INSTALLATION AND SET-UP MANUAL

C3 ADVANTAGE DISPATCH SYSTEM

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GENERAL

The intent of this manual is to guide field installation and test personnel through the installation and set-up of the Compact CEC and C3 Maestro portions of the C3 Advantage dispatch system. Detailed installation and powerup procedures are included in this manual for the Compact CEC.

To avoid duplication of set-up and troubleshooting documentation, the *CEC/IMC Digital Audio Switch* – *Installation, Set-Up and Troubleshooting* manual, LBI-38938, has been included with this manual set. References to the applicable set-up sections within LBI-38938 which also apply to the Compact CEC are made in the set-up portions of <u>this</u> manual. If necessary, also refer to LBI-38938 for troubleshooting information.

Also to avoid documentation duplication, references are made to the installation and set-up information in the *C3 Maestro Console System* maintenance manuals, LBI-39062 and LBI-39100 (sub-manuals LBI-39055 and LBI-39101 respectively) and to the *C3 Maestro Console System* – *Editor Program* user's manual, LBI-39056. These manuals are provided with the C3 Maestro dispatch console equipment package.

— NOTE —

Unless otherwise noted, all installation, power-up, and set-up procedures in this manual should be performed in the order presented.

COMPACT CEC INSTALLATION

FLOOR PLAN

In a standard C3 Advantage dispatch system installation, the C3 Maestro consoles are co-located with the Compact CEC cabinet. In an installation of this type, the consoles may be located in the same room as the Compact CEC or they may be located in an adjacent or nearby room. The pre-wired console-to-Compact CEC cables supplied with the C3 Advantage package are 100 feet (30.5 meters) in length. If longer cabling is required, the cables should *not* be lengthened to exceed 4000 feet (1219 meters). This is the specified limit for an RS-422 serial interface.

Alternately, one or more C3 Maestro consoles may be remotely located via dedicated phone line (or equivalent) interconnections. In this case, modem and/or microwave equipment floor plan provisions must be made at the Compact CEC location if this equipment is not installed in the Compact CEC cabinet. In addition, floor plan provisions for the modem and/or microwave equipment must also be made at the C3 Maestro console's location.

Three (3) punch blocks within the Compact CEC cabinet are mounted on a punch block mounting rack. These punch blocks provide the line audio and control data interconnect points for the external equipment such as the C3 Maestro consoles and the EDACS trunked site. The mounting rack is secured to the cabinet's rear horizontal mounting rails just above the RPS unit.

In some cases, it may be beneficial to remove this mounting rack/punch block assembly from the Compact CEC cabinet and place the assembly at another location such as on a nearby wall or within an existing punch block cabinet. If relocated, floor plan provisions should be made for the punch blocks. The five (5) factory-supplied Telco cables which interconnect the Compact CEC's Concentrator Cards (A1 thru A3) to its punch blocks (PB1 thru PB3 respectively) are 15 feet (4.57 meters) long. Therefore, if using the factory-supplied Telco cables, the maximum punch block relocation distance from the Compact CEC is limited to approximately 15 feet minus any horizontal rise and fall required for cable ducts, trays, etc. In the Compact CEC cabinet, the Concentrator Cards are approximately 4.4 feet (1.34 meters) from the floor. If longer or shorter Telco cables are required, see Table 1 for part number information.

Cabinets which contain any optional equipment ordered or planned for the installation should also be included on the original floor plan. Optional equipment includes items such as logging recorders, Call Director patch equipment and UPS equipment.

EQUIPMENT ROOM GROUNDING

□ Installation manual LBI-39067 – *Standard For Site Grounding And Protection* – is included with this set of manuals. Refer to LBI-39067 for proper grounding techniques. These techniques should be observed in order to protect the equipment and service personnel from lightning and other sources of electrical surges.

AC POWER AND UPS EQUIPMENT

The Compact CEC employs a Redundant Power Supply (RPS) unit which is mounted at the very bottom of the cabinet. This power supply unit incorporates dual (2) independent switching power supply modules which each have an ac power input (120 or 230 Vac nominal) and +5, +15 and -15 Vdc outputs. "ORing" diodes inside the RPS unit combine matching dc outputs from each module before application to the Backplanes and the uplink GETC. With

this design, one module can completely fail without "downing" the Compact CEC.

Since each module has its own power cord, two (2) separate circuit breaker-protected and UPS-protected ac power sources can be employed for optimum power supply redundancy. This is the recommended installation method since Compact CEC operation will not be interrupted if one ac power source or UPS fails. Within the Compact CEC cabinet, the two power cords from the RPS unit are plugged into two separate ac power strips horizontally-mounted above the RPS unit. The cabinet fan is also plugged to one of the ac power strips.

UPS-protected ac power is recommended. A fullyloaded Compact CEC cabinet requires a maximum of approximately 700 watts of ac power under worst case conditions. UPS equipment should be rated accordingly. The above wattage value assumes two (2) slots are empty in the upper Card Cage (Card Cage 1), 19 slots are empty in the lower Card Cage (Card Cage 2), one uplink GETC is installed and the cabinet fan operates at high-speed at all times.

UPS hold-up time should meet the specific installation requirements. Typically, the UPS equipment should provide power until a back-up generator can be brought on-line. In addition, UPS equipment used with the Compact CEC should have a specified switch-over time of less than 20 milliseconds.

AC-line circuit breakers should be located within four (4) feet of the UPS equipment. Circuit breakers can be housed in cable trays above the cabinets or in wall-mounted breaker boxes.

Although not recommended, the entire Compact CEC cabinet can be protected by a single UPS. Because only one UPS is used, only one ac receptacle and one circuit breaker are required to support the Compact CEC cabinet. In this installation, cords from both ac power strips are plugged into the sole UPS. Since the complete cabinet is powered by a single UPS, failure of the UPS could "down" the Compact CEC and thus effect the C3 Advantage dispatch system greatly.

WARNING

DO NOT connect the ac power cords from the ac outlet strips to any ac power source(s) at this time. This procedure is described in the "**COMPACT CEC POWER-UP PROCEDURE**" section of this manual.

IN-CABINET DC POWER CABLES

DC power interconnections between the Compact CEC's RPS unit and its two Card Cages are provided by two separate but identical power cables – part number 19D903309P1. These cables are factory installed and should not normally require any changes during the Compact CEC installation process. Simply verify each cable is connected between the respective Backplane connectors as shown in LBI-39116.

DC power interconnections between the RPS unit and the GETC are provided by two additional cables – part numbers 188D6159P1 and 19B801676P1. An in-line fuse in cable 188D6159P1 provides short-circuit protection for the GETC and the RPS. These cables also carry uplink modem signals between terminal block TB10 on the back of the GETC and Data Concentrator Card A2. Both cables are factory installed and should not require any changes at installation.

□ Verify the connectors have not come loose during shipment and they are interconnected as shown in the Application Assembly Diagram within LBI-39116. Also see Figure 5 in this manual.

LOCAL BUS CABLES

In the Compact CEC's upper Card Cage (Card Cage 1), Local Bus Cables join digital buses between adjacent Card Cage board slots so data can be transferred between the Controller Board and Audio Board(s) within a given interface module. These cables are factory installed and should not normally require any changes during the installation process. Repositioning of a Local Bus Cable may affect board-to-slot positioning and the connection location of the Concentrator Card Cable at the Backplane. <u>Therefore, changes to these cables should not be</u> <u>performed.</u>

❑ Verify each cable is connected between two (2) adjacent Backplane connectors in accordance with Figures 5 thru 9 in this manual. The lower Card Cage (Card Cage 2) is the CIA rack; the boards in this cage do not require any Local Bus Cables.

TERMINATOR BOARDS

There is a total of four (4) Terminator Boards within the Compact CEC cabinet. Two (2) are located on the upper Card Cage (Card Cage 1) and two are located on the lower Card Cage (Card Cage 2 – the CIA rack). Each Terminator Board plugs onto connectors on the respective Card Cage's Backplane located on the rear of the cage.

Terminator Boards are plugged onto the appropriate Backplane connectors at the factory. No changes to these boards should be required at installation.

❑ Verify each Terminator Board has not become loose during shipment. Each Backplane should have one Terminator Board plugged to connectors P1E2 and P2E2 (located on the far left-hand side of Backplane as viewed from the rear) and a second Terminator Board plugged to connectors P1E1 and P2E1 (located on the far right-hand side).

CONCENTRATOR CARD CABLES

Each Concentrator Card Cable in the Compact CEC cabinet interconnects a 24-pin dual-row connector on the rear of the Backplane to a similar type connector on a Concentrator Card. Twisted-pair shielded cabling is utilized on all of these factory-installed cables.

During the installation process, no Concentrator Card Cable changes should be required. Simply verify none of the cables have become loose during shipment and they are all connected in accordance with Figures 5 thru 9 in this manual.

UPLINK GETC CABLES

❑ As shown in Figure 5 in this manual and in the Application Assembly Diagram in LBI-39116, verify cable 19D903628P41 interconnects PA201 on Card Cage 1 to J100 on the back of the GETC. PA201 is a 24-pin dual-row header connector on the Backplane and J100 is a DB-9 subminiature connector. Also verify cable 188D6159P1 interconnects the GETC, Data Concentrator Card A2 and the RPS unit.

EXTERNAL CONNECTIONS

Punch Blocks

As previously stated, three (3) punch blocks within the Compact CEC cabinet are mounted on a punch block mounting rack. These punch blocks provide the audio and control data interconnect points for the external equipment such as the C3 Maestro consoles and the EDACS trunked site. The mounting rack is secured to the cabinet's rear horizontal mounting rails just above the RPS unit. If required, this punch block assembly may be relocated outside of the Compact CEC cabinet. The five (5) factory-supplied Telco cables which interconnect the Compact CEC's Concentrator Cards to the punch blocks are 15 feet (4.57 meters) in length. If longer or shorter Telco cables are required, see Table 1 for part number information.

□ At this time, refer to the punch block pin-out diagrams at the end of this manual. Wire all external equipment to the Compact CEC's punch blocks as required.

- NOTE -

Bridging clips may be supplied with the C3 Advantage's punch blocks; however, the bridging clips **should not** be used.

Table 1 - Telco Cable Lengths

PART NUMBER	CABLE LENGTH
19D903880P120	5 feet (1.52 meters)
19D903880P121	15 feet (4.57 meters)
19D903880P122	7 feet (2.13 meters)
19D903880P123	10 feet (3.05 meters)
19D903880P124	20 feet (6.10 meters)
19D903880P125	25 feet (7.62 meters)
19D903880P126	30 feet (9.14 meters)
19D903880P127	35 feet (10.67 meters)
19D903880P128	40 feet (12.19 meters)
19D903880P129	50 feet (15.24 meters)

External Cable Length And Shielding

Audio

Maximum audio line length is limited only by the line loss and induced noise. All audio lines should employ 600ohm twisted-pairs or equivalent microwave links.

Local audio lines should not require shielded pairs unless noise is a problem. Shielded pairs are recommended for all local lines that carry modem signals. A pre-wired 100-foot shielded audio cable is supplied with each C3 Maestro console for console-to-CIM line audio interconnections.

RS-232/RS-422 Control Data

RS-232 interfaces should be limited to 50 feet (15.24 meters) and RS-422 interfaces should be limited to 4000 feet (1219 meters). These length specifications include Telco and Concentrator Card cabling. A pre-wired 100-foot RS-422 data cable is supplied with each C3 Maestro console for console-to-CIM control data interconnections.

Telephone Lines

Compact CEC audio channels should employ highquality low-noise phone lines or equivalent microwave circuits. All audio channels require 4-wire (duplex) circuits except channels to 2-wire remote controlled conventional stations.

The uplink/downlink phone lines to and from the EDACS site should employ 4-wire 3002-conditioned phone lines or equivalent microwave circuits. Lines of this type guarantee low bit-error data transfer rates for the uplink/downlink control data. See LBI-38938 for 3002 data grade phone line specifications.

It is highly recommended that ± 27 -volt surge-protection be added to the punch blocks on the EDACS site channels and any tone controlled conventional channels to conventional stations. However, ± 27 -volt clamp protection cannot be employed on the transmit pair to a dc controlled conventional station. This pair may have up to a 135 Vdc potential when a dc control current is sent out from the CI Board to the conventional station.

CEC MANAGER (MOM PC) AND SYSTEM MANAGER CONNECTIONS

Both the CEC Manager computer and the System Manager computer (optional) interface to the Compact CEC via MOM Concentrator Card A4.

- Wire the CEC Manager to the MOM Concentrator Card (A4 connector J2) in accordance with Figure 9. Upon wiring completion, power-up the CEC Manager and start its application program as described in the respective documentation (LBI-39024, LBI-39124, etc.).
- □ If a System Manager is employed in the C3 Advantage dispatch system, wire it to the MOM Concentrator Card (A4 connector J3) in accordance with Figure 9. Upon wiring completion, if necessary, power-up and start its application program as described in the respective documentation (LBI-38984, LBI-38703, etc.) and configure the I/O port used for Compact CEC interfacing in accordance with LBI-38703.

AUXILIARY I/O OPTION MSDE3U

□ If auxiliary I/O option MSDE3U is included with the Compact CEC equipment, refer to installation information within LBI-38938 for specific installation instructions.

C3 MAESTRO INSTALLATION

Refer to the *C3 Maestro Console System* maintenance manual, LBI-39062 or LBI-39100 (sub-manual LBI-39055 or LBI-39101 respectively), for console installation details. The appropriate manual is provided with the console equipment package.

□ The C3 Maestro console(s) should be wired to the Compact CEC in accordance with the interconnection information included in LBI-39055/LBI-39101 and the punch block pin-out diagrams shown in this manual (pages 26 and 27). Control data connections are made at punch block PB2 (see page 26) and audio connections are made at PB3 (page 27).

NOTE

A co-located C3 Maestro console is interconnected to the Compact CEC via 600-ohm audio and RS-422 control data interconnections. Specifically, the control data interconnections are made via J12 on the Data Concentrator Card (A2) at the respective terminals on PB2.

If a remote console installation is required, refer to LBI-39055/LBI-39101 and LBI-38868 for modem and RS-232 interconnection details. RS-232 console control data interconnections must be made via J13 at the Data Concentrator Card and the respective punch block terminals. The Data Concentrator Card (A2) and the punch block (PB2) pin-out diagrams do not list console ("CRT") RS-232 connections.

COMPACT CEC POWER-UP PROCEDURE

This section describes the recommended Compact CEC power-up procedure. It also gives details that can resolve minor problems that may occur during the power-up process.

- D Power-up the Compact CEC as follows:
 - **1.** Inspect all cabling for proper interconnections, particularly the ac power cables.
 - 2. Verify all equipment is properly grounded.
 - 3. Verify *both* power switches on the back of the RPS unit are in the "OFF" position. The RPS unit is located at the bottom of the cabinet.

- 4. Connect the two (2) ac power cords, one from each ac outlet strip, to an appropriate ac power source.
- 5. Simultaneously switch both power switches on the back of the RPS unit to the "ON" position.
- Verify both "STATUS" indicators on the RPS unit's front panel are illuminated green. A red or amber illumination from one indicator indicates ac power is not applied to the module. Both "TEMP" indicators should be illuminated green.
- The cabinet's fan should now be tested. With a heat gun, trip the fan's thermostat and verify the fan switches from low-speed to high-speed operation. Thermostat trip point is approximately 110° F (43° C). The fan should return to low-speed operation when the thermostat cools to approximately 95° F (35° C).
- Connect and power-up the CEC Manager (MOM PC) computer and start its application program, O_MOMPC.EXE. Next, log-on to it using the default user name, "MOMUSER" and the default password, "GUEST".
- Proceed to the CEC Manager's "SYSTEM DISPLAY" screen. This screen is accessed by selecting the "View System/Diagnostics" option from the CEC Manager's main menu. See LBI-39024, LBI-39124, etc. for complete details.
- 10. Now verify all installed Controller Boards in the upper Card Cage are active by observing the oneletter symbol reference in the 16 x 16 node matrix box. One or more of the symbol references may be flashing to indicate errors. For example if the MIM is not connected to the EDACS site via the uplink and downlink GETCs, an "M" will be flashing in the matrix.

If an interface module's Controller Board does not have a symbol reference displayed, reset the respective Controller Board by pressing the reset button on its front panel. At this point, if the "RUN" LED on the Controller Board is not lit solid, momentarily remove the board from the Backplane and verify all DIP switch settings per the DIP Switch Settings diagram in this manual. Now, reinsert the board into the same slot. If necessary, follow the Controller Board live insertion procedure presented in LBI-38938.

11. Verify the number of "Total Nodes:" displayed on the "SYSTEM DISPLAY" screen matches the number of Controller Boards installed in the upper Card Cage. This number should be "5" if the C3 Advantage dispatch system has only one console, "6" for a two-console system and "7" for a three-console system. Controller Boards with an inactive or secondary status and the CCI Controller Board in the CIA rack do not add to the "Total Node" count.

12. The MOM Controller Board's symbol reference should be "O" in its reserved position (FB hex) on the "SYSTEM DISPLAY" screen.

The MOM Controller Board and the *MIM Controller Board* within the primary or upper Card Cage (Card Cage 1) are referred to as "end nodes" since they are the far-most Controller Boards on the ends of the primary Backplane structure. These two (2) Controller Boards have a special DIP switch setting to identify them as "end nodes". If <u>all</u> interface modules' symbol references are flashing, observe SW1 position 2 on the "end" Controller Board – *the MIM Controller Board in Card Cage I slot 2*. It should be set to the "1" or "OPEN" position as shown in the DIP Switch Settings diagram in this manual.

NOTE

If the MIM Controller Board is removed, the Controller Board closest to it (CIM 1) should be set as a temporary end node by setting its SW1 position 2 to the "1" or "OPEN" position. When the MIM is reinstalled, the temporary end node should be turned off by setting SW1 position 2 back to the "0" or "CLOSED" position. A Controller Board must be reset after a DIP switch change.

13. Check the panel-mounted toggle switches on the Clock Board. This board is located in Card Cage 1 slot 21. The "A" clock should be off and the "B" clock should be on.

NOTE -

If the redundant clock feature can be used, it may be enabled at a later time. See the section entitled "**REDUNDANT CLOCK CONFIGURATION**" for details. DO NOT enable the redundant clock feature at this time.

- 14. On each Audio Board, verify the "RUN" LED is flashing, the "RST" LED is off and all other LEDs are on and not flashing.
- 15. Now verify each installed Audio Board is active by viewing its status on the "HDLC STATISTICS", "CHANNEL B" screen at the CEC Manager. This

screen can be accessed using the function keys and the structured window selection method from the "SYSTEM DISPLAY" screen or by using hot-key "H" from this same screen. The cursor should be on (selecting) the desired interface module in the "SYSTEM DISPLAY" matrix before entering the "HDLC STATISTICS", "CHANNEL B" screen.

C3 MAESTRO POWER-UP PROCEDURE

□ Refer to the *C3 Maestro Console System* maintenance manual, LBI-39062 or LBI-39100 (sub-manual LBI-39055 or LBI-39101 respectively), for a recommended C3 Maestro power-up procedure. The appropriate manual is provided with the console equipment package.

C3 ADVANTAGE DATABASE CONFIGURATION

OVERVIEW

LID And GID Databases

As in any EDACS trunked system, two (2) primary EDACS databases <u>must</u> be set-up in the C3 Advantage dispatch system before communications can occur: the unit (individual) database and the group database. Unit and group databases are configured by defining Logical ID (LID) and Group ID (GID) entities respectively.

If the C3 Advantage dispatch system *is not* equipped with a System Manager (optional equipment), LID and GID configuration must be performed at each C3 Maestro console using the Editor program *before* console communication with a particular LID or GID is possible. This program (EDITOR.EXE) is included with the C3 Maestro's application software.

If a System Manager *is* present LID and GID configuration may be performed at the System Manager and then transferred to the C3 Maestro console(s) using the CEC Manager's "upload" options.

Site Database

If the EDACS trunked site is equipped with a Site Controller – for example, an EDACS Level 1 system – and a System Manager (optional equipment), the site database stored in the Site Controller may be reconfigured from the factory default configuration. An EDACS site can be configured for maximum performance using this method.

If the EDACS site is not equipped with a Site Controller – for example, a EDACS Basic system – no site database exists. In this case where the site operates in failsoft mode at all times, minimal call validation and all basic site functions are handled by the station GETCs.

- NOTE -----

At this point in the set-up process, the databases should be configured as needed. Proceed to either the "WITHOUT SYSTEM MANAGER" configuration or the "WITH SYSTEM MANAGER" configuration that follows.

WITHOUT SYSTEM MANAGER

LID And GID Databases

As previously stated, unit (LID) and group (GID) entities in a "System Manager-less" C3 Advantage dispatch system must be set-up at a C3 Maestro console utilizing the Editor program. From the Editor's "Edit Entity Database" option, LID and GID entities can be entered for dispatch operations. Editor program version 3.1x supports 2000 total entities (LIDs and GIDs) and version 4.x supports a total of 4000 entities.

- □ Refer to the EDACS C3 Maestro Console System Editor Program user's manual, LBI-39056. Set-up the required LID and GID entities at each console via the Editor's "Edit Entity Database" screen. Figure 1 shows a typical screen. Note the following:
 - LID and GID numbers are entered in the "___ID_" column (fields). Entered numbers *must* correspond to numbers programmed into the radio units, other consoles, etc.
 - In the "TYPE" column, portable, mobile and desk top station radios are specified by a "U" for units, conventional channels are specified by a "C", Call Director patch telephone lines are specified by a "T" and consoles are specified by an "X". Talk groups (GID entities) are specified by a "G".
 - For units operating on the EDACS trunked site ("TYPE" = "U"), set the home group to "0" and home site as required via the "HGROUP" and "HSITE" columns respectively. The home site number should match the site's "Site ID" number which should also be equal to the MIM's site assignment number.

- For each entity, the "PRVLG" (privilege) must be set to "Y" (Yes) so it may be programmed into a communication module.
- For all entities, set "PVT" (private) to "N" (No).
- If more than one console is employed and common LID and GID entities are used at more than one console, the ENTITY.DAT disk file may be copied from one (source) console to another (destination) console.

NOTE -

In a C3 Advantage dispatch system, each unit entity (LID) may be one of following:

- an EDACS portable radio
- an EDACS mobile radio
- an EDACS desk top station
- a C3 Maestro dispatch console
- a conventional radio channel
- a Call Director patch telephone line

Site Database

In a "System Manager-less" C3 Advantage dispatch system, the EDACS site's default site database is utilized. This database is stored in the Site Controller. It defines various site parameters such as which channel is the initial control channel, which channels are the initial working channels, which channels have control channel capability, channel hang times, etc. If necessary, refer to the *EDACS Site Controller* maintenance manual, LBI-38985, for default values and for additional programming details.

Without a System Manager, a Site Controller's site database default values can only be modified by removing PROMs within the Site Controller and returning them to the factory for reprogramming. Typically, this should not be required since, in a C3 Advantage dispatch system, the EDACS site can operate very effectively with the default site database.

If the EDACS site is not equipped with a Site Controller no site database exists and therefore no site database configuration is necessary.

WITH SYSTEM MANAGER

If a System Manager is used with the C3 Advantage dispatch system, verify the following parameters are set-up

				1 1110	1 0 II	en 110a	C	Zaro
ID	TYPE	HGROUP	HSITE	PRVLG	PVT	NA	ME	
1234	U	0	1	Y	Y	SMITH	 P	
1240	U	0		Y	Y	BROWN	P	
1285	U	0				JONES	Р	
273	G	0	1	Y	Y	N PAT	ROL	
274	G	0	1	Y		S PAT	ROL	
289	G	0		Y		E PAT	ROL	
	С			Y		FIRE		
	Т			Y		LINE		
2	Т			Y		LINE	2	
801	Х			Y		CONS	01	
802	Х			Y		CONS	02	
803	X			Y		SUPR	CON	
	ID 1234 1240 1285 273 274 289 1 1 2 801 802 803	ID_ TYPE 1234 U 1240 U 1285 U 273 G 274 G 289 G 1 C 1 T 2 T 801 X 802 X 803 X	ID TYPE HGROUP 1234 U 0 1240 U 0 1285 U 0 273 G 0 274 G 0 289 G 0 1 C 1 2 T 801 802 X 803	ID TYPE HGROUP HSITE 1234 U 0 1 1240 U 0 1 1285 U 0 1 273 G 0 1 274 G 0 1 289 G 0 1 1 C 1 1 2 T 3 3 801 X 3 3	ID TYPE HGROUP HSITE PRVLG 1234 U 0 1 Y 1240 U 0 1 Y 1240 U 0 1 Y 1285 U 0 1 Y 289 G 0 1 Y 1 C 1 Y 1 T Y Y 2 T Y Y 801 X Y Y 803 X Y Y	ID TYPE HGROUP HSITE PRVLG PVT 1234 U 0 1 Y Y 1240 U 0 1 Y Y 1240 U 0 1 Y Y 1240 U 0 1 Y Y 1285 U 0 1 Y Y 273 G 0 1 Y Y 274 G 0 1 Y Y 289 G 0 1 Y Y 1 C 1 Y Y 2 T Y Y Y 801 X Y Y Y 803 X Y Y Y	IDTYPEHGROUPHSITEPRVLGPVTA1234U01YYSMITH1240U01YYBROWN1285U01YYBROWN289G01YYN289G01YEPAT1C1YFIRE1TYLINE2TYCONS801XYSUPR803XYSUPR	ID TYPE HGROUP HSITE PRVLG PVT

Figure 1 – Editor Program – Edit Entity Database Screen (Typical)

correctly at the System Manager. Refer to the *EDACS* System Manager user guide, LBI-38984, and the *CEC/IMC* Digital Audio Switch Installation, Set-Up and Troubleshooting manual, LBI-38938, for additional details:

- □ Group Call Parameters For each talk group (GID), enable wide area operation and enable automatic tracking operation. This ensures a conventional channel can be patched to the trunked group. Also, disable the talk group's confirmed call option. Using the valid site mask field, make the group valid on the EDACS trunked site (equal to the MIM site assignment number; normally 1) and on the conventional "site" (the VMIM site assignment number; normally 2). The settings in the forced site mask field are optional.
- □ Individual Call Parameters For each unit (LID), disable wide area operation, automatic tracking and the confirmed call options. Make the unit valid on the EDACS trunked site (equal to the MIM site assignment number; normally 1) by enabling the valid site mask for the trunked site. Also, each C3 Maestro console and each EDACS radio should have its home site assignment set to match the site assignment number (Site ID) of the EDACS trunked site. In addition, set the home group assignment for each unit as required.

COMPACT CEC SET-UP

This section summarizes procedures that must be performed to set-up (configure) the Compact CEC after the hardware installation is complete. In many cases, to avoid duplication of information, references are made to information within the *CEC/IMC Digital Audio Switch – Installation, Set-Up and Troubleshooting* manual which is included with this manual set, LBI-38938.

References are also made to other applicable manuals including the CEC Manager (MOM PC) operations guide. Table 2 shows the CEC Manager operations guide publication numbers for various software versions.

SOFTWARE VERSION	V2.1x	V3.0x	V4.0x	V5.x
PUBLICATION NUMBER	LBI-38911	LBI-39024	LBI-39124	(to be determined)

 Table 2 – CEC Manager (MOM PC)

 Operations Guide Publication Numbers

NOTE –

Unless otherwise noted, all set-up procedures in this manual should be performed in the order presented.

DIP SWITCH CONFIGURATION

DIP switches on all boards in the Compact CEC cabinet are factory configured for a standard C3 Advantage installation. Factory settings are shown in the DIP Switch Settings diagram in this manual. Also, the MIM Controller Board's factory settings are detailed in Figure 2.

In most cases, little if any changes from the factory settings will be necessary. However, the following subsections should be reviewed before continuing with the setup process:

Controller Boards

Each Controller Board in the Compact CEC has two 8position DIP switches which are set at the factory in accordance with the DIP Switch Settings diagram. In a typical C3 Advantage installation, *only one* Controller Board in the Compact CEC switch *may* require resetting from the factory setting. This is the MIM Controller Board which is located in slot 2 of the upper or primary Card Cage – Card Cage 1. The MIM interfaces the EDACS trunked site to the Compact CEC.

The MIM Controller Board may need it's "site assignment number" changed from the factory setting of 1 (decimal) to a number which matches the site's "Site ID" number. This is, however, a rare instance for the majority of C3 Advantage installations since most Site Controllers which ship out from the factory are programmed with a Site ID number of 1. Reprogramming of a Site Controller's Site ID number is normally only done at the factory.

If the trunked site is an EDACS Basic system (no Site Controller), the GETCs' Site ID number may be easily reprogrammed to 1, if needed, via PC Programming Software TQ-3357.

– NOTE –

If the site's Site ID number is changed, all radio units operating on the EDACS trunked site must be reprogrammed with a matching Site ID number.

As shown in the DIP Switch Settings diagram and Figures 2 and 3, SW1 position 5 and SW2 positions 4 thru 8 specify the MIM's site assignment number. See LBI-38938 for complete DIP switch setting information.

□ If necessary, change the MIM's site assignment number to match the site's Site ID number by setting the binary equivalent at SW1 and SW2. Figure 3 is an example with the site assignment number set to 13 (decimal). Again, the factory setting – site assignment number = 1 – is shown in Figure 2 and in the DIP Switch Settings diagram. A Controller Board must be reset after a DIP switch change.

NOTE

If the MIM's site assignment number is changed to 2 (decimal), the VMIM site assignment number must also be changed from its factory setting of 2 (decimal). **The MIM and VMIM site assignment numbers** *cannot* **be identical.**



Figure 2 – MIM Controller Board DIP Switch Factory Setting (Site Assignment Number = 1)



Figure 3 – MIM Controller Board DIP Switch Settings Example (Site Assignment Number = 13)

NOTE -

If, during servicing/troubleshooting procedures for example, a Controller Board must be moved to a different Card Cage slot, its DIP switches should be set in accordance with the DIP Switch Settings diagram in this manual for the particular Card Cage slot which it will be installed within. A Controller Board must be reset after a DIP switch change.

Audio Boards

All Audio Boards within the Compact CEC are located in the upper or primary Card Cage – Card Cage 1. Each Audio Board has one 8-position DIP switch which allows configuration of three basic board parameters: board number, EEPOT board power-up setting, and 2175/8700 Hz tone selection.

The board number setting sets which group of four (4) audio channels the board is assigned to and wired for (board 1 = channels 1 - 4; board 2 = channels 5 - 8; etc.).

The EEPOT power-up setting is basically not used since a Controller Board initializes the EEPOTs on its Audio Board(s) in accordance with the MOM's configuration. This occurs at system power-up or if either the Audio or Controller Board is reset. Essentially, these switches are only useful for diagnostic procedures when a Controller Board is not connected to the Audio Board.

The 2175/8700 Hz tone selection must be set to match the tone frequency sent out from the installed Clock Board. With the existing Clock Board (19D903305P1), the 2175 Hz tone should *always* be selected.

At the factory, before installation into the Card Cage, each Audio Board's 8-position DIP switch is set in accordance with the DIP Switch Settings diagram in this manual. Normally, Audio Board DIP switch changes are *never* required during the installation and set-up process of a Compact CEC.

NOTE

If, during servicing/troubleshooting procedures for example, an Audio Board must be moved to a different Card Cage slot, its DIP switch should be set in accordance with the DIP Switch Settings diagram in this manual for the particular Card Cage slot which it will be installed within.

Conventional Interface Boards

CI Boards within the CIA Card Cage – Card Cage 2 – have one 8-position DIP switch which allows configuration of the following board parameters: "site" number, test mode enable/disable, watchdog timer enable/disable, and board number.

At the factory, before installation into the Card Cage, each CI Board DIP switch is set in accordance with the DIP Switch Settings diagram in this manual (Card Cage 2, slots 3 and 5). Normally, CI Board DIP switch changes are *never* required during the installation and set-up process of a Compact CEC.

- NOTE

If, during servicing/troubleshooting procedures for example, a CI Board must be moved to a different Card Cage slot, its DIP switch should be set in accordance with the DIP Switch Settings diagram in this manual for the particular Card Cage slot which it will be installed within.

Uplink GETC

Within the GETC, there are three 8-position DIP switches. These switches are located on the lower left-hand side of the GETC's Logic Board. Together with the GETC's personality programming, they allow the GETC to be configured for various applications such an uplink, a downlink, or a station GETC. The GETC in the Compact CEC is *always* configured for uplink operation by setting the DIP switches as shown in Figure 4. Unlike most other GETC applications, a GETC configured for uplink operation does not require any personality programming.

❑ As shown in Figure 4, all DIP switches on an uplink GETC except S1 position 8 should be in the "CLOSED" or "ON" position. S1 position 8 should be in the "OPEN" or "OFF" position. This is the factory setting. Verify the GETC's switches are setting accordingly. If any DIP switch changes are made, reset the GETC by pressing the reset button on the Logic Board.

Uplink GETC DIP switch changes from the above described should never be required unless, for example, during servicing procedures, a non-uplink configured GETC is substituted in place of the existing uplink GETC. In this case, the substitute GETC's DIP switches must be configured for uplink operation as described in the previous paragraph before proper uplink operation will occur. In addition, the substitute GETC's jumpers and cables must also be configured for uplink operation. See EDACS Site Downlink & CEC/IMC Uplink GETC Configuration

Manual, LBI-38896, for additional details. After any GETC DIP switch change, the GETC should be reset by pressing the reset button on its Logic Board.



Figure 4 – Uplink GETC DIP Switch Settings

INITIAL MOM CONFIGURATION

The very first Compact CEC configuration from the CEC Manager involves setting up CEC Manager users and several high-level MOM parameters as described in LBI-38938. Set-up the following parameters in accordance with LBI-38938:

- □ <u>CEC Manager Users</u> Enter user names and an access level and a password for each user. Afterwards, delete the default user name and password "MOMUSER" and "GUEST" respectively.
- □ <u>MOM Parameters</u> Set baud rates, disable data logging, enable or disable printer status, disable redundant clocks, and disable unit logout timers. If required, data logging and redundant clocks may be enabled at a later time; however, these items should be disabled for the time being.
- □ System Time And Date Enter the date and time at the CEC Manager. If the Spectracom NETCLOCK/2TM equipment (optional) is included, *do not* perform the NETCLOCK/2 set-up at this time.

SYSTEM MANAGER UPLOAD (If Present)

□ Transfer or "upload" unit, group and site data from the System Manager to the Compact CEC in accordance with LBI-38938 and LBI-38911/ LBI-39024/LBI-39124/etc.

TDM BUS AND SLOT CONFIGURATION

From the CEC Manager, set-up TDM bus and slot parameters as follows. See LBI-38938 for additional details:

□ <u>TDM Bus Configuration</u> – Configure the Compact CEC for 8-bus Audio Boards.

□ **TDM Slot Configuration** – See Table 3 for recommended TDM bus time slot allocations. Typically, a console only requires one (1) slot; however, allocating four (4) slots for each console as shown in the table will ensure all CIM audio channels are available when/if Call Director patch equipment is interfaced to the respective console.

CEC MANAGER DESIGNATION	COMPACT CEC INTERFACE MODULE	SLOTS TO ALLOCATE
"Console 1"	CIM 1	4
"Console 2"	CIM 2	4
"Console 3"	CIM 3	4
"Site 1"(the EDACS site)	MIM 1	12
"Site 2" (the conventional interface)	VMIM 1	8

Table 3 – Recommended TDM Bus Time Slot Configuration For Compact CEC

RADIO SYSTEM "SITE" CONFIGURATION

From the CEC Manager, set-up channel parameters for the Compact CEC's "site"-type interfaces – the MIM for "Site 1" and the VMIM for "Site 2". Refer to LBI-38938:

- □ Input And Output Line Levels Adjust input and output line levels for all used MIM and VMIM channels. Note the CI Board used in the CIA rack has unity gain channels; therefore, a VMIM's input and output line levels should be set in accordance with the line levels in to and out of the respective CI Board's channels.
- □ <u>Channel Control Signalling</u> Set all MIM channels' control signalling as required – "M", "Tone", "Both" or "Off". Set all VMIM channels "Off".
- Confirmed Call Disable confirmed call operation on both the MIM "site" and the VMIM "site".

NOTE —

Within this manual, the Compact CEC's MIM is designated as being interfaced with "Site 1" (Site ID = 1) and the VMIM is designated as being interfaced with "Site 2". This is not the case if the respective Controller Board's site assignment number DIP switch setting has been changed from the factory setting. See the prior section entitled "DIP SWITCH CONFIGURATION" for additional details.

CONSOLE CONFIGURATION

From the CEC Manager, set-up the following parameters for the C3 Maestro console(s):

- □ CIM Channels Configure channel 1 of each CIM by setting its input level as required and disable the channel's ALC. Typically, a -5 dBm to 0 dBm input level setting should be sufficient for the 100-foot (30.5 meters) console-to-Compact CEC cables supplied with the C3 Advantage package. If a particular console is equipped with Call Director patch equipment also set channel four's (4) input level as required and disable this channel's ALC. All CIM output levels are determined by the console's volume bars; they cannot be changed via the CEC Manager. See LBI-38938 for additional details.
- Console Hardware Configuration Configure console hardware related parameters such as the number of speakers, the number of Audio PA Boards and the Call Director ID number. See LBI-38938 and/or LBI-39055/LBI-39101 for additional details.

- NOTE -----

The console(s) must be on-line with the Compact CEC before continuing with the following console user profile, privilege lists and communication module build procedures.

- □ <u>Console User Profiles</u> Configure, save and send console user profiles as described in LBI-38938.
- □ Console Privilege Lists If the System Manager is employed, configure, save and send console privilege lists as described in LBI-38938. *Do not* perform this operation if the C3 Advantage dispatch system is "System Manager-less".

Set-Up At The Consoles – At each C3 Maestro console, build communication modules by adding a unit or group to each module as required. See the C3 Maestro operator's manual, LBI-38660 (section ECR-4489) for specific details.

– NOTE —

At this point in the set-up process, dispatch communications with radio units logged onto the EDACS site is possible.

CONVENTIONAL CHANNEL CONFIGURATION

The Compact CEC may be equipped with up to eight (8) channels for interfacing to conventional base station equipment. Each utilized channel should now be configured as outlined in LBI-38938 and as described in the CEC Manager operations guide. (See Table 2 in this manual for CEC Manager operations guide publication numbers.):

- VMIM Channel Configuration Verify the VMIM's channel parameters have been configured properly.
- Conventional Channel Programming Program CI Board low and high-level channel parameters as required.
- □ VOX Threshold And Secur-ItTM/Function/2175 Hz Hold Tone Levels – Program CI Board VOX and tone control tone signalling levels as required.
- System Manager Database Upload If a System Manager is employed, perform a CEC Managerbased (MOM PC-based) System Manager database upload.
- □ <u>Console Updating</u> Now, "build" or "modify" each console's communication module(s) by adding conventional channel(s) as required.

- NOTE -

At this point in the set-up process, dispatch communications with the conventional channel(s) is possible. This assumes the applicable conventional base station(s) are operating, configured, linked to the Compact CEC and conventional channel(s) have been programmed into communications modules at the console(s). Also, conventional channel patch should also be operational.

LOGGING RECORDER CONFIGURATION

□ The Compact CEC is equipped with one 8-channel LRIM. Configure the eight (8) logging recorder channels by defining "modules" as described in LBI-38938 and in the CEC Manager operations guide listed in Table 2. If the C3 Advantage dispatch system is not equipped with a System Manager, LID and GID numbers must be entered with the "#" prefix. See the CEC Manager's operations guide for details.

— NOTE —

At this point in the set-up process, logging recorder audio is available at the LRIM's line outputs.

AUXILIARY I/O CONFIGURATION

❑ Any of the installed Controller Boards in the Compact CEC's upper Card Cage may be used for auxiliary I/O control. If any auxiliary I/O functions are needed, refer to LBI-38938 for wiring and setup information. Installation details for auxiliary I/O option MSDE3U are included in LBI-38938. Also see the CEC Manager operations guide. (See Table 2 in this manual for CEC Manager operations guide publication numbers.)

- NOTE -

At this point in the set-up process, the auxiliary I/O lines will operate as wired and configured.

WWVB TIME STANDARD CONFIGURATION

If the Spectramcom NETCLOCK/2TM equipment (optional) is included with the C3 Advantage package, time display at the C3 Maestro console(s) and error/warning logging time stamps at the CEC Manager may be synchronized to WWVB's time broadcasts. WWVB is located in Fort Collins, Colorado. The NETCLOCK/2TM option is interfaced to the Compact CEC via the CEC Manager.

□ If the Spectramcom NETCLOCK/2TM option is included, it should now be installed and configured. Refer to LBI-38938 and the CEC Manager operations guide. (See Table 2 in this manual for CEC Manager operations guide publication numbers.)

NOTE -

At this point in the set-up process, if the NETCLOCK/ 2^{TM} option is enabled, time display at the console(s) and error/warning logging time stamps at the CEC Manager will be synchronized to WWVB.

REDUNDANT CLOCK CONFIGURATION

The Compact CEC is factory-equipped with one (1) Clock Board which has redundant (back-up) clock circuits. These circuits provide clock pulse timing signals for the Audio Boards' TDM bus circuits across the upper Card Cage (Card Cage 1). The lower Card Cage (the CIA rack – Card Cage 2) does not require and is not equipped with any Clock Boards. □ If back-up clocking is desired, this option must be activated by enabling it from the CEC Manager's "MOM Configuration" screen.

- NOTE —

When only one Clock Board is installed in the Compact CEC, both toggle switches – "A" and "B" on the front of the board – must be turned on before redundant clock operation is possible.



Figure 5 – Card Cage 1, Slots 1 - 5 (MIM)





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Figure 7 – Card Cage 1, Slots 12 - 14 (LRIM)



Figure 8 – Card Cage 1, Slots 15 - 17 (VMIM) And Card Cage 2 (CIA Rack), Slots 2, 3 and 5 (CCI and CI Boards)



Figure 9 - Card Cage 1, Slots 18 - 21 (MOM)

DIP SWITCH SETTINGS

LBI-39117



	CA	ARD CAGE 1				(CARD CAGE 2	
SLOT	BOARD TYPE	SVI	SM5		SLOT	BOARD TYPE	SMI	SM5
		12345678	12345678]			12345678	12345678
1				1	1			
2	NCONTROL	11000000	00000001]	5	NCONTROL	10000000	11000001
3	NAUDIO	01000001]	3	NAUDIO	01010001	
4	XAUDIO	01000010]	4			
5	XAUDIO	01000011]	5	XAUDIO	01010010	
6	NCONTROL	10000000	00100001]	6			
7	NAUDIO	01000001]	7			
8	XCONTROL	10000000	00100010]	8			
9	XAUDIO	01000001]	9			
10	XCONTROL	10000000	00100011]	10			
11	XAUDIO	01000001			11			
12	NCONTROL	10000000	10000001]	12			
13	NAUDIO	01000001]	13			
14	NAUDIO	01000010]	14			
15	NCONTROL	10000000	10100010]	15			
16	NAUDIO	01000001]	16			
17	XAUDIO	01000010]	17			
18]	18			
19	NCONTROL	11100000	01000000]	19			
20	NAUDIO	01000001			20			
21	CLOCK				21			

X - PRECEDING BOARD TYPE DENOTES PREVIRED EXPANSION CARD

N - PRECEDING BOARD TYPE DENOTES 'C3' ADVANTAGE BASE CONFIGURATION INSTALLED

1 = OPEN O = CLOSED

> COMPACT CEC CONTROLLER BOARD AND AUDIO BOARD DIP SWITCH SETTINGS

> > (188D6170, Sh. 2, Rev. 1)

PINS			J07			J08		J09	J10
	26	SYS 01	AUDIO IN	LO LN 01	SYS 01	AUDIO OUT LO LN 01	SYS 01	AUDIO IN LO LN 01	SIMPLX/DUPLEX OUT L1
01		SYS 01	AUDIO IN	HI LN 01	SYS 01	AUDIO OUT HI LN 01	SYS 01	AUDIO IN HI LN 01	SIMPLX/DUPLEX OUT H1
	27	SYS 01	AUDIO IN	LO LN 02	SYS 01	AUDIO OUT LO LN 02	SYS 01	AUDIO OUT LO LN 01	DUPLEX IN L1
02		SYS 01	AUDIO IN	HI LN 02	SYS 01	AUDIO OUT HI LN 02	SYS 01	AUDIO OUT HI LN 01	DUPLEX IN H1
	28	SYS 01	AUDIO IN	LO LN 03	SYS 01	AUDIO OUT LO LN 03	SYS 01	AUDIO IN LO LN 02	SIMPLX/DUPLEX OUT L2
03		SYS 01	AUDIO IN	LO LN 03	SYS 01	AUDIO OUT HI LN 03	SYS 01	AUDIO IN HI LN 02	SIMPLX/DUPLEX OUT H2
	29	SYS 01	AUDIO IN	HI LN 04	SYS 01	AUDIO OUT LO LN 04	SYS 01	AUDIO OUT LO LN 02	DUPLEX IN L2
04		SYS 01	AUDIO IN	LO LN 04	SYS 01	AUDIO OUT HI LN 04	SYS 01	AUDIO OUT HI LN 02	DUPLEX IN H2
	30	SYS 01	AUDIO IN	HI LN 05	SYS 01	AUDIO OUT LO LN 05	SYS 01	AUDIO IN LO LN 03	SIMPLX/DUPLEX OUT L3
05		SYS 01	AUDIO IN	LO LN 05	SYS 01	AUDIO OUT HI LN 05	SYS 01	AUDIO IN HI LN 03	SIMPLX/DUPLEX OUT H3
	31	SYS 01	AUDIO IN	HI LN 06	SYS 01	AUDIO OUT LO LN 06	SYS 01	AUDIO OUT LO LN 03	DUPLEX IN L3
06		SYS 01	AUDIO IN	LO LN 06	SYS 01	AUDIO OUT HI LN 06	SYS 01	AUDIO OUT HI LN 03	DUPLEX IN H3
	32	SYS 01	AUDIO IN	HI LN 07	SYS 01	AUDIO OUT LO LN 07	SYS 01	AUDIO IN LO LN 04	SIMPLX/DUPLEX OUT L4
07		SYS 01	AUDTO TN	LO LN 07	SYS 01	AUDIO OUT HI LN 07	SYS 01	AUDTO IN HI LN 04	SIMPLX/DUPLEX OUT H4
	33	SYS 01	AUDTO IN	HT LN 08	SYS 01	AUDTO OUT LO LN 08	SYS 01	AUDIO OUT LO LN 04	DUPLEX IN L4
0.8		SYS 01	AUDTO IN	LO LN 08	SYS 01	AUDIO OUT HI LN 08	SYS 01	AUDIO OUT HI LN 04	DIPLEX IN H4
00	34	SYS 01	AUDIO IN	HT LN 09	SYS 01	AUDIO OUT LO LN 09	SYS 01	AUDIO IN LO LN 05	STMPLY/DUPLEY OUT 15
0.9	51	SVS 01	AUDIO IN	LO LN 09	SYS 01	AUDIO OUT HI LN 09	SYS 01	AUDIO IN HI LN 05	SIMPLY/DUPLEX OUT H5
05	35	SVS 01	AUDIO IN	UT IN 10	SYS 01	AUDIO OUT LO LN 10	SYS 01	AUDIO OUT LO LN 05	DIDLEY IN L5
1.0	55	STS 01	AUDIO IN	TO IN 10	SIS 01	AUDIO OUT HI LN 10	STS 01	AUDIO OUT HI IN 05	DUDLEY IN US
10	36	STS 01	AUDIO IN	UT IN 11	SIS 01	AUDIO OUT LO LN 11	SYS 01	AUDIO IN LO IN 06	SIMPLY/DIDLEY OUT L6
11	50	STS 01	AUDIO IN	TO IN 11	SIS 01	AUDIO OUT HI IN 11	STS 01	AUDIO IN HI IN OG	SIMPLY/DUDIEX OUT HG
11	27	SIS 01	AUDIO IN	UT IN 12	SIS 01	AUDIO OUT HI LN II	SIS 01	AUDIO IN HI LN 06	DIDLEY IN LC
10	57	SIS UI	AUDIO IN	HI LN 12	SIS UI	AUDIO OUT LO LN 12	SIS UL	AUDIO OUT LO LN 06	DUPLEX IN LO
12	20	515 01	AUDIO IN	TO TH IS	515 01	AUDIO OUI HI LN 12	SIS 01	AUDIO UUI HI LN 08	DUPLEA IN HO
1.2	38						SYS UI	AUDIO IN LO LN 07	SIMPLX/DUPLEX OUT L7
13	2.0						SYS UI	AUDIO IN HI LN 07	SIMPLX/DUPLEX OUT H/
1.4	39						SYS 01	AUDIO OUT LO LN U7	DUPLEX IN L7
14	4.0						SYS OI	AUDIO OUT HI LN U/	DUPLEX IN H/
1.5	40						SYS 01	AUDIO IN LO LN US	SIMPLX/DUPLEX OUT L8
15							SYS 01	AUDIO IN HI LN 08	SIMPLX/DUPLEX OUT H8
	41						SYS OI	AUDIO OUT LO LN 08	DUPLEX IN L8
16							SYS 01	AUDIO OUT HI LN 08	DUPLEX IN H8
	42						SYS 01	AUDIO IN LO LN 09	
17							SYS 01	AUDIO IN HI LN 09	
	43						SYS 01	AUDIO OUT LO LN 09	
18							SYS 01	AUDIO OUT HI LN 09	
	44						SYS 01	AUDIO IN LO LN 10	
19							SYS 01	AUDIO IN HI LN 10	
	45						SYS 01	AUDIO OUT LO LN 10	
20							SYS 01	AUDIO OUT HI LN 10	
	46						SYS 01	AUDIO IN LO LN 11	
21							SYS 01	AUDIO IN HI LN 11	
	47						SYS 01	AUDIO OUT LO LN 11	
22							SYS 01	AUDIO OUT HI LN 11	
	48						SYS 01	AUDIO IN LO LN 12	
23							SYS 01	AUDIO IN HI LN 12	
	49						SYS 01	AUDIO OUT LO LN 12	
24							SYS 01	AUDIO OUT HI LN 12	
	50								
25									

Cabinet 01 A01 Concentrator Card AUDIO Connections (To/From External Connections)

AUDIO CONCENTRATOR CARD A1

EDACS Site Audio (J9) And

Conventional 2/4-Wire Audio/Control Signals (J10) (350A1261, Sh. 12 & 13, Rev. 1)

DING		т11		т1 0	T1 2
01	26	011	CRT 01	TX- DATA 422 TX+ DATA 422	013
02	27		CRT 01	RX- DATA 422 RX+ DATA 422	
03	28		CRT 02	TX- DATA 422 TX+ DATA 422	
04	29		CRT 02 CRT 02	RX- DATA 422 RX+ DATA 422	
05	30		CRT 03 CRT 03	TX- DATA 422 TX+ DATA 422	
06	31		CRT 03 CRT 03	RX- DATA 422 RX+ DATA 422	
07	32				
08	33		04		
09	34		SYS 01 SYS 01	UPLNKO MODEM TX - UPLNKO MODEM TX -	-
10	35		SYS 01	UPLNKU MODEM RX - UPLNKU MODEM RX - UDLNKI MODEM TX -	-
11	37		SYS 01 SYS 01	UPLNK1 MODEM TX + UPLNK1 MODEM TX +	-
12	38		SYS 01	UPLNK1 MODEM RX +	-
13	39				
14	40				
15	41				
16	42				
10	43				
19	44				
20	45				
21	46				
22	47				
23	48				
24	49				
25	50				

Cabinet 01 A02 Concentrator Card CONTROL Connections (To/From External Connections)

DATA CONCENTRATOR CARD A2 Console Control Data And EDACS Site Uplink/Downlink Control Data (J12) (J11 & J13 Not Used) (350A1261, Sh. 16 & 17, Rev. 1)

PINS		 J08			J09				J1	0		
	26		CRT 0	1 /	AUDIO IN	LO LN 01						
01			CRT 0	1 /	AUDIO IN	HI LN 01						
	27		CRT 0	1 1	AUDIO OUT	LO LN 01	RIF	01	AUDIO	OUT	LO L	N 01
02			CRT 0	1 1	AUDIO OUT	HI LN 01	RIF	01	AUDIO	OUT	HI L	N 01
	28		CRT 0	1 1	AUDIO IN	LO LN 02						
03			CRT 0	1 1	AUDIO IN	HI LN 02						
	29		CRT 0	1 1	AUDIO OUT	LO LN 02	RIF	01	AUDIO	OUT	LOL	N 02
04	2.0		CRT 0.	1 4	AUDIO OUT	HI LN 02	RIF	01	AUDIO	OUT	HI L	N 02
0.5	30		CRT U.	1 4	AUDIO IN	LO LN 03						
05	31		CRT 0.	1 7	AUDIO IN	HI LN U3	DTF	01		OUTT	τοτ	N 03
06	51		CRT 0	1 1	AUDIO OUT	HT LN 03	RIF	01	AUDIO	OUT	нт т	N 03
00	32		CRT 0	1 2	AUDIO IN	LO LN 04	ICT1	01	HODIO	001		
07	52		CRT 0	1 2	AUDIO IN	HT LN 04						
•	33		CRT 0	1 2	AUDIO OUT	LO LN 04	RIF	01	AUDIO	OUT	LO L	N 04
08			CRT 0	1 2	AUDIO OUT	HI LN 04	RIF	01	AUDIO	OUT	HIL	N 04
	34		CRT 0	2 1	AUDIO IN	LO LN 01						
09			CRT 0	2 2	AUDIO IN	HI LN 01						
	35		CRT 01	2 1	AUDIO OUT	LO LN 01	RIF	01	AUDIO	OUT	LO L	N 05
10			CRT 01	2 1	AUDIO OUT	HI LN 01	RIF	01	AUDIO	OUT	HI L	N 05
	36		CRT 01	2 1	AUDIO IN	LO LN 02						
11			CRT 01	2 1	AUDIO IN	HI LN 02						
	37		CRT 01	2 1	AUDIO OUT	LO LN 02	RIF	01	AUDIO	OUT	LO L	N 06
12	2.0		CRT 01	2 4	AUDIO OUT	HI LN 02	RIF	01	AUDIO	OUT	HI L	N 06
1.0	38		CRT 01	2 4	AUDIO IN	LO LN 03						
13	20		CRT U.	2 4	AUDIO IN	HI LN U3	DTE	0.1	AUDTO	OTTE	тот	N 07
1.4	39		CRI U.	2 1	AUDIO OUT	LO LN 03	RIF	01	AUDIO	OUT	LO L	N 07
14	40		CRT 0	2 1	AUDIO UUI	LO LN 04	RIF	01	AUDIO	001	пты	IN 07
15	10		CRT 0	2 7	AUDIO IN	HT LN 04						
	41		CRT 0	2 2	AUDIO OUT	LO LN 04	RIF	01	AUDIO	OUT	LO L	N 08
16			CRT 0	2 1	AUDIO OUT	HI LN 04	RIF	01	AUDIO	OUT	HI L	N 08
	42		CRT 0	3 2	AUDIO IN	LO LN 01						
17			CRT 0	3 2	AUDIO IN	HI LN 01						
	43		CRT 0	3 1	AUDIO OUT	LO LN 01						
18			CRT 0	3 1	AUDIO OUT	HI LN 01						
	44		CRT 0	3 1	AUDIO IN	LO LN 02						
19			CRT 0	3 1	AUDIO IN	HI LN 02						
~~	45		CRT 0.	3 4	AUDIO OUT	LO LN 02						
20	10		CRT U.	3 4	AUDIO OUT	HI LN UZ						
21	46		CRT U.	5 4	AUDIO IN	LO LN 03						
21	47		CRI U.	2 1	AUDIO IN	HI LN US						
22	4/		CRI 0.	2 1	AUDIO OUT	LO LN 03						
22	48		CRT 0	3 1	AUDIO IN	LO LN 04						
23	10		CRT 0	3 1	AUDIO IN	HI LN 04						
	49		CRT 0	3 1	AUDIO OUT	LO LN 04						
24			CRT 0	3 1	AUDIO OUT	HI LN 04						
	50											
25												

Cabinet 01 A03 Concentrator Card AUDIO Connections (To/From External Connections)

AUDIO CONCENTRATOR CARD A3

Console Audio (J9) And

Logging Recorder Audio (J10) (350A1261, Sh. 14 & 15, Rev. 1)

PUNCH BLOCK PIN-OUTS

LBI-39117



DO NOT install bridging clips.

PUNCH BLOCK PB1

EDACS Site Audio (COLUMN AB) And

Conventional 2/4-Wire Audio/Control Signals (COLUMN CD)

(188D6170, Sh. 5, Rev. 1)

PUNCH BLOCK PIN-OUTS



PUNCH BLOCK PB2

Console Control Data And EDACS Site Uplink/Downlink Control Data (COLUMN AB) (COLUMN CD Not Used) (188D6170, Sh. 5, Rev. 1)

PUNCH BLOCK PIN-OUTS

LBI-39117



(188D6170, Sh. 5, Rev. 1)

Ericsson Inc. Private Radio Systems Mountain View Road Lynchburg, Virginia 24502 1-800-528-7711 (Outside USA, 804-528-7711)