

INCH-POUND

MS35764F
29 May 2013
SUPERSEDING
MS35764E
29 December 1975

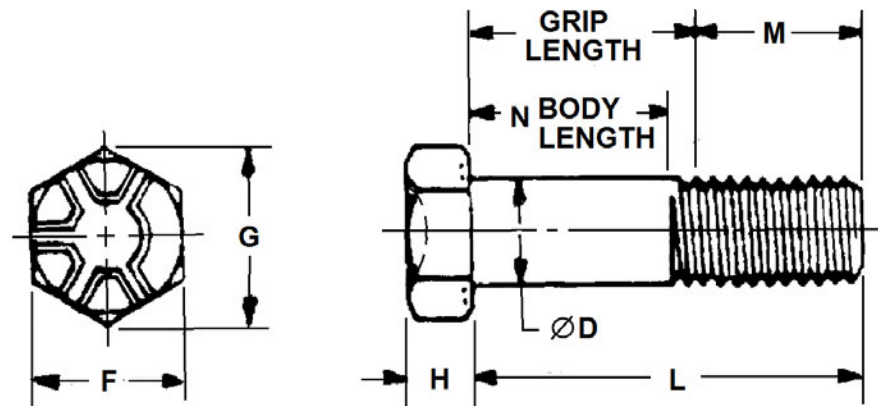
DETAILED SPECIFICATION SHEET

BOLT, SELF-LOCKING, HEXAGON HEAD, STEEL, GRADE 8, UNC-2A AND UNF-2A

INACTIVE FOR NEW DESIGN AFTER 18 NOVEMBER 1999.

This specification sheet is approved for all Departments and Agencies of the Department of Defense.

The requirements for acquiring the described herein shall consist of this specification sheet and procurement specification MIL-B-45912.

FIGURE 1. BOLT, SELF-LOCKING.

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TABLE I. Part Numbers and Dimensions.

NOMINAL SIZE		250				3125				.375				500			
THREADS PER INCH		20	28			18	24			16	24			13	20		
BODY MAX		.250				.3125				.375				.500			
ØD DIAMETER MIN		.245				.3065				.369				.493			
ACROSS MAX		.500				.562				.625				.812			
F FLATS MIN		.489				.551				.612				.798			
ACROSS MAX		.577				.650				.722				.936			
G CORNERS MIN		.557				.628				.698				.910			
HEAT MAX		.135				.198				.260				.327			
H HEIGHT MIN		.125				.188				.250				.312			
THREAD M LENGTH REF		.750				.875				1.000				1.250			
UNTHREADED * N BODY LGT MAX		.125	.089			.139	.104			.156	.104			.192	.125		
L LENGTH	FINISH	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX
.750	CAD PHOS	1201	1223			1245	1267			1289	1311			1395	1425		
		1202	1224			1246	1268			1290	1312			1396	1426		
.875	CAD PHOS	1203	1225		125	1247	1269			1291	1313			1397	1427		
		1204	1226			1248	1270			1292	1314			1398	1428		
1.000	CAD PHOS	1205	1227		250	1249	1271			1293	1315			1399	1429		
		1206	1228			1250	1272			1294	1316			1400	1430		
1.250	CAD PHOS	1207	1229	.100	500	1251	1273		.375	1295	1317		.250	1401	1431		
		1208	1230			1252	1274			1296	1318			1402	1432		
1.500	CAD PHOS	1209	1231	.350	.750	1253	1275	.208	.625	1297	1319			1403	1433		
		1210	1232			1254	1276			1298	1320	.062	.500	1404	1434		.250
1.750	CAD PHOS	1211	1233		1.000	1255	1277			1299	1321			1405	1435		
		1212	1234	.600		1256	1278	.458	.875	1300	1322	312	.750	1406	1436	.019	.500
2.000	CAD PHOS					1257	1279			1301	1323			1407	1437		
						1258	1280	.708	1.125	1302	1324	562	1.000	1408	1438	269	.750
2.250	CAD PHOS					1259	1281			1303	1325			1409	1439		
						1260	1282	.958	1.375	1304	1326	.812	1 250	1410	1440	519	1.000
2.500	CAD PHOS									1305	1327			1411	1441		
										1306	1328	1.062	1 500	1412	1442	.769	1.250
2.750	CAD PHOS									1307	1329			1413	1443		
										1308	1330	1 312	1.750	1414	1444	1.019	1.500
3.000	CAD PHOS													1415	1445		
														1416	1446	1.269	1.750
3.250	CAD PHOS													1417	1447		
														1418	1448	1.519	2.000
3.500	CAD PHOS													1419	1449		
														1420	1450	1.769	2.250
3.750	CAD PHOS													1421	1451		
														1422	1452	2.019	2.500

* See Requirement 6.

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TABLE I. Part Numbers and Dimensions. (Continued)

NOMINAL SIZE		.625			.750			1.000			1.250		
THREADS PER INCH		11	18		10	16		8	12		7	12	
ØD	BODY MAX	.625			.750			1.000			1.250		
	DIAMETER MIN	.617			.741			.990			1.219		
F	ACROSS MAX	1.000			1.125			1.500			1.875		
	FLATS MIN	.983			1.106			1.477			1.850		
G	ACROSS MAX	1.155			1.299			1.732			2.165		
	CORNERS MIN	1.121			1.261			1.684			2.066		
H	HEAT MAX	.390			.458			.582			.697		
	HEIGHT MIN	.375			.438			.562			.677		
THREAD M LENGTH REF		1.500			1.750			2.250			2.750		
UNTHREADED * N BODY LGT MAX		.227	.139		.250	.156		.312	.208		.357	.208	
L LENGTH	FINISH	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX
1.000	CAD PHOS	1515	1543										
		1516	1544										
1.250	CAD PHOS	1517	1545			1571	1599						
		1518	1546			1572	1600						
1.500	CAD PHOS	1519	1547			1573	1601						
		1520	1548			1574	1602						
1.750	CAD PHOS	1521	1549			1575	1603			1679	1705		
		1522	1550		.250	1576	1604			1680	1706		
2.000	CAD PHOS	1523	1551			1577	1605			1681	1707	1729	1753
		1524	1552		.500	1578	1606		250	1682	1708	1730	1754
2.250	CAD PHOS	1525	1553			1579	1607			1683	1709	1731	1755
		1526	1554		.750	1580	1608		500	1684	1710	1732	1756
2.500	CAD PHOS	1527	1555			1581	1609			1685	1711	1733	1757
		1528	1556	.227	1.000	1582	1610		.750	1686	1712	1734	1758
2.750	CAD PHOS	1529	1557			1583	1611			1687	1713	1735	1759
		1530	1558	.477	1.250	1584	1612	.200	1.000	1688	1714	1736	1760
3.000	CAD PHOS	1531	1559			1585	1613			1689	1715	1737	1761
		1532	1560	.727	1.500	1586	1614	.450	1.250	1690	1716	1738	1762
3.250	CAD PHOS	1533	1561			1587	1615			1691	1717	1739	1763
		1534	1562	.977	1.750	1588	1616	.700	1.500	1692	1718	1740	1764
3.500	CAD PHOS	1535	1563			1589	1617			1693	1719	1741	1765
		1536	1564	1.227	2.000	1590	1618	.950	1.750	1694	1720	1742	1766
3.750	CAD PHOS	1537	1565			1591	1619			1695	1721	1743	1767
		1538	1566	1.477	2.250	1592	1620	1.200	2.000	1696	1722	1744	1768
4.000	CAD PHOS	1539	1567			1593	1621			1697	1723	1745	1769
		1540	1568	1.727	2.500	1594	1622	1.450	2.250	1698	1724	1746	1770
4.500	CAD PHOS	1541	1569			1595	1623			1699	1725	1747	1771
		1542	1570	2.227	3.000	1596	1624	1.950	2.750	1700	1726	1748	1772
5.000	CAD PHOS									1701	1727	1749	1773
										1702	1728	1750	1774
										1.875	2.750	1750	1774
												1.321	2.250

* See Requirement 6.

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TABLE II. Length Tolerance.

NOMINAL SIZE	.250 .3125 .375	.4375 .500	.5625 .625 .750	.875 1.000	1.250
LENGTH	TOLERANCE (+.000)				
THRU 1.000	-.030	-.030	-.030		
OVER 1.000 THRU 2.500	-.040	-.060	-.080	-.100	-.120
OVER 2.500 THRU 4.000	-.060	-.080	-.100	-.140	-.160
OVER 4.000				-.160	-.180

REQUIREMENTS:

1. MATERIAL: Steel, SAE Grade 8 in accordance with procurement specification.
2. PROTECTIVE COATING: Cadmium plated in accordance with SAE AMS-QQ-P-416, Type II, Class 2.
Zinc phosphate coated in accordance with MIL-DTL-16232, Type Z, Class 2.
3. THREADS: Threads shall be in accordance with FED-STD-H28.
4. DIMENSIONS: All dimensions are in inches.
5. HEAD DIMENSIONS: For head dimensions see procurement specifications.
- * 6. UNTHREADED LENGTH: Bolts too short for full thread length shall have threads extending over the full length. The distance from the underside of the head to the first complete (full form) thread, as measured with a ring thread gage, shall not exceed the maximum unthreaded - body length "N".
7. HEAD MARKINGS: Heads shall be marked on top with the manufacturer's identification and the number 8 to designate Grade 8 material. Raised marking are preferred.
8. PART NUMBER: The MS part number consists of the MS number, plus the dash number.
Example: MS35764-1201.
9. Referenced documents shall be of the issue in effect as of the date of invitation for bid.
10. For design feature purposes, this standard takes precedence over procurement documents referenced herein.
11. Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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TABLE III. Grade 8 – Reference Information Only.

NOMINAL SIZE	THREADS PER INCH	PROOF LOAD LBS (MIN)	RECOMMENDED AXIAL LOAD (LBS)	*RECOMMENDED TIGHTENING TORQUE (FT – LBS)
.250	20	3800	2850	11
	28	4350	3263	14
.3125	18	6300	4725	21.5
	24	6950	5213	27
.375	16	9300	6975	40.5
	24	10550	7913	55
.500	13	17050	12788	102
	20	19200	14363	126
.625	11	27100	20325	212
	18	30700	23025	263
.750	10	40100	30075	390
	16	44750	33563	464
1.000	8	72700	54525	889
	12	79550	59663	1050
1.250	7	116300	87225	1956
	12	128750	96563	2253

NOTES:

1. Torque based on 0.2 coefficient of friction.
2. Torque and axial load based upon 75% of proof load value.
3. The self-locking feature of these bolts is full effective when tightened to the torque values shown herein. Lockwashers or locknuts are not needed. (See note 5)
- * 4. Torque values are to be shown adjacent the bolt part number callouts upon assembly drawings. They are subject to upward or downward revision by the agency responsible for the assembly drawings when the tightening fraction coefficient for specific applications is found to vary from as shown in (1) above.
5. Where material softer than the bolt material is fastened, plain washer of material as hard as the bolt of adequate thickness and larger in diameter than the bolt shall be used under the bolt head.

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TABLE IV. Part Numbers and Dimensions.

The following former dash numbers of MS35764 are INACTIVE FOR NEW DESIGN AFTER 15 MAY 1973. These inactive dash numbers have smaller "F" and "G" dimensions than the new dash numbers in TABLE I and have Type II, Class 3 cadmium plating per SAE AMS-QQ-P-416.

NOMINAL SIZE		.250				.3125				.375				.4375			
THREADS PER INCH		20	28			18	24			16	24			14	20		
BODY MAX		.250				.3125				.375				.4375			
D DIAMETER MIN		.245				.3065				.369				.4305			
ACROSS MAX		.436				.500				.562				.625			
F FLATS MIN		.428				.489				.551				.612			
ACROSS MAX		.505				.577				.650				.722			
G CORNERS MIN		.488				.557				.628				.698			
HEAT MAX		.135				.198				.260				.291			
H HEIGHT MIN		.125				.188				.250				.281			
THREAD																	
M LENGTH REF		.750				.875				1.000				1.250			
UNTHREADED * N BODY LGT MAX		.125	.089			.139	.104			.156	.104			.179	.125		
L LENGTH	FINISH	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX
.750	CAD PHOS	803 203	1003 603			817 217	1017 617			831 231	1031 631			846 246	1046 646		
.875	CAD PHOS	804 204	1004 604		.125	818 218	1018 618			832 232	1032 632			847 247	1047 647		
1.000	CAD PHOS	805 205	1005 605		.250	819 219	1019 619			833 233	1033 633			848 248	1048 648		
1.250	CAD PHOS	807 207	1007 607	100	.500	821 221	1021 621		.375	835 235	1035 635		.250	850 250	1050 650		
1.500	CAD PHOS	808 208	1008 608	350	.750	822 222	1022 622	.208	.625	836 236	1036 636	.062	.500	851 251	1051 651		.375
1.750	CAD PHOS	809 209	1009 609	.600	1.000	823 223	1023 623	.458	.875	837 237	1037 637	.312	.750	852 252	1052 652	.161	.625
2.000	CAD PHOS	810 210	1010 610	.850	1.250	824 224	1024 624	.708	1.125	838 238	1038 638	.562	1.000	853 253	1053 653	.411	.875
2.250	CAD PHOS	811 211	1011 611	1 100	1.500	825 225	1025 625	.958	1.375	839 239	1039 639	.812	1.250	854 254	1054 654	.661	1.125
2.500	CAD PHOS	812 212	1012 612	1 350	1.750	826 226	1026 626	1.208	1.625	840 240	1040 640	1.062	1.500	855 255	1055 655	.911	1.375
2.750	CAD PHOS	813 213	1013 613	1.600	2.000	827 227	1027 627	1.458	1.875	841 241	1041 641	1.312	1.750	856 256	1056 656	1.161	1.625
3.000	CAD PHOS	814 214	1014 614	1.850	2.250	828 228	1028 628	1.708	2.125	842 242	1042 642	1.562	2.000	857 257	1057 657	1.411	1.875
3.250	CAD PHOS													858 258	1058 658	1.661	2.125
3.500	CAD PHOS									1044 644		2.062	2.500	859 259	1059 659	1.911	2.375
3.750	CAD PHOS													860 260	1060 660	2.161	2.625
4.000	CAD PHOS													861 261	1061 661	2.411	2.875

* See Requirement 6.

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TABLE IV. Part Numbers and Dimensions. (Continued)

NOMINAL SIZE		.500				.5625				.625				.750			
THREADS PER INCH		13	20			12	18			11	18			10	16		
BODY MAX		.500				.5625				.625				.750			
ØD DIAMETER MIN		.493				.5545				.617				.741			
ACROSS MAX		.750				.812				.875				1.000			
F FLATS MIN		.736				.798				.860				.983			
ACROSS MAX		.866				.938				1.010				1.155			
G CORNERS MIN		.840				.910				.980				1.121			
HEAT MAX		.327				.390				.390				.456			
H HEIGHT MIN		.312				.375				.375				.438			
THREAD M LENGTH REF		1 250				1.375				1.500				1.750			
UNTHREADED * N BODY LGT MAX		.192	.125			.208	.139			.227	.139			.250	.156		
L LENGTH	FINISH	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX
.750	CAD PHOS	864 264	1064 664			882 282	1082 682										
.875	CAD PHOS	865 265	1065 665			883 283	1083 683										
1.000	CAD PHOS	866 266	1066 666			884 284	1084 684			900 300	1100 700				1116 716		
1 250	CAD PHOS	868 268	1068 668			886 286	1086 686			902 302	1102 702			918 318	1118 718		
1 500	CAD PHOS	869 269	1069 669		250	887 287	1087 687			903 303	1103 703			919 319	1119 719		
1.750	CAD PHOS	870 270	1070 670	.019	500	888 288	1088 688		.375	904 304	1104 704		.250	920 320	1120 720		
2.000	CAD PHOS	871 271	1071 671			889 289	1089 689			905 305	1105 705			921 321	1121 721		
2 250	CAD PHOS	872 272	1072 672	.519	1.000	890 290	1090 690	125	.875	906 306	1106 706		.750	922 322	1122 722		.500
2 500	CAD PHOS	873 273	1073 673			891 291	1091 691			907 307	1107 707			923 323	1123 723		
2.750	CAD PHOS	874 274	1074 674	1.019	1 500	892 292	1092 692	.625	1.375	908 308	1108 708	.477	1.250	924 324	1124 724	.202	1.000
3.000	CAD PHOS	875 275	1075 675	1.269	1.750	893 293	1093 693	.875	1.625	909 309	1109 709	.727	1.500	925 325	1125 725	.450	1.250
3 250	CAD PHOS	876 276	1076 676	1.519	2.000	894 294	1094 694	1 125	1.875	910 310	1110 710	.977	1.750	926 326	1126 726	.700	1.500
3 500	CAD PHOS	877 277	1077 677	1.769	2 250	895 295	1095 695	1 375	2.125	911 311	1111 711	1.227	2.000	927 327	1127 727	.950	1.750
3.750	CAD PHOS	878 278	1078 678	2.019	2 500	896 296	1096 696	1.625	2.375	912 312	1112 712	1.477	2.250	928 328	1128 728	1.200	2.000
4.000	CAD PHOS	879 279	1079 679	2.269	2.750	897 297	1097 697	1.875	2.675	913 313	1113 713	1.727	2.500	929 329	1129 729	1.450	2.250
4.500	CAD PHOS									914 914	1114 714	2.227	3.000	930 330	1130 730	1.950	2.750

* See Requirement 6.

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TABLE IV. Part Numbers and Dimensions. (Continued)

NOMINAL SIZE		.875				1.000				1.250			
THREADS PER INCH		9	14			8	12			7	12		
ØD DIAMETER	BODY MAX	.875				1.000				1.250			
	MIN	.866				.990				1.239			
F FLATS	ACROSS MAX	1.125				1.312				1.688			
	MIN	1.106				1.292				1.663			
G CORNERS	ACROSS MAX	1.299				1.516				1.949			
	MIN	1.261				1.473				1.896			
H HEIGHT	HEAD MAX	.520				.582				.697			
	MIN	.500				.562				.677			
M THREAD LENGTH REF		2.000				2.250				2.750			
UNTHREADED * N BODY LENGTH MAX		.278	.179			.312	.206			.357	.208		
L LENGTH	FINISH	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX	DASH NO.		BODY LGT MIN	GRIP LGT MAX
1.250	CAD PHOS		1133 733				1148 748						
1.500	CAD PHOS	934 334	1134 734								1177 777		
1.750	CAD PHOS	935 335	1135 735			950 350	1150 750						
2.000	CAD PHOS	936 336	1136 736			951 351	1151 751			979 379	1179 779		
2.250	CAD PHOS	937 337	1137 737			952 352	1152 752			980 380	1180 780		
2.500	CAD PHOS	938 338	1138 738		.500	953 353	1153 753			981 381	1181 781		
2.750	CAD PHOS	939 339	1139 739		.750	954 354	1154 754		.500	982 382	1182 782		
3.000	CAD PHOS	940 340	1140 740	167	1.000	955 355	1155 755		.750	983 383	1183 783		
3.250	CAD PHOS	941 341	1141 741	.417	1.250	956 356	1156 756	.125	1.000	984 384	1184 784		.500
3.500	CAD PHOS	942 342	1142 742	.667	1.500	957 357	1157 757	.375	1.250	985 385	1185 785		.750
3.750	CAD PHOS	943 343	1143 743	917	1.750	958 358	1158 758	.625	1.500	986 386	1186 786	.071	1.000
4.000	CAD PHOS	944 344	1144 744	1 167	2.000	959 359	1159 759	.875	1.750	987 387	1187 787	.321	1.250
4.500	CAD PHOS	945 345	1145 745	1.667	2.500	960 360	1160 760	1.375	2.250	988 388	1188 788	.821	1.750
5.000	CAD PHOS	946 346	1146 746	2 167	3.000	961 361	1161 761	1.875	2.750	989 389	1189 789	1.321	2.250

* See Requirement 6.

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TABLE V. Interchangeability Table.

Cadmium or zinc plated bolts covered by the dash numbers given in the original issue of this standard are canceled after 13 September 1966. The canceled bolts should be used for maintenance purposes until existing stocks are depleted. Replacement shall be in accordance with this table. The new dash numbers given in this table have been inactivated (see TABLE IV).

DASH NUMBERS									
CANCELLED MS35764	NEW MS35764	CANCELLED MS35764	NEW MS35764	CANCELLED MS35764	NEW MS35764	CANCELLED MS35764	NEW MS35764	CANCELLED MS35764	NEW MS35764
3	803	77	877	152	952	452	1052	523	1123
4	804	78	878	153	953	453	1053	524	1124
5	805	79	879	154	954	454	1054	525	1125
7	807	82	882	155	955	455	1055	526	1126
8	808	83	883	156	956	456	1056	527	1127
9	809	84	884	157	957	457	1057	528	1128
10	810	86	886	158	958	458	1058	529	1129
11	811	87	887	159	959	459	1059	530	1130
12	812	88	888	160	960	460	1060	533	1133
13	813	89	889	161	961	461	1061	534	1134
14	814	90	890	179	979	464	1064	535	1135
17	817	91	891	180	980	465	1065	536	1136
18	818	92	892	181	981	466	1066	537	1137
19	819	93	893	182	982	468	1068	538	1138
21	821	94	894	183	983	469	1069	539	1139
22	822	95	895	184	984	470	1070	540	1140
23	823	96	896	185	985	471	1071	541	1141
24	824	97	897	186	986	472	1072	542	1142
25	825	100	900	187	987	473	1073	543	1143
26	826	102	902	188	988	474	1074	544	1144
27	827	103	903	189	989	475	1075	545	1145
28	828	104	904	403	1003	476	1076	546	1146
31	831	105	905	404	1004	477	1077	548	1148
32	832	106	906	405	1005	478	1078	550	1150
33	833	107	907	407	1007	479	1079	551	1151
35	835	108	908	408	1008	482	1082	552	1152
36	836	109	909	409	1009	483	1083	553	1153
37	837	110	910	410	1010	484	1084	554	1154
38	838	111	911	411	1011	486	1086	555	1155
39	839	112	912	412	1012	487	1087	556	1156
40	840	113	913	413	1013	488	1088	557	1157
41	841	114	914	414	1014	489	1089	558	1158
42	842	118	918	417	1017	490	1090	559	1159
46	846	119	919	418	1018	491	1091	560	1160
47	847	120	920	419	1019	492	1092	561	1161
48	848	121	921	421	1021	493	1093	577	1177
50	850	122	922	422	1022	494	1094	579	1179
51	851	123	923	423	1023	495	1095	580	1180
52	852	124	924	424	1024	496	1096	581	1181
53	853	125	925	425	1025	497	1097	582	1182
54	854	126	926	426	1026	500	1100	583	1183
55	855	127	927	427	1027	502	1102	584	1184
56	856	128	928	428	1028	503	1103	585	1185
57	857	129	929	431	1031	504	1104	586	1186
58	858	130	930	432	1032	505	1105	587	1187
59	859	134	934	433	1033	506	1106	588	1188
60	860	135	935	435	1035	507	1107	589	1189
61	861	136	936	436	1036	508	1108		
64	864	137	937	437	1037	509	1109		
65	865	138	938	438	1038	510	1110		
66	866	139	939	439	1039	511	1111		
68	868	140	940	440	1040	512	1112		
69	869	141	941	441	1041	513	1113		
70	870	142	942	442	1042	514	1114		
71	871	143	943	444	1044	516	1116		
72	872	144	944	446	1046	518	1118		
73	873	145	945	447	1047	519	1119		
74	874	146	946	448	1048	520	1120		
75	875	150	950	450	1050	521	1121		
76	876	151	951	451	1051	522	1122		

MS35764F

Custodians:

Army - AR
Air Force - 99
DLA - IS

Preparing Activity:

DLA - IS

(Project 5306-2013-002)

Review Activities:

Army – AT, CR4, MI
Navy – MC, OS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil> .