TYPE O CARRIER TELEPHONE SYSTEM — REPEATERS
PRELIMINARY TESTS
PREPARATION AND PLACEMENT OF REPEATERS

This section gives the procedures for properly preparing and placing a repeater for service. Fig. 1 is a detailed drawing for such a preparation. Fig. 1 shows how to place the components of an HL or LH repeater, or a high or low group repeater amplifier for OA systems and how to adjust the power voltages. The illustration is for the left-hand repeater in the two-repeater mounting, but the steps apply for either the left-hand or right-hand repeater. If a repeater unit already in position is to be replaced with another, first remove the fuses associated with the repeater, replace the repeater unit, reinsert the fuses, and finally adjust the heater voltage or current.

The following preliminary checks should be made before starting with the step procedure.

For OB, OC, or OD repeaters the strapping of the terminals of the 200J, 200S, or 200T network mounted on the line network panel depends upon the combination of O systems that are connected to the open wire pair. The proper strapping connections (as shown in Table I) should be made at the time that the repeater is connected to the line, either at the line network panel for the first of the OB, OC, or OD repeaters on the pair, or by multipling to an existing repeater (or terminal in some cases). Any existing OB, OC, or OD system or systems on the pair must be taken out of service for these connections. Line network panels for OA repeaters and those equipped with 200K networks (which are for OB repeaters only) have no optional strapping. OA repeaters may be tested entirely independently of OB, OC, or OD systems as they are separated transmissionwise by a line filter.

TABLE I

TYPE O SYSTEMS MULTIPLED ON OPEN WIRE PAIR	NETWORK USED	STRAP TERMINALS
OB only	200J or 200T	1-3-5 and 2-4-6
OB, & OC	200J	1-5 and 2-6
OB, & OC, & OD	200J or 200T	no straps
OC only	200S	1-5 and 2-6
OD only	200S or	1-3 and 2-4
	200T	1-3-5 and 2-4-6
OC, & OD	200S	no straps
OB, & OD	200T	1-3-5 and 2-4-6

The optional strapping of terminals 11 and 19 on both repeater amplifier jacks on the repeater mounting should be checked. (This is "V" wiring option as shown on the repeater application schematic.) These terminals are strapped only for OA and OB repeaters. Since the mounting is shipped with this option, the strap must be removed for OC and OD repeaters.

For Pole-Mounted Repeaters

The pole-mounted cabinet and its contents are furnished as individual items. For the first installation at a given location the repeater mounting and its associated equipment may be placed in the repeater cabinet and the wiring within the cabinet may be completed at an inside location before the cabinet is placed on the pole. After the assembled cabinet equipment has been tested, mount the cabinet on the pole, complete the wiring to it and insert the plug-in units. Ac power must be available for connection to the cabinet. The type O line filters are mounted on the crossarms, and connections between the filters and the cabinet are made with the bridle wire.

Continuity tests should be made on the cabinet transmission wiring to insure continuity of wires and shields and that there are no shorts between wires and between wires and ground. In making connections involving EU wire, avoid sharp bends and tight lacings and use the wire directly under the wire braid as the shield wire; wrapping a wire around the braid and soldering to it will frequently result in shorts due to melting of the polyethylene insulation.

The reserve power supply cabinet is shopwired, but the battery and dynamotors are placed in the cabinet and connections are made to them after the cabinet is mounted.

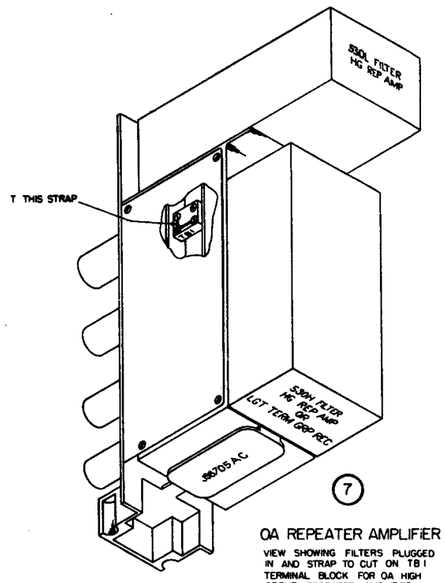
Where necessary to prevent snow blowing into the bottom of the pole-mounted cabinets the Celotex screen covers covering the lower ventilators may be placed in the cabinets in the fall when the daytime temperature no longer exceeds 50°F and should be removed in the spring before the daytime temperature exceeds 50°F. Where there is no danger from snow blowing into the cabinets, the screen cover should be removed and left out all of the time.

Unless otherwise specified all tests are applicable to office-mounted, hut-mounted, or pole-mounted repeaters.

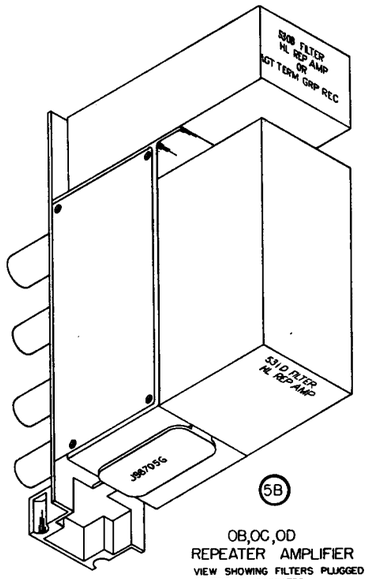
STEP	PROCEDURE
1	Slide the fuse panel part way into position indicated in Fig. 1.
2	Remove fuses.
3	Connect the power plug to receptacle behind the fuse panel and finish sliding the fuse panel into position.
4	A — For −48V heater operation, turn the 48V FIL potentiometer for repeater 1 to the most counterclockwise position. B — For +130V heater operation, turn FIL CUR potentiometer for repeater 1 to the most counterclockwise position.
5	A — For OB, OC or OD L-H repeater, slide two repeater amplifier units with proper filters (see Table II) into their proper position as shown in Fig. 1. B — For OB, OC or OD H-L repeater, side two repeater amplifier units with proper filters (see Table II) into their proper position as shown in Fig. 1.

TABLE II

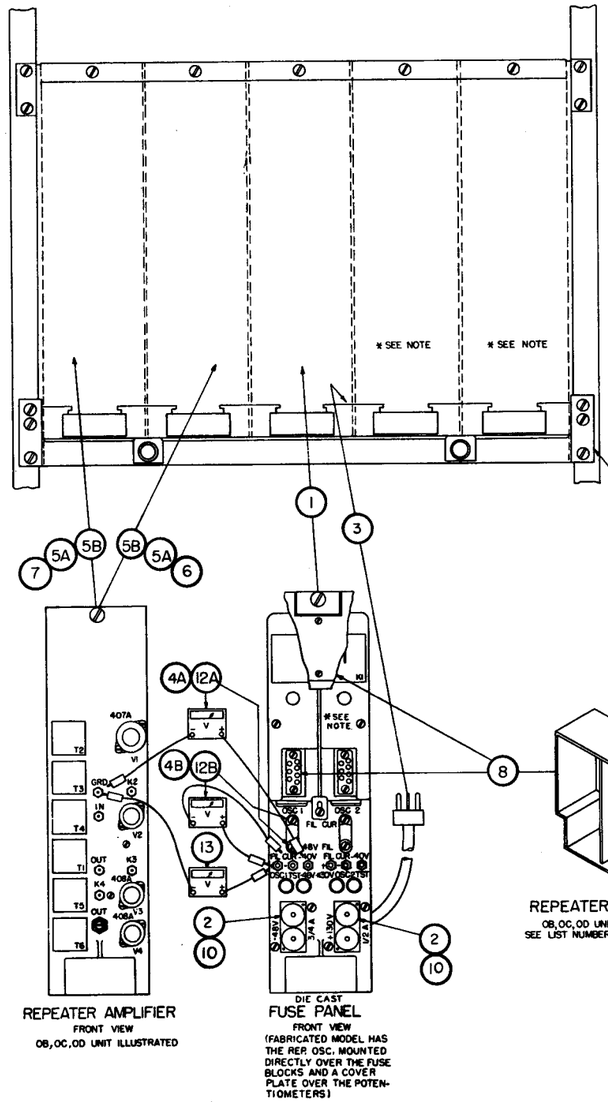
TYPE O REPEATER	FILTER USED IN TOP POSITION	FILTER USED IN BACK POSITION
OB	530A	531A
OC	530B	531D
OD	530E	531E



0A REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN AND STRAP TO CUT ON TB1 TERMINAL BLOCK FOR 0A HIGH GROUP REPEATER AMPLIFIER.



0B,0C,0D
REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN FOR HL REPEATER.
0C FILTERS USED FOR ILLUSTRATION.



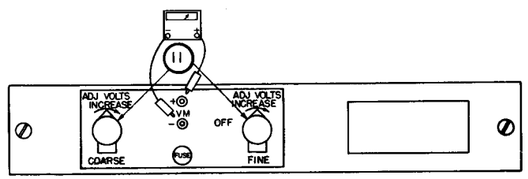
REPEATER AMPLIFIER
FRONT VIEW
0B,0C,0D UNIT ILLUSTRATED

DIE CAST
FUSE PANEL
FRONT VIEW
(FABRICATED MODEL HAS THE REP. OSC. MOUNTED DIRECTLY OVER THE FUSE BLOCKS AND A COVER PLATE OVER THE POTENTIOMETERS)

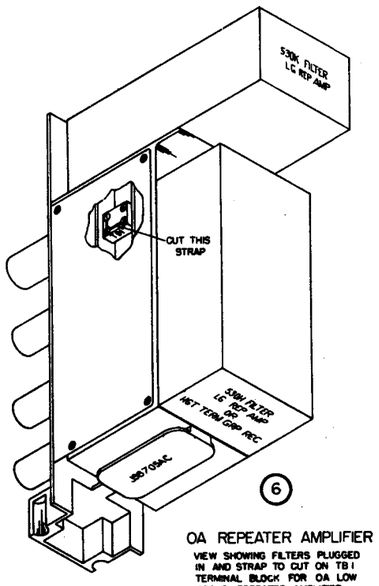
REPEATER OSCILLATOR
0B,0C,0D UNIT ILLUSTRATED
SEE LIST NUMBER ON REAR OF UNIT

* NOTE: THESE POSITIONS ARE USED WITH REP 2. ON THE FUSE PANEL THE RIGHT HAND FIL CUR AND 40V JACKS, THE RIGHT HAND 48V FIL AND FIL CUR POTENTIOMETERS, THE OSC 2 TST KEY, AND THE BOTTOM FUSES IN THE FUSE BLOCKS ARE USED WITH REP 2. THE STEPS FOR PREPARATION OF REP 2 ARE THE SAME AS FOR REP 1.

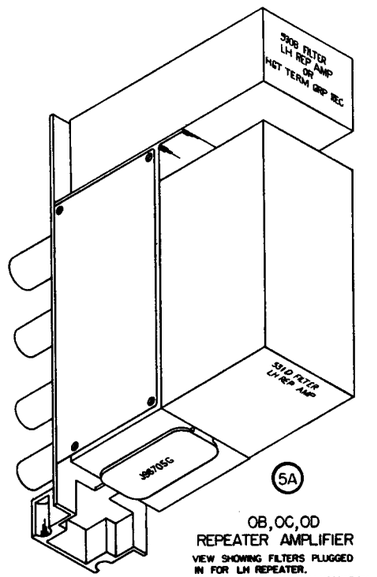
COVER PLATE
FRONT VIEW



J86256B, L1 130V. RECTIFIER
FRONT VIEW



0A REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN AND STRAP TO CUT ON TB1 TERMINAL BLOCK FOR 0A LOW GROUP REPEATER AMPLIFIER.



0B,0C,0D
REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN FOR LH REPEATER.
0C FILTERS USED FOR ILLUSTRATION.

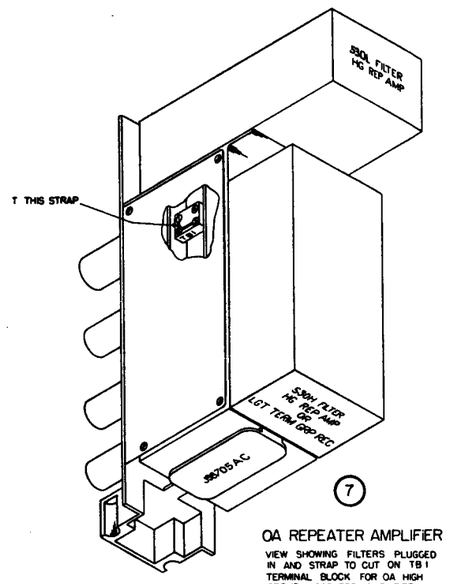
Fig. 1 – Preparation and Placement of Repeaters

STEP	PROCEDURE
6	For an OA repeater, low group unit, cut strap on TBI as shown in Fig. 1, slide unit with filters arranged as shown into the position indicated.
7	For an OA repeater high group unit, cut strap on TBI as shown in Fig. 1, slide unit with filters arranged as shown into the position indicated.
8	Remove cover plate on top of fuse panel and slide the proper repeater oscillator unit (see Table III) into position in fuse panel. Replace the cover plate.

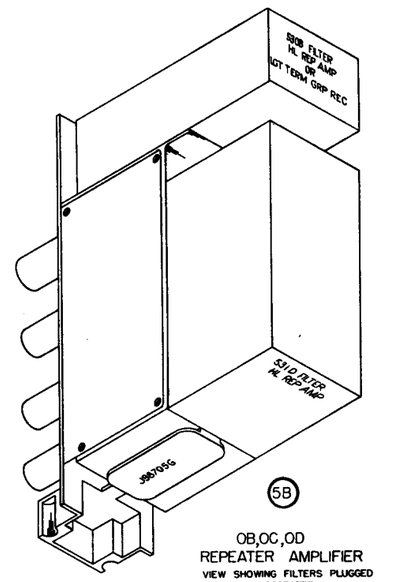
TABLE III

TYPE O REPEATER	OSCILLATOR FREQUENCY	OSCILLATOR LIST NUMBER
OA	Dummy	L4
OB	116 KC	L1
OC	196 KC	L2
OD	276 KC	L3

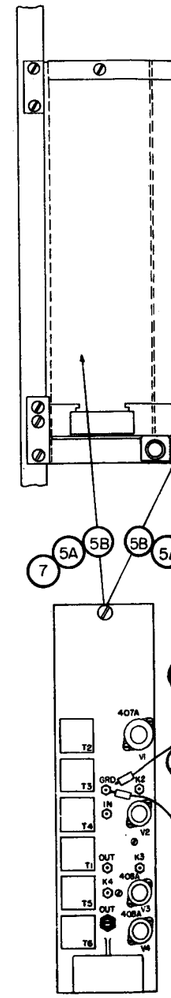
9	Fasten cover plate in position.
10	Reinsert fuses.
11	If using J86256 B LI 130V rectifier, turn it on and adjust the controls to give 130V between + and − jacks on rectifier as measured with the KS-14510 L5 — volt-ohm-milliammeter.
12	A — For −48V heater operation — adjust 48V FIL potentiometer in accordance with Section 362-210-501. B − For +130V heater operation — adjust FIL CUR potentiometer in accordance with Section 362-210-501.
13	Connect the voltmeter between +FIL CUR jack and ground and check that plate voltage is 130 ± 10 volts.



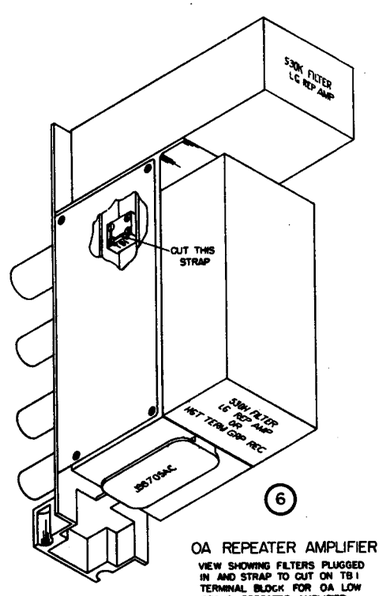
OA REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN AND STRAP TO CUT ON TB I TERMINAL BLOCK FOR OA HIGH GROUP REPEATER AMPLIFIER.



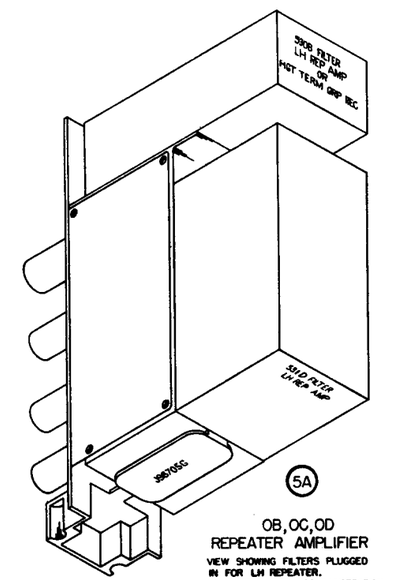
OB,OC,OD
REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN FOR HL REPEATER.
OC FILTERS USED FOR ILLUSTRATION.



REPEATER AMPLIFIE
FRONT VIEW
OB,OC,OD UNIT ILLUSTRAT



OA REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN AND STRAP TO CUT ON TB I TERMINAL BLOCK FOR OA LOW GROUP REPEATER AMPLIFIER.



OB,OC,OD
REPEATER AMPLIFIER
VIEW SHOWING FILTERS PLUGGED IN FOR LH REPEATER.
OC FILTERS USED FOR ILLUSTRATION.