

STORNO RADIOCOMMUNICATION



IF GENERATOR
TS-G21A

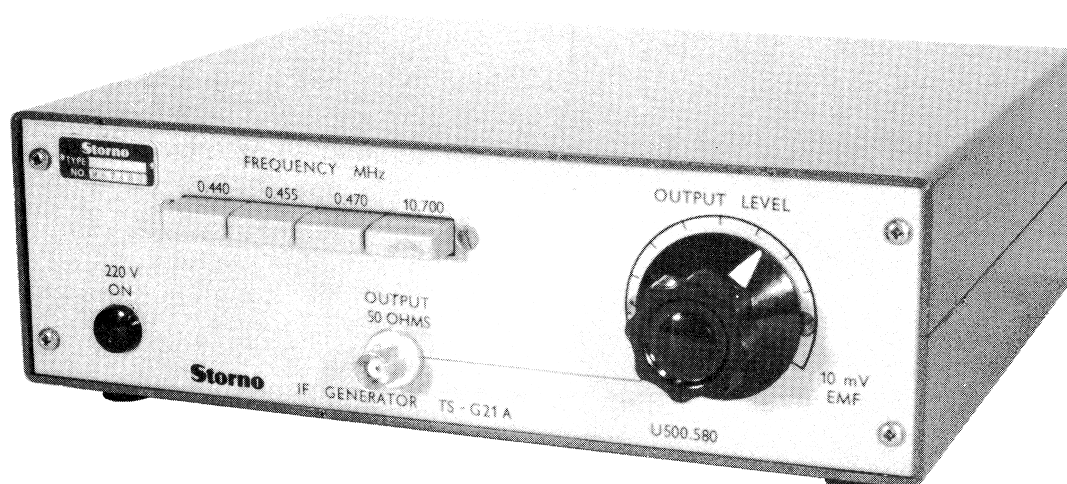
Storno

IF GENERATOR TS-G21A

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IF Generator, Model TS-G21A



Description

The generator is an unmodulated signal source for use in repair shops doing maintenance work on Storno radiotelephones of the 600-series. It contains four crystal controlled oscillators selected by pushbuttons. A mains power supply unit is built into the instrument.

The TS-G21A is functionally identical to TS-G21.

Technical Specification

Standard frequencies

Crystal controlled, selected by pushbuttons:

1	2	3	4
440 kHz	455 kHz	470 kHz	10,7 MHz.

Special frequencies

(to be specified with order):

Three frequencies in the range 400 - 500 kHz.

One frequency in the range 8 - 15 MHz.

Frequency adjustment

To be better than 1 ppm. Drift due to ageing and temperature variations depends on crystals, but is normally insignificant.

Quartz crystals

One ea. Storno type 98-5A. Three ea. CR-46/U or equivalent.

Standard frequency crystals are supplied with instrument.

Output level

10 millivolts max. EMF behind 50 ohms. Continuously variable 0 to -110 dB (± 10 dB).

Output connector

Type BNC (f).

Power requirements

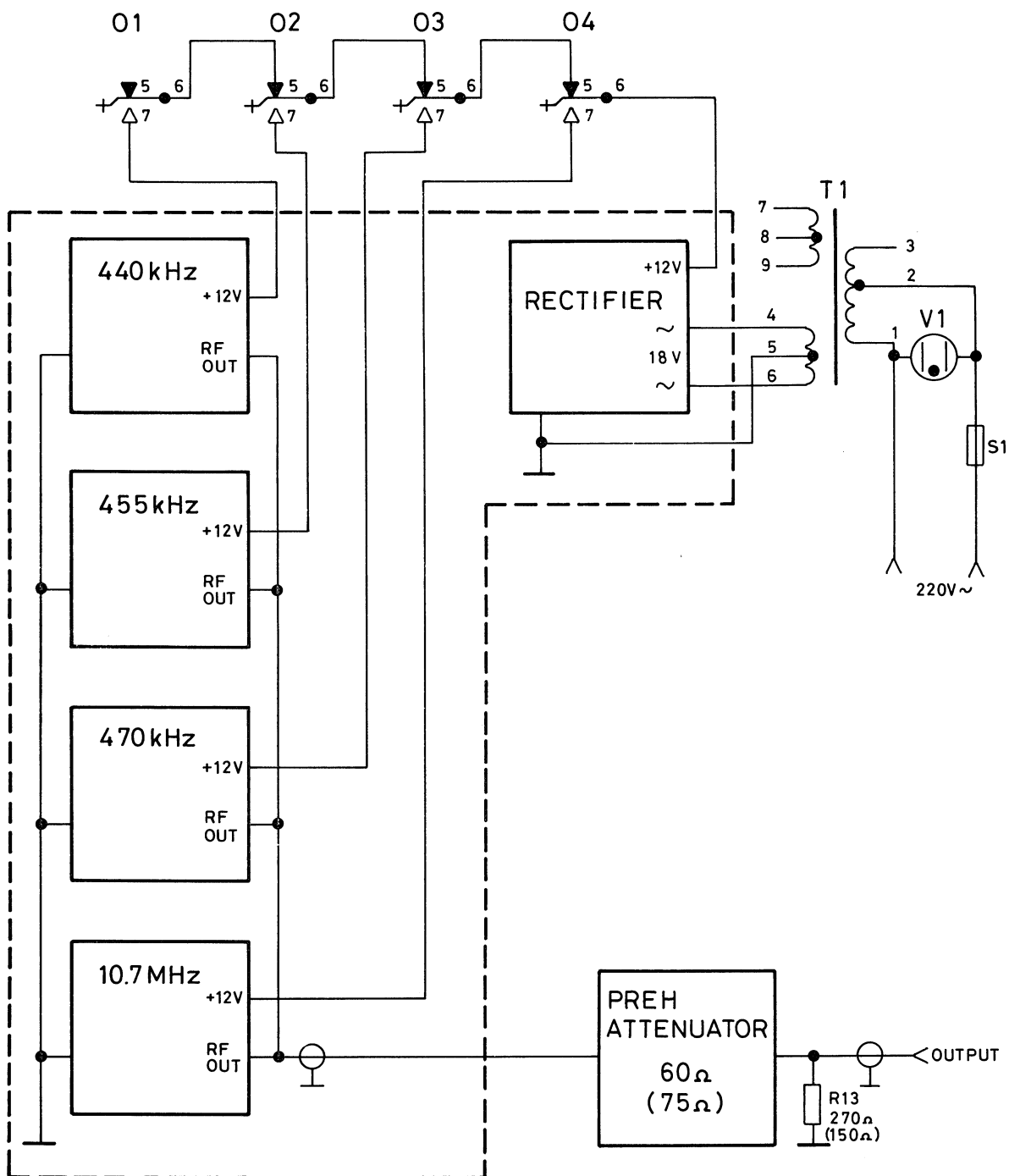
220 - 240 V AC mains, 50 - 60 Hz, approx. 5 watts.

Dimensions

Height 70 mm
Width 230 mm
Depth 200 mm.

Storno code number

95.0163.

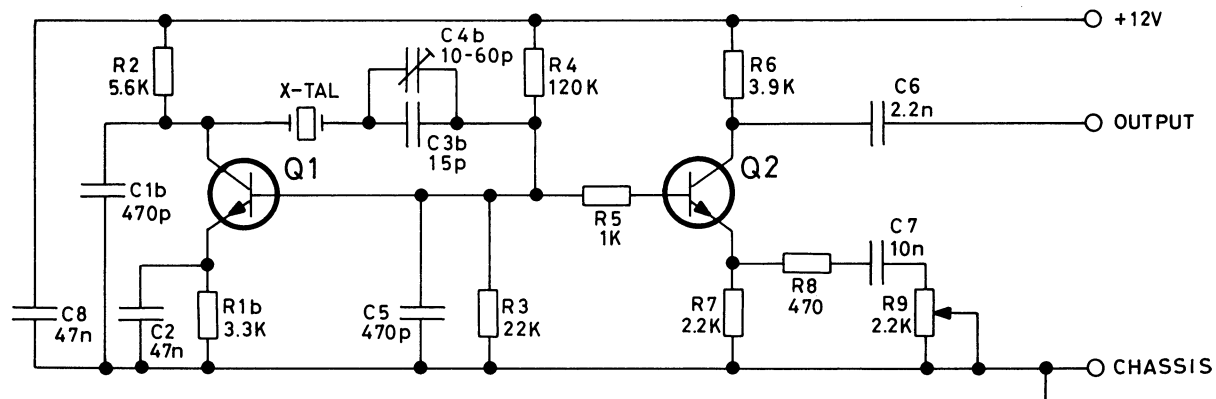


BLOCK DIAGRAM TS-G21A

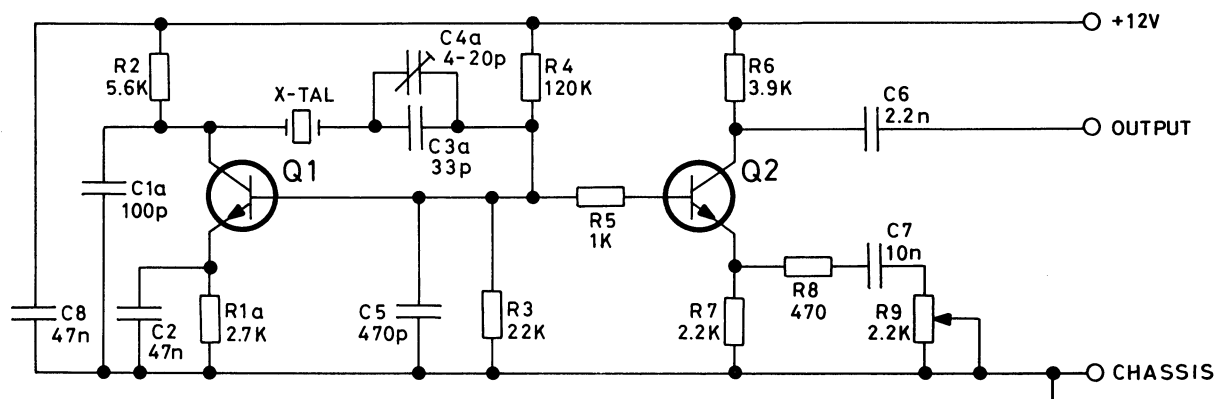
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Storno

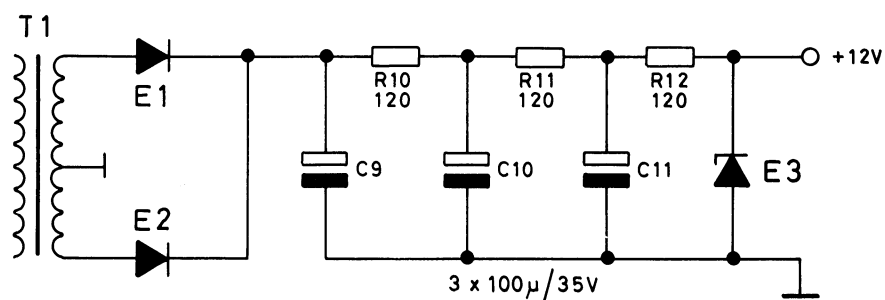
440-470 kHz OSC.



10.7 MHz OSC.



POWER SUPPLY



IF GENERATOR

TS-G21A

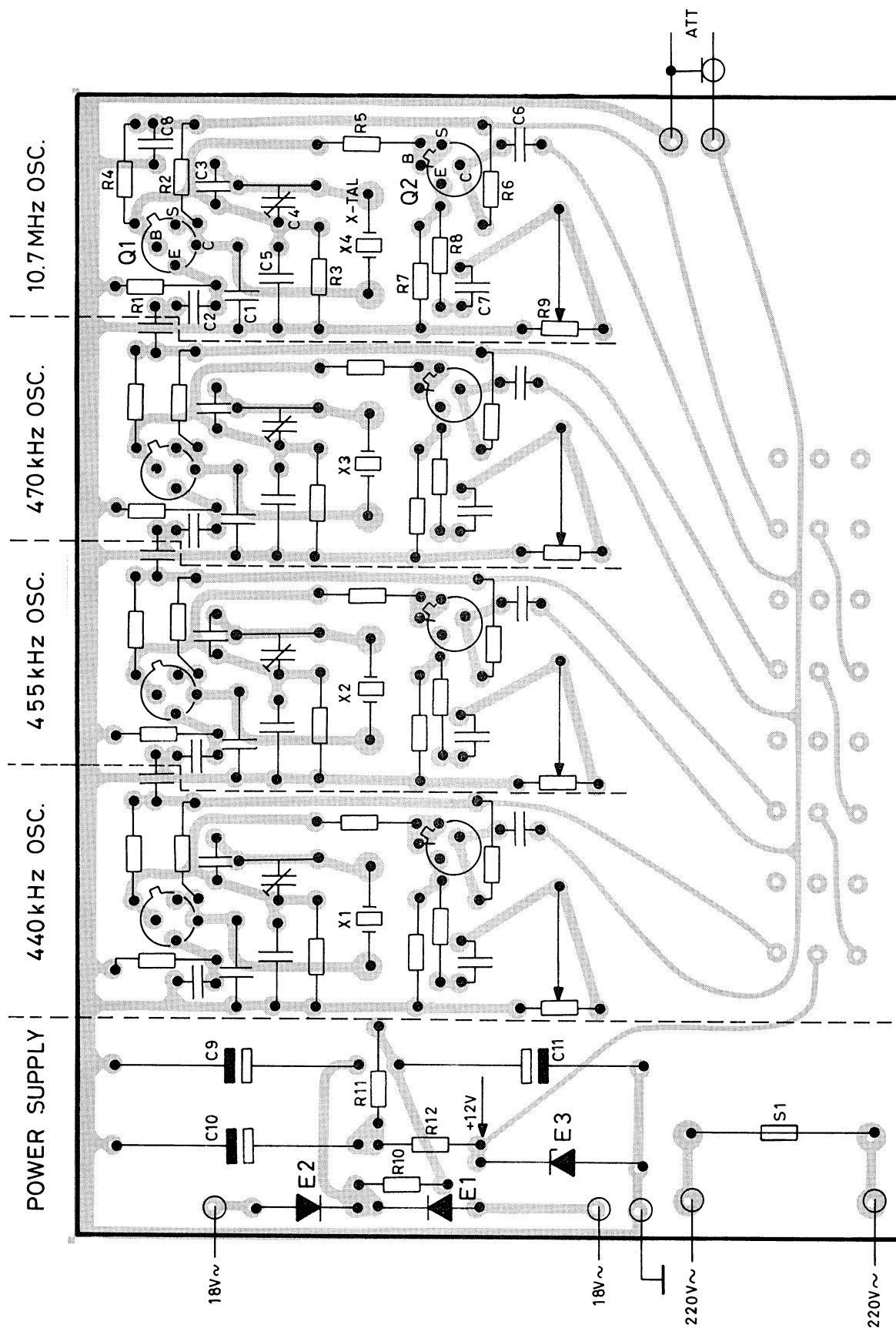
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TYPE	NO.	CODE	DATA
C1a	76. 5102		100pF 2.5% polystyr. TB
C1b	76. 5106		470pF 2.5% " TB
C2	76. 5072		47 nF 10% polyester.
C3a	74. 5116		33 pF 2% ceram. TB
C3b	74. 5105		15 pF 2% ceram. TB
C4a	78. 5031		4/20 pF ceram. DI
C4b	78. 5030		10/60 pF ceram. DI
C5	76. 5106		470 pF 2.5% polystyr. TB
C6	76. 5059		2.2 nF 10% polyester.
C7	76. 5070		10 nF 10% polyester.
C8	76. 5072		47 nF 10% polyester.
C9	73. 5071		100 μ F -10/+50% elco
C10	73. 5071		100 μ F -10/+50% elco
C11	73. 5071		100 μ F -10/+50% elco
R1a	80. 5254		2.7 k Ω 5% carbon film
R1b	80. 5255		3.3 k Ω 5% carbon film
R2	80. 5258		5.6 k Ω 5% carbon film
R3	80. 5265		22 k Ω 5% carbon film
R4	80. 5274		120 k Ω 5% carbon film
R5	80. 5249		1 k Ω 5% carbon film
R6	80. 5256		3.9 k Ω 5% carbon film
R7	80. 5253		2.2 k Ω 5% carbon film
R8	80. 5245		470 Ω 5% carbon film
R9	86B5028		2.2 k Ω potm. lin. carbon film
R10	80. 5238		120 Ω 5% carbon film
R11	80. 5238		120 Ω 5% carbon film
R12	80. 5238		120 Ω 5% carbon film
R13	80. 5242		270 Ω 5% carbon film
E1	99. 5020		Diode 1N4004
E2	99. 5020		Diode 1N4004
E3	99. 5030		Zener diode 112Z4
Q1	99. 5166		Transistor BF167
Q2	99. 5166		Transistor BF167
X1	98B5001		Crystal 440 kHz, CR 46/U
X2	98B5002		Crystal 455 kHz, CR 46/U
X3	98B5003		Crystal 470 kHz, CR 46/U
X4	98B5004		Crystal 10.7 MHz, 98-5A
	41B5014		Crystal socket, AMP-no 380635-2
T1	60B5006		Transformer 220-240V/2 x 36V, CT 0.3A
S1	92. 5025		Fuse 100mA slow, 5 x 20 mm

TYPE	NO.	CODE	DATA
	V1	92B5017	Glow discharge lamp, Cerberus GF 21
		86B5018	60 ohm attenuator, Preh type 110 no 4955 0.1W
		47B5010	Pushbutton section, MEC type MX-4B
		41.150	BNC-f connector, 50 Ω

IF GENERATOR TS-G21A

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PRINTED CIRCUIT WIEVED FROM COMPONENT SIDE
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IF GENERATOR

TS-G21A

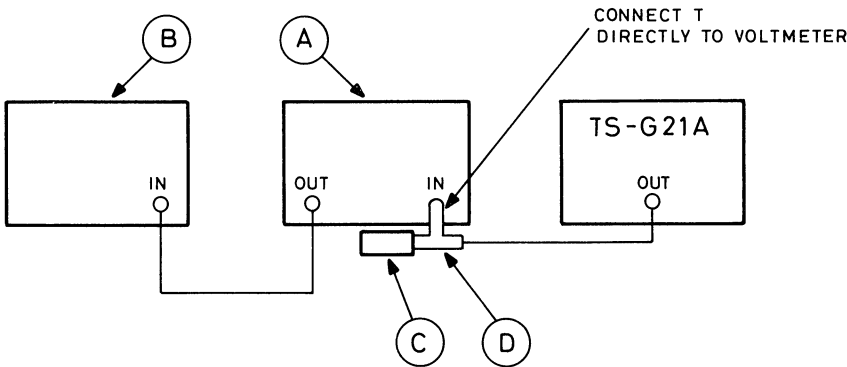
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Adjustment Procedure for TS-G21A

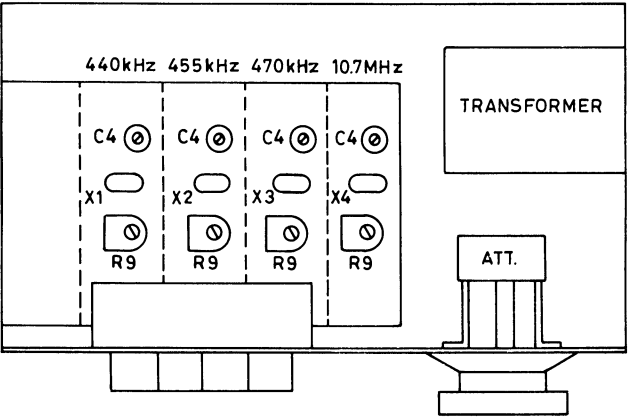
Required Test Equipment

POS.	INSTRUMENT	REQUIRED SPECIFICATIONS	RECOMMENDED MODEL
A	AC voltmeter	Range: 400 kHz - 11 MHz Sensitivity: 10 mV FSD Accuracy: $\pm 2\%$ Output amplifier	HP 400E
B	Frequency Counter	Range: 400 kHz - 11 MHz Sensitivity: min. 75 mV	HP 5245L
C	50 ohm load	Coaxial Resistor 1/8 W	Storno TS-W42
D	BNC "T"-connector		UG-274/U

Set-Up



Procedure



Before making any adjustments, check the power supply voltage to be approximately +12V.

1. Turn the OUTPUT LEVEL button for maximum output (fully clockwise).
2. Activate the pushbutton 10.700 MHz.
3. Turn R9 in the oscillator concerned fully counterclockwise.
4. Adjust C4 in the same oscillator for 10.700,000 MHz ± 10 Hz on the Frequency Counter.

CAUTION: Use alignment tool made of insulating material only.

5. Adjust R9 clockwise for a reading of 5 mV on the voltmeter.
6. Check that the oscillator frequency has not varied during step 5. If necessary repeat step 4.
7. Repeat steps 2 to 6 for the other three oscillators and adjust the frequencies for 440.000 kHz, 455.000 kHz and 470.000 kHz respectively.