MOTION CONTROL ENGINEERING, INC.
11380 WHITE ROCK ROAD
RANCHO CORDOVA, CA 95742
TELEPHONE (916) 463-9200 FAX (916) 463-9201

M3 GROUP SUPERVISOR MANUAL

(RELEASE 4)

July 2005

This manual pertains to
M3 Group Supervisor Controllers
with Release 4 software

Part # 42-02-G004 Rev. A.7 July 2005

TABLE OF CONTENTS

SECTION 2
INSTALLATION

SECTION 3
START UP

SECTION 4
ENHANCED ON-BOARD DIAGNOSTICS (EOD)

SECTION 5
PARAMETER ADJUSTMENTS

SECTION 6
TROUBLESHOOTING

APPENDIX

REFERENCE SECTION

Tables

Figures

TABLES

FIGURES

This page intentionally blank

IMPORTANT PRECAUTIONS & NOTES

We strongly recommend that you read this manual carefully before proceeding with installation. Throughout this manual you will see icons followed by a WARNING, CAUTION or NOTE. These icons denote the following:

WARNING: Operating procedures and practices which, if not done correctly, may result in personal injury or substantial damage to equipment.

CAUTION: Operating procedures and practices which, if not observed, may result in some damage to equipment.

NOTE: Procedures, practices or information which are intended to be immediately helpful and informative.

The following general rules and safety precautions must be observed for safe and reliable operation of your system.

If you need to change a program chip on a computer board make sure you read the instructions and know exactly how to install the new chip. Plugging these devices in backwards may damage the chip.

Elevator control products must be installed by experienced field personnel. This manual does not address code requirements. The field personnel must know all the rules and regulations pertaining to the safe installation and operation of elevators.

This equipment is an O.E.M. product designed and built to comply with ASME A17.1, National Electrical Code, CAN/CSA-B44.1/ASME-A17.5 and must be installed by a qualified contractor. It is the responsibility of the contractor to make sure that the final installation complies with all local codes and is installed in a safe manner.

Proper grounding is vitally important to the safe and successful operation of your system. Bring your ground wire to the system subplate. You must choose the proper conductor size and minimize the resistance to ground by using the shortest possible routing. See National Electrical Code Article 250-95, or the applicable local electrical code.

You must **not** connect the output triacs **directly** to a hot bus (2F or 2H bus). This can damage the triacs.

The HC-CI/O, HC-IOX and HC-I4O boards are equipped with quick disconnect terminals. During the initial installation, you may want to remove the terminal connector, hook up the field wires, test for no shorts to ground (1 bus) and to 2, 3 and 4 terminals before plugging these terminals back into the PC boards.

ENVIRONMENTAL CONSIDERATIONS: Keep the machine room clean. Controllers are generally in NEMA 1 enclosures. Do not install the controller in a dusty area. Do not install the controller in a carpeted area. Keep room temperature between 32° F to 104° F (O° to 40°C). Avoid condensation on the equipment. Do not install the controller in a hazardous location or where excessive amounts of vapors or chemical fumes may be present. Make sure power line fluctuations are within ± 10%.

CONTROLLER OR GROUP ENCLOSURES WITH AIR CONDITIONING

If your controller or group enclosure is equipped with an air conditioning unit, observe the following precautions (failure to do so can result in water condensation inside the enclosure):

- Ensure the integrity of the NEMA 12 or 4 enclosure is maintained by using sealed knockouts and by sealing any holes created during installation.
- Do not run the air conditioner unit when the doors are open.
- To avoid damaging the compressor, if the air conditioner is turned off while it is running, wait at least five minutes before turning power on again.
- Observe the manufacture's recommended maintenance and optimum thermostat setting of 75° F (see Operator's Manual).
- Ensure the air conditioner unit's drain hose remains open.

LIMITED WARRANTY

Motion Control Engineering (manufacturer) warrants its products for a period of 15 months from the date of shipment from its factory, to be free from defects in workmanship and materials. Any defect appearing more than 15 months from the date of shipment from the factory shall be deemed to be due to ordinary wear and tear. Manufacturer, however, assumes no risk or liability for results of the use of the products purchased from it, including, but without limiting the generality of the foregoing: (1) The use in combination with any electrical or electronic components, circuits, systems, assemblies or any other material or equipment (2) Unsuitability of this product for use in any circuit, assembly or environment. Purchaser's rights under this warranty shall consist solely of requiring manufacturer to repair, or in manufacturer's sole discretion, replace free of charge, F.O.B. factory, any defective items received at said factory within the said 15 months and determined by manufacturer to be defective. The giving of or failure to give any advice or recommendation by manufacturer shall not constitute any warranty by or impose any liability upon manufacturer. This warranty constitutes the sole and exclusive remedy of the purchaser and the exclusive liability of the manufacturer, AND IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY AS TO MERCHANTABILITY, FITNESS, FOR PURPOSE SOLD, DESCRIPTION, QUALITY PRODUCTIVENESS OR ANY OTHER MATTER. In no event shall manufacturer be liable for special or consequential damages or for delay in performance of this warranty.

Products that are not manufactured by MCE (such as drives, CRTs, modems, printers, etc.) are not covered under the above warranty terms. MCE, however, extends the same warranty terms that the original manufacturer of such equipment provides with their product (refer to the warranty terms for such products in their respective manual).

SECTION 1
GENERAL DESCRIPTION

1.0 GENERAL INFORMATION

MCE's M3 Group Supervisor is one of the industry's most advanced multi-car dispatching systems. A powerful 32-bit RISC processor is used to perform real-time evaluation and analysis of building traffic. Multiple parking configurations and lobbies, user-defined hall call priorities, integral monitoring, and real-time-activated dispatching configurations are supported. The M3 Group Supervisor gets its name from the M3 Dispatching Algorithm which works to reduce elevator service time by:

- minimizing average waiting time,
- minimizing late calls (calls serviced after a user programmable time), and
- minimizing maximum waiting time.

The M3 Group Supervisor is designed to exhibit the characteristics listed below in a multi-elevator installation. Great flexibility is provided in tailoring and customizing the M3 Group Supervisor for each particular building. Although installing and adjusting the M3 Group Supervisor is relatively simple, it is extremely important that field personnel who work with this equipment familiarize themselves with this manual before attempting to install the equipment.

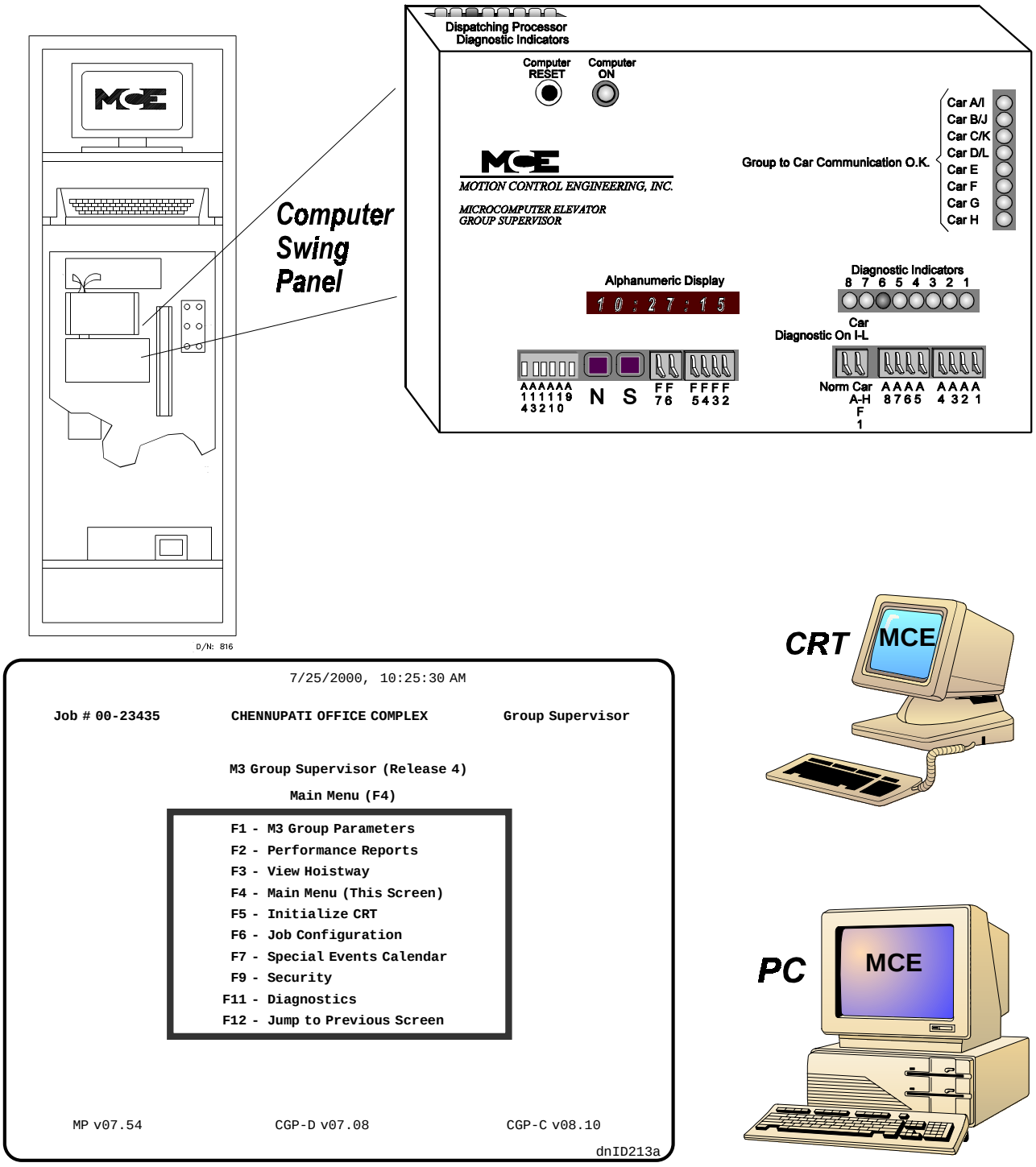
PRINCIPAL CHARACTERISTICS	
Maximum cars in group	12 cars
Maximum stops	64
Maximum lobbies for Lobby Up Peak	2
Maximum lobbies for Parking	4 (with different parking priorities)
Environment	32 to 104°F (0-40°C) ambient 12,000 ft. altitude 95% relative humidity (non condensing)

The diagnostic and adjustment tools available for the M3 Group Supervisor (see Figure 1.1) include the Computer Swing Panel Enhanced On-Board Diagnostics and one or more of the following:

- CRT Terminal
- PC running terminal emulation software
- PC running MCE's Central Monitoring System (CMS for Windows) software.

Dispatching parameters are programmed using a CRT terminal or PC connected to the Group Supervisor directly or through a modem. The M3 Group System can also be monitored from a remote location using MCE's Central Monitoring System (CMS for Windows) software. The CMS software provides a complete user interface to the M3 Group System.

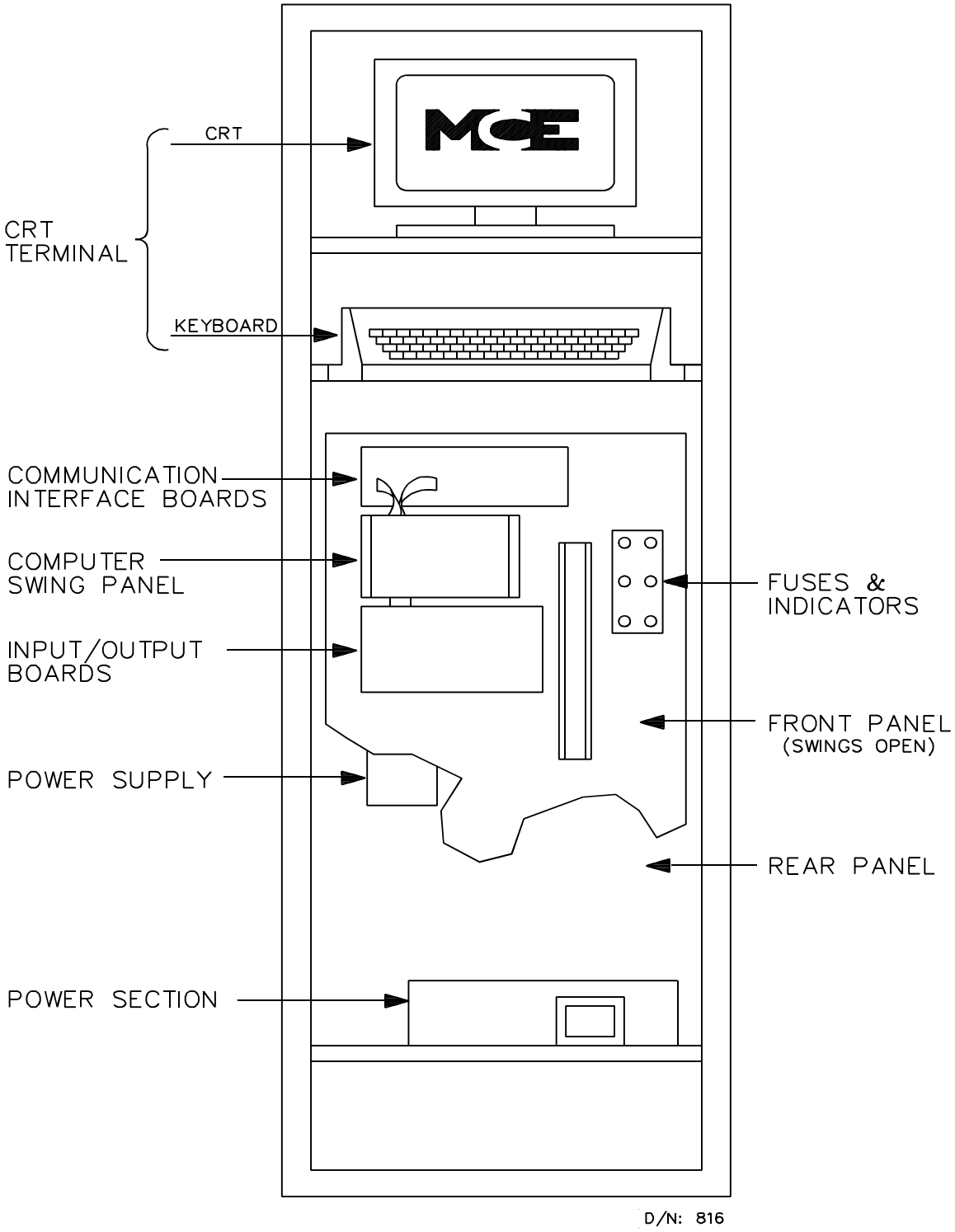
FIGURE 1.1 M3 Group Supervisor Diagnostic and Adjustment Tools



1.1 M3 GROUP SUPERVISOR PHYSICAL LAYOUT

Figure 1.2 shows a typical layout of the M3 Group Supervisor in a standard cabinet (Style A). Figure 1.4 shows a typical layout in the alternate cabinet (Style B).

FIGURE 1.2 Typical M3 Group Supervisor Cabinet Layout (Style A)



Group Supervisor component parts (see Figure 1.2) include:

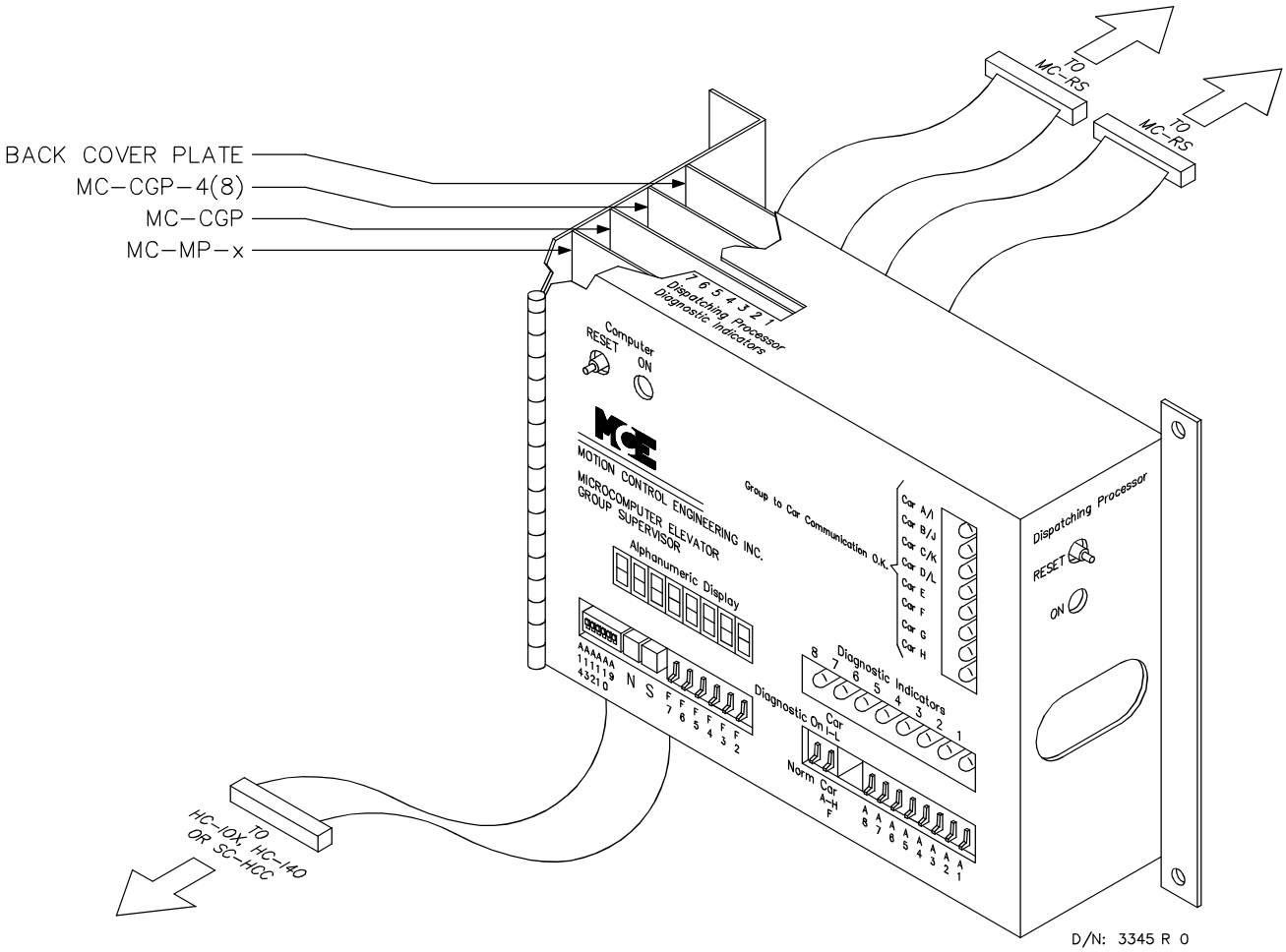
CRT TERMINAL - An industry standard CRT terminal and keyboard. The keyboard is housed in a sliding tray under the CRT terminal. The CRT terminal provides a programming and diagnostics interface through easy-to-use, menu-driven software. It allows the user to choose and adjust special dispatching parameters and provides access to system performance and fault history reports.

COMMUNICATION INTERFACE - One or two MC-RS Communication Interface boards provide the serial communication interface to the local Car Controllers and computer peripherals such as the CRT terminal, PC, and printer.

COMPUTER SWING PANEL - Houses the Group Supervisor computers, comprised of the following boards (see Figure 1.3):

- MC-MP-x, Main Processor board (a.k.a.: MP board)
- MC-CGP, Dispatching Processor board (a.k.a.: DP or CGP-D board)
- MC-CGP-4(8), Communication Processor board (a.k.a.: CP or CGP-C board)
  Note: MC-CGP-4 connects to one MC-RS board with four COM ports; MC-CGP-8 connects to two MC-RS boards with four COM ports each.

FIGURE 1.3 Computer Swing Panel



INPUT/OUTPUT BOARDS - Consists of various Input/Output boards depending on the installation. Most installations use:

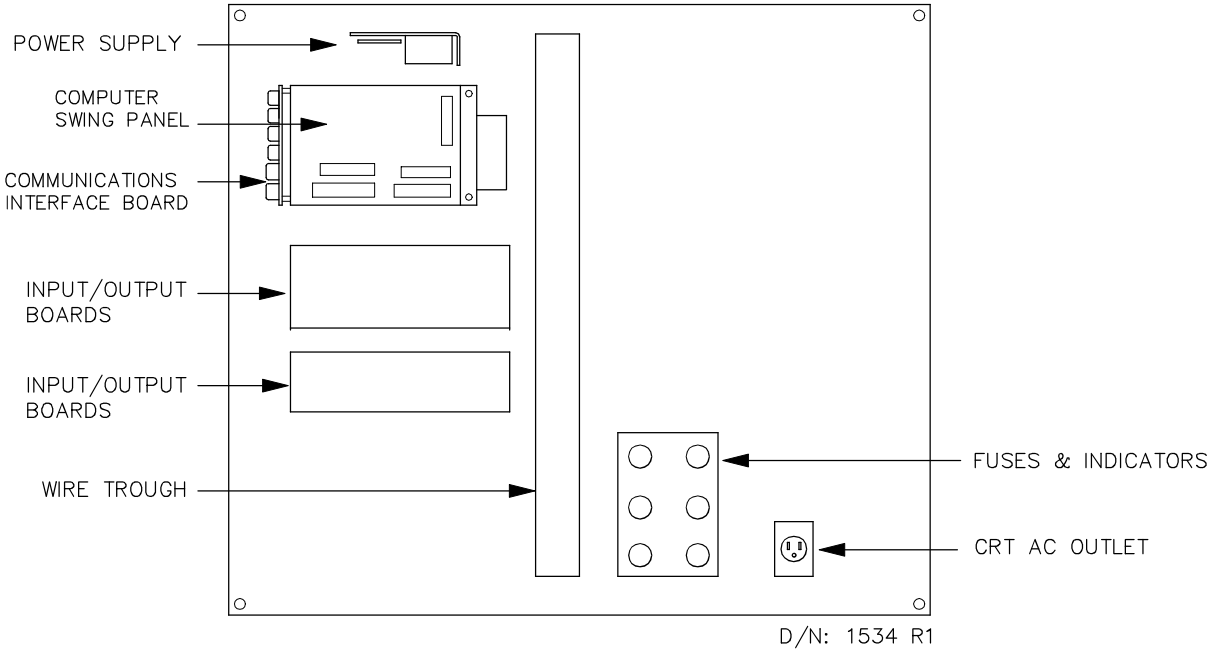
- HC-CI/O, Call Input/Output board
- HC-IOX, Input/Output Expander board
- HC-I4O, Input/Output Expander board
- SC-HCC, Serial Hall Call Controller board

POWER SUPPLY - A single-output linear power supply that provides +5 VDC to the computer and peripheral boards. Ampere rating depends on the number and type of boards used.

POWER SECTION - Any transformers, terminal blocks, fuses or auxiliary relays required.

FUSES AND INDICATORS - The main fuses for powering the computer boards are located on the front of the Group Supervisor panel. These fuses are housed in easy-to-remove (and inspect) fuse holders. There is an indicator associated with each fuse to show if the fuse is functioning properly.

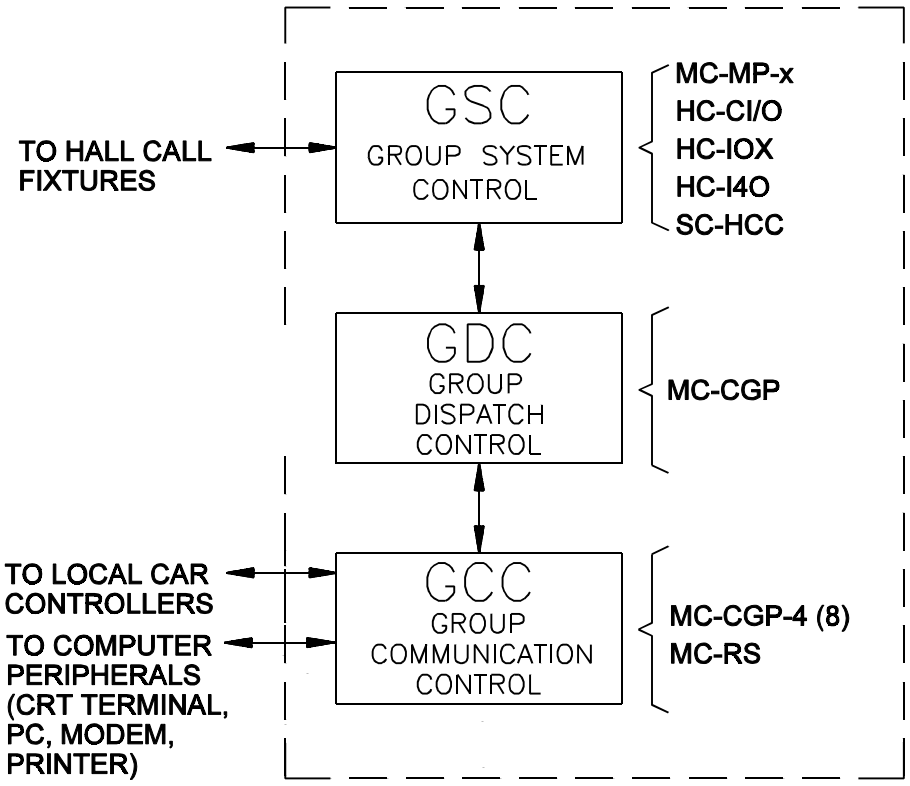
FIGURE 1.4 Typical M3 Group Supervisor Cabinet Layout (Style B)



1.2 M3 GROUP SUPERVISOR FUNCTIONAL OVERVIEW

The M3 Group Supervisor has three primary functions. Figure 1.5 shows these functional blocks and the printed circuit board types associated with each function:

FIGURE 1.5 M3 Group Supervisor Functional Layout



Group System Control (GSC) - Provides registration and acknowledgment of hall calls and a user interface, through the Computer Swing Panel Enhanced On-Board Diagnostics. GSC also provides the following special operations:

- Fire Service
- Emergency Power
- Hospital Service
- Elevator Security

Group Dispatch Control (GDC) - GDC is primarily a processing function. GDC receives the registered hall calls data from GSC and the individual car status data from GCC. Using an extremely powerful central processing unit, GDC performs the M3 Dispatching Algorithm to dispatch cars to the appropriate calls.

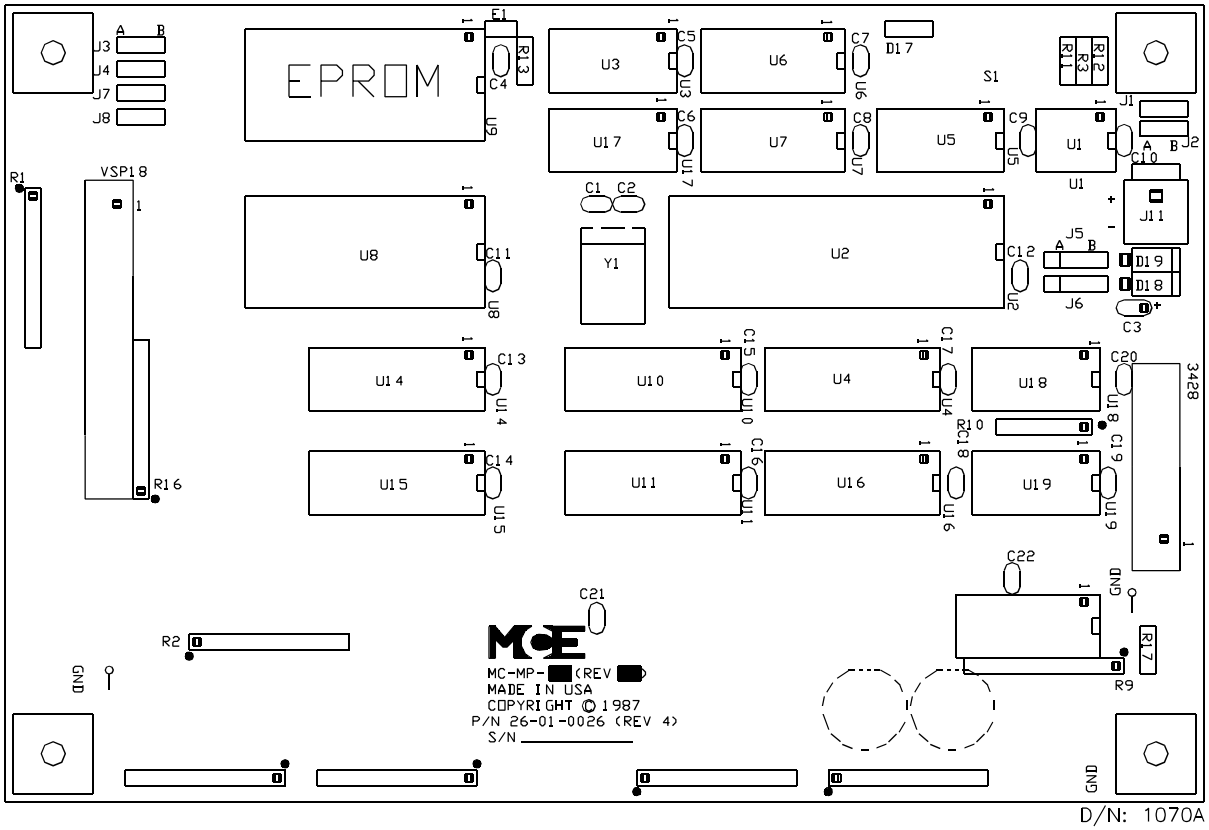
Group Communication Control (GCC) - Provides a high-speed RS-422 communications link between the Group Supervisor and individual Car Controllers. GCC also provides up to eight industry-standard RS-232 communication links to computer peripherals such as a CRT terminal, PC or printer. Computer peripherals may be connected directly or through a modem, Ethernet or line driver. The M3 Group System can also be monitored from a remote location using a PC running MCE Central Monitoring System (CMS for Windows) or Terminal Emulation software.

1.2.1 GROUP SYSTEM CONTROL (GSC) COMPONENTS

Group System Control (GSC) provides registration and acknowledgment of hall calls and provides for special operations, such as Fire Service, Emergency Power, Hospital Service and Elevator Security. GSC also provides a user interface through the Computer Swing Panel Enhanced On-Board Diagnostics. The following are typical boards used for the GSC functions:

- MC-MP-x, Main Processor board
- HC-CI/O, Hall Call Input/Output board
- HC-IOX, Input/Output Expander board
- HC-I4O, Input/Output Expander board
- SC-HCC, Serial Hall Call Controller board (see Section 1.3)

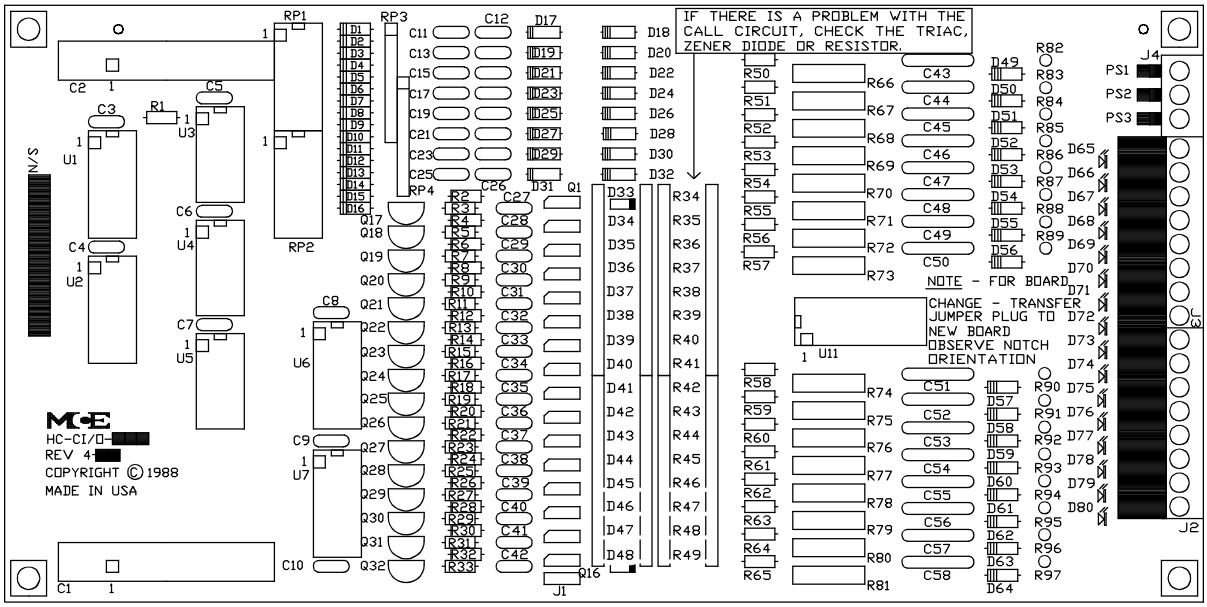
FIGURE 1.6 MC-MP-x Main Processor Board



MC-MP-x, Main Processor board - The Main Processor board (also known as the MP board) is located inside the Computer Swing Panel. The MC-MP-x board is responsible for accepting and registering the hall calls, and for Group System Control. This board, which contains the alphanumeric display, LEDs, switches and push-buttons found on the front of the Computer Swing Panel, provides the user interface for the Enhanced On-Board Diagnostics (EOD).

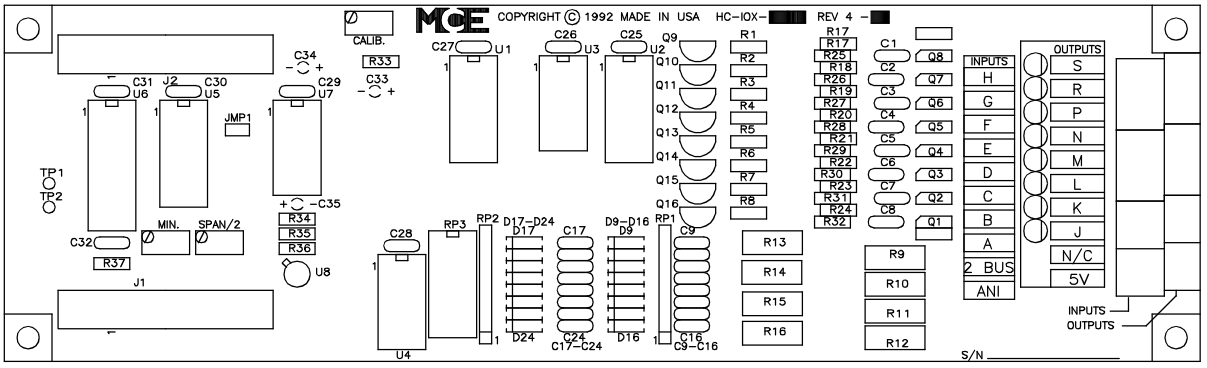
Hall Calls - Direct Wire or SmartLink Serial Communication for Hall Call Signals - There are two types of hall call systems. The direct wire system uses the HC-CI/O, Call Input/Output board shown in Figure 1.7. The SmartLink Serial Hall Call System is described in Section 1.3.

FIGURE 1.7 HC-CI/O Call Input/Output Board



HC-CI/O Call Input/Output board - The HC-CI/O board is the interface between the hall call button assemblies and the MC-MP-x Main Processor. It processes the hall call push-button inputs and call acknowledgment lamp outputs and displays the status of each call. The call circuit push-buttons are wired similar to those of a relay system (one wire per call with two power supply buses). The connection to the call board is a single wire for both the button and the indicator (the terminal acts as both input and output). The calls are read by the MC-MP-x, Main Processor through the HC-CI/O call board(s).

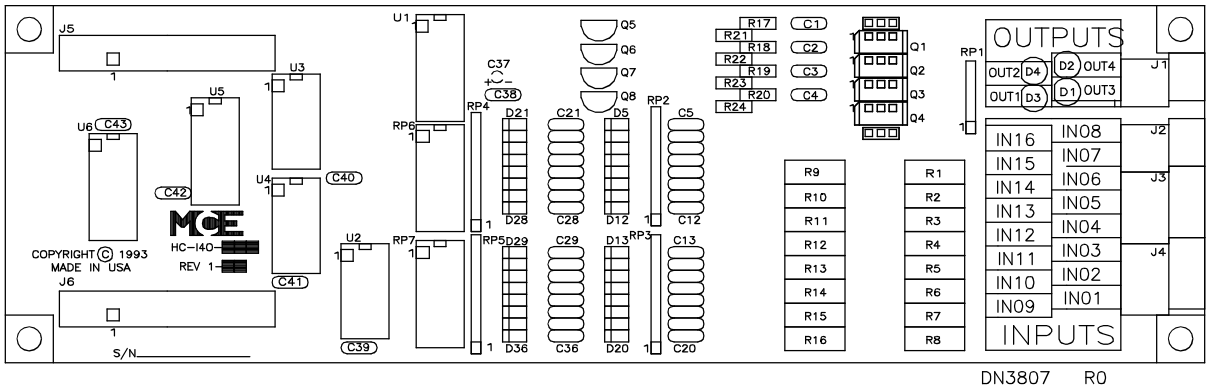
FIGURE 1.8 HC-IOX Input/Output Expander Board



HC-IOX Input/Output Expander board - The HC-IOX board is a multipurpose input/output board designed to accommodate eight inputs and/or eight outputs as may be required by the M3 Group Supervisor.

HC-I4O Input/Output Expander board - The HC-I4O board (Figure 1.9) is also a multipurpose input/output board designed to accommodate sixteen inputs and/or four outputs that may be required by the M3 Group Supervisor.

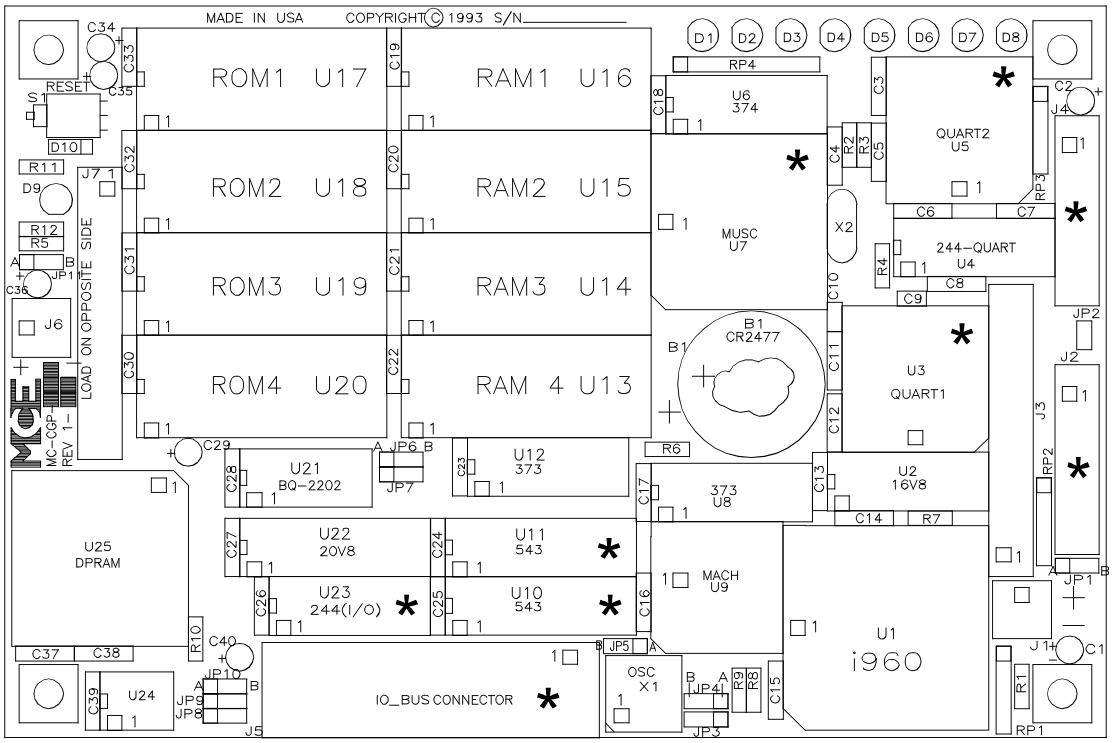
FIGURE 1.9 HC-I4O Input/Output Expander Board



1.2.2 GROUP DISPATCH CONTROL (GDC) COMPONENTS

Group Dispatch Control is performed by the MC-CGP, Dispatching Processor Board (also known as the DP or CGP-D board). GDC is primarily a processing function using a powerful 32-bit embedded RISC microcontroller. The MC-CGP board receives the registered hall call data from the MC-MP-x, Main Processor board, and the individual car status data from the MC-CGP-4(8), Communication Processor board and, using a complex set of advanced algorithms, makes the hall call assignments to the individual cars through the MC-CGP-4(8) board.

FIGURE 1.10 MC-CGP Dispatching Processor Board



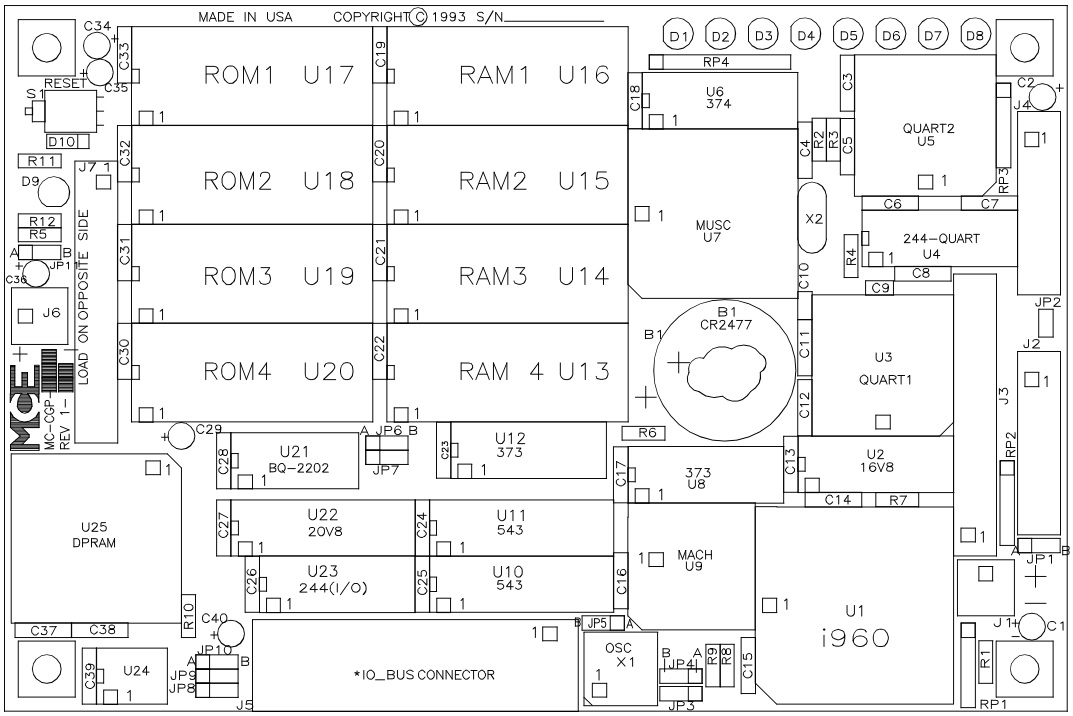
MC-CGP Dispatching Processor board - This board contains a powerful 32-bit embedded RISC microcontroller, and is sandwiched between the MC-MP-x and MC-CGP-4(8) boards in the Computer Swing Panel. Refer to Table 6.1 for appropriate jumper settings.

1.2.3 GROUP COMMUNICATION CONTROL (GCC) COMPONENTS

The flow of information between the M3 Group Supervisor, the local Car Controllers, and other equipment such as terminals, modems or printers is controlled by the following boards:

- MC-CGP-4 (8), Communication Processor Board
- MC-RS, Communication Interface Board(s)

FIGURE 1.11 MC-CGP-4 (8) Communication Processor Board

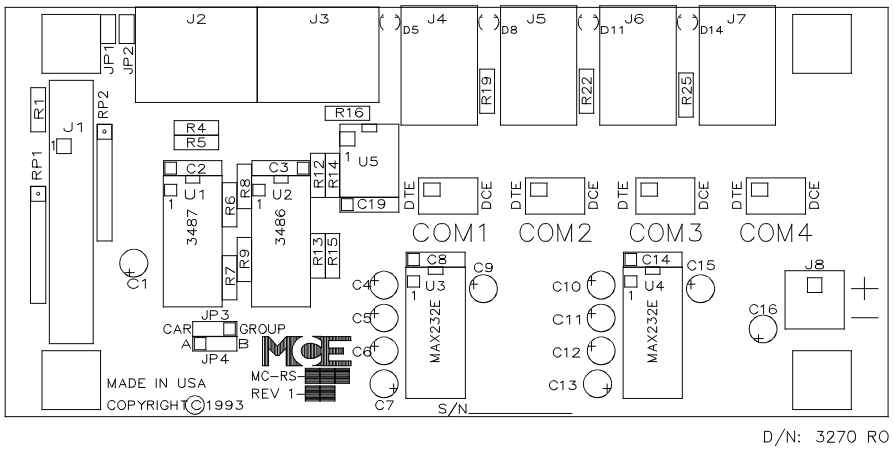


* IO_BUS CONNECTOR is not loaded for the Communications Board

D/N: 3269 R0

MC-CGP-4 (8) Communication Processor board - This board (also known as the CP or CGP-C board), is located at the rear of the Computer Swing Panel. It contains a powerful 32-bit embedded RISC microcontroller and its primary function is to coordinate the flow of information between the Group Supervisor, the Car Controllers and other equipment or peripherals. Refer to Table 6.1 for appropriate jumper settings.

FIGURE 1.12 MC-RS Communication Interface Board

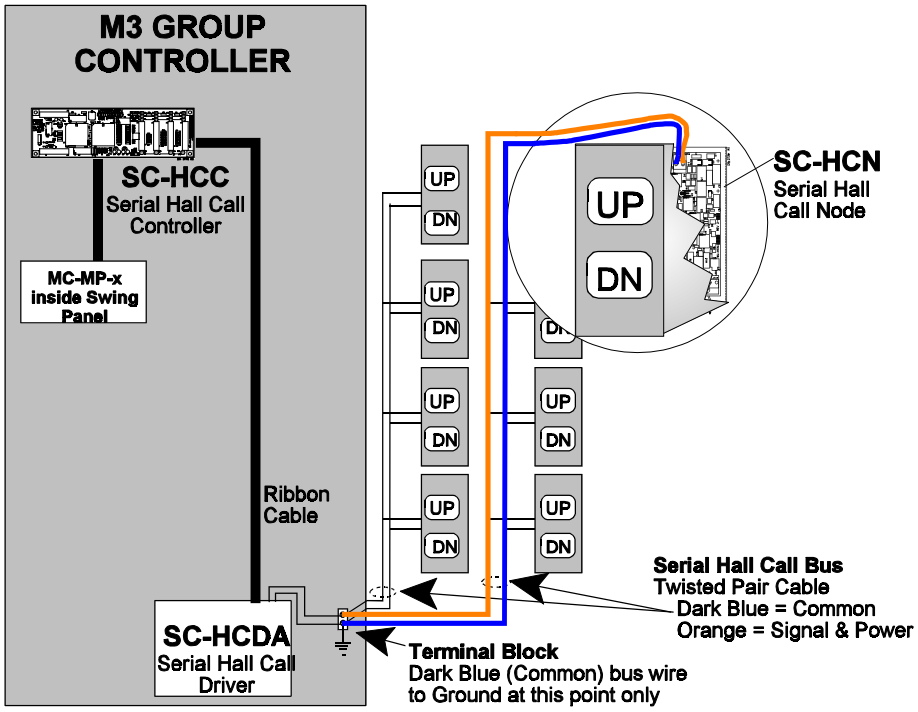


MC-RS Communication Interface board - This board provides a high-speed RS-422 serial link between the individual Car Controllers and the M3 Group Supervisor. It also provides four industry standard RS-232C serial ports to interface the Group Supervisor with standard computer or data terminal devices, such as a printer, modem, CRT terminal or PC. If more than four ports are required, a second MC-RS board will be used along with an MC-CGP-8 board. Refer to Section 3.9, *Verifying the High Speed Serial Communication Link* and Table 6.1 for appropriate jumper settings.

1.3 SMARTLINK SERIAL COMMUNICATION FOR HALL CALL SIGNALS

The direct wire hall call system described in Section 1.2.1 requires multiple wires running from the hall call buttons and lamps to the controller, usually four wires per landing. With MCE's SmartLink Serial Communication for Hall Call Signals, one pair of wires runs the entire height of the building. This pair of wires, the Serial Hall Call bus (SHC bus), provides both the power and the signals needed to run the system. A small PC board, the SC-HCN Serial Hall Call Node Board, is placed inside each hall call button enclosure. The SC-HCN board is connected to the SC-HCDA Serial Hall Call Driver Assembly inside the M3 Group Supervisor Cabinet via the SHC bus.

FIGURE 1.13 SmartLink Serial Communication for Hall Call Signals



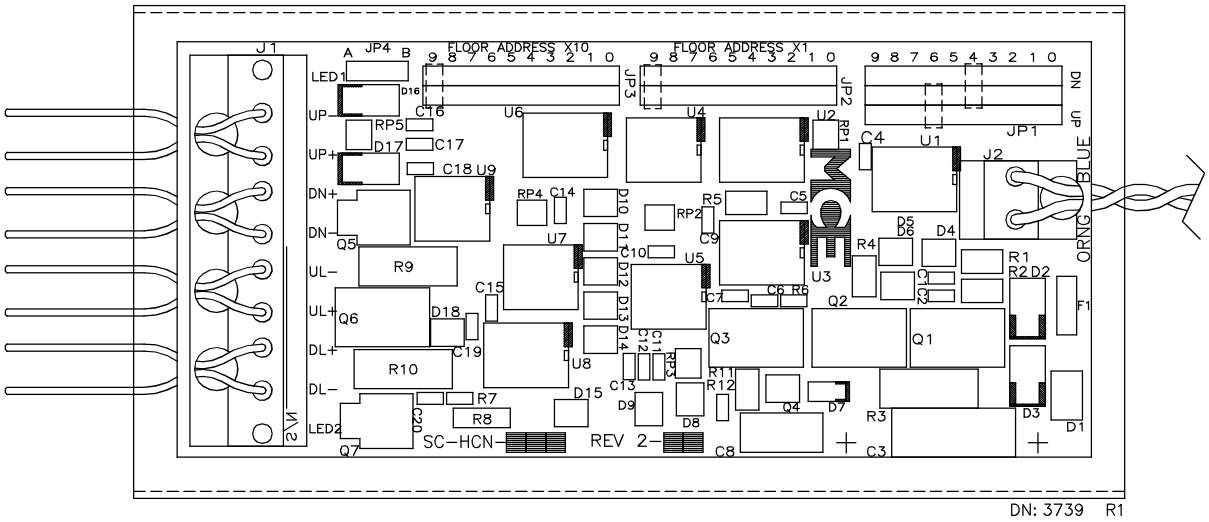
Power to run the hall call lamps is supplied by the SC-HCDA Serial Hall Call Driver Assembly. The SHC bus wires carry the power to the node boards. The SHC bus wires also carry multiplexed signals to tell the node boards when to turn the hall call lamps ON or OFF, and signals from the node boards to inform the Group Supervisor when the call buttons are pressed. In addition, built-in diagnostics alert the Group Supervisor when the bus voltage is too low, the bus current is too high or the Driver Assembly is not working correctly. The diagnostics can also be used to determine if all of the node boards and hall lamps are working correctly.

1.3.1 SERIAL HALL CALL SYSTEM COMPONENTS

The Serial Hall Call System consists of the following:

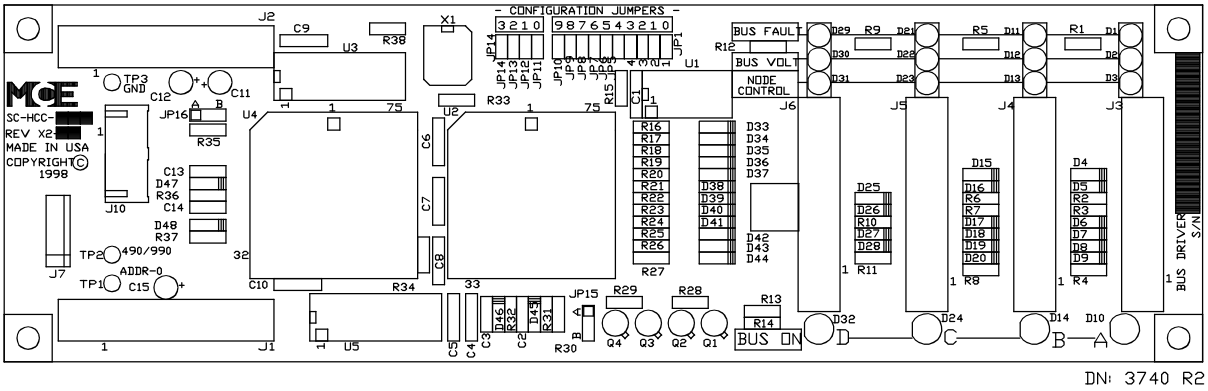
- SC-HCN, Serial Hall Call Node Boards
- SC-HCC, Serial Hall Call Controller Board
- SC-HCDA, Serial Hall Call Driver Assembly

FIGURE 1.14 SC-HCN Serial Hall Call Node Board



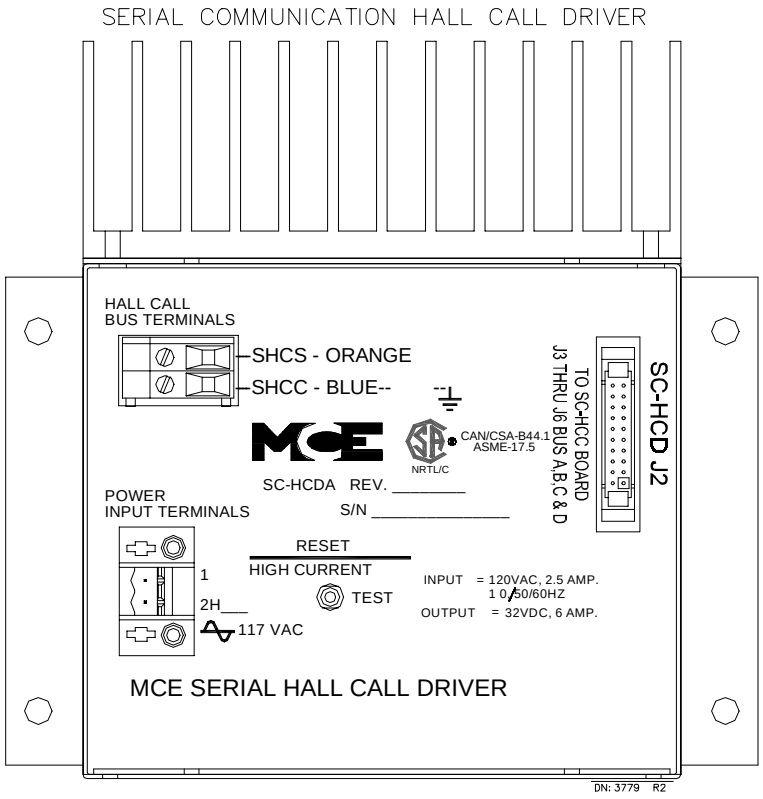
SC-HCN Serial Hall Call Node board - One node board is installed inside each hall call button enclosure. This board is connected to the Serial Hall Call bus and provides the interface between the buttons and lamps, and the Serial Hall Call Driver Assembly located in the M3 Group Supervisor cabinet. Floor Address jumpers identify the floor on which the board is located. The SC-HCN board decodes multiplexed signals carried on the SHC bus to determine when to turn the call lamps ON or OFF, and sends signals on the bus to indicate when the call buttons are pressed. Power to run the board and lamps is also carried to the SC-HCN boards by the SHC bus wires.

FIGURE 1.15 SC-HCC Serial Hall Call Controller Board



SC-HCC Serial Hall Call Controller board - This board provides the interface between the Serial Hall Call Driver Assembly and the M3 Group Supervisor's MC-MP-x, Main Processor board. It decodes the signals from the node boards indicating that a call button has been pressed and passes that information on to the MC-MP-x board. Then, based on information from the MC-MP-x, it generates multiplexed signals that tell the node boards when to turn the call lamps ON or OFF. On very tall buildings and/or buildings with multiple call boxes per floor, more than one Serial Hall Call bus may be required to handle the lamp current load. One SC-HCC board can provide interfacing for up to four Serial Hall Call busses. Each bus requires a separate SC-HCDA Serial Hall Call Driver Assembly.

FIGURE 1.16 SC-HCDA Serial Hall Call Driver Assembly (Top View)



SC-HCDA Serial Hall Call Driver Assembly - This assembly provides the power needed to run the Serial Hall Call Node boards and the call lamps.

1.4 M3 GROUP SUPERVISOR OPERATIONAL OVERVIEW

1.4.1 TYPICAL SEQUENCE OF OPERATION

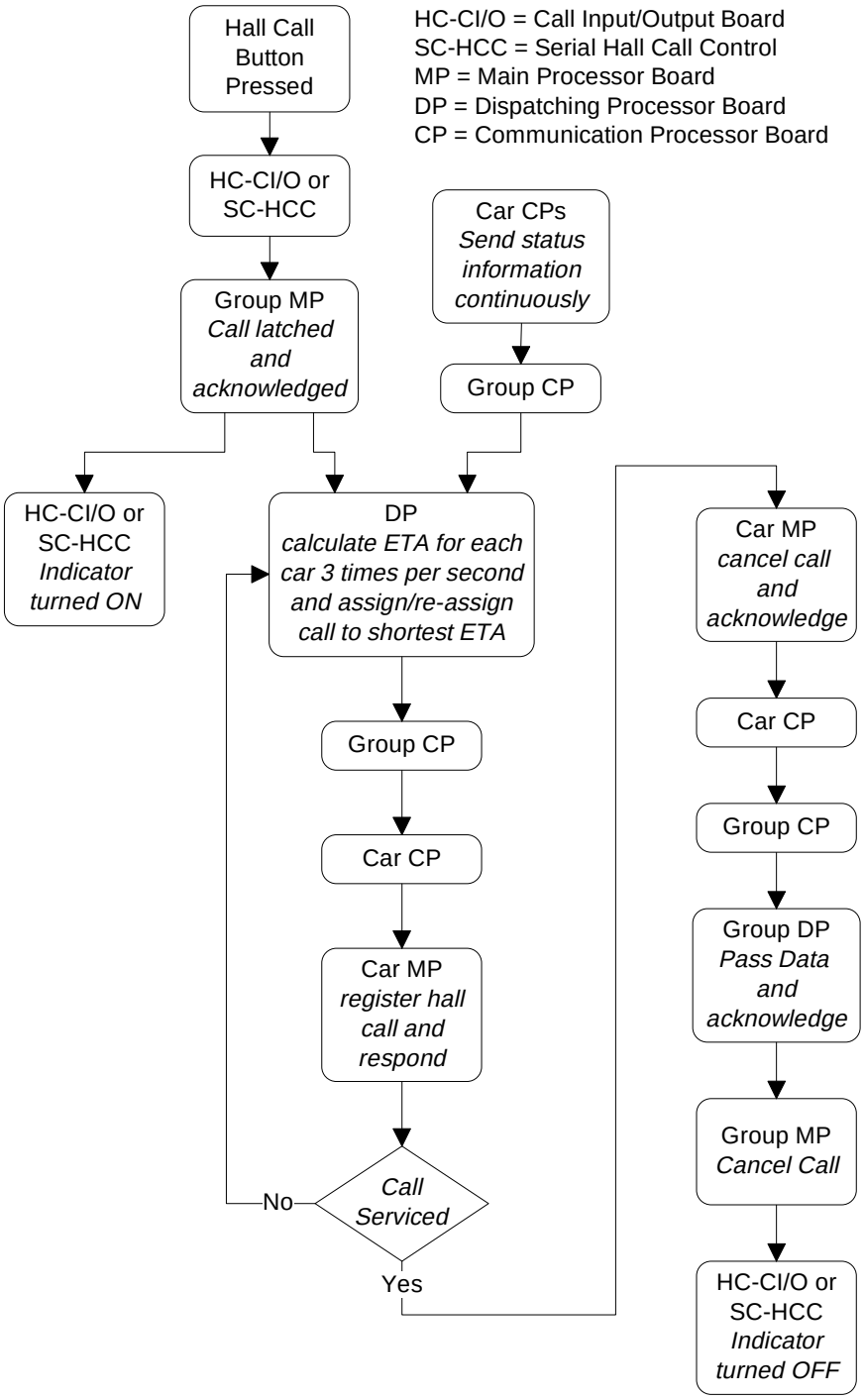
To become familiar with the M3 Group Supervisor's sequence of operation, it is helpful to start with a hall call input and follow the signal as it progresses through the various parts of the system. Refer to Figure 1.17, *Typical Sequence of Operation Flowchart*. For this discussion the Computer Swing Panel PC boards will be referred to as follows:

MP = MC-MP-x, Main Processor board
DP = MC-CGP, Dispatching Processor board
CP = MC-CGP-4 (8) or MC-CPA-x, Communication Processor board

A hall call is registered either from the keyboard or by grounding an input on the HC-CI/O, Call Input/Output board or by the SC-HCC (Serial Hall Call Controller) board, which decodes call information from an SC-HCN (Serial Hall Call Node) board. This information is transferred, via ribbon cable, to the Group Supervisor's MP board. The MP acknowledges the call by transferring information back to either the HC-CI/O, which then turns on a triac to illuminate the call registered lamp in the hall call station and an LED on the HC-CI/O board, or to the SC-HCC board which sends information to the SC-HCN board to illuminate the call registered lamp in the hall call station. The Group Supervisor's MP also sends the registered hall call to the DP board, inside the Computer Swing Panel, through shared memory.

FIGURE 1.17 Typical Sequence of Operation Flowchart

GROUP SEQUENCE OF OPERATION



The DP board is constantly communicating with the local Car Controllers through the CP board's high speed serial link. The DP has the updated information of each car's status (location, direction, etc.). It also accesses the dispatching parameters set by the user for the specific job. Knowing the status of each car and the dispatching parameters, the DP, using the M3 Dispatching Algorithm, performs the task of finding the best car to respond to a registered hall call. Once the assignment is made, the assigned hall call is made available to the CP board to be sent to the local car designated to respond to the call.

The high-speed communication link transmits the assigned call to the designated car's CP board, which is then made available to the car's MP board. Once the car's MP has registered the assigned hall call, it will generate all of the proper functions to respond to that call. When the call is answered by the car, the car's MP board sends an acknowledgment to the car's CP board to show that the call has been answered. This information is sent to the Group Supervisor's CP board through the high-speed communication link.

The Group Supervisor's CP board tells the DP board that the designated car responded to the call. The DP board transfers data to the Group Supervisor's MP. The MP is then responsible for canceling the hall call by either sending an output that will turn off the triac associated with that particular hall call or sending information to the SC-HCC board which in turn sends information to the appropriate SC-HCN board to turn off the hall lamp.

1.4.2 THE M3 DISPATCHING ALGORITHM

The custom dispatching software developed by MCE uses mathematical model of sequencing theory. The M3 dispatching algorithm works to reduce the elevator service time by:

- Minimizing average waiting time,
- Minimizing late calls (defined by the Long Wait Hall Call Timer), and
- Minimizing maximum waiting time.

The M3 Dispatching Algorithm is used to assign hall calls to cars in the Group. The Group Supervisor compiles the required physical and statistical data and parameters that are necessary to perform the minimization algorithms. Some of these parameters include:

- Car position (per car)
- Car direction (per car)
- Car status (per car) i.e., Automatic, Inspection, Independent, Earthquake, Fire Service, etc.
- Car motion status (acceleration, high speed, deceleration)
- Car parking status (lobby/non-lobby floor)
- Car MG status (per car)
- Anticipated direction of motion (per car)
- Door opening time (per car)
- Door closing time (per car)
- Door Status (opening, open, closing, closed)
- Number of car calls (per car)
- Number of stops ahead of the car (per car)
- Assigned hall calls (per car)
- Coincidence calls (per car)
- Load weigher status (per car)
- Fire Service (system)
- Emergency Power (system)
- Program mode (balanced, lobby up peak, demand up peak, demand down peak)
- Late hall call threshold (per hall call, per direction)
- Number of cars under Group Supervisor control

The M3 Dispatching Algorithm assigns hall calls to cars to minimize the average wait time. This is done by calculating each car's estimated time of arrival (ETA) per hall call using the parameters listed above and assigning the call to the car which can serve the call fastest. This calculation is performed approximately 3 times per second. Should conditions change such that in a subsequent calculation another car can serve the call faster, the call will be reassigned.

As the building traffic increases, the minimum average waiting time algorithm will cause some hall calls not to be served for an excessive amount of time. The user can define how much time will constitute excessive waiting time by setting the Long Wait Hall Call Threshold Time. These times are set per hall call type (front or rear), per direction (up or down) and per floor. The user sets these numbers according to the needs of the building. They can be changed as the traffic pattern in the building changes.

When a sufficient number of calls are registered for which the shortest calculated ETA is longer than the specified Long Wait Hall Call Threshold Time, the second part of the M3 Dispatching Algorithm becomes effective to Minimize Late Calls (minimize the number of hall calls that would have waited beyond their Long Wait Hall Call Threshold Time). This second part of the M3 Dispatching Algorithm has the tendency not to affect the average waiting time, but to Minimize Maximum Waiting Time.

It is up to the building managers to decide what kind of service is desirable, who will receive faster service and who must wait longer. MCE developed the Central Monitoring System (CMS for Windows) software to allow the building manager to tailor the Group Supervisor for each specific building, even from a remote location. For more information about the CMS software or Terminal Emulation software, please contact MCE.

1.4.3 DISPATCHING MODES OF OPERATION

The M3 Group Supervisor has four modes of operation, and there are three ways in which the mode of operation can be selected. Selecting the mode of operation is described in Section 5.1.1. The three ways in which the mode of operation can be selected are:

- Automatic - the dispatching software determines the mode of operation based on traffic.
- Timed - the dispatching software selects the mode of operation based on the day and time and Dispatching Timer Table settings.
- Manual - the operator selects the mode of operation.

The four modes of operation are:

- Balanced - Up versus Down traffic is approximately equal.
- Lobby Up Peak - unbalanced traffic with significant Up direction demand originating at the Lobby Floor(s).
- Demand Up Peak - unbalanced traffic with greater than 80% of hall call demand in the Up direction.
- Demand Down Peak - unbalanced traffic with greater than 80% of hall call demand in the Down direction.

Balanced Mode - Balanced traffic is defined as an approximately equal number of Up versus Down calls. The M3 Dispatching Algorithm, described above, is used when the Group Supervisor is operating in Balanced Mode. The Group Supervisor operates in Balanced Mode except when a different mode is, (1) selected manually, (2) selected by the timer table, or (3) automatically selected as a result of unbalanced traffic detected by the Group Supervisor.

Lobby Up Peak Mode - Lobby Up Peak is an unbalanced traffic condition which occurs when a large number of people enter the elevators at the lobby floor(s). Automatic selection of Lobby Up Peak mode is made either by monitoring the number of car calls or by monitoring the load using a load weigher. In Lobby Up Peak mode, some of the cars in the group are assigned to serve lobby hall calls only (they do not serve any other hall calls). All other cars in the group are assigned hall calls based on the M3 Dispatching Algorithm. A more in-depth discussion of Lobby Up Peak, including programming options, can be found in Section 5.6, *Programming the Lobby Up Peak Parameters*.

Demand Up Peak Mode - Demand Up Peak is defined as significantly unbalanced traffic in the Up direction. Automatic selection of Demand Up Peak mode is made when, in simplified terms, calls have been placed for at least 60% of the building's floors with greater than 80% of hall calls in the Up direction. In Demand Up Peak mode, when cars have served their highest car call, they are assigned to serve the lowest hall call in the building. Most of the cars then serve Up calls until loaded to a predetermined adjustable level. They will then bypass hall calls and serve their remaining car calls. Then the process is repeated. At least one car will serve the down hall calls in this peak mode, but only after the fixed time (20 sec.) elapses.

Demand Down Peak Mode - Demand Down Peak is defined as significantly unbalanced traffic in the Down direction. Automatic selection of Demand Down Peak mode is made when, in simplified terms, calls have been placed for at least 60% of the building's floors with greater than 80% of hall calls in the Down direction. In Demand Down Peak mode, when cars have served their lowest car call, they are assigned the highest hall call in the building. The cars then serve Down calls until loaded to a predetermined adjustable level. They will then bypass hall calls and serve their remaining car calls. Then, after a fixed time (20 seconds) the opposite type (Up) hall calls are answered, repeating the process.

1.4.4 PARKING FLOOR ASSIGNMENTS

Elevator service time can often be improved by parking cars strategically so as to minimize the estimated time of arrival (ETA) at any floor. The M3 Group Supervisor permits the user to select the most efficient parking configuration for a specific building. A parking priority (1 thru 20) is set to determine the order in which parking floors will be assigned as cars become available to park. In addition, floors can be designated as a Lobby Parking Floor, so that special Lobby Parking Functions can be performed at that floor.

Lobby Parking Functions - Floors with a parking priority set to 1 thru 4 are designated as Lobby Parking Floors. At a Lobby Parking Floor, a user programmable setting determines if cars will park with doors closed, doors open indefinitely, or open for a programmable amount of time (1 to 99 seconds). If more than one car is parked at the lobby and the open door option is selected, then the first available car will park with its doors open and hall lantern illuminated. The next car will park at the lobby with its doors closed. When the first car leaves the lobby, due to demand, the next car will have its hall lantern illuminated and its doors will open. When no cars are parked at the lobby, cars parked at lower priority floors will be reassigned to the lobby after an adjustable Shuffle Delay time. A more in-depth discussion of parking floor assignments, including instructions for programming the available options, can be found in Section 5.1, *Programming the Dispatching Configurations*.

1.4.5 OTHER OPERATING FEATURES

The M3 Group System incorporates the following features (both standard and optional) to provide a total solution to the elevator dispatching needs of any type of building.

Door Timing - Separate adjustable door timing is provided to establish independent minimum passenger transfer times for car stops, hall stops, main lobby stops, and door reversal operations. See Section 5.8, *Programming the Car Operating Parameters*.

Emergency Dispatch Operation - In case of a malfunction of the M3 Group System or loss of communication with the Group Supervisor, the local Car Controllers will detect the malfunction and provide emergency dispatching to assure continuing elevator operation. All in-service cars will make stops evenly to all floors, with each car stopping at the main lobby. All cars will continue to respond to their car calls while under Emergency Dispatch operation. Emergency dispatching can be disabled using the WLD input, i.e. during installation and adjustment of the local car controller.

Emergency Power Operation - When an Emergency Power situation is detected, cars will be returned to the main lobby, one by one, and will remain there with doors open. While each car is being returned, all other cars will be shut down to prevent the emergency power generator from overloading. Once all of the cars have returned to the lobby, one or more cars may be selected to run under Emergency Power, depending upon the capability of the emergency power generator. In any case, the Group Supervisor will not allow more cars to run than can be safely handled by the emergency power generator. The actual number of cars allowed to run under Emergency Power is determined by the customer field survey.

Power Transfer Operation - To provide safe transfer from the emergency power generator (back) to commercial power, a Power Transfer Input is provided to bring the elevators to a stop at the next available landing. A normal slowdown is performed to bring the elevator to a comfortable and safe stop. This input should be activated in advance of the transfer from generator power to commercial power to allow the car to make a normal stop. Note that the Power Transfer Input (PTI) may be used at any time to cause the elevator to make a normal stop at the next available landing.

Independent Service - All cars are provided with a switch to remove them from group operation. When activated, the elevator will operate in response to car calls only.

Out-of-Service Status - The M3 Group Supervisor automatically removes any car from group operation if the car is delayed in responding to its demand for a predetermined field adjustable period of time. The system will automatically restore any car back to group operation when the reason for the delay has been corrected. The timer, called Timed Out of Service (TOS), can be programmed from each of the local Car Controller's Computer Swing Panel or from the Group Supervisor using the CRT terminal. See Section 5.8, *Programming the Car Operating Parameters*.

Anti-Nuisance Logic - Photo Eye Call Cancel - The local Car Controller will cancel all remaining car calls if a predetermined adjustable number of car calls are answered without the computer detecting a Photo Eye input. The number of calls is determined by the PECC, Anti-Nuisance Call Cancel software option adjustable control variable on each local Car Controller. If the Anti-Nuisance Logic cancels calls twice without a Photo Eye detection between the two cancellations, then the Anti-Nuisance Logic will be bypassed until a Photo Eye input is detected. This will prevent continuous cancellations if a photo eye becomes inoperable.

Anti-Nuisance Logic - Light Load (optional) - The local Car Controller will cancel all previously registered car calls if a predetermined adjustable number of car calls registered is exceeded while the Light Load function is active. The Light Load function can be activated by the LLI input or by the analog load weigher LLW, Light Load (anti-nuisance) threshold value. The number of calls is determined by the LLCC, Light Load Call Cancel software option adjustable control variable on each local Car Controller. The LLW threshold is described in the *Load Weigher Adjustment for Dispatching* section of the Car Controller Installation manual.

Door Protective Device Control (optional) - If the doors are held open, or if a protective device fails to allow the doors to close for a predetermined adjustable time, a buzzer will sound and the doors will close at reduced torque, permitting the car to run. The time is determined by the value of the PHEB, Photo Eye Bypass Timer in the local Car Controller.

Dispatch Load (optional) - The Lobby Up Peak - Dispatch Interval Time, which keeps the doors open a specified amount of time at the lobby landing during Lobby Up Peak operation, will be canceled by the local Car Controller should the Dispatch Load function become active. The Lobby up Peak Dispatch Interval Time is described in Section 5.6.1, *Lobby Up Peak Variables.* The Dispatch Load function can be activated by the DLI input or by the analog load weigher DLW, Dispatch Load Weigher Threshold value in the local Car Controller. The DLW threshold is described in the *Load Weigher Adjustment for Dispatching* section of the Car Controller Installation manual.

Heavy Load Car Hall Call Bypass (optional) -Cars will bypass hall calls when the Heavy Load function, in the local Car Controller, is active. The Heavy Load function can be activated by the HLI input or by the analog load weigher exceeding the HLW, Heavy Load (hall call bypass) threshold value. The HLW threshold is described in the *Load Weigher Adjustment for Dispatching* section of the Car Controller Installation manual.

1.4.6 SECURITY

Three types of elevator security are available for the M3 Group System:

Basic Security - Standard Security is implemented in each local Car Controller. Floor access codes are programmed using the local Car Controller's Computer Swing Panel and security is turned ON or OFF using the BSI input (see Viewing and Changing Security Codes in Section 5 of the local Car Controller Installation Manual).

Basic Security with CRT Option - The CRT option adds additional features and capabilities to Standard Security which are programmed using the CRT terminal. A complete description and instructions for programming Standard Security with CRT Option are found in Appendix C, *Standard Security with CRT Option*.

Access Control for Elevators (ACE) - ACE Security provides the ability to assign a unique Passenger Access Code (PAC) to each individual passenger or groups of passengers. A complete description and instructions for programming ACE Security are found in Appendix D, *Access Control for Elevators (ACE) Security*.

1.4.7 FAMILIARIZATION WITH DIAGNOSTICS AND HUMAN INTERFACE

The CRT terminal is used extensively to set up and adjust the M3 Group Supervisor. Appendix F of this manual covers the installation and setup of the CRT terminal. Section 5 covers adjustment of the dispatching parameters. Using the CRT terminal for diagnostics and troubleshooting is covered in Sections 6.8 and 6.9.

Section 4 of this manual is dedicated to the Computer Swing Panel and the Enhanced On-Board Diagnostic (EOD) tools available for adjustment and troubleshooting. Many of the diagnostic functions are available on both the CRT terminal and the EOD, and either diagnostic tool may be used. However, some functions are not available on both the CRT and the EOD. The user should be familiar with both of the diagnostic tools.

On the Computer Swing Panel, when the Diagnostic On/Norm switch is in the *Norm* position, the Diagnostic Indicators scan from right to left showing that the system is ready for Normal operation, or they will flash to indicate a specific status or error condition. Table 4.1, *MC-MP Status and Error Messages*, provides a description of the Status and Error Messages which can be displayed.

SECTION 2
INSTALLATION

2.0 GENERAL INFORMATION

This section contains important recommendations and instructions for site selection, environmental considerations, wiring guidelines and other factors that will help ensure a successful installation of the M3 Group Supervisor.

2.1 SITE SELECTION

When choosing a proper location for the control equipment, the following factors should be considered:

- Proper location of the M3 Group Supervisor, relative to the individual Car Controllers, is an important consideration, as it can save cabling costs and provide for more reliable communication between the Group Supervisor and each individual Car Controller. Overall, having the Group Supervisor at one end of the communication daisy-chain is best, with the first Car Controller being closest and the last Car Controller being furthest from the Group Supervisor. Note that the standard Group Supervisor cabinet does not require rear access.
- Provide adequate working space for comfort and efficiency.
- Make sure that the equipment is not installed in a hazardous location.
- Provide space for future expansion when required.
- Installing a telephone in the machine room is desirable as it makes remote diagnostics and adjustment assistance easily available.
- If any areas in the machine room are subject to vibration, they should be reinforced or avoided to prevent equipment cabinets from being affected.
- Provide adequate lighting for the controller cabinets and machines. A good work space (such as a workbench or table) should also be provided.

2.2 ENVIRONMENTAL CONSIDERATIONS

There are some important environmental considerations that should be observed that will help provide for the longevity of the elevator equipment and reduce maintenance requirements. They are as follows:

- Provide an ambient temperature between 32 and 104°F (0 to 40°C). Operation at ambient temperatures up to 110°F (43°C) is possible, but is not recommended due to probable shortening of equipment life. Adequate ventilation and/or air conditioning may be required.

- The air in the machine room should be free of excessive dust, corrosive gasses or excessive moisture so that the relative humidity is below 95% to prevent condensation. A NEMA 4 or NEMA 12 enclosure may be provided to meet these requirements. Place the cabinets away from open windows so that severe weather will not damage the equipment.

- High levels of radio frequency (RF) radiation from nearby sources may cause interference to the computers and other parts of the control system. Using hand held communication devices in close proximity to the computers may also cause interference.

- Power line fluctuation should not exceed ±10%.

2.3 RECOMMENDED TOOLS AND TEST EQUIPMENT

For proper installation, use the following tools and test equipment:

- A digital multimeter (Fluke series 75, 76, 77 or equivalent).

- Assorted soldering tools, rosin flux solder, electronic side cutters and long nose pliers, a flashlight and an MCE screwdriver (provided with controller).

- A telephone installed in the machine room.

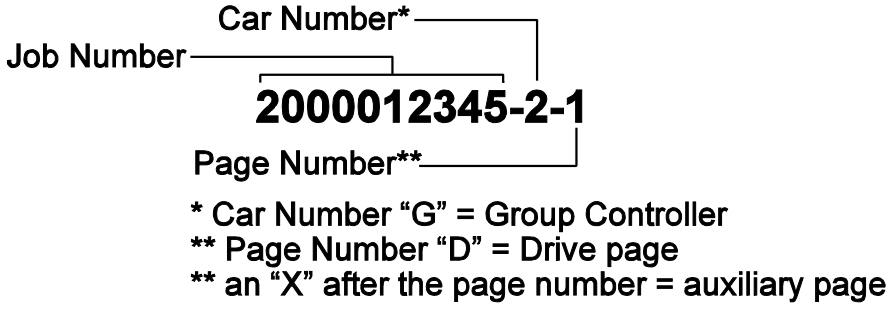
2.4 INSTALLATION AND WIRING GUIDELINES

Proper wiring materials and methods must be carefully observed to obtain the best results. Basic wiring practices and grounding requirements are discussed in this section.

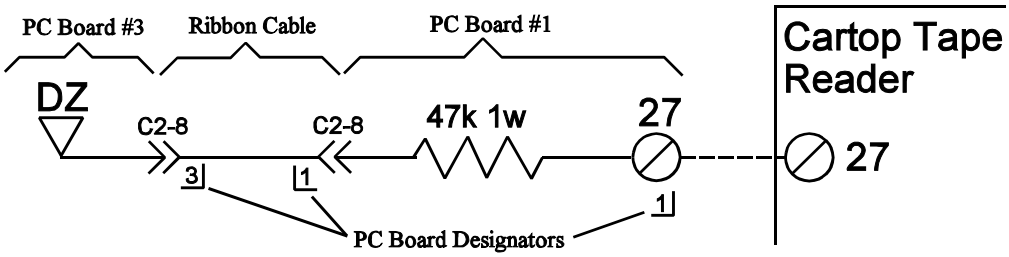
2.4.1 THE WIRING PRINTS

Become familiar with the following information and the wiring diagrams provided in the Job Prints.

DRAWING NUMBER FORMAT - Each print has a drawing number indicated in the title block. The drawing number is comprised of the job number, car number and page number (see example below). In this manual the drawings will often be referred to by the last digit of the drawing number (page number).



NOMENCLATURE - The following is an example of the schematic symbols use to indicate that a signal either enters or exits a PC board.



A listing of PC boards and their designator numbers plus other schematic symbols used in the wiring prints can be found at the beginning of the Job Prints and in Appendix D of this manual.

NOTE: DRAWING NAME - Some drawings have a drawing name directly above the title block or at the top of the drawing. The drawing name may be used to refer to a particular drawing.

- Become familiar with the drawing titled "Group Supervisor Field Wiring", drawing number (-1).
- Most of the power connections and power supplies are shown on drawing number (-2).
- Become familiar with the drawing titled "Peripherals Interface", typically drawing number (-4) or (-5).
- Group Supervisor interconnects to individual car cabinets (2 or more cars) are shown on the drawing titled "Group Interconnects" drawing (-1GI).

2.4.2 GROUND WIRING GUIDELINES

All grounding in the elevator system must conform to all applicable codes. Proper grounding is essential for system safety and helps to reduce noise-induced problems. The following are some grounding guidelines:

- The grounding wire to the equipment cabinet should be as large as, or larger than, the primary AC power feeders for the controller and should be as short as possible.
- The grounding between equipment cabinets should be arranged like a daisy chain or a tree, without any loops.
- Provide a direct solid ground in the machine room to properly ground the Group Supervisor and all local Car Controllers. Indirect grounding, such as the building structure or a water pipe, may not provide proper grounding and could act as an antenna radiating RFI noise, thus disturbing sensitive equipment in the building.

WARNING: Improper grounding can cause damage to the PC boards.

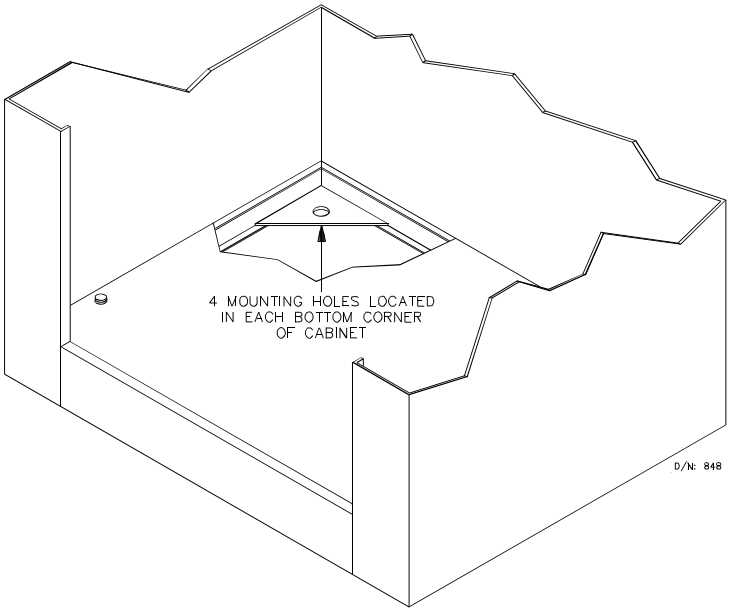
2.4.3 INSTALLING AND WIRING THE M3 GROUP SUPERVISOR

This section describes the recommended procedure for installing and wiring the M3 Group Supervisor.

INSTALLATION - Pick a proper location for the M3 Group Supervisor cabinet as discussed in Section 2.1, *Site Selection*. Mount the cabinet securely to the machine room floor. (See Figure 2.1 for mounting hole location.) Cut knockout holes to bring the wires into the cabinet. The holes can be cut on either side of the cabinet as shown in Figure 2.3. Note that the standard cabinet does not require rear access.

CAUTION: Do not allow any metal chips to fall into the electronics.

FIGURE 2.1 M3 Group Supervisor Cabinet Mounting Holes

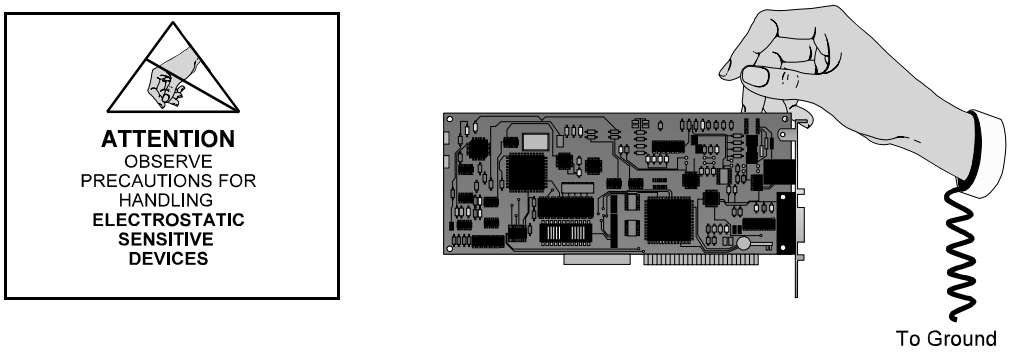


WIRING - Observe the following:

a. Some PCB components are Electrostatic Sensitive Devices (ESD) and are easily damaged by electrostatic discharge. Use a properly grounded wrist strap, as shown in Figure 2.2, when touching the PC boards.

FIGURE 2.2 Electrostatic Sensitivity

Do not touch PC Boards unless you are properly grounded.



b. Bring the wires in from a location that will allow running the wires through the wiring ducts inside the cabinet. The terminals are located conveniently near the wiring ducts. Note that some of the field wiring has to be routed to the front of the front panel, which swings open. Provide enough wire length to allow the front panel to swing open.

c. When routing field wiring or power hookups, *avoid the left side* of the Input/Output boards.

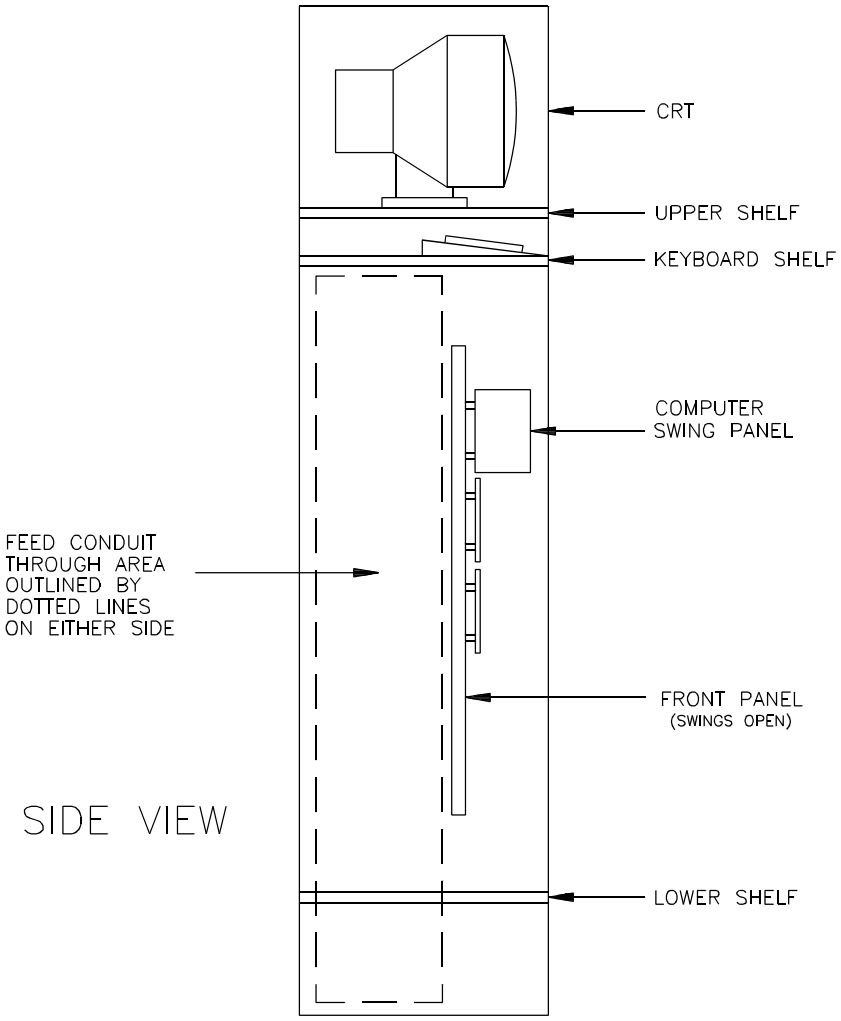
d. When it is time to hook up the wires to the Group Supervisor, connect the wires according to the hoistway and car wiring prints.

e. Power for the M3 Group Supervisor cabinet comes from the local Car Controllers as shown in drawing (-2). The main AC power supply wiring size must be determined by the electrical contractor.

WARNING: Connecting the Group Supervisor directly to the building AC supply may cause damage to PC boards. Also, connecting out-of-phase power will cause damage. Check the “phasing” of the individual car 2-bus lines before connecting them to the Group Supervisor. With a voltmeter set to AC volts, measure between adjacent car 2-bus terminals. The meter must read less than 10 VAC. If it is higher than 10VAC, reverse the power leads going to the car’s T1 transformer at L1 and L2, and measure again.

f. Wire each local Car Controller to the Group Supervisor according to the drawing titled "Group Interconnect.” Verify that all of the cabinets are grounded according to Section 2.4.2.

FIGURE 2.3 Recommended Cabinet Knockout Hole Location



2.4.4 INSTALLING THE HIGH SPEED COMMUNICATION CABLE

The high-speed serial link is used to transmit and receive data between the M3 Group Supervisor and the local Car Controllers. The supplied high-speed communication cables must be pulled through a dedicated conduit that is not shared with any high voltage or high current power lines. If the connectors must be opened in order to pull the preassembled cables through the conduit, make sure that they are properly reconnected. Note that only one end of the cable shield is grounded.

The high-speed communication cable must be connected to one of the two DIN connectors on the MC-RS board or to one of the two D connectors nearest the ribbon cable on the MC-MRS board. If the Group Supervisor has two MC-RS Communication Interface boards, the high-speed cable *must* be connected to the MC-RS board which is connected to J2 on the MC-CGP-8 Communication Processor board. The wiring details for the high-speed communication link are provided in the drawing titled "Peripherals Interface" in the Job Prints. Again, note the requirement for routing the high-speed communication cable through a separate conduit or wiring trough.

Communication Interface Board Jumper Settings - The following table lists the proper jumper settings for the Group Supervisor and Local Car Communication Interface boards.

TABLE 2.1 Communication Interface Board Jumper Settings

COMMUNICATION INTERFACE BOARD JUMPER SETTINGS	
Group Supervisor MC-RS Board	
Jumper	**Setting**
JP3	Group
JP4	B

Local Car MC-RS Board	
Jumper	**Setting**
JP3	Car
JP4	B

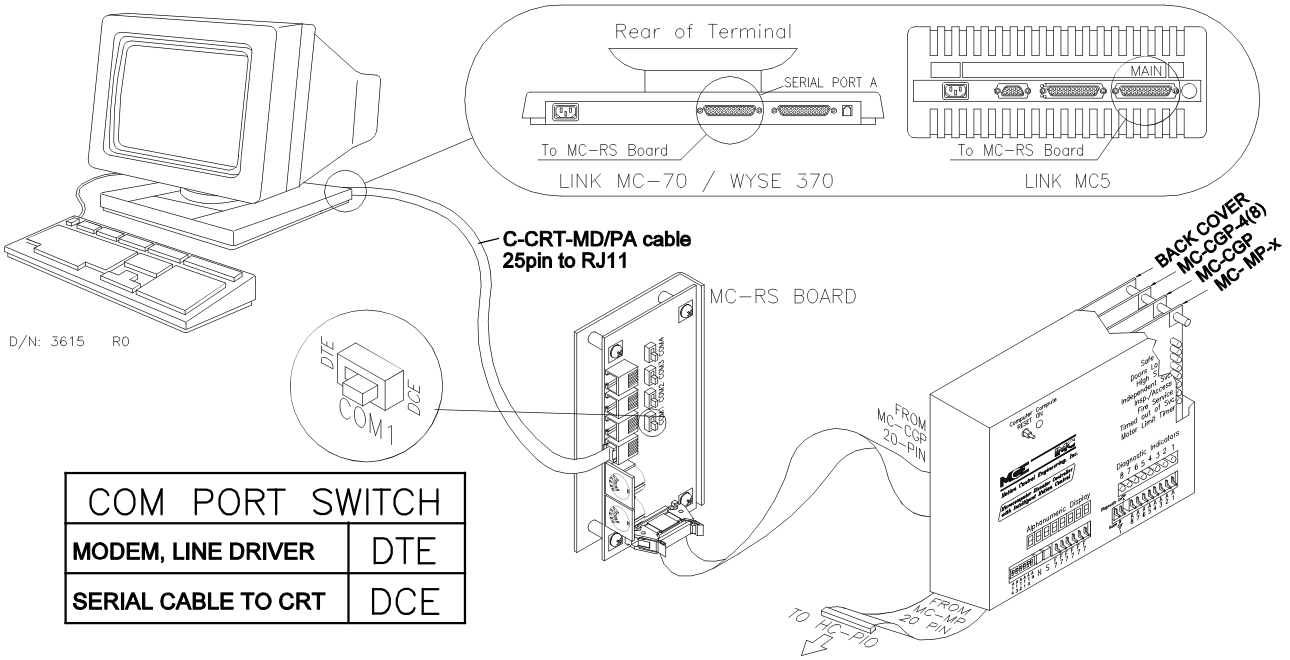
Local Car MC-MRS Board	
JP4	A

Balancing the High-Speed Communication Cable - The high-speed serial communication link uses two balanced, shielded, twisted pair cables. For this communication link to work properly, care must be taken in terminating the cable for proper balancing. Section 3.9, *Verifying the High Speed Serial Communication Link*, provides instructions for proper termination of the High-Speed Serial Communication Cable.

2.4.5 INSTALLING THE CRT TERMINAL AND THE KEYBOARD - The standard Group Supervisor cabinet provides a dedicated space for the CRT terminal or terminal emulator and the keyboard as shown in Figure 1.2. For shipping purposes, the CRT terminal or terminal emulator and the keyboard are packaged separately. Unpack the CRT terminal or terminal emulator and the keyboard from the shipping package. Locate the power cord, the serial or parallel cable and the manual. Place the CRT terminal in the designated space in the cabinet. Install the power cord to the back of the CRT terminal as shown in the CRT manual provided with each CRT.

Connect the serial cable. The 25-pin D connector goes to the back of the CRT terminal and the RJ11 connector goes to one of the COM ports on the MC-RS Communication Interface board. Set the COM switch for the port used for the CRT terminal to DCE. Place the keyboard on the tray below the CRT terminal and connect the keyboard cable to the CRT terminal. To set up the CRT terminal or terminal emulator, refer to Appendix F in this manual or to the MCE Computer Peripherals Manual (MCE part # 42-02-CP00).

FIGURE 2.4 Connecting the MC-RS Board to the CRT Terminal



COM PORT SWITCH	
MODEM, LINE DRIVER	DTE
SERIAL CABLE TO CRT	DCE

If the local Car Controllers are Series DF or IMC controllers, use of the CRT terminal may be required for adjusting the Car Controllers. If this is the case, the CRT terminal may have to be moved to each Car Controller for adjustment. Once the car adjustments have been made, place the CRT terminal or terminal emulator and keyboard back in the M3 Group Supervisor cabinet.

If other peripherals such as a modem or a printer, etc. were purchased with the M3 Group System, refer to the MCE Computer Peripherals manual, MCE part # 42-02-CP00, for installation instructions.

2.5 INSTALLING THE SMARTLINK SERIAL HALL CALL SYSTEM

If the direct wire hall call system is used, wiring from the hall call button fixtures is brought into the Group Controller cabinet and connected to the Input/Output boards as shown in the wiring prints. The Serial Hall Call system is connected differently and is covered separately in this section.

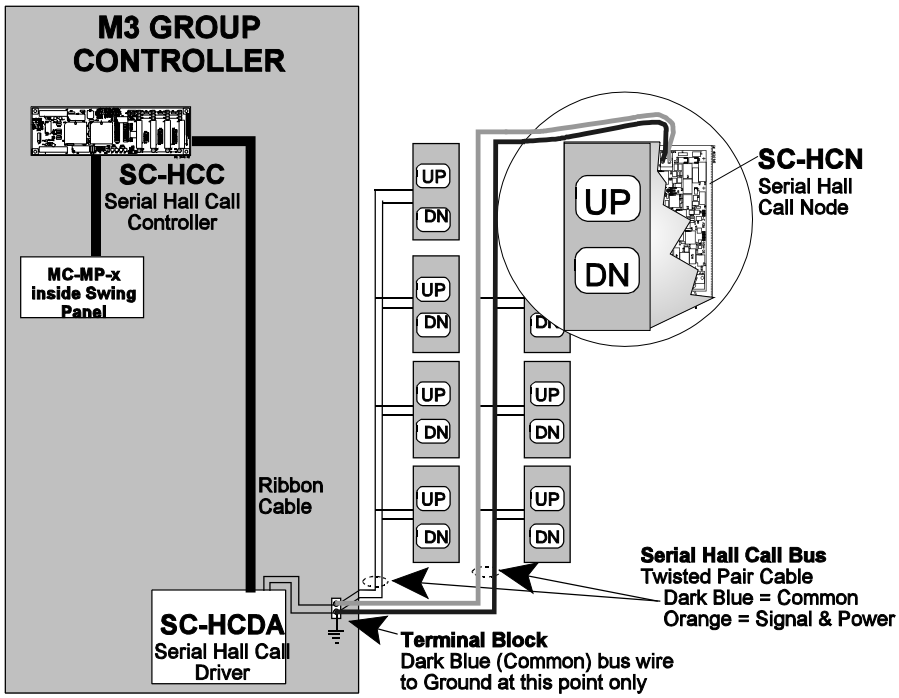
2.5.1 PHYSICAL LOCATION OF THE COMPONENTS

The SmartLink Serial Hall System is comprised of the following:

- SC-HCC Serial Hall Call Controller Board
- SC-HCDA Serial Hall Call Driver Assembly Board
- SC-HCN Serial Hall Call Node Boards

The SC-HCC Serial Hall Call Controller board is mounted in the Input/Output Board area of the M3 Group Supervisor cabinet. The SC-HCDA Serial Hall Call Driver(s) are mounted near the bottom of the M3 Group Supervisor cabinet. The SC-HCN Serial Hall Call Node boards must be installed in the hall call button enclosures at each landing.

FIGURE 2.5 SmartLink Serial Communication for Hall Call Signals

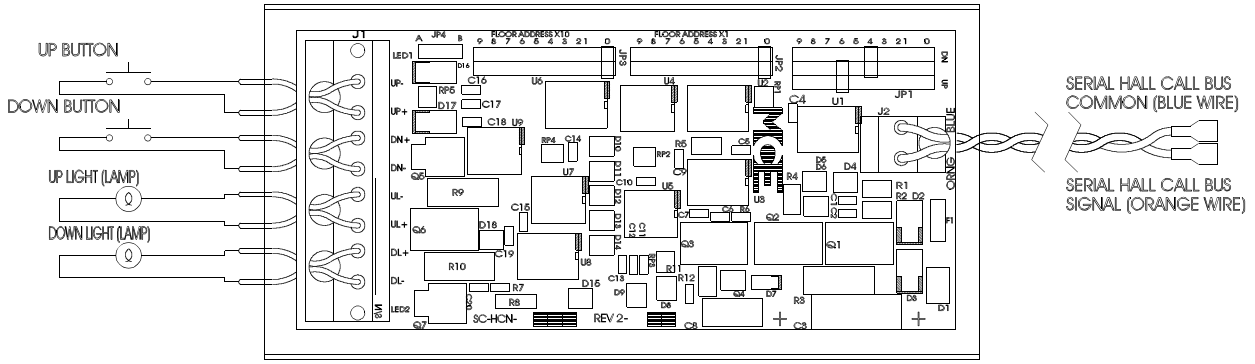


2.5.2 INSTALLING THE SERIAL HALL CALL BUS WIRES

An installation requires one or more vertical bus wire runs. The best installation practice is to originate each separate vertical bus wire run from the Group Supervisor location. Multiple bus wire circuits can be paralleled at the controller (Terminal Block) to establish common bus wires (see Figure 2.5). This practice will result in the best reliability, and will enable the greatest flexibility in installing the Group Supervisor and locating electrical bus wiring faults. Refer to the drawings titled "*Serial Hall Call Suggested Wiring Methods*" in the Job Prints for installation instructions.

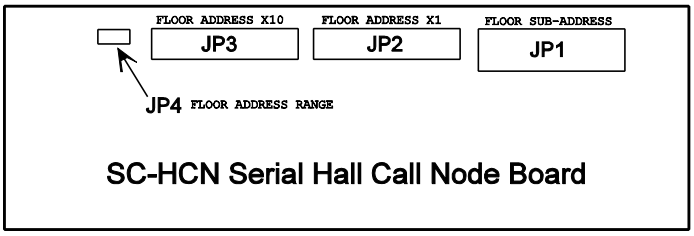
2.5.3 INSTALLING THE JUMPERS ON THE SC-HCN NODE BOARDS

FIGURE 2.6 SC-HCN Serial Hall Call Node Board



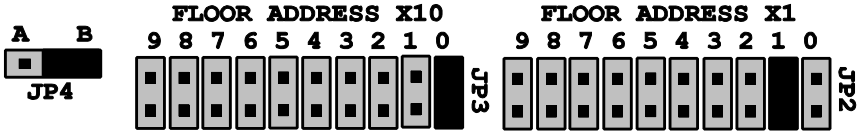
SC-HCN Serial Hall Call Node board - One node board is installed inside each hall call button enclosure. Floor Address jumpers identify the floor on which the board is located.

FIGURE 2.7 SC-HCN Node Board Jumper Locations



NOTE: The node board will not function if more than one jumper is installed on a pin group. Never install more than one jumper on pin groups JP2 and JP3. Never install more than two jumpers on JP1, one in the UP row and one in the DN row.

JP2 and JP3 - identify the floor. Jumper JP2 indicates the 1's place and JP3 indicates the 10's place in the floor (landing) number. In the following example floor 01 is selected:



JP4 - when JP4 is loaded, it must be set to position 'A' or 'B' and agree with the JP16 setting on the SC-HCC board. **Position A for up to 48 floors, position B for more than 48 floors.** Depending on job requirements, JP4 may not be loaded. If a jumper is not loaded at JP4, no action is required.

JP1 - determines the floor sub-address.

The default sub-address for DOWN FRONT hall calls is '4'. The default sub-address for UP FRONT hall calls is '6'. If no jumpers are installed on JP1, the default addresses will be invoked.

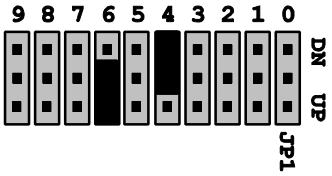
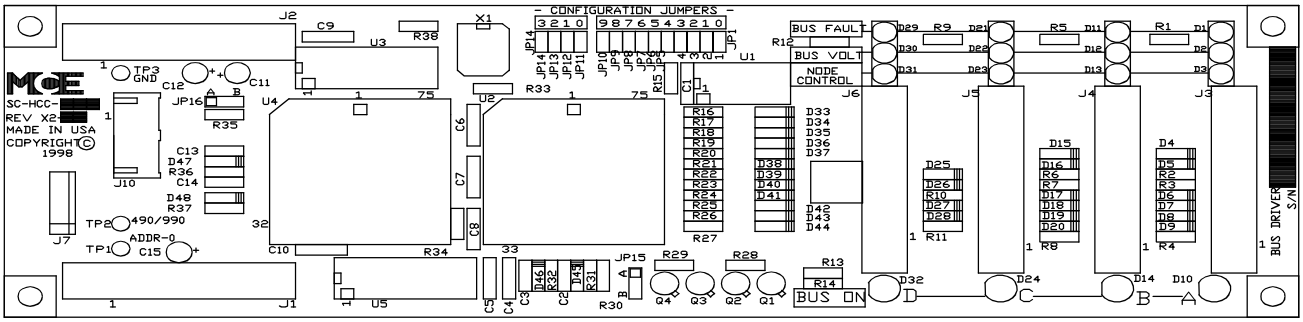


Table 2.2 Sub-Address Definition Table

Sub-Address	Definition	Sub-Address	Definition
0	Down Call Front, Auxiliary	5	Down Call Rear, Standard
1	Down Call Rear, Auxiliary	6	Up Call Front, Standard (default)
2	Up Call Front, Auxiliary	7	Up Call Rear, Standard
3	Up Call Rear, Auxiliary	8	Hospital Call Front
4	Down Call Front, Standard (default)	9	Hospital Call Rear

2.5.4 SETTING THE JUMPERS ON THE SC-HCC BOARD

FIGURE 2.8 SC-HCC Serial Hall Call Controller Board



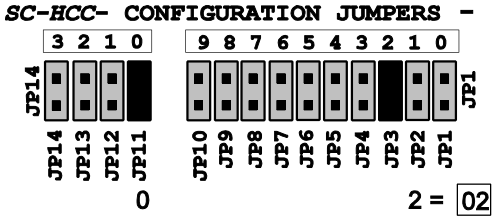
SC-HCC Serial Hall Call Controller board - This board decodes the call signals from the node boards to the MC-MP-1ES board. Then, based on information from the MC-MP-1ES, the SC-HCC generates multiplexed signals telling the node boards to turn the call lamps ON or OFF. On very tall buildings and/or buildings with multiple call boxes per floor, more than one Serial Hall Call bus may be required to handle the lamp current load. One SC-HCC board can interface up to four Serial Hall Call busses. Each bus requires a separate driver assembly.

CHANGING THE SETTING OF THE SC-HCC BOARD JUMPERS

NOTE: If replacing an SC-HCC board, set the configuration jumpers on the new board the same as the old. If I/O boards are being added or removed the configuration jumper on the SC-HCC must be changed. Because the MC-MP-1ES board communicates with many boards, JP1 - JP14, on the SC-HCC board are used to let the SC-HCC board know (via number of bytes) when the MC-MP_IES is communicating with it. Consult the following table to set jumpers.

Board	Bytes
HC-IOX	1
HC-I40	1
HC-CI/O	2

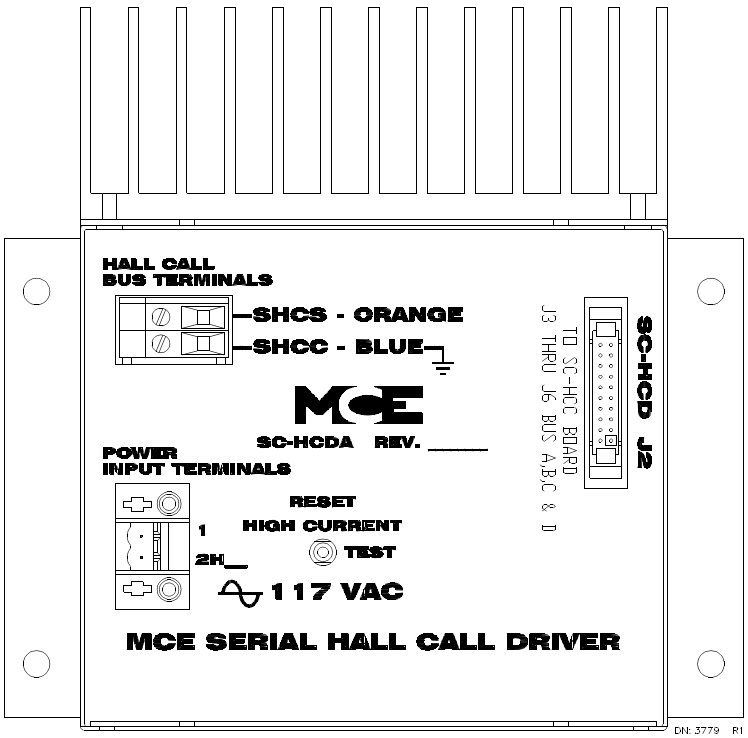
Example: controller has two HC-I40 boards or one HC-I40 and one HC-IOX board (total 2 bytes). JP11 thru JP14 should be set to '0' and jumpers JP1 thru JP10 should be set to '2' as shown below.



JP15 - JP15 must be installed in position 'B' unless other instructions are provided in the job prints. In position A, the indicator turns on immediately after pressing the call button. In position B, the MC-MP must recognize the call before the indicator will illuminate.

JP16 - **When JP16 is loaded, Position A for up to 48 floors, position B for more than 48 floors.** Depending on job requirements, JP16 may not be loaded. If a jumper is not loaded at JP16, no action is required.

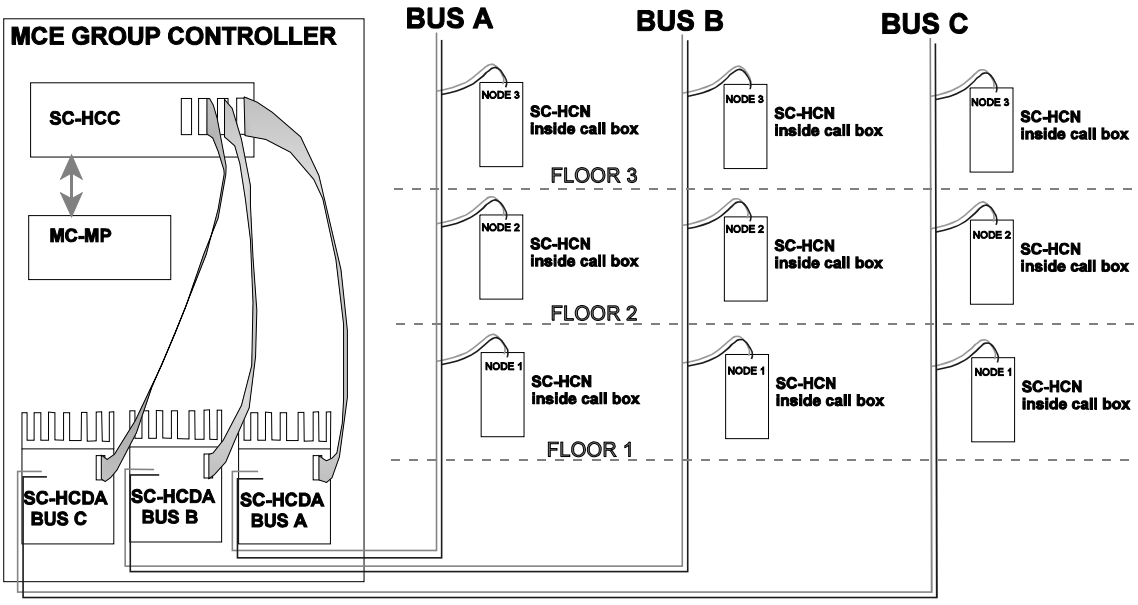
FIGURE 2.9 SC-HCDA Serial Hall Call Driver Assembly (Top View)



11.1.4 SC-HCDA Serial Hall Call Driver Assembly - This assembly provides the power needed to run the Serial Hall Call Node boards and the call lamps.

FIGURE 2.10 Multiple Driver Connection for SC-HCDA

In this example, three drivers (SC-HCDA) are used for redundancy to register calls at different call boxes on the same floor. All the call boxes on the same floor are addressed as node 1 (Position Indicator 1) and work independently (as an OR gate).



SECTION 3
START-UP

3.0 GENERAL INFORMATION

This section covers powering up the M3 Group Supervisor and verifying that all of the Hall Call and Fire Service input and output signals are properly wired and registered by the computer. Installation of the CRT terminal, Hall Call System and the High Speed Serial Communication Link will also be checked.

3.1 CHECKING FOR IMPROPER GROUNDS

Conduct a ground test before powering up the system. Power to the Group Supervisor must be OFF. Refer to Figure 1.2 to help identify items referred to in the ground check.

NOTE: A short to ground is defined as having a resistance of less than 20 ohms between the 1-bus (common) and the terminal being checked.

a. Remove the F2F and F2H fuses in the M3 Group Supervisor.

b. Check for shorts to ground on all of the terminals on the HC-IOX or HC-I4O and HC-CI/O or SC-HCC boards.

WARNING: Improper grounding can cause damage to the PC boards.

3.2 BEFORE APPLYING POWER

Before applying power, we recommend you unplug the screw terminal blocks from the HC-IOX or HC-I4O and HC-CI/O boards by moving the terminal blocks to the right. This will prevent damaging the boards by accidentally shorting one of the output devices to the 2F or 2H bus during initial power up. At this time, fuses F2F and F2H are still removed.

To become familiar with the Enhanced On-Board Diagnostics (EOD) refer to Section 4 of this manual. Make sure that all of the toggle switches on the front of the Computer Swing Panel are in the OFF (down) position.

WARNING: Power to the M3 Group Supervisor must come from the local Car Controllers as shown in Job Prints page (-2). Connecting the Group Supervisor directly to the building AC supply may cause damage to the PC boards.

3.3 APPLYING POWER

Turn ON power to the M3 Group Supervisor. Verify that all of the computers inside the Computer Swing Panel are operational by checking the Computer ON LEDs for each board. The Computer ON LED for the MC-MP-x, Main Computer board can be viewed from the front of the Computer Swing Panel. Look on the right side of the Computer Swing Panel for the MC-CGP, Dispatching Processor board Computer ON LED. To view the Computer ON LED for the MC-CGP-4(8) Communication Processor board, swing open the Computer Swing Panel by unscrewing the two thumbscrews and look at the back of the Computer Swing Panel in the lower right corner. All three of these indicators must be ON solidly, not flashing.

If any of the Computer ON LEDs are not *ON* solidly, a malfunction exists inside the Computer Swing Panel. First, check the power supply. Then verify that all three of the boards are properly connected through the ISBX (blue) connector on each board. Verify that each board has the EPROM(s) installed and that they are seated properly in their sockets. Refer to Appendix B for instructions on how to inspect and change EPROMs. Note that the MC-CGP and MC-CGP-4(8) boards use 2 EPROMs. Check *both* EPROMs on each board.

Once it has been verified that all of the computers are functioning properly, check the Diagnostic Indicators on the front of the Computer Swing Panel. With the Diagnostic On/Norm switch in the Norm position, these LEDs should be scrolling from right to left indicating that the Main Processor is looping, or they should be flashing to indicate a status or error condition. Table 4.1, *MC-MP Status and Error Messages*, provides a list of the messages which may be displayed. See Section 4 for detailed information on the Diagnostic Indicators and their functions. The alphanumeric display should show the time of day.

Turn OFF the power and re-install fuses F2F and F2H. Also, plug in the connectors that were unplugged from the HC-IOX or HC-I4O and HC-CI/O boards. Then turn ON the power to the M3 Group Supervisor.

3.4 VERIFYING CRT TERMINAL/EMULATOR OPERATION

Verify that the CRT terminal power plug is plugged into the AC line inside the Group Supervisor cabinet and that the CRT terminal is turned ON. Verify that the keyboard cable is connected to the CRT terminal and that the cable between the MC-RS board and the back of terminal is securely connected. Verify that the COM switch on the MC-RS board, for the COM port connected to the CRT terminal, is set to DCE. The terminal screen should show the MCE logo with a blinking message, *Press any key to begin*. Press any key to display the Group Supervisor Main Menu screen (Figures 3.1 and 3.2). If the CRT terminal is working properly, go to Section 3.4.1.

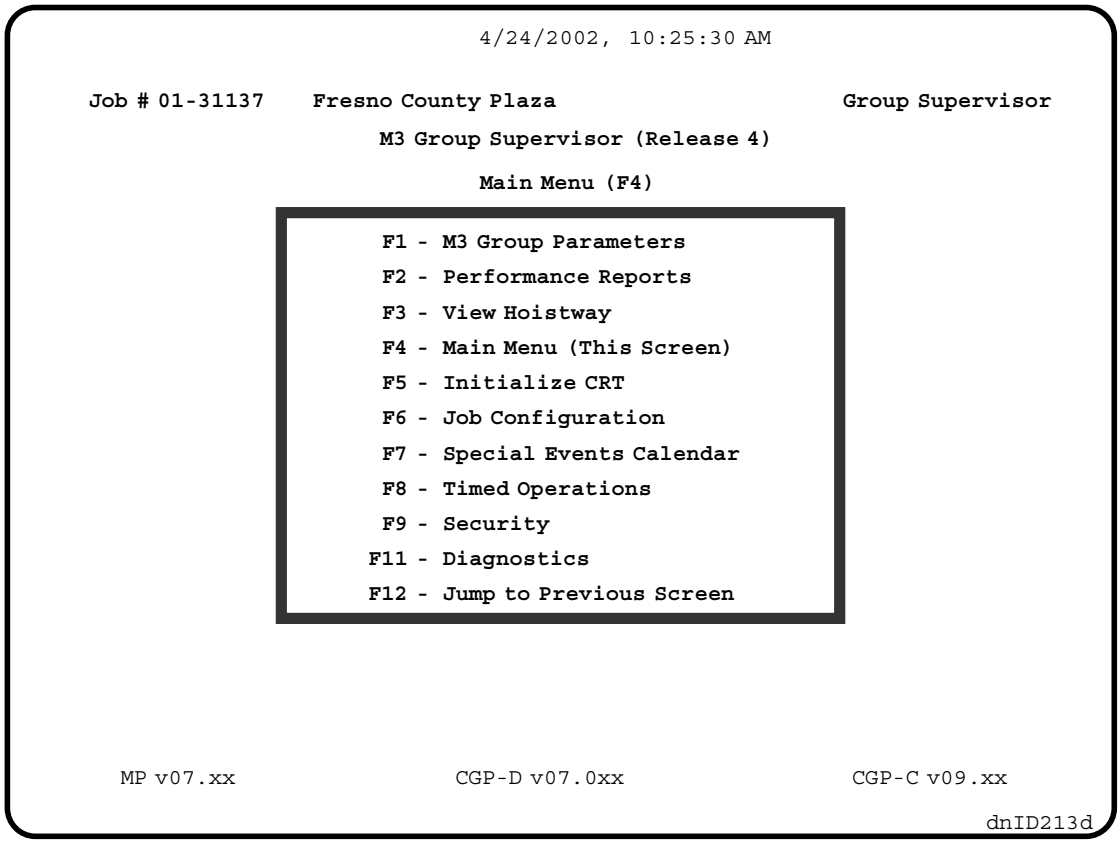
If any problems are encountered, perform the terminal setup procedure for the CRT Terminal or Terminal Emulator as described in Appendix F of this manual. The CRT /emulator should be disconnected from the Controller for terminal setup. Also check the COM port settings using Appendix F or the Enhanced On-Board Diagnostics (EOD) in System Mode (see Section 4). If necessary, consult the troubleshooting section in the MCE Computer Peripherals manual MCE part # 42-02-CP00.

3.4.1 M3 GROUP SUPERVISOR MAIN MENU

After power up and initialization, the CRT terminal screen shows the MCE logo with the blinking message, *Press any key to begin*. Press any key to display the Group Supervisor Main Menu screen. Figure 3.1 shows the Main Menu screen.

NOTE: Not all menu items shown in Figures 3.1 are available on all M3 Group Systems. Options which are not available will not appear on the Main Menu.

FIGURE 3.1 M3 Group Supervisor Main Menu Screen



3.5 SETTING THE REAL TIME CLOCK

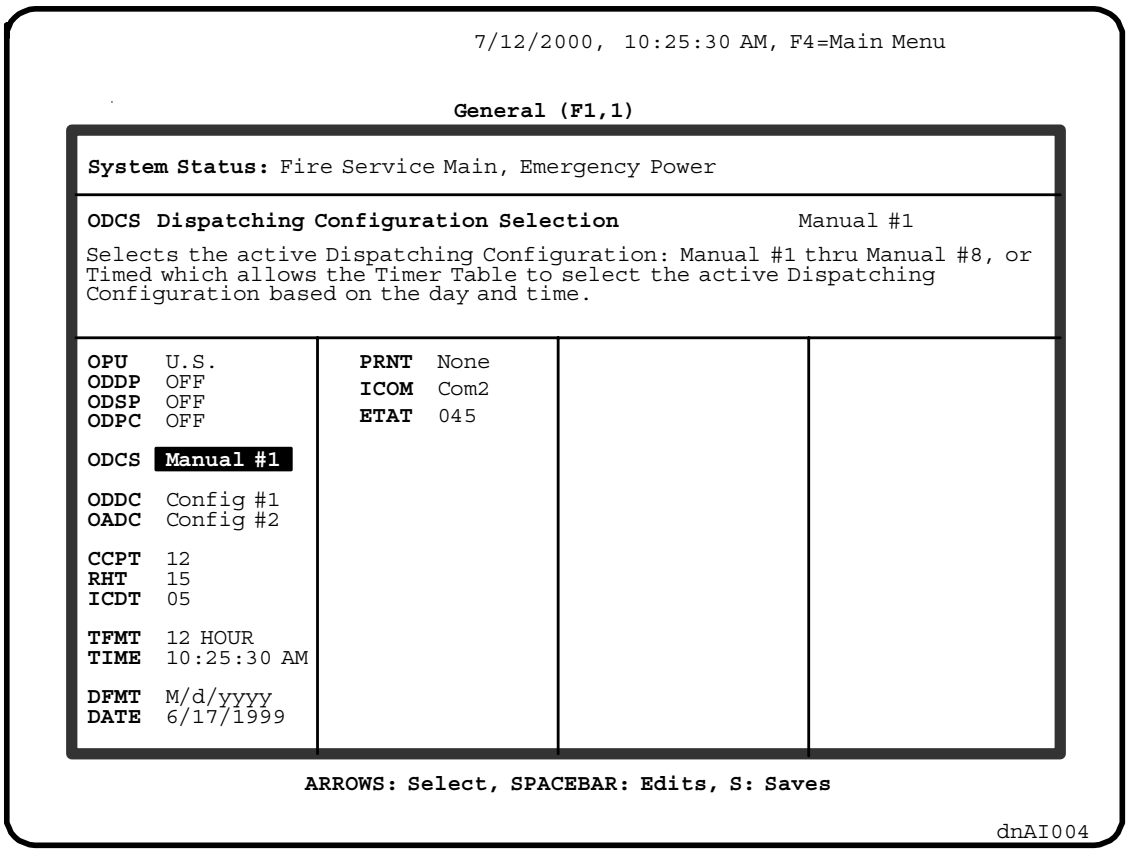
Verify that the real time clock is set to the correct date and time. This is important because all system performance, event calendar entries and Dispatching / Security Timer Table decisions are referenced to the real time clock. There are two methods to set or check the real time clock, (1) using the Computer Swing Panel (see Section 4.2.5, *Setting the Real Time Clock*) or (2) using the CRT terminal (see Section 3.5.1).

NOTE: The Group Supervisor real time clock value is transferred to each local Car Controller's real time clock via the High Speed Communication Link. The real time clock value for an M3 Group System *must* be set at the Group Supervisor.

3.5.1 USING THE CRT TERMINAL - This topic describes selecting and editing parameters using the CRT terminal.

SELECTING PARAMETERS FOR EDITING - Display the screen that lists the parameter you wish to edit. For example, to change the **TIME**, the General (F1 - 1) screen must be displayed. Press **F1** while the Main Menu is displayed and press **1** while the M3 Group Parameters Menu is displayed (see Figure 3.2).

FIGURE 3.2 General (F1, 1) Screen



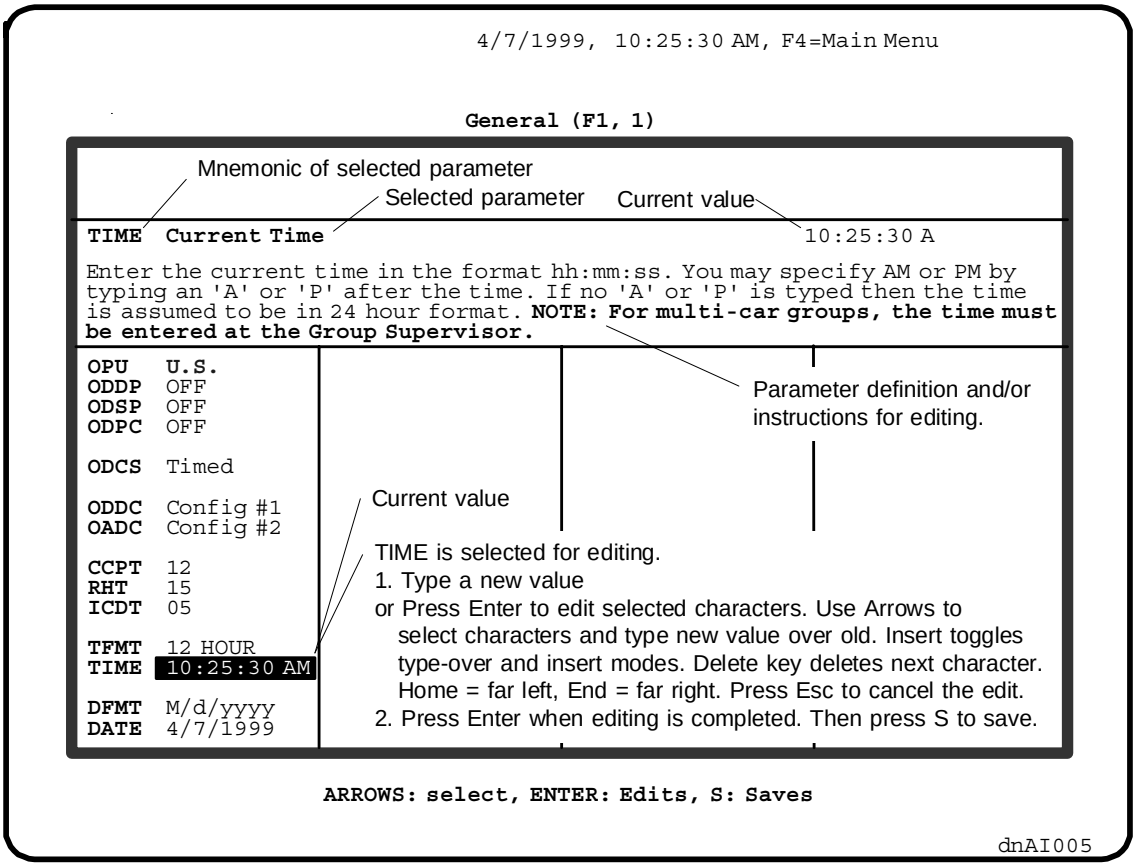
In Figure 3.2 the highlighted value for the **ODCS** parameter is selected for editing. Press the **Arrow** keys to select the desired parameter. In our example, select TIME by pressing the Down Arrow until TIME is highlighted (see Figure 3.3). When selected for editing, the current value for TIME will be highlighted (displayed in reverse video). Notice that the full parameter name for TIME, **Current Time**, is displayed in the box above the columns and the current value is also displayed to the right in the same box. Below that are instructions for editing the TIME.

EDITING METHODS - There are two methods of modifying the parameter value once the desired value is highlighted.

1. Type the new value using the **number keys** on the upper portion of the keyboard or on the number keypad with *Num Lock* ON. When the desired value is displayed, press **Enter**. If the parameter is listed with two or more values in parenthesis, such as OPU, Parameter Units (U.S. / METRIC) use the **Space Bar** or (**+** / **-**) keys to toggle the value. Then press **Enter**. If an arrow key is pressed to select another parameter, the edited parameter value is displayed in **bold** type. It will remain bold (different color), to indicate that the value was changed, until the new value is *saved* as described below. The new value does not become effective until it is saved.

2. Press the **Enter** key to select the value for editing. At this point virtually all of the normal text editing keys are active. The **Arrow** keys allow selection of a single character to be changed. **Type** a new character to replace the selected character. The **Delete** key deletes the selected character. The **End** key moves the cursor to the far right and the **Home** key moves the cursor to the far left. The **Insert** key toggles between type-over and insert modes. When you have finished editing, press **Enter**.

FIGURE 3.3 Editing TIME on the General (F1, 1) Screen



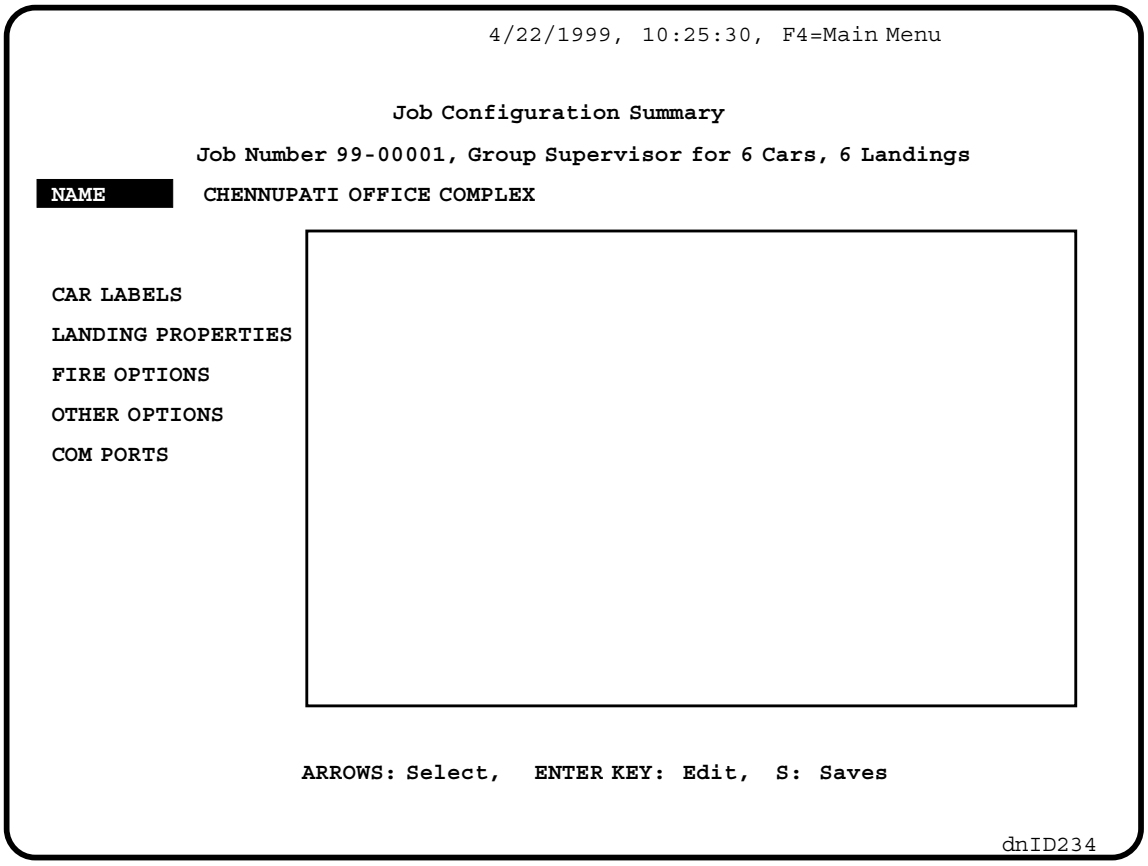
SAVING THE CHANGES - Edited parameter values do not become effective until they are *saved*. Save the changes by pressing the **S** key. A confirmation message, **`Save Changes? (Y/N),`** is displayed. Press **Y** to save or **N** not to save. If you exit the parameter screen without saving, the message, **`Save Changes? (Y/N)`**, will be displayed. If **N** is pressed, a confirmation message, **`Parameters were NOT saved`**, is displayed. If **Y** is pressed, a confirmation message, **`Saving...`**, and then, **`Save Complete`**, is displayed. If there is a problem the message **`*** ERROR Saving Parameters ***`** is displayed. If any new value is outside the acceptable range for that parameter, the computer will substitute the closest acceptable value, and that value will be saved and displayed.

3.6 VERIFYING THE JOB CONFIGURATION SUMMARY

The Job Configuration screen summarizes the specifics for each elevator installation. Verify that this information is correct. Access Job Configuration from the Main Menu by pressing **F6** (Figure 3.4).

The Job Name, Car Labels and Landing Labels can be changed to fit the individual job requirements. Other items on this screen are for viewing only. Select each item using the **Up / Down Arrow** keys and verify that this information is correct. If there are any discrepancies, call MCE immediately and the factory will provide a modified EPROM.

FIGURE 3.4 Job Configuration Summary (F6) Screen



3.6.1 DEFAULT ALL PARAMETERS

When software is upgraded, it may be necessary to default the Group Parameters. From the General Parameters screen (see Figure 3.2) set *ODPC* (Option to Reset CGP Parameters) to ***ON*** and save the page.

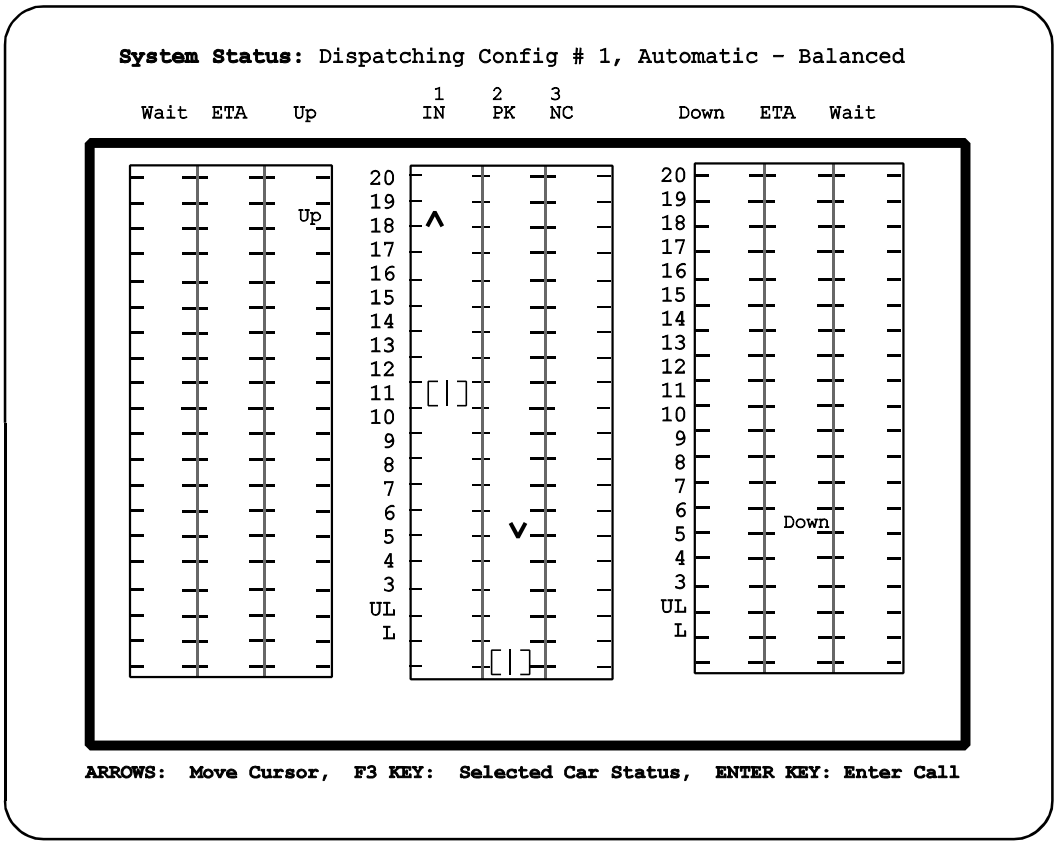
3.7 VERIFYING THE HALL CALL WIRING - DIRECT WIRE SYSTEM

This section describes verifying hall call wiring for systems with hall call hardware wired directly to the input/output terminals inside the Group Supervisor. Verification may be done using either the CRT terminal or the Enhanced On-Board Diagnostics (EOD) on the Group Supervisor Computer Swing Panel.

To use the EOD, refer to Section 4.3.4, *Viewing and Entering Calls*. Dial the calls for the first floor, activate the call button, and verify that the proper Diagnostic Indicator LED illuminates.

To use the CRT terminal, press the **F3** key to access the Graphic Display of Elevator Status screen. This screen shows all of the registered hall calls. By activating the call buttons, it is possible to verify, on the F3 screen, that the proper hall call is registered. Note that the symbol shown in the Up (UP) and the Down (DN) columns show the registered hall calls, whereas, the arrow shown inside the hoistway shows the assignment of a hall call to a specific car.

FIGURE 3.5 Graphic Display of Elevator Status (F3) Screen

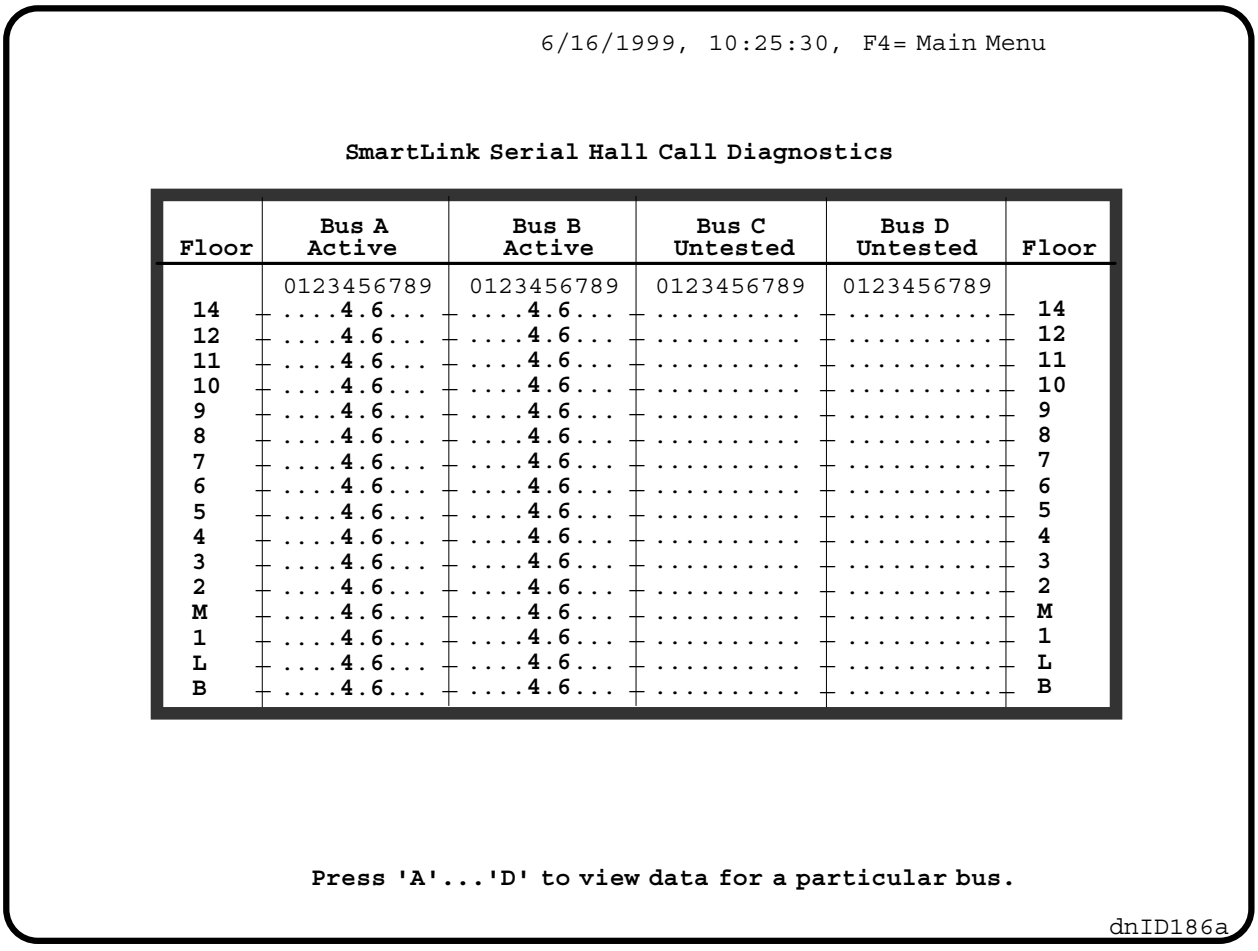


At this time, it would be useful to learn how to enter hall calls using the keyboard or the EOD. To enter hall calls using the EOD, refer to Section 4.3.4, *Viewing and Entering Calls*. To enter hall calls using the keyboard, the F3 screen must be displayed. Use the **right or left arrow** keys to move the cursor to the proper hall call column (UP or DN). Use the **up or down arrow** keys to move the cursor to the proper floor. Flashing (or colored) brackets indicate the chosen call location. Press **Enter** to register a hall call. Note that the same scheme can be used to enter car calls by placing the cursor in the appropriate car's hoistway shown on the F3 screen and pressing Enter.

3.8 VERIFYING THE OPERATION OF THE SERIAL HALL CALL SYSTEM

The following instructions pertain to Group Systems equipped with SmartLink Serial Communication for Hall Call Signals. The Serial Hall Call diagnostics are accessed from the Diagnostics Menu. The main Serial Hall Call Diagnostics screen displays the status of busses A thru D at the top of each column, i.e. Active, Untested, etc. The inventory of Serial Hall Call nodes is displayed within the columns. Initially the columns will likely be blank and “Untested” will appear at the top as shown in the Bus C and Bus D columns in Figure 3.6.

FIGURE 3.6 SmartLink Serial Hall Call Diagnostics Screen (F11, 2)

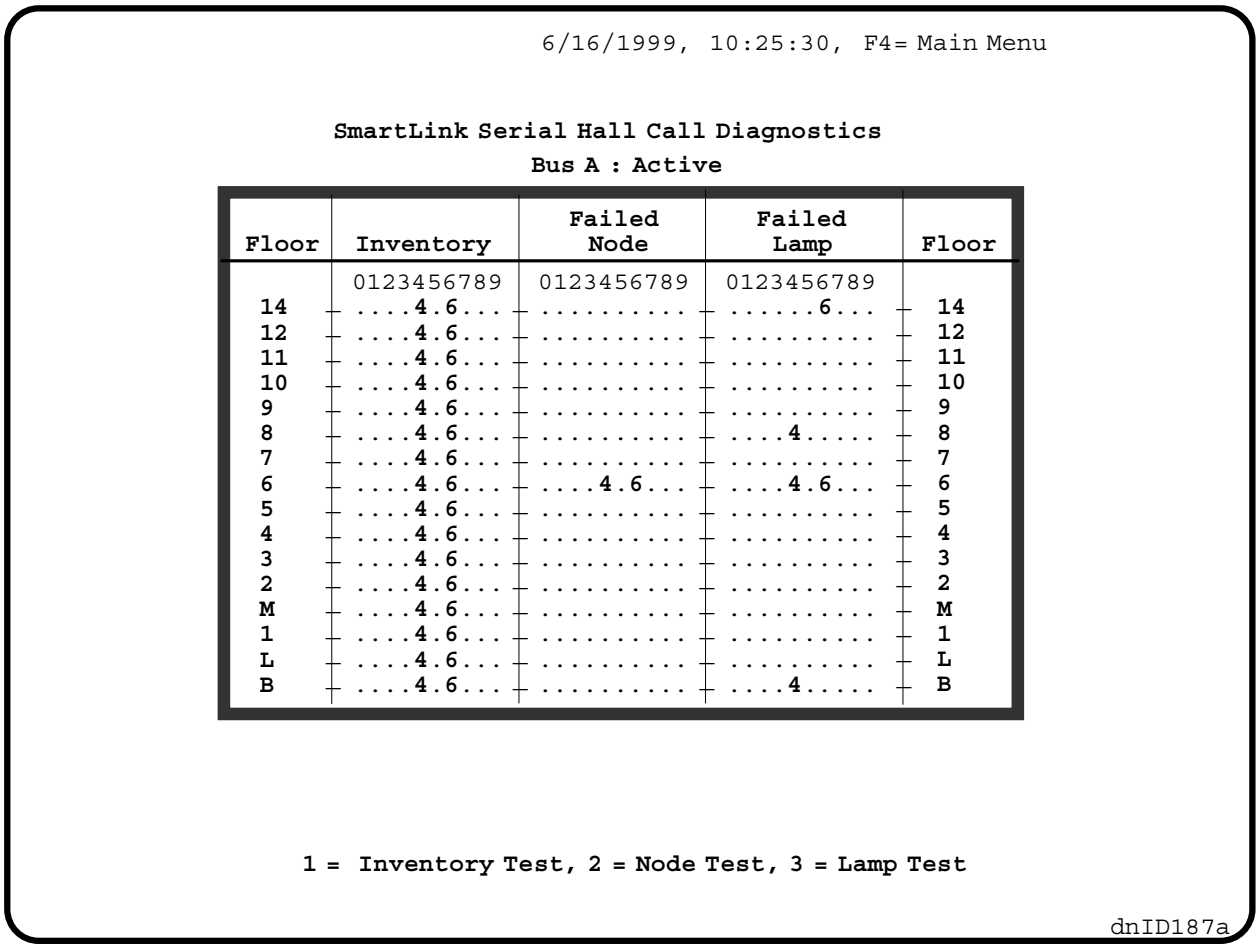


Additional information and diagnostics are available on the individual bus screens which are accessed by pressing keys **A** thru **D**. Press **A** to access the Serial Hall Call **Bus A** screen (Figure 3.7). Again, the columns will likely be blank and **Bus A : Untested** will be displayed above the columns. Any information which may be present will have resulted from the testing of the controller at the factory and will not be valid for this installation until a new inventory is taken as described in Section 3.8.1, *Taking an Inventory*.

3.8.1 TAKING AN INVENTORY

An *inventory* is a reference list of active nodes on any given serial hall call bus. The inventory list is used by the M3 Group Supervisor to perform diagnostic tests and to speed up the processing of node-related diagnostic functions. The node inventory function is also very helpful during the installation phase, as it helps the installer to determine if the installed nodes are functioning properly. It is important that a *final inventory* be taken once all nodes are installed properly, to take advantage of the diagnostic features and to make the system run as efficiently as possible. Note, however, that the basic hall call input/output system will still work properly even if a node inventory is not performed.

FIGURE 3.7 SmartLink Serial Hall Call Diagnostics (Bus A) Screen



When an individual bus screen is displayed for one of the busses (see Figure 3.7), an inventory of the working nodes connected to that particular bus can be taken. Pressing the **1** key will take an inventory of the operational nodes on that bus. Once the inventory has been taken, the column labeled *Inventory* will be filled with numbers representing the node sub-addresses that have reported as operational. Figure 3.7 shows a typical inventory report for Bus A, indicating that nodes have responded on all of the floors in the sample installation. If, for example, the node located on floor 5 was installed improperly, no sub-address entries would appear on the row corresponding to floor 5, indicating a malfunction and that some remedial work is necessary at that floor. In the example given in Figure 3.7, all of the nodes are set in their *default sub-address configuration* (sub-addresses 4 and 6, which represent the front opening down and up hall calls, respectively).

A missing sub-address entry in the inventory indicates a non-working node. Consult Section 2.5, *Installing the SmartLink Serial Hall Call System,* Section 6.3, *Troubleshooting the SmartLink Serial Hall Call System* and the Job Prints for information as to why a node may not be working. Make corrections as necessary and repeat the inventory until all nodes have reported properly.

The Node Inventory function takes only a few seconds and should be performed as part of system installation. It provides immediate feedback related to the health of the nodes connected to the bus. If multiple busses are used, an inventory should be taken for each.

3.8.2 TESTING THE NODES

Once the final inventory has been taken, the current operational status of the nodes on a bus should be checked by performing the Node Test. Pressing **2**, from the individual bus display screen, will initiate a Node Test, which queries the nodes on the bus in a manner similar to taking an inventory. Once the test is complete, a report is generated in the column labeled *Failed Node*. Any sub-address entries that are found in this column are indications of nodes which appear in the node inventory, but are no longer operational. Figure 3.7 shows a single entry in the Failed Node column, indicating that the node on floor 6 is no longer responding to the queries.

An entry in the Failed Node column indicates a non-working node. Consult Section 2.5, *Installing the SmartLink Serial Hall Call System,* Section 6.3, *Troubleshooting the SmartLink Serial Hall Call System* and the Job Prints for information as to why a node may not be working. Make corrections as necessary and repeat the Node Test until all nodes have reported properly (there are no entries in the Failed Node column).

The Node Test should be performed as part of the periodic maintenance of the system, and takes only a few seconds to perform. It provides immediate feedback related to the health of the nodes connected to the bus. If multiple busses are used, this test should be performed for each bus.

3.8.3 TESTING THE LAMPS

Pressing **3**, from the individual bus display screen, will initiate a Lamp Test. This test will generate a report of non-working lamps in the column labeled *Failed Lamp*. The example given in Figure 3.7 shows a number of node sub-addresses that are reporting failed lamps, at floors B, 6, 8 and 14.

The Lamp Test is performed by isolating the bus being tested (all other busses are disabled) and activating each lamp one at a time to determine if current flow is detected corresponding to the successful activation of that lamp. The duration of the lamp test will depend upon the number of floors that must be tested. The lamp test requires approximately 4 seconds per floor, so the total time (in seconds) to perform the lamp test is 4 x (number of floors).

Note that each node is fully tested by the SmartLink Serial Hall Call Diagnostics during the Lamp Test. Consequently, the nodes installed at the top and bottom landings will likely report a failed lamp for the call circuit that is unused (the down call at the bottom landing and the up call at the top landing). The example shown in Figure 3.7 illustrates the *expected* failure reported at floors B and 14.

3.8.4 BUS STATUS

The status displayed above the columns in Figure 3.7 and at the top of the columns in Figure 3.6 indicates the current bus status. The bus status can be one of the following:

1. Active = the bus is active
2. Inactive = the bus is inactive
3. Low Voltage = the bus voltage is low
4. High Current = the bus current is high
5. Shorted Bus = the bus is shorted
6. Drvr Shut Dn = the driver has been shut down
7. Untested = an inventory of this bus has not been taken

3.9 VERIFYING THE HIGH SPEED SERIAL COMMUNICATION LINK

The High-Speed Serial Cable must be connected to the Group Supervisor MC-RS, Communication Interface board and at least one local Car Controller Communication Interface board as described in Section 2.4.4, *Installing the High Speed Communication Cable.* Turn ON the power to both controllers. To verify that the communication link is functional, first check the *Group to Car Communication OK* LED indicators on the front of the Group Supervisor Computer Swing Panel. Then, verify proper termination of the communication cable by observing the communication error counters on the Group Supervisor Computer Swing Panel as described in Section 3.9.1. The Network Status diagnostics screen can be used to verify proper termination as described in Section 3.9.2.

Balancing the High-Speed Communication Cable - High-speed serial communication is achieved using two balanced, shielded, twisted pair cables. For this communication link to work properly, care must be taken in terminating the cable for proper balancing. The high-speed serial communication link is in the form of a daisy chain (see the Job Prints drawing titled *Group Interconnects*, drawing -1GI). Termination is achieved by installing or removing shunts on jumpers JP1 and JP2 on the Communication Interface boards (MC-RS or MC-MRS, see Figure 3.8) that are at each end of the communication chain. Usually this will be the Group Supervisor at one end and the last Car Controller at the other end. These termination jumpers connect a resistor between each of the two balanced signal pairs, thereby eliminating reflections that typically occur near the ends of the high-speed communication lines.

Section 3.9.1 describes the procedure used to verify proper termination of the High Speed Serial Communication Link using the Computer Swing Panel Diagnostic Indicators. Section 3.9.2 describes the procedure using the Network Status diagnostics screen.

NOTE: It is necessary to set each local car's address for communication with the Group Supervisor for IMC Car Controllers with the following software:

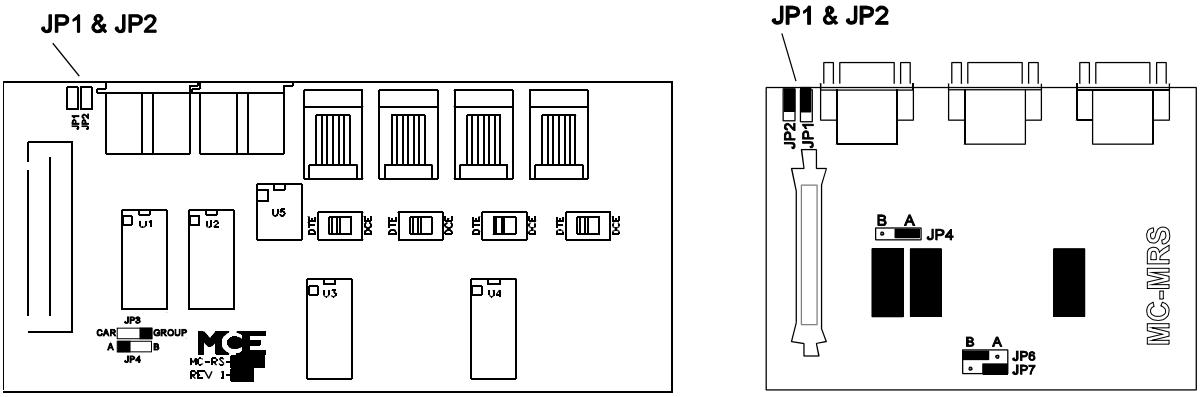
- Verify/set the CNID, *Car Network ID* parameter on each local Car Controller's General (Shift F1) screen.

3.9.1 USING THE EOD COMMUNICATION ERROR COUNTERS

Communication errors between the Group Supervisor and each Car Controller are detected by the Group Supervisor. Table 3.1 shows the location of the memory addresses that store the error counter data. At these addresses, the Computer Swing Panel Diagnostic Indicators (1 thru 4) display the error counter data. The indicators change each time an error occurs. Add or remove shunts from JP1 and JP2 on the MC-RS or MC-MRS Communication Interface boards at each end of the communication chain to achieve the lowest (most infrequent) error count for all cars. The goal is to have Diagnostic Indicator 7 ON solidly and indicators 1 thru 4 not changing (no errors) or changing infrequently - less than once per second (infrequent errors).

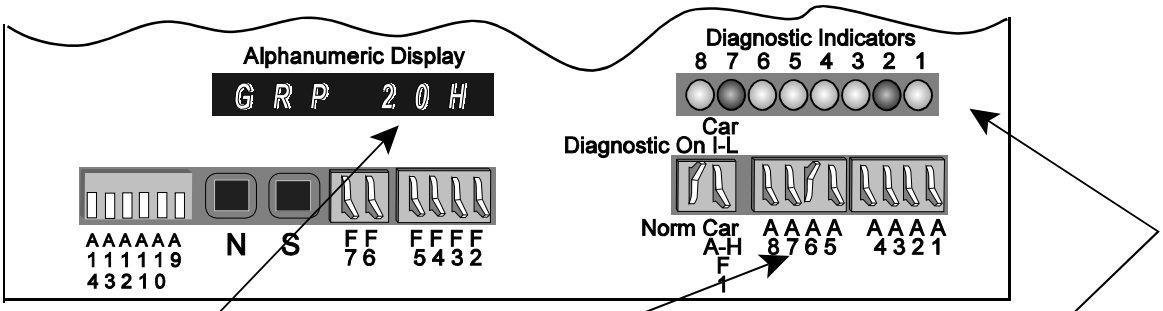
JP1 is for clock termination.
JP2 is for data termination.

Figure 3.8 Jumpers JP1 & JP2 on MC-RS and MC-MRS boards



Place the EOD in Diagnostics Mode by placing the Diagnostic On/Normal switch in the ON (up) position with the F1 thru F7 switches OFF (down). Consult Table 3.1 for the location of the memory addresses that store the error counter data. For example, at address 20H, Diagnostic Indicators 1 thru 4 show the binary error counter for communication to Car A. To access memory location 20H, set address switch A6 to ON (up) with all other address switches (A1 thru A14) OFF (down). The alphanumeric display will read GRP 20H (see Figure 3.9, *Viewing the Group Supervisor MP Flags at Address 20H).*

FIGURE 3.9 Viewing the Group Supervisor MP flags at Address 20H (from Table 3.1)



DIAGNOSTIC MODE ADDRESSES AND VARIABLE FLAGS (GROUP)

Computer Memory Address (Hex)	Toggle Switches Diagnostic On ↓ F1 A8.....A5 A4.....A1	Diagnostic Indicators LED *On* = variable flag is On or Active 8	7	6	5	4	3	2	1
20			COM OK			Car A Comm. Error Counter			

DNmd 016

In the example, Group address 20H has been selected (see Table 3.1). The Diagnostic On/Norm and A6 switches are ON (up). All other switches are OFF. The alphanumeric display reads GRP 20H. The flags that can be viewed from this address are listed on the right. Check the Diagnostic Indicators on the front of the Computer Swing Panel. LEDs 1 thru 4 are a binary counter which is counting the errors in communication between the Group Supervisor and Local Car A.

LED	Description
8	
7	Communication is OK if ON solidly
6	
5	
4	LEDs 1 thru 4 - Binary Counter, Counts errors in communication between the Group Supervisor and Local Car A
3	
2	
1	

In the installation phase, as new cars are added to the system, the shunts on JP1 and JP2 should be moved to the last car in the group and the communication error counters should be re-checked.

TABLE 3.1 Communication Error Counter Addresses

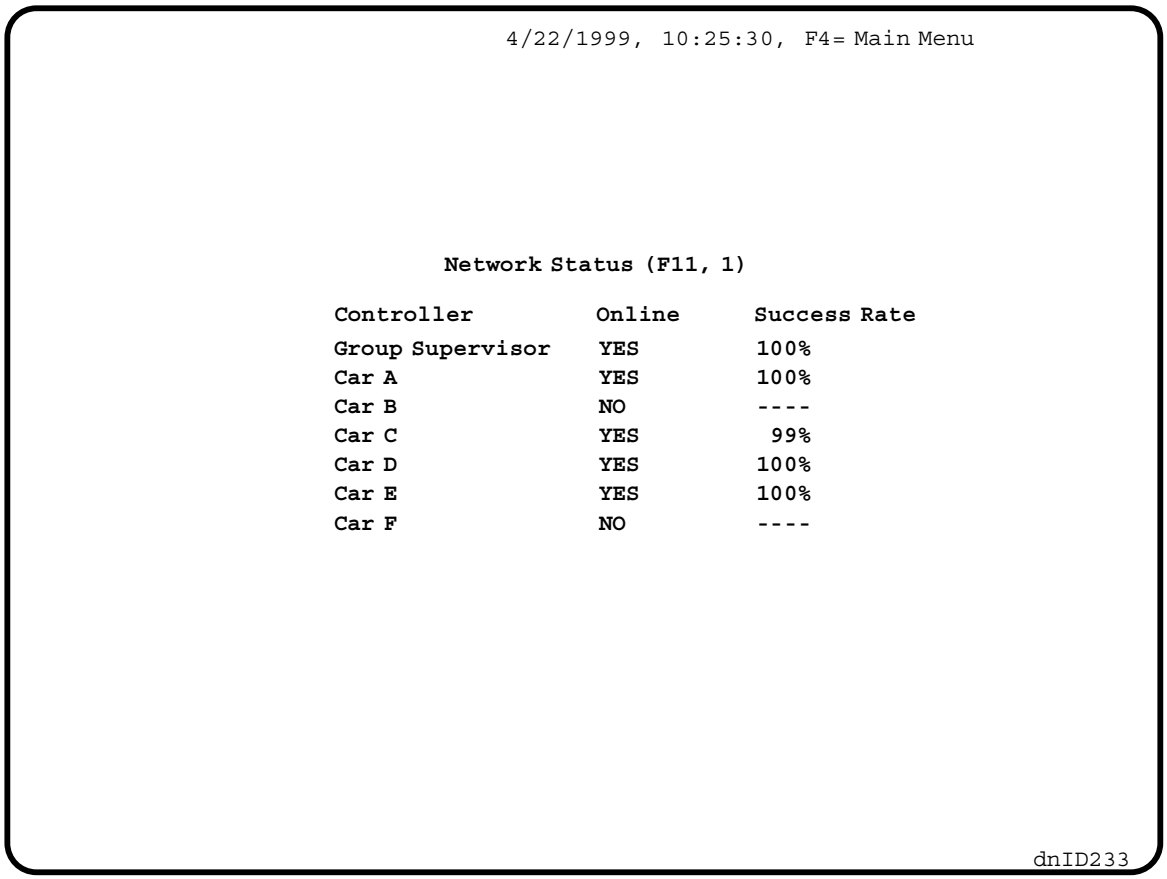
Communication Error Counter Addresses (GROUP)*										
Computer Memory Address (Hex)	Toggle Switches Diagnostic On ↓ F1 A8.....A5 A4.....A1	Diagnostic Indicators LED *On* = variable flag is On or Active 8	7	6	5	4	3	2	1
20			COM OK			Car A Comm. Error Counter			
21			COM OK			Car B Comm. Error Counter			
22			COM OK			Car C Comm. Error Counter			
23			COM OK			Car D Comm. Error Counter			
24			COM OK			Car E Comm. Error Counter			
25			COM OK			Car F Comm. Error Counter			
26			COM OK			Car G Comm. Error Counter			
27			COM OK			Car H Comm. Error Counter			
28			COM OK			Car I Comm. Error Counter			
29			COM OK			Car J Comm. Error Counter			
2A			COM OK			Car K Comm. Error Counter			
2B			COM OK			Car L Comm. Error Counter			

* Group Supervisor (Group Flags) DNmd 020

3.9.2 USING THE NETWORK STATUS DIAGNOSTICS SCREEN

The M3 Group Supervisor has a Network Status diagnostics screen for viewing the status of communication between the Group Supervisor and the local Car Controllers. The Network Status screen is accessed from the Diagnostics Menu (F11) screen by pressing **1** (Figure 3.10).

FIGURE 3.10 Network Status (F11, 1) Screen



Proper termination of the High-Speed Serial Communication Link is achieved by installing or removing shunts on jumpers JP1 and JP2 on the MC-RS or MC-MRS Communication Interface boards (see Figure 3.8) at the ends of the communication chain while observing the Success Rate percentage for each local Car. The goal is to achieve 100% Success Rate for each car, or the highest percentage possible.

SECTION 4
ENHANCED ON-BOARD DIAGNOSTICS (EOD)

4.0 GENERAL INFORMATION

The M3 Group Supervisor includes comprehensive, user-friendly diagnostic tools to help the mechanic install, adjust, service and troubleshoot the equipment. The diagnostic tools available on the M3 Group Supervisor are:

- Computer Swing Panel Enhanced On-Board Diagnostics (EOD).
- CRT terminal or PC with user-friendly menus.

This section covers the Enhanced On-Board Diagnostics (EOD) available on the Computer Swing Panel. CRT terminal adjustment and diagnostics are covered in Section 5, *Parameter Adjustments* and Section 6, *Troubleshooting*.

4.1 ENHANCED ON-BOARD DIAGNOSTICS (EOD) OVERVIEW

The M3 Group Supervisor with Enhanced On-Board Diagnostics (EOD) is designed to be self-sufficient in that it does not require external devices to view basic diagnostic information. The Computer Swing Panel provides the Enhanced On-Board Diagnostics (EOD). A quick look at the switches and LEDs provides an overview of the Group Supervisor and its functions. Once familiar with the equipment, an elevator mechanic can understand the current operating conditions of the Group Supervisor and diagnose a problem using the EOD. No external devices are required to view the status of the Group Supervisor and see what the elevator control system is actually trying to do.

The EOD is a powerful tool to use for troubleshooting the control system. For example, although the signal from a switch might exist on the proper terminal in the controller, the M3 Group Supervisor may not respond to it. The mechanic must then determine if the Group Supervisor is malfunctioning, or if something else is creating a problem. The EOD will allow the mechanic to make this determination. This capability is particularly important because it has been found that the computer is the most reliable component in the control system. Usually the EOD will help pinpoint the real source of the problem, whether it is inside or outside the controller.

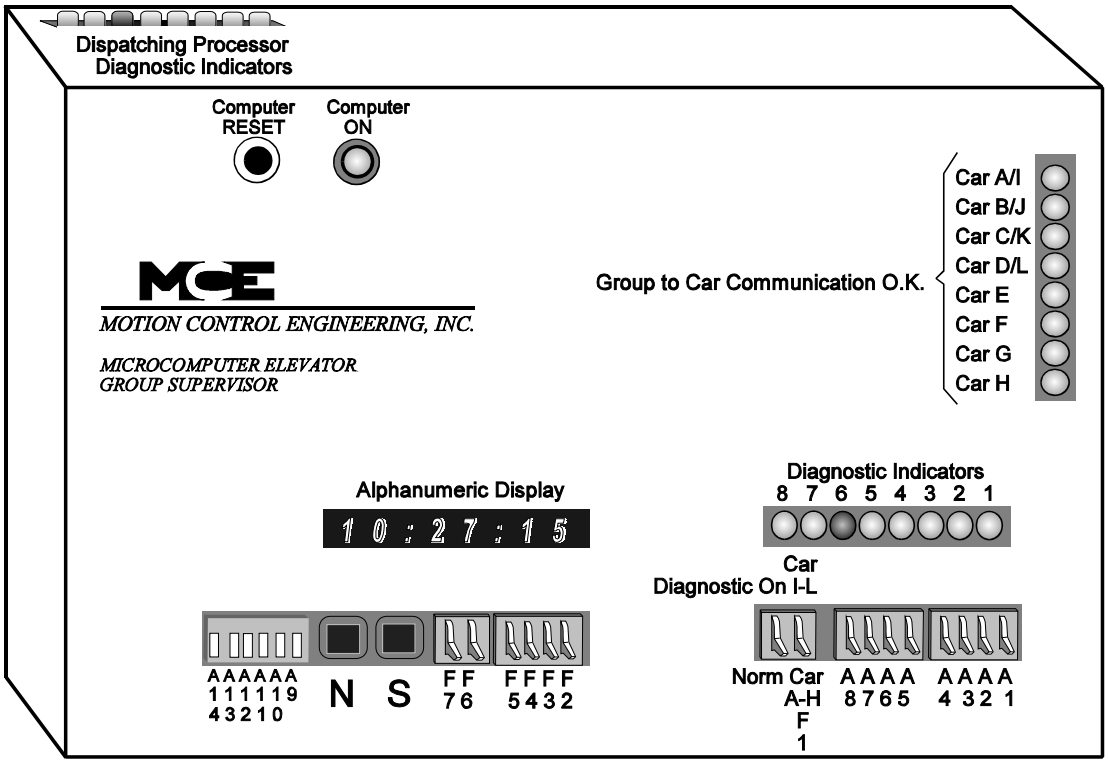
The Enhanced On-Board Diagnostics (EOD) operate in three modes, Normal, Diagnostic and System. All three modes of operation are discussed in detail in this section.

4.1.1 DESCRIPTION OF EOD INDICATORS AND SWITCHES

The following is a description of the EOD indicators and switches (see Figure 4.1)

COMPUTER ON LED - The Computer ON LED, when it is ON continuously, indicates that the MC-MP -x / MC-MP2 Main Processor board is functioning normally and is completing its program loop successfully. If the Computer ON LED flashes ON and OFF, it means that the program is not looping successfully and the Main Processor board is malfunctioning. Check the EPROM chip to make sure it is installed properly. Refer to Appendix A, *Disassembling the Computer Swing Panel* and Appendix B, *Changing PC Boards or EPROMS*.

FIGURE 4.1 Computer Swing Panel, Front View



COMPUTER RESET BUTTON - Pressing the Computer RESET button on the front of the Swing Panel causes the MC-MP-1ES or MC-MP2 (Main Processor board), MC-CGP (Dispatching Processor board) and the MC-CGP-4(8) (Communication Processor board) to reset. This causes all hall calls to be dropped.

Pressing the Computer RESET button turns the Computer ON light OFF and it will remain OFF while the RESET button is pressed. The Computer ON LED turns back ON when the RESET button is released. The MC-MP-x processor is equipped with an auto reset feature that causes the elevator to go through a resetting process if, for any reason, the program loop cannot be completed. The computer will automatically reset and go back to normal operation, thereby preventing unnecessary trouble calls if the interference has not caused hardware damage.

COMMUNICATION STATUS INDICATORS - (LEDs labeled *Group to Car Communication O.K.*) These lights indicate that communication to the individual cars is OK. When a light is ON, it means that the corresponding car is communicating with the Group Supervisor. Function switch F1 selects the cars displayed, A thru H (cars 1 thru 8) or I thru L (cars 9 thru 12).

DIAGNOSTIC INDICATORS - The eight horizontal diagnostic indicator lights (MP Diagnostic Indicators) have two functions. When in Normal mode, they indicate the current status or error condition (see Section 4.2.2). When in Diagnostic mode, they indicate the contents of computer memory (see Section 4.3.1).

ALPHANUMERIC DISPLAY - The eight character alphanumeric display is used to provide user friendly interaction between the control equipment and the elevator mechanic by displaying alphanumeric messages.

ADDRESS SWITCHES (A1 - A8) - These switches allow the mechanic to look at the memory on the MC-MP-1ES or MC-MP2 Main Processor board (see Section 4.3.3). They are also used for entering calls into the system (see Section 4.3.4). These switches are ON in the up position and OFF in the down position.

ADDRESS SWITCHES (A9 - A14) - These address switches are primarily used by MCE personnel for troubleshooting purposes only.

F1 FUNCTION SWITCH (Car A - H, Car I - L) - When switch F1 is in the Car A - H (down) position the vertical status indicators show the communication status for cars A thru H (1 thru 8). When switch F1 is in the Car I - L (up) position, the status indicators show the communication status for cars I thru L (9 thru 12).

DIAGNOSTIC ON/NORM SWITCH - This switch puts the system into Diagnostic mode in the ON (up) position and into Normal mode in the NORM (down) position (see Section 4.3).

FUNCTION SWITCHES (F2 - F7) - These switches are used to access diagnostic information for viewing and changing settings in the Normal and System modes of operation (see Sections 4.2 and 4.4).

PUSH-BUTTONS N AND S - These push-buttons are used to scan through the choices available and to make selections when viewing and changing settings.

DISPATCHING PROCESSOR DIAGNOSTIC INDICATORS - (row of eight LEDs on the top of the Swing Panel) The Dispatching Processor Diagnostic Indicators have two functions. When in Normal mode, they indicate the prevailing status or error message related to the MC-CGP Dispatching Processor board (see Section 4.2.3). When in Diagnostic mode, they indicate the contents of the Dispatching Processor external RAM memory (see Section 4.2.4).

DISPATCHING PROCESSOR ON INDICATOR LIGHT - This light is located on the right of the Computer Swing Panel (Figure 4.2). When ON continuously, the Dispatching Processor ON light indicates that the MC-CGP board is functioning normally and is completing its program loop successfully. If the Dispatching Processor ON light flashes ON and OFF, it means that the program is not looping successfully and the Processor board is malfunctioning. Check that EPROMs are installed properly. Refer to Appendix A, *Disassembling the Computer Swing Panel* and Appendix B, *Changing PC Boards or EPROMS* .

Resetting the MC-CGP board, turns this light OFF and it will remain OFF while the Dispatching Processor RESET button is pressed. The MC-CGP Processor board is also equipped with an auto reset feature that causes the MC-CGP board to go through the reset process if, for any reason, the program loop cannot be completed. This prevents unnecessary trouble calls if the problem has not caused hardware damage. The auto reset process causes the Dispatching Processor ON light to turn OFF for a brief period while the auto reset takes place.

DISPATCHING PROCESSOR RESET BUTTON - Pressing the Dispatching Processor RESET button, on the right side of the Swing Panel, causes the MC-CGP Dispatching Processor board to reset. Resetting the MC-CGP board will cause all hall calls to be dropped.

CP COMPUTER ON INDICATOR LIGHT - The CP Computer ON light, when ON continuously, indicates that the MC-CGP-4(8) Communication Processor board is functioning normally and is completing its program loop successfully. The MC-CGP-4(8) board is equipped with an auto reset feature that will cause the elevator to go through a resetting process if, for any reason, the program loop cannot be completed. The CP Computer ON light can be viewed from the back with the Computer Swing Panel open (see Figure 4.3).

FIGURE 4.2 Computer Swing Panel (Right Side View)

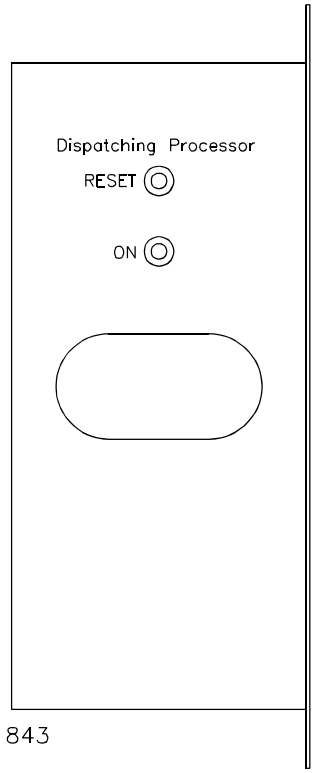
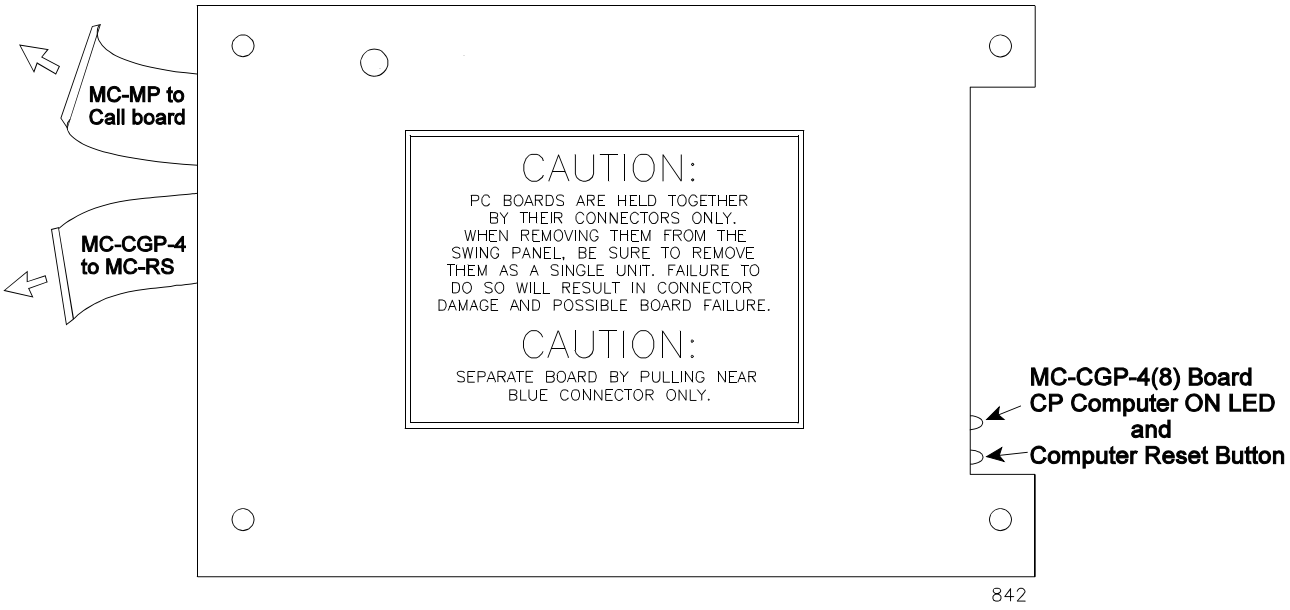


FIGURE 4.3 Computer Swing Panel (Back Plate)



4.2 NORMAL MODE (EOD)

The following is a description of the indicators and switches used in Normal mode, and the settings which can be viewed and changed. Begin with all switches in the OFF (down) position as shown in Figure 4.1. Specifically, the Diagnostic On/Norm and the F7 switches *must* be in the down position. In the Normal Mode, F4 and F5 switches are used to access and set the following:

- F4 - Setting the Processor Clock (see Section 4.2.5)
- F6 - Viewing the DP External RAM (see Section 4.2.4)

4.2.1 ALPHANUMERIC DISPLAY (DEFAULT DISPLAYS)

NOTE: Upon power up, controllers with the MC-MP2 board scroll the message ***MP2 VERSION NUMBER: 8.xx.xx*** across the alphanumeric display.

The alphanumeric display is used for a number of special diagnostic functions that are available on the controller. Depending on the configuration of the control system, the available displays include the following:

- scrolling status and error messages
- temperature (Celsius)
- temperature (Fahrenheit)
- software version
- time of day

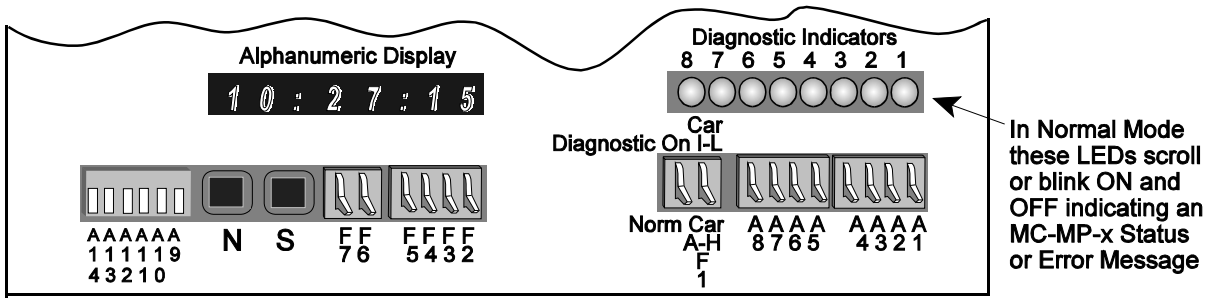
To scroll through the available displays (change what is currently being displayed on the alphanumeric display), press and hold the N push-button.

STATUS AND ERROR MESSAGES - On controllers with the MC-MP2 Main Processor board, status and error messages are scrolled across the alphanumeric display. The message NORMAL OPERATION is scrolled when no other status or error condition(s) exist. Table 4.1 provides a list of scrolling messages.

TIME OF DAY - This mode displays the time of day in a 24-hour military format (hours, minutes and seconds). Refer to Section 5.2.4 to change or adjust the time. The example shown on the right represents the time 1:30 p.m.

4.2.2 DIAGNOSTIC INDICATORS

The Diagnostic Indicators are located on the front of the Computer Swing Panel.



MC-MP-1ES DIAGNOSTIC INDICATORS - During normal operation these lights scan from right to left (indicating that the MP program is looping properly) or flash ON and OFF to indicate an error or status condition. When troubleshooting, pay special attention to these indicators. The diagnostic indicators flash ON and OFF to indicate a status or error message which often points to the source of a problem. Table 4.1 provides a listing of the Status and Error Messages that can be displayed on the M3 Group Supervisor Diagnostic Indicators.

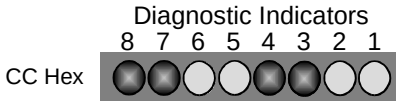
TABLE 4.1 MC-MP (MP2) Status and Error Messages **❍ = LED off ● = LED blinking**

Hex	LEDs	MODE	SCROLLING MESSAGE / MEANING
	Single LED Scrolling		NORMAL OPERATION
0F	❍ ❍ ❍ ❍ ● ● ● ●	Normal	HALL CALL BUS IS DISCONNECTED (check for blown fuse) OR ERROR - SERIAL HC BUS 'n' ('n' = 1 thru 4)
CC	● ● ❍ ❍ ● ● ❍ ❍	Normal	Check Alphanumeric Display for scrolling message
DB	● ● ❍ ● ● ❍ ● ●	Normal	NO COMMUNICATION WITH CARS
E0	● ● ● ❍ ❍ ❍ ❍ ❍	Normal	FIRE SERVICE PHASE 1 - MAIN
EE	● ● ● ❍ ● ● ● ❍	Normal	EMERGENCY POWER OPERATION
F0	● ● ● ● ❍ ❍ ❍ ❍	Normal	FIRE SERVICE PHASE 1 - ALTERNATE

MC-MP2 DIAGNOSTIC INDICATORS - During normal operation these lights scan from right to left (indicating that the MP2 program is looping properly) or flash ON and OFF to indicate a status or error condition.

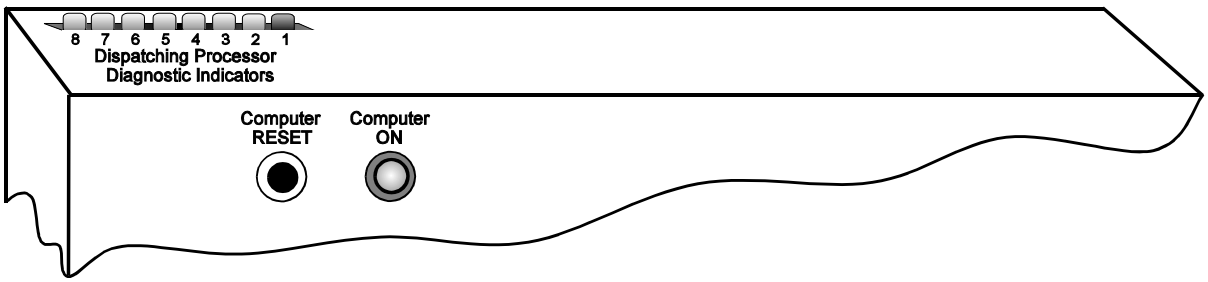
When a status or error condition exists, the Diagnostic Indicators flash one of several messages depending on the software version (MP2 version number scrolls on boot up):

- Software versions 8.02.00 or earlier flash the MC-MP-1ES messages (see Table 4.1).
- Software version 8.03.00 or later flashes CC Hex. If the scrolling status or error message is not immediately displayed on the alphanumeric display, press the N pushbutton until the scrolling message appears.



4.2.3 DISPATCHING PROCESSOR DIAGNOSTIC INDICATORS

These indicators are located on the MC-CGP (middle) board and can be viewed from the top of the Computer Swing Panel.



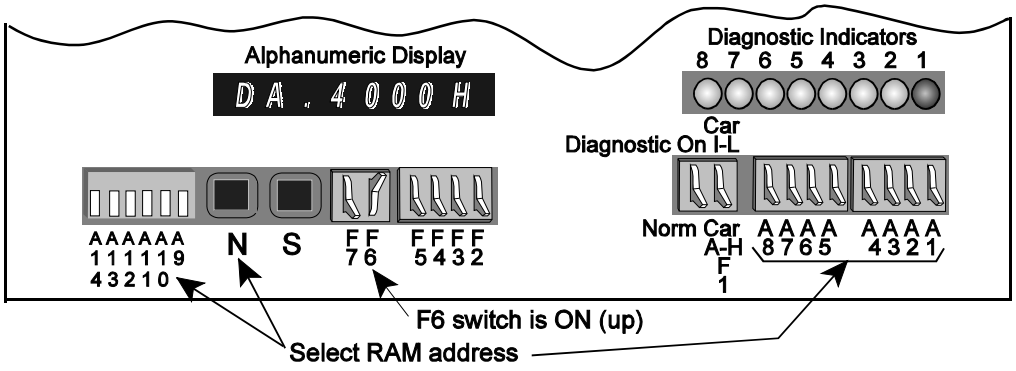
Normal Operation - No Errors - When the function switches are in the OFF (down) position and the system is functioning normally, the Dispatching Processor Diagnostic Indicators will scan from right to left continuously.

Dispatching Processor Diagnostic Indicator #1 Blinking or ON continuously - If the Dispatching Processor Diagnostic Indicator #1 is blinking or ON continuously with all function switches OFF (down) it indicates a problem with communication between the MC-MP-x board and the MC-CGP board. The connector between the boards may not be plugged in correctly or the MC-MP-x board or its program may not be working properly.

Dispatching Processor Diagnostic Indicators #1 and #2 Blinking or ON continuously - If the Dispatching Processor Diagnostic Indicators #1 and #2 are blinking or ON continuously with all function switches OFF (down) it indicates a problem with communication between the MC-CGP board and the MC-CGP-4(8) board. The connector between the boards may not be plugged in correctly or the MC-CGP-4(8) (rear) board or its program may not be working properly.

4.2.4 VIEWING THE DP EXTERNAL RAM

This function is used to display the status of the Dispatching Processor External RAM. To access these flags, set the switches as shown.

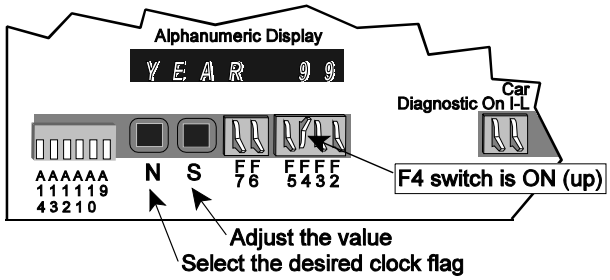


After moving the F6 switch to the ON position, the alphanumeric display shows DA.4000H. The status of the eight bits of RAM at that address is shown by the Dispatching Processor Diagnostic Indicators on the top of the Computer Swing Panel and by the Diagnostic Indicators on the front of the Computer Swing Panel. The positions of the A1 - A8 and A9 - A14 switches select the RAM address. The Alphanumeric Display shows the address selected. This diagnostic tool is primarily used by the system programmers and is rarely used for field troubleshooting. If necessary, the computer memory would typically be viewed using the terminal as described in Section 6.8, *Using the CRT Terminal Diagnostics*.

4.2.5 SETTING THE REAL TIME CLOCK

The real time clock must be set correctly before using reports to optimize performance. If the clock is incorrect, set it as follows:

1. With all other switches down, turn *ON* the **F4** switch.
2. Press the ***N*** pushbutton to select the parameter.
3. Press the ***S*** pushbutton to increase the value (when the A1 switch is *ON* (up), the ***S*** pushbutton decreases the value).
4. When value is correct, return the **F4** switch to the OFF (down) position.



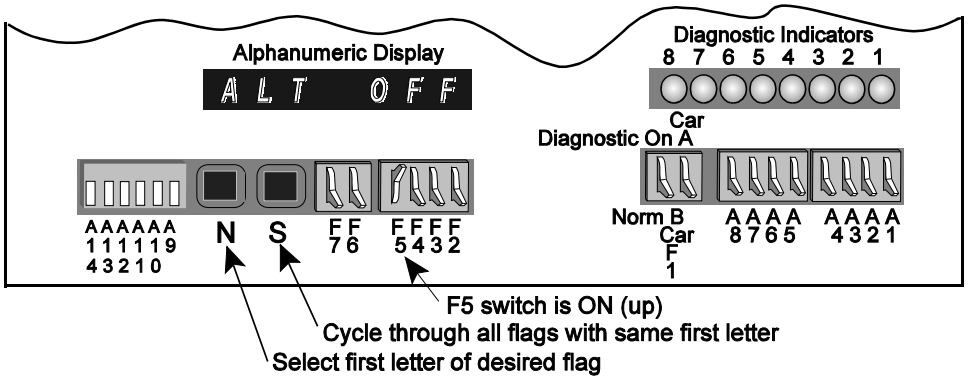
The following table lists all the adjustable clock parameters and their adjustment ranges.

TABLE 4.2 Clock Parameters and Their Ranges

Parameter	Range	Parameter	Range
YEAR	00 - 99	DATE	01 - 31
MONTH	01 - 12	HOUR	00 - 23
DAY	MON. - SUN.	MIN (MINUTE)	00 - 59

4.2.6 ALPHANUMERIC DISPLAY - VIEWING THE MP/MP2 INTERNAL FLAGS/INPUTS

This function is used to display the status of many of the input/output and internally generated flags related to the MC-MP-1ES or MC-MP2 computer. To access these flags, set the switches as shown.



MC-MP-1ES Flags - With the MC-MP-1ES software, after moving the F5 switch to the ON (up) position, the alphanumeric display shows the last selected flag and status, in this case ALT OFF. The first word (ALT) is the abbreviated name for the Alternate Service flag. The second word (OFF) is the status of the flag.

To select a flag, press the **N** pushbutton until the first letter of the flag displayed is the same as the first letter of the desired flag. Release the **N** pushbutton and press the **S** pushbutton until the desired flag and the flag's current status, ON or OFF, is displayed.

MC-MP2 Flags - With the MC-MP2 software, after moving the F5 switch to the ON position, the alphanumeric display scrolls the message ***FLAGS STATUS...*** and then displays abbreviation and status of the first available flag beginning with the letter A.

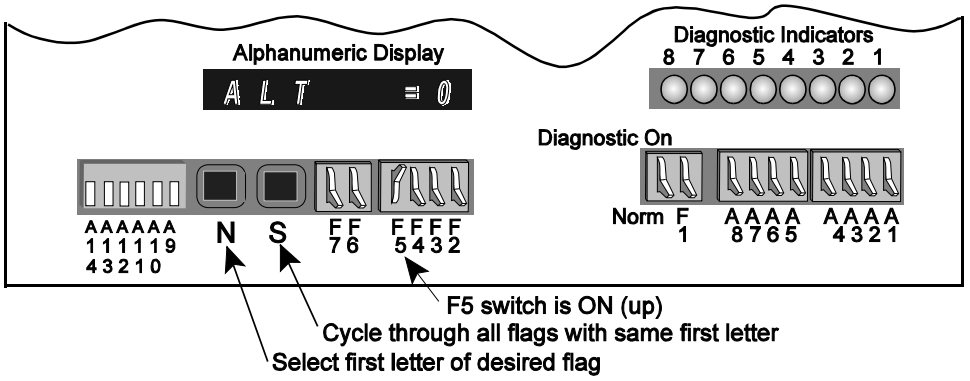


Table 4.5 lists the available flags. To select a flag, press the **N** pushbutton until the first letter of the flag displayed is the same as the first letter of the desired flag. Release the **N** pushbutton and press the **S** pushbutton until the desired flag is displayed. Flag abbreviation and current status are displayed (0 = OFF, 1 = ON).

MC-MP2 Inputs - With the MC-MP2 software the status of many system inputs may be viewed on the alphanumeric display. To view the inputs, the F5 switch plus various additional switches must be placed in the ON (up) position as follows:

- F5 plus A11 HC-IOX / HC-I4O board inputs
- F5 plus A12 HC-CIO system inputs.

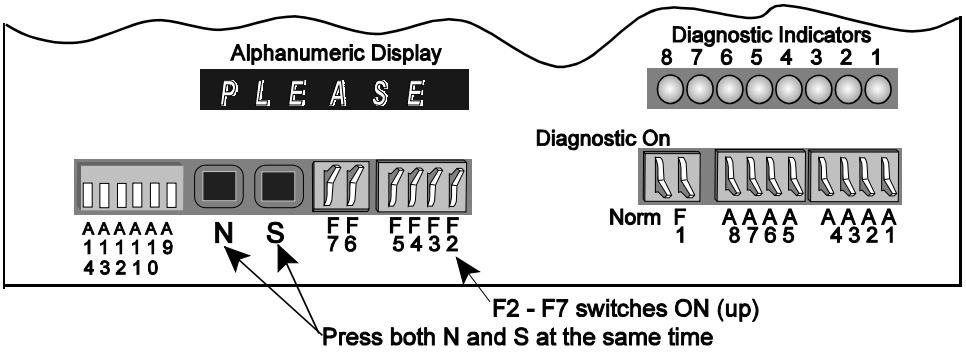
Press the **N** pushbutton to scroll through the inputs available for this job. They are displayed in the order they are arranged on the board. The abbreviation and status of each input is displayed (0 = OFF, 1 = ON).

4.2.7 RESETTING THE CGP PARAMETERS

When an MC-CGP-4(8) EPROM or PC board are changed it may be necessary to reset the CGP parameters to their default values. This can be done using either the optional CRT terminal or via the Computer Swing Panel.

Using the optional CRT terminal - The optional CRT terminal connected to the local car controller may be used to reset the CGP parameters using ODPC Reset CGP Parameters. For instructions on using the CRT terminal, refer to the section in the Computer Peripherals Manual, MCE part #42-02-CP00 titled *Using the CRT Terminal*.

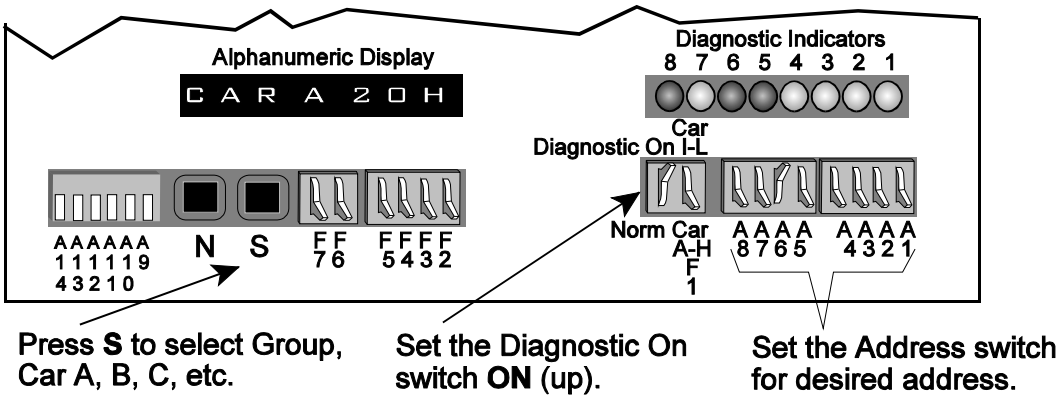
Using the Computer Swing Panel - The CGP parameters can be reset to their default values using the Computer Swing Panel. Set the toggle switches as shown, then press both the **N** and **S** pushbuttons at the same time.



4.3 DIAGNOSTIC MODE (EOD)

In the Diagnostic Mode, the A1 through A8 switches allow the elevator mechanic to access the MC-MP-x and MC-CGP computer memory locations. The Diagnostic Indicators and Dispatching Processor Diagnostic Indicators show the status (ON or OFF) of the flags at those locations. The following example describes how to access (view) the data (flag) at a particular address.

To View the Group Supervisor and Car (Local) MP flags at Address 20H



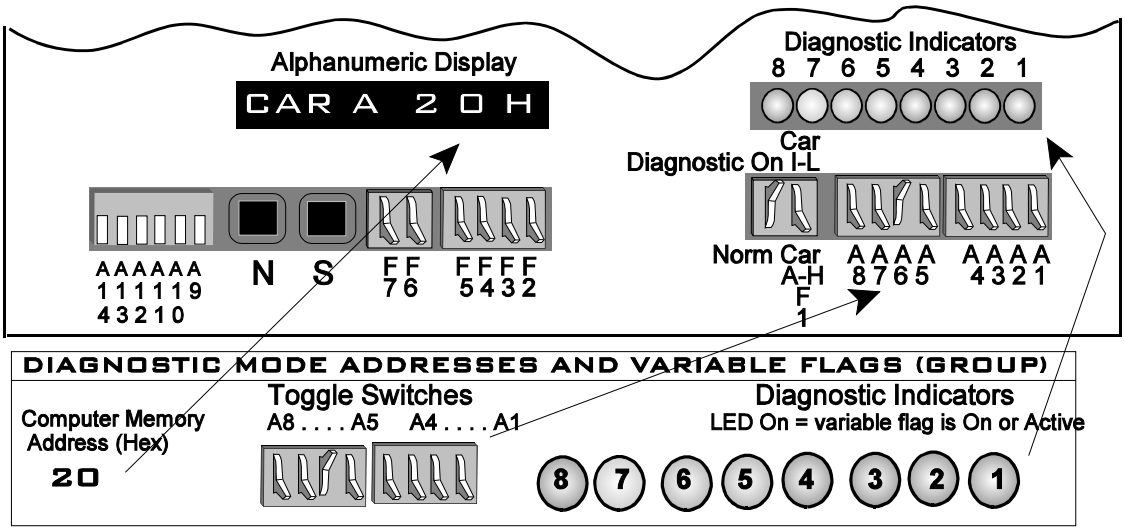
1. Set the Diagnostic On/Norm switch to Diagnostic On (up).

2. Set the A1-A8 switches to select the flag (refer to Table 4.3 for Group and Table 4.4 for Car).

3. Press the ***S*** button to view the **Car A** MP diagnostic flag.

4. Press the ***S*** button again to view **Car B**'s flags. Pressing and holding the ***S*** button cycles through the available Cars and back to **GRP** (Group).

4.3.1 HOW TO INTERPRET THE DIAGNOSTIC INDICATORS USING TABLES 4.3, 4.4 AND 4.5



Example: to see if the Door Open Limit flag is made.
Look on Table 4.5, and find that door open limit is designated DOL.
Table 4.4 shows DOL is at address 20H diagnostic indicator 7, and that the A6 switch selects address 20H.

At right are the diagnostic indicator (LED) meanings for Car A's flags at address 20H.

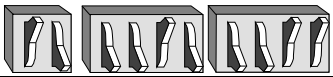
LED	Flag	Description
8	DOF	Door open function flag (from local)
7	DOL	Door open limit flag (from local)
6	DZ	Door zone flag (from local)
5	DLK	Door open limit input flag (from local)
4		
3	H	High Speed Flag (from local)
2	ISV	In Service flag (from local)
1	ISR	In Service and ready flag (from local)

NOTE: If Alphanumeric Display on swing panel indicates **GRP, use Table 4.3 with Table 4.5**. When display indicates **Car** A (B, C . . .) **use Table 4.4 and 4.5** for car flags.

4.3.2 ALTERNATE ADDRESS SELECTION METHOD

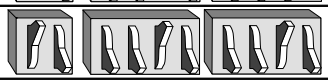
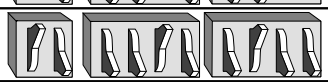
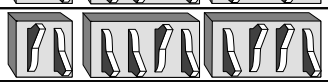
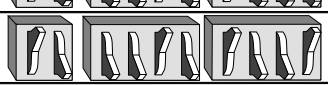
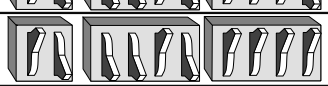
To select the computer memory address, regardless of the position of A1-A8 switches, press the ***N*** pushbutton. The alphanumeric display will read **GRP 20H**. Constant pressure on the ***N*** pushbutton increases the address shown. Once the address reaches 33H, it automatically goes back to 20H. Releasing the ***N*** pushbutton holds the last address displayed on the alphanumeric display for an additional 3 seconds before changing the display to reflect the address selected by the A1-A8 switches.

TABLE 4.3 Diagnostic Mode Addresses and Computer Variable Flags (Group)

DIAGNOSTIC MODE ADDRESSES AND VARIABLE FLAGS (GROUP)*									
Computer Memory Address (Hex)	**Toggle Switches** Diagnostic On ↓F1 A8.....A5 A4.....A1	**Diagnostic Indicators** LED *On* = variable flag is On or Active							
		8	**7**	**6**	**5**	**4**	**3**	**2**	**1**
20			COM OK			Car A Comm. Error Counter			
21			COM OK			Car B Comm. Error Counter			
22			COM OK			Car C Comm. Error Counter			
23			COM OK			Car D Comm. Error Counter			
24			COM OK			Car E Comm. Error Counter			
25			COM OK			Car F Comm. Error Counter			
26			COM OK			Car G Comm. Error Counter			
27			COM OK			Car H Comm. Error Counter			
28			COM OK			Car I Comm. Error Counter			
29			COM OK			Car J Comm. Error Counter			
2A			COM OK			Car K Comm. Error Counter			
2B			COM OK			Car L Comm. Error Counter			
2C				HCDD	HCLD				
2D		DDPI	DUPI	LUPI	BALI	EP1	EPIN	FRA	FRS
2E									
2F				ALLISR					
30				DSS	USS	DDP	DUP	LUP	BAL
31									EP2
32									
33									

* Group Dispatcher (Group Flags) DNmd 019

TABLE 4.4 Diagnostic Mode Addresses and Computer Variable Flags (from Local Car)

DIAGNOSTIC MODE ADDRESSES AND VARIABLE FLAGS (FROM LOCAL CAR)*									
Computer Memory Address (Hex)	Toggle Switches Diagnostic On ↓F1 A8.....A5 A4.....A1	Diagnostic Indicators LED *On* = variable flag is On or Active							
		8	7	6	5	4	3	2	1
20		DOF	DOL	DZ	DLK		H	ISV	ISR
21		FRC	RUN	SDA	SUA			CCA	CCB
22						CCD		DEL	YRQ
23					PTS	PTR	DSP	USP	HCD
24		LRF	LCD						
25									
26									
27		CAR POSITION INDICATOR							
28									
29									
2A									
2B									
2C									
2D									
2E									
2F		CAR PARKING FLOOR							
30									
31									
32									
33									

* Group Dispatcher (from Local Car Flags)

DNmd 018

TABLE 4.5 Group Supervisor Computer Variable Flags

GROUP SUPERVISOR COMPUTER VARIABLE FLAGS							
Group Flags				**Car Flags**			
Flag	**Definition**	**Addr**	**LED**	**Flag**	**Definition**	**Addr**	**LED**
ALLISR	All Cars In Service flag	2F	6	CCA	Car Call Above flag (from local)	21	2
BAL	Balanced Program Running flag	30	1	CCB	Car Call Below flag (from local)	21	1
BALI	Balanced Input flag	2D	5	CCD	Car Call Disconnect flag (from local)	22	4
DDP	Demand Down Peak Program Running	30	4	DEL	Delta flag (from local)	22	2
DDPI	Demand Down Peak Input flag	2D	8	DLK	Door Lock flag (from local)	20	5
DSS	Down Service Select flag	30	6	DOF	Door Open Function flag (from local)	20	8
DUP	Demand Up Peak Program Running	30	3	DOL	Door Open Limit flag (from local)	20	7
DUPI	Demand Up Peak Input flag	2D	7	DSP	Down Squelch Production flag	23	3
EP1	Emergency Power Phase 1 flag	2D	4	DZ	Door Zone flag (from local)	20	6
EP2	Emergency Power Phase 2 flag	31	1	FRC	Fire Service Phase 2 flag (from local)	21	8
EPIN	Emergency Power Input flag	2D	3	H	High Speed flag (from local)	20	3
LUP	Lobby Up Peak Program Running flag	30	2	HCD	Hall Call Bus Fuse Blown (from local)	23	1
LUPI	Lobby Up Peak Input flag	2D	6	ISR	In Service and Ready flag (from local)	20	1
FRA	Alternate Fire Service Phase 1 flag	2D	2	ISV	In Service flag (from local)	20	2
FRS	Main Fire Service Phase 1 flag	2D	1	LCD	Lobby Car Disabled flag	24	7
HCDD	Hall Call Disconnect flag	2C	6	LRF	Lobby Return Function flag	24	8
HCLD	Hall Call Bus Fuse Blown flag	2C	5	PTR	Permission To Run flag (per car)	23	4
USS	Up Service Selected flag	30	5	PTS	Permission To Start flag (per car)	23	5
				RUN	Running flag (from local)	21	7
				SDA	Down Arrow flag (from local)	21	6
				SUA	Up Arrow flag (from local)	21	5
				USP	Up Squelch Production flag	23	2
				USS	Up Service Selected flag	30	5
				YRQ	Wye Request flag (from local)	22	1

4.3.3 VIEWING RAM ADDRESSES

In addition to the MP flags, it is possible to view other RAM addresses in the Diagnostic Mode. The A1 thru A8 and A9 thru A14 switches select the address as described in Sections 4.2.1 and 4.2.2. The Alphanumeric Display shows the address selected. The contents of the selected address is shown on the Diagnostic Indicators. The following RAM can be viewed:

- F2 - DA.0000H = Data Addresses
- F3 - CA.0000H = Code Addresses
- F4 - Floor 01 = Viewing Hall calls (N = increment floor) (see Section 4.3.4)
- F5 - FL01 HCA = Floor 1 Hall Call for Car A (N = increment floor, S = increment car)
- F6 - DA.C000H = Data Addresses
- F7 - FL01 CCA = Floor 1 Car Call for Car A (N = increment floor, S = increment car)

4.3.4 VIEWING AND ENTERING CALLS

This function allows the user to view and enter hall calls without using the terminal F3 screen. To view or enter calls, set the switches as shown.

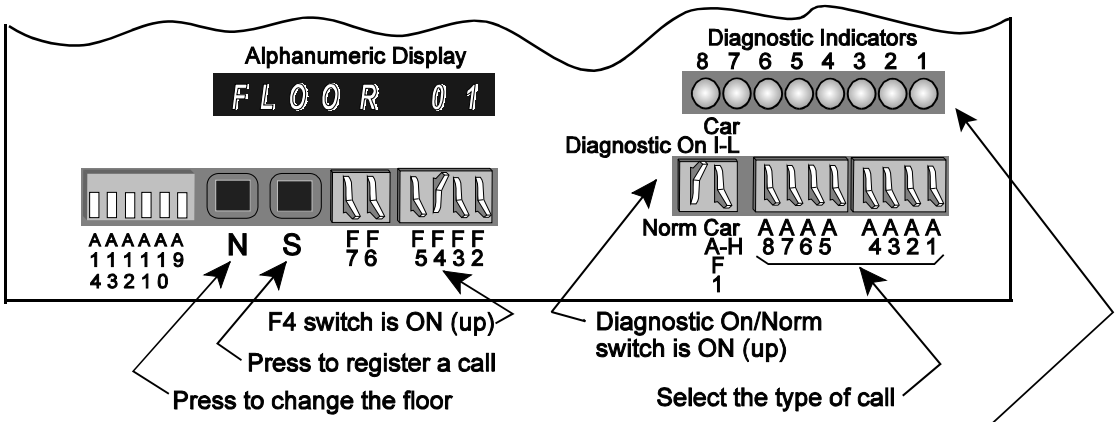


FIGURE 4.4 Viewing and Entering Main and Auxiliary Hall Calls via the EOD

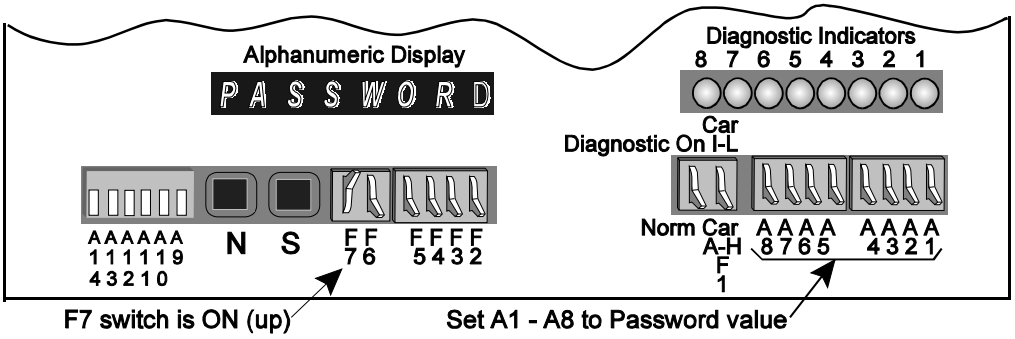
Diagnostic Indicators show current calls	**Diagnostic Indicators**							
	❽	❼	❻	❺	❹	❸	❷	❶
Hall Call type ⇨	Main Hallway				Auxiliary Hallway			
	UP Rear	UP Front	DOWN Rear	DOWN Front	UP Rear	UP Front	DOWN Rear	DOWN Front
To register calls, turn the address switch ON and press "S"	A8	A7	A6	A5	A4	A3	A2	A1
	Address Switches							

VIEWING CALLS - With the F4 switch in the ON (up) position, the alphanumeric display shows **FLOOR 01** and the Diagnostic Indicators light up with the registered calls. The format for the call indication is shown in the illustration above. To advance the floor number, press the **N** push-button. The Diagnostic Indicator LEDs will show the hall calls entered at the floor shown in the alphanumeric display. When the top floor number is displayed, pressing **N** will cause the display to cycle to the bottom floor.

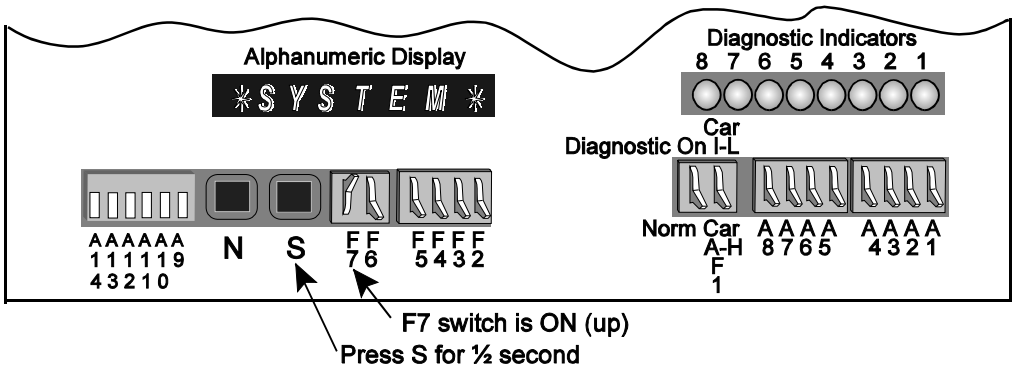
ENTERING CALLS - To enter hall calls, select the desired floor as described above. Use the A1-A8 switches to select the type of call(s) to enter. For example, set the A5 switch ON (up) to register a main down hall call (front). Then press and hold the ***S*** push-button until the call has been registered. Note: A call type which does not exist in the system cannot be entered. For example, if there are no rear doors, rear hall calls cannot be entered.

4.4 SYSTEM MODE (EOD)

The System Mode provides a level of security (if programmed) so that an unauthorized person cannot modify or change the system parameters either intentionally or by mistake. To enter the System Mode, set the switches as shown.



With the F7 switch in the ON position, the alphanumeric display shows **PASSWORD**. Set the A1 - A8 switches to the password value. If no password has been programmed for this job (which is normally the case), set A1 - A8 to OFF (down).



Press the **S** push-button for ½ second. The alphanumeric display changes to **SYSTEM**. While in System Mode, the eight vertical status LEDs scan from bottom to top indicating that *System Mode* is active. If no function switch is moved or push-button is pressed for a period of two minutes, the computer will automatically exit System Mode and go into the Normal Mode of operation. Placing the F7 switch in the OFF (down) position also causes the EOD to exit the System Mode.

In System Mode, the Function Keys are used to access and set the following system parameters:

- F2 - Communication Port Settings (see Section 4.4.1)
- F3 - MSK: Master Software Key (Security) (see Section 4.4.2)
- F6 - Software Options - adjustable control variables (see Section 4.4.3)
- A8 - Setting and Resetting the Passcode Option (see Section 4.4.4)

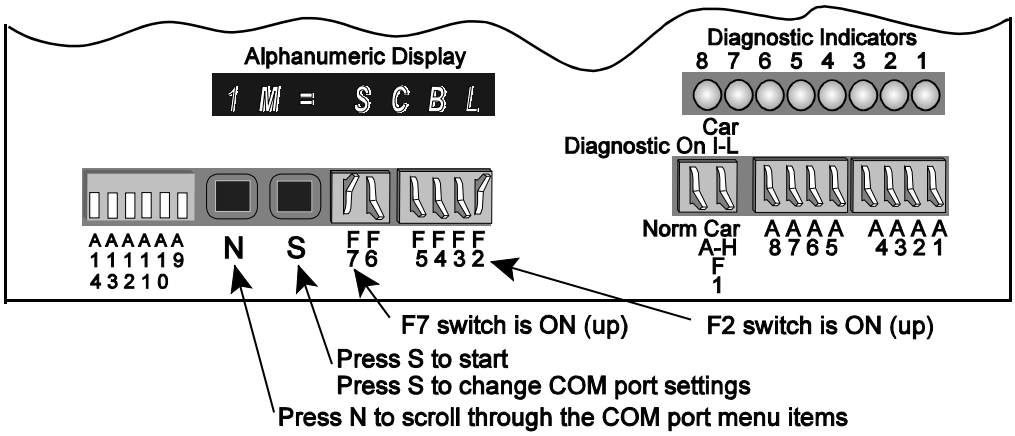
4.4.1 PROGRAMMING THE COMMUNICATION PORTS

The communication ports are field programmable through the Computer Swing Panel Enhanced On-Board Diagnostics (EOD). Appendix F describes connecting a CRT terminal to a COM Port on the MC-RS board and setting up the CRT terminal.

The communication ports were programmed (at the factory) for the original hardware, based on customer-provided information. Reprogramming a communication port may become necessary for one of the following reasons:

- changing from a monochrome to a color CRT
- adding a lobby CRT or CRT with keyboard
- adding a modem or line driver or Serial Cable
- adding a PC (for CMS or MSD software or graphic display)

The new hardware will not work correctly until the communication port is reprogrammed. To reconfigure the communication port, enter the System Mode as described at the beginning of Section 4.4 and set the switches as shown.



When the F2 switch is placed in the ON (up) position, the alphanumeric display shows the following scrolling message: **COMPORT MENU PRESS S TO START**. Press the **S** push-button for ½ second and the display will show the current setting for the first item on the Communication Port Menu, in this case **1M=SCBL**. The *1M* stands for *COM Port 1 Media* and *SCBL* stands for *Serial Cable* (see Tables 4.6 And 4.7) To select a communication port setting, press the **N** push-button to scroll through the Communication Port Menu until the desired item is shown on the alphanumeric display. Table 4.6 lists the items on the COM port menu.

CHANGING THE MEDIA SETTING - To change the *media* setting for COM Port #2, press the **N** push-button to scroll through the items on the Communication Port Menu (see Table 4.6) and release **N** when **2M** is displayed. Then press the **S** push-button to scroll through the Media Menu (see Table 4.7). Release **S** when the desired media is displayed. After selecting the desired media, press **N** to again scroll through the Communication Port Menu.

CHANGING THE DEVICE SETTING - To change the *device* setting for COM Port #2, press the **N** push-button to scroll through the Communication Port Menu and release **N** when **2D** is displayed. Then press the **S** push-button to scroll through the Device Menu (see Table 4.8). Release **S** when the desired device is displayed. After selecting the desired device, press **N** to again scroll through the Communication Port Menu.

SAVING THE CHANGES - When you have finished making changes, press the **N** push-button until, **SAVE?N/S** is displayed. If **S** is pressed, the changes are saved. If **N** is pressed, the program will continue to scroll through the Communication Port Menu. To exit the Communication Port Menu, place the F2 switch in the OFF (down) position. If you exit the Communication Port Menu without choosing **SAVE?N/S** and pressing **S**, any changes made to settings will be ignored.

TABLE 4.6 Communication Port Menu

EOD Display	Description
NO COM	No COM port option has been enabled
1M	COM Port 1 Media
1D	COM Port 1 Device
2M	COM Port 2 Media
2D	COM Port 2 Device
3M	COM Port 3 Media
3D	COM Port 3 Device
4M	COM Port 4 Media
4D	COM Port 4 Device
SAVE?N/S	Save the changes? N for no or continue, S for save

TABLE 4.7 Media Menu

EOD Display	Description
NONE	NO MEDIA - Select when removing a computer terminal from a COM port.
SCBL	SERIAL CABLE - Select when setting up a CRT terminal or terminal emulator using a serial cable (C-CRT/MD/PA)
LDRV	LINE DRIVER - Used when setting up a CRT at a distance over 40 feet.
MODM	MODEM - Auto-detection of modem baud rate
MODM1	MODEM - 14,400 baud
MODM2	MODEM - Auto Detect to 9600 baud
TELRAD	MODEM - Connected to a TELRAD digital telephone system (optional)

TABLE 4.8 Device Menu

EOD Display	Description
NONE	No device
CRTMK	Use for these terminals or emulators with keyboard (Link MC5, Wyse WY-325ES, Esprit 250C Emulator or ADDS 260LF Emulator)
CRTM	Use for these terminals or emulators without keyboard (Link MC5, Wyse WY-325ES, Esprit 250C Emulator or ADDS 260LF Emulator)
PC	Personal computer with CMS or MSD
PCGD	Personal computer graphic display (no-longer used)
CRTCK	Use for these terminals with keyboard (Link MC-70, Wyse WY-370)
CRTC	Use for these terminals without keyboard (Link MC-70, Wyse WY-370)

4.4.2 SETTING MSK: MASTER SOFTWARE KEY

The Master Software Key is used in conjunction with the Standard Security - CRT Option or Access Control for Elevators (ACE) Security. To view or change MSK, log into System Mode as described at the beginning of Section 4.4 and then place the F3 switch in the ON (up) position. If this job does not have the Standard Security - CRT Option or ACE Security enabled, the alphanumeric display will show NOT USED. Additional information about the Master Software Key (MSK) can be found in the Elevator Security User Guide, #42-02-S024.

Press the **S** push-button to change the setting. The Master Software Key (MSK) can be set to:

- MSK: ENAB = Enabled (this is the default setting)
- MSK: ACTI = Activated
- MSK: DEAC = Deactivated

4.4.3 SETTING THE SOFTWARE OPTIONS - ADJUSTABLE CONTROL VARIABLES

Table 4.9 provides a listing of the software options - adjustable control variables. Not all of the options are available on all controllers. To view or set the adjustable control variables, log into System Mode and place the F6 switch in the ON (up) position.

The first available variable will be shown on the display. Press the **S** push-button to change the setting. Press the **N** push-button to scroll to the next available variable. Table 4.9 lists the variables in alphabetic order, not in the order in which they are displayed on the controller.

TABLE 4.9 Software Options - Adjustable Control Variables

VARIABLE	NAME	DEFINITION
AFR*	*Alternate Fire Floor Recall*	Designated recall floor for alternate Fire Service Operation. The setting for AFR on each local Car Controller determines the actual alternate recall floor.
AFR2* (option)	*Second Alternate Fire Floor Recall*	Designated recall floor for the second alternate Fire Service operation (Detroit Fire code). The setting for AFR2 on each local Car Controller determines the actual second alternate recall floor.
KCE (option)	*Keyboard Control of Elevators*	MCE's Elevator Central Monitoring System software, CMS for Windows, allows monitoring of elevators and control of certain elevator functions using a PC. With the CMS option, KCE can be enabled or disabled at the local car or group level by turning the controller's Adjustable Control Variable, KCE, ON or OFF. Changing the KCE setting in the individual car's controller affects only that car. Changing the KCE setting in the Group Supervisor affects all of the cars in that group. Consult the CMS for Windows manual for additional information.
LBBY*	*Lobby Floor*	The location of the lobby floor in the building. The setting for LBBY on each local Car Controller determines the actual lobby floor.
MFR*	*Main Fire Floor Recall*	Designated recall floor for main Fire Service operation. The setting for MFR on each local Car Controller determines the actual main fire recall floor.

* This setting, on the Group Supervisor, does not affect car operation. It only affects the display on the CRT terminal Job Configuration Summary screen.

SECTION 5
PARAMETER ADJUSTMENTS

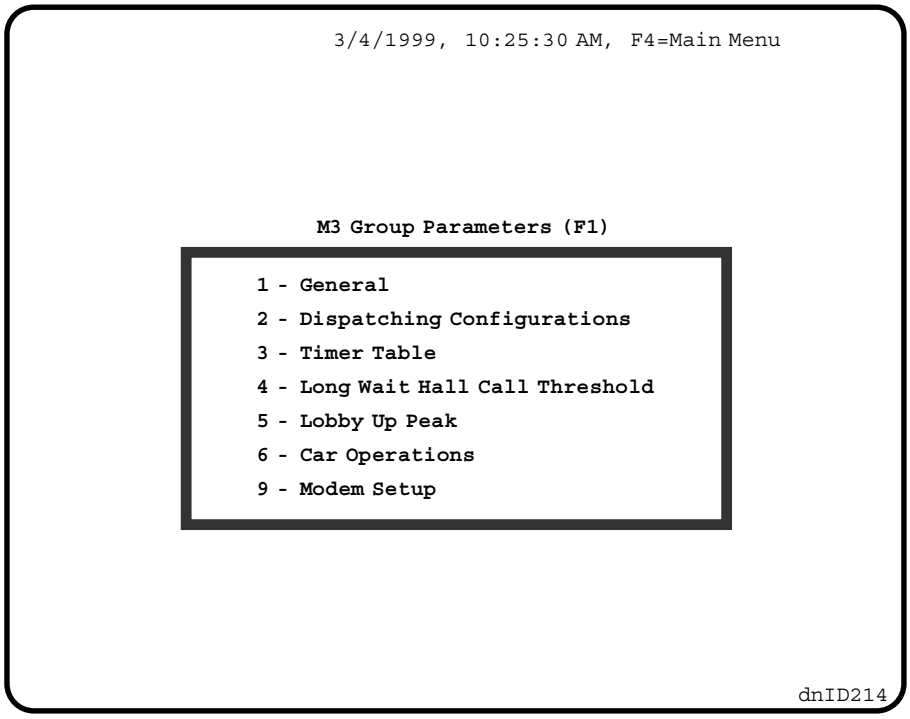
5.0 GENERAL INFORMATION

Before adjusting parameters, all Section 3 steps should be complete and Section 4 information reviewed. This section discusses the adjustment of dispatching parameters, and the system performance reports that are available. In preparation, a review of Section 1.4, *M3 Group Supervisor Operational Overview* may be helpful.

5.1 PROGRAMMING THE DISPATCHING CONFIGURATIONS

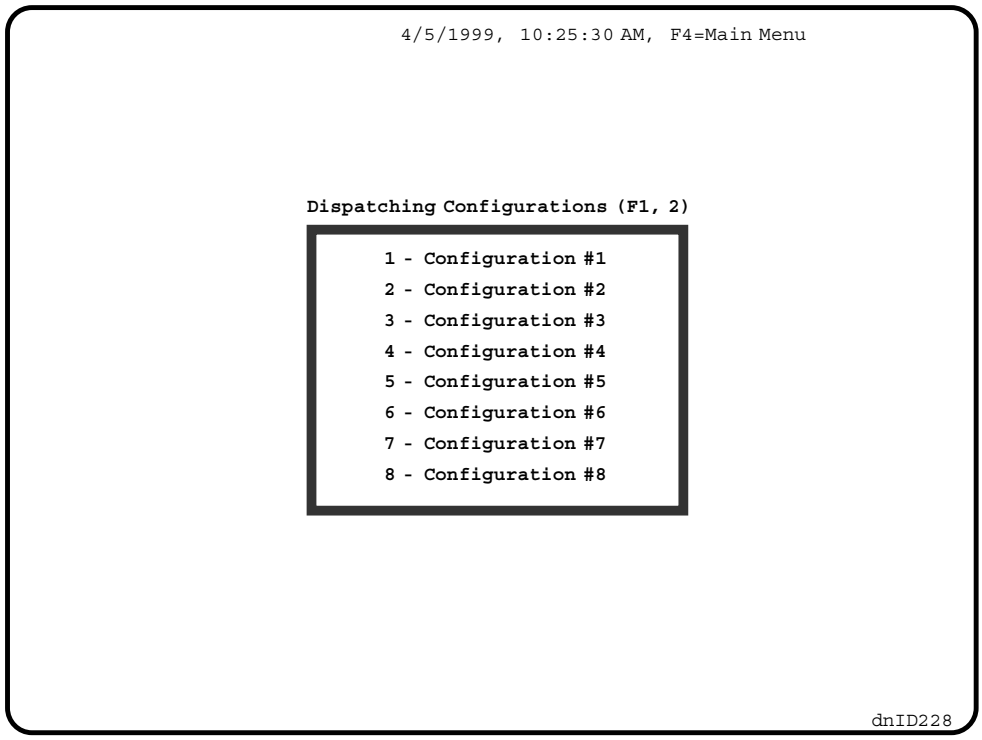
There are eight Dispatching Configurations (#1 thru #8). Each configuration can be programmed for specific traffic conditions. The parameter settings for a particular Dispatching Configuration are *in use* when that configuration is *active*. A specific Dispatching Configuration is made *active* either via the Dispatching Configurations Timer Table or manually by setting the *Dispatching Configuration Status (ODCS)* parameter. Refer to Section 5.2, *Selecting the Active Dispatching Configuration*, and Section 5.3, *Programming the Dispatching Configurations Timer Table*). Dispatching Configuration #1 is the default configuration (the ODCS, Dispatching Configuration Selection parameter is defaulted to *Manual #1*).

FIGURE 5.1 M3 Group Parameters Menu (F1) Screen



The Dispatching Configurations (#1 thru #8) are accessed from the M3 Group Parameters Menu (F1) screen by pressing **2** (see Figure 5.2)

FIGURE 5.2 Dispatching Configurations Menu (F1, 2) Screen



Select the Dispatching Configuration to be edited from the Dispatching Configuration Menu (F1, 1) screen by pressing **1** thru **8** (see Figure 5.3)

Three types of parameters are found in the Dispatching Configurations:

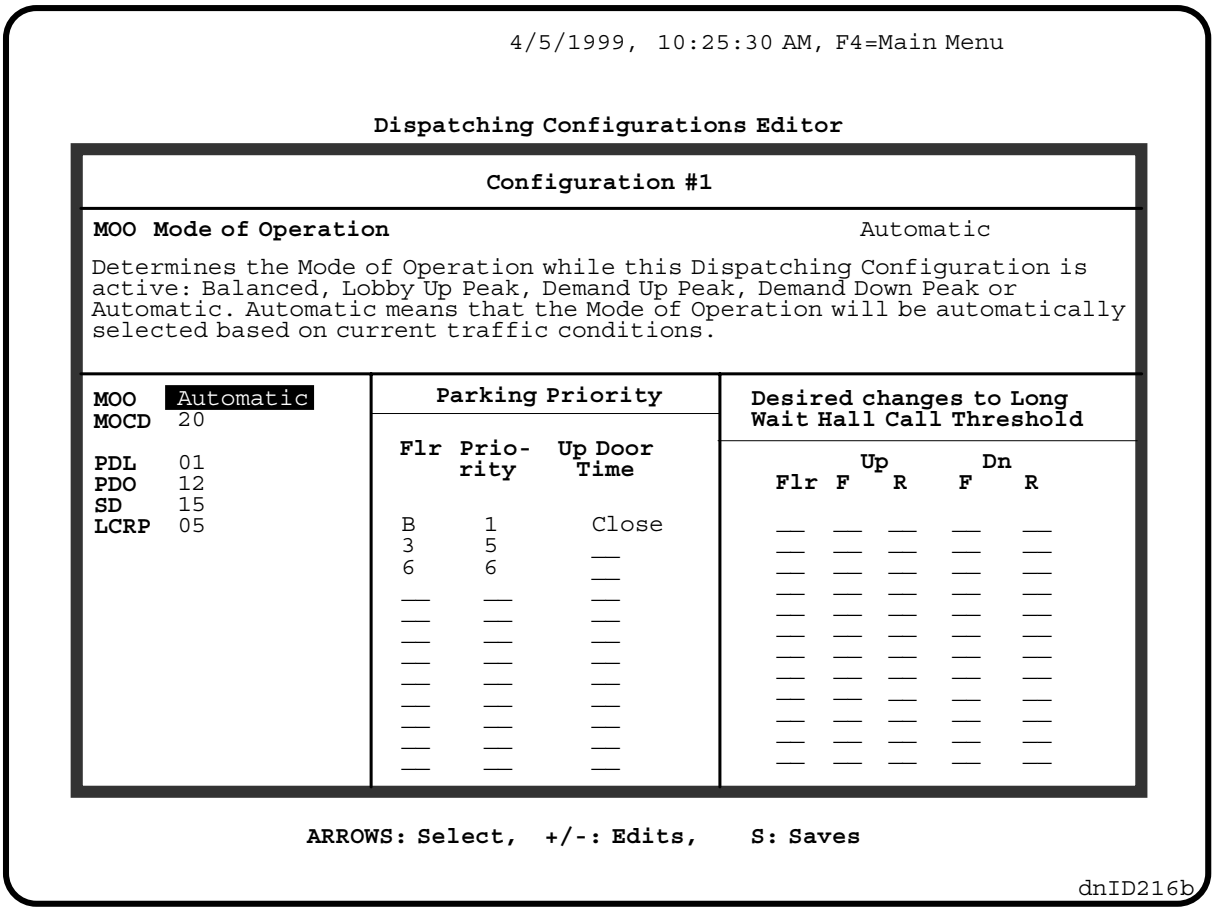
1. Mode of Operation parameters,
2. Parking parameters
3. Desired Changes to Long Wait Hall Call Threshold Times.

To change a parameter setting, use the **Arrow** keys to select (highlight) the parameter value to be changed. Press the **space bar** to scroll through the values or press the **I** / **D** or **+** / **-** keys to increment or decrement the value. Press the **S** key to save the change. The message **`Save changes? (Y/N)`** is displayed. Press **Y** to save the change or **N** to not save and continue editing. The message **`Parameters were NOT saved`** is displayed. Press **Esc** to return to the Dispatching Configurations (F1, 1) screen or **F4** to return to the Main Menu screen. If changes were made but not saved, the message **`Save changes? (Y/N)`** is displayed. Press **Y** to save the changes and exit this screen or press **N** to exit without saving the changes.

5.1.1 MODE OF OPERATION (MOO) PARAMETER

The MOO, Mode of Operation parameter in the *active* Dispatching Configuration determines the current mode or it determines that the current mode will be selected automatically. The one exception to this occurs when the mode is selected using a controller input. The default setting for the MOO, Mode of Operation parameter is *automatic*. The other possible settings are Balanced, Lobby Up Peak, Demand Up Peak and Demand Down Peak.

FIGURE 5.3 Dispatching Configurations Editor, Configuration #1 (F1, 2, 1) Screen



5.1.2 MODE OF OPERATION CHANGE DELAY (MOCD) PARAMETER

When the conditions are met for automatic selection of a different mode of operation, the Group Supervisor will wait the time interval determined by the MOCD, Mode of Operation Change Delay, parameter and will then make the mode change. This delay is used for getting into and getting out of Lobby Up Peak, Demand Up Peak and Demand Down Peak Modes. The default value is 20 seconds, the maximum value is 99 seconds and the minimum value is 1 second.

5.1.3 PARKING PRIORITIES

Call waiting time can be minimized by parking cars strategically. For instance, suppose that Dispatching Configuration #1 will be used during periods when hall call demand is pretty much equal from all floors. Parking the cars equally throughout the hoistway will improve the ETA at all floors. But suppose that Dispatching Configuration #2 is to be used during time periods when most of the demand occurs at the lobby. Parking most of the cars at or near the lobby will improve the ETA at the lobby.

A floor's Parking Priority can be set to a value of 1 to 20 (1 being the highest priority). As cars become available to park, they will be sent to the floor with the highest priority at which no car is parked. The Parking Priority is also used to determine which floors will be designated as Lobby Parking Floors. Floors with a Parking Priority of 1, 2, 3 or 4 are designated as Lobby Parking Floors. When a car parks at a Lobby Parking Floor it is subject to additional parking parameters, such as parking with doors open or closed or with doors open for a period of time and then closed.

Use the **Arrow** keys to select (highlight) the parameter to be changed. To add a parking floor, select a blank line under **Flr** and press the **Spacebar**, **I** / **D** or **+** / **-** keys to set the floor number. Press the right **Arrow** key to select the **Priority** column and press the **Spacebar**, **I** / **D** or **+** / **-** keys to set the priority. If the priority is set to 1, 2, 3 or 4 (Lobby Parking Floor), the *Up Door Time* parameter will default to *Close* (the car will park with doors closed). Press the right **Arrow** key to select the Up Door Time parameter and press the **Spacebar**, **I** / **D** or **+** / **-** keys to change the parameter. This parameter can be set to *Open* (the car will park with doors open) or to a value from *0 to 100 seconds* (the car will park with doors open for the programmed time and then the doors will close). The hall lantern will remain illuminated while the doors are open.

5.1.4 PARKING DELAY LOBBY (PDL) PARAMETER

Assuming that a Lobby Parking Floor is available (no cars parked there), when a car becomes available to park, it will wait for the period of time set in the PDL, Parking Delay Lobby parameter before moving to the Lobby Parking Floor. The default value is 1 second, the maximum value is 99 seconds and the minimum value is 0 seconds.

5.1.5 PARKING DELAY OTHERS (PDO) PARAMETER

Assuming that no Lobby Parking Floors are available (cars are parked at all lobbies), when a car becomes available to park, it will wait for the period of time set in the PDO, Parking Delay Others, parameter before moving to the highest priority non-lobby parking floor available (no cars parked there). If cars are parked at all designated parking floors, any additional cars will park at the floor last served. The default value for the Parking Delay (others) parameter is 12 seconds, the maximum value is 99 seconds and the minimum value is 0 seconds.

5.1.6 SHUFFLE DELAY (SD) PARAMETER

Delay between when a Lobby Parking Floor car moves away from that floor and the Group Supervisor sends another car to the vacant Lobby Parking Floor. The car which is sent will be the car which has the shortest calculated ETA. The default value for the SD, Shuffle Delay, parameter is 15 seconds, the maximum value is 99 seconds and the minimum value is 0 seconds.

5.1.7 LOBBY CAR REMOVAL PENALTY TIME (LCRP) PARAMETER

In determining the car to which a hall call should be assigned, this amount of time is added to the ETA of a car that is parked at a Lobby Parking Floor. This penalty time minimizes the instances of the Group Supervisor assigning a hall call to a car parked at a lobby if another car can serve it in nearly the same time. The default value is 5 seconds, the maximum value is 99 seconds and the minimum value is 0 seconds.

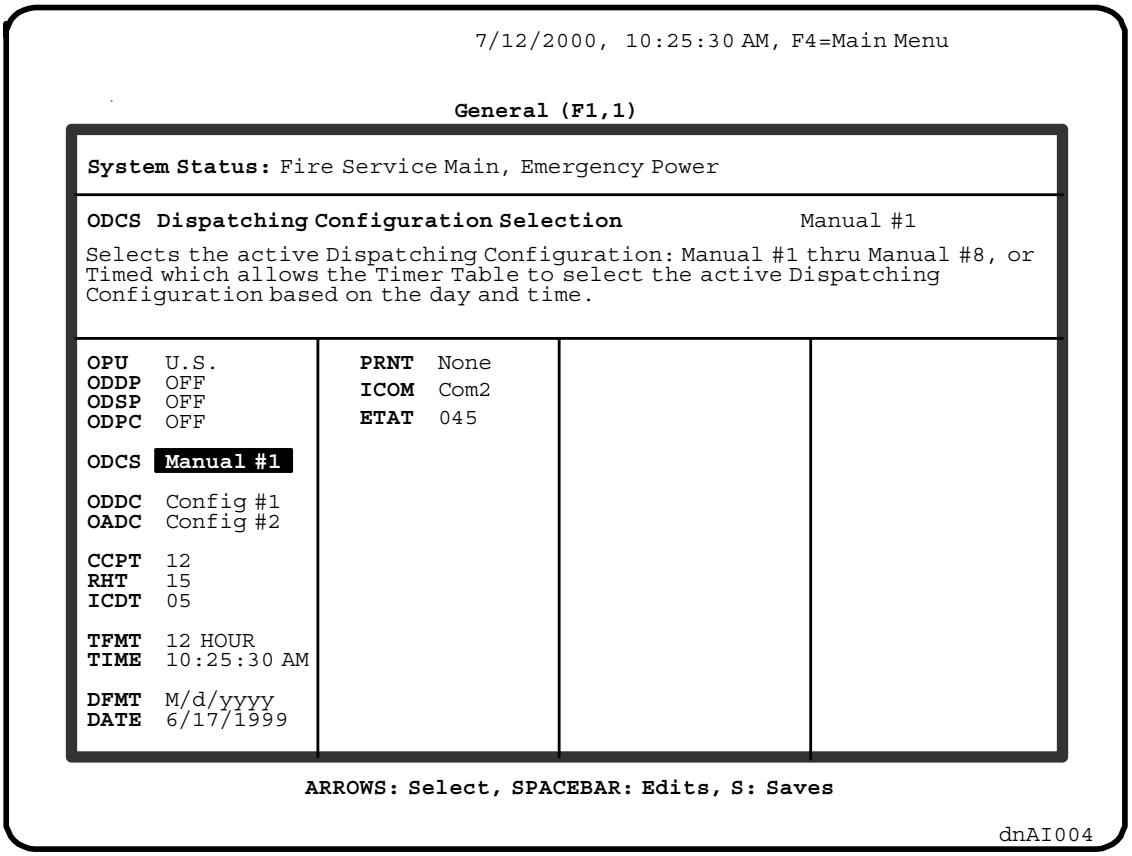
5.1.8 DESIRED CHANGES TO LONG WAIT HALL CALL THRESHOLD

These settings override the Long Wait Hall Call Threshold Time settings on the Long Wait Hall Call Threshold (F1, 4) screen (see Section 5.5, *Programming the Long Wait Hall Call Threshold*). Use the **Arrow** keys to select (highlight) the parameter to be changed. To edit the floor long wait time, press the **+** / **-** key. Press the **Arrow** keys to select the call type (Up or Down, Front or Rear) and press the **+** / **-** keys to set the time. The maximum value is 199 seconds and the minimum value is 0 seconds. Press **S** to save, then **Y** for yes. Press **Esc** to return to the Dispatching Configurations (F1, 2) screen or **F4** to return to the Main Menu screen.

5.2 SELECTING THE ACTIVE DISPATCHING CONFIGURATION

The ODCS, Dispatching Configuration Selection, parameter determines the selection of the *active* (currently in use) Dispatching Configuration. The ODCS, Dispatching Configuration Selection, parameter can specify one of the eight Dispatching Configurations as active, i.e., **Manual #3,** or it can be set to **Timed**, in which case the Dispatching Configurations Timer Table determines the active Dispatching Configuration based on the day and time (see Section 5.3, *Programming the Dispatching Configurations Timer Table*).

FIGURE 5.4 M3 Group Parameters - General (F1, 1) Screen



The ODCS, Dispatching Configuration Selection, parameter is accessed from the M3 Group Parameters - General (F1, 1) screen (Figure 5.4). The currently active Dispatching Configuration (Active Configuration) is displayed at the top of the screen, for example:

`Active Configuration: Manual #1` - which means that Dispatching Configuration #1 is the active configuration and it is manually selected, or

`Active Configuration: Timed #3` - which means that Dispatching Configuration #3 is the active configuration and it is selected via the Dispatching Configurations Timer Table, or

`Active Configuration: #1 (Default)` - which means that ODCS = Timed and that the active configuration is determined by the ODDC, Default Dispatching Configuration parameter setting because none of the timers in the Dispatching Configurations Timer Table are programmed for the current day and time, or

`Active Configuration: #2 (Alternate)` - which means that the optional ALI, Alternate Lobby Input is active and that the active configuration is determined by the OADC, Alternate Dispatching Configuration parameter setting.

5.2.1 SETTING THE DISPATCHING CONFIGURATION MANUALLY - Manual selection means that one of the eight Dispatching Configurations is specified as the active configuration by setting the ODCS, Dispatching Configuration Selection, parameter to Manual #1 thru Manual #8.

Use the **Arrow** keys to select (highlight) the ODCS parameter value. Press the **space bar** to scroll through the values or press the **I** / **D** keys or the **+** / **-** keys to increment / decrement the value. Press the **S** key to save the change. The message **`Save changes?(Y/N)`** is displayed. Press **Y** to save the change or **N** to not save and continue editing. The message **`Parameters were NOT saved`** is displayed. Press **Esc** to return to the M3 Group Parameters (F1) screen or **F4** to return to the Main Menu screen. If changes were made but not saved, the message **`Save changes?(Y/N)`** is displayed. Press **Y** to save the changes and exit this screen or press **N** to exit without saving the changes.

5.2.2 SETTING THE DISPATCHING CONFIGURATION AUTOMATICALLY (TIMED) - Automatic selection means that the active configuration will be determined via the Dispatching Configurations Timer Table. When the ODCS, Dispatching Configuration Selection, parameter is set to *Timed*, the M3 Group Supervisor will search the Dispatching Configurations Timer Table constantly to achieve automatic selection of the *active* configuration. If none of the timers in the Dispatching Configuration Timer Table are programmed for the current day and time, then the active configuration will be determined by the ODDC, Default Dispatching Configuration, parameter setting.

Use the Arrow keys to select (highlight) the ODCS parameter value. Change the setting to *Timed* and save the change as described in Section 5.2.1 above. Refer to Section 5.3, *Programming the Dispatching Configurations Timer Table* for instructions on programming the timer table.

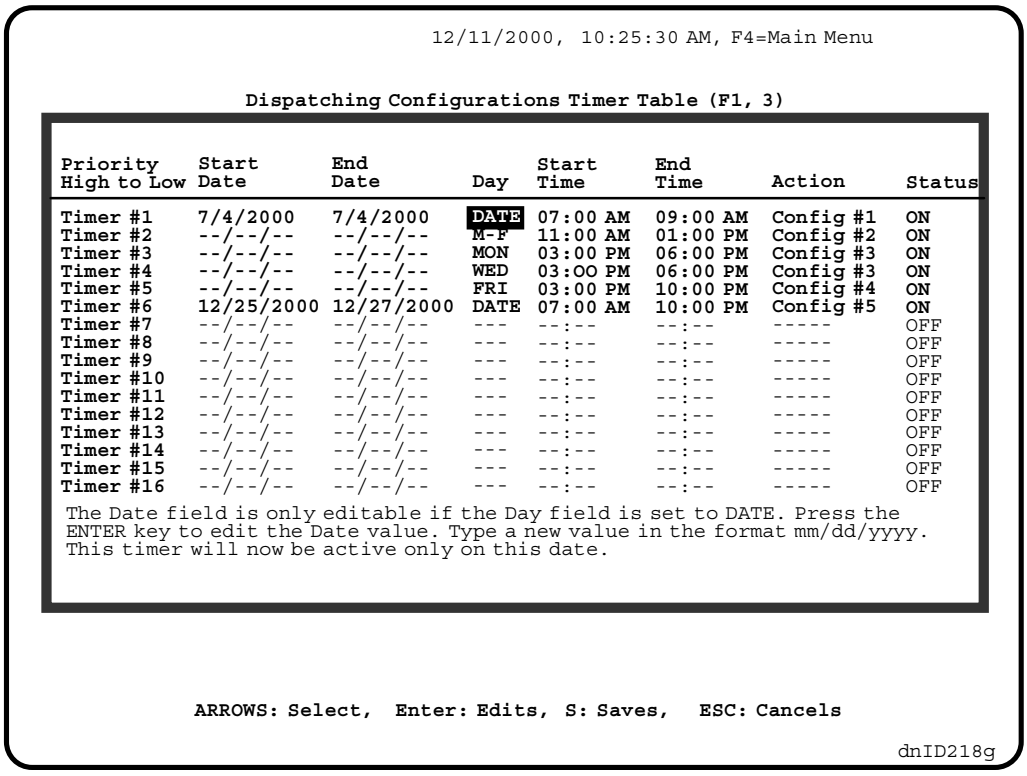
5.3 PROGRAMMING THE DISPATCHING CONFIGURATIONS TIMER TABLE

The Dispatching Configurations Timer Table has 16 time schedules, Timer #1 thru #16 (Figure 5.5). Each timer has a column for ***Start Date, End Date, Day***, ***Start Time***, ***End Time***, ***Action*** and ***Status***. The timers can be programmed to specify which Dispatching Configuration will be the active configuration based on the date or day of the week, starting at *Start Time* and ending at *End Time*. The timer itself can also be set to ON or OFF (in use or not in use) via the *Status*.

When the ODCS, Dispatching Configuration Selection, parameter is set to *Timed*, the Group Supervisor will search the Dispatching Configurations Timer Table for a timer with a Timer Status of ON. The Group Supervisor will then compare the current day and time with the day and time period defined in the timer. The highest priority timer found that has a defined day and time period into which the current day and time fall, will be the active timer. The active Dispatching Configuration will be determined by the setting under *Action* in the active timer. The timers are searched continuously to achieve automatic switching of configurations.

NOTE: If no timers are found with a defined day and time period into which the current day and time falls, the Active Configuration is determined by the ODDC, Default Dispatching Configuration, parameter setting.

FIGURE 5.5 Dispatching Configurations Timer Table (F1, 3) Screen



The Dispatching Configurations Timer Table is accessed from the M3 Group Parameters (F1) screen, by pressing **3**, *Timer Table* (Figure 5.5).

All 16 timers (time schedules) are displayed and can be programmed on this screen. Each timer has seven programmable fields: ***Start Date, End Date, Day***, ***Start Time***, ***End Time***, ***Action***, and ***Status***. Timer priority is determined by the timer number. Timer #1 has highest priority and Timer #16 has lowest priority.

EDITING METHODS - Use the **Arrow** keys to select (highlight) the parameter to be edited. Instructions for editing appear at the bottom of the window. The method of editing varies depending on the selected field, i.e., when the Day, Action or Status fields are selected the **Space Bar** scrolls through the available options, and the **I** / **D** keys or the **+** / **-** keys can be used to increment / decrement the value.

When the Start Time or End Time fields are selected, press **Enter** to edit and then type the new value. Most of the standard text editing keys are functional. Use the **Arrow** keys to select a character and type a new value over the old value. The **Insert** key toggles type-over and insert modes. The **Delete** key deletes the next character. The **Home** key moves the cursor to the far left and the **End** key moves the cursor to the far right. Press **Enter** when finished editing or **Esc** to cancel the changes.

SAVING THE CHANGES - Edited parameter values do not become effective until they are *saved*. Save the changes by pressing the **S** key. A message, **`Save Changes? (Y/N),`** is displayed. Press **Y** (save) or **N** (not save) and continue editing. If exiting is attempted before saving, the message, **`Save Changes? (Y/N)`**, is displayed. Press **N** to exit without saving the changes. If **Y** is pressed, a confirmation message, **`Save Complete`**, is displayed. If there is a problem the message **`*** ERROR Saving Parameters ***`** is displayed.

The following is a description of the possible values for each field in the Dispatching Configurations Timer Table:

Start Date and End Date - To edit the Date fields, the “Day” field must be set to “DATE.”

Day - Day specifies the day or days of the week. There are nine choices: MON, TUE, WED, THU, FRI, SAT, SUN, M-F, and ALL and DATE. M-F means Monday through Friday. ALL means all seven days of a week.

Start Time and End Time - These fields define the time period for each timer in minutes and seconds, i.e., 8:00AM (08:00) to 5:00 PM (17:00). The time is displayed in either 12 Hour or 24 Hour format as determined by the TFMT, Time Display Format parameter on the General (F1, 1) screen. No time period can be defined greater than 24 hours or defined across midnight, i.e., 5:00PM to 8:00AM. A Start Time of 12:00AM(00:00) indicates the start of the day and an End Time of 12:00 AM (00:00) indicates the end of the day.

To use a configuration overnight, i.e., Dispatching Configuration #5 from 8:00 PM (20:00) to 6:00 AM (06:00) Monday through Friday, two timers must be used. Set the Status to ON, the Day field to M-F and the Action field to Config #5 for both timers. Set one timer’s Start Time to 8:00 PM (20:00) and End Time to 12:00 AM (00:00). Set the other timer’s Start Time to 12:00 AM (00:00) and End Time to 6:00 AM (06:00).

CAUTION: Be careful not to define timers that overlap. If the *Start Time* of one timer is earlier than the *End Time* of another timer they may not operate as expected.

Action - This field tells the system which Dispatching Configuration to use in the time period defined by this timer, Config #1 thru Config #8.

Status - Status provides an easy way to turn the timer ON or OFF. If the Status = OFF, the timer will not be used when searching for the active configurations. For example, a timer was set up, but later, not desirable and its Status was set to OFF. Later, the timer was useful again, so its Status was set to ON. A timer's Status must be set to ON in order to display the timer settings and make changes to those settings.

5.4 TIMED OPERATIONS

The optional Timed Operations Timer Tables can be used to control operations such as Alternate Mapping, Inconspicious Riser, Swing Car or Split-Bank operation, etc. Using the Timed Operations Timer Tables, a time schedule can be programmed to determine when the timed operation will be ON or OFF.

The Timer Tables have 16 time schedules, Timer #1 thru #16 (see Figure 5.7). Each timer can be set for a ***Start Date, End Date, Day, Start Time, End Time, Action*** and ***Status***. The timers can be programmed to determine when the timed operation will be *ON* based on the date or day of the week, starting at *Start Time* and ending at *End Time*. The timer itself can also be set to *ON* or *OFF* (in use or not in use) via the *Timer Status*.

The controller will compare the current day and time with the day and time period defined in the timers. If a timer is found in which the current day and time fall within the timer's defined time period, and if the Timer Status is *ON*, then the timed operation will also be *ON.* If no timers are found with a defined day and time period into which the current day and time falls, with the Timer Status set to *ON*, then the timed operation will be *OFF*. The timers are searched continuously to achieve automatic switching.

NOTE: The titles of the Timed Operations Menus and the F8 option on the Main Menu may be changed using item **1 - Change the Name of the Timer Table** on the Timed Operations Menu (F8) screen (see Figure 5.6).

5.4.1 PROGRAMMING THE TIMED OPERATIONS TIMER TABLES

From the Main Menu press F8 to select the Timed Operations Menu (Figure 5.6). A timer table is provided for each car in the group (the Timed Operations Menu expands to fit the number of cars). Select the Timer Table you wish to edit from the Timed Operations Menu (figure 5.7).

The Timed Operations Timer Tables are programmed in the same way as the Dispatching Configurations Timer Table with the exception of the ***Action*** field (refer to Section 5.3). For Timed Operations the Action field defaults to ***Normal***.

FIGURE 5.6 Timed Operations Menu

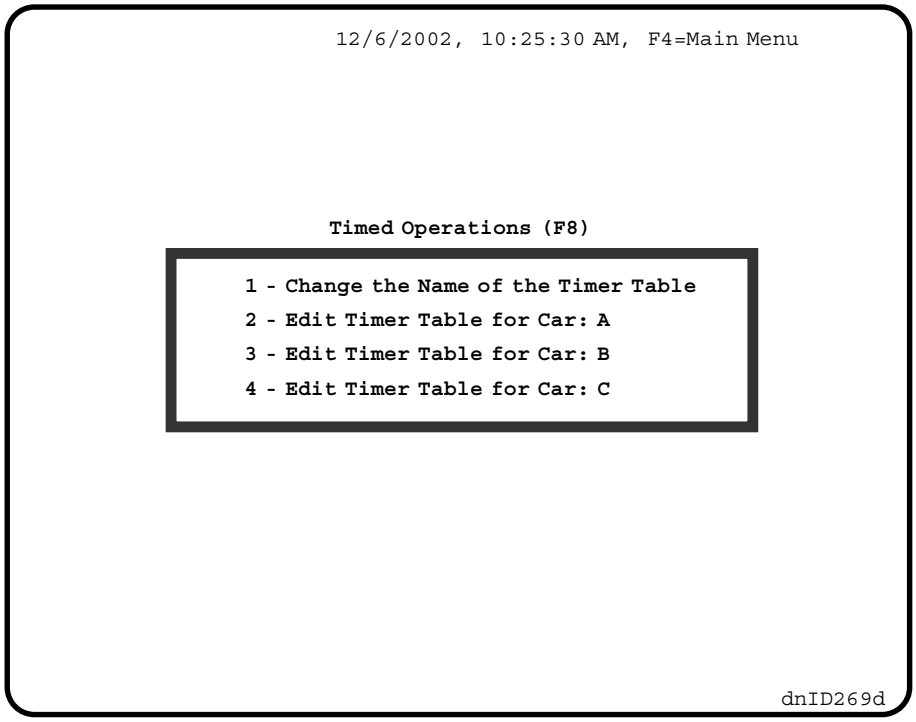
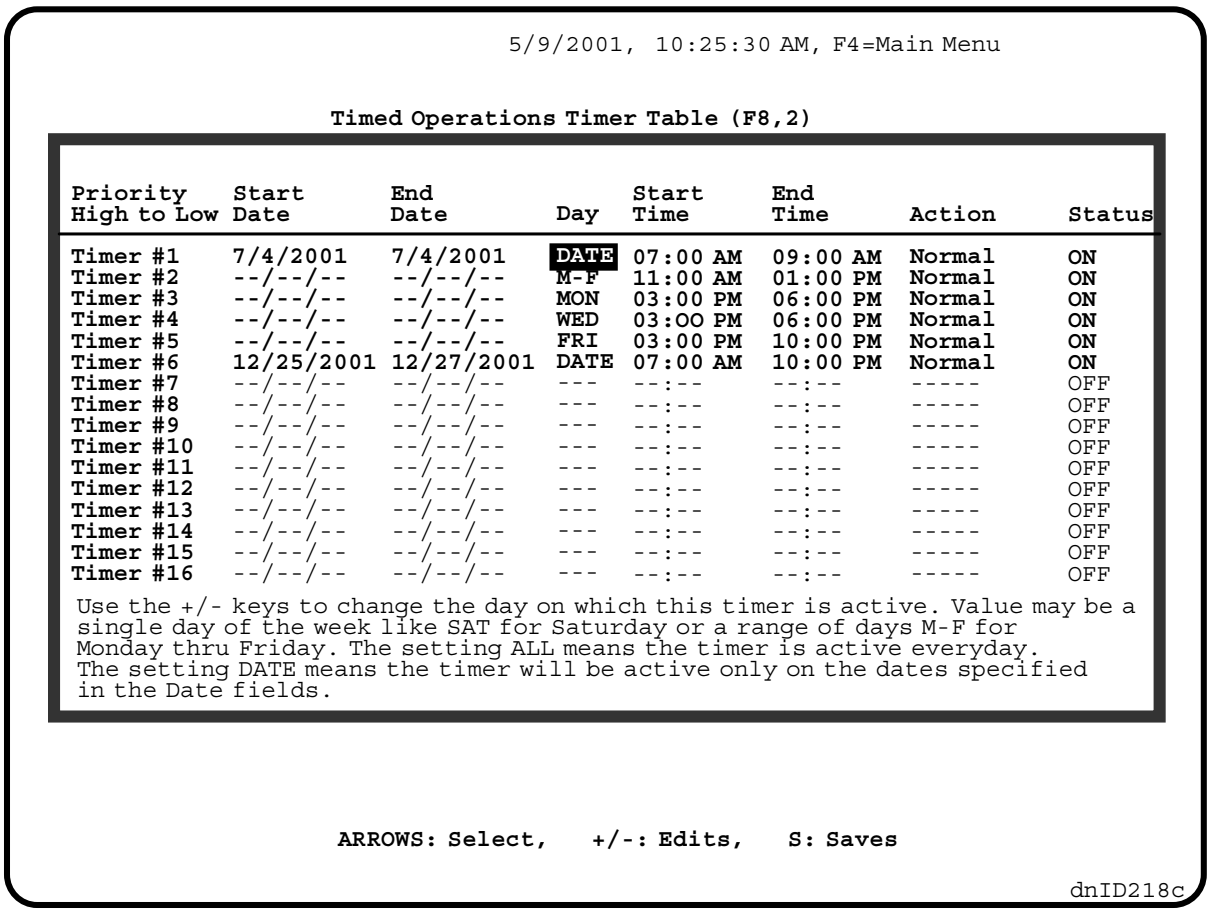


FIGURE 5.7 Timed Operations Timer Table



5.5 PROGRAMMING THE LONG WAIT HALL CALL THRESHOLD

When elevator traffic conditions are approximately balanced (up versus down calls), the M3 Group Supervisor operates in the Balanced Mode, using the M3 Dispatching Algorithm to assign calls to the cars which can provide service in the shortest time, minimum Estimated Time of Arrival (ETA). As the traffic increases, the minimum ETA will increase. A second portion of the M3 Dispatching Algorithm becomes effective when the minimum calculated ETA is greater than the *Long Wait Hall Call Threshold* parameter for the floor at which the call was placed. When this occurs for a sufficient number of floors, the Group Supervisor will remove one or more of the cars from the group hall call assignments and will assign it/them the *long wait* calls. However, cars which serve Auxiliary hall calls will not be assigned to serve long wait calls. Also, long wait Auxiliary hall calls are not considered in the calculation and this service is not available to them. The formula used to determine when and how many cars (n) will be assigned to serve the long wait calls is:

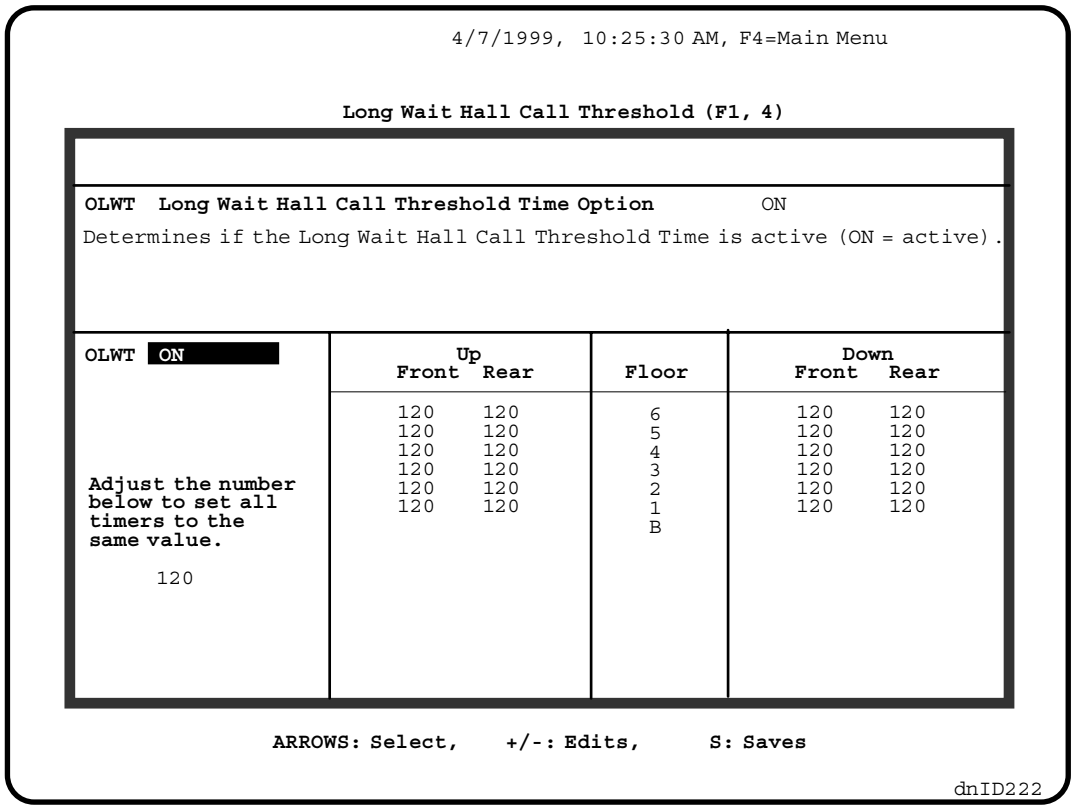
$$\left(\frac{n}{\text{total cars in service}} \times \text{number of floors} \right) + 1 = \text{number of long wait calls}$$

In the formula, n = 1, 2, 3....up to the total number of cars.

Example #1: In a building with 12 floors and 3 elevators, when the number of long wait calls equals (1/3 x 12) + 1 = 5, one car will be assigned to service the long wait calls. If the number of long wait calls should reach (2/3 x 12) + 1 = 9, then two cars would be taken out of the group and assigned to serve the long wait calls.

Example #2: In a building with 25 floors and 5 elevators, when the number of long wait calls equals (1/5 x 25) + 1 = 6, one car will be assigned to serve the long wait calls. If the number of long wait calls should reach (2/5 x 25) + 1 = 11, then two cars would be taken out of the group and assigned to serve the long wait calls.

FIGURE 5.8 Long Wait Hall Call Threshold (F1, 4) Screen



The Long Wait Hall Call Threshold parameter is set using the Long Wait Hall Call Threshold (F1, 4) screen (see Figure 5.6). It can be programmed for each floor, for front and rear doors, and for up and down calls. Also, use of the Long Wait Hall Call Threshold by the M3 Group Supervisor can be enabled or disabled by setting the OLWT, Long Wait Hall Call Threshold Time Option parameter to either ON or OFF.

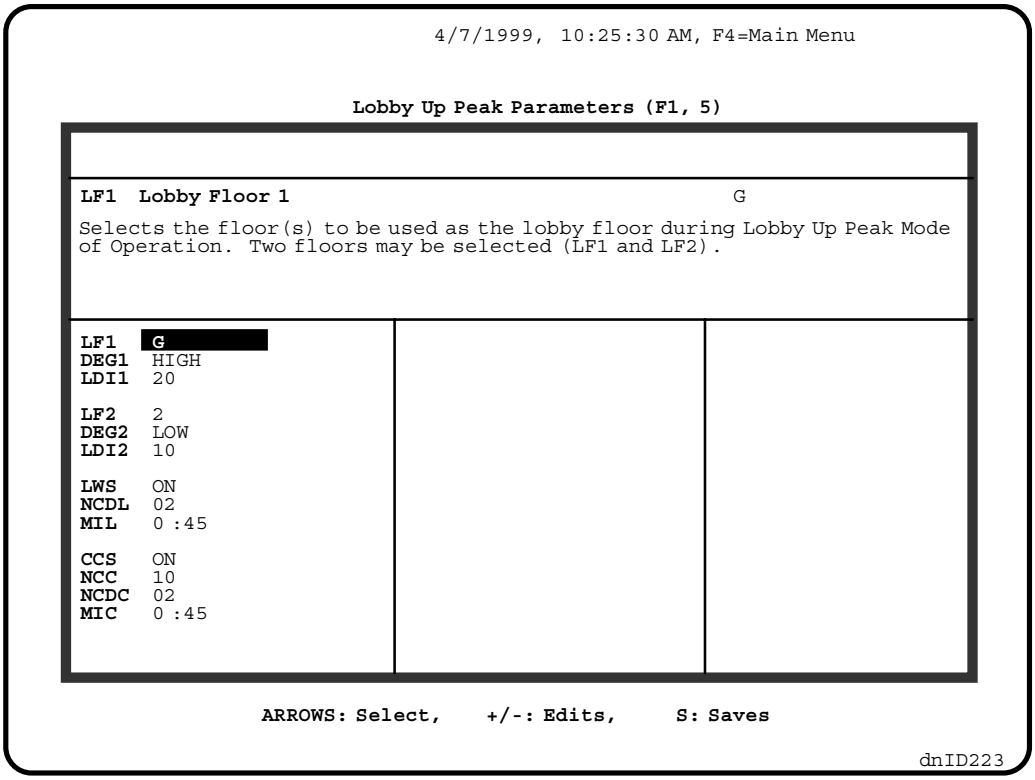
The default value for the Long Wait Hall Call Threshold time is 120 seconds. The maximum value is 199 seconds and the minimum value is 0 seconds. A smaller value (shorter time) causes a call of that type (front or rear, up or down) on that floor, to become registered as a *long wait* call sooner. Use the **Arrow** keys to select the desired field (highlight the setting for the floor and type of call). Press the space bar to scroll through the values or press the **I** / **D** or **+** / **-** keys to increment or decrement the value. To save the new parameters, press the **S** key. Press the **Esc** key to return to the M3 Group Parameters (F1) screen or press **F4** to return to the Main Menu screen.

CAUTION: Severe degradation of service may occur in a two car group when the Long Wait Hall Call Threshold time is set too low, because one of the cars must be removed from the group to serve the *long wait* calls leaving only one car to serve all other calls.

5.6 PROGRAMMING THE LOBBY UP PEAK PARAMETERS

In Lobby Up Peak Mode, one or more cars are assigned to serve lobby hall calls only (they do not serve any other hall calls). All other cars in the group are assigned hall calls based on the M3 Dispatching Algorithm. Up to two floors may be designated as lobbies for Lobby Up Peak operation. The Lobby Up Peak parameters are accessed from the M3 Group Parameters (F1) screen by pressing **5** (see Figure 5.9).

FIGURE 5.9 Lobby Up Peak Parameters (F1, 5) Screen



Some of the Lobby Up Peak parameters affect dispatching whenever the Group Supervisor is operating in Lobby Up Peak Mode. Other parameters affect automatic selection of Lobby Up Peak Mode, which occurs when the *active* Dispatching Configuration has the Mode of Operation (MOO) parameter set to automatic.

The following is a description of the parameters on the Lobby Up Peak Parameters (F1, 5) screen (Figure 5.9). To change a parameter setting, use the **Arrow** keys to select (highlight) the desired parameter. Press the **Space Bar** to scroll through the values or press the **I** / **D** or **+** / **-** keys to increment or decrement the value. To save the new parameters, press the **S** key. Press the **Esc** key to return to the M3 Group Parameters (F1) screen or press F4 to return to the Main Menu screen.

5.6.1 LOBBY UP PEAK VARIABLES

The following parameters affect dispatching whenever the M3 Group Supervisor is operating in the Lobby Up Peak Mode.

LOBBY FLOOR (LF1, LF2) - Two floors can be selected as lobby floors for Lobby Up Peak Mode of operation using the LF1, Lobby Floor 1 and LF2, Lobby Floor 2 parameters. In Lobby Up Peak mode, one or more cars are assigned to service the floor(s) designated by LF1 and /or LF2 and are not assigned to serve any other hall calls.

DEGREE OF LOBBY UP PEAK (DEG1, DEG2) - The degree of Lobby Up Peak for each lobby floor can be set to either LOW or HIGH using the DEG1 and DEG2, Degree of Lobby Up Peak parameters. This will determine how many cars will be assigned to serve the lobby floor(s) when the Group Supervisor is in Lobby Up Peak Mode, based on the following formula:

Degree of Lobby Up Peak	Number of Lobbies in Lobby Up Peak	
	1	2
Low	Cars in Group ÷ 2	Cars in Group ÷ 3
High	Cars in Group **-** 1	(Cars in Group **-** 1) ÷ 2

LOBBY UP PEAK DISPATCH INTERVAL TIME (LDI1, LDI2) - These parameters determine the amount of time a car should keep its doors open at each lobby floor during Lobby Up Peak Mode. During this time interval, the car will not respond to the door close button. However, when the car meets the heavily loaded condition, the doors will close even if the Lobby Up Peak Dispatch Interval Time has not elapsed. The default value is 20 seconds and the range isfrom 1 to 199 seconds. This parameter can also be set to CLOSE, in which case the doors will remain closed until there is hall call demand at the lobby floor.

5.6.2 AUTOMATIC SELECTION OF LOBBY UP PEAK BASED ON THE CAR LOAD

The following parameters affect automatic selection of the Lobby Up Peak Mode by monitoring the load in the cars at the lobby floor. These parameters are effective only if a Load Weigher is installed.

LOAD WEIGHER SWITCH (LWS) - When the LWS, Load Weigher Switch, parameter is set to ON, the Group Supervisor monitors the load in the cars at the lobby (Heavy Load condition) to decide if the Lobby Up Peak Mode of operation should be automatically selected. The default value is ON.

NUMBER OF CARS TO DEPART FROM THE LOBBY - LOAD WEIGHER (NCDL) - This parameter specifies the number of consecutive heavily loaded cars that must leave a lobby floor within the *MIL, Monitoring Interval - Load Weigher*, time before the Group Supervisor automatically selects the Lobby Up Peak Mode of operation. The default value is 2, the maximum value is the total number of cars and the minimum value is 1. When set to 1, the LUP mode is not effective for the system.

MONITORING INTERVAL - LOAD WEIGHER (MIL) - This parameter determines the time interval within which the number of heavily loaded cars (Number of Cars to Depart Lobby - Load Weigher parameter) must depart a lobby floor for the Group Supervisor to automatically select the Lobby Up Peak Mode of operation. The default value is 45 seconds, the maximum value is 5 minutes and the minimum value is 0 seconds.

5.6.3 AUTOMATIC SELECTION OF LOBBY UP PEAK BASED ON THE NUMBER OF CAR CALLS

The following parameters affect the automatic selection of the Lobby Up Peak Mode by monitoring the number of car calls entered at the lobby floor.

CAR CALL SWITCH (CCS) - When the CCS, Car Call Switch, parameter is set to ON, the Group Supervisor monitors the number of car calls placed at a lobby floor to decide if the Lobby Up Peak Mode of operation should be automatically selected. The default value is ON.

NUMBER OF CAR CALLS (NCC) -This parameter specifies the minimum number of car calls that need to be registered before that car is considered to be in heavy demand from the lobby. The valid range of this parameter is 1 through the total number of floors above the lobby floor. By default, it is set to one half the total number of floors in the building.

NUMBER OF CARS TO DEPART FROM THE LOBBY - CAR CALLS (NCDC) - This parameter specifies the number of consecutive heavy demand cars that must leave the lobby within the *MIC, Monitoring Interval - Car Calls* time before the Group Supervisor automatically selects the Lobby Up Peak Mode of operation. The default value is 2, the maximum value is the total number of cars and the minimum value is 1. When set to 1, the LUP mode is not effective for the system.

MONITORING INTERVAL - CAR CALLS (MIC) - This parameter determines the time interval within which the number of heavy demand cars (Number of Cars to Depart Lobby - Car Calls parameter) must depart a lobby floor for the Group Supervisor to automatically select the Lobby Up Peak Mode of operation. The default value is 45 seconds, the maximum value is 5 minutes and the minimum value is 0 seconds.

5.7 PROGRAMMING THE GENERAL M3 GROUP PARAMETERS

The General M3 Group parameters are accessed from the M3 Group Parameters (F1) screen by pressing **1** , *General* (see Figure 5.8). The following is a description of the General parameters in the order they appear on the screen.

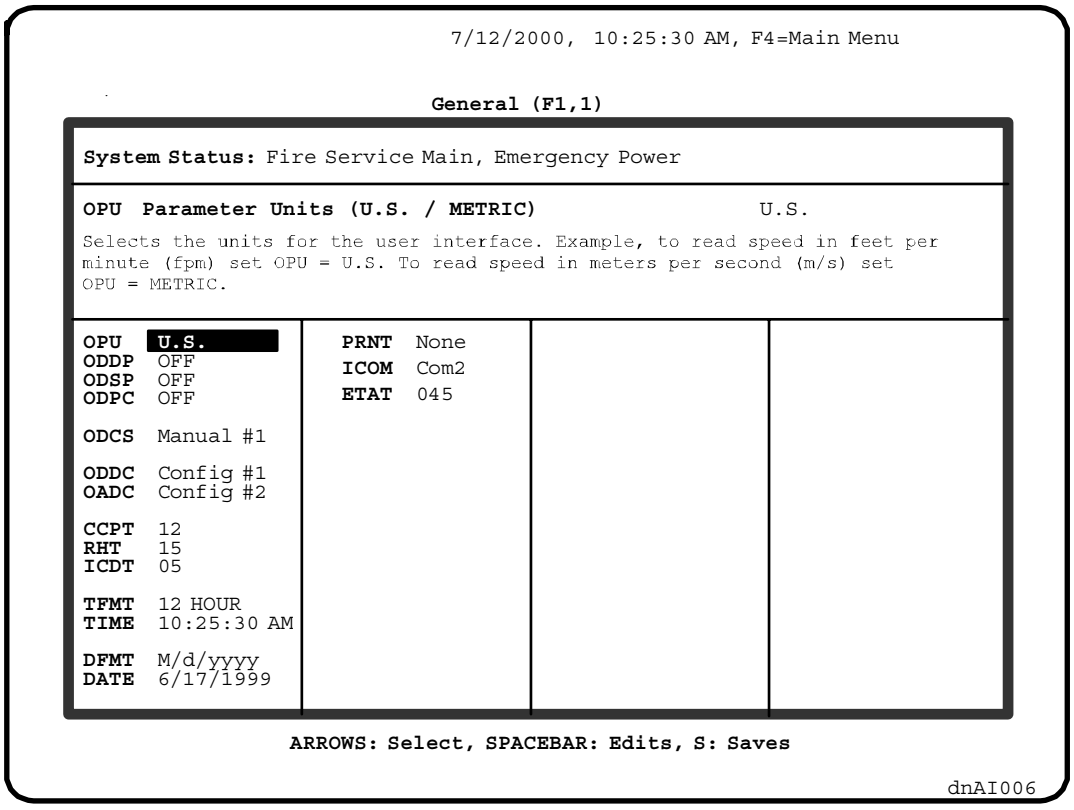
PARAMETER UNITS (OPU) - This parameter selects units for the user interface, U.S or Metric.

RESET DISPATCHING PARAMETERS (ODDP) - CAUTION ! Setting ODDP to ON and saving will reset the Dispatching Parameters to their default values. After saving is complete, ODDP will always reset itself to OFF. NOTE: The Security Parameters are not defaulted using ODDP.

RESET SECURITY PARAMETERS (ODSP) - CAUTION ! Setting ODSP to ON and saving will reset the Security Parameters to their default values and delete the passenger list. After saving is complete, ODSP will always reset itself to OFF. NOTE: The Dispatching Parameters are not defaulted using ODSP.

RESET ALL PARAMETERS (ODPC) - CAUTION ! Setting ODPC to ON and saving will reset ALL Dispatching and Security Parameters to their default values. After saving is complete, ODPC will always reset itself to continue OFF.

FIGURE 5.10 General Parameters (F1, 1) Screen



DISPATCHING CONFIGURATION SELECTION (ODCS) - Determines the selection of the active Dispatching Configuration, Manual #1 thru #8, or Timed which allows the Dispatching Configurations Timer Table to select the active Dispatching Configuration based on the day and time. Refer to Section 5.1, *Programming the Dispatching Configuration* for a complete description.

DEFAULT DISPATCHING CONFIGURATION (ODDC) - Selects the Default Dispatching Configuration, #1 thru #8. This configuration will be the active Dispatching Configuration when the ODCS, Dispatching Configuration Selection parameter is set to Timed, and there are no timers in the Dispatching Configuration Timer Table with the current day and time.

ALTERNATE DISPATCHING CONFIGURATION (OADC) - Selects the Alternate Dispatching Configuration, #1 thru #8. This will be the active Dispatching Configuration when the optional ALI, Alternate Lobby Input is active.

COINCIDENT CALL PREFERENCE TIME (CCPT) - In case of a coincident call, meaning that there is a car call assignment at a floor and a hall call is placed at that same floor, the car originally assigned to go to that floor will serve the hall call unless another car can better the response time by the Coincident Call Preference Time. The default value is 12 seconds, the maximum value is 29 seconds and the minimum value is 0 seconds.

REASSIGNMENT HYSTERESIS TIME (RHT) - This timer provides stability in making a commitment to a car for answering a hall call. A low value for this timer will cause too many reassignments if two or more cars have very closely calculated ETA times. A high value for this timer may increase the average waiting time by locking in assignments to a car when another car may have had a shorter ETA time. The default value is 15 seconds, the maximum value is 19 seconds and the minimum value is 0 seconds.

INACTIVE CAR START UP DELAY TIME (ICDT) - If the MG set of a car is shut down, there has to be enough traffic to justify restarting the MG set. This value is added to the calculated ETA for any car with its MG shut down, thereby making that car appear further away from the hall call. A low value for this parameter adds a lower value to the ETA calculation of a car with its MG set shut down. A high value for this timer often delays the assignment of hall calls to a car that has its MG set shut down. The default value is 5 seconds, the maximum value is 99 seconds and the minimum value is 0 seconds.

TIME DISPLAY FORMAT (TFMT) - Determines the Time Format to be used to display the time at the top of the screen and in the Timer Tables (12 hour or 24 hour).

CURRENT TIME (TIME) - Used to set the system clock to the current time.

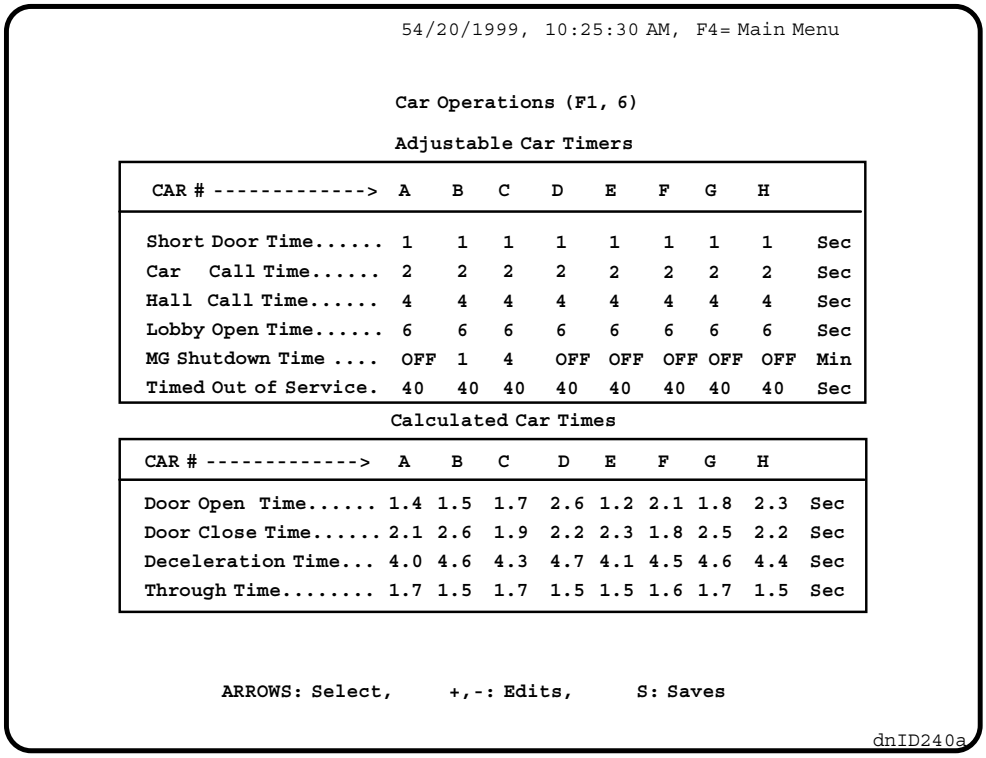
DATE DISPLAY FORMAT (DFMT) - Determines the Date Format to be used to display the date at the top of the screen and on any generated reports (M/d/yyyy, M/d/yy, MM/dd/yy, MM/dd/yyyy, uu/MM/dd, dd-MMM-yy).

TODAY'S DATE (DATE) - Used to set the date to today's date.

5.8 PROGRAMMING THE CAR OPERATING PARAMETERS

The M3 Group Supervisor allows the user to program timing parameters related to door operations, MG shutdown, and out of service for each car in the group. These parameters are programmed using the Car Operations (F1, 6) screen (see Figure 5.9).

FIGURE 5.11 Car Operations (F1, 6) Screen



The *Adjustable Car Parameters* are the timing functions that can be adjusted by the user. The *Calculated Car Parameters* are non-programmable timing functions which are displayed for information purposes only. They are calculated based upon the M3 Group Supervisor user adjusted parameters and information from each car.

5.8.1 ADJUSTABLE CAR PARAMETERS

This list displays some of the field programmable timing functions for each selected car (Figure 5.11). To modify these timer values, move the cursor to the desired timer by pressing the **Arrow** keys. Then, use the **I** / **D** keys or **+** / **-** keys to increase or decrease the value.

SHORT DOOR TIME (SDT) - This is the door reopen time initiated by the Safety Edge, Door Open button, etc. The SDT parameter range is 1 to 16 seconds.

CAR CALL TIME (CCT) - This is the period of time that doors stay open in response to a car call. The CCT parameter range is 1 to 16 seconds.

HALL CALL TIME (HCT) - This is the time that doors stay open in response to a hall call. The HCT parameter range is 1 to 16 seconds.

LOBBY OPEN TIME (LOT) - This is the time that doors stay open in response to a call at the lobby. The LOT parameter range is 1 to 16 seconds.

TIMED OUT OF SERVICE (TOS) - After the car establishes a direction, if it does not step (position change) within the TOS time, the car is placed in Timed Out of Service status, and all the assigned hall calls will be transferred to another car. The TOS timer also triggers the nudging function. The TOS parameter range is 16 to 60 seconds.

5.8.2 CALCULATED CAR PARAMETERS

This list displays times used by the M3 Group Supervisor for Estimated Time of Arrival (ETA) calculations. These times are calculated averages based on actual car performance and user adjusted car parameters. They are displayed for reference only.

5.9 PERFORMANCE EVALUATION AND DIAGNOSTICS

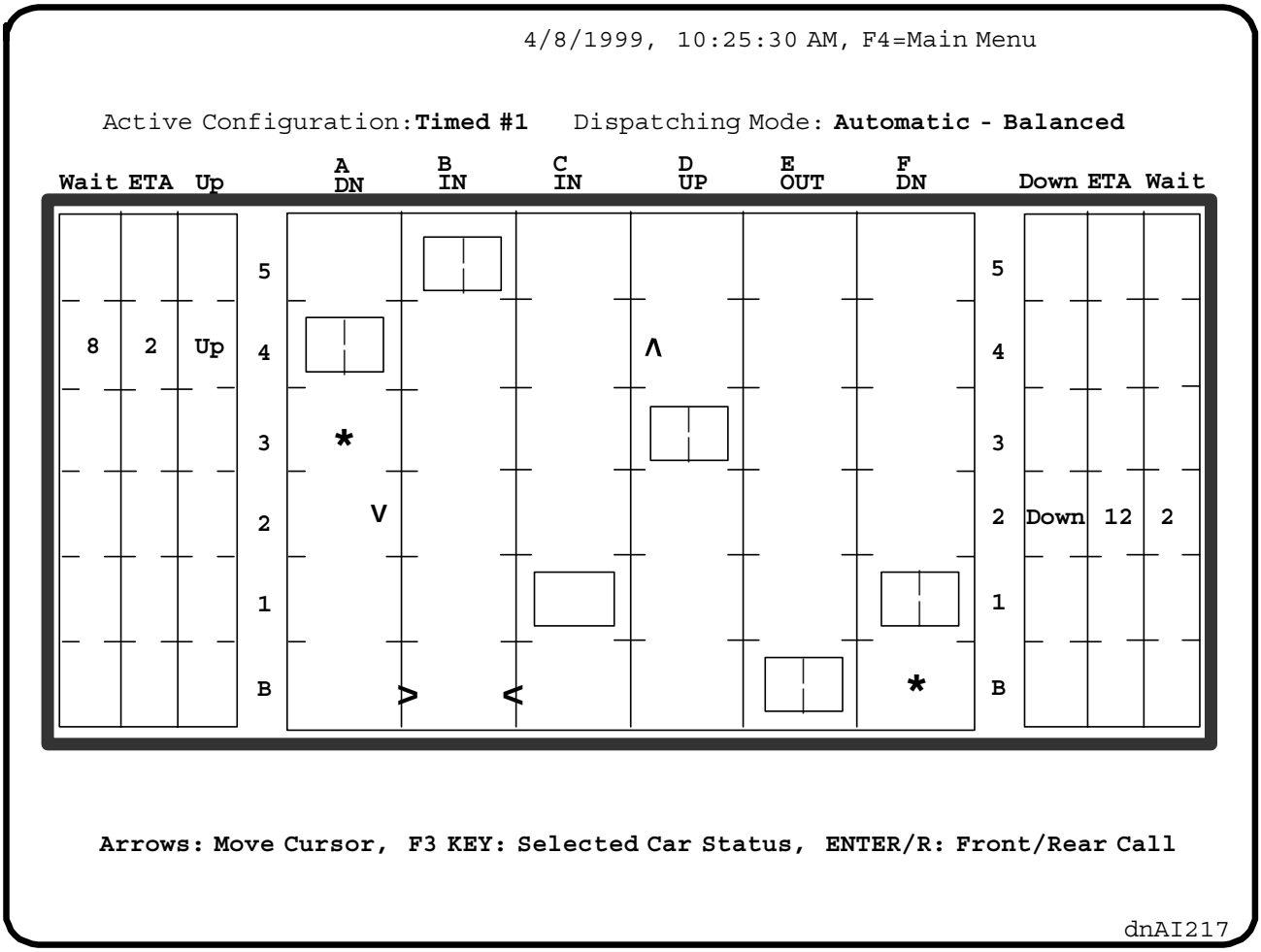
The M3 Group Supervisor provides many reports and diagnostic screens designed to aid in optimizing system performance and troubleshooting. Some of these reports can be printed out for future reference. The available reports and diagnostic screens include:

- Hoistway View (F3) screen (see Section 5.9.1)
- Hourly Average Waiting Time Graph (see Section 5.9.2)
- Hourly Hall Call Performance (Hall Call Distribution) (see Section 5.9.3)
- Special Events Calendar (see Section 5.9.4 and Section 6.6)
- Diagnostics (see Section 6.9)

5.9.1 VIEW HOISTWAY (F3) SCREEN

The View Hoistway (F3) screen shows a great deal of information about the status of the elevators in the M3 Group System. To access the View Hoistway screen, press **F3** while the Main Menu is displayed (Figure 5.10).

FIGURE 5.12 View Hoistway (F3) Screen



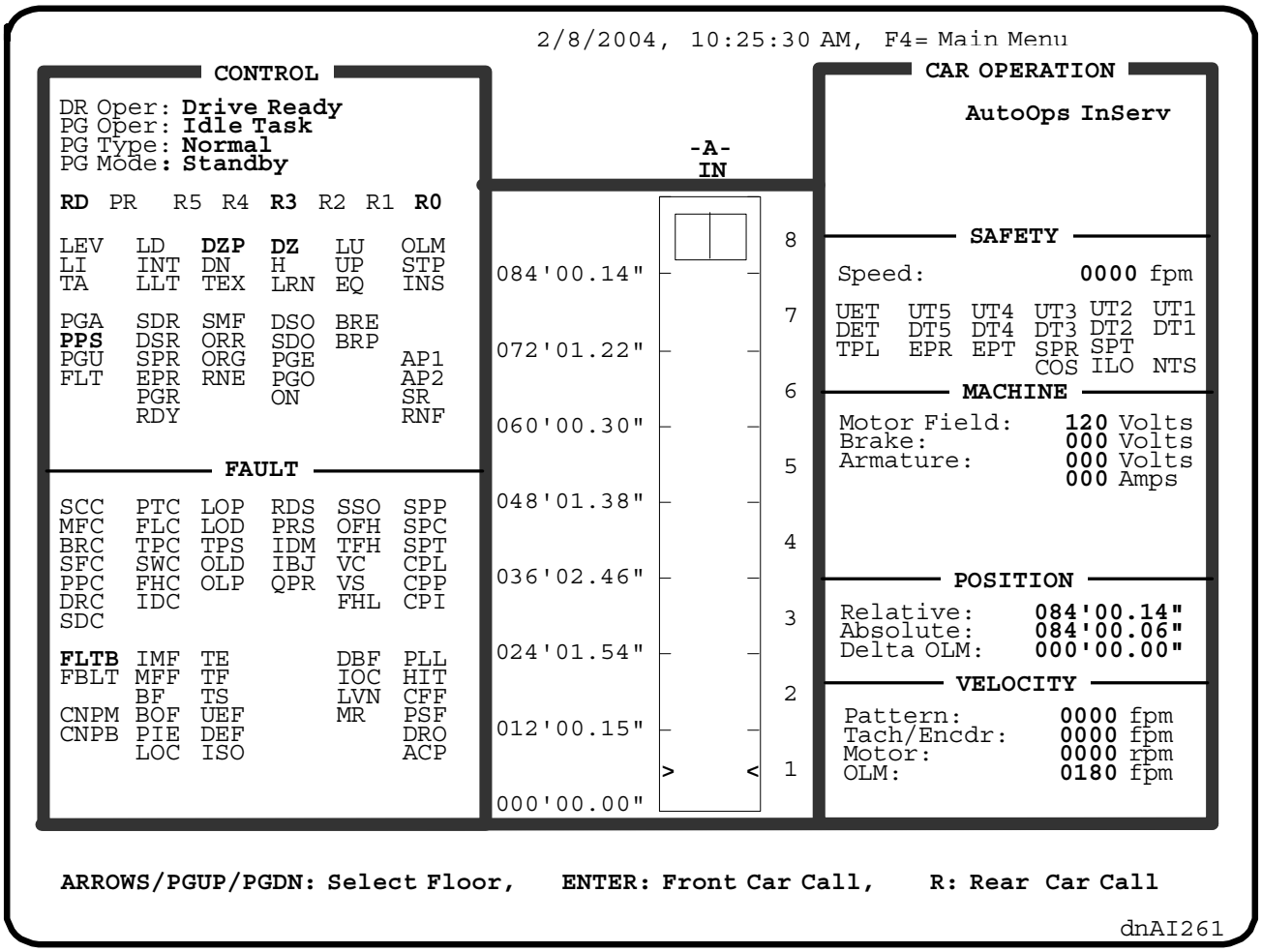
Column Labels Description

- **Up** - Up hall calls appear in the Up column next to the floor number.
- **Down** - Down hall calls appear in the Down column next to the floor number.
- **ETA** - The estimated time remaining until the call will be serviced appears in the ETA column next to each hall call.
- **Wait** - The accumulated waiting time since the call was placed appears in the Wt. column next to each hall call.
- **A - F** - These are the car labels and the following is shown in these columns:
  - UP or DN (car direction), IN (in service) or OUT (out of service).
  - The current location of the car and the status of its doors.
  - Car Calls are shown at the appropriate floor with an asterisk (*).
  - Assigned Hall Calls are shown in the car columns at the floor (^ = UP, v = DN).
  - Special assignments, such as a Hospital call (H).

Car Calls and/or Hall Calls can be registered by using the **Arrow** keys to place the cursor at the desired floor in the appropriate column, Up for Up Hall Calls, Down for Down Hall Calls, or A thru F for Car Calls, and pressing **Enter** for front calls or **R** for rear calls.

The Group System Status is shown above the hoistway graphic. The Status of the individual cars can be viewed by placing the cursor in the desired car's column (A thru F) using the **Arrow** keys and pressing **F3** (see Figure 5.12). The Hoistway View of the selected car is displayed.

FIGURE 5.13 Car B View Hoistway (F3, F3) Screen



Car Calls can also be entered from this screen by using the **Arrow** keys to select the desired floor and pressing **Enter** for front calls or **R** for rear calls. Car status messages are displayed in the upper right window labeled CAR OPERATION. A complete listing of possible messages and their meaning can be found in the Troubleshooting Section of this manual in Table 6.5, *Car Status Messages*. A complete listing and the meaning of the Status and Fault flags found on the car's Hoistway View screen can be found in the Troubleshooting Section of the Car Controller Manual.

5.9.2 SYSTEM PERFORMANCE GRAPH

The System Performance Graph (F2, 1) screen (Figure 5.15) is accessed from the Performance Reports Menu (F2) screen (Figure 5.14) by pressing **1**. The data on this screen is based on hall call waiting times which are saved hourly, 24 hours a day for seven days.

At the end of each hour, the number of up and down hall calls and the up and down averages are calculated and saved in the Group Supervisor's non-volatile memory. The Daily Average (waiting times displayed at the right of the graph) is obtained by adding hourly up and down hall call averages (calculated as stated above) for the 24 hours currently being displayed and dividing by the appropriate number of hours. Note that all of the values displayed are rounded off to the nearest tenth of a second.

FIGURE 5.14 Performance Reports Menu (F2) Screen

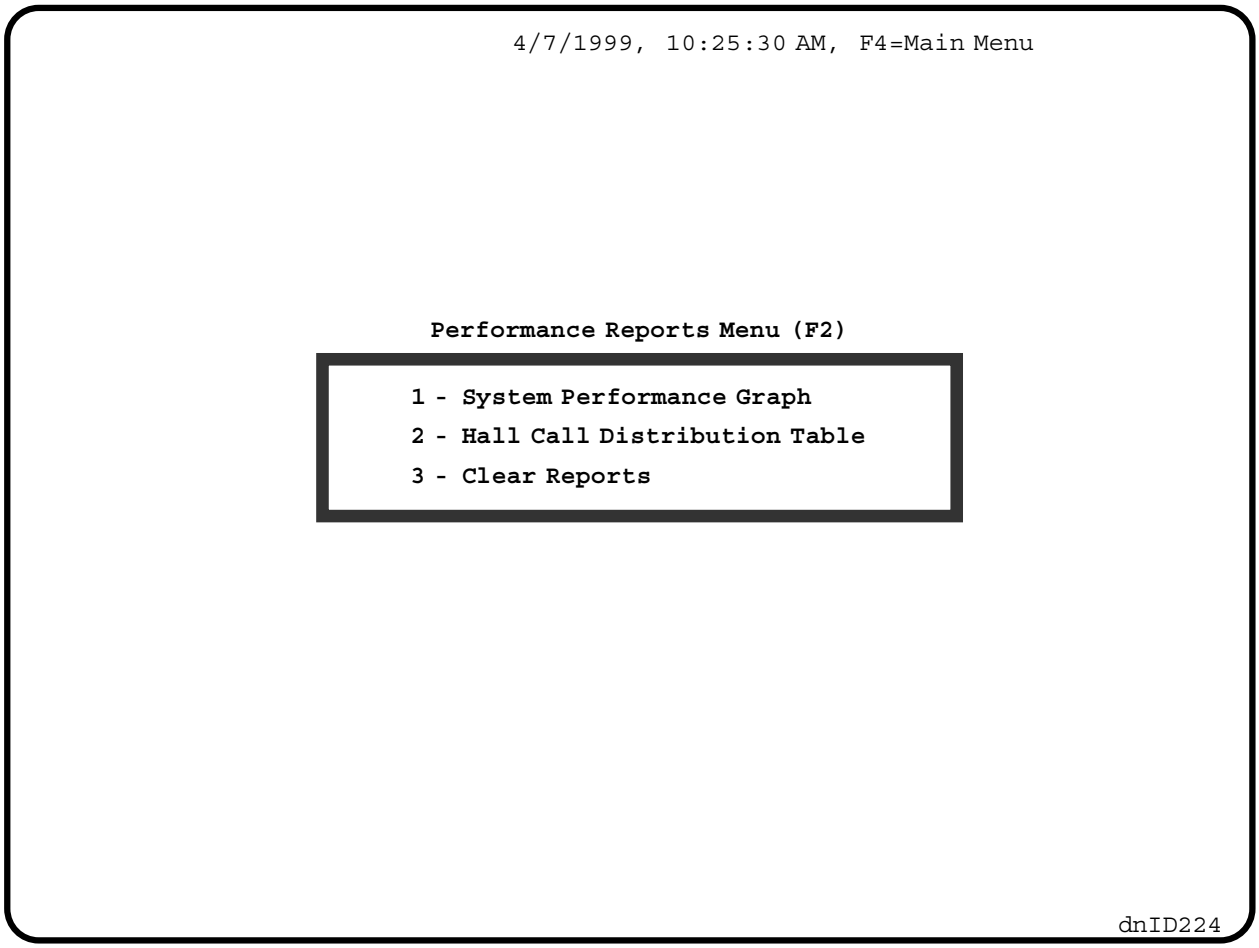
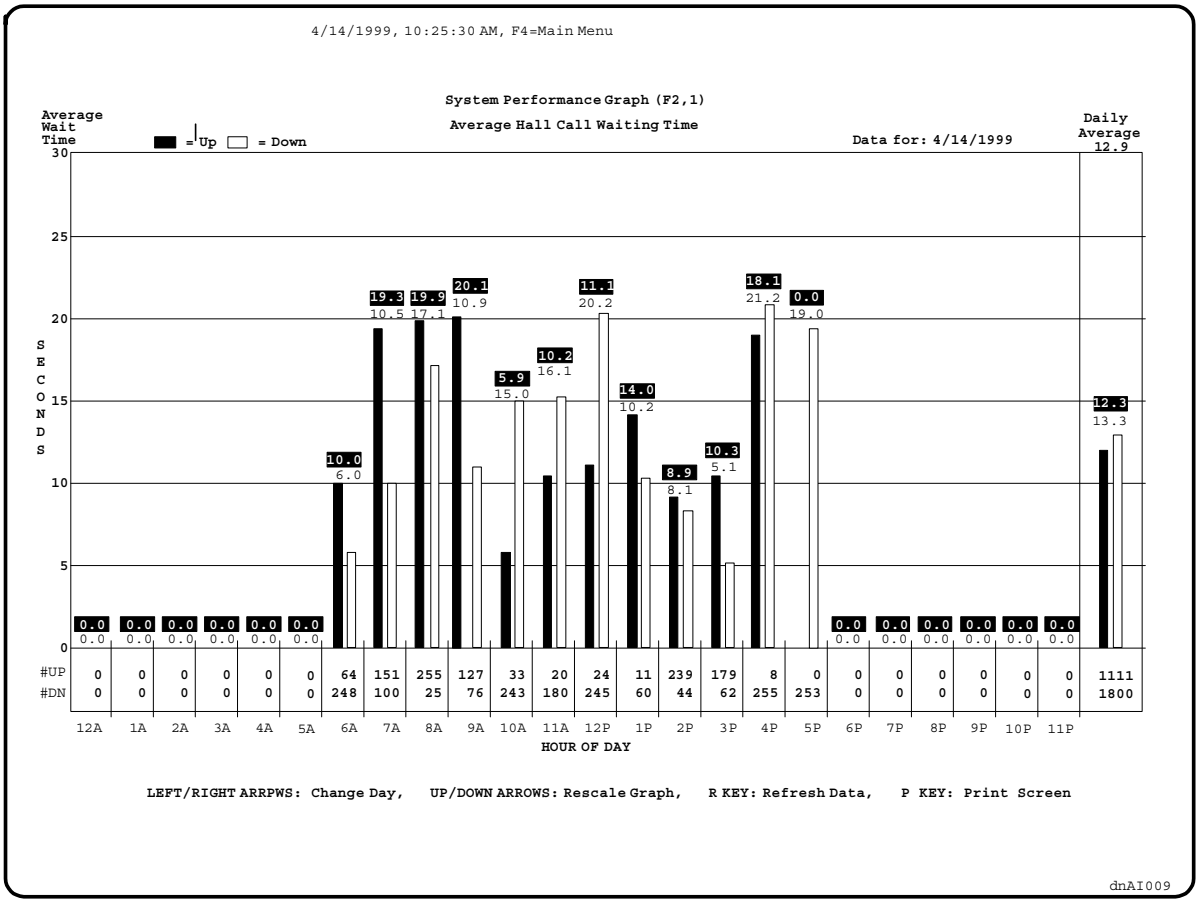


FIGURE 5.15 System Performance Graph (F2, 1) Screen

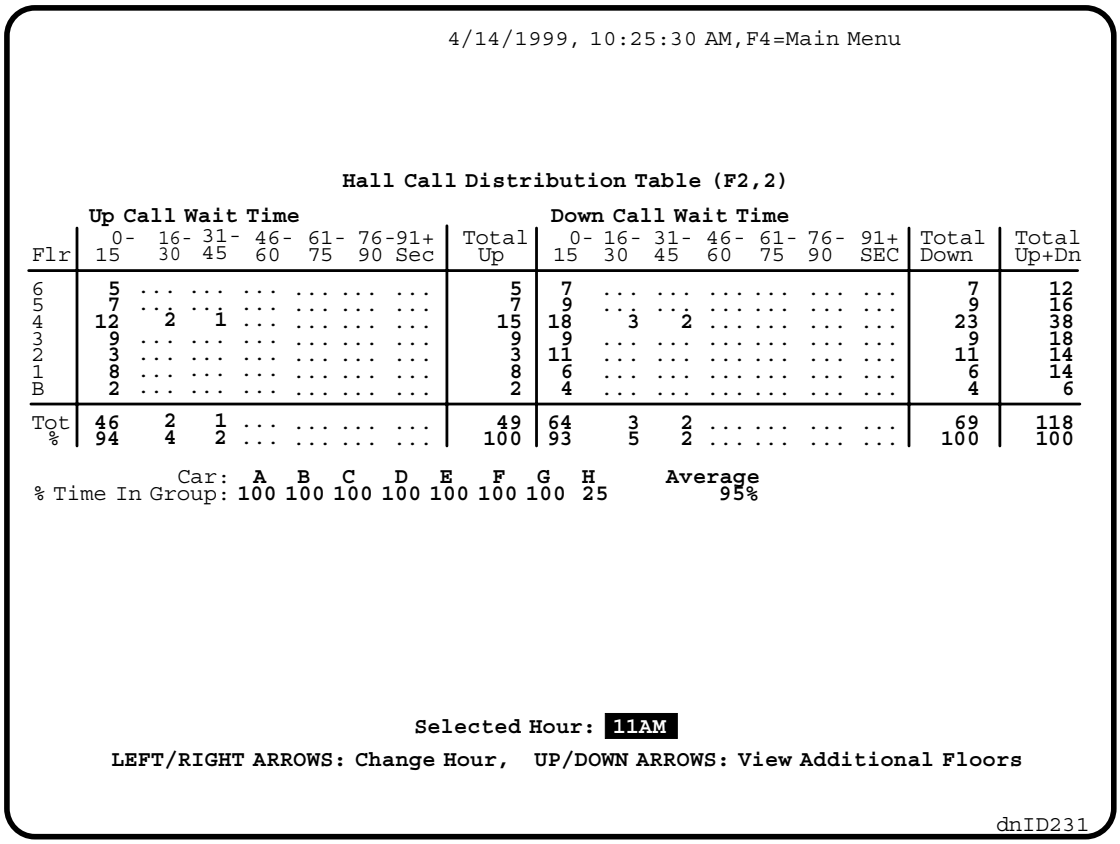


Press the **right arrow** key to view the next day's information. Press the **left arrow** key to view the data for the previous day of the week. Note that, if the right arrow key is pressed when displaying the present day's data, the information displayed is from six days ago (or the oldest system performance data). The same holds true when looking at the oldest information, if the left arrow key is pressed, the data that is displayed will be the most current.

5.9.3 HOURLY HALL CALL PERFORMANCE

This screen is accessed by pressing **2** while the Performance Reports Menu (F2) screen is displayed. To get a closer view of the hall call distribution and system response, the M3 Group Supervisor produces a Hall Call Distribution Table (see Figure 5.14). To select a different hour press the **left/right arrow key** to increment or decrement the hour.

FIGURE 5.16 Hall Call Distribution Table (F2, 2) Screen



The Hall Call Distribution report provides the following information for the selected one hour period:

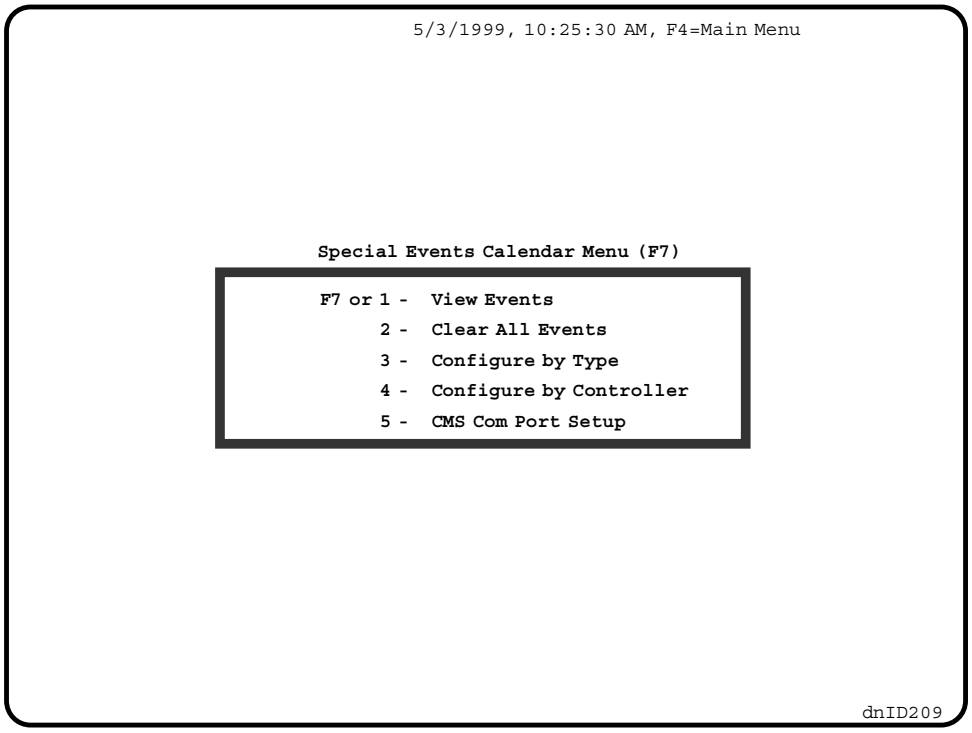
- Total number of Up Calls for each floor.
- Total number of Down Calls for each floor.
- Total number of Up and Down Calls for each floor.
- Total number of Up Calls.
- Total number of Down Calls.
- Total number of Up and Down Calls.
- Number of Up Calls responded to within 15, 30, 45, 60, 75, 90 and 90+ seconds for each floor.
- Number of Down Calls responded to within 15, 30, 45, 60, 75, 90 and 90+ seconds for each floor.
- Number of Up Calls responded to within 15, 30, 45, 60, 75, 90 and 90+ seconds.
- Number of Down Calls responded to within 15, 30, 45, 60, 75, 90 and 90+ seconds.
- Percentage of Up Calls responded to within 15, 30, 45, 60, 75, 90 and 90+ seconds.
- Percentage of Down Calls responded to within 15, 30, 45, 60, 75, 90 and 90+ seconds.
- Percentage of Up Calls, Down Calls and Up plus Down Calls.
- The percentage that each car was in service during this period.
- Percentage of total cars under the Group Supervisor's control.

Clear Reports - The data currently stored for the System Performance Graph and Hall Call Distribution Table can be cleared using Clear Reports (F2, 3) from the Performance Reports Menu. This is a convenient way of clearing the data accumulated during installation and testing.

5.9.4 SPECIAL EVENTS CALENDAR

The Special Events Calendar can document the most recent 250 important fault conditions or events and display them in chronological order. The data displayed includes the type of event or fault, the date and time the fault/event occurred, the date and time the fault/event was corrected, as well as other information about the status of the elevator when the fault or event occurred. Press the **F7** key while the Main Menu is displayed.

FIGURE 5.17 Special Events Calendar Menu (F7) Screen



VIEW EVENTS - From the Special Events Calendar Menu (F7) screen press **1** or **F7** to display the events logged to the Special Events Calendar (see Section 6.6). This screen makes it possible to examine the documented faults and events. The latest 14 faults and events are displayed in the bottom half of the screen, including the date and time the event occurred. Car events show the Car ID. Group events have three dashes (- - -) in the Car column.

Use the **Up / Down Arrow** or the **Page Up / Page Down** keys to scroll through the complete listing of events. As each event is selected (highlighted), the description of the event and any other logged data is displayed in the top half of the screen. Table 6.7 provides a listing of Special Event messages and their descriptions.

CLEAR ALL EVENTS - While in the Special Event Calendar Menu (F7) screen is displayed, if the **2** key is pressed, the message **`Delete All Events? (Y/N)`** is displayed. Press **Y** to clear the Special Events Calendar of all events.

CONFIGURE BY TYPE - CONFIGURE BY CONTROLLER - In order to aid in troubleshooting, the list of events which are logged to the Special Events Calendar can be configured based on the type of event and by the source of the event. Section 6.6.4 describes configuring by type. Section 6.6.5 describes configuring by controller.

5.10 MODEM AND CMS COM PORT SETUP

A modem can be used to monitor the M3 Group Supervisor from a remote location using one of the following:

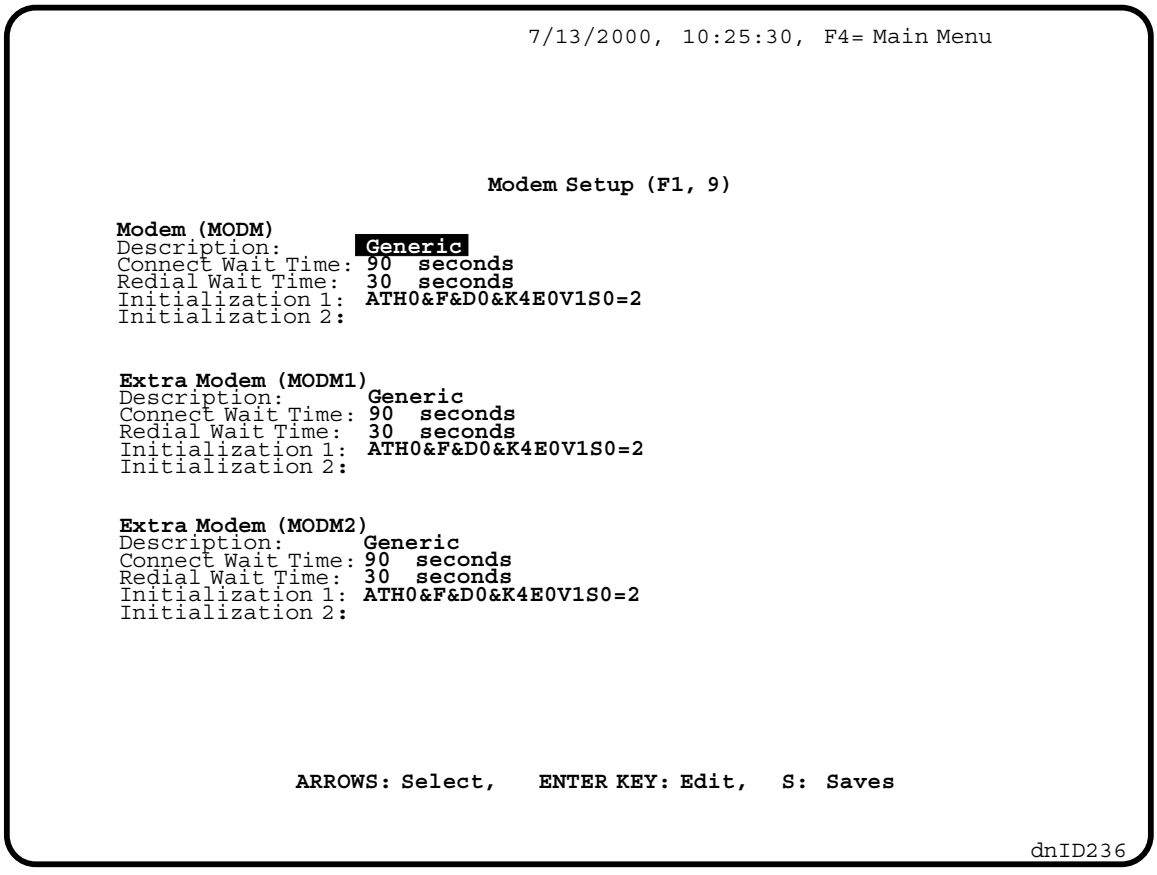
- a CRT terminal
- a PC running terminal emulation software
- a PC running MCE's Central Monitoring System, CMS for Windows, software.

MCE Central Monitoring System software, CMS for Windows, allows the building elevators to be monitored from a remote location using a PC. CMS for Windows provides a complete user interface for the M3 Group Supervisor. Also, the M3 Group Supervisor can be programmed to transmit information to a remote PC in the event of an emergency. More information about CMS for Windows software can be found in the CMS manual, MCE part # 42-02-S021. For information about connecting a CRT terminal or PC to the M3 Group Supervisor using a modem, refer to the MCE Computer Peripherals Manual, MCE part #42-02-CP00.

5.10.1 MODEM SETUP

The Modem Setup (F1, 9) screen is used to set the modem communication parameters. From the M3 Group Parameter (F1) screen press ***9*** to access the Modem Setup screen (see Figure 5.18).

FIGURE 5.18 Modem Setup (F1, 9) Screen



It may be necessary to change the default modem parameters. Consult the modem User's Manual.

5.10.2 CMS COM PORT SETUP

The M3 Group Supervisor can be programmed to call a computer at a remote location when specific events, logged to the Special Events Calendar, occur. The specific events which will cause the Group Supervisor to report the event are programmed from the Special Events Calendar Menu (F7) screen.

From the Special Events Calendar Menu (F7) screen press **5** to display the CMS Com Port Setup screen (see Figure 5.19).

Com - These settings are used to tell the computer which communication port to use.

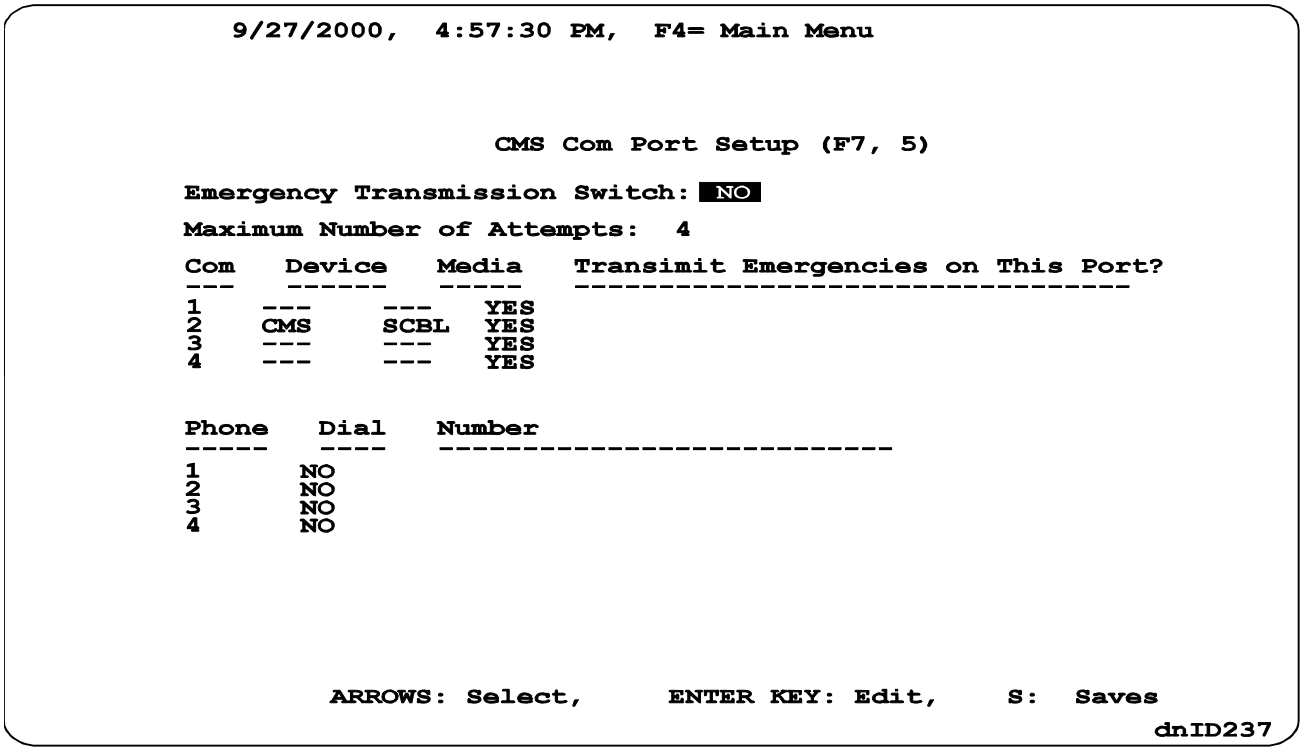
Device - This designates the type of device used to monitor the system. For example: CMS (Central Monitoring Software), CRTMK (CRT), PC (personal computer).

Media - This designates the type of media used to connect the controller to the device. For example: MODM (modem), LDRV (line driver), SCBL (serial cable) and TELRD (Telrad).

Phone - Determines the phone number(s) to be dialed to send the emergency message.
Transmit Emergencies on This Port? - Default is yes. If YES *and* the Device *and* the Media are designated, then Emergencies will transmit to this port. If the Media selected is a modem (MODM) then set Dial to Yes for those numbers to be called in an emergency.

Maximum Number of Attempts - Set to the number of times the system should attempt to send each emergency message, via a modem, to a remote PC running CMS software. If all attempts fail, the system will stop sending after this *number* until a new CMS connection is established or another Emergency Event occurs.

FIGURE 5.19 CMS Com Port Setup (F7, 5) Screen



SECTION 6
TROUBLESHOOTING

6.0 GENERAL INFORMATION

The M3 Group Supervisor has features designed to speed up the troubleshooting process. The Computer Swing Panel Enhanced-On-Board Diagnostics (EOD) and the CRT terminal Diagnostics guide the user to the source of most problems. Often the Group Supervisor will indicate the nature of the problem in the form of a status or error message flashing on the Computer Swing Panel Diagnostic Indicators.

Troubleshooting often involves determining the status of specific inputs, outputs or computer variable flags. This information is stored in controller memory and the status of these memory locations can be displayed using the Computer Swing Panel Diagnostic Indicators, the View Hoistway (F3) screen and the Diagnostics Menu screens. Additional messages and information about the events leading up to the current status can be found on the Special Events Calendar.

The Troubleshooting section includes:

If you want to troubleshoot:	**Go to:**
PC board jumper settings	Section 6.1
High-Speed Serial Communication problems	Section 6.2
SmartLink Serial Hall Call problems	Section 6.3
Call Problems - Direct Wire	Section 6.4
Using the Hoistway View (F3) screen	Section 6.5
Using the Special Events Calendar	Section 6.6
Using the Computer Swing Panel EOD	Section 6.7
Using the CRT Terminal Diagnostics	Section 6.8
Using the Problems / Solutions Table	Section 6.9
Optimizing Group System Performance	Section 6.10
PC Board Quick References	Section 6.11

6.1 PC BOARD JUMPER SETTINGS

Table 6.1 lists PC board jumpers and associated M3 Group Supervisor settings. Verify that the jumper settings are as shown. Refer to the local Car Controller Installation Manual to verify local Car Controller jumper settings.

TABLE 6.1 M3 Group Supervisor Jumper Settings

M3 GROUP SUPERVISOR JUMPER SETTINGS			
MC-MP2 MAIN PROCESSOR BOARD			
JP5	A, pins 1 & 2	JP11	A
JP6	N/C	JP12	A
JP9	A	JP13	A
JP10	N/C		
MC-MP-1ES MAIN PROCESSOR BOARD			
JP3	A	JP7	A
JP4	A	JP8	A
JP5	ON		
MC-CGP DISPATCHING PROCESSOR BOARD			
JP1	A	JP7	A
JP2	ON	JP8	B
JP3	N/C	JP9	B
JP4	B	JP10	B
JP5	B	JP11	A
JP6	A		
MC-CGP-4 (8) COMMUNICATION PROCESSOR BOARD			
JP1	A	JP7	A
JP2	ON	JP8	A or hard wired
JP3	N/C	JP9	B
JP4	B	JP10	B
JP5	B	JP11	B or hard wired
JP6	B		
MC-RS COMMUNICATION INTERFACE BOARD			
JP1	**	JP3	GROUP
JP2	**	JP4	B
** These are ON only for the terminal ends of the daisy chain of Car and Group controllers.			
COM1 - COM4 Switches = DCE for a Serial Cable or DTE for a Line Driver or Modem			

6.2 TROUBLESHOOTING HIGH-SPEED COMMUNICATION PROBLEMS

Communication between the Group Supervisor and the Local Car controllers takes place over the High Speed Serial Communication Cables which interconnect the Communication Interface boards in each controller cabinet (see Figure 6.1).

A ribbon cable connects the Communication Interface boards to the Communication Processor Boards inside the Computer Swing Panel (see Figure 6.2). Communication between the boards inside the Computer Swing Panel takes place via shared memory. The boards are interconnected by ISBX (blue) connectors.

FIGURE 6.1 Group System High Speed Serial Communication

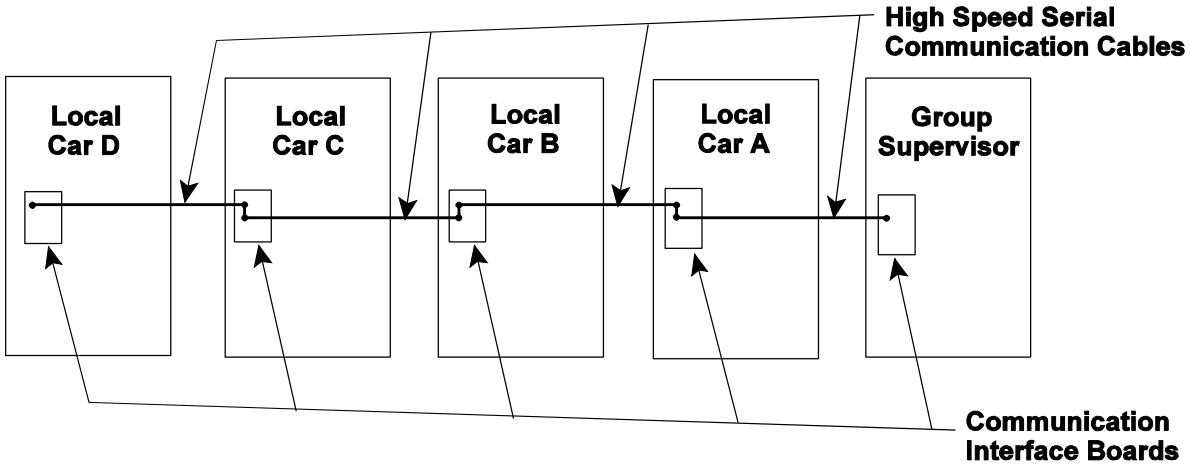
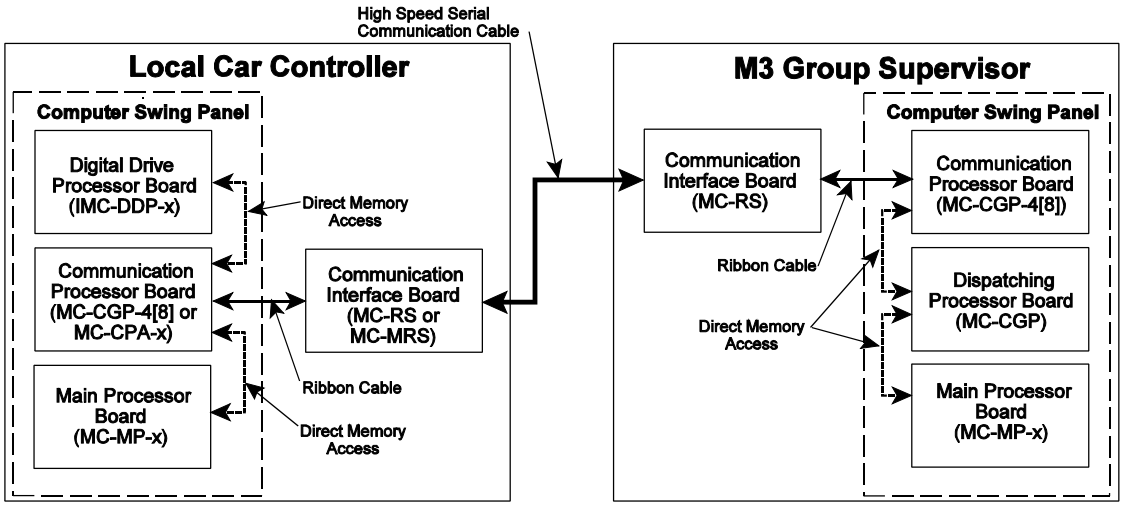


FIGURE 6.2 Group Supervisor to Local Car Communication (typical)



6.2.1 VERIFYING CORRECT HARDWARE INSTALLATION

The following is a list of items to verify regarding proper hardware installation (see Figure 6.2).

1. The High Speed Serial Cables are properly connecting the Communication Interface Boards in the Group Supervisor and Local Car Controllers (see Section 2.4.4, *Installation of the High Speed Communication Cable* and Job Prints drawing -4 or -5).

2. The Group Supervisor's MC-RS board(s) have jumper JP3 set to *Group* and JP4 set to B.

3. In the Group Supervisor, the MC-RS board which is being used for High-Speed Communication (High-Speed Communication cable connected) has its ribbon cable properly connected to J2 (*not J4*) on the MC-CGP-4[8] board.

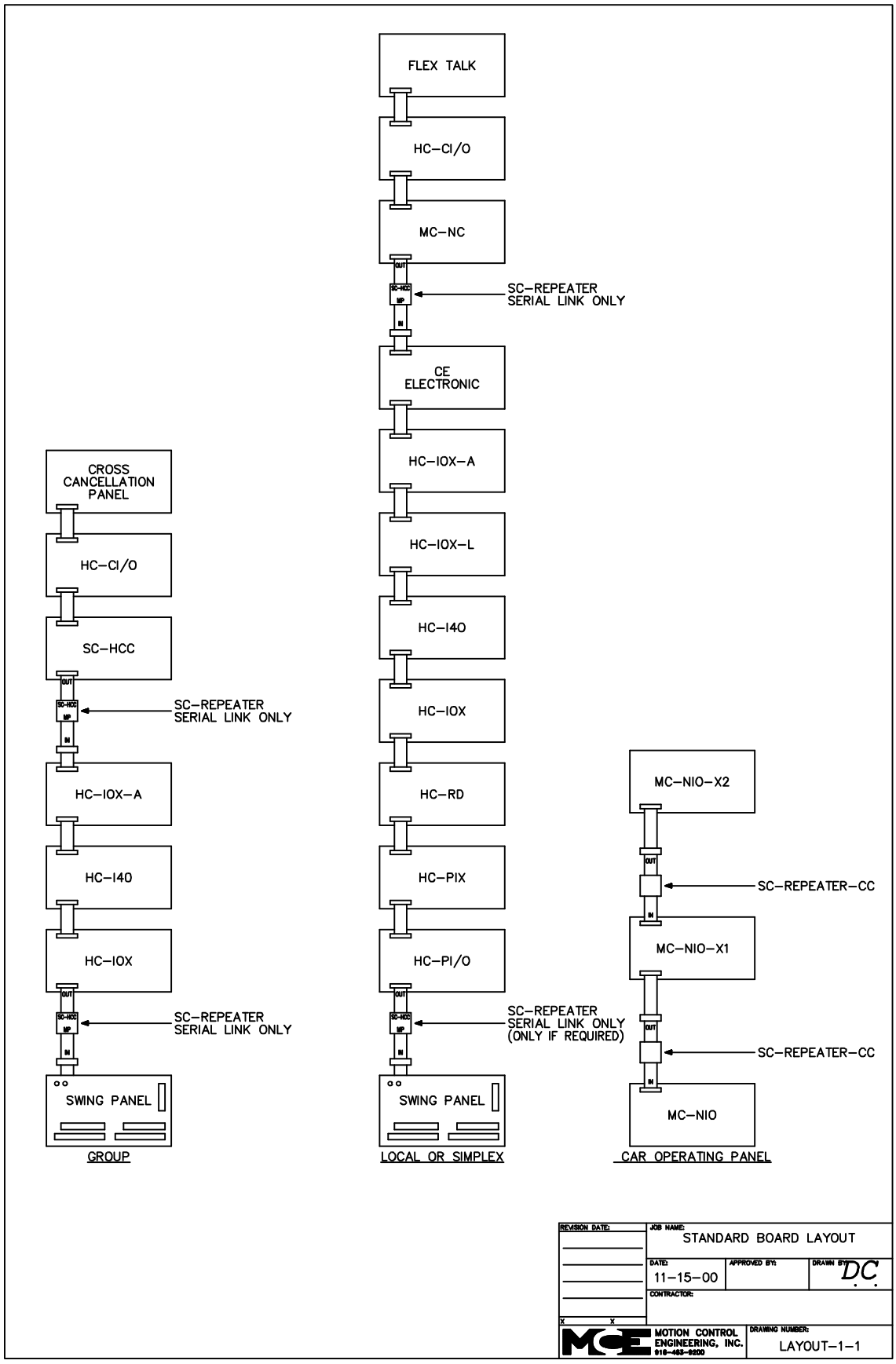
4. The High Speed Serial Cables are routed in a separate conduit that is not shared with high voltage/current wires.

5. The Group Supervisor and Local Car Controller subplates are properly grounded (see Section 2.4.2, *Ground Wiring Guidelines*).

6. The Local Car's MC-RS board has Jumper JP3 set to *Car* and JP4 set to B, or the Local Car's MC-MRS board has Jumper JP4 set to A.

7. The ribbon cable from the Local Car's Communication Processor Board (MC-CGP-4[8] or MC-CPA-x) to the Communication Interface Board (MC-RS or MC-MRS) is properly connected.

FIGURE 6.3 Standard Board Layout

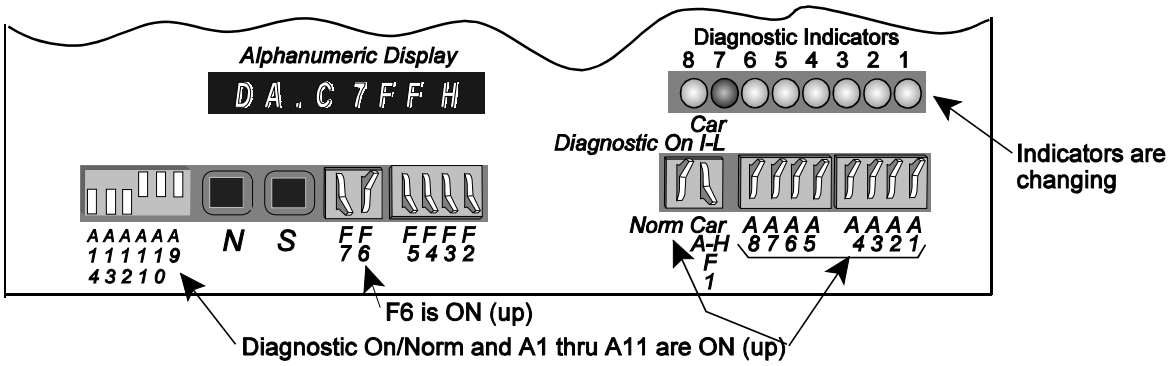


6.2.2 GROUP SUPERVISOR

Verify that the Computer ON indicators for all three boards inside the Computer Swing Panel are ON continuously. This indicates that the boards are successfully completing their program loop (see Section 3.3, *Applying Power*).

Communication Status Indicators - The indicators labeled *Car to Group Communication O.K.* provide the most obvious indication of a problem. They are ON continuously when communication is OK. If at least one Communication Status Indicator is ON, it is likely that any problems are outside the Group Supervisor since it is successfully communicating to at least one Car Controller.

Verifying Group Supervisor Internal Communication - To verify that the Group Supervisor Main Processor (MC-MP-x) board is communicating with the Group Supervisor Communication Processor (MC-CGP-4[8]) board, set the Computer Swing Panel switches as shown.



If Diagnostic Indicators #1 thru #8 are not changing, it may indicate a problem with one or both of the boards. Verify that the ISBX (blue) connectors are properly seated and that the EPROMS are properly installed (see Appendix A, *Disassembling the Computer Swing Panel* and Appendix B, *Changing PC Boards or EPROMS*).

Verifying that a Car is in the Information Transfer State - It is possible to determine if a car controller is in the Information Transfer State by accessing various addresses on the Group Supervisor while in Diagnostics Mode. The addresses and switch positions are listed in Table 6.2. If Diagnostic Indicator #2 is the only indicator ON at that address then the car is in the Information Transfer State.

TABLE 6.2 Verifying the Information Transfer State for each Car Controller

CAR	ADDRESS	DIAGNOSTICS	SWITCHES ON	LED #2
A	DA.C01FH	ON	A5,A4,A3,A2,A1,F6	ONLY LED ON?
B	DA.C09FH	ON	A8,A5,A4,A3,A2,A1,F6	ONLY LED ON?
C	DA.C11FH	ON	A9,A5,A4,A3,A2,A1,F6	ONLY LED ON?
D	DA.C19FH	ON	A9,A8,A5,A4,A3,A2,A1,F6	ONLY LED ON?
E	DA.C21FH	ON	A10,A5,A4,A3,A2,A1,F6	ONLY LED ON?
F	DA.C29FH	ON	A10,A8,A5,A4,A3,A2,A1,F6	ONLY LED ON?
G	DA.C31FH	ON	A10,A9,A5,A4,A3,A2,A1,F6	ONLY LED ON?
H	DA.C39FH	ON	A10,A9,A8,A5,A4,A3,A2,A1,F6	ONLY LED ON?
I	DA.C41FH	ON	A11,A5,A4,A3,A2,A1,F6	ONLY LED ON?
J	DA.C49FH	ON	A11,A8,A5,A4,A3,A2,A1,F6	ONLY LED ON?
K	DA.C51FH	ON	A11,A9,A5,A4,A3,A2,A1,F6	ONLY LED ON?
L	DA.C59FH	ON	A11,A9,A8,A5,A4,A3,A2,A1,F6	ONLY LED ON?

Verifying Proper Termination of the High Speed Serial Communication Link - Reliable communication via the High Speed Serial Communication Link requires proper termination. Section 3.9, *Verifying the High Speed Serial Communication Link* provides instructions for verifying proper termination of the link.

6.2.3 LOCAL CAR CONTROLLER

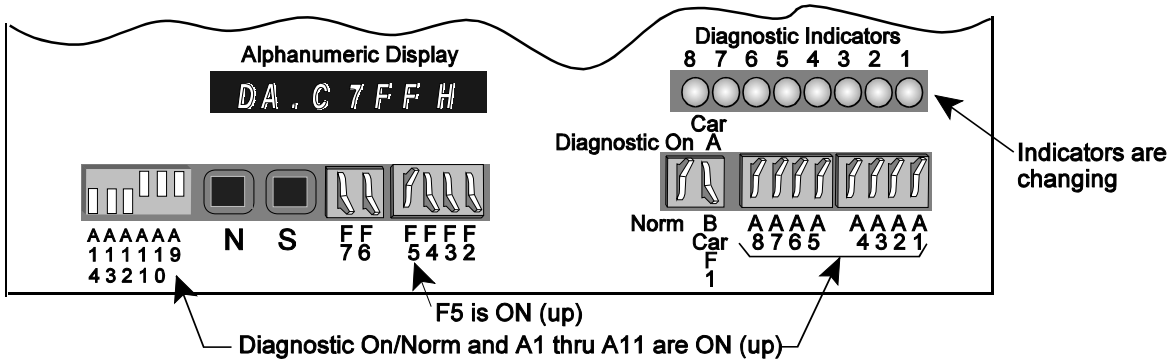
Verify that the Computer ON indicators for all boards inside the Computer Swing Panel are ON continuously. This indicates that the boards are successfully completing their program loop.

Diagnostic Indicators - The Diagnostic Indicators on the Local Car's Computer Swing Panel will scroll from right to left when the MP processor is looping properly. When the Local Car Controller and the Group Supervisor are properly communicating, the Diagnostic Indicators will scroll back and forth from right to left and from left to right.

NOTE: It is necessary to set each local car's address for communication with the Group Supervisor for IMC Car Controllers with the following software:

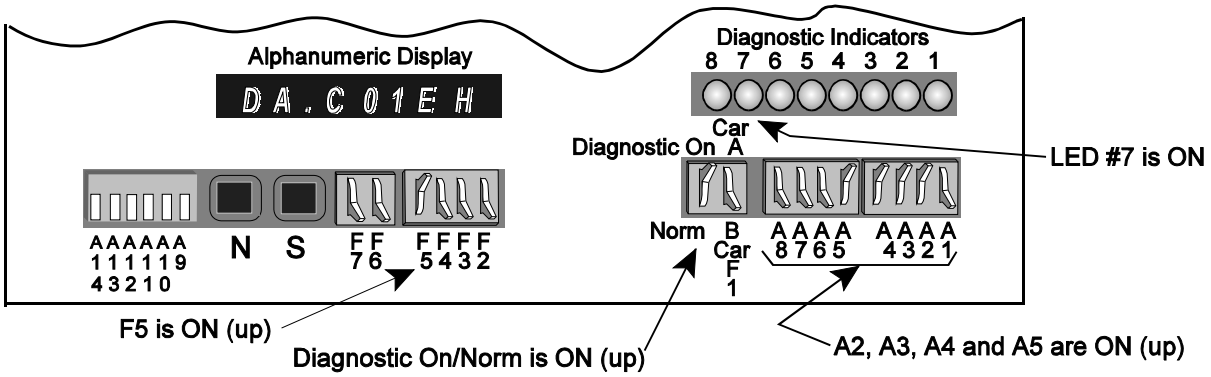
- Verify/set the CNID, *Car Network ID* parameter on each local Car Controller's General (Shift F1) screen.

Verifying Local Car Internal Communication - To verify that the Local Car Main Processor (MC-MP-x) board is communicating with the Communication Processor (MC-CGP-4[8] or MC-CPA-x) board, set the Computer Swing Panel switches as shown.



If Diagnostic Indicators #1 thru #8 are not changing it may indicate a problem with one or both of the boards. Verify that the ISBX (blue) connectors are properly seated and that the EPROMS are properly installed (see Appendix A, *Disassembling the Computer Swing Panel* and Appendix B, *Changing PC Boards or EPROMS*).

Verifying Local Car External Communication - When the Local Car Controller is communicating with the Group Supervisor, Diagnostic Indicator #7 at address **DA.C01EH** is ON continuously. To verify this, set the switches as shown.



6.3 TROUBLESHOOTING THE SMARTLINK SERIAL HALL CALL SYSTEM

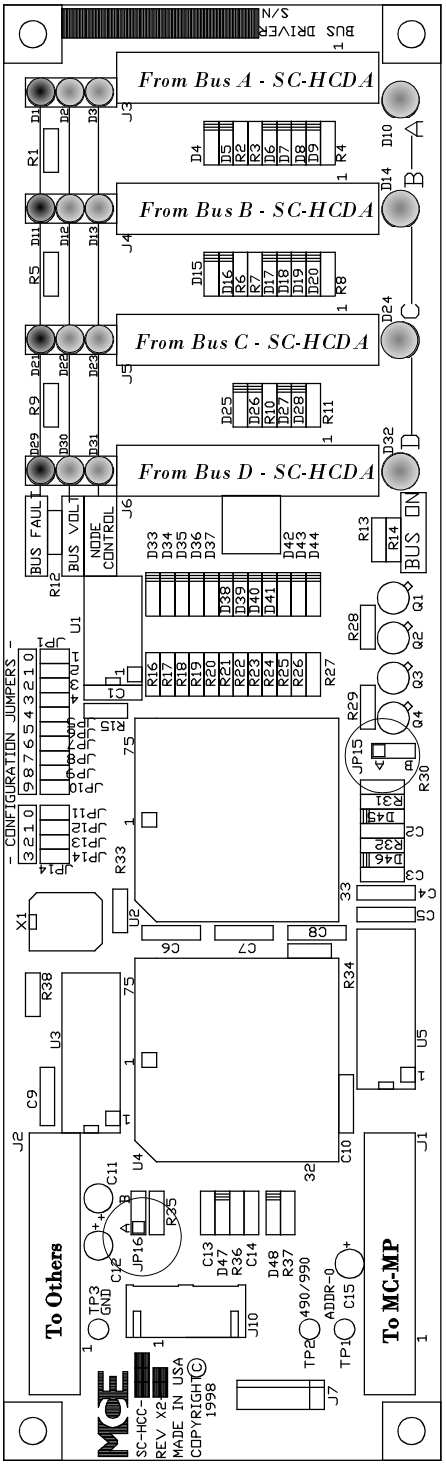
If there is a problem with SmartLink Serial Communication for Hall Call Signals, verify the following in the order listed:

1. The system has AC Power.
2. The SC-HCDA, Serial Hall Call Driver(s) AC Power fuse(s) is (are) not open.
3. The blue Bus wire is connected to the SHCC terminal on the Serial Hall Call Driver.
4. The blue Bus wire is grounded.
5. The orange Bus wire is connected to the SHCS terminal on the Serial Hall Call Driver.
6. The orange Bus wire is not grounded.
7. The Bus wire insulation is stripped away to allow good contact between the Bus wires and the contacts in SC-HCDA Driver terminals.
8. The SC-HCDA Driver Bus terminal screws are tight.
9. The Group Supervisor's Computer ON LED is solidly ON indicating that the MP is looping.
10. The 20 conductor ribbon cable is plugged into the MC-MP-x and the SC-HCC board.

FIGURE 6.4 SC-HCC Serial Hall Call Controller Board Quick Reference

42-02-SC-HCC Rev. 1

SC-HCC QUICK REFERENCE



LEDs

BUS FAULT - Indicates low bus voltage or loss of node control signal.

BUS VOLT - Indicates that the bus voltage is OK, 28 VDC or greater.

NODE CONTROL - Indicates that the node control signal is OK.

BUS ON - Indicates that an SC-HCDA Driver Assembly is connected and this bus has been enabled by the MC-MP Main Processor.

TEST POINTS

TP1 - +5V pulse at address 0.

TP2 - +5V pulse at address 490/990

TP3 - Ground

JUMPERS

JP1 - JP14 Configuration Jumpers - For each board installed in the Group Supervisor that appears in the table below, total the number of *Bytes*. Set the Configuration Jumpers JP1 - JP10 to the 1's value and JP11 - JP14 to the10's value of the total.

Board	**Bytes**
HC-IOX	1
HC-I4O	1
HC-CI/O 2	

Example: one HC-IOX (1)
plus one HC-CI/0 (2)
total = 3
Set jumper value to (3)

JP15 Wrap Back - With the jumper in position 'A', the SC-HCC causes the hall lamp to turn ON while the call button is pressed. Failure of the lamp to turn ON indicates a problem with the lamp or the Serial Hall Call System (SC-HCC, SC-HCDA, SC-HCN).

With the shunt in position 'B' the hall lamp will only turn ON when commanded by the MC-MP. The MP must have registered the call and instructed the SC-HCC to turn the hall lamp ON.

JP16 Floor Address Range - When loaded, A = 48 floors or less, B = more than 48 floors. Refer to the job prints for the proper setting. Some Jobs may not have JP16 loaded. Note: JP16 on this board must be set the same as JP4 on the SC-HCN Node boards (when loaded).

11. The Floor Address Range jumpers, JP4 on the SC-HCN board and JP16 on the SC-HCC board are set correctly (see Figure 6.4 and 6.5). If these jumpers are not loaded, then they were factory set for the job and no action is necessary.

12. The SC-HCC board Configuration Jumpers are set correctly (see Figure 6.4 and Section 2.5.4, *Setting the Jumpers on the SC-HCC Board*).
13. The ribbon cables are connected to the active SC-HCC bus jacks, J3, J4, J5, and J6.
14. The ribbon cable is properly seated in the SC-HCDA jack - J2.
15. The *BUS ON* LEDs below each active SC-HCC bus jack are ON (Figure 6.4).
15. The green *BUS VOLTS* and *NODE CONTROL* LEDs on the SC-HCC board are ON for all active busses (Figure 6.4).
17. The red *BUS FAULT* LEDs on the SC-HCC board are not ON (Figure 6.4).

NOTE: If the green NODE CONTROL LED is not ON for an installed bus, the bus will not function. If both the NODE CONTROL and the BUS VOLTS LEDs are OFF and the BUS FAULT LED is ON, the bus is likely short circuited.

The resistance of twisted pair 16 gage wire is approximately 0.81 Ohms per 100 foot. A direct (resistance measurement) / 0.0081 = the approximate distance in feet that the short is located from the measurement point.

The resistance of twisted pair 14 gage wire is approximately 0.52 Ohms per 100 feet. A direct (resistance measurement) / 0.0052 = the approximate distance in feet that the short is located from the measurement point.

18. Remove the orange Bus wire from the SC-HCDA terminal and measure the resistance of the bus. Each node has a load resistance of about 9.4 K Ohms. The nodes are connected to the bus in parallel. By counting the number of installed nodes and doing a parallel resistance calculation (1/Rt = 1/node one + 1/node two + 1/ node three ...), the valid bus resistance can be determined. A rough estimate can be made by knowing that10 nodes = 940 Ohms, 100 nodes = 94 Ohms, 200 nodes = 47 Ohms. A resistance less than 47 Ohms but greater than 8 Ohms is likely a shorted node. A resistance less than 8 Ohms is likely a shorted bus.

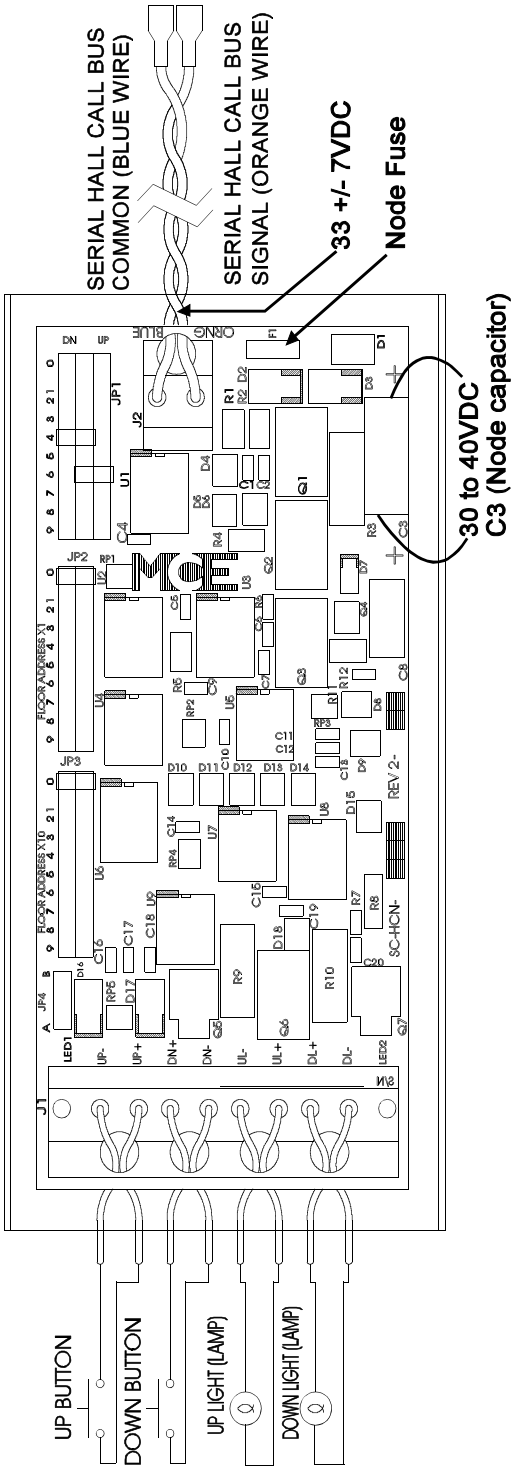
Occasionally, a short can be “blown open” by pressing the reset button located on the top of the SC-HCDA. If the short is caused by a node, the node fuse will likely open. **Caution: Do not repeatedly press the reset button as this forces the SC-HCD to a high current operation mode and frequent repetition of this operation may damage the power output field effects transistor (FET).**

SC-HCN NODE BOARD CONNECTED IN REVERSE - Prior to SC-HCN Rev 4.0 a node that was connected to the bus with its blue and orange wires reversed might cause unstable bus operation. The instability was a result of the node control signals being masked by the incorrectly connected node. Without exception, the node would not operate or report a hall call, nor would it receive a call response (node control signal). The SC-HCN Rev 4.0 board’s added circuitry allows the bus to operate correctly with one or more boards wired in reverse, however the node wired wrong will still not operate.

FIGURE 6.5 SC-HCN Serial Hall Call Node Board Quick Reference

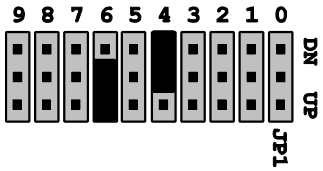
42-02-SC-HCN Rev. 1

SC-HCN QUICK REFERENCE



JUMPERS

JP1 Floor Sub-address - JP1 identifies the type of button/light fixture that is wired to the connections at J1.



JP1 Definition Table

Sub-Addr.	Definition
0	Down Call Front, Auxiliary
1	Down Call Rear, Auxiliary
2	Up Call Front, Auxiliary
3	Up Call Rear, Auxiliary
4	**Down Call Front, Standard** (default)
5	Down Call Rear, Standard
6	**Up Call Front, Standard** (default)
7	Up Call Rear, Standard
8	Hospital Call Front
9	Hospital Call Rear

If no jumpers are installed on JP1, the default addresses, shown in bold, are invoked. Consult the Job Prints "*Serial Hall Call Suggested Wiring Methods*" pages.

JP2 and JP3 Floor Address - Identifies the landing (*MCE PI value, see Job Prints*) at which the board is installed. Set JP2 (X1) to the 1's value and JP3 (X10) to the 10's value of the landing number.

JP4 Floor Address Range - When JP4 is loaded, set to **A** for 48 floors or less, **B** for more than 48 floors. Refer to the job prints for the proper setting when JP4 is loaded on the board. Note: JP4 on the SC-HCN must be set the same as JP16 on the SC-HCC.

6.4 TROUBLESHOOTING CALL PROBLEMS - DIRECT WIRE

In many cases, a malfunction is due to a faulty input or output signal. Inputs are signals generated outside the controller cabinet that connect to terminals inside the cabinet and are subsequently read by the computer during its input scan. Outputs are signals generated by the computer that energize relays or turn on indicators during the computer's normal output scan. Since an incorrect input or output can cause a system malfunction, it is essential to trace these signals to locate the source of the problem.

6.4.1 CALL LOGIC - NORMAL OPERATION

Calls are input to the system by grounding the appropriate call input, as labeled on the Call Input/Output board (Figure 6.6, HC-CI/O Call Input/Output Board Quick Reference). The act of physically grounding the call input terminal turns on the corresponding LED on the Call board. Recognition and acceptance of the call by the computer will cause the indicator to remain illuminated. Cancellation of the call turns the indicator off. The single input/output terminal on the Call board accepts call inputs from the call fixture push-buttons, and also serves as the output terminal illuminating the call fixtures to indicate registration of a call. This means that the field wiring is identical to that used for a standard relay controller.

The computer may purposely block call registration. When the computer prevents car call registration, it turns ON the Car Call Disconnect flag (CCD) for that car. Inspection of this flag in the diagnostics (ADDR 2C) will tell if the computer is preventing the acceptance of calls. If the CCD flag is ON, the reason for this condition must be discovered. CCD condition is caused by: Fire Service, motor limit timer elapsed, bottom or top floor demand, etc.

A corresponding flag exists for hall call registration prevention. The computer may detect conditions that prevent hall calls from registering and set the Hall Call Disconnect Flag (HCDX). This is a system flag (as opposed to a per car flag) but is available for viewing in the diagnostic display along with each car's operating flags. There are many reasons for the computer to reject hall call registration: Fire service, a hall call bus problem, no available cars in service to respond to hall calls, etc.

If a call circuit becomes damaged or simply stuck on as the result of a stuck push-button, the elevator will release itself from the stuck call automatically. If the push-button remains stuck, the car will stop at the floor each time it passes. Again, the computer will release itself automatically, thereby allowing continued service in the building.

6.4.2 TROUBLESHOOTING THE CALL CIRCUITS

If there is a problem with a call, first disconnect the field wire or wires from that call terminal to determine if the problem is on the board or in the hoistway wiring or fixtures. Disconnect the calls by unplugging the terminals, or removing individual wires. If the individual field wire is disconnected, lightly tighten the screw terminal since it may not make contact if an attempt is made to ground the terminal using a jumper when the screw in the terminal is loose.

NOTE: Call terminal voltage must not be less than 85% of call supply voltage.

Example: If supply is 100VAC, terminal voltage may be 85VAC to 100VAC. 80VAC is insufficient.

FIGURE 6.6 HC-CI/O Call Input/Output Board Quick Reference

42-QR-HC-CI/O Rev. 2

HC-CI/O QUICK REFERENCE CARD (BOARD 2)

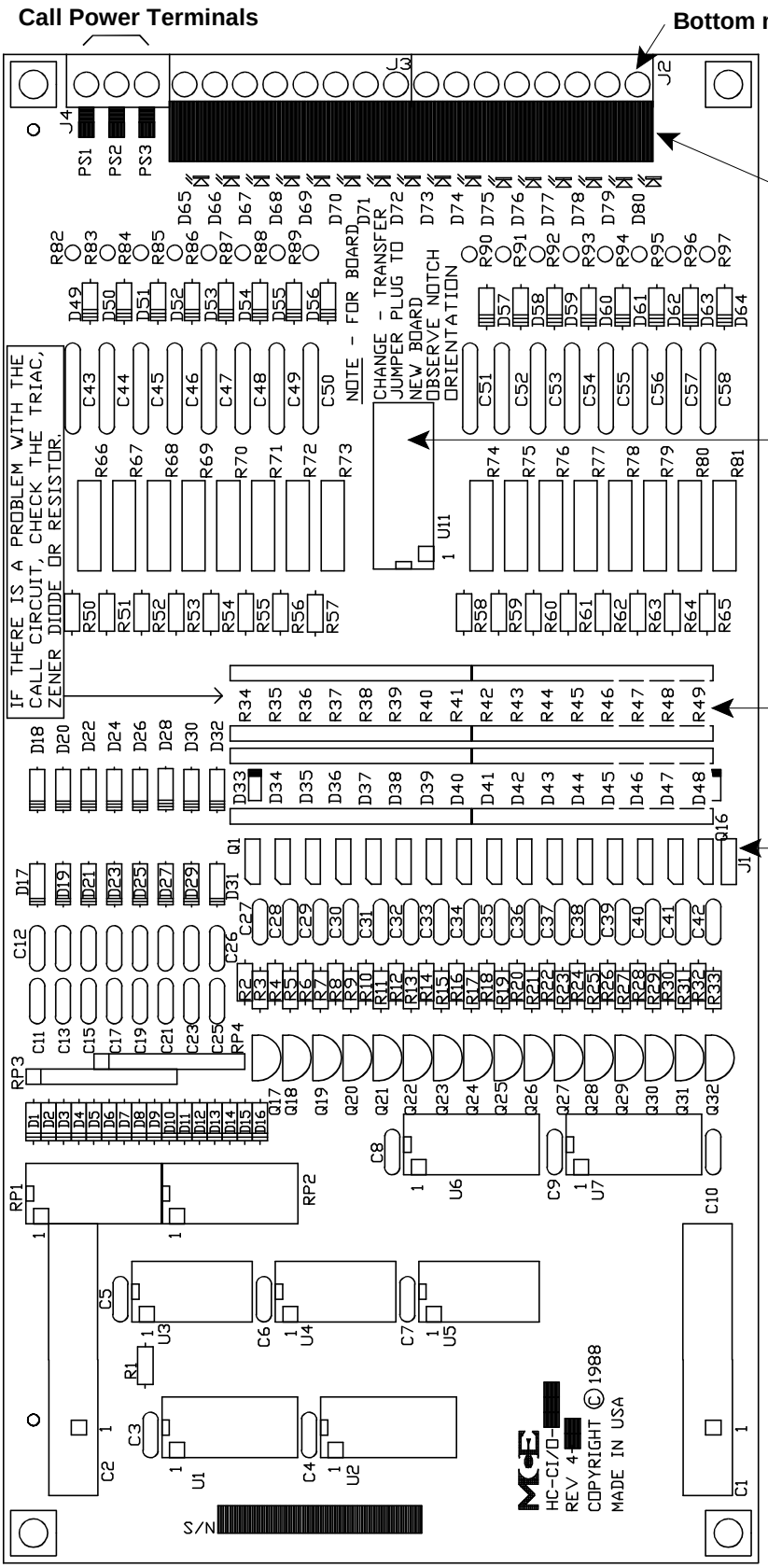


TABLE 6.3 Call Board Troubleshooting

Problem	Recommended steps to resolve the problem
Call Terminal Voltage is insufficient	1. Turn OFF the power and remove the resistor fuse associated with that terminal. 2. Turn ON the power and check terminal voltage again. 3. If no voltage is present on the terminal: a. Check the jumper plug (header) on the HC-CI/O Call board. The jumper plug socket is located on the right hand side near the call indicators. If a Call board is replaced, this jumper plug must be transferred to the new board and stay in the same board position (more than one Call board on the controller). b. Verify that the correct incoming power is on terminals marked PS1, PS2 and PS3. NOTE: Power will exist on *at least one* and possibly more of these terminals.
Call LED is ON even though the field wire is removed	1. Reset the computer (Computer Reset pushbutton on Swing Panel). 2. Run the car to the nearest landing to reset PI. 3. It may be necessary to reset the computer in the Group Supervisor in order to reset a latched hall call. 4. If the call does not cancel under these conditions--replace the call board
Cannot register a hall call at the call board	To discover whether the problem is with the call board or the field wiring: 1. First remove the resistor fuse and disconnect the field wire(s). 2. Verify that the HCDD, Hall Call Disconnect Computer Variable Flag is OFF (Address 2C, LED 6). 3. Verify that there is proper voltage on the call terminal. 4. Register a call by shorting the call terminal to terminal 1 or GND and verify with EOD as described in Section 4.3.4, *Viewing and Entering Calls* (the call registered light on the call board may not work correctly). 5. If the call does not register under these conditions--replace the call board. 6. If the call circuit works with field wires removed, before connecting wires, jumper the wire(s) to ground or terminal 1 and press the call pushbutton. If a fuse blows, there is a field wiring problem. If connecting the call wires causes a problem, the call board may be damaged.
Call remains latched even though the car arrives at that landing	Remove the associated resistor fuse. If call cancels, replace the bad resistor fuse.

6.4.3 TROUBLESHOOTING THE CALL INDICATORS

When working correctly, a call indicator glows brightly when a call is registered and glows dimly or not at all when a call is not registered.

NOTE: Before troubleshooting the call indicators, ensure that the call circuit is working correctly, the field wires are connected and the resistor fuses are plugged in. If the board is arranged for neon (or LED) indicators (HC-CI/O -N board), the board indicators are not affected by the fixture bulbs.

TABLE 6.4 Call Indicator Troubleshooting

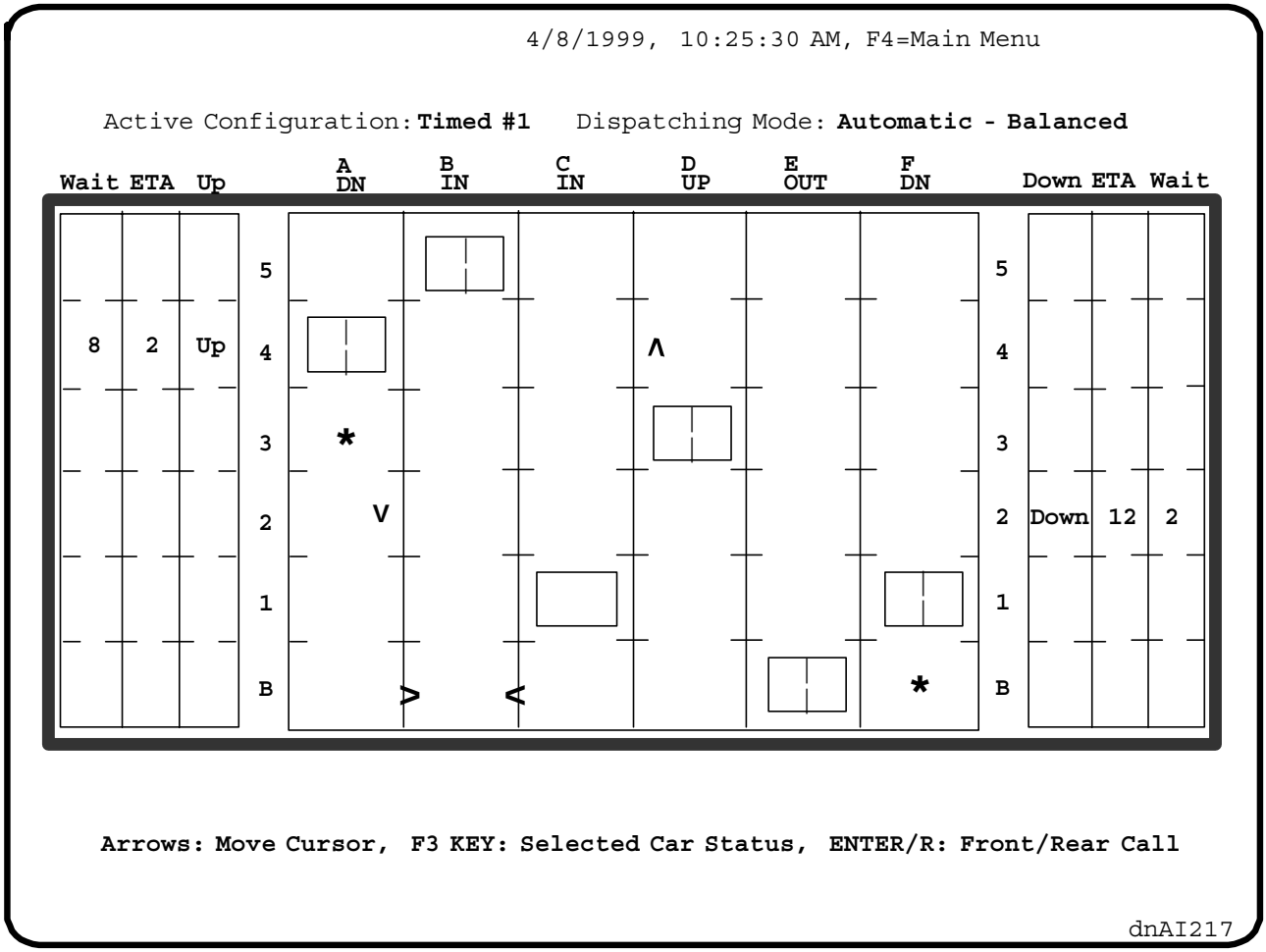
Problem	**Recommended steps to resolve the problem**
With a call registered, the Call Indicator is dimly lit (Call Board is HC-CI/O)	Incandescent bulb in the fixture for the call is burned out or missing. Replace the bulb.
Indicator glows bright whether or not there is a call registered	Bad triac or triac driver transistor. Check triac with power OFF and field wire removed. Failed triac usually measures a short circuit from the metal back (collector) to terminal 1. If board is not in system, measure short between metal back and pad area around mounting hole. Be careful, the metal back of the triac is connected to AC when power is ON. NOTE: bottom triac corresponds to bottom terminal.

6.5 USING THE VIEW HOISTWAY (F3) SCREEN

6.5.1 VIEW HOISTWAY

The View Hoistway (F3) screen shows a great deal of information about the status of the elevators in the M3 Group System. To access the View Hoistway screen, press **F3** while the Main Menu is displayed.

FIGURE 6.7 View Hoistway (F3) Screen



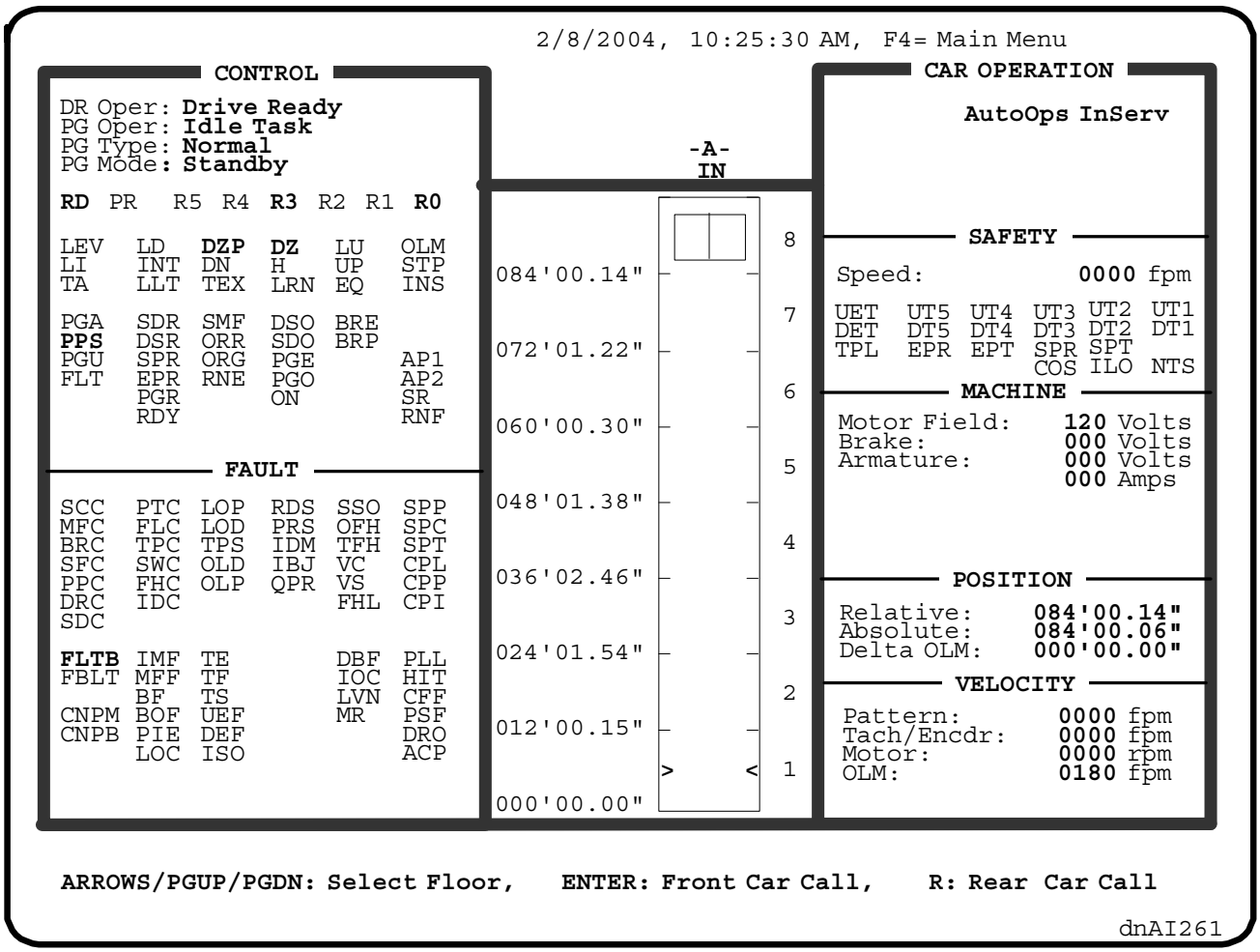
Column Labels Description

- **Up** - Up hall calls appear in the Up column next to the floor number.
- **Down** - Down hall calls appear in the Down column next to the floor number.
- **ETA** - The estimated time remaining until the call will be served appears in the ETA (Estimated Time of Arrival) column next to each hall call.
- **Wait** - The accumulated waiting time since the call was placed appears in the Wt. column next to each hall call.
- **A - F** - These are the car labels and the following is shown in these columns:
  - UP or DN (car direction), IN (in service) or OUT (out of service).
  - The current location of the car and the status of its doors.
  - Car Calls are shown at the appropriate floor with an asterisk (*).
  - Assigned Hall Calls are shown in the car columns at the floor (^ = UP, v = DN).
  - Special assignments, such as a Hospital call (H).

Car Calls and/or Hall Calls can be registered by using the **Arrow** keys to place the cursor at the desired floor in the appropriate column, Up for Up Hall Calls, Down for Down Hall Calls, or A thru F for Car Calls, and pressing **Enter** for front calls or **R** for rear calls.

The Group System Status is shown above the hoistway graphic. The Car Status (status of the individual cars) can be viewed by placing the cursor in the desired car's column (A thru F) using the **Arrow** keys and pressing **F3**. The Hoistway View of the selected car is displayed (see Figure 6.8).

FIGURE 6.8 Car B View Hoistway (F3, F3) Screen



Car status messages are displayed in the upper right window labeled CAR OPERATION. Table 6.5 provides a description of the Car Status messages. A complete listing and the meaning of the Status and Fault flags found on the car's Hoistway View screen can be found in the Troubleshooting Section of the Car Controller Manual.

TABLE 6.5 Car Status Messages

Release 4*	Description
AlmNoMv	Alarm bell push-button pressed while the car is not moving. (ABI).
AlmNoDZ	Alarm bell pressed when the car is not in door zone. (ABIZ).
AntiNui	The load weigher shows that the load in the car is minimal: anti-nuisance logic is in effect and may only allow a few cars calls to be registered.
AttnSrv	Car is on Attendant Operation, ATS input is activated.
AutoOps	Car is running on Automatic Operation.
BFlrDem	Generated when car comes off of Inspection or when car PI indicates top terminal landing but car is not there. Check top terminal landing slowdown switches and USD input.
EmrgPwr	Car is running on Emergency Power.
EQActv	Earthquake input (CWI or EQI) activated (high).
MnFire1	Car is on Fire Service Phase 1; designated floor is the main fire floor.
AltFir1	Car is on Fire Service Phase 1; designated floor is the alternate fire floor.
FirePh2	Car is on Fire Service Phase 2.
Byp-HLW	Car will bypass hall calls due to Load Weigher Heavy Load Condition.
	One or more of the Hoistway Safety Circuit Devices open. Check the applicable items: final limits, buffer switches, pit stop switch, compensating sheave switch and the pit door switch.
HospEmr	Car placed on Hospital Service
IndSrv	Car placed on Independent Service.
InServ	Car is in service (available for normal passenger service).
InspAcc	Car placed on Hoistway access or car top inspection. IN input deactivated.
MLT	Motor stalled due to excessive time to complete run. Put car on inspection then take it off or reset processor. Check Up and Down Sense inputs (UPS and DNS), and generator and Motor brushes.
Nudging	Door nudging operation has commenced.
OutServ	Car is out of service (not available for normal passenger service).
SftyOpn	Check on-car and off-car safety devices (e.g. Governor overload, Over travel limit switches and Car stop switches) and SAF input.
SwngOpr	Car is operating as a swing car, operating independently of the Group Supervisor. Overall, the car should be servicing a riser of hall calls dedicated to that car.
TOS	The TOS timer has elapsed. The elevator was delayed in reaching its destination in response to a call demand. Doors cannot close and lock or the motor is stalled.
TFlrDem	Car PI indicates bottom terminal landing but car is not there. Check bottom terminal landing slowdown switches and DSD input.

6.6 USING THE SPECIAL EVENTS CALENDAR

The Special Events Calendar can document the most recent 250 important fault conditions or events and display them in chronological order. The data displayed includes the type of event or fault, the date and time the fault/event occurred, the date and time the fault/event was corrected, and other information about the status of the elevator when the fault or event occurred.

The Special Events Calendar provides printing support (8) so that system events may be printed as well as viewed.

The Special Events Calendar is accessed from the Special Events Calendar Menu. Press the **F7** key while the Main Menu is displayed (see Figure 6.9).

6.6.1 VIEW EVENTS

From the Special Events Calendar Menu (F7) screen press **1** or **F7** to display the events logged to the Special Events Calendar (Figure 6.10). This screen makes it possible to examine the documented faults and events. The latest 14 faults and events are displayed in the bottom half of the screen, including the date and time the event occurred. Car events show the Car ID. Group events have three dashes (- - -) in the Car column.

Use the **Up / Down Arrow** or the **Page Up / Page Down** keys to scroll through the complete listing of events. As each event is selected (highlighted), the description of the event and any other logged data is displayed in the top half of the screen. Refer to the controller manual for a listing of Special Event messages and their descriptions.

6.6.2 CLEAR ALL EVENTS

While in the Special Event Calendar Menu (F7) screen is displayed, if the **2** key is pressed, the message **`Delete All Events? (Y/N)`** is displayed. Press **Y** to clear the Special Events Calendar of all events.

FIGURE 6.9 Special Events Calendar Menu (F7) Screen

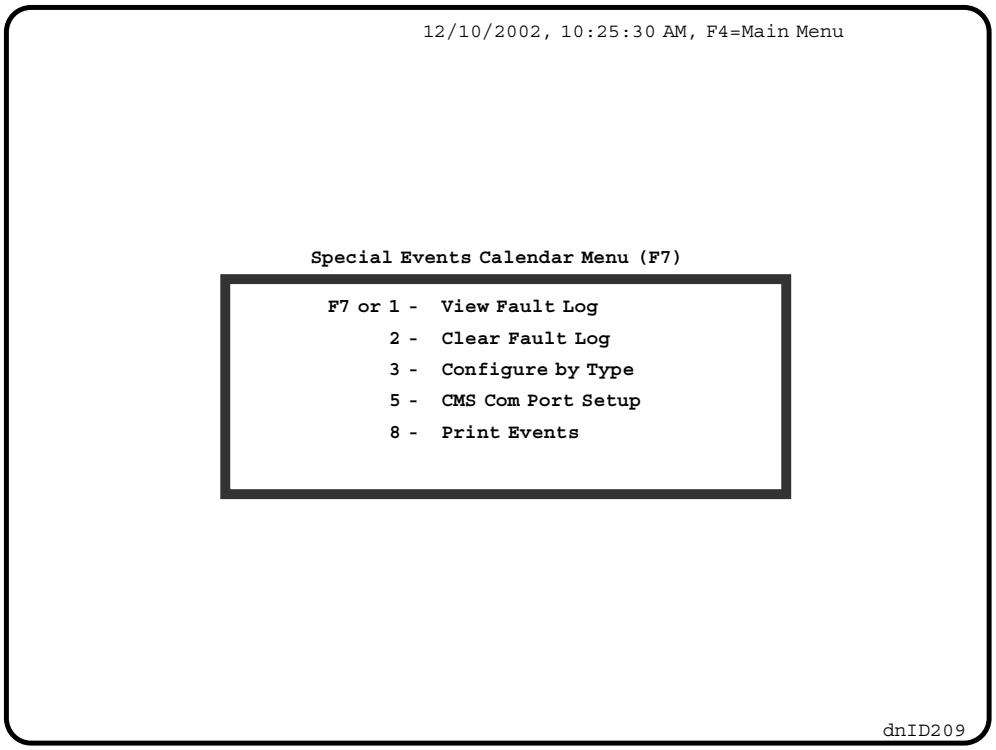
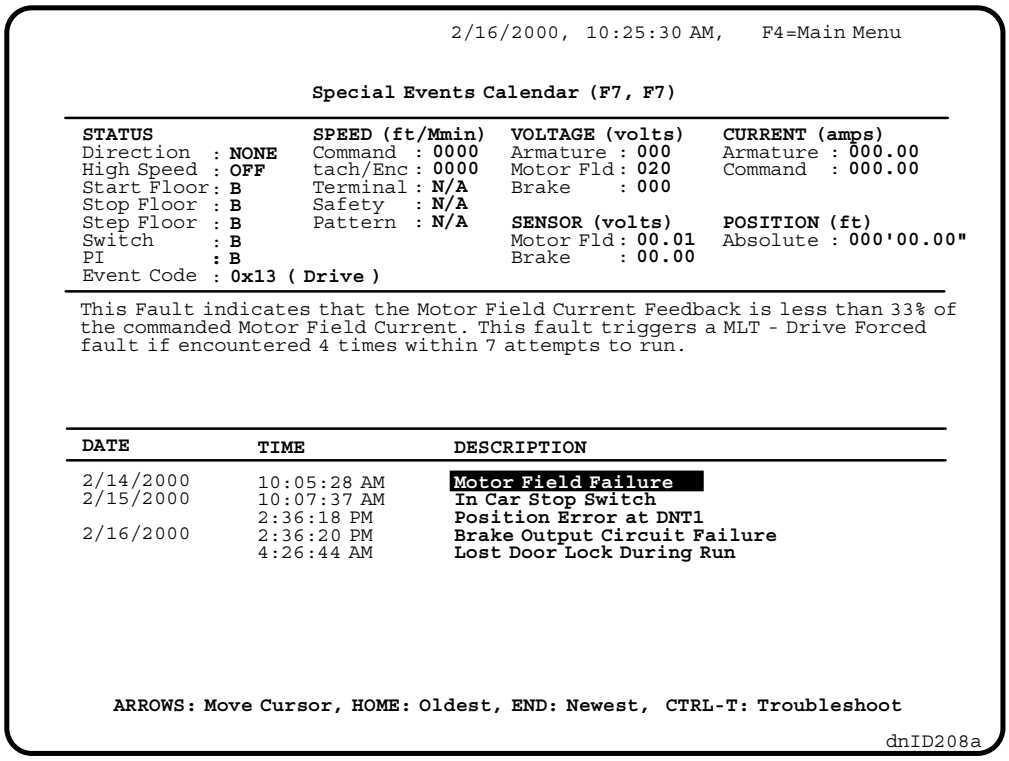
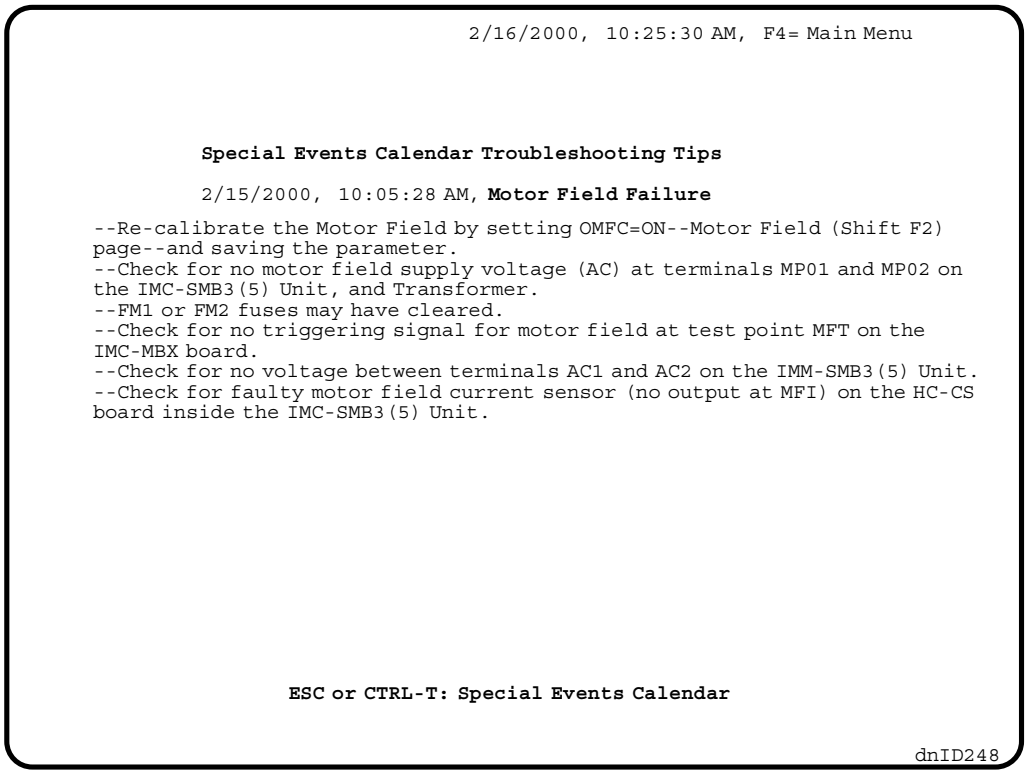


FIGURE 6.10 Special Events Calendar - View Events (F7, 1) Screen



6.6.3 Troubleshooting Tips – To access troubleshooting tips from the Special Events Calendar - View Events screen, press CTRL T.

FIGURE 6.11 Troubleshooting Tips, From F1, 7 (Ctrl T)



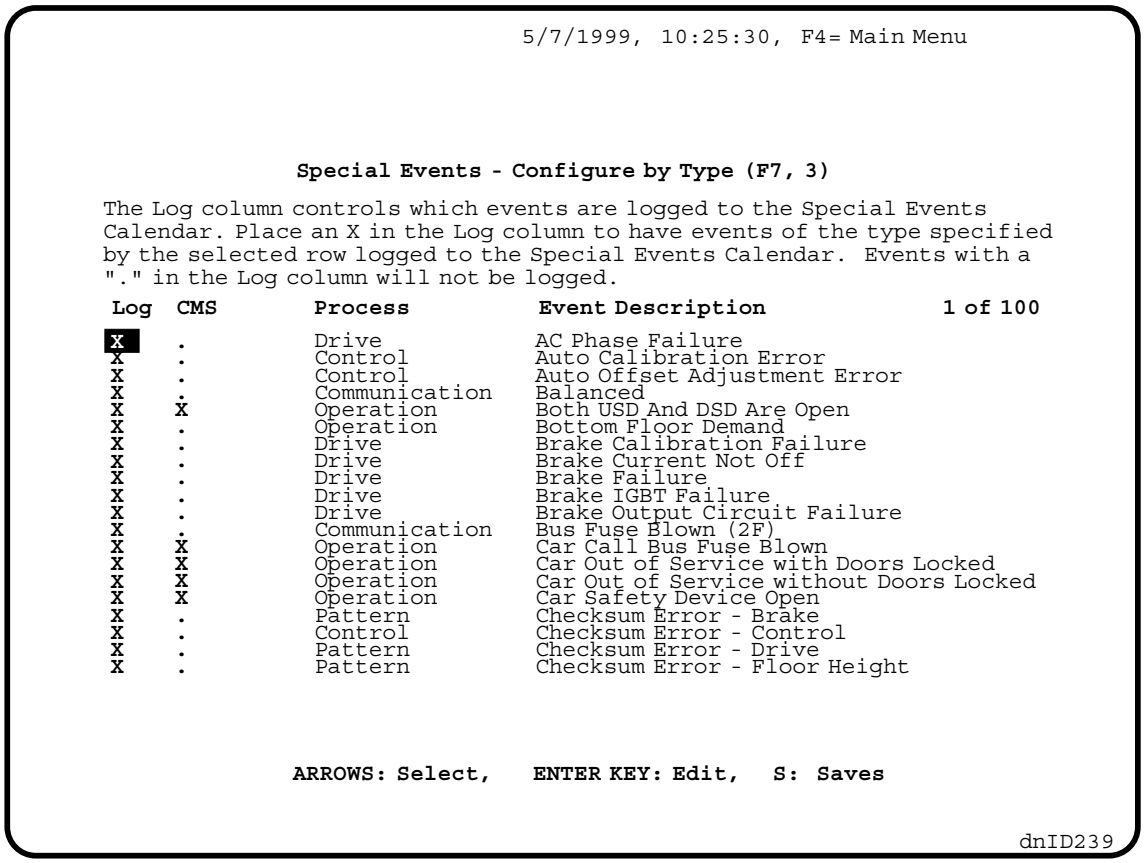
6.6.4 SPECIAL EVENTS - CONFIGURE BY TYPE

In order to aid in troubleshooting, the list of events which are logged to the Special Events Calendar can be configured based on the type of event and by the source of the event. Section 6.6.5 describes configuring by source. This section describes configuring by type of event.

While in the Special Event Calendar Menu (F7) screen is displayed, press the **3** key to access the Special Events - Configure by Type (F7, 3) screen (see Figure 6.12). The ***Log*** column controls which events are logged to the Special Events Calendar. Place an 'X' in this column if you want the event type listed in the selected row to be logged to the Special Events Calendar. When the Event Description is highlighted, a more in depth description of the event type is displayed above the column headings.

Place an 'X' in the ***CMS*** column if you want the controller to call a remote PC running CMS for Windows software to report this type of event. In order to place an 'X' in the CMS column, there must also be an 'X' in the Log column for that type of event.

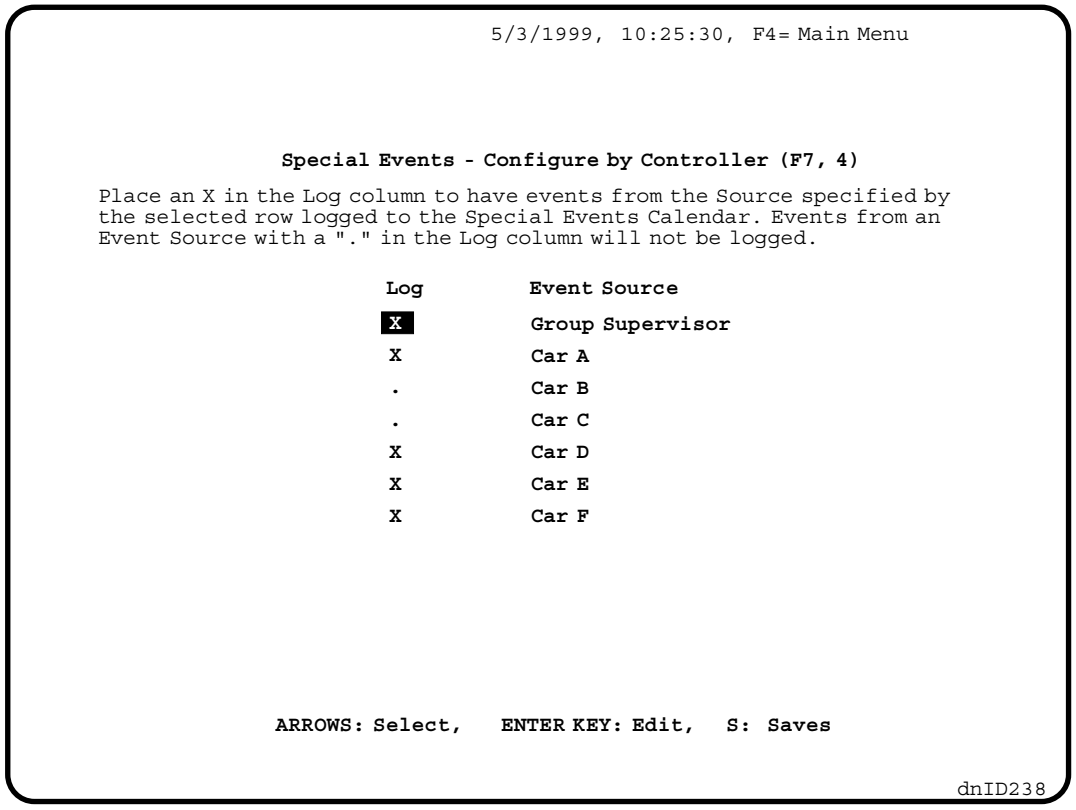
FIGURE 6.12 Special Events - Configure by Type (F7, 3) Screen



6.6.5 SPECIAL EVENTS - CONFIGURE BY CONTROLLER

While in the Special Event Calendar Menu (F7) screen is displayed, press the **4** key to access the Special Events - Configure by Controller (F7, 4) screen (see Figure 6.13). The Log column controls the event source (Group Supervisor and/or specified Car Controllers) for the events to be logged to the Special Events Calendar. Place an 'X' in the Log column for each controller from which you want events to be logged to the Group Supervisor's Special Events Calendar.

FIGURE 6.13 Special Events - Configure by Controller (F7, 4) Screen



Note that each local Car Controller also has a Special Events Calendar into which that local Car's Special Events are logged. Refer to the local Car Controller's Installation manual for more information about the local Car Controller's Special Events Calendar.

6.6.6 CMS COM PORT SETUP

The M3 Group Supervisor can be programmed to call a computer at a remote location when specific events, logged to the Special Events Calendar, occur. The specific events which will cause the Group Supervisor to report the event are programmed from the Special Events Calendar Menu (F7) screen.

From the Special Events Calendar Menu (F7) screen press **5** to display the CMS Com Port Setup screen.

Com - These settings are used to tell the computer which communication port to use.

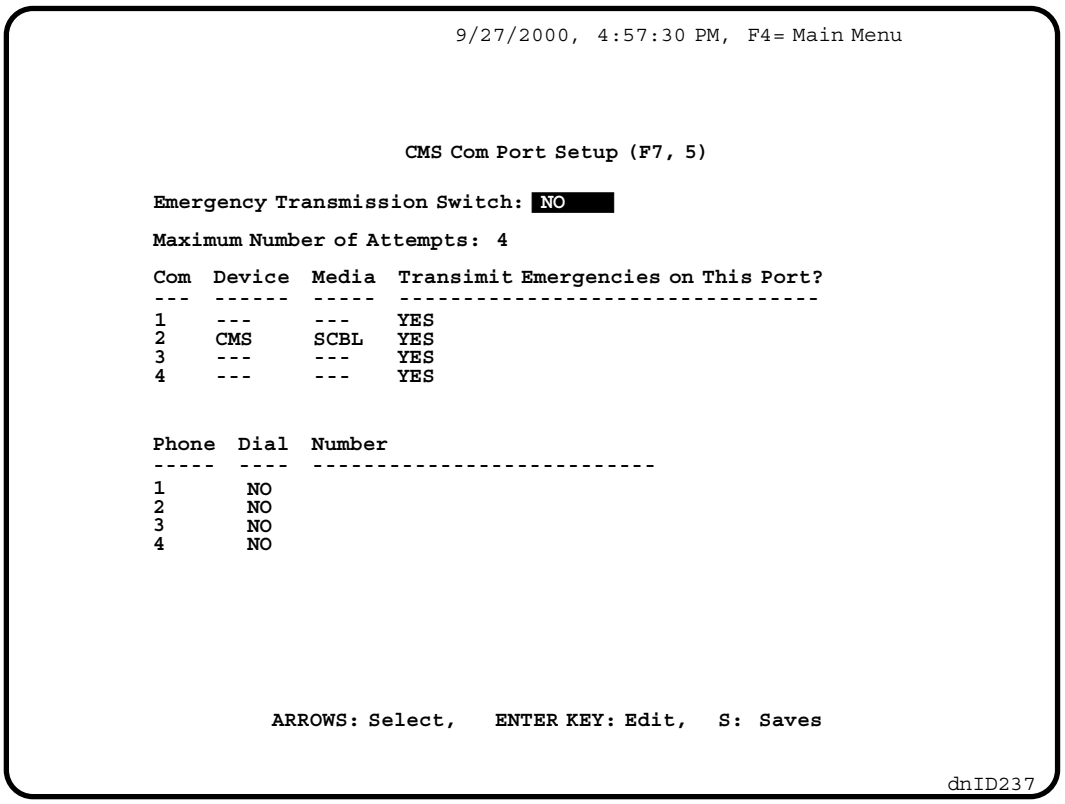
Device - This designates the type of device used to monitor the system. For example: CMS (Central Monitoring Software), CRTCK (color CRT), CRTMK (monochrome CRT), PC & PCGD (personal computer graphic display).

Media - This designates the type of media used to connect the controller to the device. For example: MODM (modem), LDRV (line driver), SCBL (serial cable) and TELRD (Telrad).

Phone - Determines the phone number(s) to be dialed to send the emergency message.

Transmit Emergencies on This Port? - Default is yes. If YES *and* the Device *and* the Media are designated, then Emergencies will transmit to this port. If the Media selected is a modem (MODM) then set Dial to Yes for those numbers to be called in an emergency.

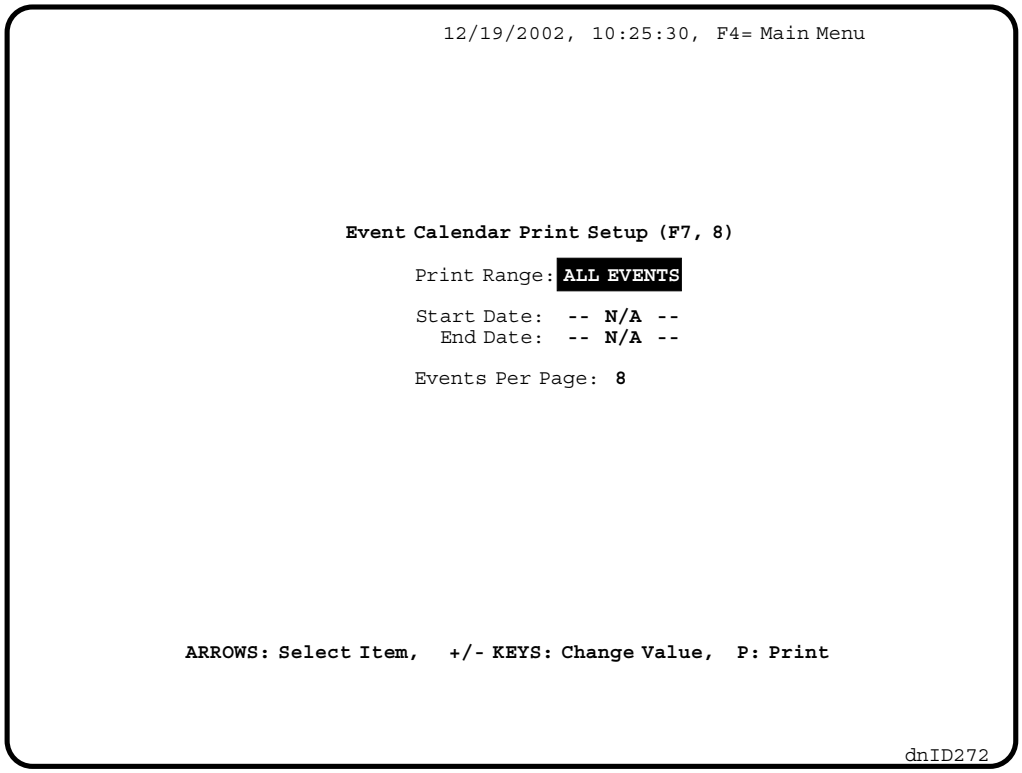
FIGURE 6.14 CMS Com Port Setup (F7, 5) Screen



6.6.7 PRINT EVENTS

The Print Events screen (F7, 8) allows you to print system events.

FIGURE 6.15 Event Calendar Print Setup (F7, 8) Screen



Print Range – Use the arrow keys to select a print range, or:

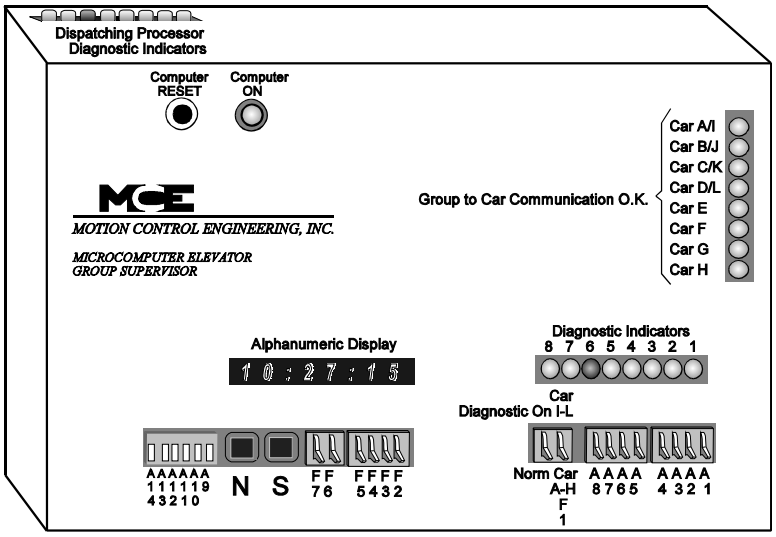
Start Date, End Date – Use the + and - keys to set beginning and ending dates and print just events from within that range.

Press P to send the selected events to the printer.

6.7 USING THE COMPUTER SWING PANEL DIAGNOSTICS

The Diagnostic and Status Indicators on the Computer Swing Panel are important troubleshooting tools.

FIGURE 6.16 Computer Swing Panel, Front View



6.7.1 COMMUNICATION STATUS INDICATORS

These indicators are labeled **Group to Car Communication O.K.** They will be ON continuously when communication between the Group Supervisor and the Local Car is OK. Section 6.2, *Troubleshooting High Speed Communication Problems*, provides suggestions for troubleshooting communication problems.

6.7.2 DIAGNOSTIC INDICATORS

During normal operation the M3 Group Supervisor's Diagnostic Indicators scan from right to left (indicating that the MP program is looping properly) or flash ON and OFF to indicate an error or status condition. When the Group Supervisor is communicating with a Car Controller, the Diagnostic Indicators on the *Car Controller* will scan from right to left, then left to right. When troubleshooting, pay special attention to these indicators. The status or error message indicated when they flash ON and OFF, often points to the source of a problem. Table 6.6 provides a listing of the Group Supervisor Status and Error Messages. Refer to the Car Controller's Installation Manual for a listing of the Car Controller Status and Error Messages.

TABLE 6.6 MC-MP (MP2) Status and Error Messages **❍ = LED off ● = LED blinking**

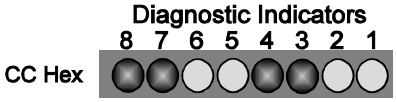
Hex	LEDs	MODE	SCROLLING MESSAGE - MEANING
	Single LED		Normal Operation, no errors or messages
0F	❍ ❍ ❍ ❍ ● ● ● ●	Normal	Hall Call bus disconnected or Serial Hall Call Bus fuse blown (check for blown fuse)
CC	● ● ❍ ❍ ● ● ❍ ❍	Normal	Check Alphanumeric Display for scrolling message
DB	● ● ❍ ● ● ❍ ● ●	Normal	No local car is communicating with the Group Supervisor
E0	● ● ● ❍ ❍ ❍ ❍ ❍	Normal	Fire Service Phase 1 -main
EE	● ● ● ❍ ● ● ● ❍	Normal	Emergency Power Operation
F0	● ● ● ● ❍ ❍ ❍ ❍	Normal	Fire Service Phase 1 - Alternate

MC-MP2 DIAGNOSTIC INDICATORS - During normal operation these lights scan from right to left (indicating that the MP2 program is looping properly) or flash ON and OFF to indicate a status or error condition.

When a status or error condition exists, the Diagnostic Indicators flash one of several messages depending on the software version (MP2 version number scrolls on boot up):

- Software versions 8.02.00 or earlier flash the MC-MP messages (see Table 4.1).

- Software version 8.03.00 flashes CC Hex. Check the Alphanumeric Display for a scrolling status or error message. If the scrolling status or error message is not immediately displayed on the alphanumeric display, press the N pushbutton until the scrolling message appears.



6.7.3 ALPHANUMERIC DISPLAY (SCROLLING MESSAGES)

STATUS AND ERROR MESSAGES - On controllers with the MC-MP2 Main Processor board, status and error messages are scrolled across the alphanumeric display. The message NORMAL OPERATION is scrolled when no other status or error condition(s) exist. Table 6.6 provides a list of scrolling messages. If the scrolling status or error message is not displayed on the alphanumeric display, press the N pushbutton until the scrolling message appears.

6.7.4 DISPATCHING PROCESSOR DIAGNOSTIC INDICATORS

These indicators are located on the MC-CGP (middle) board and can be viewed from the top of the Computer Swing Panel. In the Normal Mode of operation, with all function switches OFF (down), three conditions can be indicated:

- **LEDs scanning from right to left** - Indicates that the system is functioning normally,.

- **Dispatching Processor Diagnostic Indicator #1 Blinking or ON continuously** - Indicates a problem with communication between the MC-MP-x board and the MC-CGP board. The connector between the boards may not be plugged in correctly or the MC-MP-x board or its program may not be working properly.

- **Dispatching Processor Diagnostic Indicators #1 and #2 Blinking or ON continuously** - Indicates a problem with communication between the MC-CGP board and the MC-CGP-4(8) board. The connector between the boards may not be plugged in correctly or the MC-CGP-4(8) (rear) board or its program may not be working properly.

- **Dispatching Processor Diagnostic Indicators #1, 2, 4, 5, 7 and #8 Blinking or ON continuously** - indicate that none of the cars are communicating to the Group.

6.7.5 GROUP SUPERVISOR COMPUTER VARIABLE FLAGS

In the trouble shooting process it is helpful to know what the computer believes is the status of an input, output or computer variable flag. This information is stored in the computer's memory and the status of these memory locations can be displayed using the Diagnostic Indicators in the Diagnostic Mode. Refer to Section 4.3.1, and 4.3.2, for a description of these flags and how to view them.

6.8 USING THE CRT TERMINAL DIAGNOSTICS

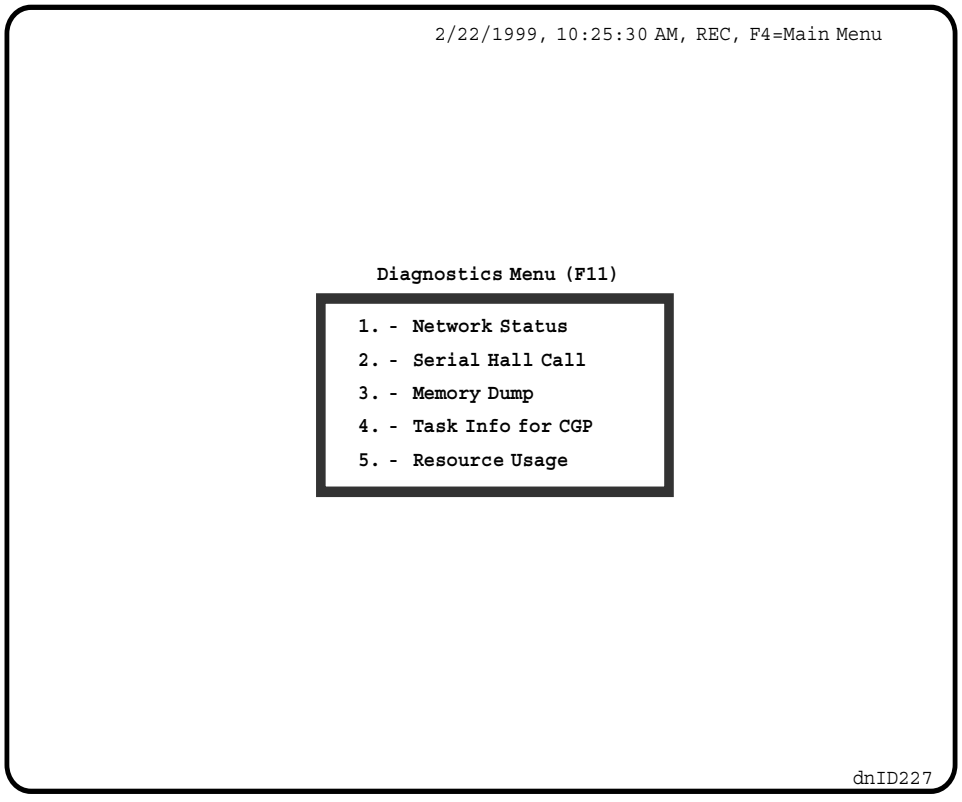
Often a malfunction is due to a faulty input or output signal. Inputs are signals generated outside the controller cabinet that connect to terminals inside the cabinet, and are subsequently read by the computer during its input scan. Outputs are signals generated by the computer that energize relays or turn on indicators during the computer's normal output scan. Since an incorrect input or output can cause a system malfunction, tracing these signals to find the source of the problem is essential.

6.8.1 CRT TERMINAL DIAGNOSTICS

On the M3 Group Supervisor, the status of many of the computer variable flags can be viewed on the Group Supervisor's CRT terminal by viewing the local Car's View Hoistway (F3) screen as described in Section 6.5.1, *View Hoistway (F3) Screen*. Refer to the Troubleshooting section of the local Car Controller's Installation Manual for a description of the local Car's computer variable flags.

The Diagnostics available on the M3 Group Supervisor's CRT terminal are accessed from the Main Menu by pressing **F11.**

FIGURE 6.17 Diagnostics Menu (F11) Screen



Network Status - The Network Status (F11, 1) screen shows the status of communication between the Group Supervisor and the local Car Controllers. Refer to Section 3.9, *Verifying the High Speed Serial Communication Link* for more information on this diagnostic screen.

Serial Hall Call - The Serial Hall Call (F11, 2) screen is used to verify the operation of the SmartLink Serial Communication for Hall Call Signals. Refer to Section 3.8, *Verifying the Operation of the Serial Hall Call System* for more information on this diagnostic screen.

Other Diagnostics - The other diagnostic screens available from the Diagnostics Menu are used primarily for troubleshooting by, or under the direction of, MCE Technical Support personnel.

6.9 PROBLEMS / SOLUTIONS

Table 6.7 lists some typical problems and the recommended steps to resolve the problem.

TABLE 6.7 Problems / Solutions Table

Problem	Recommend steps to resolve the problem
Group Supervisor's CRT terminal is not working	1. Verify that the CRT is connected to the proper MC-RS board communications port. 2. Verify that the MC-RS board has the DTE/DCE switch set to DCE for the communications port used for the CRT terminal. 3. Verify that the MC-MP-x is looping (not resetting). If it is resetting see suggestions under *Computer Swing Panel keeps resetting*. 4. Verify the communication port settings as described in Section 4.4.1, *Programming the Communication Ports*.
CRT display is not clear but is displaying some characters	1. Initialize the CRT terminal by pressing F5. 2. Turn the CRT OFF and then back ON again. 3. Verify the CRT setup as described in Section 3.4, *Verifying the Operation of the CRT terminal* (NOTE: Default all Function Keys on CRT).
CRT Screen has all alphanumeric characters.	1. Re-initialize the CRT terminal by pressing F5. 2. Default the CRT Setup and verify the correct CRT setup as described in Section 3.4, *Verifying the Operation of the CRT terminal*. 3. Verify the communication port settings as described in Section 4.4.1, *Programming the Communication Ports* and re-setup the CRT ports. 4. Verify that the Function keys are all defaulted on CRT.
Computer Swing Panel keeps resetting	1. Verify that all boards are properly connected and that the ISBX (blue) connectors are tightly plugged in. 2. Verify that the MC-RS board is connected to the MC-CGP-4(8) board. 3. Verify the jumper settings on all boards (see Table 6.1) 4. Verify that the EPROMs are correctly plugged into the correct sockets (see Appendix A, *Disassembling the Computer Swing Panel* and Appendix B, *Changing PC Boards or EPROMS*. 5. Determine which of the three boards is resetting first. Change that board (hardware and software). 6. If need be, change all three boards (hardware and software).

TABLE 6.7 Problems / Solutions Table

Problem	Recommend steps to resolve the problem
Loss of communication between Cars and Group Supervisor	1. Verify that all cables are properly connected and a good GND exists between Car & Group RS boards. 2. Verify the jumper settings on all MC-RS (MC-MRS) boards (see Table 2.1) 3. Verify that the communication cables are not running next to any power lines, thus picking up induced noise. 4. Verify the proper car address as described in Section 3.4. 5. Connect one car at a time. Determine at which point communication fails. Verify the balancing as described in Section 3.4. 6. If communication fails with only one car connected, try a different cable. 7. Change the MC-RS board.
Group Supervisor variables “Lobby”, “MFR” or “AFR” are changed with no affect.	1. The software variable settings must be changed on each local Car Controller. The Group Supervisor settings affect the display only.
All call indicators on the HC-CI/O board are ON	1. Verify that the boards in the Computer Swing Panel are looping properly. This can be cause by the MC-CGP board continuously resetting.
Cars are missing hall calls or bypassing hall calls	1. Check for an alternate hallway and/or auxiliary hall calls. If yes, verify the CGP-D software version. Call for an upgrade if not version 7.05 or greater. 2. If calls can be latched using a jumper at the HC-CI/O board, but are not latched when a call fixture button is pressed, check for a loose wire. 3. If calls are being latched by the HC-CI/O board but are not being serviced, there may be a problem with the Car versus Group eligibility map. Call for Technical Support. 4. If Software was just upgraded perform Default operation (see Section 3.6.1)
Car calls are missed intermittently	1. Verify the jumper settings on all MC-RS (MC-MRS) boards (see Table 2.1). 2. Verify the communication link balancing as described in Section 3.9. 3. If the calls were in the opposite direction of the car travel, then set RCCD *OFF* (option on System Mode Car MP local).
A hall call is not cleared	Refer to Section 6.4, Troubleshooting Call Problems - Direct Wire.
Non responsive to Hall Calls	Perform Default operation (see Section 3.6.1 of this manual)
Erratic hall lantern operation and direction reversal with the doors open.	An improper reassignment of hall calls can occur as a result of incorrect adjustable control variable settings on the local Car Controller. Verify that all of the following adjustable control variables on each local Car Controller are set to ON. • DDPO, Door Lock Direction Preference Option • AGNG, Alternate Gong Option • LGNG, Lobby Alternate Gong Option
Doors of more than one car are cycling, but no car picks up the Hall Call on the floor just above or below the lobby	1. This can be caused when an Overlay car and a car under the Group, or two cars of the Group are both made to “park” at lobby with both with doors closed or both with doors open (custom). Check for more than one car at the lobby. Change the “Reassignment Hysteresis Time” to 1 second. 2. Change one of the Car’s Door Open Time at Lobby (LOT) to avoid constant reassignment of calls.
System Performance Graph has nonsense in it.	Set the Real Time Clock to one minute before midnight and wait until it rolls over to the next day (see Section 3.5, *Setting the Real Time Clock*). Then display the System Performance Graph for today. You should find that the nonsense data has been cleared. Reset the Real Time Clock to the correct day and time.

TABLE 6.7 Problems / Solutions Table

Problem	Recommend steps to resolve the problem
Hall Call Distribution Report has nonsense in it.	Set the Real Time Clock to one minute before midnight and wait until it rolls over to the next day (see Section 3.5, *Setting the Real Time Clock*). Then advance the minutes to one minute before 1AM and wait until it rolls over to 1AM. Continue to do this for all 24 Hours of the Day. This will clear the nonsense data for all 24 hours of the Hall Call Distribution Report. NOTE: Unlike the System Performance Graph which stores data for 7 days, the Hall Call Distribution Report stores data for only *one* day, but for all 24 hours! The data in the Hall Call Distribution Report is updated from the Main Processor.
Erratic parking floors assigned	Perform Default operation (see Section 3.6.1 of this manual)
After Software Upgrade, Hall Call and/or parking floor assignment problem	Perform Default operation (see Section 3.6.1 of this manual)
Modem is not connecting to the controller	1. Check if Modem line is working. 2. Check if modem is on and all connections are correct (see Computer Peripherals Manual 42-02-CP00). 3. Verify that the COM ports are set (see section 4.4.1). 4. See Section 5.9.3 on how to change COM ports on “Modem Strings” screen under the Media Configuration Menu. 5. Check if the appropriate cables are connected.
Many No Response from Dispatcher Events	1. Verify the GND is proper between Group and Cars. 2. Verify the EPROM data displayed on the screen is sensible.
Car parked at the lobby, but basement Car Call is not latching	Turn the CCBC OFF on the Car Main Processor. This will allow the car to accept car calls below the car. However, a car picking up passengers for both directions simultaneously may become heavily loaded.
The system is not going into Lobby Up Peak or is activating and deactivating often and filling up the Event Calendar	Make sure the appropriate switches and parameters are programmed properly (see Section 5.6).
All Hall Calls latch but none of the Cars are answering the calls and are parked.	1. Reseat the boards in the swing panel. 2. Default all EPROM data. 3. Program only (n-1) floors to park floors, where n is the total # of floors. 4. Turn OFF the long wait hall call option. 5. Place the system on “balanced” mode of operation instead of “automatic.” 6. If need be, change the swing panel.
“Drive Shut Down” Logged event	1. Check the car number and see its local special event calendar for details. This fault could be caused by the following: a. Terminal switch failure b. IMC contactor proofing failure c. IMC temperature sensor d. IMC system shut down with safety drop e. IMC system shut down without safety drop
ODPC (Reset All Parameters) is ON and the CRT seems to be locked up.	1. Unplug the RS-422 cables to disconnect the cars from the group. 2. Reset the Swing Panel. 3. Try to default all CGP data. 4. After default is successful, reconnect RS-422 cables.

6.10 OPTIMIZING THE GROUP SYSTEM PERFORMANCE

The following suggestions fine-tune the M3 Group Supervisor's parameters by reducing average wait time.

1. Identify high wait time and hall call distribution patterns (system performance reports).

2. If wait time during particular hour(s) are high:
   a. Identify the floor(s) with the most late calls (Hall Call Distribution report).
   b. Program the Dispatching Timer Table so that a specific Dispatching Configuration is in use during high traffic hours. Designating high traffic floors as high priority parking floors.

3. Observe the hall call assignments / re-assignments using the F3 screen. If calls appear to be frequently re-assigned, increase the Reassignment Hysteresis Time to 19 seconds.

4. For all non-MG cars, set the MG Time on the Car Operating Parameters screen to '--' (off) to eliminate the inactive car startup delay for non-MG cars.

6. Set priority service to specific floors by setting that floor's Long Wait Hall Call Threshold to a value lower than the default of 120 seconds. However, this may adversely affect overall system performance for tall buildings with only a few cars.

7. For buildings with heavy traffic and only two or three cars, set the Long Wait Hall Call Threshold Time Option parameter to OFF.

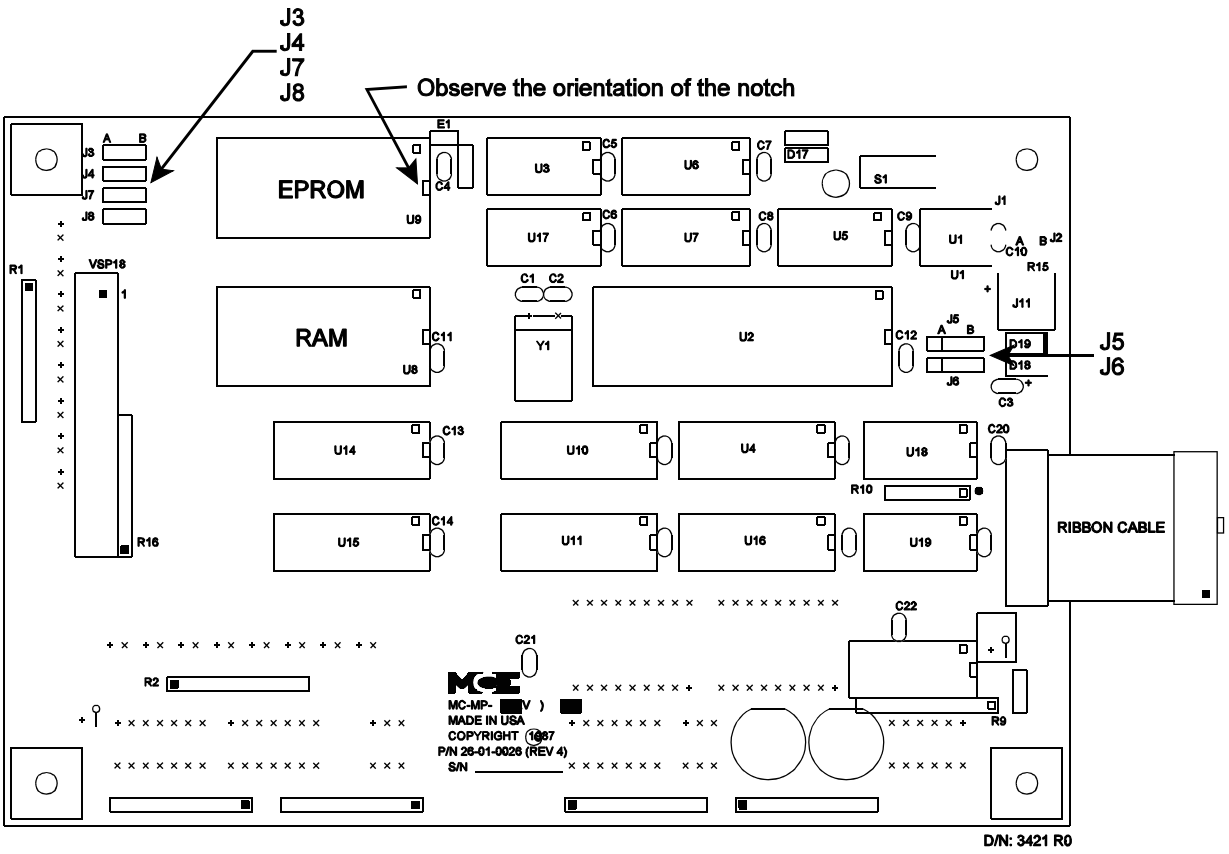
6.11 PC BOARD QUICK REFERENCES

This section contains a quick reference for the PC boards found in the typical M3 Group Supervisor controller. They are as follows:

FIGURE 6.18 MC-MP-1ES Main Processor Board Quick Reference

42-QR-MC-MP-IES Rev. 1

MC-MP-1ES QUICK REFERENCE

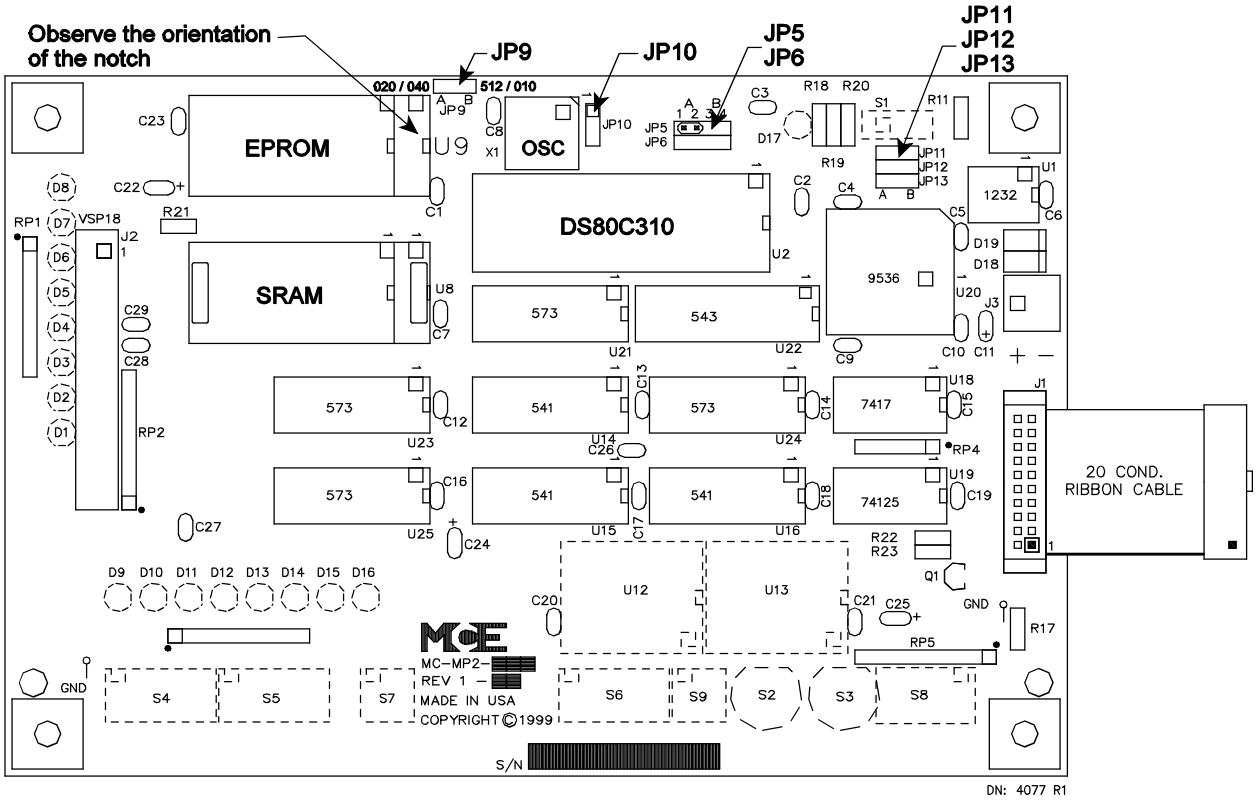


JUMPER	TYPICAL SETTING	DESCRIPTION
J3	A	A = 27C512 or 27C256 EPROM B = 27C128 EPROM
J4	A	A = 27C512 EPROM B = 27C256 or 27C128 EPROM
J5	see Description	N/C = Car Controller ON = M3 Group Supervisor
J6	N/C	Jumper not loaded
J7	A	A = 32K X 8 RAM, M5M525610-LP or HY62256ALP-10 B = 8K X 8 RAM, TC5564 or AM99C88
J8	A	A = 32K X 8 RAM, M5M525610-LP or HY62256ALP-10 B = 8K X 8 RAM, TC5564 or AM99C88

FIGURE 6.19 MC-MP2 Main Processor Board Quick Reference

42-02-MC-MP2 Rev. 1

MC-MP2 QUICK REFERENCE

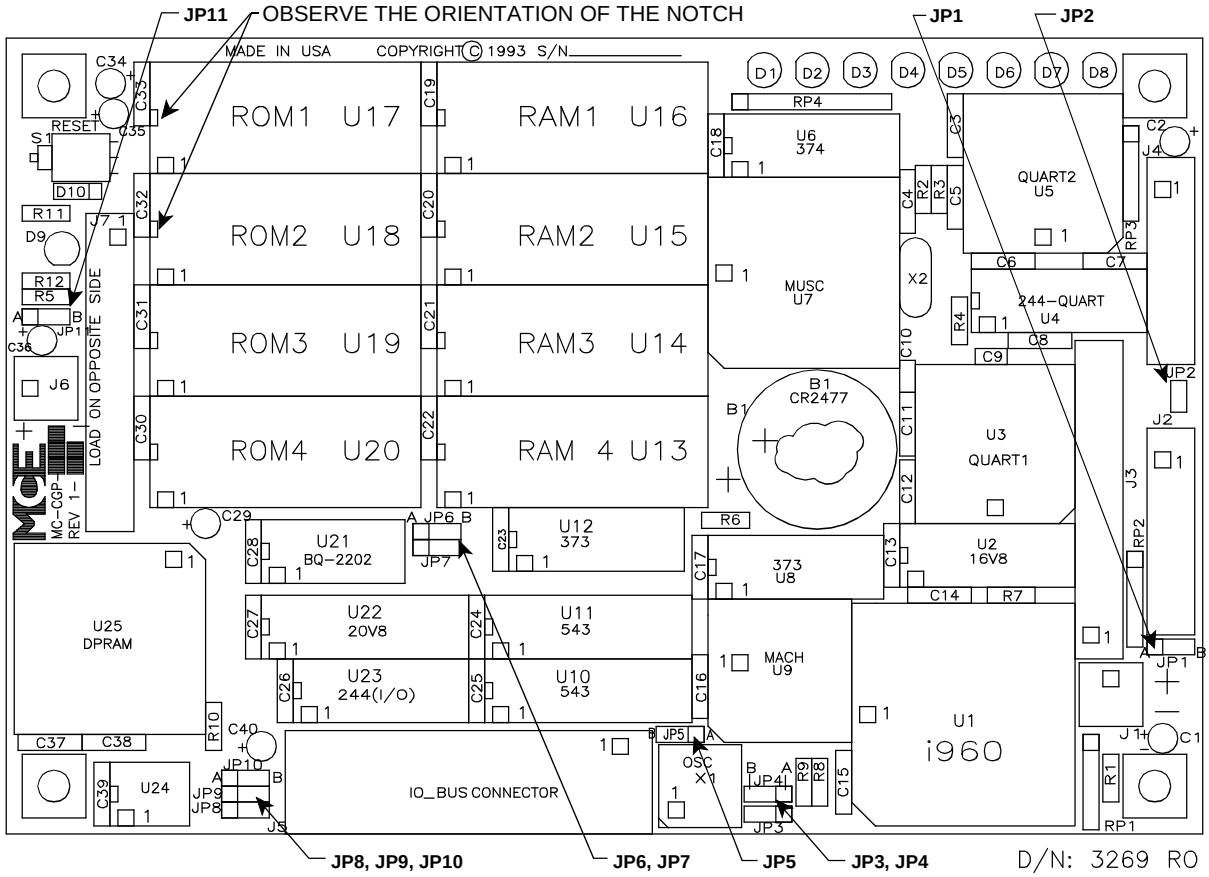


JUMPER	TYPICAL SETTING	DESCRIPTION
JP5	see Description	N/C = Car Controller A pins 1 & 2 = M3 Group Supervisor
JP6	N/C	Jumper not loaded
JP9	A	A = 27C020 or MC27C2001 EPROM B = 27C512, 27C010 or MC27C1001EPROM
JP10	N/C	Jumper not loaded
JP11	A	A = SRAM A16 Bank select enabled, B = Bank select disabled
JP12	A	A = ROM A17 Bank select enabled, B = Bank select disabled
JP13	A	A = ROM A16 Bank select enabled, B = Bank select disabled

FIGURE 6.20 MC-CGP-x Communication Processor Board Quick Reference

42-QR-MC-CGP Rev 3

MC-CGP-x QUICK REFERENCE CARD



JUMPER TABLE

JUMPER	CGP	CGP-4 CGP-8	DESCRIPTION
JP1	A	A	Communication Clock Rate: set to A if JP4 = B, set to B if JP3 = A or B or if JP4 = A.
JP2	ON	ON	Master Clock Rate: ON = Enabled, N/C = Disabled. Set to ON if JP4 = B. Set to N/C if JP3 = A or B or if JP4 = A.
JP3	N/C	N/C	Communication Clock: A = 16 Mhz, B = 4 Mhz (if JP3 = A or B, JP4 must = N/C).
JP4	B	B	Communication Clock: A = 8 Mhz, B = 2 Mhz (if JP4 = A or B, JP3 must = N/C).
JP5	B	B	This jumper relates to the I/O Bus Connector (J5), which is currently not used. I/O Connector J5 Pin 38 function: A = i960 Interrupt INT3# input, B = IO_CS1# output.
JP6	B	B	EPROM Size (27Cxxx): set to A for xxx = 512, set to B for xxx = 010, 020, 040 or 080.
JP7	A	A	Off Board Reset Signal: A = Enabled, B = Disabled.
JP8	A or hard wired	A or hard wired	EPROM Size (27Cxxx): set to A for xxx = 010, 020, 040 or 080, set to B for xxx = 512.
JP9	B	B	EPROM or Flash Memory: A = Flash, B = EPROM.
JP10	B	B	EPROM or Flash Memory: A = Flash, B = EPROM.
JP11	B or hard wired	B or hard wired	SRAM Size (68xxx): set to A for 1Mb SRAM, set to B for 4Mb SRAM.

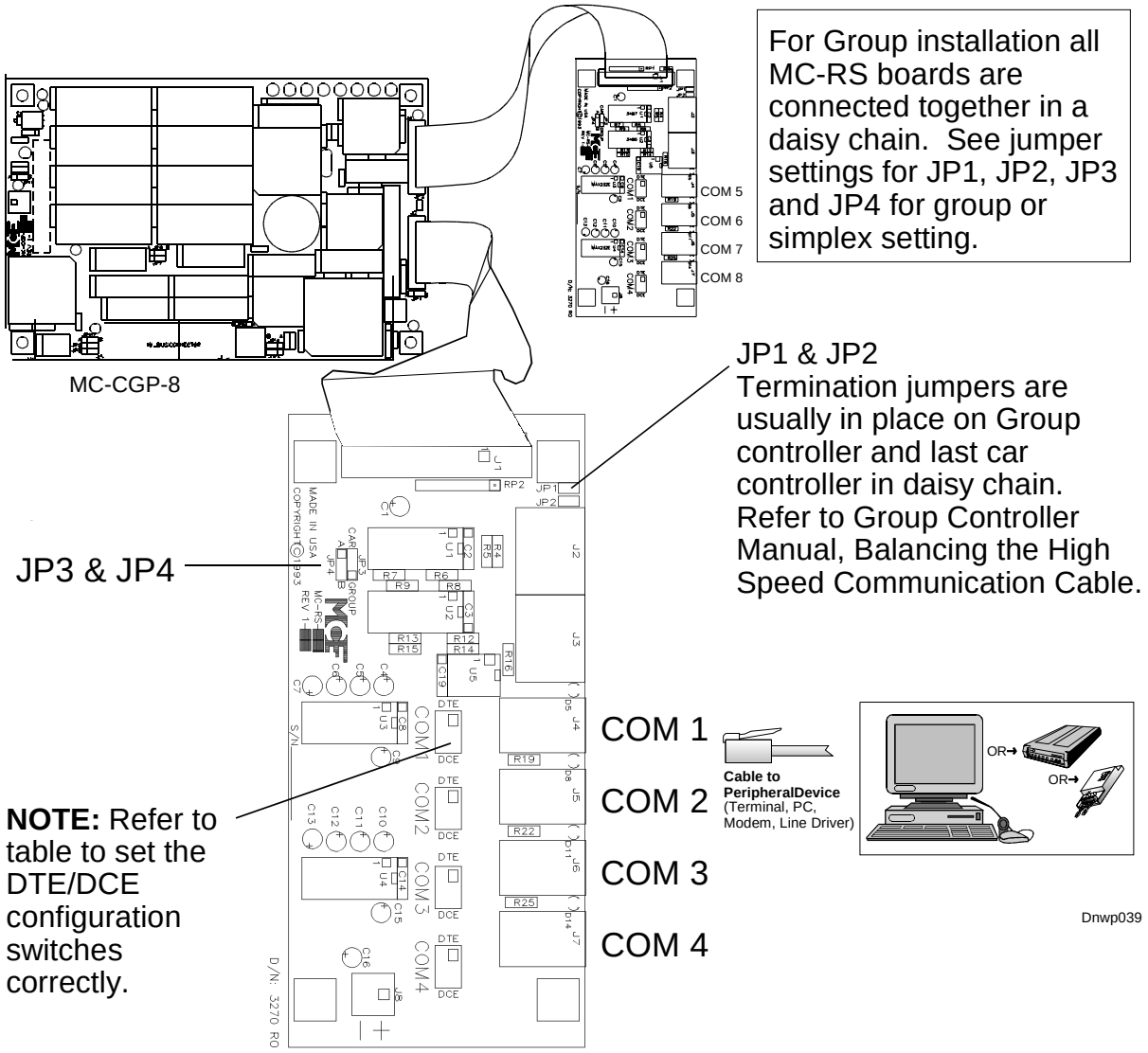
FIGURE 6.21 MC-RS Communication Interface Board Quick Reference

42-QR-MC-RS Rev.3

MC-RS QUICK REFERENCE CARD

MC-RS COM Port Toggle Switches

Port Switch Setting	Cable Connects to
DCE	CRT Terminal or PC
DTE	Line Driver or Modem



Jumper	Setting	Description
JP3	Car	Setting for car controllers (Simplex or Local).
	Group	Setting for Group controller. **Only the Group MC-RS board should be set to Group.**
JP4	B	Set to B on all controllers including the Group.
	B	Set to B on the Group controller MC-RS board.

APPENDIX

APPENDIX A
DISASSEMBLING THE COMPUTER SWING PANEL

MCE Technical Support may recommend removal of one or more of the Computer Swing Panel circuit boards while troubleshooting a problem. If so, remove the thumbscrews holding the Computer Swing Panel to the bracket and swing it open. Loosen and remove the four nuts securing the back cover plate using an 11/32" nut driver (see Figure A.1). Disconnect the ribbon cables and remove the boards from the Swing Panel. Unsnap the boards from each other (Figure A.3) and replace/repair as necessary.

CAUTION: Components on the PC boards can be damaged by ElectroStatic Discharge (ESD). Wear a grounding strap on your wrist and connect it to ground before handling the PC boards.

FIGURE A.1 Computer Swing Panel with Boards (Top View)

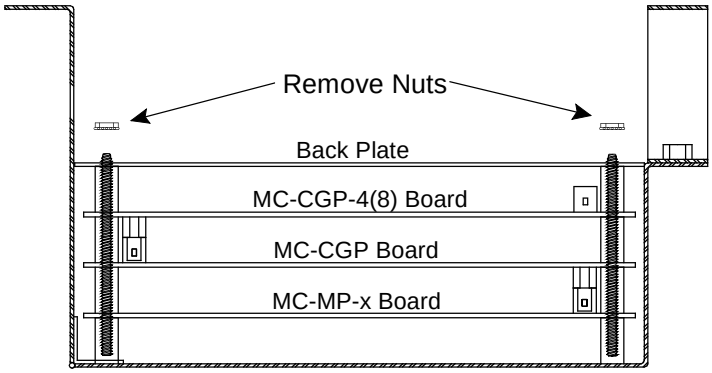


FIGURE A.2 Computer Swing Panel Boards (Snapped Together)

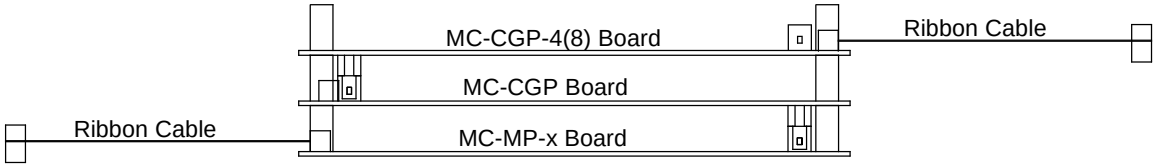
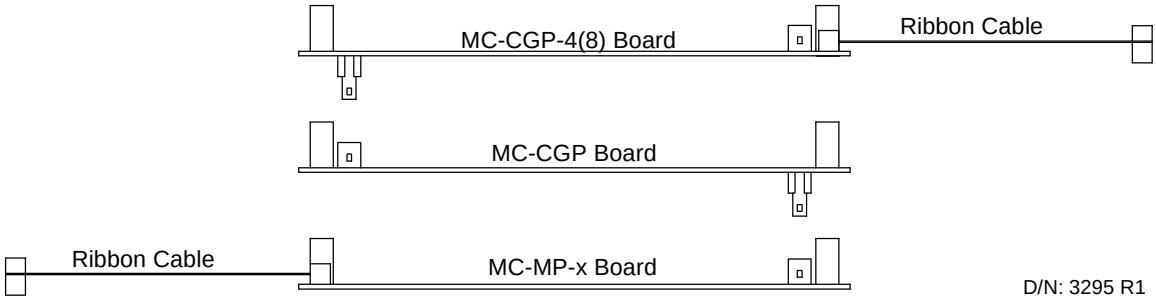


FIGURE A.3 Computer Swing Panel Boards (Unsnapped)



APPENDIX B
CHANGING PC BOARDS OR EPROMS

With directions from MCE Technical Support, a PC board or EPROMs may need to be reinstalled in the field. Great care should be taken when changing any of these items. The EPROM stores the computer program, the RAM ICs store programmable settings, and all components are subject to damage by ESD (see CAUTION). These instructions should be followed step-by-step.

CAUTION: Components on the PC boards can be damaged by ElectroStatic Discharge (ESD). Wear a grounding strap on your wrist and connect it to ground before handling the PC boards.

B.1 REPLACING THE MAIN PROCESSOR (MP) BOARD OR EPROM

Normally the microprocessor on the Main Processor (MC-MP-1ES or MC-MP2) board is not replaced in the field. Sometimes the EPROM is replaced to upgrade the program and occasionally the complete board must be replaced due to a component failure.

Replacing the EPROM - The EPROM for the MC-MP-1ES or MC-MP2 board is labeled S-MP-GM-1. If the new EPROM has the same job number as the old EPROM, the user settings for adjustable control variables, etc., are retained. Any new variables added to the new EPROM will be set to their default values.

If the job number on the new EPROM is different from the job number on the old EPROM, all of the variables will be set to their default values (***see CAUTION***).

CAUTION: Document the current user settings before removing the board or EPROM so that, if necessary, they can be re-entered when the new EPROM or board is installed. The user settings are the:

- Real Time Clock settings (see Section 4.2.5)
- Communication Port settings (see Section 4.4.1)
- Master Software Key (MSK) (see Section 4.4.2)
- Adjustable Control Variables (see Section 4.4.3)

Replacing the MC-MP-x board - The user settings are stored in battery backed RAM on the MC-MP-1ES or MC-MP2 board. If the new board was previously installed in another Group Supervisor, the user settings from that controller will be retained. If the new board is a replacement from MCE, all of the user programmable values will be set to their default values (**see Caution**).

Replacement Procedure

1. Document the current settings for the items listed in CAUTION above.

2. Turn power OFF and verify that no lights are operating on the Computer Swing Panel. Install a grounding strap on your wrist and connect it to ground before handling the PC boards or EPROMS.

3. Remove the MC-MP-1ES or MC-MP2 board from the Computer Swing Panel. Refer to Appendix A for instructions on disassembling the Swing Panel. If you are replacing the PC board and the new board has an EPROM already installed, proceed to step 6 below. If you are replacing the EPROM, continue with steps 4 and 5.

4. Using a small, thin-bladed screwdriver, place the tip between the EPROM and its socket, *not* between the socket and the board (see MC-MP-1ES Quick Reference or MC-MP2 Quick Reference in Section 6.11). Gently pry the existing EPROM out from the socket. Do this slowly, taking care not to bend the leads. If the leads become bent, and it is necessary to install the EPROM on another board, straighten the leads carefully with a needlenose pliers.

5. Place the new EPROM lightly (do not plug it in yet) into the socket and check to see that all pins are aligned with their corresponding holes in the socket. Also make sure that the notch on the end of the EPROM is correctly aligned with the notch on the socket (the orientation of the notch should also correspond to the notches on all of the other chips on the board). Now push the EPROM firmly into the socket and make sure that *none* of the pins are bent during the insertion. Inspect the EPROM to make sure that no pins are bent outward or under the EPROM.

6. Verify the jumper settings specified in Table 6.1, *M3 Group Supervisor Jumper Settings* or in the MC-MP-1ES Quick Reference or MC-MP2 Quick Reference in Section 6.11.

7. Reassemble the Swing Panel assembly and close the Swing Panel. Refer to the instructions in Appendix A.

8. Turn power ON. Verify the proper operation of all boards by inspecting the Diagnostic Indicators and Computer ON LEDs on the individual processor boards (see Section 3.3, *Applying Power*). If the Computer ON LED on any of the three boards is blinking (not solidly ON), the EPROMs may not have been installed properly. Repeat the above steps 2 through 7.

9. Verify the user settings documented in step 1.

B.2 REPLACING THE DISPATCHING PROCESSOR BOARD OR EPROMS

Normally the microprocessor on the Dispatching Processor (MC-CGP) board is not replaced in the field. Sometimes the EPROMs are replaced to upgrade the program and occasionally the complete board must be replaced due to a component failure.

Replacing the EPROMs - The EPROMs for the MC-CGP board, also known as the CGP-D board, are labeled S-CGP-GM-1 (U17) and S-CGP-GM-2 (U18). Changing the EPROMs will not normally cause the loss of user data. However, please ***see CAUTION***.

Replacing the MC-CGP board - The user settings for the dispatching parameters are stored in battery backed RAM on the MC-CGP board. If the new board was previously installed in another controller, the user settings from that controller are retained. If the new board is a replacement from MCE, all of the dispatching parameters will be set to their default values. Be sure to document the current settings before removing the old board (***see CAUTION***).

CAUTION: Before the old board or EPROMs are removed, document the current settings for the dispatching parameters using the tables in the Reference Section. Then, if necessary, they can be re-entered when the new EPROMs or board are installed or if the parameters are defaulted. Document the current settings for the:

- Dispatching Configurations (see Section 5.2)
- Dispatching Timer Table (see Section 5.3)
- Long Wait Threshold Times (see Section 5.5)
- Lobby Up Peak Parameters (see Section 5.6)
- Car Operating Parameters (see Section 5.8)
- General Parameters (see Section 5.7)

Replacement Procedure

1. Document the current settings for the dispatching parameters (***see CAUTION***).

2. Turn power OFF and verify that no lights are operating on the Computer Swing Panel. Install a grounding strap on your wrist and connect it to ground before handling the PC boards or EPROMS.

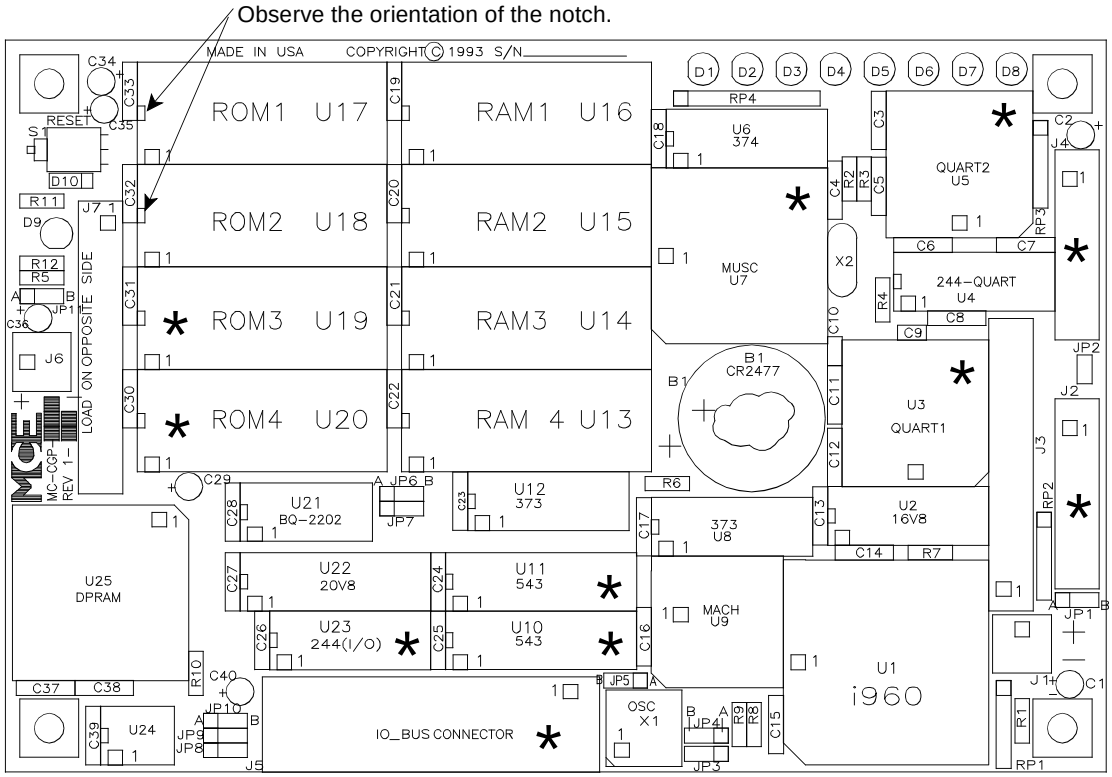
3. Remove the MC-CGP board from the Computer Swing Panel. Refer to Appendix A for instructions on unloading the boards from the Swing Panel. If you are replacing the PC board with a new board that has the EPROMs already installed, proceed to step 6 below. If you are replacing the EPROMs, continue with steps 4 and 5.

4. The two EPROMs on the MC-CGP board are labeled S-CGP-GM-1 (ROM1 - U17) and S-CGP-GM-2 (ROM2 - U18) (see Figure B.2) Using a small, thin-bladed screwdriver, place the tip between the EPROM chip and its socket, *not* between the socket and the board. Gently pry the existing EPROMs out from the sockets. Do this slowly, taking care not to bend the leads. If the leads become bent, and it is necessary to install the EPROMs in another board, straighten the leads carefully with a needlenose pliers.

5. Place the new EPROMs lightly (do not plug it in yet) into the sockets and check to see that all pins are aligned with their corresponding holes in the socket. Also make sure that the notch on the end of the EPROM is correctly aligned with the notch on the socket (the orientation of the notch should also correspond to the notches on all of the other chips on the board). Now push the EPROMs firmly into the sockets and make

sure that *none* of the pins are bent during the insertion. Inspect the EPROMs to make sure that no pins are bent outward or under the EPROMs.

FIGURE B.2 EPROM Location on the Dispatching Processor Board (MC-CGP)



6. Verify the jumper settings specified in Table 6.1, *M3 Group Supervisor Jumper Settings*.

7. Reassemble the Swing Panel assembly and close the Swing Panel. Refer to the instructions in Appendix A.

8. Turn power ON. Verify the proper operation of all boards by inspecting the Diagnostic Indicators and Computer ON LEDs on the individual processor boards (see Section 3.3, *Applying Power*). If the Computer ON LED on any of the boards is blinking (not solidly ON), the EPROMs may not have been installed properly. Repeat the above steps 2 through 7.

9. Set ODPC=ON, on the General F1-1 screen, and save the parameter.

10. Re-enter the user settings documented in step 1 above.

B.3 REPLACING THE COMMUNICATION PROCESSOR BOARD OR EPROMS

Normally the microprocessor on the Communication Processor (MC-CGP-4(8)) board is not replaced in the field. Sometimes the EPROMs are replaced to upgrade the program and occasionally the complete board must be replaced due to a component failure.

Replacing the EPROMs - The EPROMs for the MC-CGP-4(8) board, also known as the CGP-C board, are labeled S-CGP-GMC-1 (U17) and S-CGP-GMC-2 (U18). Changing the EPROMs will not normally cause the loss of user data. However, please ***see CAUTION***.

Replacing the MC-CGP-4(8) board - The user settings are stored in battery backed RAM on the MC-CGP-4(8) board. If the new board was previously installed in another controller, the user settings from that controller will be retained. If the new board is a replacement from MCE, all of the user programmable values will be set to their default values. Be sure to document the current parameter settings before removing the old board (***see CAUTION***).

CAUTION: Before removing the board or EPROMs, document the current settings for the parameters listed below. Then, if necessary, they can be re-entered when the new EPROMs or board are installed or if the parameters are defaulted. Data stored on the MC-CGP-4(8) board include:

- Security - timer tables, security configurations, passenger names and access codes
- Modem initialization strings and passwords
- CMS settings regarding dial out on emergencies
- Job Configuration data used for display - job name, car label and landing labels
- Lockout status of the parameter screen
- Special Event Calendar data (can't be re-entered)

Replacement Procedure

1. Document the current settings for the items listed above (***see CAUTION***).

2. Turn power OFF and verify that no lights are operating on the Computer Swing Panel. Install a grounding strap on your wrist and connect it to ground before handling the PC boards.

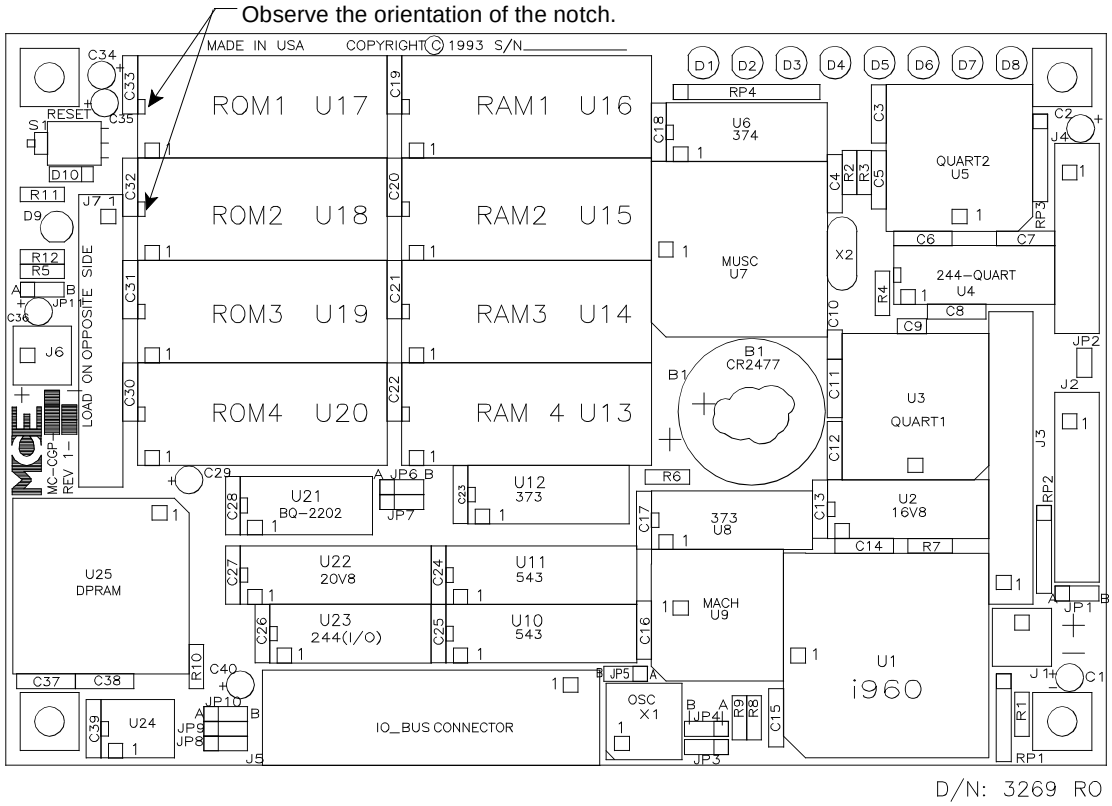
3. Remove the MC-CGP-4(8) board from the Swing Panel. Refer to Appendix A for instructions on disassembling the Swing Panel. If you are replacing the PC board with a new board that has the EPROMs already installed, proceed to step 6 below. If you are replacing the EPROMs, continue with steps 4 and 5.

4. The two EPROMs on the MC-CGP-4(8) board are labeled S-CGP-GMC-1(ROM1-U17) and S-CGP-GMC-2 (ROM2-U18) (see Figure B.3) Using a small, thin-bladed screwdriver, place the tip between the EPROM chip and its socket, *not* between the socket and the board. Gently pry the existing EPROMs out from the sockets. Do this slowly, taking care not to bend the leads. If the leads become bent, and it is necessary to install the EPROMs in another board, straighten the leads carefully with needlenose pliers.

5. Place the new EPROMs lightly (do not plug it in yet) into the sockets and check to see that all pins are aligned with their corresponding holes in the socket. Also make sure that the notch on the end of the EPROM is correctly aligned with the notch on the socket (the orientation of the notch should also correspond to the notches on all of the other chips on the board). Now push the EPROMs firmly into the socket and make sure that *none* of the pins are bent during the insertion. Inspect the EPROMs to make sure that no pins are bent outward or under the EPROM.

6. Verify the jumper settings specified in Table 6.1, *M3 Group Supervisor Jumper Settings*.

FIGURE B.3 EPROM Location on the Communication Processor Board (MC-CGP-4[8])



7. Reassemble the Swing Panel assembly and close the Swing Panel. Refer to the instructions in Appendix A.

8. Turn power ON. Verify the proper operation of all boards by inspecting the Diagnostic Indicators and Computer ON LEDs on the individual processor boards (see Section 3.3, *Applying Power*). If the Computer ON LED on any of the boards is blinking (not solidly ON), the EPROMs may not have been installed properly. Repeat the above steps 2 through 7.

9. Verify the user settings documented in Step 1 above. It may be necessary to set the parameters to their default values General Parameters screen and then re-enter the user values in order to resume normal operation.

APPENDIX C
ELEVATOR SECURITY INFORMATION AND OPERATION

Building name: _____

Building location: _____

Security activation:	Key switch	Mon:	from _____	to ____
	or	Tue:	from _____	to ____
	Time clock	Wed:	from _____	to ____
		Thu:	from _____	to ____
		Fri:	from _____	to ____
		Sat:	from _____	to ____
		Sun:	from _____	to ____

Instructions: To gain access to secured floors, follow the steps below while in the elevator car. The steps may be taken while the car is moving or standing still. Requests for a car from a hallway or corridor are answered without restriction.

1. While in the car, press the button for the desired floor. If the destination floor is secured, the button for that floor will flash on/off.

   If the button for that floor stays solidly lit, that floor is unsecured.

2. While the destination floor button is flashing, enter the security code for that floor within 10 seconds. Enter the security code by pressing the corresponding buttons on the panel.

   If the code was entered correctly and within the required time limit, the car will immediately go to that floor. If the code was not entered within the 10-second time limit or was entered incorrectly, the destination floor button light will turn off after 10 seconds and the entire sequence must be repeated.

   If a mistake is made while entering the security code, simply wait until the destination floor button light stops flashing and start the entire sequence again.

SECURITY CODES

Maintain a record of the security codes by noting the floor name as found in the elevator cab and each floor's code. Any floor with a security code is a secured floor.

1. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
2. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
3. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
4. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
5. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
6. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
7. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
8. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
9. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
10. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
11. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
12. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
13. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
14. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
15. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
16. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
17. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
18. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
19. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
20. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
21. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
22. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
23. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
24. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
25. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
26. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
27. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
28. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
29. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
30. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
31. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___
32. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

33. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

34. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

35. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

36. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

37. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

38. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

39. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

40. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

41. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

42. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

43. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

44. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

45. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

46. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

47. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

48. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

49. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

50. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

51. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

52. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

53. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

54. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

55. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

56. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

57. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

58. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

59. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

60. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

61. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

62. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

63. Floor _____ **security code =** ___ ___ ___ ___ ___ ___ ___ ___

APPENDIX D
NOMENCLATURE

Motion Control Engineering, Inc.	NOMENCLATURE		
F:\DOCS\Nmcltr1Shipping.frm	Effective Date: 11/27/00	Approved By: Engineering Manager	Page 1 of 2

#	PC BOARD	DESCRIPTION
1	HC-RB4	Traction Controller Main Relay Board
1	HC-RBH	Hydraulic Controller Main Relay Board
2	HC-CI/O	Non Programmable Controller Call I/O Board
2	HC-CI/O-E	Programmable Controller Call I/O Expander Board
3	HC-PI/O	Non Programmable Controller Power I/O Board (Car A) ①
3	HC-PCI/O	Programmable Controller Power And Call I/O Board
4	HC-PI/O	Non Programmable Controller Power I/O Board (Car B) ①
6	HC-TAB	Traction Adapter Board
7	HC-RDRB	Rear Door Relay Board
8	HC-RD	Rear Door Logic Board (Car A) ①
9	HC-RD	Rear Door Logic Board (Car B)
10	HC-DB-MOD	Front G.A.L. MOD Door Interface Board
11	HC-DB-MOD-R	Rear G.A.L. MOD Door Interface Board
12	HC-DPS	Door Power Supply Board
13	HC-PIX	Position Indicator Expander Board (Car A) ①
14	HC-PIX	Position Indicator Expander Board (Car B)
15	HC-SRT	Suicide Relay Timing Board
16	HC-SCR	SCR Interface Board
17	HC-EQ	Earthquake Board
18	HC-IOX	I/O(8 Input / 8 Output) Expander Board (Car A) ①
19	HC-IOX	I/O(8 Input / 8 Output) Expander Board (Car B)
20	HC-IOX	Additional I/O(8 Input / 8 Output) Expander Board (Car A) ①
21	HC-IOX	Additional I/O(8 Input / 8 Output) Expander Board (Car B)
26	HC-DYNA	Dynalift Interface Board
27	MC-ACFR	AC Feedback Relay Board
28	IMC-GIO	General Turbo DF I/O Board
29	IMC-RB	Turbo DF Relay Board
30	HC-DB-MOM/H	Front G.A.L. MOM/MOH Door Interface Board
31	HC-DB-MOM/H-R	Rear G.A.L. MOM/MOH Door Interface Board
32	HC-OA	Output Adapter Board
33	IMC-RI	M/G Relay Interface Board
34	IMC-PRI	M/G Power Relay Interface Board
35	IMC-DIO	Digital I/O Board
36	IMC-DAS	Data Acquisition Board
37	HC-I4O	I/O(16 Input /4 Output) Expander Board (Car A) ①
38	HC-I4O	I/O(16 Input /4 Output) Expander Board (Car B)
39	HC-I4O	Additional I/O(16 Input / 4 Output) Expander Board (Car A) ①
40	HC-I4O	Additional I/O(16 Input /4 Output) Expander Board (Car B)
41	SCR-RI	SCR/AC Relay Interface Board
42	SCR-PRI	SCR/AC Power Relay Interface Board
43	HC-LB	Lock Bypass Board
44	HC-GB	Gong Board
45	HC-GB	Additional Gong Board
46	HC-SIB	Selectable Input Buffer Board (Car A) ①
47	HC-SIB	Selectable Input Buffer Board (Car B)
48	HC-RT	Relay Tester Board
49	IMC-ACIB	AC Baldor Interface Board
50	HC-DPS-MOM/H	Front G.A.L. MOM/MOH Door Interface and Power Supply Board
51	HC-ACI	AC Drive Interface Board
52	HC-ACIF	AC Flux Vector Interface Board

#	PC BOARD	DESCRIPTION
53	HC-DPS-MOM/H-R	Rear G.A.L. MOM/MOH Interface and Power Supply Board
54	IMC-MBX	IMC Enhanced Motherboard
55	SCR-RIX	SCR Relay Interface Extension Board
56	HC-HBF	A.S.M.E. Front Door Lock Bypass Board
57	HC-HBFR	A.S.M.E Front and Rear Door Lock Bypass Board
58	IMC-ACIM	AC MagneTek Interface Board
59	HC-TACH-MG	Tach Adjust Board for VVMC-MG Controller
60	HC-TACH-SCR	Tach Adjust Board for VVMC-SCR Controller

① Individual group cars use board numbers for car A only

SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
X / X	BUS LOCATED ON PC BOARD
X / X	BUS LOCATED OFF PC BOARD
	MICROCOMPUTER OUTPUT OR CALL CIRCUIT
	MICROCOMPUTER INPUT
MP	MICROCOMPUTER OUTPUT OR CALL CIRCUIT FOR ASME 17.1–2000 SERIES CONTROLLER
MP	MICROCOMPUTER INPUT FOR ASME 17.1–2000 SERIES CONTROLLER
P	PATTERN GENERATOR OUTPUT
P	PATTERN GENERATOR INPUT
S	PATTERN GENERATOR SAFETY INPUT
	POWER TERMINAL
	PANEL MOUNT TERMINAL
X	EYELET ON PC BOARD
X	SCREW TERMINAL ON PC BOARD
X	IDC CONNECTOR ON PC BOARD
CX–X CX–X / X X	RIBBON CABLE CONNECTOR
TPX	TEST POINT

SYMBOL	DESCRIPTION
OFF BOARD SIDE — X — BOARD NUMBER	BOARD DESIGNATOR
	SOLDER CONNECTION ON REAR OF PC BOARD
	WIRING INSIDE CONTROL CABINET
	TRACE ON PC BOARD
	CUSTOMER WIRING INTO CONTROL CABINET
	ALL UNMARKED DIODES ARE 2.5 AMP 1000 VOLT
	VOLTAGE SPIKE SUPPRESSOR
	DOT BY RESISTOR INDICATES TOP OR LEFT SIDE AS MOUNTED
	BOX INDICATES UNUSED ITEM
	RELAY COIL
	FORCE GUIDED RELAY COIL
POLE NUMBER — X — SWING SIDE	NORMALLY OPEN (N.O.) RELAY CONTACT
POLE NUMBER — X — SWING SIDE	NORMALLY CLOSED (N.C.) RELAY CONTACT
N/C	NO CONNECTION

WIRE SYMBOLS

SYMBOL	DESCRIPTION
X	#X AWG THHN WIRE 90° C
X	#X AWG PVC WIRE 105° C
X	#X AWG PTL WIRE 125° C
X	#X AWG TEFLON WIRE 200° C

UNLESS NOTED, ALL WIRES ARE #18 AWG PVC, WITH EXCEPTION TO THE PC BOARD WIRING, WHICH IS DETERMINED BY ENGINEERING.

WIRE GAUGES

SYMBOL	SIZE
03	3/0 AWG
02	2/0 AWG
0	0 AWG
1	1 AWG
2	2 AWG
4	4 AWG
6	6 AWG
8	8 AWG
10	10 AWG
12	12 AWG
14	14 AWG
16	16 AWG
18	18 AWG

Motion Control Engineering, Inc.	NOMENCLATURE
F:\ENG\DOCS\NMCLR2.DWG	Effective Date: 3–14–03

APPENDIX E
CROSS REGISTRATION OPTION

E.0 GENERAL

The MCE group will have the responsibility to accept and latch the hall call, illuminate the hall call register light and assign the hall call to an MCE car. If the calculated ETA (estimated time of arrival) of an MCE car exceeds a common adjustable timer, 0 to 199 seconds, the hall call will be reassigned to the existing group dispatcher, which in turn will then assign that hall call to a car under its control. The MCE group will still have the responsibility to maintain the hall call register light until the assigned car, from the existing group, cancels the hall call.

E.1 ETA CROSS REGISTRATION

This job's Cross Registration interconnects are depicted on job print pages C-1, C-2, C-3, etc. When a 2UP hall call button is pressed, the 602 terminal on the HC-CI/O board is momentarily grounded and the hall call is accepted by the MCE computer. The computer stores the hall call in memory and then turns on the 602 triac to illuminate the hall call register light. The hall call is assigned to an MCE car and, at the same time, the ETA timer for that hall call is activated. If the MCE group determines that an MCE car cannot answer the hall call within the common keyboard adjustable period of time (ETAT), 0 to 199 seconds, the computer then turns on the 2UPP output for another common group swing panel adjustable time (PULS), approximately 300 ms to 1200ms, enough time to register the 2U hall call in the existing group dispatcher. When 2UPP turns on, MCE unlatches the internal call. The 602 output remains on until the 2U input goes low. If 2U input remains high then the existing group dispatcher has accepted the call. The hall call register light extinguishes when the computer turns off the 602 output. If 2U goes low almost immediately after 2UPP is turned off, then an existing group car is probably at the floor where the call is located with the correct direction or, for some reason, the existing group dispatcher cannot accept the call.

Once the call is transferred to existing group dispatcher, MCE no longer has any control of the call. If the call is not registered in the existing group system and the call "gets lost", the person in the hall will have to press the button again. MCE will treat the call as if it were a "new call", and start the process all over again.

If there are no MCE cars in group service and/or available for hall call assignment, the operation is the same as described above except that the hall call is assigned immediately to the existing group.

The MCE group must be powered from a separate source if there are no MCE cars in operation.

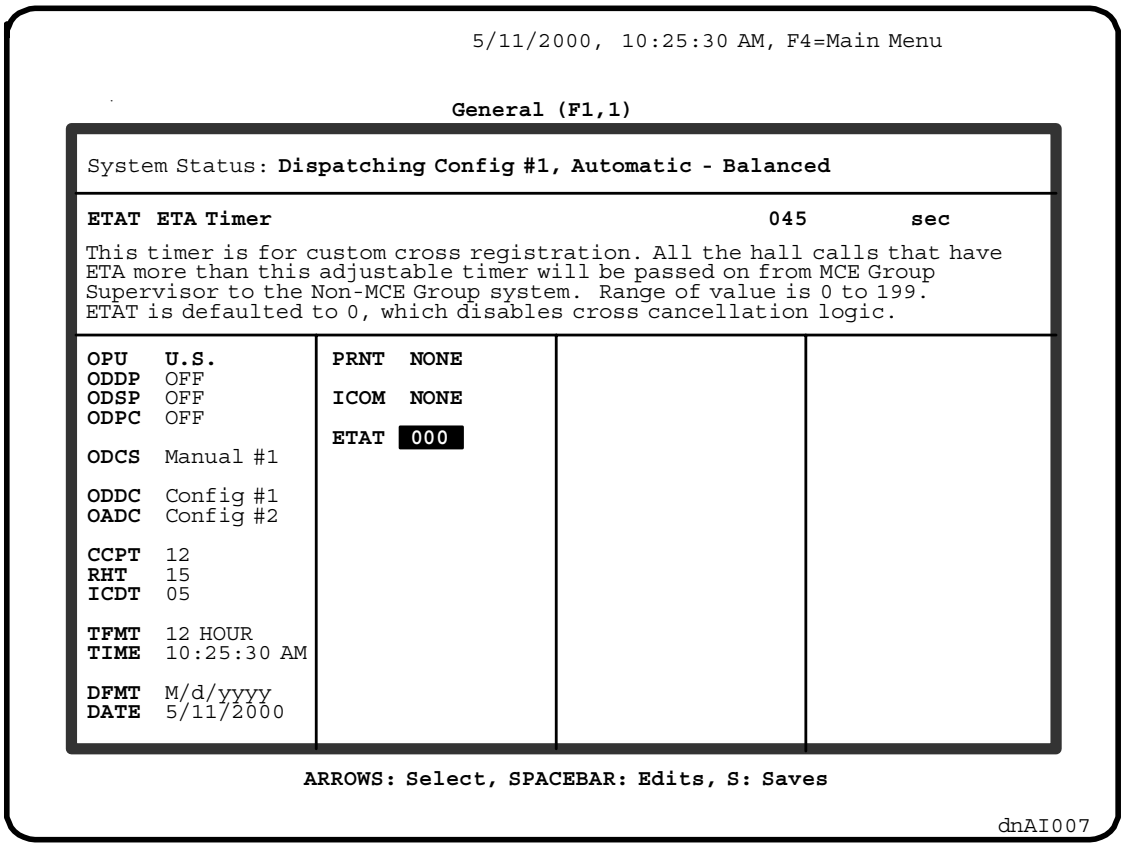
The ETAT time should be set relatively short when there is only one or two MCE cars in group operation and set for a longer period of time when more MCE cars are in group operation. The optimum setting will be an ETAT time that appears to provide the best service for a given number of "new" and "old" cars.

The PULS flag time is set to allow a sufficient amount of time to register a hall call in the "old" system.

E.2 SETTING THE ETAT TIME

Access the General (F1, 1) screen on the M3 Group Supervisor's CRT Terminal. Use the arrow keys to select the ETAT timer. Type a new value using the **number keys** at the top of the keyboard or on the number keypad with *NumLock* ON. When the desired value is displayed, press **Enter**. Save the change by pressing the **S** key. Press **Y** to confirm.

FIGURE E.1 ETAT Timer screen



E.3 SETTING THE PULS FLAG

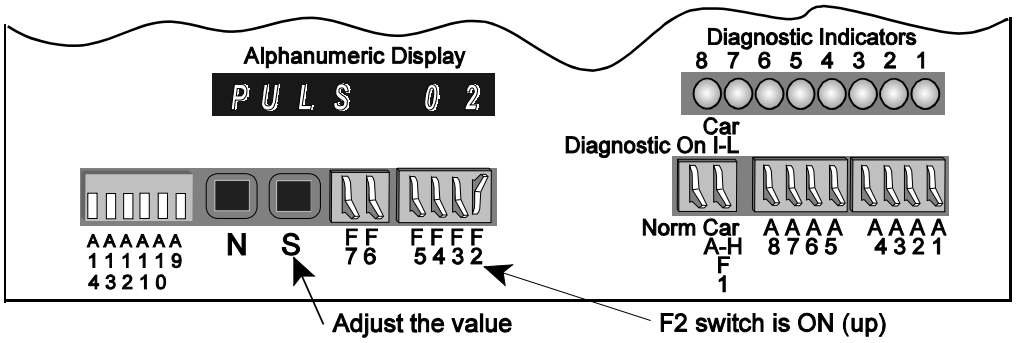
The PULS flag provides a range of time from 300ms to 1200ms in six increments as follows:

TABLE E.1 PULS Flag

Flag Value	Time Interval
2	300ms - 450ms
3	450ms - 600ms
4	600ms - 750ms
5	750ms - 900ms
6	900ms - 1050ms
7	1050ms - 1200ms

To access the PULS flag, place the F2 switch on the Group Supervisor's Computer Swing Panel in the ON (up) position as shown. All other switches should be OFF (down).

FIGURE E.2 Accessing the PULS flag



Press the **S** pushbutton to adjust the value. When the desired value is displayed, place the F2 switch in the OFF (down) position.

APPENDIX F
CRT TERMINAL AND TERMINAL EMULATOR SETUP

F.1 GENERAL

This appendix contains setup information for the controller COM ports and for the following terminals and terminal emulators:

F.1.1 CONTROLLER COM PORT SETTINGS

The communication ports were programmed at the factory for the original hardware, based on customer-provided information. Changing a communication port setting may be necessary if you are:

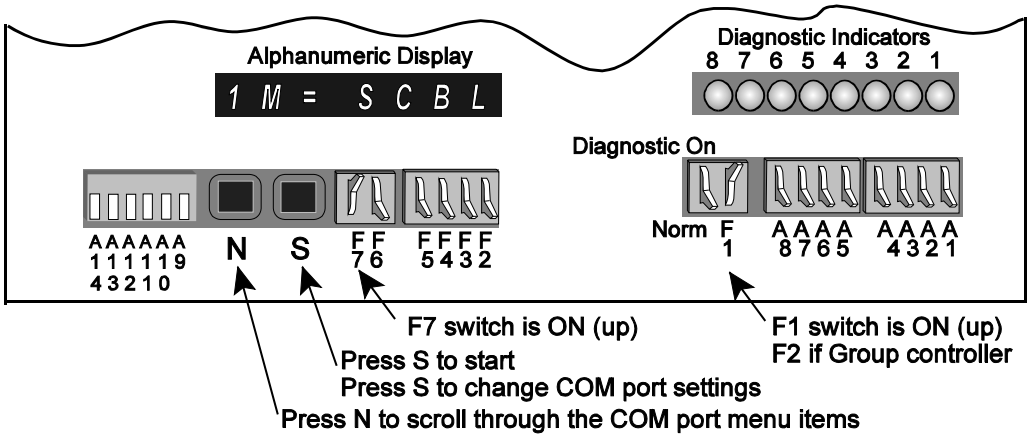
Changing from a monochrome to a color CRT terminal or terminal emulator

- Adding a lobby CRT or CRT with keyboard
- Adding a modem, line driver, or serial cable
- Adding a PC (for CMS or MSD software or graphic display)

Refer to Tables F.2 and F.3 to determine the correct Media and Device setting for the communication port being used.

To program a communication port:

1. Set all Swing Panel switches to the down (off) position.
2. Raise the F7 switch on the Swing Panel. “PASSWORD” is displayed.
3. Press and hold ***S*** until “SYSTEM” is displayed.
4. Raise the F1 switch (F2 if Group controller).
5. Press ***S*** to enter the COM port menu (Table F.1).



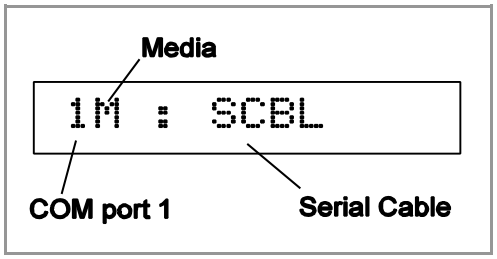
6. Press **N** to scroll and select the desired COM port (1 to 4) and media (M) or device (D).
7. Press ***S*** to change the media (Table F.2) or device (Table F.3) setting

   or

   press ***N*** to view the next COM port.
8. When "SAVE" is displayed:

   Press ***S*** to Save the COM port parameters.

   Press ***N*** to loop back to COM port 1.
9. To exit, place the Swing Panel switches in the down (off) position.



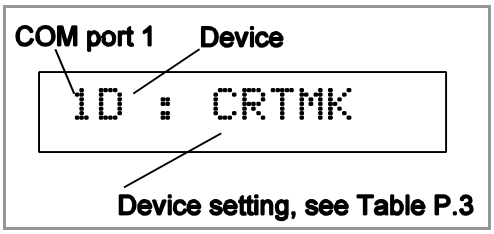


TABLE F.1 Communication Port Menu

EOD Display	Description
NO COM	No COM port option has been enabled
1M	COM Port 1 Media
1D	COM Port 1 Device
2M	COM Port 2 Media
2D	COM Port 2 Device
3M	COM Port 3 Media
3D	COM Port 3 Device
4M	COM Port 4 Media
4D	COM Port 4 Device
SAVE?N/S	Save the changes? N for no or continue, S for save

TABLE F.2 COM Port Media Selections

EOD DISPLAY	DESCRIPTION
NONE	No Media - the port is not being used
SCBL	Serial Cable - direct connection to a CRT terminal or terminal emulator
LDRV	Line Driver - connection to a CRT terminal or terminal emulator at a distance of over 40 feet using a line driver
MODM	Modem - phone line connection to a Personal Computer using modems

TABLE F.3 COM Port Device Selections

EOD DISPLAY	DESCRIPTION
NONE	No Device - the port is not being used
CRTMK	Use for these terminals or emulators with keyboard (Link MC5, Wyse WY-325ES, Esprit 250C Emulator or ADDS 260LF Emulator)
CRTM	Use for these terminals or emulators without keyboard (Link MC5, Wyse WY-325ES, Esprit 250C Emulator or ADDS 260LF Emulator)
PC	Use for Personal Computer with CMS / MSD
PCGD	Personal Computer Graphic Display (no longer used)
CRTCK	Use for these terminals with keyboard (Link MC-70, Wyse WY-370)
CRTC	Use for these terminals without keyboard (Link MC-70, Wyse WY-370)

F.2 ESPRIT 250C TERMINAL EMULATOR SETUP

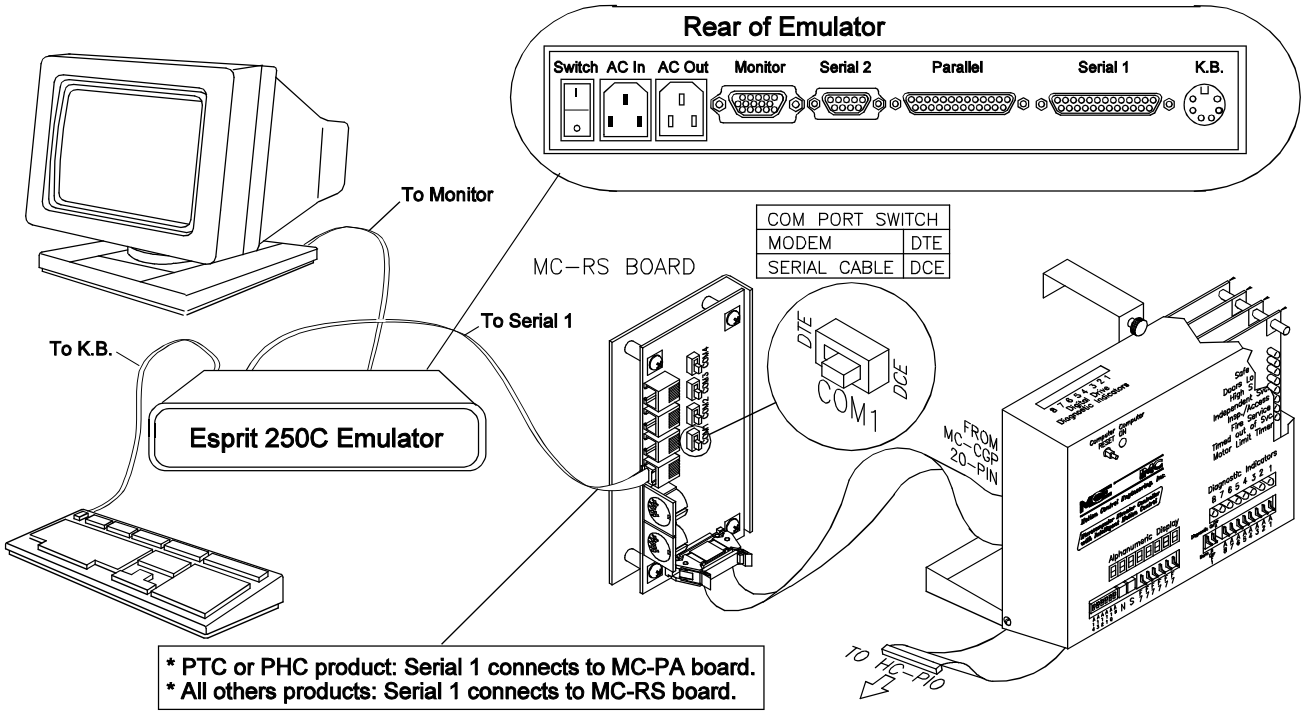
The ESPRIT 250C terminal emulator, along with a standard monitor and keyboard, is used in place of a traditional terminal.

F.2.1 CONTROLLER COM PORT SETTING (ESPRIT 250C)

Swing Panel Controller - Refer to Section F.1.1 *Controller COM Port* Settings, or to *Programming the Communication Ports* in Section 5 of the Car Controller manual (Section 4 of the Group Supervisor manual) for instructions on viewing and changing the controller Communication Port settings. For the ESPRIT 250C Emulator the COM port ***Device*** option must be set to ***CRTMK***.

PTC / PHC Controller - Refer to ***Peripheral Device*** in Section 5.4.9 Extra Features Menu Options for instructions on changing the controller Communication Port settings. For the ESPRIT 250C Emulator the ***COLOR CRT*** option must be set to ***NO***.

F.2.2 ESPRIT 250C TERMINAL EMULATOR CONNECTIONS



- Connect the monitor's signal cable to the Monitor jack (DB-15) on the rear of the emulator.
- Connect the keyboard cable to the K.B. jack (Din) on the rear of the emulator.
- Connect the controller's communication interface board (MC-RS or MC-PA) to the Serial 1 jack (DB-25) on the rear of the emulator using a C-CRT/MD/PA-x cable (x = length in feet).
- Connect the printer, if applicable, to the Parallel jack (DB-25) on the rear of the emulator.
- Connect AC In jack on the rear of the emulator to the Group controller's AC outlet using the cord supplied with the emulator.

F.2.3 ESPRIT 250C TERMINAL EMULATOR SETUP

The Esprit 250C Emulator has certain parameters which must be configured properly in order to function with MCE controllers. Disconnect the emulator from the controller while setting these parameters. In order to examine and/or modify these parameters, enter the Emulator setup mode. Press and hold the ***Alt*** key while pressing the ***Esc*** key.

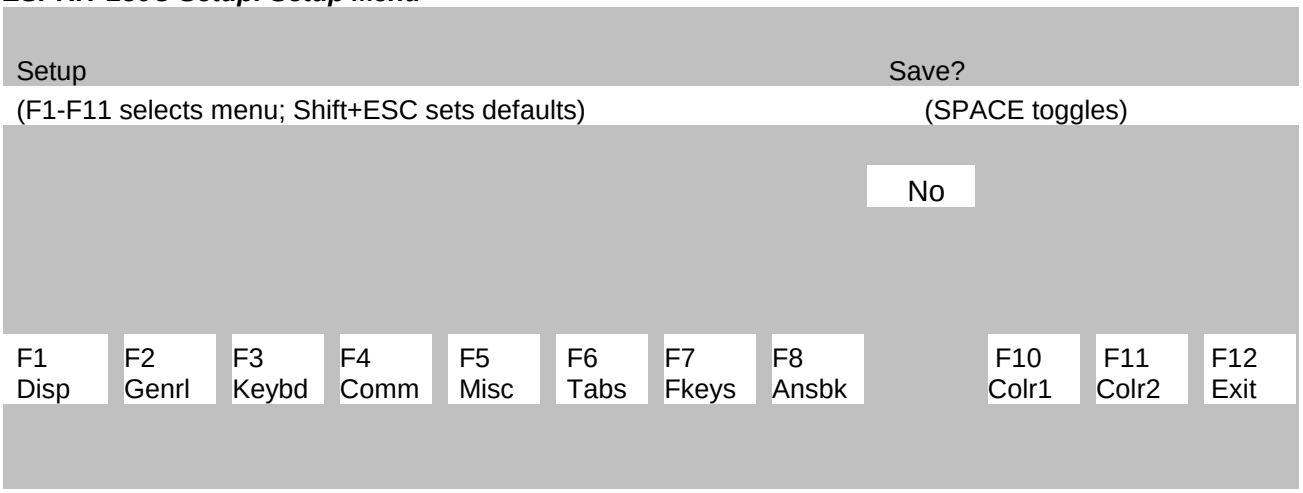
TABLE 1 Setup Mode Keyboard Commands

KEY	COMMAND FUNCTION
Arrow Keys	Used to select an item on the menu.
Space Bar	Press the space bar to change the setting

Step 1 With the emulator disconnected from the controller, hold down ***Alt*** and press ***Esc*** to put the terminal into Setup mode. The Esc key is in the upper left corner of the keyboard.

Step 2 From the Setup menu press ***Shift+Esc*** to default all parameters.

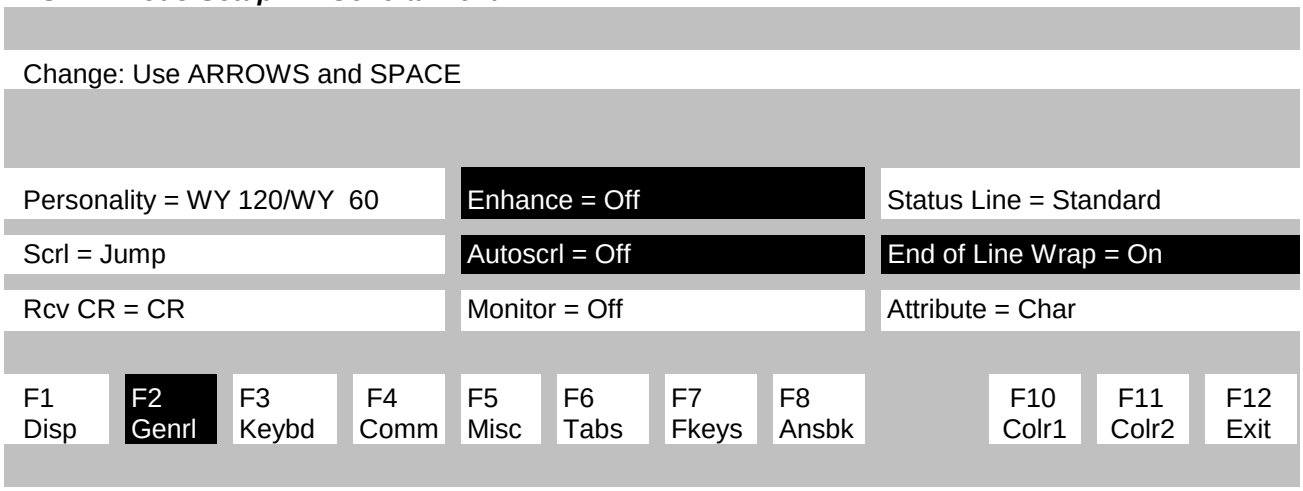
ESPRIT 250C Setup: Setup Menu



Step 3 From the Setup menu press **F2** to enter the General Menu. Use the **Arrow keys** to highlight **Enhance** and press the ***Spacebar*** to change the option to **Off**. Use the **Arrow keys** to highlight **Autoscrl** and press the ***Spacebar*** to change the option to **Off** .

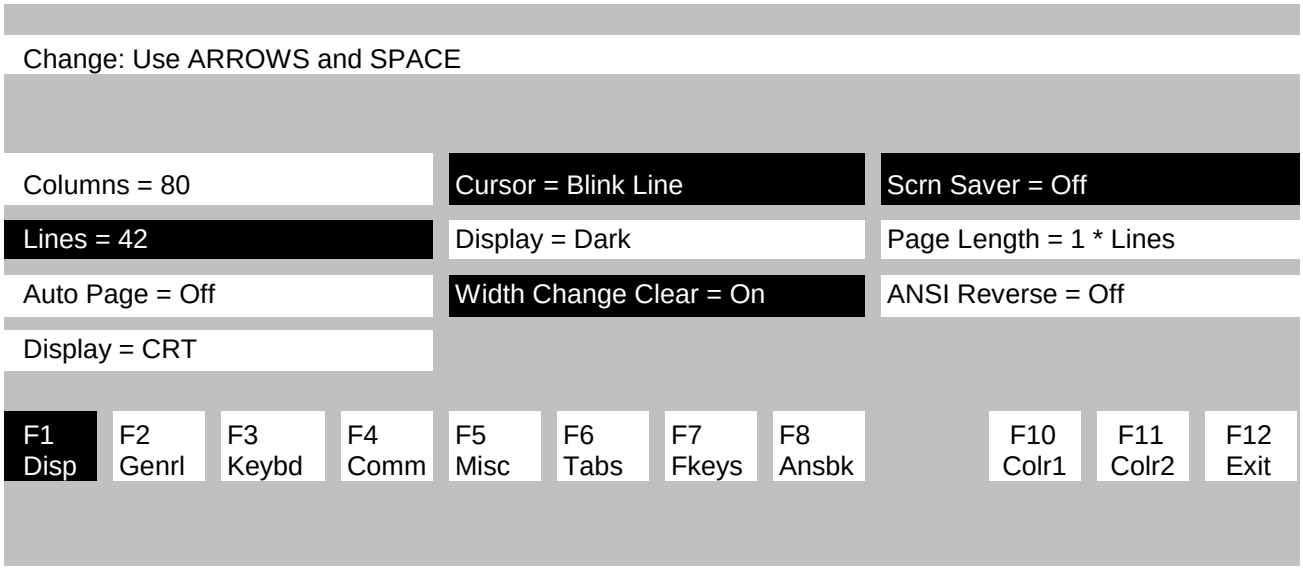
Step 4 Use the **Arrow keys** to highlight **End of Line Wrap** and press the ***Spacebar*** to change the option to **On**.

ESPRIT 250C Setup: F2 General Menu



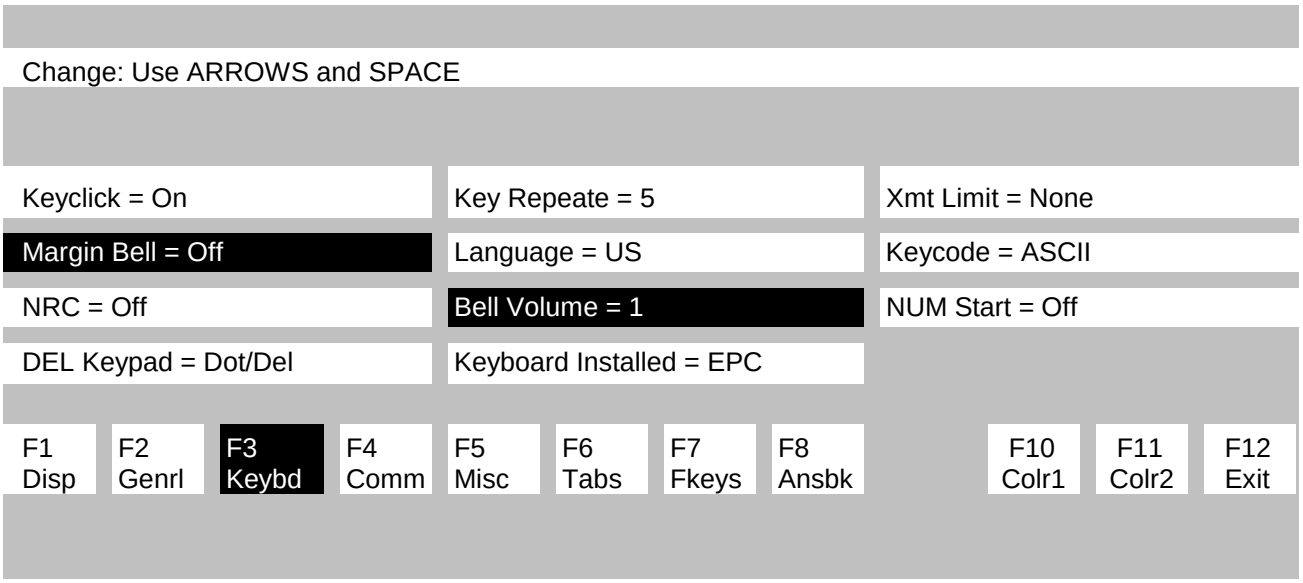
Step 5 Press **F1** to enter the Display Menu. Use the **Arrow keys** to highlight **Lines** and press the ***Spacebar*** to change the option to **42**. Use the **Arrow keys** and **Spacebar** to set **Cursor = Blink**, **Scrn Saver = Off** and **Width Change Clear = On**.

ESPRIT 250C Setup: F1 Display Menu



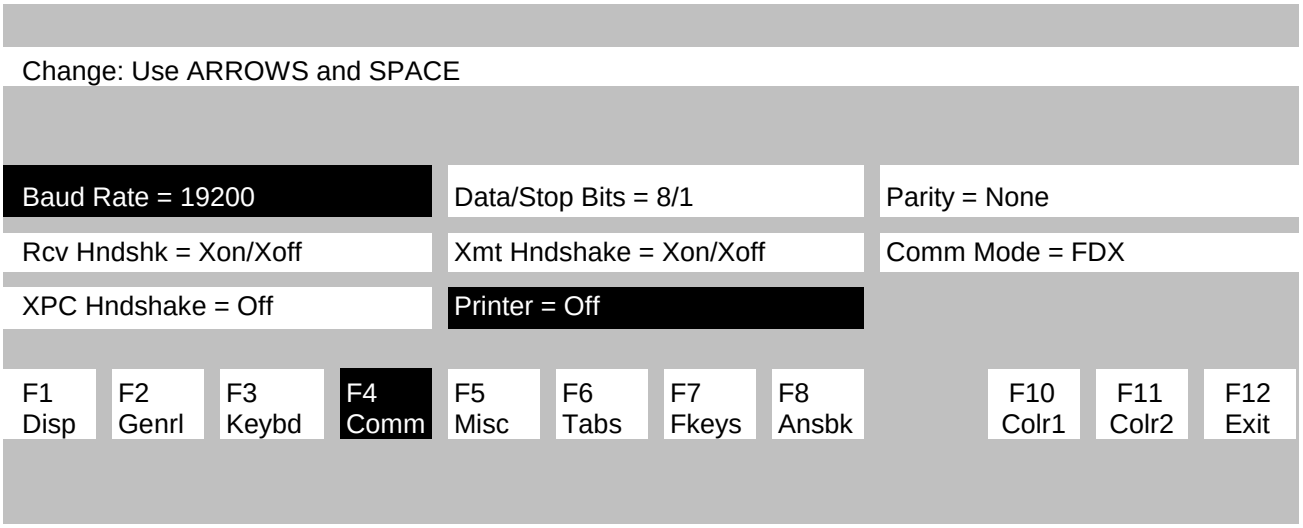
Step 6 Press **F3** to enter the Keybd Menu. Use the **Arrow keys** and ***Spacebar*** to set **Margin Bell = Off** and **Bell Volume = 1**.

ESPRIT 250C Setup: F3 Keybd Menu



Step 7 Press **F4** to enter the COMM Menu. Use the **Arrow keys** and ***Spacebar*** to set **Baud Rate = 19200** and **Printer = Off**.

ESPRIT 250C Setup: F4 COMM Menu



NOTE: If a line driver is used between the controller and the terminal emulator, set **Baud Rate = 9600**.

Step 8 Press **F10** to enter the Colr1 Menu. Use the **Arrow keys** and ***Spacebar*** to change colors for best viewing. The recommended colors are:

Normal = Light Blue Blink = Light Green Rev. = Yellow Dim = White

ESPRIT 250C Setup: F10 Colr1 Menu

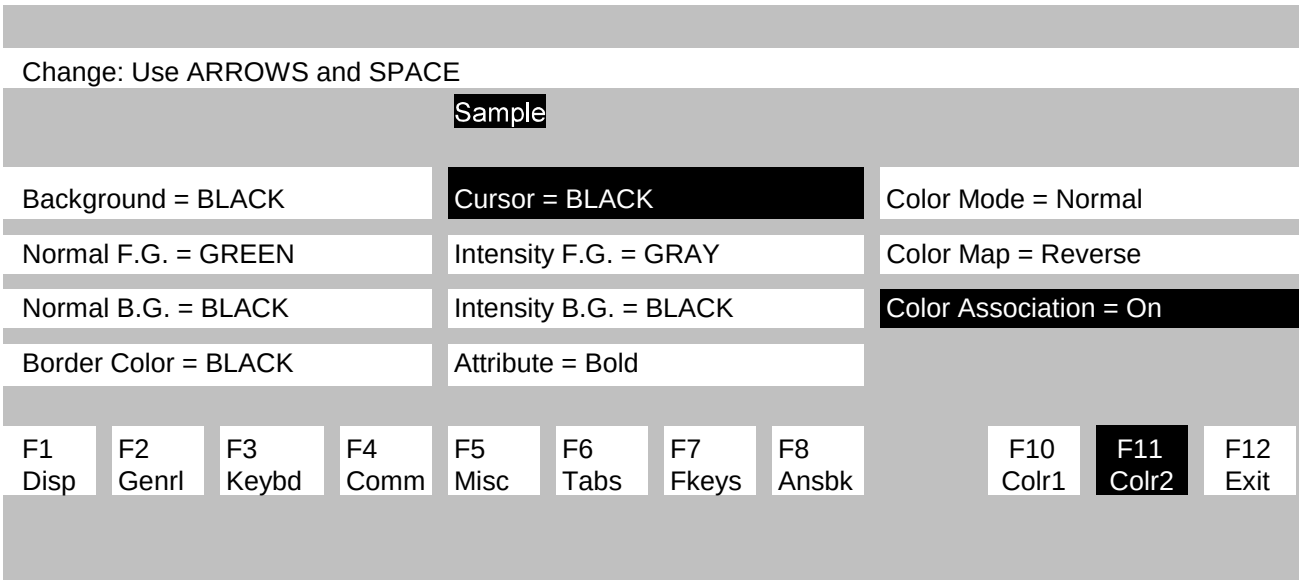
Change: Use Arrows, Space for Forground, Shift+Space for Background colors

Normal		Dim	
Normal =	Light Blue	Dim =	White
Blank =	White	Blank =	White
Blink =	Light Green	Blink =	White
Blink Blank =	White	Blink Blank =	White
Rev. =	Yellow	Rev. =	White
Rev. Blank =	White	Rev. Blank =	White
Rev. Blink =	White	Rev. Blink =	White
Rev. Blink Blank =	White	Rev. Blink Blank =	White
Undl. =	White	Undl. =	White
Undl. Blank =	White	Undl. Blank =	White
Undl. Blink =	White	Undl. Blink =	White
Undl. Blink Blank =	White	Undl. Blink Blank =	White
Undl. Rev. =	White	Undl. Rev. =	White
Undl. Rev. Blank =	White	Undl. Rev. Blank =	White
Undl. Rev. Blink =	White	Undl. Rev. Blink =	White
Undl. Rev. Blink Blank =	White	Undl. Rev. Blink Blank =	White

F1 Disp | F2 Genrl | F3 Keybd | F4 Comm | F5 Misc | F6 Tabs | F7 Fkeys | F8 Ansbk | F10 Colr1 | F11 Colr2 | F12 Exit

Step 9 Press **F11** to enter the Colr2 Menu. Use the **Arrow keys** and ***Spacebar*** to set **Cursor = BLACK** and **Color Association = On**.

ESPRIT 250C Setup: F11 Colr2 Menu



Step 10 Press **F12** to return to the Setup menu and press the ***Spacebar*** to change **Save** to **Yes**. Press **F12** to save the parameters and exit the Setup Menu.

F.2.4 PARALLEL PRINTER SETUP (ESPRIT 250C)

Printers are typically used to create a hard copy of system parameters, controller screens, or simple reports. MCE currently supports two Epson dot-matrix printers (Epson FX 85 and Epson LQ 570) and their equivalents. For nicer looking reports with the printer of your choice, MCE recommends using a PC connected to the controller. Central Monitoring System software or WYSE emulation software may be used to print screens from the PC. Contact the sales department at Motion Control Engineering for further information.

NOTE: The ESPRIT 250C emulator is set up by default with the printer option turned off. A serial interface card on the printer is not required with this emulator. Display screens wider than 80 columns will not be formatted properly. This model of emulator supports any IBM PC compatible printer.

Step 1 Press **F4** to enter the COMM Menu. Use the **Arrow keys** and ***Spacebar*** to set **Printer = Parallel**.

ESPRIT 250C Setup: F4 COMM Menu

Change: Use ARROWS and SPACE		
Baud Rate = 19200	Data/Stop Bits = 8/1	Parity = None
Rcv Hndshk = Xon/Xoff	Xmt Hndshake = Xon/Xoff	Comm Mode = FDX
XPC Hndshake = Off	Printer = Parallel	

F1 Disp	F2 Genrl	F3 Keybd	F4 Comm	F5 Misc	F6 Tabs	F7 Fkeys	F8 Ansbk		F10 Colr1	F11 Colr2	F12 Exit

Step 2 Press **F7** to enter the Fkeys Menu (Figure 9). Press **Ctrl** + **Print Scrn** (press and hold the Ctrl key, then press the Print Scrn key). To edit **Print =**, press the keys shown in **bold** in the following order:

Ctrl + **[** then **Shift** + **P** then **Ctrl** + **M** then **Ctrl** + **J**

The text should look as shown next to **Print =** in Figure 9. Press the **Enter** key on the ***numeric*** keypad to set **Unshifted Direction = Local**.

Step 3 Press the **down Arrow** key and repeat Step 2 to set **sPrint =** and **Shifted Direction = Local**.

Press **F12** to return to the Setup menu and press the ***Spacebar*** to change **Save** to **Yes**. Press **F12** to save the parameters and exit the Setup Menu.

ESPRIT 250C Setup: F7 Fkeys Menu

Change: Use ARROWS and SPACE		
Unshifted Direction = Local	Shifted Direction = Local	
Print =	▒P$^{C}_{R}$$^{L}_{F}$	
sPrint =	▒P$^{C}_{R}$$^{L}_{F}$	

F1 Disp	F2 Genrl	F3 Keybd	F4 Comm	F5 Misc	F6 Tabs	F7 Fkeys	F8 Ansbk		F10 Colr1	F11 Colr2	F12 Exit

Step 4 Verify that the emulator is connected to the MCE controller through the rear port labeled SERIAL 1.

Step 5 Verify that the printer's DIP switches are set correctly (refer to Table below).

Parallel Printer DIP Switch Settings

PRINTER	EPSON FX 85		EPSON LQ 570	
SETTING	**ON**	**OFF**	**ON**	**OFF**
DIP SW1	6, 7, 8	1, 2, 3, 4, 5	1, 2, 3, 4	5, 6, 7, 8
DIP SW2	1	2, 3, 4		1, 2, 3, 4

Step 6 Connect the 25-pin male DB connector end of the parallel printer cable into the PARALLEL port located in the rear of the emulator. Connect other end of the parallel printer cable into the Centronics connector in the rear of the printer. Use the clips on the connector to secure the cable.

Step 7 Feed the paper through the paper guide and line up the perforation with the top of the print head. Refer to the printer manual for operation and proper care of the printer.

Step 8 Plug the printer into a 120VAC outlet and turn on power to both the emulator and printer.

F.2.5 PRINTING SCREENS WITH THE ESPRIT 250C TERMINAL

To print the screen being viewed follow the steps below.

Step 1 Verify printer is connected to the CRT.

Step 2 Turn on the power to the printer and load it with paper.

Step 3 Press the Print Screen key on the keyboard.

F.3 ADDS 260LF TERMINAL EMULATOR SETUP

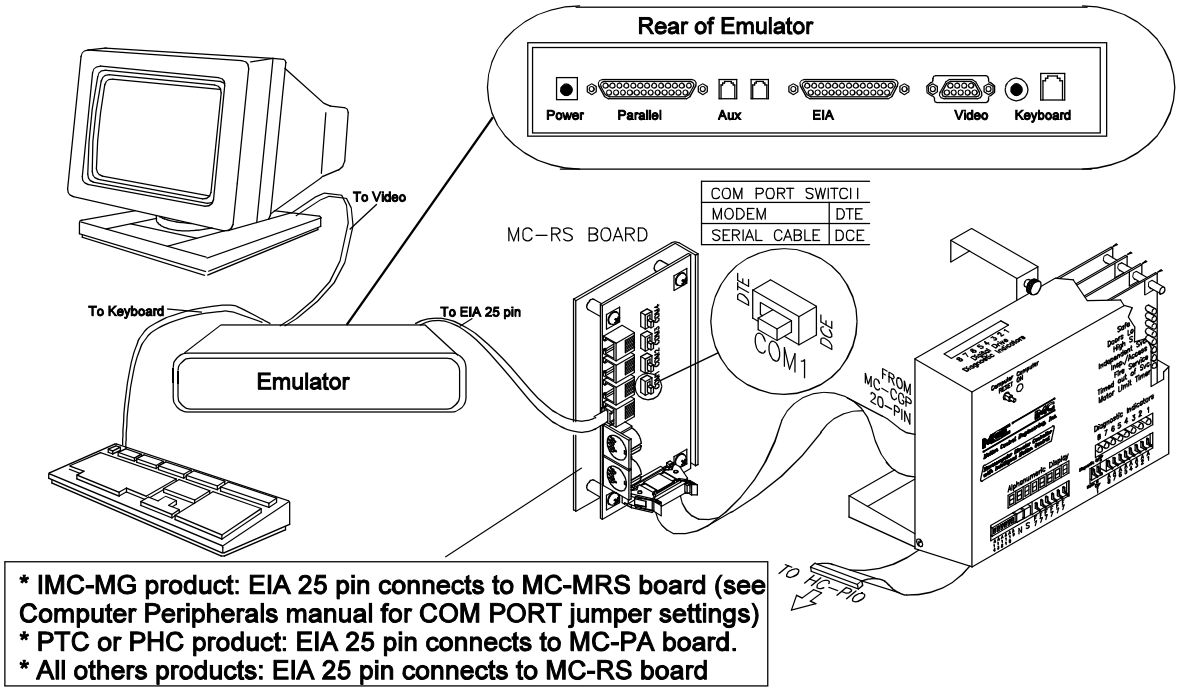
The ADDS 260LF terminal emulator, along with a standard monitor and keyboard, is used in place of a traditional terminal.

F.3.1 CONTROLLER COM PORT SETTINGS (ADDS 260LF)

Swing Panel Controller - Refer to Section F.1.1 *Controller COM Port Settings*, or to *Programming the Communication Ports* in Section 5 of the Car Controller manual (Section 4 of the Group Supervisor manual) for instructions on viewing and changing the controller Communication Port settings. For the ADDS 260LF Emulator, the COM port ***Device*** option must be set to ***CRTMK***.

PTC / PHC Controller - Refer to ***Peripheral Device*** in Section 5.4.9 Extra Features Menu Options for instructions on changing the controller Communication Port settings. For the ADDS 260LF Emulator, the ***COLOR CRT*** option must be set to ***NO***.

F.3.2 ADDS 260LF TERMINAL EMULATOR CONNECTIONS



- Connect the monitor's signal cable to the Video jack (DB-15) on the rear of the emulator.
- Connect the keyboard cable to the Keyboard jack on the rear of the emulator.
- Connect the controller's communication interface board (MC-RS or MC-PA) to the EIA jack (DB-25) on the rear of the emulator using a C-CRT/MD/PA-x cable (x = length in feet).
- Connect the printer, if applicable, to the Parallel jack (DB-25) on the rear of the emulator.
- Connect Power jack on the rear of the emulator to the Group controller's AC outlet using the cord supplied with the emulator.

F.3.3 ADDS 260LF TERMINAL EMULATOR SETUP

Step 1 Disconnect the cable connecting the emulator to the elevator communication board.

Step 2 Hold down the ***Ctrl key*** and press ***Scroll Lock*** to enter the setup mode. The F1 Screen comes up automatically.

Step 3 Press the ***Print Screen*** key to access the Print Exec Screen.

Step 4 Using the right arrow key, move the cursor right to highlight Default Terminal. Press ***Enter***.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	**Print Exec**

Parameters

Save Terminal	Recall Terminal	**Default Terminal**
Save Session	Recall Session	Default Session
Reset Terminal	Rest Session	Reset Ports
Clear Screen	Default Session UDKs	

Choices

Use Enter Key To Execute Action

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice	Exit : Esc Key

The terminal will default with all required settings for a serial connection to MCE controllers. After the unit has been defaulted, cursor position is highlighted, default choices are in bold. Verify the following parameters, press the ***Pause/Break*** key to save the settings.

Step 5 Press the ***F1 key***. On the **F1 Quick** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

Emulation = Wyse-60	EIA Baud Rate = 19200	EIA Data Format = 8/1/N
Enhanced = Off	Aux Baud Rate = 9600	Aux Data Format = 8/1/N
Comm Mode = Full Duplex	Language = U.S.	Sessions = One
Host/Printer = EIA/None(SEE NOTE)		

Choices

ADDS-VP	**Wyse-60**	Wyse-325	Wyse-50+	Wyse-350	PC-Term	TVI-925
VT-300-7	VT-300-8	Intecolor	VT-200-7	VT-200-8	VT-100	SCO Console
AT386						

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice	Exit : Esc Key

NOTE: Set Host/Printer to EIA/Para only if you are connecting a parallel printer. If not, set Host Printer to EIA/None. With no printer connected, the EIA/Para setting may cause your emulator to generate an error (TRANSMIT CONDITION PARALLEL PRINTER NO PRINTER) and be unable to communicate with the Controller.

NOTE: If a line driver is used between the controller and the terminal emulator, set the baud rate to 9600.

Step 6 On the **F2 Genrl** Menu verify the following Parameters.

F1 Quick	**F2 Genrl**	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

Emulation = Wyse-60	Enhanced = Off	Auto Wrap = On
Auto Font Load = On	Auto Page = Off	Curs Dir = Left to Right
Auto Scroll = On	Monitor Mode = Off	Screen Saver = Off
Bell Volume = 03	Warning Bell = On	Bell Length = 140 ms
Sessions = One		

Choices

ADDS-VP	**Wyse-60**	Wyse-325	Wyse-50+	Wyse-350	PC-Term	TVI-925
VT-300-7	VT-300-8	Intecolor	VT-200-7	VT-200-8	VT-100	SCO Console
AT386						

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice	Exit : Esc Key

NOTE: The Screen Saver function will only blank the screen after the specified time set if the emulator loses communication with the controller. Therefore, turn off the VGA monitor (and only the VGA monitor) when not in use. Screen Saver settings are Off, 2, 5,15 and 30 min.

Step 7 On the **F3 Displ** Menu verify the following Parameters.

F1 Quick	F2 Genrl	**F3 Displ**	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

Display Cursor = Off	Cursor = Blink Block	Auto Adjust Cursor = Off
Page Length = 42	Screen Length = 44 Lines	Screen Video = Normal
Columns = 80	Scroll = Jump	Width Change Clear = On
Speed = Fast	**Palette Number = Soft 1**	

Choices

Off ON

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice	Exit : Esc Key

Step 8 On the **F4 Kybd** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

Language = U.S.	Char Set = Multinational	Code Page = CP 437
Key Mode = ASCII	Keyclick = On	Key Repeat = On
Key Rate = 20 cps	Margin Bell = Off	Key Lock = Caps
Caps Lock = Toggle	Num Lock = Toggle	

Choices

U.S.	U.K.	Danish	Finnish	French	German	Norwegian
Portuguese	Spanish	Swedish	Dutch	Belgian-Flemsh	Fr-Canadian	Italian
Latin-American	Swiss-German	Swiss-French				

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice
	Exit : Esc Key

Step 9 On the **F5 Keys** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	**F5 Keys**	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameter

Enter Key = < CR >	Return Key = < CR >	Backspace = < BS > / < DEL >
Alt Key = Funct	Disconnect = Pause	Desk Acc = Ctrl←
Pound Key = U.S.	Return Key Repeat = Off	UDKs = User Dependent

Choices

< CR >	< CR >< LF >	< TAB >

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice
	Exit : Esc Key

Step 10 On the **F6 Ports** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	**F6 Ports**	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

EIA Baud Rate = 19200	EIA Data Format = 8/1/N	EIA Parity Check = Off
Aux Baud Rate = 9600	Aux Data Format = 8/1/N	Aux Parity Check = Off
EIA Xmt = No Protocol	EIA Recv = Xany - Xoff (XPC)	EIA Xmt Pace = Baud
Aux Xmt = Xon - Xoff	Aux Recv = No Protocol	Aux Xmt Pace = Baud

Choices

110	150	300	600	1200	1800	2000	2400	4800	9600
19200	38400	57600	76800	115200					

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice
	Exit : Esc Key

Step 11 On the **F7 Host** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	**F7 Host**	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

Comm Mode = Full Duplex	Local = Off	Null Suppress = On
Break = 250 ms	Modem Control = Off	Disconnect = 2 sec
Recv < CR > = < CR >	Recv < DEL > = Ignore	Send ACK = On
Alt Input Data = Off	Send Line Term = < US >	Send Block Term = < CR >

Choices

Full Duplex Half Duplex Full Block Half Block

Select

← ↑ → ↓ : Parameter Enter/S-Enter : Next/Prev Choice Exit : Esc Key

Step 12 On the **F8 Print** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	**F8 Print**	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

Prnt Line Term = < CR > < LF >	Prnt Block Term = < CR >	Secondary Recv = Off

Choices

< US > **< CR > < LF >**

Select

← ↑ → ↓ : Parameter Enter/S-Enter : Next/Prev Choice Exit : Esc Key

Step 13 On the **F9 Emul** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	**F9 Emul**	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

Attribute = Character	Page Edit = Off	WPRT Intensity = Normal
WPRT Reverse = Off	WPRT Underline = Off	WPRT Blink = Off
Display NV Labels = Off	Save Labels = On	Char Set = Multinational
Status Lines = Extended	Fkey Speed = Normal	WP-Graphics = On

Choices

Character Line Page

Select

← ↑ → ↓ : Parameter Enter/S-Enter : Next/Prev Choice Exit : Esc Key

Step 14 On the **F10 Tabs** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	**F10 Tabs**	F11 AnsBk	F12 Prog	Print Exec

Parameters

Auto Init Tabs = Off | Default Tabs

10 20 30 40 50 60

70 80 90 100 110 120 130

Choices

Off On

Select

← ↑ → ↓ : Parameter | Enter/S-Enter : Next/Prev Choice | Exit : Esc Key

Step 15 On the **F11 AnsBk** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	**F11 AnsBk**	F12 Prog	Print Exec

Parameters

Answerback Mode = Off | Answerback Conceal

Answerback Message:

Bytes Remaining : 0542

Choices

Off On

Select

← ↑ → ↓ : Parameter | Enter/S-Enter : Next/Prev Choice | Exit : Esc Key

Step 16 On the **F12 Prog** Menu verify the following Parameters.

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	F6 Ports	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	**F12 Prog**	Print Exec

Parameters

Key = F1	Program = F Key	Key Dir = Host

Text:

Label:

Bytes Remaining : 0542

Choices

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16

Select

← ↑ → ↓ : Parameter	Enter/S-Enter : Next/Prev Choice	Exit : Esc Key

Step 17 If you are not setting up a modem, but are setting up a parallel printer, go to step 21. If you are setting up a modem, continue to step 18. Otherwise, press ***Esc*** then ***Y*** to save.

Step 18 If you are setting up a modem, change the following highlighted settings when connecting with a modem.

F6 Ports *EIA Xmt = Xon - Xoff*
EIA Recv = No Protocol

F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	**F6 Ports**	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

EIA Baud Rate = 19200	EIA Data Format = 8/1/N	EIA Parity Check = Off
Aux Baud Rate = 9600	Aux Data Format = 8/1/N	Aux Parity Check = Off
EIA Xmt = Xon - Xoff	**EIA Recv = No Protocol**	EIA Xmt Pace = Baud
Aux Xmt = Xon - Xoff	Aux Recv = No Protocol	Aux Xmt Pace = Baud

Step 19 Change the following parameters when using line drivers, set EIA Baud Rate to 9600.

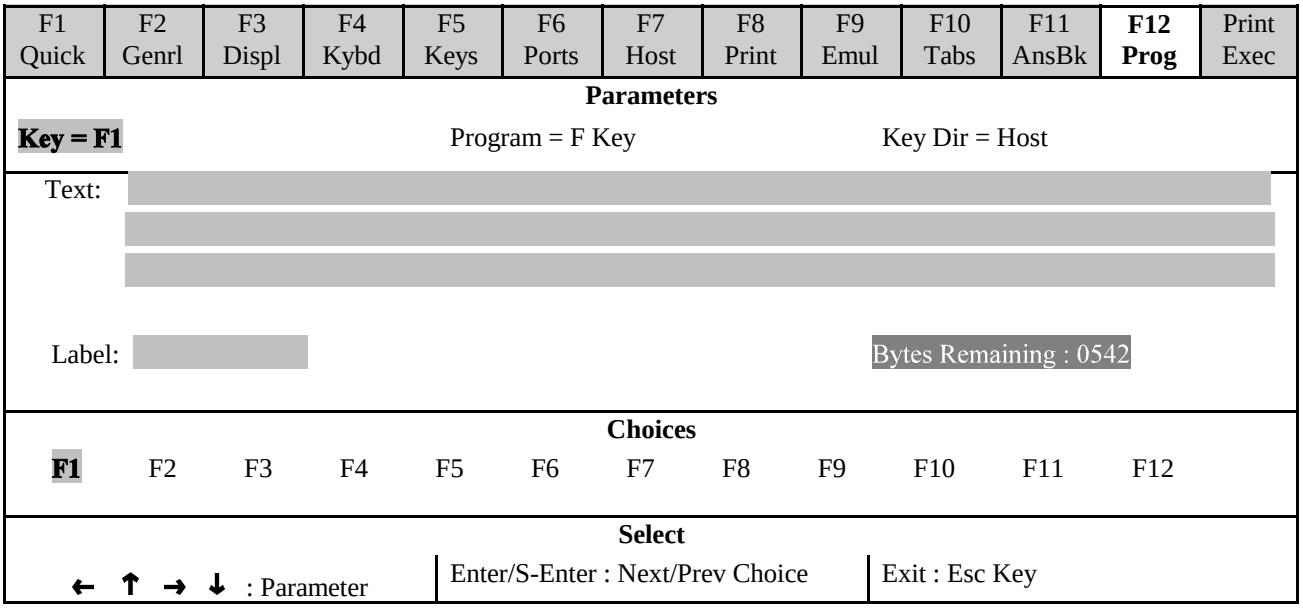
F1 Quick	F2 Genrl	F3 Displ	F4 Kybd	F5 Keys	**F6 Ports**	F7 Host	F8 Print	F9 Emul	F10 Tabs	F11 AnsBk	F12 Prog	Print Exec

Parameters

EIA Baud Rate = 9600	EIA Data Format = 8/1/N	EIA Parity Check = Off
Aux Baud Rate = 9600	Aux Data Format = 8/1/N	Aux Parity Check = Off
EIA Xmt = No Protocol	EIA Recv = Xon - Xoff (XPC)	EIA Xmt Pace = Baud
Aux Xmt = Xon - Xoff	Aux Recv = No Protocol	Aux Xmt Pace = Baud

Step 20 If you are connecting a parallel printer go to Step 21. If you are not connecting a parallel printer, press the ***Esc*** Key, then press ***Y*** to save.

Step 21 Follow these instructions to connect a parallel printer. Go to the **F12 Prog** screen.



On the ***F12 Prog*** screen, you can assign special programming to different keys. All data that is sent to the printer with a Print Screen function will format in a basic 80-column mode. Print screen features will not print screens wider than 80 columns without offsetting the format, making the page difficult to read. Basic formatting also does not print the last 3 to 4 lines of information that is on the screen. To improve the print function the following steps can be taken.

Step 1 Cursor right one position until the ***Program = F Key*** is highlighted.

Step 2 Press the ***Spacebar*** four times to change to ***=Edit Key***.

Step 3 Cursor ***Left*** one position until ***Key = TAB*** is highlighted.

Step 4 Hold down the ***Shift*** key and press the ***Spacebar*** twice change to ***=Print***.

Step 5 Cursor down one time to the ***Text*** edit area. Press the ***Shift +Backspace*** key to delete any text or characters before entering the following.

Step 6 Type the following keys in the exact order as shown. Keys indicated with a "+" require holding the first key listed and pressing the second one.

Ctrl+[Shift+P Ctrl+M Ctrl+J

the text entered will look similar to this: **P** ᶜR ᴸF

Step 7 Cursor up once. Cursor Right twice to highlight ***Key Dir***, if not set to ***=All***, hold down the ***Shift*** key and press the ***Spacebar*** to change to ***=All***.

Step 8 Change the Host/Printer option on the F1 screen to EIA/Para.

Step 9 Press the ***Esc*** key and then the letter ***Y*** to save your changes.

Step 10 Make sure that your F1 screen Host/Printer setting is EIA/Para.

When you are finished configuring your emulator, reconnect the cable between the emulator and the elevator controller.

F.3.4 ADJUSTING PALETTE COLORS

It is a good idea to adjust the colors used by the emulator to display MCE screens on the monitor so that it is easier to see if a flag is ON or OFF when viewing diagnostics.

Step 1 While viewing any of the MCE screens, press and hold the ***Ctrl*** key and then press the ***left arrow***. This brings up a menu for the desktop accessaries.

Step 2 Press ***F6*** to change the palette colors. Use the ***right*** and ***left arrow*** keys to adjust the foreground and background colors. Use the ***up*** and ***down arrow*** keys to select the option you want to change colors on.

The color table chart below shows the default colors and the colors MCE recommends for easy viewing. The highlighted MCE Recommended settings are different from the default settings.

Step 3 When finished, press ***Esc*** to exit the desk accessories.

Changes to these colors must be saved or they will be lost when the unit is powered off. To save your color settings:

Step 4 Disconnect the cable between the emulator and the elevator controller.

Step 5 Press ***Ctrl*** and ***Scroll Lock*** to enter setup mode.

Step 6 Press the ***Pause/Break*** key to save the settings.

Step 7 Reconnect the cable between the emulator and the elevator controller.

Color Table

Attributes	Default Setting Fore/Back	MCE Recommended Fore/Back
Normal	Green / Black	Light Gray / Black
Rev	Black / Green	Light Green **/** Blue
Int	Yellow / Black	Green / Black
Rev, Int	Black / Yellow	Black / Yellow
Und	Light Red / Black	Light Red / Black
Und, Rev	Black / Light Red	Black / Light Red
Und, Int	Light Blue / Black	Light Blue / Black
Und, Rev, Int	Black / Light Blue	Black / Light Blue

F.3.5 TROUBLESHOOTING

If you experience problems using your terminal emulator, please refer to the following table.

Symptom	Cause	Solution
Keyboard not responding to keys pressed.	Possible locked keyboard	If the upper left corner of the display screen shows the word LOCK use the following keystrokes to unlock the keyboard: Shift+Scroll Lock
Screen displays message: “Transmit condition EIA port XOFF To cancel type (Shift + CTRL + Tab)”	Emulator is connected to controller when attempting to save changes to the setup.	Turn off the emulator and wait 5 seconds. Do not attempt to make changes in the emulator setup while the emulator is connected to the controller. Turn the emulator back on.
Screen displays message “Transmit Condition Parallel Port No Printer.”	Printing was attempted with no active printer connected to the emulator.	Enter setup and change the F1 screen, Host/Printer setting to EIA/None if a printer is not being used.

F.4 LINK MC5 MONOCHROME TERMINAL SETUP

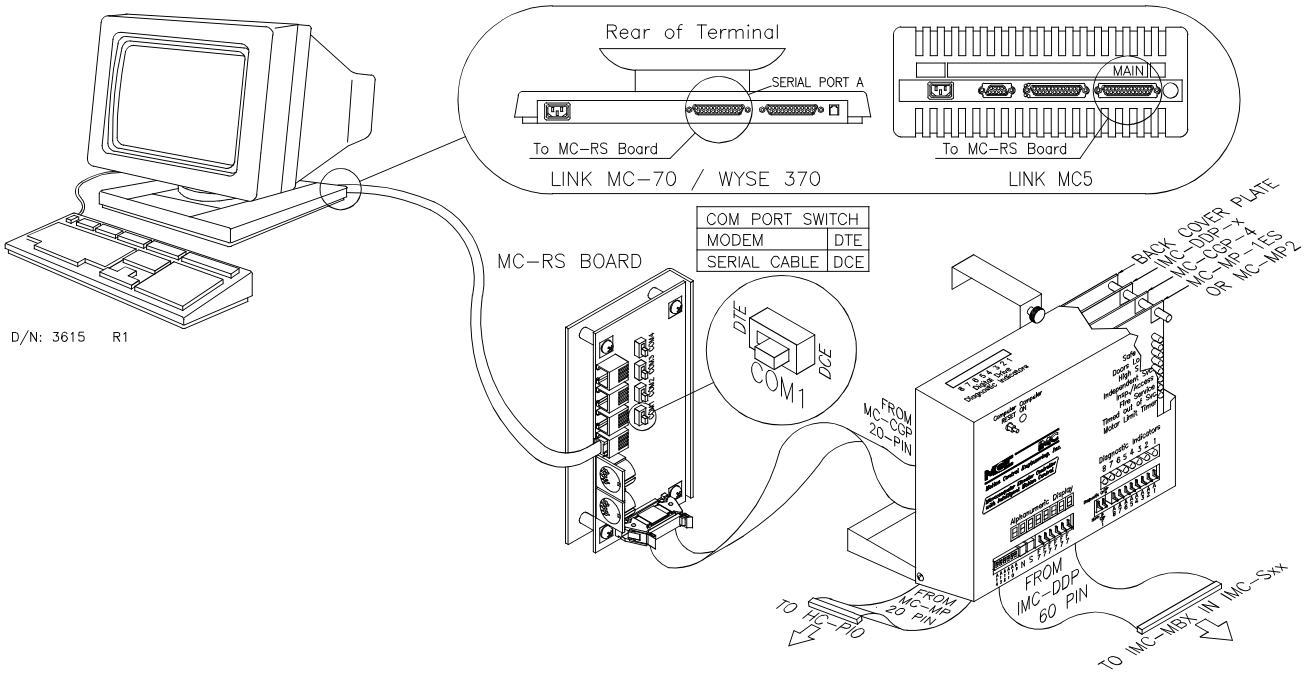
If you are using a Link MC5 monochrome terminal to configure the elevator controller, set the terminal up as described in this section.

F.4.1 CONTROLLER COM PORT SETTING (LINK MC5)

Swing Panel Controller - Refer to Section F.1.1 *Controller COM Port* Settings, or to *Programming the Communication Ports* in Section 5 of the Car Controller manual (Section 4 of the Group Supervisor manual) for instructions on viewing and changing the controller Communication Port settings. For the LINK MC5 terminal the COM port ***Device*** option must be set to ***CRTMK*** (with keyboard) or ***CRTM*** (without keyboard).

PTC / PHC Controller - Refer to ***Peripheral Device*** in Section 5.4.9 Extra Features Menu Options for instructions on changing the controller Communication Port settings. For the LINK MC5 terminal the ***COLOR CRT*** option must be set to ***NO***.

F.4.2 LINK MC5 MONOCHROME TERMINAL CONNECTIONS



- Connect the DB-25 (25-pin plug) of the signal cable, C-CRT/MD/PA-x (x = length in feet) into the MAIN jack on the rear of the terminal. Use the screws on the cable hood to secure the cable to the terminal.
- Plug the RJ-11 plug of the signal cable into a COM port jack (usually COM 1) on the controller's communication interface board (MC-RS or MC-PA).
- If the terminal is connected directly to the communication interface board, set the COM port switch to DCE. If the terminal is connected to the communication interface board through a modem or line driver, set the COM port switch to DTE.
- Connect the printer, if applicable, to the Parallel jack (DB-25) on the rear of the terminal.
- Connect the AC jack on the rear of the terminal to the controller's AC outlet using the cord supplied with the terminal.

F.4.3 LINK MC5 TERMINAL SETUP

Setup Mode Keyboard Commands

KEY	COMMAND FUNCTION
↑ or ↓	Used to select the operating parameter to be set
← or →	Used to change the active setting for the selected operating parameter.
TAB	Moves the highlight cursor to the opposite parameter column.
P	Toggles the communication port between Main and Auxiliary.
D	Restores the default settings.
S	Saves current settings in nonvolatile memory. The settings stored in nonvolatile memory are used at power-up.
R	Restores the most recently saved settings.
E	Exits setup mode.

Step 1 Disconnect the cable connecting the terminal to the elevator controller.

Step 2 Press and hold the ***Shift*** key while pressing the ***Select*** key to enter setup mode.

Step 3 With the CRT disconnected from the Controller, press ***D*** to default the CRT terminal parameters. (You should see the message “Setup Defaulted”).

Step 4 Use the *arrow keys* to set the following **highlighted** General Setup parameters:

General Setup Screen

Link MC5	General Setup		Ver. X.XX
Emulation	**Wyse 60**	Auto Page	Off
Enhancements	Off	Warning Bell	Off
Virtual Terminal	Off	Margin Bell	Off
Scroll Style	Jump	Bell Sound	1
Auto Scroll	On	Block Terminator	US/CR
Auto Wrap	On	**Send ACK**	**On**
Received CR	CR	Monitor Mode	Off
	Setup Defaulted		

Step 5 Press the ***F2*** key to go to the Communications Setup screen.

Step 6 Use the *arrow keys* to set the following **highlighted** Communications Setup parameters. NOTE: Set Main baud rate to 19200 for everything *except Line Drivers*. For Line Drivers the baud rate should be set to *9600*. If a printer is to be used, set the lighter **highlighted** parameters.

Communications Setup Screen

Link MC5	Communications Setup	Ver. X.XX	
Main Baud	**19200**	**Aux Baud**	**9600**
Main Data/Parity	8/None	Aux Data/Parity	8/None
Main Stop bits	1	Aux Stop Bits	Off
Main Rcv Hndsk	XON/XOFF	**Aux Rcv Hndsk**	**None**
Main Xmt Hndsk	None	**Aux Xmt Hndsk**	**XON/XOFF**
Main Rcv Level	50%	Aux Rcv Level	50%
Ignore 8th bit	Off	Aux Port	RS232
Comm Mode	Full Duplex	Aux Interface	RS232
Disconnect	2 Sec	**Printer**	**Parallel**

Step 7 Press the ***F3*** key to go to the Display Setup screen.

Step 8 Use the *arrow keys* to set the following **highlighted** Display Setup parameters:

Display Setup Screen

Link MC5	Display Setup	Ver. X.XX	
Columns	80	Background	Dark
80/132 Clear	On	Attributes	Char
Lines	**42**	**Wprt Intensity**	**Normal**
Pages	1xLines	Wprt Reverse	Off
Status Line	Ext	Wprt Underline	Off
Cursor Style	**Blink Line**	Refresh Rate	60Hz
Cursor	**Off**	Pound Char	US
Screen Saver	15 Min	Auto Font Load	On

Step 9 Press the ***S*** key to save the changes.

Step 10 If you are installing a printer. Press ***F6*** to go to the Function Keys Setup screen to make the print screen key operational.

10a Press both the ***Ctrl*** and ***Print screen*** keys simultaneously to change "sF1=" and "F1=", to "sPRINT=" and "PRINT=."

10b Use the *numeric keypad* ***Enter*** key to toggle "Remote" to "Local."

Function Key Setup Screen

Link MC5	Function Keys Setup		Ver. X.XX
		Direction:	Remote
sF1 =			
F1 =			
Host is on Main	Port	F1 Gen F2 Comm F3 Disp F4 Kbd F5 ANSI	F6 Fkeys F7 Tabs F8 Ansbk F9 Exit
CTRL+Key . . Select Key arrow keys . . Select Field END/F13 . . . Default Keys	← . . . . . .Erase Char HOME/F14 . Erase Field ENTER . . . . .Change Dir		

Step 11 Press ***F9*** to exit the setup mode.

When you are finished configuring your terminal, reconnect the cable between the terminal and the elevator controller.

F.5 WYSE WY-325ES COLOR TERMINAL SETUP

If you are using a Wyse WY-325S color terminal to configure your elevator controller, follow the instructions in this section.

F.5.1 CONTROLLER COM PORT SETTING (WYSE WY-325ES)

Swing Panel Controller - Refer to Section F.1.1 *Controller COM Port* Settings, or to *Programming the Communication Ports* in Section 5 of the Car Controller manual (Section 4 of the Group Supervisor manual) for instructions on viewing and changing the controller Communication Port settings. For the Wyse WY-325ES color terminal the COM port ***Device*** option must be set to ***CRTMK*** (with keyboard) or ***CRTM*** (without keyboard).

PTC / PHC Controller - Refer to ***Peripheral Device*** in Section 5.4.9 Extra Features Menu Options for instructions on changing the controller Communication Port settings. For the Wyse WY-325ES color terminal the ***COLOR CRT*** option must be set to ***NO***.

F.5.2 WYSE WY-325ES COLOR TERMINAL CONNECTIONS

- Connect the DB-25 (25-pin plug) of the signal cable, C-CRT/MD/PA-x (x = length in feet) into the SERIAL 1 jack on the rear of the terminal. Use the screws on the cable hood to secure the cable to the terminal.
- Plug the RJ-11 plug of the signal cable into a COM port jack (usually COM 1) on the controller's communication interface board (MC-RS or MC-PA).
- If the terminal is connected directly to the communication interface board, set the COM port switch to DCE. If the terminal is connected to the communication interface board through a modem or line driver, set the COM port switch to DTE.
- Connect the printer, if applicable, to the Parallel jack on the rear of the terminal.
- Connect the AC jack on the rear of the terminal to the controller's AC outlet using the cord supplied with the terminal.

F.5.3 WYSE WY-325ES COLOR TERMINAL SETUP

Step 1 Disconnect the cable between the terminal and the elevator controller before proceeding with setting up the terminal.

Step 2 Press and hold the ***Shift*** key while pressing the ***Select*** key to enter setup mode.

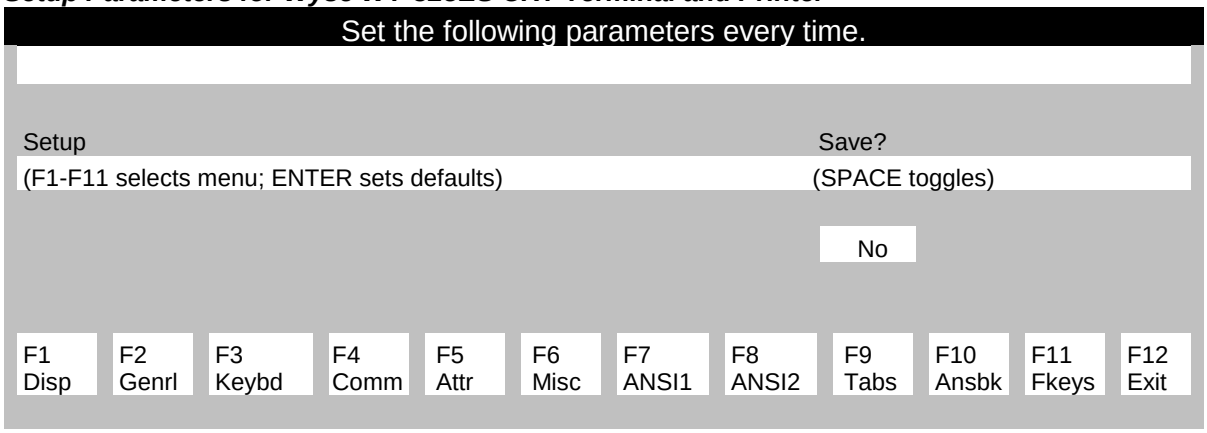
NOTE: If the CRT terminal will not enter Setup mode, try powering the terminal ON while holding down the ***Select*** key until the screen is displayed (about 5 seconds).

Setup Mode Keyboard Commands

KEY	COMMAND FUNCTION
↑ or ↓	Used to select an item on the menu.
← or →	Used to select items on the Menu Bar (top line).
SPACE BAR	Press the space bar to change the setting.

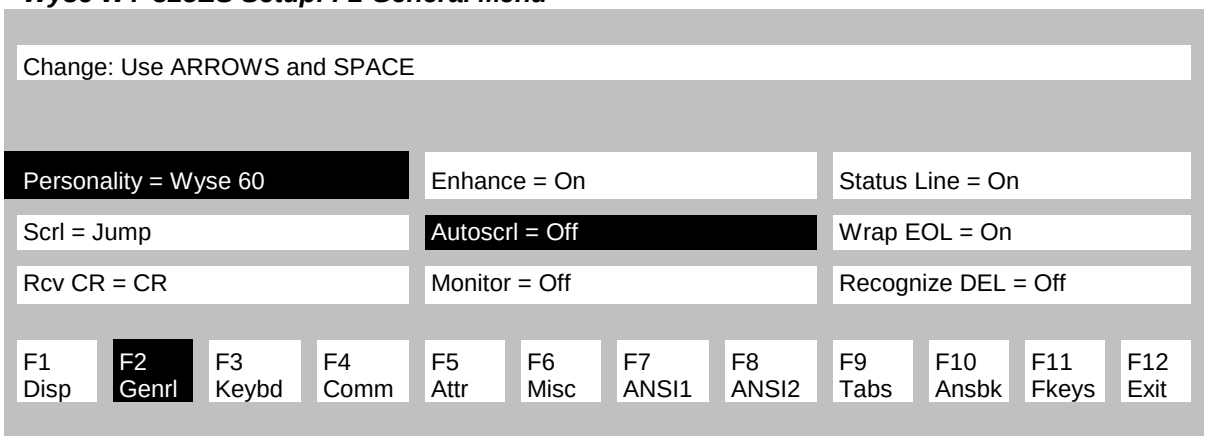
Step 3 With the CRT disconnected from the Controller, press the ***Enter*** key to Default all parameters.

Setup Parameters for Wyse WY-325ES CRT Terminal and Printer



Step 4 Press ***F2*** to enter the General Menu. Use the ***arrow keys*** to highlight Personality and press the ***Spacebar*** to change the option to **"Wyse 60."**

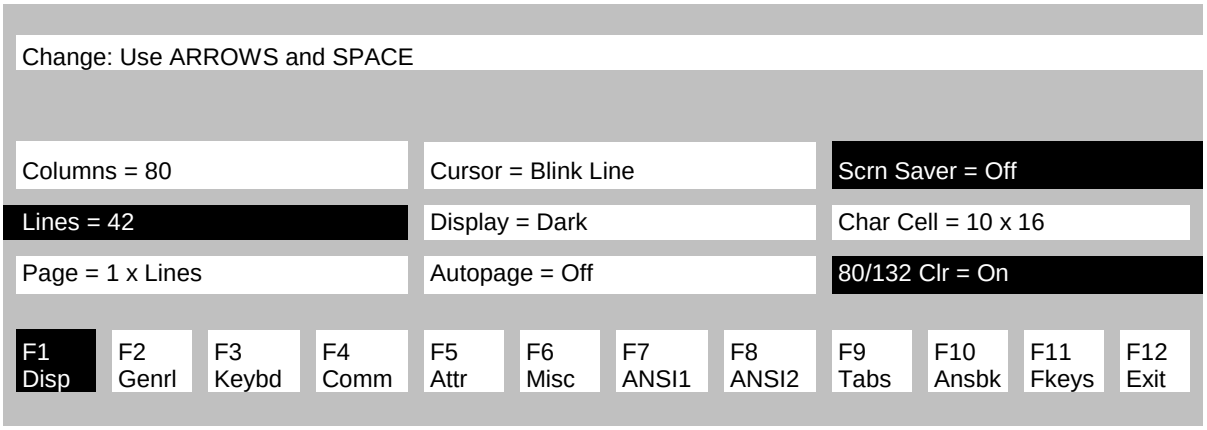
Wyse WY-325ES Setup: F2 General Menu



Step 5 Use the ***arrow keys*** to highlight Autoscrl and press the ***Spacebar*** to change the option to "Off."

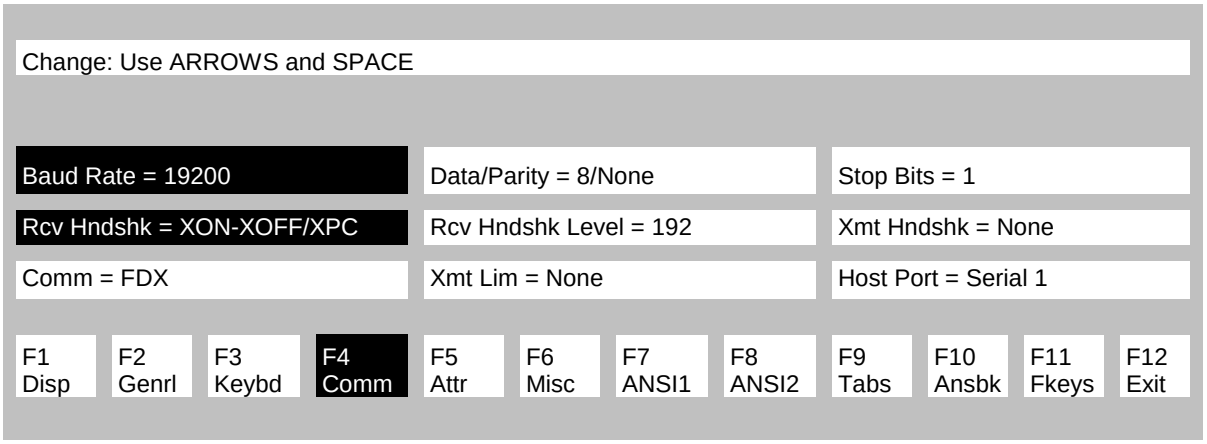
Step 6 Press ***F1*** to enter the Display Menu. Use the ***arrow keys*** to highlight Lines and press the ***Spacebar*** to change the option to "42." Use the ***arrow keys*** and the ***Spacebar*** to change Scrn Saver to "Off" and 80/132 Clr to "On."

Wyse WY-325ES Setup: F1 Display Menu



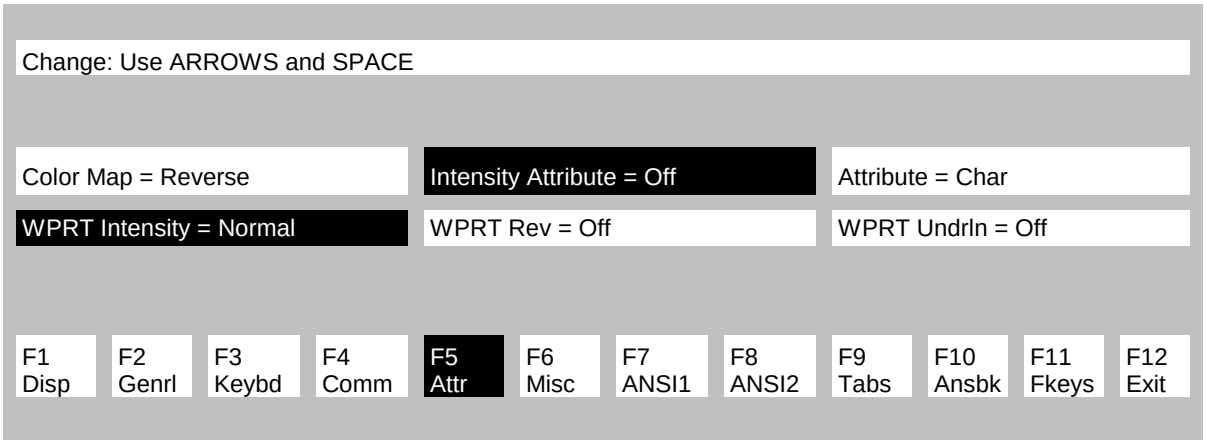
Step 7 Press ***F4*** to enter the COMM Menu. Use the ***arrow keys*** and ***Spacebar*** to change Baud Rate to "19200" and Rcv Hndshk to "XON-XOFF/XPC."

Wyse WY-325ES Setup: F4 COMM Menu



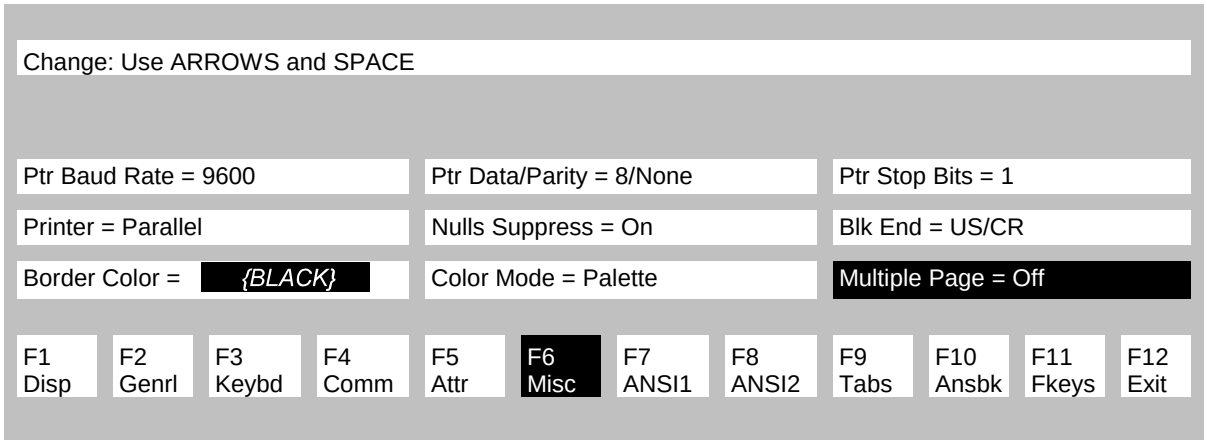
Step 8 Press ***F5*** to enter the Attribute Menu. Use the ***arrow keys*** and ***Spacebar*** to change WPRT Intensity to "Normal" and Intensity Attribute to "Off."

Wyse WY-325ES Setup: F5 Attribute Menu



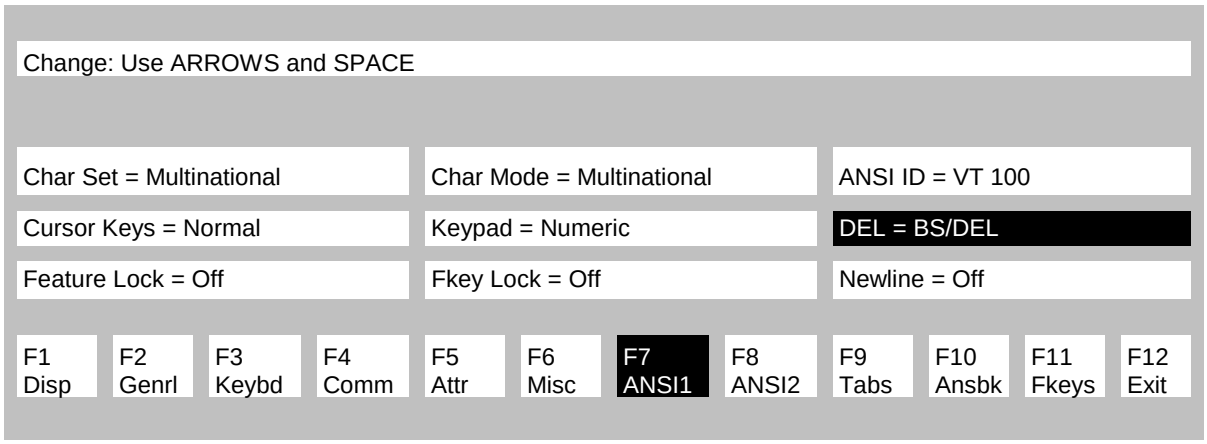
Step 9 Press ***F6*** to enter the Miscellaneous Menu. Use the ***arrow keys*** and ***Spacebar*** to change Multiple Page to "Off."

Wyse WY-325ES Setup: F6 Miscellaneous Menu



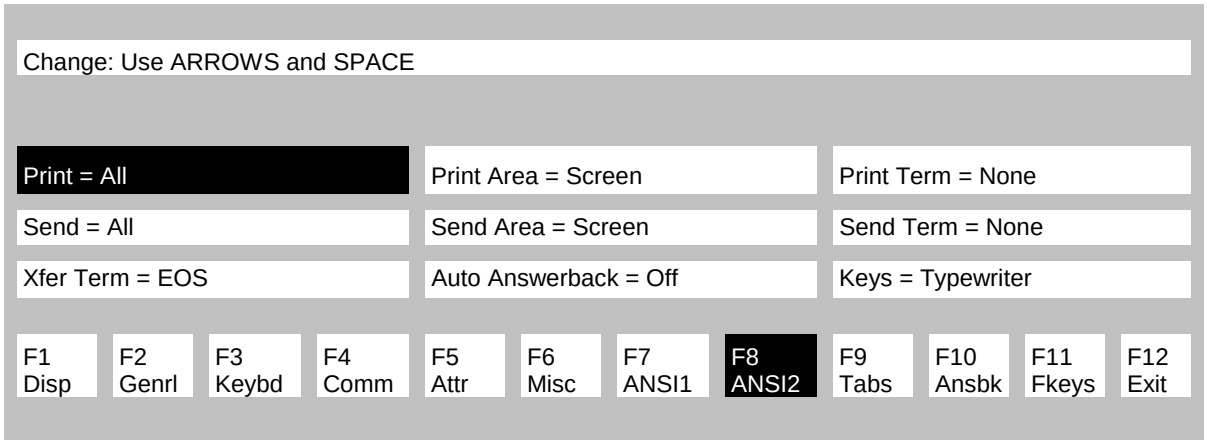
Step 10 Press ***F7*** to enter the ANSI 1 Menu. Use the ***arrow keys*** and ***Spacebar*** to change DEL to "BS/DEL."

Wyse WY-325ES Setup: F7 ANSI 1 Menu



Step 11 Press ***F8*** to enter the ANSI 2 Menu. Use the ***arrow keys*** and ***Spacebar*** to change Print to "ALL."

Wyse WY-325ES Setup: F8 ANSI 2 Menu



Step 12 Press ***F12*** to return to the Setup menu and press the ***Spacebar*** to change the save option to "Yes." Press ***F12*** to save the parameters and exit the Setup Menu.

The Wyse WY-325ES CRT has 10 color palettes numbered 0 to 9. To change the screen colors, hold down the ***CTRL*** key and press ***(a number)*** on the numeric keypad. The recommended color palette is *9*. Other palettes that work well are 1, 2, 3 and 8.

When you are finished configuring your terminal, reconnect the cable between the terminal and the elevator controller.

F.5.4 PRINTER SETUP

Printers are typically used to print a hard copy of system parameters, controller screens, or reports. MCE currently supports two Epson dot-matrix printers (Epson FX 85 and Epson LQ 570) and their equivalents. For nicer looking reports with the printer of your choice, MCE recommends using a PC connected to the controller. Central Monitoring System software or WYSE emulation software may be used to print screens from the PC. Contact the sales department at Motion Control Engineering for further information.

Step 1 Verify that the CRT terminal is connected to the MCE controller through the rear port labeled MAIN.

Step 2 Set the printer DIP switches as shown:

Parallel Printer DIP Switch Settings

PRINTER	EPSON FX 85		EPSON LQ 570	
SETTING	**ON**	**OFF**	**ON**	**OFF**
DIP SW1	6, 7, 8	1, 2, 3, 4, 5	1, 2, 3, 4	5, 6, 7, 8
DIP SW2	1	2, 3, 4		1, 2, 3, 4

Step 3 Connect the 25-pin male DB connector end of the parallel printer cable to the PARALLEL port on the back of the CRT terminal. Connect the other end of the parallel printer cable to the printer. Lock the clips on the connectors to secure the cable.

- Feed the paper through the paper guide and line up the perforation with the top of the print head. Refer to the printer manual for operation and proper care of the printer.
- Plug the printer into a 120VAC outlet and turn on power to both the CRT terminal and printer.

F.5.5 PRINTING SCREENS

After the printer is connected to the CRT, powered ON, and paper has been loaded, screen data may be printed:

Mono CRT Set the Function Keys as described in Section F.3 Step 9. To print, press the ***Print Screen Key***.

Color CRT If the Num Lock light is *ON* (upper right area of the keyboard) press the *Num Lock key* once, to turn it off. To print, hold down the ***SHIFT*** and ***CTRL*** keys at the same time and momentarily press "**.**" *(Period key)* on the numeric keypad.

F.6 WYSE WY-370 COLOR TERMINAL SETUP

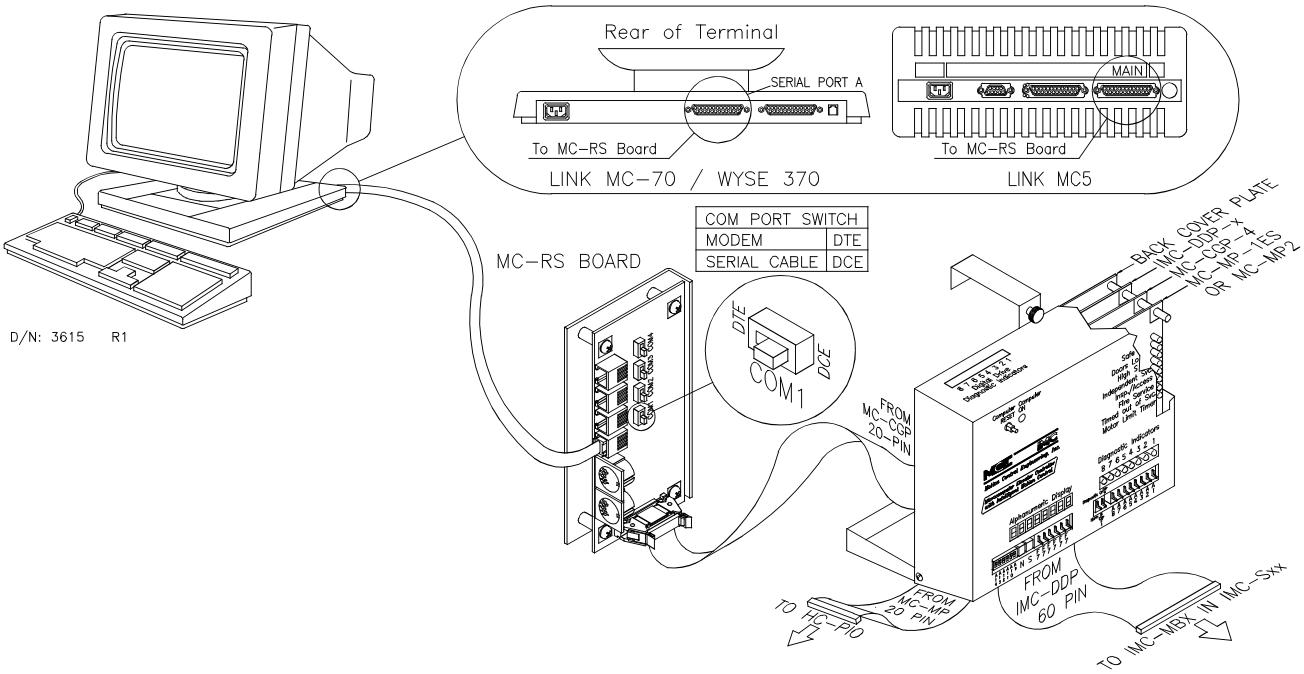
If you are using a Wyse WY-370 color terminal to configure the elevator controller, set the terminal up as described in this section.

F.6.1 CONTROLLER COM PORT SETTING (WYSE WY-370)

Swing Panel Controller - Refer to Section F.1.1 *Controller COM Port* Settings, or to *Programming the Communication Ports* in Section 5 of the Car Controller manual (Section 4 of the Group Supervisor manual) for instructions on viewing and changing the controller Communication Port settings. For the Wyse WY-370 color terminal the COM port ***Device*** option must be set to ***CRTCK*** (with keyboard) or ***CRTC*** (without keyboard).

PTC / PHC Controller - Refer to ***Peripheral Device*** in Section 5.4.9 Extra Features Menu Options for instructions on changing the controller Communication Port settings. For the Wyse WY-370 color terminal the ***COLOR CRT*** option must be set to ***YES***.

F.6.2 WYSE WY-370 COLOR TERMINAL CONNECTIONS



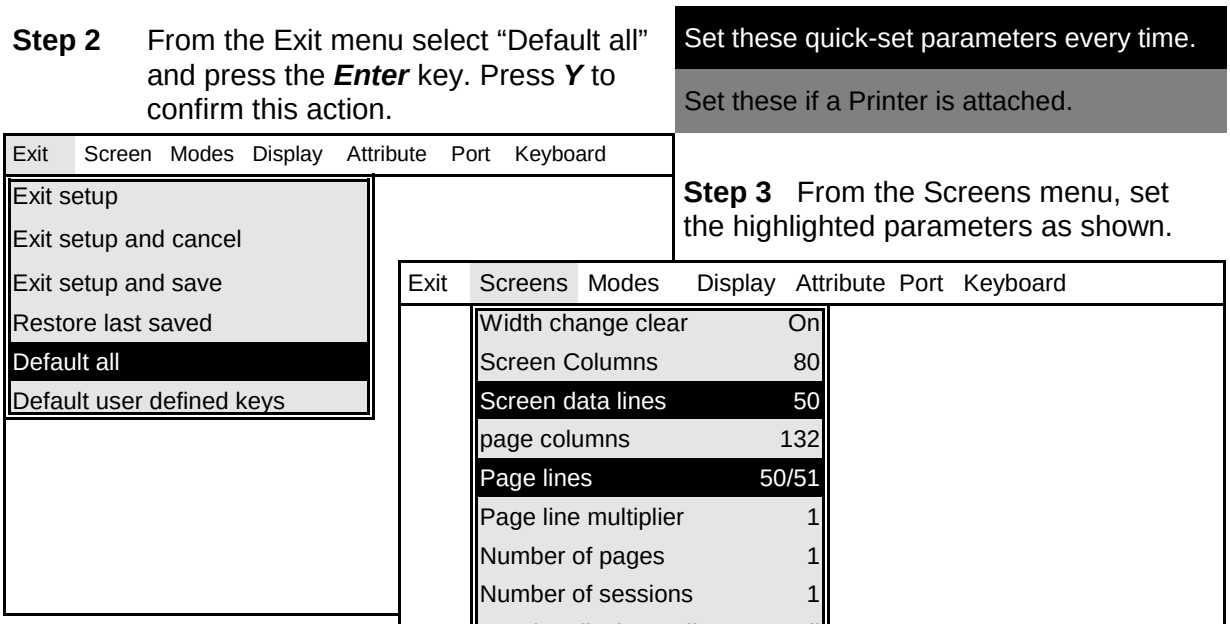
- Connect the DB-25 (25-pin plug) of the signal cable, C-CRT/MD/PA-x (x = length in feet) into the SERIAL PORT A jack on the rear of the terminal. Use the screws on the cable hood to secure the cable to the terminal.
- Plug the RJ-11 plug of the signal cable into a COM port jack (usually COM 1) on the controller's communication interface board (MC-RS or MC-PA).
- If the terminal is connected directly to the communication interface board, set the COM port switch to DCE. If the terminal is connected to the communication interface board through a modem or line driver, set the COM port switch to DTE.
- Connect the printer, if applicable, to the Serial Port B jack on the rear of the terminal.
- Connect the AC jack on the rear of the terminal to the controller's AC outlet using the cord supplied with the terminal.

F.6.3 WYSE WY-370 COLOR TERMINAL SETUP

Step 1 Press ***Select*** to put the terminal into Setup mode. The Select key is in the upper right corner of the keyboard. If you can't get the terminal into Setup mode, try powering the terminal ON with the "Select" key held down until the screen comes up (about 5 seconds).

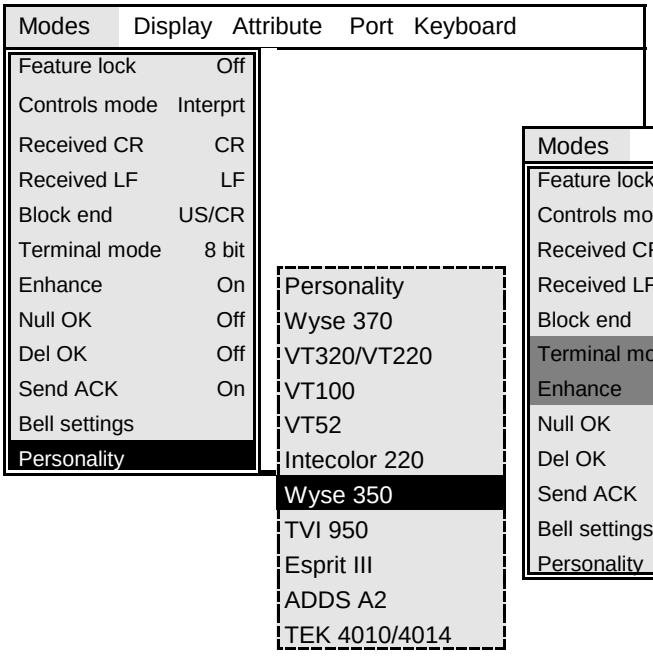
- Press the left and right arrow keys to select items on the Menu Bar (top line).
- Press the up and down arrow keys to select an item on a menu.
- Press the space bar to change the setting

Step 2 From the Exit menu select "Default all" and press the ***Enter*** key. Press ***Y*** to confirm this action.

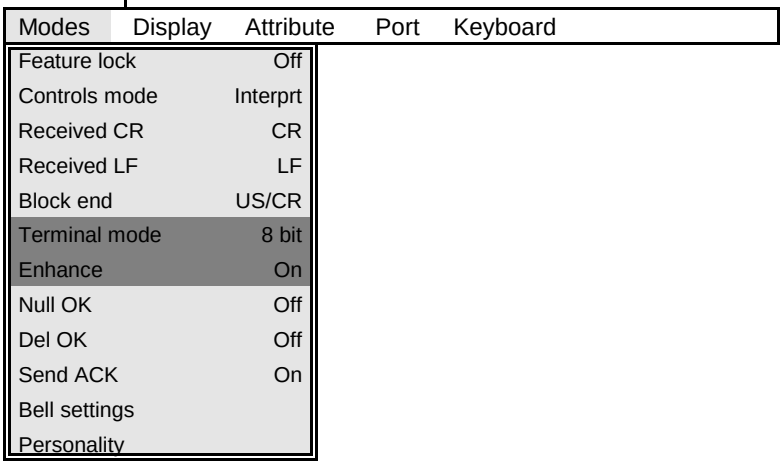


Step 3 From the Screens menu, set the highlighted parameters as shown.

Step 4 From the Modes menu select "Personality". From the Personality sub-menu select "Wyse 350."



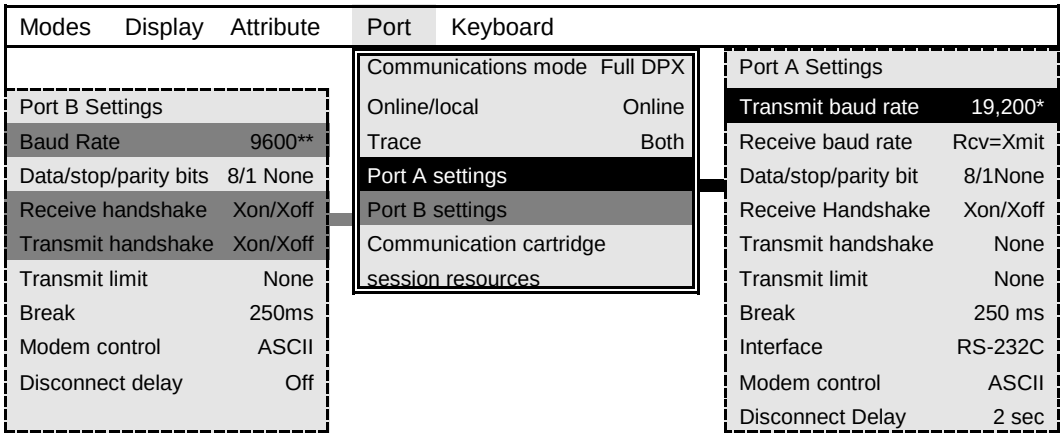
Step 5 If you plan to use a printer, set "Enhance" and "Terminal mode" to the values shown (use the space bar to toggle).



Step 6 From the “Port” menu, select “Port A settings” and press Enter. Set the Transmit baud rate as follows:

* IMC Car controller with MC-CGP board = 19,200
* Group or Car controller with MC-CPA board = 19,200
* Group controller with MC–CGP board = 19,200
* Line Driver = 9600
* Modem = 19,200

Press ***Shift-Up arrow*** when done.

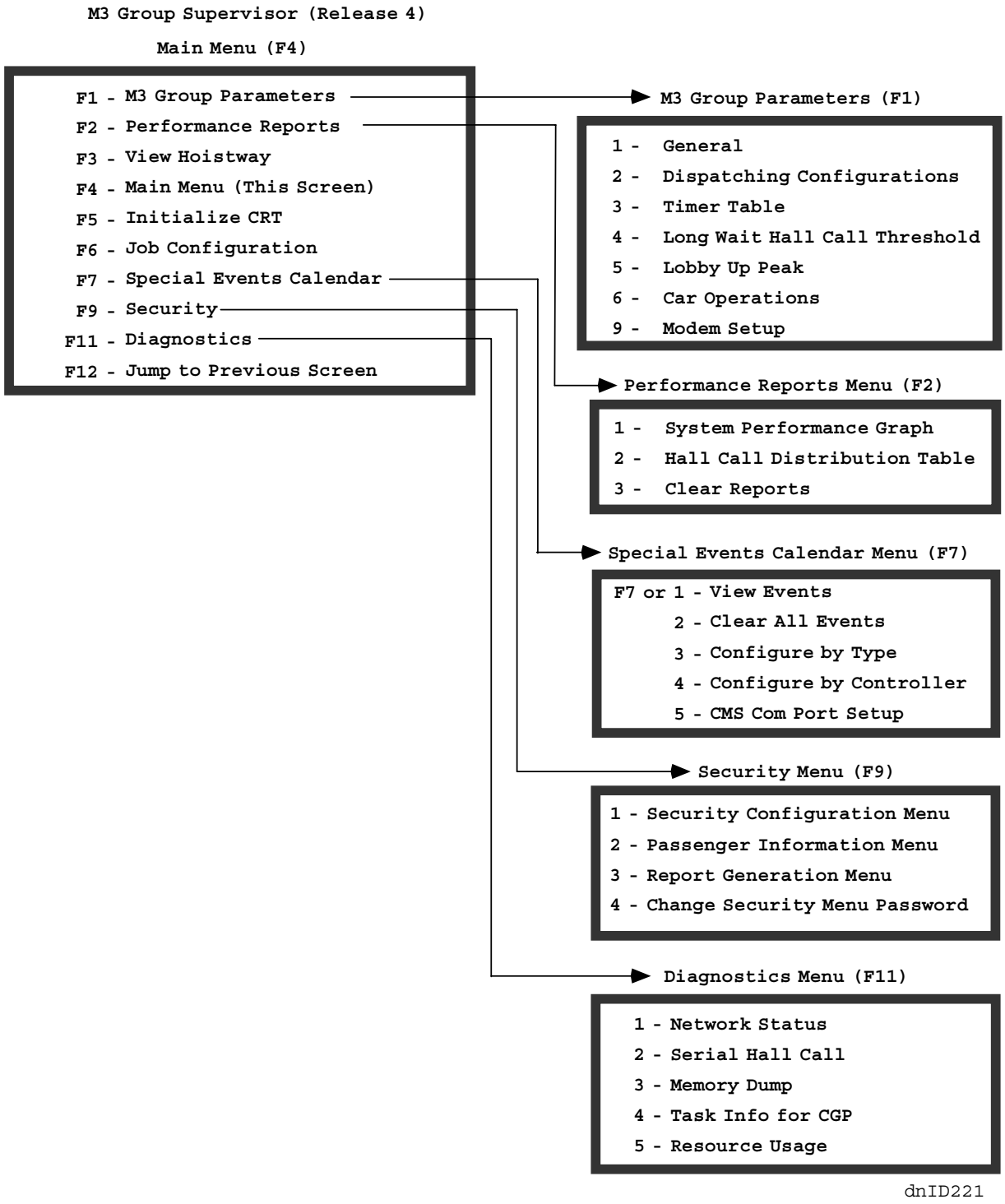


Step 7 Do the following only **if you plan to attach a printer** to the terminal. From the “Port” menu select “Port B settings” and press Enter. Set the highlighted Port B Settings as shown. Press Shift-Up arrow when done.
** Printer port (Port B) : baud rate should always be 9600. Note: This port must be connected to a ***serial port*** on the printer.

Step 8 Return to the Exit menu. Select “Exit setup and save”. Press ***Enter*** and then ***Y*** for yes.

REFERENCE SECTION

FIGURE R.1 CRT Screen Menus Flowchart



NOTE: The following pages contain drawings of the CRT screens. The values shown are for reference only and ***should not be used for programming*.**

FIGURE R.2 General Parameters (F1, 1) Screen

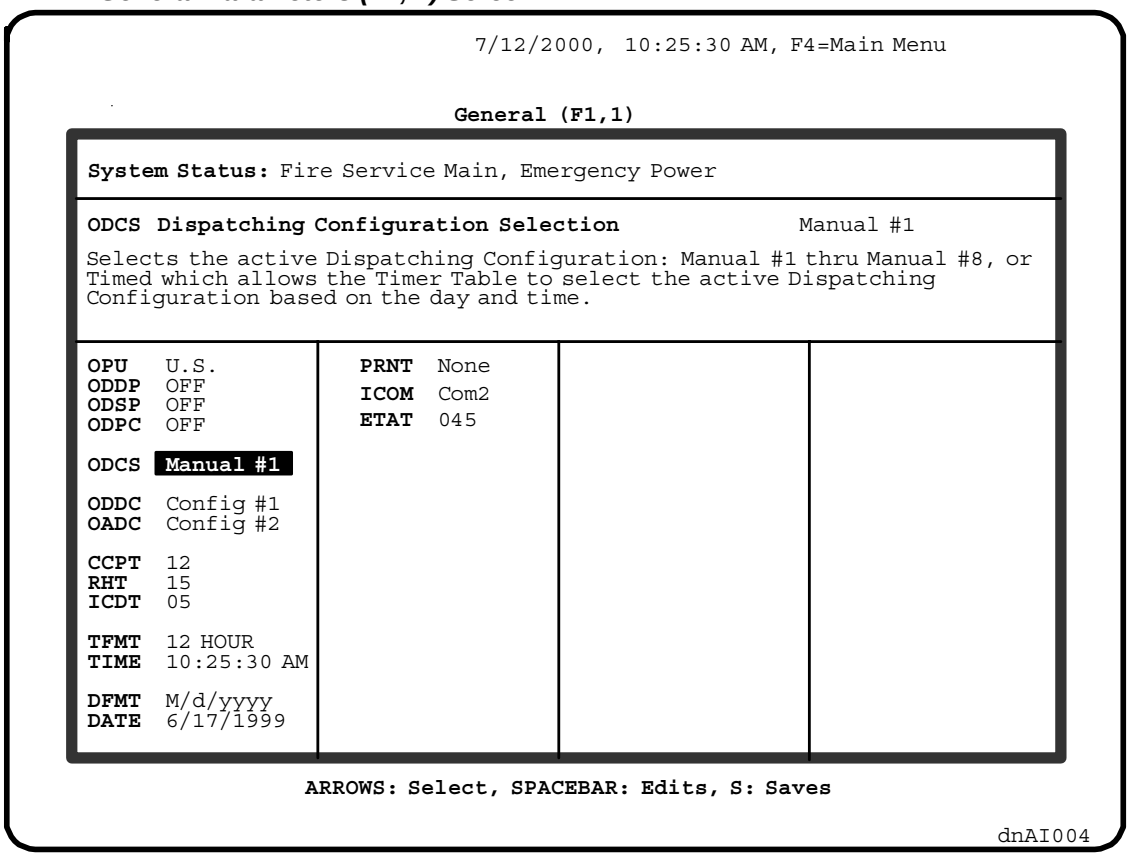


TABLE R.1 General Parameters Defined

General (F1, 1) Screen

PARAMETERS	PRESET VALUE	VALUE RANGE		USER ADJ.	UNIT	DESCRIPTION
OPU - Parameter Units (U.S. / METRIC)	U.S.	U.S.	METRIC			This selects units for the user interface. Example: to read speed in fpm, select OPU=U.S., and to read speed in m/s set OPU=METRIC.
ODDP - Reset Dispatching Parameters (ON/OFF)	OFF	ON	OFF			**CAUTION ! Setting ODDP to ON and saving will reset the Dispatching Parameters to their default values.** After saving is complete, ODDP will always reset itself to the OFF position. NOTE: Security Parameters are not defaulted using ODDP.
ODSP - Reset Security Parameters (ON/OFF)	OFF	ON	OFF			**CAUTION ! Setting ODSP to ON and saving will set the Security Parameters to their default values** (Also, DELETES Passenger List). After saving is complete, ODSP will always reset itself to the OFF position. NOTE: Dispatching Parameters are not defaulted using ODSP.
ODPC - Reset All Parameters (ON/OFF)	OFF	ON	OFF			**CAUTION ! Setting ODPC to ON and saving will reset ALL Dispatching and Security Parameters to their default values.** After saving is complete, ODPC will always reset itself to the OFF position.

TABLE R.1 General Parameters Defined

General (F1, 1) Screen						
PARAMETERS	**PRESET VALUE**	**VALUE RANGE**		**USER ADJ.**	**UNIT**	**DESCRIPTION**
ODCS - Dispatching Configuration Selection	Manual #1					Selects the active Dispatching Configuration, Manual #1 thru #8 or Timed. Timed allows the Timer Table to select the active Dispatching Configurati0on based on the day and time.
ODDC - Default Dispatching Configuration	1	1	8			Selects the Default Dispatching Configuration, #1 thru #8. This configuration will be the active Dispatching Configuration when the ODCS, Dispatching Configuration Selection parameter is set to Timed, and there are no timers in the Timer Table with the current day and time.
OADC - Alternate Dispatching Configuration	2	1	8			Selects the Alternate Dispatching Configuration, #1 thru #8. This will be the active Dispatching Configuration when the optional ALI, Alternate Lobby Input is active.
CCPT - Coincident Call Preference Time	12	00	29		sec	In case of a coincident call (there is a car call assignment at a floor and a hall call is placed at that same floor), the car originally assigned to go to that floor will service the hall call unless another car can better the response time by CCPT.
RHT - Reassignment Hysteresis Time	15	00	19		sec	Provides stability in making a commitment to a car for answering a hall call. A low value will cause too mamy reassignments if two or more cars have very closely calculated ETA times. A high value may increase the average waiting time by locking in assignments to a car when another car may have had a shorter ETA time.
ICDT - Inactive Car Start Up Delay Time	5	00	99		sec	If the MG set of a car is shut down, there has to be enough traffic to justify the restart of the MG set. This value is added to the calculated ETA for any car with its MG shut down.
TMFT - Time Display Format	24 Hour	12 Hour	24 Hour			Choose the Time Format to be used on the CRT screen. Options include 12 hour and 24 hour displays.
TIME - Current Time						Enter the current time in the format selected.
DMFT - Date Display Format	M/d/yyyy	✶✶	✶✶			Choose the Date Format to be used on the CRT screen and on any generated reports. ✶✶M/d/yyyy, M/d/yy, MM/dd/yy, MM/dd/yyyy, uu/MM/dd, dd-MMM-yy
DATE - Today's Date						Enter the current month, date and year in the format selected.
PRNT - Printer Attached to CRT	None	Generic	Specific			Specify the type of printer that is connected to the CRT and to be used for printing reports and screen captures. If no printer is attached, select NONE. If your printer does not appear on the list of supported printers chose GENERIC.
ICOM - IDS Company	None	1	8			Normally this should be set to NONE. It is used only for systems which are to be monitored via Non-MCE "Lift-Net" software from Integrated Display Systems. When an ICOM port is specified, any previous setting for that COM port is ignored.
ETAT - ETA Timer	0	00	199		sec	This timer is for custom cross cancellation. All the hall calls that have ETA more than this adjustable timer will be passed on from MCE Group Supervisor to Other Non-MCE Group System. Range of 0 to 199.

FIGURE R.3 Dispatching Configurations Editor - Configuration #1 (F1, 2, 1) Screen

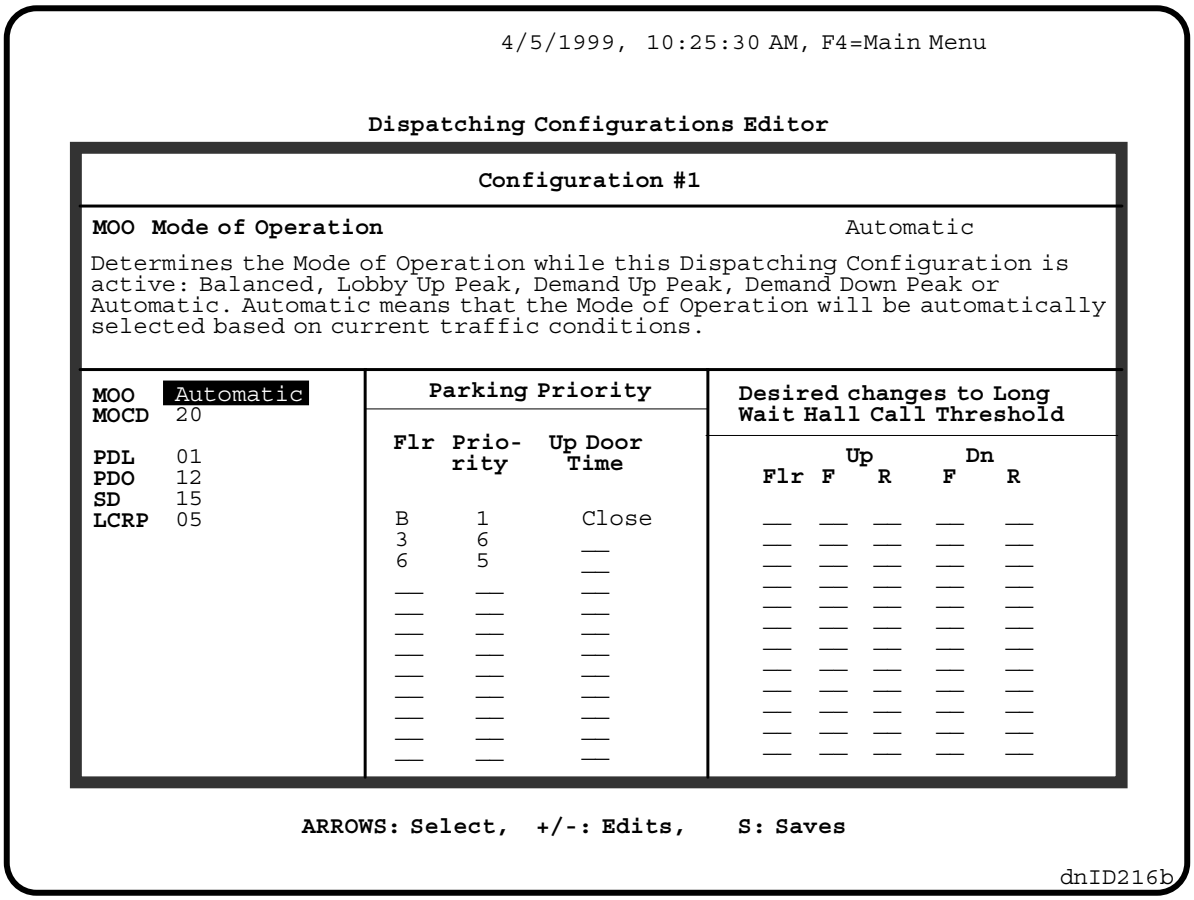


TABLE R.2 Dispatching Configuration Parameters Defined

Dispatching Configurations Editor (F1, 2, 1) Screen						
PARAMETERS	**PRESET VALUE**	**VALUE RANGE**		**USER ADJ.**	**UNIT**	**DESCRIPTION**
MOO - Mode of Operation	Automatic	✳	✳			This parameter determines the Mode of Operation while this Dispatching Configuration is active. Automatic means that the Mode of Operation will be automatically selected based on current traffic conditions. ✳ Balanced, Lobby Up Peak, Demand Up Peak, Demand Down Peak and Automatic.
MOCD -Mode of Operation Change Delay	20	01	99		sec	This parameter determines the delay between the time when the conditions are met for automatic selection of a different Mode of Operation and the time when the mode change is actually made.
PDL - Parking Delay - Lobby	01	00	99		sec	If no cars are parked at the lobby floor, PDL defines the delay interval between the time when a car becomes available to park and the time when it is actually sent to the lobby floor. NOTE: PDL is less than or equal to PDO.
PDO - Parking Delay - Others	12	00	99		sec	When a car is parked at the lobby floor, PDO defines the delay interval between the time when a car becomes available to park and when it is actually sent to the next highest parking floor available (no cars parked there). NOTE: PDO is greater than or equal to PDL.
SD - Shuffle Delay	15	00	99		sec	When the lobby floor becomes available (no cars parked there), SD defines the delay before a car is sent to the lobby floor. The car sent will be the one with the shortest calculated ETA.
LCRP - Lobby Car Removal Penalty Time	05	00	99		sec	When determining which car should be assigned to service a hall call, the LCRP time is added to the ETA of a car that is parked at a Lobby Parking Floor.
Parking Priority		1	20			Determines the parking floors and their priorities. See Section 5.1.3, *Parking Priorities* for more information.
Desired Changes to Long Wait Hall Call Threshold Times (seconds)		0	199		sec	These settings override the Long Wait Hall Call Threshold Time settings on the Long Wait Hall Call Threshold (F1, 4) screen. See Section 5.1.8, *Desired Changes to Long Wait Hall Call Threshold* for more information.

FIGURE R.4 Dispatching Configurations Timer Table (F1, 3) Screen

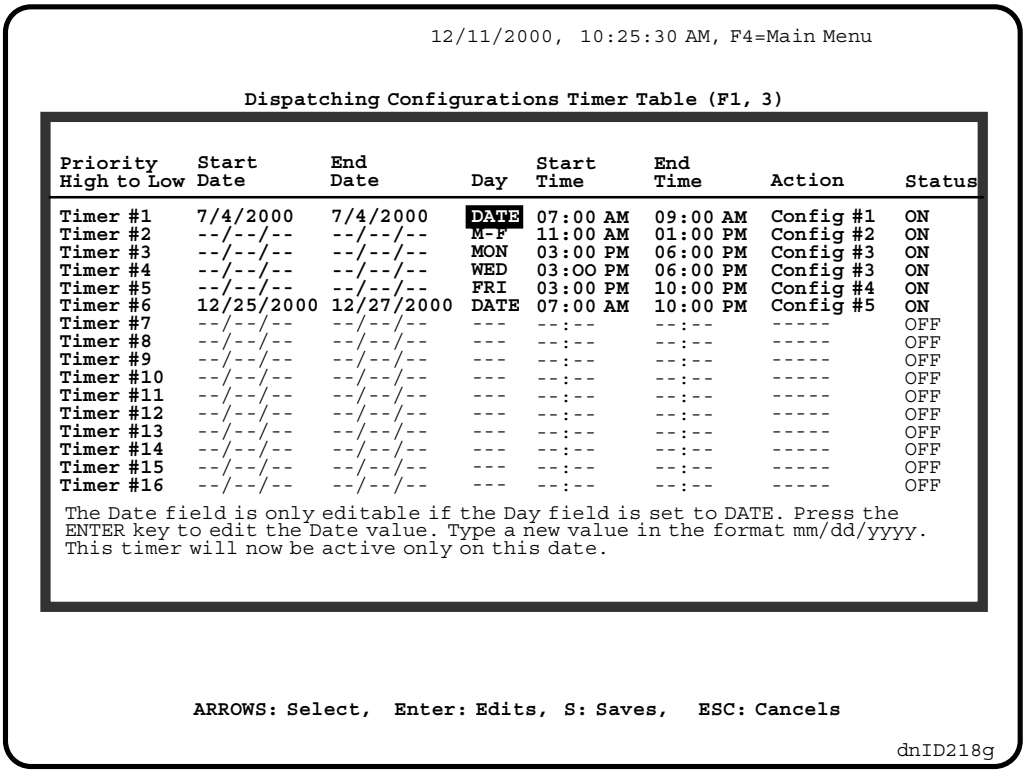


TABLE R.3 Dispatching Timer Table Parameters Defined

Dispatching Timer Configurations Table (F1, 3) Screen

PARAMETERS	PRESET VALUE	VALUE RANGE		USER ADJ.	UNIT	DESCRIPTION
Start Date	-- / -- / --	-	-			This field is programmable only if the Day field is set to DATE.
End Date	-- / -- / --	-	-			This field is programmable only if the Day field is set to DATE.
Day	ALL	✳	✳			Specifies the day or days of the week for this timer. The choices are: MON, TUE, WED, THU, FRI, SAT, SUN, M-F, All and DATE. DATE specifies a particular day only.
Start Time	00.00	00.00	23.59		min / sec	Specifies the beginning of the time period in which this timer may be used.
End Time	00.00	00.00	23.59		min / sec	Specifies the end of the time period in which this timer may be used.
Action	1	1	8			Specifies the Dispatching Configuration which will be active when this timer is in use.
Status	OFF	ON	OFF			ON = timer may be used, OFF = timer may not be used.

FIGURE R.5 Long Wait Hall Call Threshold (F1, 4) Screen

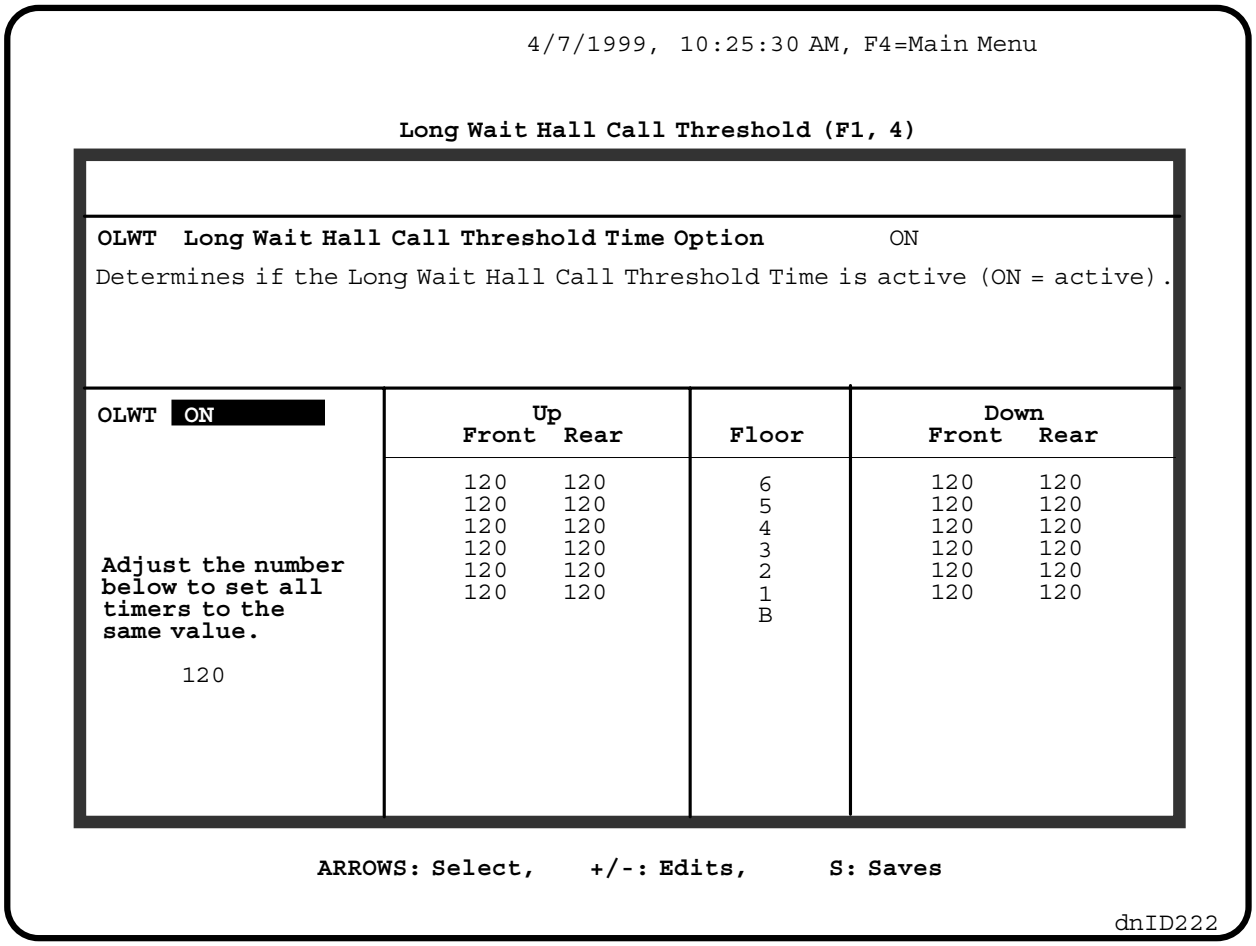


TABLE R.4 Long Wait Hall Call Threshold Parameters Defined

Long Wait Hall Call Threshold (F1, 4) Screen

PARAMETERS	PRESET VALUE	VALUE RANGE		USER ADJ.	UNIT	DESCRIPTION
OLWT - Long Wait Hall Call Threshold Time Option	OFF	ON	OFF			Determines if the Long Wait Hall Call Threshold Time is active (ON = active).
Up Front	120	000	199			When OLWT = ON and the calculated ETA exceeds this value for a number of hall calls determined by a formula, one or more cars will be removed from the group and assigned to service the long wait calls. Values can be different for each floor and type of call. See Section 5.5, *Programming The Long Wait Hall Call Threshold* for more information.
Up Rear	120	000	199			See Up Front
Down Front	120	000	199			See Up Front
Down Rear	120	000	199			See Up Front

FIGURE R.6 Lobby Up Peak (F1, 5) Screen

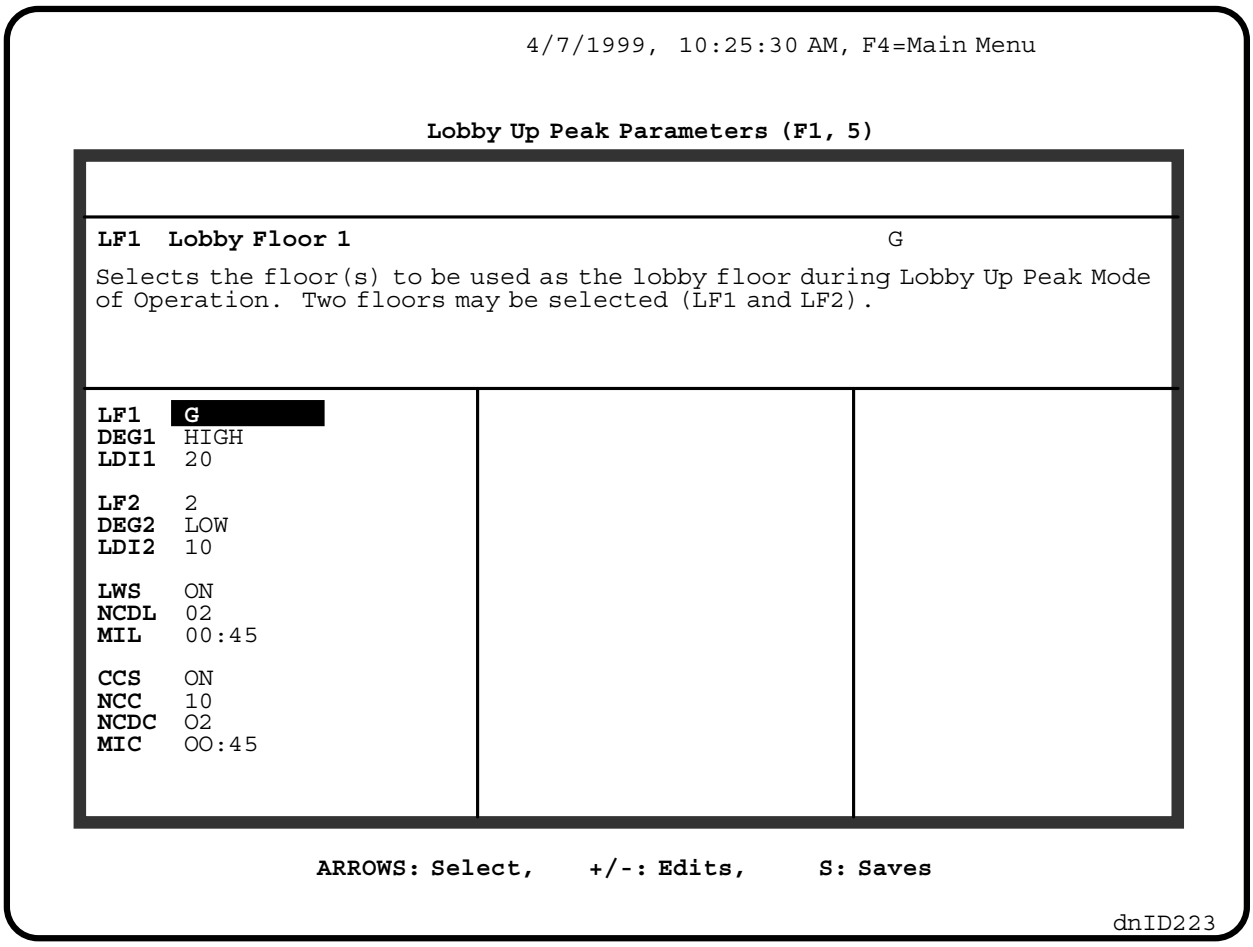


TABLE R.5 Lobby Up Peak Parameters Defined

Lobby Up Peak (F1, 5) Screen						
PARAMETERS	**PRESET VALUE**	**VALUE RANGE**		**USER ADJ.**	**UNIT**	**DESCRIPTION**
LF1 - Lobby Floor 1	1					Selects the floor(s) to be used as the lobby floor during Lobby Up Peak Mode of Operation. Two floors may be selected (LF1 and LF2).
DEG1 - Degree of Lobby Up Peak	Low	Low	High			Determines the number of cars (based on a formula) which will be assigned to service the lobby floors during Lobby Up Peak Mode of Operation (see Section 5.6.4, *Variables for Lobby Up Peak*).
LDI1 - Lobby Up Peak Dispatch Interval Time	20	1	199		sec	This parameter defines how long cars will keep their doors open at the lobby during Lobby Up Peak Mode of Operation (even if the Door Close Button is pressed). If LDI1 or LDI2 is set to CLOSE, doors will remain closed until there is a hall call demand at the lobby, but Heavy Load condition will bypass that.
LF2 - Lobby Floor 2						See LF1.
DEG2 - Degree of Lobby Up Peak	Low	Low	High			See DEG1.
LDI2 Lobby Up Peak Dispatch Interval Time	20	1	199		sec	See LDI1.
LWS - Load Weigher Switch	ON	ON	OFF			When LWS = ON, the load of the cars leaving the lobby floor is monitored for Heavy Load condition to determine if the Lobby Up Peak Mode of Operation should be selected.
NCDL - Number of Cars to Depart from the Lobby - Load Weigher	2	1	12			Specifies the number of Heavy Load cars that must leave the lobby within the Monitoring Interval before Lobby Up Peak Mode is automatically selected.
MIL - Monitoring Interval - Load Weigher	45	0	300		sec	This parameter determines the time interval within which the number of Heavy Load cars (NCLD) must depart a lobby floor for Lobby Up Peak Mode of Operation to be automatically selected.
CCS - Car Call switch	ON	ON	OFF			When CCS = ON, the number of car calls placed at a lobby floor is monitored to decide if Lobby Up Peak Mode of Operation should be automatically selected.
NCC - Number of Car Calls	✳					This parameter determines the number of car calls required to be considered Heavy Load condition. ✳ Defaults to ½ the total number of floors.
NCDC - Number of Cars to Depart from the Lobby - Car Calls	2	1	12			This parameter determines the number of Heavy Load cars that must leave the lobby within the Monitoring Interval before Lobby Up Peak Mode of Operation is automatically selected.
MIC - Monitoring Interval - Car Calls	45	0	300		sec	This parameter determines the time interval within which the number of Heavy Load cars (NCDC) must depart a lobby floor for Lobby Up Peak Mode of Operation to be automatically selected.

FIGURE R.7 Car Operations (F1, 6) Screen

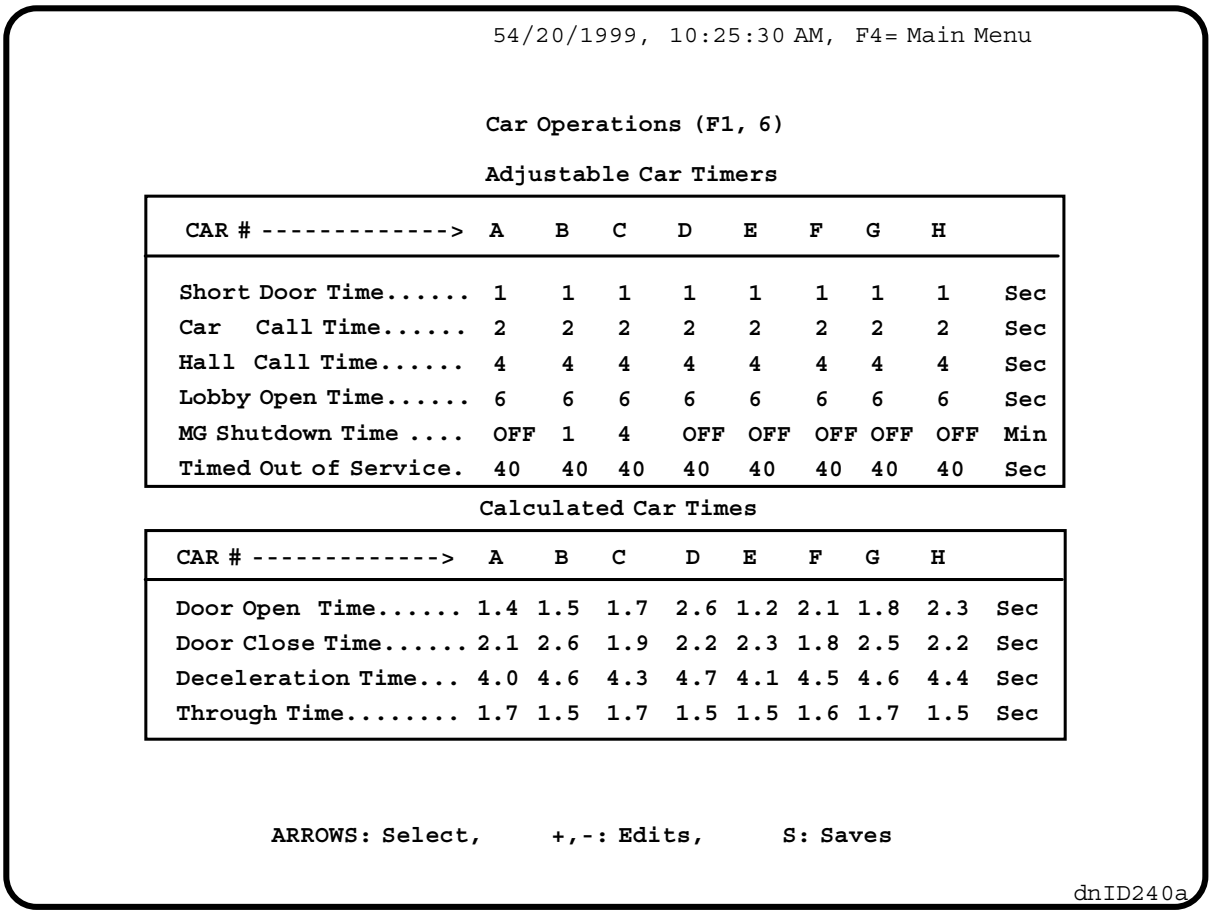
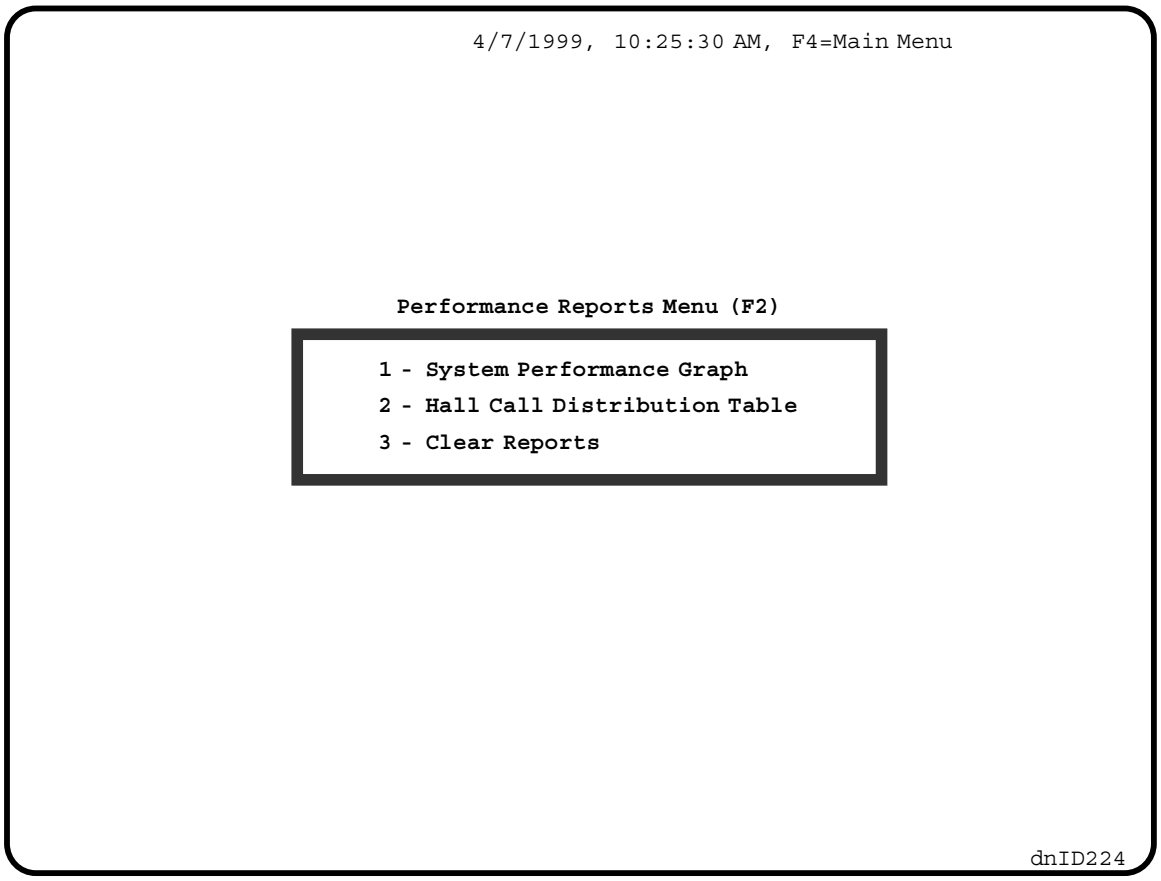


TABLE R.6 Adjustable Car Operating Parameters Defined

Car Operations (F1, 6) Screen

PARAMETERS	PRESET VALUE	VALUE RANGE		USER ADJ.	UNIT	DESCRIPTION
Short Door Time (SDT)	1	1	16		sec	Defines the door reopen time initiated by the Safety Edge, Door Open Button, etc.
Car Call Time (CCT)	2	1	16		sec	Defines the period of time that the doors stay open when responding to a car call.
Hall Call Time (HCT)	4	1	16		sec	Defines the period of time that the doors stay open when responding to a hall call.
Lobby Open Time (LOT)	6	1	16		sec	Defines the period of time that the doors stay open when responding to a call at the lobby floor.
MG Shutdown Time	3	OFF	26		min	If a car has had no demand for this period of time (MGT), the car's MG (motor generator set) will be shut down. *If this parameter is set to '--', the MG will not be shut down.
Timed Out of Service (TOS)	40	16	60		sec	After the car establishes a direction, if it doesn't step within the TOS time period, the car is placed in Timed Out of Service status. Any assigned hall calls will be transferred to another car. The TOS timer also triggers the nudging function.

FIGURE R.8 Performance Reports Menu (F2) Screen

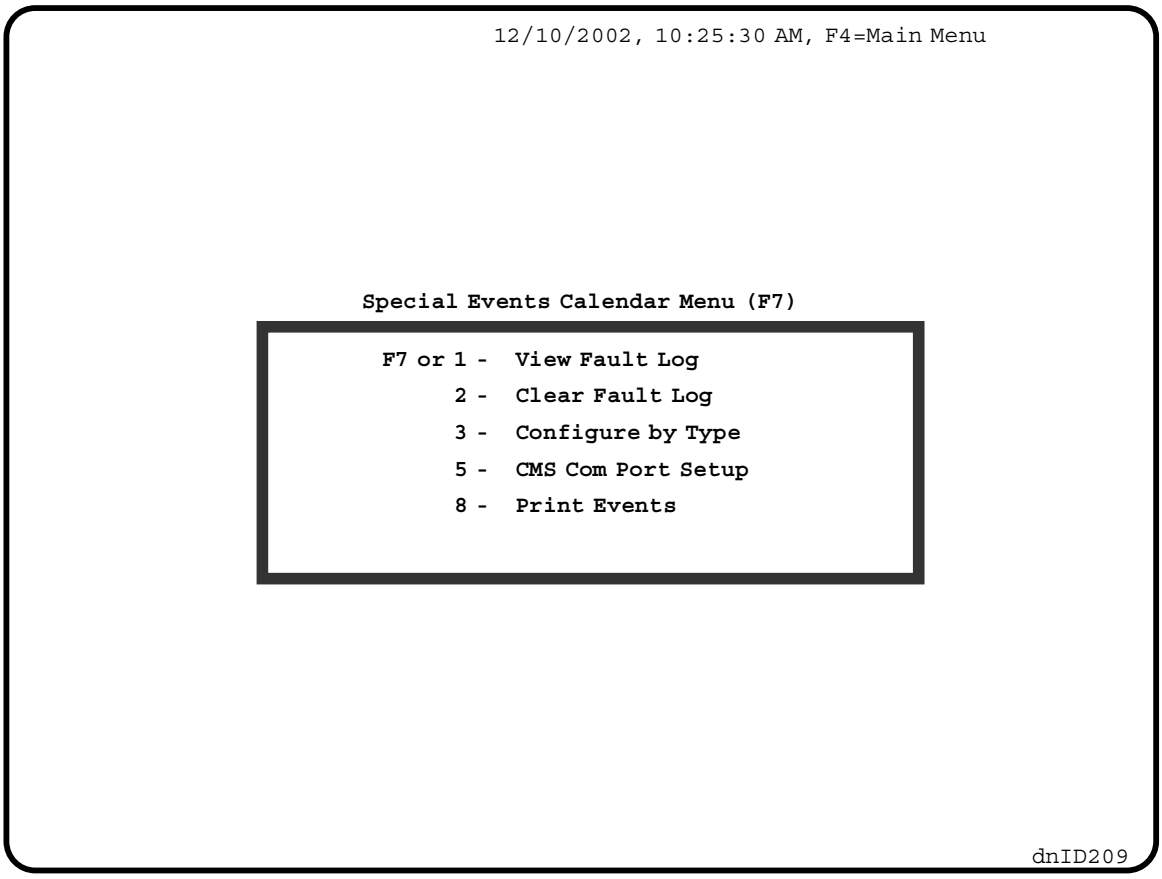


The Performance Reports Menu (F2) provides access to:

- The System Performance Graph
- The Hall Call Distribution Table
- The Clear Reports function

Refer to manual Sections 5.9.2, 5.9.3, and 5.9.4 for detailed information.

FIGURE R.9 Special Events Calendar Menu

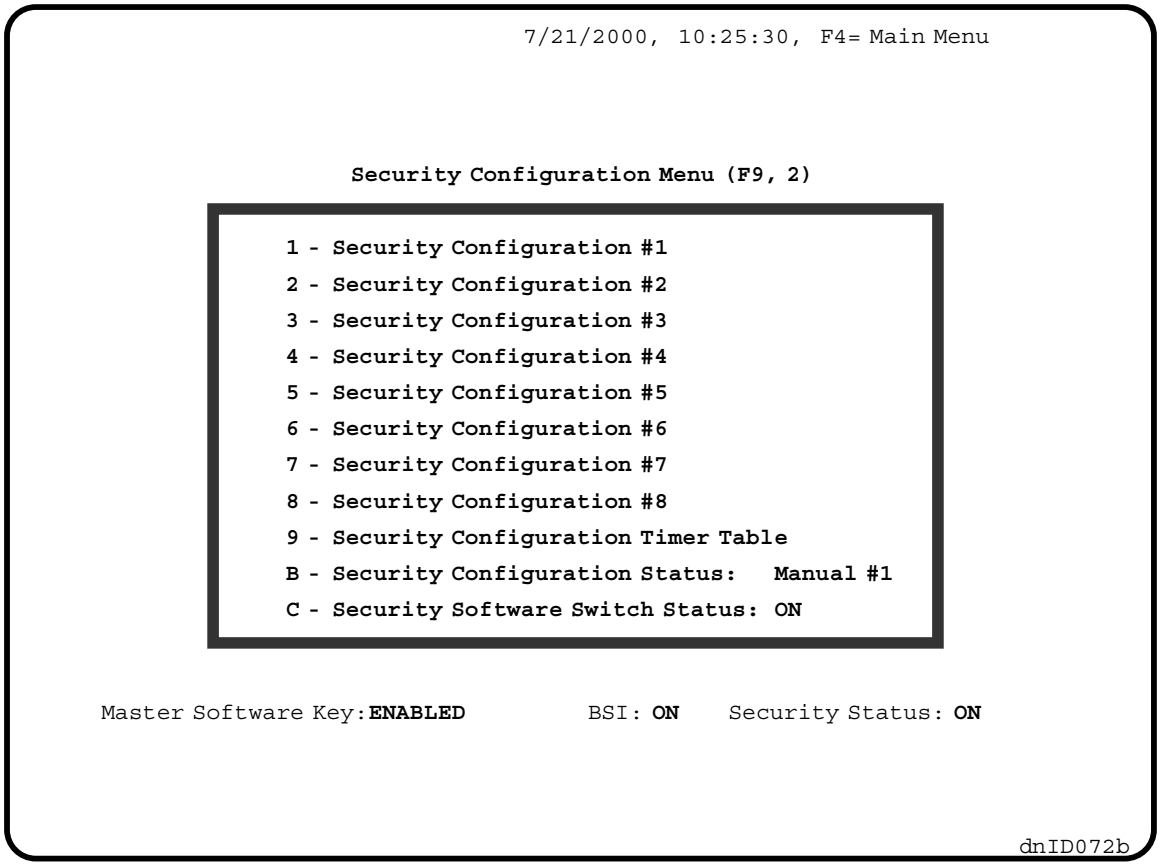


The Special Events Calendar Menu provides access to:

- The Fault Log
- The Clear Fault Log function
- The Configure By Type screen
- The Com Port Setup screen
- The Print Events function

Refer to manual Sections 5.9.4 and 6.6 for more detailed information.

FIGURE R.10 Security Configuration Menu Screen

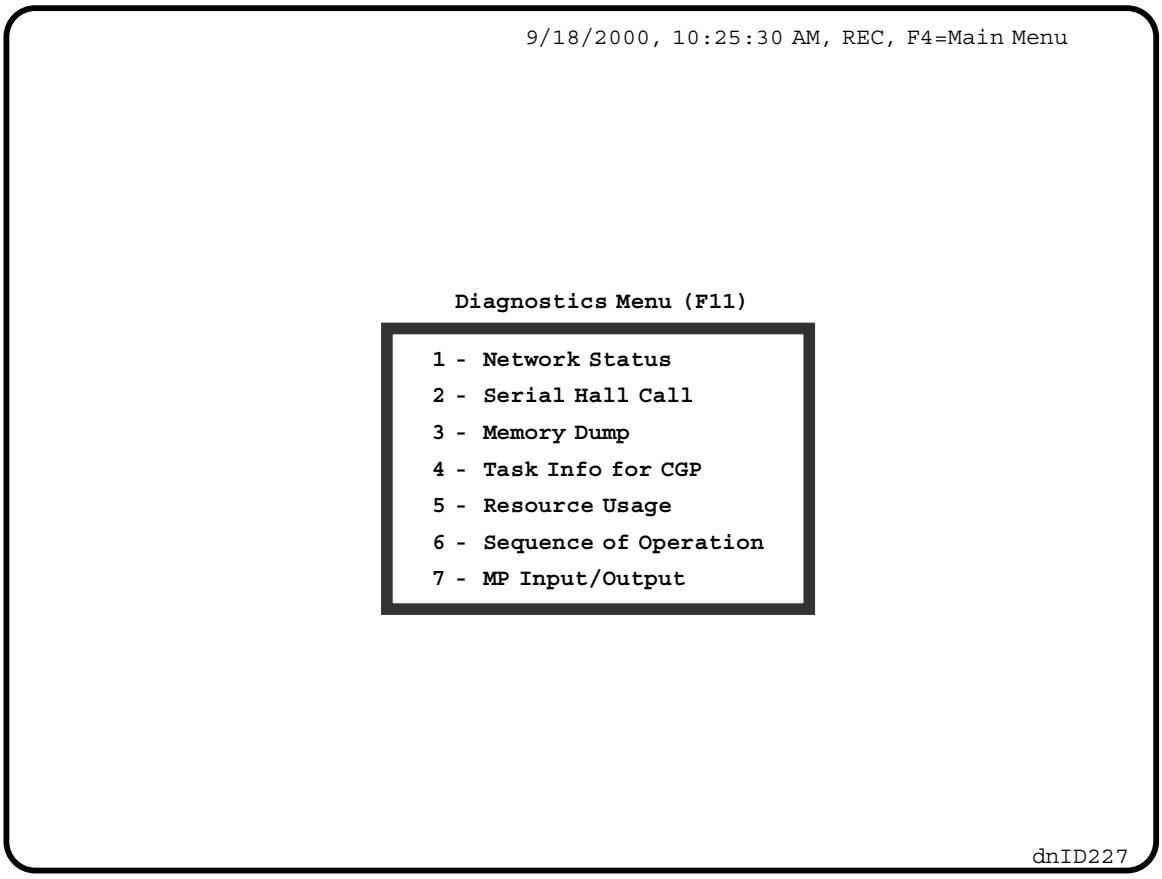


The Security Configuration Menu allows you to:

- Program Security Configurations
- Set up Security Timer Tables
- Set Security Configuration Status (Manual or timed)
- Set the Security Software Switch

Refer to the Elevator Security User's Guide, Part# 42-02-S024 for detailed information.

FIGURE R.11 Diagnostics Menu (F11) Screen



From the Diagnostics menu, you may view:

- Network Status: Communication between Group Supervisor and Cars
- Serial Hall Call: Verify SmartLink Serial Communications
- Other Diagnostics: Typically accessed under MCE direction

Refer to manual Section 6.8 for detailed information.

TABLE R.7 M3 Group Supervisor Inputs

M3 GROUP SUPERVISOR INPUTS

INPUT	ACTIVATED STATE	DESCRIPTION
ALI - Alternate Lobby	high	The ALI input is used to substitute an alternate configuration for the currently active Dispatching Configuration. When the ALI input is activated, the Alternate Dispatching Configuration is made active.
ALT - Alternate Eligibility	high	The ALT input is used to substitute an alternate eligibility map for the main eligibility map. This operation is used to "reconfigure" the elevator service to the building. For example, for security reasons the building management may want only one elevator to service the upper landings "after hours".
AUTO - Emergency Power Auto Selection	high	Activation of this input instructs the Group Supervisor to choose which car to run "normally" while on emergency power. The Group Supervisor will choose a car to run considering priority services and "in-service" status of the cars.
BALI - Balanced Input	high	Activation of this input will force the Group Supervisor to operate in the Balanced Mode of operation. See Section 5.1.2, Modes of Operation.
BSI - Building Security Input	high	Used to turn Elevator Security ON with a single input such as from a key switch or time clock.
CD(x) - Car Done, Car (x)	high	Used for Emergency Power Overlay Logic. When on Emergency Power, the Group Supervisor can be used to control the lowering of cars to the lobby that are not normally under its control (not connected via the High Speed Serial Communication Link. In this case the indication that the car is done lowering to the lobby is accomplished using the CD(x) inputs. When all the CD inputs are high, Phase II may be initiated (selecting car(s) to run on Emergency Power).
DCRS - Down Hall Call Reset Input	high	Activation of this input will cause all down direction hall calls to be canceled.
DDPI - Demand Down Peak Input	high	Activation of this input will force the Group Supervisor into the Demand Down Peak mode of operation. See Section 5.1.2, Modes of Operation.
DUPI - Demand Up Peak Input	high	Activation of this input will force the Group Supervisor into the Demand Up Peak mode of operation. See Section 5.1.2, *Modes of Operation*.
ECS(x) - Emergency Car Select Input, Car (x)	high	(X = 1 thru 12) This input selects car (x) to run on Emergency Power provided the sequential lowering process has been completed. Note: 1 = Car A, 2 = Car B, etc.
EPI - Emergency Power Input	low	Indicates loss of the commercial power when the input is low**.** The EPI input is pulled high when commercial power is available.
EPSTP - Emergency Power Stop	high	When activated before the lowering sequence, this input keeps the cars in a frozen state preventing the emergency power transition timer from running. It is usually used for emergency power interface with other systems to delay the lowering sequence. All cars will be immediately shut down if the input is activated during the lowering phase.
EP2STP - Emergency Power Phase 2 Stop	high	When activated this input will cause the Group Supervisor to revert back to Emergency Power Phase 1. Once all cars have lowered, no car will be selected to run if the input is still activated.
FRA - Alternate Fire Service	high	When activated, this input initiates an emergency return to the designated alternate fire floor determined by the AFR, Alternate Fire Floor Recall variable setting in each local Car Controller. Normally the main fire return floor sensor activates this input.
FRAA - Second Alternate Fire Service	high	Required by the Detroit Fire Code. When activated, this input initiates an emergency return to the second alternate recall floor designated by the AFR2 variable. (FRA must also be low). The alternate fire return floor sensor should activate this input.
FRAON - Alternate Floor Fire Service	high	This fire service input will be seen as second priority to the main input (FRON) but will override the sensor inputs. When the input is high, the car will return to the alternate fire floor landing.
FRON - Fire Service ON	high	When activated, this input will place the system in Fire Service Phase I operation. The "ON" position of the Fire Recall switch is typically wired to this input.
FRON2 - Secondary Fire Service ON	high	Similar to the FRON input, this input will place the system in Fire Phase I operation. This is used for "additional" phase I switches (as described by ASME/ANSI A17.1), and will not override alternate fire service operation (initiated by the main return floor sensor).
FRS - Fire Sensor	low	The fire sensors are wired to this input. When a fire sensor is tripped, the FRS input goes low initiating Fire Service Phase I operation. All cars make an emergency return to the main fire return floor determined by the MFR, Main Fire Floor Recall variable setting in each local Car Controller (unless the FRA input is high in which case the cars return to the alternate fire return floor). The FRS input is pulled high when the fire sensors are in their normal state.

TABLE R.7 M3 Group Supervisor Inputs

M3 GROUP SUPERVISOR INPUTS

INPUT	ACTIVATED STATE	DESCRIPTION
ISV(x) - In Service, Car (x)	high	Used for Emergency Power Overlay Logic (see CD(x) input). This input is used by the emergency power logic to determine if a car can be sequentially lowered during Emergency Power Phase 1. It is also used in the *automatic selection logic* to determine if the car is able to run during Emergency Power Phase 2.
LUPI - Lobby Up Peak Input	high	Activation of this input will force the Group Supervisor into Lobby Up Peak mode. See Section 5.1.2, *Modes of Operation* for more information.
MNO - Manual Override Input	high	Manual Override (MNO) will take precedence over automatic lowering during Emergency Power operation. When MNO is activated, automatic lowering is overridden, and selection switch (ECS(x)/Auto input) will determine which car will be allowed to run normally. Upon activation of MNO, if a car that is running is not selected via the selection switch (ECS(x) input), that car is taken to next available floor and stopped with doors open. If the MNO is activated on Emergency Power Phase 2, nothing should happen until the selection switches have changed. At this time the system will revert back to Emergency Power Phase 1 and will attempt to take all the cars to the next available floor before selecting a new car. Upon activation of MNO, PTI is sent to all cars that have not been selected to run during Emergency Phase 1 and Phase 2 and they are placed in shut down mode with doors open.
MSG(x) - Message #(x)	high	(X = 1 thru 8) These inputs pertain to the CE Electronics annunciator devices. Each input points to a specific entry in the display message table for the Scroll Message Device. Activation of the input causes the CE device to display a message relevant to the situation (i.e. fire service, emergency power ...etc.)
NHCL - No Hall Call Latch	high	This option is required by cross cancellation applications. When this input is activated, no hall calls will be latched by the M3 Group Supervisor. The following description is from SCO 642: During the phase in which cross cancellation is used between the two dispatchers, ***MCE will not latch hall calls***. ***Hall calls will only be seen as active if the hall call input is active.*** The latching of the hall calls can be the responsibility of the existing dispatcher. When the existing dispatcher cancels a hall call, that hall call will immediately be "canceled" in the MCE Group Supervisor because the input will have been deactivated. When an MCE car answers the call, the output will be generated (as before) to cancel the call in the existing dispatcher, which will in turn cause the input to be deactivated and the call canceled in the Group Supervisor.
UCR - Up Hall Call Reset Input	high	Same as UCRS below.
UCRS - Up Hall Call Reset Input	high	Activation of this input will cause all up direction hall calls to be canceled.

TABLE R.8 M3 Group Supervisor Outputs

M3 GROUP SUPERVISOR OUTPUTS

OUTPUT	ACTIVATED STATE	DESCRIPTION
ALTO - Alternate Service Output	low	Activated when the Group Supervisor ALT input is high or when ALT mode is activated thru the CRT terminal.
BAL - Balance	low	Activated when the Group Supervisor is operating in the Balanced mode.
CCF - Car Communication Failure	low	Activated when one of the local cars fails to communicate with the Group Supervisor.
CD(x) - Car Done, Car (x)	low	Activated when the car has finished returning on emergency power or when it has been determined that the car cannot lower (see CD(x) input).
DDP - Demand Down Peak	low	Activated when the Group Supervisor is operating in Demand Down Peak mode.
DHA - Down Hall Call Active	low	This output is normally low and is activated high any time a Down Hall Call is registered. It is typically used to illuminate a Hall Call Active lamp.
DSF - Dispatch Failure	low	Activated when all cars lose communication with the Group Supervisor or when the 2H hall call bus voltage is lost, indicating a failure to dispatch hall calls.
DUP - Demand Up Peak	low	Activated when the Group Supervisor is operating in Demand Up Peak mode.
EP1 - Emergency Power Phase 1	low	Activated when Emergency Power Phase 1 operation is initiated (EPI input goes low). EP1 remains activated until Emergency Power Phase 2 is initiated or the EPI input goes high.
EP2 - Emergency Power Phase 2	low	Activated when Emergency Power Phase 2 operation is initiated, after all cars that are able have returned to the emergency power floor.
EPR(x) - Emergency Power Return, Car (x)	low	Activated while Car (x) is in the lowering process and stays activated until the car is selected to run on emergency power.
FIR1 - Fire Service Phase 1	low	Activated when on Fire Service Phase 1 (Main or Alternate) operation.
FSO - Fire Service Output	low	Activated whenever a car is on Fire Service operation (either Fire Phase 1 or Fire Phase 2). The output is generally used to activate the visual fire service indicator in the elevator cab.
HCLD - Hall Call Bus Fuse Blown	low	Activated when the hall call bus appears to have failed (all hall call inputs activated simultaneously for 3 seconds).
HCP - Hall Call Pushed	low	Activated when a hall call input is activated (a hall call button is being pushed). The output was originally created to drive relay logic used to initiate and *latch* the swing car operation when a swing hall call button is pushed.
LUP - Lobby Up Peak	low	Activated when the Group Supervisor is operating in Lobby Up Peak mode.
MAX - Maximum number of cars Running on Emergency Power Phase 2	low	Activated when the maximum number of cars allowed to run on Emergency Power Phase 2 has been reached. This output has been used in interface circuitry to provide emergency power coordination between an MCE system and another elevator system.
NFRS - FRS Complemented	low	This output is low when the FRS, Fire Sensor input is high and vice versa.
PTR(x) - Permission to Run, Car (x)	low	(X = A thru L)The PTR(x) outputs are an indication of the Group Supervisor's decision to allow a car to run. Used in Emergency Power operation, the per car PTR flag is turned ON and the PTR(x) output is activated when the Group Supervisor decides that a car should *not* be allowed to run.
SFWI - System Fire Warning Indicator	low	Indicates that at least one of the cars in the Group System is in the process of a Fire Phase 1 return.
SOS - System Out of Service	low	Activated if there is no communication with any cars, or if the flag HCDD is ON. The HCDD flag is ON if the Group is on Fire Service, Emergency Power, the hall call bus fuse is blown or one or more cars are on Chicago Fire Service.
UHA - Up Hall Call Active	low	This output is normally low and is activated high any time an Up Hall Call is registered. It is typically used to illuminate a Hall Call Active lamp.

TABLE R.9 M3 Group Supervisor Computer Variable Flags

M3 GROUP SUPERVISOR COMPUTER FLAGS

FLAG	ADDRESS	LED	DESCRIPTION
ALLISR - All Cars in Service	GRP 3F	6	Indicates that all of the cars in the group system are in service at this time.
BAL - Balanced Program Running	GRP 30	1	The Group Supervisor is running in the Balanced mode of operation. See Section 5.1.2, *Modes of Operation* for more information.
BALI - Balanced Input	GRP 2D	5	The BALI, Balanced Program Input has been activated (pulled high).
CCA - Car Call Above	CAR(x) 21	2	Car (x) has a car call registered above its current location.
CCB - Car Call Below	CAR(x) 21	1	Car (x) has a car call registered below its current location.
CCD - Car Call Disconnect	CAR(x) 22	4	The CCD flag on Car (x) is ON.
DDP - Demand Down Peak Program Running	GRP 30	4	The Group Supervisor is running in the Demand Down Peak mode of operation. See Section 5.1.2, *Modes of Operation* for more information.
DDPI - Demand Down Peak Input	GRP 2D	8	Indicates that the DDPI, Demand Down Peak Input has been activated (pulled high).
DEL - Delta flag	CAR(x) 22	2	The Delta flag is an indication that the specified elevator's MG set has transferred to the delta configuration. This status is simulated, and is used for hall call assignment purposes by the M3.
DLK - Door Lock	CAR(x) 20	5	The DLK flag on Car (x) is ON. The DLK flag is ON when the DLS, Door Lock Sensor input is pulled high indicating that the landing doors are closed and locked.
DOF - Door Open Function	CAR(x) 20	8	The Door Open Function output is generated by the individual elevator controller to open its doors. Once the doors are fully open (as indicated by the DOL input), the DOF output is extinguished, removing power from the door operator.
DOL - Door Open Limit	CAR(x) 20	7	The Door Open Limit input is read by the individual elevator controller. This input reflects the status of the door open limit contact. When the door open limit contact opens (when the door is in its fully open position) voltage is removed from the DOL input (voltage is present otherwise).
DSS - Down Service Select	GRP 30	6	This flag indicates that an elevator has been selected to service down hall calls, during a Demand Up Peak mode of operation. Service to down hall calls is limited during Demand Up Peak operation, as priority is given to up hall calls during this mode of service.
DUP - Demand Up Peak Program Running	GRP 30	3	Indicates that the Group Supervisor is running in the Demand Up Peak mode of operation. See Section 5.1.2, *Modes of Operation* for more information.
DUPI - Demand Up Peak Input	GRP 2D	7	Indicates that the DUPI, Demand Up Peak Input has been activated (pulled high).
DZ - Door Zone	CAR(x) 20	6	Car (x) is located within 3" (76mm) of the floor. The door zone defines the zone within which the doors may be opened.
EP1 - Emergency Power Phase 1	GRP 2D	4	The Emergency Power Input (EPIN) is low and the Group is operating in Emergency Power Phase 1 mode. It is during this mode that elevators are lowered one by one to the lobby floor.
EP2 - Emergency Power Phase 2	GRP 31	1	The Group is operating in Emergency Power Phase 2 mode. The car(s) in use are determined by the AUTO, Emergency Power Auto input or the ACS(x), Emergency Car Select input(s). The Group will remain in this mode until the EPIN input is pulled high indicating that commercial power is again available.
EPIN - Emergency Power Input	GRP 2D	3	The Emergency Power Input indicates the status of power delivered to the elevator system. The EPI input is pulled high when commercial power is available. When power is removed from EPI, the M3 will enter the emergency power mode of operation.
FCS - Fire Service Phase 2	CAR(x) 21	8	Car (x) is on Fire Service Phase 2 operation.
FRA - Alternate Fire Service Phase 1	GRP 2D	2	The FRA, Alternate Fire Sensor input is low and the Group is in Alternate Fire service Phase 1. Cars proceed to the floor determined by the AFR, Alternate Fire Floor Recall variable setting in each local Car Controller. See *Setting the Software Options - Adjustable Control Variables* in the local Car Controller Installation Manual for more information.
FRS - Main Fire Service Phase 1	GRP 20	1	The FRS, Main Fire Sensor input is low and the Group is in Main Fire Service Phase 1 operation. Cars proceed to the floor determined by the MFR, Main Fire Floor Recall variable setting in each local Car Controller. See *Setting the Software Options - Adjustable Control Variables* in the local Car Controller Installation Manual for more information.

TABLE R.9 M3 Group Supervisor Computer Variable Flags

M3 GROUP SUPERVISOR COMPUTER FLAGS

FLAG	ADDRESS	LED	DESCRIPTION
H - High Speed	CAR(x) 20	3	Car (x) is running at high speed.
HCD - Hall Call Bus Fuse Blown	CAR(x) 23	1	This flag is transmitted by the M3 to the individual elevator controllers as an indication that hall calls have been canceled due to an abnormal circumstance (see HCDD).
HCDD - Hall Call Disconnect	GRP 2C	6	The HCDD flag is ON if the Group is on Fire Service, Emergency Power, or the hall call bus fuse is blown.
HCLD - Hall Call Bus Fuse Blown	GRP 2C	5	This logical flag indicates that the power feed to the hall call buttons has failed.
ISR - In Service and Ready	CAR(x) 20	1	This flag indicates that the individual elevator is in service, and able to answer hall calls. The ISR flag is turned OFF for any reason which prevents the elevator from accepting a hall call
ISV - In Service	CAR(x) 20	2	The ISV flag is an indication of an elevator's ability to be moved. The ISV flag is turned OFF in response to all electro-mechanical faults, inspection operation, independent service, earthquake and fire service operation.
LCD - Lobby Car Disabled	CAR(x) 24	7	During Lobby Up Peak service, elevators not identified for lobby departure are prevented from leaving the lobby via car calls. The Lobby Car Disabled flag indicates such status.
LRF - Lobby Return Function	CAR(x) 24	8	During Lobby Up Peak service, elevators are recalled to the lobby landing for immediate availability for Lobby up hall call response. The Lobby Recall Function flag is the command to the individual elevator to recall.
LUP - Lobby Up Peak Program Running	GRP 30	2	Indicates that the Group Supervisor is running in the Lobby Up Peak mode of operation. See Section 5.1.2, *Modes of Operation* for more information.
LUPI - Lobby Up Peak Input	GRP 2D	6	Indicates that the LUPI, Lobby Up Peak Input has been activated (pulled high).
PTR - Permission to Run	CAR(x) 22	4	Used in Emergency Power operation, the per car PTR flag is turned ON when the Group Supervisor decides that a car should *not* be allowed to run.
PTS - Permission to Start	CAR(x) 23	5	The Permission To Start flag is generated by the logic which coordinates the starting of MG sets (sequential starting). When PTS is turned OFF, permission has been granted to an individual elevator which has requested permission to start its MG.
RUN - Running	CAR(x) 21	7	Car (x) is running. The RUN flag is generated by the individual elevator controller and transmitted to the M3.
SDA - Down Arrow	CAR(x) 21	6	The Down Arrow indicates normal call demand in the down direction.
SUA - Up Arrow	CAR(x) 21	5	The Up Arrow indicates normal call demand in the up direction.
USS - Up Service Selected	GRP 30	5	This flag indicates that an elevator has been selected to service up hall calls, during a Demand Down Peak mode of operation. Service to up hall calls is limited during Demand Down Peak operation, as priority is given to down hall calls during this mode of service.
YRQ - Wye Request	CAR(x) 22	1	The Wye Request is generated by the individual elevator controller when it wants to start its MG set. Permission to do so is granted by the M3 via the PTS flag (see PTS).

INDEX

D

E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

V

W

Y