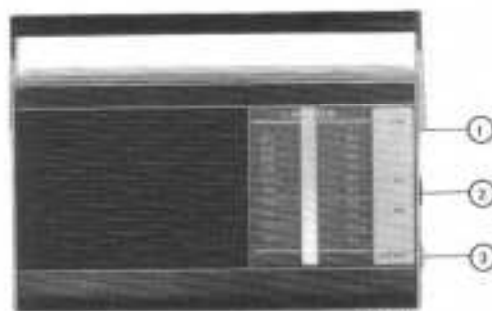


# PHILIPS *Service*

RADIO

22RL390/00B/00F



① MW/LW switch  
MG/LG-schakelaar  
Commutateur PO/GO SK-1  
MW/LW-Schalter  
Commutador OM/OL

② Tuning  
Afstemming  
Syntonisation C 421  
Abstimmung  
Sintonía

③ Volume + on-off switch  
Volume + aan-uitschakelaar  
Contr. de volume + interrupteur  
Lautstärke + Ein-Ausschalter  
Control de volumen + interruptor R466  
+ SK-3

|                                 |                 |                              |                               |                            |                 |                        |
|---------------------------------|-----------------|------------------------------|-------------------------------|----------------------------|-----------------|------------------------|
| Loudspeaker                     | 15 Ω            | Luidpreker                   | Haut-parleur                  | Lautsprecher               | 15 Ω            | Altavoz                |
| IF                              | 452 kHz         | MF                           | FI                            | ZF                         | 452 kHz         | FI                     |
| Battery                         | 7,5 V (5x1,5 V) | Batterij                     | Batterie                      | Batterie                   | 7,5 V (5x1,5 V) | Batería                |
| Consumption<br>(without signal) | 20 mA           | Verbruik (zonder<br>signaal) | Consommation<br>(sans signal) | Verbrauch<br>(ohne Signal) | 20 mA           | Consumo<br>(sin señal) |
| Output                          | 275 mW          | Uitgangsver-<br>mogen        | Puissance                     | Ausgangs-<br>leistung      | 275 mW          | Potencia de salida     |
| Dimensions                      | 270x150x73 mm   | Afmetingen                   | Dimensions                    | Abmessungen                | 270x150x73 mm   | Dimensiones            |

WAVE RANGES - GOLFGEBIEDEN - GAMMES D'ONDES - WELLENBEREICHE - MARGENES DE ONDAS

MW - MG - PO - MW - OM : 165 - 571 m (1622 - 525 kHz)  
LW - LG - GO - LW - OL : 1175 - 2000 m ( 250 - 150 kHz)

## TRANSISTORS

TS401 - AF127  
TS402 - AF127

TS403a } 40809 { AC127  
TS403b } { AC128  
TS403c } { AC127  
TS403d } { AC128

## DIODE

GR408 - AA119  
GR409 - BA114

Index: CS17096 - CS17100

CS17096

|                        |  |  |  |  |  |  |  |  |  |  |
|------------------------|--|--|--|--|--|--|--|--|--|--|
| SERVICE<br>INFORMATION |  |  |  |  |  |  |  |  |  |  |
|------------------------|--|--|--|--|--|--|--|--|--|--|

JGB/JD

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4822 725.1.0267

Printed in Holland

| Service manual | Wave range<br>Golfschakel<br>Gamme d'ondes<br>Wellenbereichen<br>Márgen de ondas | Variable capacitor<br>Variabele condensator<br>Condensateur variable<br>Drukcondensator<br>Condensador variable | Signal<br>Signaal<br>Signal<br>Signal<br>Señal |                            | Adjust<br>Afstellen<br>Ajuster<br>Abgleichen<br>Ajustar | Indication<br>Aanwijzing<br>Indicatrice<br>Anzeige<br>Indicaciones |
|----------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------|---------------------------------------------------------|--------------------------------------------------------------------|
| IF-MF-FT-FF-FT | MW-MG-PO-MW-OM                                                                   | Min.                                                                                                            | • kHz<br>via 33 kP<br>①                        | S413a/C430<br>2 SK-1/S411a | S413 (C)<br>S413 (B)                                    | Max. output                                                        |
| HF-HF-HF-HF-HF | LW-LG-GO-LW-OL                                                                   | Max.                                                                                                            | 140 kHz                                        | ② ③                        | S412 (A)                                                | Max. output                                                        |
|                | MW-MG-PO-MW-OM                                                                   | Min.                                                                                                            | 1600 kHz                                       |                            | C421d                                                   |                                                                    |
|                | Repeat - Berhalen - Répéter - Wiederholen - Repetir                              |                                                                                                                 |                                                |                            |                                                         |                                                                    |
|                | LW-LG-GO-LW-OL                                                                   | ④                                                                                                               | 190 kHz                                        | ③                          | S411c-d                                                 |                                                                    |
|                | MW-MG-PO-MW-OM                                                                   |                                                                                                                 | 325 kHz                                        |                            | S411a-b                                                 |                                                                    |
|                |                                                                                  |                                                                                                                 | 1300 kHz                                       |                            | C421b                                                   |                                                                    |
|                | Repeat - Berhalen - Répéter - Wiederholen - Repetir                              |                                                                                                                 |                                                |                            |                                                         |                                                                    |

- Replace the loudspeaker by a 15  $\Omega$  resistor and connect a valve voltmeter parallel to the latter. Apply a signal to junction S413a/C430 and find the resonance frequency of K407 between 140 kHz and 470 kHz.  
The frequency at which the valve voltmeter gives max. deviation is the resonance frequency of K407 and consequently of the IF signal to be applied.
- Luidspreker vervangen door een weerstand van 15  $\Omega$  en hiernaas parallel een buisvoltage-meter aansluiten.  
Aan aansluitpunt S413a/C430 signaal toevoren en resonantiefrequentie van K407 opzoeken door frekwentie te variëren tussen 140 kHz en 470 kHz. De frekwentie waarbij de buisvoltage-meter max. uitslag vertoont, is de resonantiefrequentie van K407 en tevens het toe te voeren MF-sigtaal.
- Remplacer le haut-parleur par une résistance de 15  $\Omega$  et monter en parallèle un voltmètre électronique. Appliquer un signal au nœud S413a/C430 et chercher la fréquence de résonance de K407 par variation de la fréquence entre 140 kHz et 470 kHz. La fréquence à laquelle le voltmètre atteint la déviation max. est la fréquence de résonance de K407 et en outre le signal FI à appliquer.
- Luidsprecher durch einen 15- $\Omega$ -Widerstand ersetzen. Parallel zu diesem Widerstand ein Röhrenvoltmeter anschliessen. Dem Knotenpunkt S413a/C430 ein Signal zuführen. Die Resonanzfrequenz von K407 suchen, indem man die Frequenz zwischen 140 und 470 kHz variiert. Die Frequenz, bei der das Röhrenvoltmeter einen Maximalauschlag anzeigt, ist die Resonanzfrequenz von K407 und auch das zuzuführende Signal.
- Reemplazar el altavoz por una resistencia de 15  $\Omega$  y conectar en paralelo un voltímetro electrónico. Aplicar un señal al anudamiento S413a/C430 y buscar la frecuencia de resonancia de K407 variando la frecuencia entre 140 kHz y 470 kHz. La frecuencia que corresponde a la desviación máx. del voltímetro es la frecuencia de resonancia de K407 y también la señal de FI a aplicar.

- ① Turn out the cores of S413(B) and S414(C) - Kerns van S413(B) en S414(C) afdraaien - Défiler les noyaux de S413(B) et S414(C) - Kerne von S413(B) und S414(C) herausdrehen - Dasturnen der Kernen von S413(B) und S414(C).
- ② Damp S411c-d with a 1 k $\Omega$  resistor - S411c-d dampen met een weerstand van 1 k $\Omega$  - Amortir S411c-d avec une résistance de 1 k $\Omega$  - S411c-d mit einem 1-k $\Omega$ -Widerstand dämpfen - Amortiguer S411c-d con una resistencia de 1 k $\Omega$ .
- ③ Apply signal to ferricorep via a coupling winding - signal via koppelwinding aan ferrocceptor toevoeren - Appliquer le signal au ferrocceptor par l'intermédiaire d'un enroulement de couplage - Signal über Koppelwinding dem Ferrocceptor zuführen - Aplicar la señal a través de un arrollamiento de acople al ferrocceptor.
- ④ Tune in the set - Apparaat afstemmen - Accorder l'appareil - Gerät abstimmen - Sintonizar el aparato.

#### Adjusting the quiescent current

Interrupt bridge A-B in the collector lead of T8405a (see printed circuit board). Connect a mA-meter between A and B. Five minutes after switching on, adjust the  $I_c$  of T8405a according to the table below by means of choice resistor R477.

#### Instellen van de ruststroom

De brug A-B in de collectorleiding van T8405a openen (zie print). Een mA-meter aansluiten tussen A en B. Met keuze weerstand R477 de  $I_c$  van T8405a, vijf minuten na het inschakelen, instellen volgens onderstaande tabel.

#### Ajustage du courant de repos

Interrompre le shunt A-B dans la conducteur collecteur de T8405a (voir carte imprimée). Connecter un mA-mètre entre A et B. Cinq minutes après la mise en circuit, régler le  $I_c$  de T8405a selon la table ci-dessous au moyen de la résistance de sélection R477.

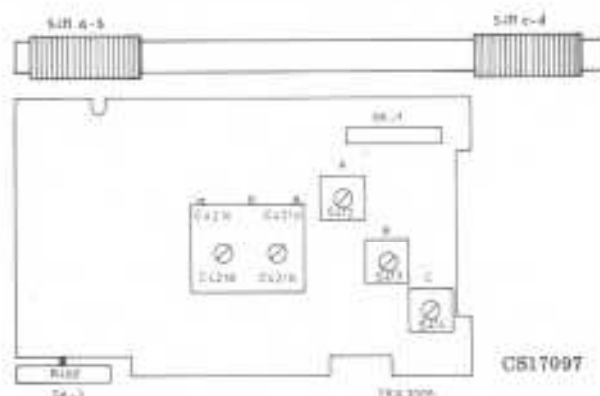
#### Einstellen des Ruhestromes

Brücke A-B in der Kollektorleitung von T8405a unterbrechen (vgl. Printplatte). mA-Meter zwischen A und B anschliessen. Fünf Minuten nach dem Einschalten den  $I_c$  von T8405a mit Wahlwiderstand R477 gemäss nachstehender Tabelle einstellen.

#### Ajuste de la corriente de reposo

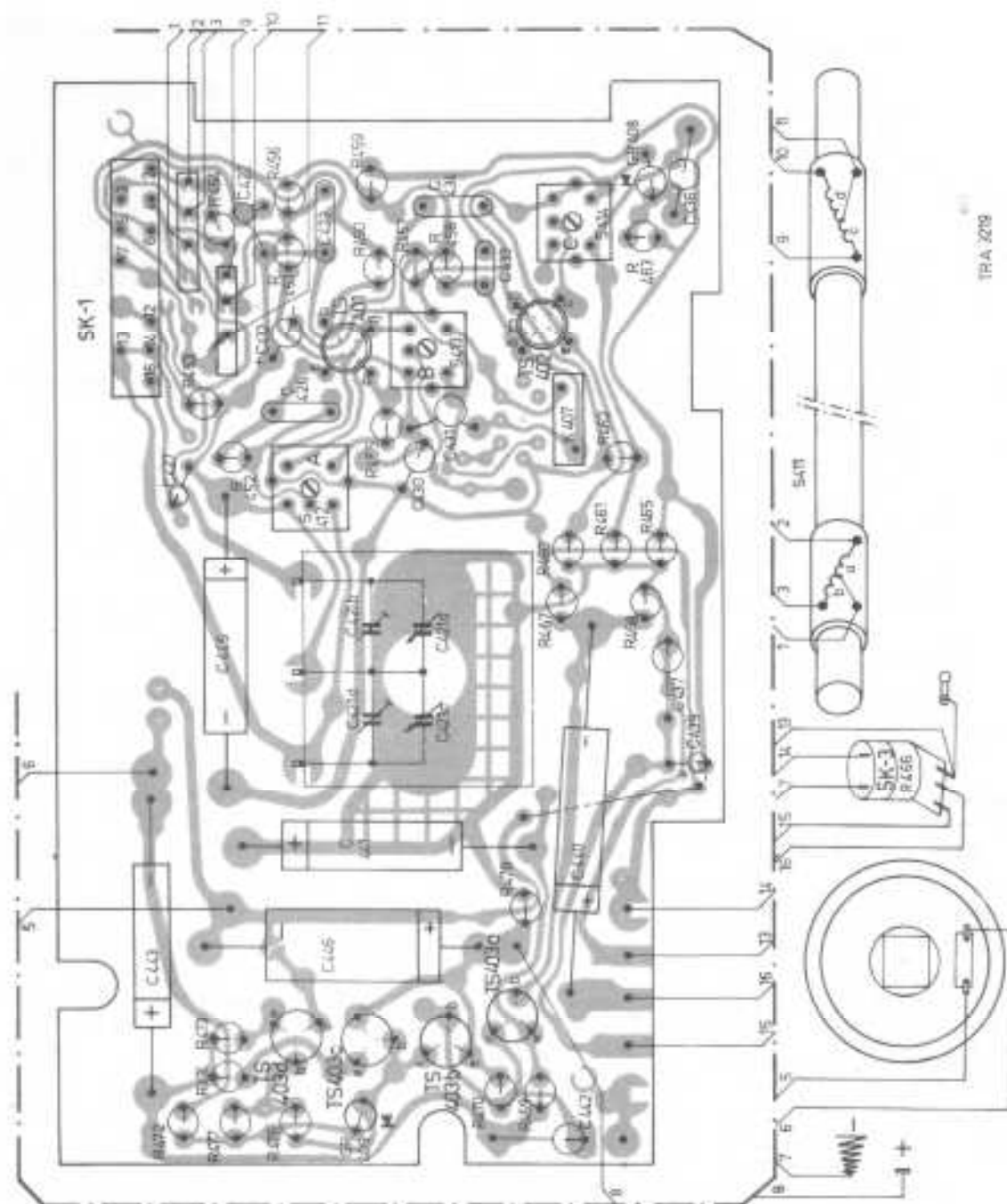
Interrumpir el puente A-B en el circuito de colector de T8405a (véase la placa de circuito impreso). Conectar un mA-metro entre A y B. Cinco minutos después de conectar, ajustar la  $I_c$  de T8405a con resistencia a elegir R477 de acuerdo con la tabla de abajo.

| $T_c$ | 10  | 30 | 50  | 70 | 90  | 110 | 130  | 150 | 170 | 190 |
|-------|-----|----|-----|----|-----|-----|------|-----|-----|-----|
| mA    | 3.2 | 5  | 6.5 | 8  | 9.5 | 11  | 12.5 | 14  | 15  | 16  |





|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5   | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 6   | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 7   | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 8   | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 9   | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 10  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 11  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 12  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 13  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 14  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 15  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 16  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 17  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 18  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 19  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 20  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 21  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 22  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 23  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 24  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 25  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 26  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 27  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 28  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 29  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 30  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 31  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 32  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 33  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 34  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 35  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 36  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 37  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 38  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 39  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 40  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 41  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 42  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 43  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 44  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 45  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 46  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 47  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 48  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 49  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 50  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 51  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 52  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 53  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 54  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 55  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 56  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 57  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 58  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 59  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 60  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 61  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 62  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 63  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 64  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 65  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 66  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 67  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 68  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 69  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 70  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 71  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 72  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 73  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 74  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 75  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 76  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 77  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 78  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 79  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 80  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 81  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 82  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 83  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 84  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 85  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 86  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 87  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 88  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 89  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 90  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 91  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 92  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 93  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 94  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 95  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 96  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 97  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 98  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 99  | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |
| 100 | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 | 4.6 | 4.7 | 4.8 | 4.9 | 5.0 |

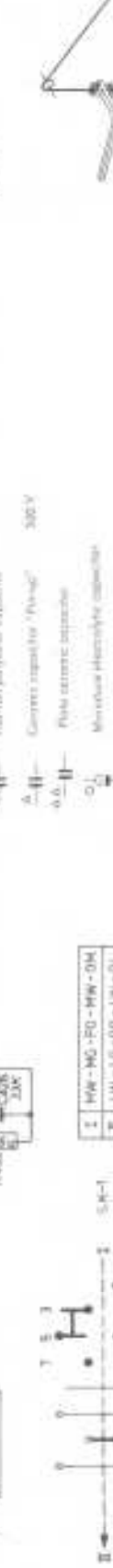
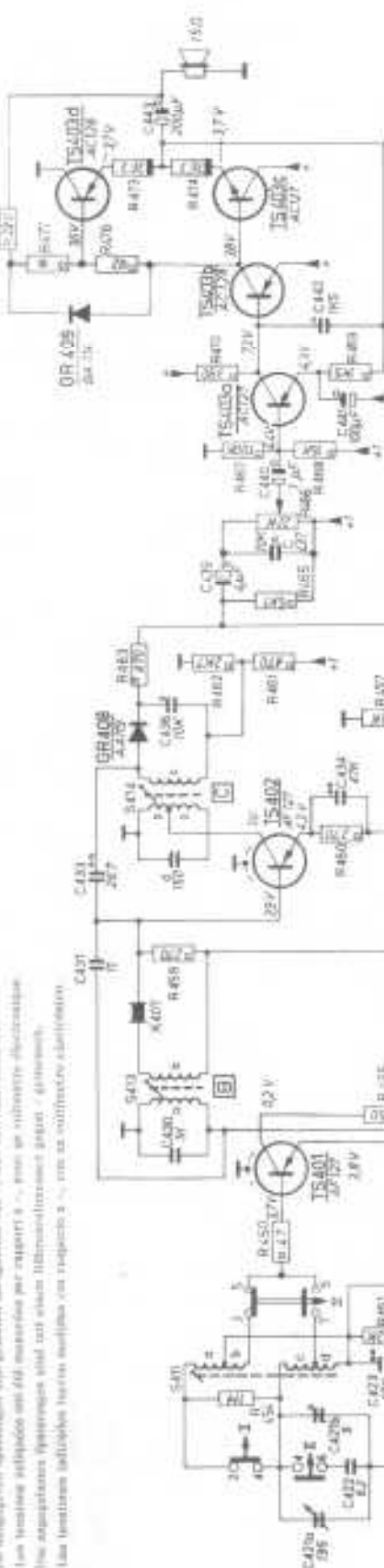


| Year | 47% | 42-43 | 414 | 442 | 445 | 446 |
|------|-----|-------|-----|-----|-----|-----|
| 1970 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1971 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1972 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1973 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1974 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1975 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1976 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1977 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1978 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1979 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1980 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1981 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1982 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1983 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1984 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1985 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1986 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1987 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1988 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1989 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1990 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1991 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1992 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1993 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1994 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1995 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1996 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1997 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1998 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 1999 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2000 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2001 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2002 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2003 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2004 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2005 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2006 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2007 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2008 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2009 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2010 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2011 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2012 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2013 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2014 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2015 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2016 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2017 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2018 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2019 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2020 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2021 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2022 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2023 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2024 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2025 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2026 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2027 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2028 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2029 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2030 | 47% | 47%   | 47% | 47% | 47% | 47% |
| 2031 | 47% | 47%   | 47% | 47% | 47% | 47% |

the individual's culture, being manifest in its concepts, its values and its modes of behavior.

The observed low density of the combined set matches the low set density.

on transition activities until 1999 and 2000. In 2001, the company was approved for a 100% foreign ownership and received a license to operate in the telecommunications market.



|                                   |                 |                                       |                                           |                                    |                      |                                                  |
|-----------------------------------|-----------------|---------------------------------------|-------------------------------------------|------------------------------------|----------------------|--------------------------------------------------|
| Cabinet rear (00B) cream          | 4822 421 40025  | Kast achterzijde (00B) crème          | Coffret, partie arrière (00B) crème       | Gehäuse, Rückseite (00B) creme     | 4822 421 40025       | Caja mitad posterior (00B) crema                 |
| Cabinet rear (00F) green          | 4822 421 40026  | Kast achterzijde (00F) groen          | Coffret, partie arrière (00F) vert        | Gehäuse, Rückseite (00F) grün      | 4822 421 40026       | Caja mitad posterior (00F) verde                 |
| Cabinet front (00B) brown         | 4822 420 40168  | Kast voorzijde (00B) bruin            | Coffret, partie avant (00B) brun          | Gehäuse, Frontseite (00B) braun    | 4822 420 40168       | Caja mitad frontal (00B) marrón                  |
| Cabinet front (00F) cream         | 4822 420 40169  | Kast voorzijde (00F) crème            | Coffret, partie avant (00F) crème         | Gehäuse, Frontseite (00F) creme    | 4822 420 40169       | Caja mitad frontal (00F) crema                   |
| Carrying handle                   | 4822 498 60203  | Handgreep                             | Poignée                                   | Handgriff                          | 4822 498 60203       | Asa                                              |
| Fixing spring for handle          | 4822 492 61337  | Veer voor bev. handgreep              | Ressort de fix. poignée                   | Befestigungsfeder Handgriff        | 4822 492 61337       | Resorte fij. asa                                 |
| Lid of battery holder (00B) cream | 4822 423 40239  | Deksel van batterijhouder (00B) crème | Couvercle de la boîte à piles (00B) crème | Deckel Batteriehalter (00B) creme  | 4822 423 40239       | Tapa de portapilas (00B) crema                   |
| Lid of battery holder (00F) green | 4822 423 40241  | Deksel van batterijhouder (00F) groen | Couvercle de la boîte à piles (00F) vert  | Deckel Batteriehalter (00F) grün   | 4822 423 40241       | Tapa del portapilas (00F) verde                  |
| Battery contact spring "a"        | 4822 492 50429  | Batterij-kontaktveer "a"              | Ressort de contact de pile "a"            | Batterie-Kontaktfeder "a"          | 4822 492 50429       | Resorte de contacto de pilas "a"                 |
| Battery contact spring "b"        | 4822 492 61343  | Batterij-kontaktveer "b"              | Ressort de contact de pile "b"            | Batterie-Kontaktfeder "b"          | 4822 492 61343       | Resorte de contacto de pilas "b"                 |
| Battery contact plate             | 4822 492 61027  | Batterij-kontaktplaat                 | Plaque de contact de pile                 | Batterie-Kontaktplatte             | 4822 492 61027       | Placa de contacto de pilas                       |
| Knob volume                       | 4822 413 50671  | Knop volume                           | Bouton volume                             | Knopf Lautstärke                   | 4822 413 50671       | Botón volumen                                    |
| Knob tuning                       | 4822 413 50672  | Knop afstemming                       | Bouton syntonisation                      | Knopf Abstimmung                   | 4822 413 50672       | Botón sintonía                                   |
| Spring for knob volume            | 4822 492 60901  | Klemveer knop volume                  | Ressort de serrage du bouton              | Haltefeder Knopf                   | 4822 492 60901       | Resorte fj. botón                                |
| Slide switch                      | 4822 277 20134  | Schuifschakelaar                      | Commutateur à tiroir                      | Schiebeschalter                    | 4822 277 20134       | Conmutador deslizante                            |
| Slider                            | 4822 278 20075  | Schuij                                | Tiroir                                    | Schieber                           | 4822 278 20075       | Corredora                                        |
| Switch mechanism, wave range      | 4822 691 10069  | Schakelaarmechanisme, golgebied       | Mécanisme du comm. gamme d'ondes          | Schaltermechanismus, Wellenbereich | 4822 691 10069       | Mecanismo accionam. para comm. márgenes de ondas |
| Drum on variable capacitor        | 4822 528 40152  | Trommel op var. condensator           | Tambour de CV                             | Trommel auf Drehkondens.           | 4822 528 40152       | Tambor condens. variable                         |
| Pointer                           | 4822 450 80238  | Wijzer                                | Aiguille                                  | Zeiger                             | 4822 450 80238       | Aguja                                            |
| Drive cord                        | 4822 321 30101  | Aandrijfkoord                         | Corde d'entraînement                      | Antriebsseile                      | 4822 321 30101       | Cuerda de arrastre de aguja                      |
| Scale                             | 4822 333 30017  | Schaal                                | Cadran                                    | Skala                              | 4822 333 30017       | Escala                                           |
| Ferroreceptor                     | 8411 a, b, c, d | abed                                  | Ferroreceptor                             | Ferroreceptor                      | Ferroreceptor        |                                                  |
| Oscillator coil                   | 8412 a, b, c    | 671 -                                 | Bob. oscillatrice                         | Oscillatorkopule                   | Bob. de oscilador    |                                                  |
| IF-hand-pass filter               | 8413 a, b       | 901 -                                 | Transformateur FI                         | ZF-Bandfilterkopule                | Transformador de FI  |                                                  |
| IF-hand-pass filter               | 8414 a, b, c, d | 071 -                                 | Transformateur FI                         | ZF-Bandfilterkopule                | Transformador de FI  |                                                  |
| Ceramic resonator                 | K407            | 4822 242 70113                        | Résonateur céramique                      | Keramische resonator               | Resonador cerámico   |                                                  |
| Loudspeaker                       | 8417 (13 m)     | 4822 240 40061                        | Haut-parleur                              | Lautsprecher                       | Altavoz              |                                                  |
| Tuning capacitor                  | C421 a, b, c, d | 4822 125 20136                        | Condensateur variable                     | Drehkondensator                    | Condensador variable |                                                  |
| C422                              | 62 pF - 2 %     | 4822 122 10044                        |                                           |                                    |                      |                                                  |
| C427                              | 158 pF - 50V    | 4822 121 50119                        |                                           |                                    |                      |                                                  |
| C430                              | 1 kP - 2,5 %    | 4822 121 50186                        |                                           |                                    |                      |                                                  |