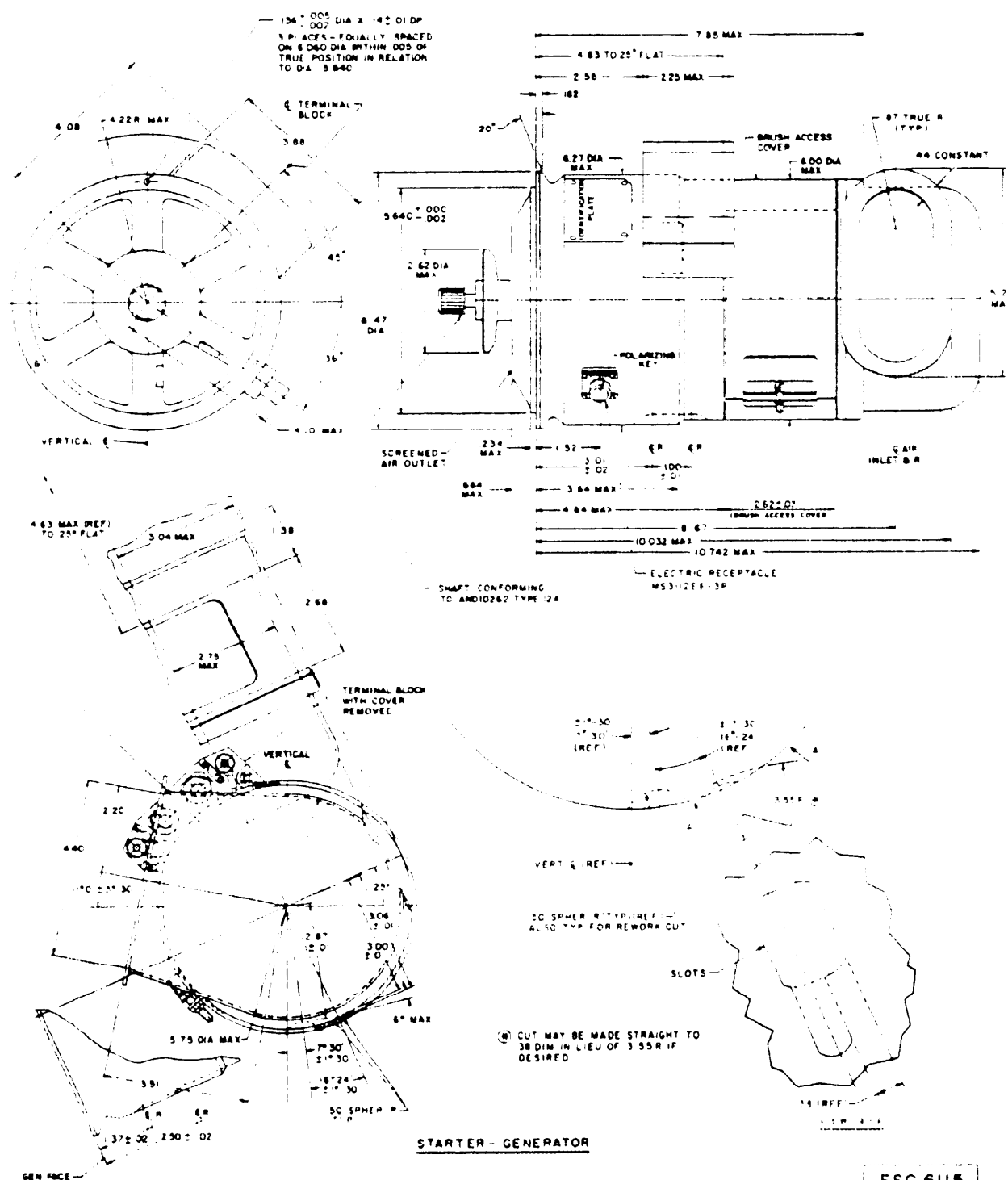
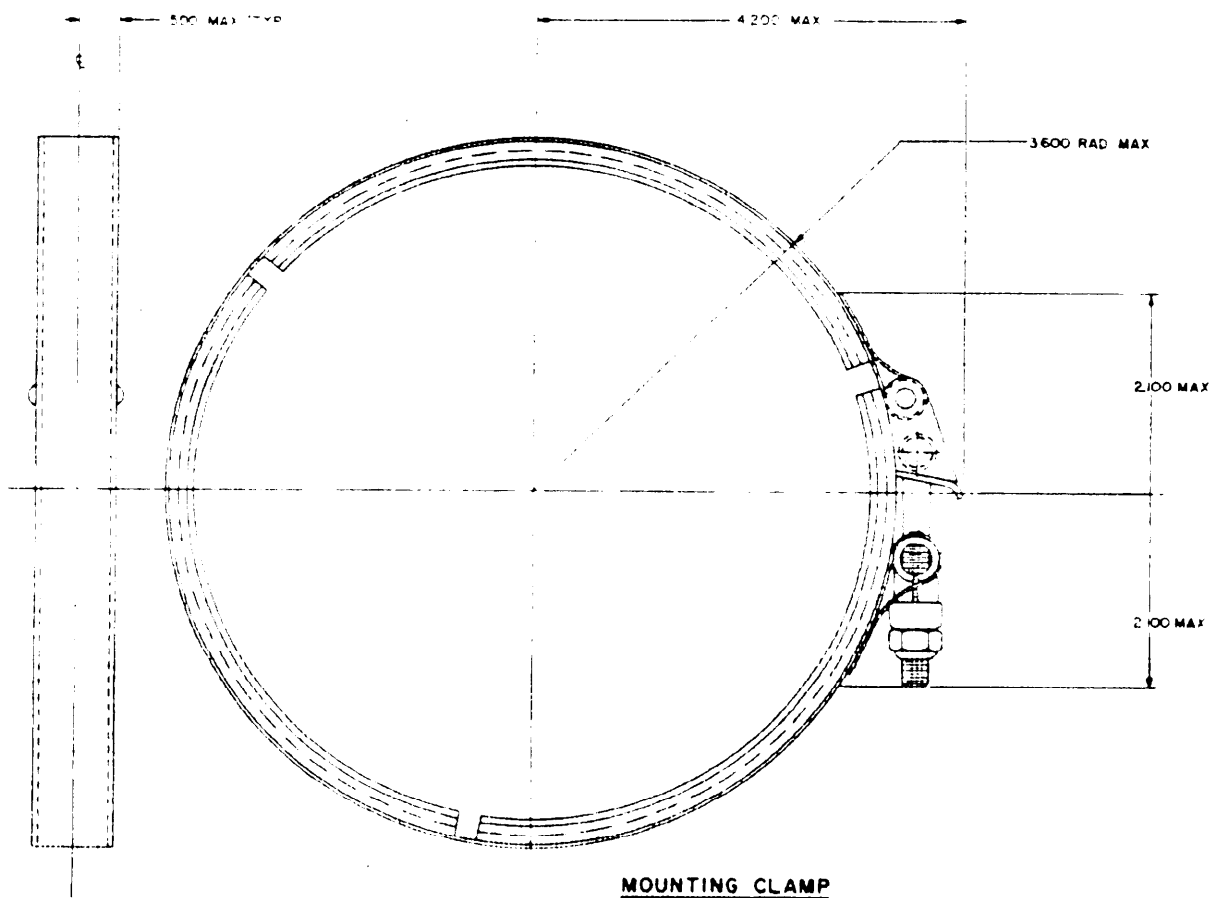
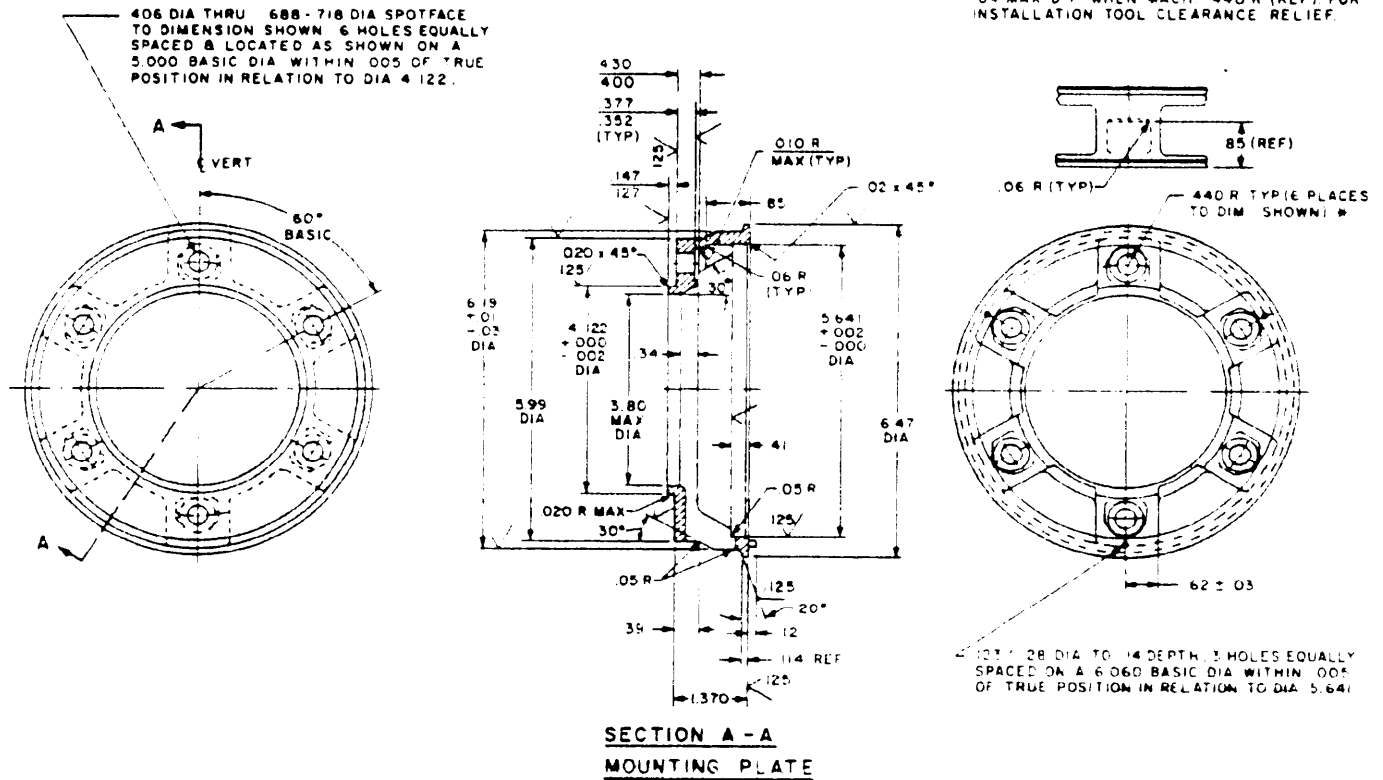


STARTER-GENERATOR, 30 VOLT, DIRECT CURRENT
400 AMPERE, AIRCRAFT ENGINE DRIVEN

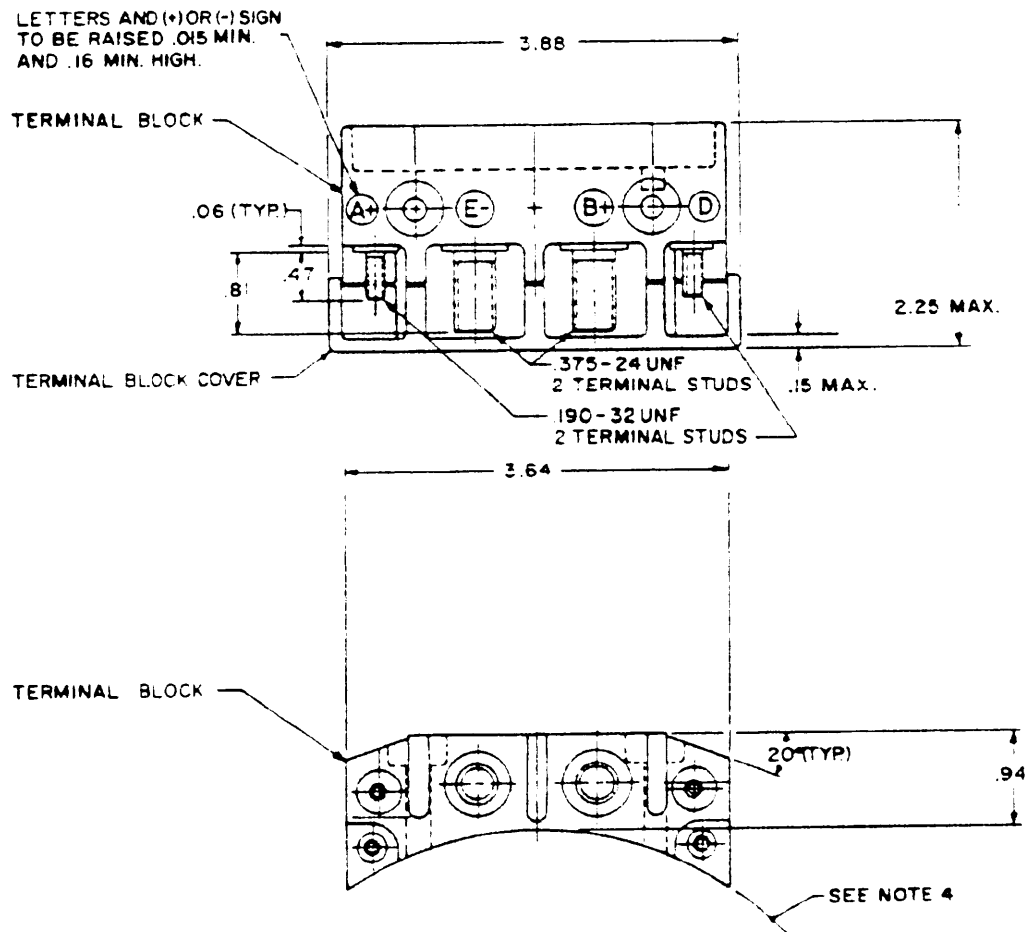
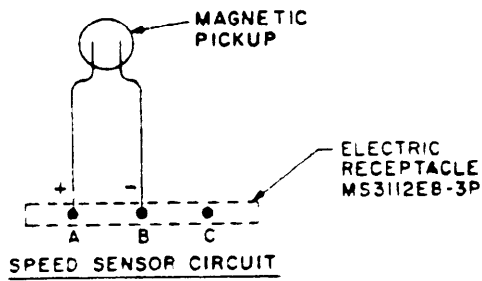
The complete requirements for procuring the starter-generator described herein shall consist of this document and the latest issue of MIL-G-6162.



MIL-G-6162/1C(AS)



MIL-G-6162/IC(AS)



NOTES

- 1.- COLOR BLACK MOLDED IN
- 2.- ALL FILLET RADI: TO BE .06 MAX
- 3.- ALL CORNER RADI: TO BE .07 MAX.
- 4.- DRAFT ANGLES TO BE 2° MAX. EXCEPT
SURFACE IND. TO BE FREE OF DRAFT.

TERMINAL BLOCK AND COVER

MIL-G-6162/IC(AS)

IDENTIFICATION OF ITEMS		
ITEM	MILITARY PART NUMBER	MAX. WEIGHT POUNDS
1/ STARTER-GENERATOR ASSY (CONSISTS OF ONE STARTER-GENERATOR, ONE MOUNTING PLATE, ONE MOUNTING CLAMP)	M6162/1-1	37.5
2/ STARTER-GENERATOR	M6162/1-2	36.0
MOUNTING PLATE	M6162/1-3	
MOUNTING CLAMP	M6162/1-4	

1/ M6162/1-1 IS REQUIRED FOR NEW AIRCRAFT PROCUREMENT

2/ FOR SPARES PROVISIONING M6162/1-2 SHALL BE PROVIDED

STARTER-GENERATOR DATA		
RATED VOLTAGE	30	VOLTS
RATED CURRENT	400	AMPERES
MINIMUM RATED SPEED	7,000	RPM
CONTINUOUS OPERATING SPEED	10,000	RPM
MAXIMUM SPEED FOR REGULATION	12,000	RPM
MINIMUM SPEED FOR REGULATION	7,470	RPM
OVERSPEED	14,000	RPM
REGULATED FIELD CURRENT (MAX)	8	AMPS
GENERATOR EFFICIENCY - 70 TO 100% LOAD-MIN	75	%
RATED STARTER TORQUE - 1100 TO 5500 RPM (SEE REQ 1 & FIG 2)		
STARTER NO LOAD SPEED MINIMUM	5700 ± 300	RPM
OVERHUNG MOMENT MAX	250	IN LB
SHEAR SECTION - SHAFT	1.750 ± .250	IN LB
DIRECTION OF ROTATION (VIEWED FROM FREE END)	CW	
MINIMUM NATURAL FREQUENCY	250	Hz
MAXIMUM STARTER INRUSH (5 SEC)	1,000	AMPERES

REQUIREMENTS

- 1 FROM 1100 RPM TO 5500 RPM MOTOR TORQUE SHALL DECREASE
- 2 THE STARTER-GENERATOR SHALL INCLUDE A MAGNETIC SPEED SENSOR WHICH SHALL HAVE AN OUTPUT AS FOLLOWS
 - a 2.5 VOLT PEAK-TO-PEAK MINIMUM AT 6000 RPM INTO A 20K ± 10% OHM IMPEDANCE, WITH A FREQUENCY OF 1.2 KHZ
 - b 15 VOLTS PEAK-TO-PEAK MAXIMUM AT 12,000 RPM OPEN CIRCUIT, WITH A FREQUENCY OF 5.4 KHZ
 - c THE WAVE SHAPE OF THE SPEED SENSOR OUTPUT SHALL BE APPROXIMATELY SINUSOIDAL WITH A SMOOTH CROSS POINT AT ZERO VOLTS. THE WAVE SHAPE SHALL NOT BE FLAT AT THE CROSS OVER POINT
 - d SENSOR WIRES SHALL NOT INTERFERE WITH MOUNTING STUDS
- 3 COOLING - BLAST AIR FOR IN-FLIGHT OPERATION IS 6 INCHES H₂O MIN. AND SELF-COOLED WITH FAN FOR GROUND OPERATION
- 4 EXTERNAL COLOR WHITE, CONFORMING TO FED-STD-595 COLOR NUMBER 17875
- 5 MOUNTING CLAMP TORQUE REQUIREMENTS - 70 IN LB
- 6 THE STARTER-GENERATOR SHALL MEET THE TEMPERATURE AND ALTITUDE REQUIREMENTS OF FIGURE 1 OF THIS SPECIFICATION SHEET
- 7 THE STARTER-GENERATOR SHALL INCLUDE A STANDARD SIZE TYPE A, B, OR H METAL NAMEPLATE IN ACCORDANCE WITH MIL-P-15074, SECURELY ATTACHED TO THE MACHINE. THE NAMEPLATE SHALL CONTAIN THE FOLLOWING INFORMATION:

DC STARTER-GENERATOR
 RATED VOLTAGE - 30 VOLTS
 RATED SPEED - 7000 TO 12000 RPM
 RATED CURRENT - 400 AMPS
 MILITARY PART NO - M6162/1-2
 MANUFACTURER'S PART NO. OR MODEL NO.
 MANUFACTURER'S NAME OR TRADEMARK
 SERIAL NO -
 FEDERAL STOCK NO -
 DATE OF MANUFACTURE -
 ACCEPTANCE STAMP -
- 8 STARTER-GENERATOR BEARINGS SHALL BE PACKED WITH KRYTOX 280AC LUBRICANT
- 9 THE STARTER-GENERATOR SHALL MEET ALL REQUIREMENTS FOR OPERATION WHEN CONNECTED WITH AN M23761/1-1 CONTROL PANEL AND TWO M23761/1-1 CURRENT TRANSFORMERS PER MIL-E-23761/1 OR AS MODIFIED HEREIN
- 10 THE STARTER-GENERATOR ASSEMBLIES M6162/1-1 AND -2 SHALL MEET THE VIBRATION AND SHOCK TESTS REQUIREMENTS OF MIL-E-81910
- 11 A NO LOAD SPEED OF 5700 ± 300 RPM SHALL BE ACHIEVED THROUGH SHUNT FIELD WEAKENING
- 12 THE STARTER-GENERATOR SHALL MEET THE EMI REQUIREMENTS OF MIL-E-81910, HOWEVER THE MAXIMUM ALLOWABLE CONDUCTED AND RADIATED EMISSION LIMITS ARE RELAXED BY 20dB
- 13 THE MILITARY PART NUMBER SHALL BE INDICATED ON THE MOUNTING PLATE AND CLAMP

MIL-G-6162/IC (AS)

TESTS:

1. FOR ALL TESTS WHICH REQUIRE MOUNTING THE STARTER-GENERATOR, THE STARTER-GENERATOR SHALL BE MOUNTED BY MEANS OF THE M6162/1-5 MOUNTING PLATE AND THE M6162/1-4 MOUNTING CLAMP.
2. THE MACHINE SHALL BE OPERATED AS A GENERATOR AT 30 VOLTS AND 400 AMPERES AT 7000, 7500, 10000, AND 12000 RPM. THE FIELD TEMPERATURE SHALL STABILIZE AT ALL CONDITIONS. TEMPERATURE STABILIZATION IS DEFINED AS NO MORE THAN A 2°C TEMPERATURE RISE IN A ONE HOUR PERIOD.
3. THE COMMUTATION OF THE MACHINE SHALL BE MEASURED UPON TEMPERATURE STABILIZATION. THERE SHALL BE NO MORE THAN NUMBER 1-1/2 SPARKING (FIGURE 5 MIL-G-6162) EXCEPT AT 400 AMPERE LOAD SPARKING UP TO NUMBER 3 WILL BE ALLOWED.
4. THE PEAK RIPPLE VOLTAGE APPEARING AT THE DC OUTPUT (STARTER-GENERATOR TERMINALS) SHALL NOT EXCEED 2.5 VOLTS ABOVE OR BELOW THE DIRECT CURRENT AVERAGE VOLTAGE FROM 0 TO RATED LOAD-CURRENT WHEN BEING CONTROLLED BY THE GCU.
5. THE STARTER SHALL DELIVER A CRANKING TORQUE WITHIN +5% OF FIGURE 2 VALUES.
6. THE STARTER-GENERATOR SHALL BE CAPABLE OF OPERATING AS A GENERATOR AND SUBJECTED TO THE FOLLOWING CONDITIONS DURING A 216 HOUR ENDURANCE TEST.

RUN	DURATION HOURS	CYCLES	GEN. LOAD (AMPS)	COOLING AIR SOURCE	TEMP °C	DEW POINT °C MAX	ALTITUDE (FT)
1	12	5	400	BLAST (6"H ₂ O)	+40	-	SEA LEVEL
2	12	3	400	BLAST (1 4"H ₂ O)	+40	-	SEA LEVEL
3	24	4	400	BLAST (6"H ₂ O)	-55	-60	30000
4	12	2	200	BLAST (6"H ₂ O)	-55	-60	30000

NOTES

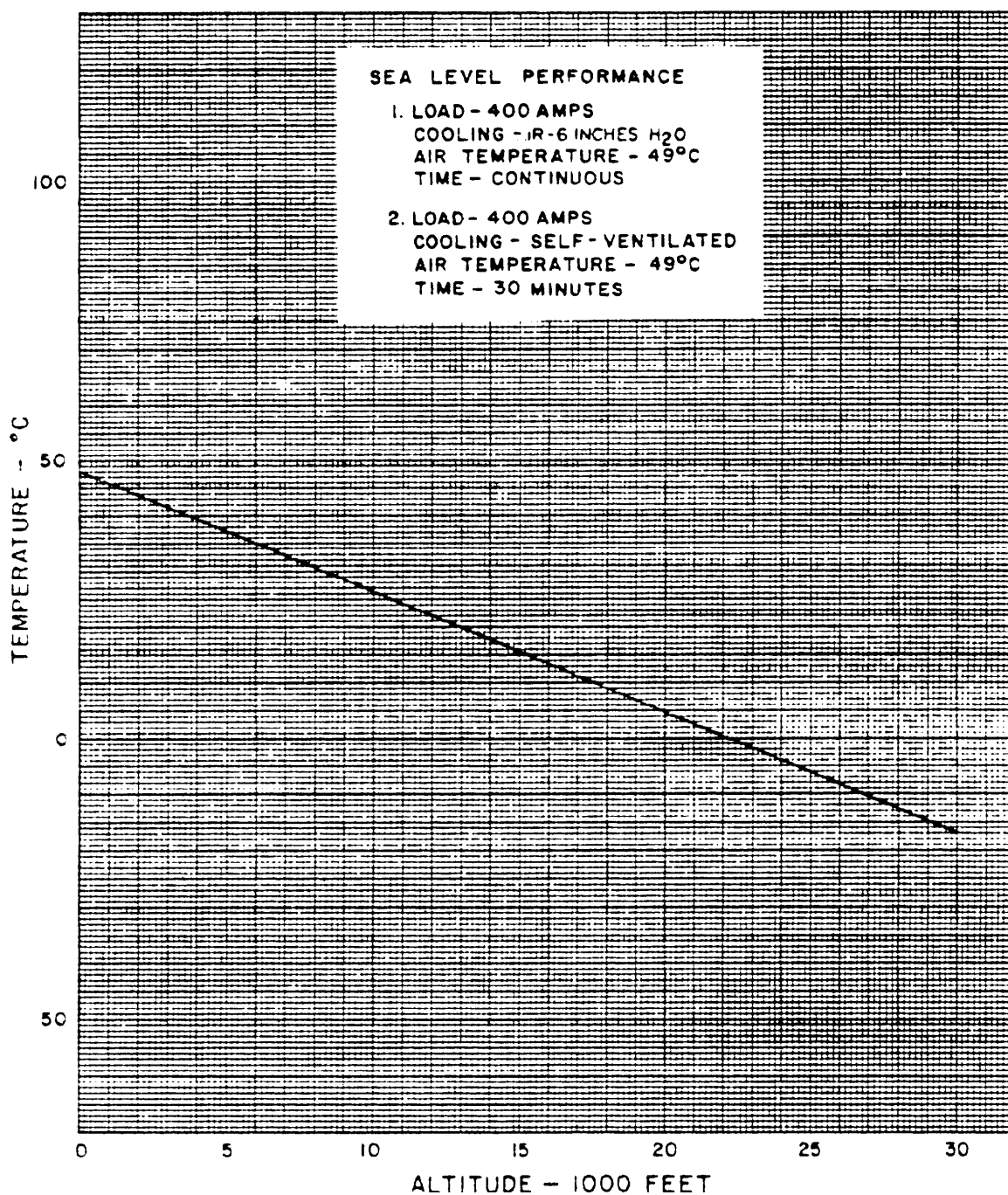
1. UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
2. TOLERANCES ARE DECIMALS .XX ± .01 .XXX ± .005. ANGLES ± 0°30.
3. WHERE ONLY MAXIMUM DIMENSIONS ARE SHOWN THE PART NEED NOT HAVE THE SHAPE SHOWN BUT SHOULD BE CONTAINED WITHIN THE OUTLINE SHOWN.
4. REVISION LETTERS ARE NOT USED TO DENOTE CHANGES DUE TO THE EXTENSIVENESS OF THE CHANGES.

PREPARING ACTIVITY

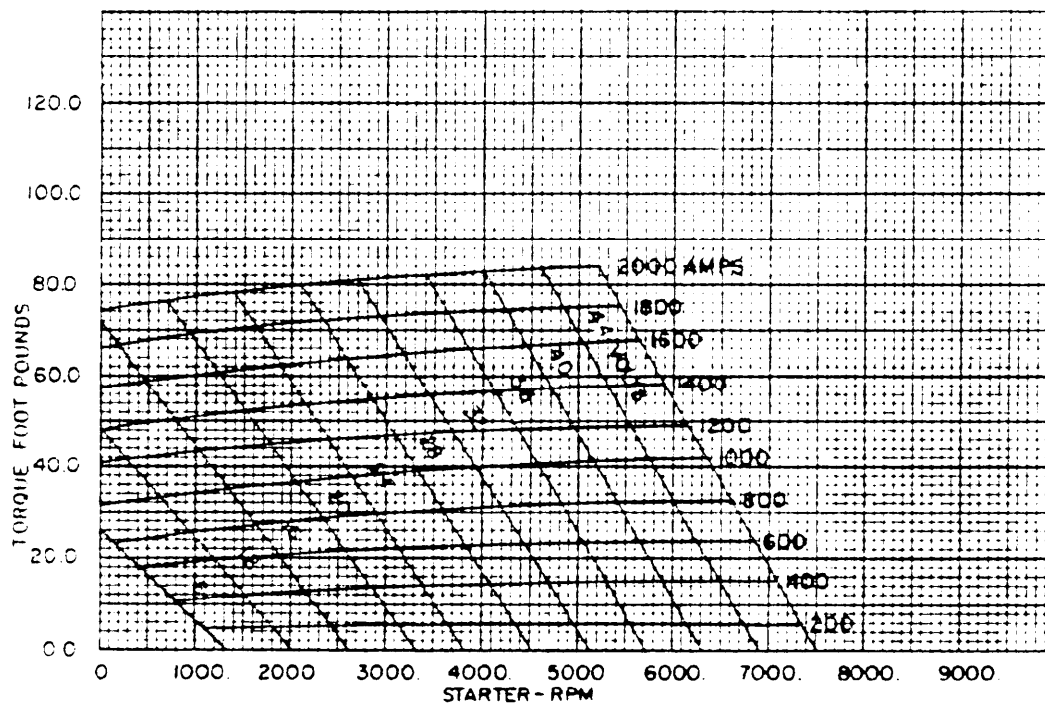
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MIL-G-6162/1C(AS)

FIGURE 1. MAXIMUM AIR INLET TEMPERATURE

MIL-G-6162/1C(AS)

FIGURE 2. STARTER SPEED - TORQUE REQUIREMENT

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MIL-G-6162/10(AS) Starter-Generator	
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