SERVICE REPAIR

MANUAL

Hyster C476 (T5ZAC, T7ZAC) Forklift Service Repair Manual

HYSTER

USER INTERFACE
SERVICE TECHNICIAN

C60ZHD [A373];
C80ZHD [A282];
T5ZAC [C476/D476];
T7ZAC [C477]

HYSTER

SAFETY PRECAUTIONS
MAINTENANCE AND REPAIR

- The Service Manuals are updated on a regular basis, but may not reflect recent design changes to the product. Updated technical service information may be available from your local authorized Hyster® dealer. Service Manuals provide general guidelines for maintenance and service and are intended for use by trained and experienced technicians. Failure to properly maintain equipment or to follow instructions contained in the Service Manual could result in damage to the products, personal injury, property damage or death.

- When lifting parts or assemblies, make sure all slings, chains, or cables are correctly fastened, and that the load being lifted is balanced. Make sure the crane, cables, and chains have the capacity to support the weight of the load.

- Do not lift heavy parts by hand, use a lifting mechanism.

- Wear safety glasses.

- DISCONNECT THE BATTERY CONNECTOR before doing any maintenance or repair on electric lift trucks. Disconnect the battery ground cable on internal combustion lift trucks.

- Always use correct blocks to prevent the unit from rolling or falling. See HOW TO PUT THE LIFT TRUCK ON BLOCKS in the Operating Manual or the Periodic Maintenance section.

- Keep the unit clean and the working area clean and orderly.

- Use the correct tools for the job.

- Keep the tools clean and in good condition.

- Always use HYSTER APPROVED parts when making repairs. Replacement parts must meet or exceed the specifications of the original equipment manufacturer.

- Make sure all nuts, bolts, snap rings, and other fastening devices are removed before using force to remove parts.

- Always fasten a DO NOT OPERATE tag to the controls of the unit when making repairs, or if the unit needs repairs.

- Be sure to follow the WARNING and CAUTION notes in the instructions.

- Gasoline, Liquid Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Diesel fuel are flammable. Be sure to follow the necessary safety precautions when handling these fuels and when working on these fuel systems.

- Batteries generate flammable gas when they are being charged. Keep fire and sparks away from the area. Make sure the area is well ventilated.

  NOTE: The following symbols and words indicate safety information in this manual:

  ### ⚠ WARNING
  Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

  ### ⚠ CAUTION
  Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and property damage.

  On the lift truck, the WARNING symbol and word are on orange background. The CAUTION symbol and word are on yellow background.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

Thanks very much for your reading,

Want to get more information,

Please click here, Then get the complete manual

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Have any questions please write to me:
admin@servicemanualperfect.com

TABLE OF CONTENTS (Continued)

This section is for the following models:

(C60ZHD) [A373];
(C80ZHD) [A282];
(T5ZAC) [C476/D476];
(T7ZAC) [C477]

"THE
QUALITY
KEEPERS"

HYSTER
APPROVED
PARTS

General

INTRODUCTION

The Common Control System (CCS) was developed to achieve a commonality of programming traits and display menus across a wide range of fork lift products. The ability to use one common programming method increases the effectiveness of the technician through similarity of functions when using the display interface and display menus and sub-menus. Whenever differences in menu structures appear between products they will be noted in the applicable service manual for that product. Proper use of the Common Control System should only be attempted by factory trained technicians. Some terms and descriptions in this manual may be generic in scope and not represent the actual truck being serviced. Any questions regarding this manual should be directed to the factory service representative.

DESCRIPTION

The User Interface Service Technician Manual describes the functions of the display panel that are available to the service technician. With a proper service-level password, a service technician can access menu items that are not visible at operator or supervisor-level access.

NOTE: The initial set up of supervisor passwords must be performed by a service technician accessing the menu system with a service-level password. The supervisor password must be set up before a supervisor can access the menu functions. The factory default 55555 password should be changed to a different number during initial setup.

The dash display is a multifunction device. It contains a button keypad, a series of LED indicator lights, and an LCD screen. See Figure 1.
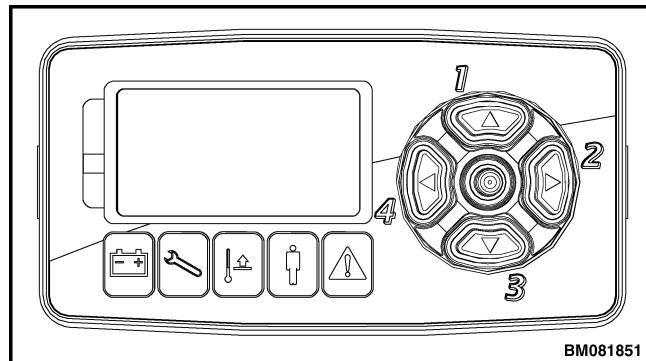
Figure 1. Dash Display

Button Keypad

The button keypad is located on the right side of the display. It consists of four buttons arranged in a circle with a fifth button in the center. The buttons are numbered 1 through 5, starting with button 1 at the top and continuing clockwise and ending with button 5 situated in the center of the keypad.

LED Indicator Lights

The LED indicator lights are located on the display below the LCD screen and to the left of the button keypad. The lights illuminate to notify the operator of certain conditions. The function of each light (in order from left to right) is as follows:

- Battery
- Wrench
- Thermometer
- Operator Pedal
- Warning

LCD Screen

The LCD screen displays the following when the key is in the ON position:

1. Battery Charge Indicator
2. Hourmeter (Hours)
3. Throttle Command
4. Actual Speed
5. Run Direction
6. Performance Mode

DASH DISPLAY MENU ACCESS

To access the dash display menu system:

1. Turn the key or keyless switch to the ON position.
2. Depress the center button (#5) on the display two times.

3. The Enter Password screen will now appear on the LCD. Enter your five-digit Service Technician password. The factory default service-level password is 55555.

To enter your password at the ENTER PASSWORD screen, enter the appropriate digit in the highlighted area of the display. Use the appropriate button on the display keypad to enter any digit between 1 and 5. The cursor will automatically move to the next position after a number has been entered. Repeat until all five digits of your password have been entered. Upon successful entry of your service-level password, the display will enter the Service Menu system. If an incorrect password is entered, the display will ask for the password to be entered again. The menu system can be exited at any time by pressing the LEFT (#4) button repeatedly.

Menu Navigation

NOTE: The display menus are revolving and will repeat when you scroll beyond the last menu item.

Upon successful entry of your service-level password, the service menu screen will appear on the dash display LCD screen. Menu navigation is accomplished by using the display buttons. From inside the menu, the buttons function as follows:

1. UP
   - Scroll up within a menu, or increase the value of a setting when making a parameter adjustment.
2. RIGHT
   - Scroll right within a menu. Will move you into the next submenu or activate the highlighted parameter to allow parameter value adjustments.

3. DOWN
   - Scroll down within a menu, or decrease the value of a setting when making a parameter adjustment.
4. LEFT
   - Scroll left within a menu. Will move you to the previous menu when depressed. Press repeatedly to exit the menu system.
5. ENTER
   - Press to accept parameter value adjustments. Press twice to access the Enter Password screen.

DASH DISPLAY MENU OPERATION

The CCS software is accessible through the on board dash display. All user controlled truck operating functions can be set using the CCS menu structure.

NODES

Within the menu structure, you may encounter the term "Node". The lift truck software uses nodes to identify the various control devices used within the lift truck. The following node designations are used in this manual:

> Node 10 - Display
>
> Node 32 - Combination Controller
>
> Node 60 - Control Handle

The nodes are connected and communicate with each other through the CANbus communication system.

MENU STRUCTURE

The base menu is structured to provide access to the following individual menus. Some of the menu items are password protected, meaning you can only access those menu items allowed under your individual password rights. See Table 1:

Use the UP (#1) and DOWN (#3) buttons to navigate to the menu item allowed for your password level. Use the LEFT (#4) and RIGHT (#2) buttons to move within the selected menu. Use the CENTER (#5) button to confirm your selections.

Table 1. Password Structure

Menu Item	Password Level		
	Operator	Supervisor	Technician
Hour Meters	X	X	X
Performance		X	X
Operator Passwords		X	X
Operator Logs		X	X
Information	X	X	X
Settings			X
Software Versions		X	X
Error Logs			X
Diagnostics			X
Calibrate			X

Service-Level Menu

The Service-Level menu allows a service technician access to the dash display menu system to troubleshoot or adjust truck systems and settings. With a proper Service-level password, a service technician can access menu items that are not visible at Operator or Supervisor-level access. See Table 2. See Table 1 for the submenu choices available at the Service-Level Menu.

Table 2. Service-Level Menu

ENTER PASSWORD	Press → Button	HOUR METERS
		↕
		PERFORMANCE
		↕
		PASSWORDS
		↕
		OPERATOR LOGS
		↕
		INFORMATION
		↕
		SETTINGS
		↕
		SOFTWARE VERSION
		↕
		ERROR LOGS
		↕
		DIAGNOSTICS
		↕
		CALIBRATE
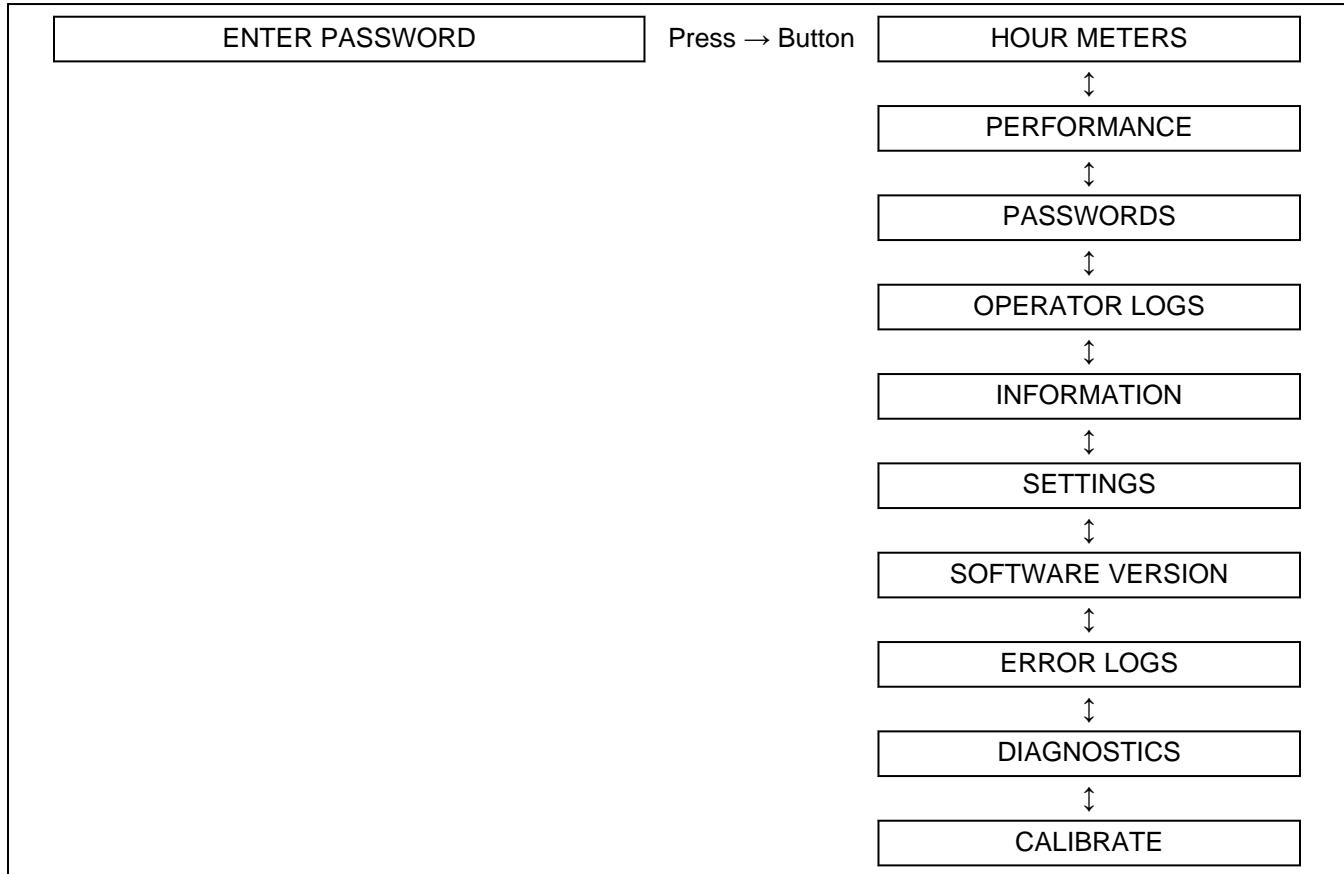
HOUR METERS

Hour meter data is incrementally stored in the display during operation and the data is recorded in the Traction controller every 6 minutes. If there is a loss of power, data is not lost. At every key on, the display hours synchronize with the master. Within the Hour Meters menu you can view the three different hour meter functions. See Table 3. Scroll through the Hour Meters menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

Table 3. Hour Meters Menu

NOTE: Depending on how an individual lift truck is equipped, some functions shown on the display may not be available for viewing.

HOUR METERS	Press → Button	H1 TRUCK
		↕
		H2 TRACTION
		↕
		H3 PUMP
		↕
		H5 ODOMETER
		↕
		H10 DISPLAY NODE
		↕
		H32 COMBI NODE
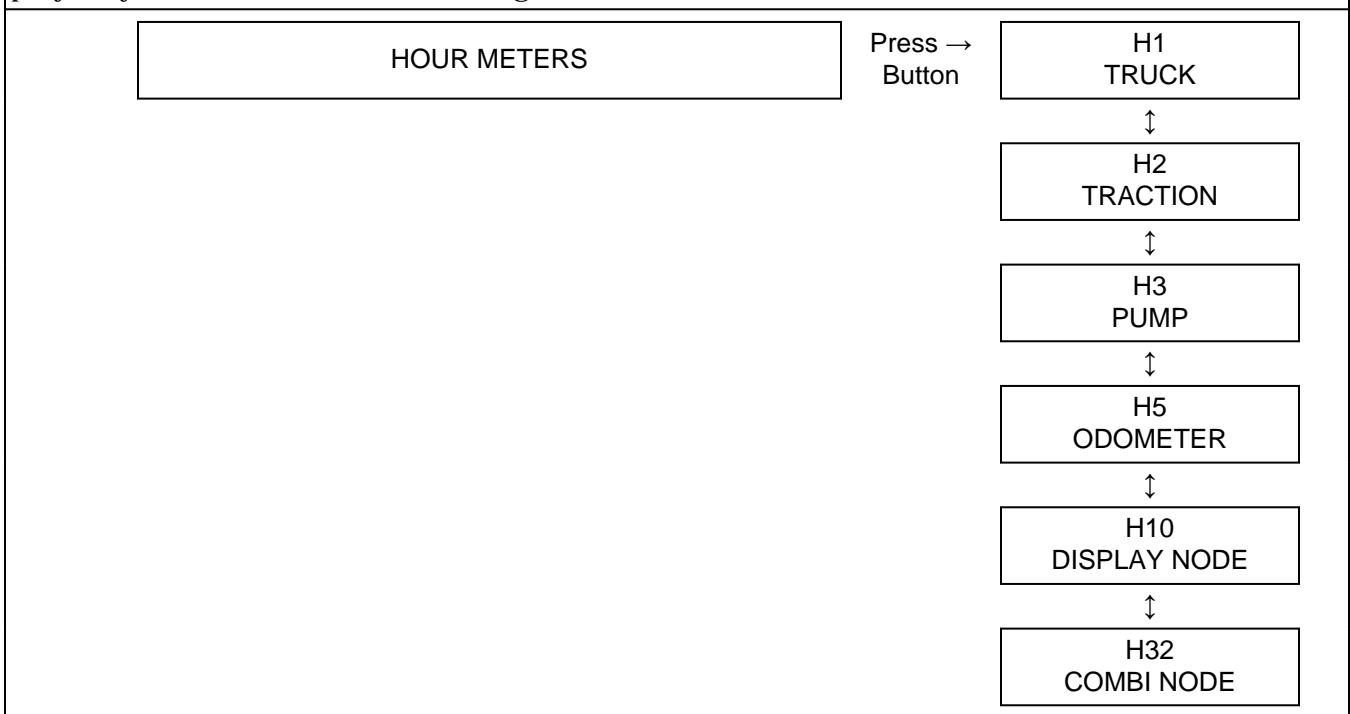
H1 Truck Hours

The Truck Hours hourmeter accumulates time when the key switch is in the ON position and the operator presence switch is activated.

H2 Traction Hours

The Traction Hours hourmeter accumulates time when the traction motor is activated.

H3 Pump Hours

The Pump Hours hourmeter accumulates time when the lift motor is activated.

H5 Odometer Hours

The Odometer Hours hourmeter shows the total number of miles/kilometers driven based on the traction hours.

H10 Display Hours

The Display Hours hourmeter shows the total number of hours of operation of the display.

H32 Combinatin Node Hours

The Combination Hours hourmeter shows the total number of hours of operation of the combination controller.

PERFORMANCE

The lift truck software allows for the setting of four independent performance levels. See Table 4. When the password setting is enabled, specific levels of lift truck performance can be specified for any operator with a valid password for this lift truck. Lift truck performance levels can only be set or altered by a supervisor or technician. Scroll through the Performance Level menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

Table 4. Performance-Level Menu

PERFORMANCE	Press → Button	P1 PERFORMANCE 1
		↕
		P2 PERFORMANCE 2
		↕
		P3 PERFORMANCE 3
		↕
		P4 PERFORMANCE 4
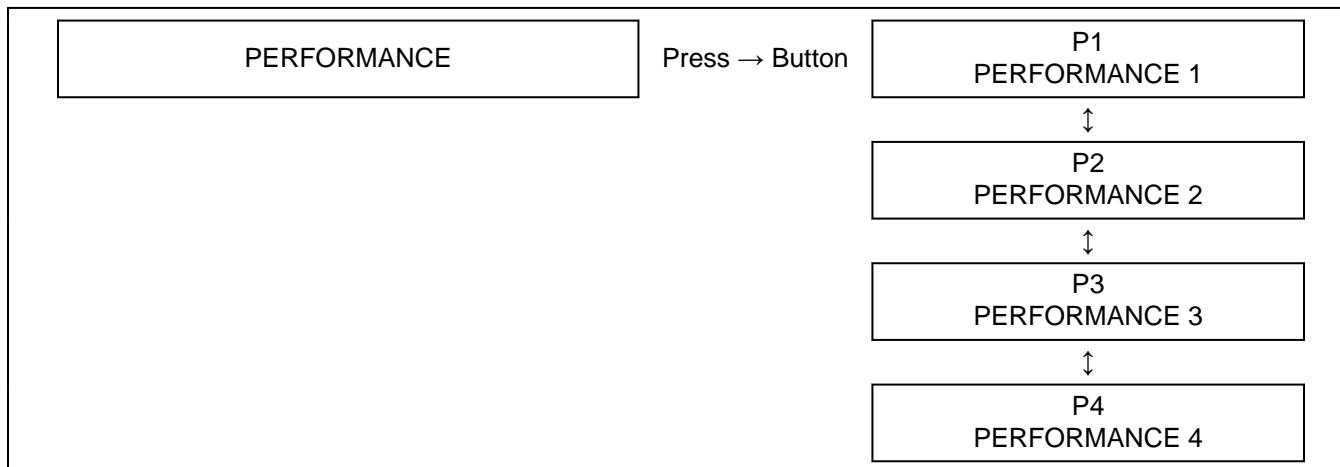
Performance Level 1

Table 5. Performance Level 1 Menu

P1 PERFORMANCE 1	Press → Button	P1.1 FORWARD
		↕
		P1.2 REVERSE
		↕
		P1.3 ACCELERATION
		↕
		P1.4 PLUG
		↕
		P1.5 COAST
		↕
		P1.6 LIFT SPEED
		↕
		P1.7 LOWER SPEED
		↕
		P1.23 WALK SPEED
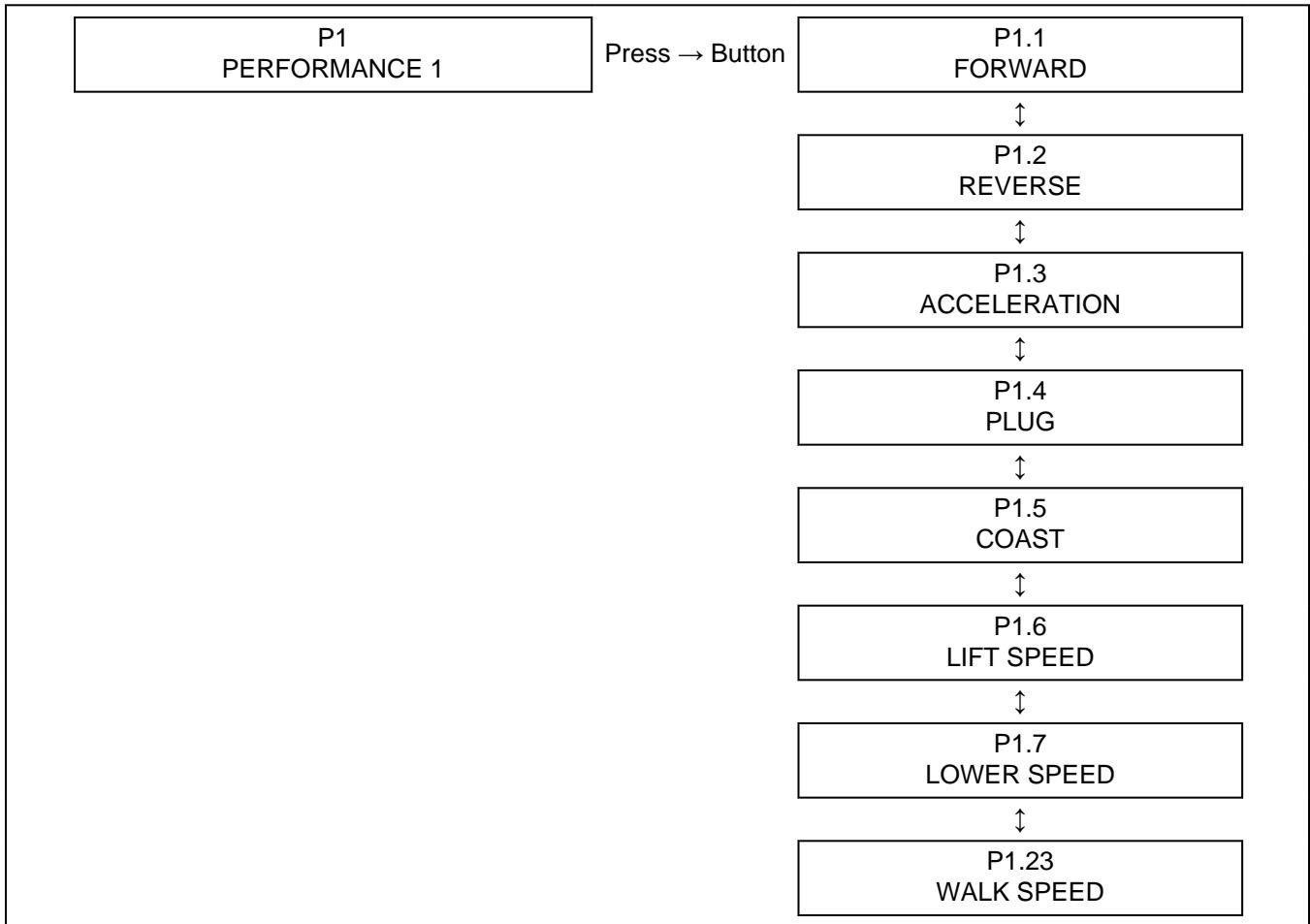
P1.1 Forward

This parameter allows the user to set the maximum forward travel speed of the lift truck. To change this parameter, input the desired speed in MPH or KPH.

P1.2 Reverse

This parameter allows the user to set the maximum reverse travel speed of the lift truck. To change this parameter, input the desired speed in MPH or KPH.

P1.3 Acceleration

This parameter allows the user to adjust the traction acceleration from the maximum (as allowed by factory parameters) to the minimum value in the parameter value range. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum acceleration. Setting this parameter to "1" will result in minimum acceleration.

P1.4 Plug

This parameter allows the user to adjust the maximum braking rate when the control handle is fully reversed causing the lift truck to enter the plugging mode. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum braking rate. Setting this parameter to "1" will result in minimum braking.

P1.5 Coast

Use this menu to adjust the maximum braking rate when the control handle is returned to the neutral position. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum braking rate. Setting this parameter to "1" will result in minimum braking.

P1.6 Lift Speed

This parameter allows the user to adjust the mast lift speed from the maximum lift speed to some lower speed within the parameter range. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum lift speed. Setting this parameter to "1" will result in minimum lift speed.

P1.7 Lower Speed

This parameter allows the user to adjust the mast lower speed from the maximum lower speed to some lower speed within the parameter range. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum lower speed. Setting this parameter to "1" will result in minimum lower speed.

OPERATOR PASSWORDS

The operator passwords are stored in a directory which can be accessed from this menu. The service technician can add, edit, or delete supervisor or operator passwords and clear the Operator Log from this menu. See Table 6. Scroll through the Password menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

- Password - In the password display, you are allowed a five digit password utilizing the numbers 1 through 5 (zero is not a valid number). Values between 11111 and 55554 are valid.

- Alphanumeric Name - In the password display, you are allowed characters to insert a name. All characters and numbers are allowed. Use the UP (#1) and DOWN (#3) buttons to scroll through the characters and press the Enter (#5) button to enter the desired selection.

- Mode Limit - For each password, you can set the maximum performance mode allowed. The performance mode is set under the "M" character of the password display. The number correlates directly to the performance modes 1 through 4, plus "A" = all.

- User Type - For each password, you can set the access level or "User Type" under the "U" character. The "O" is selected for operator, the "S" for supervisor and the "T" for the technician (service).

NOTE: A total of 100 passwords can be setup. Multiple passwords can be setup for either service, operator, or supervisor but all have to be unique for each.

NOTE: Parameter in Display "Perform Enable" set to:
0 = Off, Operator can choose to set performance mode.

1 = On, Operator is limited to the set performance mode only.

Table 6. Operator Password Menu

PASSWORD	Press → Button	ADD PASSWORD
		↕
		DELETE PASSWORD
		↕
		EDIT PASSWORD
		↕
		OPERATOR PASSWORD
		↕
		CLEAR LOG
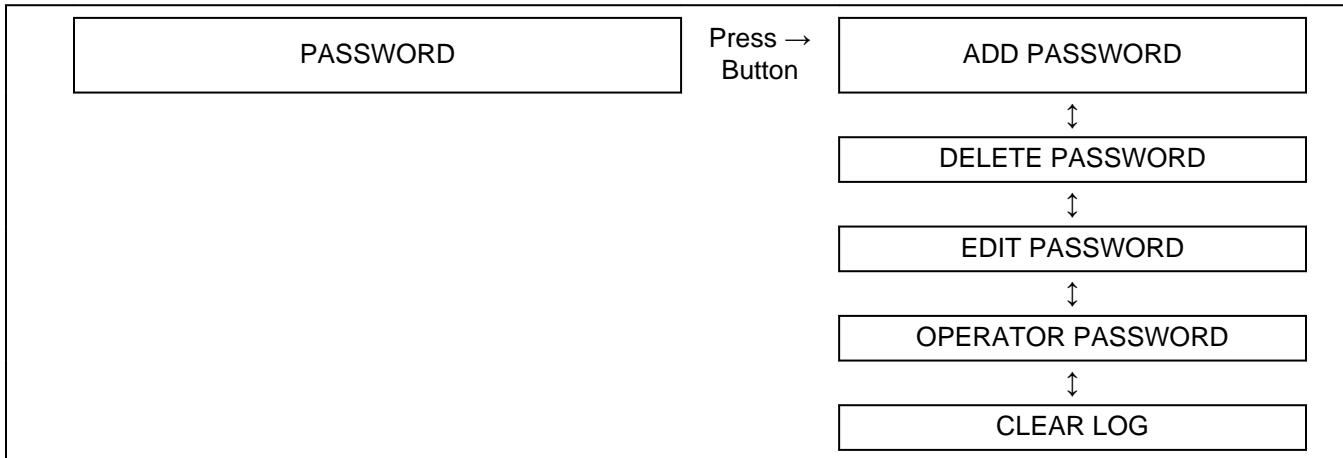
Add Password

Use this menu to add operator, supervisor, or technician passwords. To enter a new password at the Passwords screen, enter the password to be added and press enter to activate.

Delete Password

Use this menu to delete operator or supervisor passwords. To delete a password at the Passwords screen, enter the password to be deleted and press enter to finalize.

Edit Password

Use this menu to edit operator or supervisor passwords. To edit a password at the Edit Passwords screen, enter the password to be edited and press enter to select. Change the password and press enter to select.

Operator Password

Use this screen to turn the operator password feature ON or OFF.

Clear Log

Use this screen to clear all stored information from the operator log.

OPERATOR LOGS

An operator log is created when a new user password is created. Logs are visible at the supervisor and service technician levels. 150 logs are available at a time. See Table 7. Scroll through the Operator Logs menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

Table 7. Operator Logs Menu

OPERATOR LOGS	Press → Button	L 1
		↓↑
		L 2
		↓↑
		L 3
		↓↑
		L 150
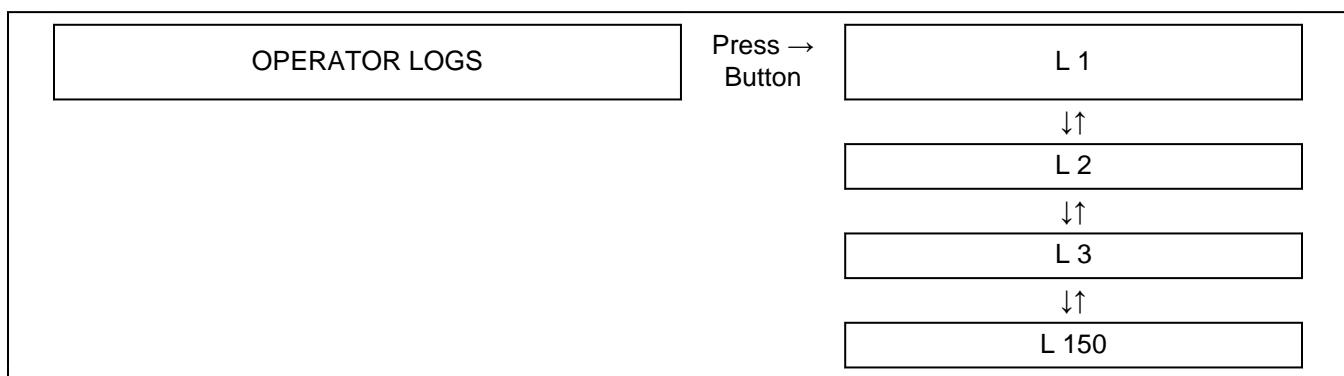
Operator 1-150

Shows the number of hours the selected operator has operated the truck. Accumulates time when the key switch is in the ON position and the operator presence switch is activated.

INFORMATION

The Information menu displays specific information about the lift truck. The parameters are installed at the factory and cannot be changed. Scroll through the Information menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

Table 8. Information Menu

INFORMATION	Press → Button	I1 MODEL
		↕
		I3 SERIAL NUMBER
		↕
		I5 TRUCK VOLTAGE
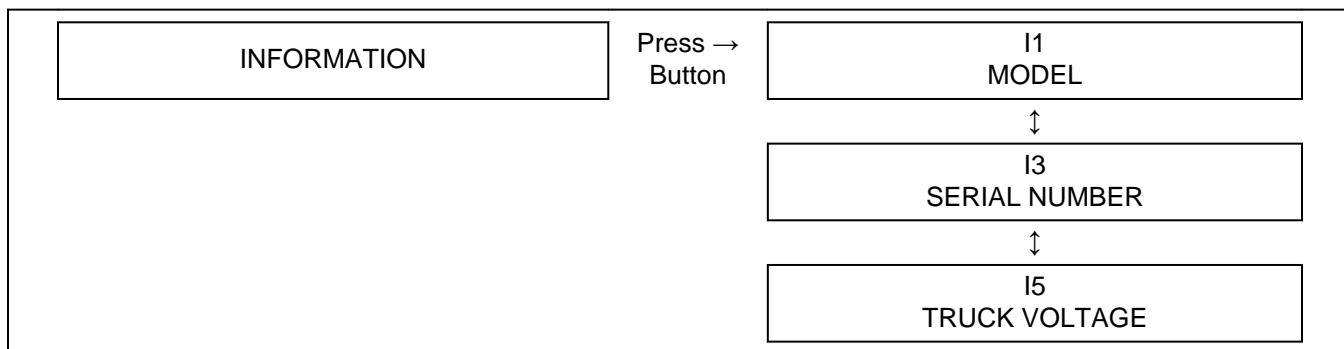
I1 Model

The Model parameter displays the model of the lift truck and does not have any functions. It is for information only.

I3 Serial Number

The Serial Number parameter displays the serial number for the lift truck and does not have any functions. It is for information only.

I5 Truck Voltage

The Truck Voltage parameter displays the voltage of the lift truck and does not have any functions. It is for information only.

SETTINGS

The Settings menu contains parameters which affect various lift truck settings. See . Scroll through the Settings menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

S1 Metric

Use this parameter to select the units used to display information on the display. This parameter can be set to either ENABLE or ENABLE. If set to ENABLE, all units such as speed, distance, weight, etc. will be shown in metric units. If set to DISABLE, all units will be shown in English units.

S2 User Performance

NOTE: This parameter is used with the "S6 PASSWORDS" parameter. Both the passwords parameter and this parameter must be set to ENABLE to allow full use of the User Performance settings

Use this parameter to ENABLE or DISABLE the use of Performance Levels. If set to ENABLE, the individual Performance menus P1, P2, P3, and P4 are active. If set to DISABLE, these performance settings will be removed from the visible menu structure.

S3 Timeout

Use this parameter to adjust the amount of time the lift truck can remain inactive before activating automatic power shutdown. Set the parameter to any value between "1" minute and "59" minutes. Setting this parameter to "0" will disable this function. If the system shuts down after timing out, the key must be reset to enable lift truck operation.

S4 Battery Type

Use this parameter to select the battery type used in the lift truck. Select the type of battery in use; FLOODED, MAINTENANCE FREE, or OTHER. Use OTHER if the lift truck has a fuel cell installed. Selecting either FLOODED or MAINTENANCE FREE will pre-select the values used for S6 thru S9. If OTHER is selected, BDI functions will be disabled.

S5 BDI Startup Full

NOTE: * If OTHER is selected as Battery Type, BDI functions will be disabled.

This parameter will be automatically set to the correct value when the "Battery Type" parameter is set. However, this parameter can be used by the user to adjust the number of BDI bars which the display will show immediately after re-key based on battery voltage. A "1" equals the lowest voltage setting for a given number of bars and a "9" equals the highest voltage setting for a given number of bars. This does not affect the discharge rate of the battery, only the initial number of bars displayed after re-key.

S6 BDI Full

NOTE: * If OTHER is selected as Battery Type, BDI functions will be disabled.

This parameter will be automatically set to the correct value when the "Battery Type" parameter is set. However, this parameter allows the user to adjust the battery voltage which the truck software considers to be "10" BDI bars. A "0" equals a lower voltage and a "9" equals a higher voltage.

S7 BDI Empty

NOTE: * If OTHER is selected as Battery Type, BDI functions will be disabled.

This parameter will be automatically set to the correct value when the "Battery Type" parameter is set. This parameter allows the user to adjust the battery voltage that would correspond to "0" BDI bars. A "0" equals a lower voltage and a "9" equals a higher voltage.

S8 BDI Reset

NOTE: * If OTHER is selected as Battery Type, BDI functions will be disabled.

This parameter will be automatically set to the correct value when the "Battery Type" parameter is set. This parameter allows the user to adjust the change in battery state-of-charge required to reset the BDI back to 10 bars.

S9 Lift Interrupt

Use this parameter to ENABLE or DISABLE the lift interrupt. This will cause the lift truck to disable lift function when the BDI bars read 0 (approximately 80% battery discharge) when set to ENABLE.

S10 Audible Warning

Use this parameter to enable or disable the audible motion alarm and select the condition/s when the alarm will be active. One of sixteen different combinations of activities for when the alarm will sound can be chosen by this parameter. Setting the parameter to "0" will disable this function.

0. Disable audible warning and its diagnostic
1. Reverse travel (default from factory)
2. Forward travel
3. Forward travel OR reverse travel
4. Lifting
5. Reverse travel OR lifting
6. Forward travel OR lifting
7. Forward OR reverse travel OR lifting
8. Lowering
9. Reverse travel OR lowering
10. Forward travel OR lowering
11. Forward OR reverse travel OR lowering
12. Lifting OR lowering
13. Reverse travel OR lifting / lowering
14. Forward travel OR lifting OR lowering
15. Forward OR reverse travel OR lift OR lower
16. Continuous

S11 Visual Warning

Use this parameter to enable or disable the visible motion alarm and select the condition/s when the alarm will be active. One of sixteen different combinations of activities for when the alarm will sound can be chosen by this parameter. Setting the parameter to "0" will disable this function.

0. Disable visual warning and its diagnostic
1. Reverse travel (default from factory)
2. Forward travel
3. Forward travel OR reverse travel

4. Lifting

5. Reverse travel OR lifting

6. Forward travel OR lifting

7. Forward OR reverse travel OR lifting

8. Lowering

9. Reverse travel OR lowering

10. Forward travel OR lowering

11. Forward OR reverse travel OR lowering

12. Lifting OR lowering

13. Reverse travel OR lifting / lowering

14. Forward travel OR lifting OR lowering

15. Forward OR reverse travel OR lift OR lower

16. Continuous

S12 Checklist

Use this parameter to ENABLE or DISABLE operator checklist function. If set to ENABLE, the operator is prompted to answer questions of an inspection checklist every time the key is turned ON. If set to DISABLE, the checklist will not be required.

S13 Maint Reminder

Use this parameter to ENABLE or DISABLE the service reminder. If set to ENABLE, a message will appear on the display to service the lift truck, when a preset hour meter reading is reached. If truck is not serviced within 20 hours after the reminder, traction speed is limited to 50%. Enter the hour meter reading when the next lift truck service is required, between "1" and "99,999". A setting of "0" will disable the feature.

S14 Restore Default

Use this parameter to reset all parameters to their original factory default values and settings. Select YES to restore all defaults. Select NO to retain existing values.

S15 Truck Lockout

Use this parameter to ENABLE or DISABLE all lift truck functions. This is used when the lift truck must be removed from service for repair. If set to ENABLE, all lift truck functions will be disabled. If set to DISABLE, all lift truck functions will be restored.

S61 Extended Shift

Use this parameter to ENABLE or DISABLE the extended Shift parameters.

S63 Walk Speed Accel

This parameter allows the user to adjust the rate of tilt speed deceleration. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum walk speed accel. Setting this parameter to "1" will result in minimum walk speed accel.

S64 Walk Speed Decel

This parameter allows the user to adjust the rate of tilt speed deceleration. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum walk speed decel. Setting this parameter to "1" will result in minimum walk speed decel.

S65 Pick Accel

This parameter allows the user to adjust the rate of tilt speed deceleration. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum pick accel. Setting this parameter to "1" will result in minimum pick accel.

S66 Pick Decel

This parameter allows the user to adjust the rate of tilt speed deceleration. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum pick decel. Setting this parameter to "1" will result in minimum pick decel.

S67 Min Steer Assist F

This parameter allows the user to adjust the rate of tilt speed deceleration. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum speed assist. Setting this parameter to "1" will result in minimum steer assist.

S68 Min Steer Assist R

This parameter allows the user to adjust the rate of tilt speed deceleration. The setting range is from 1 to 9. Setting this parameter to "9" will result in maximum steer assist. Setting this parameter to "1" will result in minimum steer assist.

SOFTWARE VERSIONS

Displays truck software version. This truck automatically coordinates the software of all nodes. One software version number is used to indicate the total truck software.

Table 9. Software Versions

SOFTWARE VERSIONS	Press → Button	V1 TRUCK

ERROR LOG

The Error Log menu keeps record of errors as they occur. Up to 16 errors (E1 - E16) are stored with the most recent error listed first. The code number, occurrence, and hour meter time are displayed for the last event. See Table 10. Scroll through the Information menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

(E1) Error Log 1

Error 1 (E1) represents the most recent error that has occurred. This selection shows how many times this error occurred. Up to 16 errors can be stored thus showing errors E1 - E16.

Error 1.1 (E1.1)

Error 1.1 (E1.1) shows the alarm code for the error.

Error 1.2 (E1.2)

Error 1.2 (E1.2) shows the key volts and the battery state of charge (BSOC) at the time the error occurred.

Error 1.3 (E1.3)

Error 1.3 (E1.3) shows the status of the CANbus system at the time the error occurred.

Error 1.4 (E1.4)

Error 1.4 (E1.4) shows the T = Traction and H = (Hydraulic) function at the time the error occurred.

'0' = OFF
'1' = ON

Bits are displayed from right to left. The first bit error will display as the last digit while the last bit error is displayed as the first digit.

Traction errors will be displayed as five digit codes, utilizing a '1' or '0' in the appropriate bit location. For example, an error that occured when using the horn will be represented with TFUNC: 01000 and an error that occured when traveling traction forward will be displayed as TFUNC: 00001.

Hydraulic errors will be displayed as eight digit codes, utilizing a '1' or '0' in th appropriate bit location. An example of an error that occurred when lifting would be HFUNC:00000001 for Lift fault.

1. T = Traction Function
   - bit 0 TRACTION FORWARD
   - bit 1 TRACTION REVERSE
   - bit 2 STEER
   - bit 3 HORN
   - bit 4 WIRE GUIDED
2. H = Hydraulic
   - bit 0 LIFT
   - bit 1 LOWER
   - bit 2 TILT UP
   - bit 3 TILT DOWN
   - bit 4 SIDE SHIFT RIGHT
   - bit 5 SIDE SHIFT LEFT
   - bit 6 4TH IN
   - bit 7 4TH OUT

Table 10. Error Log Menu

| ERROR LOG	Press → Button	E1 - E16 nncc Counts: XX Time: HHHHH:MM	Press → Button	E1.1 Alarm Description Alarm Description
				↕
				E1.2 Key Volt: XX.XV BSOC: XXX%
				↕
				E1.3 Bus Status: XX.X% Temp: XXX C/F
				↕
				E1.4 T Func: 0000 xxxx H Func: xxxx xxxx
				↕
				E16.1 Alarm Description Alarm Description
				↕
				E16.2 Key Volt: XX.XV BSOC: XXX%
				↕
				E16.3 Bus Status: XX.X% Temp: XXX C/F
				↕
				E16.4 T Func: 0000 xxxx H Func: xxxx xxxx
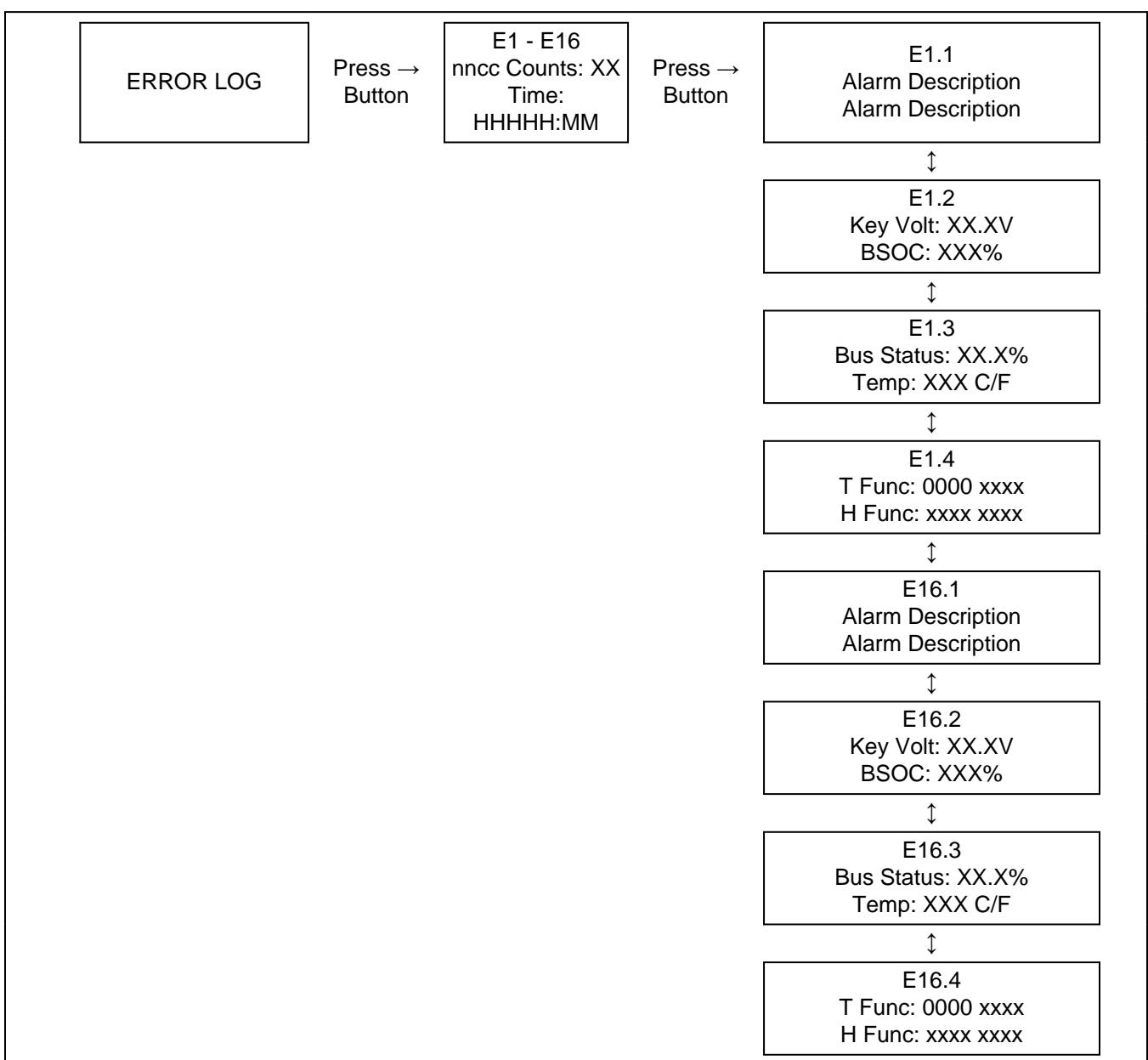
Diagnostics

DIAGNOSTICS

The Diagnostics menu allows the user to view the Status (D1), Inputs (D2), and Outputs (D3) for components on the lift truck. It also allows the user to enter the submenus for each. See Table 11. Scroll through the Information menu using the UP (#1) and DOWN (#3) buttons and press the RIGHT (#2) button to enter the desired selection. Press the LEFT (#4) button to return to the previous menu.

Table 11. Diagnostics Menu

NOTE: Depending on how an individual lift truck is equipped, some functions shown on the display may not be available for viewing.		
DIAGNOSTICS	Press → Button	D1 STATUS
		↕
		D2 INPUTS
		↕
		D3 OUTPUTS
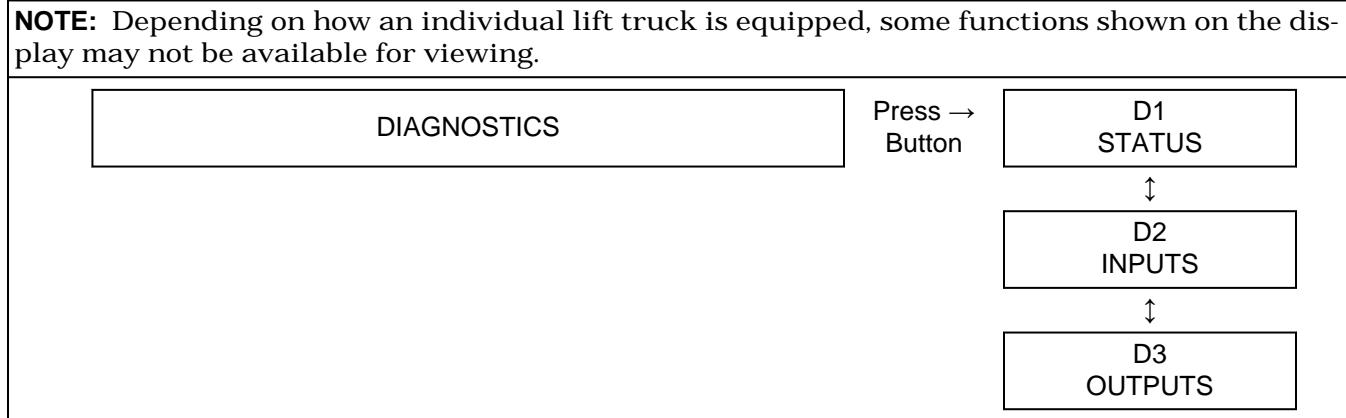
D1 Status

Status indicates if the software has disabled the system.

### D2 Input

Input data from nodes.

D3 Output

Allows for operation of outputs.

D1 STATUS

Table 12. D1 Status Menu

NOTE: Depending on how an individual lift truck is equipped, some functions shown on the display may not be available for viewing.

D1 STATUS	Press → Button	D1.1 CAN DISABLED/ENABLED
		↕
		D1.2 CONTACTOR DISABLED/ENABLED
		↕
		D1.3 FULL TRACTION DISABLED/ENABLED
		↕
		D1.4 LIMP TRACTION DISABLED/ENABLED
		↕
		D1.6 LIFT DISABLED/ENABLED
		↕
		D1.7 LOWER DISABLED/ENABLED
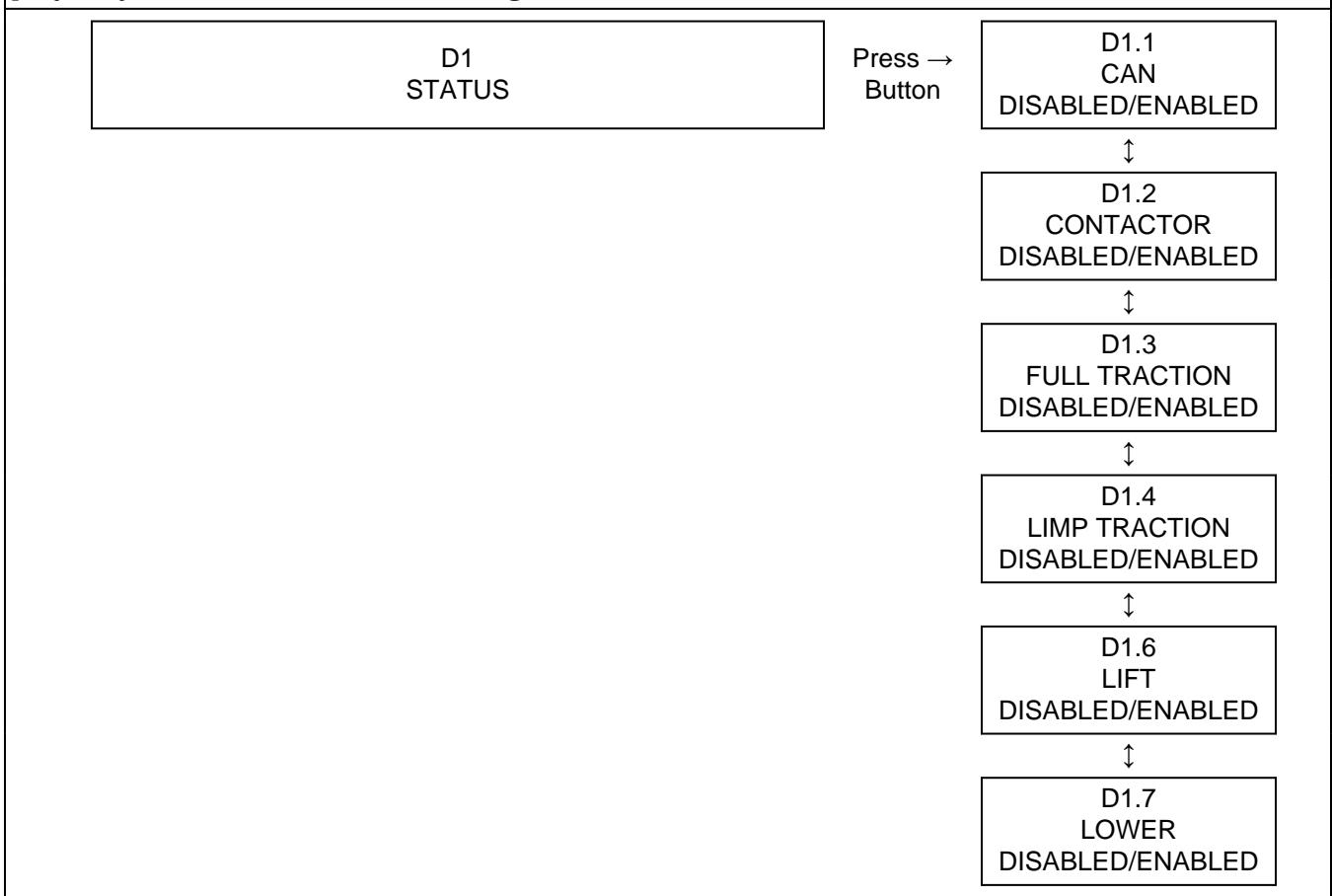
D1.1 CAN

Shows Enabled if the system does not have communication error.

D1.2 Contactor

Indicate if main contactor is closed (enabled) or open (disabled).

D1.3 Full Traction

Indicate if traction is allowed to operate full speed. SRO and interlock must be satisfied.

D1.4 Limp Traction

Indicate if traction is in limp mode. SRO and interlock must be satisfied.

D1.6 Lift

Indicates if lift function is allowed. SRO and interlock must be satisfied.

D1.7 Lower

Indicates if lower function is allowed. SRO and interlock must be satisfied.

D2 INPUTS

Table 13. D2 Inputs Menu

NOTE: Depending on how an individual lift truck is equipped, some functions shown on the display may not be available for viewing.		
D2 INPUTS	Press → Button	D2.10 DISPLAY
		↕
		D2.32 COMBI
		↕
		D2.60 CONTROL HANDLE