

Interfacing the S-COM 5K/7K Repeater Controller to a GE MASTR II™ Repeater

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Note: This interface documentation applies to the MASTR II using the “Base Station Tone Remote/Repeat Control Shelf”. It does not include the “IDA” or “MASTR IIe” controller shelf.

1. Obtain and read the Ericsson-GE instruction manual for the repeater. LBI-31899 and LBI-30721 contain information on the repeater control shelf and wiring harness. They may be obtained at nominal cost from “Technical Publication Services” at (804) 528-7649. Manuals covering the RF modules are also available.
2. Remove all control shelf cards from the MASTR II except for the 10 Volt Regulator. Such cards include: Audio, Secut-It tone, Transmitter control, Receiver control, Repeater control, and Auxiliary control boards.
3. SCOM 5K and 7K controllers will work with either de-emphasized (SCOM factory configuration), or pre-emphasized (easy field modification) receiver audio. The MASTR II repeater can be configured for either, but pre-emphasized audio is recommended. On the MASTR II pre-emphasized audio, audio from the discriminator, is called Volume / Squelch High (V/S HI).

To modify from de-emphasized to pre-emphasized audio, change the appropriate capacitor from 47pF to 0.01uF.

On the 5K, for the repeater receiver change C27. For the control receiver change C19.

On the 7K, receiver #1 change C67, receiver #2 change C71, receiver #3 change C74.

Note: V/S HI is unfiltered audio, thus any channel guard (CTCSS tone) present on the receive signal will be passed through the SCOM controller to the repeater transmitter. If filtering of the received channel guard is required, audio can be routed through the “Repeater Audio Board” (19A129924G1). This configuration is non-traditional and untested. Some hints: Verify the jumper from H18-H19 is present, and remove the jumper between H12-H13. Audio to the SCOM receiver (now de-emphasized) will be present on the MASTR II backplane at J1206-A10. Refer to LBI-30705 for details.

4. If a Channel Guard (CG) decoder board (19D417261G3) is installed, remove (cut) the jumper between H41 and H42 on the receiver system board (19D417262G1). This will allow the Receiver UnSquelched signal (RUS, often called COR) and CG Decoder output lines to operate independently. Program the SCOM 5K/7K for the receiver access and DTMF decoder mode required. (For example: carrier, AND CTCSS, OR CTCSS, etc ...) See also LBI-31899 for a description of RUS and CG operation.
5. Set the SCOM dip switches as appropriate. The MASTR II receiver COS signal (called RUS), and CG decode are active high signals. The MASTR II transmitter PTT is an active low signal.

7K Dip Switch	Position
1 - RX#1 COR	Off / Open
2 - RX#2 COR	as required *
3 - RX#3 COR	as required *
4 - RX#1 CTCSS	Off / Open if installed. **
5 - RX#2 CTCSS	as required *
6 - RX#3 CTCSS	as required *
7 - TX#1 PTT	On / Closed
8 - TX#2 PTT	as required *

5K Dip Switch	Position
S1 (CT)	as required *
S2 (TX)	On / Closed
S3 (PL)	Off / Open if installed. **
S4 (RX)	Off / Open
S5	not present
S6	not present
S7	not present
S8	not present

Note: * as required - Leave any unused ports in the On/Closed position.

**Off/Open if CG Decode board is installed, ON/Closed if not installed.

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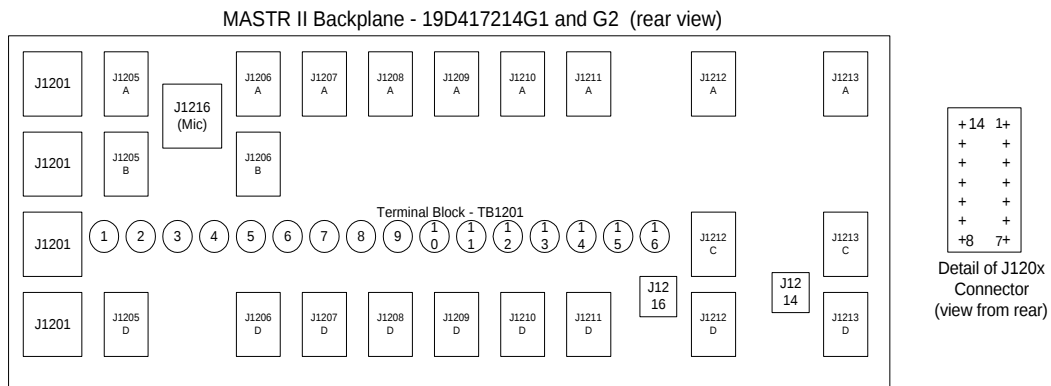
6. Cable the repeater and controller as follows:

SCOM Function	GE Function	SCOM 7K Pin	SCOM 5K Pin	MASTR II Backplane
Transmitter #1 Audio High	Trans Audio Hi	J2-14	11	J1205B-14
Transmitter #1 Audio Low	Trans Audio Lo	J2-20	24	J1205B-13
Transmitter #1 PTT	Local PTT	J2-10	10	J1205A-14
Receiver #1 Audio High	Vol / Sq Hi	J2-1	13	J1206B-11
Receiver #1 Audio Low	Vol / Sq Low	J2-21	25	J1206B-12
Receiver #1 COR	RUS	J2-2	6	J1206D-12
Receiver #1 CTCSS Decode	CG Decoder Output	J2-5	4	J1207A-3
Ground	Ground (A-)	J2-19	14	J1205D-8

Note: Refer to figure #1 for MASTR II backplane pin locations.

(See also LBI-30703, contained within LBI-30721, for more information.)

7. Power for the 5K/7K controller may be obtained from TB1201 pin 9 (+10V) and TB1201 pin 5 (gnd).



Addendum to the SCOM Alignment Procedure for GE MASTR II[®] Repeater Stations

Note: Refer to the Ericsson-GE instruction manual (LBI) for part location and detailed alignment information.

Receiver input level set

1. Using a signal generator, apply a fully deviated (5 KHz) on frequency signal to the receiver input.
2. Set the receiver input pot (5K-VR1, 7K-R97) for 700mV RMS (2V P-P).

Channel Guard (CG) Encode Level (If installed)

1. Manually PTT the station using the switch on the front of the 10 volt regulator card.
2. Set the MASTR II exciter CG encode pot for 700Hz deviation of the CG tone.

Transmitter output level set

1. From a signal generator, apply a fully deviated (5 KHz) on frequency signal to the receiver input.
2. Set the SCOM transmit level pot (5K-VR4, 7K-R104) fully clockwise (maximum).
3. Set the MASTR II limiter control for 5 KHz deviation.
4. Reduce deviation of the applied signal to 3 KHz.
5. Set the SCOM transmit level pot (5K-VR4, 7K-R104) for 3 KHz deviation without CG. (3.7 KHz with CG encode.)