

CIRCUIT DESCRIPTION OF AC420

B. PARENT UNIT

1. POWER SUPPLY

DC 7.5V from Adapter or 4 X AAA size battery is input to U3 regulator. U3 outputs 3.8V DC which gives supply to other parts of circuit of the unit.

2. POWER SWITCH

K5 is used as power on/off control of the unit.

3. DATA SHAPER

Q7, Q8 form a data shaper which regulate the data transmitted from base, such as channel selection.

4. PILOT TONE DETECTOR

Pilot tone received is filter at several stages of passive RC filters and amplified by Q16 and Q17. Then it is shaped at D7 and Q10 and fed into CPU U1 for recognition of audio from the base. Q5 and Q12 are then turned on for passing audio into speaker amplifier U2.

5. AUDIO OUTPUT AND LEVEL DETECTOR

Demodulated signal is amplified by Q3 and Q15 and passes through audio switch Q5 once pilot tone is verified. After passing through the second switch Q12, the audio signal is amplified by the U2 and output as sound at speaker SPK1.

Volume level output at speaker is controlled by K1 and K2 buttons which give CPU command to set terminals at R2, R3, R4 and R9 logic as varying the signal input to U2.

Part of demodulated audio signal is amplified by Q1 and rectified by D1 and D5 to let CPU know the audio strength from the transmitter. The audio level is displayed by 10 levels bar of LCD display which is driven by CPU U1.

6. LCD display and Back light

LCD display, LCD1 is driven by ports on CPU of LCD_C0 to LCD_C3 and LCD_S0 to LCD_S10. Back light of LCD is supported by LED1 which is driven by CPU U1.

7. RX RF MODULE OPERATION

Radiated signal (926-927.6MHz) from nursery is collected by antenna HANT1 and passed through matching components HC48 and HL4 to dielectric filter HDF1 (927MHz). The received signal is amplified by HQ4 amplifier. Amplified received signal is mixed with VCO frequency (936.7-938.3MHz) from HQ4 at HQ5 mixer.

The output of HQ5 is of 10.7MHz and passes through first 10.7MHz filter HCF2 and amplified by HQ6 and then pass to 10.7MHz filter HCF1.

Filtered 10.7MHz signal is fed into the input of IF IC HU1. Filtered 10.7MHz is mixed with 11.15MHz (HX1 oscillation) inside HU1 and a second IF 450kHz is generated. The 450kHz IF is output from pin 3 of HU1 and then filtered by components HL5,6 and HC69-71, 450kHz filter and then through HC67 back to HU1 pin 5 into internal demodulator. The audio is finally recovered from demodulator of HU1 which uses conventional quadrature detector contributed by HIFT1. The demodulated audio signal then passes into base band PCB at AF OUT pin (pin 1) of the module.

AC420 FREQUENCY TABLE

PARENT LCD DISPLAY		CHANNEL NUMBER	FREQUENCY (MHz)
TEST MODE	NORMAL		
00	N.A.	1	926.0
01	C1	2	926.2
02	C2	3	926.4
03	C3	4	926.6
04	C4	5	926.8
05	C5	6	927.0
06	C6	7	927.2
07	C7	8	927.4
08	C8	9	927.6

REMARK: CHANNEL ONE ONLY DISPLAYED IN TEST MODE