Instructions

3M

MS^{2}™ 4005-DPM/16 Super Mate Pluggable Module

Issue 1, January 1992

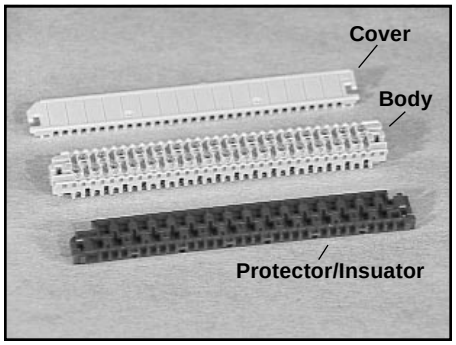
Contents:

1.0 General

These instructions describe the MS^{2TM} 4005-DPM/16 Super Mate Pluggable Module System, including module, tools and applications. This module is fire retardant and will crimp and trim-off 16 pairs of solid copper conductors 22-28 AWG (.6 - .32 mm) with insulation stripping elements and internal cut-off blades. It will accept all insulations manufactured with a maximum conductor insulation O.D. of .065" (1.7 mm) with the placement of a variety of gauges and insulation type in one module.

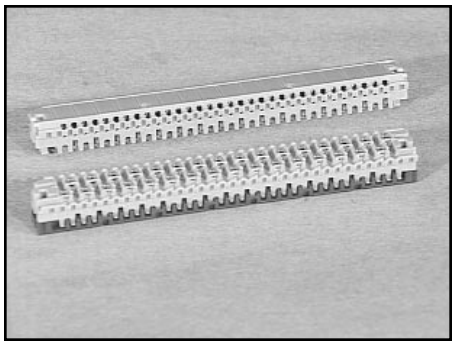
The 4005-DPM/16 Super Mate Pluggable Module consists of a grey cover, grey and blue body (grey is wire surface with elements and cut-off blades, blue is the pluggable surface) and a red protector/insulator.

Spliced 4005-DPM/16 Modules plug and unplug for a wide range of applications described within this practice. Before starting any procedures, read entire practice.

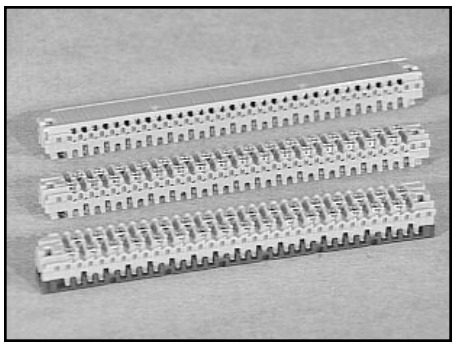


Super Mate Pluggable - 4005-DPM/16

The blue plug surface is always mated to the grey wire surface of another module.


Two Way Pluggability

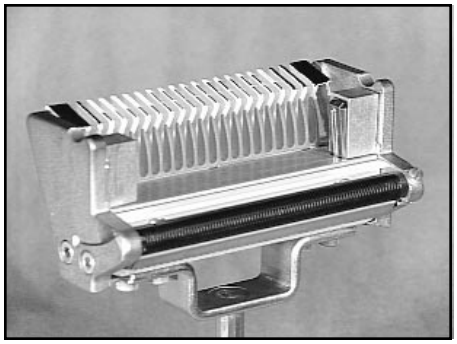
Any terminated 4005-DPM/16 Module can be plugged together in combinations of two to seven modules.


Three Way Pluggability

2.0 Rig/Kit Components

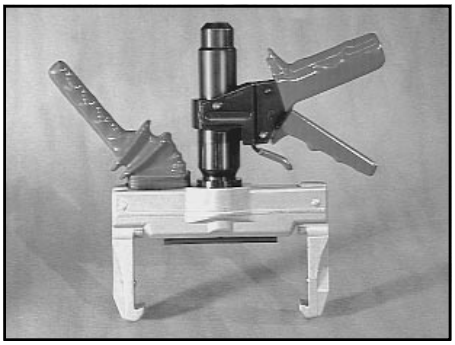
2.01 4041-P/16 Splicing Head is used with a support rig for initial termination and splicing of conductors in the modules.

The splice head allows you to arrange and hold conductors in their proper locations during the splicing procedure. The splice head will hold one or two 16 pair modules. The splice head comes with a rear spring holder (see Section 3.03) and an extra wire retainer spring.



4041-P/16 Splicing Head

2.02 4036/16 Hand Hydraulic Crimping Unit is used with the 4041-P/16 Splice Head to crimp modules.

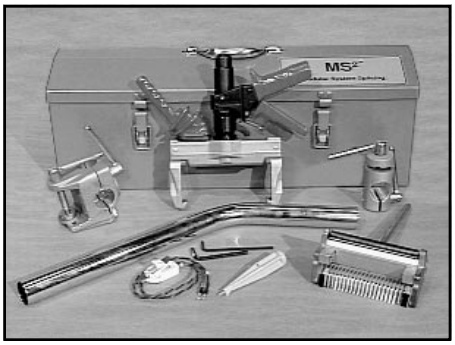


4036/16 Hand Crimper

2.03 The support tube and related components provide support for cables and tools while splicing is being done.

Note: Kit components may be ordered separately.

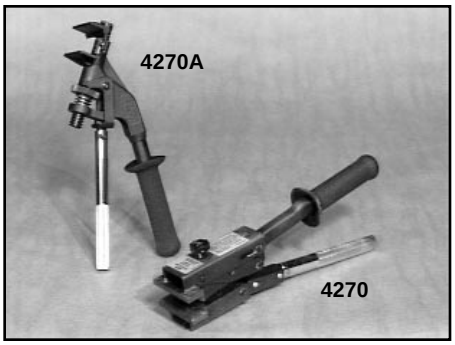
4028 Metal Rig Case
4045 Universal Splicing Head Support Assembly
4041-P/16 Splicing Head and "T" Bar Pedestal Support
4036-16 Hand Hydraulic Crimper
4051 Wire Insertion Tool
4047 Pair Test Plug
Allen Wrenches



4045-K/16

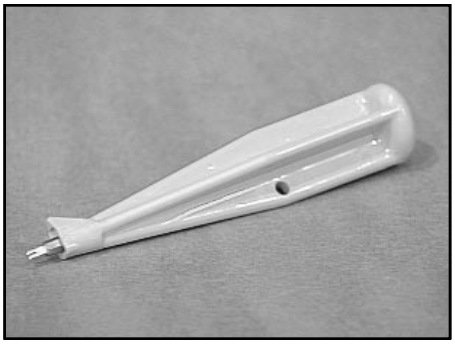
3.0 Hand Tools and Accessories

3.01 4270 Series Hand Pressers - Used for plugging a combination of from two through seven preterminated modules together. The newer 4270A is smaller and is designed to distribute its weight vertically as opposed to the horizontal design of the 4270.



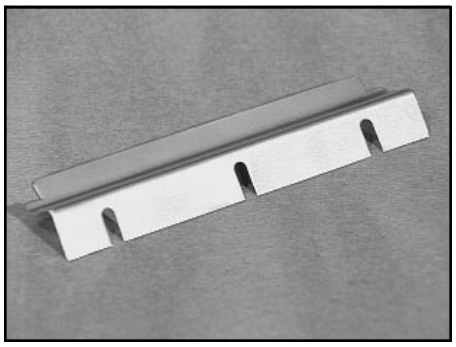
4270 Series Hand Pressers

3.02 4051 Wire Insertion and Cut-Off Tool - Conductor rearrangements and individual wire insertion can be made by using the 4051 Wire Insertion and Cut-Off Tool.



4051 Wire Insertion and Cut Off Tool

3.03 Rear Spring Holder - Attaches to the back of a 4041-P/16 Splice Head to allow the addition of a second set of wire retaining springs for cutting in Super Mate Modules on through cables.

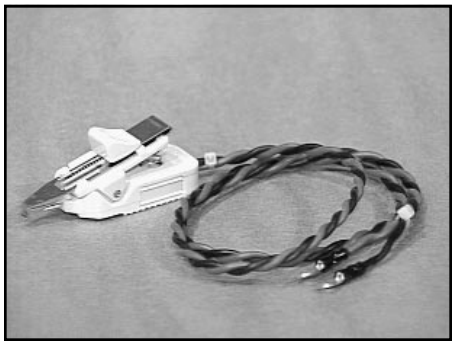


Rear Spring Holder

3.04 4053-PM/16 Module Separation Tool - The only tool recommended for unplugging 4005-DPM/16 Super Mate Modules.

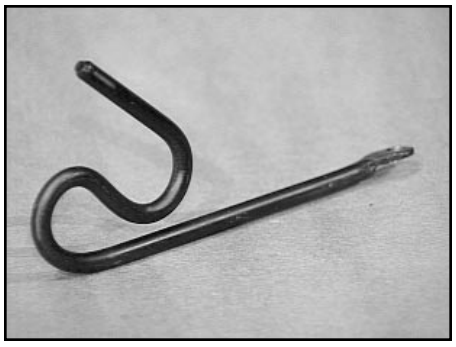
4053-PM/16 Module Separation Tool

3.05 4047 Pair Test Plug - A connector probe which permits pair checking without damaging wire insulation.



4047 Pair Test Plug

3.06 4041-2 Unilength Hook 2" - Attaches to all MS^2 Splicing Rigs to facilitate splicing in the unilength configuration as described in Section 7.0.

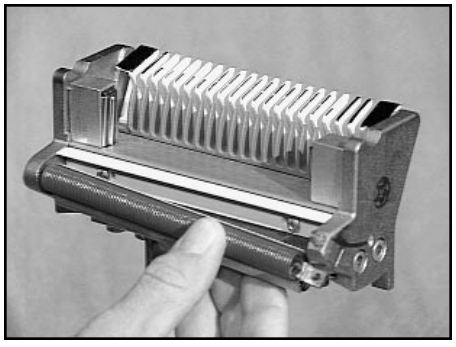


4041-2 Unilength Hook 2"

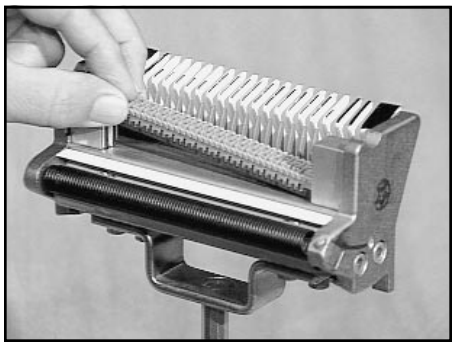
4.0 Wire Placement in Module

4.01 Set retainer spring to proper wire gauge.

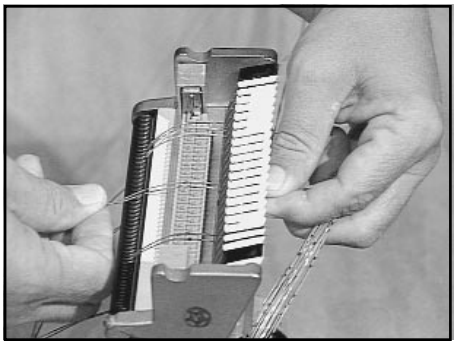
Note: Red Spring = 24-26 gauge. Black Spring = 22-24 gauge.



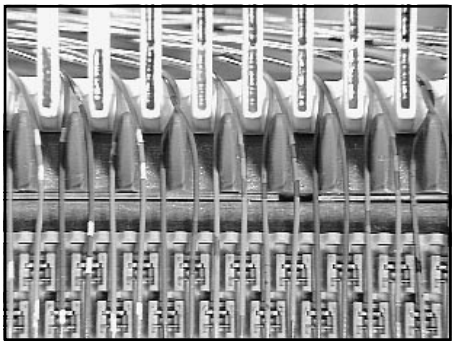
4.02 Place body with red insulator attached into side plate retainer springs with cut corner of module facing upper left.



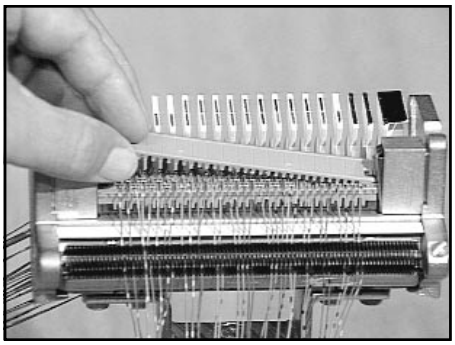
4.03 Select appropriate 16 pair group and place wires in module according to color code. Draw wires snug into splice head and into wire channels in module. Secure in retainer spring.



4.04 Place pair to right side of corresponding white color coded wire guide. Separate conductors over pair separator...tip left, ring right.

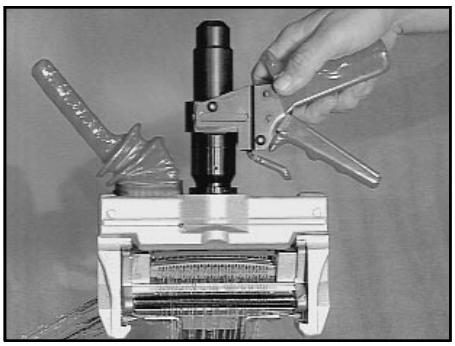


4.05 If only one Super Mate body is being terminated, install grey cover, cut corner facing upper left, and crimp.

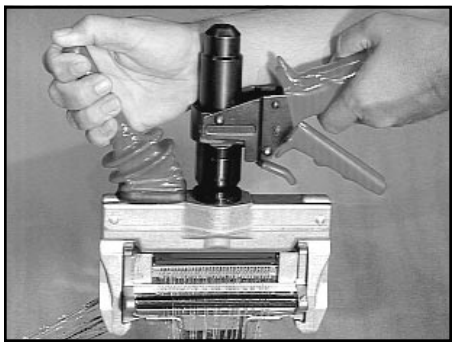


5.0 Crimping Modules

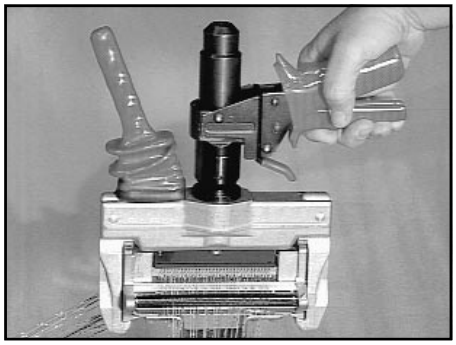
5.01 Rest crimper on splice head with legs angled toward front of splice head and posts of crimper in saddles of head. Rotate the clamp until it is locked in an upright position by the detents.



5.02 Advance press-bar of crimper to module using hand lever.

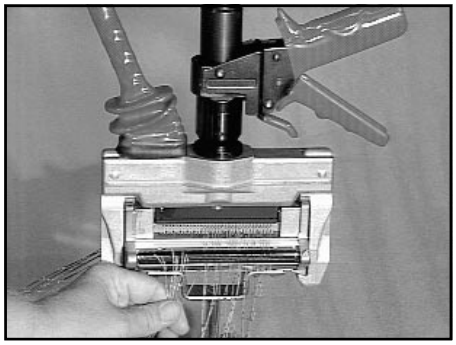


5.03 Pump handle until module is crimped and pressure by-pass operates.



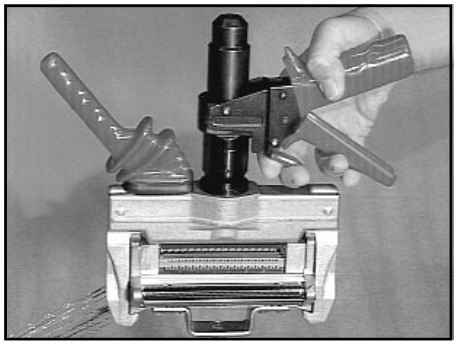
5.04 Remove one fourth to one third of the cut conductors at a time by lifting them straight up from the retainer spring.

TO AVOID DAMAGING THE RETAINER SPRING, DO NOT ATTEMPT TO REMOVE ALL OF THE CONDUCTORS AT ONCE.



5.05 Retract press-bar by pulling release trigger.

5.06 Remove crimping clamp by reversing step 5.01.

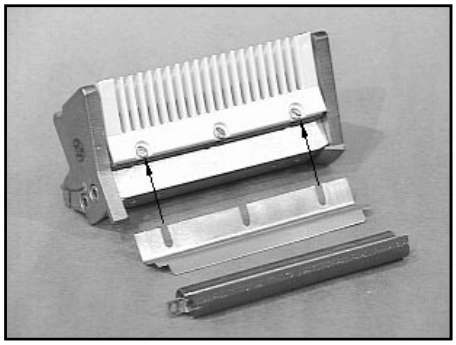


6.0 Cable Conversion to 4005-DPM/16 Module Splice

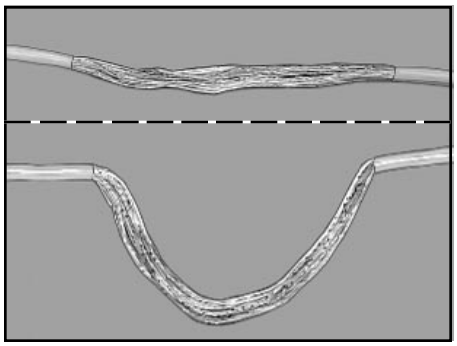
This procedure can be used when requirements call for half-tapping into existing cable or conductor slack removal without interruption of service.

These operations may be facilitated by the use of a rear spring holder and appropriate wire retainer spring.

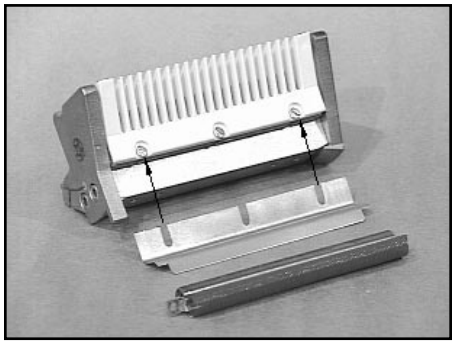
Slack requirements are: 6" (152 mm) minimum to perform this function.



6.01 Cut cable sheath and expose conductors to the desired length for the splice opening plus the amount of necessary slack. Pull the cables together until sheath ends are at desired opening. Identify cables binder groups.

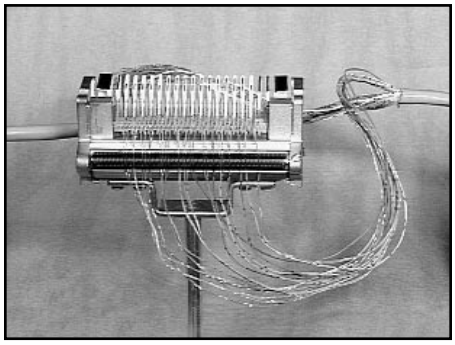


6.02 Mount splicing rig. Place appropriate retainer spring onto the rear spring holder by sliding the spring on to its flat plate.

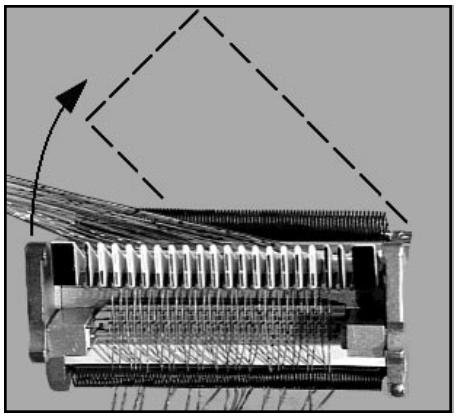


6.03 Using one splice head, position it into the opening. Place first 4005-DPM/16 Module into splice head with red insulator in place as described in section 4.02.

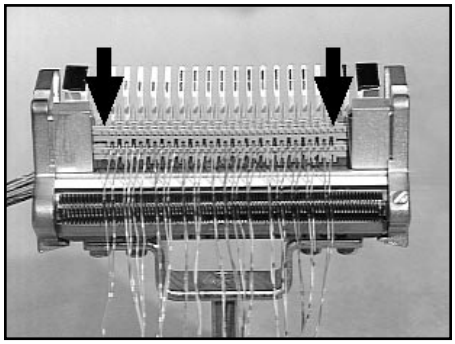
6.04 Select a binder group to be converted from one side (preferably from the Main Distribution Frame (MDF) side) of the splice.



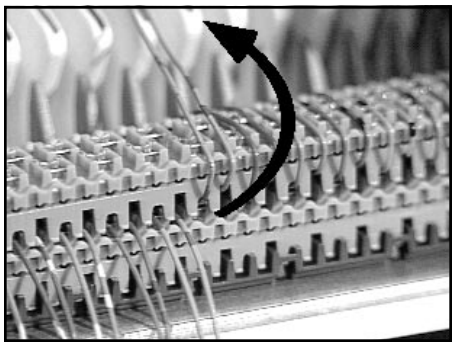
6.05 Lay pairs into module according to section 4.03 and 4.04 making sure splice head is turned sufficiently to open the way for future conductor entry into the rear wire retainer spring.



6.06 Remove the red insulator from a second module and lay second module body into the splice head and lightly tap the body on each end to set end alignment posts of module.

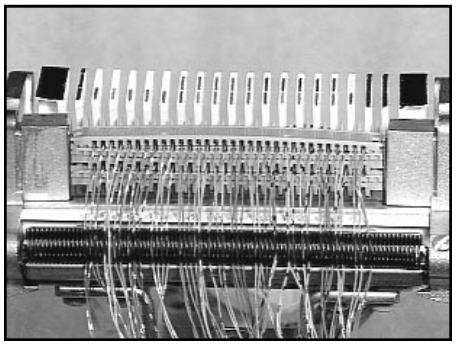


6.07 Choose the corresponding group laid into the first module body and begin to lay wires into second module body in consecutive order by folding wires up and over themselves, across the second body and secure wires into rear wire retainer spring.



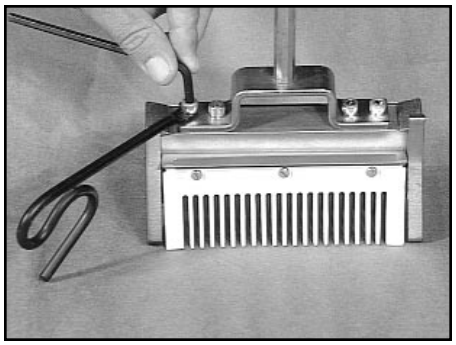
6.08 Place cover and crimp module according to Section 5.0. Carefully remove cut conductors from the front of the module and remove module from splice head. Complete splice conversion of remaining binder groups.

6.09 For the application of conductor slack removal, the unwanted slack should be kept on the front side of the module (cut-off blade side). When the module is crimped, it will fall away, out of the splice without interruption of service.



6.10 When half-tapping, follow the procedures in Section 7.0 (Unilength Splicing) for terminating the new switch cable. Follow the procedures in Section 8.0 (Switch Changeover) to do the actual half-tap.

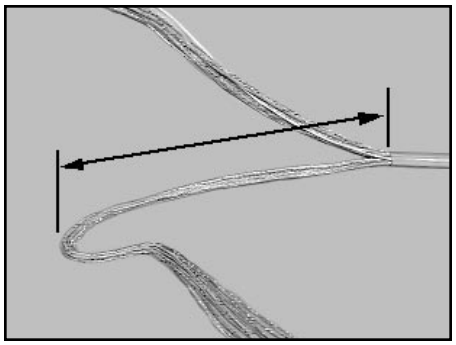
7.0 Unilength Splicing Using 4005-DPM/16 Super Mate



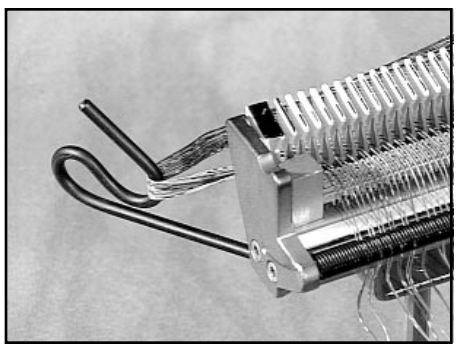
7.01 Attach unilength hook to splice head. Hook can be attached on either side depending on which side of the splice opening the cable is entering from.

Note: This procedure is for the termination of the "new" switch.

Configurations	Splice Opening	Unilength
2 Bank	12" - 19"	14" - 21"
3 Bank	18" minimum	18"
4 Bank	24" minimum	24"



7.02 Place module with red insulator into splice head. Bring conductors across splice opening thru uni-length hook and back into splice head.

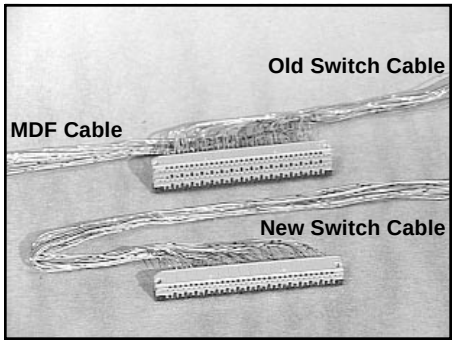


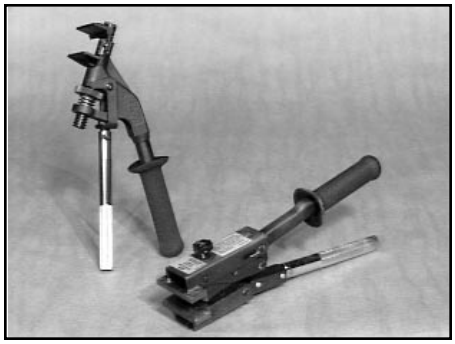
7.03 Lay conductors across body, add cover and crimp.

7.04 Complete termination in remaining binder groups of the new switch cable.

8.0 Switch Changeover (Half-tap)

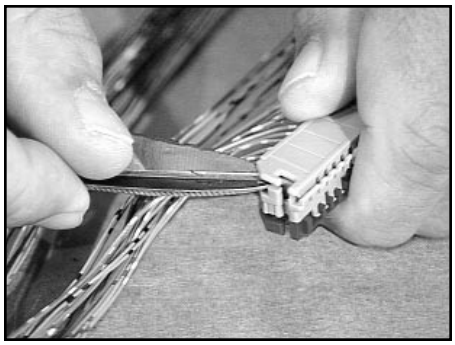
8.01 After necessary conversion (Section 6.0), terminating (Section 7.0) and testing, the new switch cable can be half-tapped to the existing MDF cable and the old switch cable by using a 4270 Series Hand Presser.

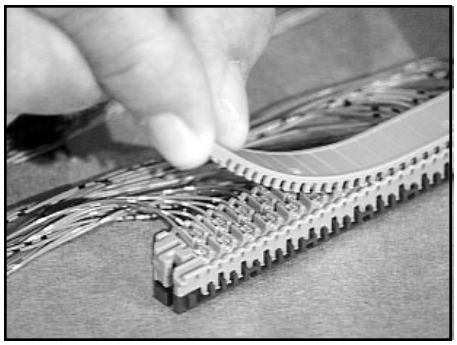




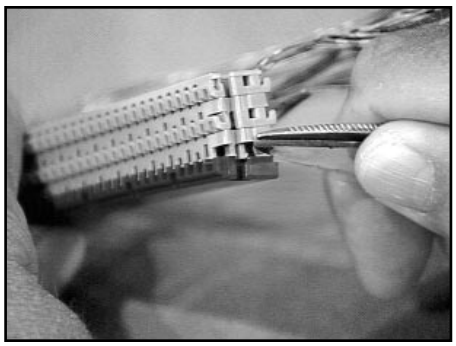
4270 Series Hand Pressers

8.02 Insert the point of a pair of snips under the cut corner of the cover (no latches are in this immediate area) to peel cover away. Remove the cover of the new switch cable.

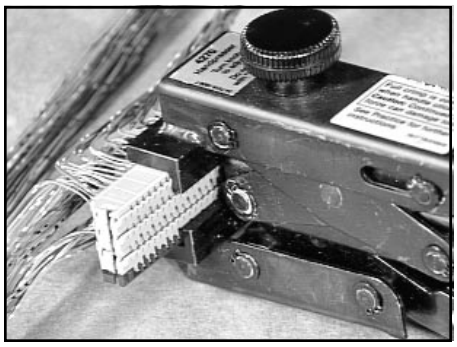




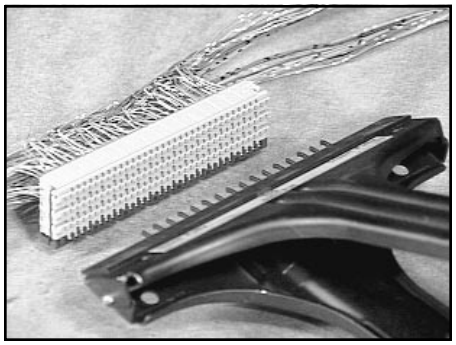
8.03 Remove the red insulator from the bottom of the MDF module. To remove insulator, disengage both alignment posts by prying both ends of the insulator away from the module body.



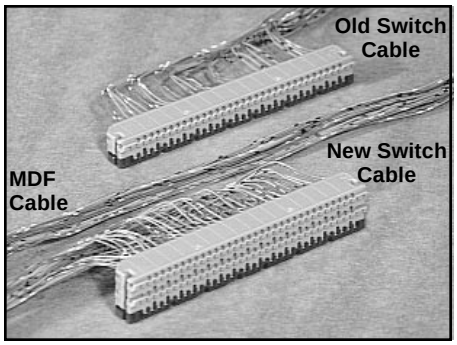
8.04 Align the new switch cable module with the MDF module and crimp together using a 4270 Series Hand Presser. Crimp the 4005-DPM/16 Module combination with three crimps to engage the entire length of it. The first crimp must be made in the center, the second and third crimps are made at each end. The load sensing handle will indicate a complete crimp.



8.05 When ready to perform the cut-over, remove the old switch cable module from the module combination by using the 4053-PM/16 Separation Tool. Insert the teeth of the tool into the large holes at the blue surface of the module desired to be separated. Squeeze the handles of the tool to unplug the module.



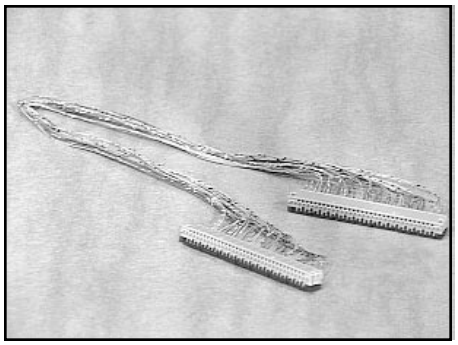
8.06 Crimp a cover onto the module combination and place a red insulator on the old switch module termination.



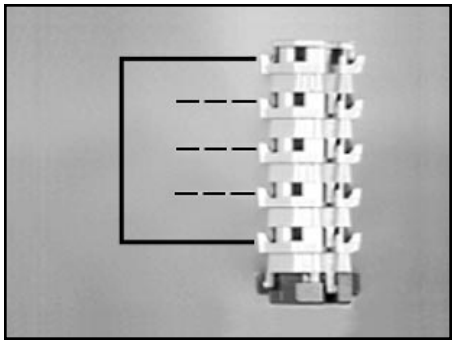
9.0 Maintenance

Should the need arise for single pair access and working pair continuity is required, the following combinations may be used to separate the module stack.

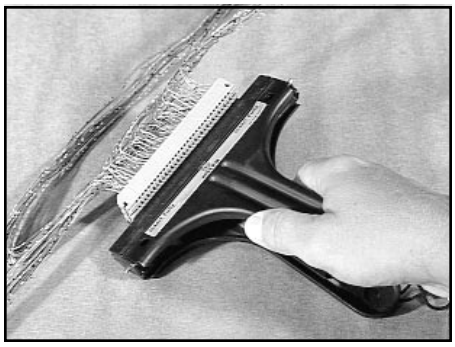
9.01 Build a jumper strap using two Super Mate modules.



9.02 After removing the appropriate covers and insulators, crimp one end of the jumper strap onto the top of the module stack and the other end of the strap onto the bottom. The stack is now ready for separation.



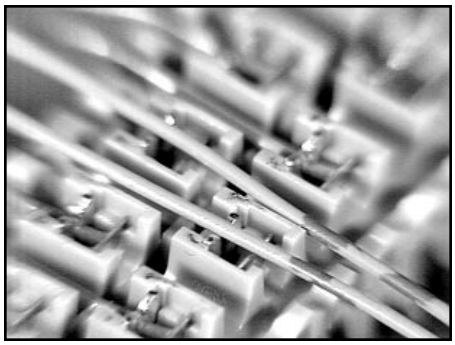
9.03 Using the 4053-PM/16 Separation Tool, separate the module stack at the required location.



9.04 Remove the desired pair from the elements of the separated module.

Note: ***The connection and retention ability of the conductor is weakened if the conductor is reconnected at the same point on the wire as the first connection. To eliminate this possibility, trim the nicked conductor end after removal.***

10.0 Wire Insertion Tool



The 4051 Wire Insertion/Cut-Off Tool is used to insert wires into the "U" contact and to cut off excess wire in Super Mate Modules when conductor rearrangements are made inside the module.

10.01 Pull wire across top of "U" contact and cut off blade.

10.02 Align 4051 Tool with the slot aligned to the "U" contact and the groove with the wire.

10.03 Push straight down forcing the conductor into the "U" contact. DO NOT ROCK TOOL BACK AND FORTH.

10.04 To cut off wire, align slot with cut off blade and groove with wire. Push straight down. Remove excess wire from module. Do not rock tool back and forth.

Upon completion of wire insertion and/or rearrangements, recrimp using a 4270 Series Hand Presser, remove jumper strap (section 9.01) using 4053-PM/16 Separation Tool and replace covers and insulators.

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34-7030-8813-7

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