

E-2 MAGICALL AUTOMATIC DIALER

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1.	GENERAL	

1.01 This section provides the description and installation procedures for the E-2 Magicall Automatic Dialer.

1.02 This section is reissued to include information providing basic dialer connections for connecting the E-2 Magicall Automatic Dialer to Type 881 and 882 Speakerphones (equipped with either rotary dial or Touch Calling unit). Marginal arrows are used to identify the new material. Remove the previous issue of this section from the binder or microfiche file and replace it with this issue.

2. DESCRIPTION

2.01 The E-2 automatic dialer is an electronic repertory dialer in which telephone numbers are stored, individually selected, and dialed automatically by depressing a push-button on the basic dialer unit. Telephone numbers are recorded and stored on a magnetic tape within the basic dialer unit through the use of a detachable dial-in unit.

2.02 The complete assembly (Figure 1) consists of an E-2 Basic Dialer Unit, P2 Power Supply Unit, and D2 Dial-In Unit. Standard colors of black, beige, and white are available.

Basic Dialer Unit

2.03 The basic dialer unit contains a magnetic storage tape cartridge for recording digits; control switches for various modes of operation; a magnetic head for pickup and recording; and transistorized circuitry for amplifying, shaping, and controlling the pulses transferred to the telephone line. The dialer is 9-7/8 inches long by 3 inches high by 5-3/4 inches wide.

2.04 On the face of the dialer are pushbuttons for selecting names and placing calls. Inside the basic dialer unit is a magnetic tape cartridge that can be easily removed for maintenance or other purposes. Standard tapes contain spaces for 400 or 1,000 listings, and the cartridges are interchangeable.

Power Supply Unit

2.05 The P2 power supply unit (Figure 1) is a full-wave, solid-state supply that operates from a 105/125-Vac power source. It furnishes all necessary operating voltages for the automatic dialer and dial-in unit. The power supply is preconnected at the factory to the automatic dialer by means of a 5-1/2 foot cord that is terminated at both ends with spade terminals. The cord for the connection to the 105/125-Vac source is 8 feet long. Dimensions of the power supply unit are 5-3/4 inches long by 3-5/16 inches high by 3-3/4 inches wide.

Dial-In Unit

2.06 The dial-in unit (Figure 2) consists of a dial assembly, dial motor, dial shunt switch, dial start switch, pulsing contacts, and a WAIT indicator lamp.

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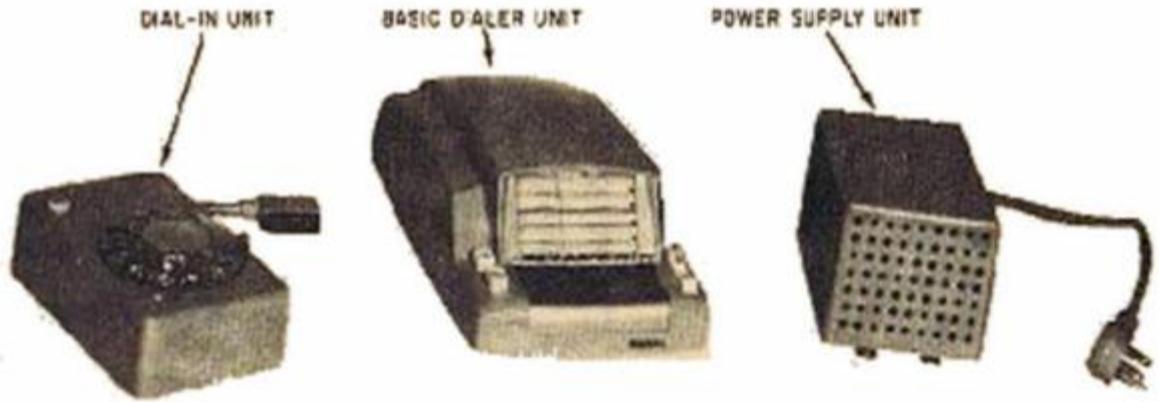


Figure 1. E-2 Automatic Dialer with Power Supply Unit.

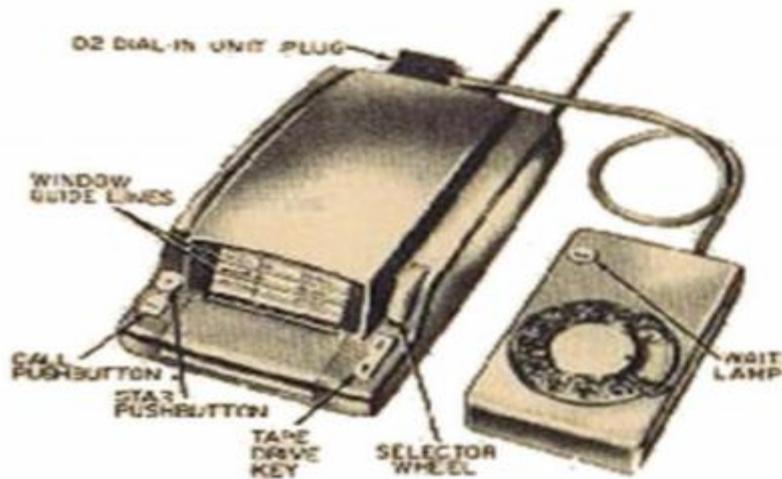


Figure 2. E-2 Automatic Dialer with Dial-In Unit Connected for Recording.

2.07 The dial-in unit is 5-7/8 inches long, 2 inches high, and 3-1/2 inches wide. It is equipped with a 2-foot-long cable terminated with a 9-pin plug. The plug and cable provide the connection between the dial-in unit and basic dialer unit during recording periods.

2.08 Special features of the E-2 automatic dialer are as follows:

- (a) A motorized cartridge and an alphabetical indexing line that provide rapid name location.
- (b) Easy placement of names upon the tape in handwriting or by typewriter.
- (c) Automatic erasing of an existing number at a name location when a new number is recorded at that location.
- (d) A removable cartridge that allows interchangeability between machines and confidential storage when not in use.
- (e) Provision for inserting a dial-tone-wait when second or third dial tones are used.

- (f) Capacity of up to 14 digits on each line of the directory tape.
- (g) Ability to abandon a partially dialed call. Immediate interruption of dialing is possible by any slight movement of the tape drive mechanism.

2.09 The following new part numbers are issued to the E-2 automatic dialer to reflect the capacity load and type of unit:

	<u>Part No.</u>	<u>Capacity</u>	<u>Type</u>
(a)	4800	400	Complete unit
(b)	4801	1,000	Complete unit
(c)	4806	No cartridge	Basic unit

2.10 The E-2 automatic dialer cannot be employed on party line services that are served by central offices that require special ground pulses for party identification.

2.11 Upon request, GTE Automatic Electric (GTE AE) Huntsville engineering will provide strapping information for the E-2 Magically Automatic Dialer and any telephone not covered in this section.

3. OPERATION

Recording and Dialing Normal Telephone Number

3.01 To record a telephone number, proceed as follows:

- (a) Check the directory listing for the number.
- (b) Connect the dial-in unit to the rear of the basic dialer unit with the plug associated with the dial-in unit cord; this automatically converts the equipment from the dial mode of operation to the record mode of operation.
- (c) Lift the front cover and locate a blank alphabetized space on the tape for the new entry by operating the tape drive key or selector wheel (Figure 2).
- (d) Write the name in the blank space (use the flat, red metal surface for a writing base) and close the front cover.

NOTE: When entering a listing on the tape, it is important to write on the line and not in the upper half of the space.

- (e) Using the selector wheel, rotate the magnetic tape until the new entry is between the two guide lines on the front window.
- (f) Depress the CALL pushbutton on the basic dialer unit. The WAIT lamp on the dial-in unit lights and then goes dark, indicating that the equipment is ready for pulse information.
- (g) Dial the telephone number, including area codes, using the dial on the dial-in unit. The WAIT lamp lights as the dial is returning to normal. Wait for it to go dark before dialing each succeeding digit.

NOTE: Do not force or retard the dial. This causes the number to be recorded incorrectly.

- (h) When the digits in the telephone number have been dialed and the WAIT lamp goes dark, depress the star (★) pushbutton.
- (i) Disconnect the dial-in unit when recording is finished. If it is desired to record more than one number during a recording period, it is not necessary to disconnect the dial-in unit after each number is recorded. Simply move the tape to the next position in which a number is to be recorded and then depress the CALL pushbutton prior to dialing the new telephone number.

3.02 The basic dialer unit can now be used to automatically dial any of the previously recorded numbers.

Recording and Dialing Telephone Number with Access Code

3.03 To record numbers when access codes are required to obtain an additional dial tone, proceed as follows:

- (a) Perform (a) through (f) of paragraph 3.01.
- (b) Dial in the code number.
- (c) Depress the star (★) pushbutton.
- (d) Proceed with (g) through (i) of paragraph 3.01.

has already been recorded, dial in the code number and the remaining digits on the telephone number.

NOTE: 2. The procedure for access codes must be used if an access delay of more than 600 milliseconds is known to occur at any point in the switching path, even if an additional dial tone is not received. During the recording, depress the star (★) pushbutton at the point in the dialing cycle where the delay occurs. The basic dialer unit stops at this point when dialing out and must be restarted by depressing the star (★) pushbutton. The reaction time of the user in depressing the star (★) pushbutton usually provides sufficient delay between the access code and the remainder of the number.

3.04 To place a telephone call, proceed as follows:

- (a) Operate the tape drive key and/or selector wheel and locate the name of the desired party.
- (b) Rotate the selector wheel until the name appears between window guide lines on the front of the basic dialer unit.
- (c) Lift the telephone handset and listen for the dial tone.
- (d) When dial tone is heard, momentarily depress the CALL pushbutton on the basic dialer unit. (This releases a clutch in the magnetic head control mechanism, which allows the magnetic head to return to the start position.)
- (e) Release the CALL pushbutton. (This allows the magnetic head to traverse the magnetic tape, pick up the recorded digits, and transfer the digits via electronic circuits to the telephone line.)

NOTE: If a call is being placed from a key telephone or switchboard and an incoming call is ringing from another line, the E-2 automatic dialer can be stopped to answer the other call immediately. The basic dialer unit can be stopped either by moving the selector wheel slightly off the existing line or by momentarily depressing the tape drive key. If the basic dialer unit is not stopped and the incoming call is answered, the pulsing from the basic dialer unit will carry over to the incoming call.

3.05 To place a call to a number that is preceded by an access code number, proceed as follows:

- (a) Lift the telephone handset and listen for first dial tone.
- (b) After dial tone is heard, depress the CALL pushbutton.
- (c) Listen for a second dial tone, then depress the star (★) pushbutton. The magnetic tape head picks up the remaining dial pulses, thereby completing the call.

3.06 If a telephone number with an access code has been recorded but night lines eliminate the need for dialing the access code, bypass it in the following manner:

- (a) Depress the CALL pushbutton before lifting the telephone handset. The access code will be dialed, but because of the existing on-hook condition of the telephone set, the access code has no effect.
- (b) Wait until the basic dialer unit stops after dialing the access code.
- (c) Lift the telephone handset.
- (d) Wait for dial tone, then depress the star (★) pushbutton; the basic dialer unit completes the dialing of remaining digits.

Magnetic Tape Entries

3.07 Listings may be entered on the tape by pencil or typewriter.

3.08 To make pencil entries, lift the front cover and position the desired blank line on the tape between the areas shown in red. Write in the name and number. Use the recording procedure previously described.

3.09 It is necessary to remove the tape cartridge for typewriter entries (Figure 3). This is accomplished by lifting the front cover, raising the front end of the basic dialer unit, and pressing back and down on the thin gray rod that rests on the top of the tape. The tape cartridge falls out of the bottom of the basic dialer unit when the rod is pressed.

3.10 To install tape around the typewriter roller (platen), proceed as follows (Figure 4):

- (a) Remove the roller (platen) from the typewriter.
- (b) Place a finger through the side hole under the directory tape near the top of the cartridge and pull the tape upward about 6 inches to form a loop (Figure 4). Insert the typewriter roller through this loop.
- (c) Replace the roller in the typewriter. To ensure that the typing will not be upside down, rest the base of the tape cartridge on the rear of the typewriter carriage with the gray bar on the tape cartridge facing the typist. The lines printed on the directory tape are exactly the same as double-spacing on most standard typewriters (three double-spaced lines per inch.)

3.11 Replace the tape cartridge as follows (Figure 5):

- (a) Place basic dialer unit in the upright position by raising the front of the basic dialer unit.
- (b) Place the hinges on the rear of the tape cartridge over the hinges at the rear of the opening in the bottom of the basic dialer unit.
- (c) Push up on the tape cartridge to lock it into place. It is important to raise the basic dialer unit completely to the vertical position and hold the cartridge horizontally when mating the hinges.

3.12 Standard directory tapes are already index lined, but the special tapes must be index lined if this feature is desired. To index the special tape, proceed as follows:

- (a) Lift the front cover.
- (b) Turn the tape to the first name of the A group.
- (c) Place the point of a red pencil or a broadpointed red ballpoint pen in the small slot over the A under the front cover.
- (d) Press down on the selector wheel and turn the wheel away from you while holding the writing point against the directory tape. Remove the pen from the tape when the last A entry, including the desired blank spaces, appears. This line indicates the A listing and blank spaces in that alphabetical group.
- (e) Move the writing point to position B and so on through position Z.

4. INSTALLATION

Selection of Location

4.01 Installation of the E-2 automatic dialer requires that the basic dialer unit be located in an area free from any

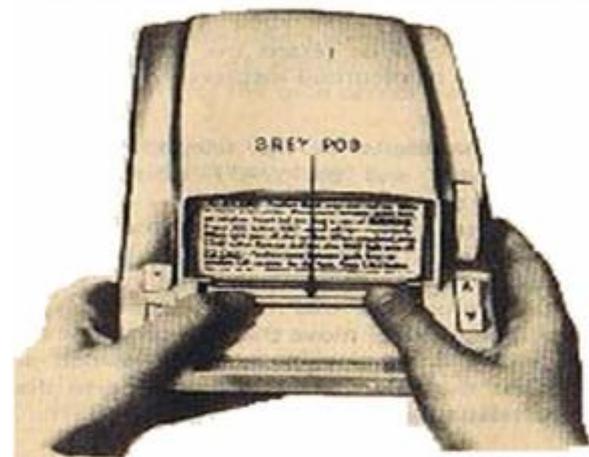


Figure 3. Removing Tape Cartridge.

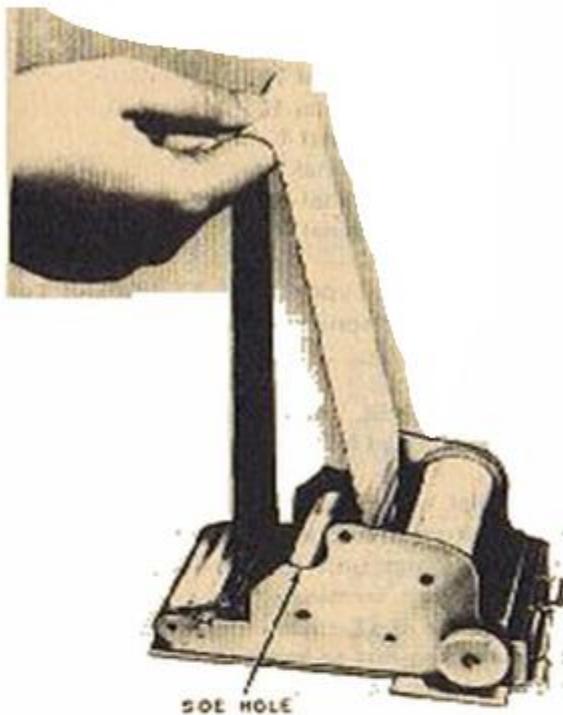


Figure 4. Drawing Loop Up From Directory Tape.

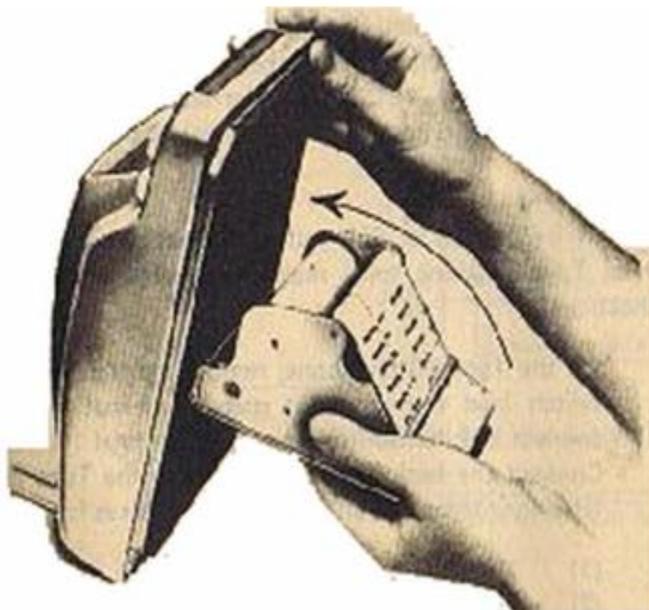


Figure 5. Replacing Tape Cartridge in Basic Dialer Unit.

stray magnetic fields and that the power supply unit be located in an area that allows sufficient air circulation for cooling. Storage of the dial-in unit (when not in use) is at the discretion of the customer.

4.02 Select a convenient location near the customer's telephone and a 105/125-Vac power receptacle. The power cord attached to the power supply unit is 8 feet long. If necessary, it can be extended to a practical limit by using a UL-approved power cord.

4.03 The transmission cord attached to the basic dialer unit is 4-1/2 feet long and contains six conductors of 24-gauge wire. If desired, the length of this cord may be increased to any practical limit by terminating it to a connecting block and running the appropriate length of additional wire from the connecting block to the telephone.

4.04 The cord connected between the power supply unit and the basic dialer unit is terminated at both ends with spade lugs; therefore, it can easily be increased in length if desired. Use Table 1 to determine the wire size for a specific cord length.

Power Supply Unit Connections

4.05 To increase the length of the cable between the power supply unit and the basic dialer unit, proceed as follows (Figure 6):

- (a) Remove the one screw that secures the power supply unit cover.
- (b) Disconnect the power supply unit leads from the power supply unit.
- (c) Connect the free end of the power supply unit leads to a connecting block.
- (d) Connect six-conductor inside-outside wire from the connecting block to the power supply. Use two wires for the ground lead.

Table 1. Wire Size for Specific Cord Length.

WIRE SIZE (GAUGE)	MAXIMUM LENGTH (FEET)
22	30
20	48
18	75
16	120

NOTE: If wire with different color codes (such as two pairs of three-conductor cables) is used, care must be exercised to prevent mismatch of connections. The new cord should be knotted or otherwise anchored to the power supply unit.

NOTE: The maximum length of station wire must be 25 feet; a greater length of wire may cause equipment malfunction. Also, avoid mismatching wires with different color codings.

Power Supply Unit Installation

4.06 To install the power supply unit, proceed as follows:

- (a) Repeat (a) of paragraph 4.05.
- (b) Remove the vinyl sleeving from the three formed mounting feet located on the bottom of the power supply unit.
- (c) Using three screws, mount the power supply unit in the vertical position with the wire exit holes at the bottom.
- (d) Replace the cover.

4.07 Upon request, GTE AE Huntsville engineering will provide strapping information for the E-2 Magically Automatic Dialer and any telephone not covered in this section.

5. BASIC DIALER CONNECTIONS TO TELEPHONES

5.01 The basic dialer unit may be used with a wide variety of telephones in which the entry holes for the telephone cord and handset cord differ in their location. The following paragraphs describe methods of attaching the basic dialer unit transmission cord to the more common types of telephones encountered.

5.02 Two types of housings have been used on the Type 80 and 85 telephones. The latest designed housing has a spare slot through which the basic dialer unit transmission cord can be inserted.

5.03 Route the basic dialer unit transmission cord next to the handset cord and wrap several turns of friction tape around both cords, first making certain that the strain relief clamp is inside the telephone housing. (It may be necessary to loosen the strain relief clamp and move it closer to the spade lugs of the basic dialer unit transmission cord to keep it within the telephone housing.) Align the cord along the side of the baseplate to prevent damping of the ringer.

5.04 The older telephone housings do not have the extra entry hole; therefore, using a half-round file, increase the size of the entry hold provided for the handset cord. Secure the basic dialer unit transmission cord as mentioned in paragraph 5.03.

Type 80 and 85 Telephones

5.05 In the Type 80 manually adjusted telephone set, make the following wire connections:

- (a) Remove the YEL dial lead from transmission network terminal 11 and connect it to terminal 12.

- (b) Connect the basic dialer unit leads to the telephone's transmission network terminals as follows:

- (1) RED to terminal 11.
- (2) GRN to terminal 12.
- (3) BLU to terminal 1.
- (4) WHT to terminal 2.
- (5) YEL to terminal 3.
- (6) BLK to terminal 4.

5.06 In the California Type 80, SATT 80, and Type 85 manually adjusted telephones, make the following wire connections:

- (a) Remove the YEL dial lead from transmission network terminal 11.

NOTE: If the dial has screw terminals, remove the YEL dial lead from the dial terminal and connect the GRN basic dialer unit lead in its place. If the dial has solder wrap terminals, use a 1/4- or 5/16-inch-long, 5-40 or 6-32 round or binding head screw and a matching nut to terminate the YEL dial lead and GRN dialer lead. Tape the connection.

- (b) Connect the basic dialer leads to the transmission network terminals as follows:

- (1) RED to terminal 11.
- (2) BLU to terminal 1.
- (3) WHT to terminal 2.
- (4) YEL to terminal 3.
- (5) BLK to terminal 4.

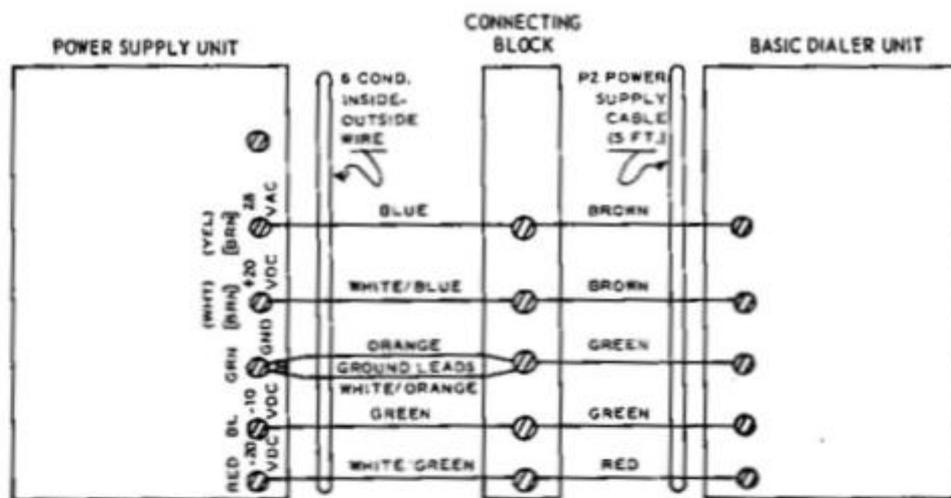
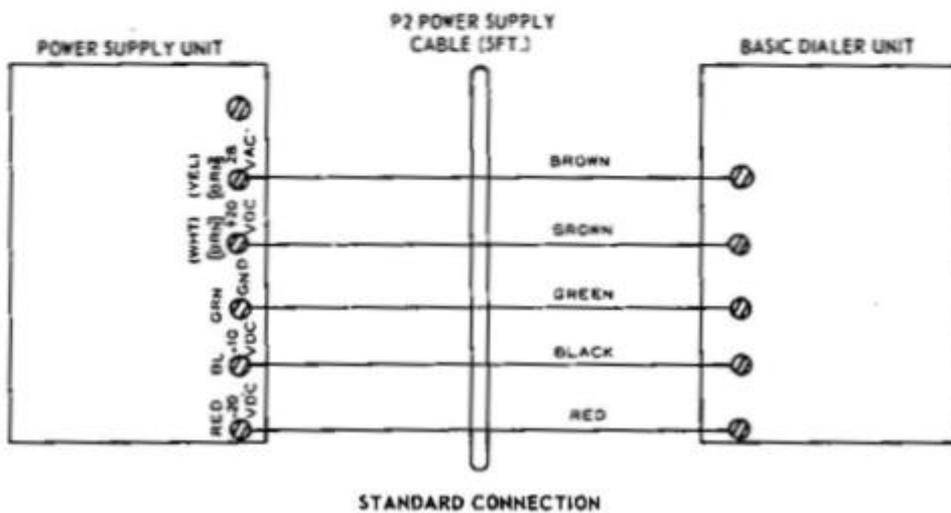
5.07 In the Type 80 and 85 self-compensating telephones, make wire connections as described in paragraph 5.06, except terminate the YEL basic dialer lead on either terminal 3 (on NB-series) or 23 (on NC-series) of the transmission network.

5.08 In a Type 80 or 80E self-compensating telephone with a Touch Calling unit, make the following wiring connections:

- (a) On the Type 80 telephone, remove the YEL hook-switch lead from support spacer terminal D and connect it to transmission network terminal 11.
- (b) Connect the basic dialer unit leads to the Type 80 telephone transmission network terminals as follows:

- (1) RED to terminal 11.
- (2) GRN to support spacer terminal D.
- (3) BLU to support spacer terminal D.
- (4) WHT to support spacer terminal C.
- (5) YEL to terminal 23.
- (6) BLK to terminal 4.

- (c) Terminate the D-68875-A spark suppression assembly between terminals 11 and D.



CONNECTION FOR INCREASING POWER SUPPLY UNIT CABLE LENGTH

NOTE:
[] INDICATES COLOR CODE PRIOR TO SEPTEMBER 1965
[] INDICATES PRESENT COLOR CODE

Figure 6. Connection of Power Supply Unit to Basic Dialer Unit.

(d) On the Type 80E telephone, remove the RED Touch Calling unit lead from transmission network terminal 7.

(e) Connect the basic dialer unit leads to the Type 80E telephone transmission network terminals as follows:

- (1) RED to terminal 7.
- (2) Splice together the dialer GRN and BLU leads with the RED Touch Calling unit lead and a lead from spark suppression assembly D-68875-A.
- (3) WHT to terminal 3.
- (4) YEL to terminal 23.
- (5) BLK to terminal 4.
- (6) Connect the loose lead from the spark suppression assembly to terminal 7.

Type 90 and 90M Telephones

5.09 Depending upon the type of wiring (concealed or exposed), the Type 90 and 90M telephones are accessed either through the wire entry hole in the baseplate or from the bottom of the housing. It is not necessary to enlarge the entry hole at the bottom, because there is adequate clearance. Secure the basic dialer unit transmission cord as mentioned in paragraph 5.03.

5.10 In the Type 90M manually adjusted telephone, make wire connections as described in paragraph 5.05

5.11 In the Type 90 and SATT 90M manually adjusted telephones, make wire connections as described in paragraph 5.06

5.12 In the Type 90M self-compensating telephone, make wire connections as described in paragraph 5.07.

Type 183 Telephone

5.13 Depending upon the type of wiring (concealed or exposed), the Type 183 telephone is accessed either through the wire entry hole in the baseplate or from the bottom of the housing (either handset cord hole or line cord hole). If access is from the bottom of the housing, the hole used must be enlarged. Secure the basic dialer unit transmission cord as mentioned in paragraph 5.03.

5.14 In the Type 183 self-compensating telephone, make wire connections as described in paragraph 5.07.

5.15 In the Type 183 manually adjusted telephone, make the following wire connections:

- (a) Remove the YEL dial lead from transmission network terminal 8 and terminate this lead and the GRN basic dialer lead as described in the note under paragraph 5.06(a).
- (b) Connect the basic dialer leads to the transmission network terminals as follows:

- (1) RED lead to terminal 8.
- (2) BLU lead to terminal 2.
- (3) WHT and YEL leads to terminal 9.
- (4) BLK lead to terminal 7.

Type 83 Telephone

5.16 The Type 83 telephone must be accessed from the bottom of the housing through the line cord entry hole. The hole must be enlarged. Secure the basic dialer unit transmission cord as described in paragraph 5.03.

5.17 In the Type 83 manually adjusted telephone, make the following wire connections:

- (a) Remove the YEL dial lead from the dial terminal and connect the GRN basic dialer lead in its place.
- (b) Connect the YEL dial lead and the RED basic dialer lead together using the method described in the note under paragraph 5.06(a).
- (c) Connect the remaining basic dialer leads as follows:

- (1) BLU lead to coil terminal 6.
- (2) WHT and YEL leads to terminal strip terminal 6.
- (3) BLK lead to coil terminal 1.

Type 86, 87, 186, and 187 Telephones

5.18 The Type 86, 87, 186, and 187 telephones must be accessed from the rear through the line cord entry hole. It is necessary to enlarge the hole in the housing. After the entry has been enlarged, secure the basic dialer unit transmission cord under the line cord clamp.

5.19 In the Type 86 and 87 manually adjusted telephones, make the following wiring connections:

- (a) Remove the YEL dial lead from transmission network terminal 11 and terminate this lead and the GRN basic dialer lead as described in the note under paragraph 5.06(a).
- (b) Connect the basic dialer leads to the transmission unit terminals as follows:

- (1) RED lead to terminal 11.
- (2) BLK lead to terminal 2.
- (3) WHT and YEL leads to terminal 9.
- (4) BLK lead to terminal 7.

5.20 In the Type 86 and 87 self-compensating telephones, make wire connections as described in paragraph 5.06

5.21 In the Type 186 telephone equipped with a rotary dial, make the following wire connections:

- (a) Remove the YEL dial lead from transmission network terminal 11 and connect it to terminal 6.
- (b) Connect the basic dialer leads to the transmission network terminals as follows:

- (1) RED lead to terminal 11.
- (2) GRN lead to terminal 6.
- (3) BLU lead to terminal 1.
- (4) WHT lead to terminal 2.
- (5) YEL lead to terminal 23.
- (6) BLK lead to terminal 4.

5.22 In the Type 186 telephone equipped with a Touch Calling unit, make the following wire connections:

- (a) Remove the YEL hookswitch lead from transmission network terminal 6 and connect it to terminal 11.
- (b) Connect the basic dialer leads to the transmission network terminals as follows:

- (1) RED lead to terminal 11.
- (2) GRN lead to terminal 6.
- (3) BLU lead to terminal 6.
- (4) WHT lead to terminal A.
- (5) YEL lead to terminal 23.
- (6) BLK lead to terminal 4.

- ➔(c) Terminate the D-68875-A spark suppression assembly between terminals 6 and 11.

5.23 In the Type 187 telephone equipped with rotary dial, make wire connections as described in paragraph 5.21.

5.24 In the Type 187 telephone equipped with Touch Calling unit, make the following wire connections:

- (a) Remove the RED hookswitch lead from transmission network terminal 11 and connect it to terminal 9.
- (b) Connect the basic dialer leads as follows:

- (1) RED lead to transmission network terminal 9.
- (2) GRN lead to transmission network terminal 11.
- (3) YEL lead to transmission network terminal 23.
- (4) BLK lead to transmission network terminal 4.
- (5) BLU lead to transmission network terminal 11.
- (6) WHT lead to terminal board terminal L2.

- ➔(c) Terminate the D-68875-A spark suppression assembly between transmission network terminal 11 and terminal board terminal L2.

Type 182, 182A, and 192A Telephones

5.25 The Type 182, 182A, and 192A telephones must be accessed through the line cord entry hole. It is necessary

to enlarge the entry hole to accommodate both the line cord and the basic dialer unit transmission cord. Secure the basic dialer unit transmission cord to the line cord as described in paragraph 5.03.

5.26 In a Type 182 telephone, make the wire connections as described in paragraph 5.07.

5.27 In Type 182A and 192A telephones with rotary dials, make wire connections as described in paragraph 5.07.

5.28 In the Type 182A and 192A telephones with Touch Calling units make the wire connections as described in paragraph 5.08(a) through (c).

Leich Telephones

5.29 Leich telephones (Series 100 and 700) must be accessed through the line cord hole. It is necessary to enlarge the hole to accommodate both the line cord and the basic dialer unit transmission cord as mentioned in paragraph 5.03.

5.30 In the Leich Series 100 telephones, make the following wire connections:

- (a) Remove the GRN dial lead from terminal P and connect it to terminal S.
- (b) Connect the basic dialer leads to the transmission network as follows:

- (1) RED to terminal P.
- (2) GRN to terminal S.
- (3) BLU to terminal X.
- (4) WHT to terminal C.
- (5) YEL to terminal C.
- (6) BLK to terminal F.

5.31 In the Leich Series 700 telephones, make the following wire connections:

- (a) Remove the WHT dial lead from terminal 5 and connect it to terminal 8.
- (b) Connect the basic dialer leads to the following telephone terminals:

- (1) RED to terminal 5.
- (2) GRN to terminal 8.
- (3) BLU to coil terminal GN.
- (4) WHT to coil terminal L2Y.
- (5) YEL to coil terminal GN.
- (6) BLK to coil terminal R.

Type 860A and 860B Telephones

5.32 The Type 860A and 860B telephones must be accessed through the line cord entry hole at the rear. It is necessary to enlarge the hole in the housing. Route the basic dialer unit transmission cord under the bracket securing the line cord.

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ISSUE 4

5.33 In the Type 860A telephone, make the wire connections described in paragraph 5.07.

5.34 In the Type 860B telephone with rotary dial, make the following wire connections:

- (a) Remove the SL hookswitch lead from transmission network terminal 6 and tape and store it.
- (b) Remove the YEL dial lead from transmission network terminal 11 and connect it to terminal 6.
- (c) Connect the basic dialer unit leads as follows:
 - (1) RED lead to transmission network terminal 11.
 - (2) GRN lead to transmission network terminal 6.
 - (3) BLU lead to transmission network terminal 1.
 - (4) WHT lead to transmission network terminal 2.
 - (5) YEL lead to transmission network terminal 23.
 - (6) BLK lead to transmission network terminal 4.

5.35 In the Type 860B telephone equipped with a Touch Calling unit, make the following wire connections:

- (a) Remove the SL hookswitch lead from the transmission network terminal 6 and tape and store it.
- (b) Remove the ORN hookswitch lead from terminal block terminal D and connect it to terminal A.
- (c) Make the following basic dialer lead connections:
 - (1) RED lead to transmission network terminal 6.
 - (2) GRN lead to terminal block terminal D.
 - (3) BLU lead to terminal block terminal D.
 - (4) WHT lead to terminal block terminal B.
 - (5) YEL lead to transmission network terminal 23.
 - (6) BLK lead to transmission network terminal 4.
- (d) Terminate the D-68875-A spark suppression assembly between transmission network terminal 6 and terminal block terminal D.

Type 880B Speakerphone

5.36 The Type 880B (NC and ND series) speakerphone must be accessed through the speaker cord entry hole. It is necessary to enlarge the entry hole. After the entry hole is enlarged, route the basic dialer unit transmission cord through the handset well and secure it to the speaker cord.

5.37 In the Type 880B speakerphone with rotary dial, make the following wire connections:

- (a) Move the ORN dial lead from transmission network terminal 11 to transmission network terminal 6.

(b) Connect the remaining basic dialer unit leads as follows:

- (1) RED lead to transmission network terminal 11.
- (2) GRN lead to transmission network terminal 6.
- (3) BLU lead to transmission network terminal 6.
- (4) WHT lead to transmission network terminal 3.
- (5) YEL lead to transmission network terminal 3.
- (6) BLK lead to transmission network terminal 4.

5.38 The Type 880B (NC and ND series) speakerphone must be accessed through the speaker cord entry hole. After the entry hole is enlarged, route the basic dialer unit transmission cord through the handset well and secure it to the speaker cord.

5.39 In the Type 880B speakerphone with a Touch Calling unit, make the following wire connections:

- (a) Remove the RED Touch Calling unit lead from terminal 3T of the speakerphone and connect it together with the GRN basic dialer lead to terminal 11 of the speaker phone.
- (b) Connect the remaining basic dialer leads as follows:
 - (1) RED lead to terminal 3T of the speakerphone.
 - (2) GRN lead to transmission network terminal 6.
 - (3) BLU network lead to speakerphone transmission terminal 6.
 - (4) WHT network lead to speakerphone transmission terminal 2T.
 - (5) YEL network lead to speakerphone transmission terminal 23.
 - (6) BLK network lead to speakerphone transmission terminal 1H.

NOTE: If spark suppression applies, terminate the leads between speakerphone terminal 3T and transmission network terminal 6.

5.40 In the basic dialer unit, strap the WHT lead to its adjacent vacant terminal (Figure 7).

NOTE: The speakerphone operates in both the handset and loudspeaker modes.

Cordless PBX

5.41 Connect the dialer transmission leads to the attendant's telephone instrument by using the appropriate wiring connections from part 5 of this section.

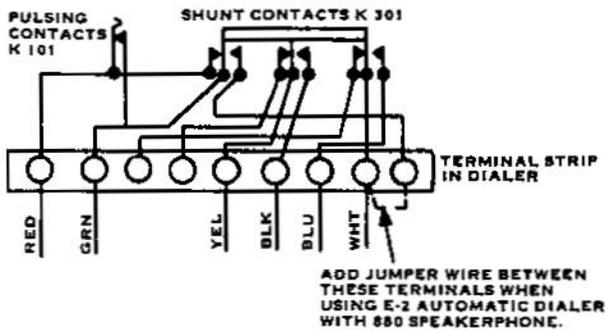


Figure 7. Terminal Strip, Basic Dialer Unit.

Cord-Type PBX or Attendant's Cabinet PABX Turret

5.42 Connect the basic dialer unit transmission leads to the position dial or turret dial. If the position circuit is contained, in whole or in part, within the cabinet (cord-type units and some turrets), provide a terminal strip on which to terminate the basic dialer unit transmission cord and make the interconnection. If the dial is merely cabled to external equipment (some turrets), connect the basic dialer unit transmission cord to the terminal strip, strips, or block already provided for the turret cable. A vacant terminal is required for termination of the GRN lead of the basic dialer unit transmission cord. Figures 7 and 8 show interconnections for two common arrangements of dial off-normal springs. If the PBX or PABX position circuit does not make use of all of the off-normal springs provided on the dial, the basic dialer unit transmission cord leads for the corresponding contacts in the basic dialer unit need not be connected. First, modify the connections within the basic dialer unit as shown, so that the pair of the basic dialer unit cord leads are connected to a set of break contacts on off-normal relay K301 instead of to the usual set of make contacts.

WECO 630-Series Telephone

5.43 In the WECO 630-series telephones or equivalent, make the following wire connections:

- (a) Remove the YEL-BLK mounting cord lead from terminal L2, tape, and store.
- (b) Remove the BLU basic dialer lead from terminal F and connect to transmission network terminal L2.
- (c) Connect the basic dialer leads to the transmission network as follows:
 - (1) RED to terminal F.
 - (2) GRN to terminal L2.
 - (3) BLU to terminal L2.
 - (4) WHT to terminal C.
 - (5) YEL to terminal GN.
 - (6) BLK to terminal R.

GTE AE 860B with Type 3B Speakerphone

5.44 In the Type 860B with a Type 3B speakerphone, make the following connections:

- (a) Move the RED lead from terminal strip terminal E to transmission network terminal 11.
- (b) Connect the basic dialer unit leads as follows:
 - (1) RED to terminal 11.
 - (2) GRN to terminal E.
 - (3) YEL to terminal 2.
 - (4) BLK to terminal 4.
 - (5) WHT to terminal A.
 - (6) BLU to terminal B.

Type 2630-Series Telephone

5.45 In the Touch Calling 2630-series telephone sets, make the following wiring connections:

- (a) Move the BLU-VIO mounting cord lead from terminal 2 of the terminal strip to terminal 7.
- (b) Move the ORN-BLK Touch Calling lead from terminal 13 to terminal 2.
- (c) Connect the basic dialer leads to the transmission network as follows:
 - (1) RED to terminal 7.
 - (2) GRN to terminal 2.

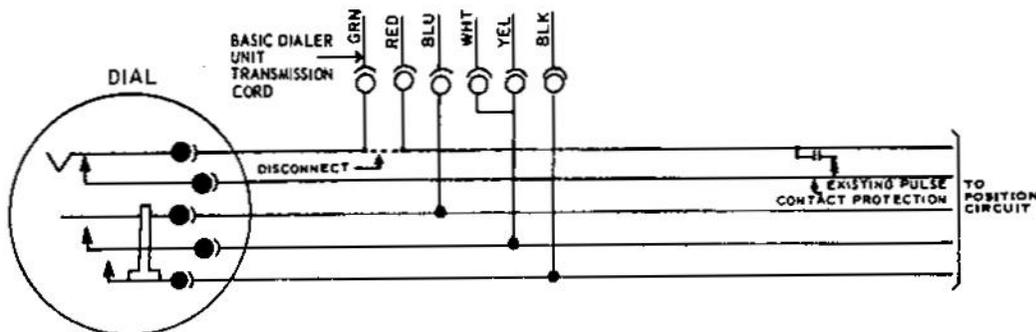


Figure 8. Dial with Spring Combination NP-16-A4.

SECTION 478-202-100
ISSUE 4

- (3) BLU to terminal 2.
- (4) WHT to terminal RR.
- (5) YEL to terminal G.
- (6) BLK to terminal GN.

NOTE: If a spark suppression assembly is used, terminate the leads between transmission network terminals 7 and 2.

Decorator Telephone with GTE AE Components

5.46 In the decorator telephone equipped with GTE AE components, make the following wiring connections:

- (a) RED to terminal 11.
- (b) GRN to the pulsing armature spring.
- (c) WHT to terminal 1.
- (d) BLU to terminal 2.
- (e) BLK to terminal 23.
- (f) YEL to terminal 4.

Decorator Telephones with Stromberg-Carlson Components

5.47 In the decorator telephones equipped with Stromberg-Carlson components, make the following wiring connections:

- (a) RED to terminal F.
- (b) GRN to the pulsing armature spring terminal.
- (c) WHT to the dial shunt spring terminal.
- (d) BLU to terminal C.
- (e) BLK to terminal GN.
- (f) YEL to terminal R.

GTE AE Type 890 Telephone

5.48 In the GTE AE Type 890 telephone, make the following wiring connections:

- (a) Move the PINK lead from terminal 9 to a spade connector.
- (b) Move the ORN lead from the internal dial terminal to terminal 9.
- (c) Connect the basic dialer leads to the following terminals:
 - (1) RED to terminal 9.
 - (2) GRN to terminal 9.
 - (3) YEL to terminal 6.
 - (4) BLK to terminal 11.
 - (5) The WHT and BLU leads from the basic dialer are not used; insulate and store them.

GTE AE Type 980 Telephone

5.49 In the GTE AE Type 980 telephone, make the following wiring connections:

NOTE: A four-conductor input/output wire is used with the 982 wall base; the line cord is not required.

- (a) RED to terminal L2.
- (b) GRN to terminal 4G.
- (c) WHT to terminal 4G.
- (d) BLU to terminal L1.
- (e) The YEL and BLK leads from the basic dialer are not used; insulate and store them.

NOTE: If a spark suppression assembly is used, terminate the leads between terminal L2 and 4G.

GTE AE Type 102A Telephone

5.50 In the GTE AE Type 102A telephone equipped with a rotary dial, make the following wiring connections:

- (a) Remove the ORN hookswitch lead from terminal board terminal 28 and connect this lead to transmission network terminal 2.
- (b) Remove the WHT recall lead from transmission network terminal 2 and connect this lead to transmission network terminal 11.
- (c) Connect the other WHT recall lead to terminal board terminal 28.
- (d) Remove the YEL dial lead from transmission network terminal 11 and connect it to terminal board terminal 38.
- (e) Connect the E-2 dialer leads as follows:
 - (1) GRN to terminal board terminal 38.
 - (2) WHT to transmission network terminal 2.
 - (3) BLU to transmission network terminal 1.
 - (4) YEL to transmission network terminal 23.
 - (5) BLK to transmission network terminal 4.
 - (6) RED to terminal board terminal 28.

5.51 In the GTE AE Type 102A telephone equipped with a Touch Calling unit, make the wiring connections in Table 2.

GTE AE Type 881 And 882 Speakerphones

5.52 In the GTE AE Type 881 Speakerphone equipped with a rotary dial, make the following wiring connections:

- (a) Remove the YEL dial lead from network terminal 11 and connect it to terminal board terminal 6.
- (b) Connect the dialer leads as follows:
 - (1) GRN to terminal board terminal 6.
 - (2) RED to network terminal 11.
 - (3) YEL to network terminal 11.
 - (4) BLK to terminal board terminal 10.
 - (5) BLU to network terminal 4.
 - (6) WHT to network terminal 2.

(c) Jumper the dialer terminal board as shown in Figure 7.

5.53 In the GTE AE Type 881A Speakerphone equipped with a Touch Calling unit, make the following wiring connections:

- (a) Remove the RED Touch Calling unit lead from terminal board terminal 8 and connect it to terminal board terminal 6.
- (b) Connect the dialer leads as follows:
 - (1) GRN to terminal board terminal 6.
 - (2) RED to terminal board terminal 8.
 - (3) WHT to terminal board terminal 11.
 - (4) YEL to network terminal 4.
 - (5) BLK to network terminal 2.
 - (6) BLU tape and store.
- (c) Connect the resistor capacitor assembly D-68875-A across the RED and GRN dialer leads at the dialer terminal strip.
- (d) Jumper the dialer terminal board as shown in Figure 7.

5.54 In the GTE AE Type 882A Speakerphone equipped with a rotary dial, make the following wiring connections:

- (a) Remove the YEL dial lead from network terminal 11 and connect it to terminal board terminal 6.
- (b) Connect the dialer leads as follows:
 - (1) GRN to terminal board terminal 6.
 - (2) RED to network terminal 11.
 - (3) YEL to network terminal 11.
 - (4) BLK to terminal board terminal G.
 - (5) BLU to network terminal 4.
 - (6) WHT to network terminal 2.
- (c) Jumper the dialer terminal board as shown in Figure 7.

5.55 In the GTE AE Type 882A Speakerphone with a Touch Calling unit, make the following wiring connections:

- (a) Remove the BRN Touch Calling unit lead from terminal board terminal G and connect it to terminal 25.
- (b) Connect the dialer leads as follows:
 - (1) GRN to terminal board terminal 25.
 - (2) RED to terminal board terminal G.
 - (3) WHT to terminal board terminal 7.
 - (4) YEL to network terminal 4.
 - (5) BLK to network terminal 2.
 - (6) BLU tape and store.
- (c) Connect resistor-capacitor assembly D-68875-A across the RED and GRN dialer leads at the dialer terminal strip.
- (d) Jumper the dialer terminal board as shown in Figure 7.

6. CONNECTIONS

6.01 When the connections are properly made, the basic dialer unit pulsing contacts (RED and GRN leads) are in series with the dial pulsing contacts of the telephone.

6.02 Two sets of off-normal contacts are provided (BLU and WHT, and YEL and BLK leads). They serve the same as the off-normal contacts in the dial; to reduce receiver clicks during operation of the basic dialer unit.

7. FIELD MAINTENANCE

7.01 Refer to Figures 9 through 13 for pin designations, voltages, etc, when necessary.

7.02 The following paragraphs cover maintenance that must be performed when a malfunction occurs in the E2 automatic dialer. Maintenance on the customer's premises consists of replacing a complete unit: a dial-in unit, basic dialer unit, and power supply unit. Failure to replace the entire unit may result in overheating of the power supply unit and the possibility of a fire. No maintenance must be performed on printed wiring cards, such as replacing transistors, resistors, etc.

NOTE: Disconnect the power cord before removing any housings. The power must remain disconnected when not required for immediate maintenance operation.

7.03 Perform a visual check of all connections for the basic dialer unit transmission cord, power supply unit cord, and ac power cord.

7.04 If the directory tape fails to rotate to a new number when the selector wheel is turned or when the tape drive key is operated, replace the complete unit.

7.05 If the basic dialer unit operates but fails to reach the called number, make the following check:

- (a) Select a blank space on the tape and record a known number.
- (b) Connect a handtest telephone across the RED and GRN leads of the basic dialer's transmission cord. Operate the handtest telephone to monitor the position.
- (c) Initiate a call and listen for the pulsing contacts. If the pulsing contacts are not heard or if a wrong number is continuously reached, the complete basic dialer must be replaced. The directory tape is substituted into the new basic dialer.

7.06 If the difficulty in operation is obviously caused by the dial-in unit, simply replace the dial-in unit.

Table 2. E-2 Dialer Connections to Type 102A Touch Calling Telephone.

EQUIPMENT	LEAD COLOR	REMOVE FROM	CONNECT TO
Hookswitch	ORN	28 TB*	30 TB
Recall Switch	WHT	28 TB	31 TB
	WHT	40 TB	38 TB
E-2 Dialer	RED		38 TB
E-2 Dialer	GRN		40 TB
E-2 Dialer	WHT		7 TB
E-2 Dialer	BLU		39 TB
E-2 Dialer	BLK		4 TN**
E-2 Dialer	YEL		23 TN
HD-680027-A	BRN		31 TB
HD-680027-A	YEL		39 TB

*TB = Terminal board

**TN = Transmission network

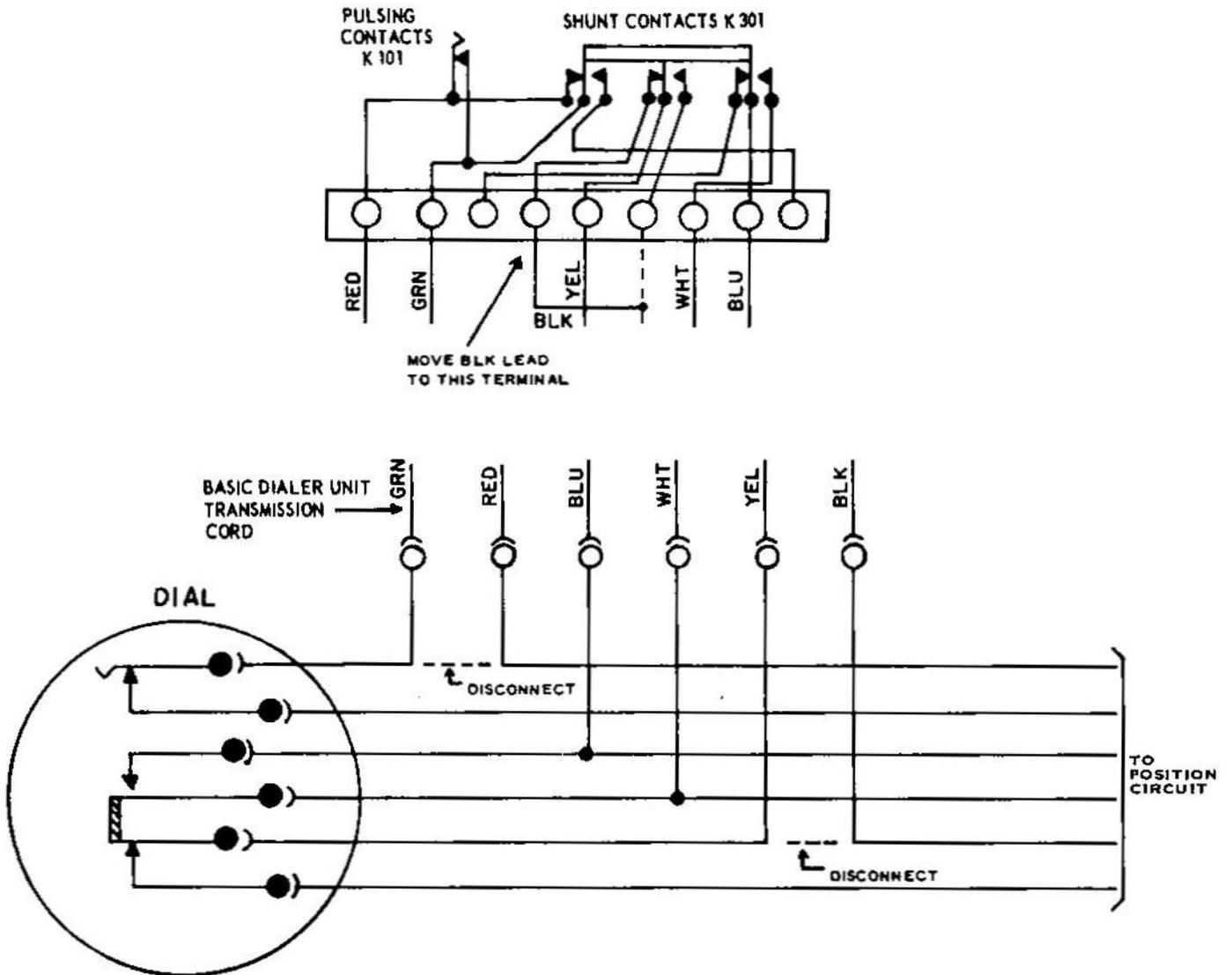


Figure 9. Dial with Spring Combination NP-16-A7.

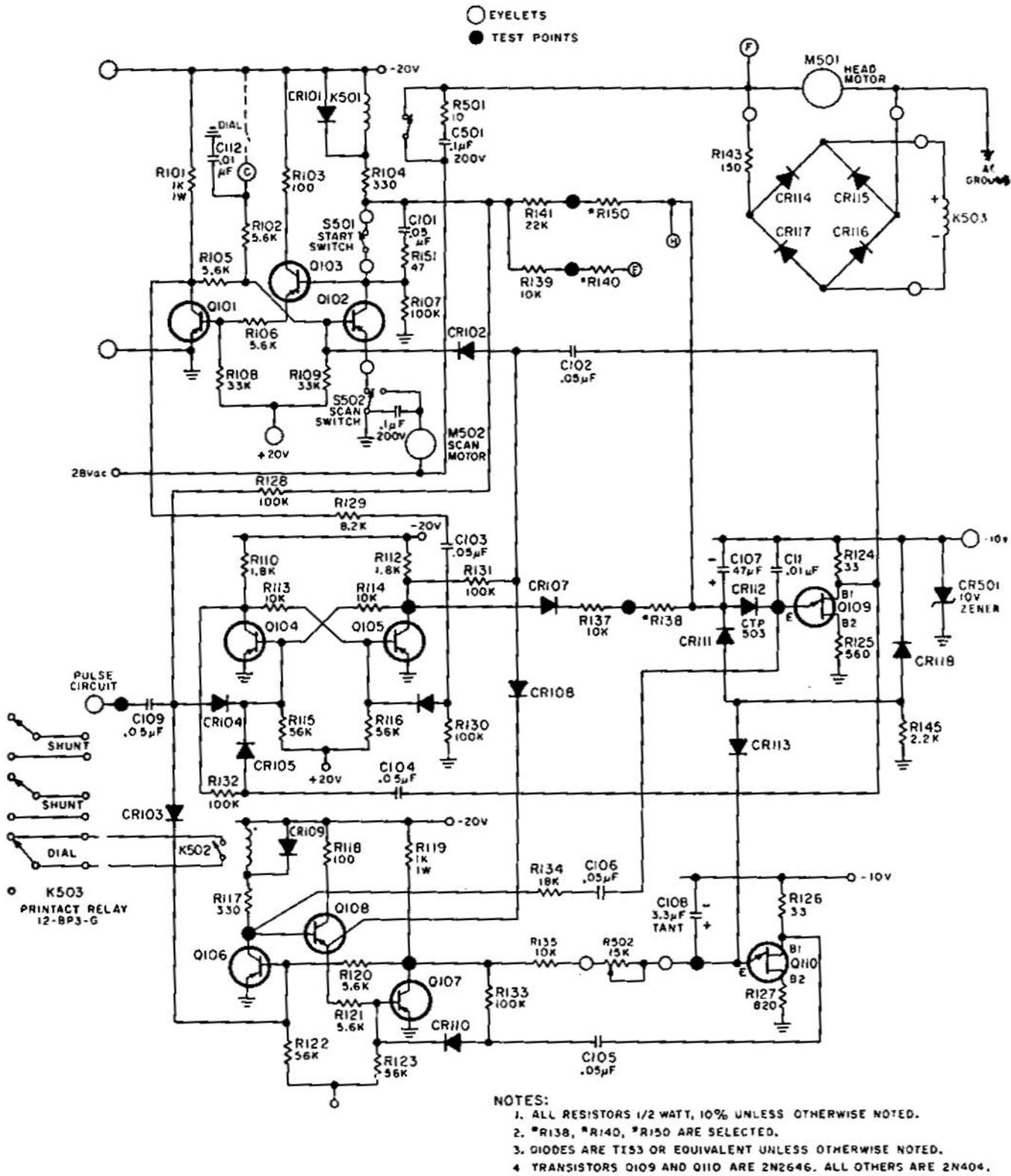


Figure 10. Motor Control and Pulsing Circuits.

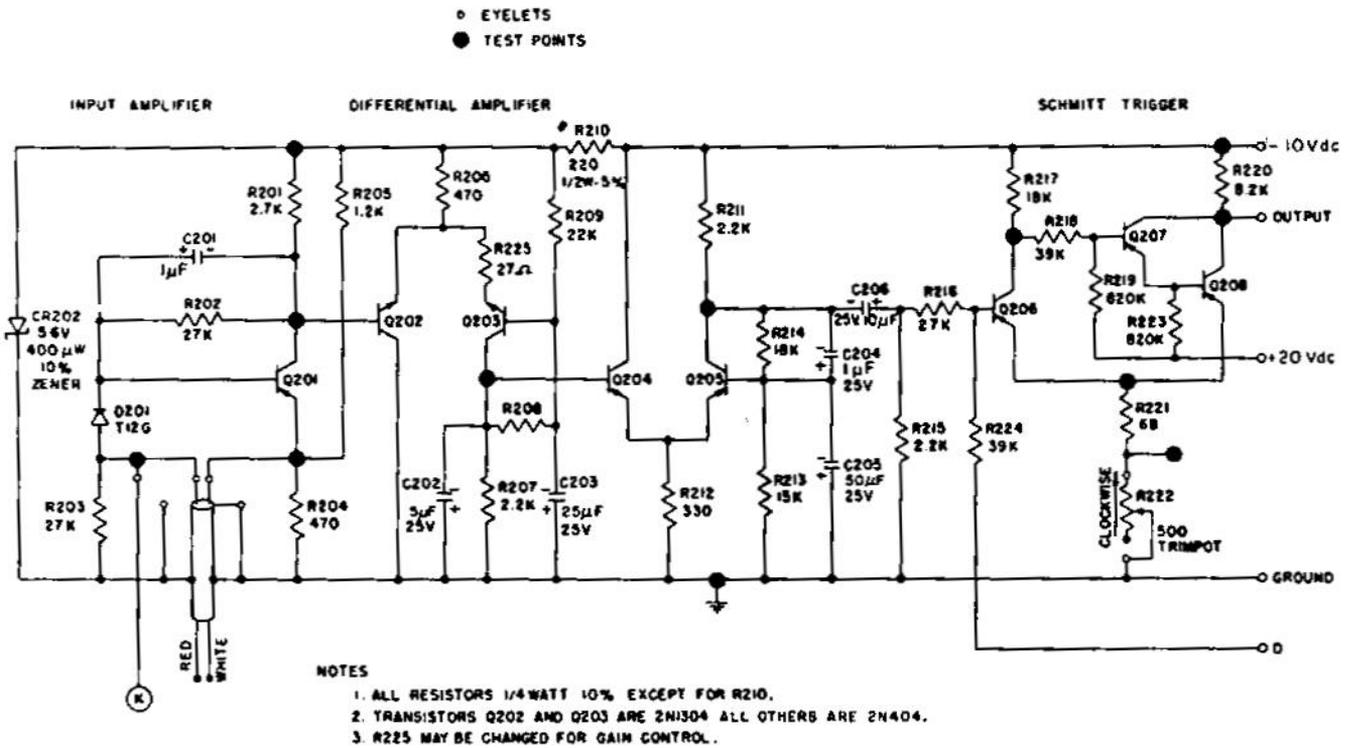


Figure 11. Amplifier Circuit.

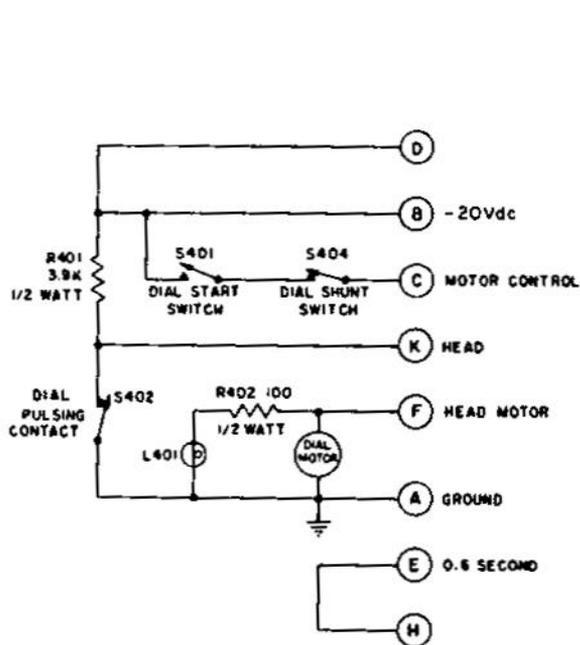


Figure 12. E-2 Dial-In Unit Circuit.

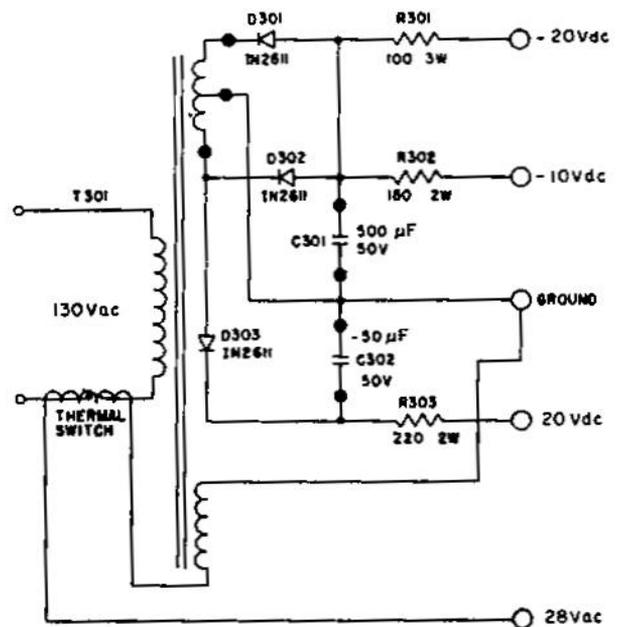


Figure 13. E-2 Power Supply Unit Circuit.