



TABLE I. DIMENSIONS AND LOADS

MS DASH NO.	ØB	ØD	W	H	ØA	E	C	RADIAL LIMIT LOAD RATING LBS	THRUST LIMIT LOAD RATING LBS	5/ RADIAL LOAD RATING (LBS.) FOR AVERAGE LIFE OF 10,000 COMPLETE 90° CYCLES		WEIGHT POUNDS (APPROX)	MAXIMUM STARTING TORQUE (INCH-OZ)	
	2/ BORE	1/ 2/ OUTSIDE DIAMETER	1/ WIDTH INNER RING	1/ WIDTH OUTER RING	SHOULDER DIAMETER INNER RING (APPROX)	4/ INNER RING CORNER CHAMFER	3/ OUTER RING CORNER CHAMFER			CASE I	CASE II			
	+ .0000 - .0005	+ .0000 - .0005	+ .000 - .005	+ .000 - .005		+ .015 - .000	+ .015 - .000							
-3A	.1900	.6250	.245	.203	.280	.005	.010	1560	700	1520	1260	.01	1	
-3	.1900	.7774	.297	.270	.331			.022	1880	900	1700	1450	.03	1
-4	.2500	.9014	.484	.335	.390			.015	.032	2680	1200	2410	2030	.04
-5	.3125	1.2500	.558	.375	.469	5620	2500			4900	3970	.09	1	
-6	.3750	1.4375	.620	.469	.591	7910	3500			6540	5410	.15	2	
-8	.5000	1.6875	.620	.500	.768	11800	5200			9320	7700	.21	3	
-10	.6250	1.9375	.620	.500	.850	.044	.044	14100	6200	11000	9060	.28	3	

- 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%.

Ⓢ DENOTES CHANGES

INCH-POUND

PREPARING ACTIVITY: NAVY-AS  
 CUSTODIANS: ARMY-AV NAVY-AS  
 AIR FORCE-99 DLA-  
 REVIEW: ARMY-AR,AT,MI AF-84, DLA-IS  
 ARMY-ME  
 PROJECT NUMBER: 3110-0926

MILITARY SPECIFICATION SHEET  
 TITLE  
 BEARING, BALL, AIRFRAME,  
 ANTI-FRICTION, HEAVY DUTY

SPECIFICATION SHEET NUMBER  
**MS27640** 21 JUNE 95  
 REV F  
 SUPERSEDING  
 MS27640E 05 DEC 94  
 AMSC- N/A FSC 3110

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

REQUIREMENTS FOR ACQUIRING THE PRODUCT(S) DESCRIBED HEREIN SHALL CONSIST OF THE SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DODS AND THE SOLICITATION: MIL-B-7949

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

## REQUIREMENTS:

1. MATERIAL: RINGS: 52100 STEEL PER AMS6440, OR E52100 STEEL PER FED-STD-66.  
BALLS: 52100 STEEL PER AMS6440 OR 51100 STEEL PER AMS6449, OR E51100 OR E52100 STEEL PER FED-STD-66.  
SEALS: POLYTETRAFLUOROETHYLENE PER AMS3652 OR POLYTETRAFLUOROETHYLENE SHEET, GLASS FABRIC REINFORCED PER AMS3666.  
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 MS27640 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 1, CLASS 2, WITH A THICKNESS OF .0003 TO .0006 INCHES.
6. RADIAL INTERNAL CLEARANCE: WITHOUT "R" DESIGNATOR PART NUMBER INDICATES .0004 TO .0010 WITH "R" DESIGNATOR 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:

MS27640-4RG = BEARING, BALL AIRFRAME, ANTI-FRICTION, HEAVY DUTY, .2500 INCH BORE, .0002 TO .0005 INCH RADIAL INTERNAL 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. REFERENCED DOCUMENTS ARE THE ISSUES IN EFFECT AT THE DATE OF INVITATION FOR BID.
4. THE PARTS COVERED BY MS20200 ARE CANCELLED. USE MS27640 FOR NEW DESIGN AND REPLACEMENT.
5. FOR MS27640-3A, METAL SHIELDS ARE ACCEPTABLE.

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PREPARING ACTIVITY: NAVY-AS CUSTODIANS: ARMY- AV      NAVY- AS AIR FORCE- 99      DLA- REVIEW: ARMY-AR,AT,MI AF-84, DLA-IS ARMY-ME PROJECT NUMBER: 3110-0926	MILITARY SPECIFICATION SHEET TITLE BEARING, BALL, AIRFRAME, ANTI-FRICTION, HEAVY DUTY	SPECIFICATION SHEET NUMBER MS27640      21 JUNE 95 REV F SUPERSEDING MS27640E      05 DEC 95 AMSC- N/A      FSC 3110
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