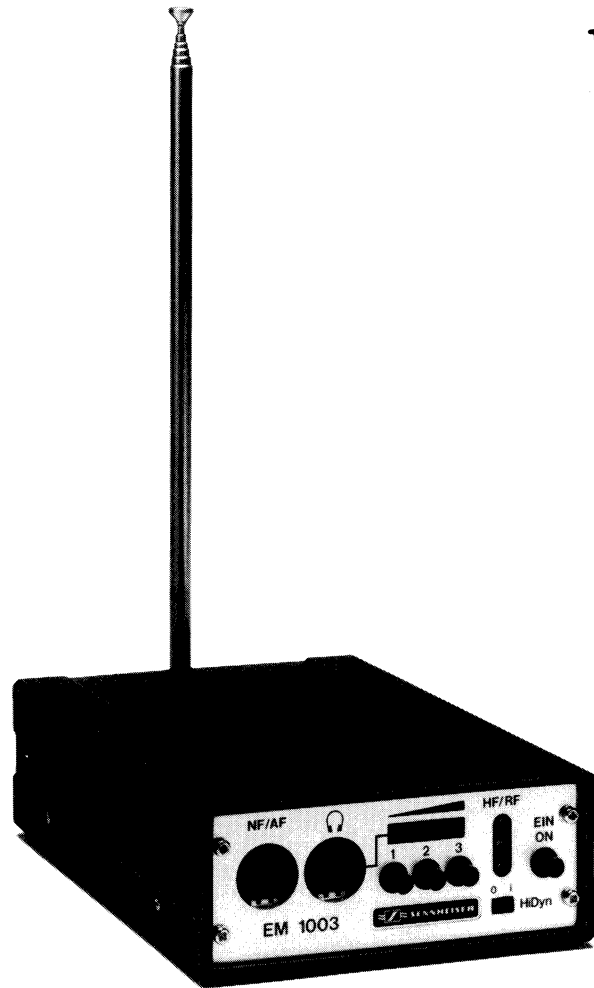


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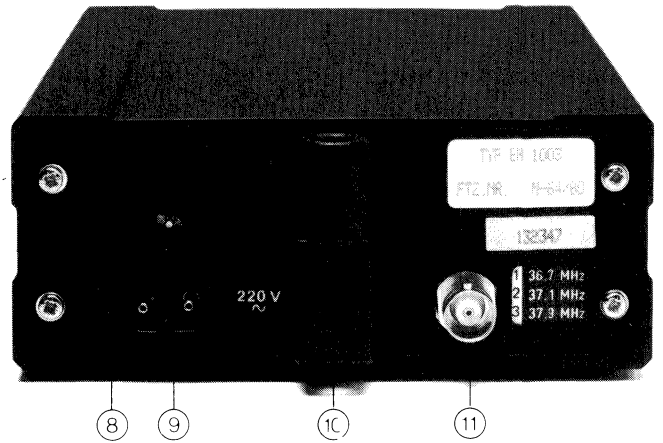
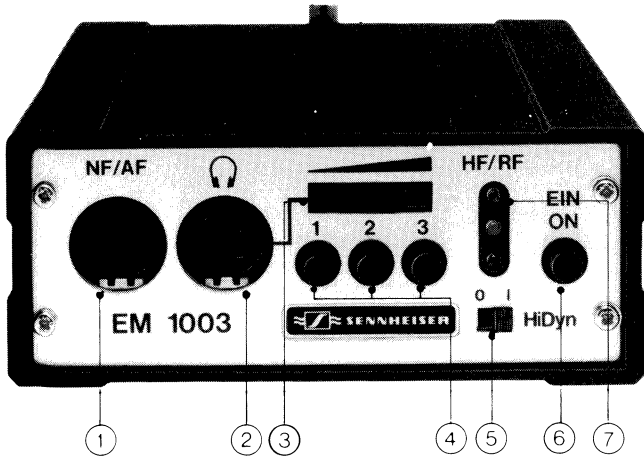


Der Mikroport-Empfänger EM 1003 ist ein einkanaliger, auf den Frequenzen 36,7 MHz, 37,1 MHz und 37,9 MHz umschaltbarer FM-Breitband-Empfänger.

The Mikroport receiver EM 1003 is a single channel wideband receiver which can be switched to the frequencies 36,7 MHz, 37,1 MHz or 37,9 MHz.

**Inhalt / Contents**

|   | <b>Seite/Page</b> |
|---|-------------------|
| Bedienelemente<br>Controls                                      | 3                 |
| Technische Daten<br>Technical data                              | 3                 |
| Blockschaltbild<br>Block diagram                                | 4                 |
| Erforderliche Meßgeräte und Prüfmittel<br>Test equipment needed | 4                 |
| Meßaufbau<br>Test set-up  | 5                 |
| Abgleichanweisung<br>Alignment instructions                     | 6                 |
| Gedruckte Schaltung<br>Printed circuit board                    | 8                 |
| Stromlaufplan<br>Circuit diagram                                | 9                 |
| Explosionszeichnung<br>Exploded view                            | 11                |
| Ersatzteilliste<br>Spare parts list                             | 12                |
| Schaltteilliste<br>Electronic parts list                        | 13                |



**Bedienelemente:**

- ① NF-Ausgangsbuchse
- ② Kopfhöreranschlußbuchse
- ③ Lautstärkeinsteller für Kopfhörerausgang
- ④ Kanalschaltung
- ⑤ »HiDyn« Schalter (Position 0 = Aus)
- ⑥ Ein/Aus-Schalter
- ⑦ HF-Anzeige/Betriebsanzeige
- ⑧ Schaltbuchse für Fremdspeisung (12 – 24 V)
- ⑨ Netzanschluß
- ⑩ Antennenaufnahme für Teleskopantenne
- ⑪ BNC-Antenneneingangsbuchse zum Anschluß abgesetzter Antennen

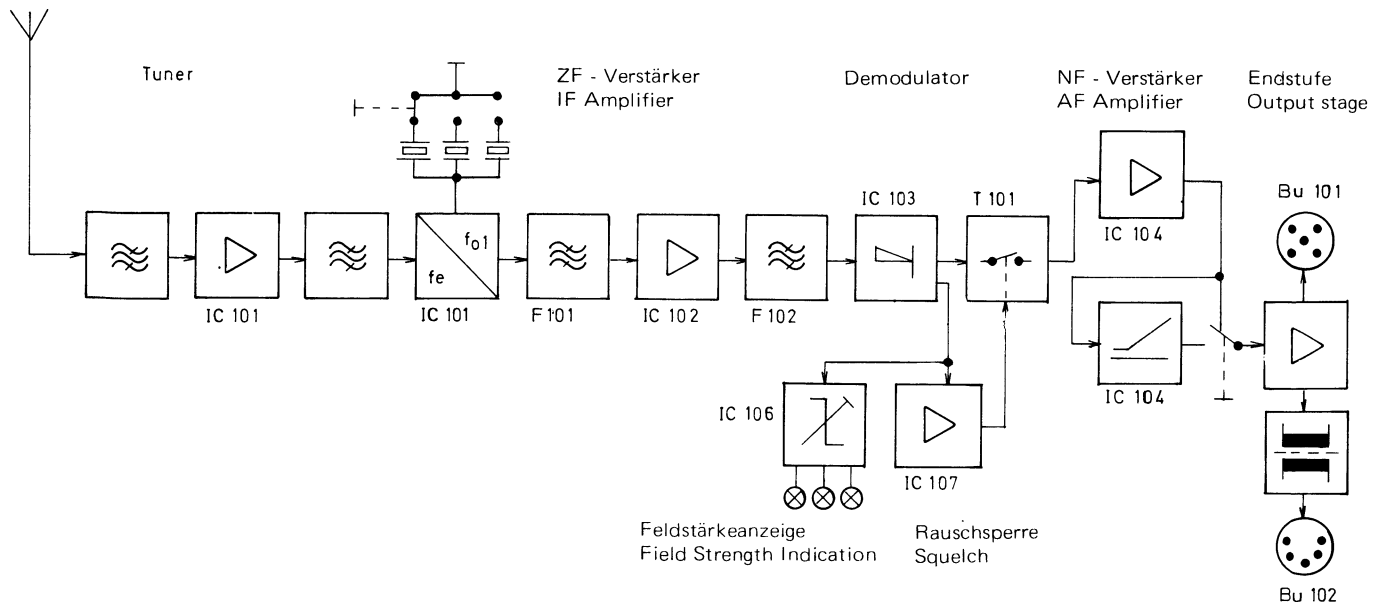
**Controls:**

- ① AF output socket
- ② Headphone socket
- ③ Volume control for headphone socket
- ④ Channel change-over switch
- ⑤ "HiDyn" On/Off switch (Position 0 = Off)
- ⑥ On/Off switch
- ⑦ RF indicator/"Power On" indicator
- ⑧ Socket for external power supply (12 – 24 V)
- ⑨ Mains connector
- ⑩ Antenna input for telescopic antenna
- ⑪ BNC-antenna input socket for separate antennas

| Technische Daten  |  |
|---|--|
| Empfangsfrequenzen  | 36,7 MHz, 37,1 MHz und 37,9 MHz, umschaltbar ± 40 kHz  |
| Nennhub<br>Nachbarkanalselektion bei Verstimmung um 400 und 800 kHz                       | ≥ 70 dB  |
| Ausgangsspannung an NF-Ausgangsbuchse bei Nennhub (Antennenspannung > 1,5 µV)             | 1,55 V ± 2 dB (Stift 1 + 3)<br>20 mV ± 2 dB (Stift 4 + 5)  |
| Ausgangsspannung an Kopfhörerbuchse bei Nennhub (Antennenspannung > 1,5 µV)               | einstellbar zwischen<br>0 – 1,55 V ± 2 dB<br>20 Hz – 20 kHz  |
| NF-Frequenzgang   |  |
| Klirrfaktor bei Nennhub, 1 kHz und 1 mV   | ≤ 1%   |
| Antennenspannung  | 50 µsec.   |
| Deemphasis  |  |
| Signal-Rauschabstand bei »HiDyn«-Betrieb bezogen auf Spitzenhub und bei 10 µV HF-Spannung | > 92 dB, typ. 96 dB<br>(DIN 45 500, Kurve A, eff.)<br>> 70 dB, typ. 82 dB<br>(CCIR 468, Spitze)              |
| Signal-Rauschabstand ohne »HiDyn«-Betrieb bezogen auf Nennhub und bei 50 µV HF-Spannung   | > 65 dB, typ. 70 dB<br>(DIN 45 500, Kurve A, eff.)<br>> 55 dB, typ. 58 dB<br>(CCIR 468, Spitze)              |
| Elektronische Rauschsperrung  | 0 – 300 µV intern einstellbar,<br>Werkseinstellung 3 µV  |
| HF-Eingang  | 50 Ω, unsymmetrisch, BNC   |
| NF-Ausgang  | symmetrisch, erdfrei<br>Innenwiderstand ca. 20 Ω<br>Nennbelastung 200 Ω<br>5polige Buchse nach<br>DIN 41 524 |
| Kopfhörerausgang  | unsymmetrisch, einstellbar,<br>Nennbelastung > 10 Ω  |
| Stromversorgung   | 110/220 V, 50...60 Hz<br>(umlotbar) oder 12 – 24 V<br>Fremdspeisung  |
| Stromaufnahme (bei Fremdspeisung)   | ca. 110 mA   |
| Abmessung in mm   | 170 x 120 x 53   |
| Gewicht   | 1120 g   |
| FTZ-Nr.   | M-64/80  |
| Änderungen, vor allem zum technischen Fortschritt, vorbehalten.                           |  |

| Technical Data  |  |
|---|--|
| Receiving frequencies   | 36.7 MHz, 37.1 MHz, 37.9 MHz, switchable ± 40 kHz  |
| Nominal swing<br>Adjacent channel selection with 400 and 800 kHz offset                           | ≥ 70 dB  |
| Output voltage at AF output socket at nominal swing (antenna voltage > 1.5 µV)                    | 1.55 V ± 2 dB (pins 1 + 3)<br>20 mV ± 2 dB (pins 4 + 5)  |
| Output voltage at the headphone socket at nominal swing (antenna voltage > 1.5 µV)                | adjustable between<br>0 – 1.55 V ± 2 dB<br>20 Hz – 20 kHz  |
| AF-frequency response   |  |
| Distortion at nominal swing, 1 kHz and 1 mV antenna voltage                                       | ≤ 1%   |
| Deemphasis  | 50 µsec.   |
| S/N ratio at peak swing, "HiDyn"-operation and 10 µV RF-voltage                                   | > 92 dB, typ. 96 dB<br>(DIN 45 500, curve A, rms)<br>> 70 dB, typ. 82 dB<br>(CCIR 468, peak)                               |
| S/N ratio at nominal swing, without "HiDyn" and 50 µV RF-voltage                                  | > 65 dB, typ. 70 dB<br>(DIN 45 500, curve A, rms)<br>> 55 dB, typ. 58 dB<br>(CCIR 468, peak)                               |
| Electronic squelch  | 0 - 300 µV internally adjustable,<br>(set at 3 µV in the factory)  |
| RF-input  | 50 Ω, unbalanced, BNC  |
| AF-output   | balanced, earthfree, internal<br>resistance approx. 20 Ω,<br>Nominal load 200 Ω, 5pin<br>socket according to<br>DIN 41 524 |
| Headphone output  | unbalanced, adjustable,<br>nominal load > 10 Ω   |
| Power supply  | 110/220 V, 50-60 Hz (change<br>of internal solder bridge) or<br>12 - 24 V external power<br>supply                         |
| DC current consumption<br>(with external power source)  | approx. 110 mA   |
| Dimensions in mm  | 170 x 120 x 53   |
| Weight  | 1120 g   |
| We reserve the right to alter specifications in particular with regard to technical improvements. |  |

**Blockschaltbild**  
**Block diagram**



**Vorbereitung**

- a.) Empfänger öffnen
- b.) Meßaufbau durchführen

**Preparation**

- a.) Open receiver
- b.) Test set-up according to figure

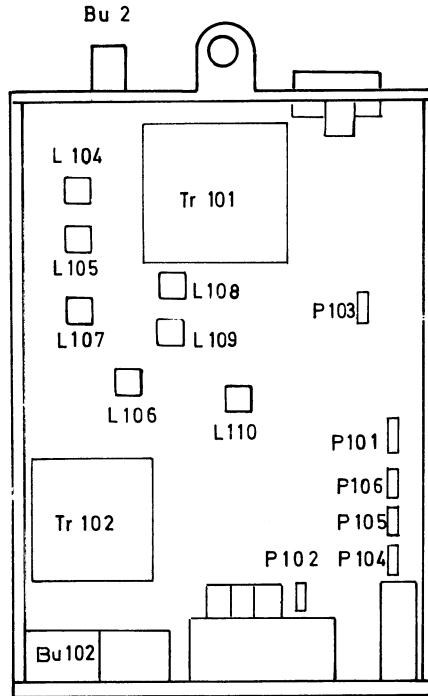
**Erforderliche Meßgeräte und Prüfmittel**

- Vielfachinstrument 100 k $\Omega$ /V
- FM - Meßsender 25 ... 50 MHz (z.B. Hewlett Packard 8640 B)  
 $U_A = 0 \dots 500$  mV
- NF - Millivoltmeter 30 mV ... 300 V (z.B. Sennheiser UPM 550 - 1)
- Klirrfaktor - Meßeinrichtung (z.B. Sennheiser UPM 550 - 1)
- Fremdspannungsfiler (z.B. Sennheiser UPM 550 - 1)
- Oszilloskop (z.B. Philips PM 3231)

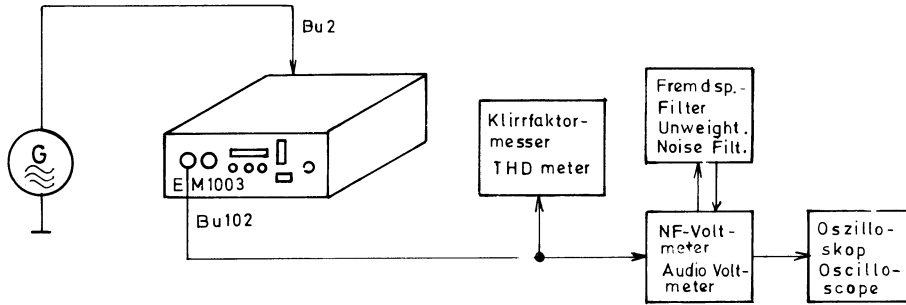
**Test equipment needed**

- Multimeter 100 k $\Omega$ /V
- FM - signal generator (e.g. Hewlett Packard 8640 B)  
 $U_A = 0 \dots 500$  mV
- Audio millivoltmeter 30 mV ... 300 V (e.g. Sennheiser UPM 550 - 1)
- Distortion meter (e.g. Sennheiser UPM 550 - 1)
- Unweighted noise filter (e.g. Sennheiser UPM 550 - 1)
- Oscilloscope (e.g. Philips PM 3231)

**Lage der Abgleichelemente**  
**Position of tuning components**

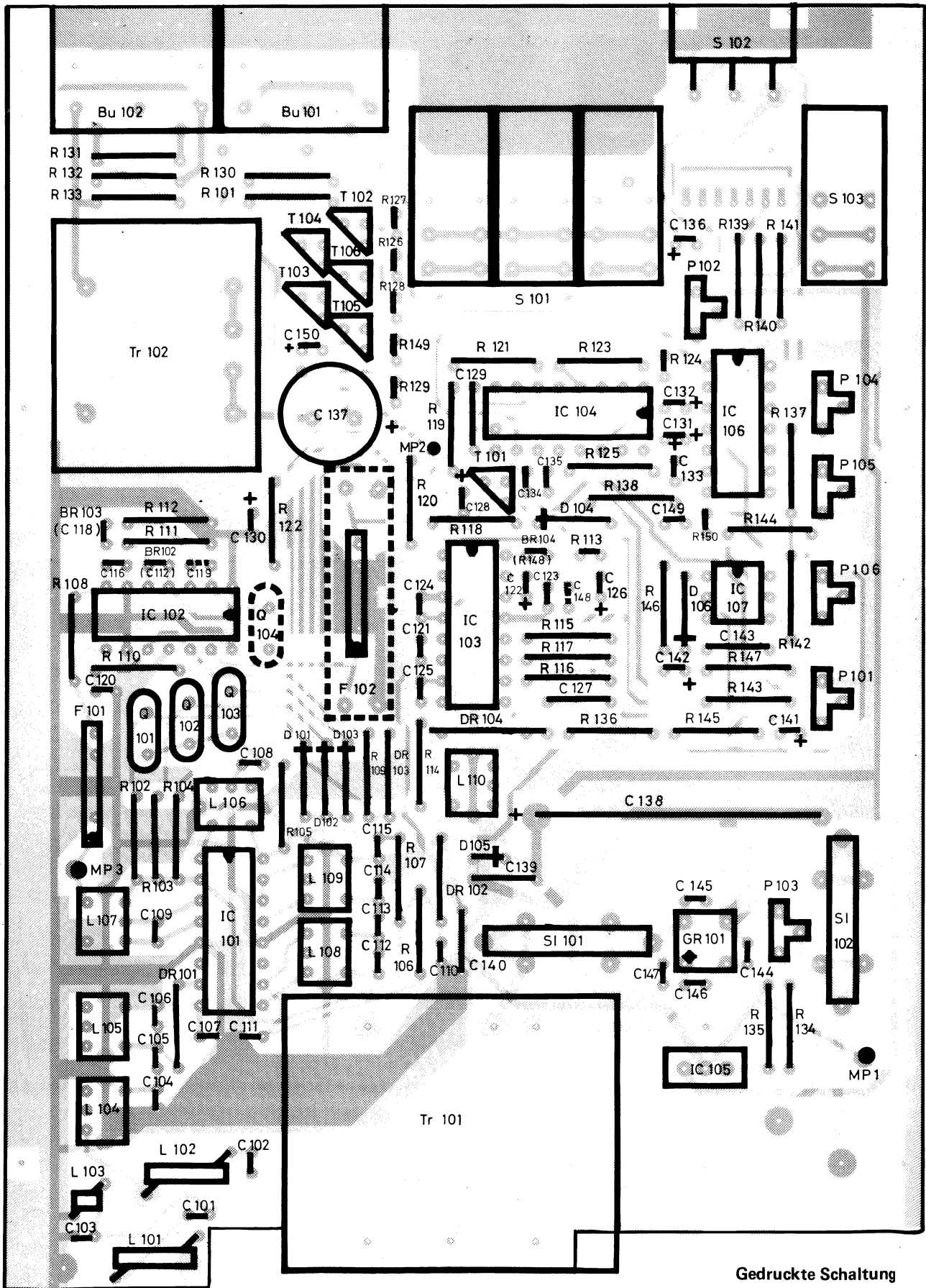


**Meßaufbau**  
**Test set-up**



**Abgleichanweisung**

| Abgleich-<br>folge | Art der Ein-<br>stellung/Mess.                   | Signal-Ein-<br>speisung     | Meßpunkt                  | Geräteeinstellung<br>Vorbereitung  | Einsteller                             | Einstellen<br>auf...                | Bemerkungen   |
|--------------------|--|-----------------------------|---------------------------|--|--|-------------------------------------|---|
| 1                  | Einstellung<br>+ 10 V                            |                             | MP 1                      | Gerät<br>einschalten   | P 103                                  | + 10 V an<br>MP 1                   |   |
| 2                  | Oszillator-<br>Abgleich                          | Antennen-<br>buchse<br>Bu 2 | NF-Aus-<br>gang<br>Bu 102 | a. HiDyn "Aus"<br>b. Kanal 2<br>einschalten<br>c. Meßsender:<br>fs= Kanal 2<br>Hub= 40 kHz<br>fmod= 1 kHz<br>Ua= 300 mV<br>d. P 106 Links-<br>anschlag | L 106                                  | NF-Ausgangs-<br>signal              | L 106 so abgleichen, daß<br>NF-Ausgangssignal auf dem<br>Oszilloskop sinusförmig wird.<br>Kern so weit nach links bzw.<br>nach rechts weiterdrehen, bis<br>Schwingung abreißt. Einstellung<br>so korregieren, daß Kern zwis-<br>chen beiden Abrißpunkten<br>steht.<br>Ebenso Kanal 1 und Kanal 3<br>überprüfen. |
| 3                  | HF/ZF-<br>Abgleich                               | Bu 2                        | Bu 102                    | wie 2a - 2d<br>Meßsender:<br>Ua = ca. 3 $\mu$ V  | L104, L105<br>L108, L109<br>L107, L110 | max. NF-Aus-<br>gangs-Span-<br>nung | Beachten, daß Empfänger<br>nicht in der Begrenzung arbeitet.<br>Ggf. HF-Eingangsspegel reduzieren.  |
| 4                  | Einstellung<br>min. Klirr-<br>faktor             | Bu 2                        | Bu 102                    | wie 2a - 2d<br>Meßsender:<br>Ua= 1 mV  | L 110                                  | min. Klirrfak-<br>tor $\leq$ 1 %    |   |
| 4.1                | wie 4  | Bu 2                        | Bu 102                    | HiDyn "Ein"  | P 102                                  | min. Klirrfak-<br>tor $\leq$ 1 %    |   |
| 5                  | Einstellung<br>+ 6 dB Aus-<br>gangspegel         | Bu 2                        | Bu 102                    | wie 4  | P 101                                  | 1,55 V $\Delta$ + 6 dB              |   |
| 6                  | Messung des<br>Fremdspan-<br>nungsabstan-<br>des | Bu 2                        | Bu 102                    | wie 2a - 2d<br>Meßsender:<br>Ua= 1,5 $\mu$ V   |  |                                     | Fremdspannungsfiler<br>einschleifen.  |
| 6.1                | wie 6  | Bu 2                        | Bu 102                    | Modulation<br>"Aus"  |  |                                     | S/N Abstand: $\geq$ 26 dB   |
| 6.2                | wie 6  | Bu 2                        | Bu 102                    | Modulation<br>"Ein"<br>HiDyn "Ein"<br>Meßsender:<br>Ua= 10 $\mu$ V   |  |                                     | S/N Abstand: $\geq$ 80 dB   |
| 7                  | Einstellen<br>HF-Anzeige                         | Bu 2                        | Bu 102                    | wie 2a - 2d<br>Meßsender:<br>Ua= 3 $\mu$ V   | P 105                                  |                                     | Poti so einstellen, daß rote LED<br>gerade erlischt, (gelbe LED<br>leuchtet auf)  |
| 7.1                | wie 7  | Bu 2                        | Bu 102                    | Meßsender:<br>Ua= 30 $\mu$ V   | P 104                                  |                                     | Poti so einstellen, daß grüne LED<br>gerade aufleuchtet, (gelbe LED<br>erlischt)  |
| 8                  | Einstellen<br>der Rausch-<br>sperre              | Bu 2                        | Bu 102                    | wie 2a - 2c<br>Meßsender:<br>Ua= 3 $\mu$ V   | P 106                                  |                                     | Rauschsperrre soll gerade<br>schalten   |

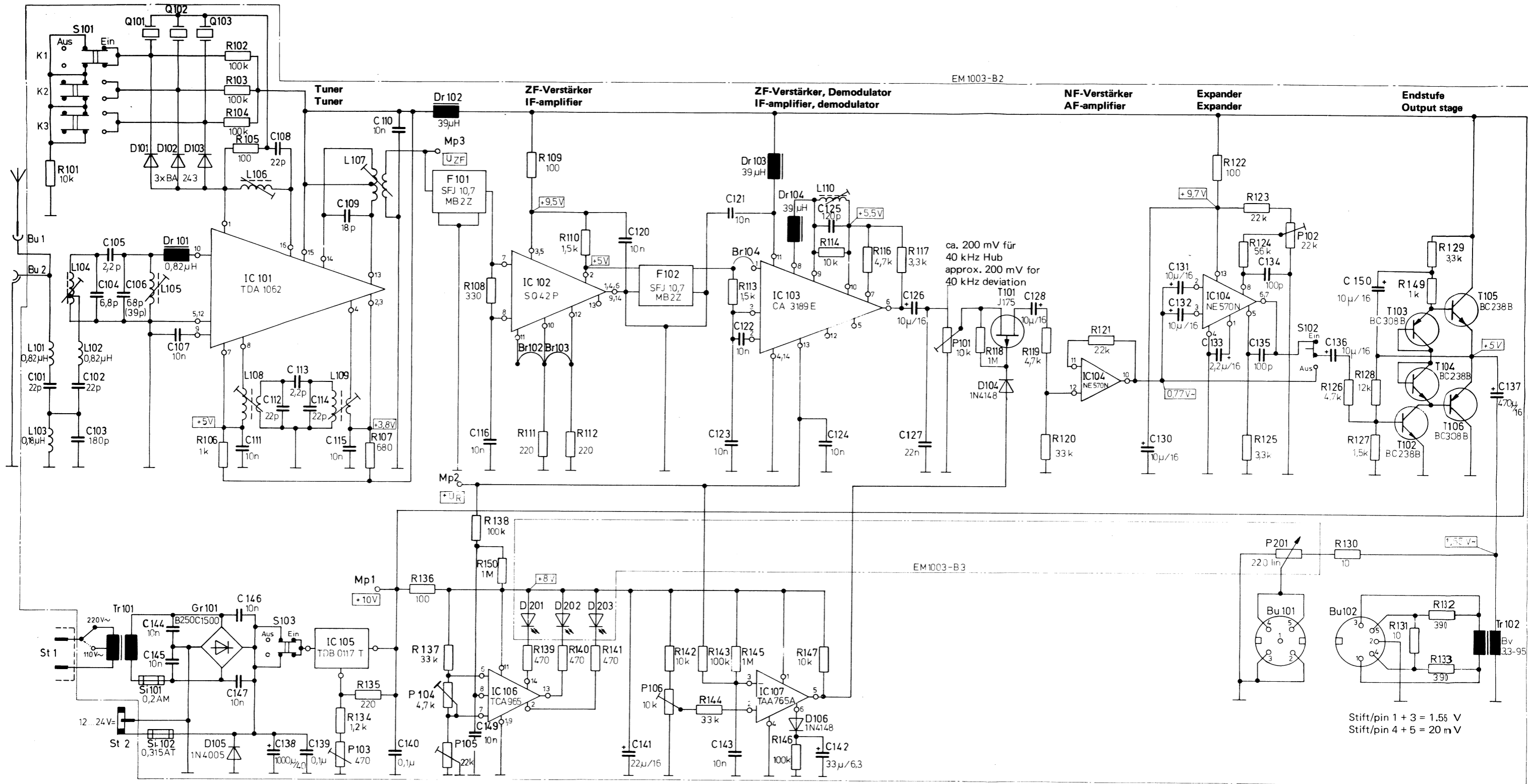


**Gedruckte Schaltung**  
**Printed circuit board**  
**(Lötseite/soldering side)**

**Alignment instructions**

| Order of alignment | Type of setting/measurement | Signal input        | Test point       | Unit setting, preparation  | Adjuster                            | Adjust to...              | Remarks  |
|--------------------|-----------------------------|---------------------|------------------|--|-------------------------------------|---------------------------|--|
| 1                  | Adjustment + 10 V           |                     | MP 1             | switch on unit   | P 103                               | MP 1: + 10 V              |  |
| 2                  | Alignment oscillator        | antenna socket Bu 2 | AF output Bu 102 | a. HiDyn"Off"<br>b. switch on channel 2<br>c. generator:<br>f=channel 2<br>swing=40 kHz<br>f <sub>mod</sub> = 1 kHz<br>V <sub>RF</sub> = 300 mV<br>d. P 106 left-hand stop | L 106                               | AF output signal          | Adjust L 106 so, that AF output signal becomes sinusoidal. Screw in core so far to the left or right, until the oscillation stops. Re-adjust, until the core is between the breaking points. Adjust channel 1 and 3 in the same way. |
| 3                  | Alignment RF/IF section     | Bu 2                | Bu 102           | like 2a - 2d<br>V <sub>RF</sub> = 5 μV   | L104,L105<br>L108,L109<br>L107,L110 | max.AF output voltage     | Ensure, that receiver does not operate within limitation. If necessary, reduce RF input level  |
| 4                  | Alignment min. THD          | Bu 2                | Bu 102           | like 2a - 2d<br>V <sub>RF</sub> = 1 mV   | L 110                               | THD ≤ 1%                  |  |
| 4.1                | like 4                      | Bu 2                | Bu 102           | HiDyn"on"  | P 102                               | THD ≤ 1%                  |  |
| 5                  | Adjustment + 6 dB output    | Bu 2                | Bu 102           | like 4   | P 101                               | 1,55 V <sup>∧</sup> +6 dB |  |
| 6                  | Measuring of S/N ratio      | Bu 2                | Bu 102           | like 2a - 2d<br>V <sub>RF</sub> = 1.5 μV   |                                     |                           | with additional unweighted noise filter  |
| 6.1                | like 6                      | Bu 2                | Bu 102           | Modulation "Off"   |                                     |                           | S/N ratio ≥ 26 dB  |
| 6.2                | like 6                      | Bu 2                | Bu 102           | Modulation "on"<br>HiDyn"on"<br>Generator:<br>V <sub>RF</sub> = 10 μV  |                                     |                           | S/N ratio ≥ 80 dB  |
| 7                  | Adjustment RF indication    | Bu 2                | Bu 102           | like 2a - 2d<br>V <sub>RF</sub> = 3 μV   | P 105                               |                           | Adjust poti so that red LED just goes out and yellow LED lights  |
| 7.1                | like 7                      | Bu 2                | Bu 102           | V <sub>RF</sub> = 30 μV  | P 104                               |                           | Adjust poti so that green LED just lights and yellow LED goes out  |
| 8                  | Adjustment squelch          | Bu 2                | Bu 102           | like 2a - 2c<br>V <sub>RF</sub> = 3 μV   | P 106                               |                           | Squelch just shall operate   |





EM 1003-B2

EM 1003-B3

**Stromversorgung  
Power supply**

**Stabilisierung  
Stabilization**

**Fensterdiskriminator  
Window discriminator**

**Rauschsperr  
Squelch**

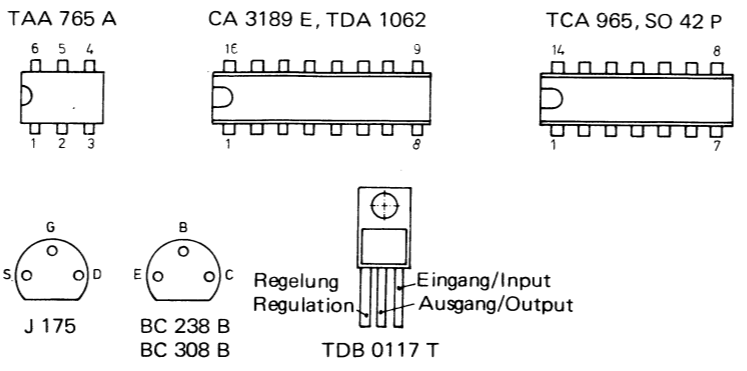
|   |     |                     |     |         |                 |     |     |         |     |         |         |     |     |                 |             |     |     |         |             |         |         |     |     |             |     |         |     |     |     |   |
|---|-----|---------------------|-----|---------|-----------------|-----|-----|---------|-----|---------|---------|-----|-----|-----------------|-------------|-----|-----|---------|-------------|---------|---------|-----|-----|-------------|-----|---------|-----|-----|-----|---|
| R | 101 | 102,103,104,105,106 | 107 | 108     | 109,110,111,112 | 113 | 114 | 115     | 117 | 118     | 119     | 120 | 121 | 122,123,124,125 | 126         | 127 | 128 | 149,129 | R           |         |         |     |     |             |     |         |     |     |     |   |
| C | 101 | 102,103,104,105,106 | 107 | 111,108 | 112             | 113 | 114 | 115,109 | 110 | 136,137 | 138,135 | 139 | 140 | 141             | 142,143,144 | 145 | 146 | 147     | 121,123,122 | 124,125 | 126,127 | 128 | 129 | 130,131,132 | 133 | 134,135 | 136 | 150 | 137 | C |

Gleichspannungen gemessen mit Instrument  $R_i \sim 100 \text{ k}\Omega$   
DC-voltages measured with instrument  $R_i \sim 100 \text{ k}\Omega$

Wechselspannungen gemessen mit Instrument  $R_i \sim 1 \text{ M}\Omega$   
AC-voltages measured with instrument  $R_i \sim 1 \text{ M}\Omega$

Werte in Klammern für Frequenzbereich 35 - 45 MHz  
Values in brackets for frequency range 35 - 45 MHz

Werte ohne Klammern für Frequenzbereich 30 - 40 MHz  
Values without brackets for frequency range 30 - 40 MHz



**Widerstände / Resistors**  
1 % Toleranz, Fa. Beyschlag SBB 0207  
1 % tolerance, Mssrs. Beyschlag SBB 0207

| Pos. | Stck.<br>pcs | Bezeichnung                          | Designation                              | Bestell-Nr.<br>Part-No. |
|------|--------------|--------------------------------------|--|-------------------------|
| 62   | 2            | Linsenkreuzschraube M 2,5x16DIN 7985 | Oval-headed screw M 2,5x16 DIN 7985      | 22988                   |
| 63   | 2            | Zahnscheibe 2,8 DIN 6797             | Toothed washer 2,8 DIN 6797              | 22857                   |
| 64   | 2            | Isolierbuchse                        | Insulating socket                        | 20290                   |
| 65   | 2            | Kreuzschraube BZ 2,2x6,5 DIN 7981    | Pan head Philips screw BZ 2,2x6,5DIN7981 | 26934                   |
| Bu 2 | 1            | BNC-Buchse                           | BNC-socket                               | 21993                   |
| St 1 | 1            | Gerätestecker                        | Unit plug                                | 22067                   |
| 68   | 2            | Senkkreuzschraube M2,5x8 DIN 965     | Sunk pan head Philips screwM2,5x8DIN965  | 22804                   |
| 69   | 2            | Scheibe 2,7 DIN 433                  | Washer 2,7 DIN 433                       | 22662                   |
| 70   | 2            | Sechskantmutter M 2,5 DIN 934        | Hexagonal nut M 2,5 DIN 934              | 22773                   |
| St 2 | 2            | Einbaustecker                        | Built-in plug                            | 21922                   |
| 72   | 2            | Linsenschraube M 2x5 DIN 920         | Oval-headed screw M 2x5 DIN 920          | 22733                   |
| 73   | 2            | Scheibe 2,2 DIN 433                  | Washer 2,2 DIN 433                       | 22659                   |
|      |              | <b>Zubehör</b>                       | <b>Accessories</b>                       |                         |
| 75   |              | Antenne                              | Antenna                                  | 02160                   |
| 76   |              | Netzkabel                            | Mains lead                               | 19533                   |

**Kondensatoren - Capacitors**

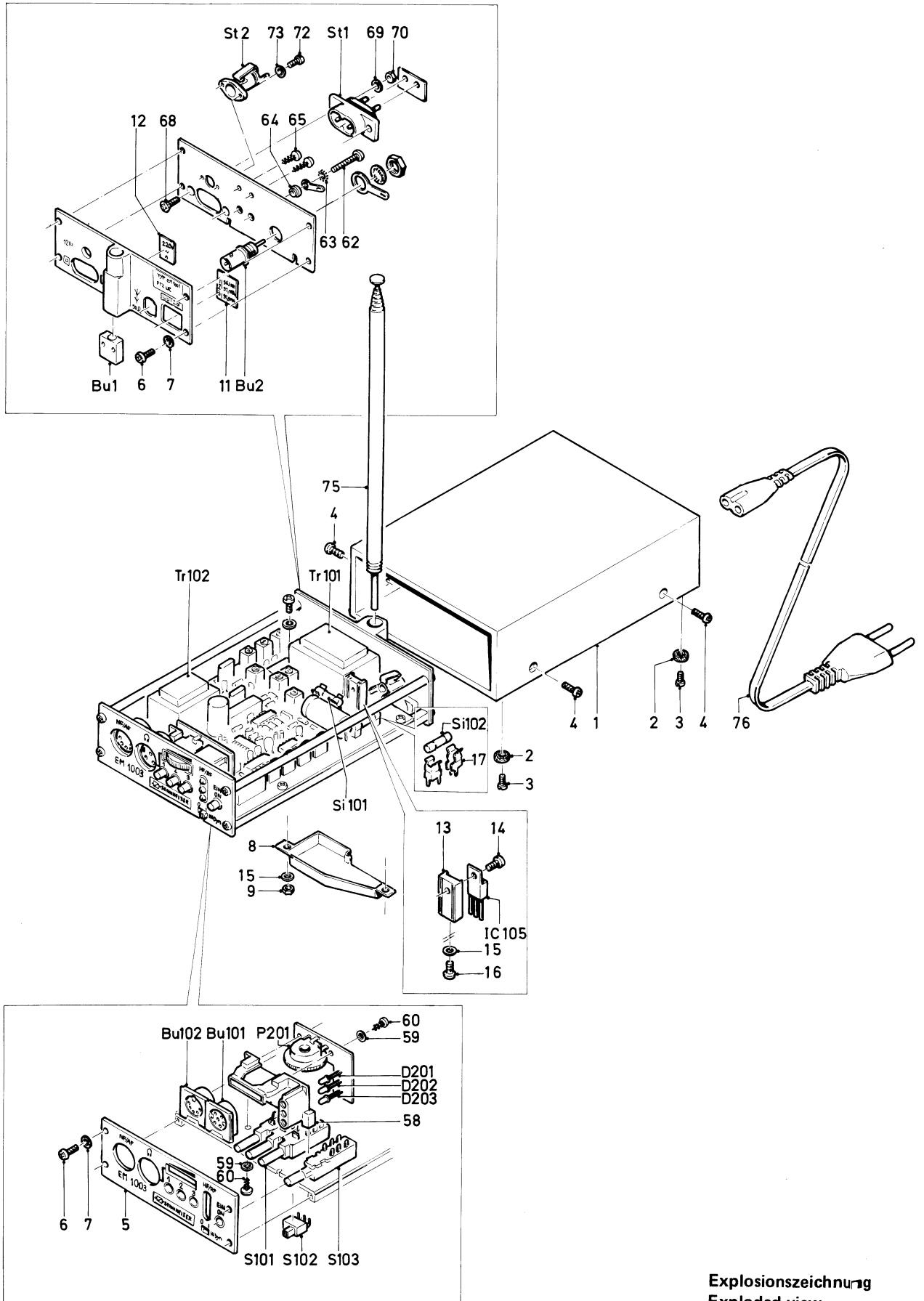
|              |                  |               |          |  |
|--------------|------------------|---------------|----------|--|
| C 101        | Ceramic          | 22 pF, 63 V   | Stettner | EGPT 2,5 22 pF/2 N150/1 B 63 V                             |
| C 102        | Ceramic          | 22 pF, 63 V   | Stettner | EGPT 2,5 22 pF/2 N150/1 B 63 V                             |
| C 103        | Ceramic          | 180 pF, 63 V  | Stettner | EGPT 2,5 180/2 N150/1 B 63 V                               |
| C 104        | Ceramic          | 6,8 pF, 63 V  | Stettner | EGPT 2,5 6,8/2 N150/1 B 63 V                               |
| C 105        | Ceramic          | 2,2 pF, 63 V  | Stettner | EGPT 2,5 2,2 pF/± 0,25 pF N 150/1 B 63 V                   |
| C 106*)      | Ceramic          | 68 pF, 63 V   | Stettner | EGPT 2,5 68 pF/2 N150/1 B 63 V Frequenzbereich 30 - 40 MHz |
| C 107        | Ceramic          | 10 nF, 63 V   | Stettner | EGPT 2,5 10 000 pF/8020 D 10 000 63 V                      |
| C 108        | Ceramic          | 22 pF, 63 V   | Stettner | EGPT 2,5 22 pF/2 N150/1 B 63 V                             |
| C 109        | Ceramic          | 18 pF, 63 V   | Stettner | EGPT 2,5 18 pF/2 N150/1 B 63 V                             |
| C 110        | Ceramic          | 10 nF, 63 V   | Stettner | EGPT 2,5 10 000 pF/8020 D 10 000 63 V                      |
| C 111        | Ceramic          | 10 nF, 63 V   | Stettner | EGPT 2,5 10 000 pF/8020 D 10 000 63 V                      |
| C 112        | Ceramic          | 22 pF, 63 V   | Stettner | EGPT 2,5 22 pF/2 N150/1 B 63 V                             |
| C 113        | Ceramic          | 2,2 pF, 63 V  | Stettner | EGPT 2,5 2,2 pF/ ± 0,25 pF N150/1 B 63 V                   |
| C 114        | Ceramic          | 22 pF, 63 V   | Stettner | EGPT 2,5 22 pF/2 N150/1 B 63 V                             |
| C 115        | Ceramic          | 10 nF, 63 V   | Stettner | EGPT 2,5 10 000 pF/8020 D 10 000 63 V                      |
| C 116        | Ceramic          | 10 nF, 63 V   | Stettner | EGPT 2,5 10 000 pF/8020 D 10 000 63 V                      |
| C 120        | -                | -             | -        | -  |
| -            | Ceramic          | 10 nF, 63 V   | Stettner | EGPT 2,5 10 000 pF/8020 D 10 000 63 V                      |
| C 124        | -                | -             | -        | -  |
| C 125        | Ceramic          | 120 pF, 63 V  | Stettner | EGPT 2,5 120 pF/2 N150/1 B 63 V                            |
| C 126        | Tantal-Elko      | 10 µF, 16 V   | ROE      | ETP 2 E 10/16  |
| C 127        | MKT-Schichtkond. | 22 nF, 250 V  | Siemens  | B 32 560 2,3 x 7,3 x 9 - D 3223-K                          |
| C 128        | Tantal-Elko      | 10 µF, 16 V   | ROE      | ETP 2 E 10/16  |
| C 130        | Tantal-Elko      | 10 µF, 16 V   | ROE      | ETP 2 E 10/16  |
| C 131        | Tantal-Elko      | 10 µF, 16 V   | ROE      | ETP 2 E 10/16  |
| C 132        | Tantal-Elko      | 10 µF, 16 V   | ROE      | ETP 2 E 10/16  |
| C 133        | Tantal-Elko      | 2,2 µF, 16 V  | ROE      | ETP 1 A 2,2/16   |
| C 134        | Ceramic          | 100 pF, 50 V  | Erie     | 8121 - 100 - COG - 101 - K                                 |
| C 135        | Ceramic          | 100 pF, 50 V  | Erie     | 8121 - 100 - COG - 101 - K                                 |
| C 136        | Tantal-Elko      | 10 µF, 16 V   | ROE      | ETP 2 E 10/16  |
| C 137        | Al-Elko          | 470 µF, 16 V  | ROE      | EB 00 GD 347 D / EK 00 GF 347 D                            |
| C 138        | Al-Elko          | 1000 µF, 40 V | ROE      | EG 00 KG 410 G   |
| C 139        | MKT-Schichtkond. | 100 nF, 100 V | -        | -  |
| C 140        | MKT-Schichtkond. | 100 nF, 100 V | -        | -  |
| C 141        | Tantal-Elko      | 22 µF, 16 V   | ROE      | ETP 3 G 22/16  |
| C 142        | Tantal-Elko      | 33 µF, 6,3 V  | ROE      | ETP 1 B 3,3/6  |
| C 143        | MKT-Schichtkond. | 10 nF, 250 V  | Siemens  | B 32 560 2,4 x 7,3 x 9 - D 6103-K                          |
| C 144        | -                | -             | -        | -  |
| -            | Ceramic          | 10 nF, 63 V   | Stettner | EGPT 2,5 10 000 pF/8020 D 10 000/63 V                      |
| C 147, C 149 | -                | -             | -        | -  |
| C 150        | Tantal-Elko      | 10 µF, 16 V   | ROE      | ETP 2 E 10/16  |

\*) für Frequenzbereich 38 - 45 MHz: 39 pF/63 V

**Halbleiter - Semiconductors**

|       |   |               |          |
|-------|---|---------------|----------|
| D 101 | - | Schalterdiode | BA 243   |
| D 103 | - | -             | -        |
| D 104 | - | Si-Diode      | 1 N 4148 |
| D 105 | - | Si-Diode      | 1 N 4005 |
| D 106 | - | Si-Diode      | 1 N 4148 |
| T 101 | - | FET           | J 175    |
| T 102 | - | Transistor    | BC 548 B |
| T 103 | - | Transistor    | BC 558 B |
| T 104 | - | Transistor    | BC 548 B |
| T 105 | - | Transistor    | BC 548 B |
| T 106 | - | Transistor    | BC 558 B |





Explosionszeichnung  
 Exploded view

**Ersatzteile / Spare parts**

| Pos.    | Stck.<br>pcs. | Bezeichnung                          | Designation                              | Bestell-Nr.<br>Part-No. |
|---------|---------------|--------------------------------------|--|-------------------------|
| 1       | 1             | Mantel                               | Cover                                    | 19354                   |
| 2       | 4             | Fuß mit Scheibe 2,8 DIN 125          | Stand with washer 2,8 DIN 125            | 21557                   |
| 3       | 4             | Linsenschraube M 2,5 x 3 DIN 920     | Oval-headed screw M 2,5 x 3 DIN 920      | 22737                   |
| 4       | 4             | Linsenkreuzschraube M 2,5x8 DIN 7985 | Pan head Philips screw M 2,5x8 DIN 7985  | 23877                   |
| 5       | 1             | Frontplatte                          | Front panel                              | 28550                   |
| 6       | 14            | Linsenkreuzschraube M 2,5x6 DIN 7985 | Pan head Philips screw M 2,5x6 DIN 7985  | 23884                   |
| 7       | 16            | Scheibe 2,7 DIN 433                  | Washer 2.7 DIN 433                       | 22662                   |
| 8       | 1             | Abdeckung                            | Cover                                    | 20608                   |
| 9       | 2             | Sechskantmutter M 2,5 DIN 934        | Hexagonal nut M 2,5 DIN 934              | 22773                   |
| 10      | 1             | Isolierplatte                        | Insulating plate                         | 12374                   |
| 11      | 1             | Frequenz-Schild *)                   | Frequency plate *)                       | 21229                   |
| 12      | 1             | Spannungsschild                      | Voltage plate                            | 21230                   |
| 13      | 1             | Kühlkörper zu IC 105                 | Heat sink for IC 105                     | 21682                   |
| 14      | 1             | Linsenkreuzschraube M 3x5 DIN 7985   | Pan head Philips screw M 3x5 DIN 7985    | 22995                   |
| 15      | 1             | Scheibe 2,7 DIN 433                  | Washer 2.7 DIN 433                       | 22662                   |
| 16      | 1             | Linsenkreuzschraube M 2,5x8 DIN 7985 | Pan head Philips screw M 2,5x8 DIN 7985  | 23877                   |
| 17      | 4             | Sicherungshalter                     | Fuse holder                              | 21473                   |
| BU 101  | 1             | Einbaubuchse                         | Built-in socket                          | 21921                   |
| BU 102  | 1             | Einbaubuchse                         | Built-in socket                          | 21919                   |
| S 101   | 1             | Tastensatz                           | Key board                                | 21506                   |
| S 102   | 1             | Schiebeschalter                      | Slide control                            | 21337                   |
| S 103   | 1             | Taster                               | Key                                      | 21531                   |
| Tr 101  | 1             | Kleintrafo                           | Small transformer                        | 21494                   |
| Tr 102  | 1             | Übertrager                           | Transformer                              | 14728                   |
| P 101   | 1             | Trimmer 10 k $\Omega$ lin.           | Trimmer 10 k $\Omega$ lin.               | 24015                   |
| P 102   | 1             | Trimmer 22 k $\Omega$ lin.           | Trimmer 22 k $\Omega$ lin.               | 24020                   |
| P 103   | 1             | Trimmer 470 $\Omega$ lin.            | Trimmer 470 $\Omega$ lin.                | 24044                   |
| P 104   | 1             | Trimmer 4,7 k $\Omega$ lin.          | Trimmer 4,7 k $\Omega$ lin.              | 24004                   |
| P 105   | 1             | Trimmer 22 k $\Omega$ lin.           | Trimmer 22 k $\Omega$ lin.               | 24020                   |
| P 106   | 1             | Trimmer 10 k $\Omega$ lin.           | Trimmer 10 k $\Omega$ lin.               | 24015                   |
| Si 101  | 1             | Feinsicherung                        | Fuse                                     | 23600                   |
| Si 102  | 1             | Feinsicherung 315 mA T               | Fuse 315 mA T                            | 25061                   |
| Gr 101  | 1             | Brückengleichrichter                 | Bridge rectifier                         | 23597                   |
| Dr 101  | 1             | Festinduktivität 0,82 $\mu$ H        | Fixed inductance 0,82 $\mu$ H            | 23572                   |
| Dr 102  | 3             | Festinduktivität 39 $\mu$ H          | Fixed inductance 39 $\mu$ H              | 23582                   |
| —       |               |                                      |  |                         |
| Dr 104  | 2             | HF-Spule                             | RF coil                                  | 26133                   |
| L 101,  |               |                                      |  |                         |
| L 102   | 1             | HF-Spule                             | RF coil                                  | 26135                   |
| L 103   |               |                                      |  |                         |
| L 104   | 1             | HF-Spule                             | RF coil                                  | 14662                   |
| L 105,  |               |                                      |  |                         |
| L 106   | 1             | HF-Spule                             | RF coil                                  | 14661                   |
| L 107   |               |                                      |  |                         |
| L 108,  | 1             | HF-Spule                             | RF coil                                  | 14660                   |
| L 109   |               |                                      |  |                         |
| L 110   | 1             | HF-Spule                             | RF coil                                  | 14659                   |
| Q 101*) | 1             | Quarz                                | Crystal                                  | 26134                   |
| Q 102*) | 1             | Quarz                                | Crystal                                  | 26134                   |
| Q 103*) | 1             | Quarz                                | Crystal                                  | 26134                   |
| F 101,  | 2             | Keramisches Filter                   | Ceramic Filter                           | 23605                   |
| F 102   |               |                                      |  |                         |
| IC 101  | 1             | IC TDA 1062                          | IC TDA 1062 .                            | 25138                   |
| IC 102  | 1             | IC SO 42 P                           | IC SO 42 P                               | 25116                   |
| IC 103  | 1             | IC CA 3189 E                         | IC CA 3189 E                             | 25077                   |
| IC 104  | 1             | IC NE 570 N                          | IC NE 570 N                              | 25111                   |
| IC 105  | 1             | IC 317-T 0220                        | IC 317-T 0220                            | 25141                   |
| IC 106  | 1             | IC TCA 965                           | IC TCA 965                               | 25135                   |
| IC 107  | 1             | IC TAA 765 A                         | IC TAA 765 A                             | 25120                   |
| D 201   | 1             | LED grün                             | LED green                                | 21466                   |
| D 202   | 1             | LED gelb                             | LED yellow                               | 21467                   |
| D 203   | 1             | LED rot                              | LED red                                  | 21465                   |
| P 201   | 1             | Potentiometer                        | Potentiometer                            | 21544                   |
| 58      | 1             | Chassis                              | Chassis                                  | 20272                   |
| 59      | 2             | Scheibe 2,7 DIN 433                  | Washer 2.7 DIN 433                       | 22662                   |
| 60      | 2             | Kreuzschraube BZ 2,2x9,5 DIN 7981    | Pan head Philips screw BZ 2,2x9,5DIN7981 | 22967                   |
| Bu 1    | 1             | Antennenbuchse                       | Antenna socket                           | 12373                   |

\*) bei Bestellung bitte Frequenz angeben

\*) Please state frequency when ordering