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AMP*
TOOLING KIT
1-762661-4

IS 9701

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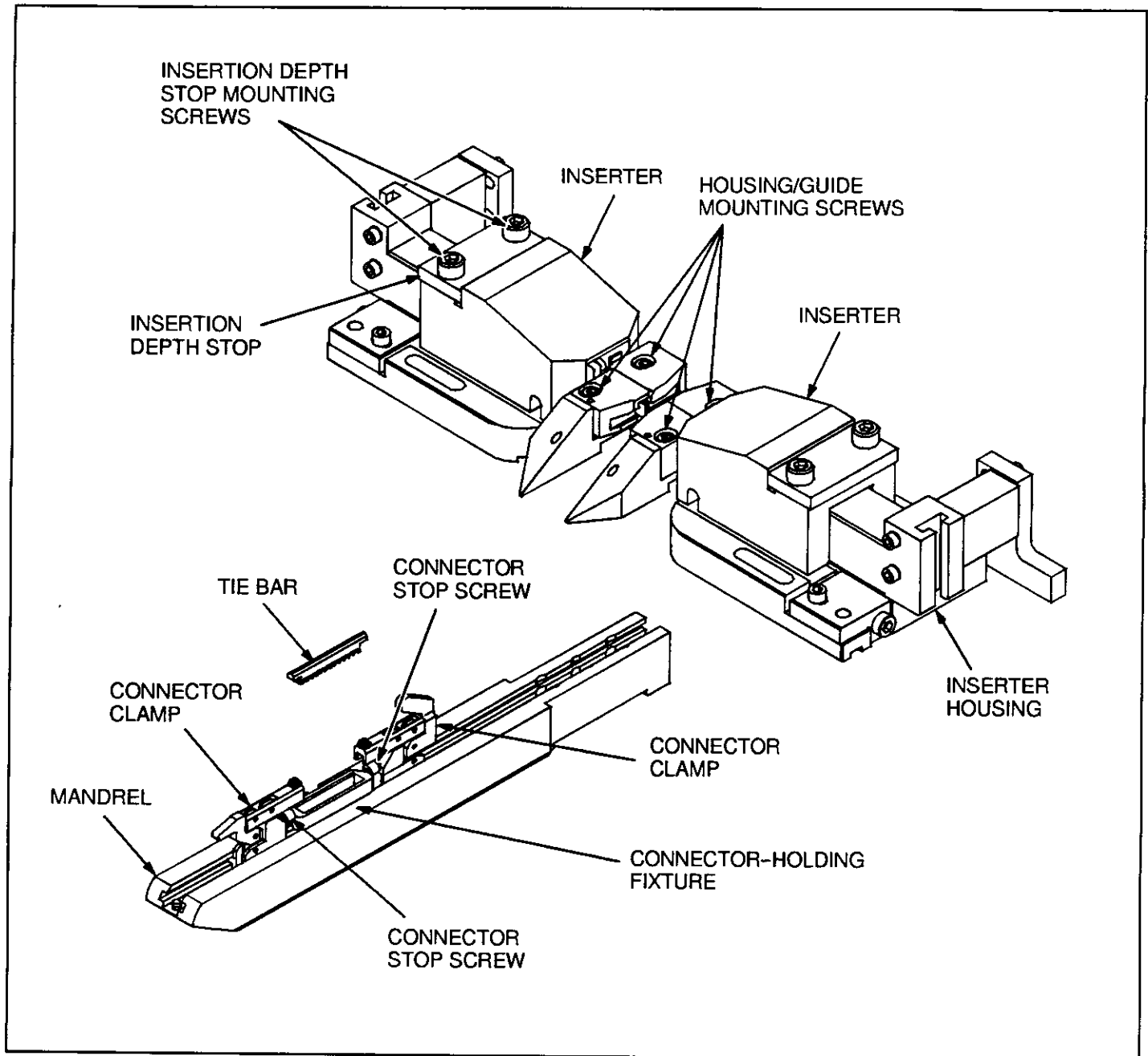


Fig. 1

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1. INTRODUCTION

This instruction sheet (IS) covers the installation and use of AMP Tooling Kit 1-762661-4, which is used in the CHAMPOMATOR* 2.5 Bench Terminating Machine to apply discrete-wire cable to AMPLIMITE* .050 Series Connectors.

This sheet also provides part number information for the tooling required to apply the various connector sizes.

Read this sheet thoroughly before installing or using the Tooling Kit.

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NOTE

All dimensions on this sheet are in millimeters [with inch equivalents provided in brackets]. Figures and illustrations are for identification only and are not drawn to scale.

NOTE

These instructions are supplied in the documentation package for Tooling Kit 1-762661-4. Make sure to retain all material in the documentation package for reference. For detailed information on the operation of the CHAMPOMATOR 2.5 Bench Terminating Machine, refer to AMP Customer Manual CM 5786, which is supplied with the machine.

2. DESCRIPTION

The tooling kit consists of a mandrel and two inserter assemblies. A connector-holding fixture and tie bar, purchased separately, are used to position and secure the connector during machine operation.

NOTE

The fixture used must be correct for the size and type of connector being terminated. Refer to Paragraph 4.4, Changing the Fixture, for assistance on selecting the correct fixture for the connector.

The mandrel performs two basic functions. First, it positions the connector, which is locked in place by the fixture, two hold-down clamps, and the tie bar. Second, the mandrel helps to guide the wire to be inserted into the connector.

A hold-down clamp on the mandrel permits the fixture to be quickly installed on the mandrel.

During the machine operation, the operator selects the proper wire(s) and moves the wire(s) down to the proper side of the mandrel. As each wire is brought into the wire-receiving slot of its inserter, a sensor is triggered. The air cylinder on that connector side is then fired.

NOTE

When only one wire is being terminated, only one air cylinder is fired.

When the air cylinder is fired, it pushes the inserter forward, which in turn pushes the wire into the contact. As the wire is inserted, the inserter trims the wire to the correct length.

The air cylinder then retracts the inserter, permitting the carriage to move to the next connector position.

3. INSTALLATION PROCEDURE**NOTE**

It may be necessary to open or remove machine covers to perform the following procedures. Replace all covers before operating the machine.

DANGER

Do NOT install or remove tooling kit components while the machine is operational. Disconnect the machine's air and electrical supplies to disable the machine, preventing it from moving while components are being installed or removed.

3.1. Mandrel**NOTE**

All inserters MUST be removed prior to mounting or removing the mandrel.

The mandrel is held in place by two hex head cap screws. Refer to Figure 2. To install the mandrel, proceed as follows:

1. Make sure that the two mounting screws are removed from the mandrel mounting area of the machine.
2. Place the mandrel on the machine, with the connector-fixture end of the mandrel facing outward. Align the mounting holes on the mandrel with the threaded mounting holes on the machine.
3. Insert the mounting screws through the mandrel, and into the machine, then evenly tighten the screws with a 5/32-in. hex wrench.

3.2. Inserter Assemblies

Each inserter assembly is held in place by two hex head cap screws and two locating pins. To install the inserters, proceed as follows:

1. Make sure that the mounting screws are removed from the carriage surface, as shown in Figure 2.
2. Position each inserter so that the ram on the air cylinder engages the inserter shaft, as shown in Figure 3.
3. Align each inserter assembly over the alignment pins and bottom on the inserter-mounting plate.

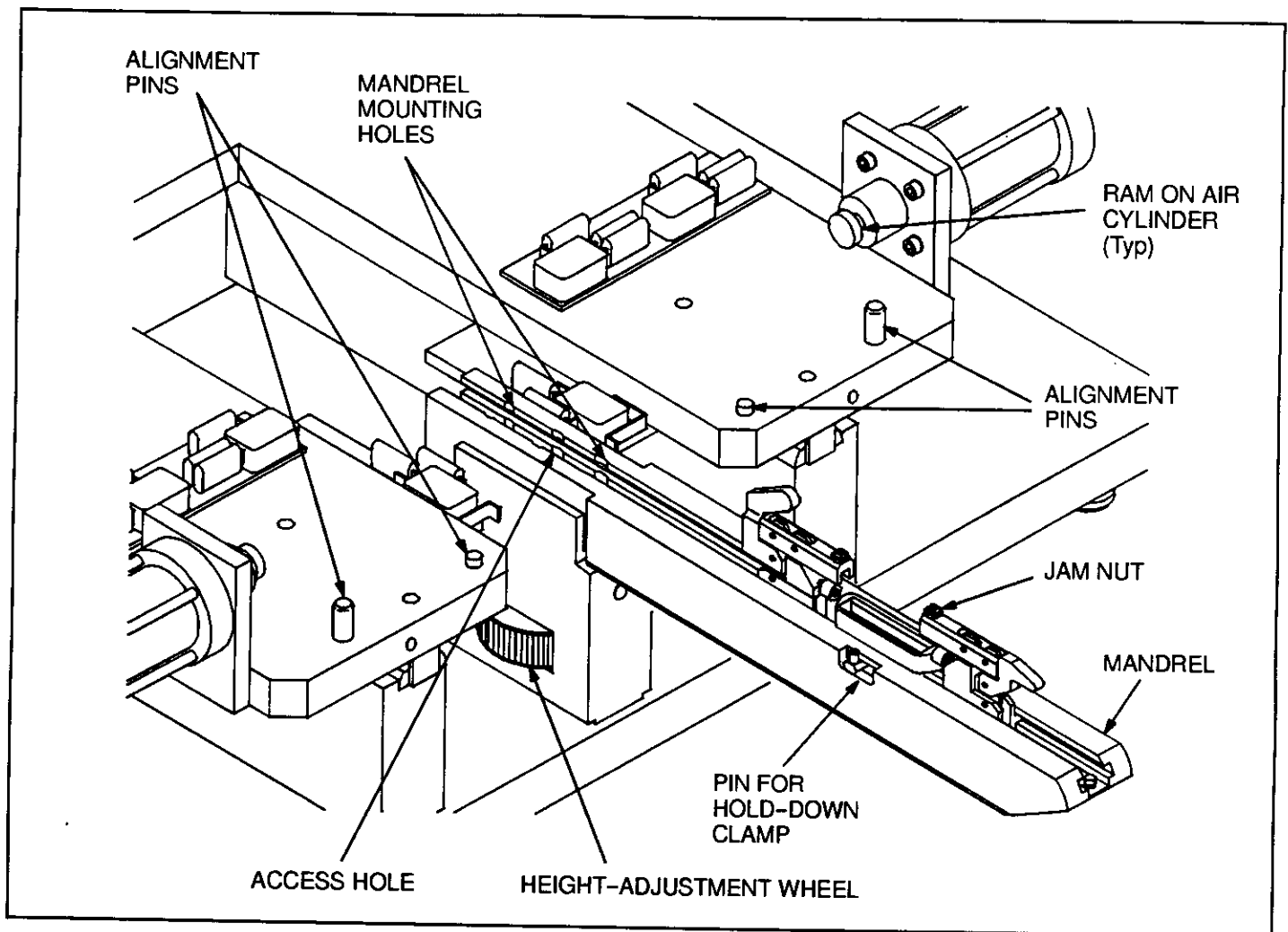


Fig. 2

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4. Once the inserter assemblies are in place, insert and tighten the two inserter mounting screws.

3.3. Cable Clamp

The cable clamp, supplied separately, is capable of both 75° and 180° cable dress styles. For information on installing and adjusting the cable clamp, refer to the instructions supplied with the clamp.

4. TOOLING ADJUSTMENTS

NOTE

It may be necessary to open or remove machine covers to perform the following procedures. Replace all covers before operating the machine.

DANGER

Do NOT make adjustments to the machine or the inserter package while the machine is operational. Disconnect the machine's air and electrical supplies to disable the machine, preventing it from moving while the adjustments are being made.

4.1. Connector/Mandrel Height

To ensure optimum termination, the mandrel height must be properly set. To check the mandrel height:

1. Place an unloaded connector into the fixture.
2. Manually pull out the machine's carriage assembly until the inserters align with the connector's contact slot.
3. Manually extend the inserter tips. The inserter tips should go around the contact, as shown in Figure 4. If not, the mandrel height must be adjusted.
4. Manually retract the inserter tips.

To adjust the mandrel height:

1. Locate the locking screw, which is reached through an access hole in the back of the mandrel. Refer to Figure 2. Loosen the locking screw by turning the screw COUNTERCLOCKWISE with a 5/32-in. hex wrench.

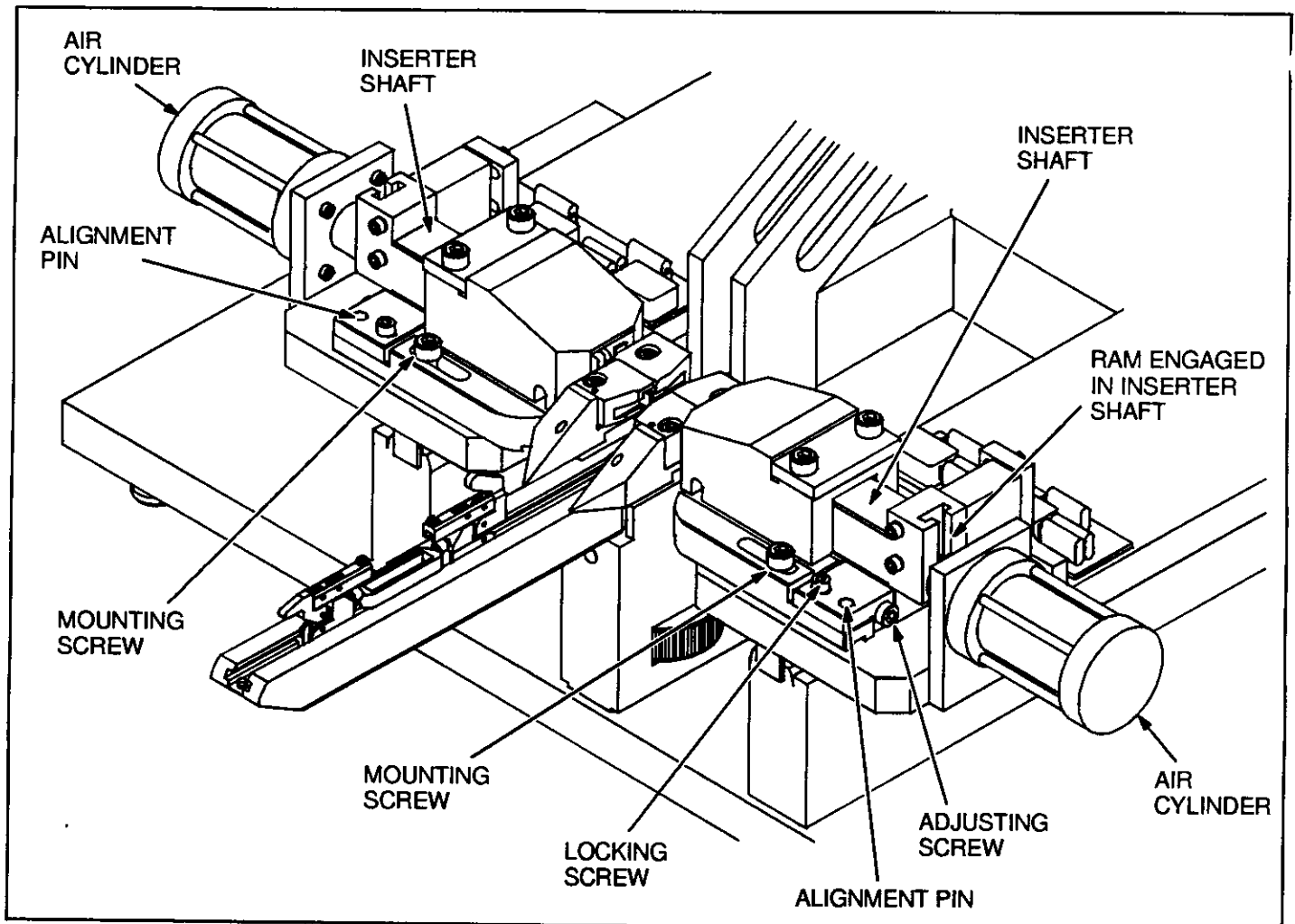


Fig. 3

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2. Turn the mandrel height adjustment wheel to bring the mandrel to the correct height. Turning the wheel **CLOCKWISE** RAISES the mandrel, and turning the wheel **COUNTERCLOCKWISE** LOWERS the mandrel.

CAUTION

Do NOT raise or lower the mandrel while the inserters are extended or damage to the inserters may result. Manually retract the inserters BEFORE changing the mandrel height.

3. When the correct height has been reached, tighten the locking screw, manually retract the inserters, return the carriage to its initial position, and remove the connector.

4.2. Inserter Clearance

Each inserter assembly can be adjusted to vary the clearance between the connector and the end of the

inserter. To adjust the clearance, refer to Figure 3 and proceed as follows:

1. Using a 5/32-in. hex wrench, loosen the inserter mounting screws.
2. Using a 7/64-in. hex wrench, loosen, but do not remove, the locking screw on the top of the base plate of the inserter assembly.
3. Using a 9/64-in. hex wrench, turn the adjusting screw on the back of the inserter assembly to adjust the clearance. Turn the screw **CLOCKWISE** to increase the clearance, and **COUNTERCLOCKWISE** to decrease the clearance.
4. Tighten the locking screw with a 7/64-in. hex wrench.
5. Tighten the inserter mounting screws with a 5/32-in. hex wrench.

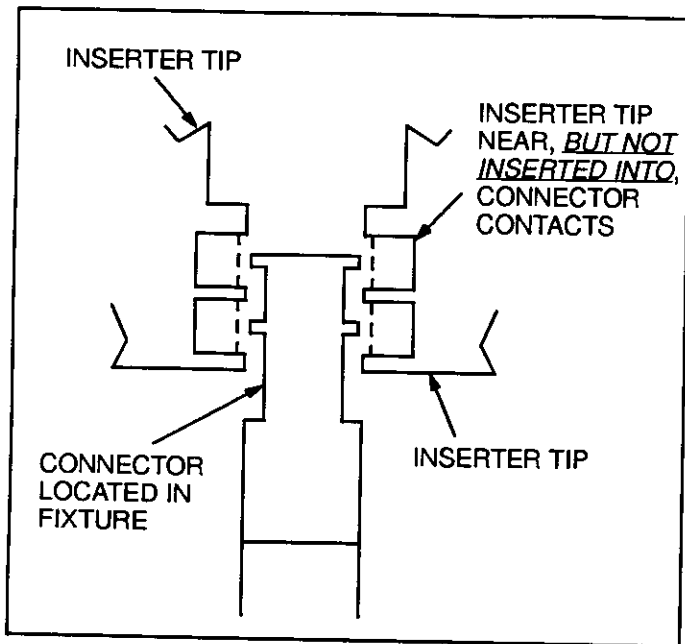


Fig. 4

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4.3. Insertion Depth

The length of travel of the inserter ram may be adjusted. Normally, the inserters will not require this adjustment unless the insulation diameter is changed. To adjust the depth, refer to Figure 1 and proceed as follows:

1. Using a 9/64-in. hex wrench, remove the two stop-mounting screws and remove the stop from the inserter package.
2. Determine the stop dimension from the marking on the top of the stop.

NOTE

Each stop is designed with a .127 mm [.005 in.] step. For example, the 19.050 mm [.750 in.] stop includes a 18.923 mm [.745 in.] section and a 19.050 mm [.750 in.] section.

3. Measure the insulation diameter of the wire presently being used, then measure the insulation diameter of the new wire to be used.
4. Determine the difference between the insulation diameters, then subtract one half of this difference. Use the resulting number to determine the dimension of the new stop (add the figure to the old stop dimension if the insulation diameter is increasing, subtract if the diameter is decreasing).
5. Place the correct stop onto the inserter package and install the stop-mounting screws.
6. Repeat the above procedure for the other inserter.

4.4. Changing the Fixture

Each mandrel is supplied with a fixture for a specific size of plug connector. Additional fixtures are available to apply other sizes of AMPLIMITE .050 Series connectors. For each connector size, the appropriate fixture and tie bar must be used. These items may be purchased separately, using the part numbers provided in Figure 5, or they may be purchased as a set. The part numbers for these tooling sets are also provided in Figure 5. If another connector size is to be used, the fixture can be changed as follows:

1. Refer to Figure 2 and locate the pin and hold-down clamp for the fixture.

NUMBER OF CONNECTOR POSITIONS	PLUG		RECEPTACLE		TIE BAR PART NUMBER
	FIXTURE PART NUMBER	TOOLING SET PART NUMBER	FIXTURE PART NUMBER	TOOLING SET PART NUMBER	
20	853724-1	764259-1	762865-1	853736-1	762637-1
26	1-853724-1	1-764259-1	1-762865-1	1-853736-1	1-762637-1
28	1-853724-2	1-764259-2	1-762865-2	1-853736-2	1-762637-2
40	853724-3	764259-3	762865-3	853736-3	762637-3
50	853724-4	764259-4	762865-4	853736-4	762637-4
60	853724-5	764259-5	762865-5	853736-5	762637-5
68	853724-6	764259-6	762865-6	853736-6	762637-6
80	853724-7	764259-7	762865-7	853736-7	762637-7
100	853724-9	764259-9	762865-9	853736-9	762637-9
120	1-853724-0	1-764259-0	1-762865-0	1-853736-0	1-762637-0
26 †	1-853724-3	1-764259-3	---	---	1-762637-3

NOTE: Tooling set includes both the fixture and the tie bar.

† Slimline connector only.

Fig. 5

2. Slide the pin to one side to release the fixture. The new fixture can be mounted by sliding the pin to one side while pressing down on the fixture.

NOTE

If changing connector type from plug to panel-mount receptacle, be sure to remove the connector stop screws on the connector clamps. If changing from panel-mount receptacle to plug, be sure to replace the connector stop screws on the connector clamps. Refer to Figure 1.

4.5. Insulation Diameter

The wire guides can be adjusted to accept various insulation diameters. To adjust the guides, refer to Figure 1 and proceed as follows:

1. Remove the inserter from the machine.
2. Remove the inserter housing from the inserter assembly.
3. Replace the inserter tip with the appropriate set-up gage.
4. Using a 7/64-in. hex wrench, loosen the housing/guide mounting screws.
5. Place the inserter housing in the inserter assembly.
6. Move the housing and guide until they touch the setup gage. Tighten the mounting screws with a 7/64-in. hex wrench.
7. Remove the inserter housing.
8. Replace the setup gage with the inserter tip.
9. Place the inserter housing into the inserter package.
10. Install the inserter back onto the machine.

A wide variety of setup gages is available for adjusting the inserters for the desired application. The part numbers for the setup gages are provided in Figure 6.

NOTE

The maximum insulation diameter is .889 mm [.035 in.] for AMPLIMITE .050 Series connectors.

WIRE INSULATION DIAMETER RANGE	SETUP GAGE PART NUMBER
.660 to .711 [.026 to .028]	763382-3
.737 to .787 [.029 to .031]	763382-4
.813 to .889 [.032 to .035]	763382-5

Fig. 6

For additional information on adjusting the wire guides, contact your AMP Representative for assistance.

4.6. Connector Clamps

Each connector clamp can be adjusted to provide the desired clamping force on the connector and tie bar. To adjust the force, refer to Figure 2 and proceed as follows:

1. Loosen the jam nuts on the screws using a 3/16-in. open-end wrench.
2. Clamp a connector (and tie bar) into place.
3. Adjust the position of the set screws using a .035-in. hex wrench. Adjust the set screws so that the clamp is held in position without deflecting the contacts.
4. Tighten the jam nuts using a 3/16-in. open-end wrench while using the .035-in hex wrench to hold the set screws in position.

5. REPLACEMENT PARTS

Figure 7 lists the items that are recommended as either expendable tooling or spare tooling. Expendable tooling, which includes items that are subject to wear, should be inspected regularly and replaced, if necessary. Recommended spare tooling includes items that should be stocked to prevent machine downtime in the event that they become damaged.

For detailed information on the location of these items, and other replacement parts, refer to the drawings supplied in the tooling kit's documentation package.

EXPENDABLE TOOLING	
PART NUMBER	DESCRIPTION
854914-1	Inserter Tip
852753-1	Compression Spring (for inserter assemblies)
1-22278-4	Compression Spring
RECOMMENDED SPARE TOOLING	
PART NUMBER	DESCRIPTION
761786-1	Lower Shear

Fig. 7

6. OTHER KITS

Several kits, not supplied with the machine or the tooling kit, are required for proper use of the CHAMPOMATOR 2.5 Machine. For detailed information on these kits, refer to the instructions packaged with these kits, or contact your AMP Representative for assistance.