

SSC

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MODEL 715BB

OPERATION INSTRUCTIONS

MODEL 715BB
MIDLAND INTERFACE PCB
REV. 1 : MAY 31, 1991

715BB MIDLAND INTERFACE

The SSC 715BB is an adapter designed to interface a Midland XTR Base Station to either an SSC 836AA Tone Control or an SSC 824AA DC Termination board. The 836AA provides remote PTT, Monitor and control of up to 10 channels. The 824AA provides remote PTT, Monitor and selection of up to 2 channels; and it can be configured to operate with virtually any DC remote.

GENERAL

Before attempting installation and bench test, it is advisable that you familiarize yourself with this manual, and the 836AA/838AA manual or the 824AA manual.

The 715BB and 836AA or 824AA should be mounted on the top cover with the provided stand-offs as shown on page 7. (The ribbon cable sockets on the 715BB facing downward and toward the left side of the radio as viewed from the front.) Four 1/8" holes will have to be drilled through the top cover of the base station. The locations of these holes are as shown on page 6. Extra 14 and 15 conductor cables (not provided by SSC) will be required to daisy chain from J401 and J411 respectively in the Midland XTR radio to P5 and P7 on the SSC 715BB. The base station control panel's fixed 14 and 15 conductor cables are connected to P4 and P6 respectively on the 715BB. A 13 conductor cable (not provided by SSC) is required to connect J408 of the XTR to P3 on the 715BB. Other option boards requiring J408 can be daisy chained off of P2 of the 715BB.

Take special note of the fact that 2-wire (simplex) audio connections are not the same for the 836AA/715BB and the 824AA/715BB installations.

CONSIDERATIONS FOR THE 836AA TONE TERMINATION BOARD

For two-wire audio, connect the phone line to Molex connector pins 2 and 5 on the back panel of the base station enclosure. Run a pair of wires from Molex pins 2 and 5 to connector TB-1 pins 5 and 6 on the 715BB (See page 3).

If four-wire audio is to be used, connect the RX audio output pair as described above for 2-wire audio. In addition, connect the TX audio input pair to Molex connector pins 1 and 4 on the base station. Run a pair of wires from Molex

connector pins 1 and 4 to connector TB-1 pins 3 and 4 on the 715BB (See page 3).

Detailed instructions for installation and adjustment of the 836AA/838AA are provided in the 836AA/838AA manual. However, you should bear in mind the following notes before you proceed.

(1) When an 836AA is used in conjunction with the 715BB interface, the 837AA option board is not required for 10-channel operation. Diode D2 must still be removed if more than 4 channels are to be used. (See "UPGRADING FROM 836AA TO 838AA" in the 836AA/838AA manual)

(2) The section "836AA/838AA FUNCTION TONE RELAY CONFIGURATION" can be ignored. However, in order to work properly with a Midland XTR base station the 836AA should be set as per 836AA/838AA manual, "RELAY CONFIGURATIONS" Table 3, mode "R". That is:

DIP Switch 1 - 5 = OPEN

DIP Switch 1 - 6 = CLOSED

DIP Switch 1 - 7 = OPEN

CONSIDERATIONS FOR THE 824AA DC TERMINATION BOARD

For two-wire audio, connect the audio wire pair to pins 1 and 4 of the 6-pin Molex connector on the back of the Midland XTR base station enclosure. Run a pair of wires from Molex pins 1 and 4 to connector TB-1 pins 3 and 4 on the 715BB (See page 3).

If four-wire audio is to be used, connect the TX audio input pair as described above for two-wire audio. In addition, connect RX audio pair to pins 2 and 5 of the 6-pin Molex connector on the back of the Midland base station. Run a pair of wires from Molex connector pins 2 and 5 to connector TB-1 pins 5 and 6 on the 715BB (See page 3).

Whether two-wire or four-wire audio is being used, use pin 1 of the Midland's 6-pin Molex connector for the DC reference and pin 4 for +/- polarity.

See Table 5 under "AUDIO CONNECTIONS AND ADJUSTMENTS" in the 824AA manual.

Place the 824AA TX audio in the High Gain mode by placing Dip Switch 1- 4 in the closed position.

The 824AA can operate with a wide variety of DC remotes. The specific control-current/function format that the 824AA is configured for is determined by:

(1) the locations of jumpers placed on the 824AA's jumper pin matrix;

(2) the positions of relevant DIP switches on the 824AA. A guide to jumper placement locations and relevant 824AA DIP switch positions for a given current/function format is found on Table 2 in the 824AA manual. Note that the edge connector pin-out also indicated in Table 2 can be ignored when the 824AA is used in conjunction with the 715BB.

The most likely SSC DC remotes to be used will be the 811A, 811D or 811G. The appropriate jumper location(s) on the 824AA's jumper matrix and the appropriate 824AA DIP switch positions for operation with each of the above DC remotes is given below for convenience.

Table 1

SSC DC REMOTE			
	811 A	811 D	811 G
824AA JUMPER LOCATIONS	D7 - D8	F7 - F8 D4 - D5	A2 - B2
		A4 - B4 F3 - F4	D7 - D8
		A2 - B2 F1 - F2	
		D7 - D8 D1 - D2	
824AA DIP SW SW 2 - 4 SW 2 - 5 (ALL OTHERS NOT APPLIC.)	N N	CL OP	CL N

CL Closed
OP Open
N Not Applicable

If a DC remote other than the above mentioned is to be used, See "CONFIGURING THE DC DETECTOR" in the 824AA manual.

CONSIDERATIONS FOR THE MIDLAND BASE STATION

The 715BB interface only recognizes the least significant of the two seven-segment displays when determining which channel the Midland Base Station is on, (ie, the correct or incorrect channel as chosen via a function tone or DC current). It is desirable to program the Midland radio to operate on consecutive channels 1 through 10 (or the highest channel to be used). It is also necessary to program the radio for "channel roll-over" because the 715BB will only change channels in the upward direction. The 715BB will continue to change base station channels until the appropriate display is read for the last function tone or DC current received by the 836AA or 824AA. If only one channel is to be used, program the radio to operate on channel 1. The specific function tone - to - channel display correspondence for the 836AA/715BB is as follows:

Last Detected Function Tone	Base Station Display
1950 Hz	X1
1850 Hz	X2
1750 Hz	X3 *
1650 Hz	X4 *
1550 Hz	X5
1450 Hz	X6
1350 Hz *	X7
1250 Hz *	X8
1150 Hz	X9
1050 Hz	X0

* Note: it is possible to use 1350 Hz and 1250 Hz for X3 and X4 respectively; see "F3 and F4 RESPONSE FREQUENCIES" in the 836AA/838AA manual.

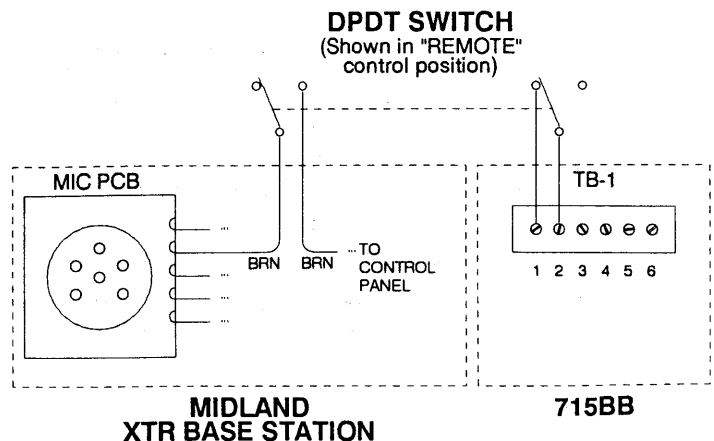
The 715BB's channel select output is broken at screw terminals TB-1 pin 1 and pin 2 to allow local channel selection via the base station's control panel. Connecting TB-1 pin 1 and pin 2 with a switch (or a jumper) will enable remote channel selection and disable local channel selection. An open circuit between TB-1 pin 1 and pin 2 will disable remote channel selection and enable local channel selection.

The jumper between pins 2 and 3 of the 9-pin Molex connector (P415) on the back of the Midland Base Station must be removed for remote control of the monitor function.

If a local microphone is connected to the base station, the brown wire going to the control panel from the PCB attached to the base station's microphone jack must be broken with a toggle switch (not provided by SSC) to allow remote control of the monitor function. When this switch is closed, the monitor function will be under control of the desk mic (ie. local control). When the switch is open, the monitor function will be under remote control.

A latching DPDT toggle switch mounted to the back of the base station enclosure (in the existing hole to the right of the 6-pin Molex connector) can be used to put the radio under local or remote control with respect to both Monitor and Channel Selection. See Figure 1 below.

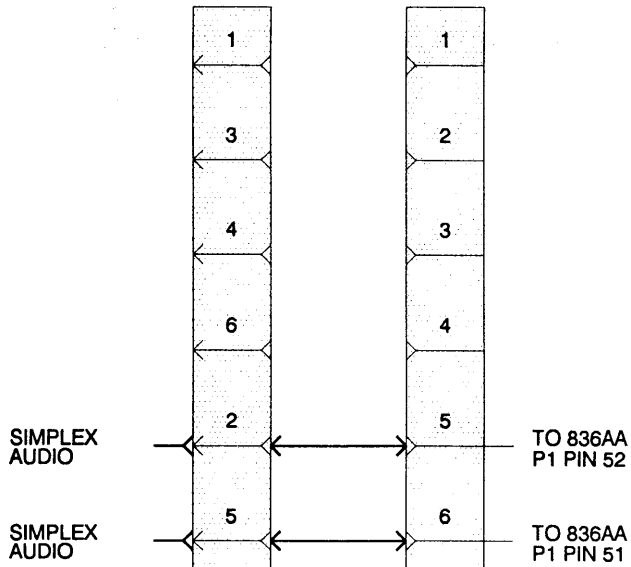
Figure 1



836AA AUDIO CONNECTIONS TONE TERMINATION BOARD

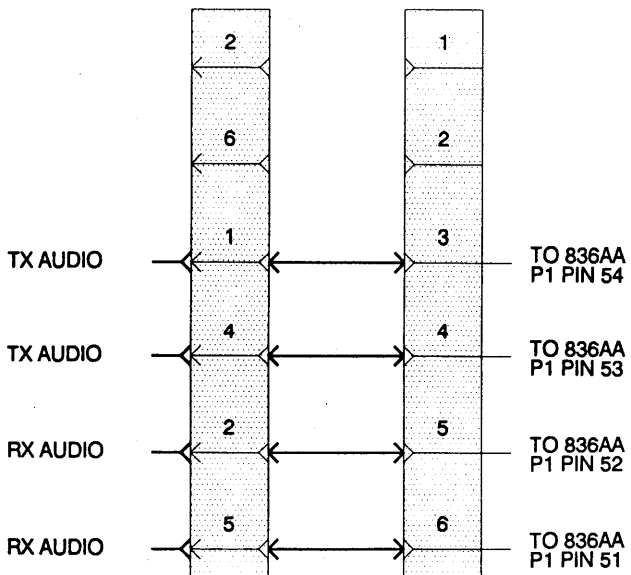
2-WIRE (SIMPLEX)

6-PIN MOLEX CONN. (BASE STATION) TB-1 (715BB)



4-WIRE (DUPLEX)

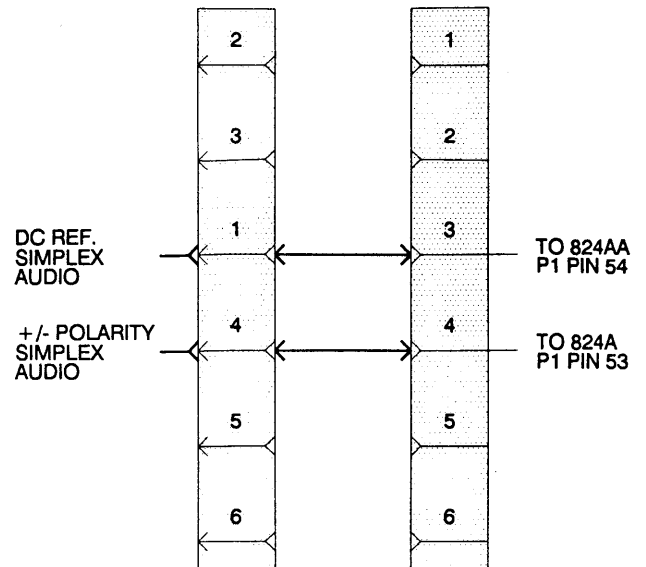
6-PIN MOLEX CONN. (BASE STATION) TB-1 (715BB PCB)



824AA AUDIO CONNECTIONS DC TERMINATION BOARD

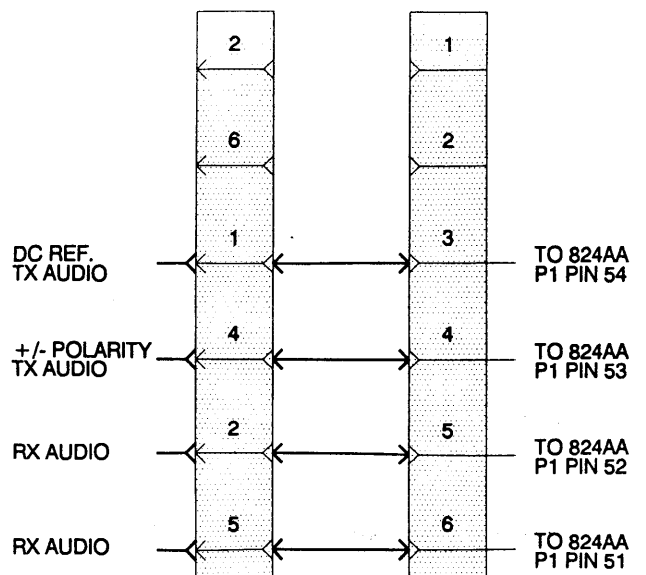
2-WIRE (SIMPLEX)

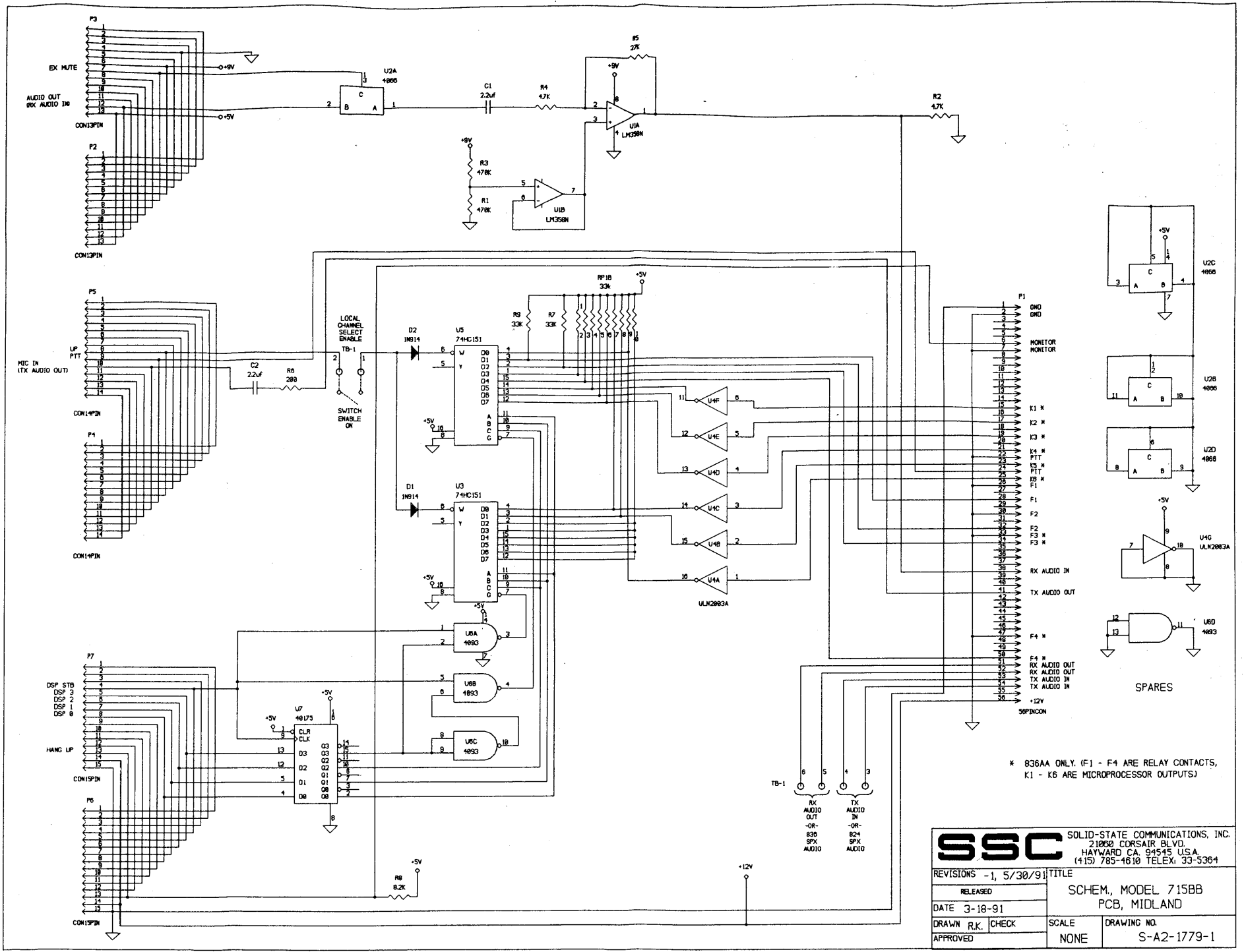
6-PIN MOLEX CONN. (BASE STATION) TB-1 (715BB)



4-WIRE (DUPLEX)

6-PIN MOLEX CONN. (BASE STATION) TB-1 (715BB PCB)





4

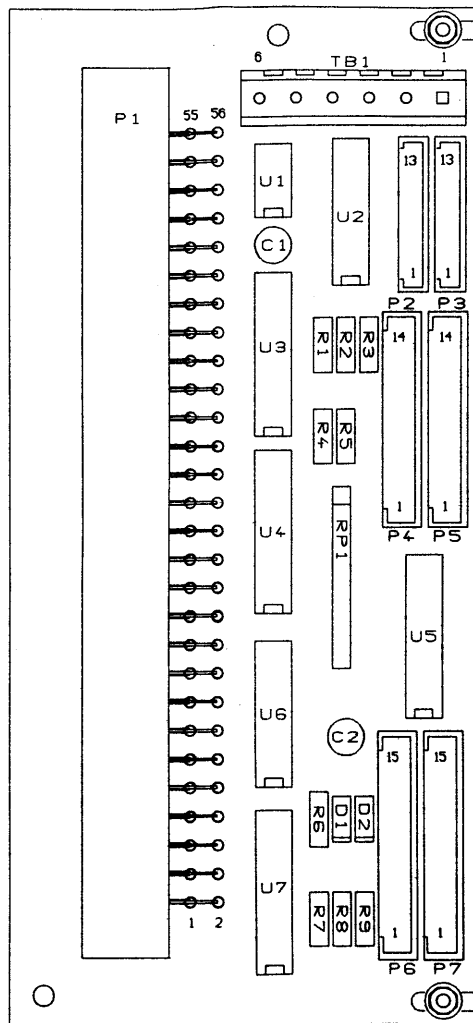
* 836AA ONLY. (F1 - F4 ARE RELAY CONTACTS, K1 - K6 ARE MICROPROCESSOR OUTPUTS)

SSC SOLID-STATE COMMUNICATIONS, INC.
 21060 CORSAIR BLVD.
 HAYWARD CA. 94545 U.S.A.
 (415) 785-4610 TELEX: 33-5364

REVISIONS -1, 5/30/91	TITLE
RELEASED	SCHEM, MODEL 715BB
DATE 3-18-91	PCB, MIDLAND
DRAWN R.K. CHECK	SCALE
APPROVED	NONE
	DRAWING NO. S-A2-1779-1

MODEL 715BB PCB

PARTS LIST AND ASSEMBLY

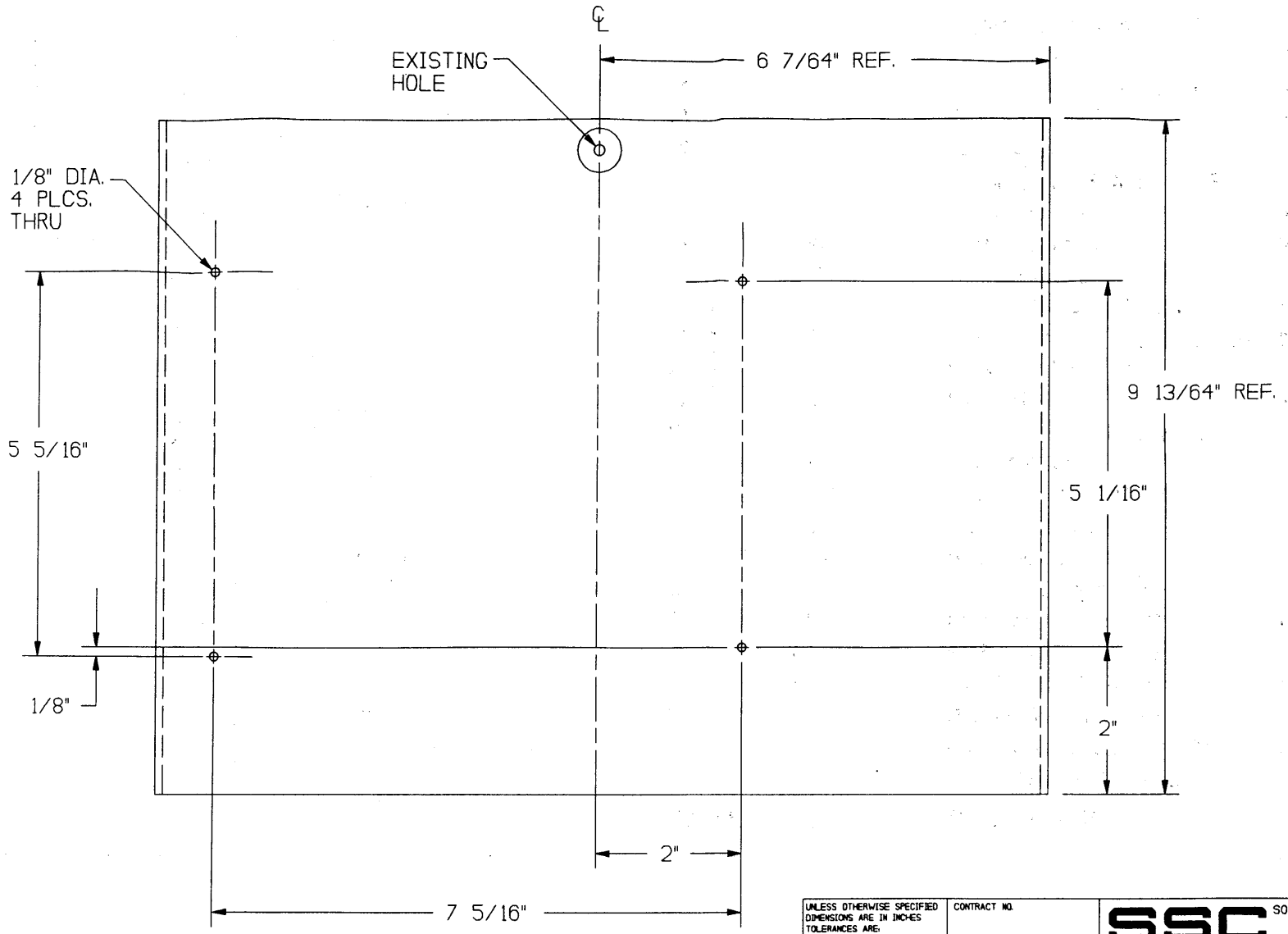


ITEM	QTY.	REF. DES.	DESCRIPTION	SSC #
1	1		PCB 715BB FILM-0 FAB-0	13-01777-000
2	2	C1,2	CAP 2.2MF ELECT 20% 50V	14-60022-975
3	2	D1,2	DIODE 1N914/1N4148	16-00013-100
4	1	R6	RES 200 CF 1/4W 5%	18-10200-153
5	2	R2,4	RES 4.7K CF 1/4W 5%	18-20047-153
6	1	R8	RES 8.2K CF 1/4W 5%	18-20082-153
7	1	R5	RES 27K CF 1/4W 5%	18-30270-153
8	2	R7,9	RES 33K CF 1/4W 5%	18-30330-153
9	1	RP1	RES PAK 33K SIP 10	18-30331-882
10	2	R1,3	RES 470K CF 1/4W 5%	18-44700-153
11	1	U4	IC ULN2003A	24-20030-009
12	1	U1	IC LM358N DUAL OP AMP	24-35800-008
13	1	U7	IC 40175	24-40175-001
14	1	U2	IC 4066 ANALOG SW	24-40660-001
15	1	U6	IC 4093 NAND SCHM TRIGGER	24-40930-001
16	2	U3,4	IC 74HC151 3 TO 8 MUX	24-74151-002
17	2	P2,3	SCKT SIP 13 PIN	32-00709-000
18	2	P4,5	SCKT SIP 14 PIN	32-00714-000
20	2	P6,7	SCKT SIP 15 PIN	32-00716-000
21	1	P1	CONN EDGE RIGHT ANGLE	32-00732-000
22	1	TB-1	TERM STRIP 6 PIN	40-00341-000
23	6		STANDOFF NYLON 4X1/16	41-00176-000
24	2		STANDOFF NYLON 4X1/4	41-00177-000
25	4		NUT HEX 2/56 CAD	41-00376-000
26	2		STANDOFF NYLON 4X1/8	41-00380-000
27	4		SCREW 2/56X1 PH SL	41-00520-000

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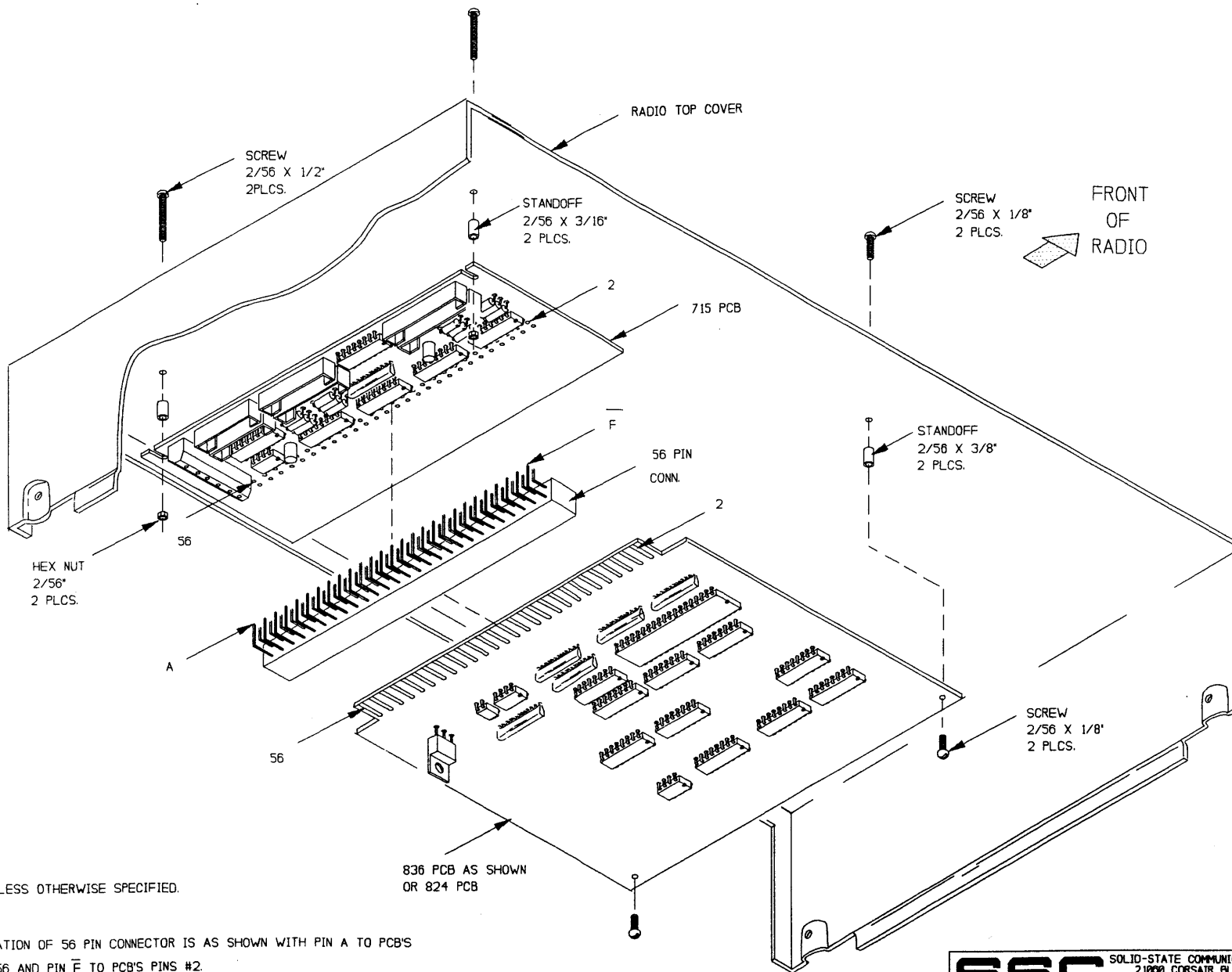
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	RELEASED		

REAR



FRONT
TOP VIEW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES XXX	CONTRACT NO.		SSC SOLID-STATE COMMUNICATIONS, INC. 21000 CORSAIR BLVD. HAYWARD CA. 94545 U.S.A. (415) 785-4610 TELEX: 33-5364
	APPROVALS	DATE	
MATERIAL	DRAWN R.K.	4-9-91	TITLE 715BB DRILL CHART RADIO COVER FAB
FINISH	CHECKED		SIZE A FSCM NO. DWG. NO. F-A2-1789 REV. 1
DO NOT SCALE DRAWING	ISSUED		SCALE HALF SHEET 1 OF 1



NOTES: UNLESS OTHERWISE SPECIFIED.

1. ORIENTATION OF 56 PIN CONNECTOR IS AS SHOWN WITH PIN A TO PCB'S PINS #56 AND PIN F TO PCB'S PINS #2.

SSC		SOLID-STATE COMMUNICATIONS, INC. 21000 CORSAIR BLVD. HAYWARD CA 94545 U.S.A. (415) 785-1010 TELEX: 33-5364	
REVISIONS	1, 5/30/91	TITLE	ASSY., MODEL 715BB, PCB MLD
RELEASED			
DATE	3-12-91		
DRAWN R.K.	CHECK	SCALE	DRAWING NO.
APPROVED		NONE	A-A2-1781-1