

The AN/ARC-52, AN/ARC-552 and the 618W-2B

These are very similar UHF transceivers, developed from the AN/ARC-27 in the early sixties. All receive and transmit between 225 and 399.9 MHz, RF output level 20W. The transceiver includes a separate receiver on 243MHz, the guard channel.

The **ARC52** was developed by Collins USA in 1957 as successor for the ARC-27. The UHF transceiver was made in a -27.5V dc version, or in a 3phase 400Hz version. Channel spacing is 100kHz (1750 channels) on a single control box

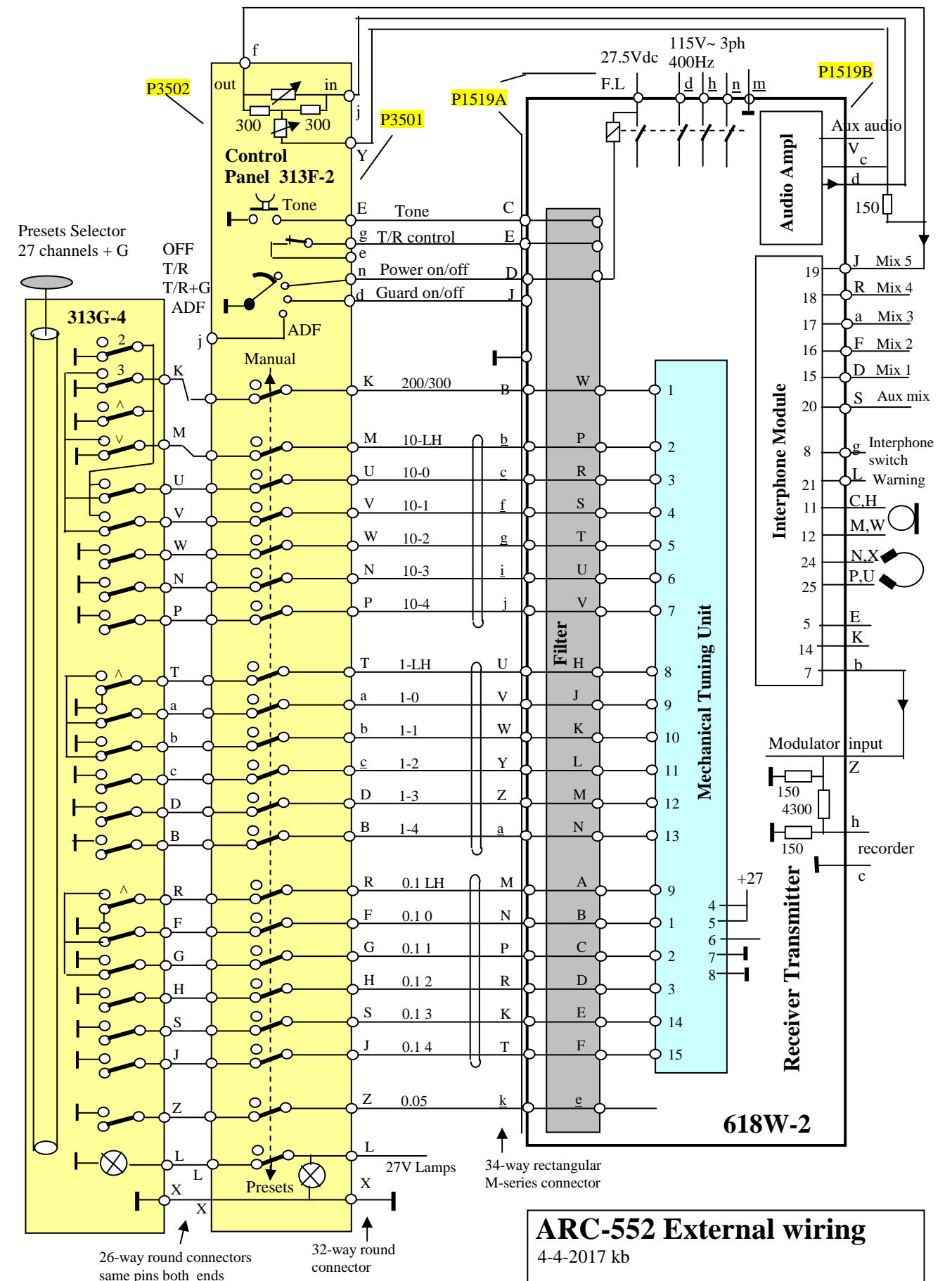
The **ARC552** was made by Collins Canada in the 400Hz AC version only. It is fully interchangeable with the ARC-52 down to the module level. Channel spacing is 100kHz (1750 channels) on a single control box

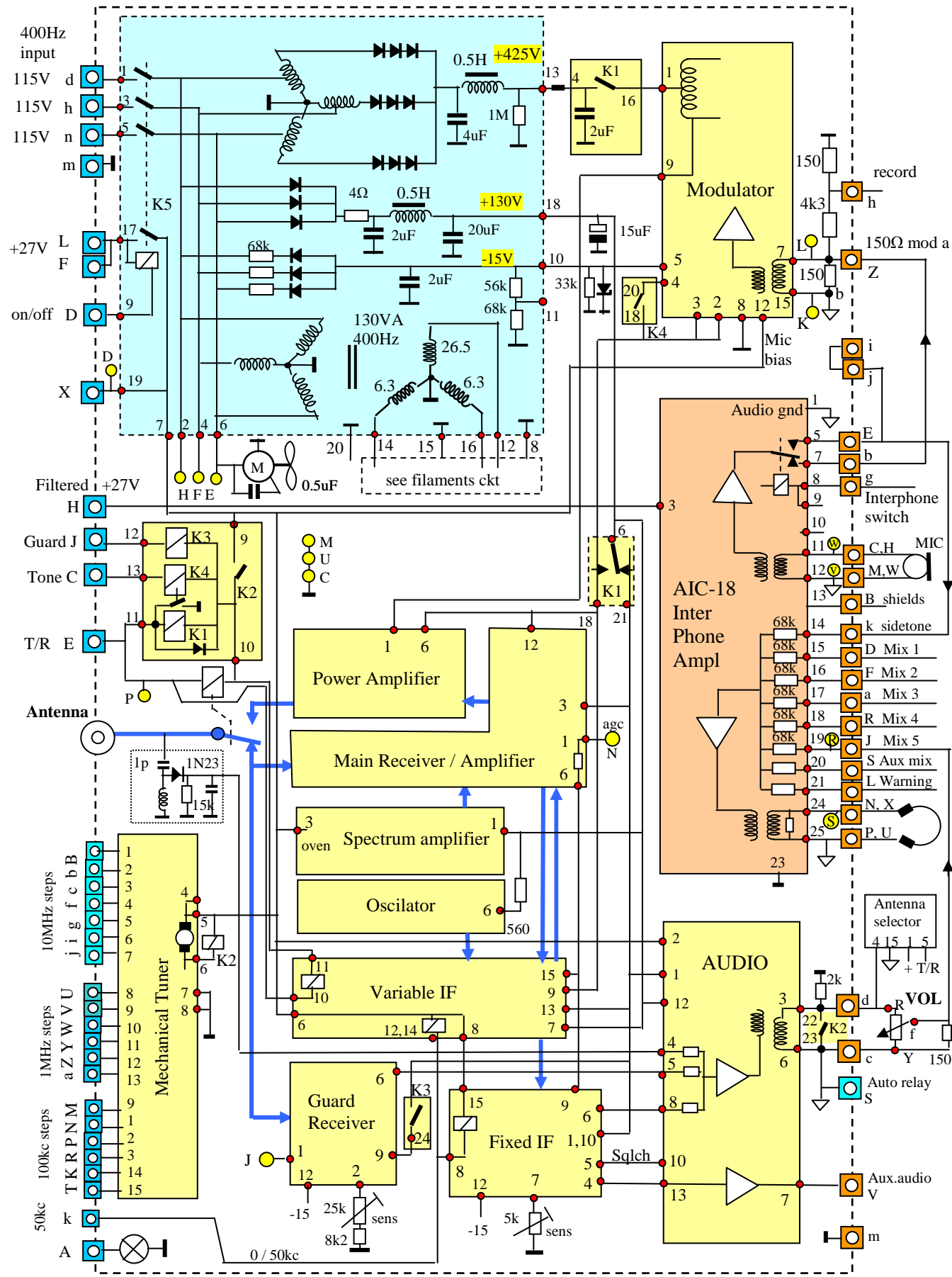
The **618W-2B** was specially made for the F104G Starfighter.

- Only the 3phase 400Hz version;
- Special form to fit into the F104 Starfighter;
- With 34 pin rectangular connectors as standard in the F104 ;
- The interphone amplifier AIC-18 was built-in.
- The channel spacing is 50 kc (3500 channels)
- Either separate control boxes for manual frequency select and for preset channels type 313F-2 and 313G-4, or single control box 313E-2 with plug-in preset selector

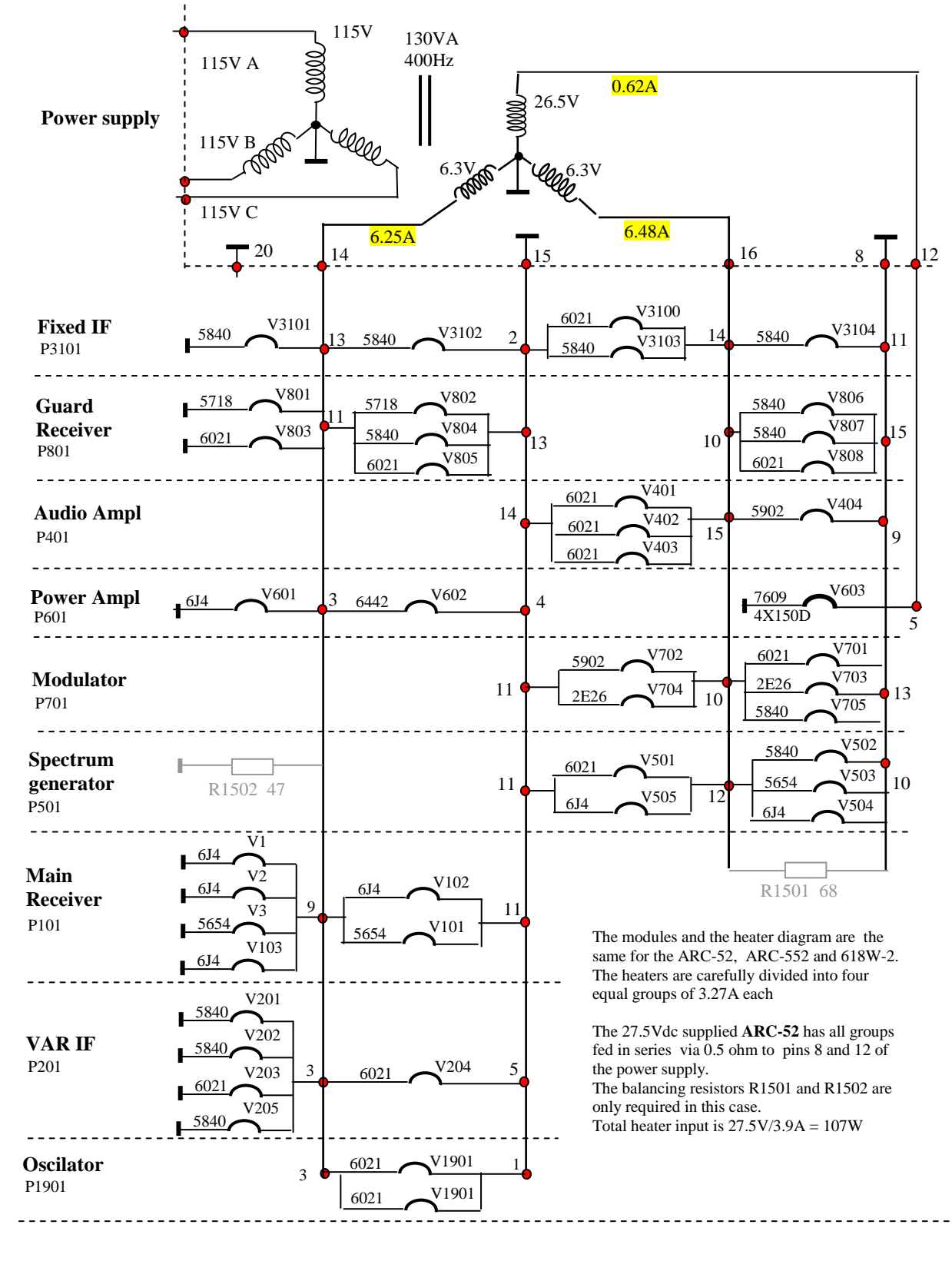
This document gives the schematic diagrams of all modules in the 618W-2(B). The 618W-2 and 618W-2B differ in that the first has the audio ground internally connected to the frame, whereas the second requires an external connection.

Prefix	Module
1	Main Receiver (UHF part)
2	Variable IF
3	Fixed IF
4	Audio Amplifier
5	Spectrum Generator
6	RF Power Amplifier
7	Modulator
8	Guard Receiver
9	Relay Unit
10	Power Supply
12	Mechanical Tuning Unit
15	Chassis
19	Oscillator
20	Interphone Amplifier



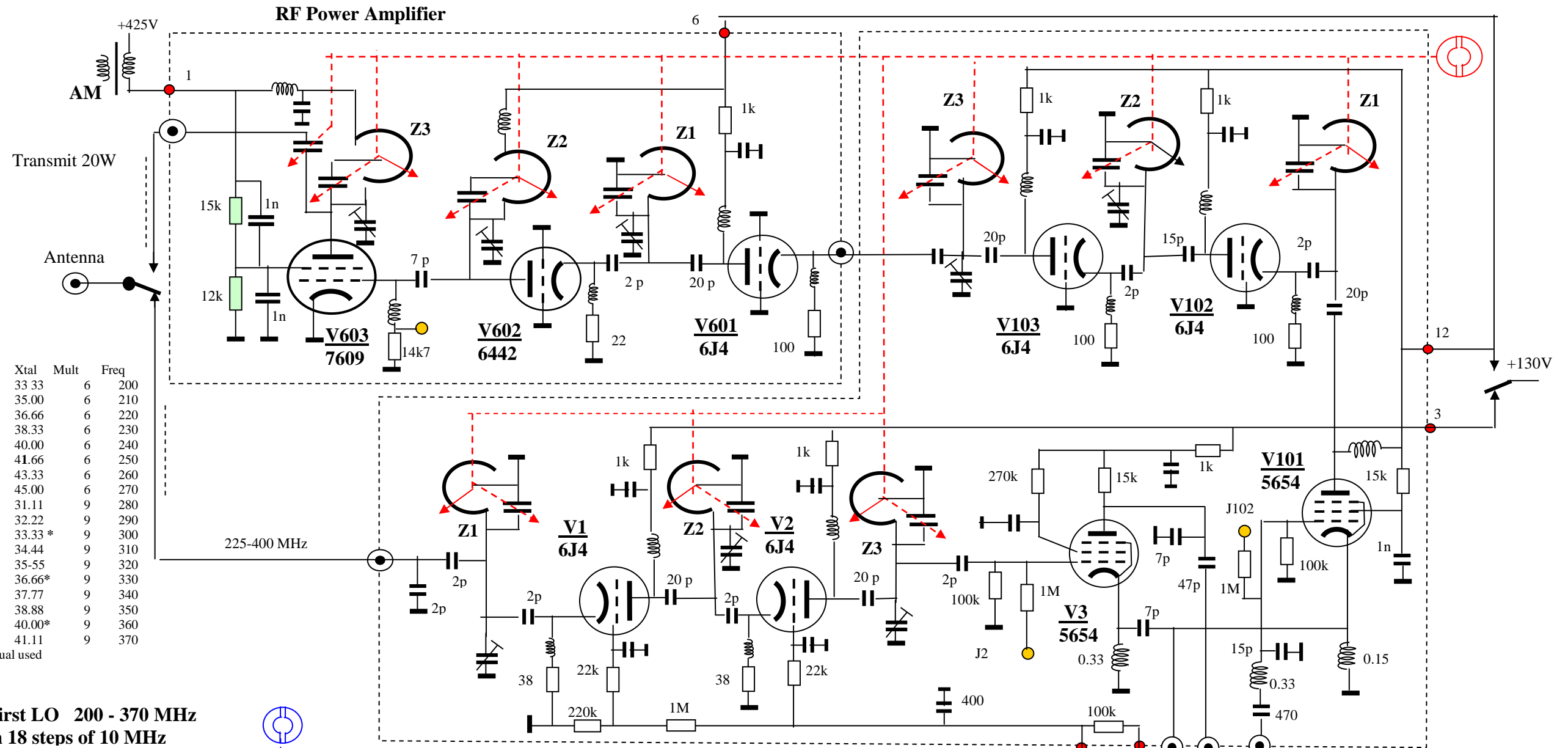


ARC-552 / 618W-2 Main Chassis
19 June 2012 kb



43 tubes

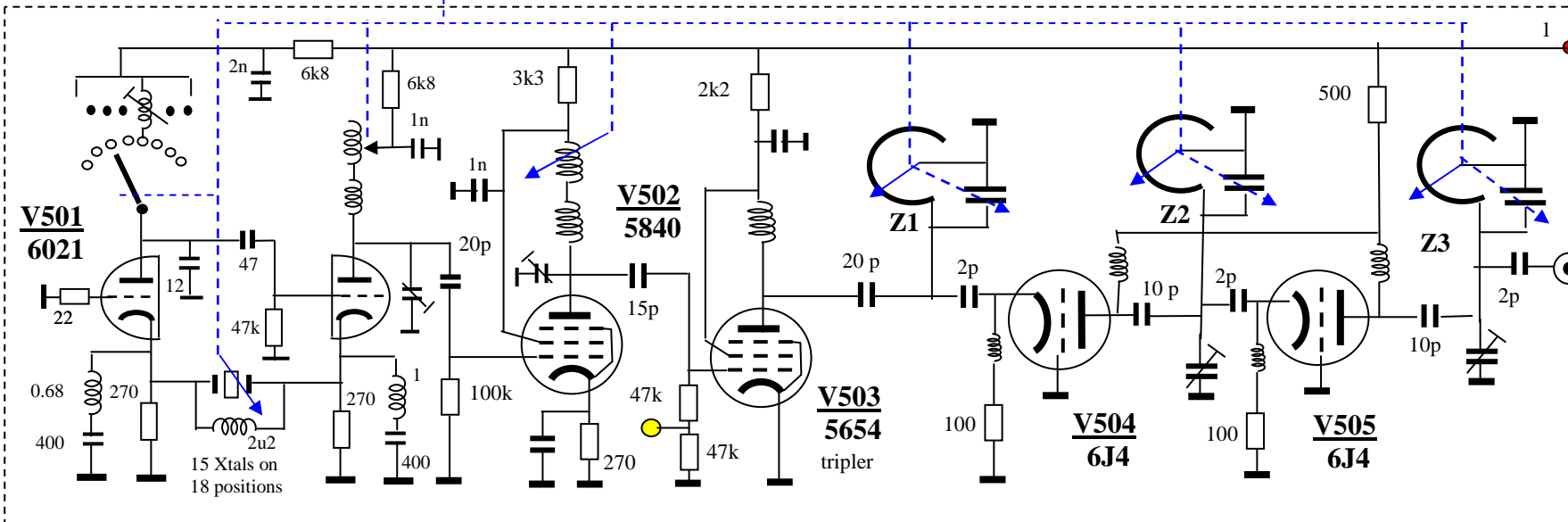
ARC 52 , ARC-552 and 618W-2 Heater circuit
6 june 2012 kb



Dial	Xtal	Mult	Freq
22	33.33	6	200
23	35.00	6	210
24	36.66	6	220
25	38.33	6	230
26	40.00	6	240
27	41.66	6	250
28	43.33	6	260
29	45.00	6	270
30	31.11	9	280
31	32.22	9	290
32	33.33*	9	300
33	34.44	9	310
34	35.55	9	320
35	36.66*	9	330
36	37.77	9	340
37	38.88	9	350
38	40.00*	9	360
39	41.11	9	370

* Xtal dual used

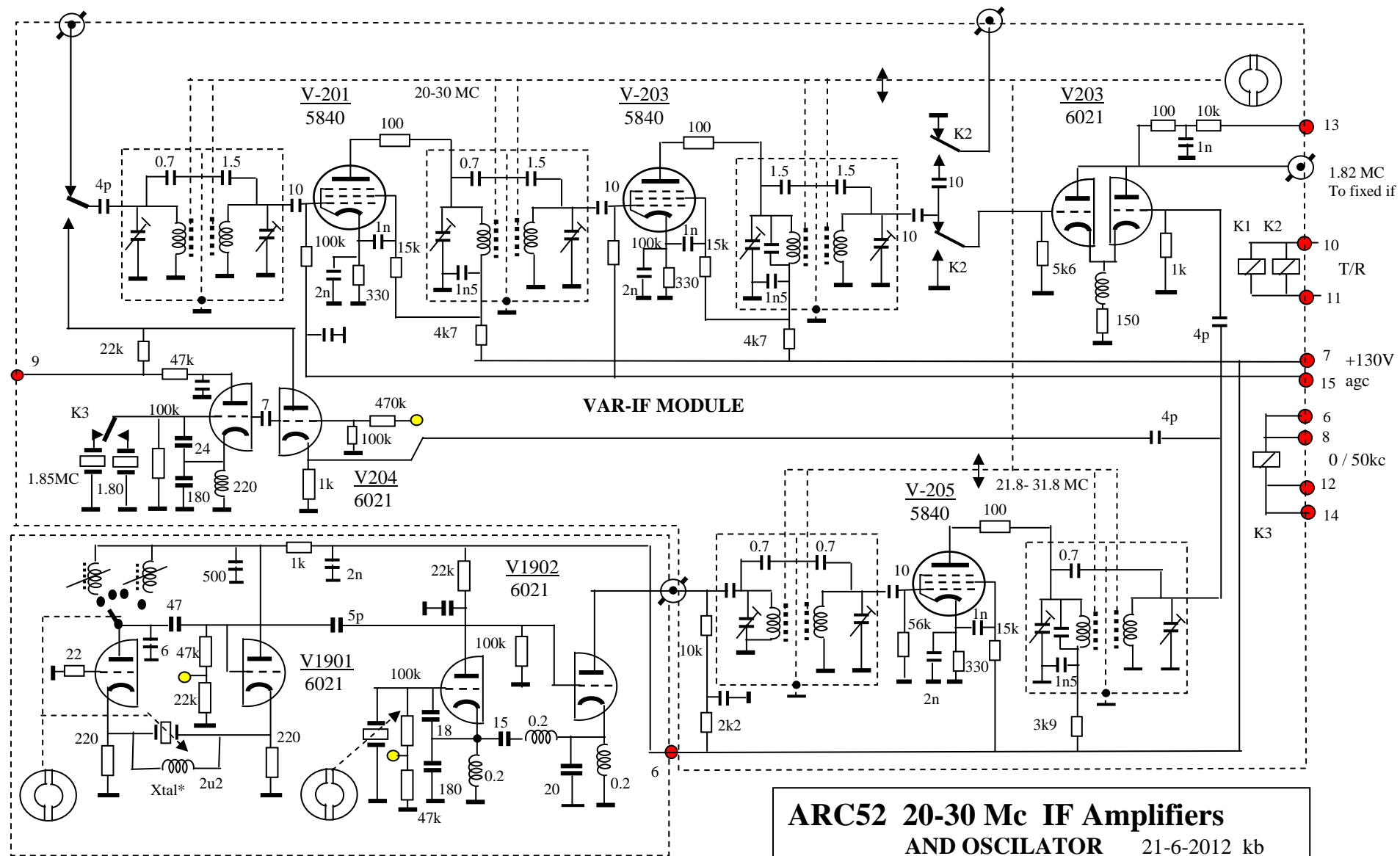
First LO 200 - 370 MHz
in 18 steps of 10 MHz



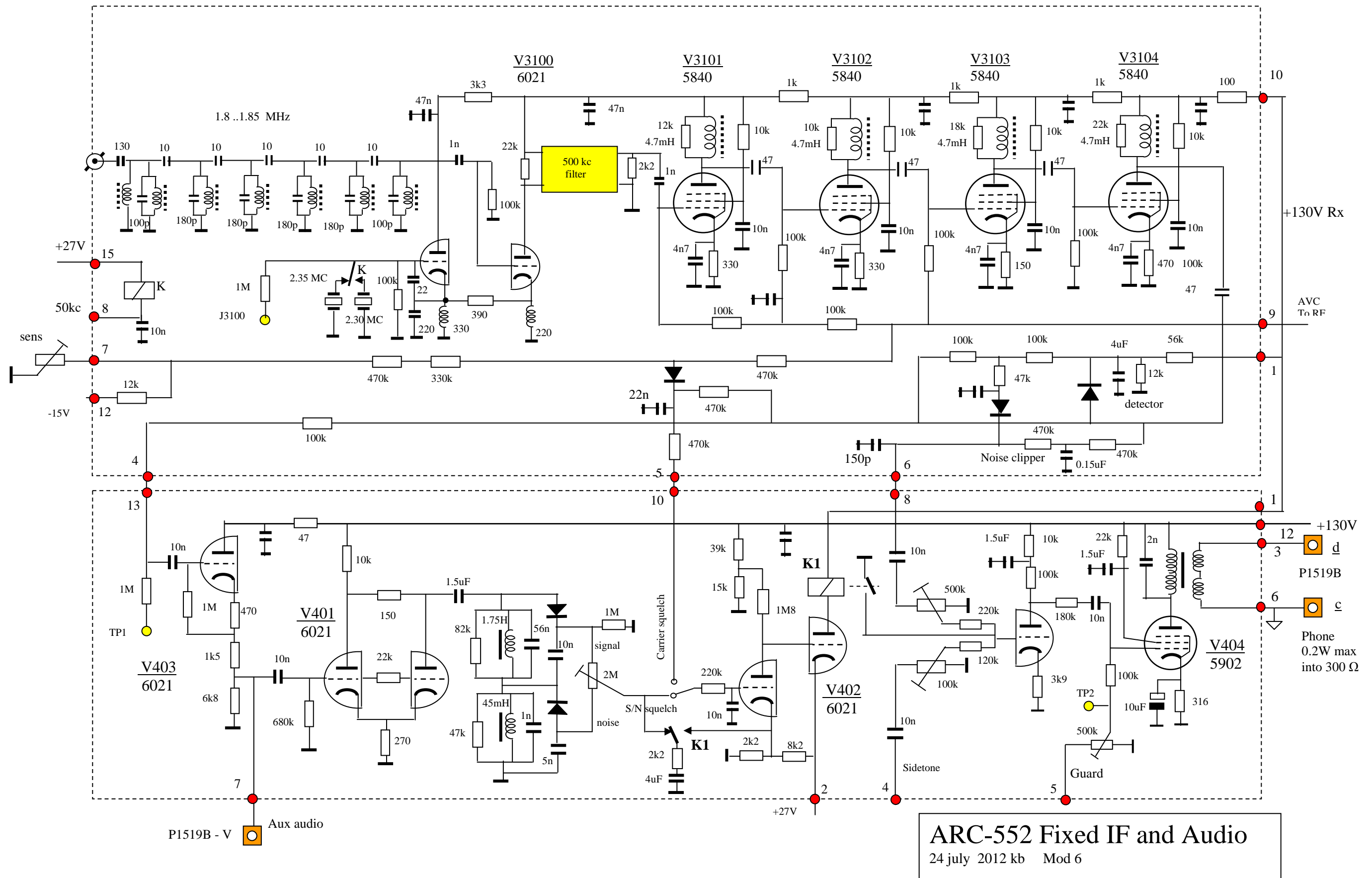
VAR IF
20-30 MC

All relay contacts shown in receive position

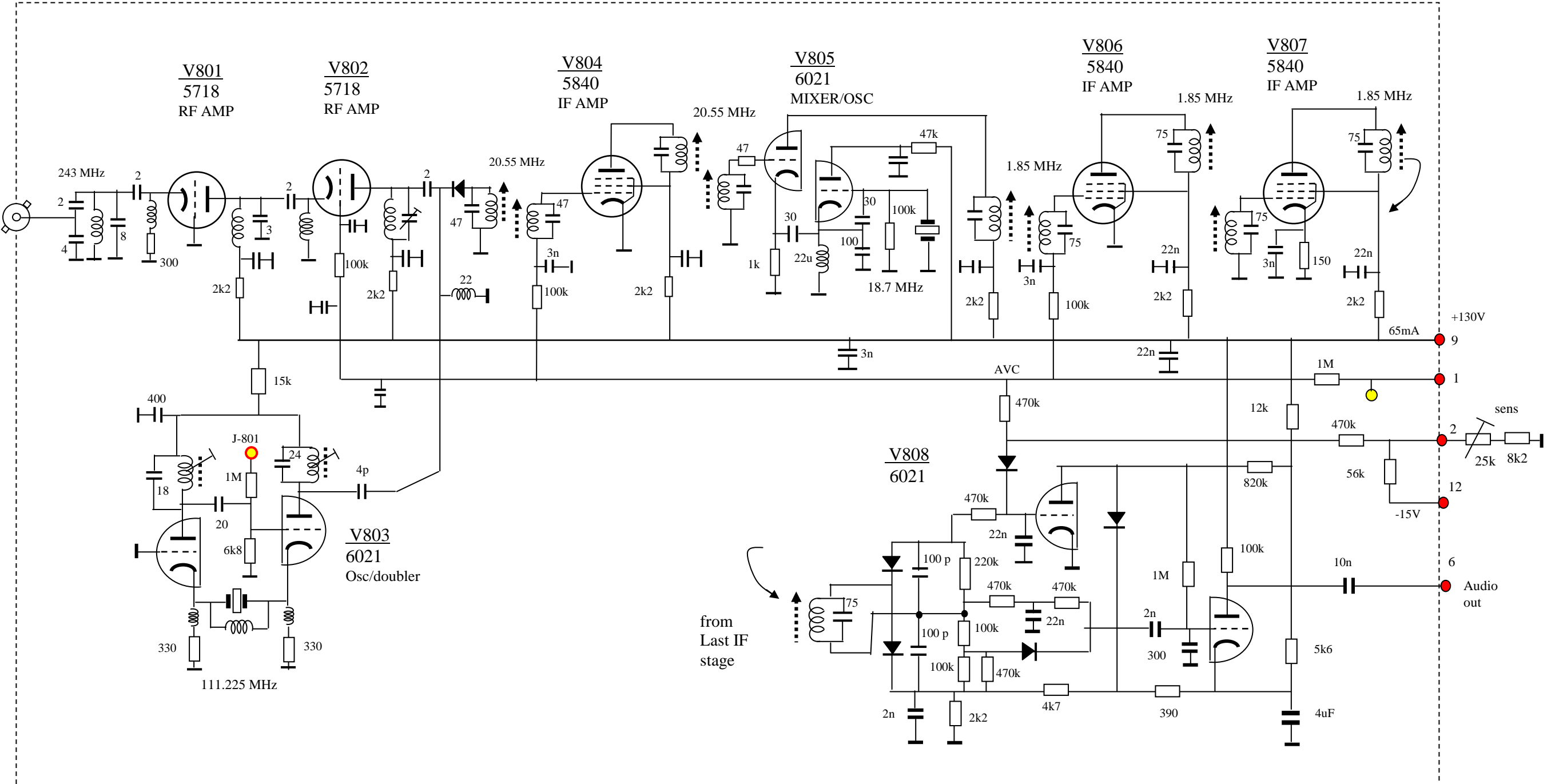
ARC-52 UHF parts
For heaters and oven see power supplies sheet
15 june 2012 kb



**ARC52 20-30 Mc IF Amplifiers
AND OSCILATOR** 21-6-2012 kb



ARC-552 Fixed IF and Audio
 24 july 2012 kb Mod 6



6dB bandwidth > 100 kc
 60dB bandwidth < 400 kc
 Sens 3μV to open squelch at 6 dB S/N

ARC-52 Guard Receiver
 22 june 2012 kb

ARC52 Frequency coding

The autopositioners in the ARC52, ARC552 and the 618W-2 are the same.

The 50kc bit for the 618W-2 is routed directly to a relay, the autopositioner is not involved.

10Mc coding

pos mc	1 22	2 23	3 24	4 25	5 26	6 27	7 28	8 29	9 30	10 31	11 32	12 33	13 34	14 35	15 36	16 37	17 38	18 39
10-1				X					X					X				
10-2					X					X					X			
10-3	X					X					X					X		
10-4		X					X					X					X	
10-5			X					X					X					X
10lo	X	X	X						X	X	X	X	X					
200	X	X	X	X	X	X	X	X	X	X	X	X	X					

An "X" indicates that the line connects to ground in the control panel

1 Mc coding

	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9
1-1	X	X									X	X								
1-2			X	X									X	X						
1-3					X	X									X	X				
1-4							X	X								X	X			
1-5									X	X								X	X	
1.1o	X	X	X	X	X	X	X	X	X	X									X	X
x	X	X	X	X	X	X	X	X	X		X		X		X		X		X	X
y	X	X	X	X	X	X	X	X	X		X		X		X		X		X	X

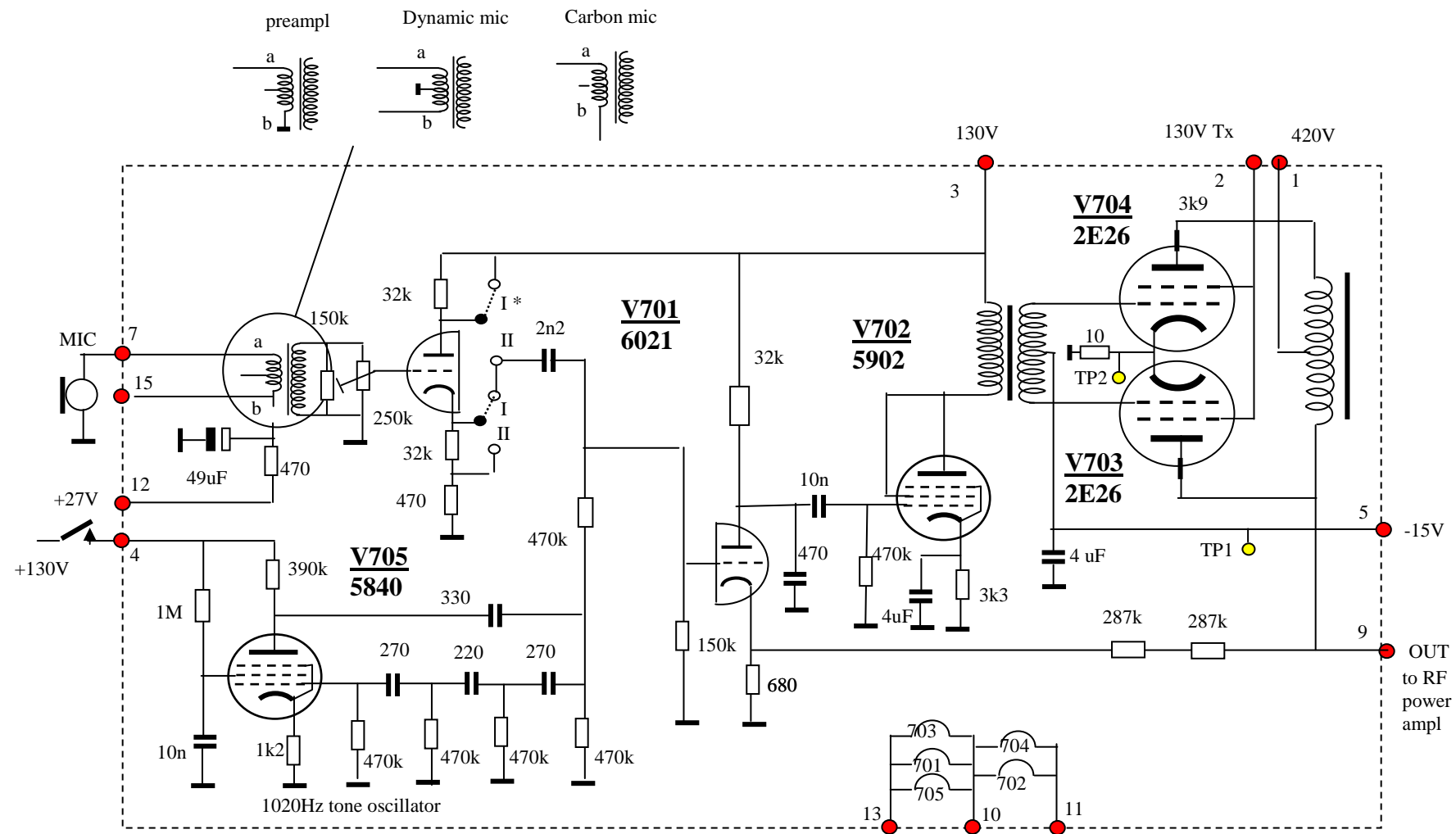
The x and y lines are internally connected with the xxx.0 thru xxx.4, resp.

xxx.5 thru xxx.9, lines of the 0.1 Mc selection.. The 1Mc knob on the control panel has only 10 positions, but the 1Mc shaft in the transceiver has 20 positions to facilitate smooth tuning of the VAR-IF filters which have 400kc bandwidth.

0.1 Mc coding

	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	-	-	-	-
.1-1	X					X								
.1-2		X					X							
.1-3			X					X						
.1-4				X					X					
.1-5					X					X				
.1 lo	X	X	X	X	X									

An "X" indicates that the line connects to ground in the control panel

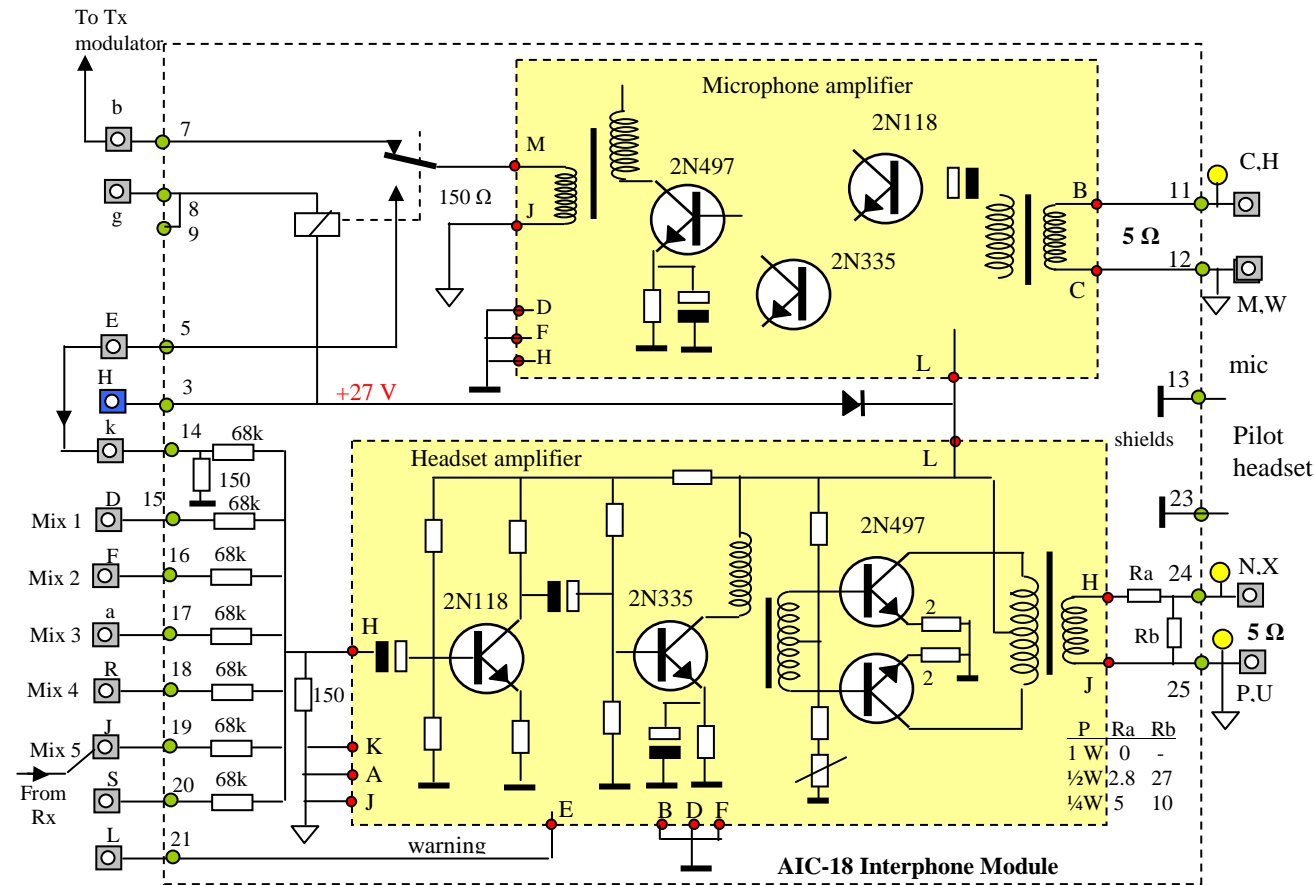


* Solderlinks I for use with preamplifier or carbon mike.
 Solderlinks II for use with dynamic mike

ARC52 MODULATOR
 27-6-2012 kb

Auxiliary modules for the 618W-2 transceiver

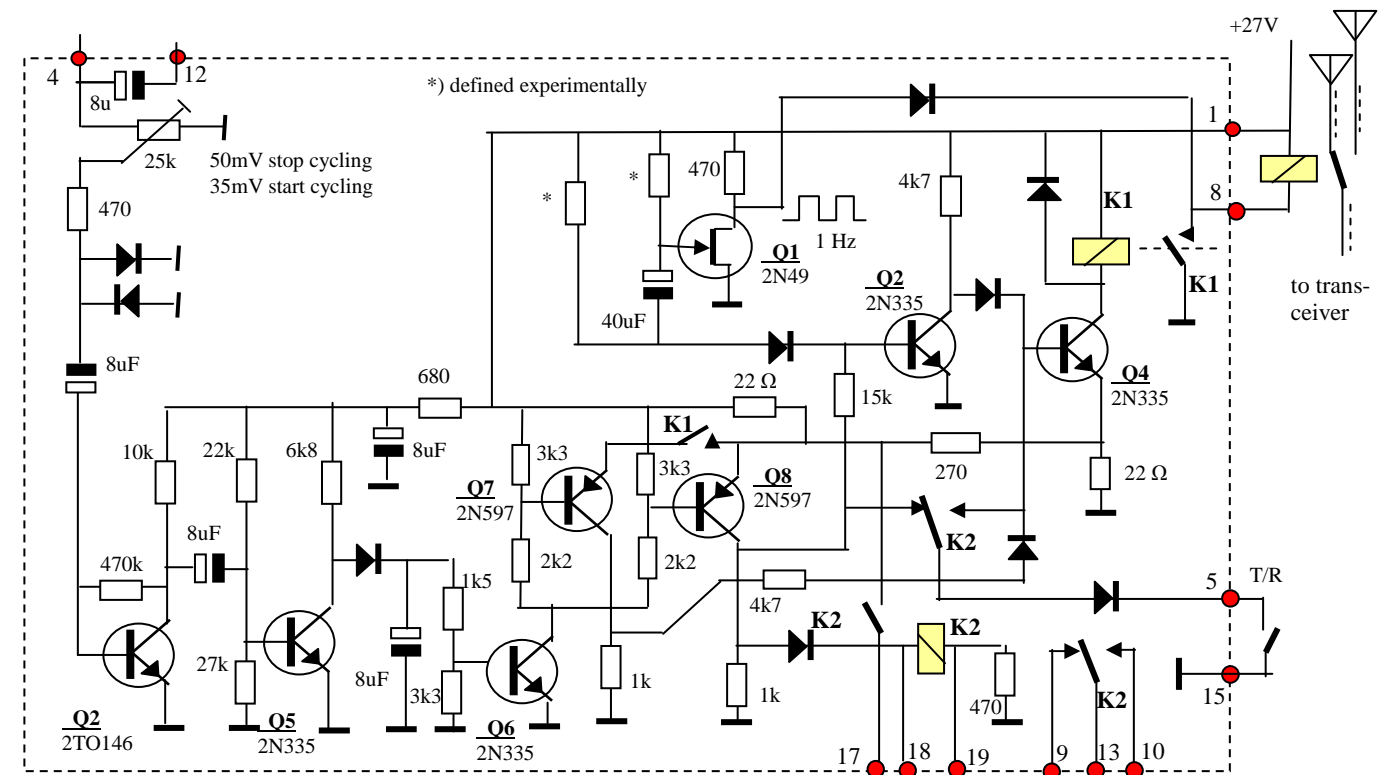
1. Interphone module AIC-18



The Interphone module AIC-18, is an internal part of the 618W-2 transceiver but not integrated into the wiring, all connections go to a separate plug on the rear of the transceiver.

The microphone amplifier converts the signal from a 5Ω dynamic microphone into the 2.5V signal for the modulator of the 618W-2B, and amplifies the audio output signal from the receiver from the standard 150Ω/ 250mW level to 1W into 5Ω, suitable for multiple headsets in parallel.

2. Antenna Selector module



The Antenna Selector is a stand-alone unit, fitted in aircraft with two antennas.

The Antenna Selector cycles every second between the UHF Comm and Tacan antennas on the top of the fuselage and those on the bottom of the aircraft as long as no signal is received. When an audio signal of more than 50mV is received, this cycling stops, and the current antenna remains selected.

During transmit (Push to talk switch engaged), cycling stops as well, and the current antenna is kept connected.

When the received signal drops below 35mV at the input of the Antenna selector, then cycling is resumed.

A remote a “Antenna1-Auto-Antenna2” switch can be connected (not shown).