



# COMPLEX HYDRAULIC ELEVATOR CONTROLLER MANUAL

GAL Manufacturing Corp.  
50 East 153rd Street  
Bronx, NY 10451  
**Technical Support: 1-877-425-7778**

## **FOREWORD**

G.A.L. has developed this manual with usability and safety in mind. General and specific safety notices and precautions are defined in the manual. However, G.A.L. cannot be responsible for any injury to persons or damage to property (including the elevator equipment) resulting from negligence, misuse of the equipment, misinterpretation of instructions included in this manual, or due to any other cause beyond the control of G.A.L.

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## ***IMPORTANT WARNINGS AND NOTES***

The label **WARNING** denotes operating procedures and practices that may result in personal injury and/or equipment damage if not correctly followed.

The label **Note** denotes procedures, practices or information which is intended to be immediately helpful and informative.

**WARNING:** Installation and wiring must be in accordance with the national electrical code, all local codes, and elevator codes and regulations. The 3 phase A.C. power supply to the equipment must come from a properly fused disconnect or circuit breaker (not capable of delivering more than 10,000 rms symmetrical amperes). Improper motor branch circuit protection will void warranty and may create a hazardous condition.

**WARNING:** Wiring to the controller terminals must be done in a careful, neat manner. Stranded wire conductors must not have strands left out of the terminals. Leaving strands of wire out of the terminals creates potential shorts. All terminals and cable connectors must be seated properly. Flat cable connectors pin #1 (arrow symbol on connector) must match the red stripe on the cable.

**WARNING:** 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 running of elevators, and local codes.

**WARNING:** This equipment is an O.E.M. product designed and built to comply with ASME A17.5 and national electrical code and must be installed by a qualified contractor. It is the responsibility of the contractor to make sure that the final installation complies with any local codes and is installed safely.

**WARNING:** Proper grounding is vitally important to the safe and successful operation of this system. Bring a separate ground wire for each controller from the building ground to the ground lug on the controller. You must choose the proper conductor size and minimize the resistance to ground by using shortest possible routing. See National electrical code article 250-95, or the related local applicable code.

**WARNING:** Use only the correct rated fusing for controller protection. Use of over rated fusing will void the warranty.

**NOTE:** Every precaution, whether specifically stated here or not, should be taken when installing, adjusting or servicing any elevator. Common sense safety precautions should be followed to make sure life and limb of the service person and public is not endangered.

**NOTE:** Keep the machine room clean. Do not install the controller in a dusty area. Do not install the controller in a carpeted area. Keep room temperature between 32 F and 110 F. Avoid condensation on the equipment. Do not install the controller in a hazardous location and where excessive amounts of vapors or chemical fumes may be present. Make sure power line fluctuations are within +/- 10 percent.

# ***SECTION - 1 GENERAL PRODUCT DESCRIPTION***

## ***1.1 INTRODUCTION***

The **GALaxy** hydraulic elevator controller is a computer-based system that offers superior performance, flexibility and reliability. It has been designed to save time in installation and troubleshooting, but it is still very important that the field personnel who work with this equipment familiarize themselves with this manual before attempting to install the equipment.

### **SPECIFICATIONS:**

#### Environment:

- 35 F to 110 F ambient
- 12,000 ft. altitude
- 95% humidity

#### Standard Features:

- CSA B44.1-96 ASME A17.1-1996,
- ASME 17.1-2000 Certified Inspection Operation (car top and controller)
- Access Operation Independent Service Earthquake Service Emergency Power Fire Service Phase I
- Fire Service Phase I Alternate Return Fire Service Phase II
- Low Oil
- On Board Diagnostic LEDs
- On Board LCD Display Interface Two Motor Protection Timers Door Motor Protection Timer Several Field Adjustable Parameters (Door Times, Lobby, etc.)
- Elevator Duty Rated NEMA Motor
- Optional Features:
- Selective Rear Doors Attendant Service
- Code Blue Hospital Service
- Loss of Power Emergency Lowering Security
- Remote Diagnostics

## 1.2 PHYSICAL LAYOUT OF THE CONTROLLER

Figure 1.1 shows a typical layout of the GALaxy controller in a standard G.A.L. cabinet. Below, is a brief description of each block:

**1038 Main Control Board:** The main control board contains all the input and output devices, controller switches, fuses and field wiring connections.

**Safety Processor Board:** The Safety Processor board uses a microprocessor and a PAL device to implement the independent speed and redundancy checks required for A17.1-2000 compliance. This board has its own LCD display and parameters.

**Main CPU:** The computer board is a single board IBM compatible computer. It executes the program and turns on and off the Inputs and Outputs.

**LCD Display:** The LCD display board provides a user interface to all controller adjustment and setup parameters. It also shows diagnostic information.

**Power Supply:** The power supply provides power to the computer and its peripheral boards. It is a 5 volt DC regulated power supply rated at 3 amps with over voltage, and short circuit protection.

**Options:** This section of the controller is provided to mount options items such as a PI display driver.

**System Transformer:** The system transformer is located in the lower part of the cabinet. It is usually a 500VA building power to 120 VAC transfer. It is used to convert the building power to a lower voltage for the signals and valve power.

**Starter:** The motor starter is an elevator duty rated NEMA contactor or Soft start device.

**Ground Terminal:** The ground terminal block is where the earth ground is attached.

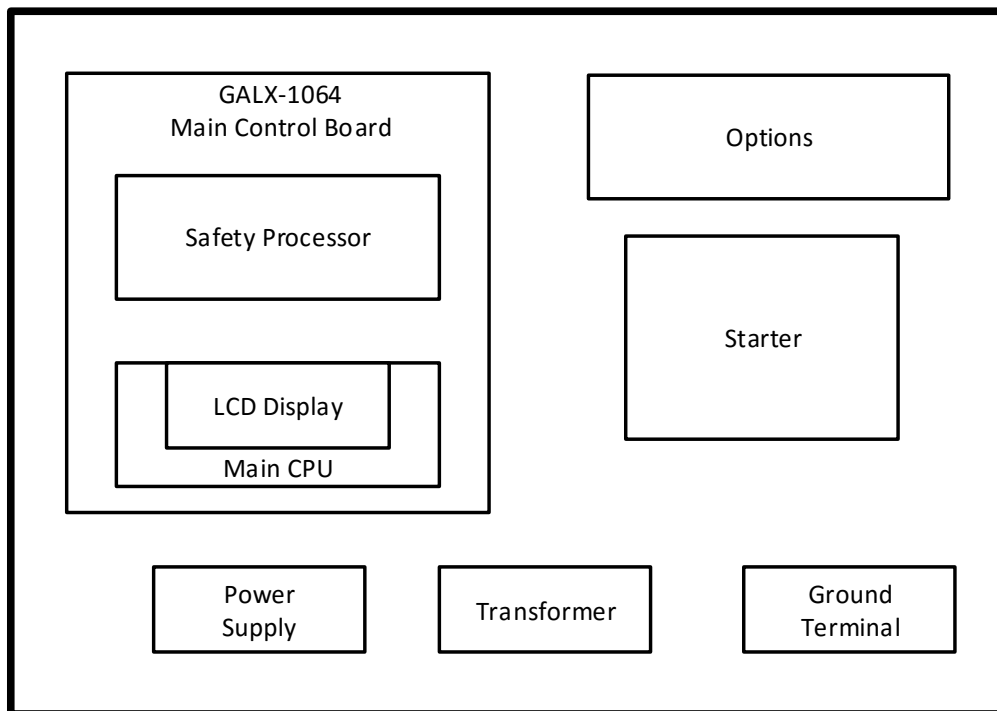


Figure 1.1 Typical Physical Layout



### **1.3 SELECTOR SYSTEM**

The selector system for the GALaxy controller uses a steel tape that is hung the length of the hoistway. A set of magnets are placed on the tape at each floor having one 8" magnet as the door zone magnet and two smaller 2" magnets as slowdowns. The selector is mounted on the car and is guided along the tape by nylon guides to keep the tape and magnets the proper distance from the selector sensors. The controller uses the door zone magnet to determine the elevator's level position to the floor.

The tape is installed by first attaching it at the top of the hoistway approximately 12 inches from the rail, see Figure 1.1. The tape is then unreeled from the top of the car while running down on inspection. At the bottom of the hoistway it is attached with a spring to keep it taut. The selector is then mounted on the top of the car and is connected to the tape by the nylon guides. Figure 1.2 shows a typical mounting of the selector to the crosshead.

To install the floor magnets, the car is placed dead level to the desired floor. The tape is then marked at the top left of the selector through a factory cut guide hole. The car is moved below the floor so the tape can be accessed where the selector was sitting at floor level. A door zone template, provided by G.A.L., is placed at the mark and the door zone magnet is placed at the appropriate locations in the template. The template is then removed from the tape. The slowdown magnets are then placed at the measured distance on the tape above and below the floor. The location of each magnet is shown in Figure 1.3.

#### **1.3.1 SLOWDOWN MAGNETS**

The slowdown magnets are used to signal the CPU to transfer to leveling speed (to turn off the high speed output). Table 1.0 shows the slowdown magnet distances with respect to contract speed. All distances are show in inches.

Fpm	US, DS
100	20"
150	30"
200	40"
250	50"

**Table 1.0: Slowdown Distances**

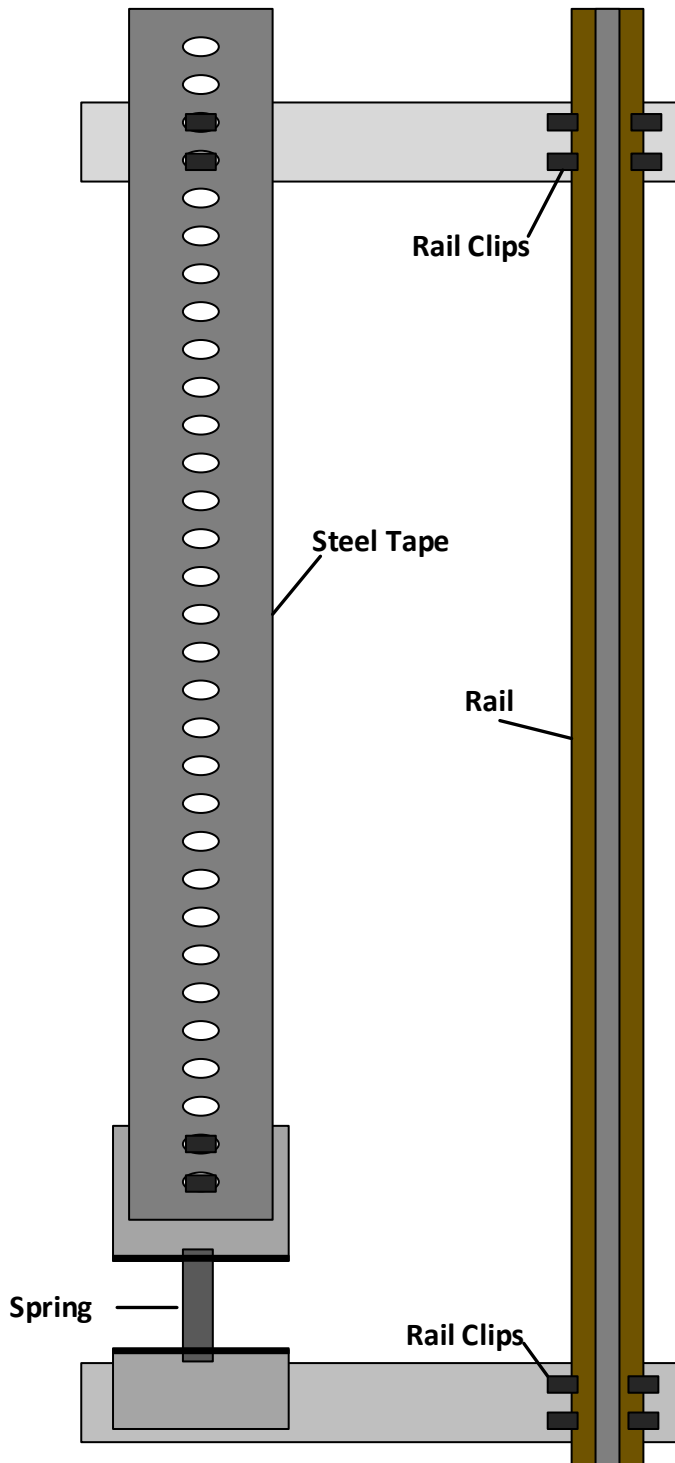
#### **1.3.2 SECONDARY SPEED FEEDBACK**

The tape is perforated with 3/8 inch holes every 3/8 of an inch. A sensor is mounted on the selector to provide a secondary speed feedback to the Safety Processor Board. The Safety Processor uses this velocity to verify that the car is traveling at a safe speed when slowdown limits are hit, when the car doors are open and when running on inspection.

There are three type of inputs used to verify the car speed at the terminal landing. Traction cars with

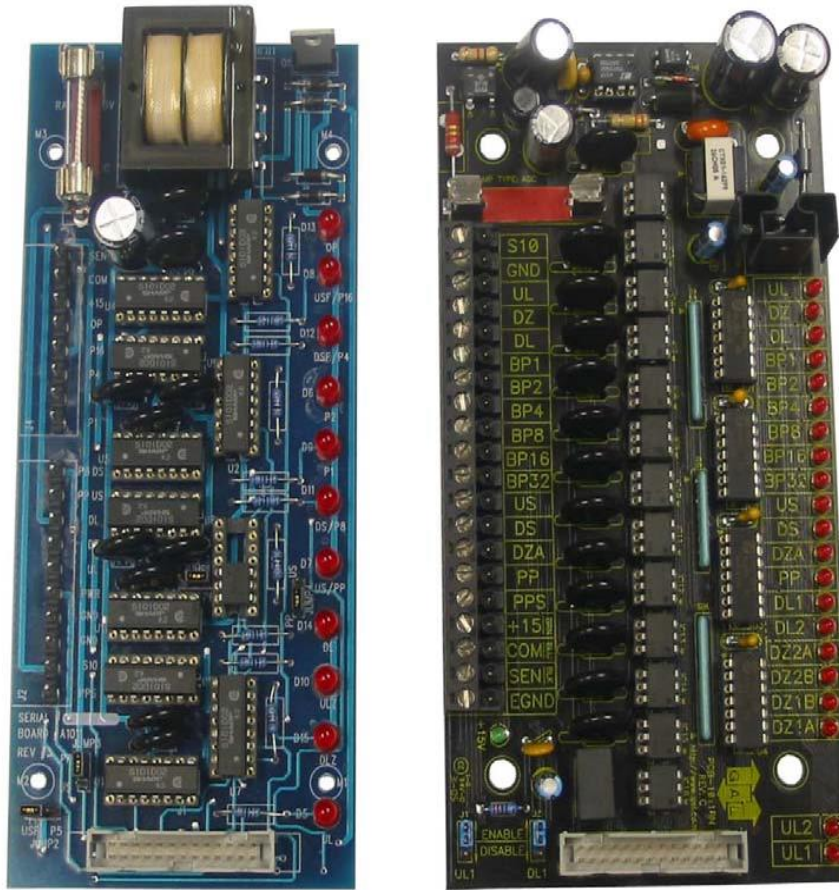
distance feedback use the normal slowdown limits “UT & DT” and the emergency slowdown limits “UTS & DTS”. Hydro and traction non-distance feedback cars use the level sensors from the selector “UL & DL” at the terminal landings for the velocity check and are validated with “UTS & DTS” emergency slowdown limits. For all control systems, the “UT & DT” limits are used to verify the operation of “UTS & DTS”

**Figure 1.2: Typical Tape Mounting**





**Figure 1.3: Typical Mounting of Selector**



**Figure 1.3a – Selector Boards**

Depending on the type of selector board you have the selector magnet placement will vary. If you have the selector board on the left in Figure 1.3a then you need to follow the selector magnet placement shown in Figure 1.4. If you have the selector board on the right in Figure 1.3a then you need to follow the selector magnet placement shown in Figure 1.5. The selector board can be located inside the selector box..

Figure 1.4: Selector Magnet Placement (A1011 Board)

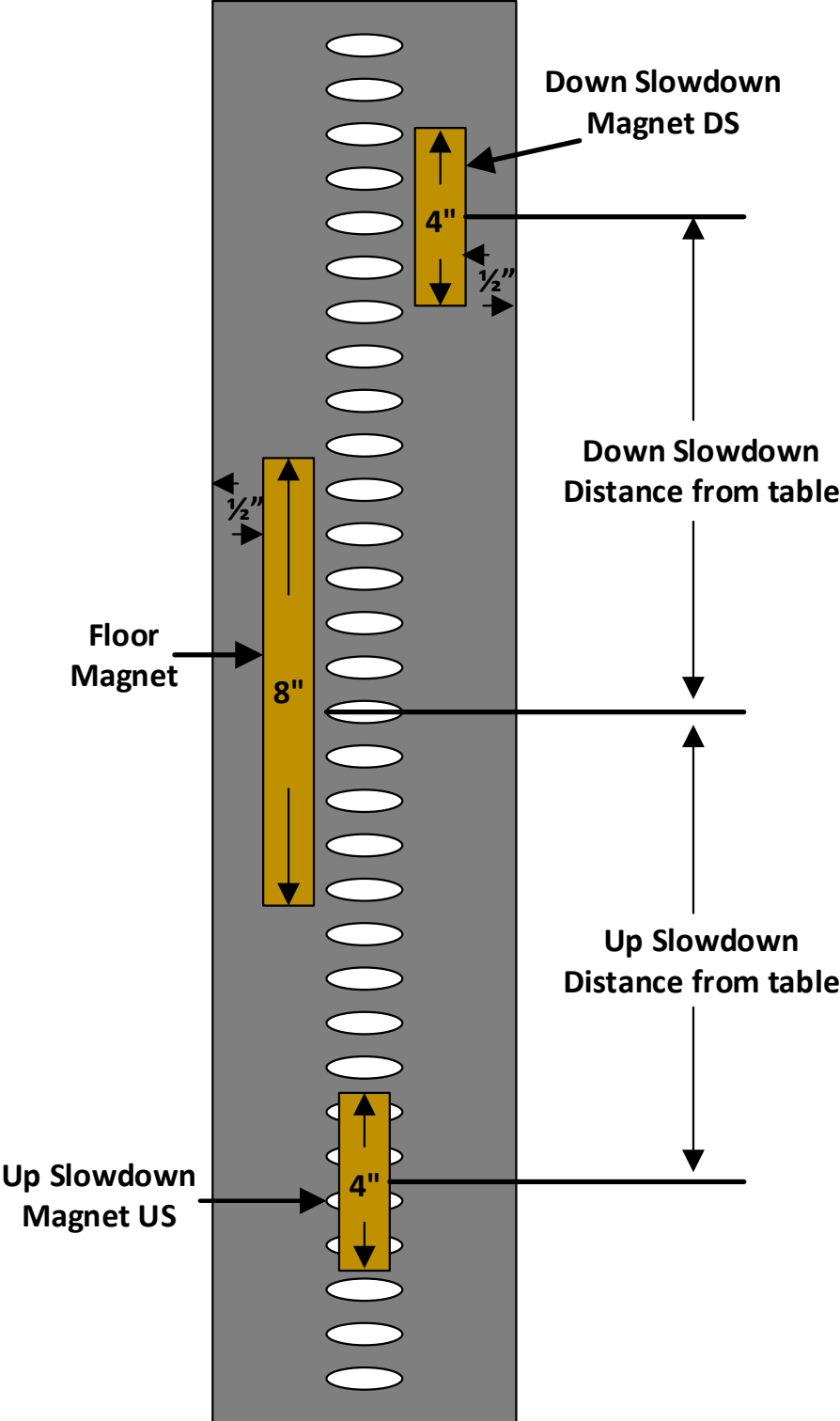
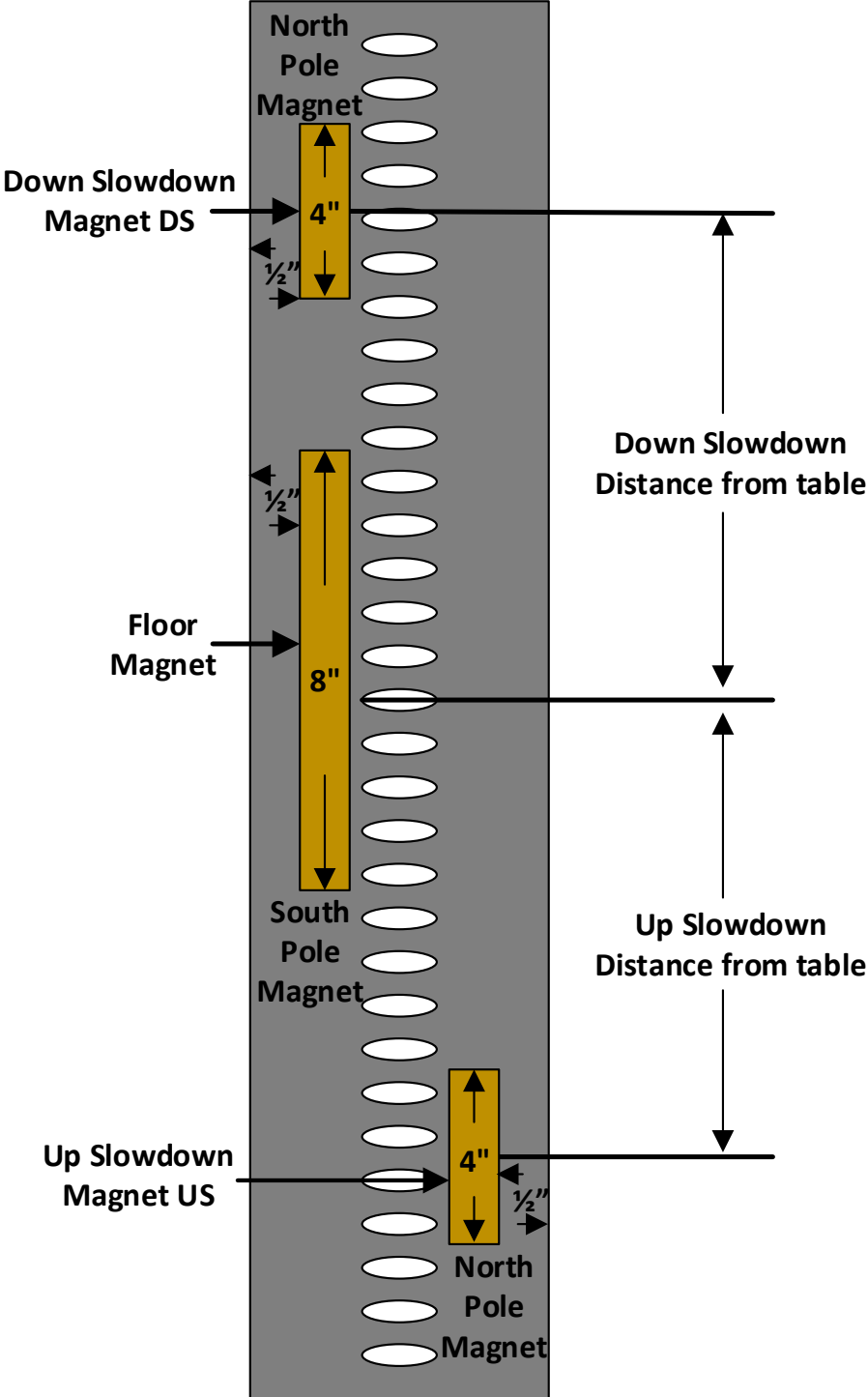


Figure: 1.5: New Selector Magnet Placement (GALX-1011BN Board)



## **1.4 MODES OF OPERATION**

### **1.4.1 OPERATING SEQUENCE**

Normal elevator operation, Automatic Mode, is selective-collective. When the elevator is traveling upwards to answer calls, all up hall calls at floors above the car are answered in the order reached by the car, regardless of the order in which the calls were registered. Upon reaching each landing with a car call or hall call registered, the car and hall doors at that floor are automatically opened.

The doors stay opened for a dwell time that is field adjustable. There are three different dwell times depending on whether it is a lobby call, car call, or hall call. The door will close before the set dwell time has elapsed if a passenger presses the door close button. The door will reopen before it is fully closed if the door open button is pressed, if a passenger pushes on the safety edge, if the photo-eye light beam is interrupted, or if a call for that floor in the direction of travel is pushed. The door will close when the door opening condition is eliminated. When the door has fully closed, the calls are answered.

When all up hall calls and car calls above the car have been answered, the elevator reverses direction and travels downward to answer car calls and down hall calls placed below the car. The calls are answered as previously described for up calls. When all calls below a down car are answered, the car reverses direction to repeat the cycle. In short, an elevator traveling up will bypass down hall calls, and an elevator traveling down will bypass up hall calls.

In buildings with more than one elevator grouped together, the actual time of arrival, "real time", is used to estimate how long each elevator will take to answer a hall call. The elevator that can respond the fastest takes the call. Real time based dispatching permits the controllers to quickly respond to actual demand for elevator service. Some of the criteria used to estimate the time of arrival are listed below.

- Actual elevator floor to floor run times.
- Actual run time to the floor whether it is a multi-floor run or a one floor run. Whether the elevator is in or out of service.
- Whether the elevator is in load weigh bypass mode.
- The direction and position of each elevator in the group.
- The average door cycle time at each stop.
- Status of each elevator, accelerating, full speed, decelerating, actual time in motion.
- Number of stops required due to car calls.
- Number of stops required due to previously assigned hall calls.
- System demand.

The above performance criteria is continuously measured and stored for improved accuracy in the dispatching algorithm. All of the above data is continuously scanned and the hall calls are reassigned if the conditions change and another car can respond faster. The ability to measure actual hall waiting time virtually eliminates long waiting and improves the average hall call waiting intervals throughout the building.

### **1.4.2 RESET MODE**

Reset mode is initiated when the elevator power is first turned on, or when the system is reset. When the reset mode is initiated, the controller program is automatically loaded, and internal tests are run to ensure that both the car and controller are electrically operational before putting the car into service. The car will not move until reset mode is completed. Some of the tests are: is the safety string made, is the elevator on inspection operation, is the door close limit open, are the interlocks made up, and whether the controller knows where the elevator car is within the hoistway. If all the safeties are made up, and the elevator is on automatic operation, and it is floor level, the elevator will go into automatic mode. If the elevator is not at floor level, it will perform a home run to either the top or bottom landing. If the elevator is on the down terminal slowdown, and not on the leveling magnet, it will go to the top landing. If the elevator is anywhere else, it will reset to the bottom floor.

### **1.4.3 SAFETY STRING OPEN MODE**

Safety string open mode is initiated when a safety is open. Some of the safeties are listed below.

- The reverse phase relay.
- The top final
- The bottom final
- The pit switch
- The car top stop switch

When the safety string is made back up, the elevator will go back to reset mode.

### **1.4.4 CONTROLLER INSPECTION MODE**

The controller inspection mode is initiated by placing the "INS" switch on the 1038 board in the inspection position (down). Controller inspection mode permits operation of the car from the machine room. This mode performs the following operations:

- Enables the controller inspection "UP" and "DOWN" pushbuttons.
- Door locks are active and must be closed to move the car.
- Pressing the controller "UP" pushbutton causes elevator to move at inspection speed in the up direction.
- Pressing the controller "DOWN" pushbutton causes the elevator to move inspection speed in the down direction.

### **1.4.5 CAR TOP INSPECTION MODE**

This inspection mode is initiated by placing the inspection switch on top of the car in the inspection position. Inspection mode permits operation of the car from the car top inspection station. This mode performs the following operations:

- Disables access top and access bottom hall switches. Disables the controller inspection up and



- down pushbuttons. Enables the car top inspection station up and down pushbuttons.
- Door locks are active and must be closed to move the car.
- Pressing the inspection station up and safe pushbuttons causes the elevator to move at inspection speed in the up direction.
- Pressing the inspection station down and safe pushbuttons causes the elevator to move at inspection speed in the down direction.

#### **1.4.6 ACCESS MODE**

The access mode is initiated by placing the key operated access switch located in the car operating panel to the on position. Access mode allows entrance into the hoistway by qualified and authorized elevator maintenance personnel for equipment inspection and service. Access to the top of the car is possible from the top landing, or to the pit from the bottom landing. Enabling this mode permits the following operation.

- Enables the access key switches at the top and bottom landing in the entrance door jambs.
- Bypasses the gate switch to allow car movement with the car door open.
- Bypasses the top or bottom landing hall door lock, depending on which terminal access switch is being keyed.
- Turning the access key switch to the up position causes the elevator to move at inspection speed in the up direction.
- Turning the access key switch to the down position causes the elevator to move at inspection speed in the down direction.

#### **1.4.7 INDEPENDENT SERVICE MODE**

The independent service mode is initiated by placing the key operated independent switch located in the car operating panel to the on position, or by placing the controller toggle switch "IND" to the down position. Independent mode permits operation of the car with an operator. This mode performs the following operations:

- Hall initiated calls are ignored.
- Hall lanterns and gongs are disabled.
- The doors open automatically and stay open until closed by the operator.
- Closing the doors requires constant pressure on the door close button.
- When the car door is closed, the car answers the nearest car initiated call in the direction of travel.

#### **1.4.8 LOAD WEIGHING BYPASS MODE**

The load weighing bypass mode is initiated when the car is loaded to a predetermined percentage of full capacity, by closing a connection between terminals "LC" and "LW". Load weigh bypass mode allows the car to answer car calls and lighten the load before answering any more hall calls. This mode performs the following operations:

- Hall initiated calls are ignored.
- All other elevator functions as if on full automatic service.

#### ***1.4.9 ATTENDANT SERVICE MODE***

The attendant service mode is initiated by placing the key operated attendant switch located in the car operating panel to the on position. Attendant mode permits operation of the car with an attendant. This mode performs the following operations.

- The doors open automatically and stay open until closed by the attendant.
- Closing the doors requires a momentary pressure on the door close button, or the up or down buttons located in the car operating panel.
- Hall initiated calls are answered unless there is constant pressure on the bypass button.
- Hall lanterns and gongs are enabled.
- The direction of preference can be specified by momentary pressure on the up or down buttons located in the car operating panel.

#### ***1.4.10 CODE BLUE HOSPITAL SERVICE MODE***

Code blue hospital service mode is initiated by turning one of the code blue switches, located at each floor where medical emergency service is required, to the on position. A car is selected to respond to the code blue call. That car will perform the following:

- Cancel all car calls
- Any hall calls previously assigned will be transferred to another car.
- If traveling toward the code blue call, it will proceed nonstop to the code blue call floor.
- If traveling away from the code blue call, it will slow down and stop at the nearest floor, maintain doors closed, reverse direction and proceed nonstop to the code blue call floor.
- If at a floor other than the code blue call floor, the elevator will close the doors and proceed nonstop to the code blue call floor.
- Once at the code blue call floor, the doors will open and remain open.
- The code blue in car switch located in the car operating panel must then be turned to the on position. If the code blue in car switch is not turned to the on position within 60 seconds from the time the doors reach full open on the code blue call floor, the car will revert back to normal operation.
- Upon activation of the key switch, it will allow the car to accept a car call for any floor, close the doors, and proceed nonstop to the floor desired.
- The return of the code blue in car key switch to the normal position will restore the car to normal service.

#### ***1.4.11 FIRE SERVICE PHASE I MODE***

Fire service phase I is initiated when the primary smoke sensor is activated or the fire key switch located in the hall station on the primary return floor is turned to the on position. The primary return floor is usually the lobby floor, but could be another landing if it better serves the needs of emergency personnel when fighting a fire or performing rescues. When fire service phase I is enabled:

- The fire emergency return light illuminates and the fire buzzer sounds. The emergency stop switch is disabled when the door closes.
- The car travels to the primary return floor without answering any calls, then parks with the door open. The fire buzzer turns off, but the fire emergency return light stays illuminated.
- If the car is at a landing with the doors open, the doors will close, and the car will return non-stop to the primary return floor. If the car is traveling away from the primary return floor, the car will stop at the next landing, then go immediately to the primary return floor.
- Turning the fire service key switch to the bypass position will restore the elevator to normal service.
- The elevator will perform per ASME A17.1 section 211.3 unless otherwise specified.

#### ***1.4.12 FIRE SERVICE PHASE I ALTERNATE RETURN MODE***

Fire service phase I alternate return is initiated when the smoke sensor in front of the elevator at the primary return floor is activated. When fire service phase I alternate return is enabled:

- The fire emergency return light illuminates and the fire buzzer sounds.
- The emergency stop switch is disabled when the door closes.
- The car travels to the alternate return floor without answering any calls, then parks with the door open. The fire buzzer turns off, but the fire emergency return light stays illuminated.
- If the car is at a landing with the doors open, the doors will close, and the car will return nonstop to the alternate return floor. If the car is traveling away from the alternate return floor, the car will stop at the next landing, then go immediately to the alternate return floor.
- Turning the fire service key switch the bypass position will restore the elevator to normal service.
- The elevator will perform per ASME A17.1 section 211.3 unless otherwise specified.

#### ***1.4.13 FIRE SERVICE PHASE II MODE***

To initiate fire service phase II, the car must first have been placed in fire service phase I, and, as a result, be parked at the designated level with the door fully open. Following that, the key operated fire service phase II switch, located in the car operating panel must be placed in the on position. Fire service phase II permits operation of the car by a fire fighter. This mode performs operations in accordance with ASME A17.1 as follows:

- The doors close only with constant pressure on the door close button, after they have been fully opened.
- The doors open only with constant pressure on the door open button, after they have been fully closed.
- Hall lanterns and gongs are disabled.
- Safety edge and electric eye are disabled
- All registered car calls can be canceled with momentary pressure on the call cancel button

- located in the car operating panel.
- All hall calls are disabled.

To remove the car from fire service phase II the car must be at the fire return landing with the doors in the full open position and the phase II switch turned to the off position. See ASME A17.1 for specific operation of fire service phase II.

#### ***1.4.14 EMERGENCY POWER***

Emergency power is initiated when a connection is made between terminals “HC” and “EMP”. This mode is used in buildings that have a backup power system to run at least one elevator in Automatic mode. Emergency power performs the following operations:

- All cars are returned to the bottom floor one at a time, and remain there with their doors open.
- If a car is selected to run it will go back into normal operation.
- Removing the connection between terminals “HC” and “EMP” will remove the cars from emergency power operation.

#### ***1.4.15 EARTHQUAKE MODE***

Earthquake mode is initiated upon activation of a seismic switch. This mode performs the following operations:

- If in motion the car will proceed to the nearest available floor.
- Open the doors and shut down.

#### ***1.4.16 STALLED (LOW OIL) MODE***

Stalled mode is initiated when the elevator has been in run mode longer than the field adjustable anti-stall timer. This mode performs the following operations:

- Turns off the pump motor and stops the elevator.
- The car is returned nonstop to the bottom floor.
- Upon reaching the bottom floor the doors cycle, then the elevator is shut down.
- The door open button remains active.

**NOTE: Low Oil & Hot Oil *must* be reset in Elevator Setup->Reset Low Oil / Reset Hot Oil.**

#### ***1.4.17 AUTOMATIC MODE***

Since this is the normal operating mode, the controller automatically enters this mode if none of the

previously described modes are activated, and if no fault is detected. The following operations are performed in automatic mode:

- The car operates in selective-collective control sequence when answering calls. Hall calls and car calls are functional.
- Hall lanterns and gongs are operational.
- Simplex Cars Park at the last call answered unless simplex lobby parking has been enabled in the program. In a multi-car group, a car is always parked at the lobby if no other demand exists.
- The doors remain closed when the car is parked.

## ***SECTION - 2 INSTALLATION OF THE GALaxy CONTROLLER***

### ***2.1 GENERAL INFORMATION***

This section provides basic guidelines and recommendations for the proper installation of the controller equipment. These guidelines should be used as general instructions. They are not intended to usurp local codes and regulations.

### ***2.2 SITE SELECTION***

When choosing the installation site of the controller, several factors should be considered. If at all possible, the controller should be installed in a location where the mechanic has a good view of the machine when he is standing in front of the controller. There should be no obstructions around the controller that would prevent proper routing of necessary conduits entering the controller. The controller doors should have enough room to fully open and close. All clearances, working space, lighting, and guarding should comply with governing codes.

### ***2.3 ENVIRONMENTAL CONSIDERATIONS***

The standard controller package is provided with a NEMA 1 enclosure. This type of controller should be installed in a clean and dry environment. Ideally, the equipment room should be temperature controlled between 70 and 90 degrees F. However, control equipment will function properly within an ambient temperature range of 35 to 110 degrees F. If temperatures remain at the upper and lower extremes of this range for an extended period of time, the life expectancy of the control equipment may be shortened. If wet, dusty, or corrosive environments are expected, then optional non-standard enclosures can be provided. For example NEMA 4, NEMA 12, or NEMA 4X.

The control system is designed to have a high immunity to electrical noise, radio frequency radiation, and magnetic interference. However, high levels of these items could cause interference with certain parts of the control system.

The power supply feeding the controller should have a fluctuation of no greater than + or - 10%.

### ***2.4 WIRING GUIDELINES AND INSTRUCTIONS***

#### ***2.4.1 THE WIRING PRINTS***

Each set of wiring schematics is job specific. The job name and number will be listed in the bottom right corner of each page of the print. A separate binder will be provided for each job containing a complete set of wiring schematics.

#### ***2.4.2 GROUND WIRING***

Proper grounding of the power supply, controller, elevator car, and hoistway is required. Separate

conductors should be run for “EG” (earth ground) and “GND” terminals. These terminals and conductors are detailed on the wiring schematics.

### **2.4.3 HOISTWAY WIRING**

All hoistway wiring is detailed on the wiring schematics. The number of hoistway conductors is calculated and listed per job on the wiring schematics. A job specific “pull sheet” is also provided with the wiring schematics.

### **2.4.4 ELEVATOR CAR WIRING**

All elevator car wiring is detailed on the wiring schematics. The number of traveling cable conductors is calculated and listed per job on the wiring schematics. A job specific “pull sheet” is also provided with the wiring schematics.

### **2.4.5 MACHINE ROOM WIRING**

All machine room wiring is detailed on the wiring schematics. All wire sizes are listed for main power supply, motor wiring, brake wiring (traction only), and field wiring.

### **2.4.6 WIRING TO TOP OF CAR SELECTOR**

The car top selector is wired according to the schematics for the job. However, special attention should be given to wiring the pulse sensor on the selector since the output on this device uses +15VDC. Terminal PPS on the selector is wired to PPS on the controller and selector terminal PP/US is wired to PP on the controller. Note that since the PP/US output on the selector cannot work for both PP and US at the same time, the US and DS functions are wired from USF and DSF on the selector to US and DS respectively on the controller.

## **2.5 SLOWDOWN LIMIT SWITCHES**

There are two types of slowdown inputs used “UT & DT” and “UTS & DTS”. Slowdown switches “UT and DT” are used to open the “ON” command to the high-speed valve at the terminal landings independent of the control of the CPU.

The “UTS & DTS” limit switches are used as slowdown speed verification points by the Safety Processor board. If the car hits the velocity verification point at a speed greater than the preset speed, power is immediately removed from the pump motor and the motion valves are de-energized for an emergency stop.

The “UT & DT” limit switches are also used as speed verification points by the Safety Processor board. When the limit is first hit, the Safety Processor counts an adjustable number of pulse counts from that point to determine the velocity trip point. Since cars with only one slowdown limit would hit the limit at high speed

when recovering from being lost, the extra pulse counts from the limit allows the car to slow down before the trip point is reached.

The Safety Processor board uses the “UT & DT” limits to verify the operation of the “UTS & DTS” limits. The pulse input is also verified while running on automatic.

The distance that the limits are placed from the terminal landing depends on the speed of the car. Below, Table 2.0 shows the slowdown limit locations with respect to contract speed. All distances are show in inches.

### **2.6 NORMAL AND FINAL LIMIT SWITCHES**

The up and down directional limit switches “UN & DN” should be set to open one inch past the terminal floor levels. The top and bottom final limit switches should be set to open four inches past the terminal floor levels.

Fpm	UT/DT	UT1,2,3/DT1,2,3	UTS/DTS
50	10"	Not Used	8"
100	20"	Not Used	10"
150	30"	Not Used	15"
200	40"	Not Used	20"

**Table 2.0: Slowdown Distances from terminal landing.**



# **SECTION - 3 ADJUSTMENT OF THE GALaxy HYDRAULIC CONTROLLER**

## **3.1 GENERAL INFORMATION**

Before adjustment begins the following items must be completed.

- All field wiring and safety circuits installed
- Temporary jumpers from terminal "HC" to terminals "MES & ALT"
- All hoistway limit switches installed
- All car and hoistway doors and interlocks installed and pre-adjusted
- Selector installed and magnets pre-adjusted
- Valve pre-adjusted.
- Familiarize yourself with all wiring schematics

## **3.2 INITIAL POWER-UP**

### **3.2.1 CHECK MAIN-LINE VOLTAGE**

With main-line disconnect in the off position, check the line-side voltage with a volt meter to insure the voltage matches the controller name tag "Input Power" voltage. Check to insure all three phases are present. If voltage is not correct or all three phases are not present, do not proceed until corrected. If voltage and phases are correct, proceed to step "B".

### **3.2.2 SET TOGGLE SWITCHES**

Flip all toggle switches on the GALX-1064 main board down except for the car gate bypass and the door lock bypass switches. Flip those two switches up.

### **3.2.3 MAKE SURE THE CAR IS SAFE**

Verify that all elevator doors are closed and that all safety circuits are functional.

### **3.2.4 CHECK CONTROLLER VOLTAGE**

Turn the main-line disconnect to the on position. Check voltage at fuses L1, L2, and L3 (if present) on controller. If correct, check voltage at terminal "LIN" with respect to "GND". Voltage should read 120VAC. If correct, check voltage at terminals "S10, LC, & HC" with respect to "GND". All should read 120VAC. If not, check wiring diagram to determine problem before continuing.

### **3.2.5 VERIFY THE LCD GALaxy IS BLINKING**

Check to make sure that the “axy” of GALaxy on the LCD display is blinking. If the “axy” is blinking, continue to the next step. If not, check voltage at terminals 5V to 0V on the GALX-1064 main board to insure 5VDC. If 5VDC is present and the “axy” on the LCD display is not blinking, then contact factory.

### **3.2.6 PRESET ADJUSTABLE VARIABLES ON SAFETY PROCESSOR BOARD**

The safety processor (1028N) board is normally preset prior to leaving the factory, however, it is prudent to check the setup values for the proper settings. Refer to section 6 of this manual for the operation of the safety processor board LCD display interface. The following adjustment variables must be set properly:

Top Spd (contract speed)  
Enc RPM (if Fdbk Typ=1)  
Enc PPR (if Fdbk Typ=1)  
Fdbk Typ (0=tape, 1=enc)  
Ctrl Typ (1=Tr NDF, 2=Tract DF)  
2 Stop (0=Mult, 1=2 stop)  
RearDoor (0=Front only, 1=Rear)  
UTS Vel (Set to top speed)  
DTS Vel (Set to top speed)  
INS Vel (Set to 140)  
LEV Vel (Set to 140)  
UT Vel (Set to 500)  
DT Vel (Set to 500)  
UL Vel (Set to 160 if Non-DF)  
DL Vel (Set to 160 if Non-DF)  
Dmd Mult (Set to 1.000)  
SoftStop (Set to 1)

Note that the velocity variables will be setup once the car is running on automatic.

### **3.2.7 PLACE STOP SWITCH IN RUN POSITION**

Flip the “STOP” toggle switch on the GALX-1064 main board to the up position. Verify that input LED’s for “LC, HC, DN, UN, SS, GTS, RDY and CS” are all on. If not, then correct field wiring.

### **3.2.8 PUMP MOTOR ROTATION**

To check for proper rotation of pump motor, press the inspection “UP” push-button on the GALX-1064 main board just long enough for the motor to begin turning. If rotation is correct, continue to the next step. If rotation is wrong, then swap any two of the three legs feeding terminals “L1, L2, & L3” on the “DEL” contactor. Check to insure rotation is correct and then continue.

### **3.2.9 READY TO RUN ON INSPECTION**

The car should be ready to run on inspection if all is wired correctly. Select the "Elevator Status" on the main CPU board LCD display. The display should show "Out of Service" on the first line and "Inspection Mode" on the second. The LCD display on the Safety Processor Board will display one of the following types of inspection:

"MR INS" (Motor Room) "CT INS" (Car Top)  
"ACCESS" (Access) "IC INS" (In Car)  
"AUTO" (Not on Inspection)

To run the car from the motor room, "MR INS" should be displayed.

The "inspection string" consist of contacts from the inspection switches and the gate and lock bypass switches in series. One and only one of the five inspection inputs should be on for the car to run. Starting from the car top inspection input, the five inspection inputs are, "INS" for car top, "ACC" for access.

Note that if more than one inspection input is on, if no inspection input is on or if a gate or lock bypass switch is open and the car is not on car top inspection, an inspection error will be displayed on the Safety Processor LCD Display. If the controller is not on motor room inspection at this point, then verify all switch positions and wiring before proceeding.

### **3.2.10 CHECK SELECTOR INPUTS**

Run elevator on controller inspection to verify proper inputs from the selector. At each floor level the "UL, DL, & DZ" input LED's should be on. The "US, & DS" input LEDs should come on when the up & down slowdown magnets are passed.

### **3.2.11 VERIFY SLOWDOWN LIMITS**

As the car is running verify that the up and down slowdown sensors for each floor, "US and DS", activate prior to reaching the landing. Also verify that the up and down terminal slowdown limits inputs "UT, UTS, DT & DTS" are breaking at the proper distances as shown in the slowdown table 2.0. "US and DS" turn on when active but "UT, UTS, DT & DTS" turn off when active. "UT & DT" should turn off one inch closer to the terminal floor levels than when the "US & DS" inputs turn on.

### **3.2.12 VERIFY CAR SPEED ON SAFETY PROCESSOR BOARD**

Run the car in either direction and check the car speed on the safety processor LCD display. The speed shown should match the car's actual speed. If the speed does not match and the secondary feedback comes from pulses from the tape go to "Correct Car Speed When Using A Tape". If the secondary feedback comes from an encoder go to "Correct Car Speed When Using An Encoder". If the correct speed is shown proceed to the "Final Adjustment" section.

### **3.2.13 CORRECT CAR SPEED WHEN USING A TAPE**

The tape has holes every 3/8" that are 3/8" in diameter. The safety processor measures the time between each pulse to calculate the velocity. If the velocity is not displayed correctly first make sure that the feedback type in the safety processor board adjustable variable is set to 0 for a tape application. Next, while the car is running, make sure that the PULSE INDICATION LED on this board is pulsing. As the car increases in speed the LED will glow solid on. If the LED does not pulse, try swapping the wires at the PPS and PP terminals. If the LED still does not work, contact the factory. If the correct speed is shown proceed to "Final Adjustment".

### **3.2.14 CORRECT CAR SPEED WHEN USING AN ENCODER**

When using an encoder for the secondary speed feedback, make sure that the adjustable variables on the safety processor board are set properly.

Set the feedback type to 1 for encoder and set the encoder RPM and PPR appropriately for how the encoder is driven. If the correct velocity is not obtained, contact the factory. If the correct speed is shown proceed to the next step.

## **3.3 FINAL ADJUSTMENT**

### **3.3.1 AUTOMATIC RUN**

Run the elevator on controller inspection down until it stops on the down directional limit switch. All toggle switches on the 1038 board should still be in the down position except the "STOP" toggle switch, which should be in the up position. The valve should be pre-adjusted to provide the quickest transitions possible and leveling speeds at approximately 5 to 6 fpm.

With the elevator on controller inspection and on the down directional limit switch, flip the "INS" toggle switch

to the up position. If all is correct, the elevator should level up to floor level at the bottom floor. If elevator does level up and stop at the bottom floor then proceed to the next step.

If the elevator does not level up to the floor then verify that the "INS" input LED is on. If "INS" input LED is on, and the elevator does not level up, then check the selector and limit switches verifying proper input signals back to the controller.

### **3.3.2 SET FLOOR DEAD ZONE**

The elevator should now be at floor level at the bottom floor. When at floor level the "UL, DL,

& DZ” input LED’s should be on. If elevator continually tries to seek floor level by leveling up and down, then adjust valve and selector “dead zone” for proper stop. The selector “dead zone” is increased by moving the selector sensor boards closer together. Proceed to the next step.

### **3.3.3 ADJUST VALVE**

Setup car call, either from the LCD Display Interface or from simulating a pushbutton with jumper wire. The elevator should start up, accelerate to high speed, decelerate when slowdown point is reached, and level into floor. The doors will not open because toggle switches “IND & AD” are still in the down position.

Continue to run elevator by setting up car calls. Adjust valve for smooth accel, decel, and final stop in both up and down directions. Proceed to the next step.

### **3.3.4 ADJUST SAFETY PROCESSOR BOARD SPEED CLAMPS**

Make a one floor run to the top floor. The car must reach top speed on a one floor run. After the car stops, record the velocity the car hit the “UT, DT, UTS & DTS” slowdown limits. The velocity value is shown from the LIM VEL menu on the safety processor board LCD display.

The velocity value shown on the display for the “UT or DT” limit is the value after the car hits the limit then counts the adjustable number of counts set from “UT Count” or “DT Count”. When using a tape feedback, there are 16 pulse counts per foot or 1.333 pulses per inch. If the limit is set to 40” from the terminal, to set the checkpoint at 20” use a count value of  $(20 * 1.333) = 26.6$ . Round up and set the UT and DT count to 27. If the UT or DT Counts are modified, the limit velocity has to be rechecked.

Make a one floor run to the bottom floor and record the limit velocity when the car stops.

Take the speed value for the up or down terminal slowdown limit, add 15 fpm and then set the new value in the corresponding variable from the ADJ VAR menu.

### **3.3.5 VERIFY INSPECTION VELOCITY CLAMP ON SAFETY PROCESSOR BOARD**

With the car on inspection, set the inspection speed on the safety processor board to 25 fpm (Refer to Safety Processor Adjustable Variables in section 6). Set the inspection speed on the main CPU to 50 fpm (Refer to Adjustable Variables in section 5). Run the car in either direction on inspection. The car will shut down when the speed goes above 25 fpm. Reset the inspection speed on main CPU to the desired inspection speed and set the inspection speed on the Safety Processor to 140 fpm or lower. Make sure the car will run on inspection without shutting down.

### **3.3.6 ENABLE DOORS**

Before proceeding re-check all safety circuits and door lock circuits for proper operation. If all safety circuits and door locks are operating properly then flip the “AD” toggle switch to the up position, and the doors should open and remain open. The elevator is now on independent service. If the doors do not open, then check door operator wiring. Adjust door operator for proper operation. Proceed to the next step.

### ***3.3.7 FINE TUNE RIDE AND STOPS***

Run elevator to all floors. “Fine tune” all floor level magnets so that elevator stops level at all floors. Check all signals for proper operation. Flip the “IND” toggle switch to the up position. All four toggle switches should now be in the up position. Elevator doors should close and now be in full automatic operation. Check all hall buttons for proper operation. Proceed to the next step.

### ***3.3.8 FINE TUNE PARAMETERS***

Check all field adjustable parameters from the LCD Display Interface and set as desired.

## **SECTION - 4 TROUBLESHOOTING**

### **4.1 GENERAL INFORMATION**

The GALaxy controller is equipped with a number of features that aid in troubleshooting any problems that may occur. The physical layout of the controller provides ready access to all I/Os in order to make voltage measurements. All inputs have LED's to monitor the state of the input. The controller is also equipped with an LCD Display interface discussed in sections 5, and an LCD Display interface on the Safety Processor Board discussed in section 6. In this section the basic points of troubleshooting will be detailed.

### **4.2 MICROPROCESSOR CPU**

The CPU is very reliable and normally trouble-free. With power turned on, the "axy" in GALaxy on the LCD Display interface should be blinking at one second intervals to indicate that the CPU is running. If it is not blinking, then check voltage at the 5V terminal with respect to the 0V terminal on the GALX-1064 main board. This voltage should read 5VDC. If not, then check the input and output voltages of the DC power supply. If the "axy" is not blinking and 5VDC is present at the 5V terminal with respect to the 0V terminal, then contact the factory.

All job parameters that are not field adjustable are stored in FLASH. All job parameters that are field adjustable are stored in battery backed-up RAM. This battery is designed to back-up the RAM for one year with **no power on the system**. Under normal operating and maintenance procedures, the battery should last indefinitely. If, however, a battery were to go bad, the field adjustable parameters will return to the default settings when the main power is turned off. To check if the battery voltage is correct, measure the voltage from J17 on the CPU board to 0V on the GALX-1064 main board. This voltage should read approximately 3VDC. If not, the CPU board must be repaired by the factory.

### **4.3 INPUT/OUTPUT BOARDS**

The two main sections of all the I/O boards are the low voltage and the high voltage sections. The low voltage section consists of all the digital interfacing necessary for the CPU to communicate with the field components. The high voltage section consists of the field components (buttons, switches, lights, relays and sensors) and their associated input and output signals. The standard voltage for all I/O is 120VAC. However, if necessary, the I/O boards can accept a voltage range from 24V to 120V AC or DC.

It is very important that the wiring schematics are examined in order to determine the voltages for which the controller was designed before power is applied. The majority of problems that may arise with the control system are due to faulty inputs or outputs on the high voltage side of the system. For example, having a limit switch not feeding or an acknowledgment light out. The GALaxy control system is designed to enable the technician to check both the high voltage section and the low voltage section to correct the problem.

The high voltage section is checked with a digital voltmeter or with the individual LED's that are associated with each input. Depending on the particular input or output, the voltage measured at the terminal will either be "high" or "low" with respect to its reference point. For example, to determine whether or not the up terminal slowdown limit switch was feeding, the voltage should be measured at terminal "UT" with respect to "GND". If the switch is feeding it should read 120VAC. If the switch is open, the voltage should read less than 50VAC. Another means by which to determine whether the switch is feeding is to view the "UT" input LED. If the LED is on, the switch is feeding. If the LED is off, the switch is

open.

The previous example determines whether or not the field component is functioning properly. However, to determine if the signal is actually being communicated to the CPU the signal must be checked on the low voltage section of the board. The low voltage section is checked from the 16 diagnostic LED's on the main I/O board or from the LCD interface. Using the previous example, select the "Inputs and Outputs" menu on the LCD interface. Scroll through the I/O list until "UT" is located. It will show "UT=1" if the "UT" switch is feeding and "UT=0" if the switch is open.

A second example will show how to determine if an output is working properly. With the car at the first floor and the controller designed for 120VAC discrete position indicators, the "P1" output should be on. The voltage measured at terminal "P1" with respect to "GND", should read 120VAC. If the voltage reads less than 50VAC, the voltage supplied to the output device must be checked. The schematic, in this case, would show the "P1" voltage is supplied at the "PIC" terminal. A voltmeter would be used to measure the voltage between "PIC" and "GND". If that voltage is at the terminal but the indicator is not on. The LCD interface could be used to view if the CPU is turning the "P1" output on. From the LCD "Inputs and Outputs" menu, scroll through the I/O list until the "P1" is located. The display will show "P1=1" to turn on the "P1" output. For this example, since the CPU is turning on the output and the correct voltage is at the output common but not at the output terminal, it would indicate that the output solid-state relay for "P1" is defective and should be replaced.

All of the I/O's are optically isolated between the high voltage section and the low voltage section. The input opto-isolators are socketed IC's labeled "U\_" on the silk screens of the different I/O boards. The output solid-state relays are socketed ICs labeled "U\_" on the silk screens of the different I/O boards. If it is determined through the previous troubleshooting procedures that the input signal is present at the terminal, but is not being communicated to the CPU, the input opto-isolator may be defective and can be replaced in the field. If it is determined that the CPU is communicating the output signal to the solid-state relay, but the voltage does not go high at the terminal, the solid-state relay may be defective and can be replaced in the field. Any time ICs are replaced, the power should be turned off and care should be taken in removal of the old chip and replacement of the new one. All of the I/O and their associated IC's are listed in the wiring schematics.

#### **4.4 RUN SEQUENCE**

The following diagram in figure 4.1 shows the run sequence of the controller.



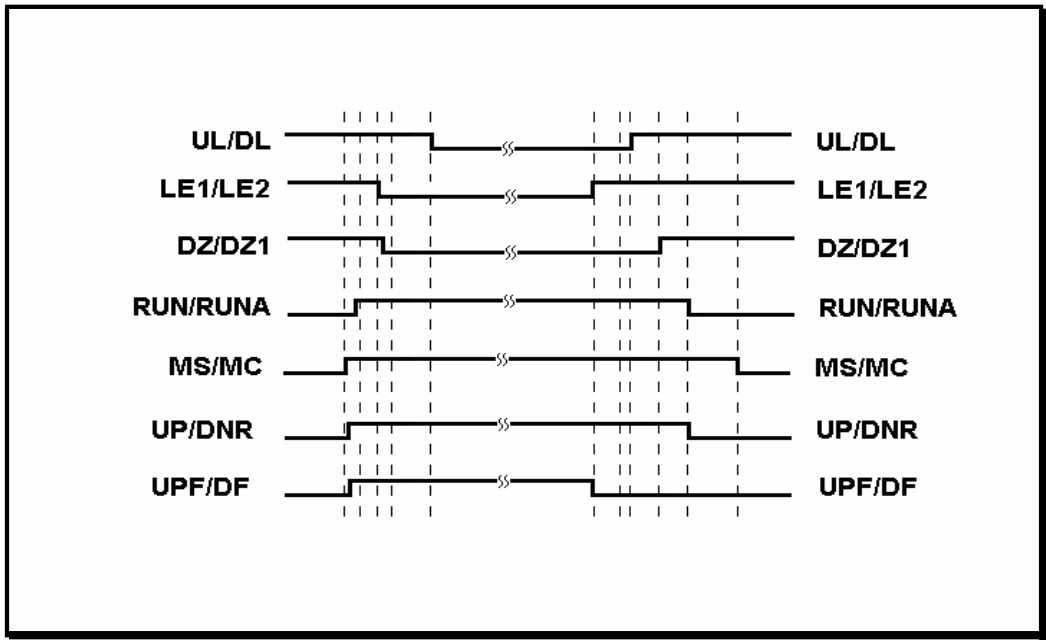


Figure 4.1: Run Sequence.

## 4.5 THE SAFETY PROCESSOR BOARD

The Safety Processor Board has two fault LEDs, one on the top center and one on the bottom center of the board. The top center LED is for PAL inhibit and the bottom center one is for PIC inhibit (see Figure 4.1a).

**Important: When either PIC or PAL LED is on, this board will prevent the car from running.**

The Safety Processor Board verifies the speed of the car when hitting the terminal limits, that the doors are closed when they should be and that the car is safe to run. It also verifies all inspection operations and that the car is not traveling at a speed greater than 150 fpm with a door open in the door zone.

While the Safety Processor Board cannot turn on any run control signals, it can turn off the following signals from the main CPU: RUNA, UP, DNR, UPF and DF. The SFC relay in the safety string is also controlled by the Safety Processor Board.

The Safety Processor board detects two types of faults, active faults and velocity faults. Active faults are input conditions that are considered as unsafe or an error such as the lock bypass switch place on while the car is on automatic.

Velocity faults are cause by a condition while the car speed is too high such as hitting the DTS terminal limit at a speed greater than the speed setting for that limit. Both type of faults are reset after a 2 second delay, the condition is corrected and the main CPU is not commanding an up or down run.

When troubleshooting errors detected by the Safety Processor board, take the following steps:

Check LED status. Either PAL inhibit or PIC inhibit LED on indicates an error.

View the elevator service "Elev Serv". Anything other than Automatic or a valid inspection service is an error.

View the inputs "Inp/Out" for an incorrect input status. See the Safety Processor LCD Display Interface section for all the input and output signals.

View the fault log "Faults" for recorded faults. The Safety Processor Board faults are recorded in ram and will be lost when power is turned off.

Of the signals that the Safety Processor Board can turn off, the RUNA is turned on first in a start sequence. Since the Safety Processor and the main CPU run independent of each other, a RUNA Off error on the main CPU is typically caused by the Safety Processor detecting an error at the instant the run is starting. When a RUNA Off error is recorded, check the status of the Safety Processor board first.

During a fault condition when the Safety Processor drops the SFC relay, every input after the SFC terminal will lose voltage including the inputs for the normal and terminal limits. This could cause an Up or Down directional limit error on the main CPU.

Even though we take every precaution to detect an error and display the appropriate error code, sometimes the sequence of inputs and output change so quickly that the correct error is not recorded. Usually

the fault table data will lead to the circuit where the error was detected but, in addition, it is also necessary to look ahead of the circuit for possible causes.

Additional fault information is shown in the next section of system faults.

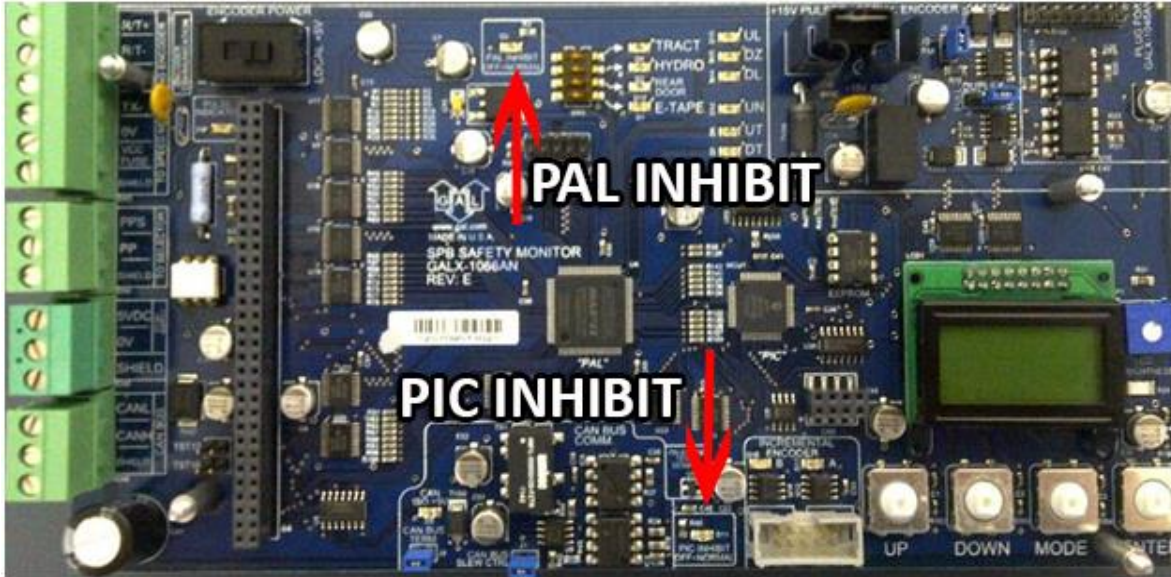


Figure 4.1a: Safety Processor board (GALX-1066)

#### 4.6 SYSTEM FAULTS

Fault information is displayed on the LCD display from the “Elevator Status” and the “View Fault Log” menus on the main CPU. Fault information can also be obtained from the Safety Processor LCD display under the “Fault” menu. Below is a list of system faults logged by the main CPU and possible reasons for each fault.

##### 4.6.1 MAIN CPU FAULTS

Faults	Description	Possible Cause/Suggested Fix
ASV Time-out Car 1	Automatic Service Time-out Car 1	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>
ASV Time-out Car 2	Automatic Service Time-out Car 2	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>
ASV Time-out Car 3	Automatic Service Time-out Car 3	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>
ASV Time-out Car 4	Automatic Service Time-out Car 4	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>
ASV Time-out Car 5	Automatic Service Time-out Car 5	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>
ASV Time-out Car 6	Automatic Service Time-out Car 6	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
ASV Time-out Car 7	Automatic Service Time-out Car 7	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>
ASV Time-out Car 8	Automatic Service Time-out Car 8	<ul style="list-style-type: none"> <li>• Car was not able to answer group hall call within the automatic service time-out timer. Look for fault condition on car.</li> </ul>
At Floor Shutdown	At floor shutdown	<ul style="list-style-type: none"> <li>• Car faulted out while at floor. Look at the fault log for a different fault at the same time to determine cause of failure.</li> </ul>
Aut Swg Fr Door Open	Automatic Swing Front Door Open Fault. The swing door can only close by removing the door open signal and allowing the door to close mechanically. With this fault the door stayed open when the open signal was removed.	<ul style="list-style-type: none"> <li>• Verify that the door that the ADO output has not failed on. If so then replace the output chip.</li> <li>• Verify that the door is not binding and is preventing from closing.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Aut Swg Rr Door Open	Automatic Swing Rear Door Open Fault. The swing door can only close by removing the door open signal and allowing the door to close mechanically. With this fault the door stayed open when the open signal was removed.	<ul style="list-style-type: none"> <li>• Verify that the door that the ADOR output has not failed on. If so then replace the output chip.</li> <li>• Verify that the door is not binding and is preventing from closing.</li> </ul>
Binary Input Fault	The floor position, read from binary inputs on the selector, does not match the car position.	<ul style="list-style-type: none"> <li>• Excessive wear on the selector guides.</li> <li>• Preset magnet is missing or misaligned.</li> <li>• Faulty hall effect sensor on sensor board.</li> <li>• Faulty output on selector driver board.</li> <li>• Improper wiring between selector and the Top of Car board (1037 or 1040 board).</li> <li>• Faulty BP1, BP2 or BP4 input</li> </ul>
Bot Final Limit Flt	Bottom Final Limit Open	<ul style="list-style-type: none"> <li>• Car traveled onto the bottom final limit.</li> <li>• Faulty wiring of the final limit circuit.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Bottom Door Lock Fault	The Bottom Door Lock failed on while the door was open.	<ul style="list-style-type: none"> <li>• Faulty door lock.</li> <li>• Door lock not adjusted properly.</li> <li>• Jumper placed on door lock circuit.</li> <li>• Faulty wiring to DLB input.</li> <li>• Faulty DLB and DLB-1 inputs (For this to occur both DLB and DLB-1 inputs must fail on).</li> <li>• DOL input failed. Replace DOL input chip.</li> <li>• Door operator open limit DOL is not adjusted properly</li> </ul>
Buffer Switch Fault	Buffer Switch Open	<ul style="list-style-type: none"> <li>• Verify that the buffer switch is set and the switch is closed.</li> <li>• Faulty wiring on the buffer switch circuit.</li> <li>• Car hit the buffer</li> </ul>
Can Bus Off Error	CAN Bus Off Error. The can bus has been inactive for too long a period of time.	<ul style="list-style-type: none"> <li>• Faulty CAN bus wiring. Check the CAN bus terminal connections on all boards.</li> </ul>
Car 1 Comm Loss	It can't have this fault	<ul style="list-style-type: none"> <li>• Faulty ram-flash memory chip.</li> <li>• Reset fault. If faults returns, replace memory chips.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Car 2 Comm Loss	The group car is not communicating with Car 2.	<ul style="list-style-type: none"> <li>• Faulty wiring from R/T+ and R/T- from car to car.</li> <li>• Faulty 75176 driver chip on 1036 board.</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>
Car 3 Comm Loss	The group car is not communicating with Car 3.	<ul style="list-style-type: none"> <li>• Faulty wiring from R/T+ and R/T- from car to car.</li> <li>• Faulty 75176 driver chip on 1036 board.</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>
Car 4 Comm Loss	The group car is not communicating with Car 4.	<ul style="list-style-type: none"> <li>• Faulty wiring from R/T+ and R/T- from car to car.</li> <li>• Faulty 75176 driver chip on 1036 board.</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>



Faults	Description	Possible Cause/Suggested Fix
Car 5 Comm Loss	The group car is not communicating with Car 5.	<ul style="list-style-type: none"> <li>• Faulty wiring from R/T+ and R/T- from car to car.</li> <li>• Faulty 75176 driver chip on 1036 board.</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>
Car 6 Comm Loss	The group car is not communicating with Car 6	<ul style="list-style-type: none"> <li>• Faulty wiring from R/T+ and R/T- from car to car.</li> <li>• Faulty 75176 driver chip on 1036 board.</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>
Car 7 Comm Loss	The group car is not communicating with Car 7	<ul style="list-style-type: none"> <li>• Faulty wiring from R/T+ and R/T- from car to car.</li> <li>• Faulty 75176 driver chip on 1036 board.</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Car 8 Comm Loss	The group car is not communicating with Car 8	<ul style="list-style-type: none"> <li>• Faulty wiring from R/T+ and R/T- from car to car.</li> <li>• Faulty 75176 driver chip on 1036 board.</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>
Car Call Light Fuse	Car Call Light Fuse Blown	<ul style="list-style-type: none"> <li>• Check for short on the Car Call Light circuit.</li> </ul>
Car Call Power Fuse	Car Call Power Fuse Blown	<ul style="list-style-type: none"> <li>• Check for short on Car Call Power circuit.</li> </ul>
Car Com Device Reset	Serial Car board reset unexpectedly. Usually caused by loss of power to the individual board.	<ul style="list-style-type: none"> <li>• Usually caused by loss of power to the individual board. Check for loose connection on power to board.</li> <li>• Faulty I/O board.</li> </ul>
Car Gate Safe Fault	Car Gate safe fault	<ul style="list-style-type: none"> <li>• After Controller was safe with doors, gate switch and locks made and ready to run, a Gate switch (front or rear) input turned OFF.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Car Safe Fault	The Car Safe Fault occurs from the wanting to run but does not have a critical input energized. Some of the conditions for a car safe fault will also cause other faults to be logged.	<ul style="list-style-type: none"> <li>• The car does not have the gate or lock inputs and is running or trying to run</li> <li>• The gripper GTS input is not on.</li> <li>• The stop switch is open</li> <li>• An inspection string input fault. Only one input should be on in the inspection string (AUTO, CTI, ICI, ACC or MRI)</li> <li>• Gate or Lock Bypass switch is on when not on car top inspection</li> </ul>
Car Safe Fault Preop	The car had a car safe fault while pre-opening the door.	<ul style="list-style-type: none"> <li>• The car lost the DZ input while leveling into the floor and the door was open.</li> </ul>
Car Safe Fault Start	The car had an onward call, had the door close limit but the car gate or door locks did not make after a 3 second time-out.	<ul style="list-style-type: none"> <li>• The locks are not making properly when the door closes.</li> <li>• The door is not closing properly.</li> </ul>
Car Safety Sw. Fault	Car Safety Switch Fault	<ul style="list-style-type: none"> <li>• Verify that the car safety is not tripped.</li> <li>• Faulty wiring in the car safety circuit</li> </ul>
Car Top Stop Switch	Car top stop switch	<ul style="list-style-type: none"> <li>• Safety String Fault. Refer to Safety String Page on Diagrams. Check/replace input Chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
CCB FET Open Blue	Car Call Board FET open blue	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB FET Open Green	Car Call Board FET open green	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB FET Open Red	Car Call Board FET open red	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB FET Short Blue	Car Call Board FET short blue	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
CCB FET Short Green	Car Call Board FET short green	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB FET Short Red	Car Call Board FET short red	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB LED Open Blue	Car Call Board LED open blue	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB LED Open Green	Car Call Board LED open green	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
CCB LED Open Red	Car Call Board LED open red	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB LED Short Blue	Car Call Board LED short blue	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB LED Short Green	Car Call Board LED short green	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
CCB LED Short Red	Car Call Board LED short red	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
CCB No Comm Aux Bd 1	Car Call Board local aux board 1 comm loss	<ul style="list-style-type: none"> <li>• Comm loss to RGB Auxiliary Car Call Board. Check wiring and bus termination jumpers on boards. If problem persists, check Car Comm Status under diagnostics.</li> </ul>
CCB No Comm Aux Bd 2	Car Call Board local aux board 2 comm loss	<ul style="list-style-type: none"> <li>• Comm loss to RGB Auxiliary Car Call Board. Check wiring and bus termination jumpers on boards. If problem persists, check Car Comm Status under diagnostics.</li> </ul>
CCB No Comm Board 1	Car Call Board local board 1 comm loss	<ul style="list-style-type: none"> <li>• Comm loss to RGB Car Call Board. Check wiring and bus termination jumpers on boards. If problem persists, check Car Comm Status under diagnostics.</li> </ul>
CCB No Comm Board 2	Car Call Board local board 2 comm loss	<ul style="list-style-type: none"> <li>• Comm loss to RGB Car Call Board. Check wiring and bus termination jumpers on boards. If problem persists, check Car Comm Status under diagnostics.</li> </ul>
CCB No LED Board	Car Call LED board missing	<ul style="list-style-type: none"> <li>• Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
CCB Stuck Button	Car Call Board stuck button	<ul style="list-style-type: none"> <li>Faulty LED signal from RGB Board. Look at detailed car faults log to determine device. 'dev' gives you address for global CAN device, 'dv2' gives you local CAN device and 'pf1' the number for the IO location within the local board.</li> </ul>
Comp. Switch Fault	Compensating Rope Switch Open	<ul style="list-style-type: none"> <li>Verify that the compensating rope switch is set and the switch is closed.</li> <li>Improper cabling of the compensating ropes on the sheave.</li> </ul>
Delta Off Fault	DEL input did not come on at start or went off during a run.	<ul style="list-style-type: none"> <li>The delta contact did not make on a Y- Delta starter.</li> <li>The MC contact did not make on an across-the-line starter</li> <li>The “at speed” contact did not make on an electronic soft-starter.</li> <li>Faulty DEL input. Replace the DEL input chip.</li> </ul>
Delta On Fault	DEL input failed on when is should have been off. This would occur at the start of a run when the I/O's are checked. The input failed on or the contact for the input failed closed.	<ul style="list-style-type: none"> <li>Faulty DEL input (failed on). Check the input and output status on the LCD interface.</li> <li>Faulty contact for DEL input failed on. Replace the DEL input chip.</li> </ul>



Faults	Description	Possible Cause/Suggested Fix
DF I/O Failed Off	The DF (SDF) input or output has failed off	<ul style="list-style-type: none"> <li>• Fault on Safety Processor Board. The Safety Processor Board can disable the run control to the DF (SDF) output chip. Check if the PIC or PAL inhibit LED turns on when the car attempts to run. Check the elevator service, faults, and inputs/outputs on the Safety Processor Board LCD display.</li> <li>• Faulty wiring to the SC common on the MAIN I/O board.</li> <li>• Faulty wiring to the SDF terminal on the MAIN I/O board.</li> <li>• Faulty wiring to the Down Fast valve.</li> <li>• Faulty DFi (SDFi) input (replace input chip).</li> <li>• Faulty DF (SDF) output (replace output chip).</li> </ul>
DF I/O Failed On	The DF (SDF) input or output has failed on.	<ul style="list-style-type: none"> <li>• Faulty DFi (SDFi) input (replace input chip).</li> <li>• Faulty DF (SDF) output (replace output chip).</li> </ul>
DL & DL-1 Opposite	Input failure on one of the Down Level sensor input	<ul style="list-style-type: none"> <li>• Faulty DL or DL-1 input (replace input chips).</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
DL Failed On Fault	DL Failed On Fault. The DL leveling sensor did not turn off during a run.	<ul style="list-style-type: none"> <li>• DL hall effect sensor bad on selector sensor board. Replace sensor board.</li> <li>• DL Output Driver failed on. Replace output on selector driver board.</li> <li>• DL traveling cable wire is shorted to 120 VAC. Remove input wire to 1038 or 1064 board and verify that LED goes out. Correct short condition.</li> <li>• DL inputs failed on. Short on 1038 or 1064 main I/O board. Replace main I/O board.</li> </ul>
DL20 Phone Test Failed	Phone Test from DL20 phone monitoring device indicated a failure	<ul style="list-style-type: none"> <li>• Refer to the manufacturers troubleshooting guide for the DL20.</li> </ul>
DLB & DLB-1 Opposite	Input failure on one of the Door Lock Bottom (DLB) inputs.	<ul style="list-style-type: none"> <li>• Faulty DLB or DLB-1 input (replace input chip).</li> </ul>
DLM & DLM-1 Opposite	Input failure on one of the Door Lock Middle (DLM) inputs.	<ul style="list-style-type: none"> <li>• Faulty DLM or DLM-1 input (replace input chip).</li> </ul>
DLT & DLT-1 Opposite	Input failure on one of the Door Lock Top (DLT) inputs.	<ul style="list-style-type: none"> <li>• Faulty DLT or DLT-1 input (replace input chip).</li> </ul>
DNR I/O Failed Off	The DNR input or output has failed off.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring to the SD or SC terminal on the 1038/1064 board.</li> <li>• Faulty wiring to the Down valve.</li> <li>• Faulty SD output or SDi input. Replace output and input chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
DNR I/O Failed On	The DNR input or output has failed on.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty SDi input (replace input chip).</li> <li>• Faulty SD output (replace output chip).</li> </ul>
Door Close Fault	The door did not reach the Door Close Limit within the door close protection time.	<ul style="list-style-type: none"> <li>• Door Close Limit (DCL) not adjusted properly.</li> <li>• Faulty Door Close Limit (DCL). Replace DCL input chip.</li> <li>• Trash in door track preventing door from closing.</li> </ul>
Door Lock Safe Fault	Door lock safe fault	<ul style="list-style-type: none"> <li>• After Controller was safe with doors, gate switch and locks made and ready to run, a door lock inputs turned OFF.</li> </ul>
Door Low Voltage Flt	Door Line Voltage Low	<ul style="list-style-type: none"> <li>• Voltage Sensor Board Related. Voltage being monitored for Door Operator dropped below the setting for parameter 'Low Door Volt '</li> </ul>
Door Motor Overload	Door Motor Overload	<ul style="list-style-type: none"> <li>• Door Motor Overload signal tripped. Check Input chip for DMO signal</li> </ul>
Door Open Fault	The door did not reach the Door Open Limit within the door open protection time.	<ul style="list-style-type: none"> <li>• Door Open Limit (DOL) not adjusted properly.</li> <li>• Faulty Door Open Limit (DOL). Replace DOL input chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Door Zone Aux On Flt	The auxiliary door zone input failed on.	<ul style="list-style-type: none"> <li>• DZA output on selector board failed on. (Replace DZA output on selector driver board).</li> <li>• One or both of the DZA sensors on the selector sensor board failed. Replace selector sensor board.</li> <li>• DZA input on the 1037/1040 board failed. Replace DZA input on 1037/1040 board.</li> </ul>
Door Zone Off Fault	The door zone input failed off.	<ul style="list-style-type: none"> <li>• DZ output on selector board did not turn on. (Replace DZ output on selector driver board).</li> <li>• One or both of the DZ sensors on the selector sensor board failed. Replace selector sensor board.</li> <li>• DZ input on the 1040 board failed. Replace DZ input on 1037/1040 board.</li> </ul>
Door Zone On Fault	The door zone input failed on.	<ul style="list-style-type: none"> <li>• DZ output on selector board did not turn off. (Replace DZ output on selector driver board).</li> <li>• One or both of the DZ sensors on the selector sensor board failed. Replace selector sensor board.</li> <li>• DZ input on the Main I/O board failed on. Replace DZ input on Main I/O board.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
DoorZone Aux Off Flt	The auxiliary door zone input failed off.	<ul style="list-style-type: none"> <li>• DZA output on selector board did not turn on. (Replace DZA output on selector driver board).</li> <li>• One or both of the DZA sensors on the selector sensor board failed. Replace selector sensor board.</li> <li>• DZA input on the 1040 board failed. Replace DZA input on 1037/1040 board.</li> </ul>
Down Directional Fault	Car unexpectedly hit the Down Normal Limit while running down.	<ul style="list-style-type: none"> <li>• Faulty wiring for the DN limit.</li> <li>• The power common to the limit switches (CS) was lost. Check safety string prior to the CS terminal.</li> </ul>
DPM Input Fault	The DPM input fault occurs when door opens and the DPM input did not go off.	<ul style="list-style-type: none"> <li>• DPM switch not setup properly on the door operator.</li> <li>• Faulty DPM input. Replace DPM input chip.</li> </ul>
DPM Off/GS or DL On	DPM Off with Gate Switch or Door Lock On. The Door Protection Module input must go on before gate switch or door lock inputs go on.	<ul style="list-style-type: none"> <li>• The DPM switch on the door operator is not setup properly.</li> <li>• There is no DPM input on the door operator. Jump the DPM input to the GS-1 terminal.</li> <li>• Fault DPM input. Replace the DPM input chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
DT Failed On Fault	DT input Failed On Fault. The car was at the bottom floor and the DTS input was low true (DTS switch made) but the DT input was high (DT not made).	<ul style="list-style-type: none"> <li>• The DTS switch is not wired or the DTS switch is not used. If the DTS switch is not used, jump the DT and DTS inputs together.</li> <li>• The DT did not break at the bottom terminal landing. Adjust or replace the DT switch.</li> <li>• Faulty DT input. Replace the DT input chip.</li> </ul>
DTS Failed On Fault	DTS input Failed On Fault. The car was at the bottom floor and the DT input was low true (DT switch made) but the DTS input was high (DTS not made).	<ul style="list-style-type: none"> <li>• The DT switch is not wired or DT input was lost.</li> <li>• The DTS did not break at the bottom terminal landing. Adjust or replace the DTS switch.</li> <li>• Faulty DTS input. Replace the DTS input chip.</li> </ul>
EE Ram Failed	EE Ram (Flash Memory) Fault. Valid flash memory is not found or memory chip is not large enough	<ul style="list-style-type: none"> <li>• Call factory to verify memory size on 1036 board. Replace memory chip with larger size.</li> <li>• Faulty 1036 board. Replace 1036 board</li> </ul>
EE Tst EE1 Failed OFF	Electric Eye Test. Freight door electric eye input EE1 failed off.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EE1 pulses on during the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EE1 input - replace the input.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
EE Tst EE1 Failed ON	Electric Eye Test. Freight door electric eye input EE1 failed on.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EE1 is off before the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EE1 input - replace the input.</li> </ul>
EE Tst EE2 Failed OFF	Electric Eye Test. Freight door electric eye input EE2 failed off.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EE2 pulses on during the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EE2 input - replace the input.</li> </ul>
EE Tst EE2 Failed ON	Electric Eye Test. Freight door electric eye input EE2 failed on.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EE2 is off before the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EE2 input - replace the input.</li> </ul>
EE Tst EER1 Faild OFF	Electric Eye Test. Freight rear door electric eye input EER1 failed off.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EER1 pulses on during the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EER1 input - replace the input.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
EE Tst EER1 Faild ON	Electric Eye Test. Freight rear door electric eye input EER1 failed on.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EER1 is off before the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EER1 input - replace the input.</li> </ul>
EE Tst EER2 Faild OFF	Electric Eye Test. Freight rear door electric eye input EER2 failed off.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EER2 pulses on during the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EER2 input - replace the input.</li> </ul>
EE Tst EER2 Faild ON	Electric Eye Test. Freight rear door electric eye input EER2 failed on.	<ul style="list-style-type: none"> <li>• Verify that the electric eye input EER2 is off before the electric eye test.</li> <li>• Possible faulty electric eye device.</li> <li>• Possible faulty EER2 input - replace the input.</li> </ul>
Emergency Exit Flt	An emergency stop occurred while moving.	<ul style="list-style-type: none"> <li>• The Safety string opened while the car was running. Check the safety circuit.</li> <li>• The LC input is off. Check the LC fuse.</li> </ul> <p>If the LC fuse is blown check for short from LC to GND.</p>
EP Recall Car 1 OT	Emergency Power Recall Car Out of Service Car 1	<ul style="list-style-type: none"> <li>• Car 1 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 1</li> </ul>



Faults	Description	Possible Cause/Suggested Fix
EP Recall Car 2 OTS	Emergency Power Recall Car Out of Service Car 2	<ul style="list-style-type: none"> <li>• Car 2 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 2</li> </ul>
EP Recall Car 3 OTS	Emergency Power Recall Car Out of Service Car 3	<ul style="list-style-type: none"> <li>• Car 3 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 3</li> </ul>
EP Recall Car 4 OTS	Emergency Power Recall Car Out of Service Car 4	<ul style="list-style-type: none"> <li>• Car 4 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 4</li> </ul>
EP Recall Car 5 OTS	Emergency Power Recall Car Out of Service Car 5	<ul style="list-style-type: none"> <li>• Car 5 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 5</li> </ul>
EP Recall Car 6 OTS	Emergency Power Recall Car Out of Service Car 6	<ul style="list-style-type: none"> <li>• Car 6 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 6</li> </ul>
EP Recall Car 7 OTS	Emergency Power Recall Car Out of Service Car 7	<ul style="list-style-type: none"> <li>• Car 7 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 7</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
EP Recall Car 8 OTS	Emergency Power Recall Car Out of Service Car 8	<ul style="list-style-type: none"> <li>• Car 8 was out of service while elevators were in an Emergency Power Recall Sequence</li> <li>• Check faults for car 8</li> </ul>
EP Recall Car1 Tim-ot	Emergency Power Recall Timeout Car 1	<ul style="list-style-type: none"> <li>• Car 1 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>
EP Recall Car2 Tim-ot	Emergency Power Recall Timeout Car 2	<ul style="list-style-type: none"> <li>• Car 2 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
EPRrecall Car3 Tim-ot	Emergency Power Recall Timeout Car 3	<ul style="list-style-type: none"> <li>• Car 3 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>
EPRrecall Car4 Tim-ot	Emergency Power Recall Timeout Car 4	<ul style="list-style-type: none"> <li>• Car 4 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>
EPRrecall Car5 Tim-ot	Emergency Power Recall Timeout Car 5	<ul style="list-style-type: none"> <li>• Car 5 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
EPRrecall Car6 Tim-ot	Emergency Power Recall Timeout Car 6	<ul style="list-style-type: none"> <li>• Car 6 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>
EPRrecall Car7 Tim-ot	Emergency Power Recall Timeout Car 7	<ul style="list-style-type: none"> <li>• Car 7 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>
EPRrecall Car8 Tim-ot	Emergency Power Recall Timeout Car 8	<ul style="list-style-type: none"> <li>• Car 8 timeout while it was in Emergency power recall mode</li> <li>• Make sure the field variable "Recall Timeout" is set properly to allow the car enough time to recover if it is between floors and away from Emergency Power Floor</li> <li>• If you have a blank shaft, consider increasing the Recovery Speed (default 25fpm)</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Estop Fault	An emergency stop occurred while moving or attempting to move.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• The DEL contactor did not energize or dropped out while running</li> <li>• The DEL input did not turn on or dropped out while running.</li> <li>• An emergency power recall was initiated while the car was running up.</li> </ul> <p>Both Traction and Hydro</p> <ul style="list-style-type: none"> <li>• The stop switch was pulled while running.</li> <li>• The car was not safe usually from clipping a door lock. See Car Safe Fault.</li> <li>• The stall protection timer timed-out.</li> <li>• The pulse count stopped counting</li> </ul>
FDoor Close Cont Flt	Door Close Contact safe fault	<ul style="list-style-type: none"> <li>• After Controller was safe with doors, gate switch, door contacts and locks made and ready to run, a door contact input turned OFF.</li> </ul>
FETST OFF Fault	Front Door Electric Eye Test Failed OFF. Output is turned on cause the electric eye outputs to controller input EE1 and EE2 to pulse.	<ul style="list-style-type: none"> <li>• FETST output or FETST input failed in the off state.</li> <li>• Replace the FETST output chip.</li> <li>• Replace the FETST input chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
FETST ON Fault	Front Door Electric Eye Test Failed ON. Output is turned on cause the electric eye outputs to controller input EE1 and EE2 to pulse.	<ul style="list-style-type: none"> <li>• FETST output or FETST input failed in the on state.</li> <li>• Replace the FETST output chip.</li> <li>• Replace the FETST input chip.</li> </ul>
Field Vars Deflt Ini	Field Variables Default Initialization. Field adjustable variables are being initialized for the first time.	<ul style="list-style-type: none"> <li>• Job related parameters are invalid. This error occurs on the first time the 1036 board is being powered up.</li> </ul>
Fire Fighter Stop Sw	Fire Fighter Stop switch is pulled while the car is in motion.	<ul style="list-style-type: none"> <li>• Fire Fighter Stop switch is pulled.</li> <li>• Faulty wire connection in the Fire Fighter stop switch circuit.</li> </ul>
Fld Var Partial Init	Field variables partial table initialized. Controller did not see extended memory initialized before. It should occur once when updating controller software	<ul style="list-style-type: none"> <li>• The software has been updated. This is normal and should only occur once. If fault constantly occurs please contact GAL.</li> </ul>
Front Det Edge Fault	Front Detector Edge Time-out	<ul style="list-style-type: none"> <li>• The Electric Eye signal stayed on continuously for longer than the parameter 'EE Time-out' is set to.</li> </ul>
FST I/O Failed Off	The FST input on the 1038 board did not pick up when expected.	<ul style="list-style-type: none"> <li>• Faulty FST output chip. Replace output chip.</li> <li>• Faulty FSTI input chip. Replace input chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
FST I/O Failed On	The FST input on the 1038 board did not drop out when expected.	<ul style="list-style-type: none"> <li>• Faulty FST output chip. Replace output chip.</li> <li>• Faulty FSTI input chip. Replace input chip.</li> </ul>
FSTP I/O Failed Off	The FSTP input on the 1038 board did not pick up when expected.	<ul style="list-style-type: none"> <li>• Faulty FST1 output chip. Replace output chip.</li> <li>• Faulty FSTI input chip. Replace input chip.</li> </ul>
FSTP I/O Failed On	The FSTP input on the 1038 board did not drop out up when expected	<ul style="list-style-type: none"> <li>• Faulty FST1 output chip. Replace output chip.</li> <li>• Faulty FSTI input chip. Replace input chip.</li> </ul>
FVARS Backup Init	Field Variables Backup Init. Field variables backed up for the first time.	Older software did not backup the field variables. When new software replaces the older software this error will be displayed. If this error occurs every time the CPU powers up, then the CPU may be faulty and should be replaced.
FVARS Backup Tbl Cksm	Field Variables Backup Table Checksum Error. The verification checksum for the backup field variable table has failed.	During power outages or brown-outs, enough noise can be generated on the 5V DC supply to cause an error in reading the field variables table on power up. For this reason we keep the data in two separate tables. If only one table checksum error occurs, then valid data will be restored. No action is required.

Faults	Description	Possible Cause/Suggested Fix
FVARS Backup Tbl Err	Field Variables Backup Table Error. The field variables from the backup MRAM table does not match the variable read into memory from the main MRAM table.	Most likely, if this error occurs, other FVARS errors will also occur. A once-in-a- while occurrence of this error can be ignored if it is not accompanied by the following errors: FVARS Both Tbl Chksum error or FVARS Tbl Chksum Error. If either error occurs with this error, the main CPU board should be replaced.
FVARS Both Tbl Chksum	Field Variables Both Table Checksum Table error. The verification checksum for both the main field variable table and backup table has failed.	Field Variable data is stored in two separate MRAM tables and a checksum of each table is stored in a separate location. When the system powers up, the checksum of each table is verified. If one table fails verification, the field variables are copied from the table that passed verification and then both tables are updated with valid data. If both checksum verifications fail, data is copied from the main table and an error code is displayed. <ul style="list-style-type: none"> <li>• If this fault occurs, replace the main CPU board.</li> </ul>



Faults	Description	Possible Cause/Suggested Fix
FVARS Tbl Chksum Err	Field Variables Table Checksum Error. The verification checksum for the main field variable table has failed.	During power outages or brown-outs, enough noise can be generated on the 5V DC supply to cause an error in reading the field variables table on power up. For this reason we keep the data in two separate tables. If only one table checksum error occurs, then valid data will be restored. No action is required.
Gate Switch Fault	The Gate Switch failed on while the door was open.	<ul style="list-style-type: none"> <li>• Gate switch not adjusted properly.</li> <li>• GS input failed on. Replace GS input on 1038/1064 board.</li> </ul>
Gate/Lock Bypass Switch Fault	The gate or lock bypass switch was on while the car was NOT on car top inspection.	<ul style="list-style-type: none"> <li>• Gate or Lock bypass switch on the controller 1038 board is in the on position.</li> <li>• Gate or Lock bypass input failed on. Replace GBP OR LBP input chip on 1038 board.</li> </ul>
Governor Switch Flt	Governor Switch Tripped.	<ul style="list-style-type: none"> <li>• Verify that the governor switch is set properly.</li> <li>• Verify that the drive is setup properly and that the car does not overspeed.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Group Comm Loss	Car 2 is not communicating with Car 1.	<ul style="list-style-type: none"> <li>• Faulty wiring from TX+/TX- from car to car.</li> <li>• Faulty 75176 driver chip on the 1036 Comm/Memory board (next to the connector for the group comm).</li> <li>• Noise on shield wire. Connect shield only on one end.</li> <li>• Noise on the communication wires. Run wires in separate conduit.</li> </ul>
Grp Comm Config Err	Group Comm configuration error.	<ul style="list-style-type: none"> <li>• There as a device trying to get initialized that should not be on the bus</li> <li>• Check detailed fault data for "dev" to identify board address</li> </ul>
GS & GS_1 Opposite	Input failure on one of the Gate Switch (GS) inputs.	<ul style="list-style-type: none"> <li>• GS or GS-1 input failed on. Replace GS or GS-1 input chip. Check status of input from Input and Output menu on the LCD interface.</li> </ul>
Hall Call Light Fuse	Hall Call Light Fuse Blown	<ul style="list-style-type: none"> <li>• Check for short on the Hall Call Light circuit.</li> </ul>
HC Com Device Reset	Serial Hall Call board reset unexpectedly. Usually caused by loss of power to the individual board.	<ul style="list-style-type: none"> <li>• Usually caused by loss of power to the individual board.</li> <li>• Faulty power connection to board.</li> <li>• Fault hall call board.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HC DrvBd Rx from Bot	Not receiving packets from the bottom station	<ul style="list-style-type: none"> <li>• Cable is bad or disconnected</li> <li>• Cables going to wrong port (i.e., switched TO ABOVE and TO BELOW)</li> <li>• Transmitter from device above or below is bad, check faults for that device.</li> <li>• Receiver on board is bad – replace device</li> </ul>
HC DrvBd Tx to Bot	Can't internally read information from Transmitter to bottom station	<ul style="list-style-type: none"> <li>• Cable connecting two devices could be flip-flopped (i.e., gray wire goes from pin 1 on one end to pin 8 on the other end). Disconnect cable, and if fault changes to Rx Fault, the problem is the cable.</li> <li>• Cables going to wrong port (i.e., switched TO ABOVE and TO BELOW)</li> <li>• Transmitter is bad – replace the Device.</li> </ul>
HC DvrBd Rx from Top	Not receiving packets from the top station.	<ul style="list-style-type: none"> <li>• Cable is bad or disconnected</li> <li>• Cables going to wrong port (i.e., switched TO ABOVE and TO BELOW)</li> <li>• Transmitter from device above or below is bad, check faults for that device.</li> <li>• Receiver on board is bad – replace device</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HC DvrBd Too Few Dev	Too Few stations detected based on configuration – will only trigger if loop is closed (i.e. will not trigger if device #5 is not functioning, causing driver to establish communication with all but one station.)	<ul style="list-style-type: none"> <li>• Check configuration and number of stations</li> </ul>
HC DvrBd TooMany Dev	Too Many stations detected based on configuration.	<ul style="list-style-type: none"> <li>• Check configuration and number of stations</li> </ul>
HC DvrBd Tx to Top	Can't internally read information from Transmitter to top station.	<ul style="list-style-type: none"> <li>• Cable connecting two devices could be flip-flopped (i.e., gray wire goes from pin 1 on one end to pin 8 on the other end). Disconnect cable, and if fault changes to Rx Fault, the problem is the cable.</li> <li>• Cables going to wrong port (i.e., switched TO ABOVE and TO BELOW)</li> <li>• Transmitter is bad – replace the Device.</li> </ul>
HC Fuse Blown Fault	The HC input is off. No power on HC.	<ul style="list-style-type: none"> <li>• Make sure that the hall call power for each car is in phase. During a power up for car 1 while car 2 is powering the hall call power could cause a momentary short if the hall call power for each car is not in phase.</li> <li>• Short circuit in the hall call lighting circuitry.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HCB Ax Dn Input Ovld	HCB Aux Down input overload	<ul style="list-style-type: none"> <li>• Controller detected overload in the input from the Aux terminal at the station. To identify fault device refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.</li> </ul>
HCB Ax Up Input Ovld	HCB Aux Up input overload	<ul style="list-style-type: none"> <li>• Controller detected overload in the input from the Aux terminal at the station. To identify fault device refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.</li> </ul>
HCB Device Comm Loss	The Driver does not see this HCB device	<ul style="list-style-type: none"> <li>• Comm faults above and below a device – check wiring</li> <li>• Board not powering up – check 24VAC and MCU on device</li> <li>• Fuses blown on driver</li> </ul>
HCB Device Reset	The HCB has just comeback online	<ul style="list-style-type: none"> <li>• Fixed previous problem.</li> <li>• There is a power/communication problem, where the board is either resetting (power) or temporarily losing communication on both ports.</li> </ul>
HCB Dn FET Open	HCB fet open down	<ul style="list-style-type: none"> <li>• Replace GALX-1054AN</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HCB Dn FET Short	HCB fet short down	<ul style="list-style-type: none"> <li>• Replace GALX-1054AN</li> </ul>
HCB Dn Input Ovrload	HCB Down input overload	<ul style="list-style-type: none"> <li>• Controller detected overload in the input from the LED board at the station. To identify fault device refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.</li> </ul>
HCB Dn LED Open	HCB led open down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB Dn LED Short	HCB led short down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB FET Open Blue Dn	HCB fet open blue down	<ul style="list-style-type: none"> <li>• Replace GALX-1054AN</li> </ul>
HCB FET Open Blue Up	HCB fet open blue up	<ul style="list-style-type: none"> <li>• Replace GALX-1054AN</li> </ul>

<b>Faults</b>	<b>Description</b>	<b>Possible Cause/Suggested Fix</b>
HCB FET Open Grn Dn	HCB fet open green down	• Replace GALX-1054AN
HCB FET Open Grn Up	HCB fet open green up	• Replace GALX-1054AN
HCB FET Open Red Dn	HCB fet open red down	• Replace GALX-1054AN
HCB FET Open Red Up	HCB fet short red up	• Replace GALX-1054AN
HCB FET Short Blu Dn	HCB fet short blue down	• Replace GALX-1054AN
HCB FET Short Blu Up	HCB fet short blue up	• Replace GALX-1054AN
HCB FET Short Grn Dn	HCB fet short green down	• Replace GALX-1054AN
HCB FET Short Grn Up	HCB fet short green up	• Replace GALX-1054AN
HCB FET Short Red Dn	HCB fet short red down	• Replace GALX-1054AN
HCB FET Short Red Up	HCB fet short red up	• Replace GALX-1054AN
HCB Invalid Floor	HCB has invalid floor	• This fault is only intended for internal use to identify floors that need to be skipped in diagnostics. It should never occur

Faults	Description	Possible Cause/Suggested Fix
HCB LED Open Blue Dn	HCB led open blue down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Open Blue Up	HCB led open blue up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Open Grn Dn	HCB led open green down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>



Faults	Description	Possible Cause/Suggested Fix
HCB LED Open Grn Up	HCB led open green up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Open Red Dn	HCB led open red down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Open Red Up	HCB led short red up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HCB LED Short Blu Dn	HCB led short blue down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Short Blu Up	HCB led short blue up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Short Grn Dn	HCB led short green down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HCB LED Short Grn Up	HCB led short green up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Short Red Dn	HCB led short red down	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB LED Short Red Up	HCB led short red up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HCB Low Supply Volt	Hall call board has low supply voltage	<ul style="list-style-type: none"> <li>• Low voltage at Hall call device level. To identify fault device refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.</li> </ul>
HCB No Dn Led Board	HCB No Down Led Board Detected	<ul style="list-style-type: none"> <li>• HCB board could not detect an LED board</li> <li>• Replace LED board (GALX-1085AN)</li> </ul>
HCB No Up Led Board	HCB No Up Led Board Detected	<ul style="list-style-type: none"> <li>• HCB board could not detect an LED board</li> <li>• Replace LED board (GALX-1085AN)</li> </ul>
HCB Rx from above fl	HCB rx fault up to above floor	<ul style="list-style-type: none"> <li>• Receiver on board is bad – replace device</li> <li>• Cable is bad or disconnected</li> <li>• Cables going to wrong port (i.e., switched to above and to below)</li> <li>• Transmitter from device above is bad.</li> </ul>
HCB Rx from below fl	HCB rx fault down from below floor	<ul style="list-style-type: none"> <li>• Receiver on board is bad – replace device</li> <li>• Cable is bad or disconnected</li> <li>• Cables going to wrong port (i.e., switched to above and to below)</li> <li>• Transmitter from device below is bad.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HCB Stuck Dn Button	HCB stuck button down	<ul style="list-style-type: none"> <li>• Button is physically stuck – fix button</li> <li>• Input is stuck on or shorted – replace device</li> </ul>
HCB Stuck Up Button	HCB stuck button up	<ul style="list-style-type: none"> <li>• Button is physically stuck – fix button</li> <li>• Input is stuck on or shorted – replace device</li> </ul>
HCB Tx to above fl	Can't internally read information from Transmitter to device above	<ul style="list-style-type: none"> <li>• Cable connecting two devices could be flip-flopped (i.e., gray wire goes from pin 1 on one end to pin 8 on the other end). Disconnect cable, and if fault changes to Rx Fault, the problem is the cable.</li> <li>• Transmitter is bad, Replace the Device</li> </ul>
HCB Tx to below fl	Can't internally read information from Transmitter to device below	<ul style="list-style-type: none"> <li>• Cable connecting two devices could be flip-flopped (i.e., gray wire goes from pin 1 on one end to pin 8 on the other end). Disconnect cable, and if fault changes to Rx Fault, the problem is the cable.</li> <li>• Transmitter is bad, Replace the Device</li> </ul>
HCB Up FET Open	HCB fet open up	<ul style="list-style-type: none"> <li>• Replace GALX-1054AN</li> </ul>
HCB Up FET Short	HCB fet short up	<ul style="list-style-type: none"> <li>• Replace GALX-1054AN</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
HCB Up Input Ovrload	HCB Up input overload	<ul style="list-style-type: none"> <li>• Controller detected overload in the input from the LED board at the station. To identify fault device refer to Detailed Fault Log 'dev' and 'dv2' will provide address for Serial Driver address and Station where the fault was generated.</li> </ul>
HCB Up LED Open	HCB led open up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
HCB Up LED Short	HCB led short up	<ul style="list-style-type: none"> <li>• Make Sure there is a GALX-1056AN attached to the proper connector (Up LED always attached to CN5, Down LED attached to CN5 if only down call at that station (like the top floor), otherwise attached via ribbon at CN6.</li> <li>• Replace GALX-1056AN for the associated up or down call.</li> </ul>
Hoist Motor Overload	Hoist Motor Overload	<ul style="list-style-type: none"> <li>• Hoist Motor Overload signal tripped. Check Input chip for HMO input</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Hot Oil Fault	Hot Oil Fault	<ul style="list-style-type: none"> <li>• Hydro only - Job is configured for hot oil detect. TPH input turned ON. Check for defective input.</li> </ul> <p><b>This fault requires a reset in "Elevator Setup".</b></p>
Inspection Input Fault	<p>More than one input is on in the inspection string. The inspection string condition is also shown on the safety processor.</p>	<ul style="list-style-type: none"> <li>• Faulty Top of Car inspection wiring. Verify voltage on CTA and ICA terminals when car top inspection switch is in the run position. Verify INS input when switch in the inspection position.</li> <li>• Verify that one and only one inspection string inputs is on: AUTO, MRI, INS, ICI and ACC.</li> <li>• Faulty inspection string input: AUTO, MRI, INS, ICI or ACC. Replace faulty input chip</li> </ul>
Inspection Up/Dn Sw	<p>An up or down inspection run input was on when first entering into inspection operation. This caused from a faulty inspection up or down switch or from someone holding the up or down run button when placing the car on inspection.</p>	<ul style="list-style-type: none"> <li>• Faulty inspection up or down input: IU, ID, MRIU, MRIU, BAD, BAU, TAD or TAU. Replace faulty input chip.</li> <li>• Faulty inspection wiring keeping an inspection up or down input on.</li> <li>• Placing the car on inspection while holding an up or down run button</li> </ul>
L1 Low Line Voltage	L1 Line Voltage Low	<ul style="list-style-type: none"> <li>• Voltage Sensor Board Related. Voltage being monitored on L1 dropped below the setting for parameter ' Low Line Volt '</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
L2 Low Line Voltage	L2 Line Voltage Low	<ul style="list-style-type: none"> <li>• Voltage Sensor Board Related. Voltage being monitored on L2 dropped below the setting for parameter ' Low Line Volt '</li> </ul>
L3 Low Line Voltage	L3 Line Voltage Low	<ul style="list-style-type: none"> <li>• Voltage Sensor Board Related. Voltage being monitored on L3 dropped below the setting for parameter ' Low Line Volt '</li> </ul>
LC Fuse Blown Fault	The LC input is off. No power on LC.	<ul style="list-style-type: none"> <li>• Short from LC to GND.</li> </ul>
Lobby Hall Call Fuse	Lobby Call common fuse	<ul style="list-style-type: none"> <li>• Lobby Common fuse blown. Check Input chip for LHC</li> </ul>
Low Pressure Fault	Low Oil Pressure Fault. The low oil pressure switch has been activated.	<ul style="list-style-type: none"> <li>• Low oil in the tank.</li> <li>• Faulty LOS input if low oil switch option is being used. Replace the LOS input chip.</li> <li>• Faulty Low Oil Switch. If low oil switch option is being used. Verify the operation of the low oil switch.</li> </ul> <p><b>This fault requires a reset in "Elevator Setup".</b></p>
Low oil Switch Fault	Low Oil Switch Fault. The low oil switch became active	<ul style="list-style-type: none"> <li>• Low oil in the hydraulic tank</li> <li>• Faulty wiring to the low oil input</li> <li>• Faulty low oil input. Replace LOS input.</li> </ul> <p><b>This fault requires a reset in "Elevator Setup".</b></p>



Faults	Description	Possible Cause/Suggested Fix
MCA I/O Failed Off	The MCA input or output has failed off.	<ul style="list-style-type: none"> <li>• Faulty MCAi input chip. Replace input chip.</li> <li>• Faulty MCA output chip. Replace output chip.</li> </ul>
MCA I/O Failed On	The MCA input or output has failed on.	<ul style="list-style-type: none"> <li>• Faulty MCAi input chip. Replace input chip.</li> <li>• Faulty MCA output chip. Replace output chip.</li> </ul>
MCC I/O Failed Off	The MCC input or output has failed off.	<ul style="list-style-type: none"> <li>• Faulty MCCi input chip. Replace input chip.</li> <li>• Faulty MCC output chip. Replace output chip.</li> </ul>
MCC I/O Failed On	The MCC input or output has failed on.	<ul style="list-style-type: none"> <li>• Faulty MCCi input chip. Replace input chip.</li> <li>• Faulty MCC output chip. Replace output chip.</li> </ul>
Middle Door Lock Fault	The Middle Door Lock failed on while the door was open.	<ul style="list-style-type: none"> <li>• Faulty door lock.</li> <li>• Jumper on door lock circuit.</li> <li>• Door lock not adjusted properly.</li> <li>• Faulty wiring to DLM input.</li> <li>• Faulty DLM and DLM-1 inputs (For this to occur both DLM and DLM-1 inputs must fail on).</li> <li>• DOL input failed. Replace DOL input chip.</li> <li>• Door operator open limit DOL is not adjusted properly</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Motion Exit Ins Flt	Emergency motion exit from inspection	Car was in motion before going in inspection Mode. Check for inspection inputs faulting out or Automatic input going low.
MRAM Hardware Fault	MRAM Fault	The MRAM is tested on power up and has failed the test. Replace the CPU board.
MRAM Write Error	MRAM Write Error. After parameter data RAM has been modified through the user interface, the data is automatically written to MRAM for non-volatile storage. After the data is store it is compared with the original parameter data. If it does not match a fault is recorded.	<ul style="list-style-type: none"> <li>• This error should not occur. If it does occur, the problem is either a fault CPU board or MRAM chip. Replace the CPU board.</li> </ul>
NV Ram Failed	NV Ram (Battery Backed) Fault. Valid battery backed ram memory is not found or memory chip is not large enough	<ul style="list-style-type: none"> <li>• Call factory to verify memory size on 1036 board. Replace memory chip with larger size.</li> <li>• Faulty 1036 board. Replace 1036 board</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
P input off Fault	The normally closed contacts on MC, BRK or RUN contactors did not drop.	<ul style="list-style-type: none"> <li>• Not enough current draw through all three contacts. Place a 10K 3W resistor from the normally closed contact of RUN to GND.</li> <li>• Faulty normally closed contacts on MC, BK(traction only) or RUN. Replace auxiliary contacts.</li> </ul>
P Input On Fault	The “P” input did not drop out while the car was running. This input should drop out when MC, BRK and Run contactors are energized.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty Soft-Starter Fault contactor failed to pick. Verify that the fault contactor has power from MST output. Refer to schematic and check voltage for Soft- Starter overload.</li> </ul>
PC/104 Bus Error	PC/104 Bus Error. During two consecutive reads to the encoder board the count value was different.	<ul style="list-style-type: none"> <li>• This error detects a hardware error on the PC/104 bus. Contact GAL regarding this error.</li> </ul>
PFC Relay Failed Off	PFC relay did not pick up as expected	<ul style="list-style-type: none"> <li>• Faulty PFC output chip. Replace output chip.</li> <li>• Faulty PFC relay on main I/O Board (1038 or 1064). Replace PFC relay.</li> </ul>
PFC Relay Failed On	PFC relay did not drop as expected when performing a SFC/PFC test.	<ul style="list-style-type: none"> <li>• Faulty PFC output chip. Replace output chip.</li> <li>• Faulty PFC relay on main I/O Board (1038 or 1064). Replace PFC relay.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
PFC-SFC Test Lost DZ	Lost DZ input when performing a SFC/PFC test.	<ul style="list-style-type: none"> <li>• DZ output on selector board did not turn on. (Replace DZ output on selector driver board).</li> <li>• One or both of the DZ sensors on the selector sensor board failed. Replace selector sensor board.</li> <li>• DZ input on the 1040 board failed. Replace DZ input on 1037/1040 board.</li> <li>• Check leveling magnet.</li> </ul>
Pit Door Switch Flt	Pit Door Switch Open	<ul style="list-style-type: none"> <li>• Verify that the pit door switch is closed.</li> <li>• Faulty wiring on the pit door switch circuit.</li> </ul>
Pit Switch Fault	Pit Switch Input Open	<ul style="list-style-type: none"> <li>• Verify that the pit switch is closed.</li> <li>• Faulty wiring on the pit switch circuit.</li> </ul>
Position Fault	The Terminal limits do not match the car position (UT or DT is hit but the car position is not at the top or bottom floor).	<ul style="list-style-type: none"> <li>• Car is out of step from faulty selector inputs. Check that the DZ, UL and DL selector inputs work properly at each floor.</li> <li>• Car missed a slowdown input magnet. Check that the US and DS selector inputs work properly prior to each landing.</li> <li>• UT or DT input lost from the safety string being opened.</li> <li>• Improper adjustment of UT or DT limit switches</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Possible DRV/1028 Er	The controller CPU lost the stop switch input, but has the SS and GTS inputs ON indicating that the drive or Safety Processor (1028) board has opened the safety string.	<ul style="list-style-type: none"> <li>• View the faults on the Safety Processor board display and debug from the fault code listed.</li> <li>• <b>Traction Only</b> - View the drive faults log or led status and debug as directed from the drive manual.</li> </ul>
Power Up Reset	Whenever power is cycled on the controller this error will indicate that the controller CPU was reset	<ul style="list-style-type: none"> <li>• This error code is normal for a power loss. If power was not lost and the CPU re-boots, verify the +5VDC on the CPU power connector reads in the range of 4.90 and 5.1 VDC. If out of range, adjust the 5VDC supply pot for the correct voltage.</li> </ul>
RCM / Lock Flt	Retiring Cam/Lock fault. Job has door contacts and door lock inputs as well as retiring cam output. Door locks are not coming on when trying to leave the floor.	<ul style="list-style-type: none"> <li>• Door Contacts were already closed and the controller attempted to energize the retiring cam (RCM) several times and the door locks did not turn on. After 4 attempts, it will declare this fault. Check locks or retiring cam device.</li> </ul>
RDoor Close Cont Flt	Rear Door Close Contact safe fault	<ul style="list-style-type: none"> <li>• After Controller was safe with doors, gate switch, door contacts and locks made and ready to run, a door contact input turned OFF.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Rear Bottom Door Lock Fault	The Rear Bottom Door Lock failed on while the door was open (door on the rear door open limit).	<ul style="list-style-type: none"> <li>• Faulty door lock.</li> <li>• Jumper placed on door lock circuit.</li> <li>• Rear door lock not adjusted properly.</li> <li>• Faulty wiring to DLB input.</li> <li>• Faulty DLB and DLB-1 inputs (For this to occur both DLB and DLB-1 inputs must fail on).</li> <li>• DOLR input failed. Replace DOLR input chip.</li> <li>• Rear door operator open limit is not adjusted properly</li> </ul>
Rear Det Edge Fault	Rear Detector Edge Time-out	<ul style="list-style-type: none"> <li>• The Rear Electric Eye signal stayed on continuously for longer than the parameter 'EE Time-out' is set to.</li> </ul>
Rear Door Close Fault	The rear door did not reach the Rear Door Close Limit within the door close protection time.	<ul style="list-style-type: none"> <li>• Rear Door Close Limit (DCLR) not adjusted properly.</li> <li>• Faulty Rear Door Close Limit (DCLR). Replace DCRL input.</li> <li>• Trash in door track preventing door from closing.</li> </ul>
Rear Door Open Fault	The rear door did not reach the Rear Door Open Limit within the door open protection time.	<ul style="list-style-type: none"> <li>• Rear Door Open Limit (DOLR) not adjusted properly.</li> <li>• Faulty Rear Door Open Limit (DOLR). Replace DOLR input.</li> </ul>
Rear Gate Switch Fault	The Rear Gate Switch failed on while the door was open.	<ul style="list-style-type: none"> <li>• Rear Gate switch not adjusted properly.</li> <li>• RGS input failed on. Replace RGS input.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Rear Middle Door Lock Fault	The Middle Door Lock failed on while the door was open.	<ul style="list-style-type: none"> <li>• Faulty door lock.</li> <li>• Jumper placed on door lock circuit.</li> <li>• Rear door lock not adjusted properly.</li> <li>• Faulty wiring to RLM input.</li> <li>• Faulty RLM and RLM-1 inputs (For this to occur both RLM and RLM-1 inputs must fail on).</li> <li>• DOLR input failed. Replace DOLR input chip.</li> <li>• Rear door operator open limit is not adjusted properly</li> </ul>
Rear Top Door Lock Fault	The Rear Top Door Lock failed on while the door was open.	<ul style="list-style-type: none"> <li>• Faulty door lock.</li> <li>• Jumper placed on door lock circuit.</li> <li>• Rear door lock not adjusted properly.</li> <li>• Faulty wiring to DLT input.</li> <li>• Faulty DLT and DLT-1 inputs (For this to occur both DLT and DLT-1 inputs must fail on).</li> <li>• DOLR input failed. Replace DOLR input chip.</li> <li>• Rear door operator open limit is not adjusted properly</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Reset Fault	<p>Anytime the system detects one of the following faults a reset fault is logged:</p> <ul style="list-style-type: none"> <li>• Power is cycled</li> <li>• Controller finds itself out of the door zone.</li> <li>• Binary input fault.</li> <li>• Terminal limits do not match the current position.</li> <li>• Car has been switched off of inspection.</li> <li>• After an open safety string has been closed.</li> </ul>	<ul style="list-style-type: none"> <li>• This fault is logged under normal conditions. Check the fault log for error that would indicate a fault condition prior to the reset fault.</li> </ul>
RETST OFF Fault	<p>Rear Door Electric Eye Test Failed OFF. Output is turned on cause the electric eye outputs to controller input EER1 and EER2 to pulse.</p>	<ul style="list-style-type: none"> <li>• RETST output or RETST input failed in the on state.</li> <li>• Replace the RETST output chip.</li> <li>• Replace the RETST input chip.</li> </ul>
RETST ON Fault	<p>Rear Door Electric Eye Test Failed ON. Output is turned on cause the electric eye outputs to controller input EER1 and EER2 to pulse.</p>	<ul style="list-style-type: none"> <li>• RETST output or RETST input failed in the on state.</li> <li>• Replace the RETST output chip.</li> <li>• Replace the RETST input chip.</li> </ul>
RGS & RGS-1 Opposite	<p>Input failure on one of the Rear Gate Switch (RGS) inputs.</p>	<ul style="list-style-type: none"> <li>• Faulty RGS or RGS-1 input. Replace input chip.</li> </ul>
RLM & RLM-1 Opposite	<p>Input failure on one of the Rear Lock Middle (RLM) inputs</p>	<ul style="list-style-type: none"> <li>• Faulty RLM or RLM-1 input. Replace input chip.</li> </ul>



Faults	Description	Possible Cause/Suggested Fix
RPM Input Fault	RPM Input Fault. The Rear Door Protection input stayed on when the rear door reached full open.	<ul style="list-style-type: none"> <li>• RPM switch not setup properly on the door operator.</li> </ul> Faulty RPM input. Replace RPM input chip.
RPM Off/RGS or DL On	RPM Off with Rear Gate Switch or Door Lock On. The Rear Door Protection Module input must go on before rear gate switch or door lock inputs go on.	<ul style="list-style-type: none"> <li>• The RPM switch on the door operator is not setup properly.</li> <li>• There is no RPM input on the door operator. Jump the RPM input to the RGS terminal.</li> <li>• Faulty RPM input. Replace the RPM input chip.</li> </ul>
Run Fault: Shutdown	Run Fault: Shutdown. If the car attempts to run 4 consecutive times and incurs a specific type of emergency stop without making a successful run, the car is shutdown and this error code is shown. The specific types of emergency stops to cause this fault are as follows: <ol style="list-style-type: none"> <li>1. The car has picked the brake and is in the run mode for more than 2 seconds and the position pulse has not changed.</li> <li>2. The car is demanding a velocity greater than 75 fpm and change in position count is less than 3 inches.</li> <li>3. The run stall protection timer has expired</li> </ol>	<ul style="list-style-type: none"> <li>• Verify that the brake is lifting properly.</li> <li>• Verify that the encoder pulses increment and decrement when running up or down.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
RUN I/O Failed On	The RUN input or output has failed on.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring at the SC terminal. Verify that the valve common SC terminal on the 1038 board is connected properly.</li> <li>• Faulty RUNi input. Replace the RUNi input chip.</li> <li>• Faulty RUN output. Replace the RUN output chip.</li> </ul>
Run Inhibit Rset Cnt	Run inhibit from reset count	<ul style="list-style-type: none"> <li>• Once the car is in Reset mode, the controller attempted 5 times to come off reset but it keeps being sent back in reset.</li> </ul>
RUN O/RUN I Failed	RUN output failed off or run input failed on	<ul style="list-style-type: none"> <li>• Faulty RUNi input chip. Replace input chip.</li> <li>• Faulty RUN output chip. Replace output chip.</li> </ul>
RUN O/RUNA I Failed	RUN output failed off or RUNAi input failed on	<ul style="list-style-type: none"> <li>• Faulty RUNAi input chip. Replace input chip.</li> <li>• Faulty RUN output chip. Replace output chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
<p>RUN, RUNA, DNR Failure</p>	<p>The RUN input or output, the RUNA output or the DNR output failed to turn on.</p>	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring at the SC terminal. Verify that the valve common SC terminal on the 1038 board is connected properly.</li> <li>• Faulty wiring at the SD terminal. Verify that the down valve is wired to the SD terminal on the 1038 board.</li> <li>• Faulty SDi input (replace input chip).</li> <li>• Faulty SD output (replace output chip).</li> <li>• Faulty RUNi input. Replace the RUNi input chip.</li> <li>• Faulty RUN output. Replace the RUN output chip.</li> </ul>
<p>RUN, RUNA, UP Fail</p>	<p>The RUN input or output, the RUNA output or the UP output failed to run on.</p>	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring at the SC terminal. Verify that the valve common SC terminal on the 1038 board is connected properly.</li> <li>• Faulty wiring at the SU terminal. Verify that the down valve is wired to the SU terminal on the 1038 board.</li> <li>• Faulty SUi input (replace input chip).</li> <li>• Faulty SU output (replace output chip).</li> <li>• Faulty RUNi input. Replace the RUNi input chip.</li> <li>• Faulty RUN output. Replace the RUN output chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
RUNA I/O Failed Off	The RUNA input or output has failed off.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring at the SC terminal. Verify that the valve common SC terminal on the 1038 board is connected properly.</li> <li>• Faulty RUNAi input. Replace RUNAi input chip.</li> <li>• Faulty RUNA output. Replace RUNA output chip.</li> <li>• Faulty RUN output. Replace RUN output chip.</li> </ul>
RUNA I/O Failed Off	The RUNA input or output has failed off.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring at the SC terminal. Verify that the valve common SC terminal on the 1038/1064 board is connected properly.</li> <li>• Faulty RUNAi input. Replace RUNAi input chip.</li> <li>• Faulty RUNA output. Replace RUNA output chip.</li> <li>• Faulty RUN output. Replace RUN output chip</li> </ul>
RUNA I/O Failed On	The RUNA input or output has failed on	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring at the SC terminal. Verify that the valve common SC terminal on the 1038 board is connected properly.</li> <li>• Faulty RUN output. Replace RUN output chip.</li> <li>• Faulty RUNAi input. Replace RUNAi input chip.</li> <li>• Faulty RUNA output. Replace RUNA output chip.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
RUNA O/RUN I Failed	RUNA output or RUNI input failed	<ul style="list-style-type: none"> <li>• RUNA output failed off. Replace the RUNA output chip. Or</li> <li>• RUNI input failed off. Replace the RUNI input chip.</li> </ul>
Safety String Fault	<p>Safety string fault occurs from the following conditions:</p> <ul style="list-style-type: none"> <li>• The safety string is open (SS input is off).</li> <li>• The drive ready input is not energized from the drive.</li> <li>• The potential to run input “P” is off.</li> </ul>	<ul style="list-style-type: none"> <li>• The safety string is open (SS input if off). Refer to the job prints and check all circuits ahead of the SS input.</li> </ul>
SEB CAN Com Error	Serial Expansion Board CAN Communications Error. One of the Serial Expansion boards is not communicating with the main CPU.	<ul style="list-style-type: none"> <li>• From the LCD user interface, select the Diagnostic menu and then the Car Com Status menu. The device that is not communicating will be shown with the online status equal 0. Check the terminal connection for the twisted pair wires.</li> </ul>
SFC Relay Failed Off	SFC relay did not pick up as expected.	<ul style="list-style-type: none"> <li>• Faulty SFC output chip. Replace output chip.</li> <li>• Faulty SFC relay on main I/O Board (1038 or 1064). Replace SFC relay.</li> <li>• Verify the software version on the safety processor board (1028) is 3.07 or higher.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
SFC Relay Failed On	SFC relay did not drop as expected when performing a SFC/PFC test.	<ul style="list-style-type: none"> <li>• Faulty SFC output chip. Replace output chip.</li> <li>• Faulty SFC relay on main I/O Board (1038 or 1064). Replace SFC relay.</li> <li>• Verify the software version on the safety processor board (1028) is 3.07 or higher.</li> </ul>
Side Emerg. Exit Flt	Side Emergency Exit Fault	<ul style="list-style-type: none"> <li>• Verify that the side emergency exit is properly shut and the switch is closed.</li> <li>• Faulty wiring in the side emergency exit circuit.</li> </ul>
Stalled Fault	Stall Fault occurs if the motion run timer exceeds the stall protection time. The motion run timer is incremented while the car is trying to run.	<ul style="list-style-type: none"> <li>• Increase Stall Timer on the controller under Adjustable Variables and Car Timers.</li> </ul>
Stop Switch Fault	Stop switch is pulled while the car is in motion.	<ul style="list-style-type: none"> <li>• Stop switch is pulled.</li> <li>• Faulty wire connection in the stop switch circuit.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
TOC CAN Com Error	Top of Car Board Communication Error.	<ul style="list-style-type: none"> <li>• Fault CAN wire connection. Verify the traveling cable connections from the 1036 Comm/Memory board, to the Safety Processor Board (GALX-1028 or GALX- 1066) and to the TOC board (1037 or 1040).</li> <li>• Jumper for bus termination resistors not placed. Verify that the bus termination resistor jumpers are placed on the TOC (1037 or 1040), on the 1036 Comm/Memory Board, and on the Safety Processor Board (GALX-1028 or GALX-1066).</li> <li>• Noise on the communication cable. Verify that the traveling cable shield wires is connected only at one end or is not connected at all.</li> <li>• Faulty communication chip. Replace the CAN bus drive chip 82C251.</li> <li>• Faulty 5V isolated supply for CAN driver on TOC board (1037 or 1040). Measure DC voltage between pins 2 and 3 on the 82C251 CAN driver chip. Call GAL for instructions.</li> </ul>
Top Door Lock Fault	The Top Door Lock failed on while the door was open.	<ul style="list-style-type: none"> <li>• Faulty door lock.</li> <li>• Jumper on door lock circuit.</li> <li>• Door lock not adjusted properly.</li> <li>• Faulty wiring to DLT input.</li> <li>• Faulty DLT and DLT-1 inputs (For this to occur both DLT and DLT-1 inputs must fail on).</li> <li>• DOL input failed. Replace DOL input chip.</li> <li>• Door operator open limit DOL is not adjusted properly</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
Top Emerg. Exit Flt	Top Emergency Exit Fault	<ul style="list-style-type: none"> <li>• Verify that the top emergency exit is properly shut and the switch is closed.</li> <li>• Faulty wiring in the top emergency exit circuit.</li> <li>• Faulty wiring in the side emergency exit circuit.</li> </ul>
Top Final Limit Flt	Top Final Limit Open.	<ul style="list-style-type: none"> <li>• Car traveled onto the top final limit.</li> <li>• Faulty wiring of the final limit circuit.</li> </ul>
UL & UL-1 Opposite	Input failure on one of the Up Level sensor input	<ul style="list-style-type: none"> <li>• Faulty UL or UL-1 input (replace input chips).</li> </ul>
UL and DL Fault	Both UL and DL level sensors are off when car is at a floor.	<ul style="list-style-type: none"> <li>• Faulty adjustment of the selector head.</li> <li>• Worn selector guides. Replace selector guides.</li> <li>• Faulty Door Zone Magnet. If this fault occurs at one particular floor, replace the door zone magnet at the floor.</li> <li>• Faulty sensor board. Replace the selector sensor board.</li> </ul>



Faults	Description	Possible Cause/Suggested Fix
UL Failed On Fault	UL Failed On Fault. The UL leveling sensor did not go off during a run.	<ul style="list-style-type: none"> <li>• UL hall effect sensor bad on selector sensor board. Replace sensor board.</li> <li>• UL Output Driver failed on. Replace output on selector driver board.</li> <li>• UL traveling cable wire is shorted to 120 VAC. Remove input wire to 1038 or 1064 board and verify that LED goes out. Correct short condition.</li> <li>• UL inputs failed on. Short on 1038 or 1064 main I/O board. Replace main I/O board.</li> </ul>
UL,DL & DZ Off at FL	UL, DL & DZ sensors off at floor. The car thinks it should be at a floor or is at a floor and all the floor sensors have turned off.	<ul style="list-style-type: none"> <li>• Loss of power on the selector.</li> <li>• Faulty cable from the selector driver board to the sensor or sensor board.</li> <li>• Faulty wiring from the selector driver board to the main I/O board (1038 or 1064).</li> </ul>
Up Directional Fault	Car unexpectedly hit the Up Normal Limit while running up.	<ul style="list-style-type: none"> <li>• Faulty wiring for the UN limit.</li> <li>• The power common to the limit switches (CS) was lost. Check safety string prior to the CS terminal.</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
UP I/O Failed Off	The UP input or output has failed off	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty wiring to the SU or SC terminal on the 1038/1064 board.</li> <li>• Faulty wiring to the Up valve.</li> <li>• Faulty SUi input. Replace SUi input chip.</li> <li>• Faulty SU output. Replace SU output chip.</li> </ul>
UP I/O Failed On	The UP input or output has failed on.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Faulty SUi input. Replace SUi, input chip.</li> <li>• Faulty SU output. Replace SU output chip.</li> </ul>
UPF I/O Failed Off	The UPF input or output has failed off.	<p><b>Hydro</b></p> <ul style="list-style-type: none"> <li>• Fault on 1028 Safety Processor Board. The Safety Processor Board can disable the run control to the UPF output chip. Check if the PIC or PAL inhibit LED turns on when the car attempts to run. Check the elevator service, faults, and inputs/outputs on the Safety Processor Board LCD display.</li> <li>• Faulty wiring to the SC common on the 1038 board.</li> <li>• Faulty wiring to the SUF terminal on the 1038 board.</li> <li>• Faulty wiring to the Up Fast valve</li> </ul>

Faults	Description	Possible Cause/Suggested Fix
UPF I/O Failed On	The UPF input or output has failed on.	<b>Hydro</b> <ul style="list-style-type: none"> <li>• Faulty SUFi input (replace input chip).</li> <li>• Faulty SUF output (replace output chip).</li> </ul>
User Variable Init	User variable initialization	User related parameters such a password and telephone numbers are being initialized. This error occurs on the first time the GALX-1100 CPU board is being powered up.
UT Failed On Fault	UT input Failed On Fault. The car was at the top floor and the UTS input was low true (UTS switch made) but the UT input was high (UT not made).	<ul style="list-style-type: none"> <li>• The UTS switch is not wired or the UTS switch is not used. If the UTS switch is not used, jump the UT and UTS inputs together.</li> <li>• The UT did not break at the bottom terminal landing. Adjust or replace the UT switch.</li> </ul>

## 4.6.2 CPU DETAILED FAULT DATA

### SRV Service Flag

- 0 = Out of Service
- 1 = Automatic
- 2 = Independent
- 3 = Load Weighing Bypass
- 4 = Attendant
- 5 = Code Blue
- 6 = Fire Phase 2
- 7 = Emergency Power
- 8 = Earthquake Emergency
- 9 = Fire Phase 1 Main Egress
- 10 = Fire Phase 1 Alternate Egress
- 11 = Homing
- 12 = Reset Run Up
- 13 = Reset Run Down
- 14 = Low Oil Operation
- 15 = Return to Lobby
- 16 = Load Overload
- 17 = Massachusetts Medical Emergency
- 18 = Calibrate load weigher
- 19 = CS Elevator Off
- 20 = HS Elevator Off
- 21 = Low Pressure Operation
- 22 = Hospital Service Operation
- 23 = VIP Service Operation
- 24 = Security Recall
- 25 = Sabbath service
- 26 = TUG Service operation

### PRC Process Flag

- 1 = Reset
- 2 = Inspection
- 3 = Motion:
  - hsf=1, dir=1, Up Fast
  - hsf=0, dir=1, ul=0 Up Transition
  - hsf=0, dir=1, ul=1, Up Leveling
  - hsf=1, dir=2, Down Fast
  - hsf=0, dir=2, dl=0, Down Transition
  - hsf=0, dir=2, dl=1, Down Leveling
- 4 = Motion Mode 1 – Soft Start
- 5 = Motion Mode 2 – Constant Acceleration
- 6 = Motion Mode 3 – Roll Over to Max Velocity
- 7 = Motion Mode 4 – Constant Velocity
- 8 = Motion Mode 5 – Roll Over to Deceleration
- 9 = Motion Mode 6 – Constant Deceleration

- 10 = Motion Mode 7 – Targeting Floor
- 11 = Motion Mode 8 – Emergency Slowdown
- 12 = Safety String
- 13 = Turned Off
- 14 = Parked
- 15 = Waiting Assignment
- 16 = Doors Operation
- 17 = Elevator Stalled (or Low Oil for Hydro)
- 18 = Elevator Resetting Hydro Jack
- 19 = Elevator on Low Oil Pressure mode
- 20 = Elevator is in Automatic Learn Hoistway

#### **DRF Front Door Flag**

- 0 = Door Closed
- 1 = Door Opening
- 2 = Door Dwelling
- 3 = Door Closing
- 4 = Door Nudging Closed

#### **RDF Rear Door Flag**

- 0 = Door Closed
- 1 = Door Opening
- 2 = Door Dwelling
- 3 = Door Closing
- 4 = Door Nudging Closed

#### **DPR Direction Preference Flag**

- 0 = None
- 1 = Up
- 2 = Down

#### **DIR Car Direction Flag**

- 0 = None
- 1 = Up
- 2 = Down

#### **EMP Emergency Power Flag**

- 0 = Not on Emergency Power
- 1 = On Emergency Power Waiting
- 2 = On Emergency Power Waiting with Doors Open
- 3 = On Emergency Power Returning Home
- 4 = On Em. Power Returned Home with Doors Open
- 5 = On Em. Power Returned Home with Doors Closed
- 6 = On Emergency Power and Selected to Run
- 7 = On Emergency Power waiting with Doors Closed

#### **MED Medical Emergency**

- 0 = No Medical Emergency Service
- 1 = Recall Car to Medical Emergency Recall Floor
- 2 = At Return Floor with Door Open (Return Complete)
- 4 = On EMS Car Call Service
- 5 = On EMS Car Hold Service (key off but not at the recall floor)

#### **CBL Code Blue Flag**

- 0 = No Code Blue
- 1 = Recall to Emergency Floor
- 2 = At Code Blue Floor
- 3 = At Code Blue Floor with Door Open
- 4 = Finished Code Blue

#### **EQU Earthquake Flag**

- 0 = Not on Earthquake Operation
- 1 = Earthquake Sensor Activated
- 2 = Counterweight Derailment Sensor Activated
- 3 = Recover Away From the Counterweight
- 4 = Stopped at a Floor

#### **FIR Fire Flag**

- 0 = Not on Fire Service
- 1 = Phase 1 Main Egress Return
- 2 = Phase 1 Alternate Egress Return
- 3 = Phase 1 Completed
- 4 = Phase 2 Door Hold
- 5 = Phase 2 Constant Pressure Door Open
- 6 = Phase 2 Constant Pressure Door Close
- 7 = Phase 2 Door Hold

#### **RFI Rear Fire Flag**

- 0 = Not on Fire Service
- 1 = Phase 1 Main Rear Egress Return
- 2 = Phase 1 Alternate Rear Egress Return
- 3 = Phase 1 Completed
- 4 = Phase 2 Rear Door Hold
- 5 = Phase 2 Constant Pressure Rear Door Open
- 6 = Phase 2 Constant Pressure Rear Door Close
- 7 = Phase 2 Rear Door Hold

#### **HSF High Speed Flag**

- 0 = No High Speed
- 1 = High Speed

**STF Start Flag**

- 0 = Not valid Start
- 1 = Start of Run

**CAL Direction of Calls**

- 0 = No Call
- 1 = Above Call
- 2 = Below Call
- 3 = Above and Below Calls

**ESP Emergency Stop Flag**

- 1 = Emergency Stop

**NST Need to Stop Flag**

- 1 = Car need to stop at next floor

**RLV Re-level Flag**

- 1 = Car in re-leveling

**STE Step Flag**

- 1 = Step to the next position (non-distance feedback)

**PDO Pre-open Door Flag**

- 1 = Pre-open door

**STO Next Stop Floor**

Floor number of next stop

**INS Inspection Status Flag.** (Status bit set to “1” when switch is on)

- Bit 0: Car Top Inspection
- Bit 1: Machine Room Inspection
- Bit 2: Access
- Bit 3: In Car Inspection
- Bit 4: Lock Bypass
- Bit 5: Gate Bypass
- Bit 6: Not in Automatic (AUTO==0)

**NDS Next Car Up Sequence**

- 0 = Initiate Next Up Door Open
- 1 = Opening Next Up Door
- 2 = Door full open on Next Up
- 3 = Allow door close for onward call
- 4 = Allow door close while on next up

**DEV – Boards not communicating. See page 90.**

**PF1 – Internal GAL use**  
**PF2 – Internal GAL use**  
**DV2 – Internal GAL use**

**STATUSF Control Status Flag.** (Status bit set to “1” when status active) [See page 92.](#)

*Example: 00000400 = BIT10: Stop Switch open*

*(Third set of bits -- BIT 8=Binary 1 / Bit 9=Binary 2 / Bit 10=Binary 4 / Bit 11=Binary 8)*

Bit 0: NO LC power  
Bit 1: NO HC power  
Bit 2: NO SS input  
Bit 3: Drive not ready  
Bit 4: Gripper error  
Bit 5: I/O error during redundancy check  
Bit 6: Inspection or lock bypass fault  
Bit 7: Binary Position Input Error  
Bit 8: Position Error  
Bit 9: No automatic Doors  
Bit 10: Stop switch open  
Bit 11: Door Zone fault  
Bit 12: Gate or Door lock fault  
Bit 13: No Potential “P” Input  
Bit 14: No DCL  
Bit 15: No gate or lock  
Bit 16: Brake lift switch error  
Bit 17: Top of Car Communications Error  
Bit 18: Drive Communications Error  
Bit 19: Safety Processor Board Comm Error  
Bit 20: DB Resistor Temp. Error  
Bit 21: Shutdown (too many fault runs)  
Bit 22: Annual Safety Test  
Bit 23: Waiting for Car to be safe  
Bit 24: UT, UTS, DT or DTS limit error  
Bit 25: GTS input off  
Bit 26: UL, DL and DZ off at floor  
Bit 27: Brake Board Can Error  
Bit 28: Fire Fighter Stop Switch  
Bit 29: Selector Can error  
Bit 30: UL or DL fault  
Bit 31: Leveling fault

**I00 to I0D - See page 93.**



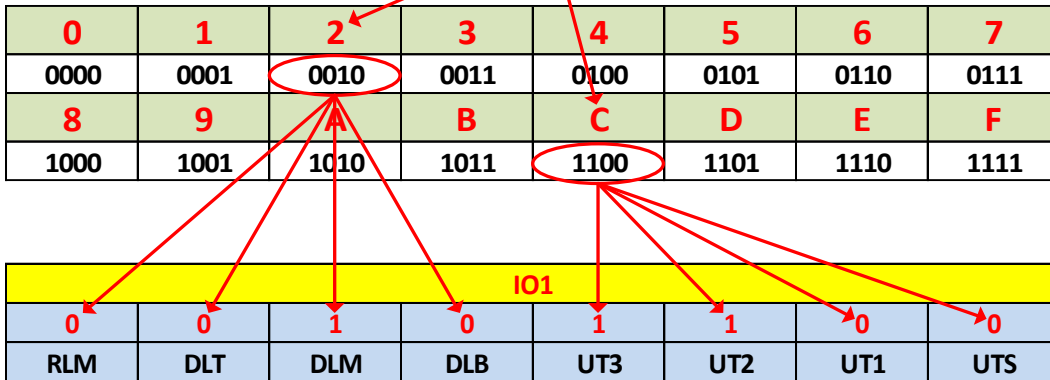
## Boards not communicating.

Look for **DEV=xxh** in the detailed fault log, find that **HEX** number below, in the **RED** column. The board address to the right of the HEX number refers to the dip switch address of the I/O board (if the board has a dip switch – the car top board for example has a permanent address of “9”).

Device (HEX)	Description of the Device
<b>02h</b>	// Can start index
<b>02h</b>	// Encoded Tape Selector
<b>03h</b>	// Emergency Brake
<b>04h</b>	// Brake Board
<b>05h</b>	// Safety processor board
<b>06h</b>	// Selector board
<b>07h</b>	// Front Door board
<b>08h</b>	// Rear Door Board
<b>09h</b>	// Load Weigher
<b>0Ah</b>	// Voltage Sensor
<b>0Bh</b>	// Serial I/O Expansion board address 1
<b>0Ch</b>	// Serial I/O Expansion board address 2
<b>0Dh</b>	// Serial I/O Expansion board address 3
<b>0Eh</b>	// Serial I/O Expansion board address 4
<b>0Fh</b>	// Serial I/O Expansion board address 5
<b>10h</b>	// Serial I/O Expansion board address 6
<b>11h</b>	// Serial I/O Expansion board address 7
<b>12h</b>	// Serial I/O Expansion board address 8
<b>13h</b>	// Serial I/O TOC Top of Car Board address 9
<b>14h</b>	// Serial PI and Lantern (global address for all pi and lantern devices)
<b>14h</b>	// Serial I/O Expansion board address 10 (Uses special address)
<b>15h</b>	// Serial I/O Expansion board address 11
<b>16h</b>	// Serial I/O Expansion board address 12
<b>17h</b>	// Serial I/O Expansion board address 13
<b>18h</b>	// Serial I/O Expansion board address 14
<b>19h</b>	// Serial I/O Expansion board address 15
<b>1Ah</b>	// Serial I/O Expansion board address 16
<b>1Bh</b>	// Serial I/O Expansion board address 17
<b>1Ch</b>	// Serial I/O Expansion board address 18
<b>1Dh</b>	// Serial I/O Expansion board address 19
<b>1Eh</b>	// Serial I/O Expansion board address 20
<b>1Fh</b>	// Serial I/O Expansion board address 21
<b>20h</b>	// Serial I/O Expansion board address 22
<b>20h</b>	// Last can device
<b>29h</b>	// Special address for SEB 10 since it conflicts with PI address
<b>32h</b>	// ID to swap to standard address for pi/lantern board 20
<b>FFh</b>	// Global can address

### Decoding IO0 - IOD

**IO1 = 2C h**



In the example below we are illustrating IO1=2Ch. The "h" signifies that the number is in hexadecimal notation, the actual hexadecimal number is "2C" and the "h" can be ignored.

The "2C" is converted to binary using the chart above (green) and the binary values transferred to the appropriate IO line, IO1 in our example (blue). In binary notation we count from the right - LSB - (Least Significant Bit) to the left - MSB - (Most significant Bit), which is why binary "1" is written as 0001 - it begins at the right.

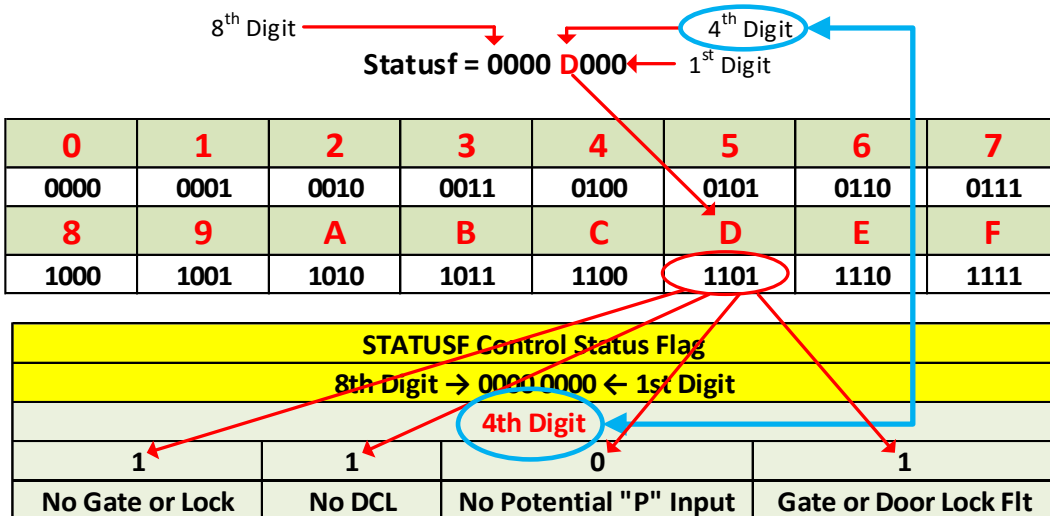
A binary "1" indicates a high input or output, meaning it is "ON". A binary "0" indicates the input or output is low, meaning it is "OFF".

In our example above we can see that UTS, UT1, DLB, DLT and RLM are all low, or OFF, and UT2, UT3, and DLM are all ON.

### Decoding "Status"

Status is 32 bits long and each digit in "=0000 0000" is four bits.

Example: Status=0000 D000 = 0000 0000 0000 0000 1101 0000 0000 0000



Starting from the right it can be seen that there is a "Gate or Door Lock Fault", a "No DCL" fault, and a "No Gate or Lock" fault.

"Safety Processor Status" and "Inspection Status" work similarly.

0	1	2	3	4	5	6	7
0000	0001	0010	0011	0100	0101	0110	0111
8	9	A	B	C	D	E	F
1000	1001	1010	1011	1100	1101	1110	1111
<b>STATUSF Control Status Flag</b>							
<b>8th Digit → 0000 0000 ← 1st Digit</b>							
<b>1st Digit =</b>							
Drive Not Ready	NO SS Input	NO HC Power	NO LC Power				
<b>2nd Digit =</b>							
Binary Position Err	Ins or Lock Bypass Error	IO Error - Redundancy	Gripper Error				
<b>3rd Digit =</b>							
Door Zone Fault	Stop Sw Open	No Automatic Doors	Position Error				
<b>4th Digit =</b>							
No Gate or Lock	No DCL	No Potential "P" Input	Gate or Door Lock Flt				
<b>5th Digit =</b>							
Safety Proc Comm Err	Drive Comm Error	TOC Comm Error	Brake Lift Sw Err				
<b>6th Digit =</b>							
Waiting For Safe	Annual Safety Test	Too Many Flt Runs	DB Resistor Temp Err				
<b>7th Digit =</b>							
Brake Board CAN Err	UL, DL, DZ Off At Floor	GTS Input Off	UT, UTS, DT, DTS Lim Err				
<b>8th Digit =</b>							
Leveling Fault	UL or DL Fault	Selector Can Err	Fire Fighter Stop Sw				

0	1	2	3	4	5	6	7
0000	0001	0010	0011	0100	0101	0110	0111
8	9	A	B	C	D	E	F
1000	1001	1010	1011	1100	1101	1110	1111
IO0 =							
UT	UN	DT3	DT2	DT1	DTS	DT	DN
IO1 =							
RLM	DLT	DLM	DLB	UT3	UT2	UT1	UTS
IO2 =							
TAD	BAU	BAD	ACC	RLM-1	DLT-1	DLM-1	DLB-1
IO3 =							
SS	HCC	FS	BP	ALT	MES	MRS	HWS
IO4 =							
EDHL/ MRIE/ 5D	TPH/ HEOF/ 4D	MRIE/ LOS/ GOVC/ 3D	LPS/ 2D	Reserved/ 4U	RTL/ 3U	EPT/ 2U	MRIE/ 1U
IO5 =							
DL-1	UL-1	TPL	DEL	AD	IND	LBP	GBP
IO6 =							
INS	LC	GS-1	GS	DPM/ MDC	DL	DZ	UL
IO7 =							
AUTO	MRIU	MRID	MRI	ICI	CS	ID	IU
IO8 =							
DON	BRKI	GRT2	GRT1	RDY	GTS	FSTI	P/RTL
IO9 =							
LVC	SECF/ SAB/ TDC/ INDS	RGS-1	RGS	MCAI	MCCI	RUNAI	RUNI

0	1	2	3	4	5	6	7
0000	0001	0010	0011	0100	0101	0110	0111
8	9	A	B	C	D	E	F
1000	1001	1010	1011	1100	1101	1110	1111
IOA =							
PS	GOV	RPM/ MDCR	CTS	SUFI	SUI	SDFI	SDI
IOB =							
DS	US	DZA	BP16	BP8	BP4	BP2	BP1
IOC =							
LWD	LWB	OVL/ EOF	ALRM/LWA	SE	EE	DCL	DOL
IOD =							
CLF/ HB	OLL/ HVD/ FL/ FBNB	EML/ REV/ DXDE/ HVD/ F1AL/ DCA/ FL	EQL/ RVD/ FBNB/ F1ML/ CDL	P6/ DTR/ RVD/ SABEE/ CUL	NUD	DC	DO
(*Note: IOD are outputs. When outputs are off the bits are set when all outputs are off value is FF)							

### 4.6.3 SAFETY PROCESSOR FAULTS

	DESCRIPTION AND CAUSE
No Flt	No fault is recorded in this index location.
Invalid	Invalid fault number. (This can only be caused by a programming error in the chip).
EEprom	EEprom fault. Defective EEprom device or EEprom device is not installed. The car will not be able to run until the EEprom is installed or replaced.
UTS Sp	UTS Speed Fault. The car hit the UTS limit at a higher velocity than the value set for the UTS Velocity adjustable variable. The car will immediately shut down.
DTS Sp	DTS Speed Fault. The car hit the DTS limit at a higher velocity than the value set for the DTS Velocity adjustable variable. The car will immediately shut down.
UT Spd	UT Speed Fault. The car hit the UT limit at a higher velocity than the value set for the UT Velocity adjustable variable. The car will immediately shut down.
DT Spd	DT Speed Fault. The car hit the DT limit at a higher velocity than the value set for the DT Velocity adjustable variable. The car will immediately shut down.
INS Sp	Inspection Speed Fault. The car exceeded the INS Velocity adjustable variable while running on inspection. The car will immediately shut down.
LEV Sp	Leveling Speed Fault. The car exceeded the LEV Velocity adjustable variable while leveling with a door open. The car will immediately shut down.
DL/GS	Door Lock/Gate Switch Fault. Car is moving outside the door zone with the door open. The car will immediately shut down.
IO Flt	I/O Fault. An input is on in error. The Elev Serv display will show the I/O error. Possible causes are as follows:  1. All inspection inputs and the auto input are off.

	DESCRIPTION AND CAUSE
IO Flt Continued	<p>2. More than one inspection or auto input is on at the same time.</p> <p>3. A bypass input is on while the car is not on Car top inspection.</p> <p>4. Both up and down run output from the main CPU are on at the same time.</p> <p>The car will not be able to run until the error is cleared.</p>
INS DO	<p>Inspection Door Open Fault. A door is open while running on inspection and the gate and locks are not being bypassed. The car will immediately shut down.</p>
Pls Er	<p>Pulse Error. Not enough pulses have occurred during the Pulse Fault Time period. This error is detected only on automatic operation. Verify that the pulse LED on the Safety Processor board blinks while the car is running on inspection. Possible causes are as follows:</p> <p>Improper connection for PP and PPS. Refer to the job specific prints.</p> <p>PP and PPS field wires need to be swapped.</p> <p>Photocoupler in selector is faulty. Call the Factory.</p> <p>Voltage from PP to 0V on the Safety Processor Board is less than 10VDC with the PP and PPS wires disconnected. Call the Factory.</p>

## SECTION - 5 LCD DISPLAY INTERFACE

### 5.1 OPERATING THE LCD INTERFACE

The LCD display interface board uses a 2 line by 24 character display and four buttons. This interface allows the user to adjust parameters, view critical controller information, to implement the controller setup and to view the elevator status. Upon power-up the display shows a blinking GALaxy name to indicate the controller is running as show below:



- UP button is used to scroll up to the next menu item or to increment a data value.  
UP
- DOWN button is used to scroll down to the next menu item or to decrement a data value.  
DOWN
- MODE button is used to go back to the previous menu or to select a digit of a data value.  
MODE
- ENTER button is used to select the menu item or to complete the operation of changing a data value.  
ENTER
- Potentiometer is used to adjust the viewing angle. It will make the display lighter or darker.

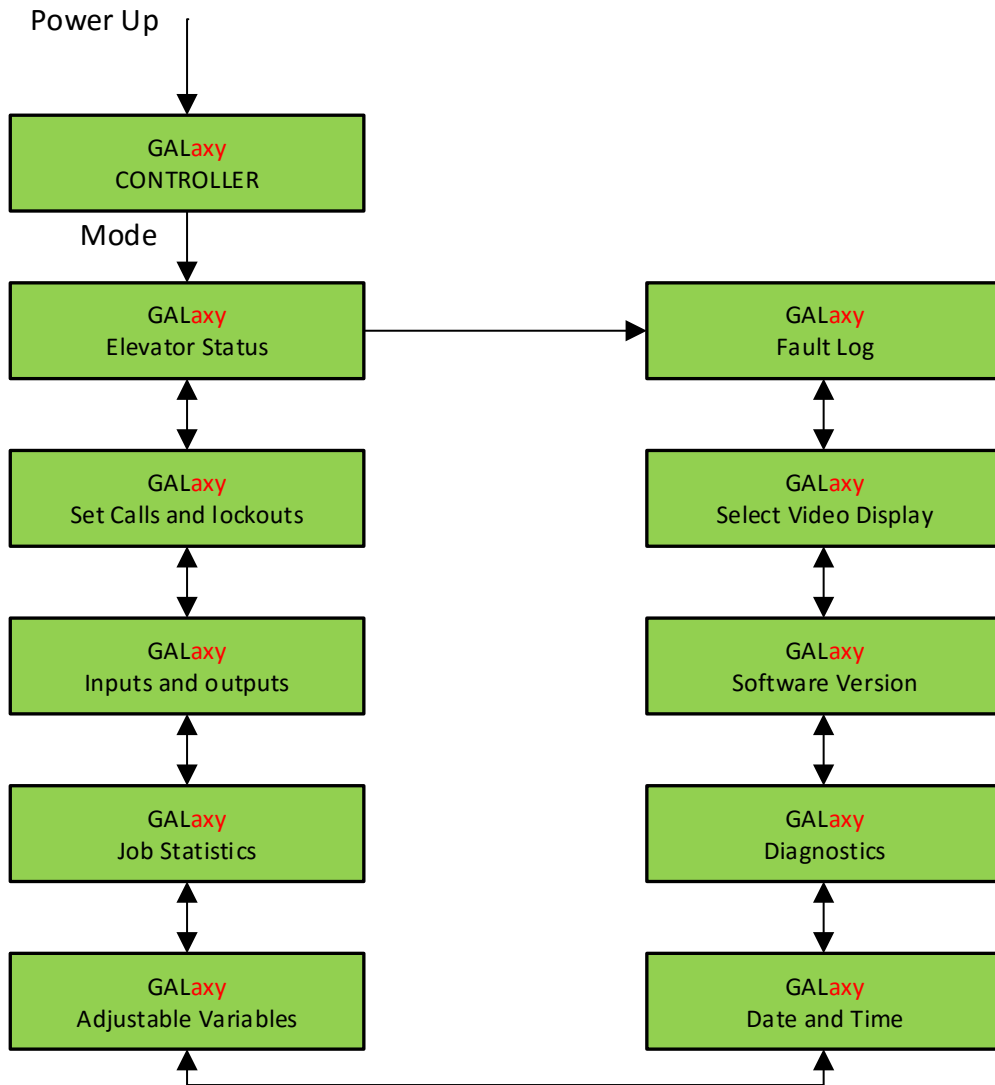


The four inputs buttons used with the LCD display are, UP, DOWN, MODE and ENTER.

The UP and DOWN buttons are used to scroll up and down to each menu item. When an appropriate menu item is reached, the ENTER button is used to select the item. Some menu items, once selected, show a second menu. Again, use the UP and DOWN buttons to scroll through the menu items and the ENTER button to select a particular item. The MODE button is used to go back to the previous menu. When a menu item is an adjustable variable, select the item with the ENTER button and change the variable with the UP or DOWN button. The MODE button is used to move the cursor to the next digit. When the appropriate value is reached, use the ENTER button to complete the variable change operation and return to the current menu.

## 5.2 THE LCD MENU STRUCTURE

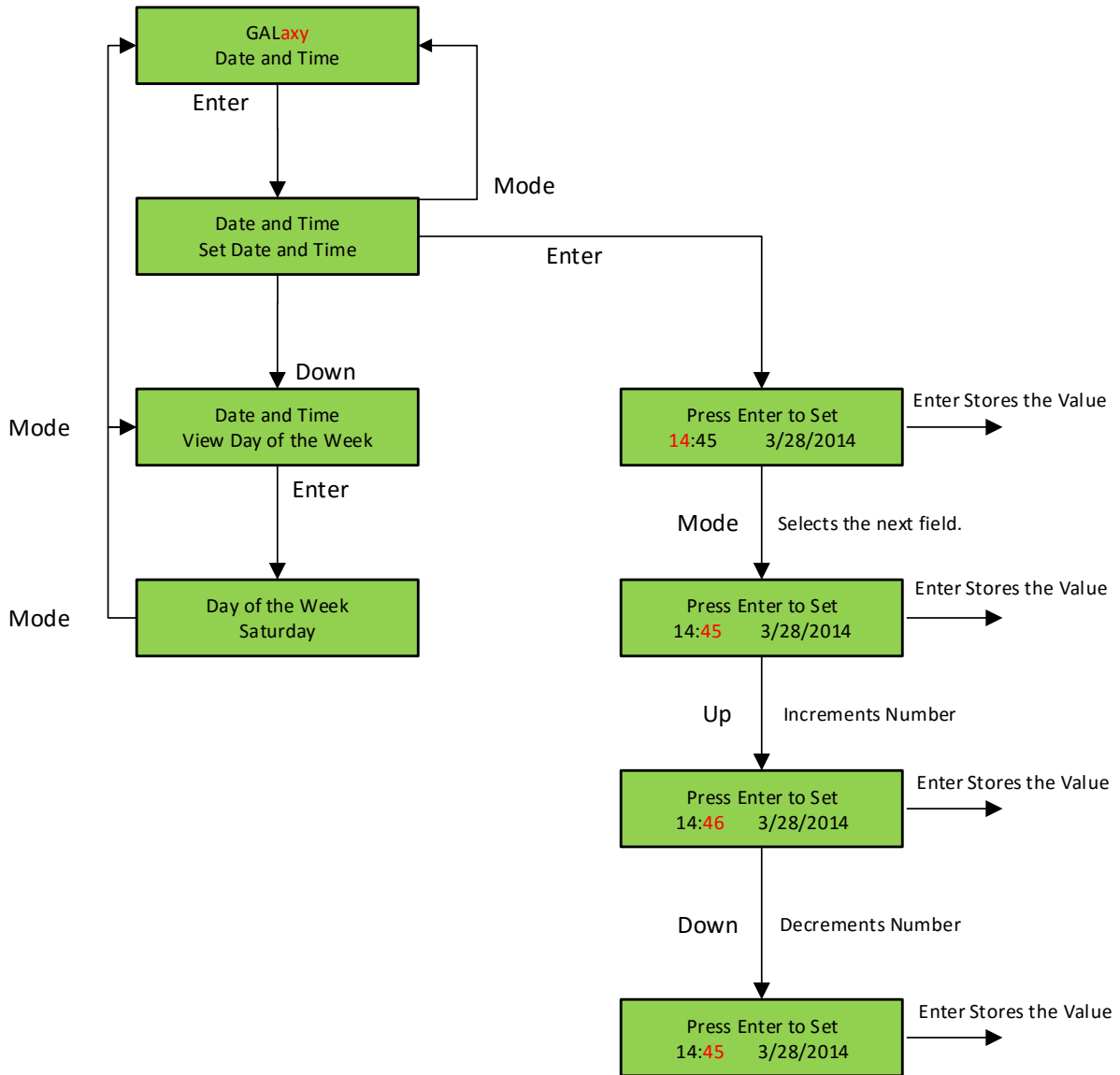
### LCD Interface Main Menu



### 5.2.1 Set DATE AND TIME

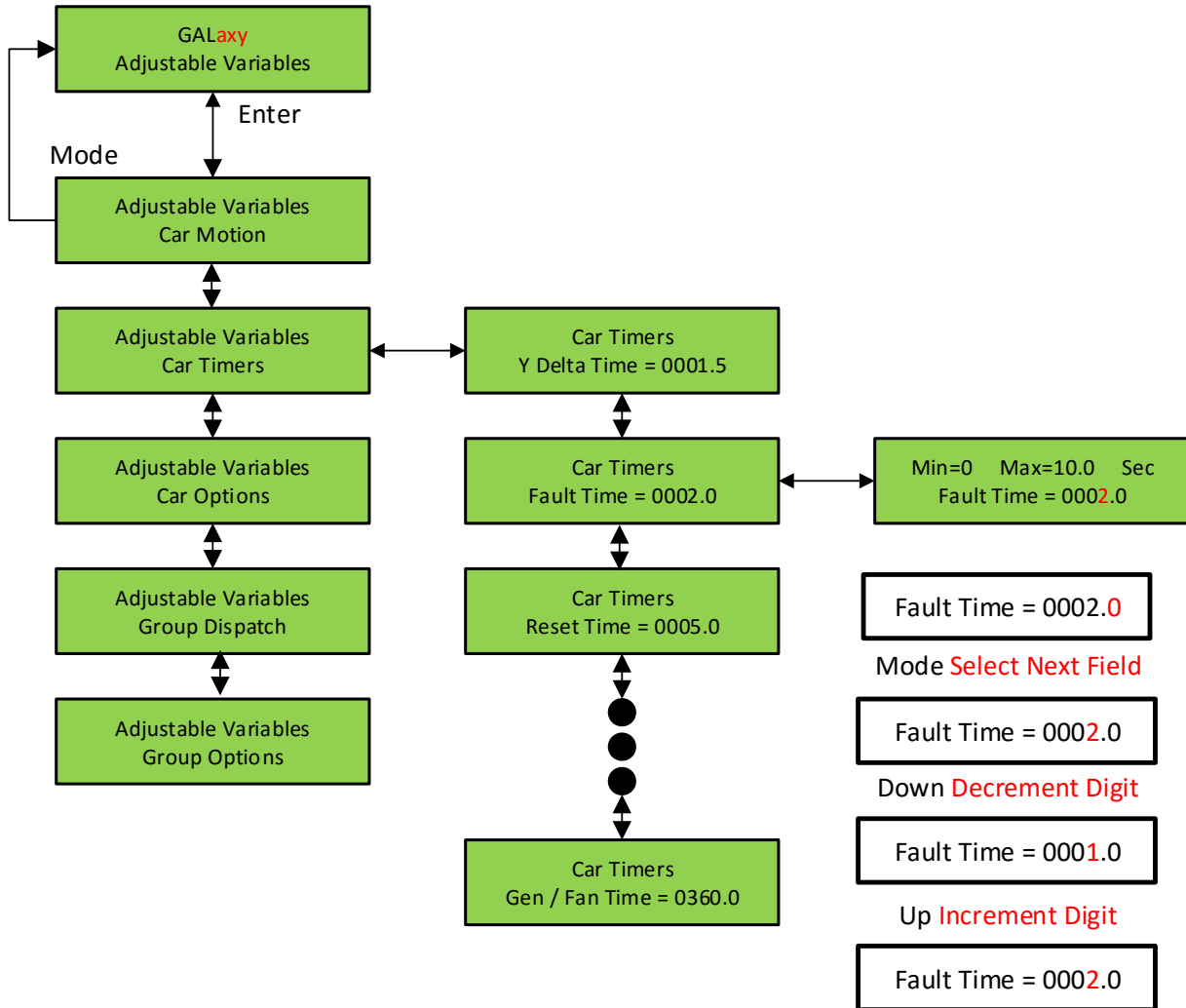
It is important to set the date and time on the controller clock so that the fault log shows the correct time sequence that faults occur.

#### Set Date and Time



## 5.2.2 ADJUSTABLE VARIABLES

### Adjustable Variables



All field variables are adjustable from the LCD interface. Values can be changed within the valid minimum and maximum range. A complete list of field adjustable variables and the minimum and maximum values for each is shown below:

### 5.2.2.1 CPU ADJUSTABLE VARIABLES

Table 1: Car Motion					
Field Variable	Min	Max	Initial	Units	Description
Ins Speed ISER	0	1	0	-	<b>Inspection Speed ISER.</b> Hydro: some valves interfaces require an output to run in inspection at higher speed than you would in leveling mode. ISER can turn on when running on inspection if this parameter is turned on or if the 'Inspection speed' is set contract speed or higher.
Inspect Speed	0	150	40	fpm	<b>Inspection Speed.</b> Maximum car speed while running on inspection.
Preopen Delay	0	3200	0.5	sec	<b>Preopen Delay.</b> Delay time to preopen the door starting from when the car reaches 3 inches from dead level and the door can safely be opened.
Soft Stop Time	0.2	30	1	sec	<b>Soft Stop Time.</b> For Hydraulic Elevators – time the motor is kept running after the valve is turned off. For Traction Elevators – time that zero speed is held until the brake is set.

**Table 2: Modified Motion**

Field Variable	Min	Max	Initial	Units	Description
Short Fl Cntrl	0	7	0	-	<p><b>Short Floor Control.</b>                      0 = Default is that the car relevels to the short floor.                      +1 = Car will make a run between very short floors instead of re-leveling.                      +2 = Short floor slowdown magnets between short floors (non-distance feedback).                      +4 = Mid Short floor slowdown magnets between short floors (non-distance feedback).</p>
Short Fl hsf	0	1	0	-	<p><b>Short Floor hsf (high speed flag) With No High Speed Valve.</b>                      Controller makes a run but only with one valve.                      0 = HS Output,                      1 = No HS Out</p>
Shrt Fl Dn SD	0	30	0	sec	<p><b>Short Floor Down Slowdown.</b>                      Hydro - There are no slow down magnets between short floors. This is timer to run down high speed in seconds. If the timer is set to zero, controller will immediately level looking for the other zone.  <i>It should only be used if second selector is utilized.</i></p>
Shrt Fl Up SD	0	30	0	sec	<p><b>Short Floor Up Slowdown.</b>                      Hydro - There are no slow down magnets between short floors. This is timer to run up high speed in seconds. If the timer is set to zero, controller will immediately level looking for the other zone.  <i>It should only be used if second selector is utilized.</i></p>
Shrt MidFl DnSD	0	30	0	sec	<p><b>Short Mid Floor Down Slowdown.</b>                      Hydro - To be used in second and higher short floor. There are no slow down magnets between short floors. This is timer to run down high speed in seconds. If the timer is set to zero, controller will immediately level looking for the other zone.  <i>It should only be used if second selector is utilized.</i></p>
Shrt MidFl UpSD	0	30	0	sec	<p><b>Short Mid Floor Up Slowdown.</b>                      Hydro - To be used in second and higher short floor. There are no slow down magnets between short floors. This is timer to run up high speed in seconds. If the timer is set to zero, controller will immediately level looking for the other zone.  <i>It should only be used if second selector is utilized.</i></p>

**Table 3: Car Timers**

Field Variable	Min	Max	Initial	Units	Description
Adv Door En Tim	0	240	0	sec	<b>Advanced Door Enable time.</b> Door open advance enable time to open the opposite door when operating with non-simultaneous doors. If there is a request for both doors, instead of waiting for the first open door to close completely before opening the second door, the second door starts to open after the advance door enable time while the first door is closing.
Att Buz Delay	0	900	60	sec	<b>Attendant Buzzer Delay.</b> Buzzer sounds if a hall call is entered and the car has not started moving within this delay time. <i>This function is disabled when set to zero.</i>
AttBuz Off Time	0	30	0	sec	<b>Attendant Buzzer Off Time.</b> Cycle off time to turn attendant buzzer on and off once attendant delay time function has been meet (See ATT Buz Delay). <i>Buzzer will stay on continuously if this timer set to zero.</i>
AttBuz On Time	1	30	5	sec	<b>Attendant Buzzer On Time.</b> Cycle on timer to turn attendant buzzer on and off once attendant delay time function has been meet (See ATTBuz Delay).
Auto Swg DO Dly	0	10	10	sec	<b>Auto Swing Door Open Delay.</b> Delay time to turn enable the auto swing door open output.
Car Call Dwell	1	60	2	sec	<b>Car Call Dwell.</b> Door open dwell time when answering a car call only.
CB Door Time	1	3200	60	sec	<b>Code Blue Door Time.</b> Door time for Code blue operation once elevator is at the emergency floor before EMS is energized.
Chime onCC Time	0.1	2	0.2	sec	<b>Chime on Car Call Time.</b> Handicap buzzer on CC. Length of beep time.
CL Pulse Time	0	320	5	sec	<b>Car Lantern Pulse Time</b>



**Table 3: Car Timers**

Field Variable	Min	Max	Initial	Units	Description
Door Delay Time	0	1.5	0	sec	<b>Door Delay Time.</b> Delay time between DO and DC to switch when opening or closing the door.
Door Fail Time	10	3200	25	sec	<b>Door Fail Time.</b> Time with power on the door without getting the door open limit.
EE Test Time	0	2	2	sec	<b>Electric Eye Test for Automatic Freight Doors</b>
EE Time-out	0	3200	40	sec	<b>Electric Eye Time-out time.</b> If the Electric Eye or detector edge is on continuously for this amount of time, it will be flagged as timed-out and the controller will ignore the EE input and close the door on nudging. <i>When set to zero, this feature is disabled.</i>
Fault Time	0	10	2	sec	<b>Fault Time.</b> Delay time before allowing the car to run after a fault occurs.
FR DC Time-out	1	3200	1	sec	<b>Freight Door Close Time-out.</b> The amount of time prior to closing the doors on automatic freight door operation.
FR Pwr DO Time	0	30	1	sec	<b>Freight Door Power Door Open Time.</b> The amount of time to turn on the power door open relay on automatic freight door operation.
Gen/Lt/Fan Time	30	3200	360	sec	<b>Generator Run/Cab Light/Fan Time.</b> Length of time to leave the generator running or the Cab light and fan on after there is no longer a demand to run.
Hall Call Dwell	1	60	4	sec	<b>Hall Call Dwell.</b> Door open dwell time when answering a hall call or both a hall and car call.

**Table 3: Car Timers**

Field Variable	Min	Max	Initial	Units	Description
Hall Lant Dly	0	15	0	sec	<b>Hall Lantern Delay Time.</b> By default, when set to zero, hall lanterns go off as soon as the car starts to slow down to arrive at a floor. When set to a nonzero value, this will be used as a timer for the hall lantern to go off prior to arrive at the floor. For example, if set to three seconds, hall lanterns will turn on approximately three seconds before the car arrives to the floor regardless of the speed of the car. We recommend to set this parameter for high speed cars.
Handicap Dwell	1	120	25	sec	<b>Handicap Dwell.</b> Extended door time from pressing the ED button in the car.
HEOF Auto Rst T	0	3200	0	sec	<b>HEOF Auto Reset Time.</b> When the hall elevator off function is activated from the HEOF input being turned on, the car will be taken out of service until the input is turned off. Once the input is off, the car will stay out of service until the auto reset timer times out.
Lant Off Time	0	2	0.2	sec	<b>Lantern Off Time.</b> Used for double stroke gongs. The lantern off time is the delay time after the lantern first turns on until it turns off.
Lant On Time	0	2	0.7	sec	<b>Lantern On Time.</b> Used for double stroke gongs. The lantern will turn on, turn off and then turn on again. The Lantern on time is the delay time from when the lantern first turns on until it turns on the second time.
Lobby Dwell	1	60	5	sec	<b>Lobby Dwell.</b> Door open dwell time for a car at the lobby.
ManDoor Buz Dly	0	900	0	sec	<b>Manual Door Buzzer Delay.</b> On a car with manual doors, sound the buzzer if the door is left open and a call is entered after this time delay. <i>This function is disabled when set to zero.</i>

**Table 3: Car Timers**

Field Variable	Min	Max	Initial	Units	Description
Max Door Hld T	0	3200	0	sec	<p><b>Maximum Door Hold Time</b>                      Maximum door hold time to be allowed when the extended dwelling input (ED) is pressed.  <i>If set to zero, there will be no limit on how long the car will be held on ED.</i>                      When set to a value, this will be the maximum allowed time for the car to held by ED input, then car will go on regular dwelling timers (car or hall call dwelling timers).</p>
Non Interfer T	1	60	2	sec	<p><b>Non-Interference Time.</b>                      Time between when you stop and when you can run again.</p>
Nudging Time	20	3200	60	sec	<p><b>Nudging Time.</b>                      Delay time for a door to be held before going into nudging.</p>
OSER BTFlr Tim	0	900	60	sec	<p><b>Out of Service Between Floors Time.</b>                      Timer to control the OSERL output. Used with OSERL Control option 1 for 'between floors for over a minute' set to 2.</p>
OSER Ncall Tim	0	900	600	sec	<p><b>Out of Service Not responding to Calls Time.</b>                      Timer to control the OSERL output. Used with OSERL Control option 1 for 'not responding to calls' set to 1.</p>
OSER Sopen Tim	0	900	60	sec	<p><b>Out of Service Safety String Open Time.</b>                      Time to control the OSERL output. Used with OSERL control option 1 for 'SS open' set to 4.</p>
Pas Chime Time	0.2	2	0.5	sec	<p><b>Floor Passing Chime Time.</b>                      Length of time the floor passing chime will sound when a floor is passed.</p>
RC dropfail Tim	0.5	5.5	0.5	sec	<p><b>Retiring Cam Drop Fail Time.</b>                      Retiring cam drop fail safe delay for manual doors. Time it waits when car arrives to the floor before it drops the output.</p>
RC Pick Delay	0	7	0	sec	<p><b>Retiring Cam Pick Delay.</b>                      The amount of delay time for the retiring cam to pick once the doors are closed.</p>

**Table 3: Car Timers**

Field Variable	Min	Max	Initial	Units	Description
Relev Dly Tim	0	2	1	sec	<b>Relevel Delay Time.</b> The amount of delay time before the car will re-level. This would be used for jobs that have excessive rope stretch.
Reset Time	0	10	5	sec	<b>Reset Time.</b> Delay time in the reset mode before allowing the car to run.
RTL Dwell Time	1	60	8	sec	<b>Return To Lobby Dwell Time.</b> If Return To Lobby is set to cycled doors at the lobby, use this timer to control how long they will dwell before closing in return to lobby mode.
Run Cycle Time	0	300	0	hours	<b>Run Cycle Time.</b> Used to initiate a run when the elevator has been sitting idle for a period of time. Used for jobs that have high friction bearing machines.
Sabb Buzz Delay	1	10	5	sec	<b>Sabbath Door Buzzer Delay.</b> Sabbath Door Buzzer timer prior to doors closing: jobs where the light curtain is disabled in Sabbath operation required a buzzer prior to the door closing sequence. This timer warns people the light curtains are about to be enabled (output name: SABUZ)
Sabbath Dwell	1	60	10	sec	<b>Sabbath Door Dwell Time</b> The car will wait this amount of time on every floor for Sabbath operation except at the lobby where it will follow the handicap dwell door time (separate timer).
Sec Disable Tim	0	3200	0	sec	<b>Security Disable Time.</b> This timer is used with a security disable input button at the lobby. When the button is pressed, the car call security is disabled for the time value set from this parameter.
Short Dwell Tim	0	60	1	sec	<b>Short Door Dwell Time.</b> Door open dwell time when the doors re-open on a door open button, electric eye, safety edge or door hold button.

**Table 3: Car Timers**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
Stall Time	20	3200	60	sec	<b>Stall Time.</b> Maximum time a run is requested but the car is not moving.
VIP Door Time	1	3200	20	sec	<b>VIP Door Time.</b> The amount of time the car will park at the VIP recall floor prior to going to automatic service.
Y Delta Time	1	5	1.5	sec	<b>Y-Delta Time.</b> Transfer time to change motor from Y start to Delta run. Timer also used for DEL or MCX turn on time with controllers without y-delta starters.

**Table 4: Car Options**

Field Variable	Min	Max	Initial	Units	Description
Arrival Lant	0	1	0	-	<b>Arrival Lantern.</b> 1 = activate lant/gong without onward call
Behind CC Canc	0	1	0	-	<b>Behind Car Call Cancel.</b> When enabled the elevator will not latch any car calls in the opposite direction of travel.
Binary Preset	0	1	0	-	<b>Binary Preset.</b> 1 = Always update the car position count based on binary preset when the position doesn't not match. 0 = Update the car position count based on the binary preset when the car recovers into a floor.
Cab Lant Ctrl	0	2	0	-	<b>Cab Lantern Control.</b> The default is for the cab lanterns to go off when the door is fully open. This allows the cab lanterns to go off earlier. +1 = Ring cab lanterns as soon as door starts to open, +2 = Ring the cab lanterns when the door reaches DPM point.
CCS on Sabbath	0	1	0	-	<b>Car Call Security on Sabbath.</b> When this parameter is enabled, Sabbath car calls will not latch on floors that have been secured using car call lockouts security.
Cl Gate No Pref	0	1	0	-	<b>Close Gate (Swing Door) when No Onward Preference.</b> The gate on a swing door normally stays open until a call is placed. 1 = Causes the gate to close while the car is sitting at the floor.
COP/Remote CC	0	7	0	-	<b>COP/Remote Car Call Select.</b> 0 = Both COP and Remote Car Call Station used to enter calls. +1 = Separate: COP only or Remote CC only used to enter car calls. +2 = C-R: Car calls entered on the COP sets the acknowledgment light on the Remote station. +4 = R-C: Car calls entered on the Remote station sets the acknowledgment light on the COP.

**Table 4: Car Options**

Field Variable	Min	Max	Initial	Units	Description
COP/Remote Dis	0	14	0	-	<b>COP/Remote Disable</b> +1 = Up Direction Disable COP, +2 = Down Direction Disable COP, +4 = Up Direction Disable Remote Panel, +8 = Down Direction Disable Remote Panel
DCB Canc Dwell	0	1	0	-	<b>Door Close Button Cancel Dwell Time.</b> When this parameter is set to 1 we do not allow DCB to cancel the door dwell time. It basically disables DCB to shorten door dwell time.
DO No Actv DOL	0	1	0	-	<b>Door Open Output when not Active DOL.</b> When the door is fully open and hits the DOL, the DO is turned off and stays off even if the door drifts off of DOL. With this parameter set to "1", the DO output will turn on any time the DOL is lost.
DOB Over Nudg	0	1	0	-	<b>DOB Over Nudging.</b> If set the door open button will open the door when the door is nudging closed.
DoorOpenL Ctrl	0	16	0	-	<b>Door Open Light Control.</b> The way 'DoorOpenL Ctrl' parameter works is as below: +1 = Set OPENL on phase 1 completed +2 = Set OPENL on RTL return to lobby +4 = Set OPENL on emp returned home with doors open, also sets OPENL on emp and selected to run +8 = Set OPENL on when Lobby Floor +16 Set OPENL all the time.
Double Stroke	0	1	1	-	<b>Double Stroke Gong Selection</b> Select 1 or 2 gongs for down hall calls. 0 = 1 gong 1 = 2 gongs
Drive Rdy Flts	1	10	5	count	<b>Drive Ready Fault Reset Count.</b> Number of times the drive can be reset in a 20 minute time period.

**Table 4: Car Options**

Field Variable	Min	Max	Initial	Units	Description
EE Cancel Dwell	0	1	0	-	<b>Electric Eye Cancel Dwell.</b> By turning this parameter on you disable the short dwelling door time from the electric eye signal (EE). By default the short dwelling time is enabled.
HB/PI Dis NV Fl	0	1	0	-	<b>Handicap Buzzer/PI Display Control.</b> When set to 1, do not sound HB or update floor PI when passing an invalid floor.
Hndcap Time Flr	Bottom Floor	Top Floor	1	floor	<b>Handicap Time Floor.</b> If the job is configured to have an extended door input at a hall station, this parameter configures the floor number when parameter will change door timing. Follows fvexdt timer. It will operate for EDHL only.
Invert CLF	0	1	1	-	<b>Invert The Logic For The Car Light &amp; Fan.</b> 0 = Car light & fan is normally open. 1 = Car light & fan is normally closed.
Invert ISER	0	7	0	-	<b>Invert In Service Output.</b> 1 = The in service light output is turned off when the car is in service instead of turned on. 2 = The ISER output will function as an elevator in use light. 4 = This output functions as out of service from a shutdown and does not include independent, inspection or recovery mode.
Invert LOS	0	1	0	-	<b>Invert Low Oil Switch (LOS)</b>
Invert LPS	0	1	0	-	<b>Invert Low Pressure Switch (LPS)</b>
Invert TPL	0	1	0	-	<b>Invert Temperature Low Switch (TPL)</b>
Lant Pref Dly	0	3	0	sec	<b>Lantern Preference Change Delay.</b> When the direction preference for the elevator changes, we clear the lanterns and wait for this amount of time before the lanterns are turned on again.



**Table 4: Car Options**

Field Variable	Min	Max	Initial	Units	Description
LobbyLan NCU/IR	0	1	0	-	<p><b>Lobby Lantern NCU/IR.</b></p> <p>0 = Light the lanterns on IR service at each floor. The lantern will not light at the lobby if next up operation is selected because the IR car will not be selected to be the next up car.</p> <p>1 = The IR car will light the lantern at all the floors and the lobby even with the system on next up operation.</p>
Min Door Tim En	0	1	0	-	<p><b>Minimum Door Time Enable.</b></p> <p>When set = 1, the minimum door time for a car call or a hall call is set from the car or hall call dwell timers and cannot be shortened by the Door Close button.</p>
NCU Lant Ctrl	0	3	0	-	<p><b>Next Up Direction Lantern Control.</b></p> <p>+1 = Turn off hall lantern after next up time.</p> <p>+2 = Turn off cab lantern after next up time.</p>
NCU Pref Ctrl	0	1	0	-	<p><b>Next Up Preference Control.</b></p> <p>When set allows direction preference to change before the door starts to close after the next up door time.</p>
No HC Door Reop	0	3	0	-	<p><b>No Hall Call Button Door Reopen.</b></p> <p>When set do not reopen the door from an at floor hall call.</p>
Non-Simul Doors	0	2	0	-	<p><b>Non-Simultaneous Doors.</b></p> <p>0 = Both front and rear doors will open at the same time if there is a demand at both the front and rear openings.</p> <p>1 = The front doors will open first before the rear doors open if there is a demand to open.</p> <p>2 = The rear doors will open first before the front doors open if there is a demand to open.</p>
Nudge Dis Ctl	0	7	0	-	<p><b>Nudging Disable Control.</b></p> <p>+1 = Do not turn on the NUD output when doors are in nudging close mode, basically you are disabling nudging output.</p> <p>+2 = When doors are in nudging close mode and SE input is ON, keep doors open and also keep FB/NB output latched.</p> <p>+4 = Sound the nudging buzzer but do not close the doors on nudging.</p>

**Table 4: Car Options**

Field Variable	Min	Max	Initial	Units	Description
Nudge No Calls	0	1	0	-	<b>Nudge with No Calls.</b> If set to a 1 the doors will close on nudging even if the elevator has no onward calls.
OSERL OutCtrl 1	0	7	0	-	<b>Out of Service Light Control</b> +1 = Not responding to calls; +2 = Between floors for over a minute +4 = SS open. <i>When this parameter as well as OSERL OutCtrl 2 is set to zero, the output will just operate as an Out of service light.</i>
OSERL OutCtrl 2	0	1	0	-	<b>Out of Service Light Control 2</b> +1 = Alarm. <i>When this parameter as well as OSERL OutCtrl 2 is set to zero, the output will just operate as an Out of service light.</i>
Preopen Doors	0	3	0	-	<b>Preopen Doors.</b> +1 = Will enable preopening of the doors. If retiring cam used with auto door, RCM will also turn on at the preopening point. +2 = Exclude short floors.
RCF out enable	0	1	0	-	<b>Retiring Cam for Freight Output Enable.</b> When you Turn on this parameter. It shows a retiring cam output in controller. RCF that mirrors the signal from RCM.  <i>You need to reboot CPU every time you change parameter for change to take effect.</i>
RCM Control	0	3	0	-	<b>Retiring Cam Control.</b> 1 = Hold the retiring cam up at the floor if there is no pilot to open the door (manual doors). The retiring cam will drop after 5 minutes. 2 = RCM output turns on when DZ hit to advance the RCM ahead of the door open (auto door with retiring cam) otherwise the default is that RCM turns on when dead level.  If preopening is set RCM and DO turn on when DZ hit.

**Table 4: Car Options**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
Secnd Riser Lant	0	1	0	-	<b>Second Riser Lantern.</b> Turn on cab lantern only when IR call answered. If this parameter is set cab lanterns will only turn on when answering second riser calls.

**Table 5: Service Options**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
Access Bot Fl	Bottom Floor	Top Floor	1	floor	<b>Access Bottom Floor.</b> Floor for bottom access
Access Door Cls	0	1	0	-	<b>Access Door Close.</b> When on access operation the car runs with the Door Lock and GS open. By turning this parameter on, the car needs to have the gate switch signal ON in order to run. It should be used on hoistways where the car door will physically hit something if moved on access operation.
Access Top Fl	Bottom Floor	Top Floor	2	floor	<b>Access Top Floor.</b> Floor for top access.
Att Buz ctrl	0	1	1	-	<b>Attendant Buzzer Control.</b> 0 = Hall Calls only 1 = Hall Calls and Car Calls
Att CC from HC	0	1	0	-	<b>Attendant Car Call from Hall Call.</b> When set to 1 and the car is on Attendant service the respective car call will register when a hall call is registered.
CB Buzzer Ctrl	0	1	0	-	<b>Code Blue Buzzer Control</b> 1 = Turn on while in code blue recall.
CB Over Ind	0	1	0	-	<b>Code Blue Override Independent</b> 1 = Wait for timer to expire and then recall the car
CB single call	0	1	0	-	<b>Code Blue Single Car Call.</b> 0 = Car on Code Blue operation allows multiple car calls on Hospital Service. 1 = Allow only a single call once place on Hospital Service.
CCPBS on Gp Sec	0	1	0	-	<b>CCPBS On Group Car Call Security.</b> This variable enables Car Call Push Button Security with group car call lockout switches. The configuration (CONS) file setting for security type and car call push button security must also be set.

**Table 5: Service Options**

Field Variable	Min	Max	Initial	Units	Description
CEOF Control	0	7	0	-	<p><b>Car Elevator Off Options</b>            Car Elevator Off Options:            +1 = Recall,            +2 = Keep Door Open,            +4 = Turn off CLF</p>
CEOF Control 2	0	15	0	-	<p><b>Car Elevator Off Options 2</b>            +1 = Keep doors Closed (do not cycle on reversal),            +2 = Do not blink Elevator Off Light,            +4 = Elevator Off Auto Reset With Timer ,            +8 = Enable Elevator Off Light to indicate the car finished recall of elevator off mode.</p>
DOB Over Sec	0	5	0	-	<p><b>DOB Override Security.</b>            This parameter allows the car to open the door at a secured floor when the car is secured from the following conditions:            1 = The DOB will be allowed to open the door at any secured floor.            2 = The DOB can open the door at floors secured from group security floor mask table.            3 = Allows the DOB to open the front door at floors secured by car call lockout security (switches or card reader).            4 = Allows the DOB to open the rear door at floors secured from rear car call lockout security.            5 = Allows the DOB to open the door at floors locked out by group security floor mask tables when the car is also on independent.</p>
Door Hold Msg	0	1	0	-	<p><b>Door Hold Message.</b>            Set to enable Extended Door Time Message Indicator in CE Driver board.</p>
Elev Off Ret Fl	0	Top Floor	0	floor	<p><b>Elevator Off Return Floor.</b>            Related to HEOF input. This setting is to be used in conjunction with 'Elev Off Ctl = +1'. If the elevator is configured to recall, this parameter will determine what floor the car should be recalled to in elevator off mode.  <i>If Parameter is set to zero, car will be returned to the Lobby.</i></p>
Em Power Floor	Bottom Floor	Top Floor	1	floor	<p><b>Emergency Power Recall Floor.</b></p>

**Table 5: Service Options**

Field Variable	Min	Max	Initial	Units	Description
EMS/HS after CB	0	1	0	-	<b>EMS (Emergency Medical Service)/HS(Hospital Service) after Code Blue.</b> This is a Code Blue bypass control. 0 = Car goes from Auto to Hospital service, bypassing the code blue sequence, when EMS switch is turned on. 1 = Hospital service only activates after a code blue recall.
Flash CB Light	0	1	0	-	<b>Flash Code Blue Light.</b> When set to 1 the code blue light inside the car station will flash.
HC Acknwldg Bzz	0	1	0	-	<b>HC Acknowledge Attendant Buzzer</b> Buzz once (for one sec) every time a call comes in. 0 = Disable 1 = Enable
HEOF Control	0	7	0	-	<b>Hall Elevator Off Control.</b> +1 = Recall car when key switch activated. +2 = Keep door open at the shutdown floor. +4 = Allow the cab light and fan to time-out even though the door is open but the car is shut down.
HEOF Control 2	0	15	0	-	<b>Hall Elevator Off Options 2</b> +1 = Keep doors Closed (do not cycle) +2 = Do not blink HEOFL, +4 = Auto Reset when input off and timer expires. +8 = Use HEOFL to indicate car finished recall.
HEOF Control 3	0	1	0	-	<b>Hall Elevator Off Options 3.</b> +1 = Only activate if doors are closed. See other Hall Elevator Off Options as well.
HEOF Over Ind	0	1	0	-	<b>Hall Elevator Off Override Independent</b> 1 = Wait for timer to expire and then recall the car.
HSV Door Call	0	1	0	-	<b>Hospital Service Close Door Car Call.</b> Close the doors from a car call when the car is on Hospital Service.

**Table 5: Service Options**

Field Variable	Min	Max	Initial	Units	Description
IND Door Cl CC	0	1	0	-	<b>Independent Door Close Car Call.</b> Enable to close the doors from a car call when the elevator is on independent.
Ind Over Sec	0	7	0	-	<b>Independent Overrides Security.</b> 1 = Allow independent service to override security car call lockouts. 2 = Override Security Floor Mask configurations 4 = Override remote car call station.
IND Rcl to Lby	0	1	0	-	<b>Independent Recall to Lobby.</b> Forces the car to recall to the lobby when on independent and no calls are made.
IND Rcl2Lby tmr	10	60	20	sec	<b>Independent Recall to Lobby Timer.</b> Recall delay for car in independent when 'IND Rcl to Lby ' is set.
Ins Door Close	0	1	0	-	<b>Inspection Door Close.</b> When set to 1, the door close output will turn on when the up or down inspection run button is pressed.
INSEC Outp Ctl	0	1	0	-	<b>INSEC - In Security Output Invert.</b> Output located on the Car Call Security Board.
LW Anti- nuisan	0	50	0	count	<b>Load Weighing Anti- nuisance.</b> Set to the maximum number of car calls that can be entered before all car calls are cancelled without the load switch LWA input on. Once the load switch is on, all car calls will stay latched. <i>If set to 0, this function is disabled.</i>
Manual Dir En	0	4	0	-	<b>Attendant Manual Direction Enable.</b> 1 = Works in conjunction with the ATTUP and ATTDN to determine direction of travel. 2 = Reads the ATTUP input and use it as a START button. 4 = Will not allow car calls to be registered until the door is fully closed.

**Table 5: Service Options**

Field Variable	Min	Max	Initial	Units	Description
Med CCS Ovrride	0	1	0	-	<b>Medical Service Override Car Call Security.</b> When set to 1, medical service car will override car call security.
Med Door Reopen	0	2	0	-	<b>Medical service Door Reopen.</b> When car is in medical Service, this parameter determines the door open sequence for re-open: 0 = Stop, 1 = Constant pressure, 2 = Momentary to DOL
Med Em Floor	Bottom Floor	Top Floor	1	floor	<b>Medical Emergency Return floor.</b>
Med Em Sw Loc	0	1	0	-	<b>Medical Emergency Switch Location.</b> Selects the switch location for the front or rear door.
Med Ind Ovrride	0	2	0	-	<b>Medical Service Overrides Independent Control</b> 0= Immediate, 1= After Delay, 2= No override
No Psg Run Cnt	0	10	0	count	<b>No Passenger Run Count.</b> When set to a number other than zero, the car call antinuisance feature is activated. This count is the number of times the car will run from a car call without detecting that a passenger has broken the detector edge. Once the count is reached, all remaining car calls will be cancelled.
PI Serv Msg 1	0	Max Service	0	Service Number	<b>PI Service Message 1.</b> When the car service matches this number, user message 1 is sent to the PI display. This will correspond to user PI display message 17.
PI Serv Msg 2	0	Max Service	0	Service Number	<b>PI Service Message 2.</b> When the car service matches this number, user message 2 is sent to the PI display. This will correspond to user PI display message 18.



**Table 5: Service Options**

Field Variable	Min	Max	Initial	Units	Description
PI Serv Msg 3	0	Max Service	0	Service Number	<b>PI Service Message 3.</b> Used for Custom messages. Need to be programmed by CE electronics and GAL for special messages.
Return To Lobby	0	7	0	-	<b>Return to Lobby Option.</b> +1 = Cycle door at lobby, +2 = Cancel car calls when activated, +4 = Cycle door on reversal.
RTL Door Selct	0	2	0	-	<b>Return To Lobby Door Select.</b> This variable allow you to specify door open type on 'Return to Lobby' service. 0 = The car will open only front door, 1 = The car will open only rear doors, 2 = The car will open both front and rear
Sec Reassign CC	0	3	0	-	<b>Security Reassign Car Call.</b> Re-assign secured car call to opposite door. Used with security configuration cons.dat file setting: cons[SecFICfg] = 2. 0 = Disabled, +1 = In case front CC are secured, reassign them as rear, +2 = In case rear CC are secured, reassign them as front.
Sec Recall 2	0	2	0	-	<b>Security Recall Control 2.</b> 0 = Out of group on first recall. 1 = Out of group on all recalls. 2 = No out of group recalls.
Security Floor	0	Top Floor	1	floor	<b>Security Floor.</b> The security recall floor. This is the floor where the security guard would be stationed.  <b><i>This floor would not be locked out when on security.</i></b>
Security Recall	0	15	0	-	<b>Security Recall Selection.</b> 0 = No: No Recall, +1 = Recall to Security Floor on activation of security. +2 = Cycle front door once recalled to the Security Floor. +4 = Cycle rear door once recalled to the Security Floor. +8 = Always recall to security floor after each run.

**Table 5: Service Options**

Field Variable	Min	Max	Initial	Units	Description
Service LT CTL	0	30	0	Service Number	<b>Service Light Control.</b> When the configuration file parameter cons[servOUT] is set to 1 or 2, the service output SERVO will turn on when the car service matches the car service number in this parameter.
SR CCSec by Dir	0	2	0	-	<b>Second Riser Car Call Security by Direction.</b> Allows calls in the one direction but disables them in the other. 1 = Allow calls in the up direction (above the floor) but disable them going down, 2 = Allow calls in the down direction (below the floor) but disable then going up.
Stop At Lobby	0	15	0	-	<b>Stop at Lobby.</b> 0 = Do not automatically stop at lobby, +1 = The car will stop at the lobby when the car is traveling up and the car is below the lobby floor. +2 = The car will stop at the lobby when the car is traveling down and the car is above the lobby floor. 3 = The car will stop at the lobby when traveling in either direction. +4 = Stop at lobby with any onward call past the lobby. +8 = Recall to the lobby.
VIP Lant Ctrl	0	3	0	-	<b>VIP Lantern Control</b> 0 = Do not ring lanterns on VIP, 1 = Ring up or down lantern at VIP floor when the door is fully open, 2 = Ring up or down lantern at VIP floor before the door is opened.
VIP multi call	0	1	0	-	<b>VIP Multiple Calls.</b> 0 = VIP feature works as single call and when 'VIP multi call' 1 = The car will be allowed to make multiple VIP calls until no more car calls are entered and until the VIP sequence time-out timer is expired.

**Table 6: Fire Options**

Field Variable	Min	Max	Initial	Units	Description
ALT Fire Floor	Bottom Floor	Top Floor	2	floor	<b>Alternate Fire Floor.</b>
Alt Rcl FS Off	0	3	0	-	<b>Alternate Floor Recall Fire Service Off.</b> +1 = Have the elevator recall back to the alternate floor when the lobby fire switch is turned to the off position and car recalled to the main fire floor. +2 = Allows the car to return to the alternate landing even if sensor was reset.
Aux. Fire Sw.	0	1	0	-	<b>Auxiliary Fire Switch.</b> When set, the controller expects an auxiliary hall fire switch to be used.
CB over FS	0	1	0	-	<b>Code Blue Over Fire Service:</b> +1 = Enable to have code blue prevent car from recalling in FS
Cl Door F1 Rcl	0	1	0	-	<b>Close Door After Fire phase 1 Recall.</b> Ehen set to 1, elevator will close the doors after phase 1 recall and reopen from a hall call (Denver Fire service amendment).
F1 DC Time-out	10	60	20	sec	<b>Fire phase 1 Door Close Time-out.</b> The amount of time it will take before the car doors start to close while the car is on Independent or Attendant service prior to recalling the elevator on Fire Phase 1.
F1 Door Dwell	1	90	60	sec	<b>Fire phase 1 Door Dwell Time.</b> Fire Service Phase one complete dwell time when 'Cl Door F1 Rcl' parameter is set. (Denver FS phase1 dwell time).
F2 DOB ovr DCB	0	1	0	-	<b>Fire Phase 2 Door Open Button Overrides Door Close Button.</b> When set to 1, it allows Door Open Button will override Door Close Button on phase 2. (For Miami).
Fire Main Floor	Bottom Floor	Top Floor	1	floor	<b>Fire Main Floor.</b>

**Table 6: Fire Options**

Field Variable	Min	Max	Initial	Units	Description
Fire Option	0	3	0	-	<p><b>Fire Option.</b>                      Recall Reset Selection:                      0 = Reset fire service phase 1 after hall switch is turned off and car returns to fire floor.                      1 = Reset phase 1 immediately after hall switch is turned off.</p>
Fire Option 2	0	3	1	-	<p><b>Fire Option 2.</b>                      +1 = Initiate a phase 2 recall only when the door is open (Chicago fire).                      +2 = Disable flashing FL on phase 2 (Chicago fire).</p>
Fire Sw Loc	0	4	0	-	<p><b>Fire Switch Location.</b> Location of fire hall switch.                      0 = Main/Alt Front,                      1 = Main Rear/Alt Front,                      2 = Main Front/Alt Rear,                      3 = Main/Alt Rear,                      4 = Set from Dispatcher Car selection.</p>
FireL Emer Pwr	0	1	1	-	<p><b>Fire Light Control During Emergency Power</b>                      Enable to cause the fire light FL to turn off if the car is not selected to run.</p>
FireL OTS Ret	0	1	0	-	<p><b>Fire Light Control For Out Of Service Cars</b>                      Enabling this parameter will turn off the fire light in the event the car cannot recall for being out of service.</p> <p>The car could be out of service due to Earthquake, low oil, stall, etc.</p>
FS2 Door Reopen	0	1	0	-	<p><b>NYC FS2 Door Reopen on Stop Switch</b>                      When the elevator is on FS2 and DCB is pressed, the doors close. 0 = While the door is closing, if you hit the in car stop switch the doors continue to close.                      1 = While the door is closing and you hit the in car stop switch, the doors re-open.</p>

**Table 6: Fire Options**

Field Variable	Min	Max	Initial	Units	Description
FS2 Special Recover	0	1	0	-	<p><b>Fire Service Phase 2 Recovery</b>                      After special device that prevents the car from running up has been activated. These devices are the Low Oil Switch, Hot Oil Switch, and battery backup lowering.  <i>Hydro Only.</i></p>
Hall Fire Light	0	4	0	-	<p><b>Hall Fire Light.</b>                      This variable controls the FLH output on the controller so it can be used for a hall fire light or a fire security override. The default operation is that FLH turns on while the car is on phase 1 or phase 2 fire service.                      +1 = On while phase 1 is in effect,                      +2 = Flash FLH at 1 second intervals while activated,                      +4 = FLH follows the Fire Light (FL) logic.</p>
Hoistw Fire Ret	0	1	0	-	<p><b>Hoistway Fire Sensor Return Floor Selection.</b>                      0 = Return to the Main fire floor,                      1 = Return to the Alternate fire floor.</p>
HWS 2 Fire Loc	0	1	50	-	<p><b>Fire Service Hoistway HWS2 Sensor Location</b>                      0 = Same HW                      1 = Separate hoistway</p>
HWS 2 Fire Ret	0	1	0	-	<p><b>Second Hoistway Fire Service Sensor Return Option.</b>                      0 = Main recall floor                      1 = Alternate recall floor.</p>
MachRm Fire Ret	0	1	0	-	<p><b>Machine Room Fire Sensor Return Floor Selection.</b>                      0 = Return to the Main fire floor,                      1 = Return to the Alternate fire floor.</p>
Rcl from F1 Alt	0	1	0	-	<p><b>Recall From Fire Phase 1 Alternate Floor.</b>                      If the car has returned to the alternate floor from a smoke sensor and when two fire hall switch are used, both must be on to recall the car from the alternate floor to the main floor.</p> <p>When this flag is set to 1, the car will recall from the alternate floor to the main floor from either hall fire key switch. (Set to 1 for Mass. fire service).</p>

**Table 6: Fire Options**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
Recall Reset	0	3	0	-	<b>Recall Reset Selection.</b> 0 = Reset fire service phase 1 after hall switch cycled through reset and turned off and car returns to fire floor. 1 = Reset phase 1 immediately after hall switch is cycled through reset and then turned off. 2 = Reset fire service without cycling fire switch through reset but turned off only if the smoke sensors were not activated.
Recall Reset 2	0	1	0	-	<b>Recall Reset Selection 2</b> 0 = Reset fire service phase 1 with car at any floor. 1 = Reset phase 1 only if car at fire recall floor.

**Table 7: Group Dispatch**

Field Variable	Min	Max	Initial	Units	Description
Alt Lobby Floor	1	Top Floor	1	floor	<p><b>Alternate Lobby Floor.</b> Galaxy groups could be configured to have an alternate lobby. Switching between regular lobby and alternate lobby could be done by means of LiftNet, Galileo, controller input or service timer. Once the alternate lobby is enabled, controllers will use this landing as the lobby floor for all dispatching purposes.</p>
Alt Parking Fl	1	Top Floor	1	floor	<p><b>Alternate Parking Floor.</b> Normally, during parking operation, one floor is always parked at the lobby. With alternate parking floor operation, a free car is parked at the alternate parking floor instead of the lobby floor. <i>This operation is controlled by an input or from a service timer.</i></p>
Asgn Park Fl DO	0	1	0	-	<p><b>Assign Parking Floor with Door Open.</b> By default we only park cars that have the doors closed after a time delay. this parameters allows to re-assign parking to cars with doors open as long as they do not have a direction to run.</p>
Auto SVC tm-out	0	1	0	-	<p><b>Auto Service Time-out.</b> 0 = Disable, 1 = Enable</p> <p>When this parameter is enabled and 'Auto SVC tot TM' parameter time is set accordingly, each car is checked for answering assigned hall calls. If the car does not move to answer calls in the required time, it is put into AST service. Hall calls that are assigned to that car are reassigned to working cars in the group. The group then periodically assigns hall calls to the AST car to verify if it can be put back into the group for normal operation.</p>
Auto SVC tot TM	10	3200	120	sec	<p><b>Auto Service Time Out Time.</b> This time in seconds is used in conjunction with 'Auto SVC tm-out' and is the amount of time that the group will wait before setting a 'not moving/responding' car as timed out.</p>

**Table 7: Group Dispatch**

Field Variable	Min	Max	Initial	Units	Description
Dn Peak Contrl	0	1	0	-	<b>Down Peak Control</b> 0 = Normal down peak 1 = Heavy down peak
Dn Pk Trig Cnt	1	100	12	count	<b>Down Peak Trigger Count.</b> Number of down hall calls above the lobby that are set within the down peak trigger time to place the system on down peak operation.
Dn Pk Trig Time	0	3200	60	sec	<b>Down Peak Trigger Time.</b> The time interval to count the number of down hall calls above the lobby to activate down peak operation.
Down Peak Pool	0	Number Cars	0	car	<b>Down Peak Pool.</b> Number of cars to be utilized for down peak.
Down Peak Time	0	3200	180	sec	<b>Down Peak Duration Time.</b> The duration time for down peak operation once down peak is activated.
ETA Co CC Time	0	60	15	sec	<b>ETA Coincident Car Call Time.</b> Hall calls will be assigned to the car with the coincident car call unless the car without the coincident car call can reach the call faster than ETA Coincident Car Call Time.
ETA Min Time	0	60	6	sec	<b>ETA Minimum Time.</b> For a hall call to be assigned to a new car, the difference in ETA must be greater than the ETA Minimum Time.
Grp Timer Park	0	Number Cars	0	car	<b>Group service Timer Park Cars.</b> This is the number of parking cars when parking is set from the Service Activation Timer for Group parking.



**Table 7: Group Dispatch**

Field Variable	Min	Max	Initial	Units	Description
High Priority FL	0	Top Floor	0	floor	<p><b>High Priority Floor.</b> When this parameter is set to a floor number other than zero the high priority operation is activated. If there is a call latched at the high priority floor and the timer set from the 'High Priority TM' expires, the group will choose the best car by considering only car calls. It will remove all hall calls on that best car except for the priority floor hall call. The car will serve all car calls and then service the priority floor before being assigned another hall call from the group.</p>
High Priority TM	6	254	60	sec	<p><b>High Priority Time.</b> Works in conjunction with parameter 'High Priority Floor', it is the amount of time to wait before removing hall calls assigned to the selected best car.</p>
Lobby Floor	Bottom Floor	Top Floor	1	floor	<p><b>Lobby Floor.</b></p>
Lobby Req Cntrl	0	1	0	-	<p><b>Lobby Request Control.</b> If the lobby request variable is set to non-zero, then that is how many cars are requested to the lobby all the time.</p> <p>When this flag is set to 1, the lobby request is only used when next up is active. Next Up can be active all the time, from a dedicated input or from Up Peak.</p>
Lobby Request	0	Number Cars	0	car	<p><b>Lobby Request.</b> Number of Cars Requested to the Lobby floor. Used with Next Car Up operation.</p>

**Table 7: Group Dispatch**

Field Variable	Min	Max	Initial	Units	Description
Next Car Up	0	7	0	-	<p><b>Next Car Up.</b>            Set to 1 or 2 will activate the Next Car Up operation.            1 = The next up car will open its door at the lobby and keep it open. The car is allowed to leave the floor after the Lobby Dwell time expires but will remain at the floor with the door open until an onward call is assigned to it.            2 = The next up car will close its door after the Lobby Dwell time expires and go off of next up but will remain at the lobby. An up hall call at the lobby will cause the car to open its door and go on next up.            4 = Next up is activated on Up Peak detection only.</p> <p>Next up can also be activated from an input.</p>
Park Delay Time	0	120	8	sec	<p><b>Parking Delay Time.</b>            Time delay an idle car waits before being parked.</p>
Parking	0	Number Cars	1	car	<p><b>Number of Cars to Park.</b>            One car is parked at the lobby. The remaining cars are parked at the most used floors of the building.  <i>If set to zero, no cars are parked.</i></p>
Parking floor 1	0	Top Floor	0	floor	<p><b>Parking Floor 1.</b>            Floor to park the idle car. If set to zero, the group will use number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.</p>
Parking floor 2	0	Top Floor	0	floor	<p><b>Parking Floor 2.</b>            Floor to park the idle car. If set to zero, the group will use number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.</p>
Parking floor 3	0	Top Floor	0	floor	<p><b>Parking Floor 3.</b>            Floor to park the idle car. If set to zero, the group will use number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.</p>

**Table 7: Group Dispatch**

Field Variable	Min	Max	Initial	Units	Description
Parking floor 4	0	Top Floor	0	floor	<b>Parking Floor 4.</b> Floor to park the idle car. If set to zero, the group will use number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.
Parking floor 5	0	Top Floor	0	floor	<b>Parking Floor 5.</b> Floor to park the idle car. If set to zero, the group will use number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.
Parking floor 6	0	Top Floor	0	floor	<b>Parking Floor 6.</b> Floor to park the idle car. If set to zero, the group will use number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.
Parking floor 7	0	Top Floor	0	floor	<b>Parking Floor 7.</b> Floor to park the idle car. If set to zero, the group will use number of hall call history to decide where to park the car. The parking variable must be set to at least 1 for this function to work. See also Parking Type.
Parking Type	0	3	0	-	<b>Parking Type.</b> Determines the type of parking operation that is implemented by the group. 0 = Park free cars to floors with the most hall calls for that 15 minute period. 1 = Divide the hoistway by the number of cars and place a car in each zone starting with the lobby. 2 = Park cars according to the adjustable variable parking floor.  <i>Note that during parking, a car is always parked at the Lobby except when the option for alternate parking floor is selected through an input.</i>
Parking Width	0	Top Floor	0	floor	<b>Parking Width.</b> The number of floors that a car is within to be considered parked at the parking floor. See also Parking Type.

**Table 7: Group Dispatch**

Field Variable	Min	Max	Initial	Units	Description
Up Peak Contrl	0	1	0	-	<b>Up Peak Control.</b> 0 = Normal up peak 1 = Heavy up peak
Up Peak Pool	0	Number Cars	1	car	<b>Up Peak Pool.</b> Number of cars to be utilized for up peak.
Up Peak Time	0	3200	180	sec	<b>Up Peak Duration Time.</b> The duration time for up peak operation once up peak is activated. <i>If set to zero, up peak operation will never turn on.</i>
Up Pk CC Count	1	40	3	count	<b>Up Peak Car Call Count.</b> Number of car calls the car must have when leaving the lobby to count as an up peak trigger.
Up Pk Trig Cnt	1	100	3	count	<b>Up Peak Trigger Count.</b> The number of up peak triggers that are set within the up peak trigger time to activate up peak operation. Up peak triggers are counted when the car leaves the lobby with the load dispatch input set or with the more car calls than the up peak car call count.
Up Pk Trig Time	0	3200	60	sec	<b>Up Peak Trigger Time.</b> The time interval to count the number of up peak triggers.

**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
1st EP Run Car	0	Number Cars	1	car	<b>First Emergency Power Run Car.</b> This is the first car selected to run. If this car cannot run, the next consecutive car is selected.
1st Rcl EPSF 2	0	Number Cars	2	car	<b>First Return Car Emergency Power Service Feeder 2.</b> This will be the first car recalled in Emergency Power (the rest are done sequentially in a loop) for power feeder 2.
1st Recall Car	0	Number Cars	1	car	<b>First Recall Car.</b> This is the first car allowed to recall during the emergency power recall sequence. The recall sequence continues in consecutive order and then loops around until all cars are recalled.
1st Run EPSF 2	0	Number Cars	2	car	<b>First Run Car Emergency Power Service Feeder 2.</b> This will be the first car selected to run on emergency power (the rest are done sequentially in a loop) for power feeder 2.
2nd IR Car	0	Number Cars	0	car	<b>2<sup>nd</sup> Inconspicuous Riser Car.</b> Set this option to have a second car answer the Inconspicuous Risers.
ATT Pref Time	0	60	0	sec	<b>Attendant ETA Preference Time.</b> When set to non-zero, the car not on attendant service has this time added to its ETA time. This causes the attendant car to be given a preference for the hall call.
CB Button Loc	0	2	0	-	<b>Code Blue Location</b> 0 = CB on CB Board, 1 = CB on HCB Board, 2 = CB on IR Board.
CB IR Penalty	0	60	10	sec	<b>IR Car Code Blue Penalty Time.</b> This parameter is used to calculate and give preference to cars in fully automatic operation.

**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
CB Rcll Any Car	0	1	0	-	<p><b>Code Blue Recall Any Call.</b>                      0 = Disable;                      1 = Enables dispatcher to recall any car If Code Blue Cars 1 and 2 are not available.</p> <p><i>If you want to select any car as your primary option, make Code Blue Car and Code Blue Car #2 equal to zero and enable this setting.</i></p>
CB Req Ind Car	0	1	0	-	<p><b>Code Blue Request Independent Car.</b>                      Code blue request for car on independent operation.</p> <p>Set to 1 in dispatcher and in all cars so the car could be requested (flash EML) if the car is in independent mode.</p>
CB Sel IR Car	0	1	0	-	<p><b>Code Blue Over IR Car.</b></p>
CB SRiser Car	0	Number Cars	0	car	<p><b>Code Blue Second Riser Car Select.</b></p>
Code Blue Car	0	Number Cars	0	car	<p><b>Code Blue Car.</b>                      When a code blue call is initiated, this will be the first car to be sent to respond.</p> <p>If car is not available, see variables 'Code Blue Car#2' and 'CB Rcll Any Car' for more options.</p>
Code Blue Car#2	0	Number Cars	0	car	<p><b>Code Blue Car #2.</b>                      When a code blue call is initiated, this will be the car to be sent to respond in the event that first 'Code Blue Car' is not available.</p> <p>See variables 'Code Blue Car' and 'CB Rcll Any Car' for more options.</p>
Dis Opp HC Time	10	30	10	sec	<p><b>Disable Opposite Hall Call Time</b>                      Specify amount of time the opposite hall call will be disabled.</p>

**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
Disable Opp HC	0	15	0	-	<p><b>Disable Opposite Hall Call After Initial Hall Call Is Entered</b>                      When the first up or down hall call is hit, disable opposite call for the time set;                      +1 = Front hc riser,                      +2 = Rear hc riser,                      +4 = IR front hc riser,                      +8 = IR rear hc riser</p>
Dispatcher Car	0	Number Cars	0	car	<p><b>Dispatcher Car.</b>                      If set to 1, this car is allowed to become the dispatcher.</p> <p><i>In normal operation, this variable would be set to zero and car #1 would be the dispatcher. If car #1 is shut down, car #2 automatically becomes the dispatcher.</i></p> <p>During installation, it may be necessary to force car #3 or above to be the dispatcher until car #1 or #2 are brought on line.</p>
Em Power Cars	1	Number Cars	1	car	<p><b>Number of Emergency Power Cars</b>                      Number of cars that can run at the same time on the emergency power source.</p>
Emerg Dispatch	0	7	0	-	<p><b>Emergency Dispatch.</b>                      This parameter is applied to both the car that is selected as the dispatcher and also the non-dispatcher cars.                      1 = If hall call power lost, the dispatcher car will set down hall calls above the lobby and up hall call at and below the lobby.</p> <p>For the <i>non-dispatcher</i> cars, if set to a 1, and communications is lost to the dispatcher car, the car will dispatch itself to down hall calls above the lobby and up hall calls below the lobby. The front hall call and rear hall call bits settings are only used for the dispatcher car and when set, if communication is lost to a particular hall call board, hall calls are set for the affected floors.</p>
EMP ATT car 1st	0	1	0	-	<p><b>Emergency Power Attendant Car First.</b>                      Select and Prioritize the attendant car for running on emergency power service. It won't be recalled. After recall is complete for the group, It recovers and goes back in service.</p>

**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
EmPwr Op Output	0	3	0	-	<p><b>Emergency Power Operation LED.</b>                      This parameter controls the group outputs for emergency power status for each car.                      0 = Outputs are on for cars that are operational.                      1 = Outputs on for cars on normal power.                      2 = Outputs on for car on emergency power.                      3 = Outputs on for cars that are being recalled.</p>
EmPwr Pk Output	0	2	0	-	<p><b>Emergency Power Park LED.</b>                      This parameter controls the group outputs for emergency power parked status for each car.                      0 = Cars are parked on emergency power.                      1 = Cars are parked or selected to run.</p>
EP Man Sel En	0	3	1	-	<p><b>Emergency Power Manual Select Enable</b>                      0 = The recall sequence is aborted and any moving car will stop at the next floor to allow the selected car to run.                      +1 Car is selected to run when the currently selected car completes its recall.                      +2 = Makes the selected car wait for all the cars to recall before being selected to run.</p>
EP Rcl Out en	0	1	0	-	<p><b>Emergency Cars Finished Recalling Output Enable.</b>                      It enables an output in the hall call board for Emergency Power Complete (EPCOM).   <i>This setting is only read in power up so after changing this setting you need to reboot the controller.</i></p>
EP Recall Delay	0	3200	15	sec	<p><b>Emergency Power Recall Delay Time.</b>                      Time delay before the group starts the emergency power recall sequence.</p>
EP Recover Tim	1	60	20	sec	<p><b>Emergency Power Recover Time.</b>                      When elevators are in Emergency Power recall, this is the time that the dispatcher will wait for each car to recover to a floor.                       If the car is in the middle of a blind shaft, you need to calculate the time each car may take to get to a floor in emergency power recovery speed.</p>



**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
Grp CC Ovrride	0	1	0	-	<p><b>Group Car Call Override.</b>            Normally visitor access allows the car call security to be overridden momentarily from a push button in an owners apartment.            1 = The security override works directly from a key switch input.</p>
Grp CC Sec OvrT	1	240	60	sec	<p><b>Group Car Call Security Override Timer.</b>            This is the amount of time that the car call security is overridden when a group car call security override button is pressed.</p>
Handicap Wait	0	255	0	sec	<p><b>Handicap Car Wait Time.</b>            Special operation that when a passenger presses a handicap hall button, the group adds this time to the ETA of all cars that do not have enough capacity.   <i>See Handicap Capacity in car options .</i>             Normally, if a car is at the floor of the handicap hall call, it will get the assignment regardless of the handicap capacity unless this value is set to 255.</p>
HC Asg SecType	0	15	0	-	<p><b>Hall Call Assignment Security Type.</b>            Use with Special Priority Service. Determines what hall calls should be given a special priority. Settings are:            1 = Up,            2 = Down,            4 = Up Rear,            8 = Down Rear</p>
HC Security ctrl	0	2	0	-	<p><b>Hall Call Security Control.</b>            Set what riser the hall call security inputs work with:            0 = Only standard hall calls;            1 = Standard hall calls and Second Riser hall calls ;            2 = Only Second Riser hall calls</p>

**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
HC X-Assign En	0	5	0	-	<p><b>Hall Call Cross Assignment Enable.</b>                      1 = Front hall call cross assignment is enabled,                      4 = Rear hall call cross assignment                      5 = Front and rear hall call cross assignment.</p> <p>The group will look for cross assignment calls as well as hall calls.</p> <p><b><i>Power should be cycled on controller after this variable is modified so all communications to all devices are made.</i></b></p> <p>2 = Hall calls cross cancellation is used and hall calls are not cancelled when all cars are out of service.</p> <p>3 = Is not valid and may cause unpredictable results.</p>
HC X-Assign ETA	0	500	60	sec	<p><b>Hall Call Cross Assignment ETA Limit.</b>                      If ETA for hall call assignment is greater than this ETA limit, the hall call will be cross-assigned to the old group controller.</p>
IR Car	0	Number Cars	0	car	<p><b>Inconspicuous Riser Car.</b>                      This car is assigned all the IR hall calls.</p>
IR Control	0	7	0	-	<p><b>Inconspicuous Riser Control.</b>                      This parameter alters how IR riser service is activated or deactivated.                      0 = IR active from ICR or RICR input.                      +1 = IR activated when any IR call is activated.                      +2=Finish car calls then answer IR calls,                      +4 = Finish car call before going off IR.</p>
Number VIP Cars	0	Number Cars	1		<p><b>Number of VIP Cars.</b>                      Number of cars allow to service VIP (priority service) calls at one time.</p>
OTS No HC Canc	0	1	0	-	<p><b>Out of Service No Hall Call Cancelled.</b>                      Do not cancel hall calls if cars are out of service.</p> <p><i>This is used in accordance with cross assignment feature.</i></p>

**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
Recall Timeout	1	600	60	sec	<b>Recall Time-out.</b> The time allowed for the car to reach the recall floor during the emergency power recall sequence. If this timer expires, the next car is selected to recall.
Sabbath Restart	0	3200	8	sec	<b>Sabbath Restart Delay Time.</b> The amount of time after the elevator answered the last Sabbath call to restart the process.
Secnd Riser Ctl	0	3	0	-	<b>Second Riser Control.</b> Defines the second riser operation. 0 = Car defined for second riser answer second riser call and standard hall calls. 1 = Car defined for second riser answer only second riser calls. 2 = Second riser call or'ed with standard riser calls if second riser operation not selected from input.
Single Auto PB	0	5	0	-	<b>Single Automatic Push Button Operation.</b> 0 = Manual Doors (this would be the normal operation for cars with manual doors). 1 = Enable SAPB operation for simplex car with automatic doors. 2 = Disable SAPB operation for cars with manual doors. 3 = <b>Invalid setting.</b> 4 = Allow only one car call to be entered at floor for cars with manual doors regardless of the door position. 5 = Allow only one car call to be entered at floor for cars with automatic doors.  <i>This feature normally allows only hall calls and car calls to register when the doors are closed.</i>
Skip Car@RcFLD O	0	1	0	-	<b>Skip Car at Recall Floor with Door Open.</b> While on Emergency Power Recall sequence: if enabled, out of service cars at the Emergency Power Recall floor with door open will be given a chance to run, 0 = Override immediately, 1 = Override after time-delay.  <i>Time delay defined by variable 'EP Recover Tim'.</i>

**Table 8: Group Options**

Field Variable	Min	Max	Initial	Units	Description
SkipCarN@RcFLDO	0	1	0	-	<p><b>Skip Car Not at Recall Floor with Door Open.</b>                      While on Emergency Power Recall sequence: if enabled, out of service cars at the Emergency Power Recall floor with door open will be given a chance to run,                      0 = Override immediately,                      1 = Override after time-delay.</p> <p><i>Time delay defined by variable 'EP Recover Tim'.</i></p>
Third Risr Ctrl	0	1	0	-	<p><b>Third Riser Control.</b>                      Defines the third riser operation.                      0 = Car defined for third riser answer third riser calls and standard hall calls.                      1 = Car defined for third riser answer only third riser calls.</p>
Vid Pos Car 1	1	Number Cars	1	car	<p><b>Video Position Car 1.</b>                      The column where the car is displayed on the dispatch screen starts from left to right for positions 1 through 6 (8 for high rise cars). Car 1 through 6 positions are defaulted to display positions 1 through 6 respectively.</p> <p>Changing the car's video position changes the column where the car is displayed.</p>
Vid Pos Car 2	1	Number Cars	2	car	<p><b>Video Position Car 2.</b>                      See Video Position Car 1 for an explanation.</p>
Vid Pos Car 3	1	Number Cars	3	car	<p><b>Video Position Car 3.</b>                      See Video Position Car 1 for an explanation.</p>
Vid Pos Car 4	1	Number Cars	4	car	<p><b>Video Position Car 4.</b>                      See Video Position Car 1 for an explanation.</p>
Vid Pos Car 5	1	Number Cars	5	car	<p><b>Video Position Car 5.</b>                      See Video Position Car 1 for an explanation.</p>
Vid Pos Car 6	1	Number Cars	6	car	<p><b>Video Position Car 6.</b>                      See Video Position Car 1 for an explanation.</p>

**Table 8: Group Options**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
VIP Button Loc	0	2	0	-	<b>VIP Button Location.</b> 0 = VIP on VIP Board, 1 = VIP on HCB Board, 2 = VIP on IR Board
VIP Operation	0	3	0	-	<b>VIP (Priority Call) Operation.</b> +1 = Cancel hall call if no cars available for VIP call. +2 = Cancel car call upon initiation of being selected as the VIP car.

**Table 9: CC & COP Lights**

Field Variable	Min	Max	Initial	Units	Description
Backlight Lt	0	63	0	color	<b>Enable Backlight Output Lights for RGB Style Output Lights in COP</b> Bit0: Fire, Bit1: Medical, Bit2: Emergency, Bit3: OTS, Bit4: Att Up/Dn Light, Bit5: Non-CC
CC AttDn Blue	0	100	0	%	<b>Car Call Button Attendant Dn Light Blue Intensity</b>
CC AttDn Bright	0	100	100	%	<b>Car Call Button Attendant Dn Light Brightness</b>
CC AttDn Color	0	15	0	color	<b>Car Call Button Attendant Dn Light Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
CC AttDn Green	0	100	0	%	<b>Car Call Button Attendant Dn Light Green Intensity</b>
CC AttDn Red	0	100	100	%	<b>Car Call Button Attendant Dn Light Red Intensity</b>
CC AttUp Blue	0	100	0	%	<b>Car Call Button Attendant Up Light Blue Intensity</b>
CC AttUp Bright	0	100	100	%	<b>Car Call Button Attendant Up Light Brightness</b>

Table 9: CC & COP Lights					
Field Variable	Min	Max	Initial	Units	Description
CC AttUp Color	0	15	0	color	<b>Car Call Button Attendant Up Light Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
CC AttUp Green	0	100	100	%	<b>Car Call Button Attendant Up Light Green Intensity</b>
CC AttUp Red	0	100	0	%	<b>Car Call Button Attendant Up Light Red Intensity</b>
CC Light Ctl	0	3	0		<b>Car Call Light Control</b> This configures the options for flashing car call lights: +1 = Flash Car Call Security, +2= Flash Attendant Annunciator Sequence
CC Off Blue	0	100	50	%	<b>Car Call Off Blue Intensity</b>
CC Off Bright	0	100	20	%	<b>Car Call Output Off Brightness for LED</b>

**Table 9: CC & COP Lights**

Field Variable	Min	Max	Initial	Units	Description
CC Off Color	0	15	15	color	<b>Car Call Button Light Off Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
CC Off Green	0	100	100	%	<b>Car Call Off Green Intensity</b>
CC Off Red	0	100	62.5	%	<b>Car Call Off Red Intensity</b>
CC On Blue	0	100	50	%	<b>Car Call On Blue Intensity</b>
CC On Bright	0	100	100	%	<b>Car Call Output On Brightness For LED</b>



**Table 9: CC & COP Lights**

Field Variable	Min	Max	Initial	Units	Description
CC On Color	0	15	15	color	<b>Car Call Button Light On Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
CC On Green	0	100	100	%	<b>Car Call On Green Intensity</b>
CC On Red	0	100	62.5	%	<b>Car Call On Red Intensity</b>
CC Sec Blue	0	100	100	%	<b>Car Call Security Light Blue Intensity</b>
CC Sec Bright	0	100	100	%	<b>Car Call Security Light Brightness</b>

**Table 9: CC & COP Lights**

Field Variable	Min	Max	Initial	Units	Description
CC Sec Color	0	15	15	color	<b>Car Call Button Security Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
CC Sec Green	0	100	0	%	<b>Car Call Security Light Green Intensity</b>
CC Sec Red	0	100	100	%	<b>Car Call Security Light Red Intensity</b>
Emer Lt Blue	0	100	0	%	<b>Emergency Light Blue Intensity</b>
Emer Lt Bright	0	100	100	%	<b>Emergency Light Brightness</b>

**Table 9: CC & COP Lights**

Field Variable	Min	Max	Initial	Units	Description
Emer Lt Color	0	15	0	color	<b>Emergency light Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
Emer Lt Green	0	100	100	%	<b>Emergency Light Green Intensity</b>
Emer Lt Red	0	100	75	%	<b>Emergency Light Red Intensity</b>
Fire Lt Blue	0	100	50	%	<b>Fire Light Blue Intensity</b>
Fire Lt Bright	0	100	100	%	<b>Fire Light Brightness</b>

**Table 9: CC & COP Lights**

Field Variable	Min	Max	Initial	Units	Description
Fire Lt Color	0	15	0	color	<b>Fire Light Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
Fire Lt Green	0	100	100	%	<b>Fire Light Green Intensity</b>
Fire Lt Red	0	100	62.5	%	<b>Fire Light Red Intensity</b>
Med Lt Blue	0	100	100	%	<b>Medical Light Blue Intensity</b>
Med Lt Bright	0	100	100	%	<b>Medical Light Brightness</b>

**Table 9: CC & COP Lights**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
Med Lt Color	0	15	0	color	<b>Medical Light Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
Med Lt Green	0	100	0	%	<b>Medical Light Green Intensity</b>
Med Lt Red	0	100	0	%	<b>Medical Light Red Intensity</b>
OTS Lt Blue	0	100	0	%	<b>Out of Service Light Blue Intensity</b>
OTS Lt Bright	0	100	100	%	<b>Out of Service Light Brightness</b>

**Table 9: CC & COP Lights**

Field Variable	Min	Max	Initial	Units	Description
OTS Lt Color	0	15	0	color	<b>Out of Service Light Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
OTS Lt Green	0	100	40	%	<b>Out of Service Light Green Intensity</b>
OTS Lt Red	0	100	100	%	<b>Out of Service Light Red Intensity</b>

**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
HC Off Bright	0	100	20	%	<b>Hall Call Light Off Brightness.</b> Select the brightness for LED hall call button when button is NOT pressed. Used only with GAL serial hall button fixtures.
HC On Bright	0	100	100	%	<b>Hall Call Light On Brightness for LED Hall Call Buttons.</b> Used only with GAL serial hall button fixtures.
HCDn Off Blue	0	100	50	%	<b>Hall Call Down Light Off Blue Intensity.</b> Used only with GAL serial hall button fixtures.
HCDn Off Bright	0	100	20	%	<b>Hall Call Down Light Off Brightness for LED Hall Call Buttons.</b> Used only with GAL serial hall button fixtures.
HCDn Off Color	0	15	15	color	<b>Hall Call Down Off Color.</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
HCDn Off Green	0	100	100	%	<b>Hall Call Down Light Off Green Intensity.</b> Used only with GAL serial hall button fixtures.
HCDn Off Red	0	100	62.5	%	<b>Hall Call Down Light Off Red Intensity.</b> Used only with GAL serial hall button fixtures.

**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
HCDn On Blue	0	100	50	%	<b>Hall Call Down Light On Blue Intensity.</b> Used only with GAL serial hall button fixtures.
HCDn On Bright	0	100	100	%	<b>Hall Call Down Light On Brightness for LED Hall Call Buttons.</b> Used only with GAL serial hall button fixtures.
HCDn On Color	0	15	15	color	<b>Hall Call Down On Light Color.</b> Select what color LED to illuminate on hall call button when button is pressed. 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White Used only with GAL serial hall button fixtures.
HCDn On Green	0	100	100	%	<b>Hall Call Down Light On Green Intensity.</b> Used only with GAL serial hall button fixtures.
HCDn On Red	0	100	62.5	%	<b>Hall Call Light On Red Intensity.</b> Used only with GAL serial hall button fixtures.
HCUp Off Blue	0	100	50	%	<b>Hall Call Up Light Off Blue Intensity</b>
HCUp Off Brght	0	100	20	%	<b>Hall Call Up Output Off Brightness for LED</b> (higher number is brighter)



**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
HCUp Off Color	0	15	15		<b>Hall Call Button Up Light Off Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White Used only with GAL serial hall button fixtures.
HCUp Off Green	0	100	100	%	<b>Hall Call Up Light Off Green Intensity</b>
HCUp Off Red	0	100	62.5	%	<b>Hall Call Up Light Off Red Intensity</b>
HCUp On Blue	0	100	50	%	<b>Hall Call UP Light On Blue Intensity</b>
HCUp On Bright	0	100	0	%	<b>Hall Call Output Up On Brightness For LED</b> (higher number is brighter)

**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
HCUp On Color	0	15	15	color	<b>Hall Call Button Up Light On Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White Used only with GAL serial hall button fixtures.
HCUp On Green	0	100	100	%	<b>Hall Call Up Light On Green Intensity</b>
HCUp On Red	0	100	62.5	%	<b>Hall Call Up Light On Red Intensity</b>
IR Color Ctrl	0	1	0	-	<b>IR Light Color Control</b> 0 = IR Color, 1 = HC Color until IR activated
IRDn Off Blue	0	100	50	%	<b>Hall Call IR Down Light Off Blue Intensity</b>
IRDn Off Brght	0	100	20	%	<b>Hall Call IR Down Light Off Brightness</b>

**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
IRDn Off Color	0	15	15	color	<b>Hall Call IR Down Light Off Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White Used only with GAL serial hall button fixtures.
IRDn Off Green	0	100	100	%	<b>Hall Call IR Down Light Off Green Intensity</b>
IRDn Off Red	0	100	62.5	%	<b>Hall Call IR Down Light Off Red Intensity</b>
IRDn On Blue	0	100	50	%	<b>Hall Call IR Down Light On Blue Intensity</b>
IRDn On Bright	0	100	20	%	<b>Hall Call IR Down Light On Brightness</b>

**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
IRDn On Color	0	15	15	color	<b>Hall Call IR Down Light On Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White Used only with GAL serial hall button fixtures.
IRDn On Green	0	100	100	%	<b>Hall Call IR Down Light On Green Intensity</b>
IRDn On Red	0	100	62.5	%	<b>Hall Call IR Down Light On Red Intensity</b>
IRUp Off Blue	0	100	50	%	<b>Hall Call IR Up Light Off Blue Intensity</b>
IRUp Off Brght	0	100	100	%	<b>Hall Call IR Up Light Off Brightness</b>

**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
IRUp Off Color	0	15	15	color	<b>Hall Call IR Up Light Off Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White Used only with GAL serial hall button fixtures.
IRUp Off Green	0	100	100	%	<b>Hall Call IR Up Light Off Green Intensity</b>
IRUp Off Red	0	100	62.5	%	<b>Hall Call IR Up Light Off Red Intensity</b>
IRUp On Blue	0	100	50	%	<b>Hall Call IR Up On Blue Intensity</b>
IRUp On Bright	0	100	100	%	<b>Hall Call IR Up On Brightness</b>

**Table 10: HC & IR Call Lights**

Field Variable	Min	Max	Initial	Units	Description
IRUp On Color	0	15	15	color	<b>Hall Call IR Up On Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White Used only with GAL serial hall button fixtures.
IRUp On Green	0	100	100	%	<b>Hall Call IR Up On Green Intensity</b>
IRUp On Red	0	100	62.5	%	<b>Hall Call IR Up On Red Intensity</b>

**Table 11: CB, VIP & HSec Call Lights**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
CB Off Blue	0	100	100	%	<b>Hall Call CB Light Off Blue Intensity</b>
CB Off Bright	0	100	20	%	<b>Hall Call CB Light Off Brightness</b>
CB Off Color	0	15	0	color	<b>Hall Call CB Light Off Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
CB Off Green	0	100	0	%	<b>Hall Call CB Light Off Green Intensity</b>
CB Off Red	0	100	0	%	<b>Hall Call CB Light Off Red Intensity</b>
CB On Blue	0	100	100	%	<b>Hall Call CB Light On Blue Intensity</b>
CB On Bright	0	100	100	%	<b>Hall Call CB Light On Brightness</b>

**Table 11: CB, VIP & HSec Call Lights**

Field Variable	Min	Max	Initial	Units	Description
CB On Color	0	15	0	color	<b>Hall Call CB Light On Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
CB On Green	0	100	0	%	<b>Hall Call CB Light On Green Intensity</b>
CB On Red	0	100	0	%	<b>Hall Call CB Light On Red Intensity</b>
HC Sec Blue	0	100	100	%	<b>Hall Call Light Blue Intensity When On Security.</b> Used only with GAL serial hall button fixtures.
HC Sec Bright	0	100	100	%	<b>Hall Call Security Brightness for Secured Floors</b>



**Table 11: CB, VIP & HSec Call Lights**

Field Variable	Min	Max	Initial	Units	Description
HC Sec Color	0	15	15	color	<b>Hall Call Security Color</b> Used only with GAL serial hall button fixtures. 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
HC Sec Ctl	0	7	0	-	<b>Hall Call Button Security Light Control.</b> +1 = Invert security, +2 = Flash security, +4 = Master Security Enabled
HC Sec Green	0	100	0	%	<b>Hall Call Light Green Intensity When On Security.</b> Used only with GAL serial hall button fixtures.
HC Sec Red	0	100	100	%	<b>Hall Call Light Red Intensity When On Security.</b> Used only with GAL serial hall button fixtures.
VIP Off Blue	0	100	0	%	<b>Hall Call VIP Light Off Blue Intensity</b>
VIP Off Bright	0	100	20	%	<b>Hall Call VIP Light Off Brightness</b>

**Table 11: CB, VIP & HSec Call Lights**

Field Variable	Min	Max	Initial	Units	Description
VIP Off Color	0	15	0	color	<b>Hall Call VIP Light Off Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
VIP Off Green	0	100	40	%	<b>Hall Call VIP Light Off Green Intensity</b>
VIP Off Red	0	100	100	%	<b>Hall Call VIP Light Off Red Intensity</b>
VIP On Blue	0	100	0	%	<b>Hall Call VIP Light On Blue Intensity</b>
VIP On Bright	0	100	100	%	<b>Hall Call VIP Light On Brightness</b>

**Table 11: CB, VIP & HSec Call Lights**

Field Variable	Min	Max	Initial	Units	Description
VIP On Color	0	15	0	color	<b>Hall Call VIP Light On Color</b> 0 Based on parameters 1 Red 2 Orange 3 Yellow 4 Chartreuse 5 Green 6 Aquamarine 7 Cyan 8 Azure 9 Blue 10 Violet 11 Magenta 12 Rose 13 Rose White 14 Warm White 15 Cool White
VIP On Green	0	100	40	%	<b>Hall Call VIP Light On Green Intensity</b>
VIP On Red	0	100	100	%	<b>Hall Call VIP Light On Red Intensity</b>

**Table 12: System Options**

Field Variable	Min	Max	Initial	Units	Description
Auto Fault Dpy	0	1	0	-	<b>Automatic Fault Display.</b> Enable to automatically display a fault on the LCD screen.
CAN Baud Rate	0	1	0	bps	<b>CAN Baud Rate.</b> <i>Set to zero and do not change.</i>  Special jobs utilize a different baud rate for CAN Bus. All devices need to be reconfigured for new rate.  0 = 115.2K, 1 = 57.6K
CAN Sync Count	0	7	4	count	<b>CAN Sync Count.</b> Frequency to update CAN Bus devices. Units are 1/4 seconds. It sets Synchronization Count in 250 millisecond increments
COM 1 Baud Rate	0	9	6	bps	<b>Com 1 User Interface Baud Rate.</b> Selects the bit rate of the COM 1 serial port. 0 = 2400 bps, 1 = 4800 bps, 2 = 9600 bps, 3 = 19200 bps, 4 = 38400 bps, 5 = 57600 bps, 6 = 115200 bps, 7 = 219254 bps, 8 = 226562.5 bps, 9 = 234375 bps.
Com 1 Port Sel	0	7	6	-	<b>Com 1 Port Select.</b> Selects the operation of COM 1 port. 0 = Comm Diag, 1 = Comm Debug, 2 = Galcom, 3 = DL20, 4 = Galcom Wireless, 5 = Galcom Ethernet, 6 = Galcom Wireless Flow Control, 7 = Galcom Ethernet Flow Control

**Table 12: System Options**

Field Variable	Min	Max	Initial	Units	Description
Com 2 Baud Rate	0	9	3	bps	<p><b>COM 2 User Baud Rate.</b>                      Selects the bit rate of the COM 2 serial port.                      0 = 2400 bps,                      1 = 4800 bps,                      2 = 9600 bps,                      3 = 19200 bps,                      4 = 38400 bps,                      5 = 57600 bps,                      6 = 115200 bps,                      7 = 219254 bps,                      8 = 226562.5 bps,                      9 = 234375 bps.</p>
Com 2 Port Sel	0	7	0	-	<p><b>Com 2 Port Select.</b>                      Selects the operation of COM 2 port. 0 = Comm Diag,                      1 = Comm Debug,                      2 = Galcom,                      3 = DL20,                      4 = Galcom Wireless,                      5 = Galcom Ethernet,                      6 = Galcom Wireless Flow Control,                      7 = Galcom Ethernet Flow Control</p>
CPU Tim Output	0	7	0	-	<p><b>CPU Timing Output.</b>                      The CPU has three test point pins that outputs timing signals depending upon the setting of this parameter. These are 5 Volt signals that can be monitored by an oscilloscope.                      0 = Z6 LED 1 second pulse,                      1 = Inctime,                      2 = GrpIO,                      4 = 10 msec.</p>
EE Memory Type	0	1	0	-	<p><b>EE Memory Type.</b>                      Selects the type of memory chip used with the TS-5600 CPU.                      0 = STK16C88                      1 = STK16C68.  <i>Not used with GALX-1100AN CPU board</i></p>

**Table 12: System Options**

Field Variable	Min	Max	Initial	Units	Description
Exclusion FLT 1	0	Max Faults	0	fault	<b>Exclusion Fault 1:</b> Set to fault code number. This prevents faults from being recorded in the fault log. It should only be set for nuisance and noncritical faults. Controller stills goes through all the logic for each fault code except, a call is not recorded in the fault log.
Exclusion FLT 2	0	Max Faults	0	fault	<b>Exclusion Fault 2:</b> Set to fault code number. This prevents faults from being recorded in the fault log. It should only be set for nuisance and noncritical faults. Controller stills goes through all the logic for each fault code except, a call is not recorded in the fault log.
Exclusion FLT 3	0	Max Faults	0	fault	<b>Exclusion Fault 3:</b> Set to fault code number. This prevents faults from being recorded in the fault log. It should only be set for nuisance and noncritical faults. Controller stills goes through all the logic for each fault code except, a call is not recorded in the fault log.
Exclusion FLT 4	0	Max Faults	0	fault	<b>Exclusion Fault 4:</b> Set to fault code number. This prevents faults from being recorded in the fault log. It should only be set for nuisance and noncritical faults. Controller stills goes through all the logic for each fault code except, a call is not recorded in the fault log.
Exclusion FLT 5	0	Max Faults	0	fault	<b>Exclusion Fault 5:</b> Set to fault code number. This prevents faults from being recorded in the fault log. It should only be set for nuisance and noncritical faults. Controller stills goes through all the logic for each fault code except, a call is not recorded in the fault log.
Exclusion FLT 6	0	Max Faults	0	fault	<b>Exclusion Fault 6:</b> Set to fault code number. This prevents faults from being recorded in the fault log. It should only be set for nuisance and noncritical faults. Controller stills goes through all the logic for each fault code except, a call is not recorded in the fault log.
Password	0	9999	0	-	<b>Password</b> Password code to modify and adjust field variables.

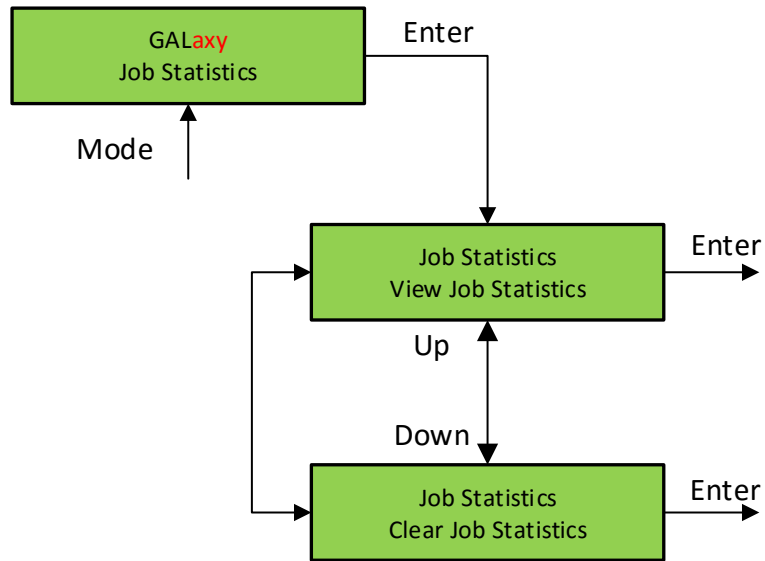
**Table 12: System Options**

<b>Field Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
Pword Time-out	0	3200	300	sec	<b>Password Time-out.</b> The amount of inactive time for the LCD to lock out the field variables.
RS485 COM Baud	0	6	0	bps	<b>RS485 COM Baud Rate.</b> 0 = 2400, 1 = 4800, 2 = 9600, 3 = 19.2K, 4 = 38.4K, 5 = 57.6K 6 = 115.2K bits per second.
Safe Test Day	1	31	0	day	<b>Safety Test Day.</b>
Safe Test Month	1	12	0	month	<b>Safety Test Month.</b>
Safe Test Year	2000	2999	0	year	<b>Safety Test Year.</b>
Video Time out	0	3200	0	sec	<b>Video Time-out.</b> Turn off the machine room video after this timer times out. <i>This function is disabled when set to zero.</i>

### 5.2.3 JOB STATISTICS

Select to view or clear job statistics from this menu.

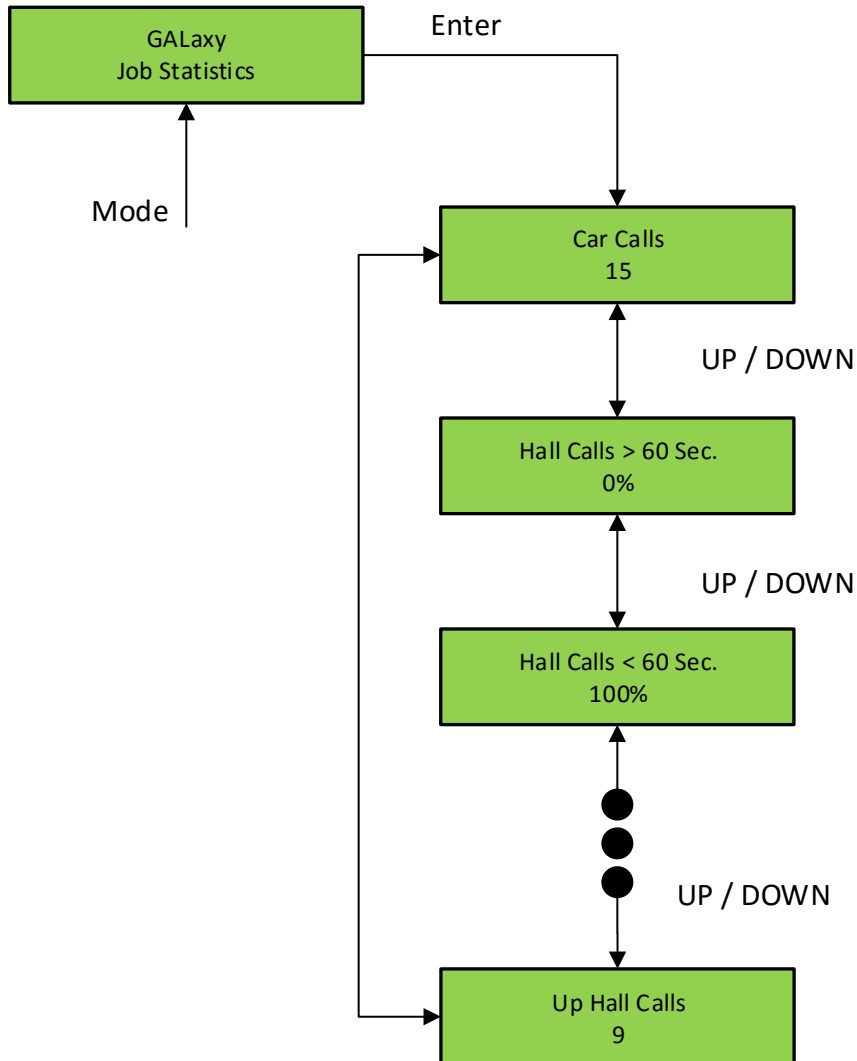
#### Job Statistics





### 5.2.3.1 VIEW JOB STATISTICS

#### View Job Statistics



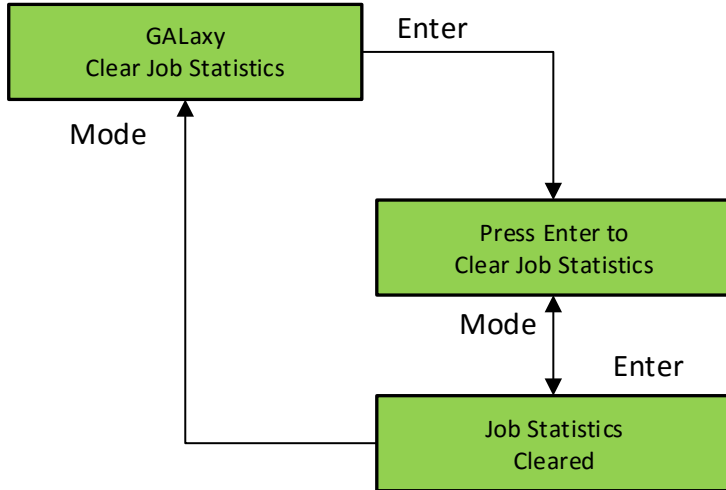
The Job Statistics shows the number car calls and the number and percent of hall calls serviced since the job was started or since the job statistics were cleared. Below is a list of all the categories maintained:

- Number of Car Calls
- Number of Up Hall Calls
- Number of Down Hall Calls
- Number of Up Hall Calls with < 15 second wait time
- Number of Up Hall Calls with < 30 second wait time
- Number of Up Hall Calls with < 45 second wait time
- Number of Up Hall Calls with < 60 second wait time
- Number of Up Hall Calls with > 60 second wait time
- Number of Down Hall Calls with < 15 second wait time

Number of Down Hall Calls with < 30 second wait time  
Number of Down Hall Calls with < 45 second wait time  
Number of Down Hall Calls with < 60 second wait time  
Number of Down Hall Calls with > 60 second wait time  
Percent of Hall Calls with < 15 second wait time  
Percent of Hall Calls with < 30 second wait time  
Percent of Hall Calls with < 45 second wait time  
Percent of Hall Calls with < 60 second wait time  
Percent of Hall Calls with > 60 second wait time

### 5.2.3.2 CLEAR JOB STATISTICS

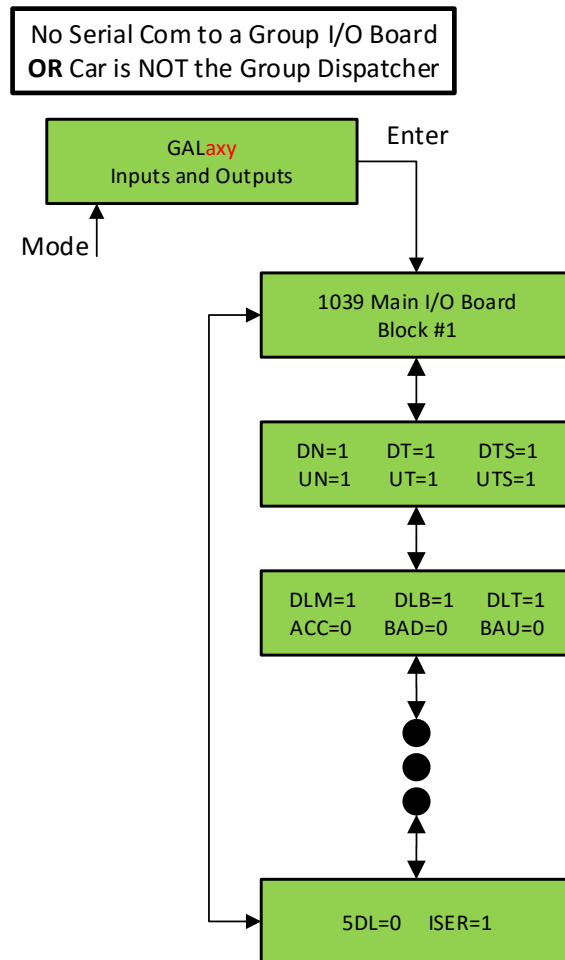
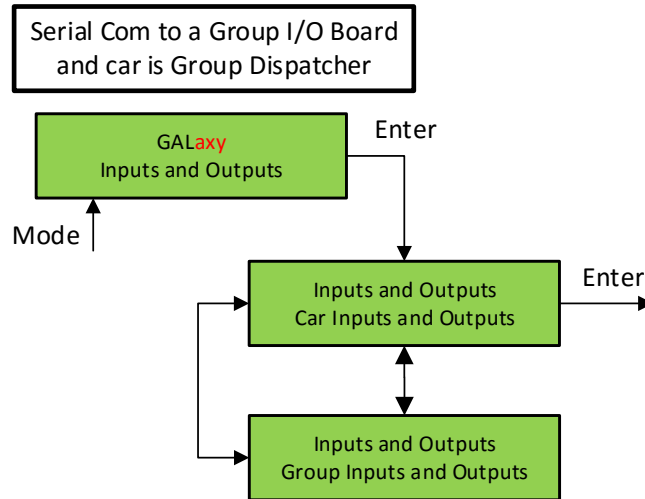
#### Clear Job Statistics



This operation will set all the job statistics data to zero.

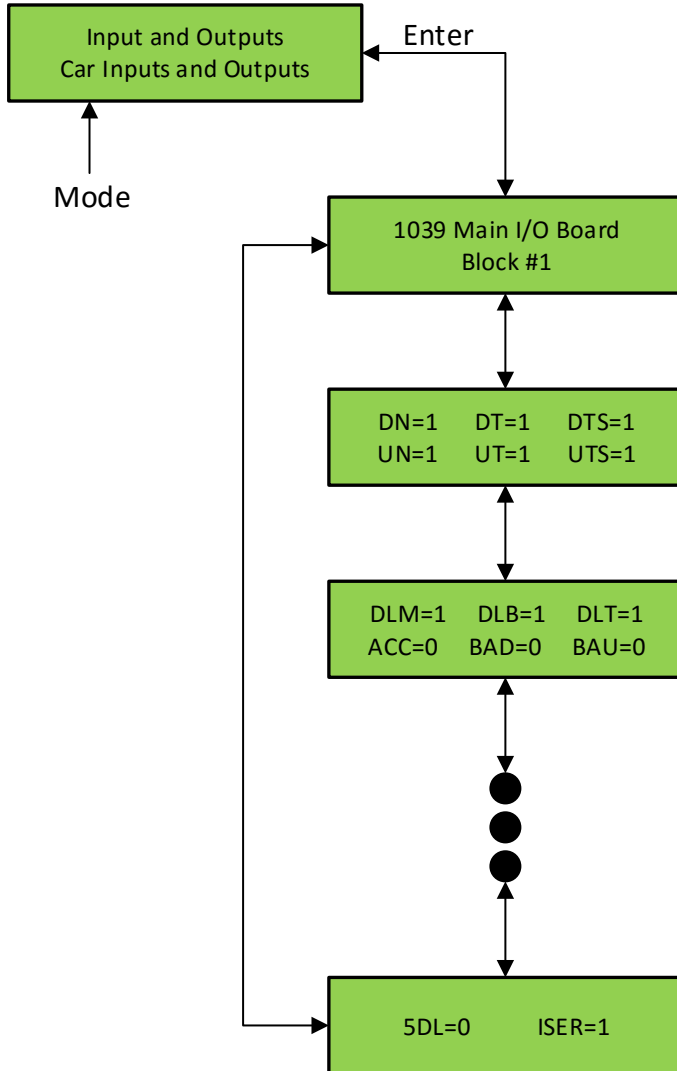
## 5.2.4 INPUTS AND OUTPUTS

### Inputs and Outputs



### 5.2.4.1 CAR INPUTS AND OUTPUTS

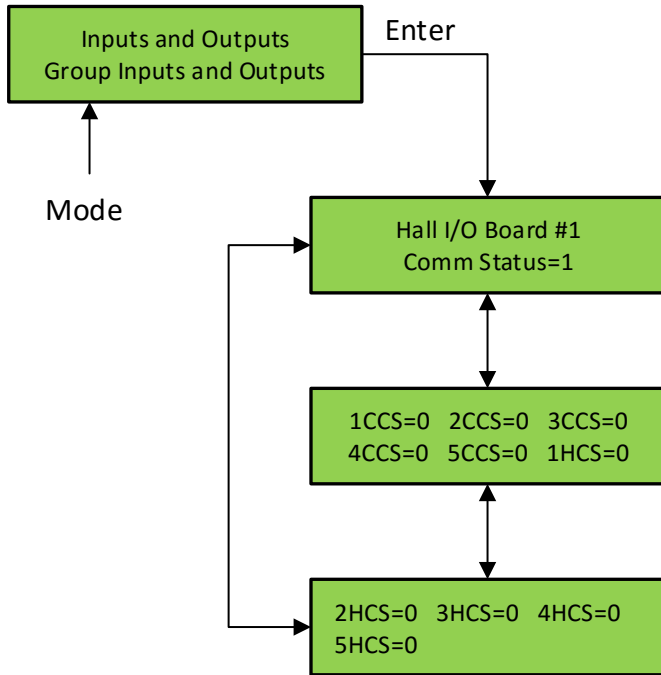
#### Car Inputs and Outputs



Inputs and outputs show a "1" for ON and a "0" for OFF. A list every input and output used on the controller and the board it is located on is shown in Appendix A. The controller determines which boards are used depending on the options selected and the number of front and rear floors. All the I/Os for a given board are displayed even if a particular I/O is not used.

### 5.2.4.2 GROUP INPUTS AND OUTPUTS

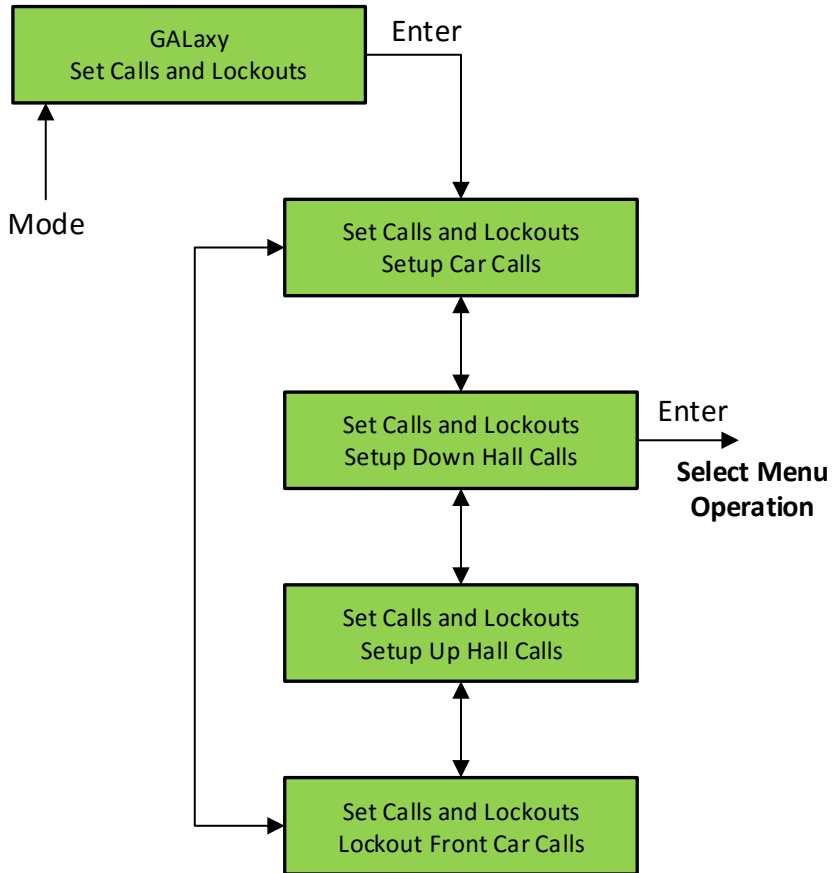
#### Group Inputs and Outputs



Inputs and outputs show a "1" for ON and a "0" for OFF. This I/O display is shown only in the group car and only when serial hall call boards are used. If the hall calls are placed on the standard car I/O, they will be shown with the car I/O screen. A list of every input and output used on the controller and the board it is located on is shown in Appendix A. All the I/Os for a given board are displayed even if a particular I/O is not used.

## 5.2.5 SET CALLS AND LOCKOUTS

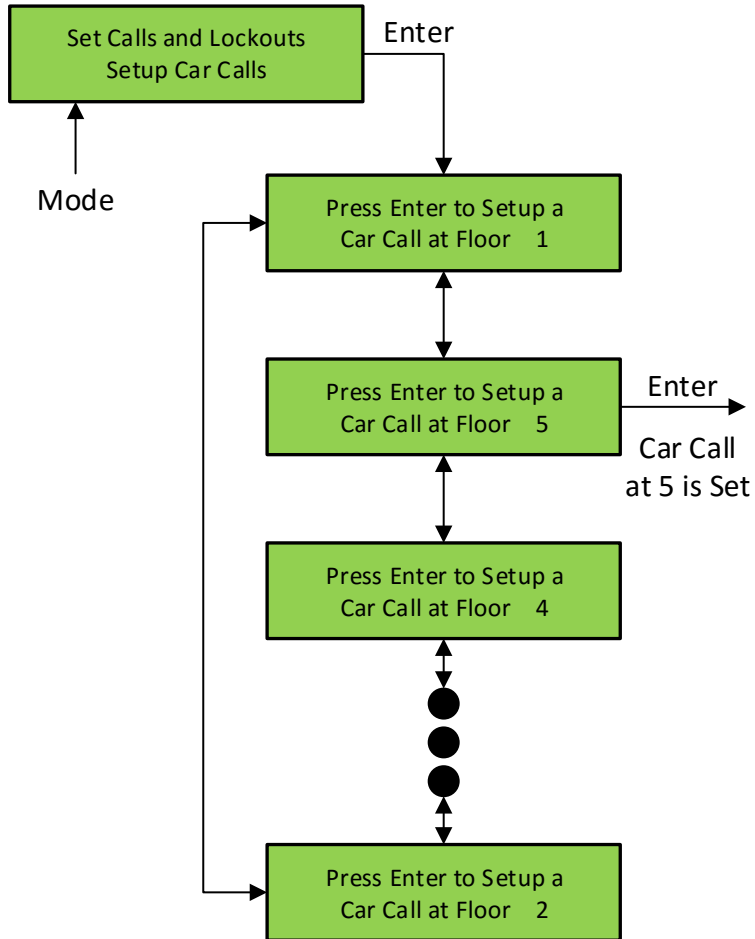
### Set Calls and Lockouts



When a car is the group the menu system allows access to setting both hall calls and car calls. When not the group, only car calls can be set. Rear lockouts are only displayed only when the car has a rear door.

### 5.2.5.1 SETUP CAR CALLS

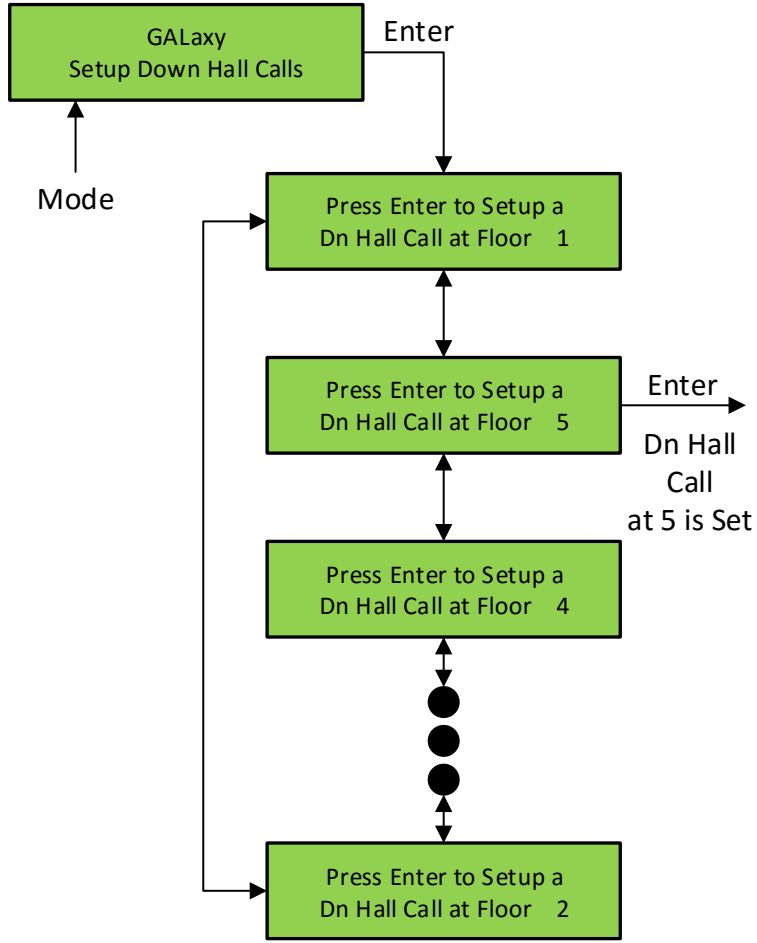
#### Setup Car Calls





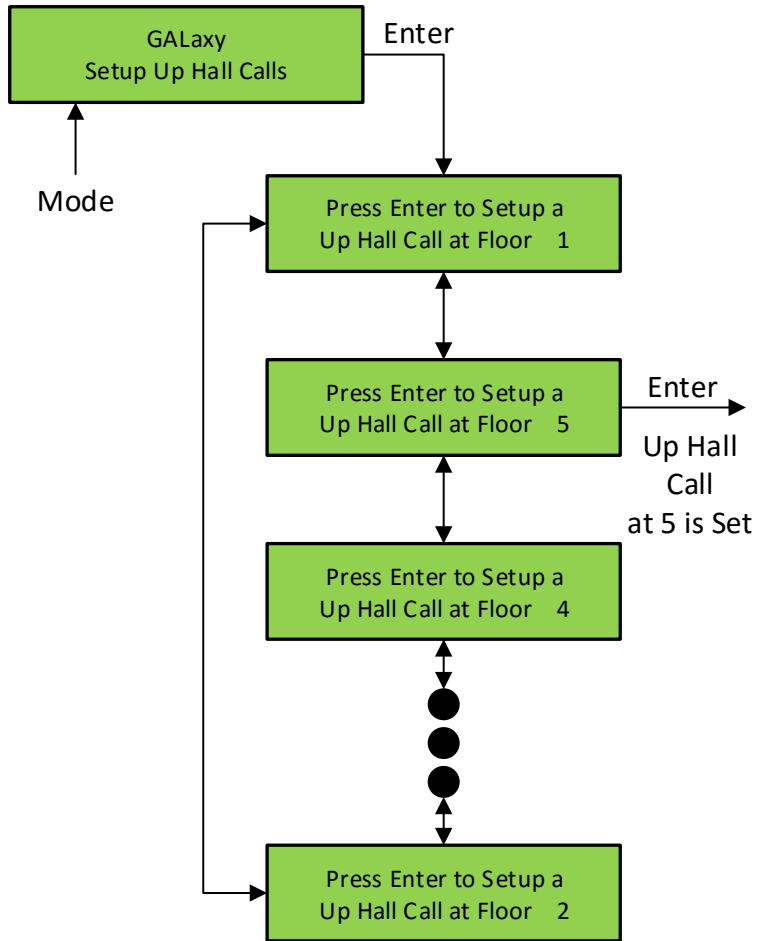
### 5.2.5.2 SETUP DOWN HALL CALLS

#### Setup Down Hall Calls



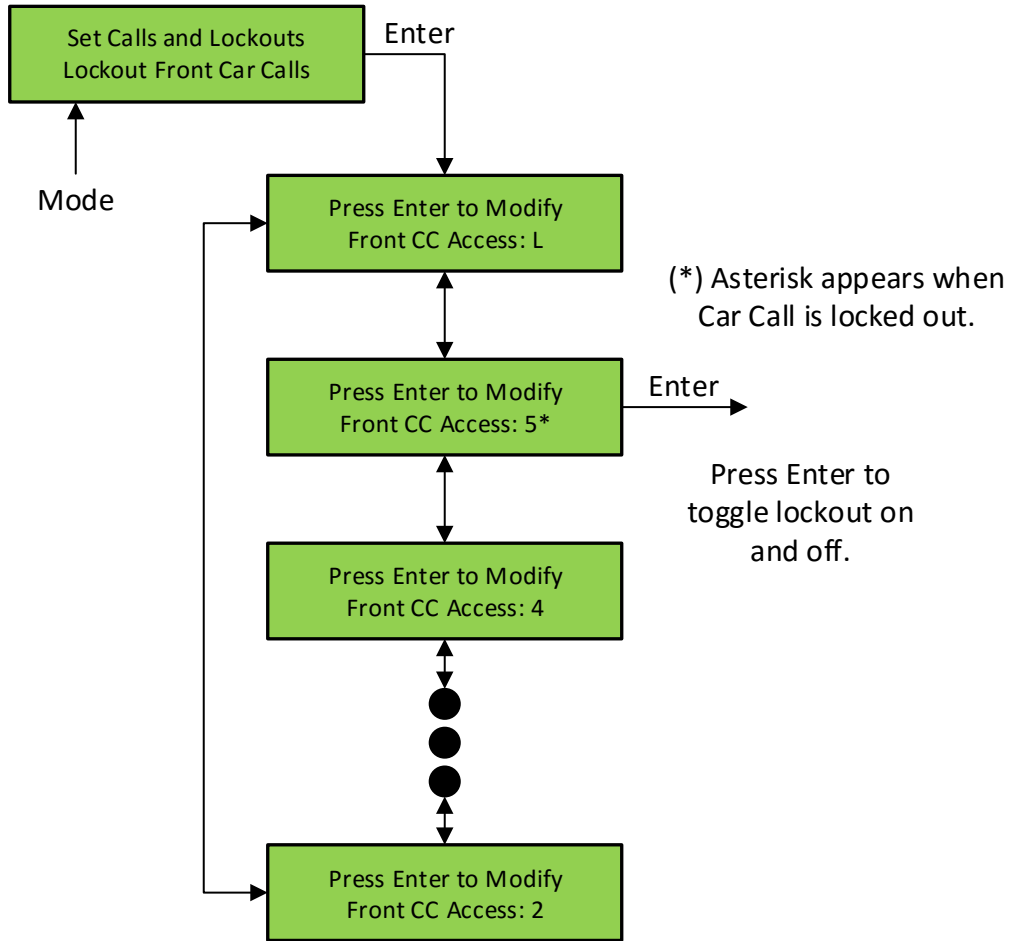
### 5.2.5.3 SETUP UP HALL CALLS

#### Setup Up Hall Calls



### 5.2.5.4 LOCKOUT FRONT CAR CALL

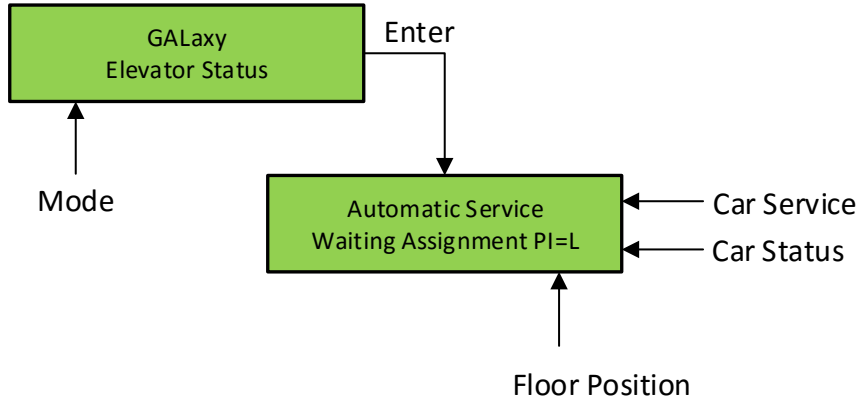
#### Lockout Front Car Calls



Rear car calls are locked out the same way.

## 5.2.6 ELEVATOR STATUS

### Elevator Status



The elevator status display continuously updates to show the current status and fault information. The Up and Down keys allows access to both status display and the velocity display. When a system fault occurs, it will be displayed on the top line of the status display while the fault exist and will remain for 60 seconds after the fault is cleared. The following status information can be displayed:

**Elevator Service:**

Out of Service  
Automatic Service  
Independent Service  
Load Weighing By Pass  
Attendant Service  
Code Blue Service  
Fire Service Phase 2  
Emergency Power Service  
Earth Quake Service  
Fire Phase 1 Main Return  
Fire Phase 1 Alt Return  
Homing  
Reset Going Up  
Reset Going Down  
Stalled Out of Service

**Fault Status:**

Reset Fault  
Out of Step Fault  
Binary Input Fault  
Safety String Fault  
Door Zone Fault  
Stalled Fault  
Door Open Fault  
Door Close Fault  
Up Directional Fault  
Dn Directional Fault  
No Potential Fault  
Stop Switch Fault  
Gate or Interlock  
LC Fuse Blown Fault  
HC Fuse Blown Fault  
Drive Ready Fault  
Car Safe Fault  
UL or DL off Fault  
Delta off Fault  
UT count Fault

DT count Fault  
Group Comm Loss  
Car 1 Comm Loss  
Car 2 Comm Loss  
Car 3 Comm Loss  
Car 4 Comm Loss  
Car 5 Comm Loss  
Car 6 Comm Loss  
RUN I/O Failed ON  
RUN I/O Failed OFF  
RUNA I/O Failed ON  
RUNA I/O Failed OFF  
UP I/O Failed ON  
UP I/O Failed OFF  
DNR I/O Failed ON  
DNR I/O Failed OFF  
UPF I/O Failed ON  
UPF I/O Failed OFF  
DF I/O Failed ON  
DF I/O Failed OFF  
MCC I/O Failed ON  
MCC I/O Failed OFF  
MCA I/O Failed ON  
MCA I/O Failed OFF  
BRK I/O Failed ON  
BRK I/O Failed OFF  
DON I/O Failed ON  
DON I/O Failed OFF  
RUN I/O or UP Fail  
RUN I/O or DNR Fail  
Top Door Lock Fault  
Mid Door Lock Fault  
Bot Door Lock Fault  
Gate Switch Fault  
Estop Fault  
Inspection Input Flt  
Gate/Lock Byp Sw Flt

**Elevator Status:**

Reset Mode	PI= 1
Inspection Mode	PI= 1
Up Fast	PI= 1
Up Transition	PI= 1
Leveling Up	PI= 1
Down Fast	PI= 1
Down Transition	PI= 1
Leveling Down	PI= 1
Soft Start Mode	PI= 1
Constant Accel	PI= 1
Roll Over Max Vel	PI= 1
Constant Velocity	PI= 1
Roll Over Deccel	PI= 1
Constant Deccel	PI= 1
Targeting Floor	PI= 1
Emergency Slowdown	PI= 1
Safety String Open	PI= 1
Elevator Off Line	PI= 1
Elevator Parked	PI= 1
Waiting Assignment	PI= 1
Door Procedure	PI= 1
Elevator Stalled	PI= 1

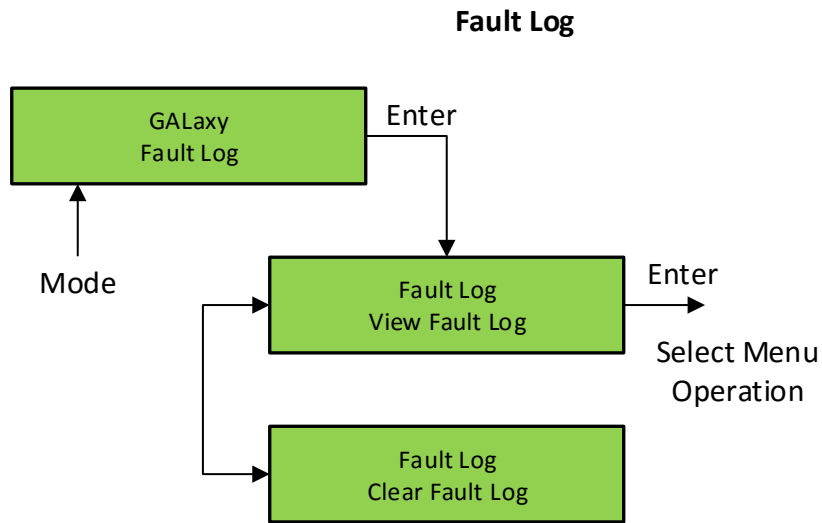
**Door Status:**

Elev Door Closed	PI= 1
Elev Door Opening	PI= 1
Elev Door Dwelling	PI= 1
Elev Door Open	PI= 1
Elev Door Closing	PI= 1
Elev Door Nudging	PI= 1
F1RET Door Open	PI= 1
F2CPO Door Open	PI= 1
F2CPO Door Opening	PI= 1
F2CPO Door Closed	PI= 1
F2CPO Door Closing	PI= 1
F2CPC Door Open	PI= 1
F2CPC Door Opening	PI= 1
F2CPC Door Closed	PI= 1
F2CPC Door Closing	PI= 1
F2HLD Door Open	PI= 1
F2HLD Door Opening	PI= 1
F2HLD Door Closed	PI= 1
F2HLD Door Closing	PI= 1

F2MBC Door Open PI= 1  
F2MBC Door Opening PI= 1  
F2MBC Door Closed PI= 1  
F2MBC Door Closing PI= 1



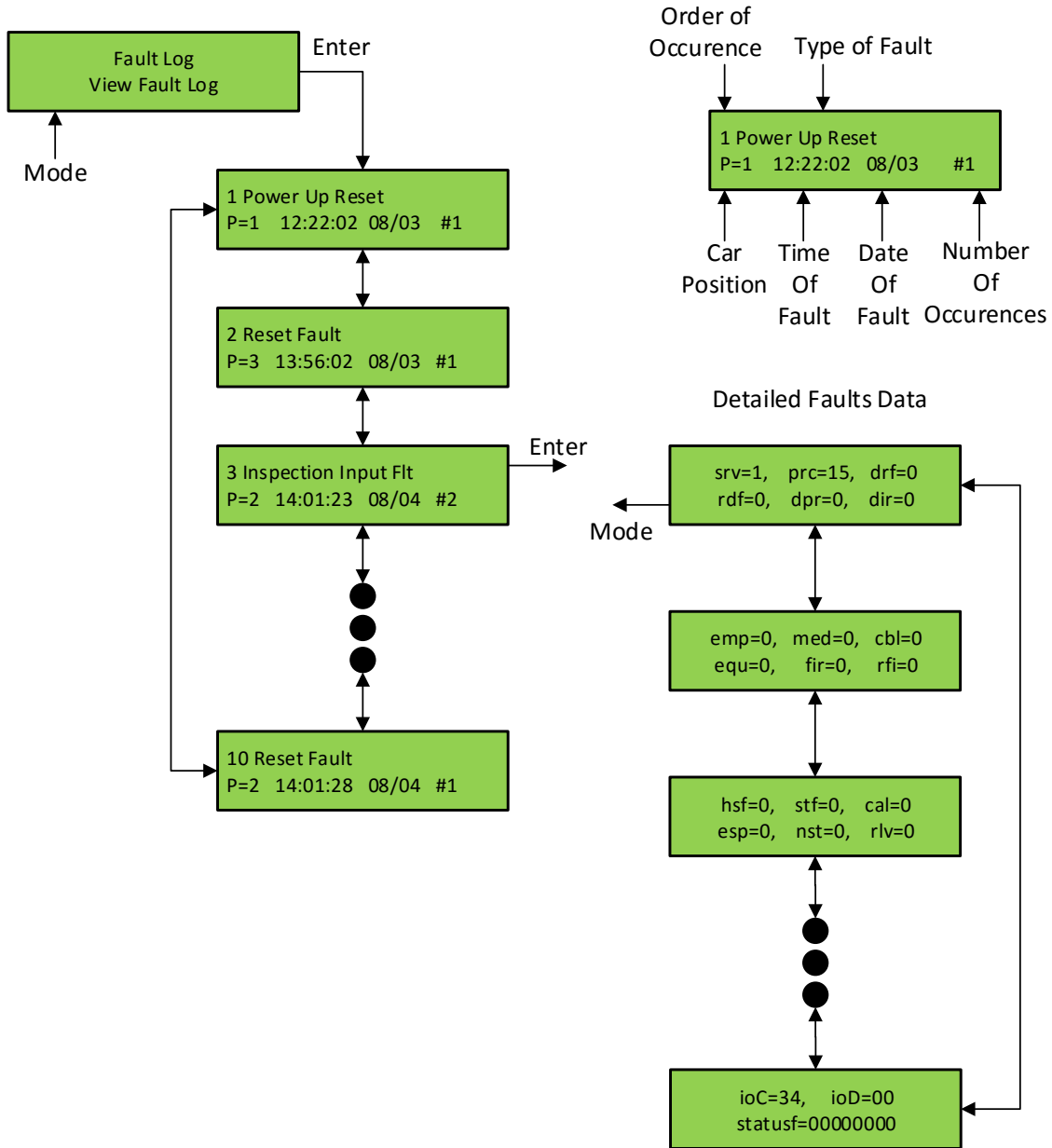
## 5.2.7 FAULT LOG



This menu allows the user to view or clear the fault log.

### 5.2.7.1 VIEW FAULT LOG

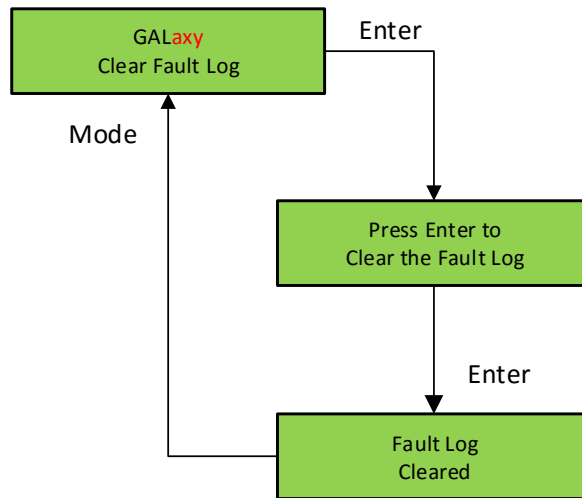
#### View Fault Log



The fault display shows the fault, the car position, time and date the fault occurred and the number of occurrences. Faults are displayed in the order of occurrence with the order number displayed on the top left. The largest order number signifies the last fault that has occurred. Faults are stored in a circular buffer that fits up to 50 faults. Once the buffer is full the next fault over writes the oldest fault. Refer to the system faults in the troubleshooting section of this manual for possible causes of the fault and a description of the detailed fault data.

### 5.2.7.2 CLEAR FAULT LOG

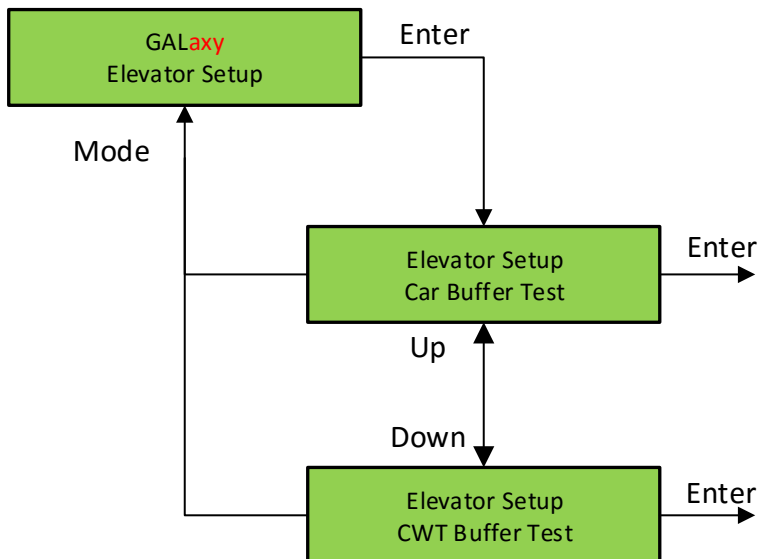
#### Clear Fault Log



This operation clears the fault log. Once cleared, all faults will show “No Occurrences” until a new fault occurs.

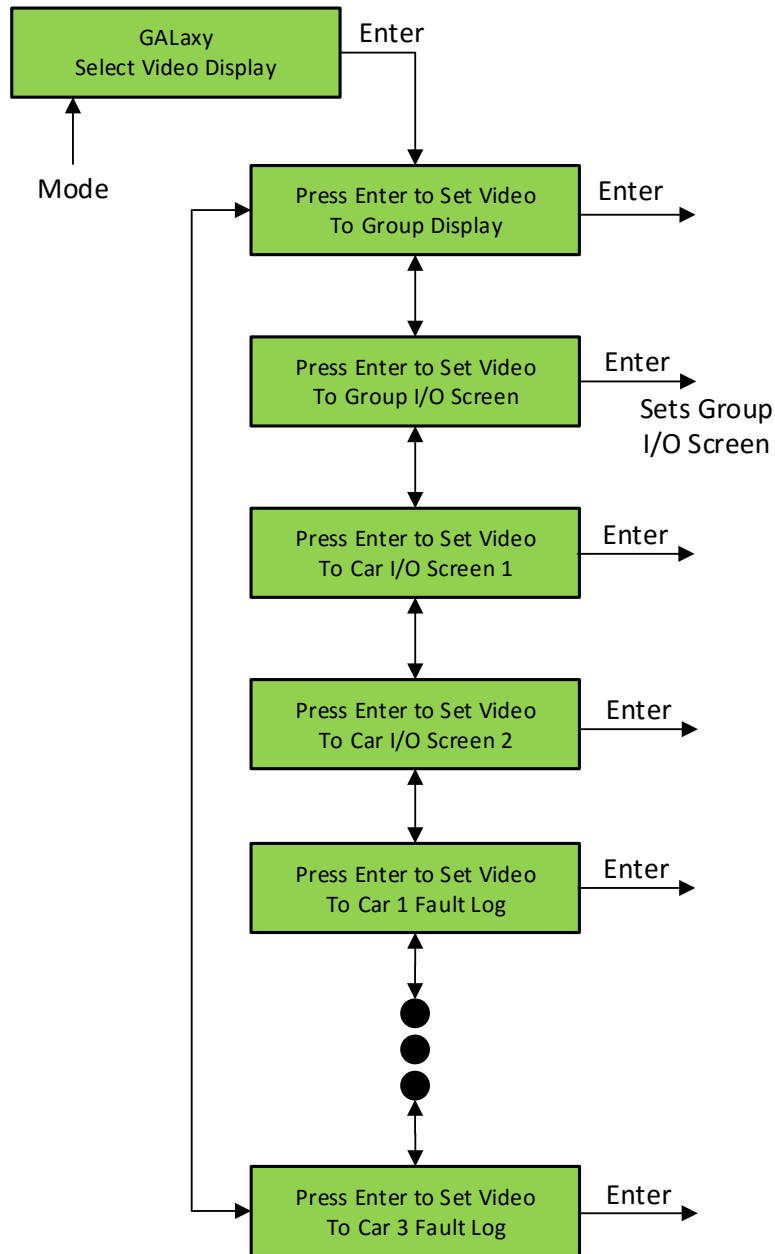
### 5.2.8 ELEVATOR SETUP

#### Elevator Setup



## 5.2.9 SELECT VIDEO DISPLAY

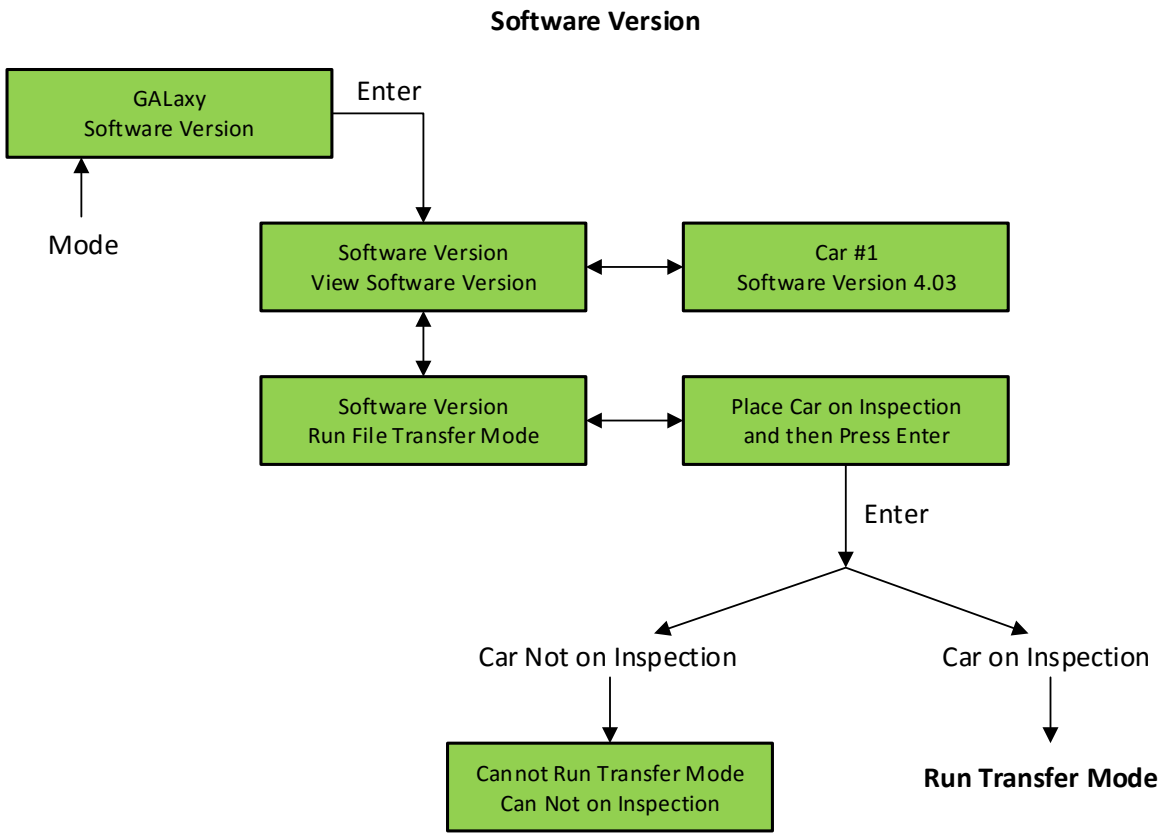
### Select Video Display



On jobs with an optional video display, this menu allows the user to change video display screen from the group display and group I/O screen to each of the car I/O and fault displays. The group I/O screen is only viewable if this is the group car and the controller uses serial hall call boards. Depending on the number of floors, the number of car I/Os might not fit on one screen. To view the remaining I/Os, select I/O Screen 2.

### 5.2.10 SOFTWARE VERSION

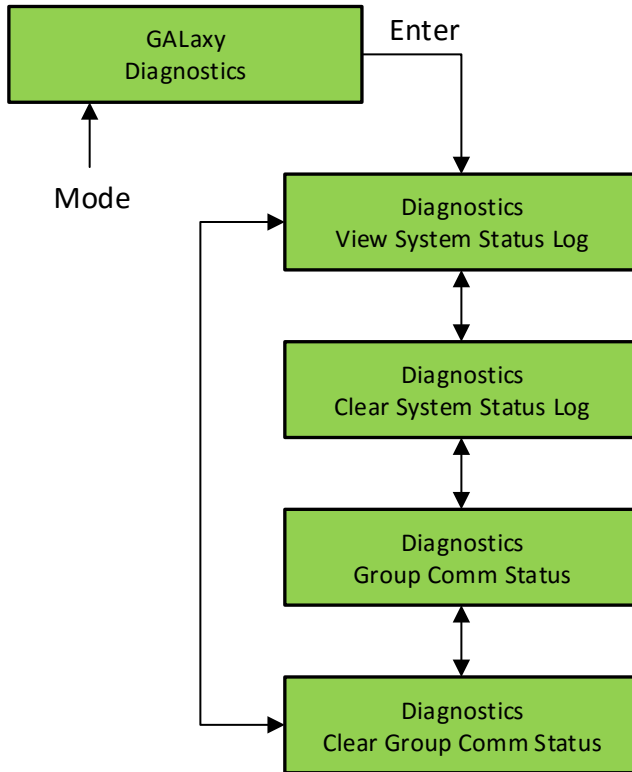
The software version menu allows the user to view the controller's software version or to place the controller in file transfer mode to upload or download the controller's software to another version.



To place the car in file transfer mode, the car must be on inspection. As shown in the above diagram, the controller is programmed to be Car # 1, having software version 4.03.

### 5.2.11 DIAGNOSTICS

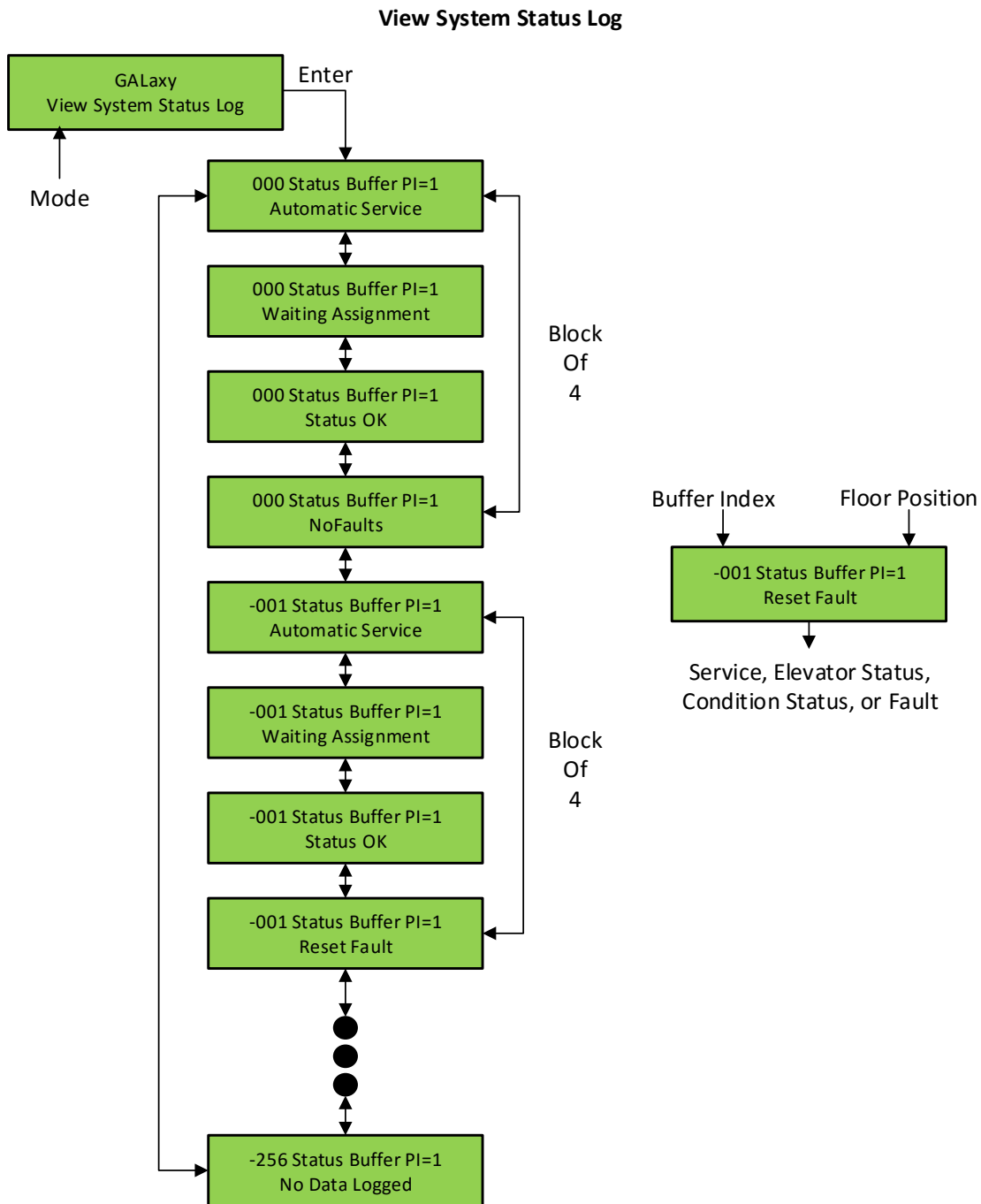
#### Diagnostics



This menu allows access to diagnostic information to help troubleshoot operational or communication errors.

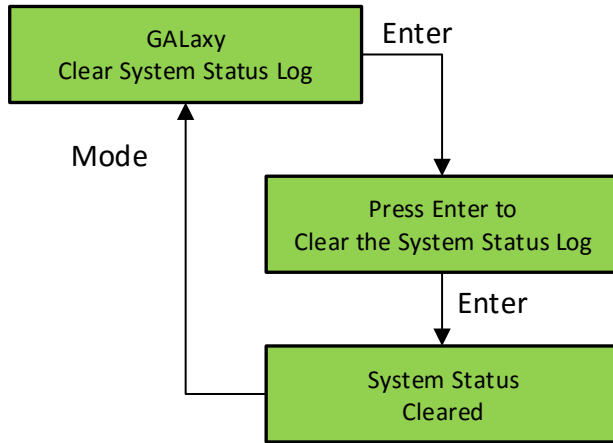
### 5.2.11.1 VIEW SYSTEM STATUS LOG

System status information is stored in a circular buffer whenever the service, elevator status or a fault occurs. This buffer holds 256 blocks of data in the sequence in which the events occur. This data can be used to debug a sequence of events that cause a fault. The most recent block of information is always at location 000 and the event prior to the most recent is at block location -001. The event at block -002 happened before block -001 and also before block 000.



### 5.2.11.2 CLEAR SYSTEM STATUS LOG

#### Clear System Status Log

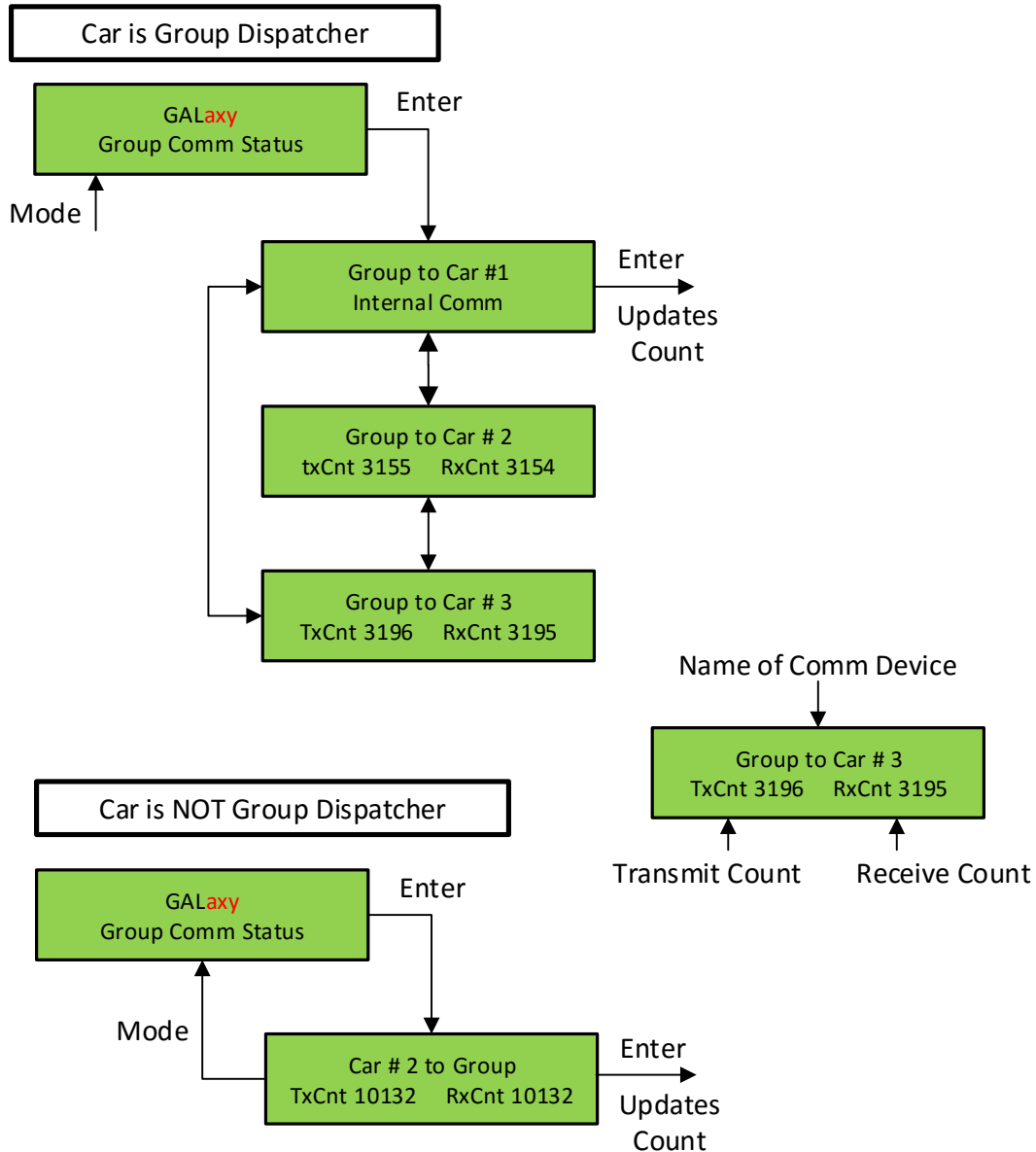


The system log can be cleared to get a new starting point. When cleared, an empty block displays “No Data Logged”.



### 5.2.11.3 GROUP COMM STATUS

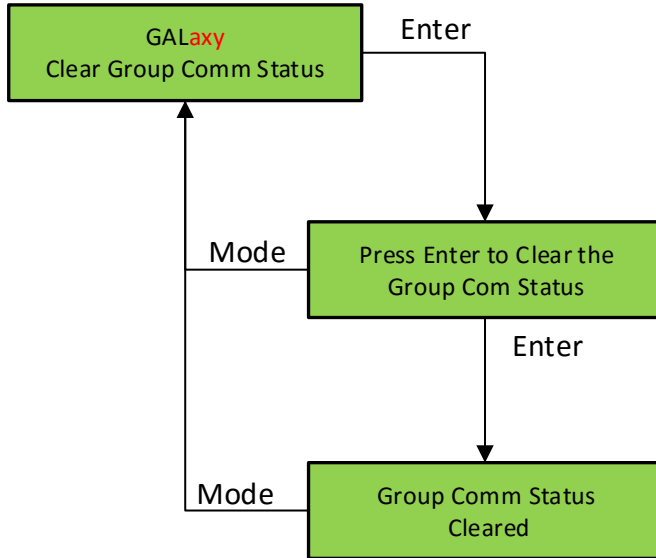
#### Group Comm Status



The group communications status shows the number of data packets successfully transmitted and received from the group to the cars, for the “group” car, and from the car to the group for the remaining cars. The communication sequence is always initiated by the group. The group sends a data packet to the car and after the car validates the checksum of the packet, it responds with a data packet to the group. The transmit and receive counters should always be incrementing in both the car and the “group” car. If either counter does not increment, it would indicate a poor cable connection or that there is electrical noise on the communications cable. Electrical noise is usually caused by installing the communications cable in the same conduit with high voltage wires.

### 5.2.11.4 CLEAR GROUP COMM STATUS

#### Clear Group Comm Status

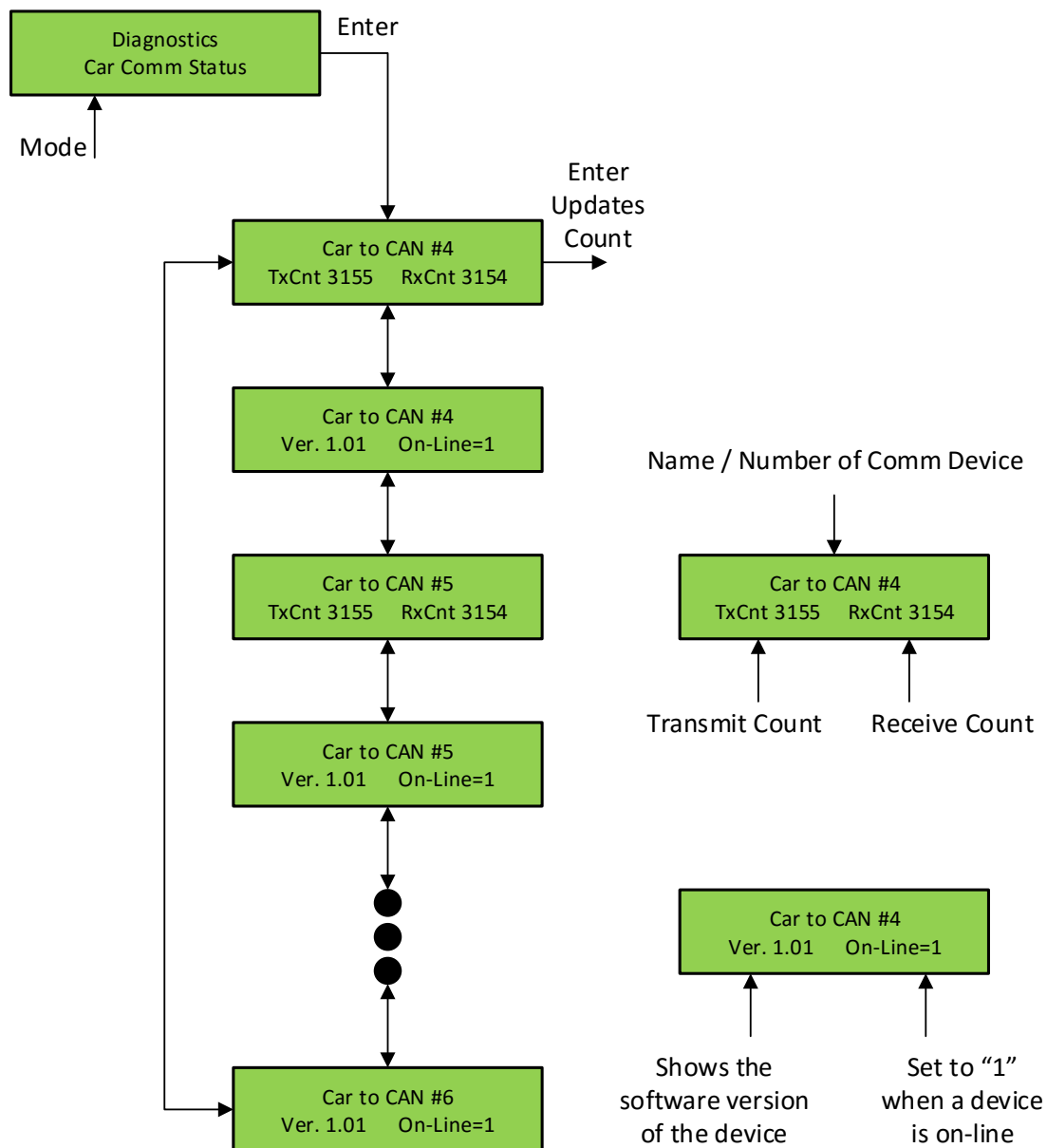


This menu is used to clear the transmit and receive counters for the group to car serial communications.

### 5.2.11.5 CAR COMM STATUS

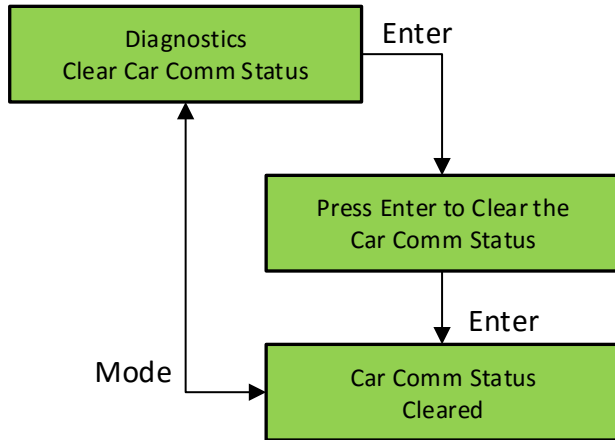
The car communications status shows the number of data packets successfully transmitted and received from the car to devices on the car's CAN bus. These devices can be mounted in the motor room, in the car operating panel or on the car top. The second line of the car status shows the device software version number and if the device is currently on line communicating. The transmit and receive counters should always be incrementing for all devices. If the receive counter does not increment, it would indicate a poor cable connection or that there is electrical noise on the communications cable. Electrical noise is usually caused by installing the communications cable in the same conduit with high voltage wires.

Car Comm Status



### 5.2.11.6 CLEAR CAR COMM STATUS

#### Clear Car Comm Status



This menu is used to clear the transmit and receive counters for the car's CAN bus serial communications.

## SECTION 6 SAFETY PROCESSOR LCD DISPLAY INTERFACE

### 6.1 OPERATING THE LCD INTERFACE

The Safety Processor Board LCD display interface board uses a 2 line by 8 character display and four buttons. This interface allows the user access to the internal data and operation of the Safety Processor CPU such as setup and adjustment variables, and critical control and fault information. Upon power-up, the display shows a blinking GALaxy name to indicate the board is running



UP

UP button is used to scroll up to the next menu item or to increment a data value.



DOWN

DOWN button is used to scroll down to the next menu item or to decrement a data value.



MODE

MODE button is used to go back to the previous menu or to select a digit of a data value.



ENTER

ENTER button is used to select the menu item or to complete the operation of changing a data value.

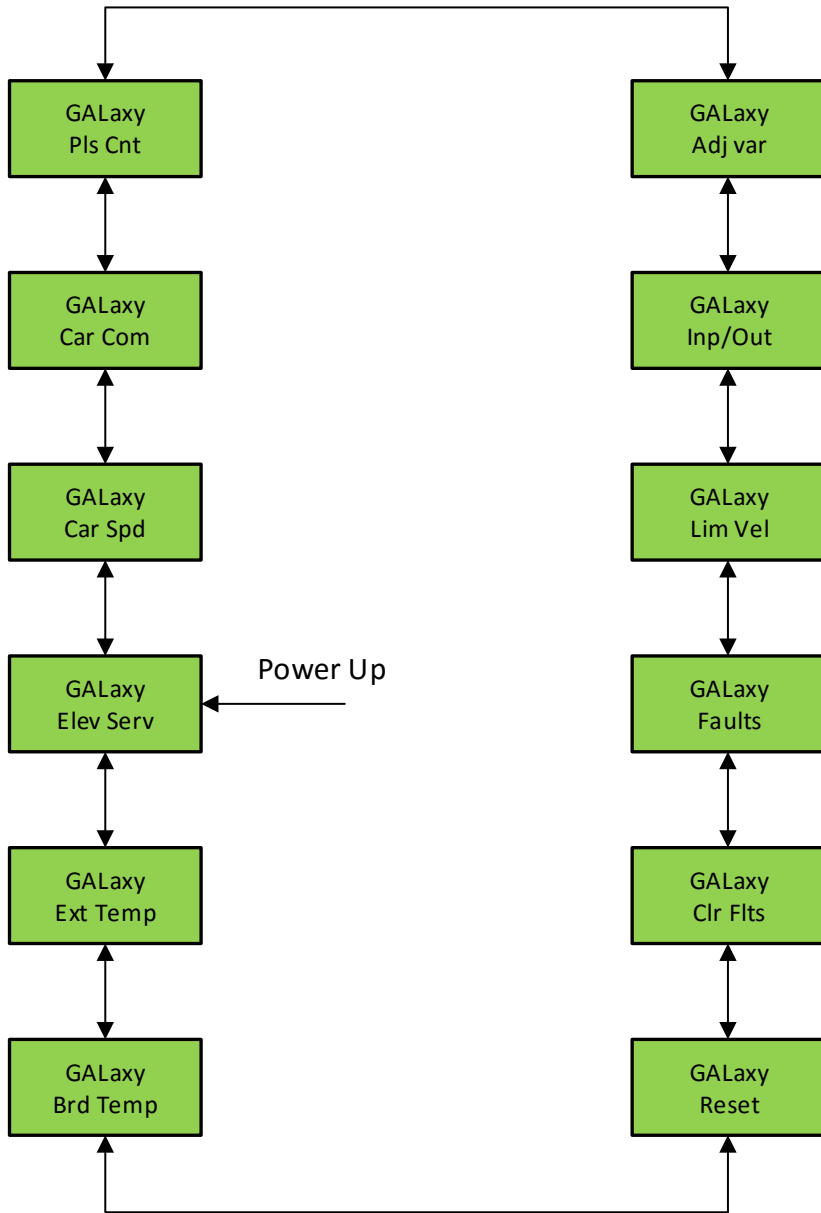


Potentiometer is used to adjust the viewing angle. It will make the display lighter or darker.

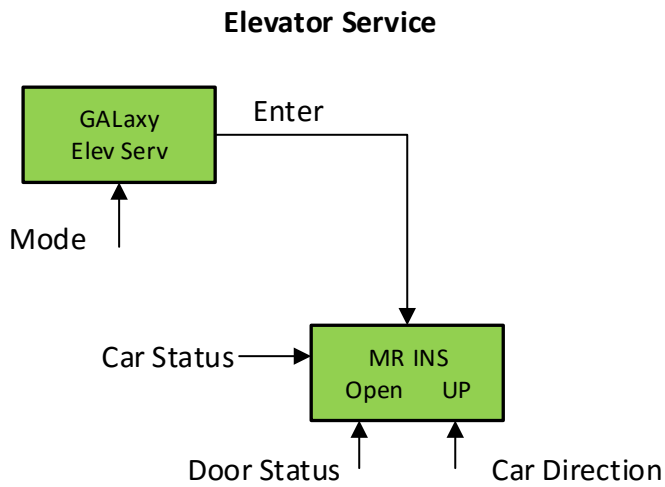
The four input buttons used with the LCD display are, UP, DOWN, MODE and ENTER. The UP and DOWN buttons are used to scroll up and down to each menu item. When an appropriate menu item is reached, the ENTER button is used to select the item. Some menu items, once selected, show a second menu. Again, use the UP and DOWN buttons to scroll through the menu items and the ENTER button to select a particular item. The MODE button is used to go back to the previous menu. When a menu item is an adjustable variable, select the item with the ENTER button and change the variable with the UP or DOWN button. The MODE button is used to move the cursor to the next digit. When the appropriate value is reached, use the ENTER button to complete the variable change operation and return to the current menu.

## 6.2 SAFETY PROCESSOR BOARD LCD MENU STRUCTURE

### Safety Processor LCD Display Menu



## 6.2.1 ELEVATOR SERVICE



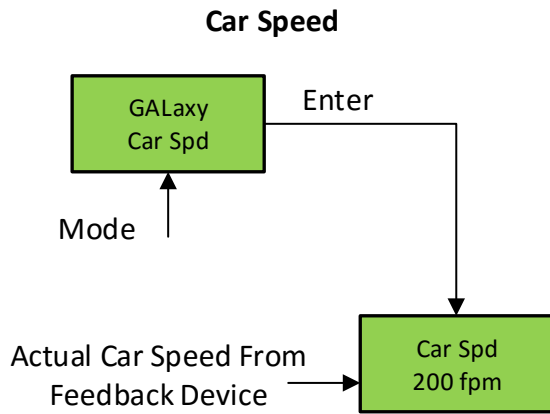
This screen shows the service the car should be on from the inspection inputs, the gate and lock bypass switch inputs and the gate and lock inputs. If any inputs are in error, the error status is displayed. Below shows a list of what is displayed and the condition for it.

**Table 6.1 – Safety Processor Service**

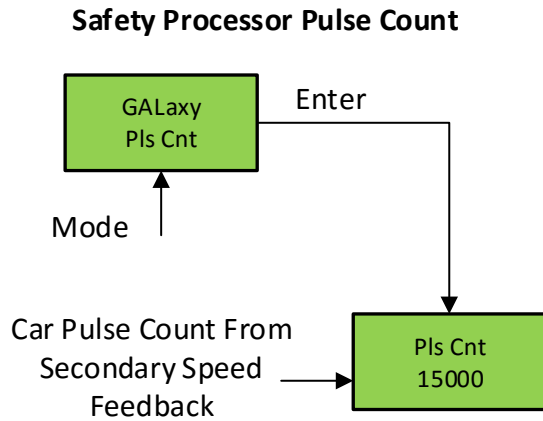
ELEVATOR SERVICE	CONDITION FOR SERVICE
AUTO	Auto input is on and all inspection inputs are off.
CT INS	Car is on car top inspection
GATE BYP	Car is on car top inspection and the gate bypass switch is on.
LOCK BYP	Car is on car top inspection and the lock bypass switch is on.
ACCESS	Car is on access operation.
MR INS	Car is on motor room inspection.
IC INS	Car is on in car inspection
INS ERR	An inspection error has occurred. There must be one and only one inspection or auto input on. All inputs are off or more than
BYP ERR	A gate or lock bypass switch is on but the car is not on car top
VEL ERR	The car has a velocity error from inspection speed, leveling speed or a terminal slowdown speed.
UP ERR	The up output is on during power up.
DNR ERR	The down output is on during power up.
DNR/UP	Both up and down outputs are on during power up.
EEP ERR	Safety Processor board has an EEPROM error.
NO UTS	UTS input not detected at top terminal landing.
NO DTS	DTS input not detected at bottom terminal landing.



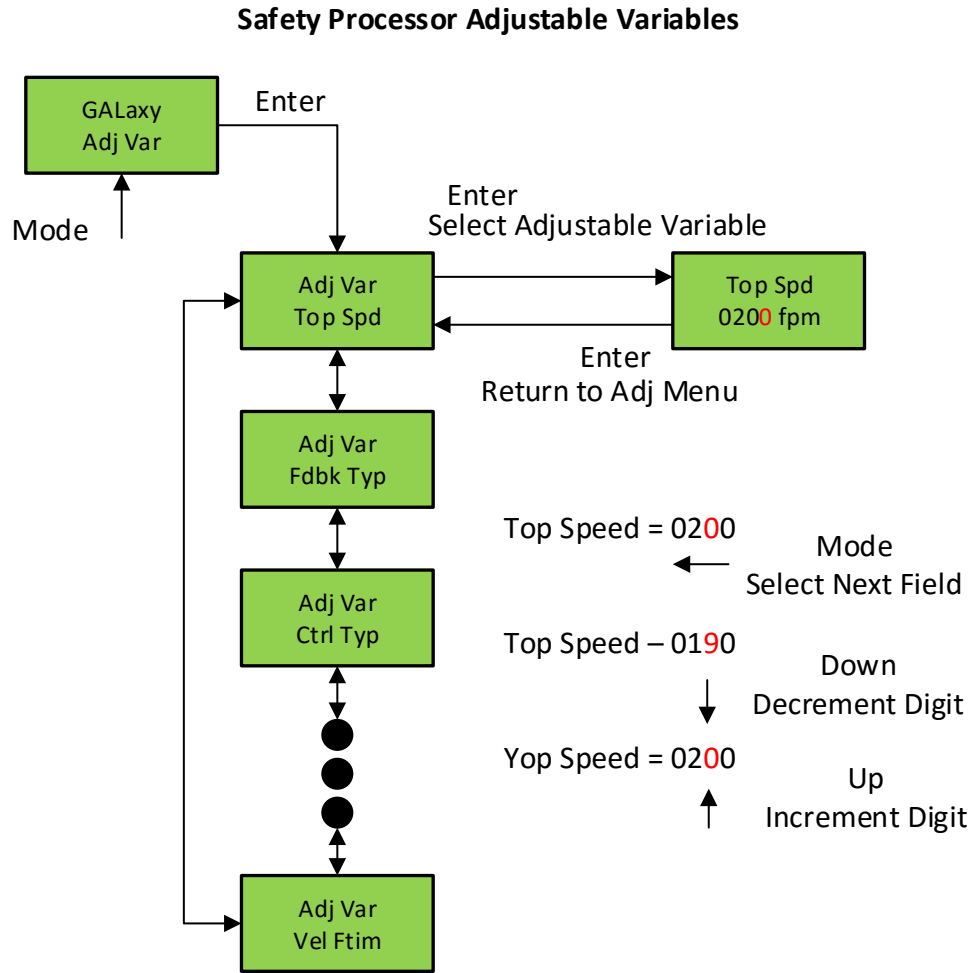
### 6.2.2 CAR SPEED



### 6.2.3 SAFETY PROCESSOR PULSE COUNT



## 6.2.4 SAFETY PROCESSOR ADJUSTABLE VARIABLES



**Safety Processor Adjustable Variables**

<b>Adjustable Variable</b>	<b>Min</b>	<b>Max</b>	<b>Initial</b>	<b>Units</b>	<b>Description</b>
Top Spd	25	2000	200	Fpm	<b>Top Speed</b> Top Speed or contract speed of the car.
Enc RPM	25	1800	1050	RPM	<b>Encoder RPM.</b> Revolutions per Minute of the Encoder.
Enc PPR	10	10000	2048	PPR	<b>Encoder PPR.</b> Pulses Per Revolution of the Encoder.
Fdbk Typ	0	2	0		<b>Feedback Type.</b> Type of feedback used by the Safety Processor to calculate the car's velocity. 0 = T a p e , 1 = Encoder.
Ctrl Typ	0	2	0		<b>Control Type.</b> Type of controller used. 0 = Hydro, 1 = Traction Non-Distance Feedback, 2 = Traction Distance Feedback.
2 Stop	0	1	0		<b>2 Stop.</b> Set to 1 if this car travels to only two landings. This parameter tells the Safety Processor that there are no middle door locks.
RearDoor	0	1	0		<b>Rear Door.</b> Indicates that the car has rear doors and the Safety Processor should verify the rear door gate and locks.

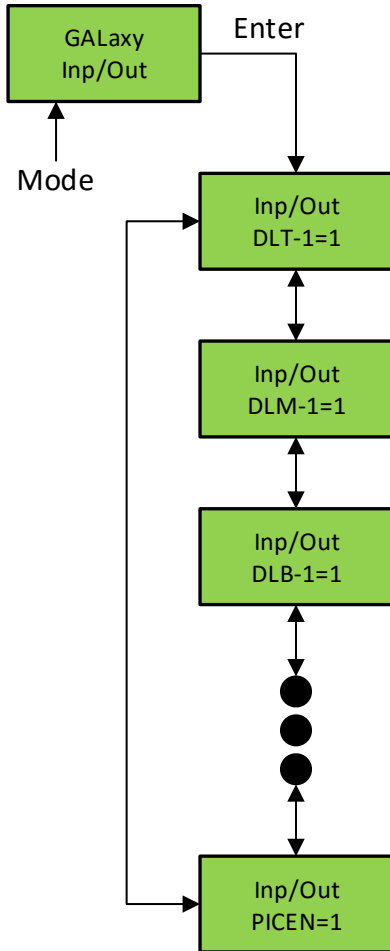
Adjustable Variable	Min	Max	Initial	Units	Description
UTS Vel	0	1000	200	Fpm	<b>Up Emergency Terminal Slowdown Velocity.</b> Maximum velocity to hit the up terminal slowdown limit. Hitting the limit at a higher velocity will cause the Safety Processor board to shut the car down from a velocity error. For cars with speeds greater than 200 fpm.
DTS Vel	0	1000	200	Fpm	<b>Down Emergency Terminal Slowdown Velocity.</b> Maximum velocity to hit the down terminal slowdown limit. Hitting the limit at a higher velocity will cause the Safety Processor board to shut the car down from a velocity error. For cars with speeds greater than 200 fpm.
INS Vel	0	200	140	Fpm	<b>Inspection Velocity.</b> Maximum velocity the car is allowed to run on inspection.
LEV Vel	0	200	140	Fpm	<b>Leveling Velocity.</b> Maximum velocity the car is allowed to run while leveling with the door open.
UT Vel	0	500	200	Fpm	<b>Up Terminal Slowdown Velocity.</b> Maximum velocity to hit the up terminal slowdown “software” limit. The software limit is set when the car hits the UT limit then travels the UT Counts closer to the terminal. Hitting the limit at a higher velocity than set by this parameter will cause the Safety Processor board to shut the car down from a velocity error.

Adjustable Variable	Min	Max	Initial	Units	Description
DT Vel	0	500	200	Fpm	<b>Down Terminal Slowdown Velocity.</b> Maximum velocity to hit the down terminal slowdown “software” limit. The software limit is set when the car hits the DT limit then travels the DT Counts closer to the terminal. Hitting the limit at a higher velocity than set by this parameter will cause the Safety Processor board to shut the car down from a velocity error.
UT Count	0	2000	12	Pulse Counts	<b>Up Terminal Count.</b> The number of counts after the UT limit is hit traveling toward the terminal landing for the UT software limit to become active. On cars with only one slowdown limit, the car would normally hit the limit at top speed during a recovery run. The UT Count allows the car time to slowdown before the Safety Processor can shut the car down from a limit velocity error.
DT Count	0	2000	12	Pulse Counts	<b>Down Terminal Count.</b> The number of counts after the DT limit is hit traveling toward the terminal landing for the DT software limit to become active. On cars with only one slowdown limit, the car would normally hit the limit at top speed during a recovery run. The DT Count allows the car time to slow down before the Safety Processor can shut the car down from a limit velocity error.

Adjustable Variable	Min	Max	Initial	Units	Description
Dmd Mult	0.5	1.5	1		<b>Demand Multiplier.</b> Multiplies the analog to digital input of the car's demand velocity. Increase or decrease the multiplier to display the exact speed of the car on the Car Demand screen.
SoftStop	1	10	1	Sec	<b>Soft Stop Timer.</b> During a soft stop, the speed command is brought to zero, then the brake is dropped and finally the run outputs are turned off. This timer is used to keep the run outputs from timing out during a soft stop.
Pls Ftim	0	5	2	Sec	<b>Pulse Count Fault Delay Time.</b> Time delay to detect that the selector pulses have stopped.
Vel Ftim	0	0.5	0.18	Sec	<b>Velocity Fault Delay Time.</b> Time delay after a velocity fault to shut the car down.

## 6.2.5 SAFETY PROCESSOR INPUTS AND OUTPUTS

### Safety Processor Inputs and Outputs



This display shows all the inputs and outputs of the Safety Processor. The following table shows the name description for each I/O.

**Safety Processor Input & Outputs**

I/O NAME	DESCRIPTION
DLT-1	Door Lock Top Secondary Input. Input equals 1 when the top door lock is made.
DLM-1	Door Lock Middle Secondary Input. Input equals 1 when the middle door locks are made.
DLB-1	Door Lock Bottom Secondary Input. Input equals 1 when the bottom door lock is made.
GS-1	Gate Switch Secondary Input. Input equals 1 when the front door gate switch is made.
RLM-1	Rear Lock Middle Input. Input equals 1 when the rear middle locks are made.
RGS	Rear Gate Switch. Input equals 1 when the rear door gate switch is made.
GBP	Gate Bypass. This is the input from the gate bypass switch. 1=bypass switch is on.
LBP	Lock Bypass. This is the input from the lock bypass switch. 1=bypass switch is on.
MRI	Motor Room Inspection. Input equals 1 when the car is on motor room inspection.
CTI	Car Top Inspection. Input equals 1 when the car is on car top inspection.

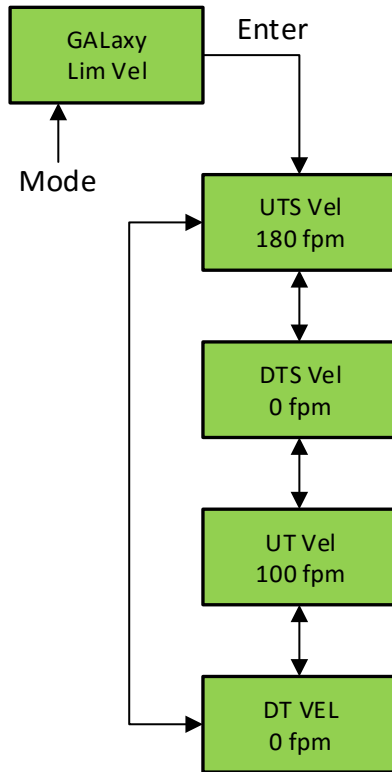


I/O NAME	DESCRIPTION
ACC	Access. Input equals 1 when the car is on access operation.
ICI	In Car Inspection. Input equals 1 when the car is on in-car inspection operation.
AUTO	Auto Input. Input equals 1 when the car is on automatic operation.
UL-1	Up Level Secondary Input. Input from the selector that the car is on the up level sensor in the door zone.
DL-1	Down Level Secondary Input. Input from the selector that the car is on the down level sensor in the door zone.
UP	Up Run Output. Output from the main CPU when the car is running up.
DNR	Down Run Output. Output from the main CPU when the car is running down.
UTS	Up Emergency Terminal Slowdown. Input goes low when the car is on the up emergency terminal slowdown limit.
DTS	Down Emergency Terminal Slowdown. Input goes low when the car is on the down emergency terminal slowdown limit.
UT	Up Terminal Slowdown. Input goes low when the car is on the up terminal slowdown limit.
DT	Down Terminal Slowdown. Input goes low when the car is on the down terminal slowdown limit.

I/O NAME	DESCRIPTION
LSCS	Leveling Speed Control. Output comes on when the car is traveling less than 150 fpm.
SFCO	Safety Fault Control Output. Output must be on to energize the SFC relay. When this relay is dropped out, the safety string will be opened.
PICEN	PIC Enable. The Safety Processor uses a PIC CPU. This is the enable line to the PAL device that allows the run outputs from main CPU. 1=OK to run.

## 6.2.6 LIMIT VELOCITY

### Limit Velocity

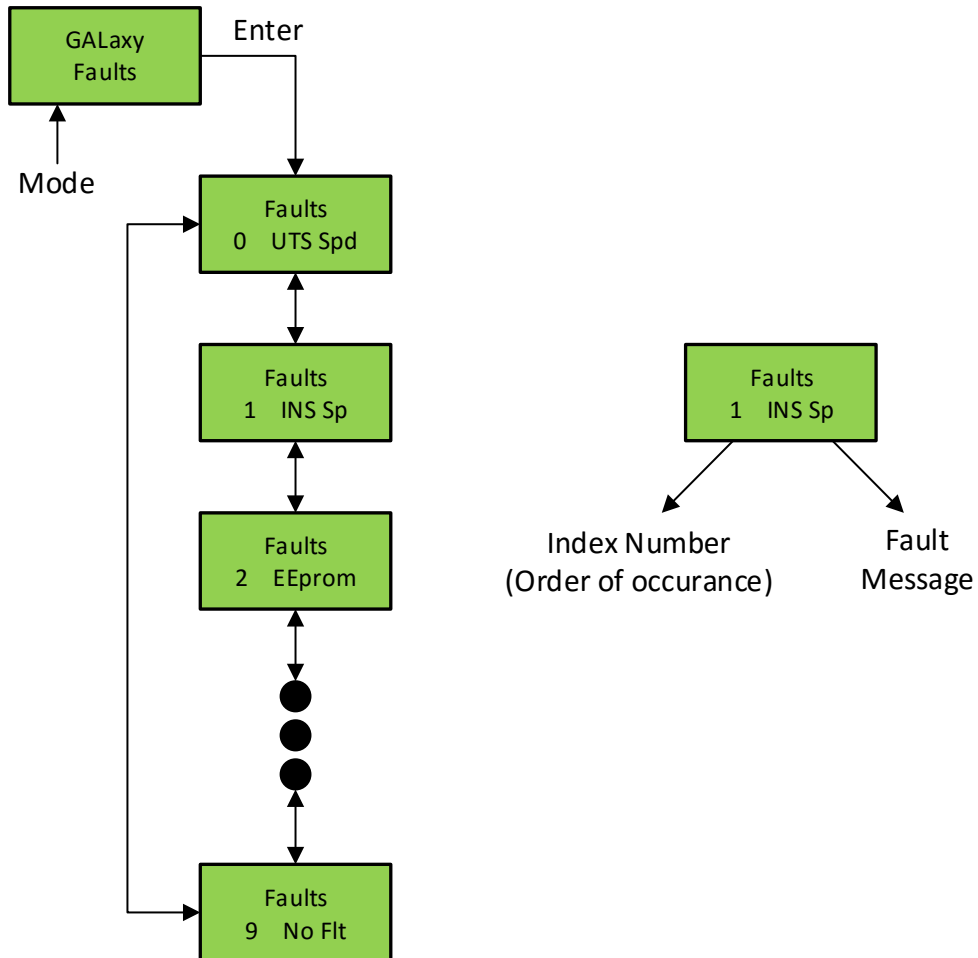


Each time the car hits a limit while running, the velocity for that limit is stored in ram and can be displayed. This velocity value is cleared on a run in the opposite direction.

This display is used to setup the slowdown velocity adjustable variables. Once the car is running on automatic, send the car to the terminal limit and record the velocity value after the car stops. Start with a one-floor run and increase the distance of the run by one floor until the car reaches top speed. Use the highest velocity value for that limit as the adjustable variable value.

## 6.2.7 SAFETY PROCESSOR FAULTS

### Safety Processor Faults



Faults are displayed in the order that they occur with index 0 being the most recent. In the figure above, an EEprom fault occurred followed by an Inspection Speed fault followed by a UTS Speed fault. Any index location that does not yet contain a fault will show No Flt. There are 10 fault locations all of which are cleared on power up or from the clear fault menu. Below is a list of faults and their causes.

**Safety Processor Faults**

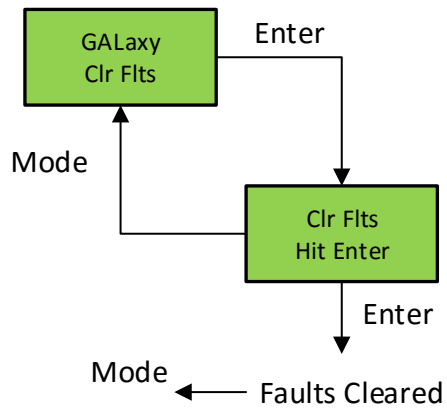
FAULT	DESCRIPTION AND CAUSE
No Flt	No fault is recorded in this index location.
Invalid	<b>Invalid Fault Number.</b> (This can only be caused by a programming error in the chip).
EEprom	<b>EEprom fault.</b> Defective EEprom device or EEprom device is not installed. The car will not be able to run until the EEprom is installed or replaced.
UTS Sp	<b>UTS Speed Fault.</b> The car hit the UTS limit at a higher velocity than the value set for the UTS Velocity adjustable variable. The car will immediately shut down.
DTS Sp	<b>DTS Speed Fault.</b> The car hit the DTS limit at a higher velocity than the value set for the DTS Velocity adjustable variable. The car will immediately shut down.
UT Spd	<b>UT Speed Fault.</b> The car hit the UT limit at a higher velocity than the value set for the UT Velocity adjustable variable. The car will immediately shut down.
DT Spd	<b>DT Speed Fault.</b> The car hit the DT limit at a higher velocity than the value set for the DT Velocity adjustable variable. The car will immediately shut down.
INS Sp	<b>Inspection Speed Fault.</b> The car exceeded the INS Velocity adjustable variable while running on inspection. The car will immediately shut down.

FAULT	DESCRIPTION AND CAUSE
LEV Sp	<p><b>Leveling Speed Fault.</b> The car exceeded the LEV Velocity adjustable variable while leveling with a door open. The car will immediately shut down.</p>
DL/GS	<p><b>Door Lock/Gate Switch Fault.</b> Car is moving outside the door zone with the door open. The car will immediately shut down.</p>
IO Flt	<p><b>I/O Fault.</b> An input is on in error. The Elev Serv display will show the I/O error. Possible causes are as follows:</p> <p>All inspection inputs and the auto input are off. More than one inspection or auto input is on at the same time. A bypass input is on while the car is not on Car top inspection. Both up and down run output from the main CPU are on at the same time.</p> <p>The car will not be able to run until the error is cleared.</p>
INS DO	<p><b>Inspection Door Open Fault.</b> A door is open while running on inspection and the gate and locks are not being bypassed. The car will immediately shut down.</p> <p>This fault can come up on Hydros with freight doors and it is advised that the value of "Vel Ftim" be raised.</p>

FAULT	DESCRIPTION AND CAUSE
Pls Er	<p><b>Pulse Error.</b>  Not enough pulses have occurred during the Pulse Fault Time period. This error is detected only on automatic operation. Verify that the pulse LED on the Safety Processor board blinks while the car is running on inspection.  Possible causes are as follows:</p> <p>Improper connection for PP and PPS. Refer to the job specific prints.  PP and PPS field wires need to be swapped.  Photocoupler in selector is faulty. Call the Factory.  Voltage from PP to 0V on the Safety Processor Board is less than 10 VDC with the PP and PPS wires disconnected.</p> <p>Call the Factory.</p>

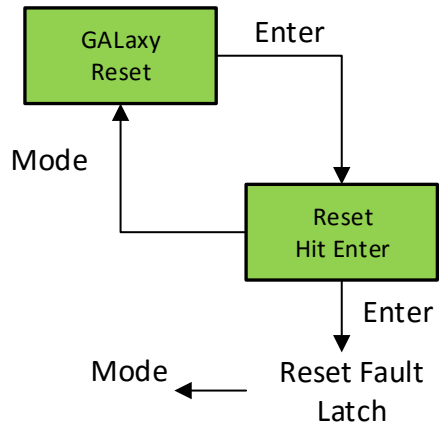
## 6.2.8 CLEAR FAULTS

### Clear Faults



## 6.2.9 RESET SAFETY PROCESSOR FAULT LATCH

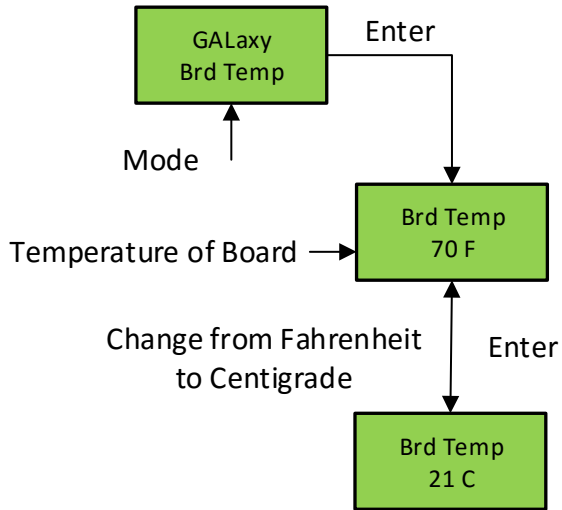
### Reset Fault Latch





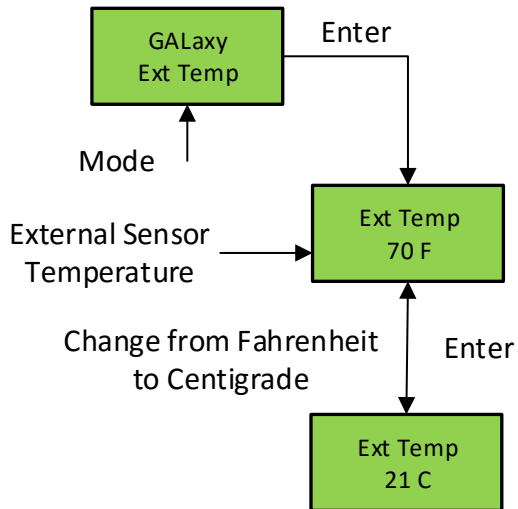
### 6.2.10 SAFETY PROCESSOR BOARD TEMPERATURE

#### Board Temperature



### 6.2.11 EXTERNAL TEMPERATURE

#### External Temperature



### Appendix A- Description of I/O Mnemonics

<b>Mnemonic</b>	<b>I/O Name</b>
1C-29C	1 <sup>st</sup> – 29 <sup>th</sup> Floor Car Call Inputs
1CA-29CA	1 <sup>st</sup> – 29 <sup>th</sup> Floor Car Call Acknowledge Outputs
1CAR-29CAR	1 <sup>st</sup> – 29 <sup>th</sup> Floor Rear Car Call Acknowledge Outputs
1CR-29CR	1 <sup>st</sup> – 29 <sup>th</sup> Floor Rear Car Call Inputs
1U-28U	1 <sup>st</sup> – 28 <sup>th</sup> Floor Up Hall Call Inputs
1UA-28UA	1 <sup>st</sup> – 28 <sup>th</sup> Floor Up Hall Call Acknowledge Outputs
1UAR-28UAR	1 <sup>st</sup> – 28 <sup>th</sup> Floor Rear Up Hall Call Acknowledge Outputs
1UR-28UR	1 <sup>st</sup> – 28 <sup>th</sup> Floor Rear Up Hall Call Inputs
2D-29D	2 <sup>nd</sup> – 29 <sup>th</sup> Floor Down Hall Call Inputs
2DA-29DA	2 <sup>nd</sup> – 29 <sup>th</sup> Floor Down Hall Call Acknowledge Outputs
2DAR-29DAR	2 <sup>nd</sup> – 29 <sup>th</sup> Floor Rear Down Hall Call Acknowledge Outputs
2DR-29DR	2 <sup>nd</sup> – 29 <sup>th</sup> Floor Rear Down Hall Call Inputs
ACC	Access Operation Input.
AD	Automatic Door Switch Input
AD0-AD11	Analog to Digital Input Data
ALT	Alternate Fire Smoke Detector Sensor Input
ATT	Attendant Operation Input.
ATTDN	Attendant Down Input.
ATTUP	Attendant Up Input.
AUTO	Automatic Operation Input.
B16	Binary Position Sensor 16 Input
BAD	Bottom Access Down Input.
BAU	Bottom Access Up Input.
BKC	Brake Cool Pilot Output
BKS	Brake Switch Input
BP	Fire Phase I Smoke Detector Bypass Input
BP1	Binary Position Sensor 1 Input
BP2	Binary Position Sensor 2 Input
BP4	Binary Position Sensor 4 Input
BP8	Binary Position Sensor 8 Input
BRK	Brake Pilot Output
BRKI	Brake Control Input.
CAR	Car number
CDL	Cab Down Lantern Output
CNV	DAC Convert Output
COL	Counter Weight Collision Switch Input (Traction Elevators)
CS	In Car Stop Switch Input
CUL	Cab Up Lantern Output
DA0-DA7	Digital to Analog Output Data
DC	Door Close Output
DCB	Door Close Button Input

<b>Mnemonic</b>	<b>I/O Name</b>
1C-29C	1st – 29th Floor Car Call Inputs
DCBR	Door Close Button Rear Input
DCC	DAC Clear Output
DCL	Door Close Limit Input
DCLR	Door Close Limit Rear Input
DCR	Door Close Rear Output
DCS	DAC Chip Select Output
DDA	Down Direction Arrow Output
DEL	Delta Relay Input
DF	Down Fast Pilot Output
DFI	Down Fast Input
DL	Down Level Sensor Input
DL-1	Down Level Sensor Secondary Input.
DLB	Door Lock Bottom Input.
DLB-1	Door Lock Bottom Secondary Input
DLM	Door Lock Middle Input
DLM-1	Door Lock Middle Secondary Input
DLT	Door Lock Top Input.
DLT-1	Door Lock Top Secondary Input.
DN	Down Normal Limit Input
DNI	Down Relay Input
DNI	Down Run Input.
DNR	Down Pilot Output
DO	Door Open Output
DOB	Door Open Button Input
DOBR	Door Open Button Rear Input
DOL	Door Open Limit Input
DOLR	Door Open Limit Rear Input
DON	Drive On.
DOR	Door Open Rear Output
DPR	Door Protect Relay Input
DS	Down Slowdown Sensor Input
DT	Down Terminal Limit Input
DT1	Down Terminal Input 1
DT2	Down Terminal Input 2
DT3	Down Terminal Input 3
DZ	Door Zone Relay Input
EE	Electric Eye Input
EER	Electric Eye Rear Input
EMP	Emergency Power Input
EPS	Emergency Power Select Input

<b>Mnemonic</b>	<b>I/O Name</b>
1C-29C	1st – 29th Floor Car Call Inputs
EQ	Earthquake Sensor Input
FB	Fire Buzzer Output
FF	Full Field Pilot Output
FL	Fire Phase I Light Output
FS	Fire Phase I On Hall Switch Input
FS2	Fire Switch Phase II On Input
FS2C	Fire Switch Phase II Call Cancel Input
FS2H	Fire Switch Phase II Hold Input
FST	Fire Stop Switch Override Output
FSTP	Fire Stop Switch Override Output
GBP	Gate Switch Bypass Input.
GR1R	Rope Gripper 1 Relay Output.
GR2R	Rope Gripper 2 Relay Output.
GRT1	Rope Gripper Test Switch Input 1.
GRT2	Rope Gripper Test Input 2.
GS	Car Gate Switch Input
GS-1	Gate Switch Secondary Input.
GTS	Rope Gripper Trip Switch Input.
HB	Handicap Buzzer Output
HBE	DAC High Byte Enable Output
HC	Hall Call Common Input
HWS	Hoistway Smoke Sensor Input
ICI	In-Car Inspection Input.
ICR	Inconspicuous Riser Input
ID	Car top Inspection Down Input
IND	Independent Input
INS	Car Top Inspection Input
ISER	In Service Output
IU	Car Top Inspection Down Input
LBE	DAC Low Byte Enable Output
LBP	Lock Bypass Input
LC	Logic Common Input
LD	Down Hall Lantern Output
LDR	Rear Down Hall Lantern Output
LE	Level Enable Output
LE1	Level Enable 1 Output.
LE2	Level Enable 2 Output.
LED1-LED16	LED Output On A1010 Board
LOA	DAC Load Output
LU	Up Hall Lantern Output

<b>Mnemonic</b>	<b>I/O Name</b>
1C-29C	1 <sup>st</sup> – 29 <sup>th</sup> Floor Car Call Inputs
LUR	Rear Up Hall Lantern Output
LW	Load Weighing Bypass Input
MCA	Motor Contactor Output
MCAI	Motor Contactor Input.
MES	Main Egress Smoke Detector Sensor Input
MRI	Motor Room Inspection Input.
MRID	Motor Room Inspection Down Input.
MRIU	Motor Room Inspection Up Input.
MRS	Motor Room Smoke Sensor Input
MCC	Motor Contactor Output
MCCI	Motor Contactor Input.
NB	Nudging Buzzer Output
NUD	Door Nudging Output
NUDR	Door Nudging Rear Output
OT1	OT1 Job Specific Output 1/Fire Service On Output
OT2	OT2 Job Specific Output 2/Motor Starter Timer Relay Output
OT3	OT3 Job Specific Output 3/Generator Pilot Output
OT4	OT4 Job Specific Output 4/Field Weakening Pilot Output
OVL	Overload Input
P	Potential (Run Contactor) Input
P1-P29	1 <sup>st</sup> – 29 <sup>th</sup> Discrete Floor Position Indicator Outputs
PFC	Primary Fault Control Output.
RDY	Drive Ready Input
RGS	Rear Car Gate Switch Input.
RGS-1	Rear Car Gate Switch Secondary Input.
RLM	Rear Lock Middle Input.
RLM-1	Rear Lock Middle Secondary Input.
RST	Reset Drive Output
RTL	Return to lobby Input
RUN	Run Pilot Output
RUNAI	Run Auxiliary Input.
RUNI	Run Input.
SC1	Speed Clamp 1 Output (Used by CPU for setup)
SC2	Speed Clamp 2 Output (Used by CPU for setup)
SC3	Speed Clamp 3 Output (Used by CPU for setup)
SC4	Speed Clamp 4 Output (Used by CPU for setup)
SC5	Speed Clamp 5 Output (Used by CPU for setup)
SE	Safety Edge Input
SER	Safety Edge Rear Input
SPI#	Spare Input, # references input number

<b>Mnemonic</b>	<b>I/O Name</b>
1C-29C	1 <sup>st</sup> – 29 <sup>th</sup> Floor Car Call Inputs
SPO#	Spare Output, # references output number
SS	Safety String Input
SW1-SW4	Dipswitch Input From A1010 Board
TAD	Top Access Down Input.
TAU	Top Access Up Input.
TPL	Temp Low Input (Hydraulic Elevators)
UDA	Up Direction Arrow Output
UFI	Up Fast Input
UL	Up Level Sensor Input
UL-1	Up Level Sensor Secondary Input
UN	Up Normal Limit Input
UP	Up Pilot Output
UPF	Up Fast Pilot Output
UPI	Up Relay Input
UPI	Up Run Input.
US	Up Slowdown Sensor Input
UT	Up Terminal Limit Input
UT1	Up Terminal Input 1
UT2	Up Terminal Input 2
UT3	Up Terminal Input 3