

① TABLE I. DIMENSIONS AND STRENGTHS

DASH NO.	Ø B + .0000 - .0005	Ø D** + .0000 - .0005	H** ± .005	Ø M MIN	Q' (REF)	W + .000 - .002	STATIC LIMIT LOAD		OSCILLATING LOAD LB	NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB		WT LB MAX (REF)
							RADIAL LB	AXIAL LB		STANDARD	"K" TYPE	
-3	.1900	.6250	.327	.300	15	.437	2500	1770	4900	0.25-5.0	0-0.5	.031
-4	.2500						5500					
-5	.3125	.6875	.317	.360	14	.500	9400	1640	6050	0.25-8.0	0-1.0	.035
-6	.3750	.8125	.406	.466	8		13700	2630	8310			.060
-7	.4375	.9375	.442	.537	10	.562	20700	3650	11750			.080
-8	.5000	1.0000	.505	.607	9	.625	21400	4970	14950			.100
-9	.5625	1.1250	.536	.721	10	.667	26600	5370	18100			.135
-10	.6250	1.1875	.567	.747	12	.750	29000	6130	20250			.160
-12	.7500	1.3750	.630	.845	13	.875	37000	7730	26200	0.25-12.0	0-2.0	.240
-14	.8750	1.6250	.755	.995	6	.875	65200	10800	33600			.350
-16	1.0000	2.1250	1.005	1.269	12	1.375	104000	19300	56250			.970

* SEE REQUIREMENT 5 "NO-LOAD TORQUE" AND NOTE 8.

** SEE NOTE 7.

① DENOTES CHANGES

PREPARING ACTIVITY: NAVY - AS

CUSTODIANS: ARMY-AV NAVY-AS

AIR FORCE-99 DLA-

REVIEW: ARMY-AR, AT, ME, DLA-IS, USAF-84

PROJECT NUMBER: 3120-0742-08

DISTRIBUTION STATEMENT A. APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

MILITARY SPECIFICATION SHEET

TITLE

BEARING, PLAIN, SELF-LUBRICATING,
SELF-ALIGNING, LOW SPEED, WIDE,
CHAMFERED OUTER RING, -65° F TO 325° F

SPECIFICATION SHEET NUMBER

MS14102

REV J
5 DEC 94SUPERSEDING
MS14102REV H
31 JAN 94

AMSC - N/A

FSC 3120

PAGE 1 OF 3

① 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 1

DASH NO.	NOMINAL SIZE	1st OVERSIZE (.010) #D
-3	.1875	.6350
-4	.2500	.6350
-5	.3125	.6975
-6	.3750	.8225
-7	.4375	.9475
-8	.5000	1.0100
-9	.5825	1.1350
-10	.6250	1.1975
-12	.7500	1.3850
-14	.8750	1.6350
-16	1.0000	2.1350

DASH NO.	NOMINAL SIZE	2nd OVERSIZE (.020) #D
-3	.1875	.6450
-4	.2500	.6450
-5	.3125	.7075
-6	.3750	.8325
-7	.4375	.9575
-8	.5000	1.0200
-9	.5825	1.1450
-10	.6250	1.2075
-12	.7500	1.3950
-14	.8750	1.6450
-16	1.0000	2.1450

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:

- MATERIAL: BALL, 440C AMS-5630 OR PH13-8Mo AMS-5629 H1000 (SEE NOTE 6c).
OUTER RING, AMS-5643 (17-4PH).
LINER, PTFE SHALL BE INCLUDED IN THE LINER.
- SURFACE TEXTURE: BALL DIA. Ra 8 MAX; BORE, BALL, FACE, AND OUTER RING DIA. Ra 32 MAX; ALL OTHERS Ra 125 MAX.
- HARDNESS: BALL, 440C 55-62 Rc OR PH13-8Mo Rc 43 MIN; OUTER RING, Rc 28 MIN/Rc 37 MAX BEFORE SWAGING.

① 4. SURFACE FINISH:

OUTER RING: 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 CHAMFER.
PLATING RUNOUT SHALL OCCUR IN THE SIDE FACE AREA BETWEEN THE CHAMFER AND THE BALL.

BALL: PH13-8Mo, PASSIVATE PER QQ-P-35; 440C, PASSIVATE PER QQ-P-35, OPTIONAL.

- 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 PLAY SHALL BE MEASURED AND SHALL NOT EXCEED THE FOLLOWING:

DASH NO.	MAXIMUM RADIAL PLAY	MAXIMUM AXIAL PLAY
-3K THRU -12K	0.0007 INCH	0.0021 INCH
-14K THRU -16K	0.0010 INCH	0.0030 INCH

THE INTERNAL AXIAL PLAY SHALL BE MEASURED FOR ALL " K " TYPE BEARINGS.

PREPARING ACTIVITY: NAVY - AS CUSTODIANS: ARMY-AV NAVY-AS AIR FORCE-99 DLA- REVIEW: ARMY-AR, AT, ME, DLA-IS, USAF-84 PROJECT NUMBER: 3120-0742-06	MILITARY SPECIFICATION SHEET TITLE BEARING, PLAIN, SELF-LUBRICATING, SELF-ALIGNING, LOW SPEED, NARROW, GROOVED OUTER RING, -65° TO 325° F	SPECIFICATION SHEET NUMBER MS14102 REV J 5 DEC 94 SUPERSEDING REV H MS14102 31 JAN 94 AMSC - N/A FSC 3120
DISTRIBUTION STATEMENT A. APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.		PAGE 2 OF 3

NOTES:

1. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE: DECIMALS ± 0.010 AND ANGLES $\pm 0.5^\circ$.
2. BREAK SHARP EDGES AND CORNERS AND REMOVE ALL BURRS AND SLIVERS.
3. THE -3 SIZE BEARING IS EXEMPT FROM THE "RADIAL STATIC LIMIT LOAD" TEST BECAUSE THE LOAD CAPACITY OF THE BEARING IS PIN CRITICAL.
4. WHEN TESTED TO THE FLUID CONTAMINATION AND SUB-ZERO TEMPERATURE REQUIREMENTS OF THE PROCUREMENT SPECIFICATION, THE OSCILLATING LOAD SHALL BE DECREASED TO 75% OF THE SPECIFIED LOAD.
5. WHEN FLUIDS AND ELEVATED TEMPERATURES (ABOVE 200° F) ARE BOTH PRESENT IN AN APPLICATION, THEN REDUCTIONS IN OPERATING LOADS OR BEARING LIFE MAY BE REQUIRED.
6. DASH NUMBER DESIGNATES NOMINAL BORE DIA IN SIXTEENTHS OF AN INCH.
7. DIMENSION "ØD" TO BE MET AFTER PLATING. DIMENSION "H" TO BE MET BEFORE PLATING WHEN APPLICABLE.

①

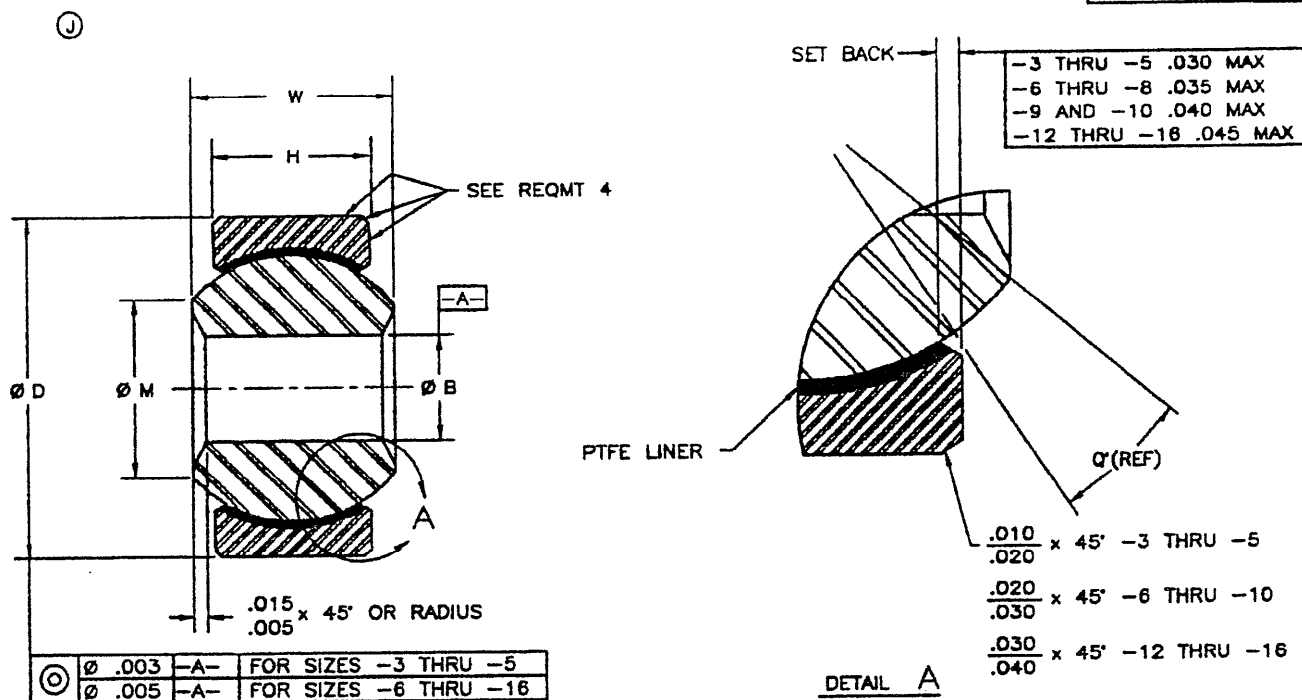
EXAMPLE OF PART NO.

MS14102 -6 C P K T = .375 NOMINAL BORE DIA, PH13-8Mo BALL MATERIAL, ZINC-NICKEL PLATED, LOW TORQUE, .010 INCH OVERSIZE O.D., (DIMENSION ØD).

- ABSENCE OF THE LETTERS "T" AND "U" INDICATE STANDARD OUTER DIAMETER (ØD), (SEE TABLE I).
- T = .010 OVERSIZE ØD (FOR REPAIR ONLY, SEE TABLE II).
- U = .020 OVERSIZE ØD (FOR REPAIR ONLY, SEE TABLE II).
- ABSENCE OF THE LETTER "K" INDICATES STANDARD BREAKAWAY TORQUE (SEE TABLE I).
- LETTER "K" INDICATES LOW BREAKAWAY TORQUE (SEE TABLE I).
- ABSENCE OF THE LETTER "P" INDICATES NO PLATING.
- LETTER "P" INDICATES ZINC-NICKEL OR CADMIUM PLATING (SEE REQUIREMENT 4).
- ABSENCE OF THE LETTER "C" INDICATES 440C BALL MATERIAL.
- LETTER "C" INDICATES PH13-8Mo BALL MATERIAL.
- SIZE - BORE DIAMETER (DASH NO. FROM TABLE I).
- MS NUMBER.

- 8a. BALL MATERIAL SHALL BE 440C AMS-5630 UNLESS "C" CALLOUT IS PRESENT IN PART NUMBER. "C" INDICATES PH13-8Mo AMS-5629 H1000.
9. IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL TAKE PRECEDENCE.
10. REFERENCED GOVERNMENT (OR NON-GOVERNMENT) DOCUMENTS OF THE ISSUE LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS DODISS SPECIFIED IN THE SOLICITATION FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN.

PREPARING ACTIVITY: NAVY - AS CUSTODIANS: ARMY- AV NAVY- AS AIR FORCE-99 DLA- REVIEW: ARMY-AR, AT, ME, DLA-IS, USAF-B4 PROJECT NUMBER: 3120-0742-06		MILITARY SPECIFICATION SHEET TITLE BEARING, PLAIN, SELF-LUBRICATING, SELF-ALIGNING, LOW SPEED, NARROW, GROOVED OUTER RING, -65° TO 325° F		SPECIFICATION SHEET NUMBER MS14102 SUPERSEDING MS14102 AMSC - N/A		REV J 5 DEC 94 REV H 31 JAN 94 FSC 3120	
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① TABLE I. DIMENSIONS AND STRENGTHS

DASH NO.	Ø B +.0000 -.0005	Ø D** +.0000 -.0005	H** ±.005	Ø M MIN	Q' (REF)	W +.000 -.002	STATIC LIMIT LOAD		OSCILLATING LOAD LB	NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB		WT LB MAX (REF)
							RADIAL LB	AXIAL LB		STANDARD	"K" TYPE	
-3	.1900	.6250	.327	.300	15	.437	2500	1770	4900	0.25-5.0	0-0.5	.031
-4	.2500						5500					
-5	.3125	.6875	.317	.360	14	.500	9400	1640	6050	0.25-8.0	0-1.0	.035
-6	.3750	.8125	.408	.468	8		13700	2630	8310			.060
-7	.4375	.9375	.442	.537	10	.562	20700	3650	11750			.080
-8	.5000	1.0000	.505	.607	9	.625	21400	4970	14950			.100
-9	.5625	1.1250	.536	.721	10	.687	26600	5370	18100			.135
-10	.6250	1.1875	.567	.747	12	.750	29000	6130	20250			.160
-12	.7500	1.3750	.630	.845	13	.875	37000	7730	26200	0.25-12.0	0-2.0	.240
-14	.8750	1.6250	.755	.995	6	.875	65200	10800	33600			.350
-16	1.0000	2.1250	1.005	1.269	12	1.375	104000	19300	56250			.970

* SEE REQUIREMENT 5 "NO-LOAD TORQUE" AND NOTE 8.

** SEE NOTE 7.

① DENOTES CHANGES

PREPARING ACTIVITY: NAVY - AS CUSTODIANS: ARMY-AV NAVY- AS AIR FORCE-99 DLA- REVIEW: ARMY-AR, AT, ME, DLA-IS, USAF-84 PROJECT NUMBER: 3120-0742-08		MILITARY SPECIFICATION SHEET TITLE BEARING, PLAIN, SELF-LUBRICATING, SELF-ALIGNING, LOW SPEED, WIDE, CHAMFERED OUTER RING, -65° F TO 325° F		SPECIFICATION SHEET NUMBER MS14102 SUPERSEDING MS14102 AMSC - N/A		REV J 5 DEC 94 REV H 31 JAN 94 FSC 3120
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① 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 1

DASH NO.	NOMINAL SIZE	1st OVERSIZE (.010) #D
-3	.1875	.6350
-4	.2500	.6350
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DASH NO.	NOMINAL SIZE	2nd OVERSIZE (.020) #D
-3	.1875	.6450
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-5	.3125	.7075
-6	.3750	.8325
-7	.4375	.9575
-8	.5000	1.0200
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-10	.6250	1.2075
-12	.7500	1.3950
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- 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:

- MATERIAL: BALL, 440C AMS-5630 OR PH13-8Mo AMS-5629 H1000 (SEE NOTE 6c).
OUTER RING, AMS-5643 (17-4PH).
LINER, PTFE SHALL BE INCLUDED IN THE LINER.
- SURFACE TEXTURE: BALL DIA. Ra 8 MAX; BORE, BALL, FACE, AND OUTER RING DIA. Ra 32 MAX; ALL OTHERS Ra 125 MAX.
- HARDNESS: BALL, 440C 55-62 Rc OR PH13-8Mo Rc 43 MIN; OUTER RING, Rc 28 MIN/Rc 37 MAX BEFORE SWAGING.
- ① SURFACE FINISH:
OUTER RING: 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 CHAMFER.
PLATING RUNOUT SHALL OCCUR IN THE SIDE FACE AREA BETWEEN THE CHAMFER AND THE BALL.
BALL: PH13-8Mo, PASSIVATE PER QQ-P-35; 440C, PASSIVATE PER QQ-P-35, OPTIONAL.
- 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 PLAY SHALL BE MEASURED AND SHALL NOT EXCEED THE FOLLOWING:

DASH NO.	MAXIMUM RADIAL PLAY	MAXIMUM AXIAL PLAY
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-14K THRU -16K	0.0010 INCH	0.0030 INCH

THE INTERNAL AXIAL PLAY SHALL BE MEASURED FOR ALL " K " TYPE BEARINGS.

PREPARING ACTIVITY: NAVY - AS CUSTODIANS: ARMY-AV NAVY-AS AIR FORCE-99 DLA- REVIEW: ARMY-AR, AT, ME, DLA-IS, USAF-84 PROJECT NUMBER: 3120-0742-06	MILITARY SPECIFICATION SHEET TITLE BEARING, PLAIN, SELF-LUBRICATING, SELF-ALIGNING, LOW SPEED, NARROW, GROOVED OUTER RING, -65° TO 325° F	SPECIFICATION SHEET NUMBER MS14102 SUPERSEDING MS14102 AMSC - N/A	REV J 5 DEC 94 REV H 31 JAN 94 FSC 3120
DISTRIBUTION STATEMENT <u>A</u> APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.		PAGE 2 OF 3	

NOTES:

1. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE; DECIMALS $\pm .010$ AND ANGLES ± 0.5 .
2. BREAK SHARP EDGES AND CORNERS AND REMOVE ALL BURRS AND SLIVERS.
3. THE -3 SIZE BEARING IS EXEMPT FROM THE "RADIAL STATIC LIMIT LOAD TEST BECAUSE THE LOAD CAPACITY OF THE BEARING IS PIN CRITICAL
4. WHEN TESTED TO THE FLUID CONTAMINATION AND SUB-ZERO TEMPERATURE RETIREMENTS OF THE PROCUREMENT SPECIFICATION. THE OSCILLATING LOAD SHALL BE DECREASED TO 75% OF THE SPECIFIED LOAD.
5. WHEN FLUIDS AND ELEVATED TEMPERATURES (ABOVE 200° F) ARE BOTH PRESENT IN AN APPLICATION, THEN Reductions IN OPERATING LOADS OR BEARING LIFE MAY BE REQUIRED.
6. RASH NUMBER DESIGNATES NOMINAL BORE DIA IN SIXTEENTHS OF AN INCH.
7. DIMENSION " D " TO BE MET AFTER PLATING. DIMENSION " H " TO BE MET BEFORE PLATING WHEN APPLICABLE.
8. EXAMPLE OF PART NO.

MS14102 -6 C P K T = .375 NOMINAL SORE DIA PH13-8Mo BALL MATERIAL ZINC-NICKEL PLATED, LOW TORQUE, .010 INCH OVERSIZE 0.0., (DIMENSION D).

ABSENCE OF THE LETTERS l T " AND " U " INDICATE STANDARD OUTER DIAMETER (D), (SEE TABLE {).

T = .010 OVERSIZE D (FOR REPAIR ONLY. SEE TABLE II).

u = .020 OVERSIZE l D (FOR REPAIR ONLY. SEE TABLE II).

ABSENCE OF THE LETTER " K " INDICATES STANDARD BREAKAWAY TORQUE (SEE TABLE l).

LETTER" K INDICATES LOW BREAKAWAY TORQUE (SEE TASTE l).

ABSENCE OF THE LETTER " P l INDICATES NO PLATING.

LETTER " P l INDICATES ZINC-NICKEL OR CADMIUM PLATING (SEE REQUIREMENT 4).

ABSENCE OF THE LETTER " C " INDICATES 440C BALL MATERIAL

LETIER "C" INDICATES PH13-8Mo BALL MATERIAL

SIZE - BORE DIAMETER (DASH NO. FROM TABLE l).

MS NUMBER.

- 8a. BALL MATERIAL SHALL BE 440C AMS-5630 UNLESS "C " CALLOUT IS PRESENT IN PART NUMBER. "C l INDICATES PH13-8Mo AMS-5629 H1000,
9. IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL Take PRECEDENCE.
10. REFERENCED GOVERNMENT (OR NON-GOVERNMENT DOCUMENTS OF THE ISSUE LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS DODISS SPECIFIED IN THE SOLICITATION FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN.

PREPARING ACTIVITY: NAVY - AS

CUSTODIANS: ARMY- AV NAVY- As

AIR FORCE- 99 DIA-

REVIEW: ARMY-AR, AT, ME, DLA-IS, USAF-84

PROJECT NUMBER: 3120-0742-06

MILITARY SPECIFICATION SHEET

TITLE

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

SPECIFICATION SHEET NUMBER

M S 1 4 1 0 2

SUPERSEDING

MS14102

AMSC - N/A

REV J

5 DEC 94

REV H

31 JAN 94

FSC 3120

DISTRIBUTION STATEMENT A. APPROVED FOR PUBLIC RELEASE DISTRIBUTION IS UNLIMITED.

PAGE 3 OF 3