

## Adjustment of Variable Resistors

bei einer einstellbaren, stabilen Frequenzgang des Gerätes. Die Einstellung erfolgt nach der Kontrolle 1 über den Spannungsteiler an einer Spannung von 250 mV eingestellt.

Sperrkreises zu überprüfen. Ausgang 2 der Buchse „Zusatzeräte“ 3613 Hochfrequenzspannung auf „Radio/Phono“ wird vom Tonkopf oder Kontakt 3 und 2 der Buchse betätigt! Aussteuerung von 1,4 V angezeigt. R 11 ist Wert 0 db angezeigt.

gerdlich, wenn der Tonkopf oder Buchse „Zusatzeräte“ NF-Röhren mit den Kontakten 1 und 2 der sen. Dieses Signal wird bei der Aufnahme muß ein UHER-Spannung von 1,4 V und am zurückspulen und wiedergeben. Der am Oszilloskop angezeigte

zu Kontakt A 6 Milliamperemeter zunächst einen Ruhestrom von Regler R 64 vorläufig entspre-

en. Oszilloskop mit dem Lautsprecher an Kontakt A 5 und Kontakt des Tongenerators im Bereich us gemäß Abb. 3 angezeigt wird. Abb. 4). Ausgangsspannung des annähernd erreicht. Beiden Halbwellen ein Maximum Verschiebung gerade verschwunden (siehe Abb. 6).

nen 3 und 6 mA liegen. R 65 nachgestellt und anschlie-

ßendigkeitsmeßband. Die Mes-3band einlegen und die Abwei-ßen. (R 53 regelt ca. ± 8% aus.) und festhalten. Mit dem Reglerinstrument auf den Wert 0 db

A prerequisite for any alignment is that necessary 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 contacts 3 and 2 of the "Accessories" 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 of the "Radio/Phono" socket and feed a signal of 1,000 cps at approximately 10 millivolts. Connect an audio-frequency VTVM across the contacts 3 and 2 of the "Accessories" 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 contacts 3 and 2 of the "Accessories" socket. Connect an audio oscillator across the contacts 1 and 2 of the "Radio/Phono" socket and feed a signal of 1,000 cps 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 1.0 V 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-ohm resistor. Connect an oscilloscope across the loudspeaker output. Unsolder the connection to contact A 5. Connect an audio oscillator across the contacts A 5 and A 2 (ground) and feed a signal of 1,000 cps. 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 ± zero % by means of the variable resistor R 53 which is capable of counter-balancing deviations of up to approximately ± 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.

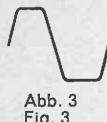


Abb. 3  
Fig. 3



Abb. 4  
Fig. 4



Abb. 5  
Fig. 5



Abb. 6  
Fig. 6

