

AC-3801 NOISE BLANKER KIT (641-7105-001)
NOISE BLANKER ASSEMBLY (641-7146-001)
NOISE BLANKER CIRCUIT CARD (638-6800-001)

SERVICE BULLETIN NO 2

IMPROVE PERFORMANCE AND ADD VARIABLE PULSE WIDTH BLANKING

This service bulletin applies to the noise blanker assembly (641-7146-001) with REV B and below.

Production cut-in is noise blanker assembly (641-7146-001) REV C. When this service bulletin is incorporated, the part number of the noise blanker circuit card changes from 638-6800-001 to 638-6800-002.

This modification will improve discrimination between sharp noise pulses and voice peaks. This will allow the gain to be set lower and still reduce noise with minimum distortion. This revision also modifies the circuit to produce variable pulse blanking widths which will make the noise blanker effective against HF pulse radar systems.

The change consists of adding two diodes, two capacitors, and one resistor, changing the value of seven resistors and one capacitor, replacing one coil with a resistor, and deleting seven resistors, four capacitors, two diodes, one integrated circuit, and one transistor.

Estimated time required is 5.0 man-hours.

The modification parts are listed in the material information paragraph. For additional information concerning parts, contact Collins Telecommunications Products Division/Rockwell International, Service Parts Department, Cedar Rapids, Iowa 52498. Reference AC-3801 Service Bulletin No 2 in all correspondence.

No special tools or equipment are required.

MODIFICATION PROCEDURE

Perform steps A through D if the noise blanker is installed in a KWM-380 or HF-380 transceiver.

- A. Turn off all power to the transceiver.
- B. Remove the dust cover by removing the four screws located adjacent to the four feet on the bottom of the transceiver.
- C. Remove the card cage cover. Note the location of the three screws that screw into the first card. These screws are shorter and one size larger. If the longer screws are placed in these holes, they could short out to a circuit card trace.

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CAUTION: THE NOISE BLANKER CIRCUIT CARD CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. SPECIAL HANDLING PROCEDURES MUST BE UTILIZED TO PREVENT BUILDUP OF STATIC CHARGE. THE MAINTENANCE OPERATOR, TOOLS, AND SOLDERING IRON TIP SHOULD BE GROUNDED.

- D. Remove the noise blanker circuit card from the transceiver card cage and disconnect rf input connector P1.
- E. Remove and save the four screws, spacers, and nuts that secure the circuit card to the mounting plate.

NOTE: Refer to figures 1 and 2 for component locations. Figure 2 is the 638-6800-002 version with all modifications incorporated. Refer to figure 3 for a schematic diagram which includes the changes made by this bulletin.

- F. On the bottom of the card, cut the circuit trace that connects CR1 to R5.
- G. On the bottom of the card, cut the circuit trace that connects CR2 to R6.
- H. Remove the bottom lead of resistor R5 and insert a contact, E1 (372-2656-130), into the vacated hole.
- I. Remove the bottom lead of resistor R6 and insert a contact, E3 (372-2656-130), into the vacated hole.
- J. Remove the cathode end lead of CR1 and insert a contact, E2 (372-2656-130), into the vacated hole.
- K. Remove the cathode end lead of CR2 and insert a contact, E4 (372-2656-130), into the vacated hole.
- L. Connect HP 3168 diode CR5 (353-3733-010) between E1 (cathode) and E2 (anode).
- M. Connect HP 3168 diode CR6 (353-3733-010) between E3 (cathode) and E4 (anode).
- N. Connect 15-pF capacitor C52 (912-4141-130) between E2 and E4.
- O. Remove 5-k Ω potentiometer R31 and replace it with a 50-k Ω pot (376-0274-090).
- P. Remove capacitor C41 and replace it with a 0.001- μ F capacitor (913-4018-000).
- Q. Remove coil L6 and replace it with 10- Ω resistor R51 (745-0677-000).
- R. On the bottom of the card, cut the circuit trace that connects R42 to Q9-C.
- S. Remove the collector lead of Q9 and insert contact E5 (372-2656-130) into the vacated hole.

- T. Connect the collector lead of Q9 to contact E5.
- U. Remove 4.7-k Ω resistor R42 and install contacts E6 and E7 (372-2656-130) into the vacated hole.
- V. Install new 10-k Ω resistor R42 (745-0785-000) between contacts E6 and E7.
- W. Install 10-k Ω resistor R53 (745-0785-000) from E6 to E5. Use insulation sleeving (152-1603-000) on the lead that connects to E5.
- X. Connect 0.01- μ F capacitor C53 (913-3331-020) from E7 to E5.
- Y. Remove and discard the following components:

REFERENCE DESIGNATION	VALUE	REFERENCE DESIGNATION	VALUE OR TYPE
R36	100 k Ω	C43	1.0 μ F
R38	100 k Ω	C44	4.7 μ F
R43	100 k Ω	C46	0.001 μ F
R40	1 k Ω	C47	0.001 μ F
R37	150 k Ω	CR4	IN4454
R49	1.5 k Ω	VR1	IN746
R50	22 k Ω	U3	C04047
R47	120 k Ω	Q11	2N5459

- Z. Install new 47-k Ω resistor R47 (745-0809-000) as shown in figure 2 with sleeving (152-1603-000) on one lead.
- AA. Remove 150- Ω resistor R41 and replace it with a new 10- Ω resistor (745-0677-000).
- AB. Remove 4.7-k Ω resistor R44 and replace it with a new 22-k Ω resistor (745-0797-000).
- AC. Remove 15-k Ω resistor R48 and replace it with a new 220-k Ω resistor (745-0833-000).
- AD. Remove 220- Ω resistor R46 and replace it with a new 6.8-k Ω resistor (745-0779-000).

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AE. On the top of the card, install #30 jumper wires (428-0282-050) as follows:

FROM	TO	FROM	TO
TP3	E8	E11	E12
E9	E10	E13	E14

AF. Solder and check all new connections.

AG. Change the part number on the circuit card from 638-6800-001 to 638-6800-002.

AH. Stamp RWK REV F near the existing REV letter.

AI. Mark SB 2 on the circuit card near the part number.

AJ. Mount the noise blanker to the mounting plate.

AK. Install the noise blanker into the transceiver.

AL. Perform the following blanker adjustment:

- (1) Turn potentiometer R31 fully clockwise (minimum blanking).
- (2) With the transceiver turned on and with ignition noise present, advance R31 counterclockwise until good blanking occurs. This will be visible as a drop in the S-meter deflection.

CAUTION: ADVANCING R31 TOO FAR COUNTERCLOCKWISE MAY CAUSE EXCESSIVE AUDIO DISTORTION. IF DISTORTION IS PRESENT, ROTATE R31 SLIGHTLY CLOCKWISE UNTIL DISTORTION DISAPPEARS.

AM. Reassemble the transceiver in the reverse order of disassembly.

MATERIAL INFORMATION

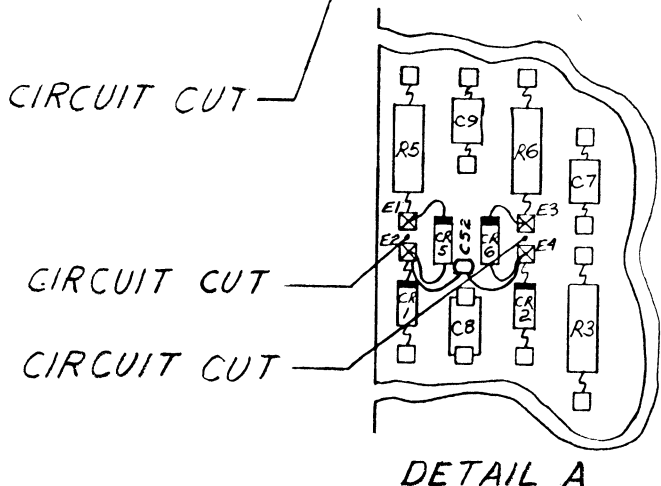
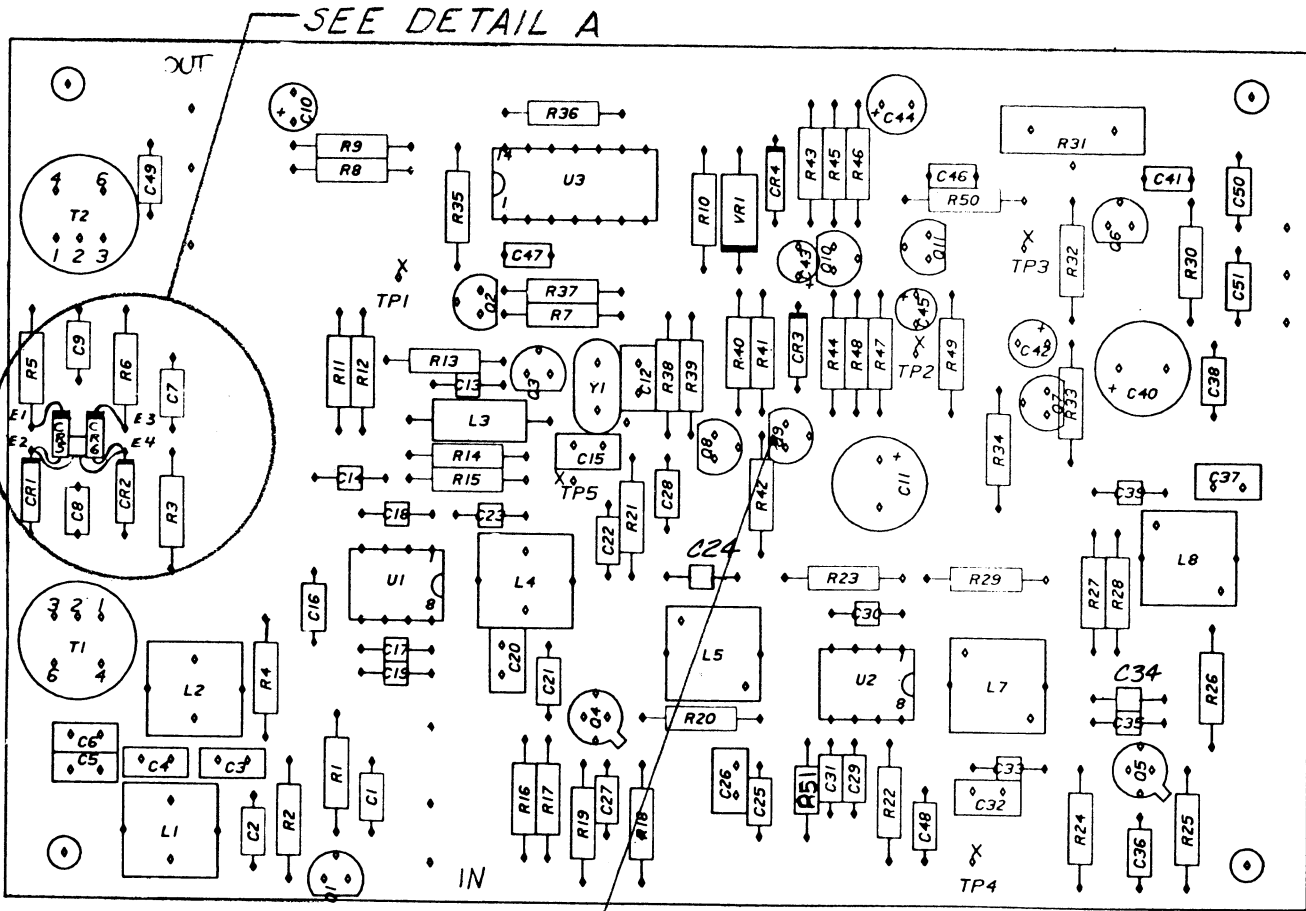
The parts listed below are required to modify one AC-3801.

<u>COLLINS PART NUMBER</u>	<u>QTY</u>	<u>UNIT PRICE</u>	<u>DESCRIPTION</u>
372-2656-130	7		Contact, E1 through E7
353-3733-010	2		Diode, HP3168, CR5, CR6
912-4141-130	1		Capacitor, 15 pF, C52
376-0274-090	1		Potentiometer, 50 kΩ, R31
913-3331-020	2		Capacitor, 0.01 μF, C53

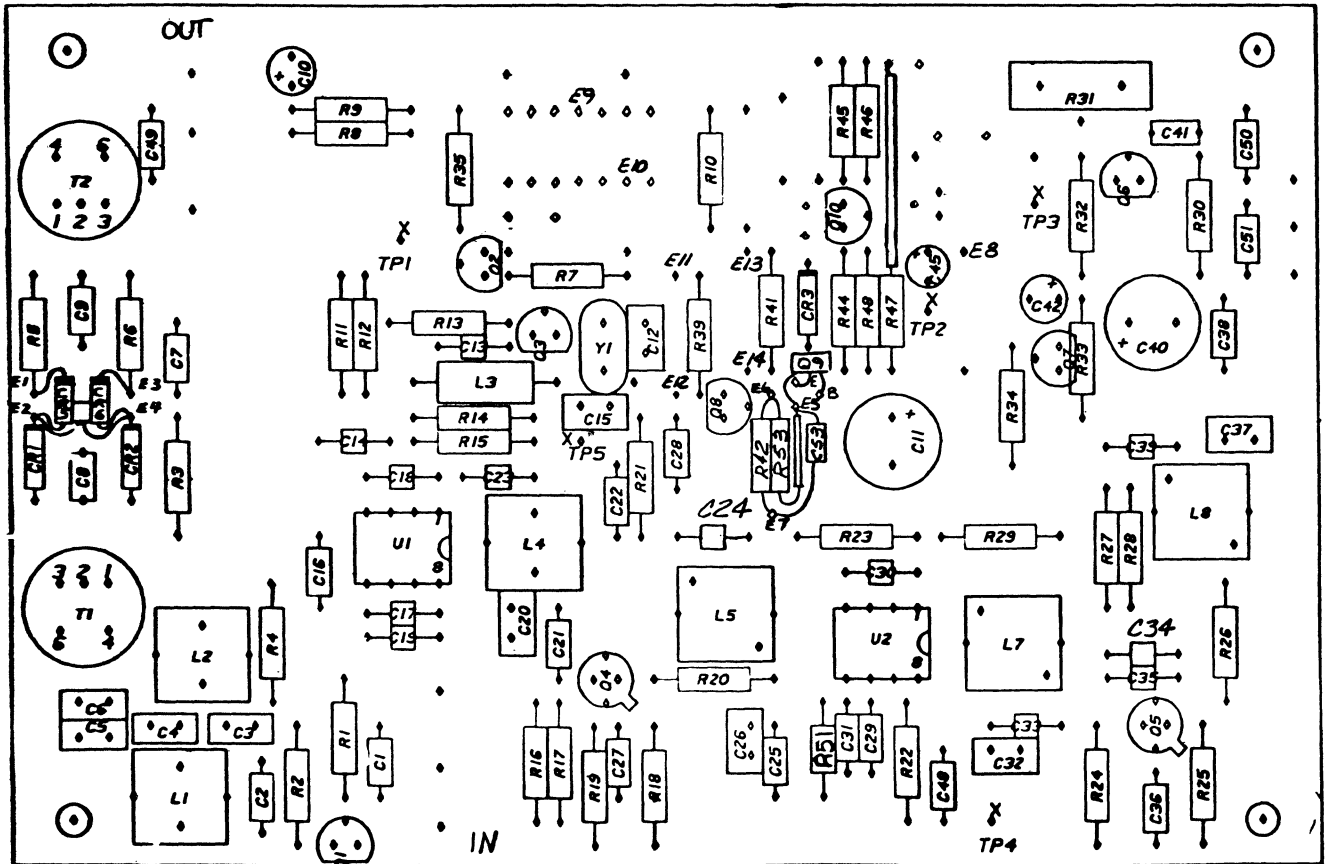
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<u>COLLINS PART NUMBER</u>	<u>QTY</u>	<u>UNIT PRICE</u>	<u>DESCRIPTION</u>
745-0677-000	2		Resistor, 10 Ω , R51, R41
745-0785-000	2		Resistor, 10 k Ω , R42, R53
152-1603-000	150 mm (0.5 ft)		Sleeving, insulation
745-0809-000	1		Resistor, 47 k Ω , R47
745-0797-000	1		Resistor, 22 k Ω , R44
745-0833-000	1		Resistor, 220 k Ω , R48
745-0779-000	1		Resistor, 6.8 k Ω , R46
428-0282-050	300 mm (1 ft)		Wire, #30 AWG
913-4018-000	1		Capacitor, 0.001 μ F, C41

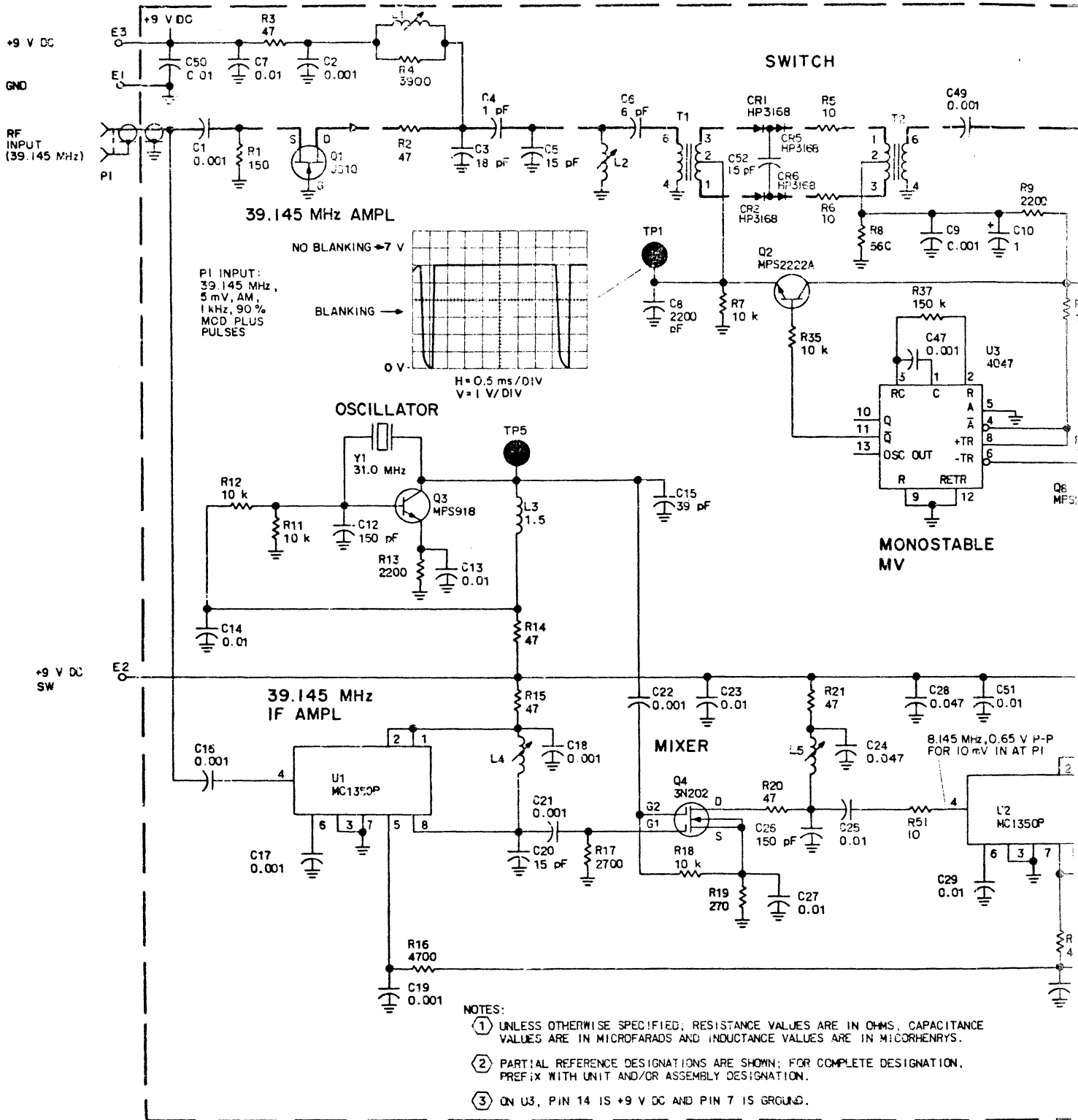


Noise Blanker Circuit Card (638-6800-001)
Figure 1



Noise Blanker Circuit Card (638-6800-002)

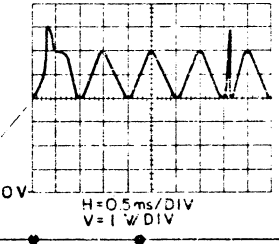
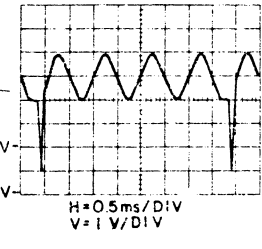
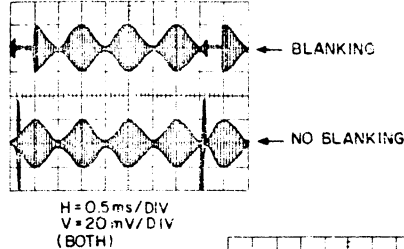
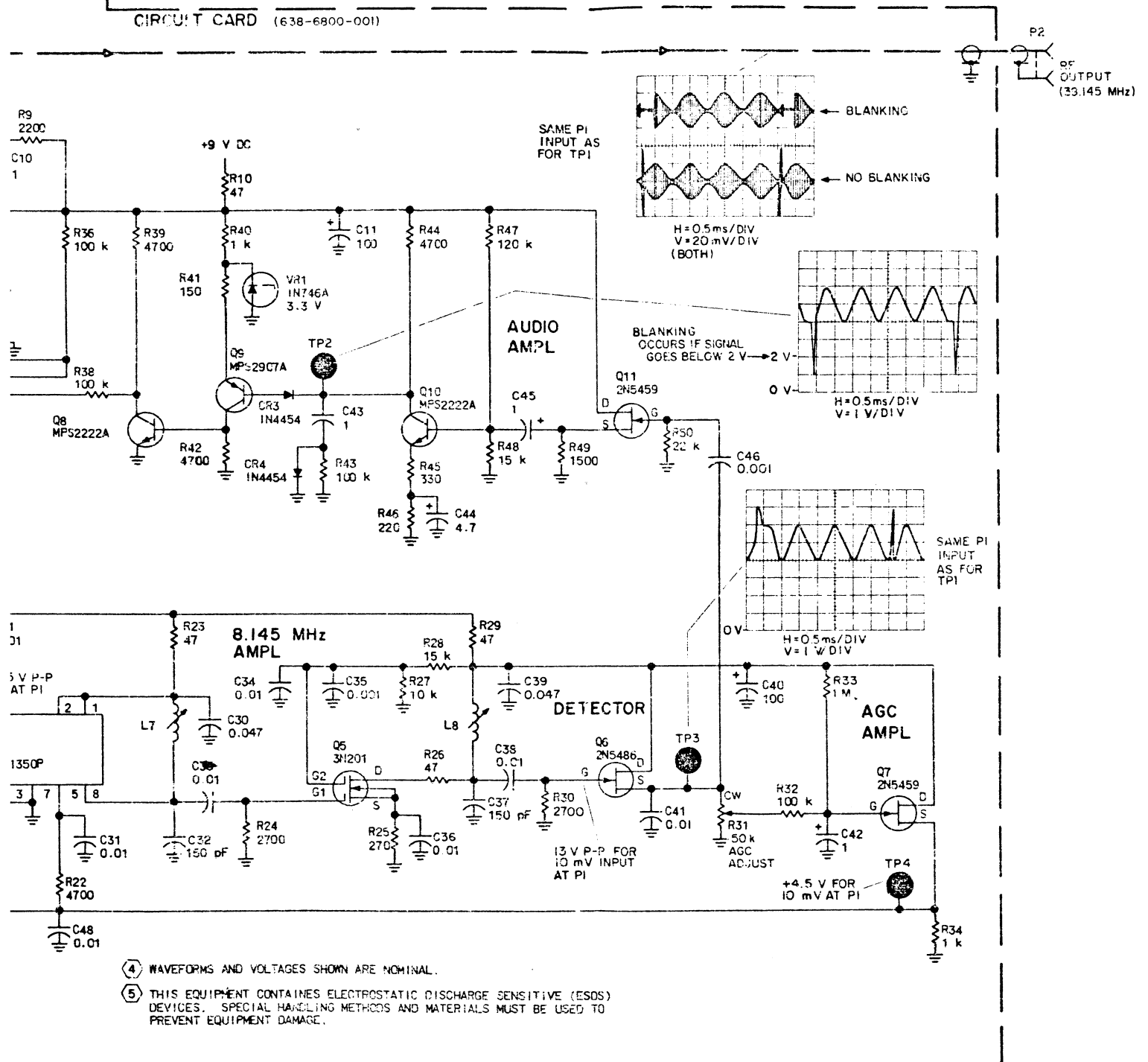
Figure 2



AC-3801 Noise Blanker (638-6800-001)

Schematic Diagram
Figure 3 (Sheet 1 of 2)

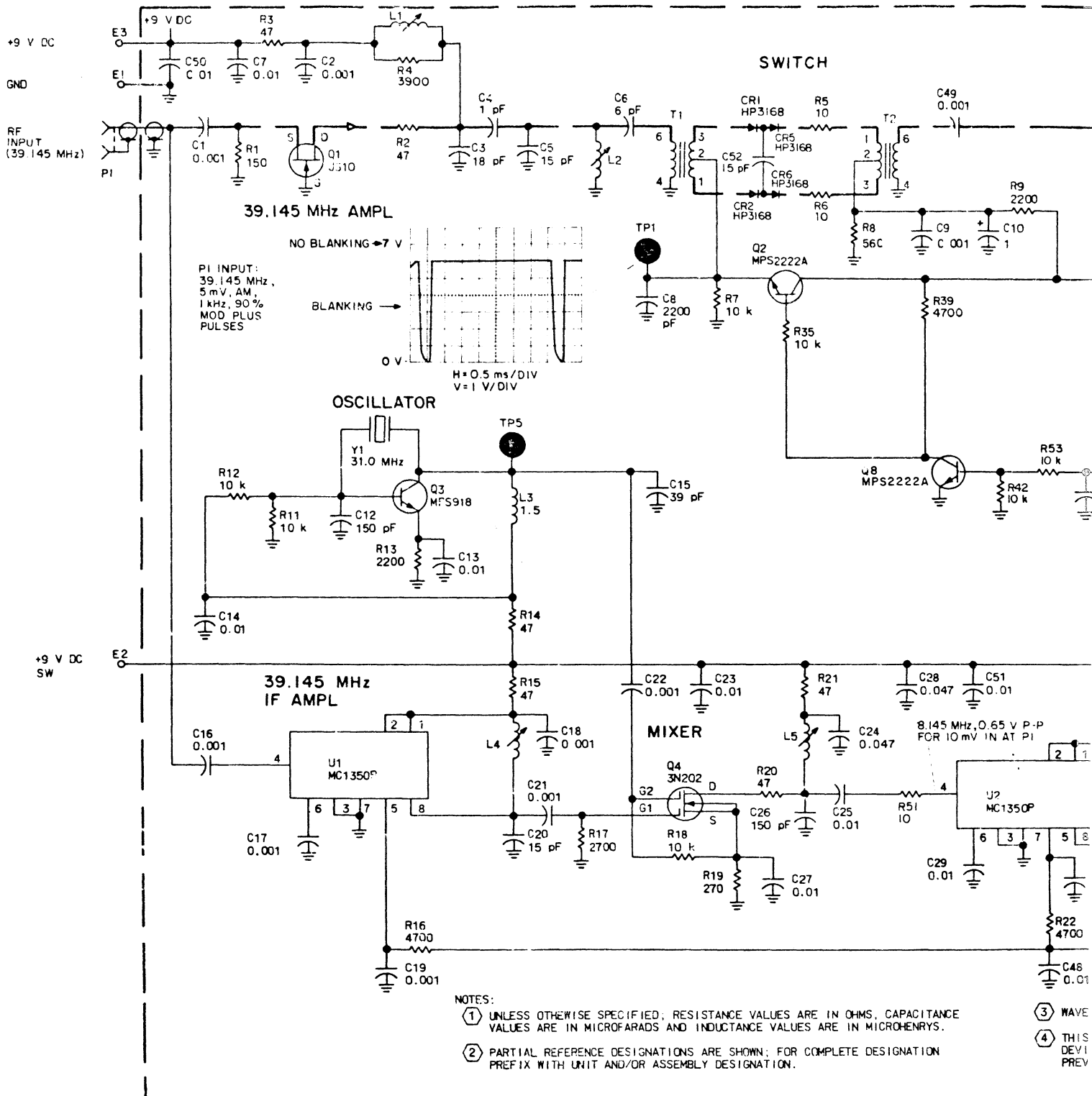
CIRCUIT CARD (638-6800-001)



- (4) WAVEFORMS AND VOLTAGES SHOWN ARE NOMINAL.
- (5) THIS EQUIPMENT CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. SPECIAL HANDLING METHODS AND MATERIALS MUST BE USED TO PREVENT EQUIPMENT DAMAGE.

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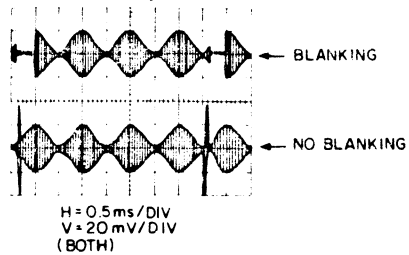
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AC-3801 Noise Blanker (638-6800-002)
 Schematic Diagram
 Figure 3 (Sheet 2 of 2)

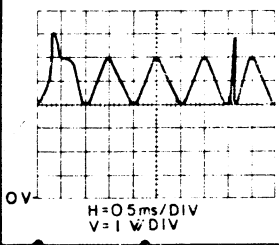
CIRCUIT CARD (638-6800-002)

P2
RF OUTPUT
(39.145 MHz)



SAME PI INPUT AS FOR TP1

SAME PI INPUT AS FOR TP1

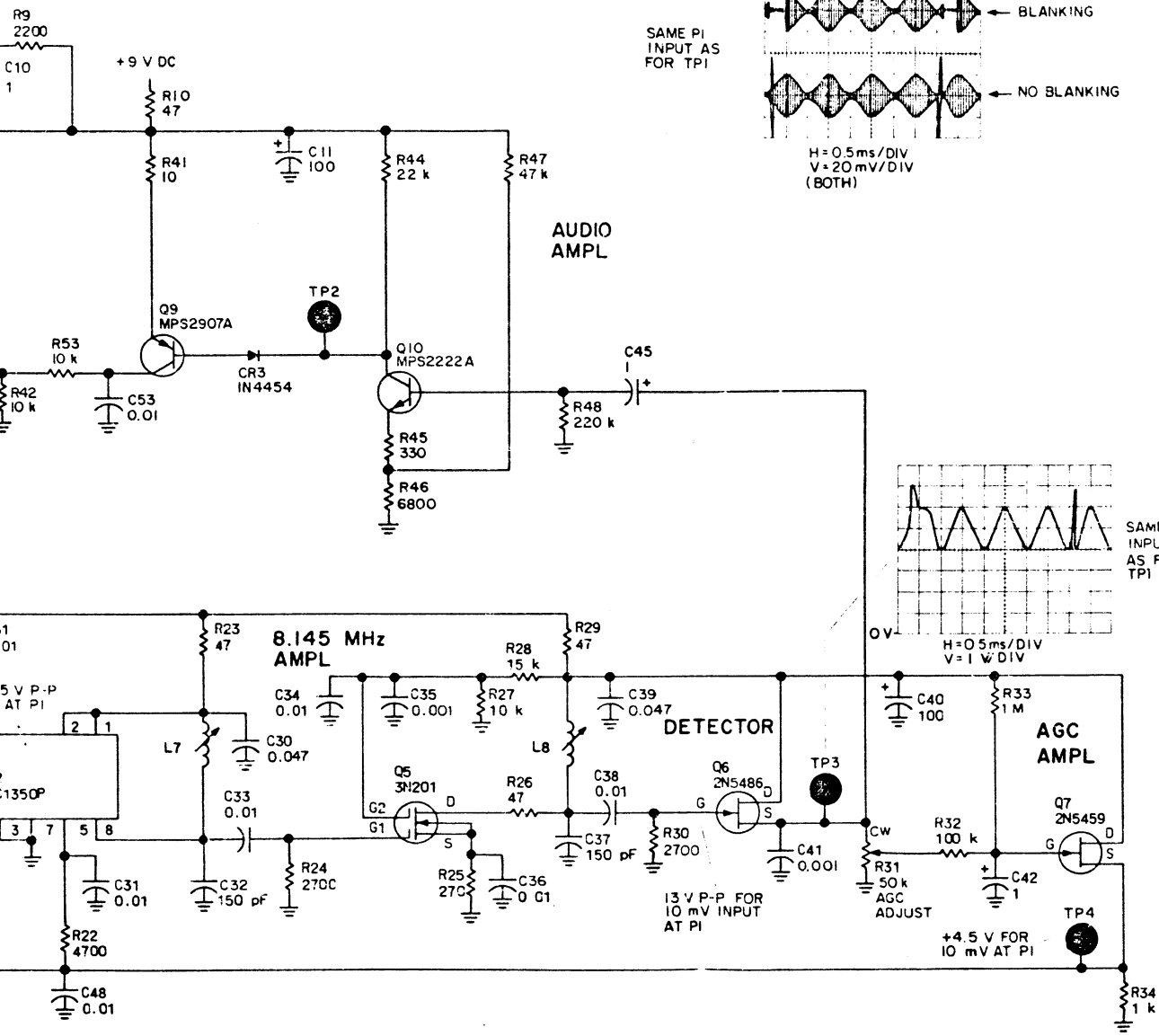


AUDIO AMPL

8.145 MHz AMPL

DETECTOR

AGC AMPL



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