but do not move response more than ±2 dBm from the theoretical response curve (refer to Figure 5-9 and to paragraph 5-73). If further adjustment is indicated, there is trouble in the record/reproduce process not correctable by equalization adjustment.

NOTE

The test tape is recorded full track. When reproduced by a half-track or multi-track head, the "fringing" effect produces invalid response at frequencies below 700 Hz (15 and 7-1/2 ips). This effect, which results in high indications in the lower frequencies, does not occur when tapes are recorded and reproduced with heads mounted in the same configuration.

i. For tests at 7-1/2 ips tape speed, as the last tone is reproduced, adjust the REPRODUCE LEVEL control for a vtvm indication of +8 dBm, or +4 dBm (depending on equipment strapping). The VU meter should indicate 0 (±3/4 dB).

NOTE

This completes the reproduce equalization adjustment and reproduce level setting, as required for record calibration. Do not change this reference level until after step q.

j. Wind the test tape on its original reel in the reproduce mode and remove the reel.

k. Connect the signal generator to the INPUT connector, with the vtvm still connected to the output.

l. Set the signal generator to provide a nominal 1-volt rms output at the frequency that applies: at 15 ips, 1,000 Hz; at 7-1/2 ips, 500 Hz.

m. Thread blank tape on transport. Set OUTPUT SELECTOR switch to BIAS, and MODE SELECTOR switch to RECORD. Start the tape in motion, with the test channel operating in the record mode.

n. Adjust the ERASE ADJ control, (at bias amplifier module front) for a VU meter peak indication, then readjust the BIAS CAL control as necessary to keep the VU meter indicator on scale.

o. Set OUTPUT SELECTOR switch to REPRO. Adjust BIAS ADJ control for maximum output indication on vtvm, turning it clockwise.

p. Reset OUTPUT SELECTOR to BIAS. Adjust BIAS CAL control for a 0 VU meter indication.

q. Reset OUTPUT SELECTOR switch to REPRO. Set the signal generator for a 500 Hz output. Adjust RECORD LEVEL control for a vtvm indication of +8 or +4 dBm, depending on equipment output strapping.

r. Set OUTPUT SELECTOR switch to INPUT. Adjust REC CAL control (at record module front) for a 0 VU meter indication.

s. Disconnect the signal generator from INPUT connector.

t. Repeat steps b through i for the second tape speed, using the correct speed test tape and adjusting the applicable HIGH FREQ control as necessary.

u. Repeat the complete procedure for each channel (steps a through t).

## 5-73 RESPONSE CURVE CHECK

5-74 Setups for response curve checks are given in Figure 5-7 and 5-8. Response curves for record and reproduce are shown in Figure 5-9. To check these curves proceed as follows:

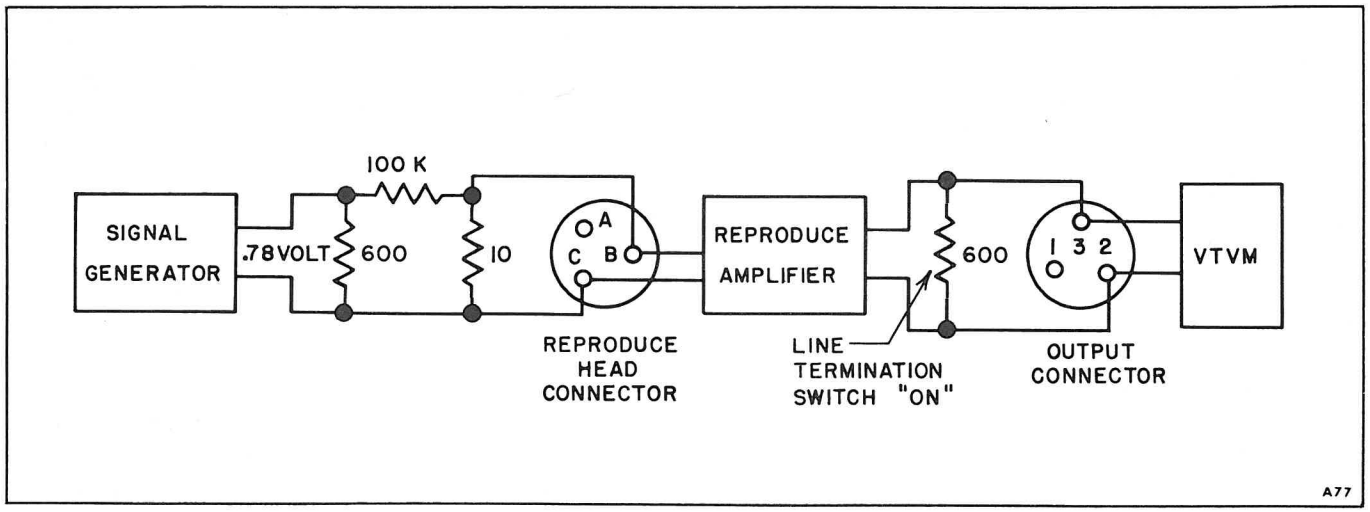


Figure 5-7. Reproduce Response Check Setup

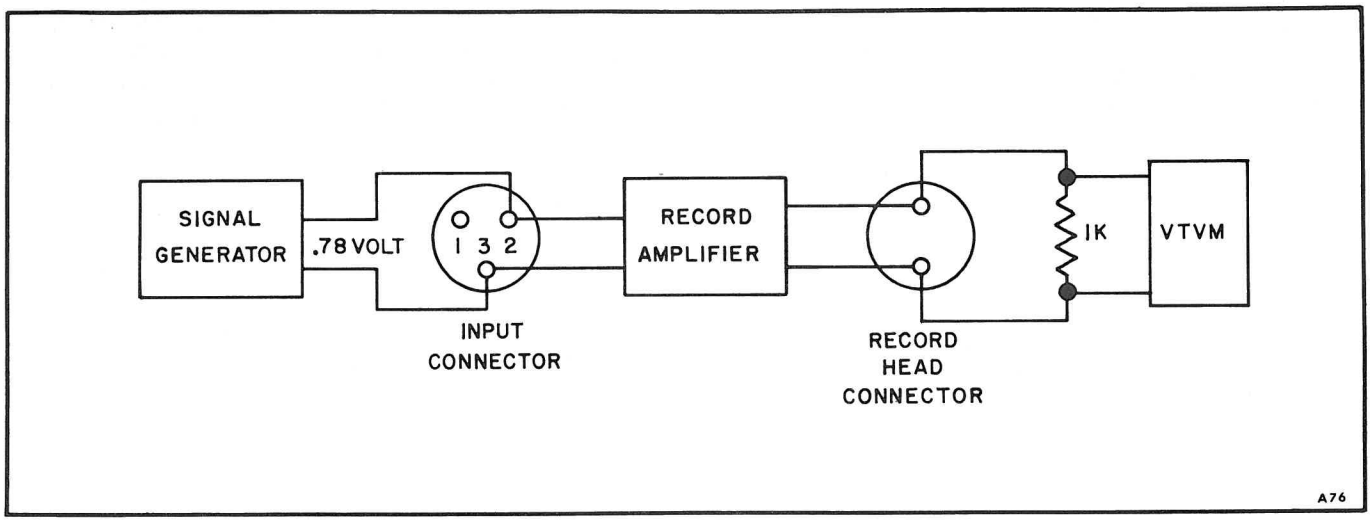


Figure 5-8. Record Response Check Setup

a. Disconnect the head cables, input cable, and output cable from the receptacles.

b. Connect the signal generator and the vtvm as shown in Figure 5-7 or 5-8.

c. Set the generator for a 0.78-volt (0-dBm) output.

d. To check the record amplifier curve, remove the bias amplifier plug-in circuit board. Secure the end of the tape tension arm in position away from the safety switch, and initiate the record mode.

e. To check the reproduce amplifier curve, turn power ON, then operate the

generator in small uniform steps over the specified frequency range for the set tape speed. Adjust the equalization controls to set the amplifiers to the applicable response curve.

f. Reinstall the bias amplifier board and reconnect the cables.

5-75 LOW-FREQUENCY REPRODUCE EQUALIZATION

5-76 This procedure will seldom be rep quired. The cover must be removed from the front panel of the reproduce/record unit (front cover on the reproduce electronic tray).

5-77 The reproduce circuit is adjusted to compensate for head "bumps" which occur at low frequencies. The adjustment of a reproducer requires that the head track configuration be the same as on the recorder that made the tape.

a. Connect the vtvm to the OUTPUT connector.

b. Connect the signal generator to the INPUT connector and set it to 500 Hz at a nominal 1-volt rms level.

c. Apply power to equipment. Set tape speed.

d. Thread blank tape on equipment.

e. Set OUTPUT SELECTOR switch to INPUT, and adjust the RECORD LEVEL control as necessary for a normal record level (+8 dBm or +4 dBm, depending on equipment output strapping) as indicated on the vtvm.

f. Set OUTPUT SELECTOR switch to REPRO, and start the tape in motion with the test channel operating in the record mode.

g. Adjust REPRODUCE LEVEL control as necessary for a normal operating level (+8 dBm or +4 dBm, depending on equipment output strapping) as indicated on the vtvm.

h. While thus simultaneously recording and reproducing, vary signal generator frequency from 250 Hz to 30 kHz, and note the magnitude of any positive-going or negative going head "bumps".

i. Adjust the applicable LO FREQ control (at front of reproduce board) for the flattest possible response, within specifications. This is done by adjusting head "bump" excursions for an equal magnitude above or below the reference frequency of 500 Hz.

j. Repeat steps h and i for the second tape speed.

k. Repeat the complete procedure for each channel.

5-78 RECORD EQUALIZATION

5-79 Remove the small cover over the record/reproduce plug-in modules and proceed as follows:

a. Perform steps a through d of the previous paragraph.

b. Set OUTPUT SELECTOR switch to INPUT, and adjust the RECORD LEVEL control for the vtvm indication shown in Table 5-6 (this establishes the 500 Hz reference level).

c. Change the frequency of the signal generator to conform to the tape speed: at 15 ips, 18,000 Hz; at 7-1/2 ips, 15,000 Hz.

d. Start the tape in motion, with the test channel operating in the record mode.

e. Set OUTPUT SELECTOR switch to REPRO.

f. While thus simultaneously recording and reproducing, change the signal generator frequency in uniform steps over the upper half of the response spectrum for the applicable tape speed. Adjust HI SPEED or LOW SPEED control (at front of record board) for the flattest possible high-frequency