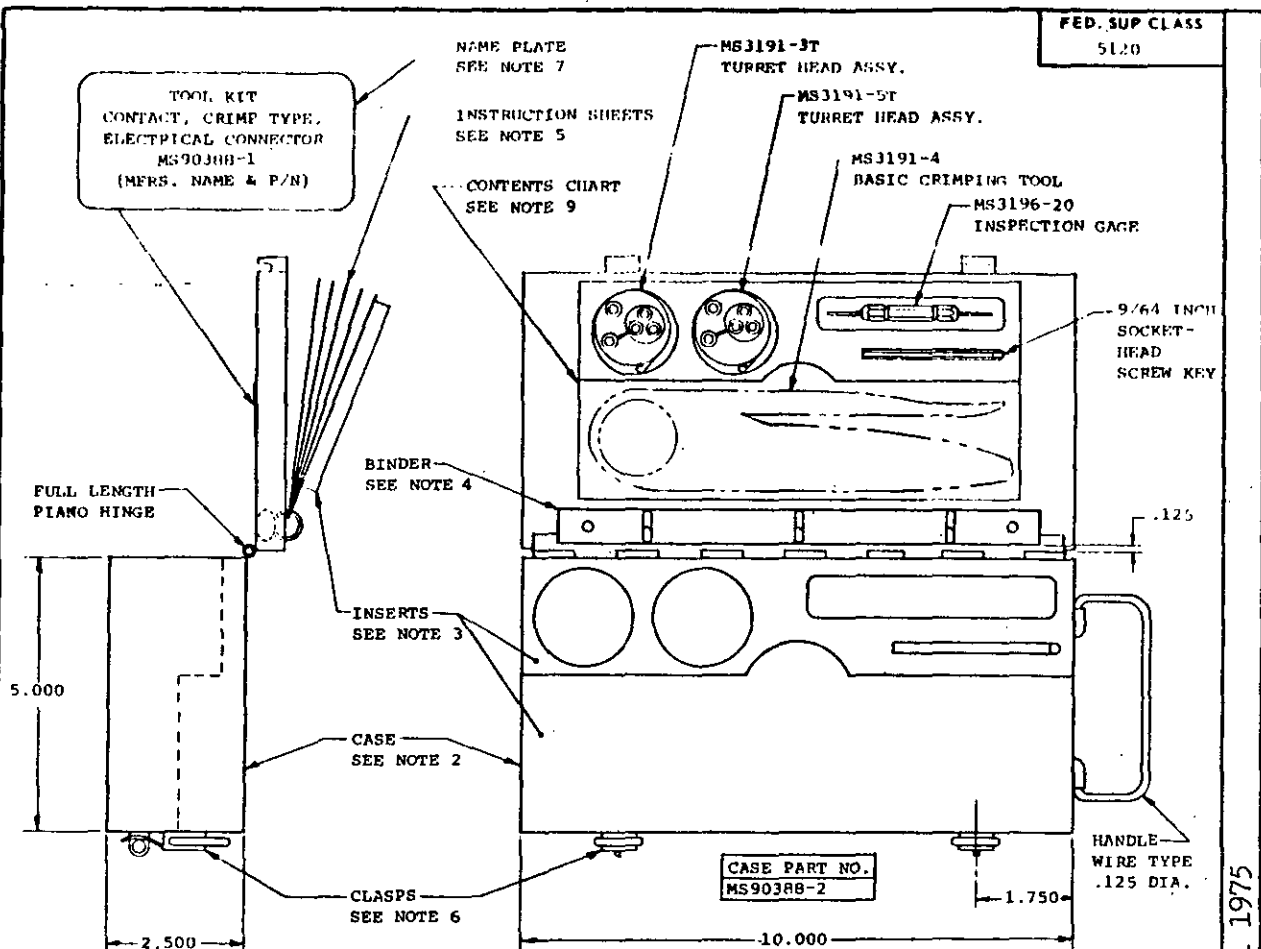


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ⓑ CANCELLED AFTER 10 April 1975 .USE MIL-C-22520/15 (NAVY).

NOTES:

1. DIMENSIONS ARE IN INCHES, $\pm .031$. MEASUREMENTS ARE INSIDE DIMENSIONS. REMOVE ALL SHARP EDGES AND CORNERS .020 RADIUS.
2. CASE AND COVER: SHEET METAL, 21 GAUGE, IN ACCORDANCE WITH QQ-S-695. BAKED ENAMEL, GRAY HAMMERTONE FINISH ON ALL METAL PARTS.
3. INSERT: FOAMED POLYETHYLENE: COLOR, GRAY.
4. BINDER: LOOSE LEAF THREE RING, .437 I.D.; 2.750 CENTER DISTANCE BETWEEN RINGS: SECURELY RIVET TO INSIDE OF COVER AS SHOWN.
5. INSTRUCTION SHEETS: WHITE VINYL, .020 THICK. LETTERING MUST BE LEGIBLE AND SUITABLY PROTECTED WITH TRANSPARENT COATING. SEE SHEETS 2, 3 AND 4.
6. CLASPS: MUST BE A DRAW PULL TYPE AS SHOWN WITH PROVISION FOR USING A SUITABLE LOCKING DEVICE
7. NAMEPLATE SHALL BE IN ACCORDANCE WITH MIL-P-19834.
8. MS90388-1 TOOL KIT SHALL CONSIST OF THE FOLLOWING ITEMS:
 - (1) MS90388-2 CASE
 - (1) MS3191-4 BASIC CRIMPING TOOL
 - (1) MS3191-3T TURRET HEAD ASSEMBLY
 - (1) MS3191-5T TURRET HEAD ASSEMBLY
 - (1) MS3196-20 IN-SERVICE INSPECTION GAUGE
 - (1) 9/64 INCH SOCKET-HEAD SCREW KEY
 - (1) ONE SET OF INSTRUCTION SHEETS; 9 PAGES; (SEE SHEETS 2, 3, AND 4 OF THIS MS)
9. CONTENTS CHART: WHITE VINYL WITH PRESSURE SENSITIVE BACKING.

P.A. NAVY-AS	TITLE	MILITARY STANDARD
Other Cust	TOOL KIT, CONTACT, CRIMP TYPE, ELECTRICAL CONNECTOR	MS90388 (NAVY)
NAVY - EC		
PROCUREMENT SPECIFICATION	SUPERSEDES:	SHEET 1 OF 4
NONE		

INTRODUCTION

Tool Kit MS90188-1 contains the basic MS3191-4 crimping tool for crimping removable contacts used in electrical connectors. Included also are the following: MS3191-3T turret head assembly; MS3191-5T turret head assembly; MS3196-20 gauge; and a 9/64 inch socket-head screw key.

The basic MS3191-4 crimping tool provides seven indenter closures controlling the depth of indent by means of a positive stop. The tool will crimp wire size 12 AWG thru 26 AWG to contacts size 12, 16, 20 and 22.

The MS3191-4 basic tool with turret head assembly. MS3191-3T attached is designated MS3191-3; the MS3191-4 basic tool with turret head assembly. MS3191-5T attached is designated MS3191-5.

Each turret head assembly contains 3 color coded positioners which locate the contact vertically and horizontally in relation to the indenters.

OPERATOR INSTRUCTION

PROCEDURE

1. The contact size, type and AWG wire also must be known to obtain a compatible crimp point. Select proper turret head assembly, as indicated in chart A, pg. 2, to accommodate the proper contact.
2. Attach turret head assembly to MS3191-4 as indicated on pg. 3.
3. Index turret to correct positioner (see instructions for indexing, pg. 4).
4. Move selector control to correct selector number. Tool must be in "fully open" position. (See instructions for indenter gap selector, pg. 5.)
5. Tool is now ready for use. Insert contact and prepared wire through indenter opening and into the turret head positioner. Close handles until the tool bottoms and the ratchet releases; release handles and tool will open automatically.

PAGE 1

CHART "A"

TURRET HEAD ASSEMBLY		POSITIONER IDENTIFICATION			CONTACTS AND CONNECTORS ACCOMMODATED (REF.)		
PART NO.	COLOR						
MS3191-3T	BLACK	(20) RED	(16) BLUE	(12) YELLOW	MS3190 MS24254 MS18134		
					MS3192 MS24255 MS18136		
					MS3193 MIL-C-23216 MIL-C-26636		
MS3191-5T	GREEN	(16) BLUE			MIL-C22857 MS17803 MS17807		
		(20) RED			MS17804 MS17808		
			(16) BLACK		OS-12814 Basic, Type 'P' & 'M'		
				(20) RED	MIL-C-21097/9-01		

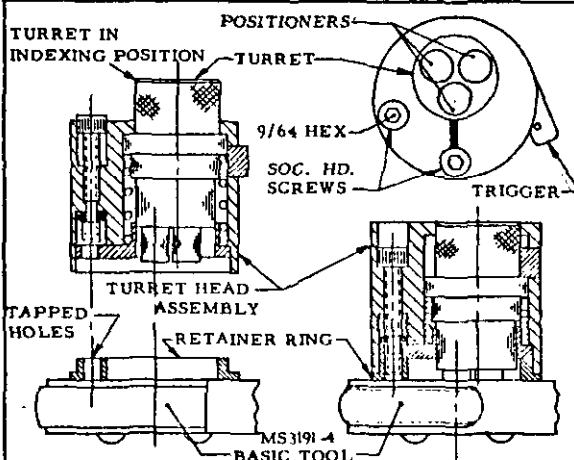
MS3190	26	24	22	20	18	16	14	12	WIRE SIZE
-20	1	2	3	4					
-16				4	5	5			
-12							6	7	

MS3191-3T DATA PLATE

CONTACT	26	24	22	20	18	16	14	12	WIRE SIZE
MIL-C -16					5	6	6		
22857 -20			3	3	4				
OS12814 -16					4	5	6		
Basic P & M -22			3	4	4				
MIL-C-21097/9-01			1	2	3	3			

MS3191-5T DATA PLATE

PAGE 2



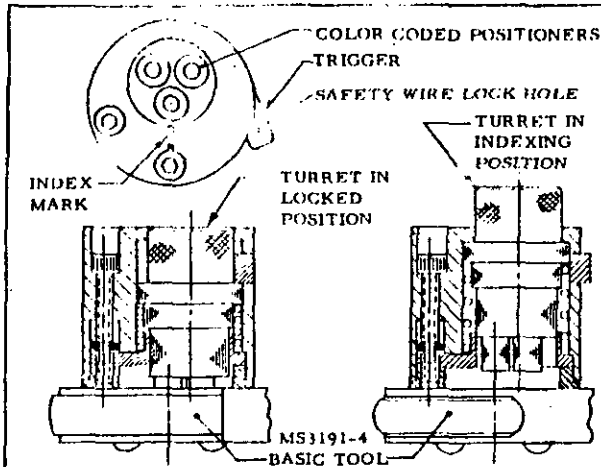
Instructions for Changing Turret Head Assembly MS3191-3T and MS3191-5T.

1. Press trigger which releases turret to indexing position.
2. Place selected turret head assembly onto retainer ring with screws lined up with tapped holes.
3. After turret head assembly is seated against retainer ring, tighten socket head screws with 9/64 inch socket-head screw key. Turret should index easily without binding.
4. To remove, loosen socket head screws until threads are disengaged from retainer ring and remove with a straight lifting motion.

PAGE 3

APPROVED 20 AUGUST 1965 REVISED (B) MS 90188-1

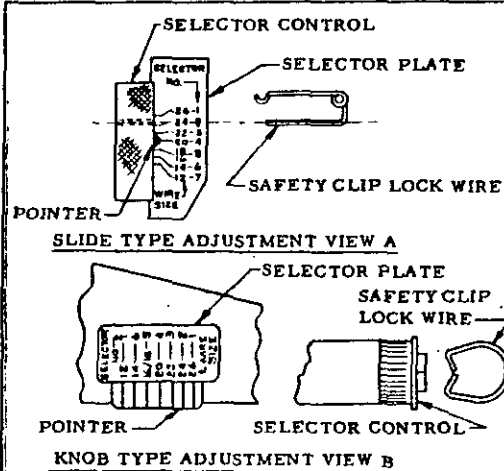
P.A. NAVY - AS Other Cust	TITLE TOOL KIT, CONTACT, CRIMP TYPE, ELECTRICAL CONNECTOR	MILITARY STANDARD MS90388 (NAVY)
NAVY - ED		
PROCUREMENT SPECIFICATION NONE	SUPERSEDES:	SHEET 2 OF



Instruction for Indexing Turret

1. Press trigger and spring loaded turret will snap out to indexing position.
2. Select positioner desired from color coded data plate on side of turret head assembly. (See Chart "A", page 2).
3. Index turret until color coded positioner is lined up with index mark on top of turret head assembly, at which time the trigger will position the turret.
4. Press turret until it snaps into locked position.

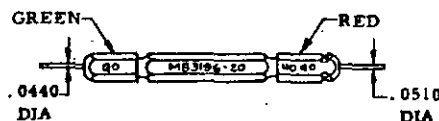
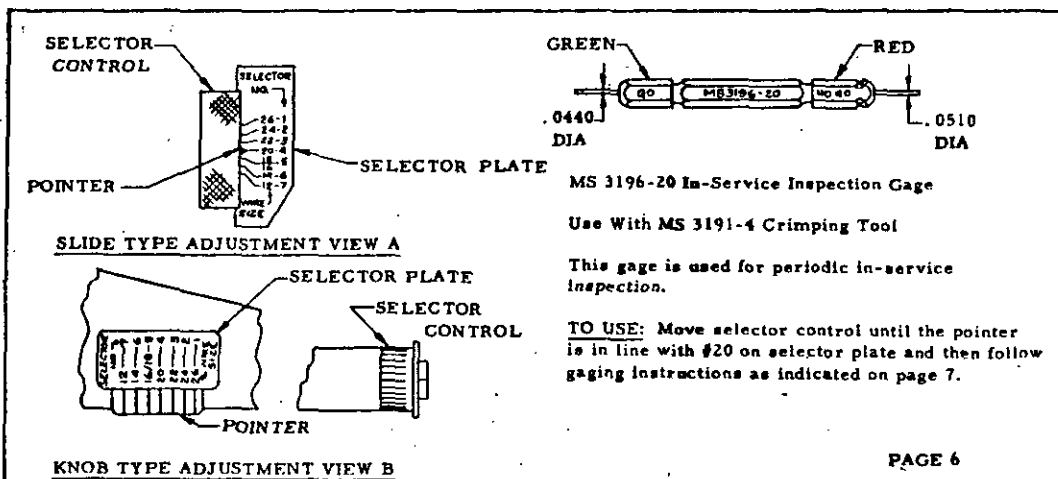
PAGE 4



Instruction For Using Indentor Closure Selector

1. Refer to data plate on turret head assembly. (See Chart "A" page 2). Below the wire size and opposite the contact size is listed the correct indentor closure number.
2. Remove the safety clip lock wire from the selector control. See view "A" or view "B" for correct type adjustment.
3. Tool must be in open position when using selector.
4. Move selector control until the pointer is in line with correct selector number.
5. Replace the safety clip lock wire and tool is ready for use.
6. Repeat instruction procedures when changing contact and/or wire sizes.

PAGE 5



MS 3196-20 In-Service Inspection Gage

Use With MS 3191-4 Crimping Tool

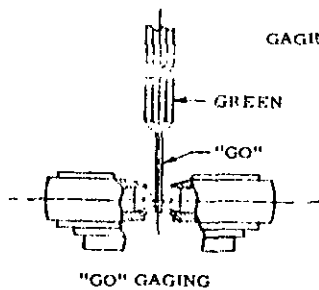
This gage is used for periodic in-service inspection.

TO USE: Move selector control until the pointer is in line with #20 on selector plate and then follow gaging instructions as indicated on page 7.

PAGE 6

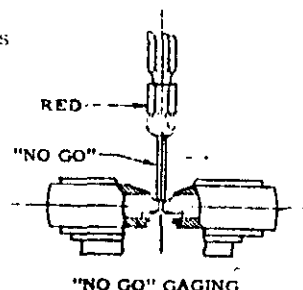
P.A. NAVY - AS Other Cust	TITLE TOOL KIT, CONTACT, CRIMP TYPE, ELECTRICAL CONNECTOR	MILITARY STANDARD
NAVY - BC		MS90388 (NAVY)
PROCUREMENT SPECIFICATION NONE	SUPERSEDES:	SHEET 3 OF

GAGING INSTRUCTIONS



"GO" GAGING

Close handles to fully closed position.
Insert "GO" gage as shown. Gage must
pass freely between indenter tips.



"NO GO" GAGING

Close handles to fully closed position.
Insert "NO GO" gage as shown. Gage must
not enter between indenter tips.
CAUTION: Do not crimp gage.

PAGE 7

MS3191-4 "EYEBALL CRIMPING" INSTRUCTIONS

INTRODUCTION (GENERAL)

The MS3191-4 crimping tool may be used to satisfactorily crimp removable pin and socket contacts to AWG wire size 12 thru 26 AWG without a turret head assembly installed. In this procedure the tool operator judges by visual examination (eyeballs) and holds the contact in the proper position relative to the tool indentors. This is accomplished by selecting the correct indenter closure as shown on the tool selector plate for the desired wire size.

While a satisfactory crimp may be obtained in this manner, it should be noted that where numerous crimps are to be accomplished, a turret head assembly is recommended.

PROCEDURE

1. Remove the safety clip lock wire from the selector control - fig. 1 or fig. 1A, page 9. Select wire size to be crimped and replace the safety clip lock wire to its original position.
2. Hold tool with selector plate downward, insert contact from underside of tool with wire barrel of contact facing operator. (Fig. II)
3. Align contact crimp area with tool indentors and close tool carefully until indentors lightly grip contact. Again, visually check indenter alignment for accuracy and proceed to insert wire into contact. (Fig. III)
4. Hold wire firmly to insure that it is bottoming in contact. Close handles until tool bottoms and ratchet "kicks off". Release handle and remove crimped contact. (Fig. IV)

PAGE 8

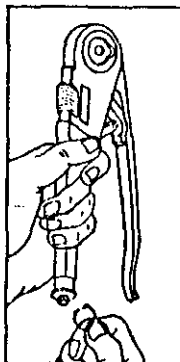


FIG I

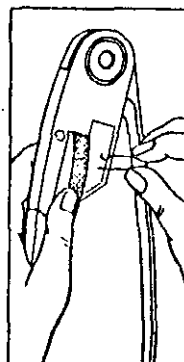


FIG 1A

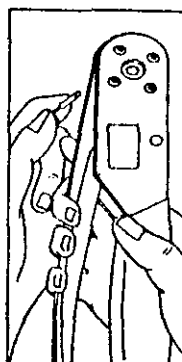


FIG II

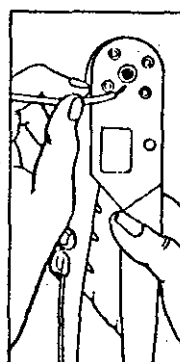


FIG III

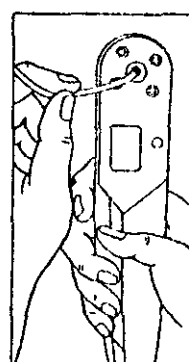


FIG IV

PAGE 9

THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN.
REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATION FOR BID.

P.A. NAVY - AS Other Cust NAVY - EC PROCUREMENT SPECIFICATION NONE	TITLE TOOL KIT, CONTACT, CRIMP TYPE ELECTRICAL CONNECTOR SUPERSEDES:	MILITARY STANDARD MS90388 (NAVY) SHEET 4 OF
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