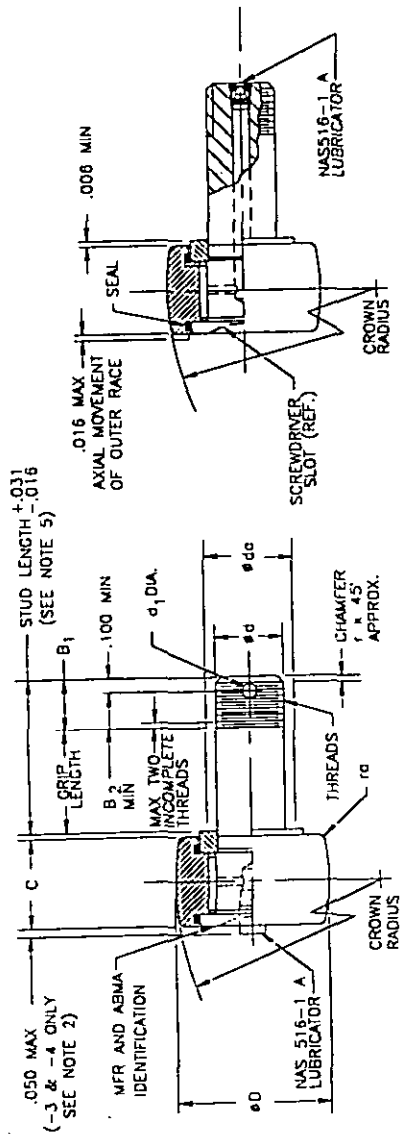


THE REQUIREMENTS FOR ACQUIRING THE PRODUCT(S) DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DODISS SPECIFIED IN THE SOLICITATION: MIL-B-3990

THIS SPECIFICATION IS APPROVED FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE.



DIMENSIONS IN INCHES

FIRST DASH NO.	d STUD DIA	C OUTER RING OUTSIDE DIA.	CROWN RADIUS (REF)	THREAD SIZE UNJF-3A	B1 THREAD LENGTH (REF)	d1 CLAMPING DIA. MIN.	B2 MIN.	d1 COTTER PIN HOLE DIA	r1/1 FILLET MAX.	r TOTAL RADIAL PLAY MAX.	UNIT LOAD RATING lbf	2/ LB-IN MAX.	TRACK CAPACITY AS A TRACK ROLLER lbf	LOAD RATING lbf
-3	.1900	.5000	.281	10	1900-32	.297	.211	.070	.010	.0017	790	B	385	395
-4	.2500	.6875	.281	10	2500-28	.344	.224	.076	.010	.0017	940	20	525	470
-5	.3125	.7500	.344	10	3125-24	.359	.234	.076	.010	.0017	1660	40	725	830
-6	.3750	.8750	.469	10	3750-24	.359	.265	.106	.025	.0017	2720	55	1100	1360
-7	.4375	1.0000	.531	10	4375-20	.562	.283	.106	.025	.0017	3860	155	1425	1930
-8	.5000	1.1250	.656	10	5000-20	.422	.314	.106	.040	.0017	6080	205	1975	3040

1/ THE CHAMFER ON BEARINGS MUST CLEAR THE MAXIMUM FILLET RADIUS GIVEN IN THE TABLE. THIS SPECIFICATION DOES NOT CONTROL BEARING CHAMFER CONTOURS.

2/ INSTALLATION TORQUE LUBRICATED THREADS.

FIRST DASH NO.	MASS (APPROX) lb
-3	.014 + (GRIP LENGTH NO. X .0005)
-4	.031 + (GRIP LENGTH NO. X .0009)
-5	.043 + (GRIP LENGTH NO. X .0014)
-6	.081 + (GRIP LENGTH NO. X .0020)
-7	.125 + (GRIP LENGTH NO. X .0026)
-8	.190 + (GRIP LENGTH NO. X .0035)

(A) DENOTES CHANGE(S)

INCH-POUND

PREPARING ACTIVITY: NAVY-AS

CUSTODIANS: ARMY-AT

NAVY-AS

AIR FORCE-B4

DIA-

REVIEW: IS, 99

USER:

PROJECT NUMBER: 3110-0899

DISTRIBUTION STATEMENT

MILITARY SPECIFICATION SHEET

TITLE

BEARING, ROLLER, NEEDLE, TRACK ROLLER
CROWN RADIUS O.D. INTEGRAL STUD,
TYPE VII ANTI-FRICTION, INCH

SPECIFICATION SHEET NUMBER

MS21447

05 DEC 94
REV A

SUPERSEDING
MS21447

12 SEP 84

AMSC- N/A

FSC 3110

Page 1 of 2

A. Approved for public release; distribution is unlimited.

DD Form 672, MAY 88

PREVIOUS EDITIONS ARE OBSOLETE

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TABLE I. TOLERANCE VALUES.

Form Approved
OMB No. 0704-0188

DIMENSIONS IN INCHES

D BASIC STUD DIA.		ALLOWABLE DEVIATION FROM d OF SINGLE MEAN DIA. d_{mp}		ALLOWABLE DEVIATION FROM COTTER PIN DIA. d_1	
OVER	INCL.	HIGH	LOW	HIGH	LOW
.1250	.5000	+0	-.0015	+.010	-0

D BASIC OUTER RING OUTSIDE DIA.		ALLOWABLE DEVIATION FROM D OF SINGLE MEAN DIA. D_{mp}		ALLOWABLE DEVIATION FROM OUTER RING WIDTH C	
OVER	INCL.	HIGH	LOW	HIGH	LOW
.4375	1.1250	+.0010	-.0005	+0	-.005

MATERIALS:

RINGS AND ROLLERS: STEEL, MIL-S-8690, MIL-S-7420, ASTM A304 A322/A331, QQ-S-700, FED. STD 66, AISI/SAE 50100, 51100, AISI 8620, 8620H, AMS 6440, AMS 6442.

SFALS: ACETAL RESIN PER L-P-392 OR NYLON 6/6 PER L-P-410 POLYESTER ELASTOMER, OR EQUIVALENT, CONSTRUCTION OPTIONAL.

- (A) FINISH- ROLLER O.D. AND SIDES CHROME PLATED IN ACCORDANCE WITH QQ-C-320, CLASS 2, EXCEPT THICKNESS TO BE .0004-.0007 INCHES. EXPOSED SURFACE OF OTHER PARTS AS MOUNTED SHALL BE ZINC-NICKLE PLATED IN ACCORDANCE WITH AMS 2417, TYPE 2, OR CADMIUM PLATED IN ACCORDANCE WITH QQ-P-416, TYPE II, CLASS 2, TO A THICKNESS OF .0003 TO .0006 INCHES. EXTERNALLY THREADED AREAS SHALL BE .0002 TO .0005 INCHES THICK.

EXAMPLE OF PART NUMBER-

B F 2 0 A C = CAMFOLLOWER NEEDLE BEARING 1.1250 ROLLER, .500 STUD, SEALED, WITH CROWN RADIUS ON ROLLER O.D., LUBRICATOR IN FLANGED END OF STUD, 1.250 GRIP LENGTH, 1.672 STUD LENGTH WITHOUT COTTER PIN HOLE, WITH MIL-G-81322 GREASE.

G = MIL-G-81322 GREASE, NO DESIGNATOR = MIL-G-23827 GREASE.

A = NO COTTER PIN HOLE (NOT REQUIRED FOR TYPE I)
OMIT FOR COTTER PIN HOLE.

GRIP LENGTH IN .0625 INCH INCREMENTS.

F = LUBRICATOR IN FLANGED END OF STUD.

BEARING-T = LUBRICATOR IN THREADED END OF STUD, NO COTTER PIN HOLE.

R = BEARING WITHOUT LUBRICATOR.

STUD DIAMETER IN .0625 INCH INCREMENTS.

REQUIREMENTS:

- THE COMPLETE MS IDENTIFICATION MAY BE OBTAINED BY ADDING SUFFIX CODE LETTERS TO THE BASIC MS NUMBER SHOWN IN THE EXAMPLE OF PART NUMBER.
- MS21447-3 MAY BE RELUBRICATED IN THE FLANGED END ONLY. LUBRICATION FITTING FOR THE MS21447-3 MAY BE SHIPPED SEPARATELY AND INSTALLED ON ASSEMBLY. LUBRICATORS INSTALLED IN THE FLANGED END OF STUD ON MS21447-3 AND -4 MAY BE EXTENDED .05 IN. BEYOND THE FLANGED END THEREBY NECESSITATING AN INCREASE IN "W" OF .05 IN., ON ALL OTHER SIZES THE LUBRICATOR SHALL BE FLUSH OR IDENTIFIED.
- THE LIMIT LOAD RATING LISTED CAN BE DEFINED AS THE MAXIMUM LOAD WHICH CAN BE APPLIED TO A BEARING WITHOUT IMPAIRING THE SUBSEQUENT FUNCTIONING OF THE BEARING IN AIRFRAME APPLICATIONS. THE ULTIMATE OR STATIC FRACTURE LOAD RATING IS NOT LESS THAN 1.5 TIMES THE LIMIT LOAD RATING.
- FOR INSPECTION PURPOSES NOMINAL STUD LENGTH IS THE SUM OF NOMINAL GRIP AND THE THREAD LENGTH (B_1 DIMENSIONS)
- BEARINGS SHALL BE PREPACKED WITH GREASE AS CODED.
- BEARINGS TO BE WRAPPED IN GREASE PROOF PAPER OR POLYETHYLENE BAG, INDIVIDUALLY PACKAGED AND MARKED WITH THE DATE OF LUBRICATION.
- ALL DIMENSIONS TO BE MET AFTER PLATING.

NOTES:

- (A) 1. THE TRACK BRINELL CAPACITY IS CRITICAL IN RESPECT TO THE ROLLING CAPACITY OF THE BEARING. AN INCREASE IN HARDNESS OF THE TRACK WILL INCREASE THE BRINELL CAPACITY OF THE TRACK, BUT IN NO CASE SHOULD THE ROLLING CAPACITY OF THE BEARING BE EXCEEDED.

PREPARING ACTMITY: NAVY-AS

CUSTODIANS: ARMY-A1 NAVY-AS

AIR FORCE-84 DIA-

REVIEW: IS, 99

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