ANC-5 Quick Start

J1, J2, J3		**PL-259**
Power	**J4**	**DC barrel plug - 5.5mm o.d. x 2.1mm o.d. center pin. Center pin positive - 12VDC**
TX/RX (PTT) in - J5		**3.5mm (1/8 inch) phone plug - short tip to sleeve for TX**

This section lets you get "on the air" with the ANC-5 as quickly and as simply as possible. See the ANC-5 manual on the USB drive for more details.

CONNECT POWER

The ANC-5 operates from a nominal +12VDC power source. Plug an AC to 12VDC adapter into the ANC-5's +12V IN (J4) jack on the rear panel. The unit is protected for reverse polarity, so no damage will result if the correct polarity is not observed, but the unit will not operate. If you solder on your own power plug, be sure to check for the correct polarity - center terminal is positive - before connecting to

the ANC-5. Use the Timewave ANC-1 or similar AC-to-DC adapter with at least 300 mA current capacity. The power input mating connector is coaxial, 2.1mm ID and 5.0 to 5.5mm OD, center positive. A mating plug is included with the unit. (Older JPS ANC-4 units use a 2.5 mm ID power connector).

CONNECT NOISE ANTENNA

Connect a Noise Antenna to the ANC-5 Noise Antenna input (J1) with an UHF (PL-259 or equivalent) connector. ***NEVER CONNECT A TRANSMITTER OR TRANCEIVER RF OUTPUT TO ANC-5 NOISE ANTENNA INPUT.*** **Note: a short noise antenna made from a PL-259 connector and 4-10 foot wire is likely to be effective only for noise generated within the operating area or room and will not be adequate for reducing power line or other noises generated outside the home. See the ANC-5 Manual Section 3 for outside noise antenna suggestions.** The PL-259 connector provided with the wire antenna may be used to connect your outside noise antenna by connecting the coax center conductor to the center pin of the PL-259 connector and the coax shield to the outside of the PL-259 connector. Use the shortest length for the noise antenna that will provide a good null with the NOISE GAIN control in its mid range.

CONNECT OUTSIDE ANTENNA

Using a UHF (PL-259 or equivalent) connector, connect a 50 Ohm operating antenna to the MAIN ANTENNA connector (J3) on the rear of the unit.

CONNECT ANC-5 TO RADIO CONNECTOR

Using a PL-259 connector and coaxial cable, connect the RADIO connector (J2) on the rear of the ANC-5 to the receiver or transceiver rf input or antenna connector. **Never connect a RF output to the ANC-5 Noise Antenna Input.**

CONNECT TO STATION GROUND

Connect the rear panel ground connector in the center of the ANC-5 back panel to your station ground. This will reduce the effect of hand capacitance on the settings as you null out the local noise.

CONNECT TX/RX (PTT) SIGNAL

An rf detector built into the unit automatically bypasses the network whenever a level of 10 Watts transmit rf is detected. A TX/RX IN 3.5mm phone jack also bypasses the network whenever the tip of the phone jack is shorted to ground. The TX/RX signal is also called "PTT OUT" on some radios. The red TX LED on the front panel is illuminated when either rf is detected or the RX/TX input is shorted to ground. Preferably, use the TX/RX (PTT OUT) signal.

TURN ON POWER

Turn on the ANC-5's POWER switch. The yellow or green LED next to the switch should be illuminated.

CONTROL SETTINGS

Set the NOISE PHASE control to the full CCW position. Set the PHASE RANGE

pushbutton in the “IN” (“A”) position. Set the FREQ RANGE pushbutton in the “IN” (LO) position. Turn the NOISE GAIN control fully CCW to ZERO.

TUNE IN NOISE ON THE RECEIVER

Tune your receiver to a frequency in the 3 to 4 MHz band (80 Meters). Find a spot where you hear only the noise level. If the noise is generated locally, such as close-by power lines, computers, TV, etc., you should be able to adjust the NOISE PHASE and NOISE GAIN controls to reduce the noise level considerably. If the noise you receive is not generated locally, the unit will probably have little effect on your noise level.

ADJUSTING FOR MINIMUM NOISE

Turn the NOISE GAIN control slowly CW (clockwise) while observing the receiver “S” meter. Note when the noise level changes, either increase or decrease. Now adjust the NOISE PHASE control until you see the “S” meter dip. If you do not see a dip or rise in the “S” meter reading, try changing the PHASE RANGE pushbutton to the “OUT” (“B”) position and readjust the NOISE PHASE control. One position of the PHASE RANGE pushbutton provides a NOISE PHASE range from 0 to 180 degrees, while the other position provides a NOISE PHASE range from 180 to 360 degrees. One of the settings of the PHASE RANGE button will provide the proper phase so that a good null can be attained. Readjust the NOISE GAIN and NOISE PHASE controls alternately until the local noise has been cancelled. If you cannot obtain a null, follow the procedure given in the following paragraphs to determine if adequate noise is being picked up by the noise antenna. If you obtain a null of the noise, but it is not as deep as you believe it should be, try changing the polarity of the noise antenna to agree with the polarity of your main station antenna. Although a vertical whip antenna may do a good job of cancelling the noise regardless of the main antenna polarity, better performance (deeper nulls) can be obtained in some cases when the main antenna and the noise antenna have the same polarity. When a null has been reached, you now hear the noise level you would have if no local noise was present, because you have just cancelled the locally-generated noise. Now you will hear signals that you didn’t know were there before. Or you’ll get good copy on signals that you couldn’t quite hear because they were in the noise level.

If your receiver does not have an “S” meter, listen carefully to the noise level. When you hear the noise level increase with noise from the noise antenna, switch to the NOISE PHASE control and listen for the null in the noise. Switch between the NOISE PHASE and NOISE GAIN controls to attain the local noise null. The null obtained is normally good for most, if not all, of the entire band in which you’re listening. If you go to a new frequency, you will probably have to readjust the settings on the NOISE PHASE and NOISE GAIN controls to recancel the local noise. If you cannot obtain a satisfactory null in the noise, make the following check to determine if adequate noise is being picked up by the noise antenna.

(1) Turn both NOISE PHASE and NOISE GAIN controls fully CCW.

(2) Note the S meter reading on noise received from the main antenna. Also listen to the character of the noise.

(3) Disconnect the main antenna and increase the NOISE GAIN in a CW direction until the S meter reads the same as it did with noise from the main antenna. Listen to the noise to be sure it sounds the same as it did in step 2 above. If you cannot get the S meter reading high enough to equal the reading taken in step 2, the noise antenna length and/or location must be changed to pick up enough noise to properly cancel that received by the main antenna.
(4) If the character of the noise is not the same in step 3 as it was in step 4, you may need to place an outside noise dipole to pick up the noise. Feed the output from this outside probe through shielded wire or coaxial cable to the NOISE ANT connector on the rear of the ANC-5.

HIGH FREQ OPERATION (Over 20 MHz)

For operation at frequencies above 20 MHz, the FREQ RANGE pushbutton should be in the "OUT" (HI) position. This centers the network so that it will operate properly at these higher frequencies. If you have trouble getting a good null at high frequencies, try placing the FREQ RANGE switch in the LO position and readjust the NOISE PHASE and NOISE GAIN controls. All other adjustments should be made as noted above to cancel the local noise. The unit will cancel local noise down to about 100 KHz and up to about 80 MHz.

ADJUST TX HANG TIME

To adjust the time to return to receive mode (TX Hang Time) when RF is not present, adjust the Trimpot on the back panel with a small screwdriver. This will vary the relay hang time from 500 msec to approximately 7 msec.

BROADCAST STATION NOTCH

If a local broadcast station overloads the NOISE ANTENNA amplifiers, it can be sharply attenuated with a tunable trap, C27 and L2. To activate the trap, connect the jumper JP2 to position 1-2 (IN). By adjusting the variable capacitor, station frequencies in the 500 to 1600 kHz range can be trapped. Remove jumper JP1 to trap a station with a frequency between approximately 1000 kHz and 1600 kHz. Set jumper JP1 to the MED-HIGH position to trap a station with a frequency between approximately 800 kHz and 1000 kHz. Set jumper JP1 to the LOW-HIGH position to trap a station with a frequency between approximately 500 kHz and 800 kHz.. To deactivate the tunable trap, place the jumper JP2 in position 2-3 (OUT).

BROADCAST BAND HIGH PASS FILTER

To attenuate signals from local broadcast stations that are picked up by the external noise antenna, place both BCB Filter IN Jumpers JP3-1 and JP3-2 in the IN position. This places a 1.65 MHz. high pass filter with at least 30 dB attenuation in the stop band in series with the noise antenna. (If one particular station is so strong that it still comes in despite the high pass filter, use the BCB TRAP to notch it out. See paragraph above.) To bypass the BCB Filter, place a jumper in the OUT position of JP3. You must have either one jumper in the OUT position of JP3 or two jumpers in the IN position of JP3. If you have NO jumpers, the noise processing channel of the ANC-5 will not be connected and noise canceling will not work.