

INTERNAL MODIFICATIONS

Caution: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified.

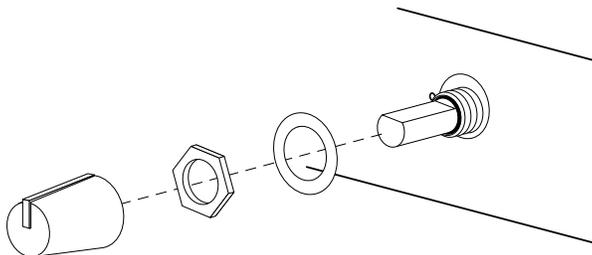
NOTE: Remove AC power before opening the unit.

- Only make changes to jumpers (X) and resistors (R). The circuit board contains holes where resistors are to be added.
- For Channel modifications, the first character of the reference designator indicates the channel number, (i.e., R1027 refers to a Channel 1 resistor, X2001 refers to a Channel 2 jumper, etc.). Modifications affecting the Master section are preceded by a "9" (i.e., X9001).
- All Channel modifications in this section use Channel 1 as an example.

DISASSEMBLING THE SCM410/SCM410E

To access the printed circuit board for internal modifications, proceed as follows:

1. Remove the power cord from the ac power source.
2. Remove the knobs, retainer nuts, and washers from the front panel, as shown in Figure 1.



KNOB ASSEMBLY AND DISASSEMBLY
FIGURE 1

3. Remove the four screws at each corner of the rear panel.
4. Remove the two screws at each bottom corner of the front panel.
5. Slide the back panel and printed circuit board out from the rear of the chassis.

CAUTION: When reassembling the SCM410, DO NOT OVERTIGHTEN the knob retainer nuts. Damage to the internal components will result if too much force is used.

INSERTING A 12 DB MIC PREAMPLIFIER PAD

A microphone preamplifier channel gain can be reduced by 12 dB. This may be desirable with high-output microphones.

Procedure:

1. Short jumper X1000.
2. Remove resistor R1006.

DISABLING PHANTOM POWER BY CHANNEL

To disable phantom power for a given microphone input channel, remove the resistor specified in the following table.

Channel	Remove Resistor
1	R1005
2	R2005
3	R3005
4	R4005

INSERTING AN INPUT LINE PAD

To insert a 40 dB line pad for a given microphone input, remove the resistors specified in the following table.

Channel	Remove Resistor
1	R1005, R1006
2	R2005, R2006
3	R3005, R3006
4	R4005, R4006

DISABLING THE MASTER LEVEL CONTROL

The Master gain control can be disabled to prevent tampering. Refer to the following table for gain levels and resistor values.

Master Section Gain	Resistance
-6 dB	5.1 kΩ
0	10 kΩ
6 dB	20 kΩ

Procedure:

1. Remove resistor R9203.
2. Install new resistor at jumper R9173.

CHANGING THE LIMITER THRESHOLD

To change the limiter threshold from the preset value of +16 dBu, modify the circuitry according to the following table.

CHANGE LIMITER THRESHOLD				
Limiter Threshold (dBu)	Limiter DIP switch	X9003	R9149	R9142
0	On	--	Remove	20k
+4	On	Short	--	--
+8	Off	Short	--	--
+12	On	--	Remove	110k
+16 (default)	On	--	--	--
+20	On	--	Remove	300k
+24	On	--	Remove	400k

CHANGING HOLD TIME

To change the hold time from the preset value of 0.4 seconds, modify the circuitry according to the following table.

CHANGE HOLD TIME			
Hold Time (seconds)	X9000	R9073	R9079
0.3	--	--	2M
0.4 (default)	--	--	--
1.0	Short	--	--
1.5	Short	470k	--

LOCAL AUX OPERATION

This modification removes the auxiliary audio from the SCM410 outputs. Auxiliary audio originates from the aux inputs of the Shure SCM810, SCM800, and AMS8100 mixers when linked to the SCM410.

Procedure:

1. Remove resistor R9187.

MUTE IN PRECEDENCE TO OVERRIDE IN PRECEDENCE

When both MUTE IN and OVERRIDE IN logic are grounded, the Override mode will take precedence (as supplied, the MUTE IN takes precedence over OVERRIDE IN).

Procedure:

1. Short jumper X1005.
2. Remove resistor R1087.

DEAD ZONE ON MUTE IN DEFEAT

As supplied, MUTE IN is intended for use as a momentary cough button or privacy function (mute when necessary). However, if the MUTE IN is intended to be used so that the talker must unmute microphones to enable speech pick-up (unmute when needed), this modification is needed. This removes the muted channel from the MaxBus which eliminates "dead zones." A dead zone is an area in which a microphone picks up a talker through a muted microphone and other microphones do not activate for that talker.

Procedure:

1. Short jumper X1002.

CHANGING MUTE IN TO INHIBIT

As supplied, a channel will mute when its MUTE IN terminal is grounded. The mute function for each channel can be modified so that a logic "low" at the MUTE IN terminal prevents that channel from gating on if it is off, but allows it to remain on if it is already on. Use this modification to enable Filibuster Mode.

IMPORTANT: To prevent high-frequency oscillation, never connect the GATE OUT to the MUTE IN of the same channel unless the "Inhibit" modification has been made.

CHANGING OVERRIDE IN TO MUTE IN (FILIBUSTER MODE)

This modification should only be performed with the *Change MUTE IN to Inhibit* modification described above. This is only necessary if the Mute function is desired along with Filibuster Mode.

CHANGING THE OFF-ATTENUATION LEVEL

This procedure changes the off-attenuation level from -13 dB (as supplied). Refer to the following table for attenuation levels and resistor values.

Off-Attenuation Level	Resistor Value
10 dB	18 kΩ
13 dB (default)	30 kΩ
20 dB	75 kΩ
30 dB	250 kΩ
∞ dB	open circuit

NOTE: As more Input channels are added to the system, the off-attenuation increases slightly.

GROUP GATING

With this modification, several channels can be grouped together so that all of them activate whenever one of them activates. This is useful for miking choirs.

SHORTING OVERRIDE IN TO LOGIC GROUND INTERNALLY

This modification is equivalent to shorting one of the channel OVERRIDE IN to the LOGIC GROUND pin via the high density DB-15 logic connector. With this modification, a channel is always on.

SHORTING MUTE IN TO LOGIC GROUND INTERNALLY

This modification is equivalent to shorting a channel MUTE IN to the LOGIC GROUND pin via the high density DB-15 logic connector. With this modification, a channel is always muted.

DISABLING AUTOMATIC MIXING FUNCTION BY CHANNEL

This modification removes a given channel from the *IntelliMix* automatic mixing circuitry, so that a source such as music can be played through a channel of the SCM410 without affecting the automatic mixing of the unmodified channels.

MANUAL MODE ENABLE

This modification defeats the automatic mixing functionality of the SCM410, so that it operates as a standard 4 x 1 mixer.

Procedure:

1. Short jumper X1007.

Procedure:

1. Short jumper X1006.
2. Remove resistors R1087 and R1082.

Procedure:

1. Remove resistor R9178.
2. Install new resistor at jumper points R9177.

Procedure:

1. Locate pad PD1000.
2. Solder a wire from PD1000 to the other channels in the group. For example, to gate channels 1-3 as a group, solder a wire connecting PD1000, PD2000, and PD3000.

Procedure:

1. Short jumper X1003.

Procedure:

1. Short jumper X1004.

Procedure:

1. If necessary, modify the channel input to accept line level signals. Refer to the *Inserting an Input Line Pad* paragraph.
2. Modify the channel's Override In to On. Refer to the *Shorting Override In to Logic Ground Internally* paragraph.
3. Short jumper X1001 to remove the channel from the MaxBus.
4. Remove R1064 to remove the channel from the Last Mic Lock-On Bus.

Procedure:

1. Short jumper X9001.



United States:
Shure Incorporated
5800 West Touhy Avenue
Niles, IL 60714-4608 USA

Phone: 847-600-2000
Fax: 847-600-1212
Email: info@shure.com

Europe, Middle East, Africa:
Shure Europe GmbH
Wannenäckestr. 28,
74078 Heilbronn, Germany

Phone: 49-7131-72140
Fax: 49-7131-721414
Email: info@shure.de

Asia, Pacific:
Shure Asia Limited
Unit 301, 3rd Floor
Citicorp Centre
18, Whitfield Road
Causeway Bay, Hong Kong

Phone: 852-2893-4290
Fax: 852-2893-4055
Email: info@shure.com.hk

**Canada, Latin America,
Caribbean:**
Shure Incorporated
5800 West Touhy Avenue
Niles, IL 60714-4608 USA

Phone: 847-600-2000
Fax: 847-600-6446
Email: international@shure.com