

Godwin PrimeGuard Controllers

Functional Overview - 2nd Generation

godwin
pumps



Comparison of 1st and 2nd Generation PrimeGuard Controllers



1st Generation - 2004



2nd Generation - 2005

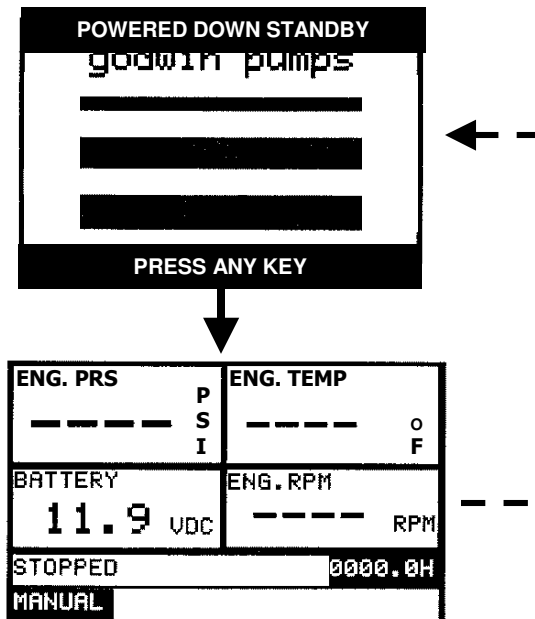
The **key switch** is the fastest way of determining which generation software you are dealing with.

In the 1st generation, the key switch merely powers up the controller.

In the 2nd generation, the key switch is a three position switch that has a “MAN OFF AUTO” decal above the switch.

PrimeGuard Controller Panel Start up

Turn key switch to the right to activate panel. Godwin Pumps logo screen will appear for one second and then change to the 4 quadrant status display screen.



If no action is taken (i.e. button touched), panel will revert to “Powered Down Standby” status to reduce power consumption.



PrimeGuard Controller Panel Button Operation

The buttons on the PrimeGuard Controller are touch-sensitive and do not depress when pushed.

For best results, use the flat portion of the thumbprint on the buttons while resting the fingers on the side of the panel (see illustration at right).

Display menus may be viewed with engine running, however engine must be shutdown with the key switch in the MAN position for access to parameters for programming.



PrimeGuard Controller

Panel Start up

Engines equipped with PrimeGuard controllers are **always** programmed in **Manual** mode.

Automatic mode is only used when floats or a transducer are required for the application.

Manual mode is accessed by moving the key switch to the “MAN” position.

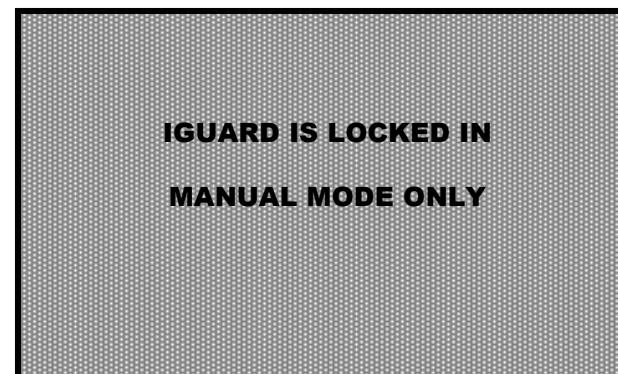
Automatic mode is accessed by changing a parameter in the “Operation Parameter” menu (discussed later in this training manual).

Editing parameters in Manual Mode only.

The latter portion of this overview discusses how to set parameters in the Prime Guard® controller.

NOTE: To set parameters, the controller must be in Manual Mode (key switch turned to the left).

ENG. PRS	P S I	ENG. TEMP	O F
----		----	
BATTERY	V D C	ENG. RPM	R P M
11.9		----	
STOPPED		0000.0H	
MANUAL		STANDBY IN ► 00.00	

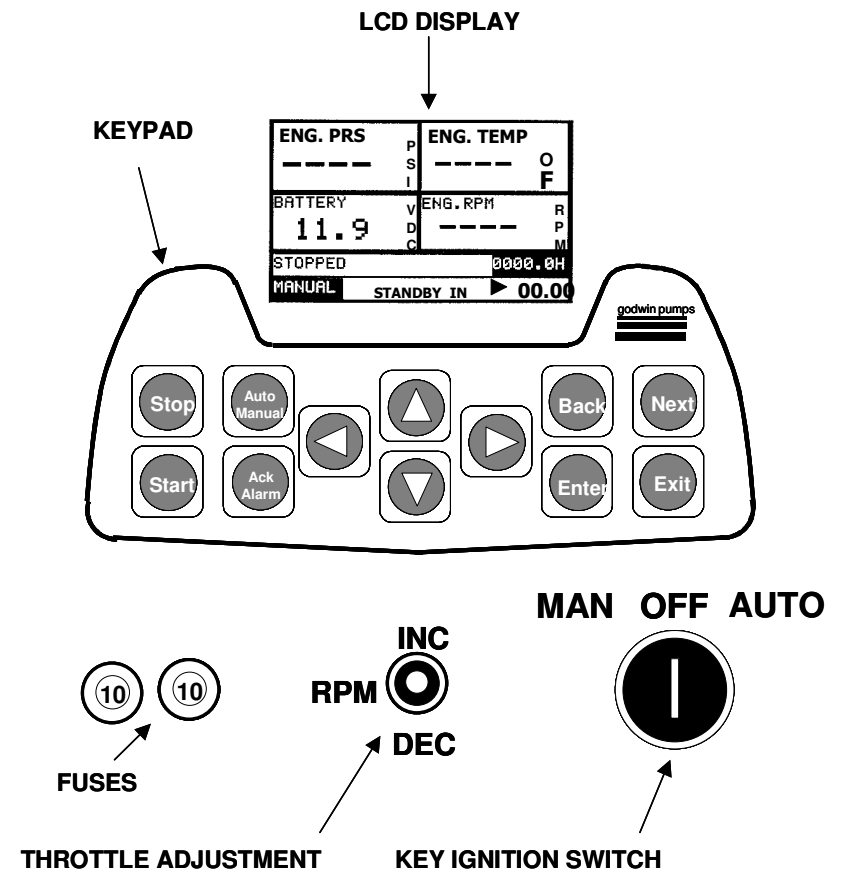


ENG. PRS	P S I	ENG. TEMP	O F
----		----	
BATTERY	V D C	ENG. RPM	R P M
11.9		----	
AUTO START: NOT RDY.		0000.0H	
AUTO		-----	

Engine Operation in Manual Mode

To start the engine with controller is in Manual mode:

1. Turn key switch to MAN position.
2. Touch green Start button.
3. Engine will start and attain idle RPM speed.
4. Raise RPM using toggle switch located in bottom center of the controller.
5. 4-Quadrant screen will display engine status (RPM, engine oil psi, water temp, battery)
6. Lower RPM to idle speed using toggle switch.
7. Touch red Stop button to stop engine.
8. Turn key switch to OFF position.



Prime-Guard Controller

4-Quadrant Status Display Screen

The default screen displays the four major engine parameters which are similar to the analog gauges found on the standard Dri-Prime® control panel:

- Engine oil pressure (psi)
- Engine temperature (F)
- Battery voltage (volts DC)
- Engine rpm (speed)

The status line below Battery and Eng. RPM shows engine status: STOPPED, RUNNING, WARM UP, COOL DOWN

The hour meter is displayed to the right showing hours and tenths.

The bottom status line displays mode of panel: MANUAL or AUTOMATIC.

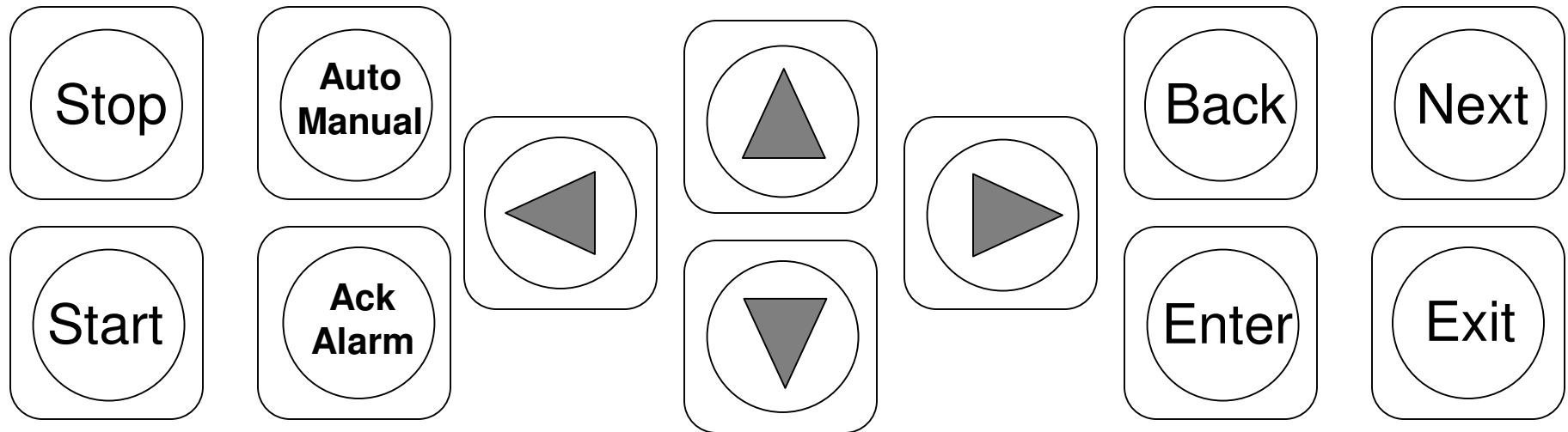
The display at right shows how many seconds remain before engine changes status (warm up, cool down) or panel reverts to auto or powered down standby status.

Touching the **UP** or **DOWN** arrow key will change the engine status display screen to a 9-quadrant screen. 9-quadrant screen displays are normally used when a transducer or floats are in use.

ENG. PRS — — — —	P S I	ENG. TEMP — — — —	O F
BATTERY 11.9	V D C	ENG. RPM — — — —	R P M
STOPPED		0000.0H	
MANUAL		STANDBY IN ► 00.00	

ENG. PRS — — — — PSI	ENG TEMP — — — — °F	ENG. RPM — — — — RPM
BATTERY 11.9 VDC		ENG LD — — — — %
STOPPED		0000.0H
MANUAL		STANDBY IN ► 00.00

Controller Button Functionality



<u>Button</u>	<u>Activity</u>
Stop*	Shuts down engine
Start	One-touch engine starting
Auto-Manual	Not assigned
Ack Alarm	Acknowledges alarms
Directional arrows	Moves cursor, scrolling menus, data selection, toggle between 4 and 9 quadrant engine status display screen
Back	Displays previous screen
Next	Displays next screen
Enter	Selects a parameter for editing or enters data in parameter
Exit	Exits parameter, returns display to 4 quadrant screen, toggle between 4 quadrant screen and Warning/Status screen

* **Warning!** – Always stop engine with the Stop button, do not stop by turning off key switch

WARNINGS/STATUS	
NOT IN AUTOMATIC MODE	
ECU NOT RESPONDING	
NS: ECU NOT RESPONDING	
STOPPED	0000.0H
MANUAL	

ENG. PRS ----- P S I	ENG. TEMP ----- O F
BATTERY 11.9 VDC	ENG. RPM ----- RPM
STOPPED	0000.0H
MANUAL	

MAINT. TIMERS	0000.0H
OIL LIFE	0100.0H
OIL FILTER LIFE	0100.0H
BELT LIFE	0100.0H
BATTERY LIFE	0100.0H
FUEL FILTER LIFE	0100.0H
AIR FILTER LIFE	0100.0H
OVERHAUL LIFE	1000.0H



Prime Guard® Controller Status Display Screens

Touching **EXIT** at any time
reverts display back to 4-
quadrant screen.

EVENT HISTORY ▼▲ 1/32	
POWER ON	
M 03:16:52PM THU 11/13/03	

J1939 MESSAGES ▼▲ 1/1	
LAMP STATUS:00	
MALFUNCTION LAMP:	OFF
RED STOP LAMP:	OFF
AMBER WARNING LAMP:	OFF
PROTECT LAMP:	OFF
MFG:DEERE	

THROTTLE STATUS	
ACTUAL	
RPM:	0
STOPPED	0000.4H
MANUAL	STANDBY IN ► 00:32

POWERED DOWN STANDBY	
GODWIN PUMPS	
PRESS ANY KEY	

PUMP CYCLE STATUS	
TYP: TWO FLOATS/DIR: FILL	
START=LO<DI 2>► INACTIVE	
STOP=LO<DI 3>► INACTIVE	
SPD:0000RPM	
LOPWARN: 20.0LOPSH: 15.0	
STOPPED	0000.0H
MANUAL	STANDBY IN ► 00:32

GODWIN PUMPS OF AMERICA	
WWW.GODWINPUMPS.COM	
SALES@GODWINPUMPS.COM	
(856) 467-3636	
PN►175-70-0185	
SN►SERIAL NUMBER	
SV►11.24:01	
08:13:46AM FRI 02/27/04	

Display Screen Overview *(touch NEXT button to advance to next screen)*

ENG. PRS ----- P S I	ENG. TEMP ----- O F
BATTERY 11.9 V D C	ENG. RPM ----- R P M
STOPPED	0000.0H
MANUAL	STANDBY IN ► 00.00

MAINT. TIMERS	0000.0H
OIL LIFE	0100.0H
OIL FILTER LIFE	0100.0H
BELT LIFE	0100.0H
BATTERY LIFE	0100.0H
FUEL FILTER LIFE	0100.0H
AIR FILTER LIFE	0100.0H
OVERHAUL LIFE	1000.0H

J1939 MESSAGES ▼▲	1/1
LAMP STATUS:00	
MALFUNCTION LAMP:	OFF
RED STOP LAMP:	OFF
AMBER WARNING LAMP:	OFF
PROTECT LAMP:	OFF
MFG:DEERE	

4 Quadrant Status Display screen:

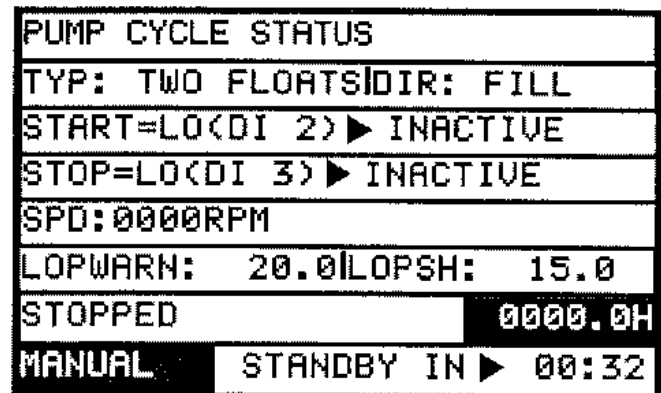
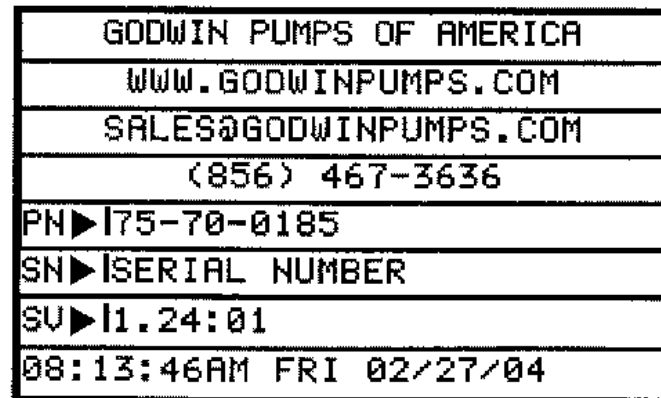
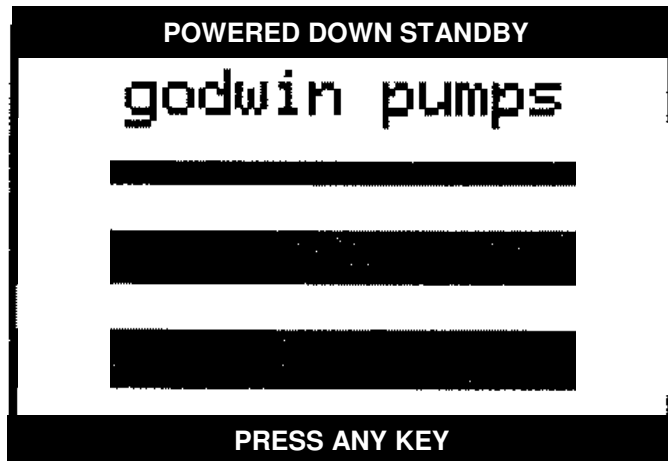
- Engine oil pressure (psi)
- Engine coolant temperature (F)
- Battery voltage level (VDC)
- Engine speed (RPM)

Maintenance Timers:

- Displays hours accumulated since last maintenance alarm reset
- When 250.0 hours is reached, warning is displayed on Warning/Status screen

J1939 Communications Line status

Display Screen Overview *(touch NEXT button to advance to next screen)*



Powered Down Standby screen:

- Reduces power consumption during inactive periods.
- Touching any button activates 4-quadrant display screen.

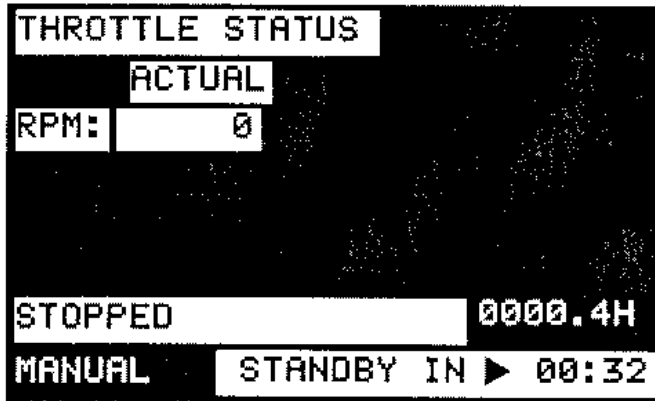
Company information screen:

- Part # of panel
- Serial #
- Software version #
- Time

Pump Cycle Status screen:

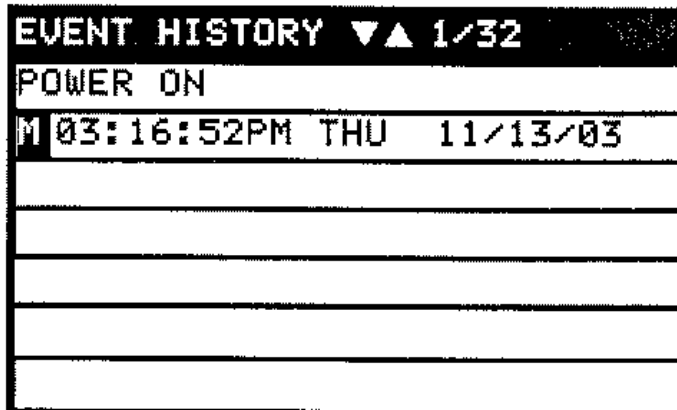
- Type of control: 2 floats, level or pressure transducer
- Start/Stop settings
- Speed setting
- Low oil pressure warning/shutdown

Display Screen Overview *(touch NEXT button to advance to next screen)*



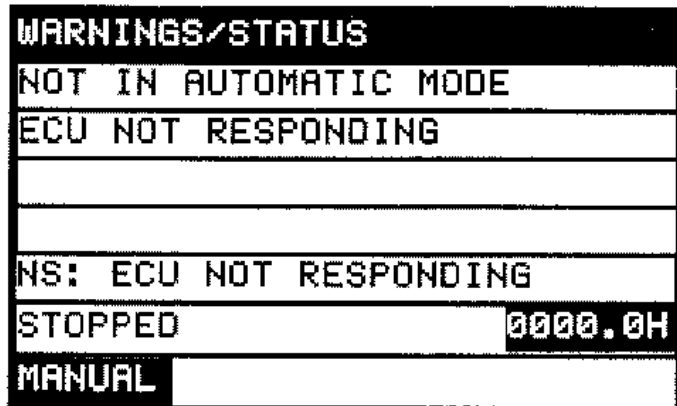
Throttle status screen:

- Actual rpm of engine displayed



Event History display screen:

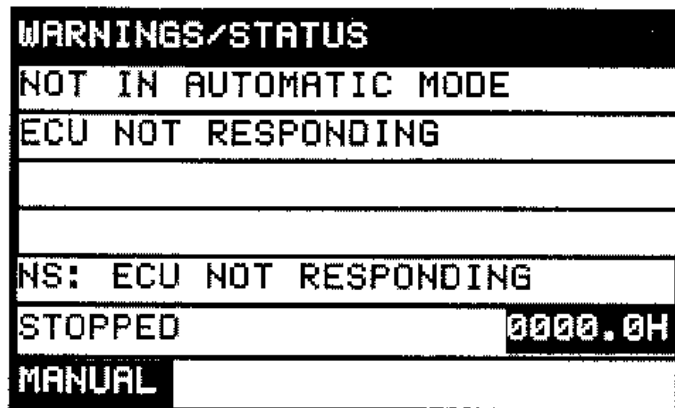
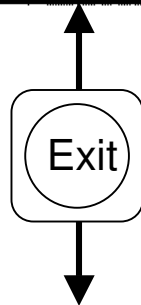
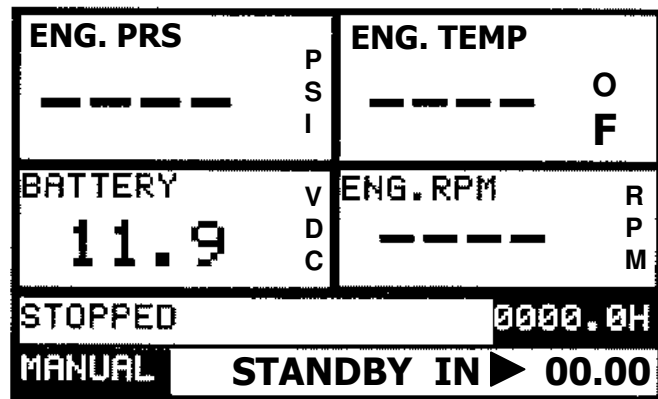
- Displays date and time of all shutdowns recorded since the last the event history has been cleared.
- Maximum of 32 events held in memory



Warning / Status screen:

- Displays current warnings detected by the controller
- Touching **EXIT** button toggles between Warning/Status screen and 4 quadrant display screen

Normal Operating Display



When operating normally and controller is in active status (not powered down) the 4 quadrant status screen is displayed.

Touching the **EXIT** button will toggle between the 4 quadrant status screen and the Warning / Status display screen.

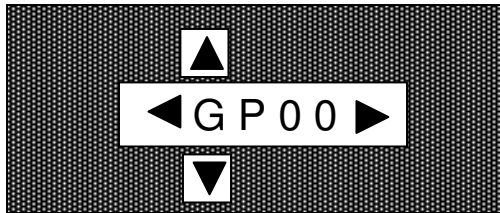
This allows the operator to quickly survey warnings that occurred and were recorded.

NOTE: Controller parameters can not be adjusted while engine is running or in AUTO mode. Shutdown engine prior to entering password.

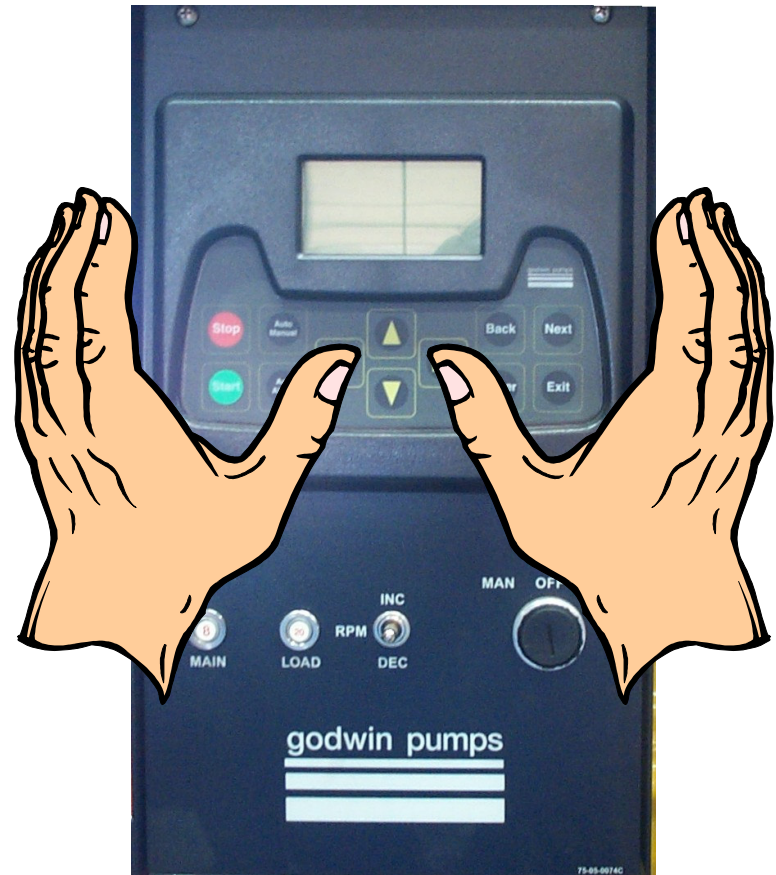
Password Input Procedure

To adjust any parameters or reset maintenance alarms, the engine must be stopped. Turn key switch to “MAN” position

Touching the **LEFT** and **RIGHT** arrows simultaneously changes the display to the password entry screen.



1. The cursor appears in the first column
2. Touch the **RIGHT** arrow twice to move the cursor to the third column: 0
3. Touch the **UP** arrow to increase the number to 4.
4. Touch the **RIGHT** arrow to move the cursor to the last column: 0
5. Touch the **UP** arrow to increase the number to 4.
6. Touch the **ENTER** button.
7. Touch the **EXIT** button.



NOTE: There are two levels of password access:

GP22: Limited access to routine maintenance parameters (as discussed on page 14)

GP44: Access to all parameters

Password Input Access Levels

There are two levels of access to programmable parameters in the PrimeGuard controller.

GP22

Inputting GP22 allows the operator the ability to adjust the following parameters:

Operation parameters:

16. Edit time/date

Miscellaneous parameters:

7. Oil Life, 8. Oil filter life, 9. Belt Life, 10. Battery life, 11. Fuel Filter Life, 12. Air filter life.

Pumpset parameters:

7. Start level, 8. Stop level, 9. Maintain level, 11. Flow start, 12. Flow stop, 13. Maintain flow

GP44

Allows for access to all parameter menus and parameters.

Parameter Menu Navigation

Touch **LEFT** or **RIGHT** arrows to move laterally to next or preceding parameter menu stack.

OPERATION PARAMETERS	
1 – ACCESS SECURITY	
ENTER – CHANGE PASSWORD	
2 – LANGUAGE	
3 – DRIVEN EQUIPMENT TYPE	
4 – KEY SENSITIVITY LEVEL	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



COMMUNICATIONS PARAMETERS	
1 – J2 PROTOCOL TYPE	
RS232 IGUARD CONFIG.	
2 – MODBUS SERVER ADDRESS	
3 – RS485 SERVER BIT FRAME	
4 – RS485 SERVER BAUD RATE	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



MISCELLANEOUS PARAMETERS	
1 – ENGINE ECU TYPE	
J1939	
2 – ECU ADDRESS CLAIM	
3 – ENGINE MANUFACTURER	
4 – J1939 CRANKCUT COUNT	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



ENGINE PARAMETERS	
1 – PRE-START DELAY	
2 SEC.	
2 – PREHEAT TIME	
3 – PRELUBE TIME	
4 – PREHEAT TIME	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



PUMP CONTROL PARAMETERS	
1 – START STOP TYPE	
TWO FLOATS	
2 – FLOAT SWITCH TYPE	
3 – PUMP DIRECTION	
4 – MAINTAIN SENSITIVITY	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



DIGITAL INPUT PARAMETERS	
1 – DIGITAL INPUT 1	
ENGINE OVER SPEED	
2 – DIGITAL INPUT 2	
3 – DIGITAL INPUT 3	
4 – DIGITAL INPUT 4	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



RELAY OUTPUT PARAMETERS	
1 – RELAY 1	
PREHEAT	
2 – RELAY 2	
3 – RELAY 3	
4 – RELAY 4	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



ANALOG INPUT PARAMETERS	
1 – ANALOG INPUT 1	
DISABLED	
2 – ANALOG INPUT 2	
3 – ANALOG INPUT 3	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



CLOCK START / STOP TIMERS	
1 – START TIME 1	
OFF	
2 – STOP TIME 1	
3 – START TIME 2	
4 – STOP TIME 2	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	



Parameter Menu “Stack” Design

Each of the 9 parameter menus contains a numerical listing of parameters that can be edited. To access the parameters, touch the **UP** or **DOWN** arrows to scroll through the numerical listing. Also, consult the table of parameters, options and default settings in the Prime Guard® Controller operation manual.

OPERATION PARAMETERS	
1 – ACCESS SECURITY	
ENTER – CHANGE PASSWORD	
2 – LANGUAGE	
3 – DRIVEN EQUIPMENT TYPE	
4 – KEY SENSITIVITY LEVEL	
◀▶ -- MORE MENUS	
ENTER - EDIT ▲▼ -- SELECT	

- 1 – ACCESS SECURITY
- 2 – LANGUAGE
- 3 – DRIVEN EQUIPMENT TYPE
- 4 – KEY SENSITIVITY LEVEL
- 5 – DEFAULT SCREEN
- 6 – LAMP TEST
- 7 – LCD BACKLIGHT
- 8 – E-GUARD BEEPER
- 9 – PRESSURE UNITS
- 10 – TEMP. UNITS
- 11 – DATE DISPLAY FORMAT
- 12 – EVENT TYPES TO RECORD
- 13 – CLEAR EVENT HISTORY
- 14 – STANDBY MODE TIMER
- 15 – RUN TO DESTRUCT
- 16 – EDIT TIME/DATE
- 17 – INPUT-OUTPUT TEST
- 18 – RESET CONFIGURATION
- 19 – OPERATION MODE
- 20 – DUPLICATE SENDERS
- ETC.



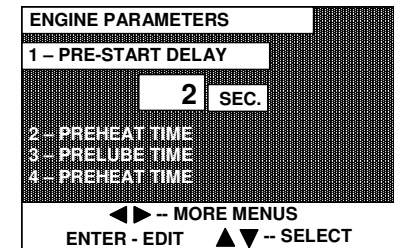
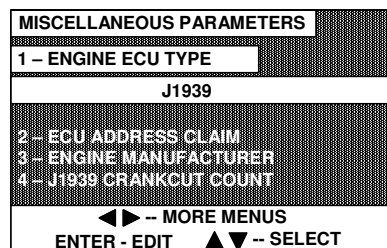
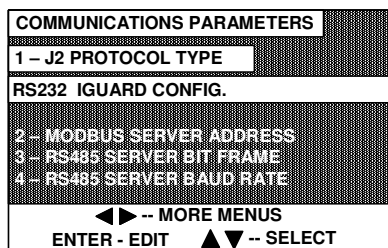
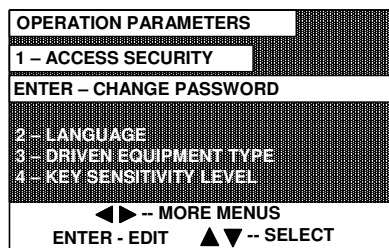
NOTE!!: Touching the **LEFT** or **RIGHT** arrow moves to the next parameter stack

Parameter Menu “Stack” Navigation



The illustration at left appears at the bottom of each parameter menu display. **UP** and **DOWN** arrows navigate through the parameters in the menu. **LEFT** and **RIGHT** arrows move the display to the adjacent parameter menu.

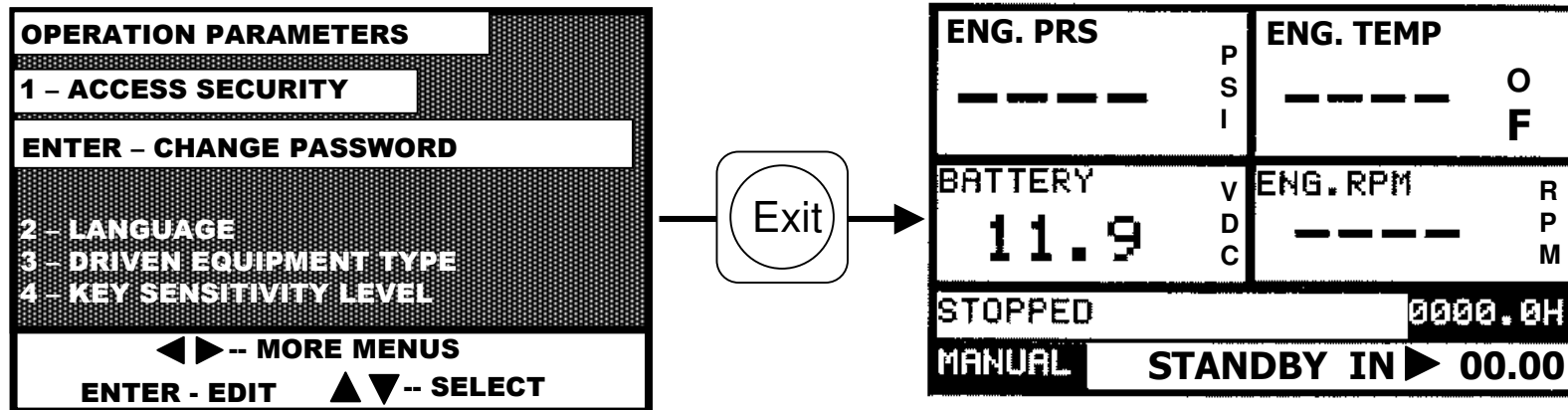
Use caution when navigating in the parameter menus and stacks. Touching the **LEFT** or **RIGHT** arrows may cause the display to move to the adjacent parameter menu “stack”.



- | | | | | | | |
|---|----|---|----|---|----|--|
| 1 – ACCESS SECURITY
2 – LANGUAGE
3 – DRIVEN EQUIPMENT TYPE
▲ 4 – KEY SENSITIVITY
▼ 5 – DEFAULT SCREEN
6 – LAMP TEST
7 – LCD BACKLIGHT
8 – I-GUARD BEEPER
ETC. | ◀▶ | 1 – J2 PROTOCOL TYPE
2 – MODBUS SERVER ADDRESS
3 – RS485 SERVER PROTOCOL
4 – RS485 SERVER BAUD RATE
5 – RS485 CLIENT BIT FRAME
6 – RS485 CLIENT BAUD RATE
7 – MODUM CONNECTION
8 – RS232 BAUD RATE
ETC. | ◀▶ | 1 – ENGINE ECU TYPE
2 – CRANK CUT TYPES
3 – ECU ADDRESS CLAIM
4 – ENGINE MANUFACTURER
5 – J1939 CRANKCUT COUNT
6 – FUEL LEVEL SOURCE
7 – OIL LIFE
8 – OIL FILTER LIFE
9 – BELT LIFE
10 – BATTERY LIFE
11 – FUEL FILTER LIFE
ETC. | ◀▶ | 1 – PRE-AUTO START DLY.
2 – PRE-HEAT TYPES
3 – PRE-LUBE TIME
4 – PRE-HEAT TIMER
5 – PURGE CRANK TIME
6 – CRANK TIME
7 – CRANK REST TIME
8 – START ATTEMPTS
9 – STARTUP BYPASS TIME
10 – WARM-UP LOAD DLY.
ETC. |
|---|----|---|----|---|----|--|

Exiting Parameter Menu Display

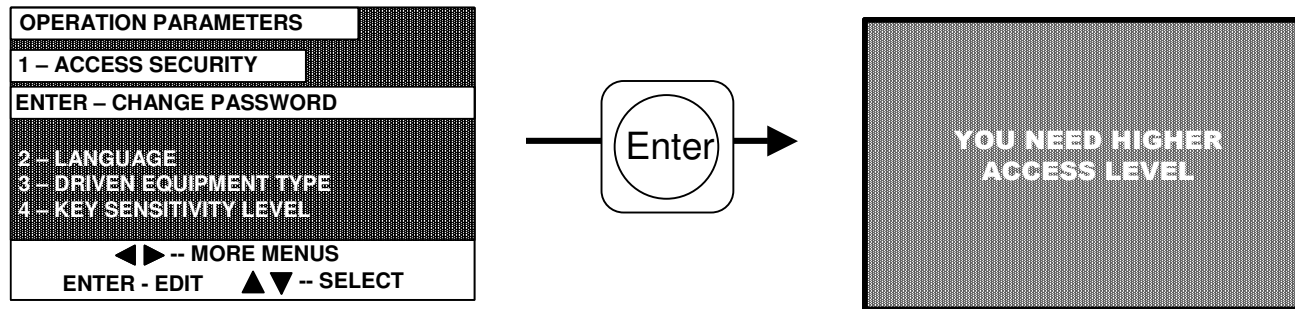
After parameters have been adjusted, touch the **EXIT** button to return to the default 4 quadrant status display screen and turn key switch to “OFF”.



With the 4 quadrant display showing, to return to the parameter adjustment menus, touch the **BACK** button three times. Display will cycle from 4- quadrant Status Display to Warning/Status to Event History and finally to the last parameter screen that was displayed.

Password Access Timeout

When one minute has elapsed since the last activity on the controller, password access will revert to level 1 (display only). Touching the **BACK** button three times will display the last parameter screen, however if a parameter is selected for editing (touching the **ENTER** button), a message will display requiring a higher access level.



Password must be re-entered to gain higher access and adjust parameters.

Editing A Parameter

After entering the password, the Operations Parameter menu will be displayed. Use the **UP** and **DOWN** arrows to select the parameter for editing.

Touch **ENTER**. The currently selected option displayed beneath the parameter will begin to blink.

Touch the **UP** or **DOWN** arrows to select the desired option.

Touch **ENTER** to select that option. The option field will stop blinking.

The parameter has now been changed.

Touch **EXIT** to exit the parameter menu and return to the 4 quadrant screen.

Setting Controller in Manual Only Mode

When no automatic devices (floats, transducers) are being used, PrimeGuard controller should be put in “MANUAL MODE ONLY” prior to operation.

To put in controller in MANUAL MODE ONLY:

1. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
2. Enter GP44 password, touch **ENTER**, touch **EXIT**.
3. “**OPERATIONS PARAMETER**” menu screen appears.
4. Touch **UP** arrow to scroll backwards to “**18 OPERATION MODE**”
5. Touch **ENTER** to edit parameter. Current parameter option will blink.
6. Touch **DOWN** or **UP** arrows to display “**MANUAL MODE ONLY**” (*fig. 1*)
7. Touch **ENTER** to select “**MANUAL MODE ONLY**”. Blinking will stop.
8. Touch **EXIT** to exit parameter menu.
9. Turn key to “OFF” position to set parameters in controller menu.

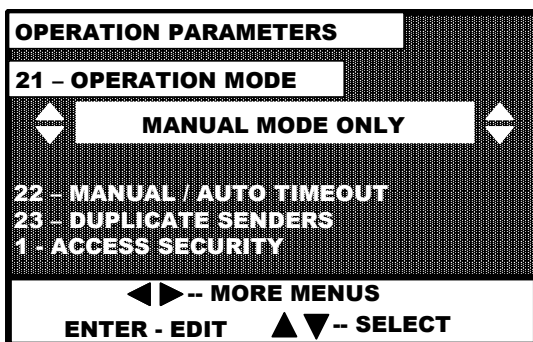


fig. 1

There are three available options in parameter 19:

- **MANUAL MODE ONLY**
- **MANUAL/ AUTO NFPA**
- **MANUAL/ AUTO NO WARNING**

Re-setting Maintenance Alarms

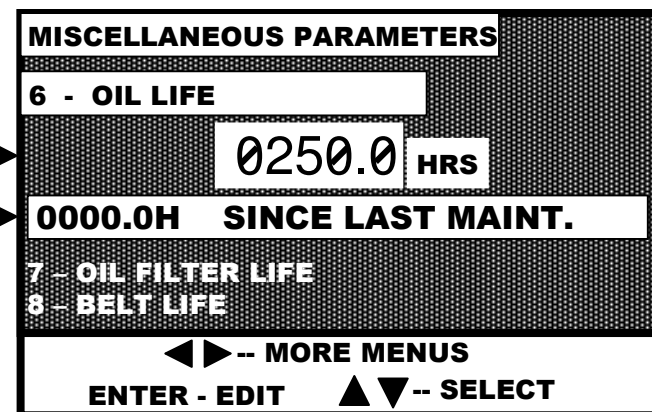
There are six 250-hour maintenance alarms preset in the PrimeGuard controller. Each alarm must be reset individually.

To reset maintenance alarms:

1. Ensure controller is in Manual Mode before re-setting parameters.
2. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
3. Enter GP44 password, touch **ENTER**, touch **EXIT**. "**OPERATION PARAMETERS**" will be displayed.
4. Touch **NEXT** button to scroll to "**MAINTENANCE REMINDERS**" menu screen.
5. Touch **ENTER** button
6. Screen will appear asking "**RESET MAINT. TIMERS?**".
7. Touch **ENTER** to reset all maintenance timers.
8. Touch **EXIT** to exit parameter menu.
9. Turn key switch to "OFF" position to set parameters in controller memory.

Displays programmed frequency of maintenance timer in hours

Displays hours since last maintenance, will be reset to 000.0

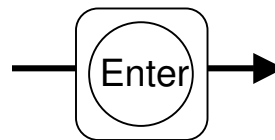
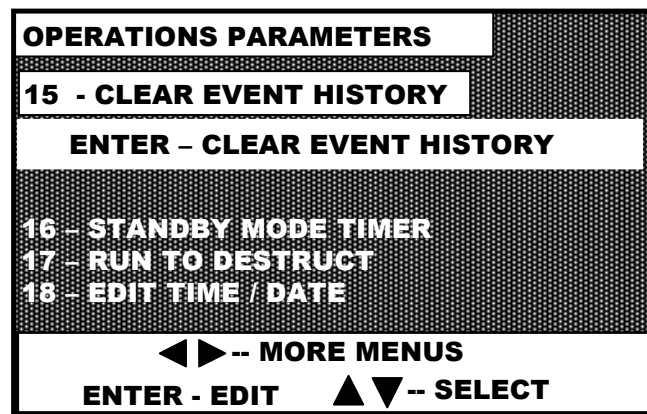


Clear Event History

Shutdown alarms are maintained chronologically in an Event History up to 32 events.

To clear Event History screen:

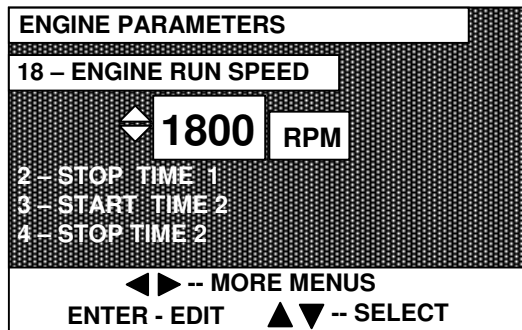
1. Ensure controller is in Manual Mode before re-setting parameters.
2. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
3. Enter GP44 password, touch **ENTER**, touch **EXIT**.
4. “**OPERATION PARAMETERS**” menu will be displayed.
5. Touch **DOWN** arrow to scroll forwards to “**12 – CLEAR EVENT HISTORY**”
6. Touch **ENTER** to clear the Event History.
7. Display screen will show “**EVENT HISTORY HAS BEEN CLEARED**”
8. Touch **EXIT** to exit parameter menu.



Change Maximum Running Engine RPM

Do the following to reset the maximum engine speed:

1. Ensure controller is in Manual Mode before re-setting parameters.
2. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
3. Enter GP44 password, touch **ENTER**, touch **EXIT**.
4. Touch **RIGHT** arrow to scroll to **ENGINE PARAMETERS** menu.
5. Touch **DOWN** arrow to scroll to "**18 - ENGINE RUN SPEED**".
6. Touch **ENTER** to edit **18 - ENGINE RUN SPEED**. Field beneath will start blinking.
7. Touch **UP** or **DOWN** arrow to adjust maximum running speed of engine
8. Touch **ENTER** to set parameter. Blinking will stop.



Put Controller in Automatic Mode with Floats

The Prime Guard Controller can be programmed to use floats to empty or fill by adjusting parameters. No wiring changes are necessary.

To set controller for floats to empty:

1. Ensure the controller is in Manual Mode before editing parameters.
2. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
3. Enter GP44 password, touch **ENTER**, touch **EXIT**.
4. **"OPERATION PARAMETERS"** will be displayed.
5. Touch **UP** arrow to scroll backwards to **"18 – OPERATION MODE"**
6. Touch **ENTER** to edit **"18 - OPERATION MODE"**. Field beneath will start blinking.
7. Touch **DOWN** arrow to display **"MANUAL/AUTO NO WARNING"** (*fig. 1*)
8. Touch **ENTER** to set parameter. Blinking will stop.
9. Touch **RIGHT** arrow to scroll to **"PUMP CONTROL PARAMETERS"**
10. Touch **UP** or **DOWN** arrows to scroll to parameter **"1 – START/STOP TYPE"**.
11. Confirm that **"TWO FLOATS"** is displayed. (*fig. 2*) If not, touch **ENTER** and then **DOWN** arrow until **"TWO FLOATS"** is displayed, then touch **ENTER** to set parameter. Blinking will stop.
12. Touch **DOWN** arrow to display **"3 – PUMP DIRECTION"**. **"EMPTY"** should be displayed. (*fig. 3*) If not, touch **ENTER** and then **DOWN** arrow until **"EMPTY"** is displayed, then touch **ENTER** to set parameter. Blinking will stop.
13. Touch **EXIT** to exit parameter menu.
14. Turn keyswitch to OFF position to set parameters in controller memory.

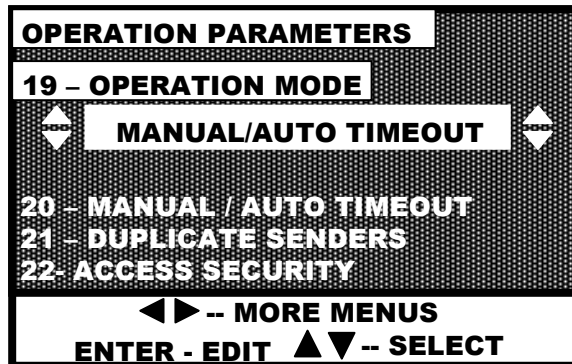


fig. 1

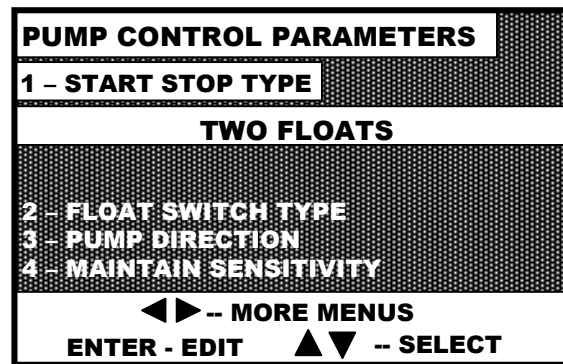


fig. 2

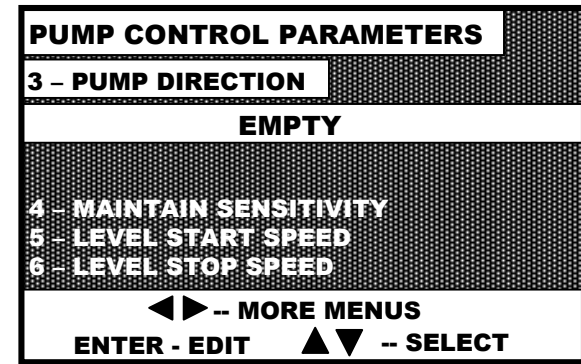


fig. 3

Put Controller in Automatic Mode with Pressure Transducer

The PrimeGuard Controller can be programmed to use a pressure transducer to start and stop the engine typically based on discharge header pressure.

To set controller for pressure transducer:

1. Ensure the controller is in Manual Mode before editing parameters.
2. Check rating of pressure transducer (stamped on side).
3. Plug in pressure transducer to seven pin connector at base of Prime Guard® controller.
4. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
5. Enter GP44 password, touch **ENTER**, touch **EXIT**.
6. **"OPERATION PARAMETERS"** menu will be displayed.
7. Touch **UP** arrow to scroll backwards to **"18 – OPERATION MODE"**
8. Touch **ENTER** to edit **18 - OPERATION MODE**. Field beneath will start blinking.
9. Touch **DOWN** arrow to display **"MANUAL/AUTO NO WARNING"**
10. Touch **ENTER** to set parameter. Blinking will stop.
11. Touch **RIGHT** arrow to scroll to **"PUMP CONTROL PARAMETERS"**
12. Touch **UP** or **DOWN** arrows to scroll to **"1 – START/STOP TYPE"**.
13. Touch **ENTER** to edit parameter. Field beneath will start blinking.
14. Touch **DOWN** arrow to scroll to **"PRESSURE"** display.
15. Touch **ENTER** to set parameter. Blinking will stop.
16. Touch **DOWN** arrow to scroll to **"17 – PRESSURE START"** (fig. 1)
17. Touch **ENTER**. Numeric field of psi will start blinking.
18. Touch **UP** or **DOWN** arrows to set psi for starting pumpset.
19. Touch **ENTER** to set parameter. Blinking will stop.
20. Touch **DOWN** arrow to scroll to **"18 – PRESSURE STOP"** (fig. 2)
21. Touch **ENTER**. Numeric field of psi will start blinking.
22. Touch **UP** or **DOWN** arrows to set psi for stopping pumpset.
23. Touch **ENTER** to set parameter. Blinking will stop.

Continued on next page....

Put Controller in Automatic Mode with Pressure Transducer

(continued from previous page)

To set controller for pressure transducer:

24. Touch **DOWN** arrow to scroll forwards to “**19 – MAINTAIN PRESSURE**” (fig. 3)
25. Check that psi displayed to be maintained is greater than pressure stop setting.
26. Touch **RIGHT** arrow to scroll to “**ANALOG INPUT PARAMETERS**” display.
27. Touch **DOWN** arrow to scroll to “**5 – ANALOG INPUT 5**”.
28. Touch **ENTER** to edit the parameter. Field beneath will start blinking.
29. Touch **DOWN** arrow to display “**4-20 MA FLUID PRESSURE**”.
30. Touch **RIGHT** arrow to edit pressure rating of transducer. Pressure rating will blink.
31. Touch **UP** or **DOWN** arrows to adjust pressure rating of transducer. Touch **ENTER** to set parameter. Blinking will stop.
32. Touch **EXIT** to exit parameter menu and return to 4 quadrant screen.
33. Turn key to OFF position to set parameters in controller memory.

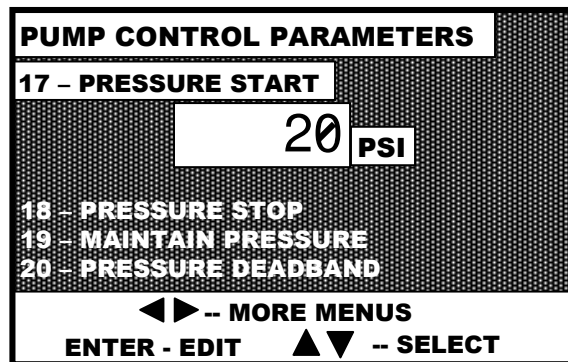


fig. 1

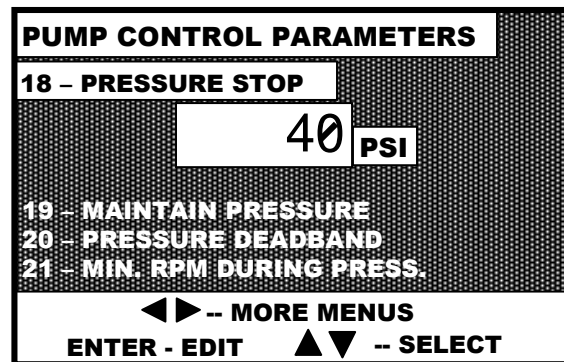


fig. 2

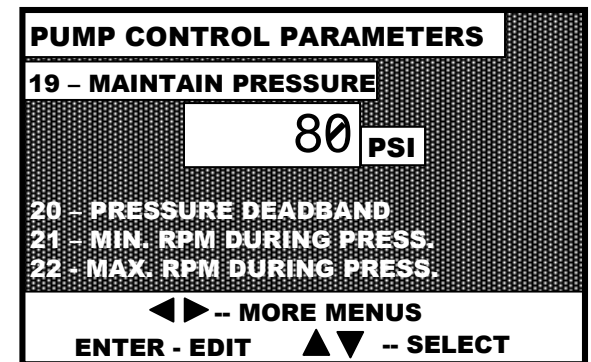


fig. 3

Put Controller in Automatic Mode with Level Transducer

The PrimeGuard Controller can be programmed to use a level transducer to start and stop the engine based on sump or tank levels.

To set controller for level transducer:

1. Ensure the controller is in Manual Mode before editing parameters.
2. Check rating of level transducer (stamped on side).
3. Plug in level transducer to seven pin connector at base of controller.
4. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
5. Enter GP44 password, touch **ENTER**, touch **EXIT**.
6. **"OPERATION PARAMETERS"** will be displayed.
7. Touch **UP** arrow to scroll backwards to **"18 – OPERATION MODE"**
8. Touch **ENTER** to edit **"18 - OPERATION MODE"**. Field beneath will start blinking.
9. Touch **DOWN** arrow to display **"MANUAL/AUTO TIMEOUT"**
10. Touch **ENTER** to set parameter. Blinking will stop.
11. Touch **RIGHT** arrow to scroll to **"PUMP CONTROL PARAMETERS"**
12. Touch **DOWN** arrow to display **"1 – START/STOP TYPE"**
13. Touch **ENTER** to edit parameter. Field beneath will start blinking.
14. Touch **DOWN** arrow to scroll to **"LEVEL"** display.
15. Touch **ENTER** to select **"LEVEL"** setting. Blinking will stop.
16. Touch **DOWN** arrow to scroll to **"7 – START LEVEL"**
17. Touch **ENTER**. Numeric field of FT. will start blinking.
18. Touch **UP** or **DOWN** arrows to set high level of sump for starting pumpset.
19. Touch **ENTER** to set parameter. Blinking will stop.
20. Touch **DOWN** arrow to scroll forwards to **"8 – STOP LEVEL"**
21. Touch **ENTER**. Numeric field of FT. will start blinking.
22. Touch **UP** or **DOWN** arrows to set low level of sump for stopping pumpset.
23. Touch **ENTER** to set parameter. Blinking will stop.

Continued on next page....

Put Controller in Automatic Mode with Level Transducer

(continued from previous page)

Programming level transducer settings:

24. Touch **DOWN** arrow to scroll forwards to “**9 – MAINTAIN LEVEL**”
25. Check that FT. displayed to be maintained is less than stop level setting.
NOTE: If maintain ft. level is higher than stop level, touch ENTER and use DOWN arrow to adjust maintain level to below stop level. Touch ENTER to set parameter.
26. Touch **RIGHT** arrow to scroll to “**ANALOG INPUT PARAMETERS**” display.
27. Touch **DOWN** arrow to scroll to “**5 – ANALOG INPUT 5**”.
28. Touch **ENTER** to edit the parameter. Field beneath will start blinking.
29. Touch **DOWN** arrow to display “**4-20 MA SUMP LEVEL**”.
30. Touch **RIGHT** arrow to edit feet rating of transducer. Max. feet rating will blink.
31. Touch **UP** or **DOWN** arrows to set transducer at 35 feet (standard).
32. Touch **ENTER** to set parameter. Blinking will stop.
33. Touch **EXIT** to exit parameter menu and return to 4 quadrant screen.
34. Turn key to OFF position to set parameters in controller memory.

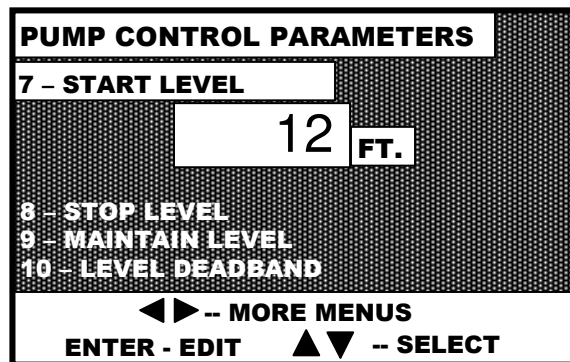


fig. 1

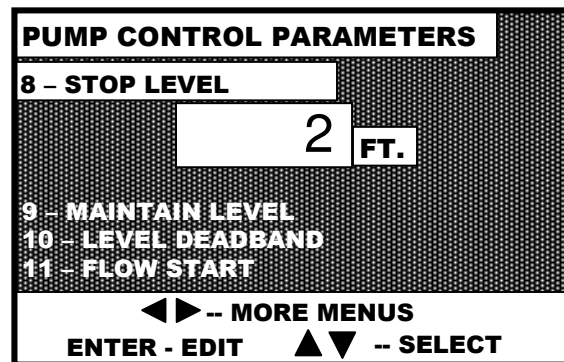


fig. 2

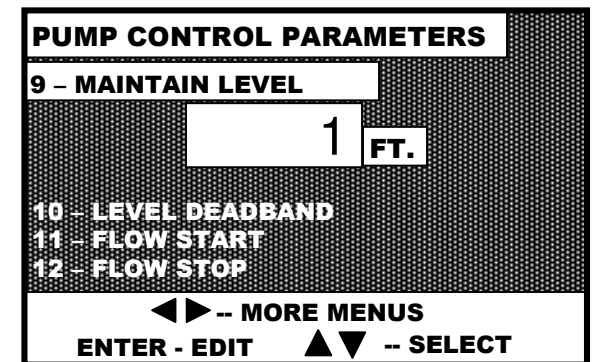


fig. 3

Set Automatic Exercise Times

The PrimeGuard Controller can be configured to start and run the diesel engine up to three times a day, daily; or at any three specific times during the week.

To set controller for exercising:

1. Ensure the controller is in Manual Mode before editing parameters.
2. Touch **LEFT** and **RIGHT** arrows to access password entry screen.
3. Enter GP44 password, touch **ENTER**, touch **EXIT**.
4. Touch **LEFT** arrow to scroll to **CLOCK START/STOP TIMERS**.
5. Touch **ENTER** button to select “**1 – START TIME 1**”. Field beneath will start blinking.
6. “**OFF**” will appear below “**1 – START TIME 1**” (*fig. 1*)
7. Touch **RIGHT** arrow to scroll through days of the week (daily is an option).
8. Touch **UP** or **DOWN** arrows to set time of day. (*fig. 2*)
9. Touch **ENTER** to set parameter. Blinking will stop.
10. Touch **DOWN** arrow to display “**2 – STOP TIME 1**” (*fig. 3*)
11. Repeat steps 6 – 9 to set stop time.
12. Scroll to “**OPERATION PARAMETERS**”, and “**18 – OPERATING MODE**”
13. Touch **ENTER**. Field beneath will start blinking.
14. Select “**MANUAL/AUTO NO WARNING**”, touch **ENTER** to set parameter. Blinking will stop.
15. Touch **EXIT** to exit parameter menu.
16. Turn key to “OFF” position to set parameters in controller memory.

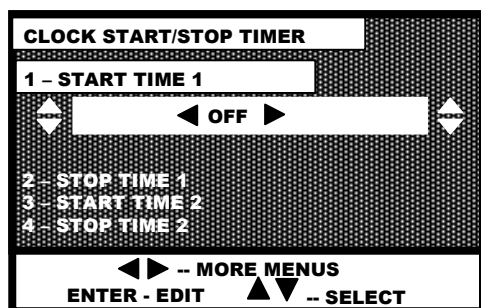


fig. 1

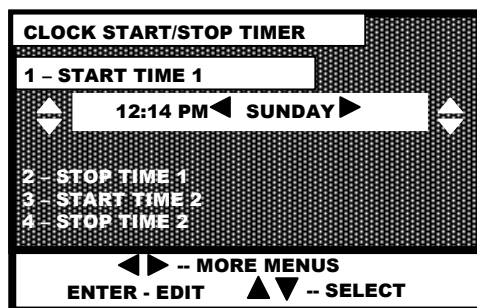


fig. 2

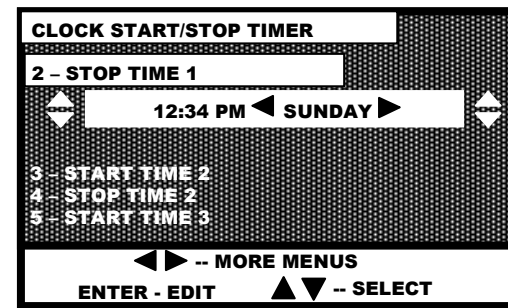


fig. 3