

MODEL 4-NB NOISE BLANKER

The Model 4-NB is a solid-state noise blanker for use with the R-4C Receiver. Unlike noise clippers or limiters commonly found in communications equipment, the 4-NB is an advanced noise blanker which actually mutes the receiver for the duration of the noise pulse. Between noise pulses, full receiver gain is restored. Receiver AGC is affected only by the desired signal and not by noise. The 4-NB is most effective on strong, periodic impulse noise such as ignition noise. It is least effective on random noise. Random noise is continuous in time and the information it masks cannot be recovered by either blanking or limiting techniques.

To install the 4-NB, remove the top row of three screws on each side of the R-4C Receiver. Disconnect the R-4C power cord. Remove the cabinet top. Remove the jumper plug from the noise blanker socket which is located near the 6BZ6 IF Amplifier. Retain the jumper plug so that it may be used if the 4-NB should ever require service. The 4-NB mounts on the four plastic printed circuit board stand-offs which are on the metal shields on either side of the Permeability Tuned Oscillator (PTO). Align the plastic stand-offs with the four holes in the 4-NB circuit board with the power cable of the 4-NB at the rear of the R-4C. Carefully push the circuit board onto the plastic stand-offs. Insert the 4-NB plug into the NB socket. Dress the cable against the top front of the mode switch bracket. Wrap the wire-wrap, which is on the mode switch bracket, around the cable. Make sure the cable is dressed away from the power transformer. Do not disturb any components on the 4-NB circuit board. Replace the cabinet top and the six screws.

The 4-NB is controlled with the R-4C Function switch. The switch may be left in the NB position except when receiving extremely strong signals which may cause some distortion in the 4-NB.

4-NB NOISE BLANKER ALIGNMENT.

WARNING

Always turn off the R-4C before plugging in or unplugging the 4-NB.

The 4-NB noise blanker requires no alignment at the time of installation. However, should alignment become necessary, the following procedure should be used: Connect a VTVM which will measure positive 15 Volts DC full scale, between the chassis and R45. Tune the R-4C to 28.5 MHz while using the crystal calibrator as a signal source. With the function switch in CAL position, adjust C3 and C6 for maximum S meter reading. With the function switch in the NB position and the RF gain control fully CCW, adjust R28 for maximum positive voltage on R45. Connect a jumper from pin 2 of the calibrator socket to ground. Pin 2 has a brown/white wire connected to it. Adjust the RF gain control to maintain 10 Volts on R45 while adjusting C19 and C25 for minimum positive voltage on R45. Remove the jumper from pin 2 of the calibrator socket and return the RF gain to full CW. With the calibrator turned on, adjust R12 so that the S meter has the same reading with the 4-NB installed as it does with the jumper plug installed.

WARNING

Always turn off the R-4C before plugging in or unplugging the 4-NB.

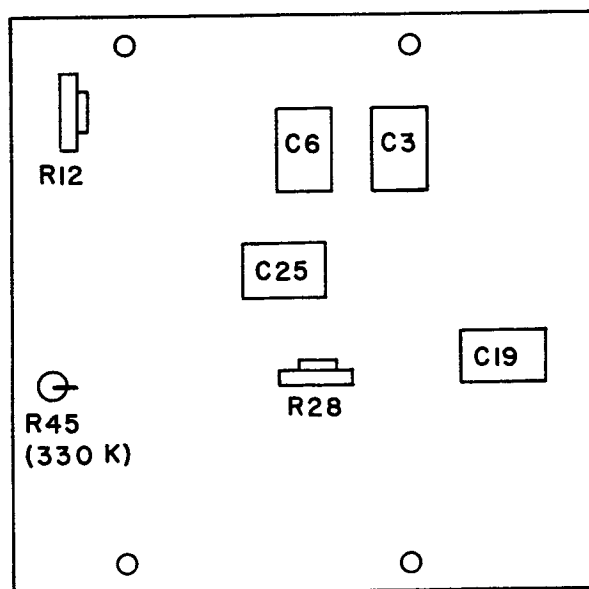
4-NB Voltage Chart

REF DES	EMITTER/SOURCE	BASE/GATE	COLLECTOR/DRAIN
Q1	1.6	2.4	6.3
Q2	1.5	2.3	9.1
Q3	8.3	9.1	12.6
Q4	7.3	7.9	13.2
Q5	0	0	7.9
Q6	3.3	4.0	13.5
Q7	1.6	0	13.7
Q8	1.4	0	13.7
Q9	3.4	4.0	10.5
Q10	3.4	4.0	3.4
Q11	3.6	4.2	9.9
Q12	0	0.22	6.7
Q13	6.3	6.7	13.8
Q14	5.8	6.3	13.8
Q15	3.8	3.2	3.2
Q16	4.2 (0)	3.5 (1.3 V)	9.2 (2.9 V)

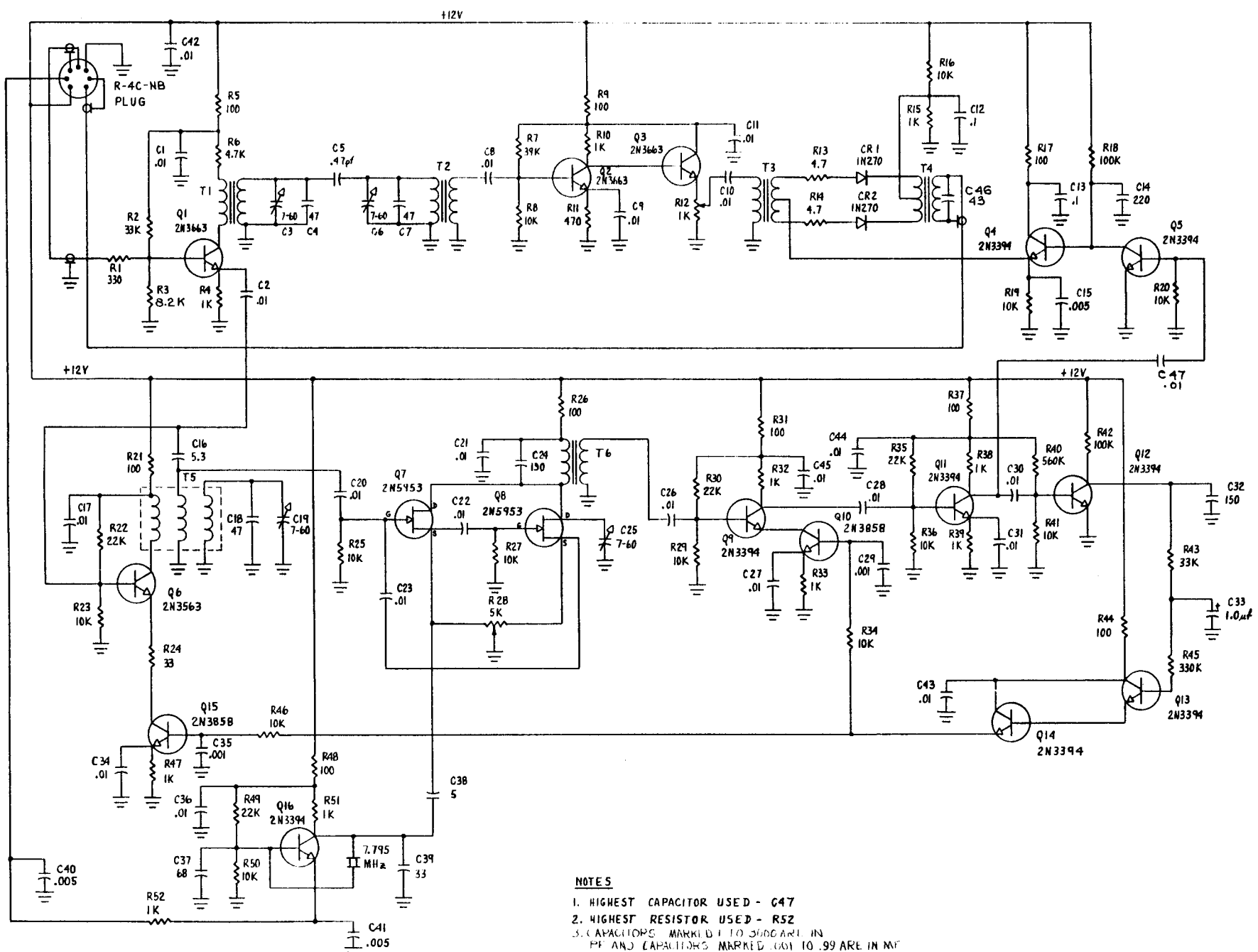
MEASUREMENT CONDITIONS:

Conditions are the same as the R-4C voltage chart except the R-4C FUNCTION switch was in the NB position. Measurements were taken with an 11 Megohm VTVM and a Boonton 91C RF voltmeter.

Measurements in parenthesis are RF voltages.



Model 4-NB Noise Blanker Alignment Locations



- NOTES**
1. HIGHEST CAPACITOR USED - C47
 2. HIGHEST RESISTOR USED - R52
 3. CAPACITORS MARKED 1 TO 500 ARE IN PF AND CAPACITORS MARKED .001 TO .99 ARE IN MF

Model 4-NB Noise Blanker Schematic Diagram

