

Adjustment of Variable Resistors

bei einer einstellbaren, stabilen

Frequenzgang des Gerätes. Die
llung erfolgt nach der Kontrolle
1 über den Spannungsteiler an-
von 250 mV eingestellt.
Sperrkreises zu überprüfen. Aus-
und 2 der Buchse „Zusatzgeräte“
3613 Hochfrequenzspannung auf

„Radio/Phono“ wird vom Ton-
lie Kontakte 3 und 2 der Buchse
etaste drücken! Aussteuerungs-
nung von 1,4 V anzeigt. R 11 ist
Wert 0 db anzeigt.

ordentlich, wenn der Tonkopf oder
hse „Zusatzgeräte“ NF-Röhren-
mit den Kontakten 1 und 2 der
sen. Dieses Signal wird bei der
i der Aufnahme muß ein UHER-
ne Spannung von 1,4 V und am
zurückspulen und wiedergeben.
Der am Oszillograph angezeigte

zu Kontakt A6 Milliampere-
zunächst einen Ruhestrom von
i, Regler R 64 vorläufig entspre-

en. Oszillograph mit dem Laut-
ator an Kontakt A5 und Kontakt
des Tongenerators im Bereich
us gemäß Abb. 3 angezeigt wird.
Abb. 4). Ausgangsspannung des
annähernd erreicht.

beiden Halbwellen ein Maximum
/erschiebung gerade verschwun-
steht (siehe Abb. 6).

nen 3 und 6 mA liegen.

r R 65 nachgestellt und anschlie-

hwindigkeitsmeßband. Die Mes-
ßband einlegen und die Abwei-
len. (R 53 regelt ca. $\pm 8\%$ aus.)

und festhalten. Mit dem Regler
instrumentes auf den Wert 0 db

A prerequisite for any alignment is that the 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 A6 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 A5. Connect an audio oscillator across the contacts A5 and A2 (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 $\pm$ 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.



Abb. 3
Fig. 3



Abb. 4
Fig. 4



Abb. 5
Fig. 5



Abb. 6
Fig. 6

