

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.

Form Approved
OMB No. 0704-0188

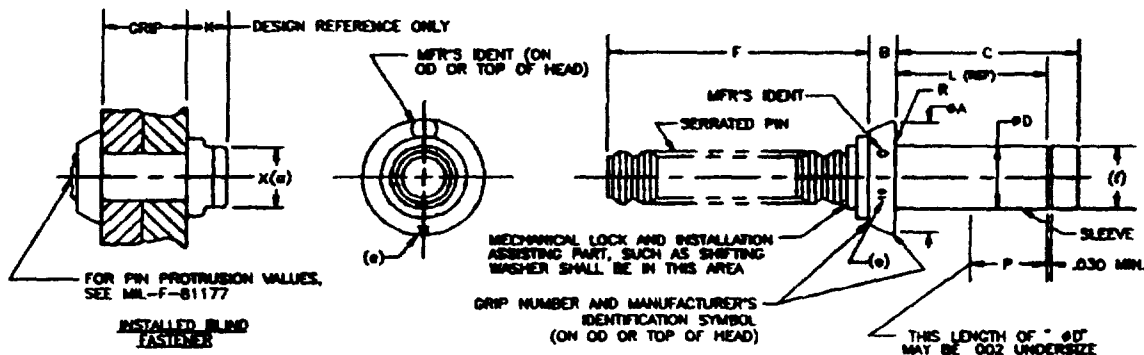




TABLE 1. FASTENER DIMENSIONS AND STRENGTHS

(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	.208 .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 ".010" MAX AND MAY BE .002 BELOW ".010" 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.

Page 1 of 4

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 DOCS SPECIFIED IN THE SOLICITATION ML-F-81177

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

TABLE N GRIP NUMBER TABULATION

#5/32 (-05)				#3/16 (-06)				#1/4 (-08)				#5/16 (-10)			
GRIP DASH NO	GRIP RANGE		C ① MAX	L REF	GRIP DASH NO	GRIP RANGE		C ① MAX	L REF	GRIP DASH NO	GRIP RANGE		C ① MAX	L REF	
	MIN	MAX				MIN	MAX				MIN	MAX			
-0501	031	095	372	217	-0602	094	157	553	344	-0802	094	157	618	381	
-0502	094	157	434	280	-0603	156	220	618	408	-0803	156	220	680	443	
-0503	156	220	496	342	-0604	219	282	678	468	-0804	219	282	743	506	
-0504	219	282	558	405	-0605	281	345	740	531	-0805	281	345	805	568	
-0505	281	345	622	467	-0606	344	407	803	594	-0806	344	407	868	631	
-0506	344	407	684	530	-0607	406	470	868	658	-0807	406	470	930	693	
-0507	406	470	746	592	-0608	468	532	928	719	-0808	468	532	993	756	
-0508	468	532	809	655	-0609	531	595	990	781	-0809	531	595	1055	818	
-0509	531	595	872	717	-0610	594	657	1053	844	-0810	594	657	1118	881	
-0510	594	657	934	780	-0611	656	720	1118	908	-0811	656	720	1180	943	
-0511	656	720	996	842	-0612	719	782	1178	968	-0812	719	782	1243	1006	
-0512	719	782	1058	905	-0613	781	845	1240	1031	-0813	781	845	1305	1068	
-0513	781	845	1122	967	-0614	844	907	1303	1094	-0814	844	907	1368	1131	
-0514	844	907	1184	1030	-0615	906	970	1366	1158	-0815	906	970	1430	1193	
-0515	906	970	1246	1092	-0616	968	1032	1428	1218	-0816	968	1032	1493	1256	
-0516	968	1032	1309	1155	-0617	1031	1095	1490	1281	-0817	1031	1095	1555	1318	
					-0618	1094	1157	1553	1344	-0818	1094	1157	1618	1381	
					-0619	1156	1220	1618	1408	-0819	1156	1220	1680	1443	
					-0620	1219	1282	1678	1468	-0820	1219	1282	1743	1506	
					-0621	1281	1345	1740	1531	-0821	1281	1345	1805	1568	
					-0622	1344	1407	1803	1594	-0822	1344	1407	1868	1631	
					-0623	1406	1470	1866	1658	-0823	1406	1470	1930	1693	
					-0624	1468	1532	1928	1719	-0824	1468	1532	1993	1756	
					-0625	1531	1595	1990	1781	-0825	1531	1595	2055	1818	
					-0626	1594	1657	2053	1843	-0826	1594	1657	2118	1881	
					-0627	1656	1720	2116	1908	-0827	1656	1720	2180	1943	
					-0628	1719	1782	2178	1968	-0828	1719	1782	2243	2006	
					-0629	1781	1845	2240	2031	-0829	1781	1845	2305	2068	
					-0630	1844	1907	2303	2094	-0830	1844	1907	2368	2131	
										-0831	1906	1970	2430	2193	
										-0832	1968	2032	2493	2256	

Form Approved
OMB No. 0704-0188

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
A. Approved for public release, distribution is unlimited		Page 2 of 4

DD Form 672, MAY 88

PREVIOUS EDITIONS ARE OBSOLETE

THIS SPECIFICATION IS APPROVED FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE
DEPARTMENT OF DEFENSE.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 CODES SPECIFIED IN
THE SOLICITATION ML-F-81177

TABLE B. CRIP NUMBER TABULATION (CONTINUED)

93/8 (-12)				97/16 (-14)				91/2 (-18)			
CRIP DASH NO	CRIP RANGE		L REF	CRIP DASH NO.	CRIP RANGE		C MAX	CRIP DASH NO.	CRIP RANGE		L REF.
	MIN	MAX			MIN	MAX			MIN	MAX	
-1202	094	157	423	-1404	219	282	901	-1805	281	345	753
-1203	156	220	485	-1405	281	345	964	-1806	344	407	815
-1204	219	282	546	-1406	344	407	1026	-1807	405	470	878
-1205	281	345	610	-1407	406	470	1089	-1808	468	532	940
-1206	344	407	673	-1408	468	532	1151				
-1207	406	470	735								
-1208	468	532	798								
-1209	531	595	860	-1409	531	595	1214	-1809	531	595	1003
-1210	594	657	923	-1410	594	657	1276	-1810	594	657	1065
-1211	656	720	985	-1411	656	720	1339	-1811	656	720	1128
-1212	719	782	1048	-1412	719	782	1401	-1812	719	782	1189
-1213	781	845	1110	-1413	781	845	1464	-1813	781	845	1253
-1214	844	907	1173	-1414	844	907	1526	-1814	844	907	1315
-1215	908	970	1235	-1415	908	970	1589	-1815	908	970	1378
-1216	969	1032	1298	-1416	969	1032	1651	-1816	969	1032	1440
-1217	1031	1095	1360	-1417	1031	1095	1714	-1817	1031	1095	1503
-1218	1094	1157	1423	-1418	1094	1157	1776	-1818	1094	1157	1565
-1219	1156	1220	1485	-1419	1156	1220	1839	-1819	1156	1220	1628
-1220	1218	1282	1546	-1420	1218	1282	1901	-1820	1218	1282	1690
-1221	1281	1345	1608	-1421	1281	1345	1964	-1821	1281	1345	1753
-1222	1344	1407	1673	-1422	1344	1407	2026	-1822	1344	1407	1815
-1223	1406	1470	1735	-1423	1406	1470	2089	-1823	1406	1470	1878
-1224	1469	1532	1798	-1424	1469	1532	2151	-1824	1469	1532	1940
-1225	1531	1595	1860	-1425	1531	1595	2214	-1825	1531	1595	2003
-1226	1594	1657	1923	-1426	1594	1657	2276	-1826	1594	1657	2065
-1227	1656	1720	1985	-1427	1656	1720	2339	-1827	1656	1720	2128
-1228	1718	1782	2048	-1428	1718	1782	2401	-1828	1718	1782	2190
-1229	1781	1845	2110	-1429	1781	1845	2464	-1829	1781	1845	2253
-1230	1844	1907	2173	-1430	1844	1907	2526	-1830	1844	1907	2315
-1231	1906	1970	2235	-1431	1906	1970	2589	-1831	1906	1970	2378
-1232	1969	2032	2298	-1432	1969	2032	2651	-1832	1969	2032	2440
-1233	2031	2095	2360	-1433	2031	2095	2714	-1833	2031	2095	2503
-1234	2094	2157	2423	-1434	2094	2157	2776	-1834	2094	2157	2565
-1235	2156	2220	2485	-1435	2156	2220	2839	-1835	2156	2220	2628
-1236	2218	2282	2548	-1436	2218	2282	2901	-1836	2218	2282	2690
								-1837	2281	2345	2753
								-1838	2344	2407	2815
								-1839	2406	2470	2878
								-1840	2468	2532	2940

PREPARING ACTIVITY: NAVY-AS
 CUSTOMERS: 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. Fm

SPECIFICATION SHEET NUMBER
MS90354 28 FEB 94
 REV T
 SUPERSEDING
 MS90354 R 13 AUG 1983
 AMSC- N/A FSC 5320

DISTRIBUTION STATEMENT

A. Approved for public release, distribution is unlimited.

Page 3 of 4

DD Form 672, MAY 88

FORMER EDITIONS ARE OBSOLETE

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 DOCS 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

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 Fm

SPECIFICATION SHEET NUMBER

MS90354

28 FEB 1994
REV 1

SUPERSEDING

MS90354 R 13 AUG 1993

AMSC- N/A

FSC 5320

DISTRIBUTION STATEMENT

A Approved for public release, distribution is unlimited

Page 4 of 4

DD Form 672, MAY 88

PREVIOUS EDITIONS ARE OBSOLETE