

A prerequisite for any alignment is that measurements be made while the recorder is fed with an adjustable and constant supply voltage of 6 volts.

R 4, RF-Bias. The RF-Bias influences the frequency response of the recorder. The voltage mentioned below is a mean value; the final adjustment should only be made after the frequency response has been checked. Connect an audio-frequency VTVM via a voltage divider to point A in accordance with Fig. 1. Adjust for a VTVM reading of 250 millivolts by means of the variable resistor R 4. If this value cannot be attained, first check the alignment of the RF block circuit. Set the recording level control at zero. Connect an audio-frequency VTVM across the contact 2 of the "Accessories" socket and contact 2 (2 = chassis) of the "Radio/Phono" socket and adjust for a minimum reading by sliding the ferrite core of the coil 561-23613.

R 11, Recording Level Indication. Connect an audio oscillator across the contacts 1 and 2 (2 = chassis, of the "Radio/Phono" socket and feed a signal of 1,000 Hz at approximately 10 millivolts. Connect an audio-frequency VTVM across the contact 2 of the "Accessories" socket and contact 2 (2 = chassis) of the "Radio/Phono" socket. Depress the recording key! Adjust, by means of the recording level control, a VTVM reading of 1.4 volts. Now adjust the recording level meter to read zero db, by means of the variable resistor R 11.

R 19, Negative Feedback of the First Stage of the Amplifier. Readjustment will only be necessary after the sound head or the transistor has been replaced. An audio-frequency VTVM and an oscilloscope are connected in parallel across the contact 2 of the "Accessories" socket and contact 2 (2 = chassis) of the "Radio/Phono" socket. Connect an audio oscillator across the contacts 1 and 2 (2 = chassis) of the "Radio/Phono" socket and feed a signal of 1,000 Hz at approximately 10 millivolts. Record this signal at 7 1/2 ips and at full recording level on UHER Test Tape. Simultaneously, the audio-frequency VTVM must read 1.4 volts and the oscilloscope must show an undistorted sine-wave. Rewind the tape and play back the recorded signal. Adjust for a VTVM reading of 1V by means of the variable resistor R 19. The oscilloscope must show an undistorted sine-wave (see Fig. 2).

R 65, Initial Current and R 64, Balancing of the Output Stage. Break the connection to contact A 6 and interpose a milliammeter (range 15 mA; internal resistance 19 ohms) and adjust an initial current of 5 mA by means of the variable resistor R 65. If an initial current of 5 mA cannot be attained, provisionally adjust the variable resistor R 64 accordingly.

Disconnect the loudspeaker and bridge the loudspeaker output with a 4-ohms resistor. Connect an oscilloscope across the loudspeaker output. Unsolder the connection to contact A 5. Connect an audio oscillator across the contacts A5 and A2 (A2 = chassis) and feed a signal of 1,000 Hz. Vary the output voltage of the audio oscillator within the range of 200 to 350 millivolts until the oscilloscope shows a sine-wave similar to that shown in Fig. 3. Adjust for symmetry of the sine-wave by means of the variable resistor R 64 (see Fig. 4). Reduce the output voltage of the audio oscillator until the sine-wave has a shape similar to that shown in Fig. 2. Adjust the variable resistor R 65 so that the lateral displacement between the two half-waves of the sine-wave becomes a maximum as shown in Fig. 5. Then slowly turn back R 65 until the lateral displacement has just disappeared and there is a smooth transition between the two half-waves as shown in Fig. 6.

Thereafter measure the initial current once again. It must fall into the range between 3 and 6 mA.

If the initial current does not fall into the range between 3 and 6 mA, first adjust the variable resistor R 65 and repeat the process described above.

R 53, Speed Adjustment. The speed is adjusted by using an UHER Speed Test Tape at the speed of 7 1/2 ips. Thread the tape and read the deviation. Adjust the deviation to \pm zero % by means of the variable resistor R 53 which is capable of counter-balancing deviations of up to approximately \pm 8%.

R 20, Adjustment of the Recording Level Meter for Battery Life Indication. Pull the knob of the recording level control and keep it in that position. Adjust the variable resistor R 20 so that the meter reads zero db at a supply voltage of 4.8 volts.

AF voltmeter $R_i \geq 10 \text{ M}\Omega$



Abb. 4
Fig. 4



Abb. 5
Fig. 5



Abb. 6
Fig. 6

