Remodeled Chinese air band receiver kit with R909-VFO by nobcha©

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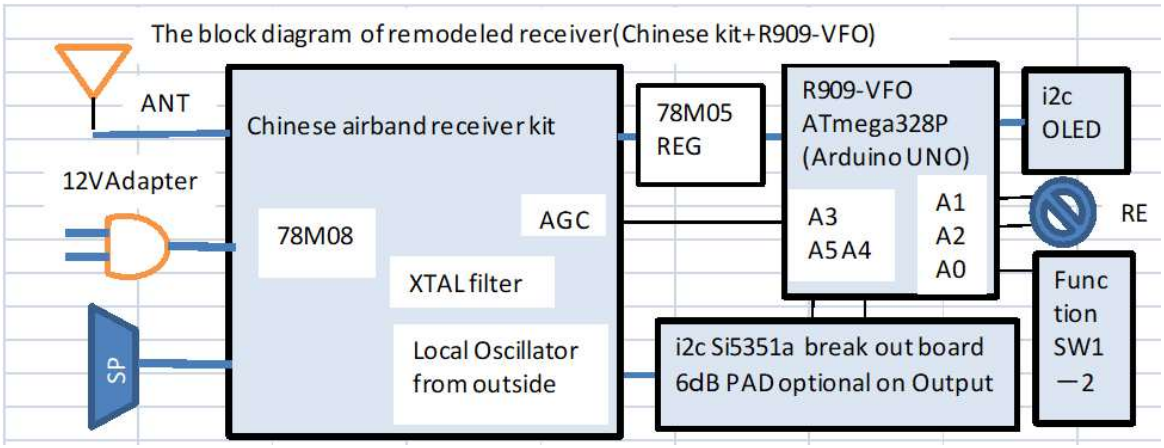
- Chinese air band receiver kit combined with the digital local oscillator
- This is the second example of the R909-VFO applications.

The major works to remodel are below:

1. To assemble the Chinese air band receiver kit and modify some.
   1.1 To modify for outsourcing of the local oscillator. To pull out the AGC signal.
   1.2 To set up the connection board with +5VAVR and si5351a module mount.
2. To assemble the R909-VFO
3. To install above in AL case with the front and back panel PCB.

The block diagram is below.



The necessary parts

Parts name	Remodeling or option	Note
Chinese air band receiver kit	After assembled, to remodel. To receive LO from outside. To Pull out AGC. LM386 muting circuit. To change to 78M08. Crystal filter.	
R909-VFO	To assemble	BOM
	ATmega328P-PU	To be loaded Arduino boot loader
	Si5351amodule	With low pass filter
	Rotary encoder with switch. Push button switches.	BOM
Enclosure	Front and back panel	R909-VFO panel PCB
	4-15mmL studs with M2.6 holes on both ends. 4-M2.6-5mmL screws.	To hold the R909-VFO on the panel.
	Aluminum case for Chinese air band receiver kit	Optionally LED and the power switch.

	88x38x70 aluminum case for R909-VFO	
Wires	Below list	
Knob	For RE, VOL, SQL,	

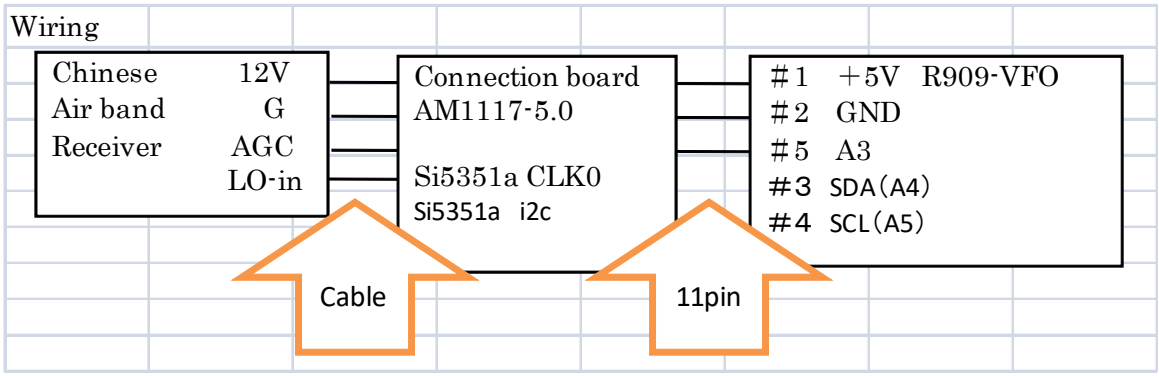
https://github.com/Nobcha/R909-VFO_try2/blob/main/R909-VFO_NO4_BOM1.jpg

Wiring

Name	Handling signals	Note
AGC wiring	The AGC signal at U4 LM358 #7 shall be connected to A3 of the pin header#5 via 1kΩ. GND shall be connected to the pin header#2	To use C11 lands with the jumper from R14 via 1kΩ.
Power wiring	To get +12V from receiver and put it on AVR 5V.	To put AM1117-5.0 on the connection board.
LO wiring	Si5351amodule->LO node	Coaxial cable

https://github.com/Nobcha/R909-VFO_try2/blob/main/LM386%E8%BF%BD%E5%8A%A0%E5%AE%9F%E8%A3%85%EF%BC%86%E3%82%B8%E3%83%A3%E3%83%B3%E3%83%912.jpg

https://github.com/Nobcha/R909-VFO_try2/blob/main/LO_sourcrin.bmp



We shall divert the Arduino sketch of R909-VFO for this trial.

Arduino sketch is here.

https://github.com/Nobcha/R909-VFO_try2/blob/main/R909-VFO_ABKITV41.ino

The operation features are listed below.

How to operate R909-VFO sketch						
Rotary encoder: To increase or decrease the parameters. See below.						
Rotary encoder push switch: See below.						
Mode	FUNC select	FREQ	STEP	MEM	SCN	F_COR
	Swap display	Set frequency	Select frequency	Channel number	Channel number	Correction value
Rotary encoder	[FUNC/FREQ] {FUNC/STEP} {FUNC/MEM} [FUNC/SCN] [FUNC/F_COR]	To increase or decrease the frequency by step	8.33kHz 1kHz, 100kHz, 1MHz, 25kHz	To increment or decrement the channel	To increment or decrement the channel	To increase or decrease the value
RE-SW single click	To go to every function	To go to FUNC select mode				
RE-SW double click	none	To store the parameter in EEPROM		To store the frequency in defined EEPROM	To go into AUTOMATIC scan channel mode	To store the parameter in EEPROM
SW1: To go into frequency mode						
SW2: To go into channel mode						
VOL: No mean						
SQL: Receiving LED turning on threshold						

Enclosure

1. The receiver should be installed in the original aluminum case.
2. We shall buy the aluminum 88x38x70 case at EC store.
   (For example; KX-JOJO electron store at AliEppress)


R909-VFO
SIG
POW
RE
SW1
SW2
25MHz Xtal
SI5351
CLK0
CLK1
CLK2
R909-SDR PANEL2
nobcha 2023


R909-VFO
SIG
POW
SW1
SW2
RE
SW
USB
POW
SP
HS
ANT
KPA RADIO 2024