

ELECTRONIC SECRETARY® MODEL AO-3  
INSTALLATION AND FIELD MAINTENANCE

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**1. GENERAL**

1.01 This Section is reissued to include information contained in Appendix 1, and to remove information pertaining to "A" factor. Significant changes are indicated by marginal arrows.

1.02 The Electronic Secretary® Model AO-3 (see Figure 1) is an automatic answering device utilizing a magnetic tape cartridge as

the announcement message medium. The Model AO-3 has no provision for recording incoming messages and is designed for applications such as motion picture theatres, service organizations, physicians, churches, etc. when recording of the calling party's message is not essential.

1.03 The customer records his own announcement message on the endless tape cartridge contained in the unit, and may play it back through the microphone to "check it." (Both the tape cartridge and the microphone are supplied with the AO-3.) When the AO-3 is set for "Automatic" operation, this recorded message will be automatically transmitted to the calling party.

1.04 The standard tape cartridge supplied with the AO-3 delivers a 1-minute announcement, but any capacity from 30-seconds to 5-minutes is available. The microphone is a high quality dynamic microphone.

1.05 The AO-3 has a recording speed of 1-7/8 inches per second, it weighs 20 pounds and is 4-3/4 inches high, 13 inches wide, and 7-1/2 inches deep.

1.06 Amplification is performed entirely by transistors and incorporates a push-pull amplifier which provides sufficient output for thirty bridging lines for group announcement

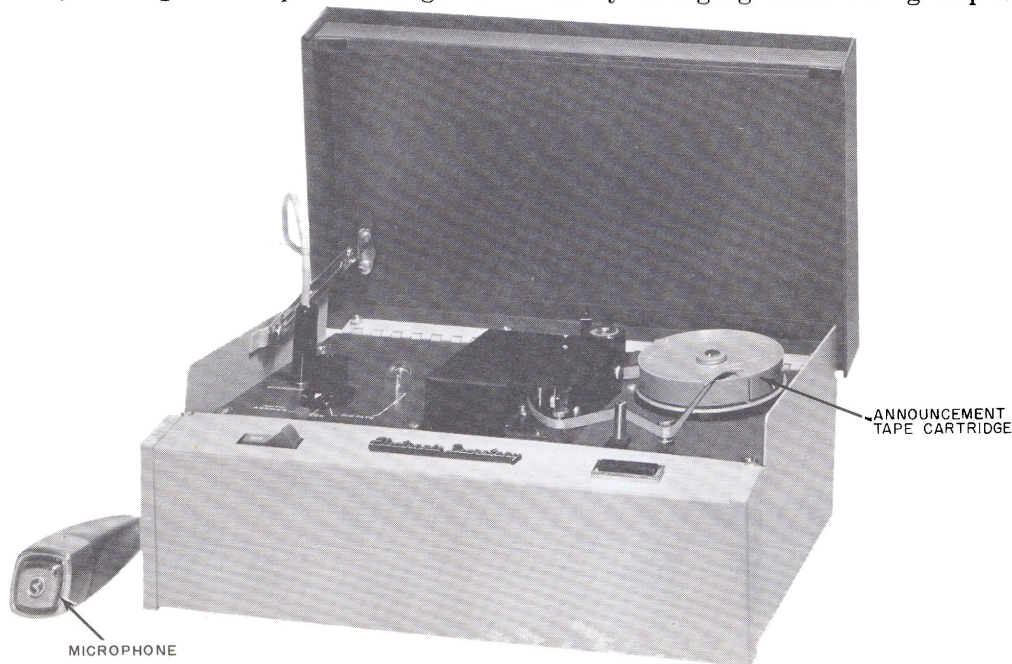


Figure 1. Model AO-3 (Front View).

applications. Output easily reaches one hundred milliwatts and will peak at more than three hundred milliwatts across the eight ohm internal load. A six hundred ohm terminating service is provided for standard operation. Terminations may also be ordered for eight, sixty-eight, or one hundred-fifty ohm if preferred.

1.07 Cycling of the machine is controlled by a photocell activated from a light source passing through a transparent section on the announcement tape.

1.08 An induction capacitor motor drive is employed in the Model AO-3. A heavy flywheel is driven through an intermediate, rubber-faced idler. Two self-aligning bearings are provided for the flywheel, plus a ball thrust bearing which carries its weight.

## 2. INSTALLATION

### Location

2.01 Locate the machine in accordance with the considerations outlined below. If the customer's wishes cannot be followed, explain the reason.

- (a) Locate unit near the telephone set and within 8 feet of a power receptacle.
- (b) A desk or table, where ventilation is not restricted, is a satisfactory location. (The machine is arranged for desk or table installation and need not be fastened.)
- (c) Avoid locations that subject the apparatus to excessive moisture, heat or vibration.

- (d) The power cord has a 3 prong plug. Where required, use a two-prong-to-three prong electrical outlet adapter.

### Power Supply

2.02 The machine is designed to operate on a 110/125 volt, 60 Hz AC power supply. In no case should the machine be directly connected to direct current. If only DC current is available, refer the matter through regular organization channels to the Engineering Department for advice before proceeding with the installation.

### Connections

2.03 Do not connect the machine to the power supply until all of the installation work described has been completed.

2.04 Remove the fastening screws holding the terminal block cover at lower rear side of unit, remove cover.

2.05 Connect a three wire, insulated cable (preferably of red, green, and yellow insulation) to the terminal block. Connect red lead to L1, green to L2, yellow to G (see Figure 2). Secure the cable clamp and replace the terminal block cover.

2.06 Connect the other end of the cord to the telephone line at the telephone connecting block as indicated in Table 1.

2.07 At 10A1 (or 1A1) key system installations, terminate A and A1 leads on terminal block terminals so designated (see Figure 2).

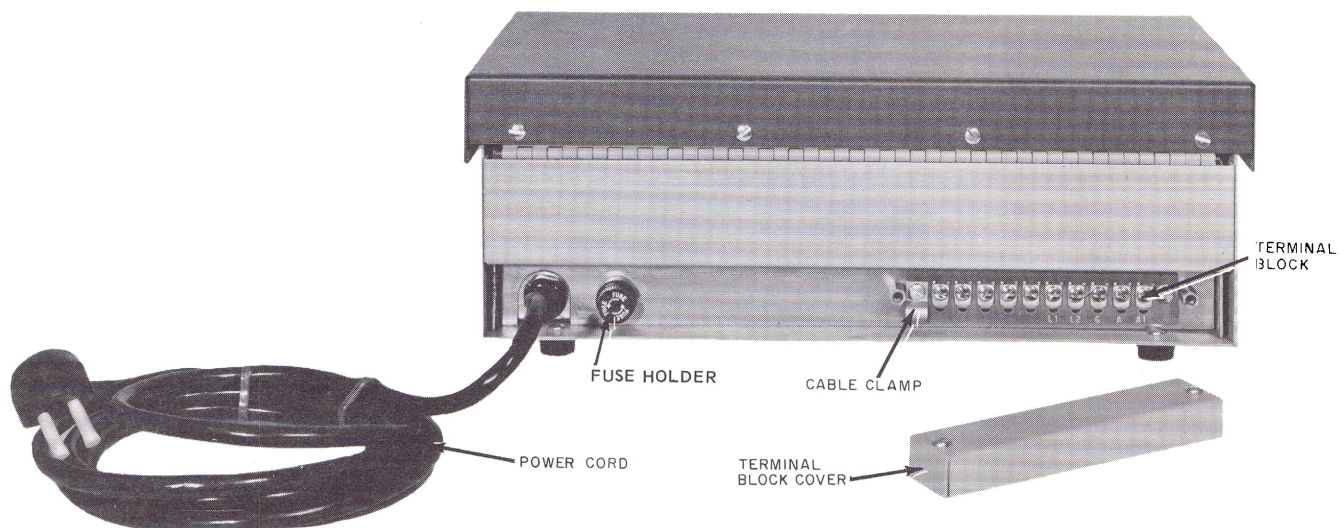


Figure 2. Model AO-3 (Rear View).



Table 1. Telephone Line Connections.

TYPE OF SERVICE	Red L1	Green L2	Yellow Grd
Individual, PBX, and other Bridge-Ringer Service	Ring	Tip	Tip
*2 Party Selective Service			
Ring Party	Ring	Tip	Grd
Tip Party	Tip	Ring	Grd

\* Remove strap between terminals L and G at answering set.

#### Loading Tape

2.08 Place announcement message cartridge on "D" shaped spindle. Pull tape out of cartridge and thread around guide pillars, tape tension arm, and into slot (see Figure 3). Pull back pressure roller assembly and thread tape between rubber pressure roller and capstan. Pull tape gently to take up slack. Tape must be positioned in the guide pillars between the heads and the lamp. Release pressure roller assembly.

#### Testing

2.09 Plug in power cord, and verify operation of AO-3 by performing three basic functions of unit as described in part 3.

NOTE: When verifying operation, it may be necessary to adjust the announcement level. To gain access to the announcement level adjustment (see Figure 4), remove the two screws holding the upper edge, then tip the AO-3 backward and remove the two screws holding the lower edge. Pull the lower edge of the front panel outward and upward so that the front panel will clear the "ON-OFF" switch. To cycle the AO-3 with the front panel off, it will be necessary to manually depress and hold the electrical interlock switch (see Figure 4) of the front panel.

### **3. DESCRIPTION OF OPERATION**

3.01 The AO-3 performs the following three basic functions: (1) Dictate Announcement; (2) Check Announcement; and (3) Automatic Answer. The following paragraphs, in conjunction with Figures 3 and 5 explain the basic functions. The information contained in this part should be referred to when instructing the customer on the operation of his unit.

#### Dictate Announcement

3.02 Prepare the unit as follows:

- (a) Power Switch "ON."
- (b) Microphone inserted into "MICROPHONE" jack.
- (c) Selector knob turned to "DICTATE."

3.03 In the standby condition a transparent section of the announcement tape allows light from the lamp to pass through to a photocell which, through relay operation, keeps the latching path to the capstan motor open.

3.04 Depress "START" button and hold depressed until "DICTATE" lamp lights. This will energize the capstan motor. The capstan motor drives the capstan, through an intermediate idler wheel, which advances the announcement tape.

3.05 The opaque portion of the tape passes in front of the photocell blocking the light. This results in relay action which closes the latching path for the capstan motor and lights the "DICTATE" lamp.

3.06 The machine will now record signals from the microphone for a length of time determined by the cartridge used. (Message is dictated in normal voice with microphone about two inches from mouth and must be completed before "DICTATE" lamp extinguishes.)

3.07 Capstan motor will continue running until the transparent tape section again reappears at the end of the cycle. Relay action resulting from photocell activation breaks the latching path to the capstan motor ending the cycle.

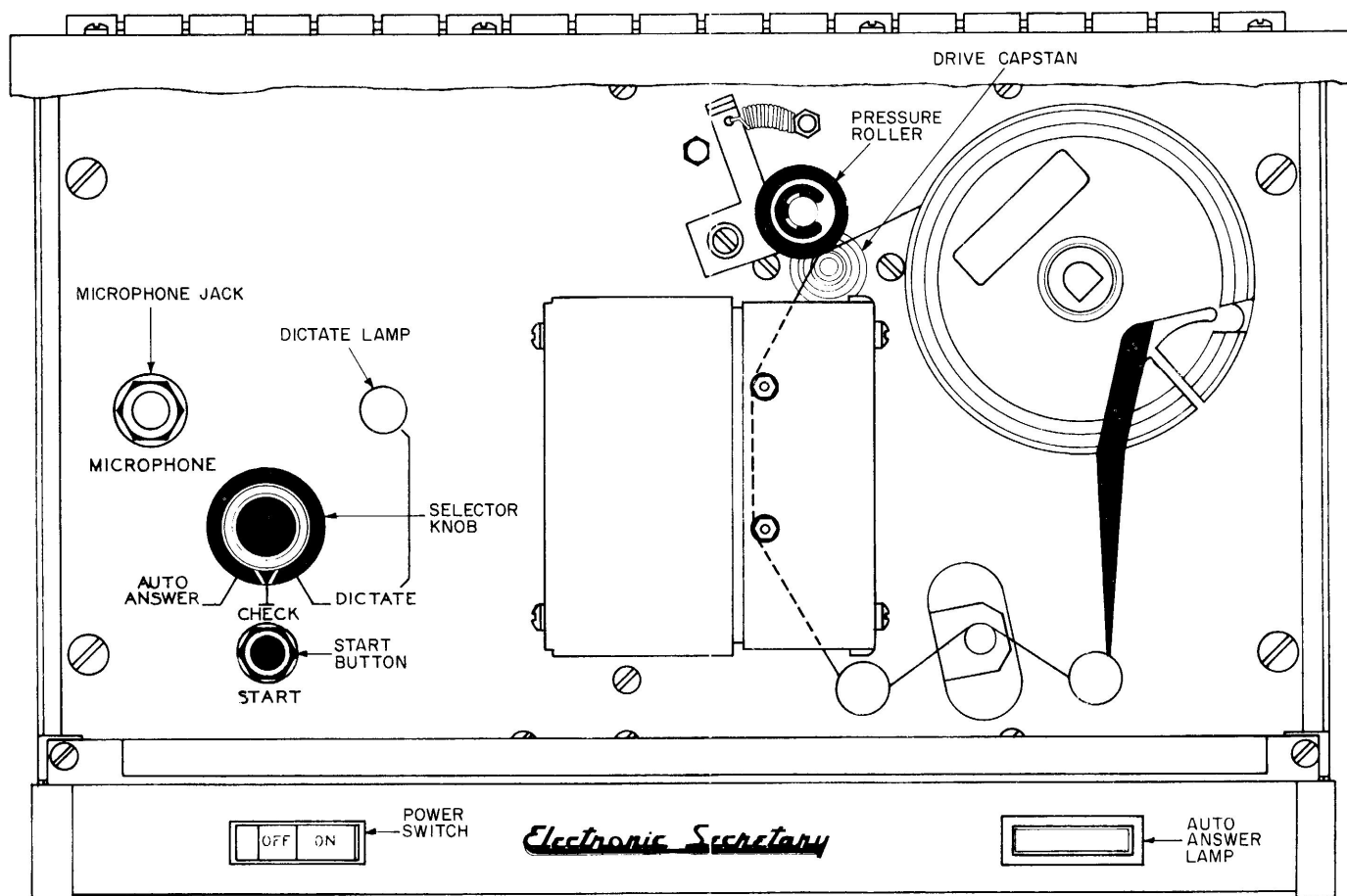


Figure 3. Deck of AO-3 (Top View).

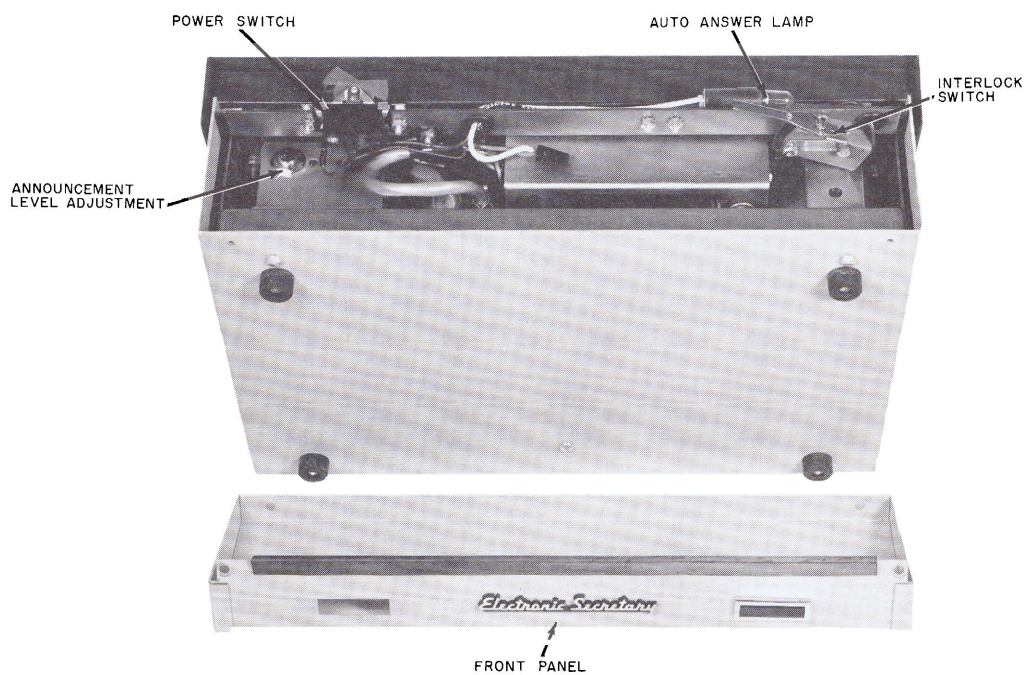


Figure 4. AO-3 With Front Panel Removed.

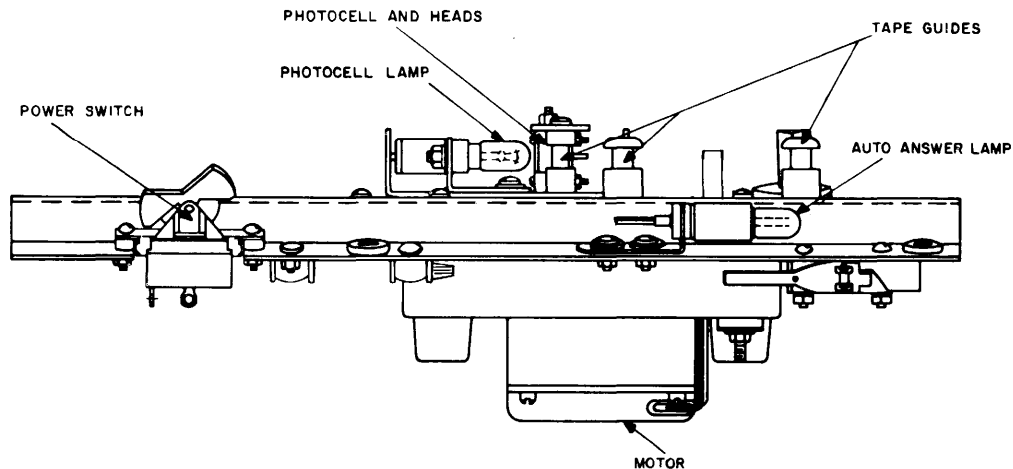


Figure 5. Tape Deck (Front View).

NOTE: Recording a new message will erase the existing message simultaneously.

#### Check Announcement

3.08 Prepare the unit as follows:

- (a) Power Switch "ON."
- (b) Microphone inserted into "MICROPHONE" jack.
- (c) Selector knob turned to "CHECK."

3.09 Depress START button. This will energize the capstan motor. The electrical sequence of operation is the same as described in "Dictate Announcement."

3.10 The record-reproduce head is connected to the playback amplifier input. The output of this amplifier is connected to the microphone which serves as an earphone speaker through which the recorded message is heard.

3.11 Cycle will end when transparent section of tape returns to starting position, allowing light to reach photocell.

#### Automatic Answer

3.12 Prepare the unit as follows:

- (a) Power Switch "ON."
- (b) Selector knob turned to "AUTO ANSWER" (Auto Answer Lamp will light).

3.13 When ringing current is applied across terminals L1 and L2, relay action starts capstan motor. The motor drives the capstan which advances the announcement tape.

3.14 The opaque portion of the tape passes in front of the photocell resulting in relay action which places a holding bridge across the line, thus establishing a talking path.

3.15 The announcement message is now delivered to the telephone line.

3.16 When transparent section of tape reappears at the end of the announcement message, resulting relay action will reset and ring up circuit and return machine to standby.

### **4. FIELD MAINTENANCE**

4.01 To help insure good customer relations, maintenance involving dismantling of the unit should not be undertaken on the customer's premises. In addition to checking obvious trouble sources such as loose power or telephone line terminations, perform the maintenance operations outlined in the following paragraphs.

4.02 Inspect the tape to assure that it is not kinked or scratched, and that the spliced joint is secure. No foreign material should be present on the tape surface, except for the lubricant applied at the time of manufacture. The clear area on the tape should be reasonably clean. Should tape condition be otherwise, replacement is indicated.

4.03 Assure that the capstan, pressure roller surface, pillars and heads are clean. If cleaning is required, remove the tape cartridge from the mechanism. Use a soft lintless cloth moistened with denatured alcohol to clean the surfaces.

4.04 When in the mechanism, the tape should move freely around the pillars and heads. Assure that the tape does not bind in the

cartridge and that there is sufficient tape slack.

4.05 The main power fuse (F1) is located at the rear of the set. (See Figure 2). If the fuse is blown, replace with 3/8-amp 3AG or AGC size.

## 5. MODIFICATIONS

5.01 Modification kits are available to update all Model AO-3 telephone answering sets with chassis serial numbers 47000-47500, to the latest production models.