

GRUNDIG**Models TK41, TK46, TM45**

General Description: All the above recorders operate at three tape speeds: $1\frac{7}{8}$, $3\frac{3}{4}$ and $7\frac{1}{2}$ i.p.s. Speed selection is by the knurled control on the left-hand side of the machine which also incorporates the mains On/Off switch. The three speeds are obtained by the movement of the idler wheel between the stepped motor pulley and the flywheel.

The maximum spool size which can be accommodated is 7 in., but on the TK41 only $5\frac{3}{4}$ in. spools will fit under the closed lid of the machine.

The clutches are fitted with multi-disc clutches in the upper halves which are so adjusted that tape movement commences very gradually, thereby safeguarding the extra-longplay tape which is supplied with the machines and which should be used for maximum efficiency.

A pressure tape is fitted to the pressure roller arm. This pressure tape makes contact with the back of the tape and presses this quite uniformly against a large portion of the head face. This provides an intimate contact between the active coating on the tape and the head and thus minimises sudden losses due to "drop-outs".

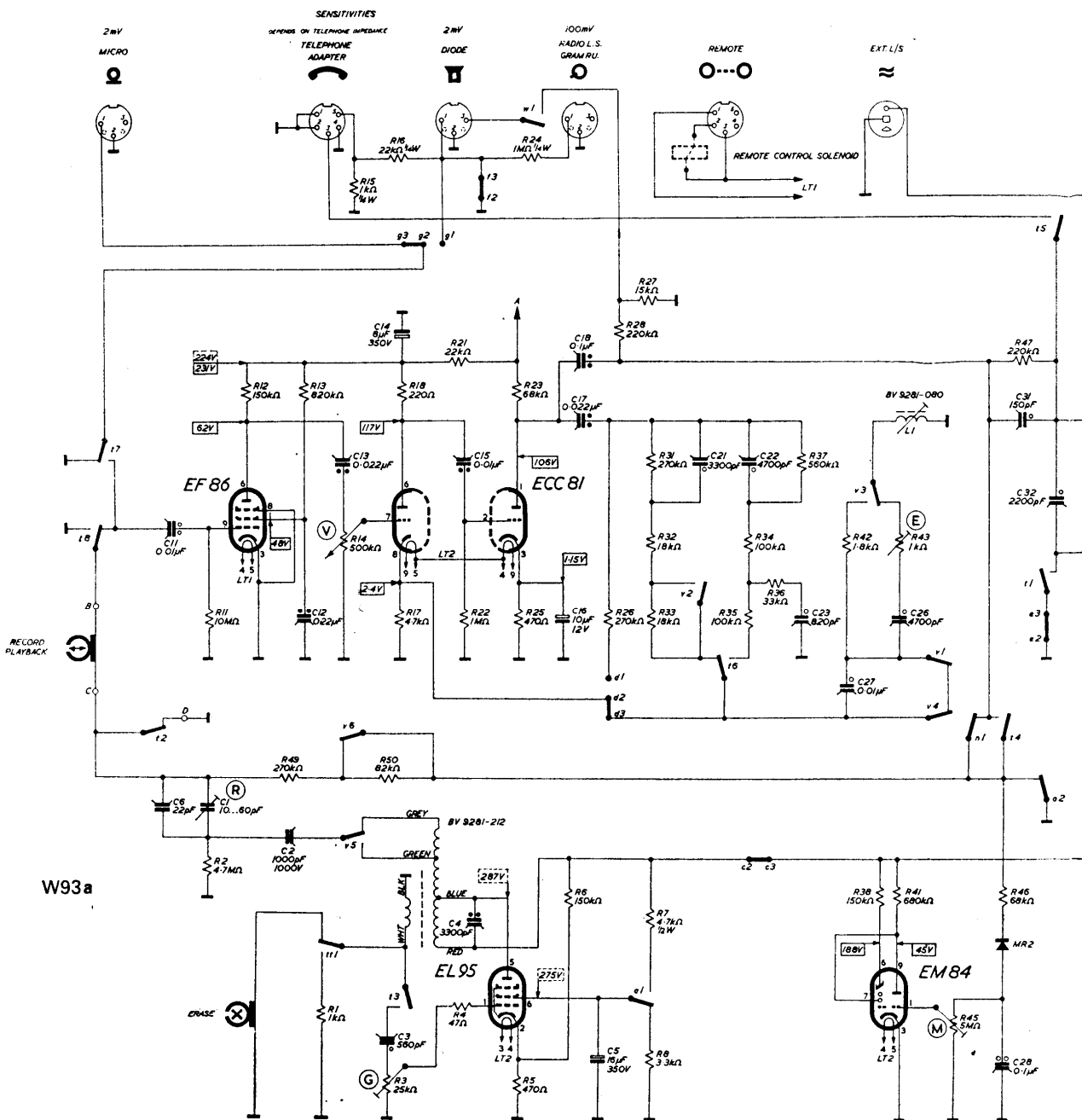
The machine is fully press-key operated, the keys being interlocked so as to prevent incorrect operation. When any key has been depressed, before any other key can be depressed the stop key must first be operated. The fast wind control permits "inching" in a forward or backward direction.

A digital type position indicator is fitted, having a press button re-set, which will return the counter to zero immediately it is depressed. Sockets are provided for microphones, radio/diode/telephone adaptor, gramophone pickup, extension loudspeaker and a remote control (not TM45). Remote control facilities are not incorporated but can be added at a later stage. A telephone coupling socket is provided and a suitable coupling unit is in preparation. The TK41 enables superimposition of a second recording over a previously recorded track and the machine may also be used as a "straight through" amplifier. The TK46 and the TM45 are fitted with separate record and playback heads and separate Record/Playback amplifiers for each channel. This enables echo effects, synchronous and multiple-synchronous recordings to be made (on the TM45 a mixer unit type 608 must be used for these facilities). On both of these machines tracks 1 and 3 or tracks 2 and 4 can be played back as a combined output.

Head Currents and Voltages (Speed Selector at $3\frac{3}{4}$ i.p.s.): The H.F. bias currents to the recording head are as follows: TK41 0.85 mA. \pm 15 per cent., TK46 0.27 mA. \pm 15 per cent., TM45 0.27 mA. \pm 15 per cent., and may be measured either as a voltage across the head using a valve voltmeter with an input capacity of not more than 30 pF. or as a voltage across a 100 ohm resistor connected in the earth side of the record head. Depress both channel 1 and 2 keys on TK46 and TM45.

Voltage	TK41	TK46	TM45
Across head $\pm 15\%$	230 V.	35 V.	35 V.
Across 100 Ω $\pm 15\%$	85 mV.	27 mV.	27 mV.
Adjust by	C106	C106 (channel 1) C206 (channel 2)	C106 (channel 1) C206 (channel 2)

Magic Eye: When recording the signal is fed via R46 into the diode rectifier MR2. The output is smoothed by C28 and fed to the grid of the magic eye by pre-set control R45. R41 is the anode load of the triode section of the EM84 and R38 the target load. Both values are chosen to give optimum sensitivity and brilliance.



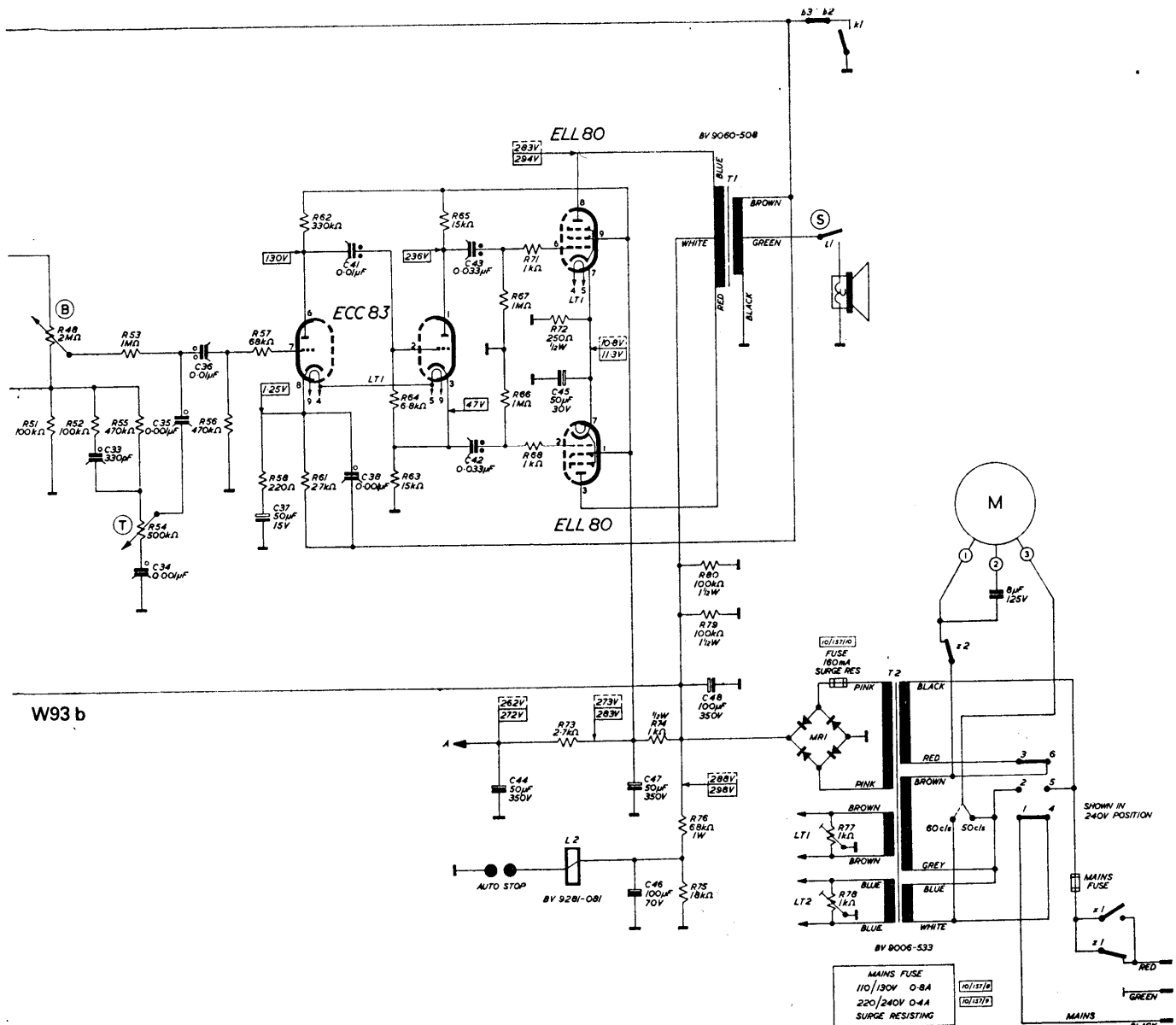
CIRCUIT OF GRUNDIG TK41 (PART)

Note (TK46 and TM45): After the above adjustments, channel 1 and channel 2 must be separately checked. If the head currents differ from the voltage quoted adjust pre-set R205 for channel 1, and pre-set R105 for channel 2.

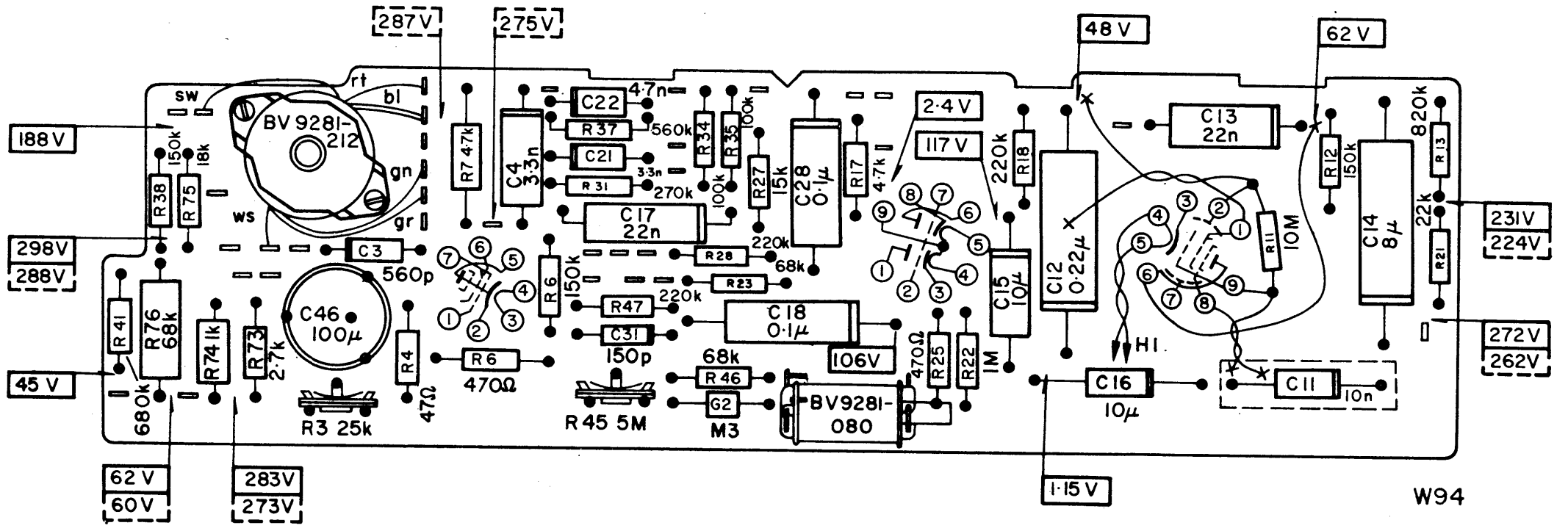
The erase head voltage should be measured with a valve voltmeter across the erase head where the lower reading should be not less than:

	TK41	TK46	TM45
Head voltage	23 V.	12 V.	12 V.
Adjust by	R ₃	R ₄ both channels	R ₄ both channels

If the pre-sets have to be adjusted to achieve this the recording bias must then be re-checked.

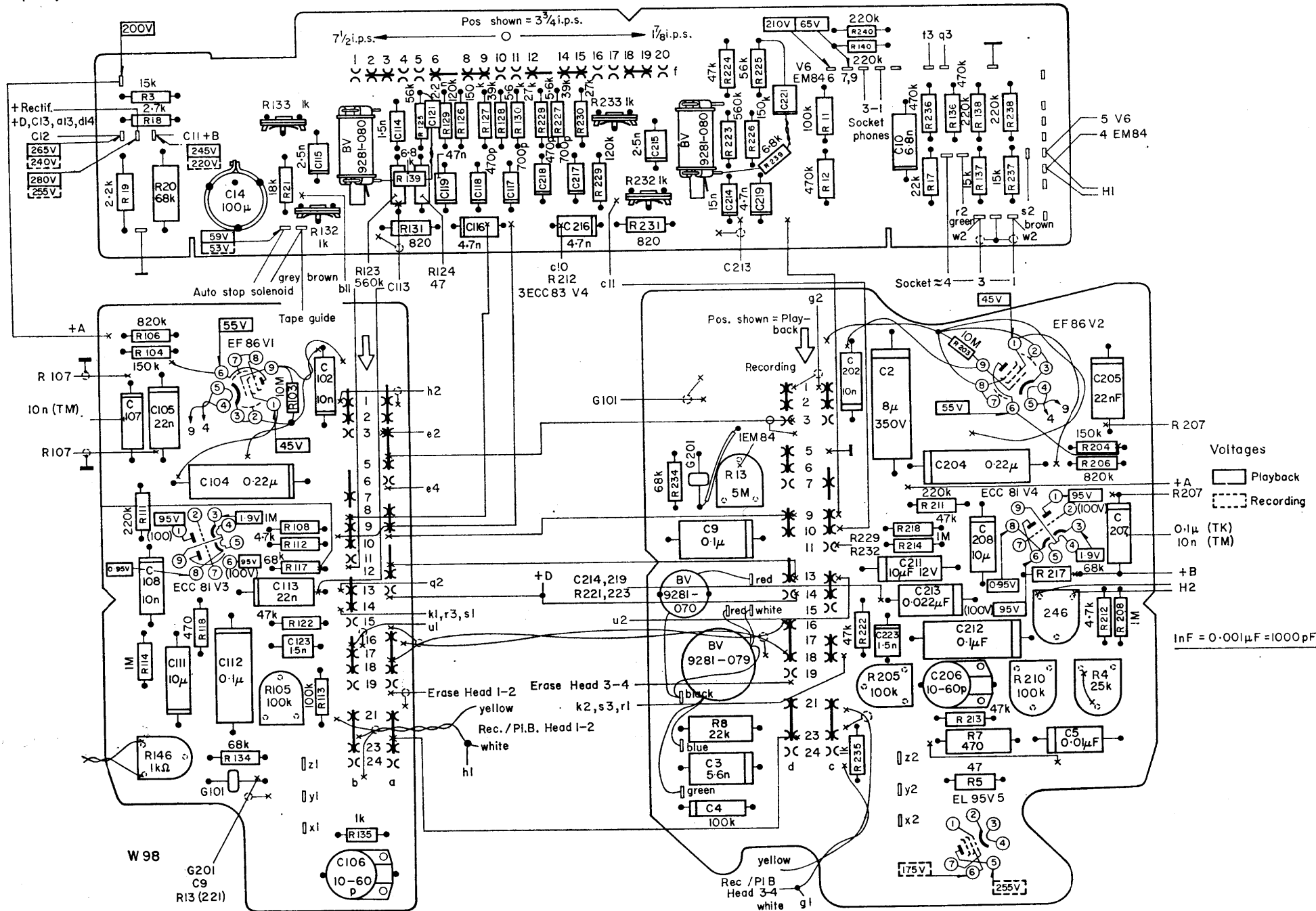


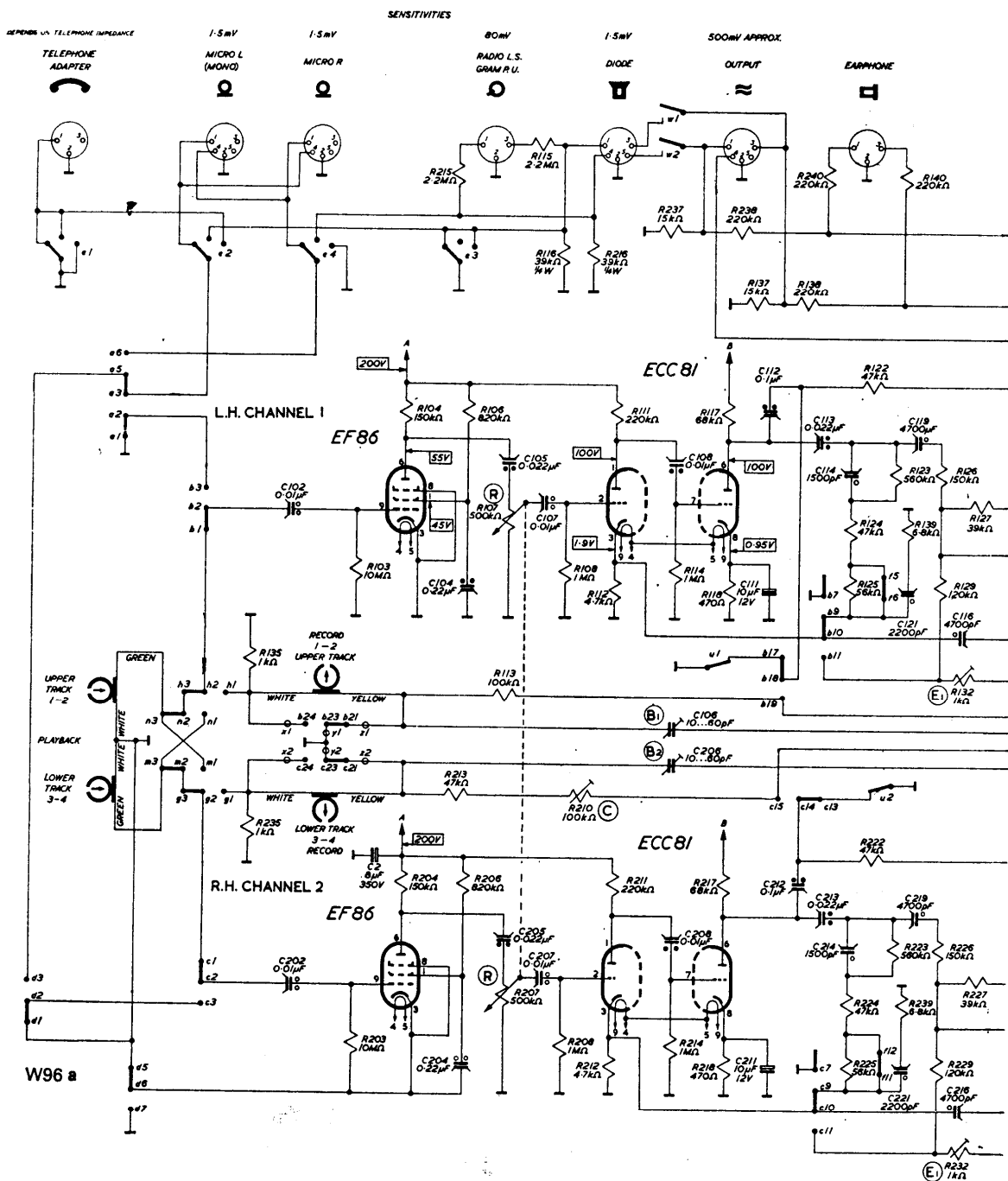
CIRCUIT OF GRUNDIG TK41 (PART)



COMPONENT LAY-OUT—GRUNDIG TK41

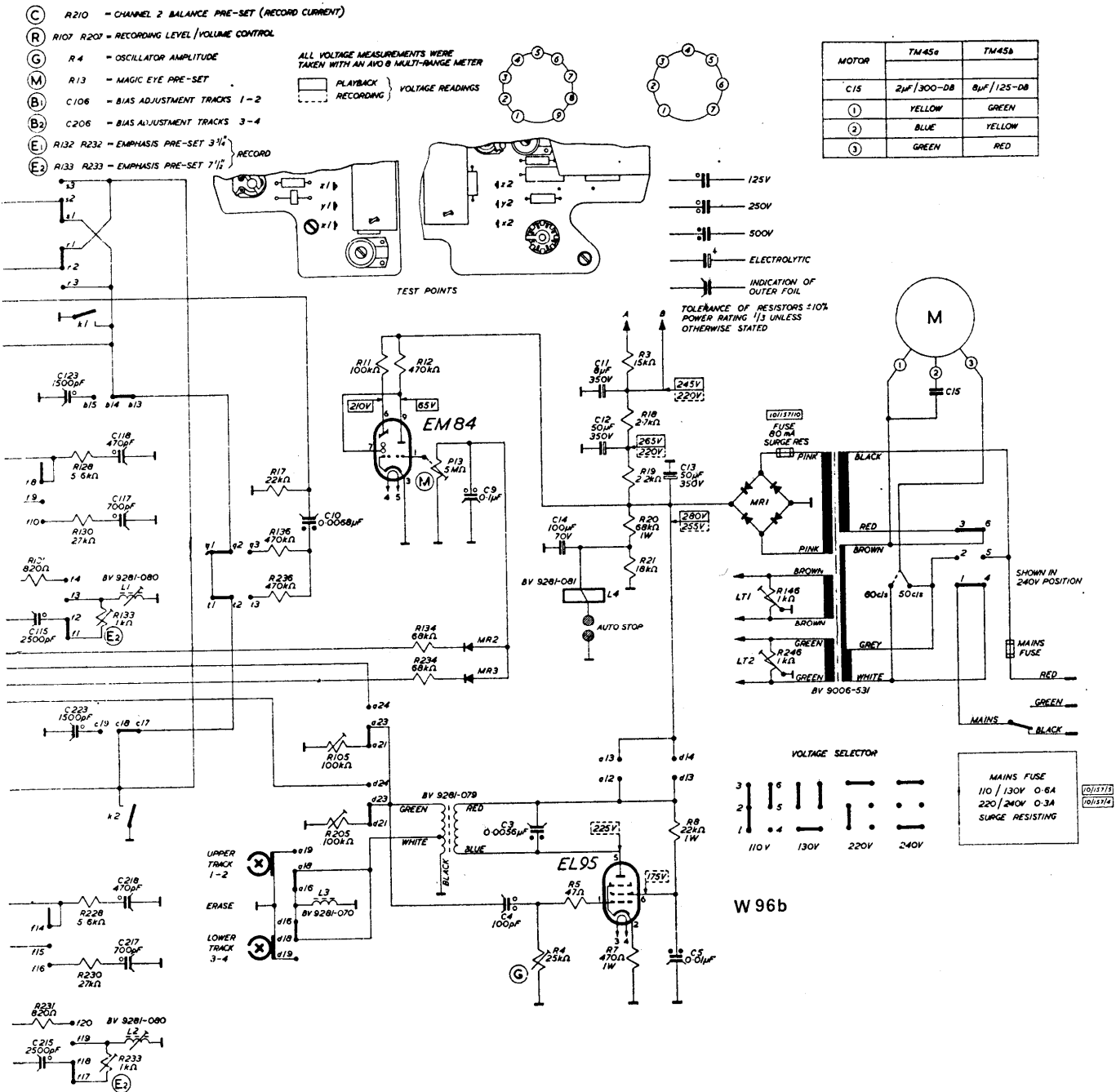
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CIRCUIT OF GRUNDIG TM45E (PART)

Bias Oscillator: The EL95 oscillator is connected as a tuned anode circuit with a separate feedback winding. R₄ controls the amplitude of oscillation and thus the erase current. The erase current is taken from a tapping on the oscillator coil grid winding via contacts a₁₈-a₁₉ to the channel 1 (track 1-2) erase head and via contacts d₁₈-d₁₉ to the channel 2 (track 3-4) erase head. Switch contacts a₁₈-a₁₆ and d₁₈-d₁₆ connect the inductance L₃ to ensure constant erase voltage when only one head is in use. Bias currents are fed from the grid end of the feedback winding via a₂₃-a₂₄ and C₁₀₆, or d₂₃-d₂₄ and C₂₀₆, for the track 1-2 and track 3-4 recording heads

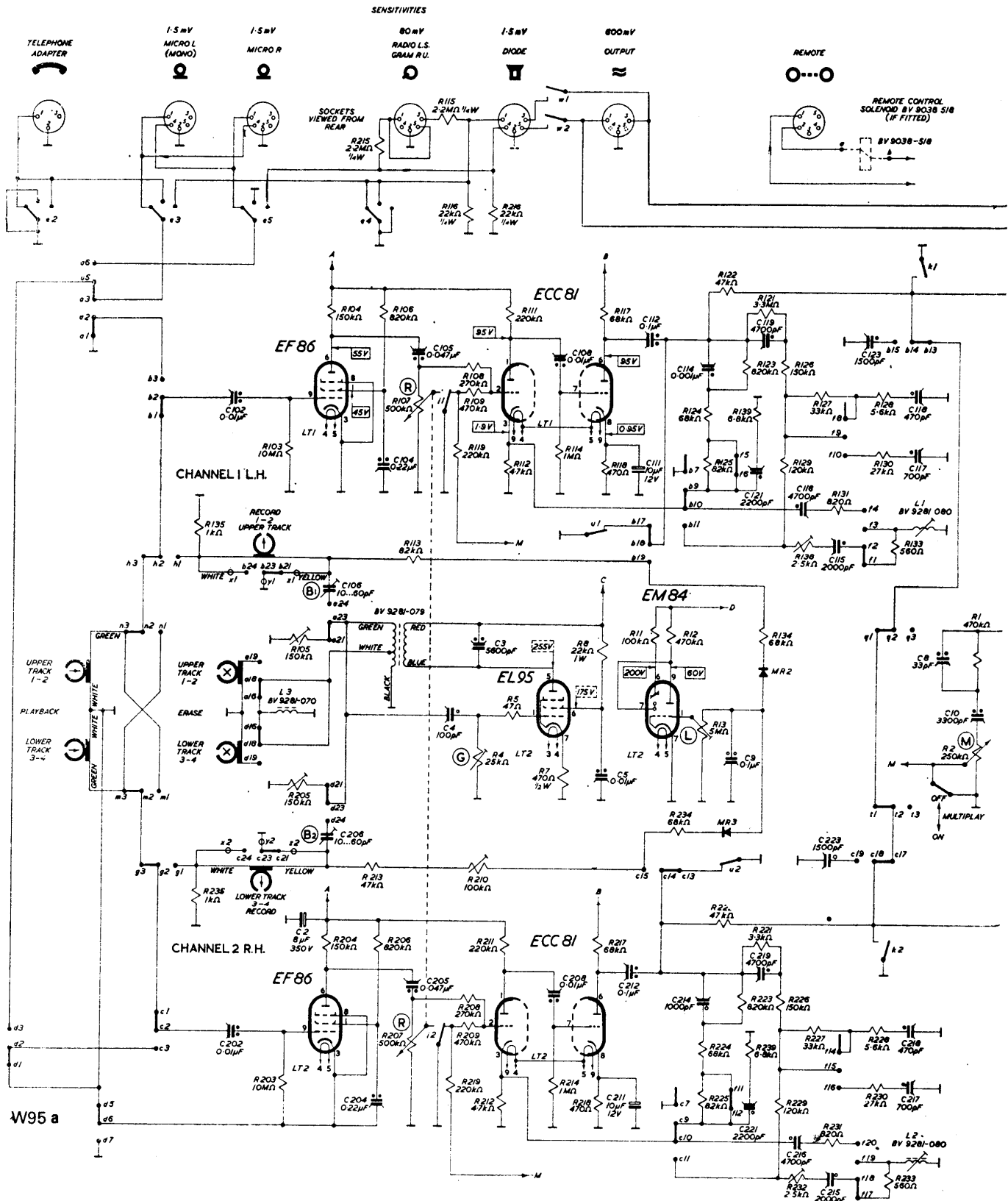


CIRCUIT OF GRUNDIG TM45E (PART)

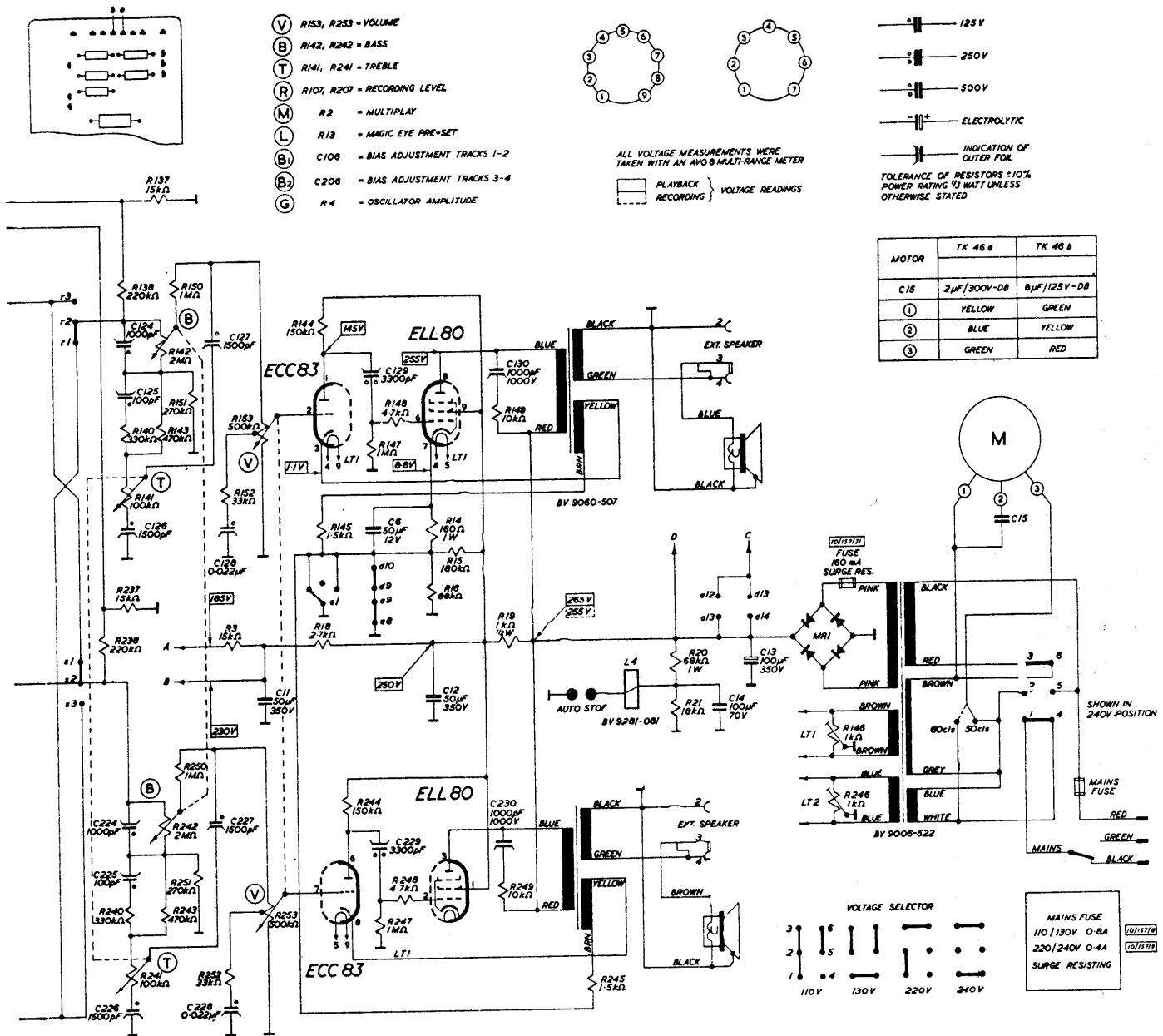
respectively. Switch contacts a21-a23 and d21-d23 connects either R105 or R205 to ensure constant recording current when only one head is in use.

Magic Eye: The channel 1 recording signal is fed via C112, contacts b18-b19 and R134 to a rectifying diode. Similarly the channel 2 recording signal is taken through C212 contacts c14-c15 and R234 to an identical diode. The resultant D.C. from either or both diodes is smoothed by C9 and fed to the magic eye pre-set control R13. R12 is the anode load of the triode section of the EM84 and R11 is the target load. Both values are chosen to give optimum sensitivity and brightness.

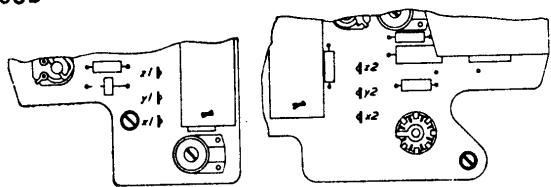
RADIO SERVICING



CIRCUIT OF GRUNDIG TK46 (PART)



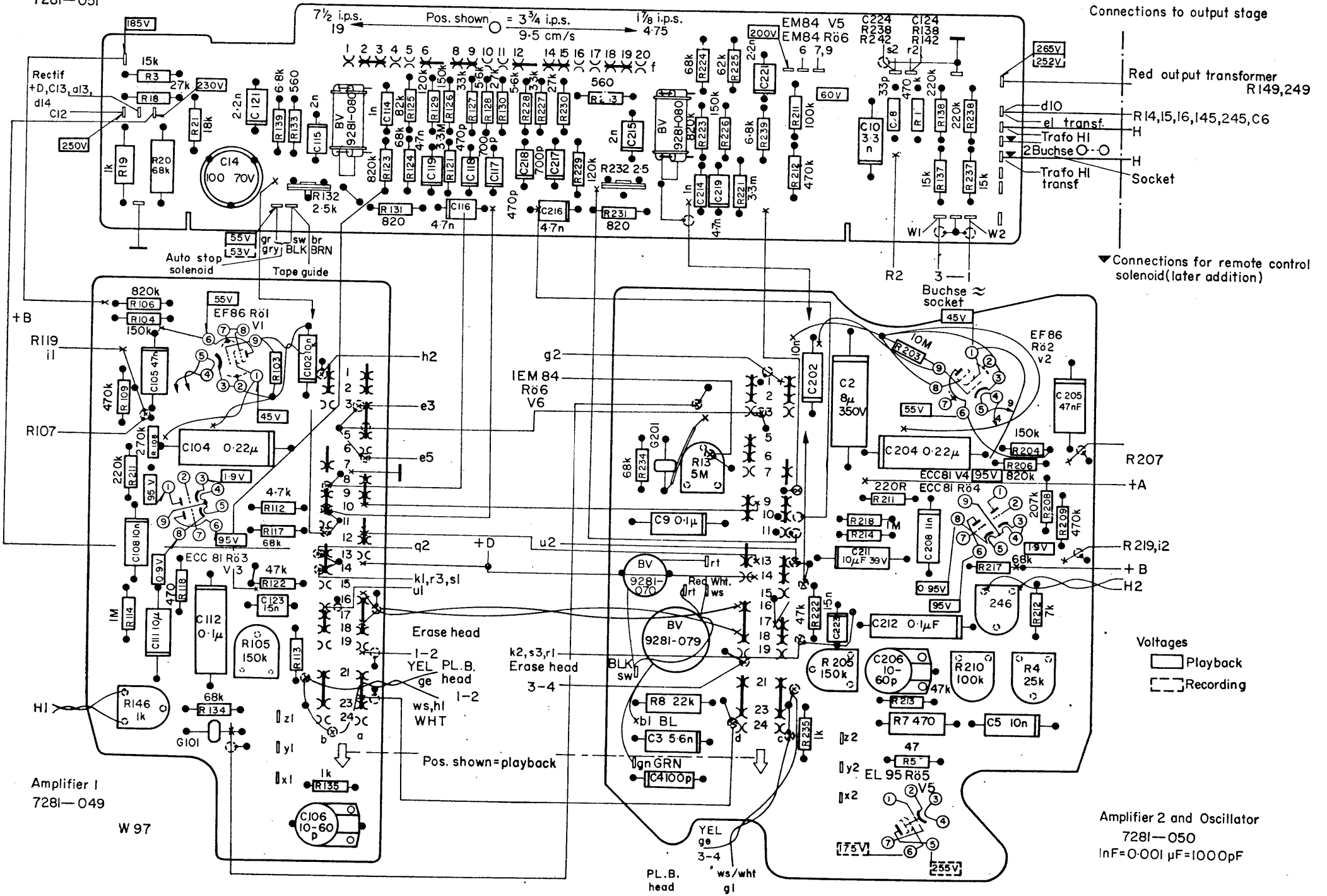
W95b



CONTACT SETS	OPERATING POSITIONS					
	STOP	PLAYBACK	REC. 1-2	REC. 3-4	FAST WIND FAST REWIND	MAINS OFF
PRESS KEY UNIT 1/1						
PRESS KEY UNIT 1/2						
SPEED SWITCH R1						
SPEED SWITCH R2						
PRESS KEY UNIT 2/1						
PRESS KEY UNIT 2/2						
HEAD BASE ASSY 1/1						
HEAD BASE ASSY 1/2						

— CONTACT OPERATED

CIRCUIT OF GRUNDIG TK46 (PART)



Connections to output stage

Red output transformer
R149,249

d10
el transf.
Trafo H1
2Buchse O-O
Trafo H1
Socket

Connections for remote control solenoid (later addition)

Voltages

Playback

Recording

Amplifier 2 and Oscillator
7281-050
InF=0.001 μF=100OpF

COMPONENT LAY-OUT—GRUNDIG TK46

RADIO SERVICING

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