

## 1A AND 1AA

### TELEPHONE ANSWERING SETS

#### DESCRIPTION

#### 1.00 GENERAL

**1.01** This section was formerly Station Installation and Maintenance Section C55.607, Issue 2. Except for editorial changes and renumbering for inclusion in the Station Operations Manual, no other revisions have been made.

**1.02** This section describes the 1A and 1AA telephone answering sets which are designed to furnish automatic telephone answering and recording service on central office and PBX extension lines.

**1.03** The 1AA answering set was designed to supersede the 1A set. Both sets are now rated Mfr Disc. Changes made in the 1AA set include:

- Changes in the protective circuit to provide better protection against overload conditions.
- Provision of locking devices to secure the magnetic heads for transporting.
- Use of hypalon bands instead of neoprene on both drums.
- Use of rubberized fabric on both drive belts.
- Use of a spring-loaded idler on the second stage drive belt.
- Addition of two labels inside the top cover:
  1. Simplified circuit label
  2. Apparatus designation label
- Addition of more punchings and corresponding circuit changes in the terminal strip to provide a high-impedance ringing circuit where desired.

Other changes are described in the section on maintenance.

**1.04** The 1AA answering set resembles the 1A set in appearance, and the operating features are identical; therefore, the information contained in the present section will also apply to the 1AA set unless otherwise indicated.

**1.05** The recording medium, a special magnetic material in the form of a rubber tire or drum, is used repeatedly by automatically erasing the previous messages before new ones are recorded. No discs or other additional recording materials are necessary.

**1.06** The set is connected to the telephone line and operates in conjunction with the customer's telephone set. When the 1A answering set is turned OFF, the telephone set is connected directly to the line and operates in the normal manner.

**1.07** The 1A answering set represents the equivalent of two high-impedance ringers. Therefore, the answering set when connected with a high-impedance ringer in the associated telephone set represents the equivalent of three high-impedance ringers. The ringer of the associated telephone set is connected as covered in Section C43.011.3, so that it provides an audible signal at all times, ie, when answering set is turned ON or OFF.

**1.08** When the set is arranged for automatic answering, it responds to an incoming ring with an announcement message (up to 30 seconds duration) previously recorded by the customer. At the end of this message, the calling party may record an incoming message of about 30 seconds maximum. A pair of tone signals is transmitted to

indicate the start of the incoming message recording period. A second pair of tone signals is transmitted about 2 seconds before the end of the incoming recording period. The set releases the line and is ready for another call at the end of the 30-second incoming recording period, or earlier (in locations where central office is arranged for calling-party control) if the calling party disconnects before this time.

**1.09** The set will accommodate a minimum of 20 incoming messages of 30 seconds per message.

**1.10** Power for operating the 1A answering set is obtained from the customer's 110- to 125-volt 60-cps ac power supply. In dc areas a KS-15662 inverter must be used.

## **2.00 DESCRIPTION**

**2.01** The 1A answering set shown in Fig. 1 is used at common battery stations of the following classes of service.

- Individual lines (manual and dial)
- 2-party selective flat rate (manual and dial)
- 2-party selective message rate (manual and dial)
- 4-party selective (manual and dial)
- Regular PBX stations (manual and dial)

**2.02** When used in conjunction with party-line stations, it is necessary to use a modified 531C subscriber set as auxiliary equipment to insure against cross-ringing and therefore false operation of the answering set. The 1AA answering set is equipped with a larger terminal strip. The additional terminals are used in conjunction with a modified 531C subscriber set to provide high-impedance bridged ringing on individual lines.

**2.03** The 1A answering set is contained in a gray-wrinkle-finish metal cabinet about 14 inches wide, 15-1/2 inches long, by 7 inches high and weighs about 45 pounds. The base of the cabinet is equipped with four felt pads to prevent marring of desks or table tops.

**2.04** By using the regular telephone set, the customer may record an announcement message which may be checked, erased, and changed, as desired.

**2.05** When the set is arranged for automatic answer, the announcement message is transmitted in response to an incoming call.

**2.06** Playback of the incoming messages is performed through the telephone set receiver. Provision is made for the use of an auxiliary receiver if desired.

**2.07** A jack (near the auxiliary receiver jack) has been provided on the set for bridging an additional incoming message recorder. In sets of a later model, this jack has been concealed by a metal plate since this feature is not used at this time. The jack for bridging an additional incoming message recorder has been omitted in the 1AA set.

**2.08** All controls for the operation of the 1A answering set are mounted on the front panel (see Fig. 1). These controls are:

- Function selector knob
- START and STOP keys
- ON-OFF switch

**Note:** In early models, when the answering set is connected to the power supply, the ON-OFF switch does not disconnect the power from the answering set.

- PLAYBACK VOLUME control
- Message selector knob
- Message indicator dial

**2.09** In addition to the controls mentioned in 2.08, there are three indicating lights on the front panel (see Fig. 1):

- ON-OFF light (Bell System medallion)
- Ready light
- DICTATE light (red)

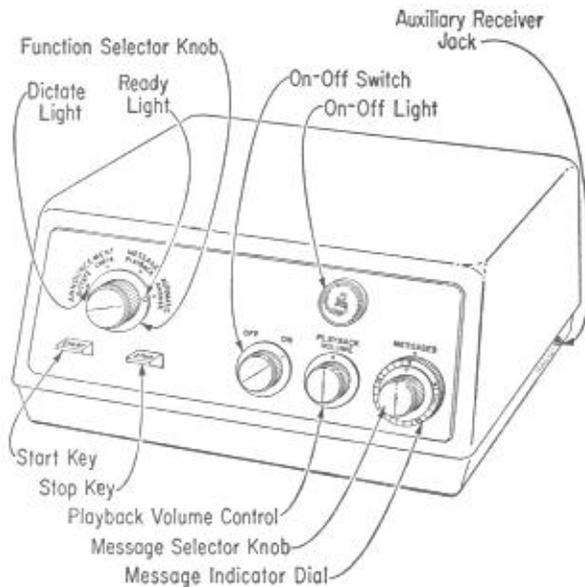


Fig. 1 - 1A and 1AA Answering Set, Exterior

2.10 A method has been developed for converting 1A and 1AA answering sets to provide for optional customer selection of answer only service (see Fig. 4) :

1. The playback volume control potentiometer will be removed.
2. A Centralab switch No. 1462 and an indicator plate will replace the volume control potentiometer.
3. Since the modification does not provide for indicator lights associated with the service selector switch, the AUTOMATIC ANSWER ready light must serve as a ready light for ANSWER & RECORD and ANSWER ONLY.

### 3.00 MECHANICAL PARTS

3.01 The mechanical parts within the set consist principally of a motor, belt drive, recording drums, recording head, carriages, lead screws, message selection and indicating means, cams, and erase coils (see Fig. 2 and 3).

3.02 The recording drums are driven by a 4-pole, 1600 rpm, 115-volt 60-cycle single-phase-induction motor. On the motor shaft is mounted a gear which is the rotor of the tone generator. The tone generator transmits a pair of 1400-cycle tones, each tone of 2 seconds duration, at the beginning of the incoming message recording period and a second pair of tones (the last tone at a higher level than the others) about 2 seconds before the end of the incoming recording period. The main drum shaft is driven by a 2-stage belt and pulley speed reduction assembly. Each belt is endless woven nylon and is tensioned by an adjustable idler pulley. Each belt is made of rubberized fabric. The first stage has a narrow belt, 1/4-inch wide, tensioned by a screw-adjusted idler pulley. The second stage has a wider belt, 7/16-inch wide, tensioned by a spring-loaded idler pulley. The starting torque of the motor has been increased. These improvements will insure operation over a wider temperature range.

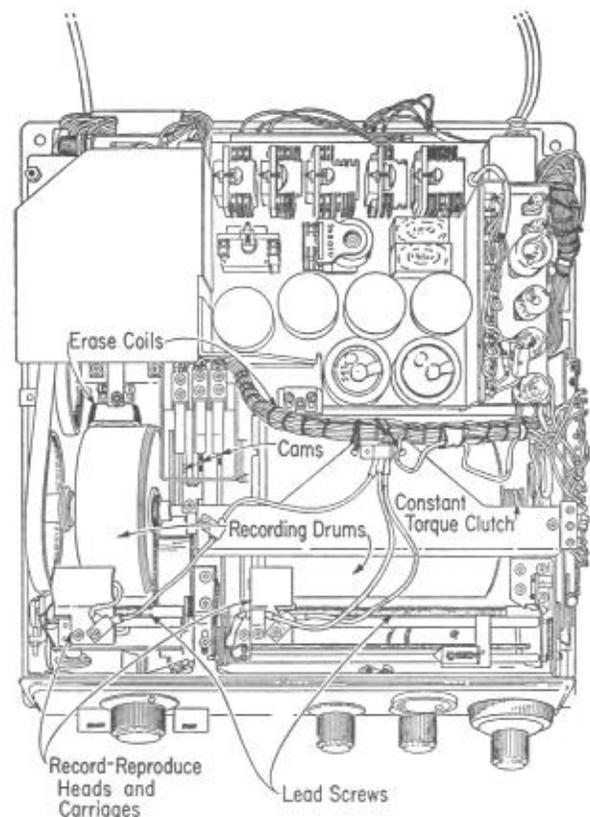


Fig. 2 - 1A and 1AA Answering Set, Top View, Interior

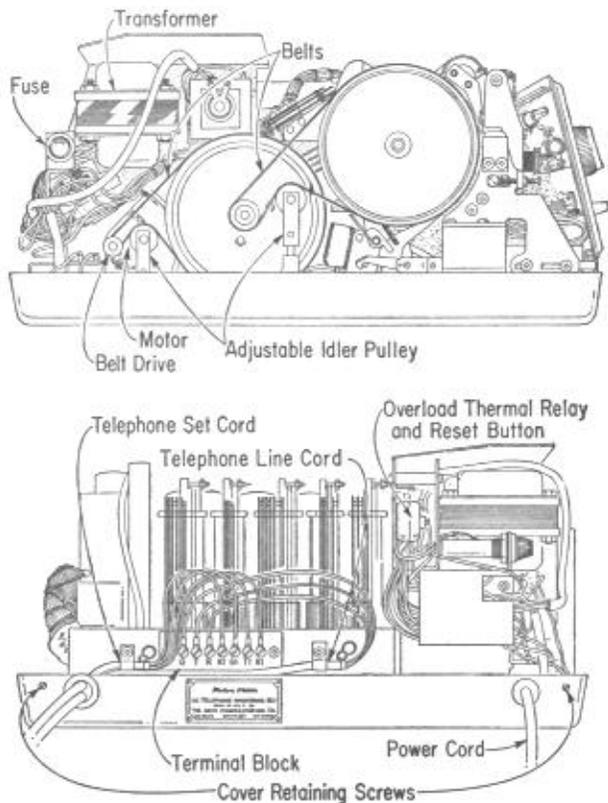


Fig. 3 - 1A and 1AA Answering Set, Side and Back Views, Interior

**3.03** The two recording drums are mounted on the main shaft but are not connected directly to it. Each drum is driven by a constant torque clutch which rotates continuously when the answering set is operating. Each drum is prevented from rotating by a pawl which engages in

a slot in the drum until the pawl is released by a solenoid, allowing the drum to rotate. The record-reproduce heads are each mounted on carriages which slide on horizontal guide rods. Each carriage is moved by a half-nut which engages a lead screw driven by gears from the respective drum (see Fig. 2).

**3.04** The smaller drum is used for recording and reproducing the announcement or outgoing message and the larger drum is used for incoming messages. The aluminum drums are covered by a neoprene band (or tire) containing magnetic iron oxide which has properties similar to those of sound recording tapes. The larger (or message) drum is equipped to prevent recording on a portion of the drum already used but not erased. In the 1AA answering set the recording bands, which are not wax impregnated, are made of synthetic rubber material called hypalon. Hypalon bands will be placed on 1A sets when shop repair work is required.

#### 4.00 OPERATION

**4.01** Operate the 1A telephone answering set as follows:

##### To Dictate Announcement Message

1. Turn ON-OFF switch to ON.
  - Bell System medallion lights up.
2. Turn function selector knob to ANNOUNCEMENT—DICTATE.
  - Ready light shows through window in knob skirt.



Fig. 4 - 1A and 1AA Answering Set Modified for ANSWER ONLY Service

3. Pick up hand set and depress START key.
  - Ready light goes out.
4. As soon as dictate light (red) appears, dictate the announcement message clearly and distinctly into the telephone transmitter.
  - Dictate light flashes on and off several times and goes out about 3 seconds before end of recording time (30 seconds).
5. Upon completion of the announcement message, *immediately* depress the STOP key before hanging up the telephone, otherwise the sound of the hang-up will be recorded. This also avoids having the calling party wait for some time before hearing the first tone signal.
  - Ready light appears.

The recording of an announcement message will run for 30 seconds at which time the recording drum will stop automatically, preventing a longer message from being made. If the message is incomplete when the recording drum stops, it must be re-recorded.

**Note:** The announcement message is automatically erased when a new announcement message is dictated.

#### To Check Announcement Message

1. Turn ON-OFF switch to ON.
  - Bell System medallion lights up.
2. Turn function selector knob to ANNOUNCEMENT—CHECK.
  - Ready light appears through window in knob skirt.
3. Pick up telephone hand set and depress START key.
  - Ready light goes out.
4. Listen to the recorded announcement message reproduced in the telephone set receiver.
5. Depress STOP key.
  - Ready light appears.

**Note:** If it is necessary to check the announcement message a second time, depress the START key again.

#### For Automatic Answer

1. Turn ON-OFF switch to ON.
  - Bell System medallion lights up.
2. Turn function selector knob to AUTOMATIC ANSWER.
  - Ready light appears through window in knob skirt.

The 1A answering set is now ready to automatically answer a call.

**Note:** If the ready light does not appear, the set will not answer the call. Check the following:

- (a) Set the message selector knob (*push in* before turning) so that the dot on the knob skirt lines up opposite the zero on the message indicator dial, or
- (b) If message indicator dial shows that recordings on the message drum have almost reached maximum, *push in* message selector knob and turn to extreme *left* until dot on skirt is immediately below the dot on the panel, and turn message indicator dial to extreme left. In this case, all previous incoming messages will be erased when the first call is answered by the answering set.

#### For Message Playback

1. Turn ON-OFF switch to ON.
  - Bell System medallion lights up.
2. Turn function selector knob to MESSAGE PLAYBACK.
  - Ready light appears through window in knob skirt.
3. *Push in* message selector knob and turn to left to position at which desired messages are located or until dot on skirt is immediately below dot on panel.
4. Pick up telephone hand set.
5. Depress START key.
  - Ready light goes out.

6. Listen to the recorded incoming messages.
  - Check to determine that messages are clear and intelligible.
  - An auxiliary head receiver plugged into the auxiliary receiver jack in the answering set may be used for listening to playback of messages if preferred.
7. Turn PLAYBACK VOLUME control knob for proper reproduction loudness.
  - Message selector knob may be turned back and forth to pick out or to replay messages. (Push knob in before turning.)
8. Depress STOP key when playback is completed.
  - Ready lights appears.

**To Erase Messages**

1. Turn ON-OFF switch to ON.
  - Bell System medallion lights up.

2. Turn message selector knob to extreme left (push knob in before turning) until dot on knob skirt is directly below the dot on the panel.
3. Turn the message indicator dial to the left until the zero is also directly below the dot on the panel.
4. Turn the function selector knob to AUTOMATIC ANSWER.
  - Ready light appears through window in knob skirt.
  - In this case, check to insure that dot on message indicator dial and message selector knob are both under dot on the panel.

**Note:** All previous incoming messages will be erased automatically when the next incoming call is answered.