



Mobile Communications

CRCU MODULE

TABLE OF CONTENTS

AUDIO/LOGIC BOARD	LBI-38780
POWER SUPPLY/RF BOARD	LBI-38781

TABLE OF CONTENTS

DESCRIPTION.....	2
ASSEMBLY DIAGRAM.....	4
INTERCONNECTION DIAGRAM.....	5
PARTS LIST.....	6

DESCRIPTION

Compact Radio Channel Unit (CRCU) Module 19D903596G1 plugs into the CRCU module shelf which holds up to eight CRCU modules. Connector J5 on the CRCU power supply/RF board provides CRCU module connections to the CRCU module shelf backplane for +24 Vdc power, cell site controller (CSC) 80 kbps serial data link, 600 ohm telephone line audio in and audio out, external power amplifier (PA) control, 14.85 MHz reference oscillator input and the backplane's external data terminal connection. CRCU module front panel connector J1 on the audio/logic board provides a terminal connection for local testing. CRCU module front panel telephone jacks J2, J3 and J4 on the audio/logic board provide for test and measurement of the 80 kbps serial data link (Line, Equipment and Monitor respectively). CRCU module front panel telephone jacks J101, J102 and J103 on the audio/logic board provide for test and measurement of the 600 ohm telephone line audio in and audio out (Line, Equipment and Monitor respectively).

The CRCU module front panel has five indicator LEDs for the following functions:

- TX ON -** Indicates the transmitter is keyed. CR1 on the audio/logic board.
- RCVR 1 -** Indicates RX1 is selected either automatically via the switched diversity selection based on the received signal strength indicator (RSSI) levels or manually selected during test and maintenance. CR2 on the audio/logic board.

RCVR 2 - Indicates RX2 is selected either automatically via the switched diversity selection based on the RSSI levels or manually selected during test and maintenance. CR3 on the audio/logic board.

FAULT - Indicates a fault has been detected by the CRCU self test and diagnostics software. CR4 on the audio/logic board.

LOCAL - Indicates the CRCU module is operating in local mode (switch S1 is in the LOCAL position). CR5 on the audio/logic board.

The CRCU module front panel has three switches for the following functions:

POWER ON/OFF - Provides over-current protection and the power on/off function (push in - ON, pull out - OFF) for the CRCU module. CB1 on the audio/logic board.

REMOTE/LOCAL - Alternate action switch: in the down position places the CRCU module in local mode for test and maintenance; in the up position places the CRCU module in remote mode for control via the CSC. Normal operation is with the REMOTE/LOCAL switch in the remote position (up). S1 on the audio/logic board.

RESET - Momentary switch: resets the logic circuitry on the audio/logic board. Momentarily holding the switch in the up position resets the logic. Normal operation is with the RESET switch in the down position. S2 on the audio/logic board.

The CRCU module front panel has two adjustments for the following:

LINE IN - Provides continuous adjustment of the input sensitivity from 0 dBm to -30 dBm for the 600 ohm audio line input to the CRCU module. Potentiometer R102 on the audio/logic board.

LINE OUT - Provides continuous adjustment of the output level from 0 dBm to -30 dBm for the 600 ohm audio line output from the CRCU module. Potentiometer R132 on the audio/logic board.

RF BNC connectors J2 (TRANSMIT OUTPUT), J3 (RECEIVER 1 INPUT) and J4 (RECEIVER 2 INPUT) on the power supply/RF board are at the rear of the CRCU module. These provide direct connections for the CRCU module RF output and inputs to the external 45 Watt PA or Transmitter Combiners and the Receiver Multicouplers.

The CRCU module functions as an Advanced Mobile Phone System (AMPS) analog control channel, voice channel or locate receiver and is hardware ready for operation as a Narrowband Advanced Mobile Phone System (NAMPS) analog voice channel or locate receiver. A future software release will provide NAMPS capability via the cellular switch (MTX).

The CRCU module function is determined by software commands from the MTX via the CSC. When

functioning as an AMPS control channel, the module provides a continuous data stream to the cellular subscriber units and processes any access attempts from the cellular subscriber units. When the module functions as a voice channel, the unit serves as a link for voice communications between a cellular subscriber and another party. The primary functions of the voice channel CRCU module are the control of audio paths and call process signalling. When functioning as a locate receiver, the module measures the Supervisory Audio Tone (SAT) and RSSI on a channel specified by the MTX via the CSC.

Each CRCU module is normally collocated with the CSC but can also operate in an Extended RF (remote) mode via an 80 kbps modem. A modem is required for each CRCU module that is operated remotely. In this remote mode the CRCU is controlled via a 9600 BPS data link between each 80 kbps modem for the Control Channel and the Locate Receiver. The Voice Channel CRCU is controlled via either a 9600 or 2400 BPS data link for each Voice Channel. The Extended RF mode is programmable via the local test terminal.

The microprocessor controlled CRCU module uses an ordinary video terminal for local test and maintenance functions. Local test software provides the capability to test and program all CRCU module functions. The module is locally programmable to any of the 832 standard analog AMPS cellular band channels from the local test terminal or remotely programmable from the MTX via the CSC. The CRCU is also programmable to any of the 2370 NAMPS analog voice channels via the local test terminal. NAMPS channel programming from the MTX via the CSC will be available in a future software release.

The CRCU module consists of two printed wire board assemblies, the audio/logic board and the power supply/RF board. These boards provide the Northern Telecom (NT) 80 kbps Manchester serial data control interface to the CSC, the audio processing circuitry for the 600 ohm interface to the cellular switch (MTX) and the RF interface to the cellular subscriber unit. The CRCU module meets the requirements of FCC and TIA standards for cellular land stations as well as the NT proprietary DMSX interface protocol to the CSC.



Ericsson GE Mobile Communications Inc.
Mountain View Road • Lynchburg, Virginia 24502