TYPE L3 CARRIER SYSTEM
MAIN AND TERMINAL REPEATER POWER SUPPLIES
(CONSTANT VOLTAGE FEED)

This point section describes main and terminal repeater (constant voltage feed) power supply measurements on the Type L3 carrier system and is reissued to add a heater 2 bias test to detect a shorted filtering capacitor on the HTR 2 leads of an amplifier.

This section describes power supply voltage measurements on the following power supplies:

(A) Filament and Bias

(B) 130-Volt MET RECT

(C) Plate Supply

(D) HTR 2 BIAS

APPARATUS:

1AL Power Test Set

1 — Adapter Cord per Fig. 3

Caution: The measurements described in this section can be made on an "in service" basis. The power supply voltages should not be interrupted as this interruption will cause objectionable hits and possible line switching on the carrier system.

Fig. 1. Block schematic showing the source of power for each power supply at a switching or terminal main repeater (constant voltage feed).

Fig. 2. Block schematic showing the source of power for each power supply at an equalizing main repeater (constant voltage feed).

Fig. 3. Special adapter cord to be constructed in field to make test in Part (D).

Caution: Power for the line amplifiers, regulators and switching equipment bias is taken from the 230 volt regulated supply. As shown in the drawings whenever power is removed from the power loop the 230 volt regulated supply is also turned off and the above equipment will be affected. At a switching main or terminal repeater an interruption of the 230 volt unregulated supply will also affect the line connecting equipment.

STEP	PROCEDURE
	MAIN AND TERMINAL REPEATERS (CONSTANT VOLTAGE FEED)
1	Read UNREG voltage on power control panel meter. Readjust, if necessary, the alternator voltage to as near 230 volts as possible.
2	Read REG voltage on power control panel meter. ***Requirement:*** Voltage with switch in REG position should read ±5 volts. If requirement is not met, refer to Section 359-020-513 (D) Line Current Readjustment.

STEP	PROCEDURE
3	**(A) Filament and Bias** ***Procedure:*** Connect the test set to the TST connector on the filament and bias supply to be measured. Measure and record the filament and bias voltages for each filament and bias power supply as shown:

1AL SET MTR SW POSITION	POS. of TST SW ON FIL & BIAS SUP	REQUIREMENT	ADJUSTMENT
HTR 1	BIAS and HTR 1A	6.6 to 6.8	See Note
HTR 2	any	"	"
HTR 1	BIAS and HTR 1B	"	"
BIAS 1	BIAS and HTR 1A	98 to 104	Replace V1
"	BIAS and HTR 1B	"	Replace V2
BIAS 2	any	"	Replace V3
BIAS 3	BIAS 1A	55 to 65	ADJ BIAS 1A
"	BIAS 1B	"	ADJ BIAS 1B
"	BIAS 2	"	ADJ BIAS 2

Note: Adjust HTR A or HTR B on the appropriate filament and bias supply panel to meet HTR 1 requirement. The requirement given is expected, with a mean voltage, to produce 6.2 volts on the individual transmission and control panel. HTR 2 voltage is not individually adjustable and in case the requirement cannot be met after adjusting HTR 1, a trouble condition in either HTR 1 or HTR 2 is indicated. HTR 2 voltage is furnished by transformer T2, which supplies HTR 1B voltage. HTR 2 voltage is not brought to the TST jack for measurement.

4 **(B) 130 Volt MET RECT**

Procedure: Connect the test set to the TST connector on the 130 MET RECT to be measured. Measure and record the bias voltage as shown:

1AL SET MTR SW POSITION	TST CONNECTOR	REQUIREMENT
BIAS 2	130V MET RECT	97-103

If requirement is not met adjust the ADJ VOLTS control on the MET RECT to as near 100 volts as possible.

5 **(C) Plate Supply**

Procedure: Connect the test set to the TST connector on the plate power supply to be measured. Measure and record the plate voltages for each power supply as shown:

1AL SET MTR SW POSITION	TST CONNECTOR	REQUIREMENT
PLT 1	190V MET RECT	185 to 195 (a)
PLT 2	315V MET RECT	307 to 322 (b)

If requirement (a) or (b) is not met adjust the ADJ VOLTS control on the appropriate rectifier panel so that the voltage reading is as near as possible to 190 volts for PLT 1 and 315 volts for PLT 2.

Note: When work is to be done on any of the rectifiers which furnish power to the local repeater equipment, coaxial line power need not be turned off at the power control bay. These power supplies may be turned off by removing the ac fuse in the power units themselves or by operating the circuit breakers on the later model power supplies.

TYPICAL POWER SUPPLY ARRANGEMENT-SWITCHING OR TERMINAL MAIN REPEATERS
(CONSTANT VOLTAGE FEED)

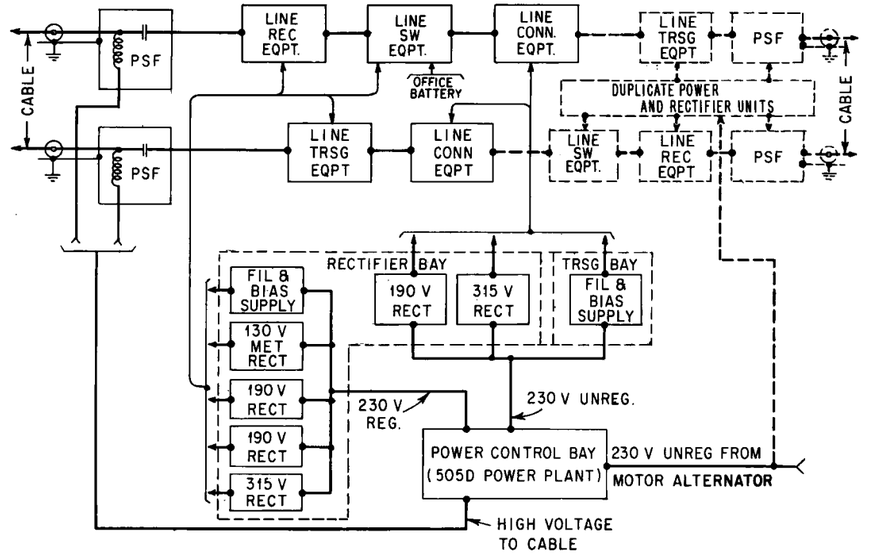

FIG. 1

TYPICAL POWER SUPPLY ARRANGEMENT-EQUALIZING MAIN REPEATER
(CONSTANT VOLTAGE FEED)

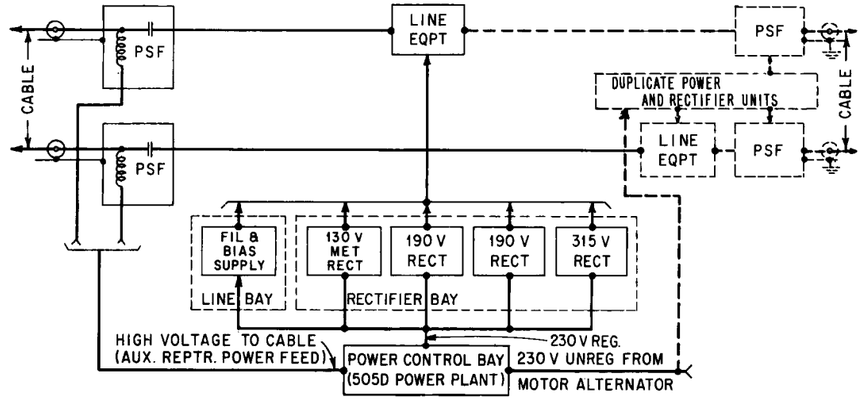

FIG. 2

Fig. 1 and 2 — Typical Power Supply Arrangement (Constant Voltage Feed)
Switching or Terminal Main Repeaters
Equalizing Main Repeater

STEP	PROCEDURE
	(D) HTR 2 BIAS
6	The heater 2 bias test is made to detect a shorted filtering capacitor on the HTR2 leads of an amplifier. To implement this test with the J64001 AL power test set, it will be necessary for the field to construct an adapter cord per Fig. 3. The function of the adapter cord is to transfer one of the HTR2 supply leads to the PLT 1 test lead in the V TST connector of the test set.
7	Connect the adapter cord per Fig. 3 between the V TST plug on the 1AL test set and V TST jack in any transmission panel.
8	Arrange the 1AL test set controls for making a PLT 1 voltage test. ***Requirement:*** The reading in the 1AL test set should not be less than 120 volts. ***Note:*** If this requirement is not met, this is an indication that one or more of the amplifiers at the repeater under test has a defective filtering capacitor on the HTR 2 supply leads. The faulty amplifier may be determined by removing the power connector from one amplifier at a time until the requirement is met, thereby indicating that the final amplifier having its power removed is the one that is defective. ***Caution: It is imperative to make certain, before removing an amplifier power connector, that the line containing that amplifier has been switched out of service. At switching or terminal repeaters where transmitting flat amplifiers are involved their power connector should be removed last to avoid what may be an unnecessary switching operation if the trouble is found to be in one of the other amplifiers.*** Since the bias on the HTR 2 supply leads is normally a minimum of 180 volts at an auxiliary repeater, the 1AL test set would read 180 volts if the 0.1 Meg. limiting resistor between the PLT 1 power supply and the HTR 2 supply leads were not present. The limiting resistor acts as an additional multiplier resistor in series with the meter in the test set thereby affecting the calibration of the voltmeter scale. A reading of 120 V. on the meter corresponds approximately to a 180 V/bias. In general, when one of the capacitors on the HTR 2 leads on an amplifier breaks down the impedance across it is so low that the bias potential drops to zero.

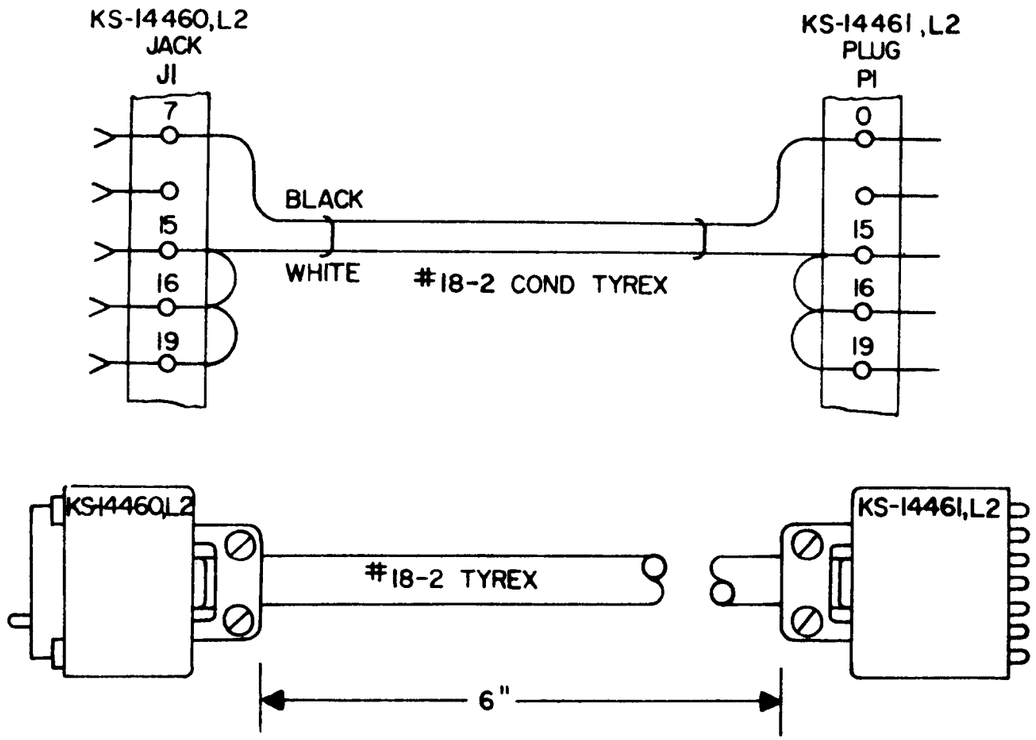

Fig. 3 – Adapter Cord for 1AL Power Test Set