USER MANUAL

LBR100C

LOW BAND BASE/REPEATER STATION

APRIL 2016

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NOTICES TO THE USER-English

FCC Part 15.19 Warning Statement

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

FCC Part 15.21 Warning Statement

NOTE: This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

- GOVERNMENT LAW PROHIBITS THE OPERTION OF UNLICENSED RADIO TRANSMITTERS WITHIN THE TERRITORIES UNDER GOVERNMENT CONTROL.
- ILLEGAL OPERATION IS PUNISHABLE BY FINE OR IMPRISIONMENT OR BOTH.
- REFER SERVICE TO QUALIFIED TECHNICIANS ONLY.
- The antennas used for this transmitter must be fixed-mounted on outdoor permanent structures and installed to provide a separation distance of at least 1.95 m from all persons, and must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTE: *This instruction manual covers only the basic functions of the transceiver. Consult your dealer for more detailed information.*

SAFETY: It is important that the operator is aware of, and understands, hazards common to the operation of any transceiver.

IC RSS-GEN, Sec 8.3 Warning Statement-

This radio transmitter LBR100C has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Unity Gain permanently mounted antenna with 50 ohms impedance.

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Avis à l'utilisateur-Français

FCC Partie 15.19 Avertissement

Cet appareil est conforme à la partie 15 des Règles de la FCC. Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas provoquer d'interférences nuisibles, et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un fonctionnement indésirable.

FCC Partie 15.21 Avertissement

Remarque : Cet équipement produit ou utilise de l'énergie de fréquence radio. Des changements ou des modifications apportés à cet équipement peut causer des interférences nuisibles à moins que les modifications sont expressément approuvé dans le manuel d'instructions. L'utilisateur pourrait perdre l'autorisation d'exploiter cet équipement si une modification non autorisée ou toute modification y soit apportée.

• LE GOUVERNEMENT LOI INTERDIT L'opération d'émetteurs radio sans licence dans les territoires sous contrôle gouvernemental.

• Opération illégale est punissable d'une amende ou IMPRISIONMENT OU LES DEUX.

• CONSULTER LE SERVICE À DES TECHNICIENS QUALIFIÉS UNIQUEMENT.

• Ne faites pas fonctionner votre émetteur-récepteur lorsque quelqu'un est à moins de 6 pieds de l'antenne, pour éviter la possibilité de fréquence radio brûlures ou blessures physiques connexes.

Remarque : ***Ce manuel couvre uniquement les fonctions de base de l'émetteur-récepteur. Consultez votre revendeur pour des informations plus détaillées.***

Sécurité : il est important que l'opérateur connaît et comprend, dangers communs pour l'exploitation de tout émetteur-récepteur.

IC RSS-GEN, Sec 8.3 Énoncé d'avertissement-

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Gain unitaire monté en permanence antenne avec impédance de 50 ohms.

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INTRODUCTION

This manual covers the Comtronix Communications VHF Low Band Base/Repeater Station. The station features 110 watt continuous duty power output, multiple channels, and is based on the proven Kenwood 690 series RF deck. The LBR-100C is comprised of separate modules all housed within one 2RU equipment housing. The receiver, exciter and PA are each enclosed within their own metal housing. Each one is then mounted directly on the large upper heatsink. A microprocessor-controlled interface module controls the channel selection, LCD Display, timers, interfaces and signaling features.
All programming and alignment of the station is completed by the service shop technician. There are no internal user adjustments in the station.

Specifications of LBR-100 VHF Low Band Continuous Duty Base/Repeater

- Frequency Range 39.0 – 50.0 Mhz
- 160 channels
- Transmit Power technician programmable from 45 to 110 watts
- Frequency Stability .0005% (-22F to +140F)
- Channel Step 5 khz
- Emission 16K0F3E
- TX/RX Signaling CTCSS and DCS
- Receiver Sensitivity .35uv (12 db SINAD)
- Receiver Selectivity 85 dB
- Receiver IMD 80dB
- Occupies only 2 RU (3.5”)
- Local Speaker included
- Local Hand Microphone included

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Theory of operation

The unit has two external antenna ports on the rear of the unit. One is for the transmitter (TX Ant) and the other is for the receiver(RX Ant). These ports would be normally attached to the customer supplied duplexer.

WARNING: WHEN TESTING THE UNIT BE SURE THE DUPLEXER IS TUNED PRIOR TO APPLYING RF POWER FROM THE TRANSMITTER, AS RF IN EXCESS OF 0 DBM INTO THE RECEIVER ANTENNA PORT WILL CAUSE DAMAGE TO THE RECEIVER FROM END.

The repeater is configured with one RF Power amplifier assembly which requires approximately 100 mw of drive from the module marked "Transmitter" which contains the control logic and the TX-RX board. The 100 mw of RF is then routed to the PA Amplifier assembly and amplifies that signal to 45-110 watts, which is then routed to the TX Antenna port.

The repeater is configured with a second control logic and TX-RX board in which the receiver only is used for full duplex operation. The receiver front end has the addition of a Front end protector circuit added to limit the RF input. The receive signal enters the repeater from the RX antenna port (from duplexer) and it routed to the module marked "Receiver". The receive signal is processed and the recovered receive audio is then routed to the Rear Panel PCB and the RM-1 Repeater controller.

Stand-alone Repeater

During normal operation as a stand-alone repeater, the unit will repeat all traffic as long as the proper RF signal with the necessary CTCSS or DCS code is present and the "Radio Aux I/O" jumper plug is in place.

DC Power

The Radio requires a good source of 13.8 VDC and should draw less than 20 amps during transmit.

LBR-100 C QUICK SETUP

1. Unpack unit from carton and Locate the DC Power cord, Hand Microphone for testing and 9 Pin Molex jumper plug.

FRONT VIEW OF REPEATER

REAR VIEW OF REPEATER

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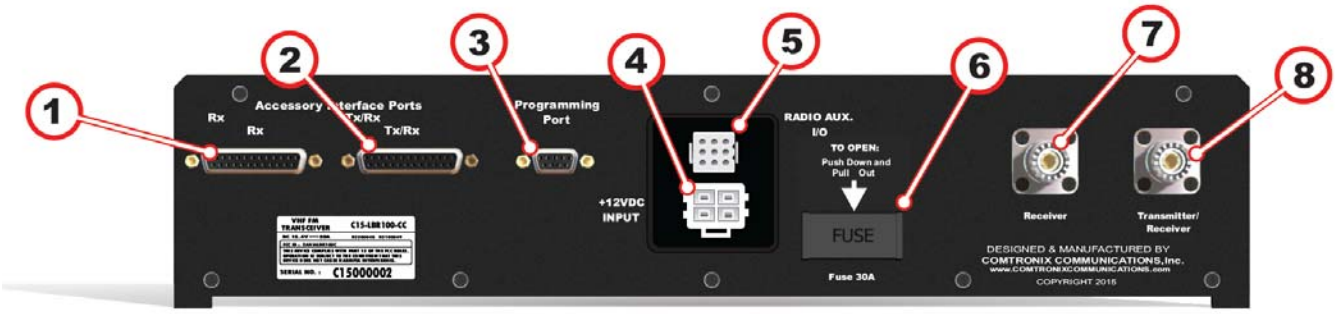
LBR-100 Rear Interface Panel



Item	Function
1	DB-25F RPT RX Accessory Interface connector (see chart below for functions)
2	DB-25F RPT TX Accessory Interface connector (see chart below for functions)
3	Programming Port
4	DC Power Connector
5	RADIO AUX I/O
6	DC Power Fuse (30 A)
7	RF RX antenna connector
8	RF TX Antenna connector

DB-25 F Accessory Interface Connector Functions Chart

Pin	Name	I/O	Function		Pin	Name	I/O	Function
1	RSI	O	RSSI OUTPUT		14	SB	O	SWITCHED =12VDC@.5A
2	AI1	I	AUX INPUT 1		15	RSV1	-	RESERVED
3	AI2	I	AUX INPUT 2		16	RSV2	-	RESERVED
4	AI3	I	AUX INPUT 3		17	AFO	O	LINE LEVEL RX AUDIO
5	AI4	I	AUX INPUT 4		18	E	-	GROUND
6	AI5	I	AUX INPUT 5 (EXT PTT)		19	DEO	O	DETECTOR OUT
7	E	-	GROUND		20	AO1	O	AUX OUT 1-TOR
8	AO2	0	AUX OUT 2-COR		21	A03	O	AUX OUT 3
9	TXD2	O	SER. DATA OUT		22	AO4	O	AUX OUT 4
10	RXD2	I	SER DATA IN		23	SQ	O	SQUELCH “L” BUSY
11	TXS	O	HI ON TX		24	SPM	I	“L” MUTE SPK
12	MCM	I	LO TO MUTE MIC		25	ME	-	MIC GROUND
13	MI/DI	I	MI=600 OHM REM MIC IN					

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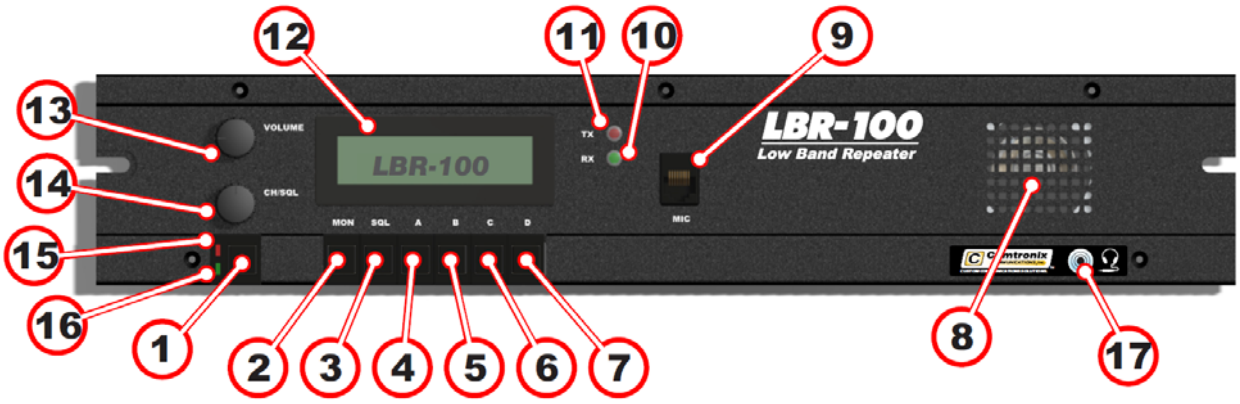
2. Remove 9 pin Molex Jumper plug from RADIO AUX I/O jack (#5) for simplex operation. NOTE this is installed for Repeater Full Duplex operation only.
3. Install DC Power Cord to Jack on rear of repeater marked 12VDC (#4) Input-be sure to observe polarity (should only fit correctly)
4. Connect DC Power cord to power supply and turn on power supply.

NOTE: THIS EQUIPMENT OPERATES ON 13 VDC NEGATIVE GROUND ONLY

5. Connect RF cables to the TX (8) and RX (7) ports to user supplied antennas or duplexer.
6. Equipment is now ready to turn on.

LBR-100 Front Control Panel



Item	Function
1	Power on-off switch
2	Programmable Function – Press on/off Monitor
3	Programmable Function – Press on then use CH/SQL to adjust squelch level
4	Programmable Function – Not assigned PF-3
5	Programmable Function – Not assigned PF-4
6	Programmable Function – Not assigned PF-5
7	Programmable Function – Not assigned PF-6
8	Local Test speaker
9	Local Test Microphone
10	Channel Activity Indicator GREEN LED
11	Transmit Function RED LED
12	LCD Display
13	Local Volume Control
14	CH/SQL Rotary switch for channel up/down or Squelch level up/down
15	Red LED Power On Indicator
16	Green LED DC Power available from power DC source
17	Headset Speaker Jack

7. Press #1 Power on button on front panel as shown-Repeater should turn on.
8. Using #14, rotate and select the desired channel (see the display) (12).
9. If necessary adjust the local volume (13) to the desired level (does not effect repeater audio level).
10. If local operation is used, locate the microphone and plug into Microphone jack (9).
11. If repeater operation is desired be sure that the 9 Pin Molex jumper plug in in place.

When the equipment is not working correctly contact your local service technician or you may contact the manufacturer directly.

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