TYPE N2 CARRIER REPEATERS

REPEATERED HIGH-FREQUENCY LINE

N2 REPEATER SWITCHING WITH J99321S N2 REPEATER SWITCHING SET

The substitution of an alternate N2 repeater for an operating unit may be done without interrupting service by using the J99321S N2 repeater switching set. The switching set plugs into appropriate jacks on the repeater mounting and substitutes an internal alternate repeater which is an integral part of the set for the one being removed from service. By careful adherence to the procedures in this section the gain, phase, and equalization characteristics of the alternate repeater may be made almost identical with the regulator repeater and thus assure uninterrupted service when the actual substitution is made.

The purpose of this section is to provide the procedures required to substitute, without interrupting service, an alternate N2 repeater for a regular N2 repeater using the N2 repeater switching set.

APPARATUS:

1 — J99321S N2 Repeater Switching Set

STEP	PROCEDURE
1	Set ALT RPTR switch on the switching set to either LO-HI or HI-LO, according to the type of repeater being switched.
2	Set TR (transfer) switch to REG position.
3	Set SLOPE ADJ switches on alternate repeater (LO-HI or HI-LO) to agree with repeater being switched.
4	Connect switching set power cord to the test power connector on the repeater frame and set switching set power switch to select the applicable power source.
5	Remove the connector plug from either of the two repeater switching jacks on the regular repeater mounting.
6	Insert switching set transmission cord into vacant switching jack.

STEP	PROCEDURE
7	Remove remaining connector plug from the other switching jack.
8	Set DETR switch to W-E REG position.
9	Adjust LEV control until the meter indicates 60 ±2.0 μa.
	Note: If the requirement of Step 9 cannot be met, the repeater is probably malfunctioning in the W-E direction of transmission. Adjust the LEV control for an indication as near as possible to 60 μa and proceed to Step 10.
10	Set DETR switch to W-E ALT position.
11	Adjust W-E GAIN control until the meter indicates 60 ±2.0 μa or within ±2.0 μa of the compromise setting in Step 9. If these readings cannot be obtained, refer to Section 103-480-501.
12	Set DETR switch to E-W REG position.
13	Adjust LEV control until meter indicates 60 ±2.0 μa.
	Note: If the requirement of Step 13 cannot be met, the repeater is probably malfunctioning in the E-W direction of transmission. Adjust the LEV control for an indication as near as possible to 60 μa and proceed to Step 14.
14	Set DETR switch to E-W ALT position.
15	Adjust E-W GAIN control until the meter indicates 60 ±2.0 μa or within ±2.0 μa of the compromise setting in Step 13. If these readings cannot be obtained, refer to Section 103-480-501.
16	Set DETR switch to DETR BAL position.
17	Adjust DETR BAL control for a minimum indication on the meter. (Indication should usually be less than 3 μa.) If this indication cannot be obtained, refer to Section 103-480-501.
18	Set DETR switch to W-E NULL or E-W NULL position.
	Note: Switching of an in-service repeater may normally be accomplished in either the east-west or the west-east direction of transmission. However, if the repeater is malfuntioning in one direction of transmission (see Steps 9 and 13), then switching should be done in the other direction of transmission. For example, if a malfunction is indicated in Step 9, the DETR switch should be set to the E-W NULL position in Step 18.
19	Adjust OSC FINE control on alternate repeater (LO-HI or HI-LO, whichever is being switched) to its center position.
20	Adjust OSC COARSE control until the meter indicator is swinging below 40 μa.

STEP	PROCEDURE
21	Adjust OSC FINE control until the meter indicator swings below 20 μa. At that point the phase and amplitudes of the output signals of the REG and ALT repeaters will be nearly identical. (The rate of swing will decrease as the amount of swing increases.)
22	Operate TR switch to ALT position when, ***and only when,*** the meter reading is below 20 μa. After the switch is made, the regular repeater may be removed from its mounting.
23	To restore service to the regular repeater, insert a repeater into the mounting and set the slope adjustments on the repeater for the required slope setting. Allow 10 minutes for the repeater to stabilize.
24	Set DETR switch to W-E REG position.
25	Adjust LEV control until the meter indicates 60 ±2.0 μa.
26	Set DETR switch to W-E ALT position.
27	Adjust W-E GAIN control until the meter indicates 60 ±2.0 μa.
	Caution: Exercise care in this adjustment since the alternate repeater is now working in the system.
28	Set DETR switch to E-W REG position.
29	Adjust LEV control until the meter indicates 60 ±2.0 μa.
30	Set DETR switch to E-W ALT position.
31	Adjust E-W GAIN control until the meter indicates 60 ±2.0 μa.
	Caution: Exercise care in this adjustment since the ALT RPTR is now working in the system.
32	Set DETR switch to W-E NULL or E-W NULL position.
33	Adjust OSC FINE control on alternate repeater to its center position.
34	Adjust OSC COARSE control until the meter indicator is swinging below 40 μa.
35	Adjust OSC FINE control until the meter indicator swings below 20 μa.
36	Operate TR switch to REG position when, ***and only when,*** the meter reading is below 20 μa.
37	Insert a repeater connector into the vacant switching jack on the repeater mounting.
38	Disconnect the switching set transmission cord from the switching jack. Insert a connector plug into the remaining vacant jack.
39	Disconnect the switching set power cord from the test power connector.