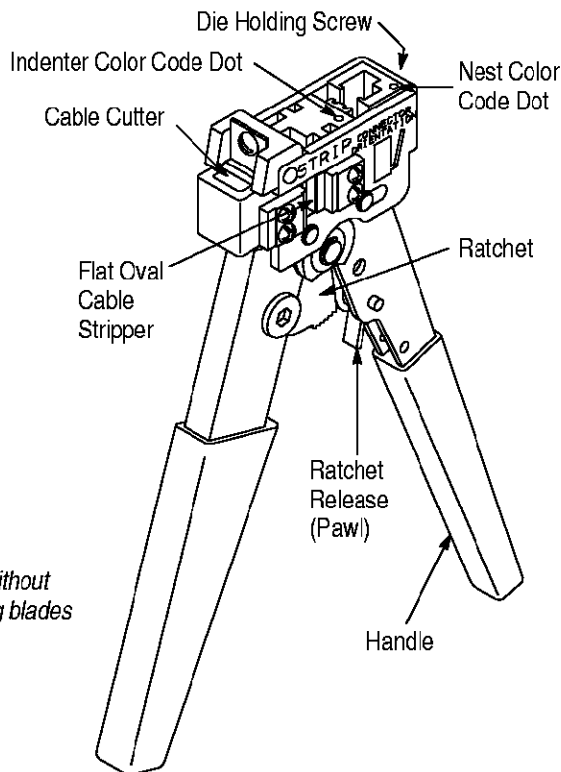


PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. Hand tools are intended for occasional use and low volume applications. A wide selection of powered application equipment for extended-use, production operations is available.



CAUTION: Do NOT cycle hand tool without a die in place. Damage to the stripping blades may occur.

TERMINATING TOOL	CORRESPONDING DIE SET		
	DIE NUMBER	COLOR DOT	DESCRIPTION
2-231652-5	853400-6	ORANGE	6-POSITION OFFSET LATCH
2-231652-9	853400-9	BROWN	8-POSITION PLUGS

Figure 1

1. INTRODUCTION

This instruction sheet covers AMP* Terminating Tool 2-231652-5 which includes die set 853400-6 for 6-position DECconnect Modular Plug Connectors with offset latch, and tool 2-231652-9 which includes die set 853400-9 for 8-position plugs. See Figure 1. These tools also can cut and strip flat cables. Other cables pictured in Figure 2 will also terminate to the plugs, but must be cut and stripped by separate tools.

NOTE These tools may accept other die sets (available separately) for other sizes of the modular plug or to replace a worn or damaged die set. Refer to Instruction Sheet 408-9767.

NOTE

All dimensions are in millimeters [followed by inches in brackets]. Figures and illustrations are for identification only and are not drawn to scale.

Read these instructions completely and understand them before using the terminating tools.

Reasons for reissue of this instruction sheet are provided in Section 8, REVISION SUMMARY.

2. DESCRIPTION

Each tool features a die set unique to its purpose, but die sets can be replaced in either tool to accommodate all modular plugs. A die set consists of a nest and indenter, each with the same color code, one each on the nest and indenter. The dies are held in the tool by a single die holding screw. The

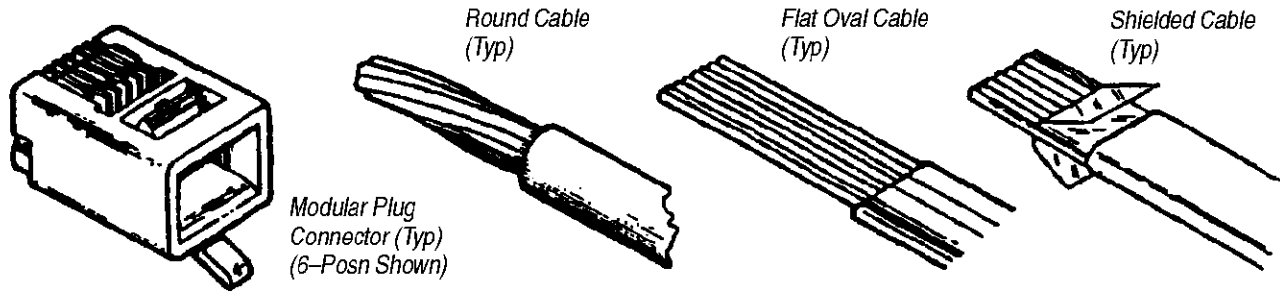
tools also includes a wire cutter and jacket insulation stripper to prepare the appropriately sized cable. See Figures 1 and 2.

NOTE Die sets may be purchased separately, either for other sizes of plugs or to replace a worn or damaged die set. (Refer to Paragraph 5.3).

The tool handles ensures full crimping. Once engaged, the ratchet will not release until the handles

have been FULLY closed, unless the ratchet release (pawl) is depressed to manually release the ratchet. When depressed, the pawl prevents crimping of an improperly positioned connector.

CAUTION The dies bottom before the ratchet releases. This design feature ensures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.



MODULAR PLUG		PART NUMBER	CABLE		HAND TOOL			STRIP LENGTH
POSN	DESC		TYPE	STYLE	ASSEMBLY NUMBER	COLOR DOT	DIE SET NUMBER	
6	OFFSET	555019	SOLID	ROUND	2-231652-5	ORANGE	853400-6	6.35-7.14 [.25-.28]
		555020	STRANDED	FLAT OVAL				
		555238	STRANDED	ROUND				
		555236	SOLID	FLAT OVAL				
		555237	STRANDED	FLAT OVAL				
8	LINE	554169	STRANDED	ROUND	2-231652-9	BROWN	853400-9	12.7-14.2 [.50-.56]
		554720	SOLID	FLAT OVAL				
		554739	STRANDED	FLAT OVAL				
		557315	SOLID	ROUND				
	BLUE-SMALL CONDUCTOR	557972	SOLID	FLAT OVAL				
		557973	STRANDED	FLAT OVAL				
	KEYED	555417	SOLID	FLAT OVAL				
		554743	STRANDED	FLAT OVAL				
		554170	STRANDED	ROUND				
	SHIELDED	569530	SOLID	ROUND				
		556179	STRANDED	ROUND				
		569542	STRANDED	FLAT OVAL				
	SHIELDED-KEYED	569531	SOLID	ROUND				
		556592	STRANDED	FLAT OVAL				
		569543	STRANDED	FLAT OVAL				

NOTE: Small conductor products are for 0.74-0.86 [.029-.034] OD conductors. Regular products are for 0.89-0.99 [.035-.039] OD Conductors.

Figure 2

3. CABLE PREPARATION

Refer to Figure 2 and select the appropriate 6-wire or 8-wire jacketed cable for the modular plug connector being used. Then cut and strip the cable as follows:

3.1. Unshielded Flat Oval Cable

1. Refer to Figure 3 and insert cable squarely into CUT slot in tool cable cutter. Squeeze handles until ratchet releases.
2. Insert trimmed cable into STRIP slot in tool flat oval cable stripper until cable butts against die cable stop.
3. Close handles to last ratchet stop, but DO NOT release them. Pull cable straight out of tool. Then release tool handles.

NOTE *DO NOT squeeze handles together while pulling cable out. Rather, with handles closed (and not released) grip head of tool in one hand and cable in other; then pull cable straight out of tool.*

4. Check cable strip length as shown in Figure 2.

3.2. Shielded Flat Oval and Jacketed Round Cable

Prepare the cable according to Application Specification 114-6016.

CAUTION *DO NOT cut or remove insulation from individual conductors. This may result in shorted or open terminations within the finished modular plug cable assembly.*

4. TERMINATION PROCEDURE

NOTE *All views of terminating procedures show 6-position offset modular plugs. Procedures are identical, and corresponding views would be similar for 8-position plugs.*

Before proceeding, double-check to be sure that the cable and plug are compatible, and that cable polarity is correctly maintained for your specific application. Refer to Figure 4 and proceed as follows:

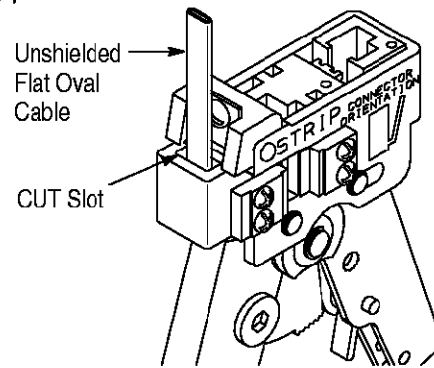
1. Hold plug as shown (locking tab facing UP). Insert cable into plug until fully bottomed.
2. Open tool handles. Insert plug assembly *fully* into die cavity. Make sure that the plug bottoms into place.

CAUTION *Failure to fully seat the plug assembly in the cavity will cause indenter to misalign with plug strain-relief cavities, which may result in die set damage.*

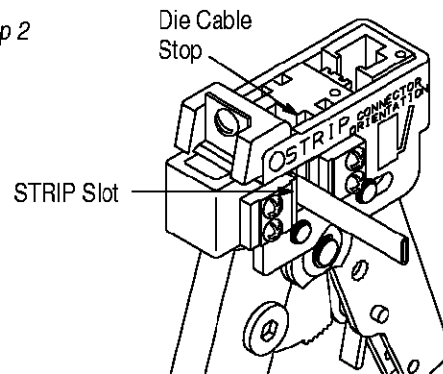
3. Squeeze handles until ratchet releases. Depress locking tab (if applicable) and remove terminated modular plug cable assembly.

Cutting and Stripping Unshielded Flat Oval Cable

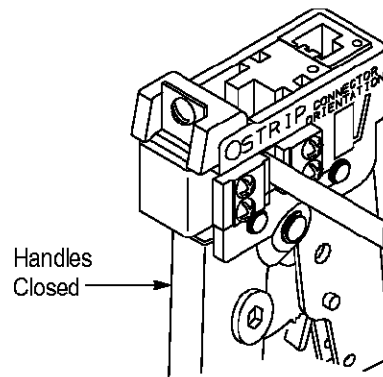
Step 1



Step 2



Step 3



Step 4

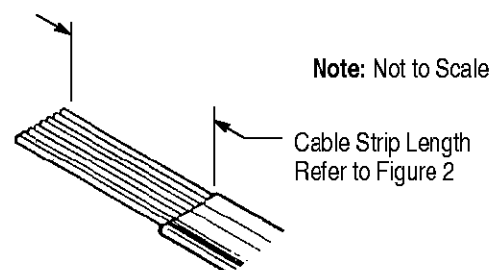


Figure 3

4. After releasing the terminated plug, inspect for proper crimp height using a dial indicator or digital indicator with needle-point probes, or Crimp Height Gage 904170-1 according to 408-4389.

5. Figure 5 shows a cross-section of a typical terminated plug—proper crimp height dimension and required location of the conductors. A visual inspection through the plastic housing of the plug should reveal whether the conductors are within acceptable range.

NOTE Refer to 114-6016 for specific information concerning inspection requirements.

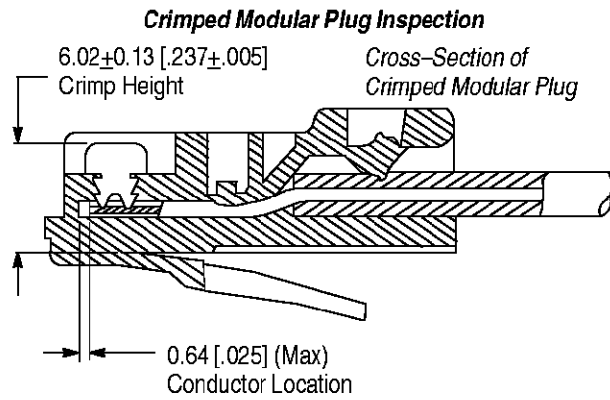


Figure 5

Terminating Modular Plug

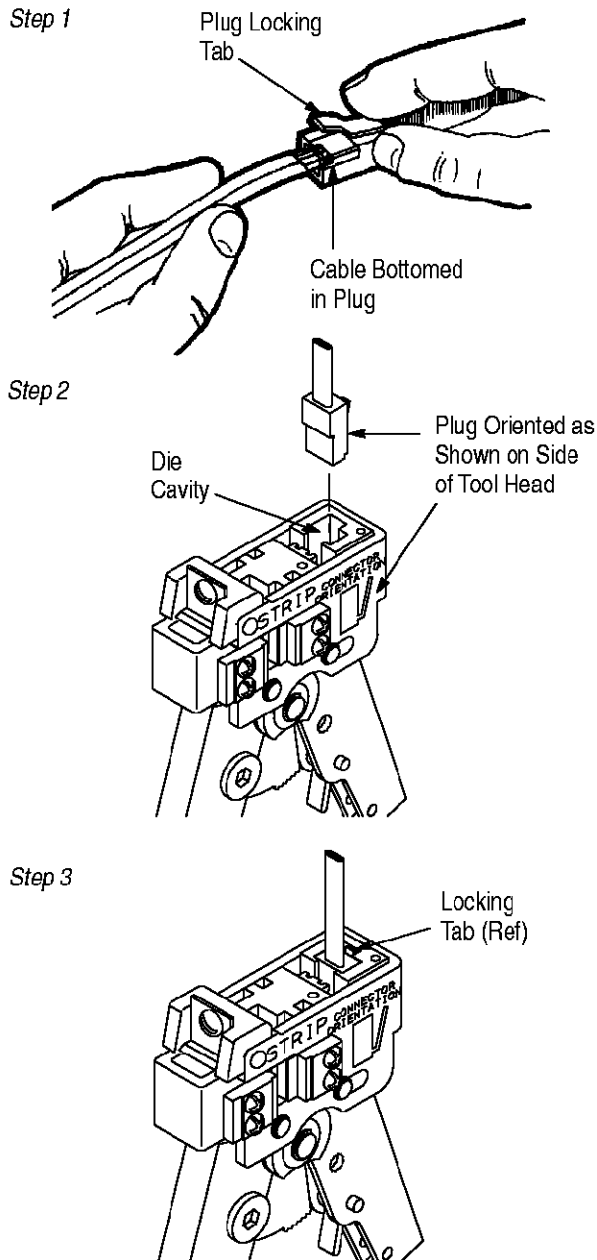


Figure 4

5. TOOL ADJUSTMENTS

5.1. Adjusting the Cable Stripper

If cable jacket is cut too shallow and does not strip properly from the conductor bundle, or if it is cut too deeply and conductor insulation is also cut, then refer to Figure 6 and adjust the cable stripper on the hand tool as follows:

NOTE The die set must be in the tool when adjusting the flat cable stripper.

CAUTION Do NOT cycle hand tool without a die in place. Damage to the stripping blades may occur.

1. Close tool handles until the dies bottom, but DO NOT release the handles.
2. Loosen the two screws that hold the movable blade assembly.
3. Insert the blade set-up gage (part of the blade replacement kit included with the tool) or a 1.02 [.040] shim between the stationary and movable blades. Slide the movable blade against the gage (or shim) and tighten the screws.

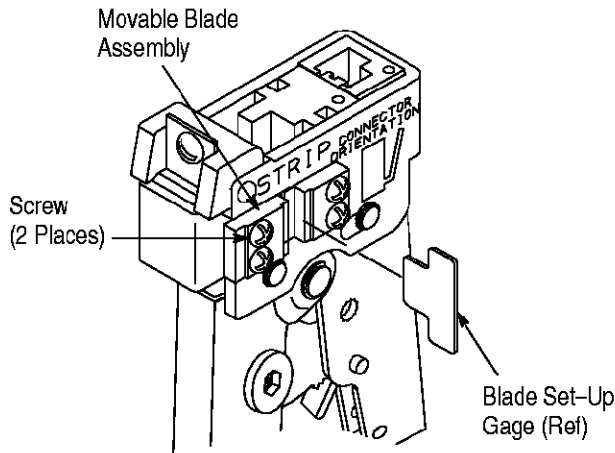
NOTE The recommended shim thickness does not account for larger than normal conductor insulation. Adjust the blade gap according to your specific needs.

5.2. Replacing Cable Stripper Blades

If the cable stripper blades are worn or damaged, refer to Figure 7 and replace the fixed blade assembly and movable blade assembly as follows:

1. Remove the four screws holding both blades in place. Remove fixed blade assembly and movable blade assembly from tool.
2. Position new blades onto tool with beveled edges facing inward.
3. Install and tighten screws. Adjust cable stripper according to Paragraph 5.1.

Adjusting the Cable Stripper



Replacing Blades in Cable Stripper

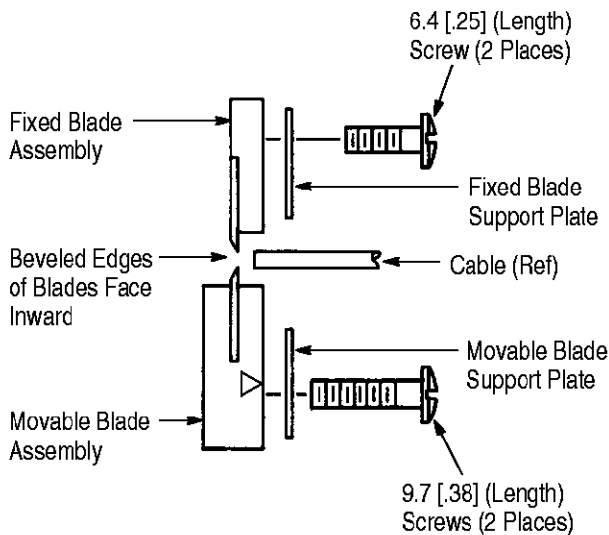


Figure 6

5.3. Replacing or Changing the Die Set

Replace worn die set, or change to another die set as follows:

1. Refer to Figure 1 and remove die holding screw. Slide die indenter and nest out of tool.
2. Insert new die set and secure in place.

NOTE

To order replacement dies, refer to the part numbers listed in Figure 2 and call 1-800-526-5142.

6. MAINTENANCE AND INSPECTION

Inspect the hand tool and die set immediately upon arrival at your facility and at regularly-scheduled intervals thereafter to ensure that they have not been

damaged. When not in use, store with tool handles closed in a clean, dry area.

6.1. Daily Maintenance

At the close of each shift, the responsible operator should clean foreign particles from the tool using a soft, clean, lint-free cloth or brush. Make sure all pins, rings and other retaining hardware is in place, and that the die set is undamaged. Lightly lubricate all pins, pivot points and bearing surfaces using a good grade SAE 20 motor oil. Do not lubricate excessively.

CAUTION

DO NOT lubricate surfaces of the die set that contact the product. These areas must be kept clean to ensure a usable modular plug cable assembly.

6.2. Periodic Inspection

We recommend that the following inspections be conducted at least once a month by quality control personnel. More frequent inspections should be conducted if your work environment, company standards, or amount of tool use indicates the need.

A. Visual Inspection

Remove die set from the tool; then, remove all lubrication and accumulated film and debris by immersing the dies and tool head in a mild commercial degreaser.

1. Check for missing or defective pins, rings, or other retaining hardware. Replace parts as necessary.
2. Closely inspect dies for damage, giving special attention to bearing surfaces and surfaces that contact the product. Worn, cracked, pitted, or chipped indenter or nest surfaces, or other obvious wear or damage to the die set or tool head requires removal of the affected part from service.

B. Die Closure Inspection

The hand tool and die set is inspected for correct operation before shipment. To ensure uniform performance over the life of the tool, periodically inspect as follows:

1. Insert a properly stripped cable of appropriate type and size into a sample modular plug. Then insert the unterminated cable and plug into the die cavity.
2. Squeeze tool handles together slowly, while watching to ensure indenter bottoms against nest.
3. Release handles to open die set and remove terminated cable assembly.
4. Test for proper crimp height according to Section 4, Step 4. If plug crimp height is within acceptable limits, lightly lubricate the tool and die

set and place it back into service. If the crimp height is not within acceptable limits, return the tool (with the die set) for evaluation (refer to Section 7).

For tool repair service, please contact a Tyco Representative at 1-800-526-5136.

7. REPLACEMENT AND REPAIR

Customer-replaceable parts are provided in Figure 7. A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. Order replacement parts through your Tyco Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605 or write to:

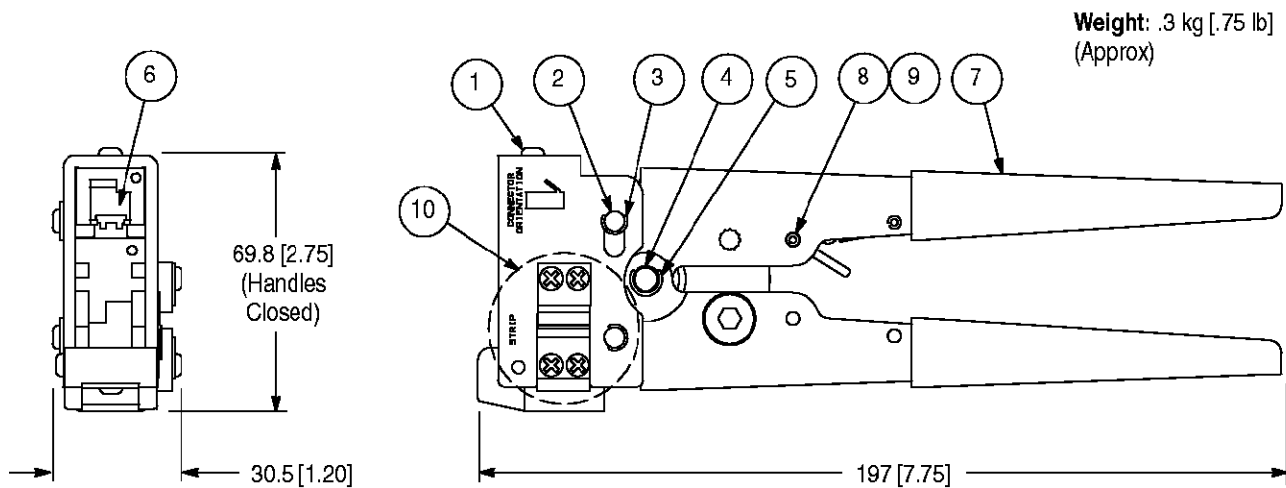
CUSTOMER SERVICE (038-035)
TYCO ELECTRONICS CORPORATION
PO BOX 3608
HARRISBURG PA 17105-3608

8. REVISION SUMMARY

Since the previous release of this document, the following changes were made:

Per EC: 0990-1317-00

- Updated document to corporate requirements
- Added reactivated tool 2-231652-5 and related information throughout document where necessary
- Added chart to Figure 1
- Added or changed information in Sections 1, 2, 3, 4, 5, and 7



REPLACEMENT PARTS

ITEM	DESCRIPTION	TOOLING PART NUMBER		QTY PER TOOL
		2-231652-5	2-231652-9	
1	SCREW, Pan Head 4-40 x .250 L (Die Holding)	993314-1	993314-1	1
2	PIN, Grooved	4-23619-8	4-23619-8	2
3	RING, Crescent Retaining	21045-3	21045-3	4
4	PIN, Center	2-23620-5	2-23620-5	1
5	RING, Crescent Retaining	21045-6	21045-6	2
6	DIE SET	853400-6	853400-9	1
7	TOOLING ASSEMBLY, (Without Die Set)	2-231652-0	2-231652-0	1
8	RING, Crescent Retaining	21045-1	21045-1	2
9	PIN, Handle (Pawl)	768522-1	768522-1	2
10	KIT, Blade Replacement (Consists of a blade set-up gage, 5 sets of strip blades, 5 cutoff blades, 2 support plates, and 5 pan head screws.	231662-4	231662-4	<i>Not Included</i>

Figure 7