

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 DOORS SPECIFIED IN THE SOLICITATION: MIL-F-81177

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

Form Approved
OMB No. 0704-0188

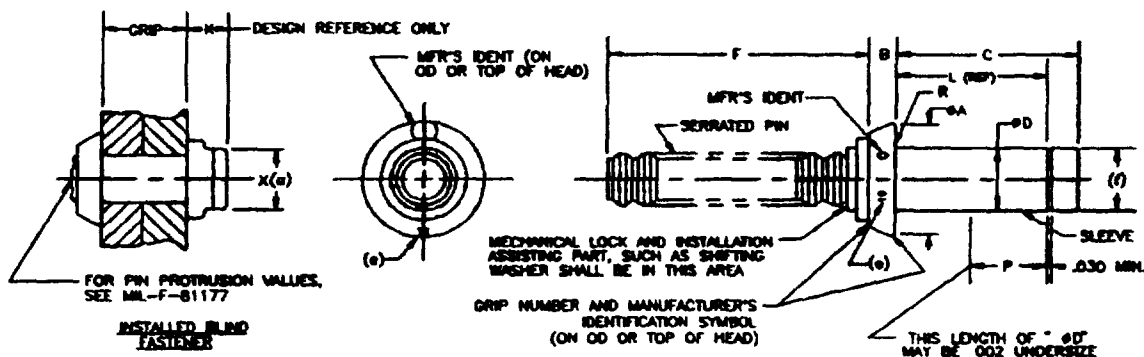


TABLE 1. FASTENER DIMENSIONS AND STRENGTHS

(b) SIZE DASH NUMBER			NOM. SIZE	6A	B	6D	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 .260	.070 .062	.184 .182	.844	.202	.215	.010	.195	2340	1350	.184 .187
-06	S06	U06	3/16	.332 .308	.135 .128	.199 .197	.875	.231	.250	.015	.238	3450	2100	.199 .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 SUPERSEDING MS90354 R 13 AUG 1993 AMSC- N/A FSC 5320
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PRINTING ERRORS ARE CORRECTED

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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		L REF	C (U) MAX	GRIP DASH NO	GRIP RANGE		L REF	C (U) MAX	GRIP DASH NO	GRIP RANGE		L REF	C (U) MAX	
	MIN	MAX				MIN	MAX				MIN	MAX			
-0501	031	095	217	372	-0602	094	137	303	479	-0802	094	137	344	553	
-0502	094	157	280	434	-0603	156	220	365	541	-0803	156	220	408	618	
-0503	156	220	342	496	-0604	219	282	428	604	-0804	219	282	449	680	
-0504	219	282	405	559	-0605	281	345	490	666	-0805	281	345	508	743	
-0505	281	345	467	622	-0606	344	407	530	729	-0806	344	407	551	808	
-0506	344	407	530	684	-0607	406	470	615	791	-0807	406	470	613	868	
-0507	406	470	581	746	-0608	469	532	676	854	-0808	469	532	683	928	
-0508	469	532	665	809	-0609	531	595	740	916	-0809	531	595	718	993	
-0509	531	595	717	872	-0610	594	657	803	979	-0810	594	657	781	1055	
-0510	594	657	780	934	-0611	656	720	865	1041	-0811	656	720	844	1118	
-0511	656	720	842	996	-0612	719	782	928	1104	-0812	719	782	906	1243	
-0512	719	782	905	1059	-0613	781	845	990	1166	-0813	781	845	968	1306	
-0513	781	845	967	1122	-0614	844	907	1053	1229	-0814	844	907	1031	1368	
-0514	844	907	1030	1184	-0615	906	970	1115	1291	-0815	906	970	1094	1431	
-0515	906	970	1082	1246	-0616	969	1032	1176	1354	-0816	969	1032	1158	1493	
-0516	969	1032	1155	1309	-0617	1031	1095	1240	1416	-0817	1031	1095	1218	1556	
					-0618	1094	1157	1303	1479	-0818	1094	1157	1341	1618	
					-0619	1156	1220	1365	1541	-0819	1156	1220	1408	1681	
					-0620	1219	1282	1428	1604	-0820	1219	1282	1458	1743	
					-0621	1281	1345	1490	1666	-0821	1281	1345	1528	1805	
					-0622	1344	1407	1533	1729	-0822	1344	1407	1588	1868	
					-0623	1406	1470	1581	1791	-0823	1406	1470	1651	1931	
					-0624	1469	1532	1676	1854	-0824	1469	1532	1718	1993	
					-0625	1531	1595	1740	1916	-0825	1531	1595	1781	2055	
					-0626	1594	1657	1803	1979	-0826	1594	1657	1843	2118	
					-0627	1656	1720	1865	2041	-0827	1656	1720	1906	2180	
					-0628	1719	1782	1928	2104	-0828	1719	1782	1968	2243	

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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 Fsu		SPECIFICATION SHEET NUMBER MS90354 28 FEB 84 REV T SUPERSEDING MS90354 R 13 AUG 1993 AMSC- N/A FSC 5320	
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PREPARING ACTIVITY: NAVY-AS CUSTODIANS: ARMY-AM NAVY-AS AIR FORCE-99 DLA-IS REVIEW: ML 82 USER: PROJECT NUMBER: 5320-0816		MILITARY SPECIFICATION SHEET TITLE FASTENER, BLIND, HIGH STRENGTH, PULL TYPE, POSITIVE MECHANICAL LOCK, PROTRUDING HEAD, ALLOY STEEL 112 K.S.I. Fcu		SPECIFICATION SHEET NUMBER MS90354 28 FEB 84 REV T SUPERSEDING MS90354 R 13 AUG 1983 AMSC- N/A FSC 5320	
DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.				Page <u>3</u> of <u>4</u>	

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TABLE B. CRIP NUMBER TABULATION (CONTINUED)

93/8 (-12)				97/16 (-14)				91/2 (-18)				L REF.
CRIP DASH NO	CRIP RANGE		C	CRIP DASH NO.	CRIP RANGE		C	CRIP DASH NO.	CRIP RANGE		C	
	MIN	MAX			MIN	MAX			MIN	MAX		
-1202	094	.157	895	423	1404	.599	281	.345	1084	753		
-1203	156	.220	767	485	1405	.662	344	.407	1147	815		
-1204	219	.282	820	548	1406	.724	405	.470	1209	878		
-1205	281	.345	883	610	1407	.787	468	.532	1272	940		
-1206	344	.407	945	673	1408	.849	531	.595	1334	1003		
-1207	406	.470	1007	735	1409	.912	594	.657	1397	1065		
-1208	468	.532	1070	798	1410	.974	656	.720	1459	1128		
-1209	531	.595	1133	860	1411	1.037	718	.782	1522	1190		
-1210	594	.657	1195	923	1412	1.100	781	.845	1584	1253		
-1211	656	.720	1257	985	1413	1.163	844	.907	1647	1315		
-1212	718	.782	1320	1048	1414	1.224	906	.970	1709	1378		
-1213	781	.845	1383	1110	1415	1.287	968	1.032	1772	1440		
-1214	844	.907	1445	1173	1416	1.349	1031	1.095	1834	1503		
-1215	906	.970	1507	1235	1417	1.412	1094	1.157	1897	1565		
-1216	968	1.032	1570	1298	1418	1.474	1156	1.220	1959	1628		
-1217	1031	1.095	1633	1360	1419	1.537	1218	1.282	2022	1690		
-1218	1094	1.157	1695	1423	1420	1.599	1281	1.345	2084	1753		
-1219	1156	1.220	1757	1485	1421	1.662	1344	1.407	2147	1815		
-1220	1218	1.282	1820	1548	1422	1.724	1406	1.470	2209	1878		
-1221	1281	1.345	1883	1610	1423	1.787	1468	1.532	2272	1940		
-1222	1344	1.407	1945	1673	1424	1.849	1531	1.595	2334	2003		
-1223	1406	1.470	2007	1735	1425	1.912	1594	1.657	2397	2065		
-1224	1468	1.532	2070	1798	1426	1.974	1656	1.720	2459	2128		
-1225	1531	1.595	2133	1860	1427	2.037	1718	1.782	2522	2190		
-1226	1594	1.657	2195	1923	1428	2.099	1781	1.845	2584	2253		
-1227	1656	1.720	2257	1985	1429	2.162	1844	1.907	2647	2315		
-1228	1718	1.782	2320	2048	1430	2.224	1906	1.970	2709	2378		
-1229	1781	1.845	2383	2110	1431	2.287	1968	2.032	2772	2440		
-1230	1844	1.907	2445	2173	1432	2.349	2031	2.095	2834	2503		
-1231	1906	1.970	2507	2235	1433	2.412	2094	2.157	2897	2565		
-1232	1968	2.032	2570	2298	1434	2.474	2156	2.220	2959	2628		
-1233	2031	2.095	2633	2360	1435	2.537	2218	2.282	3022	2690		
-1234	2094	2.157	2695	2423	1436	2.599	2281	2.345	3084	2753		
-1235	2156	2.220	2757	2485	1436	2.662	2344	2.407	3147	2815		
-1236	2218	2.282	2820	2548	1436	2.724	2406	2.469	3209	2878		
						2.786	2468	2.532	3272	2940		

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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

CUSTOMERS: ARMY-AY

NAVY-AS

AIR FORCE-99

DLA-IS

REVIEW: IS M, 82

USER:

PROJECT NUMBER: 5320-0818

MILITARY SPECIFICATION SHEET

TITLE

FASTENER, BLIND, HIGH STRENGTH, PULL TYPE,
POSITIVE MECHANICAL LOCK, PROTRUDING HEAD,
ALLOY STEEL, 112 K 51 Fw

SPECIFICATION SHEET NUMBER

MS90354

28 FEB 1994
REV 1

SUPERSEDING

MS90354 R 13 AUG 1993

AMSC- N/A

FSC 5320

DISTRIBUTION STATEMENT

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