

FIGURE 1

## 1. INTRODUCTION

The AMP miniature applicator for inserting AMPMODU MOD I vertical receptacles (in-line type) is used in the Deep Throat Air Press No. 691679-1. Refer to Customer Manual CM 5174 for the operation and maintenance of the press.

This applicator inserts AMPMODU MOD I Type A in-line vertical receptacles in 1/16-in. thick printed circuit boards. The receptacles are supplied in strip form. Type A receptacles are used when post entry into the receptacle is from the tine end.

## 2. APPLICATOR DESCRIPTION (see Figure 1)

The applicator is self-contained except for the anvil. The main assembly is fastened to the press mounting plate with two screws. The ram post (also referred to as the ram mounting post) engages the press ram post adapter.

The anvil mount is fastened to the anvil adjustment assembly with two screws after being properly aligned with the terminal ram. Rubber pads on each side of the anvil allow the board to be pushed down slightly as the ram assembly bottoms. The board then strips the receptacle from the anvil as the ram assembly begins its upstroke.

The receptacle strip enters the guide slot in the feed plate and passes under the stock drag. The stock drag applies a slight pressure to the receptacle strip to keep it from moving as the feed finger retracts. The feed finger engages the back end of the fourth receptacle and advances the receptacle strip one receptacle length during each cycle of the press.

The cycle begins with the ram assembly in the raised position and a printed circuit board in position over the anvil. The lead receptacle, now under the terminal ram, was advanced during the last half of the previous cycle.

As the ram assembly begins its downstroke, the lead receptacle is bent to the vertical position and enters the terminal ram, which shears it from the strip. The receptacle is held in the terminal ram by the terminal ram spring. The tines of the receptacle are pushed down through the hole in the board, and are bent apart by the anvil.

As the ram assembly reaches the end of its downstroke, the receptacle bottoms on the board and pushes it downward slightly, compressing the rubber pads. At the same time, the tines are clinched to the underside of the board.

Another function occurs on the downstroke of the ram assembly. The feed finger is de-actuated by the feed cam and retracts to pick up the next receptacle on the strip. The feed finger has a slight overtravel on the retract stroke to ensure engagement on the advance stroke.

During the upstroke of the ram assembly, the feed finger is actuated by the feed cam to advance the strip one receptacle length.

This completes one cycle of operation.

### 3. APPLICATOR LOADING AND UNLOADING

#### 3.1. Receptacle Strip Loading (see Figure 1)

1. Turn "off" or disconnect air to press.
2. Be sure ram assembly is fully raised. If necessary, hand-cycle press to obtain this position. (See press manual).
3. Install reel of receptacles on reel support so receptacle strip enters applicator with tine end first.

**NOTE**

*Remove any burrs from end of receptacle strip and make sure strip is not kinked or bent.*

4. Press drag release lever and pull section of old receptacle strip out of applicator from right end (reel end). Feed new receptacle strip into guide slot in end of feed plate. Advance receptacle strip until **SECOND** receptacle passes under feed finger, then retract receptacle strip slightly to engage feed finger behind second receptacle.

5. With a printed circuit board over anvil, **SLOWLY** hand-cycle press while observing alignment and pickup of lead receptacle by terminal ram. If receptacle is not in proper position, adjust feed finger forward limit as described in Paragraph 4.1.

6. Continue to **SLOWLY** hand-cycle press, while observing receptacle alignment with anvil.

If necessary, align anvil as described in Paragraph 4.3.

7. **SLOWLY** hand-cycle press while observing retraction of feed finger on downward stroke of ram assembly. Feed finger **MUST** be retracted slightly beyond third receptacle. If not, adjust feed finger stroke length as described in Paragraph 4.2.

8. Hand-cycle press until ram assembly is fully raised. Remove printed circuit board and inspect inserted receptacle. If tines are not properly clinched, adjust anvil height as described in Paragraph 4.4.

9. The applicator is now ready for operation.

#### 3.2. Receptacle Strip Unloading

1. Turn "off" or disconnect air to press.
2. Make certain ram assembly is fully raised. If necessary, hand-cycle press to obtain this condition. (See press manual).
3. Cut receptacle strip next to applicator on reel side.

**NOTE**

*The applicator should never be unloaded unnecessarily. A section of receptacle strip should always be left in the unit. Since it is not necessary to remove the strip section for cleaning, lubrication, or repair, it should only be removed as a part of the loading procedure.*

### 4. ADJUSTMENTS

**WARNING**

*During all adjustment procedures, the press **MUST** be turned "off" or the air disconnected. Refer to the press manual as required.*

#### 4.1. Feed Finger Forward Limit Adjustment (See Figure 3)

1. With receptacle strip in applicator and lead receptacle advanced to forward limit as described in Paragraph 3.1, determine direction of adjustment required.
2. Loosen screw on top of pivot block.
3. To move feed finger forward limit **TOWARD** anvil, turn forward limit adjustment screw **COUNTERCLOCKWISE** until proper alignment with terminal ram is obtained.
4. To move feed finger forward limit **AWAY FROM** anvil, turn forward limit adjustment screw **CLOCKWISE** until proper alignment with terminal ram is obtained. Receptacle strip must be pulled back toward reel during adjustment to keep feed finger engaged against third receptacle.
5. Retighten screw on pivot block.

#### 4.2. Feed Finger Stroke Length Adjustment (See Figure 3)

**NOTE**

*Forward limit adjustment, as described in Paragraph 4.1, must be correct before performing this procedure.*

1. With receptacle strip in applicator, hand-cycle press until ram assembly is at bottom of stroke.
2. Observe position of feed finger in relation to third receptacle on strip. Feed finger **MUST** be retracted slightly beyond third receptacle to ensure proper feeding. To adjust, continue with Step 3.
3. Loosen the 1/2-in. hex nut (see Figure 1) slightly to allow bushing and pivot shaft to move in slot.
4. Loosen locknut on stroke length adjustment screw.
5. To **SHORTEN** stroke, turn stroke length adjustment screw **CLOCKWISE** to push pivot shaft down.
6. To **LENGTHEN** feed finger stroke, turn stroke length adjustment screw **COUNTER-CLOCKWISE**.
7. Be sure pivot shaft is up against stroke length adjustment screw, then retighten the 1/2-in. hex nut. Tighten locknut on stroke length adjustment screw.
8. Hand-cycle press to fully raise ram assembly.
9. Check alignment of lead receptacle with terminal ram. If necessary, re-adjust feed finger forward limit as described in Paragraph 4.1.

#### 4.3. Anvil Alignment Adjustment (See Figure 2)

1. With lead receptacle correctly positioned under terminal ram as described in Paragraph 3.1, **SLOWLY** hand-cycle press to lower the ram assembly to pick up the lead receptacle.
2. As receptacle tines approach anvil, observe alignment of anvil between tines. If adjustment is required, go on to Step 3.
3. Loosen two screws securing anvil mount to anvil adjustment assembly.
4. Move anvil mount in required direction to obtain proper alignment. Retighten screws to secure mount.

#### 4.4. Anvil Height Adjustment (See Figure 2)

The anvil height **MUST** be adjusted when the receptacle fit is too loose or too tight. This is done by

raising or lowering the anvil adjustment assembly, which holds the anvil mount.

When the anvil height is changed, a series of test cycles **MUST** be made to determine the correct setting.

Change the anvil height by loosening the locknut and rotating the **ANVIL ADJUSTMENT ASSEMBLY POST** in the desired direction. Retighten the locknut to secure the assembly.

#### 4.5. Stock Drag Adjustment (See Figure 3)

The stock drag applies friction to the receptacle strip to prevent movement of the strip during retraction of the feed finger. Too much friction may damage the receptacle strip or feed finger. To increase or decrease the drag, perform the following procedure.

1. Loosen locknut on stock drag adjustment screw.
2. Turn stock drag adjustment screw **CLOCKWISE** to **INCREASE** drag, or **COUNTER-CLOCKWISE** to **DECREASE** drag.
3. Retighten locknut to secure stock drag adjustment screw.
4. Run several test cycles to ensure proper adjustment.

#### 5. CLEARING OF RECEPTACLE STRIP JAMS IN APPLICATOR (see Figure 1)

1. Try to remove receptacle strip as described in unloading procedure, Paragraph 3.2. If unsuccessful, go on to the following steps.
2. Cut receptacle strip close to right end (reel end) of applicator.

**NOTE**

*BE SURE ram assembly is fully raised before proceeding.*

3. Depress drag release lever and raise feed finger. Pull receptacle strip out of applicator in either direction.
4. After jammed receptacle strip is removed, reload receptacles in applicator as described in Paragraph 3.1.

#### 6. REPLACEMENT PROCEDURES

**WARNING**

*During all these replacement procedures, press **MUST** be turned "off" or air disconnected. Refer to press manual as required.*

##### 6.1. Applicator Replacement (See Figure 1)

1. Disconnect spotlight wire connector.
2. Remove two screws securing applicator to press mounting plate.

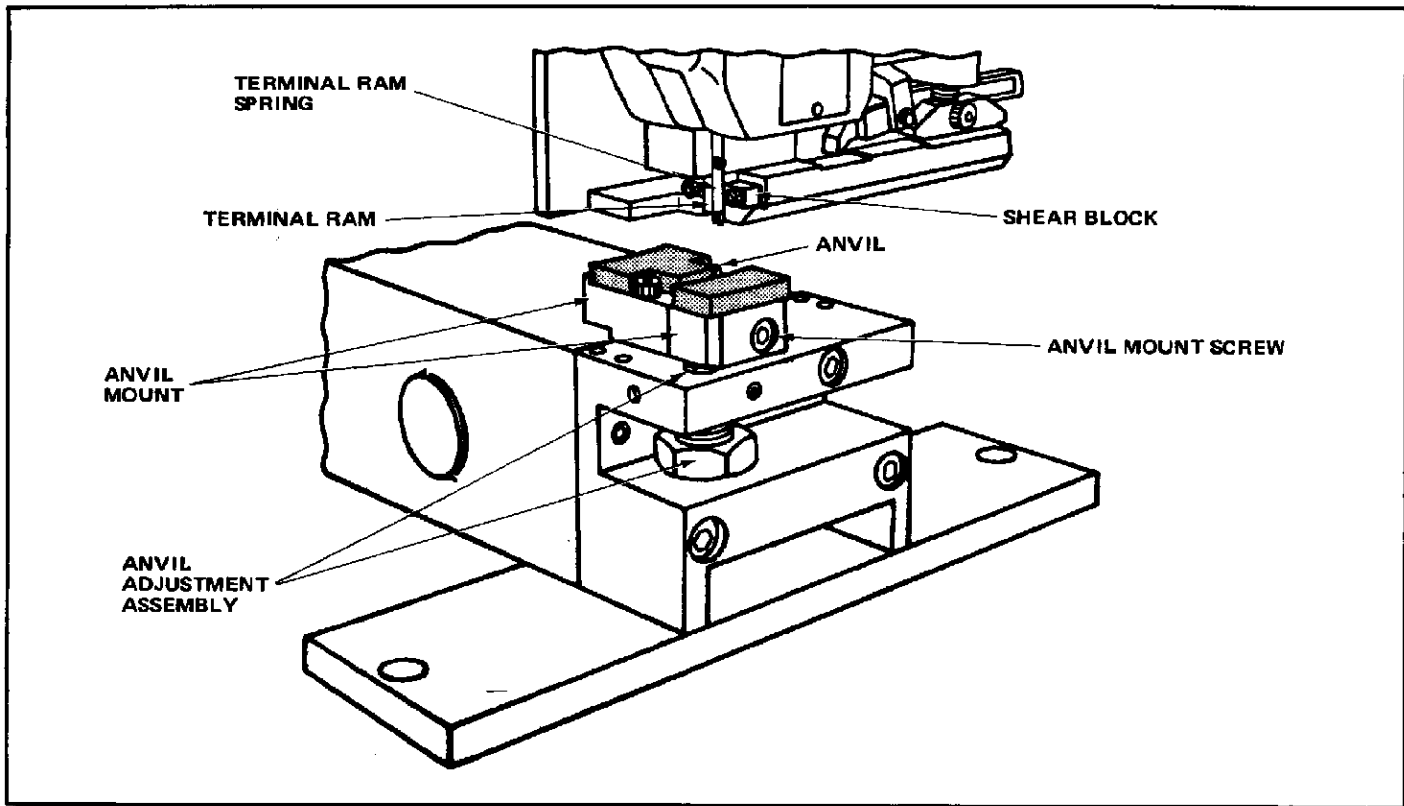


FIGURE 2

3. Slide ram post out of press ram post adapter.
4. Install new applicator using reversed procedure.
5. If required, replace anvil as described in Paragraph 6.2.
6. Load applicator and check for proper adjustment as described in Section 4.

#### 6.2. Anvil Replacement (See Figure 2)

1. Slightly loosen anvil mount screw which secures anvil in mount.

**NOTE** *It is not necessary to remove anvil mount to replace anvil.*

2. Slide anvil up from between two sections of mount and remove it. Insert new anvil and make certain it is properly seated.
3. Retighten anvil mount screw.
4. Check anvil for vertical alignment as described in Paragraph 4.3, and for height adjustment as described in Paragraph 4.4.

#### 6.3. Terminal Ram and Ram Spring Replacement (See Figure 2)

**NOTE** *To replace ram spring ONLY, perform Steps 1 through 3; otherwise begin with Step 4.*

1. Hand-cycle press to lower the ram assembly until ram spring is accessible below applicator housing.
2. Replace ram spring by removing two screws securing it to terminal ram.
3. Continue to hand-cycle press to return ram assembly to fully raised position.
4. To replace terminal ram, remove applicator from press as described in Paragraph 6.1.
5. Remove ram assembly by pulling upward. It may be necessary to manually actuate feed fingers to release assembly.
6. Remove terminal ram by removing screws securing it to ram assembly. If a spacer is used, retain it for re-installation.
7. Replace parts and ram assembly using reversed procedure but DO NOT tighten screw securing terminal ram until after ram assembly is installed in applicator.
8. Lower ram assembly far enough to expose terminal ram screw, then tighten screw.

#### 6.4. Shear Block Replacement (See Figure 2)

**NOTE** *It is not necessary to remove applicator from press to perform this function.*

1. Remove two screws securing shear block to feed plate. Ram assembly must be in fully raised position.
2. Note orientation of shear block, then remove it.
3. Install shear block using reversed procedure.
4. Hand-cycle press to ensure proper clearance and operation.

## 7. CLEANING AND LUBRICATION

For optimum performance and minimum down time, the applicator should be cleaned and inspected after each eight hours of operation, and each time it is removed from the press to be placed in storage.

### 7.1. Cleaning

1. Remove applicator from press.
2. Remove ram assembly from applicator by pulling upward. It may be necessary to manually actuate feed finger to release ram assembly.

#### NOTE

*It is NOT necessary to remove section of receptacle strip to clean applicator.*

3. Using a clean, dry cloth, remove dirt, chips, or other foreign matter from applicator components. If desired, entire applicator may be immersed in a suitable commercial solvent (one that will not affect paint or plastic material) to flush out chips.
4. Lubricate applicator as described in Paragraph 7.2, before re-assembling.
5. Replace ram assembly in applicator, and install applicator in press.

### 7.2. Lubrication

The applicator components are to be lubricated at the following points using SAE No. 20 motor oil (non-detergent), or, where specified, light grease.

#### CAUTION

*DO NOT use too much lubricant on applicator. Any excess MUST be removed before placing applicator back in service.*

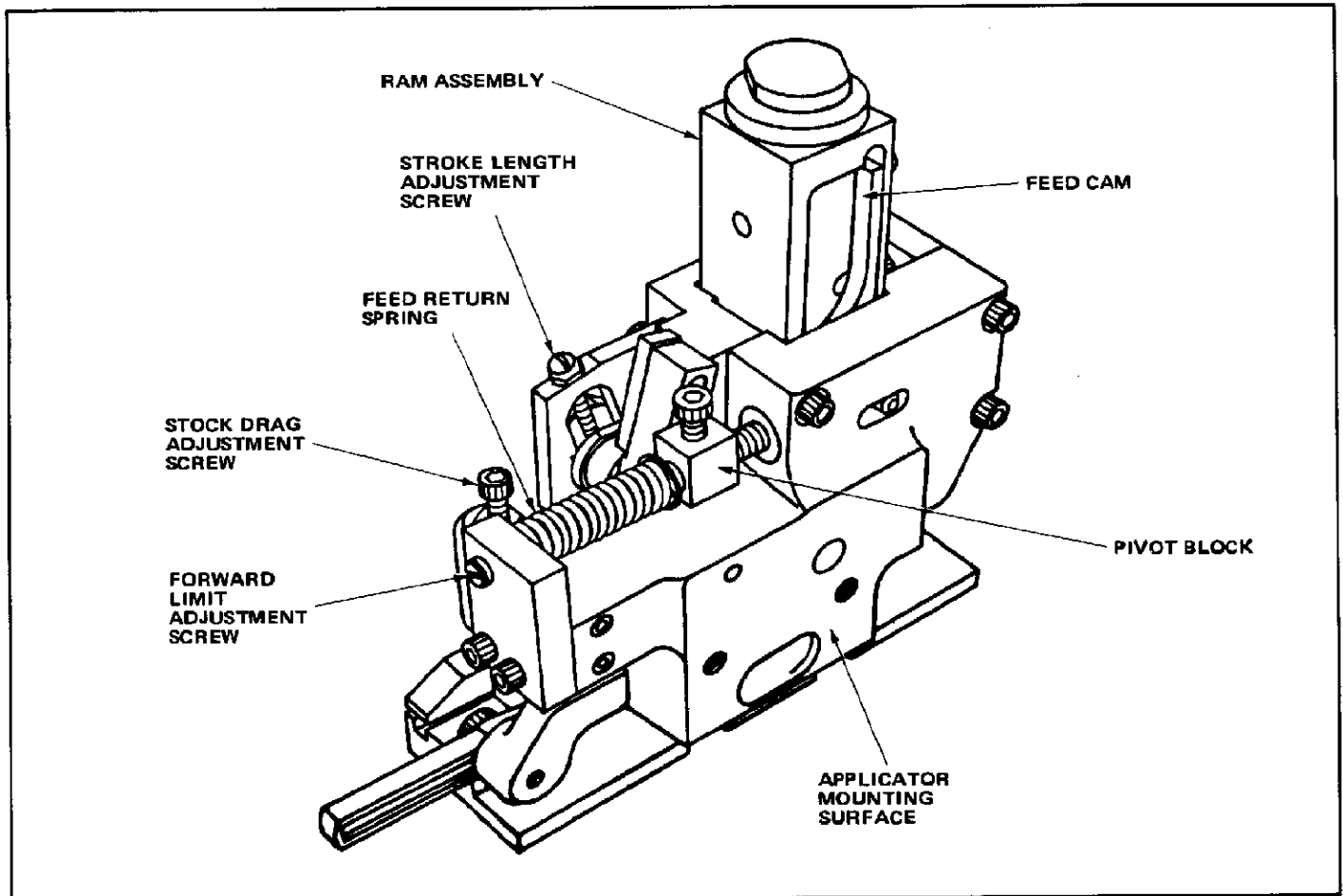


FIGURE 3

1. With ram assembly removed, apply a thin film of grease along four corners of ram, and along curved surface of feed cam — after they have been thoroughly cleaned.
2. Lay applicator carefully on its side and apply one drop of oil to bushing within the 1/2-in. hex nut, and to feed finger pin (see Figure 1). Wipe excess oil from pin and hex nut.
3. Apply a drop of oil to forward limit adjustment screw, and to feed rod into which it is turned (see Figure 3).
4. Replace ram assembly in applicator and remove any excess lubricant.

## 8. APPLICATOR STORAGE

**CAUTION**

*When applicator is to be placed in storage or removed from press for any reason, the following precautions should be taken to prevent tooling damage by bottoming of ram assembly.*

1. Cut receptacle strip one or two receptacles from applicator.
2. Remove applicator from press. Clean and lubricate it as presented in Section 7.
3. Lower the ram assembly to retain lead receptacle under terminal ram. This will also identify the type of receptacle to be used when applicator is returned to service.