Installation Engineering Handbook 59
Western Electric Company, Incorporated
Hawthorne Works

SIGNALING RANGE EXTENDER FUSING AND MISCELLANEOUS TESTS (NS-02517-01)

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1. GENERAL INFORMATION

1.1 The Signaling Range Extender (NS-02517-01) provides for the extension of Central Office resistance limits by adding a voltage in series with the Central Office leads.

1.2 Sequence of Operations

The tests of this section shall be performed before section 916 (BSP 332-211-500) and must be done in order shown. In general, the installer will perform only the tests of Handbook 59, Section 915. The operational tests of Section 916 will be performed only when requested by the Telephone Company.

1.3 Precautions

DO NOT INSERT THE INVERTER (CP1) CIRCUIT PACKS INTO THE SRE UNITS WHEN EQUIPPED WITH THE AUTOMATIC TRANSFER FEATURE. EACH INVERTER MUST BE INSERTED INDIVIDUALLY AND TESTED PER PARAGRAPH 5. FAILURE TO DO THIS MAY DESTROY BOTH INVERTER UNITS.

1.4 Explanation of Terms

A basic unit is a Signaling Range Extender (SRE) unit equipped with an inverter (CP1) circuit pack. A Supplementary Unit is an SRE unit not equipped with an inverter (CP1) circuit pack. When a pair of SRE units are provided with the Automatic Transfer Feature: the first basic unit is equipped with Z option, and the second basic unit is equipped with R option.

2. RECORDS AND REQUIREMENTS

2.1 Records: Results of these tests shall be recorded on form SD-4-1313, Test Trouble Record and summarized on form SD-4-1315.

2.2 Requirements: Tests of this section are based on NS-02517-01.

3. TEST EQUIPMENT

3.1 Test Sets

Amt	Code	Description
1	ITE-4442A	Volt-Ohmmeter

3.2 Test Cords

Amt	ITE	Lgth	Cdrs	One End	Other End
6	9140	1'	1	Minigator Clip	Minigator Clip

4. FUSING

4.1 Make certain that there are no circuit packs in the SRE units. At the fuse panel, remove all fuses associated with the SRE units to be tested. Using a volt-ohmmeter, check each fuse post for the absence of battery or ground. Using fuses of the correct type as indicated by the circuit drawing (NS-02517-01) and fuse panel designation, install each fuse one at a time, checking that each fuse is associated with the correct equipment and is free from crosses with other unfused posts on the fuse panel.

4.2 Verify with a volt-ohmmeter the presence of potentials on TS(B) as shown in Table 1.

TS(B) pchg	SRE unit	Potential observed
51	all	-48V DC
11	all	ground

TABLE 1

4.3 Power Verification (with option Y)

a) If the Basic SRE unit is equipped with option Y, insert the CP1 and CP2 circuit packs into the SRE unit (equipment locations 34 and 33 respectively).

b) Verify with a volt-ohmmeter the presence of potentials on TS(B) as shown in Table 2.

TS(B) pchg	SRE unit	Potential observed
46	Basic	-23V ± 3VAC
56	Basic	ground

TABLE 2

c) Repeat paragraph 4.3 for each Basic SRE unit equipped with option Y.

4.4 Power Verification (with options Y and Q)

a) If the Basic unit is equipped with a Supplementary unit (option Q), insert the CP2 circuit pack into the SRE Supplementary unit (equipment location 33).

b) Verify with a volt-ohmmeter the presence of potentials on TS(B) as shown in Table 3.

TS(B) pchg	SRE unit	Potential observed
32	Supplementary	-23V ± 3VAC
22	Supplementary	ground

TABLE 3

c) Repeat paragraph 4.4 for every SRE Supplementary unit that is associated with a Basic unit that has Y option.

5. AUTOMATIC TRANSFER FEATURE (Options Z and R)

5.1 Insert a CP1 circuit pack into the first SRE unit (equipment location 34) of the pair. Insert a CP2 circuit pack into the first and second Basic SRE units (equipment location 33).

a) Verify with a volt-ohmmeter, the presence of potentials on TS(B) as shown in Table 4.

TS(B) pchg	SRE unit	Potential observed
32	Second Basic	-23V ± 3VAC
22	Second Basic	ground

TABLE 4

2.

b) Verify with a volt-ohmmeter the absence of battery, AC voltage or ground on TS(B), as shown in Table 5.

TS(B) pchg	SRE unit	Potential observed
56	Second Basic	none
46	Second Basic	none
36	First Basic	none
26	First Basic	none

TABLE 5

5.2 Remove the CP1 circuit pack from the first Basic unit. Insert a different CP1 circuit pack into the second Basic SRE unit of pair (equipment location 34).

a) Verify with a volt-ohmmeter the presence of potentials on TS(B) as shown in Table 6.

TS(B) pchg	SRE unit	Potential observed
32	First Basic	-23V ±3VAC
22	First Basic	ground

TABLE 6

b) Verify with a volt-ohmmeter the absence of battery, AC voltage or ground on TS(B), as shown in Table 7.

TS(B) pchg	SRE unit	Potential observed
56	First Basic	none
46	First Basic	none
36	Second Basic	none
26	Second Basic	none

TABLE 7

c) Now that all the above voltages have been verified, it is safe to insert the other CP1 circuit pack into the first SRE unit.

d) Repeat paragraphs 5.1 and 5.2 for every pair of SRE's arranged for Automatic Transfer.

5.3 If a pair of Basic SRE units (options Z and R) is equipped with a Supplementary unit (option Q), insert a CP2 circuit pack into the SRE Supplementary unit (equipment location 33).

a) Verify with a volt-ohmmeter the presence of potentials on TS(B) as shown in Table 8.

TS(B) pchg	SRE unit	Potential observed
32	Supplementary	-23V ± 3VAC
22	Supplementary	ground

TABLE 8

6. ALARM VERIFICATION

6.1 Inverter Failure (with option Y)

6.11 When the Basic SRE unit is equipped with option Y, use ITE-9140 cords to strap together the following terminals on the 905B connector at equipment location 34:

Connect terminal 3 to terminal 4;
Connect terminal 7 to terminal 8;
Connect terminal 5 to terminal 6.

PRECAUTION: WHEN STRAPPING TERMINALS PER PARAGRAPH 6.11 AVOID CONNECTING GROUND OR BATTERY TO TERMINAL 0 OF THE CONNECTOR AT EQUIPMENT LOCATION 34 SINCE THIS WILL DAMAGE CIRCUIT PACK CP1.

6.12 Remove the CP1 circuit pack from its connector. Verify that the proper major alarm audible and visual signals are activated. Verify that the proper minor alarm audible and visual signals are activated. Observe that lamp L1 (on the CP2 circuit pack of the Basic SRE unit) lights.

6.13 Insert the CP1 circuit pack into its connector. Verify that the major and minor alarms retire. Observe that the L1 lamp extinguishes.

6.14 Remove the cords connected in paragraph 6.11.

6.15 Repeat paragraphs 6.11 through 6.14 for every SRE unit equipped with option Y.

6.2 Inverter Failure (with options Z and R).

6.21 When the SRE unit is equipped with options Z and R, use ITE-9140 cords to strap together the following terminals on the 905B connector at equipment location 34:

Connect terminal 3 to terminal 4;
Connect terminal 7 to terminal 8;
Connect terminal 5 to terminal 6.

PRECAUTION: WHEN STRAPPING TERMINALS PER PARAGRAPH 6.21 AVOID CONNECTING GROUND OR BATTERY TO TERMINAL 0 OF THE CONNECTOR AT EQUIPMENT LOCATION 34 SINCE THIS WILL DAMAGE CIRCUIT PACK CP1.

NOTE: Paragraph 6.21 must be performed on both Basic SRE units of the pair being tested.

6.22 Remove a CP1 circuit pack from one of the SRE units. Verify that the proper minor alarm audible and visual signals are activated. Observe that the L1 lamp lights (located on the CP2 circuit pack in the Basic SRE unit that has the CP1 circuit pack removed).

6.23 Replace the CP1 circuit pack into its connector. Verify that the minor alarm retires and the L1 lamp extinguishes.

6.24 Repeat paragraphs 6.22 and 6.23 for the other CP1 circuit pack of the pair.

6.25 Remove both CP1 circuit packs from the paired SRE units. Verify that the proper major alarm audible and visual signals are activated. Verify that the proper minor alarm audible and visual signals are activated. Observe that the L1 lamp on each SRE of the pair being tested is lit.

6.26 Re-insert both CP1 circuit packs into the SRE unit. Observe that the major and minor alarms retire and both L1 lamps extinguish.

6.27 Remove all cords connected in paragraph 6.21.

6.28 Repeat paragraph 6.2 for all SRE units arranged for Automatic Transfer.

6.3 Fuse Alarm

6.31 At the SRE unit equipment position 33, remove the fuse in position F0. Insert an operated fuse into this position. Verify that the proper major alarm audible and visual signals are activated. Observe that the L1 lamp (at equipment location 33) is lit.

6.32 Remove the operated fuse. Verify that the major alarm retires and the L1 lamp extinguishes.

6.33 Repeat paragraphs 6.31 for all other SRE units.

Manager, Engineering, Switching
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