TYPE N AND ON CARRIER REPEATERS — REPEATERED HIGH-FREQUENCY LINE PRELIMINARY TESTS — TRANSISTORIZED REPEATER POWER SUPPLY POINTS ADJUSTMENT OF POWER SUPPLY AND SEALING CURRENT OVER CABLE AND CHECK OF FUSE ALARM

When a local source of power is not available at a transistorized repeater, dc power can be supplied to it over the two cable pairs used for carrier transmission by means of simplex arrangements. In this manner up to three repeaters may be powered in series.

The transmitting pair carries the +130 volts and the receiving pair carries the −130 volts to the repeater. When unsoldered cable splices are used, a small amount of dc may be applied to the cable pairs, in a similar manner, to seal the splices if power is not supplied to a repeater.

Fig. 2 gives details for the various power arrangements where sealing current is not supplied to an adjacent section and Fig. 3 gives details for the various power arrangements where sealing current is supplied to an adjacent section. To check various options involved, refer to the application schematic SD-95124-02.

The resistors (R4 and R5) used when sealing current is supplied, are mounted on the repeater mounting bracket.

This section describes the strapping and adjustment of the power resistors to a specified value in order to provide the correct voltage to the adjacent repeater. It also describes the tests of the resistors used when sealing current is supplied to an adjacent section, and a method of testing the fuse alarm operation at the repeater power supply point.

APPARATUS:

1 — KS-13895 Plug, Unwired (connector for test connections)

1 — KS-14510, L1 or L5 Volt-Ohm-Milliammeter, or equivalent (20,000 ohms per volt)

1 — 265C Tool (contact burnisher)

1 — 266C Tool (steel music wire)   Used to check alarms

STEP	PROCEDURE
1	Remove the +130V and −130V fuses for the repeater under test.
2	Remove the repeater connectors from J2 and J3.
3	Insert unwired KS-13895 plug in J2.
4	Ground in turn pins 6, 7, 10, and 13 of the KS-13895 plug momentarily to discharge surge capacitors.

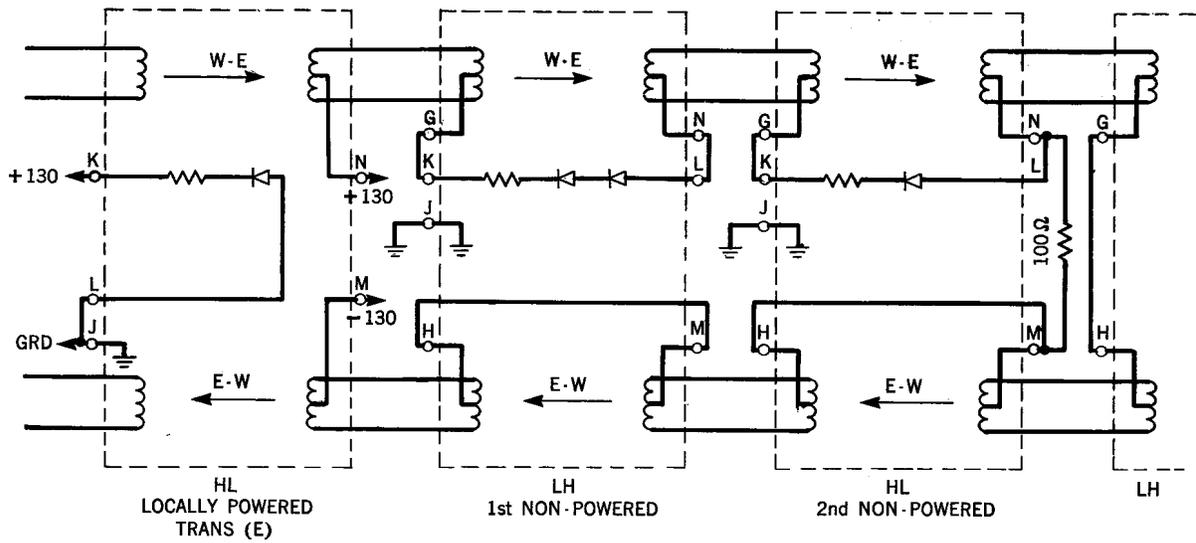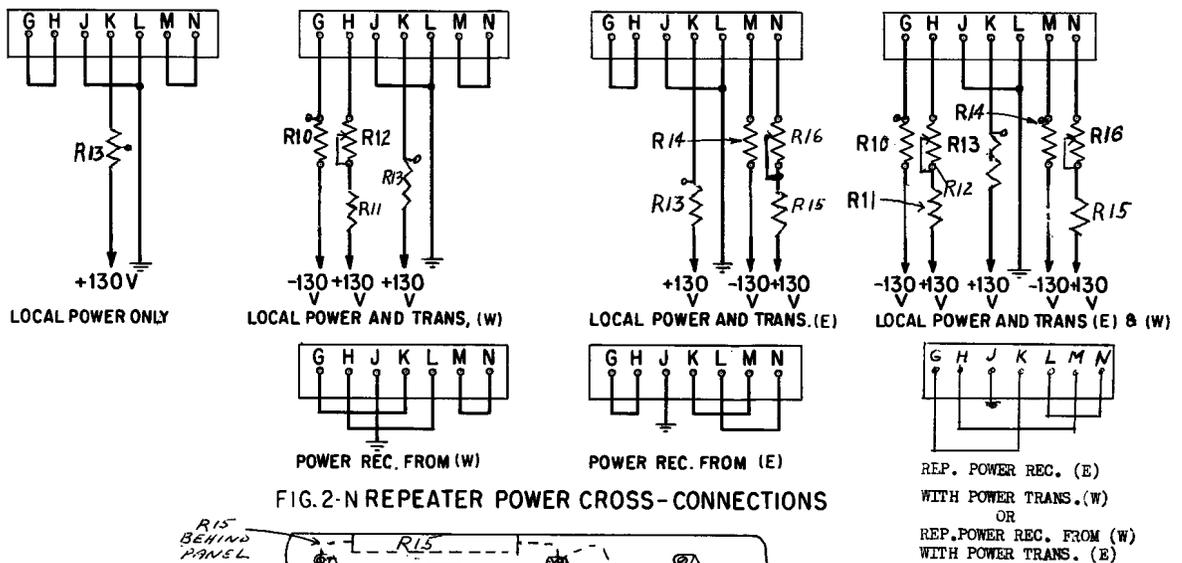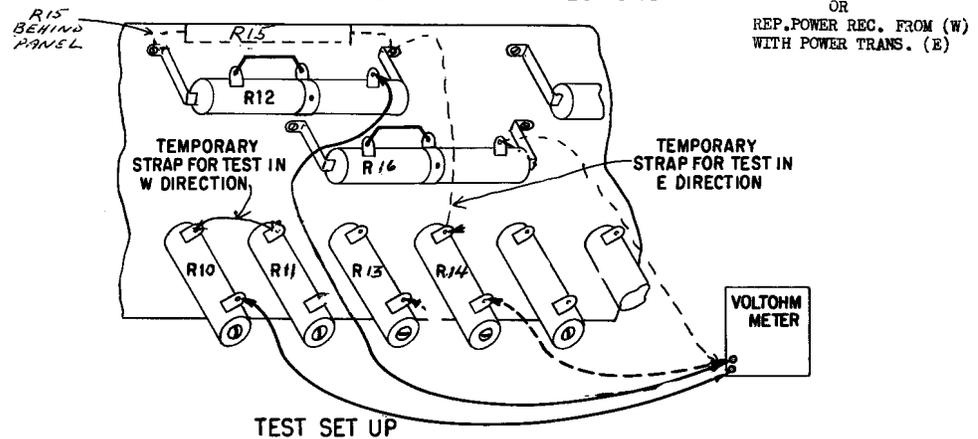| STEP	PROCEDURE
5	**Power Transmitted in W Direction** Connect the terminal nearest the mounting panel of R10 to the terminal of R11 nearest the mounting panel.
6	With the volt-ohmmeter measure the resistance between the terminal of R10 farthest from the mounting panel and the right terminal of R12. Adjust R12 to vary the resistance. If, after reducing R12 to its minimum value, the total resistance is still greater than that specified on the circuit layout card, connect a strap between the tap on R10 and the terminal of R10 nearest the mounting panel. Then readjust R12 to obtain the specified value of resistance. *Requirement:* Total resistance toward W specified on circuit layout card for this repeater.
7	**Power Transmitted in E Direction** Connect the right terminal of R15 to the terminal of R14 nearest the mounting panel.
8	With the volt-ohmmeter measure the resistance between the terminal of R14 farthest from the mounting panel and the right terminal of R16. Adjust R16 to vary the resistance. If, after reducing R16 to its minimum value, the total resistance is still greater than that specified on the circuit layout card, connect a strap between the tap on R14 and the terminal of R14 nearest the panel. Then readjust R16 to obtain the specified value of resistance.
9	**Fuse Alarm Operation** Place the 266C tool (steel music wire) in 265C tool (contact burnisher) and the cap in place over the end of the 265C tool. Insert the wire in the opening of the fuse holder cap, beside the alarm indicating plunger, in such a manner as to touch the side of the opening and the head of the fuse at the same time. *Requirement:* All alarms associated with particular fuse should operate.

FIG.1-N REPEATER POWER SUPPLY SYSTEM

W-E →   W-E →   W-E →

+130

GRD

100 Ω

E-W ←   E-W ←   E-W ←

HL
LOCALLY POWERED
TRANS (E)

LH
1st NON-POWERED

HL
2nd NON-POWERED

LH

FIG.2-N REPEATER POWER CROSS-CONNECTIONS

| G H J K L M N |
| R13 |
| +130V |
LOCAL POWER ONLY

| G H J K L M N |
| R10   R12   R13   R11 |
| -130 +130 +130 |
LOCAL POWER AND TRANS. (W)

| G H J K L M N |
| R14   R16   R13   R15 |
| +130 -130 +130 |
LOCAL POWER AND TRANS.(E)

| G H J K L M N |
| R10   R14   R13   R16   R11   R12   R15 |
| -130 +130 +130 -130 +130 |
LOCAL POWER AND TRANS (E) & (W)

| G H J K L M N |
POWER REC. FROM (W)

| G H J K L M N |
POWER REC. FROM (E)

| G H J K L M N |
REP. POWER REC. (E)
WITH POWER TRANS.(W)
OR
REP. POWER REC. FROM (W)
WITH POWER TRANS. (E)

R15 BEHIND PANEL

R15

R12

R16

TEMPORARY
STRAP FOR TEST IN
W DIRECTION

TEMPORARY
STRAP FOR TEST IN
E DIRECTION

R10   R11   R13   R14

VOLTOHM
METER

TEST SET UP

REP. POWER LOCAL ALSO TRANS.
SEALING CURRENT- (W)

REP. POWER LOCAL ALSO TRANS.
SEALING CURRENT (E)

REP. POWER LOCAL ALSO TRANS.
SEALING CURRENT

REP POWER LOCAL ALSO TRANS
POWER   (W) + SEALING CUR (E)
OR
REP POWER LOCAL ALSO TRANS
POWER (E) AND SEALING CUR(W)

REP POWER REC FROM (E) WITH
SEALING CUR TRANS (W)
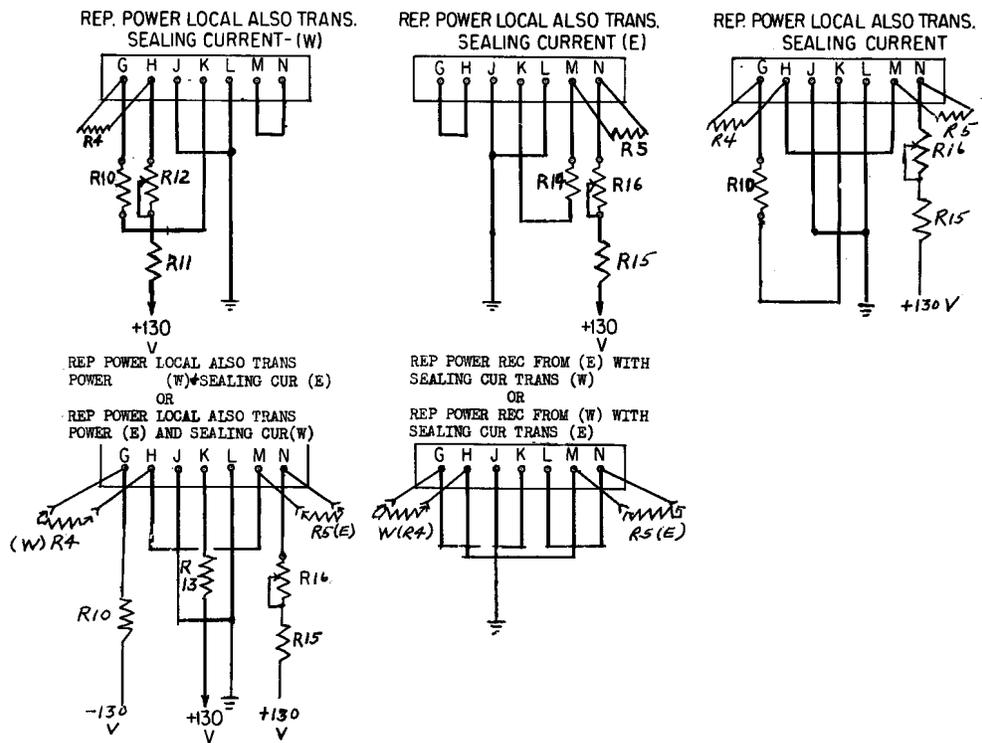OR
REP POWER REC FROM (W) WITH
SEALING CUR TRANS (E)

Fig. 3 — Repeater Power Cross-Connection with Sealing Current