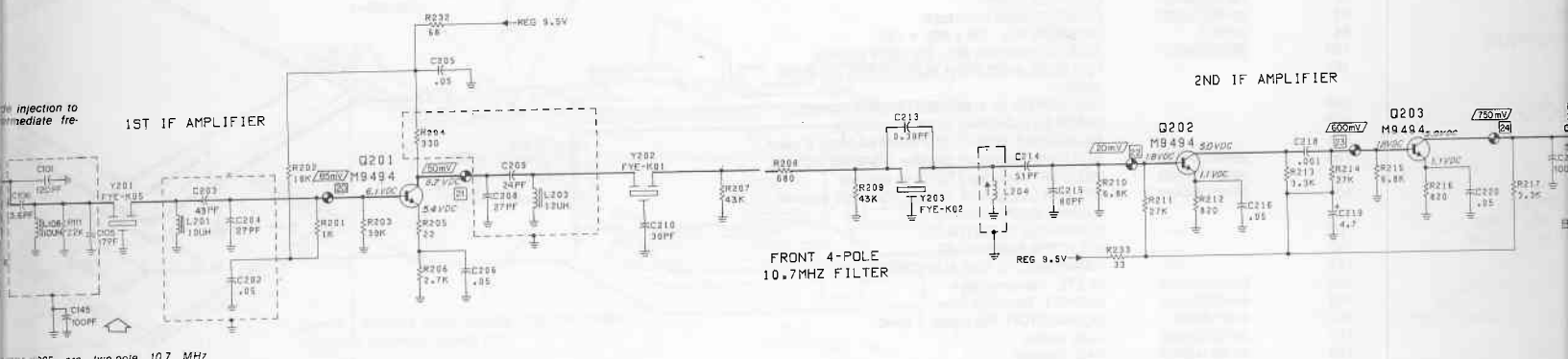
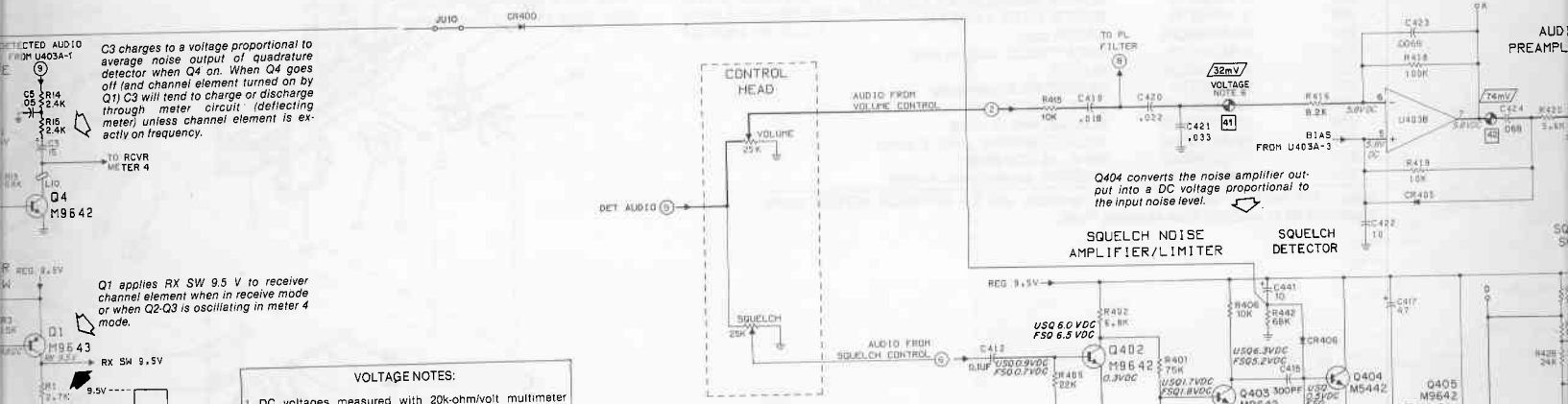


...de injection to ...mediate fre-

...Y201-Y205 are two-pole 10.7 MHz crystal filters.



C3 charges to a voltage proportional to average noise output of quadrature detector when Q4 on. When Q4 goes off (and channel element turned on by Q1) C3 will tend to charge or discharge through meter circuit (deflecting meter) unless channel element is exactly on frequency.

Q1 applies RX SW 9.5 V to receiver channel element when in receive mode or when Q2-Q3 is oscillating in meter 4 mode.

Q404 converts the noise amplifier output into a DC voltage proportional to the input noise level.

Q402 and Q403 amplify noise for application to squelch detector Q404.

Q460 inverts output of Q406 to provide proper switching levels for squelch switch and for busy light circuitry in control head.

AUDIO MUTE lead provides hangup box switched ground and PL/DPL "AND" squelch input to squelch circuit when busy light option is not used. When busy light option is used, AUDIO MUTE lead provides hangup box switched ground input to adapter board and also provides busy light input signal to control head.

SQUELCH DISABLE lead provides PL/DPL "OR" squelch input to squelch circuit when busy light option not used. When busy light option is used, SQUELCH DISABLE lead provides PL/DPL input to adapter board.

Optional Busy Light Adapter used in PL and DPL radios is to inform operator when channel is in use by a shared channel user with a different PL tone/code.

VOLTAGE NOTES:

1. DC voltages measured with 20k-ohm/volt multimeter referenced to B—. When measuring pins 1 and 2 of U401 and U402 use high input resistance meter.
2. ▱ Indicates ac voltage levels at points indicated. Voltages in i-f circuit measured with 1000 uV on-channel signal injected at antenna connector except point 20 which is measured with 10 mV signal.
3. Supply voltage during receive mode is 13.8 V. Supply voltage during transmit mode is 13.6 V.
4. Voltage keys:
   USQ Receiver unsquelched
   USQH Receiver unsquelched mic on hook.
   FSQ Receiver in full squelch.
   USQO Receiver unsquelched mic off hook.
   TX Radio keyed
   RX Radio not keyed
5. 21 Indicates points at which ac voltages and waveforms are measured. Refer to circuit board detail.
6. Voltages shown in receive audio circuits are measured with Volume control set to produce 26mv at point 41 with received carrier deviated 3 kHz with a 1000 KHz audio tone.

LEGEND:

- ▽ = THEORY OF OPERATION DATA
- ▼ = MAINTENANCE DATA
- ▬ = PRIMARY SIGNAL FLOW
- ⏚ = B- (MAIN BOARD REF.)
- ⏚ = CHASSIS REF.
- ⏚ = A- (PA REF.)

SQUELCH ACTION

CARRIER SQUELCH

1. Detected noise at base of Q405 turns it on turning off Q406. High at collector of Q406 inhibits audio amplifier U401.
2. When carrier is received, noise level drops below squelch threshold (set by squelch control) turning off Q405. This allows Q406 to turn on. Low at Q406 collector enables U401.

"AND" SQUELCH (PL OR DPL)

1. With microphone on-hook, reception of correct PL will pull audio mute input high. This allows radio to operate in carrier squelch mode described above. Signal must have correct PL and be above squelch threshold to be heard.
2. With microphone off-hook, high audio mute input allows circuit to operate in carrier squelch mode.

"OR" SQUELCH (PL OR DPL)

1. With microphone on-hook, reception of correct PL will pull squelch disable input high turning on Q406 regardless of noise input. Low at Q406 collector enables audio amplifier U401.
2. With microphone off-hook, high audio mute input allows circuit to operate in carrier squelch mode.

TRANSMIT AUDIO MUTE

During transmit, audio mute input is pulled low by secondary PTT (on interconnect board). This clamps R412-R413 junction low preventing Q406 from turning on. High at Q406 collector inhibits audio amplifier U401.