

LTC-905  
CURVE TRACER  
SERVICE MANUAL

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NOTE

These servicing instructions are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing other than that contained in the service manual unless you are qualified to do so.

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## 1. Test Equipment Required

The following test equipment is required for calibration and servicing of the Model LTC-905. The suggested specifications are the minimum necessary for proper calibration of this instrument.

Test Equipment	Minimum Spec.
o Multimeter	Accuracy < $\pm 1\%$
o Oscilloscope	10mV sensitivity 1MHz band width

## 2. Calibration Procedure

\* Calibration should be performed after a 30 minute warm-up period. It should also be confirmed that the unit is connected to the rated power line voltage.

\* All adjustment should be completed in the given order, because some adjustments interact with others.

\* During the adjustment procedure, remove the case only when necessary and replace immediately after making an adjustment. This will maintain all circuit at constant operating temperature.

### 1) Initial Control Settings

The initial control settings to be used for each check and adjustment are listed below. Any variations from these settings are stated in the applicable procedure.

o POLARITY	NPN
o CURRENT LIMIT	SIGNAL
o BASE / GATE CURRENT / VOLTAGE	0.1mA
o COLLECTOR/DRAIN SWEEP VOLTAGE	10V
o TRANS.-FET	TRANS.
o SELECTOR	A

2) Power Supply

- a) Connect DC voltmeter between the test point and chassis.
- b) Check the voltage according to Table-1

Test point	Voltage	Tolerance
D106	+5V	+4.5V to +5.5V
D105	+9V	+8.2V to +10.5V
D107	-9V	-8.2V to -10.5V

Table-1

3) Staircase Generator

a) 0 Level Adjustment

- o Connect the DC oscilloscope to BASE/GATE jack.
- o Adjust STEP 0 ADJ (VR101) for minimum base line shift when POLARITY is switched between NPN and PNP as shown in Figure-1

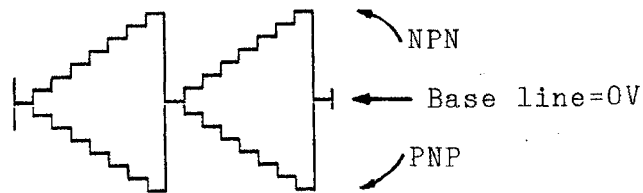


Figure-1

b) Amplitude Adjustment

- o Connect the oscilloscope to BASE/GATE jack.
- o Adjust NPN STEP ADJ (VR102) for amplitude of 3.5Vp-p with seven steps as shown in Figure-2.

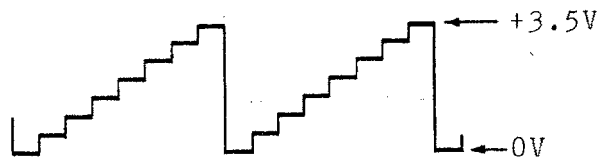


Figure-2

- o Set the POLARITY switch to PNP.
- o Adjust PNP STEP ADJ (VR103) for amplitude of 3.5Vp-p with seven steps as shown in Figure-3

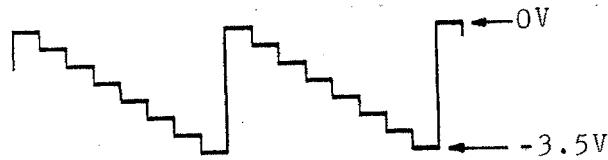


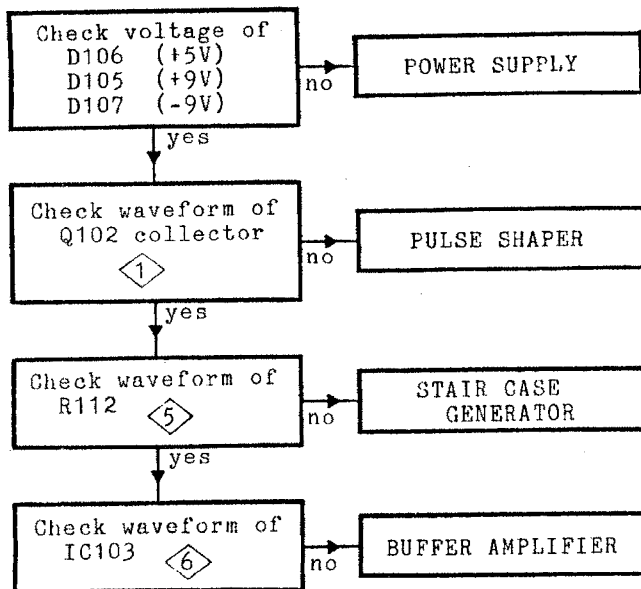
Figure-3

- o Repeat a) and b) if necessary.

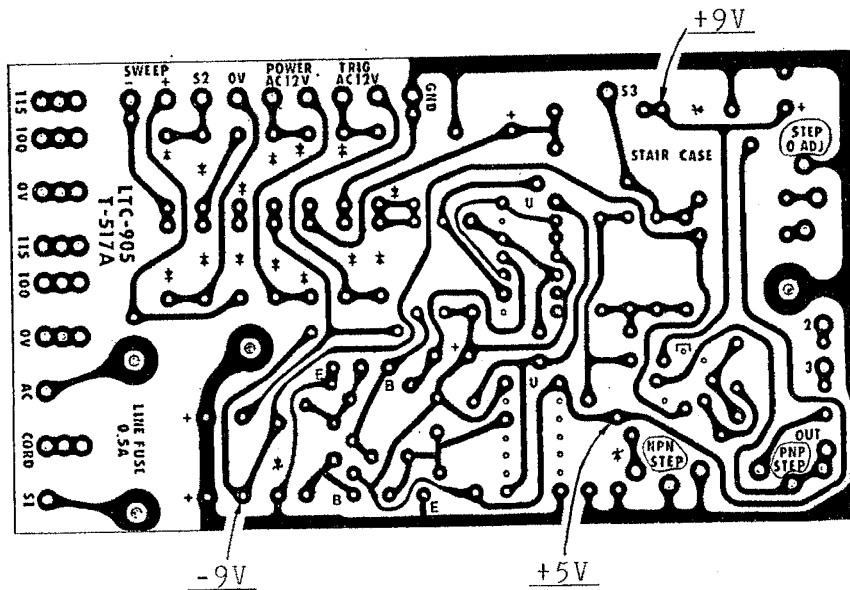
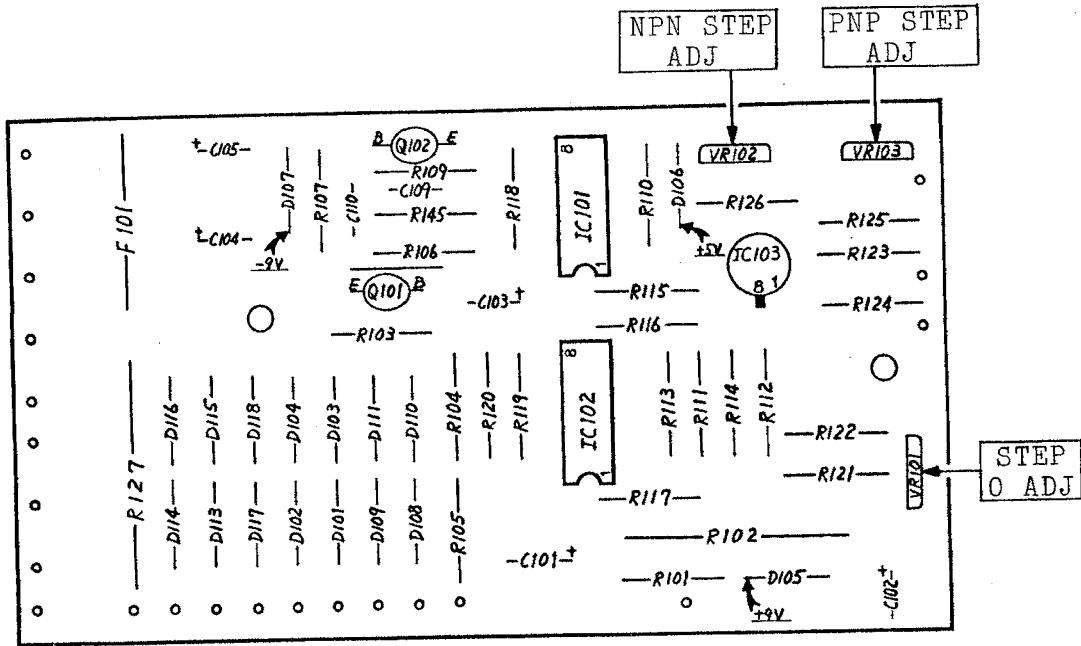
### 3. Troubleshooting Procedure

- 1) Check all control settings, because an incorrect setting can make a good unit appear defective.
- 2) Some trouble can be solved with proper adjustment.
- 3) Check the DC voltage and waveform as shown in the schematic diagram to locate the defective circuit. Start with the power supply.
- 4) Check all circuit for visual defects such as broken components, loose connections and poor soldering which could be a cause of trouble.

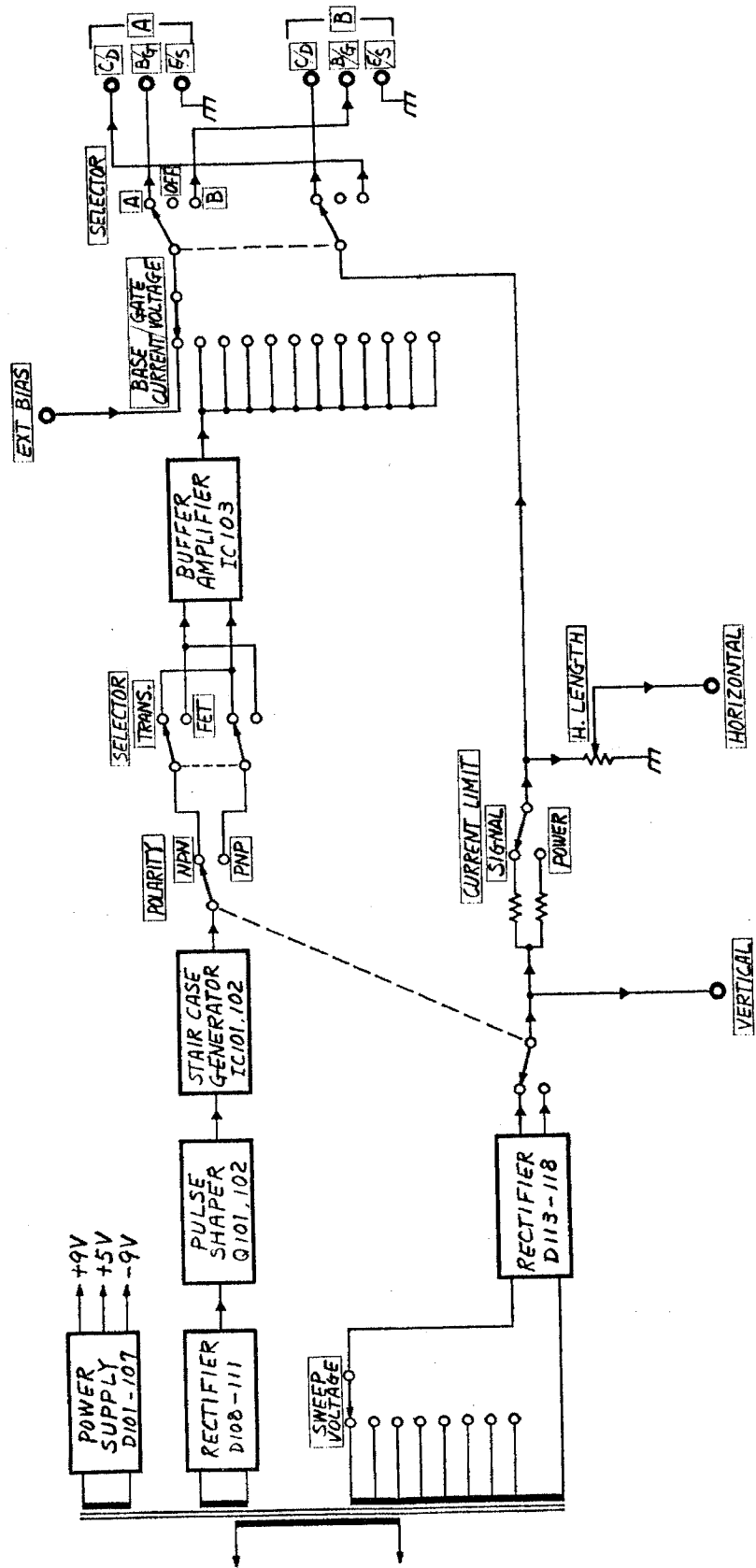
### 5) Troubleshooting Chart



4. Printed Circuit Board &  
Location of Adjustment



5. Block Diagram



# 6. Schematic Diagram

