

PHILIPS



**Instruction manual
Gerätehandbuch
Mode d'emploi et d'entretien**

**RF signal generator
HF Signal-Generator
Générateur des signaux de H.F.**

PM 5326

9452 053 26001



Service instructions

4. Service part

4.1 CIRCUIT DESCRIPTION

4.1.1 RF part

The RF generator is based on the phase locked loop (PLL) principle, Fig. 4.1-1. It comprises the complete unit 1. The active element of the generator, voltage controlled oscillator (VCO), comprises an emitter coupled oscillator, integrated circuit 352, tuning capacity diode 401 and range coils 751-759.

The range coils are switched in by means of reed relays 801-810 via BCD to decimal decoder IC 353. So only 4 coded lines Qa-Qd from the pushbutton switch array determine the 9 frequency ranges. In the highest range up to 125 MHz coil 751 is switched in. As at that frequencies the stray and switching capacities have the highest influence, relay 802 switches off the parts not used in the circuitry.

Capacity diode 401 completes the coils to form an oscillating circuitry the resonant frequency of which can be varied by the d.c. control voltage via resistor 608.

The HF signal is sinusoidal decoupled via dual-gate-MOSFET 301, while the trapezoidal signal at the output 352.3 is traced through the 1/n divider chain 354-360.

A buffer, triple-line-receiver IC 351, is interconnected, reducing the harmonic interferences, surged by the divider chain. The gates in the divider are enabled via lines A-G. The divided variable frequency is for phase comparison applied to resistor 623 of the gate stage 360. At resistor 624 the same signal is fed to the counter, connection J of U6. By decoupling the signal before phase comparison the right frequency is indicated despite of trouble in the PLL.

The reference frequency of 0.5-1.25 MHz is generated by the variable frequency oscillator (VFO), comprising transistor 306, tuning capacitor 550, coil 760 and capacitors 522-527 as frequency determining elements, whereby capacitors 523-525 serve for temperature compensation.

At 634 and amplifier transistor 307 the signal is decoupled and fed to prescaler 361. By control lines H-K the 1-2-5 division for the frequency ranges is achieved.

At 639 of gate stage 362 the reference signal is available and fed to 363.1 of the phase comparator. With variable signal at 363.3, at output 5 and 10 a phase and frequency depending d.c. voltage of 0.75V to 2.25V is originated. Via filter and amplifier 309 this d.c. voltage controls capacity diodes 401 of the VCO, thus closing the loop. So every changing the VFO frequency leads to change of the VCO frequency.

Control line A-K and Qa-Qd, being incorporated into a "code-line", are fed through the metal case to unit 6.

Switching stage relays 805 and 806 of unit 4 passes the RF frequency to buffer IC 353, if none of the RF sweep range buttons is pressed. If one of the latter is pushed, relay 806 opens the RF path, while 805 closes, allowing the frequency modulated or wobulated signal of IC 352 to pass via decoupling stage, IC 353 too, to the buffer 353 of the RF path.

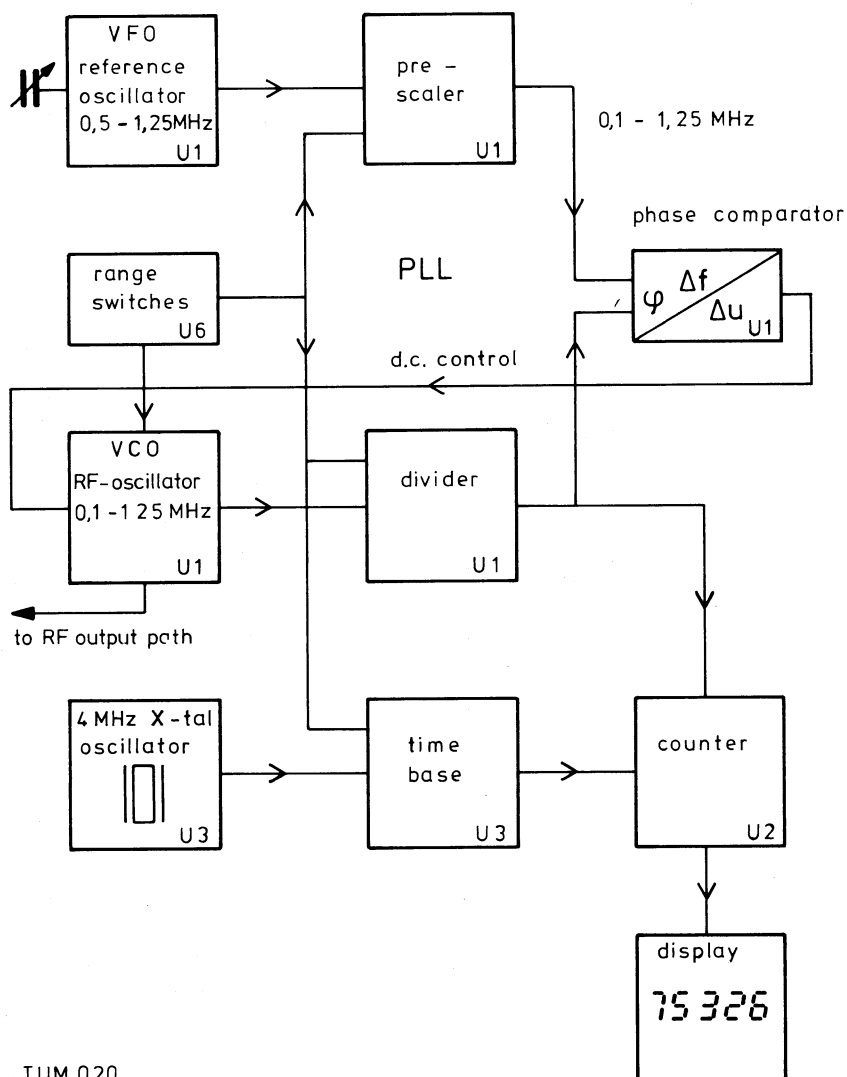
The AM modulator is represented by the 4 quadrant multiplier IC 356 of unit 4. When unmodulated the carrier is determined by a d.c. voltage of input 4. NF modulation is possible with amplitude of equal value as this d.c. voltage; so 100% modulation is possible. Potmeter 634 adjusts the transmission characteristic to maximum NF suppression.

The 1 kHz oscillator, IC 354 of unit 6 produces the sinewave signal for internal modulation. External modulation is possible via buffer stage 308.

Amplitude, automatic gain control AGC

The RF signal signal at IC 355.7 is rectified and amplified (transistors 306, 311) and fed to the control input of 354.5. Time constant $(649 + 644)/522$ effects amplitude modulations of >20 Hz not being gain controlled. The amplitude is adjusted by potmeter 645.

The output amplifier is built up as impedance converter in cascode stage 307, 308, resulting in maximum bandwidth. During retrace in the sweep mode diode 406 closes transistor 308 cutting off the RF signal, see Fig. 4.1-4.



TUM 020

Fig. 4.1 - 1 , principle of operation

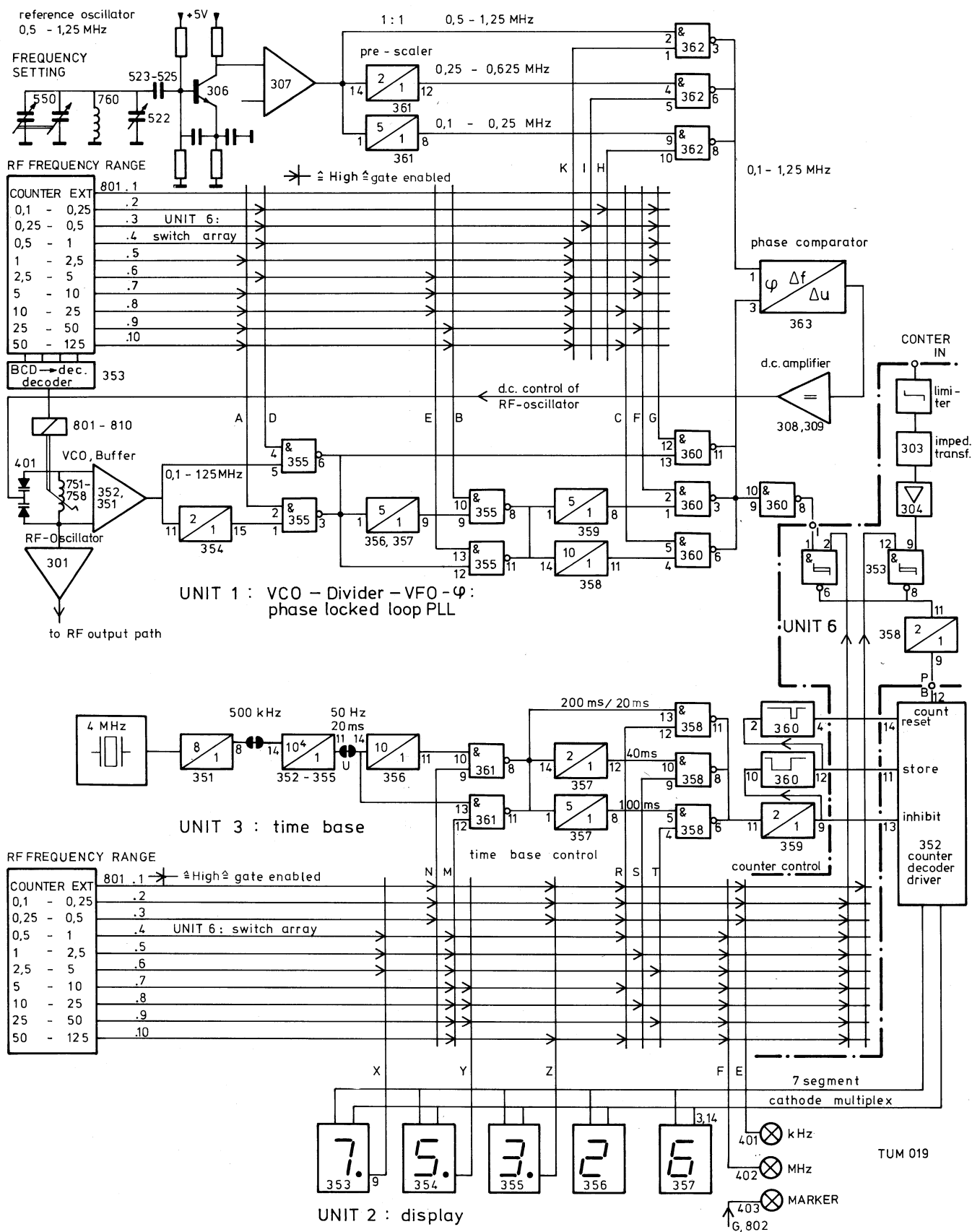


Fig. 4.1-2 function diagram of U1, U2, U3, part of U6;

4.1.2 RF sweep part

The RF sweep generator on unit 4 is an emitter-coupled multivibrator IC 352, activated in its 4 ranges by switching in the capacitors 510 to 514 covering the main audio and video IF's. The signal is semi-rectangular, see chapter 3.3.6.2.

The linear function between control voltage and output frequency results in a linear sweep without additional components. The center frequencies are adjusted by d.c. voltages. The main components are pointed out in the function diagram Fig. 4.1-3.

Extended switching and adjustments serves for convenient operating the sweep mode: together with the wobulating ranges the center frequency, the width and marker distance of the spectrum is automatically switched over.

The FM or wobbling signal respectively passes d.c. decoupled via 551 to the summing point.

The power supply for the RF sweep generator is filtered by the regulating power control IC 351 in order to prevent modulating the multivibrator by noise of the power supply. Potmeter 604 adjusts the supply voltage.

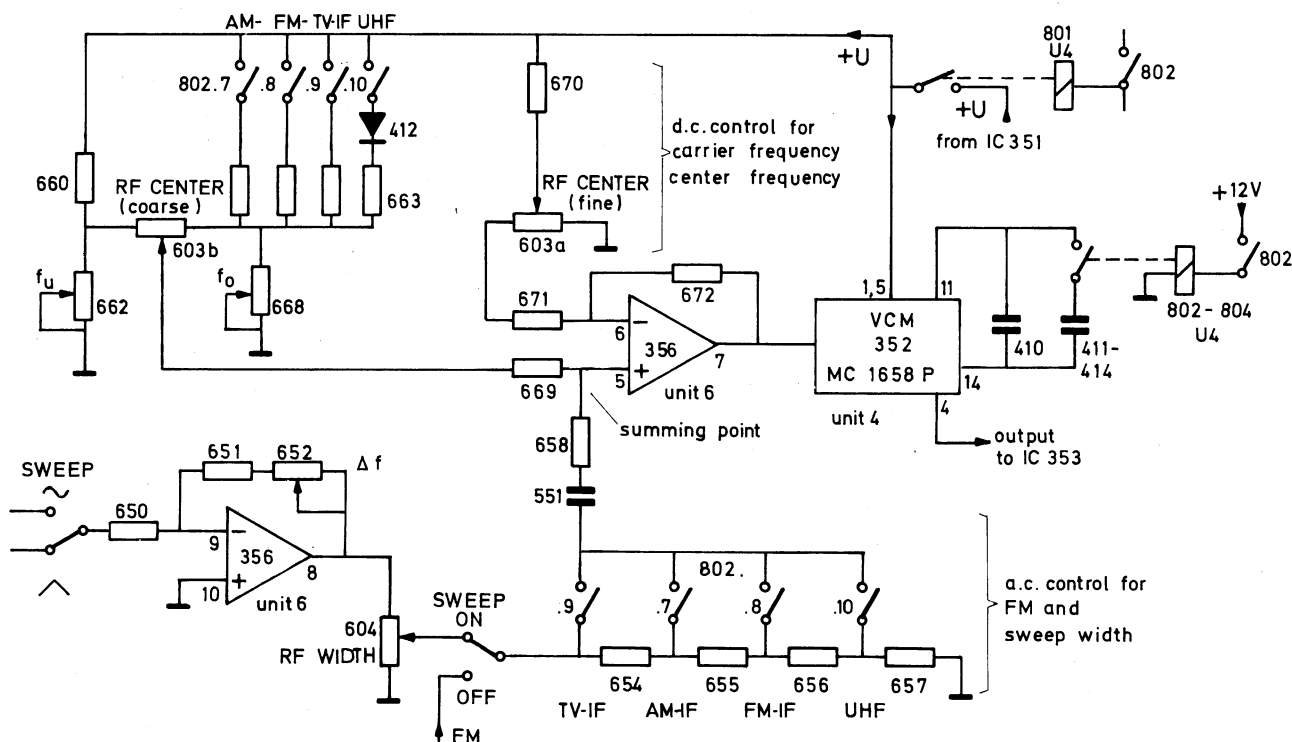


Fig. 4.1-3 RF sweep; control of multivibrator MC 1658 P

The LF sweep generator IC 355/U6, Fig. 4.1-4, produces time-symmetrical triangular and square wave signals, the frequency of which is set by capacitor 533 and overmore can be varied between 3 and 30 Hz by potmeter 601/a LF FREQUENCY. During the second half period transistor 307 cuts off the RF path via diode 406 and transistor 308 and prevent the markers of the fixed marker generator getting to the marker modulator 301, 302 of unit 4.

4.1.4 Frequency display

The circuitry comprises counter and display unit 2 and time base unit 3.

The signal from the RF generator unit 1 is fed via connection 37 of unit 6, Schmitt trigger 353, pre-scale stage 358 and pin 37/U6 to the counter input 352.12.

The reference frequency for the time base is generated by the X-tal oscillator in combination with transistor 301.

The 4.000000 MHz represent the basis wave in parallel resonant circuitry. Via amplifier 302 the signal is applied to a divider chain. The first stage 351 serves for division of 1:8, but, if necessary, for quicker and slower reading of the display, the division can be altered to 1:4 or 1:16 (flickering of the last digit). Compensating this, the counter input has either to be applied to P or Q of unit 6. The subsequent integrated circuits 352-355 are switched in for $1:10^4$ division. At solder joint U - suitable for failure chasing - 50 Hz (20 ms) can be measured. Stages 356-358, 361 divide this frequency due to the chosen range in 1(10)-2-5 ratio. The signal, gated by 358, is applied to the D-flip-flop 359, generating the T/2 gate time for the counter decoder driver 352, unit 2.

Overmore it is applied to double monostable multivibrator 360, which generates the store- and reset pulses, determined by the RC combinations 605/514 and 609/516.

The timing diagram of the mentioned signals is shown in the figure 4.1-6. If you have the COUNTER EXTERNAL mode, the frequency is fed via a limiter stage, impedance transformer 303, amplifier 304 to Schmitt-trigger 353.9. In this mode, trigger 353.6 is disabled.

Solder joints A1-A3 are taken into account, if you have the PM 5326X version of 100 MHz extended counter facility, see Fig. 18 and SGS 17.

Signal available at	RF OUT connector	Pin 363.1	Pin 363.3	Pin 352.12	Pin 352.13	---
Nominal frequency range	Measuring frequency range	Frequency range at inputs of the phase comparator (363/U1)		Frequency range at counter input (352/U2)	Gate time (count enable)	Display format
COUNTER EXT	---	---	---	---	200 ms*	XXX.XX kHz*
.125 MHz	< .1 ... > .25 MHz	.125 MHz	.125 MHz	.05125 MHz	200 ms	XXX.XX kHz
.255 MHz	< .25 ... > .625 MHz	.25625 MHz	.255 MHz	.12525 MHz	200 ms	XXX.XX kHz
.5 ... 1 MHz	< .5 ... > 1.25 MHz	.5 ... 1.25 MHz	.5 ... 1 MHz	.255 MHz	20 ms	X.XXXX MHz
1 ... 2.5 MHz	< 1 ... > 2.5 MHz	.5 ... 1.25 MHz	.5 ... 1.25 MHz	.25625 MHz	40 ms	X.XXXX MHz
2.5 ... 5 MHz	< 2.5 ... > 6.25 MHz	.5 ... 1.25 MHz	.5 ... 1 MHz	.255 MHz	100 ms	X.XXXX MHz
5 ... 10 MHz	< 5 ... > 12.5 MHz	.5 ... 1.25 MHz	.5 ... 1 MHz	.255 MHz	20 ms	XX.XXX MHz
10 ... 25 MHz	< 10 ... > 25 MHz	.5 ... 1.25 MHz	.5 ... 1.25 MHz	.25625 MHz	40 ms	XX.XXX MHz
25 ... 50 MHz	< 25 ... > 62.5 MHz	.5 ... 1.25 MHz	.5 ... 1 MHz	.255 MHz	100 ms	XX.XXX MHz
50 ... 125 MHz	< 50 ... > 125 MHz	.5 ... 1.25 MHz	.5 ... 1.25 MHz	.25625 MHz	20 ms	XXX.XX MHz

* PM 5326 X: 100 ms; XX.XXX MHz resp.

Fig. 4.1-5 Table of frequency ranges, gate times, display formats

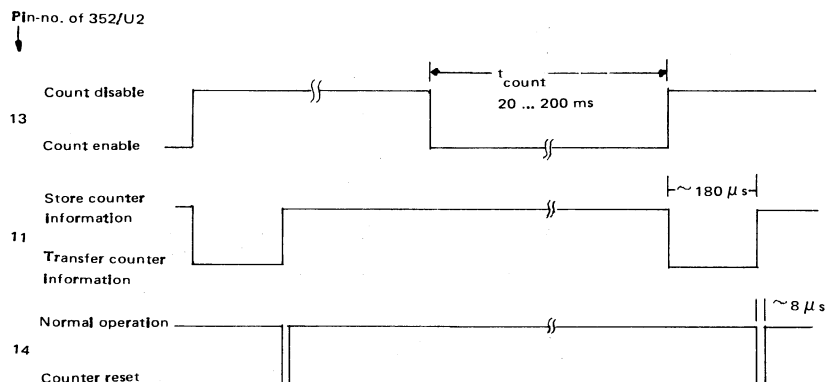


Fig. 4.1-6

4.2. ACCESS TO PARTS

Before dismantling the instrument, the safety regulations in accordance with para. 2.1. must be strictly observed.

4.2.1. Cabinet, see 2.4.

4.2.2. Knobs

- Remove the cap from the knob.
- Unscrew the nut and remove the knob.
- When replacing the knob, ensure that the white mark is correctly aligned with the text plate markings.

4.2.3. Text plate

- Remove the cabinet, see 2.4.
- Remove the 8 turn-knobs, see 4.2.2.
- Remove the 3 bearing bushes.
- Remove the plastic cover of the mains switch.
- The text plate can now be removed.

4.2.4. Mains transformer

- Unscrew the right-hand side frame of the case. The holding angle can remain connected to the side frame.

4.2.5. Unit 1, variable capacitor 550: are mounted in the upper part of the cast RF housing.

Unit 4, attenuator switch, attenuator potentiometer: are mounted in the bottom part of the cast RF housing.

4.2.6. Pushbutton unit

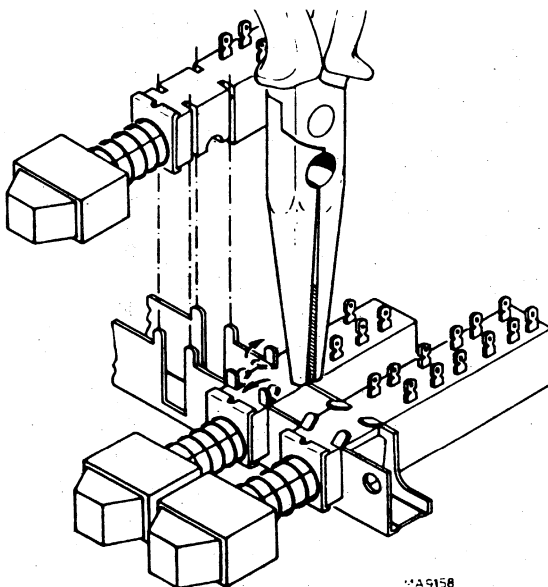
Replacing a pushbutton lever.

The single pushbutton lever can be replaced from the front.

- Push the spring towards the pushbuttons.
- Remove the wire strap or plastic part.
- Carefully tear the pushbutton lever out of the pushbutton.

Replacing a switch of the pushbutton unit

- Straighten the 4 retaining lugs of the relevant switches as shown in the figure below.
- Break the body of the relevant switch by means of a pair of pliers and remove the pieces. The soldering pins are then accessible.
- Remove the soldering pins and clean the holes in the printed circuit board (e. g. with a suction soldering iron).
- Solder the new switch on to the printed circuit board.
- Bend the 4 retaining lugs back to their original positions.



4.2.7. Replacing the RF attenuator, Fig 10

- a. Loosen the coupling.
- b. Push the shaft a little towards the front.
- c. Loosen the nut.
- d. Desolder the 2 wires between attenuator potmeter and attenuator switch.
- e. Remove the clip.
- f. Desolder the output wire.
- g. Desolder the small cap.!
- h. push the attenuator towards the back and remove it.

For mounting a new RF attenuator perform this procedure in the reverse order.

4.3. CHECK AND ADJUSTMENT

- The limits mentioned in this paragraph are valid only for a newly adjusted instrument and therefore might deviate from the values as stated in paragraph 1.2. "Technical Data".
- Adjustment of the instrument is only permitted after a warm-up time of at least 30 minutes at an ambient temperature of $(+23 \pm 3)^{\circ}\text{C}$ and when connected to a mains voltage of $(230 \pm 11.5) \text{ V}$.
- If not explicitly stated otherwise, the voltage potentials refer to the relevant contact measured against circuit earth ($\perp_0$).
- The covers of the cast RF housing can be well removed for check and adjustment. When mounting the covers the counter-sunk screws must be tightened with equal torque.
- The following abbreviations are used for setting and measuring instruments:

X	= Button pressed	
–	= Button not pressed/unlocked	
rh	= Extreme right-hand position	
lh	= Extreme left-hand position	
m	= Mid-position	
–	= Multimeter	e. g. PM 2503
OSC	= Oscilloscope	e. g. PM 3240, PM 3260
C	= Counter, 6 digits	e. g. PM 6630
Fg	= Function generator	e. g. PM 5127
B & K	= Selective voltmeter (Brüll & Kjaer)	2007
–	= Sampling voltmeter (AC voltmeter)	HP 3406 A
DM	= Digital multimeter	e. g. PM 2424
–	= variable-ratio isolating transformer	
50 Ω	= 50 Ω terminating resistor	e. g. PM 9585

4.5. PARTS LIST

4.5.1. Mechanical parts, miscellaneous, electrical parts not on units

Item	Fig.	Quantity	Order number	Description
1	8	1	5322 447 94324	Cover (without carrying handle)
2	8	4	5322 462 44174	Foot (bottom side)
3	8	2	5322 520 34164	Bearing bush
4	8	2	5322 530 84075	Spring
5	8	2	5322 528 34101	Ratchet
6	8	2	5322 498 54048	Arm of carrying handle
7	8	2	5322 414 64053	Knob
8	8	1	5322 447 94188	Back frame
9	8	4	5322 462 44176	Foot (rear side)
10		1	5322 502 24525	Coin-slot screw
11		1	4822 530 70124	Locking washer for pos. 10
12	8	5	5322 414 34075	Control knob (601, 602, 603, 604, 605)
13	8	4	5322 414 74029	Cover of knob (601, 602, 603 and 604)
14	8	1	5322 414 74015	Cover of knob (605)
15	8	3	5322 414 34082	Control knob (601, 603, 801)
16	8	2	5322 414 74015	Cover of knob (603, 801)
17	8	1	5322 414 34128	Control knob (550)
18	8	1	5322 414 74022	Cover of knob (550)
19	9	5	5322 535 94868	Axis V, l=160 mm
20	8	1	5322 455 74076	Textplate
21	10	1	5322 325 60119	Mains cable grommet
22	10	1	5322 325 54067	Grommet
23	9, 10	2	5322 526 44139	Coupling
24	10	2	5322 526 44138	Coupling
24a	9	1		Coupling
25	8	21	5322 414 25851	Knob of pushbutton switch
26	8	1	5322 459 24076	Front frame
27	10	2	5322 290 64202	Soldering terminal
28	10	1	5322 401 14227	Cable binder
29	10	1	5322 255 44175	Mica washer
30	10	1	5322 532 54266	Isolating washer
31	10	1	5322 256 34019	Fuse holder
32	10	1	5322 276 14128	Mains switch (851)
33	8	1	5322 459 24077	Window
34	8	6	5322 267 10004	BNC Connector (810, 812-816)
35	8	1	5322 532 54416	Isolating socket
36	9	6	5322 255 44122	IC 14-pole socket
37	9	1	5322 255 44047	IC 28-pole socket
38	13	10	5322 276 84066	Pushbutton switch (801/1-10) U6
39	13	3	5322 276 34052	Pushbutton switch (802/3/5/6) U6
40	13	4	5322 276 44072	Pushbutton switch (802/8-11) U6
41	13	3	5322 276 34053	Pushbutton switch (802/1/2/4) U6

Item	Fig.	Quantity	Order number	Description
42	9	1	5322 216 64287	Unit 1
43	9	1	5322 216 64288	Unit 2
44	9	1	5322 216 64289	Unit 3 complete
45	10	1	5322 216 64285	Unit 4
46	9	1	5322 216 64286	Unit 6
47	8	2	5322 532 54425	Ring for carrying handle
48	8	1	5322 498 54051	Carrying handle
49	9	1	5322	Unit 8 complete
50	8	1		Scale (601/U5)

NOT ON UNITS (see mainly figs. 9, 10, 17)

301 5322 130 44325 BD201

ITEM	ORDERING NUMBER	FARAD	TOL (%)	VOLTS	REMARKS
501	4822 122 30103	22N	-20+80		CERAMIC PLATE
502	5322 121 44227	2X2,5N		250	POLYESTER FOIL
503	5322 124 10079	27MU			ELECTROLYTIC
550	5322 125 14014	12-400P	5		TUNING CAPACITOR

ITEM	ORDERING NUMBER	OHM	TOL (%)	REMARKS
<u>RESISTORS</u>				
601	5322 102 34006	2X22K		CARBON TANDEM POTM
602	4822 101 20416	4,7K		CARBON POTM LIN
603	5322 102 14008	4,7K+1K		CARBON TWIN POTM
604,605	4822 101 20416	4,7K		CARBON POTM LIN
606	5322 116 54547	953	1	METAL FILM
608	4822 110 63187	1M	5	CARBON
609	5322 116 54696	100K	1	METAL FILM

ITEM	ORDERING NUMBER		
801-807	5322 121 44228	FKE-ELEMENT 350	POLYESTER FOIL

MISCELLANEOUS

1	5322 455 74074	VOLTAGE LABEL 230V
1	5322 455 74075	VOLTAGE LABEL 115V
1	4822 253 30007	FUSE 125MA/250V(754)
1	4822 253 30013	FUSE 250MA/250V
1	5322 321 14048	MAINS CABLE
1	5322 390 20019	SILICON PASTE DC340
1	5322 146 24188	MAINS TRANSFORMER(753)
1	5322 255 44129	COOLING ELEMENT FOR TRANSISTOR 352/U6
1	5322 321 24557	CODE LINE 4 FOR UNIT 4
1	5322 321 24556	CODE LINE 1 FOR UNIT 1
1	5322 255 44108	TRANSISTOR PLATE FOR 304/U4
87	5322 466 94547	SPACER
9	5322 532 54095	CERAMIC TUBE 3 MM

4.5.2.

ELECTRICAL PARTS

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ELECTRICAL PARTS U1

301	5322 130 44745	BF327
302,303	4822 130 44196	BC548C omitted from LO 031600 onward
304,305	5322 130 44237	BF450
306	4822 130 40902	BF240
307,308	4822 130 44196	BC548C
309	5322 130 44415	BD263
INTEGRATED CIRCUITS/U1		
351	5322 209 85798	MC10116P
352	5322 209 85805	MC1648P
353	5322 209 84267	N7445B
354	5322 209 85802	MC10131P
355	5322 209 84321	N74S03A
356,357	5322 209 85741	N74S112B
358,359	5322 209 85255	N74LS90A
360	5322 209 85265	N74LS03N
361	5322 209 85255	N74LS90A
362	5322 209 85265	N74LS03N
363	5322 209 84703	MC4044P
DIODES/U1		
401	5322 130 34478	BB113

ITEM	ORDERING NUMBER	FARAD	TOL (%)	VOLTS	REMARKS
CAPACITORS/U1					
501,502,503	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
504	5322 122 44012	100N	-20+80	63	CERAMIC DISK
505	5322 121 40175	470N	10	100	POLYESTER FOIL
506	4822 124 20454	150MU		6,3	ELECTROLYTIC
507-510	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
511	4822 124 20454	150MU		6,3	ELECTROLYTIC
512	5322 122 44012	100N	-20+80	63	CERAMIC DISK
513	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
514	4822 121 40232	220N	10	100	POLYESTER FOIL
515	5322 121 40197	1MU	10	100	POLYESTER FOIL
516-519	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
516	5322 122 44012	100N			
520	4822 124 20454	150MU		6,3	IN SERIES 01/02 ELECTROLYTIC
521	4822 121 40232	220N	10	100	POLYESTER FOIL
522	5322 125 54001	4-30P		50	TRIMMER
523	4822 122 31061	18P	2	100	CERAMIC PLATE
524	4822 122 30045	27P	2	100	CERAMIC PLATE
525	4822 122 31072	47P	2	100	CERAMIC PLATE
526,527	4822 121 50389	3,3N	1	63	POLYSTYRENE FOIL
528	4822 121 40231	150N	10	100	POLYESTER FOIL
529,531	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
533	5322 121 40175	470N	10	100	POLYESTER FOIL
534-536	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
537	5322 121 40175	470N	10	100	POLYESTER FOIL

ITEM	ORDERING NUMBER	OHM	TOL (%)	TYPE	REMARKS
RESISTORS/U1					
601-605	5322 116 54534	681	1	MR25	METAL FILM
606	5322 116 54516	365	1	MR25	METAL FILM
607	5322 116 54005	3,32K	1	MR25	METAL FILM
608	5322 116 50483	38,3K	1	MR25	METAL FILM
609	5322 116 50636	2,74K	1	MR25	METAL FILM
611,612	5322 116 54619	10K	1	MR25	METAL FILM
613	5322 116 50484	4,64K	1	MR25	METAL FILM
615	5322 116 54534	681	1	MR25	METAL FILM
616	4822 111 30069	39	5		CARBON
617	5322 116 54534	681	1	MR25	METAL FILM
618	5322 116 54549	1,0K	1	MR25	METAL FILM
619	4822 111 30327	220	5		CARBON
621	5322 116 54489	169	1	MR25	METAL FILM
622	5322 116 50508	487	1	MR25	METAL FILM
623,624	5322 116 54571	1,96K	1	MR25	METAL FILM
625	5322 116 50452	10	1	MR25	METAL FILM
627	5322 116 54534	681	1	MR25	METAL FILM
628	4822 111 30327	220			CARBON
629	4822 110 63041	39	5		CARBON
631	5322 116 54549	1,0K	1	MR25	METAL FILM
632	5322 116 54619	10K	1	MR25	METAL FILM
633	5322 116 50481	22,6K	1	MR25	METAL FILM
634	5322 116 54504	274	1	MR25	METAL FILM
635	5322 116 50199	2,74K	1	MR25	METAL FILM
636	5322 116 50636	1,0K	1	MR25	METAL FILM
637	5322 116 50479	15,4K	1	MR25	METAL FILM
638	5322 116 54549	1,0K	1	MR25	METAL FILM
639,641,642	5322 116 54571	1,96K	1	MR25	METAL FILM
643	5322 116 54534	681	1	MR25	METAL FILM
644	5322 116 54619	10K	1	MR25	METAL FILM
645	5322 116 50199	2,74K			METAL FILM

omitted
from LO
03 1600
onward

COILS/U1

751,752	5322 526 14027
753	5322 158 14218
754	5322 158 14219
755	5322 158 14221
756	5322 158 14222
757	5322 158 14223
758	5322 158 14224
759	5322 158 14225
760	5322 158 14226

MISCELLANEOUS/U1

801-810	5322 280 24047	RELAIS	until LO 02 1599
801-810	4822 280 20064	RELAIS	from LO 03 1600 onward

ELECTRICAL PARTS/U2

INTEGRATED CIRCUITS

351	5322 209 85801	N74LS09A
352	5322 209 85809	ICM7208IPI
353	5322 130 34737	HP5082-7760
401-403	4822 130 30922	CQY24A

ITEM	ORDERING NUMBER	FARAD	TOL (%)	VOLTS	REMARKS
CAPACITORS/U2					
502,503	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
504	4822 122 30043	10N	-20+80	63	CERAMIC PLATE

ITEM	ORDERING NUMBER	OHM	TOL (%)	TYPE	REMARKS
601-607	5322 116 54446	56,2	1	MR25	METAL FILM
608,609	5322 116 54696	100K	1	MR25	METAL FILM
610-613	5322 116 54536	750	1	MR25	METAL FILM
614-616	5322 116 50592	442	1	MR25	METAL FILM
617	5322 116 54549	1K	1	MR25	METAL FILM

ELECTRICAL PARTS/U3

301,302	4822 130 44196	BC548C
INTEGRATED CIRCUITS		
351	5322 209 84998	N74LS93A
352-357	5322 209 85255	N74LS90A
358	5322 209 85265	N74LS03N
359	5322 209 84986	N74LS74A
360	5322 209 85508	N74LS221B
361	5322 209 85265	N74LS03N

ITEM	ORDERING NUMBER	FARAD	TOL (%)	VOLTS	REMARKS
CAPACITORS/U3					
501	4822 122 31056	12P	2	100	CERAMIC PLATE
502	5322 125 54001	4-30P			TRIMMER
503	4822 122 31173	220P	2	100	CERAMIC PLATE
504	4822 122 30093	120P	2	100	CERAMIC PLATE
505	4822 121 40232	220N	10	100	POLYESTER FOIL
506	4822 122 31175	1N	10	100	CERAMIC PLATE
507-513	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
514	4822 122 31175	1N	10	100	CERAMIC PLATE
515	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
516	4822 122 31175	1N	10	100	CERAMIC PLATE
517	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
518	4822 124 20454	150MU		6,3	ELECTROLYTIC
519	4822 122 30103	22N	-20+80	63	CERAMIC PLATE

ITEM	ORDERING NUMBER	OHM	TOL (%)	TYPE	REMARKS
RESISTORS/U3					
601	5322 116 54469	100	1	MR25	METAL FILM
602,603	5322 116 50557	46,4K	1	MR25	METAL FILM
604	5322 116 50506	154	1	MR25	METAL FILM
605,	5322 116 50586	1,54K	1	MR25	METAL FILM
606	5322 116 50479	15,4K	1	MR25	METAL FILM
607	5322 116 54549	1K	1	MR25	METAL FILM
608,609	5322 116 50572	12K3	1	MR25	METAL FILM
611,612	5322 116 54571	1,96K	1	MR25	METAL FILM

771	4822 242 70258	4,0000MZ	X-TAL
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ELECTRICAL PARTS/U4

301-303	4822 130 40902	BF240
304	5322 130 40686	BSX19
305,306	4822 130 44196	BC548C
307,308	4822 130 40902	BF240
309,310	5322 130 44237	BF450
311	4822 130 44196	BC548C
INTEGRATED CIRCUITS/U4		
351	5322 209 85797	NE550A
352	5322 209 85807	MC1658P
353	5322 209 85798	MC10116P
354	5322 209 85808	TBA400D
355	5322 209 85804	MUA733A
356	5322 209 85803	MC1496A
357	5322 209 14064	HEF4518BP
358	5322 209 85265	N74LS03N
DIODES/U4		
401-403	4822 130 31012	AA119
404	4822 130 30613	BAW62
405	4822 130 34233	BZX79-B5V1
406	4822 130 30613	BAW62
407,408	5322 130 34297	BZX79-B10

ITEM	ORDERING NUMBER	FARAD	TOL (%)	VOLTS	REMARKS
CAPACITORS/U4					
501	5322 121 40197	1MU	10	100	POLYESTER FOIL
502	4822 122 31177	470P	10	100	CERAMIC PLATE
503,504	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
505	4822 122 31177	470P	10	100	CERAMIC PLATE
506-508	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
509	4822 122 31081	100P	2	100	CERAMIC PLATE
510	5322 125 54027	1-5,5P		400	TRIMMER
511	4822 122 31052	8,2P	0,25P	100	CERAMIC PLATE
512	4822 122 31069	39P	2	100	CERAMIC PLATE
513	4822 122 31041	3,3P	0,25P	100	CERAMIC PLATE
514	4822 121 50432	1,5N	1	63	POLYSTYRENE FOIL
515-520	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
521	4822 122 31054	10P	2	100	CERAMIC PLATE
522	4822 124 20461	47MU		10	ELECTROLYTIC
523	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
524	4822 122 31175	1N	10	100	CERAMIC PLATE
525	4822 124 20461	47MU		10	ELECTROLYTIC
526-528	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
529	4822 124 20461	47MU		10	ELECTROLYTIC
530-538	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
539	5322 122 44012	100N	-20+80	63	CERAMIC DISK
540	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
541	4822 122 31045	4,7P	0,25P	100	CERAMIC PLATE
542,544	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
545	4822 122 30093	120P	2	100	CERAMIC PLATE
546-548	4822 122 30103	22N	-20+80	63	CERAMIC PLATE
549	4822 124 20469	68MU		16	ELECTROLYTIC

ITEM	ORDERING NUMBER	FARAD TOL (%)	VOLTS	REMARKS
550-551	4822 122 30103	22N -20+80	63	CERAMIC PLATE
552	4822 124 20469	68MU	16	ELECTROLYTIC
553-556	4822 122 30103	22N -20+80	63	CERAMIC PLATE
557	5322 124 14069	3,3 MU 10	250	POLYESTER FOIL
558	4822 122 30103	22N -20+80	63	CERAMIC PLATE
560	4822 122 31177	470P 10	100	CERAMIC PLATE
561	4822 122 30128	4,7N 10	100	CERAMIC PLATE
562	5322 122 44012	100N -20+80	63	CERAMIC DISK

ITEM	ORDERING NUMBER	OHM	TOL (%)	TYPE	REMARKS
RESISTORS/U4					
601	4822 110 63041	3,3	5		CARBON
602	5322 116 54541	825	1	MR25	METAL FILM
603	5322 116 50664	2,05	1	MR25	METAL FILM
604	4822 100 10038	470	20	0,1	TRIMMING POTM
605,606	5322 116 54009	562	1	MR25	METAL FILM
607	5322 116 54545	909	1	MR25	METAL FILM
608	5322 116 54009	562	1	MR25	METAL FILM
609	5322 116 54525	511	1	MR25	METAL FILM
611	5322 116 54442	51,1	1	MR25	METAL FILM
612	5322 116 54558	8,25K	1	MR25	METAL FILM
613	5322 116 54525	511	1	MR25	METAL FILM
614	5322 116 54442	51,1	1	MR25	METAL FILM
615,616	5322 116 50608	6,19K	1	MR25	METAL FILM
617	5322 116 54595	5,11K	1	MR25	METAL FILM
618	5322 116 54442	51,1	1	MR25	METAL FILM
619	5322 116 54525	511	1	MR25	METAL FILM
620	5322 116 54442	51,1	1	MR25	METAL FILM
621	5322 116 54595	5,11K	1	MR25	METAL FILM
622	5322 116 54655	30,1K	1	MR25	METAL FILM
627	5322 116 54516	365	1	MR25	METAL FILM
628	5322 116 54009	562	1	MR25	METAL FILM
629	5322 116 54525	511	1	MR25	METAL FILM
630	5322 116 50766	147	1	MR25	METAL FILM
631	5322 116 54009	562	1	MR25	METAL FILM
632	5322 116 54442	51,1	1	MR25	METAL FILM
633	5322 116 54508	301	1	MR25	METAL FILM
634	4822 100 10038	470	20	0,1	TRIMMING POTM
635	5322 116 54624	11,5K	1	MR25	METAL FILM
636	5322 116 54442	51,1	1	MR25	METAL FILM
637	5322 116 54557	1,21K	1	MR25	METAL FILM
638	5322 116 54595	5,11K	1	MR25	METAL FILM
639	5322 116 54648	24,9K	1	MR25	METAL FILM
641	5322 116 50729	4,22K	1	MR25	METAL FILM
642	5322 116 54643	20,5K	1	MR25	METAL FILM

ITEM	ORDERING NUMBER	OHM	TOL (%)	TYPE	REMARKS
643	5322 116 50506	154	1	MR25	METAL FILM
644	5322 116 54613	8,66K	1	MR25	METAL FILM
645	4822 100 10038	470	20	0,1	TRIMMING POTM
646	5322 116 54617	9,53K	1	MR25	METAL FILM
647	5322 116 54279	115K	1	MR25	METAL FILM
648	5322 116 54011	5,62K	1	MR25	METAL FILM
649	5322 116 50672	51,1	1	MR25	METAL FILM
651	5322 116 50536	464	1	MR25	METAL FILM
652	5322 116 50493	27,4	1	MR25	METAL FILM
653	5322 116 50457	215	1	MR25	METAL FILM
654-656	5322 116 50608	6,19K	1	MR25	METAL FILM
657	5322 116 50572	12,1K	1	MR25	METAL FILM
658	5322 116 54469	100	1	MR25	METAL FILM
659	5322 116 50731	10,5K	1	MR25	METAL FILM
660	5322 116 54442	51,1	1	MR25	METAL FILM
662	5322 116 54558	8,52K	1	MR25	METAL FILM
663	5322 116 50672	51,1K	1	MR25	METAL FILM
664	5322 116 54459	75	1	MR25	METAL FILM
665	4822 110 63034	1,8	5		CARBON
666	5322 116 54554	1,1K	1	MR25	METAL FILM
667	5322 116 54469	100	1	MR25	METAL FILM
668	5322 116 50524	3,01K	1	MR25	METAL FILM
669	5322 116 50515	1,78K	1	MR25	METAL FILM
670	5322 116 50572	12,1K	1	MR25	METAL FILM
671	5322 116 54557	1,21K	1	MR25	METAL FILM
672	5322 116 54643	20,5K	1	MR25	METAL FILM
673	5322 116 54557	1,21K	1	MR25	METAL FILM
674-675	5322 116 50572	12,1K	1	MR25	METAL FILM
676	5322 116 54615	9,09K	1	MR25	METAL FILM
677	4822 100 10038	470	20	0,1	TRIMMING POTM
678	5322 116 50555	1,27K	1	MR25	METAL FILM
679	5322 116 50524	3,01K	1	MR25	METAL FILM
680	5322 116 54508	301	1	MR25	METAL FILM
681,682	5322 116 54525	511	1	MR25	METAL FILM
683,684	5322 116 50491	22.6	1	MR25	METAL FILM

ITEM	ORDERING NUMBER	TYPE/DESCRIPTION
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COILS/U4

751-753	5322 158 14004	15MUH
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MISCELLANEOUS/U4

801-806	5322 280 24047	RELAIS
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ITEM	ORDERING NUMBER	OHM	TOL .(%)	TYPE	REMARKS
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ELECTRICAL PARTS/U5

replacement procedure see 4.2.7

601	5322 105 40007	75			ATTENUATOR
602,602	5322 116 50621	536	1	MR25	METAL FILM
604	5322 116 50876	26,1	1	MR25	METAL FILM
605,606	5322 116 54466	90,1	1	MR25	METAL FILM
607	5322 116 54518	383	1	MR25	METAL FILM
608,609	5322 116 54466	90,9	1	MR25	METAL FILM
610	5322 116 54518	383	1	MR25	METAL FILM

ITEM	ORDERING NUMBER	TYPE/DESCRIPTION
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801	5322 273 84029	ROTARY SWITCH
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ELECTRICAL PARTS U6

303	5322 130 44744	BF256B
304	4822 130 44196	BC548C
305	4822 130 40823	BD139
306	4822 130 44196	BC548C
307,308	4822 130 44197	BC558B

INTEGRATED CIRCUITS/U6

351	5322 209 85797	NE550A
352	5322 209 85603	7812CU
353	5322 209 85426	N74LS13A
354	5322 209 84111	CA3086
355	5322 209 85799	NE566V
356,357	5322 209 85806	LM348N
358	5322 209 84986	N74LS74A
	5322 209 85724	7912CU

DIODES/U6

401,402	4822 130 30414	BY164
403,404	4822 130 30195	BYX10
405	5322 130 34379	BZX79-B27
406-412	4822 130 30613	BAW62

ITEM	ORDERING NUMBER			FARAD	TOL (%)	VOLTS	REMARKS
CAPACITORS/U6							
501	5322	124	24084	2200MU		16	ELECTROLYTIC
502	4822	122	31177	470P	10	100	CERAMIC PLATE
503	4822	122	30103	22N	-20+80	63	CERAMIC PLATE
504,505	4822	124	20529	1000MU		25	ELECTROLYTIC
506-509	4822	122	30103	22N	-20+80	63	CERAMIC PLATE
510	5322	124	24202	2,2MU			ELECTROLYTIC
514,515	4822	124	20487	47MU		40	ELECTROLYTIC
516	4822	122	30103	22N	-20+80	63	CERAMIC PLATE
517	5322	121	40308	22N	10	250	POLYESTER FOIL
518,519	4822	122	30103	22N	-20+80	63	CERAMIC PLATE
520	5322	124	24202	2,2MU		63	ELECTROLYTIC
521	5322	121	40233	680N	10	100	POLYESTER FOIL
524	4822	124	20457	470MU		6,3	ELECTROLYTIC
527,528	4822	121	40231	150N	10	100	POLYESTER FOIL
529,530	5322	121	40175	470N	10	100	POLYESTER FOIL
531	4822	124	20469	68MU		16	ELECTROLYTIC
532	4822	122	31175	1N	10	100	CERAMIC PLATE
533	5322	124	14069	3,3MU		15	ELECTROLYTIC TANT
534	4822	124	20461	47MU		10	ELECTROLYTIC
535	5322	124	24201	1MU		63	ELECTROLYTIC
536	4822	124	20461	47MU		10	ELECTROLYTIC
537	5322	124	24201	1MU		63	ELECTROLYTIC
538,539	5322	121	40323	100N	10	100	POLYESTER FOIL
540	4822	124	20461	47MU		10	ELECTROLYTIC
541	5322	121	40197	1MU	10	100	POLYESTER FOIL
542-545	4822	122	30103	22N	-20+80	63	CERAMIC PLATE
546	4822	121	41156	68N	10	100	POLYESTER FOIL
548	4822	122	31175	1N	10	100	CERAMIC PLATE
549	5322	121	40308	22N	10	250	POLYESTER FOIL
550	4822	122	30128	4,7N	10	100	CERAMIC PLATE
551	5322	121	40283	3,3MU	10	100	POLYESTER FOIL
552,553	4822	124	20476	22MU		25	ELECTROLYTIC

ITEM	ORDERING NUMBER			OHM	TOL (%)	TYPE	REMARKS
RESISTORS/U6							
601	4822	110	63034	1,8	5		CARBON
602	5322	116	54571	1,96K	1	MR25	METAL FILM
603	4822	100	10038	470	20	0,1	TRIMMING POTM
604	5322	116	54538	787	1	MR25	METAL FILM
609	5322	116	54696	100K	1	MR25	METAL FILM
610	4822	110	63187	1M	5		CARBON
611	5322	116	54469	100	1	MR25	METAL FILM
612	5322	116	54549	1K	1	MR25	METAL FILM
613	5322	116	50479	15,4K	1	MR25	METAL FILM
614	5322	116	54536	750	1	MR25	METAL FILM

ITEM	ORDERING NUMBER			OHM	TOL (%)	TYPE	REMARKS
615	5322	116	54571	1,96K	1	MR25	METAL FILM
616,617	5322	116	50484	4,64K	1	MR25	METAL FILM
618	5322	116	50669	205	1	MR25	METAL FILM
619	5322	116	50415	1,15K	1	MR25	METAL FILM
620	5322	116	54619	10K	1	MR25	METAL FILM
621	5322	116	50479	15,4K	1	MR25	METAL FILM
622	5322	116	54694	90,9K	1	MR25	METAL FILM
623	4822	100	10036	4,7K	20	0,1	TRIMMING POTM
624	5322	116	50524	3,01	1	MR25	METAL FILM
625	5322	116	54619	10K	1	MR25	METAL FILM
626	5322	116	54629	14K	1	MR25	METAL FILM
627	5322	116	50524	3,01K	1	MR25	METAL FILM
628	5322	116	54554	1,1K	1	MR25	METAL FILM
629	5322	116	54623	11K	1	MR25	METAL FILM
630	5322	116	50664	2,05K	1	MR25	METAL FILM
631	5322	116	50586	1,54K	1	MR25	METAL FILM
632	5322	116	50559	27,4K	1	MR25	METAL FILM
633	5322	116	50524	3,01K	1	MR25	METAL FILM
634	5322	116	54565	1,62K	1	MR25	METAL FILM
635	5322	116	54643	20,5K	1	MR25	METAL FILM
636	5322	116	50622	1,58K	1	MR25	METAL FILM
637	5322	116	50608	6,19K	1	MR25	METAL FILM
638	5322	116	54683	68,1K	1	MR25	METAL FILM
639	5322	116	50622	1,58K	1	MR25	METAL FILM
640	5322	116	50581	2,49K	1	MR25	METAL FILM
641	5322	116	54557	1,21K	1	MR25	METAL FILM
642,643	5322	116	54623	11K	1	MR25	METAL FILM
644	5322	116	50442	48,7K	1	MR25	METAL FILM
645	5322	116	50555	1,27K	1	MR25	METAL FILM
646	5322	116	54608	7,5K	1	MR25	METAL FILM
647	5322	116	50672	51,1K	1	MR25	METAL FILM
648	5322	116	54743	301K	1	MR25	METAL FILM
649	5322	116	54549	1K	1	MR25	METAL FILM
650	5322	116	55247	422K	1	MR25	METAL FILM
651	5322	116	54736	261K	1	MR25	METAL FILM
652	4822	100	10052	100K	20	0,1	TRIMMING POTM
653	5322	116	54595	5,11K	1	MR25	METAL FILM
654	5322	116	50415	1,15K	1	MR25	METAL FILM
655	5322	116	50766	147	1	MR25	METAL FILM
656	5322	116	54529	619	1	MR25	METAL FILM
657	5322	116	54474	11C	1	MR25	METAL FILM
658	5322	116	55247	422K	1	MR25	METAL FILM
660	5322	116	54511	316	1	MR25	METAL FILM
661	5322	116	50621	536	1	MR25	METAL FILM
662	4822	100	10019	220	20	0,1	TRIMMING POTM
663	5322	116	54466	90,9	1	MR25	METAL FILM
664	5322	116	54504	27,4	1	MR25	METAL FILM
665	5322	116	54506	287	1	MR25	METAL FILM
666	5322	116	54502	261	1	MR25	METAL FILM
667	5322	116	50621	536	1	MR25	METAL FILM
668	4822	100	10019	220	20	0,1	TRIMMING POTM
669	5322	116	50533	78,7K	1	MR25	METAL FILM

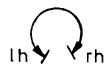
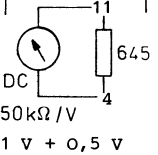
ITEM	ORDERING NUMBER	OHM	TOL (%)	TYPE	REMARKS
670	5322 116 54648	24,9K	1	MR25	METAL FILM
671	5322 116 54326	619K	1	MR25	METAL FILM
672	5322 116 54694	90,9K	1	MR25	METAL FILM
673	5322 116 54558	8,25K	1	MR25	METAL FILM
674	5322 116 54683	68,1K	1	MR25	METAL FILM
676	5322 116 50557	46,4K	1	MR25	METAL FILM
677	5322 116 50557	46,4K	1	MR25	METAL FILM
678	5322 116 54643	20,5K	1	MR25	METAL FILM
679,680	5322 116 50636	2,74K	1	MR25	METAL FILM
681	5322 116 50672	51,1K	1	MR25	METAL FILM
682	5322 116 54619	10K	1	MR25	METAL FILM
683	5322 116 50474	42,2K	1	MR25	METAL FILM
684	5322 116 50608	6,19	1	MR25	METAL FILM
685	5322 116 54519	402	1	MR25	METAL FILM
686	5322 116 54643	20,5	1	MR25	METAL FILM
687	5322 116 50572	12,1K	1	MR25	METAL FILM

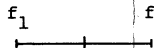
ITEM	ORDERING NUMBER	TYPE/DESCRIPTION
COILS/U6		
751	5322 158 14004	15MUH

ELECTRICAL PARTS/U8

301	4822 130 44196	BC548C		
351	5322 209 14441	NE521N		
401	5322 130 34278	BZX79-B6V8		
501	5322 121 40197	1MU	10	100 POLYESTER FOIL
502,503	4822 122 30103	22N	-20+80	63 CERAMIC PLATE
601	5322 116 50479	15,4K	1	MR25 METAL FILM
602	5322 116 54549	1K	1	MR25 METAL FILM
603	5322 116 54615	9,09K	1	MR25 METAL FILM
604	4822 100 10035	10K		LIN TRIMMING POTM

4.3. CHECK AND ADJUSTMENT

4.3...	PUSH - BUT TONS																			CONTROLS				MEASURING				REMARKS									
	MODULATION			MARK	SWEEP		RF SWEEP RANGE(MHz)				COUNT	F R E Q U E N C Y R A N G E (MHz)										C and R Position 	PULL FOR FIXED MARK	ATTENUATION		POWER	S o c k e t s o r :				Measured value	Adjustm. control- position					
	OFF ON	AM FM	INT EXT	OFF ON	OFF ON		.4/ .5	10/ 11	36/ 41	75/ 110	EXT	.1- -1	.25- -2	.5 - -3	1 - -4	2.5- -5	5 - -6	10 - -7	25 - -8	50 - -9	125 -10			(dB)		ON	Unit		Point				Fig.				
	601/ U5	801/ U5	851																																		
802 /1	-2	-3	-4	-5	-6	-7	-8	-9	-10	801 -1	-2	-3	-4	-5	-6	-7	-8	-9	-10																		
1.	Power supply, unit 6																			x	o	o	x	6	+12 V	1	13	12 ± 0,5 V	603	} Up = 230 V							
1.1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						-	-	-12 V	2				12 ± 0,5 V					
1.1.2																											5,25 V	3				5,25+0-0,05 V					
1.1.3																											27 V	4				27 ± 1 V					
1.1.4																																					
1.2.																											see 1.1.1 - 1.1.3			± 50 mV		Up = 207...257 V					
1.3.1																											+12 V	1	13	10 mV	} hum pick- up	OSC					
1.3.2																											-12 V	2		10 mV							
1.3.3																											5,25 V	3		15 mV							
1.3.4																											27 V	4		150 mV							
2.	Display, unit 2 and 3																			x						3		5	15	4000 kHz±1 Hz	502	C:					
2.1.																										intern display			500,00 ±1 digit		500 kHz, 100 mVpp COUNTER IN						
2.2.											x																										
3.	RF Generator, unit 1																			rh						1		6	11	498 ± 0,5 kHz	760	C					
3.1.											-																	1									
3.2.																										1											
3.3.1												x															< 100 kHz	x	0 dB	0 dB	x	1		11	< 100 kHz		C to RF OUT
3.3.2												x																				250 kHz	759	DC: 1 V ± 0,5 V			
3.3.3												-	x																			< 250 kHz		The internal and external frequency display must be identically; max. devia- tion ±1 digit (of the 5th digit).			
3.3.4													x																			625 kHz	758				
3.3.5													-	x																		< 500 kHz					
3.3.6														x																		1,25 MHz	757				
3.3.7														-	x																	< 1 MHz					
3.3.8															x																	2,5 MHz	756				
3.3.9															-	x																< 2,5 MHz					
3.3.10																x																6,25 MHz	755				
3.3.11																-	x															< 5 MHz					
3.3.12																	x															12,5 MHz	754				
3.3.13																	-	x														< 10 MHz					
3.3.14																		x														25 MHz	753				
3.3.15																		-	x													< 25 MHz					
3.3.16																			x													62,5 MHz	752				
3.3.17																			-	x												< 50 MHz					
3.3.18																				x												125 MHz	751				

4.3...	PUSH - BUT TONS																		CONTROLS				MEASURING				REMARKS					
	MODULATION			MARK	SWEEP		RF SWEEP RANGE (MHz)				COUNT	F R E Q U E N C Y R A N G E (MHz)										C and R Position 	PULL FOR FIXED MARK	ATTENUATION		POWER		S o c k e t s o r :		Measured value	Adjustm. control- position	
	OFF ON	AM FM	INT EXT	OFF ON	OFF ON		.4/ .5	10/ 11	36/ 41	75/ 110	EXT	.1-	.25-	.5 -	1 -	2.5-	5 -	10 -	25 -	50 -	125			(dB)	ON	Unit		Point				Fig.
	802 /1	-/2	-/3	-/4	-/5	-/6	-/7	-/8	-/9	-/10	801 -/1	-/2	-/3	-/4	-/5	-/6	-/7	-/8	-/9	-/10	601/ U5			801/ U5	851							
9.	LF Sweep generator, unit 6																		LF FREQU } rh					6	-/SWEEP OUT	 10,5 Vpp		OSC				
9.1.1	-		-		x				x																							
9.1.2					x																											
9.2.					-	x			x																		623 (638)Δ					
10.	Frequency mark control																		LF FREQU. } rh						-/SWEEP OUT			 f ₁ f _r Δf ≈ 1 MHz Δf ≈ 10 MHz Δf ≈ 1 MHz Mark.ampl.2Vpp	652	max. 5 Vpp		
10.1.				x	x	-	x					x																				
10.2.1				x	x		x					x																				
10.2.2				x	x		x					x																				
10.2.3				x	x		-	x				-						x														
10.2.4				x	x			-	x									-		x												
10.2.5				x	x				-	x									-		x											
10.2.6				x	x			x										x		-												
10.3.1				x	x		x					x						-														
10.3.2				x	x		x					x																				
10.4.1				x	x		-	x				-																				
10.4.2				x	x			x																								
10.5.1				x	x			-	x										-	x												
10.5.2				x	x				x											x												
10.6.1				x	x				-	x										-	x											
10.6.2				x	x				x											x												
10.7.				x	x	x		x										x														
11.	ATTENUATION, unit 5																		SETTING 100 MHz					5	RF OUT	3 ± 0,5 dB		B & K (selective-voltmeter) Check output level acc. to 4.3.5... and correct, if necessary. if tolerance is exceeded: turn 601/U5 rh; read amplitude in dB; attenuate this amplitude to 20 dB by 601/U5; fix the 20 dB mark of the scale to the 20 dB mark of the text- plate, without altering 601/U5.				
11.1.				-	-	-														x												
11.2.																				x												
11.3.																				x												
11.4.																				x												
11.5.																				x												
11.6																				x												

4.4. CHECKS AFTER REPAIR AND MAINTENANCE

Checking the protective leads

The correct connection and condition is checked by visual control and by measuring the resistance between the protective-lead connection at the plug and the cabinet.

The resistance should be $< 0.5 \Omega$. During measurement the mains cable should be moved. Resistance variations indicate a defect.

Checking the insulating resistance

Measure the insulating resistance at $U = 500 \text{ V}$ between the mains connection and the protective lead connection. For this purpose set the mains switch to ON. The insulating resistance should be $> 2 \text{ M } \Omega$.