2. THEORY OF OPERATION

THEORY OF OPERATION AND CIRCUIT DESCRIPTION MODEL 41A5225 GARAGE DOOR OPENER RADIO RECEIVER

(Please refer to enclosed schematic drawing: 195D1334C)

E1 (9" wire antenna) and GND trace (9" length) comprise a dipole antenna tuned to 433.0 MHz. L1, L6, C1 and C2 components comprise the bandpass filter tuned to 433.0 MHz. Q1, R1, R2, R3, R4 and C3 comprise an RF buffer to block back radiation from the superregenerative detector. C5 couples the buffer to the detector.

L2 and C28 select the desired frequency (433.0 ± 0.1% MHz). Q8 bias resistors are R63, R59 and R61. L4 and C32 form the self-quench network for Q8. C29 is the feedback capacitor. C30 and C31 control the junction capacitance. C27 and R2 comprise the first quench filter.

L5, L3, C4 and C6 isolate the detector and RF buffer from the outside world to prevent conducted RF emissions from passing through to the public power supply line, or to other receivers.

U4A is a 2 stage active low pass filter. U4B is a conventional audio amplifier used to bring the demodulated levels of the filter output up to a level sufficient to drive digital decoder/logic, U2, IC. If the incoming code matches the programmed code and a protector is connected to TB3 and TB1, an active high signal is then applied to either Q7 (up relay driver) or Q2 (down relay driver) depending on the position of the limit switches.

The power supply is derived from the AC through a transformer, T1. A half wave or full wave power supply (depending on which T1 is used), is connected to a 5V regulator through R29.