effective in the circuit when the ANL switch is OFF.

A negative potential of approximately -1 volt or more is always present between pin B of T8 and ground, as a result of space charge in the diode detector, residual noise and detected carrier level (AVC). When the ANL switch S6 is on (ANL position), diode V12A is in series with the audio path. The resistive divider R61-R63 places a negative potential on the plate of V12A of 1/2 the static detector output. The entire static output appears on the cathode of V12A through resistors R62 and R64. The plate of the diode is therefore positive with respect to the cathode, the diode conducts, and audio couples through via the electron stream.

When a noise pulse appears at the detector output, the negative potential between pin B of T8 and ground instantaneously changes to more than the static level. One-half of the pulse level appears immediately at the plate of V12A (pin 7). This time constant of the network of R62-C71-R64 prevents the pulse voltage change from appearing on the cathode of V12A, and this level does not change during the short duration of the pulse. The plate of V12A is thus negative with respect to the cathode while the pulse lasts, the diode is biased, or "cut off", and the audio path is interrupted. Pulse duration is so short that the "cut off" time is not noticeable in the audio output, and the only detectable change is the reduction of the noise output in the audio.

The audio introduces some distortion in the normal audio output, since the diode conduction curve is not linear over the range of operating levels encountered.

Squelch Rectifier V12B.
Audio output from the noise limiter stage is coupled to the cathode of squelch rectifier V12B (pin 5) through capacitor C72. Assuming that V12B is conducting, this audio output is coupled through the electron stream in the tube, through capacitor C69, and appears at the grid of V11A for amplification. When V12B is not conducting, the audio path is interrupted, and no audio appears at the grid of V11A, i.e., the audio is silenced.

The conduction of V12B is controlled by regulating the potential between the plate and the cathode. A fixed positive potential approximately +100 volts is always present on the cathode (pin 5). This voltage is divided down from the receiver B+ line through resistors R65 and R66. The voltage on the plate (pin 2) is derived from squelch potentiometer setting (R54), connected from the plate and screen supply point for IF amplifier tube V10 to ground between R53 and R55. This supply point is terminal D of transformer T8, supplied from the receiver B+ line through dropping resistors R56 and R57. In the absence of received carrier, the squelch control is adjusted until the positive potential between the arm and ground, appearing on the plate of V12B, is just slightly less than the fixed potential on the cathode of the tube. This renders the plate negative with respect to the cathode, the diode is biased or "cut off", and the audio path is interrupted.

When a received carrier is present at the detector, AVC voltage is produced and applied to the control grid of the IF amplifier tube, V10. The plate and screen current of the tube decreases as a result of the AVC bias. This results in an increased potential at the plate and screen supply point, terminal D of transformer T8, as the current through dropping resistors R56 and R60 decreases. The voltage between the arm of squelch control R54 and ground therefore increases, and consequently, the potential on the plate of V12B increases, rendering the plate now positive with respect to the cathode. The diode conducts, and the audio couples through to the audio amplifier stages.