

Service
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For repair information of the cassette mechanism see Service Manual of "Recorders tape deck MSE1".

32 934A12

Service Manual

SPECIFICATION	Min. value	Typical value	
Mains voltage	: 220 V (110-127-240 V by changing the inter-connection)	220 V (110-127-240 V by changing the inter-connection)	
Mains frequency	: 50 - 60 Hz	50 - 60 Hz	
Power consumption	: 16 W	16 W	
Tape system	: compact cassette	compact cassette	
Number of tracks	: 2 x 2 (stereo)	2 x 2 (stereo)	
Tape speed	: 4.76 cm/s	4.76 cm/s	
Speed deviation	: $\pm 1.5\%$	$\pm 1.2\%$	
Wow and flutter weighted	: $\leq 0.13\%$ (DIN)	0.12% (DIN)	
Fast wind time C60 cassette	: ≤ 85 sec	≤ 85 sec	
Input sensitivity:			
- microphone	: 0.4 mV/2 k Ω	0.4 mV/2 k Ω	
- line in DIN	: 0.4 mV/2 k Ω	0.4 mV/2 k Ω	
- line in cinch	: 100 mV/47 k Ω	100 mV/47 k Ω	
Output level			
- line out	: ≥ 0.58 V/< 5 k Ω	≥ 0.58 V/< 5 k Ω	
- headphones	: 350 mV/600 Ω	340 mV/600 Ω	
- headphones impedance	: 8 - 600 Ω	8 - 600 Ω	
Distorsion K3	: $\leq 3\%$	$\leq 1.8\%$	
Frequency range	: acc DIN 45500:	acc IEC:	acc NAB:
- Metal tape-type IV	: 30-16.000 Hz	30-18.000 Hz	30-19.000 Hz
- Cr tape-type II	: 30-16.000 Hz	30-18.000 Hz	30-19.000 Hz
- Normal tape-type I	: 30-14.000 Hz	30-16.000 Hz	30-17.000 Hz
Signal-to-noise without Dolby NR	: acc DIN 45500:	acc IEC:	acc NAB:
- Metal tape	: ≥ 57 dB	59 dB	61 dB
- Cr tape	: ≥ 56 dB	59 dB	61 dB
- Normal tape	: ≥ 54 dB	56 dB	58 dB
Improvement with Dolby -B- NR	: ≥ 8.5 dB (CCIR)	10 dB (at 5 kHz)	
Improvement with Dolby -C- NR			
- at line in cinch	: ≥ 17 dB (CCIR)	20 dB (at 1 kHz)	
Bias and Erase frequency	: 85 kHz $\pm 10\%$	85 kHz $\pm 5\%$	
Dimensions	: 420 x 114 x 234 mm	420 x 114 x 234 mm	
Weight	: 4.25 kg approx.	4.25 kg approx.	



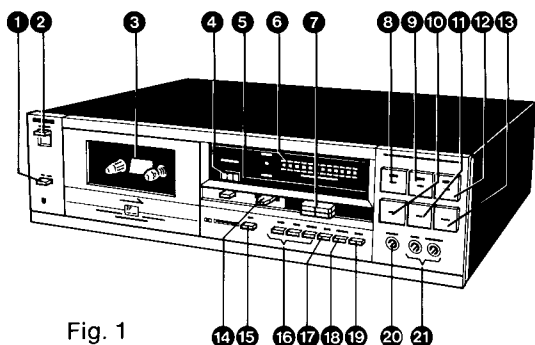


Fig. 1

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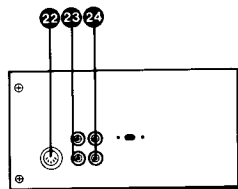


Fig. 2

29 983A12

Controls and sockets

Fig. 1 and 2

1	SK0	13	Stop, SK908
2	Eject	14	Timer, SK911
3	Cassette holder	15	MPX/RIF, SK2
4	Counter	16	Tape select, SK3, 4, 5
5	Reset for counter	17	Dolby on/off, SK6
6	U1003, level indicator	18	Dolby B/C, SK7
7	3002 a, b	19	Mic DIN/LINE Cinch, SK8
8	REC, SK903	20	BU8
9	Pause, SK904	21	Mic L, R, BU2, 3
10	Rewind, SK906	22	BU1, DIN in/out
11	Wind, SK907	23	Line in Cinch L, R, BU4, 5
12	Play, SK905	24	Line out Cinch L, R, BU6, 7

GB SERVICING HINTS

Tape speed

When servicing the tape transport, it is recommendable to check the tape speed (M1).

After replacement of component parts susceptible to wearing-in, like belts and motor, it is advisable to adjust the motor speed to a -1% deviation after servicing. After a very short period the recorder will meet the desired 0% tape speed deviation.

When servicing electronic components, like ICs, resistors and capacitors, the tape speed should preferably be set to 0% .

F CONSEILS REPARATION

Vitesse de défilement

Lors de réparations à la mécanique il est conseillé de vérifier la vitesse de défilement (M1).

Après que des pièces comme les courroies ou le moteur ont fait l'objet de remplacement il est conseillé de régler la vitesse du moteur avec une marge de -1% . En très peu de temps l'appareil présentera l'écart de vitesse souhaité de 0% .

En cas de réparations à des composants électriques tels les IC, les résistances et les condensateurs, la vitesse de défilement est de préférence réglée à 0% .

I CONSIGLI PER LA RIPARAZIONE

Velocità del nastro

Quando si ripara la parte trasporto nastro, si raccomanda di controllare la velocità (M1).

Dopo la sostituzione di componenti suscettibili a logorio come cinghie e motore, si raccomanda di regolare la velocità del motore per una deviazione pari a -1% .

NL REPARATIEWENKEN

Bandsnelheid

Bij reparaties aan het loopwerk verdient het aanbeveling de bandsnelheid te controleren (M1).

Na het vervangen van inloopgevoelige onderdelen, zoals snaren en motor, verdient het aanbeveling de motorsnelheid na deze reparatie op -1% afwijking in te stellen. In zeer korte tijd zal het apparaat daarna de gewenste 0% bandsnelheidsafwijking hebben bereikt.

Bij reparaties aan elektrische componenten, zoals IC's, weerstanden en condensatoren wordt de bandsnelheid bij voorkeur op 0% ingesteld.

D REPARATURHINWEISE

Bandgeschwindigkeit

Bei Reparaturen am Laufwerk empfiehlt sich, die Bandgeschwindigkeit zu prüfen (M1).

Nach Auswechseln einlaufempfindlicher Teile wie Seile und Motor empfiehlt sich, die Motorgeschwindigkeit nach dieser Reparatur auf eine Abweichung von -1% einzustellen.

In kürzester Zeit wird das Gerät dann die verlangte Bandgeschwindigkeitsabweichung von 0% erreicht haben.

Bei Reparaturen an elektrischen Teilen wie integrierte Schaltungen, Widerstände und Kondensatoren wird die Bandgeschwindigkeit vorzugsweise auf 0% eingestellt.

Dopo un periodo molto breve il registratore avrà una variazione di velocità pari a 0% .

Quando si interviene su componenti elettronici, come IC, resistenze e condensatori, la velocità del nastro dovrebbe essere regolata a 0% .

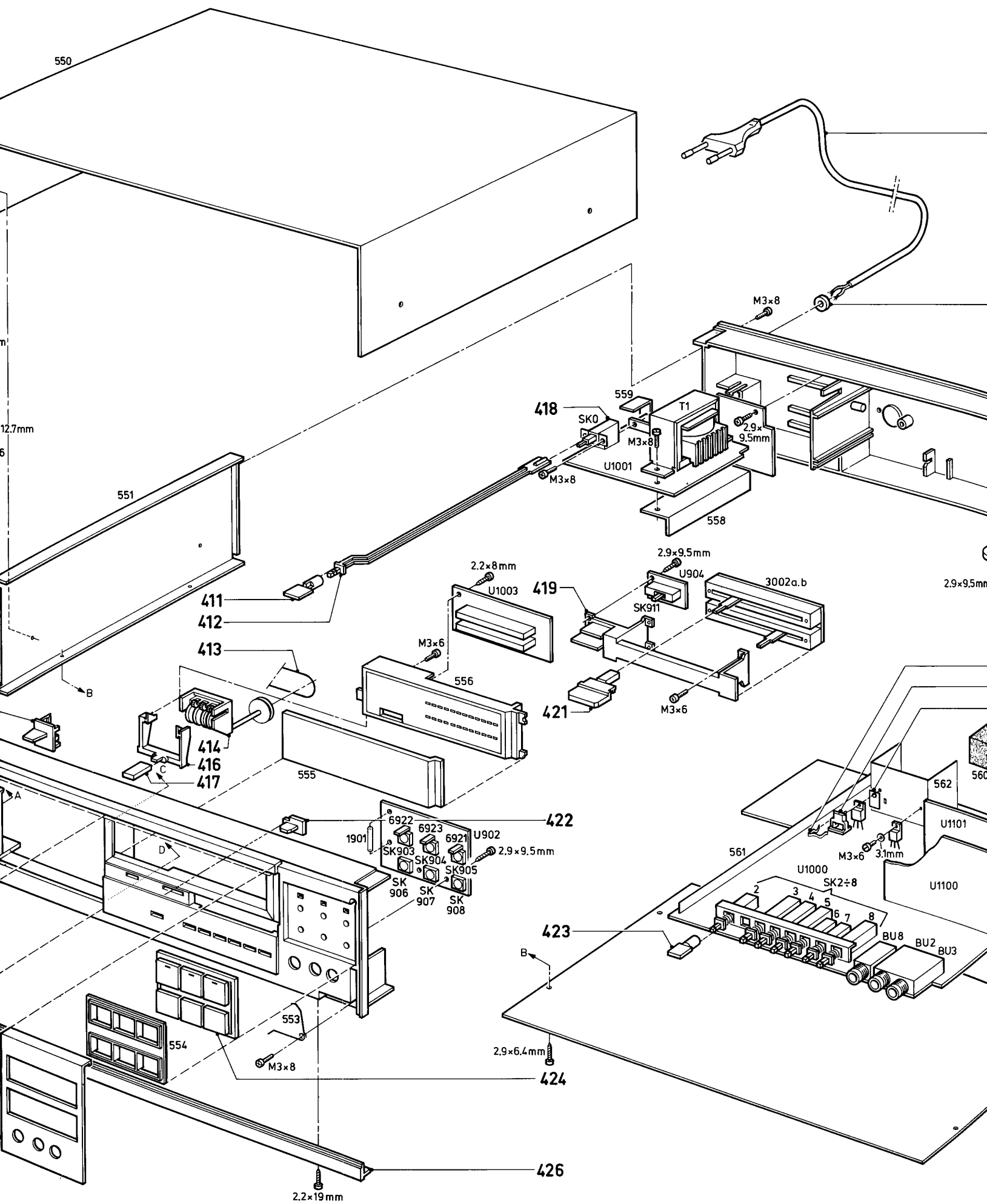


Fig. 3

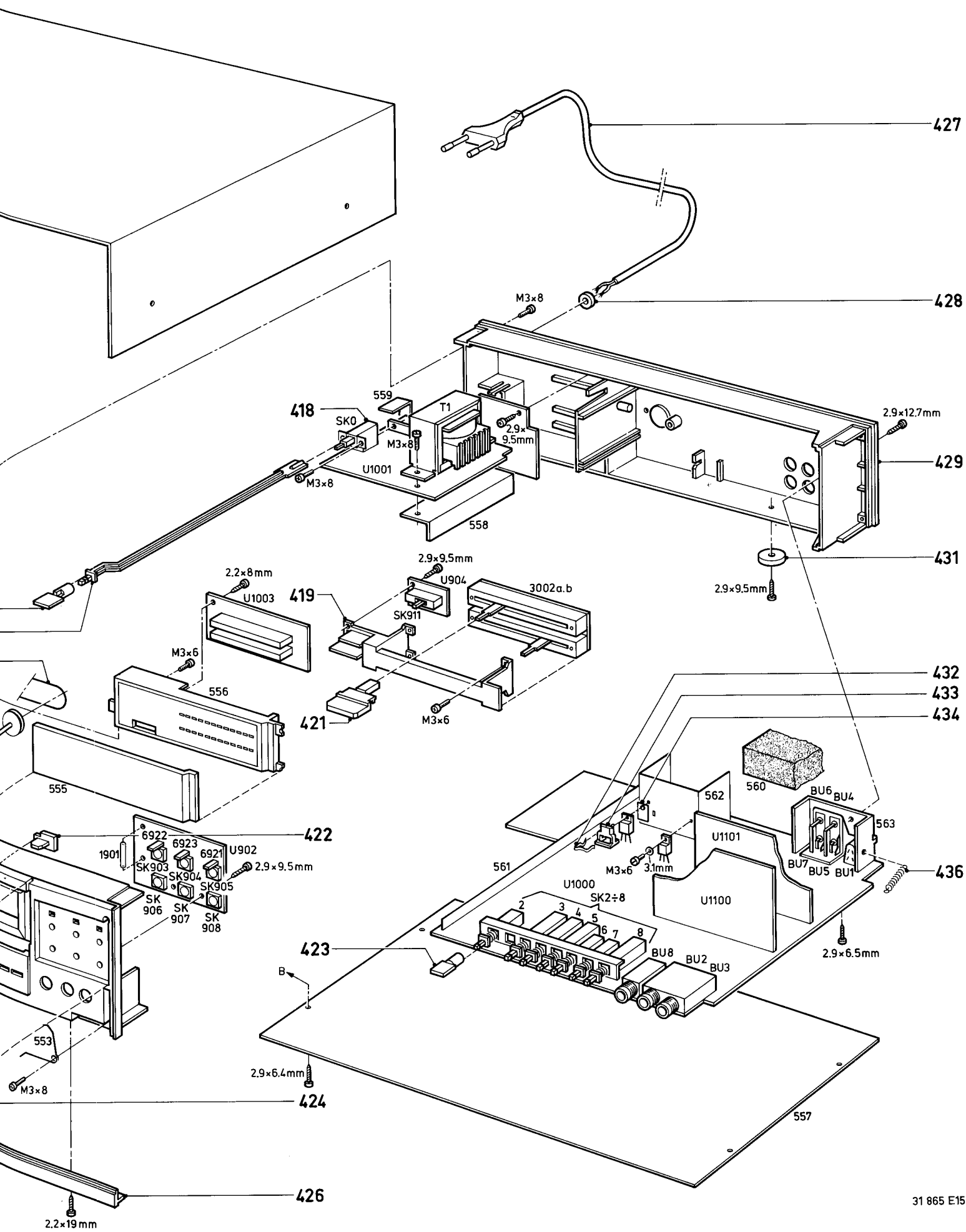


Fig. 3

ELECTRICAL MEASUREMENTS AND ADJUSTMENTS

General conditions

The following general conditions apply to the electrical measurements and adjustments, unless explicitly stated otherwise *a.

- Mains voltage 220 V ± 5%, 50 Hz
- Ambient temperature 20 to 25° C
- Source switch SK8:line
- Dolby switch SK7:off
- Tape selector Cr:SK4
- MPX switch SK2:off
- Volume control recording level 3002:max.

- The voltages have been measured relative to earth.
- The measurements and adjustments are related to the left-hand channel.
The corresponding test points and adjusting elements for the right-hand channel are given in brackets.

Required test equipment and test cassettes

- LF generator
- AC millivoltmeter (mV-meter)
- Wow-and-flutter-meter
- Universal test cassette SBC419-4822 397 30069
- Multimeter
- Frequency counter

Adjustment	Cassette	Recorder in position	Apply signal to	Measure on	Read on	Adjust with	Adjust to		
Playback speed motor M1	SBC419 3150 Hz	PLAY	—	BU6 (BU7)	Wow-and-flutter meter (Filter on)	3940	*b		
Azimuth R/P head K1-K101	SBC419 10 kHz	PLAY	—	BU6 (BU7)	mV-meter	*c Left hand screw of K1-K101	Max. output		
Playback sensitivity + Indicators	SBC419 315 Hz-0 dB	PLAY	—	BU6 (BU7)	mV-meter	3170 (3171)	650 mV		
				—	U1003	3246 (3247)	+ 1 dB		
Playback frequency response	SBC419 40Hz;250Hz 6.3 kHz; 12.5 kHz	PLAY	—	BU6 (BU7)	mV-meter	—	See graph Fig. 5 frequency response		
Target value BIAS	Arbitrary cassette	REC	—	MP1 (MP101)	mV-meter	3300 (3301)	11.5 mV (12 mV)		
Recording sensitivity	SBC419 side 2 *d	REC + PLAY	315 Hz, to BU4 (BU5)	BU6 (BU7)	mV-meter	LF-Generator	290 mV		
				Disable the bias by short-circuiting 3307					
				MP1 (MP101)	mV-meter	3244 (3245)	0.9 mV		
				Disconnect short-circuiting 3307 make a recording and play it back					
BIAS	SBC419 side 2 *d	REC + PLAY	—	MP1 (MP101)	mV-meter	3300 (3301)	11.5 mV (12 mV) (target value)		
				BU6 (BU7)	mV-meter	LF-generator	29 mV		
				40 Hz-6.3 kHz 10 kHz-12 kHz 14 kHz-15 kHz 16 kHz, to BU4 (BU5) } Record a number of frequencies with the same input voltage and play them back					
				PLAY	—	BU6 (BU7)	mV-meter	—	See graph Fig. 6 if necessary repeat BIAS adjustment *f
f-osc.	Arbitrary cassette	REC	—	MP2	Frequency counter	5300	85 kHz		
19/85 kHz suppression	Arbitrary cassette	REC MPX SK2	315 Hz, to BU4 (BU5)	BU6 (BU7)	mV-meter	LF generator	775 mV		
			19 kHz, to BU4 (BU5) (same input voltage)	BU6 (BU7)	mV-meter	5500L (5500R) 19 kHz part	≤ 25 mV		
			f-osc. to BU4 (BU5) (same input voltage)	BU6 (BU7)	mV-meter	5500L (5500R) 85 kHz part	Min output ≤ 43.5 mV		

(GB) Not

*a. Prior to tape run degauss

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GB Notes:

- *a. Prior to any measurement or adjustment with the tape running, heads and tape guides should be degaussed and cleaned.
- *b. The max. permissible speed deviation is $\pm 1.5\%$. See also Service Hints: Tape speed. Moreover, the wow-and-flutter can be read. This value should not exceed 0.13%.
- *c. See also Service Manual: Recorders tape deck MSE1 Head adjustments.
- *d. If the accuracy requirements are less stringent a high quality chromium cassette may be used as an alternative.
- *e. The output voltage on BU6 (BU7) should read $290\text{ mV} \pm 0.25\text{ dB}$. If this is not the case reduce the LF-signal (bias disabled) by as many dB's as the reading was too low or too high by means of 3284 (3285).
- *f. When one channel is adjusted this may slightly affect the adjustment of the other channel. If the adjustment is correct the frequency response curve will be similar to curve b in Fig. 7 distortion $\leq 3\%$.

F Remarques:

- *a. Le chaque mesure ou réglage à la chaîne, les têtes et guide-bande doivent être démagnétisées et nettoyées.
- *b. Ecart maximum admissible $\pm 1,5\%$. Voir aussi conseils réparation: Vitesse de défilement. On pourra aussi lire le niveau de pleurage que ne doit pas dépasser 0,13%.
- *c. Voir aussi Service Manual: Recorders tape deck MSE1: Réglages des têtes.
- *d. Si les exigences point de vue précision ne soit pas tellement élevées, une cassette au chrome de bonne qualité pourra aussi convenir.
- *e. La tension de sortie doivent afficher $290\text{ mV} \pm 0,25\text{ dB}$. Si ce n'était pas le cas, régler avec 3284 (3285) le signal AF (prémagnétisation exclue) d'autant de dB en-dessous ou au-dessus du résultat de l'affichage qui serait trop haut ou trop bas.
- *f. Lors du réglage d'un des canaux on pourrait constater qu'il y a incidence sur l'autre. Si le réglage est comme il faut, la courbe de fréquence aura la forme de celle de la Fig. 7 courbe b, distortion $\leq 3\%$.

I Note:

- *a. Prima di effettuare della misura o regolazioni con la cassetta inserita, le testine e le guide nastro devono essere smagnetizzate e pulite.
- *b. Massima deviazione tollerata $\pm 1,5\%$. Vedere istruzioni per la riparazione: Velocità del nastro. Può essere letto anche il wow. Questo può essere come massimo 0,13%.
- *c. Vedere istruzioni per la Documentazione Servizio „Recorder tape deck MSE1: Regolazioni testina”.
- *d. Si il controllo non deve essere molto accurato, si può utilizzarle una cassetta al cromo di alta qualità.

NL Opmerkingen:

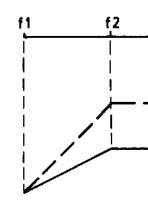
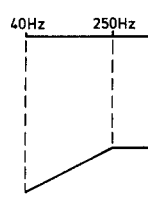
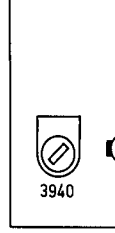
- *a. Voor elke meting of instelling met lopende band dienen de koppen en bandgeleiders gedemagnetiseerd en gereinigd te worden.
- *b. Max. toelaatbare snelheidsafwijking $\pm 1,5\%$. Zie ook Servicewenken: Bandsnelheid. Tevens kan bij deze meting de jengelwaarde worden afgelezen. Deze mag max. 0,13% bedragen.
- *c. Zie ook Service Manual: Recorders tape deck MSE1: Instellingen van de koppen.
- *d. Bij minder hoge nauwkeurigheid kan ook een chromiumcassette van goede kwaliteit worden gebruikt.
- *e. Indien de uitgangsspanning op BU6 (BU7) geen $290\text{ mV} \pm 0,25\text{ dB}$ is, regel dan met 3284 (3285) het LF signaal (voormagnetisatie uitgeschakeld) zoveel dB lager of hoger als de meteruitslag te hoog of te laag is.
- *f. Bij het instellen van het ene kanaal kan het andere iets worden beïnvloed. Bij een goede instelling zal de frequentiekarakteristiek als in Fig. 7 curve b verlopen, vervorming $\leq 3\%$.

D Anmerkungen:

- *a. Vor jeder Messung oder Einstellung mit laufendem Band empfiehlt es sich, die Köpfe und Bandführungen zu entmagnetisieren und zu reinigen.
- *b. Maximal zulässige Geschwindigkeitsabweichung $\pm 1,5\%$. Siehe auch Reparaturhinweise: Bandgeschwindigkeit. Auch kann der Lautwert abgelesen werden, der höchstens 0,13% betragen darf.
- *c. Siehe auch Service Manual: Recorders tape deck MSE1: Einstellungen der Köpfe.
- *d. Bei weniger höher Genauigkeit lässt sich auch eine Chromium-Cassette guter Qualität verwenden.
- *e. Die Ausgangsspannung an BU6 (BU7) muss $290\text{ mV} \pm 0,25\text{ dB}$ anzeigen. Ist dass nicht der Fall, dann mit 3284(3285) das NF-Signal (Vormagnetisierung ausgeschlossen) um soviel dB niedriger oder höher einstellen als die Messeranzeige zu hoch oder zu niedrig war.
- *f. Beim Einstellen des einen Kanals kann der andere etwas beeinflusst werden. Bei einer entsprechenden Einstellung verläuft der Frequenzgang wie in Abb. 7, Kurve b, Verzerrung $\leq 3\%$.

- *e. Gli la tensione d'uscita devono essere su $290\text{ mV} \pm 0,25\text{ dB}$. Se ciò non è aumentare o ridurre il segnale AF (bias disinserito), in funzione della indicazione, in dB, troppo bassa o troppo alta, per mezzo di 3284 (3285).
- *f. Quando viene regolato un canale, questo può influire sulla regolazione dell'altro. Se la regolazione è corretta la curva della riposta in frequenza sarà simile alla curva b della Fig. 7. Distorsione aumenterà $\leq 3\%$.

U 901



	f1
Metal	3
Cr	3
Normal	3

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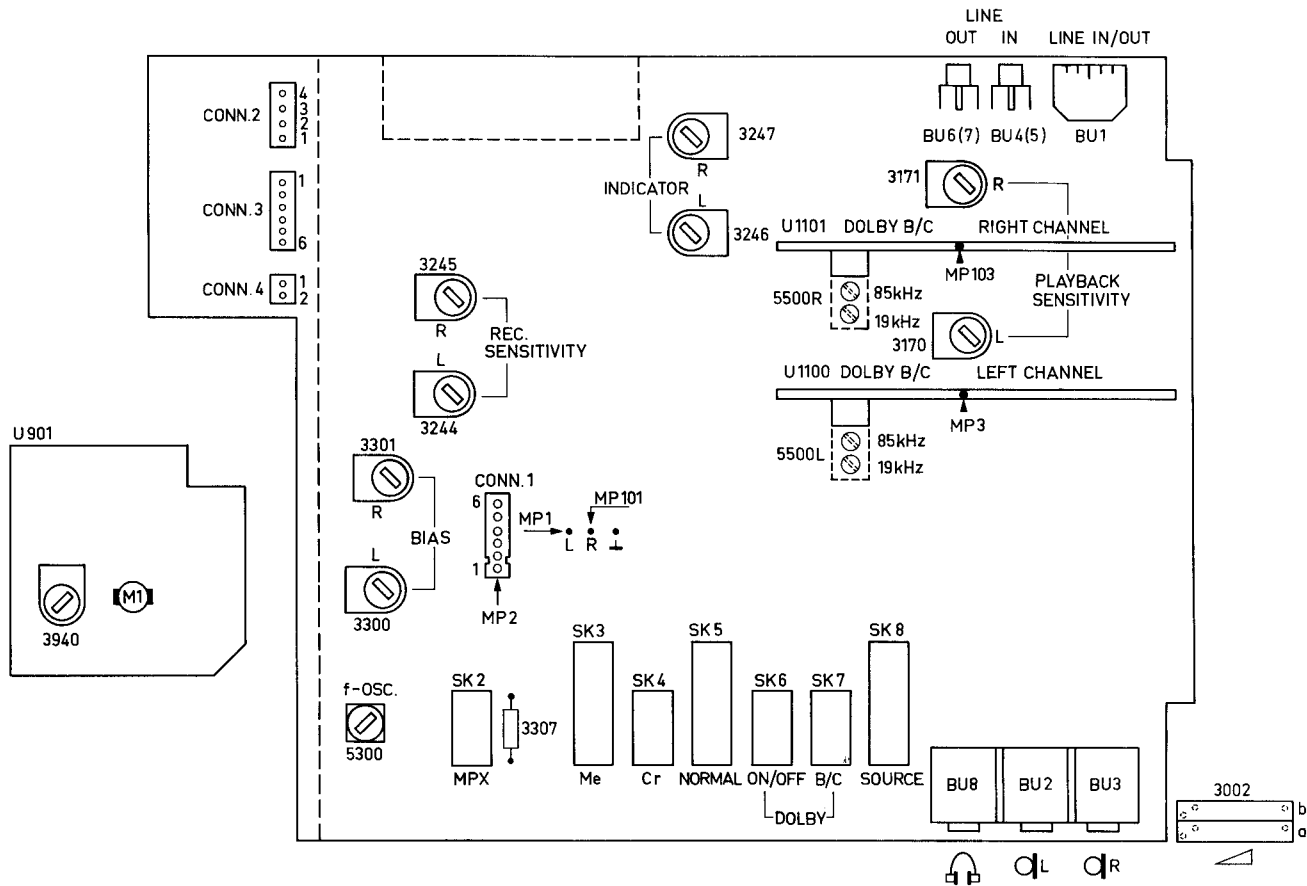


Fig. 4

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abweichung
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 U7) muss 290 mV
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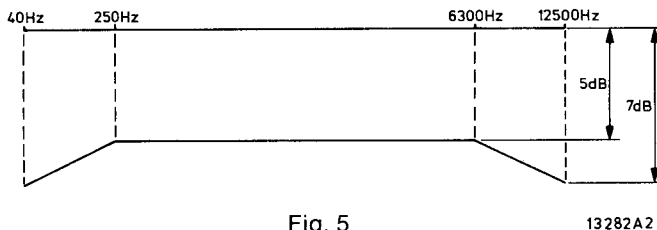
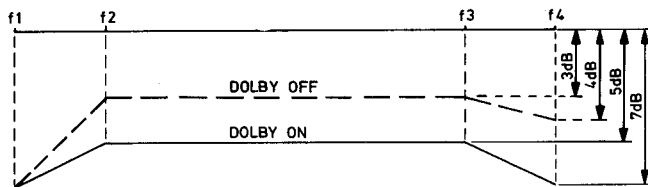


Fig. 5

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ann der andere
 ng verläuft der
 b, Ver-



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	f1	f2	f3	f4
Metal	30 Hz	250 Hz	8000 Hz	16.000 Hz
Cr	30 Hz	250 Hz	8000 Hz	16.000 Hz
Normal	30 Hz	250 Hz	8000 Hz	14.000 Hz

Fig. 6

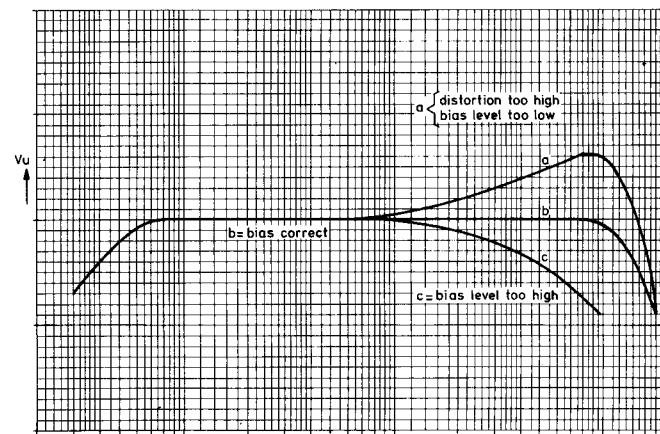
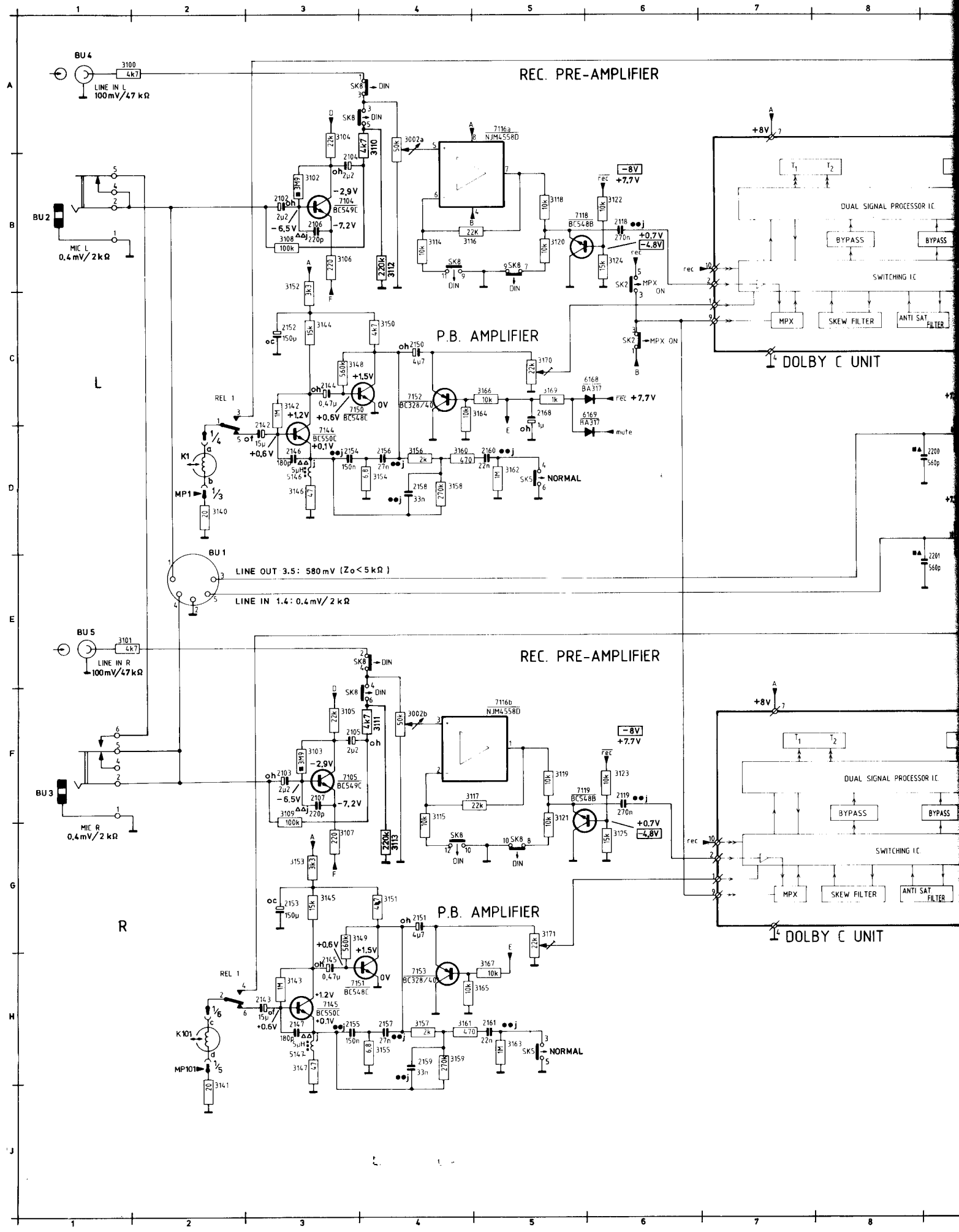


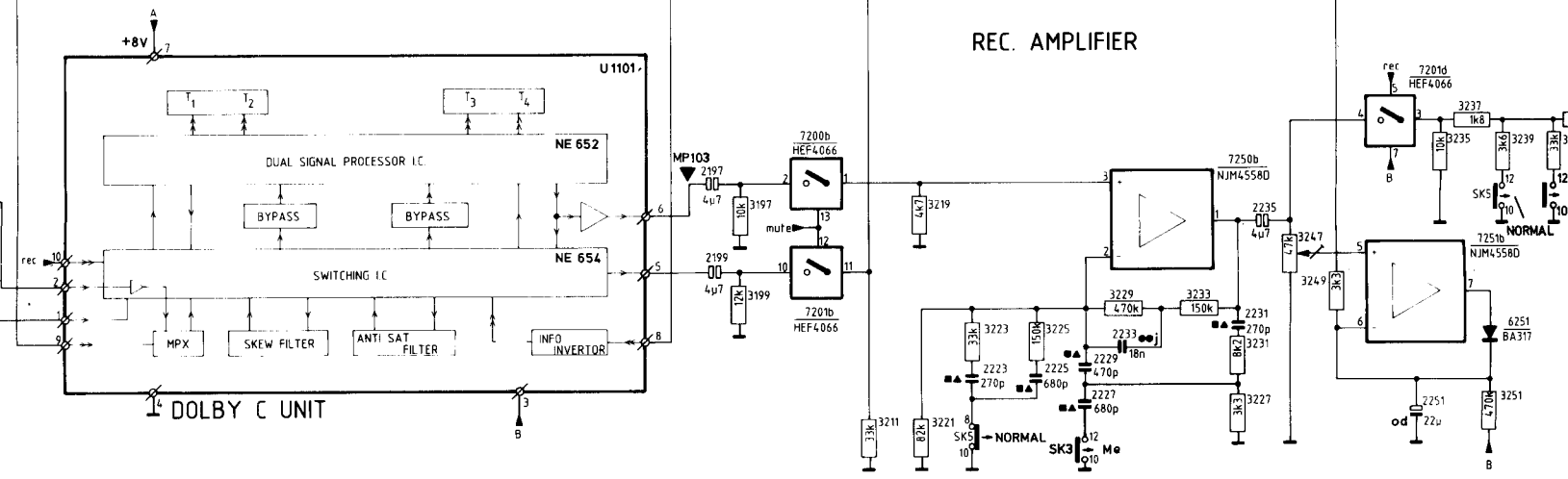
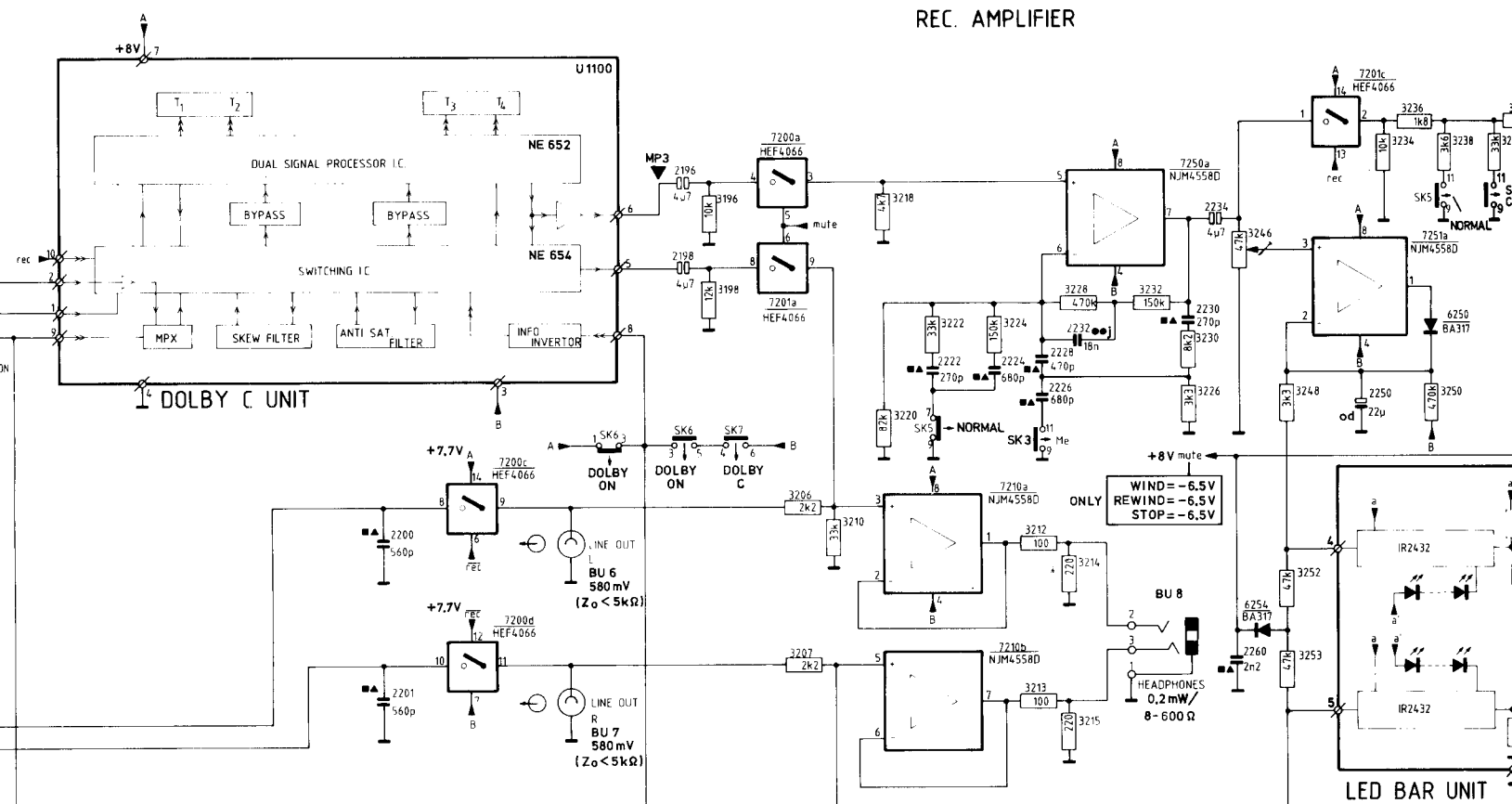
Fig. 7

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re su 290 mV
 segnale AF (bias
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 zo di 3284
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 a della riposta in
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CIRCUIT DIAGRAM A





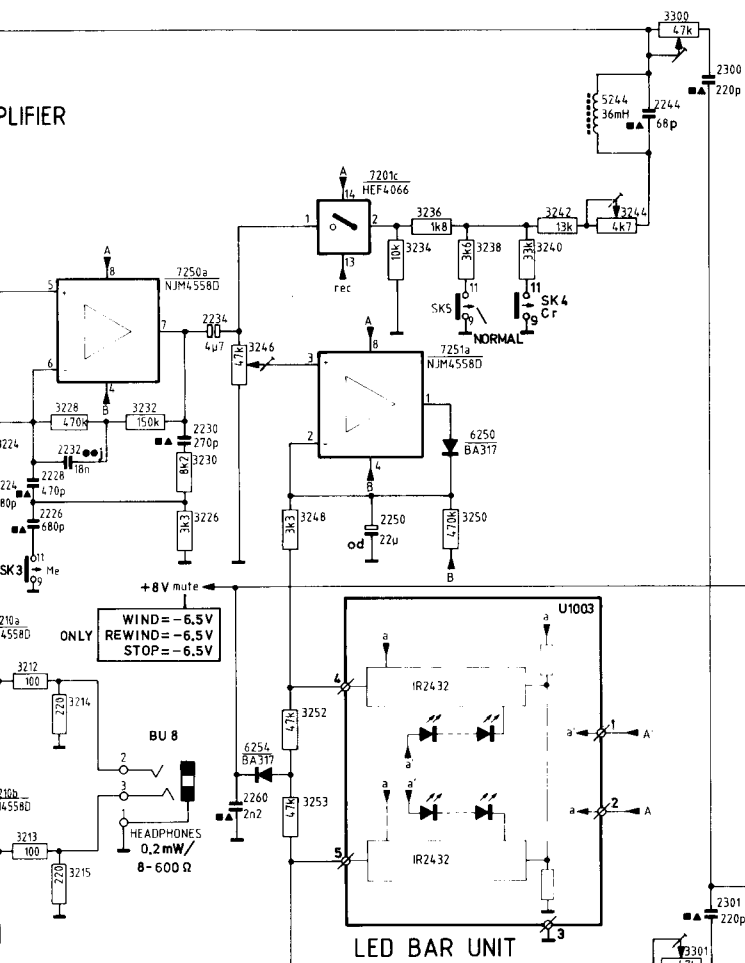
.....V PLAYBACK
V ONLY RECORDING
 REC: ALL MODES EXCEPT RECORDING
 REC: ONLY RECORDING MODE
 MUTE: ONLY WIND, REW AND STOP MODE

- CONNECTOR-PLUG "/>POINT..
- SOLDERING POINT..... ON PANEL
- MEASURING POINT
- UNIT CONNECTION POINT
- DC CONTROL
- AF SIGNAL

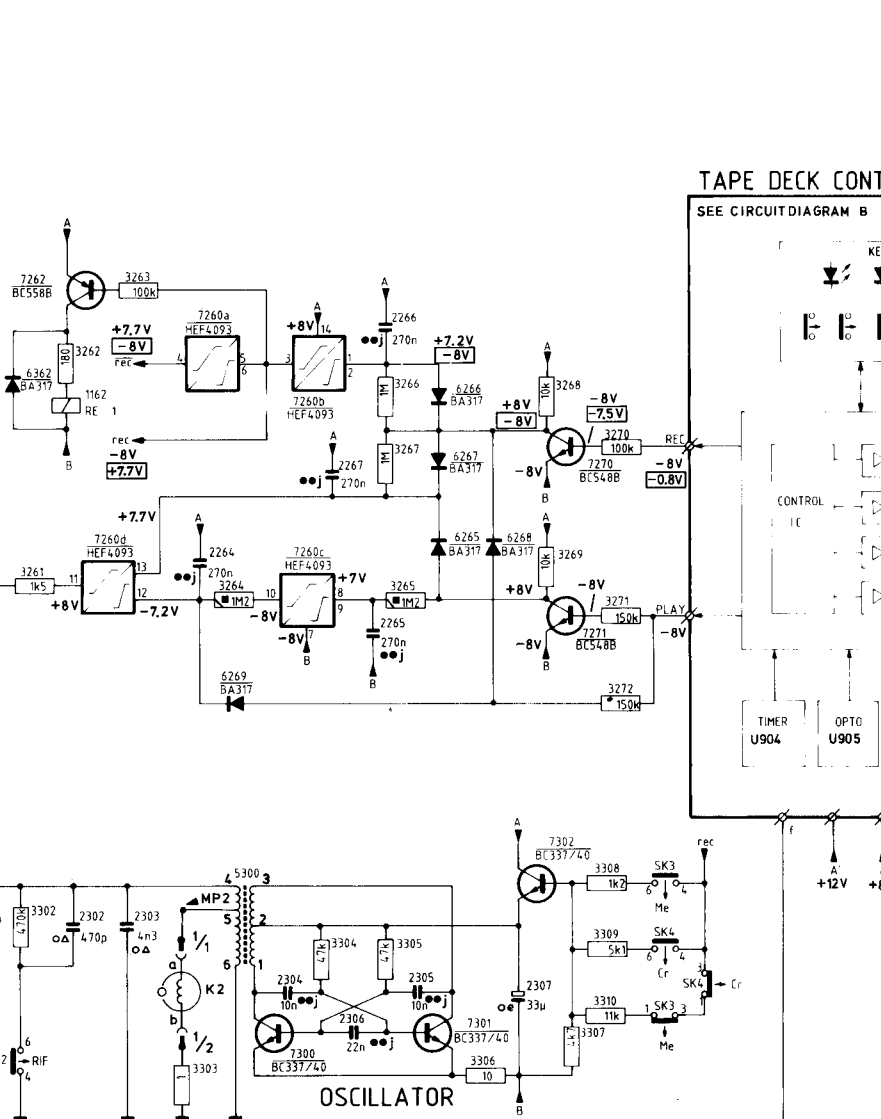
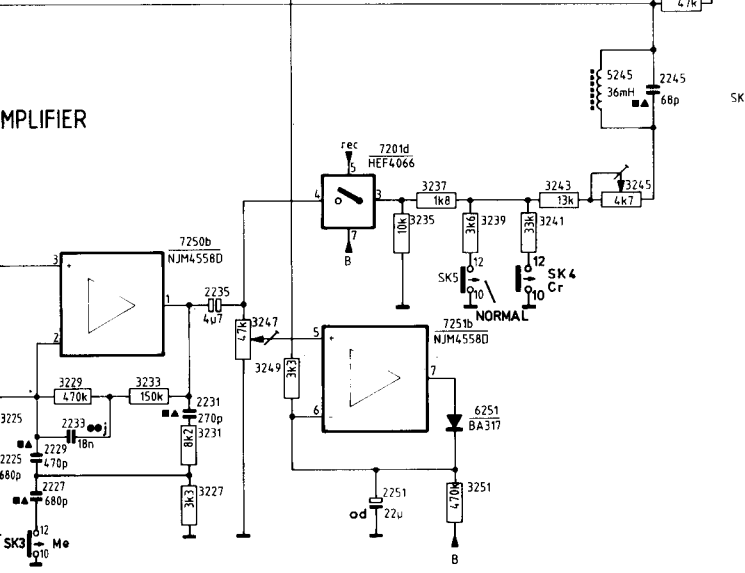
- 0.25W ±5% VR 25
- 0.33W ±5% SFR 25
- 0.4 W ±1% MR 25
- CERAMIC PLATE CAP.
- POLYESTER FLATFILM CAP.
- MINIATURE ELECTROLYTIC CAP.
- TUBULAR CERAMIC
- MICRO POCO

Fig. 8

AMPLIFIER



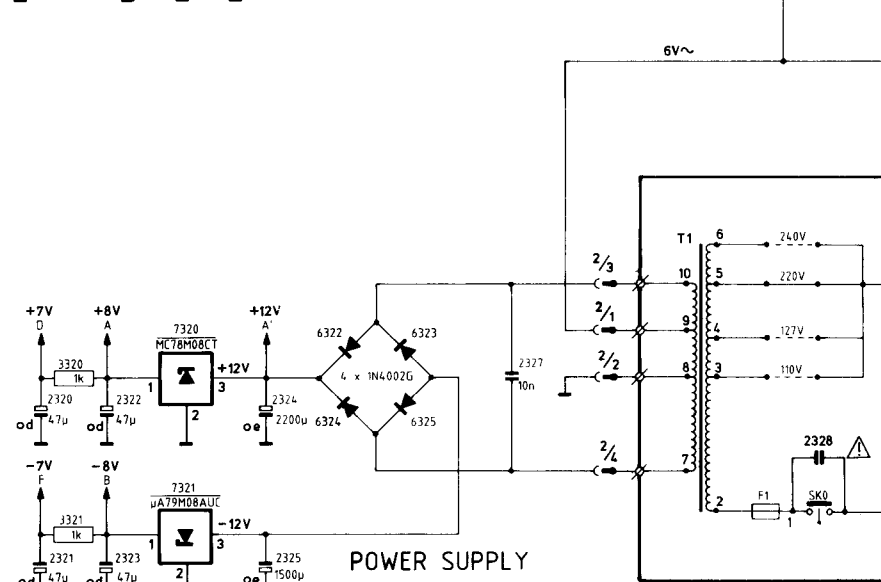
AMPLIFIER



TAPE DECK CONT
SEE CIRCUIT DIAGRAM B

LED BAR UNIT

OSCILLATOR

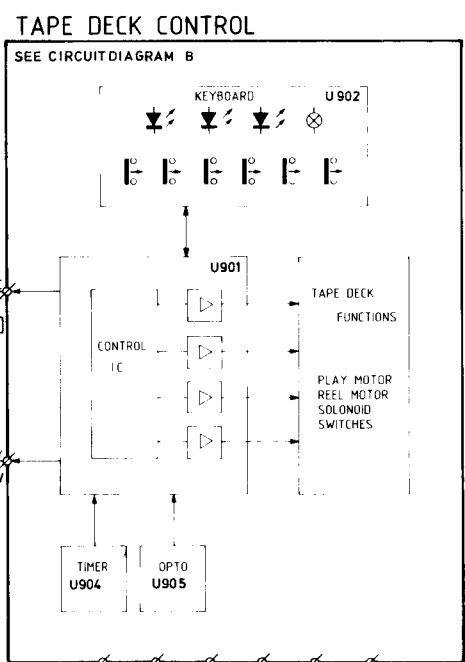
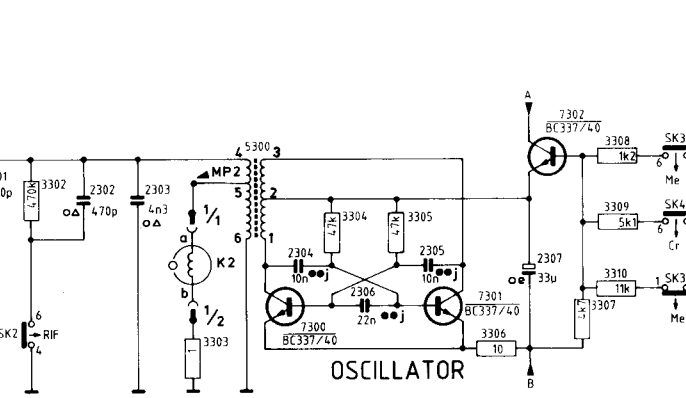
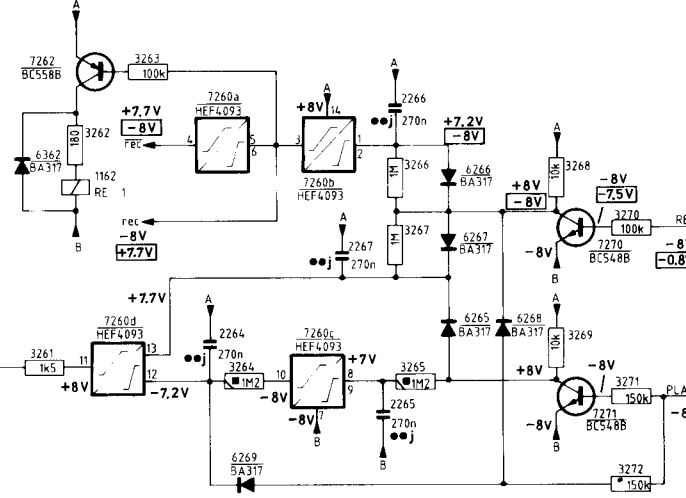
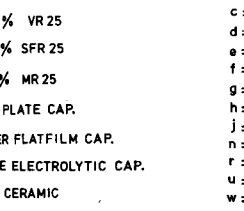
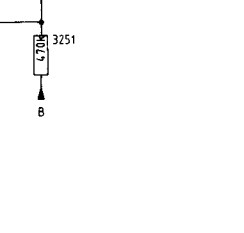
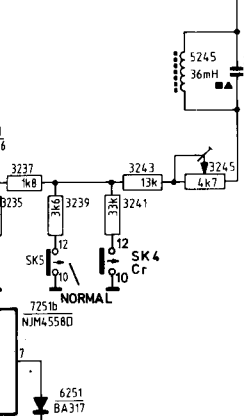
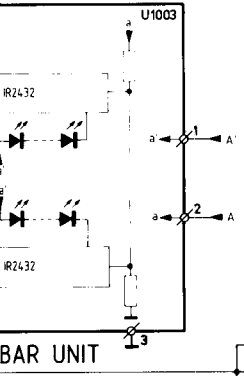
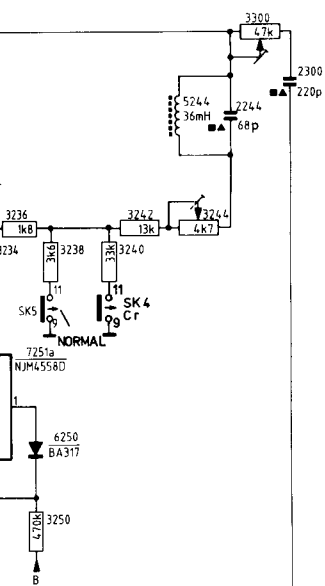


- CONNECTOR-PLUG **/POINT..
- SOLDERING POINT....ON PANEL
- MEASURING POINT
- UNIT CONNECTION POINT
- DC CONTROL
- AF SIGNAL

- 0.25W ±5% VR 25
- 0.33W ±5% SFR 25
- 0.4W ±1% MR 25
- CERAMIC PLATE CAP.
- POLYESTER FLATFILM CAP.
- MINIATURE ELECTROLYTIC CAP.
- TUBULAR CERAMIC
- MICRO POCO

- c = 6.3V
- d = 10V
- e = 16V
- f = 25V
- g = 40V
- h = 63V
- j = 100V
- n = 160V
- r = 250V
- u = 400V
- w = 630V

POWER SUPPLY



- c = 6.3V
- d = 10V
- e = 16V
- f = 25V
- g = 40V
- h = 63V
- j = 100V
- n = 160V
- r = 250V
- u = 400V
- w = 630V

% VR 25
% SFR 25
% MR 25
PLATE CAP.
R PLATIFILM CAP.
E ELECTROLYTIC CAP.
CERAMIC
OCO

fig 8 fig 9
ITEM CD PCB

F1 H20
K1 D02 C07
K2 E17 B07
M1 B39 B06
M2 G37 C06

T1 C20 B02
BU1 E02 I01
BU2 B01 H05
BU3 F01 I05
BU4 A01 H01

BU5 E01 H01
BU6 D10 H01
BU7 E10 H01
BU8 D13 H05
RE1 C17 D04

SK0 H21 A01
SK2 F16
SK2 C06 E05
SK3 C12
SK3 E20

SK3 H12 F05
SK4 E20
SK4 B15
SK4 F15 F05
SK5 H12

SK5 C12
SK5 F15
SK5 H05
SK5 B15
SK5 D05 F05

SK6 C10 G05
SK7 C11 G05
SK8 F04
SK8 A04
SK8 G05 G05

1901 G25 G06
2102 B03 H04
2103 F03 I04
2104 B03 H04
2105 F03 I04

2106 B03 H04
2107 F03 I04
2118 B06 G04
2119 F06 G03
2142 D03 E04

2143 H03 E04
2144 C03 E03
2145 H03 E03
2146 D03 E04
2147 H03 E04

2150 C04 E03
2151 G04 E03
2152 C03 F04
2153 G03 F03
2154 D03 E03

2155 H03 E04
2156 D04 E03
2157 H04 E03
2158 D04 E04
2159 H04 E03

2160 D05 E04
2161 H05 E04
2168 D05 F03
2196 B10 I03
2197 F10 I02

2198 C10 G03
2199 G10 G03
2200 D09 H01
2201 E09 H01
2222 C12 F04

2223 G12 G04
2224 C12 F04
2225 G12 G04
2226 C12 F04
2227 G12 F04

2228 C12 F04
2229 G12 G04
2230 C13 F03
2231 G13 F03
2232 C13 F03

2233 G13 G03
2234 B13 F03
2235 G13 F03
2244 A16 D03
2245 F16 D03

fig.8 fig 9
ITEM CD PCB

2250 C14 E02
2251 G14 E02
2260 D14 D02
2264 C17 C02
2265 D18 C01

2266 B18 C02
2267 C18 C02
2300 A16 D04
2301 E16 D04
2302 E17 D05

2303 E17 D04
2304 E18 D05
2305 E18 D05
2306 E18 D05
2307 E19 D05

2320 H16 H04
2321 H16 H04
2322 H17 E02
2323 H17 E02
2324 H18 E01

2325 H18 E01
2326 F22 D01
2327 H19 E01
2328 H21 A01
2901 F28 C05

2902 H28 C04
2903 B30 A05
2904 B31 B05
2905 B32 B05
2906 C29 B05

2907 H32 B05
2909 H35 B04
2910 F37 A04
2911 B35 A05
2912 C36 A05

2913 A36 A05
2914 A37 A05
3002A A04 F07
3002B F04 F07
3100 A01 H05

3101 E01 H05
3102 B03 H04
3103 F03 I04
3104 A03 H04
3105 F03 I04

3106 B03 H05
3107 G03 I05
3108 B03 H04
3109 G03 I04
3110 B04 H04

3111 F04 I04
3112 B04 H05
3113 G04 H05
3114 B04 H05
3115 G04 G04

3116 B04 H04
3117 F04 G05
3118 B05 H04
3119 F05 G04
3120 B05 G05

3121 G05 G04
3122 F06 H04
3123 F06 H04
3124 B06 H04
3125 G06 H04

3140 D02 E04
3141 J02 E04
3142 C03 E04
3143 H03 E04
3144 C03 F04

3145 G03 E04
3146 D03 E04
3147 H03 E04
3148 C03 E03
3149 G03 E03

3150 C04 E03
3151 G04 E03
3152 C03 F04
3153 G03 F04
3154 D04 E03

3155 H04 E04
3156 D04 E03
3157 H04 E03
3158 D04 E04
3159 H04 E04

fig 8 fig 9
ITEM CD PCB

3160 D04 E04
3161 G14 E04
3162 D05 F05
3163 H05 F05
3164 C04 F03

3165 H05 F03
3166 C05 F03
3167 H05 F03
3169 C05 F03
3170 C05 G03

3171 H05 G02
3186 B10 H01
3197 G10 H01
3198 C10 G02
3199 G10 G02

3206 D11 G01
3207 D11 G01
3210 D11 G02
3211 H11 G02
3212 D12 G05

3213 E12 G05
3214 D12 G05
3215 E12 G05
3218 B11 G03
3219 G11 F03

3220 C11 F03
3221 H11 G03
3222 C12 F04
3223 G12 G04
3224 C12 F04

3225 G12 G04
3226 C13 F04
3227 G13 F04
3228 C13 F03
3229 G13 G03

3230 C13 F04
3231 G13 F04
3232 C13 F03
3233 G13 F03
3234 B14 F02

3235 F14 F02
3236 B14 F02
3237 F14 F02
3238 B15 F04
3239 F15 F04

3240 B15 F04
3241 F15 F04
3242 B15 F03
3243 F15 F02
3244 B16 E03

3245 F15 E03
3246 B14 F02
3247 G14 F02
3248 C14 E03
3249 G14 E03

3250 C15 E02
3251 G15 E02
3252 D14 E02
3253 D14 D02
3261 C16 D02

3262 B17 D03
3263 B17 D03
3264 C17 C01
3265 C18 C01
3266 C18 C02

3267 C18 C02
3268 C19 C02
3269 C19 C02
3270 C19 C03
3271 D19 C03

3272 D19 C02
3300 A16 D04
3301 E16 D03
3302 E16 D05
3303 F17 D04

3304 E18 D05
3305 E18 D05
3306 F19 D05
3307 F19 E05
3308 E19 E05

3309 E19 E05
3310 E19 E05
3320 H16 H04
3321 H16 H04
3901 H28 B04

fig.8 fig 9
ITEM CD PCB

3902 H28 B04
3903 H28 C04
3904 J28 C04
3905 B30 A05
3906 B30 A05

3907 B30 A05
3908 B31 A05
3909 A31 B05
3910 B31 B05
3911 B31 B05

3912 B32 B05
3913 A32 B05
3914 A32 B04
3915 C34 A04
3916 D34 B04

3917 E34 B04
3918 H32 B05
3919 H33 B05
3920 H33 B04
3921 B33 B06

3922 H33 B05
3923 H33 B04
3924 H34 B04
3925 J34 A04
3926 H35 B04

3927 H35 B04
3930 H36 B04
3931 H36 B04
3932 F37 A04
3933 F37 A04

3934 G37 B05
3935 H38 B04
3936 A35 A04
3937 A35 A05
3938 A36 A05

3939 B36 A05
3940 E37 A05
3951 E26 I06
3952 F26 H06
3953 G26 H06

5146 D03 E04
5147 H03 E04
5244 A15 D03
5245 F15 D03
5300 E17 D05

6168 C06 E02
6169 D06 E02
6250 C15 F02
6251 G15 F02
6254 D14 E02

6265 C19 C02
6266 C19 C02
6267 C19 C02
6268 C19 C03
6269 D17 C02

6322 H18 E01
6323 H18 E01
6324 H18 E01
6325 H18 E01
6326 F21 D01

6362 B16 D03
6901 B31 B05
6902 A32 B05
6903 C32 B05
6904 C32 B05

6905 D33 A04
6906 D33 A04
6907 E33 B04
6908 E33 B04
6909 H34 B04

6910 C32 B05
6912 B35 A04
6913 B36 A05
6921 F26 I06
6922 F26 H06

6923 F26 H06
7104 B03 H04
7105 F03 I04
7116 H04
7116A A05

7116B F05
7118 B05 G04
7119 F05 G04
7144 D03 E04
7145 H03 E04

fig 8 fig 9
ITEM CD PCB

7150 C03 E03
7151 H03 E03
7152 C04 F03
7153 H04 F03
7200 G01

7200A B11
7200B F11
7200C D09
7200D D09
7201 F02

7201A C11
7201B G11
7201C B14
7201D F14
7210 G04

7210A D12
7210B D12
7250 F03
7250A B13
7250B F13

7251 F02
7251A B15
7251B G15
7260 C01
7260A B17

7260B C18
7260C C18
7260D C17
7262 B16 D03
7270 C19 C03

7271 D19 C03
7300 F18 D05
7301 E19 D05
7302 E19 E05
7320 B17 E02

7321 H17 D02
7901 C31 B05
7903 B37 A04
7904 A30 A05
7905 A31 A05

7906 B32 B05
7907 H33 B04
7908 H34 B04
7909 H35 B04
7910 H35 B04

7911 A33 B05
7912 E36 A04
7913 G36 B04
7914 H36 A04
7915 E37 A04

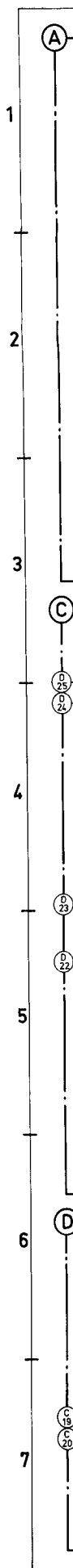
7916 G37 A04
7917 H37 B04
7918 A35 A04
7921 H27 A06
K101 H02 C07

U901 A37 B03
U902 C27 I06
U904 B32 F06
U905 H27 B06
RE251 H34 A06

SK903 F25 H08
SK904 G25 H08
SK905 E25 I07
SK906 D25 H08
SK907 D25 H08

SK908 F25 I07
SK909 F28 A07
SK910 F29 B07
SK911 B32 E06
U1001 G21 B01

U1003 C15 E07
U1100 A10 H03
U1101 F10 H02



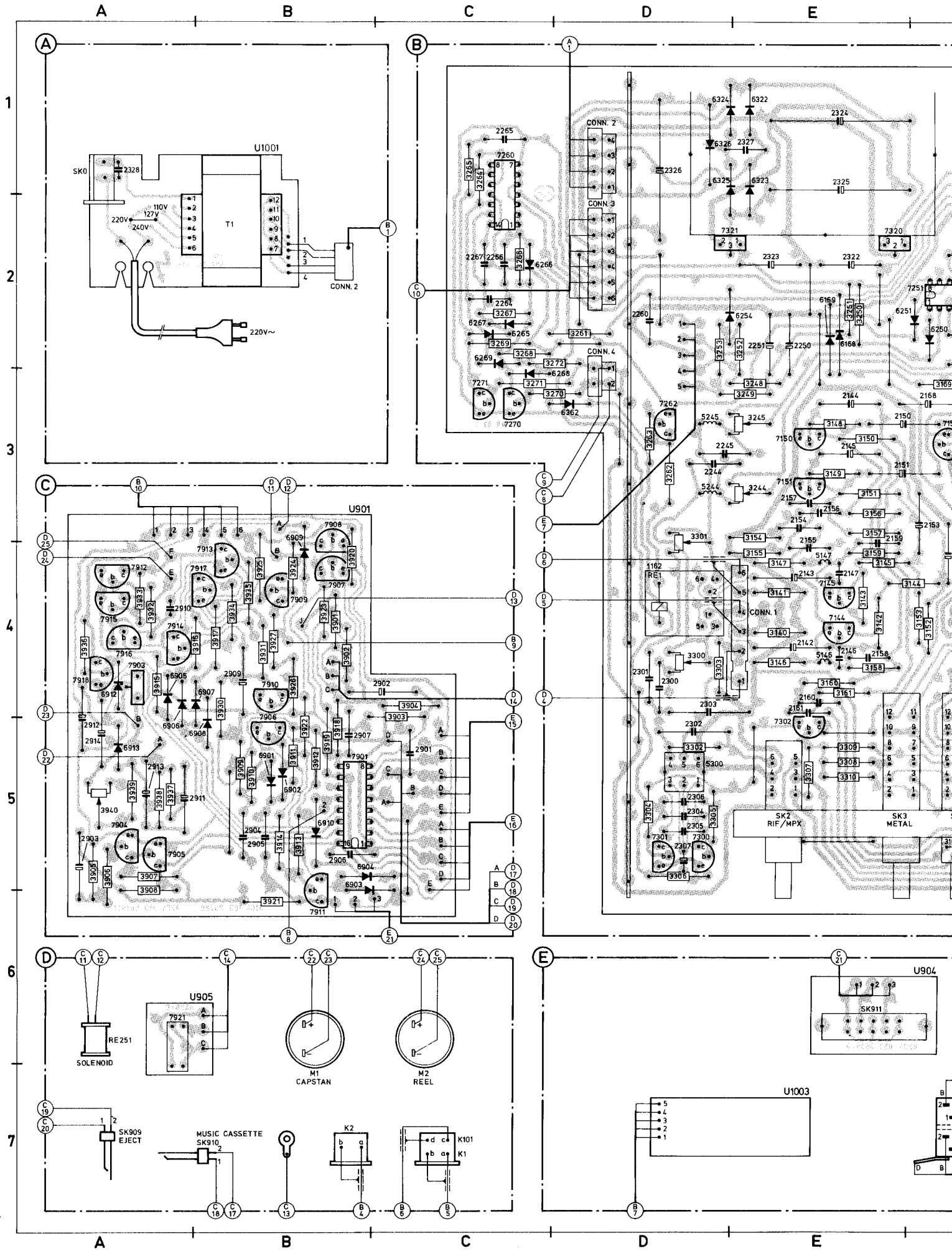


Fig. 9

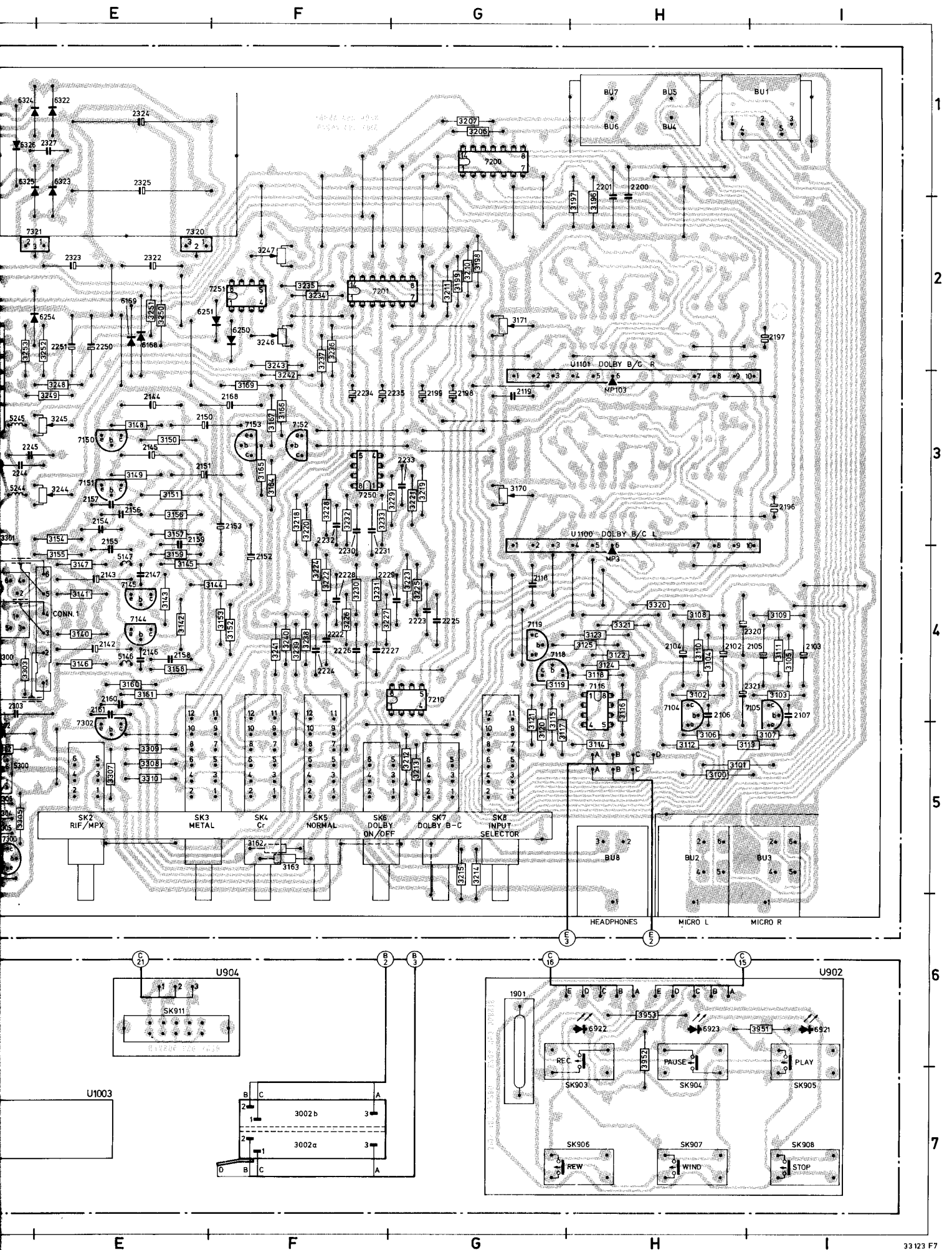


Fig. 9

CIRCUIT DIAGRAM B

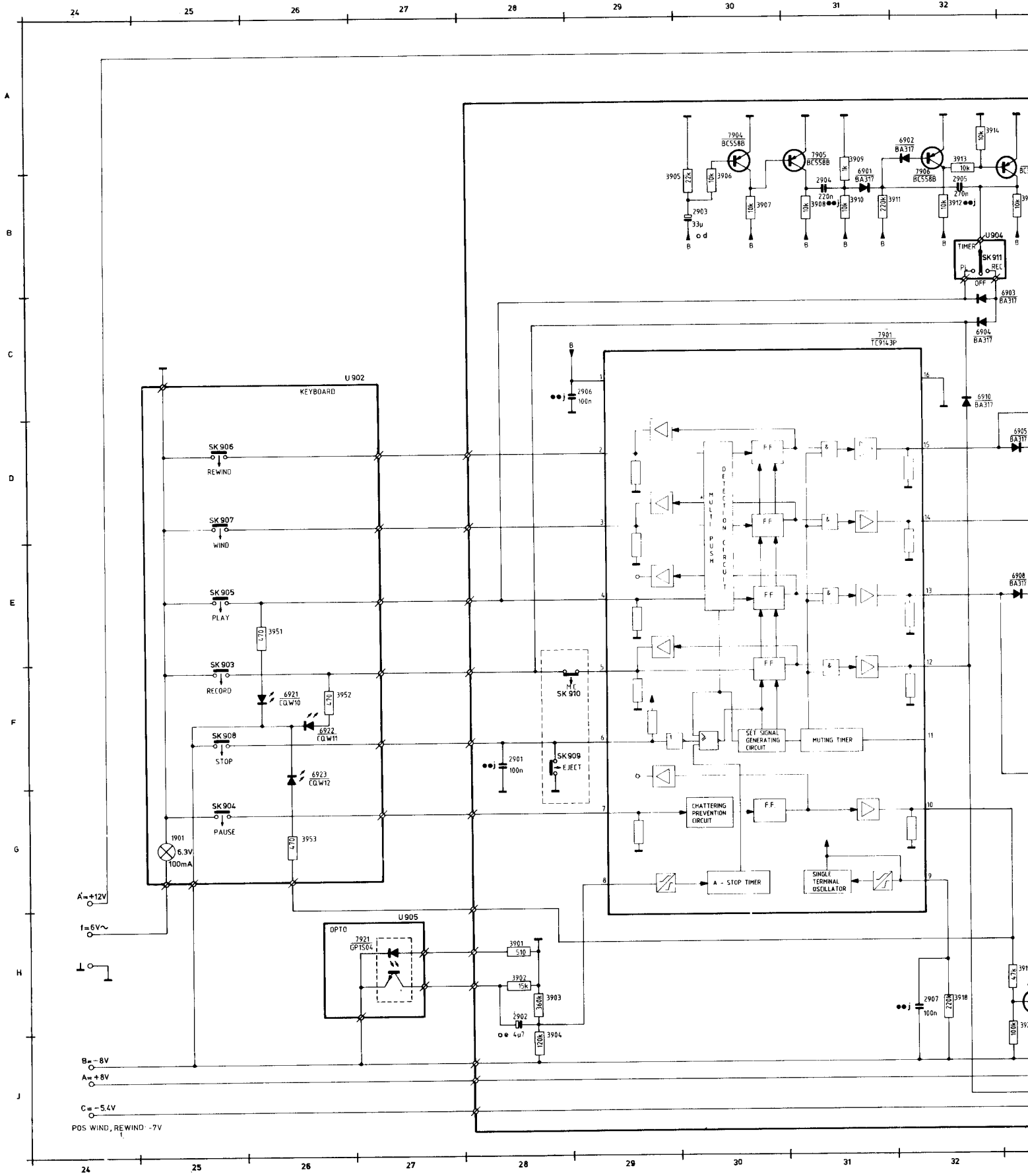


Fig. 10

ITEM CD

M1	B39	2903	B30	2909	H35	2914	A37	3905	B30	3910	B31	3915	C34	3920	H33	3925	J34	3932	F37	3937	A35	3952	F26	6904
M2	C37	2904	B31	2910	F37	3901	H28	3906	B30	3911	B31	3916	D34	3921	B33	3926	H35	3933	F37	3938	A36	3953	C26	6905
1901	G25	2905	B32	2911	B35	3902	H28	3907	B30	3912	B32	3917	E34	3922	H33	3927	H35	3934	C37	3939	B36	6901	B31	6906
2901	F28	2906	C29	2912	C36	3903	H28	3908	B31	3913	A32	3918	H32	3923	H33	3930	H36	3935	H38	3940	B37	6902	A32	6909
2902	H28	2907	H32	2913	A36	3904	J28	3909	A31	3914	A32	3919	H33	3924	H34	3931	H36	3936	A35	3951	E26	6903	C32	6908

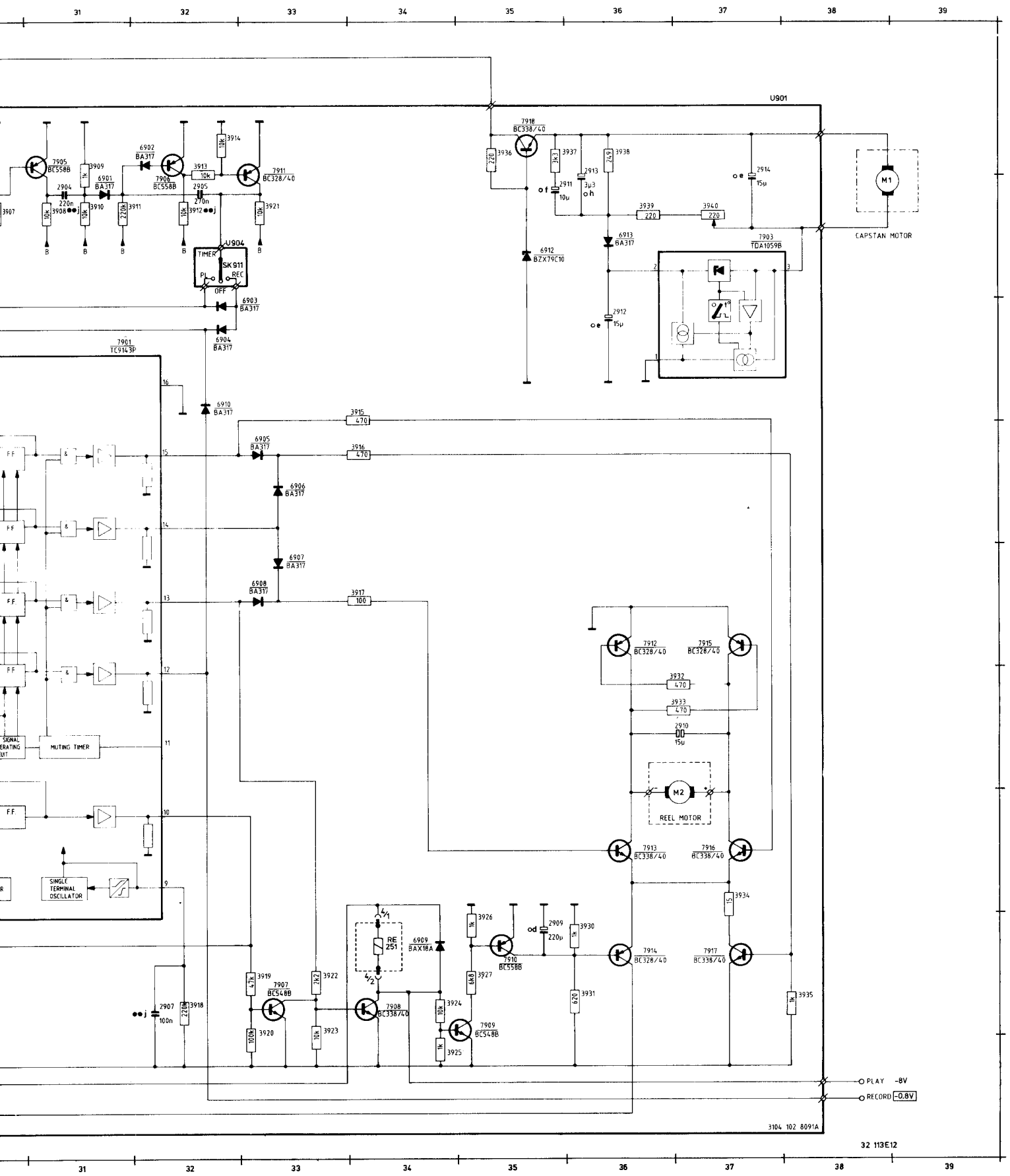
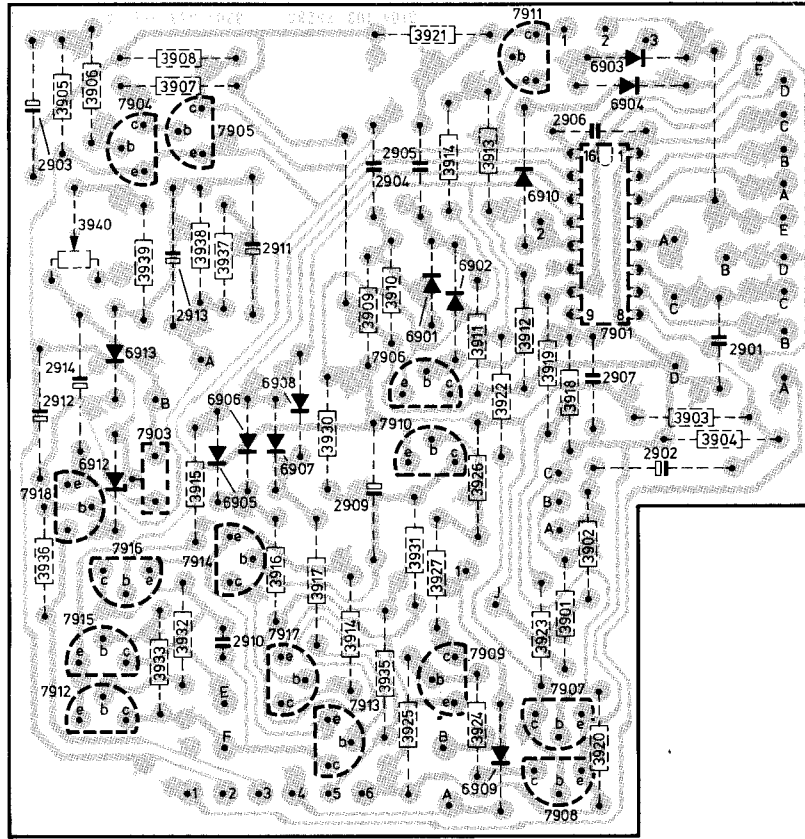


Fig. 10

3925	J34	3932	F37	3937	A35	3952	F26	6904	C32	6909	H34	6922	F26	7905	A31	7910	H35	7915	E37	U901	A37	SK903	F25	SK908	F25
3926	H35	3933	F37	3938	A36	3953	G26	6905	D33	6910	C32	6923	F26	7906	B32	7911	A33	7916	G37	U902	C27	SK904	G25	SK909	F28
3927	H35	3934	G37	3939	B36	6901	B31	6906	D33	6912	B35	7901	C31	7907	H33	7912	E36	7917	H37	U904	B32	SK905	E25	SK910	F29
3930	H36	3935	H38	3940	B37	6902	A32	6907	E33	6913	B36	7903	B37	7908	H34	7913	G36	7918	A35	U905	H27	SK906	D25	SK911	B32
3931	H36	3936	A35	3951	E26	6903	C32	6908	E33	6921	F26	7904	A30	7909	H35	7914	H36	7921	H27	RE251	H34	SK907	D25		



33260 C19

Fig. 11

VOLTAGE ON IC7901

	Pin	Rec	Pause	Play	Rew	Wind	Stop	Remark
Power supply	1	-8 V	-8 V	-8 V	-8 V	-8 V	-8 V	Power on (-3 V temporary)
Rewind input	2	-8 V	-8 V	-8 V	0 V	-8 V	-8 V	
Wind input	3	-8 V	-8 V	-8 V	-8 V	0 V	-8 V	
Play input	4	-8 V	-8 V	-0.8 V	-8 V	-8 V	-8 V	
Rec. input	5	-0.8 V	-8 V	-8 V	-8 V	-8 V	-8 V	
Reset+stop input	6	0 V	0 V	0 V	0 V	0 V	(-8 V)	
Pause input	7	-8 V	0 V	-8 V	-8 V	-8 V	-8 V	Clock freq. Not connected
Automatic stop	8	-8 V or 0 V	-8 V or 0 V	8 vtt	8 vtt	-8 V or 0 V	-8 V	
Clock	9	fig. 12	fig. 12	fig. 12	fig. 12	fig. 12	(-7 V)	
Pause output	10	-8 V	≥ -1.2 V	-8 V	-8 V	-8 V	-8 V	
Mute output	11							
Rec output	12	≥ -1.2 V	-8 V	-8 V	-8 V	-8 V	-8 V	
Play output	13	-8 V	-8 V	≥ -1.2 V	-8 V	-8 V	-8 V	
Wind output	14	-8 V	-8 V	-8 V	-8 V	≥ -1.2 V	-8 V	
Rewind output	15	-8 V	-8 V	-8 V	≥ -1.2 V	-8 V	-8 V	
Power supply +	16	0 V	0 V	0 V	0 V	0 V	0 V	

() = pressed in switch situation

CLOCK FREQUENCY

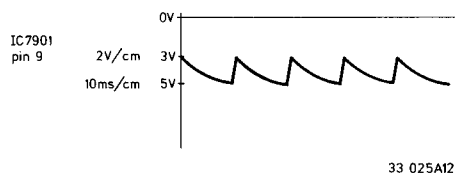


Fig. 12

VOLTAGES ON MOTOR M2

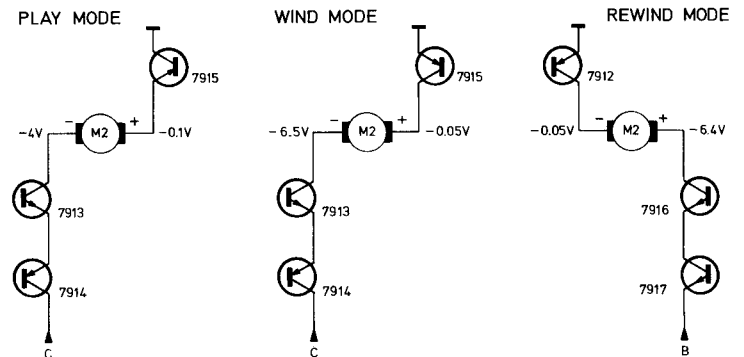
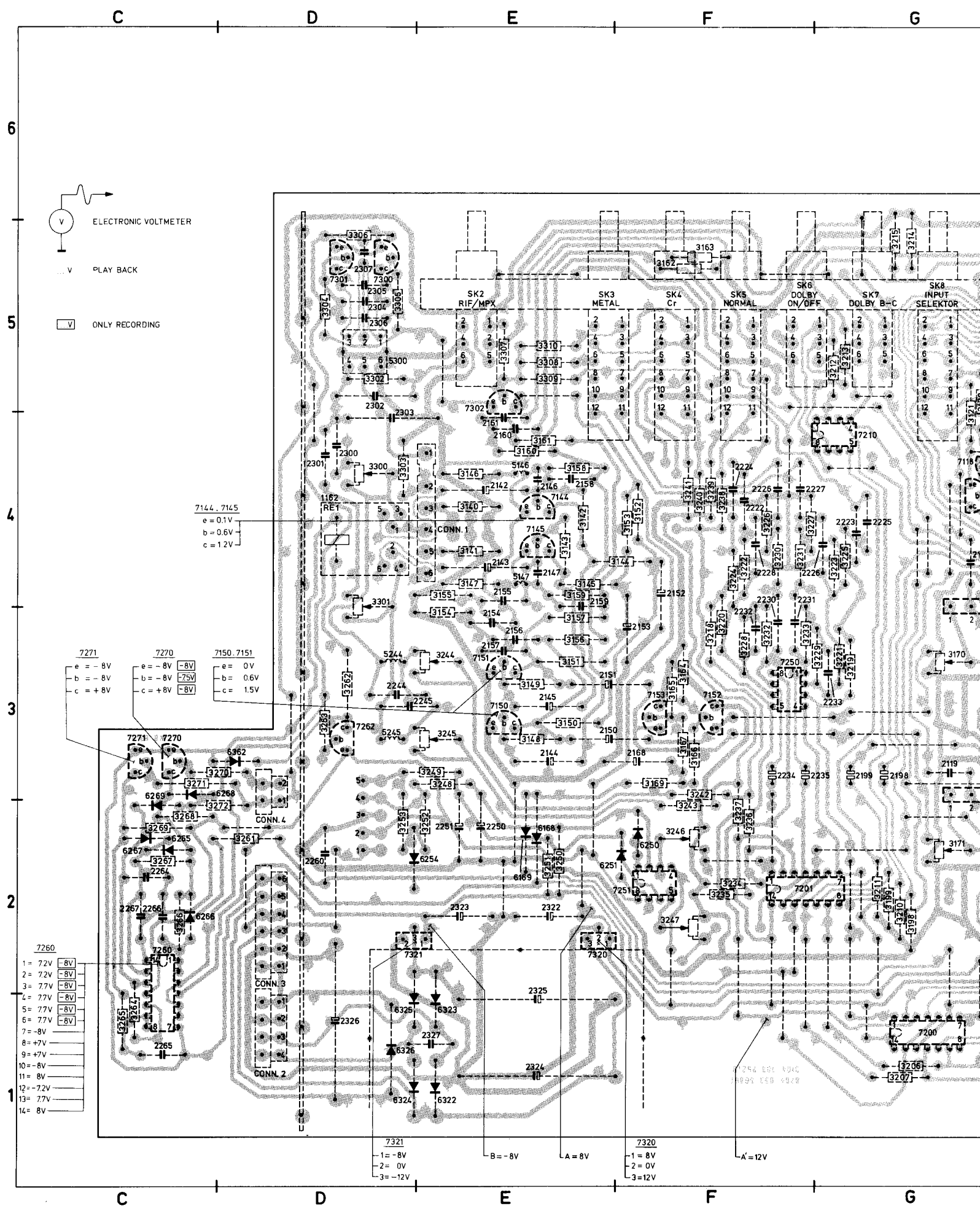


Fig. 13

ITEM	PCB	ITEM	PCB	ITEM	PCB	ITEM	PCB	ITEM	PCB	ITEM	PCB
BU1	I01	2198	G03	3102	H04	3161	E04	3241	F04	6250	F02
BU2	H05	2199	G03	3103	I04	3162	F05	3242	F03	6251	F02
BU3	I05	2200	H01	3104	H04	3163	F05	3243	F02	6254	E02
BU4	H01	2201	H01	3105	I04	3164	F03	3244	E03	6265	C02
BU5	H01	2222	F04	3106	H05	3165	F03	3245	E03	6266	C02
BU6	H01	2223	G04	3107	I05	3166	F03	3246	F02	6267	C02
BU7	H01	2224	F04	3108	H04	3167	F03	3247	F02	6268	C03
BU8	H05	2225	G04	3109	I04	3169	F03	3248	E03	6269	E02
RE1	D04	2226	F04	3110	H04	3170	G03	3249	E03	6322	E01
SK2	E05	2227	F04	3111	I04	3171	G02	3250	E02	6323	E01
SK3	F05	2228	F04	3112	H05	3196	H01	3251	E02	6324	E01
SK4	F05	2229	G04	3113	H05	3197	H01	3252	E02	6325	E01
SK5	F05	2230	F03	3114	H05	3198	G02	3253	D02	6326	D01
SK6	G05	2231	F03	3115	G04	3199	G02	3261	D02	6362	D03
SK7	G05	2232	F03	3116	H04	3206	G01	3262	D03	7104	H04
SK8	G05	2233	G03	3117	G05	3207	G01	3263	D03	7105	I04
2102	H04	2234	F03	3118	H04	3210	G02	3264	C01	7116	H04
2103	I04	2235	F03	3119	G04	3211	G02	3265	C01	7118	G04
2104	H04	2244	D03	3120	G05	3212	G05	3266	C02	7119	G04
2105	I04	2245	D03	3121	G04	3213	G05	3267	C02	7144	E04
2106	H04	2250	E02	3122	H04	3214	G05	3268	C02	7145	E04
2107	I04	2251	E02	3123	H04	3215	G05	3269	C02	7150	E03
2118	G04	2260	D02	3124	H04	3218	F03	3270	C03	7151	E03
2119	G03	2264	C02	3125	H04	3219	G03	3271	C03	7152	F03
2142	E04	2265	C01	3140	E04	3220	F03	3272	C02	7153	F03
2143	E04	2266	C02	3141	E04	3221	G03	3300	D04	7200	G01
2144	E03	2267	C02	3142	E04	3222	F04	3301	D03	7201	F02
2145	E03	2300	D04	3143	E04	3223	G04	3302	D05	7210	G04
2146	E04	2301	D04	3144	F04	3224	F04	3303	D04	7250	F03
2147	E04	2302	D05	3145	E04	3225	G04	3304	D05	7251	F02
2150	E03	2303	D04	3146	E04	3226	F04	3305	D05	7260	C01
2151	E03	2304	D05	3147	E04	3227	F04	3306	D05	7262	D03
2152	F04	2305	D05	3148	E03	3228	F03	3307	E05	7270	C03
2153	F03	2306	D05	3149	E03	3229	G03	3308	E05	7271	C03
2154	E03	2307	D05	3150	E03	3230	F04	3309	E05	7300	D05
2155	E04	2320	H04	3151	E03	3231	F04	3310	E05	7301	D05
2156	E03	2321	H04	3152	F04	3232	F03	3320	H04	7302	E05
2157	E03	2322	E02	3153	F04	3233	F03	3321	H04	7320	E02
2158	E04	2323	E02	3154	E03	3234	F02	5146	E04	7321	D02
2159	E03	2324	E01	3155	E04	3235	F02	5147	E04	U1100	H03
2160	E04	2325	E01	3156	E03	3236	F02	5244	D03	U1101	H02
2161	E04	2326	D01	3157	E03	3237	F02	5245	D03		
2168	F03	2327	E01	3158	E04	3238	F04	5300	D05		
2196	I03	3100	H05	3159	E04	3239	F04	6168	E02		
2197	I02	3101	H05	3160	E04	3240	F04	6169	E02		



V ELECTRONIC VOLTMETER

V PLAY BACK

V ONLY RECORDING

7144, 7145
e = 0.1V
b = 0.6V
c = 12V

7271	7270	7150, 7151
e = -8V	e = -8V	e = 0V
b = -8V	b = -8V	b = 0.6V
c = +8V	c = +8V	c = 1.5V

7260	
1 = 72V	-8V
2 = 72V	-8V
3 = 77V	-8V
4 = 77V	-8V
5 = 77V	+8V
6 = 77V	-8V
7 = -8V	
8 = +7V	
9 = +7V	
10 = -8V	
11 = 8V	
12 = 72V	
13 = 77V	
14 = 8V	

7321
-1 = -8V
-2 = 0V
-3 = -12V

B = -8V

A = 8V

7320
-1 = 8V
-2 = 0V
-3 = 12V

7248 L01 404C
7249 L02 404C

Fig. 14

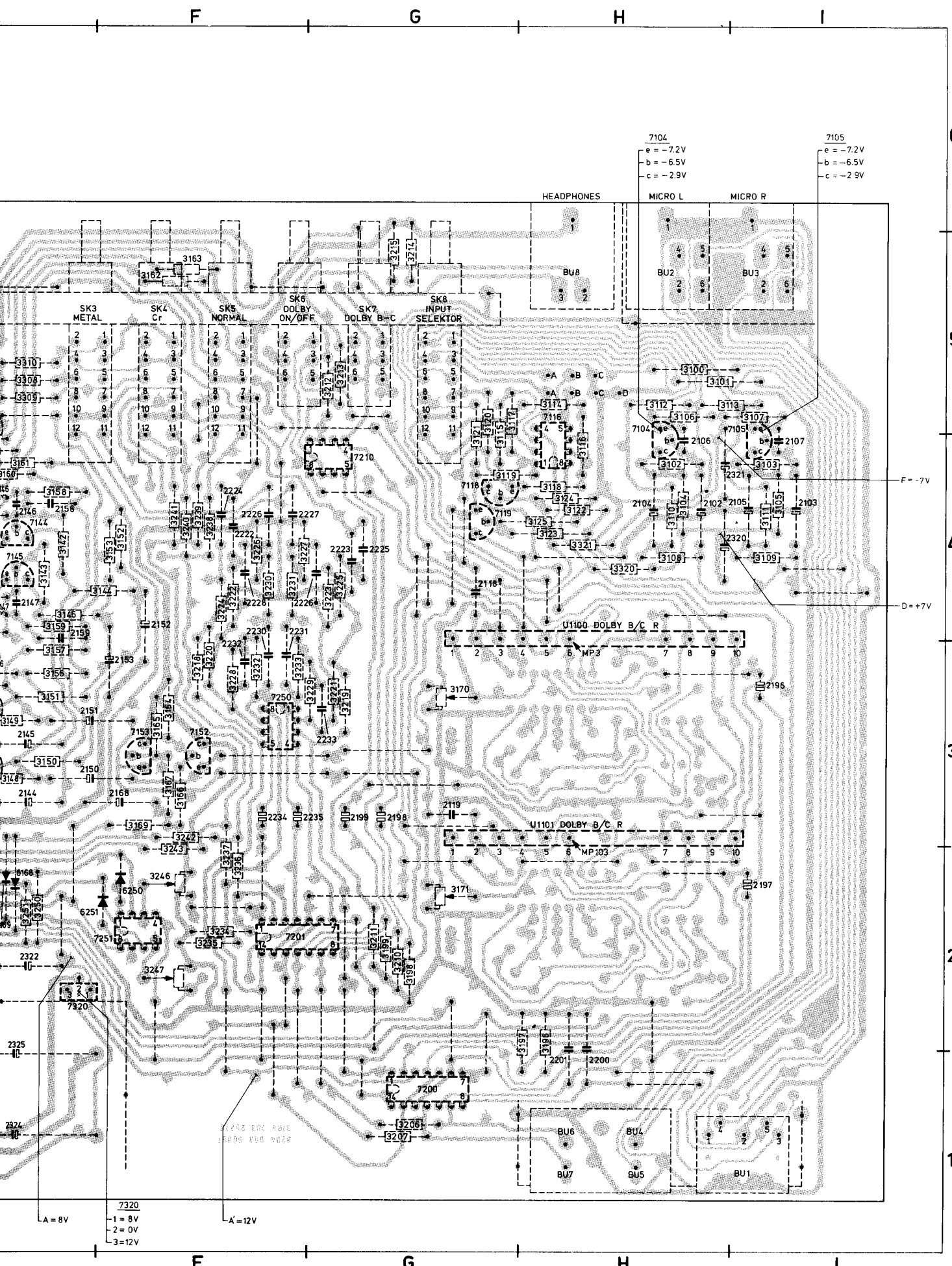


Fig. 14

DOLBY ELECTRICAL MEASUREMENTS

GB

SERVICING HINTS

- In case of possible audible deviations of the set in the "Dolby on" mode it is recommended first to check and measure the set in the "Dolby off" mode. It is necessary that the set functions well in the "Dolby off" mode and that the overall frequency response lies within the limits given in Fig. 6. For possible deviations in frequency response as a result of wear, contamination or wrong adjustments (bias and AF recording current) of the recording/playback head are strongly increased in the "Dolby on" mode. In case deviations are observed during playback of cassettes which have been recorded on a second Dolby cassette recorder, it will be necessary to check that both cassette recorders have been adjusted optimally.

F

CONSEILS REPARATIONS

- Si des écarts sont audibles en position "Dolby on" il est conseillé de vérifier l'appareil et de procéder aux mesures en position "Dolby off". Il est indispensable que l'appareil fonctionne bien en position "Dolby off" et que la courbe totale de fréquence se situe dans les limites données en Fig. 6. Des écarts éventuels à la courbe de fréquence à la suite d'usure, d'encrassement ou de réglages erronés (du courant d'enregistrement BF et de prémagnétisation) de la tête enregistr./reprod. sont fortement amplifiés lorsque le Dolby est enclenché. Au cas où l'on remarque des écarts à la reproduction de cassettes que l'on a enregistré à l'aide d'un second magnétophone-cassette, il faudra s'assurer que les deux appareils jouissent d'un réglage optimal.

I

CONSIGLI RIPARAZIONE

- Se delle variazioni sono audibili in posizione "Dolby on" consigliamo di verificare l'apparecchio e di procedere alle misure in posizione "Dolby off". È essenziale che l'apparecchio funzioni bene in posizione "Dolby off" e che la curva totale di frequenza rimanga nei limiti dati in Fig. 6. Delle variazioni eventuali della curva di frequenza in conseguenza di logorìo, di insudiciamento o di regolazioni sbagliate (corrente di registrazione BF e premagnetizzazione) della testina registr./riprod. sono molto amplificati quando il "Dolby" è in marcia. Nel caso ovè si avverte delle variazioni alla riproduzione di cassette che sarebbero registrate per mezzo di un secondo registratore a cassette, occorrerà assicurarsi che i due apparecchi siano ottimamente regolati.

NL

REPARATIEWENKEN

- Bij eventuele hoorbare afwijkingen van het apparaat in de positie "Dolby on" is het aan te bevelen het apparaat eerst te controleren en te meten in de positie "Dolby off". Het is noodzakelijk dat het apparaat goed funktioneert in de positie "Dolby off" en dat de "overall" frekwentiekarakteristiek binnen de grenzen ligt, welke in Fig. 6 zijn aangegeven. Eventuele afwijkingen in frequentiekarakteristiek tengevolge van slijtage, vervuiling of foutieve instellingen (Bias en LF opneemstroom) van de opneem/weergeefkop worden met ingeschakelde Dolby n.l. sterk vergroot. In het geval dat men afwijkingen waarneemt tijdens het weergeven van cassettes welke men op een tweede Dolby cassetterecorder heeft opgenomen, dient men zich ervan te overtuigen dat beide cassetterecorders optimaal zijn afgeregeld.

D

REPARATURHINWEISE

- Bei etwaigen hörbaren Abweichungen des Geräts in der Stellung "Dolby ON" empfiehlt es sich, zuerst das Gerät in der Stellung "Dolby OFF" zu prüfen und zu messen. Das Gerät muss unbedingt in der Stellung "Dolby OFF" einwandfrei funktionieren und der Gesamtfrequenzgang muss unbedingt in den Grenzen liegen, die in Bild 6 enthalten sind. Etwaige Abweichungen in Frequenzgang infolge Abnutzung, Verschmutzung oder Fehleinstellungen (Vormagnetisierung und NF-Aufnahmestrom) des A/W-Kopfes werden mit eingeschaltetem Dolby nämlich stark vergrößert. Falls Abweichungen während der Wiedergabe von Cassetten die mit einem zweiten Dolby-Cassettenrecorder aufgenommen worden sind, festgestellt werden, muss man sich davon überzeugen, dass beide Cassettenrecorder optimal eingestellt worden sind.

Measurements

DC level
*b

Sensitivity
1 Recording

2 Playback

Dolby B/C/ot
detection

Frequency
response

GB

Remarks:

- *a — The sequence of measurements is as shown in the path.
- *b — In most cases the location of the measurement is as shown.
- *c — Graphs show the frequency response across the frequency range of the recording and playback heads respectively (BU7) at the end of the cassette.

F

Remarques:

- *a — L'ordre de mesure est figuré dans le schéma de la mesure.
- *b — Si un IC est utilisé, la mesure doit être effectuée dans la position indiquée.
- *c — Les graphes montrent le comportement de la courbe de fréquence enregistrement et de lecture respectivement (BU7) à l'extrémité de la cassette.

I

Nota:

- *a — L'ordine di misura è indicato nella tabella 1.
- *b — Se uno IC è utilizzato, la misura deve essere effettuata nella posizione indicata.
- *c — Se uno IC è utilizzato, la misura deve essere effettuata nella posizione indicata.

Measurement	Cassette	Recorder in position	Apply signal to	Measure on	Read on	Adjust with	Value
DC level *b	—	Rec or Play Dolby Nr-on Dolby-C on	—	See table 1 *a	Electronic voltmeter	—	See table 1
Sensitivity 1 Recording	Arbitrary cassette	Rec Dolby Nr-on Dolby C on Line	315 Hz to BU4 (BU5)	BU6 (BU7)	mV-meter	LF-generator or recording level control	580 mV
				See table 1 *a	mV-meter	—	See table 1
2 Playback	—	Play Dolby Nr-on Dolby C on	315 Hz to MP1 (MP101)	BU6 (BU7)	mV-meter	LF-generator	580 mV
				See table 1 *a	mV-meter	—	See table 1
Dolby B/C/off detection	Arbitrary cassette	Rec	10 kHz to BU4 (BU5)	BU6 (BU7)	mV-meter	LF-generator or recording level control	580 mV
				NE652 see table 2	Electronic voltmeter	—	See table 2
Frequency response	Arbitrary cassette	Rec Dolby Nr-on Dolby B or C Line	315 Hz to BU4 (BU5)	BU6 (BU7)	mV-meter	LF-generator or recording level control	580 mV
			See table 3 column 2 (freq.) and 3 (level)	MP3 (MP103)	mV-meter	LF-generator or recording level control	See table 3 column 4 (Rec-out) *c

GB

Remarks:

- *a — The sequence of the connecting points to be measured in Table 1 also indicates the signal path.
- *b — In most cases a possibly defective Dolby IC can be located by measuring these DC voltages.
- *c — Graphs Fig. 15 and Fig. 16 show how the voltage across MP3 (MP103) rec.-out behaves with respect to the voltage across monitor output BU6 (BU7) at various input levels.

F

Remarques:

- *a — L'ordre de succession des points à mesurer qui figurent au tableau 1 donne également le parcours du signal.
- *b — Si un IC devait s'avérer défectueux, il pourrait dans la plupart des cas être localisé grâce à la mesure de ces tensions continues.
- *c — Les graphiques Fig. 15 et Fig. 16 montrent le comportement de la tension sur MP3 (MP103) rec-out par rapport à la sortie de moniteur BU6 (BU7) à des niveaux d'entrée différents.

I

Nota:

- *a — L'ordine di punti da misurare che figura nella tabella 1 dà anche il percorso del segnale.
- *b — Se uno IC dovesse verificarsi difettoso, potrebbe nella maggior parte essere localizzato grazie alla misura di queste tensioni continue.

NL

Opmerkingen:

- *a — De volgorde van de te meten aansluitpunten in tabel 1 geeft tevens de signaalweg aan.
- *b — Een eventueel defekt Dolby IC kan in de meeste gevallen worden gelokaliseerd door het meten van deze gelijkspanningen.
- *c — In de grafieken Fig. 15 en Fig. 16 is aangegeven hoe de spanning op MP3 (MP103) rec-out zich gedraagt t.o.v. de spanning op de monitoruitgang BU6 (BU7) bij verschillende ingangsniveaus.

D

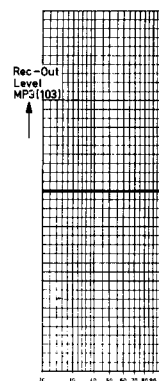
Bemerkungen:

- *a — Die Folge der zu messenden Anschlussstellen in Tabelle 1 stellt gleichzeitig den Signalweg dar.
- *b — Ein ggf. mangelhaftes Dolby-IC lässt sich häufig durch Messen der Gleichspannungen orten.
- *c — In den graphischen Darstellungen Fig. 15 und Fig. 16 ist angegeben, wie sich die Spannung an MP3 (MP103) "rec-out" gegenüber der Spannung an dem Monitorausgang BU6 (BU7) bei mehreren Eingangspegeln verhält.

- *c — I grafici Fig. 15 e Fig. 16 fanno apparire il comportamento della tensione su di MP3 (MP103) rec-out nei confronti della tensione di uscita del monitore BU6 (BU7) ai livelli diversi di tensione.

TABLE 2

-IC	
NE652 Pin	Dolby
11	9 V
12	9 V
14	2 V
15	9 V
16	9 V
17	9 V



Value

See table 1

580 mV

See table 1

580 mV

See table 1

580 mV

See table 2

580 mV

See table 3

column 4

(Rec-out)

*c

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MP3 (MP103)

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i tensione.

TABLE 1

Position REC				Position Play-back			
-IC				-IC-			
NE654 Pin	NE652 Pin	DC voltage (tol. ± 1 V)	AC voltage (tol. ± 1.5 dB)	NE654 Pin	NE652 Pin	DC voltage (tol. ± 1 V)	AC voltage (tol. ± 1.5 dB)
1		+9 V	38 mV	9		+9 V	30 mV
2		+9 V	300 mV	15		+9 V	387.5 mV
3		+9 V	180 mV		8	+9 V	387.5 mV
5		+9 V	580 mV		9	+9 V	387.5 mV
6		+9 V	387.5 mV	14		+9 V	387.5 mV
19		+9 V	387.5 mV	11		+9 V	387.5 mV
18		+9 V	387.5 mV	16		+9 V	387.5 mV
	4	+9 V	—		6	+9 V	—
	2	+9 V	387.5 mV	19		+9 V	387.5 mV
	1	+9 V	387.5 mV		2	+9 V	387.5 mV
20		+9 V	387.5 mV		1	+9 V	387.5 mV
11		+9 V	387.5 mV	20		+9 V	387.5 mV
10		+9 V	387.5 mV	18		+9 V	387.5 mV
16		+9 V	387.5 mV		4	+9 V	—
	6	+9 V	—			+9 V	580 mV
		+9 V	387.5 mV	5			
	8	+9 V	387.5 mV				
	9	+9 V	387.5 mV				

TABLE 2

-IC	Dolby mode		
	Dolby-off	Dolby-on B-type	Dolby-on C-type
NE652 Pin			
11	9 V	9 V	> 10.5 V
12	9 V	9 V	> 10.5 V
14	2 V	4.5 V	15.5 V
15	9 V	9 V	9 V
16	9 V	> 10.5 V	> 10.5 V
17	9 V	> 10.5 V	> 10.5 V

TABLE 3

Dolby-Mode	Frequency	Level BU6 (BU7)	Rec-out MP3 (MP103) Tol. ± 1.5 dB	Fig.
B	315 Hz	580 mV = 0 dB	580 mV (= 0 dB)*	15
B	10 kHz	18.3 mV = -30 dB	38 mV (= + 6.5 dB)*	15
B	1 kHz	5.8 mV = -40 dB	11.6 mV (= + 6 dB)*	15
B	5 kHz	5.8 mV = -40 dB	19 mV (= +10.3 dB)*	15
C	5 kHz	580 mV = 0 dB	440 mV (= - 2.3 dB)*	16
C	2 kHz	58 mV = -20 dB	100 mV (= + 4.5 dB)*	16
C	1 kHz	18.3 mV = -30 dB	70 mV (= +11.4 dB)*	16
C	200 Hz	5.8 mV = -40 dB	14.5 mV (= + 8 dB)*	16
C	5 kHz	5.8 mV = -40 dB	27 mV (= +13.5 dB)*	16
C	5 kHz	0.58 mV = -60 dB	6.1 mV (= +20 dB)*	16

*Relative to level BU6 (BU7)

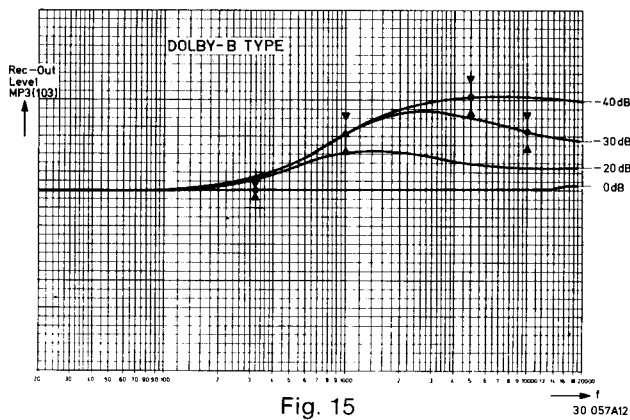


Fig. 15

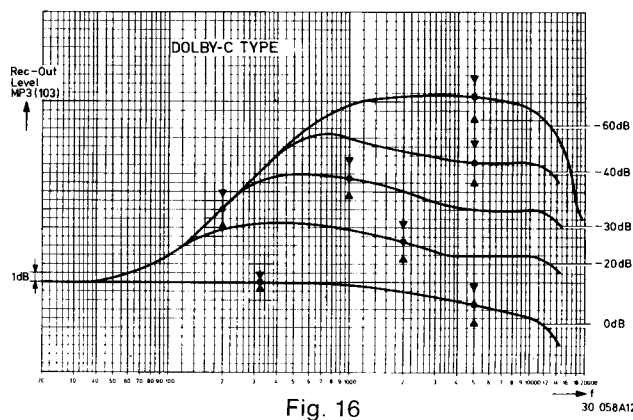


Fig. 16

U1100/U1101

-IC-			-R-		
7500	NE652	4822 209 81393	3510	4k7 1%	5322 116 54008
7502	NE654	4822 209 81392	3514	12k 1%	5322 116 50572
7504	MC1458N	5322 209 85512	3516	75k 1%	4822 116 51267
			3518,3528	10k 1%	4822 116 51253
			3520,3526	5k1 1%	4822 116 51326
			3538		
			3530	1k 1%	4822 116 51235
			3536	2k2 1%	4822 116 51245
-TS-					
BC338/16		4822 130 40892			
-L-			-C-		
5500		4822 158 60485	2534	100 pF	4822 122 10182
5502		4822 156 20811			

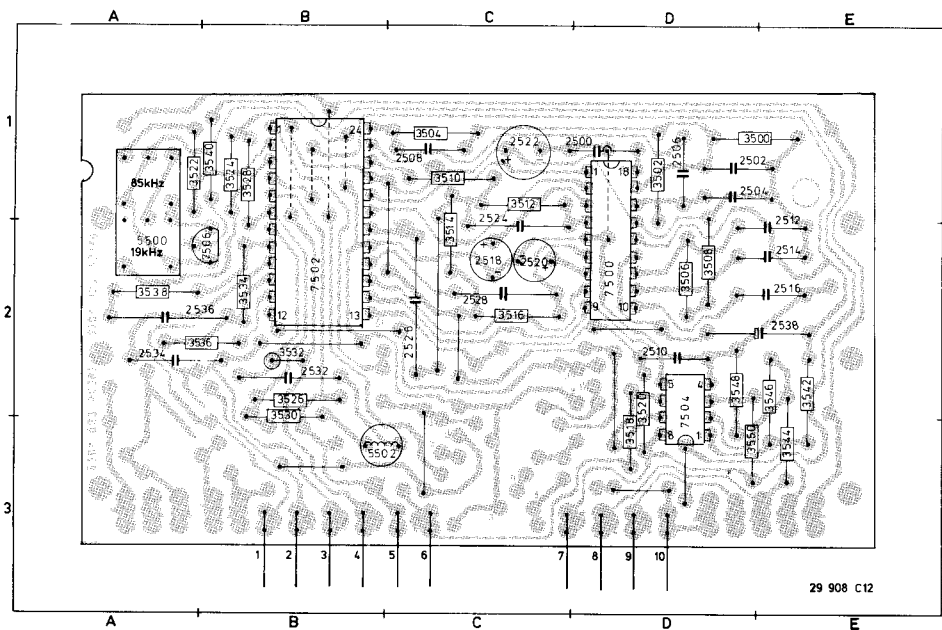


Fig. 17

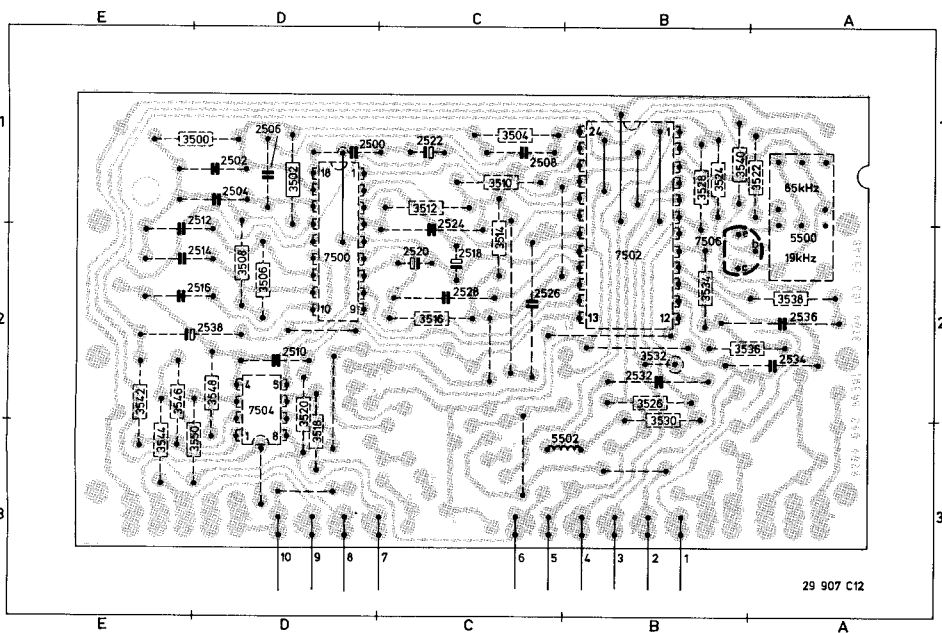
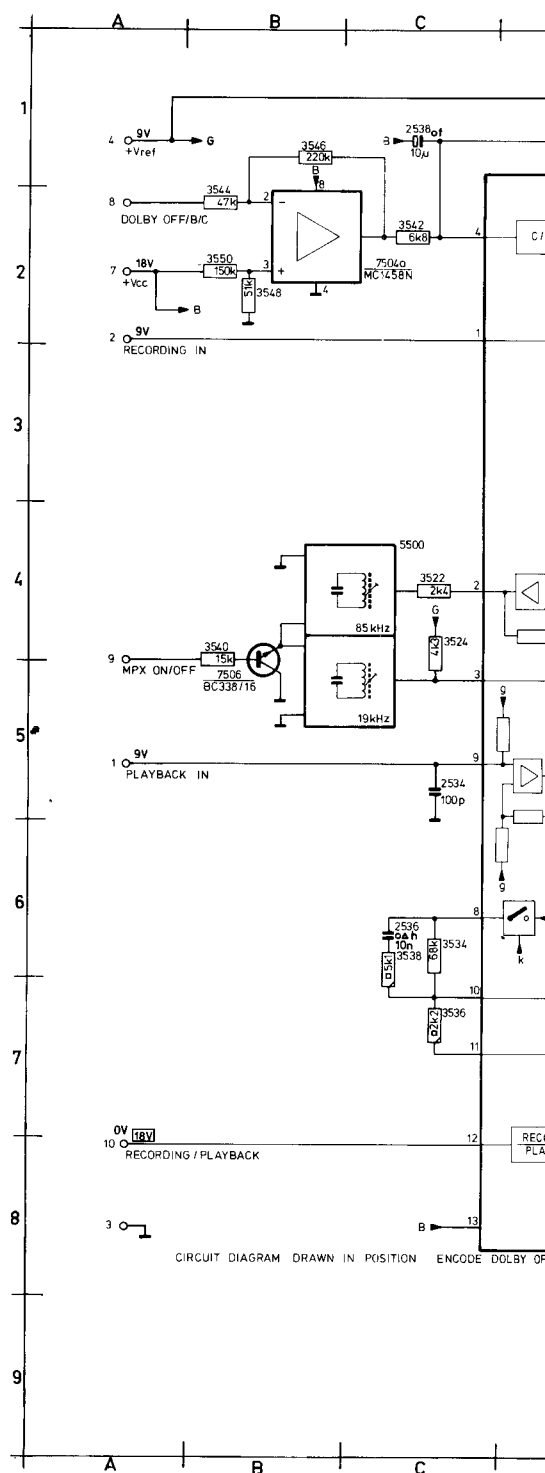


Fig. 18



CIRCUIT DIAGRAM DRAWN IN POSITION ENCODE DOLBY OF

ITEM Fig. 19 Fig. 17+18

2500	I02	D01
2502	K03	D01
2504	K03	D01
2506	K03	D01
2508	K03	C01

ITEM Fig. 19 Fig. 17+18

2520	G05	C02
2522	G02	C01
2524	G04	C02
2526	G04	C02
2528	G05	C02

ITEM Fig. 19 Fig. 17+18

3502	I03	D01
3504	K03	C01
3506	K05	D02
3508	K05	D02
3510	G04	C01

ITEM Fig. 19 Fig. 17+18

3522	C04	A01
3524	C04	B01
3526	G07	B02
3528	G08	B01
3530	G08	B02

ITEM Fig. 19 Fig. 17+18

3542	C06	A02
3544	C06	B02
3546	C07	A02
3548	C06	A02
3550	C06	A02

2510	I05	D02
2512	K05	E02
2514	K05	E02
2516	I06	E02
2518	G03	C02

2532	G08	B02
2534	C05	A02
2536	C06	A02
2538	C01	D02
3500	I03	D01

3512	G04	C01
3514	G03	C02
3516	G05	C02
3518	G07	D03
3520	G07	D02

3532	G08	B02
3534	C06	B02
3536	C07	A02
3538	C06	A02
3540	B05	B01

5500	C04	A01
5502	C04	A01
7500	I03	D01
7502	F03	D01
7504	F03	D01

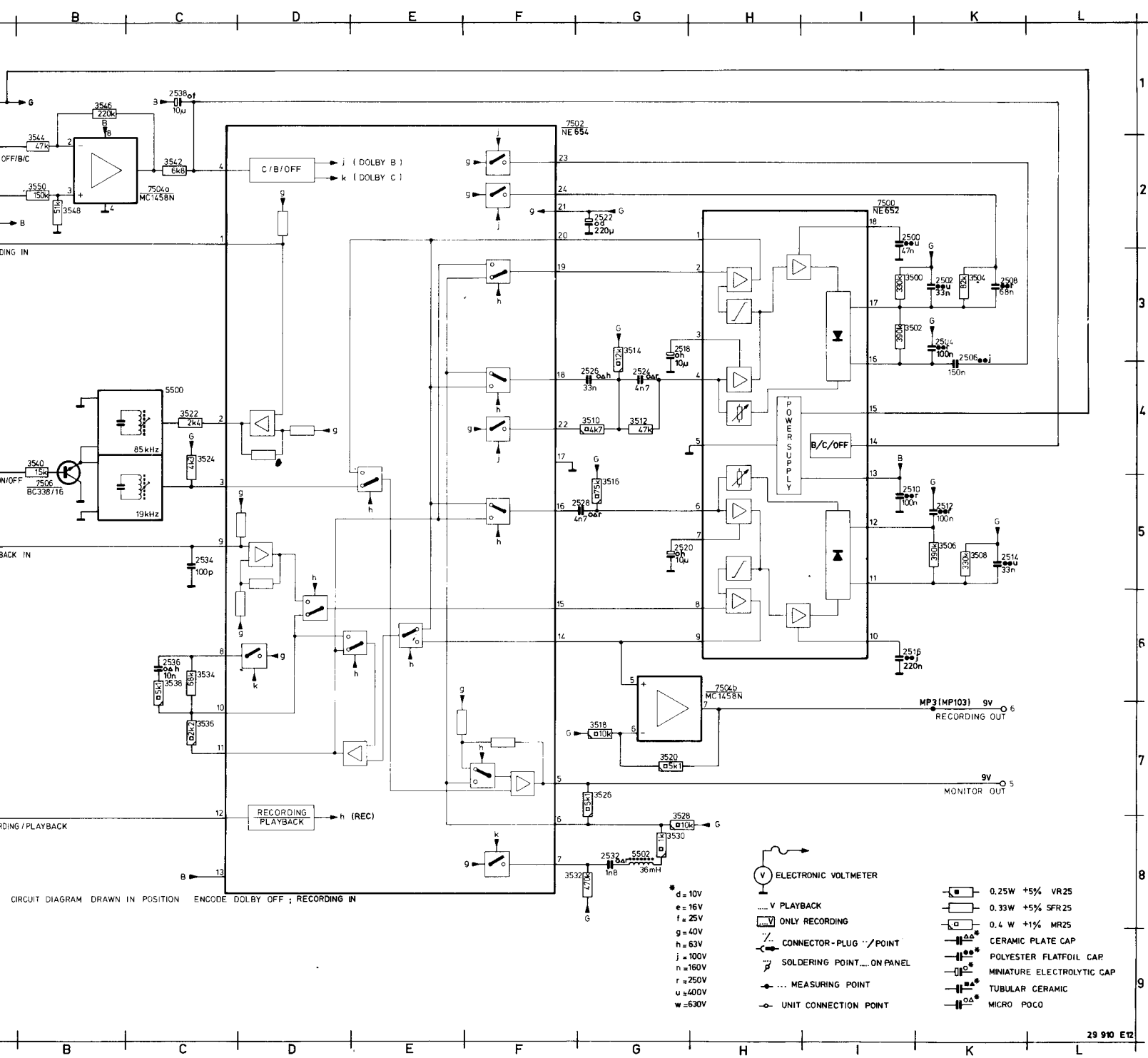


Fig. 19

Fig. 19	Fig. 17+18	ITEM	Fig. 19	Fig. 17+18	ITEM	Fig. 19	Fig. 17+18
C04	A01	3542	C02	E02	7504A	B02	
C04	B01	3544	B02	E03	7504B	H06	
G07	B02	3546	B01	E02	7506	B05	B02
G08	B01	3548	B02	D02			
G08	B02	3550	B02	D03			
G08	B02	5500	C04	A02			
C06	B02	5502	G08	C03			
C07	A02	7500	I02	D02			
C06	A02	7502	F01	B02			
B05	B01	7504	D02	D02			

U1003

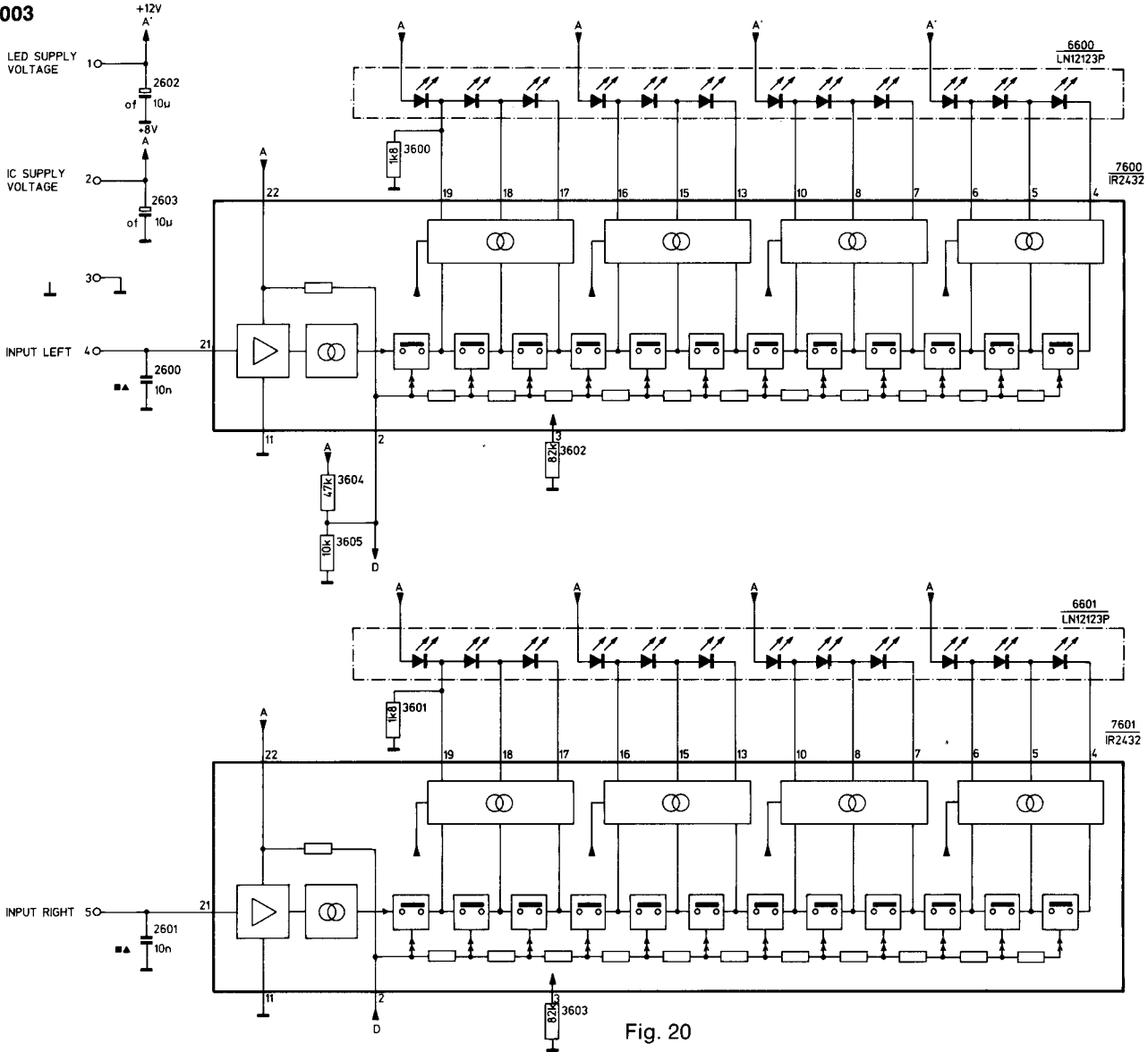


Fig. 20

33 127 D7

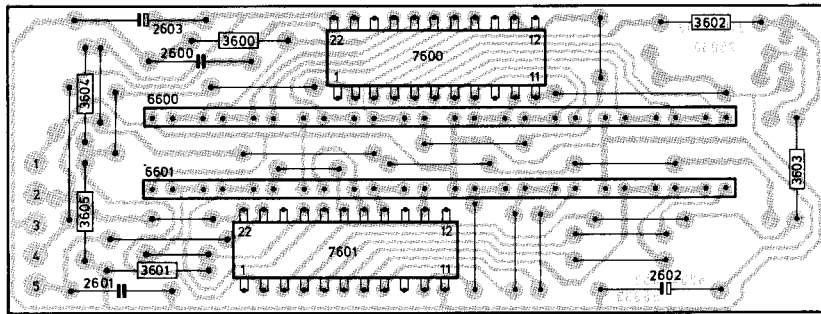


Fig. 21

33 126 B7

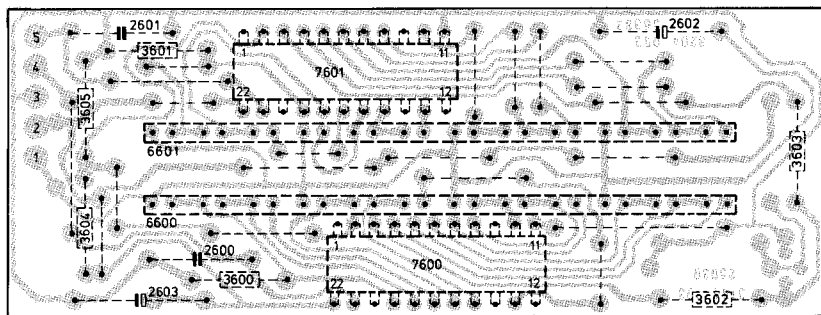


Fig. 22

33 125 B7

-IC-

- HEF4066BP
- HEF4093BP
- MC78M08CT
- RC4558P
- TC9143P
- TDA1059B
- UA79M08AUC

-TS-

- BC328-40
- BC337-40
- BC338-40
- BC548B
- BC548C
- BC549C
- BC550C
- BC558B

-D-

- BAX18A
- BA315
- BA317
- BZX79-B10
- CQW10
- CQW11
- CQW12
- 1N4002

-L-

- 5146,5147 C
- 5244,5245 C
- 5300 O

-R-

- 3002 a,b P
- 3170,3171 P
- 3244,3245 P
- 3246,3247 P
- 3300,3301 P
- 3303 R
- 3938 R

(GB)

Safety regulations condition and that be used.

(F)

Les normes de sécurité d'origine et que soient à celles spécifiées.

-IC-

7600,7601 IR2432

-D-

4822 130 31485

6600,6601 LM12123D

4822 130 31486

-IC-			-C-		
HEF4066BP		5322 209 14104	2196,2197	} Cap. electrolyt 4.7 μ F/35 V	4822 124 21292
HEF4093BP		5322 209 14186	2198,2199		
MC78M08CT		4822 209 81713	2234,2235		
RC4558P		4822 209 80401	2327		Cap. foil 10 nF
TC9143P		4822 209 81714	2328	Cap. ceram 3.3 nF	4822 122 40327
TDA1059B		4822 209 80361	2910	Bip. elco 15 μ F/16 V	4822 124 21087
UA79M08AUC		4822 209 80804			
-TS-			-BU-		
BC328-40		4822 130 41715	BU1		4822 267 40325
BC337-40		4822 130 41344	BU2,3		4822 267 30378
BC338-40		5322 130 44779	BU4÷7		4822 267 40341
BC548B		4822 130 40937	BU8		4822 267 30324
BC548C		4822 130 44196			
BC549C		4822 130 44246			
BC550C		4822 130 41096			
BC558B		4822 130 44197			
-D-			-SK-		
BAX18A		4822 130 31025	SK0		4822 276 10861
BA315		4822 130 30843	SK2÷8		4822 276 70083
BA317		4822 130 30847	SK903÷908		4822 276 10974
BZX79-B10		4822 130 34297	SK911		4822 277 20882
CQW10		4822 130 31512			
CQW11		4822 130 31679			
CQW12		4822 130 31513			
1N4002		5322 130 30684			
-L-			-Miscellaneous-		
5146,5147	Coil 5 μ H	4822 156 20993	K1/K101		4822 249 10153
5244,5245	Coil 36 mH	4822 156 21061	K2		4822 249 40117
5300	Osc. coil	4822 152 20544	M1		4822 361 20232
			M2		4822 361 20422
			T1		4822 146 20761
			1162 (RE1)		4822 280 70241
			1901 Lamp		4822 134 50031
			7921 GP-1S04		4822 130 32114
-R-					
3002 a,b	Potm. slide 50k+50k	4822 105 10358			
3170,3171	Potm. trimming 22k	4822 100 10051			
3244,3245	Potm. trimming 4k7	4822 100 10036			
3246,3247	} Potm. trimming 47k	4822 100 10079			
3300,3301					
3303	Resistor, M. film 1 Ω	4822 116 51179			
3938	Resistor, M. film 249 Ω	5322 116 54499			

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.