

BELL SYSTEM PRACTICES
Station Installation and Maintenance

SECTION C41.106
Issue 1, 9-30-45
AT&T Co Provisional

MAGNETO STATIONS

LEICH SET

1. GENERAL

1.01 This section gives general information relating to the apparatus, use, connections and maintenance of Leich magneto station wall sets.

1.02 Hand sets furnished with these wall sets are not of the Leich types and maintenance information for the hand sets is covered in other sections.

2. APPARATUS AND USE

2.01 The Leich sets are wood wall sets having a dark oak finish. The sets are of the anti-sidetone type and are equipped with biased high impedance ringers. Sets may be obtained with either a three or five bar hand generator, as desired.

2.02 Code and piece part numbers of apparatus or parts which may be required for replacement purposes are listed below.

Leich Code or Piece Part No.	Description of Apparatus or Parts
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533A-2600	Oak wall set having 3 bar hand generator
535A-2600	Oak wall set having 5 bar hand generator
3A Generator	3 bar hand generator
5A Generator	5 bar hand generator
3C Hookswitch	Switchhook and switchhook contact assembly
26 Induction Coil	Anti-sidetone coil used with 335A-2600 or 535A-2600 Magneto Telephones
5A-2600 Ringer	Biased high impedance ringer equipped with gongs and gong standards
Pc 1086	Gong locknut
Pc 1087	Hexagonal nut for gong
Pc 1092	Adjusting pivot for ringer
Pc 1093	Locknut used with Pc 1092
Pc 1098	Ringer magnet
Pc 1161	Ringer biasing spring
Pc 1164	Spring bracket for Pc 1161
Pc 1166	Ringer armature
Pc 1185	Generator magnet
Pc 1207	Generator pinion

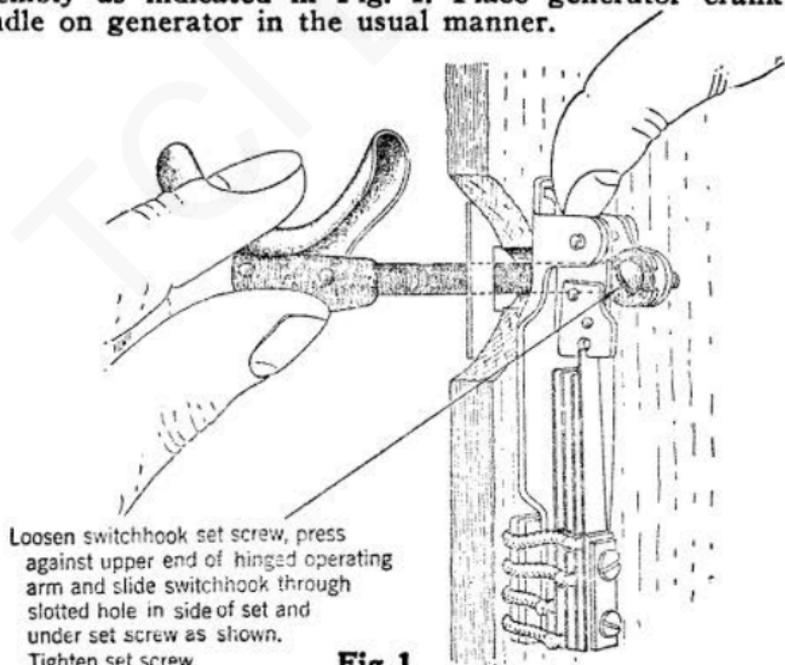
Leich Code or Piece Part No.	Description of Apparatus or Parts
Pc 1208	Generator pinion spring
Pc 1211	Generator gear
Pc 1214	Hub collar for Pc 1211
Pc 1215	Cap for Pc 1207
Pc 1240	3 bar generator armature
Pc 1241	3 bar generator gear shaft
Pc 1242	Generator contact assembly
Pc 1245	Generator crank and handle
Pc 1268	5 bar generator gear shaft
Pc 1270	5 bar generator armature
Pc 1546	Ringer yoke
Pc 2961	Locknut used with ringer yoke

Note: If screw of screw terminals requires replacement the standard P-136632 screw (1/4" 6-32 galv. B.H.M. screw) may be used.

3. INSTALLATION

3.01 Attach Leich sets to the various mounting surfaces with the fasteners regularly used for attaching subscriber sets.

3.02 The generator crank and handle and the hookswitch lever (switchhook) are enclosed in a small envelope placed inside the set. Attach hookswitch lever to the contact assembly as indicated in Fig. 1. Place generator crank and handle on generator in the usual manner.



Loosen switchhook set screw, press against upper end of hinged operating arm and slide switchhook through slotted hole in side of set and under set screw as shown.

Tighten set screw.

Fig. 1

3.03 Where the use of a condenser in the induction coil network is required (see 4.01) mount an 1149B 1/2 mf. condenser on the door of the set as indicated in Fig. 2 (1st position). Attach condenser with strap P-225255 and two 1" No. 6 R.H. blued wood screws. Where it is local practice to connect a condenser in series with the talking circuit, mount a 149A 1 mf. condenser in the same location. If a condenser is also required for the induction coil network, mount it in location shown as 2nd position in Fig. 2.

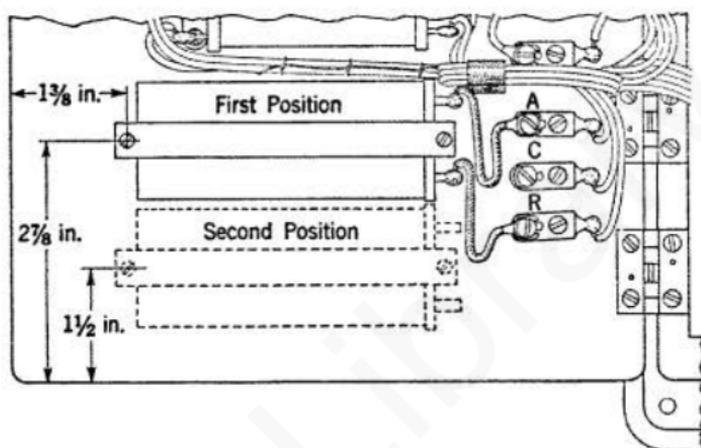


Fig. 2

3.04 Where a KS-8058 (400 ohm) resistance is to be used in the induction coil network, attach it directly to terminals designated A and R in Fig. 2.

4. CONNECTIONS

Induction Coil Networks

4.01 The induction coil in the Leich set is equivalent in electrical characteristics to the 104A induction coil used in other magneto station sets. To obtain satisfactory sidetone balance when used on the different types of subscriber loops employed in the Plant, the induction coil networks used with the 104A induction coil are also used with the Leich sets. Table 1 indicates the connections to be made in the sets to obtain the proper network for the transmission codes specified on the service order.

TABLE 1

Zone Code	Network Connections (See Note)
MA	Connect an *1149B (1/2 mf.) condenser between A and R
MB	Connect a KS-8058 (400 ohm) resistance between A and R
MC	Connect an 1149B (1/2 mf.) condenser between C and R
MD	Strap P-294521 or a piece of wire from C to R

*Condenser or resistance must be ordered separately unless otherwise specified locally.

Note: Terminals A, C and R may not be designated in the sets but location of these terminals is shown in Fig. 2.

Line and Ringer Connections

4.02 Line and ringer connections for the sets are the same as those shown in Sections C64.141 and C64.142 for high impedance ringers on magneto non-polarized ringing lines. The short green ringer lead of the 5A ringer corresponds to the black ringer lead and the longer green ringer lead corresponds to the red ringer lead of ringers in other station sets.

4.03 To facilitate making ringer connections three terminals are provided on the door of the set just below the ringer. These terminals are permanently connected to the L1, G and L2 terminals (line terminals) of the set but are not so designated in the set. Location of the respective terminals is shown in Fig. 3.

4.04 Where it is local practice to connect a condenser in series with the talking circuit, connections to this condenser are made by cutting the loop provided in the green wiring conductor which is turned back in the wiring form on the door and then soldering the cut ends of the loop on the lugs of the 149A condenser.

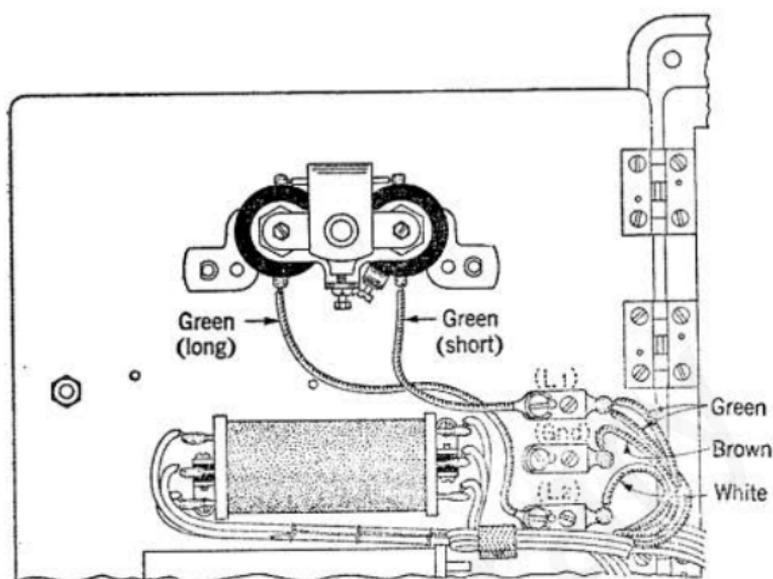


Fig. 3

Ringer Connection Limitations

4.05 Not more than 8 of the 535A sets (5 bar hand generator and 2600ω ringer) should be connected to a bridged ringing line having a loop resistance of 1000ω . The number of sets which may be connected to lines of greater or less resistance is in inverse proportion to the loop resistance, e.g., 4 for a line with a 2000ω loop and 16 for a line with a 500ω loop, etc. Where these limits are exceeded it will be necessary to use other standard 5 bar hand generator sets such as the 417P. In general, the 533A sets (3 bar hand generator and 2600ω ringer) are used on divided ringing lines but if used on bridged ringing lines not more than 8 of these sets should be connected to a line having a loop resistance of 800ω . The permissible number of sets for bridged ringing lines of greater or less resistance is proportional as in the case of the 5 bar generator sets.

4.06 On bridged ringing lines the permissible number of normal station ringers on the line shall be reduced by one for each loud ringing bell connected thereto (392B or 592B subscriber set).

Leich Set Connections

4.07 The connections for the Leich set are shown in Fig. 4.

On some of the sets the terminal designations shown on the circuit label for the hand set cord may be incorrect but the black, red and white conductors of the hand set cord should be connected respectively to terminals 2, 3 and 4. These terminals may be marked Y, R and G. In terminating hand set cord, secure cord stay hook under screw head of terminal 1 (vacant). Some care is required in passing stay hook through cord hole in side of set to avoid damaging hard rubber grommet.

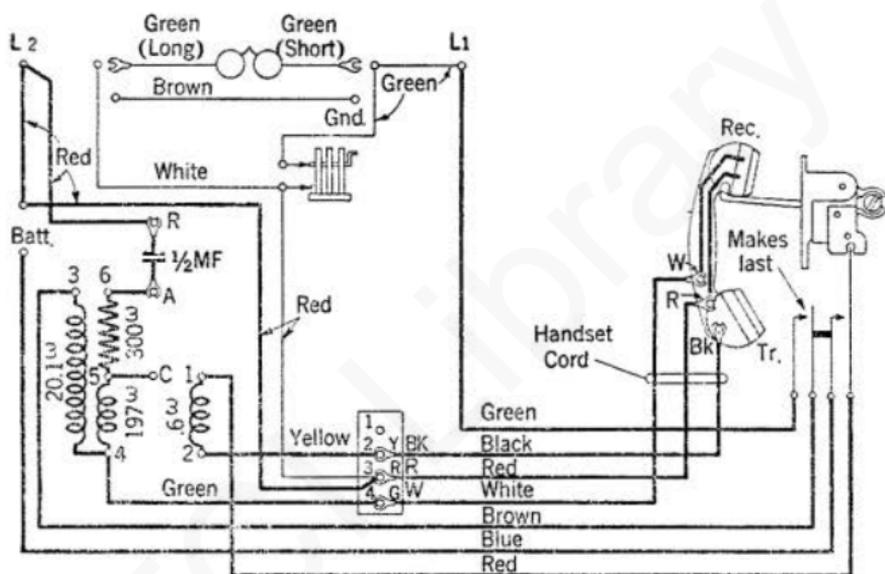
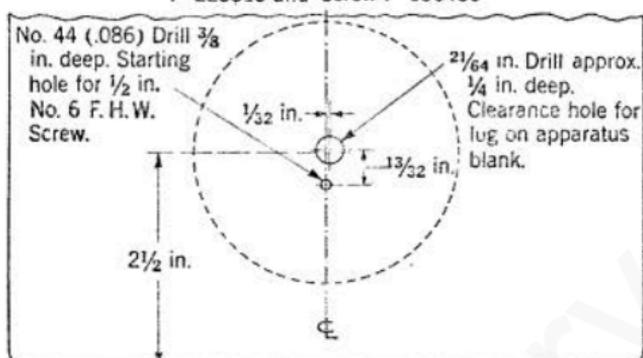


Fig. 4

5. NUMBER CARD HOLDER

5.01 If a station number card is required, either P-215591 or P-225816 may be attached to the front of the door of this set as indicated in Fig. 5. The station number card holder and station number card should then be added.

For P-225816
 50J Apparatus Blank less Clamping Plate
 P-225815 and Screw P-136486



For P-215591
 50H Apparatus Blank less Clamping Plate
 P-215576 and Screw P-210167

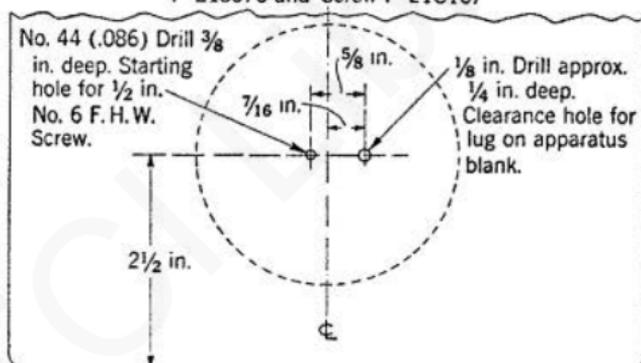


Fig. 5

6. MAINTENANCE

Hand Generator

6.01 The automatic cut-out should positively open and close contacts when the handle is rocked back and forth to the point where the armature just starts to turn. If the cut-out fails to operate properly, correct this condition when possible by adjustment of the contact springs or lubrication of the moving parts with a small amount of oil per KS-6232. The oil may be applied with a toothpick. If the contact springs require adjust-

ment adjust these as necessary with a No. 466A tool or equivalent without making a visible kink in the springs. Follow between front and transfer springs should be approximately $3/64"$. Gauge by eye. See that the tension on the transfer spring is sufficient to assure that the back contact will be made in the normal position.

6.02 When operating the hand generator if there is a tendency for the shaft to stick or turn hard due to lack of lubrication apply a slight amount of oil per KS-6232 with a toothpick at the oil holes provided in the shaft bearings. If after lubrication the generator still turns hard, it may be due to poor insulation of the bushings in the spring pile up or partial short-circuit in the armature. If the generator turns freely but no ringing current is applied to the line terminals, spring adjustment may be faulty or armature winding open.

Switchhook

6.03 When the hand set is removed from the hook, the switchhook shall move upward freely without binding and come to a positive stop. If switchhook binds on the hinge pin, replace entire switchhook assembly.

6.04 Contacts shall make with a perceptible follow. Separation between contact springs shall be minimum $.010"$. Gauge by eye.

Ringer

6.05 Ringer gongs are eccentric and where gong adjustment is necessary, loosen the hexagonal nut and locknut and rotate gong as required. Retighten hexagonal nut and locknut.

6.06 If armature sticks or binds on adjusting pivot remove and clean pivot in the same manner as for other ringers with adjustable pivots. Replace adjusting pivot.

6.07 As adjusted by the factory ringers will generally operate satisfactorily under most conditions encountered on lines to which the sets are to be connected. Some improvement in ringing efficiency may be obtained in some cases by changing the biasing spring tension.