

INCH-POUND
MIL-DTL-83521/6A
15 July 2025
SUPERSEDING
MIL-M-83521/6
22 December 1986

DETAIL SPECIFICATION

Maintenance Kits, Electrical Connectors, Contacts, and Connector and Cable
Accessories: Maintenance Kit for General Purpose Use

Inactive for new design after June 12, 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.

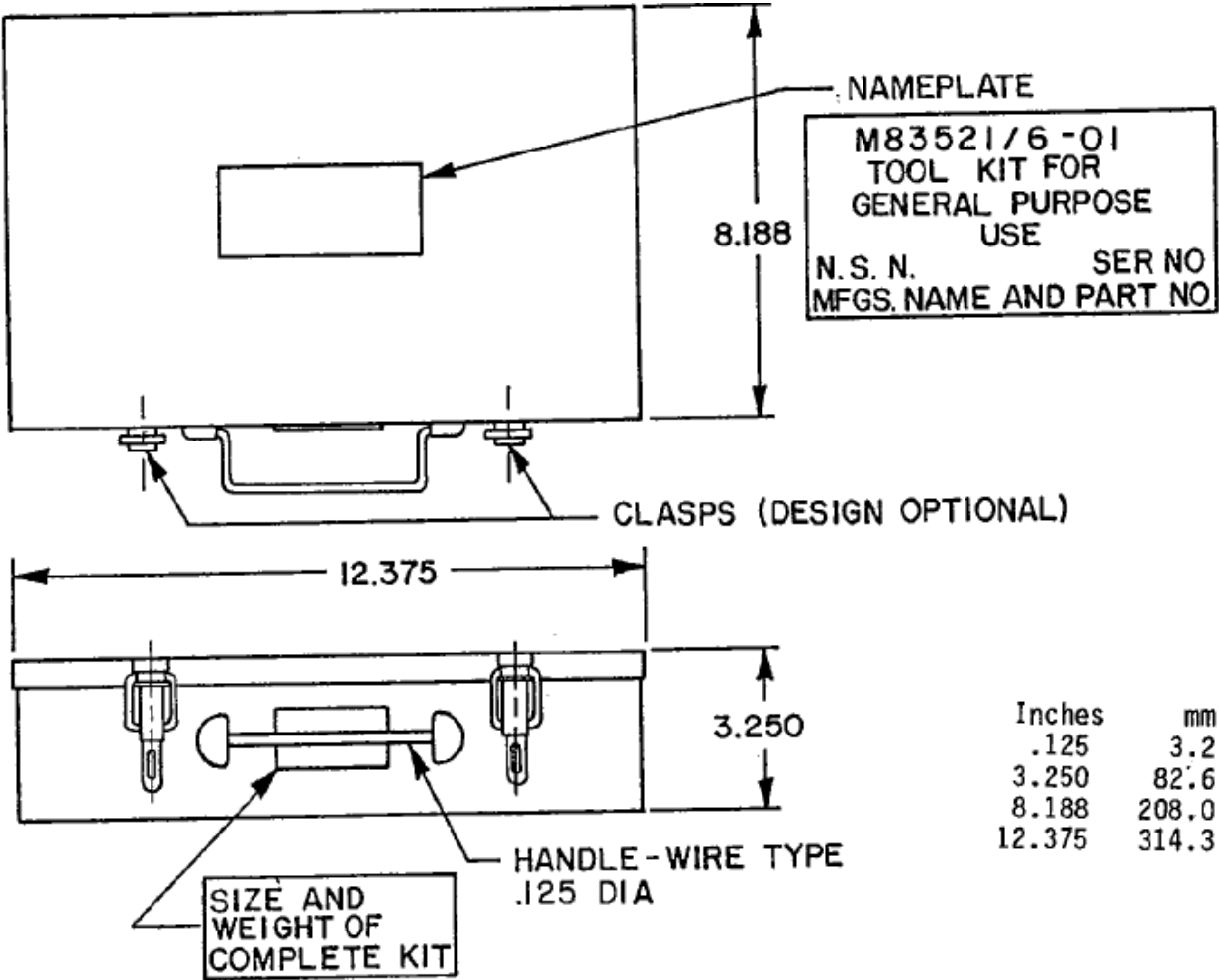


FIGURE 1 Metal case. Maintenance kit for general purpose use

NOTES:

1. Part number M83521/6-01 includes case and tools.
2. Part number M83521/6-02 for case only (tools not included).
3. Remove all burrs, break sharp edges and corners.
4. Unless otherwise specified, tolerance is t.031 (0.79 mm).

Parts list

(1)	M83521/6-02	Tool case assembly.
(1)	M22520/1-01	Crimp tool frame.
(1)	M22520/1-02	Turret head.
(1)	M22520/1-05	Universal head.
(1)	M22520/2-01	Crimp tool frame.
(1)	M22520/2-02	Positioner.
(1)	M22520/2-03	Positioner.
(1)	M22520/3-1	In-service inspection gage.
(1)	74008	Hex wrench. (Allen) FSCM 70276.
(1)	45-174	Wire stripper, hand, 16-26 AWG (or approved equivalent), (Ideal).
(1)	M81969/17-05	Installing tool.
(1)	M81969/17-04	Installing tool.
(1)	M81969/17-03	Installing tool.
(1)	M81969/19-09	Removal tool.
(1)	M81969/19-11	Removal tool.
(1)	M81969/19-10	Removal tool.
(1 Set) Contents charts, instruction sheets, and tool selection chart, selection chart		

FIGURE 1 Metal case. Maintenance kit for general purpose use.— Continued

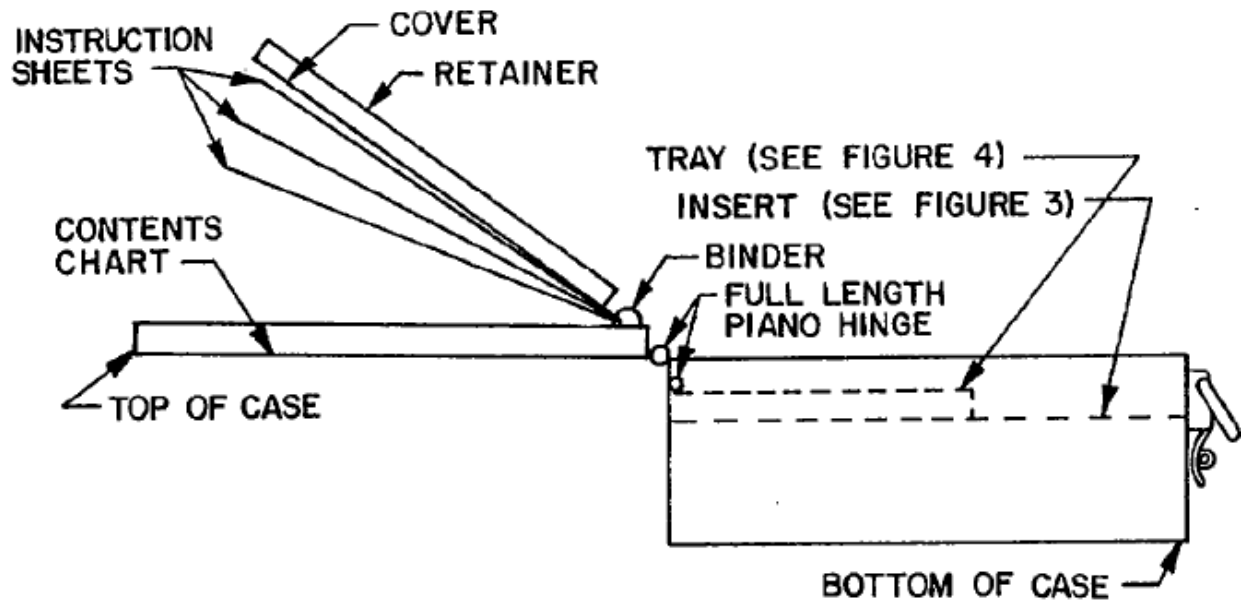


FIGURE 2 Metal case. Tool case assembly.

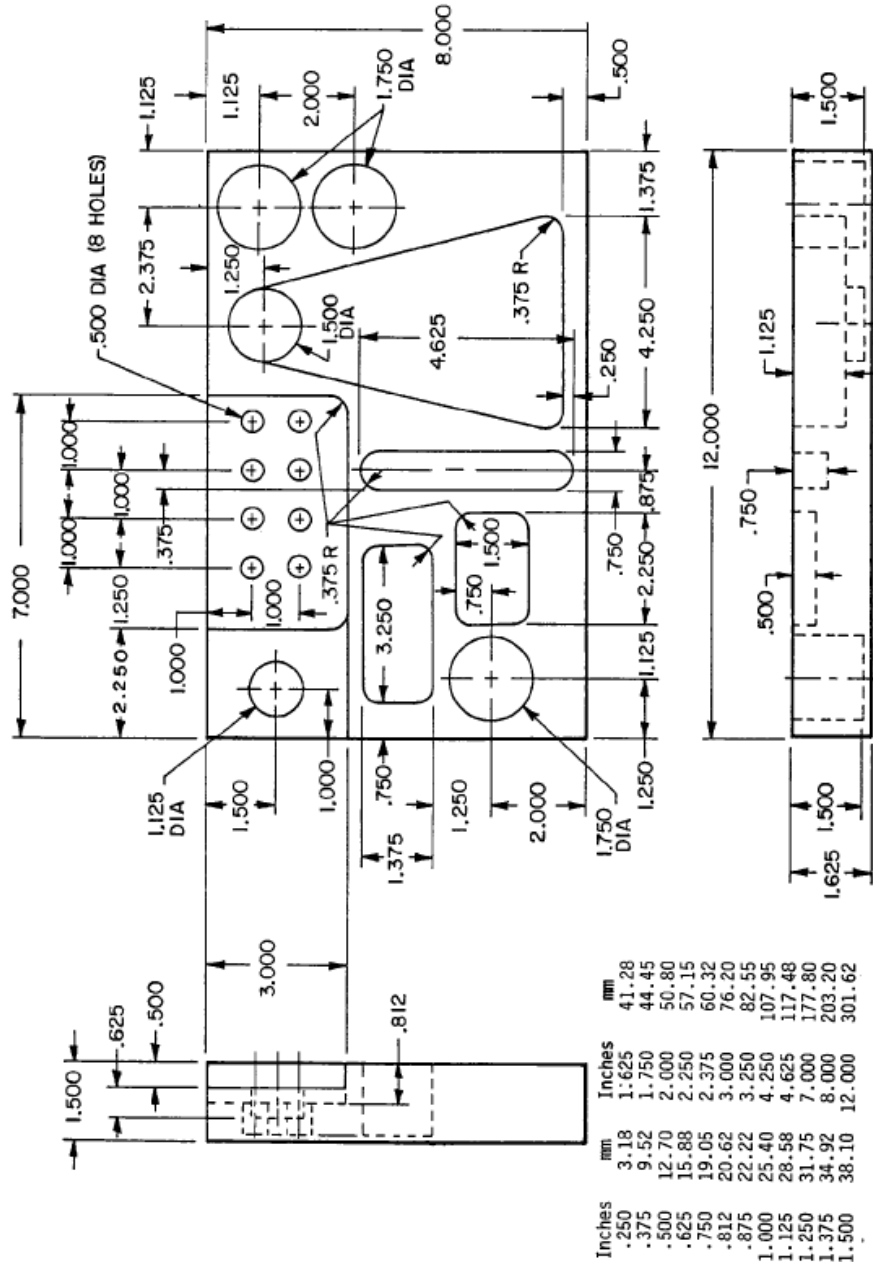
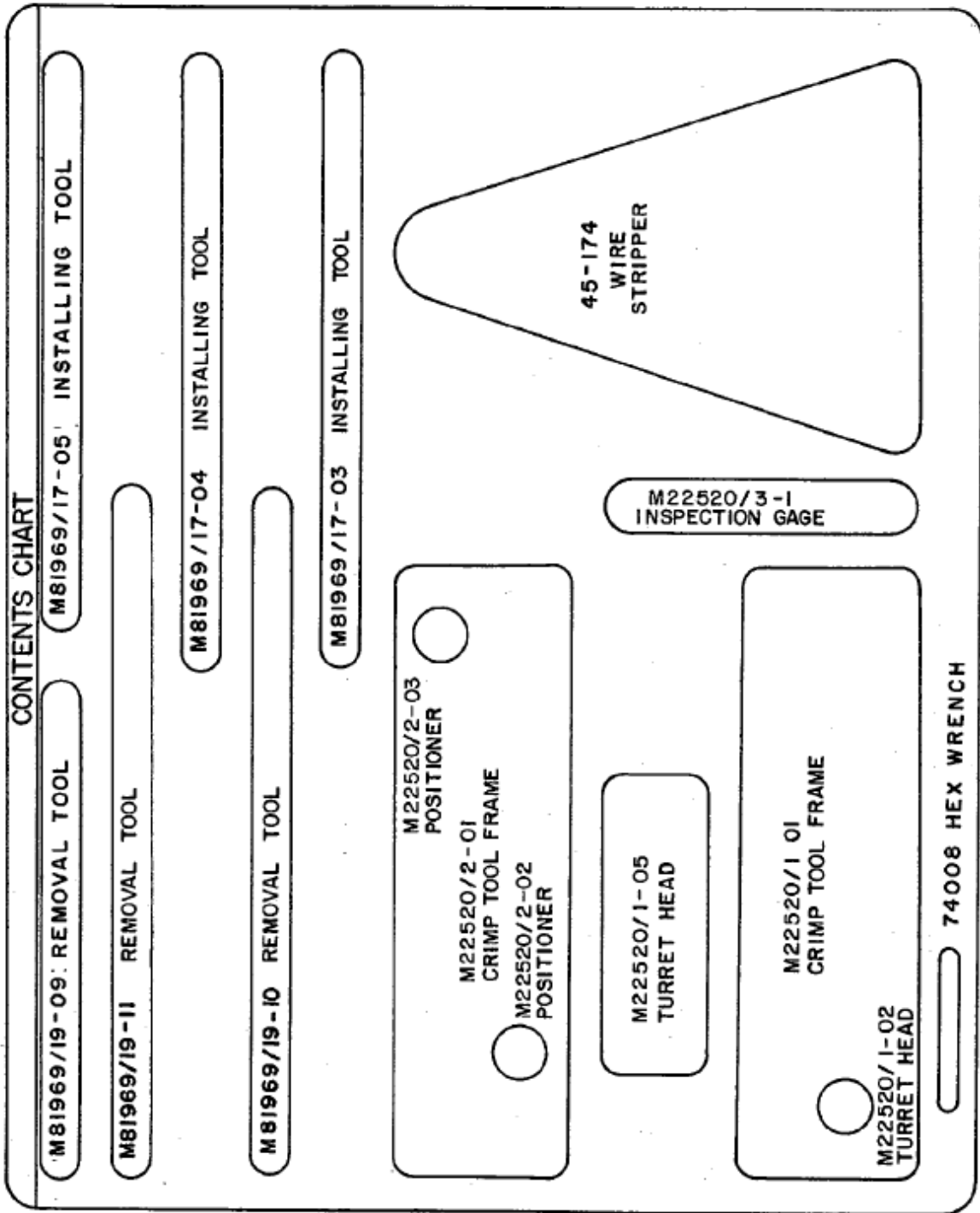


FIGURE 3 Metal case. Insert. Bottom of case

5

WARNING: FOREIGN OBJECT DAMAGE (FOD) CAN ABORT A MISSION OR A LIFE. MAKE SURE ALL TOOLS ARE ACCOUNTED FOR AFTER USING THIS KIT.



CONTENTS CHART TOP OF CASE (7.25 x 10.25)

FIGURE 5 Metal case. Instruction sheet.

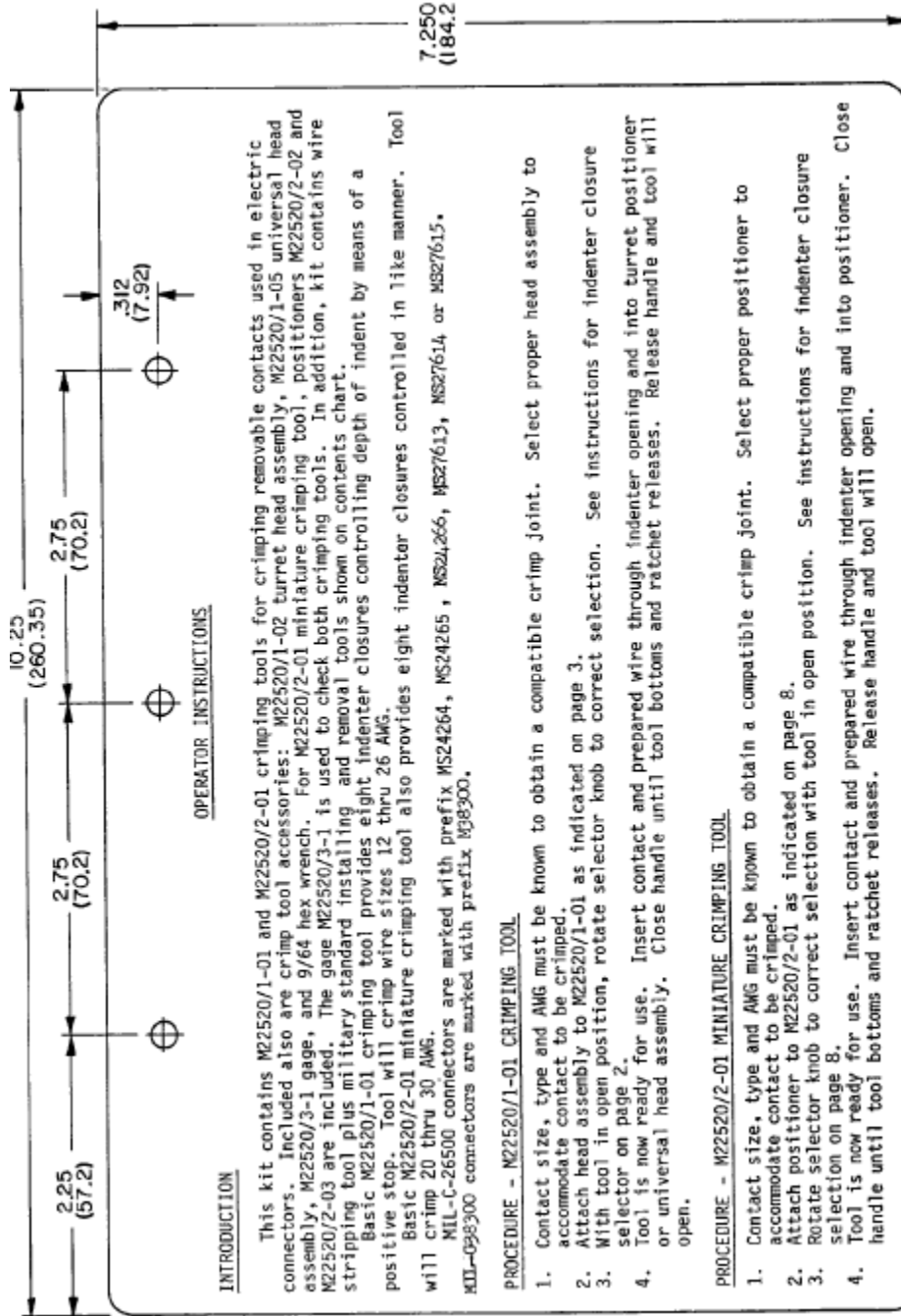


FIGURE 6 Metal case. Instruction sheet.

CHART "A" (TYPICAL)											
TURRET HEAD ASSY.		POSITIONER IDENTIFICATION						CONTACTS ACCOMMODATED (REF.)			
PART NO.	COLOR										
M22520/1-02	BLUE	(20)	RED	(16)	BLUE	(12)	YELLOW	M39029/31 M39029/32	MS18134 MS18136 M39029/01	M39029/4 M39029/5	
M22520/1-05	BLUE	Wire size setting on M22520/1-01 basic crimping tool used with universal head assembly M22520/1-05 meet requirements of M39029. When other wire/contact combinations are used, selector settings must be established by user.									

CONTACT SIZE	POSITIONER AND MATING END COLOR	26	24	22	20	18	16	14	12	WIRE SIZE
20-20	RED	1	2	3	4					
16-22 16-20* 16-15	BLUE	4 1	5 2	6 3	4 4					
12-16 12-12	YELLOW				4	5	6	7	8	

MS3162 & 54 M39029/1, /2, /3, /4, /5, /9, /10, /11, /12, /31, /32, /44, /45 MS3723/29, /30, /33, /34	MS3192 & 93 MS18134 & 36	MS24254 & 55 MS90453 & 54
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*M39029/1-101 USE RED POS.

INSTRUCTIONS FOR USING INDENTER CLOSURE SELECTOR
FOR M22520/1-01 CRIMPING TOOL

1. Refer to data plate on head assembly. Below wire size and opposite contact size is listed correct indenter selector number.
2. Tool must be in open position when using selector.
3. Raise selector knob and rotate until arrow is in line with correct selector number. Release selector knob so that index pin engages notch and is locked at proper selector number.
4. Repeat instruction procedures when changing contact and/or wire size.

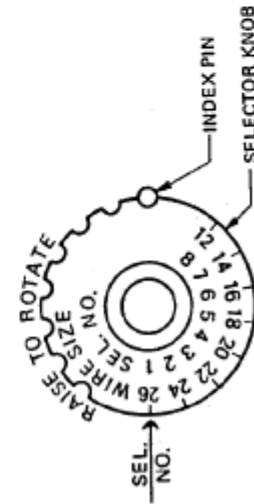


FIGURE 7 Metal case. Instruction sheet.

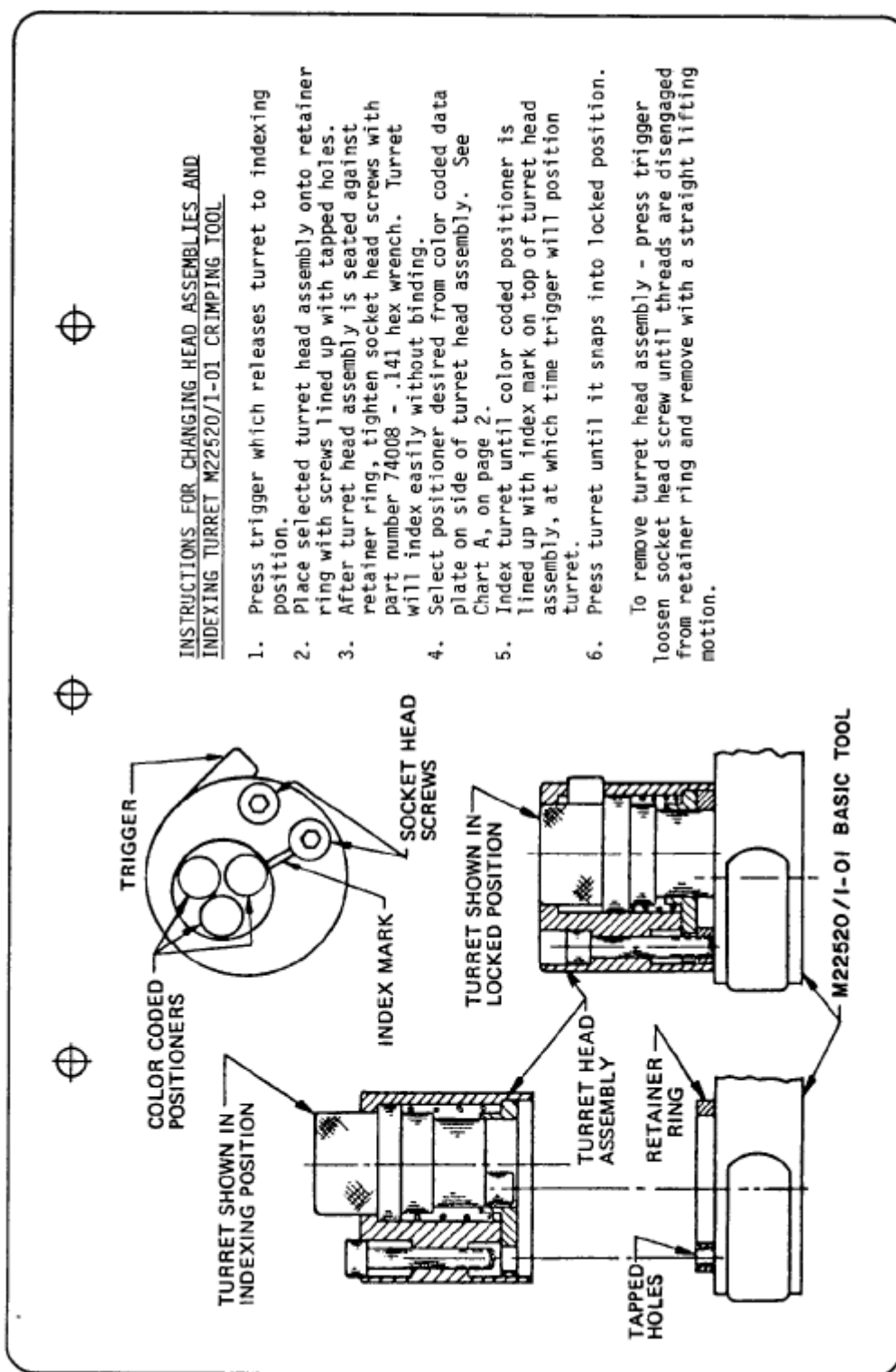


FIGURE 8 Metal case. Instruction sheet.

CRIMPING INSTRUCTIONS WHEN USING M22520/1-05 UNIVERSAL HEAD ASSEMBLY

INTRODUCTION

M22520/1-05 universal head assembly is used with M22520/1-01 crimping tool to locate contacts horizontally and vertically between indenters (other than MS contacts).

PROCEDURE

1. Attach universal head assembly to M22520/1-01 basic crimping tool by means of socket head screws.
2. Raise selector knob and rotate until arrow is in line with wire size to be crimped in contact.
3. With lock nut in release position, turn adjustment screw **IN** until it stops. Insert contact thru indenter opening into positioner and adjust screw **OUT** until indenters are centered between inspection hole and barrel end of contact. When contact contains insulation cup, center between inspection hole and bottom of insulation cup.
4. Tighten lock nut to body and tool is ready for crimping operation.
5. Insert wire into contact and hold securely to insure that it bottoms in contact. Close handles until tool bottoms and ratchet 'kicks off'. Release handles and remove crimped contact.

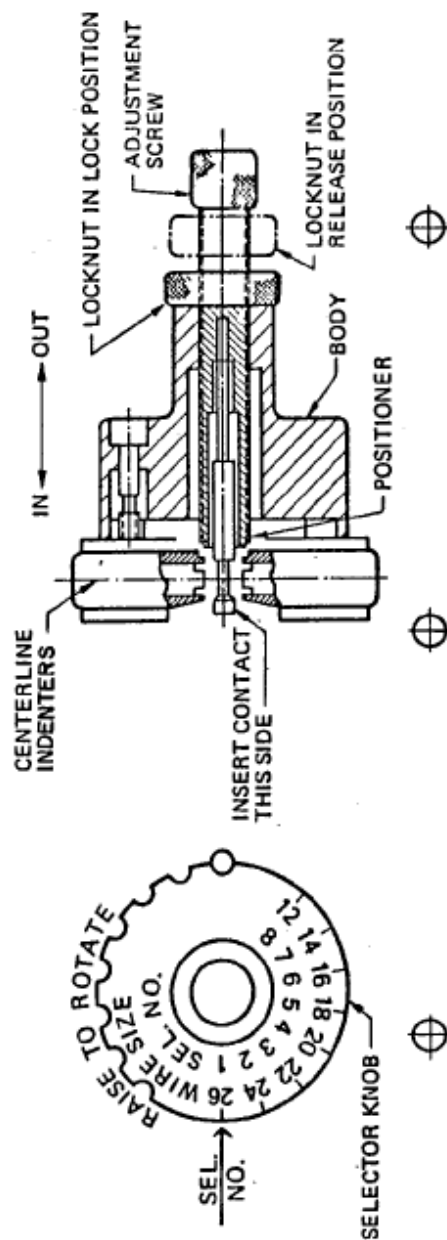


FIGURE 9 Metal case. Instruction sheet.

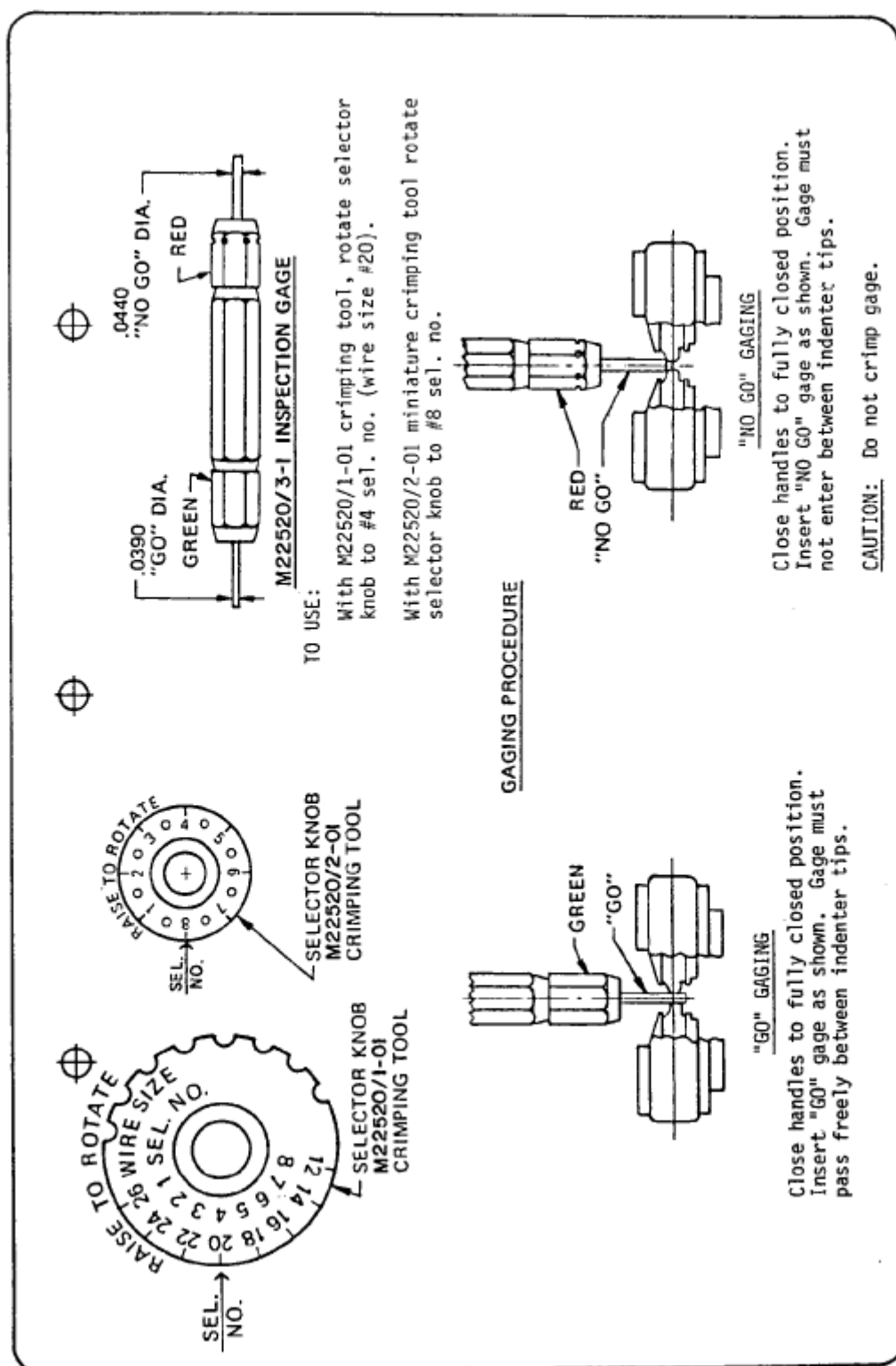


FIGURE 10 Metal case. Instruction sheet.

OPERATING INSTRUCTIONS - REMOVAL TOOLS - MIL-C-26500 & MIL-C-38300 CONNECTORS

1. Select correct contact removal tool from Table 1. (Coaxial contacts are excepted.)
2. Tool must be held in straight line; parallel to contact, square to connector face.
3. To remove MIL-C-38300 socket contacts, use three bladed tip (A) of removal tool.
 - a. Orient three bladed tip into connector, slowly pressing tool, until tip bottoms against retention clip tube. Maintain pressure (approx. 8 lbs.) and push forward on plunger to eject contact.
4. To remove MIL-C-38300 pin contacts and MIL-C-26500 pin and socket contacts, use barrel tip end of removal tool.
 - a. For MIL-C-26500 socket contacts, insert removal tip into connector to second mark on barrel, which will release retention clip. Push plunger slide forward to eject contact. (Also MIL-C-26482 sockets)
 - b. For MIL-C-38300 and MIL-C-26500 pin contacts, insert removal tool tip into connector to first mark on barrel, which will release retention clip, then push plunger slide forward to eject contact. (Also MIL-C-26482 pins)

TABLE 1.

REMOVAL TOOL	CONTACT SIZE
M81969/19-10	20
M81969/19-11	16
M81969/19-09	12

NOTE: Plunger slide must remain in retracted position as removal tool tip/barrel is inserted in connector.

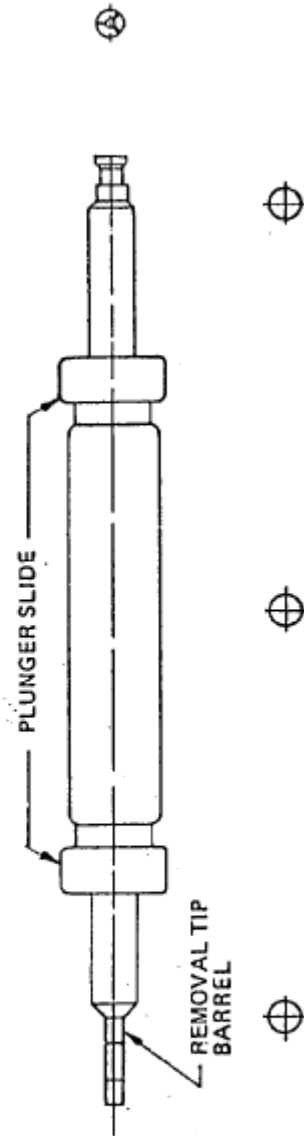


FIGURE 11 Metal case. Instruction sheet.



OPERATING INSTRUCTIONS - INSTALLING TOOLS - MIL-C-38300, MIL-C-26500 AND MIL-C-26482 CONNECTORS.

1. Select correct tool from Table II and place contact/wire assembly in tool.
 - a. #20 contacts with insulation cups are inserted by sliding cup into front end of installing tip until end of cup butts against shoulder in installing tip, as shown in figure 1.
 - b. Contacts without insulation cups are inserted by sliding wire barrel into front end of installing tip until contact shoulder butts against installing tip. Figure 2.
2. Align tool and contact axially with grommet hole and carefully guide contact through grommet into lock position.

TABLE II.

INSTALLING TOOL	CONTACT SIZE
M81969/17-03	20
M81969/17-04	16
M81969/17-05	12

FIGURE 2



FIGURE 1

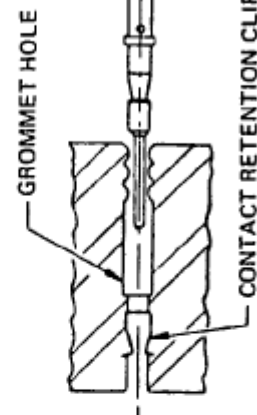
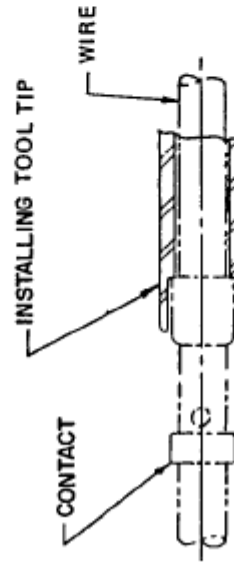


FIGURE 12 Metal case. Instruction sheet.

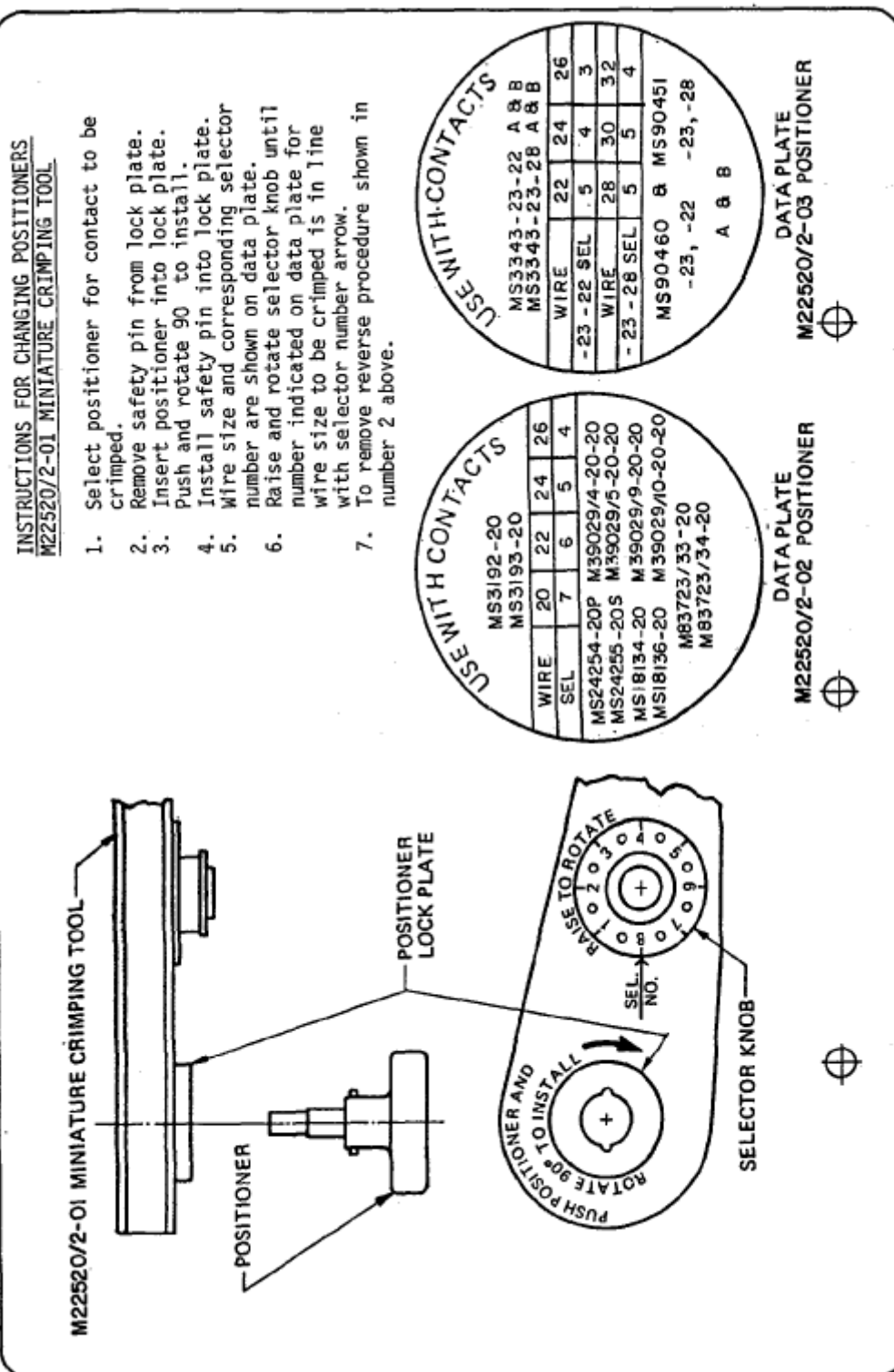


FIGURE 13 Metal case. Instruction sheet.

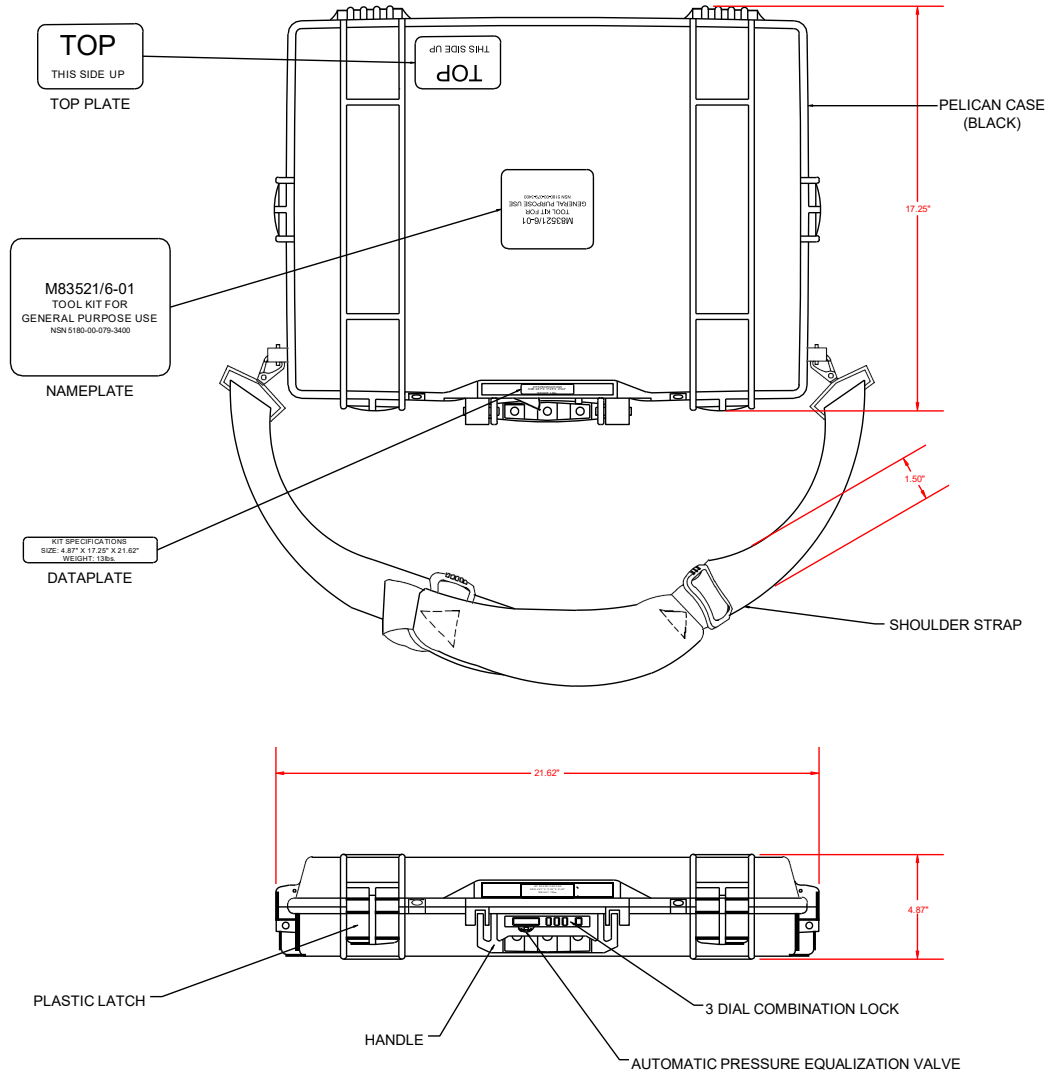


FIGURE 14 Plastic case. MAINTENANCE KIT FOR GENERAL PURPOSE USE

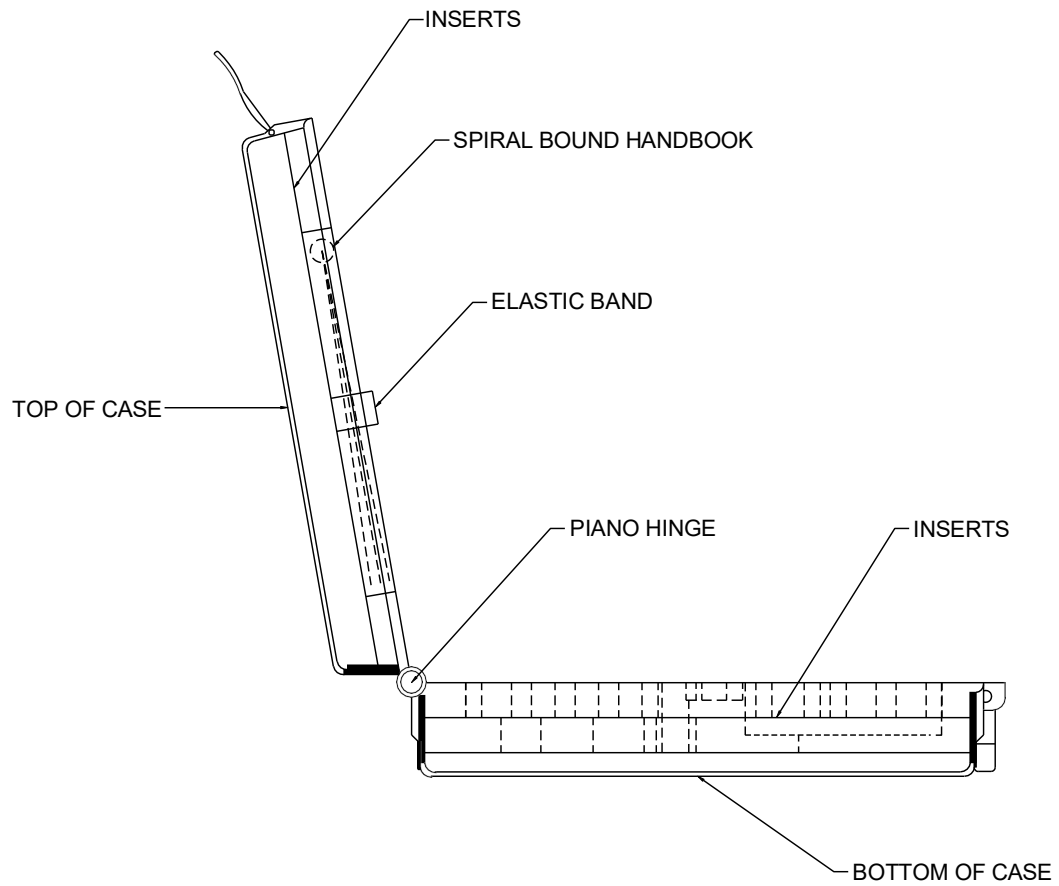


FIGURE 15 Plastic case. TOOL CASE ASSEMBLY.

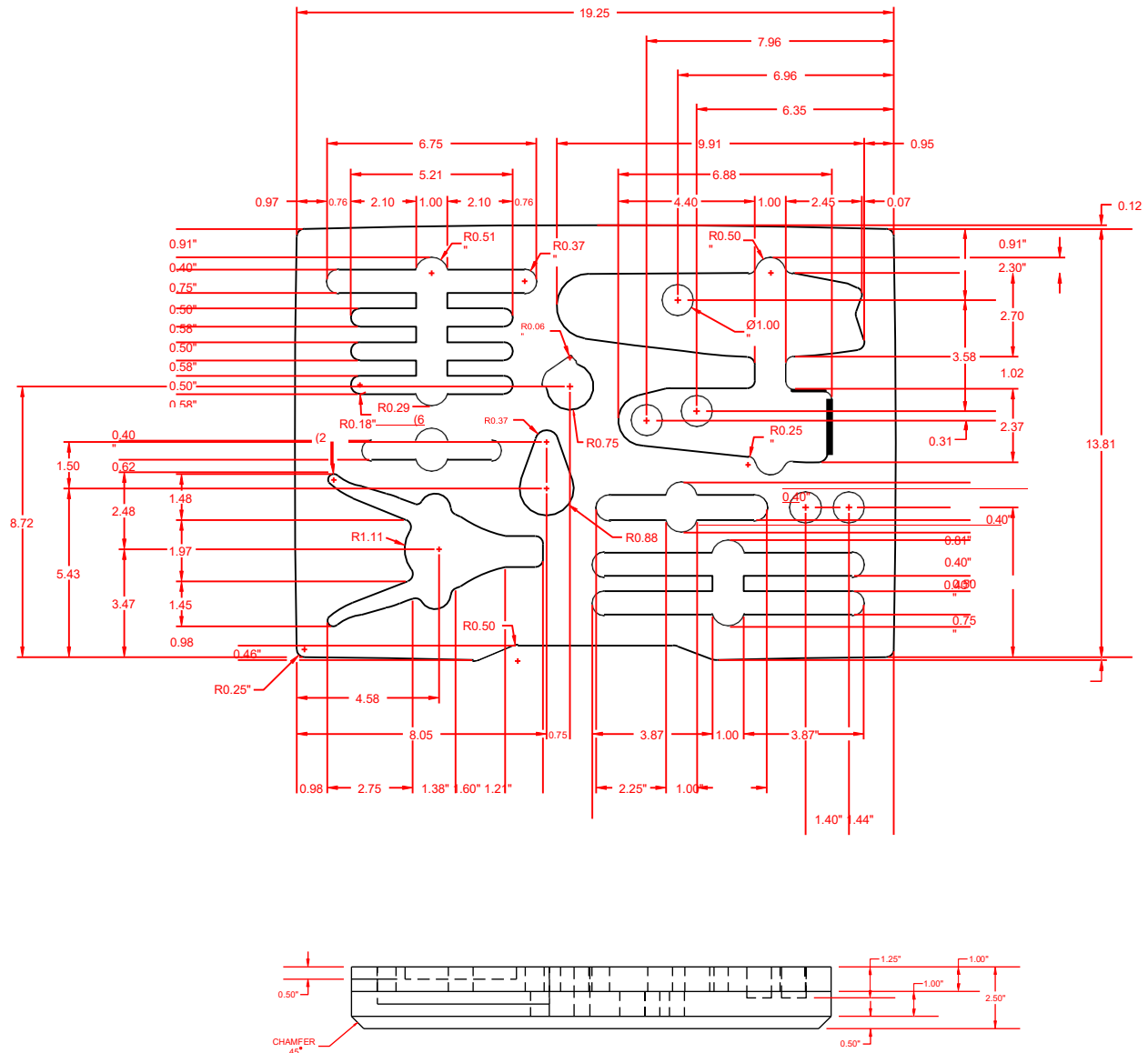


FIGURE 16 Plastic case. INSERT, BOTTOM OF CASE

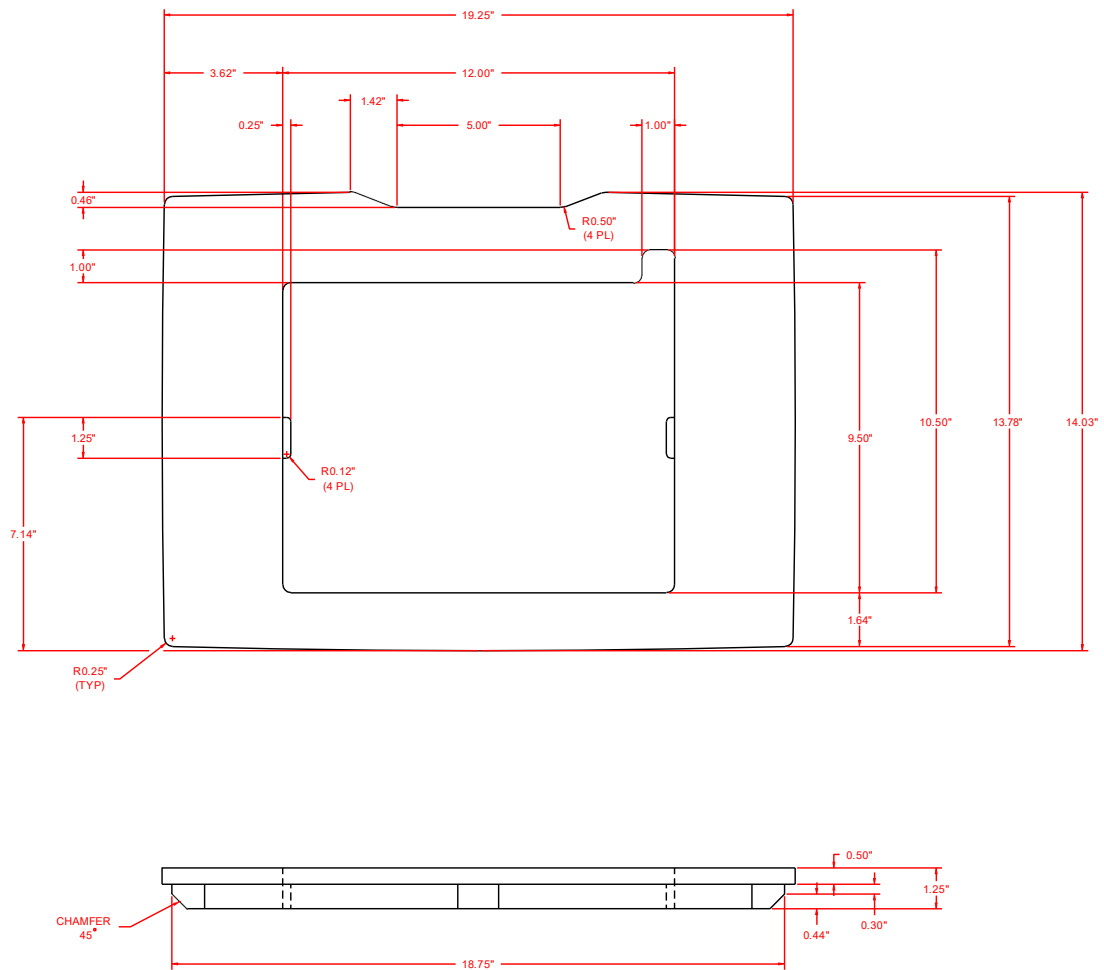


FIGURE 17 Plastic case. INSERT, TOP OF CASE

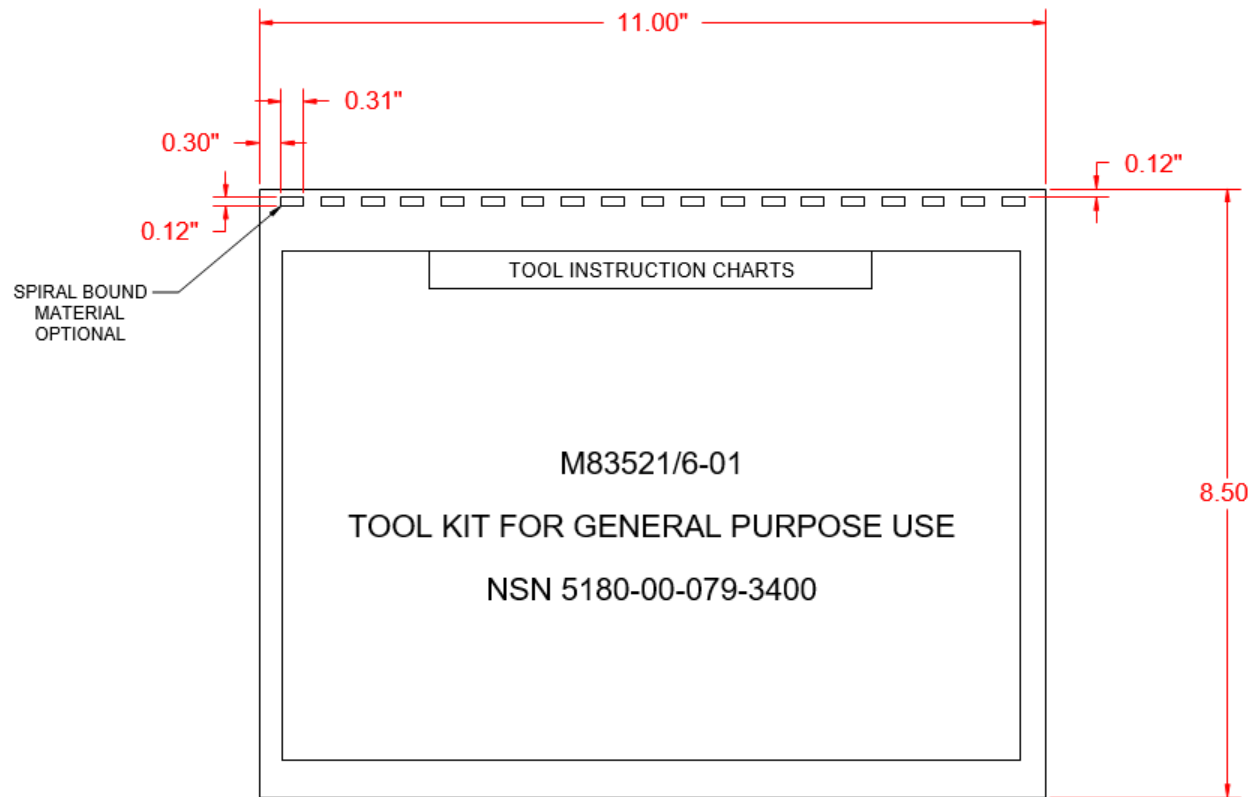
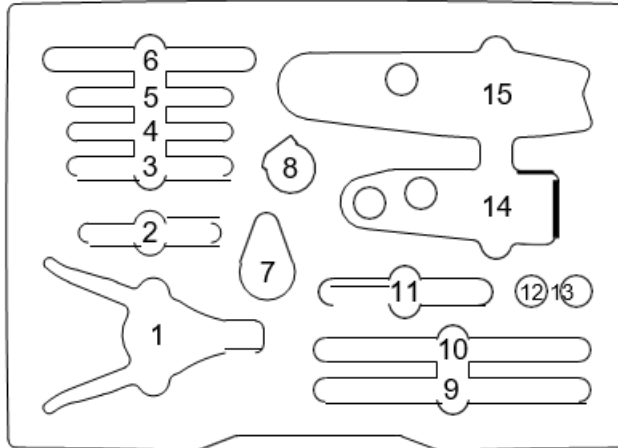


FIGURE 18 Plastic case. Instruction sheet.

WARNING: FOREIGN OBJECT DAMAGE (FOD) CAN ABORT A MISSION OR CAUSE LOSS OF LIFE.
MAKE SURE ALL TOOLS ARE ACCOUNTED FOR AFTER USING THIS KIT.

CONTENTS CHART



ITEM	DESCRIPTION
1.	45-174 WIRE STRIPPER
2.	M22520/3-1 IN-SERVICE INSPECTION GAGE
3.	M81969/17-05 INSTALLING TOOL
4.	M81969/17-04 INSTALLING TOOL
5.	M81969/17-03 INSTALLING TOOL
6.	M81969/19-02 REMOVAL TOOL
7.	M22520/1-05 UNIVERSAL HEAD
8.	M22520/1-02 TURRET HEAD
9.	M81969/19-11 REMOVAL TOOL
10.	M81969/19-10 REMOVAL TOOL
11.	9/64" HEX WRENCH
12.	M22520/2-02 POSITIONER
13.	M22520/2-03 POSITIONER
14.	M22520/2-01 CRIMP TOOL
15.	M22520/1-01 CRIMP TOOL

PAGE 1

FIGURE 19 Plastic case. Instruction sheet.

OPERATOR INSTRUCTIONS

INTRODUCTION

This kit contains M22520/1-01 and M22520/2-01 crimping tools for crimping removable contacts used in electric connectors. Included also are crimp tool accessories: M22520/1-02 turret head assembly, M22520/1-05 universal head assembly, M22520/3-1 gage, and 9/64 hex wrench. For M22520/2-01 miniature crimping tool, positioners M22520/2-02 and M22520/2-03 are included. The gage M22520/3-1 is used to check both crimping tools. In addition, kit contains wire stripping tool plus military standard installing and removal tools shown on contents chart.

Basic M22520/1-01 crimping tool provides eight indenter closures controlling depth of indent by means of a positive stop. Tool will crimp wire sizes 12 thru 26 AWG.

Basic M22520/2-01 miniature crimping tool also provides eight indenter closures controlled in like manner. Tool will crimp 20 thru 30 AWG.

MIL-C-26500 connectors are marked with prefix MS24264, MS24265, MS24266, MS27613, MS27614 OR MS27615. MIL-DTL-83723 connectors are marked with prefix M83723.

PROCEDURE - M22520/1-01 CRIMPING TOOL

1. Contact size, type and AWG must be known to obtain a compatible crimp joint. Select proper head assembly to accommodate contact to be crimped.
2. Attach head assembly to M22520/1-01 as indicated on page 3.
3. With tool in open position, rotate selector knob to correct selection. See instructions for indenter closure selector on page 2.
4. Tool is now ready for use. Insert contact and prepared wire through indenter opening and into turret positioner or universal head assembly. Close handle until tool bottoms and ratchet releases. Release handle and tool will open.

PROCEDURE - M22520/2-01 MINIATURE CRIMPING TOOL

1. Contact size, type and AWG must be known to obtain a compatible crimp joint. Select proper positioner to accommodate contact to be crimped.
2. Attach positioner to M22520/2-01 as indicated on page 8.
3. Rotate selector knob to correct selection with tool in open position. See instructions for indenter closure selection on page 8.
4. Tool is now ready for use. Insert contact and prepared wire through indenter opening and into positioner. Close handle until tool bottoms and ratchet releases. Release handle and tool will open.

PAGE 2

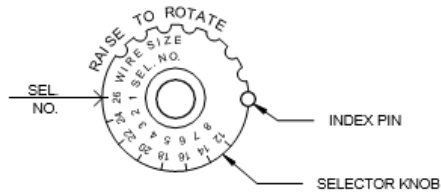
FIGURE 20 Plastic case. Instruction sheet.

CHART "A" (TYPICAL)						
TURRET HEAD ASSY.		POSITIONER IDENTIFICATION			CONTACTS ACCOMMODATED (REF.)	
PART NO.	COLOR	20 RED	19 BLUE	12 YELLOW	M39029/31 M39029/32	M39029/1 M39029/4 M39029/5
M22520/1-02	BLUE					
M22520/1-05	BLUE	Wire size setting on M22520/1-01 basic crimping tool used with universal head assembly M22520/1-05 meet requirements of M39029. When other wire/contact combinations are used, selector settings must be established by user.				

CONTACT SIZE	POSITIONER AND MATING END COLOR	26	24	22	20	18	16	14	12	WIRE SIZE
20-20	RED	1	2	3	4					
16-22	BLUE	1	2	3	4					SELECTOR NO.
16-20 *		1	2	3	4	5	6			
16-16	YELLOW				4	5	6			
12-16								7	8	
12-12										
M39029/29, M39029/31 & M39029/32, MIL-C-39029/44 & MIL-C-39029/45 M39029/1./2./3./4./5./9./10./11./12 M83723/29./30										
* M39029/1-101 USE RED POS.										

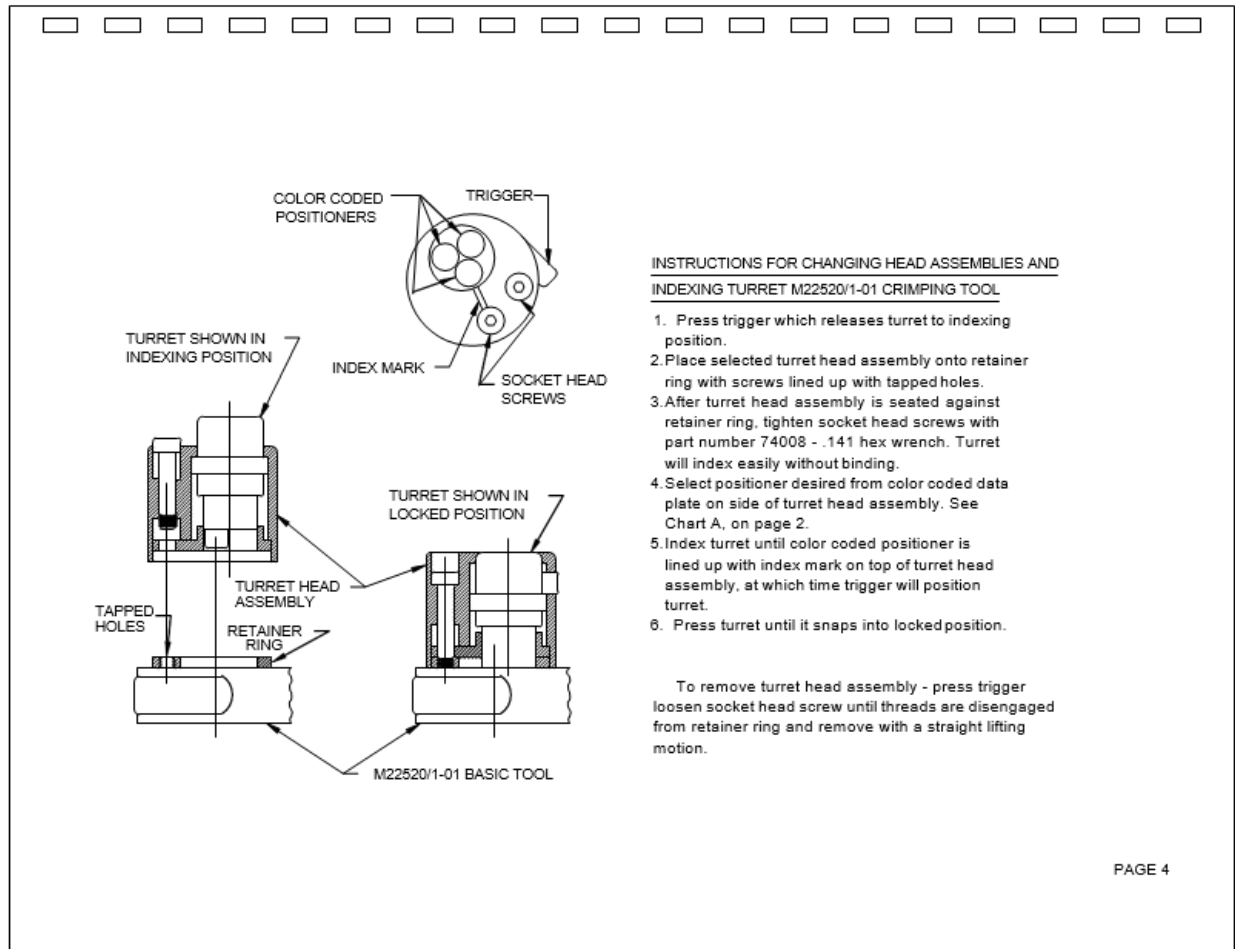
INSTRUCTIONS FOR USING INDENTER CLOSURE SELECTOR
FOR M22520/1-01 CRIMPING TOOL

1. Refer to data plate on head assembly. Below wire size and opposite contact size is listed correct indenter selector number.
2. Tool must be in open position when using selector.
3. Raise selector knob and rotate until arrow is in line with correct selector number. Release selector knob so that index pin engages notch and is locked at proper selector number.
4. Repeat instruction procedures when changing contact and/or wire size.



PAGE 3

FIGURE 21 Plastic case. Instruction sheet.

FIGURE 22 Plastic case. Instruction sheet.

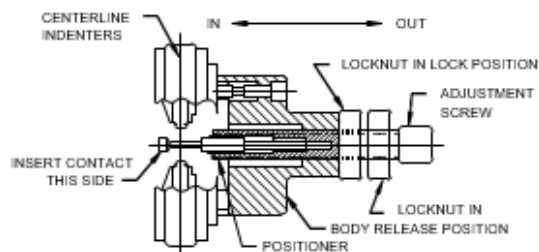
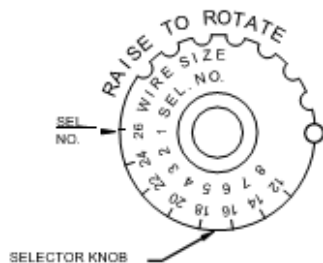
CRIMPING INSTRUCTIONS WHEN USING M22520/1-05 UNIVERSAL HEAD ASSEMBLY

INTRODUCTION

M22520/1-05 universal head assembly is used with M22520/1-01 crimping tool to locate contacts horizontally and vertically between indenters (other than MS contacts).

PROCEDURE

1. Attach universal head assembly to M22520/1-01 basic crimping tool by means of socket head screws.
2. Raise selector knob and rotate until arrow is in line with wire size to be crimped in contact.
3. With lock nut in release position, turn adjustment screw IN until it stops. Insert contact thru indenter opening into positioner and adjust screw OUT until indenters are centered between inspection hole and barrel end of contact. When contact contains insulation cup, center between inspection hole and bottom of insulation cup.
4. Tighten lock nut to body and tool is ready for crimping operation.
5. Insert wire into contact and hold securely to insure that it bottoms in contact. Close handles until tool bottoms and ratchet "kicks off". Release handles and remove crimped contact.



PAGE 5

FIGURE 23 Plastic case. Instruction sheet.

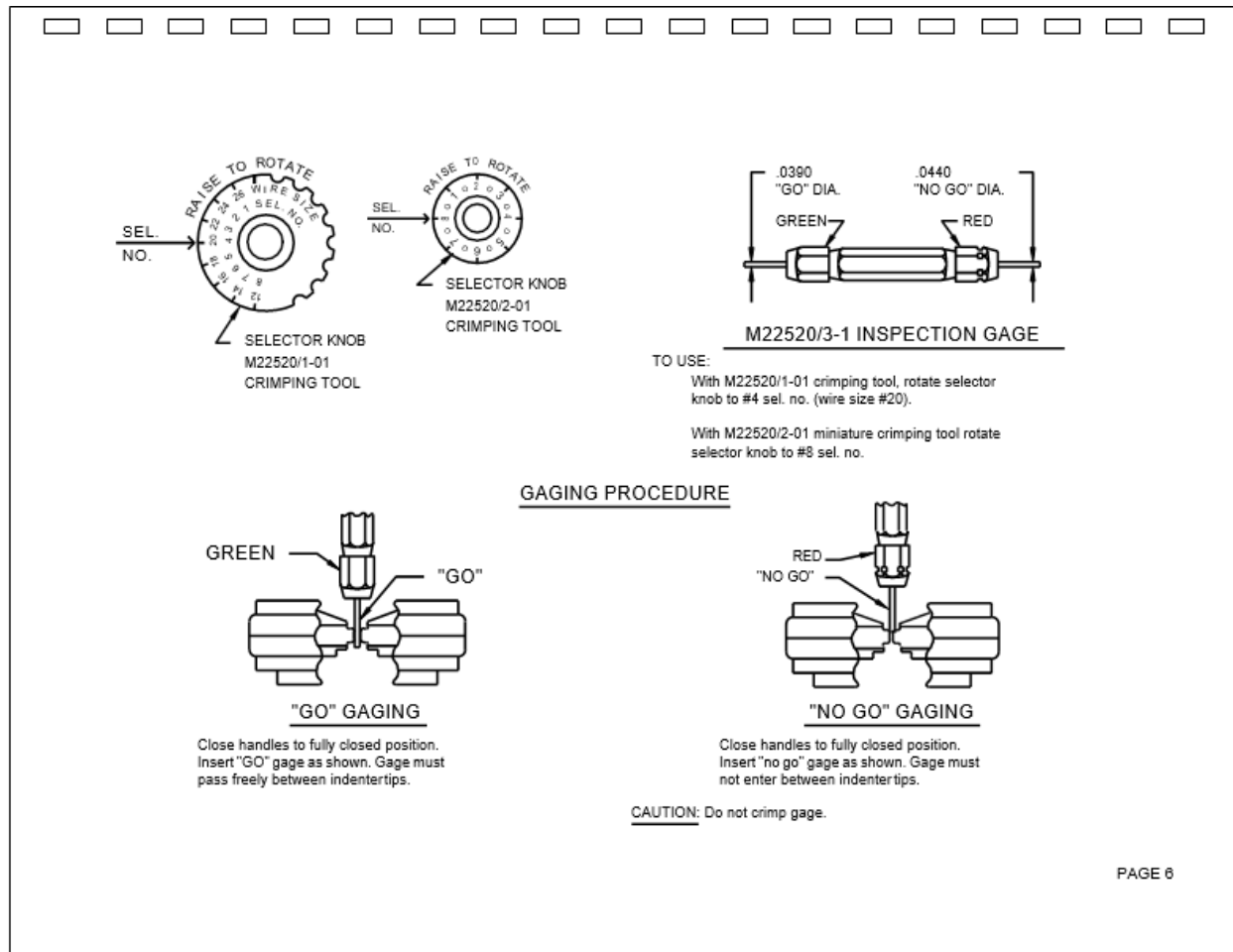


FIGURE 24 Plastic case. Instruction sheet.

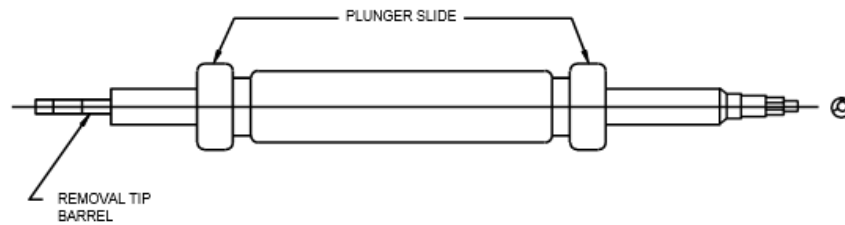
OPERATING INSTRUCTIONS - REMOVAL TOOLS - MIL-C-26500 & MIL-DTL-83723 CONNECTORS

1. Select correct contact removal tool from Table 1. (Coaxial contacts are excepted.)
2. Tool must be held in straight line; parallel to contact, square to connector face.
3. To remove MIL-DTL-83723 socket contacts, use three bladed tip (A) of removal tool.
 - a. Orient three bladed tip into connector, slowly pressing tool, until tip bottoms against retention clip tube. Maintain pressure (approx. 8 lbs.) and push forward on plunger to eject contact.
4. To remove MIL-DTL-83723 pin contacts and MIL-C-26500 pin and socket contacts, use barrel tip end of removal tool.
 - a. For MIL-C-26500 socket contacts, insert removal tip into connector to second mark on barrel, which will release retention clip. Push plunger slide forward to eject contact. (Also MIL-C-26482 sockets).
 - b. For MIL-DTL-83723 and MIL-C-26500 pin contacts, insert removal tool tip into connector to first mark on barrel, which will release retention clip, then push plunger slide forward to eject contact. (Also MIL-C-26482 pins).

NOTE: Plunger slide must remain in retracted position as removal tool tip/barrel is inserted in connector.

TABLE I.

REMOVAL TOOL	CONTACT SIZE
M81969/19-10	20
M81969/19-11	16
M81969/19-02	12



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FIGURE 25 Plastic case. Instruction sheet.

OPERATING INSTRUCTIONS - INSTALLING TOOLS - MIL-DTL-83723, MIL-C-26500 AND MIL-C-26482 CONNECTORS.

1. Select correct tool from Table II and place contact/wire assembly in tool.
 - a. Size #12, #16 & #20 contacts with insulation are inserted by sliding cup into front end of installing tip until end of cup butts against shoulder in installing tip, as shown in figure 1.
 - b. Contacts without insulation cups are inserted by sliding wire barrel into front end of installing tip until contact shoulder butts against installing tip. Figure 2.
2. Align tool and contact axially with grommet hole and carefully guide contact through grommet into lock position.

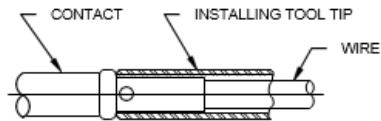


FIGURE 2

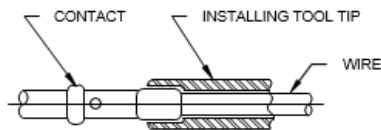
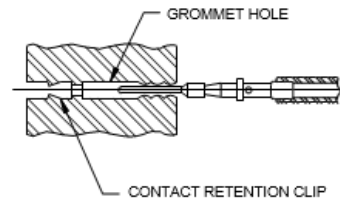


FIGURE 1

TABLE II.

INSTALLING TOOL	CONTACT SIZE
M81969/17-03	20
M81969/17-04	16
M81969/17-05	12



PAGE 8

FIGURE 26 Plastic case. Instruction sheet.

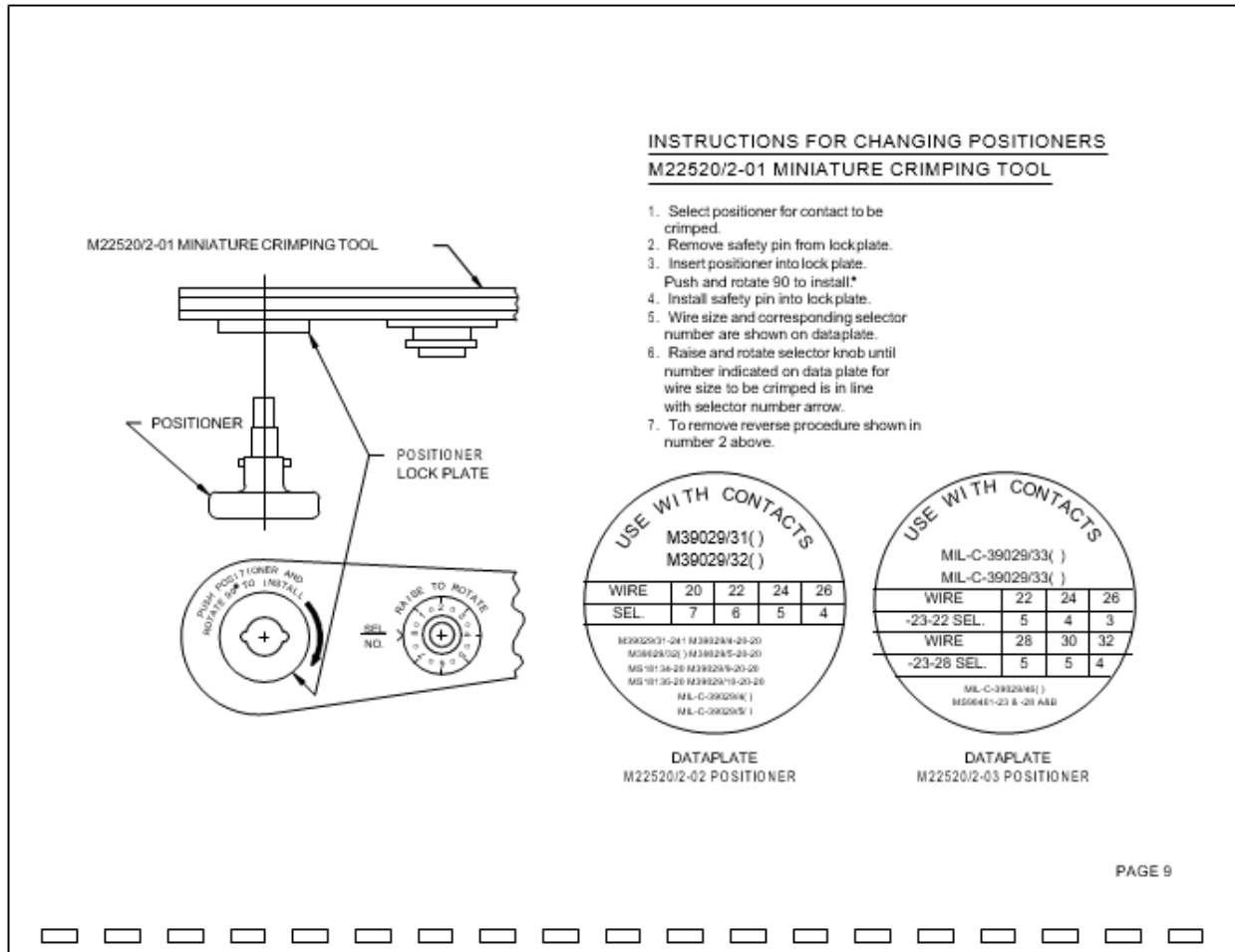


FIGURE 27 Plastic case. Instruction sheet.

REQUIREMENTS:**Materials:****Case**

Metal (no. 3): Sheet metal, 19 gage in accordance with ASTM-A109/109M; gray baked enamel on all metal parts.

Plastic: Pelican 1495

Instruction sheets and contents chart: 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.

Clasp: Draw pull type with provision for locking device, handle, and hinges, suitably plated to resist corrosion.

Binder: Looseleaf, three rings, 0.437 (11.10 mm) * 0.062 (1.57 mm) inch I.D., 2.75 inches (69.9 mm) center distance between rings, securely riveted to inside of cover (see figure 2).

Nameplate: In accordance with MIL-P-19834.

Instruction sheets and contents chart (see figures 7 through 14): Lettering shall be legible and protected with a transparent coating. Contents chart (centered on inside of case cover): Pressure sensitive adhesive backing, shows the insert cavity configurations and the respective tool part number; a list of NSN's will also be supplied.

Part number:

M83521/6-01 - Maintenance kit.

M83521/6-02 - Maintenance case assembly (tools not included).

Note: Specific replacement parts may be replenished by individually ordering the type designations as shown on the contents chart.

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-83521, this document references the following:

A-A-59135
A-A-59136
ASTM-A109/109M
MIL-DTL-19834
MIL-DTL-26482
MIL-DTL-83723
MIL-DTL-26500
MIL-P-19834
MS24264
MS24265
MS24266
MS27613
MS27614
MS27615
MS90451
SAE-AS22520/1
SAE-AS22520/2
SAE-AS22520/3
SAE-AS39029/1
SAE-AS39029/2
SAE-AS39029/3
SAE-AS39029/4
SAE-AS39029/5
SAE-AS39029/9
SAE-AS39029/10
SAE-AS39029/11
SAE-AS39029/12
SAE-AS39029/29
SAE-AS39029/31

SAE-AS39029/32
SAE-AS39029/33
SAE-AS39029/44
SAE-AS39029/45
SAE-AS39029/46
SAE-AS81969/17
SAE-AS81969/19

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy – AS
Air Force - 85

Preparing activity:

DLA - CC

Review activities:

Navy – EC, MC
Air Force - 19

(Project 5935-2025-061)

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>.