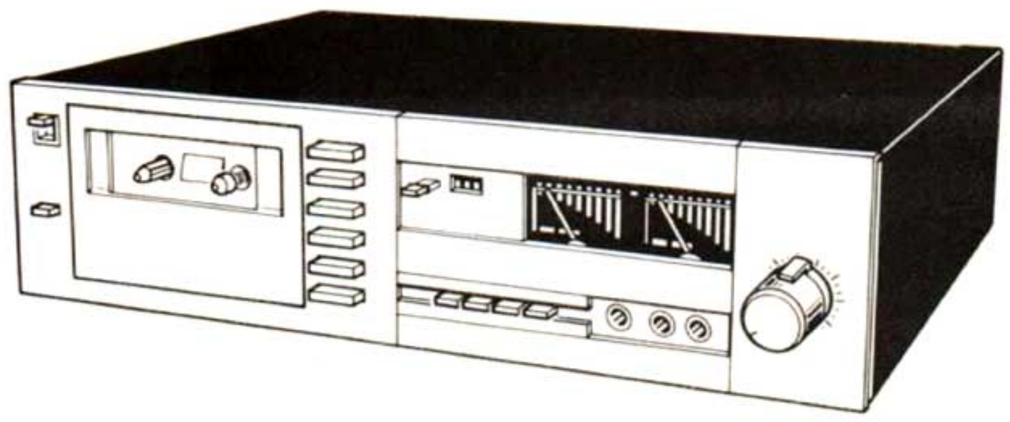
Service Service Service



29 259A12

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

Service Manual

SPECIFICATION	Min. value	Typical value	
Mains voltage	: 220 V (110-127-240 V by changing the transformer connections)	220 V (110-127-240 V by changing the transformer connections)	
Mains frequency	: 50 - 60 Hz	50 - 60 Hz	
Power consumption	: 13 W	13 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	: ± 1.5%	± 1.5%	
Wow and flutter weighted	: ⩽ 0.25% (DIN)	0.2% (DIN)	⩽ 0.07% (WRMS)
Fast wind time C60 cassette	: ⩽ 95 sec	⩽ 95 sec	
Input sensitivity:			
- microphone	: 0.4 mV/2 kΩ	0.4 mV/2 kΩ	
- line in	: 30 mV/150 kΩ	30 mV/150 kΩ	
Output level			
- line out	: ⩾ 0.5 V/< 5 kΩ	⩾ 0.5 V/< 5 kΩ	
- headphones	: 340 mV/8 - 600 Ω	340 mV/8 - 600 Ω	
Distorsion K3	: ⩽ 3%	⩽ 2.5%	
Frequency range	: acc DIN 45500:	acc IEC:	acc NAB:
- Metal tape	: 30-14.000 Hz	30-15.000 Hz	30-16.000 Hz
- Cr tape	: 30-14.000 Hz	30-15.000 Hz	30-16.000 Hz
- Normal tape	: 30-13.000 Hz	30-14.000 Hz	30-15.000 Hz
Signal-to-noise without Dolby NR	acc DIN 45500:	acc IEC:	acc NAB:
- Metal tape	: ⩾ 56 dB	58 dB	60 dB
- Cr tape	: ⩾ 56 dB	57 dB	59 dB
- Normal tape	: ⩾ 54 dB	56 dB	58 dB
Improvement with Dolby NR	: ⩾ 8.5 dB (CCIR)	10 dB (at > 5 kHz)	
Bias and Erase frequency	: 85 kHz ± 10%	85 kHz ± 5%	
Dimensions	: 420 x 114 x 234 mm	420 x 114 x 234 mm	
Weight	: 3.9 kg approx.	3.9 kg approx.	

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Printed in The Netherlands

PHILIPS

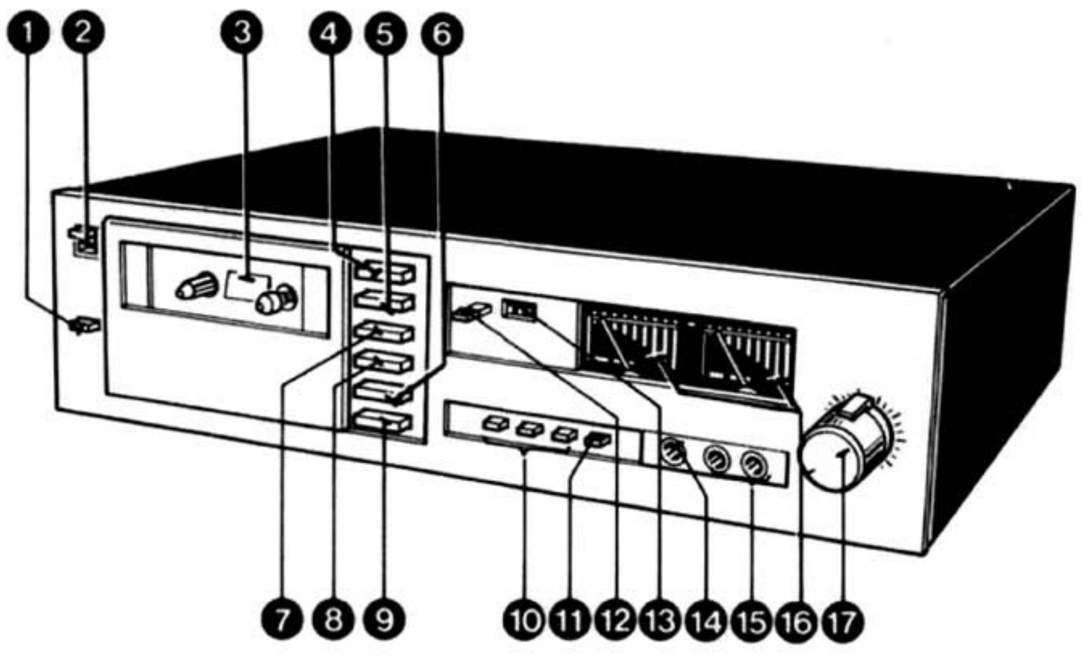
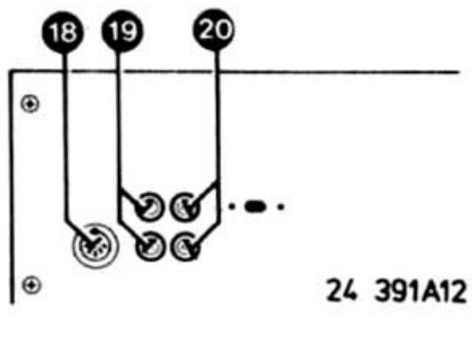


Fig. 1 29 006A12



24 391A12 Fig. 2

Control and sockets

Fig. 1 and 2

1	SK0
2	eject
3	cassette holder
4	REC, SK1
5	Pause
6	Play, SK62
7	Rewind, SK61
8	Wind
9	Stop, SK63
10	Tape select, SK4, 5, 6
11	Dolby/MPX, SK3
12	Reset counter
13	Counter
14	Headphone, BU8
15	Mic L, R, BU2, 3
16	ME403a, b
17	R469a, b
18	BU1
19	IN L,R, BU4, 5
20	OUT L,R, BU,6, 7

GB SERVICING HINTS

Dismantling of tape transport mechanism (Fig. 3)

1. Remove ornamental plate 411 of cassette compartment lid.
2. Remove belt 423 from counter pulley.
3. Disconnect coupling rod 563 and coupling piece 438 of switch SK1. See to it that adjustable coupling piece does not change position on the rod, otherwise SK1 requires re-adjustment. (Refer to: Adjustment of REC switch SK1).
4. Lift fixing rod 554 out of locking device at lower side of apparatus.
5. Take out fixing rod 554.
6. Remove fixing screw of tape transport mechanism.
7. The tape transport mechanism may now be swung out of its position. After unplugging of various connectors the tape transport mechanism may be lifted out of the casing.

Adjustment of REC switch SK1 (Fig. 4)

Select REC mode of tape transport mechanism.
Lever 306 moves to the right and displaces rod 563.
Place coupling piece 438 such that the switching part of SK1 is in rightmost position. Check whether SK1 also functions properly in the PLAY mode.

Tape speed

When servicing the tape transport, it is recommendable to check the tape speed.
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%.

NL REPARATIEWENKEN

Uitkasten van het loopwerk (Fig. 3)

1. Sierplaat 411 van kassetteklep verwijderen.
2. Snaar 423 afnemen van tellerpoelie.
3. Koppelstang 563 met koppelstuk 438 losnemen van SK1. Let op dat instelbaar koppelstuk niet over de stang verschoven wordt, anders SK1 opnieuw instellen. (Zie instellen van REC schakelaar SK1).
4. Bevestigingsstang 554 uit blokkering aan de onderzijde van het apparaat tillen.
5. Bevestigingsstang 554 uitnemen.
6. Bevestigingsschroef van het loopwerk verwijderen.
7. Loopwerk kan nu uit zijn positie gedraaid worden. Na het losnemen van diverse stekkerverbindingen kan het loopwerk uit de kast worden genomen.

Instellen van REC schakelaar SK1 (Fig. 4)

Zet het loopwerk in de stand REC.
Hefboom 306 beweegt naar rechts en verschuift stang 563.
Koppelstuk 438 zodanig plaatsen dat het schakeldeel van SK1 in de meest rechtse stand staat. Kontroleer daarna of ook in de stand Play SK1 goed funktioneert.

Bandsnelheid

Bij reparaties aan het loopwerk verdient het aanbeveling de bandsnelheid te kontroleren.
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 komponenten, zoals IC-weerstanden en condensatoren wordt de bandsnelheid bij voorkeur op 0% ingesteld.

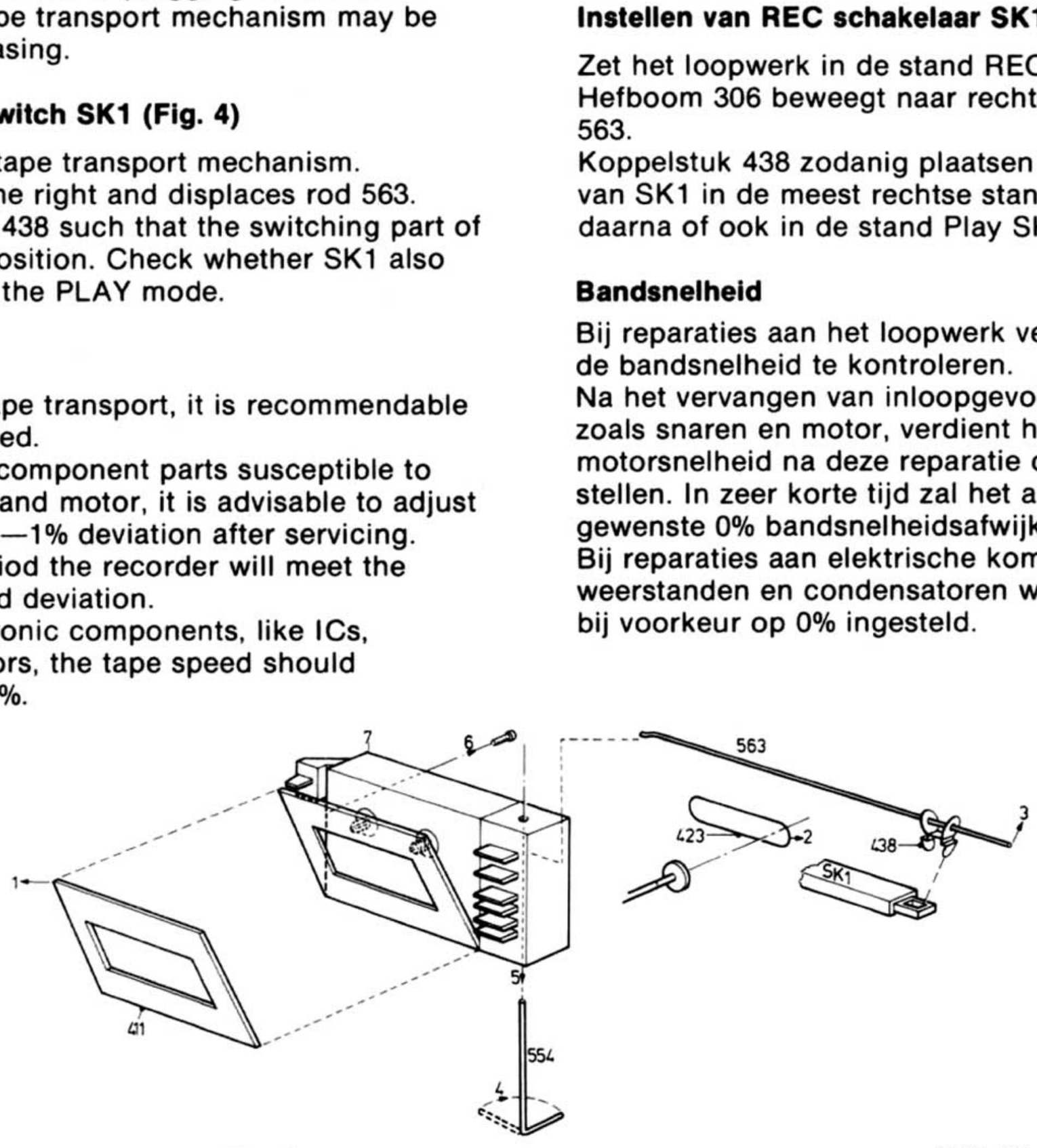


Fig. 3 29 474 C12

(F) CONSEILS REPARATION

Démontage de la mécanique (Fig. 3)

1. Enlever la plaquette décorative 411 du couvercle de cassette.
2. Oter la courroie 423 de la poulie du compte-tours.
3. Détacher la tige d'accouplement 563 avec pièce 438 de SK1. Faire attention de ne pas faire glisser la pièce d'accouplement sur la tige car sinon il faudra à nouveau régler SK1 (voir au paragraphe du Réglage du commutateur REC -SK1).
4. Soulever la tige de fixation 554 à la partie inférieure de l'appareil.
5. Extraire la tige de fixation 554.
6. Enlever la vis de fixation de la mécanique.
7. La mécanique pourra ainsi être extraite de sa position. Il faudra cependant encore détacher quelques connexions afin de pouvoir enlever la mécanique complète du boîtier.

Réglage du commutateur REC SK1 (Fig. 4)

Positionner la mécanique sur "REC".
Le levier 306 se meut sur la droite et pousse la tige 563.
Placer la pièce d'accouplement de façon que la section commutation de SK1 se trouve à l'extrême droite.
Vérifier ensuite si SK1 fonctionne aussi bien en position "Play".

Vitesse de défilement

Lors de réparations à la mécanique il est conseillé de vérifier la vitesse de défilement.
Après que des pièces comme les courroies ou le moteur out 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 préference réglée à 0%.

(D) REPARTURHINWEISE

Ausbau des Laufwerks (Bild 3)

1. Zierplatte 411 der Cassettenfachklappe abnehmen.
2. Seil 423 von Zählwerk-Seilrolle abnehmen.
3. Kupplungsstange 563 mit Kupplungsstück 438 von SK1 lösen.
   Beachten, dass einstellbares Kupplungsstück nicht auf der Stange verschoben wird, sonst ist SK1 erneut einzustellen (siehe "Einstellen von "REC"-Schalter SK1).
4. Befestigungsstange 554 aus Blockiering auf der Unterseite des Gerätes heben.
5. Befestigungsstange 554 herausnehmen.
6. Befestigungsschraube des Laufwerks herausdrehen.
7. Laufwerk lässt sich nun aus seiner Position drehen. Nach Lösen mehrerer Steckerverbindungen lässt sich das Laufwerk ausbauen.

Einstellen von "REC"-Schalter SK1 (Bild 4)

Laufwerk in "REC"-Stellung schalten.
Hebel 306 geht nach rechts und verschiebt Stange 563.
Kupplungsstück 438 dahin stellen, dass der Schaltteil von SK1 in die äusserst rechte Stellung gelangt.
Anschliessend prüfen, ob auch in "PLAY"-Stellung SK1 einwandfrei arbeitet.

Bandgeschwindigkeit

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

(I) CONSIGLI PER LA RIPARAZIONE

Smontaggio del meccanismo (Fig. 3)

1. Togliere la piastrella decorativa 411 dal coperchio del vano cassetta.
2. Togliere la cinghia 423 dalla puleggia del contagiri.
3. Staccare l'astina di accoppiamento 563 con il pezzo 438 di SK1.
   Stare attento di non fare scivolare il pezzo di accoppiamento sull'astina perchè occorrerà regolare di muovo SK1 (vedi paragrafo "Regolazione del commutatore REC-SK1").
4. Sollevare l'astina di fissaggio 554 della parte inferiore dell'apparecchio.
5. Estrarre l'astina di fissaggio 554.
6. Levare la vite di fissaggio del meccanismo.
7. Il meccanismo potrà quindi essere spostato dalla sua posizione ma bisognerà ancora staccare alcuni collegamenti prima di poter togliere il meccanismo dal mobile.

Regolazione del commutatore SK1 (Fig. 4)

Posizionare il meccanismo su di "REC".
La leva 306 si sposta sulla destra e preme l'astina 563.
Porre il pezzo di accoppiamento in modo ché la sezione commutazione di SK1 si trovi all'estrema destra. Quindi controllare se SK1 funziona anchè bene in posizione "Play".

Velocità del nastro

Quando si ripara la parte trasporto nastro, si raccomanda di controllare la velocità.
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%.
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%.

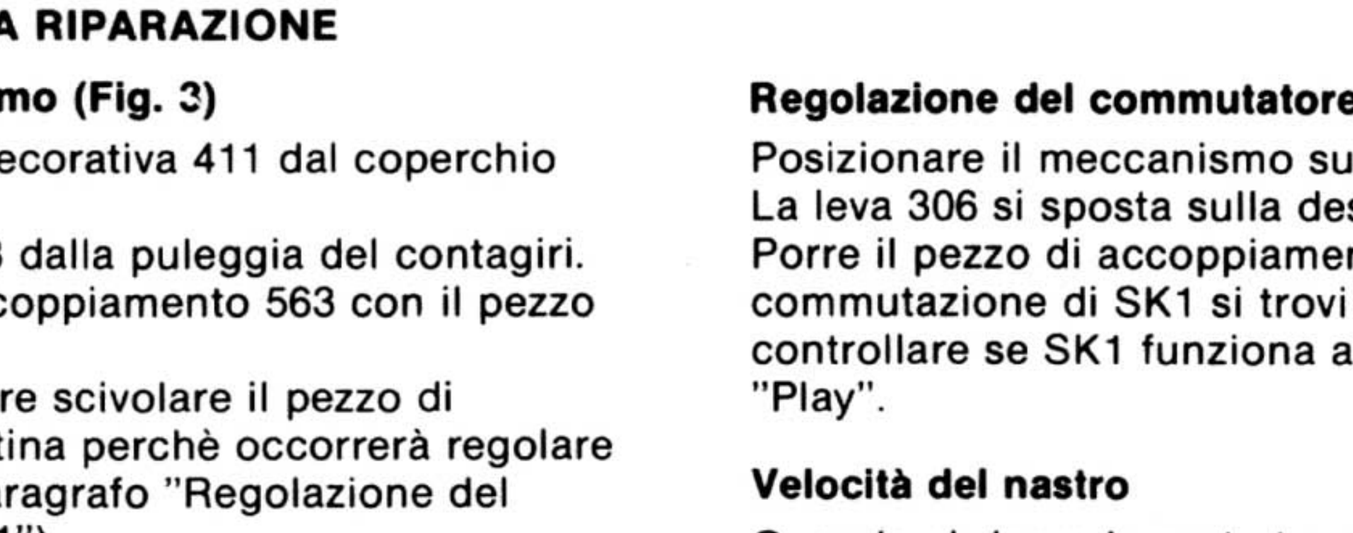
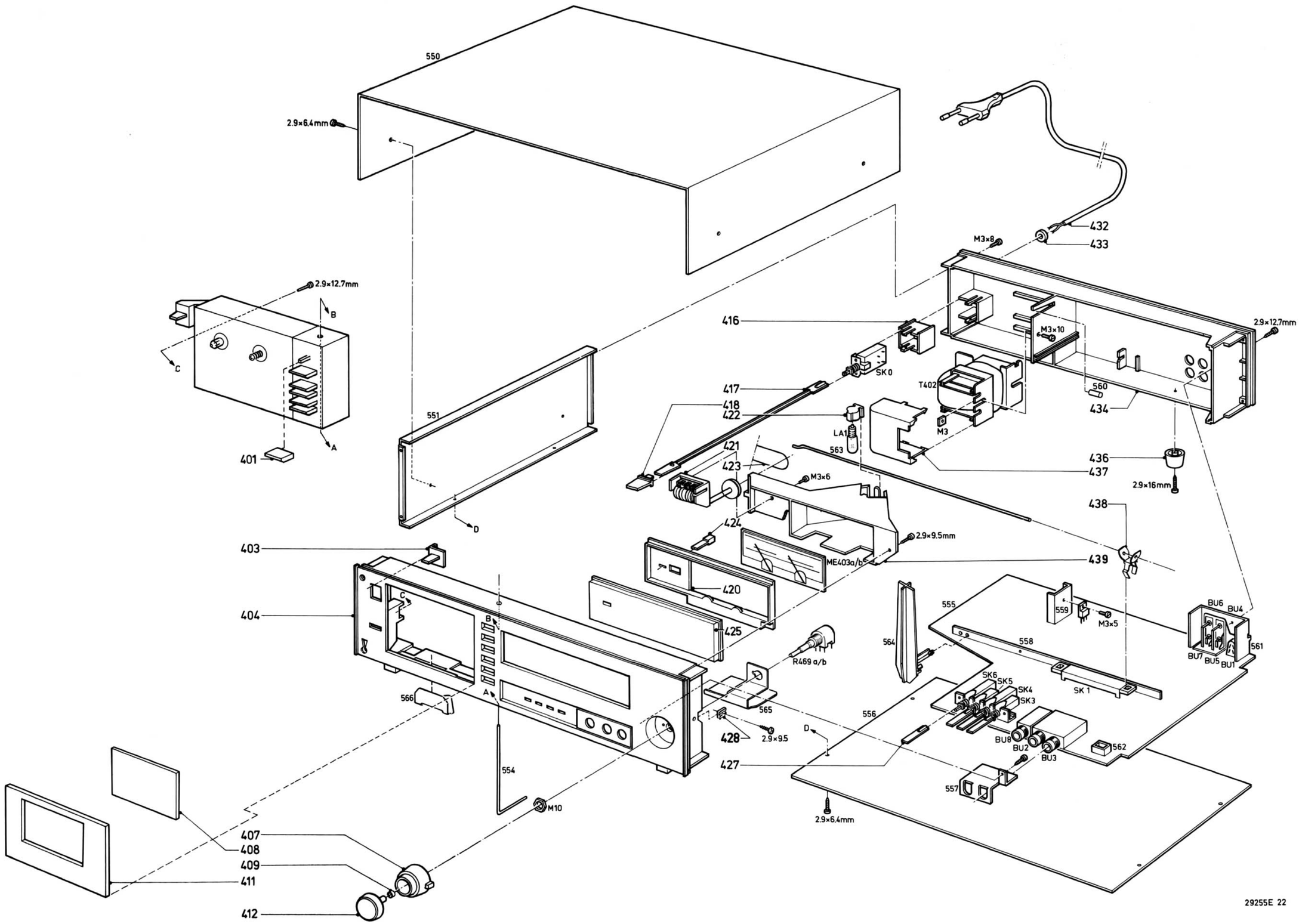


Fig. 4

401	4822 410 40345
403	4822 413 70159
404	4822 443 50358
406	4822 460 20374
407	4822 413 41057
408	4822 450 60228
409	4822 532 10284
411	4822 443 60914
412	4822 413 41071
416	4822 444 60377
417	4822 535 91314
418	4822 410 22753
420	4822 443 60938
421	4822 349 50137
422	4822 255 10151
423	4822 358 30305
424	4822 410 22751
425	4822 450 60229
426	4822 443 60939
427	4822 410 22752
428	4822 492 62575
432	4822 321 10084
433	4822 401 10652
434	4822 460 20301
436	4822 462 71121
437	4822 443 60809
438	4822 403 51686
439	4822 443 60811



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ELECTRICAL MEASUREMENTS AND ADJUSTMENTS

General conditions

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

- Mains voltage 220 V ± 5%, 50 Hz
- Ambient temperature 20 to 25°C
- Dolby switch SK3 off
- Tape selector: Cr SK5
- Volume control recording level R469: 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 SBC126Cr - 4822 397 30038
- Multimeter
- Frequency counter

Adjustment	Cassette	Recorder in position	Apply signal to	Measure on	Read on	Adjust with	Adjust to
Playback speed	SBC126Cr 3150 Hz	PLAY	—	BU6 (BU7)	Wow-and-flutter meter (Filter on)	R478	*b
Azimuth R/P head K1-K101	SBC126Cr 10 kHz	PLAY	—	BU6 (BU7)	mV-meter	*c Left hand screw of K1-K101	Max. output
Playback sensitivity + Indicators	SBC126Cr 315 Hz-0 dB	PLAY	—	BU6 (BU7)	mV-meter	R470 (R471)	650 mV
				—	ME403a (ME403b)	R472 (R473)	+ 1 dB
Playback frequency response	SBC126Cr 40Hz ;250Hz; 6.3 kHz; 12.5 kHz	PLAY	—	BU6 (BU7)	mV-meter	—	See graph Fig. 6 frequency response
Target value BIAS	Arbitrary cassette	REC	—	MP1 (MP101)	mV-meter	R476 (R477)	11 mV
Recording sensitivity	SBC126Cr side 2 *d	REC + PLAY	315 Hz, to BU4 (BU5)	BU6 (BU7)	mV-meter	LF-Generator	290 mV
				Disable the bias by removing R610			
				MP1 (MP101)	mV-meter	R474 (R475)	0.9 mV
				Connect R610 make a recording and play it back			
		PLAY	—	BU6 (BU7)	mV-meter	—	290 mV *e
BIAS	SBC126Cr side 2 *d	REC + PLAY	—	MP1 (MP101)	mV-meter	R476 (R477)	11 mV (target value)
			315 Hz, to BU4 (BU5)	BU6 (BU7)	mV-meter	LF-generator	29 mV
			40 Hz-6.3 kHz 10 kHz-12 kHz 13 kHz-14 kHz 15 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. 7 if necessary repeat BIAS adjustment *f
f-osc.	Arbitrary cassette	REC	—	MP2	Frequency counter	L468	85 kHz
19/85 kHz suppression	Arbitrary cassette	REC DOLBY	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	L462 (L463) 19 kHz part	⩽ 25 mV
			f-osc. to BU4 (BU5) (same input voltage)	BU6 (BU7)	mV-meter	L462 (L463) 85 kHz part	Min output ⩽ 4.35 mV

(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 ± 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 MSM; 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 mV ± 0.25 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 R474 (R475).

*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. 8, distorsion ⩽ 3%.

(NL) *Opmerkingen:*

*a. Voor alle meting of instelling met lopende band dienen de koppen en bandgeleiders gedemagnetiseerd en gereinigd te worden.

*b. Max. toelaatbare snelheidsafwijking ± 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 MSM: 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 mV ± 0,25 dB is, regel dan met R474 (R475) 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. 8 curve b verlopen, vervorming ⩽ 3%.

(F) *Remarques:*

*a. Le chaque mesure ou réglage à la chaîne, les têtes et guide-bande doivent etre démagnetisées et nettoyées.

*b. Ecart maximum admissible ± 1,5%. Voir aussi conseils reparation: 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 MSM: 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 mV ± 0,25 dB.
Si ce n'était pas le cas, régler avec R474 (R475) le signal AF (prémagnétisation exclue) d'autant de dB en-dessous ou au-dessous 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. 8 courbe b, distorsion ⩽ 3%.

(D) *Anmerkungen:*

*a. Vor jeder Messung oder Einstellung mit laufendem Band empfielt es sich, die Köpfe und Bandführungen zu entmagnetisieren und zu reinigen.

*b. Maximal zulässige Geschwindigkeitsabweichung ± 1,5%. Siehe auch Reparaturhinweise: Bandgeschwindigkeit.
Auch kann der Jaulwert abgelesen werden, der höchstens 0,13% betragen darf.

*c. Siehe auch Service Manual: Recorders tape deck MSM: 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 mV ± 0,25 dB anzeigen. Ist dass nicht der Fall, dann mit R474(R475) 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. 8, Kurve b, Verzerrung ⩽ 3%.

(I) *Note:*

*a. Prima di effetuare della misure o regolazioni con la cassetta inserita, le testine e le guide nastro devono essere smagnetizzate e pulite.

*b. Massima deviazione tollerata ± 1,5%.
Vedere istruzioni per la riparazione: Velocità del nastro. Può essere letto anche il wow. Questo può essere como massimo 0,13%.

*c. Vedere istruzioni per la Documentazione Servizio „Recorder tape deck MSM: Regolazioni testina".

*d. Si il controllo non deve essere molto accurato, si può utilizarre une cassetta al cromo di alta qualita.

*e. Gli la tensione d'uscita devono essere su 290 mV ± 0,25 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 R474 (R475).

*f. Quando viene regolato un canale, questo può influire sulla regolazione dell'altro.
Se la regolazione è correcta la curva della riposta in frequenza sarà simile alla curva b della Fig. 8.
Distorsione aumenterà ⩽ 3%.

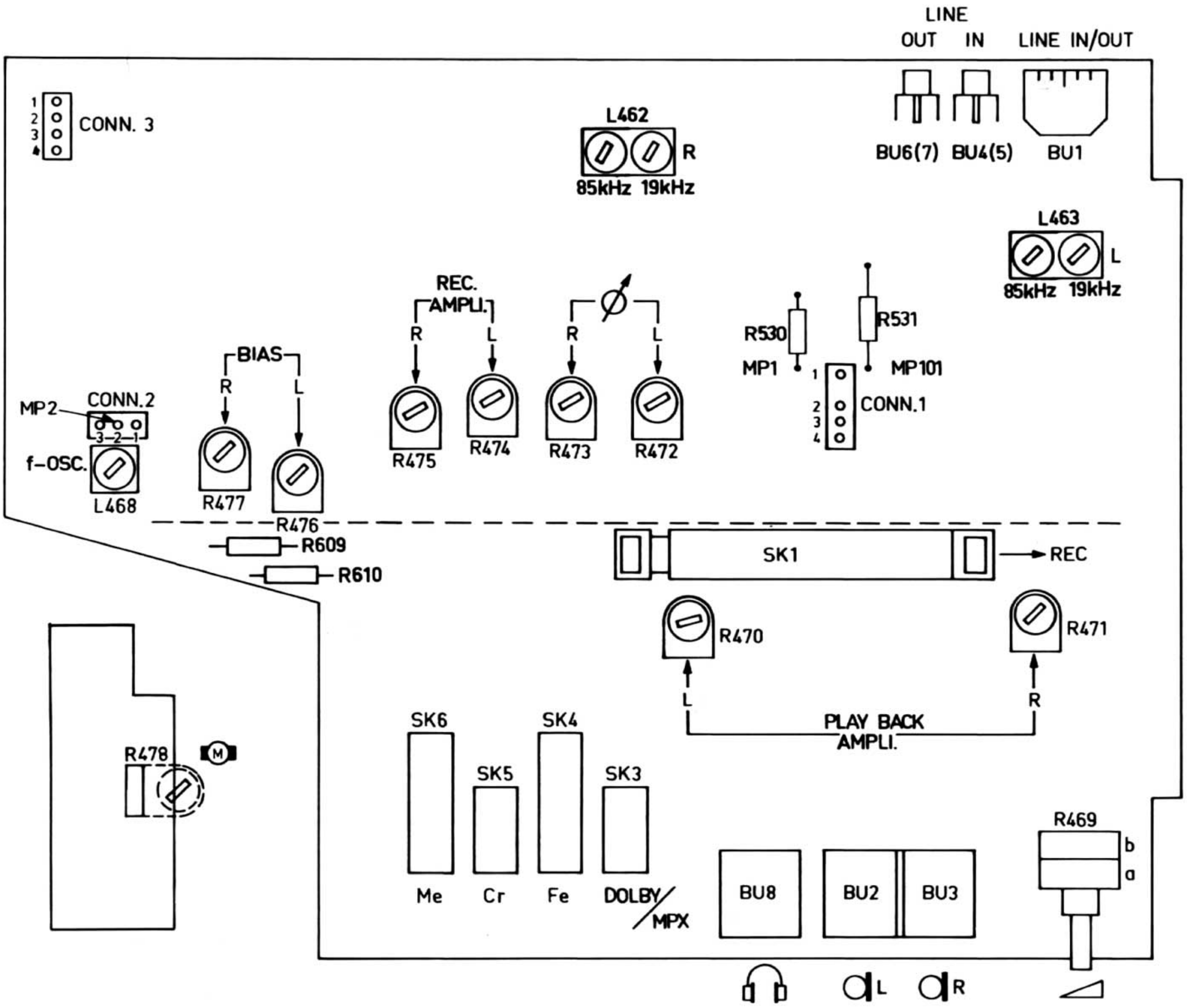

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Fig. 5

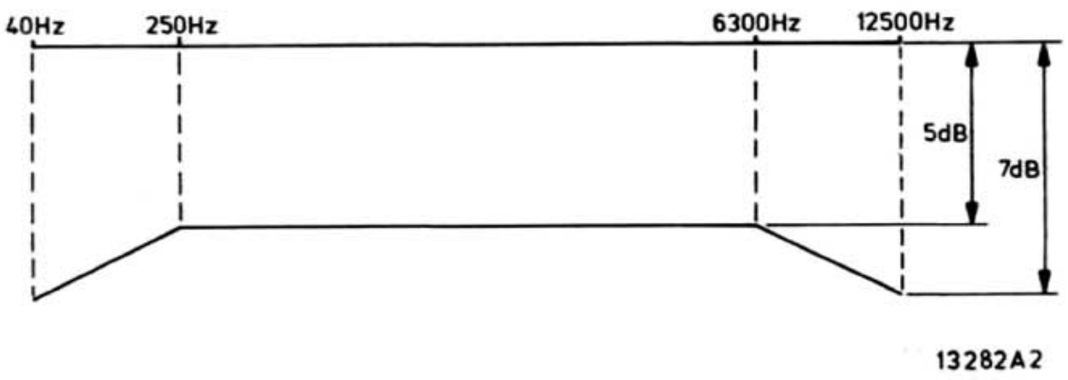

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Fig. 6

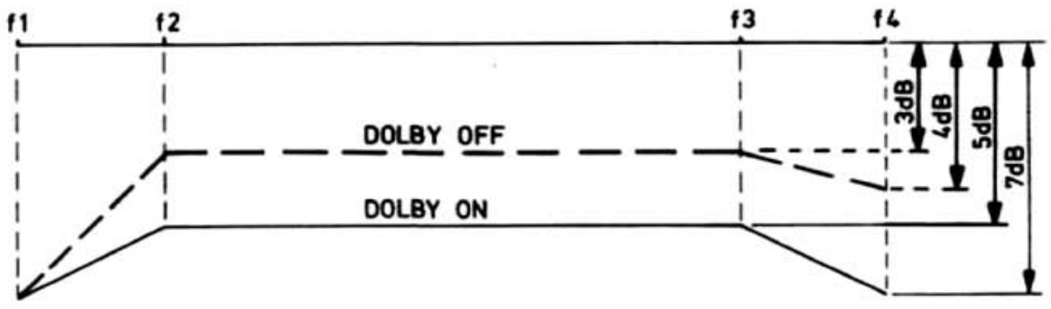

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Fig. 7

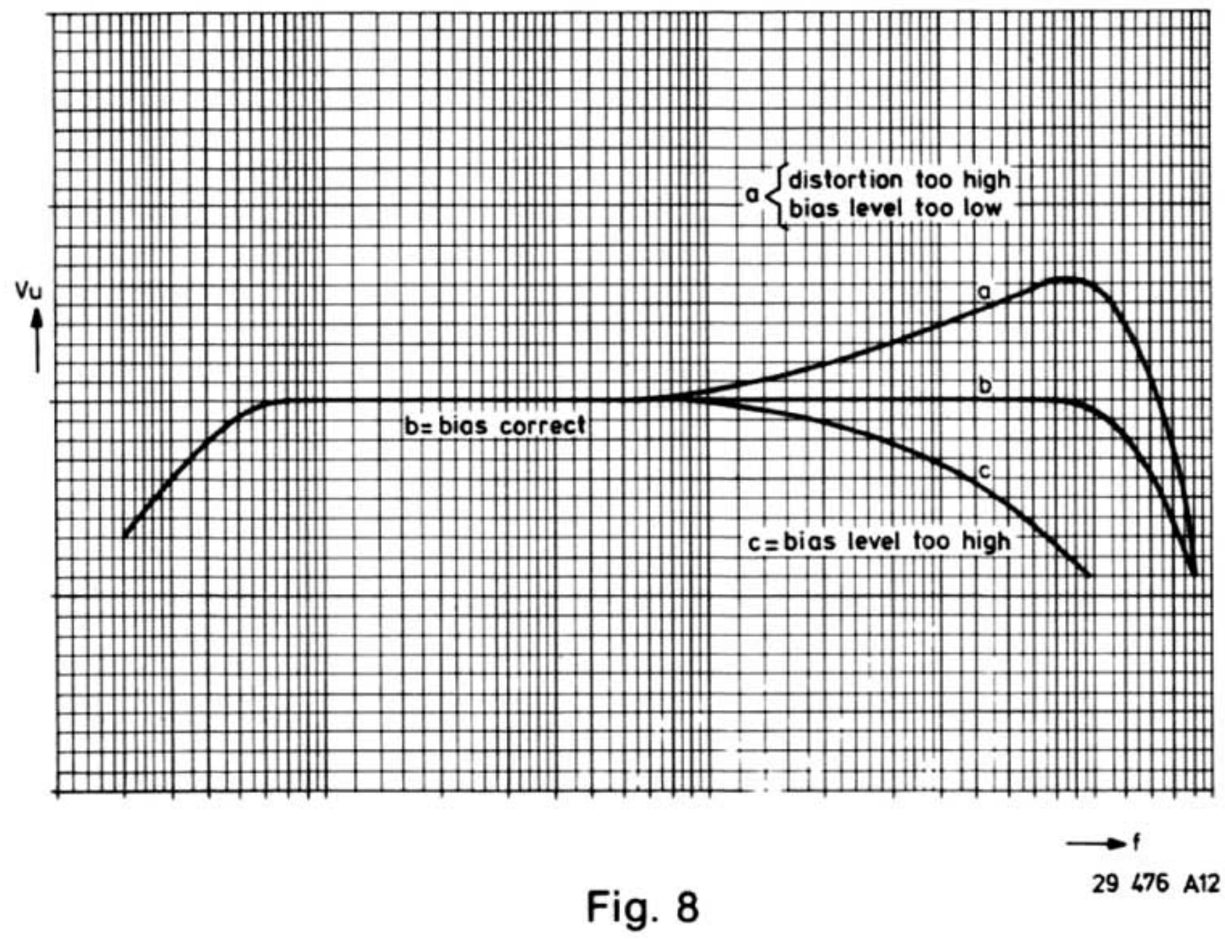

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Fig. 8

	f1	f2	f3	f4
Metal	30 Hz	125 Hz	8 kHz	14 kHz
Cr	30 Hz	125 Hz	8 kHz	14 kHz
Normal	30 Hz	125 Hz	8 kHz	13 kHz

R	616 526 530 528 532 642.534.536.641.538 540–547 548 644–648 469a.469b.650–653.566 628 613 614 550.552.615 664 478 668.658÷661 558.568.557.564 560÷563 570 588 572÷575.584.594 576÷583.590–593 596 600.621.598.622.618.474 604÷611 602 477 632 635 636 637 638 472
R	527 531 529 533 643.535.537 539 626 627 549 470 471 567 629 551.553 665 669 559.569.556.565 662 663 571 589 585.595.586.587 597 601.612.599 619.475 603 476 633 634 639 473
C	808 809 810 811 726.812 728.824 730 732 814 734–737 738 818÷821 806.748.807 750–753 754.758 756.760–763 764–767 768.774 845 776.784. 780 770 778 782 786 790 794 804.822.803.826 792 800 805 796 798 828
C	727.729.825.731 733 815 829 830 739 749 755.759 757 816 772 773.769.775 777.785. 781 771 779 783 787 791 795 823.802.827 801 797 799
MISC	BU2.BU3.BU1.BU4.BU5.IC444.K1 K101 D452–455 TS426.427 SK62 LA1.TS438.T402 F1 TS428.429 D456 TS436.437 L462 L463 IC443 IC440.441.D446.447 SK61 SK63 M BU6 BU7 TS430.431 IC442a.b. BU8 TS432.433 L466 L467 L468 K2 TS434.TS435 ME403a.b

MAINS	TO CONNECT	TO INTERCONNECT
110V	N-2	1-3/2-4
127V	N-5	1-3/2-4
220V	N-4	2-3
240V	N-5	2-3

ELECTRONIC VOLTMETER

V PLAYBACK

V ONLY RECORDING

CONNECTOR-PLUG / POINT

SOLDERING POINT.... ON PANEL

.... MEASURING POINT

UNIT CONNECTION POINT

0.33W ± 5% SFR 25

0.4W ± 1% MR 25

ΔΔ* CERAMIC PLATE CAP

••* POLYESTER FLATFILM CAP

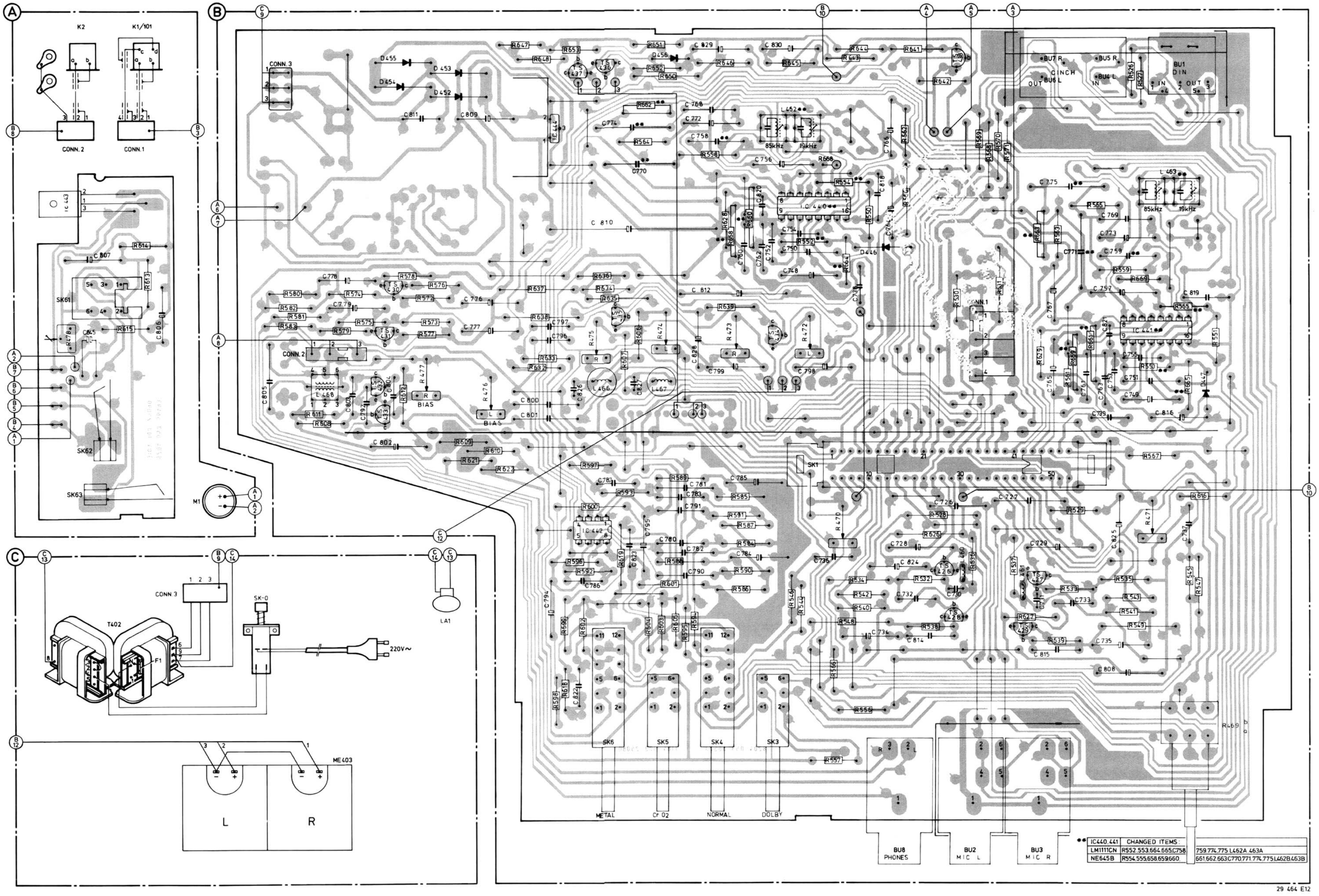
o* MINIATURE ELECTROLYTIC CAP

•• IC440 441	LM1111CN	NE645B
R552.553	330k	–
R554.555	–	180k
R658.659	0Ω	1k
R660.661	0Ω	1k
R662.663	0Ω	180k
R664.665	150k	–
C758.759	1n	–
C770.771	–	27n
C774.775	33n	5n6
L462.463	L462A.L463A	L462B.L463B

*
d = 10V
e = 16V
f = 25V
g = 40V
h = 63V
j = 100V
r = 250V
u = 400V
w = 630V

29086E12

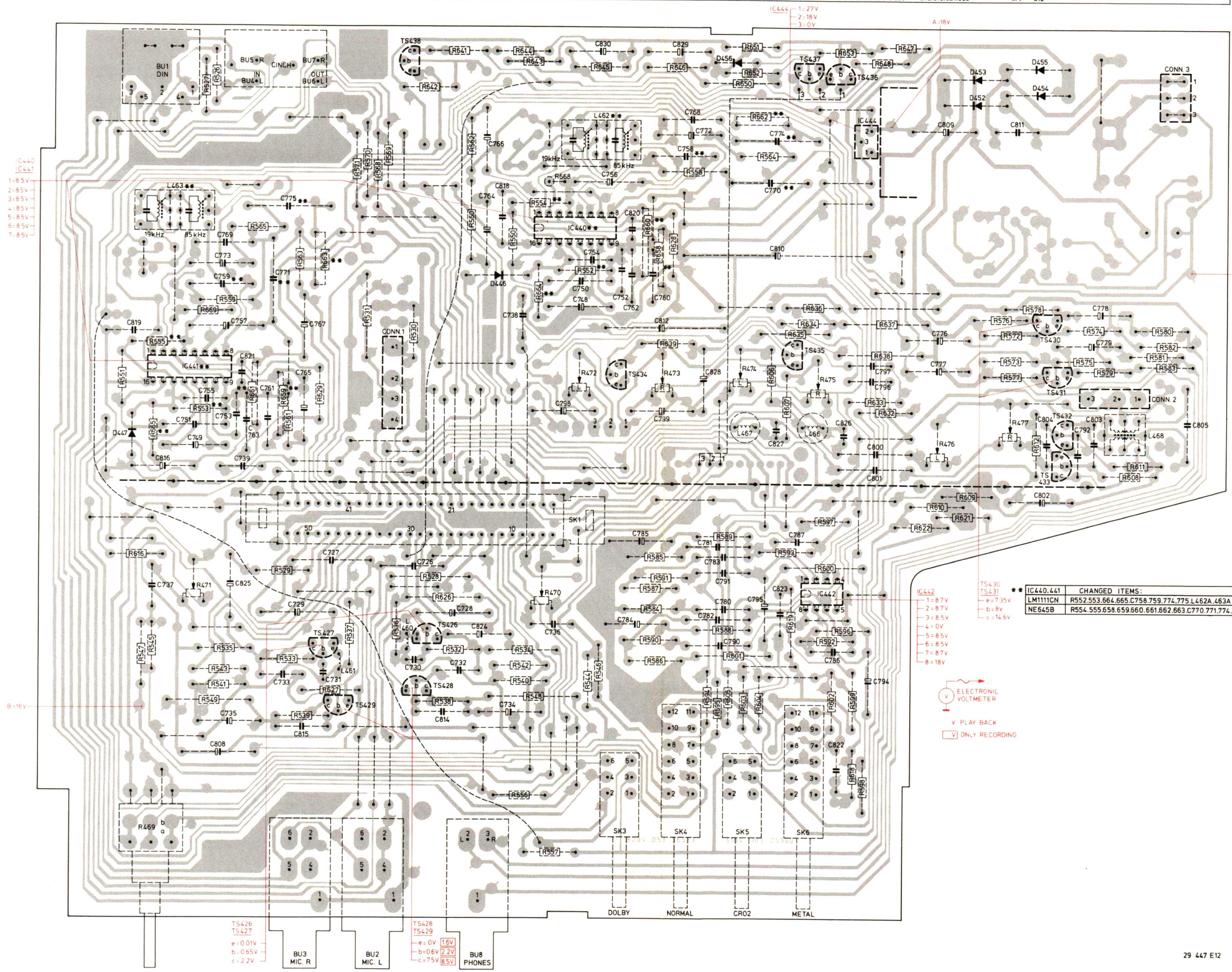
MISC	SK61÷63.T402	CONN.1.2.3.K2.K1/101	M1.SK0	CONN.3	CONN.2	TS430÷433	TS428.D452÷455	LA1	IC444.442	SK6.TS437.436.435	SK5	D456	SK4	TS434.SK3	IC440	SK1	D446	BU8	TS438.426.428	CONN.1	BU2.3	TS427.429.BU6.7	BU4	BU5	IC441	BU1	D447
L					468						466		467			462				460		461			463			
C	845.807			805	778.779.803.804.802		811	776.777.809		797.796.794.822.826.787.786	827	810.774	828.829.780÷783.768.758.812.756.830.772.754.750.748.798.736.734.766.818.814.764.824.726.726.732								727	765.775	765	761.763.821.825.769.773		737	819
C					792				800.801	822	823.795	790.791.768.772.799	785	760	820.762		738					729.733.815.808.739.753.735.757.759.755.751.749.816						
R	478	613÷615		580÷583	579.574.575.578.576	572.573.577		609.610	476	632.633.637.638.647.648.653.651.652.650.619.564.603÷607.634÷636.601			558.639.473.646.645	472	668.548.643.540.644		641.642	560.562.538.532.530.568.569.570.571			627.629	533.539		559	526.527	669	665.616	551
R					611 608	1530÷1533.612.477		621.622		597.475.598.599.618.602.596.592.600.819.593.474.589.588.595.594.628.584÷587.590.591.546.544.552.566.470						664.534.550.542.557.556		626.628	536		531.537	529.561.563		565.535.543.541.549.553.567.471		545.549	469	



IC440.441	CHANGED ITEMS	
LM1111CN	R552.553.664.665.C758	759.774.775 L462A.463A
NE645B	R554.555.658.659660	661.662.663.C770.771.774.775 L462B.463B

29 464 E12

MISC	D447 BU1 IC441 BU4.5 BU3.6.7.TS427.429 BU2.CONN.1.TS438.428.426 BU8.D446 SK1.IC440 SK3.TS434 SK4 D456 SK5 SK6.TS435.437.IC422.444.TS436 D452.453 D454.455.TS430÷433 D451.CONN.2.3
L	463 461 460 462 467 466 468
C	819 816.751.749.755.773.759.769.757.761.771775.765.767 764.766.818.738 798.748.750.754.830.756.752.820.762.760.812.829.758.768.772.828770.774.810.827 826.796.797.800.801 776.777.809 811 804 779.778 805
C	737 808.735.753.825.824.739.763.733.729.815.731.727 726.730.814 728.732.824 734 736 784.785 799 780÷783.790.791.795.823 787 786.822 794 802 792.803
R	551 665.555. 553.669.527.526.559.661.565.659. 561.563 629 663 568÷571.531 530 642 641 560.562 550.644.643.664 668.552.472.645.639.673.646.628.558.589.650÷652.474.564.606.607.635.634.636.475.653.633.638.648.637.632.647 476 576.572.573.577.615.576 575.574.579 608.611 580÷583
R	616.547.469.545 471.549.541.543.535 529.533.539 627 537 536 528.626.538.532 534.540.542.556.548.470.557.544.546 584÷587.590.591.594.595.588.605.601.603.604.593.619.597.600.592.602.596.599.618.598 672.610.621.609 477 612



** IC440.441	CHANGED ITEMS:
LM1111CN	R552.553.664.665.C758.759.774.775.L462A.463A
NE645B	R554.555.658.659.660.661.662.663.C770.771.774.775.L462B.463B

29 447 E12

-IC-		
IC440,441**	LM1111CN	4822 209 80886
IC440,441**	NE645B	4822 209 80454
IC442	MC1458N	5322 209 85512
IC443	TDA1059B	4822 209 80361
IC444	L7818CV	4822 209 80885

-TS-	
BC337/40	4822 130 41344
BC338/25	4822 130 40958
BC548B	4822 130 40937
BC548C	4822 130 44196
BC550C	4822 130 41096
BC558B	4822 130 44197

-D-		
BA317	(1N4148)	4822 130 30847
1N4002G	(DS130TD)	5322 130 30684

-L-	
L460,461	4822 156 20993
L462A,463A**	4822 158 60484
L462B,463B**	4822 158 60485
L466,467	4822 156 21061
L468	4822 146 20565

-R-		
R469a,b	2x 47k log	4822 102 40056
R470, 471, R476,477	47k	4822 100 10079
R472,473	22k	4822 100 10051
R474,475	10k	4822 100 10035
R478	100 Ω	4822 100 10073
R558,559	3k3 1%	4822 116 51247
R614	249 Ω 1%	5322 116 54499

-C-		
C726,727	1 nF/250 V	4822 121 50566
C758,759**	1 nF/ 50 V	4822 122 10158
C760,761	1 nF/ 50 V	4822 122 10158
C762,763	1 nF/ 50 V	4822 122 10158
C768,769	4n7/ 63 V	4822 121 50539
C770,771**	27 nF/ 63 V	4822 121 50607
C774,775**	33 nF/ 63 V	5322 121 54111
C774,775**	5n6	4822 121 50543
C780,781	820 pF/ 50 V	4822 122 10173
C782,783	560 pF/ 50 V	4822 122 31693
C790,791, C800,801	220 pF/ 50 V	4822 122 10172
C805	2n7/630 V	5322 121 54093
C811	10 nF	4822 121 41482
C814,815	330 pF/ 50 V	4822 122 31466
C818,819	10 nF	4822 122 10177
C845	15 µF/ 16 V	4822 124 21087

-BU-	
BU1	4822 267 40325
BU2,3	4822 267 30291
BU4-7	4822 267 40341
BU8	4822 267 30324

-SK-	
SK0	4822 276 10807
SK1	4822 277 20684
SK3-6	4822 276 40295
SK61	4822 277 20778
SK62,63	4822 278 30117

-Miscellaneous-		
K1,K101		4822 249 10148
K2		4822 249 40117
M1		4822 361 20232
LA1	6.3 V/250 mA	4822 134 40476
T402		4822 146 20697
F1		4822 252 20007
ME403a,b		4822 347 10285

(GB)

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

(NL)

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

(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.

(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.