

# CHAPTER 6

## INTERNAL OPTIONS

This chapter covers internal options that can be added to the TW7000. They are generally factory installed. If added in the field, installation requires a #2 Phillips-head screwdriver and a board puller included in the following maintenance kits.

- 7000EXT extender kit
- TW7000TK tool kit

| Internal Option                   | Part Number | See Page |
|-----------------------------------|-------------|----------|
| Additional Channel                | 7000ACH     | 6-2      |
| ALE                               | 7000ALE     | 6-3      |
| Clock                             | 7000CLK     | 6-19     |
| Data Interface RS422/423/485      | 7000RS      | 6-20     |
| Encryption                        | 7000ENCR    | 6-21     |
| FSK Remote Control                | 7000RF      | 6-21     |
| High Stability                    | 7000HS      | 6-34     |
| ISDN Remote Control               | 7000RI      | 6-42     |
| Narrowband CW Filter              | 7000CW      | 6-55     |
| Noise Blanker                     | 7000NB      | 6-56     |
| Recorder                          | 7000RCDR    | 6-62     |
| Selcall, Transcall and TransAdapt | 7000TC      | 6-63     |
| Voice Enhancement Module          | 7000VEM     | 6-64     |
| Wideband Data Filter              | 7000WB1     | 6-64     |

For information on changing the on or off status of these options, refer to the TW7000-MSOP operator manual.



This Page Intentionally Left blank

## 6.10 Noise Blanker Option (7000NB)

The 7000NB adds a noise blanker to the 7000-series of radios. It minimizes interference caused by certain types of impulse noise, such as ignition noise in a vehicle.

To install this option:

1. Turn the TW7000 off and remove the top and bottom covers. Remove the board hold-down bars.
2. Run the cables from the 5 MHz IF board J56 and J58, to the appropriate connectors on the Noise Blanker board.
3. Install the board in the NB slot.
4. Reinstall the top and bottom covers.
5. When powered up, the **NB** icon displays.
6. To activate this option, refer to the TW7000-MSOP operator manual.

When activated, the 5 MHz IF is sampled via connector J56. IF is routed to U2-2 where the rising edge of noise pulses are detected and used to trigger the gates of U4 and U6. This causes attenuation of the IF signal for a duration of time specified by R16. The timing is factory-set for a blanking pulse of approximately 80 ms. The IF signal is routed out of the noise blanker via control J58.

| REV | ECN      | DESCRIPTION | DATE        | APPR |
|-----|----------|-------------|-------------|------|
| B   | 7000-295 | SEE ECN     | BS 09-30-98 |      |

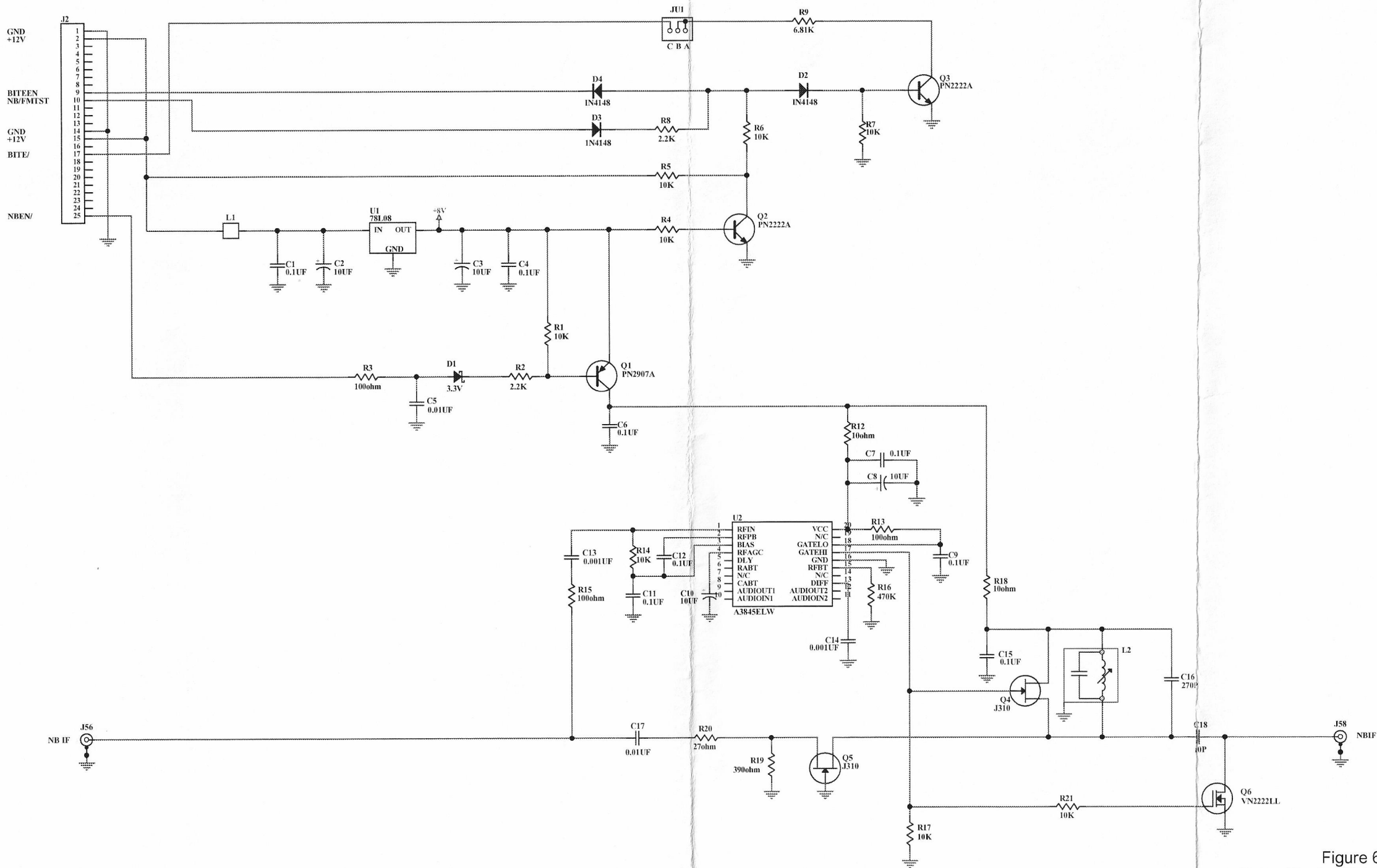


Figure 6-19  
Noise Blanker Schematic Diagram  
(994163 Rev. B)

6-57

This Page Intentionally Left blank

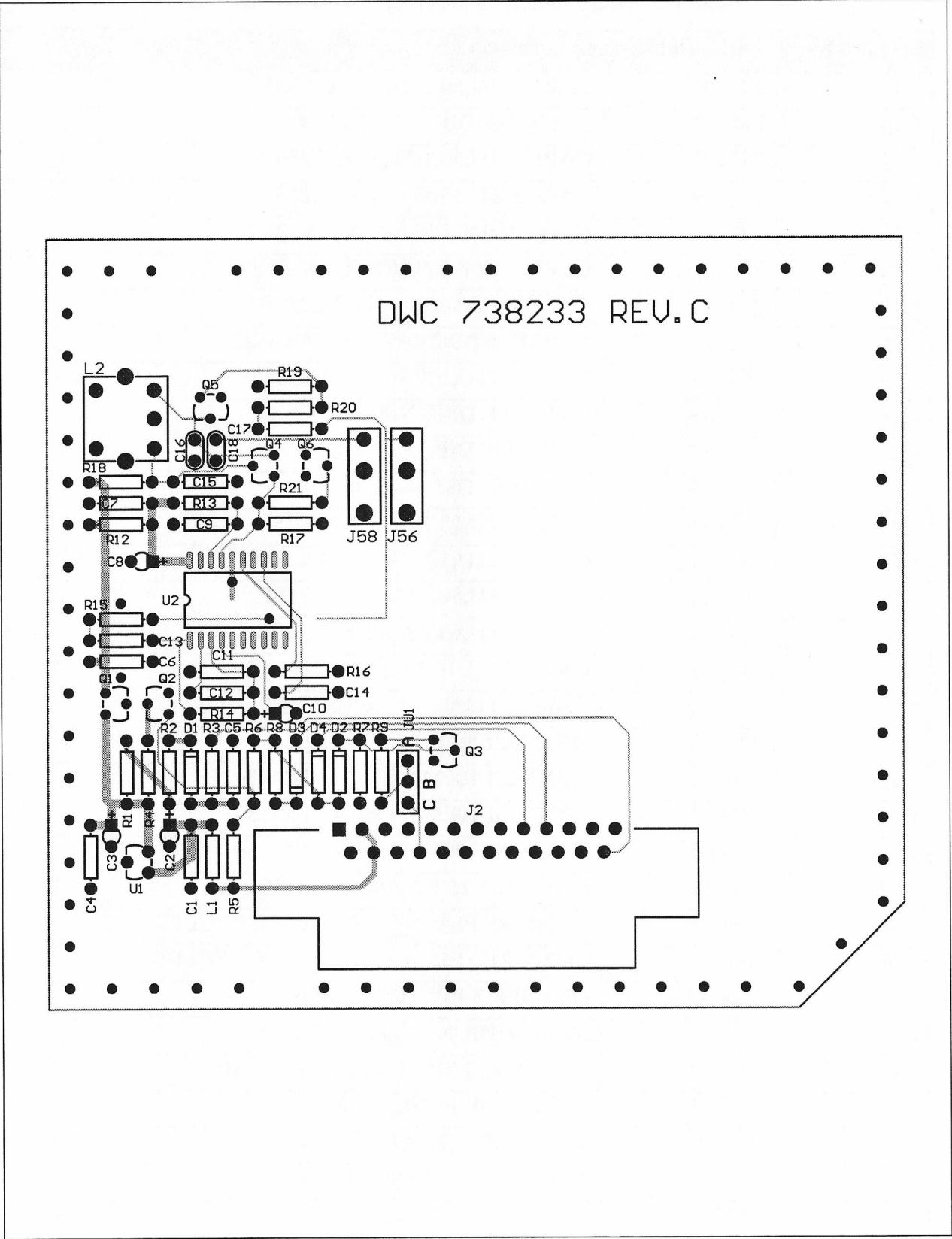


Figure 6-20. Noise Blanker Component Locations (738233 Rev. C)

Table 6-6. Noise Blanker Parts List (001-01202 Rev. D2)

| Designator | Part Number | Description                    |
|------------|-------------|--------------------------------|
| C1         | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| C10        | 241100      | CAP,10MF DIP TANTALUM          |
| C11        | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| C12        | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| C13        | 277102      | CAP,C,1000P,100,10%,X,AX,.25SP |
| C14        | 277102      | CAP,C,1000P,100,10%,X,AX,.25SP |
| C15        | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| C16        | 275271      | CAP,ML NPO 270PF 100V 5% 0.2S  |
| C17        | 277103      | CAP,C,0.01U,100,10%,X,AX,.25SP |
| C18        | 210100      | CAP,10 PF DISC NPO             |
| C2         | 241100      | CAP,10MF DIP TANTALUM          |
| C3         | 241100      | CAP,10MF DIP TANTALUM          |
| C4         | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| C5         | 277103      | CAP,C,0.01U,100,10%,X,AX,.25SP |
| C6         | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| C7         | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| C8         | 241100      | CAP,10MF DIP TANTALUM          |
| C9         | 277104      | CAP,C,0.1U,50,10%,X,AX,.25SP   |
| D1         | 320210      | DIODE,ZENER 3.3V 1N746A        |
| D2         | 320002      | DIODE,SI 100MA 1N4148/1N4150   |
| D3         | 320002      | DIODE,SI 100MA 1N4148/1N4150   |
| D4         | 320002      | DIODE,SI 100MA 1N4148/1N4150   |
| J2         | 613163      | CONN,DB-25 RT ANGLE PC PLUG    |
| J56        | 614026      | CONN,RF FEMALE LOW-TYPE RECEPT |
| J58        | 614026      | CONN,RF FEMALE LOW-TYPE RECEPT |
| JU1        | 620030      | HEADER,3 PIN .025 SQ POST      |
| JU1        | 860097      | MICRO SHUNT, .100 CENTERS      |
| L1         | 459032      | IND ASY,3T#30 MAGNET 1-490201  |
| L2         | 420017      | INDUCTOR IF 10.7MHZ            |
| Q1         | 310052      | XISTOR,PNP,PN2907A,TO92        |
| Q2         | 310057      | XISTOR,NPN,PN2222A,TO92        |
| Q3         | 310057      | XISTOR,NPN,PN2222A,TO92        |
| Q4         | 310033      | XISTOR,JFET,NCH,J310,TO92      |

**Table 6-6. Noise Blanker Parts List (001-01202 Rev. D2)**

| Designator | Part Number | Description                    |
|------------|-------------|--------------------------------|
| Q5         | 310033      | XISTOR,JFET,NCH,J310,TO92      |
| Q6         | 310138      | XISTOR,FET,VN2222LL,TO92       |
| R1         | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R12        | 113100      | RES,10 OHM 1/8W 5% FILM        |
| R13        | 113101      | RES,100 OHM 1/8W 5% CF         |
| R14        | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R15        | 113101      | RES,100 OHM 1/8W 5% CF         |
| R16        | 113474      | RES,470K 1/8W 5% CARBON FILM   |
| R17        | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R18        | 113100      | RES,10 OHM 1/8W 5% FILM        |
| R19        | 113331      | RES,330 OHM 1/8W 5% CF         |
| R2         | 113222      | RES,2.2K 1/8W 5% CARBON FILM   |
| R20        | 113270      | RES,27 OHM 1/8W 5% CARBON FILM |
| R21        | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R3         | 113101      | RES,100 OHM 1/8W 5% CF         |
| R4         | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R5         | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R6         | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R7         | 113103      | RES,10K 1/8W 5% CARBON FILM    |
| R8         | 113222      | RES,2.2K 1/8W 5% CARBON FILM   |
| R9         | 1116811     | RES, 6.8K 1/8W 1% FILM         |
| U1         | 330018      | IC,VREG,78L08,TO94,8V          |
| U2         | 033304028   | IC,SM,LIN,A3845ELW, SOW-20     |

This Page Intentionally Left blank