

RF Voltmeter

type 2007

valid from serial no 465828

0037-0109

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Trouble Shooting

If some sort of trouble occurs with this instrument first check the D.C. working voltages from the Power Supply.

Then use the Adjustment Procedure with Block Diagram in order to localize a trouble to be in one certain circuit.

When a fault has been found and remedied the voltages and adjustments which are influenced by the remedy must be rechecked and the Adjustment procedure can be used again to tell if all basic functions of the instrument are fulfilled.

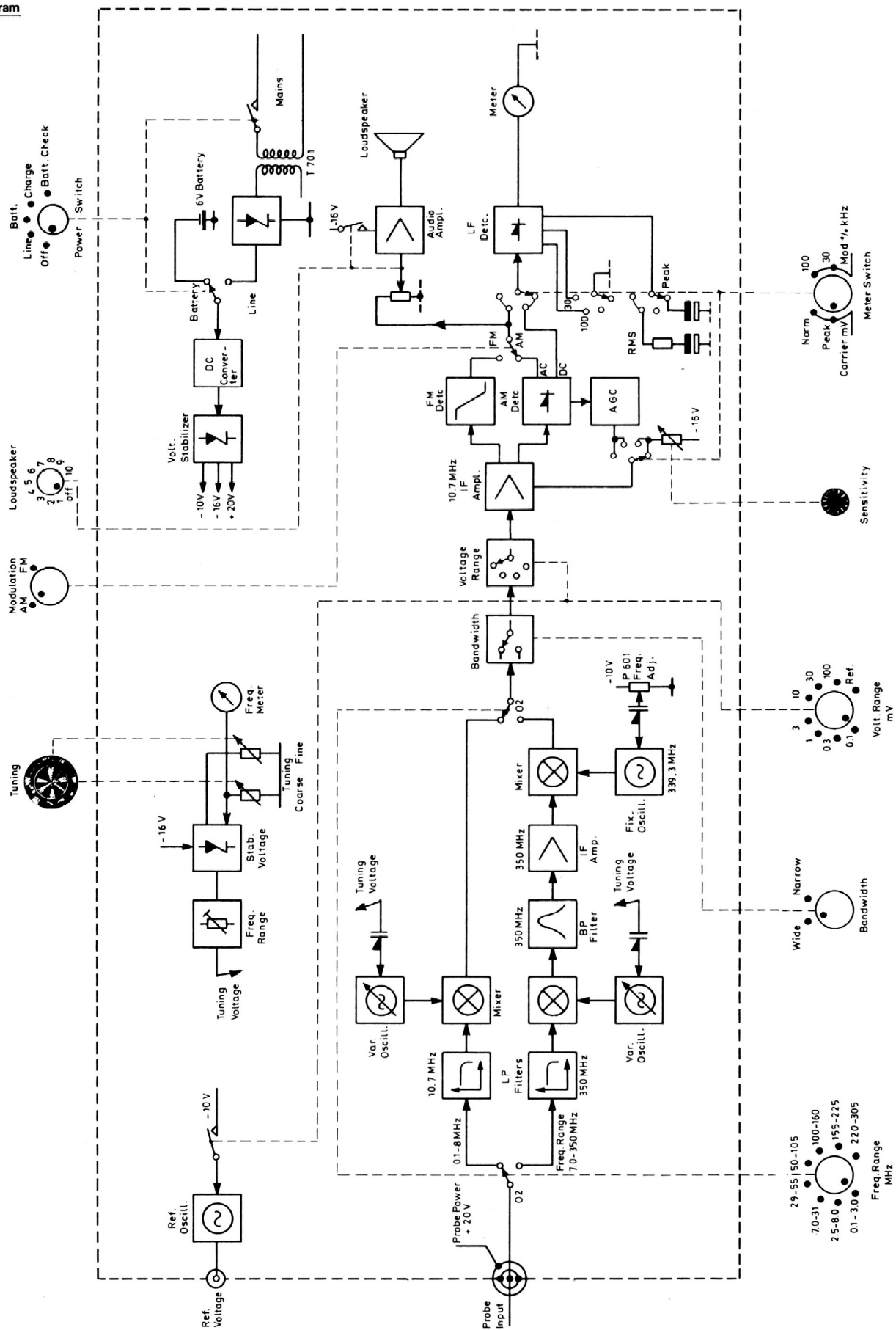
The tolerance stated in the instructions can only be used as a guide for adjustment and control, but any deviations must not be corrected without being sure that the tolerances of the instrument used for making the adjustment are so small as to have no influence on the measurements.

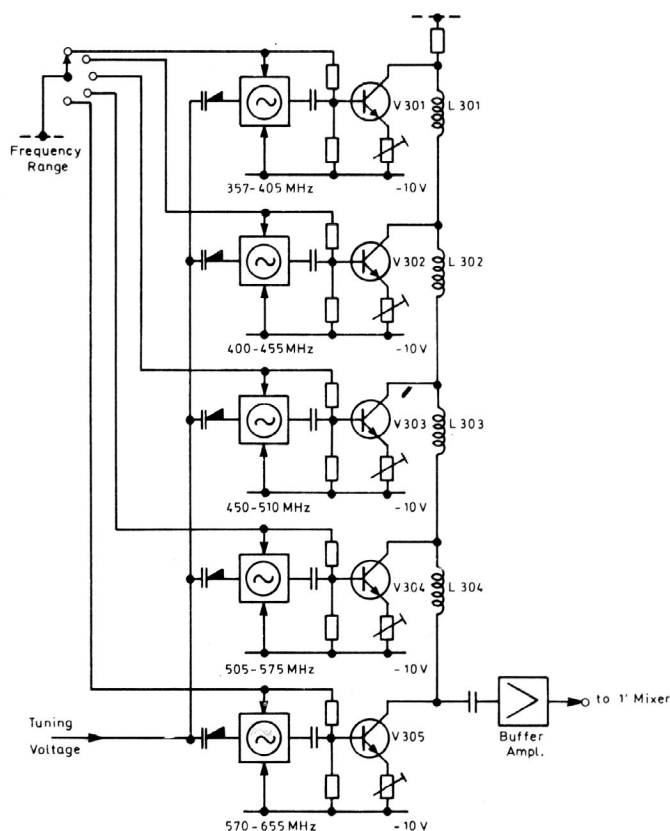
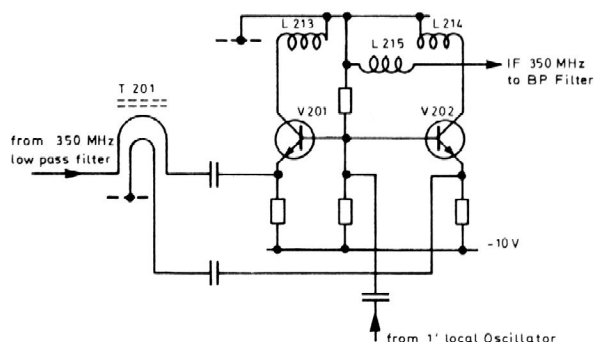
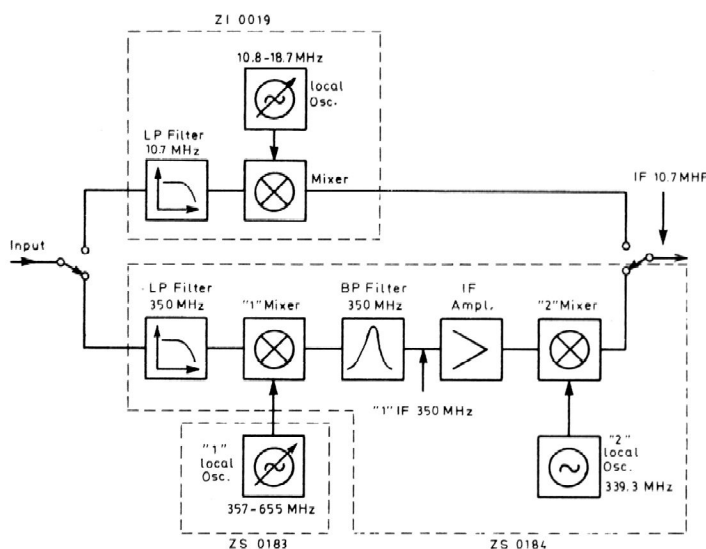
The instruction in this Manual are given purely as a guide to the service of equipment. Some faults, as f.inst. small deviations in tolerances require for their correction special control equipment and extensive experience, and in these cases it is necessary to send the instrument to the factory.

Spare Parts

Please state type and serial number of apparatus when spare parts are ordered.

Block Diagram





Mixer-Oscillator in Range 7.0 — 305 MHz

As the highest measuring frequency of the instrument type 2007 is 305 MHz the 1st IF frequency is chosen to be 350 MHz. Thus it is possible to use a simple low pass filter in the input of the instrument in order to suppress the Image frequencies (freq. from 707 — 1005 MHz).

The 1st local oscillator consists of five separate oscillators — one for each frequency range — with a common output.

The frequency range is selected by means of the voltage supplied to the "Range oscillator" in question.

1st Mixer (ZS 0184)

In order to prevent radiation from the local oscillator the signal is fed to the 1st mixer via the balancing transformer T 201.

The balanced signal is fed to the emitters of V 201, 202. The signal from the 1st local oscillator is fed to the bases of V 201, 202.

The output from the 1st mixer is taken via the coil L 215, as an un-symmetrical signal in order to feed the 350 MHz band pass filter.

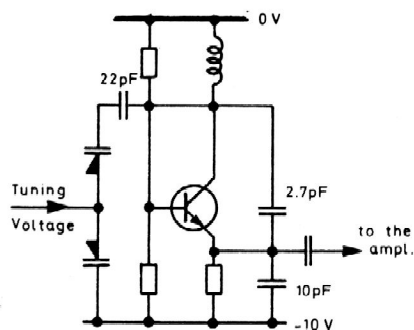
1st Local Oscillator (ZS 0183)

The five separate oscillators are equal except for a few frequency dependent components.

Each oscillator is fitted with an amplifier circuit which again is connected to a common buffer amplifier.

The amplification of the amplifier circuit is individually adjustable in order to set the signal levels for the separate frequency ranges.

The low pass transmission line from the five oscillators consists of the coils L 301 to L 304 and the capacity of the transistors V 301 to V 305.



The oscillators which are frequency variable by means of the tuning voltage, supplied to the capacitance diodes, are built as "Clapp-Oscillators".

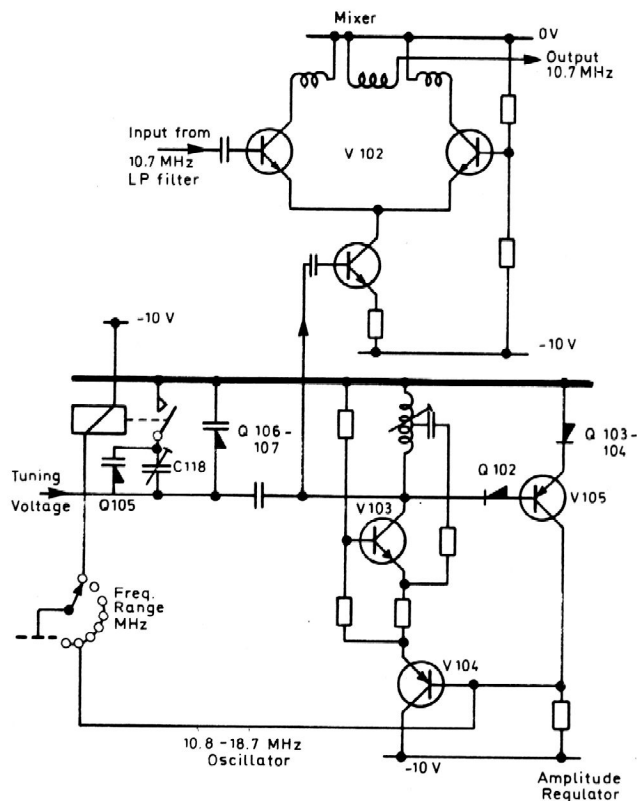
The tuning voltage is controlled by means of the tuning potentiometer.

2nd Mixer and 2nd Local Oscillator (ZS 0184)

The principle of the 2nd mixer is identical to the 1st mixer.

The frequency of the 2nd local oscillator is 339.3 MHz, which gives an IF frequency of 10.7 MHz.

As the two local oscillators are nearly identical, the temperature drift will be almost eliminated.



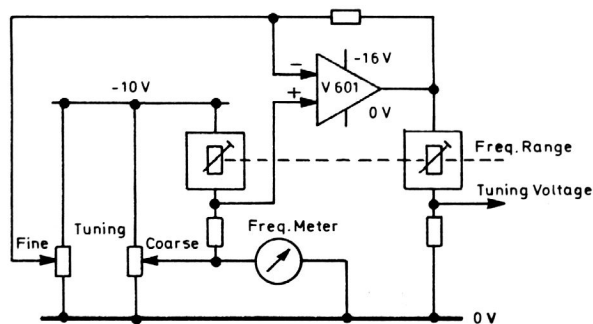
Mixer-Oscillator in Range 0.1 - 8 MHz (Z1 0019)

In the frequency range 0.1 - 8 MHz the transistor V 104 controls the amplitude of the oscillator signal. In the range 7.0 - 305 MHz the base of V 104 is connected to ground, which switches off the voltage of the oscillator.

The frequency of the oscillator V 103 with associated components is controlled by means of the tuning voltage and the variable capacitance diodes Q 105 to 107.

When the "Frequency Range MHz" selector is in position "1" a capacitor C 118 and a diode Q 105 shunts the diodes Q 106 and 107.

The mixer circuit V 102 is formed by means of an integrated circuit, connected as a balanced transistor mixer.



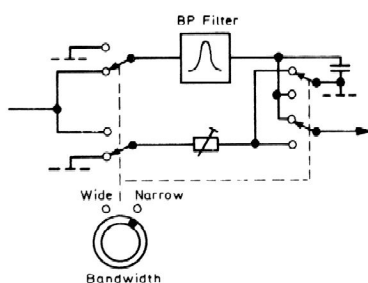
Tuning Voltage (ZH 0077)

The tuning voltage to the variable capacitance diodes is taken from the integrated circuit V 601.

The positive and negative inputs of V 601 are connected to the "Fine" and "Coarse" potentiometers respectively.

The "Frequency Range MHz" selection is made by changing the value of the resistors corresponding to the frequency range in question.

As the oscillator frequency which corresponds to the diode voltage is a linear function the Frequency Meter is connected directly to the "Coarse" potentiometer.



Bandwidth

The IF signals from the mixers are now fed through the "Bandwidth" selector with the modes "Wide" and "Narrow" through the "Voltage Range mV" attenuator to the IF amplifier.

IF Amplifier and FM-AM Detectors

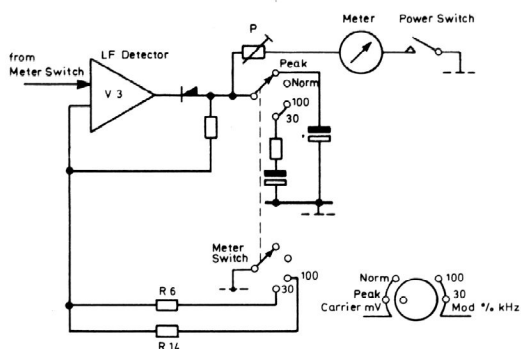
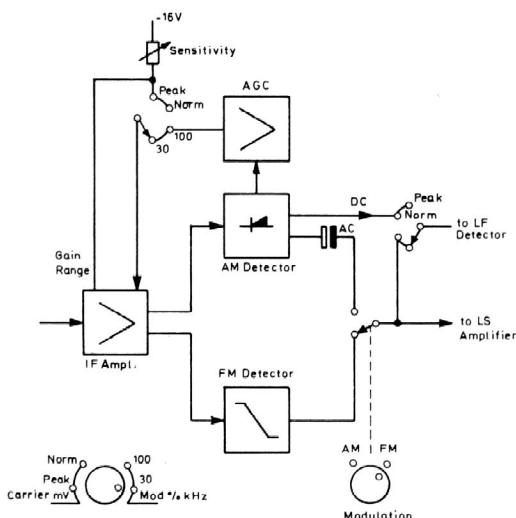
The gain of the 10.7 MHz IF amplifier is controlled either from a "sensitivity" potentiometer, on the front panel or from the Automatic Gain Control circuit.

The AGC circuit receives the control signal from the AM detector.

When the "Meter Switch" is in the position "Peak" or "Norm" a DC signal from the AM detector is fed to the meter via the LF detector.

In position "100 or 30" either a FM or AM AC signal is fed through the LF amplifier to the meter.

The signal shown on the meter is also fed to the "Remote Control" socket.



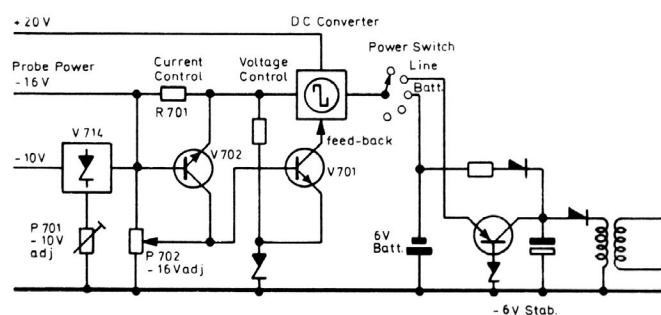
LF Detector

The LF Detector forms the signal for the meter.

When the "Meter Switch" is in position "100" or "30" the feedback resistors R 6 or R 14 controls the gain of the detector amplifier. In this position a RMS circuit treats the signal for the meter.

When the "Peak" position is selected a capacitor on the detector output gives the peak value for the meter.

The potentiometer "P" is for the calibration of the meter.



Power Supply (ZG 0068)

The instrument can be powered from internal batteries or an external mains supply.

The DC converter gives the voltage necessary for the probe and the amplifier.

The stability of the -16 V is maintained by means of a zener diode and adjustable by means of P 702.

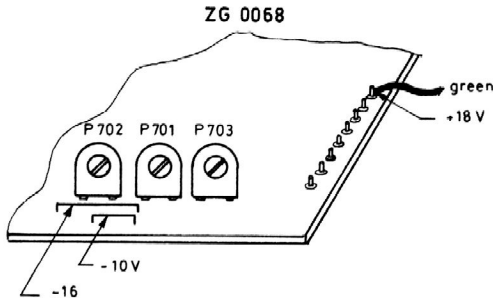
The -10 V supply used for the tuning voltage is furthermore stabilized with the integrated circuit V 714.

The -10 V can be adjusted by means of P 701.

The voltage drop across R 701 controls the transistor V 702 which again controls the converter voltage.

2.1. Power Supply ZG 0068

- a. POWER SWITCH: "Line"
VOLTAGE RANGE: "Ref"
METER SWITCH: "Normal"
LOUDSPEAKER: "5"



Check the voltage on the cathode of Q 704 and Q 705 to be within 9 — 10.5 V AC.

Check the voltage on V 706's emitter, 5 — 6.5 V.

Check the -16 V.
If necessary adjust by means of P 702.

Check the -10 V.
If necessary adjust by means of P 701.

- b. POWER SWITCH to "Battery"
LOUDSPEAKER: "Off"

No Probe connected:

Probe connected:

LIGHT: "On"

Current consumption, measured at the fuse V 713.

Current approx.: 300 mA.

Current approx.: 370 mA.

Current approx.: 1200 mA.

- c. POWER SWITCH to "Battery Check"

For a battery voltage of -5.5 V the P 703 should be adjusted to a deflection on the built-in meter to the bottom of the "Batt" marking.

2.2. AF Amplifier ZI 0022

METER SWITCH: "30"
POWER SWITCH: "Line"
LOUDSPEAKER: "5"
MODULATION ADJ.: "AM"

Connect an LF generator to the input of the LS amplifier. Use the slider of the potentiometer "Loudspeaker".

Adjust the generator for an output voltage of 50 mV at 1000 Hz.

Check that the output across the loudspeaker terminals is approx. 1.8 V.

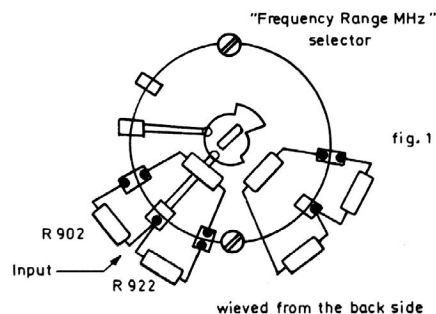
2.3. IF Amplifier ZE 0106

- a. Sensitivity:
BANDWIDTH: "Wide"

Input signal to the point R 902 — R 922 (referred to fig.1) 10.7 MHz undmodulated.

Adjust the input voltage to full scale deflection on the built-in meter of 2007.

Check the input voltage to be approx. 50 μ V.



2007.2 Adjustment Procedure

b. IF curve

BANDWIDTH: "Wide"
METER SWITCH: "Normal"
VOLTAGE RANGE: "0.1 mV"
POWER SWITCH: "Line"
FREQUENCY RANGE: "2.5 – 8.0"
TUNING: "Fully counterclockwise"

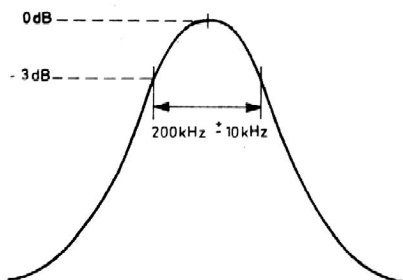


fig. 2

Connect an HF sweep generator to the point R 902 – R 922 on the "Frequency Range MHz" selector (fig.1).

Frequency 10.7 MHz \pm 500 kHz, modulation 50 Hz.

Connect an oscilloscope to the Video Output pin of the "Output" socket.

X deflection for the scope is taken from the generator.

Adjust L 1001 (ZE 0106) for a symmetrical curve as shown in fig.2.

c. Bandwidth

HF generator input, to R 902 – R 922, 10.7 MHz.

Adjust input voltage for a 10 dB deflection on the built-in meter of 2007.

Vary the frequency around the center frequency and note the frequency where the deflection is decreased by 3 dB.

Bandwidth 200 kHz \pm 10 kHz.

2.4. FM Discriminator

METER SWITCH: "Normal"
BANDWIDTH: "Wide"
VOLTAGE RANGE: "0.1 mV"
POWER SWITCH: "Line"
FREQUENCY RANGE: "2.5 – 8.0"
SENSITIVITY to calibrated pos.
MODULATION: "FM"

Input signal to point R 902 – 922, 10.7 MHz \pm 50 kHz, modulation 50 Hz.

Adjust the input voltage to a 5 dB deflection on the 2007 meter.

Switch the METER SWITCH to position "100".

Connect an oscilloscope to the Video Output pin of the "Output" socket.

Adjust L 1201 (ZM 0034) to maximum deflection on the oscilloscope.

2.5. Bandwidth Selector

a. BANDWIDTH: "Narrow"
METER SWITCH: "Normal"
VOLTAGE RANGE: "3 mV"
POWER SWITCH: "Line"
SENSITIVITY to calibrated pos.
FREQUENCY RANGE: "2.5 – 8.0"

Input signal, to the point R 902 – 922, 10.7 MHz unmodulated.

Fine adjust the frequency to max. deflection and adjust the voltage for a 10 dB deflection on type 2007.

b. BANDWIDTH to "Wide"

Deflection on type 2007: 10 dB.
Tolerance \pm 0.25 dB.

If necessary adjust P 901 and check item a. again.

2.6. Modulation

- a. BANDWIDTH: "Wide"
 METER SWITCH: "Normal"
 VOLTAGE RANGE: "3 mV"
 POWER SWITCH: "Line"
 FREQUENCY RANGE: "2.5 – 8.0"

Input signal to R 902 – 922:
 10.7 MHz Modulation degree: 30%
 Modulation frequency: 400 Hz

Adjust the input voltage to a 5 dB deflection on 2007.

METER SWITCH: "30"
 MODULATION: "AM"

Deflection on 2007: 30%.
 Tolerance: $\pm 2\%$ of full scale deflection (0–30%).
 If necessary adjust P 1203 (ZM 0034).

- b. METER SWITCH: "Normal"

Input signal:
 10.7 MHz Modulation swing ± 30 kHz
 Modulation frequency: 400 Hz

Adjust the input voltage to a 5 dB deflection on 2007.

METER SWITCH: "30"
 MODULATION: "FM"

Deflection on 2007: 30 kHz.
 Tolerance: $\pm 2\%$ of full scale deflection (0–30 kHz).
 If necessary adjust P 1202 (ZM 0034).

2.7. Tuner 0.1 – 8.0 MHz

- a. BANDWIDTH: "Wide"
 METER SWITCH: "Normal"
 VOLTAGE RANGE: "3 mV"
 POWER SWITCH: "Line"
 FREQUENCY RANGE: "2.5 – 8.0"
 TUNING: "Fully clockwise"

If it should be necessary to adjust one of the frequency ranges, adjust only the components associated with these specific range in question.

First check if the oscillator DC voltage is approx. 4 V on the white wire to ZI 0019 (On/Off).

Input signal 8 MHz to "Probe Input".
 Adjust L 108 on ZI 0019 to max. deflection on the built-in meter of 2007.

FREQUENCY RANGE: "0.1 – 3.0"

Input signal 3 MHz to "Probe Input".
 Adjust C 118 to max. deflection on 2007.

- b. TUNING to "3 MHz"
 BANDWIDTH: "Narrow"
 TUNING to "0.1 MHz"

Input signal 3 MHz.
 Adjust P 602 on ZH 0077 to a deflection on 2007 corresponding to 3 MHz.
 Input signal 0.1 MHz.
 Adjust P 617 to a deflection of 0.1 MHz.

Tolerance $1/2\% + 50$ kHz.

- c. FREQUENCY RANGE: "2.5 – 8.0"

Repeat the adjustment for the 2.5 – 8.0 MHz range as mentioned above in item b.
 Always adjust the highest frequency first.

2.8. Tuner 7.0 – 305 MHz

- a. BANDWIDTH: "Wide"
 METER and LS SWITCH: "Mod, AM"
 VOLTAGE RANGE: "3 mV"
 POWER SWITCH: "Line"
 FREQUENCY RANGE: "7.0 – 3.1"
 TUNING: "Fully clockwise"

Connect Input signal 350 MHz to "Probe Input"
 Move the input coax-plug from J 201 to J 202.

Adjust C 209, C 211, C 213, C 215 and C 222 for maximum deflection on 2007.

Check the frequency of the 339.3 MHz oscillator.
 Image frequency 360.7 MHz.
 Move the coax-plug back to J 201.

- b.

Check the output of the oscillators to be as indicated below:

"Frequency Range"	mW	If necessary adjust
220 – 305 MHz	(0.7)	P 305
155 – 225 MHz	0.7	P 304
100 – 160 MHz	0.7	P 303
50 – 105 MHz	0.7	P 302
29 – 55 MHz	0.7	P 301

2007.2 Adjustment Procedure

2.9. Frequency Ranger MHz Adjustment

- a. BANDWIDTH: "Wide"
METER SWITCH: "Normal"
VOLTAGE RANGE: "3 mV"
POWER SWITCH: "Line"
FREQUENCY RANGE: "7.0 – 31"
TUNING: "31"

TUNING: "7.0"

Input signal 31 MHz to "Probe Input".
Adjust P 601 on ZH 0077 to max. deflection on the 2007 meter.

Input signal 7 MHz.
Adjust P 612 to max. deflection on the 2007 meter.

Tolerance $1/2\% + 0.5 \text{ MHz}$.

- b. FREQUENCY RANGE: "29 – 55"

Repeat the adjustment as mentioned for item a.

Always adjust the highest frequency first.

- c.

Repeat the adjustment for the Frequency Range 50 – 105, 100 – 160, 155 – 225 and 220 – 305 MHz.

2.10. Inherent Noise

BANDWIDTH: "Narrow"
METER SWITCH: "Normal"
VOLTAGE RANGE: "0.1 mV"
POWER SWITCH: "Line"
FREQUENCY RANGE: "7.0 – 31"
TUNING: "Fully clockwise"

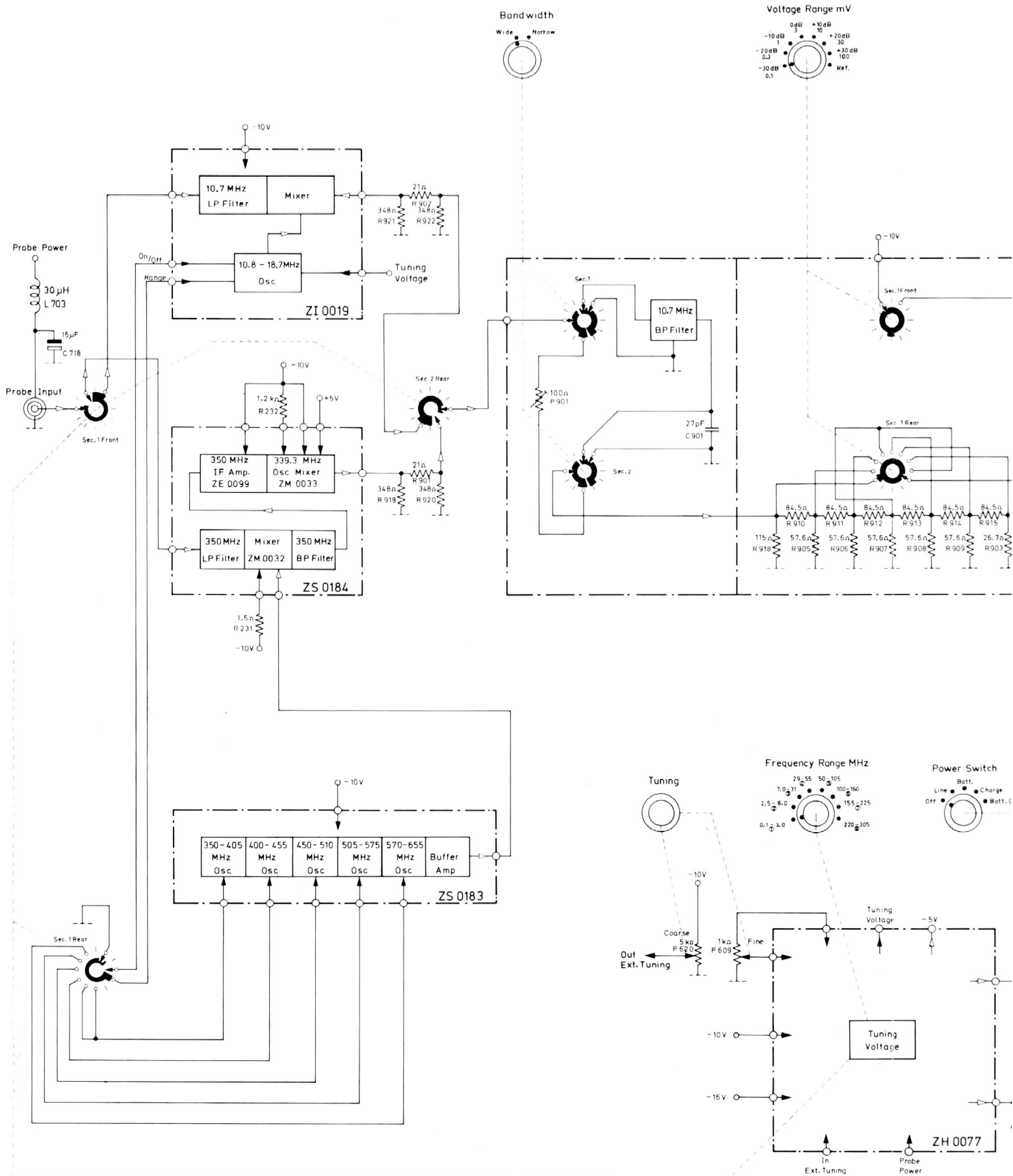
Noise measured with the Input Probe connected.

Less than $2.5 \mu\text{V}$.

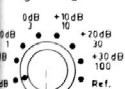
CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 409	Paper	5 nF/220 V			CP 9000	V 707	Neon lamp (On)	220 V			VS 0015
C 718	Tantalum	15 μ F/ 20 V			CF 0010	V 708-711	Scale lamp	6.8 V/0.25 A			VS 1273
C 901	Ceramic	27 pF/400 V			CK 1270	V 712	Fuse	0.2 A			VF 0012
C 910	Tantalum	1.5 μ F/ 25 V			CF 0008	V 713		2 A			VF 0010
C 911	Ceramic	4.7 nF/100 V			CK 0096						
L 703	Coil	30 μ H			LJ 0008		Bakkelit knob, 10 mm				SN 1022
M 1	Moving Coil Meter	"Volt-Modul"			IM 0048		Bakkelit knob "Tuning" coarse				SN 3202
M 2		"Frequency"			IM 0043		Retaining ring for above				DB 0850
							Allen screw for above M 4				YQ 2083
N 1	Micro switch	"Light"			NT 0029		Bakkelit knob 32 mm				SN 3222
							Retaining ring for above				DB 0674
O 1	"Meter Switch"				OH 2066		Allen screw for above M 4				YQ 2083
O 2	"Frequency Range MHz"				OH 2054		Bakkelit knob "Tuning" fine				SN 5006
O 3	"Power Switch"				OH 2055		Retaining ring for above				DB 0851
O 4	"Bandwidth"				OH 2056		Allen screw for above M 4				YQ 2087
O 5	"Voltage Range mV"				OH 2057		Battery, rechargeable 1.25 V				QB 0008
O 6	Mains Voltage Selector				OA 0021		Metal Cabinet				KQ 0105
O 7	"Modulation"				OH 2067		Crystal filter 10.7 MHz				ZU 0003
							Loudspeaker				HP 0014
P 1	"Loudspeaker"	log.	100 k Ω		PS 4100	J 1	Power Cord EUR				AN 0005
P 2	"Sensitivity"	lin.	4.7 k Ω		PP 2471	J 2	Power Cord USA				AN 0006
P 609	"Tuning" (fine)	-	1 k Ω		PP 2101	J 3	Socket "Probe Input"				JJ 0128
P 620	"Tuning" (coarse)	-	5 k Ω		PX 2510		Socket "Reference Voltage"				JJ 0130
P 901	Trimmer	-	100 Ω		PC 1100		Socket 7-pin DIN				JJ 0709
Q 901	Si-diode	400 V/1 A	1 N 4004		QV 0237		Scales: "Frequency"				SA 0155
							"RTMA"				SA 0156
							"CCIR"				SA 0157
R 231	Carbon	1/4 W	5%	1.5 k Ω	RB 3150		Plug 7-pin DIN				JP 0703
R 232	-	-	-	1.2 k Ω	RB 3120						
R 408	-	-	-	47 Ω	RB 1470						
R 620	-	-	-	12.1 k Ω	RF 4121						
R 621	NTC			4.7 k Ω	RN 0011						
R 716	Carbon	1/4 W	5%	220 k Ω	RB 5220						
R 901,902	Metal	-	1%	21.0 Ω	RF 1210						
R 903	-	-	-	26.7 Ω	RF 1267						
R 905-909	-	-	-	57.6 Ω	RF 1576						
R 910-915	-	-	-	84.5 Ω	RF 1845						
R 918	-	-	-	115 Ω	RF 2115						
R 919-922	-	-	-	348 Ω	RF 2348						
R 920	Carbon	-	5%	10 k Ω	RB 4100						
R 921	-	-	-	47 k Ω	RB 4470						
T 701	Mains Transformer				TN 0062						

Printed Circuit Boards with components:

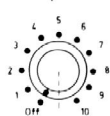
Probe (complete)	ZC 0009
IF Amplifier	ZE 0106
Power Supplies	ZG 0068
Tuning Circuit	ZH 0077
1st Mixer and Local Oscillator	ZI 0019
Reference Osc. AF Amplifier	ZI 0022
FM-AM-LF Detector. AGC	ZM 0034
1st Local Oscillator	ZS 0183
Mixer and 2nd Local Oscillator	ZS 0184



Voltage Range mV



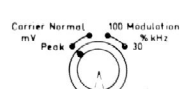
Loudspeaker



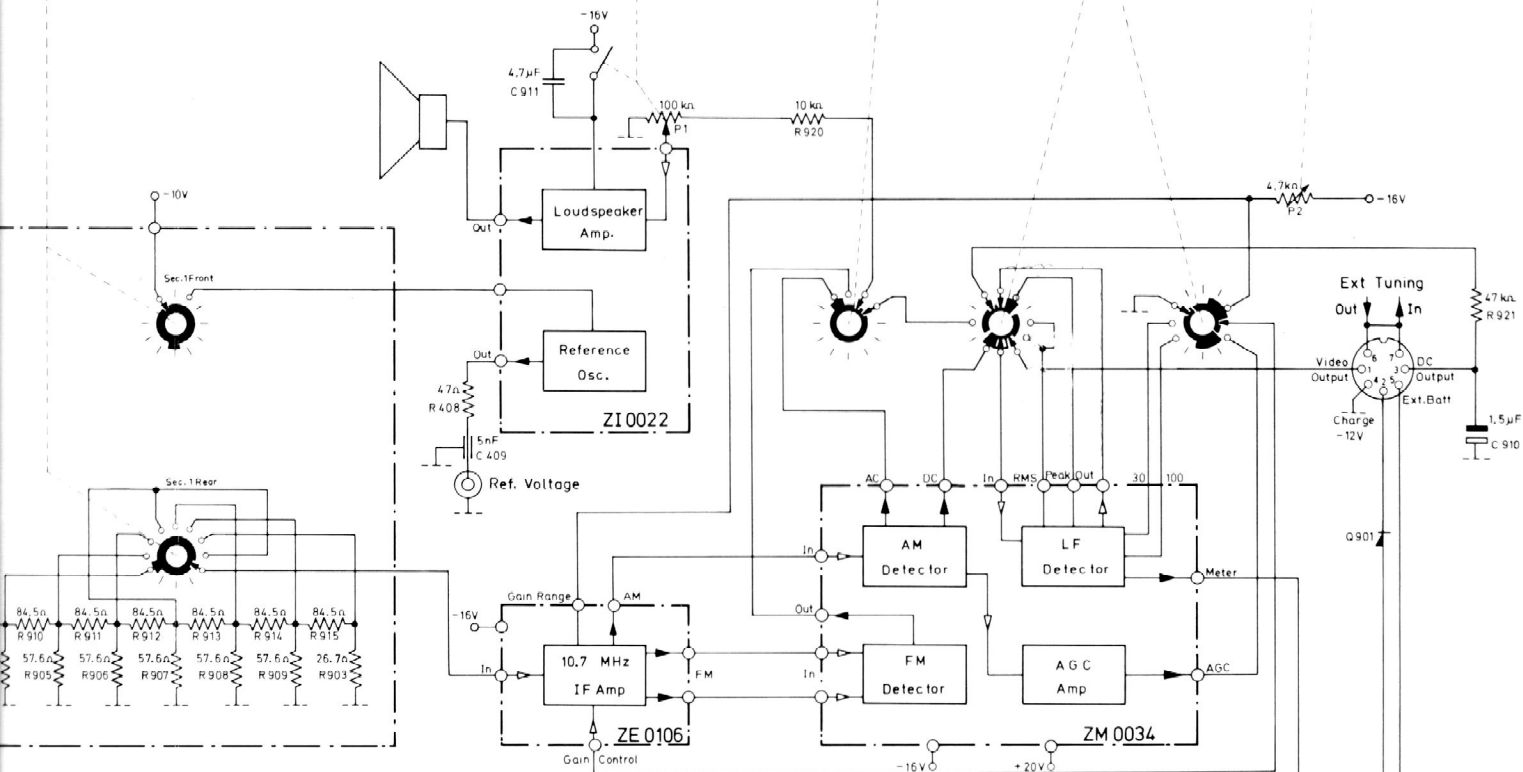
Modulation



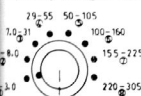
Meter Switch



Sensitivity



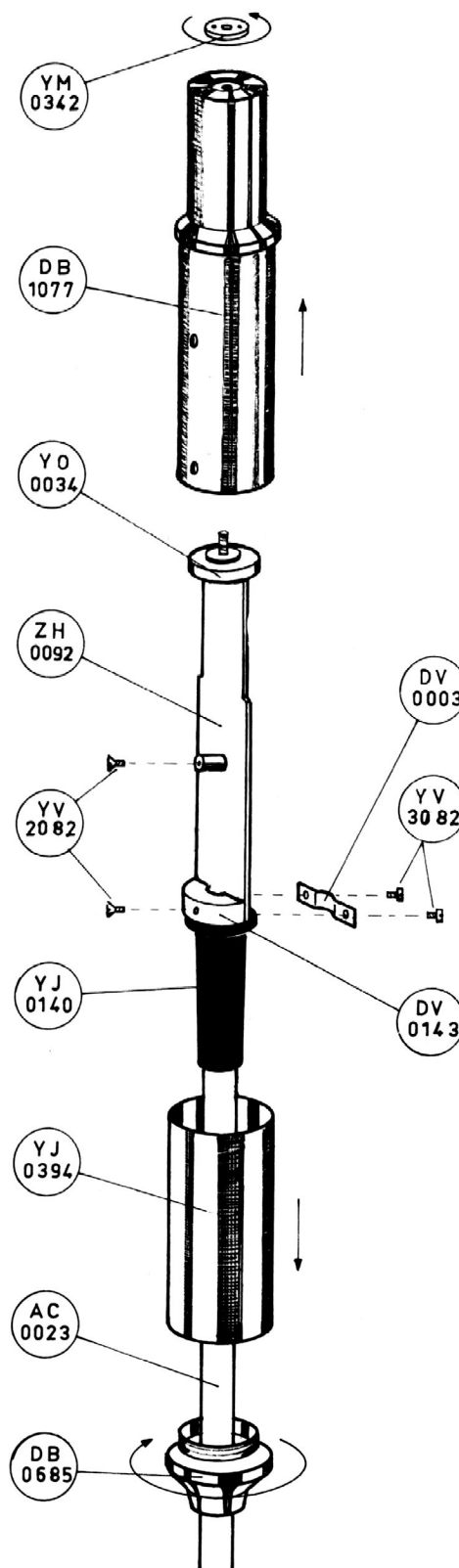
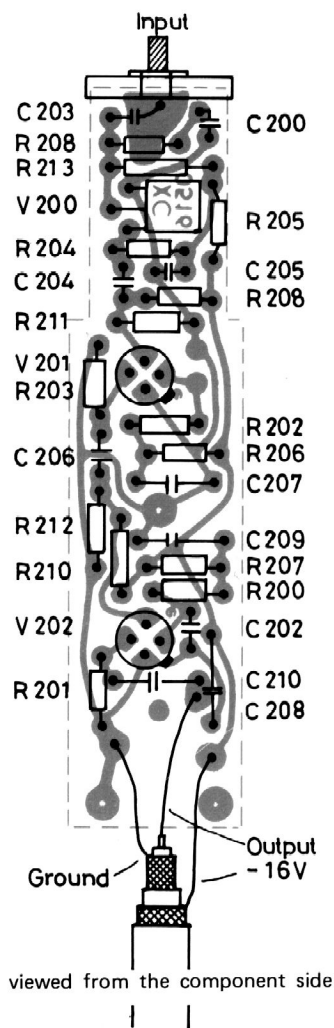
Frequency Range MHz



Circuit and Layout Diagram with Parts List

ZC 0009

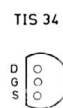
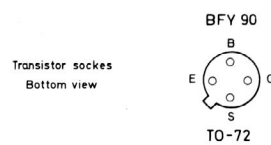
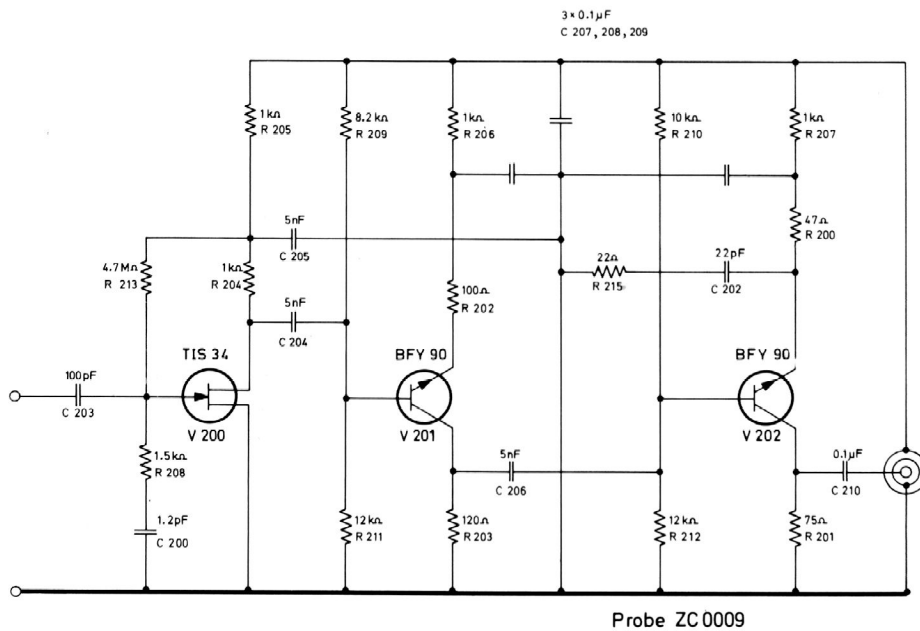
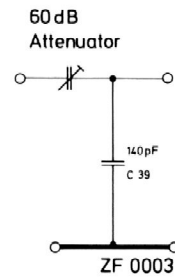
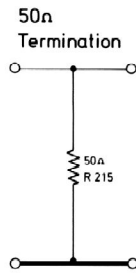
Test probe



CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 200	Ceramic			1.2 pF/250 V	CK 0121
C 202	-			22 pF/400 V	CK 1220
C 203	-			100 pF/500 V	CK 2101
C 204	-			4.7 nF/100 V	CK 0096
C 205	-			2.2 nF/100 V	CK 0082
C 206	-			4.7 nF/100 V	CK 0096
C 207-210	-			100 nF/ 25 V	CK 5100
C 211	-			4.7 nF/ 25 V	CK 4470
R 200	Carbon	0.2 W	5%	47 Ω	RA 0205
R 201	-	-	-	75 Ω	RA 0206
R 202	-	-	-	100 Ω	RA 0207
R 203	-	-	-	120 Ω	RA 0208
R 204-207	-	-	-	1 kΩ	RA 0209
R 208	-	-	-	1.5 kΩ	RA 0210
R 209	-	-	-	8.2 kΩ	RA 0211
R 210	-	-	-	10 kΩ	RA 0212
R 211,212	-	-	-	12 kΩ	RA 0213
R 213	-	-	-	4.7MΩ	RA 0004
R 215	-	-	-	22 Ω	RA 0050
V 200	FET	N		TIS 34	VB 1003
V 201,202	Si. trans.	NPN		BFY 90	VB 0540

Printed Circuit Board
- - - with components
Coaxial Plug

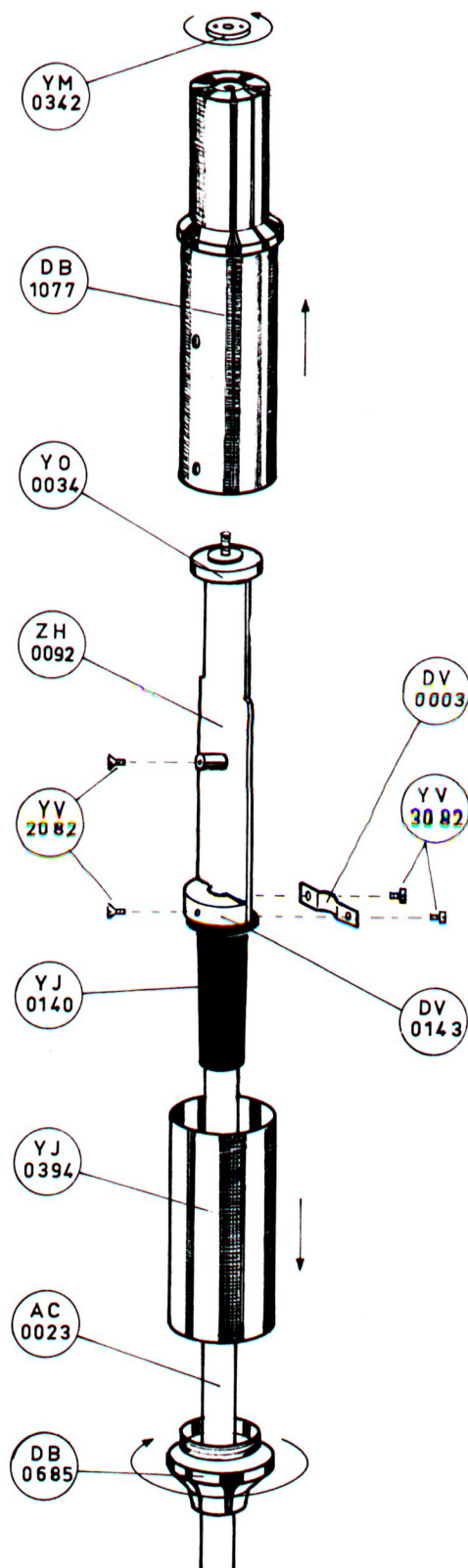
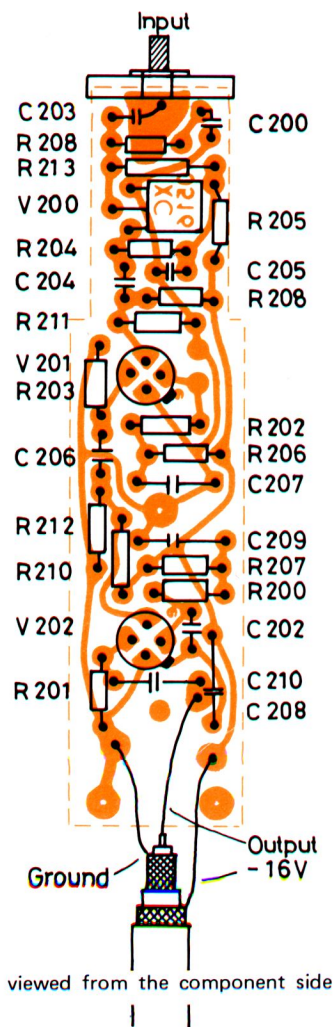
XC 0516
ZH 0092
JP 0102



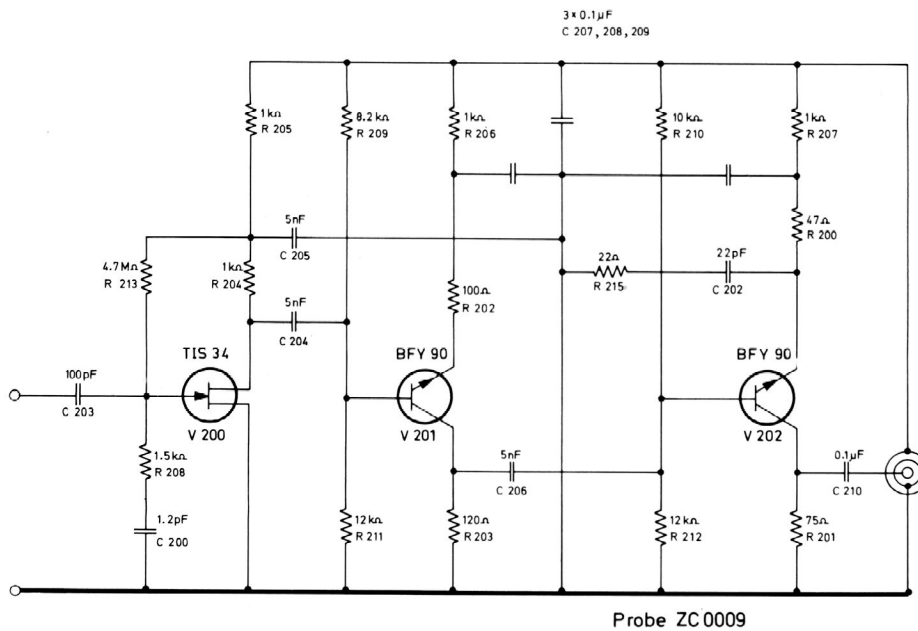
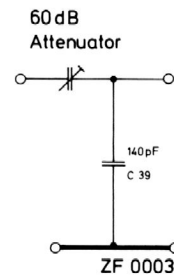
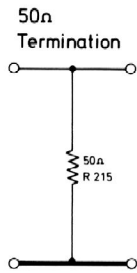
Circuit and Layout Diagram with Parts List

ZC 0009

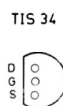
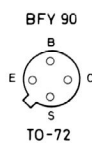
Test probe



CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 200	Ceramic	1.2 pF/250 V			CK 0121
C 202	-	22 pF/400 V			CK 1220
C 203	-	100 pF/500 V			CK 2101
C 204	-	4.7 nF/100 V			CK 0096
C 205	-	2.2 nF/100 V			CK 0082
C 206	-	4.7 nF/100 V			CK 0096
C 207-210	-	100 nF/ 25 V			CK 5100
C 211	-	4.7 nF/ 25 V			CK 4470
R 200	Carbon	0.2 W	5%	47 Ω	RA 0205
R 201	-	-	-	75 Ω	RA 0206
R 202	-	-	-	100 Ω	RA 0207
R 203	-	-	-	120 Ω	RA 0208
R 204-207	-	-	-	1 kΩ	RA 0209
R 208	-	-	-	1.5 kΩ	RA 0210
R 209	-	-	-	8.2 kΩ	RA 0211
R 210	-	-	-	10 kΩ	RA 0212
R 211,212	-	-	-	12 kΩ	RA 0213
R 213	-	-	-	4.7MΩ	RA 0004
R 215	-	-	-	22 Ω	RA 0050
V 200	FET	N	TIS 34		VB 1003
V 201,202	Si. trans.	NPN	BFY 90		VB 0540
	Printed Circuit Board				XC 0516
	- with components				ZH 0092
	Coaxial Plug				JP 0102

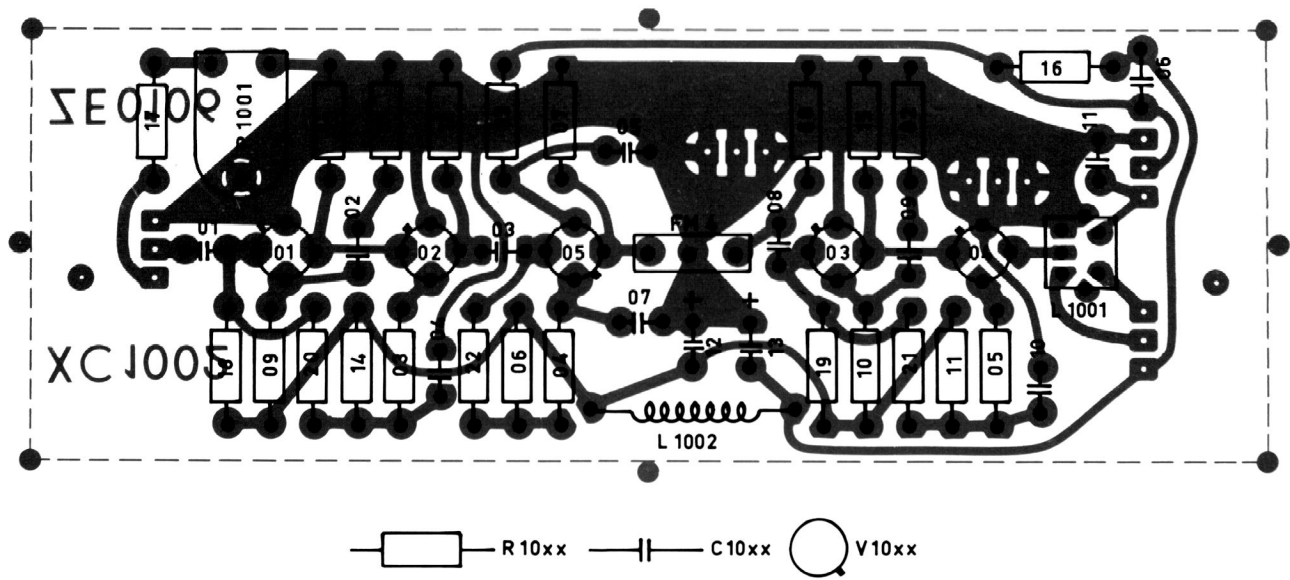


Transistor sockets
Bottom view



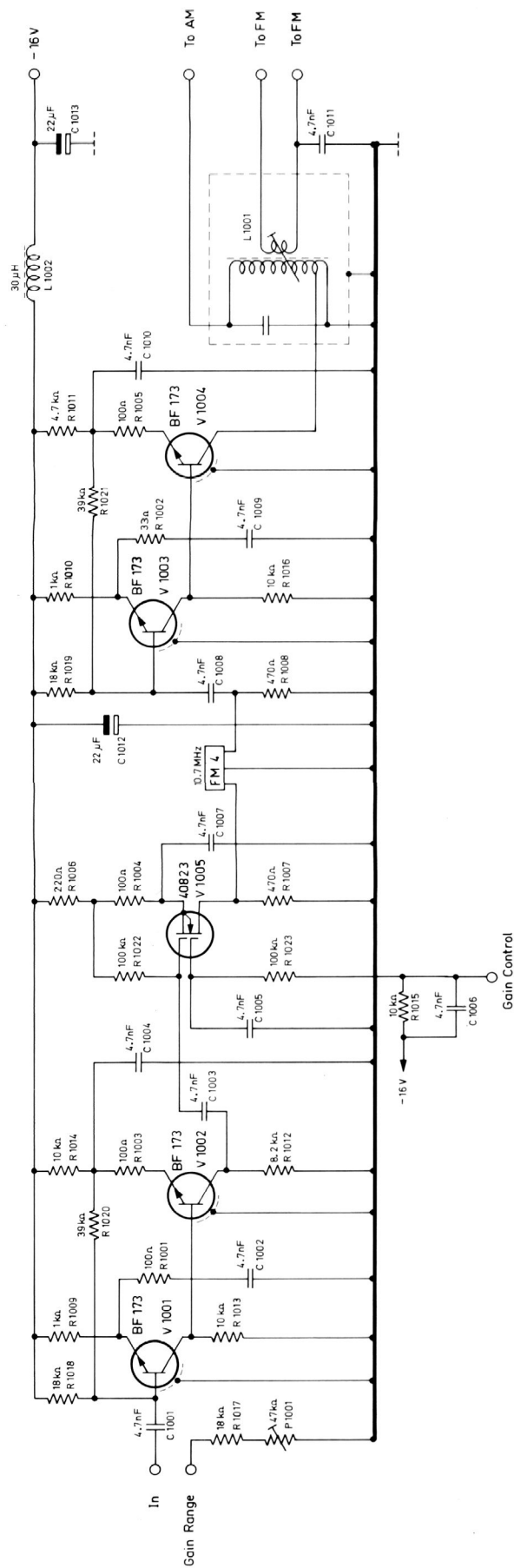
Circuit and Layout Diagrams
with Parts List

ZE 0106



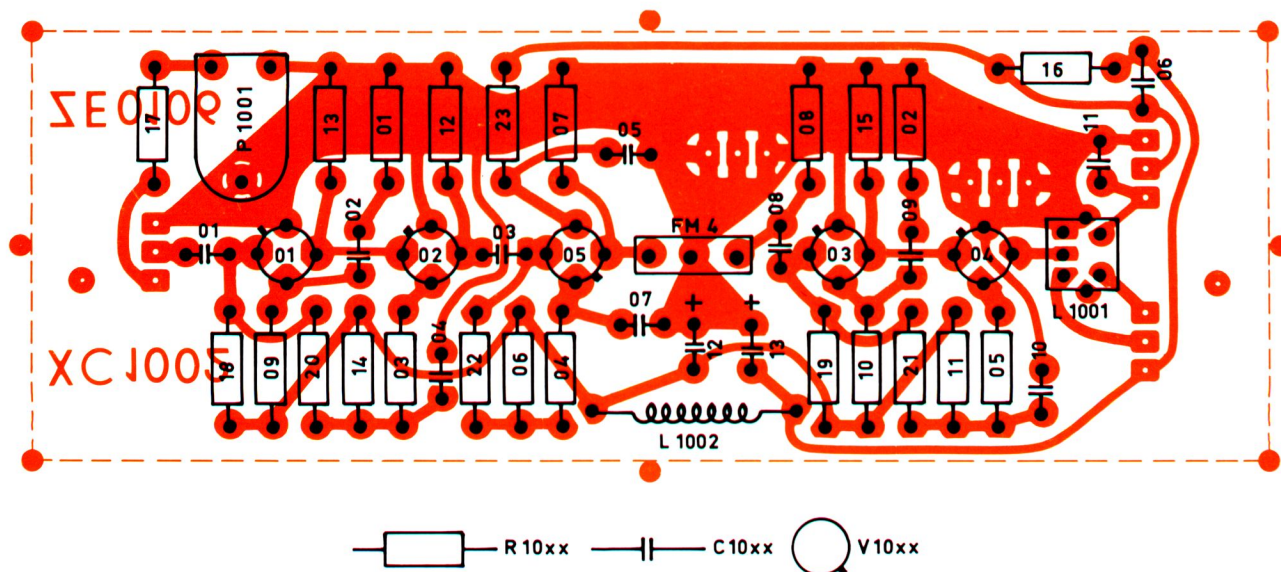
CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 1001-1011	Ceramic			4.7 nF/100 V	CK 0096
C 1012,1013	Tantalum			22 μ F/ 16 V	CF 0031
L 1001	MF filter			10.7 MHz	ZS 0190
L 1002	Coil			30 μ H	LJ 0008
P 1001	Gain range			47 k Ω	PG 3471
R 1001	Carbon	1/4 W	5%	100 Ω	RB 2100
R 1002	-	-	-	33 Ω	RB 1330
R 1003-1005	-	-	-	100 Ω	RB 2100
R 1006	-	-	-	220 Ω	RB 2220
R 1007,1008	-	-	-	470 Ω	RB 2470
R 1009,1010	-	-	-	1 k Ω	RB 3100
R 1011	-	-	-	4.7 k Ω	RB 3470
R 1012	-	-	-	8.2 k Ω	RB 3820
R 1013-1016	-	-	-	10 k Ω	RB 4100
R 1017-1019	-	-	-	18 k Ω	RB 4180
R 1020,1021	-	-	-	39 k Ω	RB 4390
R 1022,1023	-	-	-	100 k Ω	RB 5100
V 1001-1004	Si. trans	NPN		BF 173	VB 0065
V 1005	FET Dual gate			40823	VB 4004
	Filter FM 4				ZS 0189
	Printed Circuit Plugs				JP 0311
	Printed Circuit Board				XC 1002

10.7 MHz IF Amp



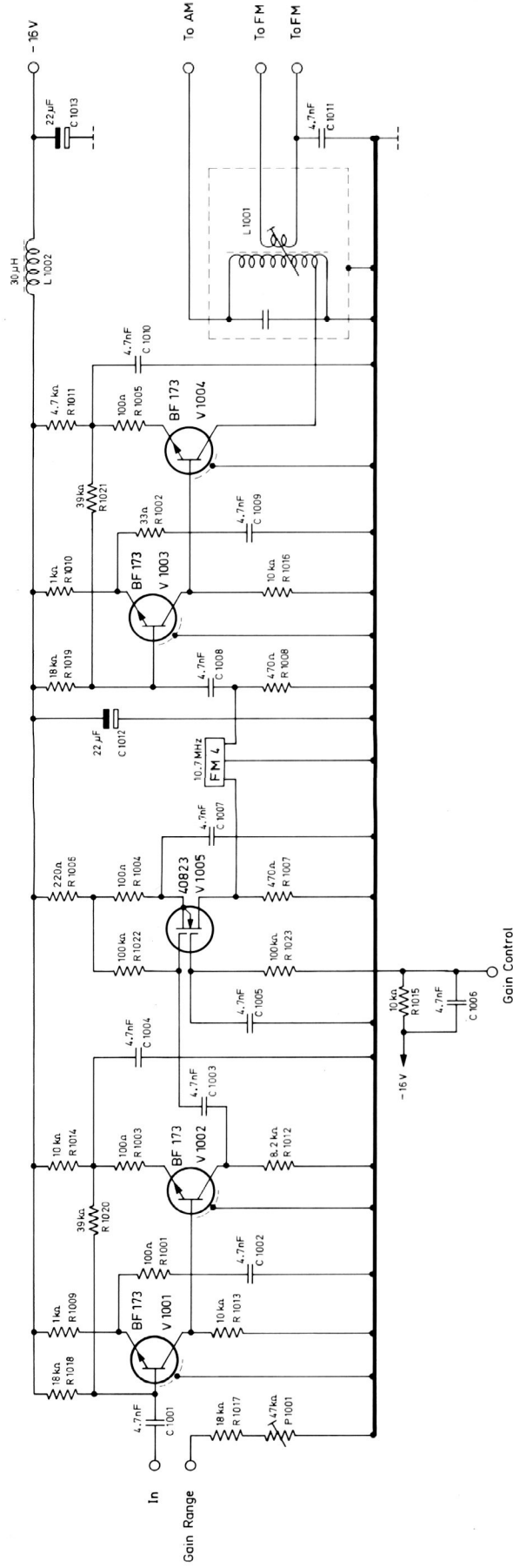
Circuit and Layout Diagrams with Parts List

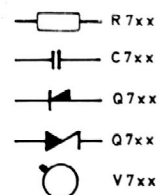
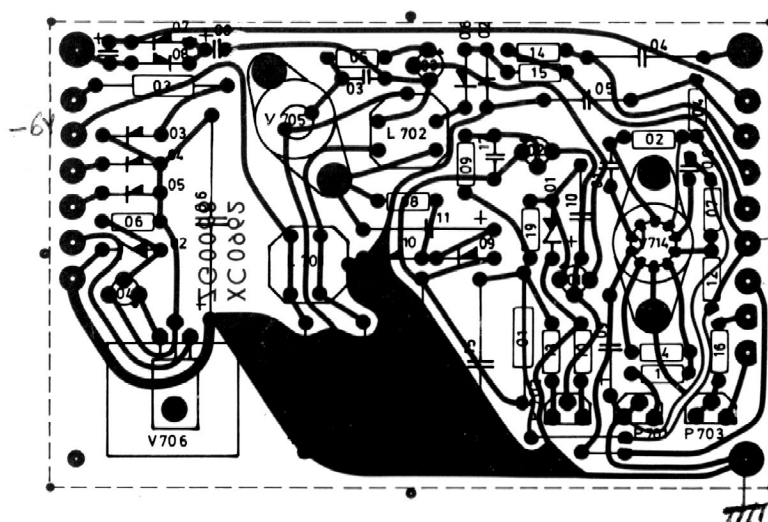
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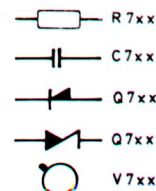
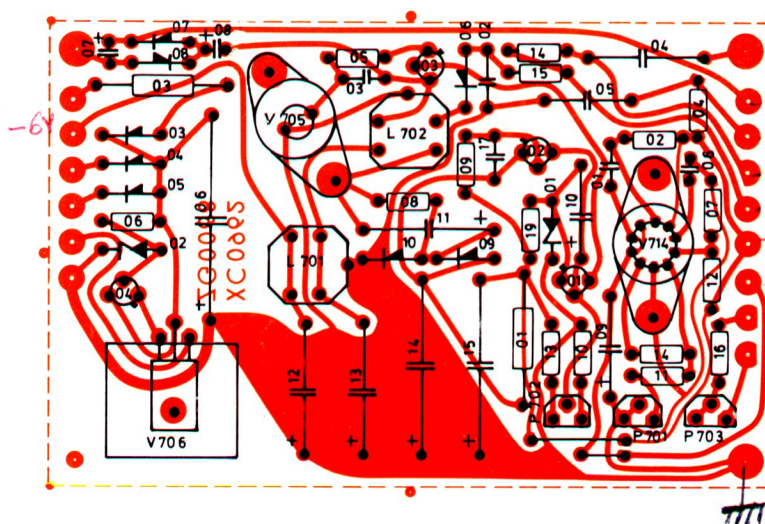
CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 1001-1011	Ceramic			4.7 nF/100 V	CK 0096
C 1012,1013	Tantalum			22 μ F/ 16 V	CF 0031
L 1001	MF filter			10.7 MHz	ZS 0190
L 1002	Coil			30 μ H	LJ 0008
P 1001	Gain range			47 k Ω	PG 3471
R 1001	Carbon	1/4 W	5%	100 Ω	RB 2100
R 1002	-	-	-	33 Ω	RB 1330
R 1003-1005	-	-	-	100 Ω	RB 2100
R 1006	-	-	-	220 Ω	RB 2220
R 1007,1008	-	-	-	470 Ω	RB 2470
R 1009,1010	-	-	-	1 k Ω	RB 3100
R 1011	-	-	-	4.7 k Ω	RB 3470
R 1012	-	-	-	8.2 k Ω	RB 3820
R 1013-1016	-	-	-	10 k Ω	RB 4100
R 1017-1019	-	-	-	18 k Ω	RB 4180
R 1020,1021	-	-	-	39 k Ω	RB 4390
R 1022,1023	-	-	-	100 k Ω	RB 5100
V 1001-1004	Si. trans	NPN		BF 173	VB 0065
V 1005	FET Dual gate			40823	VB 4004
	Filter FM 4				ZS 0189
	Printed Circuit Plugs				JP 0311
	Printed Circuit Board				XC 1002

10.7 MHz IF Amp





CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 701	Ceramic	1 nF/400 V		CK 3101	R 701	Wire	1 W	2%	3 Ω	RR 0003
C 720	Polyester	22 nF/250 V		CS 0400	R 702	Carbon	-	5%	12 Ω	RB 1120
C 703	Ceramic	47 nF/ 30 V		CK 4470	R 703	-	5.5 W	10%	22 Ω	RX 0311
C 704	Polyester	220 nF/250 V		CS 0017	R 704	Carbon	0.25 W	5%	47 Ω	RB 1470
C 705	-	470 nF/250 V		CS 0383	R 705	-	-	-	100 Ω	RB 2100
C 706-708	Tantalum	1.5 μF/ 25 V		CF 0008	R 706	-	-	-	180 Ω	RB 2180
C 709,710	Electrolytic	12.5 μF/ 25 V		CE 0416	R 707	Metal	-	1%	274 Ω	RF 2274
C 711	-	100 μF/ 6.4 V		CE 0207	R 708	Carbon	-	5%	470 Ω	RB 2470
C 712,713	-	100 μF/ 15 V		CE 0310	R 709	-	-	-	2.7 kΩ	RB 3270
C 714,715	-	220 μF/100 V		CE 0617	R 710	-	-	-	5.6 kΩ	RB 3560
C 716	-	1000 μF/ 16 V		CE 0309	R 711	Metal	-	1%	5.76 kΩ	RF 3576
C 717	Ceramic	47 nF/ 30 V		CK 4470	R 712	-	-	-	6.81 kΩ	RF 3681
L 701	Choke	0.25 mH		LB 0556	R 713	Carbon	-	5%	8.2 kΩ	RB 3820
L 702	Converter coil			LB 0785	R 714	Metal	-	1%	13 kΩ	RF 4130
P 701,702	Cermet	0.5 W	2.2 kΩ	PG 2220	R 715	Carbon	-	5%	120 kΩ	RB 5120
					R 717	-	-	10%	4.7MΩ	RB 6470
					R 719	-	-	5%	2.7 kΩ	RB 3270
Q 701,702	Ze. diode	6.6-7.0 V/ 10 mA	ZG 6.8 sel.	QV 1008	V 701,702	Si. trans	NPN	BC 107		VB 0032
Q 703-705	Si. diode	400 V/ 1 A	1 N 4004	OV 0237	V 703,704	- -	PNP	BC 177		VB 0071
Q 706-708	- -	150 V/300 mA	BAX 16	QV 0217	V 705	Ge. -	PNP	AD 162		VB 0078
Q 709,710	- -	100 V/225 mA	EC 401	QV 0213	V 706	Si. -	PNP	2 N 4919		VB 0061
					V 714	Voltage stabilizer			MC 1463 R	VE 0030
						Printed Circuit Board				XC 0962

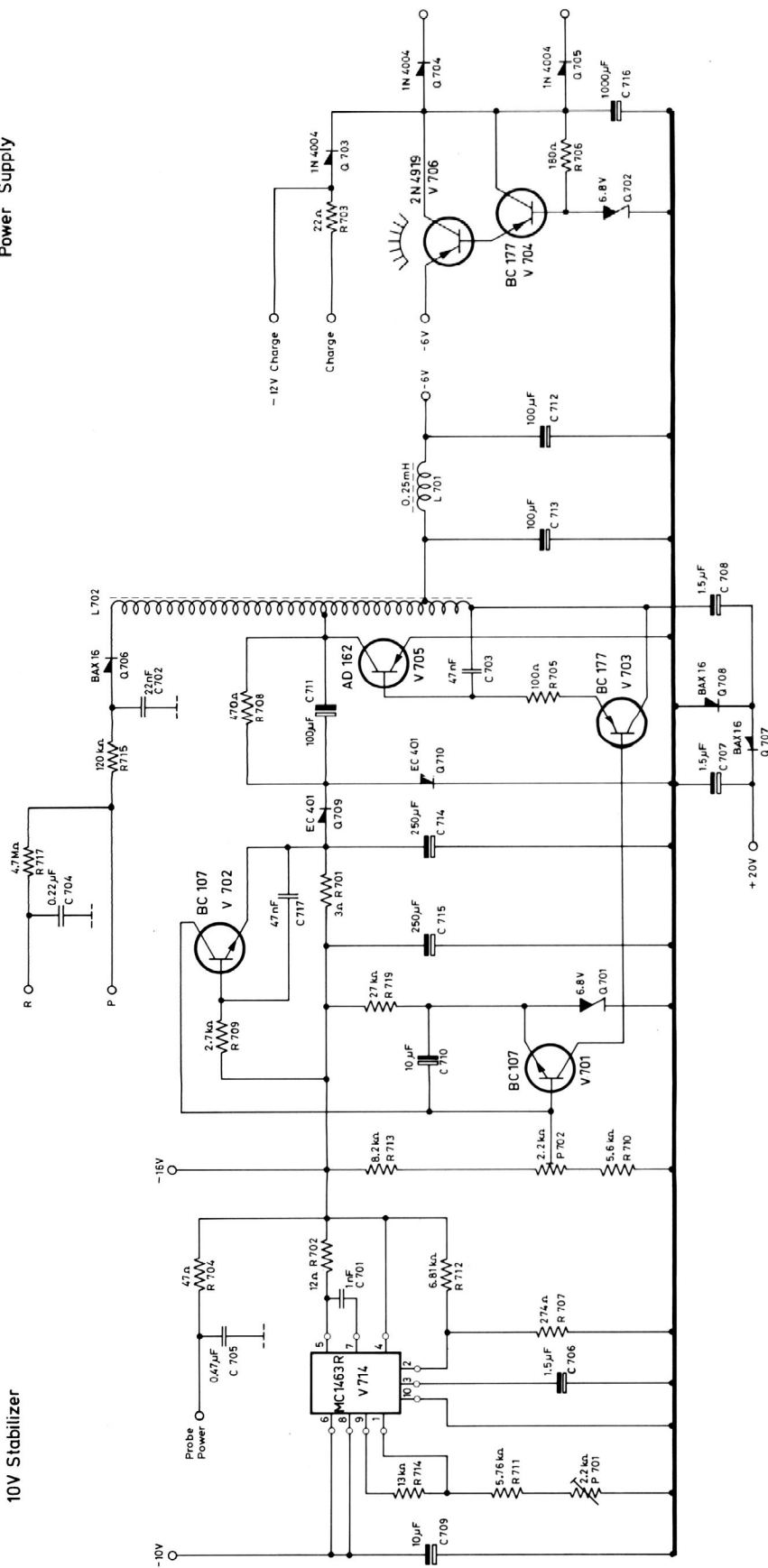


CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.
C 701	Ceramic	1 nF/400 V	CK 3101	R 701	Wire	1 W 2%	3 Ω RR 0003
C 720	Polyester	22 nF/250 V	CS 0400	R 702	Carbon	5%	12 Ω RB 1120
C 703	Ceramic	47 nF/ 30 V	CK 4470	R 703		5.5 W 10%	22 Ω RX 0311
C 704	Polyester	220 nF/250 V	CS 0017	R 704	Carbon	0.25 W 5%	47 Ω RB 1470
C 705	-	470 nF/250 V	CS 0383	R 705	-	-	100 Ω RB 2100
C 706-708	Tantalum	1.5 μF/ 25 V	CF 0008	R 706	-	-	180 Ω RB 2180
C 709,710	Electrolytic	12.5 μF/ 25 V	CE 0416	R 707	Metal	- 1%	274 Ω RF 2274
C 711	-	100 μF/ 6.4 V	CE 0207	R 708	Carbon	- 5%	470 Ω RB 2470
C 712,713	-	100 μF/ 15 V	CE 0310	R 709	-	-	2.7 kΩ RB 3270
C 714,715	-	220 μF/100 V	CE 0617	R 710	-	-	5.6 kΩ RB 3560
C 716	-	1000 μF/ 16 V	CE 0309	R 711	Metal	- 1%	5.76 kΩ RF 3576
C 717	Ceramic	47 nF/ 30 V	CK 4470	R 712	-	-	6.81 kΩ RF 3681
L 701	Choke	0.25 mH	LB 0556	R 713	Carbon	- 5%	8.2 kΩ RB 3820
L 702	Converter coil		LB 0785	R 714	Metal	- 1%	13 kΩ RF 4130
P 701,702	Cermet	0.5 W	PG 2220	R 715	Carbon	- 5%	120 kΩ RB 5120
Q 701,702	Ze. diode	6.6-7.0 V/ 10 mA	ZG 6.8 sel.	R 717	-	- 10%	4.7MΩ RB 6470
Q 703-705	Si. diode	400 V/ 1 A	1 N 4004	R 719	-	- 5%	2.7 kΩ RB 3270
Q 706-708	-	150 V/300 mA	BAX 16	V 701,702	Si. trans	NPN	BC 107 VB 0032
Q 709,710	-	100 V/225 mA	EC 401	V 703,704	-	PNP	BC 177 VB 0071
				V 705	Ge. -	PNP	AD 162 VB 0078
				V 706	Si. -	PNP	2 N 4919 VB 0061
				V 714	Voltage stabilizer		MC 1463 R VE 0030
					Printed Circuit Board		XC 0962


DC Converter

10V Stabilizer

Power Supply



BC 177
BC 107



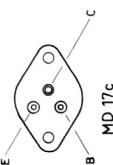
B
C
E

Transistor Sockets
Bottom View

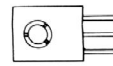
MC 1463 R

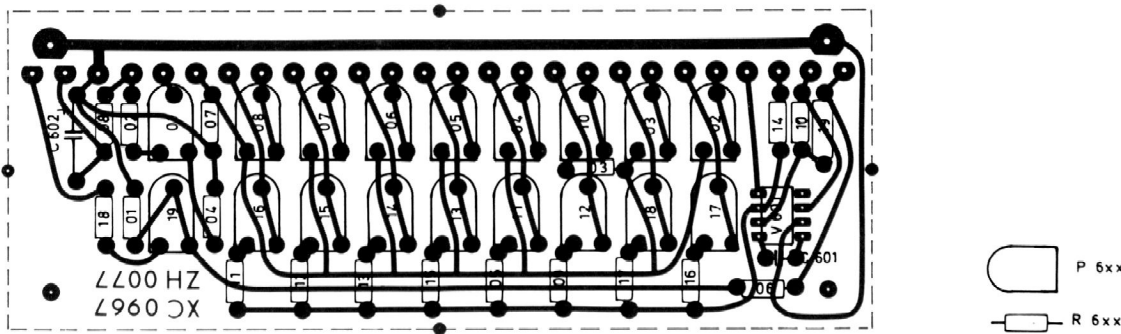


A diagram of a diamond-shaped object, possibly a gemstone or a piece of jewelry. It has four circular features arranged in a square pattern. The top-left feature is labeled 'AD 162', the top-right is 'MD 17c', the bottom-left is 'C', and the bottom-right is 'B'. The object is outlined with a double line.

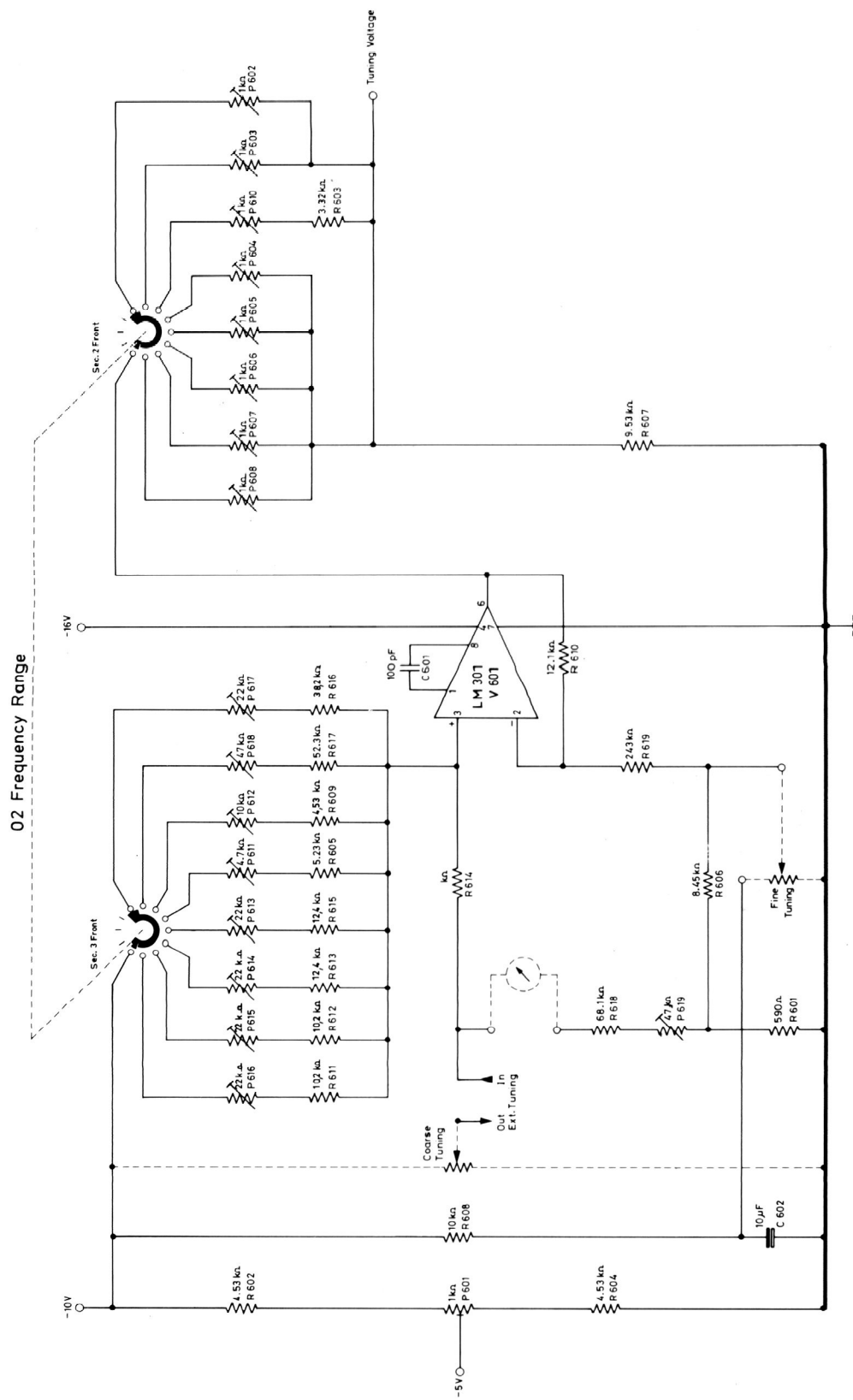


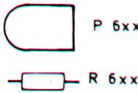
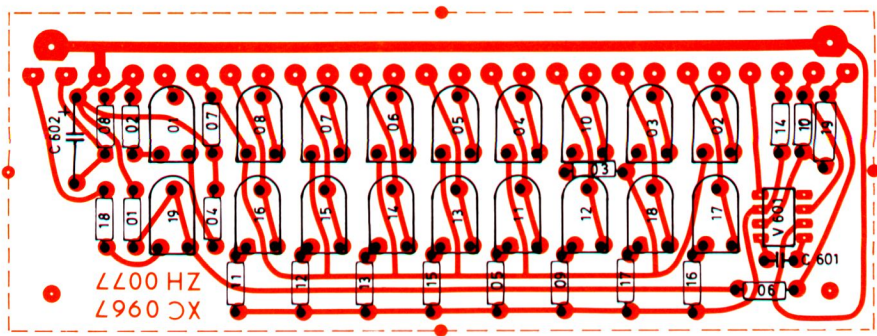
2N 4919
E C B
Epoxy





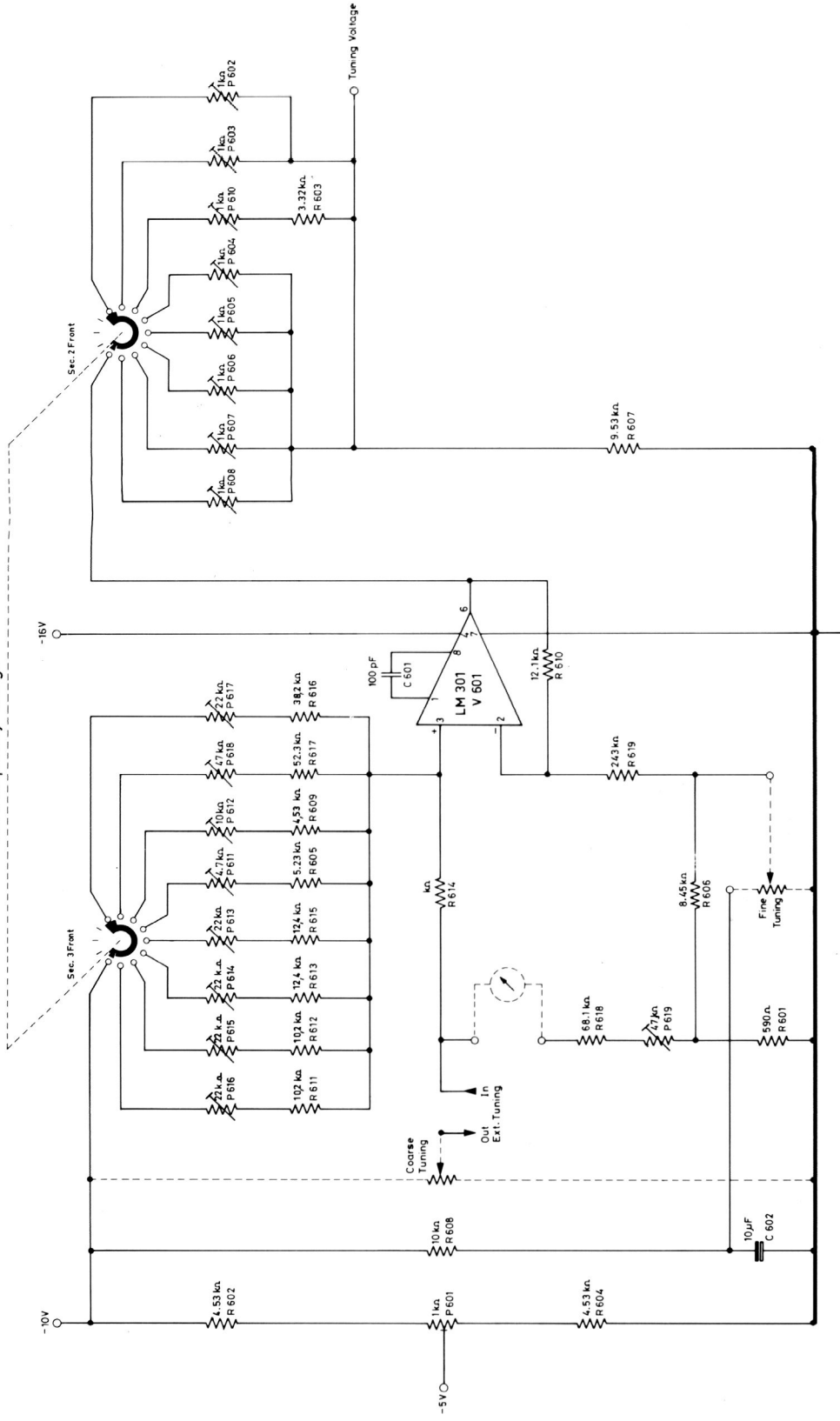
CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 601	Ceramic	100 pF/500 V			CK 2101	R 607	Metal	0.25 W	1%	9.53 kΩ	RF 3953
C 602	Electrolytic	12.5 μF/ 25 V			CE 0416	R 608	-	-	-	10 kΩ	RF 4100
						R 609	-	-	-	4.53 kΩ	RF 3453
P 601-608	Cermet	0.5 W	1 kΩ		PG 2108	R 610	-	-	-	12.1 kΩ	RF 4121
P 610	-	-	1 kΩ		PG 2108	R 611,612	-	-	-	10.2 kΩ	RF 4102
P 611	-	-	4.7 kΩ		PG 2470	R 613	-	-	-	12.4 kΩ	RF 4124
P 612	-	-	10 kΩ		PG 3109	R 614	-	-	-	20.0 kΩ	RF 4200
P 613	-	-	22 kΩ		PG 3221	R 615	-	-	-	12.4 kΩ	RF 4124
P 614-616	-	-	22 kΩ		PG 3221	R 616	-	-	-	38.3 kΩ	RF 4383
P 617	-	-	22 kΩ		PG 3221	R 617	-	-	-	52.3 kΩ	RF 4523
P 618,619	-	-	47 kΩ		PG 3471	R 618	-	-	-	68.1 kΩ	RF 4681
						R 619	-	-	-	243 kΩ	RF 5243
R 601	Metal	0.25 W	1%	590 Ω	RF 2590	V 601	Op. Ampl.			LM 301 AN	VE 0017
R 602	-	-	-	4.53 kΩ	RF 3453		Printed Circuit Board				XC 0967
R 603	-	-	-	3.32 kΩ	RF 3332						
R 604	-	-	-	4.53 kΩ	RF 3453						
R 605	-	-	-	5.23 kΩ	RF 3523						
R 606	-	-	-	8.45 kΩ	RF 3845						

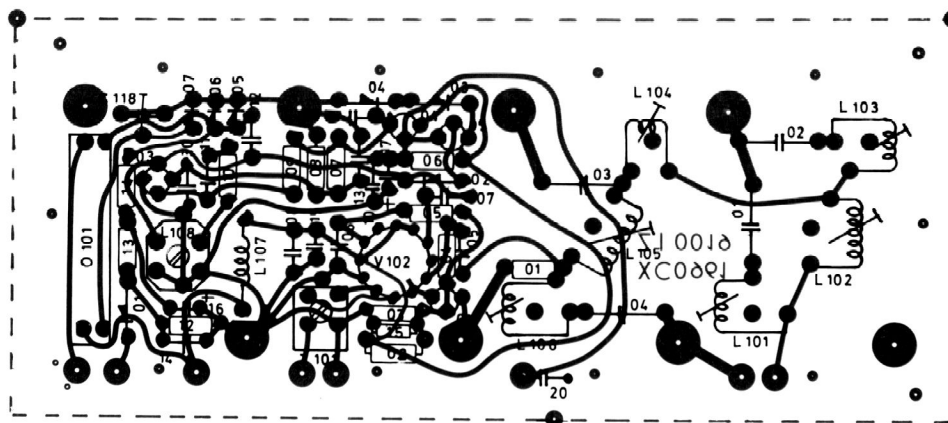




CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
C 601	Ceramic	100 pF/500 V		CK 2101	R 607	Metal	0.25 W	1%	9.53 kΩ RF 3953
C 602	Electrolytic	12.5 μF/ 25 V		CE 0416	R 608	-	-	-	10 kΩ RF 4100
					R 609	-	-	-	4.53 kΩ RF 3453
P 601-608	Cermet	0.5 W	1 kΩ	PG 2108	R 610	-	-	-	12.1 kΩ RF 4121
P 610	-	-	1 kΩ	PG 2108	R 611,612	-	-	-	10.2 kΩ RF 4102
P 611	-	-	4.7 kΩ	PG 2470	R 613	-	-	-	12.4 kΩ RF 4124
P 612	-	-	10 kΩ	PG 3109	R 614	-	-	-	20.0 kΩ RF 4200
P 613	-	-	22 kΩ	PG 3221	R 615	-	-	-	12.4 kΩ RF 4124
P 614-616	-	-	22 kΩ	PG 3221	R 616	-	-	-	38.3 kΩ RF 4383
P 617	-	-	22 kΩ	PG 3221	R 617	-	-	-	52.3 kΩ RF 4523
P 618,619	-	-	47 kΩ	PG 3471	R 618	-	-	-	68.1 kΩ RF 4681
					R 619	-	-	-	243 kΩ RF 5243
R 601	Metal	0.25 W	1%	590 Ω RF 2590	V 601	Op. Ampl.			LM 301 AN VE 0017
R 602	-	-	-	4.53 kΩ RF 3453		Printed Circuit Board			XC 0967
R 603	-	-	-	3.32 kΩ RF 3332					
R 604	-	-	-	4.53 kΩ RF 3453					
R 605	-	-	-	5.23 kΩ RF 3523					
R 606	-	-	-	8.45 kΩ RF 3845					

02 Frequency Range

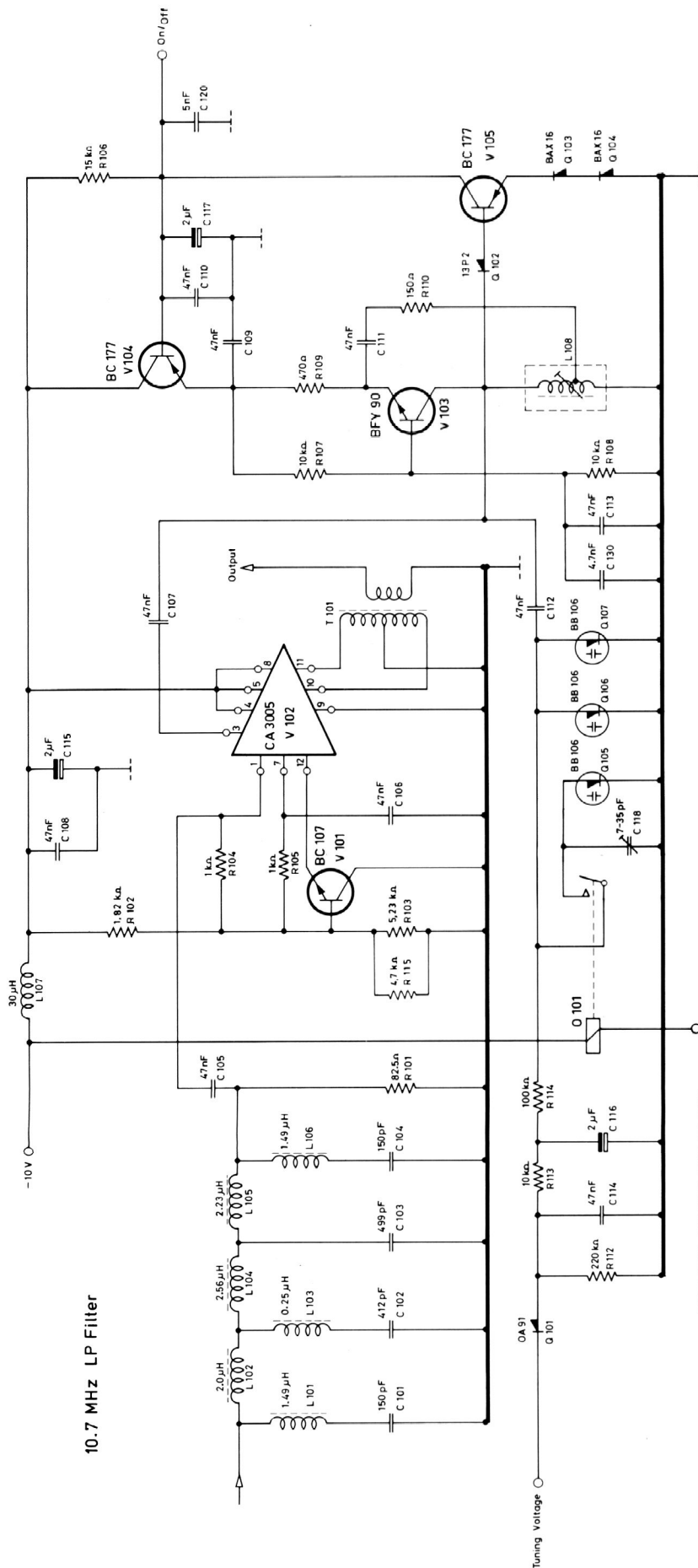




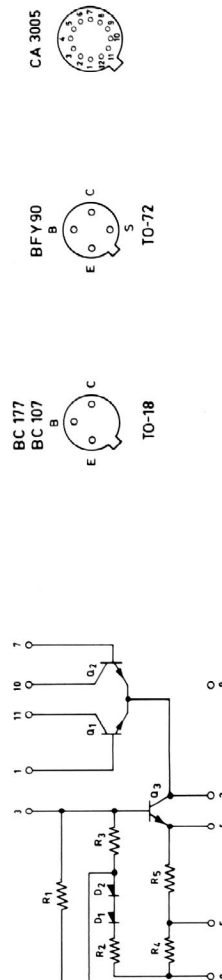
CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
C 101	Polystyrene	1%	150 pF/125 V	CT 1139	R 101	Metal	0.25 W	1%	82.5 Ω RF 1825
C 102	-	-	412 pF/ 63 V	CT 1166	R 102	-	-	-	1.82 kΩ RF 3182
C 103	-	-	499 pF/100 V	CT 1114	R 103	-	-	-	5.23 kΩ RF 3523
C 104	-	-	150 pF/125 V	CT 1139	R 104,105	Carbon	-	5%	1 kΩ RB 3100
C 105-114	Ceramic		47 nF/ 30 V	CK 4470	R 106	-	-	-	15 kΩ RB 4150
C 115-117	Tantalum		2.2 μF/ 35 V	CF 0022	R 107,108	-	-	-	10 kΩ RB 4100
C 118	Trimmer		7-35 pF/160 V	CV 0046	R 109	-	-	-	470 Ω RB 2470
C 120	Ceramic		5 nF/100 V	CK 0096	R 110	-	-	-	150 Ω RB 2150
L 101	Coil		1.49 μH	LB 0804	R 112	-	-	-	220 kΩ RB 5220
L 102	-		2.0 μH	LB 0805	R 113	-	-	-	10 kΩ RB 4100
L 103	-		0.25 μH	LB 0803	R 114	-	-	-	100 kΩ RB 5100
L 104	-		2.56 μH	LB 0807	R 115	NTC			4.7 kΩ RN 0011
L 105	-		2.23 μH	LB 0806	T 101	Transformer			LB 0802
L 106	-		1.49 μH	LB 0804	V 101	Si. trans.	NPN	BC 107	VB 0032
L 107	-		30 μH	LJ 0008	V 102	I.C.		CA 3005	VB 0007
L 108	Oscillator coil			ZS 0182	V 103	Si. trans.	NPN	BFY 90	VB 0540
O 101	Reed relay			OC 0050	V 104,105	-	PNP	BC 177	VB 0071
Q 101	Ge. diode	90 V/ 50 mA	OA 91	QV 0097		Printed Circuit Board			XC 0961
Q 102	Si. -	200 V/ 40 mA	13 P 2	QV 0022					
Q 103,104	-	150 V/300 mA	BAX 16	QV 0217					
Q 105-107	Variable Capacitance Diode		BB 106	QV 3007					

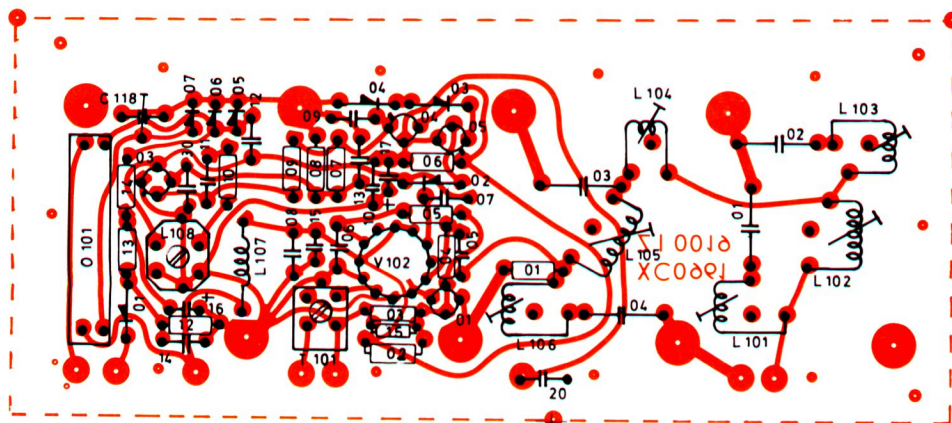
10.8-18.7 MHz Oscillator

Mixer



SCHEMATIC DIAGRAM FOR CA 3005

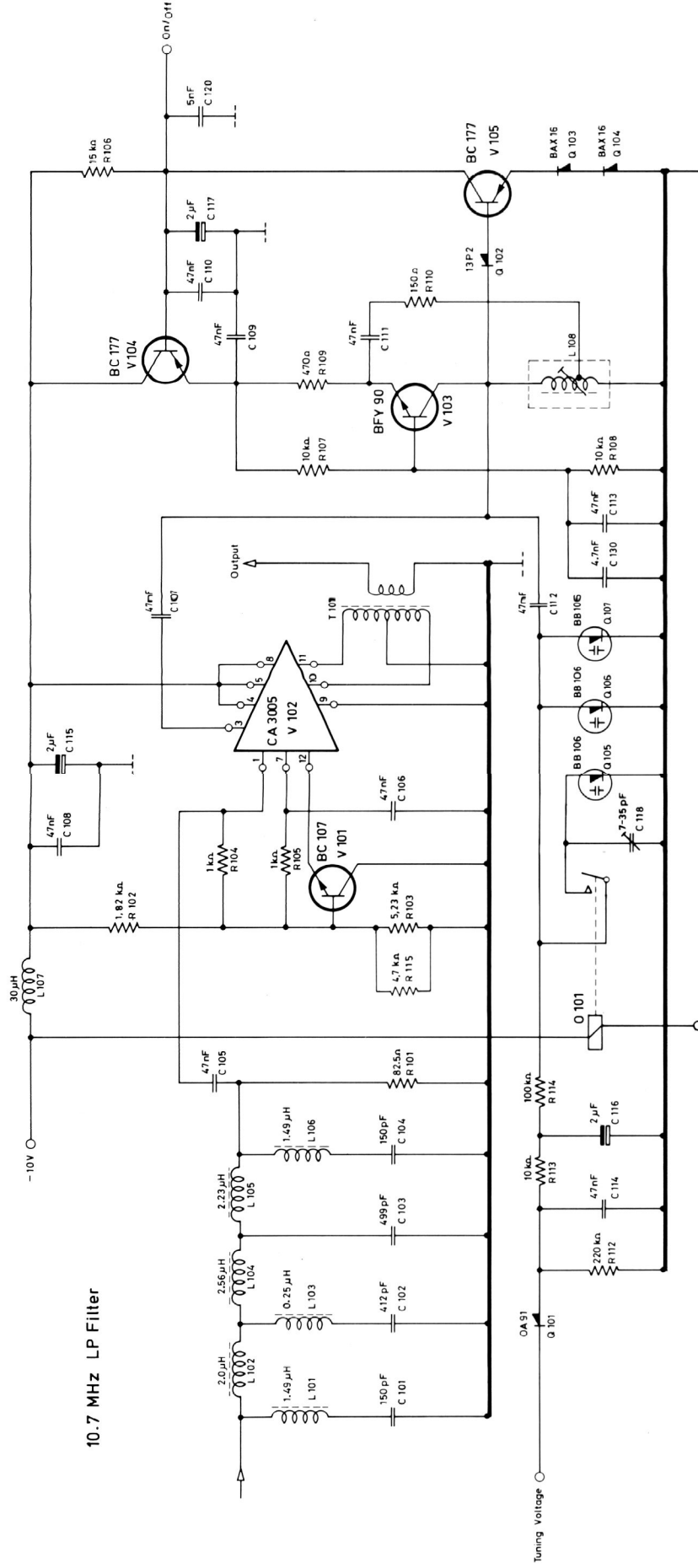




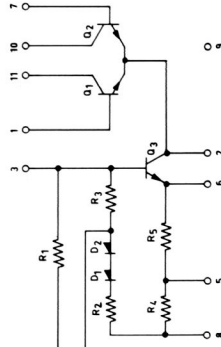
CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
C 101	Polystyrene	1%	150 pF/125 V	CT 1139	R 101	Metal	0.25 W	1%	82.5 Ω RF 1825
C 102	-	-	412 pF/ 63 V	CT 1166	R 102	-	-	-	1.82 k Ω RF 3182
C 103	-	-	499 pF/100 V	CT 1114	R 103	-	-	-	5.23 k Ω RF 3523
C 104	-	-	150 pF/125 V	CT 1139	R 104,105	Carbon	-	5%	1 k Ω RB 3100
C 105-114	Ceramic		47 nF/ 30 V	CK 4470	R 106	-	-	-	15 k Ω RB 4150
C 115-117	Tantalum		2.2 μ F/ 35 V	CF 0022	R 107,108	-	-	-	10 k Ω RB 4100
C 118	Trimmer		7-35 pF/160 V	CV 0046	R 109	-	-	-	470 Ω RB 2470
C 120	Ceramic		5 nF/100 V	CK 0096	R 110	-	-	-	150 Ω RB 2150
L 101	Coil		1.49 μ H	LB 0804	R 112	-	-	-	220 k Ω RB 5220
L 102	-		2.0 μ H	LB 0805	R 113	-	-	-	10 k Ω RB 4100
L 103	-		0.25 μ H	LB 0803	R 114	-	-	-	100 k Ω RB 5100
L 104	-		2.56 μ H	LB 0807	R 115	NTC			4.7 k Ω RN 0011
L 105	-		2.23 μ H	LB 0806	T 101	Transformer			LB 0802
L 106	-		1.49 μ H	LB 0804	V 101	Si. trans.	NPN	BC 107	VB 0032
L 107	-		30 μ H	LJ 0008	V 102	I.C.		CA 3005	VB 0007
L 108	Oscillator coil			ZS 0182	V 103	Si. trans.	NPN	BFY 90	VB 0540
O 101	Reed relay			OC 0050	V 104,105	-	PNP	BC 177	VB 0071
Q 101	Ge. diode	90 V/ 50 mA	OA 91	QV 0097	Printed Circuit Board				XC 0961
Q 102	Si. -	200 V/ 40 mA	13 P 2	QV 0022					
Q 103,104	-	150 V/300 mA	BAX 16	QV 0217					
Q 105-107	Variable Capacitance Diode		BB 106	QV 3007					

10.8-18.7 MHz Oscillator

Mixer



SCHEMATIC DIAGRAM FOR CA3005



BC 177

BC 107

BC 177

BC 107

BC 177

BC 107

BC 177

BC 107

BFY 90

BFY 90

BFY 90

BFY 90

BFY 90

BFY 90

BFY 90

BFY 90

CA 3005

CA 3005

CA 3005

CA 3005

CA 3005

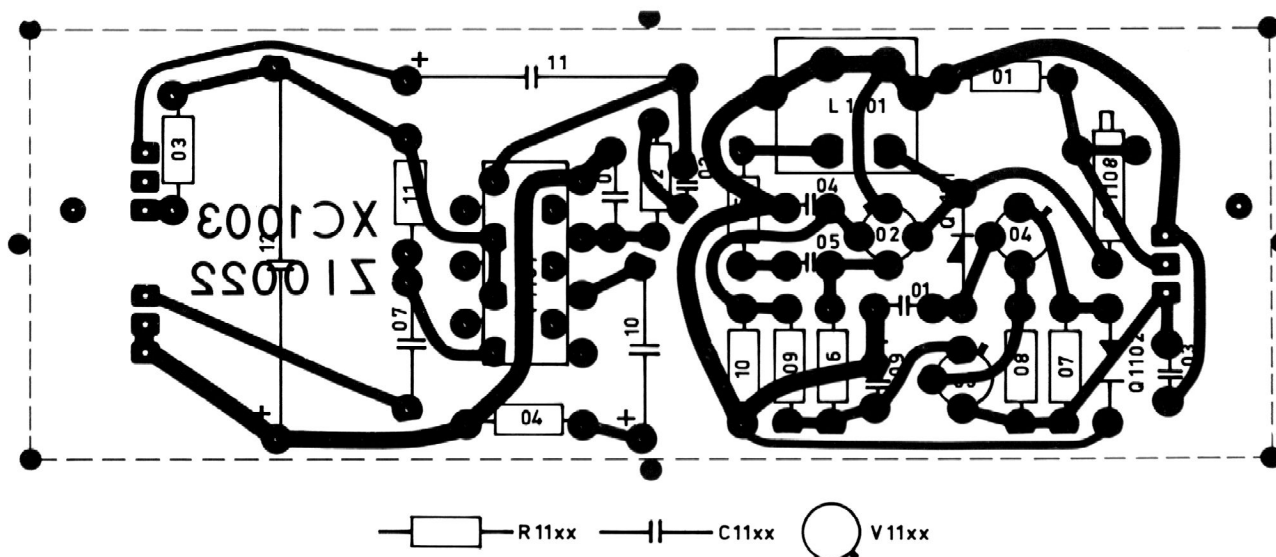
CA 3005

CA 3005

CA 3005

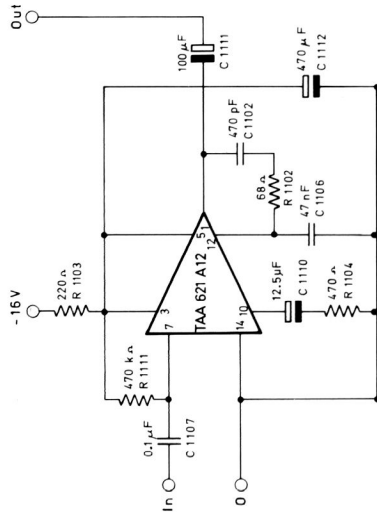
Circuit and Layout Diagrams with Parts List

ZI 0022

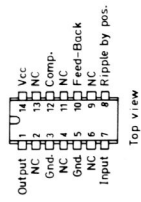


CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 1101	Ceramic	120 pF/400 V		CK 2121	R 1101	Carbon	1/4 W	5%	47 Ω	RB 1470
C 1102	-	470 pF/400 V		CK 2470	R 1102	-	-	-	68 Ω	RB 1680
C 1103-1105	-	4.7 nF/100 V		CK 0096	R 1103	-	-	-	220 Ω	RB 2220
C 1106	-	47 nF/ 30 V		CK 4470	R 1104,1105	-	-	-	470 Ω	RB 2470
C 1107	Polyester	0.1 μF/250 V		CS 0402	R 1106	-	-	-	1.2 kΩ	RB 3120
C 1108	Trimmer	0.5-3 pF		CV 0048	R 1107	-	-	-	4.7 kΩ	RB 3470
C 1109	Tantalum	1.5 μF/ 25 V		CF 0008	R 1108,1109	-	-	-	18 kΩ	RB 4180
C 1110	Electrolytic	12.5 μF/ 25 V		CE 0416	R 1110	-	-	-	27 kΩ	RB 4270
C 1111	-	100 μF/ 35 V		CE 0443	R 1111	-	-	-	470 kΩ	RB 5470
C 1112	-	400 μF/ 40 V		CE 0417						
L 1101	Coil			ZS 0085	V 1101	IC			TAA 621 A 12	VE 0041
					V 1102	Si. trans	NPN		BF 173	VB 0065
					V 1103,1104		PNP		BC 177	VB 0071
Q 1101	Ge. diode	20 V/8 mA	OA 90	QV 0098						
Q 1102	Ze. diode	5-6.2 V/5 mA	ZG 5.6	QV 1105		Printed Circuit Plugs				JP 0311
						Printed Circuit Board				XC 1003

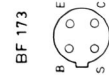
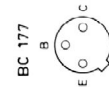
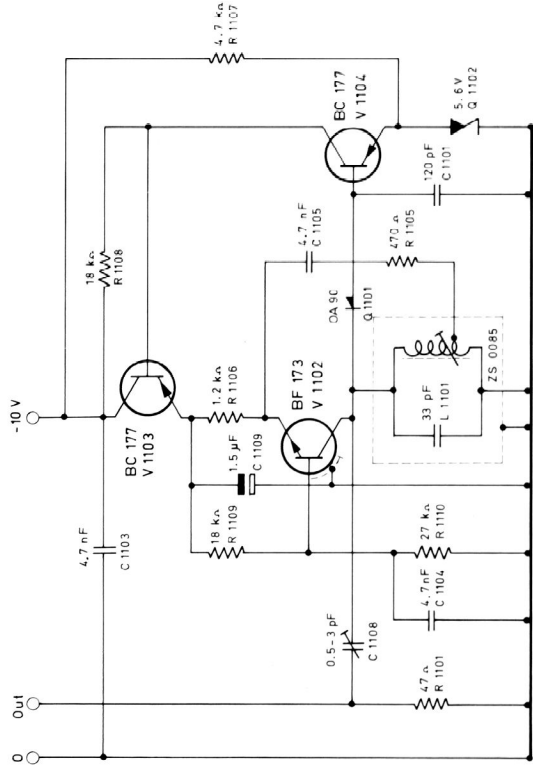
Loudspeaker Amp.



TAA 621 A 12



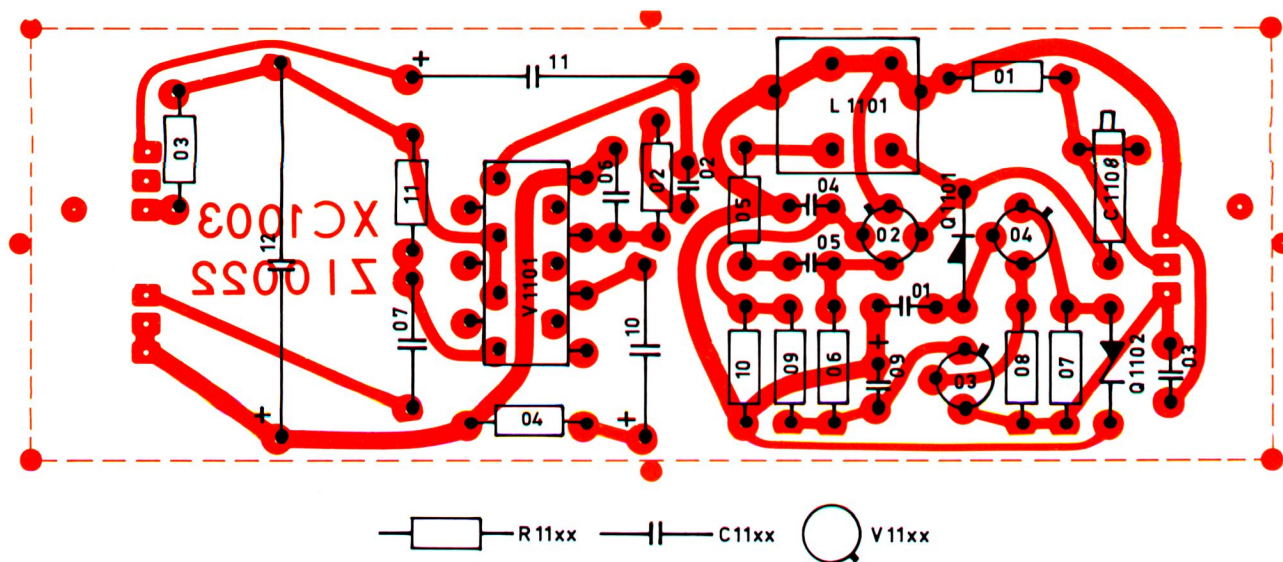
27 MHz Reference Oscillator



Bottom view

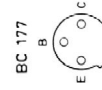
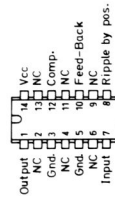
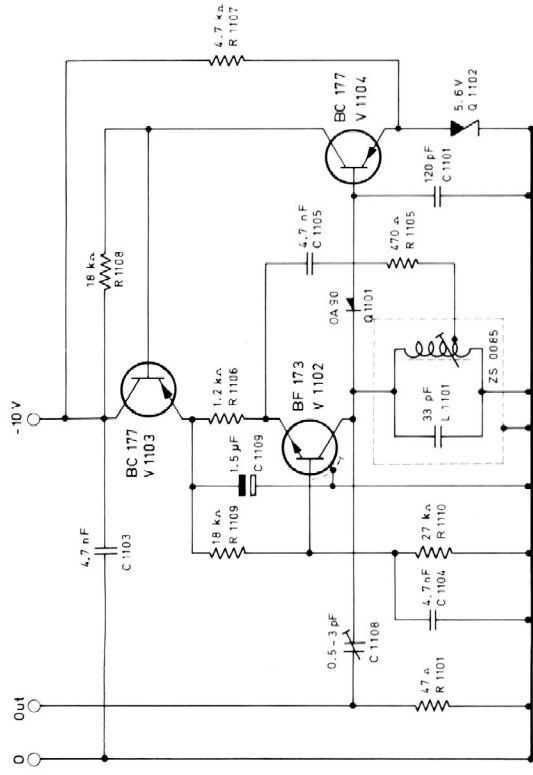
Circuit and Layout Diagrams with Parts List

ZI 0022



CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.	CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 1101	Ceramic	120 pF/400 V		CK 2121	R 1101	Carbon	1/4 W	5%	47 Ω	RB 1470
C 1102	-	470 pF/400 V		CK 2470	R 1102	-	-	-	68 Ω	RB 1680
C 1103-1105	-	4.7 nF/100 V		CK 0096	R 1103	-	-	-	220 Ω	RB 2220
C 1106	-	47 nF/ 30 V		CK 4470	R 1104,1105	-	-	-	470 Ω	RB 2470
C 1107	Polyester	0.1 μF/250 V		CS 0402	R 1106	-	-	-	1.2 kΩ	RB 3120
C 1108	Trimmer	0.5-3 pF		CV 0048	R 1107	-	-	-	4.7 kΩ	RB 3470
C 1109	Tantalum	1.5 μF/ 25 V		CF 0008	R 1108,1109	-	-	-	18 kΩ	RB 4180
C 1110	Electrolytic	12.5 μF/ 25 V		CE 0416	R 1110	-	-	-	27 kΩ	RB 4270
C 1111	-	100 μF/ 35 V		CE 0443	R 1111	-	-	-	470 kΩ	RB 5470
C 1112	-	400 μF/ 40 V		CE 0417						
L 1101	Coil			ZS 0085	V 1101	IC			TAA 621 A 12	VE 0041
					V 1102	Si. trans	NPN		BF 173	VB 0065
					V 1103,1104		PNP		BC 177	VB 0071
Q 1101	Ge. diode	20 V/8 mA	OA 90	QV 0098						
Q 1102	Ze. diode	5-6.2 V/5 mA	ZG 5.6	QV 1105		Printed Circuit Plugs				JP 0311
						Printed Circuit Board				XC 1003

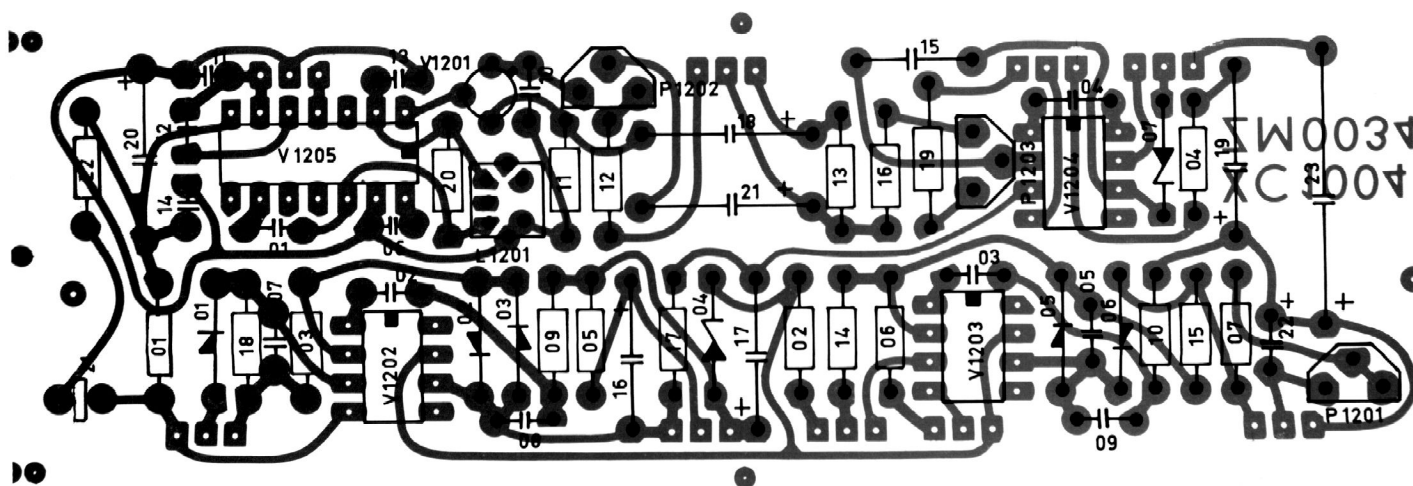
27 MHz Reference Oscillator



Top view

Circuit and Layout Diagrams with Parts List

ZM 0034

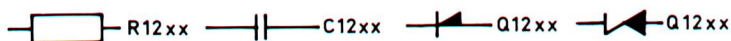
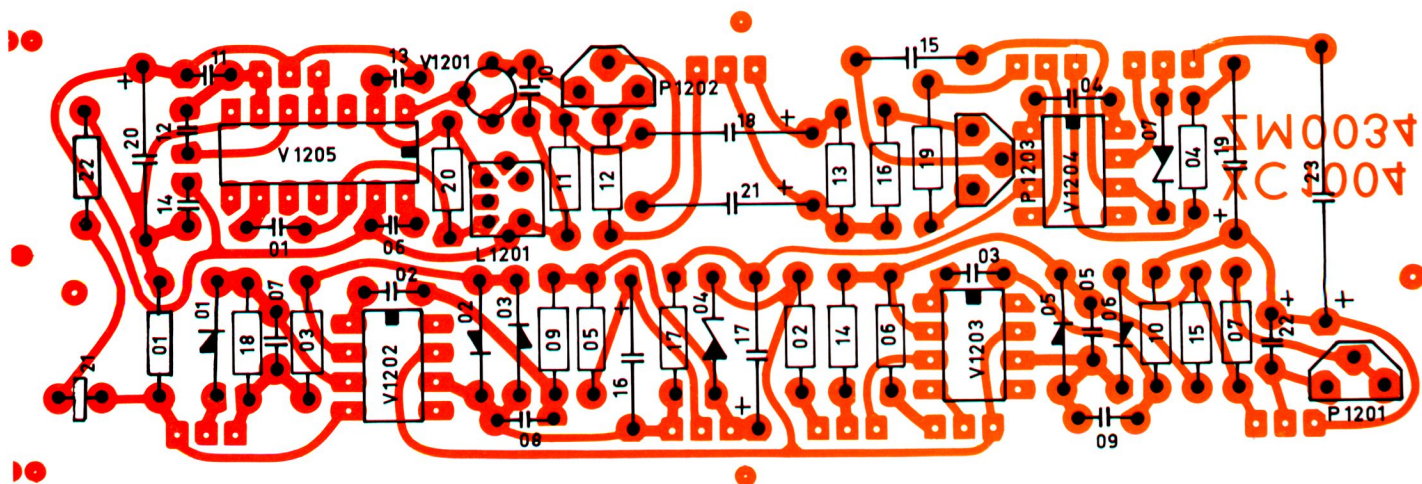


CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.	
C 1201	Ceramic	4.7 pF/400 V	CK 0470	
C 1202-1205	-	33 pF/400 V	CK 1330	
C 1206	-	120 pF/400 V	CK 2121	
C 1207-1209	-	390 pF/400 V	CK 2391	
C 1210	-	1 nF/400 V	CK 3101	
C 1211-1214	-	4.7 nF/100 V	CK 0096	
C 1215	Polyester	0.1 μ F/250 V	CS 0402	
C 1216,1217	Electrolytic	2 μ F/ 64 V	CE 0401	
C 1218-1220	-	12.5 μ F/ 35 V	CE 0416	
C 1221	-	22 μ F/ 25 V	CE 0329	
C 1222	Tantalum	22 μ F/ 16 V	CF 0331	
C 1223	Electrolytic	100 μ F/ 35 V	CE 0440	
C 1224	Ceramic	18 pF/400 V	CK 1180	
L 1201	MF filter	10.7 MHz	ZS 0190	
P 1201	Cermet	0.5 W	PG 2471	
P 1202	-	-	PG 2471	
P 1203	-	-	PG 3220	
Q 1201-1203	Ge. diode	20 V/ 8 mA	OA 90	QV 0098
Q 1204	Ze. diode	13.8-15.5 V/ 5 mA	ZF 15	QV 1325
Q 1205,1206	Si. diode	150 V/300 mA	BAX 16	QV 0217
Q 1207	Ze. diode	8.5-9.6 V/ 5 mA	ZF 9.1	QV 1109

CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.	
R 1201	Metal	1/4 W 1%	301 Ω	RF 2301
R 1202	Carbon	- 5%	390 Ω	RB 2390
R 1203	-	-	2.7 k Ω	RB 3270
R 1204	-	-	3.3 k Ω	RB 3330
R 1205	-	-	4.7 k Ω	RB 3470
R 1206	Metal	- 1%	6.19 k Ω	RF 3619
R 1207	Carbon	- 5%	4.7 k Ω	RB 3470
R 1209-1211	-	-	10 k Ω	RB 4100
R 1212	-	-	15 k Ω	RB 4150
R 1213	-	-	22 k Ω	RB 4220
R 1214	Metal	- 1%	23.7 k Ω	RF 4237
R 1215	-	-	26.7 k Ω	RF 4267
R 1216	-	-	29.4 k Ω	RF 4294
R 1217	Carbon	- 5%	47 k Ω	RB 4470
R 1218	-	-	68 k Ω	RB 4680
R 1219	Metal	- 1%	396 k Ω	RF 6036
R 1220	Carbon	- 5%	1.5 k Ω	RB 3150
R 1221	Metal	1%	162 Ω	RF 2162
R 1222	NTC	-	1,3 k Ω	RN 0008
V 1201	Si. trans	NPN	BC 107	VB 0032
V 1202-1204	IC	-	LM 301 AN	VE 0017
V 1205	FM Det.	-	ULN 2111 A	VE 0040
Printed Circuit Plugs			JP 0311	
Printed Circuit Board			XC 1004	
Q 1205,1206	Si. diode	150 V/300 mA	BAX 16	QV 0217
Q 1207	Ze. diode	8.5-9.6 V/ 5 mA	ZF 9.1	QV 1109

Circuit and Layout Diagrams
with Parts List

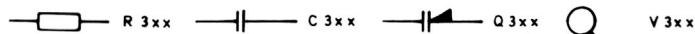
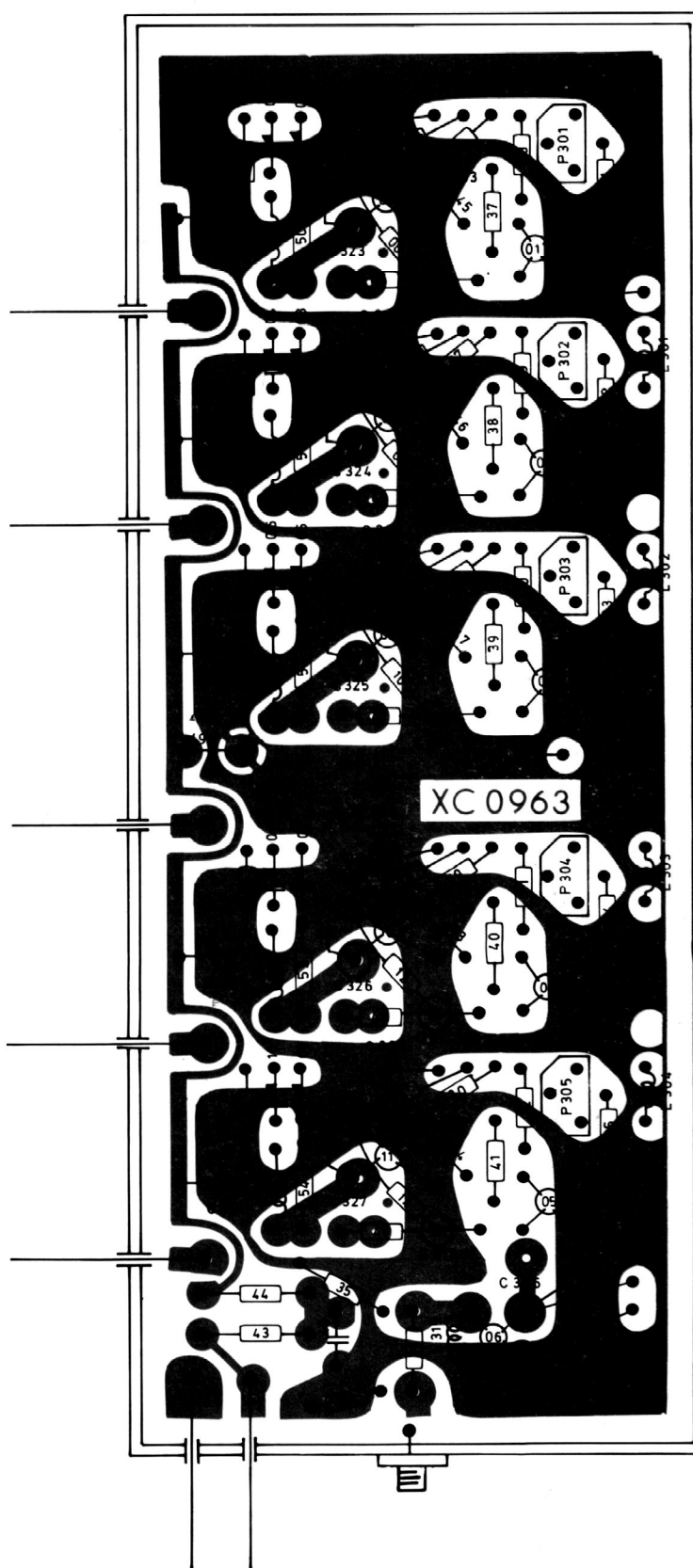
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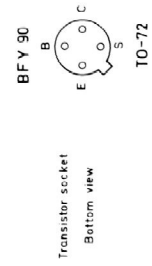
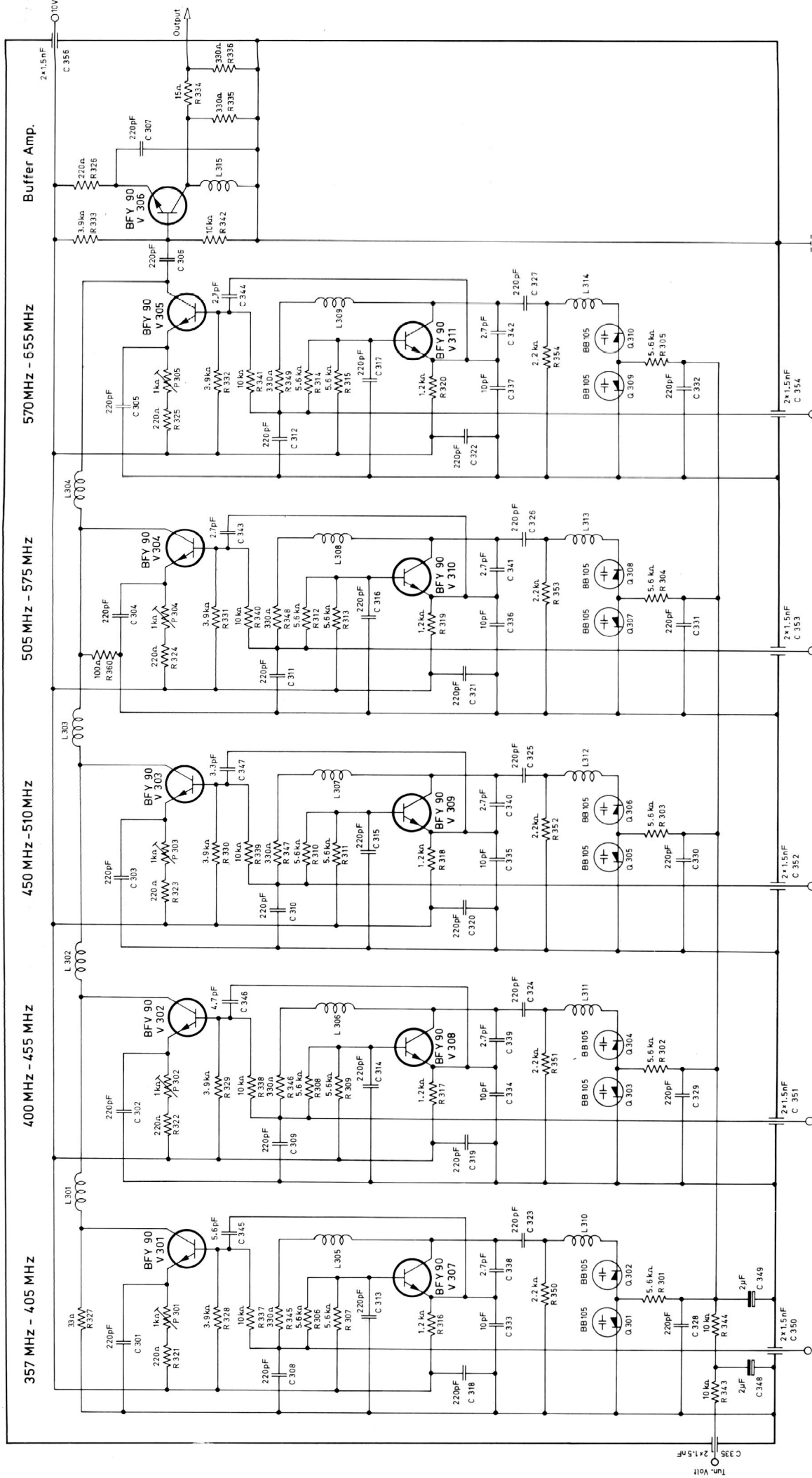


CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.	
C 1201	Ceramic	4.7 pF/400 V	CK 0470	
C 1202-1205	-	33 pF/400 V	CK 1330	
C 1206	-	120 pF/400 V	CK 2121	
C 1207-1209	-	390 pF/400 V	CK 2391	
C 1210	-	1 nF/400 V	CK 3101	
C 1211-1214	-	4.7 nF/100 V	CK 0096	
C 1215	Polyester	0.1 μ F/250 V	CS 0402	
C 1216,1217	Electrolytic	2 μ F/ 64 V	CE 0401	
C 1218-1220	-	12.5 μ F/ 35 V	CE 0416	
C 1221	-	22 μ F/ 25 V	CE 0329	
C 1222	Tantalum	22 μ F/ 16 V	CF 0331	
C 1223	Electrolytic	100 μ F/ 35 V	CE 0440	
C 1224	Ceramic	18 pF/400 V	CK 1180	
L 1201	MF filter	10.7 MHz	ZS 0190	
P 1201	Cermet	0.5 W	PG 2471	
P 1202	-	-	PF 2471	
P 1203	-	-	PG 3220	
Q 1201-1203	Ge. diode	20 V/ 8 mA	OA 90	QV 0098
Q 1204	Ze. diode	13.8-15.5 V/ 5 mA	ZF 15	QV 1325
Q 1205,1206	Si. diode	150 V/300 mA	BAX 16	QV 0217
Q 1207	Ze. diode	8.5-9.6 V/ 5 mA	ZF 9.1	QV 1109

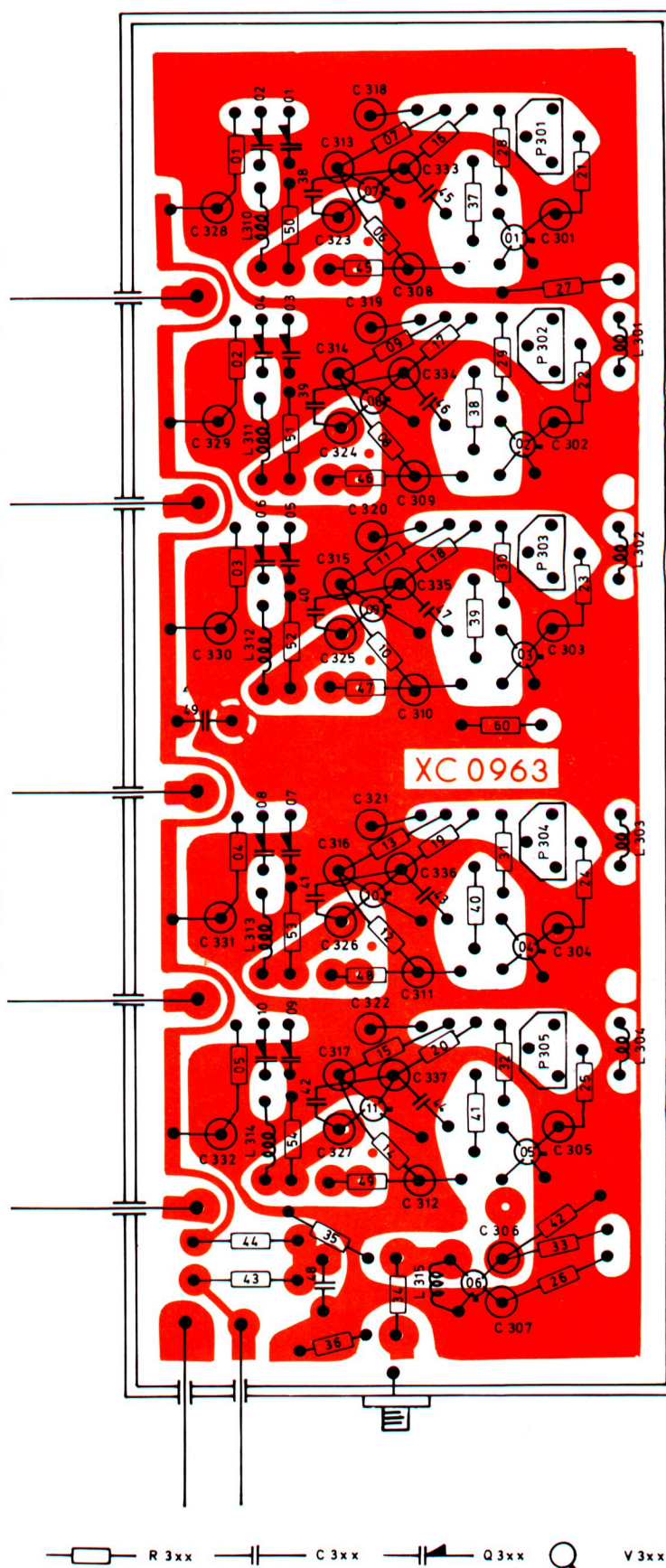
CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.	
R 1201	Metal	1/4 W 1%	301 Ω	RF 2301
R 1202	Carbon	- 5%	390 Ω	RB 2390
R 1203	-	-	2.7 k Ω	RB 3270
R 1204	-	-	3.3 k Ω	RB 3330
R 1205	-	-	4.7 k Ω	RB 3470
R 1206	Metal	- 1%	6.19 k Ω	RF 3619
R 1207	Carbon	- 5%	4.7 k Ω	RB 3470
R 1209-1211	-	-	10 k Ω	RB 4100
R 1212	-	-	15 k Ω	RB 4150
R 1213	-	-	22 k Ω	RB 4220
R 1214	Metal	- 1%	23.7 k Ω	RF 4237
R 1215	-	-	26.7 k Ω	RF 4267
R 1216	-	-	29.4 k Ω	RF 4294
R 1217	Carbon	- 5%	47 k Ω	RB 4470
R 1218	-	-	68 k Ω	RB 4680
R 1219	Metal	- 1%	396 k Ω	RF 6036
R 1220	Carbon	- 5%	1.5 k Ω	RB 3150
R 1221	Metal	1%	162 Ω	RF 2162
R 1222	NTC	-	1,3 k Ω	RN 0008
V 1201	Si. trans	NPN	BC 107	VB 0032
V 1202-1204	IC	-	LM 301 AN	VE 0017
V 1205	FM Det.	-	ULN 2111 A	VE 0040
Printed Circuit Plugs			JP 0311	
Printed Circuit Board			XC 1004	
Q 1205,1206	Si. diode	150 V/300 mA	BAX 16	QV 0217
Q 1207	Ze. diode	8.5-9.6 V/ 5 mA	ZF 9.1	QV 1109

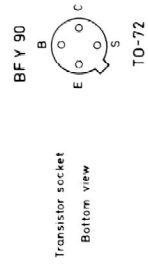
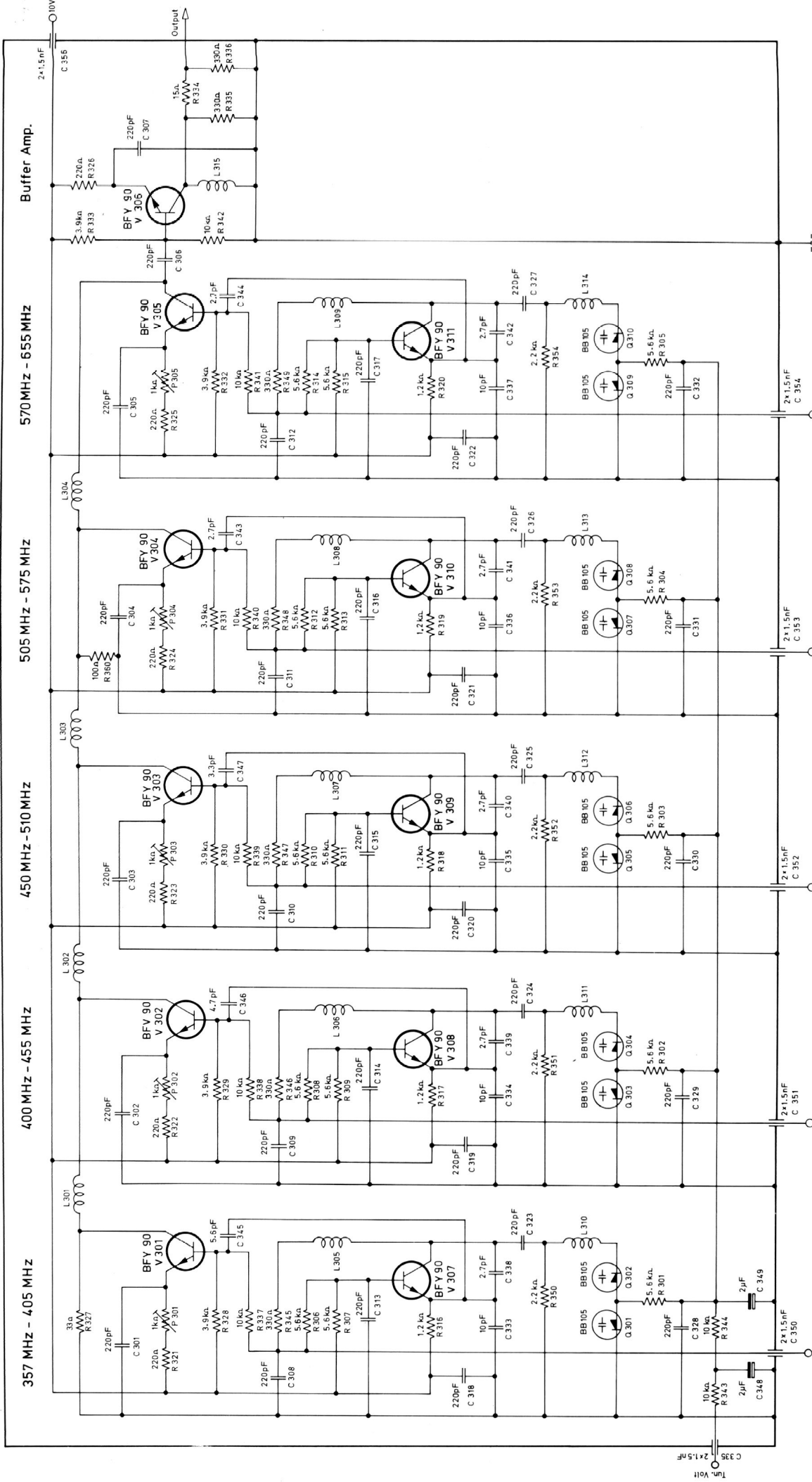
CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 301-332	Ceramic			220 pF/400 V	CK 2223
C 333-337	-			10 pF/400 V	CK 1101
C 338-344	-	± 0.25 pF		2.7 pF/250 V	CK 0271
C 345	-	± 0.5 pF		5.6 pF/250 V	CK 0561
C 346	-	± 0.5 pF		4.7 pF/250 V	CK 0471
C 347	-	± 0.25 pF		3.3 pF/250 V	CK 0031
C 348,349	Tantalum			2.2 μ F/ 35 V	CF 0022
C 350-356	Ceramic			2 x 1.5 nF	CK 9008
L 301-304	Coil				LB 0798
L 310	-				LB 0810
L 311	-				LB 0811
L 312	-				LB 0797
L 313	-				LB 0796
L 314	-				LB 0800
L 315	-				LB 0801
P 301-305	Cermet	0.5 W		1 k Ω	PG 2109
Q 301-310	Variable Capacitance diode			BB 105	QV 3008
R 301-315	Carbon	0.2 W	5%	5.6 k Ω	RA 0049
R 316-320	-	-	-	1.2 k Ω	RA 0048
R 321-326	-	-	-	220 Ω	RA 0047
R 327	-	-	-	33 Ω	RA 0205
R 328-333	-	-	-	3.9 k Ω	RA 0216
R 336	-	-	-	330 Ω	RA 0052
R 337-344	-	-	-	10 k Ω	RA 0212
R 345-349	-	-	-	330 Ω	RA 0018
R 350-354	-	-	-	2.2 k Ω	RA 0020
V 301-303	Si. trans.	NPN		BFY 90	VB 0540
V 304-306	-	-	-	-	VB 0547
V 307-309	-	-	-	-	VB 0540
V 310,311	-	-	-	-	VB 0547
	Printed Circuit Board				XC 0963



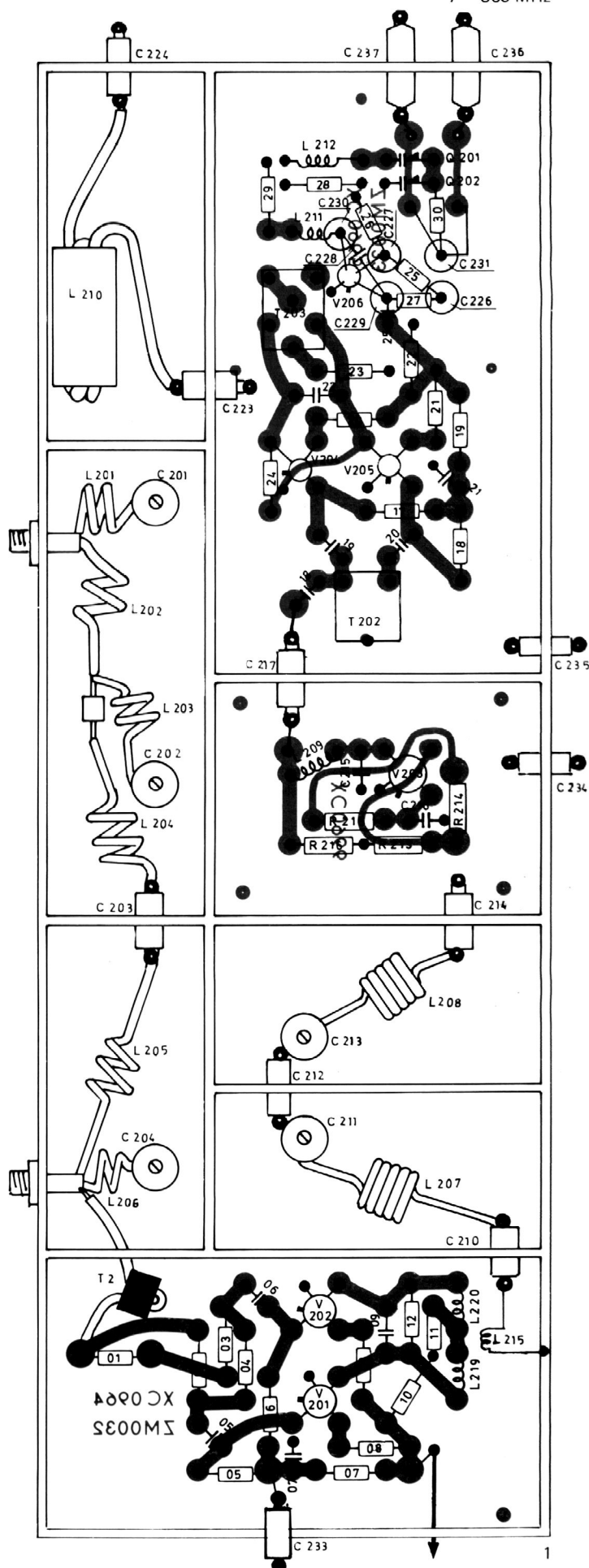


CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 301-332	Ceramic			220 pF/400 V	CK 2223
C 333-337	-			10 pF/400 V	CK 1101
C 338-344	-	± 0.25 pF		2.7 pF/250 V	CK 0271
C 345	-	± 0.5 pF		5.6 pF/250 V	CK 0561
C 346	-	± 0.5 pF		4.7 pF/250 V	CK 0471
C 347	-	± 0.25 pF		3.3 pF/250 V	CK 0031
C 348,349	Tantalum			2.2 µF/ 35 V	CF 0022
C 350-356	Ceramic			2 x 1.5 nF	CK 9008
L 301-304	Coil				LB 0798
L 310	-				LB 0810
L 311	-				LB 0811
L 312	-				LB 0797
L 313	-				LB 0796
L 314	-				LB 0800
L 315	-				LB 0801
P 301-305	Cermet	0.5 W		1 kΩ	PG 2109
Q 301-310	Variable Capacitance diode			BB 105	QV 3008
R 301-315	Carbon	0.2 W	5%	5.6 kΩ	RA 0049
R 316-320	-	-	-	1.2 kΩ	RA 0048
R 321-326	-	-	-	220 Ω	RA 0047
R 327	-	-	-	33 Ω	RA 0205
R 328-333	-	-	-	3.9 kΩ	RA 0216
R 336	-	-	-	330 Ω	RA 0052
R 337-344	-	-	-	10 kΩ	RA 0212
R 345-349	-	-	-	330 Ω	RA 0018
R 350-354	-	-	-	2.2 kΩ	RA 0020
V 301-303	Si. trans.	NPN		BFY 90	VB 0540
V 304-306	-	-	-	-	VB 0547
V 307-309	-	-	-	-	VB 0540
V 310,311	-	-	-	-	VB 0547
	Printed Circuit Board				XC 0963





CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
C 201	Trimmer preadj. to	4.05 pF		CV 0044
C 202	-	5.78 pF		CV 0045
C 203	Ceramic	13.4 pF/400 V		CK 9004
C 204	Trimmer preadj. to	4.05 pF		CV 0044
C 205-207	Ceramic	4.7 nF/50 V		CK 9102
C 208	-	220 pF/400 V		CK 2223
C 209	Trimmer	3-8 pF/ 63 V		CV 0027
C 210	Ceramic	100 pF/250 V		CK 9006
C 211	Trimmer	3-8 pF/ 63 V		CV 0027
C 212	Ceramic	680 pF/250 V		CK 9010
C 213	Trimmer	3-8 pF/ 63 V		CV 0027
C 214	Ceramic	150 pF/250 V		CK 9009
C 215	Trimmer	3-8 pF/ 63 V		CV 0027
C 216	Ceramic	470 pF/ 63 V		CK 2472
C 217	-	100 pF/250 V		CK 9006
C 218-221	-	1 nF/ 63 V		CK 3102
C 222	Trimmer	3-8 pF/ 63 V		CV 0027
C 223,224	Ceramic	100 pF/250 V		CK 9006
C 225	-	10 pF/400 V		CK 1100
C 226,227	-	220 pF/400 V		CK 2223
C 228	-	±0.25 pF		CK 0271
C 229	-	10 pF/400 V		CK 1101
C 230,231	-	220 pF/400 V		CK 2223
C 232	Electrolytic	12.5 µF/ 25 V		CE 0416
C 233-237	Ceramic	2 x 1.5 nF		CK 9008
L 201	Coil	40.3 nH		LB 0790
L 202	-	38.8 nH		LB 0791
L 203	-	35.8 nH		LB 0790
L 204	-	54 nH		LB 0808
L 205	-	60.2 nH		LB 0809
L 206	-	40.3 nH		LB 0790
L 207	-			LB 0792
L 208	-			LB 0792
L 209	-			LB 0793
L 210	-			LB 0794
L 211	-			LB 0795
L 212	-			LB 0799
L 213	-			LB 0793
L 214	-			LB 0793
L 215	-			LB 0787
Q 201,202	Variable Capacitance Diode			BB 105 QV 3009
R 201	Carbon	0.2 W	5%	270 Ω RA 0051
R 202,203	-	-	-	10 kΩ RA 0050
R 204	-	-	-	270 Ω RA 0051
R 205,206	-	-	-	1.2 kΩ RA 0048
R 207	-	-	-	5.6 kΩ RA 0049
R 208,209	-	-	-	10 Ω RA 0017
R 210	-	-	-	5.6 kΩ RA 0049
R 211	-	-	-	680 Ω RA 0214
R 212	-	-	-	3.3 kΩ RA 0005
R 213	-	-	-	10 kΩ RA 0212
R 214	-	-	-	3.9 kΩ RA 0216
R 215	-	-	-	220 Ω RA 0047
R 216	-	-	-	330 Ω RA 0002
R 217-218	-	-	-	1.2 kΩ RA 0048
R 219	-	-	-	5.6 kΩ RA 0049
R 220,221	-	-	-	10 Ω RA 0017
R 222	-	-	-	5.6 kΩ RA 0049
R 223	-	-	-	220 kΩ RA 0047
R 224	-	-	-	10 kΩ RA 0219
R 225,226	-	-	-	5.6 kΩ RA 0049
R 227	-	-	-	1.2 kΩ RA 0048
R 228	-	-	-	2.2 kΩ RA 0020
R 229	-	-	-	330 Ω RA 0002
R 230	-	-	-	5.6 kΩ RA 0049



CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 201	Trimmer preadj. to		4.05 pF		CV 0044
C 202	-		5.78 pF		CV 0045
C 203	Ceramic		13.4 pF/400 V		CK 9004
C 204	Trimmer preadj. to		4.05 pF		CV 0044
C 205-207	Ceramic		4.7 nF/50 V		CK 9102
C 208	-		220 pF/400 V		CK 2223
C 209	Trimmer		3-8 pF/ 63 V		CV 0027
C 210	Ceramic		100 pF/250 V		CK 9006
C 211	Trimmer		3-8 pF/ 63 V		CV 0027
C 212	Ceramic		680 pF/250 V		CK 9010
C 213	Trimmer		3-8 pF/ 63 V		CV 0027
C 214	Ceramic		150 pF/250 V		CK 9009
C 215	Trimmer		3-8 pF/ 63 V		CV 0027
C 216	Ceramic		470 pF/ 63 V		CK 2472
C 217	-		100 pF/250 V		CK 9006
C 218-221	-		1 nF/ 63 V		CK 3102
C 222	Trimmer		3-8 pF/ 63 V		CV 0027
C 223,224	Ceramic		100 pF/250 V		CK 9006
C 225	-		10 pF/400 V		CK 1100
C 226,227	-		220 pF/400 V		CK 2223
C 228	-		± 0.25 pF	2.7 pF/250 V	CK 0271
C 229	-		10 pF/400 V		CK 1101
C 230,231	-		220 pF/400 V		CK 2223
C 232	Electrolytic		12.5 μF/ 25 V		CE 0416
C 233-237	Ceramic		2 x 1.5 nF		CK 9008
L 201	Coil		40.3 nH		LB 0790
L 202	-		38.8 nH		LB 0791
L 203	-		35.8 nH		LB 0790
L 204	-		54 nH		LB 0808
L 205	-		60.2 nH		LB 0809
L 206	-		40.3 nH		LB 0790
L 207	-				LB 0792
L 208	-				LB 0792
L 209	-				LB 0793
L 210	-				LB 0794
L 211	-				LB 0795
L 212	-				LB 0799
L 213	-				LB 0793
L 214	-				LB 0793
L 215	-				LB 0787
Q 201,202	Variable Capacitance Diode			BB 105	QV 3009
R 201	Carbon	0.2 W	5%	270 Ω	RA 0051
R 202,203	-	-	-	10 kΩ	RA 0050
R 204	-	-	-	270 Ω	RA 0051
R 205,206	-	-	-	1.2 kΩ	RA 0048
R 207	-	-	-	5.6 kΩ	RA 0049
R 208,209	-	-	-	10 Ω	RA 0017
R 210	-	-	-	5.6 kΩ	RA 0049
R 211	-	-	-	680 Ω	RA 0214
R 212	-	-	-	3.3 kΩ	RA 0005
R 213	-	-	-	10 kΩ	RA 0212
R 214	-	-	-	3.9 kΩ	RA 0216
R 215	-	-	-	220 Ω	RA 0047
R 216	-	-	-	330 Ω	RA 0002
R 217-218	-	-	-	1.2 kΩ	RA 0048
R 219	-	-	-	5.6 kΩ	RA 0049
R 220,221	-	-	-	10 Ω	RA 0017
R 222	-	-	-	5.6 kΩ	RA 0049
R 223	-	-	-	220 kΩ	RA 0047
R 224	-	-	-	10 kΩ	RA 0219
R 225,226	-	-	-	5.6 kΩ	RA 0049
R 227	-	-	-	1.2 kΩ	RA 0048
R 228	-	-	-	2.2 kΩ	RA 0020
R 229	-	-	-	330 Ω	RA 0002
R 230	-	-	-	5.6 kΩ	RA 0049
10.73					continued

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