

TELEPHONE SETS

THE CALL DIRECTOR

MAINTENANCE

1.00 GENERAL

1.01 The information in this section was formerly in C38.653, Telephone Sets 600A and 601A Common Battery, Maintenance. This section is issued to include maintenance information for additional equipment in the Call Director series.

1.02 Work done on the customer's premises should be limited to verification and analysis of the trouble, readily made adjustments as described in this section, and replacement of easily accessible parts which are normally available through supply channels.

1.03 Make a visual inspection of the exterior and interior of the sets for obvious defects, such as loose, displaced, or broken parts or loose connections; obstruction of moving parts; or the presence of foreign matter that may interfere with the proper operation of the set.

- When replacement parts are available, replace parts; if not, replace set.
- Line and ground terminations should be checked before proceeding with probable troubles.

1.04 These components may be replaced expeditiously on the subscriber's premise:

- Handsets
- Handset Cords
- Dials

- Ringers
- Mounting Cords
- Keys
- 151-Type Amplifiers

2.00 598A AND 599A KEYS

2.01 To inspect and repair pickup keys, remove keys from the telephone set. (See the C Section entitled 600 Series Telephone Sets, Identification and Assembly of Parts.)

2.02 To extend the chaining feature to the key units beyond a removed key unit:

1. Disconnect from the terminal strip of the removed key the *T*, *R*, and *A* or *H* leads coming from the preceding key unit.
2. Extend and connect these leads to the *T*, *R*, and *A* or *H* terminals of the succeeding key unit.

Note: When originating key is removed, the hold feature is voided for all other key units on the telephone set.

Line Buttons and Plungers

2.03 If line buttons bind, see if dirt or other foreign matter has accumulated on bearing surface of line buttons or collars. Remove and clean line buttons and collars. Use water-damp cloth only. Do not use lubricants or solvents (Fig. 1).

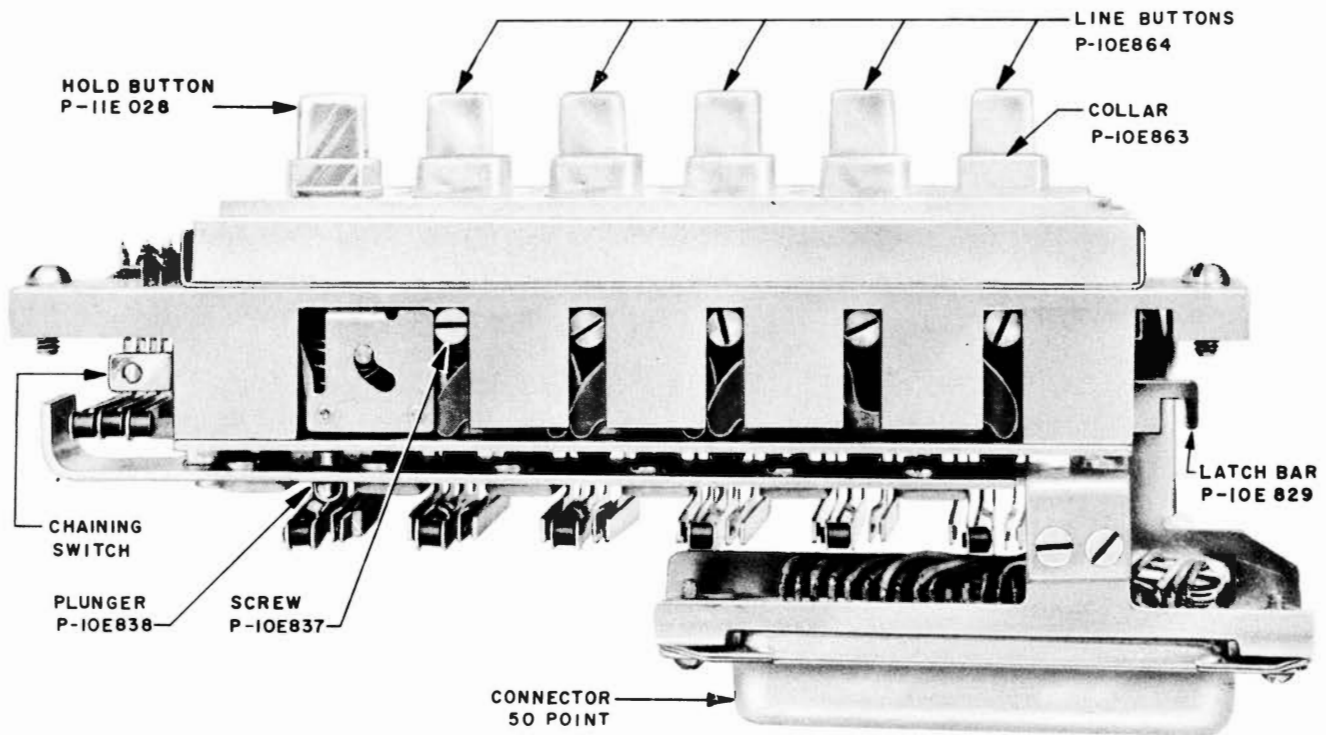


Fig. 1 - 599A Key (598A Key is Similar)

2.04 Plungers shall move freely throughout their entire travel. When any locked-down plunger is released from its operated position, it shall return to normal with a snap. Where binding or squeaking exists, replace the key. (Fig. 1).

2.05 If a pickup key plunger fails to remain in its locked position when fully depressed, proceed as follows:

1. Check to see that special screw in plunger is in place and fully seated (Fig. 1).
2. Operate other pickup keys of key unit.
3. If other pickup key plungers also fail to lock, replace the key unit.

Contacts

2.06 Normally open spring contacts shall have a minimum separation of 0.006 inch. Gauge by eye (Fig. 2). Normally closed contacts shall have a perceptible follow. If these requirements cannot be met, make adjustment or replace the key unit. Minimum separation between adjacent springs

shall be $\frac{1}{64}$ inch. Gauge by eye (Fig. 2).

2.07 To clean dirty contacts:

1. Place clean burnisher blade (266E tool) of the contact burnisher (265C tool) between contacts to be cleaned.
2. Push contacts closed on burnisher blade with a KS-6320 orange stick.

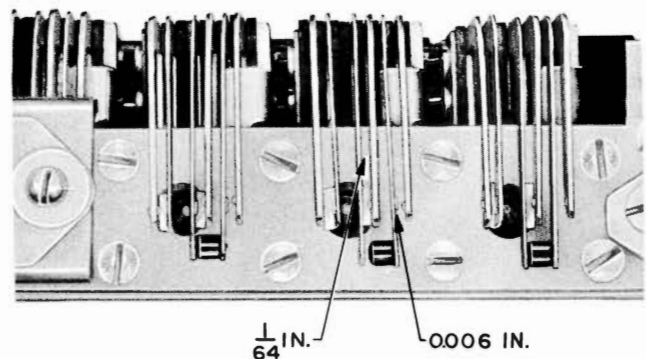


Fig. 2 - Spring and Contact Separations, 598A and 599A Keys

3. Move burnisher blade back and forth between contacts several times.
4. Wipe burnisher blade clean on a clean, dry cloth. Do not wipe on fingers.
5. Replace key unit in telephone set and test operation.

2.08 Use a 507A tool (for the heavier gauge springs) and a 363 tool (for the lighter gauge springs) to adjust the spring and contact separation of the 598A and 599A keys. Place tools as shown in Fig. 3 and 4 to adjust spring separation and, as shown in Fig. 5 and 6, to adjust contact separation. Use light pressure on tools when making adjustments. Sharp bends or kinks should not be placed in the springs.

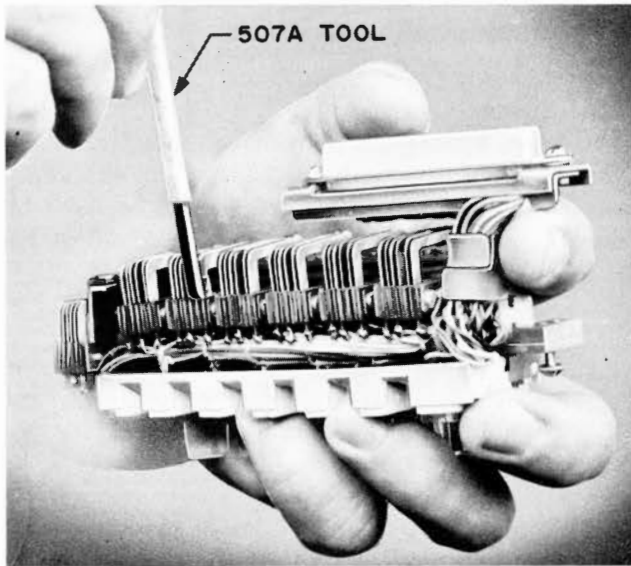


Fig. 3 — Use of 507A Tool to Adjust Spring Separation

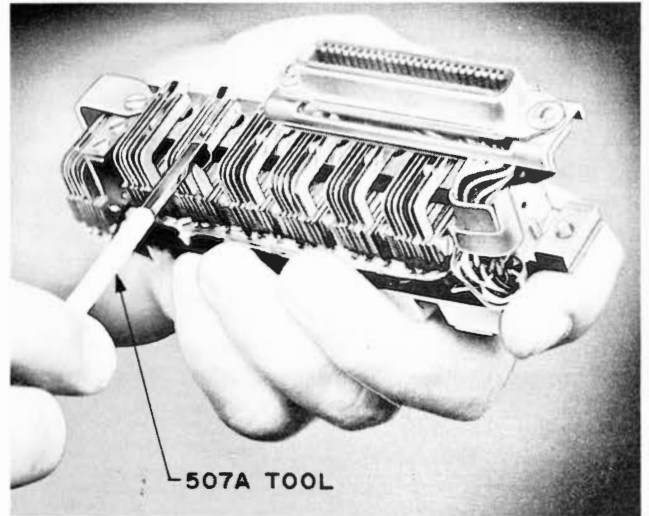


Fig. 5 — Use of a 507A Tool to Adjust Contact Separation

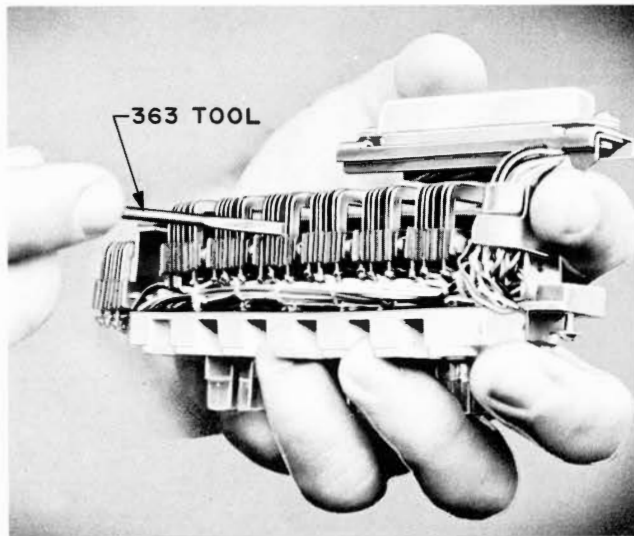


Fig. 4 — Use of a 363 Tool to Adjust Spring Separation

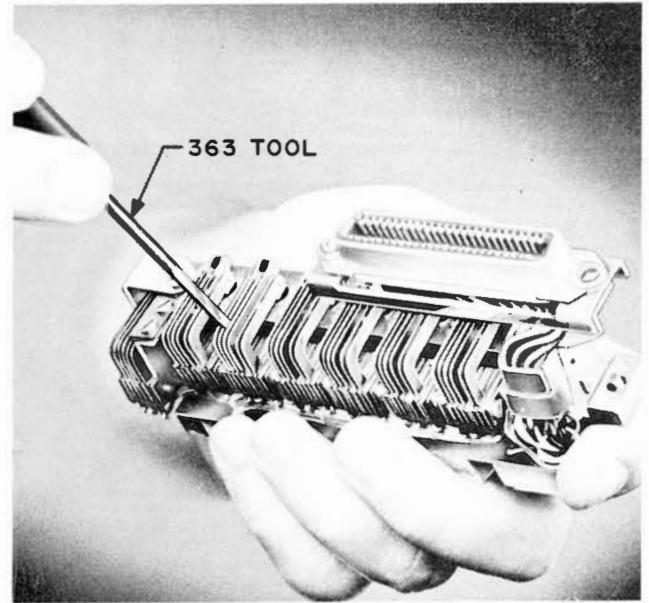


Fig. 6 — Use of a 363 Tool to Adjust Contact Separation



After making any adjustment of springs or contacts, test key for proper operation.

Latching Mechanism

2.09 The latching mechanism shall operate freely. Bearing surfaces are lubricated at the factory and do not require additional lubrication.

2.10 Latch bars are held in latched position by spring tension on pivot arm of mechanical linkage (Fig. 7). When any line pickup plunger of a key unit is depressed, an associated pin moves the latch bar causing release of any locked-down plunger. The spring tension on pivot arm causes latch bar to return and latch the depressed plunger operated.

2.11 Should the latch bar of a key unit fail to operate properly, replace the key unit.

Lamps

2.12 To ensure maximum illumination from 51A lamps, replace cracked line buttons or collars and remove any accumulated dirt or film from lamps, collars, and line buttons with slightly water-moistened cloth.

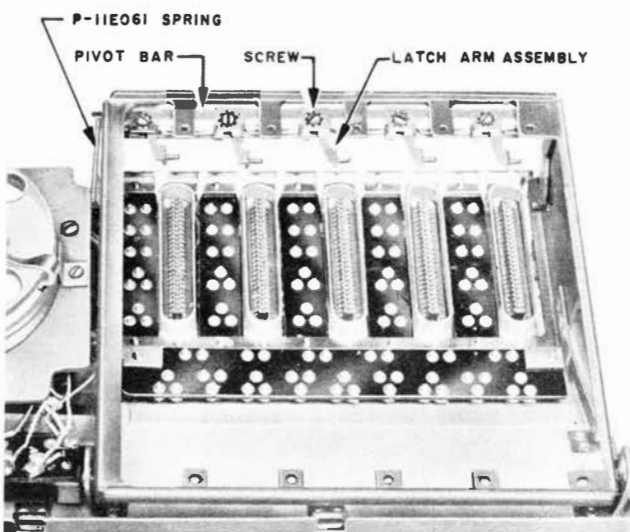


Fig. 7 — Pivot Bar Assembly

2.13 Position each lamp near its associated button to obtain maximum and uniform illumination. Lamp contacting surfaces should be clean, and spring tension should be adequate to hold lamp in desired position.

2.14 Lamps should be removed from the lamp well of the 598A and 599A keys with a KS-6320 orange stick. Insert orange stick between wall of lamp well and glass bulb of lamp (Fig. 8), and pry gently to dislodge lamp.

2.15 Place 51A lamps or remove them from 59A lamp sockets with the 553A lamp extractor tool. The following procedure should be used to prevent damage to the 51A lamp terminal when the lamp is inserted in the lamp socket:

1. Hold the 51A lamp firmly in the 553A tool with the lamp terminals in line with the verticle centerline of the lamp sockets.
2. Rotate lamp tool and lamp 45 degrees in the counterclockwise direction.
3. Insert lamp fully into the lamp socket.

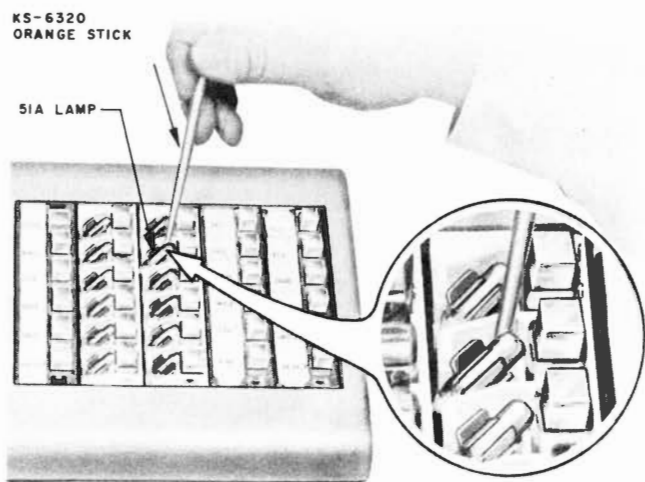


Fig. 8 — Method of Removing Lamp from Lamp Well of 598A and 599A Keys

4. Rotate lamp and lamp tool 45 degrees clockwise so that lamp terminals are in the normal contact position.
5. Withdraw the lamp tool.

3.00 MECHANICAL LINKAGE

3.01 Keys are coupled together by means of the pivot bar (Fig. 7). Properly linked they shall operate as a single unit. Any pickup key, when depressed, shall latch itself operated and release any other latched pickup key in the assembly.

3.02 Improper adjustment of a latch arm assembly (Fig. 7) may cause the plungers of the associated key to be inoperative. To adjust an assembly:

1. Loosen P-210800 screw which holds latch arm assembly in place on the pivot bar.
2. Move latch arm assembly to position where front edge of the shorter arm extends $1/16$ inch beyond front edge of the pivot bar.
3. Tighten screw.
4. Test operation of key unit.

4.00 SWITCH ASSEMBLY P-11E987

4.01 To prevent the release button from binding on 636-, 637-, 638-, and 639-type sets of early manufacture, a P-12E672 collar may be added. The P-12E672 collar is assembled on top of bracket P-11E921 and around the upper portion of the plunger, P-11E928. Fig. 9 shows an exploded view of this assembly.

4.02 To install the P-12E672 collar:

1. Remove faceplate assembly.
2. Remove two switch assembly screws.
3. Remove button assembly by grasping buttons and pulling up.

4. Place P-12E672 collar around P-11E928 plunger.
5. Reassemble in reverse order.

5.00 HANDSETS

Handsets associated with these telephone sets should be maintained in accordance with the C Section entitled Handsets, Connections and Maintenance.

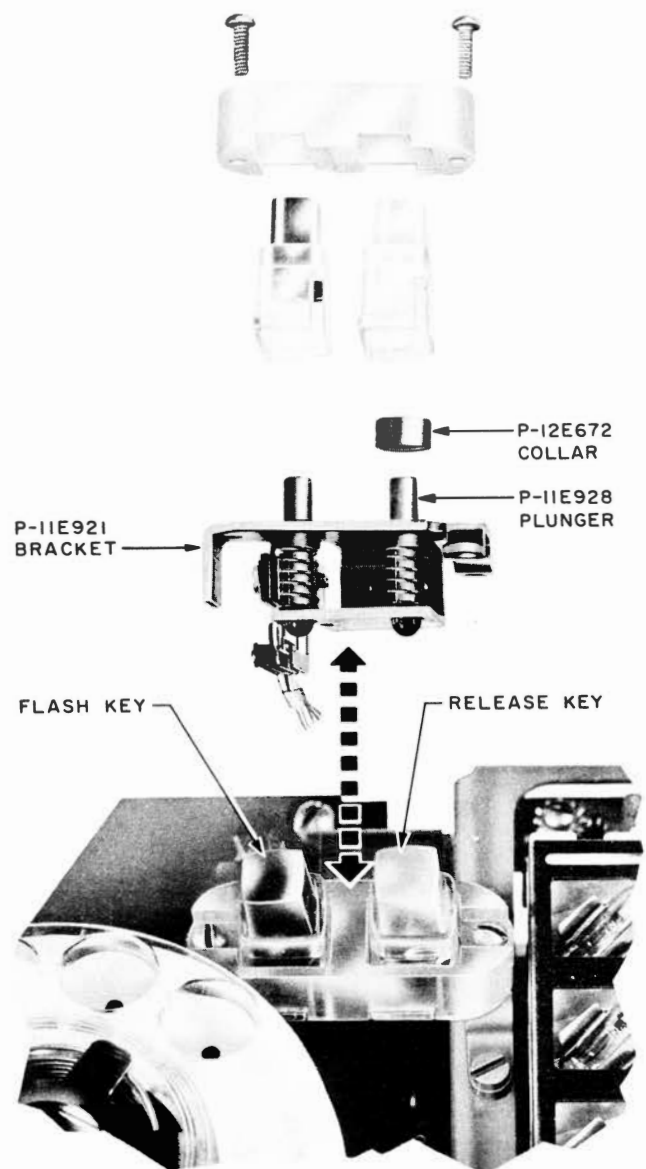


Fig. 9 — P-11E987 Switch Assembly

SECTION C38.652.00

6.00 DIALS

Dials associated with these telephone sets should be maintained in accordance with the C Section entitled Station Dials, Maintenance.

7.00 MOUNTING CORDS

Deteriorated or damaged mounting cords should be replaced. Procedures for removing and replacing cords and cord frames are contained in C Section entitled Telephone Sets, The Call Director 630, 631, and 632 Types, Identification and Assembly of Parts.

8.00 RINGERS

8.01 Maintenance of D-type ringers is covered in C Section entitled Ringers, D Type, Maintenance

8.02 The DIA ringer used in the Call Director telephone sets has been redesigned to include two brackets for support of the ringer lead terminal board. DIA ringers of this new design cannot be used for replacement in sets where the brackets are a part of the set base. The DIB ringer can be used; it is electrically and mechanically identical to the original design of the DIA ringer.

9.00 HEAD TELEPHONE SETS

Maintenance of 52A and 53A head telephone sets is covered in C Practice entitled Head Telephone Sets, 52, 53, and F Types.

10.00 AMPLIFIER 151D

10.01 The 151D amplifier is used in Call Director sets equipped with head telephone jacks. It provides amplification to raise the transmission

level of N1 transmitters to that of the T1 transmitters used in handsets. Handsets should not be used in these jacks.

10.02 When tests indicate transmission with the head telephone set to be substandard but normal with the handset:

1. Replace N1 transmitter unit and retest transmission.
2. Test headset cord and replace if necessary.
3. If transmission level is still low, replace 151D amplifier.

10.03 When test indicates excessive amplification while using the headset, the following modification may be made:

1. Remove 30-ohm resistor from TB2 terminals 3 and 4.
2. Replace with KS-13490, List 1 62-ohm, 1/2-watt resistor. (See Fig. 10.)

10.04 The KS-14337 4-mf capacitors associated with TB2 terminals 2-6 and 1-5 may be replaced if found defective. These capacitors are polarized electrolytics. Polarity must be maintained when they are replaced. (See Fig. 10.)

11.00 TRANSMITTER 667A

11.01 The 667A transmitter is used in the Call Director sets in connection with 3A speakerphone systems. Maintenance of the 3A speakerphone equipment is covered in C Section entitled 3A Speakerphone System, Installation and Maintenance.

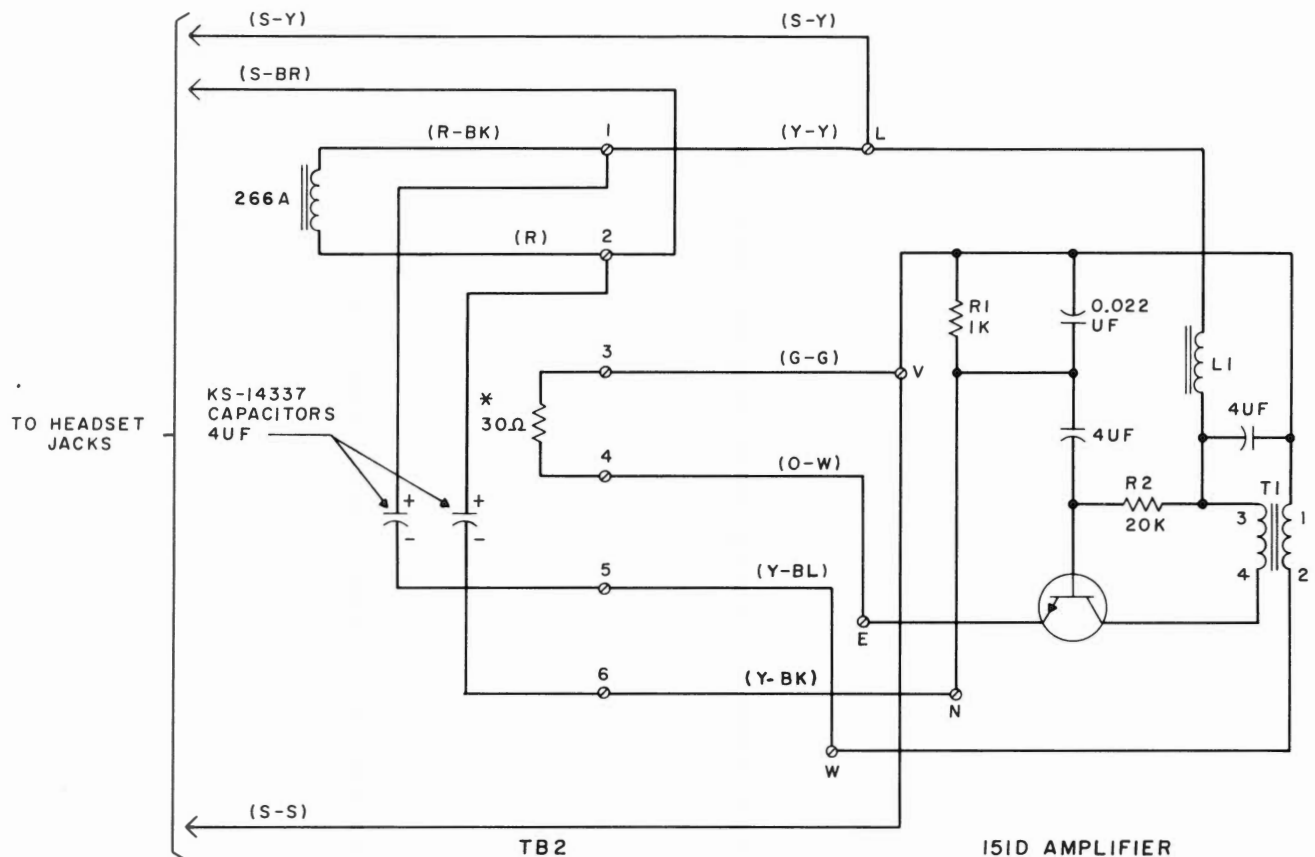


Fig. 10 – 151D Amplifier and TB2 Terminals

11.02 Improper operation of the 667A transmitter may result from interference between the printed circuit board and terminal screws of terminal board VI of the cord assembly. This condition can be corrected by replacing the $\frac{5}{16}$ -inch P-180924 machine screws with $\frac{1}{4}$ -inch P-18023 binder head machine screws. The longer screws were used in D50B, D80B, D120B, and D200B cord assemblies.

11.03 To expedite trouble clearing, the $\frac{5}{16}$ -inch screws may be shortened, if they are removed from the set, to keep metal filings out of the ringer and keys.