

BELL SYSTEM PRACTICES
Station Installation and Maintenance

ADDENDUM C55.611
Issue 1, March, 1954
AT&T Co Standard

1A AND 1AA

TELEPHONE ANSWERING SETS

MAINTENANCE

1. GENERAL

1.01 This addendum supplements Section C55.611, Issue 2. It is issued to include maintenance information on the 1AA Telephone Answering Set and to make additions, changes, and corrections in the present practice.

1.02 All information in the existing practice will also apply to the 1AA Set except where a difference is indicated.

1.03 Additions, changes, and corrections should be made as given below:

2. MECHANICAL OPERATION

The following changes apply to Part 2 of the Section:

(a) 2.02—revised—added sentence

(b) Fig. 15—added

2.02 The recording drums are driven by a 4-pole, 1700 rpm, 115V, 60-cycle single-phase induction motor. On the motor shaft is mounted a 52-tooth gear which is the rotor of the tone generator. This gear forms a path of variable magnetic reluctance between two pole pieces connected by a permanent magnet and surrounded by a coil of wire. As the gear turns, the variation of magnetic flux induces an alternating voltage in the coil at a frequency of 1400 cycles. The main drum shaft is driven by a 2-stage belt pulley speed reduction. Each belt on 1A Sets is tensioned by an adjustable idler pulley. On 1AA Sets, the first

stage belt is tensioned by an adjustable idler pulley while the one in the second stage is tensioned by a spring-loaded idler pulley (see Fig. 15).

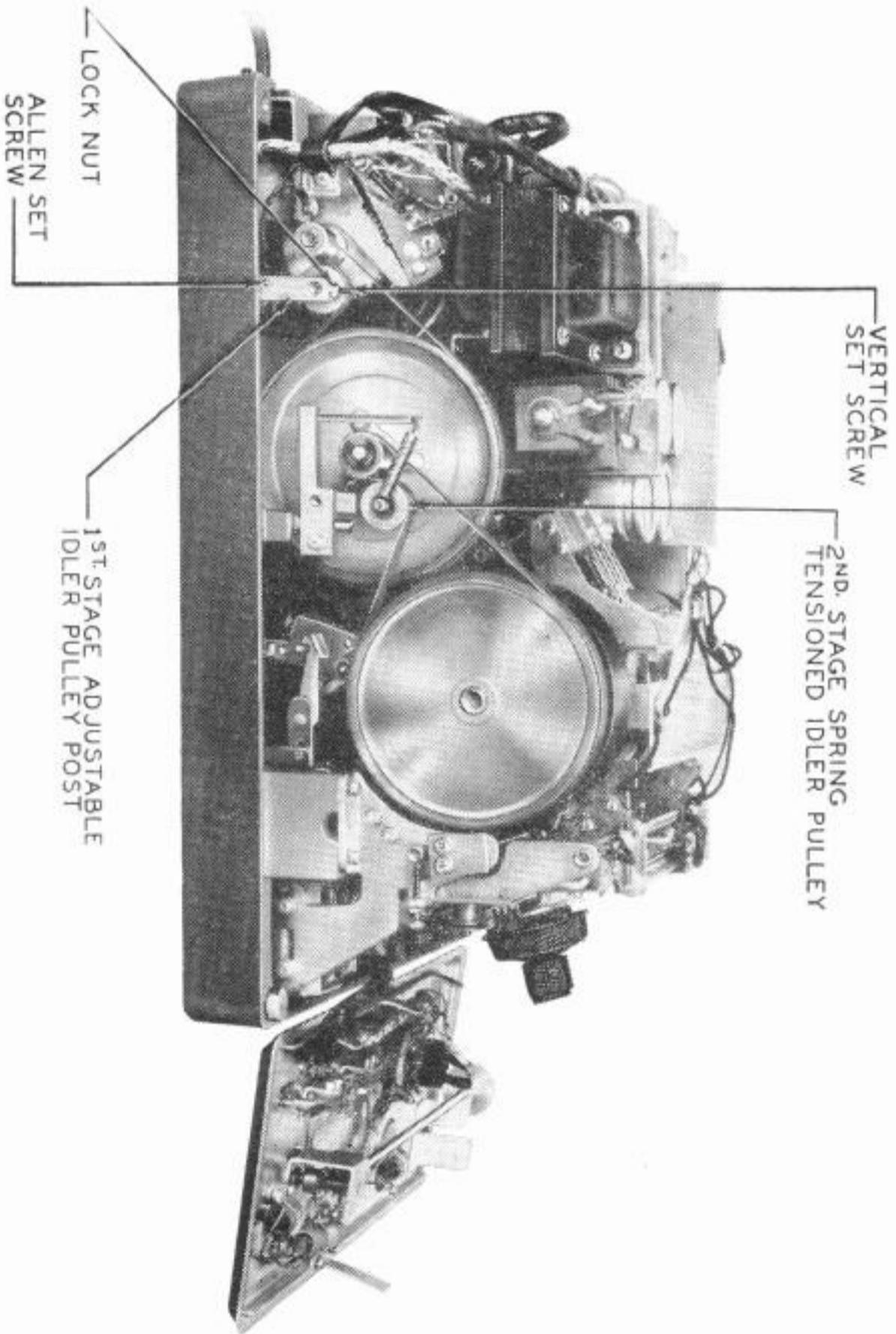


Fig. 15—IAA Belt Drive

2.14 This paragraph does not apply to the 1AA Set, as it is not equipped for an external recorder.

4. CIRCUIT DESCRIPTION (See Fig. 14 for 1A Sets, Fig. 17 for 1AA Sets)

The following changes apply to Part 4 of the Section:

- (a) Title—revised
- (b) 4.04—revised
- (c) 4.13—revised
- (d) 4.17—revised
- (e) 4.27—added unnumbered paragraphs
- (f) 4.32—revised
- (g) 4.33—revised
- (h) Fig. 17—added

4.04 K1 operates through S38 and contacts 5B and 6B of K3, and locks through contacts 8T and 9T of K1 and 6B and 5B of K3. The L1 Announcement Drum Clutch Solenoid operates through S24 (and S41 on 1A Sets), contacts 1T and 2T of K1, and 3B and 4B of K3, permitting drum and announcement cam rotation. K4 operates through 4T and 5T of K1 and activates the bias oscillator and AVC circuit by removing shunt resistor R117 from filaments by opening contacts 3T and 4T. The local telephone set is connected to the amplifier input from Terminals R1 and T1 via S4, S30, S31, C203, S25, T2, R119, R120, and contacts 7B, 6B, 5T, 6T of K4.

4.13 K3 operates L1 Announcement Drum Clutch Solenoid using P+ through 3B and 4B of K3, 2T and 3T of K1, and S23 to L1.

4.17 At end of Announcement, Adjustable Limit switch S7 operates, releasing K3 and L1. Head carriage and cams return to standby position. If STOP key S3 is pressed before S7 operates, K3 is immediately released. K5 stays operated until Announcement Drum is indexed because S19 is held closed by the clutch pawl until indexing is completed. K5 releases, and Ready Lamp lights.

4.27 (After 4.27 add the following unnumbered paragraphs for 1AA Sets)

 Ringing current (Bridged Ringing—Low Impedance) from the R terminal passes through S4, C202, Thermistor R215, strap A-B, X4 varistor (which rectifies current that actuates winding 6T and 4B of K2) S20, S35, S10 to G.

 Ringing current (Bridged Ringing—High Impedance) from L2Y terminal in 531C Subscriber Set flows through vacuum tube, K to ground operating relay in 531C. 48V P+ from E terminal in 1AA passes through closed contacts of relay in 531C, B terminal of 1AA, 6T and 4B of K2, S20, S35, S10, G terminal, strap G-F to chassis ground, operating K2.

4.32 Approximately 3-1/2 seconds after K2 operates DC termination of the telephone line is completed via terminals R and T, S4, S15 contact of cam 1-1, S31, winding of K7, S14B of cam 1-2, 5B and 6B of K1, S30 tripping ringing current.

4.33 K7 "Calling Party Disconnect" relay, operates and closes locking path to CO battery from terminal R through S4, S15 of cam 1-1, S31, winding of K7, 1T and 2T of K7, S30, S4 and terminal T.

5. REQUIREMENTS AND PROCEDURE

The following changes apply to Part 5 of the Section:

- (a) 5.02 (2)—added unnumbered paragraph
- (b) 5.10—revised
- (c) 5.13—added sentences and Table A
- (d) Fig. 16—added

5.02 (2) (After 5.02 (2) add the following unnumbered paragraph for 1AA Sets)

 The 1AA Sets have a retainer holding these two tubes in place. When necessary to remove tubes, lift end of retainer just high enough to clear tops of tubes, then pull out and down at bend, pivoting retainer at rivet (see Fig. 16).

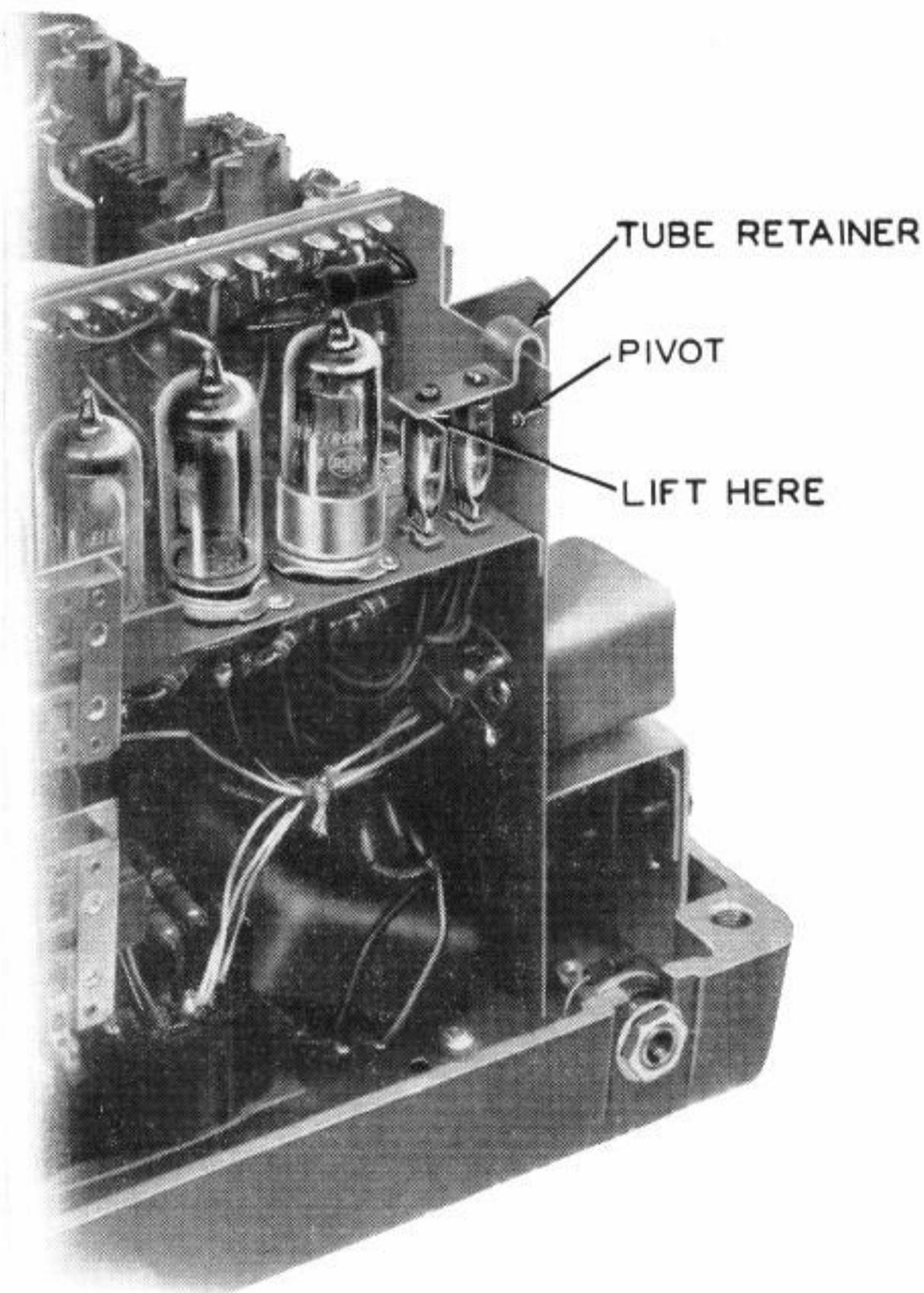


Fig. 16—Tube Retainer on 1AA Set

5.07 This paragraph does not apply to the 1AA Set.

5.09 Paragraph 5.09 does not apply to the 1AA Sets or 1A Sets with Hypalon bands designated L9 (edge of Announcement Drum Band) and L10 (edge of Message Drum Band).

5.10 The drive belts from the motor to the drum should be tensioned so as to drive the drums without slippage of the belts or stalling of the motor. Proper tension of the belts may be checked by operating the set in the MESSAGE PLAYBACK condition. The motor should drive the message drum at an even speed. Grasp the edges of the message drum and stop it from rotating. (Never handle the recording band.) The motor should not stall, the drive belts should not slip, and the drum shaft should continue to turn. If belt adjustment is necessary, it may be accomplished by repositioning the adjustable idler pulley. (The spring tensioned idler pulley on the 1AA Sets should not require adjustment.) To increase the belt tension in the first stage of the 1AA Set, loosen set screw in the side of the idler post. Loosen lock nut on top of idler post and turn associated vertical set screw until desired tension is obtained. Force idler assembly downward during this adjustment. Tighten lock nut and set screw in idler post with pulleys positioned so that the belt rides evenly on the pulley (see Fig. 15). In no case should the idler pulley be positioned so that the clearance between the two halves of the belt is less than 1/4 inch. Upon completion of adjustment, repeat above test several times. Replace belt if necessary. If the set does not meet these requirements the set should be replaced.

5.13 (Add after the last sentence)

Where noise is experienced when using an inverter with the 1A Set, strap the G terminal to the chassis for Bridged Ringing and the G1 terminal to the chassis for Party Service. On 1AA Sets if noise is experienced, the external ground should be strapped to the F terminal as shown in Table A. (For other connecting information see Section C55.612.)

TABLE A

<u>Type of Service</u>	<u>Ground Conductor Connections</u>	
	531 C Sub. Set Term	1AA Set Term
Individual Lines-Bridged Ringing Low Impedance	—	Strap G-F
Individual Lines-Bridged Ringing High Impedance	**Grd	F
Two and Four Party Sel. Flat Rate and Two Party Message Rate (—) Party on Ring	*Grd	F
Two and Four Party Sel. Flat Rate and Two Party Message Rate (+) Party on Ring	*L2Y	F
Two and Four Party Sel. Flat Rate and Two Party Message Rate (—) Party on Tip	*Grd	F
Two and Four Party Sel. Flat Rate and Two Party Manual Message Rate (+) Party on Tip	*L2Y	F
Message Rate (Dial Only) and Flat Rate A.M.A. and Zone Registra- tion (—) Parties on Tip	—	Strap G1-F
Message Rate (Dial Only) and Flat Rate A.M.A. and Zone Registra- tion (+) Parties on Tip	—	Strap G1-F
Flat Rate Auto. Ticketing (—) Party on Tip	—	Strap G1-F
Flat Rate Auto. Ticketing (+) Party on Tip	—	Strap G1-F

*Use D4AN Cord or equivalent.

**Use D5AA-9 Cord or equivalent.

6. TOOLS AND SPARE PARTS

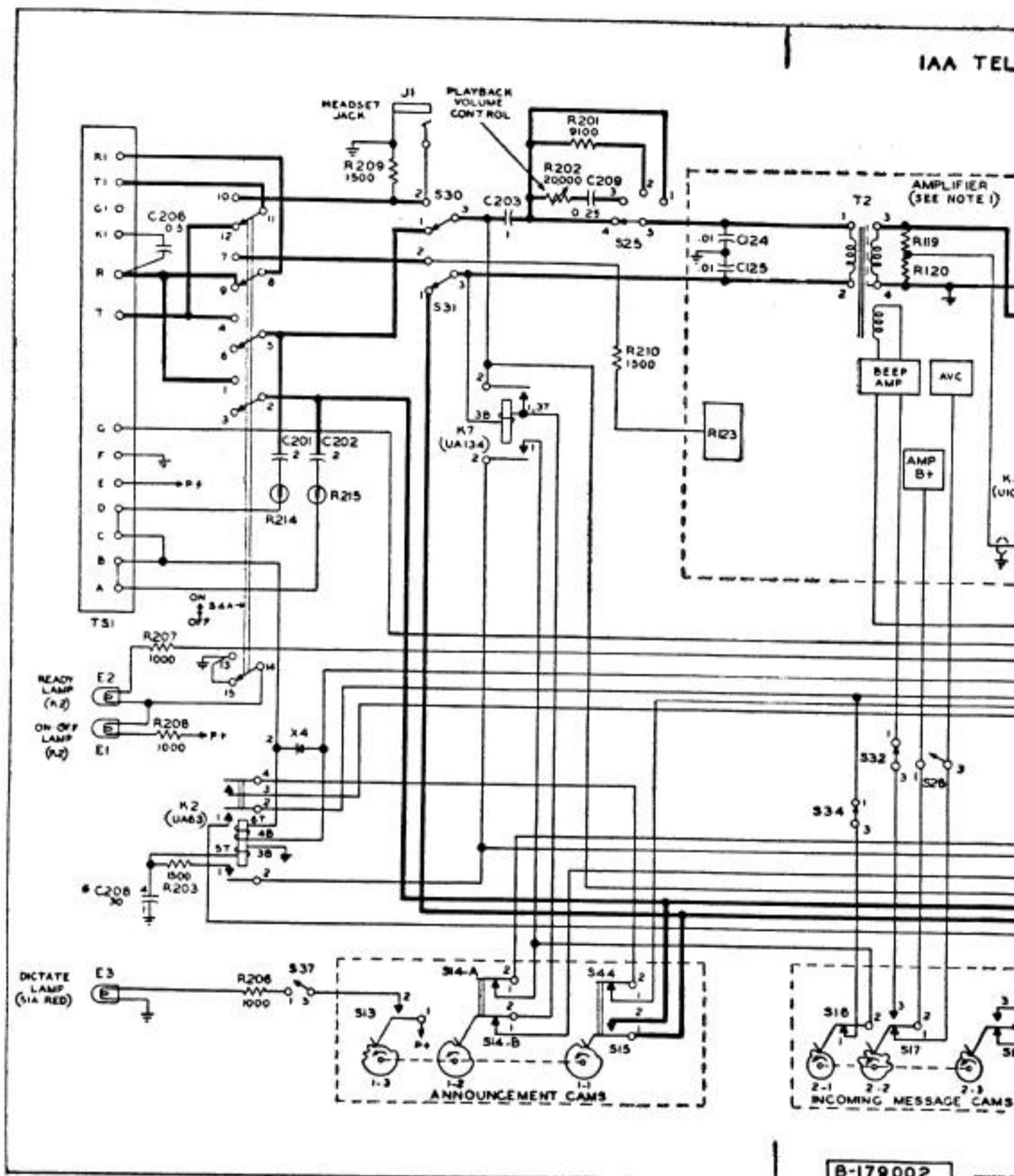
The following changes apply to Part 6 of the Section:

(a) 6.02 — sentences added

6.02 (Add at the end of this paragraph)

B-177846 cover plate is not used on 1AA Sets.

B-179082 Medallion (Bell System) for 1AA Sets not replaceable by B-177717 used on the 1A Sets

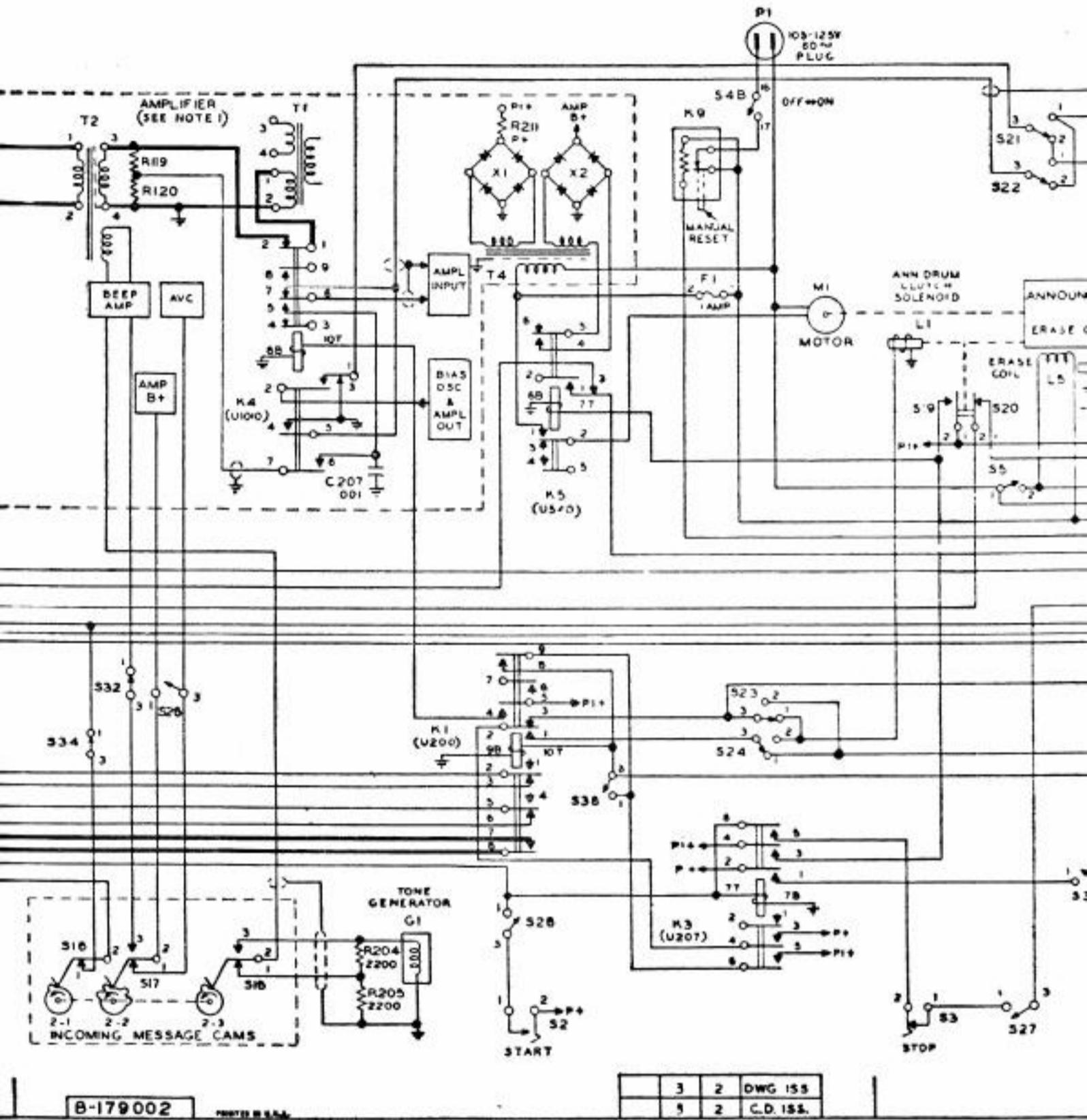


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FUNCTION	SLIDE SWITCHES																	
	S 21	S 22	S 23	S 24	S 25	S 26	S 27	S 28	S 29	S 30	S 31	S 32	S 33	S 34	S 35	S 36	S 37	S 38
ANNOUNCEMENT DICTATE	1	1	2	2	1	C	C	C	C	2	2	0	0	0	0	C	C	C
ANNOUNCEMENT CHECK	2	2	1	1	2	C	C	C	C	2	2	0	0	0	0	0	0	0
MESSAGE PLAYBACK	1	1	2	2	3	C	C	C	C	2	2	0	0	0	0	0	0	0
AUTOMATIC ANSWER	2	2	1	1	4	0	0	0	0	1	1	C	C	C	C	0	0	0

ADDENDUM
C55.611

1AA TELEPHONE ANSWER SET CONTROL CIRCUIT



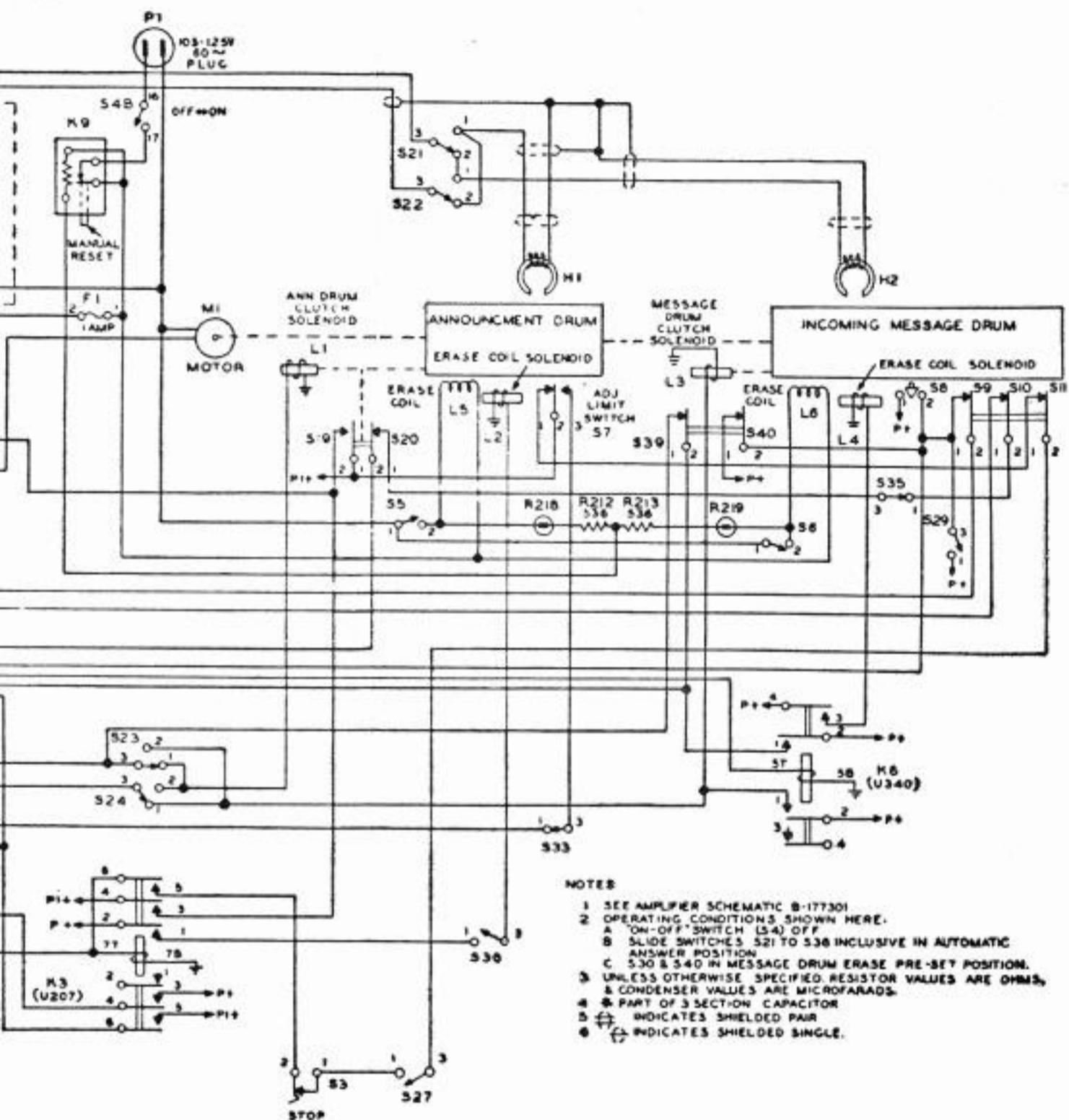
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3	2	DWG 155
5	2	C.D. 155

Fig. 17-1AA
Set

3	3
37	38
C	C
0	0
0	0
0	0

CIRCUIT



- NOTES
- 1 SEE AMPLIFIER SCHEMATIC B-177301
 - 2 OPERATING CONDITIONS SHOWN HERE.
 - A 'ON-OFF' SWITCH (S4) OFF
 - B SLIDE SWITCHES S21 TO S36 INCLUSIVE IN AUTOMATIC ANSWER POSITION
 - C S30 & S40 IN MESSAGE DRUM ERASE PRE-SET POSITION.
 - 3 UNLESS OTHERWISE SPECIFIED, RESISTOR VALUES ARE OHMS, & CONDENSER VALUES ARE MICROFARADS.
 - 4 PART OF 3 SECTION CAPACITOR
 - 5 INDICATES SHIELDED PAIR
 - 6 INDICATES SHIELDED SINGLE.

3	2	DWG 155
3	2	C.D. 155.

Fig. 17—1AA Telephone Answer Set Control Schematic