

INCH-POUND

MIL-DTL-83507/10A

25 July 2025

SUPERSEDING

MIL-T-83507/10

15 Nov 1977

DETAIL SPECIFICATION

TOOL KITS, ELECTRICAL CONNECTORS, CONTACTS, AND CONNECTOR AND CABLE ACCESSORIES: TOOL KIT FOR ON089559, ON089560, AND ON089561 CONNECTORS

Inactive for new design after
September 1, 1999.

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-83507.

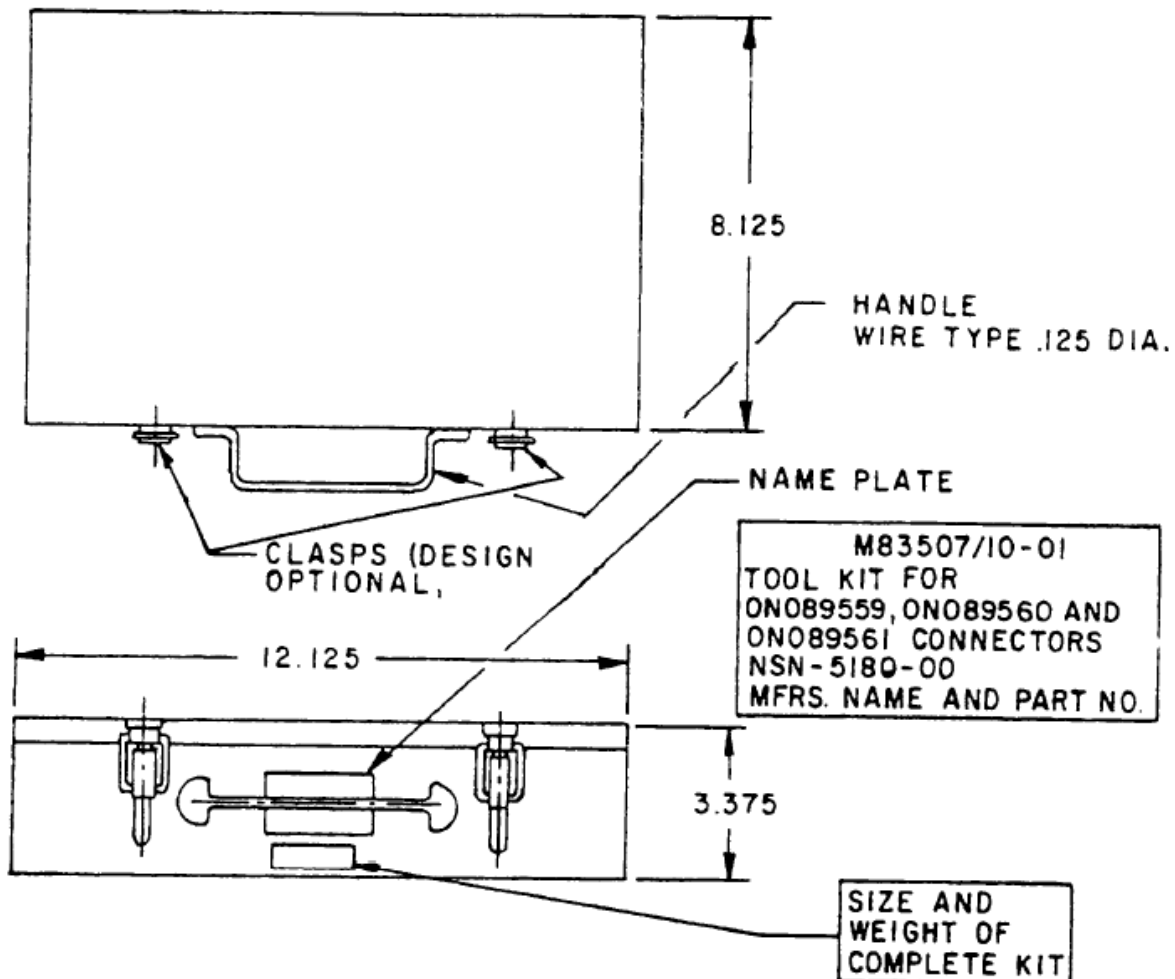


FIGURE 1 Metal case. Tool kit for ON089559, ON089560, and ON089561 connectors.

NOTES:

1. Part number M83507/10-01 includes case and tools.
2. Part number M83507 /10-02 for case only (tools not included).

PARTS LIST:

(1)	M83507/10-02	-	Tool case assembly.
(1)	M22520/1-01	-	Crimp tool frame in accordance with SAE-AS22520/1.
(1)	M22520/2-01	-	Crimp tool frame in accordance with SAE-AS22520/2.
(1)	M22520/10-01	-	Crimp tool frame in accordance with SAE-AS22520/10.
(1)	M22520/1-02	-	Turret head in accordance with SAE-AS22520/1.
(1)	M22520/2-24	-	Positioner in accordance with SAE-AS22520/2.
(1)	M22520/10-06	-	Die set in accordance with SAE-AS22520/10.
(1)	M22520/3-1	-	In-service inspection gage in accordance with SAE-AS22520/3.
(1)	9/64 hex wrench.		
(2)	ON089564	-	Installing tool.
(2)	ON089565	-	Removal tool.
(3)	M81969/14-03	-	Installing and removal tool in accordance with SAE-AS81969/14.
(3)	M81969/14-02	-	Installing and removal tool SAE-AS81969/14.

(1 set) Contents charts, instruction sheets, and tool selection chart.

FIGURE 1 Metal case. Tool kit for ON089559, ON089560, and ON089561 connectors. – Continued

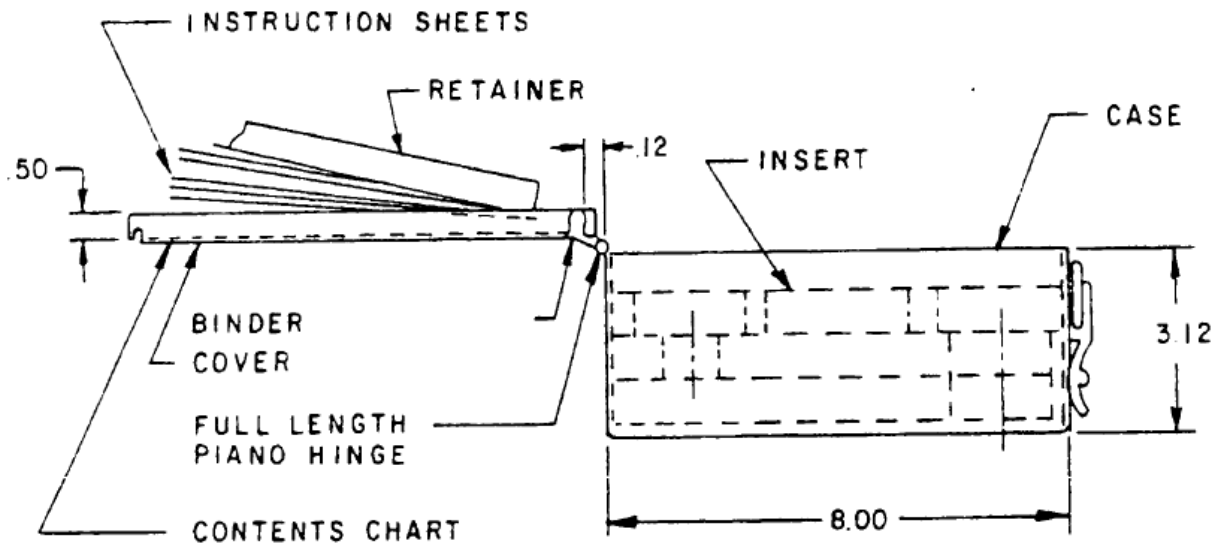


FIGURE 2 Metal case. Tool case assembly.

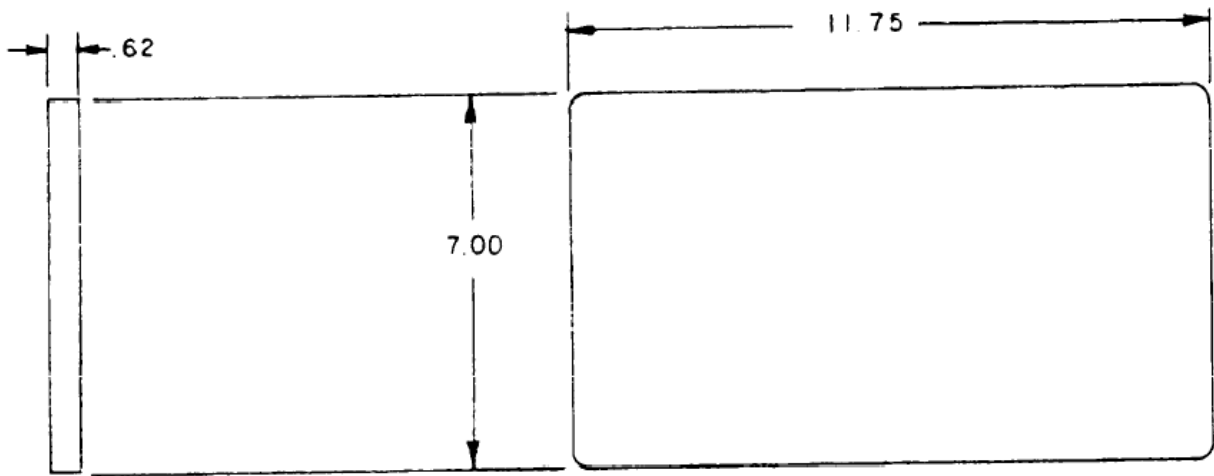


FIGURE 3 Metal case. Retainer

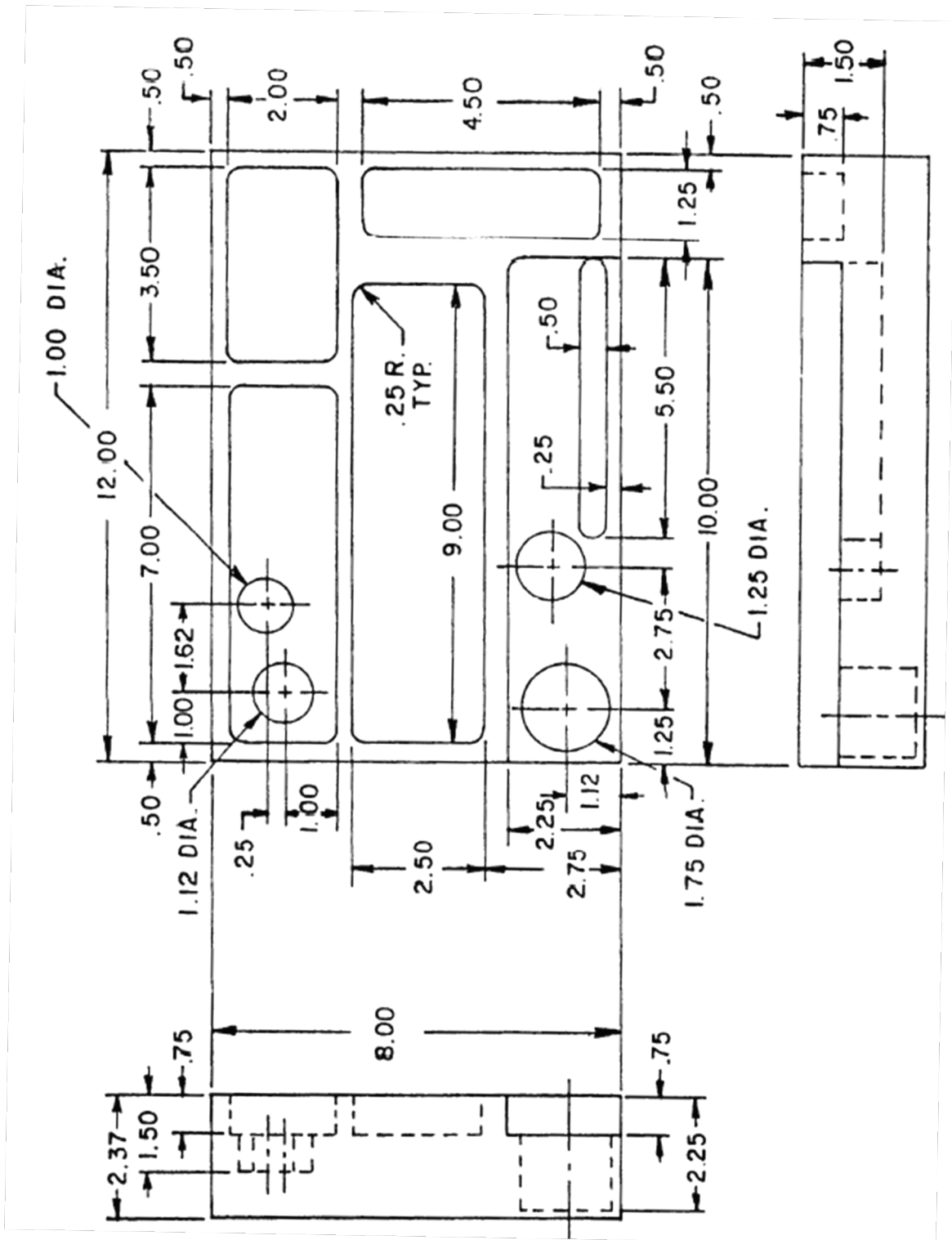


FIGURE 4 Metal case. Insert..

Instruction sheets are as follows:

TO BE DETERMINED		TO BE DETERMINED	
CONTENTS CHART			
M22520/2-01 CRIMP TOOL FRAME AND M22520/2-24 POSITIONER	M81969/14-02 AND M81969/14-03 INSTALLING AND REMOVAL TOOLS (3 EACH SUPPLIED)	ON089564 INSTALLING TOOL ON089565 REMOVAL TOOL (2 EACH SUPPLIED)	
M22520/10-01 CRIMP TOOL FRAME AND M22520/10-06 DIE SET		M22520/1-01 CRIMP TOOL FRAME AND M22520/1-02 TURRET HEAD ASSEMBLY WITH 9/64 HEX WRENCH	
			M22520/3-1 IN-SERVICE INSPECTION GAGE

FIGURE 5 Metal case. Instruction sheet.

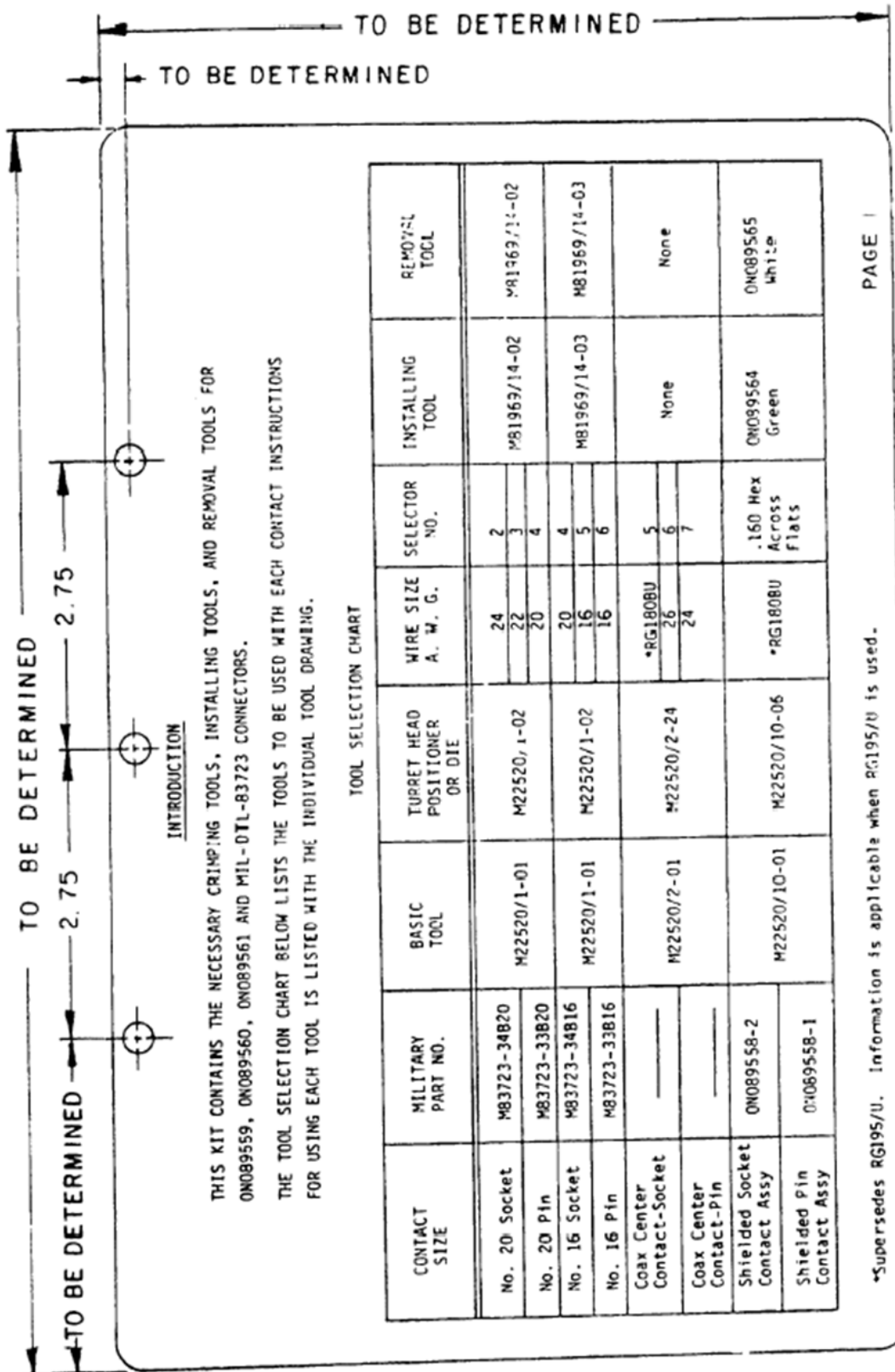


FIGURE 6 Metal case. Instruction sheet.

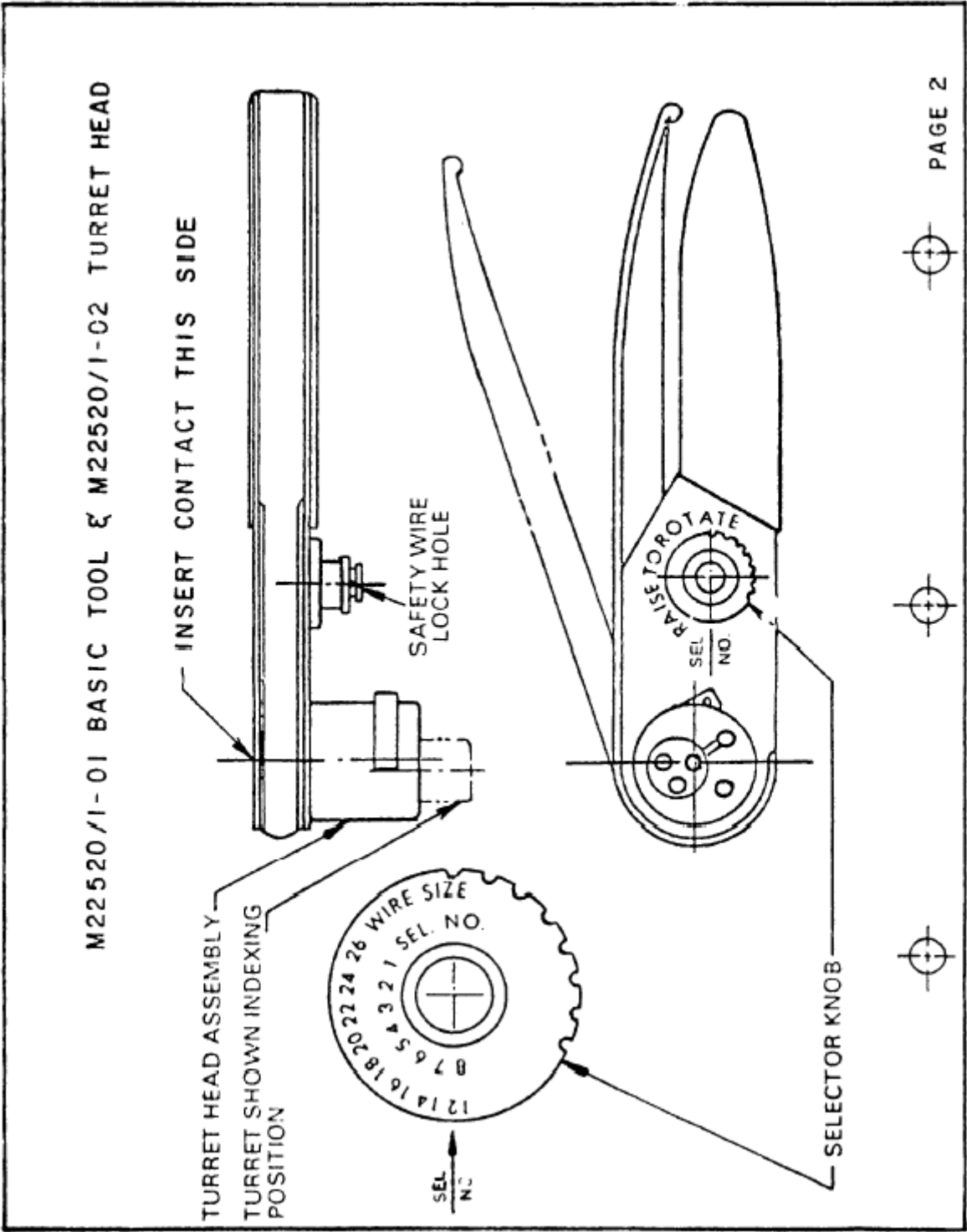


FIGURE 7 Metal case. Instruction sheet.

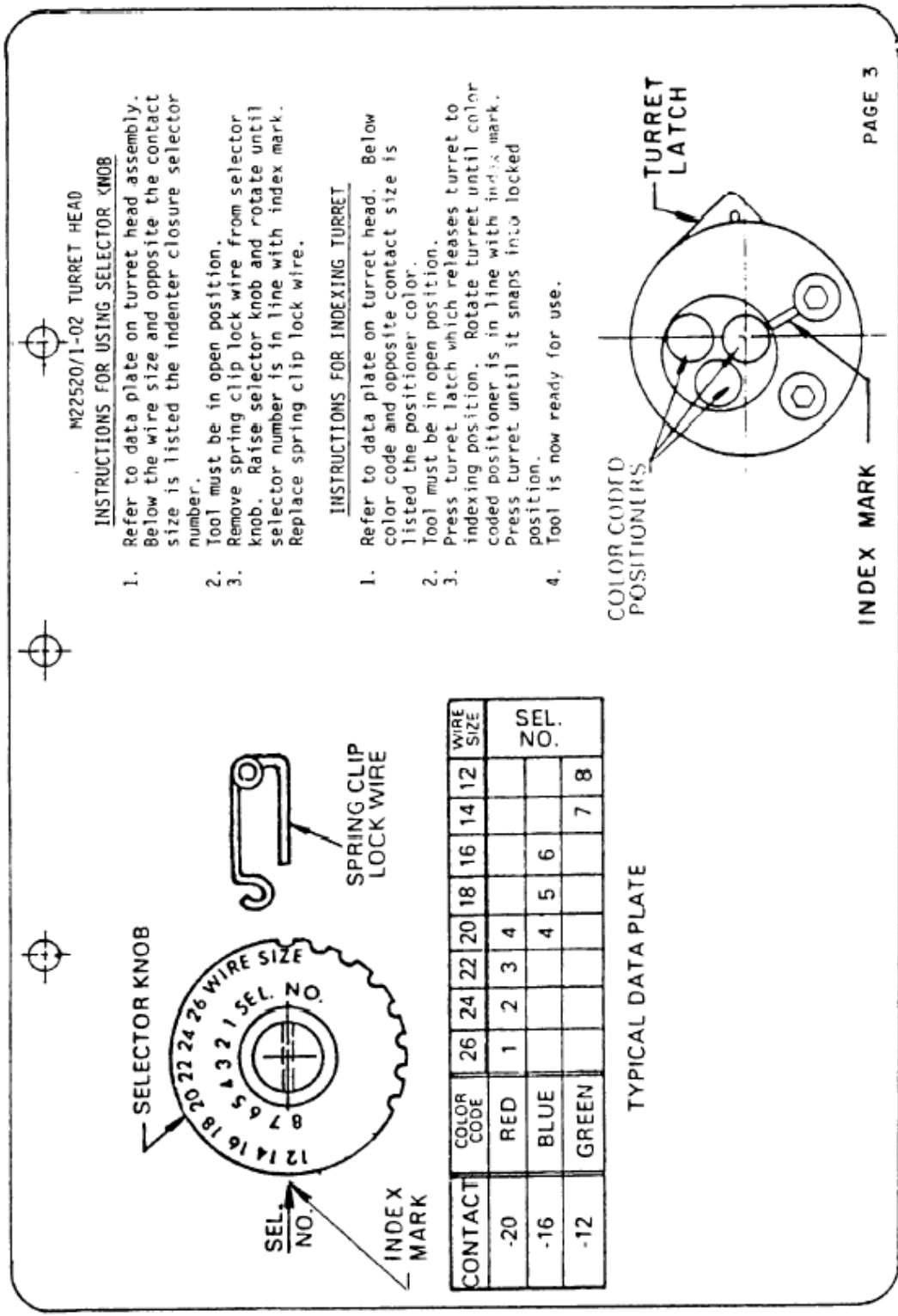


FIGURE 8 Metal case. Instruction sheet.

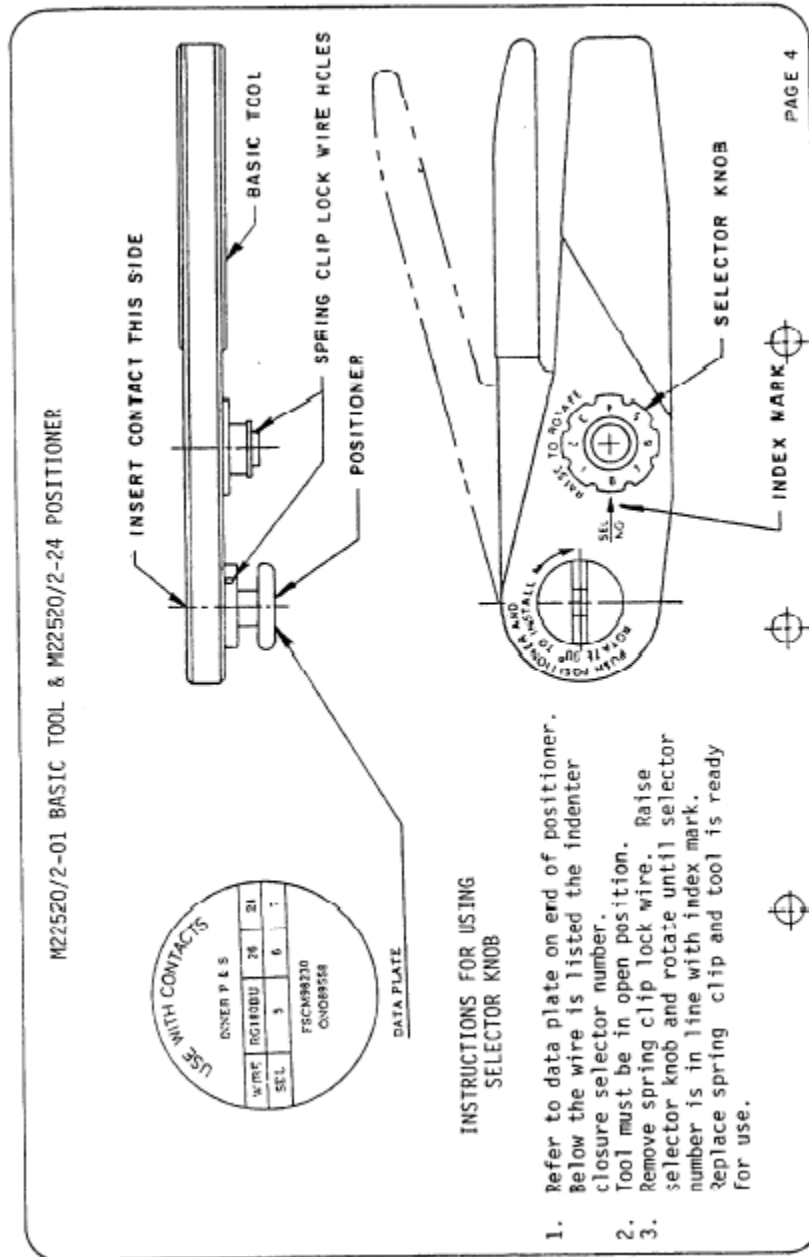


FIGURE 9 Metal case. Instruction sheet.

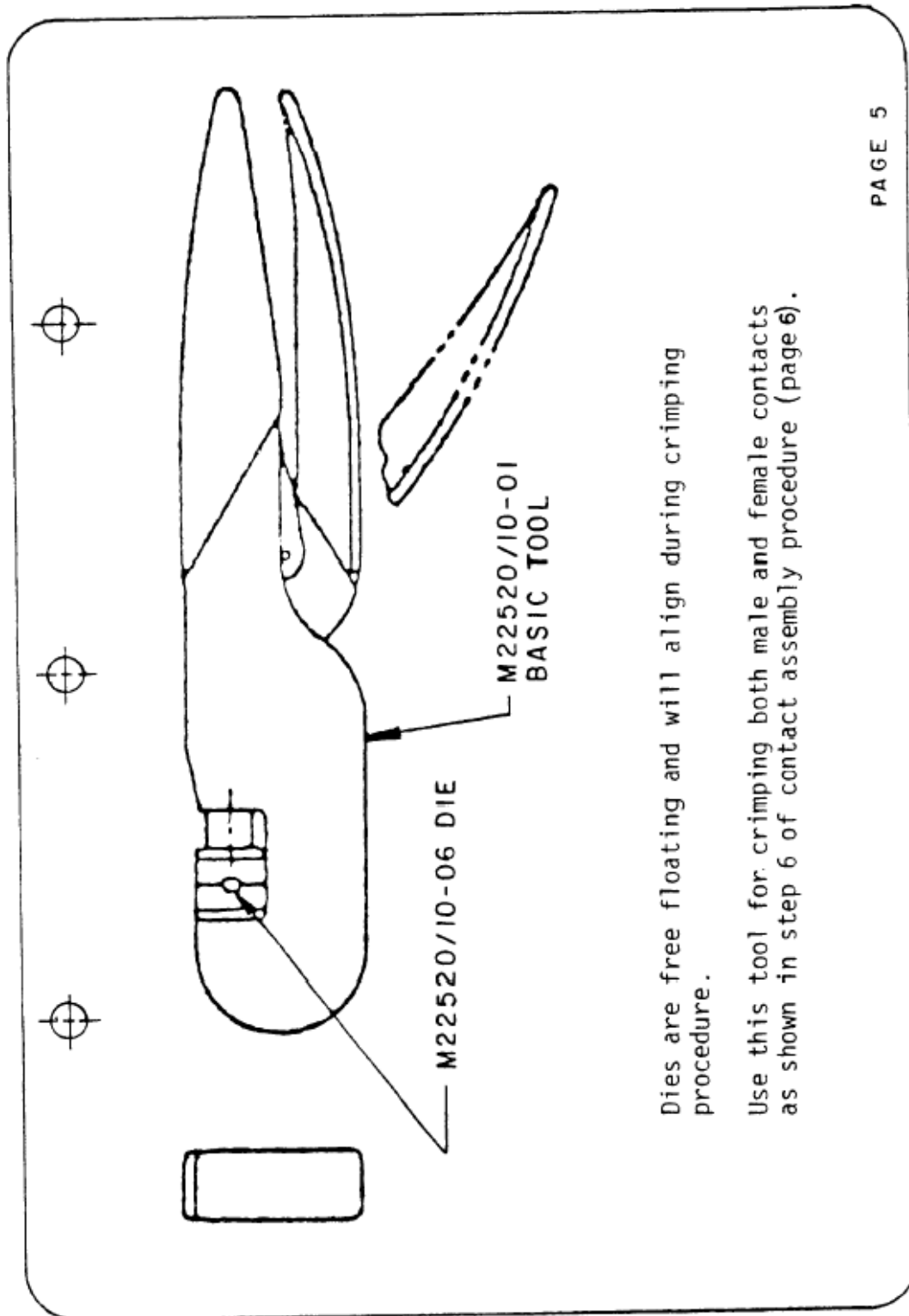
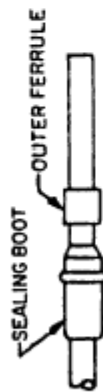


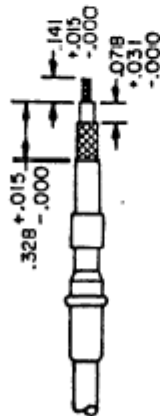
FIGURE 10 Metal case. Instruction sheet.

ASSEMBLY INSTRUCTIONS FOR SHIELDED CONTACTS (COAX) SAME FOR MALE AND FEMALE



Step 1

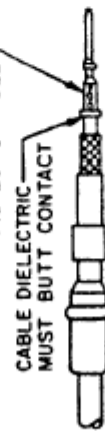
Install sealing boot and slide outer ferrule onto cable. As shown, prior to stripping.



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.

INSPECTION HOLE



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 positioner. Crimp with one full stroke. See chart below for crimp tool setting.

CRIMP ON CENTER CONTACT			
Cable	Tool	Positioner	Setting
R6180BU	M22520/2-01	M22520/2-24	No. 5



Step 4

Flare out slightly, ends of wire braid to facilitate insertions on 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 lb. min. 5 lb. max. pull shall be exerted on cable to ensure that the contact is securely locked in place.

OUTER FERRULE
MUST BUTT HERE



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 M22520/10-01 basic tool and M22520/10-06 die.



Step 7

The shielded contact now assembled shall be inserted into the connector assembly using ON089564 INSTALLING tool. Push sealing boot forward into crimpet 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 ON089565 REMOVAL TOOL.

FIGURE 11 Metal case. Instruction sheet.

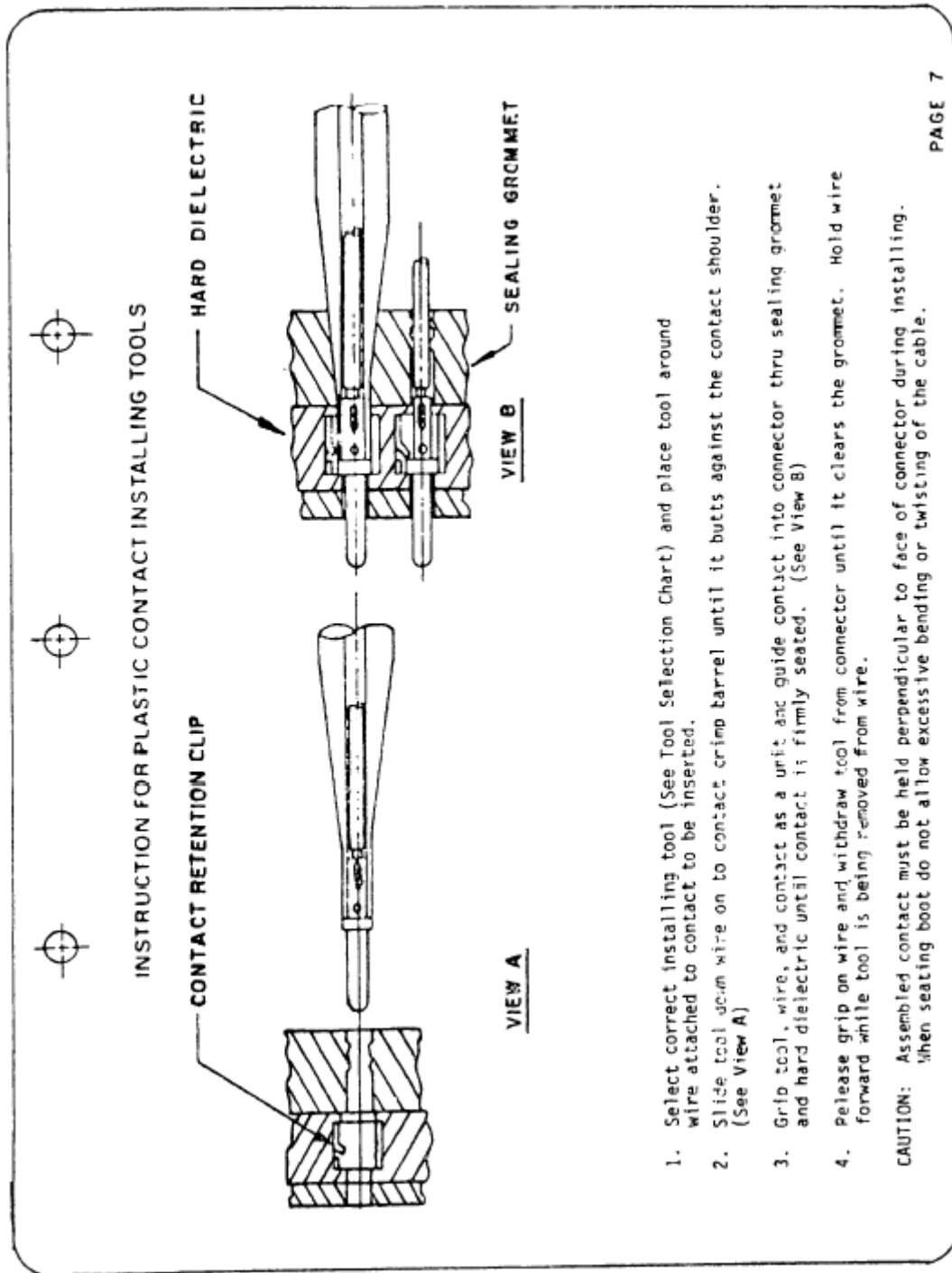
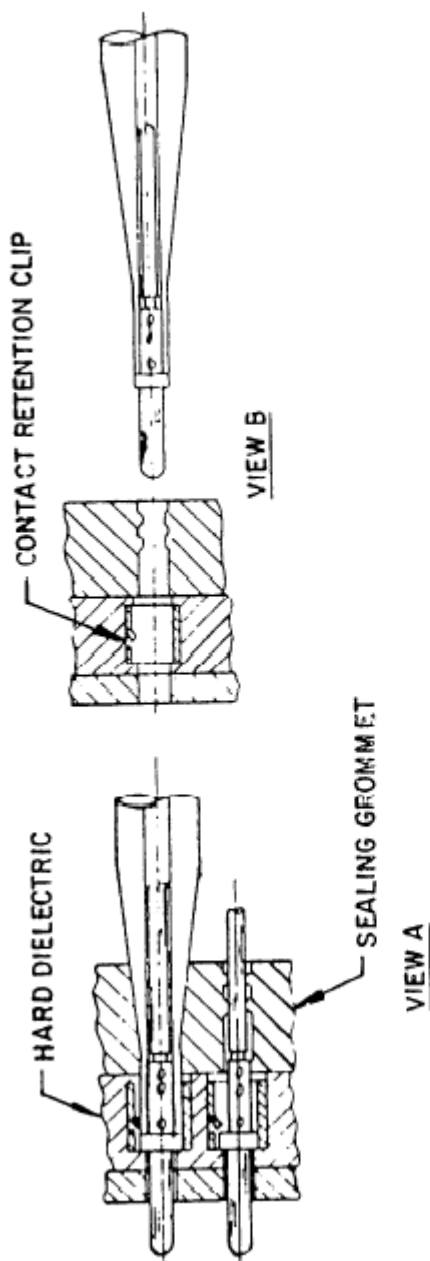


FIGURE 12 Metal case. Instruction sheet.

INSTRUCTION FOR PLASTIC CONTACT REMOVAL TOOLS



1. Select correct removal tool (See Tool Selection Chart) and place tool around wire attached to contact to be removed.
2. Slide tool down wire into the connector thru the sealing grommet and into the hard dielectric until tool stops against contact shoulder. (See View A)
3. At this stage of removal, tool will collapse contact retention clips to the point where they no longer retain control.
4. Grip wire and tool as a unit and withdraw wire, tool and contact from connector simultaneously. (See View B)

CAUTION: To avoid damage to tool and/or connector, do not tip, spread or rotate tool while in connector.



FIGURE 13 Metal case. Instruction sheet.

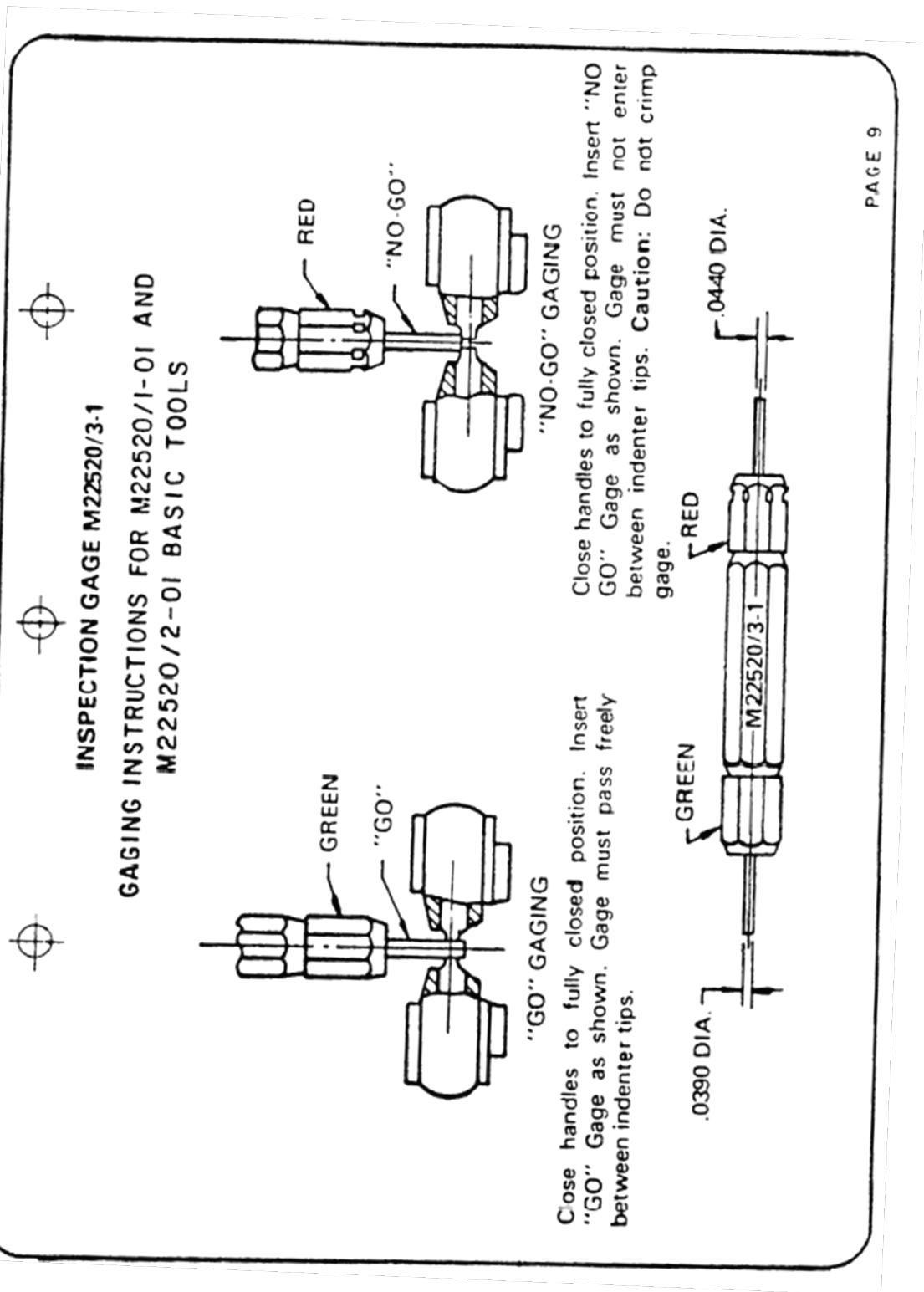


FIGURE 14 Metal case. Instruction sheet.

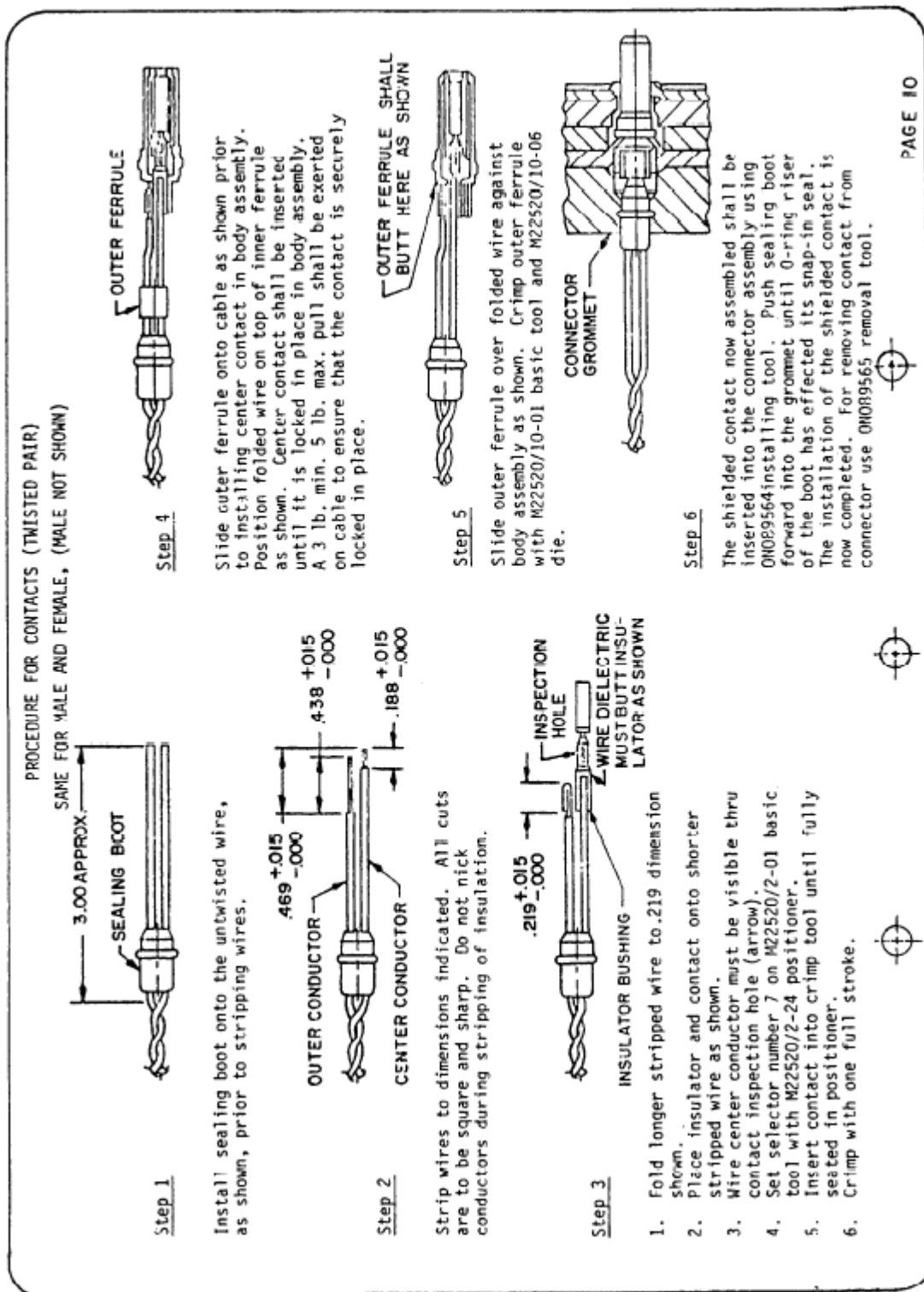


FIGURE 15 Metal case. Instruction sheet.

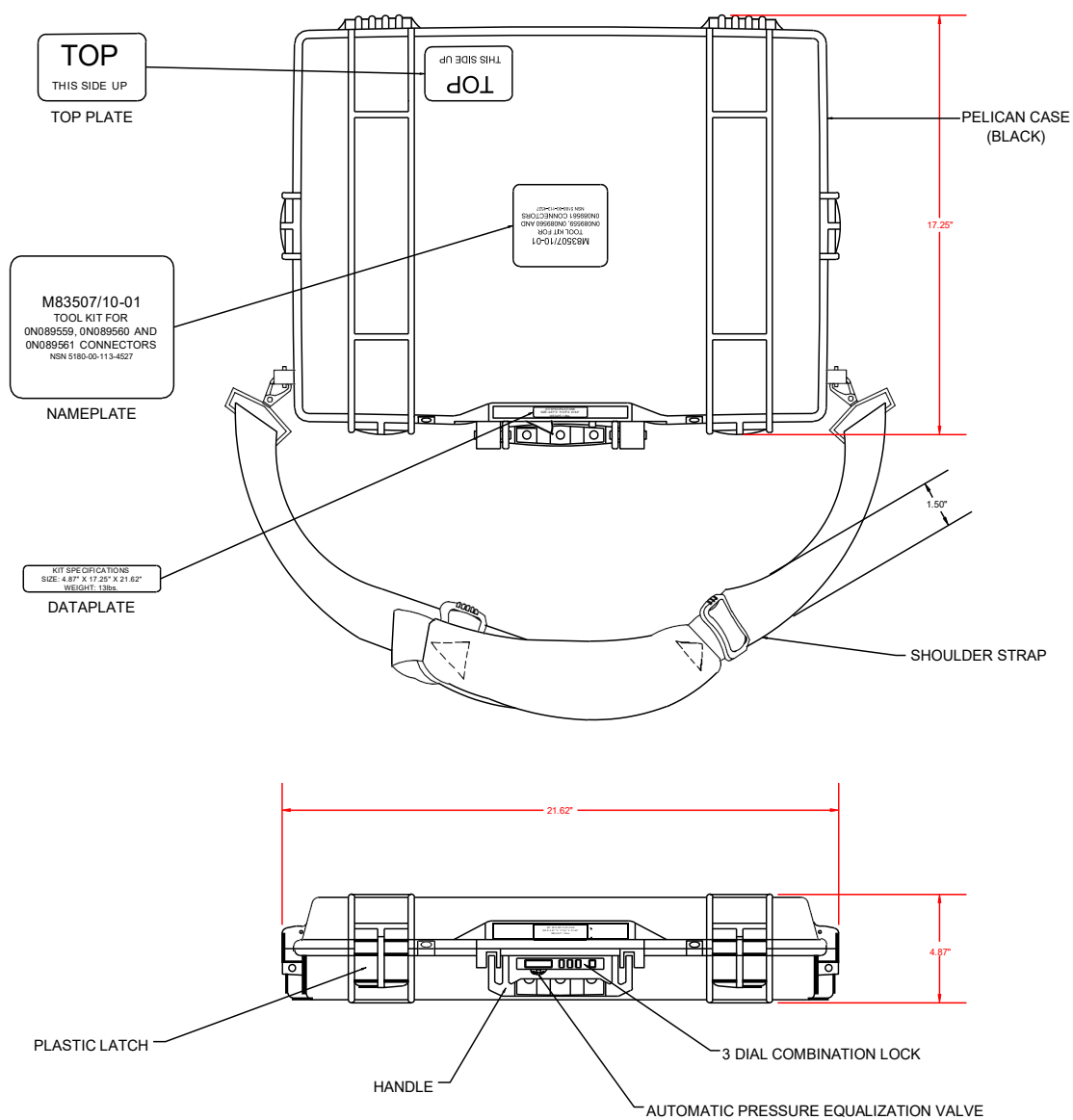


FIGURE 16 Plastic case. TOOL KIT FOR 0N089559, 0N089560 AND 0N089561 CONNECTORS.

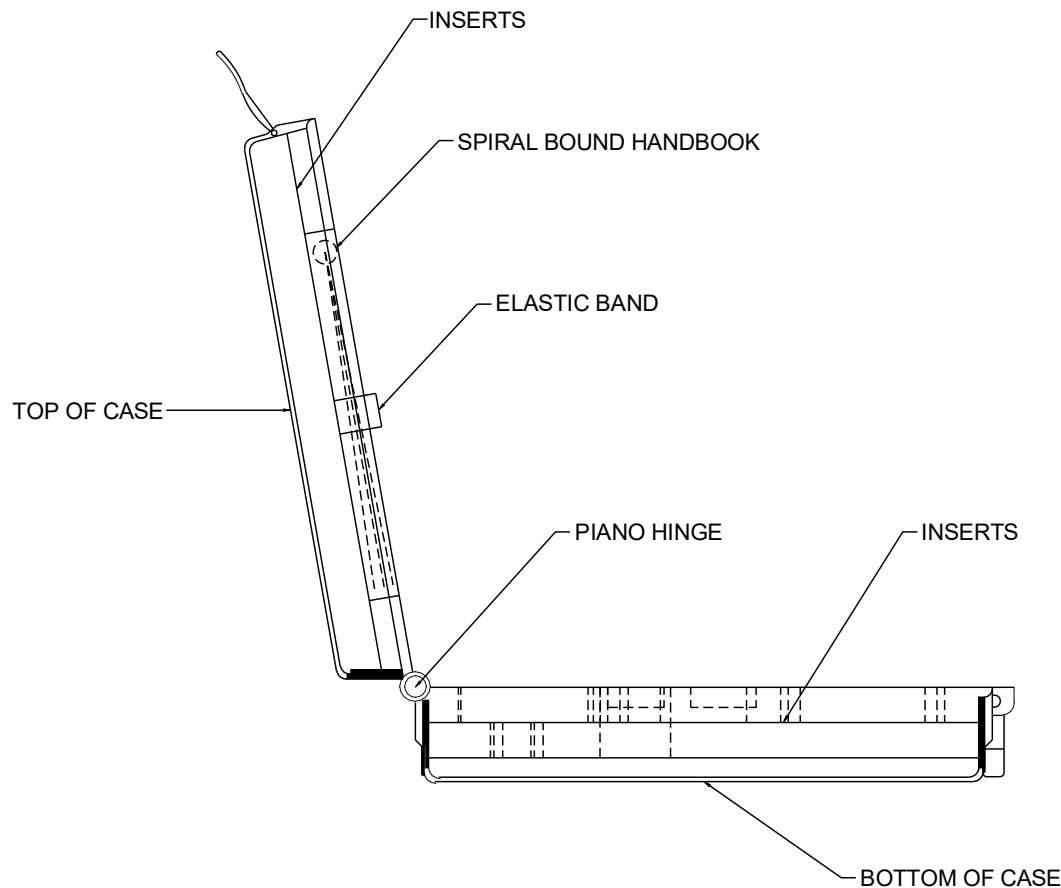


FIGURE 17 Plastic case. TOOL CASE ASSEMBLY.

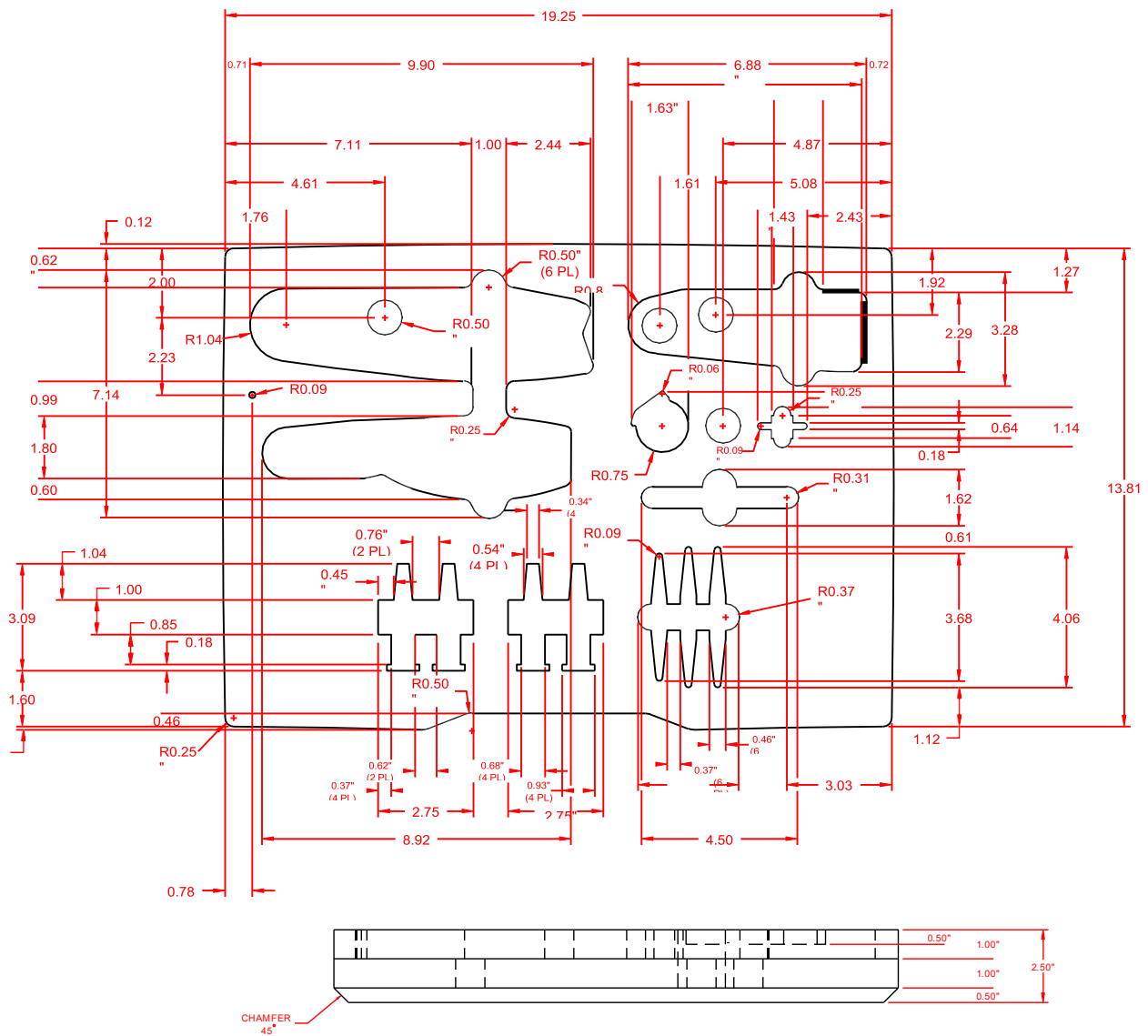


FIGURE 18 Plastic case. INSERT, BOTTOM OF CASE

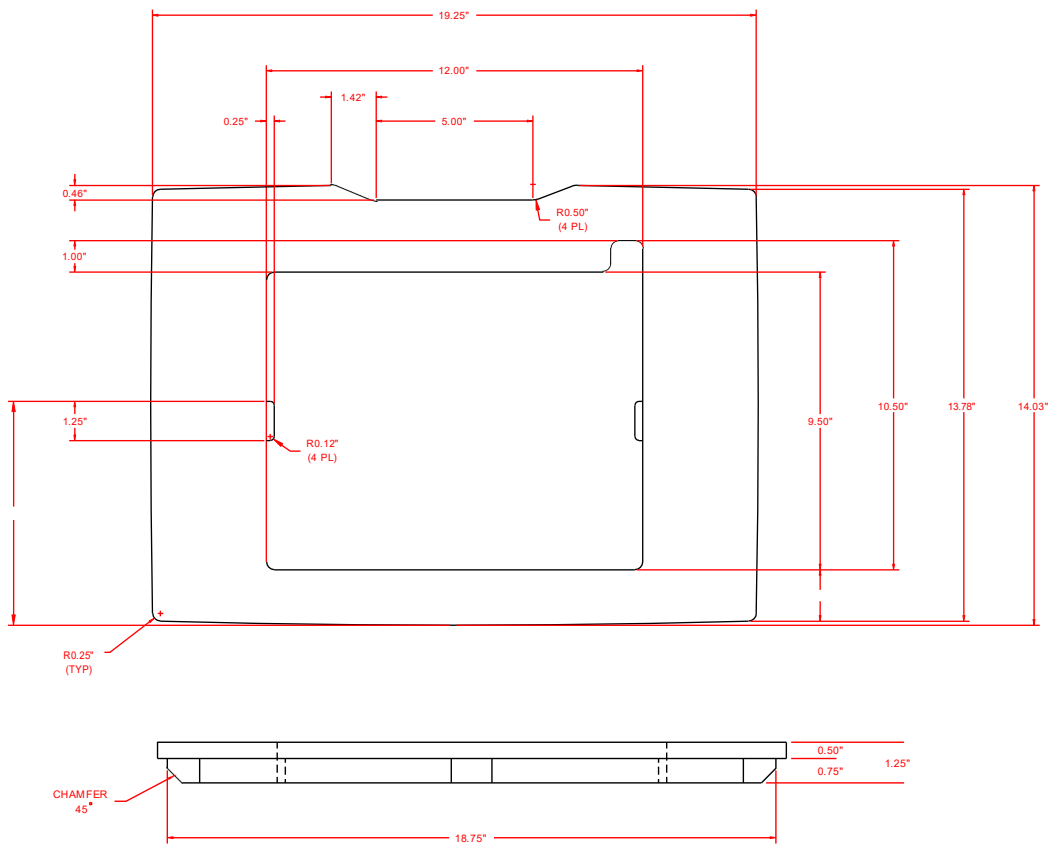


FIGURE 19 Plastic case. INSERT, TOP OF CASE

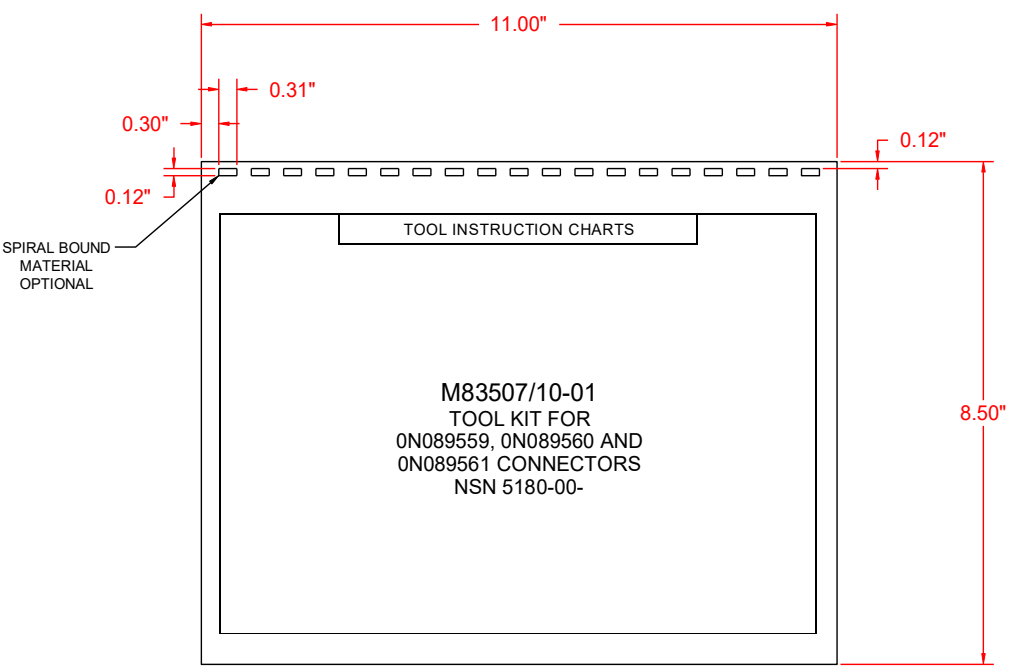


FIGURE 20 Plastic case. Instruction sheet.

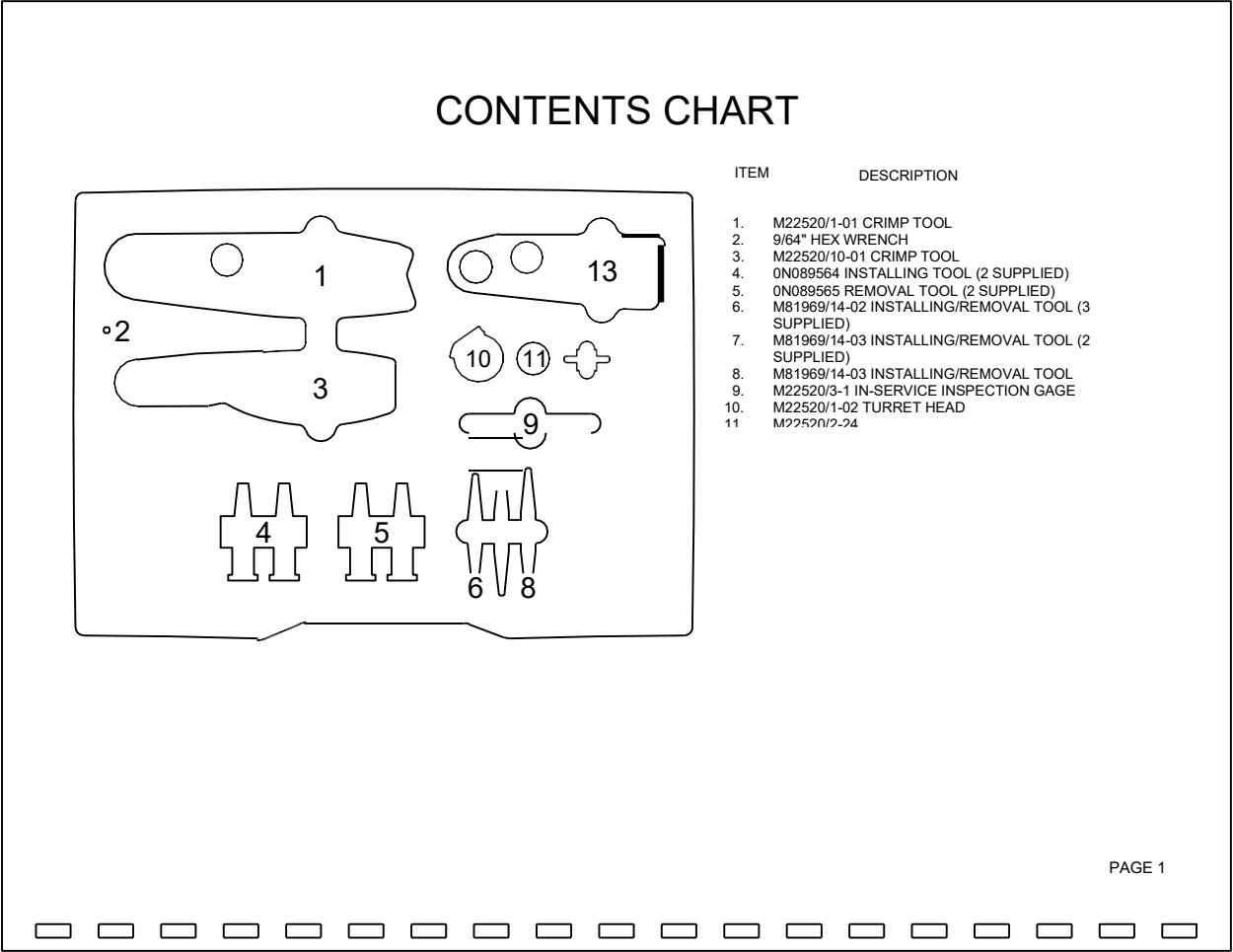


FIGURE 21 Plastic case. Instruction sheet.

THIS KIT CONTAINS THE NECESSARY CRIMPING TOOLS, INSERTION TOOLS, AND REMOVAL TOOLS FOR 0N089559 0N089560, 0N089561, AND MIL-DTL-83723.

THE TOOL SELECTION CHART BELOW LISTS THE TOOLS TO BE USED WITH EACH CONTACT. INSTRUCTIONS FOR USING EACH TOOL IS LISTED WITH THE INDIVIDUAL TOOL DRAWING.

TOOL SELECTION CHART

[illegible]

*SUPERSEDES RG195/U - INFORMATION IS APPLICABLE WHEN RG195/U IS USED

FIGURE 22 Plastic case. Instruction sheet.

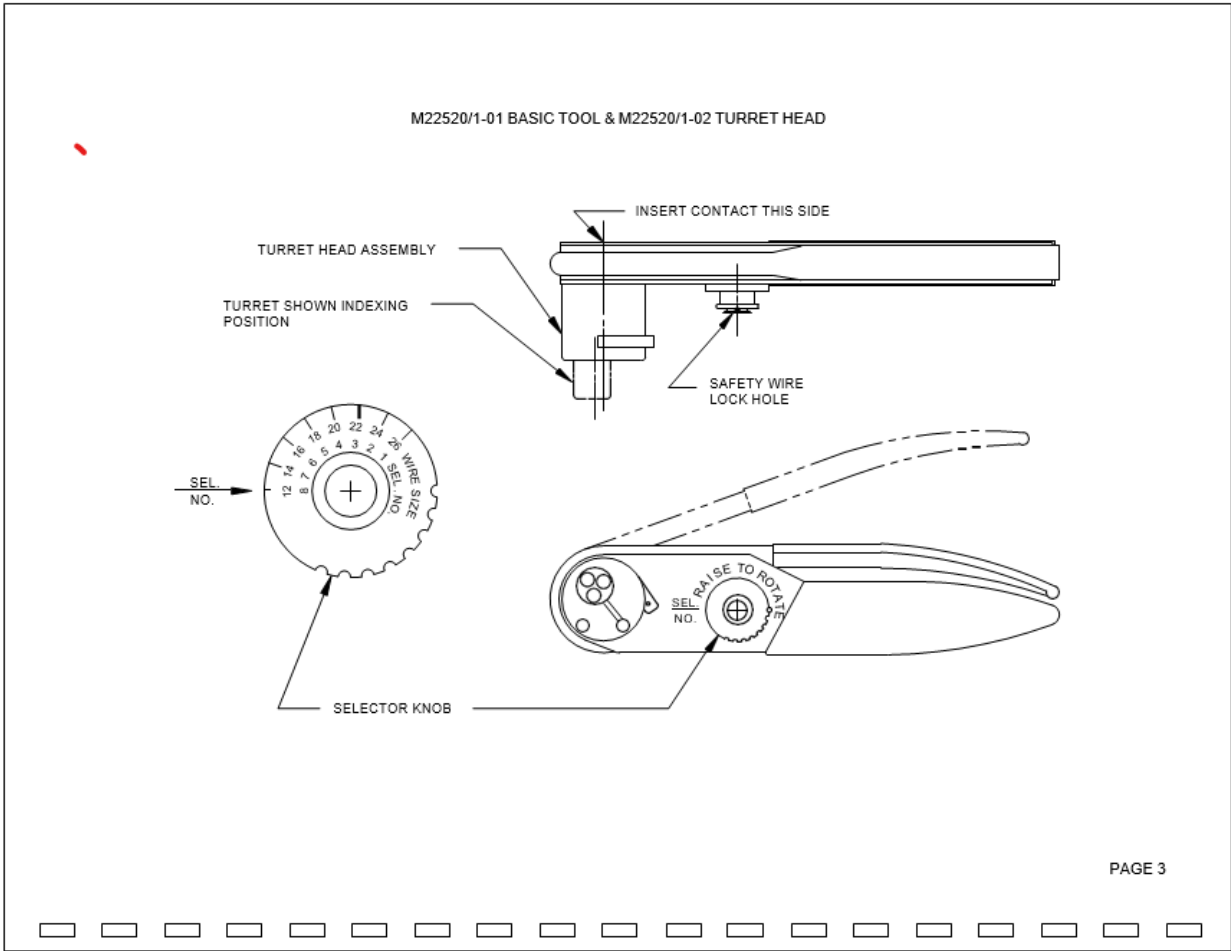


FIGURE 23 Plastic case. Instruction sheet.

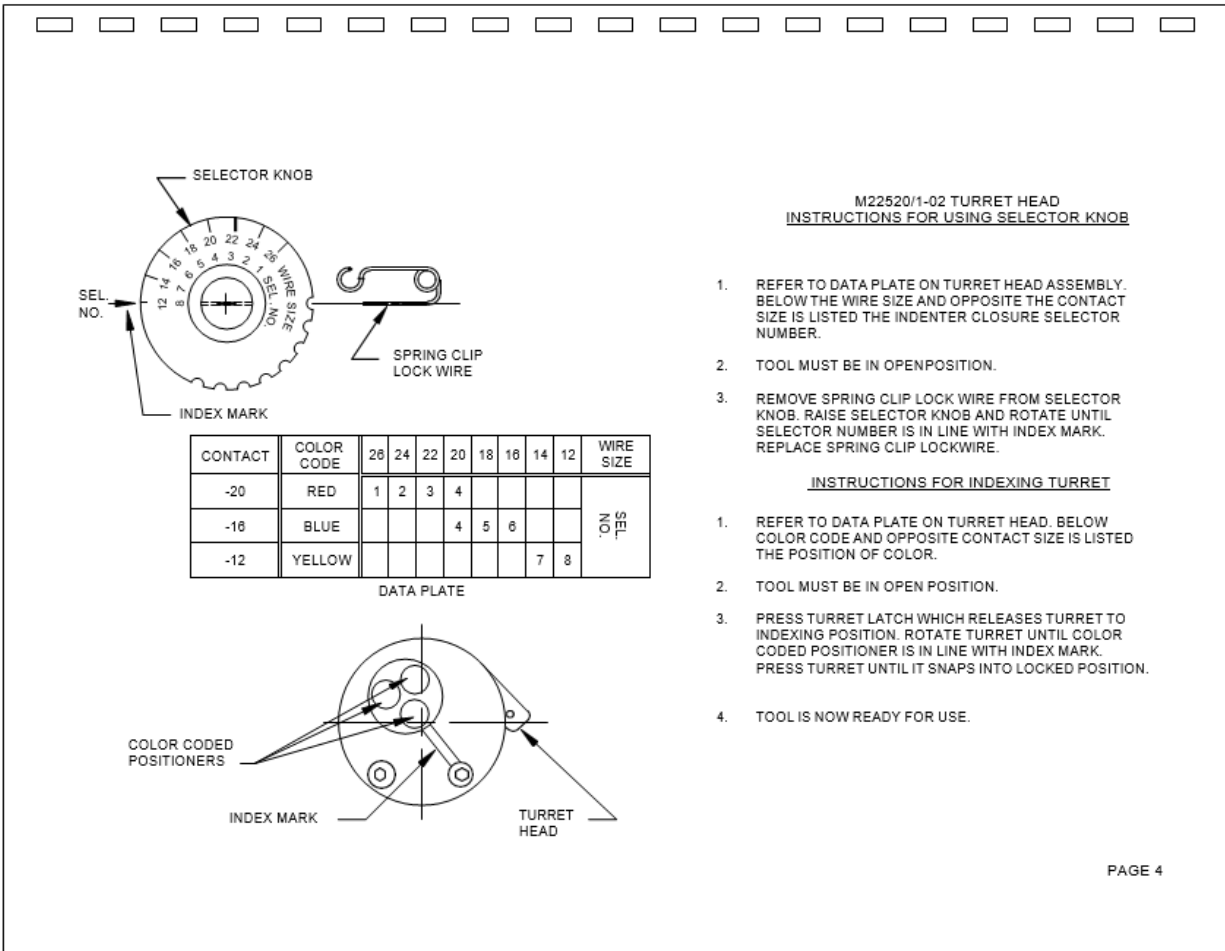


FIGURE 24 Plastic case. Instruction sheet.

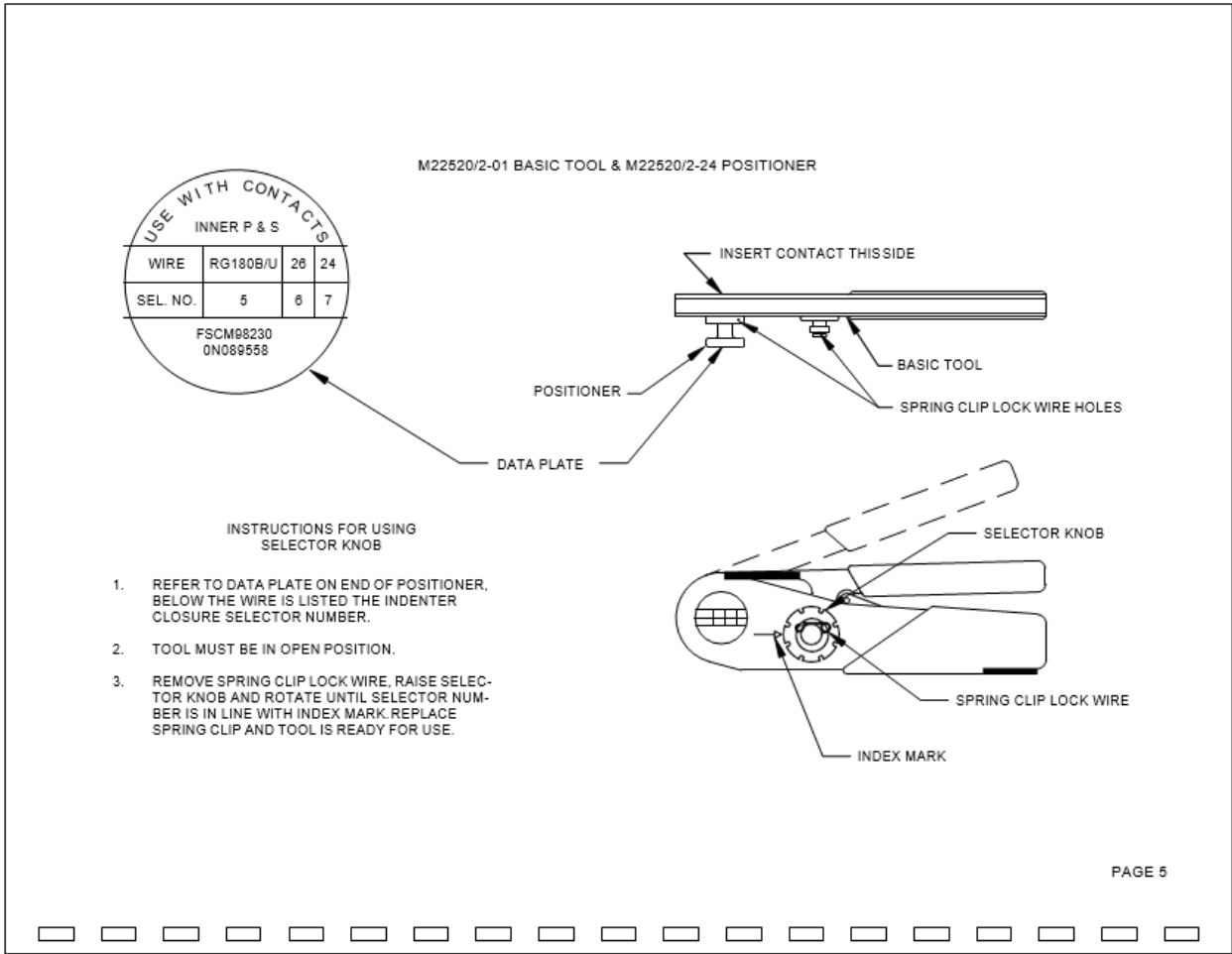


FIGURE 25 Plastic case. Instruction sheet.

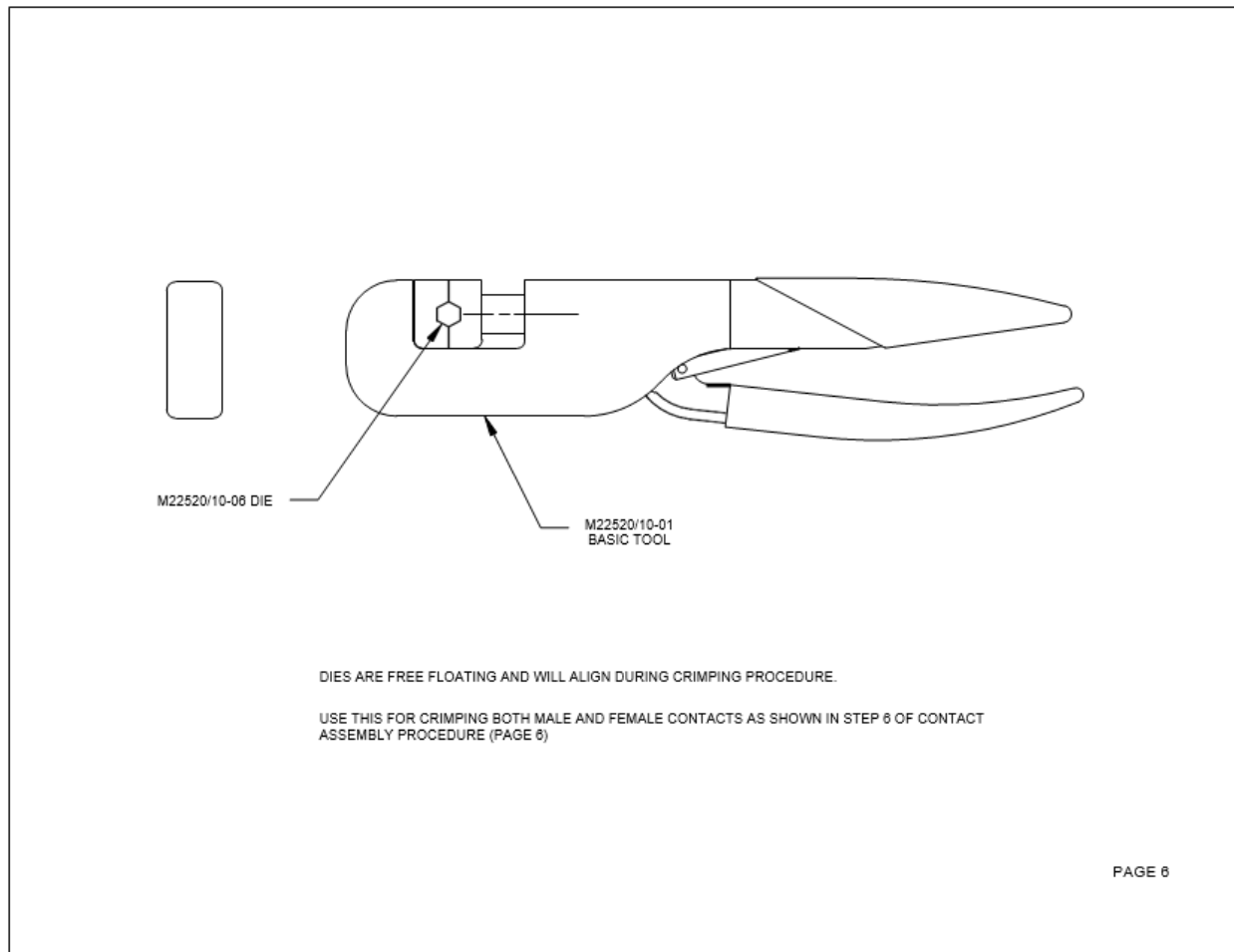


FIGURE 26 Plastic case. Instruction sheet.

ASSEMBLY INSTRUCTIONS FOR SHIELDED CONTACTS (COAX)
SAME FOR MALE AND FEMALE

SEALING BOOT **OUTER FERRULE**

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.

CABLE DIELECTRIC MUST BUTT CONTACT **INSPECTION HOLE**

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 POSITIONER. CRIMP WITH ONE FULL STROKE. SEE CHART BELOW FOR CRIMP TOOL SETTING.

CRIMP ON CENTER CONTACT			
CABLE	TOOL	POSITIONER	SETTING
RG180B/U	M22520/2-01	M22520/2-24	NO. 5

STEP 4
FLARE OUT SLIGHTLY, ENDS OF WIRE BRAID TO FACILITATE INSERTIONS ON 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 3LB. MIN. 5LB. MAX. PULL SHALL BE EXERTED ON CABLE TO ENSURE THAT THE CONTACT IS SECURELY LOCKED IN PLACE.

OUTER FERRULE MUST BUTT HERE

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 M22520/10-01 BASIC TOOL AND M22520/10-08 DIE.

STEP 7
THE SHIELDED CONTACT NOW ASSEMBLED SHALL BE INSERTED INTO THE CONNECTOR ASSEMBLY USING 0N089564 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 0N089585 REMOVAL TOOL.

PAGE 7

FIGURE 27 Plastic case. Instruction sheet.

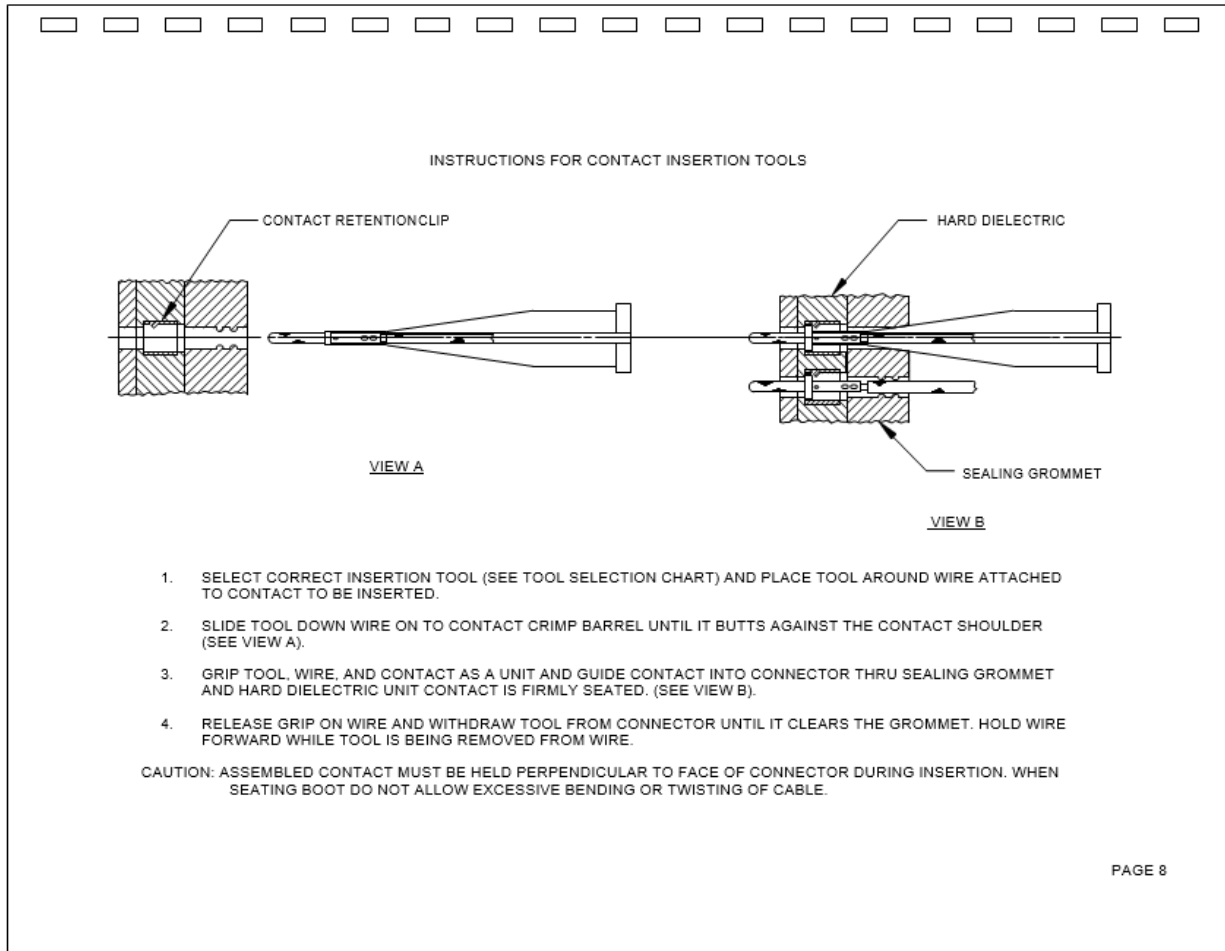


FIGURE 28 Plastic case. Instruction sheet.

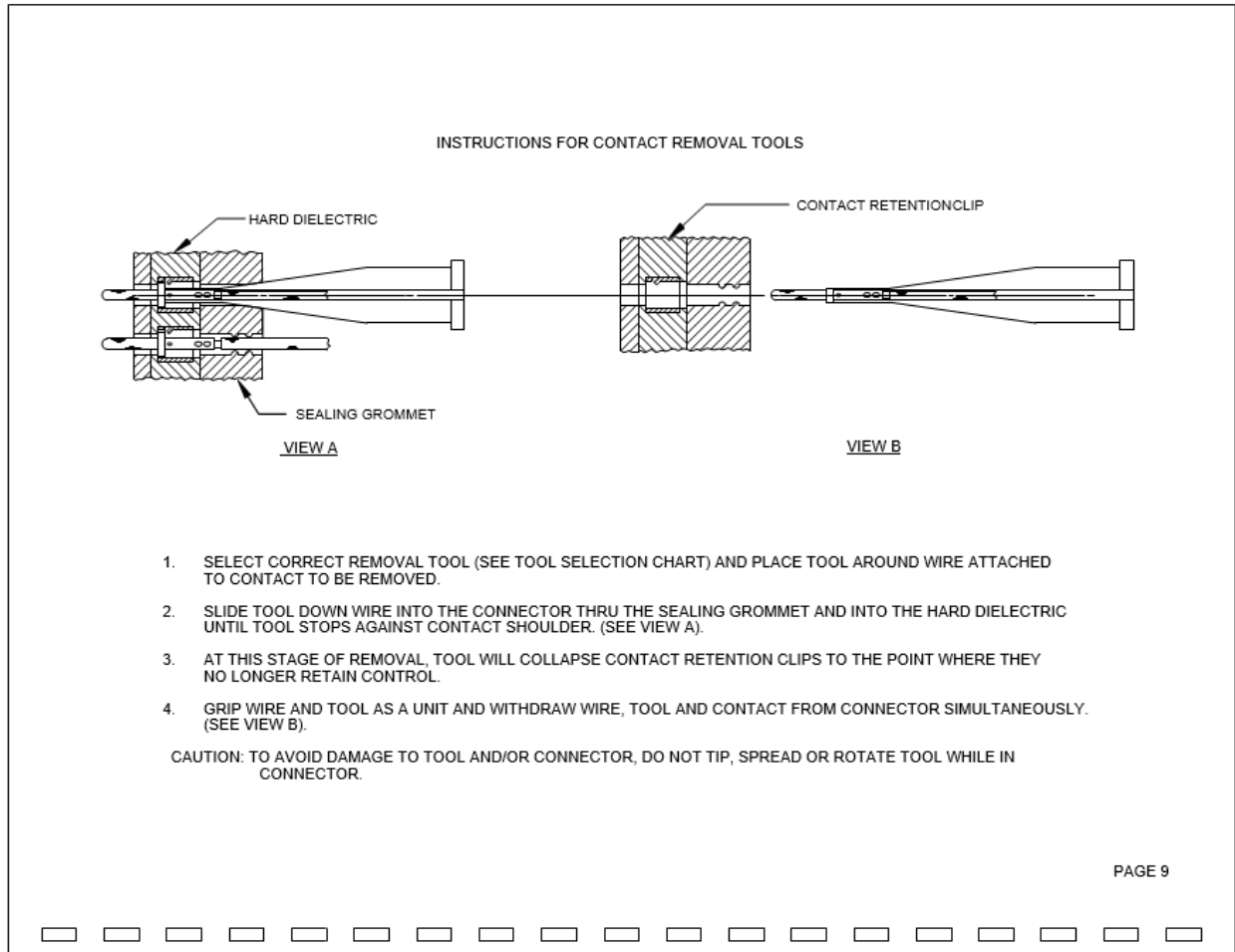


FIGURE 29 Plastic case. Instruction sheet.

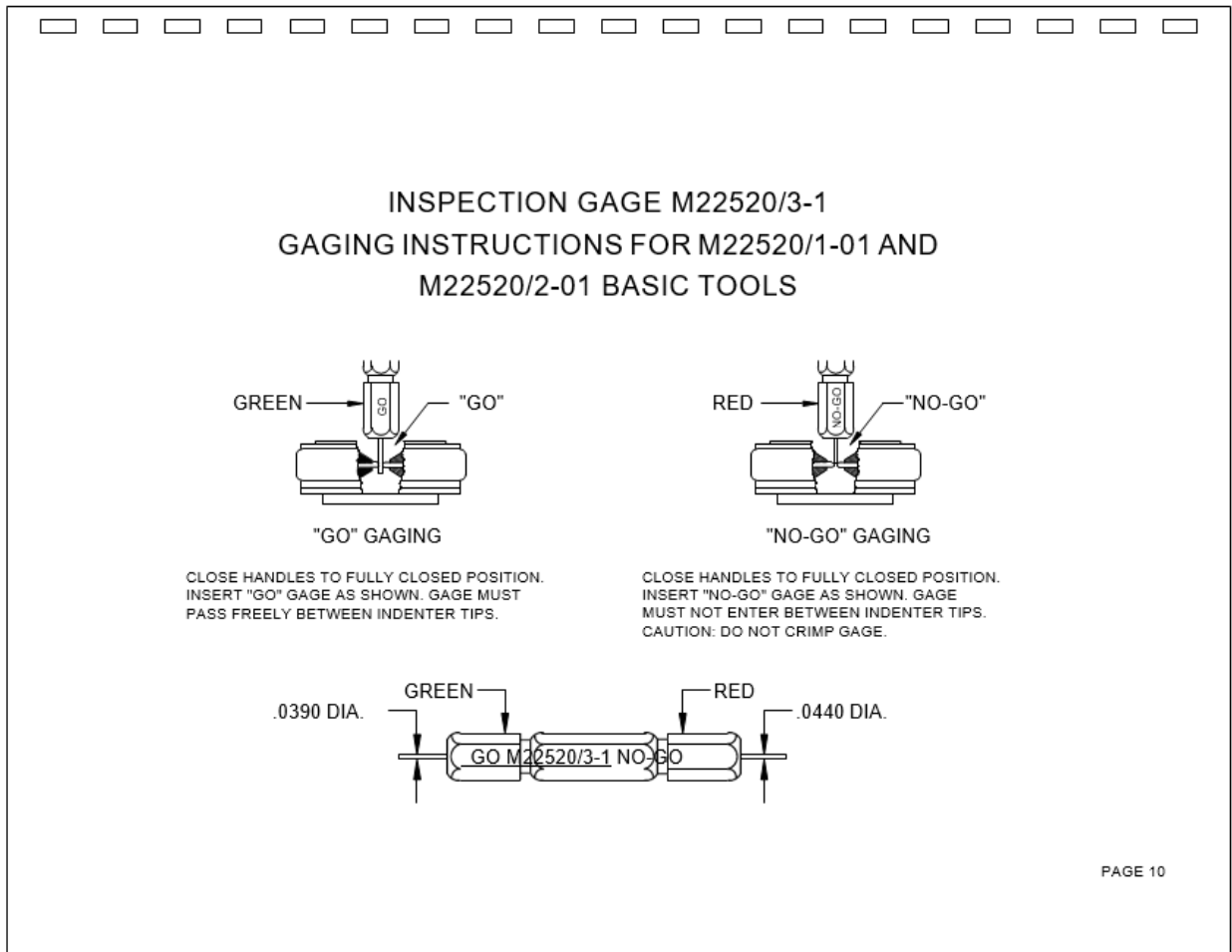


FIGURE 30 Plastic case. Instruction sheet.

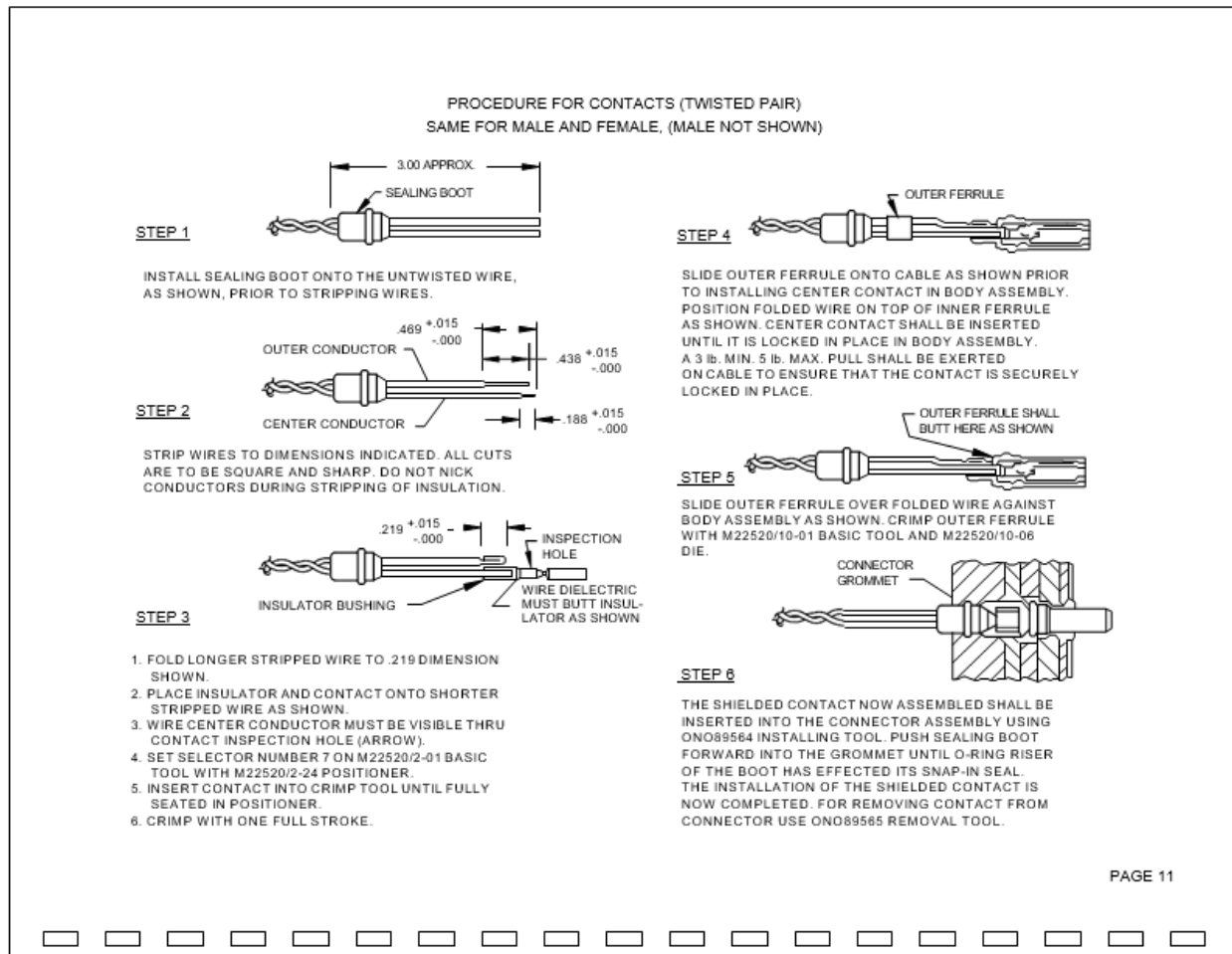


FIGURE 31 Plastic case. Instruction sheet.

REQUIREMENTS:**Material:**

Metal case and cover (metal, category 3): Sheet metal, 21 gage in accordance with ASTM-A794/A794M, gray baked enamel on all metal parts.

Plastic case: Pelican

Instruction sheets and contents charts: White vinyl 0.020 inch (0.51 mm) thick. Insert and retainer pad: Fire retardant foamed polyethylene in accordance with A-A-59135 or A-A-59136; color is optional.

Binder (metal case): Looseleaf, three ring, 0.562 inch (14.27 mm) +0.062 inch (1.57 mm) I.D., 2.75 inches (69.9 mm) center distance between rings, securely riveted to inside of cover as shown.

Clasps, draw pull type with provision for locking device, handles, and hinges: Plated to resist corrosion,

Nameplate: In accordance with MIL-DTL-19834,

Instruction sheets and contents chart: Lettering shall be legible and protected with a transparent coating. Contents chart (centered on inside of case cover) shall have pressure sensitive adhesive backing and show the insert cavity configurations and the respective tool part numbers; a list of NSN's will also be supplied.

Part numbers:

M83507/10-01 Tool kit for ON089559, ON089560, and ON089561 connectors.

M83507/10-02 Tool case assembly

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
A-A-59136
ASTM-A794/A794M
MIL-DTL-19834
MIL-DTL-83507
MIL-DTL-83723
SAE-AS22520/1
SAE-AS22520/2
SAE-AS22520/3
SAE-AS22520/10
SAE-AS81969/14

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC

Review activities:

Army - MI, AR, AV, WC, GL
Navy - SH, EC, OS
Air Force - 17

(Project 5180-2025-002)

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>.