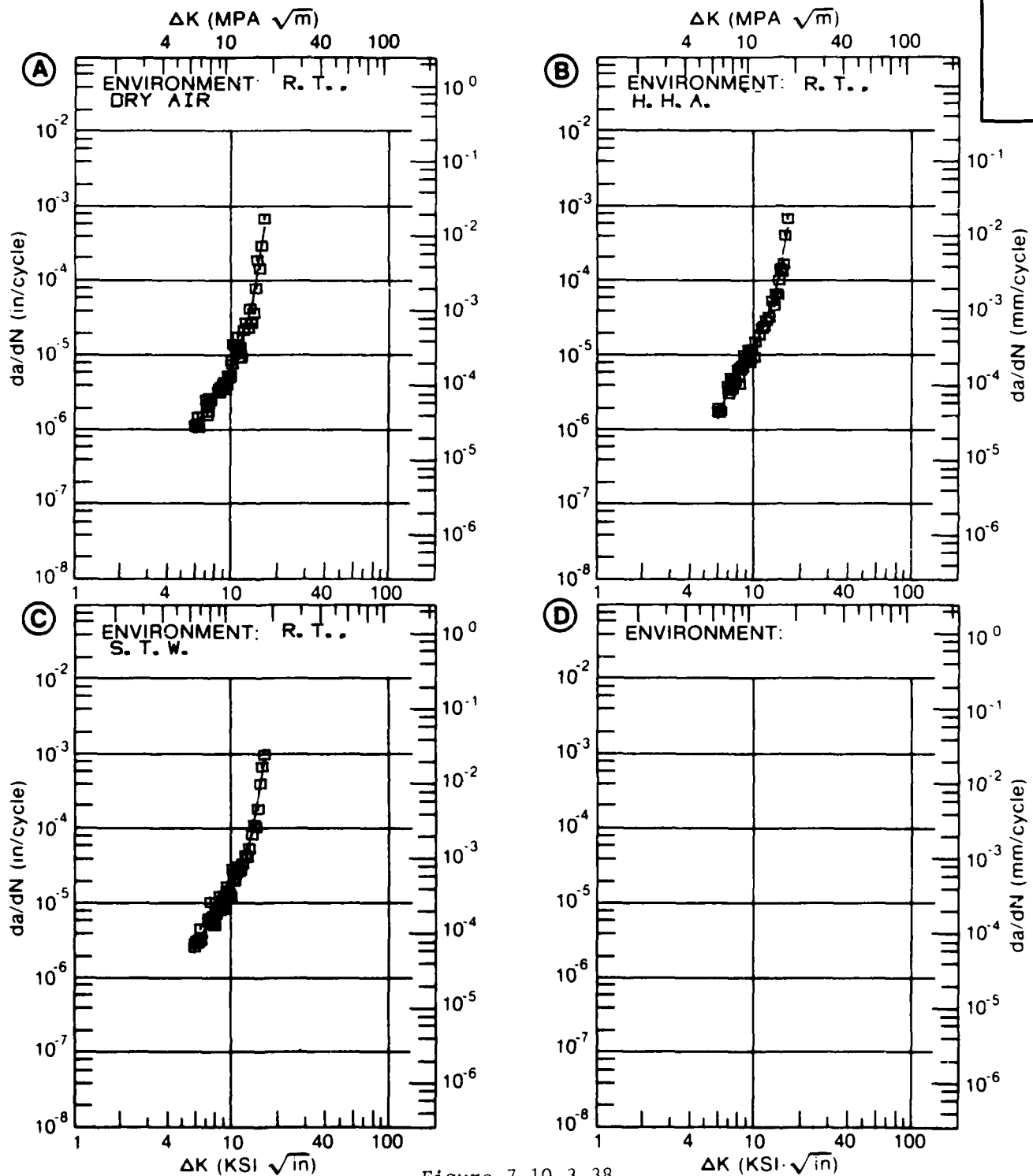


Figure 7.10.3.38

TABLE 7.10.3.39

SUSTAINED CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.10.3.39 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2219
CONDITION: T37

K MAX (KSI*IN**1/2)		DA/DT (10**-6 IN/HOUR)			
		A	B	C	D
		E- WET 3X/DAY WITH 3 5% NACL			
K MAX MIN	A: 20.00	411.			
	B:				
	C:				
	D:				
	25.00	661.			
	30.00	917.			
	35.00	1171.			
	40.00	1423.			
K MAX MAX	50.00	1933.			
	60.00	2474.			
	70.00	3075.			
	A: 80.00	3764.			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		2.84			
PERCENT ERROR					

CONDITION/HT: T37
 FORM: 1.5" TH PLATE
 SPECIMEN TYPE: DCB
 ORIENTATION: S-L
 YIELD STRENGTH:
 ULT. STRENGTH:

SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.000"
 CRACK LENGTH (A_0):
 K_{ISCC} :
 REFERENCES: 78313

ALUM.
 ALLOY

2219

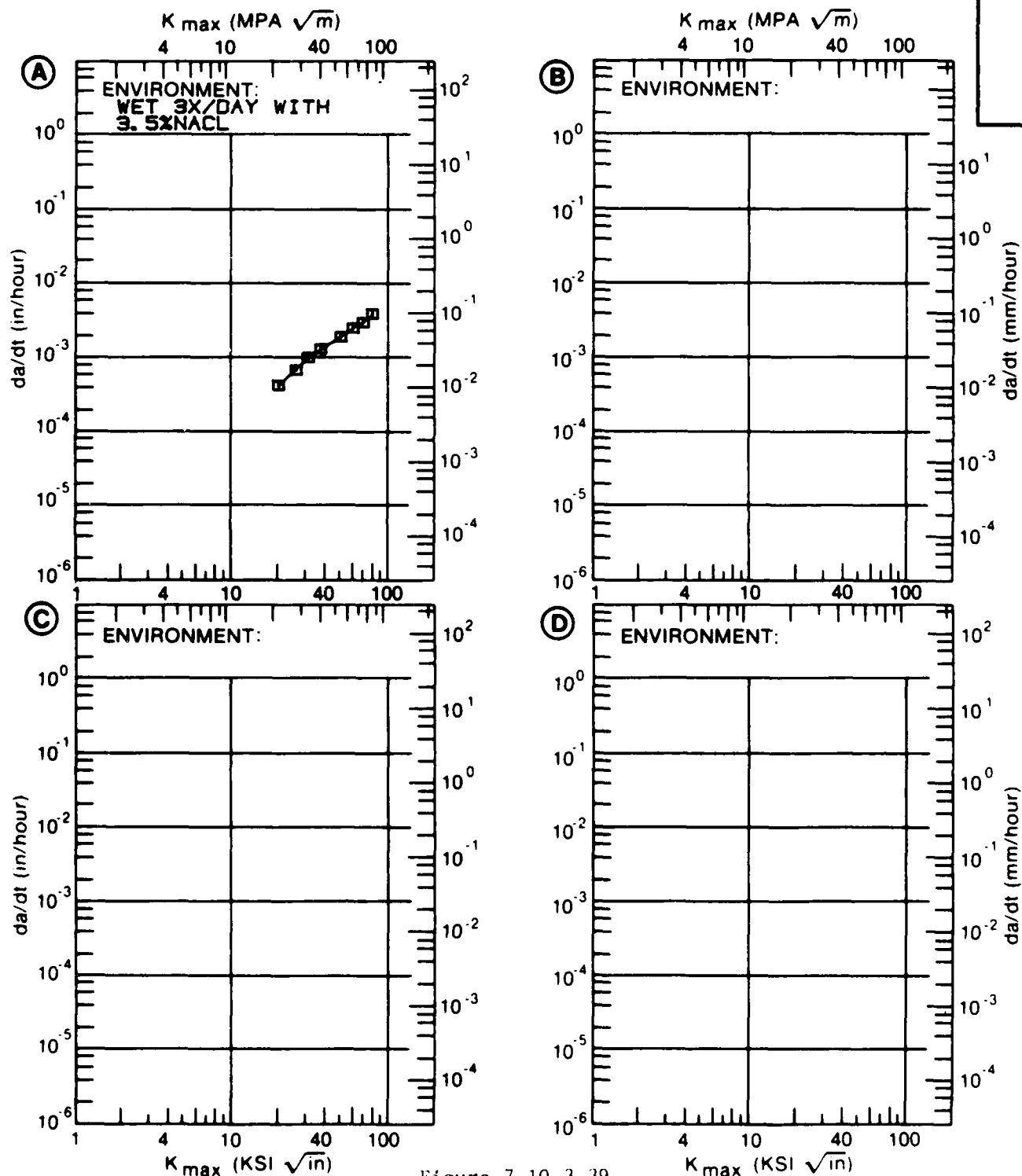


Figure 7.10.3.39

Table 7.10.3.40

CONDITION	ALUMINUM				2219	K(18CC)				STAN DEV	TEST TIME (MIN)	DATE REFER	
	--PRODUCT--		TEST SPEC OR STR (KSI)	YIELD		SPECIMEN--		CRACK LENGTH K(G) (IN)	K(18CC) (KBI*SQRT IN)				
	FORM (IN)	THICK (IN)				WIDTH (IN)	THICK (IN)						DESIGN (S-SO)
T37	P	2.00	R.T.	S-L	42.1	INDUSTRIAL	ATM	2.000	1.000	CT	27.10	13.00	1973 86688
T37	P	2.00	R.T.	S-L	42.1	SALT-DICHRO- MATE-ACETATE		2.000	1.000	CT	27.10	9.00	1973 86688
T37	P	2.00	R.T.	S-L	42.1	SEACOAST	ATM	2.000	1.000	CT	27.10	13.00	1973 86688
T851	P	1.75 1.75	R.T.	L-T	50.0 50.0	F.C.S.		5.500 5.500	1.000 1.000	DCB	32.00 32.00	30.50 27.50	75240 1976 R1006 75240 1976 R1006
T851	P	1.75 1.75 1.75	R.T.	L-T	50.0 50.0 50.0	S.C.S.		5.500 5.500 5.500	1.000 1.000 1.000	DCB	32.00 32.00 32.00	27.00 37.00 39.00	75240 1976 R1006 59100 1976 R1006 61680 1976 R1006
T851	P	1.75 1.75	R.T.	L-T	50.0 50.0	S.T.W.		5.500 5.500	1.000 1.000	DCB	32.00 32.00	33.00 36.00	51720 1976 R1006 83520 1976 R1006
T851	P	1.75	R.T.	T-L	48.0	S.T.W.		5.500	1.000	DCB	30.00	27.00	51720 1976 R1006
T851	P	1.75 1.75	R.T.	S-L	----- -----	S.T.W.		5.500 5.500	1.000 1.000	DCB	30.00 30.00	29.50 29.50	83520 1976 R1006 51720 1976 R1006
T851	P	1.00	R.T.	S-L	58.0	3.5 PCT NACL		4.000	1.000	DCB	27.00	18.00	1968 84331
T87	P	2.00	R.T.	S-L	57.7	INDUSTRIAL	ATM	2.000	1.000	CT	19.60	19.00	1973 86688
T87	P	2.00	R.T.	S-L	57.7	SALT-DICHRO- MATE-ACETATE		2.000	1.000	CT	19.60	19.00	1973 86688
T87	P	2.00	R.T.	S-L	57.7	SEACOAST	ATM	2.000	1.000	CT	19.60	19.00	1973 86688

TABLE 7.11.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.11.3.1 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 2324
 CONDITION: T39
 ENVIRONMENT: R. T., H. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**--6 IN. /CYCLE)			
		A	B	C	D
		R=+0.33			
DELTA K MIN	A:	2.65	.0344		
	B:				
	C:				
	D:				
	3.00	.0994			
	3.50	.178			
	4.00	.222			
	5.00	.462			
	6.00	1.30			
	7.00	2.72			
	8.00	4.66			
	9.00	7.09			
	10.00	10.0			
	13.00	23.2			
DELTA K MAX	A:	14.47	33.7		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		15.79			
PERCENT ERROR					

LIFE	0.0-0.5	
PREDICTION	0.5-0.8	1
RATIO	0.8-1.25	2
SUMMARY	1.25-2.0	
(NP/NA)	>2.0	

CONDITION/HT: T39
 FORM: 1.25" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: L-T
 FREQUENCY: 25.00
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.249- 0.251"
 SPECIMEN WIDTH: 2.500- 2.547"
 REFERENCES: AL011

ALUM.
 ALLOY

2324

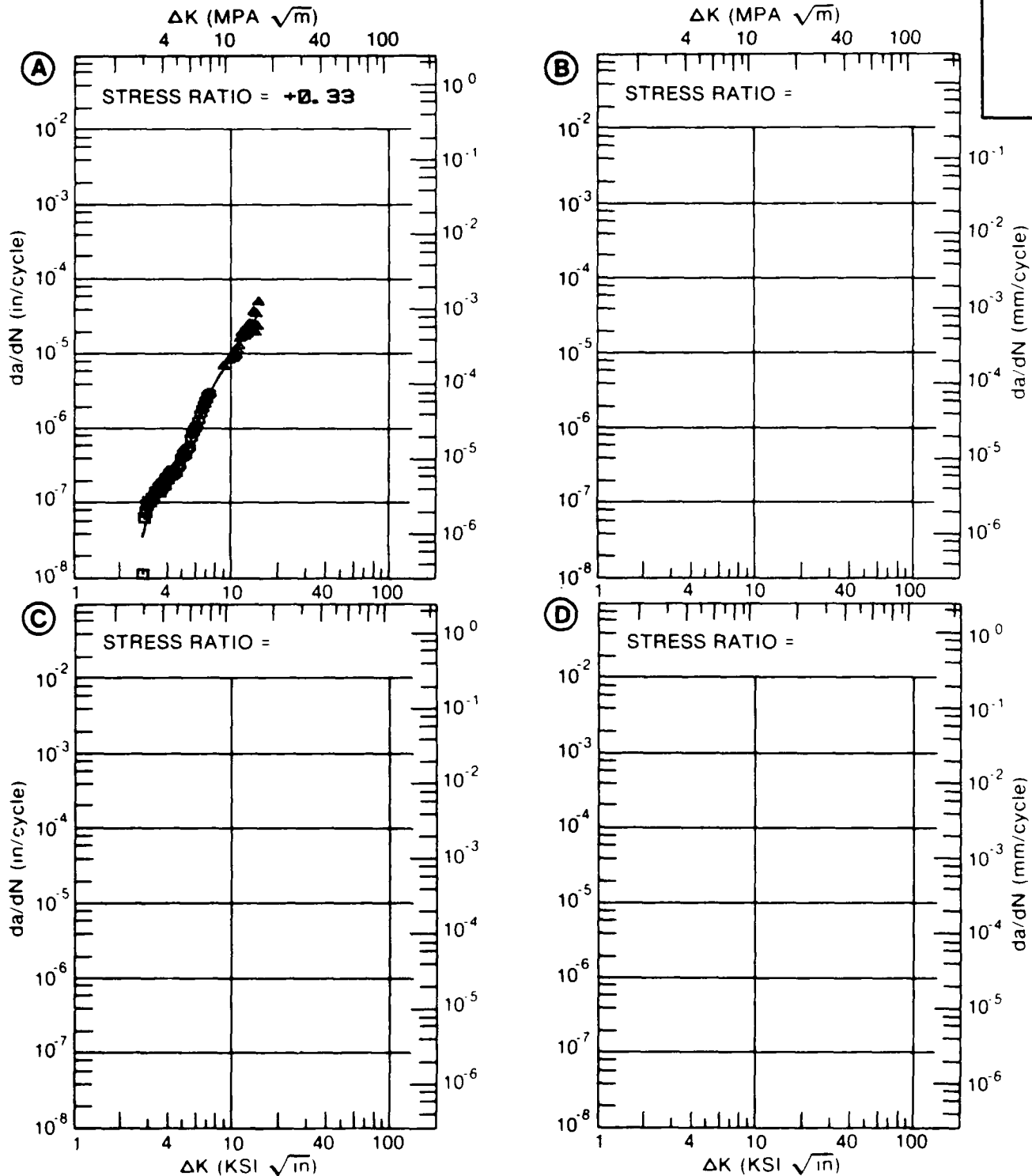


Figure 7.11.3.1

Table 7.12.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2419 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	L-I	I-L	S-L	
T051	42.6 ± 5.3 (23)	37.2 ± 4.2 (32)	24.8 ± 2.5 (3)	

7.12-2

Table 7.12.2.1 (Con't)

CONDITION	ALUMINUM				2419				K(1C)				DATE	REFER
	---PRODUCT---		YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	K(1C) STAN DEV					
	FORM	THICK (IN)		TEST TEMP (F)	SPECIMEN ORIENT					WIDTH (IN)	THICK (IN)	DESIGN		
T851	P	1.75	47.6	5.004	1.762	CT	2.602	1.60	38.10	1978	MPC01			
		1.75	47.6	2.994	1.397	CT	1.587	1.29	34.70	1978	MPC01			
		1.75	47.6	4.987	1.762	CT	2.593	1.60	38.20	1978	MPC01			
		1.75	47.7	2.995	1.398	CT	1.587	1.12	32.10	1978	MPC01			
		1.75	47.7	4.975	1.759	CT	2.587	1.36	35.70	1978	MPC01			
		2.55	49.0	4.998	2.401	CT	2.649	2.11	45.30	1978	MPC01			
		1.75	49.0	2.981	1.402	CT	1.550	1.29	35.30	1978	MPC01			
		2.90	49.2	6.000	2.951	CT	3.180	1.84	42.40	1978	MPC01			
		2.90	49.4	6.028	2.900	CT	3.195	1.48	38.20	1978	MPC01			
		2.90	49.4	6.019	2.896	CT	3.130	2.20	46.50	1978	MPC01			
		2.00	49.7	2.996	1.402	CT	1.558	0.99	31.80	1978	MPC01			
		2.90	49.9	4.982	2.374	CT	2.690	1.60	40.40	1978	MPC01			
		2.90	50.1	6.000	2.940	CT	3.180	1.84	43.30	1978	MPC01			
		2.55	50.3	5.004	2.401	CT	2.652	1.68	41.50	1978	MPC01			
		2.90	50.5	6.014	2.912	CT	3.067	1.08	33.70	1978	MPC01			
		2.90	50.7	5.051	1.747	CT	2.576	1.56	40.30	1978	MPC01			
		2.90	50.9	6.047	2.931	CT	3.205	1.56	40.40	1978	MPC01			
		2.90	51.0	5.946	2.937	CT	3.092	1.22	36.10	1978	MPC01			
		2.90	51.0	4.989	1.747	CT	2.594	1.72	42.40	1978	MPC01			
		2.55	51.1	3.015	1.500	CT	1.568	1.15	34.80	1978	MPC01			
		2.90	51.1	4.989	2.375	CT	2.644	1.36	38.00	1978	MPC01			
		3.00	51.2	4.026	1.996	CT	2.053	0.78	29.10	1978	MPC01			
		2.50	51.2	6.049	2.511	CT	3.085	1.68	42.30	1978	MPC01			
		3.00	51.2	4.016	1.999	CT	2.048	0.78	29.10	1978	MPC01			
		2.90	51.4	5.043	1.746	CT	2.572	1.48	40.00	1978	MPC01			
		2.50	51.4	5.992	2.534	CT	3.166	1.44	39.40	1978	MPC01			
		3.00	51.6	3.022	1.403	CT	1.541	1.22	36.50	1978	MPC01			
		2.90	52.1	5.029	1.747	CT	2.565	1.72	43.40	1978	MPC01			
		3.00	52.3	3.983	1.999	CT	2.071	1.08	34.90	1978	MPC01			
		3.00	52.3	3.979	1.999	CT	2.069	1.19	36.50	1978	MPC01			
		2.55	52.3	5.968	2.501	CT	3.163	1.12	35.10	1978	MPC01			
		2.00	52.5	4.000	2.000	CT	----	0.85	30.60	1975	UD004			
		2.00	52.5	4.000	2.000	CT	----	0.89	31.30	1975	UD004			
		2.90	52.5	5.026	1.746	CT	2.563	1.68	43.10	1978	MPC01			
		2.00	52.5	4.000	2.000	CT	----	0.95	32.30	1975	UD004			
		2.90	52.6	5.051	1.748	CT	2.576	1.40	39.60	1978	MPC01			
		2.90	52.8	4.983	1.749	CT	2.641	1.12	35.90	1978	MPC01			
		2.90	52.8	5.048	1.750	CT	2.625	0.99	33.40	1978	MPC01			
		2.55	52.9	5.973	2.461	CT	3.046	1.19	36.60	1978	MPC01			

CONDITION	--PRODUCT--		TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM		SPECIMEN		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV	DATE	REFER	
	FORM	THICK (IN)			WIDTH (IN)	THICK (IN)	DESIGN								
T851	P	2.90	R.T.	53.5	4.998	1.750	CT	2.649	1.08	35.80			1978	MPCO1	
		2.90		53.6	5.985	2.937	CT	3.172	1.80	46.00			1978	MPCO1	
		2.90		53.6	5.053	1.750	CT	2.577	1.09	35.00			1978	MPCO1	
		2.90		53.7	4.977	2.374	CT	2.638	1.26	38.60			1978	MPCO1	
		2.55		53.9	3.020	1.498	CT	1.510	0.87	32.10			1978	MPCO1	
T851		2.90		54.6	5.029	1.747	CT	2.569	1.36	40.70	37.2/	4.2	1978	MPCO1	
	P	2.00	200	T-L	47.1	4.000	2.000	CT	----	0.97	29.30			1975	UD004
		2.00		47.1	4.000	2.000	CT	----	0.94	28.90			1975	UD004	
		2.00		47.1	4.000	2.000	CT	----	0.90	28.30	28.8/	0.5	1975	UD004	
T851	P	2.00	300	T-L	43.2	4.000	2.000	CT	----	1.12	28.90			1975	UD004
		2.00		43.2	4.000	2.000	CT	----	1.09	28.50	28.7/	0.3	1975	UD004	
T851	P	2.00	R.T.	51.7	4.000	2.000	CT	----	0.50	23.20			1975	UD004	
		2.00		51.7	4.000	2.000	CT	----	0.49	22.90			1975	UD004	
		2.00		51.7	4.000	2.000	CT	----	0.49	22.90			1975	UD004	
		2.90		52.4	2.006	1.001	CT	1.023	0.52	24.20			1978	MPCO1	
		2.90		53.2	1.981	1.001	CT	1.030	0.48	23.80			1978	MPCO1	
T851		2.90		54.4	1.994	1.001	CT	1.037	0.60	26.80	24.0/	1.9	1978	MPCO1	
	P	3.00	R.T.	50.4	1.989	1.000	CT	1.034	0.48	22.90			1978	MPCO1	
		3.00		50.4	2.018	0.999	CT	1.029	0.57	24.40			1978	MPCO1	
		3.00		51.6	1.994	1.000	CT	0.997	0.70	27.40	24.8/	2.9	1978	MPCO1	

TABLE 7.12.3.1

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

**DATA ASSOCIATED WITH FIGURE 7.12.3.1 INDICATING EFFECT
OF ENVIRONMENT**

MATERIAL: ALUMINUM		2419			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.			
		LAB AIR			
DELTA K MIN	A:	6.26	1.28		
	B:				
	C:				
	D:				
		7.00	2.07		
		8.00	3.01		
		9.00	4.35		
		10.00	6.30		
		13.00	14.7		
DELTA K MAX		16.00	24.9		
		20.00	53.9		
	A:	20.00	53.9		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		18.62			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T851
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 30.00 HZ

YIELD STRENGTH: 51.7 KSI
 ULT. STRENGTH: 66.9 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 1.850"
 REFERENCES: UD004

ALUM.
 ALLOY

2419

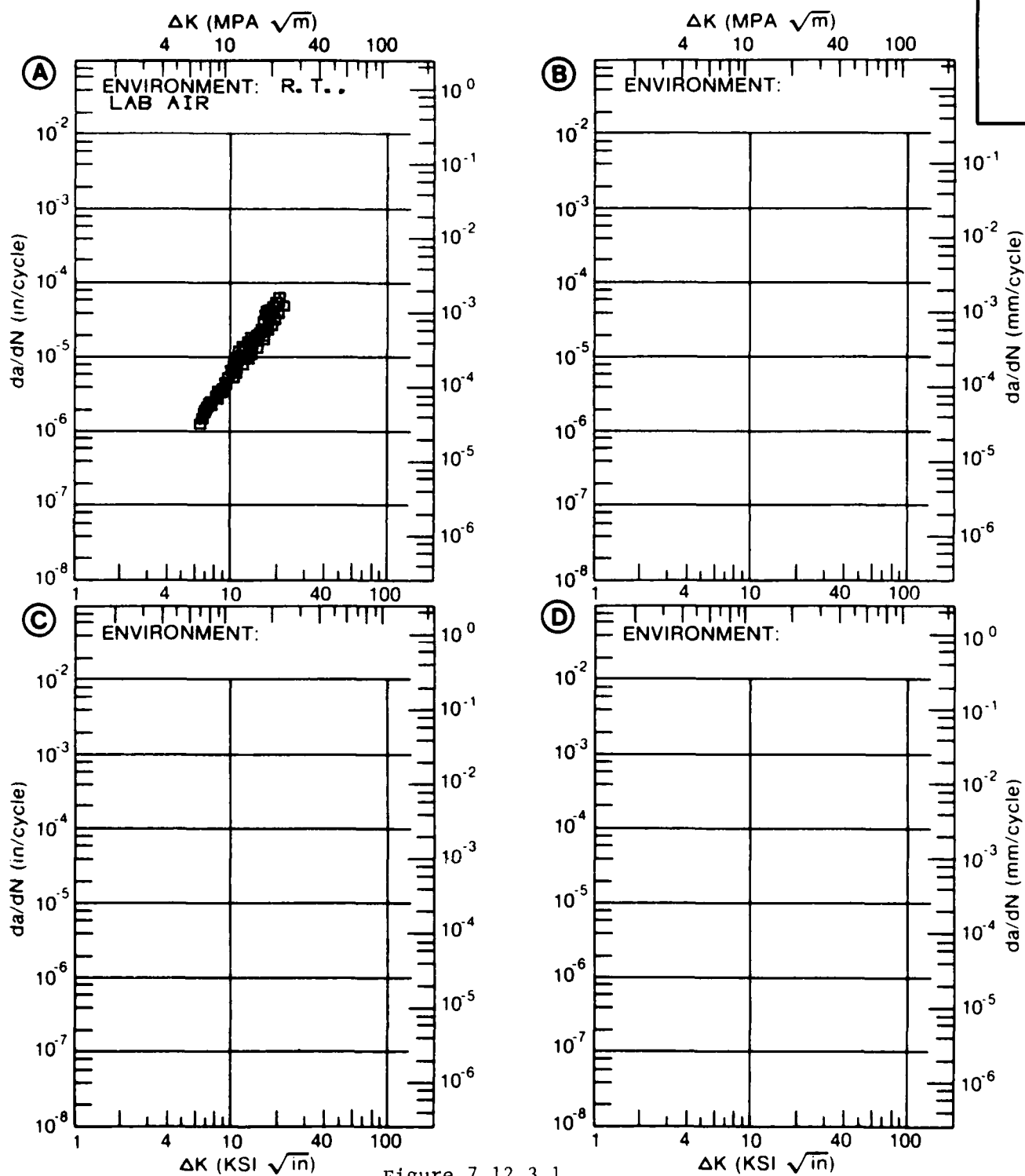


Figure 7.12.3.1

TABLE 7.12.3.2

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.12.3.2 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		2419			
CONDITION: T851					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR			
DELTA K MIN	A:	6.39	.906		
	B:				
	C:				
	D:				
		7.00	1.97		
		8.00	2.68		
		9.00	3.94		
		10.00	5.59		
		13.00	10.3		
		16.00	17.1		
DELTA K MAX	A:	17.33	26.1		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		19.15			
LIFE		0.0-0.5			
PREDICTION		0.5-0.8			
RATIO		0.8-1.25			
SUMMARY		1.25-2.0			
(NP/NA)		>2.0			

CONDITION/HT: T851
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: T-L
 STRESS RATIO: +0.10
 FREQUENCY: 30.00 HZ

YIELD STRENGTH: 52.5 KSI
 ULT. STRENGTH: 66.6 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 1.850"
 REFERENCES: UD004

ALUM.
 ALLOY

2419

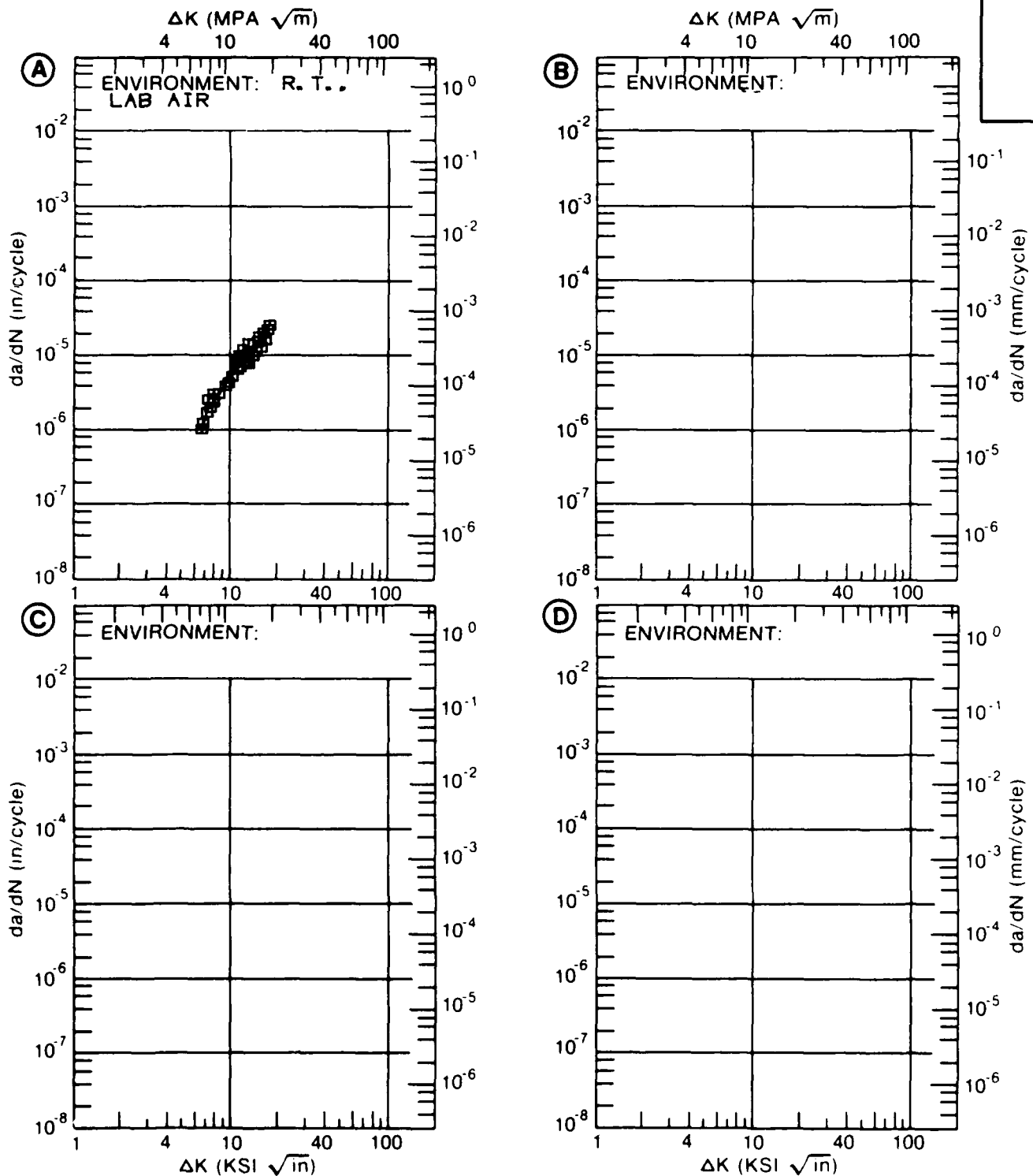


Figure 7.12.3.2

Table 7.13.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 2018 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	I-I	I-I	I-I	S-L
1651	---	---	---	14.9 ± 1.2 (12)

Table 7.13.2.1

CONDITION	ALUMINUM			2618		K(1C)		K(1C) STAN DEV	REFER																																																																																				
	--PRODUCT-- FORM	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)																																																																																						
				WIDTH (IN)	THICK (IN)					DESIGN																																																																																			
T651	P	3 34	R. T.	54.8	1.990	0.999	CT	1.014	0.21	15.90	1973 86213																																																																																		
												54.8	2.000	0.999	CT	1.015	0.21	15.80	1973 86213																																																																										
																				55.1	2.000	0.999	CT	1.011	0.23	16.80	1973 86213																																																																		
																												55.1	2.000	0.999	CT	1.024	0.22	16.90	1973 86213																																																										
																																				56.3	2.000	0.999	CT	1.034	0.16	14.10	1973 86213																																																		
																																												56.3	2.000	0.999	CT	1.033	0.16	14.20	1973 86213																																										
																																																				56.3	2.000	0.999	CT	1.028	0.15	13.60	1973 86213																																		
																																																												56.8	2.000	0.999	CT	1.011	0.15	13.90	1973 86213																										
																																																																				56.8	2.000	0.999	CT	1.018	0.14	13.20	1973 86213																		
																																																																												57.4	2.000	0.999	CT	1.011	0.19	15.70	1973 86213										
																																																																																				59.2	2.000	0.999	CT	1.008	0.15	14.60	1973 86213		
																																																																																												59.2	2.000
51.8	1.000	0.500	CT	0.499	0.47	22.90	1973 86213																																																																																						
								51.8	1.000	0.500	CT	0.503	0.49	23.00	1973 86213																																																																														
																51.8	1.000	0.500	CT	0.488	0.40	20.70	1973 86213																																																																						
																								P	1 37	88	5-L	51.8	1.000	0.500	CT	0.499	0.47	22.90	1973 86213																																																										
																																				1 37	51.8	1.000	0.500	CT	0.503	0.49	23.00																																																		
																																												1 37	51.8	1.000	0.500	CT	0.488	0.40	20.70																																										

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

CONDITION	--PRODUCT--			TEST SPEC OR THICK TEMP (IN) (F)	YIELD STR (KSI)	ALUMINUM			2618			K(C)			K(C)		
	FORM	THICK (IN)	SPEC			---SPECIMEN---			CRACK LENGTH			CROSS STRESS			K(I) STAN		
						WIDTH (IN)	THICK (IN)	B	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(I) STAN (KSI*SQRT IN)	MEAN DEV (KSI*SQRT IN)	K(I) STAN (KSI*SQRT IN)	MEAN DEV (KSI*SQRT IN)	DATE
T61	S	0.06	R	T	L-T	56.2	2.000	0.064	0.623	0.900	---	36.00	37.87*	49.09*	1973	86213	
		0.06				56.2	2.000	0.064	0.623	0.970	34.10	35.70	37.93*	51.80*	1973	86213	
		0.06				56.2	2.000	0.064	0.622	0.890	32.70	35.70	37.55*	48.29*	1973	86213	
T61	S	0.06	R	T	T-L	54.2	2.000	0.064	0.621	1.070	32.80	34.10	35.80*	54.12*	1973	86213	
		0.06				54.2	2.000	0.064	0.622	0.900	---	33.20	34.92*	45.27*	1973	86213	
		0.06				54.2	2.000	0.064	0.623	0.960	32.70	33.90	35.66*	48.76*	1973	86213	

TABLE 7.13.3.1

**FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR**

DATA ASSOCIATED WITH FIGURE 7.13.3.1 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 2618
CONDITION: T81

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

E= R. T.
LAB AIR

DELTA K A: 9.66 : 7.21
MIN B:
C:
D:

10.00 : 7.77
13.00 : 15.1
16.00 : 29.2

DELTA K A: 16.24 : 30.8
MAX B:
C:
D:

ROOT MEAN SQUARE 4.38
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T81
 FORM: 0.06" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.40
 FREQUENCY: 2.00

YIELD STRENGTH: 57.0 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.064"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: 86734

ALUM.
 ALLOY

2618

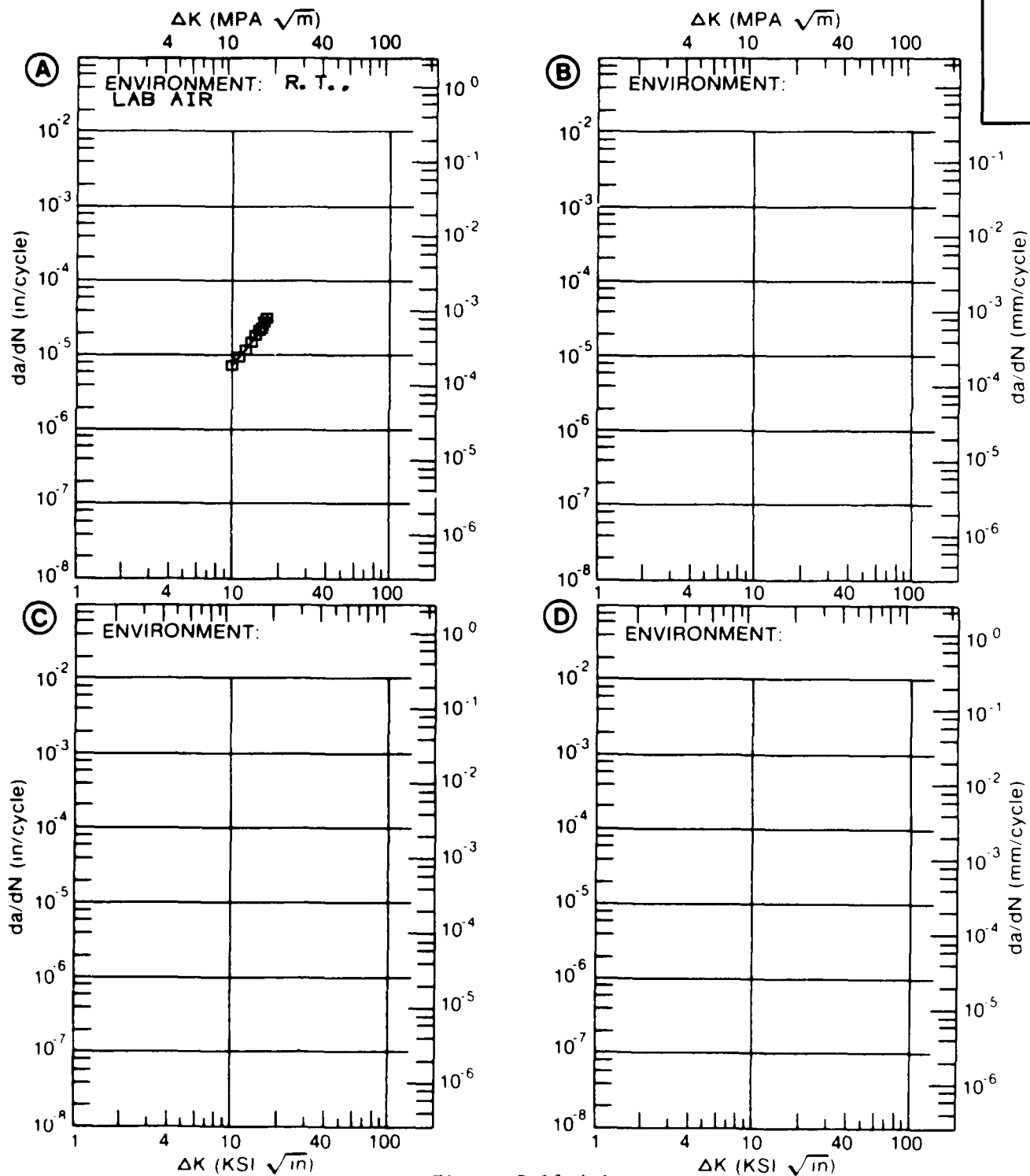


Figure 7.13.3.1

TABLE 7.13.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.13.3.2 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		2618			
CONDITION: T81					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T.			
		LAB AIR			
DELTA K A:	:				
MIN B:	:				
C:	:				
D:	:				
200.00	:				
DELTA K A:	:				
MAX B:	:				
C:	:				
D:	:				
ROOT MEAN SQUARE		0.00			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T81
 FORM: 0.06" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.40
 FREQUENCY: 2.00 HZ

YIELD STRENGTH: 57.0 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.064"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: 86734

ALUM.
 ALLOY

2618

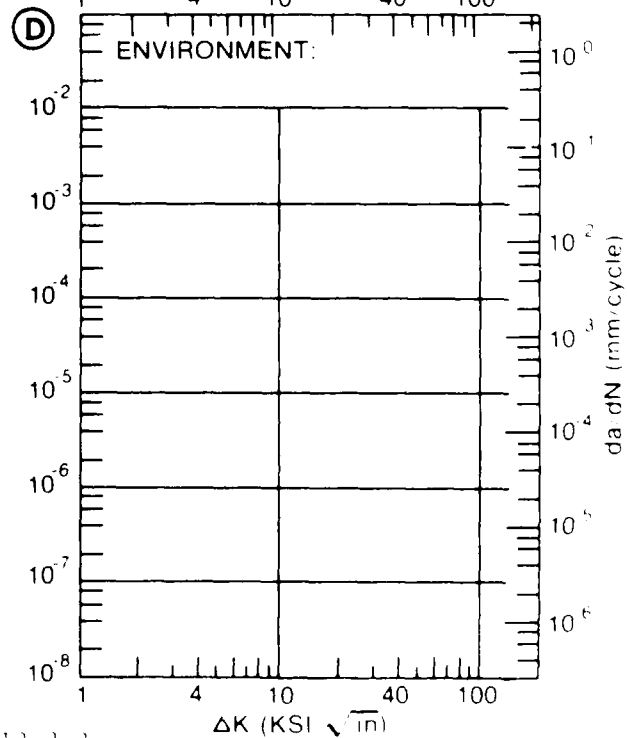
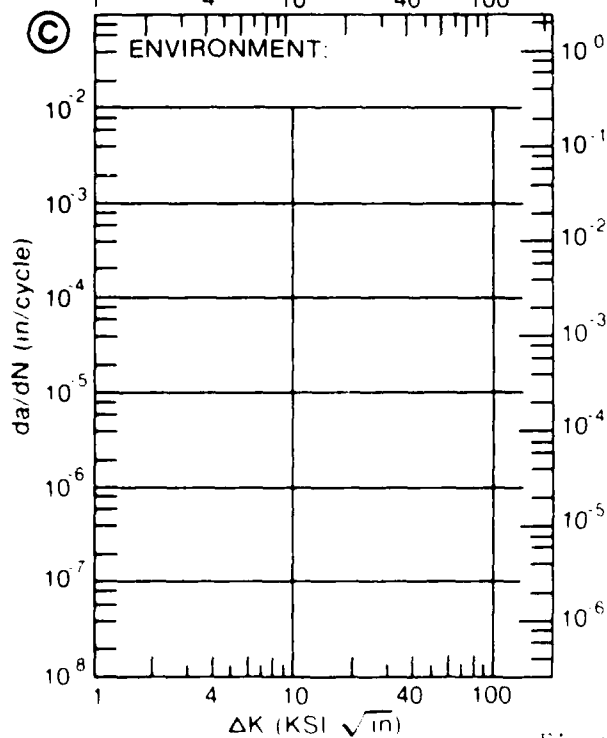
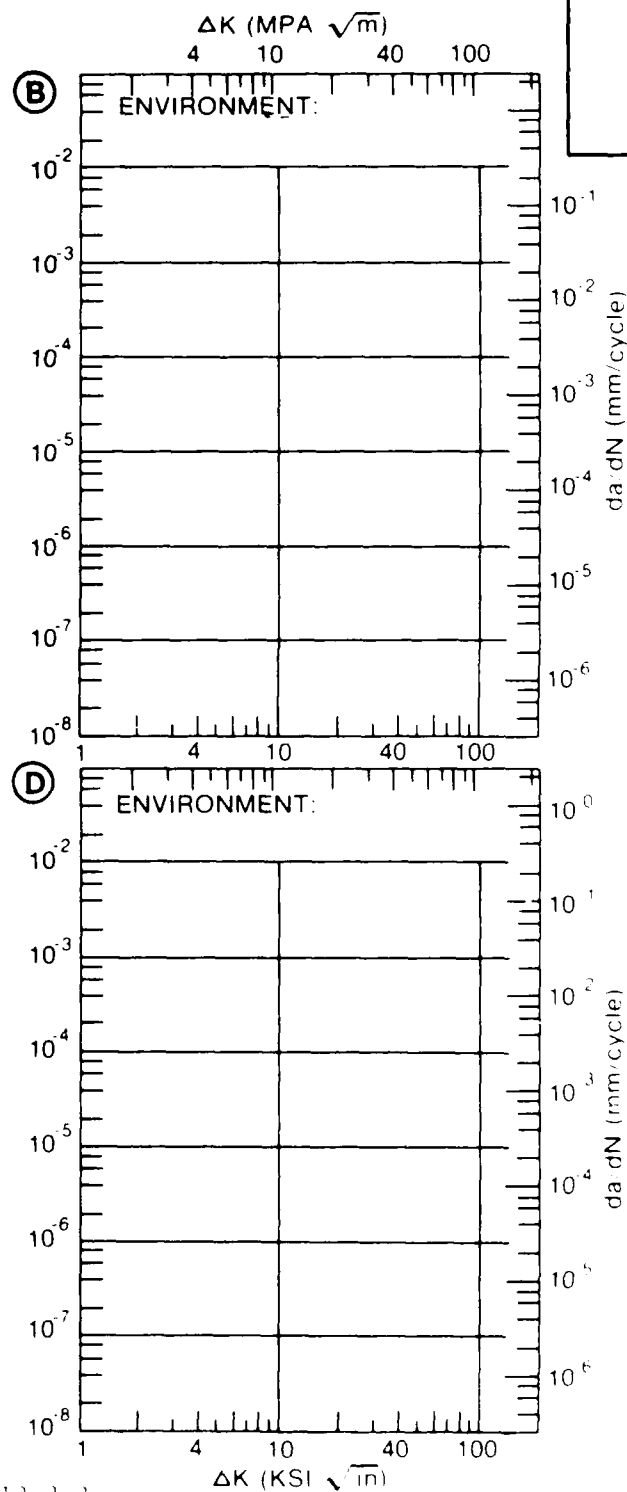
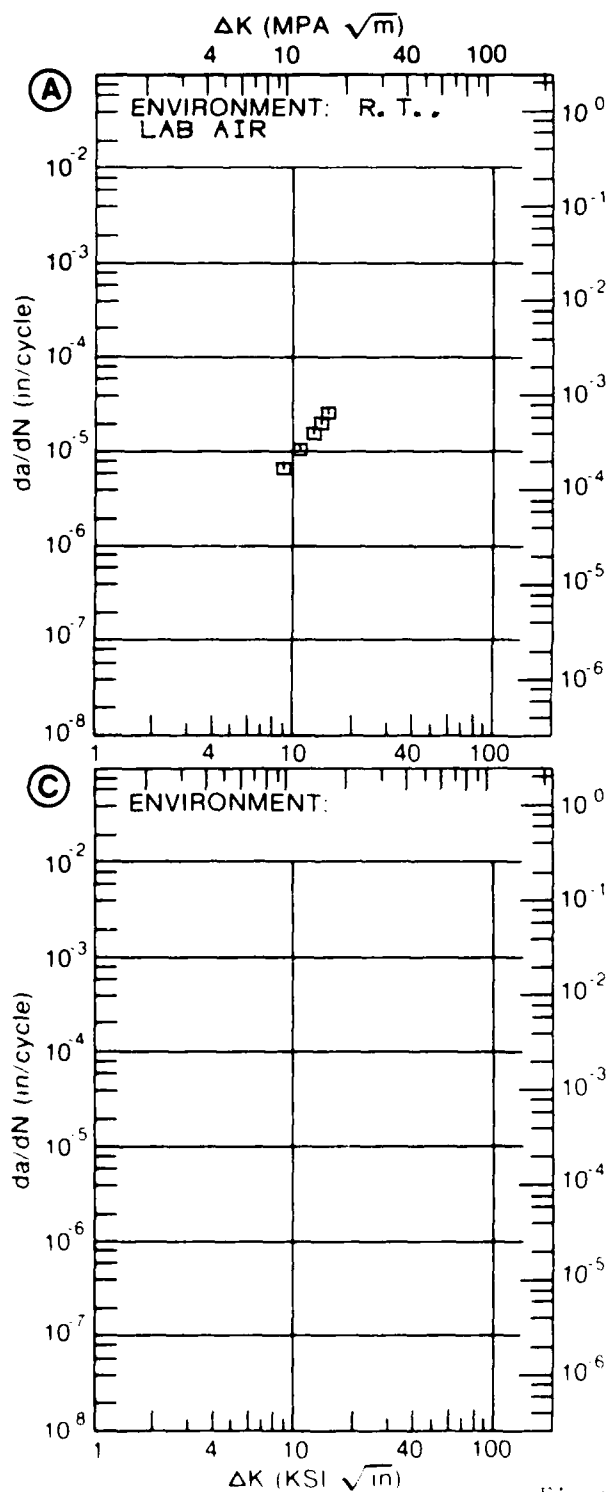


Figure 7.13.3.2

Table 7.14.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 6061 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
T651	L-T	I-T	S-L	
		26.6 ± 0.9 (5)	21.5 ± 0.4 (2)	

Table 7.14.2.1

CONDITION	ALUMINUM				6061				K(1C)				DATE	REFER
	--PRODUCT--		YIELD (KSI)	SPECIMEN	THICK		DESIGN	CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV			
	FORM	THICK (IN)			THICK (IN)	THICK (IN)								
T651	P	1.50	- 112	T-L	45.5	3.000	1.480	NB	1.500	0.96	28.20		1971	84288
		1.50			45.5	3.000	1.480	NB	1.450	1.10	30.30		1971	84288
		1.50			45.5	3.000	1.480	NB	1.510	1.20	31.90	30.1/ 1.9	1971	84288
T651	P	1.50	R.T.	T-L	43.4	2.000	1.000	NB	1.025	0.90	26.00		1972	82880
		1.50			43.4	2.000	1.000	NB	1.018	0.94	26.60		1972	82880
		1.50			43.4	3.000	1.480	NB	1.508	1.01	27.60		1971	84288
		1.50			43.4	3.000	1.480	NB	1.443	0.86	25.40		1972	82880
		1.50			43.4	2.000	1.000	NB	0.995	0.98	27.20	26.6/ 0.9	1972	82880
T651	P	2.50	R.T.	S-L	41.5	2.000	1.000	CT	0.951	0.68	21.70		1973	86688
		2.50			41.5	2.000	1.000	CT	0.930	0.62	21.20	21.5/ 0.4	1973	86688
T651	P	3.00	88	S-L	39.6	2.490	1.251	CT	1.183	0.71	21.10		1973	86213
		3.00			39.6	2.500	1.250	CT	1.181	0.74	21.60		1973	86213
T651	FB	----	84	T-L	40.3	3.000	1.500	CT	1.171	0.72	21.30	21.3/ 0.3	1973	86213
									1.547	1.29	28.90		1973	86213
T651	FB	----	84	S-L	40.3	2.000	1.000	CT	0.987	0.91	24.30		1973	86213
					40.3	2.000	1.001	CT	0.956	0.91	24.30	24.3/ 0.0	1973	86213
T652	F	9.00	R.T.	S-T	38.1	2.000	1.000	NB	1.000	0.95	23.40		1972	82675

Table 7.14.2.2

CONDITION	ALUMINUM		6061		K(C)		CRACK LENGTH CROSS STRESS										K(C) STAN					
	--PRODUCT--		--SPECIMEN--		W		WIDTH		THICK		INIT		FINAL		ONSET		K (APP)		STAN			
	FORM		THICK		(IN)		(IN)		(IN)		(KSI)		(KSI)		S(O)		K (KSI)		K (KSI)			
	THICK		OR		(IN)		(IN)		(IN)		2A(D)		2A(F)		S(O)		S(MAX)		(KSI*SQRT IN)			
BUCKLING OF CRACK EDGES NOT RESTRAINED																						
T6	S	0.06	R	T	L-T	41.9	2.000	0.062	0.062	0.622	1.240	---	28.50	29.98*	53.05*	1973 86213						
		0.06				41.9	2.000	0.062	0.062	0.620	1.230	---	28.80	30.23*	53.09*	1973 86213						
		0.06				41.9	2.000	0.062	0.062	0.619	1.360	---	28.40	29.75*	59.80*	1973 86213						
		0.06				43.4	2.000	0.062	0.062	0.622	1.280	---	30.10	31.66*	58.31*	1973 86213						
		0.06				43.4	2.000	0.062	0.062	0.622	1.300	---	30.00	31.56*	59.31*	1973 86213						
T6	S	0.06	R	T	L-T	41.4	15.810	0.062	0.062	4.000	---	---	28.20	73.61*	---	1973 86213						
		0.06				41.4	15.810	0.062	0.062	3.020	4.230	---	32.00	71.31*	86.33*	1973 86213						
		0.06				41.4	15.820	0.063	0.063	1.000	1.230	---	39.10	49.13*	54.55*	1973 86213						
		0.06				41.4	15.820	0.062	0.062	5.980	7.000	---	21.60	72.72*	81.73*	1973 86213						
		0.12	R	T	L-T	44.1	4.000	0.127	0.127	1.590	2.864	---	26.70	46.85*	86.22*	1973 86213						
T6	S	0.06	R	T	T-L	40.7	2.000	0.063	0.063	0.619	0.980	---	28.30	29.65*	41.43*	1973 86213						
		0.06				40.7	2.000	0.062	0.062	0.623	1.280	---	28.60	30.08*	55.40*	1973 86213						
		0.06				40.7	2.000	0.063	0.063	0.620	1.110	---	28.20	29.60*	46.42*	1973 86213						
		0.06				41.8	2.000	0.062	0.062	0.622	1.130	---	29.80	31.35*	49.97*	1973 86213						
		0.06				41.8	2.000	0.062	0.062	0.617	1.320	---	29.60	30.95*	59.74*	1973 86213						
T6	S	0.06	R	T	T-L	40.8	15.810	0.063	0.063	3.010	4.040	---	30.10	66.95*	79.03*	1973 86213						
		0.06				40.8	15.810	0.062	0.062	6.010	7.000	---	20.50	69.26*	77.58*	1973 86213						
		0.06				40.8	15.820	0.062	0.062	1.000	1.550	---	37.40	46.99*	58.71*	1973 86213						
		0.06				40.8	15.820	0.063	0.063	4.000	---	---	27.00	70.48*	---	1973 86213						
		0.06				40.8	15.820	0.063	0.063	4.000	---	---	27.00	70.48*	---	1973 86213						
BUCKLING OF CRACK EDGES NOT RESTRAINED																						
T651	P	0.25	R	T	L-T	43.9	4.000	0.250	0.250	1.730	3.171	---	25.80	48.22*	101.74*	1973 86213						
		0.25				43.9	4.000	0.251	0.251	1.577	2.956	---	27.60	48.12*	94.20*	1973 86213						
T651	P	0.50	R	T	L-T	44.1	4.000	0.503	0.503	1.600	---	13.40	28.90	50.94*	1973 86213							

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV

Table 7.14.2.2 (Con't)

CONDITION	ALUMINUM		6061		K(C)		CRACK LENGTH CROSS STRESS										K(C)			
	---PRODUCT--		TEST SPEC		YIELD		---SPECIMEN---		CRACK LENGTH		CROSS STRESS		K (APP)		STAN		K (C)			
	FORM	THICK	TEMP	OR	STR	(KSI)	W	THICK	INIT	FINAL	ONSET	MAX	(KSI)	MEAN	DEV	(KSI*SQRT IN)	MEAN	DEV		
	(IN)	(F)						(IN)	(IN)	(IN)	(KSI)	(KSI)	(KSI)	(KSI*SQRT IN)			(KSI*SQRT IN)			
							B		2A(O)	2A(F)	S(O)	S(MAX)								

BUCKLING OF CRACK EDGES NOT RESTRAINED

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 7.14.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 7.14.3.1 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 6061
CONDITION: T651
ENVIRONMENT: R.T., LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.00			
DELTA K MIN	A: 11.89	12.5			
	B:				
	C:				
	D:				
	13.00	15.8			
	16.00	29.6			
	20.00	57.4			
	25.00	124.			
	30.00	259.			
	35.00	340.			
	A: 37.44	752.			
	B:				
DELTA K MAX	C:				
	D:				

ROOT MEAN SQUARE 10.47
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T651
 FORM: 1.00" TH PLATE
 SPECIMEN TYPE: NB
 ORIENTATION: L-T
 FREQUENCY: 0.10 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 38.0 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 2.500"
 REFERENCES: 81507

ALUM.
 ALLOY

6061

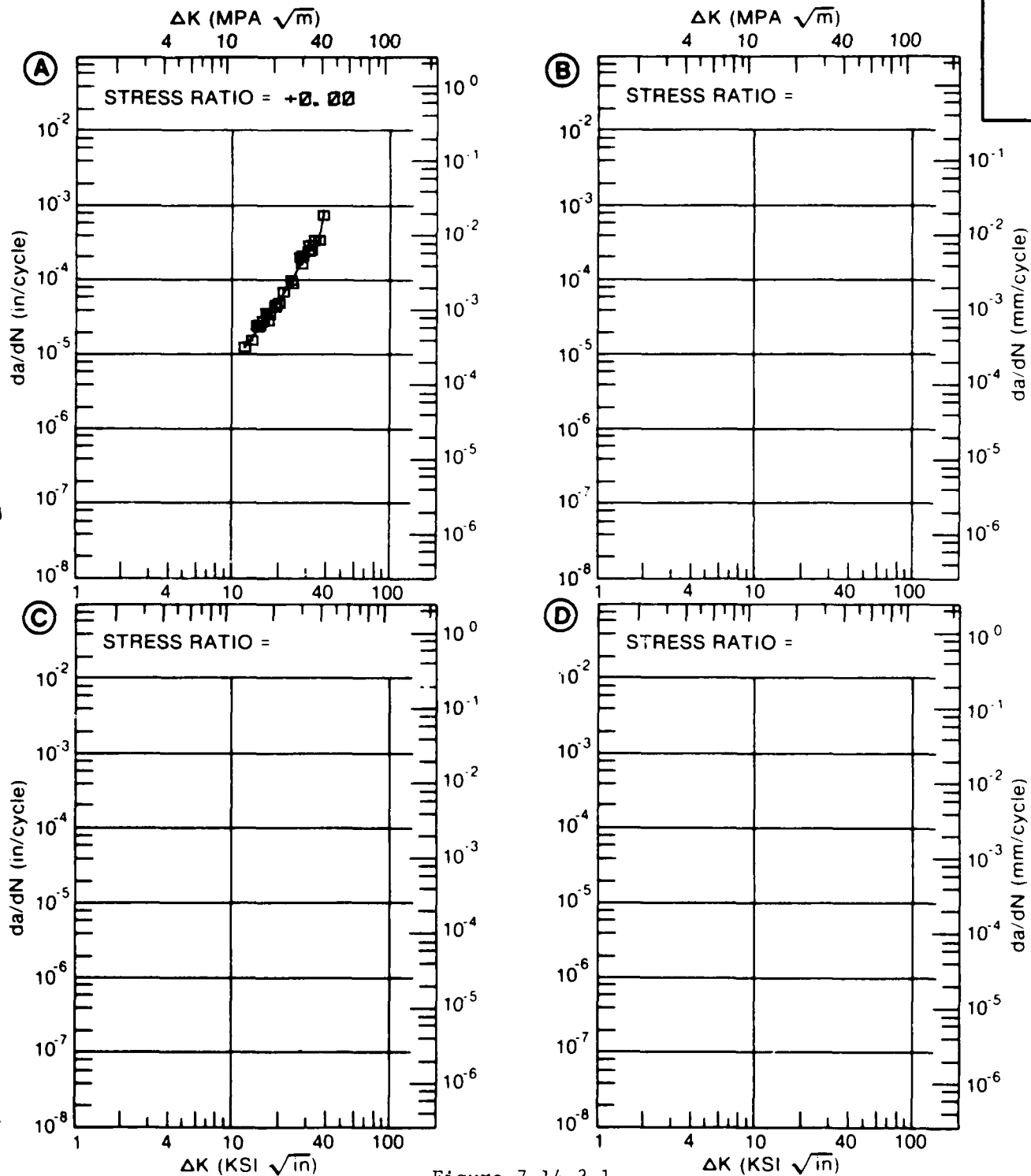


Figure 7.14.3.1

Table 7.14.3.2

CONDITION	--PRODUCT--		TEST SPEC OR TEMP (F)	YIELD STR (KSI)	ENVIRONMENT	ALUMINUM		6061		K (ISCC)		STAN DEV	TEST TIME (MIN)	DATE REFER
	FORM	THICK (IN)				WIDTH (IN)	THICK (IN)	DESIGN (**SQ)	CRACK LENGTH (IN)	K (ISCC) K (SI*SQRT IN)				
T6	S	0.12	R.T.	S-L	----	AEROZINE 50	1.300	0.125	WOL	----	----	28.00*	----	1974 88700
T6	S	0.12	R.T.	S-L	----	AEROZINE 50/ IPCT CO2	1.300	0.125	WOL	----	----	19.60*	----	1974 88700
T6	S	0.12	R.T.	S-L	----	MATHESON COLE- MAN BELL 97PCT HYDROZINE /3 PCT H2O	1.300	0.125	WOL	----	----	16.40*	----	1974 88700
T6	S	0.12	R.T.	S-L	----	PROPELLANT GRADE HYDROZINE	1.300	0.125	WOL	----	----	25.00*	----	1974 88700
T6	S	0.12	R.T.	S-L	----	UNSYMMETRICAL DIMETHYL HYDROZINE	1.300	0.125	WOL	----	----	19.70*	----	1974 88700
T651	P	2.50	R.T.	S-L	----	41.6 INDUSTRIAL ATM	2.000	1.000	CT	----	21.40	20.00	----	1973 86688
T651	P	2.50	R.T.	S-L	----	41.6 SALT-DICHRO- MATE-ACETATE	2.000	1.000	CT	----	21.40	20.00	----	1973 86688
T651	P	2.50	R.T.	S-L	----	41.6 SEACOAST ATM	2.000	1.000	CT	----	21.40	20.00	----	1973 86688
T652	F	6.00 9.00	R.T.	S-L	----	39.3 SEAWATER 38.1	1.400 2.000	0.700 1.000	CANT	----	29.60 27.40	26.00* 24.00	----	1972 82675 1972 82675

*NOTE-DATA WHICH DO NOT MEET MINIMUM SPECIMEN THICKNESS REQUIREMENTS OF 2.5 (KISCC/TYS) SQUARED

TABLE 7.15

REFERENCES FOR THE ALUMINUM ALLOY DATA

- 51527 2014-T6 K_C
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- 57210 7075-T7351 K_C
Unknown
- 62306 2219-T87 K_C
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- 62308 2024-T3 K_C
2024(ALCLAD)-T3 K_C
Anderson, W. E., "Fracture Toughness Data Summary", Report D6-9068, The Boeing Company (June 1962).
- 62309 7075-T6 K_C
Batch, E. J., and Edwards, W. T., "Evaluation of Tear Resistance of 7079 Aluminum Alloys (Sheet Extrusions and Forgings)", Report SMN 86, Lockheed Aircraft Corporation, Marietta, Ga., (April 13, 1962).
- 62310 7075-T6 K_C
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- 62311 2024(ALCLAD)-T3 K_C
7075(ALCLAD)-T6 K_C
Gurin, P. J., "Crack Propagation Tests for Some Aluminum Alloy Materials", LR 10498, Lockheed Aircraft Corporation (February 1955).
- 65697 7075(ALCLAD)-T6 K_C
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- 66103 2219-T87 K_C
Ferguson, C. W., "Hypervelocity Impact Effects on Liquid Hydrogen Tanks", NASA CR-54852, Douglas Aircraft Company Inc. (March 1966).

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67821	2024-T3 K_C	Walker, E. K., "A Study of the Influence of Geometry on the Strength of Fatigue Cracked Panels", AFFDL-TR-66-92, Northrop Norair (June 1966)
68908	2014-T6 K_C	Orange, T. W., "Fracture Toughness of Wide 2014-T6 Aluminum Sheet at -320 F", NASA TN D-4017, Lewis Research Center (June 1967).
69759	2219-T87 K_C	Eitman, D. A., and Rawe, R. A., "Plane Stress Cyclic Flaw Growth of 2219-T87 Aluminum and 5Al-2.5Sn ELI Titanium Alloys at Room and Cryogenic Temperatures", NASA CR-54956, Douglas Aircraft Company, Inc. (September 1966).
70485	2024(ALCLAD)-T3 K_C 7075(ALCLAD)-T6 K_C	Broek, D., "The Effect of Finite Specimen Width on the Residual Strength of Light Alloy Sheet", TR M.2152, National Aero- and Astronautical Research Institute, Amsterdam (September 1965).
70519	2024(ALCLAD)-T3 K_C	Broek, D., "The Effect of the Sheet Thickness on the Fracture Toughness of Cracked Sheet", NRL-TR M.2160, National Aerospace Laboratory, Amsterdam (January 1966).
75599	7075-T6 K_C	Hudson, C. M., "Effect of Stress Ratios on Fatigue-Crack Growth in 7075-T6 and 2024-T3 Aluminum-Alloy Specimens", NASA TN D-5390, Langley Research Center (August 1969).
75787	7075-T651 K_{Isc}	Procter, R. P. M., and Paxton, H. W., "Stress Corrosion of Aluminum Alloy 7075-T651 in Organic Liquids", Journal of Materials, <u>4</u> (3) 729-760 (September 1969).
76411	7079-T6 K_{Ic}	Wessel, E. T., et al., "Engineering Methods for the Design and Selection of Materials Against Fracture", Final Technical Report, Westinghouse Research Laboratories, Pittsburgh, PA, Contract DA-30-069-AMC-602 (T) (June 24, 1966).
77140	7075-T73510 K_{Ic} 7178-T651 K_{Ic} 7178-T6510 K_{Ic}	Kaufman, J. G., Schilling, P. E., and Nordmark, G. E., "Fracture Toughness, Fatigue and Corrosion Characteristics of X7080-T7E41 and 7178-T651 Plate and 7075-T6510, 7075-T73510, X7080-T7E42, and 7178-T6510 Extruded Shapes", Report AFML-TR-67-C-1521 (November 1969).

TABLE 7.15 (Cont)

77720	2014-T652	K_{Ic}
	2024-T852	$K_{Ic}, da/dN$
	7075-T7352	$K_{Ic}, da/dN$
	7079-T652	$K_{Ic}, da/dN$
Brownhill, D. J., et al., "Mechanical Properties, Including Fracture Toughness and Fatigue, Corrosion Characteristics and Fatigue-Crack Propagation Rates of Stress-Relieved Aluminum Alloy Hand Forgings", Report AFML-TR-70-10, Aluminum Company of America, Alcoa Research Laboratory, New Kensington, PA, Contract F33615-68-C-1385 (February 1970).		
78313	2024-T351	$da/dt, K_{Isc}$
	2024-T4	da/dt
	2219-T37	da/dt
	7075-T651	da/dt
	7079-T651	$da/dt, K_{Isc}$
	7175-T66	$da/dt, K_{Isc}$
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78982	2024-T3	K_c
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79089	7075-T7351	K_c
Fedderson, C. E., and Hyler, W. S., "Fracture and Fatigue-Crack Propagation Characteristics of 7075-T7351 Aluminum Alloy Sheet and Plate Report No. G-8902, Battelle Memorial Institute, Columbus Laboratories (March 1970).		
80073	2021-T81	K_{Ic}, K_{Isc}
	7007-T6	K_{Isc}
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80104	2219-T87	K_c
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82675	2014-T6	K_{Isc}
	2024-T352	K_{Isc}
	2024-T852	K_{Ic}, K_{Isc}
	6061-T652	K_{Ic}, K_{Isc}
	7075-T7352	K_{Ic}, K_{Isc}
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82879	2014-T6 K _{IC} 7075-T6 K _{IC} 7075-T73 K _{IC} 7079-T6 K _{IC} 7080-T7 K _{IC}	Moore, R. L., et al., "Fatigue and Fracture Characteristics of Aluminum Alloy Cylinders Under Internal Pressure", Engineering Fracture Mechanics, <u>4</u> (1) 51-63 (March 1972).
82880	2024-T851 K _{IC} 2219-T851 K _{IC} 6061-T651 K _{IC} 7075-T7351 K _{IC} 7079-T651 K _{IC}	Nelson, F. G., et al., "The Effect of Specimen Size on the Results of Plane-Strain Fracture-Toughness Tests", Engineering Fracture Mechanics, <u>4</u> (1) 33-50 (March 1972).
83058	7175-T736 K _{IC}	Jones, R. E., "Fracture Toughness and Fatigue Crack Growth Properties of 7175-T736 Aluminum Alloy Forging at Several Temperatures", Report AFML-TR-72-1, University of Dayton Research Institute, Dayton, OH, Contract F33615-71-C-1054 (February 1972).
83061	7049-T73 K _{IC} , K _{ISCC} 7049-T76 K _{IC}	Jones, R. E., "Mechanical Properties of 7049-T73 and 7049-T76 Aluminum Alloy Extrusions at Several Temperatures", Report AFML-TR-72-2, University of Dayton Research Institute, Dayton, OH, Contract F33615-71-C-1054 (February 1972).
83242	7049-T73 K _{IC} , K _{ISCC} 7175-T736 K _{IC} , K _{ISCC}	Harmsworth, C. L., "Evaluation of Landing Gears Fabricated from 7175-T736 and 7049-T73 Aluminum Alloys", Report No. LA 72-22, Air Force Materials Laboratory, Wright-Patterson AFB, OH, (May 25, 1972).
83243	2024-T851 K _{IC}	Gunderson, A. W., "Tensile, Fracture and Fatigue Properties of 2024-T851 Aluminum Thick Plate", Report No. LA 72-24, Air Force Materials Laboratory, Wright-Patterson AFB, OH, (May 26, 1972).
84284	2024-T351 da/dt 7039-T64 da/dt 7049-T73 da/dt 7075-T651 da/dt 7075-T7351 da/dt 7079-T651 da/dt 7175-T736 da/dt	Hyatt, M. V., "Use of Precracked Specimens in Stress Corrosion Testing of High Strength Aluminum Alloys", Corrosion, <u>26</u> (11), 487-503 (November 1970).

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84286	7075 da/dt 7075-T7351 da/dt	Hyatt, M. V., "Use of Precracked Specimens in Selecting Heat Treatments for Stress-Corrosion Resistance in High Strength Aluminum Alloys", Corrosion, <u>27</u> (1), 49-53 (January 1971).
84288	2014-T651 K _{Ic} 2024-T851 K _{Ic} 6061-T651 K _{Ic} 7075-T651 K _{Ic} 7079-T651 K _{Ic}	Nelson, F. G., and Kaufman, J. G., "Plane Strain Fracture Toughness of Aluminum Alloys at Room and Subzero Temperatures", ASTM STP 496, American Society for Testing and Materials, Philadelphia, PA, (1971).
84306	2024-T851 K _{Ic} 2124-T851 K _{Ic} 2219-T851 K _{Ic} 7049-T73 K _{Ic} 7075-T651 K _{Ic} 7075-T7351 K _{Ic} 7075-T7651 K _{Ic}	Harrigan, M. J., "B-1 Fracture Mechanics Data for Air Force Handbook Usage", Report TFD-72-501, North American Rockwell, Los Angeles Division, Los Angeles, CA, (April 21, 1972).
84319	2219-T87 K _{Ic}	Engstrom, W. L., "Determination of Design Allowable Properties, Fracture of 2219-T87 Aluminum Alloy", NASA CR-115388, The Boeing Company, Aerospace Group, Seattle, Wash., Contract NAS 9-10364 (March 1972).
84329	7079-T6 K _{Isc}	Report of NRL Progress, Naval Research Laboratory, Washington, D.C. (October 1967).
84331	2020-T651 K _{Isc} 2219-T851 K _{Isc} 7005-T63 K _{Isc} 7075-T6 K _{Isc} 7075-T651 K _{Isc} 7075-T7351 K _{Isc} 7079-T6 K _{Isc}	Report of NRL Progress, Naval Research Laboratory, Washington, D.C. (January 1968).
84340	7075-T651 K _c 7075-T7351 K _c	Allen, F. C., "Effect of Thickness on the Fracture Toughness of 7075 Aluminum in the T6 and T73 Conditions", ASTM STP 486, "Damage Tolerance in Aircraft Structures", p 16-38 (1971).
84360	2024-T851 da/dN, K _{Isc} 7075-T651 K _{Ic} , da/dN, K _{Isc} 7175-T736 da/dN, K _{Isc}	McDonnell Aircraft Company, McDonnell Douglas Corporation, St. Louis, MO, Phase B Test Program, Report MDC A0913 (May 18, 1971).

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84362	7050-T73651	K_{Isc}
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84363	2021-T81	K_{Ic}
	7050-T73651	K_{Ic}
	7075-T7351	K_{Ic} , da/dN
Rich, D. L., "MCAIR IRAD Data for Fracture Mechanics Engineering and Design Data Handbook", with enclosures (1) Materials Definition, (2) Mechanical Properties Test Data, (3) Plane Strain Fracture Toughness Test Data, and (4) Plane Strain Constant Amplitude Crack Growth Test Data, McDonnell Aircraft Company, McDonnell Douglas Corporation, St. Louis, MO (June 14, 1972).		
84366	2024(ALCLAD)-T3	K_c
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84367	2024-T3	K_c
	7075-T6	K_c
McEvily, A. J., Illg, W., and Hardrath, H. F., "Static Strength of Aluminum-Alloy Specimens Containing Fatigue Cracks", NACA TN 3816, Langley Aeronautical Laboratories (October 1956).		
84368	2124-T851	K_{Ic}
	7049-T73	K_{Ic}
	7175-T736	K_{Ic}
	7475-T61	K_c
	7475-T761	K_c
	7475(ALCLAD)-T61	K_c
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85363	7475-T61	da/dN
	7475-T6151	da/dN
	7475-T7351	da/dN
	7475-T761	da/dN
Cervay, R. R., "Engineering Design Data for Aluminum Alloy 7475 in the T761 and T61 Condition", Report AFML-TR-72-173, University of Dayton Research Institute, Dayton, OH, Contract F33615-71-C-1054, (September 1972).		

TABLE 7.15 (Cont)

85543	7075-T651	da/dt	
	7079-T651	da/dt	
	7079-T651(+50 HR at 320F)	da/dt	
	7178-T651	da/dt	
	7178-T7651	da/dt	
	Speidel, M. O., "Current Understanding of Stress Corrosion Crack Growth in Aluminum Alloys", from The Theory of Stress Corrosion Cracking in Alloys, the Proceedings of a Research Evaluation Conference, J. C. Scully (Editor), Published by NATO Scientific Affairs Division, Brussels, Belgium (1971).		
85631	2219-T87	K_{Ic}	
	2219-T87 (-300F 100HR)	K_{Ic}	
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85836	2024-T851	K_{Ic}	7075-T73651 K_{Ic}
	2024-T852	K_{Ic}	7075-T73511 K_{Ic}
	2219-T851	K_{Ic}	7075-T73652 K_{Ic}
	2219-T852	K_{Ic}	7075-T7651 K_{Ic}
	7049-T7352	K_{Ic}	
	"B-1 Fracture Toughness Data (K (sub I_c)) - Rockwell International", Rockwell International Corporation, Los Angeles, CA, (April 24, 1973).		
85837	2024-T851	da/dN	7050-T7351 da/dN
	2024-T852	da/dN	7050-T7351 da/dN
	2219-T851	da/dN	7075-T7651 da/dN
	2219-T8511	da/dN	7175-T73652 da/dN
	2219-T852	da/dN	
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85880	7050-T736	K_{Ic}	
	7175-T736	K_{Ic} , da/dN	
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86088	7075-T6	da/dN	
	7178-T6	da/dN	
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86210	2024-T852	K_{Ic}	
	7075-T73511	K_{Ic}	
	7075-T7651	K_{Ic}	
	7075-T76511	K_{Ic}	
	"Rockwell International, B-1 Fracture Toughness Data on Titanium and Aluminum Alloys of June 4, 1973", Rockwell International, Los Angeles, CA, (June 4, 1973).		

TABLE 7.15 (Cont)

86212 2024-T3 da/dN
 7050-T736 K_{Ic} , K_{Isc}
 7075-T76511 K_{Ic} , K_{Isc}
 7475-T61 da/dN
 7475-T761 da/dN , da/dt
 7475(ALCLAD)-T61 da/dN
 7475(ALCLAD)-T761 da/dN

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86213	2014-T6	K_{Ic} , K_c , da/dN	7075-T6510	K_{Ic}
	2014-T61	K_{Ic}	7075-T6511	K_{Ic}
	2014-T611	K_{Ic}	7075-T73	K_{Ic} , K_c
	2014-T651	K_{Ic} , K_c	7075-T7351	K_{Ic} , K_c
	2020-T6	K_{Ic} , K_c	7075-T73510	K_{Ic}
	2020-T651	K_{Ic} , K_c , da/dN	7075-T73511	K_{Ic}
	2020(ALCLAD)-T6	K_c	7075-T7352	K_{Ic}
	2021-T8151	K_{Ic}	7075-T76	K_{Ic} , K_c
	2024-T3	K_c , da/dN	7075-T7651	K_{Ic} , K_c
	2024-T351	K_{Ic} , K_c	7075-T7651 (SP)	K_{Ic}
	2024-T36	K_c	7075-T76511	K_{Ic}
	2024-T6	K_c	7075(ALCLAD)-T6	da/dN
	2024-T81	K_c	7075(ALCLAD)-T7651	K_{Ic}
	2024-T851	K_{Ic} , K_c	7079-T6	K_{Ic} , K_c
	2024-T852	K_{Ic}	7079-T651	K_{Ic} , K_c
	2024-T86	K_c	7079-T652	K_{Ic}
	2024(ALCLAD)-T3	K_c , da/dN	7079(ALCLAD)-T6	K_c
	2024(ALCLAD)-T86	K_c	7080-T7	K_{Ic}
	2124-T351(417)	K_{Ic}	7175-T66	K_{Ic}
	2124-T851	K_c	7175-T73	K_{Ic}
	2124-T851 (SP)	K_{Ic}	7175-T7352	K_{Ic}
	2124-T851 (417)	K_{Ic}	7175-T736	K_{Ic}
	2214-T651	K_{Ic}	7175-T73652	K_{Ic}
	2214-T651 (417)	K_{Ic}	7178-T6	K_c
	2219-T81	K_c	7178-T651	K_{Ic} , K_c
	2219-T851	K_{Ic} , K_c	7178-T7651	K_{Ic} , K_c , da
	2219-T852	K_{Ic}	7178-T76510	K_{Ic} , da/dN
	2219-T87	K_{Ic} , K_c	7178-T76511	K_{Ic}
	2618-T61	K_c	7178(ALCLAD)-T6	K_c
	2618-T651	K_{Ic}	7178(ALCLAD)-T76	K_c
	6061-T6	K_c	7475-T6	K_{Ic}
	6061-T651	K_{Ic} , K_c	7475-T61	K_c
	7001-T75	K_{Ic} , K_c	7475-T651	K_{Ic} , da/dN
	7005-T6	K_c	7475-T651 (SP)	K_{Ic}
	7005-T6351	K_{Ic} , K_c	7475-T73	K_{Ic}
	7049-T73	K_{Ic}	7475-T7351	K_{Ic}
	7049-T7351	K_{Ic}	7475-T7351 (SP)	K_{Ic}
	7049-T7352	K_{Ic}	7475-T736	K_{Ic}
	7050-T6	da/dN	7475-T76	da/dN
	7050-T7352	K_{Ic}	7475-T761	K_c
	7050-T736	K_{Ic}	7475-T7651	K_{Ic}
	7050-T73651	K_{Ic}	7475-T7651 (SP)	K_{Ic}
	7050-T73652	K_{Ic}	7475(ALCLAD)-T73	K_c
	7050-T76	da/dN	7475(ALCLAD)-T731	K_c
	7050-T76511	K_{Ic}	7475(ALCLAD)-T761	K_c , da/dN
	7075-T6	K_c , da/dN	7475(ALCLAD)-T761	K_c , da/dN
	7075-T651	K_{Ic} , K_c		

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86493	7050-T73651	<p>Deel, O. L., Ruff, P. E., and Mindlin, H., "Engineering Data on New Aerospace Structural Materials", Report AFML-TR-73-114, Battelle-Columbus Laboratories, Columbus, OH, Contract F33615-72-C-1280 (June 1973).</p>		
86574	7050-T73651 K _{Ic} 7050-T7651 K _{Ic} 7475-T7651 K _{Ic}	<p>Figge, F. A., and Wells, R. R., "Advanced Metallic Structure: Air Superiority Fighter-Wing Design for Improved Cost, Weight and Integrity Report No. AFFDL-TR-73-52, Volume III, Northrop Corporation, Aircraft Division, Hawthorne, CA, Contract F33615-72-C-1891 (June 1973), with original data for da/dN tests.</p>		
86575	2024-T81 da/dN 7075-T76 da/dN	<p>"Rockwell International, B-1 Program, da/dN Data, Center-Cracked Tension Specimens", Lockheed California Company, Burbank, CA, Report LR25152 (Received July 1973) (Memo from E. W. Cawthorne dated July 10, 1973).</p>		
86688	2014-T651 K _{Isc} 2021-T81 K _{Isc} 2024-T351 K _{Isc} 2024-T851 K _{Isc} 2219-T37 K _{Isc}	2219-T87 K _{Ic} , K _{Isc} 6061-T651 K _{Ic} , K _{Isc} 7075-T651 K _{Isc} 7075-T7351 K _{Isc} 7079-T651 K _{Isc}	<p>Sprowls, D. O., et al., "Evaluation of Stress-Corrosion Cracking Susceptibility Using Fracture Mechanics Techniques", Final Report, Part I, Aluminum Company of America, Alcoa Technical Center, Alcoa Center, PA, Contract NAS8-21487 (May 31, 1973).</p>	
86734	2014-T6 da/dN 2024-T3 K _c 2024-T351 K _c 2024-T4 K _c 2024-T81 K _c , da/dN 2024(ALCLAD)-T3 K _c	2618-T81 da/dN 7075-T6 K _c 7075(ALCLAD)-T6 K _c 7079-T6 da/dN 7079-T651 da/dN	<p>Smith, S. H., "Fracture Mechanics Application to Materials Evaluation and Selection for Aircraft Structure and Fracture Analysis", Report No. D6-17756, The Boeing Company, Commercial Airplane Division, Renton, Washington (July 19, 1966).</p>	

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86842	2124-T851 da/dN 7049-T73 da/dN 7175-T736 da/dN 7475-T61 K_{IC} , da/dN 7475-T761 K_{IC} , da/dN 7475(ALCLAD)-T61 K_{IC}
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86844	7050-T7351 da/dN 7050-T73651 da/dN 7050-T7651 da/dN
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87398	2024-T3 da/dN
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88186	7050-T7351 K_{IC}
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88579	2024-T851	da/dN	7075-T73511	da/dN
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	2219-T851	da/dN	7075-T7651	da/dN
	7050-T73	da/dN	7075-T76511	da/dN
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88742	2124-T851	K _{Ic}		
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90011	2024-T351	K _{Ic}		
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	2024-T852	K _{Ic}		
	2219-T851	K _{Ic}		
	7075-T7651	K _{Ic}		
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91123	7050-T736	K _{Ic}		
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91332	7050-T736	da/dN		
	7050-T73651	da/dN		
	7050-T7651	da/dN		
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AL002 2020-T651 da/dN
 7075-T6510 da/dN
 7075-T73510 da/dN
 7475-T651 da/dN

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AL003 7475-T651 da/dN

FCGR Data Sheets for Aluminum Alloy 7475-T651 Plate, Received from R. J. Bucci, Aluminum Company of America, Alcoa Laboratories, August 1982.

AL004 7050-T76511 da/dN

FCGR Data Sheets on Aluminum Alloy 7050-T76511 and T73511, Received from R. J. Bucci, Aluminum Company of America, Alcoa Laboratories, August 1982.

AL005 7075-T651 da/dN
 7075-T6510 da/dN
 7075-T7351 da/dN
 7075-T73510 da/dN

FCGR Data Sheets on Aluminum Alloy 7075- Conditions T651, T6510, T7351, T73510, Plates, Bars, and Extrusions; Received from R. J. Bucci, Aluminum Company of America, Alcoa Laboratories, August 1982.

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FCGR Data Sheets on Aluminum Alloy 7050-T73511 Extrusions, Received from R. J. Bucci, Aluminum Company of America, Alcoa Laboratories, August 1982.

AL007 7050-T7351X da/dN

FCGR Data Sheets on Aluminum Alloy 7050-T7351X Extrusions, Received from R. J. Bucci, Aluminum Company of America, Alcoa Laboratories, August 1982.

AL008 7050-T7651X da/dN

FCGR Data Sheets on Aluminum Alloy 7050-T7651X Extrusions, Received from R. J. Bucci, Aluminum Company of America, Alcoa Laboratories, August 1982.

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AL009	7475-T7351 da/dN
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AL010	2024-T351 da/dN
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AL011	2324-T39 da/dN
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AL012	7050(ALCLAD)-T76 da/dN
	FCGR Data Sheets on Aluminum Alloy 7050-T76 (ALCLAD), Received from R. J. Bucci, Aluminum Company of America, Alcoa Laboratories, August 1982.
AL013	7050-T73651 da/dN
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AL014	7150-T651 da/dN
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AL015	7050-T73651 K_{Ic} 7050-T73652 K_{Ic} , da/dN 7050-T76 da/dN
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 7075-T6511 da/dN
 7079-T6 da/dN
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BW005 2024-T3511 da/dN

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DA001 2024-T351 R-curve, da/dN
 7075-T6511 R-curve, da/dN
 7475-T7651 R-curve, da/dN

Fatigue Crack Growth Rate Data Sheets on Aluminum Alloys 2024, 7010, 7050, 7075 and 7475, Stainless Steel Alloys 17-4PH and 17-7PH, and Alloy Steels 4340, A286, H-11, H7-180 and 12-9-2, Sent from Paul Abelkis, Douglas Aircraft Company, McDonnell Douglas Corporation, Long Beach, CA, March 1982.

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GD003	2124-T851 K_{Ic} , da/dN
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GD004	2024-T62 da/dN 2024-T81 da/dN
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	Margolis, W. S., "F-16 Material Test Allowables for Aluminum Alloy 7475, 3.0" Plate -T7351 Temper and 0.5" Plate (92" Width) -T7651 Temper and -T7351 Temper", General Dynamics, Fort Worth Division, Report No. 16 PR926, April 1978.
GD008	7075-T73 da/dN
	Margolis, W. S., "F-16 Material Test Allowables of Aluminum Alloy Forgings 7075-T73 and 7049-T73", General Dynamics, Fort Worth Division, Report No. 16 PR956, July 1978.
GD011	2124-T851 K_{Ic} , K_C , R-curve 7475-T7351 K_C , R-curve
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LG001	7175-T73511 K_{Ic} , K_C , K_{Isc}
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LG002	7050(ALCLAD)-T76 K_C 7475(ALCLAD)-T61 K_C
	Fuselage Materials Tests - K_C Data on Aluminum 7050-T76 and 7475-T61 Materials - sent from E. J. Batch, Lockheed Georgia Company, Marietta, GA, October 1982.

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LG003	7175-T73511	K_{Ic}
	7175-T76511	K_{Ic}
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MA002	2124-T851	K_{Ic} , da/dN
	7175-T73652	K_{Ic} , da/dN
Fracture Toughness of Ti-6Al-4V Plate and Forging, Aluminum 2124-T851 Plate and 7175-T73652 Forging and Fatigue Crack Growth Rate for Ti-6Al-4V Plate and Forging, Ti-6Al-6V-2Sn Extrusion, Aluminum 2124-T851 Plate and Aluminum 7175-T73652 Forging, Data submitted by D. L. Rich of McDonnell Aircraft Company, St. Louis, MO, Attachment #2, Received March 12, 1982.		
MA005	7050-T7651	da/dN, K_{Isc}
	7075-T7351	K_{Ic} , da/dN, K_{Isc}
	7175-T73652	K_{Ic} , da/dN, K_{Isc}
	7475-T7351	K_{Ic} , K_{Isc}
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MA007	7049-T7351	da/dN
	7075-T6	da/dN
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MA008	7075-T6	da/dN
	7075-T651	da/dN
Garland, K., and Krieg, J. F., "Evaluation of Stress Level Effects Under Plane Stress and Plane Strain Conditions", McDonnell Aircraft Company, St. Louis, MO, Report No. TR 301-346, TM 256-5597, July 1979.		
MA009	7075-T6	da/dN
	7075-T651	da/dN
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MA011	7075-T651	K_{Ic} , da/dN
	7075-T7352	K_{Ic} , da/dN
	7079-T6	da/dN
	7178-T651	da/dN
"Final Report, F/RF-4C/D Damage Tolerance and Life Assessment Study - Volume II", McDonnell Aircraft Company, St. Louis, MO, Contract No. AFSC F33657-73-A-0062, Report No. MDC A2883, February 197		

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 7075-T7352 K_{Ic} , da/dN
 7178-T76 da/dN

"Model F-4E Slatted Airplane Fatigue and Damage Tolerance Assessment, Volume II", McDonnell Aircraft Company, St. Louis, MO, Contract No. F33657-73-A-0004-0015, Report No. MDC A3390, July 1975.

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MPC01	2024-T851 K_{Ic}	7075-T7651 K_{Ic}
	2024-T8510 K_{Ic}	7075(ALCLAD)-T7651 K_{Ic}
	2124-T851 K_{Ic}	7079-T651 K_{Ic}
	2219-T851 K_{Ic}	7079-T851 K_{Ic}
	2419-T851 K_{Ic}	7175-T7651 K_{Ic}
	7075-T651 K_{Ic}	7178-T7651 K_{Ic}
	7075-T6510 K_{Ic}	7475-T651 K_{Ic}
	7075-T6511 K_{Ic}	7475-T7351 K_{Ic}
	7075-T7351 K_{Ic}	

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MR001 7075-T651 da/dN
 7075-T7351 K_{Ic} , da/dN
 X7090-T7E69 da/dN
 X7091-T7E70 da/dN

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NC001 7050-T736 K_{Ic}
 7050-T73651 K_{Ic}
 7149-T73511 K_{Ic}

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NC002 7050-T736 da/dN
 7050-T73651 da/dN
 7075-T7351 da/dN
 7149-T73511 da/dN

Fatigue Crack Growth Rate Data on Aluminum, Steel and Titanium Alloys, Data Sent From P. G. Porter of Northrop Corporation, March 1, 1982.

NC003 2024-T851 K_{Ic} , da/dN
 2124-T851 K_{Ic} , da/dN
 7050-T73651 K_{Ic}
 7075-T7351 K_{Ic} , da/dN

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RA002	2124-T851 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 38-KFP, November 1978.
RA003	7475-T7351 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 38KFN-7475 Alloy, March 1978 - November 1978.
RA004	7475-T7351 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 37-KFN-7475 Alloy, August 1977 - December 1977.
RA005	7475-T7351 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 38-KFN-3M04-7475 Alloy, May 1980.
RA006	7475-T7351 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 38-KFP-7475 Alloy, September 1977 - November 1977.
RA007	7475-T7651 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 37-KFP-7475 Alloy, 1977.
RA008	7050-T73651 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 37-KFP-7050 Alloy-T73651, January 1978.
RA009	7050-T73651 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 37-KFN-7050 Alloy-T73651, 1977.
RA010	7050-T73651 K_{Ic}	Summary of Plane-Strain Fracture Toughness and Notch-Tensile Tests-Reynolds Metals Company, Metallurgical Research Division, Richmond, VA, Project 38-KFP-7050 Alloy-T73651, 1977.

TABLE 7.15 (Cont)

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	2219-T851 K _{Isc}	7075-T73511 K _{Isc}	
	7049-T7352 K _{Isc}	7075-T7651 K _{Isc}	
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TABLE 7.15 (Cont)

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CHAPTER 8

7000 SERIES ALUMINUM ALLOY SECTIONS

8.0	7000 Series Aluminum Material Summaries
8.1	7001
8.2	7005
8.3	7007
8.4	7010
8.5	7039
8.6	7049
8.7	7050
8.8	7050 (Alclad)

TABLE 8.0.1

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	SUNDTION/HT	PRODUCT FORM	K1C	KIC	KC	R	CURVES	CA/DN	DA/DT	KISCC
7001	175	PLATE SHEET	X	X	X			X		
7005	16	SHEET PLATE		X	X			X		
	163	PLATE								X
	76351	PLATE	X	X						
7007	T6 OVERHEATED WELD CENTER LINE	PLATE								X
	T6 REPAIRED WELD FUSION LINE	PLATE								X
	T6 REPAIRED WELD HEAT AFFECT ZONE	PLATE								X
	T6 REPAIRED WELD CENTER LINE	PLATE								X
	T6 WELD CENTERLINE	PLATE								X
	T6 WELD FUSION LINE	PLATE								X
	T6 WELD HEAT AFFECT ZONE	PLATE								X
7010	173651	PLATE	X					X		X
7039	164	PLATE							X	
7049	177	FORGING EXTRUSION EXTRUDED BAR	X	X	X			X		X
	173 INTEGRALLY STIFFENED	EXTRUSION								X
	17351	PLATE	X					X		

TABLE 8.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/HT	PRODUCT FORM	K1C	KIC	R CURVES	TA/DN	DA/DT	K1SCC
7049	T73511-HIGH PURITY	EXTRUSION EXTRUDED BAR	X			X		
	T73511 LOW PURITY	EXTRUSION EXTRUDED BAR	X			X		
	T73511 MEDIUM PURITY	EXTRUSION EXTRUDED BAR	X			X		
7050	T7352	FORGING	X			X		X
	T76	EXTRUDED BAR	X					
	T6	SHEET EXTRUSION				X		X
	T7F54	FORGING	X					
	T73	FORGING				X		
	T7351	PLATE	X			X		
	T7351X	EXTRUSION				X		
	T73511	EXTRUSION				X		
	T73511-HIGH PURITY	EXTRUSION EXTRUDED BAR	X			X		
	T7352	FORGING	X					
7051	T736	FORGING	X			X		X
	T73651	PLATE EXTRUSION	X			X		X
	T73652	FORGING	X			X		

TABLE 8.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/UT	PRODUCT FORM	K1C	K1C	R CURVES	DA/DN	DA/DT	K1SCC
7050	176	SHEET		X		X		
	T7451	PLATE	X			X		X
	T7651X	EXTRUSION				X		
	T74511	EXTRUSION PLATE	X			X	X	
7050 (ALCLAD)	176	SHEET		X		X		
7075	---	PLATE					X	
	16	FORGING	X					
		EXTRUSION	X	X				
		FORGED BAR	X					
		ROLLED BAR	X					
		SHEET		X		X		X
1651		PLATE		X		X		X
		EXTRUSION	X				X	X
		ROLLED BAR	X					X
		SHEET		X				
		---					X	
		EXTRUSION	X					
16510		FORGED BAR	X			X		
		EXTRUDED BAR	X			X		
16511		EXTRUSION	X			X		
173		FORGING	X					
		FORGED BAR	X			X		X
		SHEET		X				
17351		PLATE				X		
		EXTRUSION	X	X		X	X	X
		SHEET	X	X				
173510		EXTRUSION	X					
		EXTRUDED BAR	X			X	X	X

TABLE 8.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/TIT	PRODUCT FORM	KIC	KC	R CURVES	DA/DN	DA/DT	KISCC
7075	T73511	EXTRUSION EXTRUDED BAR	X			X		X
		EXTRUSION EXTRUDED BAR	X			X		
	T73511 HIGH PURITY	EXTRUSION EXTRUDED BAR	X			X		
		EXTRUSION EXTRUDED BAR	X			X		
	T73511 LOW PURITY	EXTRUSION EXTRUDED BAR	X			X		
		EXTRUSION EXTRUDED BAR	X			X		
	T73511 MEDIUM PURITY	EXTRUSION EXTRUDED BAR	X			X		
		EXTRUSION EXTRUDED BAR	X			X		
	T7352	FORGING EXTRUSION BILLET PLATE	X			X		X
		FORGING EXTRUSION BILLET PLATE	X			X		X
7075 (ALCLAD)	T73652	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	T76	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	T7651 (SP)	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	T76511	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	UNDERAGED, 72HR 150F	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
7075	T6	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	T7651	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	T6	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	T6	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		
	T6	FORGING EXTRUSION BILLET PLATE	X			X		
		FORGING EXTRUSION BILLET PLATE	X			X		

TABLE 8.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/HT	PRODUCT FORM	KIC	KC	R	CURVES	DA/DN	DA/DT	KISCC
7079	T651	PLATE SHEET	X	X	X		X	X	X
	1651+50HR AT 320F	PLATE					X		
	1651+50HR AT 320F	PLATE					X		
	1651	FORGING	X			X			
	1651	PLATE	X						
	T6	SHEET		X					
7080	T7	FORGING FORGED BAR	X						
7080	T7E69	PLATE				X			
7080	T7E70	PLATE				X			
7149	173511	EXTRUSION	X				X		
7150	1651	PLATE					X		
7175	166	FORGING	X					X	X
	173	FORGING EXTRUSION	X X						
	173511	EXTRUSION	X	X					X
	17352	FORGING	X						
	17354	FORGING					X		

TABLE 8.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION/THT	PRODUCT FORM	K1C	KIC	R CURVES	DA/DN	DA/DT	KISCC
7175	1736	FORGING	X			X	X	X
	1736/52	FORGING	X			X		X
	176511	EXTRUSION	X					
7175	16	SHEET		X		X		
	1651	PLATE EXTRUSION SHEET	X X X	X		X	X	
	16510	EXTRUSION	X					
	1651+0HR AT 160F	PLATE					X	
	1651+12HR AT 300F	PLATE					X	
	1651+0HR AT 500F	PLATE					X	
7175	176	SHEET				X		
	17651	PLATE	X	X		X	X	
	176510	EXTRUSION FORGED BAR EXTRUDED BAR	X X X X			X		
	176511	EXTRUSION	X					
	176	SHEET		X				
	176	SHEET		X				

TABLE 8.0.1 (con't)

AVAILABLE DATA FOR ALUMINUM ALLOYS

ALLOY	CONDITION	PRODUCT FORM	K1C	KIC	R CURVES	DA/DN	DA/DT	KISCC
7075	T6	PLATE	X					
	T61	SHEET		X		X		
		PLATE		X		X		
	T6151	SHEET				X		
	T651	PLATE	X			X		
	T651 (SP)	PLATE	X					
	T73	PLATE	X					
	T7351	PLATE	X	X		X		X
	T7351 (SP)	PLATE	X					
	T746	FORGING	X					
	T76	SHEET				X		
	T761	SHEET		X		X		X
7075 (Al-Cu-Ag)	T7651	PLATE	X	X		X		X
		SHEET	X	X		X		
	T7651 (SP)	PLATE	X					
	T61	SHEET		X		X		
		PLATE		X				
	T73	SHEET		X				
	T731	PLATE		X				
		SHEET		X				
	T761	SHEET		X		X		
		PLATE		X				

TABLE 8.0.2

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/ HT	PRODUCT FORM	RANGE OF PRODUCT THICKNESSES (IN)	K1C (KSI SQRT(IN))											
				L-T			T-L			S-L					
				SPECIMEN THICK *	MEAN	STD DEV	SPECIMEN THICK *	MEAN	STD DEV	SPECIMEN THICK *	MEAN	STD DEV			
										S-L					
7001	T73	PLATE	1 37	1 36	24 1	1 7	1 36	20 7	1 8						
7005	T6351	PLATE	3 00	2 95	46 7	1 0	2 96	39 7	0 9						
7010	T73651	PLATE	2 00	0 75	33 5	4 6	0 75	27 9	2 8	0 75	23 1	0 5			
7049	T73	FORGING	1 00-7 10	0 50	30 8	3 0	1 00	21 9	2 5	0 50	21 3	2 5			
	T73	EXTRUSION	3 00	1 00	28 1	0 7	1 00	25 2	0 5						
		EXTRUDED BAR	3 25-3 50	1 00	33 2	2 7	1 00	22 0	0 5						
	T7351	PLATE	2 00-4 00					0 75	26 1	1 7	0 75	23 8	0 6		
	T73511 HIGH/ PURITY	EXTRUDED BAR	1 50	1 25	33 9	0 1	1 25	26 0	0 1						
	T73511-Low/ PURITY	EXTRUDED BAR	1 50	1 25	23 8	0 3	1 25	18 1	0 1						
	T73511 MEDIUM/ PURITY	EXTRUDED BAR	1 50	1 25	29 7	0 8	1 25	22 1	0 5						
	T7352	FORGING	3 00-7 10	2 00	38 2	1 0					1 00	19 5	2 8		
	T76	EXTRUDED BAR	3 25-3 50	1 00	32 7	1 7	1 00	20 0	0 3						
7050	T7656	FORGING	5 00					0 75	28 9	3 9					
	T7351	PLATE	1 00-6 00	1 00	34 8	3 9	1 50	30 0	2 6	0 75	28 0	1 3			
	T73511-HIGH/ PURITY	EXTRUDED BAR	1 50	1 25	36 2	3 2	1 25	24 1	0 2						
	T776	FORGING	3 00-6 00	0 70	32 3	2 3	1 00	23 4	1 0	1 91	24 6	0 6			
	T73651	PLATE	1 00-6 00	0 98	31 9	3 9	0 99	28 7	4 7	0 97	23 5	1 5			

* MINIMUM SPECIMEN THICKNESS (IN)

TABLE 8.0.2 (con't)

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/ HT	PRODUCT FORM	RANGE OF PRODUCT THICKNESSES (IN)	K _{IC} (KSI SQRT(IN))			
				1-T		5-L	
				SPECIMEN THICK *	MEAN	STD DEV	SPECIMEN THICK *
7050	17-652	FORGING	3.50-7.50	1.50	31.1	2.5	1.50
	17-651	PLATE	1.00	1.00	30.8	0.3	---
7055	16	FORGING	0.50-0.89	0.50	24.3	0.1	0.25
		EXTRUSION	2.00	---	---	---	0.75
	1-51	PLATE	0.37-5.00	0.51	26.5	2.0	0.30
		EXTRUSION	3.00-5.00	1.50	31.1	0.5	1.50
70510		ROLLED BAR	5.00	1.50	34.1	0.5	---
		EXTRUSION	0.68-3.50	0.50	27.5	2.1	0.50
		FORGED BAR	0.68-5.00	0.62	29.2	3.4	0.50
	16511	EXTRUSION	1.25	1.22	27.9	1.4	1.17
7051	1-3	FORGING	1.00	---	---	---	---
		PLATE	1.00-4.00	0.51	29.4	2.2	0.51
	17-6510	EXTRUSION	0.68-3.50	---	---	---	0.50
	17-6511	EXTRUSION	3.50	1.63	39.6	3.1	1.75
70511 HIGH/ PURITY		EXTRUDED BAR	1.50	1.25	43.0	1.7	1.25
		EXTRUDED BAR	1.50	1.25	27.3	0.2	1.25
		EXTRUDED BAR	1.50	1.25	30.6	0.2	1.25
		EXTRUDED BAR	1.50	---	---	---	---
70511 MEDIUM/ PURITY		FORGING	2.00-6.00	0.75	33.6	3.1	0.75
		FORGING	6.00	2.00	35.0	1.8	1.75
	17-652			---	---	---	---
				---	---	---	---

* MINIMUM SPECIMEN THICKNESS (IN)

TABLE 8.0.2 (con't)

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/ T	PRODUCT FORM	RANGE OF PRODUCT THICKNESSES (IN)	K _{IC} (KSI SQRT(IN))								
				L-T			T-L			S-L		
				SPECIMEN THICK *	MEAN	STD DEV	SPECIMEN THICK *	MEAN	STD DEV	SPECIMEN THICK *	MEAN	STD DEV
7075	T7651	PLATE	0.56-2.60	0.75	28.5	1.5	0.50	23.1	2.0	0.38	17.8	1.5
	T76511	EXTRUSION	1.44-7.04	1.17	35.7	4.4	1.25	23.6	2.8	---	---	---
7075 (ALCLAD)	T7651	PLATE	0.50-0.62	0.62	28.6	2.2	0.50	25.2	1.9	---	---	---
	T6	PLATE	3.00	1.00	33.0	2.9	---	---	---	---	---	---
7075	T651	PLATE	1.00-5.00	0.97	27.6	1.8	0.50	23.3	2.0	0.50	18.6	3.2
	T652	FORGING	2.00-6.00	0.75	27.8	2.2	0.75	23.1	2.2	0.25	18.1	0.7
7149	T651	PLATE	1.37-1.50	1.00	28.6	1.6	1.00	21.3	3.4	---	---	---
	T76511	EXTRUSION	3.00	1.01	31.5	0.8	1.01	24.2	0.3	---	---	---
7175	T66	FORGING	1.00	---	---	---	0.50	23.2	3.1	0.50	20.8	1.1
	T73	FORGING	1.00-8.50	---	---	---	---	---	---	0.50	27.1	1.2
7175	T73511	EXTRUSION	1.30-1.80	0.50	32.8	6.5	0.50	27.0	4.9	---	---	---
	T7352	FORGING	0.75	---	---	---	0.62	24.5	0.5	---	---	---
7175	T736	FORGING	1.00-4.00	0.50	31.2	3.8	0.50	26.4	3.6	0.50	25.3	2.1
	T73652	FORGING	1.25-3.10	1.25	32.7	8.0	---	---	---	---	---	---
7175	T76511	EXTRUSION	1.40-3.75	0.60	32.9	3.5	0.60	22.6	2.5	0.75	20.9	1.3
	T651	PLATE	0.50-1.37	0.50	25.3	1.9	0.46	21.5	1.8	0.50	15.0	0.7
7175	T6510	EXTRUSION	0.68-3.50	---	---	---	0.50	18.5	1.3	1.00	14.5	0.1
	T7651	PLATE	0.50-2.00	0.45	27.8	1.8	0.45	23.1	2.4	0.50	17.3	0.4
7175	T76510	EXTRUSION	0.68-3.50	0.62	30.5	0.9	0.62	26.8	1.1	1.00	16.2	0.4
	FORGED BAR		3.50	---	---	---	0.50	19.2	1.2	---	---	---

TABLE 8.0.2 (con't)

PLANE STRAIN FRACTURE TOUGHNESS VALUES OF ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	(UNIONION/ H)	PRODUCT FORM	RANGE OF PRODUCT THICKNESSES (IN)	KIC (KSI SQRT(IN))			
				L-T		T-L	
				SPECIMEN THICK *	MEAN	STD DEV	S-L
					SPECIMEN THICK *	MEAN	STD DEV
7175	175511	EXTRUSION	0.40-1.44	0.40	25.7	0.3	
7475	1651	PLATE	0.62-2.62	0.86	40.1	2.4	0.65 34.6 3.5 1.00 32.9 2.5
	1651 (SP)	PLATE	1.00-2.00	1.28	35.3	1.9	1.28 34.4 2.1 0.50 27.3 1.6
	17751	PLATE	1.25-4.00	1.27	47.1	4.9	1.00 37.1 4.0 0.50 30.6 2.6
	17351 (SP)	PLATE	1.75-3.25				0.75 37.6 2.5
	17451	PLATE	0.87-2.00	0.95	40.4	2.3	0.89 34.0 2.9 0.75 27.6 0.8
	17651 (SP)	PLATE	1.75-2.00	1.79	42.4	2.9	1.00 35.7 0.4 0.75 27.3 2.1

* MINIMUM SPECIMEN THICKNESS (IN)

TABLE 8.0.3.1
PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS OF
7000 SERIES ALUMINUM ALLOYS (WITH BUCKLING CONSTRAINTS)

ALLOY	CONDITION/HT	TEST TEMP. (°F)	SPECIMEN ORIENT	SPECIMEN WIDTH	YIELD STRENGTH (KSI)	SPECIMEN THICKNESS (IN.) = 0.010	0.050-	0.080	0.090-	0.100	0.120	0.250
7050(Alclad)	T6	R. T.	L-T	20.0	67.2	114.1/7.6(2)						
7075	T6	R. T.	L-T	12.0	75.9				71.9/2.8(26)			
				24.0	75.9				71.5/0.2(2)			
				36.0	75.9				72.8/6.1(5)			
		R. T.	T-L	15.0	76.2							76.6/0.3(2)
7075(Alclad)	T6	R. T.	L-T	24.0	75.5				73.4/8.2(10)			
		R. T.	L-T	8.0	78.3				63.4/5.5(6)			
		R. T.	L-T	36.0	60.5							119.9/24.0(2)
		R. T.	L-T	15.0	67.4	8.8/4.1(2)						
7475(Alclad)	T6	R. T.	L-T	6.0	73.1				60.1/5.1(6)			
				12.0	73.1				70.1/7.2(17)			
				24.0	73.1				69.3/10.4(20)			
		R. T.	L-T	20.0	69.4						129.8/3.0(2)	

Mean/Standard Deviation (Number of Specimens)

TABLE 8.0.3.2 (con't)

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS
OF 7000 SERIES ALUMINUM ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

ALLOY		CONDITION/	TEST	SPECIMEN	FIELD	SPECIMEN	K _{IC} (Ksi√in)										
HT			TEMP	ORIENT	WIDTH	STRENGTH	THICKNESS	= 0.010 0.020 0.030 0.040 0.063 0.080-0.090 0.125 0.160 0.180 0.250 0.500 1.000									
			(°F)			(KSI)	(IN)										
7075	T651		R.T.	T-L	3.0	≥75		48.7/ 1.2(9)							43.9/ 3.3(16)		
					4.0	≥74											
					14.0	77.2								50.7/ 4.6(11)	45.0/ 1.5(2)		
					20.0	≥75								47.9/ 2.7(2)			
7050	T73		R.T.	L-T	16.0	60.0			82.9/ 3.7(2)								
					8.0	62.1											
					16.0	61.1											
					20.0	≥61											
7050	T6		R.T.	L-T	15.0	≤70		82.4/ 3.9(2)	82.9/ 9.4(2)								
					9.0	63.0				55.0/ 7.3(12)							
					20.0	63.0				51.9/ 3.1(14)							
					30.0	71.8					90.0/ 6.2(2)	70.3/ 10.7(2)					

TABLE 8.0.3.2 (con't)

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS
OF 7000 SERIES ALUMINUM ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

ALLOY	CONDITION/ HT	TEST TEMP (°F)	SPECIMEN ORIENT	WIDTH (IN)	FIELD STRENGTH (KSI)	SPECIMEN THICKNESS (IN)	K _C (Ksi√in)											
							= 0.010 0.020 0.030 0.040 0.063 0.080-0.090 0.125 0.160 0.180 0.250 0.500 1.000											
7075 (Al-Land)	T ₀	R.T.	T-L	15.0	≥66	65.1/ 0.4(2)	78.4/ 2.6(2)	90.5/ 0.0(2)										
				30.0	69.5	75.5/ 0.4(2)				52.0/ 1.0(2)								
	H4		T-L	16.0	69.1					67.8/ 1.5(2)								
				3.0	69.8					49.7/ 0.6(2)								
7075	T ₀	R.T.	L-T	3.0	74.7													
				20.0	≥75					51.6/ 1.8(3)								
			T-L	3.0	≥72					51.7/ 0.6(3)								
				20.0	≥72					64.9/ 1.6(12)								
7075	T ₀	R.T.	L-T	2.0	≥82					35.1/ 1.2(12)								
				3.0	≥83					46.3/ 3.3(11)								
			T-L	15.0	≥82					50.4/ 5.0(14)								
				2.0	≥80					47.8/ 2.2(5)								
7075	T ₀	R.T.	T-L	3.0	≥78					44.6/ 2.5(13)								
				15.0	≥78					38.8/ 3.8(13)								
				3.0	≥78					46.5/ 1.8(5)								
				15.0	≥78													

Mean/Standard Deviations (Number of Specimens)

TABLE 8.0.3.2 (con't)

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS
OF 7000 SERIES ALUMINUM ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

ALLOY	CONDITION/ HT	TEST TEMP (°F)	SPECIMEN ORIENT WIDTH	FIELD STRENGTH (KSI)	SPECIMEN THICKNESS (IN)	K _{IC} (Ksi√in)													
						= 0.010 0.020 0.030 0.040 0.063 0.080-0.090 0.125 0.160 0.250 0.500 1.000													
7178	T651	R.T.	L-T	4.0	84														
			T-L	4.0	80														
T7651	R.T.	L-T	20.0	71.2															
		T-L	4.0	71.0															

TABLE 8.0.3.2 (con't)

PLANE STRESS AND TRANSITIONAL FRACTURE TOUGHNESS
OF 7000 SERIES ALUMINUM ALLOYS (WITHOUT BUCKLING CONSTRAINTS)

ALLOY	CONDITION/ HT	TEST TEMP (°F)	SPECIMEN ORIENT WIDTH	FIELD STRENGTH (KSI)	SPECIMEN THICKNESS (IN)	K _{IC} (KSI/in)										
						0.010	0.020	0.030	0.040	0.063	0.080-0.090	0.125	0.160	0.250	0.500	1.000
7075 (Al-Li)	T61	R.T.	L-T	70							84.3/ 12.0(8)	94.7/ 3.1(2)				
											86.9/ 7.5(8)	79.5/ 5.4(2)				
7061	T761	R.T.	L-T	64.5							92.3/ 8.0(6)					
												90.1/ 6.9(6)	91.7/ 2.5(2)			

Mean/Standard Deviation (Number of Specimens)

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYS



TABLE 8.0.4.1 (con't)

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYS

TEST CONDITIONS -

SPECIMEN
ORIENTATION L-T

STRESS RATIO 0.00-0.10

ENVIRONMENT LAB AIR AT R.T.

FREQUENCY 0.10-30.00HZ

ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEV'S (KSI SQRT(IN))					
					2.5	5.0	10.0	20.0	50.0	100.0
7075	T6	SHEET	0.02	1.00				103		
	T6	SHEET	0.02	3.00				92.8		
	T6	SHEET	0.02	10.00			14.0	60.0	5417	
	T6	SHEET	0.02	10-30.00			11.2	54.5	20651	
	T651	PLATE	0.02	1.00-30.00		1.64	1.18	66.6		
	T651	PLATE	0.02	10-30.00			8.32	58.5		
	T6511	EXTRUSION	0.01	30.00		976	13.2	72.1		
	T73	PLATE	0.05	20.00	0564	561	11.2			
	T7351	PLATE	0.02	10-20.00		293	5.65	59.4		
	T7351	PLATE	0.02	10.00			3.95	41.4		
173511-HIGH PURITY	T7351	PLATE	0.02	10.00			5.09	46.0	1538	
	T7351	PLATE	0.02	1.00			5.04	44.0		
	T73511-HIGH PURITY	EXTRUSION	0.10	30.00			6.39	31.3		
	T73511 LOW PURITY	EXTRUSION	0.10	30.00			8.12			
	T73511-MEDIUM PURITY	EXTRUSION	0.10	30.00			7.12			
	T7352	BILLET	0.02	1.00-30.00					32.5	

TABLE 8.0.4.1 (con't)

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYSTEST CONDITIONS

SPECIMEN ORIENTATION L-T
STRESS RATIO 0.00-0.10
ENVIRONMENT LAB AIR AT R.T.
FREQUENCY 0.10-30.00 HZ

ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEVELS (KSI SQRT(IN)) =					
					2 5	5 0	10 0	20 0	50 0	100 0
7079	T6	SHEET	0.05	2.00				64.8		
	T6	BILLET	0.02	1.00-30.00			10.7	110		
	T651	SHEET	0.05	2.00			14.0	92.6		

TABLE 8.0.4.1 (con't)

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYSTEST CONDITIONS

SPECIMEN ORIENTATION L-T
STRESS RATIO 0.00-0.10
ENVIRONMENT LAB AIR AT R.T.
FREQUENCY 0.10-30.00HZ

ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEVELS (KSI SQRT(IN)) =							
					2 5	5 0	10 0	20 0	50 0	100 0		
7149	T73511	EXTRUSION	0 01	1 00- 20 00	1 64	8 32	57 9					
7175	T736	FORGING	0 02	10 00	9 87	56 8						
7178	T6	SHEET	0 02	10 00- 14 00	11 9	89 9						
7175	T6	SHEET	0 02	1 00- 5 00	12 6	109						
7175	T651	SHEET	0 02	10- 12 00	923	15 4	99 6					
7175	T651	PLATE	0 00	10- 20 00	799	13 1	56 8					
7175	T651	PLATE	0 02	10- 20 00	980	15 4	107					
7175	T76	SHEET	0 02	20 00	605	7 76	58 1	2653				

TABLE 8.0.4.1 (con't)

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYS

TEST CONDITIONS

SPECIMEN
ORIENTATION L-T

STRESS RATIO 0 00-0 10

ENVIRONMENT LAB AIR AT R T

FREQUENCY 0 10-30 00HZ

ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEVELS (KSI SQRT(IN)) =					
					2 5	5 0	10 0	20 0	50 0	100 0
7475	T61	PLATE	0 10	20 00			6 87			
	T6151	SHEET	0 10	20 00			5 52	40 7		
	T7351	PLATE	0 02	10- 20 00		216	5 00	37 1	2520	
	T7351	PLATE	0 10	20 00			5 55			
	T761	SHEET	0 10	20 00			5 41	33 1		
	T7651	SHEET	0 00	2 00- 30 00		254	4 52	42 3		
7475	T7651	PLATE	0 00	3 00- 30 00			3 93	47 6	508	
	T61	SHEET	0 00	13 30			5 71	32 7		
7475 (AL CLAD)										

TABLE 8.0.4.2

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYS

TEST CONDITIONS

SPECIMEN ORIENTATION T-L	ENVIRONMENT	LAB AIR AT R T	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEVELS (KSI SQRT.IN.) ²	2 5	5 0	10 0	20 0	50 0	100 0
STRESS RATIO	0 00-0 10		0 10-30 00HZ							
ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE) FOR DELTA K LEVELS (KSI SQRT.IN.) ²					
7010	T73651	PLATE	0 10	20 00- 25 00	6 15	85 4				
7049	T73511-HIGH PURITY	EXTRUSION	0 10	30 00	7 81					
	T73511-LOW PURITY	EXTRUSION	0 10	30 00	9 13					
	T73511-MEDIUM PURITY	EXTRUSION	0 10	30 00	8 75					
7050	T73511-HIGH PURITY	EXTRUSION	0 10	30 00	3 47					
	T736	FORGING	0 10	10 00	6 75	101				
	T73651	PLATE	0 10	1 00- 10 00	8 45	49 4				
7075	T6	SHEET	0 00	13 30	5 45	42 6				
	T73511-HIGH PURITY	EXTRUSION	0 10	30 00	4 66	36 1				
	T73511-LOW PURITY	EXTRUSION	0 10	30 00	8 75					
	T7352	PLATE	0 02	10 00	474	6 28	66 2	4095		
	T7352	PLATE	0 02	10 00	1 08	1 11				
	T7352	FORGING	0 02	10 00	1 86	14 4	126			
	T7352	FORGING	0 02	10 00			27 5			

TABLE 8.0.4.2 (con't)

COMPARISON OF FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS OF THE
STRESS INTENSITY FACTOR FOR ALUMINUM ALLOYSTEST CONDITIONS

SPECIMEN ORIENTATION	T-L	ENVIRONMENT	LAB AIR AT R T	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE) FOR DELTA K LEVELS (KSI SQRT(IN)) =					
STRESS RATIO	0 00-0 10	FREQUENCY	0 10-30 00HZ	2 5	5 0	10 0	20 0	50 0	100 0
ALLOY	CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQUENCY					
7075(AlCLAD)	T6	SHEET	0 00	13 30	6 99 68 3				
	T6	SHEET	0 05	30 00	450				
7079	T6	FORGING	0 05	9 00	387	7 81	42 8		
7149	T73511	EXTRUSION	0 10	1 00- 20 00	1 97	10 8	152 0		
7175	T73652	FORGING	0 02	10- 20 00	10 7 45 4				
7178	T651	PLATE	0 00	20 00	478	11 5	85 2		
7475	T6151	SHEET	0 10	20 00	6 22 54 5				
	T761	SHEET	0 10	20 00	4 36 43 8				
7475(AlCLAD)	T61	SHEET	0 00	13 30	8 56 19 9				
	T761	SHEET	0 00	13 30	5 53 31 0				

TABLE 8.0.5
STRESS CORROSION CRACKING THRESHOLD DATA FOR 7000 SERIES
ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/HT	PRODUCT FORM	SPECIMEN ORIENTATION	ENVIRONMENTS					K _{Isc} (Ksi $\sqrt{\text{in.}}$)
				INDUSTRIAL ATMOSPHERE	SEACOAST ATMOSPHERE	SALT DICHROMATE ACETATE	SIMP TANK WATER	3-5% NaCl	
7005	T63	P	S-L					28.0	
7007	T6-Repaired	P	S-L					8.7	
	Weld-Fusion Line								
	T6-Repaired	P	S-L					16.3	
	Weld-Heat Affected Zone								
7010	T6-Repaired	P	S-L					10.6	
	Weld Center Line								
7010	173651	P	T-L					32.5(2)	
			S-L					17.0	
	173	F	S-L					19.0	
		E	L-S					20.4	
7019	173	E	S-L					20.3	
	173 Integrally	E	L-S					26.7	
	Stiffened		S-L					19.4	
	17352	F	L-T						27.6
7050	173651	P	T-L					21.0	
			S-L					19.3(2)	
								17.3(2)	
	173651	P	T-L					27.8	
7075	T6	P	S-L					19.0	
	1651	P	L-L					26.3	
	17351	P	S-L	10.0	10.0	5.0		17.0	
			L-L					23.9	
7075	17351	P	S-L	20.0	20.0	19.0		21.0	
			L-L						35.6
	17351	P	S-L					18.0	
	17352	P	S-L						
7075	17351	P	S-L					12.8(4)	

TABLE 8.0.5 (con't)

STRESS CORROSION CRACKING THRESHOLD DATA FOR 7000 SERIES
ALUMINUM ALLOYS AT ROOM TEMPERATURE

ALLOY	CONDITION/HT	PRODUCT FORM	SPECIMEN ORIENTATION	ENVIRONMENTS					K_{Isc} (Ksi $\sqrt{in.}$)
				INDUSTRIAL ATMOSPHERE	SEACOAST ATMOSPHERE	SALT ACETATE	SALT DICHROMATE	SUMP TANK WATER	
7075	16	P	S-L	9.0	9.0	6.0			6.6(4)
	1651	P	S-L						3.0
7175	1735-11	F	S-L	9.0	9.0	6.0			24.4(9)
	1736	F	L-L						30.6
		F	S-L						18.7
	173652	F	L-L						27.6(2)
7475	17351	P	S-L	9.0	9.0	6.0			22.0
	17351	P	L-L						26.6
	17351	P	L-L						30.9 30.8

TABLE 8.1.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 7051 AT ROOM TEMPERATURE

CONDITION	K _{IC} (KSI) [IN (IN)]	MEAN K _{IC} ± STANDARD DEVIATION		NUMBER OF SPECIMENS	
		L-T	T-T	L-T	T-T
1	20.1 ± 1.2 (4)	20.7 ± 1.8 (5)	---	---	---

TABLE 8.1.2.1

CONDITION	ALUMINUM													
	7001													
	---PRODUCT--		TEST TEMP ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	K(1C) STAN DEV	DATE	REFER		
FORM	THICK (IN)	WIDTH (IN)			THICK (IN)	DESIGN								
					W	B	A							
T75	P	1.37	R.T.	L-T	70.6	3.000	1.381	NB	1.463	0.24	22.00		1973	86213
		1.37			70.6	3.000	1.382	NB	1.560	0.27	23.40		1973	86213
		1.37			72.2	3.000	1.360	NB	1.584	0.32	25.80		1973	86213
		1.37			72.2	3.000	1.364	NB	1.513	0.30	25.00	24.1/	1973	86213
T75	P	1.37	R.T.	T-L	69.6	3.000	1.376	NB	1.587	0.23	21.30		1973	86213
		1.37			69.6	3.000	1.377	NB	1.532	0.29	23.60		1973	86213
		1.37			70.6	3.000	1.360	NB	1.564	0.19	19.60		1973	86213
		1.37			71.6	3.000	1.364	NB	1.463	0.19	19.90		1973	86213
		1.37			71.6	3.000	1.381	NB	1.584	0.18	19.10	20.7/	1973	86213
T75	P	1.37	88	S-L	65.9	1.000	0.500	CT	0.494	0.14	15.80		1973	86213
		1.37			65.9	1.000	0.500	CT	0.478	0.14	15.60		1973	86213
		1.37			65.9	1.000	0.500	CT	0.510	0.15	15.90	15.8/	1973	86213

TABLE 8.1.2.2

CONDITION	--PRODUCT--			TEST SPEC YIELD STR (KSI)	ALUMINUM				7001				K(C)				K(C)				K(C) STAN DEV	K(C) MEAN DEV	K(C) STAN DEV	DATE	REFER
	FORM	THICK (IN)	TEMP (F)		---SPECIMEN---				CRACK LENGTH				GROSS STRESS				K (APP)								
					W	B	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K (APP) (KSI*SQRT IN)	STAN DEV	K (C) (KSI*SQRT IN)	STAN DEV	K (C) (KSI*SQRT IN)	STAN DEV	K (C) (KSI*SQRT IN)	STAN DEV						
																				2A(D)					
BUCKLING OF CRACK EDGES NOT RESTRAINED																									
T75	S	0.12	R.T.	L-T	66.1	3.000	0.119	1.070	1.480	---	32.90	46.34	59.33*	---	---	---	1973	86213							
					67.7	3.000	0.119	1.090	1.360	---	32.00	45.64	53.76*	---	---	---	1973	86213							
					66.1	3.000	0.125	1.060	1.290	---	34.40	48.15*	55.43*	---	---	---	1973	86213							
					66.1	3.000	0.124	1.110	1.650	---	33.30	48.10	66.52*	---	---	---	1973	86213							
					66.1	3.000	0.122	1.080	1.350	---	31.00	43.94	51.77*	---	---	---	1973	86213							
					67.7	3.000	0.122	1.110	1.450	---	33.10	47.81	58.65*	---	---	---	1973	86213							
					67.7	3.000	0.125	1.110	1.320	---	32.90	47.52	53.97*	---	---	---	1973	86213							
					67.7	3.000	0.126	1.100	1.380	---	30.90	44.35	52.53*	---	---	---	1973	86213							
					69.3	3.000	0.127	1.080	1.240	---	32.60	46.21	50.98*	---	---	---	1973	86213							
					69.3	3.000	0.125	1.090	1.400	---	33.40	47.64	57.46*	---	---	---	1973	86213							
					69.3	3.000	0.124	1.090	1.540	---	32.20	45.93	60.20*	---	---	---	1973	86213							
					69.3	3.000	0.126	1.090	1.410	---	32.80	46.79	56.76*	---	---	---	1973	86213							
T75	P	1.00	R.T.	L-T	70.6	20.000	1.000	7.000	8.420	---	9.10	32.68	37.25	---	---	---	1973	86213							
					70.6	20.000	1.000	7.000	8.650	---	6.40	22.98	26.75	---	---	---	1973	86213							
					70.6	20.000	1.000	7.000	8.590	---	9.40	33.76	39.07	---	---	---	1973	86213							
					70.6	20.000	1.000	7.000	8.420	---	9.50	34.12	38.89	---	---	---	1973	86213							
					70.6	20.000	1.000	7.000	8.420	---	9.00	32.32	36.84	---	---	---	1973	86213							
					70.6	20.000	1.000	7.000	7.650	---	6.40	22.98	24.43	---	---	---	1973	86213							
					70.6	20.000	1.000	7.000	8.050	---	6.10	21.91	24.15	---	---	---	1973	86213							
					70.6	20.000	1.000	7.000	7.720	---	6.70	24.06	25.74	---	---	---	1973	86213							
					72.2	20.000	1.000	7.000	8.500	---	8.60	30.88	35.46	---	---	---	1973	86213							
					72.2	20.000	1.000	7.000	8.650	---	9.10	32.68	38.03	---	---	---	1973	86213							
					72.2	20.000	1.000	7.000	8.420	---	9.00	32.32	36.84	---	---	---	1973	86213							
					72.2	20.000	1.000	7.000	8.020	---	8.40	30.17	33.17	33.17	6.0	---	1973	86213							
T75	S	0.12	R.T.	T-L	67.7	3.000	0.124	1.210	1.240	---	22.00	33.79	34.40	---	---	---	1973	86213							
					67.7	3.000	0.124	1.130	1.250	---	24.60	35.97	38.70	---	---	---	1973	86213							
					67.7	3.000	0.125	1.120	1.280	---	28.70	41.71	45.97	---	---	---	1973	86213							
					67.7	3.000	0.125	1.130	1.240	---	24.60	35.97	38.47	---	---	---	1973	86213							
					68.0	3.000	0.128	1.140	1.400	---	24.20	35.61	41.63	---	---	---	1973	86213							
					68.0	3.000	0.128	1.110	1.320	---	24.00	34.66	39.37	---	---	---	1973	86213							
					68.0	3.000	0.126	1.120	1.220	---	24.80	36.04	38.32	---	---	---	1973	86213							
					68.0	3.000	0.126	1.160	1.270	---	25.20	37.54	40.12	---	---	---	1973	86213							
					68.6	3.000	0.123	1.090	1.220	---	25.90	36.94	40.02	---	---	---	1973	86213							
					68.6	3.000	0.123	1.090	1.220	---	25.90	36.94	40.02	---	---	---	1973	86213							
					68.6	3.000	0.123	1.090	1.220	---	25.90	36.94	40.02	---	---	---	1973	86213							
					68.6	3.000	0.123	1.090	1.220	---	25.90	36.94	40.02	---	---	---	1973	86213							

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 8.1.2.2 (Con't)

CONDITION	--PRODUCT-- FORM	THICK (IN)	TEST SPEC OR (F)	YIELD STR (KSI)	ALUMINUM			7001			K(C)			
					---SPECIMEN---			CRACK LENGTH			CROSS STRESS			
					W	B	THICK (IN)	INIT (IN)	FINAL (IN)	ONSET (KSI)	MAX (KSI)	K(APP)		STAN DEV
												2A(D)	2A(F)	
175	S	0.12	R T	T-L	68.6	3.000	0.123	1.100	1.270	---	24.10	34.59	38.37	1973 86213
		0.12			68.6	3.000	0.124	1.110	1.300	---	24.80	35.82	40.20	1973 86213
		0.12			68.6	3.000	0.124	1.090	1.300	---	23.80	33.95	39.5/ 2 7	1973 86213
175	P	1.00	R T	T-L	69.6	20.000	1.000	7.000	7.650	---	7.40	26.57	28.24	1973 86213
		1.00			69.6	20.000	1.000	7.000	7.900	---	7.20	25.86	28.12	1973 86213
		1.00			69.6	20.000	1.000	7.000	8.050	---	7.10	25.50	28.11	1973 86213
		1.00			69.6	20.000	1.000	7.000	8.050	---	7.00	25.14	27.71	1973 86213
		1.00			70.6	20.000	1.000	7.000	8.330	---	8.30	29.81	33.70	1973 86213
		1.00			70.6	20.000	1.000	7.000	7.950	---	7.90	28.37	30.99	1973 86213
		1.00			70.6	20.000	1.000	7.000	8.320	---	8.10	29.09	32.86	1973 86213
		1.00			70.6	20.000	1.000	7.000	8.460	---	8.00	28.73	32.87	1973 86213
		1.00			71.3	20.000	1.000	7.000	7.900	---	6.90	24.78	26.95	1973 86213
		1.00			71.3	20.000	1.000	7.000	7.000	---	6.50	23.34	23.34	1973 86213
		1.00			71.3	20.000	1.000	7.000	8.050	---	6.60	23.70	26.13	1973 86213
		1.00			71.3	20.000	1.000	7.000	7.900	---	6.40	22.98	24.99	1973 86213
													28.7/ 3 3	1973 86213

TABLE 8.1.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.1.3.1 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM 7001
CONDITION: T75

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR			
DELTA K MIN	A:	10.34	8.13		
	B:				
	C:				
	D:				
		13.00	18.1		
		16.00	32.0		
		20.00	60.7		
DELTA K MAX	A:	20.63	67.3		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 4.22
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 2
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T75
 FORM: 0.16" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.05
 FREQUENCY: 2.00

YIELD STRENGTH: 72.2 KSI
 ULT. STRENGTH: 79.6 KSI
 SPECIMEN THK: 0.163"
 SPECIMEN WIDTH: 9.010- 9.030"
 REFERENCES: 86734

ALUM.
 ALLOY

7001

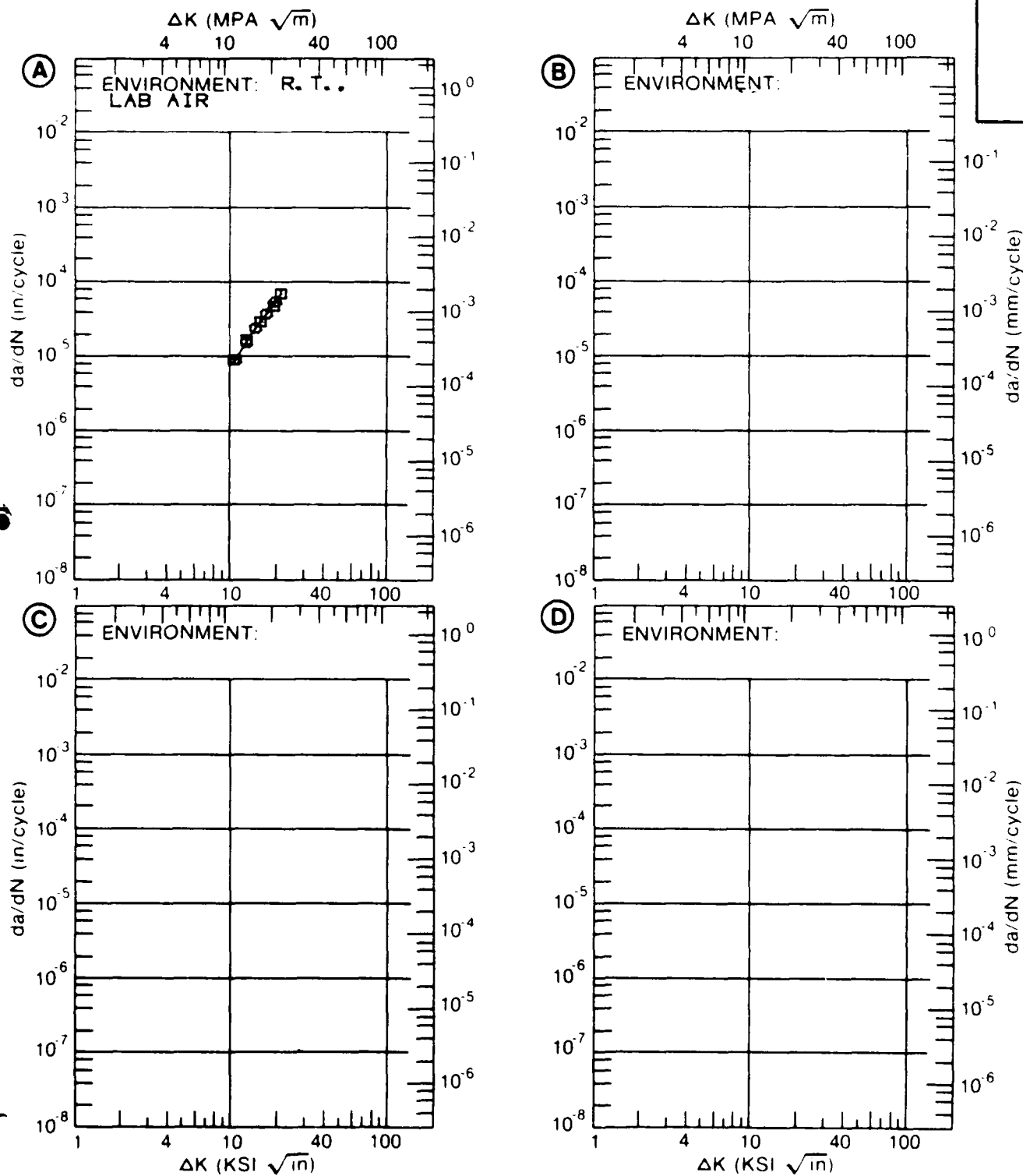


Figure 8.1.3.1

TABLE 8.2.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 7005 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} + STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)
	PLATE		
	I-I	I-I	S-L
16351	40.7 ± 1.0 (2)	39.7 ± 0.9 (3)	----

•

TABLE 8.2.2.2

CONDITION		--PRODUCT-- FORM THICK (IN)		TEST SPEC OR (F)		YIELD STR (KSI)		ALUMINUM		7005		K(C)		CRACK LENGTH CROSS STRESS				K(APP) STAN		K(C) STAN	
								WIDTH (IN)		SPECIMEN-- THICK (IN)		INIT (IN)		FINAL (IN)		ONSET (KSI)		MAX (KSI)		K(APP) MEAN DEV (KSI*SQRT IN)	
		W		B				2A(O)		2A(F)		S(O)		S(MAX)							
BUCKLING OF CRACK EDGES NOT RESTRAINED																					
T6	S	0.06	R.T.	L-T	43.4	3.000	0.064	1.113	---	---	---	---	28.60	41.36*	---	---	---	---	1973 86213		
		0.06			43.4	3.000	0.064	1.115	---	---	---	---	29.10	42.13*	---	---	---	---	1973 86213		
T6	S	0.12	R.T.	L-T	45.1	3.000	0.125	1.123	---	---	---	---	29.80	43.36*	---	---	---	---	1973 86213		
		0.12			45.1	3.000	0.125	1.120	---	---	---	---	29.60	43.02*	---	---	---	---	1973 86213		
T6	P	0.25	R.T.	L-T	49.8	4.000	0.258	1.597	---	---	---	---	32.40	57.00*	---	---	---	---	1973 86213		
		0.25			49.8	4.000	0.258	1.597	---	---	---	---	32.20	56.63*	---	---	---	---	1973 86213		
T6	S	0.06	R.T.	T-L	44.0	3.000	0.064	1.183	---	---	---	---	28.60	43.18*	---	---	---	---	1973 86213		
		0.06			44.0	3.000	0.064	1.147	---	---	---	---	28.80	42.50*	---	---	---	---	1973 86213		
T6	S	0.12	R.T.	T-L	45.6	3.000	0.125	1.110	---	---	---	---	30.10	43.47*	---	---	---	---	1973 86213		
		0.12			45.6	3.000	0.125	1.123	---	---	---	---	30.00	43.65*	---	---	---	---	1973 86213		
T6	P	0.25	R.T.	T-L	50.6	4.000	0.258	1.598	---	---	---	---	32.40	57.03*	---	---	---	---	1973 86213		
		0.25			50.6	4.000	0.258	1.603	---	---	---	---	32.10	56.63*	---	---	---	---	1973 86213		
BUCKLING OF CRACK EDGES NOT RESTRAINED																					
T6351	P	1.00	R.T.	L-T	47.2	20.000	1.023	2.610	---	---	---	---	40.10	82.06*	---	---	---	---	1973 86213		
		1.00			47.2	20.000	1.023	7.000	---	---	---	---	29.70	106.66*	---	---	---	---	1973 86213		
		1.00			47.2	20.000	1.023	4.880	---	---	---	---	34.50	99.18*	---	---	---	---	1973 86213		
T6351	P	1.00	R.T.	T-L	46.5	20.000	1.023	7.000	---	---	---	---	28.00	100.55*	---	---	---	---	1973 86213		
		1.00			46.5	20.000	1.023	2.610	---	---	---	---	38.10	77.96*	---	---	---	---	1973 86213		
		1.00			46.5	20.000	1.023	4.850	---	---	---	---	32.60	93.39*	---	---	---	---	1973 86213		

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 8.2.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.2.3.1 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 7005
CONDITION: T6
ENVIRONMENT: R.T., LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.05			
DELTA K MIN	A:	6.18	1.78		
	B:				
	C:				
	D:				
		7.00	2.69		
		8.00	3.95		
		9.00	5.31		
		10.00	6.74		
		13.00	11.5		
		16.00	17.4		
DELTA K MAX		20.00	28.5		
		25.00	52.4		
	A:	26.14	60.3		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 12.16
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 4
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T6
 FORM: 0.16" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 2.00
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 49.0 KSI
 ULT. STRENGTH:
 SPECIMEN THK: 0.100- 0.162"
 SPECIMEN WIDTH: 3.000- 14.040"
 REFERENCES 86734

ALUM.
 ALLOY

7005

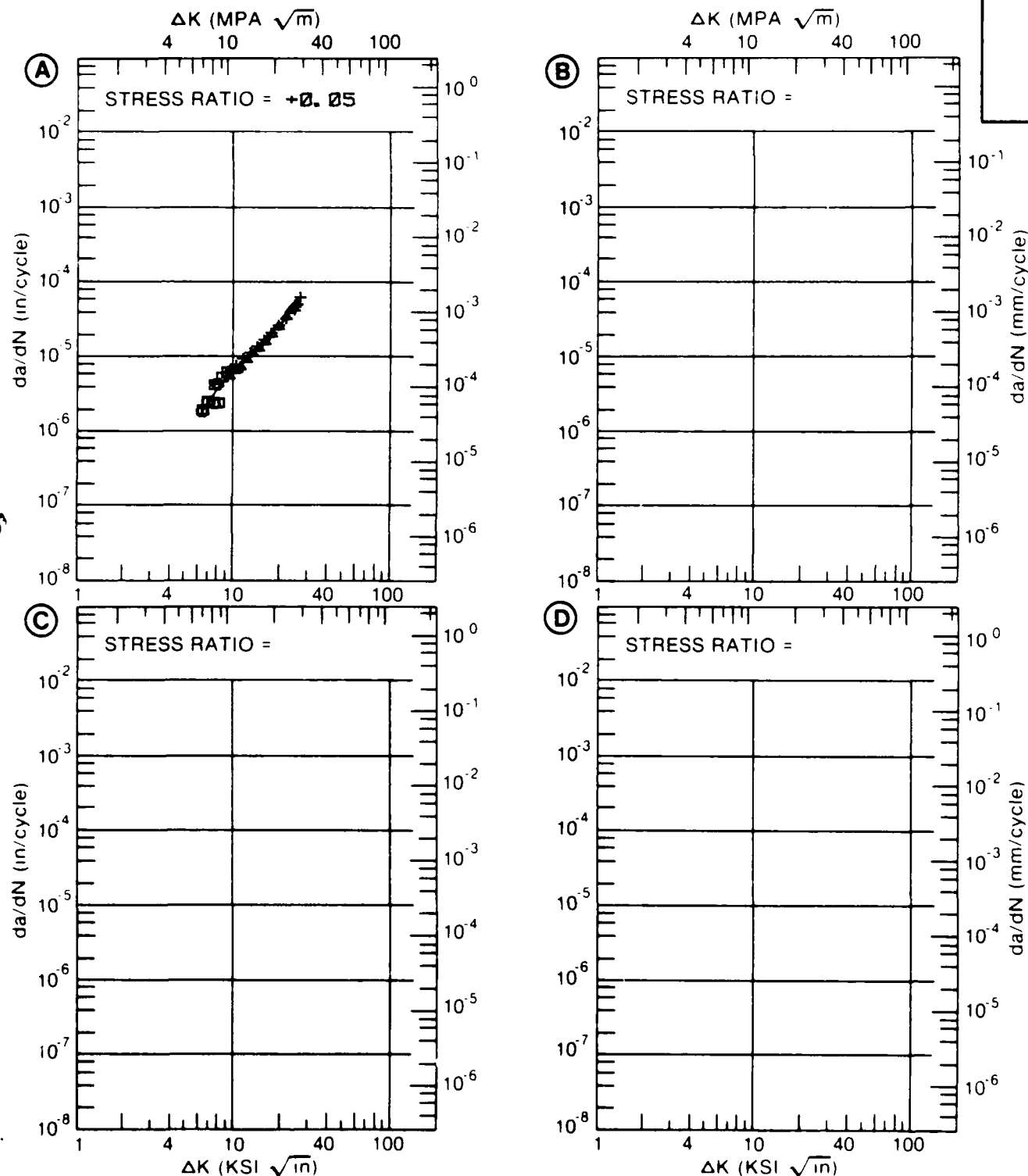


Figure 8.2.3.1

ALUMINUM 7005 K (ISCC)

[illegible]

TABLE 8.3.3.1

CONDITION	---PRODUCT--- FORM THICK (IN)	TEST TEMP OR (F)	SPEC YIELD STR (KSI)	ENVIRONMENT	ALUMINUM		7007		K(I SCC)		CRACK LENGTH K(G) (IN)	K(I SCC) (IN)	MEAN (KSI+SGRT IN)	STAN DEV	TEST TIME (MIN)	DATE REFER
					WIDTH (IN)	THICK (IN)	SPECIMEN-- (IN)	DESIGN (IN)	A							
										B						
T6 OVERHEATED WELD CENTER LINE	P	1 00	R T S-L	37 2 3 5 PCT NACL	2 500	1 000 WDL	----	----	35 00	> 11 00	----	----	----	>	4320	1970 80073
T6 REPAIRED WELD FUSION LINE	P	1 00	R T S-L	3 5 PCT NACL	2 500	1 000 WDL	----	----	41 00	8 70	----	----	----	>	4320	1970 80073
T6 REPAIRED WELD HEAT AFF ZONE	P	1 00	R T S-L	3 5 PCT NACL	2 500	1 000 WDL	----	----	42 00	16 30	----	----	----	>	4320	1970 80073
T6 REPAIRED WELD CENTER LINE	P	1 00	R T S-L	3 5 PCT NACL	2 500	1 000 WDL	----	----	27 00	10 60	----	----	----	>	4320	1970 80073
T6 WELD CENTER LINE	P	1 00	R T S-L	39 9 3 5 PCT NACL	2 500	1 000 WDL	----	----	42 00	< 12 00	----	----	----	>	4320	1970 80073
T6 WELD FUSION LINE	P	1 00	R T S-L	39 9 3 5 PCT NACL	2 500	1 000 WDL	----	----	42 00	< 11 00	----	----	----	>	4320	1970 80073
T6 WELD HEAT AFF ZONE	P	1 00	R T S-L	40 4 3 5 PCT NACL	2 500	1 000 WDL	----	----	40 00	> 15 00	----	----	----	>	4200	1970 80073

TABLE 8.4.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 7010 AT ROOM TEMPERATURE

CONDITION HT	MEAN K _{IC} ± STANDARD (KSI 30T(1N)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	I-I	I-I	S-L	
T/1651	37.5 ± 4.6 (4)	27.9 ± 2.8 (5)	23.1 ± 0.5 (2)	

TABLE 8.4.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7010

TEST CONDITIONS

SPECIMEN
ORIENTATION TENVIRONMENT
LAB AIR
AT R T

SPECIMEN HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
					2.5	5	10	20	50
170651	PLATE	0.10	20.00-20.00		0.25	2.83	56.5		
170651	PLATE	0.30	10.00-20.00		0.46	8.19			
170651	PLATE	0.50	10.00-20.00		1.03	11.7			
170651	PLATE	0.65	10.00-20.00		2.01	17.8			
170651	PLATE	0.80	10.00-20.00		3.25				

CONDITION	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM			7010			K(IC)			DATE	REFER
						WIDTH (IN)	THICK (IN)	SPECIMEN- DESIGN	CRACK LENGTH (IN)	2.5* (K(IC)/TYS)**2 (IN)	K(IC) (KSI*SQRT IN)	STAN DEV				
T73651	P	2.00	R.T.	L-T	63.2	1.500	0.750	CT	0.782	0.57	30.20			1980	BL001	
		2.00				63.2	1.500	0.750	CT	0.777	0.52	28.90			1980	BL001
		2.00				64.4	3.000	1.500	CT	---	0.86	37.80			1980	UD003
T73651	P	2.00	250	L-T	64.4	3.000	1.500	CT	---	0.83	37.10	33.5/	4.6	1980	UD003	
		2.00				64.4	3.000	1.500	CT	---	0.94	39.40			1980	UD003
		2.00				64.4	3.000	1.500	CT	---	0.87	38.00	38.7/	1.0	1980	UD003
T73651	P	2.00	R.T.	T-S	62.9	1.500	0.750	CT	---	0.58	30.30			1980	UD003	
		2.00				62.9	1.500	0.750	CT	---	0.64	31.80	31.1/	1.1	1980	UD003
		2.00				62.9	1.500	0.750	CT	---	0.56	29.90			1980	UD003
T73651	P	2.00	R.T.	T-L	62.9	1.500	0.750	CT	---	0.53	29.00			1980	UD003	
		2.00				62.9	1.500	0.750	CT	---	0.60	30.80			1980	UD003
		2.00				63.6	1.500	0.750	CT	0.764	0.38	24.80			1980	BL001
T73651	P	2.00			63.6	1.500	0.750	CT	0.786	0.38	24.90	27.9/	2.8	1980	BL001	
		2.00	250	T-L	62.9	1.500	0.750	CT	---	0.50	28.00			1980	UD003	
		2.00				63.0	1.500	0.750	CT	---	0.30	22.70			1980	UD003
T73651	P	2.00	R.T.	S-L	63.0	1.500	0.750	CT	---	0.32	23.40	23.1/	0.5	1980	UD003	
		2.00				63.0	1.500	0.750	CT	---						

TABLE 8.4.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.4.3.1 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7010			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. 1.		E=+ 250	
		LAB AIR		AIR	
DELTA K MIN	A:	5.00	.386		
	B:	3.73		.186	
	C:				
	D:				
	4.00			.253	
	5.00			.648	
	6.00	.886	1.60		
	7.00	2.11	3.70		
	8.00	3.98	7.80		
	9.00	6.40	13.9		
	10.00	9.21	20.4		
	13.00	18.6	32.4		
	16.00	27.5	42.5		
	20.00	38.0	84.5		
DELTA K MAX	A:	31.27	94.6		
	B:	20.31	91.0		
	C:				
	D:				
ROOT MEAN SQUARE		12.77	7.88		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73651
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-S
 STRESS RATIO: +0.10
 FREQUENCY: 20.00- 25.00 HZ

YIELD STRENGTH: 64.4 KSI
 ULT. STRENGTH: 73.7 KSI
 SPECIMEN THK: 0.300"
 SPECIMEN WIDTH: 1.500"
 REFERENCES: UD003

ALUM.
 ALLOY

7010

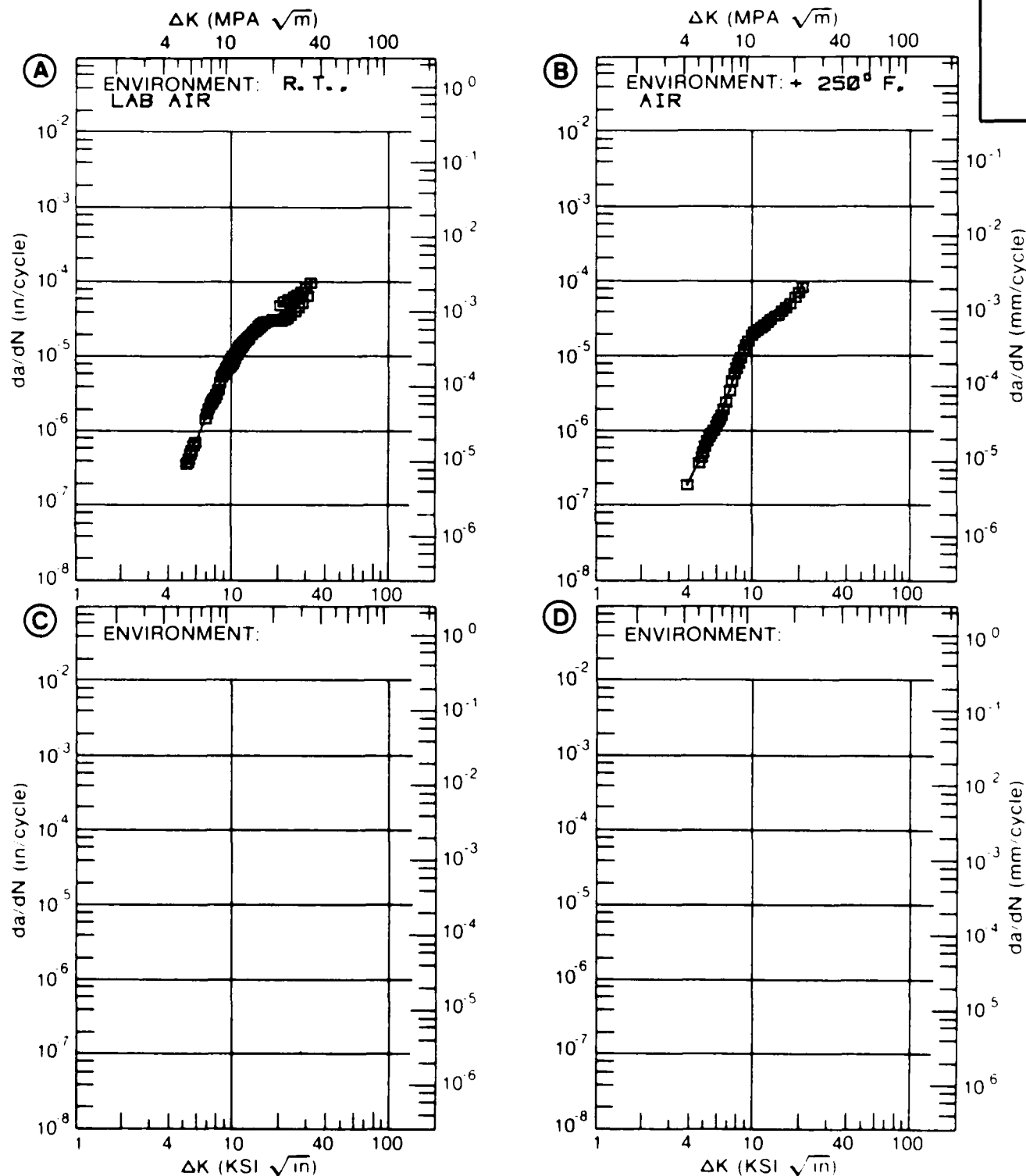


Figure 8.4.3.1

TABLE 8.4.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.4.3.2 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7010
 CONDITION: T73651
 ENVIRONMENT: R.T., LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A R=+0.30	B R=+0.50	C R=+0.65	D R=+0.80
DELTA K MIN	A: 3.39	185			
	B: 2.70		141		
	C: 3.52			430	
	D: 2.70				167
	3.00		202		357
	3.50	192	259		864
	4.00	240	338	539	1.55
	5.00	463	1.03	2.01	3.25
	6.00	1.08	2.76	4.29	5.69
	7.00	2.35	4.86	6.14	10.3
	8.00	4.16	6.95	8.53	13.8
	9.00	6.11	9.11	12.1	
	10.00	8.19	11.7	17.8	
	13.00	18.4	27.7		
	16.00	40.1			
DELTA K MAX	A: 16.00	40.1			
	B: 14.67		51.9		
	C: 12.66			58.5	
	D: 8.00				13.8
ROOT MEAN SQUARE		13.51	20.48	18.00	21.76
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T73651
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 10.00- 20.00 HZ
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH 64.4 KSI
 ULT STRENGTH 73.7 KSI
 SPECIMEN THK 0.200"
 SPECIMEN WIDTH 1.400"
 REFERENCES: UD002

ALUM.
 ALLOY

7010

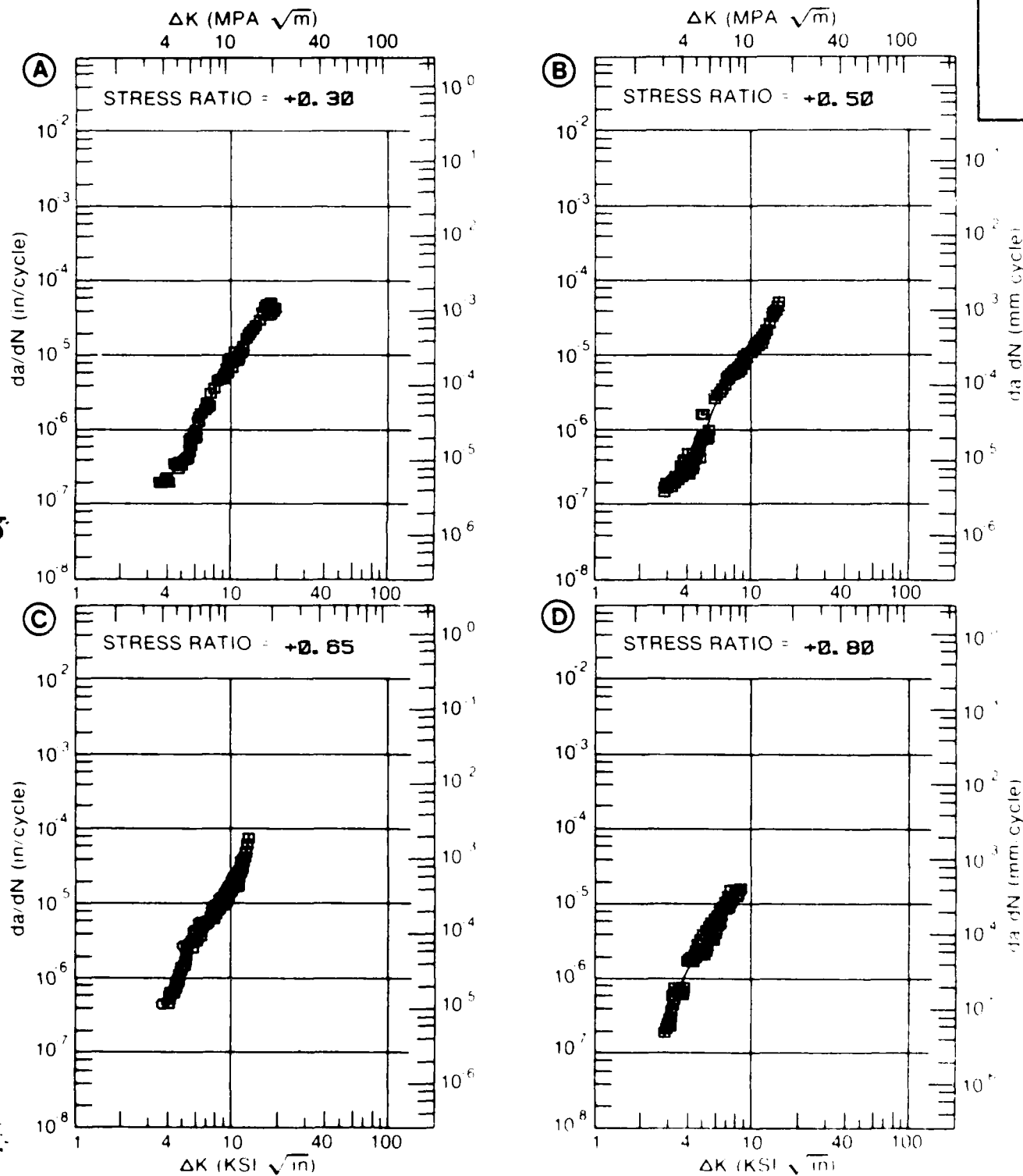


Figure 8.4.3.2

TABLE 8.4.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.4.3.3 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7010
CONDITION: T73651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R.T. LAB AIR	E=+ 250F AIR	E=+ 350F AIR	
DELTA K	A: 4.53	243			
MIN	B: 3.59		184		
	C: 2.80			162	
	D:				
	3.00			301	
	3.50			449	
	4.00		531	725	
	5.00	250	943	1.80	
	6.00	668	2.13	3.60	
	7.00	998	4.29	6.20	
	8.00	1.33	7.12	9.98	
	9.00	1.91	10.5	15.6	
	10.00	2.83	14.9	24.1	
	13.00	9.07	37.9		
	16.00	23.5			
	20.00	56.5			
DELTA K	A: 23.58	88.6			
MAX	B: 14.35		52.8		
	C: 10.67			32.2	
	D:				
ROOT MEAN SQUARE		19.41	16.45	2.53	
PERCENT ERROR					

LIFE 0.0-0.3
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T73651
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 20.00- 25.00 HZ

YIELD STRENGTH: 64.4 KSI
 ULT. STRENGTH: 73.7 KSI
 SPECIMEN THK: 0.300"
 SPECIMEN WIDTH: 1.500"
 REFERENCES: UD002, UD003

ALUM.
 ALLOY

7010

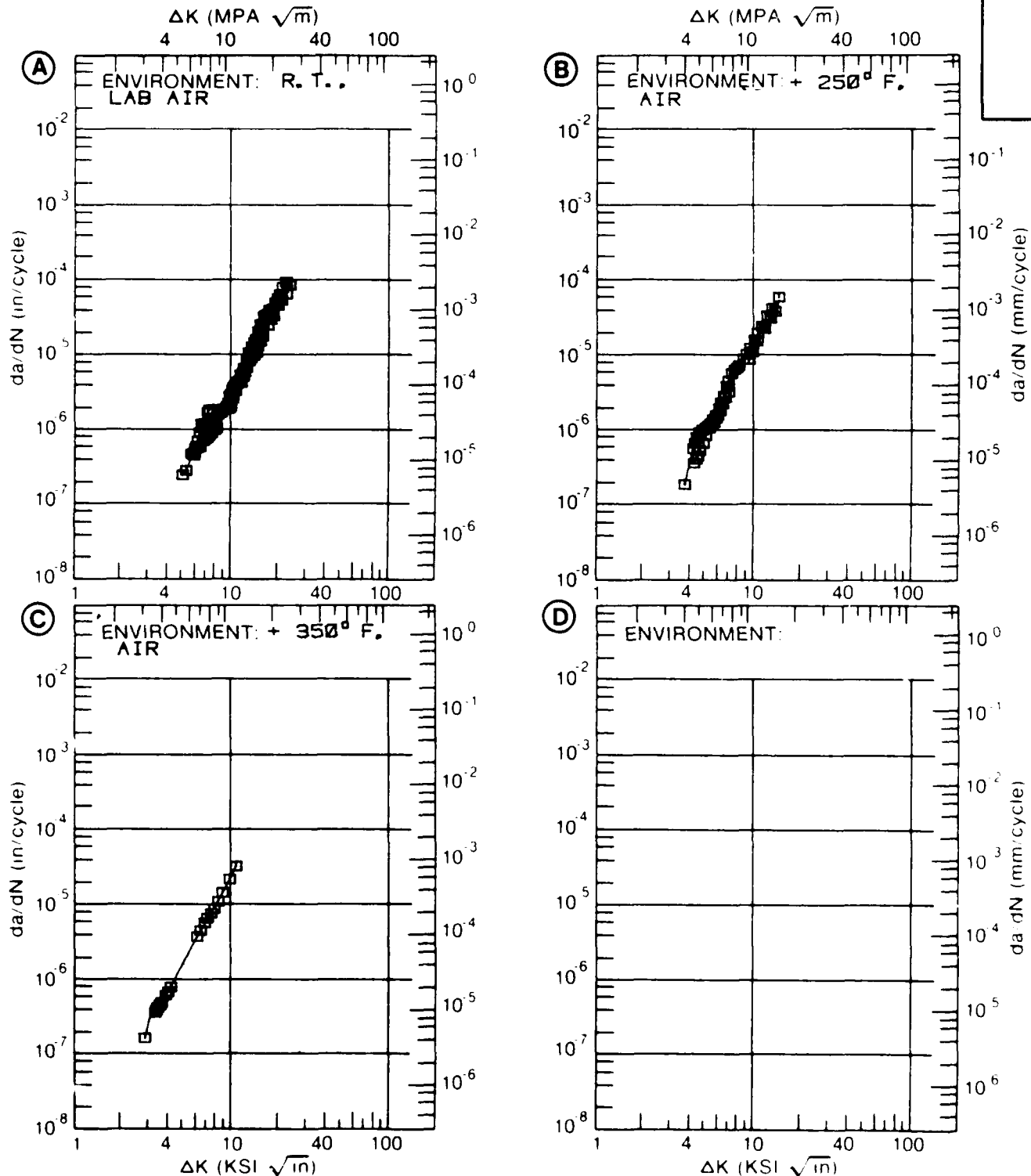


Figure 8.4.3.3

TABLE 8.4.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.4.3.4 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7010
CONDITION: T736S1

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R 7 LAB AIR	E=+ 250F AIR		
DELTA K MIN	A:	5.43	.588		
	B:	5.75	3.45		
	C:				
	D:				
	6.00 :	.760	3.99		
	7.00 :	1.69	6.39		
	8.00 :	3.28	9.10		
	9.00 :	4.80	12.2		
	10.00 :	6.03	15.7		
	13.00 :	9.10	31.1		
	16.00 :	13.0			
	20.00 :	22.5			
DELTA K MAX	A:	24.31	46.1		
	B:	15.48	54.5		
	C:				
	D:				
ROOT MEAN SQUARE		9.39	4.95		
PERCENT ERROR					

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) 2.0

CONDITION/HT: T73651
 FORM: 2.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-S
 STRESS RATIO: +0.10
 FREQUENCY: 20.00- 25.00 HZ

YIELD STRENGTH: 62.9 KSI
 ULT. STRENGTH: 73.7 KSI
 SPECIMEN THK: 0.300"
 SPECIMEN WIDTH: 1.500"
 REFERENCES: UD003

ALUM.
 ALLOY

7010

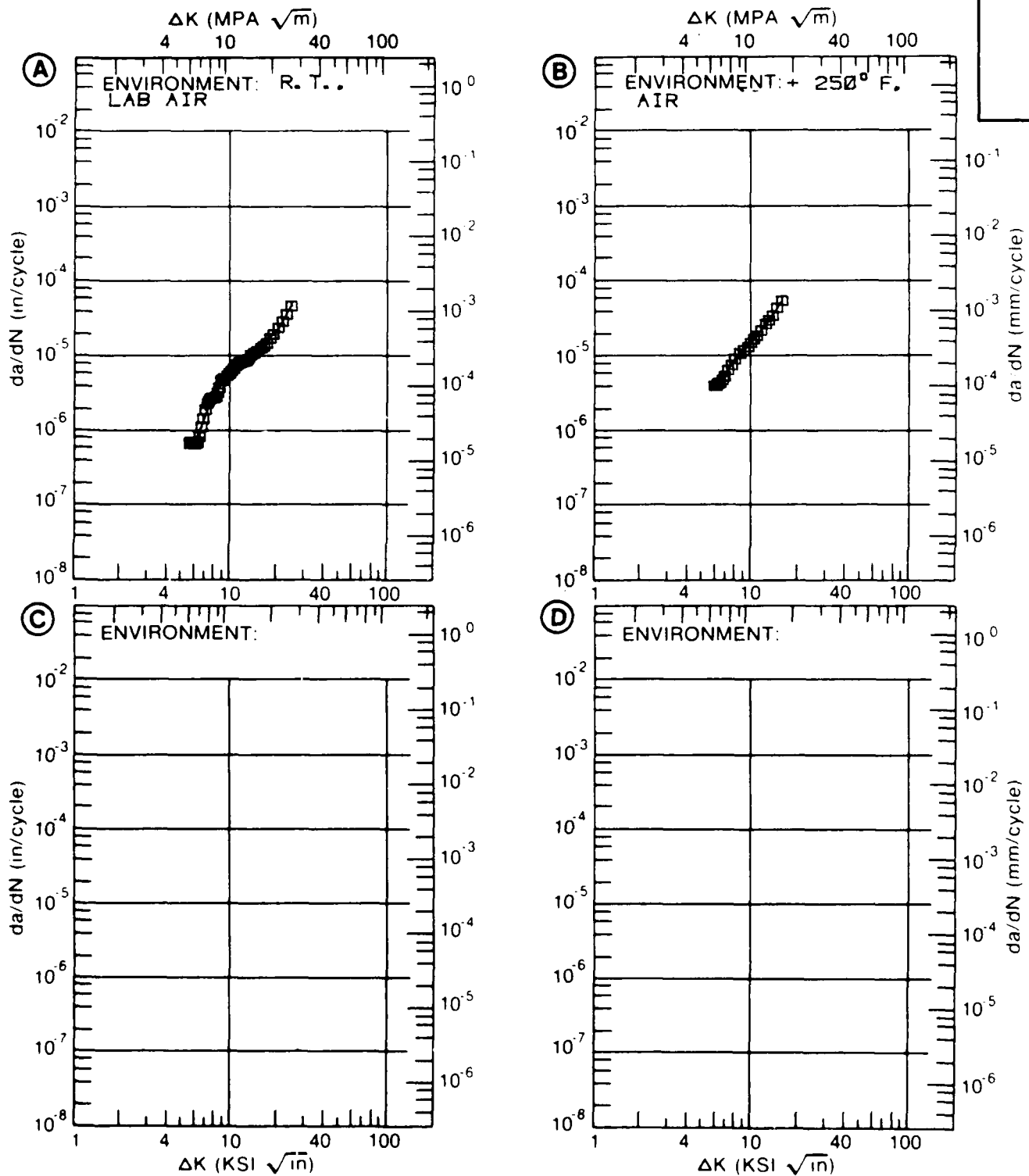


Figure 8.4.3.4

TABLE 8.4.3.5

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.4.3.5 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM 7010
CONDITION: T73651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R.T. LAB AIR		E=+ 250 AIR	
DELTA K MIN	A:	5.31	420		
	B:	3.83	259		
	C:				
	D:				
	4.00		330		
	5.00		1.01		
	6.00	540	2.24		
	7.00	831	4.13		
	8.00	1.49	6.81		
	9.00	3.13	10.4		
	10.00	6.15	15.3		
	13.00	15.8	40.7		
	16.00	34.3			
	20.00	85.4			
DELTA K MAX	A:	20.03	85.9		
	B:	14.89	70.6		
	C:				
	D:				
ROOT MEAN SQUARE		15.05	22.86		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION HT T73651
 FORM 2.00" TH PLATE
 SPECIMEN TYPE CT
 ORIENTATION T-L
 STRESS RATIO +0.10
 FREQUENCY 20.00- 25.00 HZ

YIELD STRENGTH: 62.9 KSI
 ULT. STRENGTH: 73.7 KSI
 SPECIMEN THK: 0.300"
 SPECIMEN WIDTH: 1.500"
 REFERENCES: UD003

ALUM.
 ALLOY

7010

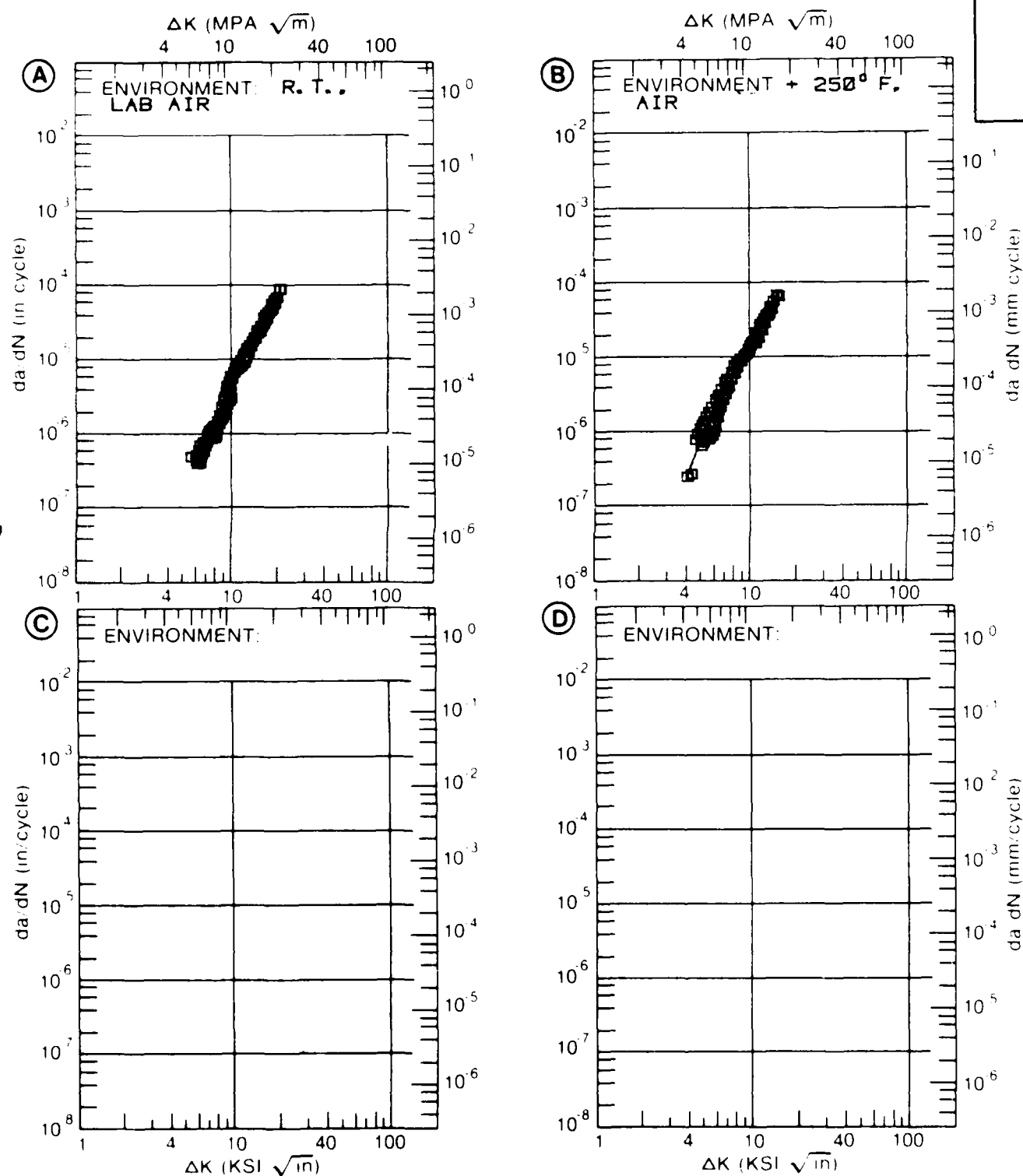


Figure 8.4.3.5

TABLE 8.4.3.6

[illegible]

TABLE 8.5.3.1

SUSTAINED CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.5.3.1 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7039
CONDITION T64K MAX
(KSI*IN**1/2)

DA/DT (10**-6 IN/HOUR)

A

B

C

D

E=
WET 3X/DAY WITH
3.5% NaCl

K MAX	A:	8.00	857.
MIN	B:		
	C:		
	D:		

9.00	1319.
10.00	1834.
13.00	3401.
15.00	4682.
20.00	5828.
25.00	6641.
30.00	7125.
35.00	7506.
40.00	7898.

K MAX	A:	43.00	8165.
MAX	B:		
	C:		
	D:		

ROOT MEAN SQUARE 7.74
PERCENT ERROR

CONDITION/HT: T64
 FORM: 1.0" TH PLATE
 SPECIMEN TYPE: DCB
 ORIENTATION: S-L
 YIELD STRENGTH:
 ULT. STRENGTH:

SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.000"
 CRACK LENGTH (A_0):
 K_{ISCC} :
 REFERENCES: 84284

ALUM.
 ALLOY

7039

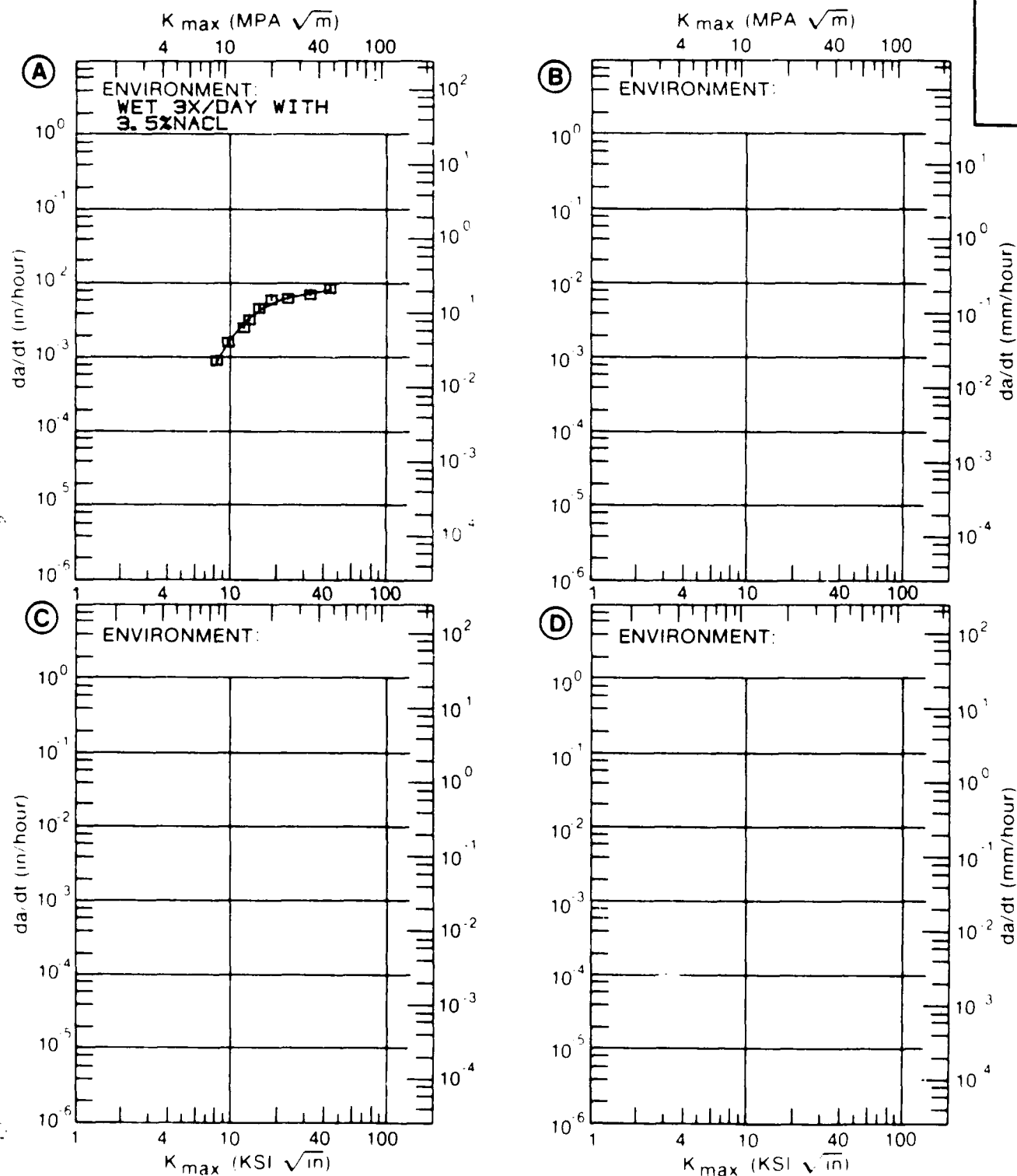


Figure 8.5.3.1

TABLE 8.6.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 7049 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN))	DEVIATION	NUMBER OF SPECIMENS
PLATE			
CONDITION/HT	I-L	I-L	S-L
T/351	---	26.1 ± 1.7 (4)	23.8 ± 0.6 (4)
FORGING			
CONDITION/HT	I-L	T-L	S-L
T/3	30.8 ± 3.0 (29)	21.9 ± 2.5 (20)	21.3 ± 2.5 (39)
T/352	38.2 ± 1.0 (2)	----	19.5 ± 2.8 (6)
EXTRUSION			
CONDITION/HT	I-L	I-L	S-L
T/3	28.1 ± 0.7 (3)	25.2 ± 0.5 (3)	----
EXTRUDED BAR			
CONDITION/HT	I-L	I-L	S-L
T/3	31.2 ± 2.7 (3)	22.0 ± 0.5 (3)	----
T/3511-HIGH/ PURITY	33.9 ± 0.1 (2)	26.0 ± 0.1 (2)	----
T/3511 LOW/ PURITY	27.8 ± 0.3 (2)	10.1 ± 0.1 (2)	----
T/3511 MEDIUM/ PURITY	29.7 ± 0.8 (2)	27.1 ± 0.5 (2)	----
T/3	32.7 ± 1.7 (3)	20.0 ± 0.3 (3)	----

TABLE 8.6.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7049

TEST CONDITIONS

SPECIMEN
ORIENTATION

L T

ENVIRONMENT

L H A
A T R T

CONDITION, R ₁	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2	5	10	20	50	100
T7351	PLATE	-1.00	10.00			3.59	43.9		
T7351	PLATE	0.00	10.00			2.58	28.3		
T7351	PLATE	0.50	10.00			0.76	14.6	108	
T7351	FORGING	0.00	6.00			4.16	33.1		
T7351	FORGING	0.00	6.00			0.66	5.63		
T7351	FORGING	0.40	6.00		0.06	1.03	11.0		
T7351	FORGING	0.50	6.00		0.11	1.29			

TABLE 8.6.1.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7049

TEST CONDITIONS

SPECIMEN ORIENTATION	L T	ENVIRONMENT	LAB AIR AT R T	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE)				
				DELTA K LEVELS (KSI SQRT(IN))	2 5	5	10	20 50 100
CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)					
T73511-HIGH PURITY	EXTRUSION	0 10	30 00	7 84				
T73511-LOW PURITY	EXTRUSION	0 10	30 00	7 32				
T73511-MEDIUM PURITY	EXTRUSION	0 10	30 00	3 44				

TABLE 8.6.1.4

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7049

TEST CONDITIONS

SPECIMEN
ORIENTATIONENVIRONMENT
H H A
A T R T

CONDITIONS	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2 5	5	10	20	50	100
773	FORGING	0.33	5.20						15.5
73511 HIGH PURITY	EXTRUSION	0.10	30.00						15.4
73511 LOW PURITY	EXTRUSION	0.10	30.00						11.5
73511 MEDIUM PURITY	EXTRUSION	0.10	30.00						14.2

TABLE 8.6.1.5

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7049

TEST CONDITIONS

SPECIMEN
ORIENTATIONENVIRONMENT 3.5% NaCl
A R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)					
					2	5	10	20	50	100
T7351	PLATE	0.00	1.00				56.1	224	2157	
T7351	PLATE	0.00	10.00				25.1	125	928	
T7351	PLATE	1.00	0.10				20.7	96.5		
T7351	PLATE	0.50	0.10			4.30	48.8	228		

TABLE 8.6.1.6

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7049

TEST CONDITIONS

SPECIMEN ORIENTATION	T-L	ENVIRONMENT	LAB AIR AT R T							
CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T73511-HIGH PURITY	EXTRUSION	0 10	30 00				7 81			
T73511-LOW PURITY	EXTRUSION	0 10	30 00				9 33			
T73511-MEDIUM PURITY	EXTRUSION	0 10	30 00				8 36			

TABLE 8.6.1.7

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7049

TEST CONDITIONS

SPECIMEN
ORIENTATION T LENVIRONMENT
SALT FOG
AT R T

CONDITION/HT	PREVIOUS FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE)		
					2.5	5	10
							20
							50
							100

T T

FORGING

0.33 18.30

30.1

T T

FORGING

0.33 5.20

24.2

TABLE 8.6.2.1

CONDITION	ALUMINUM				7049		K(1C)		K(1C) STAN	REFER				
	---PRODUCT--- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN----- WIDTH THICK (IN) (IN)	DESIGN (IN)	CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)			K(1C) MEAN DEV (KSI*SQRT IN)			
173	F	2 00	R T	L-S	73.1	1 500	0.750	CT	0.780	0.53	33.60	1972	84368	
173	F	1 00	B6	L-S	74.9	2 000	0.998	CT	1.059	0.36	28.50	1973	86213	
173	F	6 00	R T	L-T	55.3	2 000	0.998	CT	1.003	0.64	28.00	1973	86213	
		6 00			55.3	2 000	0.998	CT	0.971	0.54	25.60	1973	86213	
		6 00			58.4	2 000	1.002	CT	0.993	0.90	35.10	1973	86213	
		6 00			58.4	2 000	1.001	CT	1.021	0.76	32.30	1973	86213	
		5 00			60.1	2 000	1.000	CT	1.060	0.52	27.40	1972	84368	
		5 00			60.1	2 000	1.000	CT	1.040	0.47	25.90	1972	84368	
		3 00			65.0	2 000	1.000	CT	1.011	0.56	30.70	1973	86213	
		3 00			65.0	2 000	1.000	CT	1.042	0.67	33.70	1973	86213	
		3 00			65.4	2 000	1.000	CT	1.100	0.57	31.40	1972	84368	
		3 00			65.4	2 000	0.998	CT	1.088	0.54	30.30	1973	86213	
		3 00			65.4	2 000	1.000	CT	1.090	0.54	30.30	1972	84368	
		3 00			65.5	1 500	0.750	CT	0.790	0.69	34.30	1972	84368	
		2 00			65.5	1 500	0.750	CT	0.800	0.64	33.20	1972	84368	
		2 00			67.0	1 000	0.500	CT	0.480	0.46	28.70	1972	84368	
		1 00			67.0	1 000	0.500	CT	0.470	0.45	28.30	1972	84368	
		1 75			67.0	1 000	0.498	CT	0.472	0.45	28.30	1973	86213	
		1 75			67.0	1 000	0.498	CT	0.480	0.46	28.70	1973	86213	
		-----			68.0	3 500	0.996	CT	1.802	0.43	28.20	1972	84306	
		2 00			68.8	2 000	1.000	CT	1.036	0.42	28.30	1973	86213	
		7 10			70.6	2 000	0.998	CT	1.049	0.40	28.20	1973	86213	
		4 00			72.8	2 000	1.000	CT	1.080	0.55	34.20	1972	84368	
		4 00			72.8	1 990	0.998	CT	1.084	0.55	34.20	1973	86213	
		4 00			72.8	1 990	0.998	CT	1.090	0.47	31.50	1973	86213	
		4 00			72.8	2 000	1.000	CT	1.090	0.47	31.50	1972	84368	
		7 00			73.4	2 000	1.000	CT	1.095	0.58	35.40	1973	86213	
		2 00			74.4	1 000	0.500	CT	0.490	0.43	30.80	1972	84368	
		1 00			74.4	1 000	0.500	CT	0.480	0.42	30.60	1972	84368	
		2 00			75.9	1 500	0.750	CT	0.830	0.60	37.20	30.8/ 3.0	1972	84368
173	F	5 00	B2	L-T	60.1	2 000	1.000	CT	1.039	0.46	25.90	1973	86213	
		5 00			60.1	2 000	1.000	CT	1.062	0.52	27.40	1973	86213	
		5 00			60.6	1 990	1.000	CT	0.995	0.80	34.30	1973	86213	
		2 70			65.5	1 500	0.747	CT	0.795	0.69	34.30	1973	86213	
		2 70			65.5	1 500	0.747	CT	0.802	0.64	33.20	1973	86213	

TABLE 8.6.2.1 (Con't)

CONDITION	ALUMINUM				K(1C)										REFER
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	7049		CRACK LENGTH (IN)		2.5* K(1C)/TYS)**2 (IN)		K(1C) STAN K(1C) MEAN DEV (KSI*SQRT IN)			
						WIDTH (IN)	THICK (IN)	A	B						
T73	F	4 20	82	L-T	65.7	1.500	0.748	CT	0.785	0.49	29.20	1973	86213		
		4 20			65.7	1.500	0.748	CT	0.793	0.49	29.10	1973	86213		
		2 50			68.8	2.000	1.000	CT	1.081	0.29	23.50	1973	86213		
		2 50			73.1	1.500	0.749	CT	0.782	0.53	33.60	1973	86213		
		1 50			74.4	0.990	0.499	CT	0.491	0.43	30.80	1973	86213		
		1 50			74.4	1.000	0.499	CT	0.481	0.42	30.60	1973	86213		
T73	F	2 50			75.9	1.500	0.750	CT	0.832	0.60	37.20	30.8/	4.0	1973	86213
		6 00	84	L-T	59.5	2.000	1.000	CT	1.010	0.66	30.60	1973	86213		
		6 00			59.5	2.000	1.000	CT	1.015	0.79	33.50	32.1/	2.1	1973	86213
		T73	F	6 00	R T	T-L	55.5	2.000	1.000	CT	0.967	0.29	18.90	1973	86213
							55.5	2.000	1.000	CT	0.994	0.29	18.80	1973	86213
							57.8	2.000	1.001	CT	1.023	0.44	24.20	1973	86213
57.8	2.000						1.002	CT	1.016	0.40	23.00	1973	86213		
T73	F	5 00			58.1	2.000	1.000	CT	1.050	0.25	18.40	1972	84368		
		3 00			62.2	2.000	1.000	CT	1.027	0.50	27.90	1973	86213		
		3 00			62.2	2.000	1.000	CT	1.023	0.44	26.20	1973	86213		
		3 00			63.9	2.000	1.000	CT	0.997	0.28	21.20	1973	86213		
		3 00			63.9	2.000	0.999	CT	1.085	0.25	20.40	1973	86213		
		3 00			66.2	2.000	1.000	CT	1.100	0.31	23.40	1972	84368		
		3 00			66.2	1.990	0.998	CT	1.101	0.31	23.40	1973	86213		
		3 00			66.2	2.000	0.998	CT	1.106	0.30	23.00	1973	86213		
		3 00			66.2	2.000	1.000	CT	1.110	0.30	23.00	1972	84368		
		2 00			67.0	2.000	0.999	CT	1.015	0.19	18.70	1973	86213		
		4 00			68.5	2.000	0.998	CT	1.062	0.25	21.70	1973	86213		
		4 00			68.5	2.000	1.000	CT	1.060	0.25	21.70	1972	84368		
		4 00			68.5	2.000	0.998	CT	1.091	0.22	20.20	1973	86213		
		4 00			68.5	2.000	1.000	CT	1.090	0.22	20.20	1972	84368		
		7 10			70.6	2.000	0.999	CT	1.093	0.26	22.60	1973	86213		
		7 00			73.4	2.000	0.998	CT	1.104	0.20	20.70	21.9/	2.5	1973	86213
		T73	F	5 00	82	T-L	58.1	2.000	1.000	CT	1.047	0.25	18.40	1973	86213
5 00					61.3	1.990	1.000	CT	0.950	0.52	28.00	1973	86213		
5 00					61.3	1.990	1.000	CT	0.945	0.49	27.10	1973	86213		
2 00					67.0	2.000	0.999	CT	1.075	0.27	21.90	1973	86213		
T73	F	2 00			67.0	2.000	1.000	CT	1.082	0.27	22.00	23.5/	4.0	1973	86213
		6 00	84	T-L	57.6	2.000	1.000	CT	0.988	0.31	20.30	1973	86213		

1

1

TABLE 8.6.2.1 (Con't)

CONDITION	ALUMINUM 7049				YIELD STRENGTH (KSI)	K(1C)			CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV	DATE	REFER
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT		-----SPECIMEN-----								
						WIDTH (IN)	THICK (IN)	DESIGN (IN)						
173	F	-----	R T	S-L	68.9	1.000	0.500	CT	0.500	0.24	21.20	21.3/	2.5	1972 83242
					68.9	1.000	0.500	CT	0.500	0.24	21.20	21.3/	2.5	1972 83242
173	F	5.00	82	S-L	59.1	2.000	1.000	CT	1.051	0.28	19.80			1973 86213
		5.00			59.1	2.000	1.000	CT	1.048	0.28	19.70			1973 86213
		5.00			60.1	1.990	1.000	CT	0.956	0.23	18.20			1973 86213
		5.00			60.1	1.990	1.000	CT	0.980	0.22	17.90			1973 86213
		1.00			62.6	1.000	0.501	CT	0.513	0.36	23.70			1973 86213
		1.00			62.6	1.000	0.499	CT	0.499	0.37	24.00			1973 86213
		2.70			64.7	1.500	0.748	CT	0.774	0.32	23.00			1973 86213
		2.70			64.7	1.500	0.748	CT	0.773	0.41	26.20			1973 86213
		2.50			64.9	1.500	0.748	CT	0.820	0.38	25.40			1973 86213
		2.50			64.9	1.500	0.748	CT	0.813	0.37	25.10			1973 86213
		2.00			65.4	1.620	0.751	CT	0.779	0.13	15.00			1973 86213
		1.50			67.1	0.990	0.499	CT	0.464	0.31	23.50			1973 86213
		1.50			67.1	0.990	0.498	CT	0.480	0.27	21.90			1973 86213
		1.50			67.6	1.500	0.750	CT	0.799	0.30	23.40			1973 86213
		1.50			67.6	1.500	0.750	CT	0.798	0.29	23.10			1973 86213
		2.50			67.8	1.500	0.749	CT	0.789	0.27	22.40			1973 86213
		2.50			67.8	1.500	0.751	CT	0.794	0.26	21.80			1973 86213
		4.20			69.7	1.500	0.747	CT	0.782	0.17	18.40			1973 86213
		4.20			69.7	1.500	0.748	CT	0.794	0.18	18.70	21.6/	3.0	1973 86213
173	F	6.00	84	S-L	58.7	2.000	1.000	CT	1.028	0.28	19.60			1973 86213
		6.00			58.7	2.000	1.000	CT	1.024	0.28	19.70			1973 86213
		0.75			68.2	1.000	0.500	CT	0.515	0.29	23.20			1973 86213
		0.75			68.2	1.000	0.500	CT	0.516	0.30	23.60			1973 86213
		0.75			71.5	1.000	0.475	CT	0.535	0.22	21.30			1973 86213
		0.75			71.5	1.000	0.494	CT	0.539	0.25	22.60	21.7/	1.7	1973 86213
173	E	3.00	-	65	L-T	78.9	2.000	1.000	CT	1.000	23.60			1972 83061
		3.00			78.9	2.000	1.000	CT	1.000	0.26	23.40			1972 83061
		3.00			78.9	2.000	1.000	CT	1.000	0.26	23.20	24.7/	1.0	1972 83061
173	F	3.00	0	L-T	76.8	2.000	1.000	CT	1.000	0.25	24.50			1972 83061
		3.00			76.8	2.000	1.000	CT	1.000	0.30	26.80			1972 83061
		3.00			76.8	2.000	1.000	CT	1.000	0.29	26.30	25.9/	1.2	1972 83061
173	F	3.00	R T	L-T	74.8	2.000	1.000	CT	1.000	0.33	27.30			1972 83061

TABLE 8.6.2.1 (Con't)

CONDITION	ALUMINUM					7049		K(1C)		K(1C) STAN DEV	DATE	REFER
	--PRODUCT--		YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)					
	FORM	THICK (IN)		THICK (IN)	WIDTH (IN)							
173	F	3 00	R T	L-T	74 8	2 000	1 000	CT	1 000	0 36	28 60	1972 83061
		3 00			74 8	2 000	1 000	CT	1 000	0 36	28 30	28 1/ 0 7 1972 83061
173	E	3 00	- 65	T-L	77 5	2 000	1 000	CT	1 000	0 22	22 80	1972 83061
		3 00			77 5	2 000	1 000	CT	1 000	0 23	23 70	23 3/ 0 6 1972 83061
173	E	3 00	0	T-L	76 3	2 000	1 000	CT	1 000	0 24	23 80	1972 83061
		3 00			76 3	2 000	1 000	CT	1 000	0 27	24 90	1972 83061
		3 00			76 3	2 000	1 000	CT	1 000	0 24	23 60	24 1/ 0 7 1972 83061
173	E	3 00	R T	T-L	75 0	2 000	1 000	CT	1 000	0 29	25 70	1972 83061
		3 00			75 0	2 000	1 000	CT	1 000	0 28	25 30	1972 83061
		3 00			75 0	2 000	1 000	CT	1 000	0 27	24 70	25 2/ 0 5 1972 83061
173	E	3 00	- 65	S-T	72 7	-----	-----	CT	-----	0 21	21 10	1972 83061
		3 00			72 7	-----	-----	CT	-----	0 26	23 30	22 2/ 1 6 1972 83061
173	F	3 00	0	S-T	71 2	-----	-----	CT	-----	0 25	22 50	1972 83061
		3 00			71 2	-----	-----	CT	-----	0 19	19 80	21 2/ 1 9 1972 83061
173	F	3 00	R T	S-T	68 6	-----	-----	CT	-----	0 21	20 10	1972 83061
		3 00			68 6	-----	-----	CT	-----	0 22	20 50	1972 83061
		3 00			68 6	-----	-----	CT	-----	0 22	20 30	20 3/ 0 2 1972 83061
173	FB	3 50	- 65	L-T	71 7	2 000	1 000	CT	1 000	0 52	32 60	1972 83061
		3 50			71 7	2 000	1 000	CT	1 000	0 42	29 40	1972 83061
		3 50			71 7	2 000	1 000	CT	1 000	0 51	32 20	31 4/ 1 7 1972 83061
173	EB	3 50	0	L-T	77 3	2 000	1 000	CT	1 000	0 50	34 70	1972 83061
		3 50			77 3	2 000	1 000	CT	1 000	0 48	33 80	1972 83061
		3 50			77 3	2 000	1 000	CT	1 000	0 49	34 20	34 2/ 0 5 1972 83061
173	EB	3 25	R T	L-T	73 4	2 000	1 000	CT	1 000	0 55	34 40	1972 83061
		3 50			73 4	2 000	1 000	CT	1 000	0 42	30 10	1972 83061
		3 50			73 4	2 000	1 000	CT	1 000	0 57	35 10	33 2/ 2 7 1972 83061
173	FR	3 50	- 65	T-L	70 3	2 000	1 000	CT	1 000	0 18	18 90	1972 83061
		3 50			70 3	2 000	1 000	CT	1 000	0 22	20 80	1972 83061
		3 50			70 3	2 000	1 000	CT	1 000	0 21	20 20	20 0/ 1 0 1972 83061

TABLE 8.6.2.2.1 (Con't)

CONDITION	ALUMINUM				7049				K(1C)				DATE	REFER
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (IN)	K(1C)/TYS)**2 (KSI*SQRT IN)	K(1C) STAN DEV			
						WIDTH (IN)	THICK (IN)							
173	EB	3 50	0	T-L	69 6	2 000	1 000	CT	1 000	0 22	20 60	1972 83061		
		3 50			69 6	2 000	1 000	CT	1 000	0 22	20 40	1972 83061		
		3 50			69 6	2 000	1 000	CT	1 000	0 23	20 90	1972 83061		
173	EB	3 50	R T	T-L	67 7	2 000	1 000	CT	1 000	0 25	21 50	1972 83061		
		3 50			67 7	2 000	1 000	CT	1 000	0 27	22 40	1972 83061		
		3 50			67 7	2 000	1 000	CT	1 000	0 27	22 10	1972 83061		
173	EB	3 50	- 65	S-T	67 2	2 000	1 000	CT	1 000	0 24	20 70	1972 83061		
		EB	3 50	0	S-T	66 5	2 000	1 000	CT	1 000	0 27	21 80	1972 83061	
			3 50			66 5	2 000	1 000	CT	1 000	0 25	21 00	1972 83061	
		3 50			66 5	2 000	1 000	CT	1 000	0 26	21 60	1972 83061		
173	EB	3 50	R T	S-T	65 4	2 000	1 000	CT	1 000	0 30	22 50	1972 83061		
		3 50			65 4	2 000	1 000	CT	1 000	0 30	22 60	1972 83061		
		3 50			65 4	2 000	1 000	CT	1 000	0 33	23 80	1972 83061		
17351	P	4 00	R T	T-L	53 6	1 500	0 750	CT	0 722	0 51	24 10	1973 86213		
		4 00			53 6	1 490	0 748	CT	0 725	0 56	25 40	1973 86213		
		2 00			59 4	1 500	0 750	CT	0 750	0 52	27 20	1973 86213		
		2 00			59 4	1 500	0 748	CT	0 751	0 55	27 80	1973 86213		
17351	P	4 00	R T	S-L	49 3	1 490	0 750	CT	0 700	0 53	23 20	1973 86213		
		4 00			49 3	1 500	0 750	CT	0 730	0 59	24 00	1973 86213		
		2 00			57 6	1 490	0 750	CT	0 715	0 42	23 50	1973 86213		
		2 00			57 6	1 490	0 750	CT	0 704	0 45	24 50	1973 86213		
173511-HIGH/ PURITY	EB	1 50	R T	L-T	76 7	2 500	1 250	CT	----	0 49	34 00	1980 WA001		
		1 50			76 7	2 500	1 250	CT	----	0 49	33 80	1980 WA001		
173511-HIGH/ PURITY	EB	1 50	R T	T-L	70 3	2 500	1 250	CT	----	0 34	26 00	1980 WA001		
		1 50			70 3	2 500	1 250	CT	----	0 34	25 90	1980 WA001		

TABLE 8.6.2.1 (Con't)

CORROSION	ALUMINUM	7049										K(1C)		K(1C) STAN MEAN DEV (KSI*SQRT IN)	DATE	REFER
		FORM	THICK (IN)	TEST SPECIMEN TEMP ORIENT (F)	YIELD STRENGTH (KSI)	SPECIMEN		DESIGN	CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)	K(1C)					
						WIDTH (IN)	THICK (IN)									
T73511 LOW PURITY	EB	1.50	R T	L T	73.1	2.500	1.250	CT	----	0.27	24.00	1980	WA001			
		1.50			73.1	2.500	1.250	CT	----	0.26	23.60	1980	WA001			
T73511 LOW PURITY	EB	1.50	R T	T-L	68.6	2.500	1.250	CT	----	0.18	18.20	1980	WA001			
		1.50			68.6	2.500	1.250	CT	----	0.17	18.00	1980	WA001			
T73511-MEDIUM/ PURITY	EB	1.50	R T	L-T	75.4	2.500	1.250	CT	----	0.40	30.30	1980	WA001			
		1.50			75.4	2.500	1.250	CT	----	0.37	29.10	1980	WA001			
T73511-MEDIUM/ PURITY	EB	1.50	R T	T-L	69.2	2.500	1.250	CT	----	0.25	21.70	1980	WA001			
		1.50			69.2	2.500	1.250	CT	----	0.26	22.40	1980	WA001			
T7352	F	7.10	R T	L-T	65.0	3.990	1.998	CT	1.882	0.83	37.50	1973	85836			
		7.10			65.0	3.990	1.997	CT	1.900	0.90	38.90	1973	85836			
T7342	F	6.00	R T	S-L	50.5	2.000	0.999	CT	0.931	0.36	19.10	1973	86213			
		6.00			50.5	2.000	0.999	CT	0.954	0.24	15.80	1973	86213			
		3.00			58.6	2.000	0.999	CT	1.003	0.22	17.30	1973	86213			
		7.10			62.0	2.500	1.292	CT	1.292	0.36	23.40	1973	85836			
		3.00			63.8	2.000	1.000	CT	1.065	0.29	21.90	1973	86213			
		3.00			63.8	2.000	1.000	CT	1.039	0.24	19.70	1973	86213			
T74	EB	3.50	-	L-T	80.0	2.000	1.000	CT	1.000	0.36	30.30	1972	83061			
		3.50			80.0	2.000	1.000	CT	1.000	0.36	30.30	1972	83061			
		3.50			80.0	2.000	1.000	CT	1.000	0.36	30.50	1972	83061			
T76	EB	3.50	0	L-T	77.1	2.000	1.000	CT	1.000	0.49	34.10	1972	83061			
		3.50			77.1	2.000	1.000	CT	1.000	0.44	32.30	1972	83061			
		3.50			77.1	2.000	1.000	CT	1.000	0.45	32.90	1972	83061			
T7A	EB	3.25	R T	L-T	75.5	2.000	1.000	CT	1.000	0.51	34.20	1972	83061			
		3.50			75.5	2.000	1.000	CT	1.000	0.42	30.80	1972	83061			
		3.50			75.5	2.000	1.000	CT	1.000	0.48	33.10	1972	83061			

TABLE 8.6.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.1 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7049
CONDITION: T73

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A:	6.17	4.17		
	B:	6.21	10.4		
	C:	6.07		9.11	
	D:				
		7.00	6.89	11.7	10.8
		8.00	10.1	16.5	15.7
		9.00	14.8	30.7	21.5
		10.00	24.8	28.5	30.1
DELTA K MAX	A:	11.88	112.		
	B:	10.89	100.		
	C:	11.44		76.4	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		16.76	9.08	7.82	
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73
 FORM: 4.00- 5.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30

YIELD STRENGTH: 58.1- 68.5 KSI
 ULT. STRENGTH: 68.4- 76.4 KSI
 SPECIMEN THK: 1.495- 1.502"
 SPECIMEN WIDTH: 3.800"
 REFERENCES: 86842

ALUM.
 ALLOY

7049

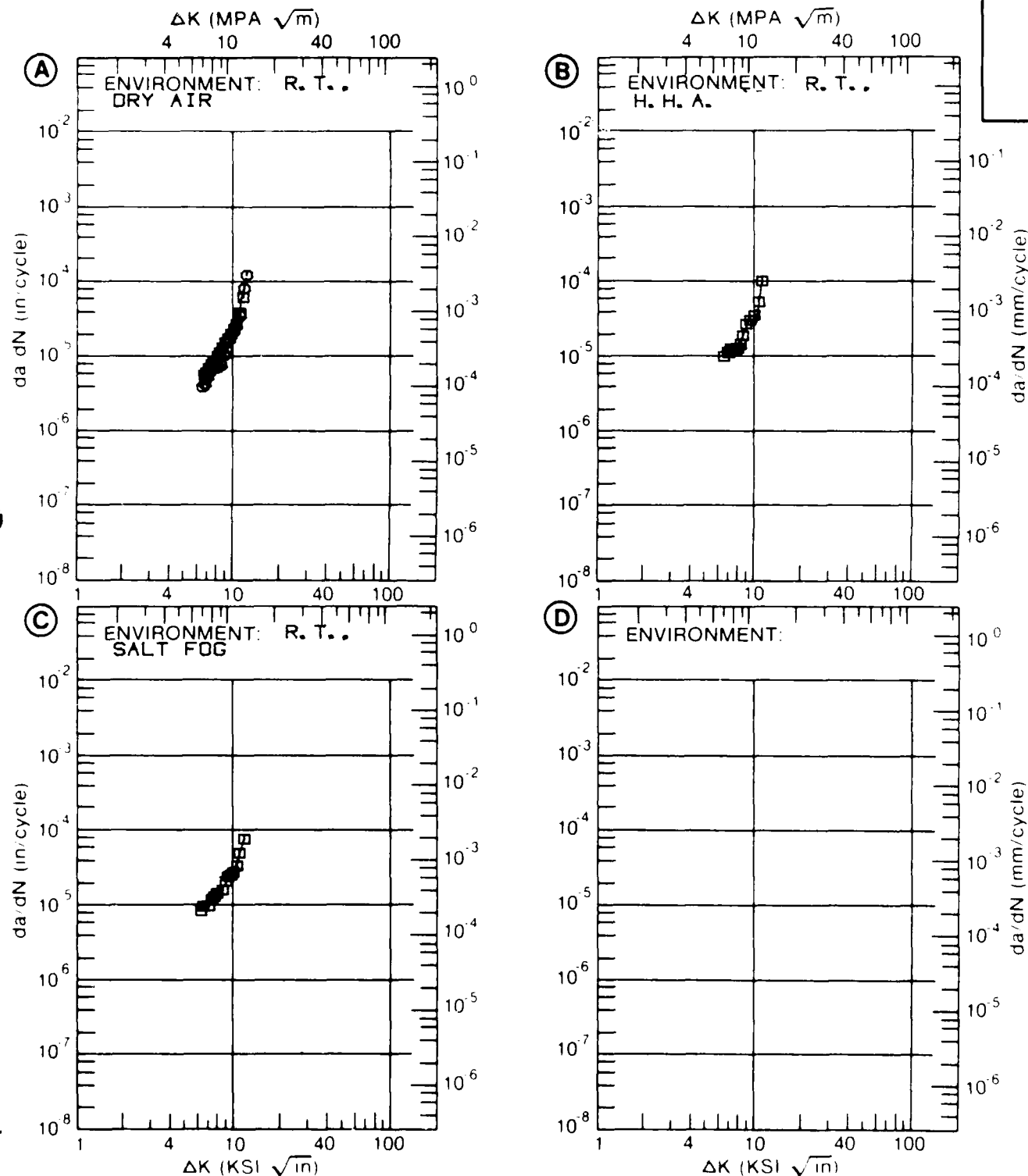


Figure 8.6.3.1

TABLE 8.6.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.2 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM 7049
CONDITION: T73

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K	A: 5.96	2.16			
MIN	B: 6.02		3.75		
	C: 5.30			3.18	
	D:				
	6.00	2.21		5.58	
	7.00	3.98	6.87	9.92	
	8.00	6.87	10.0	14.0	
	9.00	10.3	12.5	17.9	
	10.00	13.9	15.5	22.2	
	13.00	28.6	42.9	46.1	
	16.00	62.3		105.	
	20.00			130.	
DELTA K	A: 17.34	82.1			
MAX	B: 15.15		71.3		
	C: 20.25			126.	
	D:				
ROOT MEAN SQUARE		5.13	6.07	6.24	
PERCENT ERROR					

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

1

1

1

CONDITION/HT: T73
 FORM: 5.00" TH FORGING
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 5.20

YIELD STRENGTH: 60.1 KSI
 ULT. STRENGTH: 70.3 KSI
 SPECIMEN THK: 0.748- 0.750"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: 86842

ALUM.
 ALLOY

7049

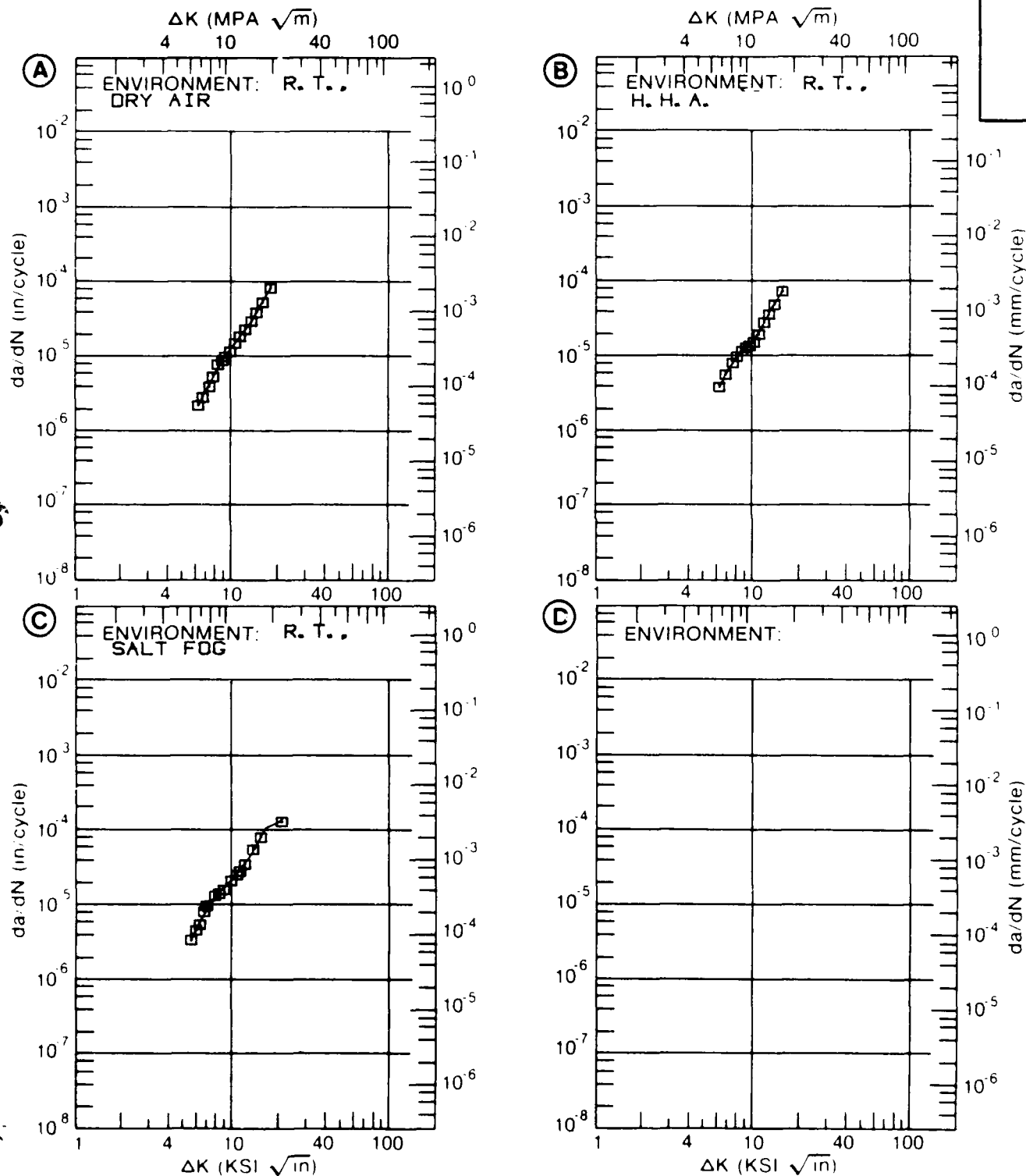


Figure 8.6.3.2

TABLE 8.6.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.6.3.3 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7049
CONDITION: T73DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

E= R.T.
SALT FOG

DELTA K	A:	5.98	6.46
MIN	B:		
	C:		
	D:		

6.00	6.57
7.00	12.2
8.00	18.3
9.00	25.3
10.00	34.3

DELTA K	A:	12.94	99.5
MAX	B:		
	C:		
	D:		

ROOT MEAN SQUARE 14.86
PERCENT ERROR

LIFE	0.0-0.5	
PREDICTION	0.5-0.8	1
RATIO	0.8-1.25	2
SUMMARY	1.25-2.0	
(NP/NA)	>2.0	

CONDITION HT: T73
 FORM: 5.00" TH FORGING
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 5.20

YIELD STRENGTH: 58.1 KSI
 UTS STRENGTH: 68.4 KSI
 SPECIMEN THK: 0.745-0.752"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: 86842

ALLOY
 ALLOY

7249

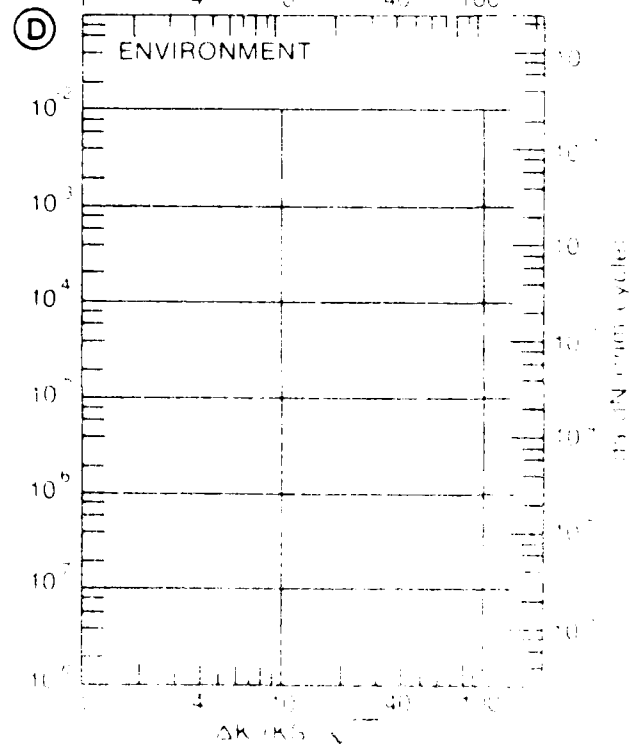
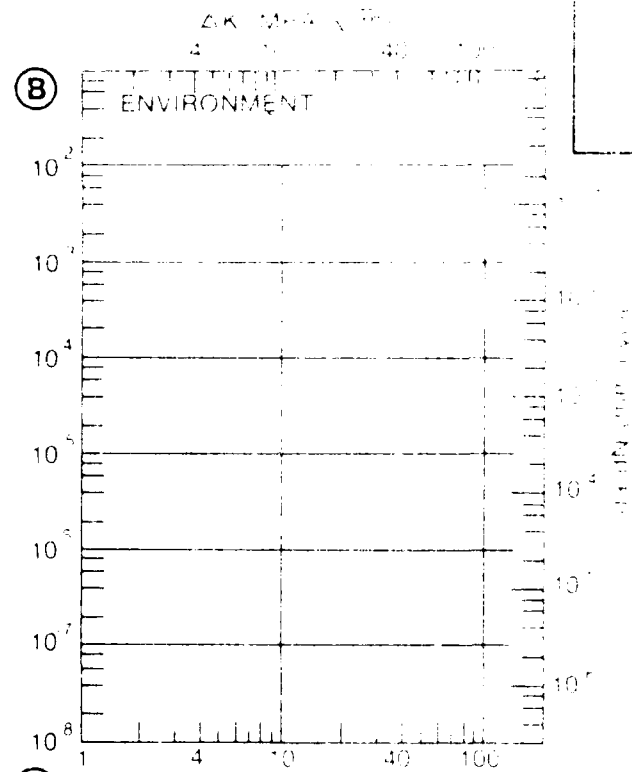
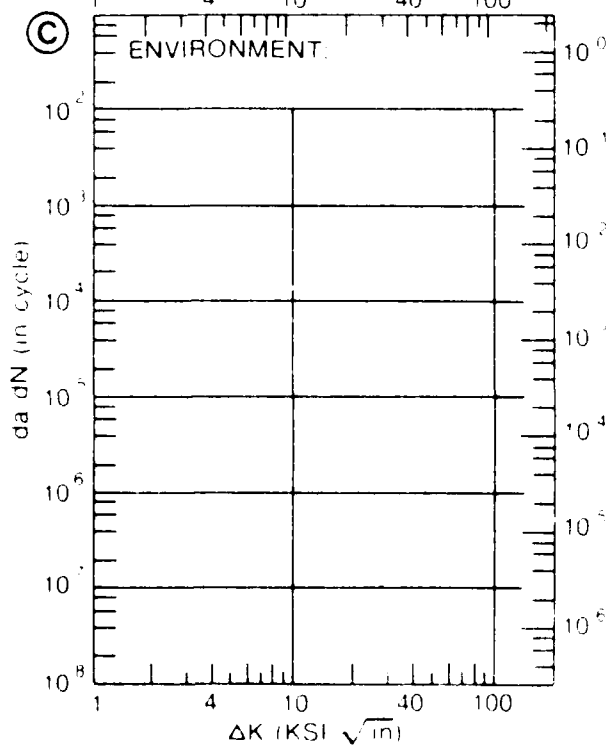
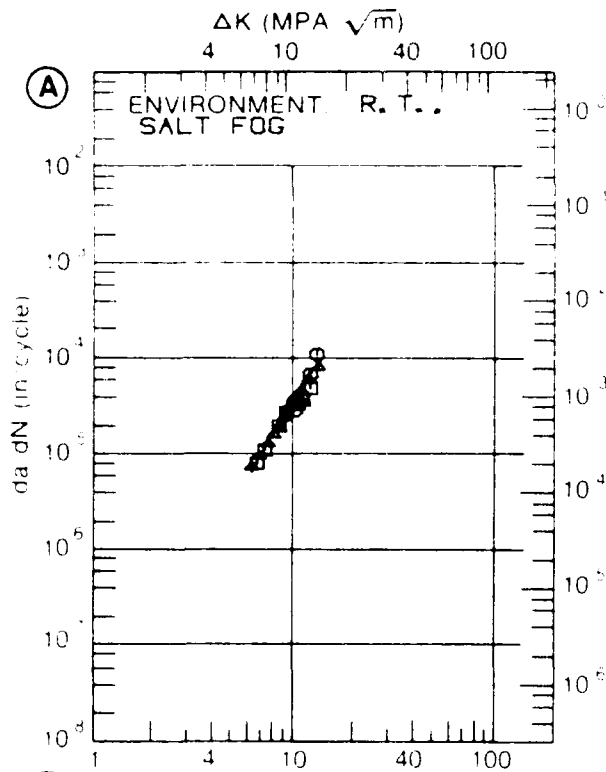


Figure 8.6.3.2

TABLE 8.6.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.4 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7049			
CONDITION: T/3					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A		
DELTA K	A: 6.20	.211			
MIN	B: 6.14		1.80		
	C:				
	D:				
	7.00	.883	4.42		
	8.00	1.66	10.0		
	9.00	2.60	14.7		
	10.00	6.08	18.7		
	13.00	18.0			
DELTA K	A: 13.74	31.7			
MAX	B: 11.75		41.3		
	C:				
	D:				
ROOT MEAN SQUARE		16.39	16.49		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73
 FORM: 5.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: S-T
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 59.1 KSI
 ULT. STRENGTH: 68.1 KSI
 SPECIMEN THK: 1.500- 1.501"
 SPECIMEN WIDTH: 3.800"
 REFERENCES: 86842

ALUM.
 ALLOY

7049

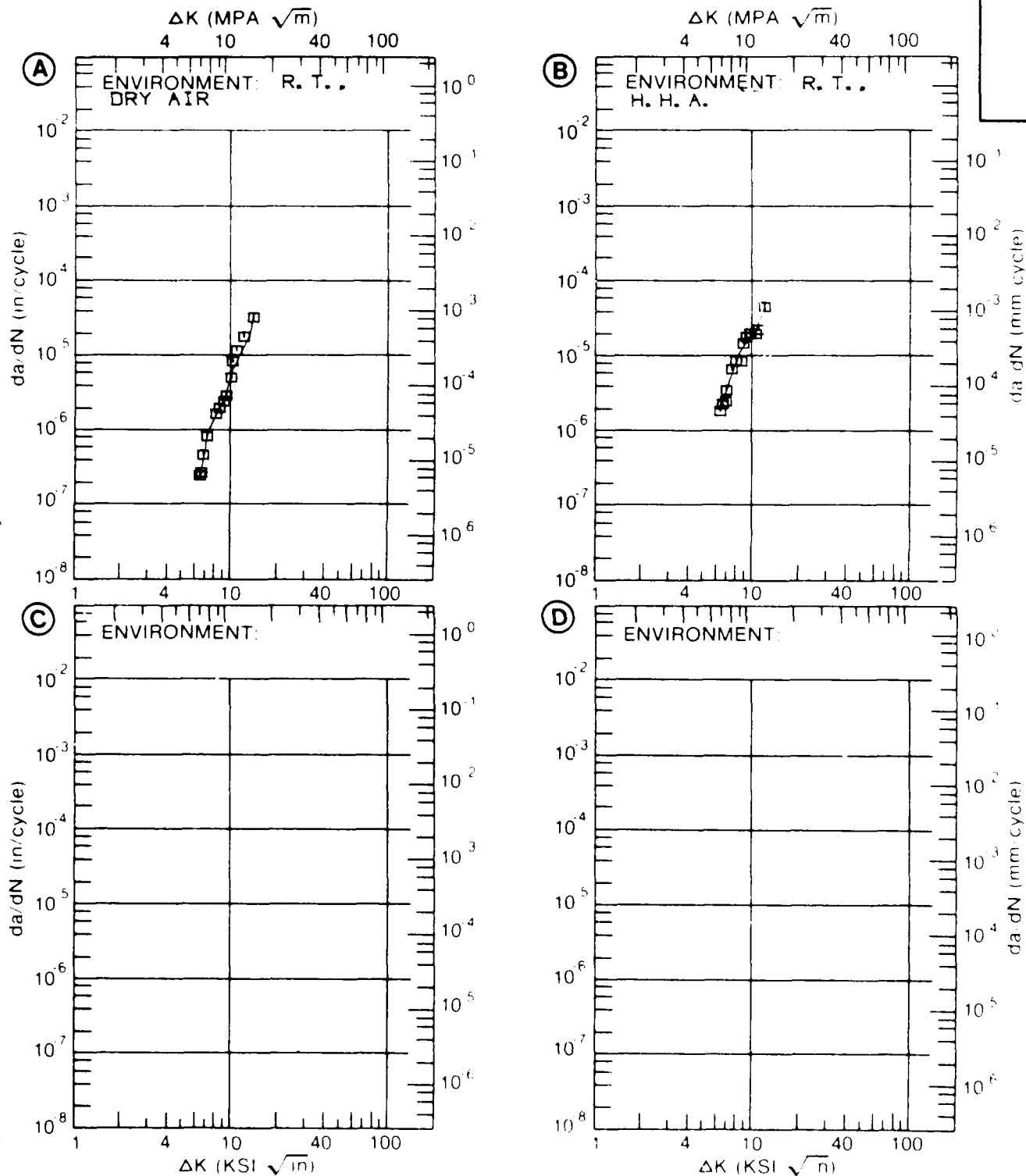


Figure 8.6.3.4

TABLE 8.6.3.5

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.5 INDICATING EFFECT

OF STRESS RATIO

MATERIAL ALUMINUM 7049
 CONDITION: T7351
 ENVIRONMENT: R T / L H A

DELTA K (KSI*IN**1/2)		DA/DN (10** -6 IN /CYCLE)			
		A	B	C	D
		R=-1.00	R=+0.00	R=+0.50	
DELTA K MIN	A:	5.51	584		
	B:	5.71	454		
	C:	4.10		344	
	D:				
	5.00			765	
	6.00	635	515	171	
	7.00	894	795	343	
	8.00	140	121	613	
	9.00	226	179	987	
	10.00	359	258	146	
	13.00	115	657	307	
	16.00	242	136	492	
	20.00	439	283	108	
	25.00	856	569	336	
	30.00	179	101	827	
	35.00	330	171		
	40.00	507	289		
DELTA K MAX	A:	47.38	1288		
	B:	49.15	587		
	C:	34.04		833	
	D:				

ROOT MEAN SQUARE 9.31 15.85 12.92
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) 2.0

CONDITION/HT: T7351
 FORM: 1.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 10.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 72.0 KSI
 ULT. STRENGTH: 80.5 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: MA007

ALUM.
 ALLOY

7049

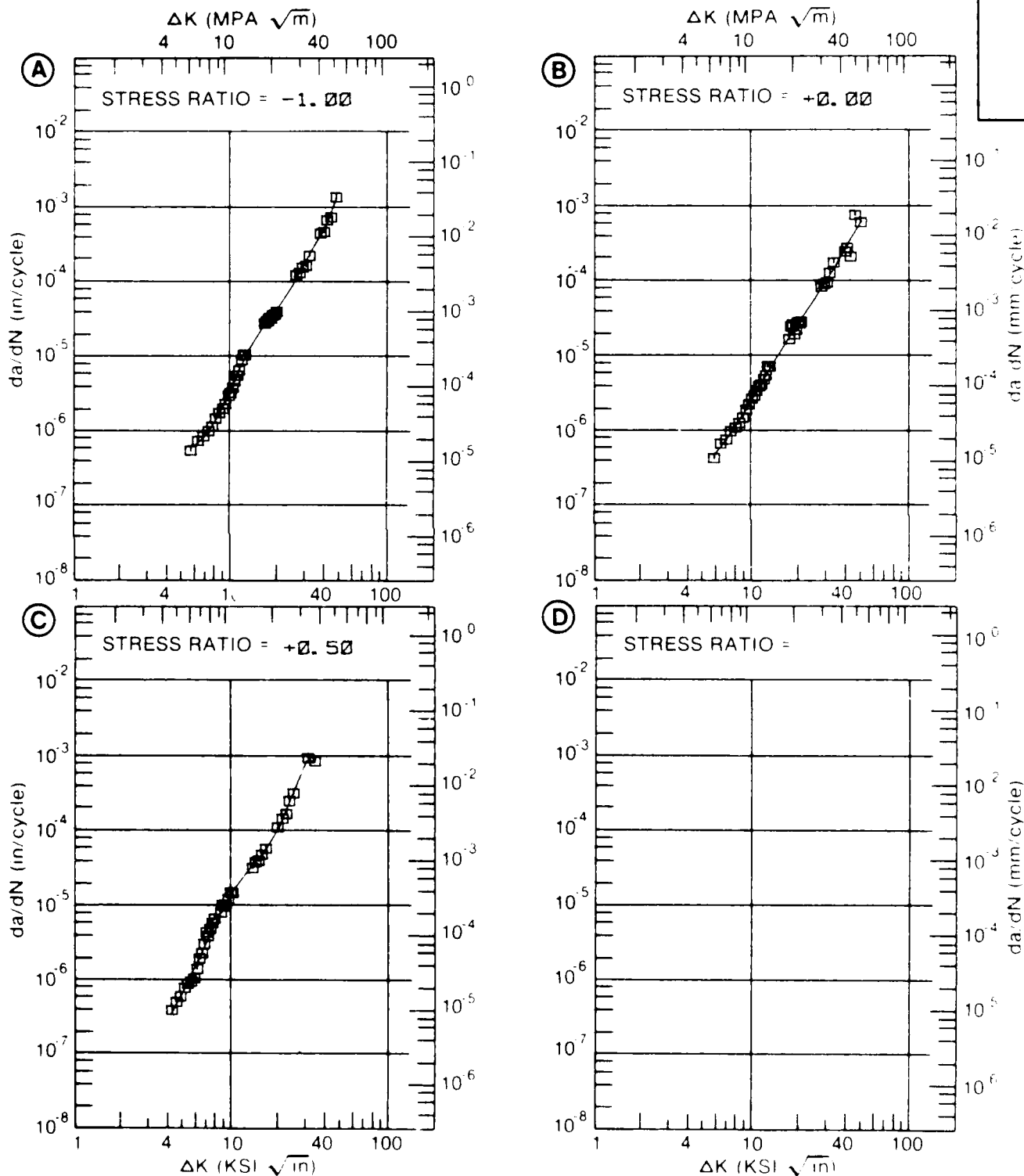


Figure 8.G.3.5

TABLE 8.6.3.6

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.6 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7049
 CONDITION T7351
 ENVIRONMENT R T 3 5% NaCl

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN /CYCLE)			
		A	B	C	D
		R=-1.00	R=+0.50		
DELTA K	A: 5.59	2.34			
MIN	B: 4.09		1.19		
	C:				
	D:				
	5.00		4.30		
	6.00	3.27	10.4		
	7.00	32	18.6		
	8.00	10.4	28.0		
	9.00	15.2	38.1		
	10.00	20.7	48.8		
	13.00	40.1	86.6		
	16.00	62.3	137		
	20.00	96.5	228		
	25.00	150	383		
	30.00	222	588		
	35.00	322	705		
	40.00	462			
DELTA K	A: 48.22	833			
MAX	B: 36.70		659		
	C:				
	D:				

ROOT MEAN SQUARE 18.32 14.87
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) 2.0

CONDITION/HT: T7351
 FORM: 1.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 0.10 HZ
 ENVIRONMENT: R. T., 3.5% NaCl

YIELD STRENGTH: 72.0 KSI
 ULT. STRENGTH: 80.5 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: MA007

ALUM.
 ALLOY

7049

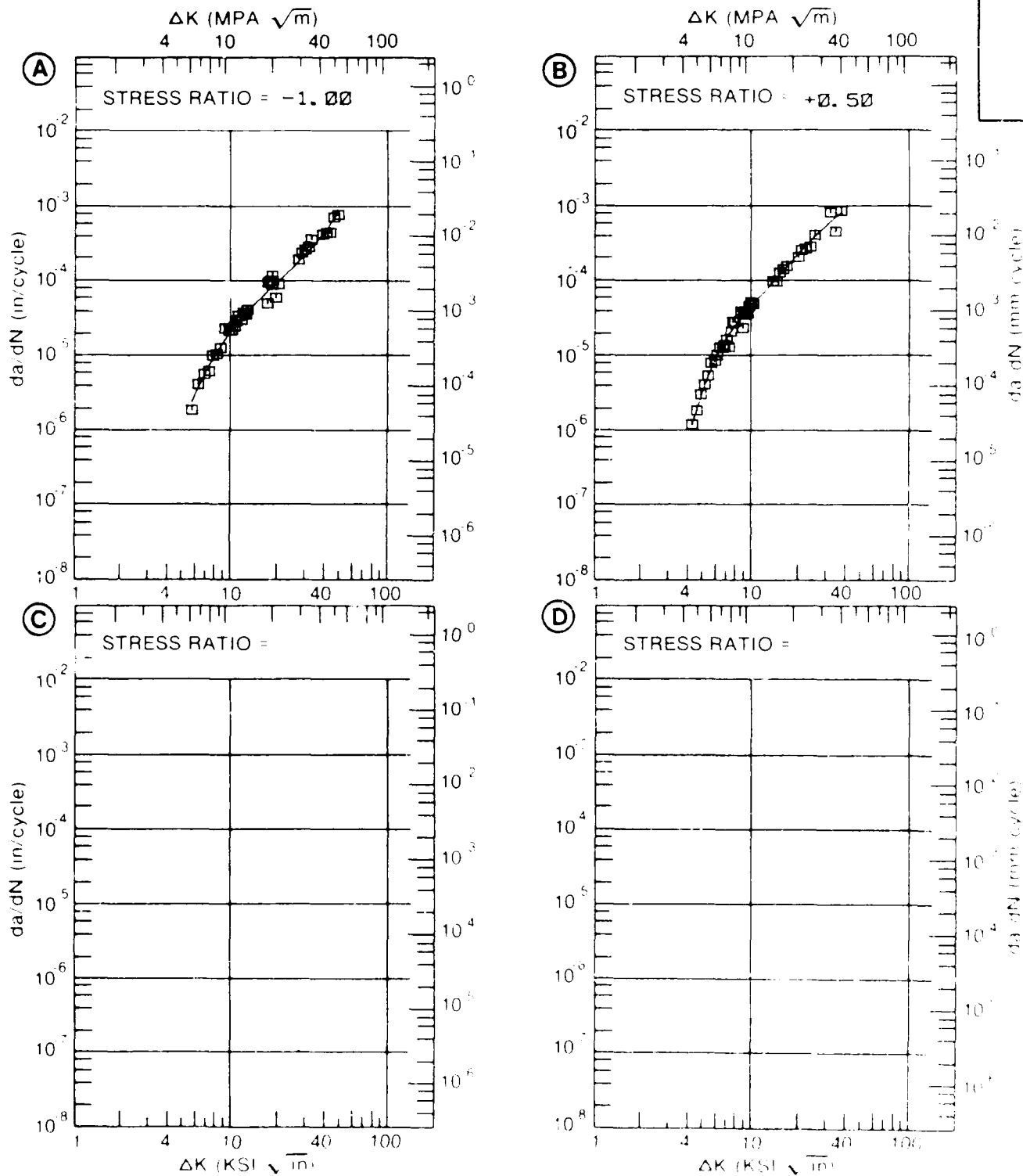


Figure 8.1.3.6

TABLE 8.6.3.7

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.6.3.7 INDICATING EFFECT
OF FREQUENCY

MATERIAL: ALUMINUM 7049
 CONDITION T7351
 ENVIRONMENT: R T , 3.5% NaCl.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		(HZ)= 1.00 F(HZ)= 10.00			
DELTA K MIN	A:	5.54	2.42		
	B:	5.44	1.54		
	C:				
	D:				
	6.00	4.64	3.08		
	7.00	13.0	7.31		
	8.00	25.5	12.8		
	9.00	40.5	18.9		
	10.00	56.1	25.1		
	13.00	100.	44.3		
	16.00	145.	70.5		
	20.00	224.	125.		
	25.00	381.	212.		
	30.00	631.	295.		
	35.00	946.	384.		
	40.00	1268.	498.		
	50.00	2158.	928.		
	60.00	4564.	2129.		
DELTA K MAX	A:	61.17	5082.		
	B:	67.01	4311.		
	C:				
	D:				
ROOT MEAN SQUARE		18.36	14.62		
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T7351
 FORM: 1.25" TH PLATE
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.00
 ENVIRONMENT: R. T., 3.5% NaCl

YIELD STRENGTH: 72.0 KSI
 ULT. STRENGTH: 80.5 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: MA007

ALUM.
 ALLOY

7049

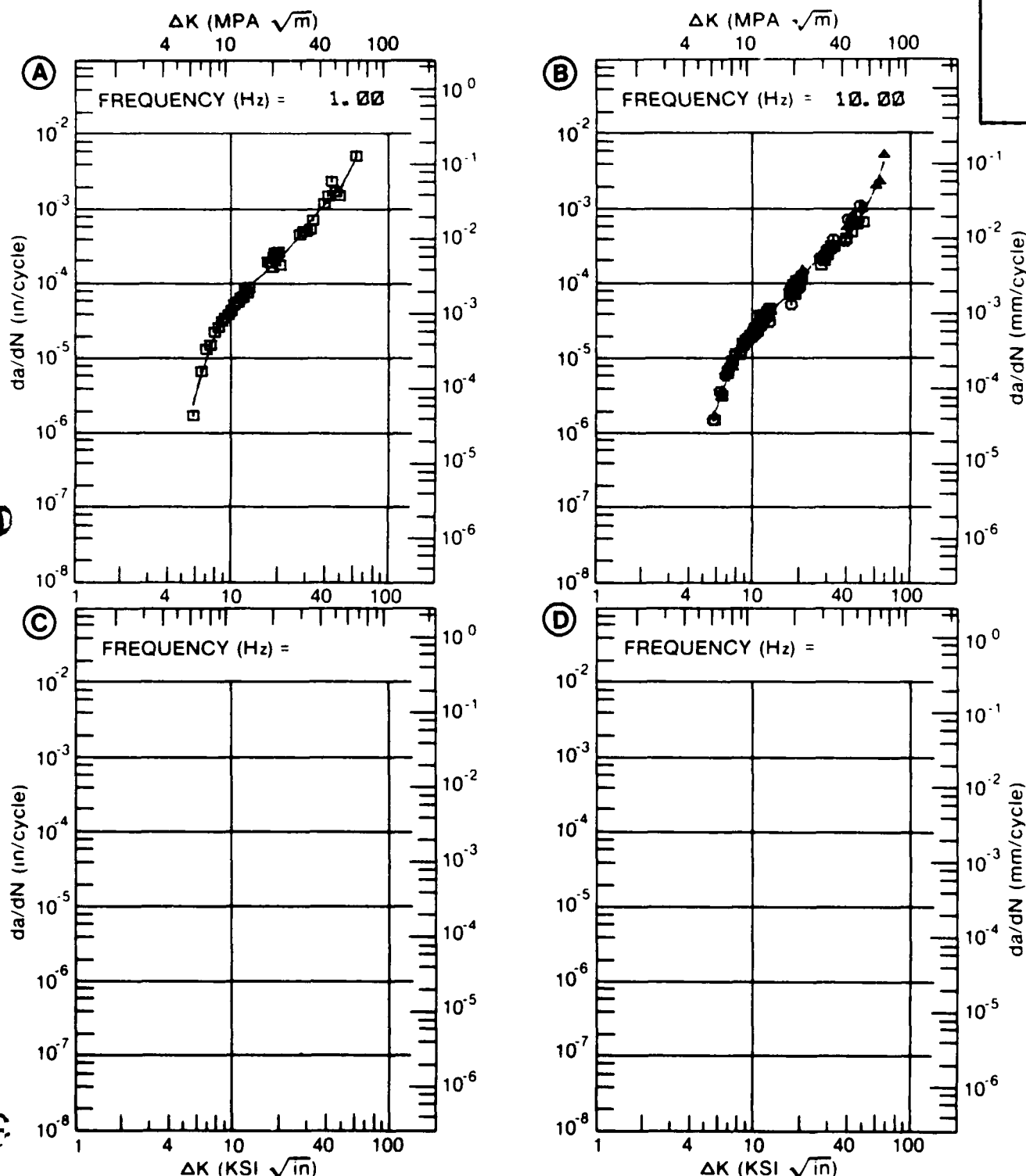


Figure 8.6.3.7

TABLE 8.6.3.8

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.6.3.8 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7049
CONDITION: T73511-HIGH PURITY

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. H. H. A.		
DELTA K	A: 5.95	.726			
MIN	B: 6.21		1.25		
	C:				
	D:				
	6.00	.792			
	7.00	2.72	3.06		
	8.00	5.00	6.55		
	9.00	6.72	10.8		
	10.00	7.84	15.4		
	13.00	11.5	29.0		
	16.00	19.0	46.3		
DELTA K	A: 18.73	28.2			
MAX	B: 18.07		65.8		
	C:				
	D:				

ROOT MEAN SQUARE	5.91	5.87
PERCENT ERROR		

LIFE	0.0-0.5
PREDICTION	0.5-0.8
RATIO	0.8-1.25
SUMMARY	1.25-2.0
(NP/NA)	>2.0

CONDITION/HT: T73511-HIGH PURITY
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 30.00

YIELD STRENGTH: 76.7 KSI
 ULT. STRENGTH: 83.9 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7049

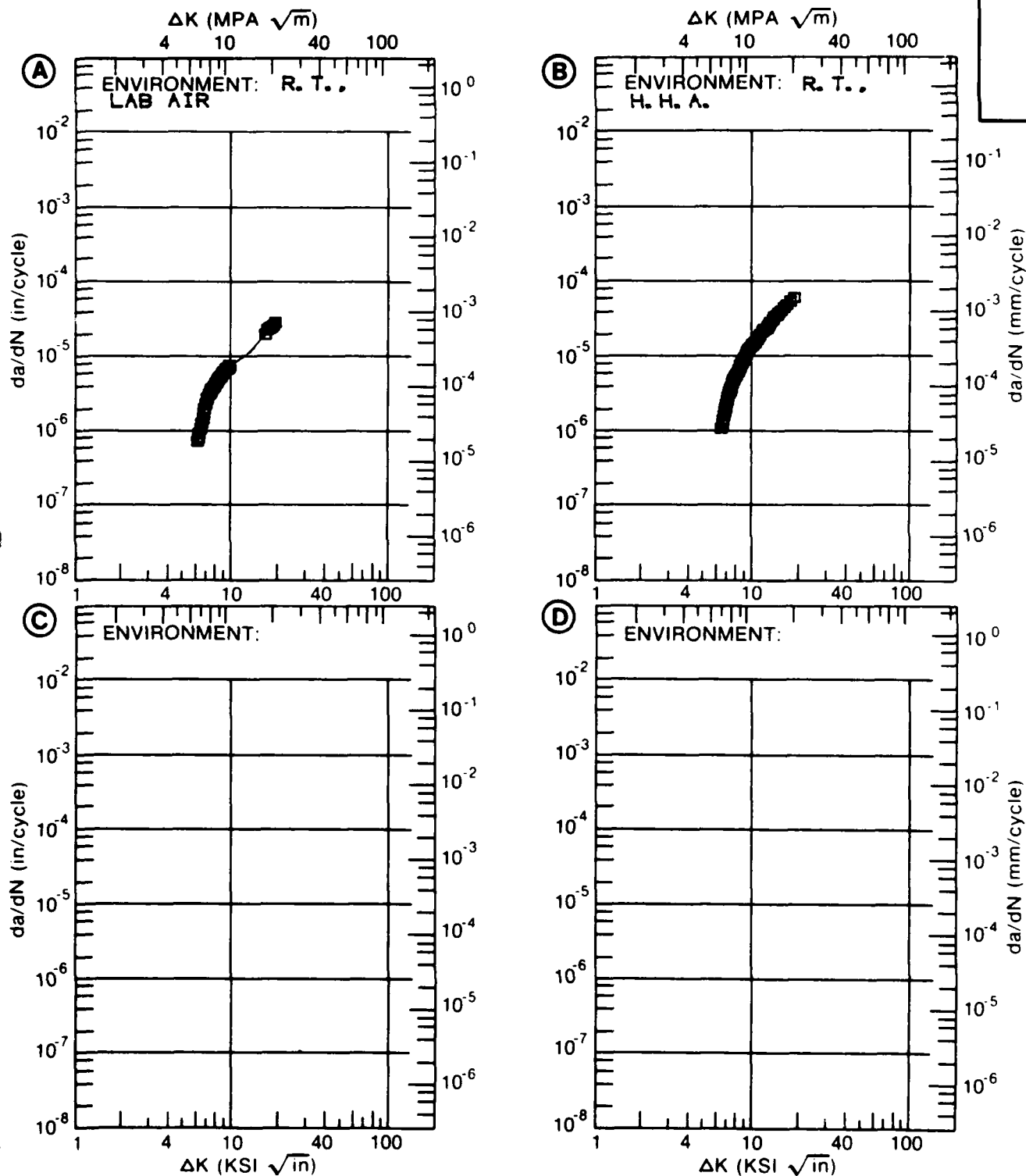


Figure 8.6.3.8

TABLE 8.6.3.9

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.6.3.9 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7049
CONDITION: T73511-HIGH PURITY

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. ... LAB AIR			
DELTA K MIN	A: 6.17	1.78			
	B:				
	C:				
	D:				
	7.00	2.91			
	8.00	4.44			
	9.00	6.06			
DELTA K MAX	10.00	7.81			
	13.00	15.0			
	16.00	29.7			
	A: 16.25	31.6			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		14.30			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73511-HIGH PURITY
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.10
 FREQUENCY: 30.00

YIELD STRENGTH: 70.3 KSI
 ULT. STRENGTH: 78.5 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7049

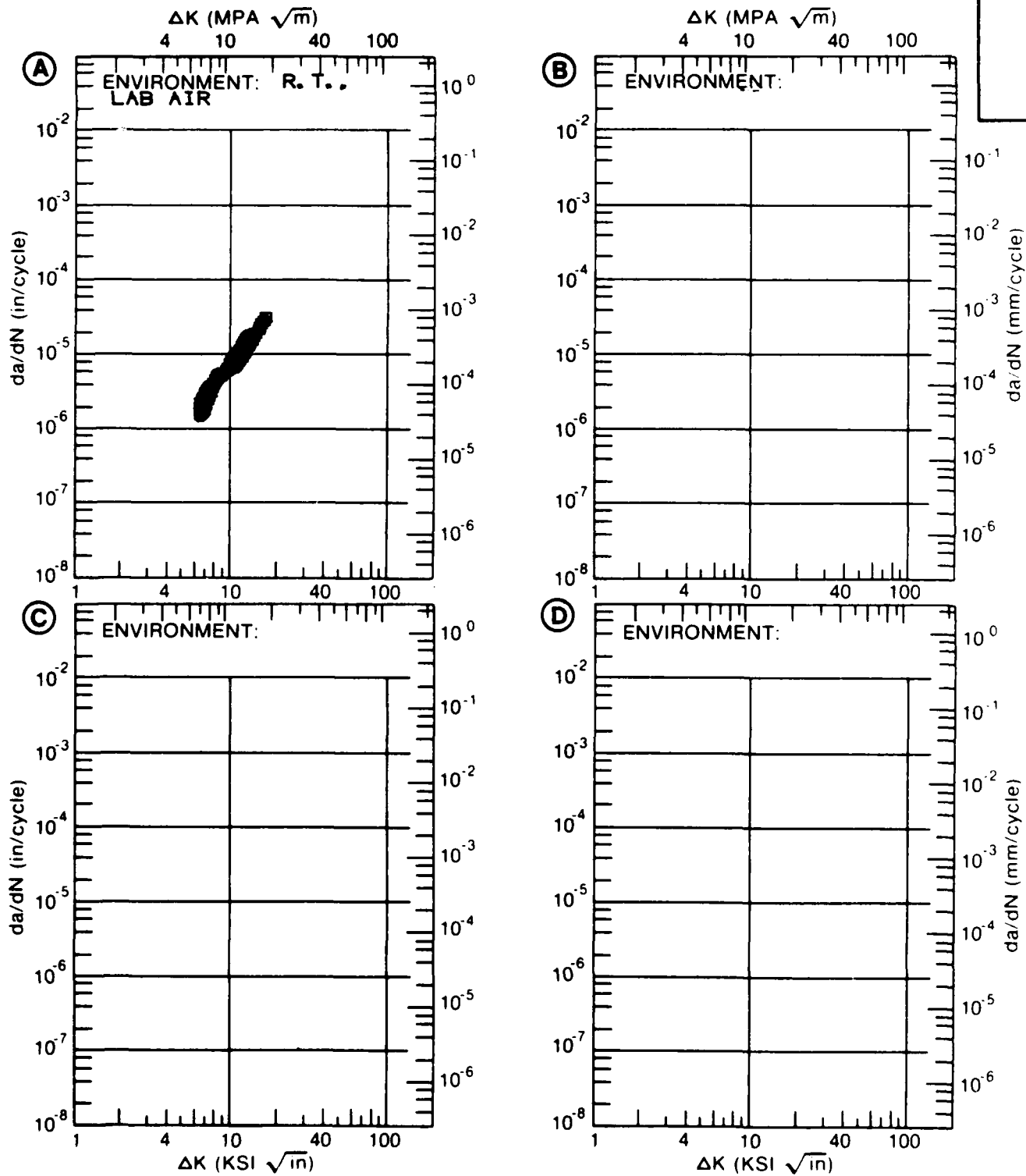


Figure 8.6.3.9

TABLE 8.6.3.10

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.10 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7049
CONDITION: T73511-LOW PURITY

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. H. H. A.		
DELTA K MIN	A:	6.10	.567		
	B:	5.94	.867		
	C:				
	D:				
	6.00		.944		
	7.00	1.80	2.83		
	8.00	3.78	5.55		
	9.00	5.76	8.56		
	10.00	7.32	11.5		
	13.00	10.2	19.9		
	16.00		32.3		
DELTA K MAX	A:	14.37	11.6		
	B:	16.99	38.8		
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		11.79	8.70		

LIFE 0.0-0.9
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T73511-LDW
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 30.00

PURITY

YIELD STRENGTH: 73.1 KSI
 ULT. STRENGTH: 80.0 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7049

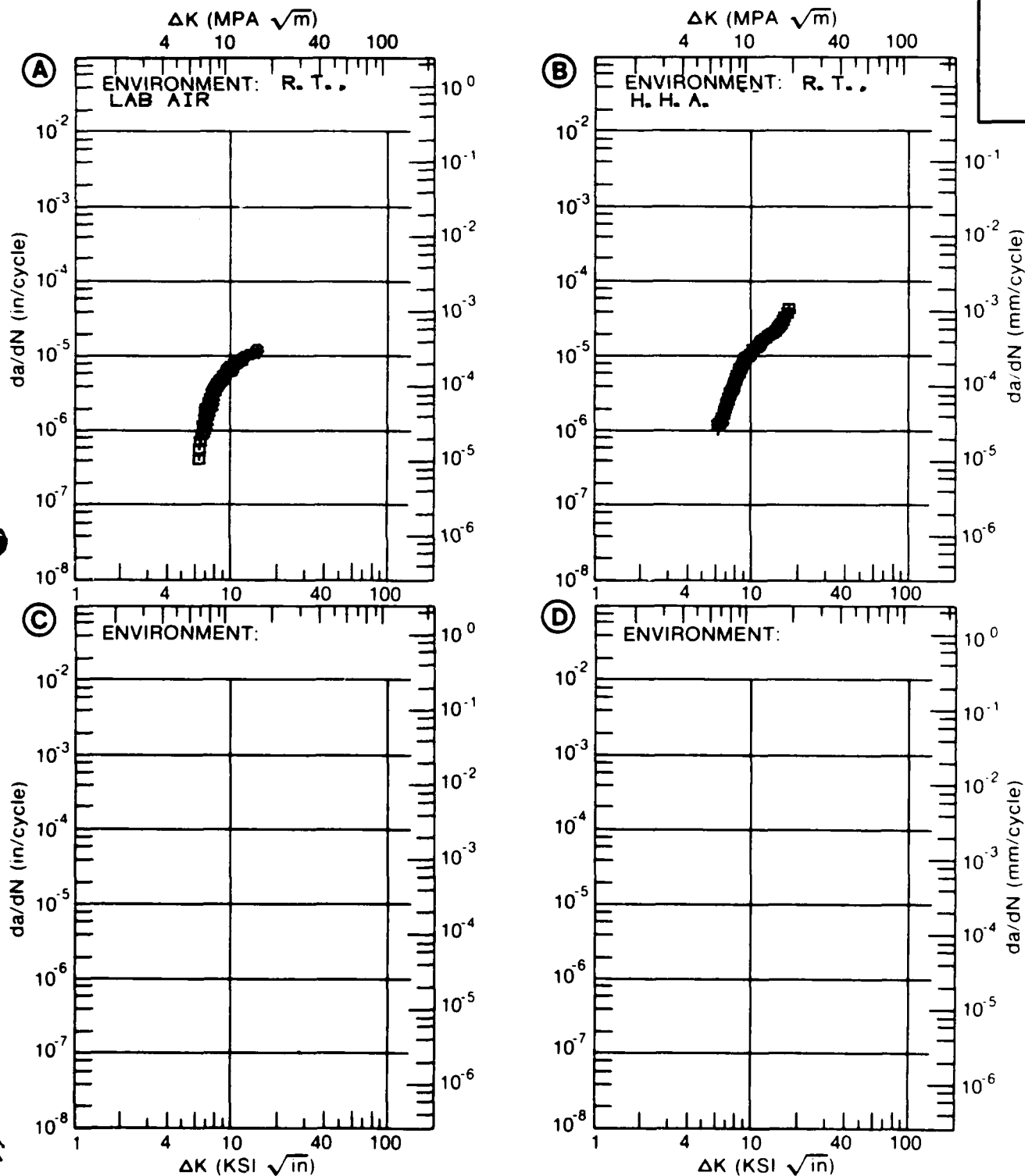


Figure 8.6.3.10

TABLE 8.6.3.11

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.6.3.11 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 7049
CONDITION: T73511-LOW PURITY
ENVIRONMENT: R T , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A: 6.07	1.39			
	B:				
	C:				
	D:				
	7.00	2.98			
	8.00	4.99			
DELTA K MAX	9.00	7.08			
	10.00	9.33			
	13.00	20.0			
	A: 14.70	33.5			
DELTA K MAX	B:				
	C:				
	D:				

ROOT MEAN SQUARE 7.33
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T73511-L0W PURITY
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 30.00
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 68.6 KSI
 ULT. STRENGTH: 75.7 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7049

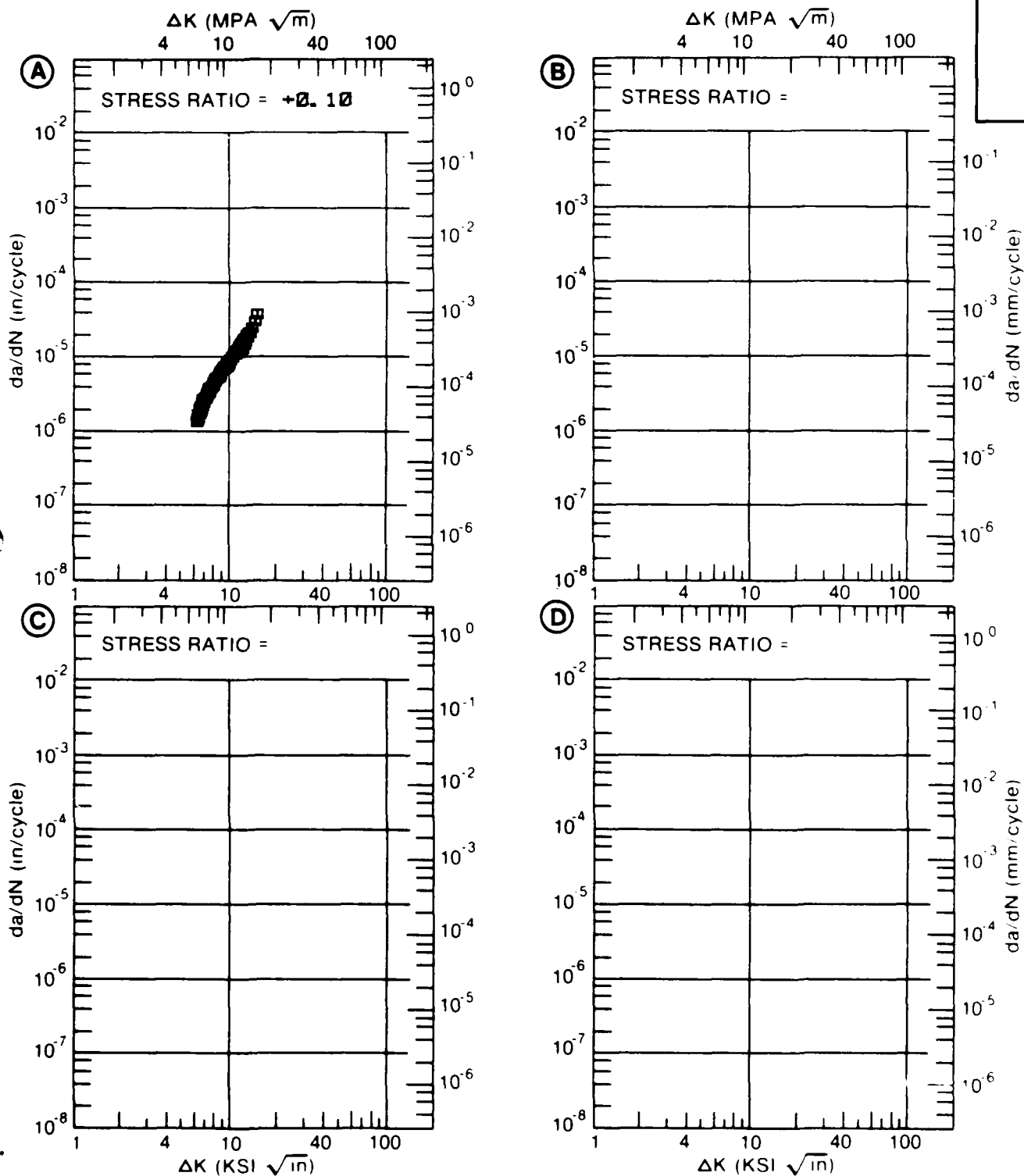


Figure 8.6.3.11

TABLE 8.6.3.12

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.6.3.12 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7049
CONDITION: T73511-MEDIUM PURITY

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. H. H. A.		
DELTA K	A: 5.97	.423			
MIN	B: 5.98		1.41		
	C:				
	D:				
	6.00	.435	1.44		
	7.00	.969	3.55		
	8.00	1.68	6.61		
	9.00	2.52	10.3		
	10.00	3.44	14.2		
	13.00	6.65	25.3		
	16.00	11.2	34.3		
DELTA K	A: 18.90	18.2			
MAX	B: 17.55		38.5		
	C:				
	D:				
ROOT MEAN SQUARE		22.36	9.47		
PERCENT ERROR					

LIFE 0.0-0.9
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T73511-MEDIUM PURITY
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 30.00

YIELD STRENGTH: 75.4 KSI
 ULT. STRENGTH: 82.5 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7049

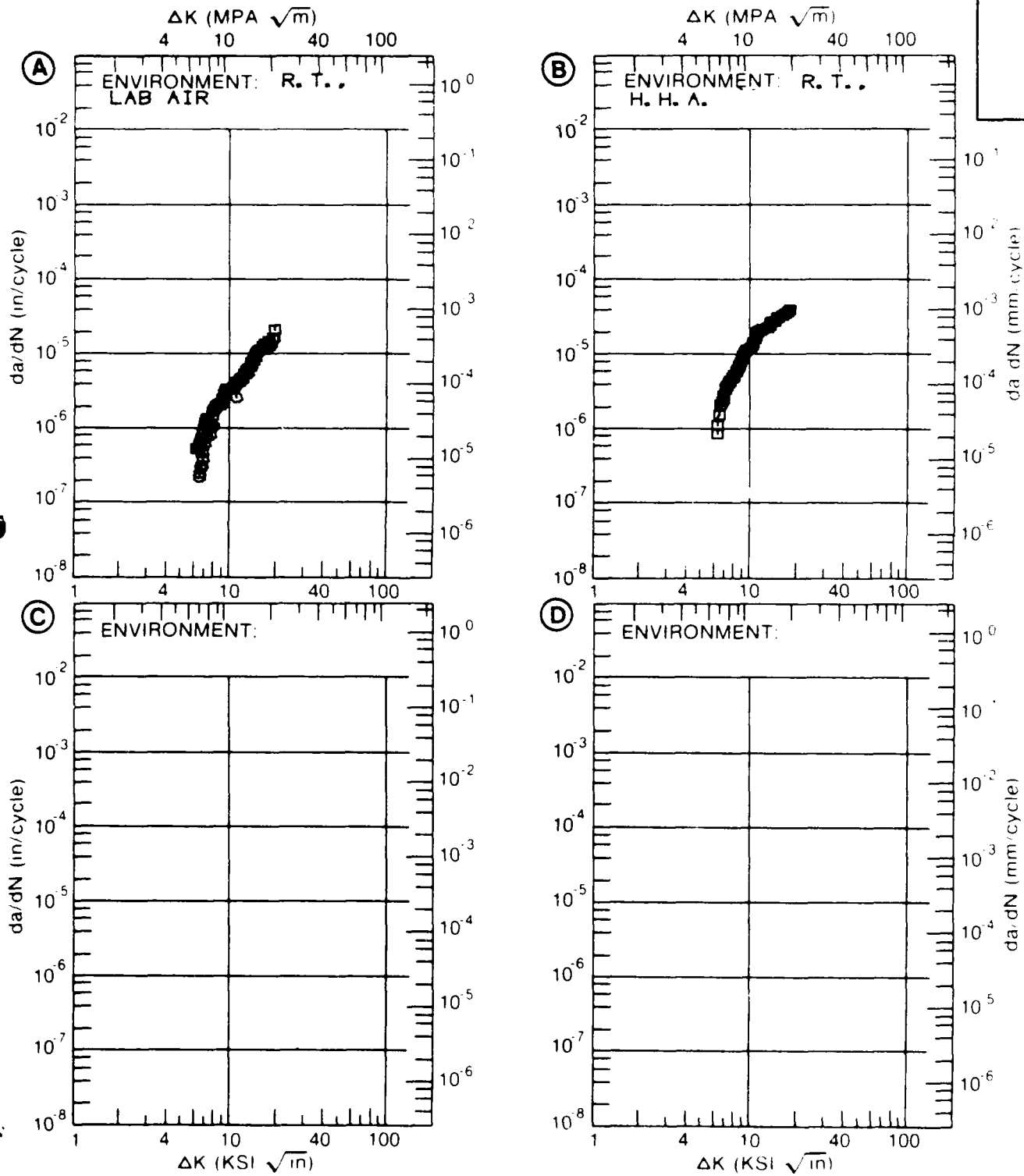


Figure 8.6.3.12

TABLE 8.6.3.13

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.13 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7049
 CONDITION: T73511-MEDIUM PURITY
 ENVIRONMENT: R T , LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A: 6.21	1.59			
	B:				
	C:				
	D:				
	7.00	2.74			
	8.00	4.80			
	9.00	6.59			
	10.00	8.36			
	13.00	15.9			
	16.00	37.8			
DELTA K MAX	A: 16.60	46.6			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		11.31			
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T73511-MEDIUM PURITY
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 30.00
 ENVIRONMENT: R. T., LAB AIR

YIELD STRENGTH: 69.2 KSI
 ULT. STRENGTH: 76.5 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7049

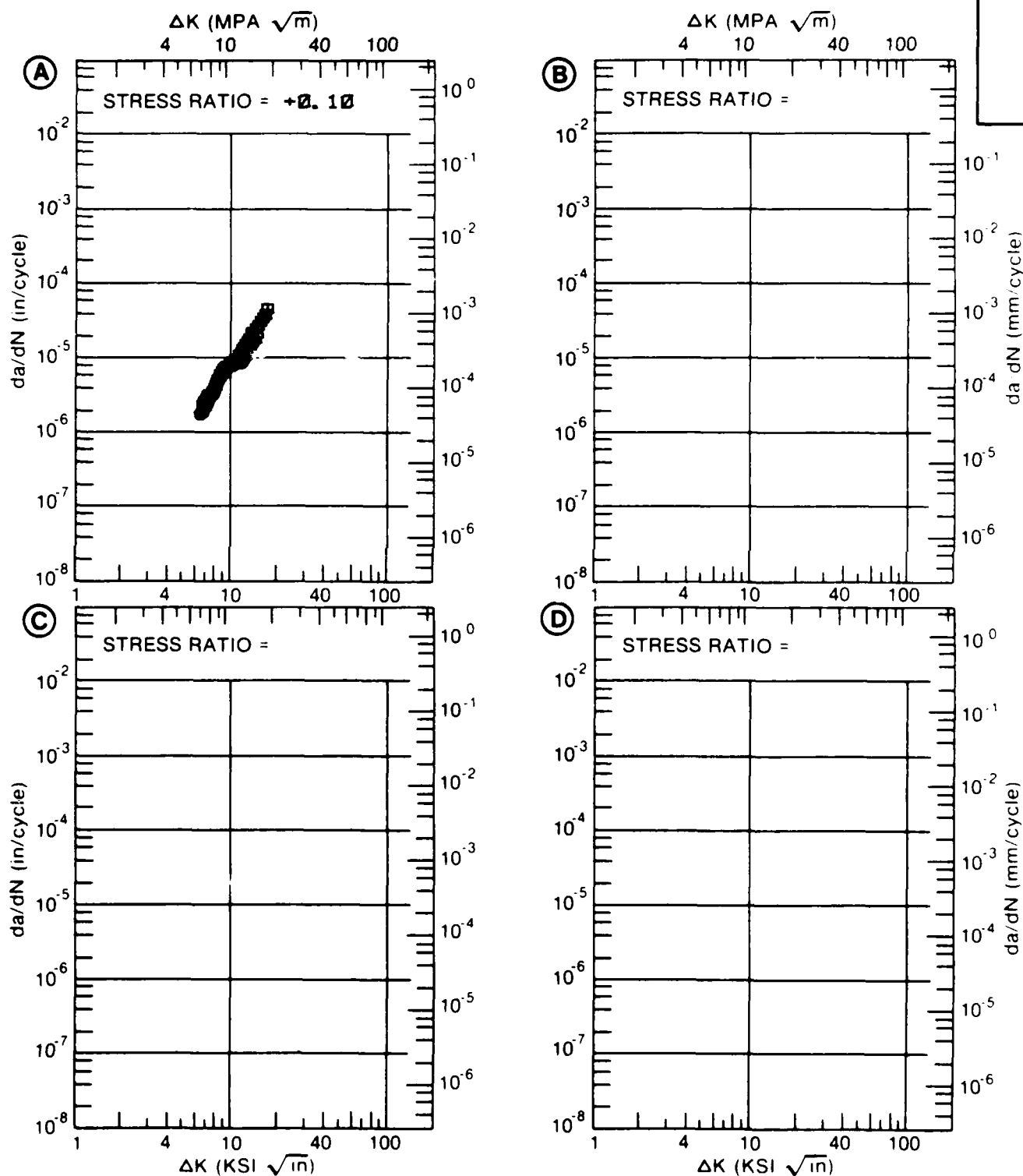


Figure 8.6.3.13

TABLE 8.6.3.14

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.14 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 7049
CONDITION: T7352
ENVIRONMENT: R.T., L.H.A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.08	R=+0.30	R=+0.50	
A:	3.03	.199			
DELTA K B:	2.27		.0632		
MIN C:	2.36			.131	
D:					
	2.50		.0652	.117	
	3.00		.232	.200	
	3.50	.242	.331	.498	
	4.00	.333	.491	.912	
	5.00	.666	1.03	1.29	
	6.00	1.21	1.93	2.59	
	7.00	1.91	3.29	5.39	
	8.00	2.80	5.20	8.14	
	9.00	3.99	7.76	9.42	
	10.00	5.63	11.0		
	13.00	15.8	25.9		
	16.00	16.0			
A:	16.00	16.0			
DELTA K B:	15.87		47.6		
MAX C:	9.67			9.24	
D:					
ROOT MEAN SQUARE		14.91	17.33	24.51	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T7352
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 65.0 KSI
 ULT. STRENGTH: 74.0 KSI
 SPECIMEN THK: 0.998- 1.000"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837

ALUM.
 ALLOY

7049

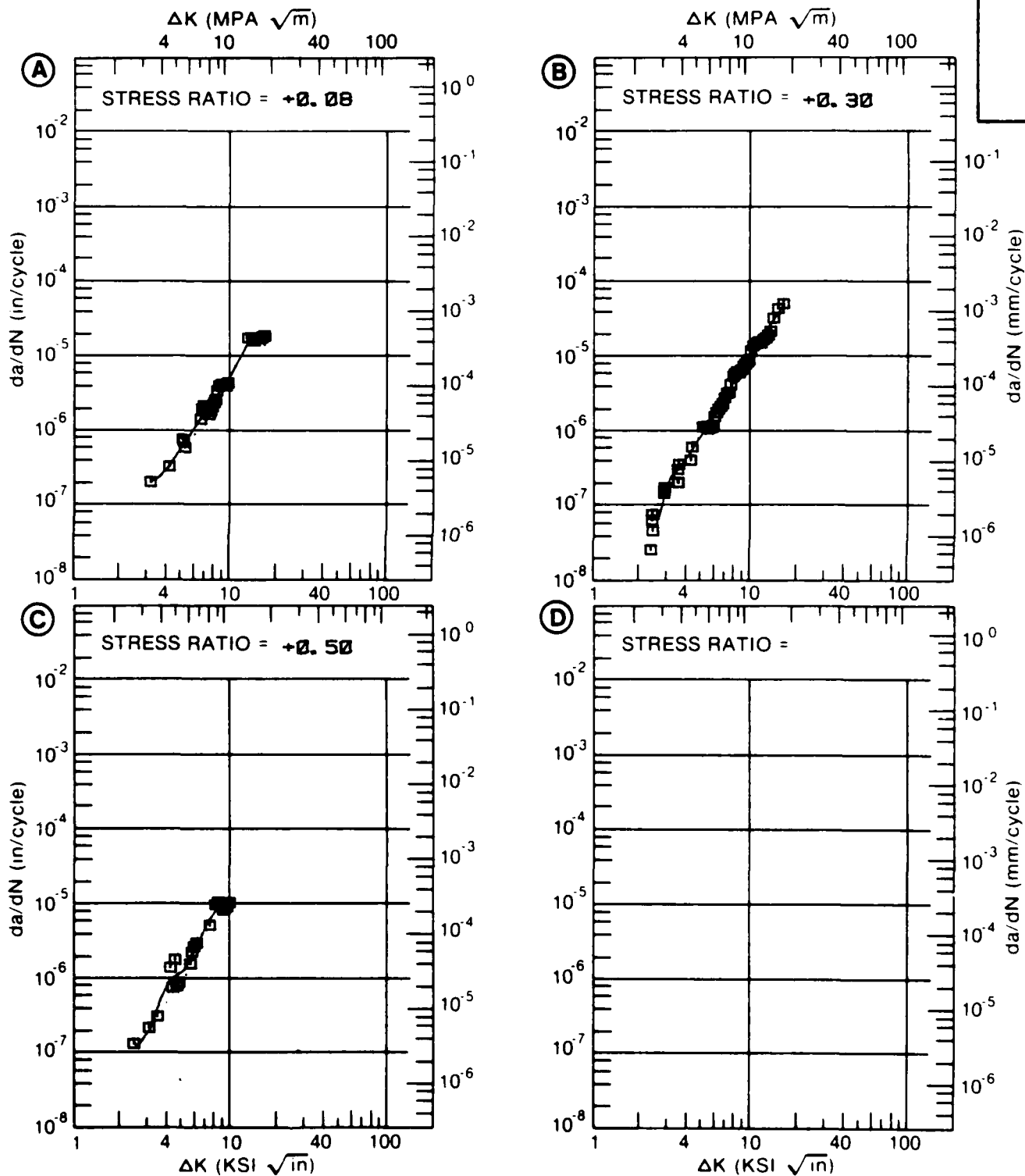


Figure 8.6.3.14

TABLE 8.6.3.15

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.15 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7049			
CONDITION: T7352					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. I. L. H. A. 6HZ	E= R. T. S. T. W. 1HZ		
DELTA K	A: 8.12	1.61			
MIN	B: 6.48		1.54		
	C:				
	D:				
	7.00		2.94		
	8.00		7.09		
	9.00	2.66	14.2		
	10.00	4.16	28.2		
	13.00	10.1			
	16.00	18.0			
	20.00	33.1			
DELTA K	A: 24.30	60.7			
MAX	B: 11.39		86.0		
	C:				
	D:				
ROOT MEAN SQUARE		6.86	15.34		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2			
SUMMARY	1.25-2.0		1		
(NP/NA)	>2.0				

CONDITION/HT: T7352
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.08
 FREQUENCY:

YIELD STRENGTH: 67.0 KSI
 ULT. STRENGTH: 76.0 KSI
 SPECIMEN THK: 0.250- 1.000"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 88579

ALUM.
 ALLOY

7049

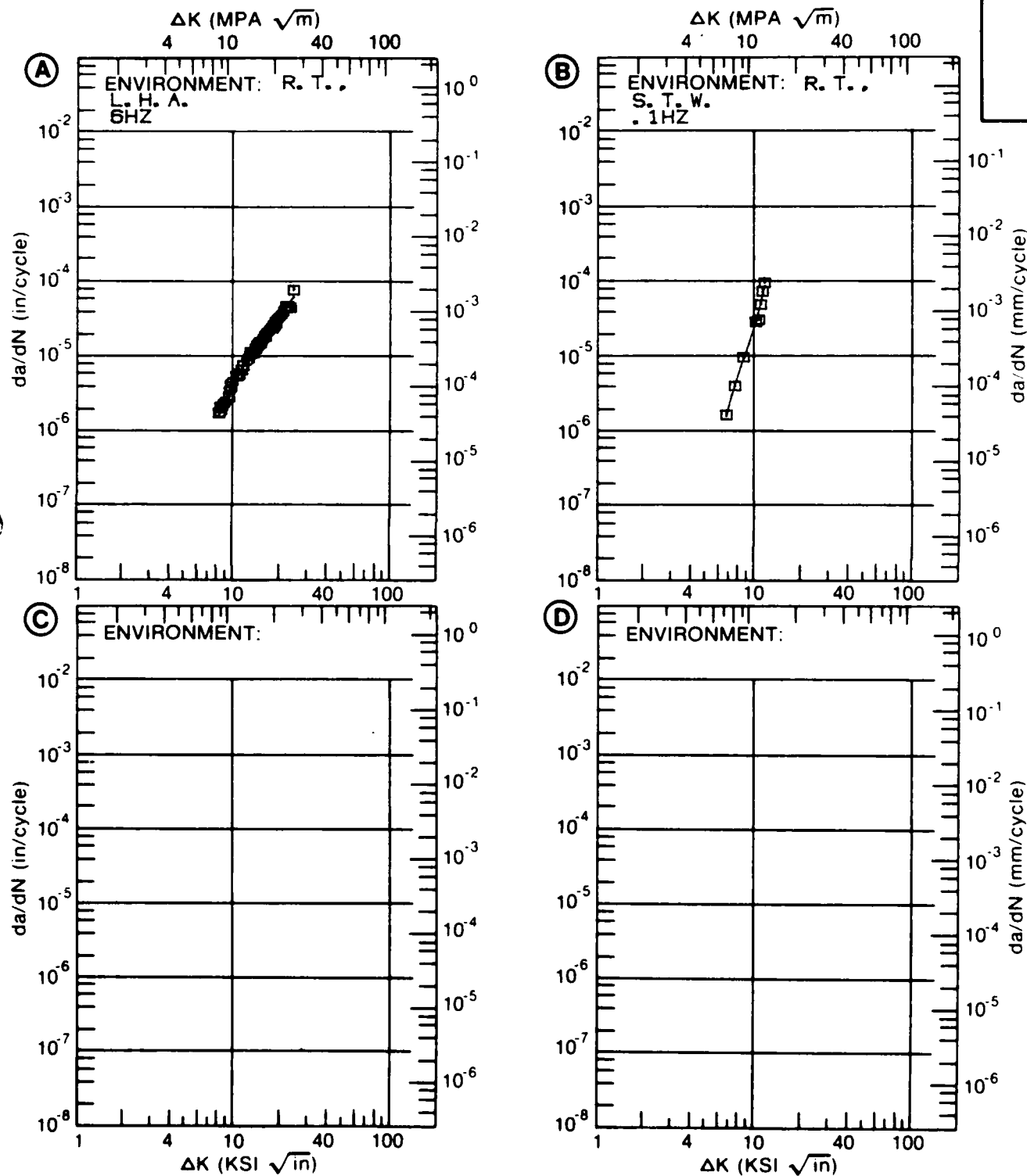


Figure 8.6.3.15

TABLE 8.6.3.16

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.6.3.16 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7049
CONDITION: T7352

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. S. T. W.		
DELTA K MIN	A: B: 6.47 C: D:		1.52		
	7.00		2.66		
	8.00		5.52		
	9.00		9.01		
	10.00		13.0		
	13.00		32.9		
	16.00		100.		
DELTA K MAX	A: B: 17.21 C: D:		172.		
ROOT MEAN SQUARE PERCENT ERROR		0.00	7.48		
LIFE PREDICTION RATIO SUMMARY (NP/NA)	0.0-0.5 0.5-0.8 0.8-1.25 1.25-2.0 >2.0		1		

CONDITION/HT: T7352
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY:

YIELD STRENGTH: 64.0- 65.0 KSI
 ULT. STRENGTH: 73.0- 74.0 KSI
 SPECIMEN THK: 0.500- 0.990"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 85837, 88579

ALUM.
 ALLOY

7049

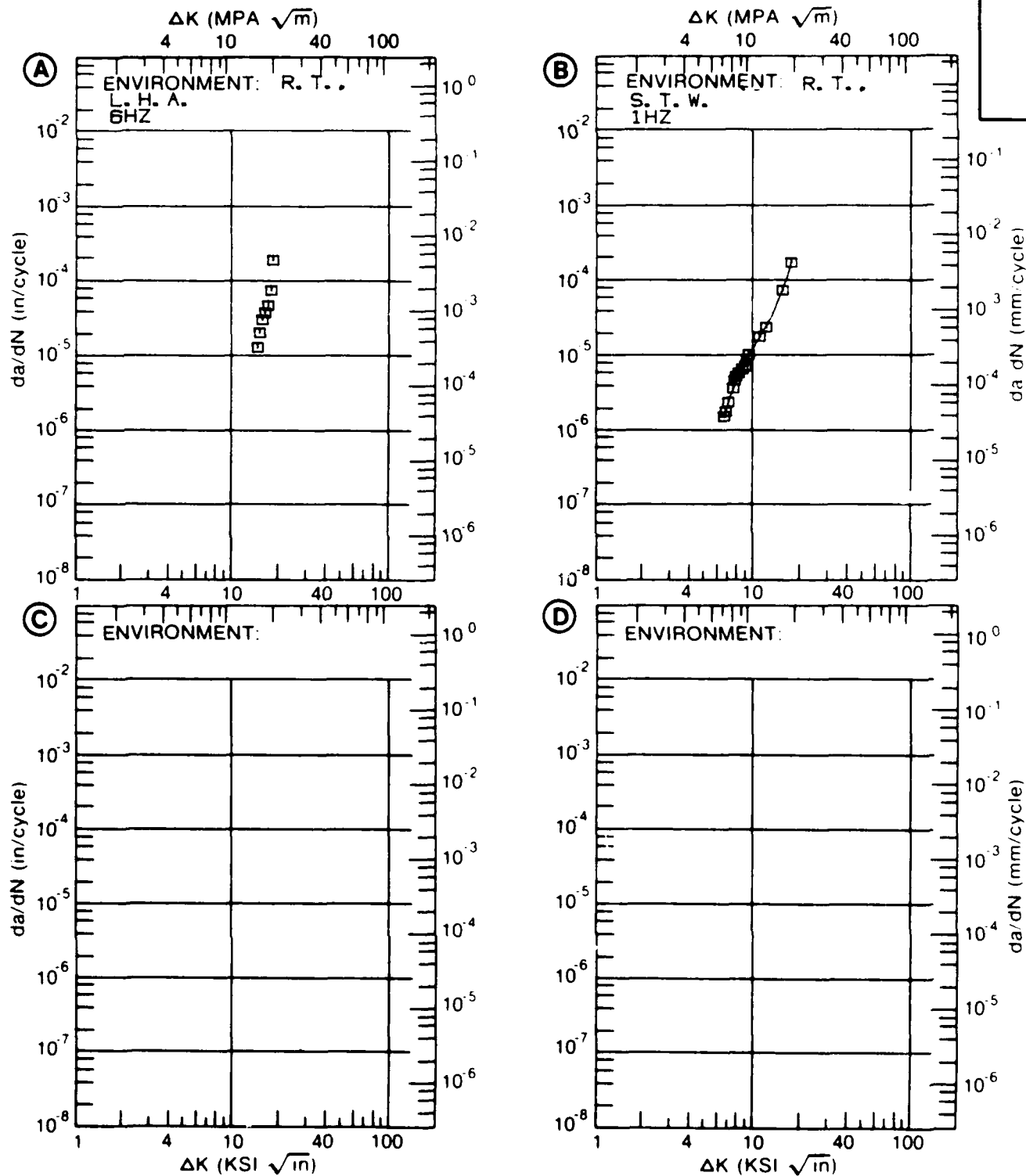


Figure 8.6.3.16

TABLE 8.6.3.17

SUSTAINED CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.6.3.17 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM
CONDITION: T73

7049

K MAX
(KSI*IN**1/2)

DA/DT (10**-6 IN/HOUR)

A

B

C

D

E=

WET 3X/DAY WITH
3.5% NaClK MAX
MINA:
B:
C:
D:

200.00

K MAX
MAXA:
B:
C:
D:ROOT MEAN SQUARE
PERCENT ERROR

0.00

CONDITION/HT: T73
 FORM: FORGING
 SPECIMEN TYPE: DCB
 ORIENTATION: S-L
 YIELD STRENGTH:
 ULT. STRENGTH:

SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 5.000"
 CRACK LENGTH (A_0):
 K_{ISCC} :
 REFERENCES: 84284

ALUM.
 ALLOY

7049

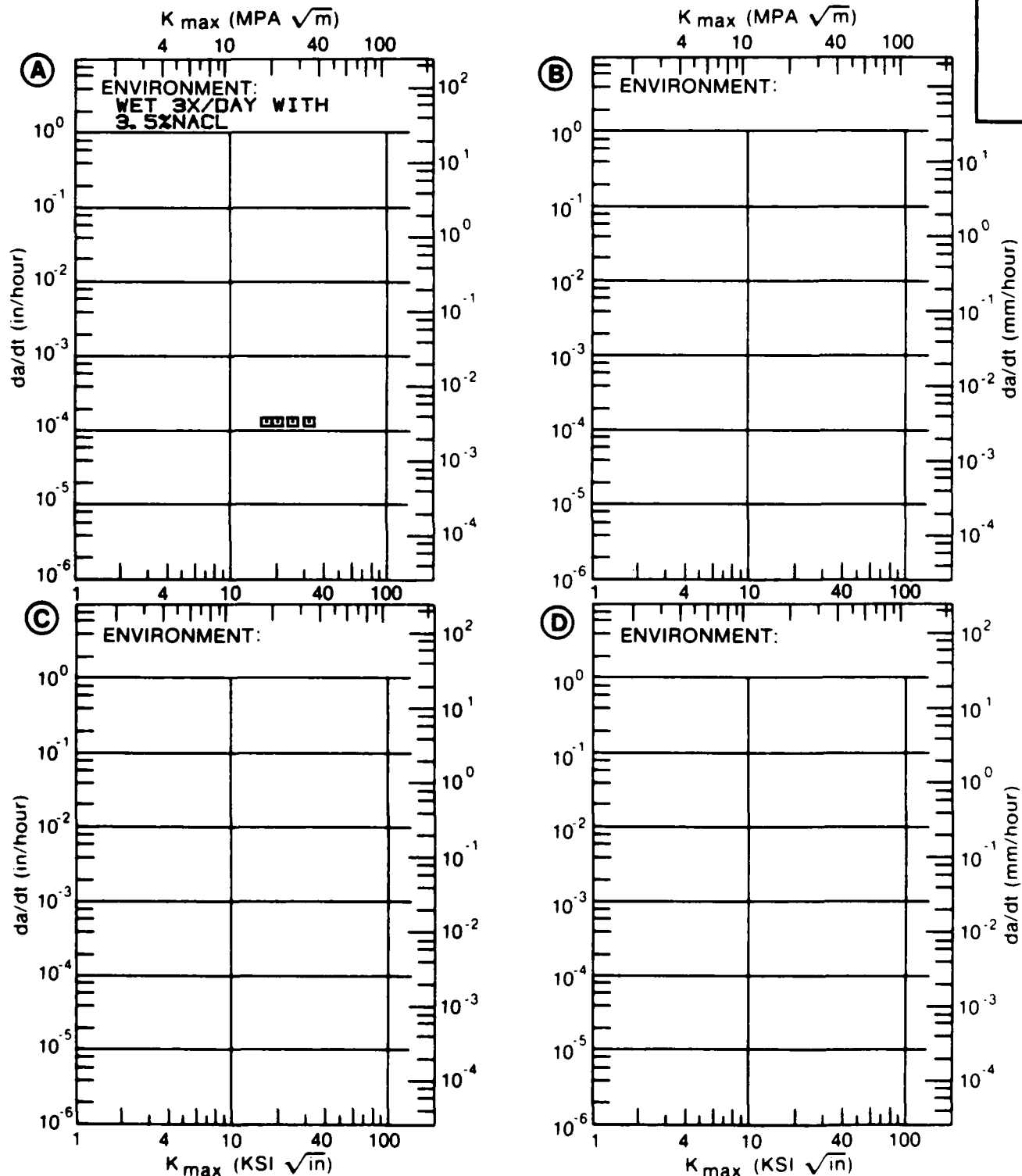


Figure 8.6.3.17

TABLE 8.6.3.18

CONDITION	ALUMINUM			YIELD STR (KSI)	ENVIRONMENT	7049				K (ISCC)		STAN DEV	TEST TIME (MIN)	DATE REFER	
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)			--SPECIMEN--			CRACK						
						W (IN)	B (IN)	A (IN)	LENGTH (IN)	K (ISCC) (KSI*SORT IN)					
T73	F	----	R T	S-L	68.9	3.5	PCT NACL	1.000	0.500	CT	----	20.50	19.80	> 60660	1972 83242
T73	E	3 25	R T	L-B	73.4	3.5	PCT NACL	2.000	1.000	CT	----	33.20	20.40	> 21280	1972 83061
T73	E	3 25	R T	S-L	65.4	3.5	PCT NACL	2.000	1.000	CT	----	23.00	20.30	> 19800	1972 83061
T73 INTEGRALLY STIFFENED	E	3 00	R T	L-B	74.8	3.5	PCT NACL	2.000	1.000	CT	----	28.10	26.70	> 17130	1972 83061
T73 INTEGRALLY STIFFENED	E	3 00	R T	S-L	68.6	3.5	PCT NACL	2.000	1.000	CT	----	20.30	19.40	> 40230	1972 83061
T7352	F	3 00	R T	L-T	67.0	F.C.S.	5.500	1.000	DCB	----	41.00	> 27.50	76200	1976 R1006	
T7352	F	3 00	R T	L-T	67.0	S.C.S.	5.500	1.000	DCB	----	41.00	> 28.50	76140	1976 R1006	
T7352	F	3 00	R T	L-T	67.0	S.T.W.	5.500	1.000	DCB	----	41.00	> 25.50	76200	1976 R1006	
T7352	F	3 00	R T	L-T	67.0	S.T.W.	5.500	1.000	DCB	----	41.00	> 27.60	76200	1976 R1006	
T7352	F	3 00	R T	T-L	64.0	S.T.W.	5.500	1.000	DCB	----	41.00	21.00	133680	1976 R1006	
T7352	F	3 00	R T	T-L	64.0	S.T.W.	5.500	1.000	DCB	----	41.00	19.50	133680	1976 R1006	
T7352	F	3 00	R T	T-L	64.0	S.T.W.	5.500	1.000	DCB	----	41.00	> 21.50	133680	1976 R1006	
T7352	F	3 00	R T	T-L	64.0	S.T.W.	5.500	1.000	DCB	----	41.00	> 20.00	133680	1976 R1006	
T7352	F	3 00	R T	T-L	64.0	S.T.W.	5.500	1.000	DCB	----	41.00	19.00	133680	1976 R1006	
T7352	F	3 00	R T	S-L	62.0	S.T.W.	5.500	1.000	DCB	----	39.00	17.50	133680	1976 R1006	
T7352	F	3 00	R T	S-L	62.0	S.T.W.	5.500	1.000	DCB	----	39.00	> 17.50	133680	1976 R1006	
T7352	F	3 00	R T	S-L	62.0	S.T.W.	5.500	1.000	DCB	----	39.00	> 22.50	61680	1976 R1006	
T7352	F	3 00	R T	S-L	62.0	S.T.W.	5.500	1.000	DCB	----	39.00	17.00	133680	1976 R1006	
												19.3/	0.4		
												17.3/	0.4		

TABLE 8.7.1.1

MEAN PLANE STRAIN FRACTURE TOUGHNESS DATA OF
ALUMINUM ALLOY 7050 AT ROOM TEMPERATURE

CONDITION/HT	MEAN K _{IC} ± STANDARD (KSI SQRT(IN)) DEVIATION		(NUMBER OF SPECIMENS)	
	PLATE			
	L-T	I-T	S-T	
T7351	34.8 ± 3.9 (31)	30.0 ± 2.6 (29)	28.0 ± 1.3 (30)	
T73651	31.9 ± 3.9 (86)	28.7 ± 4.7 (83)	23.5 ± 1.5 (35)	
T7451	30.8 ± 0.3 (3)	-----	-----	
FORGING				
	L-T	I-T	S-T	
T7456	-----	28.9 ± 3.9 (4)	-----	
T736	32.3 ± 2.3 (4)	23.4 ± 1.0 (4)	24.6 ± 0.6 (6)	
T73452	31.1 ± 2.5 (11)	20.7 ± 1.4 (13)	19.2 ± 1.4 (17)	
EXTRUDED BAR				
	L-T	I-T	S-T	
T73511 HIGH/ PURITY	36.2 ± 3.2 (2)	24.1 ± 0.2 (2)	-----	

TABLE 8.7.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION L TENVIRONMENT DRY AIR
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT IN)	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2	5	10	20	50	100
T7351	PLATE	0.33	2.00-20.00			6.92	62.1		
T736	FORGING	0.10	20.00				29.1		
T73651	PLATE	0.10	20.00			9.52			
T76	SHEET	0.03	13.30			14.0			
T7651	PLATE	0.10	20.00			9.43	41.0		

TABLE 8.7.1.3
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS		ENVIRONMENT		FATIGUE CRACK GROWTH RATES	
SPECIMEN ORIENTATION	TEST	STRESS RATIO	FREQ. (Hz)	DELTA K LEVELS (KSI SQRT(IN))	(MICRO IN/CYCLE)
CONDITION/HI	PRODUCT FORM				
173	FORGING	0.08	6.00		12.6
17301X	EXTRUSION	0.33	20.00	0.49	3.48
173511	EXTRUSION	0.10	8.00-50.00	0.22	2.71 32.0
173511	EXTRUSION	0.33	7.50-15.00	0.33	2.08
173511	EXTRUSION	0.50	8.00-50.00	0.08 0.77	9.86
173651	PLATE	0.08	6.00		2.61 26.0
173651	PLATE	0.30	6.00	0.37	4.62
173651	PLATE	0.33	18.10		2.39
173651	PLATE	0.50	6.00		1.35
173651X	EXTRUSION	0.33	30.00	0.50	3.49
173651	EXTRUSION	0.33	18.10		3.45
173651	EXTRUSION	0.33	18.30	0.41	3.95
173651	EXTRUSION	0.46	18.30		4.90

TABLE 8.7.1.4
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS

SPECIMEN ORIENTATION	L T	ENVIRONMENT	LAB AIR AT R T	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)						
CONDITION/HI	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T73511-HIGH PURITY	EXTRUSION	0.10	30.00				5.93			
T735	FORGING	0.10	3.00-10.00				11.9	58.7		
T73651	PLATE	0.10	3.00-25.00			0.82	4.09	48.7		
T73651	PLATE	0.10	5.00-10.00				7.68	47.3		
T76	SHEET	0.00	13.30				7.60	40.1		
T76	SHEET	0.33	13.30				10.4	70.3		
T7651	PLATE	0.02	1.00-20.00			0.58	8.04	22.9		

TABLE 8.7.1.5
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS

SPECIMEN ORIENTATION L-T ENVIRONMENT H H A. A T R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
77351	PLATE	0.10	2.00				6.79	42.1		
77351X	EXTRUSION	0.33	20.00			1.21	15.9			
773511	EXTRUSION	0.10	2.00				5.31	45.5	1663	
773511	EXTRUSION	0.10	15.00			0.45	5.85			
773511	EXTRUSION	0.10	10.00-20.00				5.16	45.5		
773511	EXTRUSION	0.10	50.00			0.29				
773511	EXTRUSION	0.33	15.00-20.00			0.63	8.94			
773511	EXTRUSION	0.50	15.00-20.00		0.11	1.04	10.9			
773511-NIGH PURITY	EXTRUSION	0.10	30.00				12.2			
773651	PLATE	0.33	18.30				12.7			
773651	PLATE	0.33	25.00		0.06	1.55	15.7	82.9		
773651	PLATE	0.33	25.00			1.03	12.9	63.3		
773651	EXTRUSION	0.10	2.00			0.33	5.81	49.0		

TABLE 8.7.1.5 (Con't)

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT H.H.A.
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2 5	5	10	20	50	100
176	SHEET	0 33	13 30			26 7			
17651	PLATE	0 10	2 00			7 27	70 8		
17651	PLATE	0 10	20 00		0 33	9 75	52 1		
17651X	EXTRUSION	0 33	20 00		1 68	16 6			
176511	EXTRUSION	0 10	2 00			4 71	46 3	1946	
176511	EXTRUSION	0 10	20 00		0 15	4 47	46 8		
176511	EXTRUSION	0 33	18 30			16 8			
176511	EXTRUSION	0 33	18 30		0 79	15 4			

TABLE 8.7.1.6

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONSSPECIMEN
ORIENTATION L-TENVIRONMENT S.T.W.
A.T.R.T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T7351	PLATE	0.33	2.00-20.00				20.4			
T73651	PLATE	0.10	1.00-10.00				1.12	17.5	79.3	

TABLE 8.7.1.7

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION L-TENVIRONMENT
SIM SEA WATER
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))		FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)			
				2.5	5	10	20	50	100
T73651	PLATE	0.10	1.00-10.00		1.49	18.2	164		
T7651	PLATE	0.02	1.00-20.00			10.6	64.2		

TABLE 8.7.1.8
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION L-T

ENVIRONMENT SALT FOG
AT R.T.

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE)					
					2.5	5	10	20	50	100
173651	PLATE	0.33	18.30				20.8			
176	SHEET	0.33	13.30				33.3			
176511	EXTRUSION	0.33	18.30				17.1			
176511	EXTRUSION	0.33	18.30			2.56	23.5			

TABLE 8.7.1.9

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS		ENVIRONMENT		FATIGUE CRACK GROWTH RATES	
SPECIMEN ORIENTATION	T T	DRY AIR	AT R T	(MICRO IN/CYCLE)	
CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2 5 5 10 20 50 100
T7351	PLATE	0.33	1 50-20 00		8.65
T73652	FORGING	0.33	18 30		8.91
T76	SHEET	0.33	13 30		0.99 7.26

TABLE 8.7.1.10

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION T LENVIRONMENT L H A
A T R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2	5	10	20	50	100
T6	SWIFT	0.33	13.30				11.9	114		
T7351X	EXTRUSION	0.33	20.00			1.06	7.69			
T7351X	EXTRUSION	0.33	20.00			0.86	9.90			
T73511	EXTRUSION	0.33	7.50-20.00			0.53	6.86			
T73511	EXTRUSION	0.50	10.00-40.00		0.06	0.32	6.54			
T73651	PLATE	0.08	6.00			0.24	2.87			
T73651	PLATE	0.33	18.30			0.52	6.75			
T73651	PLATE	0.33	18.30				12.0			
T7651X	EXTRUSION	0.33	20.00			0.88	5.65			
T76511	EXTRUSION	0.33	18.40			0.81	6.38			

TABLE 8.7.1.11

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONSSPECIMEN
ORIENTATION T-LENVIRONMENT LAB AIR
AT R T

CONDITION/H1	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
				2 5	5	10	20	50	100
T73511-HIGH PURITY	EXTRUSION	0 10	30 00			3 97			
T736	FORGING	0 10	10 00			6 75	101		
T73651	PLATE	0 10	1 00-10 00			8 45	49 4		

TABLE 8.7.1.12

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION T-L

ENVIRONMENT

H.H.A.
A R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
T6	SHEET	0.33	13.30				21.3	163		
T6	SHEET	0.33	13.30				20.8	220		
T7351	PLATE	0.33	1.50-20.00				11.2			
T7351X	EXTRUSION	0.33	20.00			2.25	18.4			
T7351X	EXTRUSION	0.33	20.00			1.41	16.6			
T73511	EXTRUSION	0.33	7.50-20.00			0.85	12.4			
T73511	EXTRUSION	0.50	10.00-40.00		0.06	0.76	17.9			
T73651	PLATE	0.33	18.30			0.94	15.5			
T73651	PLATE	0.33	18.30				15.3			
T73652	FORGING	0.33	18.30				16.3			

TABLE 8.7.1.12 (Con't)

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN

ORIENTATION

T 1

ENVIRONMENT

H H A

A R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (Hz)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (INCH) IN (CYCLE)			
					5	1	20	50 100
T76	SHEET	0.33	13.30			1.6		
T76S1X	EXTRUSION	0.33	20.00		2.05	1.0		
T76S11	PLATE	0.33	18.30			1.7		
T76S11	EXTRUSION	0.33	18.30			2.5		

TABLE 8.7.1.13
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS		ENVIRONMENT		S T W	
SPECIMEN ORIENTATION	T L	ENVIRONMENT	S T W	A T R I	
CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)
				2 5	5 10 20 50 100
T7351	PLATE	0 33	1 50-20 00		1 72 21 0
T73651	PLATE	0 08	1 00		13 3
T73651	PLATE	0 10	1 00-10 00		1 16 15 9 97 1

TABLE 8.7.1.14

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION T LENVIRONMENT SALT FOG
AT R T

CONDITION/HI	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
					2	5	10	50	100
T73651	PLATE	0.03	18 30				13.1		
T73651	PLATE	0.03	18 30				18.4		
T73651	PLATE	0.03	18 30				28.5		
T73652	FORGING	0.03	18 30				31.4		
T76	SHEET	0.03	13 30				23.2		
T76511	EXTRUSION	0.03	18 30				26.7		

TABLE 8.7.1.15

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050

TEST CONDITIONS

SPECIMEN
ORIENTATION S LENVIRONMENT L H A
A T R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)					
					2.5	5	10	20	50	100
173651	PLATE	0.33	18.30					5.27		
176511	EXTRUSION	0.33	18.30					43.9		

TABLE 8.7.1.16
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS							
SPECIMEN ORIENTATION	S-L	ENVIRONMENT	H H A A T R T	FATIGUE CRACK GROWTH RATES (MICRO IN./CYCLE)	FATIGUE CRACK GROWTH RATES		
					DELTA K LEVELS (KSI SQRT(IN))	2 5 5 10 20 50 100	
CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)				
17351	PLATE	0.33	1 00-20 00		11.9		
173651	PLATE	0.33	18 30		14.9		
176511	EXTRUSION	0.33	18 30		1.71 121		

TABLE 8.7.1.17
FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050

TEST CONDITIONS									
SPECIMEN ORIENTATION		S-U	ENVIRONMENT		SALT FOG ATRI				
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT	SALT FOG ATRI	ENVIRONMENT
ORIENTATION	ENVIRONMENT	SALT FOG ATRI							

TABLE 8.7.2.1

CONDITION	ALUMINUM				7050				K(1C)				K(1C) STAN DEV	DATE	REFER
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVS) (IN)	K(1C)**2 (KSI*SQRT IN)						
					WIDTH (IN)	THICK (IN)				DESIGN					
					W	B	A								
T7E56	F	5 00	R. T.	T-L	62.1	1.500	0.750	NB	0.837	0.39	24.60	1972	85291		
		5 00			62.1	1.500	0.751	NB	0.863	0.57	29.80	1972	85291		
		5 00			62.1	1.500	0.750	NB	0.875	0.74	33.80	1972	85291		
		5 00			62.1	1.500	0.751	NB	0.837	0.48	27.20	28.9 / 3.9	1972	85291	
T7351	P	6 00	R. T.	L-T	60.4	4.000	2.000	CT	2.060	0.77	33.60	1977	AL001		
		2 00			60.4	4.000	2.000	CT	2.010	1.27	43.00	1977	AL001		
		6 00			60.4	4.000	2.000	CT	2.040	0.77	33.50	1977	AL001		
		2 00			60.4	4.000	2.000	CT	2.010	1.18	41.50	1977	AL001		
		2 00			60.4	4.000	2.000	CT	2.020	1.29	43.40	1977	AL001		
		6 00			60.4	4.000	2.000	CT	2.050	0.77	33.60	1977	AL001		
		2 00			61.1	4.000	2.000	CT	2.030	1.03	39.30	1977	AL001		
		2 00			61.1	4.000	2.000	CT	2.020	1.04	39.50	1977	AL001		
		2 00			61.1	4.000	2.000	CT	2.030	1.03	39.30	1977	AL001		
		6 00			62.2	4.000	2.000	CT	2.020	0.53	28.60	1977	AL001		
		6 00			62.2	4.000	2.000	CT	2.040	0.54	28.90	1977	AL001		
		6 00			62.2	4.000	2.000	CT	2.010	0.55	29.10	1977	AL001		
		5 12			63.2	4.000	2.000	CT	2.000	0.55	29.70	1977	AL001		
		5 12			63.2	4.000	1.980	CT	2.000	0.54	29.30	1977	AL001		
		5 12			63.2	4.000	2.000	CT	2.000	0.54	29.30	1977	AL001		
		5 00			63.7	4.000	2.000	CT	2.060	0.72	34.30	1977	AL001		
		3 00			63.7	3.000	1.500	CT	1.560	0.75	34.80	1977	AL001		
		3 00			63.7	3.000	1.500	CT	1.560	0.72	34.30	1977	AL001		
		4 00			63.7	4.000	2.000	CT	2.090	0.82	36.40	1977	AL001		
		4 00			63.7	4.000	2.000	CT	2.050	0.71	34.00	1977	AL001		
		4 00			63.7	4.000	2.000	CT	2.060	0.72	34.20	1977	AL001		
		5 00			63.7	4.000	2.000	CT	2.030	0.69	33.40	1977	AL001		
		5 00			63.7	4.000	2.000	CT	2.050	0.68	33.30	1977	AL001		
		4 00			63.7	4.000	2.000	CT	2.050	0.78	35.50	1977	AL001		
		4 00			63.7	4.000	2.000	CT	2.080	0.72	34.30	1977	AL001		
		3 00			63.7	3.000	1.500	CT	1.560	0.75	35.00	1977	AL001		
		4 00			63.7	4.000	2.000	CT	2.060	0.82	36.50	1977	AL001		
		3 00			63.9	3.000	1.500	CT	1.570	0.75	35.10	1977	AL001		
		3 00			63.9	3.000	1.500	CT	1.570	0.79	35.90	1977	AL001		
		3 00			63.9	3.000	1.500	CT	1.570	0.73	34.50	1977	AL001		
		1 00			69.8	2.000	1.004	CT	1.000	0.70	36.90	34.8 / 3.9	1974	88186	

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM				7050		K(1C)		K(1C) STAN DEV	DATE	REFER		
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD (KSI)	WIDTH (IN)	THICK (IN)	DESIGN					
												CRACK LENGTH (IN)	2.5* (IN)
P	6.00	R. T.	T-L	59.1	4.000	2.000	CT	2.080	0.63	29.60	1977		
T7351		6.00			59.1	4.000	2.000	CT	2.090	0.66	30.30	1977	AL001
		6.00			59.1	4.000	2.000	CT	2.070	0.64	29.80	1977	AL001
		2.00			60.4	4.000	2.000	CT	2.060	0.82	34.50	1977	AL001
		2.00			60.4	4.000	2.000	CT	2.070	0.82	34.60	1977	AL001
		2.00			60.4	4.000	2.000	CT	2.060	0.87	35.60	1977	AL001
		6.00			60.9	4.000	2.000	CT	2.050	0.47	26.30	1977	AL001
		6.00			60.9	4.000	2.000	CT	2.080	0.48	26.60	1977	AL001
		2.00			60.9	4.000	2.000	CT	2.070	0.71	32.40	1977	AL001
		2.00			60.9	4.000	2.000	CT	2.070	0.72	32.60	1977	AL001
		2.00			60.9	4.000	2.000	CT	2.050	0.70	32.20	1977	AL001
		6.00			60.9	4.000	2.000	CT	2.050	0.48	26.70	1977	AL001
		5.12			61.4	4.000	2.000	CT	2.020	0.41	24.90	1977	AL001
		5.12			61.4	4.000	2.000	CT	2.050	0.41	25.00	1977	AL001
		4.00			63.4	4.000	2.000	CT	2.080	0.54	29.40	1977	AL001
		4.00			63.4	4.000	2.000	CT	2.090	0.57	30.80	1977	AL001
		4.00			63.4	4.000	2.000	CT	2.100	0.58	30.50	1977	AL001
		4.00			63.4	4.000	2.000	CT	2.040	0.54	29.40	1977	AL001
		4.00			63.4	4.000	2.000	CT	2.090	0.51	28.60	1977	AL001
		4.00			63.4	4.000	2.000	CT	2.100	0.58	30.60	1977	AL001
		5.00			63.7	4.000	2.000	CT	2.110	0.54	29.70	1977	AL001
	5.00			63.7	4.000	2.000	CT	2.120	0.53	29.40	1977	AL001	
	3.00			63.7	3.000	1.500	CT	1.580	0.55	30.00	1977	AL001	
	3.00			63.7	3.000	1.500	CT	1.580	0.55	29.90	1977	AL001	
	3.00			63.7	3.000	1.500	CT	1.560	0.57	30.30	1977	AL001	
	5.00			63.7	4.000	2.000	CT	2.100	0.53	29.40	1977	AL001	
	3.00			64.2	3.000	1.500	CT	1.590	0.55	30.10	1977	AL001	
	3.00			64.2	3.000	1.500	CT	1.590	0.56	30.40	1977	AL001	
	3.00			64.2	3.000	1.500	CT	1.600	0.57	30.60	1977	AL001	
										30.0	2.6		
T7351	P	2.00	R. T.	S-L	55.3	1.500	0.750	CT	0.770	0.73	29.90	1977	AL001
		2.00			55.3	1.500	0.750	CT	0.770	0.68	28.80	1977	AL001
		2.00			55.3	1.500	0.750	CT	0.770	0.73	29.90	1977	AL001
		2.00			55.6	1.500	0.750	CT	0.770	0.61	27.50	1977	AL001
		2.00			55.6	1.500	0.750	CT	0.770	0.55	26.00	1977	AL001
		2.00			55.6	1.500	0.750	CT	0.780	0.62	27.70	1977	AL001
		6.00			56.3	3.000	1.500	CT	1.510	0.69	29.50	1977	AL001
		6.00			56.3	3.000	1.500	CT	1.520	0.70	29.70	1977	AL001
	6.00			56.3	3.000	1.500	CT	1.520	0.66	28.90	1977	AL001	

TABLE 8.7.2.1 (Con't)

CONDITION	--PRODUCT--		TEST SPECIMEN	YIELD	ALUMINUM		CRACK	2.5*	K(1C)/TVS**2	K(1C) MEAN	STAN	DATE	REFER		
	FORM	THICK			WIDTH	THICK								DESIGN	LENGTH
	(IN)	(F)		(KSI)	(IN)	(IN)	(IN)	(IN)							
17351	P	6 00	R T	58.1	3 000	1 500	CT	1 950	0 53	26 80		1977	AL001		
		6 00	S-L	58.1	3 000	1 500	CT	1 530	0 50	26 10		1977	AL001		
		6 00		58.1	3 000	1 500	CT	1 540	0 53	26 70		1977	AL001		
		5 12		58.6	3 000	1 500	CT	1 500	0 47	25 50		1977	AL001		
		5 12		58.6	3 000	1 500	CT	1 520	0 50	26 20		1977	AL001		
		5 12		58.6	3 000	1 500	CT	1 530	0 49	26 00		1977	AL001		
		5 00		58.8	3 000	1 500	CT	1 540	0 60	28 90		1977	AL001		
		5 00		58.8	3 000	1 500	CT	1 520	0 58	28 20		1977	AL001		
		5 00		58.8	3 000	1 500	CT	1 530	0 56	27 90		1977	AL001		
		4 00		59.0	3 000	1 500	CT	1 530	0 58	28 50		1977	AL001		
		4 00		59.0	3 000	1 500	CT	1 530	0 55	27 70		1977	AL001		
		4 00		59.0	3 000	1 500	CT	1 530	0 62	29 40		1977	AL001		
		4 00		60.0	3 000	1 500	CT	1 540	0 59	29 20		1977	AL001		
17351-HIGH/ PURITY	EB	4 00		60.0	3 000	1 500	CT	1 530	0 59	29 10		1977	AL001		
		4 00		60.0	3 000	1 500	CT	1 540	0 58	28 90		1977	AL001		
		3 00		60.1	2 500	1 250	CT	1 280	0 51	27 20		1977	AL001		
		3 00		60.1	2 500	1 250	CT	1 280	0 50	27 00		1977	AL001		
		3 00		60.1	2 500	1 250	CT	1 270	0 53	27 80		1977	AL001		
		3 00		61.4	2 500	1 250	CT	1 270	0 53	28 30		1977	AL001		
		3 00		61.4	2 500	1 250	CT	1 270	0 48	27 00		1977	AL001		
		3 00		61.4	2 500	1 250	CT	1 280	0 53	28 40	28 0/ 1 3	1977	AL001		
		17351-HIGH/ PURITY	EB	1 50	R T	72.1	2 500	1 250	CT	----	0 71	38 40		1980	WA001
				1 50	L-T	72.1	2 500	1 250	CT	----	0 55	33 90	36 2/ 3 2	1980	WA001
		17351-HIGH/ PURITY	EB	1 50	R T	66.6	2 500	1 250	CT	----	0 33	24 20		1980	WA001
				1 50	T-L	66.6	2 500	1 250	CT	----	0 32	23 90	24 1/ 0 2	1980	WA001
		17352	F	5 00	82	64.0	3 000	1 502	CT	1 510	0 63	32 00		1973	86213
17352	F	5 00	82	62.1	3 000	1 502	CT	1 580	0 22	18 50		1973	86213		
		5 00		62.1	3 000	1 502	CT	1 588	0 21	18 00	18 3/ 0 4	1973	86213		
17352	F	6 00	R T	62.4	4 000	2 000	CT	2 148	0 25	19 80		1973	86213		

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM				7050		K(1C)		DATE	REFER		
	--PRODUCT-- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)				
					WIDTH (IN)	THICK (IN)						
					W	B	A					
T7352	F	5.00	82	S-L	3.000	1.501	CT	1.574	0.34	21.90	21.9/ 0.0	1973 86213
		5.00			3.000	1.502	CT	1.578	0.34	21.90		1973 86213
T736	F	3.00	R.T.	L-T	1.996	1.000	CT	1.047	0.58	30.79		1976 NC001
		3.00			1.998	1.001	CT	1.054	0.62	31.70		1976 NC001
		3.00			2.001	1.001	CT	1.049	0.59	31.11		1976 NC001
		----			1.400	0.696	CT	0.674	0.66	35.70	32.3/ 2.3	1973 89880
T736	F	6.00	82	L-T	3.000	1.499	CT	1.608	1.27	44.10		1973 86213
		7.10			2.000	0.999	CT	0.982	0.47	27.60		1973 86213
		7.10			2.000	1.001	CT	1.015	0.79	36.60		1973 86213
		4.25			3.000	1.499	CT	1.617	0.78	38.70	36.8/ 6.9	1973 86213
T736	F	6.00	R.T.	T-L	4.000	1.506	CT	----	0.35	22.90		1973 91123
		3.00			2.003	1.001	CT	1.082	0.39	24.82		1976 NC001
		3.00			2.001	0.999	CT	1.054	0.35	23.44		1976 NC001
		3.00			1.996	0.999	CT	1.042	0.32	22.40	23.4/ 1.0	1976 NC001
T736	F	6.00	82	T-L	0.990	0.499	CT	0.912	0.22	19.70		1973 86213
T736	F	3.00	R.T.	S-T	2.000	1.000	CT	1.050	0.35	23.08		1976 NC001
		3.00			2.002	1.000	CT	1.060	0.41	24.84		1976 NC001
T736	F	6.00	R.T.	S-L	4.000	1.509	CT	----	0.79	24.60		1973 91123
		6.00			----	2.000	CT	1.930	0.41	25.30		1973 86212
T736	F	6.00			4.000	1.509	CT	----	0.37	24.00		1973 91123
		6.00			----	2.000	CT	1.980	0.39	24.60		1973 86212
T736	F	6.00			4.000	1.509	CT	----	0.41	25.30		1973 91123
		6.00			----	2.000	CT	1.950	0.37	24.00	24.6/ 0.6	1973 86212
T736	F	7.10	82	S-L	2.000	0.999	CT	1.020	0.28	21.20		1973 86213
		7.10			2.000	0.999	CT	1.012	0.27	20.90		1973 86213
T736	F	7.10			2.000	0.999	CT	0.996	0.27	21.10		1973 86213
		6.00			2.000	0.999	CT	1.058	0.44	26.80		1973 86213
T736	F	6.00			2.000	1.000	CT	1.051	0.42	26.20		1973 86213
		0.60			1.500	0.635	CT	0.763	0.28	21.50	23.0/ 2.8	1973 86213

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM				7050				K(1C)				DATE	REFER
	---PRODUCT--- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN----- WIDTH THICK DESIGN (IN) (IN)		CRACK LENGTH (IN)	2.5* (K(1C)/TYS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	STAN DEV (IN)			
						M	B					A		
T73691	P	5.25	R. T.	L-T	63.8	1.999	0.999	CT	0.972	0.53	29.40	1977	RA010	
		6.00			63.8	1.999	1.001	CT	0.971	0.48	28.20	1977	RA009	
		5.25			63.9	1.999	1.000	CT	0.956	0.48	28.10	1977	RA010	
		4.50			63.9	2.999	1.498	CT	1.531	0.46	27.50	1978	RA008	
		2.75			63.9	2.003	0.999	CT	1.000	0.53	29.60	1977	RA010	
		5.25			64.0	2.003	1.000	CT	0.965	0.49	28.60	1977	RA010	
		4.00			64.2	1.999	1.001	CT	1.008	0.46	27.79	1977	RA010	
		4.00			64.4	1.998	0.997	CT	1.052	0.80	36.59	1977	RA009	
		4.00			64.7	1.998	1.001	CT	1.010	0.57	31.10	1977	RA009	
		4.00			65.0	3.000	1.502	CT	1.543	0.59	30.40	1973	89836	
		4.00			65.0	3.000	1.499	CT	1.569	0.41	26.30	1973	89836	
		4.00			65.4	1.998	0.997	CT	0.980	0.78	36.70	1977	RA009	
		6.00			65.4	2.000	1.001	CT	1.040	0.60	32.30	1977	RA009	
		4.00			65.9	1.998	0.998	CT	1.001	0.59	32.09	1977	RA009	
		3.00			66.9	2.000	1.000	CT	1.018	0.42	27.30	1973	86429	
		3.00			66.9	1.990	1.000	CT	1.014	0.44	28.20	1973	86429	
		3.00			66.9	2.010	1.000	CT	1.010	0.38	26.10	1973	86429	
		4.00			67.2	1.998	0.997	CT	1.091	0.54	31.50	1977	RA009	
		4.00			67.2	2.490	1.248	CT	1.234	0.64	34.20	1972	84363	
		4.00			67.2	2.490	1.255	CT	1.264	0.67	35.00	1972	84363	
		4.00			67.2	1.998	0.998	CT	1.003	0.73	36.50	1977	RA009	
		4.00			67.2	2.490	1.250	CT	1.279	0.74	36.80	1972	84363	
		3.50			67.4	3.001	1.500	CT	1.459	0.59	33.00	1978	RA008	
		3.50			67.8	3.000	1.496	CT	1.455	0.46	29.20	1978	RA008	
	4.00			67.8	1.997	0.996	CT	1.009	0.51	30.79	1977	RA009		
	2.00			67.8	1.998	0.994	CT	0.998	0.59	33.09	1977	RA009		
	3.50			68.3	1.997	0.998	CT	1.091	0.63	34.50	1977	RA009		
	3.50			68.5	1.998	0.997	CT	1.042	0.56	32.70	1977	RA009		
	6.00			68.6	2.001	1.001	CT	0.941	0.58	33.09	1977	RA009		
	3.15			69.0	2.001	1.007	CT	1.009	0.34	25.80	1976	NC001		
	3.15			69.0	2.002	1.007	CT	0.993	0.34	25.72	1976	NC001		
	2.50			69.0	2.002	1.007	CT	1.005	0.34	25.54	1976	NC001		
	3.00			69.6	2.003	1.001	CT	0.958	0.65	35.70	1977	RA010		
	1.00			70.0	2.000	1.004	CT	1.034	0.69	36.80	1974	88174		
	1.00			70.0	2.000	0.976	CT	-----	0.66	36.00	1982	NC003		
	1.00			70.0	2.000	1.003	CT	1.027	0.71	37.40	1974	88174		
	1.00			70.0	2.000	1.003	CT	1.035	0.65	35.70	1974	88174		
	1.00			70.0	2.000	0.976	CT	-----	0.66	36.00	1982	NC003		

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM				YIELD STRENGTH (KSI)	7050				K(1C)	2.5* K(1C)/TYS**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)	STAN DEV	DATE	REFER
	PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT		WIDTH (IN)	THICK (IN)	DESIGN	CRACK LENGTH (IN)						
T73651	P	2.30	R T	L-T	70.2	2.000	0.999	CT	1.076	0.40	38.29		1978	RA010	
		1.00			70.8	2.000	1.003	CT	1.009	0.64	35.70		1973	86213	
		1.00			70.8	2.000	0.998	CT	1.028	0.60	34.70		1973	86213	
		1.00			70.8	2.000	0.998	CT	1.034	0.64	35.70		1973	86213	
		2.00			71.6	1.998	0.992	CT	1.034	0.48	31.50		1977	RA009	
		1.00			73.8	2.000	1.000	NB	0.964	0.62	36.90		1973	86493	
		1.00			73.8	2.000	1.000	NB	0.992	0.61	36.40		1973	86493	
		1.00			73.8	2.000	1.000	NB	1.010	0.70	39.10		1973	86493	
		1.00			73.8	2.000	1.000	NB	1.010	0.70	39.10		1973	86493	
		1.00			73.8	2.000	1.000	NB	0.964	0.62	36.90		1973	86493	
T73651		1.00			73.8	2.000	1.000	NB	0.992	0.61	36.40		1973	86493	
		1.00			73.8	2.000	1.000	NB	1.000	0.65	37.70		1973	86493	
		1.00			73.8	2.000	1.000	NB	0.990	0.66	37.80		1973	86493	
		1.00			73.8	2.000	1.000	NB	1.000	0.65	37.70		1973	86493	
		1.00			73.8	2.000	1.000	NB	1.000	0.65	37.70		1973	86493	
		1.00			73.8	2.000	1.000	NB	0.990	0.65	37.80		1973	86493	
		1.00			73.8	2.000	1.000	NB	1.000	0.65	37.70		1973	86493	
		1.00			73.8	2.000	1.000	NB	1.000	0.65	37.70		1973	86493	
		1.00			75.0	2.490	1.003	CT	1.315	0.51	33.90		1973	86574	
		1.00			75.0	2.500	1.003	CT	1.260	0.48	32.90	31.9/ 3.9	1973	86574	
T73651	P	4.00	82	L-T	63.7	4.000	1.998	CT	2.099	0.64	32.30		1973	86213	
		4.00			63.7	4.000	1.998	CT	2.091	0.67	32.90		1973	86213	
		4.00			65.2	4.000	1.996	CT	2.145	0.55	30.70		1973	86213	
		4.00			65.2	3.990	1.999	CT	2.155	0.57	31.20		1973	86213	
		2.00			65.9	4.000	1.997	CT	2.119	0.79	36.10		1973	86213	
		2.00			65.9	4.000	1.997	CT	2.138	0.77	36.60		1973	86213	
		2.00			67.0	4.000	1.996	CT	2.132	0.70	35.40		1973	86213	
		2.00			67.0	4.000	1.997	CT	2.136	0.71	35.70	33.9/ 2.4	1973	86213	
		1.00	84	L-T	65.4	2.000	0.999	CT	1.003	0.58	31.50		1973	86213	
		1.00			65.4	2.000	0.998	CT	1.020	0.60	32.00	31.8/ 0.4	1973	86213	
T73651	P	1.00	250	L-T	64.4	1.990	1.002	CT	1.034	0.85	37.50		1974	88174	
		1.00			64.4	2.000	1.004	CT	1.036	0.83	37.10	37.3/ 0.3	1974	88174	
T73651	P	1.00	- 65	T-L	75.0	2.000	1.006	CT	1.048	0.41	30.40		1974	88174	
		1.00			75.0	2.000	1.005	CT	1.027	0.40	30.00	30.2/ 0.3	1974	88174	
T73651	P	1.00	0	T-L	72.7	2.000	1.005	CT	1.037	0.47	31.60		1974	88174	

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM					7050			K(1C)			K(1C) STAN			REFER
	--PRODUCT--		TEST	SPECIMEN	YIELD	-----SPECIMEN-----		CRACK	2.5*	K(1C) MEAN	K(1C) STAN	K(1C) STAN	REFER		
	FORM	THICK				THICK	THICK							THICK	
	(IN)	(IN)	(F)	ORIENT	(KSI)	(IN)	(IN)	(IN)	(IN)	(KSI*SQRT	IN)	IN)	DATE		
T73651	P	1.00	0	T-L	72.7	2.000	1.004	CT	1.024	0.46	31.30	31.30	1974 8B174		
		1.00			72.7	2.000	1.004	CT	1.028	0.46	31.20	31.20	1974 8B174		
		1.00			72.7	2.000	1.007	CT	1.030	0.46	31.20	31.3/ 0.2	1974 8B174		
T73651	P	5.25	R.T.	T-L	59.0	1.999	1.001	CT	0.969	0.40	23.60	23.60	1977 RA010		
		5.00			59.1	4.000	2.010	CT	2.130	0.47	25.70	25.70	1975 AL015		
		5.00			59.1	4.000	2.000	CT	2.100	0.43	24.50	24.50	1975 AL015		
		4.50			59.2	1.999	1.002	CT	0.983	0.59	28.90	28.90	1977 RA010		
		5.25			59.9	2.000	0.998	CT	0.970	0.35	22.50	22.50	1977 RA010		
		5.00			60.1	4.000	2.000	CT	2.130	0.41	24.40	24.40	1975 AL015		
		6.00			60.1	2.002	1.002	CT	0.986	0.59	29.40	29.40	1977 RA009		
		5.00			60.1	4.000	2.010	CT	2.080	0.43	24.50	24.50	1975 AL015		
		5.25			60.2	2.003	1.000	CT	1.001	0.36	23.00	23.00	1977 RA010		
		6.00			60.4	1.998	1.001	CT	1.018	0.56	28.60	28.60	1977 RA009		
		5.25			60.5	1.999	0.999	CT	0.979	0.34	22.40	22.40	1977 RA010		
		6.00			60.5	1.998	0.999	CT	1.030	0.55	28.50	28.50	1977 RA009		
		6.00			60.6	1.997	0.999	CT	0.991	0.46	26.20	26.20	1977 RA009		
		6.00			60.7	2.001	1.001	CT	0.979	0.54	28.40	28.40	1977 RA009		
		5.25			61.1	1.999	0.998	CT	0.996	0.33	22.20	22.20	1977 RA010		
		6.00			61.1	1.998	1.000	CT	1.027	0.53	28.10	28.10	1977 RA009		
		6.00			61.4	1.999	1.000	CT	0.988	0.71	32.80	32.80	1977 RA009		
		5.25			61.4	2.003	1.000	CT	1.015	0.43	25.70	25.70	1977 RA010		
		5.25			61.6	2.000	1.000	CT	0.996	0.33	22.70	22.70	1977 RA010		
		4.50			61.7	3.000	1.500	CT	1.483	0.77	34.30	34.30	1978 RA008		
		6.00			61.8	2.000	1.000	CT	0.968	0.50	27.70	27.70	1977 RA009		
		4.00			61.8	1.998	0.997	CT	1.006	0.60	30.29	30.29	1977 RA009		
		6.00			61.8	2.000	1.001	CT	0.987	0.50	27.79	27.79	1977 RA009		
		4.00			62.0	1.998	0.998	CT	0.994	0.57	29.70	29.70	1977 RA009		
		5.25			62.1	2.000	1.000	CT	1.001	0.35	23.50	23.50	1977 RA010		
		5.25			62.3	2.003	1.000	CT	0.997	0.39	24.70	24.70	1977 RA010		
		5.25			62.4	2.001	0.999	CT	0.994	0.31	22.20	22.20	1977 RA010		
		5.25			62.5	2.003	1.002	CT	1.006	0.30	22.00	22.00	1977 RA010		
		4.00			62.6	1.998	0.998	CT	0.990	0.48	27.50	27.50	1977 RA009		
		6.00			62.7	1.999	1.001	CT	0.968	0.50	28.20	28.20	1977 RA009		
		6.00			62.7	2.001	1.001	CT	0.971	0.48	27.60	27.60	1977 RA009		
		6.00			62.9	2.002	1.001	CT	0.955	0.49	27.90	27.90	1977 RA009		
		4.00			62.9	1.999	1.000	CT	1.049	0.33	22.90	22.90	1977 RA010		
		4.00			62.9	1.999	1.000	CT	1.049	0.33	22.90	22.90	1977 RA010		
		4.00			63.2	1.997	1.000	CT	1.007	0.50	28.29	28.29	1977 RA009		

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM			7050		K(IIC)		K(IIC) STAN DEV	DATE	REFER		
	---PRODUCT--- FORM	THICK (IN)	TEST SPECIMEN ORIENT	YIELD STRENGTH (KSI)	WIDTH (IN)	THICK (IN)	DESIGN				CRACK LENGTH (IN)	2.5* (K(IIC)/TYS)**2 (IN)
1773651	P	5 25	R T	T-L	1.999	1.000	CT	0.989	0.30	22.10	1977 RA010	
		2 75			2.003	0.999	CT	1.025	0.43	26.29	1977 RA010	
		5 25			63.7	1.998	1.001	CT	0.993	0.28	21.40	1977 RA010
		6 00			63.9	1.999	1.000	CT	0.978	0.77	35.50	1977 RA009
		4 00			64.1	1.998	0.999	CT	0.964	0.65	32.90	1977 RA009
		5 25			64.1	1.999	0.999	CT	0.962	0.33	23.60	1977 RA010
		4 50			64.3	3.002	1.490	CT	1.480	0.62	32.20	1978 RA008
		6 00			64.6	2.000	1.001	CT	0.961	0.51	29.40	1977 RA009
		6 00			64.6	2.001	0.999	CT	0.958	0.46	28.00	1977 RA009
		6 00			64.6	2.000	1.000	CT	0.964	0.51	29.40	1977 RA009
		4 00			65.0	2.990	1.502	CT	1.555	0.40	26.10	1973 85836
		4 00			65.0	3.000	1.499	CT	1.564	0.42	26.70	1973 85836
		6 00			65.0	1.997	0.999	CT	1.032	0.42	26.90	1977 RA009
		4 00			65.0	3.000	1.500	CT	1.540	0.54	30.30	1973 85836
		5 25			65.3	1.999	0.997	CT	0.969	0.27	21.50	1977 RA010
		4 00			65.3	1.997	0.999	CT	1.005	0.41	26.79	1977 RA009
		3 50			66.1	1.998	0.998	CT	1.050	0.44	28.00	1977 RA009
		3 50			66.2	3.000	1.499	CT	1.494	0.45	28.10	1978 RA008
		3 50			67.4	1.997	0.996	CT	1.032	0.44	28.40	1977 RA009
		3 50			67.6	3.000	1.501	CT	1.541	0.38	26.60	1978 RA008
		3 50			67.6	1.998	0.999	CT	1.073	0.39	25.40	1977 RA009
		2 00			68.2	1.998	0.994	CT	1.009	0.50	30.70	1977 RA009
		3 15			68.9	2.001	1.007	CT	1.019	0.35	29.91	1976 NC001
		3 15			68.9	2.001	1.007	CT	1.012	0.37	26.60	1976 NC001
		3 15			68.9	2.001	1.007	CT	1.031	0.31	24.59	1976 NC001
		2 00			68.9	2.003	1.000	CT	1.019	0.52	31.60	1977 RA010
		2 00			69.2	1.998	0.994	CT	1.030	0.41	28.29	1977 RA009
		2 50			69.7	2.001	0.999	CT	1.039	0.26	22.50	1978 RA010
		1 00			69.8	2.000	0.999	CT	1.035	0.54	32.40	1973 86213
		1 00			69.8	2.000	0.998	CT	1.032	0.49	31.00	1973 86213
		1 00			70.0	2.000	1.003	CT	1.032	0.49	31.00	1973 86213
		1 00			70.0	2.000	1.003	CT	1.030	0.52	31.80	1973 86213
		2 50			70.7	2.000	0.999	CT	1.094	0.35	26.79	1978 RA010
		1 00			72.2	2.000	1.004	CT	1.036	0.50	32.40	1974 88174
		1 00			72.2	2.000	1.005	CT	1.038	0.49	32.10	1974 88174
		1 00			72.2	2.000	1.005	CT	1.030	0.50	32.30	1974 88174
		1 00			72.5	2.000	1.000	NB	0.963	0.65	36.90	1973 86493
		1 00			72.5	2.000	1.000	NB	0.963	0.65	36.90	1973 86493
	1 00			72.5	2.000	1.000	NB	0.997	0.64	36.70	1973 86493	

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM				7050			K(IIC)			K(IIC) STAN MEAN DEV (KSI*SQRT IN)	DATE	REFER		
	--PRODUCT-- FORM		TEST SPECIMEN TEMP ORIENT (F)	YIELD STRENGTH (KSI)	-----SPECIMEN----- WIDTH THICK DESIGN (IN) (IN) (IN)			CRACK LENGTH (IN)	2.5* (K(IIC)/TVS)**2 (IN)						
	THICK (IN)	FORM			W (IN)	B (IN)	A (IN)								
T73651	P	1.00	R T	T-L	72.5	2.000	1.000	NB	0.997	0.64	36.80	1973	86493		
		1.00			72.5	2.000	1.000	NB	1.000	0.67	37.70	1973	86493		
		1.00			72.5	2.000	1.000	NB	1.000	0.68	37.70	1973	86493		
		1.00			72.5	2.000	1.000	NB	0.990	0.63	36.30	1973	86493		
		1.00			72.5	2.000	1.000	NB	0.978	0.68	37.80	1973	86493		
		1.00			72.5	2.000	1.000	NB	0.978	0.68	37.80	1973	86493		
		1.00			72.5	2.000	1.000	NB	0.990	0.63	36.30	1973	86493		
		1.00			72.5	2.000	1.000	NB	0.963	0.65	36.90	1973	86493		
		1.00			72.5	2.000	1.000	NB	0.963	0.65	36.90	28 7/	4 7	1973	86493
T73651	P	4.00		82	63.2	4.000	1.998	CT	2.167	0.47	27.30	1973	86213		
		4.00			63.2	4.000	1.999	CT	2.126	0.46	27.10	1973	86213		
		4.00			64.4	3.990	2.000	CT	2.109	0.43	26.60	1973	86213		
		4.00			64.4	4.000	1.998	CT	2.124	0.41	26.20	1973	86213		
		2.00			65.7	4.000	1.997	CT	2.166	0.50	29.40	1973	86213		
		2.00			65.7	4.000	1.998	CT	2.156	0.49	29.20	1973	86213		
		2.00			67.4	4.000	1.997	CT	2.130	0.45	28.50	1973	86213		
		2.00			67.4	4.000	1.998	CT	2.123	0.46	28.80	27 9/	1 2	1973	86213
T73651	P	1.00		84	65.4	2.000	0.998	CT	0.994	0.40	26.00	1973	86213		
		1.00			65.4	2.000	0.999	CT	0.974	0.39	25.90	1973	86213		
		0.50			67.2	1.000	0.501	CT	0.505	0.42	27.50	1973	86213		
		0.50			67.2	1.000	0.500	CT	0.511	0.40	26.80	26 6/	0 8	1973	86213
T73651	P	6.00	R T	S-T	55.8	2.000	1.001	CT	1.023	0.52	25.60	1977	RA009		
		6.00			56.2	1.998	1.000	CT	1.077	0.60	27.60	1977	RA009		
		6.00			56.4	1.999	1.000	CT	1.029	0.49	25.10	1977	RA009		
		6.00			56.6	2.000	1.002	CT	1.035	0.44	24.00	1977	RA009		
		6.00			56.8	2.001	1.001	CT	1.001	0.42	23.40	1977	RA009		
		6.00			57.1	2.000	1.000	CT	0.947	0.53	26.40	1977	RA009		
		6.00			57.6	2.001	1.002	CT	1.033	0.44	24.40	1977	RA009		
		6.00			57.6	1.997	0.999	CT	0.993	0.36	22.10	1977	RA009		
		6.00			58.1	1.997	1.001	CT	0.994	0.49	25.80	1977	RA009		
		6.00			58.1	1.996	1.002	CT	1.035	0.59	28.40	1977	RA009		
6.00			58.4	2.000	1.000	CT	1.017	0.51	26.50	1977	RA009				
6.00			58.6	1.998	1.000	CT	0.975	0.35	22.10	1977	RA009				
6.00			58.7	2.000	1.000	CT	1.034	0.42	24.20	1977	RA009				
6.00			58.8	2.001	1.000	CT	1.066	0.44	24.79	1977	RA009				
6.00			59.0	2.001	1.000	CT	1.028	0.37	23.00	1977	RA009				

TABLE 8.7.2.1 (Con't)

CONDITION	PRODUCT FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	ALUMINUM 7050			K(1C)			DATE	REFER
						WIDTH (IN)	SPECIMEN		CRACK LENGTH (IN)	2.5* K(1C)/TYS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)		
							THICK (IN)	DESIGN					
173651	P	6 00	R T	S-T	59.5	1.997	0.997	CT	0.996	0.38	23.50	1977	RA009
		6 00			60.5	2.000	1.000	CT	1.020	0.36	23.10	1977	RA009
		6 00			60.7	2.000	1.000	CT	1.048	0.40	24.50	1977	RA009
		4 00			61.0	1.998	0.998	CT	0.976	0.38	23.90	1977	RA009
		4 00			61.2	1.998	0.999	CT	0.996	0.46	26.40	1977	RA009
		4 00			61.6	1.998	0.996	CT	0.976	0.45	26.20	1977	RA009
		4 00			62.9	1.998	0.996	CT	0.963	0.36	23.90	1977	RA009
		4 00			64.1	1.998	0.994	CT	1.026	0.31	22.79	1977	RA009
		3 50			64.2	1.998	0.999	CT	0.938	0.32	23.00	1978	RA008
		3 15			64.3	2.002	1.007	CT	1.020	0.24	20.33	1976	NC001
		3 15			64.3	2.002	1.007	CT	1.038	0.30	22.52	1976	NC001
		3 15			64.3	2.002	1.007	CT	1.066	0.29	20.73	1976	NC001
		2 50			64.8	2.001	0.999	CT	1.056	0.28	21.90	1978	RA010
		4 00			65.4	1.998	0.998	CT	0.979	0.27	21.79	1977	RA009
		3 50			65.9	2.000	0.998	CT	0.956	0.31	23.29	1978	RA008
		2 50			66.3	2.001	0.999	CT	1.028	0.30	23.00	1978	RA010
		3 50			66.3	1.997	0.997	CT	1.034	0.32	23.90	1977	RA009
		3 50			66.5	1.998	0.998	CT	1.050	0.31	23.60	1977	RA009
3 50			67.1	1.997	0.995	CT	1.018	0.28	22.90	23 9/ 1 9	1977	RA009	
173651	P	5 25	R T	S-L	55.2	1.999	0.999	CT	0.924	0.43	22.90	1977	RA010
		4 50			56.1	2.003	1.000	CT	1.033	0.46	24.29	1977	RA010
		2 75			56.6	2.003	0.999	CT	0.982	0.44	23.79	1977	RA010
		5 25			56.8	2.003	1.000	CT	0.950	0.39	22.60	1977	RA010
		5 00			56.8	4.000	2.010	CT	2.070	0.47	24.70	1975	AL015
		5 25			56.8	4.000	2.010	CT	2.070	0.47	24.70	1975	AL015
		5 25			56.9	2.000	0.998	CT	1.005	0.40	22.79	1977	RA010
		5 25			57.0	1.999	1.000	CT	0.933	0.42	23.40	1977	RA010
		5 25			57.0	1.999	0.998	CT	0.944	0.41	23.20	1977	RA010
		5 25			57.1	1.999	0.999	CT	0.941	0.36	21.90	1977	RA010
		5 25			57.6	2.003	1.001	CT	0.946	0.40	23.29	1977	RA010
		5 25			57.8	2.003	1.001	CT	0.990	0.42	23.70	1977	RA010
		5 25			58.0	2.003	1.000	CT	0.959	0.36	22.29	1977	RA010
		5 25			58.0	2.000	0.999	CT	0.938	0.42	23.90	1977	RA010
		5 25			58.1	2.003	0.970	CT	0.969	0.41	23.70	1977	RA010
		5 25			58.3	1.999	0.997	CT	0.968	0.43	23.40	1977	RA010
		5 25			58.6	2.000	1.000	CT	0.955	0.38	23.10	1977	RA010
		5 25			58.9	2.000	0.998	CT	0.966	0.37	22.79	1977	RA010
5 00			59.3	4.000	2.000	CT	2.030	0.37	22.80	1975	AL015		

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM				7050				K(1C)				K(1C) STAN	DATE	REFER
	---PRODUCT---		TEST SPECIMEN ORIENT	YIELD (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* K(1C)/(TYS)**2 (IN)	K(1C) MEAN DEV (KSI*SQRT IN)						
	FORM	THICK (IN)			THICK (IN)	DESIGN									
										WIDTH (IN)	W	B			
173651	P	5 00	R T	S-L	59.3	4 000	2 000	CT	2 030	0.37	22.90	1975	AL015		
		5 25			59.6	1 999	1 002	CT	0 952	0.32	21 50	1977	RA010		
		4 50			60.3	3 002	1 497	CT	1 550	0.44	25 29	1978	RA008		
		5 25			60.6	1 998	0 997	CT	0 952	0.33	22 29	1977	RA010		
		5 25			61.7	1 997	0 999	CT	0 990	0.28	20 79	1977	RA010		
		4 00			61.7	2 003	0 999	CT	0 974	0.31	21 90	1977	RA010		
		5 25			62.0	1 999	0 998	CT	0 937	0.29	21 40	1977	RA010		
		4 00			63.7	2 980	1 500	CT	1 469	0.37	24 50	1973	86213		
		4 00			63.7	2 990	1 500	CT	1 507	0.43	26 40	1973	86213		
		3 00			64.0	1 990	1 000	CT	1 029	0.34	23 50	1973	86429		
		3 00			64.0	2 000	1 000	CT	1 025	0.31	22 70	1973	86429		
		3 00			64.0	1 990	1 000	CT	1 034	0.31	22 60	1973	86429		
		4 00			65.0	3 000	1 502	CT	1 519	0.37	25 10	1973	85836		
173651	P	4 00			65.0	3 000	1 501	CT	1 550	0.36	24 80	1973	85836		
		4 00			65.0	3 000	1 500	CT	1 531	0.39	25 80	1973	85836		
		3 00			66.4	2 003	1 001	CT	0 970	0.45	28 20	1977	RA010		
173651	P	2 00	B1	S-L	64.2	1 490	0 749	CT	0 760	0.40	25 60	1973	86213		
		2 00			64.2	1 500	0 749	CT	0 743	0.40	25 60	1973	86213		
173651	P	4 00	B4	S-L	59.7	3 000	1 498	CT	1 503	0.39	23 70	1973	86213		
		2 00			61.5	1 490	0 748	CT	0 695	0.33	22 40	1973	86213		
173652	F	3 50	R T	L-T	61.1	3 000	1 500	CT	1 630	0.74	33 30	1975	AL015		
		3 50			61.1	3 000	1 500	CT	1 540	0.79	34 40	1975	AL015		
		5 50			63.0	3 000	1 500	CT	1 510	0.63	31 50	1975	AL015		
		5 50			63.0	3 000	1 500	CT	1 500	0.59	30 60	1975	AL015		
		4 50			63.2	3 000	1 510	CT	1 510	0.60	30 90	1975	AL015		
		5 50			68.8	3 000	1 500	CT	1 520	0.56	32 50	1975	AL015		
		5 50			68.8	3 000	1 500	CT	1 530	0.61	34 00	1975	AL015		
		3 50			70.0	3 000	1 500	CT	1 560	0.47	30 20	1975	AL015		
		3 50			70.0	3 000	1 500	CT	1 530	0.46	30 10	1975	AL015		
		4 50			72.0	3 000	1 500	CT	1 670	0.38	28 00	1975	AL015		
		-----			72.0	3 000	1 500	CT	1 640	0.33	26 20	1975	AL015		
		7 50	B2	L-T	60.9	3 000	1 499	CT	1 458	0.77	33 70	1973	86213		
		4 50			62.1	3 000	1 497	CT	1 531	0.92	37 70	1973	86213		

TABLE 8.7.2.1 (Con't)

CONDITION	ALUMINUM				7050				K(1C)				K(1C)				REFER
	--PRODUCT-- FORM	THICK (IN)	TEST TEMP (F)	SPECIMEN ORIENT	YIELD STRENGTH (KSI)	-----SPECIMEN-----		CRACK LENGTH (IN)	2.5* (K(1C)/TVS)**2 (IN)	K(1C) MEAN (KSI*SQRT IN)	K(1C) STAN DEV	DATE					
						WIDTH (IN)	THICK (IN)						A	B			
T73652	F	4 50 2 50	82	L-T	62 1 67 3	3 000 3 000	1 498 1 499	CT CT	1 554 1 465	0 82 0 47	39 50 29 30	34 1/	3 6	1973 86213 1973 86213			
	F	4 50	R T	T-L	59 3 59 3 60 7 60 8 60 8 60 8 60 8 62 6 62 6 66 0 66 2 66 2	3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000	1 510 1 510 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500	CT CT CT CT CT CT CT CT CT CT CT CT	1 540 1 560 1 560 1 530 1 580 1 560 1 560 1 520 1 540 1 580 1 560 1 580	0 31 0 32 0 23 0 32 0 25 0 32 0 27 0 29 0 29 0 30 0 21 0 22	20 90 21 20 18 40 21 90 19 10 21 70 20 00 21 30 21 30 22 70 22 50 19 00 19 70		1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15				
T73652	F	4 50 2 50 2 50	82	T-L	60 2 65 5 65 5	3 000 3 000 3 000	1 499 1 500 1 498	CT CT CT	1 556 1 580 1 604	0 33 0 40 0 43	21 90 26 20 27 20			1973 86213 1973 86213 1973 86213			
T73652	F	3 50 3 50 5 50 5 50 4 50 4 50 7 50 7 50 7 50 4 50 4 50 5 50 3 50 3 50 ---	R T	S-L	56 5 56 5 57 1 57 1 57 3 57 3 57 8 57 8 58 1 61 1 61 1 62 1 62 1 64 4 64 4 67 6	3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 1 500	1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 1 500 0 750	CT CT CT CT CT CT CT CT CT CT CT CT CT CT CT	1 540 1 530 1 540 1 500 1 560 1 560 1 520 1 540 1 520 1 540 1 530 1 530 1 560 1 610 1 570 0 760	0 29 0 29 0 29 0 27 0 25 0 26 0 24 0 34 0 20 0 29 0 19 0 26 0 23 0 28 0 19	19 40 19 30 19 30 18 90 18 10 18 60 18 00 21 40 16 50 20 70 16 80 20 20 19 00 21 10 21 40 18 60		1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15 1975 ALO15				

TABLE 8.7.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.1 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7050
 CONDITION: T6
 ENVIRONMENT: R.T., L.H.A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.33			
DELTA K MIN	A:	6.13	2.91		
	B:				
	C:				
	D:				
		7.00	4.01		
		8.00	6.16		
		9.00	8.98		
		10.00	11.9		
		13.00	21.8		
		16.00	41.8		
DELTA K MAX		20.00	114.		
		25.00	280.		
	A:	25.27	287.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 9.08
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 4
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T6
 FORM: 0.18" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 FREQUENCY: 13.30 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 75.0 KSI
 ULT. STRENGTH: 83.2 KSI
 SPECIMEN THK: 0.177- 0.179"
 SPECIMEN WIDTH: 3.999- 4.000"
 REFERENCES: 86213

ALUM.
 ALLOY

7050

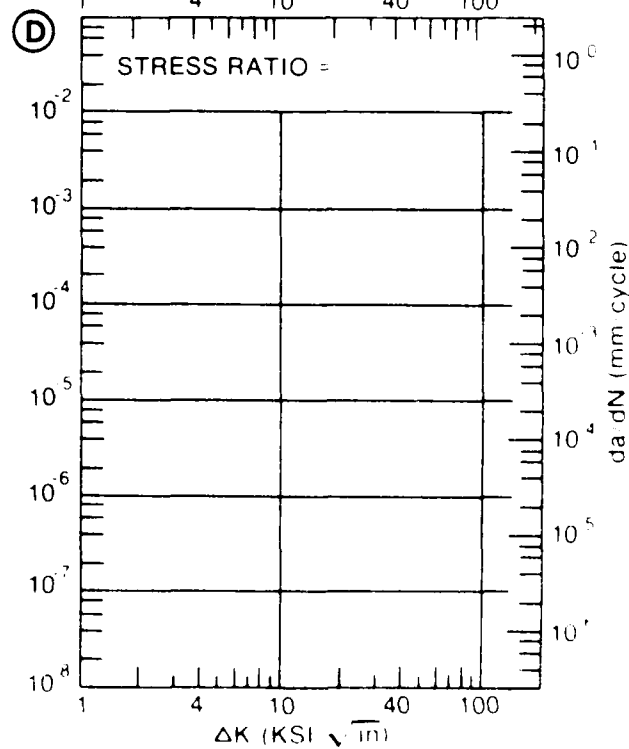
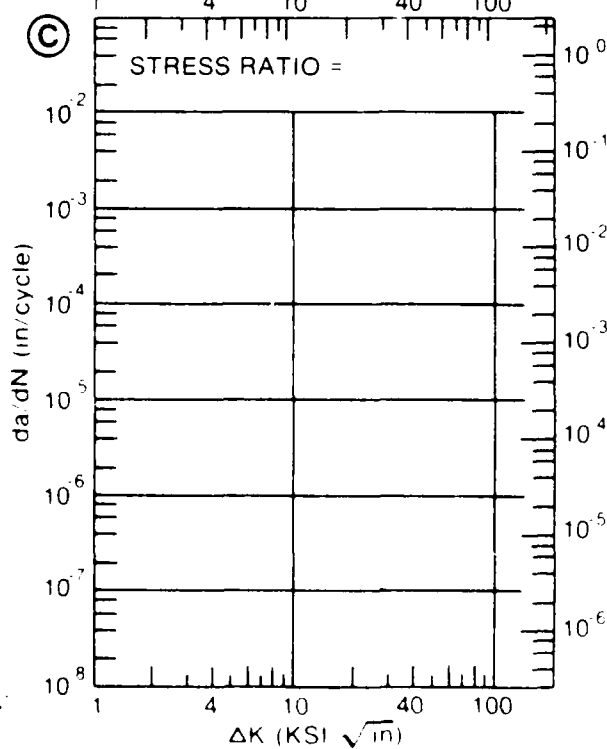
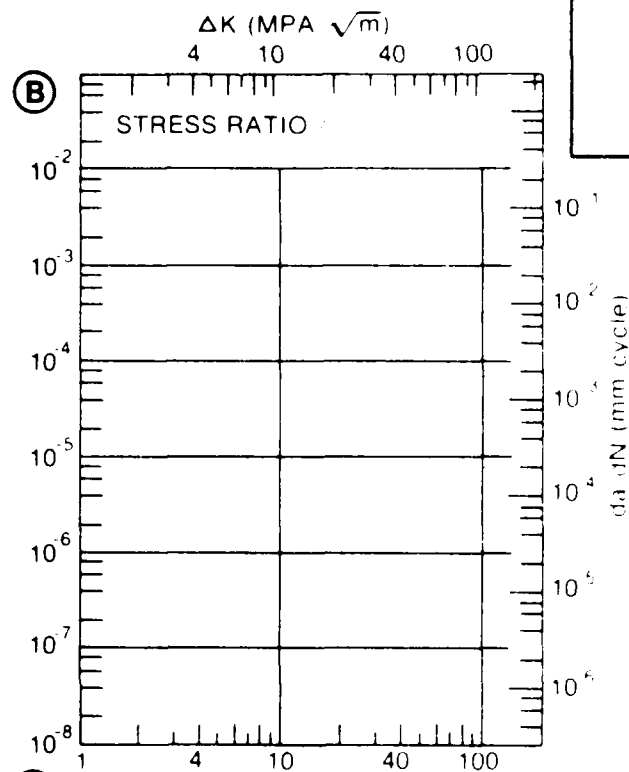
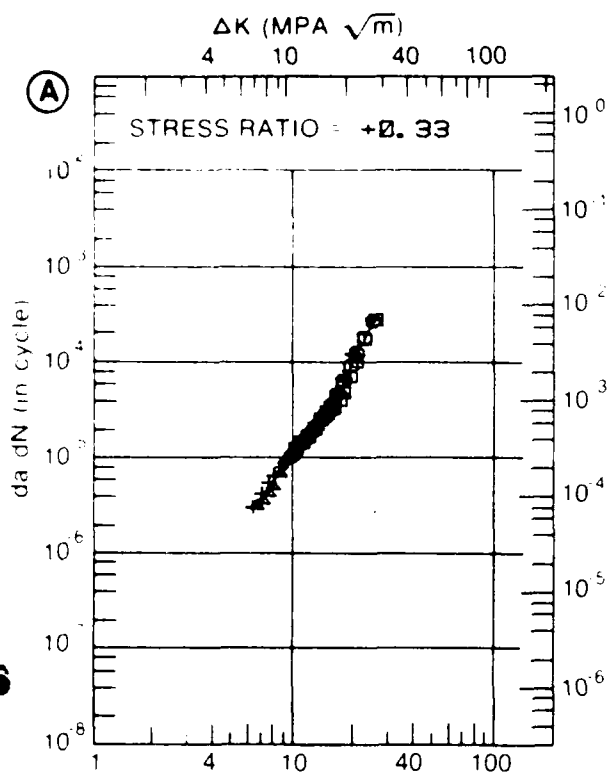


Figure 8.7.3.1

TABLE 8.7.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.2 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T6

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. H. H. A.			
DELTA K MIN	A: 6.00	4.98			
	B:				
	C:				
	D:				
	7.00	7.43			
	8.00	10.9			
	9.00	15.4			
	10.00	21.3			
DELTA K MAX	13.00	48.2			
	16.00	89.5			
	20.00	163.			
	A: 20.34	170.			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		6.10			

LIFE	0.0-0.5	
PREDICTION	0.5-0.8	
RATIO	0.8-1.25	2
SUMMARY	1.25-2.0	
(NP/NA)	>2.0	

CONDITION/HT: T6
 FORM: 0.18" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 13.30 HZ

YIELD STRENGTH: 75.0 KSI
 ULT. STRENGTH: 83.2 KSI
 SPECIMEN THK: 0.176- 0.177"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: 86213

ALUM.
 ALLOY

7050

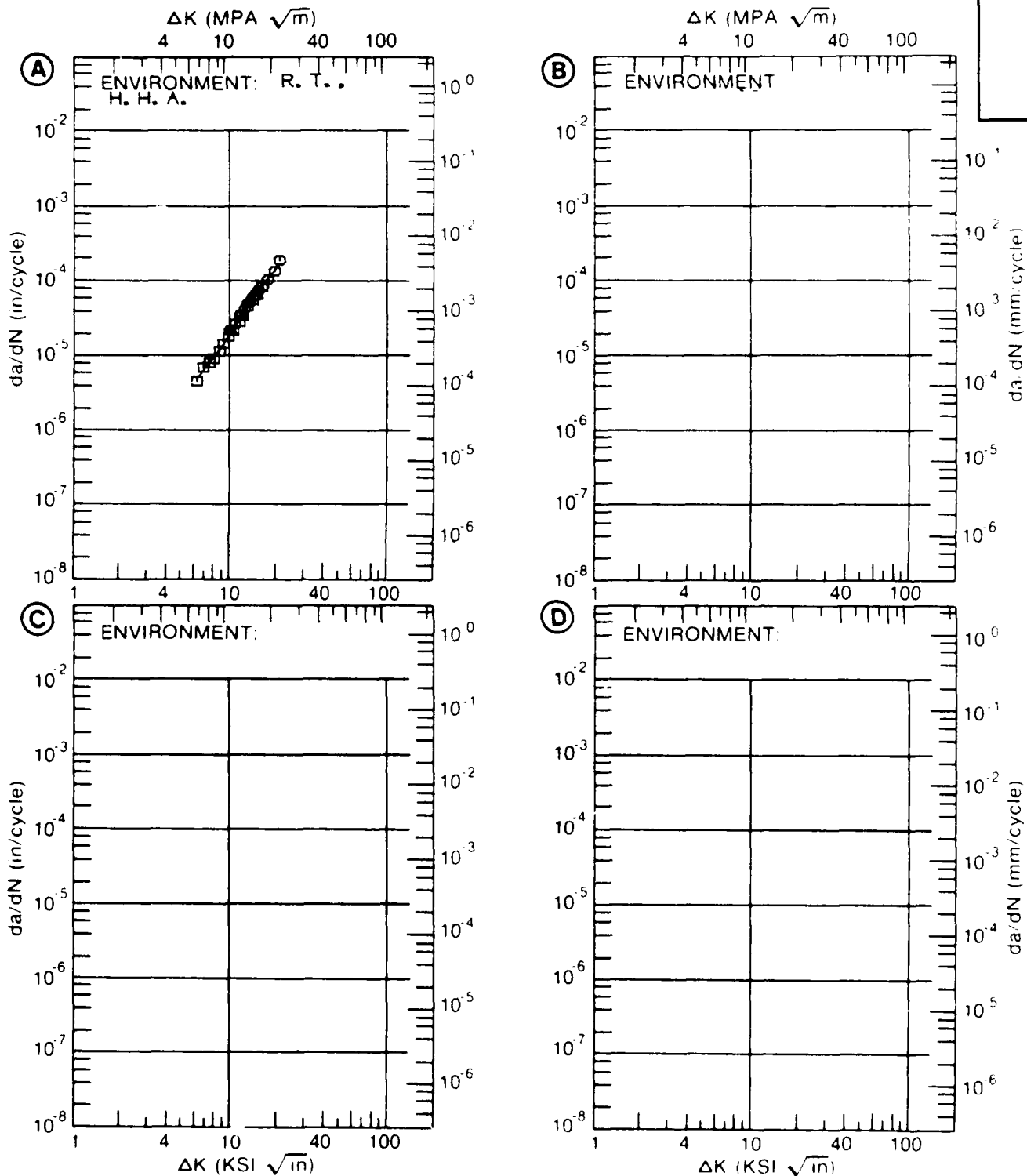


Figure 8.7.3.2

TABLE 8.7.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.3 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T6

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E = R. T. H. H. A.			
DELTA K MIN	A:	6.88	6.37		
	B:				
	C:				
	D:				
		7.00	6.78		
		8.00	10.6		
		9.00	15.3		
		10.00	20.8		
		13.00	45.7		
		16.00	94.1		
		20.00	220.		
DELTA K MAX	A:	20.15	221.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		7.02			

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 2
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T6
 FORM: 0.18" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 13.30 HZ

YIELD STRENGTH: 74.5 KSI
 ULT STRENGTH: 82.7 KSI
 SPECIMEN THK: 0.180- 0.181"
 SPECIMEN WIDTH: 3.999- 4.000"
 REFERENCES: 86213

ALUM.
 ALLOY

7050

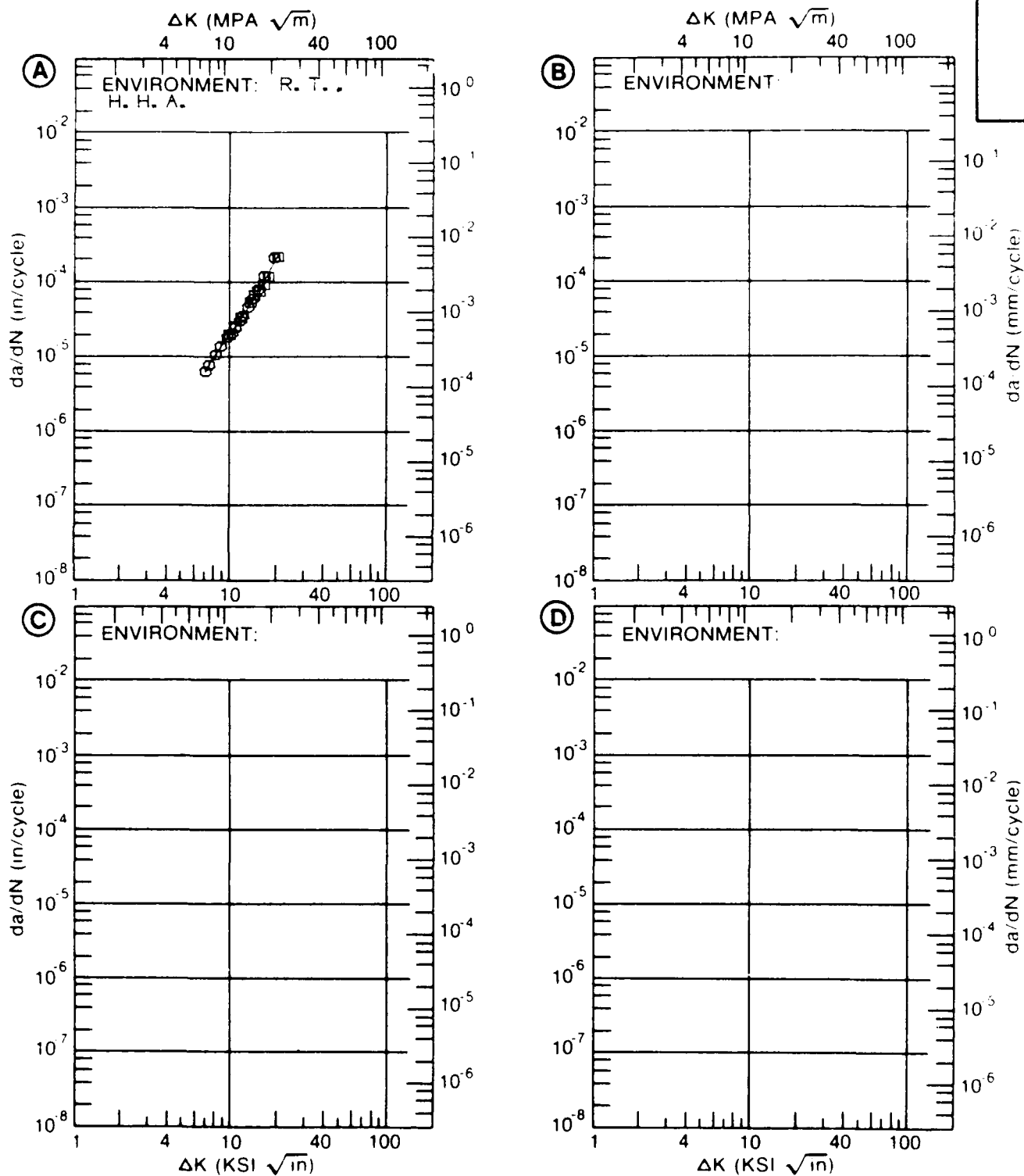


Figure 8.7.3.3

TABLE 8.7.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.4 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM		7050			
CONDITION: T73					
ENVIRONMENT: R T J L H. A.					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.08			
DELTA K MIN	A: 12.21	.227			
	B:				
	C:				
	D:				
	13.00	.427			
	16.00	1.27			
	20.00	12.6			
	25.00	29.2			
DELTA K MAX	A: 28.21	64.2			
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		9.95			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1			
SUMMARY	1.25-2.0				
(NP/NA)	2.0				

CONDITION/HT: T73
 FORM: FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 71.0 KSI
 ULT STRENGTH: 78.0 KSI
 SPECIMEN THK: 0.500"
 SPECIMEN WIDTH: 2.810"
 REFERENCES: 88579

ALUM.
 ALLOY

7050

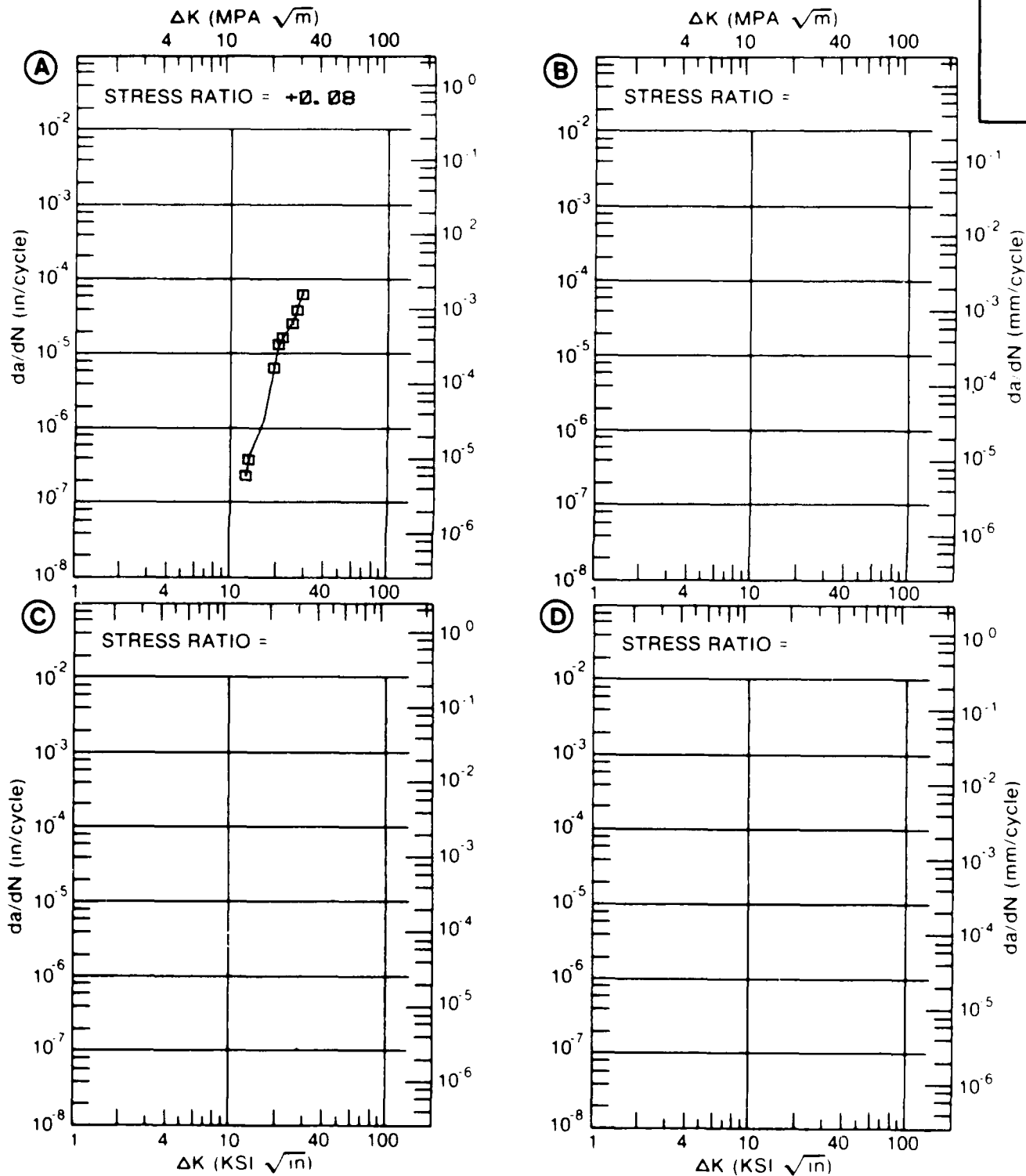


Figure 8.7.3.4

TABLE 8.7.3.5

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.5 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T7351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. I. 3.5% NaCl			
DELTA K MIN	A: 3.01	.017			
	B: 8				
	C:				
	D:				
	3.50	.102			
	4.00	.271			
	5.00	.765			
	6.00	1.67			
	7.00	3.27			
	8.00	5.76			
	9.00	9.22			
DELTA K MAX	10.00	13.5			
	13.00	29.9			
	16.00	49.3			
	20.00	78.5			
	25.00	121.			
	A: 27.97	152.			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 10.75
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) 2.0

CONDITION/HT: T7351
 FORM: 1.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT STRENGTH:
 SPECIMEN THK: 0.151"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: 86844

ALUM.
 ALLOY

7050

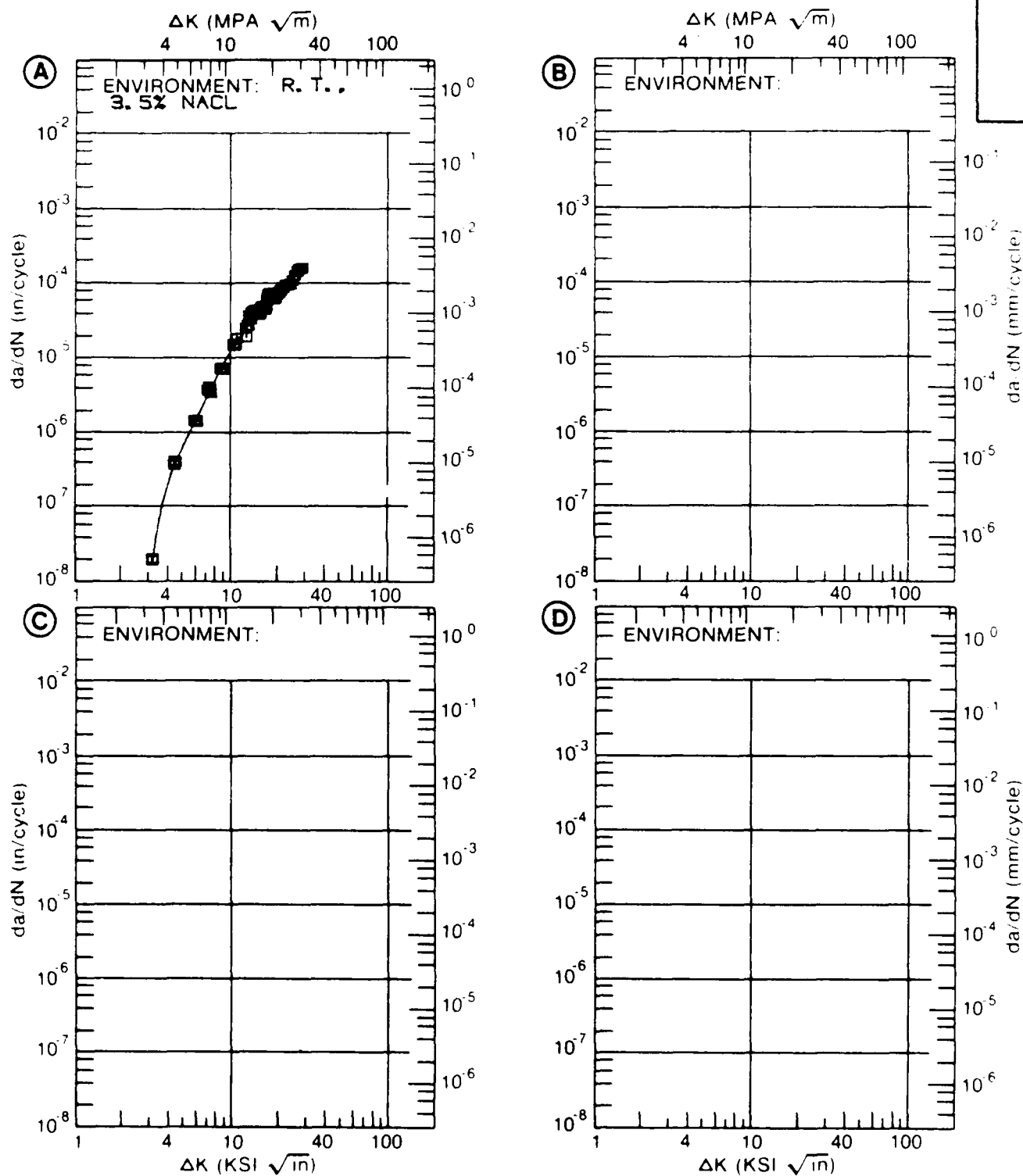


Figure 8.7.3.5

TABLE 8.7.3.6

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.6 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T7351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. H. H. A.	E= R. T. 3.5% NaCl		
DELTA K MIN	A:	6.08	1.52		
	B:	5.19	.272		
	C:				
	D:				
	6.00		1.15		
	7.00	2.47	4.36		
	8.00	3.71	9.90		
	9.00	5.15	16.2		
	10.00	6.79	22.9		
	13.00	13.1	54.4		
	16.00	22.3	106.		
	20.00	42.1	171.		
	25.00	83.3	237.		
	30.00	141.	318.		
DELTA K MAX	A:	30.08	142.		
	B:	32.15	367.		
	C:				
	D:				
ROOT MEAN SQUARE		6.27	8.42		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1			
SUMMARY	1.25-2.0		1		
(NP/NA)	>2.0				

CONDITION HT: T7351
 FORM: 1.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 2.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.148- 0.152"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: 86844

ALUM.
 ALLOY

7050

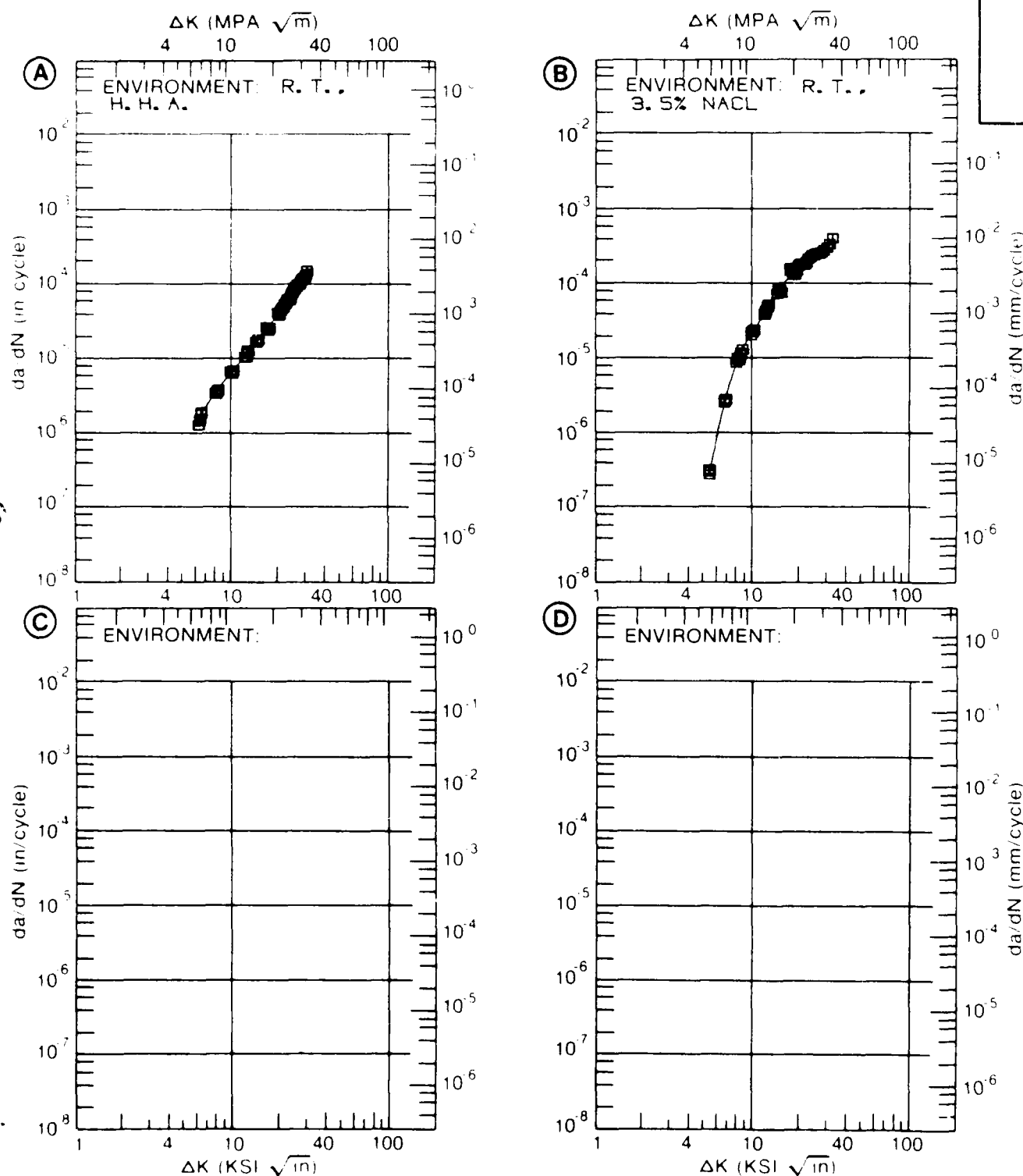


Figure 8.7.3.6

TABLE 8.7.3.7

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.7 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL ALUMINUM 7050
CONDITION T7351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R I DRY AIR	E= R T S T W		
DELTA K	A: 5.69	822			
MIN	B: 5.16		1.94		
	C:				
	D:				
	6.00	.942	4.30		
	7.00	1.64	8.88		
	8.00	3.01	13.2		
	9.00	4.93	16.6		
	10.00	6.92	20.4		
	13.00	13.0	42.8		
	16.00	22.8			
	20.00	62.1			
DELTA K	A: 20.51	72.4			
MAX	B: 15.33		45.1		
	C:				
	D:				
ROOT MEAN SQUAPE		10.72	14.34		
PERCENT ERROR					

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT T7351
 FORM 2.02- 4.22 TH PLATE
 SPECIMEN TYPE CT
 ORIENTATION LT
 STRESS RATIO +0.33
 FREQUENCY 2.22- 22.22 Hz

YIELD STRENGTH 1100 MPa
 UTS STRENGTH 1400 MPa
 SPECIMEN THK 2.22
 SPECIMEN WIDTH 12.22
 REFERENCES 1, 2, 3

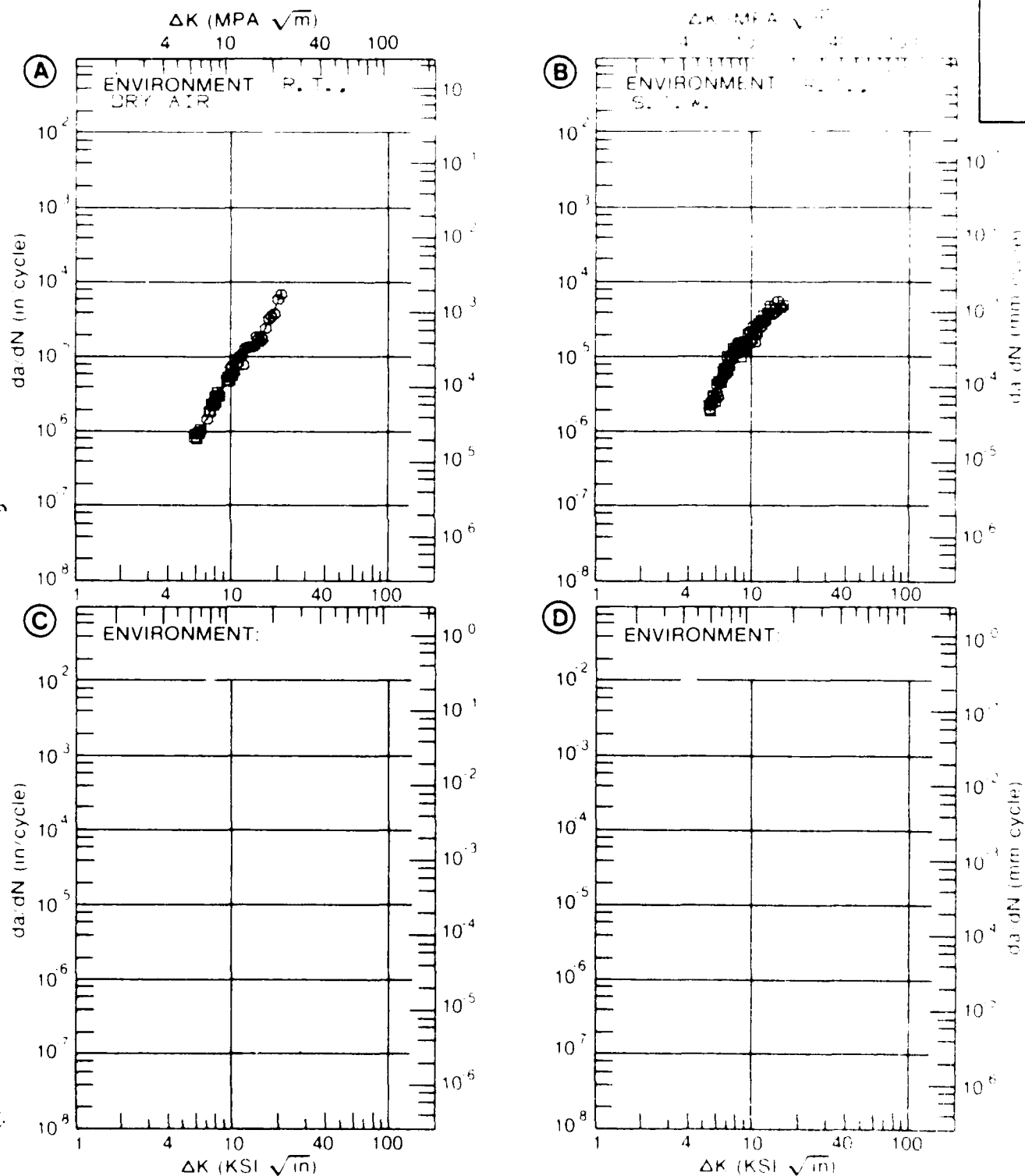
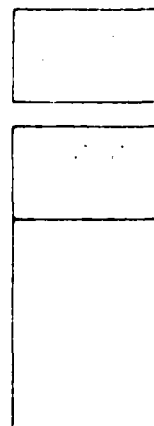


Figure 8.7.3.7

TABLE 8.7.3.8

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.8 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T7351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. S. T. W.	
DELTA K MIN	A:	5.89	8.56		
	B:	5.68	1.36		
	C:	4.52		1.58	
	D:				
	5.00			1.72	
	6.00	.981	1.87	3.69	
	7.00	1.86	4.08	7.26	
	8.00	3.63	6.44	12.0	
	9.00	6.11	8.73	16.7	
	10.00	8.65	11.2	21.0	
	13.00	19.1	25.8	35.9	
	16.00	49.0	62.3	56.2	
DELTA K MAX	A:	18.96	89.2		
	B:	18.14	134.		
	C:	17.01		61.7	
	D:				
ROOT MEAN SQUARE		24.19	13.88	18.31	
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T7351
 FORM: 2.00- 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 1.50- 20.00 HZ

YIELD STRENGTH: 60.9- 63.4 KSI
 ULT. STRENGTH: 72.1- 74.4 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

7252

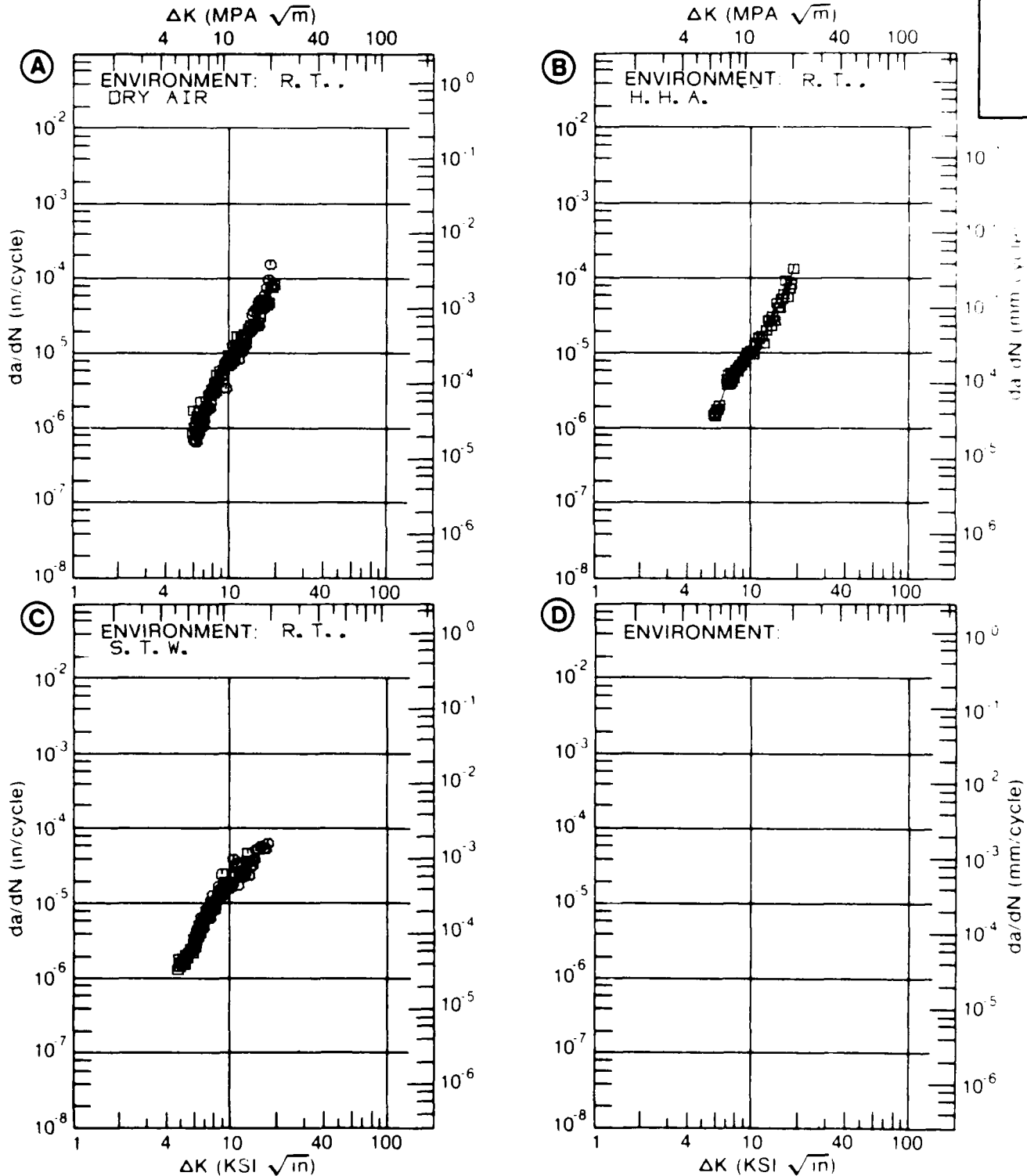


Figure 8.7.3.8

TABLE 8.7.3.9

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.9 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T7351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. S. T. W.		
DELTA K MIN	A:	5.28	.839		
	B:				
	C:				
	D:				
		6.00	.937		
		7.00	1.77		
DELTA K MAX	A:	7.69	2.77		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		10.40	0.00		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T7351
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.67
 FREQUENCY: 30.00 HZ

YIELD STRENGTH: 63.4 KSI
 ULT. STRENGTH: 74.4 KSI
 SPECIMEN THK: 0.250"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: AL001

ALUM.
 ALLOY

7050

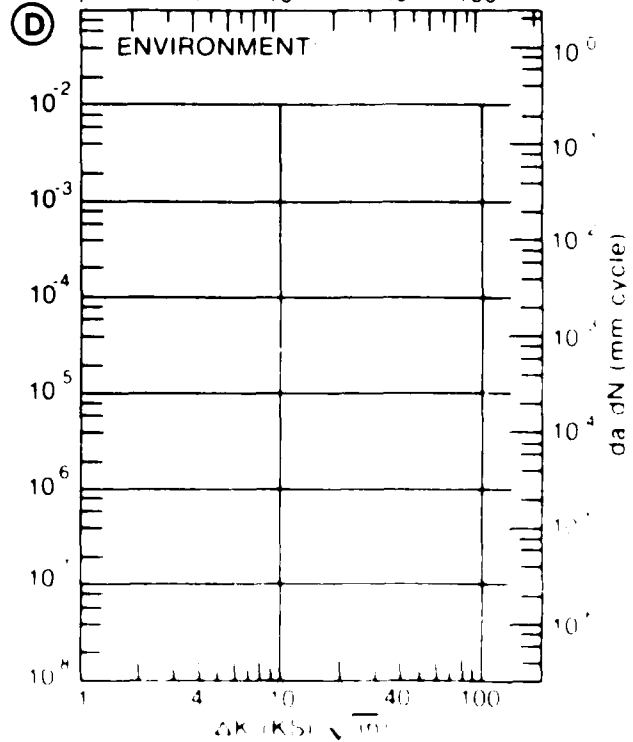
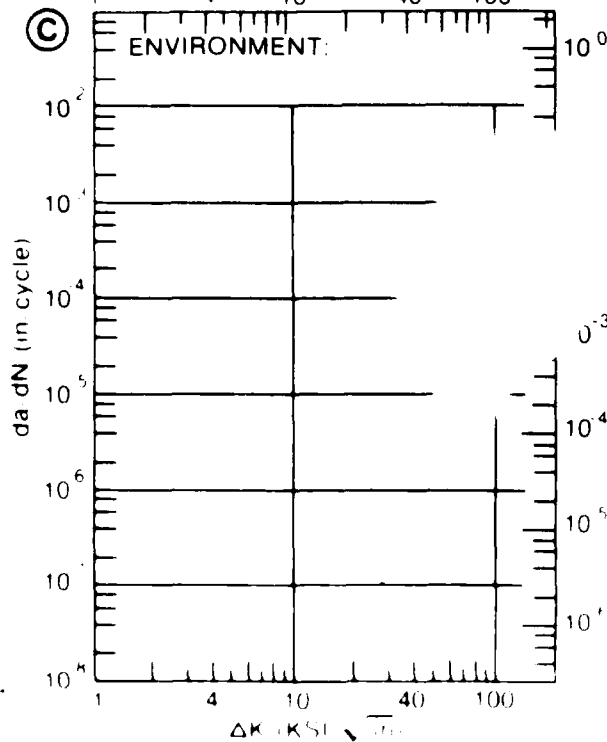
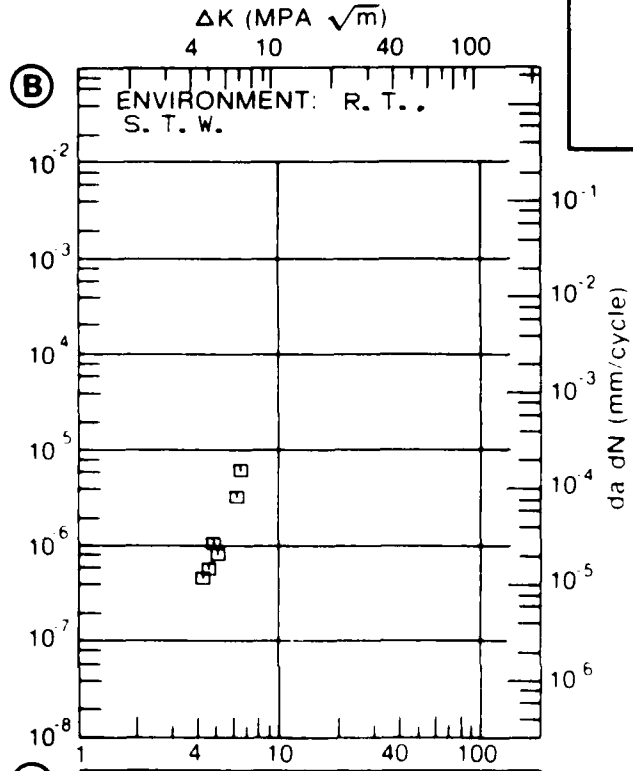
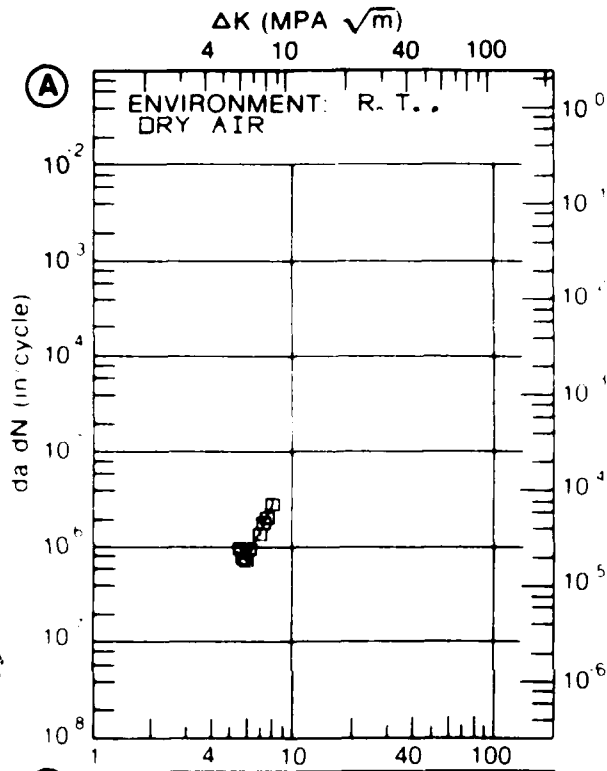


TABLE 8.7.3.10

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.10 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T7351

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR 1.5-15HZ	E= R. T. H. H. A. 10-20HZ	E= R. T. S. T. W., 20HZ	
DELTA K	A: 5.73	.995			
MIN	B: 5.73		1.78		
	C: 5.72			4.28	
	D:				
	6.00	1.01	1.73	4.82	
	7.00	2.09	3.33	7.80	
	8.00	3.65	6.00	11.8	
	9.00	5.36	8.85	15.8	
	10.00	7.36	11.9	19.7	
	13.00	19.7	26.8		
	16.00	73.2	78.4		
DELTA K	A: 18.78	193.			
MAX	B: 17.68		192.		
	C: 11.73			27.5	
	D:				
ROOT MEAN SQUARE		16.80	15.19	13.74	
PERCENT ERROR					

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T7351
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 STRESS RATIO: 0.33
 FREQUENCY:

YIELD STRENGTH: 60.0 KSI
 ULT. STRENGTH: 72.4 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL001

ALUM.
 ALLOY

7050

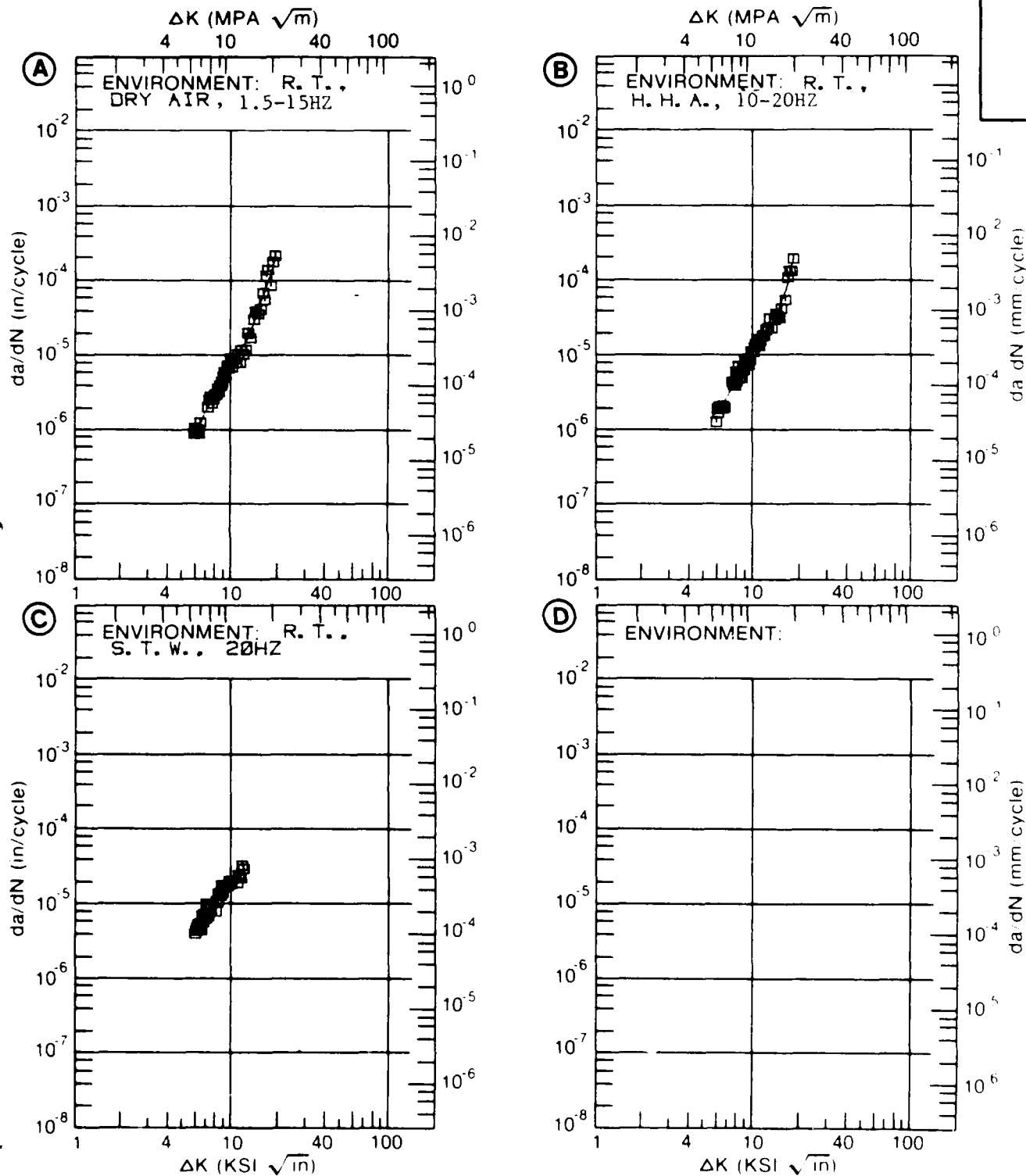


Figure 8.7.3.10

TABLE 8.7.3.11

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.11 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T7351X

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.		
DELTA K MIN	A:	4.55	.397		
	B:	3.54	.262		
	C:				
	D:				
	4.00		.457		
	5.00	.495	1.21		
	6.00	.680	2.58		
	7.00	.974	4.70		
	8.00	1.50	7.65		
	9.00	2.32	11.4		
	10.00	3.48	15.9		
	13.00	9.55	32.7		
	16.00	20.1	50.6		
DELTA K MAX	A:	18.90	33.6		
	B:	17.49	58.7		
	C:				
	D:				
ROOT MEAN SQUARE		7.12	9.78		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	2		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T7351X
 FORM: Ø. 91" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +Ø. 33
 FREQUENCY: 2Ø. ØØ HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: Ø. 899- Ø. 9ØØ"
 SPECIMEN WIDTH: 3. 1ØØ"
 REFERENCES: ALØØ7

ALUM.
 ALLOY

7Ø5Ø

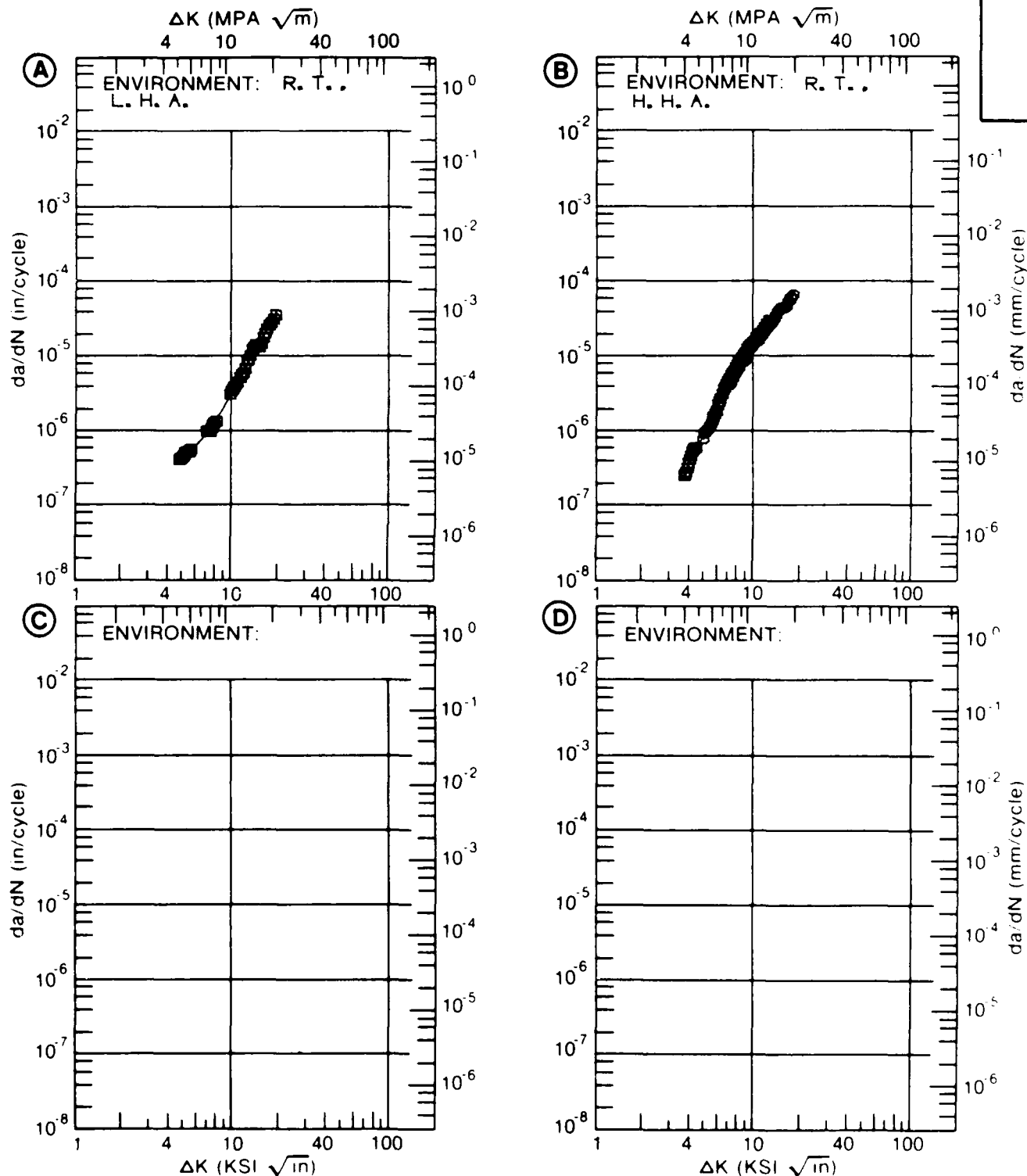


Figure 8.7.3.11

TABLE 8.7.3.12

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.12 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T7351X

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.		
DELTA K MIN	A:	3.70	.201		
	B:	3.72	.376		
	C:				
	D:				
	4.00	.335	.454		
	5.00	1.06	2.25		
	6.00	2.08	4.21		
	7.00	3.25	6.74		
	8.00	4.53	9.95		
	9.00	5.97	13.9		
	10.00	7.69	18.4		
	13.00	16.3	35.7		
	16.00	37.7			
DELTA K MAX	A:	16.93	50.0		
	B:	14.95	49.4		
	C:				
	D:				

ROOT MEAN SQUARE 22.77 7.56
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1 2
SUMMARY 1.25-2.0 1
(NP/NA) 2.0

CONDITION/HT: T7351X
 FORM: 0.91" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.899- 0.900"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL007

ALUM.
 ALLOY

7050

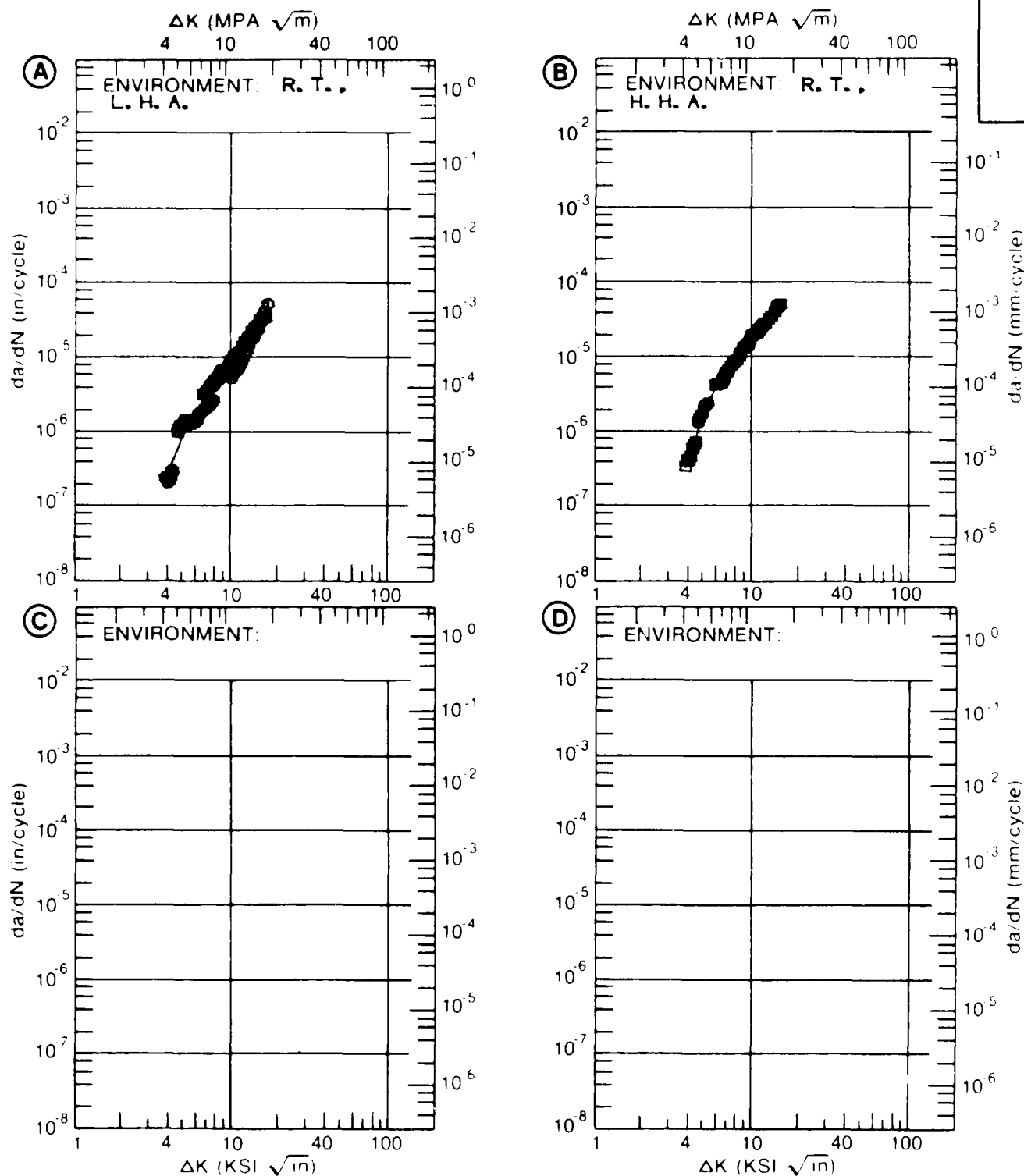


Figure 8.7.3.12

TABLE 8.7.3.13

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.13 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T7351X					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.		
DELTA K MIN	A:	3.95	.352		
	B:	2.90	.174		
	C:				
	D:				
	3.00		.170		
	3.50		.295		
	4.00	.372	.573		
	5.00	.862	1.41		
	6.00	1.69	2.62		
	7.00	2.97	4.33		
DELTA K MAX	8.00	4.69	6.83		
	9.00	6.78	10.7		
	10.00	9.90	16.6		
	13.00	64.8	68.2		
	A:	13.94	157.		
	B:	14.35	134.		
	C:				
	D:				
ROOT MEAN SQUARE		19.29	12.88		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	2		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T7351X
 FORM: 5.00" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.990- 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL007

ALUM.
 ALLOY

7050

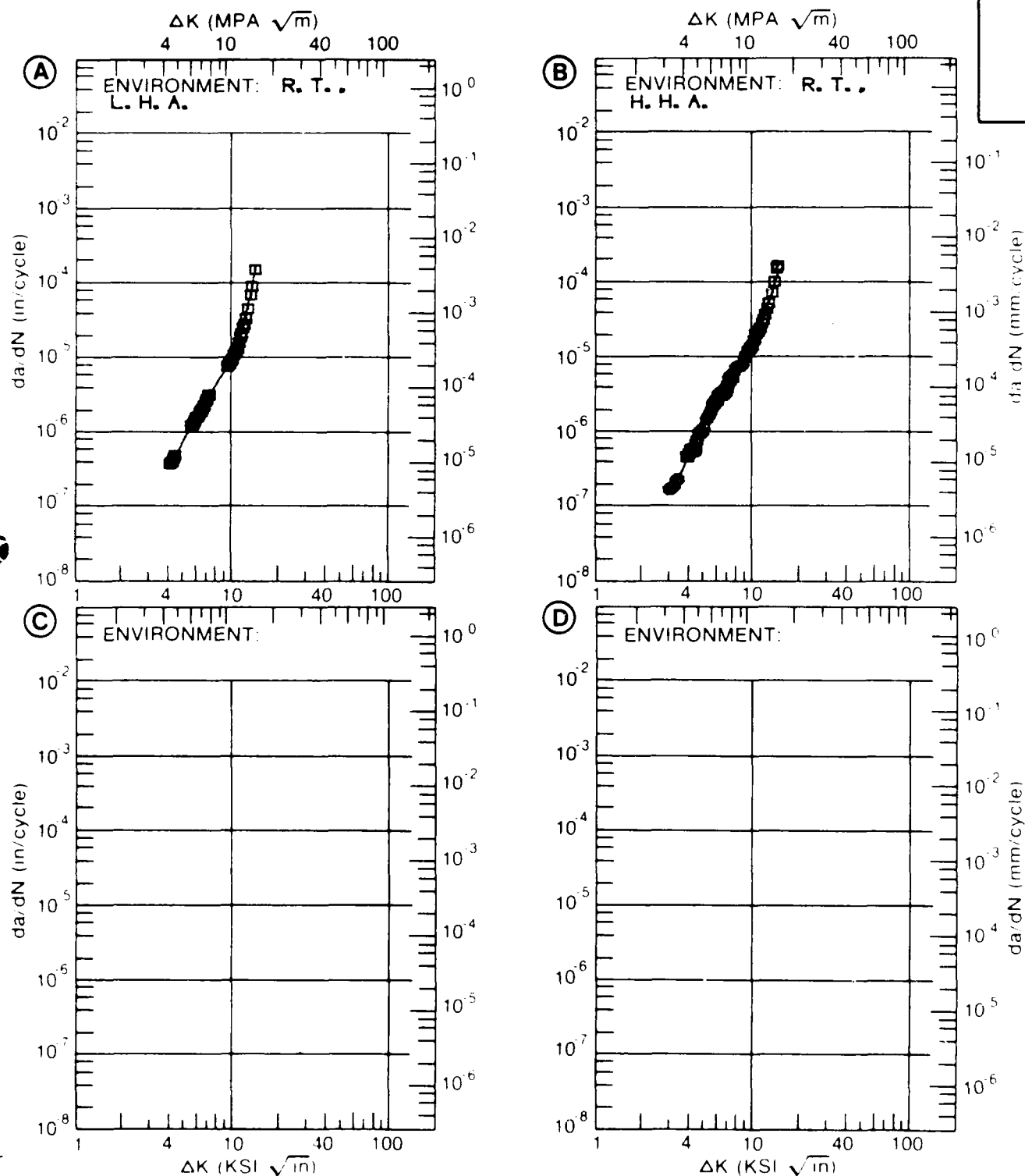


Figure 8.7.3.13

TABLE 8.7.3.14

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.14 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM

7050

CONDITION: T7351X

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.		
DELTA K	A: 3.73	486			
MIN	B: 3.76		756		
	C:				
	D:				
	4.00	568	880		
	5.00	810	1.38		
	6.00	1.08	2.47		
	7.00	1.45	4.45		
	8.00	1.96	7.05		
	9.00	2.67	9.43		
	10.00	3.67	11.2		
	13.00	9.91	19.4		
	16.00	55.1	61.0		
DELTA K	A: 16.18	70.0			
MAX	B: 16.55		81.4		
	C:				
	D:				
ROOT MEAN SQUARE		16.45	10.26		
PERCENT ERROR					
LIFE	0.0-0.9				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T7351X
 FORM: 5.00" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: S-T
 STRESS RATIO: +0.33
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.998- 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL007

ALUM.
 ALLOY

7050

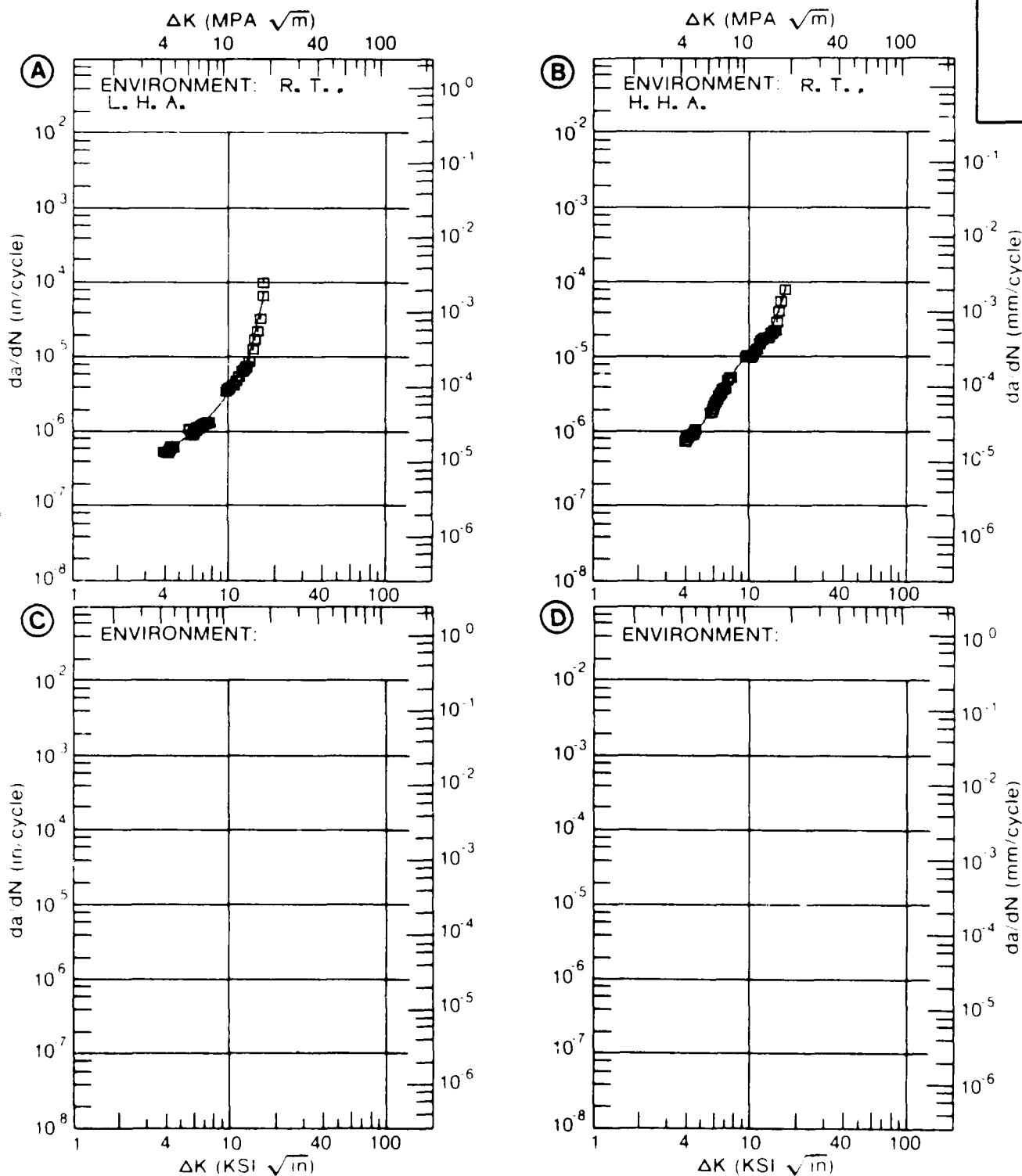


Figure 8.7.3.14

TABLE 8.7.3.15

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.15 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7050
 CONDITION: T73511
 ENVIRONMENT: R.T., L.H.A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.10	R=+0.50		
DELTA K	A: 3.16	0649			
MIN	B: 1.30		.0133		
	C:				
	D:				
	1.60		.0268		
	2.00		.0496		
	2.50		.0865		
	3.00		.138		
	3.50	.0815	.216		
	4.00	.115	.336		
	5.00	.225	.778		
	6.00	.416	1.61		
	7.00	.723	2.93		
	8.00	1.18	4.77		
	9.00	1.83	7.06		
	10.00	2.71	9.88		
	13.00	7.00	23.3		
	16.00	14.5	52.5		
	20.00	32.0			
	25.00	73.3			
	30.00	190.			
DELTA K	A: 31.94	311.			
MAX	B: 19.47		152.		
	C:				
	D:				

ROOT MEAN SQUARE 17.51 19.61
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 1 1
 SUMMARY 1.25-2.0
 (NP/NA) 2.0

CONDITION/HT: T73511
 FOPM: 1.80" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 8.00- 50.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.249"
 SPECIMEN WIDTH: 2.500"
 REFERENCES:AL006

ALUM.
 ALLOY

7050

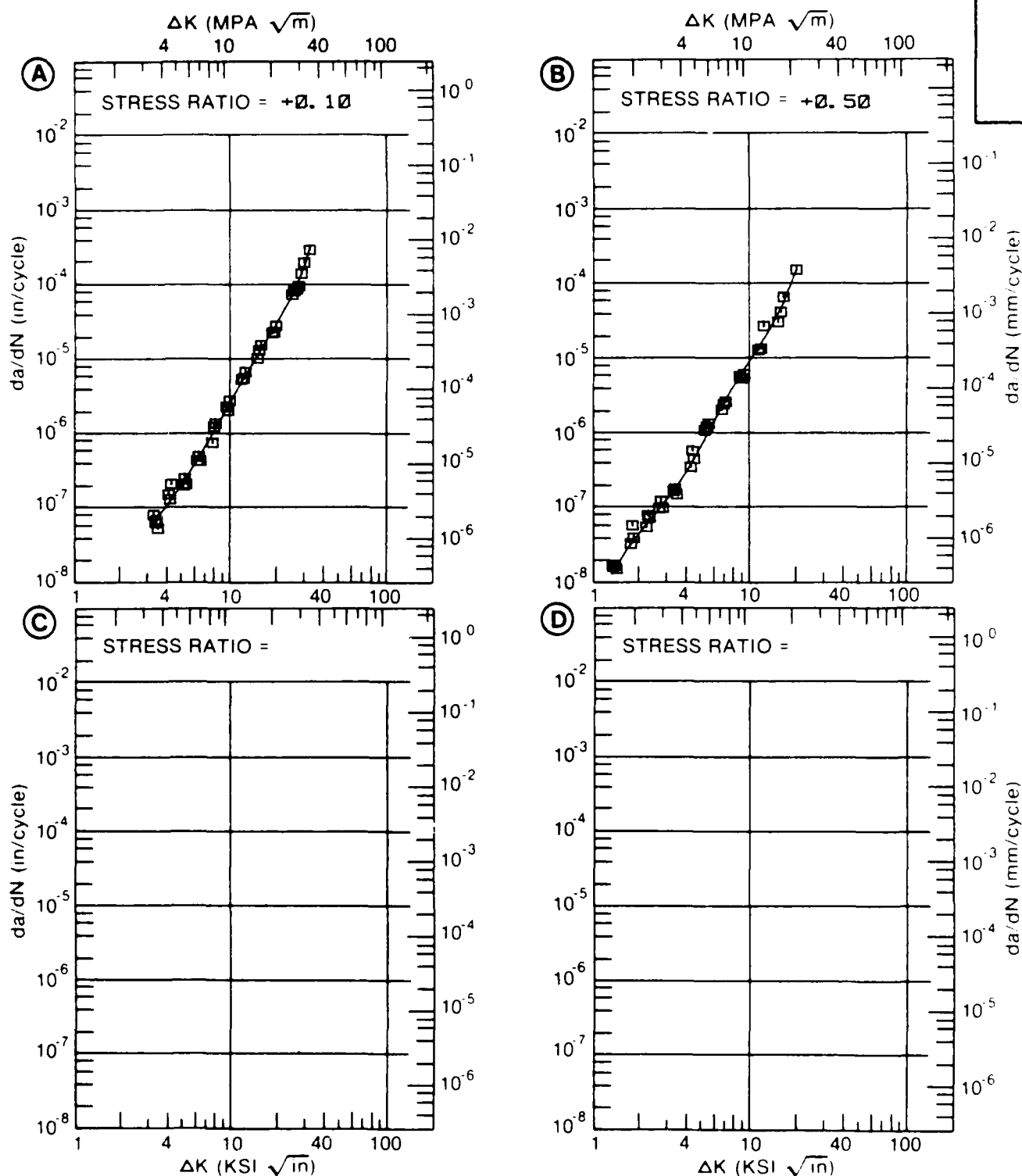


Figure 8.7.3.15

TABLE 8.7.3.16

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.16 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 7050
CONDITION: T73511
ENVIRONMENT: R.T., L.H.A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.33			
DELTA K MIN	A: 4.51	.270			
	B:				
	C:				
	D:				
	5.00	.334			
	6.00	.433			
	7.00	.589			
	8.00	.871			
	9.00	1.34			
	10.00	2.08			
DELTA K MAX	13.00	7.44			
	16.00	22.8			
	A: 17.86	42.1			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 20.04
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 3
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT T73511
 FORM 1.80" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 7.50- 15.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH
 ULT STRENGTH
 SPECIMEN THK 1.002- 1.003"
 SPECIMEN WIDTH 3.100"
 REFERENCES AL006

ALUM.
 ALLOY

7050

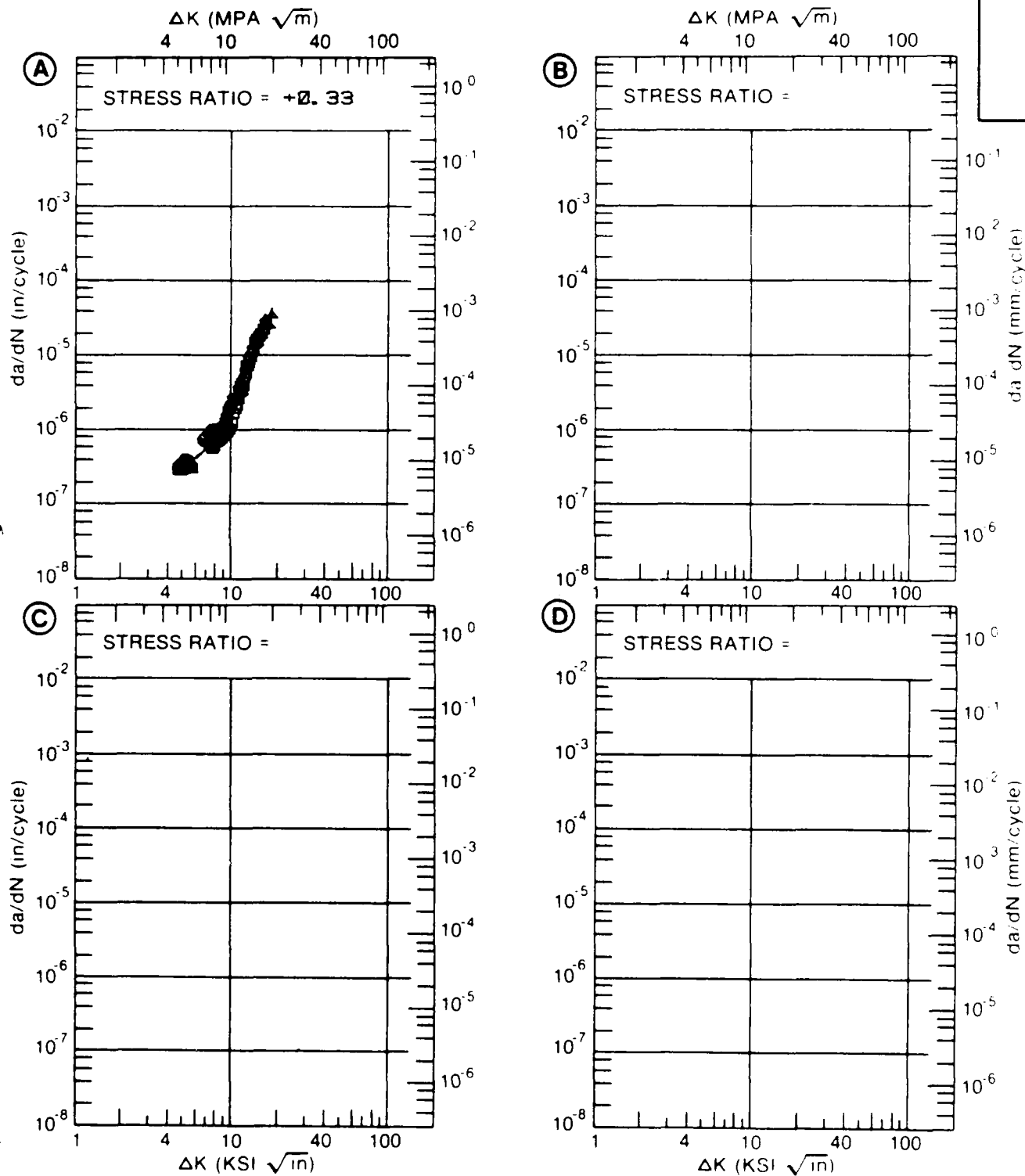


Figure 8.7.3.16

TABLE 8.7.3.17

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.17 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 7050
CONDITION: T73511
ENVIRONMENT: R.T., H.H.A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.33	R=+0.50		
DELTA K MIN	A:	2.72	.121		
	B:	1.33	.00801		
	C:				
	D:				
		1.60	.0307		
		2.00	.0707		
		2.50	.112		
		3.00	.140		
		3.50	.200		
		4.00	.295		
		5.00	.637	1.04	
		6.00	1.28	2.34	
		7.00	2.34	4.00	
		8.00	3.95	5.92	
		9.00	6.15	8.16	
		10.00	8.94	10.9	
		13.00	19.9	25.7	
		16.00	31.0	67.4	
DELTA K MAX	A:	16.62	32.8		
	B:	16.39	77.2		
	C:				
	D:				

ROOT MEAN SQUARE 14.29 21.97
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 3 3
SUMMARY 1.25-2.0
(NP/NA) 2.0

CONDITION/HT: T73511
 FORM: 1.80" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 15.00- 20.00 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.249- 1.000"
 SPECIMEN WIDTH: 2.500- 3.100"
 REFERENCES: AL006

ALUM.
 ALLOY

7050

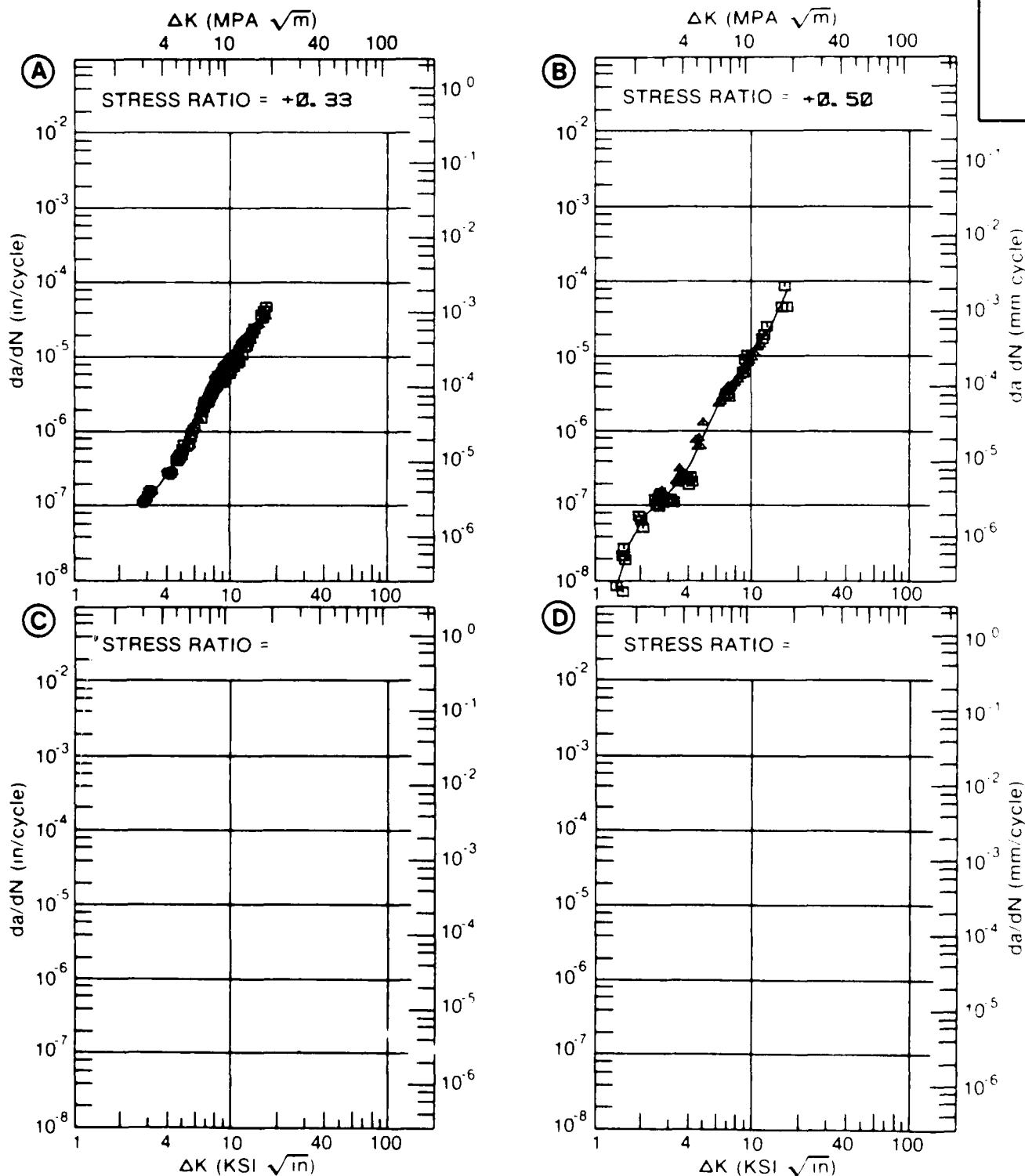


Figure 8.7.3.17

TABLE 8.7.3.18

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.18 INDICATING EFFECT
OF FREQUENCY

MATERIAL: ALUMINUM 7050
 CLNDITION: T73511
 ENVIRONMENT: R T , H II A

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		F(HZ)= 2.00	F(HZ)= 15.00	F(HZ)= 10.00-20.00	F(HZ)= 50.00
DELTA K MIN	A:	7.40	1.76		
	B:	3.31	.119		
	C:	6.68		.796	
	D:	2.62			.011
		3.00			.0268
		3.50	.139		.0528
		4.00	.210		.0783
		5.00	.454		.296
		6.00	.890		
		7.00	1.59	1.11	
		8.00	2.39	2.35	
		9.00	3.69	3.75	
		10.00	5.31	5.16	
		13.00	12.3	10.2	
		16.00	23.0	20.3	
		20.00	45.5	45.5	
DELTA K MAX	A:	53.47	5381		
	B:	16.26	23.6		
	C:	23.95		80.6	
	D:	5.55			.634

ROOT MEAN SQUARE 14.59 6.94 10.17 21.61
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 1 1 1
 SUMMARY 1.25-2.0 1
 (NP/NA) >2.0

CONDITION/HT: T73511
 FORM: 1.80" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.154- 0.249"
 SPECIMEN WIDTH: 2.500- 3.000"
 REFERENCES: 86844, AL004, AL006

ALUM.
 ALLOY

7050

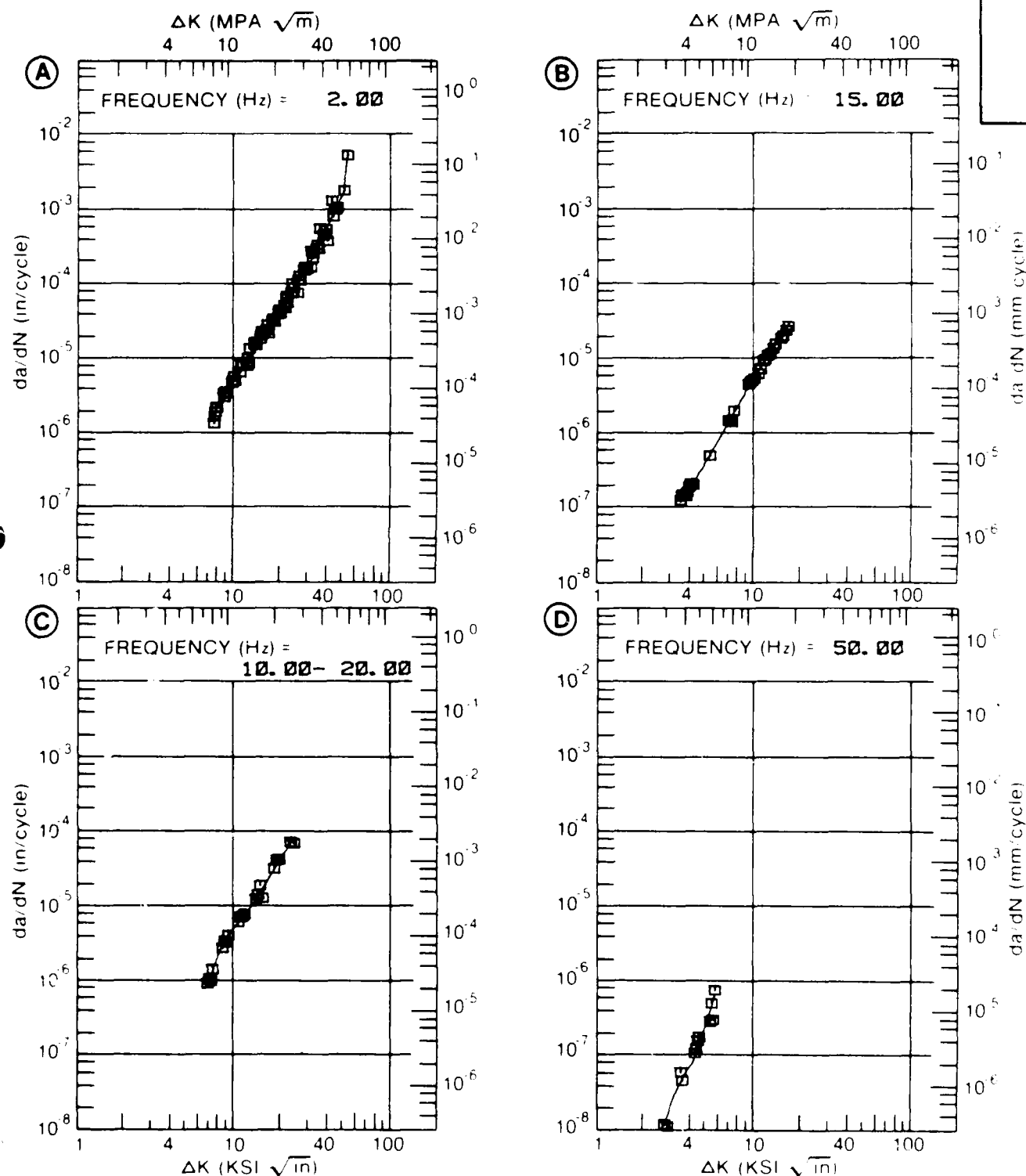


Figure 8.7.3.18

TABLE 8.7.3.19

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.19 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73511					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R.T. L.H.A.	E= R.T. H.H.A.		
DELTA K MIN	A: 2.58	.094			
	B: 2.75		.038		
	C: 0				
	D:				
	3.00	.124	.0558		
	3.50	.180	.126		
	4.00	.262	.262		
	5.00	.538	.855		
	6.00	1.03	2.03		
	7.00	1.82	3.82		
	8.00	3.01	6.20		
	9.00	4.67	9.10		
	10.00	6.84	12.4		
	13.00	16.8	23.9		
	16.00	30.7			
DELTA K MAX	A: 17.22	37.0			
	B: 14.82		31.5		
	C:				
	D:				
ROOT MEAN SQUARE		22.14	17.00		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	7	6		
SUMMARY	1.25-2.0		1		
(NP/NA)	2.0				

CONDITION/HT: T73511
 FORM: 1.80" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 7.50- 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.998- 1.004"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL006, AL004, AL007

ALUM.
 ALLOY

7050

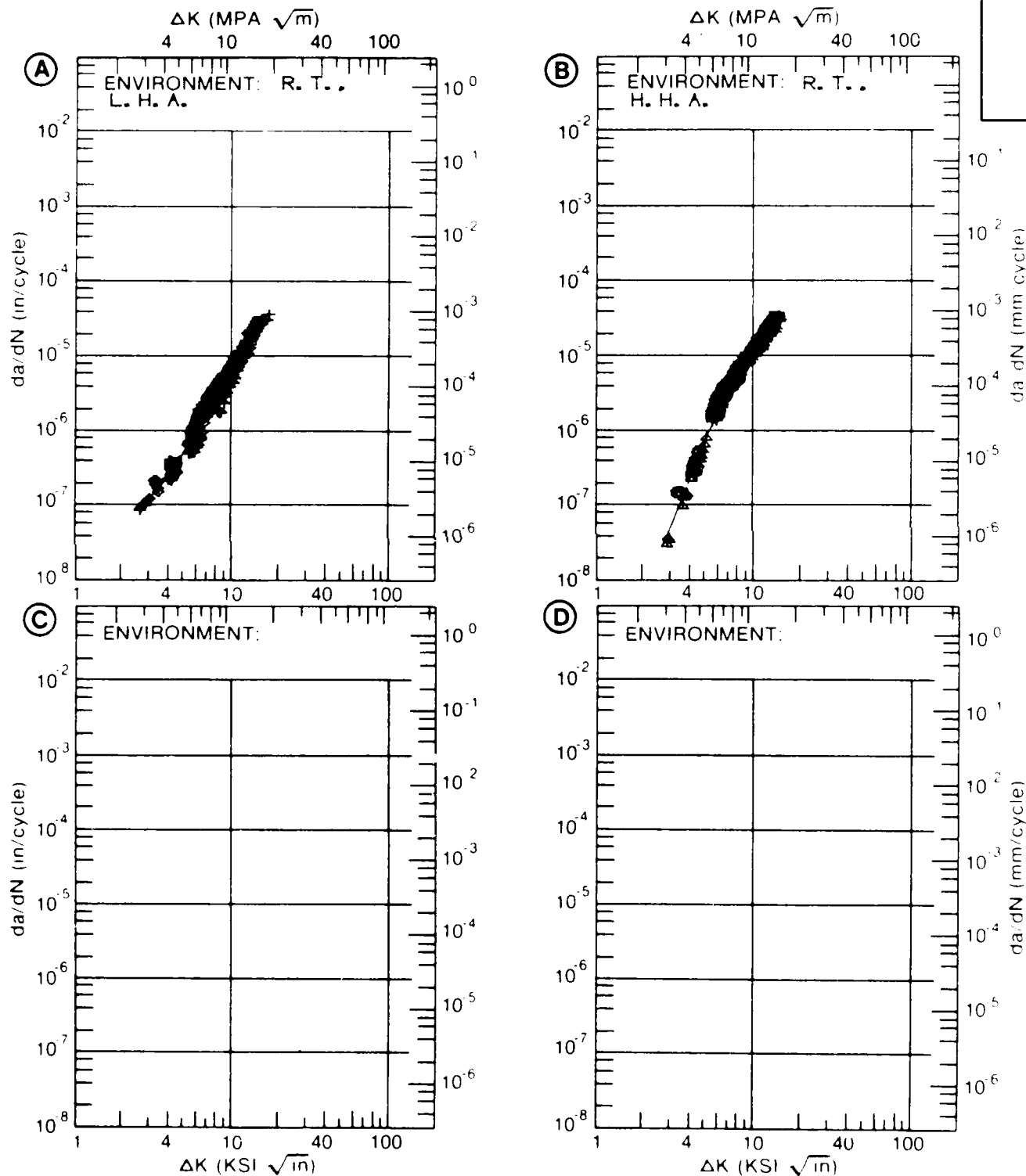


Figure 8.7.3.19

TABLE 8.7.3.20

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.20 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T73511

DELTA K (KSI*IN**1/2)		DA/DN (10**+6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.		
DELTA K MIN	A: 1.83	0.23			
	B: 1.78		0.06		
	C: 64				
	D:				
	2.00	0.319	0.194		
	2.50	0.613	0.650		
	3.00	0.957	1.16		
	3.50	1.36	1.83		
	4.00	1.85	2.96		
	5.00	2.79	7.69		
	6.00	4.6	1.82		
	7.00	1.07	3.79		
	8.00	1.99	7.05		
	9.00	3.71	11.8		
	10.00	6.54	17.9		
	13.00	21.0	40.8		
	16.00	46.8			
DELTA K MAX	A: 18.10	172.			
	B: 15.39		61.2		
	C:				
	D:				
ROOT MEAN SQUARE		18.08	24.27		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	2		
SUMMARY	1.25-2.0		1		
(NP/NA)	2.0				

CONDITION HT T73511
 FORM 1.80" TH EXTRUSION
 SPECIMEN TYPE CT
 ORIENTATION T-L
 STRESS RATIO +0.50
 FREQUENCY 10.00- 40.00 HZ

YIELD STRENGTH:
 ULT STRENGTH:
 SPECIMEN THK 0.243- 0.999"
 SPECIMEN WIDTH 2.500- 3.805"
 REFERENCES AL006, AL004

ALUM.
 ALLOY

7050

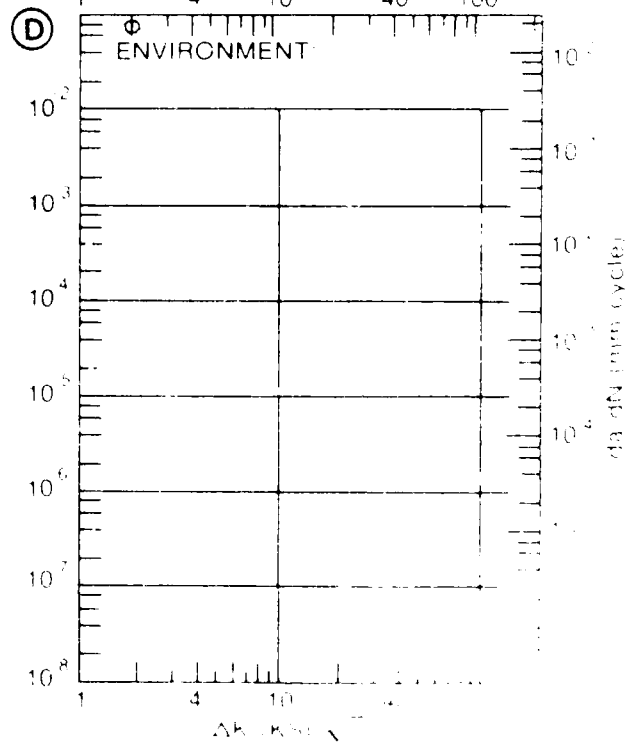
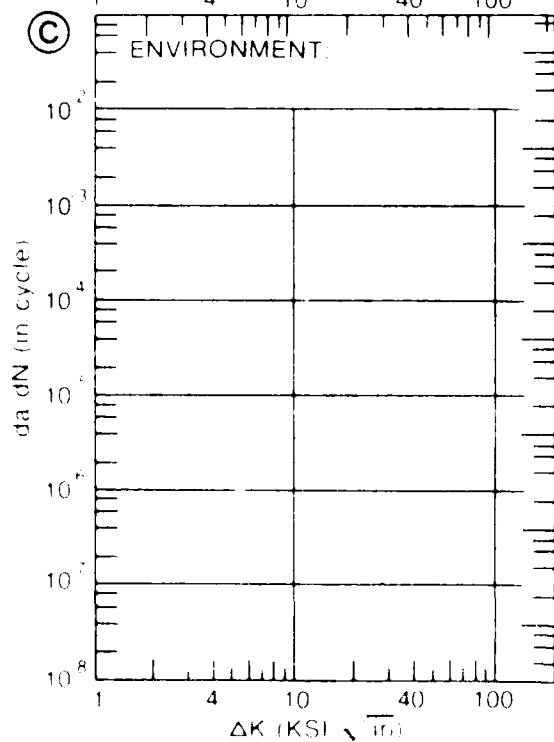
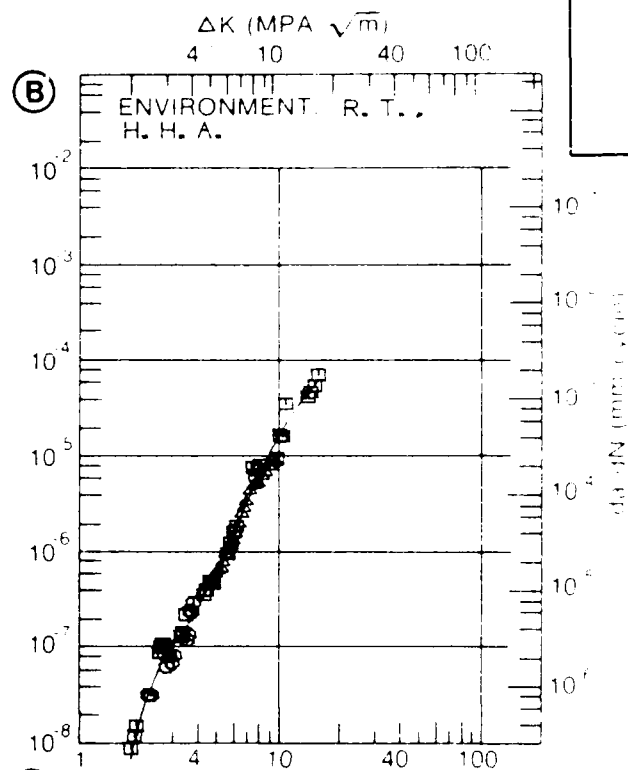
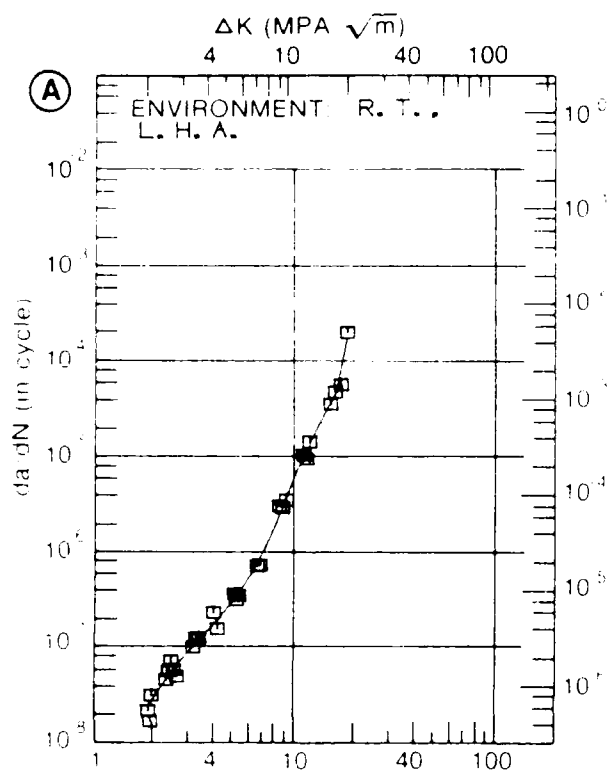


Figure A.7.1.1

7050

TABLE 8.7.3.21

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.21 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T73511-HIGH PURITY

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. H. H. A.		
DELTA K	A: 5.87	.505			
MIN	B: 5.85		.524		
	C:				
	D:				
	6.00	.505	.730		
	7.00	.855	2.85		
	8.00	2.24	5.41		
	9.00	4.18	8.53		
	10.00	5.93	12.2		
	13.00	9.22	26.0		
	16.00	26.7	41.8		
DELTA K	A: 16.48	36.0			
MAX	B: 19.25		51.7		
	C:				
	D:				

ROOT MEAN SQUARE 22.13 9.79
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T73511-HIGH PURITY
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 30.00 HZ

YIELD STRENGTH: 72.1 KSI
 ULT. STRENGTH: 80.3 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7050

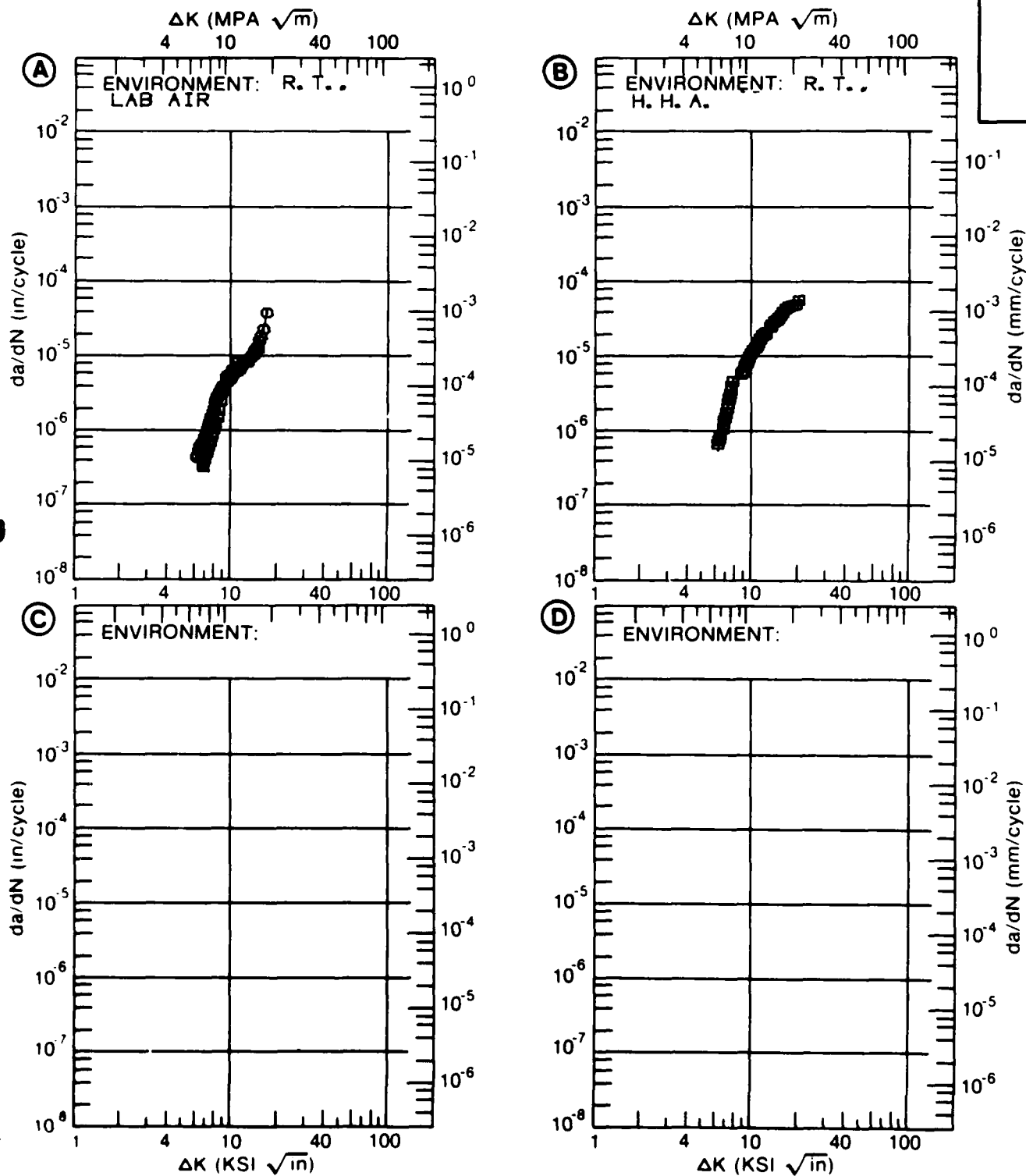


Figure 8.7.3.21

TABLE 8.7.3.22

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.22 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T73511-HIGH PURITY

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR			
DELTA K MIN	A: 6.09	.684			
	B:				
	C:				
	D:				
	7.00	1.26			
	8.00	2.03			
	9.00	2.92			
	10.00	3.97			
	13.00	9.19			
	16.00	23.0			
DELTA K MAX	A: 19.26	73.0			
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 11.73
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T73511-HIGH PURITY
 FORM: 1.50" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.10
 FREQUENCY: 30.00 HZ

YIELD STRENGTH: 66.6 KSI
 ULT. STRENGTH: 75.5 KSI
 SPECIMEN THK: 0.625"
 SPECIMEN WIDTH: 2.550"
 REFERENCES: WA001

ALUM.
 ALLOY

7050

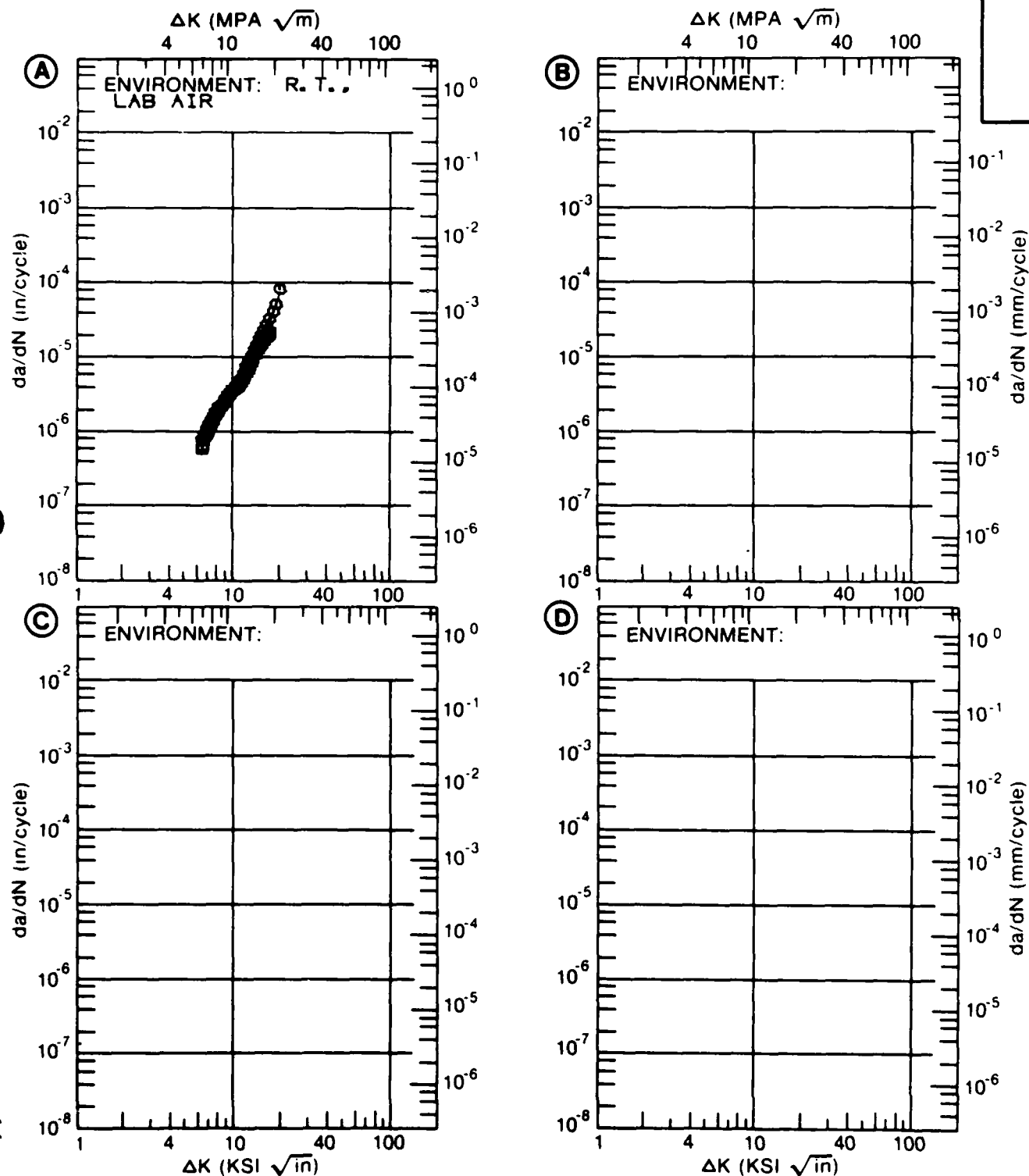


Figure 8.7.3.22

TABLE 8.7.3.23

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.23 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T736

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. 1.			
		3. 5% NACL			
DELTA K MIN	A:	8. 11	9. 29		
	B:				
	C:				
	D:				
		9. 00	12. 4		
	10. 00	18. 0			
	13. 00	38. 4			
	16. 00	63. 4			
DELTA K MAX	A:	19. 11	99. 6		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE PERCENT ERROR		4. 77			
LIFE		0. 0-0. 5			
PREDICTION		0. 5-0. 8			
RATIO		0. 8-1. 25			
SUMMARY		1. 25-2. 0			
(NP/NA)		>2. 0			

CONDITION/HT: T736
 FORM: 1.50" TH FORGING
 SPECIMEN TYPE:
 ORIENTATION:
 STRESS RATIO: +0.10
 FREQUENCY: 1.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK:
 SPECIMEN WIDTH:
 REFERENCES: 91332

ALUM.
 ALLOY

7050

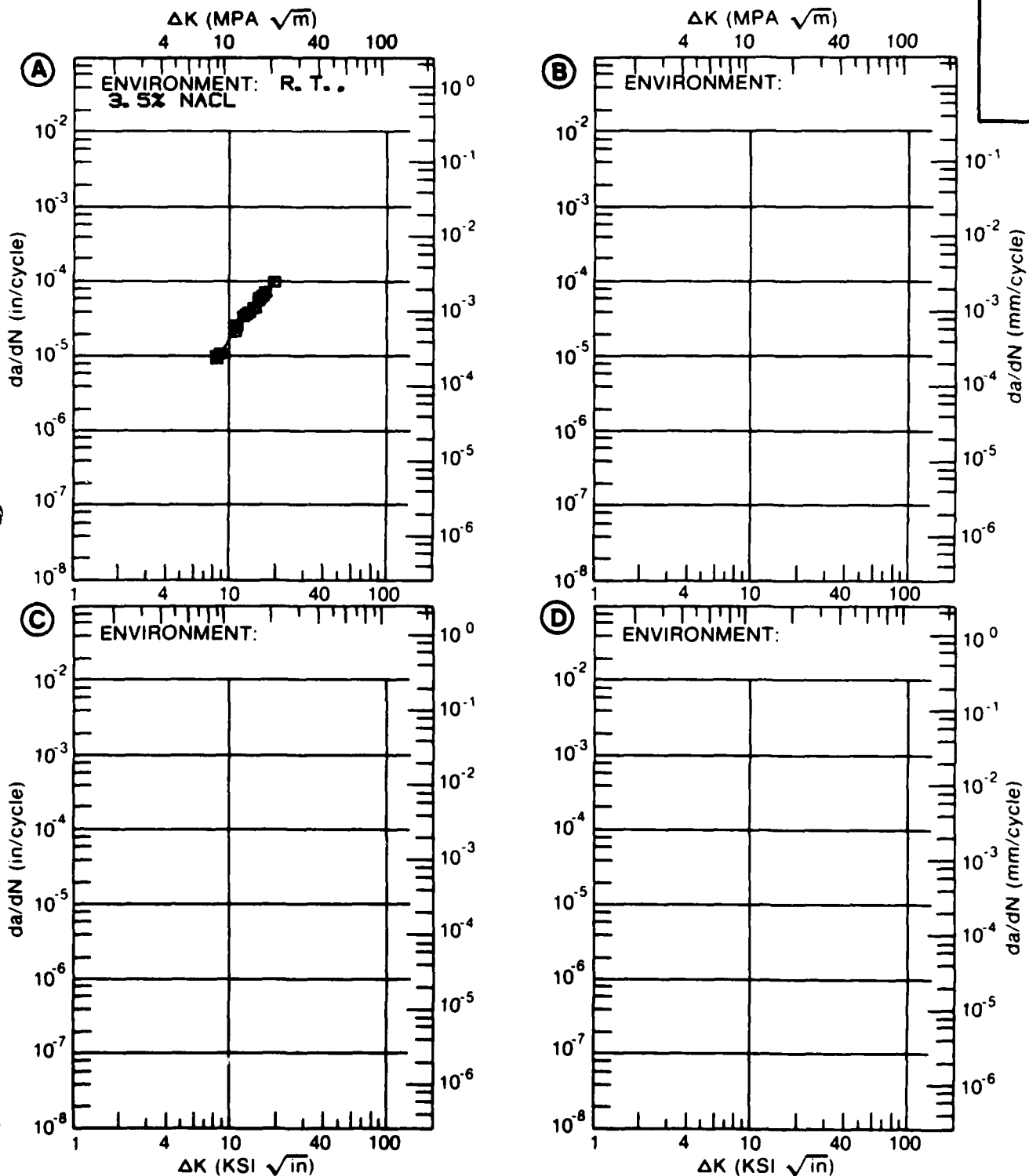


Figure 8.7.3.23

TABLE 8.7.3.24

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.24 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T736					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.	E= R. T.		
		DRY AIR	LAB AIR		
		20HZ	3-10HZ		
DELTA K MIN	A: 10.73	1.02			
	B: 6.44		1.90		
	C:				
	D:				
	7.00		2.94		
	8.00		5.40		
	9.00		8.45		
	10.00		11.9		
	13.00	3.69	23.5		
	16.00	11.1	36.6		
DELTA K MAX	20.00	29.1	58.7		
	25.00	70.7	102.		
	30.00		183.		
	35.00		340.		
	A: 25.91	81.7			
	B: 37.11		447.		
	C:				
	D:				
ROOT MEAN SQUARE		7.50	17.53		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T736
 FORM: 1.50- 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY:

YIELD STRENGTH: 63.6 KSI
 ULT. STRENGTH: 72.2 KSI
 SPECIMEN THK: 1.002"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: 91332, NC002

ALUM.
 ALLOY

7050

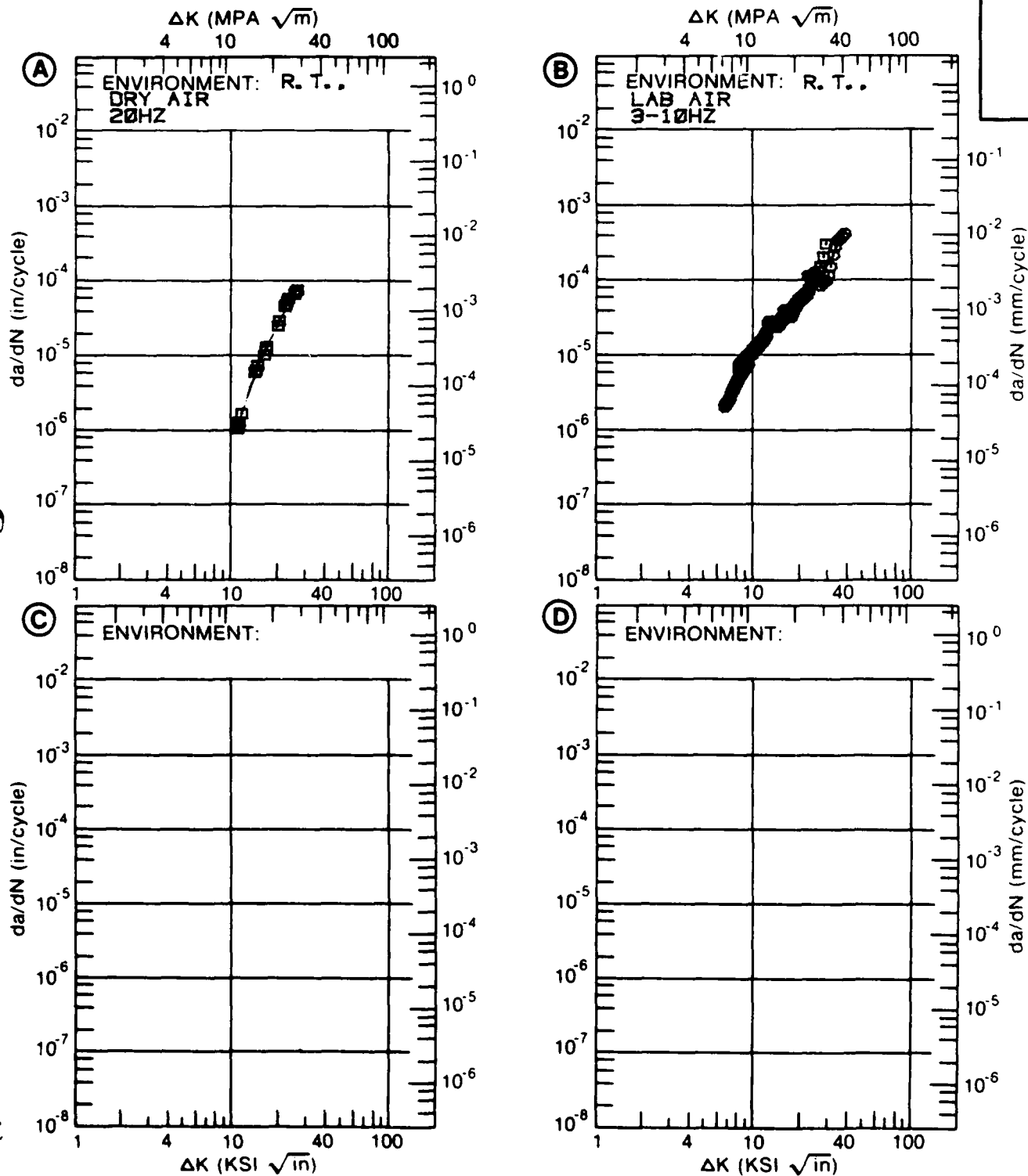


Figure 8.7.3.24

TABLE 8.7.3.25

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.25 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T736					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. I.			
		LAB AIR			
DELTA K MIN	A:	7.83	1.59		
	B:				
	C:				
	D:				
		8.00	1.88		
		9.00	4.00		
		10.00	6.75		
		13.00	17.2		
		16.00	34.3		
		20.00	101.		
DELTA K MAX	A:	23.63	355.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		11.08			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T736
 FORM: 3.00" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.10
 FREQUENCY: 10.00 HZ

YIELD STRENGTH: 62.2 KSI
 ULT. STRENGTH: 71.5 KSI
 SPECIMEN THK: 1.002"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: NC002

ALUM.
 ALLOY

7050

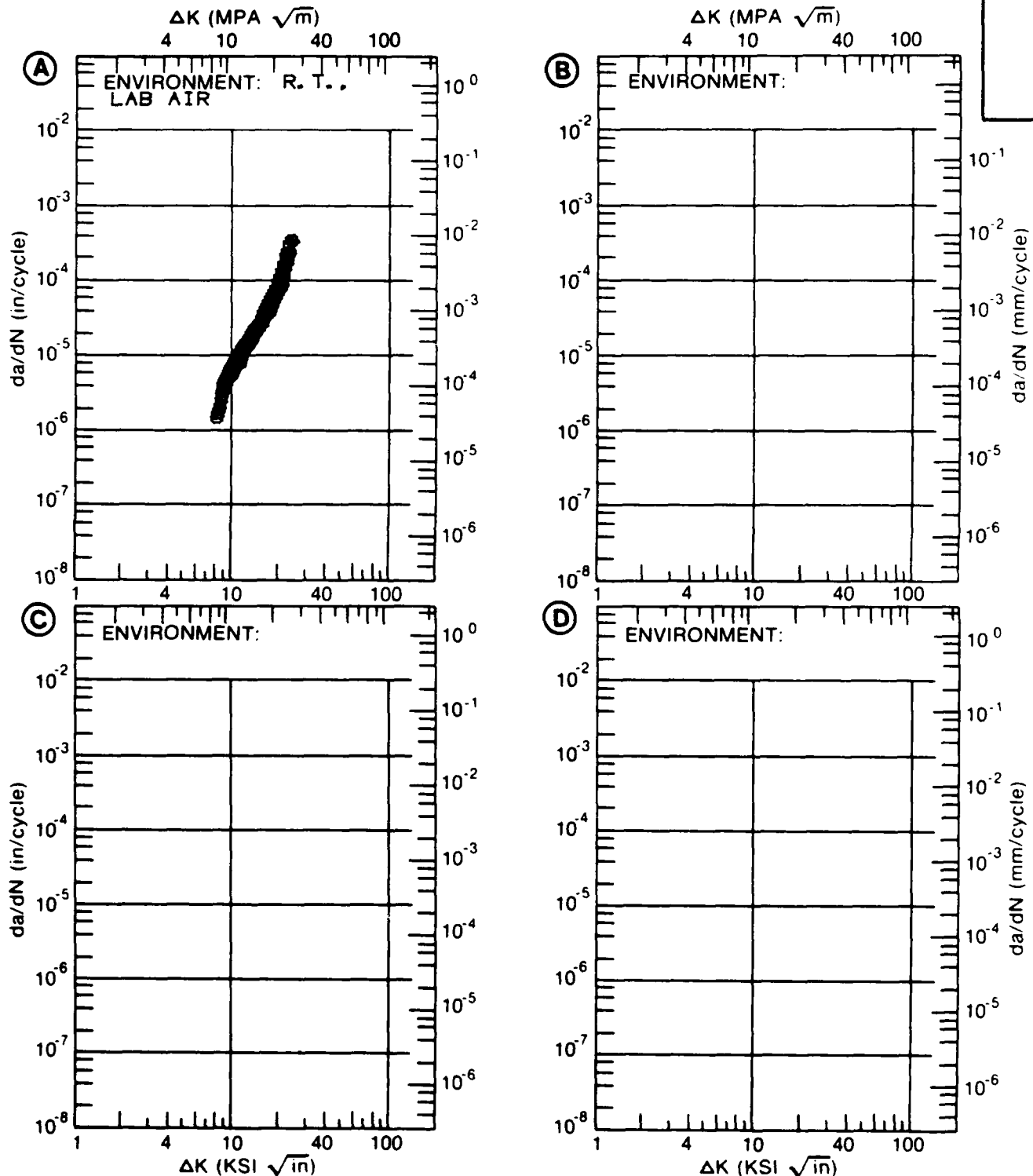


Figure 8.7.3.25

TABLE 8.7.3.26

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.26 INDICATING EFFECT

OF FREQUENCY

MATERIAL: ALUMINUM 7050
 CONDITION: T73651
 ENVIRONMENT: R.T., 3.5% NaCl

DELTA K (KSI*IN**1/2)	DA/DN (10** ⁻⁶ IN./CYCLE)			
	A	B	C	D
	F(HZ)= 5.00		F(HZ)= 25.00	
DELTA K A:				
MIN B:				
C:				
D:				
200.00 :				
DELTA K A:				
MAX B:				
C:				
D:				
ROOT MEAN SQUARE	0.00	0.00		
PERCENT ERROR				
LIFE	0.0-0.5			
PREDICTION	0.5-0.8			
RATIO	0.8-1.25			
SUMMARY	1.25-2.0			
(NP/NA)	>2.0			

CONDITION/HT: T73651
 FORM: 1.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 ENVIRONMENT: R.T., 3.5% NaCl

YIELD STRENGTH: 70.0 KSI
 ULT. STRENGTH: 80.5 KSI
 SPECIMEN THK: 0.750"
 SPECIMEN WIDTH: 1.500"
 REFERENCES: 88174

ALUM.
 ALLOY

7050

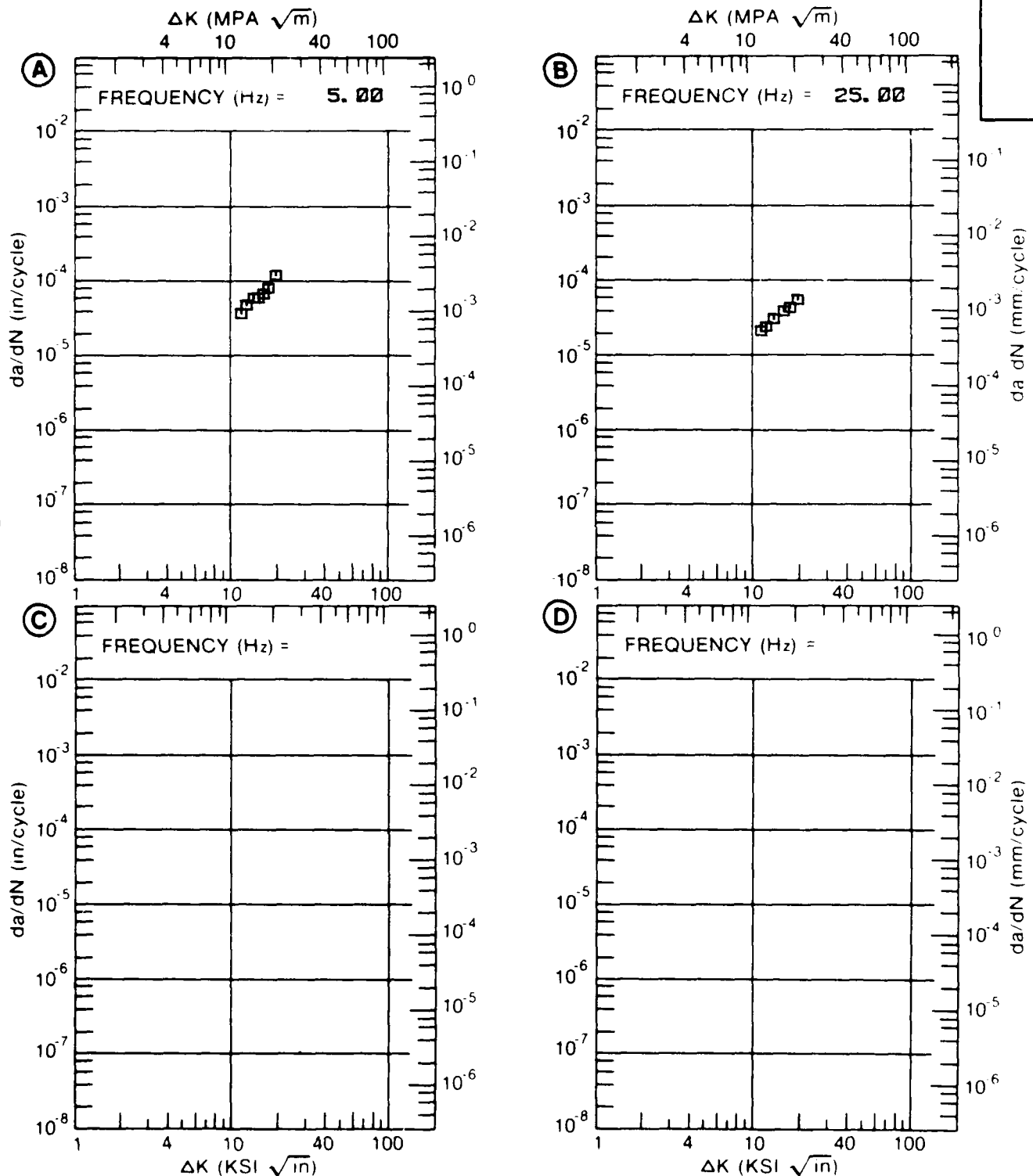


Figure 8.7.3.26

TABLE 8.7.3.27

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.27 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10** -6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A: 5.85	1.99			
	B: 5.81		3.47		
	C: 6.03			8.22	
	D:				
	6.00	2.24	3.88		
	7.00	4.16	6.23	9.63	
	8.00	6.42	8.86	14.6	
	9.00	9.00	11.8	21.6	
	10.00	12.0	15.3	28.5	
	13.00	27.4	31.1	49.3	
	16.00	68.1	65.3		
DELTA K MAX	A: 18.68	173.			
	B: 16.05		66.2		
	C: 15.69			89.1	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		6.72	6.70	9.42	
LIFE PREDICTION RATIO SUMMARY (NP/NA)	0.0-0.3 0.5-0.8 0.8-1.25 1.25-2.0 >2.0	1	1	1	

CONDITION/HT: T73651
 FORM: 1.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 85.4 KSI
 ULT. STRENGTH: 75.1 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.801- 3.805"
 REFERENCES: AL013

ALUM.
 ALLOY

7050

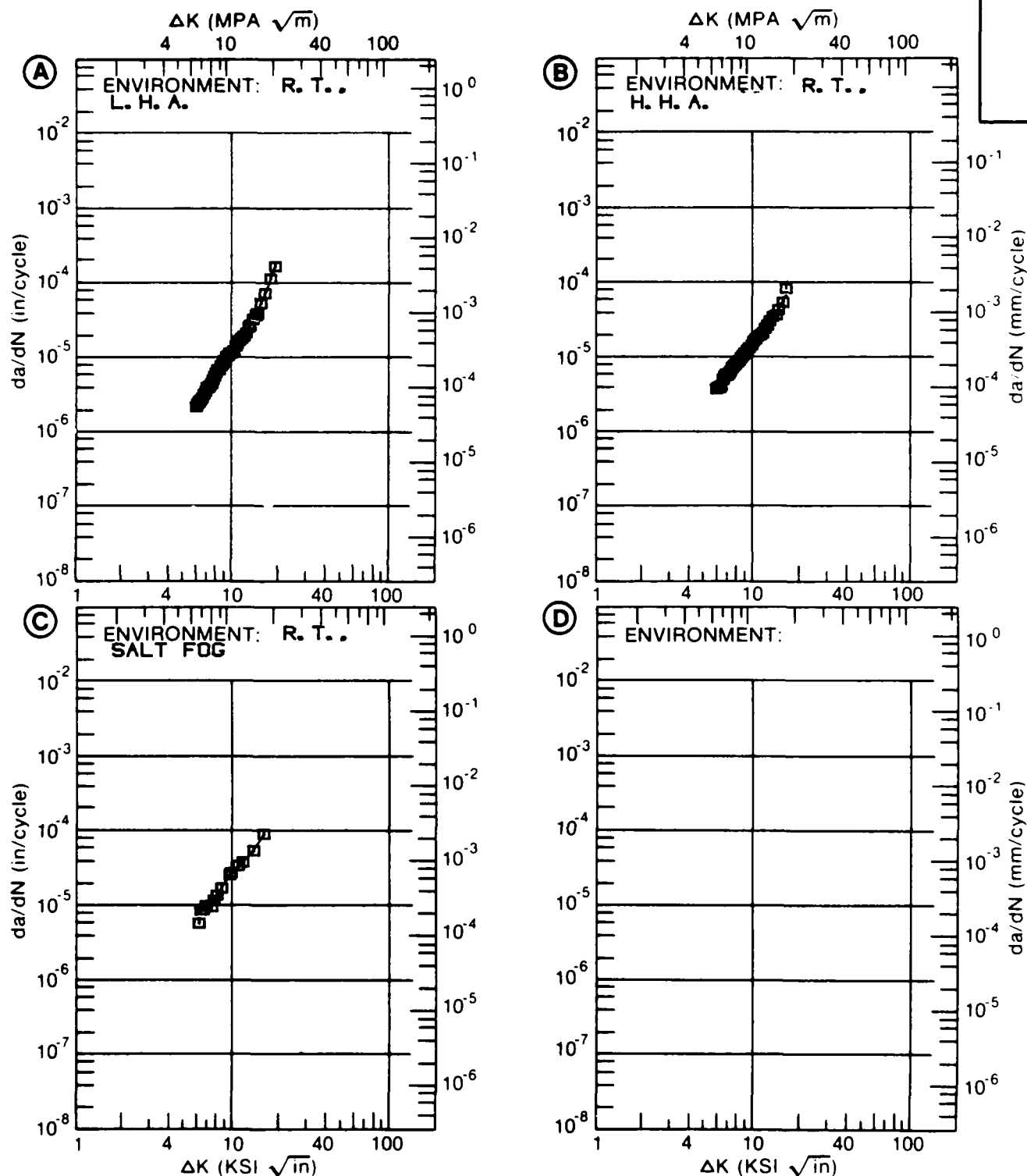


Figure 8.7.3.27

TABLE 1

FATIGUE CRACK GROWTH RATE
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 1
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN / CYCLE)			
		A	B	C	D
		E= R.T. LAB AIR 3-25HZ	E= R.T. S.T.W. 1-10HZ	E= R.T. SIM. SEA WATER 1-10HZ	
DELTA K MIN	A:	4.07	.560		
	B:	4.63	.735		
	C:	4.93		1.38	
	D:				
	5.00	.824	1.12	1.49	
	6.00	1.10	3.75	3.57	
	7.00	1.45	8.19	6.36	
	8.00	1.97	12.0	9.69	
	9.00	2.79	14.8	13.6	
	10.00	4.09	17.5	18.2	
	13.00	11.8	29.9	40.4	
	16.00	24.4	47.7	83.0	
	20.00	48.7	79.3	164.	
	25.00	206.	243.	312.	
DELTA K MAX	A:	29.97	2303.		
	B:	25.70	306.		
	C:	28.53		1334.	
	D:				
ROOT MEAN SQUARE		30.13	13.69	10.61	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	5	2	2	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT T73651
 FORM 1.00- 3.15" TH PLATE
 SPECIMEN TYPE CT
 ORIENTATION L-T
 STRESS RATIO +0.10
 FREQUENCY

YIELD STRENGTH: 65.6- 70.0 KSI
 ULT. STRENGTH: 76.6- 80.5 KSI
 SPECIMEN THK: 0.750- 1.007"
 SPECIMEN WIDTH: 1.500- 7.400"
 REFERENCES: 88174, NC002

ALUM.
 ALLOY

7050

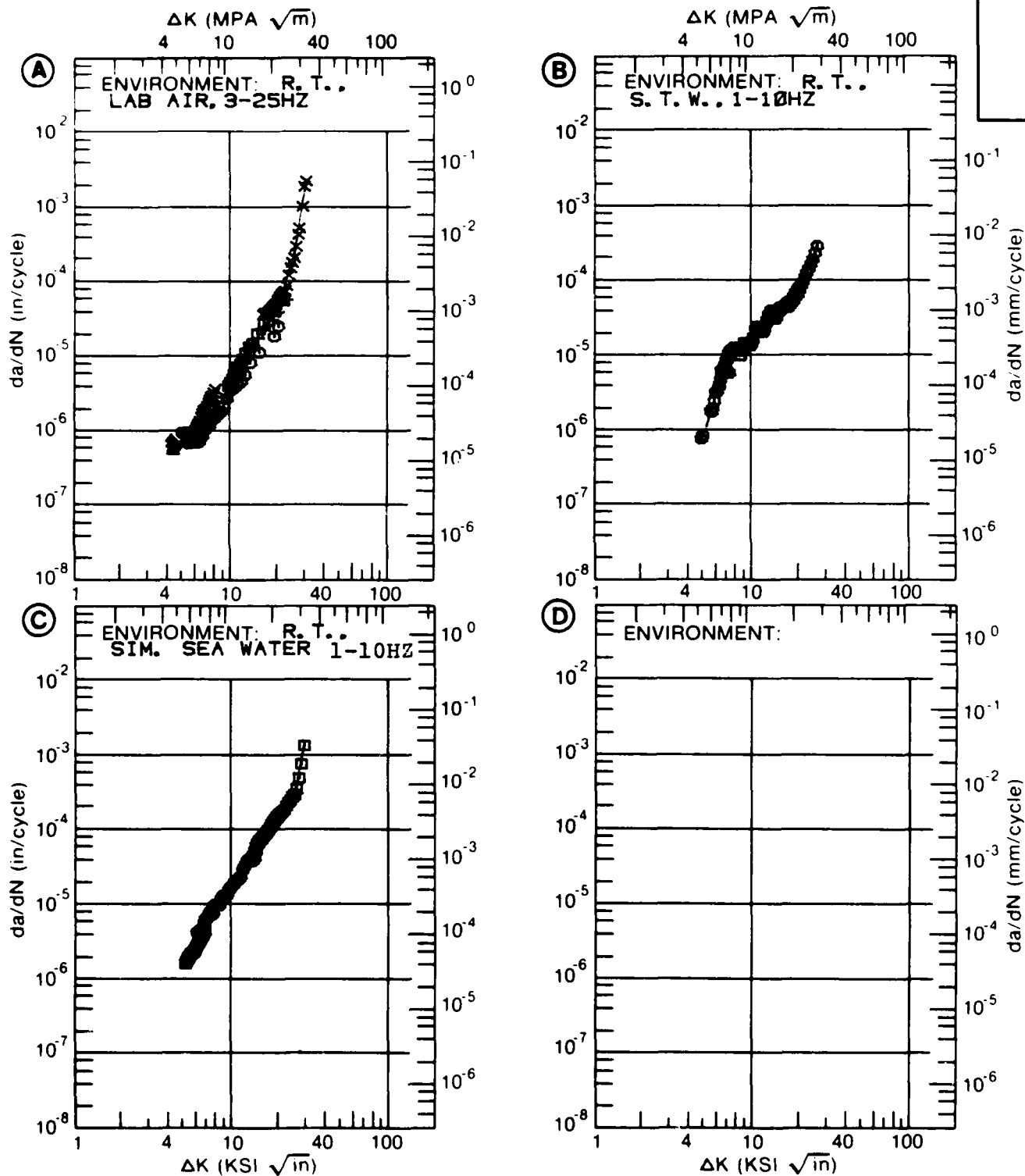


Figure 8.7.3.28

TABLE 8.7.3.29

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.29 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T73651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. H. H. A.	E= R. T. HHA		
DELTA K MIN	A: 1.96	.014			
	B: 2.72		.100		
	C:				
	D:				
	2.00	.0164			
	2.50	.0600			
	3.00	.157	.144		
	3.50	.334	.257		
	4.00	.613	.431		
	5.00	1.55	1.03		
	6.00	3.09	2.10		
	7.00	5.27	3.76		
	8.00	8.11	6.11		
	9.00	11.6	9.18		
	10.00	15.7	12.9		
	13.00	31.3	27.6		
	16.00	51.1	44.3		
	20.00	82.9	63.3		
	25.00	130.			
	30.00	183.			
DELTA K MAX	A: 30.30	186.			
	B: 20.39		64.8		
	C:				
	D:				

ROOT MEAN SQUARE 21.84 27.63
PERCENT ERROR

LIFE	0.0-0.5		
PREDICTION	0.5-0.8	1	1
RATIO	0.8-1.25	2	1
SUMMARY	1.25-2.0		1
(NP/NA)	>2.0		

CONDITION/HT: T73651
 FORM: 1.00- 5.68" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 25.00 HZ

YIELD STRENGTH: 69.0 KSI
 ULT. STRENGTH: 77.0 KSI
 SPECIMEN THK: 0.243- 0.252"
 SPECIMEN WIDTH: 2.496- 2.550"
 REFERENCES:AL013

ALUM.
 ALLOY

7050

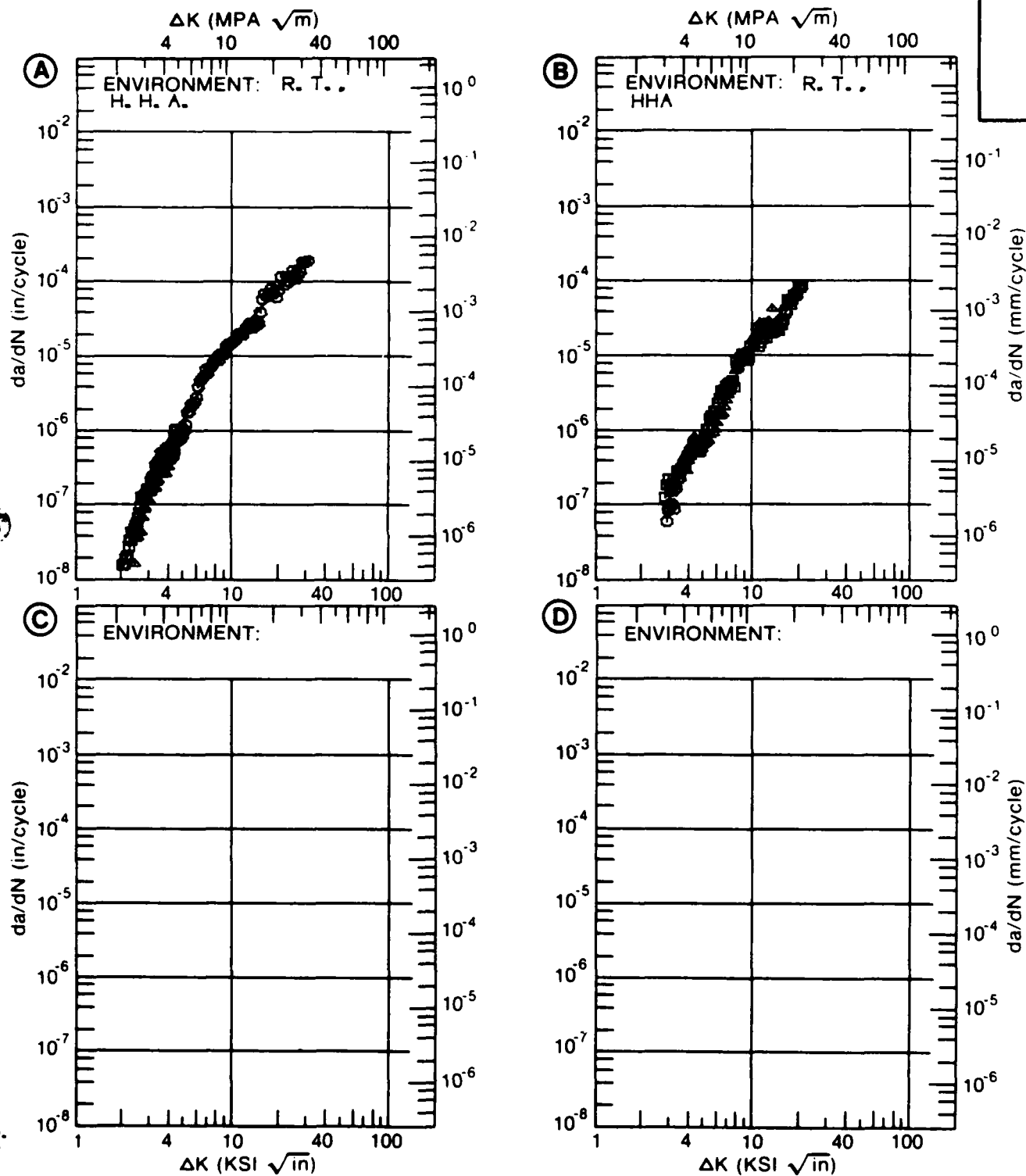


Figure 8.7.3.29

TABLE 8.7.3.30

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.30 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T73651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. I. 3. 5% NACL			
DELTA K MIN	A:	5.14	1.21		
	B:				
	C:				
	D:				
	6.00	2.74			
	7.00	7.22			
	8.00	12.2			
DELTA K MAX	9.00	16.7			
	10.00	21.6			
	13.00	50.0			
	16.00	87.0			
	A:	17.87	95.7		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 16.83
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T73651
 FORM: 1.13" TH PLATE
 SPECIMEN TYPE:
 ORIENTATION:
 STRESS RATIO: +0.10
 FREQUENCY: 1.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK:
 SPECIMEN WIDTH:
 REFERENCES: 91332

ALUM.
 ALLOY

7050

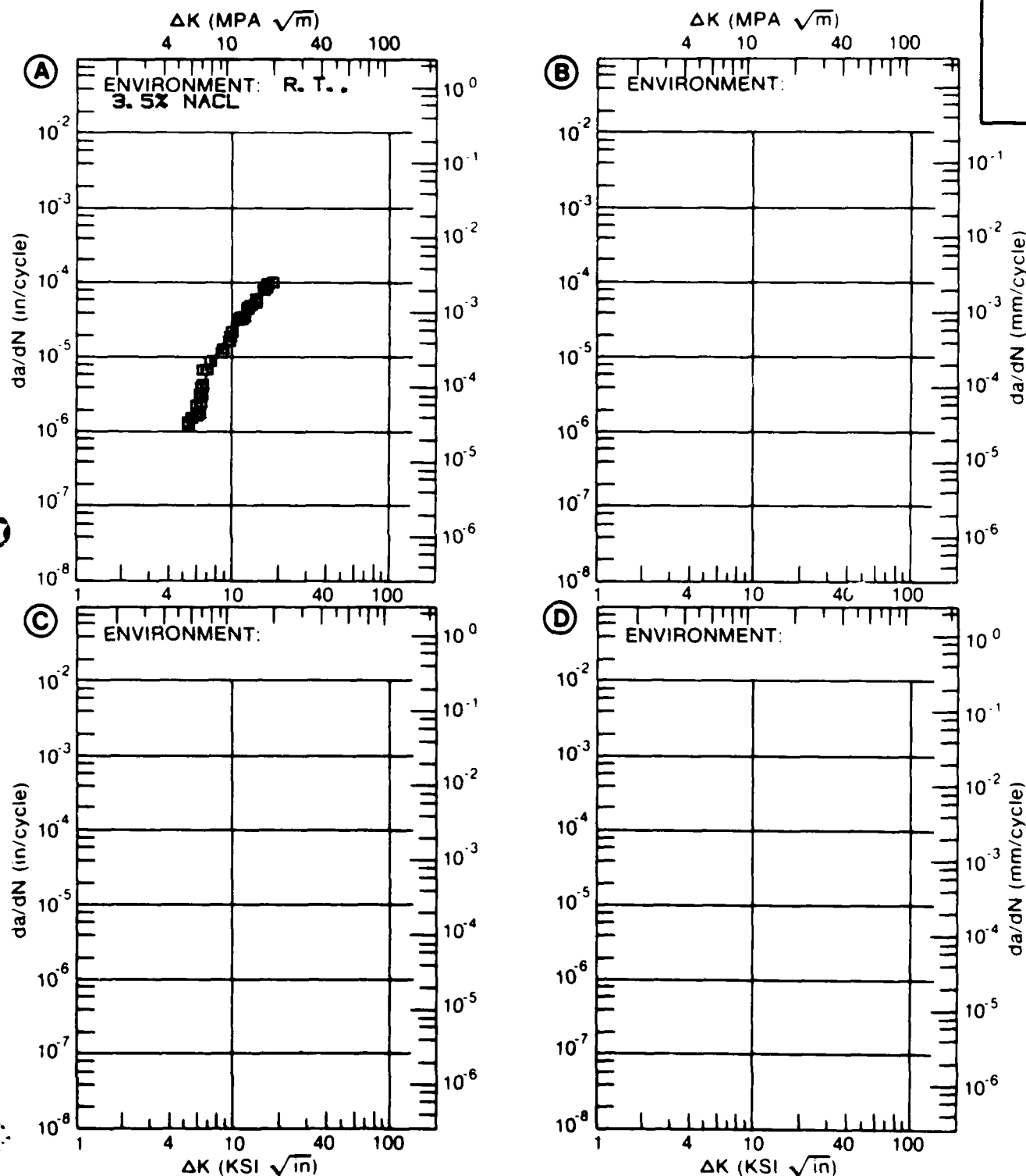


Figure 8.7.3.30

TABLE 8.7.3.31

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.31 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T73651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E- R. T. DRY AIR			
DELTA K MIN	A:	8.61	5.97		
	B:				
	C:				
	D:				
		9.00	6.99		
		10.00	9.52		
		13.00	16.6		
		16.00	26.3		
DELTA K MAX	A:	18.51	36.0		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 6.14
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T73651
 FORM: 1.13" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK:
 SPECIMEN WIDTH:
 REFERENCES: 91332

ALUM.
 ALLOY

7050

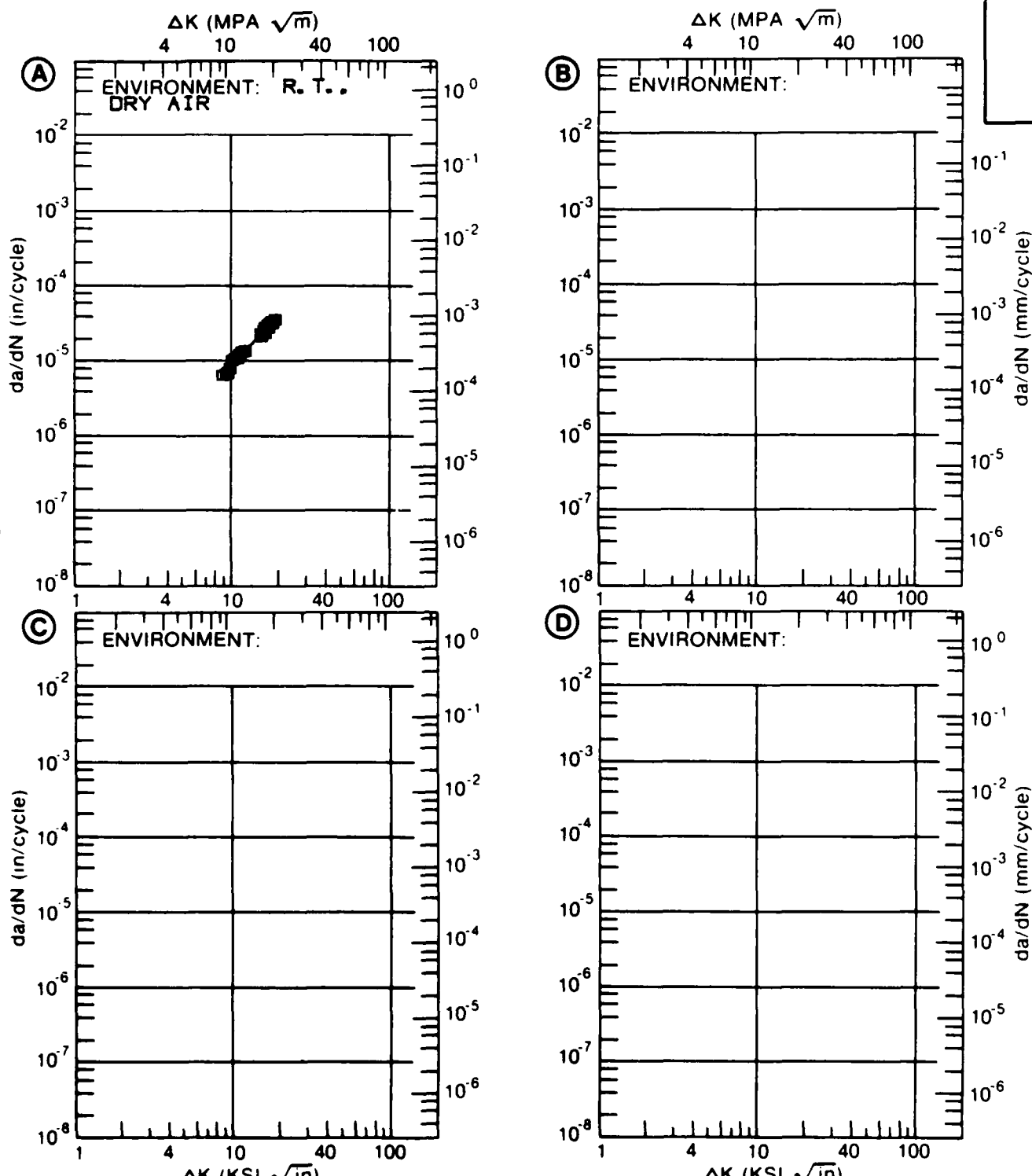


Figure 8.7.3.31

TABLE 8.7.3.32

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.32 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7050
 CONDITION: T73651
 ENVIRONMENT: R.T., LAB AIR

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.10			
DELTA K MIN	A:	7.48	3.25		
	B:				
	C:				
	D:				
	8.00	4.07			
	9.00	5.80			
	10.00	7.68			
DELTA K MAX	13.00	14.3			
	16.00	24.0			
	20.00	47.3			
	25.00	119.			
	A:	26.80	169.		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 13.13
 PERCENT ERROR

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25 1
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

CONDITION/HT: T73651
 FORM: 3.15" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 5.00- 10.00 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 65.6 KSI
 ULT. STRENGTH: 76.6 KSI
 SPECIMEN THK: 1.005"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: NC002

ALUM.
 ALLOY

7050

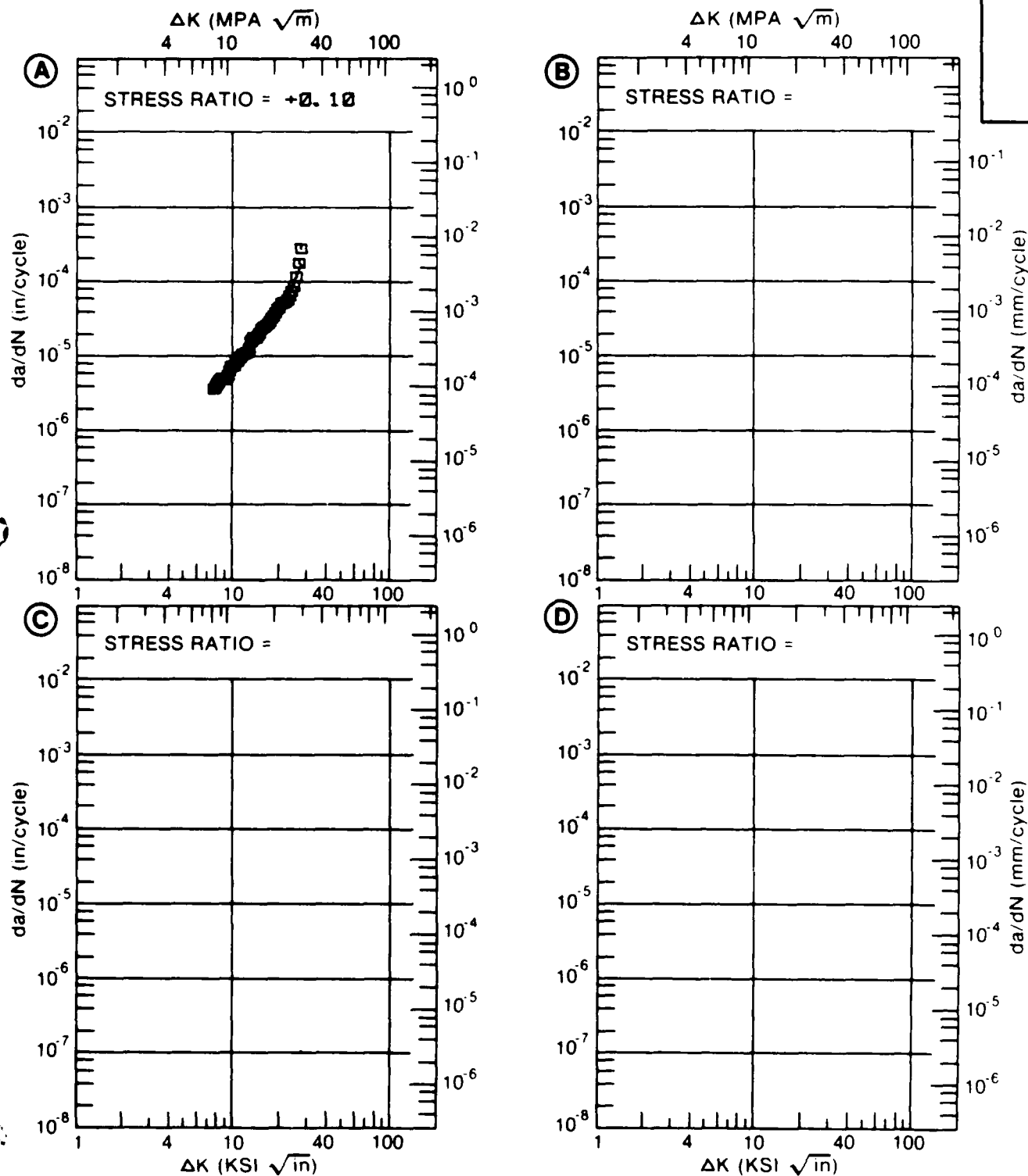


Figure 8.7.3.32

TABLE 8.7.3.33

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.33 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. SIM. SEA WATER	E= R. T. S. T. W.	
DELTA K MIN	A:	5.86	1.01		
	B:	4.80	1.70		
	C:	4.87		.993	
	D:				
	5.00		1.98	1.16	
	6.00	1.10	3.75	3.45	
	7.00	2.36	6.18	6.90	
	8.00	4.17	9.29	10.1	
	9.00	6.24	13.2	12.9	
	10.00	8.45	17.8	15.9	
	13.00	15.7	37.8	30.5	
	16.00	25.5	69.5	55.0	
	20.00	49.4	140.	97.1	
	25.00	129.	304.	195.	
	30.00	1504.			
DELTA K MAX	A:	30.00	1504.		
	B:	27.76	452.		
	C:	29.35		821.	
	D:				
ROOT MEAN SQUARE		16.60	7.81	24.18	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	2	3	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73651
 FORM: 3.15" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.10
 FREQUENCY: 1.00- 10.00 HZ

YIELD STRENGTH: 69.0 KSI
 ULT. STRENGTH: 77.2 KSI
 SPECIMEN THK: 1.002- 1.005"
 SPECIMEN WIDTH: 7.400"
 REFERENCES: NC002

ALUM.
 ALLOY

7050

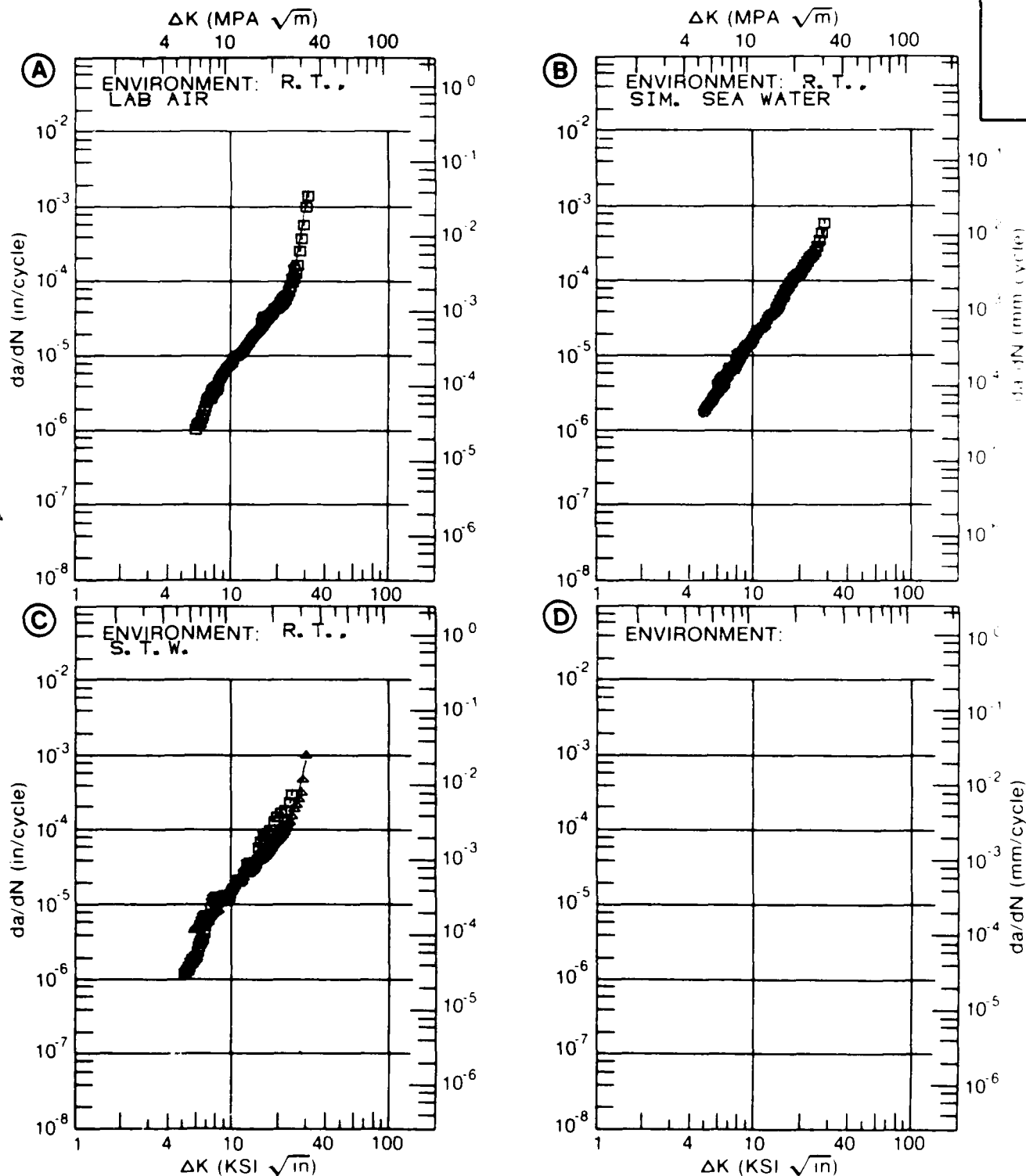


Figure 8.7.3.33

TABLE 8.7.3.34

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.34 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. SIM. SEA WATER		
DELTA K MIN	A:	5.68	1.22		
	B:	4.47	.967		
	C:				
	D:				
	5.00		1.55		
	6.00	1.29	3.25		
	7.00	1.83	5.87		
	8.00	2.87	9.50		
	9.00	4.49	14.2		
	10.00	6.70	20.0		
	13.00	16.3	46.2		
	16.00	28.3	90.2		
	20.00	102.	191.		
DELTA K MAX	A:	23.60	453.		
	B:	21.33	238.		
	C:				
	D:				
ROOT MEAN SQUARE		15.05	25.79		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	2		
SUMMARY	1.25-2.0		1		
(NP/NA)	>2.0				

CONDITION/HT: T73651
 FORM: 3.15" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: S-T
 STRESS RATIO: +0.10
 FREQUENCY: 1.00- 10.00 HZ

YIELD STRENGTH: 64.3 KSI
 ULT. STRENGTH: 74.5 KSI
 SPECIMEN THK: 0.499- 0.500"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: NC002

ALUM.
 ALLOY

7050

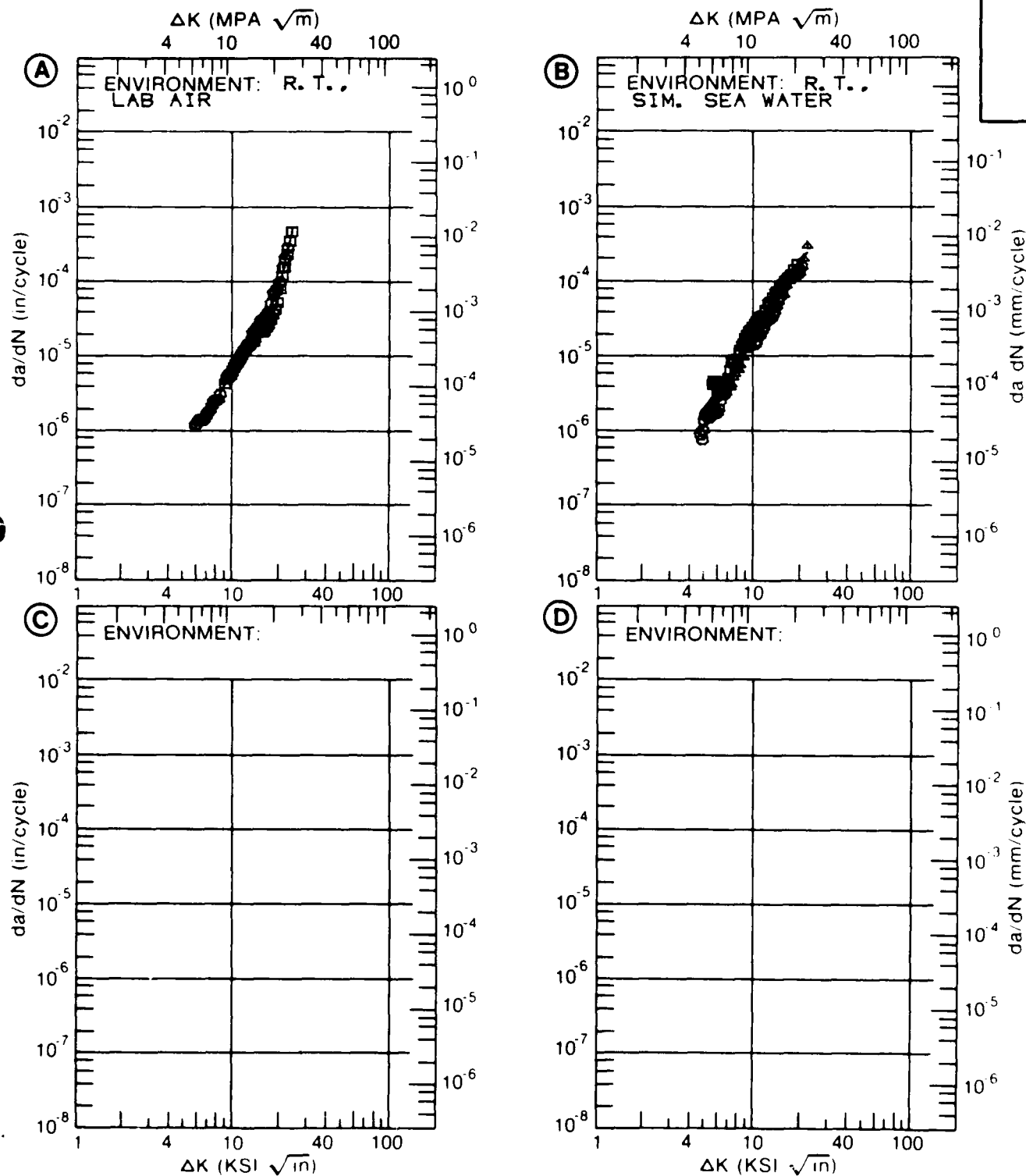


Figure 8.7.3.34

TABLE 8.7.3.35

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.35 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7050
 CONDITION: T73651
 ENVIRONMENT: R. T. , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.08	R=+0.30	R=+0.50	
DELTA K MIN	A:	6.89	.879		
	B:	4.39	291		
	C:	5.01		.613	
	D:				
	5.00		.376		
	6.00		.628	1.34	
	7.00	.909	1.08	2.82	
	8.00	1.27	1.82	5.38	
	9.00	1.83	2.96	9.08	
	10.00	2.61	4.62	13.5	
	13.00	6.62	13.6	23.4	
	16.00	13.0	28.9		
	20.00	26.0			
DELTA K MAX	A:	23.68	45.8		
	B:	18.76	46.0		
	C:	13.34		23.6	
	D:				
ROOT MEAN SQUARE		11.09	18.90	11.72	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1		1	
SUMMARY	1.25-2.0		1		
(NP/NA)	>2.0				

CONDITION/HT: T73651
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 6.00 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 65.0 KSI
 ULT. STRENGTH: 80.0 KSI
 SPECIMEN THK: 0.992- 0.993"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 85837

ALUM.
 ALLOY

7050

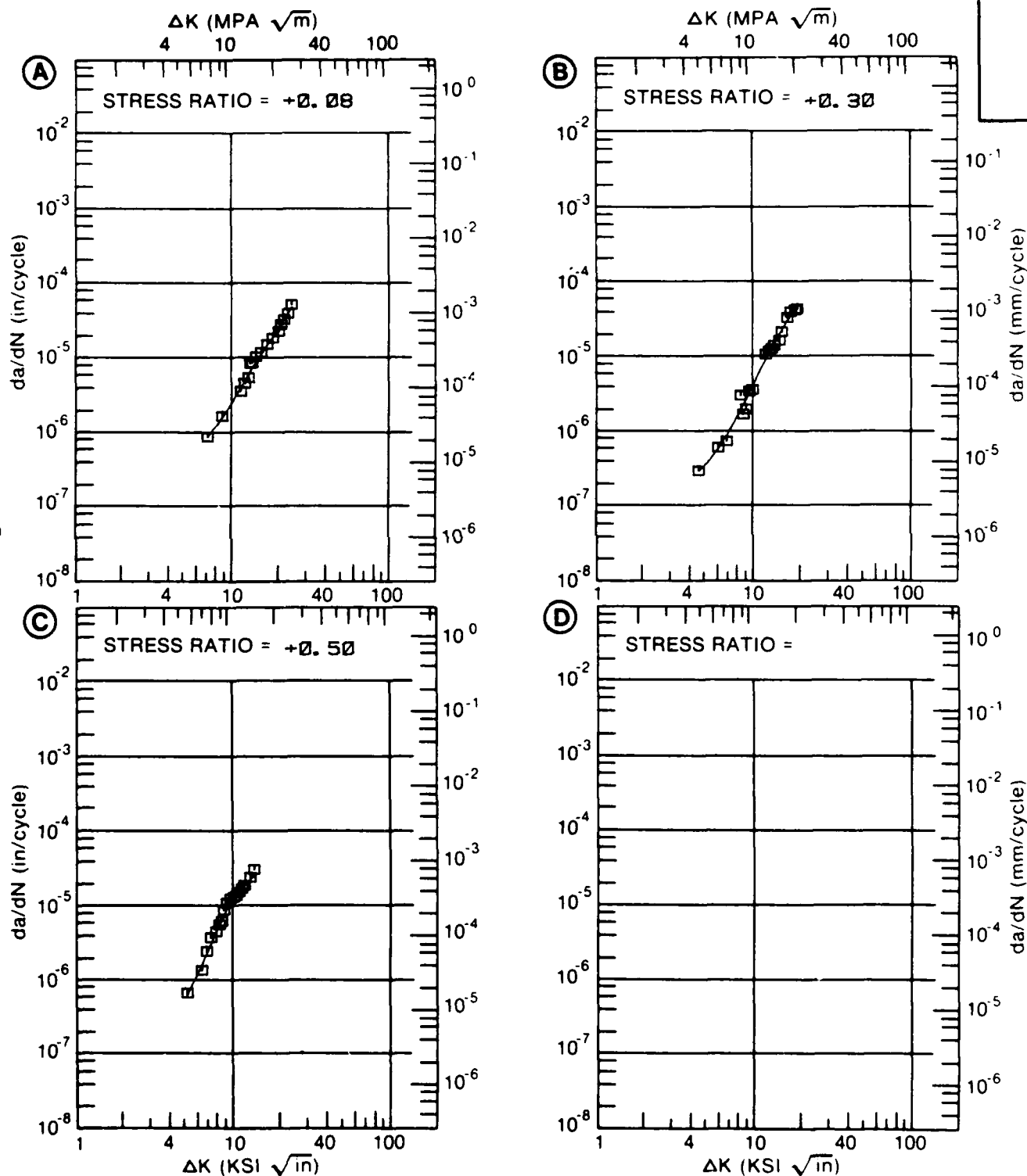


Figure 8.7.3.35

TABLE 8.7.3.36

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.36 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T73651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A 6HZ	E= R. T. S. T. W 1HZ		
DELTA K	A: 4.75	.20			
MIN	B: 7.08		1.92		
	C:				
	D:				
	5.00	.242			
	6.00	.446			
	7.00	.766			
	8.00	1.24	5.07		
	9.00	1.92	9.34		
	10.00	2.87	13.3		
	13.00	8.02	23.9		
	16.00	18.6	49.6		
DELTA K	A: 18.39	33.2			
MAX	B: 16.70		62.9		
	C:				
	D:				
ROOT MEAN SQUARE		11.45	15.46		
PERCENT ERROR					

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0 1
(NP/NA) 2.0

CONDITION/HT: T73651
 FORM: 4.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.08
 FREQUENCY:

YIELD STRENGTH: 65.0- 66.0 KSI
 ULT. STRENGTH: 76.0- 80.0 KSI
 SPECIMEN THK: 0.990- 0.993"
 SPECIMEN WIDTH: 6.000"
 REFERENCES: 85837, 88579

ALUM.
 ALLOY

7050

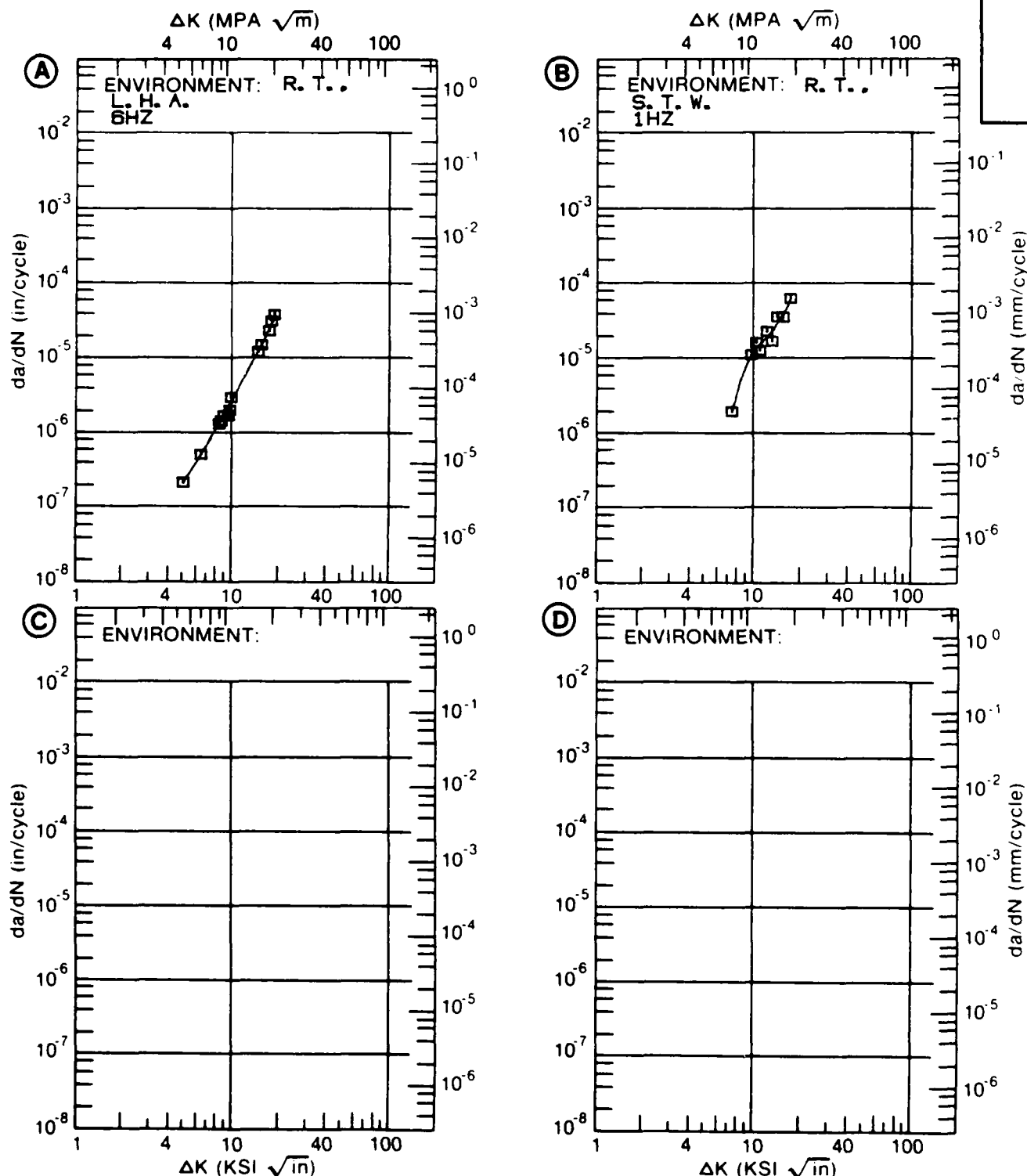


Figure 8.7.3.36

TABLE 8.7.3.37

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.37 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10***-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A: 5.79	1.05			
	B: 5.80		1.79		
	C: 8.11			13.9	
	D:				
	6.00	1.14	2.17		
	7.00	2.23	4.43		
	8.00	4.15	7.03		
	9.00	6.67	9.76	14.9	
	10.00	9.39	12.7	20.8	
	13.00	16.2	24.7	31.0	
	16.00	28.5	52.2	54.0	
DELTA K MAX	A: 18.46	59.6			
	B: 17.57		82.1		
	C: 17.24			74.3	
	D:				
ROOT MEAN SQUARE		7.17	5.54	9.79	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73651
 FORM: 6.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 60.9 KSI
 ULT. STRENGTH: 69.7 KSI
 SPECIMEN THK: 0.998- 1.000"
 SPECIMEN WIDTH: 3.801- 3.805"
 REFERENCES: AL013

ALUM.
 ALLOY

7050

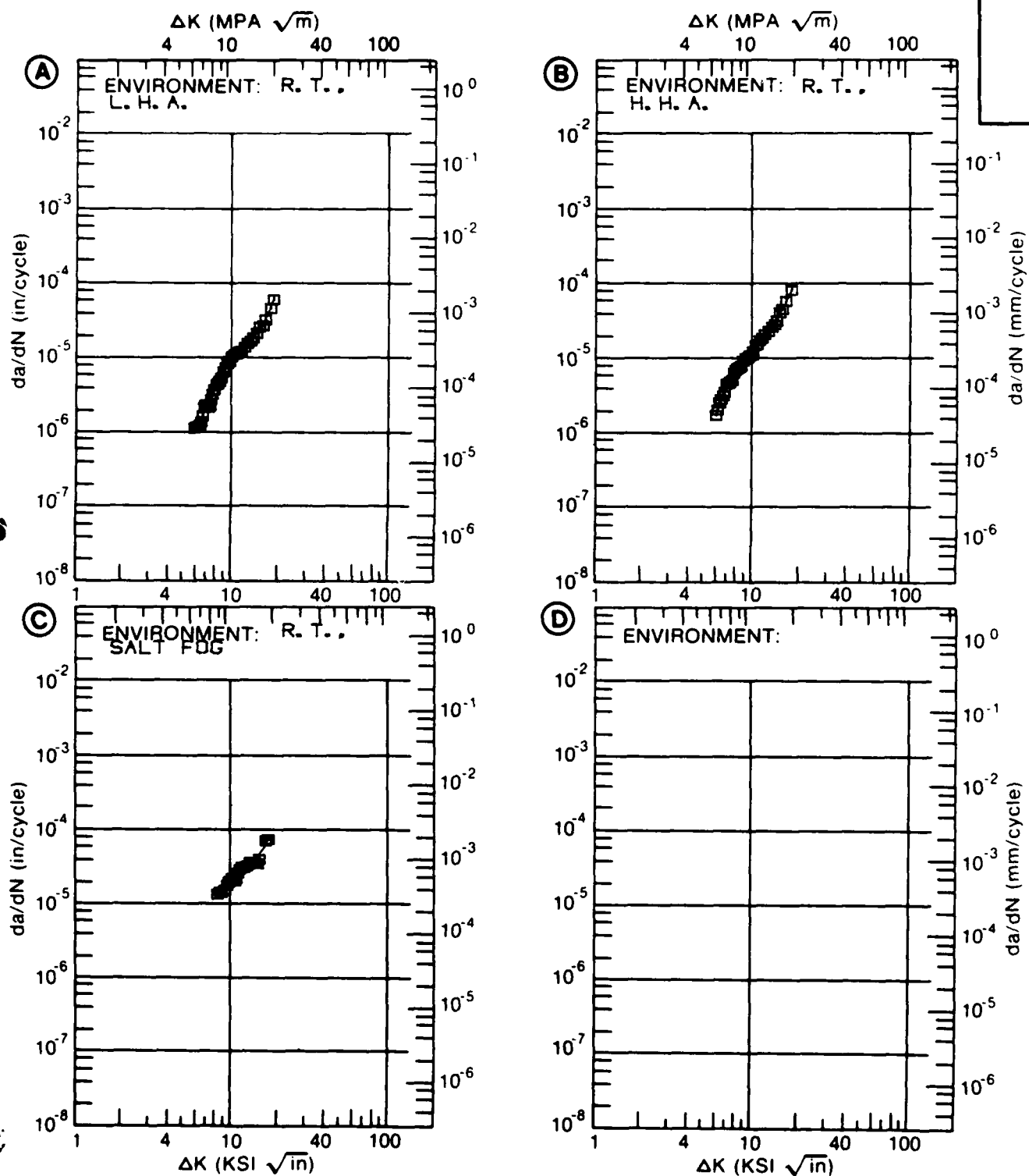


Figure 8.7.3.37

TABLE 8.7.3.38

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.38 INDICATING EFFECT

OF STRESS RATIO

MATERIAL: ALUMINUM 7050
 CONDITION: T73651
 ENVIRONMENT: R.T., SALT FOG

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		R=+0.03			
DELTA K MIN	A:	8.45	6.11		
	B:				
	C:				
	D:				
		9.00	8.55		
		10.00	13.1		
		13.00	25.3		
		16.00	43.0		
DELTA K MAX	A:	19.57	112.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		7.13			
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1			
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73651
 FORM: 6.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 18.30 HZ
 ENVIRONMENT: R. T., SALT FOG

YIELD STRENGTH: 59.1 KSI
 ULT. STRENGTH: 70.5 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.801"
 REFERENCES: AL013

ALUM.
 ALLOY

7050

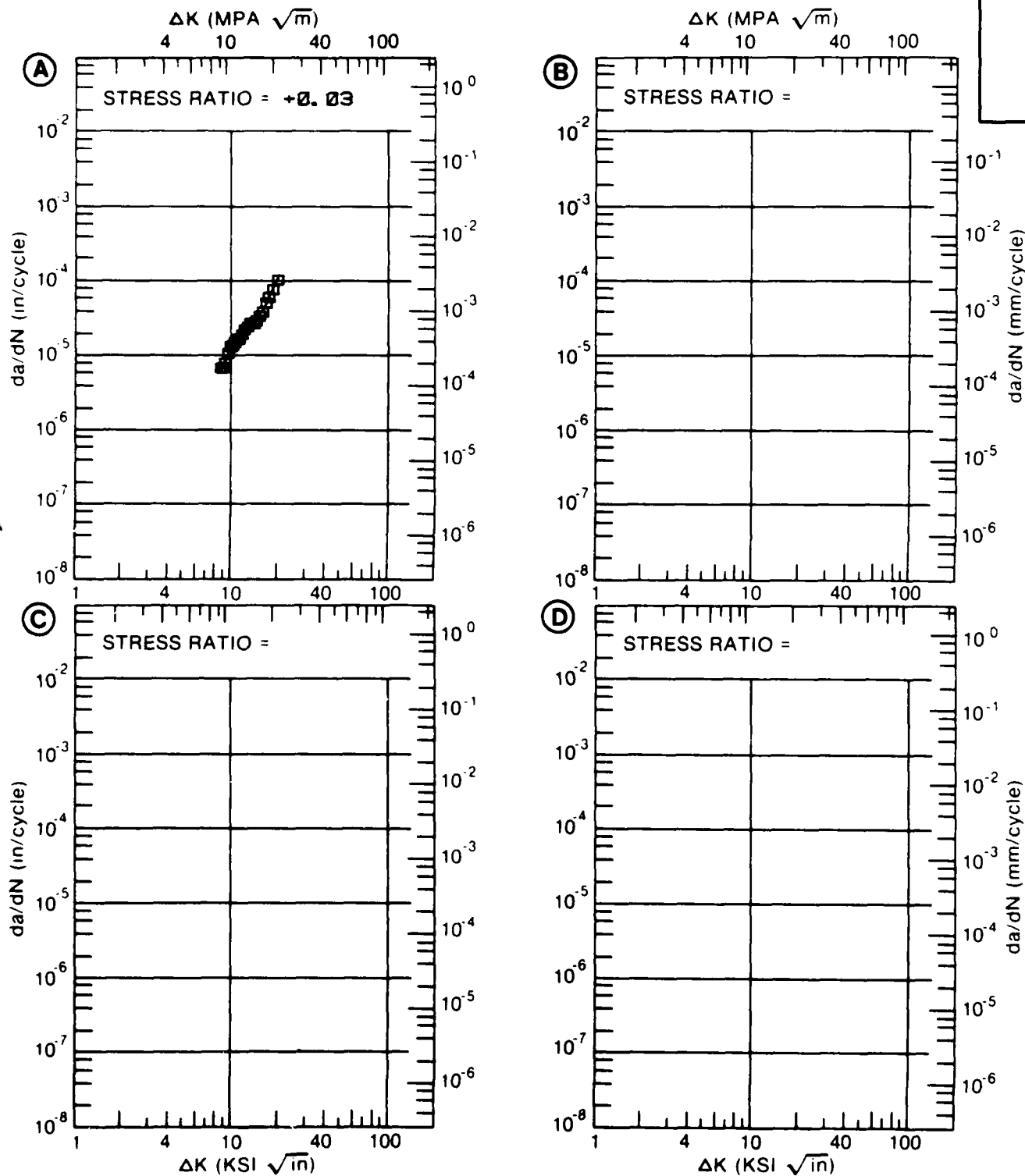


Figure 8.7.3.38

TABLE 8.7.3.39

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.39 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A:	3.91	.288		
	B:	3.88	.510		
	C:	5.91		3.88	
	D:				
	4.00	.296	.495		
	5.00	.520	.944		
	6.00	1.06	2.39	4.25	
	7.00	2.04	4.58	8.45	
	8.00	3.38	7.39	12.0	
	9.00	4.87	10.9	15.0	
	10.00	6.75	15.5	18.4	
	13.00	26.8	41.1	44.4	
DELTA K MAX	A:	15.34	106.		
	B:	14.54	112.		
	C:	13.62		57.8	
	D:				
ROOT MEAN SQUARE		19.68	12.17	10.16	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	3	2	2	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73651
 FORM: 8.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 59.1- 82.1 KSI
 ULT. STRENGTH: 70.5- 73.2 KSI
 SPECIMEN THK: 0.999- 1.000"
 SPECIMEN WIDTH: 3.801- 3.805"
 REFERENCES: AL013

ALUM.
 ALLOY

7050

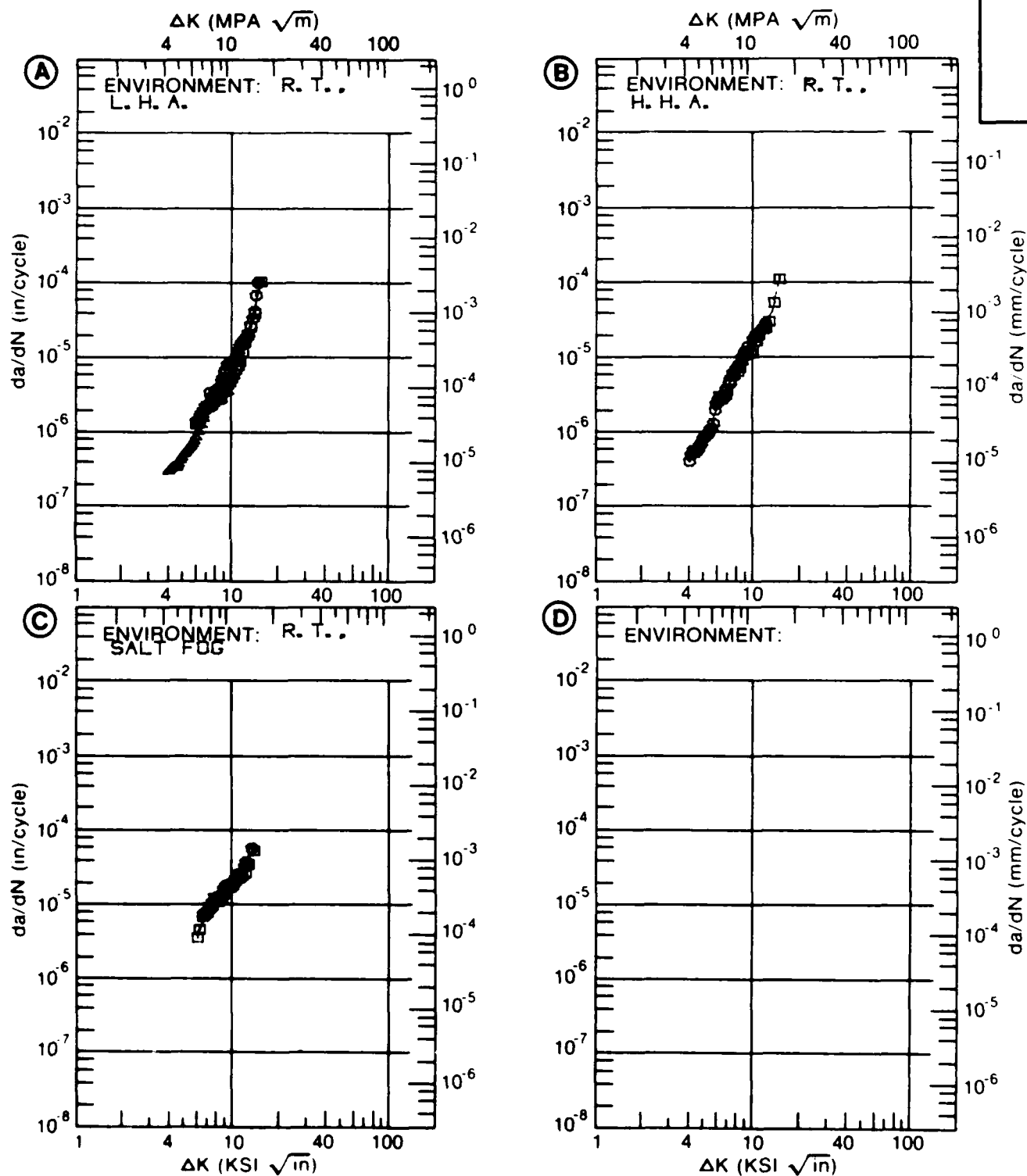


Figure 8.7.3.39

TABLE 8.7.3.40

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.40 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73651					
DELTA K (KSI*IN**1/2)		DA/DN (10**--6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A: 5.82	1.46			
	B: 5.86		2.69		
	C: 5.89			6.56	
	D:				
	6.00	1.57	2.60	6.65	
	7.00	2.15	4.43	8.01	
	8.00	2.79	7.59	10.3	
	9.00	3.72	11.0	13.7	
	10.00	5.27	14.9	18.5	
	13.00	23.6	38.3	46.0	
DELTA K MAX	A: 15.19	105.			
	B: 14.64		74.1		
	C: 13.28			49.9	
	D:				
ROOT MEAN SQUARE		13.56	9.03	9.23	
PERCENT ERROR					
LIFE PREDICTION RATIO SUMMARY (NP/NA)	0.0-0.5 0.5-0.8 0.8-1.25 1.25-2.0 >2.0	1	1	1	

CONDITION/HT: T73651
 FORM: 6.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 56.8 KSI
 ULT. STRENGTH: 67.7 KSI
 SPECIMEN THK: 0.998- 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL013

ALUM.
 ALLOY

7050

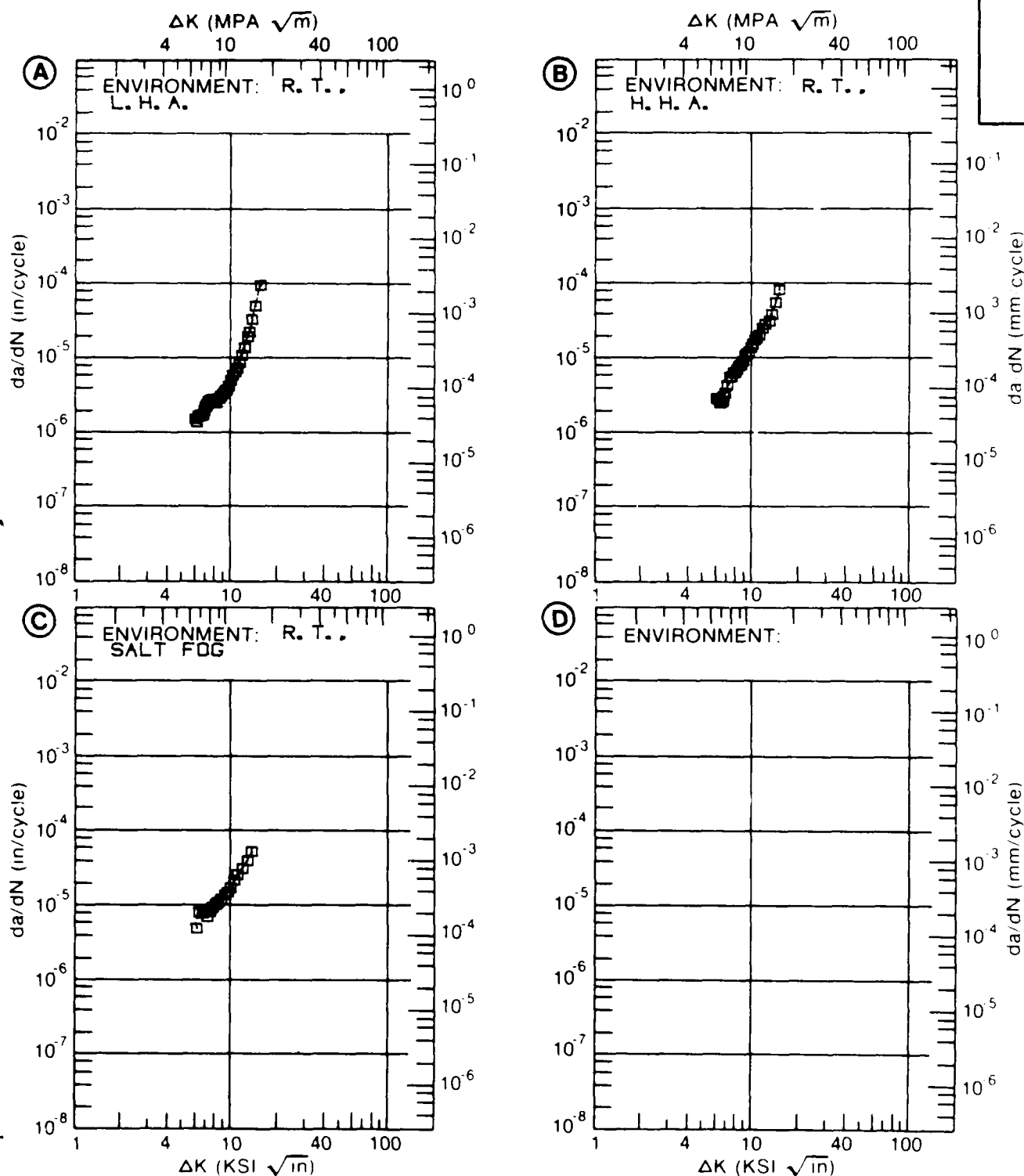


Figure 8.7.3.40

TABLE 8.7.3.41

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.41 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM
CONDITION: T73651

7050

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. H. H. A. 2HZ	E= R. T. 3. 5% NACL 20HZ		
DELTA K MIN	A:	2.88	.053		
	B:	7.42		2.36	
	C:				
	D:				
	3.00	.0607			
	3.50	.0983			
	4.00	.152			
	5.00	.330			
	6.00	.662			
	7.00	1.25			
	8.00	2.23	3.17		
	9.00	3.72	4.90		
	10.00	5.81	7.01		
	13.00	15.6	15.5		
	16.00	28.6	26.9		
	20.00	49.0	46.4		
	25.00	82.6			
	30.00	135.			
	35.00	223.			
	40.00	380.			
DELTA K MAX	A:	45.76	726.		
	B:	20.84		51.1	
	C:				
	D:				

ROOT MEAN SQUARE
PERCENT ERROR

22.51

8.95

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

1

1

CONDITION/HT: T73651
 FORM: 0.44- 1.00" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY:

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.151"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: 86844

ALUM.
 ALLOY

7050

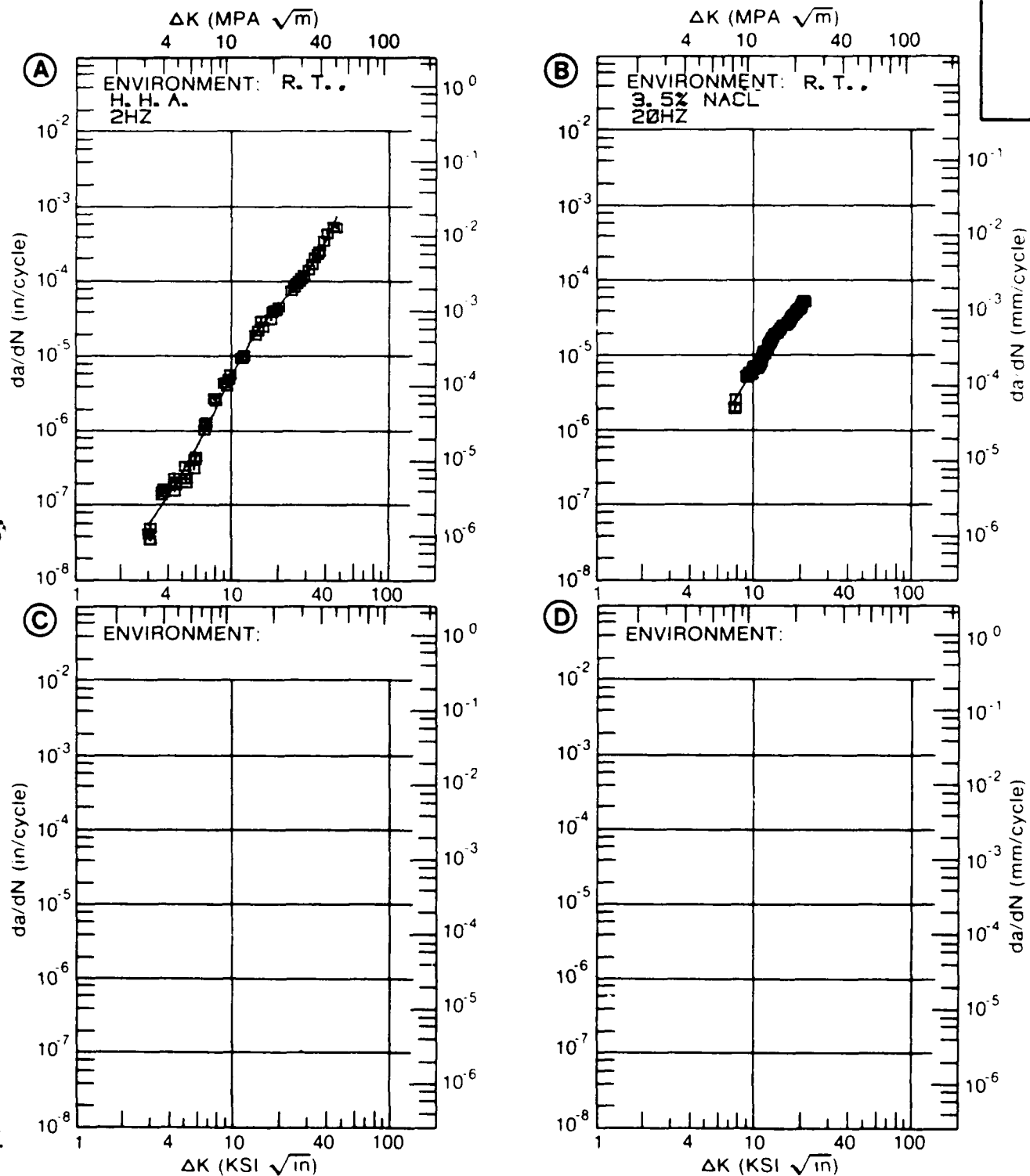


Figure 8.7.3.41

TABLE 8.7.3.42

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.42 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T73652					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A: 6.37	.740			
	B: 6.31		.843		
	C: 6.17			10.1	
	D:				
	7.00	1.10	2.50	11.1	
	8.00	2.24	6.54	18.0	
	9.00	4.57	11.4	26.4	
	10.00	8.91	16.3	31.4	
	13.00	40.5	36.7	49.5	
	16.00	85.7	88.8	107.	
DELTA K MAX	A: 17.47	96.6			
	B: 16.93		117.		
	C: 16.36			122.	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		15.98	10.58	21.77	
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73652
 FORM: 2.50" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 63.5 KSI
 ULT. STRENGTH: 75.5 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL015

ALUM.
 ALLOY

7050

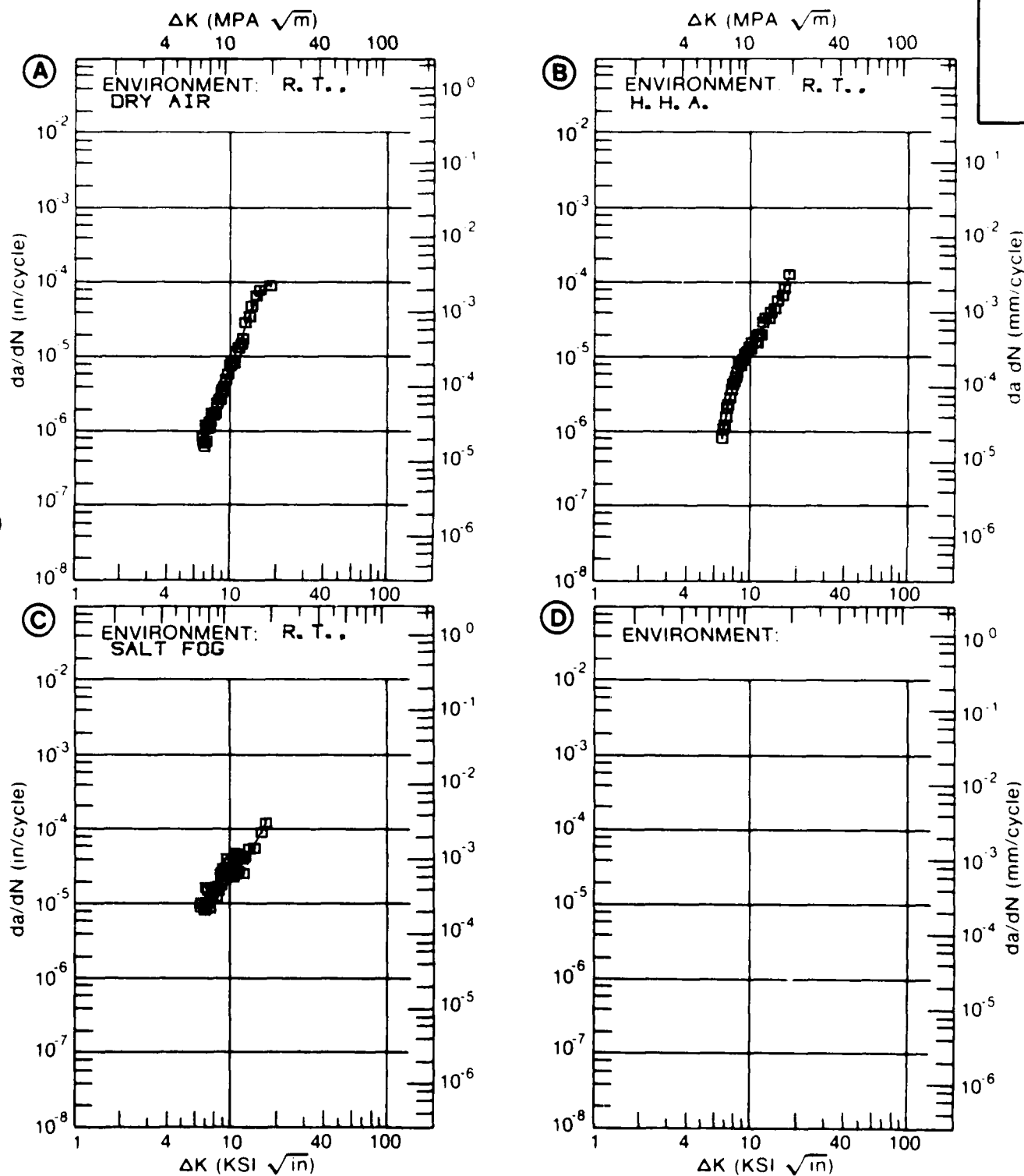


Figure 8.7.3.42

TABLE 8.7.3.43

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.43 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T73652

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A:	6.44	1.29		
	B:	6.96	5.74		
	C:	6.41		2.88	
	D:				
		7.00	2.38	5.99	7.40
		8.00	3.96	18.7	16.2
		9.00	11.2	36.7	42.6
DELTA K MAX	A:	9.85	71.6		
	B:	9.64	133.		
	C:	9.89		211.	
	D:				
ROOT MEAN SQUARE		18.75	17.95	27.84	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T73652
 FORM: 7.50" TH FORGING
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 58.1 KSI
 ULT. STRENGTH: 71.0 KSI
 SPECIMEN THK: 1.000"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL015

ALUM.
 ALLOY

7050

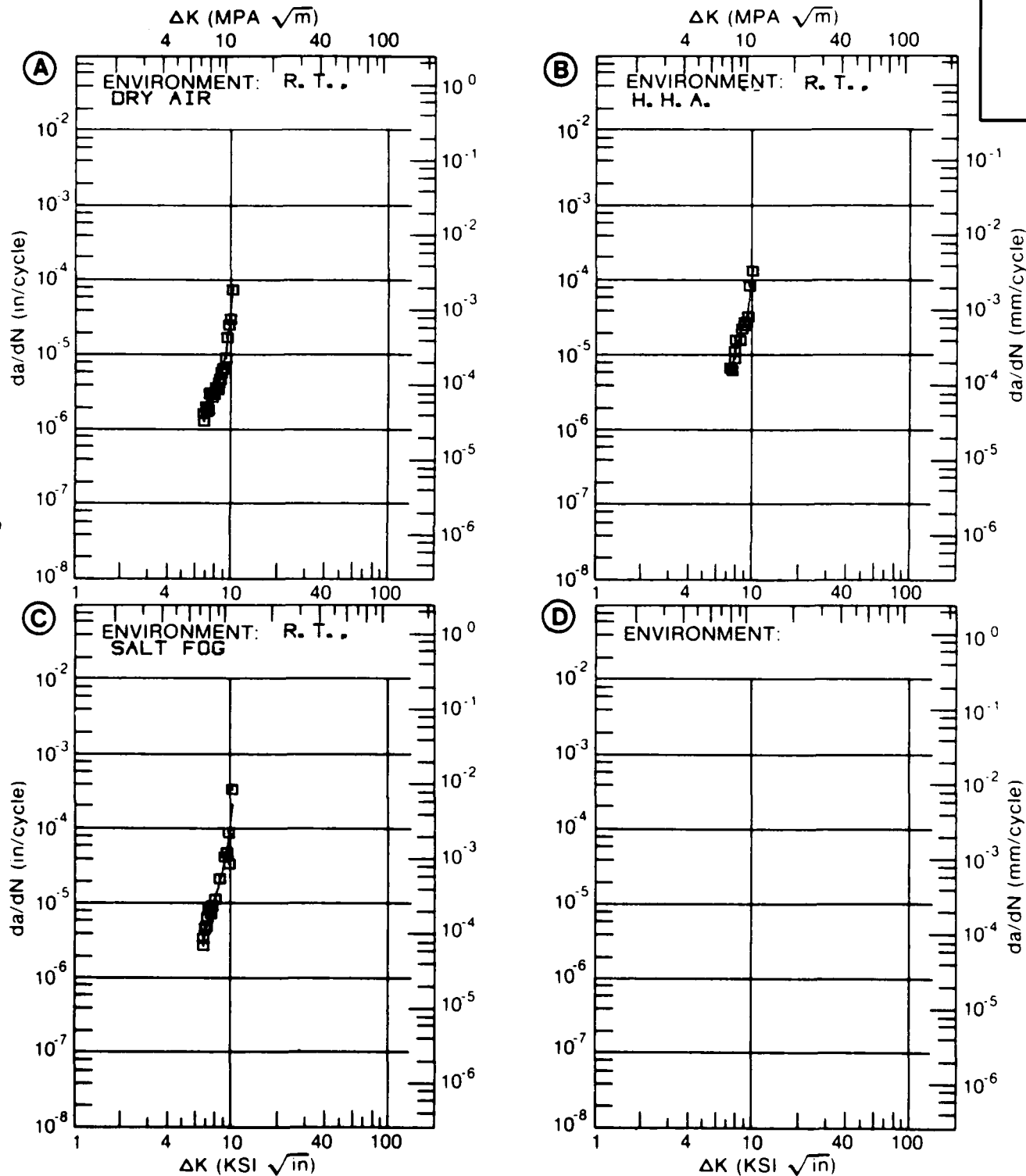


Figure 8.7.3.43

TABLE 8.7.3.44

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.44 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T76					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K A:	4.84	.857			
DELTA K B:	5.01		2.69		
MIN C:	5.03			3.85	
D:					
	5.00	.995			
	6.00	2.03	4.50	6.84	
	7.00	3.24	6.62	10.0	
	8.00	4.52	9.35	13.3	
	9.00	5.82	13.0	17.4	
	10.00	7.26	17.6	23.2	
	13.00	18.8	37.4	71.7	
	16.00	86.5	81.2	205.	
DELTA K A:	16.03	88.0			
DELTA K B:	16.84		122.		
MAX C:	16.00			205.	
D:					
ROOT MEAN SQUARE		12.34	10.94	17.45	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T76
 FORM: 0.04" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 13.30 HZ

YIELD STRENGTH: 73.1 KSI
 ULT. STRENGTH: 91.0 KSI
 SPECIMEN THK: 0.040"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: AL015

ALUM.
 ALLOY

7050

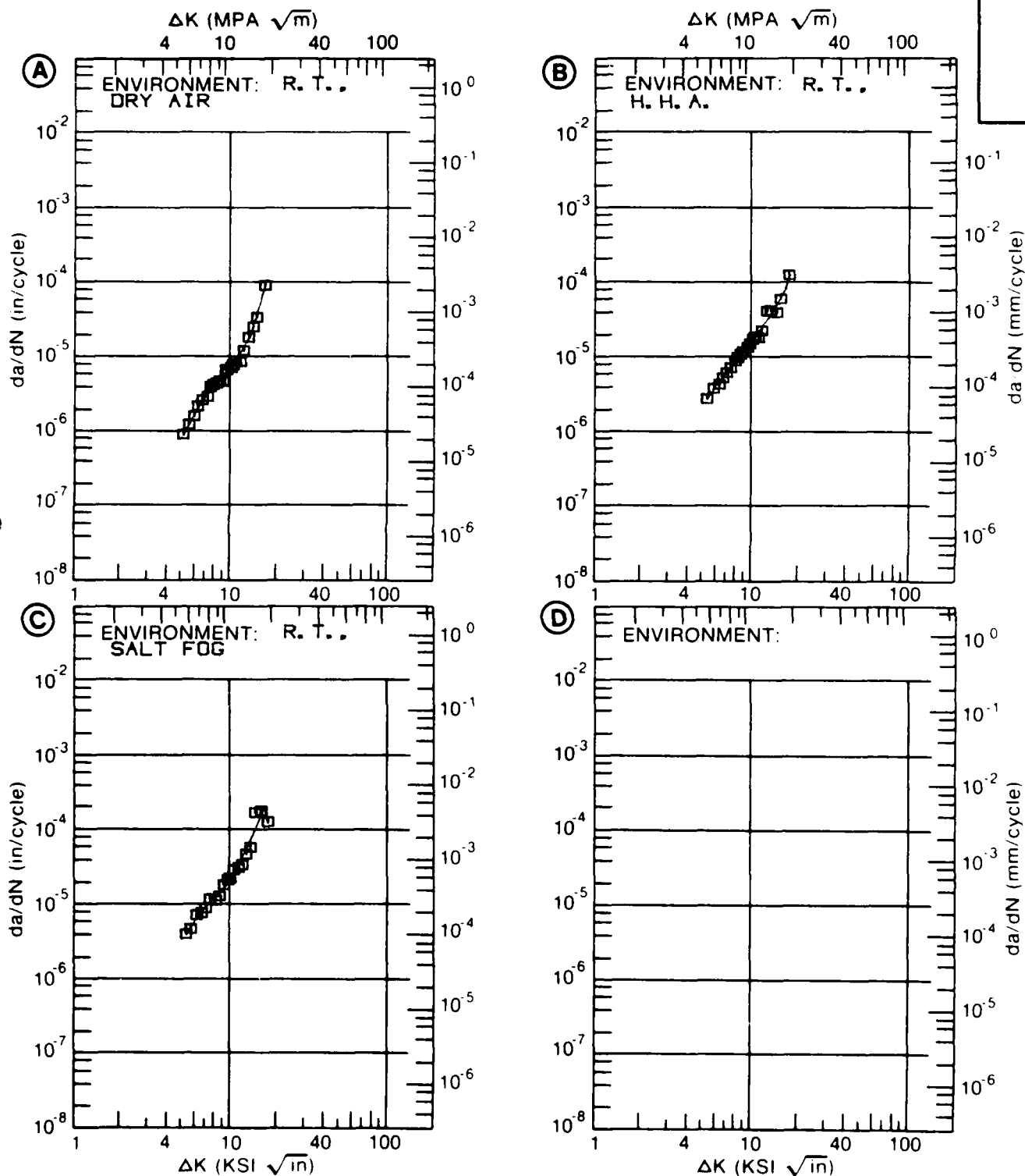


Figure 8.7.3.44

CONDITION/HT: T76
 FORM: 0.09" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 FREQUENCY: 13.30 HZ
 ENVIRONMENT: R.T., LAB AIR

YIELD STRENGTH: 79.0 KSI
 ULT. STRENGTH: 85.8 KSI
 SPECIMEN THK: 0.090- 0.091"
 SPECIMEN WIDTH: 4.000- 4.004"
 REFERENCES: 86213

ALUM.
 ALLOY

7050

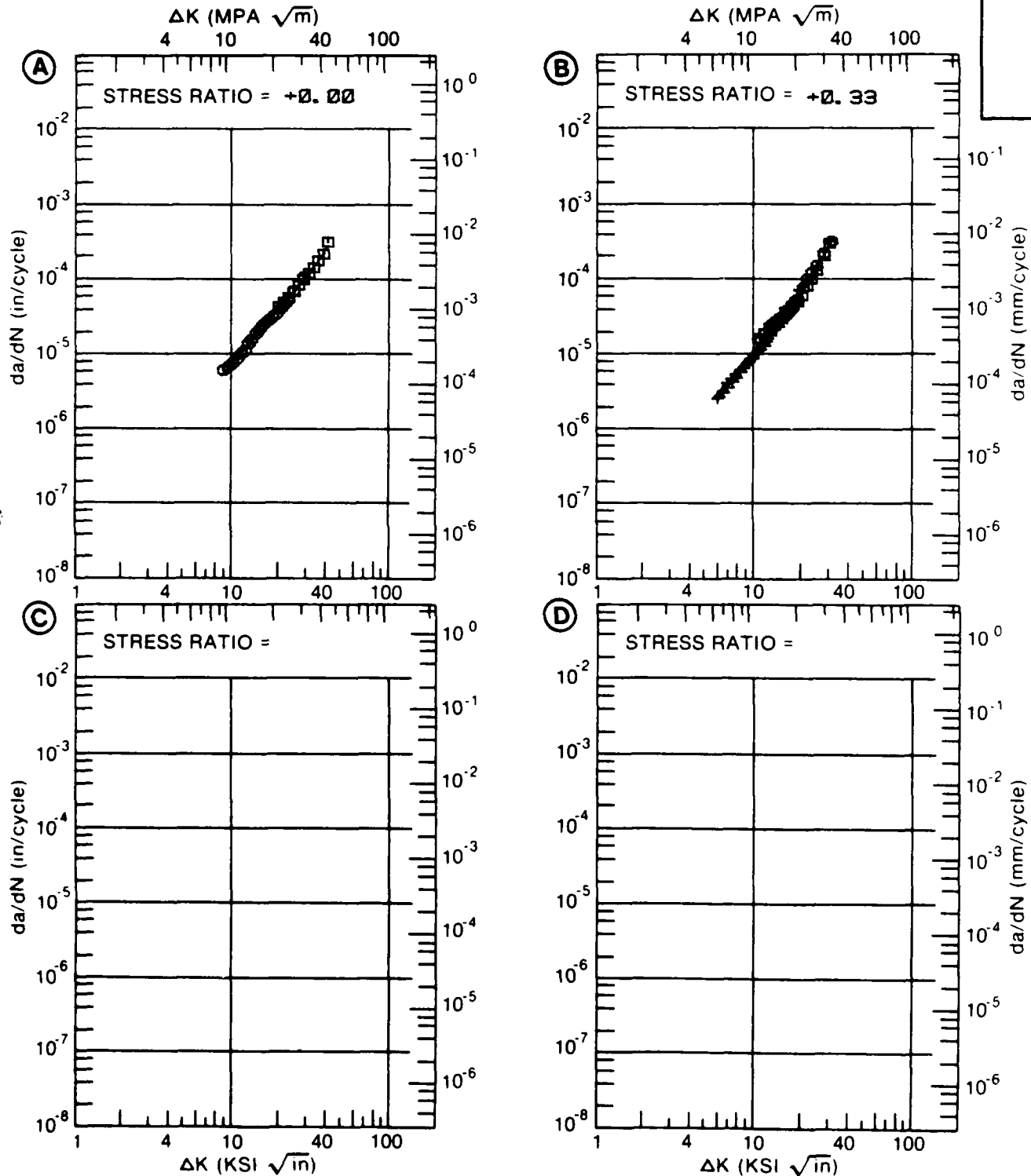


Figure 8.7.3.45

TABLE 8.7.3.46

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.46 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T76					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. DRY AIR	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K	A: 5.13	1.36			
MIN	B: 5.17		3.52		
	C: 5.14			3.98	
	D:				
	6.00	2.91	5.56	7.49	
	7.00	4.97	8.84	12.6	
	8.00	7.72	13.2	18.7	
	9.00	10.9	19.0	25.5	
	10.00	14.0	26.7	33.3	
	13.00	24.6	66.2	65.3	
	16.00		151.	121.	
DELTA K	A: 15.70	88.1			
MAX	B: 17.18		206.		
	C: 17.27			158.	
	D:				
ROOT MEAN SQUARE		13.89	12.44	8.81	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T76
 FORM: Ø. 13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 13.30 HZ

YIELD STRENGTH: 79.6 KSI
 ULT. STRENGTH: 83.6 KSI
 SPECIMEN THK: Ø. 125"
 SPECIMEN WIDTH: 4.000"
 REFERENCES: ALØ15

ALUM.
 ALLOY

7050

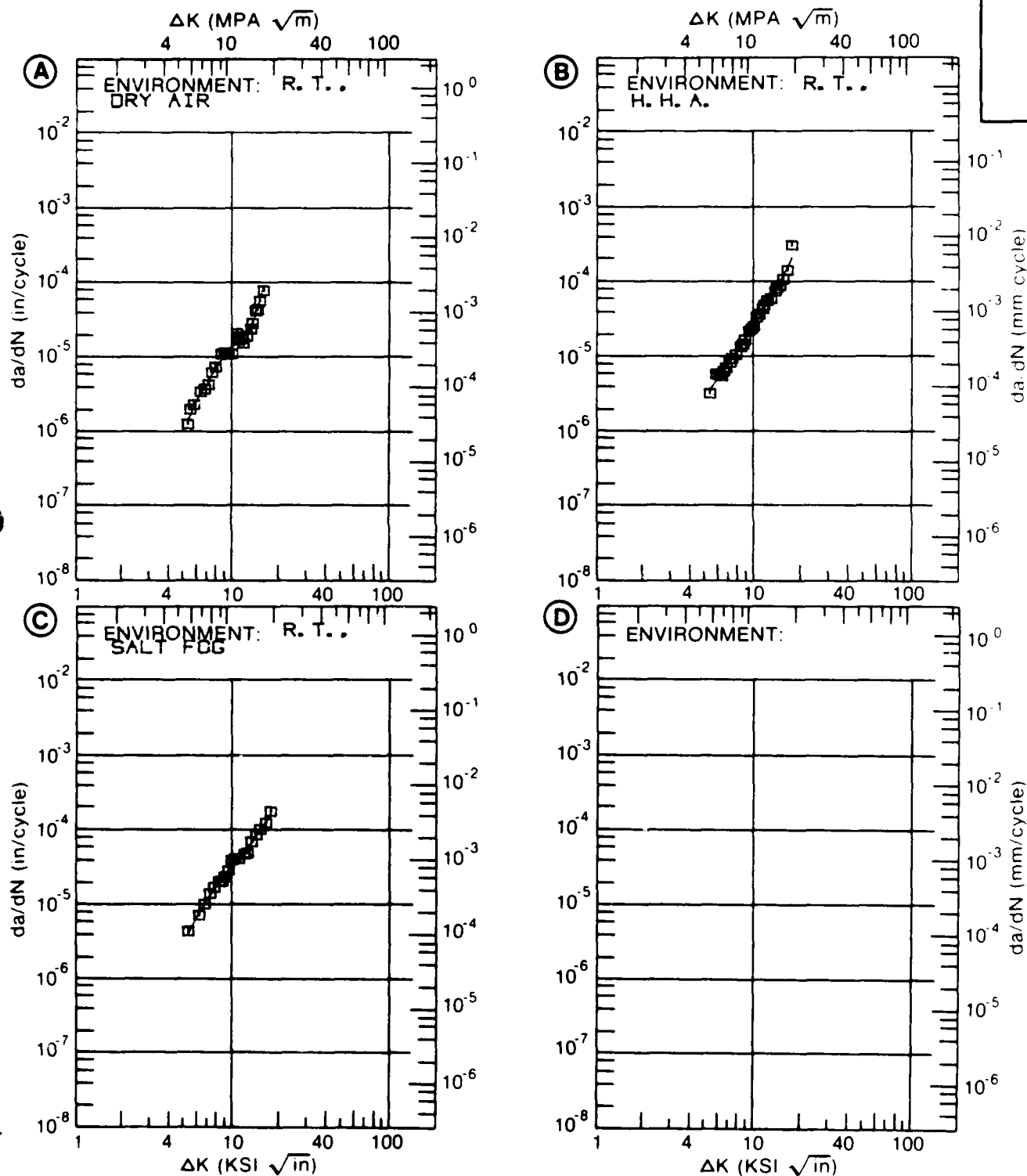


Figure 8.7.3.46

TABLE 8.7.3.47

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.47 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM 7050
CONDITION: T7651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. H. H. A., 2HZ	E= R. T. H. H. A., 20HZ	E= R. T. 3. 5% NACL, 2HZ	E= R. T. 3. 5% NACL, 20HZ
DELTA K MIN	A: 5.39	.674			
	B: 3.50		.131		
	C: 8.21			13.8	
	D: 3.50				.0943
	4.00		.183		.279
	5.00		.330		1.26
	6.00	1.39	.700		3.35
	7.00	2.75	1.73		6.64
	8.00	4.05	3.74		11.0
	9.00	5.43	6.50	17.4	16.1
	10.00	7.27	9.75	23.0	21.8
	13.00	17.0	21.3	46.5	41.2
	16.00	35.0	35.5	80.4	63.8
	20.00	70.8	52.1	141.	102.
	25.00	146.		247.	172.
	30.00	292.		399.	288.
	35.00	603.		628.	
	40.00	1297.		1018.	
	50.00			4127.	
DELTA K MAX	A: 47.21	4197.			
	B: 21.86		55.9		
	C: 53.64			11027.	
	D: 31.41				334.
ROOT MEAN SQUARE		8.88	10.99	10.29	12.41
PERCENT ERROR					

LIFE 0.0-0.3
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

1

1

1

1

CONDITION/HT: T7651
 FORM: Ø. 52" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY:

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: Ø. 147- Ø. 148"
 SPECIMEN WIDTH: 3.000"
 REFERENCES: 86844

ALUM.
 ALLOY

7050

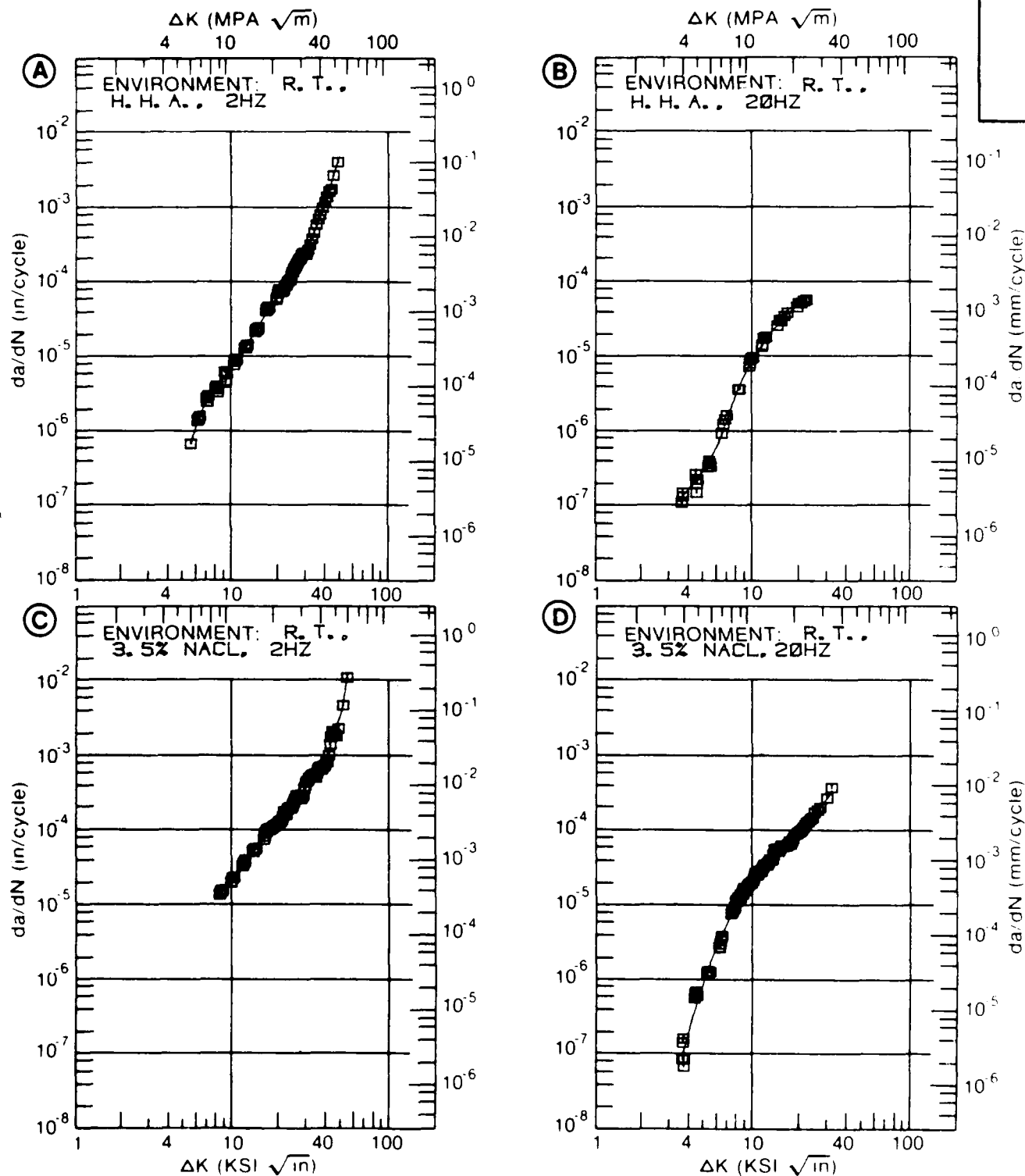


Figure 8.7.3.47

TABLE 8.7.3.48

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.48 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T7651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T.			
		3. 5% NaCl			
DELTA K MIN	A:	5. 35	. 977		
	B:				
	C:				
	D:				
		6. 00	2. 51		
		7. 00	6. 46		
		8. 00	11. 6		
	9. 00	17. 2			
	10. 00	22. 9			
	13. 00	44. 1			
	16. 00	88. 5			
DELTA K MAX	A:	16. 69	106.		
	B:				
	C:				
	D:				
ROOT MEAN SQUARE		11. 47			
PERCENT ERROR					
LIFE	0. 0-0. 5				
PREDICTION	0. 5-0. 8				
RATIO	0. 8-1. 25				
SUMMARY	1. 25-2. 0				
(NP/NA)	>2. 0				

CONDITION/HT: T7651
 FORM: 1.13" TH PLATE
 SPECIMEN TYPE:
 ORIENTATION:
 STRESS RATIO: +0.10
 FREQUENCY: 1.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK:
 SPECIMEN WIDTH:
 REFERENCES: 91332

ALUM.
 ALLOY

7050

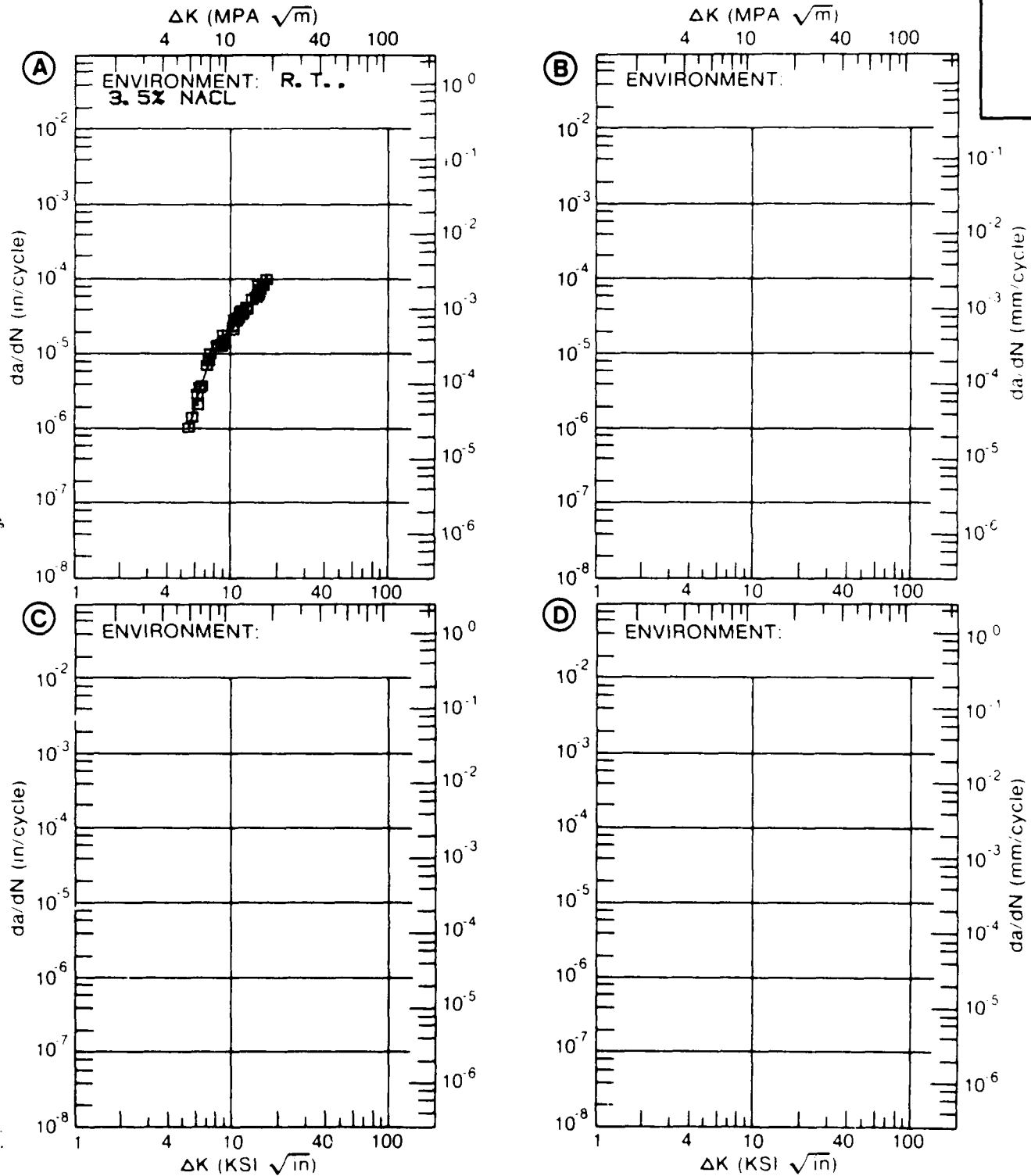


Figure 8.7.3.48

TABLE 8.7.3.49

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE INDICATING EFFECT
OF ENVIRONMENTMATERIAL ALUMINUM 7050
CONDITION: T7651

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. I. DRY AIR			
DELTA K MIN	A:	6.45	2.45		
	B:				
	C:				
	D:				
		7.00	3.63		
		8.00	5.78		
		9.00	7.70		
		10.00	9.43		
DELTA K MAX		13.00	15.6		
		16.00	23.9		
		20.00	41.0		
	A:	24.59	98.5		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 6.62
PERCENT ERRORLIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T7651
 FORM: 1.13" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.10
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK:
 SPECIMEN WIDTH:
 REFERENCES: 91332

ALUM.
 ALLOY

7050

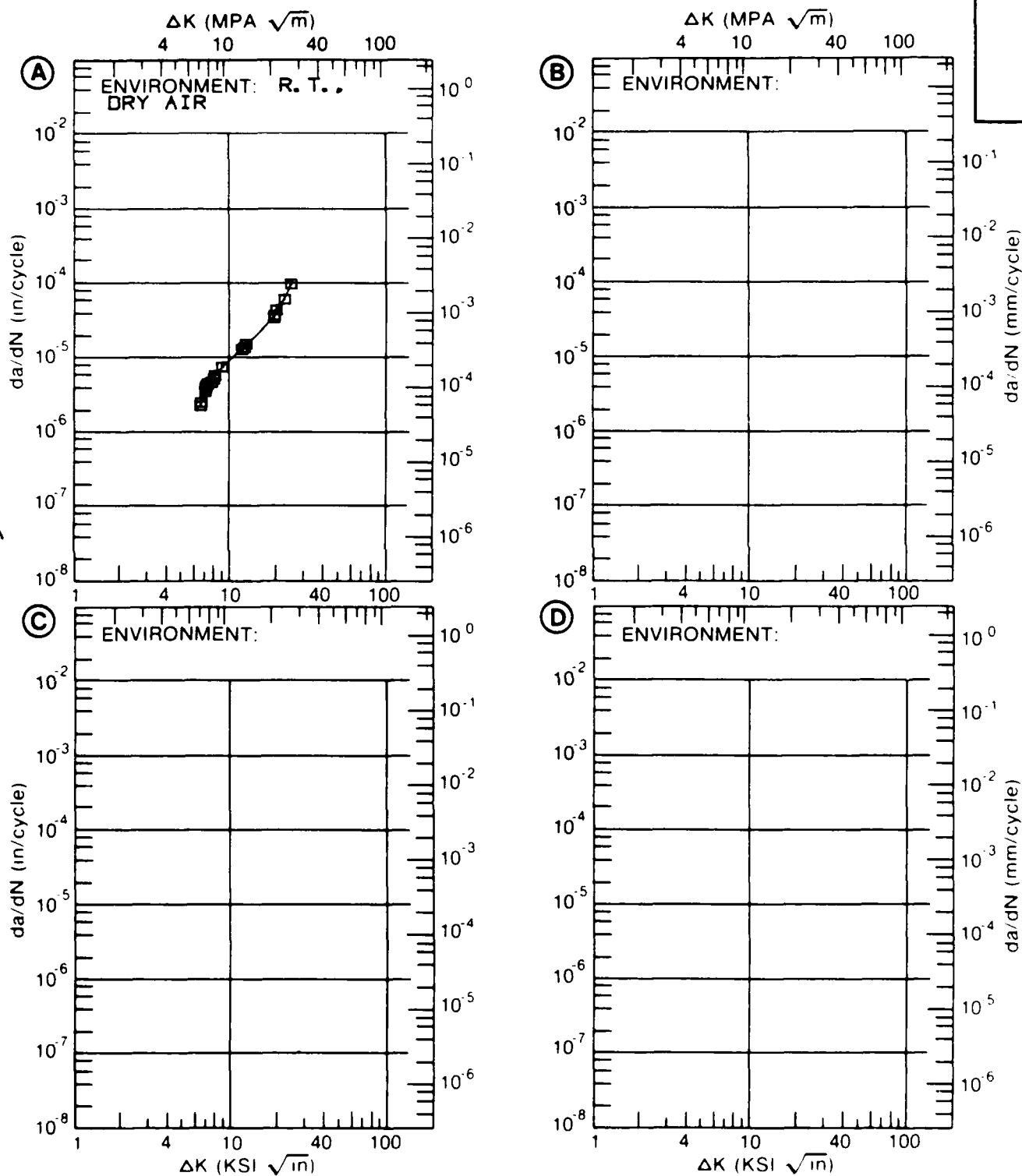


Figure 8.7.3.40

TABLE 8.7.3.50

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.50 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T7651					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. LAB AIR	E= R. T. SIM SEA WATER	E= R. T. JP-4 FUEL	
DELTA K A:	4.08	.107			
MIN B:	5.62		.807		
C:	5.00			.514	
D:					
	5.00	.580			
	6.00	1.55	.980	.920	
	7.00	2.92	1.77	1.08	
	8.00	4.57	3.31	1.41	
	9.00	6.33	6.06	2.23	
	10.00	8.04	10.6	3.61	
	13.00	12.0	27.6	9.18	
	16.00	14.6	35.8	16.4	
	20.00	22.9	64.2	34.1	
	25.00	74.6	446.	105.	
DELTA K A:	26.13	107.			
MAX B:	26.23		906.		
C:	25.28			112.	
D:					
ROOT MEAN SQUARE		21.58	24.09	13.59	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25				
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T7651
 FORM: 1.25" TH PLATE
 SPECIMEN TYPE: WOL
 ORIENTATION: L-T
 STRESS RATIO: +0.02
 FREQUENCY: 1.00- 20.00 HZ

YIELD STRENGTH: 73.8 KSI
 ULT. STRENGTH: 81.0 KSI
 SPECIMEN THK: 1.250"
 SPECIMEN WIDTH: 5.000"
 REFERENCES: MA005

ALUM.
 ALLOY

7050

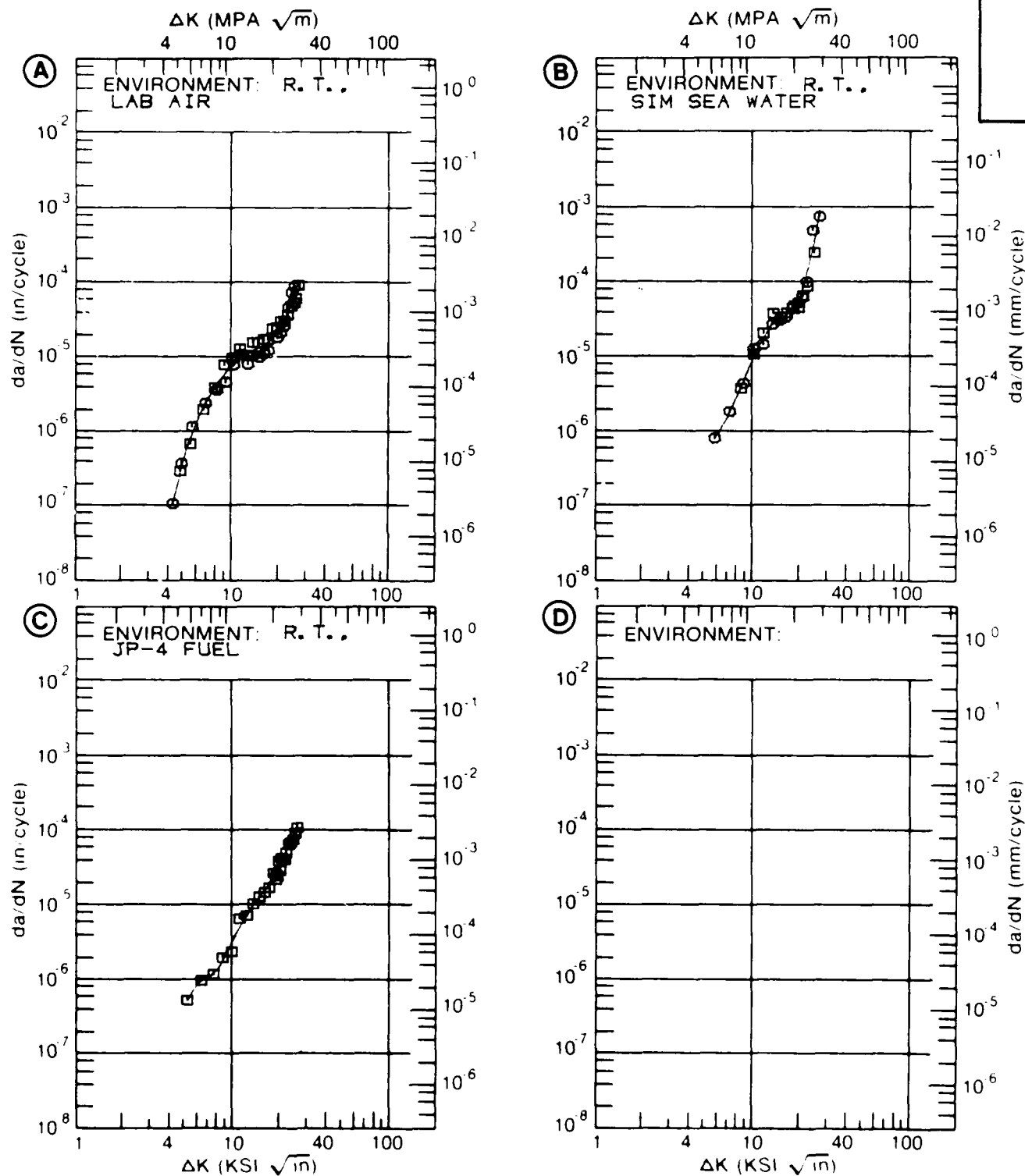


Figure 8.7.3.5a

TABLE 8.7.3.51

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.51 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T7651X					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.		
DELTA K	A: 4.11	.389			
MIN	B: 4.21		.827		
	C:				
	D:				
	5.00	.505	1.68		
	6.00	.701	3.32		
	7.00	.986	5.65		
	8.00	1.44	8.66		
	9.00	2.22	12.3		
	10.00	3.49	16.6		
	13.00	10.2	32.3		
	16.00	20.9			
DELTA K	A: 18.19	33.7			
MAX	B: 15.62		49.0		
	C:				
	D:				
ROOT MEAN SQUARE		12.45	4.55		
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	1		
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T7651X
 FORM: 0.91" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: 0.900"
 SPECIMEN WIDTH: 3.100- 3.805"
 REFERENCES: AL008

ALUM.
 ALLOY

7050

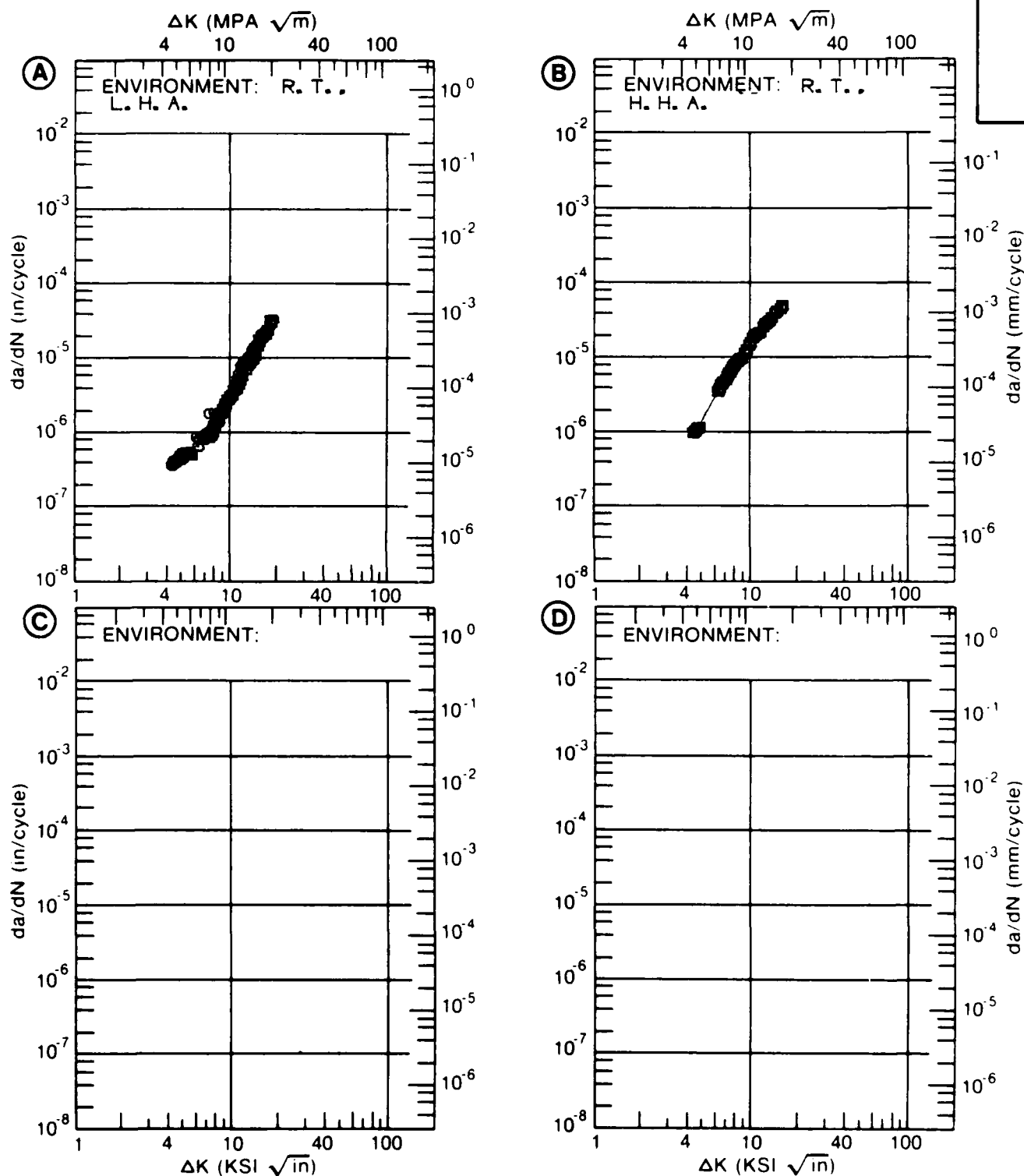


Figure 8.7.3.51

TABLE 8.7.3.52

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.52 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T7651X

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.		
DELTA K MIN	A:	4.41	417		
	B:	3.25		140	
	C:				
	D:				
	3.50			168	
	4.00			436	
	5.00	880	2.05		
	6.00	1.62	4.44		
	7.00	2.39	6.91		
	8.00	3.26	9.47		
	9.00	4.31	12.6		
	10.00	5.65	17.0		
	13.00	13.3			
	16.00	35.6			
DELTA K MAX	A:	16.78	46.8		
	B:	10.01		17.0	
	C:				
	D:				

ROOT MEAN SQUARE 9.49 13.76
PERCENT ERRORLIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) 2.0

2

2

CONDITION/HT: T7651X
 FORM: Ø. 91" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 20.00 HZ

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: Ø. 900"
 SPECIMEN WIDTH: 3.805"
 REFERENCES: AL008

ALUM.
 ALLOY

7050

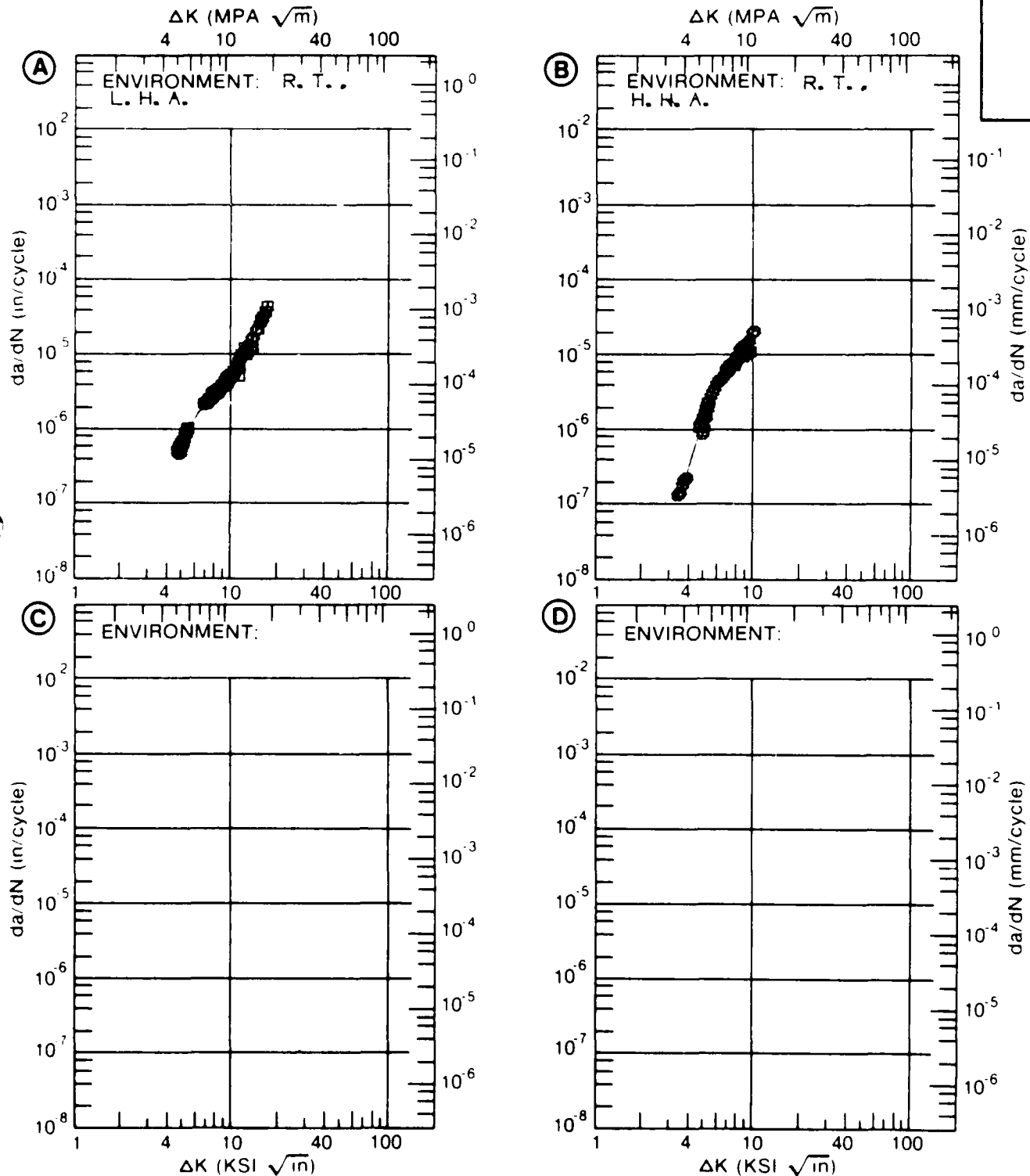


Figure 8.7.3.52

TABLE 8.7.3.53

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.53 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 7050
CONDITION: T76511
ENVIRONMENT: R T H H A

DELTA K (KSI*IN**1/2)		DA/DN (10**--6 IN./CYCLE)			
		A	B	C	D
		R=+0.33			
DELTA K MIN	A:	7.24	6.34		
	B:				
	C:				
	D:				
		8.00	9.91		
		9.00	13.0		
		10.00	15.7		
		13.00	44.4		
DELTA K MAX	A:	14.85	73.1		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 14.39
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1.25-2.0
(NP/NA) >2.0

CONDITION/HT: T76511
 FORM: 6.00" TH PLATE
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 FREQUENCY: 18.30 HZ
 ENVIRONMENT: R. T., H. H. A.

YIELD STRENGTH: 59.1 KSI
 ULT. STRENGTH: 70.5 KSI
 SPECIMEN THK: 0.998"
 SPECIMEN WIDTH: 3.801"
 REFERENCES: AL004

ALUM.
 ALLOY

7050

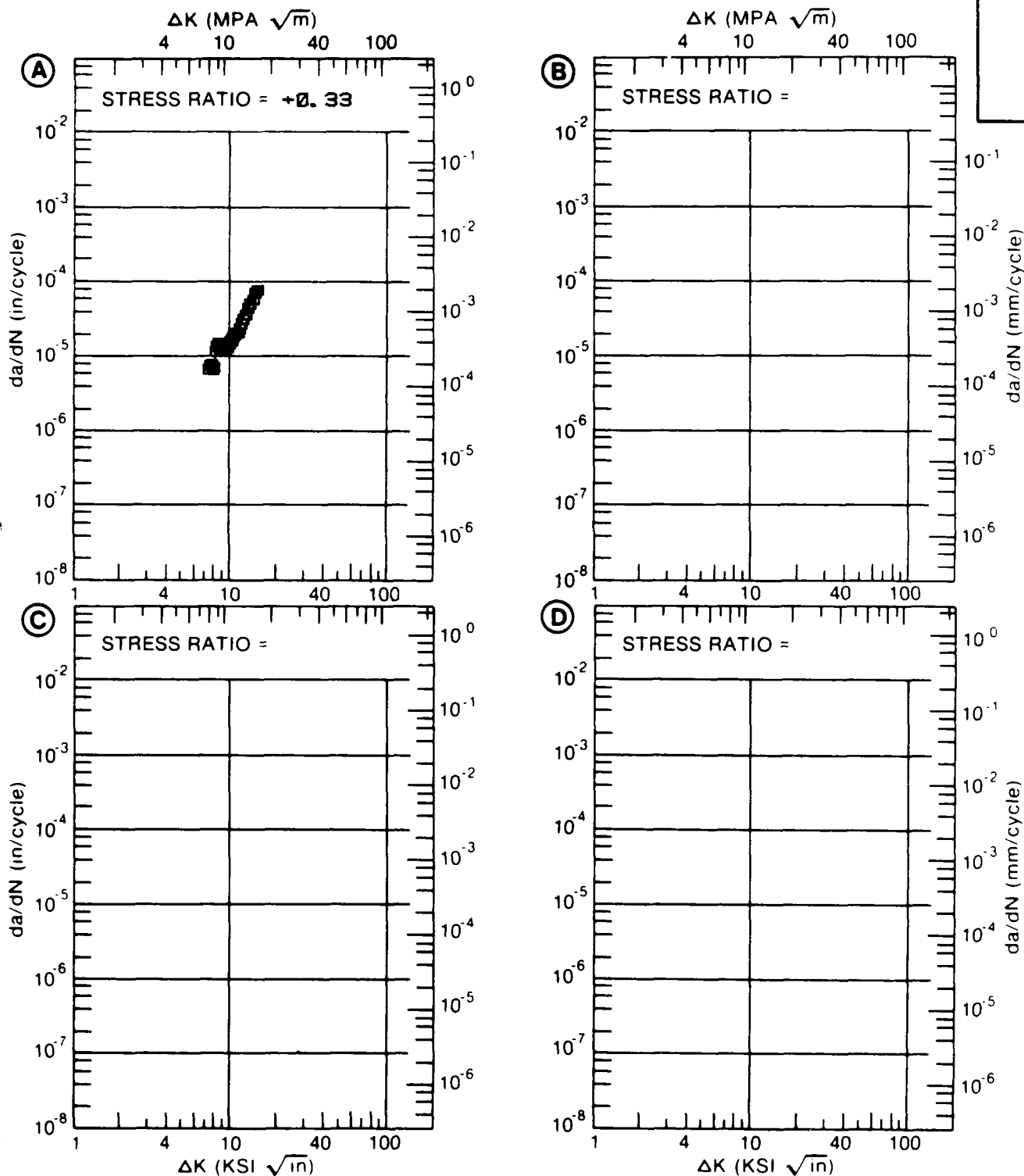


Figure 8.7.3.53

TABLE 8.7.3.54

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.54 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T76511

DELTA K (KSI*IN**1/2)		DA/DN (10**--6 IN. /CYCLE)			
		A	B	C	D
		E= R. T. H. H. A. 2HZ	E= R. T. H. H. A. 20HZ	E= R. T. 3. 5% NACL 2HZ	E= R. T. 3. 5% NACL 20HZ
DELTA K MIN	A:	6.23	.778		
	B:	4.28	.146		
	C:	6.83		1.29	
	D:	3.12			.005
		3.50			.0279
		4.00			.123
		5.00	.152		.467
		6.00	.310		.772
		7.00	1.26	.735	1.41
		8.00	2.11	1.53	3.38
		9.00	3.25	2.76	7.86
		10.00	4.71	4.47	15.0
		13.00	11.3	12.6	44.1
		16.00	22.2	24.9	71.3
		20.00	46.3	46.8	99.5
		25.00	100.	81.3	138.
		30.00	198.	123.	205.
		35.00	369.	175.	338.
		40.00	660.	732.	
		50.00	1946.	1117.	
DELTA K MAX	A:	56.19	3645.		
	B:	37.08	212.		
	C:	59.30		1619.	
	D:	35.92			375.
ROOT MEAN SQUARE		19.51	14.25	11.29	20.13
PERCENT ERROR					

LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	
SUMMARY	1.25-2.0				1
(NP/NA)	2.0				

CONDITION/HT: T76511
 FORM: Ø. 44" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +Ø. 1Ø
 FREQUENCY:

YIELD STRENGTH:
 ULT. STRENGTH:
 SPECIMEN THK: Ø. 151- Ø. 152"
 SPECIMEN WIDTH: 3. ØØØ"
 REFERENCES: 86844

ALUM.
 ALLOY

7050

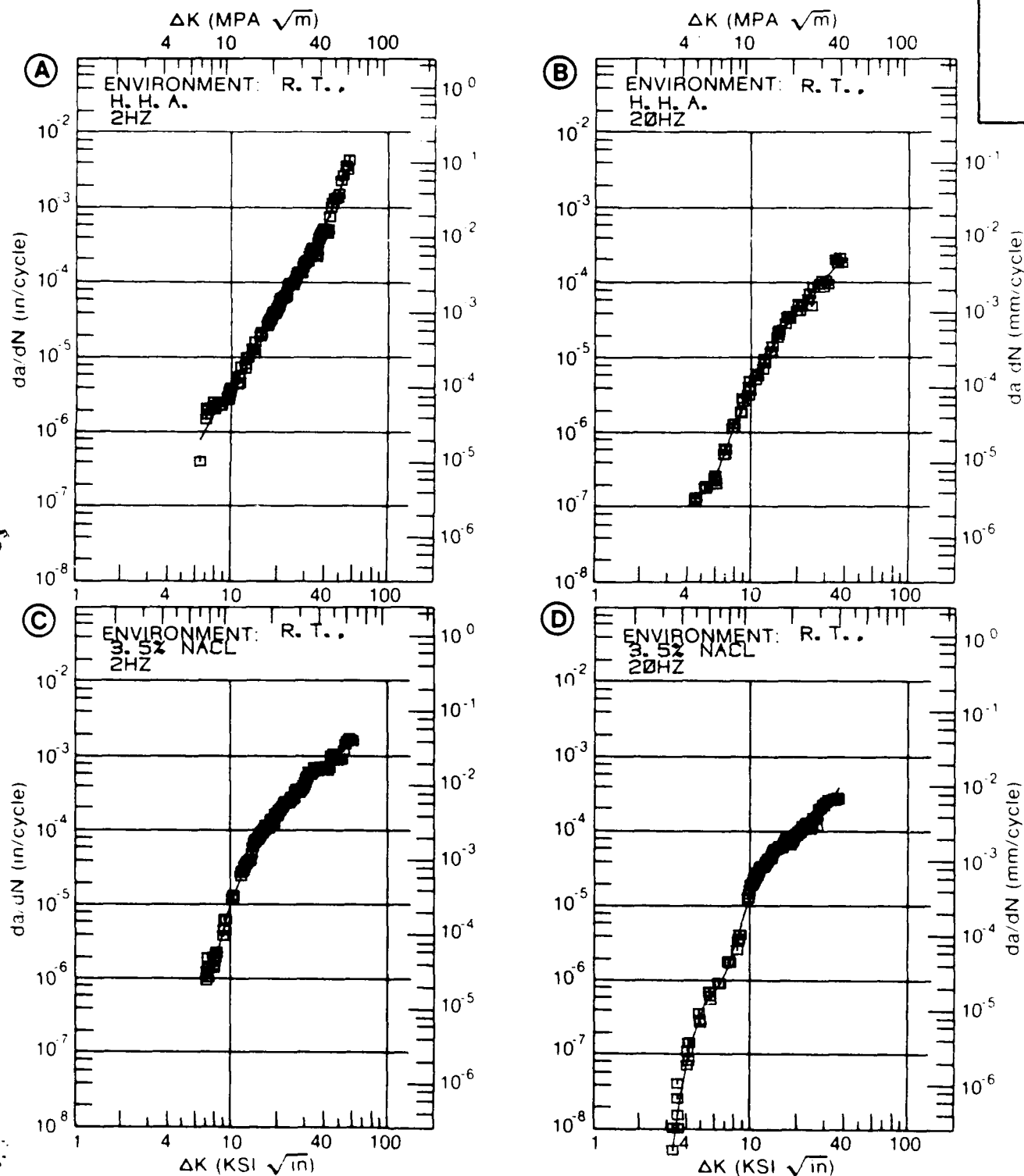


Figure 8.7.3.54

TABLE 8.7.3.55

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.55 INDICATING EFFECT
OF STRESS RATIO

MATERIAL: ALUMINUM 7050
CONDITION: T76511
ENVIRONMENT: R T , L. H. A.

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN. /CYCLE)			
		A	B	C	D
		R=+0.46			
DELTA K MIN	A:	6.63	2.12		
	B:				
	C:				
	D:				
		7.00	2.71		
		8.00	4.63		
DELTA K MAX		9.00	6.98		
		10.00	9.90		
		13.00	26.1		
	A:	15.21	56.7		
	B:				
	C:				
	D:				

ROOT MEAN SQUARE 5.30
PERCENT ERROR

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25 1
SUMMARY 1 25-2.0
(NP/NA) >2.0

CONDITION/HT: T76511
 FORM: 1.16" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 FREQUENCY: 18.30 HZ
 ENVIRONMENT: R. T., L. H. A.

YIELD STRENGTH: 76.4 KSI
 ULT. STRENGTH: 83.6 KSI
 SPECIMEN THK: 1.007"
 SPECIMEN WIDTH: 3.100"
 REFERENCES: AL004

ALUM.
 ALLOY

7050

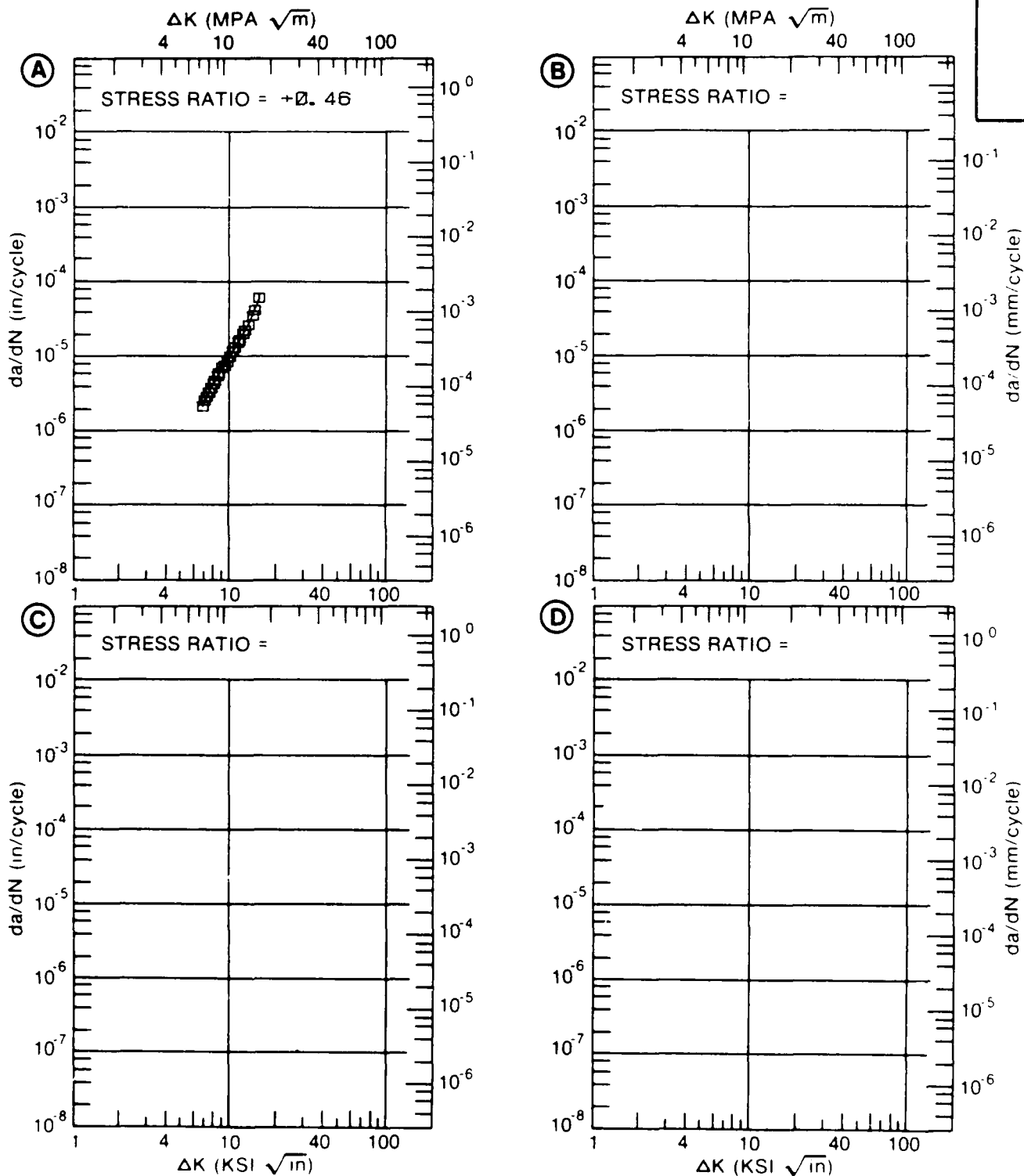


Figure 8.7.3.55

TABLE 8.7.3.56

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.56 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM 7050
CONDITION: T76511

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A: 4.53	.361			
	B: 4.95		.720		
	C: 4.52			1.55	
	D:				
	5.00	.419	.794	2.56	
	6.00	.626	2.83	7.06	
	7.00	.988	5.29	11.7	
	8.00	1.58	8.10	15.7	
	9.00	2.52	11.4	19.3	
	10.00	3.95	15.4	23.5	
	13.00		38.4	47.5	
	16.00		81.1		
DELTA K MAX	A: 11.55	7.62			
	B: 17.46		83.7		
	C: 15.13			70.2	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		9.30	15.98	12.58	

LIFE 0.0-0.5
 PREDICTION 0.5-0.8
 RATIO 0.8-1.25
 SUMMARY 1.25-2.0
 (NP/NA) >2.0

1

3

2

CONDITION/HT: T76511
 FORM: 1.16" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 19.30 HZ

YIELD STRENGTH: 76.4 KSI
 ULT. STRENGTH: 89.6 KSI
 SPECIMEN THK: 1.000- 1.007"
 SPECIMEN WIDTH: 3.100- 3.801"
 REFERENCES: AL004

ALUM.
 ALLOY

7050

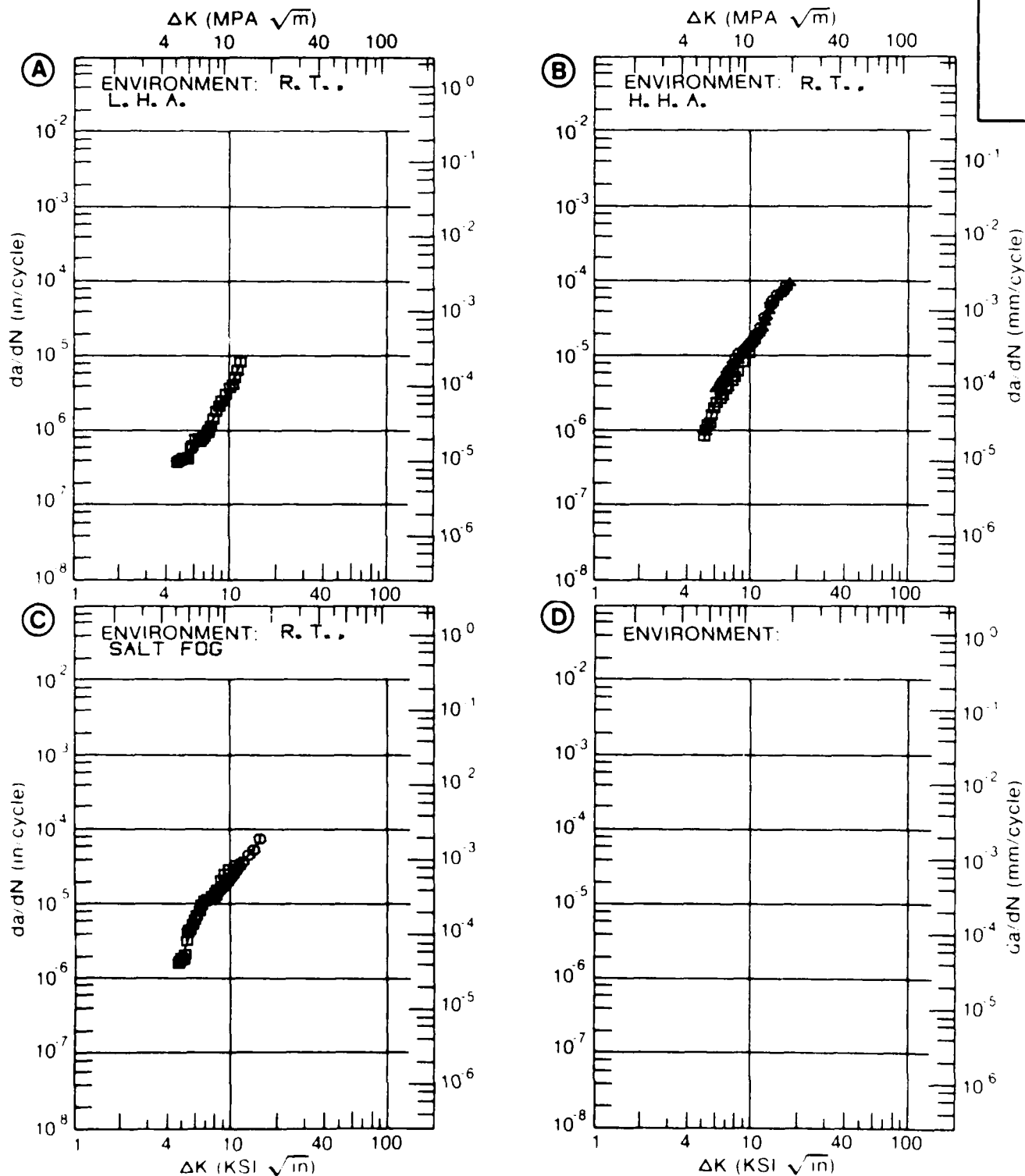


Figure 8.7.3.56

TABLE 8.7.3.57

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.7.3.57 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM
CONDITION: T76511

7050

DELTA K
(KSI*IN**1/2)

DA/DN (10**-6 IN./CYCLE)

A

B

C

D

E= R. T.

E= R. T.

E= R. T.

L. H. A.

H. H. A.

SALT FOG

DELTA K A: 3.86
MIN B: 6.00
C: 5.91
D:

323

5.43

7.43

4.00

323

5.00

810

6.00

1.76

7.66

7.00

2.71

8.50

10.7

8.00

3.68

12.0

14.8

9.00

4.87

16.0

20.0

10.00

6.38

20.5

26.7

13.00

14.4

39.2

50.8

16.00

35.5

71.5

DELTA K A: 18.47
MAX B: 17.14
C: 14.15
D:

93.4

89.7

53.6

ROOT MEAN SQUARE
PERCENT ERROR

17.60

6.16

7.68

LIFE 0.0-0.5
PREDICTION 0.5-0.8
RATIO 0.8-1.25
SUMMARY 1.25-2.0
(NP/NA) >2.0

2

1

1

CONDITION/HT: T76511
 FORM: 1.16" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 74.4 KSI
 ULT. STRENGTH: 82.5 KSI
 SPECIMEN THK: 0.999-1.000"
 SPECIMEN WIDTH: 3.801"
 REFERENCES: AL004

ALUM.
 ALLOY

7050

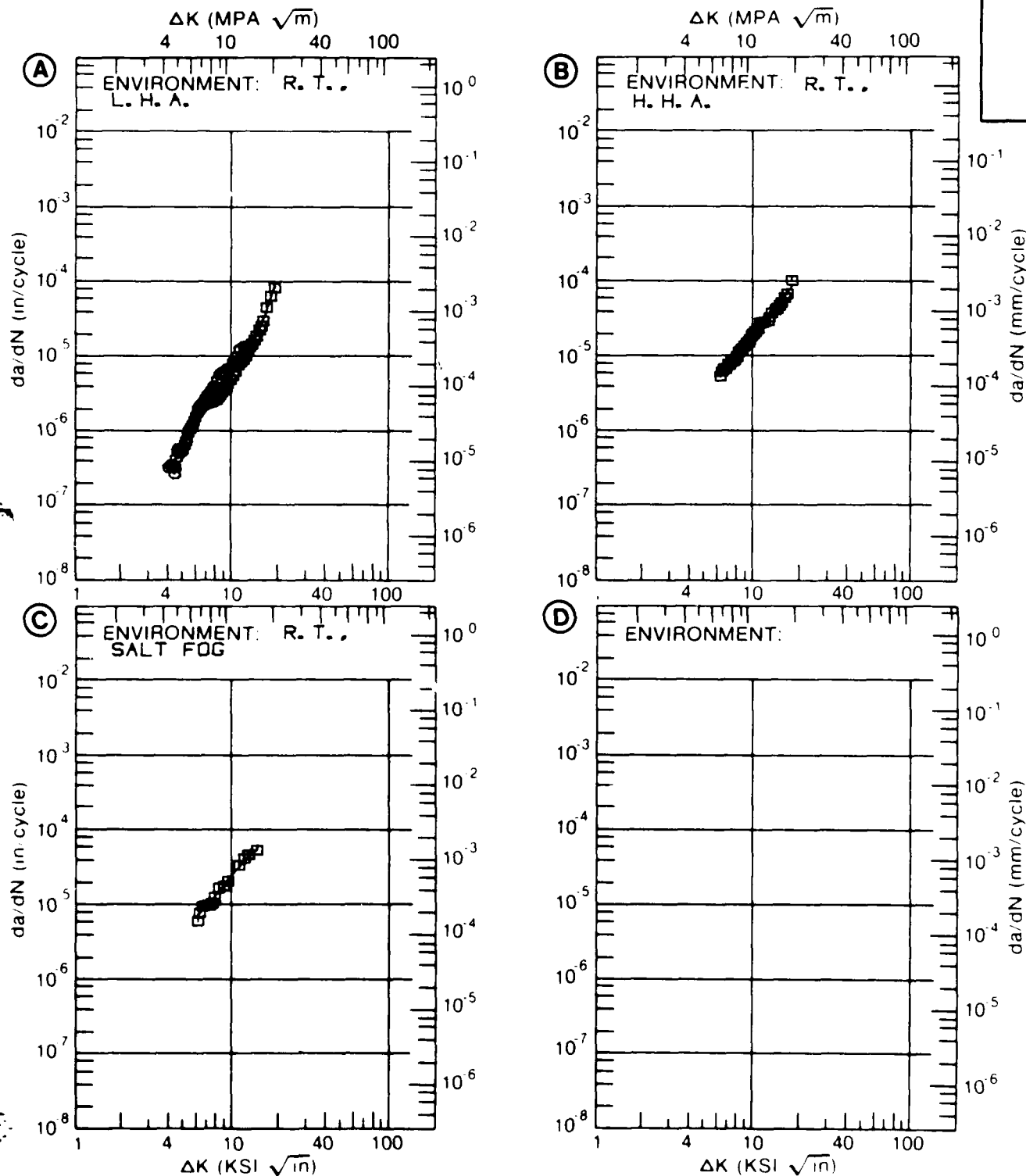


Figure 8.7.3.57

TABLE 8.7.3.58

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.58 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T76511					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K	A: 5.78	1.06			
MIN	B: 5.91		4.95		
	C: 7.98			8.09	
	D:				
	6.00	1.17	5.23		
	7.00	1.73	8.19		
	8.00	2.31	10.7	8.17	
	9.00	2.89	13.4	12.6	
	10.00	3.45	16.8	17.1	
	13.00	4.90			
	16.00	5.97			
DELTA K	A: 18.83	6.69			
MAX	B: 10.86		21.2		
	C: 12.68			26.1	
	D:				
ROOT MEAN SQUARE		10.06	5.74	2.40	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T76511
 FORM: 5.00" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: L-T
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 82.3- 82.6 KSI
 ULT. STRENGTH: 87.6 KSI
 SPECIMEN THK: 0.999- 1.003"
 SPECIMEN WIDTH: 3.100- 3.801"
 REFERENCES: AL004

ALUM.
 ALLOY

7050

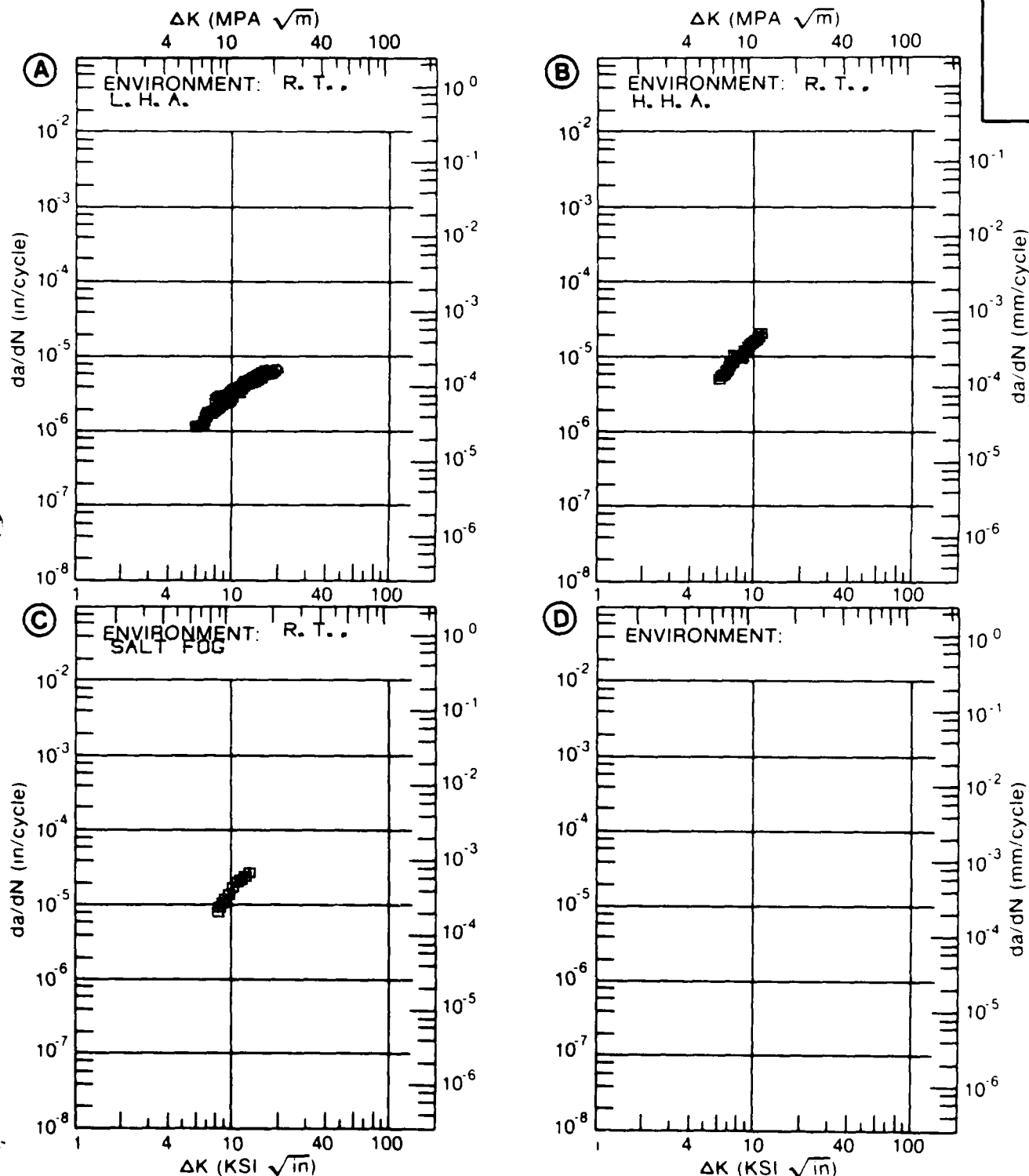


Figure 8.7.3.58

TABLE 8.7.3.59

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.7.3.59 INDICATING EFFECT
OF ENVIRONMENT

MATERIAL: ALUMINUM		7050			
CONDITION: T76511					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A	E= R. T. H. H. A	E= R. T. SALT FOG	
DELTA K MIN	A:	5.82	1.43		
	B:	3.89	1.05		
	C:	5.89		5.92	
	D:				
		4.00	1.01		
		5.00	1.71		
		6.00	1.53	4.91	6.82
		7.00	2.38	11.9	14.9
		8.00	4.68	23.4	22.4
		9.00	12.4	41.0	35.8
		10.00	43.9	121.	73.8
DELTA K MAX	A:	10.02	45.2		
	B:	10.01	124.		
	C:	10.31		98.8	
	D:				
ROOT MEAN SQUARE		9.65	19.59	12.07	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	2	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T76511
 FORM: 5.00" TH EXTRUSION
 SPECIMEN TYPE: CT
 ORIENTATION: S-L
 STRESS RATIO: +0.33
 FREQUENCY: 18.30 HZ

YIELD STRENGTH: 70.3- 82.3 KSI
 ULT. STRENGTH: 76.5- 87.6 KSI
 SPECIMEN THK: 0.958- 1.006"
 SPECIMEN WIDTH: 3.800- 3.801"
 REFERENCES: AL004

ALUM.
 ALLOY

7050

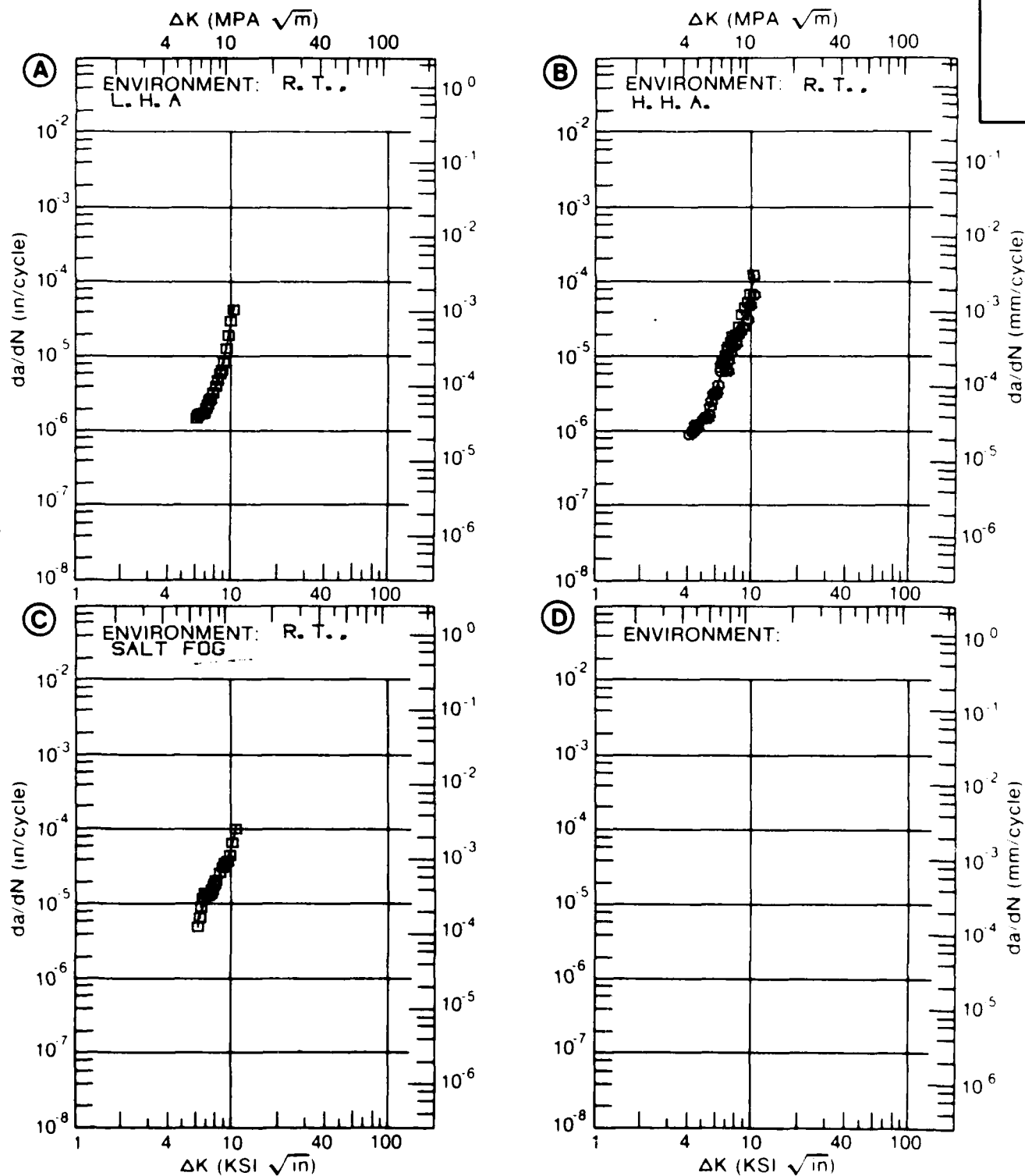


Figure 8.7.3.59

TABLE 8.7.3.60

CONDITION	--PRODUCT-- FORM THICK (IN)	TEST SPEC TEMP OR (F)	YIELD STR (KSI)	ENVIRONMENT	ALUMINUM		7050		K (KISCC)		STAN DEV	TEST TIME (MIN)	DATE REFER
							WIDTH (IN)	THICK (IN)	SPECIMEN-- THICK DESIGN (IN) (**SG)	CRACK LENGTH (IN)	MEAN K (KISCC) (KSI*SQRT IN)		
1736	F	0.25	R.T.	L-T	61.4	3.5	PCT NACL	---	---	DCB	31.10	28.20*	1973 86212
1736	F	0.25	R.T.	T-L	62.4	3.5	PCT NACL	---	---	DCB	28.10	24.50*	1973 86212
173651	P	4.00	R.T.	T-L	67.2	2	DIST WATER	5.000	1.250	TDCB	30.00	29.10	1972 84362
173651	P	4.00	R.T.	T-L	66.0	0.8	T.W.	5.500	1.000	DCB	43.00	27.50	133680 1976 R1006
		4.00			66.0			5.500	1.000	DCB	43.00	28.00	133680 1976 R1006
											27.8/	0.4	
173651	P	4.00	R.T.	T-L	67.2	3.5	PCT NACL	5.000	1.250	TDCB	30.00	29.10	1972 84362
17651	P	1.25	R.T.	L-T	73.8	JP-4	FUEL	3.085	1.248	WDL *	1.086	> 22.40	>95040 1977 MA005
		1.25			73.8			3.078	1.253	WDL *	1.092	> 22.60	>95040 1977 MA005
17651	P	1.25	R.T.	L-T	73.8	SIM.	SEA WATER	3.082	1.249	WDL *	1.131	> 22.00	>95040 1977 MA005
		1.25			73.8			3.079	1.251	WDL *	1.131	> 21.90	>95040 1977 MA005
17651	P	1.25	R.T.	T-L	77.0	JP-4	FUEL	3.087	1.252	WDL *	1.156	> 22.50	>95040 1977 MA005
17651	P	1.25	R.T.	T-L	77.0	SIM.	SEA WATER	3.087	1.251	WDL *	1.101	> 22.30	>95040 1977 MA005
		1.25			77.0			3.086	1.252	WDL *	1.091	> 22.30	>95040 1977 MA005

*NOTE-DATA WHICH DO NOT MEET MINIMUM SPECIMEN THICKNESS REQUIREMENTS OF 2.5 (KISCC/TYS) SQUARED

TABLE 8.8.1.1

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR
ALUMINUM 7050 (ALCLAD)

TEST CONDITIONS

SPECIMEN
ORIENTATION T-TENVIRONMENT L H A
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	2.5	5	10	20	50	100
176	SHEET	0.00	13.30				4.68			
176	SHEET	0.33	13.30				6.90			
176	SHEET	0.67	13.30			1.70	2.35			

TABLE 8.8.1.2

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050 (ALCLAD)

TEST CONDITIONS		ENVIRONMENT		H H A A T R Y						
CONDITION/HT	SPECIMEN ORIENTATION	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)				
					2	5	10	20	50	100
176		SHEET	0.00	13.30			8.03			
176		SHEET	0.33	13.30			1.51	13.7		
176		SHEET	0.67	13.30			2.47	27.7		

TABLE 8.8.1.3

FATIGUE CRACK GROWTH RATE AT DEFINED LEVELS OF THE STRESS-INTENSITY FACTOR

ALUMINUM 7050 (ALCLAD)

TEST CONDITIONS

SPECIMEN
ORIENTATION T IENVIRONMENT SALT FOG
AT R T

CONDITION/HT	PRODUCT FORM	STRESS RATIO	FREQ (HZ)	DELTA K LEVELS (KSI SQRT(IN))	FATIGUE CRACK GROWTH RATES (MICRO IN/CYCLE)					
					2	5	10	20	50	100
176	SHEET	0 00	13 30				11 6			
176	SHEET	0 33	13 30				21 4			
176	SHEET	0 47	13 30			4 82	39 0			

ALUMINUM 7050 (ALCLAD) K(C)

*NOTE- NET SECTION STRESS EXCEEDS 80% OF YIELD STRENGTH. VALUE NOT INCLUDED IN MEAN OR STD. DEV.

TABLE 8.8.3.1

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.8.3.1 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL ALUMINUM
CONDITION T76

7050 (ALCLAD)

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A:	5.02	.763		
	B:	4.99	1.50		
	C:	5.11		2.27	
	D:				
	5.00		1.51		
	6.00	1.77	2.76	4.74	
	7.00	2.91	4.55	8.28	
	8.00	4.05	6.93	12.3	
	9.00	5.31	9.97	16.7	
	10.00	6.90	13.7	21.4	
	13.00	17.6	29.4	39.3	
DELTA K MAX	A:	14.99	39.6		
	B:	14.43	39.2		
	C:	14.62		53.3	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		12.44	8.41	10.79	
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	2	2	2	
SUMMARY	1.25-2.0				
(NP/NA)	0.2 0				

CONDITION/HT: T76
 FORM: 0.03- 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.33
 FREQUENCY: 13.30 HZ

YIELD STRENGTH: 65.1- 67.7 KSI
 ULT. STRENGTH: 74.2- 76.2 KSI
 SPECIMEN THK: 0.024- 0.122"
 SPECIMEN WIDTH: 3.999- 4.001"
 REFERENCES: AL012

ALUM.
 ALLOY

7050
 (ALCLAD)

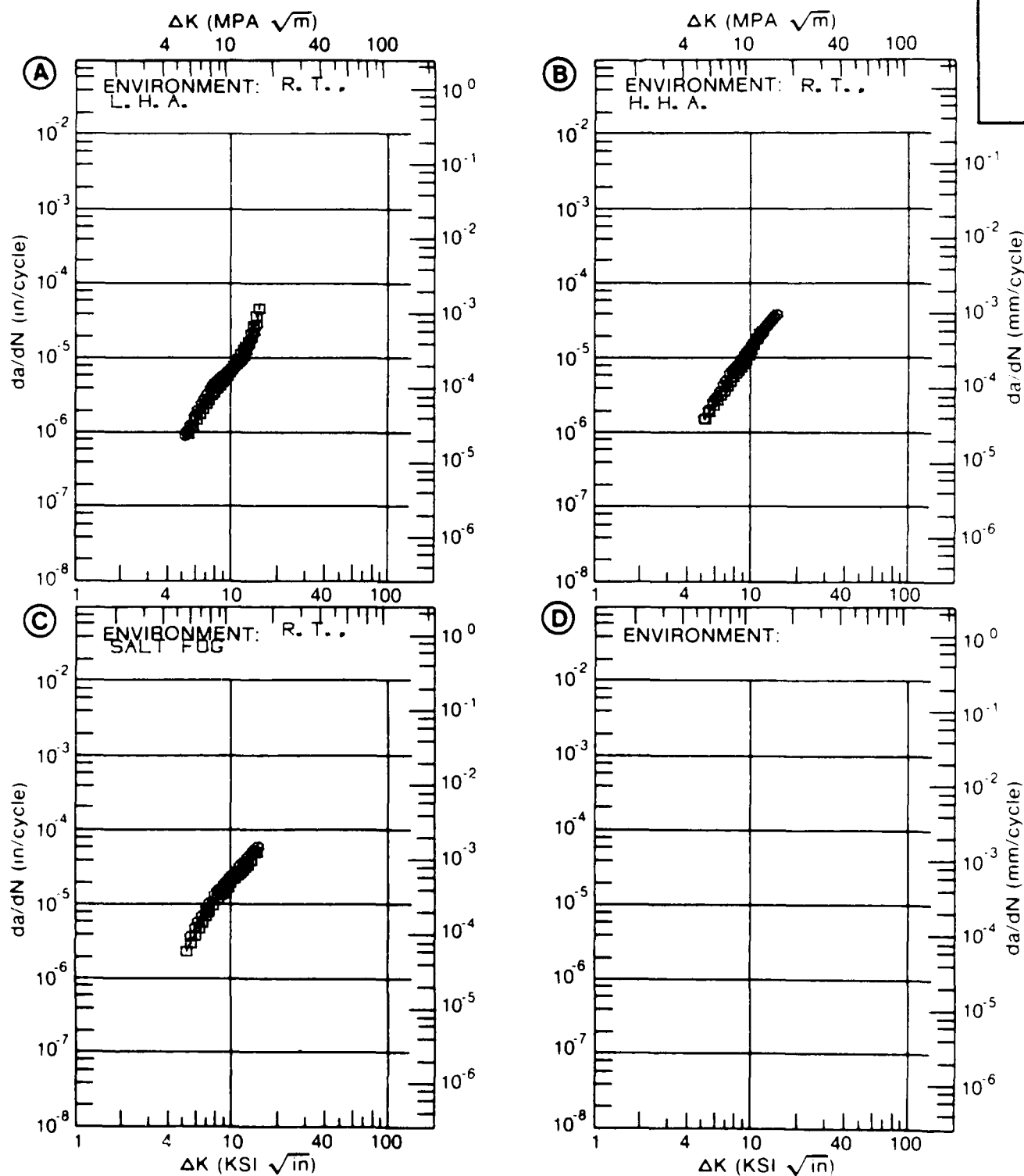


Figure 8.8.3.1

TABLE 8.8.3.2

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.8.3.2 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM
CONDITION: T76

7050 (ALCLAD)

DELTA K (KSI*IN**1/2)		DA/DN (10** ⁻⁶ IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A:	5.07	.729		
	B:	5.08	1.51		
	C:	5.70		4.90	
	D:				
	6.00	1.69	2.85	5.92	
	7.00	3.06	4.82	10.0	
	8.00	4.63	7.33	15.2	
	9.00	6.35	10.4	21.3	
	10.00	8.19	14.0	28.1	
	13.00	15.3	29.4	51.6	
	16.00	27.4			
DELTA K MAX	A:	16.45	30.0		
	B:	14.28	38.5		
	C:	14.10		60.8	
	D:				
ROOT MEAN SQUARE		4.79	2.06	2.81	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T76
 FORM: Ø. 13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: L-T
 STRESS RATIO: +Ø. 33
 FREQUENCY: 13. 7Ø HZ

YIELD STRENGTH: 67. 3 KSI
 ULT. STRENGTH: 75. 2 KSI
 SPECIMEN THK: Ø. 121"
 SPECIMEN WIDTH: 4. ØØ1"
 REFERENCES: ALØ12

ALUM.
 ALLOY

7Ø5Ø
 (ALCLAD)

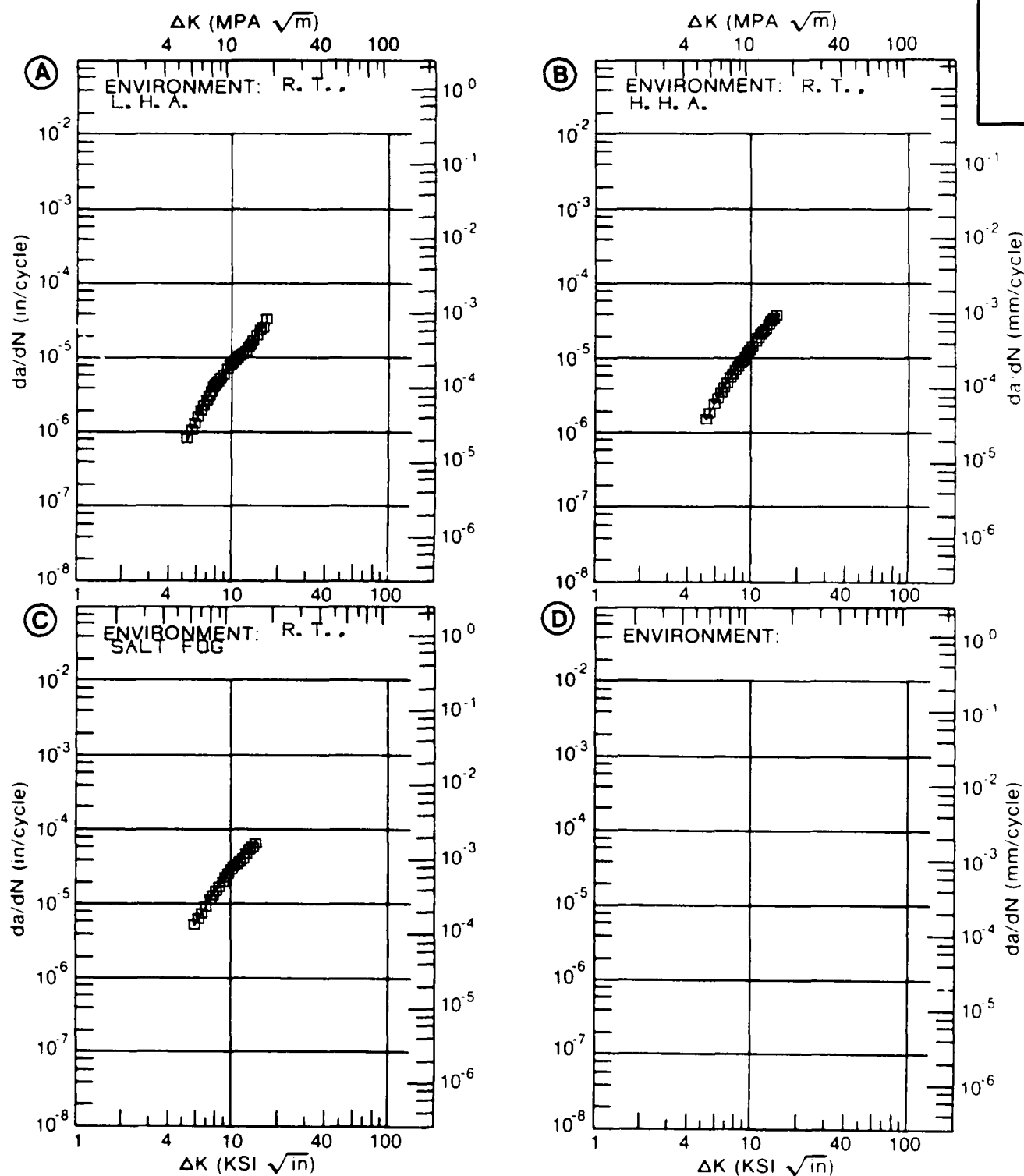


Figure 8.8.3.2

TABLE 8.8.3.3

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTOR

DATA ASSOCIATED WITH FIGURE 8.8.3.3 INDICATING EFFECT

OF ENVIRONMENT

MATERIAL: ALUMINUM		7050 (ALCLAD)			
CONDITION: T76					
DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K	A: 5.75	.541			
MIN	B: 5.77		.944		
	C: 5.81			1.99	
	D:				
	6.00	.695	1.19	2.27	
	7.00	1.49	2.43	4.07	
	8.00	2.49	3.95	6.27	
	9.00	3.56	5.81	8.79	
	10.00	4.66	8.03	11.6	
	13.00	8.01	16.5	22.0	
	16.00	12.3	27.0	36.8	
DELTA K	A: 16.45	13.1			
MAX	B: 16.53		29.1		
	C: 16.50			39.9	
	D:				
ROOT MEAN SQUARE		5.27	3.32	4.58	
PERCENT ERROR					
LIFE	0.0-0.5				
PREDICTION	0.5-0.8				
RATIO	0.8-1.25	1	1	1	
SUMMARY	1.25-2.0				
(NP/NA)	>2.0				

CONDITION/HT: T76
 FORM: 0.13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +0.00
 FREQUENCY: 13.30 HZ

YIELD STRENGTH: 67.7 KSI
 ULT. STRENGTH: 76.2 KSI
 SPECIMEN THK: 0.121"
 SPECIMEN WIDTH: 4.001- 4.002"
 REFERENCES: AL012

ALUM.
 ALLOY

7050
 (ALCLAD)

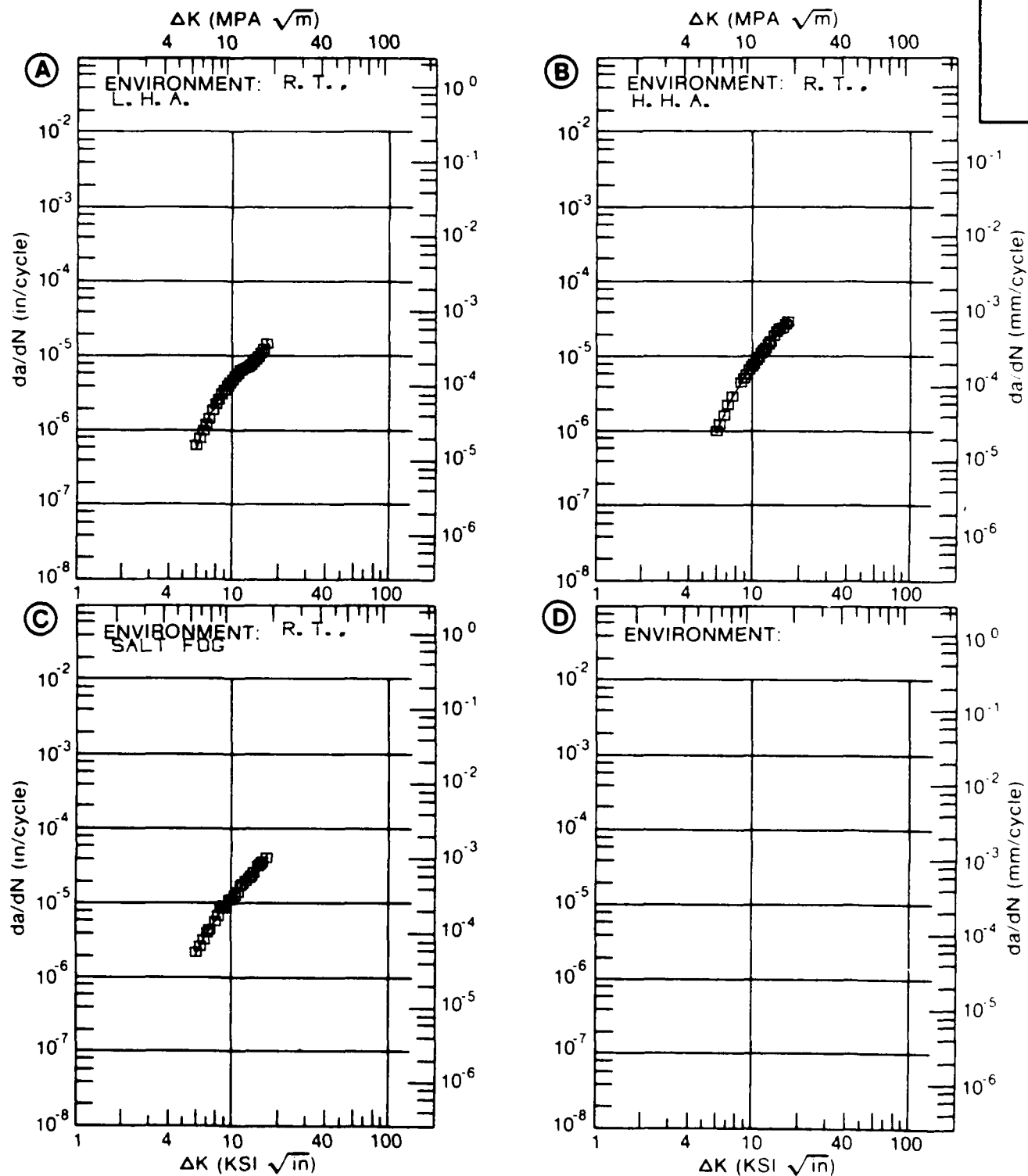


Figure 8.8.3.3

TABLE 8.8.3.4

FATIGUE CRACK GROWTH RATES AT DEFINED LEVELS
OF STRESS INTENSITY FACTORDATA ASSOCIATED WITH FIGURE 8.8.3.4 INDICATING EFFECT
OF ENVIRONMENTMATERIAL: ALUMINUM
CONDITION: T76

7050 (ALCLAD)

DELTA K (KSI*IN**1/2)		DA/DN (10**-6 IN./CYCLE)			
		A	B	C	D
		E= R. T. L. H. A.	E= R. T. H. H. A.	E= R. T. SALT FOG	
DELTA K MIN	A:	3.41	.410		
	B:	3.56	.714		
	C:	3.51		1.06	
	D:				
	3.50	.453			
	4.00	.750	1.10	1.81	
	5.00	1.70	2.47	4.82	
	6.00	3.31	4.69	9.39	
	7.00	5.85	8.01	14.8	
	8.00	9.70	12.7	21.2	
	9.00	15.4	19.1	29.0	
	10.00	23.5	27.7	39.0	
DELTA K MAX	A:	10.22	25.7		
	B:	10.18	29.5		
	C:	10.50		45.2	
	D:				
ROOT MEAN SQUARE PERCENT ERROR		4.32	2.80	4.27	

LIFE	0.0-0.5			
PREDICTION	0.5-0.8			
RATIO	0.8-1.25	1	1	1
SUMMARY	1.25-2.0			
(NP/NA)	>2.0			

CONDITION/HT: T76
 FORM: Ø. 13" TH SHEET
 SPECIMEN TYPE: CCP
 ORIENTATION: T-L
 STRESS RATIO: +Ø. 67
 FREQUENCY: 13.3Ø HZ

YIELD STRENGTH: 67.7 KSI
 ULT. STRENGTH: 76.2 KSI
 SPECIMEN THK: Ø. 121- Ø. 122"
 SPECIMEN WIDTH: 4. ØØ1"
 REFERENCES: ALØ12

ALUM.
 ALLOY

7Ø5Ø
 (ALCLAD)

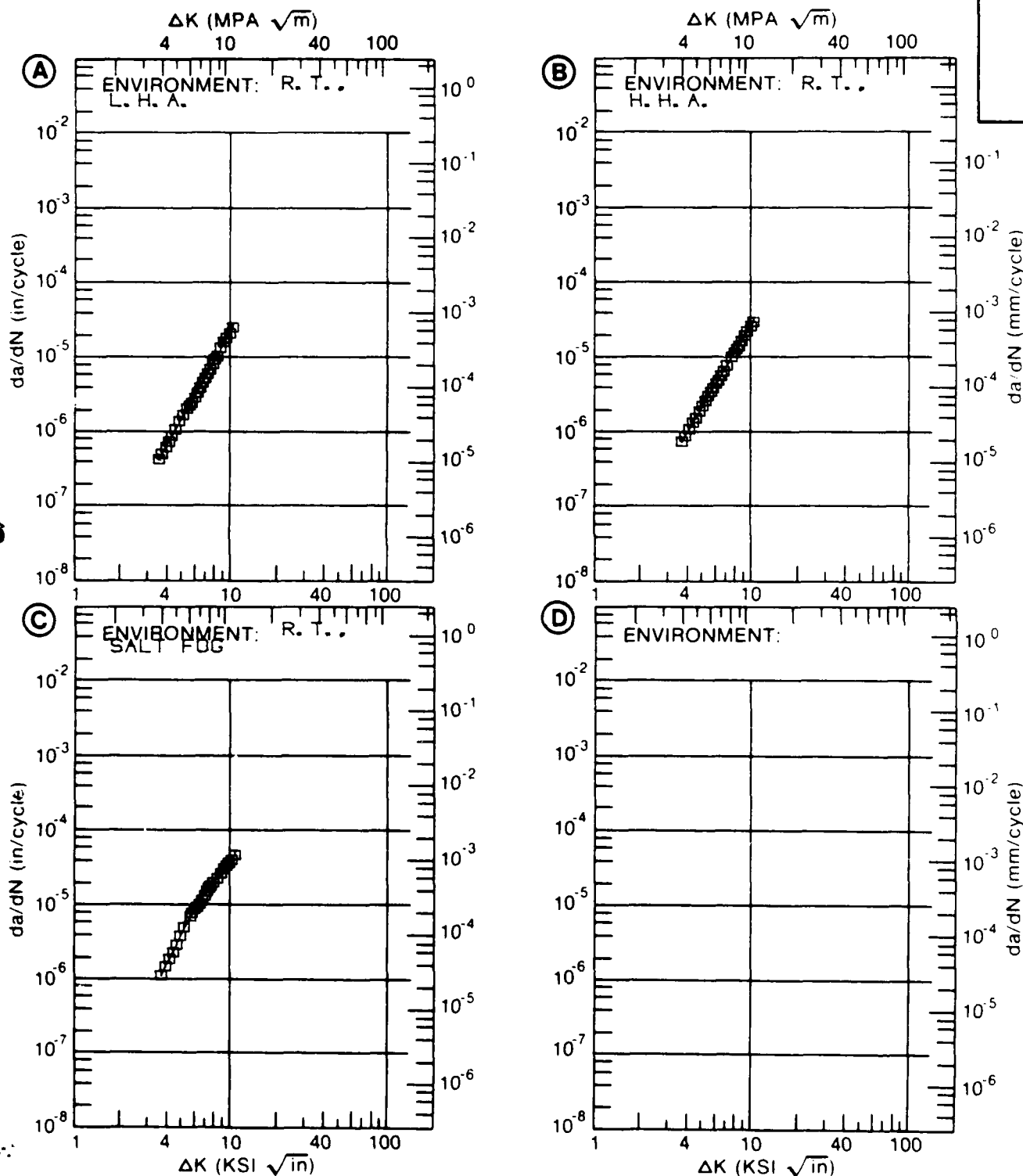


Figure 8.8.3.4