

SQ-1000 Super Squelch

SQ-1000 - Super Squelch

When supplied with discriminator audio the SQ-1000 will perform the operation of a Squelch Circuit, COR/CAS Generator, or a Repeater Maker. As quieting occurs, the SQ-1000 will turn on its audio switch and output the audio to a controller or transmitter. The audio path through the SQ-1000 has a gain of three. The SQ-1000 also produces a DC logic voltage change to be used by the controller as a CAS or COR input. A dipswitch selects whether the logic level is active high or low. The SQ-1000 automatically adjusts closure time with loss of signal. With a strong signal the switch will close in 20 milliseconds. Closure time automatically increases as the signal becomes noisier. A red LED lights whenever a signal is received and the squelch opens. The SQ-1000 connects directly to the audio delay header on most of the CAT controllers. A second header connector on the SQ-1000 is provided for the DL-1000C Audio Delay.

COR/CAS Generator

Figure 1 describes how the SQ-1000 is used as a COR/CAS generator. In this configuration the SQ-1000 is connected to the transceiver port audio delay header of a CAT-200B. Discriminator noise is sampled by the SQ-1000. When quieting occurs the SQ-1000 produces a DC voltage change that represents a COR input to the controller. Note: On the SQ-1000 dipswitch #2 must be ON.

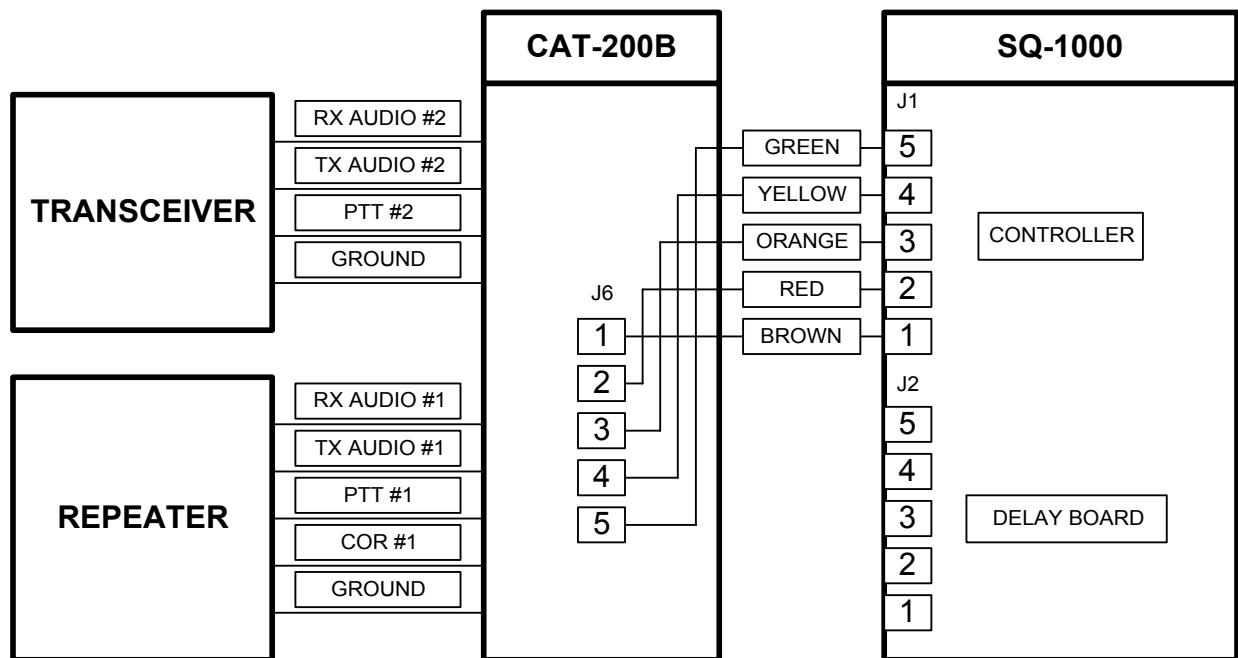


Figure 1

Figure 2 describes how the SQ-1000 is connected to the transceiver port audio delay header of a CAT-1000B. Note: On the SQ-1000 dipswitch #2 must be ON.

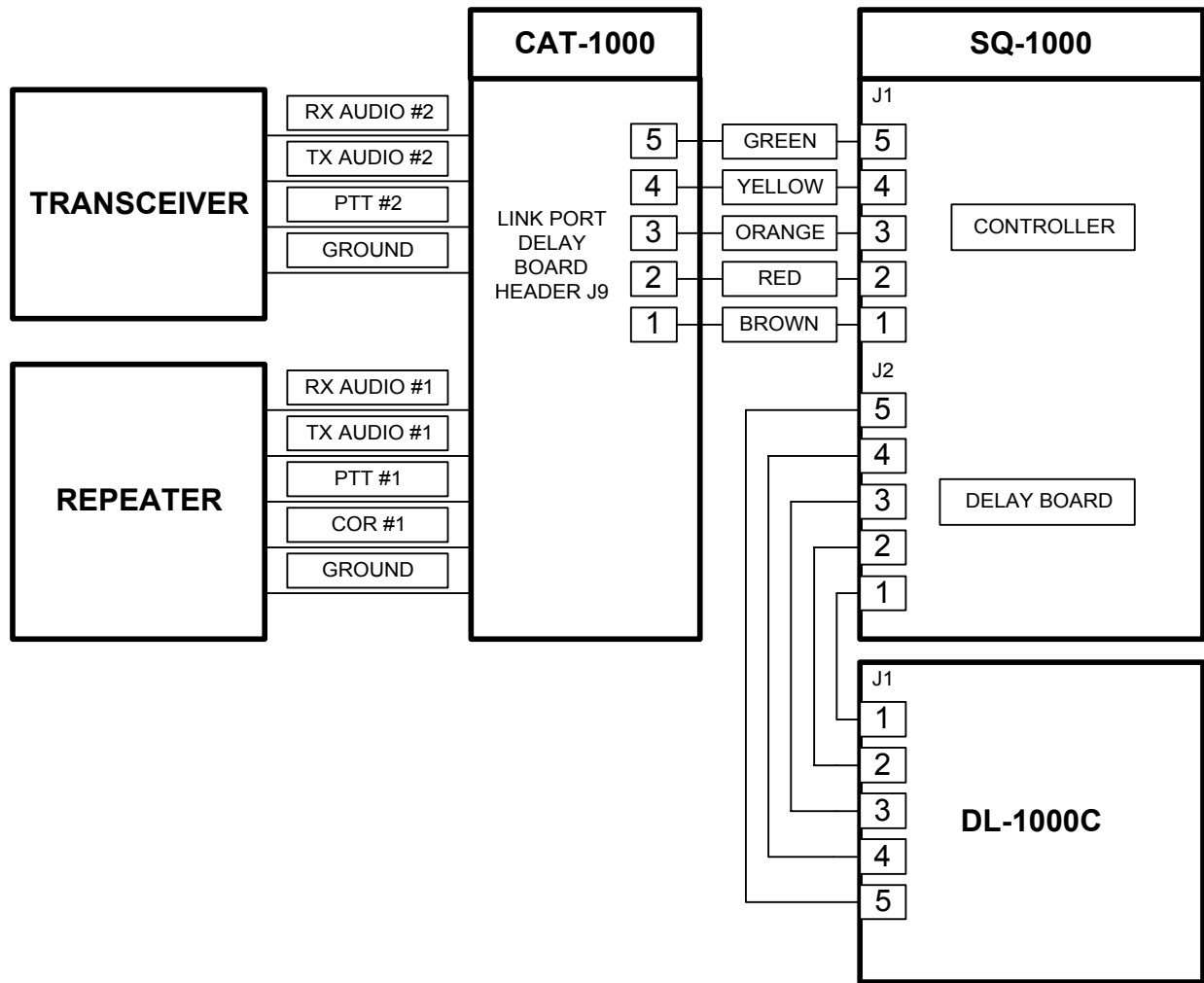


Figure 2

The SQ-1000 will support the DL-1000C Audio Delay. Connect the DL-1000C to the J2 connector of the SQ-1000. Set dipswitch #2 OFF to force the audio output through the delay board.

Repeater Maker

Figure 3 describes how the SQ-1000 is used as a Repeater Maker. Connect two transceivers to the SQ-1000. In this configuration the SQ-1000 monitors the discriminator output of the receiver. When quieting occurs the SQ-1000 COR/CAS logic output is used as a push-to-talk signal to key the transmitter. Set dipswitch #3 to ON for an active low output and dipswitch #4 to OFF to disconnect the pull up resistor and dipswitch #2 ON to pass the receive audio to the transmitter's modulation input.

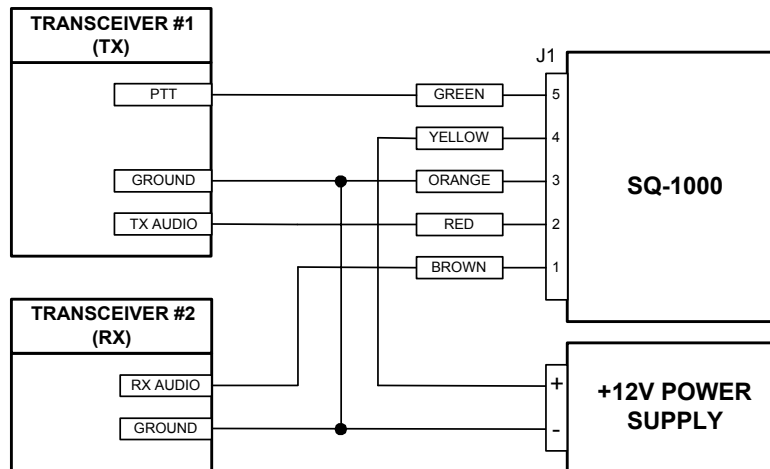


Figure 3

Dip Switch

A four-position dipswitch configures various functions of the SQ-1000.

Switch 1 This switch determines if the audio output is de-emphasized. Switch #1 should be ON to de-emphasize the audio output.

Switch 2 This switch controls the audio output path. When this switch is ON the audio output is directed to the controller at J1 pin 2. When this switch is OFF the audio output is directed to the J2 connector and the DL-1000C Audio Delay board.

Switch 3 This switch determines CAS/COR output logic. This switch should be ON to set the CAS/COR output active low and OFF to set the CAS/COR output active high.

Switch 4 When this switch is turned ON a 2200-ohm resistor pulls up the COR/CAS output. This resistor is usually required when the COR/CAS output is set for active low.

Audio Level Adjustment

The SQ-1000 requires discriminator audio for proper operation. Speaker audio or de-emphasized audio does not have the high frequency noise component required for proper operation. A minimum of 50mV of noise is required. Set the Squelch Adjust [R1] to the full counter clockwise position. Verify that the red LED on the SQ-1000 is ON. Turn the Squelch Adjust clockwise until the red LED just goes OFF. Provide a signal to the input of the receiver and check that the red LED turns ON, CAS/COR output on J1 pin 5 is present and audio output is present on pin #2.

SQ-1000 Diagram

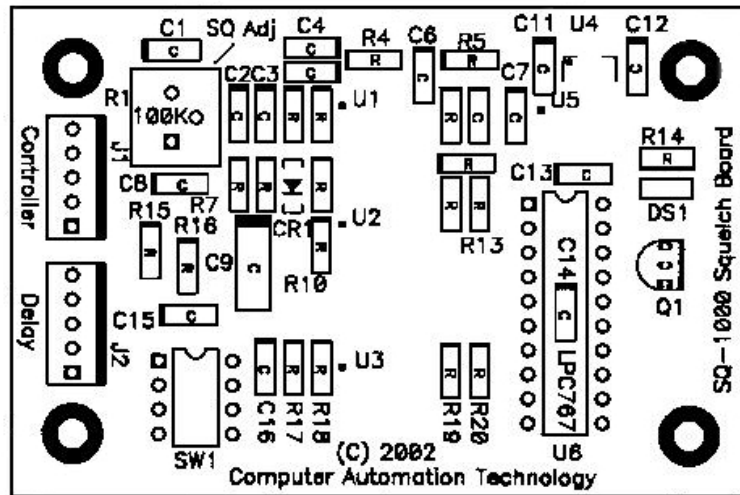
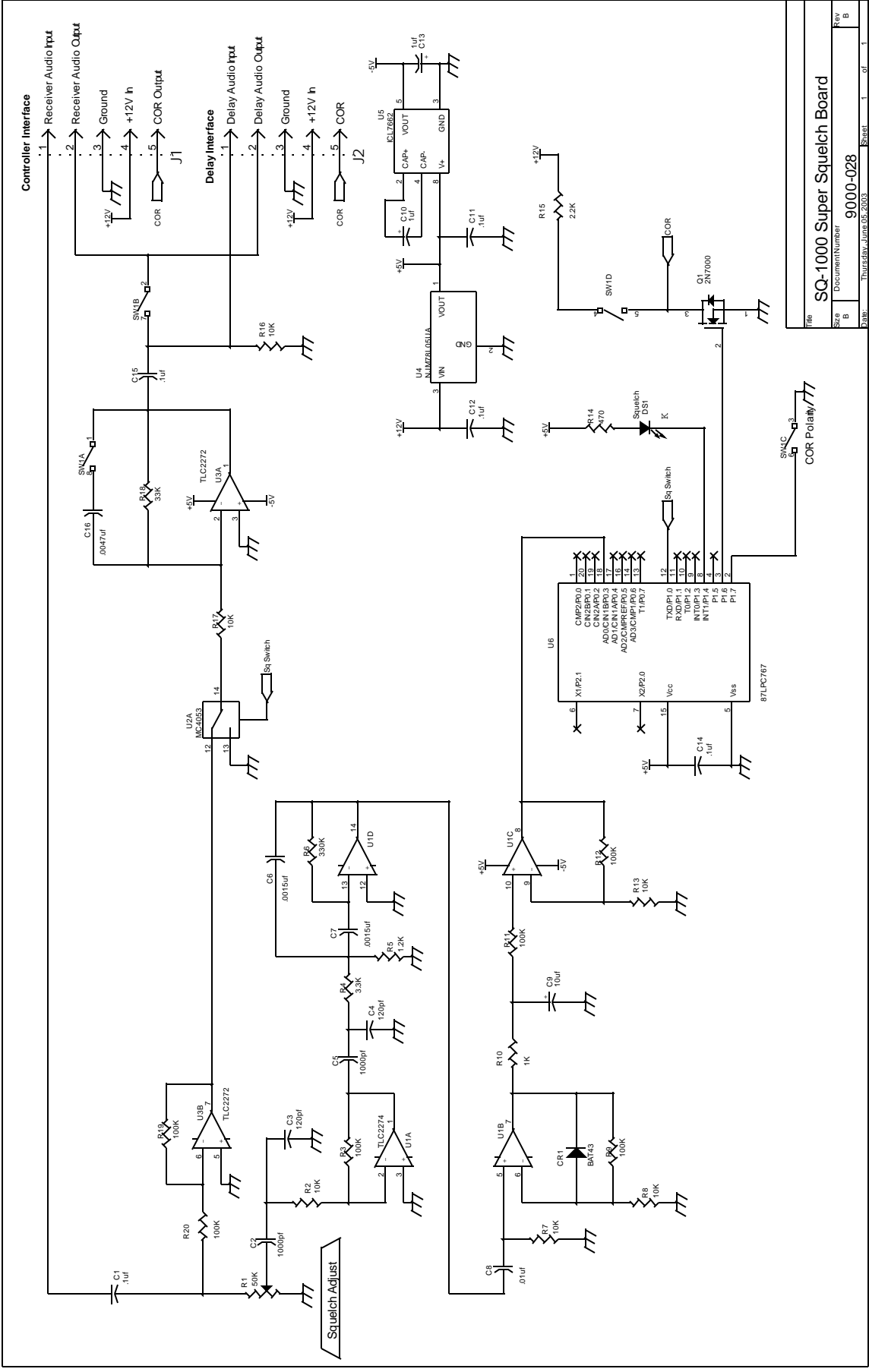


Figure 3

SQ-1000 Part List

2	Capacitor	.001uF 50V	C2,C5
2	Capacitor	.0015uF 16V	C6,C7
1	Capacitor	.0047uF (SM)	C16
1	Capacitor	.01uF 50V	C8
5	Capacitor	0.1uF 50V	C1,C11,C12,C14,C15
2	Capacitor	1.0uF 16V	C10,C13
1	Capacitor	10uF 16V	C9
2	Capacitor	120pF	C3,C4
2	Connector	1X5	J1,J2
1	Diode	BAT43	CR1
1	I.C.	MC4053	U2
1	I.C.	NJM78L05UA	U4
1	I.C.	P87LPC767	U6
1	I.C.	TC7662	U5
1	I.C.	TLC2272	U3
11	I.C.	TLC2274	U1
1	LED	RED SM	DS1
1	Resistor	1K SM	R10
1	Resistor	1.2K SM	R5
1	Resistor	2.2K SM	R15
1	Resistor	3.3K SM	R4
6	Resistor	10K SM	R2,R7,R8,R13,R16,R17
1	Resistor	33K SM	R18
6	Resistor	100K SM	R3,R9,R11,R12,R19,R20
1	Resistor	330K SM	R6
1	Resistor	470 SM	R14
1	Resistor	100K Variable	R1
1	Switch	4 Position	SW1
1	Transistor	2N7000	Q1



Title		SQ-1000 Super Squelch Board	
Size	Document Number	9000-028	Rev
B			B
Date		Thursday, June 05, 2003	Sheet 1 of 1