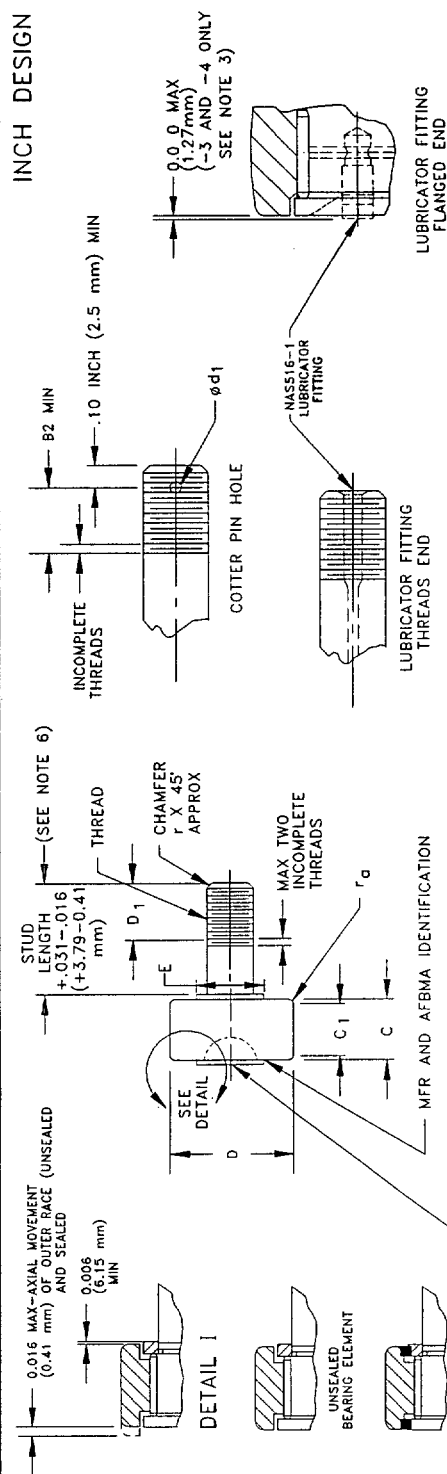


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(B) DENOTES CHANGES

SEALING BEARING ELEMENT		SCREWDRIVER SLOT (REF)										DIMENSIONS IN INCHES						
FIRST DASH NO.	Ød STUD	ØD OUTER RING OUTSIDE DIA	C OUTER RING WIDTH	C <sub>1</sub> TRACK CONTACT WIDTH MIN	THREAD SIZE UNJF-3A	B <sub>1</sub> LENGTH REF.	Ød <sub>Ø</sub> WASHER BACK-UP MIN.	B <sub>2</sub> MIN.	Ø d <sub>1</sub> COTTER PIN MALE	r <sub>Ø</sub> L/ FILLET MAX	r	TOTAL RADIAL PLAY MAX	LIMIT LOAD RATING lb <sub>f</sub>	2/ lb-in MAX	TRACK CAPACITY 40 lb <sub>f</sub>	LOAD RATING a TRACK ROLLER lb <sub>f</sub>	MASS (APPROX) lb	
-3	1900	5000	281	230	1900-32	344	297	.211	.070	.010	.031	.0017	790	8	385	395	.014	+(GRIPLENGTH NO. X .0005)
-4	2500	6875	281	230	2500-28	344	359	.224	.076	.010	.031	.0017	940	20	525	470	.031	+(GRIPLENGTH NO. X .0009)
-5	3125	8750	344	290	3125-24	359	422	.234	.076	.010	.047	.0017	1660	30	725	830	.043	+(GRIPLENGTH NO. X .0014)
-6	3750	8750	463	380	3750-24	359	500	.265	.106	.025	.047	.0017	2720	55	1100	1350	.101	+(GRIPLENGTH NO. X .0020)
-7	4375	10000	531	430	4375-20	422	562	.283	.106	.025	.047	.0017	3860	150	1425	1930	.125	+(GRIPLENGTH NO. X .0026)
-8	5000	11250	656	530	5000-20	422	625	.314	.106	.040	.047	.0017	6040	205	1925	3040	.190	+(GRIPLENGTH NO. X .0035)

DIMENSIONS IN MILLIMETERS																	
FIRST DASH NO.	ød STUD	øD OUTER RING DIA	C OUTER RING OUTSIDE WIDTH	C <sub>1</sub> TRACK CONTACT WIDTH MIN	THREAD SIZE UNJ-3A	B <sub>1</sub> THREAD LENGTH REF.	ød <sub>o</sub> WASHER BACK-UP MIN.	B <sub>2</sub> MIN.	ø d <sub>1</sub> FIT MALE	r <sub>o</sub> 1/ FILLET MAX	r	TOTAL RADIAL PLAY MAX	LIMIT LOAD RATING	2/ TRACK CAPACITY 40 C N	LOAD RATING TRACK ROLLER	MASS (APPROX) kg	
-3	4826	12,700	7,14	5, 4	1900-32	8,7	7,54	5,4	1,8	2	.8	.043	3510	1,710	1750	.005	+GRIPLENGTH NO. X .0002)
-4	6350	12,462	7,14	5, 4	2800-28	8,7	7,54	5,4	1,8	.25	.8	.043	4000	2,110	2050	.014	+GRIPLENGTH NO. X .0004)
-5	7325	19,050	8,74	7,37	3125-24	9,1	10,72	5,9	1,9	.25	1,2	.043	4300	2,310	2050	.020	+GRIPLENGTH NO. X .0006)
-6	9325	22,225	11,91	9,65	3750-24	9,1	12,70	6,7	2,7	.64	1,2	.043	4590	2,450	3680	.037	+GRIPLENGTH NO. X .0008)
-7	11,100	25,400	13,49	10,92	4375-20	10,7	14,27	7,2	2,7	.64	1,2	.043	6540	3,700	8500	.057	+GRIPLENGTH NO. X .0012)
-8	12,700	2, 575	16,66	13,46	5000-20	10,7	15, 15	8,0	2,7	1,2	1,2	.043	27000	25,0	13500	0, 6	+GRIPLENGTH NO. X .0016)

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

## 2/ INSTALLATION TORQUE LUBRICATED THREADS.

PREPARING ACTIVITY: NAVY-AS CUSTODIANS: ARMY- AT      NAVY- AS  AIR FORCE- 99      DLA-  REVIEW: AF-54    DLA-IS USER: PROJECT NUMBER: 3110-0909	<u>MILITARY SPECIFICATION SHEET</u>  TITLE  BEARING, ROLLER, NEEDLE, TRACK ROLLER, INTEGRAL STUD, TYPE VII, ANTIFRICTION, INCH	SPECIFICATION SHEET NUMBER  MS21432  SUPERSEDING MS21432A      21 MARCH 1977  AMSC-    N/A      FSC 3110	05 DEC 94 REV B
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TABLE 1. TOLERANCE VALUE

Ød BASIC BORE		ALLOWABLE DEVIATION FROM d OF SINGLE MEAN DIA., d <sub>mp</sub>		ALLOWABLE DEVIATION FROM COTTER PIN DIA., d	
OVER	INCL	HIGH	LOW	HIGH	LOW
.1250	.50000	+0	-.0015	+.010	-0

DIMENSIONS IN INCHES

ØD BASIC OUTSIDE DIA		ALLOWABLE DEVIATION FROM D OF SINGLE MEAN DIA., D <sub>mp</sub>		ALLOWABLE DEVIATION FROM OUTER RING WIDTH C	
OVER	INCL	HIGH	LOW	HIGH	LOW
.4375	1.1250	+.0010	-.0005	+0	-.005

Ød BASIC BORE		ALLOWABLE DEVIATION FROM d OF SINGLE MEAN DIA., d <sub>mp</sub>		ALLOWABLE DEVIATION FROM COTTER PIN DIA., d	
OVER	INCL	HIGH	LOW	HIGH	LOW
3.175	12.700	+0	-.0038	+.25	-0

DIMENSIONS IN MILLIMETERS

ØD BASIC OUTSIDE DIA		ALLOWABLE DEVIATION FROM D OF SINGLE MEAN DIA., D <sub>mp</sub>		ALLOWABLE DEVIATION FROM OUTER RING WIDTH C	
OVER	INCL	HIGH	LOW	HIGH	LOW
11.112	28.575	+.025	-.013	+0	-.13

## REQUIREMENTS:

MATERIAL: STEEL, MIL-S-8690, QQ-S-624, QQ-S-633, FED-STD NO. 66 STEEL NO. 50100, 51100 AND 52100.  
SEALS, ACETAL RESIN, NYLON, OR EQUIVALENT, CONSTRUCTION OPTIONAL.

- ⑧ FINISH: ROLLER OD AND SIDES CHROME PLATED IN ACCORDANCE WITH QQ-C-320, CLASS 2, EXCEPT THICKNESS TO BE .010-.018 mm (.0004-.0007 INCHES). EXPOSED SURFACES OF OTHER PARTS AS MOUNTED, ZINC-NICKEL IN ACCORDANCE WITH AMS 2417, TYPE 2, OR CADMIUM PLATED IN ACCORDANCE WITH QQ-P-416, TYPE 1, CLASS 2, .0003 TO .0006 INCHES THICK.

## EXAMPLE OF PART NUMBER:

8 FEE 2D A G = CAM FOLLOWER NEEDLE BEARING .500 STUD, SEALED BEARING, 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 CODE = MIL-G-23827 GREASE  
A = NO COTTER PIN HOLE (NOT REQUIRED FOR TYPES T OR TEE) OMIT FOR COTTER PIN HOLE  
GRIP LENGTH IN .0625 INCH INCREMENTS  
F = UNSEALED WITH LUBRICATOR IN FLANGED END OF STUD  
T = UNSEALED WITH LUBRICATOR IN THREADED END OF STUD, NO COTTER PIN HOLE  
" - " = UNSEALED WITHOUT LUBRICATOR  
FEE = SEALED WITH LUBRICATOR IN FLANGED END OF STUD  
TEE = SEALED WITH LUBRICATOR IN THREADED END OF STUD, NO COTTER PIN HOLE  
R = SEALED BEARING WITHOUT LUBRICATOR  
STUD DIAMETER IN .0625 INCH INCREMENTS

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REVIEW: AF-84 DLA-IS USER: PROJECT NUMBER: 3110-0909				SUPERSEDING MS2132 A      21 MARCH 1977	
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NOTES:

- (B) 1. THE COMPLETE MS IDENTIFICATION MAY BE OBTAINED BY ADDING THE FOLLOWING SUFFIX CODE LETTERS TO THE BASIC MS NUMBER SHOWN IN THE TABULATION:
- "F" DESIGNATES LUBRICATOR IN FLANGED END OF STUD.
  - "T" DESIGNATES LUBRICATOR IN THREADED END OF STUD AND COTTER PIN HOLE OMITTED
  - "A" DESIGNATES COTTER PIN HOLE OMITTED
  - "S" DESIGNATES A SEALED BEARING.
- THIRD DASH NUMBER DESIGNATES GRIP LENGTH IN 0.0625 INCH INCREMENTS (SEE EXAMPLE).
2. MS21432-3 MAY BE CODED FOR RELUBRICATION FACILITIES IN THE FLANGED END ONLY. LUBRICATION FITTING FOR THE MS21432-3 MAY BE SHIPPED SEPARATELY AND INSTALLED ON ASSEMBLY. LUBRICATORS INSTALLED IN THE THREADED END OF STUD SHALL BE FLUSH. LUBRICATORS INSTALLED IN THE FLANGED END OF STUD ON MS21432-3 AND -4 MAY EXTEND 1.3 mm (0.05 IN.) BEYOND THE FLANGED END THEREBY RECESSITATING AN INCREASE IN " " OF 1.3 mm (0.05 IN.). ON ALL OTHER SIZES THE LUBRICATOR SHALL BE FLUSH OR INDENTED.
3. THE TRACK BRINELL CAPACITY IS CRITICAL IN RESPECT TO THE ROLLER CAPACITY OF THE BREAKING. 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.
4. THE LIMIT LOAD RATING 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.
- TO FULLY REALIZE THIS RATING, COMPUTATION MUST BE PROVIDED FOR STUD DEFLECTION IN ORDER TO ASSURE FULL TRACK CONTACT UNDER LOAD.
5. FOR INSPECTION PURPOSES NOMINAL STUD LENGTH IS THE SUM OF NOMINAL GRIP AND THE THREAD LENGTH (" " DIMENSION).
6. BEARING SHALL BE PREPACKED WITH GREASE AS CODED.
7. BEARING TO BE WRAPPED IN GREASE PROOF PAPER, INDIVIDUALLY PACKAGED AND MARKED WITH THE DATE OF LUBRICATION.
8. ALL DIMENSIONS TO MET AFTER PLATING.

PREPARING ACTIVITY: NAVY-AS CUSTODIANS: ARMY- AT      NAVY-AS AIR FORCE- 11      DLA- REVIEW: AF-84   DLA-IS USER: PROJECT NUMBER: 3110-0909	<b>MILITARY SPECIFICATION SHEET</b> TITLE BEARING, ROLLER, NEEDLE, TRACK ROLLER, INTERNAL STUD, TYPE VII, ANTIFRICTION, INCH	SPECIFICATION SHEET NUMBER <b>MS21432</b> 05 DEC 94 REV B SUPERSEDING MS21432 A      21 MARCH 1977 AMSC-    N/A      FSC -3110
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