

TEN-TEC INSTRUCTION SHEET
MODEL 223-A NOISE BLANKER

GENERAL

Model 223A is an i-f type noise blanker constructed as a PC module. It is intended for use with the ARGOSY transceiver Model 525, serial number 0825 and higher. Serial numbers below 0825 require Model 223 noise blanker.

INSTALLATION

- 1.) Remove 4 screws holding the top. Carefully remove the top and set aside.
- 2.) Insert 3 retainers into the Model 223A circuit board from the top. Push 4 spacers over the retainers from the bottom. Insert 3 sheet metal screws through the retainers (refer to Fig. 1).
- 3.) The Model 223A mounts in the left rear corner of the top deck. Place the Model 223A in this area and align the sheet metal screws with the holes in the chassis. The assembly number 80810 should be on the right side.
- 4.) Securely tighten all sheet metal screws.
- 5.) Plug cable 24 (blue) into socket 24, plug cable 30 (red) into socket 30.
- 6.) Locate socket 18-22 beside the crystal filter on the RF/MIXER board. Remove the jumper plug.
- 7.) Plug cable 18 into socket 18 on RF/Mixer, plug the other end of cable 18 into socket 19 on noise blanker, plug cable 22 into socket 22, and plug cable 23 into socket 23.
- 8.) Apply power to ARGOSY. Check for proper operation in receive and transmit.
- 9.) Replace the top and tighten the 4 screws.

IMPORTANT: When the transceiver is used in a mobile installation and the antenna is bumper mounted, it is mandatory that the bumper be bonded to the car body. New cars use a shock absorbing bumper system and the bumper is not electrically connected to the car body. Failure to bond the bumper to the car body can result in erratic SWR and the lack of effective noise blanking.

OPERATION

The blanker is energized by the front panel switch. It will be found that performance will be most effective when noise pulses are short in duration and comparatively long in period. Characteristic types are from automotive ignitions, sewing machines, small dc motors etc. Noise with short periods and longer duration such as QRN, are less discernible by the circuits and consequently more difficult to eliminate.

THEORY

The noise blanker is inserted into the receive i-f path between the first mixer and the crystal filter. Bandpass filter T1-C1 and T2-C2 provides band limiting and signal delay to the noise gate T3-T4 and D1-D2. The noise pulses are amplified by Q1 and U1 and detected by D3-D4. Q2 drives the noise gate and Q3-Q4 provide an AGC voltage for U1.

To align, C1 and C2 are adjusted for maximum signal with the blanker switch OFF. Coil L1 is then adjusted with the switch ON for maximum signal at pin 5 of U1, with a 10 mV signal applied at the antenna. This adjustment is not critical. Note that the blanker is pre-aligned at the factory and normally should not require readjustment.

80810 NOISE BLANKER

PARTS LIST

| | | |
|----------------|-------|--------------------------------|
| L1 | 21057 | COIL-SHIELDED 2.8 UH |
| C12 | 23014 | CAP-FXD, 22 PF, 50 V, 5% |
| C1,2 | 23061 | CAP-VAR, 5/60 PF, TRIMMER |
| C8,11,13-15,20 | 23132 | CAP-FXD, .01 MF, 100 V, CER |
| C16 | 23139 | CAP-FXD, 100 PF, 100 V, 5% |
| C3,5 | 23142 | CAP-FXD, 56 PF, 100 V, 5% |
| C6,7,19 | 23143 | CAP-FXD, 47 PF, 100 V, 5% |
| C4,10 | 23173 | CAP-FXD, 5 PF, 500 V, CER, 5% |
| C18 | 23181 | CAP-FXD, 1 MF, 50 V, EL, VERT |
| C9 | 23222 | CAP-FXD, 10 MF, 16 V, EL, VERT |
| Q4 | 25001 | TRANSISTOR - 2N5087 |
| Q2,3 | 25054 | TRANSISTOR - MPS6514 |
| Q1 | 25060 | TRANSISTOR - 2N5486 |
| U1 | 25062 | IC-MC1350P |
| D1,2 | 28017 | DIODE-PIN, MPN3404 |
| D3,4 | 28031 | DIODE-1N270, GERMANIUM |
| T4 | 85121 | TRANSFORMER-RF, TRIFILAR |
| T3 | 85134 | TRANSFORMER-RF, TRIFILAR |
| T1,2 | 85224 | TOROID |

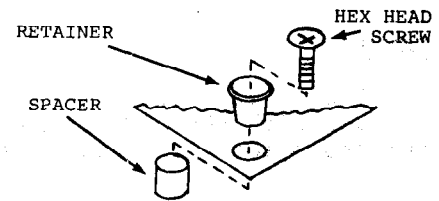
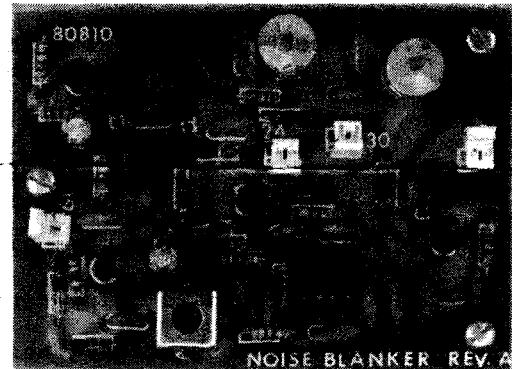
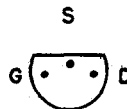
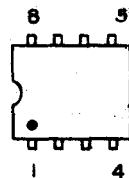


Fig. 1

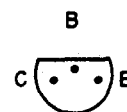


U1

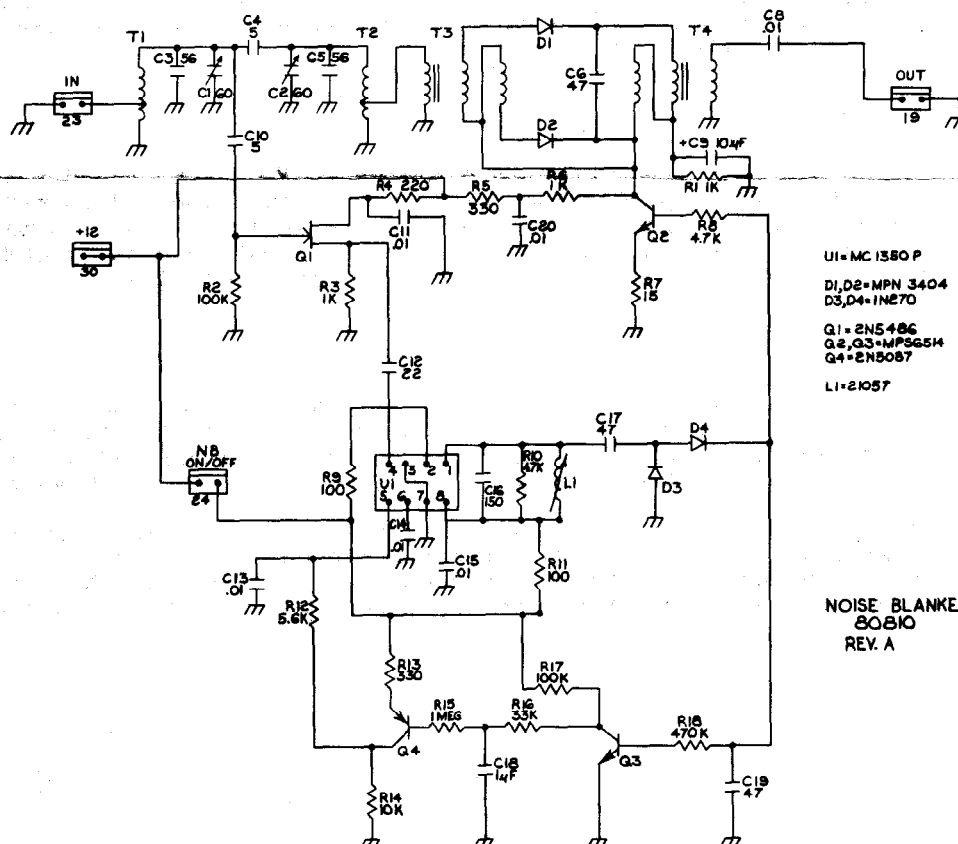
| PIN | VOLTAGE |
|-----|---------|
| 1 | 12.6 |
| 2 | 12.0 |
| 3 | 0 |
| 4 | 3.0 |
| 5 | 5.45 |
| 6 | 3.9 |
| 7 | 0 |
| 8 | 12.6 |



| TRANSISTOR | GATE | SOURCE | DRAIN |
|------------|------|--------|-------|
| Q1 | 0 | 1.75 | 12.75 |



| TRANSISTOR | COLLECTOR | BASE | EMITTER |
|------------|-----------|------|---------|
| Q2 | 6.0 | 0 | 0 |
| Q3 | 13.0 | 0 | 0 |
| Q4 | 6.1 | 12.4 | 13.15 |



U1=MC1350P
 D1,D2=MPN 3404
 D3,D4=1N270
 Q1=2N5486
 Q2,Q3=MPS6514
 Q4=2N5087
 L1=21057

NOISE BLANKER
 80810
 REV. A