

KS-16844 RAPIDIAL

1. GENERAL

1.01 This section covers identification, operation, installation, connections, and maintenance of KS-16844, List 1 Rapidial and the KS-16844, List 10 Rapidial.

1.02 This section is reissued to:

- Add information on the power-driven scan (List 10)
- Show connections for various type switchboards.

1.03 List 1 units may be returned to the distributing house for modification to List 10 units.

1.04 Switchboard connections and ordering information is covered in 7 and shown in Table C.

2. IDENTIFICATION

2.01 The KS-16844 Rapidial (Fig. 1 and 2) is a magnetic-type repertory dialer used in conjunction with a customer telephone set. It records, stores, and transmits dial pulses.

2.02 Connecting a Rapidial to the telephone set will not affect the normal operation of the telephone. For ease of operation, the Rapidial should be located near the telephone set.

2.03 Cord connections are required between the telephone set and the Rapidial and between the Rapidial and the low-voltage power supply. The power supply (List 2) is shown in Fig. 3 and 4.

2.04 Rapidial provides writing space for the entry of 290 names and telephone numbers on a revolving tape. A scan knob

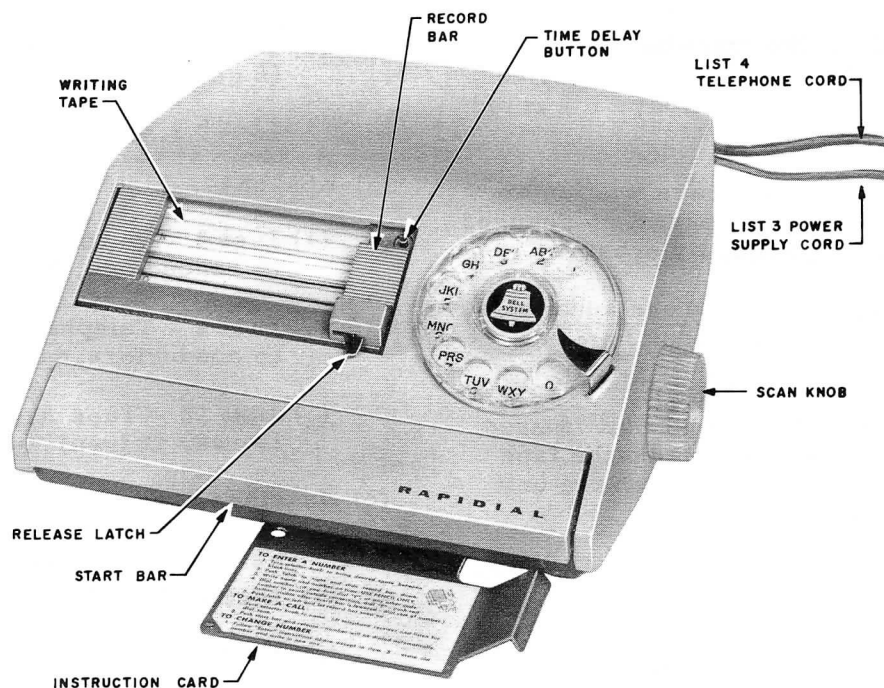


Fig. 1 - KS-16844, List 1 Rapidial

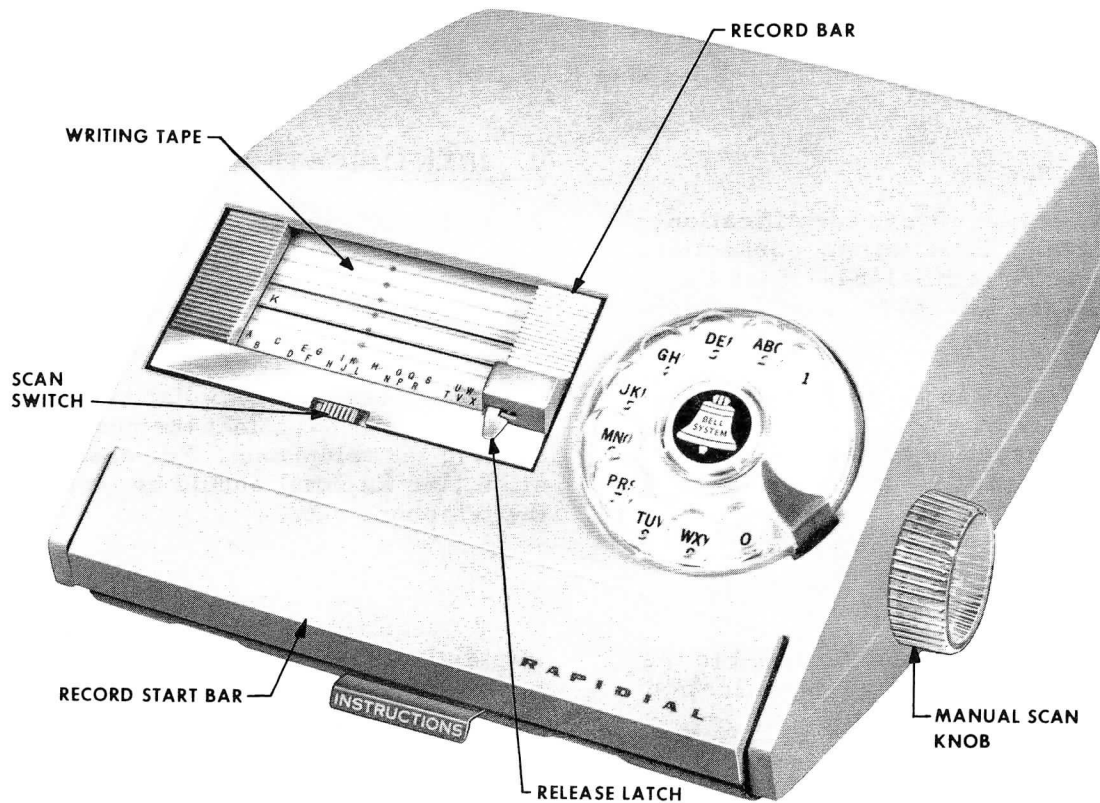


Fig. 2 - KS-16844, List 10 Rapidial

on the right side of the machine is provided for manual rotation of tape. The List 10 Rapidial has a motor-driven tape for rapid scanning.

2.05 Names and numbers are written on the tape with a lead pencil so changes can be made, if required, by erasure.



Instruct subscriber to use kneadable eraser to prevent eraser residue from darkening tape.

2.06 The dial on the Rapidial unit is used only to record numbers on the tape and is inoperative (locked), when the unit is not in recording condition.

2.07 The list numbers for the components are:

(a) KS-16844, List 1 Rapidial includes:

- (1) List 3 - Power Supply Cord (4 conductors, 8 feet long)*

- (2) List 4 - Telephone Cord (6 conductors, 8 feet long)*

- (3) List 6 - Tape Assembly (Manual)

(b) KS-16844, List 10 Rapidial includes:

- (1) List 3 - Power Supply Cord (4 conductors, 8 feet long)*

- (2) List 4 - Telephone Cord (6 conductors, 8 feet long)*

- (3) List 12 - Tape Assembly (Power Driven)

(c) Housings are not included with the List 1 or 10 Rapidial. They shall be ordered separately as required.

- (1) List 20 - 51 Housing (Green)
- (2) List 20 - 58 Housing (White)
- (3) List 20 - 50 Housing (Beige)
- (4) List 20 - 61 Housing (Grey).

(d) KS-16844, List 2 Power Supply†
(equipped with List 5 power cord†)
must be ordered separately.

* Lists 3 and 4 available in grey only.

† Lists 2 and 5 available in light olive grey.

2.08 Example of a typical order:

1 each - Rapidual KS-16844, List 10

1 each - Housing KS-16844, List 20-51

1 each - Power Supply KS-16844, List 2

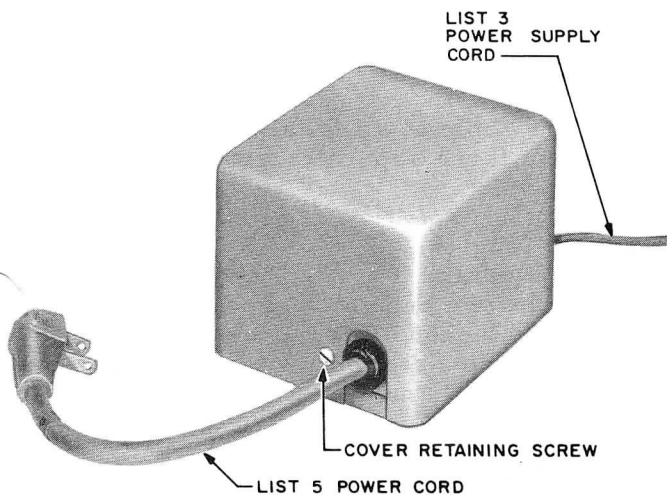


Fig. 3 - Power Supply

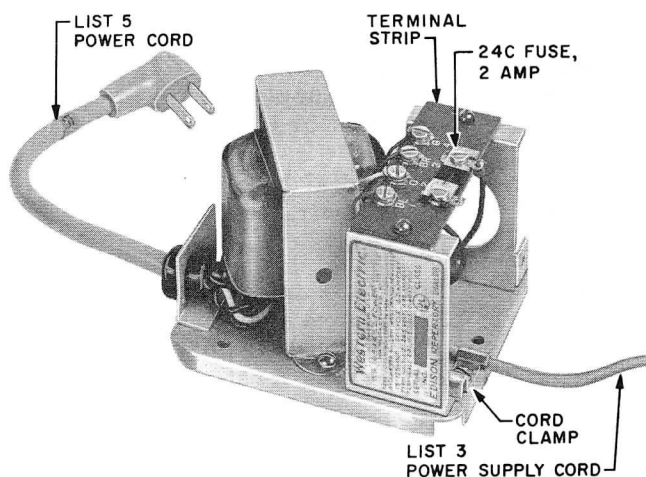


Fig. 4 - Power Supply (Cover Removed)

3. OPERATION

3.01 The operation of List 1 and List 10 Rapidual sets are similar with exception of the power-driven scan on List 10.

3.02 Operation of release latch and record bar:

- Opens plastic window to expose writing tape. An entry is made on writing tape, with lead pencil, for future reference.
- Erases previous recording on magnetic tape.
- Unlocks dial mechanism for recording telephone number. Dial is normally locked.



Operation of record bar automatically erases a portion of the telephone number previously recorded on magnetic tape. When demonstrating Rapidual, turn writing tape to a blank space before operating record bar.

3.03 When record bar is operated, a small red button is exposed. Pressing this button injects a time delay of three seconds between digits being recorded. Only one time delay per complete recording is possible. An example of a required time delay would be the pause, after dialing digit 9 from a dial PBX station, for a central office trunk connection. Since central office dial tone may not be heard immediately, a time delay is provided to prevent Rapidual from pulsing before central office dial tone is available.

3.04 The List 10 Rapidual (List 12 tape cartridge) is equipped with a scan switch and limit switches to prevent running the tape off the drums. The writing tape is imprinted with a series of dots which correspond with the guide letters on the bottom of the plastic window. Final adjustments to line up desired number between guide lines on window is made with manual scan knob.

3.05 To record a telephone number, proceed as follows:

- (1) Check directory listing of number.

- (2) Locate an unused space on writing tape for new entry by rotating scan knob.
- (3) Move release latch to right and slide record bar down.
- (4) Use lead pencil to enter name and telephone number on writing tape.
- (5) Record new telephone number by using dial on Rapidial. Refer to 3.03 for use of time delay button. Rapidial is capable of recording 13 digits.
- (6) Restore record bar by releasing latch.

3.06 To place a call, proceed as follows:

- (1) Operate scan switch and rotate scan knob until desired telephone number appears between horizontal black lines on plastic window.
- (2) Lift telephone handset.
- (3) Wait for dial tone.
- (4) Depress start bar.
- (5) If there is a delay in dial tone and Rapidial has started pulsing before central office dial tone is heard (for example, when dialing a central office from a dial PBX station), customer should hang up immediately. Rapidial will continue pulsing through a complete cycle with an on-hook condition of the associated telephone set.
- (6) When placing call from a key telephone set, caution customer not to answer an incoming call on another line while Rapidial is pulsing. Rapidial circuitry is common to all lines in the set and hence the pulsing will be carried over to the answered call.

3.07 To remove a recorded telephone number from Rapidial:

- (1) Position the number between horizontal black lines on plastic window.
- (2) Operate latch and record bar (see 3.).

- (3) Remove entry from writing tape with an artists rubber kneadable eraser such as Faher-Castell.

- (4) Restore record bar.

4. INSTALLATION

4.01 Before choosing a location for Rapidial and power supply refer to C Section entitled Separation and Mechanical Protection for Wire and Cable.

4.02 Select a convenient location near customer telephone set and 115-volt ac receptacle. To avoid placing Rapidial in a magnetic field, do not locate it adjacent to electric typewriters, desk calculators, etc.

4.03 Complete Rapidial assembly is shipped in three separate cartons as follows:

- Carton 1 (Fig. 5)
 - List 1 Rapidial
 - List 3 Power Supply Cord
 - List 4 Telephone Cord
 - List 6 Tape Assembly

or

- List 10 Rapidial
- List 3 Power Supply Cord
- List 4 Telephone Cord
- List 12 Tape Assembly (Fig. 11)

- Carton 2: List 20-() Housing

- Carton 3 (Fig. 2)
 - List 2 Power Supply
 - List 5 Power Cord

4.04 Assemble Rapidial housing and scan knob in the following manner:

- (1) Place housing on Rapidial, (After removing fill washers at scan knob opening in housing, if provided) positioning front portion of housing first; then lower into place.
- (2) Invert Rapidial, place the four housing screws into holes provided in base, and tighten (Fig. 6).

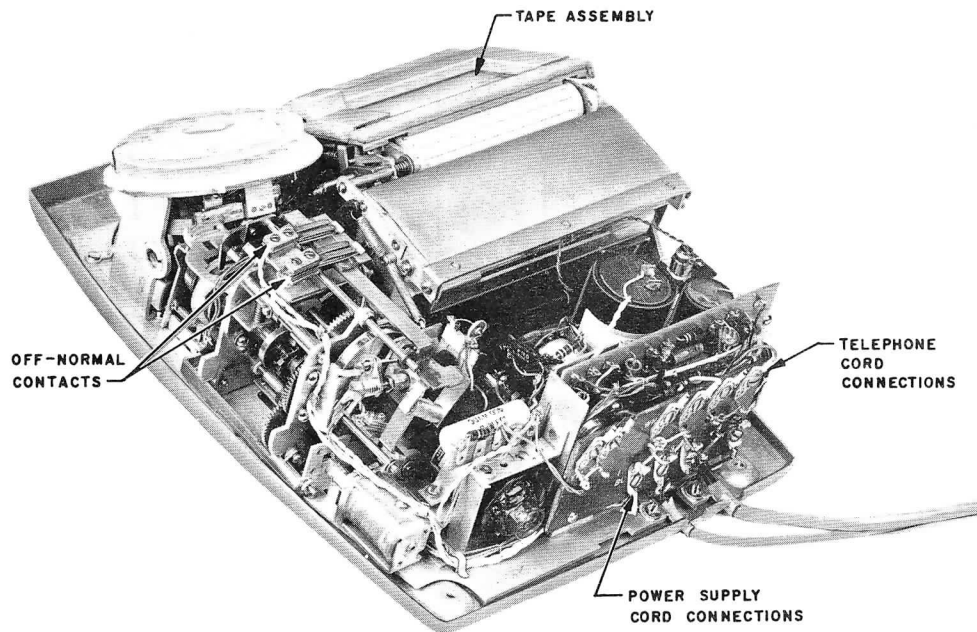


Fig. 5 - KS-16844 Rapidual (Housing Removed)

(3) With Rapidual inverted, insert scan knob into position, making certain it properly engages tape assembly (Fig. 6 and 9).

(4) To lock scan knob to tape assembly, insert locking screw through hole provided in base and tighten (Fig. 6).

THINK Avoid plugging power cord into ac receptacle until local wiring is completed.

4.05 Telephone and power supply cords are eight feet long. The free ends are not spade-tipped to facilitate cutting the conductors to meet local conditions.

THINK Power supply cord is a gray vinyl-jacketed 4-conductor cord. Telephone cord is a gray vinyl-jacketed 6-conductor cord. Interchanging these cords may damage Rapidual.

4.06 The power cord is 8-3/4 inches long which necessitates mounting the power supply in close proximity to 115-volt ac outlet. If necessary to mount power supply at a distance from Rapidual, terminate power supply cord on a 42A

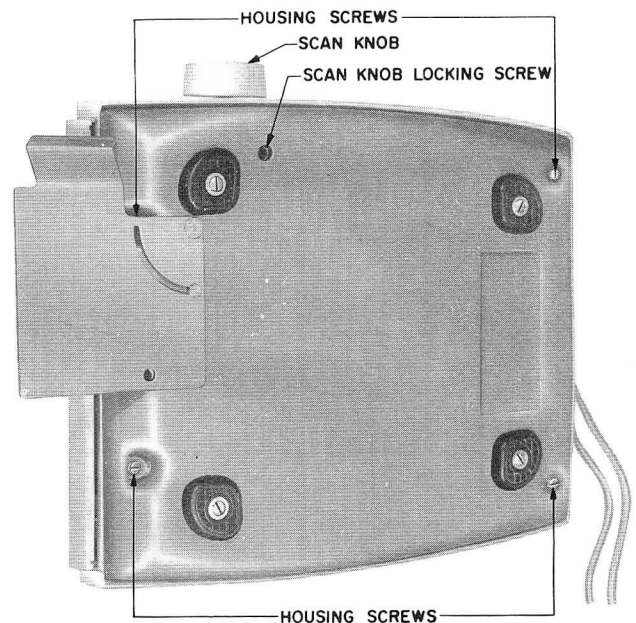


Fig. 6 - Rapidual Inverted

connecting block and run 4-conductor inside wire to power supply. Total distance from power supply to Rapidual, including the 8-foot power supply cord, should not exceed 38 feet.

TABLE A
TELEPHONE SET CONNECTIONS

Rapidial Tel Cord	300 Series		400 Series		500 Series				600 Series		700 Series	
	All 300 series except those listed to right	332C 334C 306G	All 400 series except those listed to right	440 and 460 series (4- and 6- button sets)	462AC 466AC	All 500 series except those listed to right	500F 501F	532B 533B 500S 535B	565H 565L 566MB 566G	All 600 series except 610A	610A	701B 701D 711B*
P U L S I N G	Remove BR-Y lead from Y term. on dial and	Remove Y lead from dial and	Remove BR-Y lead from Y term. on dial and	Remove G lead from L2Y term. on induction coil and	Remove R lead of mounting cord from L1 on term. and strip and	Remove BL dial lead from F term. on network and	Remove W lead from F term. on network and	Remove BL dial lead from F term. on network and	Remove BL dial lead from F term. on network and	Remove Y dial lead from term. 6 of TS 2 and	Remove Y dial lead from term. 6 of TS 2 and	Remove BL dial lead from F term. on network and con- nect to BL of Rapidial telephone cord with D-161488 connector.
	Connect to BL of Rapidial telephone cord with D-161488 connector.		Connect to BL of Rapidial telephone cord with D-161488 connector.		Connect to BL of Rapidial telephone cord with D-161488 connector.		Connect to BL of Rapidial tele- phone cord with D-161488 connector.		Connect to BL of Rapidial tele- phone cord with D-161488 connector.		Connect to BL of Rapidial tele- phone cord with D-161488 connector.	
G	Y terminal on dial		Y term. on dial	L2Y term. on induction coil	L1 term. on induction set	F terminal on network		F terminal on network		F term. on network	F term. on network	F term. on network
	GN term. on induction coil	E post on term. induction coil strip	GN term. on induction coil	GN term. on induction coil	W term. on dial	GN term. on network	W term. on 151B amplifier	GN term. on network		GN term. on network	GN term. on network	GN term. on network
W	R terminal on induction coil		R terminal on induction coil		R terminal on induction coil		R terminal on network		R term. on network		R term. on network	R term. on network
Y	Tape and store in telephone set.		Tape and store in telephone set.		Tape and store in telephone set.		Tape and store in telephone set		Tape and store in telephone set		Tape and store in telephone set	Tape and store in telephone set
Y	Tape and store in telephone set.		Tape and store in telephone set.		Tape and store in telephone set.		Tape and store in telephone set		Tape and store in telephone set		BB term. on dial	Tape and store in telephone set

* Increase depth of housing mounting cord entrance hole 1/16 inch, using 3-1/2 inch half round file.

4.07 Power supply may be mounted with three No. 6 or 8 wood screws. Two retaining screws hold cover in position (Fig. 3). Power supply cord is fed through cutout in cover and secured under cord clamp.

4.08 Rapidual is shipped with List 3 power supply cord terminated. Cut free end of cord to desired length, strip outer jacket, twist stranded conductor ends, and terminate on power supply terminal strip.

4.09 Power cord shall plug into a 115-volt ac receptacle not under control of a wall switch. The low voltage power supply consists of two voltages: 19.5 and 26.5 volts ac. Rapidual is protected by a 24C, 2-ampere fuse located on terminal strip in power supply (Fig. 4).

4.10 Rapidual is shipped with List 4 telephone cord terminated.

- (1) Cut free end of cord to desired length.
- (2) Strip outer jacket and twist stranded conductor ends.

(3) Terminate conductors in telephone set as outlined in Table A or B.

(4) Secure cord, inside telephone set, under cord clamp or by taping it to telephone set mounting cord.

(5) Make certain conductors are properly dressed so as not to interfere with normal operation of telephone set.

4.11 After assembling Rapidual, it is necessary to adjust start bar for

operation. This is accomplished in the following manner:

- (1) Connect to power outlet.
- (2) Position Rapidual upside down. (Be sure to protect cover from scratches.)
- (3) Start bar adjustment screw can be reached through base of Rapidual by aligning hole in the instruction card with hole in base (Fig. 6).
- (4) Using a 3-1/2 inch screwdriver, turn screw clockwise and revolve scan knob until a clicking sound is heard.

TABLE B

200 SERIES TELEPHONE SETS - CONNECTIONS

Type of Service	Connections Made in Subscriber Set								
	Inside Wire			Rapidual Telephone Cord					
				Pulsing		Off-Normal		Speakerphone	
	R	G	Y	BL	G	W	W	Y	Y
Individual or Bridged	Ground	L2-Y	Tape and store	Ground	L1	GN	R	Tape and store in telephone set	Tape and store in telephone set
Ring Party	Connect BL of Rapidual telephone cord to R of inside wire with D-161488 connector.	L1	Ground	Connect BL of Rapidual telephone cord to R of inside wire with D-161488 connector.	L2-Y				
Tip Party		L2-Y			L1				
211 Telephone with 685A subscriber set		L1 on term. strip	G on term. strip		L2 on term. strip	GN on network	B on network	l on term. strip	G on network

(5) Back off on screw approximately one to one and a half turns so that clicking sound disappears. On power driven scan model, also check that scan switch is free in both directions.

4.12 Test operation of Rapidial by recording and calling the telephone number usually called for job completion.

5. CONNECTIONS

5.01 Rapidial pulsing contacts (BL and G telephone cord conductors) are placed in series with the ring side of the line for 200-type telephone sets and in series with dial-pulsing contacts in all other type sets.

5.02 Two sets of off-normal contacts (Fig. 5, 7, and 8) are provided. Their function is the same as the off-

normal contacts in a conventional dial, to reduce receiver clicks during operation of Rapidial.

- White off-normal leads are placed across receiver contacts in telephone set.
- Yellow off-normal leads are placed across loudspeaker contacts (P3 and P4 leads) in speakerphone installations.

6. MAINTENANCE



Disconnect power cord before removing housing. Power should remain disconnected when not required for immediate maintenance operations.

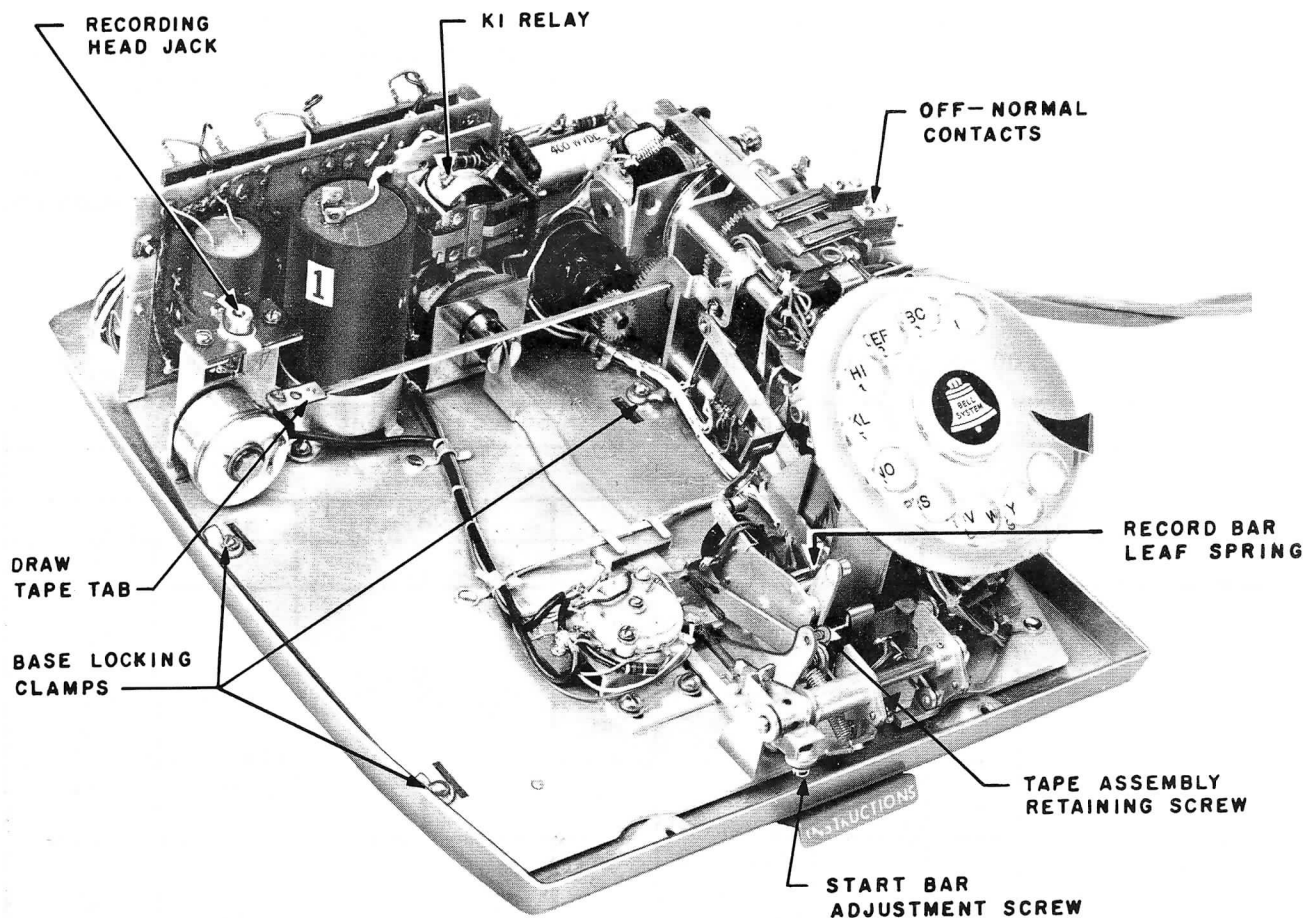


Fig. 7 - KS-16844 Rapidial, List 6 Tape Assembly Removed (Front View)

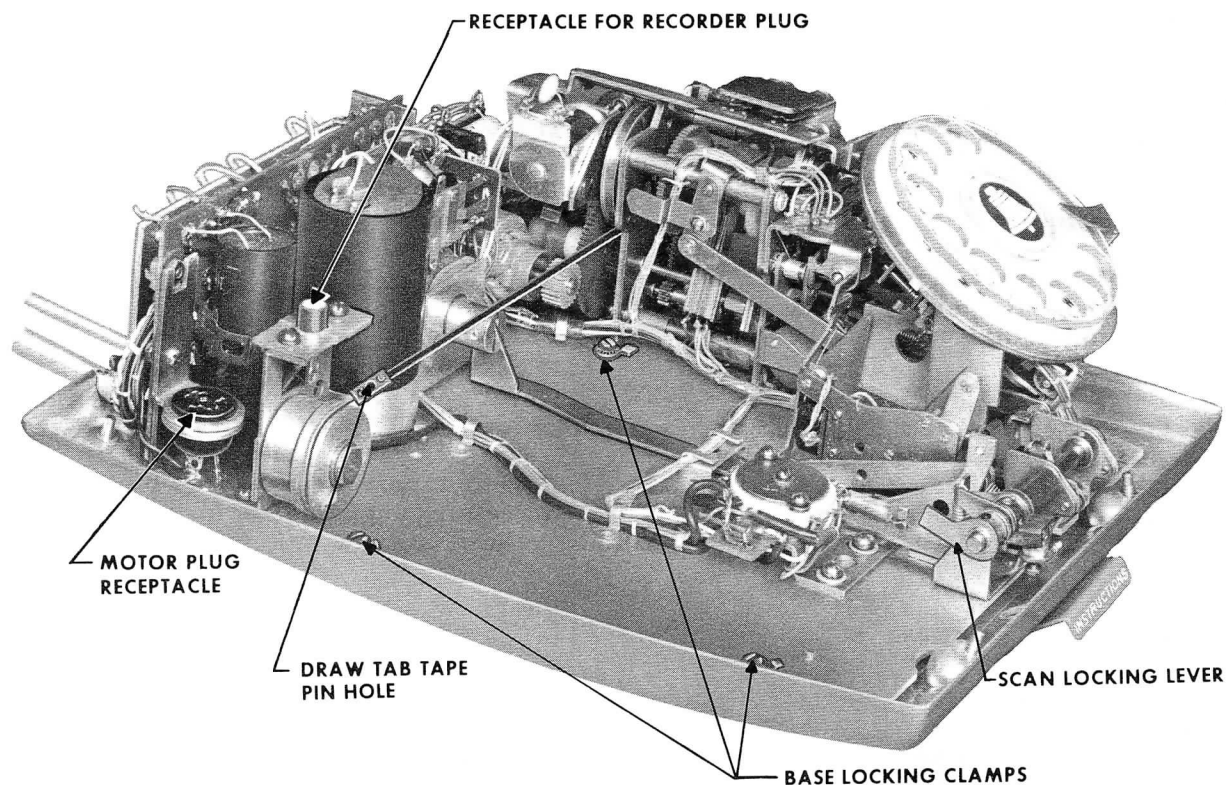


Fig. 8 - KS-16844 List 2 with List 12 Tape Assembly Removed

- 6.01 Maintenance on Rapidial is limited to items covered herein.
- 6.02 Housing is removed from Rapidial in the following manner:
- Invert Rapidial, loosen scan knob locking screw, and remove scan knob (Fig. 6).
 - Loosen four captive housing screws.
 - Turn Rapidial right side up and remove housing.
- 6.03 Should Rapidial fail to operate after depressing start bar, check the following:
- AC power source.
 - 24C, 2-ampere fuse located on terminal strip in power supply (Fig. 4).
 - Voltage between terminals 2 and 1, and 2 and 3 on terminal strip in Rapidial with voltmeter (Fig. 5).
 - Burnish K1 relay contacts (Fig. 7 and 8).
 - Start bar travel with housing in place (see 4.04 and 4.11).
- 6.04 Replacement of parts in List 1 or List 10 Rapidial is limited to tape assembly. To remove tape assembly, proceed as follows:
- (1) Disconnect recording head plug from jack (Fig. 10). On List 12 cartridges disengage scan motor power lead plug from jack (Fig. 11).
 - (2) Release three base-locking clamps by turning screws 1/4 turn in counter-clockwise direction (Fig. 7, 8, and 10).
 - (3) Loosen retaining screw on front right side of tape assembly (Fig. 7, 8, and 9).

(4) Grasp tape assembly with right hand on either side of writing tape window frame. Lift slowly, carefully disengaging recording head carriage pin from hole in draw tape tab (Fig. 7, 8, and 10).

6.05 To insert tape assembly in Rapidial; proceed as follows:

(1) Make certain start bar mechanism is not operated. If operated, plug in power cord momentarily until Rapidial has recycled.

(2) Grasp tape assembly as explained in 6.04. Carefully lower tape assembly into position, making certain recording head carriage pin properly engages hole in draw tape tab (Fig. 7, 8, and 10).

(3) Lift front of tape assembly sufficiently to allow record bar leaf spring to clear record bar latch. Hold spring up with 3-1/2 inch screwdriver and lower front of tape assembly into position, allowing record bar leaf spring to rest upon record bar latch (Fig. 7, 8, and 9).

(4) Grasp in right hand and position tape assembly over unit.

(5) Place wiring from motor around the front and left side of the cartridge assembly.

(6) Lower tape assembly onto base, carefully engaging recording head pin in hole in draw tape tab.

**ASSEMBLED POSITION OF RECORD
BAR LEAF SPRING WITH LATCH**

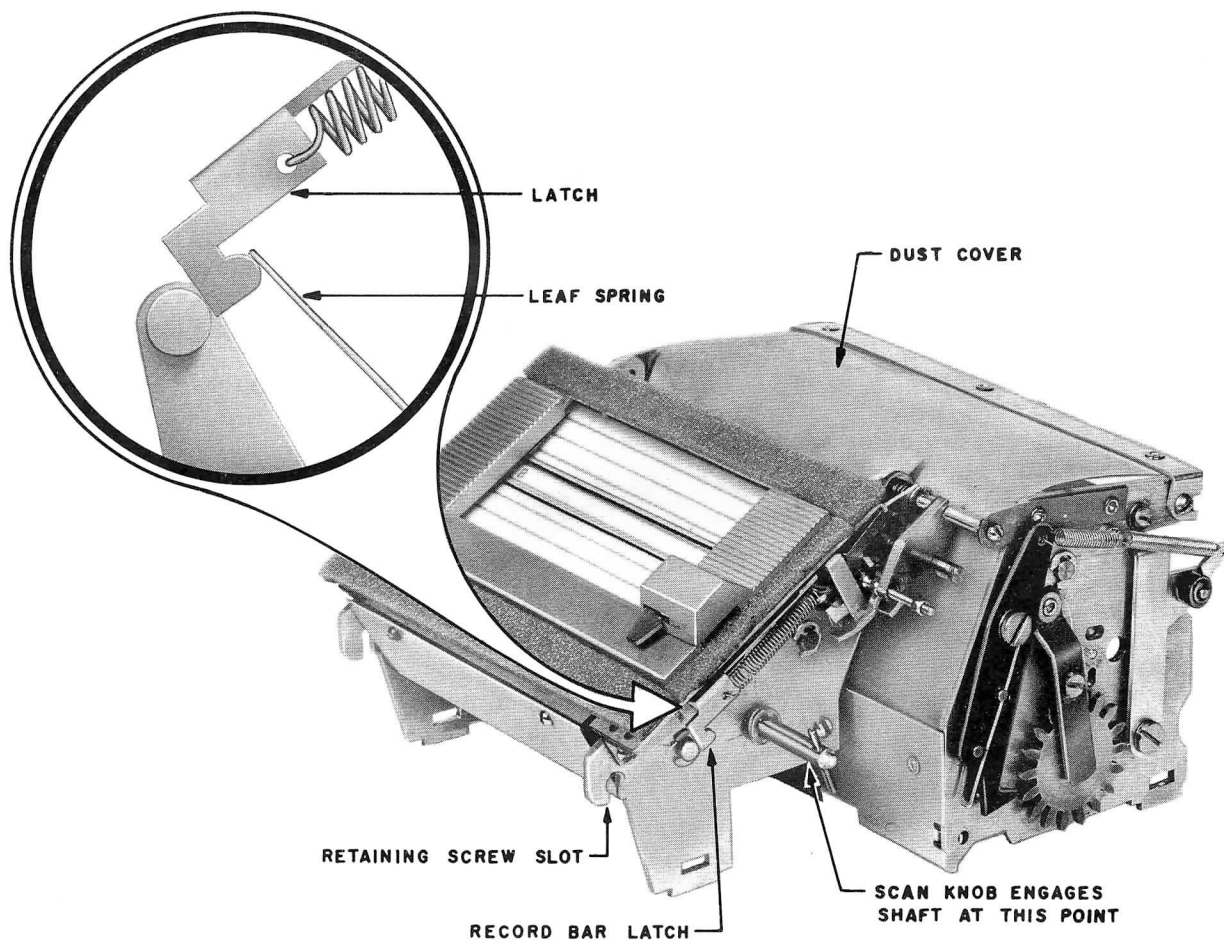


Fig. 9 - List 6 Tape Assembly, Front View

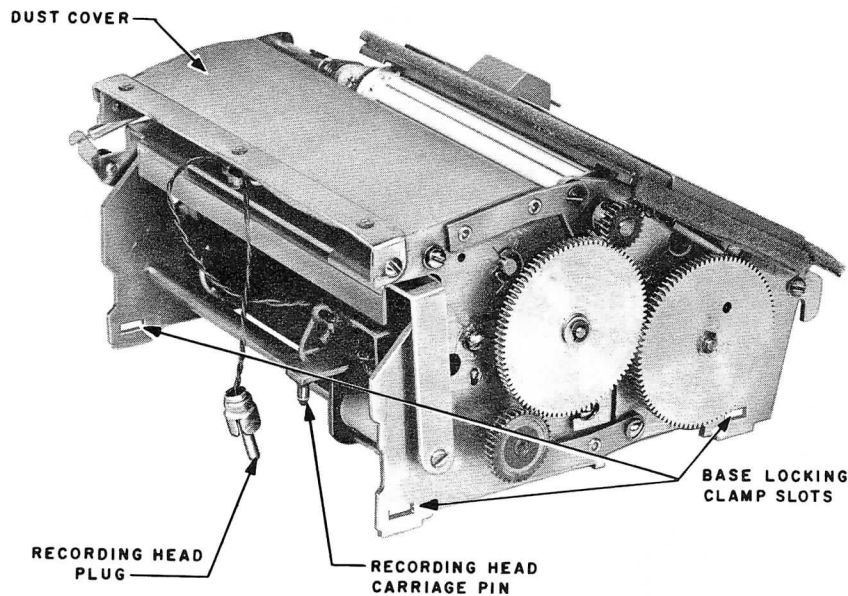


Fig. 10 - List 6 Tape Assembly Rear View

- (7) Line up tape assembly so all four lugs fall in base slots.
 - (8) Lift front of tape assembly approximately $\frac{3}{4}$ inch and push record bar leaf spring back (with 3- $\frac{1}{2}$ inch screwdriver) about $\frac{1}{2}$ inch.
 - (9) Lower tape assembly, allowing spring to rest on latch (Fig. 9).
 - (10) Be sure all lugs on tape assembly are engaged with base slots.
 - (11) Secure base locking clamps (Fig. 7).
 - (12) Secure tape assembly retaining screw.
 - (13) Place scan locking lever on shaft. Line lever with slot in scan switch (vertically) with top edge of scan locking lever approximately $\frac{1}{32}$ inch below scan switch (see Fig. 2, 11, and 12). Operate the start lever and verify that scan switch will not operate in either direction. Operate release (Fig. 2). Hold scan switch operated to right and verify that start lever will not operate. Repeat with scan switch operated to left. Verify that spline screws in scan locking lever are tight.
 - (14) Connect recording head plug to jack and connect motor leads to receptacle placed in Step 6. Dress wires behind large capacitor to clear recording head travel.
 - (15) Replace housing [4.01 (1)] and scan knob.
 - (16) Readjust start bar per 4.11.
 - (17) Remind customer to record numbers on new tape (recording instructions are on base and in 3.03).
- 6.06 Should Rapidual operate but fail to reach called number, make the following check:
- (1) Select a blank space on writing tape and record a known telephone number (see 3.02 and 3.03).
 - (2) Place 1011B test set (with button in monitoring position) across BL and G leads of Rapidual telephone cord (Fig. 5).
 - (3) Initiate call, listen for pulsing clicks; if pulsing clicks are not heard or if heard and wrong number is reached (and telephone set operation is normal), replace Rapidual.

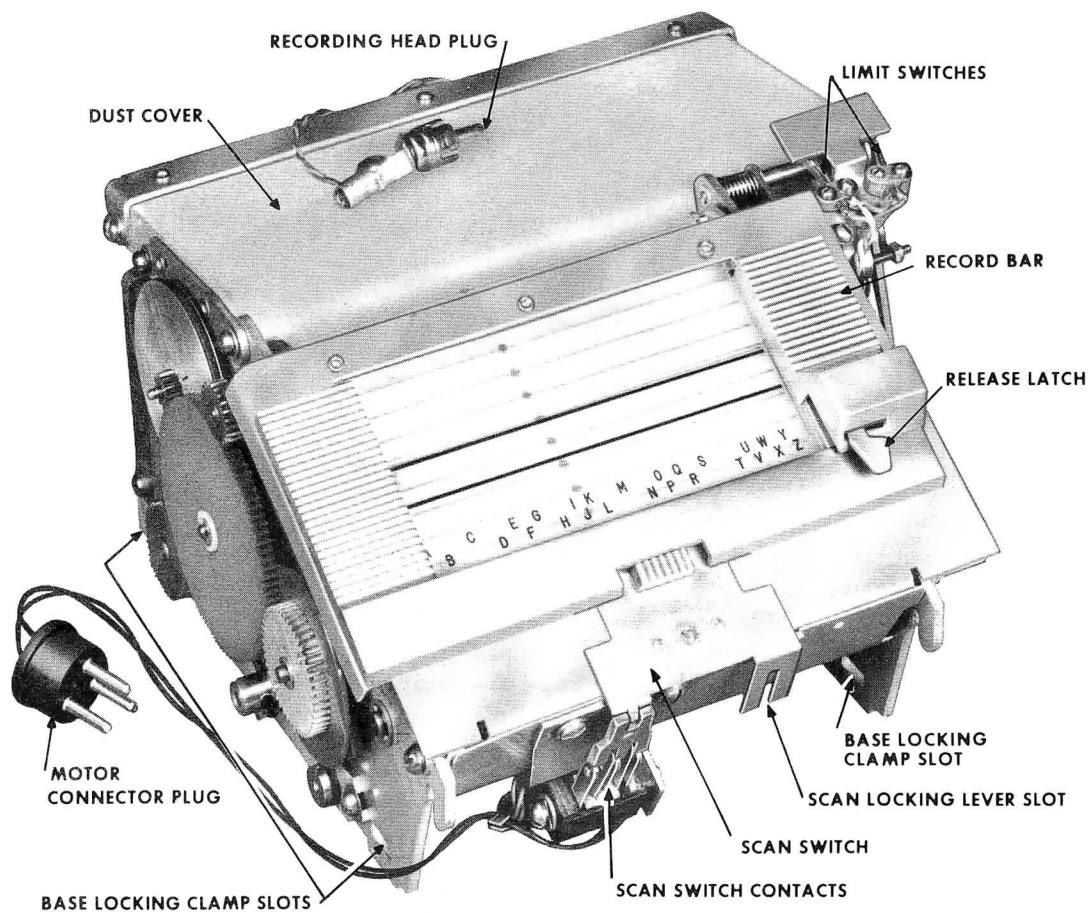


Fig. 11 - List 12 Tape Assembly

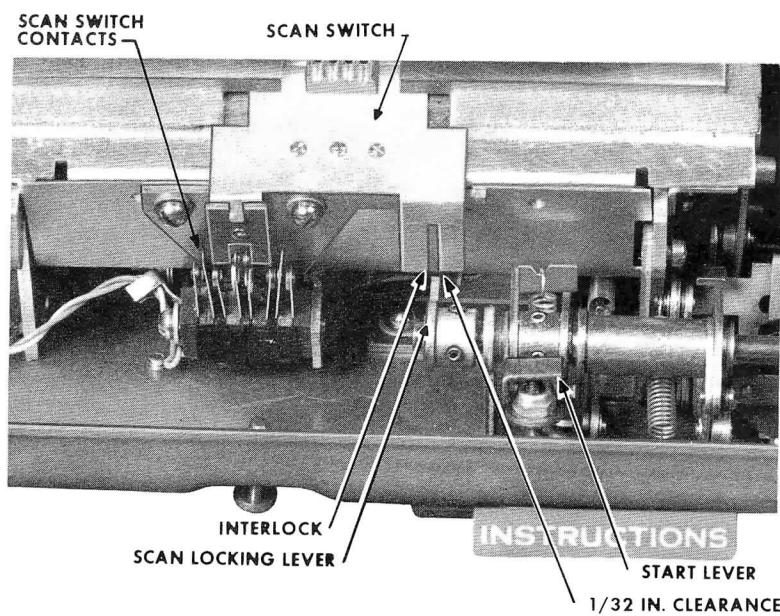


Fig. 12 - KS-16844 List 10 Start Lever Mechanism

6.07 Should Rapidial require replacement due to electrical or mechanical failure, proceed as follows:

- (1) Order List 1 or List 10 Rapidial unit, as required.
- (2) Remove tape assembly from new Rapidial and replace with tape assembly from defective unit. This is done to avoid re-recording customer entries to new tape assembly.
- (3) Place new tape assembly in defective Rapidial and return for repairs.

6.08 Fig. 13 is provided to show the KS-16844 Rapidial circuit.

7. SWITCHBOARD CONNECTIONS

7.01 The KS-16844 Rapidial may be connected to the various type switchboards listed in Table C.

7.02 The following conversion equipment should be ordered:

- Strip terminal 10-141.
- Unit telephone key 17B.
- Box apparatus 105B.
- Connector D-161488.

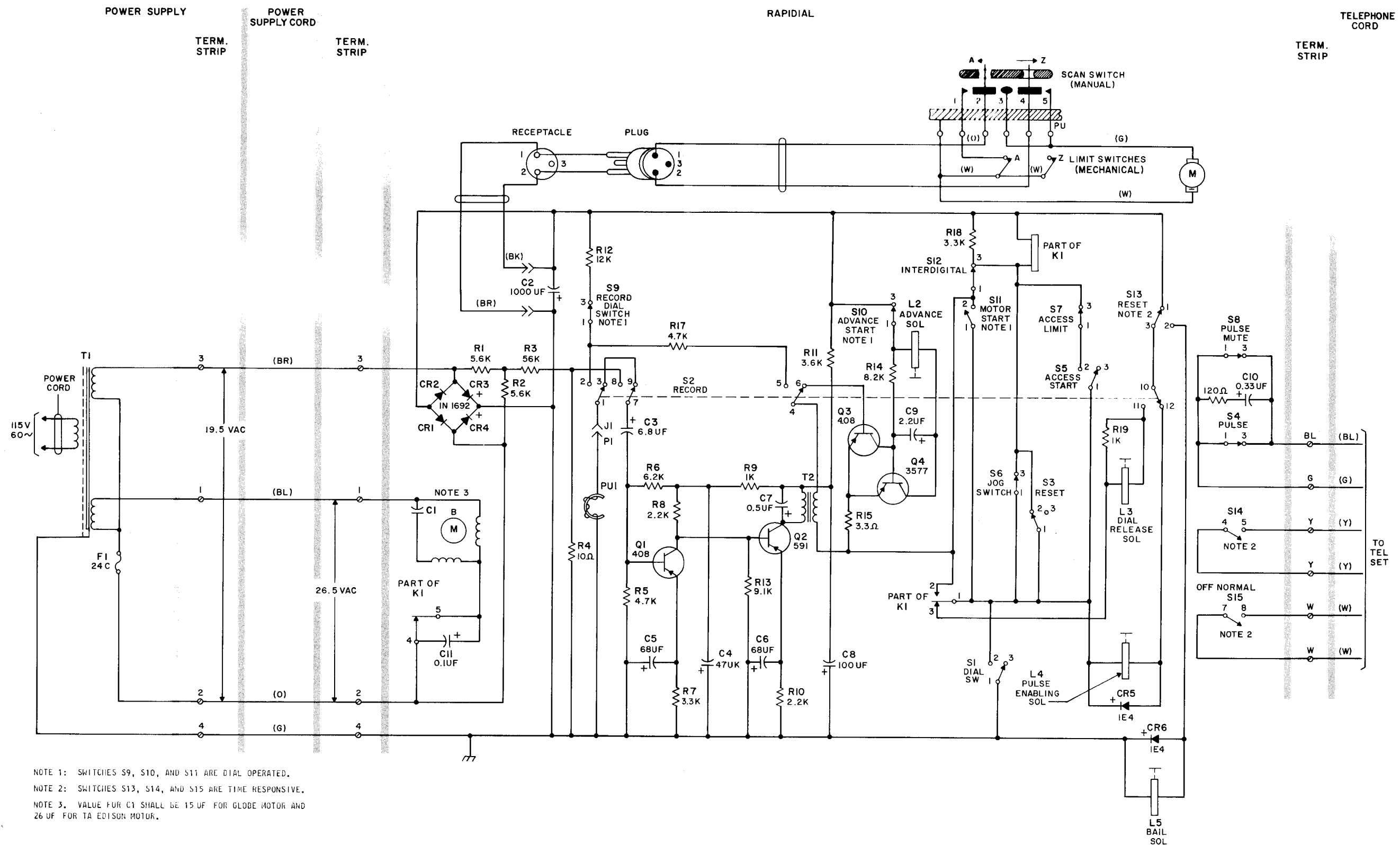


Fig. 13 - KS-16844 Circuit