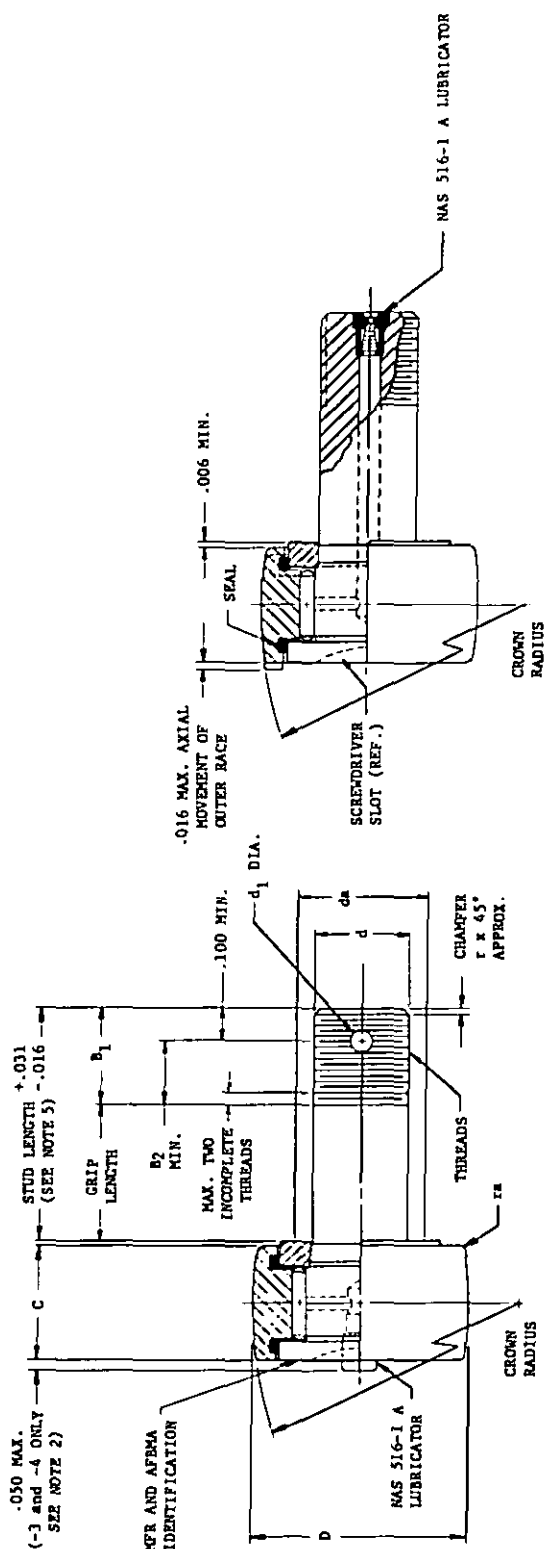


## USER ACTIVITIES

REVIEWER ACTIVITIES: AIR FORCE - 99  
OLA - 15

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document.



DIMENSIONS IN INCHES

| FAST<br>DASH<br>NO. | d<br>STUD<br>DIA. | D<br>OUTER<br>RING<br>OUTSIDE<br>DIA. | C<br>OUTER<br>RING<br>WIDTH | CROWN<br>RADIUS<br>(REF) | THREAD<br>SIZE<br>UNJF-3A | B <sub>1</sub><br>THREAD<br>LENGTH<br>(REF) | d <sub>8</sub><br>WASHER<br>BACK-UP<br>DIA. MIN. | B <sub>2</sub><br>MIN. | J <sub>1</sub><br>COTTER<br>PIN<br>HOLE<br>DIA. | r <sub>8</sub> 1/<br>FILLET<br>MAX. | r<br>TOTAL<br>RADIAL<br>PLAY<br>MAX. | LIMIT<br>LOAD<br>RATING<br>lb-f | 2/<br>LB-IN<br>MAX. | TRACK<br>CAPACITY<br>40 HRC<br>lb-f | LOAD RATING<br>AS A TRACK<br>ROLLER<br>lb-f |
|---------------------|-------------------|---------------------------------------|-----------------------------|--------------------------|---------------------------|---|--|------------------------|---|-------------------------------------|--------------------------------------|---------------------------------|---------------------|-------------------------------------|---|
|                     |                   |                                       |                             |                          |                           |   |  |                        |   |                                     |                                      |                                 |                     |                                     |   |
| -3                  | .1900             | .5000                                 | .281                        | 10                       | .1900-32                  | .344  | .287   | .211                   | .070  | .010                                | .0017                                | 790                             | B                   | 385                                 | 395   |
| -4                  | .2500             | .6875                                 | .281                        | 10                       | .2500-28                  | .344  | .359   | .224                   | .075  | .010                                | .0017                                | 940                             | .075                | 525                                 | 470   |
| -5                  | .3125             | .7500                                 | .344                        | 10                       | .3125-24                  | .359  | .429   | .234                   | .076  | .010                                | .0017                                | 1680                            | .40                 | 725                                 | 830   |
| -6                  | .3750             | .8750                                 | .469                        | 10                       | .3750-24                  | .359  | .500   | .265                   | .106  | .025                                | .0017                                | 2720                            | .55                 | 1100                                | 1360  |
| -7                  | .4375             | 1.0000                                | .531                        | 10                       | .4375-20                  | .422  | .562   | .283                   | .106  | .025                                | .0017                                | 3860                            | .155                | 1425                                | 1930  |
| -8                  | .5000             | 1.1250                                | .656                        | 10                       | .5000-20                  | .422  | .625   | .314                   | .105  | .040                                | .0017                                | 6080                            | .205                | 1975                                | 3040  |

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

## 22/ INSTALLATION TORQUE LUBRICATED THREADS.

| FIRST<br>DASH<br>NO. | MASS<br>(APPROX)<br>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 .0036) |
| -8                   | .190 * (GRIP LENGTH NO. X .0036) |

P. A. 11

Other Cust  
Army - AT  
Navy - AS

**INTERNATIONAL**

## INTEREST

**TITLE**

BEARING, ROLLER, NEEDLE, TRACK ROLLER CROWN RADIUS  
O.D. INTEGRAL STUD, TYPE VII ANTIFRICTION, INCH

## MILITARY STANDARD

**MS21447**

**SHEET 1 OF 2**

Project No. 3110-0714

|          |           |         |
|----------|-----------|---------|
| APPROVED | 12 SEP 84 | REVISED |
|----------|-----------|---------|

DD FORM 672-1 (COORDINATED)

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FED. SUP CLASS  
3110

TABLE 1. TOLERANCE VALUES.

DIMENSIONS IN INCHES

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

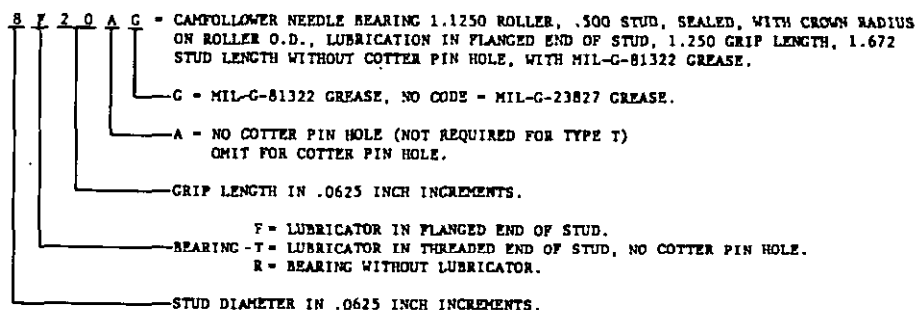
| D<br>BASIC<br>OUTER RING<br>OUTSIDE DIA. |        | ALLOWABLE<br>DEVIATION<br>FROM D OF<br>SINGLE MEAN<br>DIA. $D_{mp}$ |        | ALLOWABLE<br>DEVIATION<br>FROM OUTER<br>RING WIDTH<br>C |       |
|--|--------|---|--------|---|-------|
| OVER                                     | INCL.  | HIGH  | LOW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

MATERIALS - STEEL, MIL-S-8690, MIL-E-7493, MIL-S-7420, ASTM A304 A322/A331, QQ-S-700, FED. STD. NO. 66, AISI/SAE 50100, 51100, AISI 8620, 8620H, AMS 6440, AMS 6442.

SEALS, ACETAL RESIN, NYLON, POLYESTER ELASTOMER, OR EQUIVALENT, CONSTRUCTION OPTIONAL.

FINISH - ROLLER O.D. AND SIDES CHROME PLATED IN ACCORDANCE WITH QQ-C-320, CLASS 2, EXCEPT THICKNESS TO BE .0004 - .0007 INCHES. EXPOSED SURFACES OF OTHER PARTS AS MOUNTED. CADMIUM PLATED IN ACCORDANCE WITH QQ-P-416, TYPE 1, CLASS 2, INCLUDING UNTHREADED PORTION OF THE STUD.

EXAMPLE OF PART NUMBER -



- NOTES:
- 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 CODED FOR RELUBRICATION FACILITIES 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 INDENTED.
  - 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.
  - 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 LUBRICATOR.
  - ALL DIMENSIONS TO BE MET AFTER PLATING.

REVISED  
APPROVED 12 SEP 84

|  |                           |   |                                     |
|--|---------------------------|---|-------------------------------------|
| P. A. 11<br>Other Cost<br>Army - AT<br>Navy - AS | INTERNATIONAL<br>INTEREST | TITLE<br>BEARING, ROLLER, NEEDLE, TRACK ROLLER CROWN RADIUS<br>O.D. INTEGRAL STUD, TYPE VII ANTI-FRICTION, INCH | MILITARY STANDARD<br><b>MS21447</b> |
| PROCUREMENT SPECIFICATION<br>MIL-B-3990          | SUPERSEDES:               | SHEET 2 OF 2  |                                     |

DD FORM 672-1 (COORDINATED)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

Project No. 3110-0714

USER ACTIVITIES:

REVIEWER ACTIVITIES: AIR FORCE - 99  
DLA - 15

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