

NOISE LIMITER
FOR INSTALLATION IN THE FM 50/60 SERIES EQUIPMENT

HAMMARLUND PART NO. PL 53300

INSTALLATION INSTRUCTIONS



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The Hammarlund Noise Limiter Part No. PL53300 is an amplitude/rate of change type of limiter designed for optimum performance in the above referenced units. When installed in the output circuit of the gated beam FM detector, improved immunity to ignition and impulse noise will result. The FM-50 and FM-60 series of two-way FM units in themselves provide a considerable amount of immunity to impulse type noises when aligned in accordance with factory instructions. However, in many instances improved performance may be achieved by the installation of this kit. Since ignition noise is usually most bothersome in the 25 to 54 MC band th installation of this unit is highly recommended in the FM-60-A equipment. In most instances it will not be required in the FM-50-A. This limiter will be a standard item in FM-60A equipment with serial numbers above 1000.

Noise Limiter, Part No. PL53300 is physically designed to be mounted by the collar of the volume control. To install same, the following simple steps are required.

1. Remove resistor R115 (470K) which is located on the terminal strip in the vicinity of the volume control (R141).
2. Remove C146 which connects the above referenced terminal strip to the volume control R141.
3. Install a jumper wire in place of C146 which was removed in Step 2.
4. Remove the knob from the volume control, loosen the nut on the front panel sufficient to slide the noise limiter mounting bracket between the volume control and the inside of the front panel. Tighten front panel hex nut and reinstall knob.
5. Connect the black lead from the Noise Limiter Assembly to the ground terminal of the volume control R141.
6. Connect the blue lead to the high side of the volume control which connects to the terminal strip referenced above.
7. Connect the red lead to the terminal strip referenced above at the terminal that connects R116 (47K) and C116 (270 uuf) and C118 (100 uuf).
8. Connect the yellow lead to the cathode (terminal 2) of the 6AQ5 audio amplifier stage.

NOTE: If desired a limiter ON-OFF switch may be installed for demonstration purposes. The switch should be wired between the black lead and the chassis.

SET-UP INSTRUCTIONS

Turn the adjustment control on the Noise Limiter bracket fully counter-clockwise providing minimum limiter action.

In the fully counter-clockwise rotation setting of this control, a fair amount of limiting is in effect and turning this control in a clockwise direction increases limiting. The proper setting of this control will depend upon the recovered audio of the discriminator of the particular unit, and the modulation level of the received signals. In narrow band systems this control may be turned more fully clockwise than in wide band systems and should be turned as completely clockwise as possible up to the point where noticeable audio clipping of the desired signal begins to occur. A little experimenting with this control on a strong signal will develop a feel for the set-up procedure.

NOTES

The Noise Limiter will improve the signal-to-impulse noise ratio, provided that the following steps have been taken.

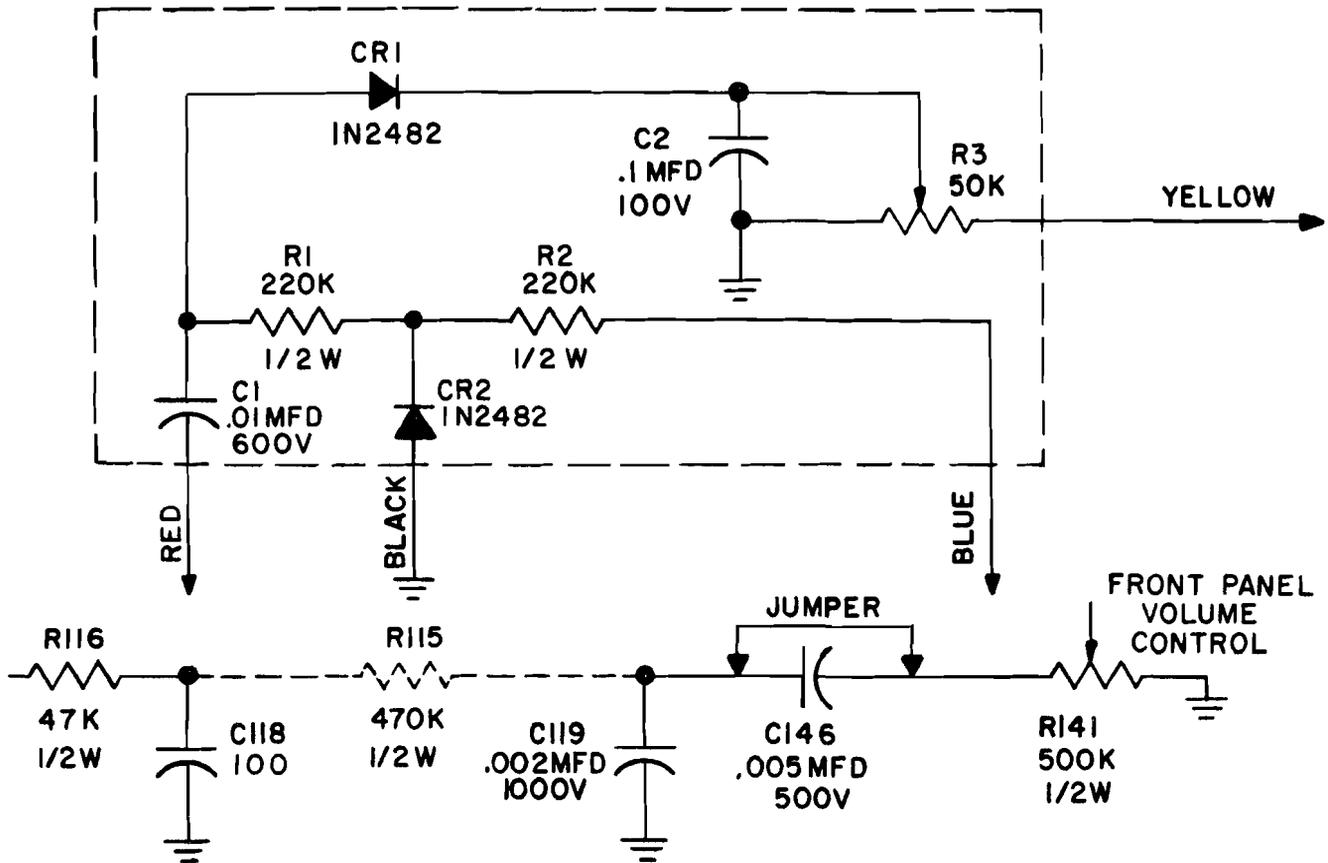
- (a) The receiver should be accurately netted with the associated transmitters.
- (b) The 10.7 megacycle high IF adjustments should be stagger tuned in accordance with the alignment instructions in the Service Manual.
- (c) The gated beam quadrature coil FM detector should be aligned for maximum undistorted output.
- (d) A good installation should be made to reduce the amount of work the limiter has to do. The Noise Limiter should not be grounds for a sloppy or poor installation.
- (e) Generator whine if present in the particular installation should be filtered at the source. The same is true of windshield wiper motor noise, etc.

PARTS LIST

<u>SCHEMATIC DESIGNATION</u>	<u>DESCRIPTION</u>	<u>HAMMARLUND PART NO.</u>	<u>QTY.</u>
C1	Capacitor, disc ceramic .01mfd $\pm 80-20\%$, 600v	M23034-19	1
C2	Capacitor, disc ceramic .1mfd $\pm 80-20\%$, 100v	M23034-29	1
CR1	Diode, special	K53306-1	1
CR2	Diode, special	K53306-1	1
R1	Resistor, fixed 220k $\pm 10\%$ 1/2w	K19309-105	1
R2	Resistor, fixed 220k $\pm 10\%$ 1/2w	K19309-105	1
R3	Resistor, variable 50k	K26218-14	1

MISCELLANEOUS ITEMS

Terminal strip	K16650-204	1
Lockwasher, int. #3/8	K10053-6	1
Nut, hex #3/8-32 x 3/32 thk.	K10012-90	1
Bracket	K53239-1	1
Instruction Sheet	K52754-1	1



NOTE:
 DOTTED CONNECTION TO BE
 REMOVED FROM STANDARD
 UNIT.

SCHMATIC DIAGRAM (NOISE LIMITER) No. 53305 M