AMP* Electric Power Unit No. 931800–1

409–5746
(was CM 5746)
02 NOV 95 Rev B

AMP

customer manual

AMP

AMP* Electric Power Unit No. 931800–1

DANGER

SAFETY PRECAUTIONS PREVENT INJURY

Safeguards are designed into AMP machines to protect operating personnel from most hazards during normal machine operation. However, as with most machinery, certain precautions must be taken by the operator and repairman.

Never insert hands into an installed machine/applicator, or any part of a machine that is operated by electricity or compressed air, without first pulling the machine power cable plug from the outlet receptacle and/or shutting off the compressed air at the line valve and disconnecting the air hose. This will prevent injury in the event that switches or other controls are accidentally activated.

A grounded electrical outlet should always be used to receive the plug on the machine power cable.

To improve clarity, photographs and drawings may not show machine/applicator guards. In some cases, it is impractical to show the variety of guards designed to meet specific safety requirements, as set forth in codes and standards adopted by customers and/or enforced in a given locale.

Though a guard may not be shown, and procedures may not reflect the need for its removal, the guard **must** be in place during normal operation of the machine/applicator.

TECHNICAL ASSISTANCE CENTER

CALL TOLL FREE 1–800–722–1111
(CONTINENTAL UNITED STATES AND PUERTO RICO ONLY)

GENERAL MACHINE POLICY

All machines remain the property of AMP Incorporated. The customer shall have no title to the machine(s) and his interest shall be limited to the use of said machine(s) for the purpose indicated, during the stated term, at the specified plant.

No major change or modification shall be made without written consent of AMP Incorporated. Spare and component parts are available at nominal prices.

A list of component parts is included in the instructional material or drawings supplied with each machine.

The customer shall be fully responsible for the maintenance of the machine(s) including servicing, repair, and replacement of damaged or broken parts. Each machine shall be returned in usable condition — reasonable wear and tear excepted. Before returning the machine, contact AMP Incorporated, Harrisburg, Pennsylvania requesting instructions for shipping and disposition.

AMP Field Service Engineers are available to provide assistance in the adjustment or repair of the machine when problems arise which your maintenance personnel are unable to correct. Contact AMP Incorporated.

INFORMATION REQUIRED WHEN CONTACTING AMP INCORPORATED

AMP Incorporated offers the **Technical Assistance Center** as a means of providing technical assistance when required.

When contacting AMP Incorporated by telephone regarding service to a machine or tool, it is suggested that a person familiar with the device be present with a copy of the manual (and drawings) to receive instructions. Many difficulties can be corrected in this manner.

When calling the Technical Assistance Center, be ready with the following information:

1. Customer name
2. Customer address
3. Person to contact (name, title, telephone number and extension)
4. Person calling
5. Machine or tool number (and serial number if applicable)
6. Product part number (and serial number if applicable)
7. Urgency of request
8. Nature of problem
9. Description of inoperative component(s)
10. Additional information/comments that may be helpful

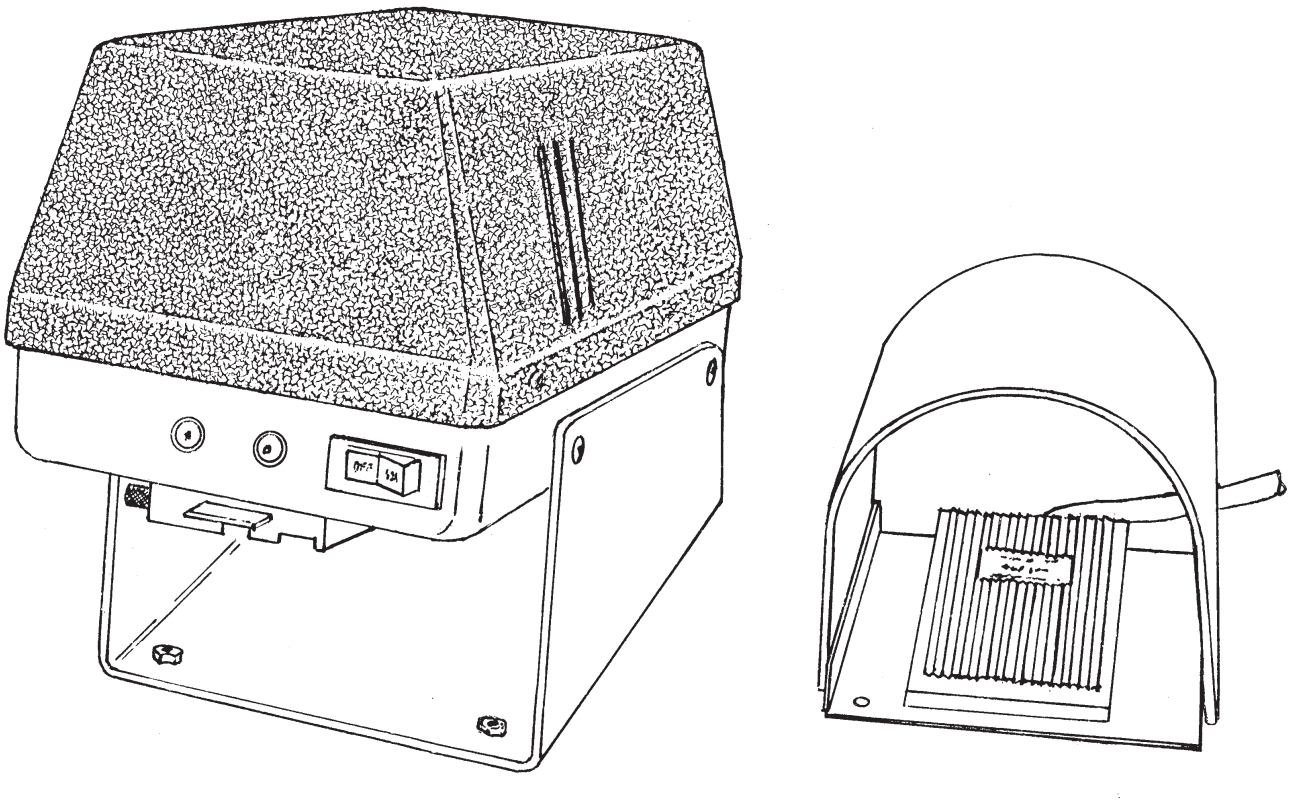


Figure 1 95–297

1. INTRODUCTION

The Electric Power Unit 931800–1 (Figure 1) is designed to accept interchangeable terminating heads, feed track assemblies, and feed tube assemblies which terminate unstripped wire in AMP connectors using the Insulation Displacement Contact (IDC) Terminating technique. The unit is footswitch actuated to provide the 534 N [120–pound–force] maximum force necessary for terminating wires to contacts.

NOTE *Measurements are in metric units [followed by U.S. customary units in brackets].*

Read this manual thoroughly before operating the terminating unit. The performance of this terminating unit will depend largely upon the intelligent use of the information contained in this manual.

When reading this manual, pay particular attention to **DANGER, CAUTION,** and **NOTE** statements.

DANGER *Denotes an imminent hazard which may result in moderate or severe injury.*

CAUTION *Denotes a condition which may result in product or equipment damage.*

NOTE *Highlights special or important information.*

Reasons for revision to this manual are provided in Section 9, REVISION SUMMARY.

The power unit is capable of accepting the terminating heads, feed track assemblies, and feed tube assembly listed in Figure 2.

DESCRIPTION	AMP PART NUMBER	AMP INSTRUCTION SHEET
HEAD, Terminating — MTA–156 Card Edge	58061–1	408–6794
HEAD, Terminating — AMPMODU* MT	58062–1	408–9085
HEAD, Terminating — AMPLIMITE* HDE	58063–2	408 9414
HEAD, Terminating — MTA–100 Recpt	58246–1	408–6929
HEAD, Terminating — MTA–100 Recpt	58246–2	408–9379
HEAD, Terminating — MTA–156 Recpt	58247–1	480–6930
HEAD, Terminating — MTA–156 Recpt	58247–2	408–9380
HEAD, Terminating — AMPMODU MTE	58336–1	408–9359
HEAD, Terminating — 2MM Common Head	58372–1	408–9426
HEAD, Terminating — MT–6–F	58418–1	408–9557
HEAD, Terminating — MT–6–M	58419–1	408–9574
HEAD, Terminating — MT–7–F	58420–1	408–9575
HEAD, Terminating — MT–7–M	58421–1	408–9576
HEAD, Terminating — 2.5 MIS	58414–1	408–9521
HEAD, Terminating — AMPMODU Level V	58395–1	408–9472
HEAD, Terminating — MTA–100, Feed Thru	58442–1	408–9603
HEAD, Terminating — MTA–156, Feed Thru	58443–1	408–9607
ASSEMBLY, Feed Track — AMP ASL	763701–1	408–9550
ASSEMBLY, Feed Track — AMPMODU MTE	856675–1	408–9759
ASSEMBLY, Feed Track, Tape Feed — MTA–100	853546–1	408–9636
ASSEMBLY, Feed Track, Tape Feed — MTA–156	853547–1	408–9637
ASSEMBLY, Feed Track, Loose Piece — MTA–100	933567–1	408–9435
ASSEMBLY, Feed Track — MTA–156	933568–1	408–9466

NOTE *The following terminating heads contain an exposed wire inserter. These heads **should not** be used with the electric power unit.*

HEAD, Terminating — Lace–N–Lok .550	58081–1	408–9053
HEAD, Terminating — Lace–N–Lok .450	58081–2	408–9053
HEAD, Terminating — MTA .156 Posted	58082–1	408–6795

Figure 2

2. DESCRIPTION

2.1. Physical Description (Figure 3)

The power unit is an electric powered bench mounted machine which is powered by a 1.6 A motor requiring a 115 Vac, 50/60 Hz single–phase power source with a separate ground. The machine is 356 mm [14 in.] long, by 254 mm [10 in.] high, by 178 mm [7 in.] deep. The weight of the machine is 5.4 kg [12 pounds]. Electric Power Unit 931800–1 is designed to operate at a rate of 7,200 machine cycles per hour (0.5 seconds per machine cycle – NOT including operator loading and unloading). Noise levels produced by this machine vary between 70 dB and 75 dB at the operator position.

The eccentric and the ram convert the rotational force of the motor into an up and down motion. This action powers the terminating head during the crimping cycle. The clutch, when released by the solenoid actuator, connects the motor to the ram and eccentric for one operating cycle. Terminating heads are secured to the power unit with a clip (see Figure 6). This clip allows fast, easy installation and removal of the terminating heads.

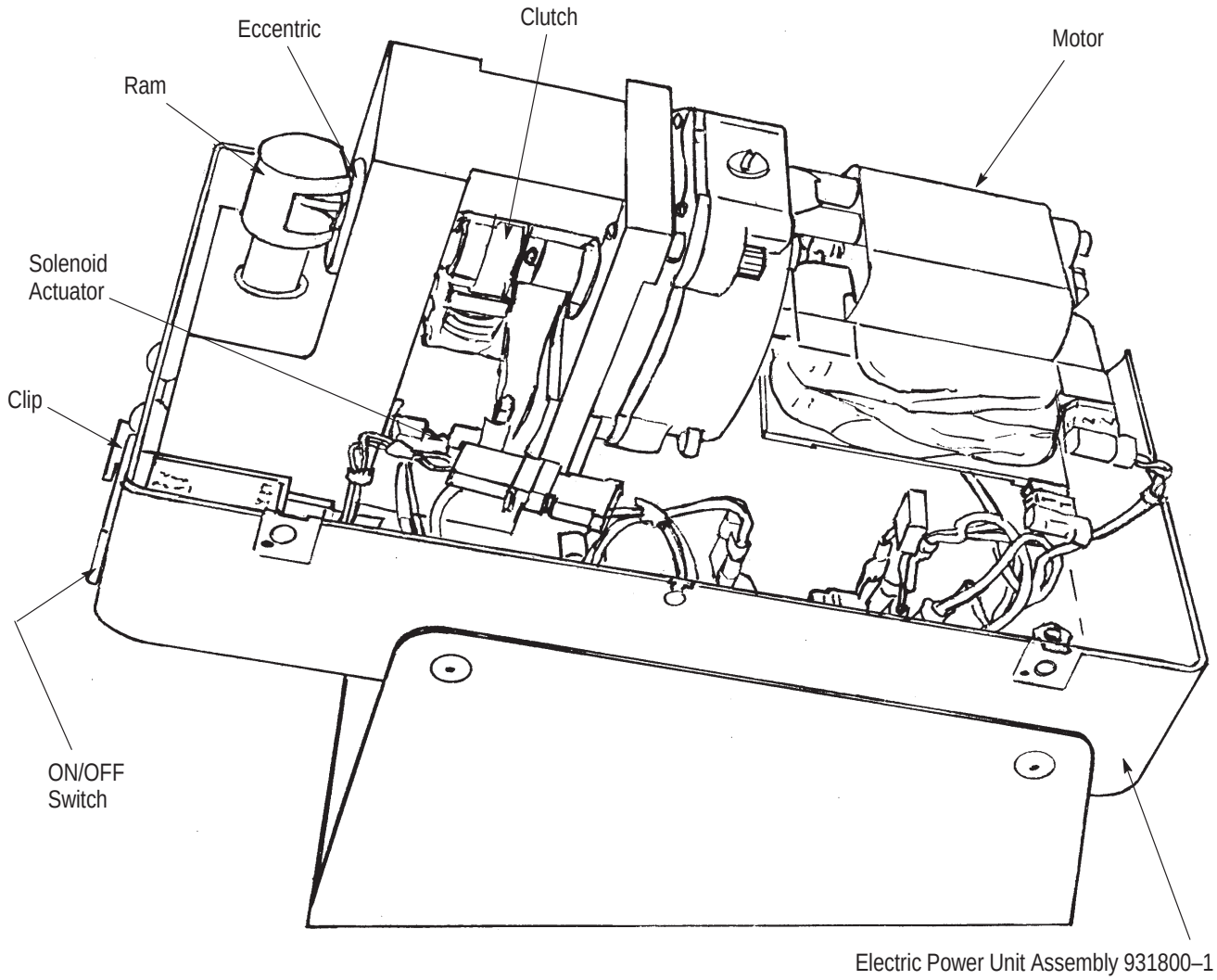


Figure 3 95–298

2.2. Functional Description (Figure 3)

For this description, it shall be assumed that the machine has been properly setup, connected to electrical power, the ON/OFF switch is “ON,” and the motor is running continuously.

The operating cycle of the power unit starts when the electrical circuit within the machine is “closed.” Depressing the footswitch closes the electrical circuit and momentarily energizes the clutch assembly which pulls downward on the actuator solenoid. Energizing the clutch assembly allows the machine to complete one operating cycle.

The movement of the solenoid actuator causes a spring inside the clutch assembly to wrap itself around the input and output areas of the clutch. This movement permits transfer of motion and power to the eccentric and ram. The eccentric and ram convert the rotational motion of the motor into a linear motion for powering the terminating head. The crimping of the wire to the contact occurs during the downward motion of the ram. As the eccentric continues to rotate, the ram moves to an upward position. The clutch assembly comes in contact with the solenoid actuator and disengages the ram–eccentric area of the drive system from the motor.

2.3. Electrical System Description (Figure 4)

When electrical plug (P2) is connected to an electrical outlet with separate ground, 115 Vac power is supplied through the circuit breaker (CB) to the ON/OFF switch (CB1). When the ON/OFF switch (CB1) is depressed “ON,” the indicator light in the switch is illuminated, and power is supplied to the motor (B1) which starts and runs continuously.

Depressing the footswitch (S1) closes the electrical circuit and sends a one shot electric pulse of approximately 0.1 seconds to the solenoid actuator (L1). Energizing the solenoid actuator allows the machine to cycle.

At completion of machine operation, the ON/OFF switch (CB1) should be depressed, and the electrical plug (P2) should be disconnected.

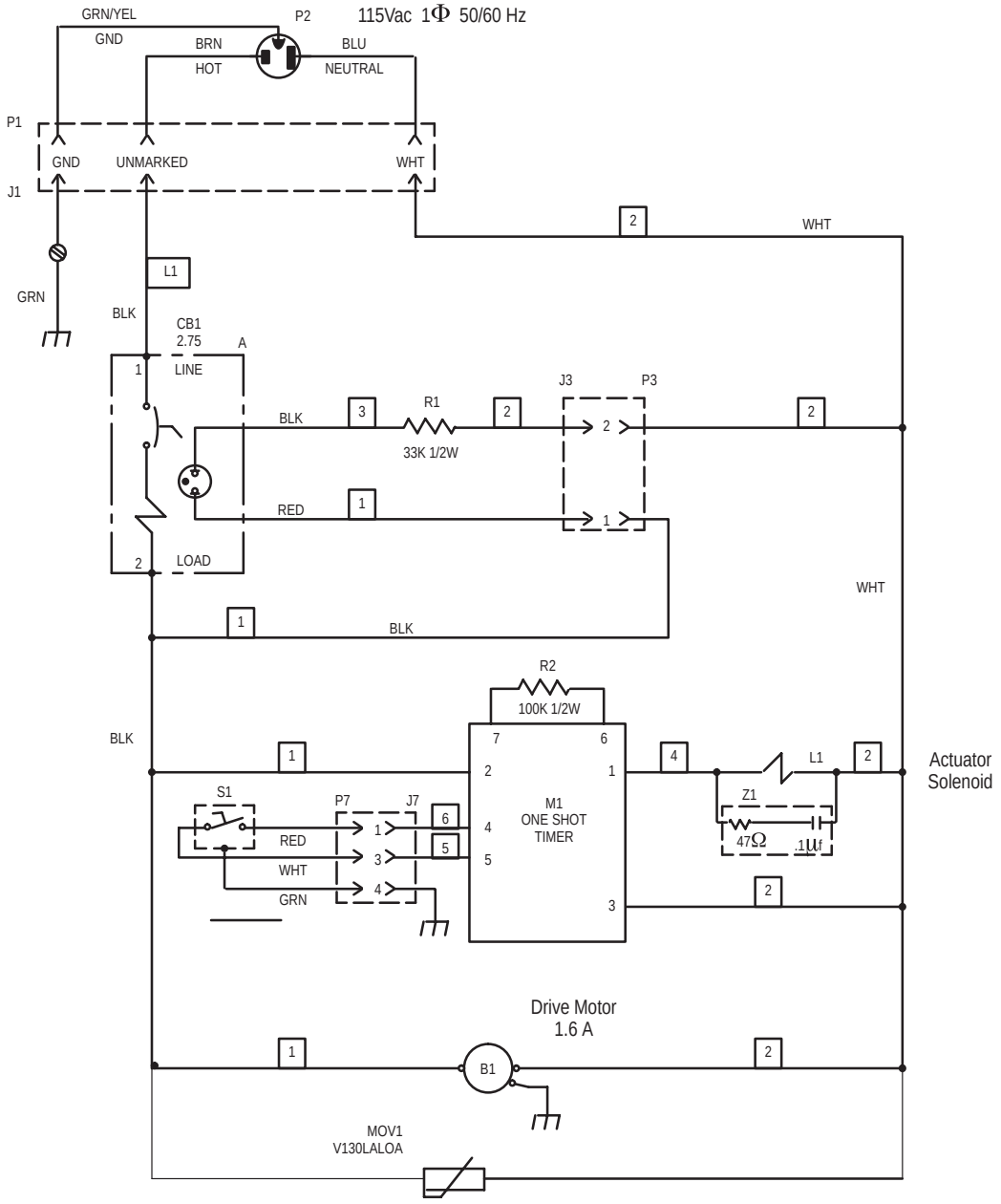


Figure 4

200–105E

3. RECEIVING INSPECTION AND INSTALLATION

3.1. Receiving Inspection

The machine is thoroughly inspected during and after assembly. Before it is shipped, a final series of inspections is made to ensure proper functioning of the machine. Still, the following inspection should be performed as a safeguard against problems generated during shipment.

1. Carefully uncrate the machine and place it on a sturdy bench where there is enough light to permit a careful inspection.

2. Thoroughly inspect the entire machine for evidence of damage that may have occurred during transit. If the machine is damaged, file a claim against the carrier and notify AMP Incorporated immediately.

3. Check all parts to be sure that they are secure.

4. Check all air lines for evidence of loose connections or leaks.

3.2. Machine Placement

Proper location of the machine in relation to the operator is essential to both safety and efficiency. Studies have shown that fatigue will be reduced and efficiency increased if particular attention is paid to the bench, the operator's chair, and the placement of the foot switch.

A. Bench

A sturdy bench 686 mm to 762 mm [27 to 30 in.] high aids comfort by allowing the operator's feet to rest on the floor and the weight and leg position to be easily shifted. The bench should have rubber mounts to reduce noise. The open area under the bench should allow the chair to slide far enough in for the operator's back to be straight and supported by the back rest.

B. Machine Location on Bench

The machine should be located near the front of the bench, and the machine work area (the area where the product is applied) should be 152mm to 203mm [6 to 8 in.] from the front edge. Access to the back of the machine must be provided for maintenance purposes, in most cases, and to allow the operator to turn the air to the machine on and off at the lockout valve.

C. Operator's Chair

The operator's chair should swivel, and the seat and back rest should be padded and independently adjustable. The back rest should be large enough to support the back both above and below the waist. In use, the chair should be far enough under the bench so that the operator's back is straight and supported by the back rest.

D. Foot Switch

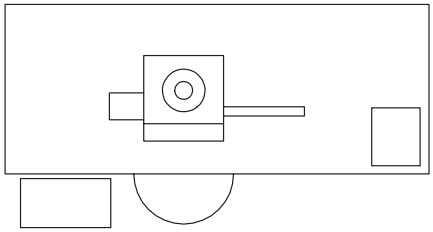
When the operator is correctly positioned in front of the machine, the foot should rest on the switch comfortably and easily. The switch should be placed on a rubber mat; this allows it to be movable and permits the operator to shift position to minimize fatigue, while at the same time the mat prevents the switch from sliding unintentionally.

The preference for locating the switch varies among operators. Some prefer the switch located so that their foot rests on the switch when their legs are in the natural sitting position (calf perpendicular to the floor). Others prefer it slightly in front of the natural position. The important thing is that the foot be about 90° to the calf when resting it on the switch. Those who prefer the switch slightly forward may require a wedge–shaped block placed under it.

Figure 5 shows recommended location and position of the operator, as well as a typical layout for the efficient handling of materials.

Recommended Operator Position, Chair and Table Adjustments, and Machine Location

Note that with the chair height and back rest are properly adjusted. The operator's back must be straight and supported by the chair and the upper arms are in a direct line with the torso.



Materials Locations – Plan View

This figure is a typical plan view to illustrate the convenience of handling materials afforded by the proper setup.

Figure 5

3.3. Machine Installation

After the machine is removed from the carton:

1. Select a location with adequate lighting and a power source of 115 Vac, 60 Hz, single–phase current with a separate ground.

2. Place the machine on a bench according to the information in Figure 5, B.

3. **Before** connecting power unit to electrical supply, remove plastic vent plug located under the top cover of the power unit. This plug prevents leakage of gear box lubricant during shipment.

4. To remove cover, loosen the four socket head cap screws which hold the cover in place; then remove the plug from the side case of the motor gear box.

5. Replace cover on power unit.

6. Perform machine setup and operation as described in Section 4.

4. MACHINE SETUP AND OPERATION

This section pertains to setup and operation of the machine after it has been properly installed and checked out, as described in Section 3, RECEIVING INSPECTION AND INSTALLATION.

4.1. Machine Setup (Figure 6)

The electric power unit accepts a variety of terminating heads, feed track assemblies, and feed tube assemblies. Refer to the instructions packaged with these assemblies for specific tooling adjustments. The tooling configurations differ considerably from one to another; however, the following installation procedure is common to all. The AMP terminating head will be used in Figure 6 to illustrate machine setup.

Determine type of connector to be terminated; then select appropriate terminating head, feed track assembly, or feed tube assembly. Refer to Section 1, INTRODUCTION. Proceed as follows:

DANGER *Disconnect power unit from electrical outlet before installing appropriate tooling head, feed track, or feed tube assembly.*

1. Pull clip away from the power unit.
2. Position terminating head into the machined frame, as shown in Figure 6.
3. Push clip in toward the power unit.
4. Turn the thumbscrew CLOCKWISE to secure the terminating head to the power unit.
5. To ensure power unit is properly set up, perform a test termination (refer to Paragraph 4.2, Machine Operation). Inspect the connector to ensure that the wires are properly terminated. Refer to the termination inspection procedures provided with the terminating head.

NOTE *To ensure proper termination of wires in connectors, refer to the instructions packaged with the tool assemblies for test inspections and setup adjustments.*

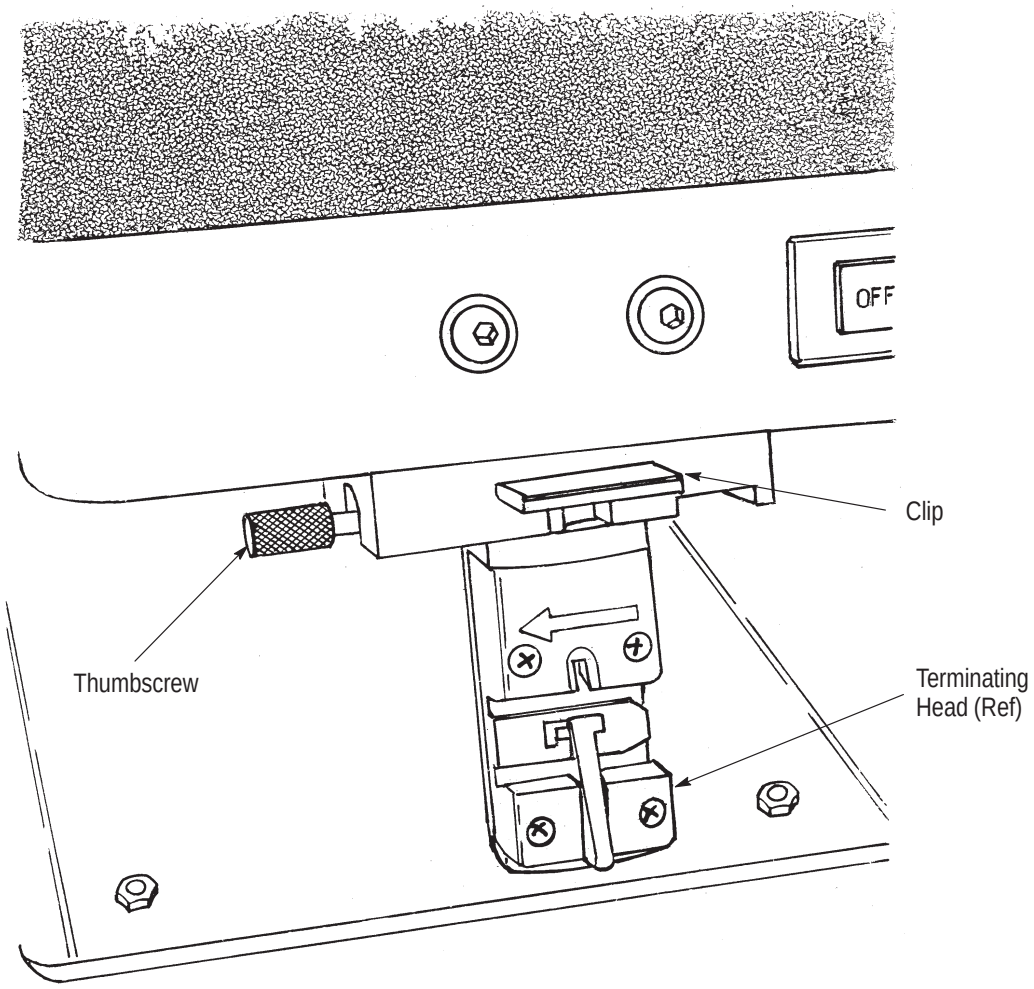


Figure 6

95–299

4.2. Machine Operation (Figure 7)

1. Insert electrical plug into power outlet.

NOTE *Electrical outlet must meet the power requirements as specified in Paragraph 2.1, Physical Description.*

2. Place footswitch in a suitable position on the floor.
3. Depress the ON/OFF switch to “ON”.
4. Insert connector into right side of head (see Figure 7). Align the contact to be terminated with the wire inserter.
5. Insert an unstripped wire into the funnel area between the contact and wire inserter until it bottoms in the head.
6. Depress footswitch to crimp the wire to the contact.

NOTE *The feed slide will automatically position the connector to the next contact position.*

7. Repeat Steps 4 through 6 until all contacts have been terminated.
8. When contact terminations are complete, depress ON/OFF switch to “OFF”; then disconnect the power unit from the electrical outlet.

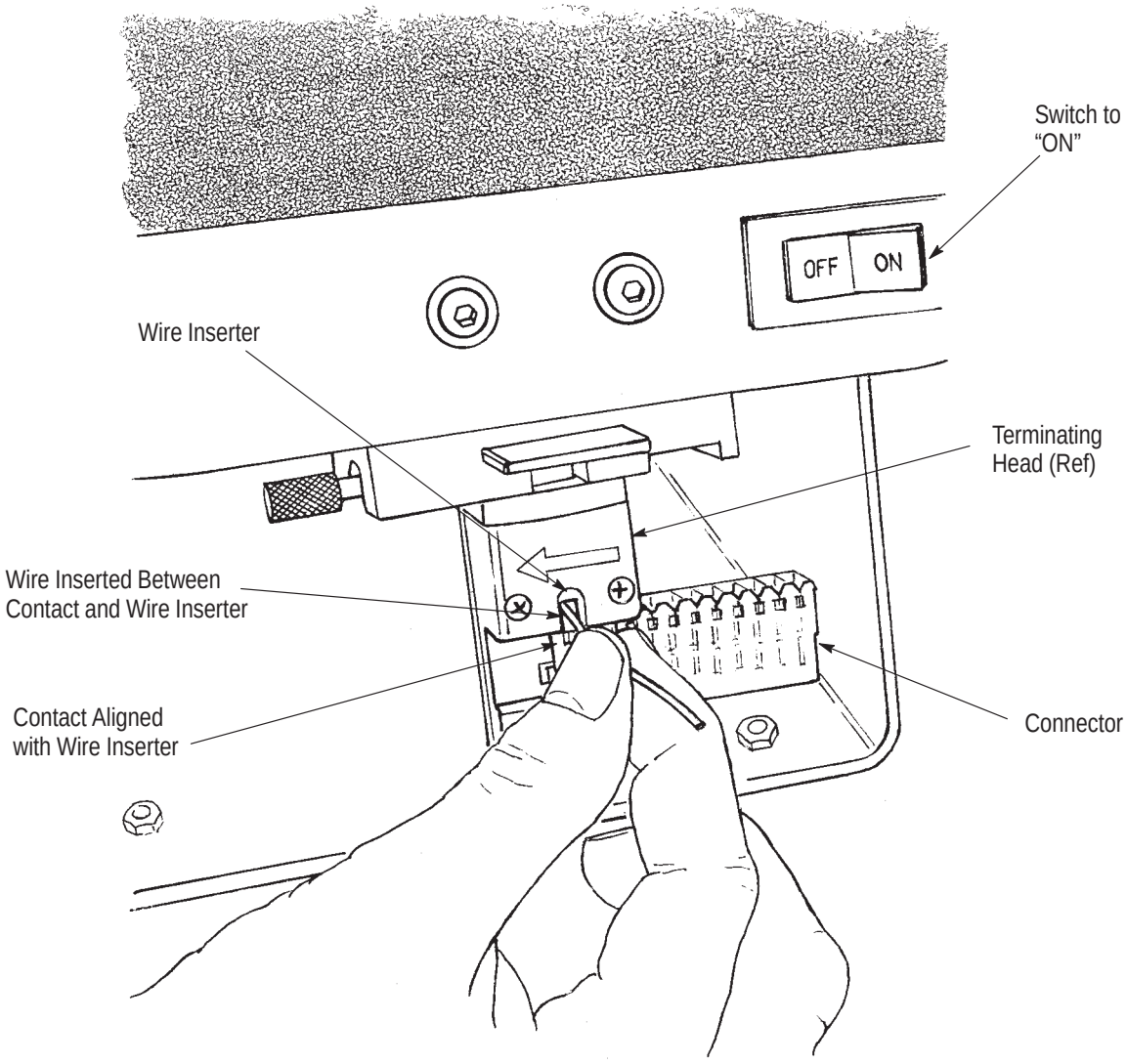


Figure 7

95–300

5. TROUBLESHOOTING

The table in Figure 8 contains the possible troubles that may occur during operation of the power unit, along with possible causes and remedies to correct the situation. Refer to Paragraph 2.2, Functional Description, to help determine the cause of problem. When part(s) replacement is necessary, refer to Sections 7 and 8 for parts replacement instructions.

TROUBLE	POSSIBLE CAUSE	REMEDY
1. Motor does not rotate.	The power cord is not plugged into the appropriate electrical outlet.	Be sure the power cord is plugged in.
	The Power (On/Off) switch is not on.	Check leads on motor.
		Replace motor
2. Unit double–cycles.	The solenoid actuator is not operating freely.	Replace timer.
3. Motor rotates but power unit stalls during operation	The wire inserted too deep in the connector and is overloading the machine.	Re–adjust wire inserter according to the instructions packaged with the terminating head or feed track assembly.
	The ram is binding on the clutch assembly.	
4. Motor rotates but power unit does not cycle:	Solenoid actuator is not operating freely.	Check solenoid
		Check timer.
		Check clutch.

Figure 8

6. PREVENTIVE MAINTENANCE

DANGER *To prevent personal injury, disconnect machine from electrical power supply prior to performing maintenance.*

6.1. Cleaning

1. Clean the entire machine with a clean, dry cloth.

DANGER *Compressed air used for cleaning must be reduced to less than 30 psi, and effective chip guarding and personal protective equipment (including eye protection) must be used.*

2. Remove any evidence of grease from unlubricated areas and nonmoving parts using an approved solvent or cleaning fluid.

6.2. Inspection

1. Be sure all components are secure.

2. Check for evidence of excessive wear.

3. Inspect wiring for evidence of chafing, loose connections, or damage. (Refer to Figure 4 for electrical schematic).

4. Inspect the machine for proper lubrication. If necessary, lubricate the machine as described in Paragraph 6.3.

6.3. Lubrication

CAUTION *Avoid excessive lubrication in all areas. Remove any excess lubricant before starting the machine.*

Approximately once a week, sparingly lubricate the ram and eccentric areas of the power unit using SAE 10 nondetergent motor oil. Remove any excess lubricant to prevent it from entering the tooling area.

CAUTION *Do not allow oil to enter the clutch area of the power unit.*

7. PARTS LIST

This section of the manual consists of the parts list and assembly drawing. The parts list, a complete listing of all parts contained in the unit, consists of item numbers, AMP part numbers, a description of the parts, and the quantity required. The assembly drawing is used as a means of identifying the parts location. Figure 9 covers the parts list and assembly drawing.

For major tool repair, contact your local AMP field representative, or return the tool to:

CUSTOMER REPAIR (01–12)
AMP INCORPORATED
1523 NORTH 4TH STREET
HARRISBURG, PA 17102–1604

PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	QTY PER ASSY
1	3–22346–0	SCREW, Thumb Knurled	1
2	761096–1	CLUTCH ASSEMBLY	1
3	932682–1	FRAME, Machined	1
4	4–21000–0	Socket Head Cap Screw, 10–32 X 1.25 LG	4
5	983526–2	GEARMOTOR	1
6	932698–1	TOP COVER	1
7	852424–4	LABEL, AMP Logo	1
8	2–21002–2	SCREW, B.H. 8–32 X .50 LG	4
9	25633–6	NUT, Speed Type U	4
10	933495–1	ELECTRICAL E.P.U. Assy.	1
11	3–21000–0	Socket Head Cap Screw, 8–32 X .88 LG	2
12	933489–1	SUBASSY, Base	1
13	453592–6	SIGN, Caution	1
14	23902–6	PLATE, Identification	1
15	1–21002–6	Button Head Cap Screw, 6–32 UNC X .25 LG	**4**
16	125854–2	BUMPER	4
17	2–22733–1	SCREW, Button Head 10–32 X .50 LG	5
19	21018–6	NUT No. 8	2
20	24367–4	WASHER, Lock No. 8	2
21	27210–8	SCREW, Socket Head .187 DIA X .19 LG	1
22	983531–1	ACTUATOR, Solenoid	1
23	1–22971–8	PLUNGER, Ball	1
24	931797–1	CLIP	1
25	931799–1	RAM	1
26	5–23507–8	BEARING, Needle	1
27	844656–1	WASHER, SPC	5
28	21055–7	WASHER, Flat No. 10	5

Figure 9 (Sheet 1 of 2)

△1 Apply Per AMP Specification 118–37 Approximately As Shown.

△2 Stamp PN And Rev.

△3 Stamp Electrical Information As Shown.

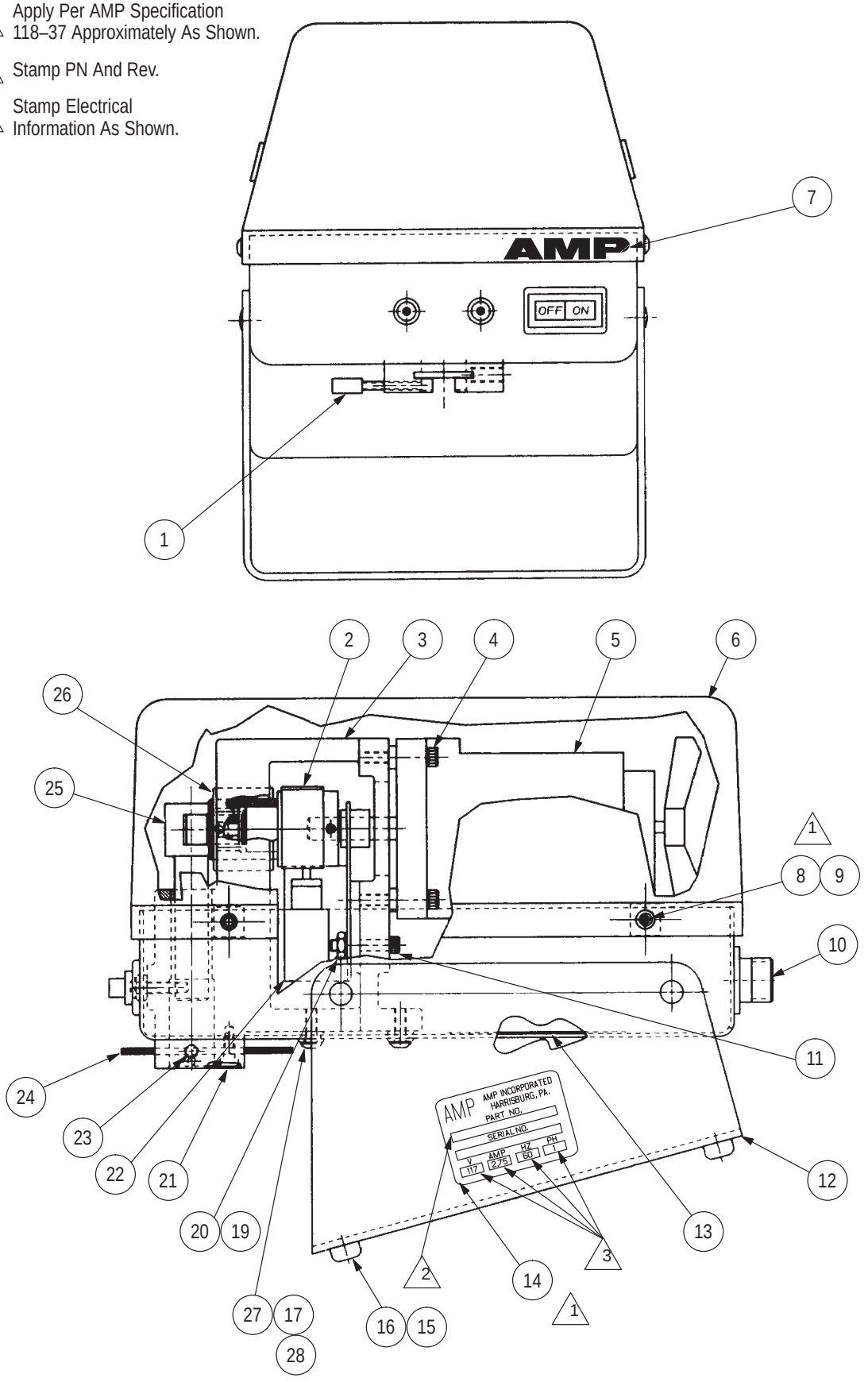


Figure 9 (Sheet 2 of 2)

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8. PARTS REPLACEMENT

This section covers special instructions for removing and installing the motor, clutch assembly, and ram. Other parts (listed in the parts list) are easily replaced after careful study of the assembly drawing supplied with the power unit. The recommended parts are the customer's responsibility to stock and replace. Refer to the General Machine Policy in the front of the manual.

DANGER *Disconnect power cord from electrical outlet before replacing any parts.*

8.1. Electrical Components Replacement

No special instructions are required to replace electrical components or wiring. However, to ensure proper installation, carefully note the color coding of all wire and the exact position of components before removal. Refer to the wiring schematic in Section 2, as necessary.

8.2. Motor Replacement

1. Remove electrical leads from the motor.
2. Loosen the setscrews on the clutch assembly.
3. Remove screws holding the motor to the frame.
4. Remove motor from the power unit.
5. Mount motor to the frame of the power unit, making sure that the flats on the motor shaft align with the setscrews on the clutch assembly.
6. Slide the clutch assembly toward the front of the power unit until it rests against the ram. Tighten the setscrews.

CAUTION *Do not apply pressure between the ram and the clutch assembly or binding of the ram may occur.*

7. Replace electrical leads on the motor.

8.3. Clutch Assembly Replacement

1. Remove the motor as described in Paragraph 8.2, Motor Replacement.
2. Remove electrical leads from the clutch assembly.
3. Remove clutch actuator from the power unit.
4. Slide the clutch assembly toward the rear of the power unit and remove.
5. Slide the new clutch assembly through the needle bearing in the frame of the power unit.
6. Install clutch actuator. Do NOT tighten the screws.
7. Replace motor as described in Paragraph 7.2, Motor Replacement.
8. Tighten screws for clutch actuator.
9. Replace electrical leads on clutch actuator.
10. Loosen adjustment collar on the clutch assembly.
11. With ram in the up position and the clutch release sleeve against the solenoid plunger, tighten the adjustment collar.
12. Cycle the power unit several times to ensure the ram stops at the top of each cycle.

8.4. Ram Replacement

Follow the instructions for motor and clutch replacement to replace the ram for the power unit.

9. REVISION SUMMARY

This manual was revised according to EC 0150–3378–95.

- The noise level was added to Paragraph 2.1.
- Wiring Schematic in Figure 4 was changed.