TEN-TEC INSTRUCTION SHEET
MODEL 249-MK NOISE BLANKER

(For Use With TRITON IVs Below Serial Number 1349)

GENERAL

Model 249-MK is Model 249 Noise Blanker assembly with modification components to retrofit TRITON IV transceivers with serial numbers below 1349. These TRITONs require a socket wiring change below the TX-RX MIXER assembly 80287, and a rewiring of the blanker sockets on the bottom side of the chassis. On-off switch treatment is discussed below and one of three approaches may be selected.

For operation, theory and voltage measurements, refer to instruction sheet for Model 249, which is attached to these instructions.

Components furnished with Model 249-MK include the following:

1 - Noise Blanker PC Assembly.
1 - 10 K Potentiometer with Switch.
1 - 12" orange/white hook-up wire.
1 - 7" red hook-up wire.
1 - #6 Solder Lug.
1 - Fibre Insulating Card.
2 - Sheet Metal Screws, #4.

TRITON IV MODIFICATIONS

Part I - TX-RX Assembly

1.) Remove top from TRITON IV, referring to Owner's Manual for procedure.

2.) Remove screws holding TX-RX assembly 80287 and unplug assembly.

3.) Position unit so that front panel is toward you. Locate mixer socket to your right, the one adjacent to SSB GEN. assembly. Unsolder violet wire from third lug from rear and center lead of co-ax cable from fourth lug from rear.

4.) Resolder violet lead to fourth lug and co-ax center lead to third, in effect switching the two around.

5.) Re-insert TX-RX MIXER assembly in original orientation and secure.

Part II - Noise Blanker Socket Rewiring

1.) Remove bottom plate and orient TRITON with front panel nearest you.

2.) Remove black jumper wire between pins 2 and 6 of rear unused socket. Do not confuse proper socket with CW Filter socket next to CRYSTAL CALIBRATOR assembly.

3.) Unsolder both inner conductor and shield of cable going to pin 6 of the same socket and chassis GND lug.

4.) Resolder center conductor of this cable to second pin from the left on the unused socket closest to front of unit.

5.) Solder shield braid of this cable to chassis GND lug near this socket. Take care not to melt inner conductor insulation.

6.) Solder one end of 7" red wire to pin 4 (center pin) of this socket.

7.) Remove screws holding LOW LEVEL DRIVER 80285 to sockets and unplug this assembly. Remove fibre insulator.

8.) Solder free end of 7" red lead to lug 4 (center lug) of LOW LEVEL DRIVER socket closest to rear of unit. Lug should already have a red lead soldered to it.

9.) Re-insert fibre insulator, LOW LEVEL DRIVER assembly and screws.

Part III - Addition of On-Off Switch

Parts I and II of these modification must be carried out as described. In Part III you have three choices in how to arrange the switching function. The simplest to install is Choice A where the blanker is continuously energized. Choice B locates the on-off switch, a SPST type, at a location of your choice, e.g. rear panel, front panel or bottom panel lip. Choice C, the one used in TRITONs with serial numbers above 1349, utalizes a push-pull switch on the ALC control. This choice requires the removal of the knobs, front panel and ALC control which comes with the TRITON. After making your choice, proceed as follows:

Choice A - No Switch

1.) Connect one end of the orange/white wire to pin 4 (center lug) of socket closest to the front panel. A 7" red lead from previous step should already be in place.

2.) Shorten orange/white lead to 3-1/2". Strip free end and solder to lug 4 of socket closest to rear panel.

3.) Place fibre insulator between sockets and plug blanker assembly in. orient blanker so that small integrated circuit on assembly is nearest back panel (upper right corner). Secure with two screws in diagonally opposite corners.

4.) Replace bottom plate.

Choice B - Separate On-Off Switch

1.) Mount SPST switch at location of your choice. Small mini-toggle types require a very small panel area and can be located on back panel between ACCESSORIES socket and FUSE post, if desired.

2.) Solder orange/white wire to one terminal of the switch and other end to lug 4 (center lug) of blanker socket nearest back panel of unit.

3.) With additional piece of hook-up wire, not provided, solder between remaining terminal of switch and the +12 volt buss. The most accessible +12 volt tie point is lug 4 of the blanker socket nearest the front panel -- the one with the 7" red lead.

4.) Install assembly as outlined above and replace bottom plate.

Choice C - On-Off Switch on ALC Control

1.) Remove all knobs, front panel and top. Refer to Owner's Manual for procedures.

2.) Remove screw holding panel lamp and two-lug terminal strip behind meter.

3.) Disconnect red lead, 47 ohm resistor and bare GND wire from terminal strip and discard strip. Lay pilot lamp and holder aside for time being.

4,) Remove nut holding ALC control and slip control out of panel.

5.) Unsolder green and brown leads from control and discard control.

6.) Solder green lead to center lug of new ALC control supplied in kit. Solder brown lead to corresponding lug on old control.

7.) Place lock washer from old control over shaft of new one and install control in sub-panel with lugs straight down.

8.) Mount pilot lamp holder in original hole, placing #6 solder lug under nut instead of terminal strip. Tighten in position.

9.) Solder bare lead from lamp holder to GND #6 solder lug.

10.) Solder free end of 47 ohm resistor and red lead that was connected to terminal strip to one of the ALC control switch lugs.

11.) Connect one end of the orange/white wire to remaining switch terminal.

12.) Feed free end of this lead through grommet between blanker sockets to opposite side of chassis. Dress around VFO compartment and solder free end to lug 4 of blanker socket nearest rear panel.

13.) Install fibre insulating card between sockets and plug blanker assembly into them, orienting assembly so that small integrated circuit is nearest rear panel (upper right corner). Secure with screws. Reassembly front panel, knobs, top and bottom.

14.) Remove top from TRITON. Retune L3 on TX-RX MIXER assembly for maximum S meter reading on a station that is no stronger than an S-5. During this tuning, blanker can be either on or off.

15.) Replace top and bottom plates.

TEN-TEC INSTRUCTION SHEET
MODEL 249 NOISE BLANKER

GENERAL

Model 249 is an i-f type noise blanker constructed as a plug-in PC module. It is intended for use with TEN-TEC TRITON IV transceivers, which have mating sockets and necessary inter-wiring. The installation instruction given below are for TRITON IVs with Serial Numbers above 1349. For installation in units with numbers below 1350, use blanker Model 249/MK which contains a modification kit in addition to the assembly.

INSTALLATION

1.) Remove bottom plate from TRITON. Refer to Owner's Manual for procedure. Orient chassis with front panel nearest you.

2.) Locate two unused sockets in center of chassis mounted parallel to each other. (Socket mounted near Crystal Calibrator assembly is for Model 245 CW Filter, and is not for Noise Blanker.)

3.) Remove wire jumper which connects the two inner conductors of the co-ax cables connected to the two sockets. Do not disconnect the co-ax from the lugs.

4.) Place the insulating fibre card supplied with Noise Blanker between the sockets and plug blanker assembly into the sockets. Orient the assembly so that the small integrated circuit with eight pins is nearest the TRITON back panel. (Upper right corner.)

5.) Secure assembly with two screws in diagonally opposite corners.

6.) Remove top from TRITON. Retune L3 on TX-RX MIXER assembly for maximum S meter reading on a station that is no stronger than an S-5. During this tuning, blanker can be either on or off.

7.) Replace top and bottom plates.

OPERATION

The blanker is energized by pulling the ALC knob out. 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, such as running QRN, are less discernible by the circuits and consequently more difficult to eliminate.

THEORY

In the receive mode, the noise blanker is inserted into the i-f channel between the first mixer output and the crystal lattice filter input. Q1 is a wide band rf amplifier operating at 9 MHz, followed by emitter follower Q2. Output from Q2 drives one input of a balanced gating mixer made up of T1, D1, D2 and L1. The second input contains noise pulses developed through IC-1 amplifier, Q4 amplifier and Q3 emitter follower. Q5 and Q6 constitute a direct-coupled AGC amplifier whose control voltage is applied to pin 5 of IC-1.

Only one component is adjustable. C18 trimmer capacitor is set for maximum signal at base of Q4 with a 9 MHz signal applied to PB terminal marked IN. The gain peak of this tuned circuit is very broad due to the low Q, and adjustment of C18 is not critical.

Pin Voltage Readings - (Receive mode, no signal conditions, blanker energized.)

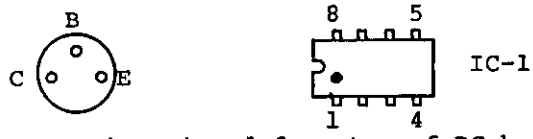
Pin	Voltage	Pin	Voltage
GND	0	GND	0
GND	0	NC	-
GND	0	NC	-
+12 SW	13.8	+12	13.8
NC	-	NC	-
IN	0	OUT	0
GND	0	GND	0

Semiconductor Voltage Readings

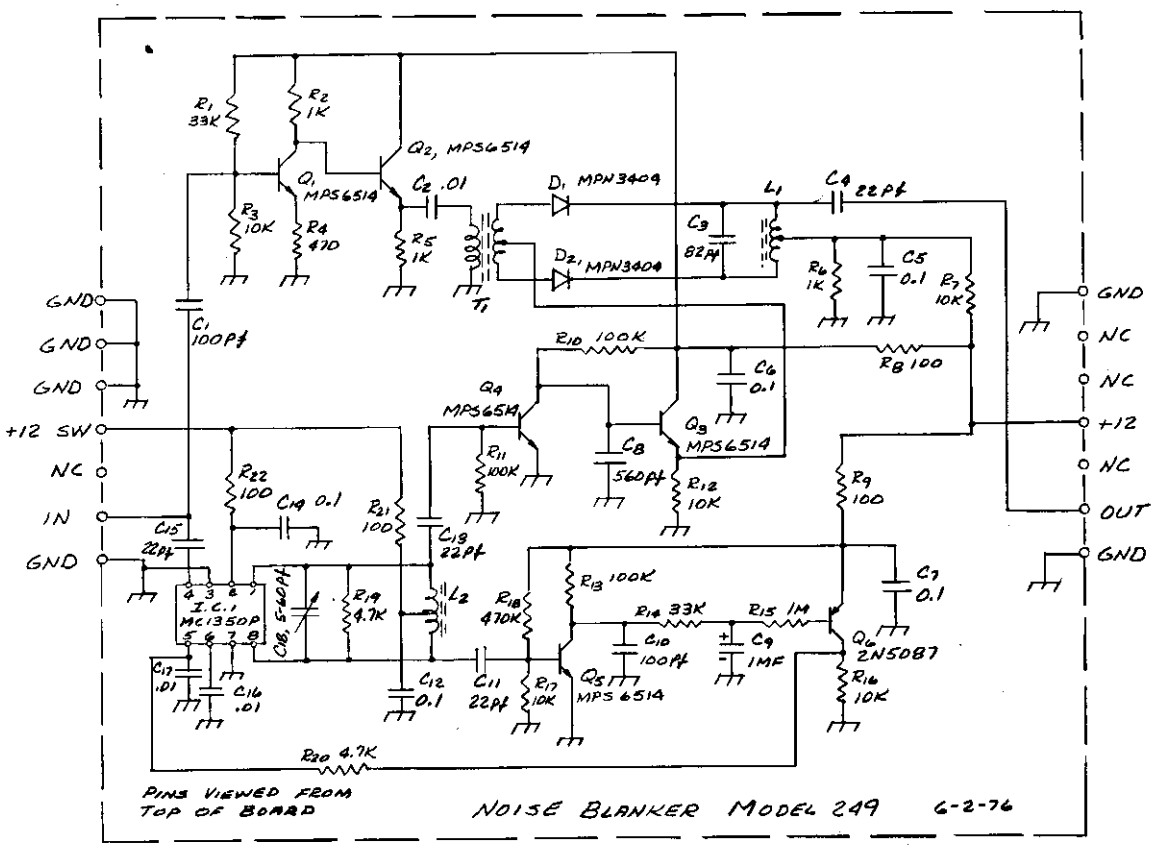
Transistor	Collector	Base	Emitter
Q1	7.8	2.6	1.9
Q2	11.8	7.8	7.2
Q3	11.8	9.0	8.4
Q4	9.0	0	0
Q5	13.6	0.3	0
Q6	3.7	13.1	13.8

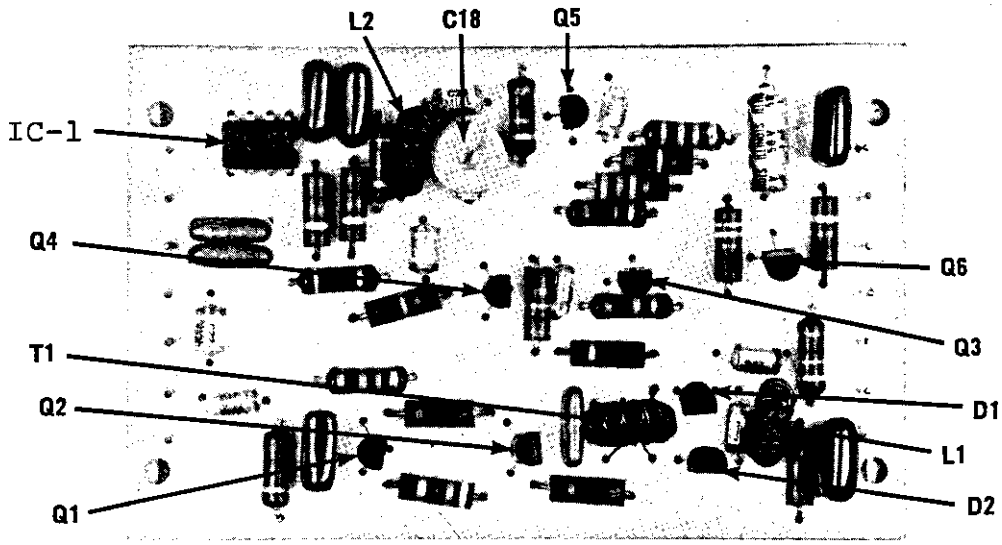
IC-1

Pin	Voltage
1	13.1
2	12.8
3	0
4	4.4
5	5.5
6	4.4
7	0
8	13.1



Semiconductor pins viewed from top of PC board.





TEN-TEC, Inc.
Sevierville, TN 37862

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LIMITED WARRANTY AND SERVICE POLICY

TEN-TEC, Inc. warrants all products to be free from defects in material and workmanship for a period of one year after date of purchase, under these conditions:

1.) Registration: The warranty card must be returned promptly to establish the warranty period. Our card file also serves as a check on stolen equipment which may be sent in for repair. Please notify us immediately if your TEN-TEC equipment is stolen.

2.) Original Purchaser: This warranty applies only to the original purchaser. Your returned warranty card listing from whom purchased establishes you as the original purchaser.

3.) Communication with the Factory: If trouble develops and your TEN-TEC dealer from whom you purchased the unit is unable to repair or replace it, contact the factory by mail or phone (615-453 7172), giving serial number if assigned, symptoms of fault and conditions under which they appear. You will be advised whether to return the unit to us or to try a replacement plug-in assembly that will be sent to you. (NO COLLECT CALLS, PLEASE)

4.) In-Warranty Field Repairs: To expedite repairs TEN-TEC will send replacement assemblies prior to receiving the suspected defective one from you. The replacement will be billed on a 30 day memo, and credit will be issued when the defective unit is returned to us. No remittance or deposit is required. If the defective assembly is not returned within 30 days, you will be billed.

5.) Proper Delivery: If the unit is returned to the factory, it must be adequately packed. A note should be included outlining the problem, conditions under which it appears, and attempted remedies. The more specific you are, the better the possibility of a complete fix. Shipping charges to the factory are to be borne by you. Unit will be returned, transportation paid by TEN-TEC.

6.) Extended Pro-Rata Warranty on TRITON IV Output Transistors: The output transistors in the TRITON IV are unconditionally guaranteed against damage for a period of one year after date of purchase, under any load condition or mode of operation, except for static discharge on the antenna or direct lightning strike. If they fail after the warranty period, the following replacement schedule will apply, provided that our service department makes the repair. (Prices listed are maximum and subject to reduction, depending on current transistor prices at time of repair.)

1 to 2 years	2 to 3 years	3 to 5 years
$12.00 each	$15.00 each	$18.00 each

(Two transistors per TRITON IV. Labor not included.)

7.) Exclusions: This warranty does not apply to damage caused by mishandling, lightning, voltages in excess of rating, reverse polarity of DC supply, or changes in circuits. Claims for damage in transit should be filed with the carrier. This warranty, however, is NOT voided for attempted repairs of defective units, or for incorporation of additional components such as switches, etc. when there is no change in the basic circuit. Under no circumstances is TEN-TEC liable for consequential damage to person or property by use of this unit.

8.) TEN-TEC reserves the right to make any improvements to its products which it may deem desirable without obligating itself to install such improvements in its previously manufactured products.

9.) This warranty is given in lieu of any other warranty expressed or implied.

Out-of-Warranty Repairs

1.) Field Repairs: New circuit boards or discrete components can often be supplied to eliminate the cost and bother of shipping the complete unit to us. A nominal charge will be made for the material sent. Certain assemblies intregal with the main chassis, such as VFO assemblies and rack tuning mechanisms, are not field replaceable.

2.) Returned Units: Along with the unit, please submit a complete report on the nature of the malfunction and the conditions under which it occurs. This will enable our service department to pay special attention to your problem area and reduce overall labor costs. No matter what the malfunction is, every unit will be given a complete alignment and operational check before being returned.

3.) Quotations: Quotations on repair work will be given on request, after examination of the unit. The amount quoted will be firm for the specific work outlined in the quotation. Should additional material or labor requirements come to light after the repair is initiated, you will be contacted for approval before this phase of the repair is started.

4.) Repair Charge Payment: Charges below the $25.00 level will be billed to you after completion of the work and at the time of re-shipment. A report of all work done and parts used will accompany the bill. For charges greater than $25.00, prepayment will be required before the unit is returned. One of three methods of payment can be selected. 1.) Upon completion of the work the billing will be made but the unit will be held here. Upon receipt of the payment, the unit will be shipped. 2.) The unit will be returned to you on a COD basis, with COD charges borne by you. 3.) The repair charges can be paid by either MasterCharge or BankAmericard.

Approval for COD or charge card options can be given either at the time the unit is submitted to us (in the accompanying letter) or when contacted upon completion of the repair. Please submit all raised information on your charge card when paying by this means.

5.) Transportation Charges: Units should be returned, transportation and insurance charges prepaid. Return transportation and insurance charges will be billed to you with other costs.