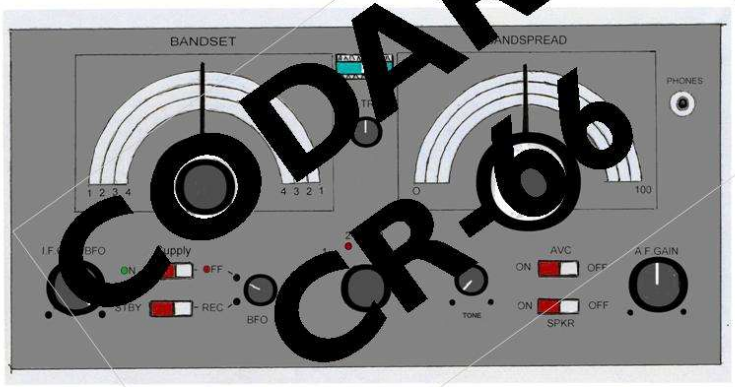
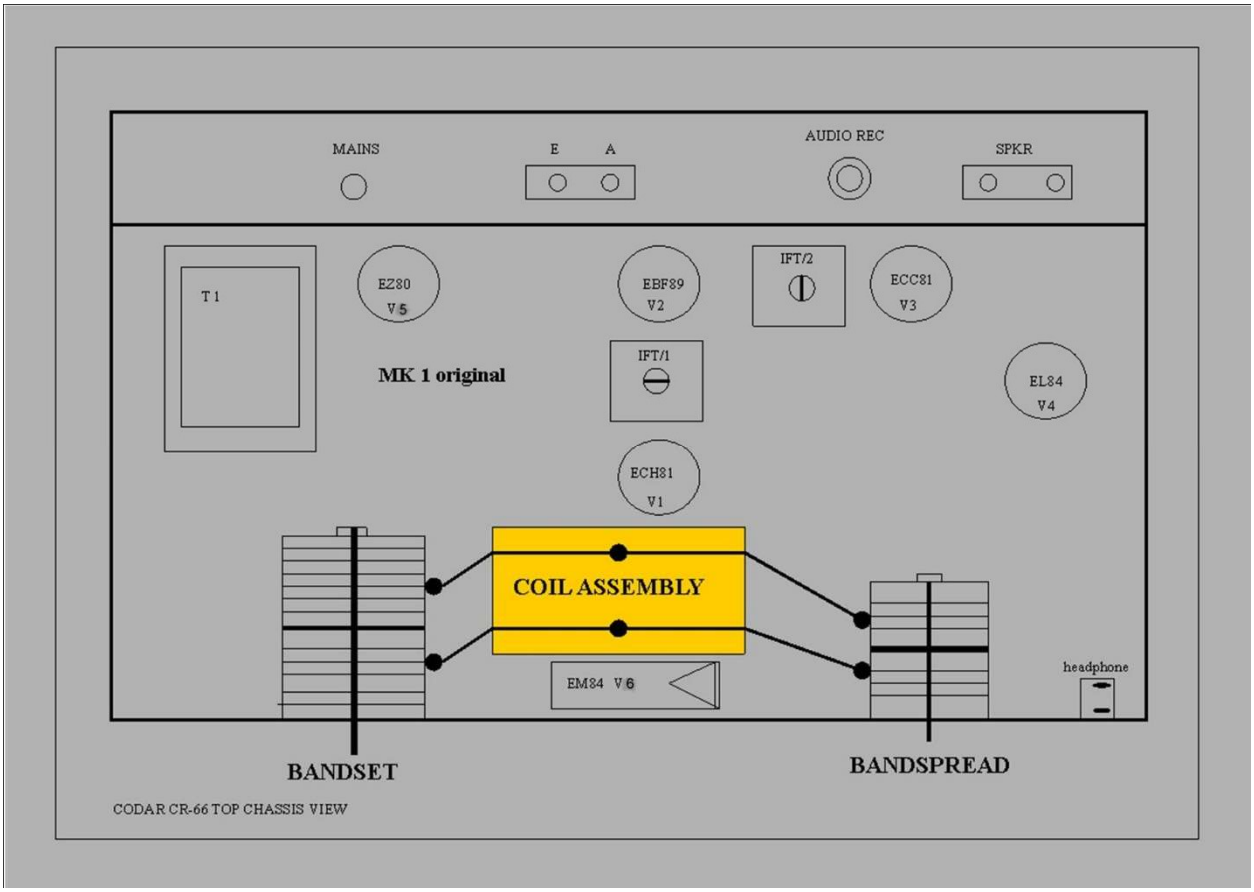
G.C

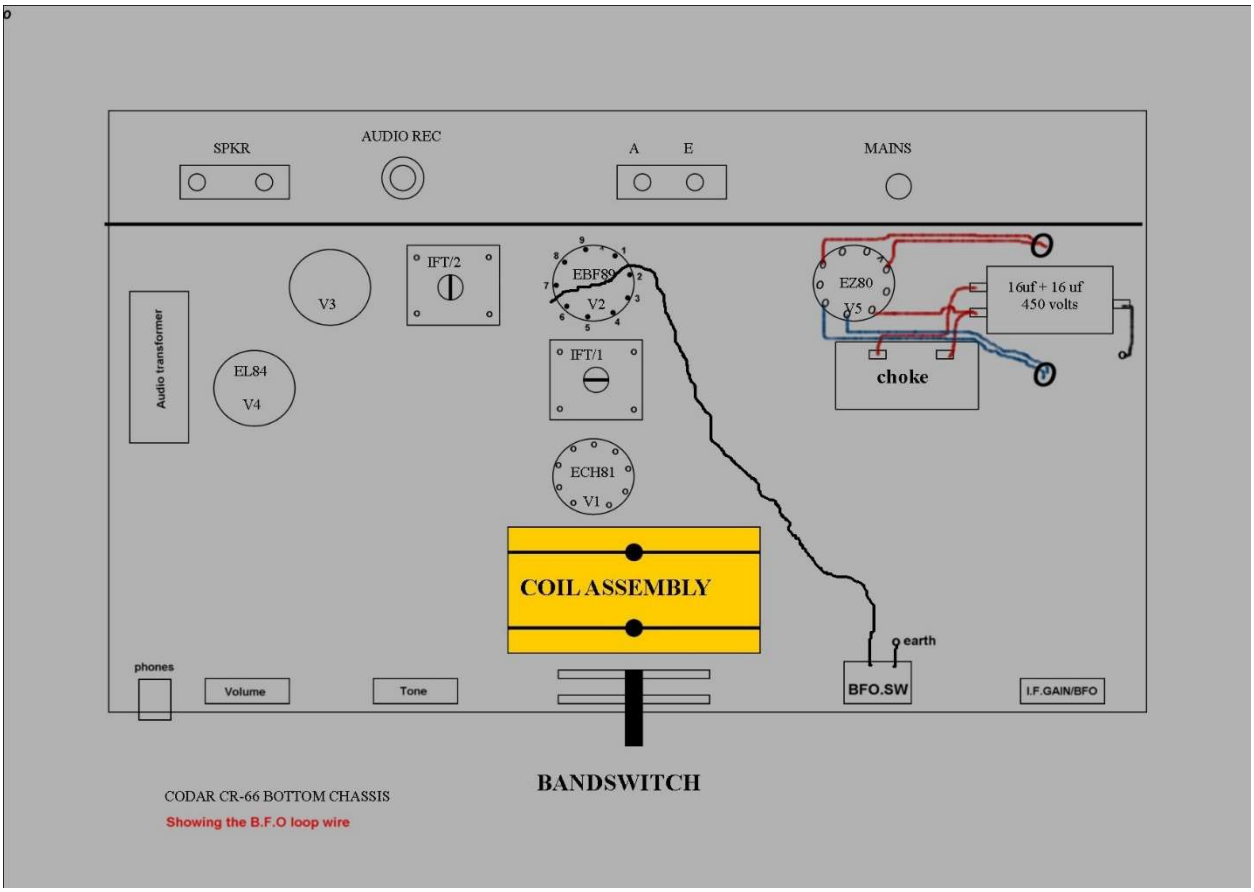
SERVICE MANUAL



A Communications Receiver
with
Electrical Bandspread
540Kc/s — 30Mc/s
In 4 bands


BANDSET
BANDSPREAD
PHONES
AT.TRIM
1 2 3 4
4 3 2 1
0
100
I.F.GAIN/BFO
Supply
ON
OFF
STBY
REC
BFO
1
2
3
4
TONE
AVC
ON
OFF
ON
OFF
SPKR
A.F.GAIN


MAINS
E
A
AUDIO REC
SPKR
T 1
EZ80
V5
EBF89
V2
IFT/2
ECC81
V3
IFT/1
MK 1 original
EL84
V4
ECH81
V1
COIL ASSEMBLY
EM84 V6
headphone
BANDSET
BANDSPREAD
CODAR CR-66 TOP CHASSIS VIEW



CODAR CR-66 BOTTOM CHASSIS

Showing the B.F.O loop wire

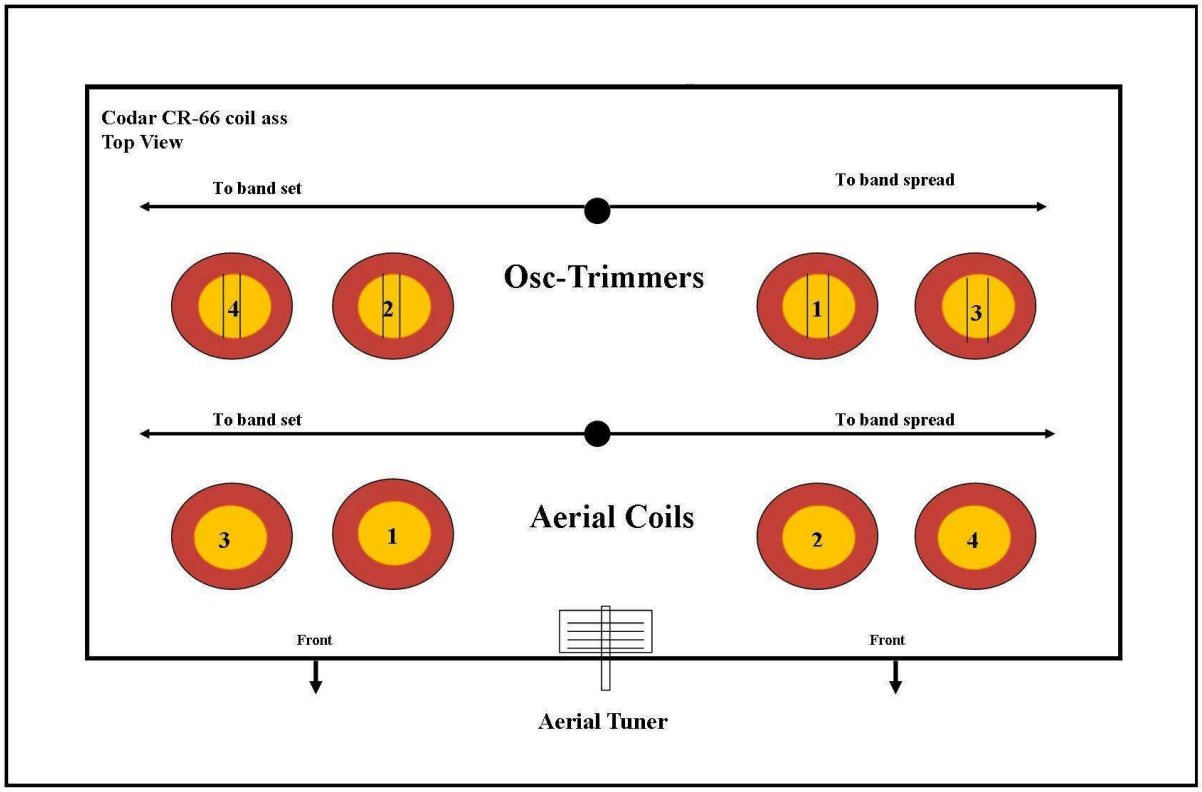
CODAR CR-66 COIL ASSEMBLY

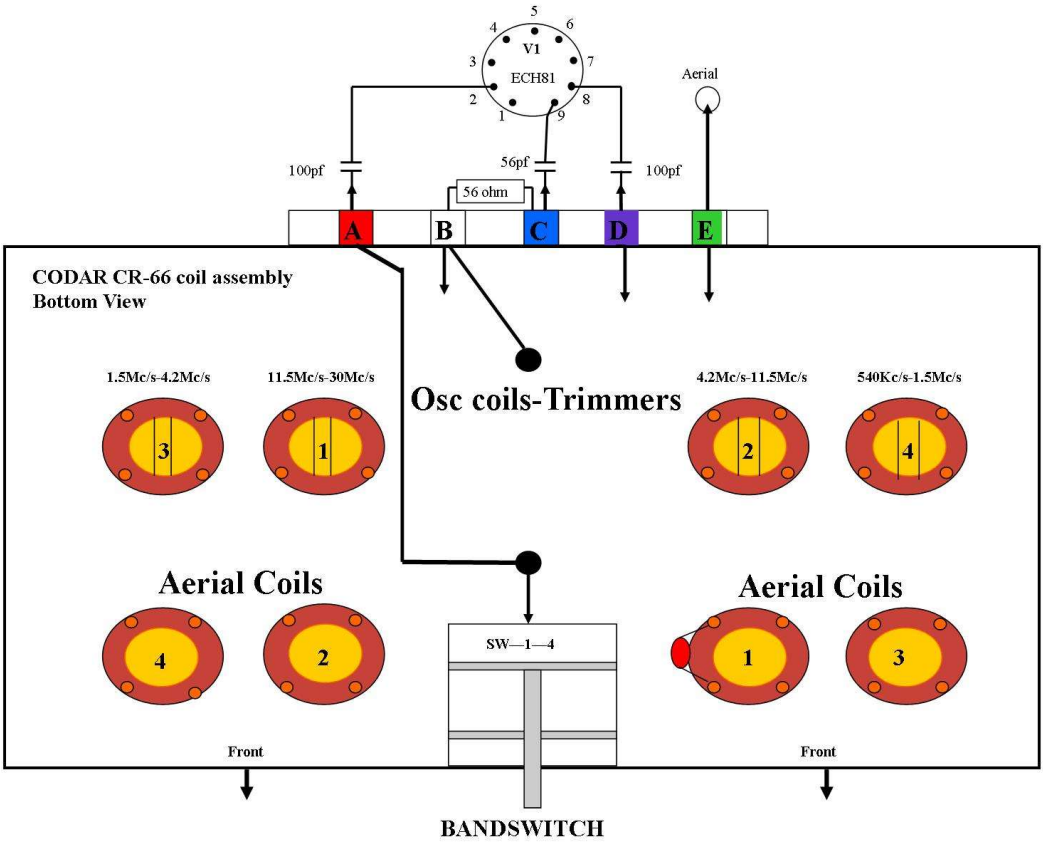
This is a complete Aerial/Oscillator ,Coil pack for use with superhet receivers.
It is designed to tune from 550 KHz to 30 MHz complete Coverage by 4 switched bands.

550KHz — 1.5 MHz
1.5 MHz—-4.0 MHz
4.0 MHz—11.5 MHz
11.5MHz— 30 MHz
Using a standard twin gang 320-350 pf variable capacitor.

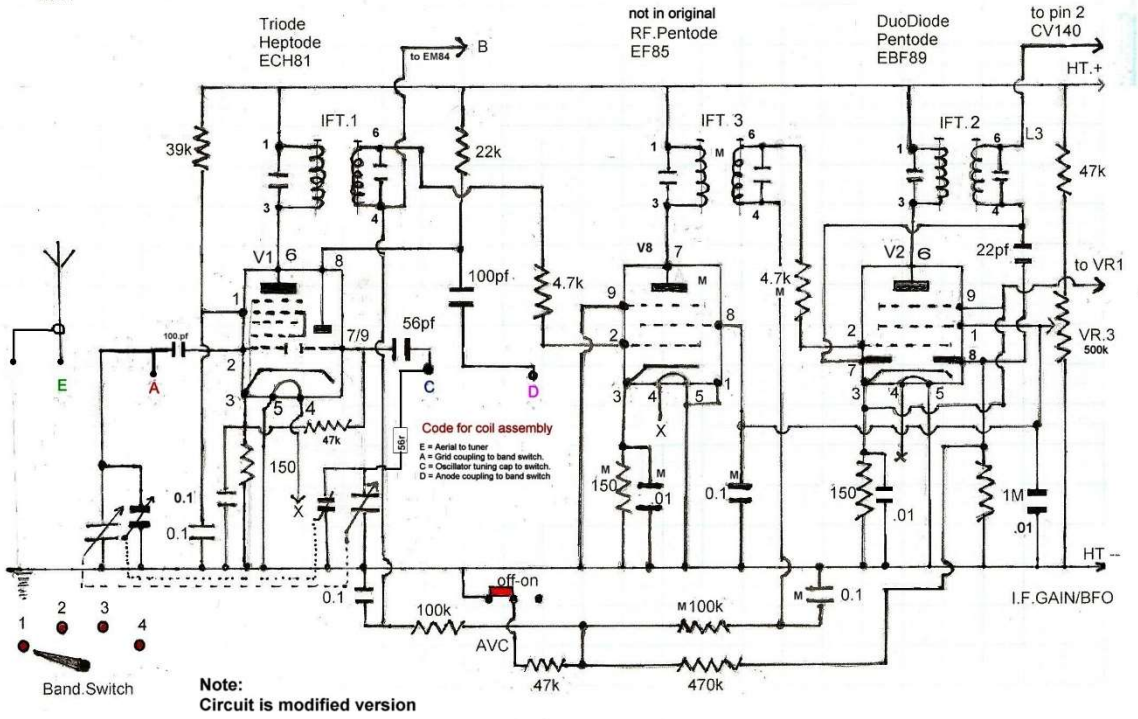
The aerial coils are in a precision close tolerance low loss CODAR AIR SPACED INDUCTOR to ensure peak performance on all bands.

ARIAL TRIMMER
This is a separate control on the front panel to peak in the selected stations after tuning.

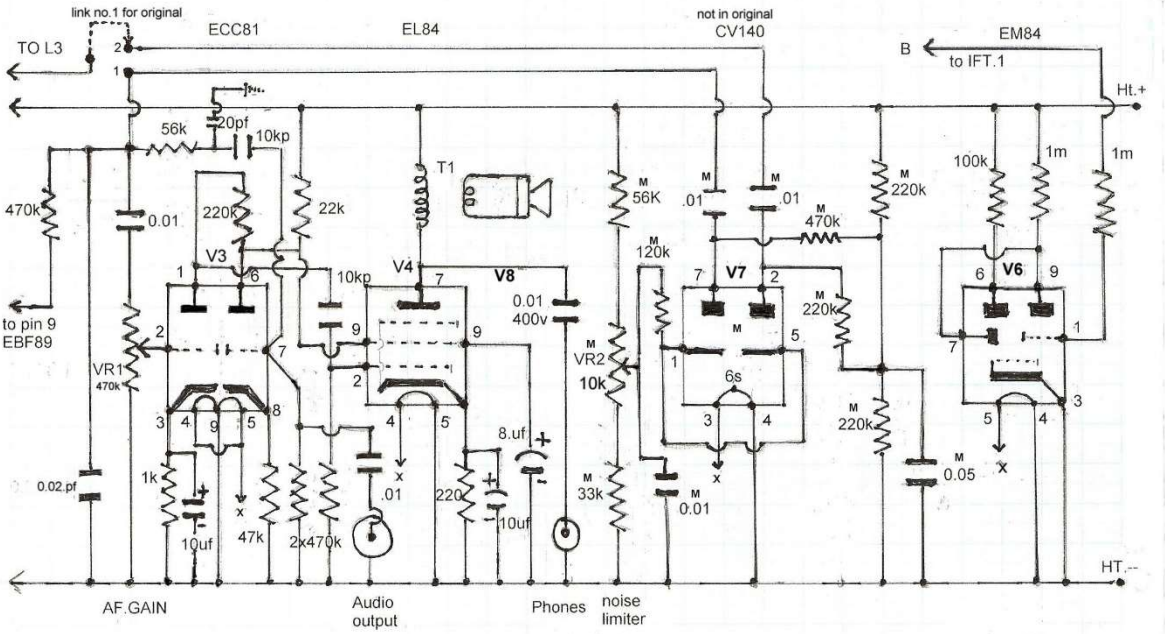

Codar CR-66 coil ass
Top View
To band set
To band spread
Osc-Trimmers
4
2
1
3
To band set
To band spread
Aerial Coils
3
1
2
4
Front
Front
Aerial Tuner


V1
ECH81
Aerial
100pf
56pf
56 ohm
100pf
A
B
C
D
E
CODAR CR-66 coil assembly
Bottom View
1.5Mc/s-4.2Mc/s
11.5Mc/s-30Mc/s
Osc coils-Trimmers
4.2Mc/s-11.5Mc/s
540Kc/s-1.5Mc/s
Aerial Coils
Aerial Coils
SW—1—4
Front
Front
BANDSWITCH

Codar-CR-66 P1
G.J.Corcoran
2011



Note:
Circuit is modified version

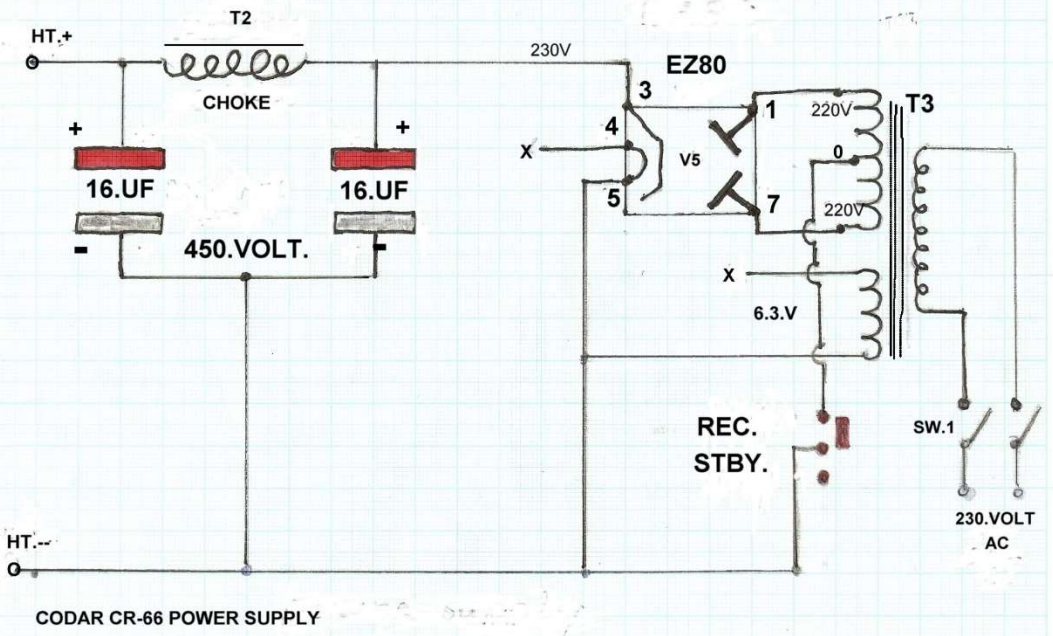


Codar-CR-66 p2

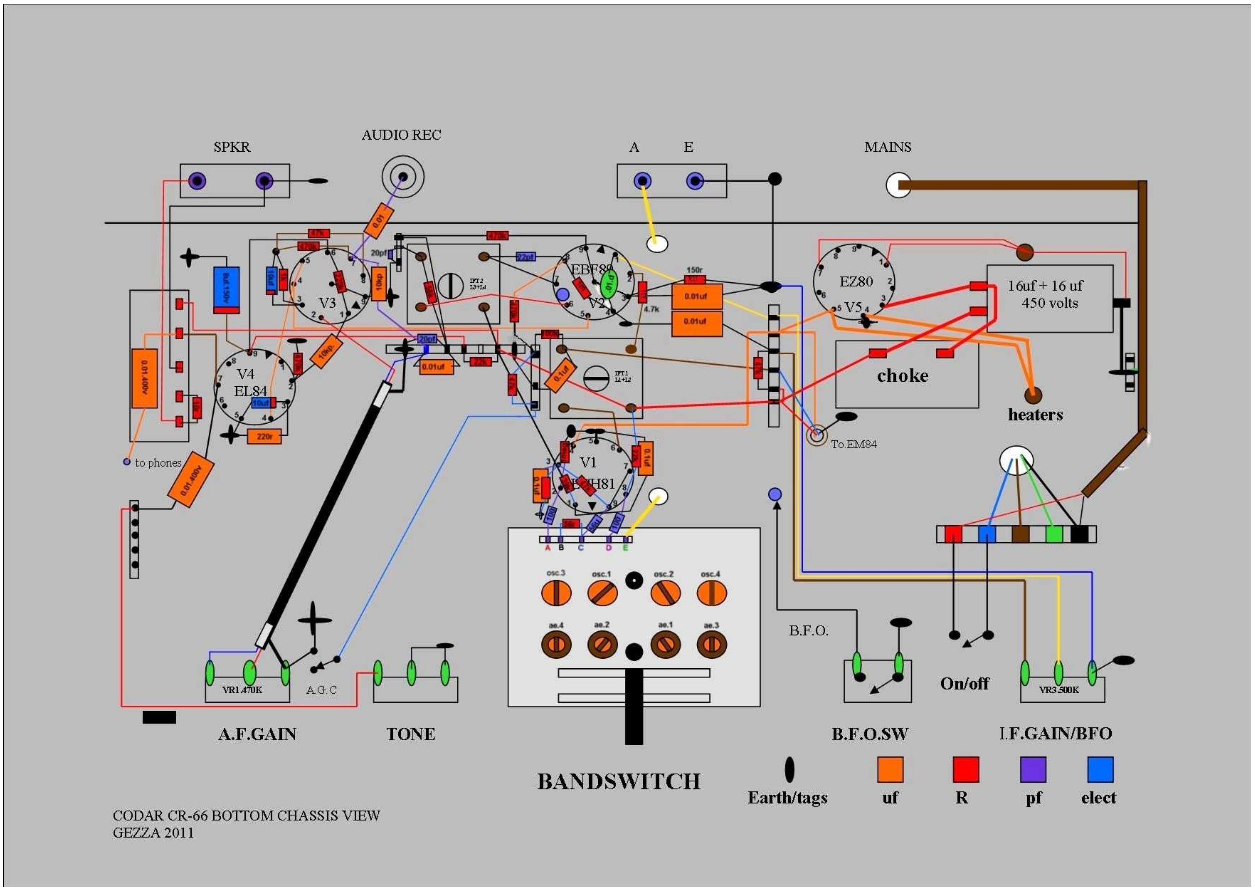
G.J.Corcoran

2011

Note:
Circuit is modified version



CODAR CR-66 POWER SUPPLY


SPKR
AUDIO REC
A
E
MAINS
V3
EBF89
V2
EZ80
V5
16uf + 16 uf
450 volts
choke
heaters
V4
EL84
to phones
To EM84
V1
osc.3
osc.1
osc.2
osc.4
ae.4
ae.2
ae.1
ae.3
B.F.O.
On/off
VR1 470K
A.G.C
VR3 500K
A.F.GAIN
TONE
B.F.O.SW
I.F.GAIN/BFO
BANDSWITCH
Earth/tags
uf
R
pf
elect
CODAR CR-66 BOTTOM CHASSIS VIEW
GEZZA 2011

VALVE VOLTAGE TABLE CODARA CR-66

	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	
V1	83.9V	.4mV	2.8V	5.79Vac	0Vac	220V	-17V	103.6V	-17V	ECH81
V2	1.4mV	-.62V	01.5mV	0V	5.84Va	222.3V	-245mV	-.448V	01.5mV	EBF89
V3	44.5V	0V	.590V	5.98Vac	5.98Vac	158.9V	0V	4.06V	0V	ECC81
V4	n/c	02.5mV	5.44V	6.02Va	0.V	0.V	223.7V	0V	160V	EL84
V5	227Vac	.n/c	230Vdc	0Vac	6.03Va	n/c	227Vac	n/c	n/c	EZ80
V6	-.675V	.n/c	0V	0V	6.1V	184V	46.8V	i.c.184v	46.8V	EM84

All voltages were measured with a MICRONTA ,auto-range Digital MULTIMETER
Mains voltage at 230V AC

Voltages are measured with all controls at zero

Voltages only shown for original model
V7 and V8 volts not shown.

GEZZA 2011

Gezza 2011

CODAR.CR-66 GENERAL COVERAGE RECEIVER.
GENERAL NOTES.

The CODAR.CR-66 receiver is capable of world wide reception under normal atmospheric conditions. It will give you excellent results under adverse conditions and good reception can be obtained with a simple indoor Aerial.
The actual length of the aerial for good coverage is not critical but a good outdoor aerial of about 30 ft will give excellent results.
Also a good earth can improve reception on all bands, and will also reduce interference.
Some interference occurs when a very strong station is on a frequency exactly twice the receiver intermediate frequency I.F. 470 KHz x 2 = 840 KHz higher than the signal frequency and is usually more prevalent on the higher frequencies above 10 MHz
So it is important that the Aerial trimmer is peaked for maximum output.

I.F. Gain./BFO
This controls the gain of the I.F. stage and receiver sensitivity.
Again this needs to be backed of when using AM only, otherwise there would be heterodyne whistle from the oscillating I.F.
I have now put in a modification to stop this happening ,consisting of a BFO switch Loop to the EBF89 ,this is shown in the bottom layout.

A.F. GAIN.
This controls the volume output of the receiver from (0 to 3watts).

ON/OFF slide switch.
This is to turn the set on/off .

STBY SWITCH.
When set to standby the receiver is in the heater on only mode, this is for keeping the receiver energized as to prevent the oscillator from drifting when first switched on, all valves remain lit.

TUNING and BANSPREAD
Set the Band spread dial to "10" turn the main Tuning control to the desired station, and then fine tune with the Band-spread control.

TUNING WITH BANDSPREAD.
Set the Band-spread control to "0"set the main Tuning control to the high end of the selected band or range of frequencies, and then tune through the range with the Band spread control.
Turning the Band-spread from "0" to "100" tunes the receiver lower in frequency.
This is Ideal for SSB listening.

Gezza 2011

CODAR.CR-66 ALIGNMENT FREQUENCIES.

I.F.TRANSFORMERS 470Khz

BAND.4.	540 KHz	and	1.5 MHz
BAND.3.	1.5 MHz	"	4.2 MHz
BAND.2.	4.2 MHz	"	11.5 MHz.
BAND.1.	11.5 MHz	"	30 MHz

Before you do alignment check that the pointer is correctly positioned, with the BANDSPREAD capacitor ,the pointer must be at (0) position, at the left hand side of the dial.
Oscillator coils are adjusted at L.F. end of each band, and the top trimmers at the H.F. end of each band.
AVC. All test carried out with AVC switched off.

I.F. ALIGNMENT.
Set the BANDSWITCH to band 4. dial reading 1.5 MHz
Short circuit tuning gang section (oscillator) to chassis.
Set the signal generator to 470 KHz and connect to the Aerial sockets.
Adjust the I.F. Transformers cores in the following order:
1st.Top core of 2nd. I.F. Transformer.
2nd.Bottom core" " "
3rd. Top core 1st. I.F. "
4th. Bottom core " "
Signal generator should be set to give a reading on your AC Meter witch is set to 50v range, and connected to the sound output Transformer primary, you need to peak all cores for the highest reading. Note :you may find two peaks on the cores, the correct peaks are with the Top cores nearest the top of the formers, and the bottom cores will be near the centre of the formers.

BAND ALIGNMENT.
Remove the short circuit from the oscillator section, and Align each band at the frequencies quoted above, using the meter still connected across the output transformer to peak the settings.
On Band 4. at 600 KHz. adjust the A/E coil core with the A/E Trimmer set to half mesh (mounted on the front panel). This coil must be peaked at this frequency Only .

On 30 MHz set A/E trimmer half mesh before adjusting the oscillator trimmer. Slight adjustment of both trimmers may be necessary to obtain the highest peak.

BFO ALIGNMENT.
Set the I.F. Gain control to full ,
Detune the bottom core of the last I.F. core downwards until you get an oscillation, this will give you C.W/SSB reception on shortwave. Please note: you may have to back off this control when you are listening to A.M /SW .to stop the oscillation, unless you have the modification B.F.O switch built in. See general notes page.

CO-AX TAKE OFF SOCKET.
This socket provides A.F. output suitable for feeding directly into an external amplifier or tape recorder.
A useful feature is that as this output is independent of A.F .Gain control, the receiver loudspeaker can still be used for monitoring etc .at any required level without affecting the signal level being fed to the external amplifier or recorder.

CODAR.CR-66 original

VALVE LINE UP.
V1 ECH81 Triode Heptode Frequency changer.
V2 EBF89 R.F. Double diode Pentode/I.F. Amp/ DET /AVC/BFO.
V3 ECC81 Double Triode A.F. Amp/Cathode follower output.
V4 EL84 Output pentode.
V5 EZ80 Full wave rectifier.
V6 EM84 Tuning indicator.

Sound output Transformer. 45/1 Primary 300 Ohm
…… Secondary 3 ohm with 10 Ohm load resistor for Phones
Mains Transformer Primary tapped 110-120-240
“”””””””””””””” Secondary 230-0-230 100 mA
“”””””””” 6.5 volt 3A
The set should draw no more than 45 mA at 230volts dc. on input of choke.

CODAR CR-66 MODIFIED

Components marked in red are for improvements.
Plus extra components are in the circuit.

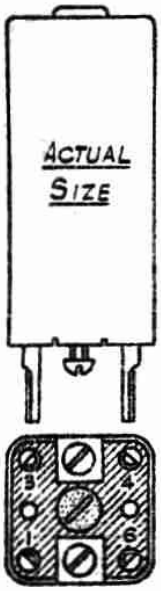
VALVE LINE UP.
V1 ECH81 Triode Heptode Frequency changer.
V2 EBF89 R.F. Double diode Pentode I.F. Amp /DET /AVC/BFO.
V3 ECC81 Double Triode A.F. Amp/Cathode follower output.
V4 EL84 Output pentode.
V5 EZ80 Full wave rectifier.
V6 EM84 Tuning indicator
V7 CV140 Double Diode noise limiter.
V8 EF85 RF, Pentode. Second I.F. amplifier.

B.F.O on/off switch. An added switch, to make the last I.F. oscillate, while Receiving .S.S.B
TONE CONTROL..
To alter the treble/bass of the output.
Components marked with an (M) mean its been modified, for better reception.
This includes an EF85 I.F amplifier plus a CV140 clipping noise limiter.

HT. Diode.
A simple rectifier diode or bridge can be used to help reduce current loading of the transformer when using extra Valves.

Error’s
There should be a 1meg resistor from pin 2 of (ECH81) to ground which is not shown on the circuit diagram.

I.F. TRANSFORMER
TYPE IFT.11
465 Kc/s & 1·6 Mc/s



MINIATURE I.F. TRANSFORMERS FOR 465 Kc/s. OR 1·6 Mc/s. GIVING EXCELLENT PERFORMANCE AT LOW COST. THE COILS ARE LITZ WOUND AND ARE PERMEABILITY TUNED WITH HIGH GRADE 'NEOSID' IRON DUST CORES. COUPLING IS CRITICALLY ADJUSTED TO GIVE MAXIMUM GAIN WITH GOOD SELECTIVITY. IDEAL FOR USE WITH MINIATURE B9A OR B7G BASED VALVES.

IFT.11/465: Q AT 465 Kc/s. – 75. IFT.11/1·6: Q AT 1·6 Mc/s. – 100

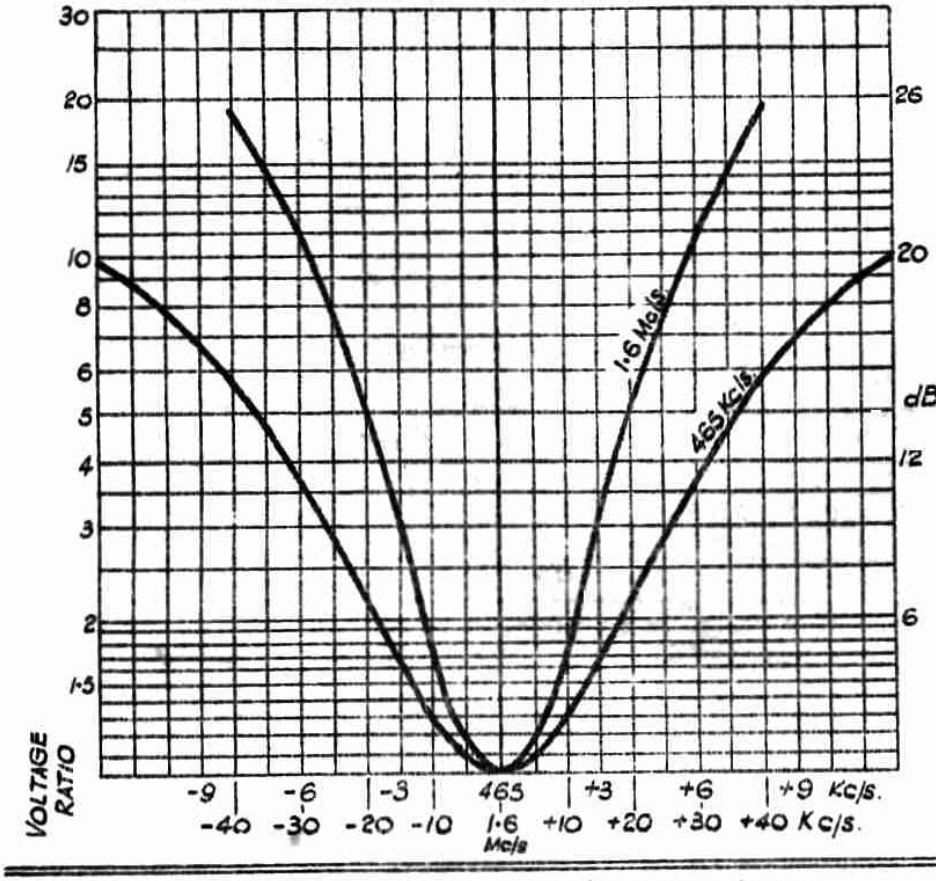
ALSO AVAILABLE FOR 10·7 Mc/s. (SEE F.M. COMPONENT PAGES.)

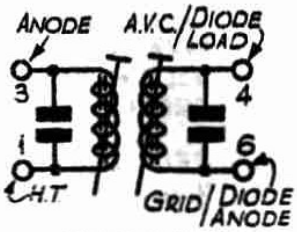
FIXING: TWO 6B.A. SCREWS PROVIDED.

SCREENING CAN: EXTRUDED ALUMINIUM 1 7/8" x 13/16" SQUARE.

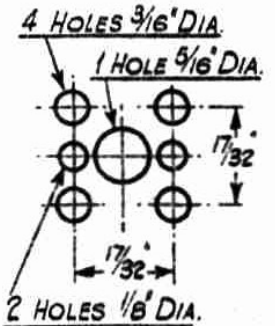
RETAIL PRICE: 6/- EACH

RESPONSE CURVES OF SINGLE IFT.11/465 & IFT.11/1·6



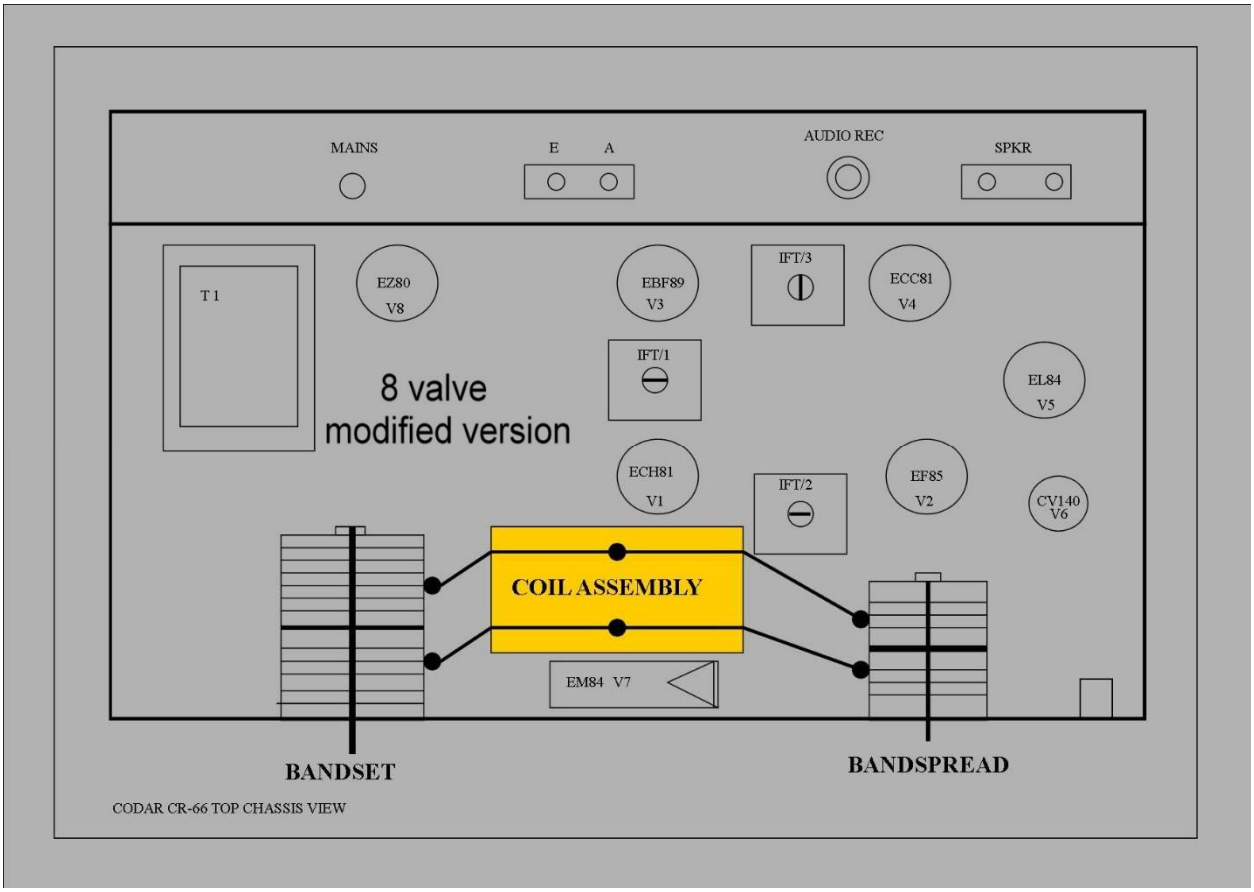


SCHEMATIC DIAGRAM.



CHASSIS PIERCING.

DENCO (CLACTON) LTD.


MAINS
E
A
AUDIO REC
SPKR
T 1
EZ80
V8
EBF89
V3
IFT/3
ECC81
V4
IFT/1
EL84
V5
8 valve
modified version
ECH81
V1
IFT/2
EF85
V2
CV140
V6
COIL ASSEMBLY
EM84 V7
BANDSET
BANDSPREAD
CODAR CR-66 TOP CHASSIS VIEW