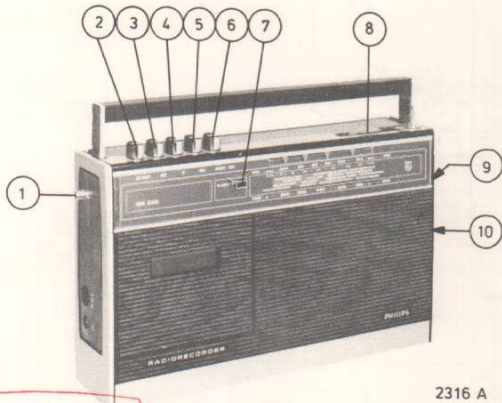


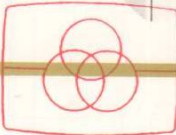
Service manual



RADIO - RECORDER 22RR432 00R/19R



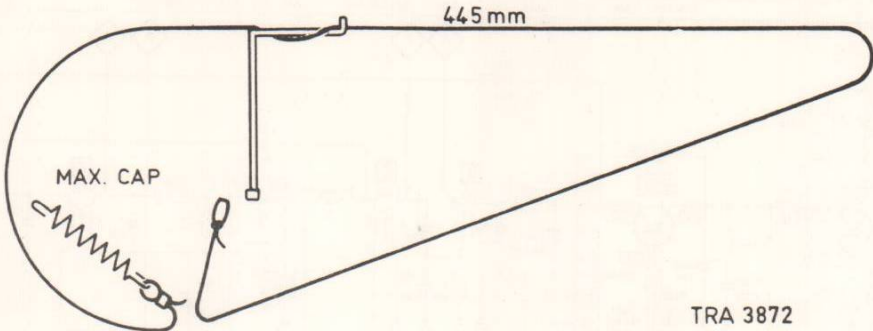
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NOTES

1	Tone switch/speaker switch/ frequency switch, erase oscillator Toonschakelaar/luidsprekerschakelaar/ frequentieschakelaar wisoscillator Commutateur de tonalité/commutateur haut-parleur/commutateur de fréquence osc. d'effacement Klangschalter/Lautsprecherschalter/ Frequenzschalter Löschoszillator Commutatore di tono/commutatore alto- parlante/commutatore della frequenza dell'oscillatore di cancellazione	SK-E	2	Stop push-button Stoptoets Bouton-poussoir d'arrêt Stoptaste Tasto di arresto	3	Rewind Terugspoelen Rebobinage Rücklauf Riavvolgimenti	SK-K	
4	Recording Opname Enregistrement Aufnahme Registrazione	SK-B + SK-A	4	Playback Weergave Reproduction Wiedergabe Riproduzione	SK-B	5	Wind Opspoelen Bobinage Vorlauf Avvolgimento rapido	SK-K
6	LW/MW/FM switch LG/MG/FM-schakelaar Commutateur GO/PO/FM LW/MW/FM-Schalter Commutatore OL/OM/FM	SK-F	7	Cassette ejector Kassette-uitwerper Ejecteur de cassette Kassettenauswerfer Espulsore della cassetta	8	Tuning Afstemmen Syntonisation Abstimmung Sintonia	C405	
9			10	On/off + volume control Aan/uit + volumeregelaar Marche/arrêt + commande de volume Ein/Aus-Schalter + Lautstärkeregl. Inmarcia/fermo + controllo di volume			SK-G + R411	

Supply voltages	110-220 V ~ 9 V... (6x1.5 V)	Voedingsspan- ningen	Tensions d'alimen- tation	Speisespannungen	110-220 V ~ 9 V... (6x1.5 V)	Tensioni d'alimen- tazione
Consumption (without signal)		Verbruik (zonder signaal)	Consommation (sans signal)	Verbrauch (ohne Signal)		Consumo (senza segnale)
radio, 9 V...	30 mA	radio, 9 V...	radio, 9 V...	Radio, 9 V...	30 mA	radio, 9 V...
recording, 9 V...	120 mA	opname, 9 V...	enregistrement, 9 V...	Aufnahme, 9 V...	120 mA	registrazione, 9 V...
playback, 9 V...	90 mA	weergave, 9 V...	reproduction, 9 V...	Wiedergabe, 9 V...	90 mA	riproduzione, 9 V...
Output power	400 mW	Uitgangsvermogen	Puissance de sortie	Ausgangsleistung	400 mW	Potenza uscita
Loudspeaker	15 Ω	Luidspreker	Haut-parleur	Lautsprecher	15 Ω	Altoparlante
IF /00 (AM)	452 kHz	MF /00 (AM)	FI /00 (AM)	ZF /00 (AM)	452 kHz	FI /00 (AM)
IF /19 (AM)	460 kHz	MF /19 (AM)	FI /19 (AM)	ZF /19 (AM)	460 kHz	FI /19 (AM)
IF (FM)	10.7 MHz	MF (FM)	FI (FM)	ZF (FM)	10.7 MHz	FI (FM)
Tape speed	4.76 cm/sec	Band snelheid	Vitesse de défilement	Bandgeschwindigkeit	4.76 cm/sec	Velocità
Number of tracks	2	Aantal sporen	Nombre de piste	Spurzahl	2	Numero piste
Frequency erase osc.	33-50 kHz	Frequentie wis- oscillator	Fréquence d'osc. d'effacement	Frequenz Löschos- zillator	33-50 kHz	Frequenza oscil. di cancellazione
Δ f erase osc. MW	0.7-1.5 kHz	Δ f wisosc. MG	Δ f d'osc. d'efface- ment PO	Δ f Löschoszill. MW	0.7-1.5 kHz	Δ f dell'oscillatore di cancellazione OM
Δ f erase osc. LW	3 kHz	Δ f wisosc. LG	Δ f d'osc. d'efface- ment GO	Δ f Löschoszill. LW	3 kHz	Δ f dell'oscillatore di cancellazione OL
Microphone	500 Ω	Microfoon	Microphone	Mikrofon	500 Ω	Microfono
Dimensions	335x203x92 mm	Afmetingen	Dimensions	Abmessungen	335x203x92 mm	Dimensioni

Index: CS39043-CS39047,CS31819-CS31821,CS39048,CS39049



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

Subject to modification

4822 725 11198

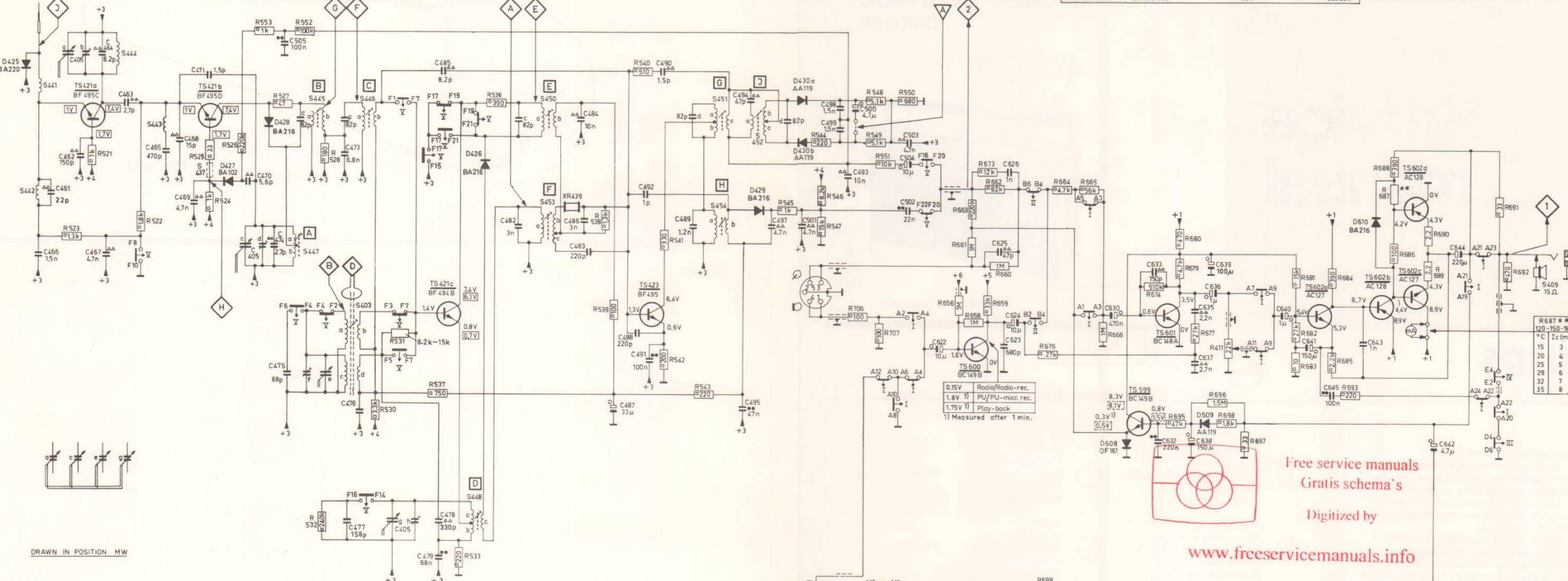
Printed in the Netherlands

World of free manuals

CS39043

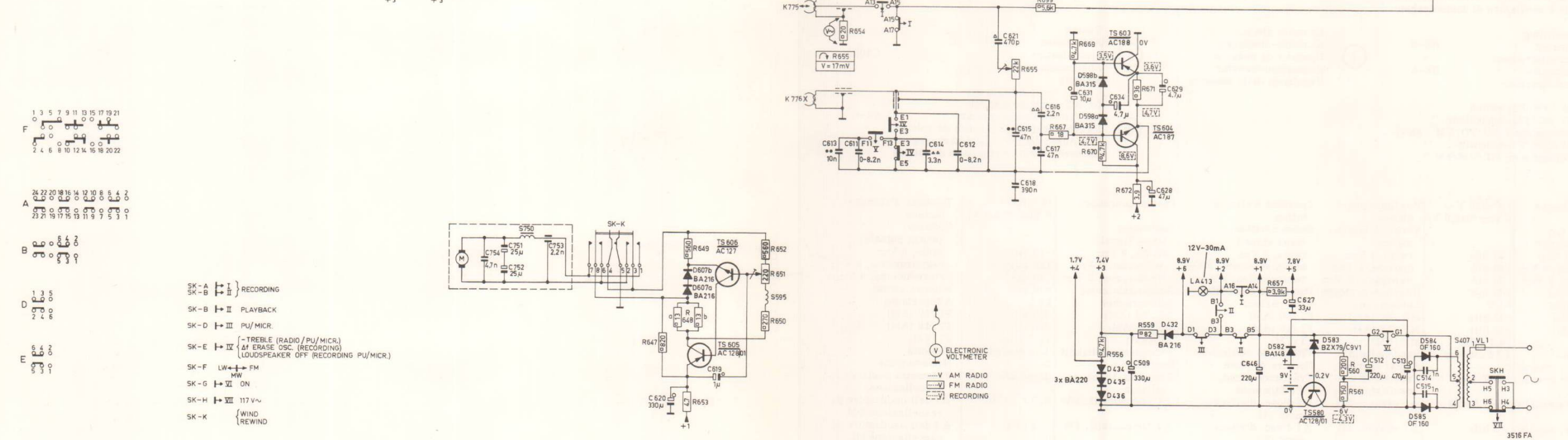
0.15V Radio/Radio-rec.
1.8V 1) PU/PU-micr. rec.
1.75V 1) Play-back
1) Measured after 1 min.

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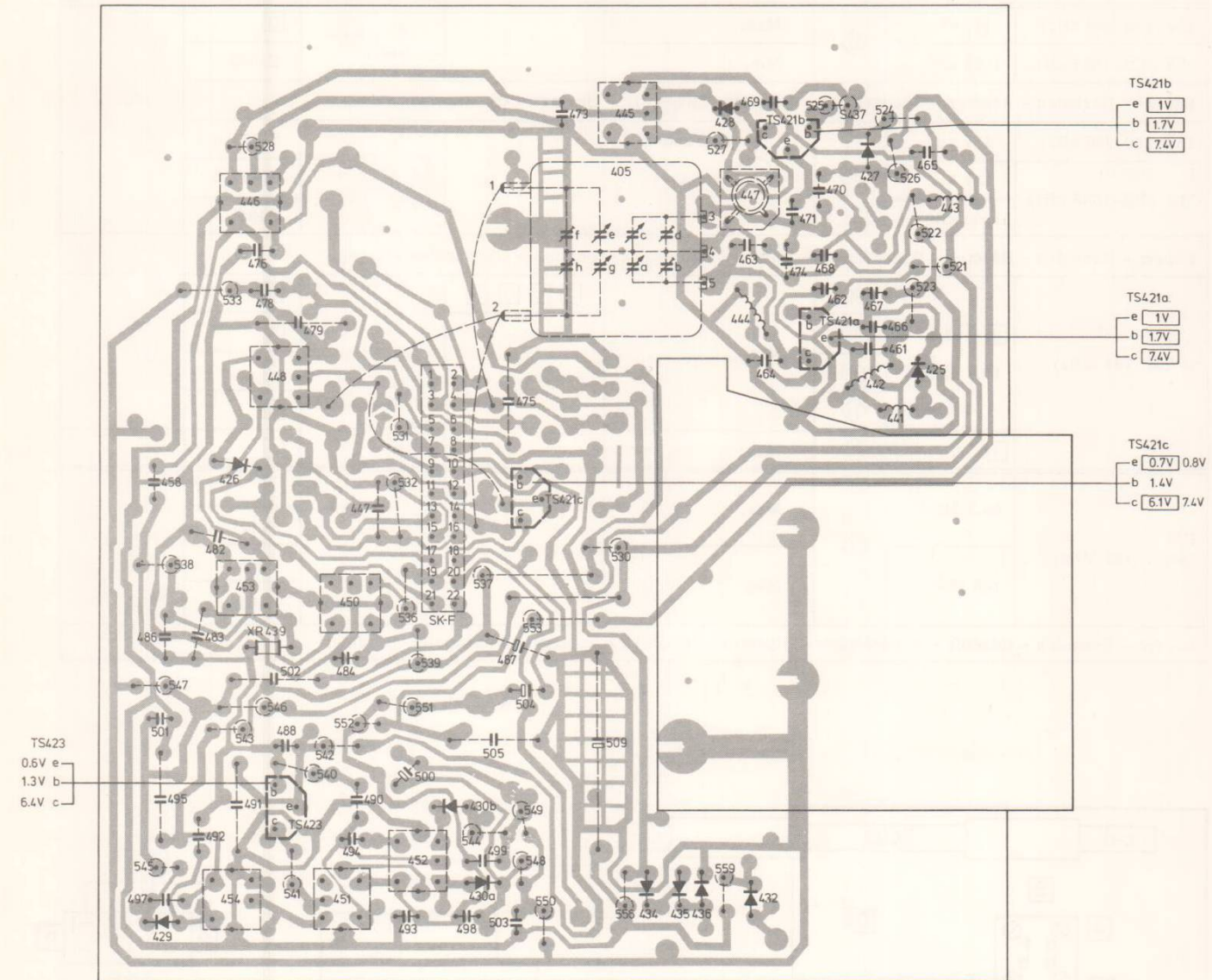
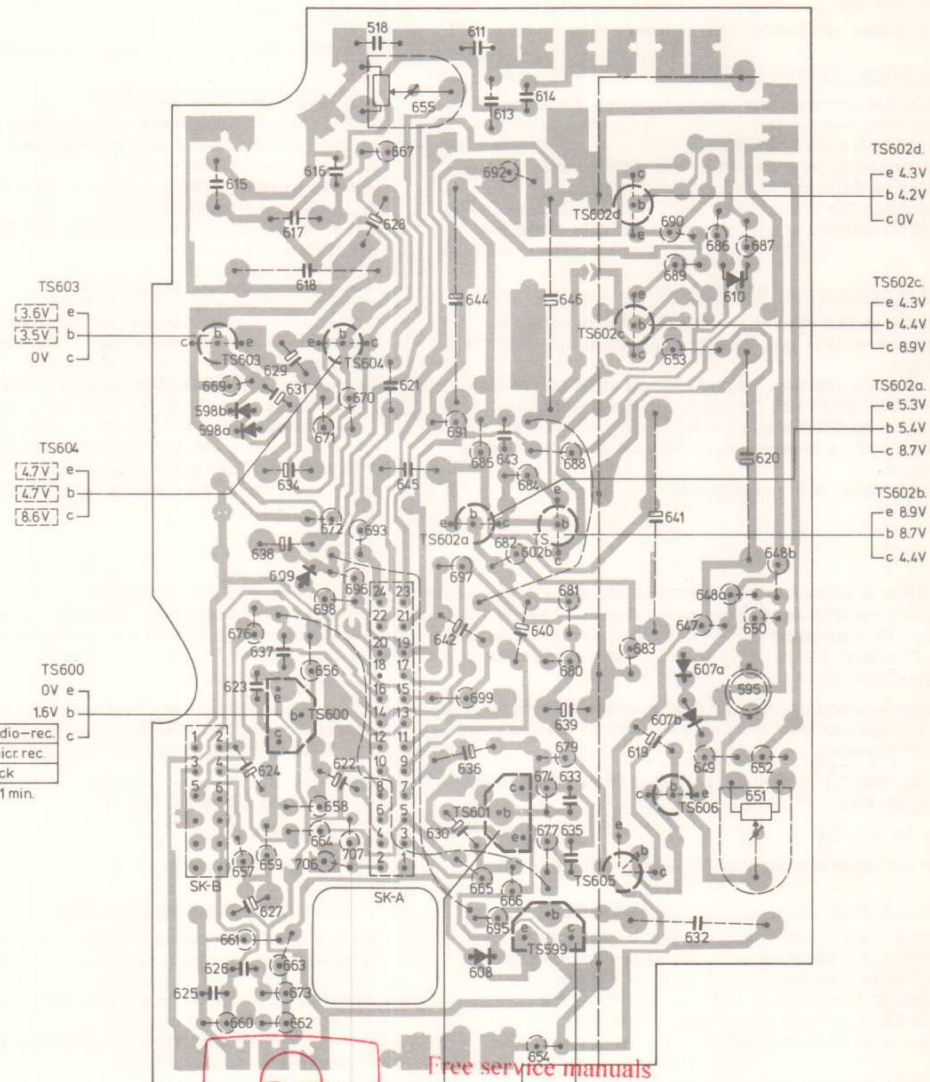
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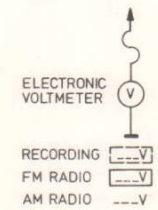
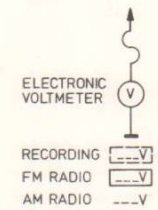
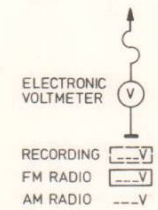
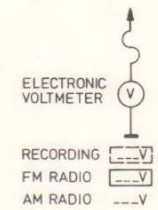
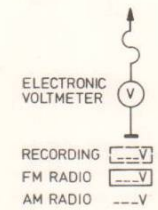
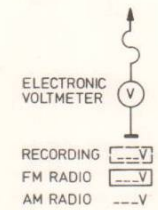
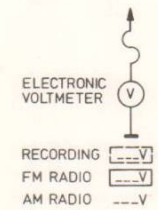
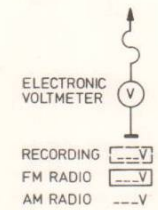
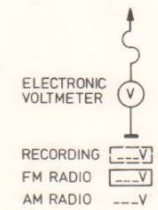
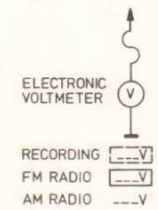
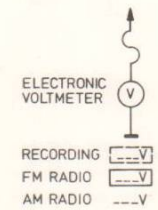
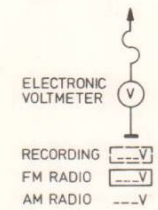
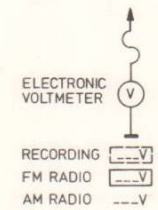
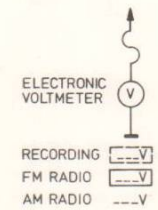
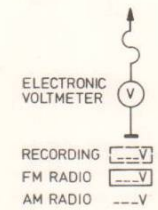
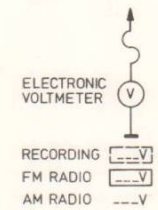
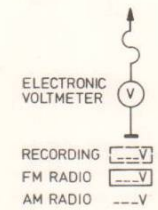
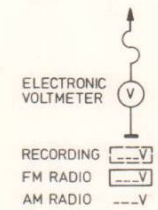
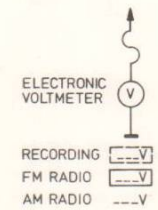
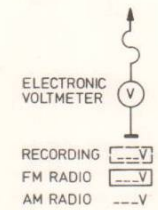
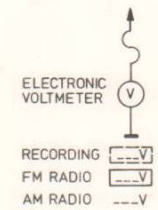
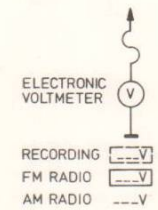
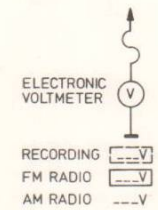
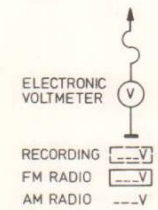
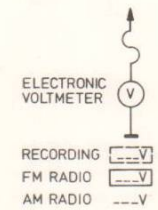
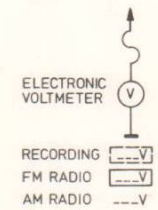
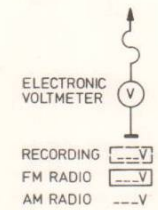
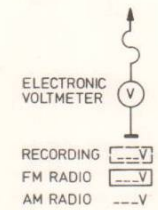
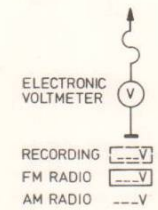
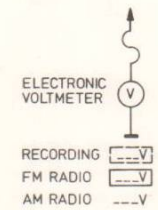
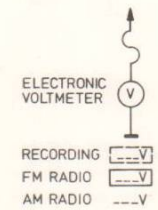
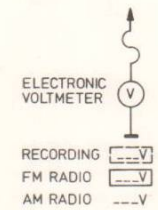
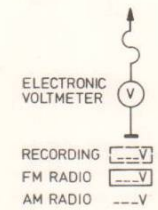
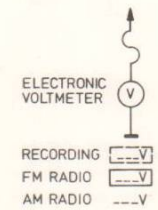
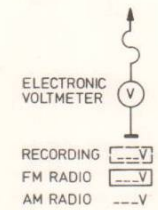
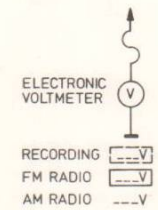
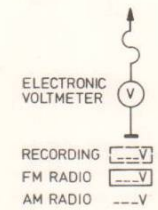
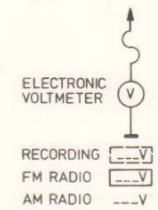
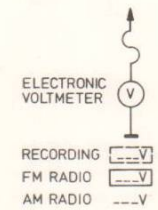
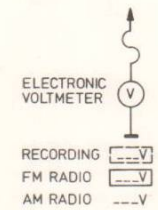
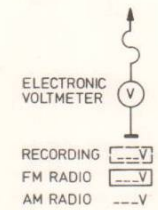
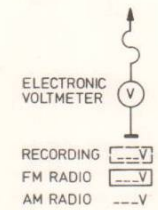
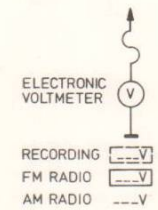
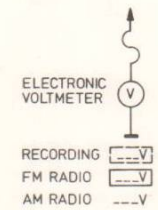
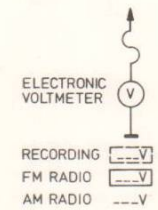
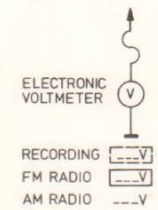
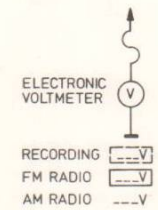
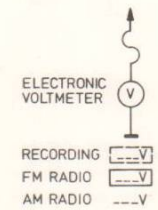
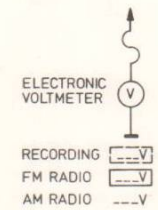
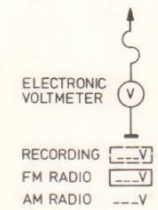
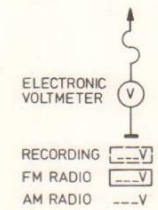
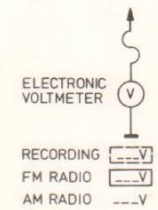
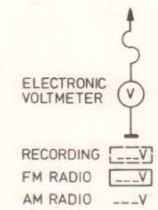
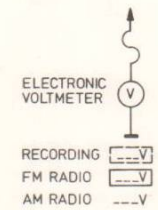
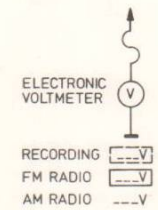
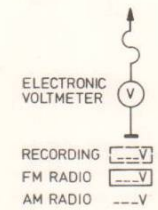
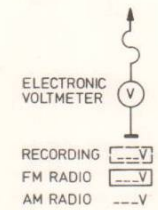
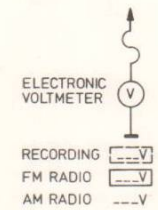
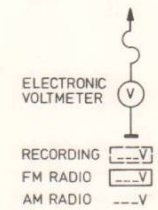
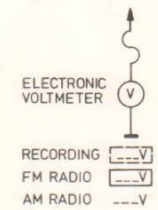
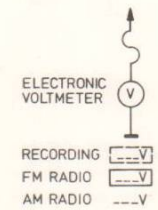
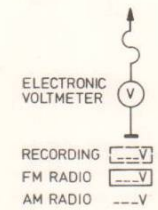
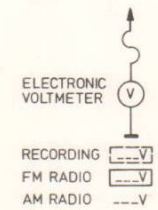
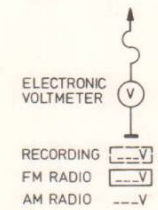
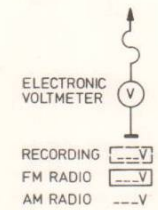
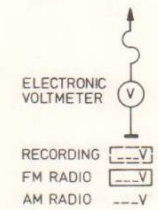
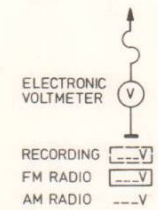
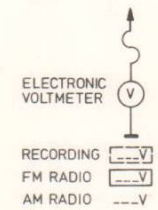
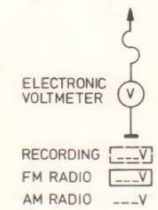
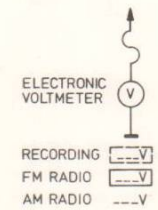
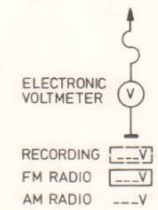
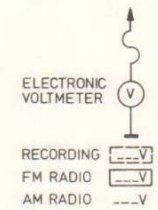
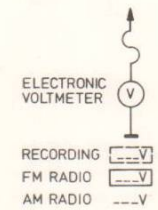
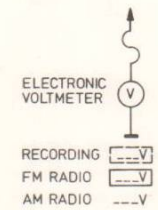
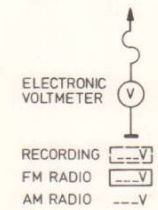
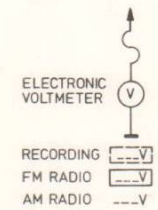
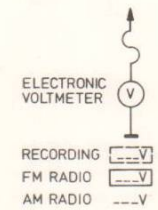
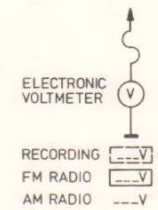
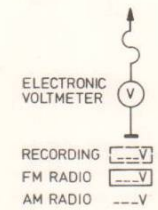
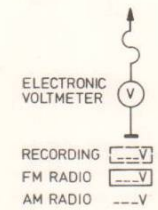
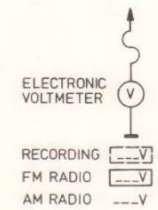
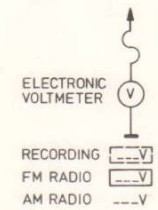
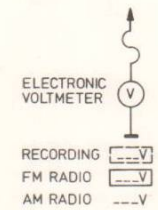
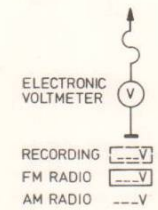
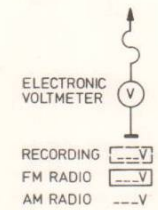
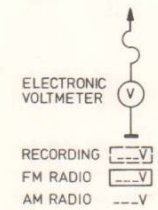
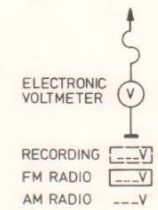
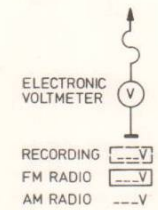
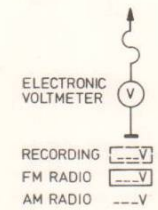
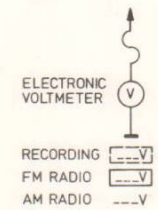
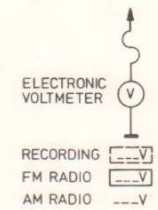
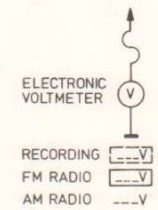
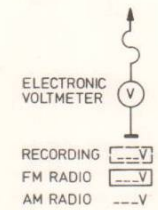
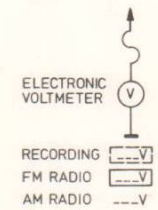
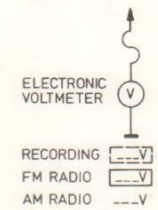
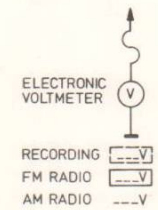
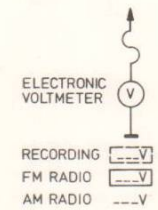
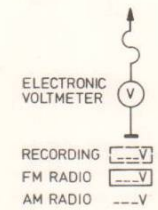
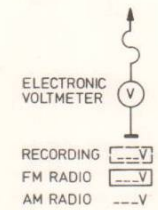
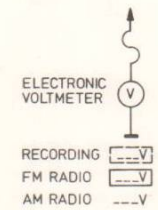
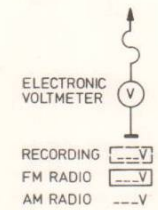
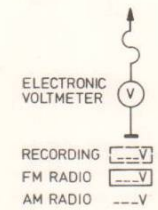
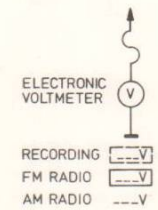
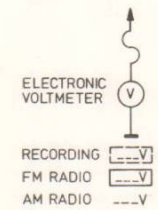
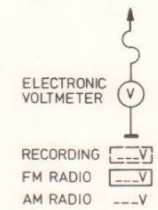
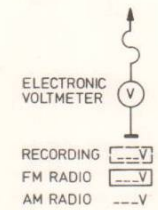
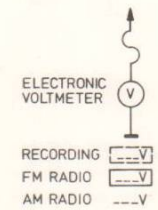
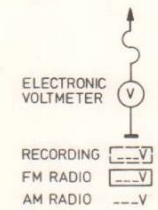
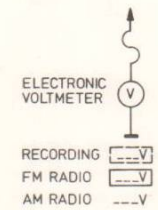
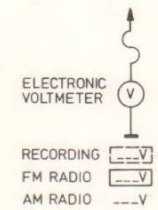
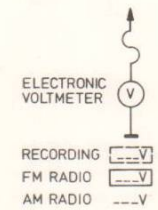
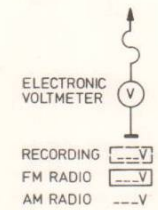
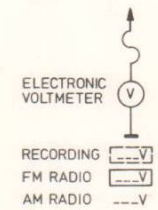
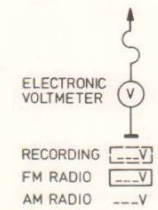
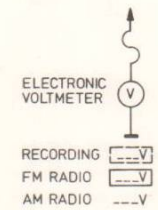
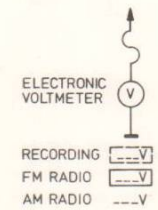
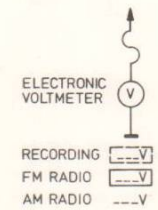
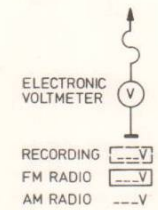
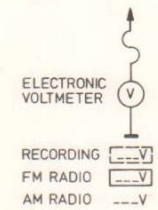
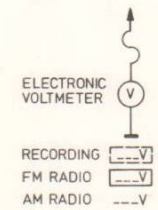
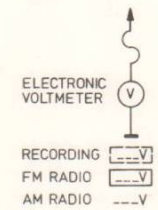
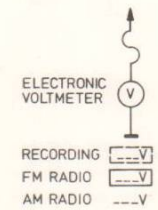
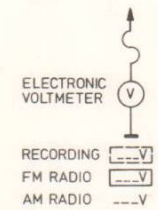
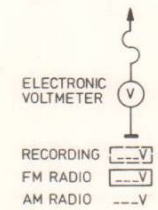
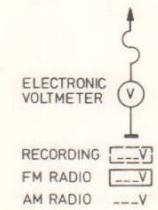
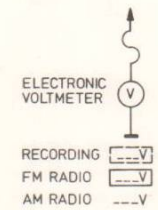
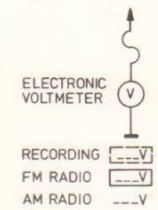
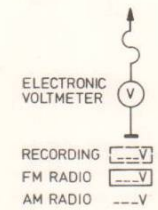
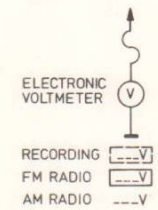
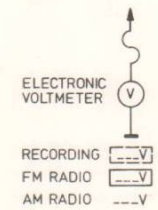
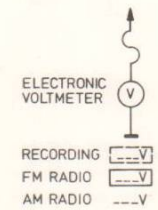
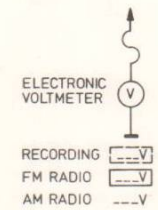
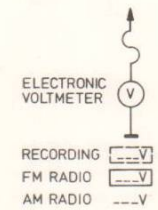
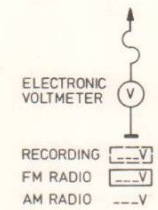
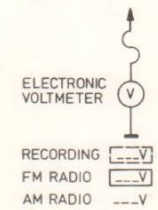
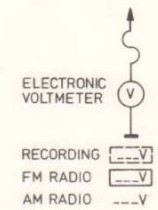
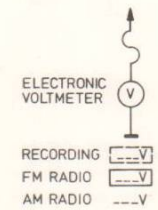
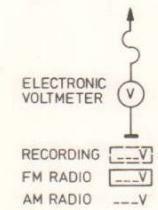
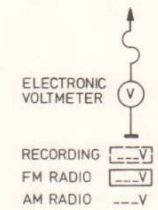
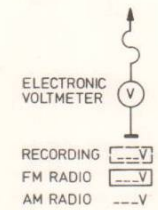
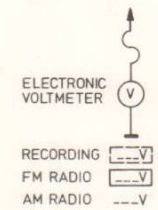
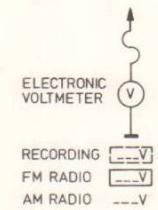
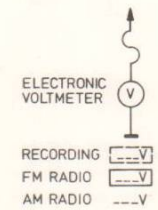
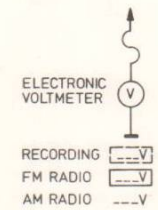
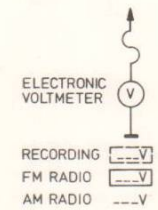
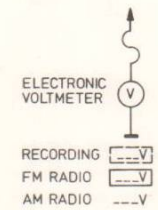
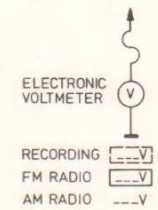
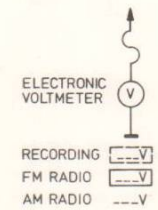
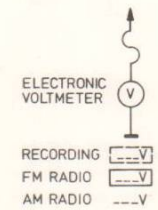
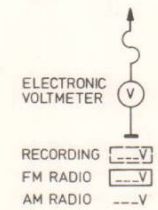
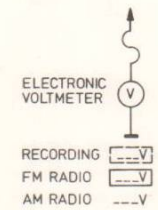
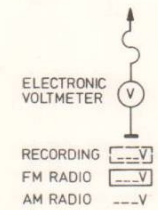
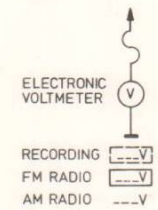
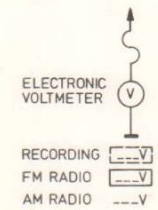
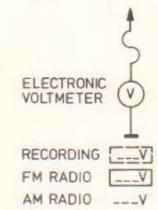
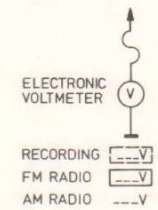
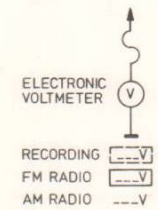
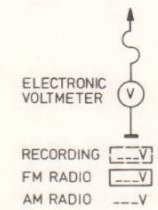
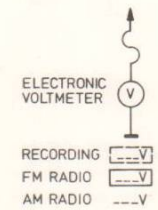
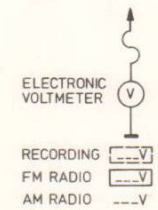
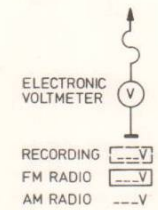
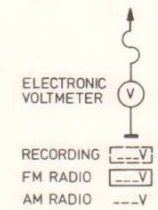
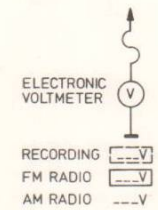
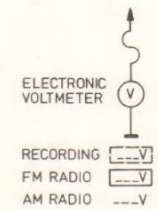
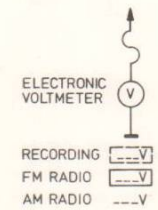
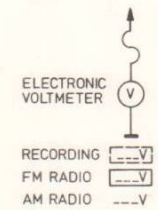
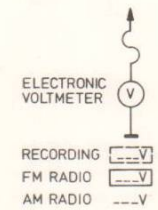
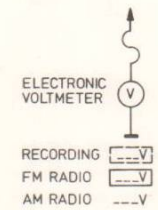
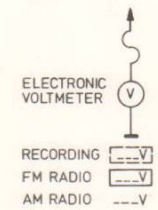
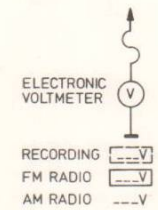
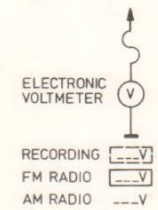
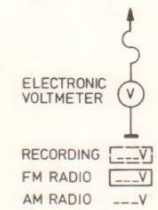
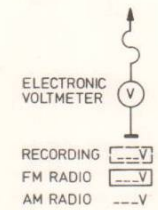
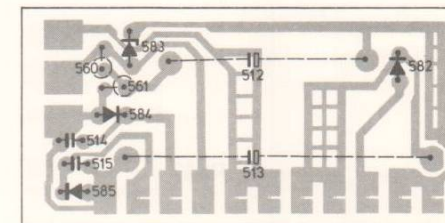
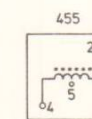
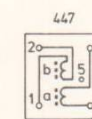
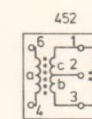
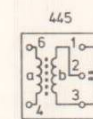
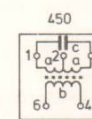
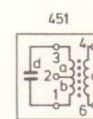
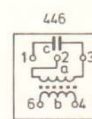
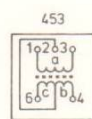
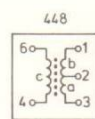
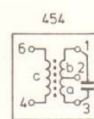


	603.600.598b.598a.609.604.	608.602a.601.599.602b.605.606.602d.602c.607a.610.607b.
	595	
	623-627.	631.629.615-618.621.518.628.642-644.611.613.614.646.639.633.619.641.632.620.
		637.634.638.622.645.
	660-663.669.676.706.671.670.672.693.667.655.697.691.685.692.666.684.688.653.690.686.687.648a.648b.	630.636.
	673	640.635.
	657.659.656.698.696.664.707.658.695.699.665.677.654.674.679-683.689.647.649-652.	

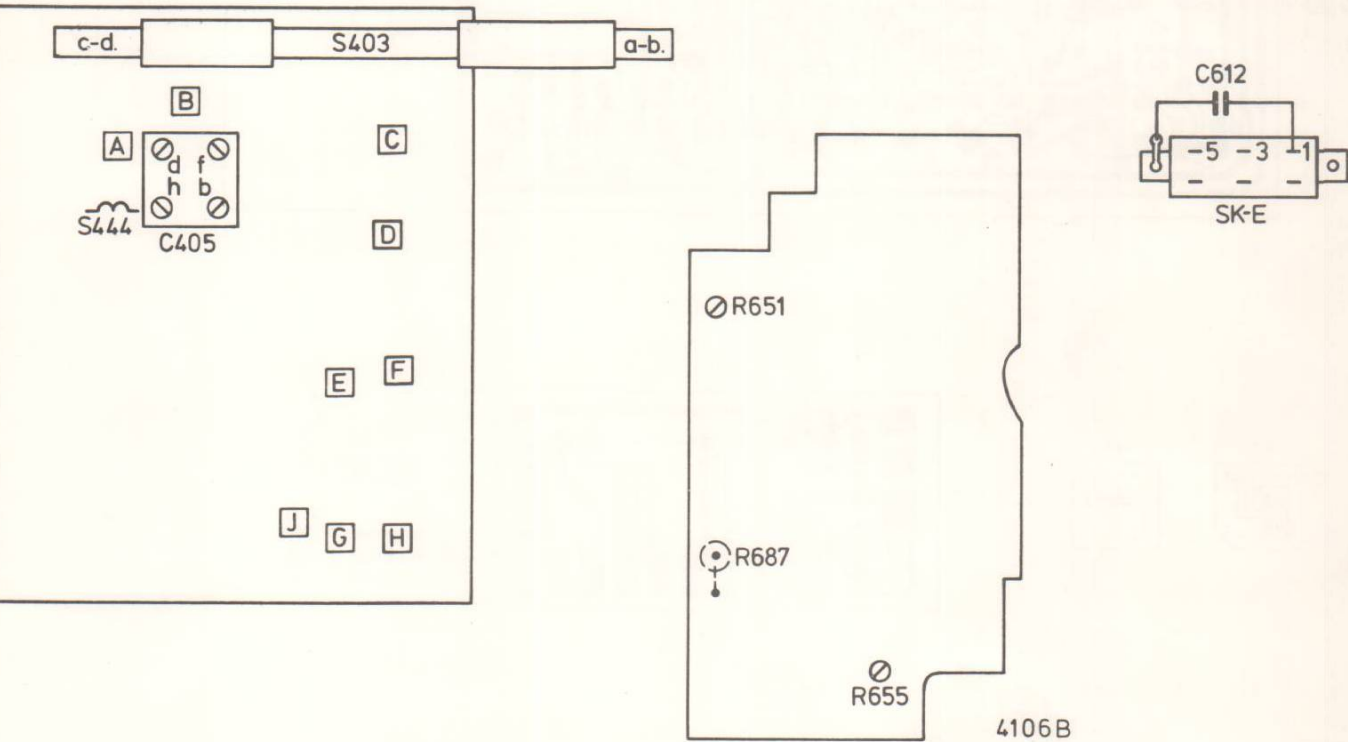
	429.	426.423	585.430b.583.584.421c.430a.	434+436.	428.	432.582.421a.421b.	427	425
	454.453.446.448	450.451.	452.	445.	447.444.	437.	442.441.443.	
	458.486.501.483.482.476.478.479.502.	484.447.	493.514.505.475.487.504.473.	509.405.	463.469.471.470.	465-467.461.		
	497.495.492	491.	488.	494.490.	500.515.499.498.	503	512.513.	
	547.538	533.528.546.	540-543	552.531.532.536.551.544.537.549.553.	530	527	521-526.	
	545.			539.	560.561.548.550.	556	559	



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Wave range	Signal to		Variable capacitor	Detune	Damp with	Adjust	Indication
SK....							
MW (525...1605 kHz)	1 33 nF	A	Min.	F D		H	2
		B				F	
				H			
LW (150-260 kHz)	147 kHz	B	Max.		R = 10 kΩ S403c	D	Max. 1
MW (525-1605 kHz)	1635 kHz		Min.			C405h	
Repeat - Herhalen - Répéter - Wiederholen - Ripetere - Repetera - Gentage - Gjntagelse - Toista							
LW (150-260 kHz)	157 kHz	B				S403c-d	
MW (525-1605 kHz)	550 kHz					S403a-b	
	1500 kHz					C405f	
Repeat - Herhalen - Répéter - Wiederholen - Ripetere - Repetera - Gentage - Gjntagelse - Toista							
FM (87.5...104 MHz)	3 5 nF 10,7 MHz	E	Min.	J E C B		G	2
		F				E	
		G				C	
		H				B	
	4	J	Max.	J	5		
FM (87.5...104 MHz)	86,5 MHz	J	Max.			A	2
	105 MHz		Min.			S444	
						C405d	
						C405b	
Repeat - Herhalen - Répéter - Wiederholen - Ripetere - Repetera - Gentage - Gjntagelse - Toista							



GB

- Determine the frequency of the signal generator at which the output signal on point 1 is maximum. This the resonance frequency of the resonator (XR 439) and also the frequency of the IF signal to be applied. Modulate the signal with a sweep of approx. 20 kHz.
- Connect oscilloscope via 100 kΩ resistor to point 2. Adjust for max. height and symmetry of band-pass curve.
- Open jumper A. Modulate the signal generator with a sweep of approx. 200 kHz.
- Refit jumper A.
- Adjust for max. symmetry of S-curve.

Selector capacitor of erase oscillator

It is possible that interference occurs between the erase oscillator frequency and the intermediate frequency in both positions of the Δf-switch, SK-E. This can be remedied by replacing C612 (MW) and C611 (LW) by a capacitor of different value. During production the value of C612 and C611 is determined by trying out different values until the most suitable value has been found.

Description of erase-protection circuit

When the set is switched over from radio-reproduction to recorder-playback, it is possible that the erase oscillator is briefly started. Points 1-3 of SK-B are then interconnected and C509 is discharged via R559, R672 and the erase oscillator-circuit. The voltage across C509 may be sufficiently high to start the erase oscillator for a moment so that a part of the recording could be erased. D432 has been included to prevent this.

F

- Déterminer la fréquence du générateur de signaux à laquelle la tension de sortie sur 1 est au maximum. C'est là, la fréquence de résonance (XR 439) et de ce fait aussi la fréquence du signal FI appliqué. Moduler ce signal par un balayage d'env. 20 kHz.
- Connecter un oscilloscope sur 2 à travers une résistance de 100 kΩ. Ajuster pour hauteur et symétrie maximum de la courbe de réponse.
- Ouvrir le pont A. Moduler le signal de générateur par un balayage d'env. 200 kHz.
- Fermer le pont A.
- Ajuster sur symétrie maximale de la courbe en S.

Condensateur de sélection - Oscillateur d'effacement

Il se peut qu'il y ait interférence sur les deux positions du commutateur "Δf", SK-E entre la fréquence de l'oscillateur d'effacement et la fréquence intermédiaire. On pourra y remédier en modifiant la valeur de C612 (PO) et C611 (GO). La valeur de C612 et C611 est déterminée lors de la fabrication, et ce, à la suite de nombreux tests.

Dispositif de protection contre effacement accidentel

Il peut arriver que lors de la commutation de la radio vers la reproduction d'enregistreur, l'oscillateur d'effacement se mette très brièvement en fonctionnement. Les points 1-3 de SK-B en sont interconnectés et C509 se décharge sur R559, R672 et le circuit de l'oscillateur d'effacement. La tension sur C509 peut être suffisante pour que l'oscillateur d'effacement soit brièvement mis en fonctionnement, une partie de l'enregistrement s'en trouverait dès lors effacée. D432 a été montée afin d'éviter que ce phénomène ne se produise.

I

- Determinare la frequenza del generatore di segnali alla quale la tensione di uscita sul 1 è massima. Si trate in questo caso della frequenza di risonanza (XR 439) e perciò anche della frequenza del segnale FI applicato. Modulare questo segnale con uno spazzolmento di circa 20 kHz.
- Collegare un oscillografo su 2 tramite una resistenza di 100 kΩ. Regolare la curva di risposta per massima ampiezza e simmetria.
- Aprire il ponticello A. Modulare il segnale del generatore con uno spazzolamento di ± 200 kHz.
- Richiudere il ponticello A.
- Regolare per massima simmetria della curva ad "S".

NL

- Bepaal de frequentie van de signaalgenerator waarbij de uitgangsspanning op 1 maximaal is. Dit is de resonantie-frequentie van de resonator (XR 439) en dus ook de frequentie van het toegevoerde MF-signaal. Moduleer dit signaal met een zwaai van ca. 20 kHz.
- Oscilloscoop via een weerstand van 100 kΩ aansluiten aan 2. Afregelen op een max. hoogte en symmetrie van de doorlaatkromme.
- Open brug A. De signaalgenerator moduleren met een zwaai van ca. 200 kHz.
- Brug A sluiten.
- Afregelen op max. symmetrie van de S-kromme.

Keuzecondensator wisoscillator

Het is mogelijk dat interferentie tussen de wisoscillatorfrequentie en de middenfrequentie optreedt in beide standen van de z.g. Δf-schakelaar SK-E. Dit kan worden verholpen door de waarde van C612 (MG) en C611 (LG) te veranderen. Bij de fabricage wordt de waarde van C612 en C611 proef-ondervindelijk bepaald.

Beschrijving van de wisbeveiliging

Tijdens het overschakelen van radio-weergave naar recorder-weergave bestaat de mogelijkheid dat de wisoscillator voor een moment aanslaat. De punten 1-3 van SK-B worden dan doorverbonden en C509 gaat ontladen via R559, R672 en het wisoscillatorcircuit. De spanning over C509 kan groot genoeg zijn om de wisoscillator voor een moment aan te laten slaan, zodat daardoor een stukje van de bandopname zou worden uitgewist. D432 heeft nu tot doel om het bovenstaande te voorkomen.

D

- Bestimme die Frequenz des Signalgenerators mit maximaler Ausgangsspannung an Punkt 1. Dies ist die Frequenz des Resonators (XR 439) und demzufolge auch die Frequenz des zugeführten ZF-Signals. Moduliere dieses Signal mit einem Hub von ca. 20 kHz.
- Schliesse einen Oszillografen über einen 100-kΩ-Widerstand an Punkt 2 an. Gleiche die Durchlasskurve auf maximale Höhe und Symmetrie ab.
- Öffne Brücke A. Moduliere den Signalgenerator mit einem Hub von ca. 200 kHz.
- Schliesse Brücke A.
- Gleiche auf maximale Symmetrie der S-Kurve ab.

Wahlkondensator - Löschoszillator

Es besteht die Möglichkeit, dass zwischen der Löschoszillatorfrequenz und der Zwischenfrequenz in beiden Stellungen des sog. Δf-Schalters SK-E Interferenz entsteht. Dies kann durch Änderung des Wertes von C612 (MW) und C611 (LW) beseitigt werden. Bei der Herstellung wird der Wert von C612 und C611 erfahrungsgemäss bestimmt.

Beschreibung des Löscheschutzes

Beim Umschalten von Radio- nach Tonbandwiedergabe kann es vorkommen, dass der Löschoszillator kurz anschlägt. Die Punkte 1-3 von SK-B werden dann miteinander verbunden und C509 entlädt sich über R559, R672 und den Löschoszillatorkreis. Die Spannung an C509 kann gross genug sein, um den Löschoszillator kurz anschlagen zu lassen, wodurch ein Teil der Bandaufnahme gelöscht wird. D432 dient dazu, vorhergenannten Fehler zu vermeiden.

Condensatore di selezione - Oscilatore di cancellazione

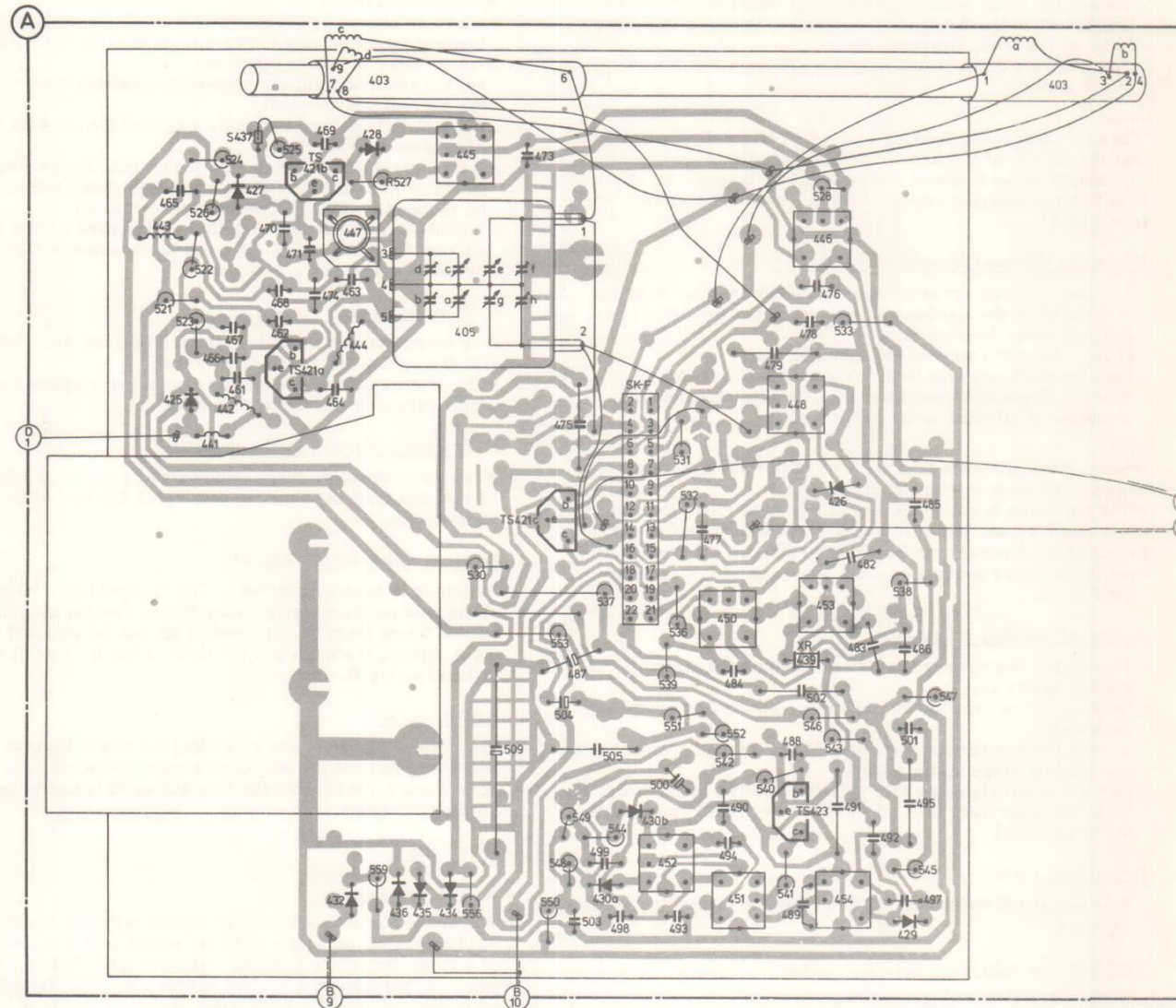
Potrebbe apparire una certa interferenza sulle due posizione del commutatore "Δf", SK-E, fra la frequenza dell'oscilatore di cancellazione e la frequenza intermediaia. Rimediarsi modificando il valore di C612 (OM) e C611 (OL). Il valore di C612 e C611 viene determinato durante la fabbricazione su base di numerose prove.

Congegno di protezione contro eventuale cancellazione.

Può accadere che durante la commutazione dalla radio verso riproduzione del registratore, l'oscilatore di cancellazione si metti brevemente in funzionamento. I punti 1-3 di SK-B ne sono interconnessi e C509 si scarica su R559, R672 e il circuito dell'oscilatore di cancellazione. La tensione su C509 potrà essere sufficiente per mettere l'oscilatore brevemente in funzionamento, una parte della registrazione ne sarebbe perciò cancellata. D432 è stata montata per evitare detto fenomeno.

425	427	421a, 421b	432	428, 436, 434, 582, 435	421c, 430a, 430b, 583+585	580	423	426	429
443	441, 442, 437		447, 444, 403	445	452	450, 451, 403	448, 446, 453, 454		413 403
	461+471	474		405	509, 473, 512, 504, 487, 475, 505, 498, 514, 493, 500, 477, 484, 490, 479, 478, 476, 502, 482, 497, 483, 486, 485				
					503, 513, 499	515	494	488, 489, 491	492, 495, 501
	521+526	411	559, 527	556, 530	548+550, 553, 537	551, 539, 531, 532, 536, 552	540, 546, 528	533	545, 538, 547
					544, 561, 560		542	541	543

610, 605, 607b, 607a, 602d, 602c, 606, 602b, 602a, 599, 601, 608	504, 609, 600, 598b, 598a, 603								
407 595									409
620 632 619, 641	614, 642+646, 613, 611	621, 518, 628, 615+618, 634, 627							612
	635, 633, 639, 640	636, 630, 622							637, 629, 631, 638, 623+626
648b, 687, 686	689, 690	674, 677, 688	654, 691+693, 666, 665, 655, 667	656, 676, 669					
649+653, 648a, 647		680+685, 679	695+699	670+673	706, 707, 657+664				



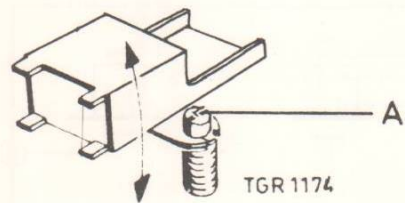
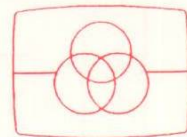


Fig. 2



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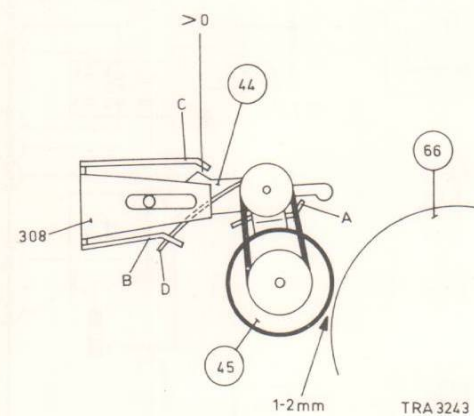


Fig. 4

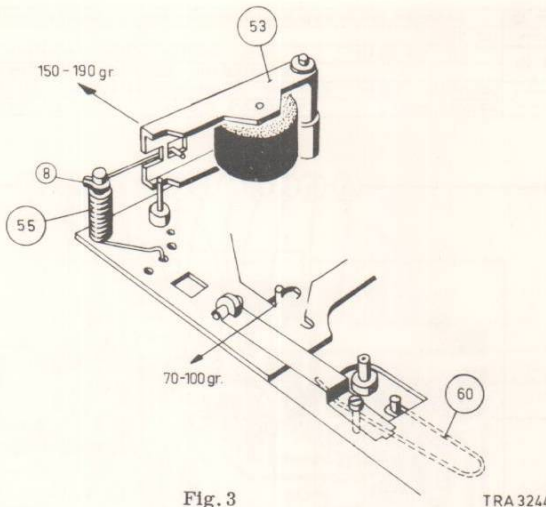


Fig. 3

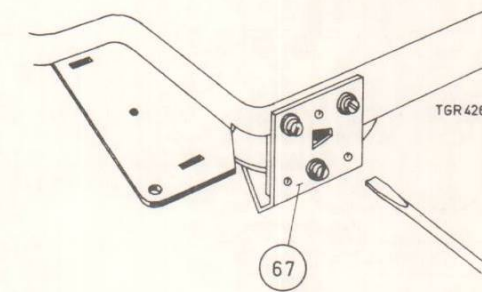


Fig. 5

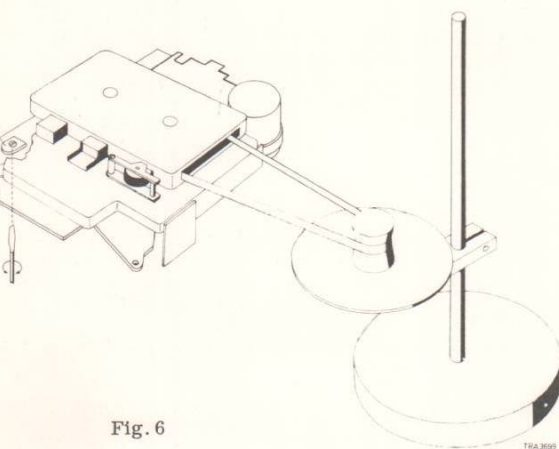


Fig. 6

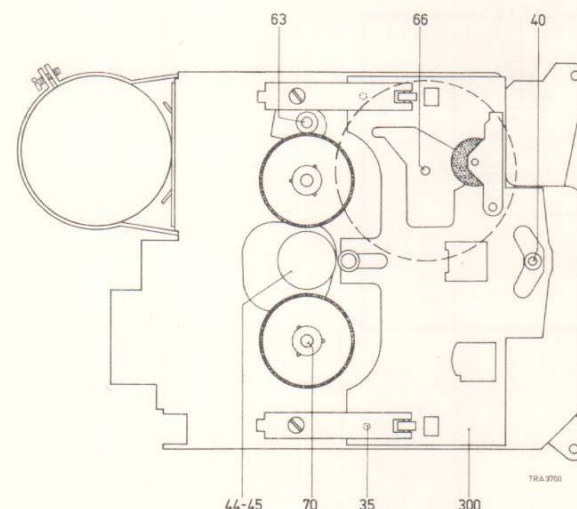


Fig. 7

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HINTS FOR REPAIR OF RECORDER, see Fig. 1

Replacing of drive cord 65

- . Loosen the three screws by means of which lower bearing bracket 67 of the flywheel is secured to the mounting plate. Remove the lower bearing bracket.
- . The drive cord can then be disengaged from the drive pulley of the motor.

Note:

When refitting lower bearing bracket 67 of the flywheel, ensure that the groove of flywheel 66 and that of idler wheel are flush. The height of the flywheel can be adjusted through the triangular hole in lower bearing bracket 67 by means of a screwdriver (see Fig. 5).

Replacing flywheel 66 and idler wheel 63

- . Loosen the three screws by means of which lower bearing bracket 67 of the flywheel is secured to the mounting plate.
- . Remove lower bearing bracket 67.
- . Detach the drive cord at the flywheel side.
- . Remove clamping ring 64 from idler wheel bracket 63.
- . Remove flywheel 66 and idler wheel 63 simultaneously.
- . Mounting is effected in the reverse order.

Note:

When refitting, ensure that the tag of idler wheel bracket 63 engages the hook of wire spring 60. After the lower bearing bracket 67 has been fixed, the groove of flywheel 66 and that of idler wheel 63 should be flush. The height of the flywheel can be adjusted through the triangular hole in the lower bearing bracket by means of a screwdriver (see Fig. 5).

Replacing winding roller lever 44

- . Loosen the two screws for fixing compression spring 57.
- . Loosen screw 13.
- . Bracket 308 across the lever is then released and can be removed.
- . Loosen the two screws for securing the printed circuit board and slightly hinge up the board.
- . Remove nylon clamping ring 46 from winding roller lever 44.
- . Slide the lever assy then off the shaft by slightly pushing back the idler wheel.

Replacing turntables 54

- . Pull cap 51 off the turntables and slide the turntables off the spindles.

Replacing the flywheel bearing bushings

- . Remove the flywheel (see relevant section).
- . Carefully tap the upper bronze bearing out of the bushing by means of a punch, dia. 1.5 to 2 mm (via the spindle hole of the lower bearing).
- . The lower bearing should be removed in the same way.
- . Place a new bearing on the bushing and carefully tap it into the bushing.
- . The other bearing can be fitted in the same way.

MECHANICAL ADJUSTMENTS

Recording/playback head (Fig. 2)

The air gap of the recording/playback head can be adjusted as follows:

- . Insert a cassette with a test tape of 6300 Hz (code number 8945 600 11501).
- . Switch on in position "Playback".
- . Connect a voltmeter across volume potentiometer R305.
- . Adjust screw A so that the voltmeter shows max. deflection.
- . It is recommended to lockpaint the screw after adjusting.

Pressure roller lever (Fig. 3)

- . Switch on in position "Playback".
- . The force required for pulling the pressure roller just clear of the capstan should be between 150 and 190 grammes.
- . Adjust this force by displacing torsion spring 55 slightly.

Checking the winding friction 63 (Fig. 3)

It may occur that the tape in the cassette is irregularly or not wound onto the right-hand turntable, causing the tape to be damaged. This fault may be caused by:

a. Incorrect pressure of the pulley of idler bracket 63 onto the right-hand turntable

This force must be between 70 and 100 grammes, depending on the winding friction.

This is measured as follows:

- . Connect an mA-meter between point 8 of SK-K and the motor circuit (B12 in wiring diagram).
- . Set the recorder without cassette to position "play" and read the current consumption.
- . Block the right-hand turntable and read the current consumption. This must be 8...16 mA.
- . If the current increase is less than 8 mA, the pressure of the pulley of idler bracket 63 onto the right-hand turntable must be reduced to min. 70 grammes (see Fig. 3).
- . Adjust the pressure by slightly bending wire spring 60. If no current increase of 8-16 mA can be obtained in this way, the probable cause of the fault is:

b. Winding friction too low

It is recommended to replace the friction felt or, if necessary, also the spring and the friction wheel. If the friction unit cannot be disassembled, replace the complete winding friction (see Repair Instruction).

c. Too much friction in the cassette

When the current increase stated under para. a is between 8 and 16 mA, the fault is caused by too high a friction of the tape in the cassette.

Winding roller lever (Fig. 4)

Switch on in position playback. Tag C should then be just clear of the cam on the winding roller lever. The capstan idler should be 1 to 2 mm from the flywheel. This can be adjusted by bending tag A. Spring D should just be clear of tag B. This can be adjusted by bending tag B.

Brake bracket

In positions playback and recording the brake bracket should be positioned against the two stops on the mounting plate. It should be at least 0.3 mm from the turntables. This can be adjusted by bending the stops.

Speed check

1. With test tape

The speed check should be carried out with the aid of test tape 8945 600 11501 on which a 800 Hz signal is modulated at intervals of 4.75 m. Insert the cassette with test tape. Switch on in position "playback". The time between two 800 Hz signals should be between 95 secs and 103 secs. If this period is less than 95 secs, the speed is too high. The speed is too low if the intervals between the two signals is more than 103 secs.

2. With stroboscopic disc (Fig. 6)

Remove one of the sides of a cassette (by means of a knife and a file). Deburr the opening. Take out the tape via the opening. Place a stroboscopic disc (code number 4822 395 90001 for 50 Hz or 4822 395 90002 for 60 Hz) next to the set and connect as shown in Fig. 6.

Speed correction

If the speed is too low, check that there is not too much friction in the pressure roller, the winding friction, the flywheel, etc. After that, adjust the speed with R651 (see Fig. 6).

Lubricating instructions (see Fig. 7)

Shell Alvania 2 (code number 4822 390 20001)

- . Ball 35
- . Slots and extrusions in slide 300

Tellus 33 (code number 4822 390 10006)

- . Spindle 70 of turntable 54
- . Spindle of roller 40
- . Spindle of flywheel 66
- . Hub and bearing of capstan idler 63
- . Hub and spindle of pulley 45

NL

REPARATIEWENKEN MAGNETOFOON, Fig. 1

Het vervangen van aandrijfsnaar 65

- Draai de 3 schroeven los waarmee de onderlagerbeugel 67 van het vliegwiël aan de montageplaat is bevestigd. Verwijder deze onderlagerbeugel.
- De aandrijfsnaar is nu van de aandrijpulley van de motor te verwijderen.

N.B.:

Bij bevestiging van de onderlagerbeugel 67 van het vliegwiël dient er op gelet te worden dat de snaargroef van het vliegwiël 66 en die van het speelwiël 63 op gelijke hoogte liggen. De hoogte van het vliegwiël is met behulp van een schroevendraaier in het driehoekige gat in de onderlagerbeugel 67 in te stellen, zoals aangegeven in fig. 5.

Het vervangen van vliegwiël 66 en speelwiël 63

- Draai de 3 schroeven los waarmee de onderlagerbeugel 67 van het vliegwiël aan de montageplaat is bevestigd.
- Verwijder deze onderlagerbeugel 67.
- Maak de aandrijfsnaar aan de zijde van het vliegwiël los.
- Verwijder het klemringetje 64 van de speelwiëlbeugel 63.
- Het vliegwiël 66 en het speelwiël 63 moeten nu gelijktijdig worden verwijderd.
- Montage geschiedt in omgekeerde volgorde.

N.B.:

Bij montage dient er op gelet te worden dat het lipje van de speelwiëlbeugel 63 in het haakje van draadveer 60 valt. Na bevestiging van de onderlagerbeugel 67 moet de snaargroef van het vliegwiël 66 en die van het speelwiël 63 op gelijke hoogte liggen. De hoogte van het vliegwiël is in te stellen met een schroevendraaier in het driehoekige gat in de onderlagerbeugel 67 zoals aangegeven in fig. 5.

Het vervangen van de spoelrolhefboom 44

- Twee schroeven voor bevestiging van de drukveer 57 losdraaien.
- Schroef 13 losdraaien.
- Daardoor komt de beugel 308 over de hefboom vrij en kan deze verwijderd worden.
- De twee schroeven voor bevestiging van de print losdraaien en de print iets omhoog klappen.
- Het klemringetje 46 van de spoelrolhefboom 44 verwijderen.
- Door nu het tussenwiël iets terug te drukken kan de hefboom-samenstelling van de as worden geschoven.

Het vervangen van de spoelschotels 54

- Trek het kapje 51 van de spoelschotels en schuif de spoelschotel van de as.

Het vervangen van de vliegwiëllagerbussen

- Vliegwiël verwijderen (zie betreffende alinea).
- Sla voorzichtig met een pen van 1,5 à 2 mm, door het asgat van het onderste lager, het bovenste bronze lager uit de bus.
- Hierna kan op dezelfde wijze het onderste lager verwijderd worden.
- Plaats een nieuw lager op de bus en sla dit voorzichtig in de bus vast.
- Op dezelfde manier kan het andere lager aangebracht worden.

MECHANISCHE INSTELLINGEN

Opname/weergavekop (fig. 2)

De luchtspleet van de opname/weergavekop kan als volgt worden ingesteld:

- Leg een cassette met een testband van 6300 Hz (codenummer 8945 600 11501) in het apparaat.
- Schakel het apparaat in de stand "weergave".
- Sluit een buisvoltmeter aan over de volume potentiometer R305.
- Verstel de schroef A zodanig dat de buisvoltmeter maximale uitslag geeft.
- Het verdient aanbeveling de schroef na het instellen af te lakken met celloselak.

Controle van de opspoelfrictie 63, fig. 3

Het kan voorkomen dat de band in de cassette niet of onregelmatig wordt opgewonden op de rechter spoelschotel. Daardoor kan beschadiging van de band ontstaan. Deze fout kan worden veroorzaakt door:

a. Niet juiste aandrukkkracht van de poelie van de opspoelfrictie-beugel 63 tegen de rechter spoelschotel

Deze kracht moet tussen 70 en 100 g liggen. De instelling hiervan is mede afhankelijk van de opspoelfrictie.

Dit wordt als volgt gemeten:

- Sluit een mA-meter aan tussen punt 8 van SK-K en het regelcircuit (B12 in bedradings-tekening).
 - Zet het apparaat zonder cassette in stand weergave en lees de opgenomen stroom af.
 - Blokkeer de rechter spoelschotel en lees de stroomtoename af. Deze moet 8-16 mA zijn.
 - Is de stroomtoename minder dan 8 mA dan moet de aandrukkkracht van de poelie van de opspoelfrictiebeugel 63 tegen de rechter spoelschotel worden verlaagd tot uiterlijk 70 g (zie fig. 3).
 - Is de stroomtoename meer dan 16 mA dan moet de aandrukkkracht worden verhoogd tot uiterlijk 100 g (zie fig. 3).
- De aandrukkkracht is instelbaar door draadveer 60 iets te verbuigen. Als op deze wijze geen stroomtoename van 8-16 mA bij blokkeren van de rechter spoelschotel verkregen kan worden is de foutoorzaak vermoedelijk:

b. Te geringe opspoelfrictie

Aanbevolen wordt het frictievielt te vervangen of indien nodig ook de veer en het frictiewiël. Bij de niet demonteerbare opspoelfrictie is compleet vervangen noodzakelijk (zie Reparatiewenken).

c. Te veel wrijving in de kassette

Wanneer de stroomtoename die afgelezen wordt als omschreven onder punt a tussen de 8 en 16 mA ligt, dan is het slechte opwinden van de band te veel wrijving van de band in de kassette.

Spoelrolhefboom (fig. 4)

Schakel het apparaat in de stand "weergave". Lip C moet nu net vrij liggen van de nok op de spoelrolhefboom. Het speelwiël moet 1 à 2 mm van het vliegwiël verwijderd zijn. Dit is in te stellen door lip A te verbuigen. De veer D moet juist vrij komen van lip B. Instellen door lip B te verbuigen.

Rembeugel

In de stand "weergave" of "opname" moet de rembeugel aanliggen tegen de twee aanslagnokken op de montageplaat en minstens 0,3 mm vrijliggen van de spoelschotels. Dit is in te stellen door de aanslagnokken te verbuigen.

Snelheidscontrole1. Met testband

De snelheidscontrole wordt uitgevoerd m.b.v. de testband 8945 600 11501, waarop om de 4,75 meter een signaal van 800 Hz is gemoduleerd. Leg de kassette met testband in het apparaat. Schakel het apparaat in de stand "weergave". De tijd tussen twee signalen van 800 Hz moet tussen de 95 en 103 sec. liggen. Is de tijs < 95 sec. dan is de snelheid te hoog en bij een tijdsduur > 103 sec. is de snelheid te laag.

2. Met stroboscoopschijf (fig. 6)

Een der zijanten van een kassette moet verwijderd worden. Dit kan gemakkelijk gedaan worden m.b.v. een mesje en een vijl. De opening moet goed braamvrij gemaakt worden. Door de opening kan dan de band naar buiten gehaald worden. Stel naast het apparaat een stroboscoopschijf op (codenummer 4822 395 90001 (50 Hz) of 4822 395 00002 (60 Hz)) en sluit het geheel aan zoals aangegeven op fig. 6.

Korrigeren van de snelheid

Is de snelheid van het apparaat te laag, dan moet gecontroleerd worden of de drukrol, opspoelfrictie, vliegwiël etc. niet te zwaar lopen. Daarna kan de snelheid ingesteld worden met R651 (fig. 6).

Smeervoorschrift (zie fig. 7)Shell Alvania 2 (codenummer 4822 390 20001)

- Kogel 35
- Gleuven en doordrukkingen in schuif 300

Tellus 33 (codenummer 4822 390 10006)

- As 70 van spoelschotel 54
- As van rol 40
- As van vliegwiël 66
- Naaf en lager van speelwiël 63
- Naaf en as van snaarwiël 45.

F

INSTRUCTIONS DE REPARATION DU MAGNETOPHONE, fig.1

Remplacement de la courroie d'entraînement 65

- Desserrer les 3 vis qui fixent l'étrier du palier inférieur 67 du volant à la platine de montage. Retirer l'étrier du palier inférieur 67.
- La courroie d'entraînement peut alors être enlevée de la poulie d'entraînement du moteur.

Note:

Pour la fixation de l'étrier de palier inférieur 67 du volant, veiller à ce que la gorge du volant et celle du galet presseur 63 s'alignent. La hauteur du volant peut être réglée en introduisant un tournevis dans le trou triangulaire se trouvant dans l'étrier de palier inférieur 67, comme indiqué fig. 5.

Remplacement du volant 66 et du galet presseur 63

- Desserrer les 3 vis qui fixent l'étrier de palier inférieur 67 du volant à la platine de montage.
- Retirer l'étrier de palier inférieur 67.
- Retirer la courroie d'entraînement du côté volant.
- Retirer le circlip en nylon 64 de l'étrier du galet presseur 63.
- Enlever en même temps le volant 66 et le galet presseur 63.
- Le montage s'effectue dans l'ordre inverse.

Note:

Pour le montage veiller à ce que la patte de l'étrier de galet presseur 63 s'engage dans le crochet du ressort à fil 60. Après fixation de l'étrier de palier inférieur 67 la gorge du volant 66 et celle du galet presseur 63 doivent s'aligner. La hauteur du volant peut être réglée en introduisant un tournevis dans le trou triangulaire se trouvant dans l'étrier de palier inférieur 67, comme indiquée fig. 5.

Remplacement du levier de la poulie 44

- Desserrer deux vis qui fixent le ressort de pression 57.
- Desserrer la vis 13.
- De ce fait, l'étrier 308 sur le levier est dégagé et peut être retiré.
- Desserrer les deux vis qui fixent la platine imprimée et rabattre la platine.
- Enlever le circlip en nylon 46 du levier de la poulie 44.
- En repoussant légèrement la roue folle, l'ensemble levier peut être enlevé de l'axe.

Remplacement des plateaux à bobine 54

- Retirer le capot 51 des plateaux à bobine.
- Le plateau à bobine peut alors être enlevé de son axe.

Remplacement des coussinets cylindriques du volant

- Retirer le volant (voir paragraphes précédents).
- En tapotant avec précaution avec une broche de 1,5 à 2 mm à travers le trou d'axe du palier inférieur, sortir le palier en bronze du coussinet cylindrique.
- Ensuite, retirer de la même façon le palier inférieur.
- Placer un nouveau palier sur le coussinet et l'introduire en tapotant avec précaution.
- L'autre palier sera placé de la même façon.

REGLAGES MECANIQUES

Tête d'enregistrement/reproduction (fig. 2)

L'entrefer de la tête d'enregistrement/reproduction peut être réglé comme suit:

- Placer dans l'appareil une cassette à bande d'essai de 6300 Hz (8945 600 11501).
- Placer l'appareil en position "reproduction".
- Raccorder un voltmètre électronique aux bornes du potentiomètre de volume R305.
- Régler la vis A de telle façon que le voltmètre électronique accuse la déviation maximale.
- Il est recommandé, après réglage, de serrer la vis à la laque cellulosique.

Levier du galet presseur (fig. 3)

- Placer l'appareil en position "reproduction".
- La force nécessaire à dégager le galet presseur du cabestan doit être comprise entre 150 et 190 g.
- Cette force peut être réglée en déplaçant légèrement le ressort de torsion 55.

Vérification de la friction d'embobinage 63 (fig. 3)

Il peut arriver que la bande dans la cassette ne s'enroule pas ou s'enroule de manière irrégulière sur le plateau à bobine de droite. La bande pourrait en être abîmée. Ce défaut peut provenir de:

a. Une force de pression insuffisante de la poulie de l'étrier de la friction d'embobinage 63 contre le plateau à bobine de droite

Cette force doit se situer entre 70 et 100 gr. Le réglage de cette force de pression dépend de la friction d'embobinage. On mesure cette force de la façon suivante:

- Raccorder un mA-mètre entre le point 8 de SK-K et le circuit de réglage (B12 dans le schéma de câblage).
 - Positionner l'appareil sans cassette sur "reproduction" et prendre note du courant d'enregistrement.
 - Bloquer le plateau à bobine de droite et lire la hausse de courant.
 - Celui-ci doit se situer entre 8 et 16 mA.
 - Si la hausse de courant est inférieure à 8 mA, la force de pression de la poulie de l'étrier de la friction d'embobinage 63 contre le plateau à bobine de droite, doit être réduite à 70 gr. maximum (voir fig. 3).
 - Si la hausse est supérieure à 16 mA, la force de pression doit être élevée jusqu'à 100 gr. (voir fig. 3).
- La force de pression est réglable en recourbant légèrement le ressort à fil 60. Si, de cette manière, il n'y a pas de hausse de courant de 8-16 mA lorsqu'on bloque le plateau à bobine de droite, le défaut est à rechercher dans:

b. Une friction d'embobinage insuffisante

Il est recommandé de remplacer l'anneau de friction ou, au besoin, le ressort de la roue de friction.

Si l'on possède la friction d'embobinage non démontable, il faudra la remplacer (voir "Instructions pour réparations").

c. Trop de frottement dans la cassette

Si la hausse de tension qui est perceptible de la façon décrite au point "a" s'incrit entre 8 et 16 mA, le mauvais enroulement de la bande est à imputer à trop de frottement de la bande dans la cassette.

Levier de la poulie (fig. 4)

Placer l'appareil en position "reproduction". La patte C doit alors être dégagée de la came sur le levier de la poulie. Le galet presseur doit être à une distance de 1 à 2 mm du volant (courber la patte A). Le ressort D doit être dégagé de la patte B (courber la patte B).

Etrier de freinage

Dans la position "reproduction" ou "enregistrement" l'étrier de freinage doit se trouver contre les deux goupilles de butée se trouvant sur la platine de montage et à une distance de 0,3 mm des plateaux à bobine (courber les goupilles).

Vitesses

1. Avec bande d'essai

Le contrôle des vitesses est effectué au moyen de la bande d'essai sur laquelle, tous les 4,75 m, un signal de 800 Hz est modulé. Placer la cassette avec bande d'essai dans l'appareil. Placer l'appareil en position "reproduction". La durée entre les deux signaux de 800 Hz doit être comprise entre 95 et 103 secondes. Lorsque la durée est inférieure à 95 secondes la vitesse est trop grande, lorsque la durée est supérieure à 103 secondes, la vitesse est trop petite.

2. Avec disque stroboscopique (fig. 6)

Retirer un des côtés de la cassette, ce qui peut être aisément effectué au moyen d'un couteau et d'une lime. Bien ébavurer l'ouverture; on peut alors sortir la bande à travers l'ouverture. Placer un disque stroboscopique à côté de l'appareil (50 Hz ou 60 Hz) et relier l'ensemble de la manière indiquée fig. 6.

Correction de la vitesse

Lorsque la vitesse de l'appareil est trop petite, contrôler si le galet presseur, la friction embobinage, le volant etc. ne tournent pas péniblement. La vitesse peut alors être réglée au moyen de R651 (voir fig. 6).

Instructions de lubrification (voir fig. 7)Shell Alvania 2 (référence 4822 390 20001)

- Bille 35
- Rainure et enfoncements dans coulisse 300

Tellus 33 (référence 4822 390 10006)

- Axe 70 du plateau porte-bobine 54
- Axe du rouleau 40
- Axe du volant 66
- Moyeu et palier du galet presseur 63
- Moyeu et axe de la poulie 45

D

REPARATURHINWEISE RECORDER; siehe Abb. 1

Ersetzen des Antriebsseils 65

- Löse die drei Schrauben, mit denen der untere Lagerbügel 67 des Schwungrades an der Montageplatte befestigt ist.
- Entferne den Lagerbügel.
- Das Antriebsseil kann jetzt von der Seilscheibe des Motors genommen werden.

N.B.:

Beim Befestigen des unteren Lagerbügels 67 ist darauf zu achten, dass die Seilrille des Schwungrades 66 mit der des Laufrades 63 in gleicher Höhe liegt. Die Höhe des Schwungrades lässt sich mit einem Schraubenzieher im dreieckigen Loch des unteren Lagerbügels 67 einstellen; siehe Abb. 5.

Ersetzen von Schwungrad 66 und Laufrad 63

- Löse die drei Schrauben, mit denen der untere Lagerbügel 67 vom Schwungrad an der Montageplatte befestigt ist.
- Entferne den Lagerbügel.
- Löse das Antriebsseil an der Schwungradseite.
- Nimm den Kunststoff-Klemmring 64 vom Laufradbügel 63.
- Nimm Schwungrad 66 und Laufrad 63 jetzt gleichzeitig aus dem Gehäuse.
- Montiere in umgekehrter Reihenfolge.

N.B.:

Bei der Montage ist darauf zu achten, dass der Nocken des Laufradbügels 63 in das Häkchen von Drahtfeder 60 gesteckt wird. Nach dem Befestigen des unteren Lagerbügels 67 muss die Seilrille des Schwungrades 66 mit der des Laufrades 63 in gleicher Höhe liegen. Die Höhe des Schwungrades lässt sich mit einem Schraubenzieher im dreieckigen Loch des unteren Lagerbügels 67 einstellen; siehe Abb. 5.

Ersetzen des Spulenrollenhebels 44

- Löse die zwei Befestigungsschrauben von Andruckfeder 57.
- Löse Schraube 13, so dass Bügel 308 über dem Hebel freikommt und abgenommen werden kann.
- Löse die zwei Befestigungsschrauben der Printplatte und klappe diese etwas nach oben.
- Nimm Klemmring 46 vom Spulenrollenhebel 44.
- Drücke das Zwischenrad etwas zurück und schiebe den kompletten Hebel von der Achse.

Ersetzen des Spulentellers 54

- Ziehe Kappe 51 vom Spulenteller.
- Entferne den Spulenteller von der Achse.

Ersetzen der Schwungradlagerbuchsen

- Baue das Schwungrad aus (siehe diesbezüglichen Abschnitt).
- Schlage mit einem Stift von 1,5 - 2 mm Ø das obere Bronze-lager durch das Achsloch des unteren Lagers aus der Buchse.
- Entferne das untere Lager auf dieselbe Weise.
- Setze ein neues Lager auf die Buchse und schlage es vorsichtig hinein.
- Das andere Lager wird auf dieselbe Weise montiert.

MECHANISCHE EINSTELLUNGEN

Aufnahme/Wiedergabekopf (Abb. 2)

Stelle den Luftspalt des A/W-Kopfes wie folgt ein:

- Lege eine Cassette mit 6300-Hz-Bezugsband (8945 600 11501) in das Gerät.
- Schalte auf "Wiedergabe".
- Schliesse ein Röhrenvoltmeter parallel zum Lautstärkepotentiometer R305 an.
- Justiere Schraube A so, dass der Zeigerausschlag des Röhrenvoltmeters maximal ist.
- Lacksichere die Schrauben nach der Einstellung.

Kontrolle der Rutschkupplung 63 (Abb. 3)

Die Möglichkeit besteht, dass das Band in der Cassette nicht oder unregelmässig auf den rechten Spulenteller gewickelt wird. Dies kann eine Beschädigung des Bandes verursachen. Dieser Fehler kann entstehen durch:

a. Nicht richtige Andruckkraft des Antriebsrades von Rutschkupplungsbügel 63 gegen den rechten Spulenteller

Diese Kraft soll 70...100 g betragen. Die Einstellung hiervon hängt von der Aufwickelfriction ab. Diese wird wie folgt gemessen:

- Schliesse ein mA-Meter zwischen Punkt 8 von SK-K und dem Regelkreis an (B12 auf Verdrahtungsplan).
- Schalte das Gerät ohne Cassette in Stellung Wiedergabe und stelle die Stromaufnahme fest.
- Blockiere den rechten Spulenteller und lies die Stromzunahme ab; diese soll 8...16 mA betragen.
- Beträgt die Stromzunahme weniger als 8 mA, dann ist die Andruckkraft des Antriebsrades von Rutschkupplungsbügel 63 gegen den rechten Spulenteller auf mindestens 70 g herabzusetzen (siehe Abb. 3).
- Beträgt die Stromzunahme mehr als 16 mA, dann ist die Andruckkraft bis maximal 100 g zu erhöhen (siehe Abb. 3).

Die Andruckkraft ist durch Biegen der Drahtfeder 60 einstellbar. Erhält man auf diese Weise beim Blockieren des rechten Spulentellers keine Stromzunahme von 8...16 mA, dann ist der Fehler wahrscheinlich Ursache von:

b. Zu geringer Aufwickelfriction

In diesem Fall ist Ersetzen des Friktionfilzringes oder nötigenfalls der Feder und des Friktionsrads erforderlich. Bei einer nicht demontierbaren Aufwickelfriction ist kompletter Ersatz erforderlich (siehe Reparaturhinweise).

c. Zu viel Reibung in der Cassette

Beträgt die Stromzunahme 8...16 mA (siehe Beschreibung unter Punkt a), dann ist das schlechte Aufwickeln des Bandes einer zu grossen Reibung des Bandes in der Cassette zuzuschreiben.

Spulenrollenhebel (Abb. 4)

Schalte das Gerät auf "Wiedergabe". Zunge C muss nun gerade vom Nocken des Spulenrollenhebels freikommen. Der Abstand des Laufrades zum Schwungrad soll 1-2 mm betragen. Einstellen erfolgt durch Biegen von Zunge A. Feder D muss gerade von Zunge B freikommen. Einstellen erfolgt durch Biegen von Zunge B.

Bremsbügel

In Stellung "Wiedergabe" oder in Stellung "Aufnahme" muss der Bremsbügel an den zwei Anschlagnocken auf der Montageplatte anliegen und mindestens 0,3 mm von den Spulentellern entfernt sein. Einstellen erfolgt durch Biegen der Nocken.

Geschwindigkeitskontrolle

1. Mit Bezugsband

Kontrolliere die Geschwindigkeit mit z.B. Bezugsband 8945 600 11501, dem jede 4,75 m ein 800-Hz-Signal aufmoduliert ist. Lege die Cassette mit dem Bezugsband in das Gerät und schalte auf "Wiedergabe". Die Zeit zwischen zwei 800-Hz-Signalen soll 95 - 103 s betragen. Ist die Zeit kürzer als 95 s, ist die Geschwindigkeit zu hoch; ist die Zeit länger als 103 s, ist die Geschwindigkeit zu niedrig.

2. Mit Stroboskopscheibe (Abb. 6)

Entferne eine Seite der Cassette (z.B. mit einem Messer oder einer Feile). Kontrolliere, ob die Öffnung gut entgratet ist und ziehe das Band heraus. Stelle eine Stroboskopscheibe neben das Gerät (4822 395 90001 - 50 Hz und 4822 395 90002 - 60 Hz) und verbinde diese laut Abb. 6 mit dem Gerät.

Korrektur der Geschwindigkeit

Bei Schwergängigkeit des Geräts müssen Andruckrolle, Aufspulfriction, Schwungrad usw. überprüft werden. Hiernach kann die Geschwindigkeit mit R651 eingestellt werden (siehe Abb. 6).

Schmiervorschrift (siehe Abb. 7)

Shell Alvania 2 (4822 390 20001)

- Kugel 35
- Schlitz- und Durchdrückungen von Schieber 300

Tellus 33 (4822 390 10006)

- Achse 70 von Spulenteller 54
- Achse von Rolle 40
- Achse von Schwungrad 66
- Nabe und Lager von Freilauf 63
- Nabe und Achse von Seilrad 45

I

ISTRUZIONI PER LA RIPARAZIONE DEL REGISTRATORE (vedi fig. 1)

Sostituzione della cinghietta 65

- Togliere le tre viti di fissaggio della squadra 67 del cuscinetto inferiore del volano. Togliere detta squadra.
- In tal modo si sostituisce la cinghietta 65.

Nota:

Rimontando la squadra 67 del cuscinetto inferiore del volano, assicurarsi che la scanalatura del volano 66 e quella della ruota intermediaria 63 siano alla stessa altezza. In caso contrario, l'altezza del volano può venire regolata agendo con un cacciavite nel foro triangolare previsto nella squadra del cuscinetto dello stesso (fig. 5).

Sostituzione del volano 66 e della ruota intermediaria 63

- Togliere le tre viti di fissaggio della squadra 67 del cuscinetto inferiore del volano.
- Togliere la squadra 67.
- Togliere dal lato volano la cinghietta di trasmissione.
- Togliere l'anello in nylon 64 della leva della ruota intermediaria 63.
- Togliere contemporaneamente il volano 66 e la ruota intermediaria 63.
- Per il montaggio procedere in ordine inverso.

Nota:

Durante il montaggio assicurarsi che la leva della ruota intermediaria 63 sia agganciata con la molla a filo 60. Dopo aver montato la squadra 67 del cuscinetto inferiore del volano assicurarsi che la scanalatura di quest'ultimo e quella della ruota intermediaria siano alla stessa altezza. In caso contrario, l'altezza del volano può venire regolata agendo con un cacciavite nel foro triangolare previsto nella squadra del cuscinetto dello stesso, come indicato in fig. 5.

Sostituzione del rullo di avvolgimento 44

- Togliere le due viti di fissaggio della molla a lama 57.
- Togliere la vite 13.
- La squadretta, pos. 308, può ora essere tolta.
- Togliere le due viti di fissaggio del circuito stampato e spostarlo leggermente verso l'alto.
- Togliere le ranelle in nylon 46 del rullo di avvolgimento 44.
- Il rullo di avvolgimento può essere ora liberato della molla premendo leggermente indietro la ruota intermediaria.

Sostituzione dei piatti portabobine 54.

- Togliere il cappuccio 51 e sfilare i piatti portabobine dall'asse tirandoli verso l'alto.

Sostituzione dei cuscinetti superiori del volano

- Togliere il volano (vedere precedentemente).
- Con una punta di diametro 1,5 - 2 mm passante attraverso il foro della bronzina inferiore, estrarre la bronzina superiore dalla bussola battendo delicatamente.
- Togliere la bronzina inferiore allo stesso modo.
- Inserire una nuova bronzina nella bussola battendo delicatamente.
- L'altra bronzina viene inserita nello stesso modo.

REGOLAZIONI MECCANICHE

Testina registrazione/riproduzione (fig. 2)

La posizione della testina viene regolata come segue:

- Inserire un nastro di prova a 6,3 kHz (8945 600 11501).
- Registratore in posizione "riproduzione".
- Collegare ai capi del potenziometro di volume R305 un voltmetro.
- Regolare la vite A per la massima indicazione sullo strumento.
- Dopo la regolazione si raccomanda di bloccare la vite A con vernice.

Leva del rullo pressore (fig. 3)

- Registratore in posizione "riproduzione".
- La forza necessaria per allontanare il rullo pressore dal capstan deve essere compresa fra 150 e 190 gr.
- Questa forza può essere regolata spostando leggermente la molla di torsione 55.

Frizione di avvolgimento (fig. 3)

Può succedere che il nastro del caricatore non si avvolga o si avvolga male. Essendo l'avanzamento del nastro comandato dal capstan, questo può essere danneggiato oppure il dispositivo di avvolgimento può essere bloccato. Questo difetto può attribuirsi a:

a. La forza di pressione della squadra con puleggia di frizione di avvolgimento 63, contro il piatto porta bobina di destra è insufficiente

Questa forza deve essere compresa fra 70 e 100 gr. La regolazione di questa forza dipende dalla frizione di avvolgimento e si misura nel modo seguente:

- Collegare un milliamperometro tra il punto 8 di SK-K e la piastra di regolazione (B12 nello schema di cablaggio).
 - Posizionare l'apparecchio, senza cassetta, su riproduzione e annotare la corrente di registrazione.
 - Bloccare il piatto di destra e leggere l'aumento di corrente. Questo valore deve essere compreso fra 8 e 16 mA.
 - Si l'aumento di corrente è inferiore a 8 mA, la forza di pressione della puleggia sulla squadra, di frizione d'avvolgimento del piatto di destra, deve essere ridotta a 70 gr. max. (ved fig. 3).
 - Se l'aumento è superiore a 16 mA, la forza di pressione deve essere elevata a 100 gr (ved fig. 3).
- La forza di pressione è regolabile curvando leggermente la molla a filo 60.
- Se in questo modo non si ha nessun aumento di corrente da 8 a 16 mA quando si blocca il piatto della bobina di destra, il difetto deve essere ricercato in:

b. La frizione di avvolgimento è insufficiente

Si raccomanda di sostituire l'anello di frizione, e se occorre, la molla della ruota di frizione. Se il tipo di frizione non è smontabile, la si sostituirà (vedere istruzioni per la riparazione).

c. Troppo attrito nella cassetta

Se l'aumento di corrente che è percepibile come descritto al punto A è compreso tra 8 e 16 mA, il motivo dello scarso funzionamento del nastro dipende soltanto dalla cassetta.

Leva del rullo di avvolgimento (fig. 4)

Col registratore in "riproduzione" la linguetta C e la camma del rullo di avvolgimento devono essere vicinissime senza toccarsi. Il rullo di avvolgimento deve distare 1-2 mm dal volano. Questa distanza viene regolata piegando la linguetta A; la molla D non deve toccare la linguetta B; regolare piegando la linguetta B.

Leva del freno

In posizione riproduzione o registrazione la leva del freno deve essere in contatto con i due fermi della piastra. Essa deve trovarsi, al minimo, a 0,3 mm dal piatto portabobine. Questo può essere regolato piegando leggermente detti fermi.

Controllo della velocità

1. Col nastro di prova

Questo controllo viene effettuato con l'ausilio di un nastro campione sul quale si è registrato ad intervalli di m. 4,75 un segnale ad 800 Hz. Dopo aver inserito detto nastro porre il registratore in riproduzione. L'intervallo fra 2 segnali ad 800 Hz deve essere di 95-103 sec. Se l'intervallo è maggiore di 103 secondi la velocità è bassa; se è inferiore a 95 secondi la velocità è alta.

2. Col disco stroboscopico (fig. 6)

Togliere una fiancata laterale del caricatore (con una lima o con un utensile appuntito). Sbavare accuratamente l'apertura praticata. Estrarre il nastro dall'apertura ed agganciarlo ad un disco stroboscopico come indicato in fig. 10.

Correzione della velocità

Qualora la velocità fosse troppo bassa, assicurarsi che non vi sia troppo attrito nel rullo pressore, nella frizione di avvolgimento, nel volano, ecc. Dopo questi controlli, regolare la velocità operando su R651 (fig. 6).

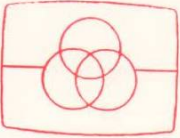
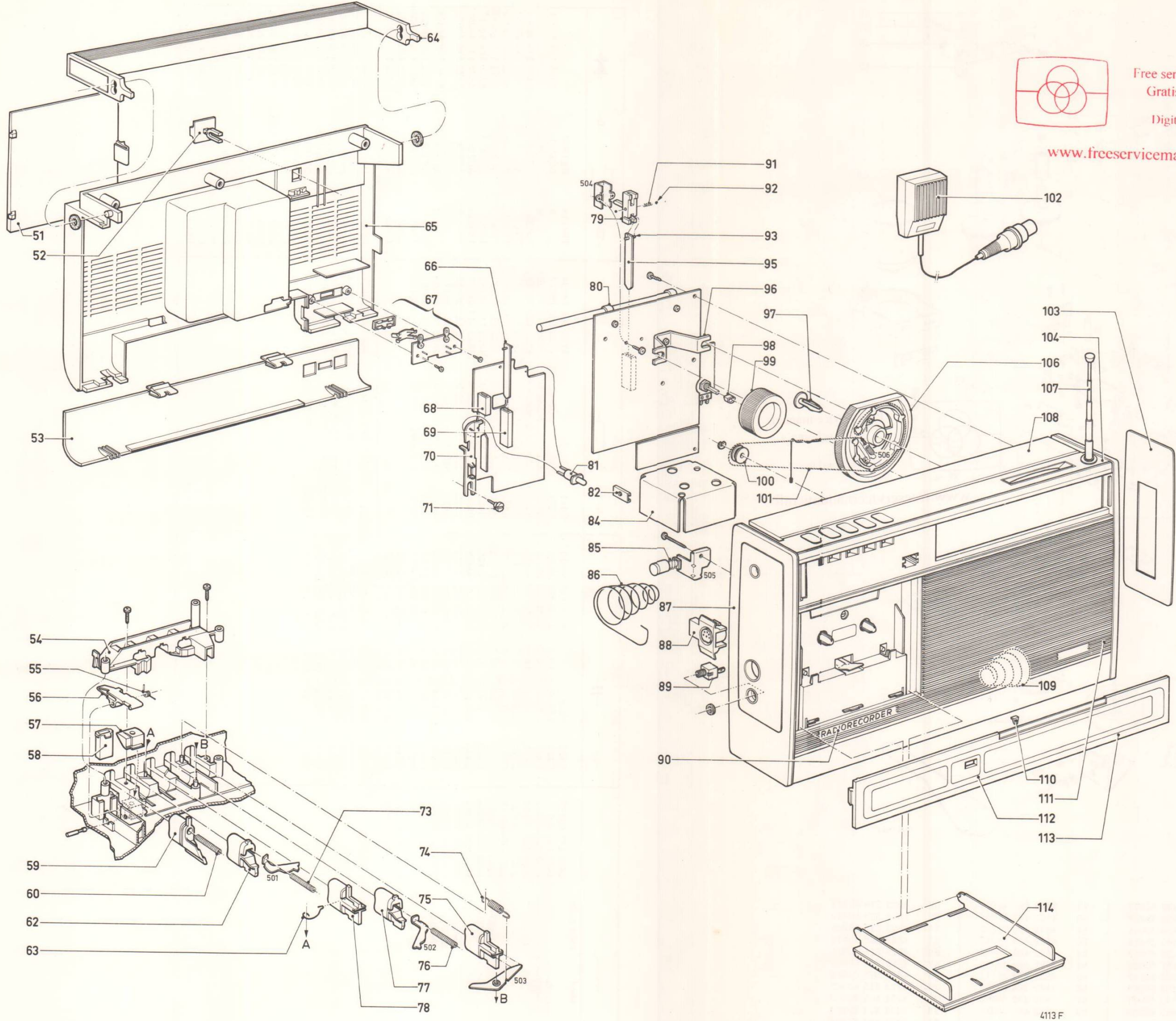
Istruzioni per la lubrificazione (vedi fig. 7)

Shell Alvania 2 (4822 390 20001)

- Sferette 35
- Superfici di sfregamento della squadra 300

Tellus 33 (4822 390 10006)

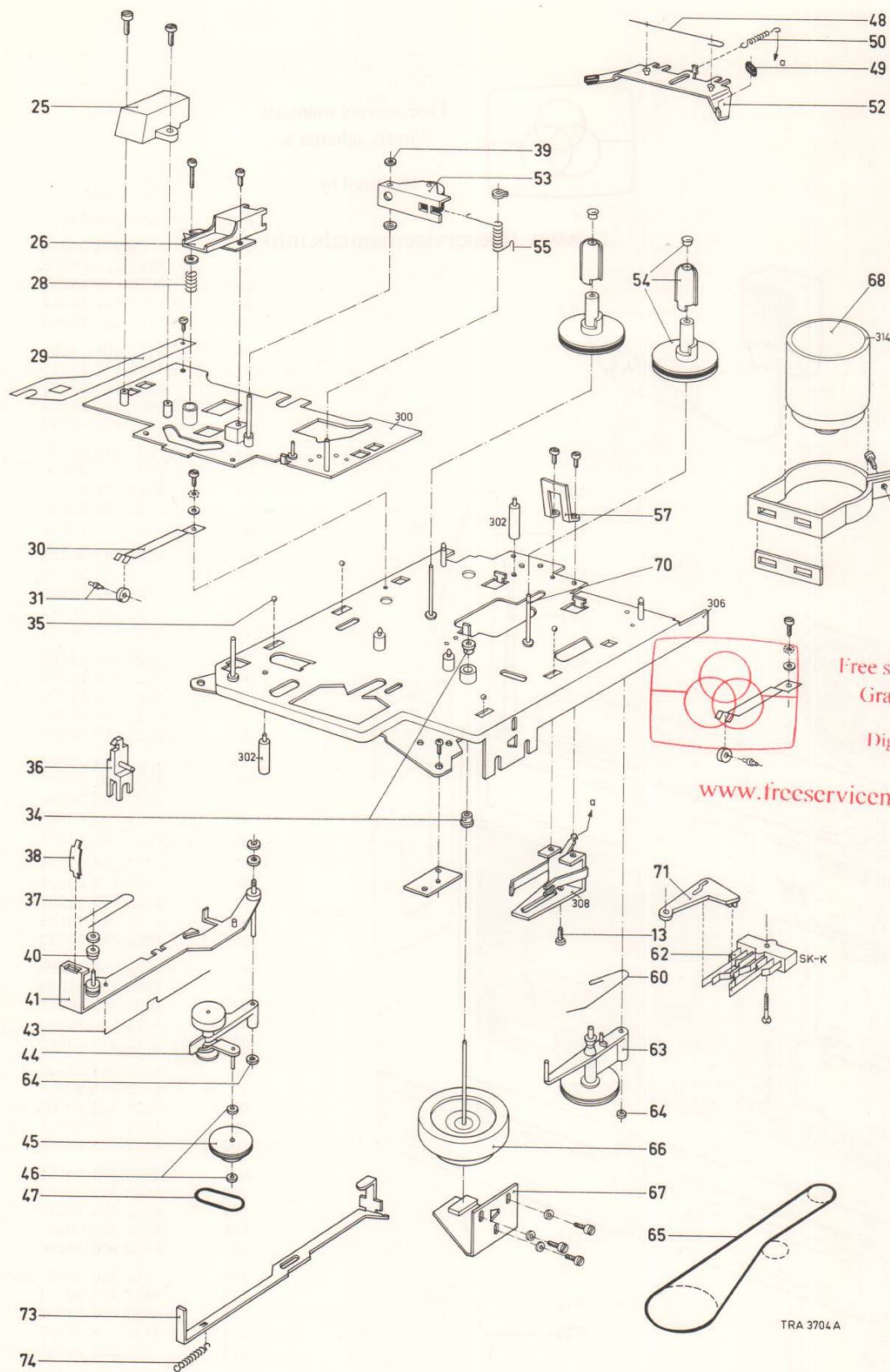
- Perni 70 del piatto portabobine 54
- Pernino nel rullino 40
- Perno del volano 66
- Perno e cuscinetto del rullo pressore 63
- Gola della puleggia 45



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Item	Code number
51	4822 423 90034
52	4822 411 60305
53	4822 423 40282
54	4822 404 10214
55	4822 492 40369
56	4822 404 10101
57	4822 404 10215
58	4822 410 20801
59	4822 410 21336
60	4822 492 51035
62	4822 410 21337
63	4822 492 40526
64	4822 498 40293
65	4822 421 50008
67	4822 272 10091
68	4822 277 30425
66+69	4822 277 30426
70	4822 404 10148
71	4822 502 10883
73	4822 492 51035
74	4822 492 31109
75	4822 410 21335
76	4822 492 51035
77	4822 410 21337
78	4822 410 21335
79	4822 404 10248
80	4822 401 10525
81	4822 255 20068
82	4822 492 60949
84	4822 691 10101
85	4822 276 10534
86	4822 492 50824
87	4822 460 10257
88	4822 267 40199
89	4822 267 30232
90	4822 454 10299
91	4822 492 51059
92	4822 520 40011
93	4822 535 90892
95	4822 277 30568
96	4822 404 20126
97	4822 535 90715
98	4822 492 60705
99	4822 413 50724
100	4822 528 80156
101	4822 321 30101
102	4822 242 10003
104	4822 454 10343
106	4822 413 60142
107	4822 303 30086
108	4822 420 50058 (cabinet assy)
109	4822 492 50824
110	4822 450 80234
111	4822 458 40215
113	4822 333 50488 (/00)
	4822 333 50489 (/19)
114	4822 423 90062



13	4822 502 10883	38	4822 492 60927	49	4822 466 40077	62	4822 278 90223
25	4822 249 40046	39	4822 532 50268	50	4822 492 30251	63	4822 528 20022
26	4822 249 10032	40	4822 528 90081	51	4822 462 70107	64	4822 532 50265
28	4822 492 50273	41	4822 403 50412	52	4822 403 10047	65	4822 358 30076
29	4822 492 60342	43	4822 492 60912	53	4822 403 40004	66	4822 528 60013
30	4822 492 60343	44	4822 691 20023	54	4822 528 10283	67	4822 403 50001
31	4822 528 90005	45	4822 528 80147	55	4822 492 40117	68	4822 361 20063
34	4822 520 30169	46	4822 532 50262	56	4822 404 10103	70	4822 535 90062
35	4822 520 40005	47	4822 358 30077	57	4822 492 60926	71	4822 403 50703
36	4822 403 50723	48	4822 492 60339	60	4822 492 60345	73	4822 403 50431
37	4822 492 60344					74	4822 492 30254

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-S-	-C-	-R-	-D-	-TS-
S403 S407 S409 S441 S442 S444 S445 S446 S447 S448 S450 S451 S452 S453 S454 S595	C405 C465 C466 C471 C473 C475 C478 C482 C483 C486 C488 C492 C498 C499 C514 C515 C614 C618 C623 C626 C643 C644 C646	R411 R651 R653 R655 R656 R658 R660 R661 R666 R672 R674 R689 R690 R696	BF195C BF195D BF194B BF195 AC128/01 TS425 BC149B BC149B TS600 TS601 TS602a AC127 AC128 AC127 pair AC126 AC127 AC128 AC127 TS605 TS606	TS421a b c TS423 TS425 TS599 TS600 TS601 TS602a b c d TS603 TS604 TS605 TS606
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		fuse in trafo 452 kHz 460 kHz 470 kHz 12 V-30 mA		