



TABLE I. DIMENSIONS AND LOADS

| MS<br>DASH<br>NO. | ØB                               | ØD   | W  | H  | ØA  | E  | C  | RADIAL<br>LIMIT<br>LOAD<br>RATING<br>LBS | THRUST<br>LIMIT<br>LOAD<br>RATING<br>LBS | 5/<br>RADIAL LOAD<br>RATING (LBS.)<br>FOR AVERAGE LIFE<br>OF 10,000 COMPLETE<br>90° CYCLES |         | WEIGHT<br>POUNDS<br>(APPROX) | MAXIMUM<br>STARTING<br>TORQUE<br>(INCH-OZ) |
|-------------------|----------------------------------|--|--|--|---|--|--|--|--|--|---------|------------------------------|--|
|                   | BORE<br>2/<br>+ .0000<br>- .0005 | OUTSIDE<br>DIAMETER<br>1/ 2/<br>+ .0000<br>- .0005 | WIDTH<br>INNER<br>RING<br>1/<br>+ .000<br>- .005 | WIDTH<br>OUTER<br>RING<br>1/<br>+ .000<br>- .005 | SHOULDER<br>DIAMETER<br>INNER<br>RING<br>(APPROX) | 4/<br>INNER<br>RING<br>CORNER<br>CHAMFER<br>+ .015<br>- .000 | 3/<br>OUTER<br>RING<br>CORNER<br>CHAMFER<br>+ .015<br>- .000 |  |  | CASE I   | CASE II |                              |  |
| -3                | .1900                            | .6250  | .297   | .234   | .297  | .005   | .016   | 1560                                     | 700                                      | 1500   | 1250    | .01                          | 1.0  |
| -4                | .2500                            | .7500  | .281   | .219   | .380  |  |  | 1880                                     | 900                                      | 1690   | 1450    | .02                          | 1.5  |
| -5                | .3125                            | .8125  | .297   | .234   | .415  |  |  | 2190                                     | 1000                                     | 1820   | 1600    | .02                          | 1.5  |
| -6                | .3750                            | .8750  | .313   | .250   | .495  |  |  | 2500                                     | 1100                                     | 1920   | 1710    | .03                          | 2.0  |
| -8                | .5000                            | 1.1250   | .375   | .313   | .616  |  |  | 3910                                     | 1700                                     | 2870   | 2550    | .05                          | 2.5  |
| -10               | .6250                            | 1.3750   | .406   | .344   | .768  | .015   | .032   | 6700                                     | 3000                                     | 4980   | 4360    | .08                          | 3.0  |
| -12               | .7500                            | 1.6250   | .437   | .375   | .919  |  |  | 8790                                     | 3900                                     | 5980   | 5320    | .13                          | 3.0  |
| -16               | 1.0000                           | 2.0000   | .500   | .438   | 1.241   |  |  | 11900                                    | 5200                                     | 7070   | 6400    | .22                          | 4.0  |
| -20               | 1.2500                           | 2.2500   | .500   | .438   | 1.478   |  |  | 13800                                    | 6100                                     | 7400   | 6810    | .26                          | 5.0  |

- 1/ DIMENSIONS TO BE MET AFTER PLATING.  
2/ OUT-OF-ROUND TOLERANCES: BORE: +.0002, -.0007; OUTER DIA: +.0005, -.0010.  
3/ 45° CHAMFER OR A RADIUS GIVING APPROXIMATELY THE SAME GRIP FOR STAKING THE BEARING IN THE HOUSING WILL BE ACCEPTABLE.  
4/ 45° CHAMFER OR A RADIUS GIVING APPROXIMATELY THE SAME FILLET CLEARANCE WILL BE ACCEPTABLE.  
5/ CASE I = LOAD FIXED WITH RESPECT TO OUTER RING.  
CASE II = LOAD FIXED WITH RESPECT TO INNER RING.  
6/ THESE RATINGS ARE FOR OPERATION UP TO 250°F. FOR OPERATION UP TO 350°F, THE RATINGS SHALL BE REDUCED BY 20%.

(F) DENOTES CHANGES

INCH-POUND

|  |   |   |
|--|---|---|
| PREPARING ACTIVITY: NAVY-AS<br>CUSTODIANS: ARMY- AV NAVY-AS<br>AIR FORCE-99 DLA-<br>REVIEW: ARMY-AR,AT,MI AIR FORCE-84, DLA-IS<br>ARMY-ME<br>PROJECT NUMBER: 3110-0927<br>DISTRIBUTION STATEMENT | MILITARY SPECIFICATION SHEET<br>TITLE<br>BEARING, BALL, AIRFRAME,<br>ANTI-FRICTION, INTERMEDIATE DUTY | SPECIFICATION SHEET NUMBER<br><b>MS27641</b> 21 JUNE 95<br>REV F<br>SUPERSEDING<br><b>MS27641 E</b> 05 DEC 94<br>AMSC- N/A FSC 3110 |
| A. Approved for public release, distribution is unlimited.   |   | Page <u>1</u> of <u>2</u>   |

# REQUIREMENTS:

1. MATERIAL: RINGS: S2100 STEEL PER AMS6440, OR E52100 STEEL PER FED-STD-66.  
BALLS: S2100 STEEL PER AMS6440 OR S1100 STEEL PER AMS6449, OR E51100 OR E52100 STEEL PER FED-STD-66.  
SEALS: POLYTETRAFLUOROETHYLENE PER AMS 3652 OR POLYTETRAFLUOROETHYLENE SHEET, GLASS FABRIC REINFORCED PER AMS 3666.  
SEAL RETAINERS: ANY CORROSION RESISTANT STEEL.
2. LUBRICANT: MIL-G-81322 OR MIL-G-23827. ALL BEARINGS SHALL BE PACKED WITH GREASE CONFORMING TO MIL-G-81322 UNLESS OTHERWISE SPECIFIED. IF MIL-G-23827 IS REQUIRED, ADD THE LETTER "G" AFTER THE MS27641 DASH NUMBER.  
MIL-G-23827 SHALL NOT BE USED FOR OPERATION WHERE TEMPERATURES EXCEED 250°F.
3. HARDNESS: HEAT TREAT RINGS AND BALLS TO ROCKWELL "C" 60 TO 66 AND STABILIZE FOR OPERATION AT 250°F.
4. SURFACE ROUGHNESS: RACEWAYS AND BALLS SHALL BE 8 MICROINCHES  $R_a$  PER ANSI/ASME B46.1.
5. PLATING: ALL EXTERNAL SURFACES EXCEPT BORE, SEALS AND SEAL RETAINERS SHALL BE ZINC-NICKEL IN ACCORDANCE WITH AMS 2417, TYPE 2, OR CADMIUM PLATED IN ACCORDANCE WITH QQ-P-416, TYPE I, CLASS 2, WITH A MINIMUM THICKNESS OF .0003 TO .0006 INCHES.
6. RADIAL INTERNAL CLEARANCE: WITHOUT DESIGNATOR "R" THE PART NUMBER INDICATES .0004 TO .0010 WITH DESIGNATOR "R" THE PART NUMBER INDICATES .0002 TO .0005.
7. RADIAL ECCENTRICITY: INNER RING, .0010 MAX, OUTER RING, .0016 MAX.
8. LATERAL ECCENTRICITY: INNER RING, .0010 MAX, OUTER RING, .0016 MAX.
9. PART NUMBER: THE PART NUMBER SHALL BE SEQUENCED LEFT TO RIGHT WITH DESIGNATIONS IN THE FOLLOWING SEQUENCE:

## EXAMPLE OF PART NUMBER:

MS27641-4RG = BEARING, BALL AIRFRAME, ANTIFRICTION, INTERMEDIATE DUTY, .2500 INCH BORE, .0002 TO .0005 RADIAL CLEARANCE, FILLED 80% MINIMUM WITH MIL-G-23827, 250°F MAX.

— LUBRICANT DESIGNATOR (SEE LUBRICANT REQUIREMENTS)

— RADIAL INTERNAL CLEARANCE DESIGNATOR (SEE RADIAL INTERNAL CLEARANCE REQUIREMENTS)

— DASH NUMBER (SEE TABLE I)

— MILITARY SPECIFICATION SHEET NUMBER

## NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
2. THIS SPECIFICATION TAKES PRECEDENCE OVER ANY OTHER DOCUMENTS REFERENCED HEREIN.
3. FOR EXISTING INVENTORY, CADMIUM PLATED BEARINGS ARE ACCEPTABLE.
4. THE PARTS COVERED BY MS20201 ARE CANCELLED BY MS27641. USE MS27641 FOR NEW DESIGN AND REPLACEMENT.

|   |  |   |
|---|--|---|
| <p>PREPARING ACTIVITY: NAVY-AS<br/>CUSTODIANS: ARMY-AV NAVY-AS<br/>AIR FORCE-99 DLA-<br/>REVIEW: ARMY-AR,AT,MI AIR FORCE-84, DLA-IS<br/>ARMY-ME<br/>PROJECT NUMBER: 3110-0927</p> | <p><u>MILITARY SPECIFICATION SHEET</u><br/>TITLE<br/>BEARING, BALL, AIRFRAME,<br/>ANTI-FRICTION, INTERMEDIATE DUTY</p> | <p>SPECIFICATION SHEET NUMBER<br/>MS27641 21 JUNE 95<br/>REV F<br/>SUPERSEDING<br/>MS27641 E 05 DEC 94<br/>AMSC- N/A FSC 3110</p> |
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