



TABLE 1. FASTENER DIMENSIONS AND STRENGTHS

(b) SIZE DASH NUMBER			NOM. SIZE	6A	B	#D	F	K	P	R	X	INSTALLED FASTENER		HOLE LIMITS	
DOUBLE ACTION	SINGLE ACTION											MINIMUM SINGLE SHEAR LBS.	MINIMUM TENSILE LBS.		
(c)	(d)	(e)													
	-05	S05	U05	5/32	.272 .250	.070 .062	.184 .182	.844	.202	.215	.010	.195	2340	1350	.184 .187
	-06	S06	U06	3/16	.332 .308	.135 .125	.199 .197	.875	.231	.250	.015	.238	3450	2100	.189 .202
-	-08	U08		1/4	.432 .400	.140 .130	.280 .258	1.000	.278	.306	.018	.318	5800	3650	.280 .283
-	-10	U10		5/16	.522 .480	.141 .131	.312 .310	1.218	.319	.380	.021	.373	8500	5200	.312 .315
-	-12	U12		3/8	.627 .580	.206 .195	.374 .372	1.842	.384	.405	.025	.448	12200	7500	.374 .377
-	-14	U14		7/16	.727 .675	.207 .187	.437 .435	1.562	.419	.480	.030	.522	18700	10150	.437 .441
-	-16	U16		1/2	.832 .770	.270 .260	.499 .498	1.562	.540	.598	.035	.588	21800	13500	.500 .504

- (a) MAXIMUM DIAMETER OF BLIND HEAD (X) SHALL NOT EXCEED MAXIMUM DIAMETER OF MANUFACTURED HEAD (A)
- (b) SIZES "05" AND "06" WITH "-" ARE INSTALLED WITH A DOUBLE ACTION TOOL. ALL OTHER SIZES ARE INSTALLED WITH A SINGLE ACTION TOOL. SIZES "U05" AND "U06" MAY BE INSTALLED WITH A DOUBLE OR SINGLE ACTION TOOL. SEE MIL-F-81177, APPENDIX A FOR TOOL SELECTION CHART
- (c) -05, -08, -09, -09A, -09B, -10, -12, -14 AND -16 ARE INACTIVE FOR NEW DESIGN AFTER 1 JAN 91. USE U05, U06, S05 AND S06
- (d) LETTER "U" SIGNIFIES SINGLE ACTION FASTENER WITHOUT FRAMABLE TYPE OF LOCKING COLLAR OR LOCKING COLLAR CAP. "U" AND "S" CODE FASTENERS IN SIZES "06" AND "08" ARE COLOR IDENTIFIED GREEN ON LOCKING COLLAR, SHIFTING WASHER, OR SERRATED PIN. "S" CODE FASTENERS MAY BE SUPPLIED WITH A LOCKING COLLAR CAP
- (e) SINGLE DIGIT MARKING IS PERMISSIBLE FOR GRIP DASH NUMBERS LESS THAN 10.
- (f) DIAMETER OF SERRATED PIN HEAD SHALL NOT EXCEED "#D" MAX AND MAY BE .002 BELOW "#D" MIN IN AREA "P" ONLY

① DENOTES CHANGE(S)

INCH-POUND

PREPARING ACTIVITY: NAVY-AS
CUSTODIANS: ARMY-AN NAVY-AS
AIR FORCE-99 DLA-15
REVIEW: ML, B2
USER:
PROJECT NUMBER: 5320-0816
DISTRIBUTION STATEMENT

MILITARY SPECIFICATION SHEET
TITLE
FASTENER, BLIND, HIGH STRENGTH, PULL TYPE,
POSITIVE MECHANICAL LOCK, PROTRUDING HEAD,
ALLOY STEEL, 112 K.S.J. For

SPECIFICATION SHEET NUMBER
MS90354 28 FEB 84
REV 1
SUPERSEDED
MS90354 R 13 AUG 1993
AMSC- N/A FSC 5320

A. Approved for public release, distribution is unlimited.

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DD Form 672, MAY 88

PRINTING ERRORS ARE CORRECTED

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 BOOKS SPECIFIED IN THE SOLICITATION: MIL-F-81177

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

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TABLE N GRIP NUMBER TABULATION

ø5/32 (-05)				ø3/16 (-06)				ø1/4 (-08)				ø5/16 (-10)			
GRIP DASH NO	GRIP RANGE		C Ⓢ MAX	L REF	GRIP DASH NO	GRIP RANGE		C Ⓢ MAX	L REF	GRIP DASH NO	GRIP RANGE		C Ⓢ MAX	L REF	
	MIN	MAX				MIN	MAX				MIN	MAX			
-0501	031	095	372	217	-0602	094	137	479	303	-0802	094	137	553	344	
-0502	094	157	434	280	-0603	136	220	541	365	-0803	136	220	618	408	
-0503	156	220	496	342	-0604	219	282	604	428	-0804	219	282	678	468	
-0504	219	282	559	405	-0605	281	345	666	490	-0805	281	345	743	508	
-0505	281	345	622	467	-0606	344	407	729	553	-0806	344	407	803	568	
-0506	344	407	684	530	-0607	406	470	791	615	-0807	406	470	868	631	
-0507	406	470	746	592	-0608	468	532	854	678	-0808	468	532	930	693	
-0508	468	532	809	655	-0609	531	595	916	740	-0809	531	595	990	756	
-0509	531	595	872	717	-0610	594	657	979	803	-0810	594	657	1055	818	
-0510	594	657	934	780	-0611	656	720	1041	865	-0811	656	720	1118	881	
-0511	656	720	996	842	-0612	719	782	1104	928	-0812	719	782	1178	943	
-0512	719	782	1059	905	-0613	781	845	1166	990	-0813	781	845	1243	1006	
-0513	781	844	1122	967	-0614	844	907	1229	1053	-0814	844	907	1305	1068	
-0514	844	906	1184	1030	-0615	906	970	1291	1115	-0815	906	970	1368	1131	
-0515	906	970	1246	1092	-0616	968	1032	1354	1178	-0816	968	1032	1430	1193	
-0516	968	1032	1309	1155	-0617	1031	1095	1416	1240	-0817	1031	1095	1490	1256	
					-0618	1094	1157	1479	1303	-0818	1094	1157	1555	1318	
					-0619	1156	1220	1541	1365	-0819	1156	1220	1618	1381	
					-0620	1219	1282	1604	1428	-0820	1219	1282	1678	1443	
					-0621	1281	1345	1666	1490	-0821	1281	1345	1743	1506	
					-0622	1344	1407	1729	1553	-0822	1344	1407	1803	1568	
					-0623	1406	1470	1791	1615	-0823	1406	1470	1868	1631	
					-0624	1468	1532	1854	1678	-0824	1468	1532	1930	1693	
					-0625	1531	1595	1916	1740	-0825	1531	1595	1990	1756	
					-0626	1594	1657	1979	1803	-0826	1594	1657	2055	1818	
					-0627	1656	1720	2041	1865	-0827	1656	1720	2118	1881	
					-0628	1719	1782	2104	1928	-0828	1719	1782	2178	1943	
										-0829	1781	1845	2240	2006	
										-0830	1844	1907	2303	2068	
														2131	
														2193	
														2256	

Form Approved
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PREPARING ACTIVITY NAVY-AS CUSTODIANS. ARMY-AN NAVY-AS AIR FORCE-99 DLA-15 REVIEW IS, MI, 82 USER: PROJECT NUMBER 5320-0818 DISTRIBUTION STATEMENT		MILITARY SPECIFICATION SHEET TITLE FASTENER, BLIND, HIGH STRENGTH, PULL TYPE, POSITIVE MECHANICAL LOCK, PROTRUDING HEAD, ALLOY STEEL, 112 K.S.I Fm		SPECIFICATION SHEET NUMBER MS90354 28 FEB 84 REV T SUPERSEDING MS90354 R 13 AUG 1993 AMSC- N/A FSC 5320	
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TABLE II. CRIP NUMBER TABULATION (CONTINUED)

03/8 (-12)				07/16 (-14)				01/2 (-18)			
GRP DASH NO	GRP RANGE		L REF	GRP DASH NO.	GRP RANGE		L REF	GRP DASH NO.	GRP RANGE		L REF.
	MIN	MAX			MIN	MAX			MIN	MAX	
-1202	094	095	423	-1404	219	282	599	-1605	281	345	753
-1203	158	767	485	-1405	281	345	682	-1606	344	407	815
-1204	282	820	548	-1406	344	407	724	-1607	406	470	878
-1205	301	883	610	-1407	406	470	787	-1608	469	532	940
-1206	344	945	673	-1408		532	849				
-1207	408	1,007	735								
-1208	469	1,070	798								
-1209	531	1,133	860	-1409	531	595	912	-1609	531	595	1,003
-1210	584	1,185	923	-1410	594	657	974	-1610	594	657	1,065
-1211	648	1,257	985	-1411	656	720	1,037	-1611	656	720	1,128
-1212	719	1,320	1,048	-1412	719	782	1,098	-1612	719	782	1,190
-1213	781	1,383	1,110	-1413	781	845	1,162	-1613	781	845	1,253
-1214	844	1,445	1,173	-1414	844	907	1,224	-1614	844	907	1,315
-1215	908	1,507	1,235	-1415	908	970	1,287	-1615	908	970	1,378
-1216	968	1,570	1,298	-1416	969	1,032	1,349	-1616	969	1,032	1,440
-1217	1,031	1,633	1,360	-1417	1,031	1,095	1,412	-1617	1,031	1,095	1,503
-1218	1,094	1,695	1,423	-1418	1,094	1,157	1,474	-1618	1,094	1,157	1,565
-1219	1,158	1,757	1,485	-1419	1,156	1,220	1,537	-1619	1,156	1,220	1,628
-1220	1,220	1,820	1,548	-1420	1,219	1,282	1,599	-1620	1,219	1,282	1,690
-1221	1,281	1,883	1,610	-1421	1,281	1,345	1,662	-1621	1,281	1,345	1,753
-1222	1,344	1,945	1,673	-1422	1,344	1,407	1,724	-1622	1,344	1,407	1,815
-1223	1,408	2,007	1,735	-1423	1,408	1,470	1,787	-1623	1,408	1,470	1,878
-1224	1,469	2,070	1,798	-1424	1,469	1,532	1,849	-1624	1,469	1,532	1,940
-1225	1,531	2,133	1,860	-1425	1,531	1,595	1,912	-1625	1,531	1,595	2,003
-1226	1,594	2,195	1,923	-1426	1,594	1,657	1,974	-1626	1,594	1,657	2,065
-1227	1,658	2,257	1,985	-1427	1,656	1,720	2,037	-1627	1,656	1,720	2,128
-1228	1,721	2,320	2,048	-1428	1,719	1,782	2,099	-1628	1,719	1,782	2,190
-1229	1,784	2,383	2,110	-1429	1,781	1,845	2,162	-1629	1,781	1,845	2,253
-1230	1,847	2,445	2,173	-1430	1,844	1,907	2,224	-1630	1,844	1,907	2,315
-1231	1,909	2,507	2,235	-1431	1,908	1,970	2,287	-1631	1,908	1,970	2,378
-1232	1,969	2,570	2,298	-1432	1,968	2,032	2,349	-1632	1,968	2,032	2,440
-1233	2,031	2,633	2,360	-1433	2,031	2,095	2,412	-1633	2,031	2,095	2,503
-1234	2,094	2,695	2,423	-1434	2,094	2,157	2,474	-1634	2,094	2,157	2,565
-1235	2,156	2,757	2,485	-1435	2,156	2,220	2,537	-1635	2,156	2,220	2,628
-1236	2,218	2,802	2,548	-1436	2,219	2,282	2,599	-1636	2,219	2,282	2,690
								-1637	2,281	2,345	2,753
								-1638	2,344	2,407	2,815
								-1639	2,406	2,470	2,878
								-1640	2,468	2,532	2,940

PREPARING ACTIVITY- NAVY-AS CUSTODIANS ARMY- AM NAVY- AS AIR FORCE- 99 DLA- IS REVIEW- ML 82 USER. PROJECT NUMBER 5320-0818	<u>MILITARY SPECIFICATION SHEET</u> TITLE FASTENER, BLIND, HIGH STRENGTH, PULL TYPE, POSITIVE MECHANICAL LOCK, PROTRUDING HEAD, ALLOY STEEL, 112 K.S.I. Pcu	SPECIFICATION SHEET NUMBER MS90354 28 FEB 94 REV T SUPERSEDED BY MS90354 R 13 AUG 1993 AMSC- N/A PSC 5320
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OMB No. 0704-0188

REQUIREMENT

1 MATERIAL

SLEEVE AND SERRATED PIN - ALLOY STEEL PER ASTM-A-331

MECHANICAL LOCK CARBON STEEL OR ALLOY STEEL CONFORMING TO THE CHEMICAL COMPOSITION OF 1010, 1020, 1144, 4037, OR 4130 OF FEDERAL STANDARD 66 OR A286 CRES CONFORMING TO THE CHEMICAL LIMITS OF AMS 5737, OR TYPE 316 CRES CONFORMING TO THE CHEMICAL REQUIREMENTS OF AMS5690

2 HARDNESS

SLEEVE KNOOP (1000 GRAM LOAD) 326-466

SERRATED PIN. ROCKWELL "C" 48 TO 53

MECHANICAL LOCK NOT APPLICABLE

3 PROTECTIVE TREATMENT

SLEEVE CADMIUM PLATE PER QQ-P-416, TYPE II, CLASS 2 OR ALUMINUM COATING PER MIL-C-83488.

SERRATED PIN CADMIUM PLATE PER QQ-P-416, TYPE I, CLASS 3 WITH HYDROGEN EMBRITTLEMENT RELIEF PER MIL-F-81177 OR ALUMINUM COATING PER MIL-C-83488.

MECHANICAL LOCK CADMIUM PLATE PER QQ-P-416, TYPE II, CLASS 2 (CARBON AND ALLOY STEEL) PASSIVATE PER QQ-T-35 (A286 AND TYPE 304 CRES) OR ALUMINUM COATING PER MIL-C-83488, AT MANUFACTURER'S OPTION

4 INSPECTION

DUE TO INSTALLATION LOADS BEING HIGHER THAN PERFORMANCE LOAD REQUIREMENTS, MAGNETIC PARTICLE INSPECTION IS NOT REQUIRED

5 LUBRICATION

NONE, EXCEPT MANUFACTURER'S OPTION TO LUBRICATE LOCK MECHANISM WITH LOX COMPATIBLE DRY FILM LUBRICATION

6 EXAMPLE OF PART NUMBER

MS 90354 - 0806 D - 1/4 DIA. NOM SIZE, 156 MIN GRIP, INSTALLED WITH A SINGLE ACTION TOOL

"D" DENOTES ALUMINUM COATING, NO CODE DENOTES CADMIUM PLATING

GRIP RANGE (SEE TABLE II)

SIZE DASH NUMBER (SEE TABLE I)

"-" DENOTES FASTENERS INSTALLED WITH A DOUBLE ACTION TOOL, FOR SIZES 05 AND 06.

"-" DENOTES FASTENERS INSTALLED WITH A SINGLE ACTION TOOL, FOR SIZES 08, 10, 12, 14, AND 18

"S" DENOTES FASTENERS INSTALLED WITH A SINGLE ACTION TOOL, FOR SIZES 05 AND 06

"U" DENOTES SINGLE ACTION FASTENERS INSTALLED WITH A SINGLE ACTION TOOL, FOR ALL SIZES (SEE SHEET 1, FOOTNOTE (d))

MS NUMBER

NOTES

- 1 DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES DECIMALS ± 0.10
- 2 IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS DOCUMENT AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS DOCUMENT SHALL TAKE PRECEDENCE
- 3 UNLESS OTHERWISE SPECIFIED, ISSUES OF REFERENCED DOCUMENTS ARE THOSE IN EFFECT AT THE TIME OF SOLICITATION

PREPARING ACTIVITY: NAVY-AS CUSTODIANS: ARMY-AV NAVY-AS AIR FORCE-99 DLA-IS REVIEW: IS M, B2 USER: PROJECT NUMBER: 5320-0818	MILITARY SPECIFICATION SHEET TITLE FASTENER, BLIND, HIGH STRENGTH, PULL TYPE, POSITIVE MECHANICAL LOCK, PROTRUDING HEAD, ALLOY STEEL, 112 KSI F _u	SPECIFICATION SHEET NUMBER MS90354 28 FEB 1994 REV 1 SUPERSEDING MS90354 R 13 AUG 1993 AMSC- N/A FSC 5320
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