LOW INSULATION ALARM CIRCUIT SD-62489-01

TESTS

1. GENERAL

1.01 This section describes tests of the low insulation alarm circuit for toll cables. The tests are as follows:

(A) Circuit Operation Tests.

(B) Filament Alarm Test.

(C) Vacuum Tube Tests and Inspection.

1.02 This section is reissued to change the method for making the plate current test and to furnish a more suitable means of reading the filament and plate current covered in Test (C). A rearrangement of all the previous tests has been made together with certain minor changes and additions.

2. APPARATUS

Test (B)

2.01 258-type Plug.

Test (C)

2.02 Weston Model No. 280 Milliammeter, scale 0-75 milliamperes or its equivalent equipped with a No. W2AN (or No. W2K) Cord connected to the tip and ring of a No. 110 or No. 291-A Plug.

2.03 Weston Model No. 280 Milliammeter, scales 0-50, 0-10 and 0-5 milliamperes or its equivalent (having a 0-5 milliampere scale) equipped with a No. W2AN (or No. W2K) Cord connected to the tip and ring of a No. 110 or No. 291-A Plug.

Note: For offices where the above milliammeters are not available the No. 35-C Test Set, with all possible resistance cut out by moving all slides to the extreme left, may be used. In this case the plate current reading covered in 3.26 should be omitted as this value is so small that it cannot be read practically on this test set.

3. METHOD

(A) Circuit Operation Tests

Check of the Automatic Operation Feature

3.01 Operate the STOP key. Note that the selector does not operate and the vacuum tube filament is extinguished.

3.02 Restore the STOP key to normal. Note that the circuit operates continuously by observing that the selector steps and the vacuum tube filament is lighted.

3.03 Operate the TEST LINE and OPR keys. Each lamp associated with a low insulation alarm channel, should light as the test circuit steps from channel to channel.

3.04 Momentarily depress the REL key. The lamps should be extinguished.

3.05 Restore the OPR key to normal.

3.06 With the TEST LINE key still operated, operate the NON OPR key. The lamps associated with the low insulation alarm channels, should not light provided the line insulation is not low.

3.07 Restore the TEST LINE key to normal.

3.08 With the NON OPR key still operated, operate the TEST CKT key. The lamps associated with the low insulation alarm channels should not light.

3.09 Restore the NON OPR key to normal.

3.10 With the TEST CKT key still operated, operate the OPR key. Each lamp associated with a low insulation alarm channel, should light as the test circuit steps from channel to channel.

3.11 Momentarily depress the REL key. The lamps should be extinguished.

3.12 Restore all keys to normal.

Operation of Selectors

3.13 Momentarily depress the POS key. The selector stops and the channel lamp, which indicates the channel to which the selector brushes are connected, should light.

3.14 Momentarily depress the STEP key and follow immediately by depressing the POS key. Each channel lamp should light as the selector switch moves ahead one step, for each operation of the STEP and POS keys.

3.15 Momentarily depress the REL key. The lamps should be extinguished.

3.16 Momentarily depress the INT key. This should cause the selector to rotate. Observe that the selector operates steadily and uniformly.

Note: This selector should not be allowed to operate for more than one complete revolution, before releasing the INT key, since long continued use is liable to overheat the thermal relay and necessitate a recalibration of the relay.

(B) Filament Alarm Test

3.17 Insert a 258-type plug into the FIL jack. The T lamp and the alarm lamp in the associated annunciator cabinet should light and the alarm bell should ring. Check that the (A) lamp at the toll test board lights and the auxiliary signal operates.

3.18 Remove the 258-type plug from the FIL jack.

3.19 Momentarily depress the REL key. Note that the lamps are extinguished and that the audible alarm signals are retired.

(C) Vacuum Tube Tests and Inspections

Filament and Plate Current Tests

3.20 Operate the STOP key.

3.21 Insert the plug of the cord connected to the milliammeter covered in 2.02 into the FIL jack. Restore the STOP key to normal.

3.22 The filament current should read between 55 and 63 milliamperes.

3.23 Operate the STOP key. Remove the plug from the FIL jack.

3.24 Insert the plug of the cord connected to the milliammeter covered in 2.03 into the P jack. Restore the STOP key to normal.

3.25 Operate the TEST CKT and NON OPR keys. The plate current should read between 0.7 to 3 milliamperes. Restore the NON OPR key to normal.

3.26 Operate the OPR key. The plate current should read a maximum of 0.2 milliamperes.

Note: Any channel lamps lighted on this test should be extinguished by momentarily operating the REL key.

3.27 Operate the STOP key and remove the plug from the P jack.

3.28 Restore all keys to normal.

Tube Inspection

3.29 Inspect the vacuum tube for bright spots. A bright spot may be defined as a spot or short section of the filament burning at incandescence or white heat. A tube having a bright spot should be replaced.

3.30 When a tube is replaced due to bright spots a filament and plate current test as covered in 3.20 to 3.28 should be made after the tube has been replaced.

4. REPORTS

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