Installation Engineering Handbook 59
Western Electric
Hawthorne Works

SIGNALING RANGE EXTENDER (NS-02517-01) OPERATIONAL TESTS

CONTENTS

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1. GENERAL

1.1 This is issued in order to make available the test information contained in BSP 332-211-500 (attached). These operational tests verify the Signaling Range Extender (SRE), NS-02517-01.

1.2 The tests of section 915 must be performed before the tests of this section.

NOTE: The Installer will perform the tests of this section only when requested by the telephone company.

ATTACHMENT

BSP 332-211-500, Issue 1.

Manager, Engineering, Switching
Equipment, Reproduction and
Step-by-Step P.E.C.C.

SIGNALING RANGE EXTENDER

(SRE)

OPERATIONAL TESTS

CONTENTS PAGE

1. GENERAL

1.01 This section describes the operational tests of the SRE and associated coin lines that may be performed with the SRE test unit (NS-020517-01).

1.02 The test unit is designed to enable the testing of the SRE at the equipment location while connected to loop-start or ground-start coin lines.

1.03 The test unit consists of a plug-in extender board with a test panel equipped with switches and lamps and a mounting for the circuit pack under test.

1.04 The 1014A handset or its equivalent is used with the test unit to make dialing and supervision tests.

2. APPLICATION

2.01 In preparation for operational tests, the line should be removed from service. The circuit pack under test must be removed from the shelf and replaced with the test unit. The circuit pack under test is inserted into the test unit (Fig. 1) and the 1014A handset is connected to the T and R posts on the test panel. All tests assume that circuit transmission requirements are met and that −48V is on the ring conductor.

2.02 Table A lists the functions of the test panel switches.

3. TEST PROCEDURES

3.01 Dialtone First (Loop-Start)

24V ADDED WITH CORRECT POLARITY (CP 3)

STEP	ACTION	VERIFICATION
1	Set switches: S1-NORM S4-2400 S2-30K S5-LOOP S3-TEST S6-CP 3. Operate 1014A handset talk key to TALK.	Lamp LN lighted, audible dial tone.
2	Operate S1 to REV.	Lamp LN out, lamp LP lighted, audible dial tone.

RING-TRIP (CP 3)

1	Set switches: S1-NORM S4-2400 S2-30K S5-GRD S3-TEST S6-CP 3. Operate 1014A handset talk key to TALK.	Lamp LN lighted, audible dial tone.

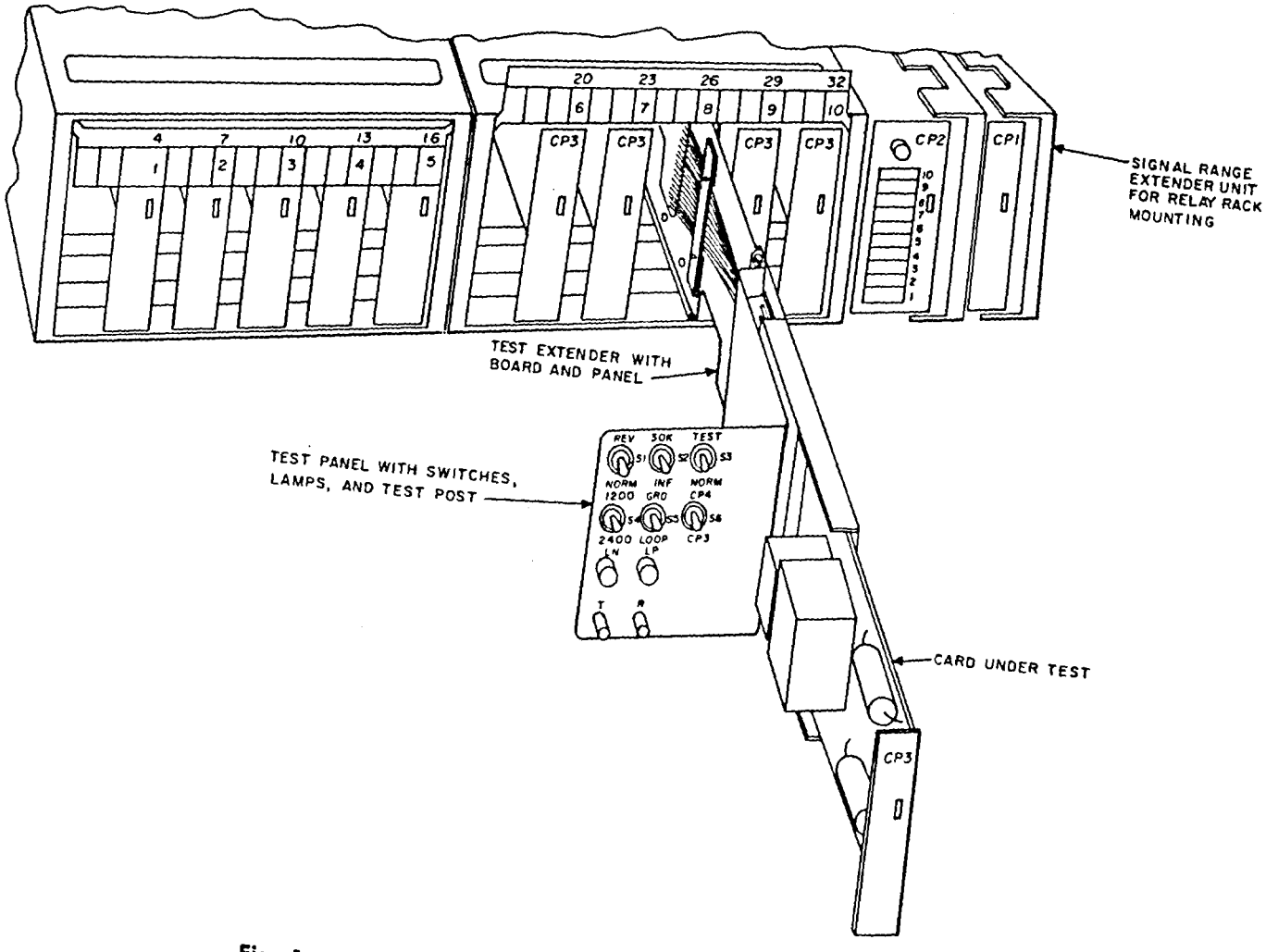

Fig. 1—Signaling Range Extender Test Unit —Test Setup

STEP	ACTION	VERIFICATION
2	Dial ringer test trunk as required.	
3	Operate S5 to LOOP and signal ringer test trunk for ring-back.	
4	Operate 1014A talk key to MON.	Audible ring-back, lamps LN and LP flashing during ringing.
5	Operate 1014A talk key to TALK.	Ringing tripped and lamp LN lighted.

TABLE A

SWITCH	SWITCH TOP DESIGNATION		FUNCTION
	UNOPERATED	OPERATED	
S1	NORM	REV	Reverses tip and ring from central office to simulate battery reversal.
S2	INF	30K	Applies 30K leak resistance and network across tip and ring.
S3	NORM	TEST	Opens tip and ring toward station.
S4	2400	1200	Selects test loop resistance of 2400 ohms or 1200 ohms.
S5	LOOP	GRD	Applies 1000-ohm GRD to loop (ground-start loops).
S6	CP 3	CP 4	Allows test of CP 3 or CP 4 functions

3.02 Coin First (Ground-Start)

24V ADDED WITH CORRECT POLARITY (CP 3)

STEP	ACTION	VERIFICATION
1	Set switches: S1-NORM S4-2400 S2-30K S5-LOOP S3-TEST S6-CP 3. Operate 1014A talk key to TALK.	No lamp indication, no audible dial tone.
2	Operate S5 to GRD.	LN lamp lighted, audible dial tone.
3	Operate S1 to REV. Operate S5 to loop.	Lamp LN out, lamp LP lighted, audible dial tone.

RING TRIP (CP 3)

1	Set switches: S1-NORM S4-2400 S2-30K S5-GRD S3-TEST S6-CP 3. Operate 1014A talk key to TALK.	LN lamp lighted, audible dial tone.
2	Dial ringer test trunk as required.	

STEP	ACTION	VERIFICATION
3	Operate S5 to LOOP and signal ringer test trunk for ring-back.	
4	Operate 1014A talk key to MON.	Audible ring-back, lamps LN and LP flashing during ringing.
5	Operate 1014A talk key to TALK.	Ringing tripped and lamp LN lighted.

COIN BYPASS (CP 4)

1	Set switches: S1-NORM S4-2400 S2-30K S5-GRD S3-TEST S6-CP 4. Operate 1014A talk key to TALK.	LN lamp lighted, audible dial tone.
2	Dial operator or dial repair service bureau and obtain connection to test desk.	
3	Obtain coin collect from operator or test desk.	On application of coin potential, lamp LP should not be lighted (lamp LN may be lighted).
4	Obtain coin return from operator or test desk.	On application of coin potential, lamp LN should not be lighted (lamp LP may be lighted).

3.03 Evaluation of Coin Line Operation

STEP	ACTION	VERIFICATION
1	Set switches: S1-NORM S4-1200 S2-INF S5-LOOP S3-NORM S6-CP 3. Operate 1014A talk key to MON.	Busy circuit will show lighted LP or LN lamp; ringing circuit will show alternate lighting of lamp LN and lamp LP. Audible monitor is provided with 1014A handset.

3.04 The metallic bypass board (CP 5) can be used to provide a nonbridged metallic connection in place of the range extender (CP 3) or applique (CP 4) circuit pack when a metallic connection is required for isolating a trouble.

3.05 The inverter output (CP 1) may be tested by measuring for 23 Vac $\pm$3 Vac across pins 46 and 56 on terminal strip B.

4. MAINTENANCE

4.01 No field adjustments are provided on the SRE. Circuit packs not meeting circuit requirements should be replaced with spare units and returned to Western Electric Company for repair.

4.02 Fuse alarms and inverter failure will be shown by a lamp indication on the alarm and transfer card (CP 2). Fuse alarms are distinguished by self-indicating fuses that will identify the defective range extender circuit pack. Removal of the fuse will extinguish the alarm lamp and retire the office alarm. Office alarms for inverter failures may be retired by removing the defective inverter circuit pack; the alarm lamp will remain lighted until normal operation is restored by replacement of the defective inverter.