Form Approved
OMB No. 0704-0188

GENERAL INSTRUCTIONS

1. (E) DESCRIPTION: Helical coil inserts are screw thread bushings coiled from diamond shaped cross-section wire. They are screwed into tapped holes to form nominal size internal threads. Inserts are installed by torquing through a diametral tang which is notched for tang removal.

2. MATERIAL: As specified on the drawing.

3. THREAD: Assembled inserts, Classes 2B and 3B, are controlled by the tolerance range of the tapped hole into which insert is fitted. Due to the radius on the crest of the insert at the minor diameter, the assembled insert will accept external threaded parts which are threaded to MIL-S-8879. The grip coil or coils of the screw locking insert are shaped to provide a prevailing torque when the screw is installed in the assembled insert.

4. TAPPED HOLE: 60° Unified internal thread form with the minimum major diameter based on a truncation to 0.125p.

4.1 (E) Designation for tapped hole: The drawing note for the tapped hole, per Table IV, that will accept the helical coil insert shall be in accordance with the following example:

EXAMPLE

.3125-24 UNF-3B HELICAL COIL INSERT THD PER MS33537 .67 MIN FULL THD DEPTH	.3125-24 UNF-3B HELICAL COIL INSERT THD THRU PER MS33537 INSTALL INSERT .75-1.5 TURNS BELOW SURFACE REMOVE TANG
For Blind Hole (Based on 2 Diameter Engagemnt) (Minor Diameter Drill Depth Tolerance Approx. .060 or as otherwise appropriate)	For Thru Hole with Insert being Assembled (Based on 2 Diameter Engagement)

5. REDUCED FIRST COIL: The first coil of the free insert adjacent to the tang has been reduced in diameter on the larger inserts to facilitate starting the insert into the tapped hole.

6. (E) DIMENSIONAL DATA:

6.1 For free running and screw locking inserts having a nominal length of 1, 1.5, 2, 2.5, and 3 times the nominal major diameter of the screw thread, dimensional data for the following features have been calculated and are listed in Table IV:

Nominal length (L_n)
Length of assembled insert (L)
Tapped hole diameters (V, V_1, V_2)
Depth of drilling and tapping (FP, FB, and H)
Countersink diameters (M)
Required bolt thread projection (J and K)

For all other nonstandard variations in nominal length, the above dimensions shall be calculated from the forulas given in Table III, using rounding procedures contained in ASTM E 380-84.

6.2 See Table I for MS part numbers and nominal lengths of available inserts.

6.3 Insert length selection: For applications where the tensile strength of the installed insert is a consideration, Table II will aid in applying the standard design practice of relating the tensile strength of the bolt material against the shear strength of the parent or boss material to develop the full load value of the bolt rather than stripping the parent or tapped material. In using this table, the following factors must be considered.

6.3.1 Actual bolt tensile strength, particularly in the lower bolt tensile ranges, may be significantly higher than the nominal values. This should be considered in insert length selection.

6.3.2 The parent material shear strengths are for room temperature. Elevated temperatures significantly reduce shear strength values; compensation should be made when required.

6.3.3 When parent material shear strength falls between two tabulated values, use the lower of the two.

7. (E) DEPTH OF RECOMMENDED MINIMUM TAP DRILL HOLE: The tabulated depth of blind hole for thread tapping allows sufficient depth for assembled insert top coil to be 1.5 pitches below boss surface. For insert sizes .3125 and smaller, drill depth FP provides for minimum full thread depth H, using a plug tap having 4 pitches tap chamfer, plus a length equal to 0.5 x nominal insert size to clear the tap external center (conical end), plus 1 pitch tap end clearance. For insert sizes larger than .3125, drill depth FP is for plug tap having 4 pitches tap chamfer, plus 1 pitch tap end clearance. Drill depth FB is for bottoming taps having 2 pitches tap chamfer, plus 1 pitch tap end clearance. If tap drill holes are not countersunk, the assembled insert top coil may be 0.5 pitch max below boss surface which allows for a 1 pitch reduction in tabulated depth of blind drilled hole dimensions.

(E) DENOTES CHANGES

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82 CUSTODIANS: ARMY-AV NAVY-AS AIR FORCE-99 DLA- REVIEW: USER: PROJECT NUMBER: 5340-1986	MILITARY SPECIFICATION SHEET TITLE INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR	SPECIFICATION SHEET NUMBER MS33537E 11 JUNE 1991 SUPERSEDING MS33537D 27 JUNE 74 AMSC- N/A FSC - 5340

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8. (E) DEPTH OF FULL THREAD OF TAPPED HOLE: For thru or blind tapped holes with a countersink as specified in Table IV, the Minimum Full Thread, H (also minimum flage thickness for thru hole), equals nominal length of insert, L_n, as specified in the tabulation, plus 1 pitch. For thru or blind tapped holes without countersink, the minimum full thread (also minimum flange thickness for thru hole) shall not be less than the nominal length of insert, L_n.

9. (E) LENGTH OF BOLT THREAD PROJECTION:

9.1 (E) Insert with tang removed: The maximum length of bolt thread projection, J, into the assembled insert in a blind hole is equal to the minimum design depth of the tap drill hole, FP or FB. The minimum length of bolt thread projection to provide full thread engagement and thus to ensure full development of potential joint tensile strength is Jmin. It is equal to the maximum length, L, of the insert, plus 3 pitch (the maximum depth of the assembled insert top coil from boss surface, 1.5 pitch, plus bolt chamfer 1.5 pitch). Bolt projection, Jmin, will also ensure full engagement with the grip coil or coils of a screw locking insert.

9.2 Insert without tang removed: The maximum length of bolt thread projection, K, into the assembled insert when tang is not removed is the minimum length of insert plus 0.25 pitch.

10. (E) COUNTERSINK AND COUNTERBORE: The values given in Table IV for Depth of Hole, FP, FB; Minimum Full Thread, H; and Length of Bolt Projection, J and K, are measured from the top surface of the boss or piece and are based on installing the insert below the countersink as in 11.1. If a counterbore or countersink other than that shown is required or no countersink is used, the values for FP, FB, H, J, and K must be modified to compensate.

11. INSTALLATION OF INSERT:

11.1 (E) With countersunk hole: The top edge of the insert shall be installed 0.75p to 1.5p below top surface of the tapped hole.

11.2 Without countersunk hole: The top edge of the insert shall be installed 0.25p to 0.5p below top surface of tapped hole.

11.3 Tang removal: The tang should be removed from the insert after installation.

12. (E) BLIND HOLE ASSEMBLY (WITHOUT REMOVAL OF TANG): When the insert tang is not removed, as may be the case with blind hole applications, an insert 0.5 diameter longer than the required nominal length will fulfill the necessary bolt-insert full thread engagement, provided that the bolt projection satisfies the original J_{min} and the longer insert K_{max} tabulated values.

13. GAGING PRACTICE: Accuracy of the finished thread, when the insert is installed, is dependent upon the accuracy of the tapped hole. If the finished tapped hole gages satisfactorily, the installed insert will be within the thread tolerance when the insert meets the MS drawing requirements. It is, therefore, not necessary to gage the installed insert. After the insert is installed, the GO thread plug gage may not enter freely because the insert may not have been fully seated in the tapped hole; however, the insert should become seated after a bolt or screw is installed and tightened.

14. (E) PERMITTED MODIFICATIONS: Values for FP, FB, H, J, K, M, and installation depth of insert may be modified to suit requirements for production tooling, design, assembly, etc. See Table III for formulas. Countersink included angle may be modified from $120^{\circ} \pm 5^{\circ}$ to $90^{\circ} \pm 5^{\circ}$ provided that for UNC sizes .190-24 and smaller and UNF sizes .4375-20 and smaller, the top edge of the insert shall be installed 1.0 to 1.5p below top surface of the tapped hole.

THIS STANDARD WAS DEVELOPED COOPERATIVELY WITH THE MILITARY SERVICES BY SAE COMMITTEE E-25, GENERAL STANDARDS FOR AEROSPACE PROPULSION SYSTEMS.

INCH POUND

PREPARING ACTIVITY: AIR FORCE-82
CUSTODIANS: ARMY - AV NAVY - AS
AIR FORCE - 99 DLA -
REVIEW:
USER:
PROJECT NUMBER: 5340-1986
INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET

TITLE
INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR

SPECIFICATION SHEET NUMBER
MS33537E

SUPERSEDING
MS33537D 27 JUNE 74

AMSC - N/A FSC - 5340

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TABLE I (E)

INSERT NOMINAL LENGTH	MS PART NUMBERS			
	FREE RUNNING INSERTS		SCREW LOCKING INSERTS	
	CRES AMS 7245		CRES MIL-I-8846	
	COARSE	FINE	COARSE	FINE
1 DIA	MS122076 thru MS122115	MS124651 thru MS124690	MS21209C0210 thru MS21209C2410	MS21209F0310 thru MS21209F2410
1.5 DIA	MS122116 thru MS122155	MS124691 thru MS124730	MS21209C0215 thru MS21209C2415	MS21209F0315 thru MS21209F2415
2 DIA	MS122156 thru MS122195	MS124731 thru MS124770	MS21209C0220 thru MS21209C2420	MS21209F0320 thru MS21209F2420
2.5 DIA	MS122196 thru MS122235	MS124771 thru MS124810	MS21209C0225 thru MS21209C2425	MS21209F0325 thru MS21209F2425
3 DIA	MS122236 thru MS122275	MS124811 thru MS124850	MS21209C0230 thru MS21209C2430	MS21209F0330 thru MS21209F2430
MS21209 offers Cadmium Plating and Dry Film Lubricant Coating options.				

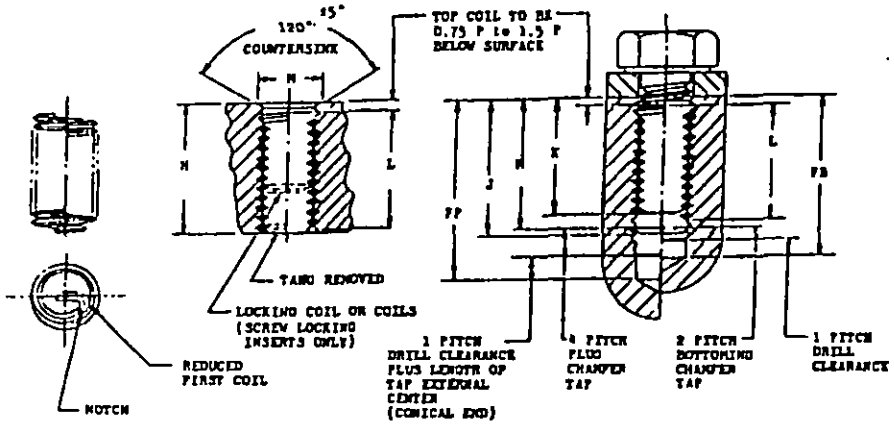

FIGURE I

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82 CUSTODIANS: ARMY- AV NAVY- AS AIR FORCE- 99 DLA- REVIEW: USER: PROJECT NUMBER: 5340-1886 INTERNATIONAL INTEREST	MILITARY SPECIFICATION SHEET TITLE INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR	SPECIFICATION SHEET NUMBER **MS33537E** SUPERSEDING MS33537D 27 JUNE 74 AMSC- N/A FSC - 5340
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TABLE II
LENGTHS OF THREAD ENGAGEMENT
IN TERMS OF NOMINAL THREAD SIZE

Shear Strength of Material (psi) (Alum., Mag., Steel)	Bolt Material Minimum Ultimate Tensile Strength (psi)								
	54,000	75,000	96,000	108,000	125,000	132,000	160,000	180,000	220,000
10,000	2	2-1/2	3	3	-	-	-	-	-
15,000	1-1/2	1-1/2	2	2-1/2	2-1/2	3	3	-	-
20,000	1	1-1/2	1-1/2	2	2	2	2-1/2	3	3
25,000	1	1	1-1/2	1-1/2	1-1/2	2	2	2-1/2	2-1/2
30,000	1	1	1	1-1/2	1-1/2	1-1/2	2	2	2-1/2
40,000	1	1	1	1	1	1-1/2	1-1/2	1-1/2	2
50,000	1	1	1	1	1	1	1	1-1/2	1-1/2

TABLE III (E)

INFORMATION REQUIRED (SEE FIGURE 1)	FORMULA
Length of Assembled Insert (L) Free Running and Screw Locking	Lmin = L_n - 0.75P Lmax = L_n - 0.5P
Depth of Recommended Minimum Tap Drill (FP or FB) for Blind Holes (Paragraph 7.)	1. For Plug Taps .3125 Nominal Diameter and smaller: FP = L_n + 6P + 0.5 D_n 2. For Plug Taps larger than .3125: FP = L_n + 6P 3. For Bottoming Taps FB = L_n + 4P
Depth of Full Thread of Blind Tapped Hole also Min. Flange Thickness for Thru Tapped Hole (H) (Paragraph 8.)	Hmin = L_n + 1P
Countersink or Counterbore (M) (Paragraph 10.)	Mmin = V_2max Class 3B + Bmax - Dmin Mmax = Mmin + .030
Length of Bolt Thread Projection into Assembled Insert (J or K) (Paragraph 9.)	1. Insert - Tang Removed Jmax = FPmin (blind hole depth for plug tap) Jmax = FBmin (blind hole depth for bottoming tap) Jmin = Lmax + 3P or Jmin = L_n + 2.5P 2. Insert - Tang Not Removed Kmax = Lmin + 0.25P

WHERE :-

L_n = Nominal Length of Insert (Table IV)
P = Pitch = 1/Threads Per Inch
B = Wire Height from MS21209
D = Wire Pitch Line from MS21209
D_n = Nominal Insert Size (Diameter)
V_2 = Tapped Hole Pitch Diameter (Table IV)

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82 CUSTODIANS: ARMY- AV NAVY- AS AIR FORCE-99 DLA- REVIEW: USER: PROJECT NUMBER: 5340-1986	MILITARY SPECIFICATION SHEET TITLE INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR	SPECIFICATION SHEET NUMBER MS33537E SUPERSEDING MS33537D 27 JUNE 74 AMSC- N/A FSC - 5340
INTERNATIONAL INTEREST		
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TABLE IV (E)

	Nominal Insert Size	.073	.086		.099		.112		.125
	Threads Per Inch	64	56	64	48	56	40	48	40
L_n	Insert Nominal Length, 1 Dia	.073	.086	.086	.099	.099	.112	.112	.125
	" " 1.5 Dia	.110	.129	.129	.148	.148	.168	.168	.188
	" " 2 Dia	.146	.172	.172	.198	.198	.224	.224	.250
	" " 2.5 Dia	.182	.215	.215	.248	.248	.280	.280	.312
	" " 3 Dia	.219	.258	.258	.297	.297	.336	.336	.375
ASSEMBLED INSERT — L	Min Length of Insert when Nominal Length = 1 Dia	.061	.073	.074	.083	.086	.093	.096	.106
	" " = 1.5 Dia	.098	.116	.117	.133	.135	.149	.152	.169
	" " = 2 Dia	.134	.159	.160	.182	.185	.205	.208	.231
	" " = 2.5 Dia	.170	.202	.203	.232	.234	.261	.264	.293
	" " = 3 Dia	.207	.245	.246	.281	.284	.317	.320	.356
ASSEMBLED INSERT — D_2	PD, Max, Class 2B	.0655	.0772	.0786	.0885	.0902	.0991	.1016	.1121
	PD, Max, Class 3B	.0648	.0765	.0779	.0877	.0895	.0982	.1008	.1113
	PD, Min, Classes 2B & 3B	.0629	.0744	.0759	.0855	.0874	.0958	.0985	.1088
ASSEMBLED INSERT — D_1	Minor Dia, Max, Class 2B	.0623	.0737	.0753	.0845	.0865	.0939	.0968	.1062
	Minor Dia, Max, Class 3B	.0623	.0737	.0753	.0845	.0865	.0939	.0968	.1062
	Minor Dia, Min, Classes 2B & 3B	.0561	.0667	.0691	.0764	.0797	.0849	.0894	.0979
TAPPED HOLE — FP	Depth of Blind Hole for Plug Taps, Min when Nominal Length = 1 Dia	.203	.236	.223	.273	.256	.318	.293	.338
	" " = 1.5 Dia	.240	.279	.266	.323	.305	.374	.349	.400
	" " = 2 Dia	.276	.322	.309	.372	.355	.430	.405	.462
	" " = 2.5 Dia	.313	.365	.352	.422	.404	.486	.461	.525
	" " = 3 Dia	.349	.408	.395	.471	.454	.542	.517	.588
TAPPED HOLE — FB	Depth of Blind Hole for Bottoming Taps, Min when Nominal Length = 1 Dia	.136	.157	.149	.182	.170	.212	.193	.225
	" " = 1.5 Dia	.172	.200	.192	.232	.220	.268	.251	.288
	" " = 2 Dia	.209	.243	.235	.281	.269	.324	.307	.350
	" " = 2.5 Dia	.245	.286	.278	.331	.319	.380	.363	.412
	" " = 3 Dia	.282	.329	.321	.380	.368	.436	.419	.475
TAPPED HOLE — E	Min. Full Thread when Nominal Length = 1 Dia	.090	.100	.100	.120	.120	.140	.130	.150
	" " = 1.5 Dia	.125	.150	.145	.170	.170	.190	.190	.210
	" " = 2 Dia	.160	.190	.190	.220	.220	.250	.240	.280
	" " = 2.5 Dia	.200	.230	.230	.270	.270	.310	.300	.340
	" " = 3 Dia	.235	.280	.275	.320	.310	.360	.360	.400
TAPPED HOLE — V_2	PD, Max, Class 2B	.0850	.0996	.0981	.1148	.1126	.1308	.1279	.1438
	PD, Max, Class 3B	.0843	.0989	.0974	.1140	.1119	.1299	.1271	.1430
	PD, Min, Classes 2B & 3B	.0832	.0976	.0962	.1126	.1106	.1283	.1256	.1413
TAPPED HOLE — V_1	Minor Dia, Max, Class 2B	.0823	.0961	.0947	.1104	.1086	.1252	.1229	.1373
	Minor Dia, Max, Class 3B	.0823	.0961	.0947	.1104	.1086	.1252	.1229	.1373
	Minor Dia, Min, Class 2B & 3B	.0764	.0899	.0894	.1036	.1029	.1175	.1166	.1305
TAPPED HOLE — V	Major Dia, Max, Class 2B	.0974	.1138	.1105	.1313	.1268	.1506	.1444	.1636
	Major Dia, Max, Class 3B	.0967	.1131	.1098	.1305	.1261	.1497	.1436	.1628
	Major Dia, Min, Classes 2B & 3B	.0933	.1092	.1063	.1261	.1222	.1445	.1391	.1575
TAPPED HOLE — H	Countersink, 120° Included Angle Maximum	.100	.110	.110	.140	.140	.170	.170	.190
	Minimum	.055	.090	.090	.110	.110	.140	.140	.160
THREAD PROJECTION — J	Min, Tang Removed, when Insert Nominal Length = 1 Dia	.112	.131	.125	.151	.144	.174	.164	.188
	" " = 1.5 Dia	.149	.174	.168	.200	.193	.230	.220	.250
	" " = 2 Dia	.185	.217	.211	.250	.243	.286	.276	.312
	" " = 2.5 Dia	.221	.260	.256	.300	.293	.342	.332	.374
	" " = 3 Dia	.258	.303	.297	.349	.342	.398	.388	.438
THREAD PROJECTION — K	Max, Tang Not Removed, when Insert Nominal Length = 1 Dia	.065	.077	.078	.088	.090	.100	.102	.112
	" " = 1.5 Dia	.102	.120	.121	.138	.140	.156	.158	.176
	" " = 2 Dia	.138	.163	.164	.187	.189	.212	.214	.238
	" " = 2.5 Dia	.174	.206	.207	.236	.238	.268	.270	.300
	" " = 3 Dia	.211	.249	.250	.285	.288	.324	.326	.362

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82
CUSTODIANS: ARMY-AV NAVY-AS
AIR FORCE-99 DLA-
REVIEW:
USER:
PROJECT NUMBER 5340-1986
INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET

TITLE
INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR

SPECIFICATION SHEET NUMBER
MS33537E

SUPERSEDING
MS33537D 27 JUNE 74

AMSC- N/A FSC-5340

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TABLE IV (continued)

	Nominal Insert Size	.138		.164		.190		.216
	Threads Per Inch	32	40	32	36	24	32	24
L_n	Insert Nominal Length, 1 Dia	.138	.138	.164	.164	.190	.190	.216
	" " 1.5 Dia	.207	.207	.246	.246	.285	.285	.324
	" " 2 Dia	.276	.276	.328	.328	.380	.380	.432
	" " 2.5 Dia	.345	.345	.410	.410	.475	.475	.540
	" " 3 Dia	.414	.414	.492	.492	.570	.570	.648
ASSEMBLED INSERT — L	Min Length of Insert when Nominal Length = 1 Dia	.115	.119	.141	.143	.159	.167	.185
	" " = 1.5 Dia	.184	.188	.223	.225	.254	.262	.293
	" " = 2 Dia	.253	.257	.305	.307	.349	.357	.401
	" " = 2.5 Dia	.322	.326	.387	.389	.444	.452	.509
	" " = 3 Dia	.391	.395	.469	.471	.539	.547	.617
ASSEMBLED INSERT — D_2	PD, Max, Class 2B	.1214	.1252	.1475	.1496	.1672	.1736	.1933
	PD, Max, Class 3B	.1204	.1243	.1465	.1487	.1661	.1726	.1922
	PD, Min, Classes 2B & 3B	.1177	.1218	.1437	.1460	.1629	.1697	.1889
ASSEMBLED INSERT — D_1	Minor Dia, Max, Class 2B	.114	.119	.139	.142	.156	.164	.181
	Minor Dia, Max, Class 3B	.1140	.1186	.1389	.1416	.1555	.1641	.1807
	Minor Dia, Min, Classes 2B & 3B	.1040	.1110	.1300	.1340	.1450	.1560	.1710
TAPPED HOLE — FP	Depth of Blind Hole for Plug Taps, Min when Nominal Length = 1 Dia	.394	.357	.434	.413	.535	.472	.574
	" " = 1.5 Dia	.464	.426	.516	.495	.630	.568	.682
	" " = 2 Dia	.532	.495	.598	.577	.725	.662	.790
	" " = 2.5 Dia	.602	.564	.680	.659	.820	.758	.898
	" " = 3 Dia	.670	.633	.762	.741	.915	.852	1.006
TAPPED HOLE — FB	Depth of Blind Hole for Bottoming Taps, Min when Nominal Length = 1 Dia	.263	.238	.289	.275	.357	.315	.383
	" " = 1.5 Dia	.332	.307	.371	.357	.452	.410	.491
	" " = 2 Dia	.401	.376	.453	.439	.547	.505	.599
	" " = 2.5 Dia	.470	.445	.535	.521	.642	.600	.707
	" " = 3 Dia	.539	.514	.617	.603	.737	.695	.815
TAPPED HOLE — H	Min. Full Thread when Nominal Length = 1 Dia	.170	.160	.200	.190	.230	.220	.260
	" " = 1.5 Dia	.240	.230	.280	.270	.330	.320	.370
	" " = 2 Dia	.310	.300	.360	.360	.420	.410	.470
	" " = 2.5 Dia	.380	.370	.440	.440	.520	.510	.580
	" " = 3 Dia	.450	.440	.520	.520	.610	.600	.690
TAPPED HOLE — V_2	PD, Max, Class 2B	.1611	.1569	.1872	.1849	.2203	.2133	.2464
	PD, Max, Class 3B	.1601	.1560	.1862	.1840	.2192	.2123	.2453
	PD, Min, Classes 2B & 3B	.1583	.1543	.1843	.1821	.2170	.2103	.2430
TAPPED HOLE — V_1	Minor Dia, Max, Class 2B	.1527	.1503	.1781	.1771	.2087	.2041	.2347
	Minor Dia, Max, Class 3B	.1527	.1503	.1781	.1771	.2080	.2041	.2340
	Minor Dia, Min, Classes 2B & 3B	.1448	.1435	.1708	.1701	.1990	.1968	.2250
TAPPED HOLE — V	Major Dia, Max, Class 2B	.1859	.1767	.2120	.2069	.2534	.2381	.2795
	Major Dia, Max, Class 3B	.1849	.1758	.2110	.2060	.2523	.2371	.2784
	Major Dia, Min, Classes 2B & 3B	.1786	.1705	.2046	.2001	.2441	.2306	.2701
TAPPED HOLE — M	Countersink, 120° Included Angle							
	Maximum	.210	.200	.230	.230	.270	.260	.290
	Minimum	.180	.170	.200	.200	.240	.230	.260
THREAD PROJECTION — J	Min, Tang Removed, when Insert Nominal Length = 1 Dia	.216	.200	.242	.233	.294	.268	.320
	" " = 1.5 Dia	.285	.270	.324	.315	.389	.363	.428
	" " = 2 Dia	.354	.338	.406	.397	.484	.458	.536
	" " = 2.5 Dia	.423	.408	.488	.479	.579	.553	.644
	" " = 3 Dia	.492	.476	.570	.561	.674	.648	.752
THREAD PROJECTION — K	Max, Tang Not Removed, when Insert Nominal Length = 1 Dia	.122	.126	.149	.150	.169	.175	.195
	" " = 1.5 Dia	.191	.194	.231	.232	.264	.270	.303
	" " = 2 Dia	.260	.264	.313	.314	.359	.365	.411
	" " = 2.5 Dia	.329	.332	.395	.396	.454	.460	.519
	" " = 3 Dia	.398	.402	.477	.478	.549	.555	.627

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82
CUSTODIANS: ARMY-AV NAVY-AS
AIR FORCE-99 DLA-
REVIEW:
USER:
PROJECT NUMBER: 5340-1986
INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET
TITLE
INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR

SPECIFICATION SHEET NUMBER
MS33537E
SUPERSEDING
MS33537D 27 JUNE 74
AMSC- N/A FSC - 5340

Form Approved
OMB No. 0704-0188

TABLE IV (continued)

		Nominal Insert Size	.250		.3125		.375		.4375	
		Threads Per Inch	20	28	18	24	16	24	14	20
L_n		Insert Nominal Length, 1 Dia	.250	.250	.312	.312	.375	.375	.438	.438
		" " 1.5 Dia	.375	.375	.469	.469	.562	.562	.656	.656
		" " 2 Dia	.500	.500	.625	.625	.750	.750	.875	.875
		" " 2.5 Dia	.625	.625	.781	.781	.938	.938	1.094	1.094
		" " 3 Dia	.750	.750	.938	.938	1.125	1.125	1.312	1.312
ASSEMBLED INSERT	L	Min Length of Insert when Nominal Length = 1 Dia	.212	.223	.271	.281	.328	.344	.384	.400
		" " = 1.5 Dia	.338	.348	.427	.438	.516	.531	.603	.619
		" " = 2 Dia	.462	.473	.583	.594	.703	.719	.821	.838
		" " = 2.5 Dia	.588	.598	.740	.750	.891	.906	1.040	1.056
		" " = 3 Dia	.712	.723	.896	.906	1.078	1.094	1.259	1.275
	D_2	PD, Max, Class 2B	.2224	.2311	.2817	.2902	.3401	.3528	.3972	.4104
		PD, Max, Class 3B	.2211	.2300	.2803	.2890	.3387	.3516	.3957	.4091
		PD, Min, Classes 2B & 3B	.2175	.2268	.2764	.2854	.3344	.3479	.3911	.4050
	D_1	Minor Dia, Max, Class 2B	.207	.220	.265	.277	.321	.340	.376	.395
		Minor Dia, Max, Class 3B	.2067	.2190	.2630	.2754	.3182	.3372	.3717	.3916
		Minor Dia, Min, Classes 2B & 3B	.1960	.2110	.2520	.2670	.3070	.3300	.3600	.3830
TAPPED HOLE	FP	Depth of Blind Hole for Plug Taps, Min when Nominal Length = 1 Dia	.675	.589	.801	.718	.750	.623	.867	.738
		" " = 1.5 Dia	.800	.714	.957	.874	.938	.812	1.086	.957
		" " = 2 Dia	.925	.839	1.113	1.030	1.125	1.000	1.305	1.176
		" " = 2.5 Dia	1.050	.964	1.269	1.186	1.312	1.188	1.524	1.395
		" " = 3 Dia	1.175	1.089	1.425	1.342	1.500	1.375	1.743	1.614
	FB	Depth of Blind Hole for Bottoming Taps, Min when Nominal Length = 1 Dia	.450	.393	.534	.479	.625	.542	.724	.638
		" " = 1.5 Dia	.575	.518	.690	.635	.812	.729	.943	.857
		" " = 2 Dia	.700	.643	.846	.791	1.000	.917	1.162	1.076
		" " = 2.5 Dia	.825	.768	1.002	.947	1.188	1.104	1.381	1.295
		" " = 3 Dia	.950	.893	1.158	1.103	1.375	1.292	1.600	1.514
	R	Min, Full Thread when Nominal Length = 1 Dia	.300	.290	.370	.350	.440	.420	.510	.490
		" " = 1.5 Dia	.430	.410	.530	.510	.630	.600	.730	.710
		" " = 2 Dia	.550	.540	.680	.670	.810	.790	.930	.930
		" " = 2.5 Dia	.680	.660	.840	.820	1.000	.980	1.170	1.140
		" " = 3 Dia	.800	.790	.990	.980	1.190	1.170	1.380	1.360
	V_2	PD, Max, Class 2B	.2864	.2765	.3529	.3433	.4203	.4059	.4890	.4744
		PD, Max, Class 3B	.2851	.2754	.3515	.3421	.4189	.4047	.4875	.4731
		PD, Min, Classes 2B & 3B	.2825	.2732	.3486	.3395	.4156	.4020	.4839	.4700
	V_1	Minor Dia, Max, Class 2B	.2723	.2661	.3372	.3312	.4026	.3937	.4688	.4598
		Minor Dia, Max, Class 3B	.2704	.2646	.3342	.3288	.3987	.3910	.4639	.4561
		Minor Dia, Min, Classes 2B & 3B	.2609	.2577	.3245	.3215	.3885	.3840	.4530	.4483
	V	Major Dia, Max, Class 2B	.3261	.3049	.3970	.3764	.4699	.4390	.5457	.5141
		Major Dia, Max, Class 3B	.3248	.3038	.3956	.3752	.4685	.4378	.5442	.5128
		Major Dia, Min, Classes 2B & 3B	.3150	.2964	.3847	.3666	.4562	.4291	.5303	.5025
	H	Countersink, 120° Included Angle Maximum	.340	.320	.410	.390	.480	.450	.550	.530
		Minimum	.310	.290	.380	.360	.450	.420	.520	.500
THREAD PROJECTION	J	Min, Tang Removed, when Insert Nominal Length = 1 Dia	.375	.339	.451	.416	.531	.479	.617	.563
		" " = 1.5 Dia	.500	.464	.608	.573	.718	.666	.835	.781
		" " = 2 Dia	.625	.589	.764	.729	.906	.854	1.054	1.000
		" " = 2.5 Dia	.750	.714	.920	.885	1.094	1.042	1.273	1.219
		" " = 3 Dia	.875	.839	1.077	1.042	1.281	1.229	1.491	1.437
	K	*Max, Tang Not Removed, when Insert* Nominal Length = 1 Dia	.225	.232	.285	.291	.344	.354	.402	.423
		" " = 1.5 Dia	.351	.357	.441	.448	.532	.541	.621	.632
		" " = 2 Dia	.475	.482	.597	.604	.719	.729	.840	.851
		" " = 2.5 Dia	.601	.607	.754	.760	.907	.916	1.058	1.069
		" " = 3 Dia	.725	.732	.910	.916	1.094	1.104	1.277	1.288

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82
CUSTODIANS: ARMY- AV NAVY- AS
AIR FORCE- 99 DLA-
REVIEW:
USER:
PROJECT NUMBER: 5340-1986
INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET

TITLE
INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR

SPECIFICATION SHEET NUMBER
MS33537E

SUPERSEDING
MS33537D 27 JUNE 74

AMSC- N/A FSC - 5340

DISTRIBUTION STATEMENT
A. Approved for public release; distribution is unlimited.

Form Approved
OMB No. 0704-0188

TABLE IV (continued)

		Nominal Insert Size	.500		.5625		.625		.750	
		Threads Per Inch	13	20	12	18	11	18	10	16
L_n		Insert Nominal Length, 1 Dia	.500	.500	.562	.562	.625	.625	.750	.750
		" " 1.5 Dia	.750	.750	.844	.844	.938	.938	1.125	1.125
		" " 2 Dia	1.000	1.000	1.125	1.125	1.250	1.250	1.500	1.500
		" " 2.5 Dia	1.250	1.250	1.406	1.406	1.562	1.562	1.875	1.875
		" " 3 Dia	1.500	1.500	1.688	1.688	1.875	1.875	2.250	2.250
ASSEMBLED INSERT	L	Min Length of Insert when Nominal Length = 1 Dia	.442	.462	.500	.521	.557	.583	.675	.703
		" " = 1.5 Dia	.692	.712	.781	.802	.869	.896	1.050	1.078
		" " = 2 Dia	.942	.962	1.062	1.083	1.182	1.208	1.425	1.453
		" " = 2.5 Dia	1.192	1.212	1.344	1.365	1.494	1.521	1.800	1.828
		" " = 3 Dia	1.442	1.462	1.625	1.646	1.807	1.833	2.175	2.203
	D_2	PD, Max, Class 2B	.4565	.4731	.5152	.5323	.5732	.5949	.6927	.7159
		PD, Max, Class 3B	.4548	.4717	.5135	.5308	.5714	.5934	.6907	.7143
		PD, Min, Classes 2B & 3B	.4500	.4675	.5084	.5264	.5660	.5889	.6850	.7094
	D_1	Minor Dia, Max, Class 2B	.434	.457	.490	.515	.566	.578	.663	.696
		Minor Dia, Max, Class 3B	.4284	.4537	.4843	.5106	.5391	.5730	.6543	.6908
		Minor Dia, Min, Classes 2B & 3B	.4170	.4460	.4720	.5020	.5270	.5650	.6420	.6820
TAPPED HOLE	FP	Depth of Blind Hole for Plug Taps, Min when Nominal Length = 1 Dia	.962	.800	1.062	.895	1.170	.958	1.350	1.125
		" " = 1.5 Dia	1.212	1.050	1.343	1.176	1.483	1.271	1.725	1.500
		" " = 2 Dia	1.462	1.300	1.624	1.457	1.795	1.583	2.100	1.875
		" " = 2.5 Dia	1.712	1.550	1.905	1.738	2.108	1.896	2.475	2.250
		" " = 3 Dia	1.962	1.800	2.186	2.019	2.420	2.208	2.850	2.625
	FB	Depth of Blind Hole for Bottoming Taps, Min when Nominal Length = 1 Dia	.808	.700	.895	.784	.989	.847	1.150	1.000
		" " = 1.5 Dia	1.058	.950	1.176	1.065	1.301	1.160	1.525	1.375
		" " = 2 Dia	1.308	1.200	1.457	1.346	1.614	1.472	1.900	1.750
		" " = 2.5 Dia	1.558	1.450	1.738	1.627	1.926	1.785	2.275	2.125
		" " = 3 Dia	1.808	1.700	2.019	1.908	2.239	2.097	2.650	2.500
	H	Min Full Thread when Nominal Length = 1 Dia	.580	.550	.650	.620	.720	.680	.850	.810
		" " = 1.5 Dia	.830	.800	.930	.900	1.030	.990	1.230	1.190
		" " = 2 Dia	1.080	1.050	1.210	1.180	1.340	1.310	1.600	1.560
		" " = 2.5 Dia	1.330	1.300	1.490	1.460	1.650	1.620	1.980	1.940
		" " = 3 Dia	1.580	1.550	1.770	1.740	1.970	1.930	2.350	2.310
	V_2	PD, Max, Class 2B	.5554	.5371	.6225	.6035	.6903	.6661	.8216	.7961
		PD, Max, Class 3B	.5537	.5357	.6208	.6020	.6885	.6646	.8196	.7945
		PD, Min, Classes 2B & 3B	.5499	.5325	.6167	.5986	.6841	.6611	.8149	.7906
	V_1	Minor Dia, Max, Class 2B	.5335	.5223	.5986	.5872	.6641	.6497	.7926	.7776
		Minor Dia, Max, Class 3B	.5273	.5186	.5918	.5826	.6564	.6451	.7838	.7720
		Minor Dia, Min, Classes 2B & 3B	.5166	.5108	.5806	.5745	.6447	.6370	.7716	.7635
	V	Major Dia, Max, Class 2B	.6165	.5768	.6887	.6476	.7625	.7102	.9010	.8457
		Major Dia, Max, Class 3B	.6148	.5754	.6870	.6461	.7607	.7087	.8990	.8441
		Major Dia, Min, Classes 2B & 3B	.5999	.5650	.6708	.6347	.7431	.6972	.8799	.8312
	M	Countersink, 120° Included Angle Maximum	.620	.590	.690	.660	.760	.720	.900	.850
		Minimum	.590	.560	.660	.630	.730	.690	.870	.820
THREAD PROJECTION	J	Min, Tang Removed, when Insert Nominal Length = 1 Dia	.692	.625	.770	.701	.852	.764	1.000	.906
		" " = 1.5 Dia	.942	.875	1.052	.983	1.165	1.077	1.375	1.281
		" " = 2 Dia	1.192	1.125	1.333	1.264	1.477	1.389	1.750	1.656
		" " = 2.5 Dia	1.442	1.375	1.614	1.545	1.789	1.701	2.125	2.031
		" " = 3 Dia	1.692	1.625	1.896	1.827	2.102	2.014	2.500	2.406
	K	Max, Tang Not Removed, when Insert Nominal Length = 1 Dia	.461	.475	.521	.535	.580	.597	.700	.719
		" " = 1.5 Dia	.711	.725	.802	.816	.892	.910	1.075	1.094
		" " = 2 Dia	.961	.975	1.083	1.097	1.205	1.222	1.450	1.469
		" " = 2.5 Dia	1.211	1.225	1.365	1.379	1.517	1.535	1.825	1.844
		" " = 3 Dia	1.461	1.475	1.646	1.660	1.830	1.847	2.200	2.219

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82
CUSTODIANS: ARMY- AV NAVY-AS
AIR FORCE- 99 DLA-
REVIEW:
USER:
PROJECT NUMBER: 5340-1986
INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET
TITLE
INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR

SPECIFICATION SHEET NUMBER
MS33537E
SUPERSEDING
MS33537D 27 JUNE 74
AMSC- N/A FSC - 5340

Form Approved
OMB No. 0704-0188

TABLE IV (continued)

		Nominal Insert Size	.8125	.875		1.000			1.0625
		Threads Per Inch	16	9	14	8	12	(a) 14	12
	l_n	Insert Nominal Length, 1 Dia	.812	.875	.875	1.000	1.000	1.000	1.062
		" " 1.5 Dia	1.219	1.312	1.312	1.500	1.500	1.500	1.594
		" " 2 Dia	1.625	1.750	1.750	2.000	2.000	2.000	2.125
		" " 2.5 Dia	2.031	2.188	2.188	2.500	2.500	2.500	2.656
		" " 3 Dia	2.438	2.625	2.625	3.000	3.000	3.000	3.188
ASSEMBLED INSERT	L	Min Length of Insert when Nominal Length = 1 Dia	.766	.792	.821	.906	.938	.946	1.000
		" " = 1.5 Dia	1.172	1.229	1.259	1.406	1.438	1.446	1.531
		" " = 2 Dia	1.578	1.667	1.696	1.906	1.938	1.946	2.062
		" " = 2.5 Dia	1.984	2.104	2.134	2.406	2.438	2.446	2.594
		" " = 3 Dia	2.391	2.542	2.571	2.906	2.938	2.946	3.125
	D_2	PD, Max, Class 2B	.7782	.8110	.8356	.9276	.9535	.9609	1.0158
		PD, Max, Class 3B	.7766	.8089	.8339	.9254	.9516	.9590	1.0139
		PD, Min, Classes 2B & 3B	.7719	.8028	.8286	.9188	.9459	.9536	1.0084
	D_1	Minor Dia, Max, Class 2B	.759	.778	.814	.890	.928	.939	.990
		Minor Dia, Max, Class 3B	.7533	.7681	.8068	.8797	.9198	.9315	.9823
		Minor Dia, Min, Classes 2B & 3B	.7450	.7550	.7980	.8650	.9100	.9227	.9720
TAPPED HOLE	FP	Depth of Blind Hole for Plug Taps, Min when Nominal Length = 1 Dia	1.188	1.542	1.304	1.750	1.500	1.429	1.562
		" " = 1.5 dia.	1.594	1.979	1.741	2.250	2.000	1.929	2.094
		" " = 2 Dia	2.000	2.417	2.179	2.750	2.500	2.429	2.625
		" " = 2.5 Dia	2.406	2.854	2.616	3.250	3.000	2.929	3.156
		" " = 3 Dia	2.813	3.292	3.054	3.750	3.500	3.429	3.688
	FB	Depth of Blind Hole for Bottoming Taps Min when Nominal Length = 1 Dia	1.063	1.319	1.161	1.500	1.333	1.286	1.396
		" " = 1.5 Dia	1.469	1.757	1.598	2.000	1.833	1.786	1.927
		" " = 2 Dia	1.875	2.194	2.036	2.500	2.333	2.286	2.458
		" " = 2.5 Dia	2.281	2.632	2.473	3.000	2.833	2.786	2.990
		" " = 3 Dia	2.688	3.069	2.911	3.500	3.333	3.286	3.521
	H	Min Full Thread when Nominal Length = 1 Dia	.880	.990	.950	1.130	1.080	1.070	1.150
		" " = 1.5 Dia	1.280	1.420	1.380	1.630	1.580	1.570	1.680
		" " = 2 Dia	1.690	1.860	1.820	2.130	2.080	2.070	2.210
		" " = 2.5 Dia	2.090	2.300	2.260	2.630	2.580	2.570	2.740
		" " = 3 Dia	2.500	2.740	2.700	3.130	3.080	3.070	3.270
	V_2	PD, Max, Class 2B	.8584	.9543	.9274	1.0890	1.0608	1.0527	1.1231
		PD, Max, Class 3B	.8568	.9522	.9257	1.0868	1.0589	1.0508	1.1212
		PD, Min, Classes 2B & 3B	.8531	.9471	.9214	1.0812	1.0542	1.0464	1.1167
	V_1	Minor Dia, Max, Class 2B	.8401	.9218	.9063	1.0521	1.0361	1.0313	1.0986
		Minor Dia, Max, Class 3B	.8345	.9119	.8994	1.0421	1.0281	1.0243	1.0906
		Minor Dia, Min, Classes 2B & 3B	.8260	.8990	.8905	1.0271	1.0181	1.0155	1.0806
	V	Major Dia, Max, Class 2B	.9080	1.0425	.9841	1.1882	1.1270	1.1094	1.1893
		Major Dia, Max, Class 3B	.9064	1.0404	.9824	1.1860	1.1251	1.1075	1.1874
		Major Dia, Min, Classes 2B & 3B	.8937	1.0193	.9678	1.1624	1.1083	1.0928	1.1708
	H	Countersink, 120° Included Angle Maximum	.915	1.030	.990	1.170	1.130	1.110	1.190
		Minimum	.885	1.000	.960	1.140	1.100	1.080	1.160
THREAD PROJECTION	J	Min, Tang Removed, when Insert Nominal Length = 1 Dia	.968	1.153	1.054	1.312	1.208	1.179	1.270
		" " = 1.5 Dia	1.375	1.590	1.491	1.812	1.708	1.679	1.802
		" " = 2 Dia	1.781	2.028	1.929	2.312	2.208	2.179	2.333
		" " = 2.5 Dia	2.187	2.466	2.367	2.812	2.708	2.679	2.866
		" " = 3 Dia	2.594	2.903	2.804	3.312	3.208	3.179	3.396
	K	Max, Tang Not Removed, when Insert Nominal Length = 1 Dia	.782	.820	.840	.937	.958	.964	1.021
		" " = 1.5 Dia	1.188	1.257	1.277	1.437	1.458	1.464	1.552
		" " = 2 Dia	1.594	1.695	1.714	1.937	1.958	1.964	2.083
		" " = 2.5 Dia	2.000	2.132	2.152	2.437	2.458	2.464	2.615
		" " = 3 Dia	2.407	2.570	2.589	2.937	2.958	2.964	3.146

(a) INACTIVE FOR NEW DESIGN AFTER 3 MARCH 1969. NO SUPERSEDING STANDARD.

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82
CUSTODIANS: ARMY-AV NAVY-AS AIR FORCE-99 DLA-
REVIEW:
USER:
PROJECT NUMBER 5340-1986
INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET

TITLE
INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR

SPECIFICATION SHEET NUMBER
MS33537E

SUPERSEDING
MS33537D 27 JUNE 74

AMSC- N/A FSC - 5340

DISTRIBUTION STATEMENT
A. Approved for public release; distribution is unlimited.

Form Approved
OMB No. 0704-0188

TABLE IV (continued)

		Nominal Insert Size	1.125		1.1875	1.250		1.3125	1.375	
		Threads Per Inch	7	12	12	7	12	12	6	12
L_{A1}		Insert Nominal Length, 1 Dia	1.125	1.125	1.188	1.250	1.250	1.312	1.375	1.375
		" " 1.5 Dia	1.688	1.688	1.781	1.875	1.875	1.969	2.062	2.062
		" " 2 Dia	2.250	2.250	2.375	2.500	2.500	2.625	2.750	2.750
		" " 2.5 Dia	2.812	2.812	2.969	3.125	3.125	3.281	3.438	3.438
		" " 3 Dia	3.375	3.375	3.562	3.750	3.750	3.938	4.125	4.125
ASSEMBLED INSERT	L	Min Length of Insert when Nominal Length = 1 Dia	1.018	1.062	1.125	1.143	1.188	1.250	1.250	1.312
		" " = 1.5 Dia	1.580	1.625	1.719	1.768	1.812	1.906	1.938	2.000
		" " = 2 Dia	2.143	2.188	2.312	2.393	2.438	2.562	2.625	2.688
		" " = 2.5 Dia	2.705	2.750	2.906	3.018	3.062	3.219	3.312	3.375
		" " = 3 Dia	3.268	3.312	3.500	3.643	3.688	3.875	4.000	4.062
	D_2	PD, Max, Class 2B	1.0416	1.0787	1.1409	1.1668	1.2039	1.2659	1.2771	1.3291
		PD, Max, Class 3B	1.0393	1.0768	1.1390	1.1644	1.2019	1.2640	1.2745	1.3270
		PD, Min, Classes 2B & 3B	1.0322	1.0709	1.1334	1.1572	1.1959	1.2584	1.2667	1.3209
	D_1	Minor Dia, Max, Class 2B	.998	1.053	1.115	1.123	1.178	1.240	1.225	1.303
		Minor Dia, Max, Class 3B	.9875	1.0448	1.1073	1.1125	1.1698	1.2323	1.2146	1.2948
		Minor Dia, Min, Classes 2B & 3B	.9700	1.0350	1.0970	1.0950	1.1600	1.2220	1.1950	1.2850
TAPPED HOLE	FP	Depth of Blind Hole for Plug Tape, Min when Nominal Length = 1 Dia	1.982	1.625	1.688	2.107	1.750	1.812	2.375	1.875
		" " = 1.5 Dia	2.545	2.188	1.281	2.732	2.375	2.469	3.062	2.562
		" " = 2 Dia	3.107	2.750	2.875	3.357	3.000	3.125	3.750	3.250
		" " = 2.5 Dia	3.670	3.312	3.469	3.982	3.625	3.781	4.438	3.938
		" " = 3 Dia	4.232	3.875	4.062	4.607	4.250	4.438	5.125	4.625
	FB	Depth of Blind Hole for Bottoming Tape, Min when Nominal Length = 1 Dia	1.696	1.458	1.521	1.821	1.583	1.646	2.042	1.708
		" " = 1.5 Dia	2.259	2.021	2.115	2.446	2.208	2.302	2.729	2.396
		" " = 2 Dia	2.821	2.583	2.708	3.071	2.833	2.958	3.417	3.083
		" " = 2.5 Dia	3.384	3.146	3.302	3.696	3.458	3.615	4.104	3.771
		" " = 3 Dia	3.946	3.708	3.896	4.321	4.083	4.271	4.792	4.458
	R	Min Full Thread when Nominal Length = 1 Dia	1.270	1.210	1.270	1.390	1.330	1.400	1.540	1.460
		" " = 1.5 Dia	1.830	1.770	1.870	2.020	1.960	2.050	2.230	2.150
		" " = 2 Dia	2.390	2.330	2.460	2.640	2.580	2.710	2.920	2.831
		" " = 2.5 Dia	2.960	2.900	3.050	3.270	3.210	3.360	3.600	3.520
		" " = 3 Dia	3.520	3.460	3.650	3.890	3.830	4.020	4.290	4.210
	V_2	PD, Max, Class 2B	1.2262	1.1860	1.2482	1.3514	1.3112	1.3732	1.4926	1.4364
		PD, Max, Class 3B	1.2239	1.1841	1.2463	1.3490	1.3092	1.3713	1.4900	1.4343
		PD, Min, Classes 2B & 3B	1.2178	1.1792	1.2417	1.3428	1.3042	1.3667	1.4832	1.4292
	V_1	Minor Dia, Max, Class 2B	1.1834	1.1611	1.2236	1.3084	1.2861	1.3486	1.4416	1.4111
		Minor Dia, Max, Class 3B	1.1730	1.1531	1.2156	1.2980	1.2781	1.3406	1.4310	1.4031
		Minor Dia, Min, Classes 2B & 3B	1.1559	1.1431	1.2056	1.2809	1.2681	1.3306	1.4110	1.3931
	V	Major Dia, Max, Class 2B	1.3396	1.2522	1.3144	1.4648	1.3774	1.4394	1.6248	1.5026
		Major Dia, Max, Class 3B	1.3373	1.2503	1.3125	1.4624	1.3754	1.4375	1.6223	1.5005
		Major Dia, Min, Classes 2B & 3B	1.3106	1.2333	1.2958	1.4356	1.3583	1.4208	1.5915	1.4833
	H	Countersink, 120° Included Angle Maximum	1.320	1.250	1.315	1.440	1.380	1.440	1.590	1.500
		Minimum	1.290	1.220	1.285	1.410	1.350	1.410	1.560	1.470
THREAD PROJECTION	J	Min, Tang Removed, when Insert Nominal Length = 1 Dia	1.482	1.333	1.396	1.607	1.458	1.520	1.792	1.583
		" " = 1.5 Dia	2.045	1.896	1.989	2.232	2.083	2.177	2.479	2.270
		" " = 2 Dia	2.607	2.458	2.583	2.857	2.708	2.833	3.167	2.958
		" " = 2.5 Dia	3.169	3.020	3.177	3.482	3.333	3.489	3.855	3.646
		" " = 3 Dia	3.732	3.583	3.770	4.107	3.958	4.146	4.542	4.333
	K	Max, Tang Not Removed, when Insert Nominal Length = 1 Dia	1.054	1.083	1.146	1.179	1.208	1.271	1.292	1.333
		" " = 1.5 Dia	1.616	1.646	1.740	1.804	1.833	1.927	1.979	2.021
		" " = 2 Dia	2.179	2.208	2.333	2.429	2.458	2.583	2.667	2.708
		" " = 2.5 Dia	2.741	2.771	2.927	3.054	3.083	3.239	3.354	3.396
		" " = 3 Dia	3.304	3.333	3.521	3.679	3.708	3.896	4.042	4.083

INCH-POUND

PREPARING ACTIVITY: AIR FORCE-82
CUSTODIANS: ARMY-AV NAVY-AS
AIR FORCE-99 DLA-
REVIEW:
USER:
PROJECT NUMBER: 5340-1988
INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET

TITLE
INSERT, SCREW THREAD, HELICAL COIL, INCH SERIES, COARSE AND FINE THREAD, STANDARD ASSEMBLY DIMENSIONS FOR

SPECIFICATION SHEET NUMBER
MS33537E

SUPERSEDING
MS33537D 27 JUNE 74

AMSC- N/A FSC - 5340

DISTRIBUTION STATEMENT
A. Approved for public release; distribution is unlimited.

Form Approved
OMB No. 0704-0188

TABLE IV (continued)

		Nominal Insert Size	1.500		1.625	1.875	2.250	2.500
		Threads Per Inch	6	12	12	12	12	12
L_n		Insert Nominal Length, 1 Dia	1.500	1.500	1.625	1.875	2.250	2.500
		" " 1.5 Dia	2.250	2.250	2.438	2.812	3.375	3.750
		" " 2 Dia	3.000	3.000	3.250	3.750	4.500	5.000
		" " 2.5 Dia	3.750	3.750	4.062	4.688	5.625	6.250
		" " 3 Dia	4.500	4.500	4.875	5.625	6.750	7.500
ASSEMBLED INSERT	L	Min Length of Insert when Nominal Length = 1 Dia	1.375	1.438	1.562	1.812	2.188	2.438
		" " = 1.5 Dia	2.125	2.188	2.375	2.750	3.312	3.688
		" " = 2 Dia	2.875	2.938	3.188	3.688	4.438	4.938
		" " = 2.5 Dia	3.625	3.688	4.000	4.625	5.562	6.188
		" " = 3 Dia	4.375	4.438	4.812	5.562	6.688	7.438
	D_7	PD, Max, Class 2B	1.4022	1.4542	1.5785	1.8287	2.2038	2.4540
		PD, Max, Class 3B	1.3996	1.4522	1.5766	1.8267	2.2018	2.4519
		PD, Min, Classes 2B & 3B	1.3917	1.4459	1.5709	1.8209	2.1959	2.4459
	D_1	Minor Dia, Max, Class 2B	1.350	1.428	1.553	1.803	2.178	2.428
		Minor Dia, Max, Class 3B	1.3396	1.4198	1.5448	1.7948	2.1698	2.4198
		Minor Dia, Min, Classes 2B & 3B	1.3200	1.4100	1.5350	1.7850	2.1600	2.4100
TAPPED HOLE	FP	Depth of Blind Hole for Plug Taps, Min when Nominal Length = 1 Dia	2.500	2.000	2.125	2.375	2.750	3.000
		" " = 1.5 Dia	3.250	2.750	2.938	3.312	3.875	4.250
		" " = 2 Dia	4.000	3.500	3.750	4.250	5.000	5.500
		" " = 2.5 Dia	4.750	4.250	4.562	5.188	6.125	6.750
		" " = 3 Dia	5.500	5.000	5.375	6.125	7.250	8.000
	FB	Depth of Blind Hole for Bottoming Taps, Min when Nominal Length = 1 Dia	2.167	1.833	1.958	2.208	2.583	2.833
		" " = 1.5 Dia	2.917	2.583	2.771	3.146	3.708	4.083
		" " = 2 Dia	3.667	3.333	3.583	4.083	4.833	5.333
		" " = 2.5 Dia	4.417	4.083	4.396	5.021	5.958	6.583
		" " = 3 Dia	5.167	4.833	5.208	5.958	7.083	7.833
	H	Min Full Thread when Nominal Length = 1 Dia	1.670	1.580	1.710	1.960	2.330	2.580
		" " = 1.5 Dia	2.420	2.330	2.520	2.900	3.460	3.830
		" " = 2 Dia	3.170	3.080	3.330	3.830	4.580	5.080
		" " = 2.5 Dia	3.920	3.830	4.150	4.770	5.710	6.330
		" " = 3 Dia	4.670	4.580	4.960	5.710	6.830	7.580
	V_2	PD, Max, Class 2B	1.6177	1.5615	1.6858	1.9360	2.3111	2.5613
		PD, Max, Class 3B	1.6151	1.5595	1.6839	1.9340	2.3091	2.5592
		PD, Min, Classes 2B & 3B	1.6082	1.5542	1.6792	1.9292	2.3042	2.5542
	V_1	Minor Dia, Max, Class 2B	1.5666	1.5361	1.6611	1.9111	2.2861	2.5361
		Minor Dia, Max, Class 3B	1.5560	1.5281	1.6531	1.9031	2.2781	2.5281
		Minor Dia, Min, Classes 2B & 3B	1.5360	1.5181	1.6431	1.8931	2.2681	2.5181
	V	Major Dia, Max, Class 2B	1.7500	1.6277	1.7520	2.0022	2.3773	2.6275
		Major Dia, Max, Class 3B	1.7474	1.6257	1.7501	2.0002	2.3753	2.6254
		Major Dia, Min, Classes 2B & 3B	1.7165	1.6083	1.7333	1.9833	2.3583	2.6083
	M	Countersink, 120° Included Angle Maximum	1.720	1.630	1.750	2.000	2.380	2.630
		Minimum	1.690	1.600	1.720	1.970	2.350	2.600
THREAD PROJECTION	J	Min, Tang Removed, when Insert Nominal Length = 1 Dia	1.917	1.708	1.833	2.083	2.458	2.708
		" " = 1.5 Dia	2.667	2.458	2.646	3.020	3.583	3.958
		" " = 2 Dia	3.417	3.208	3.458	3.958	4.708	5.208
		" " = 2.5 Dia	4.167	3.958	4.270	4.896	5.833	6.458
		" " = 3 Dia	4.917	4.708	5.083	5.833	6.958	7.708
	K	Max, Tang Removed, when Insert Nominal Length = 1 Dia	1.417	1.458	1.583	1.833	2.209	2.458
		" " = 1.5 Dia	2.167	2.208	2.396	2.771	3.333	3.708
		" " = 2 Dia	2.917	2.958	3.209	3.708	4.459	4.958
		" " = 2.5 Dia	3.667	3.708	4.021	4.646	5.583	6.208
		" " = 3 Dia	4.417	4.458	4.833	5.583	6.709	7.458

INCH-POUND

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CUSTODIANS: ARMY-AV NAVY-AS
AIR FORCE-99 DLA-
REVIEW:
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INTERNATIONAL INTEREST

MILITARY SPECIFICATION SHEET

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SPECIFICATION SHEET NUMBER
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SUPERSEDING MS33537D 27 JUNE 74

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