D-C. SUPERVISORY RELAYS
CORD CIRCUITS
NO.9 (SPECIAL) SWITCHBOARDS

1. GENERAL

1.01 This section describes the method of making current flow tests of the direct current supervisory relays of cord circuits in No. 9 (special) offices. The test is to be made from the front of the switchboard and should be performed during periods of light load.

1.02 This issue, which replaces Issue 1, is reissued to change the values previously specified for B5 and B33 relays working on 48 volts, to add the 114B and B2 relays to the group shown as working on 24 volts and to cover the test values for all of the relays involved.

1.03 The mechanical requirements, cleaning and adjusting procedure for the various relays are covered in Division A460 sections. The electrical readjust values are covered in Section A491.401.

1.04 The electrical values to be employed for testing relays in cord circuits are as follows:

For 114B, 118AC, 118AN, B2, B3, B5, and Similar Relays, Working on 24 Volts.

Saturate	.150 amp.
Operate	.022 "
Release	.0062 "

For B5, B33, and Similar Relays, Working on 48 Volts.

Saturate	.150 amp.
Operate	.031 "
Release	.008 "

For 1148 and Similar Relays, Working on 48 Volts.

Saturate	*.150 amp.
Operate	*.047 "
Release	*.005 "

* Through both windings in series aiding.

2. APPARATUS

2.01 No. 35C Test Set.

2.02 No. P2P Cord, equipped with a No.110 or No.78 Plug on one end, as required, and a No.109 Plug on the other end.

3. METHOD

3.01 Arrange the test set keys and switches as follows:

Keys	Position	Switches	Position
1	Open	G	Open
2	Open	L	Closed to 10
3	Open	Res	0
4	Open		
BATT & GRD CO	Operated		
REV	Normal		
MIL-AMPS	(See Text)		

Precaution in Using the Test Set

3.02 Before using the current flow test set, care should be taken to see that all resistance is cut in to avoid damaging the needle of the milammeter. All resistance is cut in when all slides are to the extreme right.

3.03 Care should be taken that the scale change key, designated MIL-AMPS is not operated from its normal position when the reading on the normal (.750 ampere) scale indicates that the current flow in the circuit does not exceed the scale range, as indicated by the designation of the position to which the key is to be operated. Before operating the MIL-AMPS key, a current flow which approximates the desired value should be set up on the normal (.750 ampere) scale of the milammeter; then the MIL-AMPS key should be operated to the .015 or .075 ampere position as required and the final value accurately set up. The position of any of the red slides should not be changed while the MIL-AMPS key is in an operated position. These precautions will keep the value within the limits of the milammeter scale used, thus avoiding damage to the milammeter.

3.04 Although it is not necessary to reset the resistance slides of the test set for each test, the various current values should be checked occasionally.

Supervisory Relay Test

3.05 Insert the No.109 plug of the P2P cord into the SIG BATT & GRD jack of the test set and the No.110 or No.78 plug into a vacant or unused subscriber line multiple jack, having a 50 ohm ground attached to the sleeve conductor.

3.06 Insert the plug of the cord to be tested into the T & R jack of the test set. After these connections are established, the supervisory lamp of the associated cord circuit should light.

3.07 Depress key 2 and set the No.2 resistance slides to obtain the specified "saturate" value of current.

3.08 Depress key 3 and set the No.3 resistance slides for the specified adjust "operate" value. See 3.03 for use of MIL-AMPS key.

3.09 Depress key 4 and set the No.4 resistance slides for the specified adjust "release" value. See 3.03 for use of MIL-AMPS key.

Release Test

3.10 Apply the "saturate" current to the supervisory relay by depressing keys Nos.2 and 4 at the same time. After approximately one second, release key No.2, holding key No.4 depressed. The supervisory lamp of the cord circuit under test should be extinguished while the keys are depressed and should light promptly when key No.2 is released, indicating that the relay releases properly on the test "release" current. Repeat the release test several times.

Flashing Test

3.11 Depress key No.2 for one second to apply the "saturate" current. One-half second after releasing key No.2 depress and release key No.3 three times at a rate of two times per second. The period of make to break (key depressed to release) should be at the ratio of 3 to 2.

Note: This rate of interruption provides for the exact requirements established for the relays but it is recognized that the manual method can obtain these requirements only approximately.

3.12 Observe that the supervisory lamp flashes three times, that is, each time that key No.3 is released, indicating that the relay meets flashing requirement "C" as specified in the Division A460 section covering the requirements for the relay. If it is desired to obtain more flashes, the "saturate" current should be applied again for a period of one second for each three flashes.

4. REPORTS

4.01 The required record of this routine should be entered on the proper form.