

INCH-POUND

MIL-DTL-83521/7A

25 July 2025

SUPERSEDING

MIL-M-83521/7

17 November 1989

DETAIL SPECIFICATION

Maintenance Kits, Electrical Connectors, Contacts, and Connector and Cable
Accessories: Maintenance Kit General Purpose, for SAE-AS22520/5 Crimping Tool and
Dies

Inactive for new design after 12 June 2018.

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

The complete requirements for procuring the tool kit described herein shall consist of this
document and the latest issue of Specification MIL-DTL-83521.

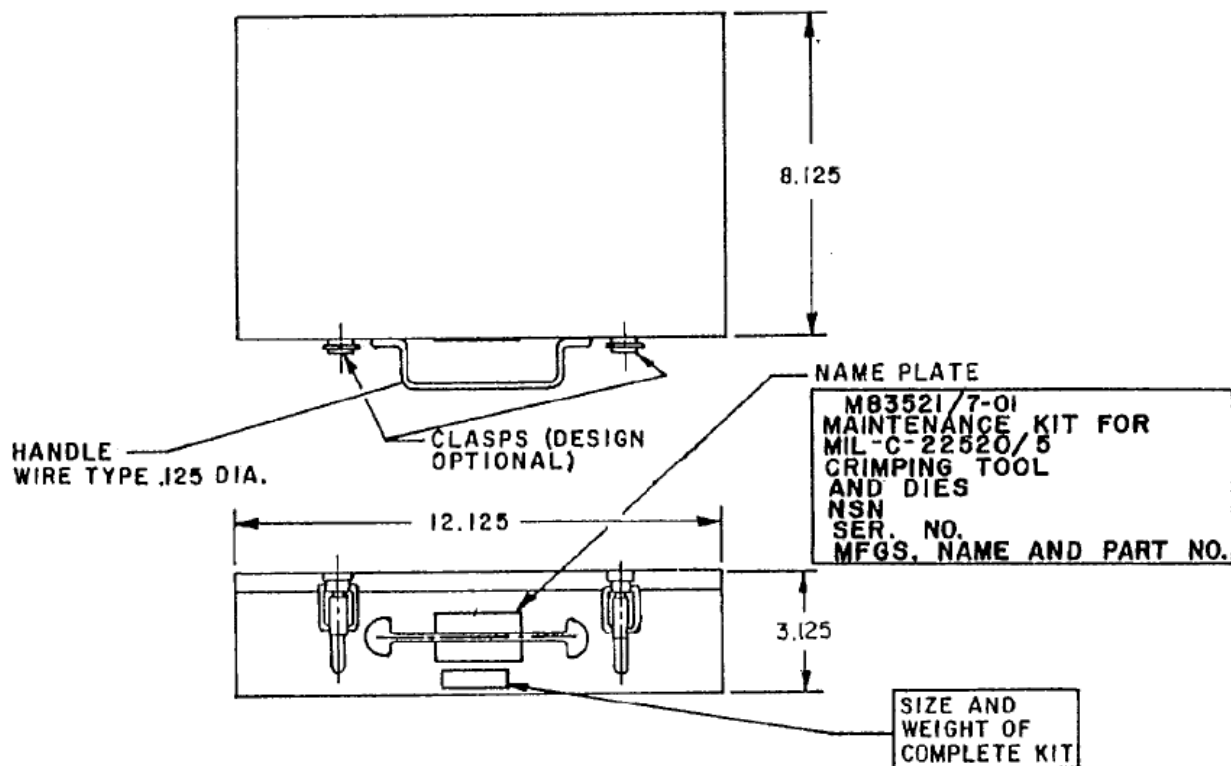


FIGURE 1 Metal case. Maintenance kit, for SAE-AS22520/5 crimping tool and dies.

NOTES:

1. Part number M83521/7-01 includes case and tools.
2. Part number M83521/7-02 for case only (tools not included).

Parts list

- | | | |
|---------|--|---------------------|
| (1) | M83521/7-02 or 03 | Tool case assembly. |
| (1) | M22520/5-01 | Crimp tool frame. |
| (1) | M22520/5-03 | Die set. |
| (1) | M22520/5-04 | Die set. |
| (1) | M22520/5-05 | Die set. |
| (1) | M22520/5-06 | Die set. |
| (1) | M22520/5-07 | Die set. |
| (1) | M22520/5-08 | Die set. |
| (1) | M22520/5-10 | Die set. |
| (1) | M22520/5-17 | Die set. |
| (1) | M22520/5-19 | Die set. |
| (1) | M22520/5-21 | Die set. |
| (1) | M22520/5-23 | Die set, |
| (1) | M22520/5-27 | Die set, |
| (1) | M22520/5-31 | Die set. |
| (1) | M22520/5-33 | Die set. |
| (1) | M22520/5-35 | Die set, |
| (1) | M22520/5-37 | Die set, |
| (1) | M22520/5-39 | Die set. |
| (1) | M22520/5-41 | Die set. |
| (1) | M22520/5-43 | Die set. |
| (1) | M22520/5-45 | Die set. |
| (1) | M22520/5-47 | Die set. |
| (1) | M22520/5-49 | Die set. |
| (1) | M22520/5-51 | Die set. |
| (1) | M22520/5-53 | Die set. |
| (1) | M22520/5-55 | Die set. |
| (1) | M22520/5-61 | Die set. |
| (1) | M22520/5-63 | Die set. |
| (1) | GGGC105, type 1, class 1, style 1A, size 1 inch caliper, micrometer, | |
| (1 set) | contents charts, instruction sheets, and tool selection chart. | |

FIGURE 1 Metal case. Maintenance kit, for SAE-AS22520/5 crimping tool and dies..– Continued

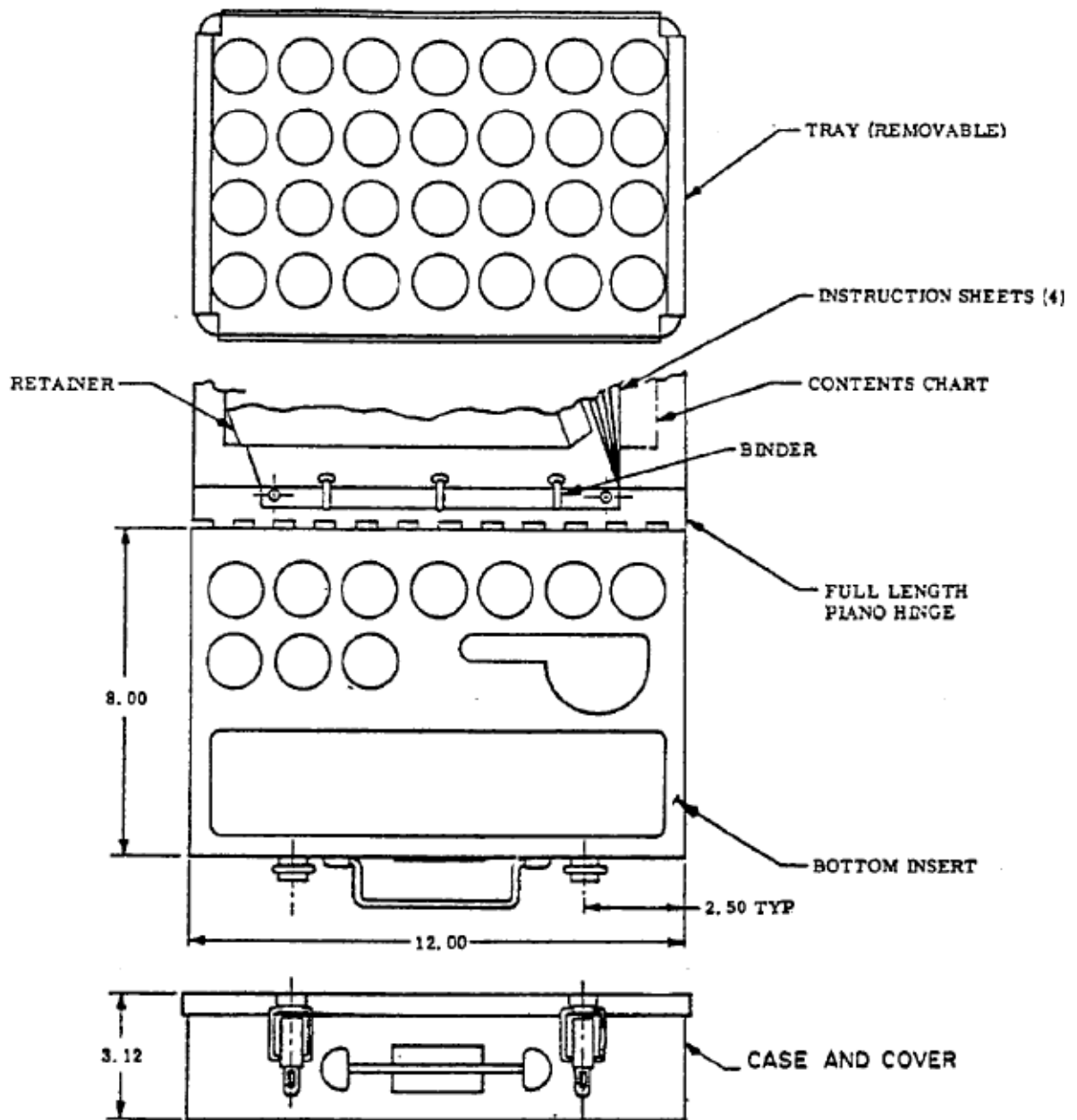
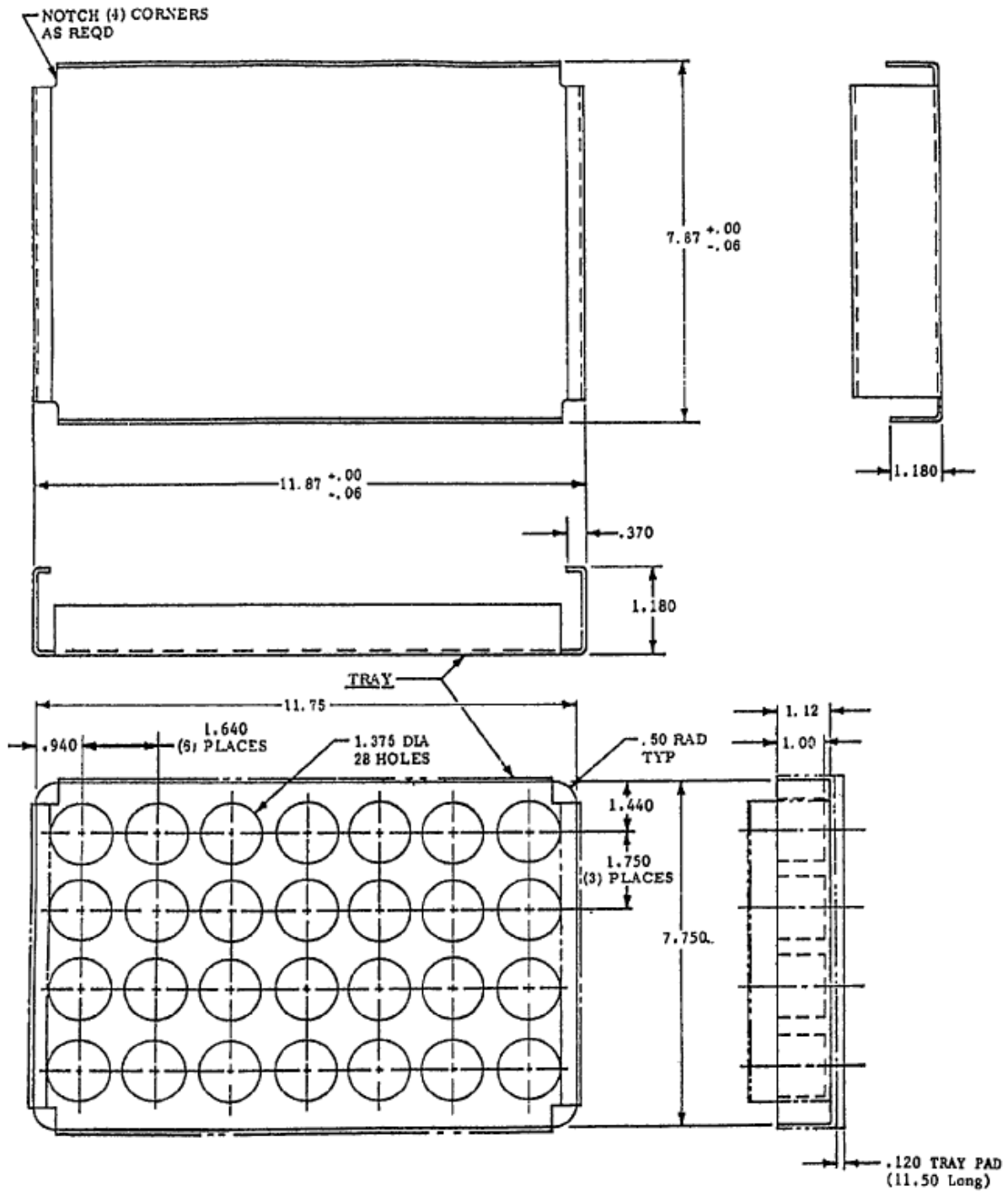


FIGURE 2 Metal case. Tool case assembly.

FIGURE 3 Metal case. Insert.

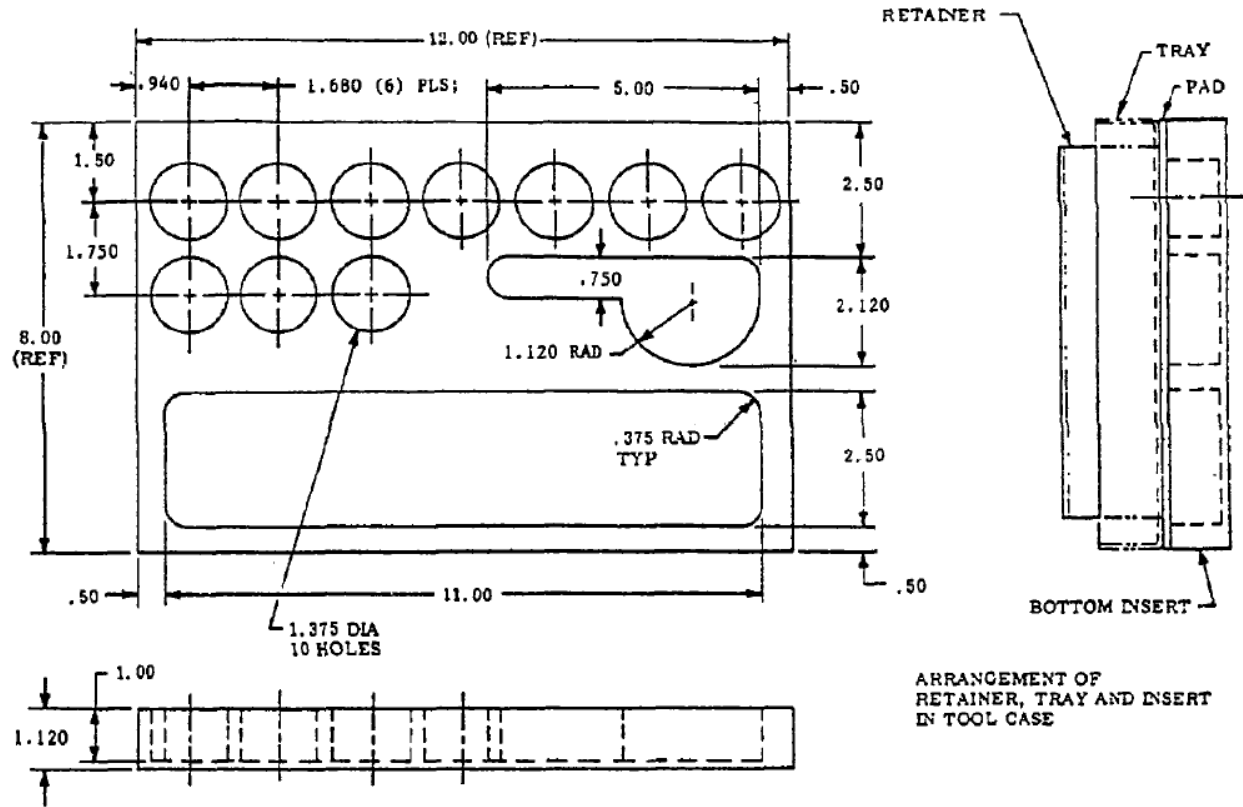


FIGURE 4 Metal case. Bottom insert.

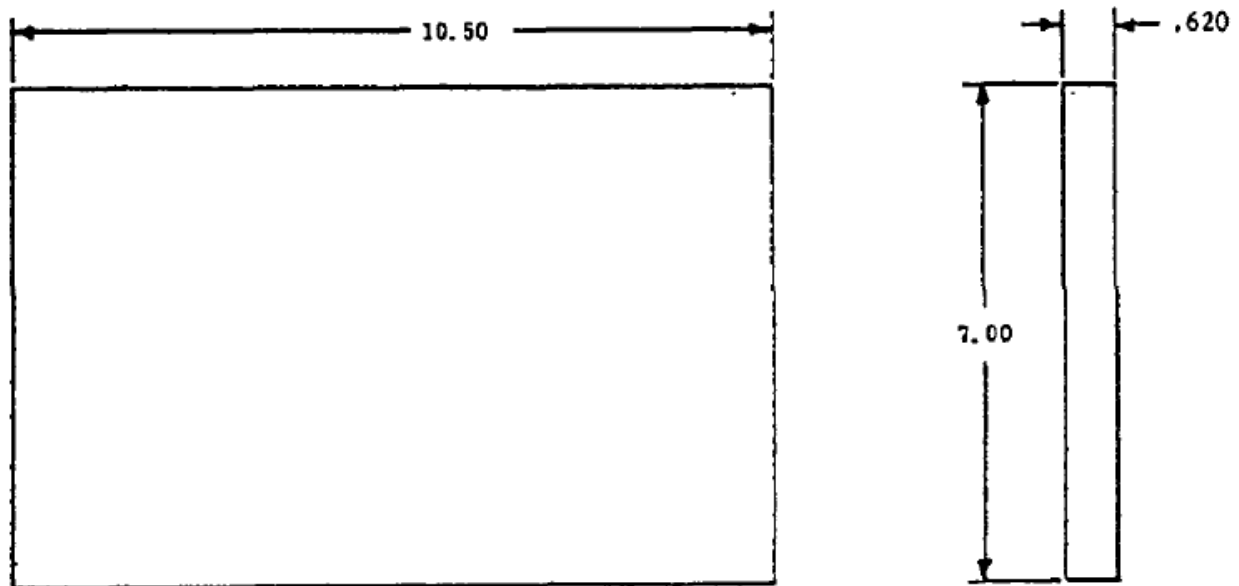


FIGURE 5 Metal case. Retainer configuration.

Contents chart

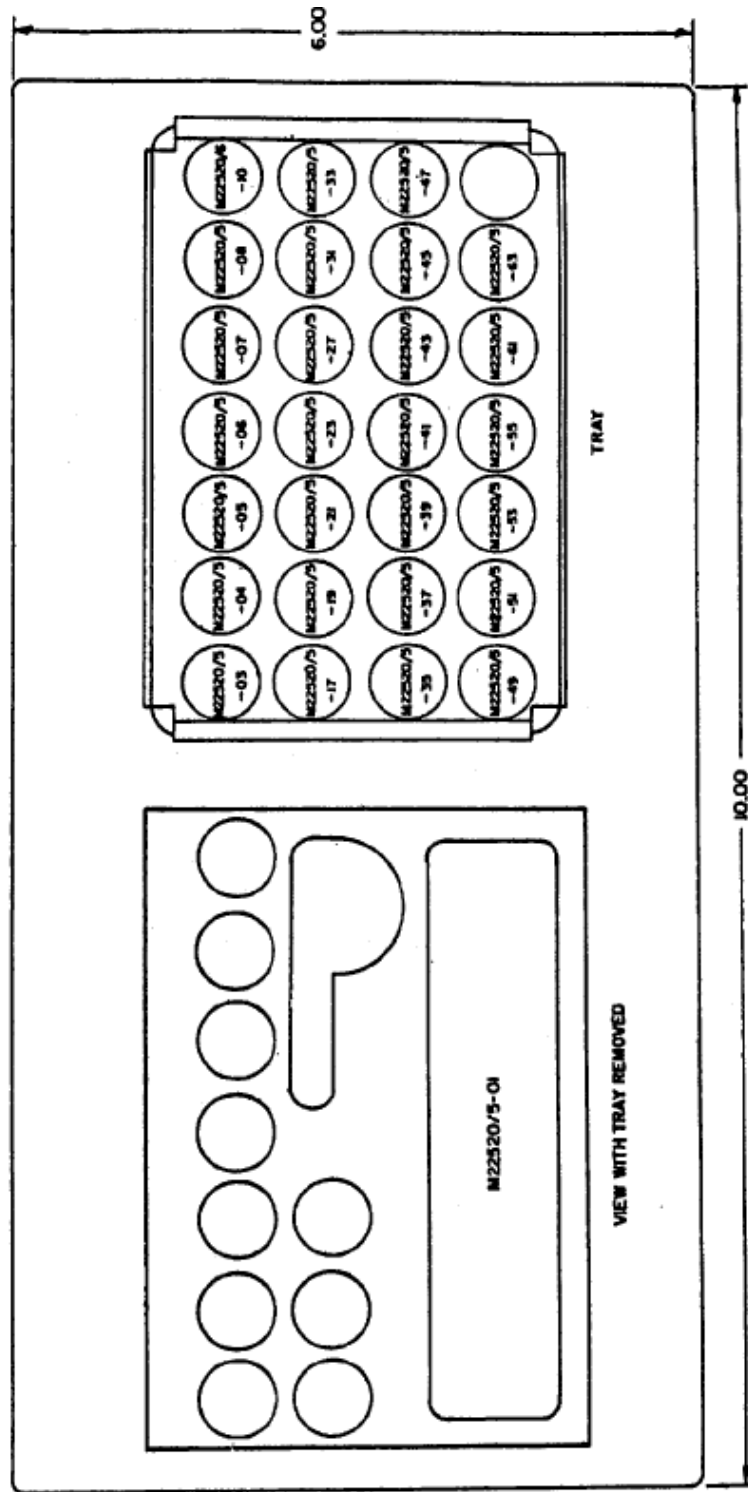


FIGURE 6 Metal case. Instruction sheet.

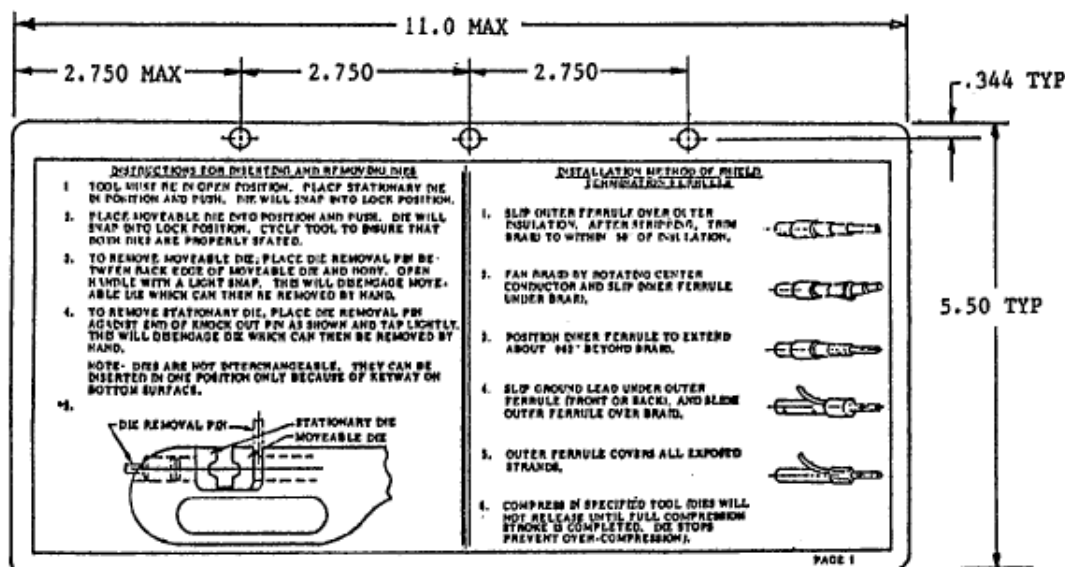
Instructions for inserting and removing dies

1. Tool must be in open position. Place stationary die in position and push. Die will snap into lock position.
2. Place moveable die into position and push. Cycle tool to insure that both dies are properly seated.
3. To remove moveable die, place die removal pin between back edge of moveable die and body. Open handle with a light snap. This will disengage moveable die which can then be removed by hand.
4. To remove stationary die, place die removal pin against end of knock out pin as shown and tap lightly. This will disengage die which can then be removed by hand.

NOTE Dies are not interchangeable. They can be inserted in one position only because of keyway on bottom surface.

Installation method of shield termination ferrules

1. Slip outer ferrule over outer insulation. After stripping, trim braid to within .50" of insulation.
2. Fan braid by rotating center conductor and slip inner ferrule under braid.
3. Position inner ferrule to extend about .062" beyond braid.
4. Slip ground lead under outer ferrule (front or back) and slide outer ferrule over braid.
5. Outer ferrule covers all exposed strands.
6. Compress in specified tool (dies will not release until full compression stroke is completed. Die stops prevent over-compression).



*5 Dies are free floating and will align during crimping procedure.

FIGURE 7 Metal case. Instruction sheet.

Step 1

Install sealing boot and slide outer ferrule onto cable, as shown, prior to stripping cable.

Step 2

Strip cable jacket, braid, and dielectric to dimensions indicated. All cuts are to be square and sharp. Important: Do not nick braid, dielectric, or center conductor when cutting. If wire ends of center conductor fray, twist them to their normal lay.

Step 3

Place stripped center conductor into contact until cable dielectric butts contact and end of wire shows through inspection hole (arrow). Insert contact into crimp tool until fully seated in nest bushing. Crimp with one full stroke.

Step 4

Flare out ends of wire braid to facilitate insertion of inner ferrule of body assembly (do not comb out wire braid).

Step 5

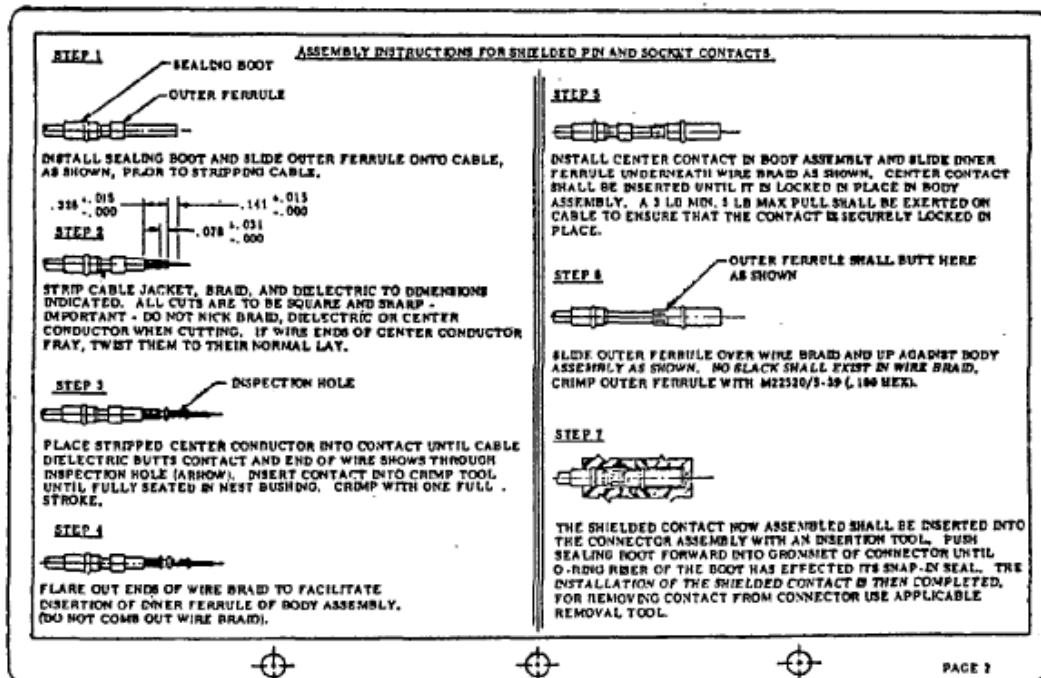
Install center contact in body assembly and slide inner ferrule underneath wire braid as shown. Center contact shall be inserted until it is locked in place in body assembly. A 3 pound minimum, 5 pound maximum pull shall be exerted on cable to ensure that the contact is securely locked in place.

Step 6

Slide outer ferrule over wire braid and up against body assembly as shown. No slack shall exist in wire braid. Crimp outer ferrule with M22520/5-39 (.160 hex).

Step 7

The shielded contact now assembled shall be inserted into the connector assembly with an insertion tool. Push sealing boot forward into grommet of connector until O-ring riser of the boot has effected its snap-in seal. The installation of the shielded contact is then completed. For removing contact from connector, use applicable removeable tool.



Instruction sheet.

FIGURE 8 Metal case. Instruction sheet.

1. Measure the diameter of the inner conductor insulation (dielectric).
2. Measure the outside diameter of the shield.
3. Find, on the chart, the diameter ranges within which these dimensions will fit. The proper inner and outer ferrule combinations, and tool die number are tabulated on same line reading from left to right.

Tool required: Micrometer

Shield terminating ferrules									
Inner conductor insulation dia. range	Inner ferrule PIN	Outer conductor shield O.D.	To crimp uninsulated ferrule PIN	Use		To crimp insulated ferrule PIN	Use		
				Die PIN M2520/5	Die closure		Die PIN M2520/5	Die closure	
Max Min		Max Min	MS21980 1/			MS18121 1/			
.038 .018	-046	.048 .028	-101		B	-101		B	
.050 .030	-058	.068 .050	-128		B	-128		B	
.055 .035	-063	.075 .057	-128		B	-128		B	
.063 .043	-071	.078 .060	-128		B	-128		B	
.063 .043	-071	.096 .072	-149		B	-149		B	
.072 .052	-080	.092 .074	-149		B	-149		B	
.082 .062	-090	.097 .079	-149		B	-149		B	
.088 .068	-096	.105 .088	-156		B	-156		B	
.093 .073	-101	.124 .106	-175		B	-175		B	
.102 .082	-109	.130 .118	-175		B	-175		B	
.102 .082	-109	.137 .117	-187		B	-187		A	
.116 .096	-124	.138 .118	-187		B	-187		A	
.116 .096	-124	.146 .128	-194		B	-194		A	
.116 .096	-124	.151 .138	-199		B	-199		A	
.120 .100	-128	.153 .133	-205		B	-205		A	
.120 .100	-128	.165 .147	-219		B	-219		A	

11/ See footnote at end of figure.

**INSTRUCTIONS FOR SELECTING MATCHING ORER
AND OUTER FERRULES AND THEIR INSTALLING DIE**

1. **MEASURE THE DIAMETER OF THE INNER CONDUIT OR BUNDLE INSIDE THE DIE.**
 2. **MEASURE THE OUTSIDE DIAMETER OF THE BUNDLE.**
**FROM THE CHART, THE DIAMETER RANGES WITHIN WHICH THESE DIMENSIONS WILL FIT. THE
 PROPER INNER AND OUTER FERRULE COMBINATIONS, AND 100% DIE NO. ARE TABULATED ON SAME
 LINE READINGS FROM LEFT TO RIGHT.**

TOOLS REQUIRED: MICROMETER

BUNDLE TERMINATING FERRULES											
INNER CONDUIT FERRULE DIA. RANGE		INNER FERRULE PART NO. M131961	OUTER CONDUIT DIE SIZE O.D.		TO ENDS (UNCONDUIT) OUTER FERRULE PART NO. M131962 1/2		USE	TO ENDS INSULATED OUTER FERRULE PART NO. M131917 1/2		DIE PART NO. M131918 9	DIE CLOSURE
MAX.	MIN.		SIZE	MIN.							
228	214	1006	228	212	1007	1/2	1/2	0	101	10	A
230	215	1008	230	213	1009	1/2	1/2	0	102	10	A
232	216	1010	232	214	1011	1/2	1/2	0	103	10	A
234	217	1012	234	215	1013	1/2	1/2	0	104	10	A
236	218	1014	236	216	1015	1/2	1/2	0	105	10	A
238	219	1016	238	217	1017	1/2	1/2	0	106	10	A
240	220	1018	240	218	1019	1/2	1/2	0	107	10	A
242	221	1020	242	219	1021	1/2	1/2	0	108	10	A
244	222	1022	244	220	1023	1/2	1/2	0	109	10	A
246	223	1024	246	221	1025	1/2	1/2	0	110	10	A
248	224	1026	248	222	1027	1/2	1/2	0	111	10	A
250	225	1028	250	223	1029	1/2	1/2	0	112	10	A
252	226	1030	252	224	1031	1/2	1/2	0	113	10	A
254	227	1032	254	225	1033	1/2	1/2	0	114	10	A
256	228	1034	256	226	1035	1/2	1/2	0	115	10	A
258	229	1036	258	227	1037	1/2	1/2	0	116	10	A
260	230	1038	260	228	1039	1/2	1/2	0	117	10	A
262	231	1040	262	229	1041	1/2	1/2	0	118	10	A
264	232	1042	264	230	1043	1/2	1/2	0	119	10	A
266	233	1044	266	231	1045	1/2	1/2	0	120	10	A
268	234	1046	268	232	1047	1/2	1/2	0	121	10	A
270	235	1048	270	233	1049	1/2	1/2	0	122	10	A
272	236	1050	272	234	1051	1/2	1/2	0	123	10	A
274	237	1052	274	235	1053	1/2	1/2	0	124	10	A
276	238	1054	276	236	1055	1/2	1/2	0	125	10	A
278	239	1056	278	237	1057	1/2	1/2	0	126	10	A
280	240	1058	280	238	1059	1/2	1/2	0	127	10	A
282	241	1060	282	239	1061	1/2	1/2	0	128	10	A
284	242	1062	284	240	1063	1/2	1/2	0	129	10	A
286	243	1064	286	241	1065	1/2	1/2	0	130	10	A
288	244	1066	288	242	1067	1/2	1/2	0	131	10	A
290	245	1068	290	243	1069	1/2	1/2	0	132	10	A

1/2 USE (1) NO. 16 OR (2) CROWN-ROD WIRE

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FIGURE 9 Metal case. Instruction sheet.

Shield terminating ferrules (continued)												
Inner conductor insulation dia. range		Inner ferrule PIN MS21981		Outer conductor shield O.D.		To crimp un-insulated outer ferrule PIN MS21980 1/		Use			Use	
								Die PIN MS2520/51	Die closure	Die PIN MS18121 1/	Die closure	Die PIN MS2520/51
Max	Min	Max	Min	Max	Min	Max	Min					
.126	.106	-.134	.128	-.205		-.19	B	-.205			-.19	A
.126	.106	-.134	.149	-.225		-.45	B	-.225			-.19	A
.126	.106	-.134	.162	-.232		-.45	A	-.232			-.43	A
.141	.121	-.149	.153	-.232		-.45	A	-.232			-.43	A
.148	.128	-.156	.174	-.261		-.19	A	-.261			-.41	A
.157	.137	-.165	.177	-.261		-.19	A	-.261			-.41	A
.167	.147	-.175	.165	-.261		-.19	A	-.261			-.41	A
.167	.147	-.175	.185	-.275		-.43	A	-.275			-.39	A
.179	.159	-.187	.192	-.281		-.41	A	-.281			-.35	A
.186	.166	-.194	.206	-.287		-.41	A	-.287			-.35	A
.197	.177	-.205	.215	-.297		-.41	A	-.297			-.35	A
.197	.177	-.205	.223	-.312		-.39	A	-.312			-.47	---
.197	.177	-.205	.238	-.327		-.37	A	-.327			-.23	---
.211	.191	-.219	.234	-.327		-.37	A	-.327			-.23	---
.217	.197	-.225	.251	-.348		-.35	A	-.348			-.23	---
.224	.204	-.232	.266	-.348		-.35	A	-.348			-.23	---
.242	.222	-.250	.277	-.359		-.33	A	-.359			-.23	---
.242	.222	-.250	.292	-.375		-.47	---	-.375			-.49	---
.253	.233	-.261	.288	-.375		-.47	---	-.375			-.49	---
.258	.238	-.266	.288	-.375		-.47	---	-.375			-.49	---
.267	.247	-.275	.292	-.375		-.47	---	-.375			-.49	---
.267	.247	-.275	.322	-.405		-.23	---	-.405			-.51	---
.273	.253	-.281	.303	-.405		-.23	---	-.405			-.51	---
.279	.259	-.287	.324	-.415		-.23	---	-.415			-.51	---
.289	.269	-.297	.319	-.415		-.23	---	-.415			-.51	---
.304	.284	-.312	.314	-.415		-.23	---	-.415			-.51	---
.304	.284	-.312	.339	-.460		-.53	---	-.460			-.31	---
.340	.280	-.348	.325	-.460		-.53	---	-.460			-.31	---
.367	.347	-.375	.448	-.500		-.21	---	-.500			-.27	---

11/ See footnote at end of figure.

[illegible]

1. USE (1) NO. 10 OR 11 GROUNDING WIRE

FIGURE 10 Metal case. Instruction sheet.

FIGURE 11 Metal case. Instruction sheet.

Dies for coaxial, shielded contacts

PIN	Contacts accommodated	Cables accommodated
M22520/5-63	M39029/6-01 M39029/13-01 M39029/14-01	RG178A/U, RG196A/U Grumman GC18K-1-22S Revere WH-95623
M22520/5-04	M39029/6-02, -03, -04, -05, -06 M39029/13-02, -03, -04, -05, -06 M39029/14-02, -03, -04, -05, -06	RG180B/U, RG187A/U, RG195A/U, RG188A/U Microdot 293-3922, 250-4070 Raychem 48-950, 48-502
M22520/5-06	<u>M39029/7-001, M39029/8-001</u> <u>M39029/7-002, M39029/8-002</u> <u>M39029/7-003, M39029/8-003</u>	<u>RG178B/U, RG178A/U, RG196A/U, 30 AWG, 28 AWG</u> <u>RG174/U, RG188A/U, 26 AWG</u> <u>24 AWG</u>
M22520/5-08	M83733/13, /14	RG179/U
M22520/5-10	OM089558-1, -2	RG195/U

DIES FOR COAXIAL, SHIELDED CONTACTS		
PART NO.	CONTACTS ACCOMMODATED	CABLES ACCOMMODATED
M22520/5-63	M39029/6-01 M39029/13-01 M39029/14-01	RG178A/U, RG196A/U GRUMMAN GC18K-1-22S REVERE WH-95623
M22520/5-04	M39029/6-02, -03, -04, -05, -06 M39029/13-02, -03, -04, -05, -06 M39029/14-02, -03, -04, -05, -06	RG180B/U, RG187A/U, RG195A/U, RG188A/U MICRODOT 293-3922, 250-4070 RAYCHEM 48-950, 48-502
M22520/5-06	<u>M39029/7-001, M39029/8-001</u> <u>M39029/7-002, M39029/8-002</u> <u>M39029/7-003, M39029/8-003</u>	<u>RG178B/U, RG178A/U, RG196A/U, 30 AWG, 28 AWG</u> <u>RG174/U, RG188A/U, 26 AWG</u> <u>24 AWG</u>
M22520/5-08	M83733/13, /14	RG179/U
M22520/5-10	OM089558-1, -2	RG195/U

FIGURE 12 Metal case. Instruction sheet.

Dies for coaxial radio frequency, Class H crimp type series connectors						
To crimp inner contact PIN M39012/	Use		To crimp outer ferrule PIN M39012/	Use		Cables accommodated
	Die PIN M22520/5	Die closure		Die PIN M22520/5	Die closure	
1-10	-61	B	1-50	-61	A	RG9/U, 214/U, 225/U, 393/U
1-10	-61	B	1-51	-61	A	RG8/U, 213/U
1-11	-19	B	1-52	-19	A	RG142B/U, 400/U
2-10	-61	B	2-50	-61	A	RG9/U, 214/U, 225/U, 393/U
2-10	-61	B	2-51	-61	A	RG8/U, 213/U
2-11	-19	B	2-52	-19	A	RG142B/U, 400/U
3-10	-61	B	3-50	-61	A	RG9/U, 214/U, 225/U, 393/U
3-10	-61	B	3-51	-61	A	RG8/U, 213/U
3-11	-19	B	3-52	-19	A	RG400/U, 142B/U
5-10	-61	B	5-50	-61	A	RG9/U, 214/U, 225/U, 393/U
5-10	-61	B	5-51	-61	A	RG8/U, 213/U
5-11	-19	B	5-52	-19	A	RG142B/U, 400/U
16-10	-41	B	16-50	-41	A	RG122/U
16-11	-41	B	16-50	-41	A	RG180/U, 195/U
16-10	-19	B	16-51	-19	A	RG142B/U, 400/U
17-10	-41	B	17-50	-41	A	RG122/U
17-11	-41	B	17-50	-41	A	RG180/U, 195/U
17-10	-19	B	17-51	-19	A	RG142B/U, 400/U
18-10	-41	B	18-50	-41	A	RG122/U
18-11	-41	B	18-50	-41	A	RG180/U, 195/U
18-10	-19	B	18-51	-19	A	RG142B/U, 400/U
19-10	-41	B	19-50	-41	A	RG122/U
19-11	-41	B	19-50	-41	A	RG180/U, 195/U
19-10	-19	B	19-51	-19	A	RG142B/U, 400/U
26-10	-41	B	26-50	-41	A	RG122/U
26-11	-41	B	26-50	-41	A	RG180/U, 195/U

DIES FOR COAXIAL RADIO FREQUENCY, CLASS H CRIMP TYPE SERIES CONNECTORS						
TO CRIMP INNER CONTACT PART NO. M39012/	USE		TO CRIMP OUTER FERRULE PART NO. M39012/	USE		CABLES ACCOMMODATED
	DIE PART NO. M22520/5	DIE CLOSURE		DIE PART NO. M22520/5	DIE CLOSURE	
1-10	-61	B	1-50	-61	A	RG9/U, 214/U, 225/U, 393/U
1-10	-61	B	1-51	-61	A	RG8/U, 213/U
1-11	-19	B	1-52	-19	A	RG142B/U, 400/U
2-10	-61	B	2-50	-61	A	RG9/U, 214/U, 225/U, 393/U
2-10	-61	B	2-51	-61	A	RG8/U, 213/U
2-11	-19	B	2-52	-19	A	RG142B/U, 400/U
3-10	-61	B	3-50	-61	A	RG9/U, 214/U, 225/U, 393/U
3-10	-61	B	3-51	-61	A	RG8/U, 213/U
3-11	-19	B	3-52	-19	A	RG400/U, 142B/U
5-10	-61	B	5-50	-61	A	RG9/U, 214/U, 225/U, 393/U
5-10	-61	B	5-51	-61	A	RG8/U, 213/U
5-11	-19	B	5-52	-19	A	RG142B/U, 400/U
16-10	-41	B	16-50	-41	A	RG122/U
16-11	-41	B	16-50	-41	A	RG180/U, 195/U
16-10	-19	B	16-51	-19	A	RG142B/U, 400/U
17-10	-41	B	17-50	-41	A	RG122/U
17-11	-41	B	17-50	-41	A	RG180/U, 195/U
17-10	-19	B	17-51	-19	A	RG142B/U, 400/U
18-10	-41	B	18-50	-41	A	RG122/U
18-11	-41	B	18-50	-41	A	RG180/U, 195/U
18-10	-19	B	18-51	-19	A	RG142B/U, 400/U
19-10	-41	B	19-50	-41	A	RG122/U
19-11	-41	B	19-50	-41	A	RG180/U, 195/U
19-10	-19	B	19-51	-19	A	RG142B/U, 400/U
26-10	-41	B	26-50	-41	A	RG122/U
26-11	-41	B	26-50	-41	A	RG180/U, 195/U

PAGE 1

FIGURE 13 Metal case. Instruction sheet.

Dies for coaxial radio frequency, class H crimp type series connectors						
To crimp inner contact PIN M39012/ M39012/	Use		To crimp outer ferrule PIN M39012/	Use		Cables accommodated
	Die PIN closure M22520/5	Die closure M22520/5		Die PIN closure M22520/5	Die closure M22520/5	
26-10	-19	B	26-51	-19	A	RG1428/U, 400/U
27-10	-41	B	27-50	-41	A	RG8122/U
27-11	-41	B	27-50	-41	A	RG180/U, 195/U
27-10	-19	B	27-51	-19	A	RG1428/U, 400/U
28-10	-41	B	28-50	-41	A	RG122/U
28-11	-41	B	28-50	-41	A	RG180/U, 195/U
28-10	-19	B	28-51	-19	A	RG1428/U, 400/U
29-10	-41	B	29-50	-41	A	RG122/U
29-11	-41	B	29-50	-41	A	RG180/U, 195/U
29-10	-19	B	29-51	-19	A	RG1428/U, 400/U
30-10	-19	B	30-50	-19	A	RG400/U, 1428/U
30-11	-41	B	30-51	-41	A	RG180/U, 195/U
35-10	-61	B	35-50	-61	A	RG9/U, 214/U, 225/U, 393/U
35-11	-19	B	35-51	-19	A	RG1428/U, 400/U
36-10	-61	B	36-50	-61	A	RG9/U, 214/U, 225/U, 393/U
36-11	-19	B	36-51	-19	A	RG1428/U, 400/U
38-10	-61	B	38-50	-61	A	RG9/U, 214/U, 225/U, 393/U
38-11	-19	B	38-51	-19	A	RG1428/U, 400/U
39-10	-61	B	39-50	-61	A	RG9/U, 214/U, 225/U, 393/U
39-11	-19	B	39-51	-19	A	RG1428/U, 400/U
40-10	-61	B	40-50	-61	A	RG9/U, 214/U, 225/U, 393/U
40-11	-19	B	40-51	-19	A	RG1428/U, 400/U
55-10	Solder	---	55-50	-19	A	RG1428/U, 400/U
---	---	---	56-50	-19	A	RG1428/U, 400/U
57-10	Solder	---	57-50	-19	A	RG1428/U, 400/U
58-10	Solder	---	58-50	-19	A	RG1428/U, 400/U
59-10	Solder	---	59-50	-19	A	RG1428/U, 400/U

DIES FOR COAXIAL RADIO FREQUENCY, CLASS H CRIMP TYPE SERIES CONNECTORS (CONTINUED)						
TO CRIMP INNER CONTACT PART NO. M39012/ M39012/	USE		TO CRIMP OUTER FERRULE PART NO. M39012/ M39012/	USE		CABLES ACCOMMODATED
	DIE PART NO. M22520/5	DIE CLOSURE		DIE PART NO. M22520/5	DIE CLOSURE	
26-10	-19	B	26-51	-19	A	RG1428/U, 400/U
27-10	-41	B	27-50	-41	A	RG8122/U
27-11	-41	B	27-50	-41	A	RG180/U, 195/U
27-10	-19	B	27-51	-19	A	RG1428/U, 400/U
28-10	-41	B	28-50	-41	A	RG122/U
28-11	-41	B	28-50	-41	A	RG180/U, 195/U
28-10	-19	B	28-51	-19	A	RG1428/U, 400/U
29-10	-41	B	29-50	-41	A	RG122/U
29-11	-41	B	29-50	-41	A	RG180/U, 195/U
29-10	-19	B	29-51	-19	A	RG1428/U, 400/U
30-10	-19	B	30-50	-19	A	RG400/U, 1428/U
30-11	-41	B	30-51	-41	A	RG180/U, 195/U
35-10	-61	B	35-50	-61	A	RG9/U, 214/U, 225/U, 393/U
35-11	-19	B	35-51	-19	A	RG1428/U, 400/U
36-10	-61	B	36-50	-61	A	RG9/U, 214/U, 225/U, 393/U
36-11	-19	B	36-51	-19	A	RG1428/U, 400/U
38-10	-61	B	38-50	-61	A	RG9/U, 214/U, 225/U, 393/U
38-11	-19	B	38-51	-19	A	RG1428/U, 400/U
39-10	-61	B	39-50	-61	A	RG9/U, 214/U, 225/U, 393/U
39-11	-19	B	39-51	-19	A	RG1428/U, 400/U
40-10	-61	B	40-50	-61	A	RG9/U, 214/U, 225/U, 393/U
40-11	-19	B	40-51	-19	A	RG1428/U, 400/U
55-10	SOLDER	---	55-50	-19	A	RG1428/U, 400/U
---	---	---	56-50	-19	A	RG1428/U, 400/U
57-10	SOLDER	---	57-50	-19	A	RG1428/U, 400/U
58-10	SOLDER	---	58-50	-19	A	RG1428/U, 400/U
59-10	SOLDER	---	59-50	-19	A	RG1428/U, 400/U

FIGURE 14 Metal case. Instruction sheet.

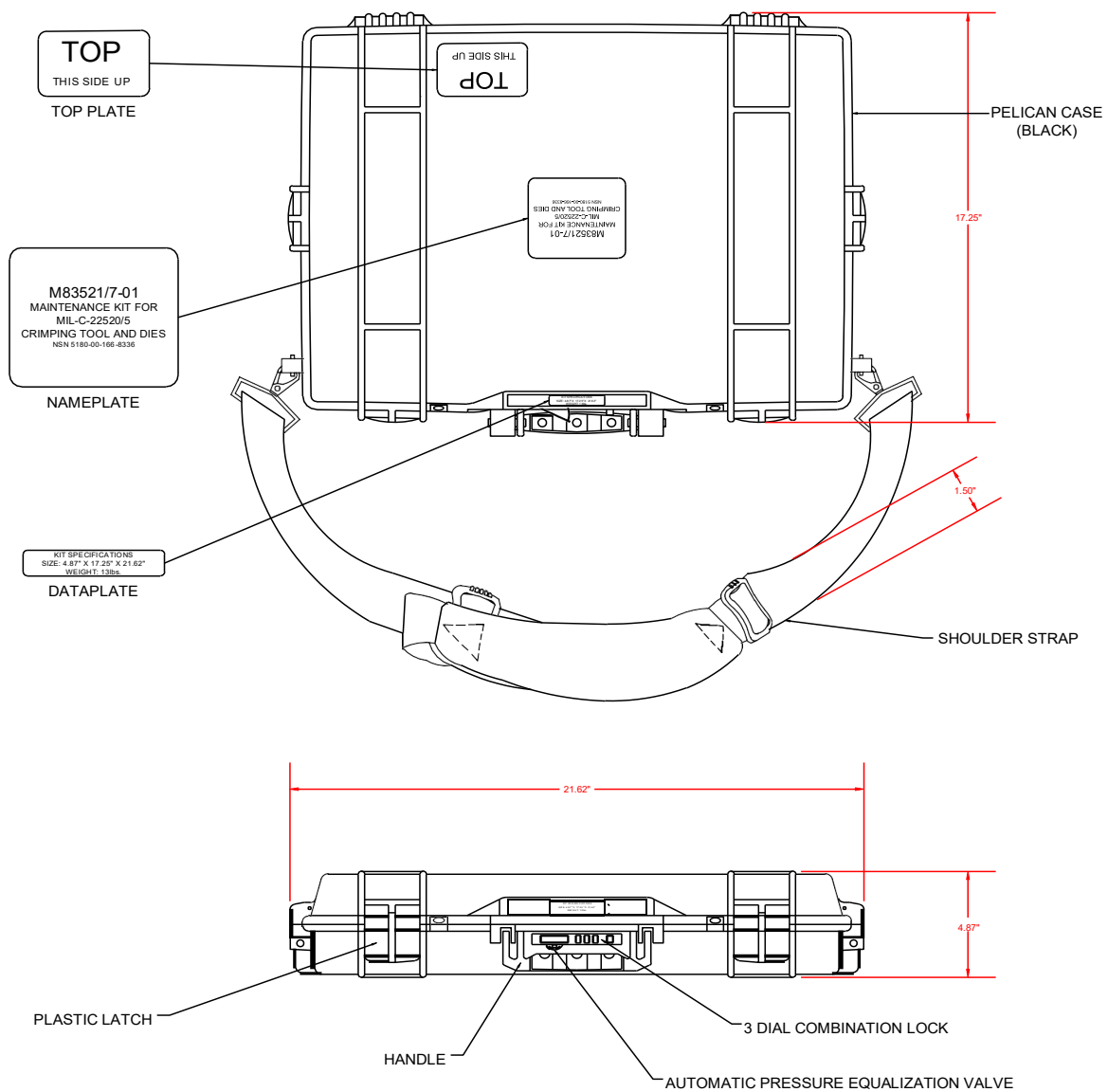


FIGURE 15 Plastic case. MAINTENANCE KIT, FOR SAE-AS22520/5 CRIMPING TOOL AND DIES.

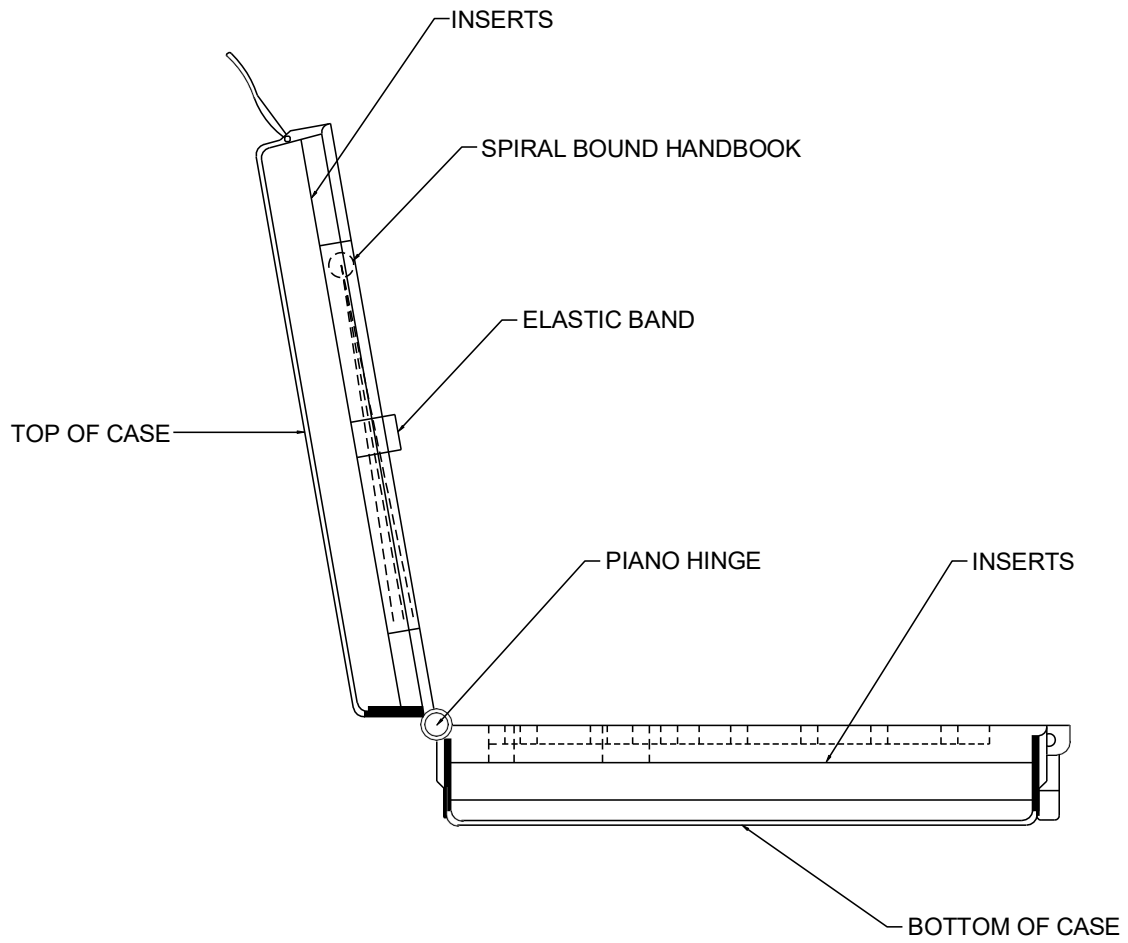


FIGURE 16 Plastic case. TOOL CASE ASSEMBLY.

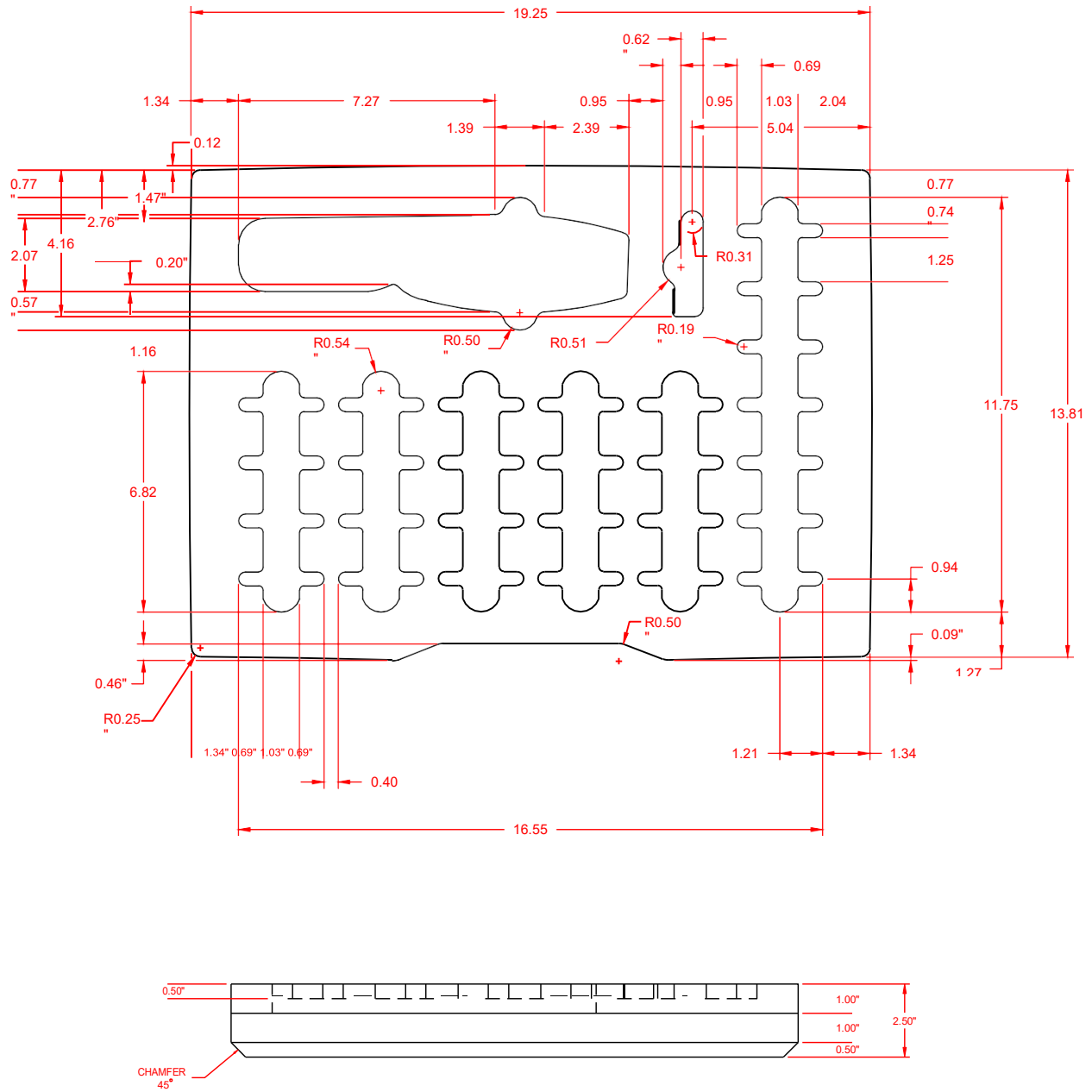


FIGURE 17 Plastic case. INSERT, BOTTOM OF CASE

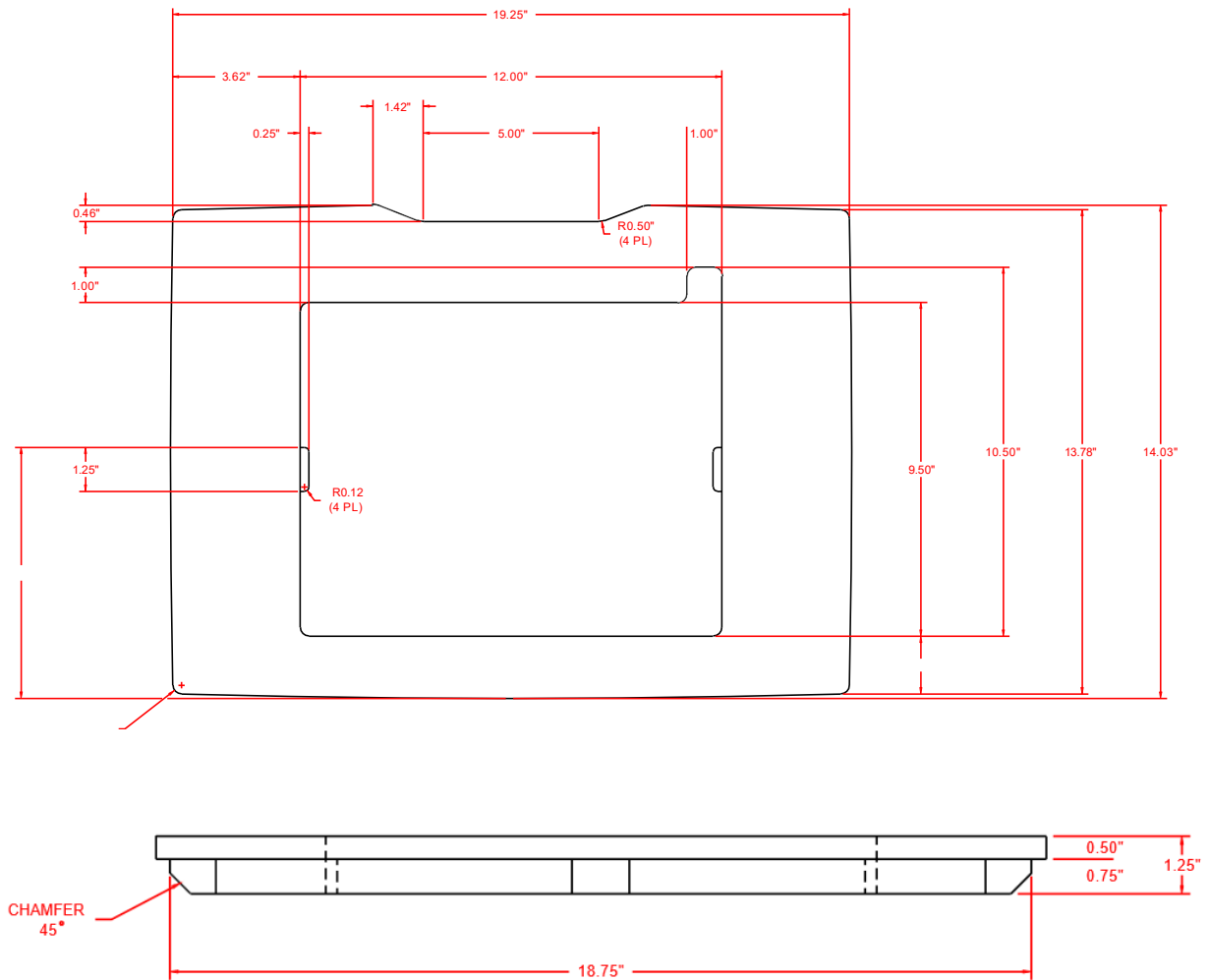


FIGURE 18 Plastic case. INSERT, TOP OF CASE

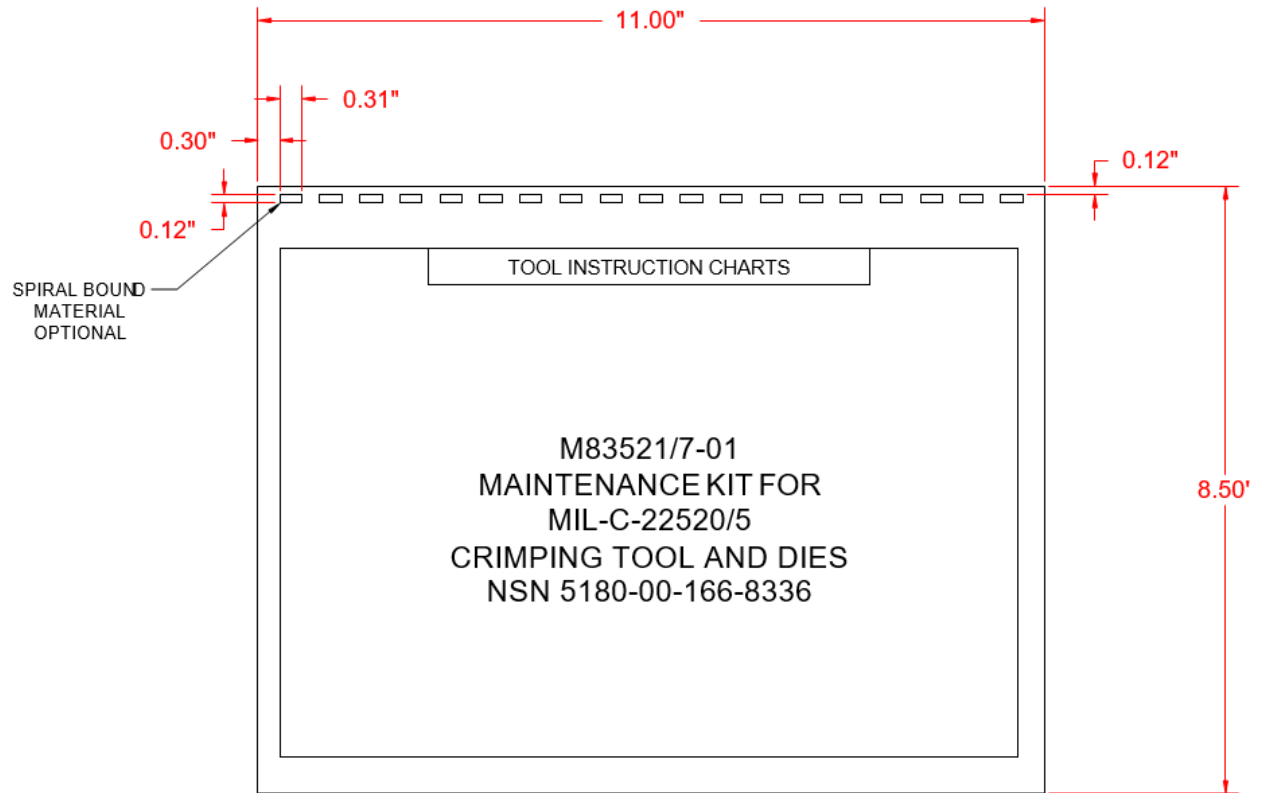


FIGURE 19 Plastic case. Instruction sheet.

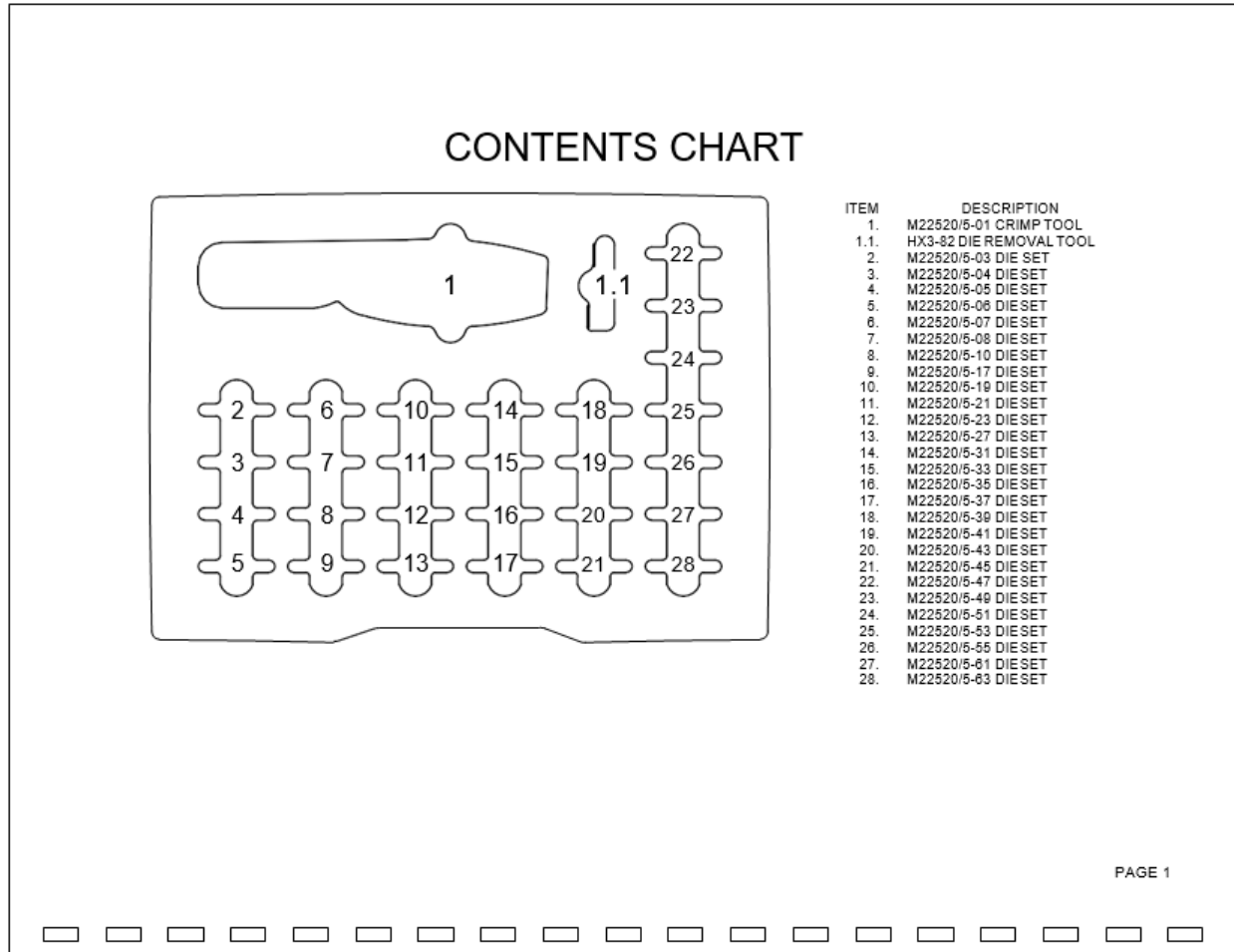
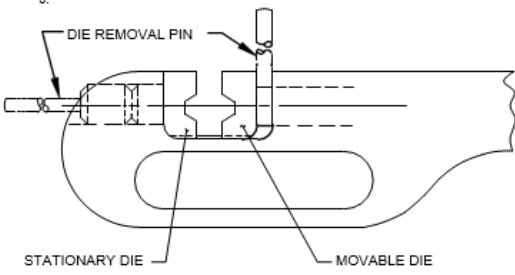
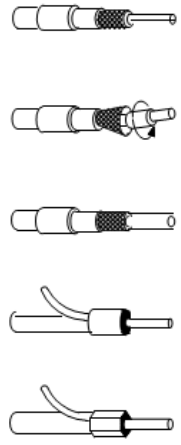


FIGURE 20 Plastic case. Instruction sheet.

INSTRUCTIONS FOR INSERTING AND REMOVING DIES 1. TOOL MUST BE IN OPEN POSITION. PLACE STATIONARY DIE IN POSITION AND PUSH. DIE WILL SNAP INTO LOCK POSITION. 2. PLACE MOVEABLE DIE INTO POSITION AND PUSH. DIE WILL SNAP INTO LOCK POSITION. CYCLE TOOL TO INSURE THAT BOTH DIES ARE PROPERLY SEATED. 3. TO REMOVE MOVEABLE DIE, PLACE DIE REMOVAL PIN BETWEEN BACK EDGE OF MOVEABLE DIE AND BODY. OPEN HANDLE WITH A LIGHT SNAP. THIS WILL DISENGAGE MOVEABLE DIE WHICH CAN THEN BE REMOVED BY HAND. 4. TO REMOVE STATIONARY DIE, PLACE DIE REMOVAL PIN AGAINST END OF KNOCK OUT PIN AS SHOWN AND TAP LIGHTLY. THIS WILL DISENGAGE DIE WHICH CAN THEN BE REMOVED BY HAND. NOTE: DIES ARE NOT INTERCHANGEABLE. THEY CAN BE INSERTED IN ONE POSITION ONLY BECAUSE OF KEYWAY ON BOTTOM SURFACE. *5.  *5. DIES ARE FREE FLOATING AND WILL ALIGN DURING CRIMPING PROCEDURE	INSTALLATION METHOD OF SHIELD TERMINATING FERRULES 1. SLIP OUTER FERRULE OVER OUTER INSULATION. AFTER STRIPPING, TRIM BRAID TO WITHIN .50" OF INSULATION. 2. FAN BRAID BY ROTATING CENTER CONDUCTOR AND SLIP INNER FERRULE UNDER BRAID. 3. POSITION INNER FERRULE TO EXTEND ABOUT .062" BEYOND BRAID. 4. SLIP GROUND LEAD UNDER OUTER FERRULE (FRONT OR BACK), AND SLIDE OUTER FERRULE OVER BRAID. 5. OUTER FERRULE COVERS ALL EXPOSED STRANDS. 6. COMPRESS IN SPECIFIED TOOL (DIES WILL NOT RELEASE UNTIL FULL COMPRESSION STROKE IS COMPLETED. DIE STOPS PREVENT OVER-COMPRESSION.). 

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FIGURE 21 Plastic case. Instruction sheet.

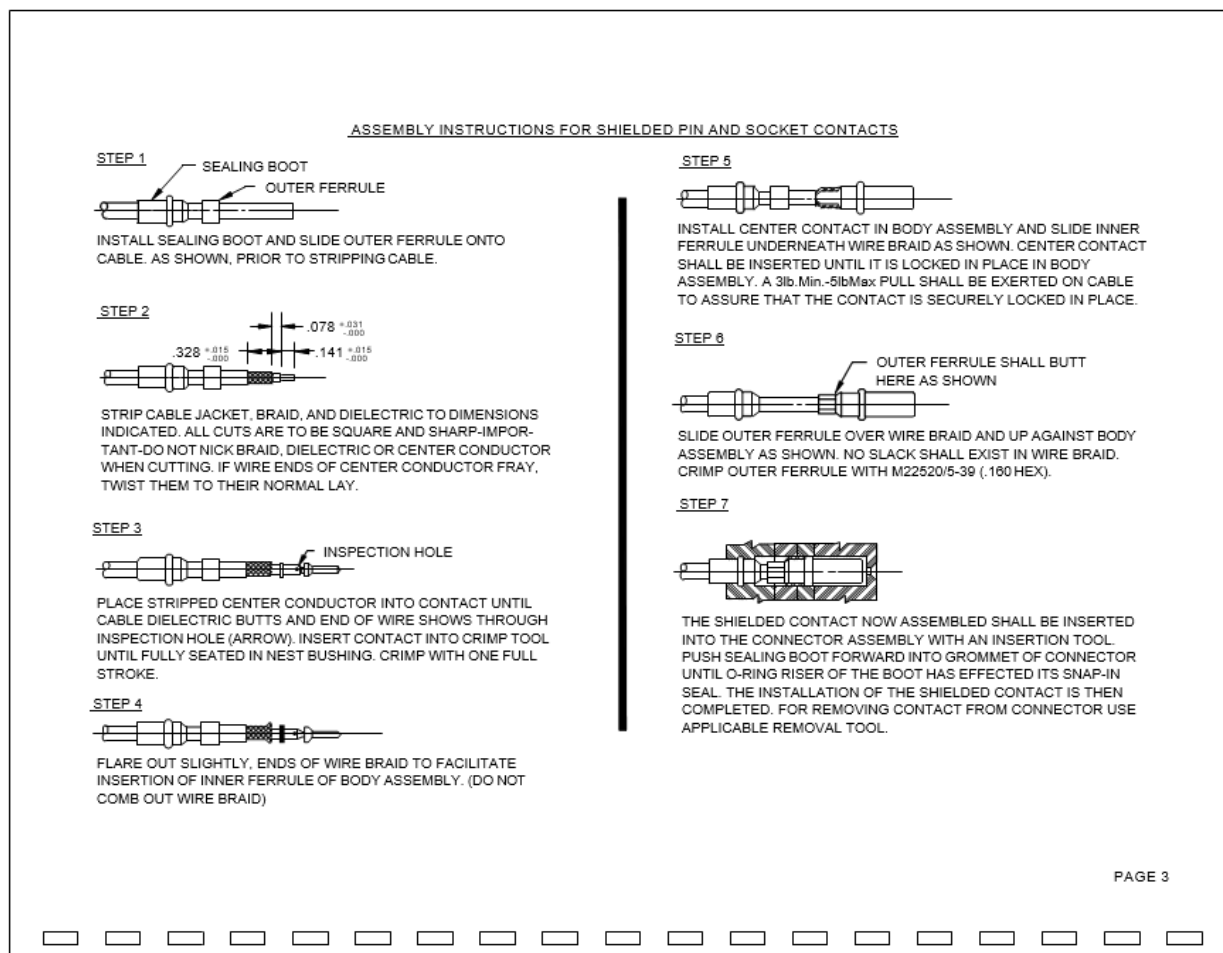


FIGURE 22 Plastic case. Instruction sheet.

INSTRUCTIONS FOR SELECTING MATCHING INNER AND OUTER FERRULES AND THEIR INSTALLING DIES										
1. MEASURE THE DIAMETER OF THE INNER CONDUCTOR INSULATION (DIELECTRIC). 2. MEASURE THE OUTSIDE DIAMETER OF THE SHIELD. 3. FIND, ON THE CHART, THE DIAMETER RANGES WITHIN WHICH THESE DIMENSIONS WILL FIT. THE PROPER INNER AND OUTER FERRULE COMBINATIONS, AND TOOL DIE NO. ARE TABULATED ON SAME LINE READING FROM LEFT TO RIGHT.										
TOOL REQUIRED: MICROMETER										
SHIELD TERMINATING FERRULES										
INNER CONDUCTOR INSULATION DIA. RANGE		INNER FERRULE	OUTER CONDUCTOR SHIELD O.D.		FOR (1) NO. 22 OR NO. 20 GROUNDING WIRE USE OUTER FERRULE					
					UNINSULATED OUTER FERRULE			OUTER FERRULE INSULATED		
MAX.	MIN.	MS21981 DASH NO.	MAX.	MIN.	MS21980 DASH NO.	TOOL DIE M22520/5	DIE CLOSURE	SAE-AS18121 DASH NO.	TOOL DIE M22520/5	DIE CLOSURE
.038	.018	-046	.048	.028	-101	-33	B	-101	-35	B
.050	.030	-058	.068	.050	-128	-35	B	-128	-37	B
.055	.035	-063	.075	.057	-128	-35	B	-128	-37	B
.063	.043	-071	.078	.060	-128	-35	B	-128	-37	B
.063	.043	-071	.096	.072	-149	-37	B	-149	-41	B
.072	.052	-080	.092	.074	-149	-37	B	-149	-41	B
.082	.062	-090	.097	.079	-149	-37	B	-149	-41	B
.088	.068	-096	.105	.088	-156	-39	B	-156	-43	B
.093	.073	-101	.124	.106	-175	-41	B	-175	-19	B
.102	.082	-109	.130	.118	-175	-41	B	-175	-19	B
.102	.082	-109	.137	.117	-187	-43	B	-187	-45	A
.116	.096	-124	.138	.118	-187	-43	B	-187	-45	A
.116	.096	-124	.146	.128	-194	-43	B	-194	-45	A
.116	.096	-124	.151	.138	-199	-43	B	-199	-45	A
.120	.100	-128	.153	.133	-205	-19	B	-205	-19	A
.120	.100	-128	.165	.147	-219	-19	B	-219	-19	A

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FIGURE 23 Plastic case. Instruction sheet.

SHIELD TERMINATING FERRULES (CONTINUED)										
INNER CONDUCTOR INSULATION DIA. RANGE		INNER FERRULE MS21981 DASH NO.	OUTER CONDUCTOR SHIELD O.D.		FOR (1) NO. 22 OR NO. 20 GROUNDING WIRE USE OUTER FERRULE					
					UNINSULATED OUTER FERRULE			INSULATED OUTER FERRULE		
					MS21980 DASH NO.	TOOL DIE M22520/5	DIE CLOSURE	SAE-AS18121 DASH NO.	TOOL DIE M22520/5	DIE CLOSURE
.120	.106	-134	.148	.128	-205	-19	B	-205	-19	A
.120	.106	-134	.168	.149	-225	-45	B	-225	-19	A
.120	.106	-134	.181	.162	-232	-45	A	-232	-43	A
.141	.121	-149	.171	.153	-232	-45	A	-232	-43	A
.148	.128	-156	.192	.174	-261	-19	A	-261	-41	A
.157	.137	-165	.195	.177	-261	-19	A	-261	-41	A
.167	.147	-175	.199	.185	-261	-19	A	-261	-41	A
.167	.147	-175	.205	.185	-275	-43	A	-275	-39	A
.179	.159	-187	.210	.192	-281	-41	A	-281	-35	A
.186	.166	-194	.224	.206	-287	-41	A	-287	-35	A
.197	.177	-205	.232	.215	-297	-41	A	-297	-35	A
.197	.177	-205	.241	.223	-312	-39	A	-312	-47	=
.197	.177	-205	.255	.238	-327	-37	A	-327	-23	=
.211	.191	-219	.252	.234	-327	-37	A	-327	-23	=
.217	.197	-225	.269	.251	-348	-35	A	-348	-23	=
.224	.204	-232	.286	.266	-348	-35	A	-348	-23	=
.242	.222	-250	.297	.277	-359	-33	A	-359	-23	=
.242	.222	-250	.312	.292	-375	-47	=	-375	-49	=
.263	.233	-261	.308	.288	-375	-47	=	-375	-49	=
.268	.238	-266	.308	.288	-375	-47	=	-375	-49	=
.267	.247	-275	.312	.292	-375	-47	=	-375	-49	=
.267	.247	-275	.342	.322	-405	-23	=	-405	-51	=
.273	.253	-281	.323	.303	-405	-23	=	-405	-51	=
.279	.259	-287	.344	.324	-415	-23	=	-415	-51	=
.289	.269	-297	.339	.319	-415	-23	=	-415	-51	=
.304	.284	-312	.334	.314	-415	-23	=	-415	-51	=
.304	.284	-312	.364	.339	-460	-53	=	-460	-31	=
.340	.280	-348	.384	.325	-460	-53	=	-460	-31	=
.367	.347	-375	.448	.428	-500	-21	=	-500	-27	=

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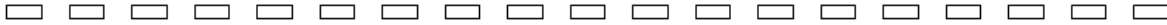


FIGURE 24 Plastic case. Instruction sheet.

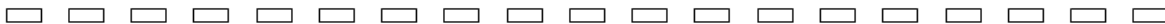
SHIELD TERMINATING FERRULES (CONTINUED)										
INNER CONDUCTOR INSULATION DIA. RANGE		INNER FERRULE	OUTER CONDUCTOR SHIELD O.D.		FOR (1) NO. 22 OR NO. 20 GROUNDING WIRE USE OUTER FERRULE					
MAX.	MIN.	MS21981 DASH NO.	MAX.	MIN.	UNINSULATED OUTER FERRULE			INSULATED OUTER FERRULE		
					MS21980 DASH NO.	TOOL DIE M22520/5	DIE CLOSURE	SAE-AS18121 DASH NO.	TOOL DIE M22520/5	DIE CLOSURE
					-101	-33	B	-348,-327	-23	—
					-128	-35	B	-101	-35	B
					-375	-47	—	-312	-47	—
					-149	-37	B	-128	-37	B
					-359	-33	A	—	—	—
					-155	-39	B	-281,-297,-287	-35	A
					-348	-35	A	—	—	—
					-175	-41	B	-149	-41	B
					-327	-37	A	—	—	—
					-187,-199,-194	-43	B	-155	-43	B
					-312	-39	A	-275	-39	A
					-205,-219	-19	B	-175	-19	B
					-281,-287,-297	-41	A	-281	-41	A
					-225	-45	B	-232	-43	A
					-275	-43	A	—	—	—
					-232	-45	A	-187,-194,-199	-45	A
					-281	-19	A	-205,-219,-225	-19	A
					-405,-415	-23	—	-359	-23	—
					-460	-53	—	—	—	—
					-500	-21	—	—	—	—
					—	—	—	-375	-49	—
					—	—	—	-405,-415	-51	—
					—	—	—	-460	-31	—
					—	—	—	-500	-27	—
					-175	-41	B	—	—	—
					-205	-19	B	—	—	—
					-281	-19	A	—	—	—
					-275	-53	—	—	—	—
					-348	-35	A	—	—	—
					-460	-51	—	—	—	—

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FIGURE 25 Plastic case. Instruction sheet.

DIES FOR COAX (SHIELDED) CONTACTS		
TOOL DIE M22520/	CONTACTS ACCOMMODATED	CABLES ACCOMMODATED
M22520/5-83	M39029/6-01 M39029/13-01 M39029/14-01	RG178A/U, RG196A/U GRUMMAN GC18K-1-22S REVERE WH-95623
M22520/5-04	M39029/6-02, -03, -04, -05, -06 M39029/13-02, -03, -04, -05, -06 M39029/14-02, -03, -04, -05, -06	RG180A/U, RG187A/U, RG195A/U, RG188A/U MICRODOT 293-3422, 250-4070 RAYCHEM 480950, 48-502
M22520/5-06	M39029/7-001, M39029/8-001 M39029/7-002, M39029/8-002 M39029/7-003, M39029/8-003	RG178B/U, RG178A/U, RG196A/U, 30AWG, 28AWG RG174/U, RG188A/U, 28AWG 24AWG
M22520/5-08	M83733/13./14	RG179/U
M22520/5-10	0N089558-1,-2	RG195/U

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FIGURE 26 Plastic case. Instruction sheet.

DIES FOR COAXIAL RADIO FREQUENCY, CLASS II TYPE SERIES CONNECTORS						
INNER CONTACT			OUTER FERRULE			SHIELDED CABLES
PART NO. MIL-C-39012/	TOOL DIE M22520/5	DIE CLOSURE	PART NO. MIL-C-39012/	TOOL DIE M22520/5	DIE CLOSURE	
1-10	-81	B	1-50	-81	A	RG9/U, 214/U, 225/U, 393/U
1-10	-81	B	1-51	-81	A	RG8/U, 213/U
1-11	-19	B	1-52	-19	A	RG142B/U, 400/U
2-10	-81	B	2-50	-81	A	RG9/U, 214/U, 225/U, 393/U
2-10	-81	B	2-51	-81	A	RG8/U, 213/U
2-11	-19	B	2-52	-19	A	RG142B/U
3-10	-81	B	3-50	-81	A	RG9/U, 214/U, 225/U, 393/U
3-10	-81	B	3-51	-81	A	RG8/U, 213/U
3-11	-19	B	3-52	-19	A	RG400/U, 142B/U
5-10	-81	B	5-50	-81	A	RG9/U, 214/U, 225/U, 393/U
5-10	-81	B	5-51	-81	A	RG8/U, 213/U
5-11	-19	B	5-52	-19	A	RG142B/U, 400/U
16-10	-41	B	16-50	-41	A	RG122/U
16-11	-41	B	16-50	-41	A	RG180/U, 195/U
16-10	-19	B	16-51	-19	A	RG142B/U, 400/U
17-10	-41	B	17-50	-41	A	RG122/U
17-11	-41	B	17-50	-41	A	RG180/U, 195/U
17-10	-19	B	17-51	-19	A	RG142B/U, 400/U
18-10	-41	B	18-50	-41	A	RG122/U
18-11	-41	B	18-50	-41	A	RG180/U, 195/U
18-10	-19	B	18-51	-19	A	RG142B/U, 400/U
19-10	-41	B	19-50	-41	A	RG122/U
19-11	-41	B	19-50	-41	A	RG180/U, 195/U
19-10	-19	B	19-51	-19	A	RG142B/U, 400/U
26-10	-41	B	26-50	-41	A	RG122/U
26-11	-41	B	26-50	-41	A	RG180/U, 195/U

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FIGURE 27 Plastic case. Instruction sheet.

DIES FOR COAXIAL RADIO FREQUENCY, CLASS II TYPE SERIES CONNECTORS (CONT.)						
INNER CONTACT			OUTER FERRULE			SHIELDED CABLES
PART NO. MIL-C-39012/	TOOL DIE M22520/5	DIE CLOSURE	PART NO. MIL-C-39012/	TOOL DIE M22520/5	DIE CLOSURE	
26-10	-19	B	26-51	-19	A	RG142B/U, 400/U
26-10	-41	B	27-50	-41	A	RG122/U
27-11	-41	B	27-50	-41	A	RG180/U, 195/U
27-10	-19	B	27-51	-19	A	RG142B/U, 400/U
28-10	-41	B	28-50	-41	A	RG122/U
28-11	-41	B	28-50	-41	A	RG180/U, 195/U
28-10	-19	B	28-51	-19	A	RG142B/U, 400/U
29-10	-41	B	29-50	-41	A	RG122/U
29-11	-41	B	29-50	-41	A	RG180/U, 195/U
29-10	-19	B	29-51	-19	A	RG142B/U, 400/U
30-10	-19	B	30-50	-19	A	RG400/U, 142B/U
30-11	-41	B	30-51	-41	A	RG180/U, 195/U
35-10	-61	B	35-50	-61	A	RG9/U, 214/U, 225/U, 393/U
35-11	-19	B	35-51	-19	A	RG142B/U, 400/U
38-10	-61	B	38-50	-61	A	RG9/U, 214/U, 225/U, 393/U
38-11	-19	B	38-51	-19	A	RG142B/U, 400/U
39-10	-61	B	39-50	-61	A	RG9/U, 214/U, 225/U, 393/U
39-11	-19	B	39-51	-19	A	RG142B/U, 400/U
40-10	-61	B	40-50	-61	A	RG9/U, 214/U, 225/U, 393/U
40-11	-19	B	40-51	-19	A	RG142B/U, 400/U
55-10	SOLDER	—	55-50	-19	A	RG142B/U, 400/U
—	—	—	56-50	-19	A	RG142B/U, 400/U
57-10	SOLDER	—	57-50	-19	A	RG142B/U, 400/U
58-10	SOLDER	—	58-50	-19	A	RG142B/U, 400/U
59-10	SOLDER	—	59-50	-19	A	RG142B/U, 400/U
—	—	—	—	—	—	

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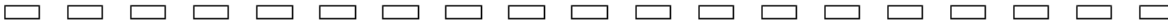


FIGURE 28 Plastic case. Instruction sheet.

NATIONAL STOCK NUMBER LIST FOR ITEMS IN M83521/7-01 (DMC169A) KIT			
MILITARY P/N	DMC P/N	DESCRIPTION	NSN
M22520/5-01	HX4	CRIMP TOOL FRAME	5120-00-132-6913
M22520/5-03	Y196	DIE ASSEMBLY	5120-00-133-0534
M22520/5-04	Y152	DIE ASSEMBLY	5120-00-133-0537
M22520/5-05	Y197	DIE ASSEMBLY	5120-00-133-0577
M22520/5-06	Y203	DIE ASSEMBLY	5120-00-133-0579
M22520/5-07	Y195	DIE ASSEMBLY	5120-00-133-0580
M22520/5-08	Y215	DIE ASSEMBLY	5120-00-133-0581
M22520/5-10	Y189	DIE ASSEMBLY	5120-00-133-0583
M22520/5-17	Y193	DIE ASSEMBLY	5120-00-133-0597
M22520/5-19	Y142	DIE ASSEMBLY	5120-00-116-3159
M22520/5-21	Y149	DIE ASSEMBLY	5120-00-116-3284
M22520/5-23	Y145	DIE ASSEMBLY	5120-00-133-0618
M22520/5-27	Y151	DIE ASSEMBLY	5120-00-133-0640
M22520/5-31	Y150	DIE ASSEMBLY	5120-00-133-0642
M22520/5-33	Y136	DIE ASSEMBLY	5120-00-116-3158
M22520/5-35	Y137	DIE ASSEMBLY	5120-00-116-3156
M22520/5-37	Y138	DIE ASSEMBLY	5120-00-116-3136
M22520/5-39	Y139	DIE ASSEMBLY	5120-00-116-3134
M22520/5-41	Y140	DIE ASSEMBLY	5120-00-116-3125
M22520/5-43	Y141	DIE ASSEMBLY	5120-00-116-3106
M22520/5-45	Y143	DIE ASSEMBLY	5120-00-116-3088
M22520/5-47	Y144	DIE ASSEMBLY	5120-00-133-0643
M22520/5-49	Y146	DIE ASSEMBLY	5120-00-133-0644
M22520/5-51	Y147	DIE ASSEMBLY	5120-00-116-3040
M22520/5-53	Y148	DIE ASSEMBLY	5120-00-116-3160
M22520/5-55	Y102	DIE ASSEMBLY	5120-00-133-0653
M22520/5-61	Y178	DIE ASSEMBLY	5120-00-116-3004
M22520/5-63	Y314P	DIE ASSEMBLY	5120-00-133-0533
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FIGURE 29 Plastic case. Instruction sheet.

REQUIREMENTS:

Materials:

Case

Metal (category 3): Sheet metal. 21 gauge in accordance with ASTM A568/A568M. Color is gray baked enamel on all metal parts except navy requirements which requires a yellow case and cover,

Plastic: Pelican part number 1495

Insert and retainer pad: Fire retardant foamed polyethylene 1n accordance with A-A-59135 or A-A-59136, color optional.

Instruction sheets and contents charts: White vinyl ,020 inch (.51 mm) thick.

Clasps: Draw pull type with provision for locking device, suitably plated to resist corrosion.

Handles and hinges: Suitably plated to resist corrosion.

Binder: Loose leaf, three ring ,562 inch (14,27 mm) •.062 inch (1.57 mm) I.D., 2,75 inch (69.85 mm) center distance between rings, securely riveted to inside of cover as shown.

Nameplate: In accordance with MIL-DTL-19834.

Instruction sheets and contents charts (see figures 7 and 8): Lettering shall be legible and protected with a transparent coating, Contents charts (centered on inside of case cover) shall have pressure sensitive adhesive backing, and shall show the insert cavity configurations and the respective tool part numbers. A list of federal stock numbers will also be supplied.

Part or Identifying Numbers (PIN):

M83521/7-01 Tool kit.

M83521/7-02 (tools not included)

M83521/7-03 (yellow case, tools not included)

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.

Referenced documents. In addition to MIL-DTL-83507, this document references the following:

A-A-59135	SAE-AS21980
A-A-59136	SAE-AS21981
ASTM A568/A568M	
MIL-DTL-19834	
MIL-PRF-39012	
MIL-PRF-39012/1	
MIL-PRF-39012/2	
MIL-PRF-39012/3	
MIL-PRF-39012/5	
MIL-PRF-39012/16	
MIL-PRF-39012/17	
MIL-PRF-39012/18	
MIL-PRF-39012/19	
MIL-PRF-39012/26	
MIL-PRF-39012/27	
MIL-PRF-39012/28	
MIL-PRF-39012/29	
MIL-PRF-39012/30	
MIL-PRF-39012/35	
MIL-PRF-39012/38	
MIL-PRF-39012/39	
MIL-PRF-39012/40	
MIL-PRF-39012/55	
MIL-PRF-39012/56	
MIL-PRF-39012/57	
MIL-PRF-39012/58	
MIL-PRF-39012/59	
SAE-AS18121	
MIL-DTL-83521	
SAE-AS22520/5	

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy – AS
Air Force - 85

Preparing activity:

DLA - CC

Review activities:

Navy – 19

(Project 5935-2025-062)

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>.