U101 pin 3 is filtered by a 4 Pole ceramic filter which provides additional skirt selectivity for excellent adjacent channel rejection. Its output is fed to pin 5, which is the Limiter Amplifier input. The Amplifier's output is at pin 7 and feeds the FM Detector's input at pin 8. The resonant circuit composed of L122 and C162 form the tuned circuit required for the Quadrature Detector. The detected FM output is internally amplified and appears at U101 pin 9. The audio output is coupled to the 35KHz high frequency noise amp. and active bandpass filter, the input to which is U101, pin 10. Pin 11 is the Noise Amp. output. The amplified noise is fed to a detector circuit composed of C175, R150, diode CR108 and bias resistor R151. This circuit rectifies the high frequency noise and converts it to a negative DC voltage which is proportional to signal quieting in the FM receiver; and this negative voltage drives the bias voltage across C175 down as the noise increases (weaker, or no signal).

4.1.5 The squelch pot R604 sets the squelch threshold point by setting the voltage at which diode CR108 begins to conduct, thereby setting the maximum voltage across C175. The voltage across C175 directly triggers the squelch gate built into U101. Pin 12 is the squelch trigger terminal, and pin 13 is the gating terminal which, through a 200K ohm resistor, biases U102A pin 3 to cutoff for squelch action. There is 100mV of hysterisis at pin 12, and this circuit allows the squelch to close at a weaker incoming signal level than the level required to open the squelch initially. This feature allows the squelch to remain open eventhough the signal may fade a few dB into the noise and reduces squelch chopping effects on weak, fluttery mobile signals.

4.1.6 The audio output from the FM detector at pin 9 of U101 is de-emphasized by the R145/C178 network at 6dB per octave roll off per EIA specifications, and connected to the AF Preamp input at pin 3 of U102A. A CTCSS tone output point is provided at terminal E109. Op Amp stage U102A is an audio pre-amplifier with a gain of almost 5 times, and the audio output is taken from pin 4. (Gain measured from junction R146/C179 to terminal E110.) The AF Preamp's audio output is connected to the front panel Rpt. Audio and Monitor Volume pots. Audio from the monitor volume pot is fed to U104, the audio power amplifier IC. U104 drives the front panel monitor speaker so that incoming signals may be monitored.

4.1.7 Q108 is an emitter follower Discriminator Meter DC Amplifier. Q108's emitter is connected to trim pot R133 which is used to calibrate the front panel Discriminator Meter, while diodes CR104 and CR105 are used to provide a reference voltage to zero the meter when there is no incoming signal. (L122 is used to make the final zero adjustment for the Discriminator Meter.) U103 is used as the 455KHz S Meter Amplifier. This amplifier increases the level of the 455KHz IF signal to a point sufficient to be detected by diodes CR106 and CR107. This detected IF voltage drives Q109 an emitter follower buffer stage. Q109's emitter is connected to E105, the S Meter output, through current limiting resistor R141. (R141 sets full scale on the S Meter and may be adjusted if the S Meter reads too high or low on an extremely strong signal-greater than 100uV.)

4.1.8 The Deviation Meter Amplifier is U102C which amplifies the undeemphasized audio directly from the FM detector. This amplified audio voltage is fed to pin 12 of U102D, the Deviation Meter peak reading detector. C197 at the detector's output sets the time constant so that the meter will read voice peaks