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P. A. NAVY-OS Other Cust		INTERNATIONAL INTEREST	TITLE		MILITARY STANDARD									
ARMY-AT AIR FORCE-11			WASHER, KEY RETAINING, BALL AND ROLLER BEARING, REGULAR SERIES		MS19070									
PROCUREMENT SPECIFICATION MIL-W-21338		SUPERSEDES:			SHEET 1 OF 2									
DASH NO.	Q THICKNESS	R BORE		E DIAMETER	B DIA OVER TANGS	S WIDTH		X DEPTH		V PROJECTION	r RAD	TANGS		FED. SUP CLASS 5310 (A)
		MAX	MIN			E	TOL +	MAX	MIN			MAX	MIN	
00	.042	.421	.406	0.625	0.875	.120	.110	.030	.020	.062	.016	9	.115	.005
01	.042	.499	.484	0.719	1.016	.120	.110	.030	.020	.062	.016	9	.115	.005
02	.042	.616	.601	0.812	1.156	.120	.110	.030	.020	.062	.016	11	.115	.005
03	.042	.694	.679	0.938	1.328	.120	.110	.030	.020	.062	.016	11	.115	.005
04	.042	.816	.801	1.125	1.531	.176	.156	.030	.020	.062	.016	11	.156	.010
05	.050	1.009	.989	1.281	1.719	.176	.156	.030	.020	.094	.016	13	.156	.010
06	.050	1.213	1.193	1.500	1.922	.176	.156	.050	.035	.094	.031	13	.156	.010
*06S	.050	1.353	1.333	1.812	2.250	.176	.156	.050	.035	.094	.031	15	.156	.010
07	.050	1.416	1.396	1.812	2.250	.176	.156	.050	.035	.094	.031	15	.156	.010
08	.058	1.603	1.583	2.000	2.469	.250	.250	.050	.035	.094	.031	15	.219	.015
09	.058	1.817	1.792	2.281	2.734	.290	.250	.050	.035	.125	.031	17	.219	.015
10	.058	2.017	1.992	2.438	2.922	.290	.250	.050	.035	.125	.031	17	.219	.015
11	.063	2.207	2.182	2.656	3.109	.290	.250	.050	.035	.125	.031	17	.219	.015
12	.063	2.425	2.400	2.844	3.344	.290	.250	.070	.055	.125	.047	17	.219	.015
13	.063	2.613	2.588	3.062	3.578	.290	.250	.070	.055	.125	.047	19	.219	.015
14	.063	2.816	2.791	3.312	3.828	.290	.250	.070	.055	.188	.047	19	.219	.015
15	.072	3.003	2.973	3.562	4.109	.290	.250	.070	.055	.188	.047	19	.313	.015
16	.072	3.207	3.177	3.844	4.375	.353	.313	.070	.055	.188	.047	19	.313	.015
17	.072	3.425	3.395	4.031	4.625	.353	.313	.070	.055	.188	.047	19	.313	.015
18	.094	3.612	3.582	4.281	4.938	.353	.313	.070	.055	.188	.047	19	.313	.015
19	.094	3.830	3.800	4.562	5.219	.353	.313	.070	.055	.188	.047	19	.313	.015
20	.094	4.018	3.988	4.812	5.500	.353	.313	.085	.065	.250	.062	19	.313	.015
21	.094	4.222	4.192	5.000	5.703	.353	.313	.085	.065	.250	.062	19	.313	.015
22	.125	4.425	4.395	5.281	6.062	.353	.313	.085	.065	.250	.062	19	.313	.015
24	.125	4.831	4.801	5.688	6.469	.353	.313	.085	.065	.250	.062	19	.313	.015
26	.125	5.226	5.191	6.188	7.031	.435	.375	.105	.085	.250	.062	19	.500	.020
28	.125	5.617	5.582	6.531	7.438	.500	.500	.105	.085	.250	.062	19	.500	.020
30	.156	6.018	5.983	7.062	8.062	.500	.500	.105	.085	.312	.062	19	.500	.020
32	.156	6.424	6.389	7.438	8.438	.500	.500	.105	.085	.312	.062	19	.500	.020
34	.156	6.799	6.764	8.031	9.062	.715	.625	.105	.085	.312	.062	19	.500	.020
36	.156	7.171	7.171	8.375	9.438	.715	.625	.105	.085	.312	.062	19	.625	.020
38	.156	7.612	7.577	8.781	9.875	.715	.625	.105	.085	.312	.062	19	.625	.020
40	.156	8.017	7.982	9.156	10.312	.840	.750	.105	.085	.312	.062	19	.625	.020

Ⓐ TANGS EQUALLY SPACED
AND EACH TANG LOCATED
WITHIN .010 INCH OF
TRUE POSITION

Ⓐ *Inactive for new design after 1987

For NOTES see sheet 2. Ⓐ denotes changes.

NOTES:

FED. SUP CLASS
5310 (A)

- (A) 1. MATERIALS:
- (a) Carbon steel, AISI 1010 to 1035 (UNS G10100 to G10350), or 1116 to 1118 (UNS G11160 to G11180).
 - (b) Corrosion resisting steel AISI 302, 303 or 304 (UNS S30200, S30300, or S30400).
2. TEMPER: Each washer shall be of such temper as to permit its being bent 180°, without fracture, either way of the grain, over a radius equal to one half the stock thickness.
- (A) 3. PROTECTIVE COATING:
- (a) Carbon steel washers are available either zinc plated or unplated. Zinc plated washers shall be plated in accordance with ASTM B633-78, Class 5, Type II. (Cadmium plating in accordance with QQ-P-416, Type II, Class 3 may no longer be furnished.
 - (b) Corrosion resisting steel washers shall be passivated in accordance with QQ-P-35, Type I, II, or III.
4. DIMENSIONS: All dimensions are in inches. Tolerances: decimals $\pm .010$, angles $\pm 2^\circ$ unless otherwise specified.
- (A) 5. PART NUMBER: The MS part number is the MS number, plus the dash and the material number. The material numbers are: 1—unplated carbon steel
2—zinc plated carbon steel
3—corrosion resisting steel
- Examples: MS19070-002
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6. NUTS: See MS19068 for applicable nuts. Applicable nuts should have size numbers corresponding to washer dash numbers: e.g., washer size 00 should be used with nut size number 00.
7. OTHER NOTES:
- (a) 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.
 - (b) Referenced 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.

APPROVED 7 JUN 61 REVISED (A) For changes see sheets 1 and 2.

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			MS19070
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