

**LINE FINDERS**  
**SERVING TWO CLASSES OF LINES**  
**NORMAL POST SPRING OPERATION TESTS**  
**STEP-BY-STEP SYSTEMS**

**1. GENERAL**

**1.01** This section describes methods of testing the operation of normal post springs and the continuity of the lead or leads controlled by these springs on 100 and 200 point 3-wire and 4-wire line finders.

**1.02** This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

**1.03** The tests covered are as follows:

(A) 100 and 200 Point 3-Wire Line Finders

(B) 200 Point 3-Wire or 4-Wire Line Finders

**1.04** These tests are used primarily to verify that the normal post springs are operating satisfactorily on specified levels and are not operating on the level above or below the operating levels. Unless otherwise specified, they are not to be made at regular routine frequencies.

**1.05** Test (A) is made by simulating normal post spring operation and then dialing a code which will simulate the service condition and checking that the proper indication is received. The actual closure of the springs on operating levels or non-closure on non-operating levels is then checked by directing the finder to a particular level and observing the lighting or non-lighting of a lamp connected to the A lead. This test is not applicable to 4-wire finders as the leads from the normal post springs are not easily accessible for this method.

**1.06** Test (B) is made by blocking a line finder on a particular level at rotary normal and then dialing a code which will simulate the service condition and noting that the proper

indication is received. Ground is connected to the commutator wiper of the blocked switch and each of the other switches in the group is directed to the corresponding level, to the eleventh rotary position and held in this position while a code is dialed which will simulate the service condition and give the proper indication. The blocked switch is set on each of the normal post spring operating levels and on the level above and below these levels and a check made on each switch in the group before proceeding to the next level. This test can be used in place of Test (A) on 200 point 3-wire finders where desired but should not be used on 100 point finders which are arranged for ten rotary step operation.

**1.07** Any line finder on which an "out of service" failure is encountered should be made busy in the approved manner until the trouble is cleared.

**2. APPARATUS**

**2.01** No. 1011G Dial Hand Test Set, equipped with cord assembly consisting of one W2CL Cord, one No. 471A Jack, and one No. 240A Plug (No. 2W39A Cord) or equivalent.

**2.02** One No. 419A Tool.

**2.03** One No. KS-6278 Tool.

**2.04** One W1U Cord, or equivalent.

**2.05** One Special Patching Cord, to be made up locally (see Fig. 1).

**2.06** One Special Patching Cord to be made up locally (see Fig. 1).

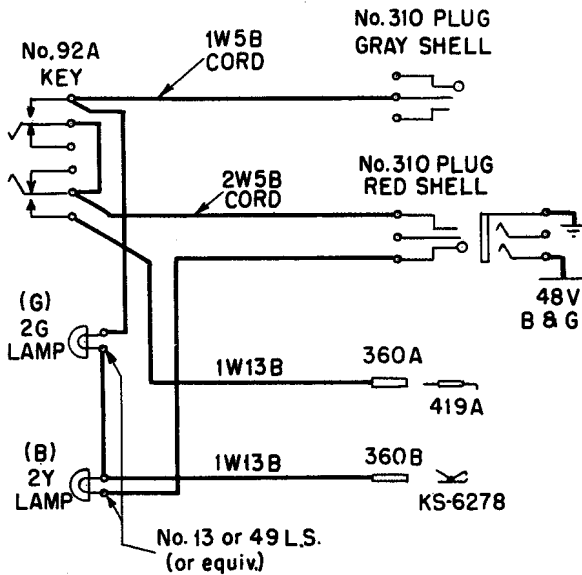


Fig. 1

### 3. PREPARATION

#### Tests (A) and (B)

**3.01** Arrange the special patching cord as shown in Fig. 1.

### 4. METHOD

#### (A) 100 and 200 Point 3-Wire Line Finders

**4.01** Connect the grey shelled plug of the special patching cord to the test jack of the line finder under test.

**4.02** Note that the line finder to be tested is normal. Connect together the S and A terminals at the line finder terminal strip using the WIU cord. Insert the No. 240A plug of the hand test set into the monitor jack and operate the TALK switch. Dial tone should be heard.

**4.03** Dial the code ( ) which will direct the associated selector or selectors to the proper level or trunk which will simulate the service condition of normal post spring operation. Check that the proper indication is received. In some cases it may be necessary to check with

the operator as the indication is not always received by the tester.

**Note:** In prepay coin groups where normal post springs are used in connection with dial prepay coin long line circuits, dial a digit leading to a second selector and note that dial tone is removed.

**4.04** Remove the plug of the hand test set from the monitor jack and disconnect the cord from the S and A terminals at the terminal strip.

**4.05** Make test connections at the line finder frame as follows:

(a) In prepay coin groups equipped with dial prepay coin long line circuits, mark the level on which the normal post springs are adjusted to operate by connecting the No. 419A tool to a commutator segment terminal corresponding to that level, and connect the KS-6278 tool to switch jack terminal 7 of the finder under test. Observe the (B) and (G) lamps do not light.

(b) In other line groups mark the level as in (a) above, connect the KS-6278 tool to the A terminal at the line finder terminal strip, and remove the No. 2G lamp from the (G) lamp socket.

**4.06** Depress the No. 92A key button, and observe as indicated in (a) or (b) below:

(a) In prepay coin groups with dial prepay coin long line circuits, the line finder should step to the marked level and rotate to the eleventh rotary position (tenth position of 100 point line finders). Observe that the (B) lamp lights when the key is depressed and remains lighted until the marked level is reached. When the marked level is reached, and during rotation, the (B) lamp is nearly extinguished and the (G) lamp is lighted. Release the No. 92A key. The line finder releases and the lamps are extinguished.

(b) In other line groups, observe the (B) lamp lights when the line finder reaches the marked level, and remains lighted while rotating across the level. Release the No. 92A key. The line finder releases and the lamp is extinguished.

**4.07** Proceed as in 4.06 for each level on which the normal post springs are adjusted to operate.

**4.08** Proceed as in 4.06 for the level above and the level below the operating levels but observe that the lamp does not change in brilliancy or does not light when testing in prepay coin or other line groups, respectively.

**4.09** Disconnect all test connections from the switch under test.

**(B) 200 Point 3-Wire or 4-Wire Line Finders**

**4.10** In the line group under test, select a line finder on which the normal post springs are adjusted to operate below the eighth level and make the line finder busy in accordance with approved procedures. Note that the line finder is normal. Block the vertical off-normal springs in their unoperated position in the approved manner, disengage the release link (where provided) and raise the shaft to the first level on which the normal post springs are adjusted to operate. Connect the No. 419A tool of the special patching cord to the commutator wiper.

*Note:* This switch is tested as in 4.11 to 4.13 and then used as a means for grounding the commutator in making tests of other switches in the group.

**4.11** Insert the No. 240 plug of the hand test set into the monitor jack and operate the TALK switch. Dial tone should be heard.

**4.12** Dial the code ( ) which will direct the selector or selectors to the proper level or trunk which will simulate the service condition. Check that the proper indication is received. In some cases it may be necessary to check with the operator as the indication is not always received by the tester.

**4.13** Release the TALK switch and remove the plug from the monitor jack.

**4.14** Connect the grey shelled plug of the special patching cord to the test jack of the next line finder to be tested. Insert the

No. 240 plug of the hand test set into the monitor jack.

**4.15** Note that the line finder to be tested is normal. Depress and hold the No. 92 key. As soon as the line finder starts, depress and hold operated the TALK switch on the hand test set. The line finder should step to the proper level, rotate to the eleventh position and stop. Release the No. 92 key. Dial tone should be heard.

**4.16** Dial the code ( ) which will direct the selector or selectors to the proper level or trunk which will simulate the service condition. Check that the proper indication is received. In some cases it may be necessary to check with the operator as the indication is not always received by the tester.

**4.17** Release the TALK switch on the hand test set and note that the line finder releases.

**4.18** Proceed as in 4.14 to 4.17 for each finder in the group to be tested.

**4.19** Raise the shaft of the finder used for test (see 4.10) to the next level on which the normal post springs are adjusted to operate and proceed as in 4.11 to 4.19. Proceed in like manner for each level on which the normal post springs are adjusted to operate.

**4.20** Raise or lower the shaft of the finder used for test to the level above and then the level below the normal post spring operating levels and proceed as in 4.11 to 4.18 with the exception that on these levels, check that the class of service indication, identification or restriction for which the normal post springs are adjusted to operate is not received.

**4.21** Disconnect all test connections and release the blocked switch for service.

**5. REPORTS**

**5.01** The required record of these tests should be entered on the proper form.