

Figure 1. Low Power Control Head TLF7060A

1. DESCRIPTION

The 900 MHz Low Power Control Head (LPCH), shown in Figure 1, generates a control signal which replaces the final voltage signal output normally generated by the Final Power Amplifier (FPA) in a *PURC 5000* Paging Transmitter. The LPCH is specifically designed for a low output power transmitter (where an FPA is not used). The printed circuit board containing the active components is mounted in a cast housing having a type N female connector mounted at one end and a type N male connector mounted at the other end. The unit is physically connected between the single-stage circulator and the Low Pass Filter. The circulator also has one port connected to the Intermediate Power Amplifier (IPA).

2. THEORY OF OPERATION

The only function of the LPCH is to produce a forward voltage signal in response to the application of forward rf power. Because the IPA is effectively the final rf power amplifier stage in the 5 Watt transmitter, the forward voltage signal from the LPCH replaces the forward voltage signal normally produced by the FPA. This signal is used to level the power control loop. The LPCH covers the frequency spectrum from 928 to 960 MHz and produces a typical voltage of 3 to 5 volts for a 5 Watt rf output. The REVERSE port of the LPCH is unused and is shorted to ground to prevent the coupling of unwanted rf energy into the LPCH. See Figure 2 for a schematic diagram of the LPCH.

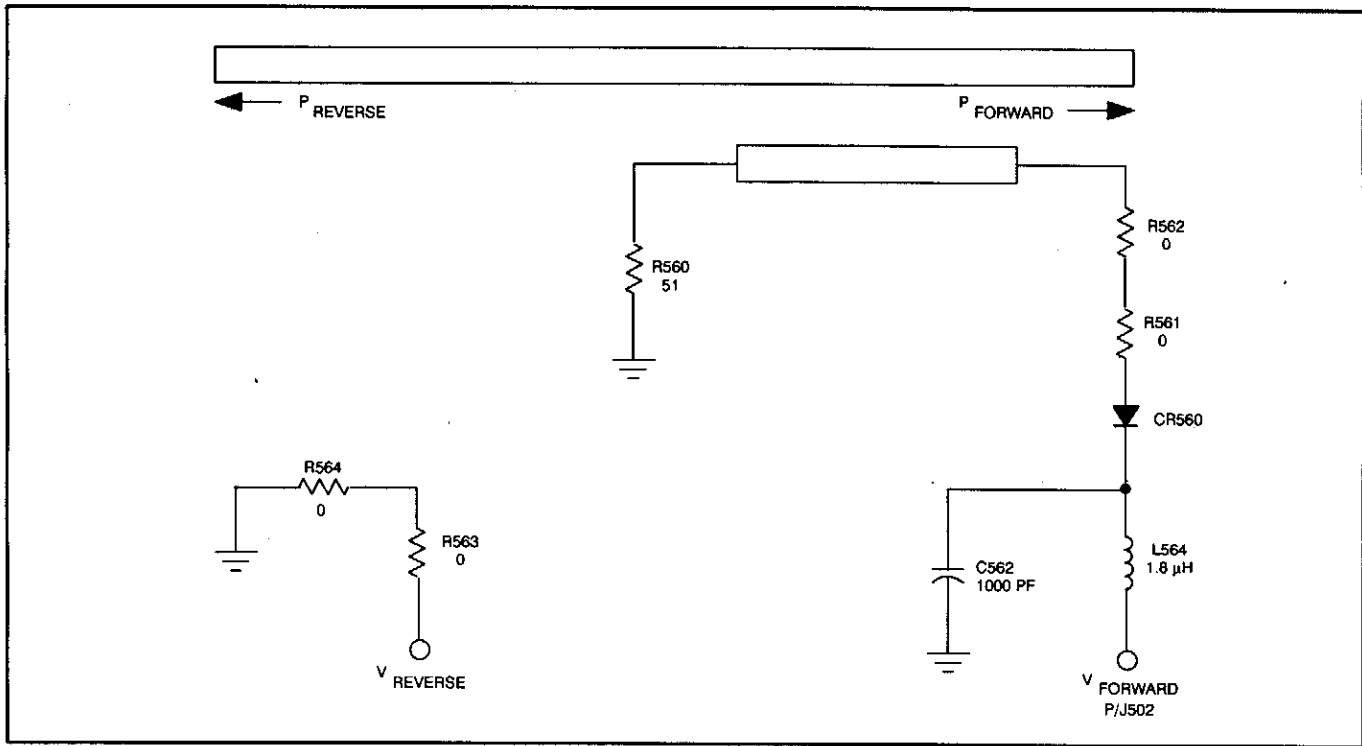


Figure 2. Low Power Control Head Schematic Diagram

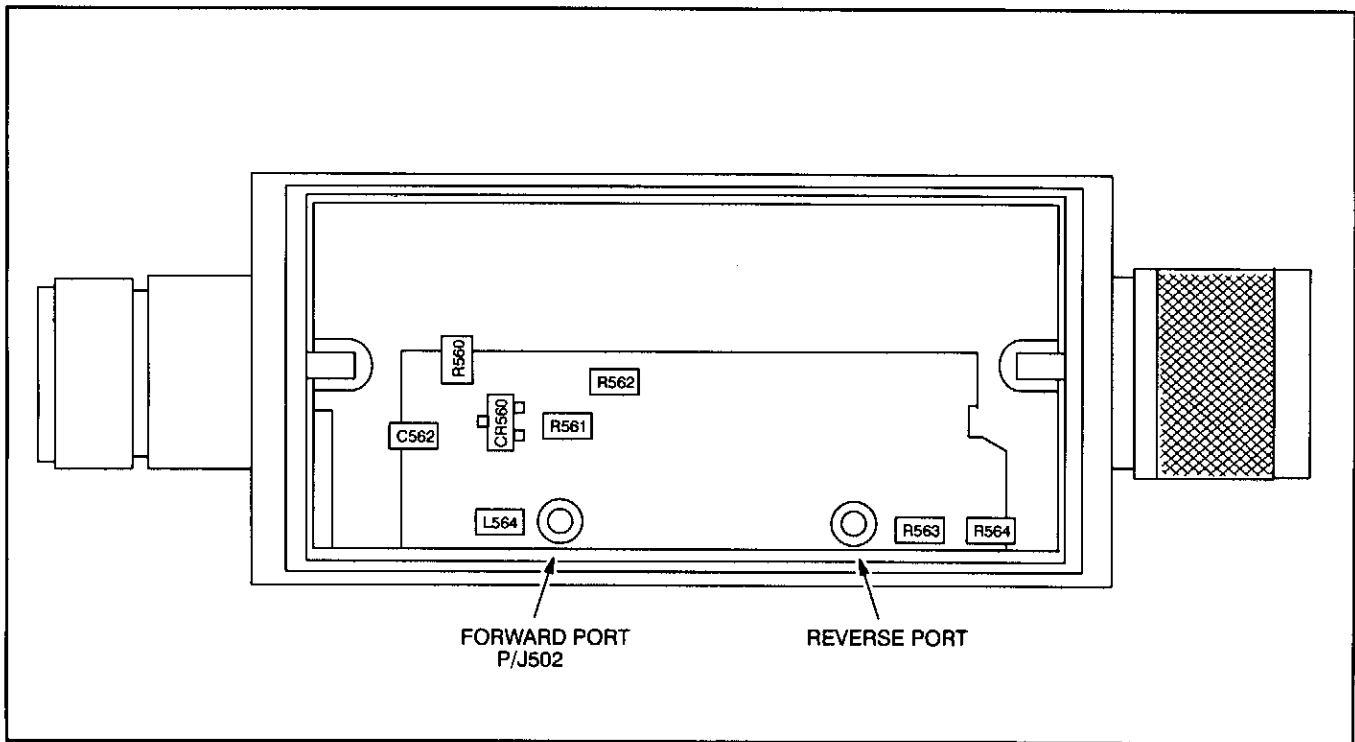


Figure 3. Low Power Control Head Parts Location

3. TROUBLESHOOTING

Perform the following procedure to verify correct operation of the Low Power Control Head.

Step 1. Verify that the Intermediate Power Amplifier (IPA) is producing rf power by performing the IPA and 9.6 Volt Regulator Troubleshooting Procedure, with the following change:

The minimum power output from the cable connected to the rf peripherals must be at least 6.2 Watts for proper operation of the 900 MHz, 5 Watt station

Step 2. If the IPA is producing the required amount of power, place the station in the service mode and ensure that the IPA is properly connected to the Single Stage Circulator (the LPCH and Low Pass Filter should also be connected in the normal station configuration).

Step 3. Connect a 50-ohm load to the output of the station and key the station.

Step 4. If no rf power is presented to the load, check each rf peripheral (Single Stage Circulator, LPCH, Low Pass Filter, associated cables, and connectors) for conti-

nunity. Replace any questionable components and repeat the test procedure.

Step 5. If rf power is present at the load, disconnect the cable which connects the LPCH to the Interconnect Board and measure the output voltage of the FORWARD port of the LPCH into this open load.

Step 6. The voltage measured in Step 5 should be between 5.5 V and 11.5 V. If the voltage is out of range, replace the LPCH.

Step 7. If the voltage measured in Step 5 is within range, reconnect the cable from the LPCH to the Interconnect Board and verify that the voltage output from the LPCH is present at the input to the Interconnect Board.

Step 8. If the LPCH output voltage is not present at the Interconnect Board, disconnect the cable from the Interconnect Board and verify continuity. Replace the cable if required.

Step 9. If the output voltage from the LPCH is present at the Interconnect Board, the Interconnect Board and/or the Uniboard require service/troubleshooting. Refer to the appropriate section in this manual for further information.

parts list

TLF7060A Low Power Control Head, 900 MHz, 5 Watt		
REF. SYMBOL	PART NO.	DESCRIPTION
		capacitor, fixed:
C562	2113740B73	1000 pF, ±5%; 50V
		diode: (see note)
CR560	4882290T04	Schottky type
		connector:
J560	0985388U01	female; type N
J561	2885389U01	male; type N
		inductor:
L564	2411087A29	1.8 UH
		resistor, fixed:
R560	0611072A18	51 ohms, ±5%; 1/4W
R561 thru 564	0611077A01	0 ohm, ±5%; 0W
		non-referenced items:
	0310943J11	SCREW, tapping: TT3 x 0.5 x 10 (4 used)
	1584175T01	HOUSING, wattmeter
	1584176T01	COVER, wattmeter

NOTE: For optimum performance, diodes must be ordered by Motorola part number.