Submitted for recognition as an American National Standard

FEDERAL SUPPLY CLASS
3120

NOTICE

THIS DOCUMENT HAS BEEN TAKEN DIRECTLY FROM U.S. MILITARY SPECIFICATION MIL-B-81820/1A AND CONTAINS ONLY MINOR EDITORIAL AND FORMAT CHANGES REQUIRED TO BRING IT INTO CONFORMANCE WITH THE PUBLISHING REQUIREMENTS OF SAE TECHNICAL STANDARDS. THE INITIAL RELEASE OF THIS DOCUMENT IS INTENDED TO REPLACE MIL-B-81820/1A. ANY PART NUMBERS ESTABLISHED BY THE ORIGINAL SPECIFICATION REMAIN UNCHANGED.

THE ORIGINAL MILITARY SPECIFICATION WAS ADOPTED AS AN SAE STANDARD UNDER THE PROVISIONS OF THE SAE TECHNICAL STANDARDS BOARD (TSB) RULES AND REGULATIONS (TSB 001) PERTAINING TO ACCELERATED ADOPTION OF GOVERNMENT SPECIFICATIONS AND STANDARDS. TSB RULES PROVIDE FOR (A) THE PUBLICATION OF PORTIONS OF UNREVISED GOVERNMENT SPECIFICATIONS AND STANDARDS WITHOUT CONSENSUS VOTING AT THE SAE COMMITTEE LEVEL, AND (B) THE USE OF THE EXISTING GOVERNMENT SPECIFICATION OR STANDARD FORMAT.

UNDER DEPARTMENT OF DEFENSE POLICIES AND PROCEDURES, ANY QUALIFICATION REQUIREMENTS AND ASSOCIATED QUALIFIED PRODUCTS LISTS ARE MANDATORY FOR DOD CONTRACTS. ANY REQUIREMENTS RELATING TO QUALIFIED PRODUCTS LISTS (QPL'S) HAS NOT BEEN ADOPTED BY SAE AND IS NOT PART OF THIS TECHNICAL REPORT.

ISSUED 1998-04

PREPARED BY COMMITTEE ACBG

SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

BEARING, PLAIN, SELF-ALIGNING, SELF-LUBRICATING, LINED BORE, LOW SPEED, NARROW, GROOVED OUTER RING, -65° TO 325° F

AS81820/1
SHEET 1 OF 4

Printed in the U.S.A.

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-8510 FAX: (724) 776-0243 SAE WEB ADDRESS: http://www.sae.org

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-81820.

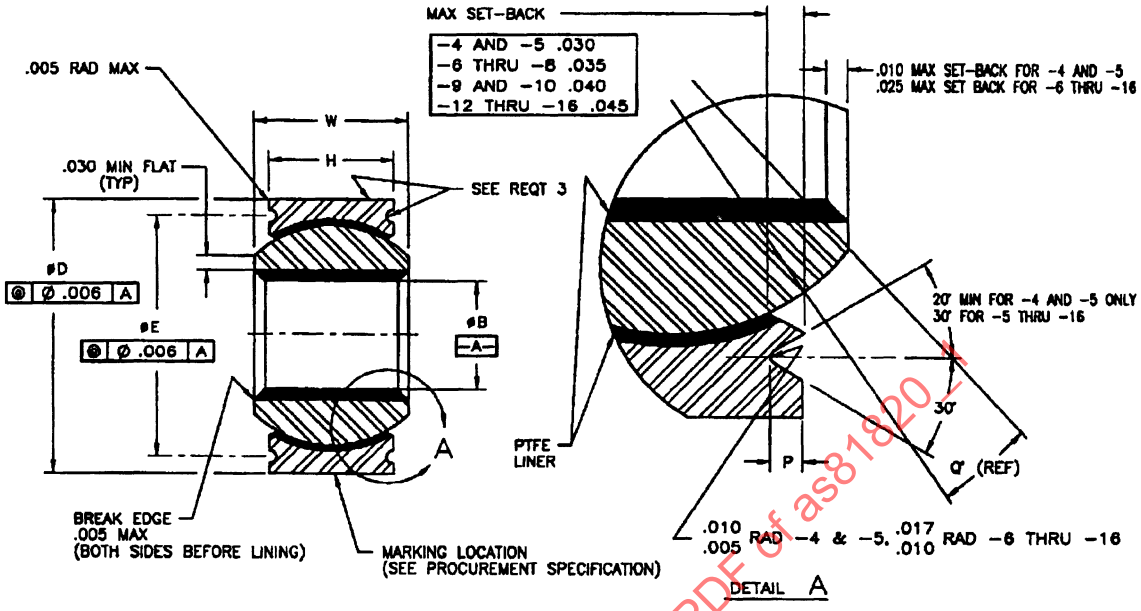

TABLE I. DIMENSIONS AND STRENGTHS

DASH NO.	øB +.0000 −.0010	øD +.0000 −.0005	H ±.005	P +.000 −.010	Q° (REF)	W +.000 −.002	øE +.000 −.008	STATIC LIMIT LOAD RADIAL LB	STATIC LIMIT LOAD AXIAL LB	OSCILLATING LOAD LB	NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB STANDARD	NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB "K" * TYPE	WT LB MAX (REF)
-4	.2510	.6562	.250	.025	10	.343	.594	5550	430	.2650	1.0-5.0	0-0.5	.020
-5	.3135	.7500	.281	.035	10	.375	.660	7700	700	3700	1.0-15.0	0-1.0	.030
-6	.3760	.8125	.312	.035	9	.406	.712	10200	1100	4900	1.0-15.0	0-1.0	.040
-7	.4385	.9062	.343	.055	8	.437	.806	12950	1400	6700	1.0-15.0	0-1.0	.050
-8	.5010	1.0000	.390	.055	8	.500	.876	17250	2100	8250	1.0-15.0	0-1.0	.070
-9	.5635	1.0937	.437	.055	8	.562	.970	22150	3680	10600	1.0-15.0	0-1.0	.090
-10	.6260	1.1875	.500	.055	8	.625	1.063	27700	4720	13250	1.0-15.0	0-1.0	.120
-12	.7510	1.4375	.593	.055	8	.750	1.313	40600	6750	19400	1.0-15.0	0-1.0	.210
-14	.8760	1.5625	.703	.055	8	.875	1.438	55950	9350	26750	1.0-25.0	0-2.0	.270
-16	1.0010	1.7500	.797	.055	9	1.000	1.626	73800	12160	35250	1.0-25.0	0-2.0	.390

* SEE REQUIREMENT 5 "NO-LOAD TORQUE" AND NOTE 5.

TABLE II. OVERSIZE BEARING DIMENSIONS 1/ 2/

RESTRICTED USAGE FOR REPAIR WORK ONLY

.010 AND .020 OVERSIZE OUTSIDE DIAMETER FOR
REPLACEMENT OF BEARINGS SHOWN ON SHEET 2

DASH NO.	NOMINAL SIZE	1st OVERSIZE ØD
-4	.2500	.6662
-5	.3125	.7600
-6	.3750	.8225
-7	.4375	.9162
-8	.5000	1.0100
-9	.5625	1.1037
-10	.6250	1.1975
-12	.7500	1.4475
-14	.8750	1.5725
-16	1.0000	1.7600

DASH NO.	NOMINAL SIZE	2nd OVERSIZE ØD
-4	.2500	.6762
-5	.3125	.7700
-6	.3750	.8325
-7	.4375	.9262
-8	.5000	1.0200
-9	.5625	1.1137
-10	.6250	1.2075
-12	.7500	1.4575
-14	.8750	1.5825
-16	1.0000	1.7700

1/ BEFORE INITIATING A REPAIR PROCEDURE TO USE AN OVERSIZE BEARING, APPROVAL FOR MODIFYING AND REIDENTIFYING THE BEARING HOUSING MUST BE OBTAINED FROM THE COGNIZANT ENGINEERING AUTHORITY.

2/ REFER TO NAS0331 FOR INSTALLATION PROCEDURE AND STAKING FORCES.

REQUIREMENTS:

OUTER RING: 17-4 PH STEEL ALLOY PER AMS-5643.
LINER: POLYTETRAFLUOROETHYLENE (PTFE) SHALL BE INCLUDED IN THE LINER.

2. SURFACE TEXTURE: BALL DIA. Ra 8; BALL FACES, Ra 16; OUTER RACE DIA Ra 32; ALL OTHER METALLIC SURFACES Ra 125. LINER SURFACES ARE EXEMPT FROM SURFACE TEXTURE MEASUREMENTS.

3. SURFACE FINISH:

OUTER RACE: PLATING, WHEN SPECIFIED, SHALL BE ZINC-NICKEL PLATING PER AMS-2417, TYPE 2 OR CADMIUM PLATING PER QQ-P-416, TYPE II, CLASS 2 WITH A THICKNESS RANGE OF 0.0003 TO 0.0006 INCHES.

PLATE ON THE OUTSIDE DIAMETER SURFACE AND ON THE FLAT BETWEEN THE OUTSIDE DIAMETER AND THE GROOVE.

PLATING RUNOUT MAY OCCUR EITHER IN THE GROOVE OR IN THE AREA BETWEEN THE GROOVE AND THE BALL.

THE PTFE LINER IN THE OUTER RACE INSIDE DIAMETER AND IN THE BALL BORE SHALL BE PROTECTED FROM EXPOSURE TO PLATING SOLUTIONS DURING PROCESSING.

BALL: PASSIVATE PER MIL-S-5002.

4. HARDNESS: BALL: Rc 43 MIN; OUTER RING: Rc 28 MIN, Rc 37 MAX BEFORE SWAGING.

5. NO-LOAD TORQUE: WHEN THE LETTER "K" IS PRESENT IN THE PART NUMBER, LOWER VALUES OF NO-LOAD TORQUE ARE SPECIFIED PER TABLE I. IF THE MEASURED TORQUE OF A "K" TYPE BEARING IS LESS THAN 0.1 INCH-POUND, THE INTERNAL RADIAL CLEARANCE SHALL BE MEASURED AND SHALL NOT EXCEED THE VALUES IN TABLE III. THESE REQUIREMENTS APPLY TO THE TORQUE AND INTERNAL PLAY BETWEEN THE SPHERICAL BALL AND THE OUTER RING. THIS STANDARD DOES NOT DEFINE REQUIREMENTS FOR TORQUE OR INTERNAL PLAY BETWEEN THE BEARING BORE AND SHAFT.