Form No. 3417-746 Rev D

Z Smart Hour Meter

For Z Master Lawn Mowers

Model No. 74904—Serial No. 402090000 and Up
Model No. 74906—Serial No. 402090000 and Up
Model No. 74915—Serial No. 402100000 and Up
Model No. 74918—Serial No. 402090000 and Up
Model No. 74926—Serial No. 402090000 and Up
Model No. 74928—Serial No. 402090000 and Up
Model No. 74930—Serial No. 402090000 and Up
Model No. 74933—Serial No. 401000000 and Up
Model No. 74934—Serial No. 401000000 and Up
Model No. 74943—Serial No. 402100000 and Up
Model No. 74945—Serial No. 401800000 and Up
Model No. 75951—Serial No. 402100000 and Up
Model No. 75955—Serial No. 402090000 and Up
Model No. 78926—Serial No. 402090000 and Up
Model No. 78928—Serial No. 402090000 and Up

Software Guide

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely. Read your *Operator's Manual* for more information.

The hour meter monitors engine temperature, oil pressure, and the overall electrical system. It also displays machine hours, safety-interlock status, fuel level, and maintenance reminders.

© 2019—The Toro® Company
8111 Lyndale Avenue South
Bloomington, MN 55420

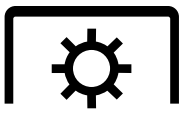
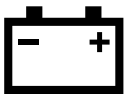
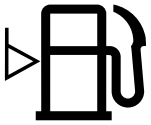
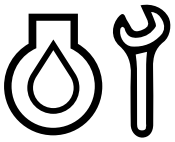
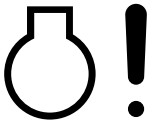
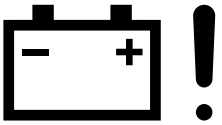
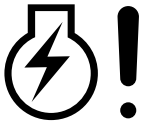
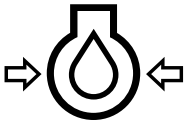
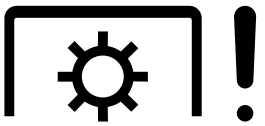
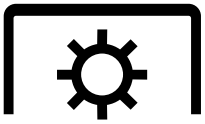
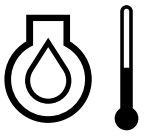
Register at www.Toro.com.

Original Instructions (EN)
Printed in the USA
All Rights Reserved

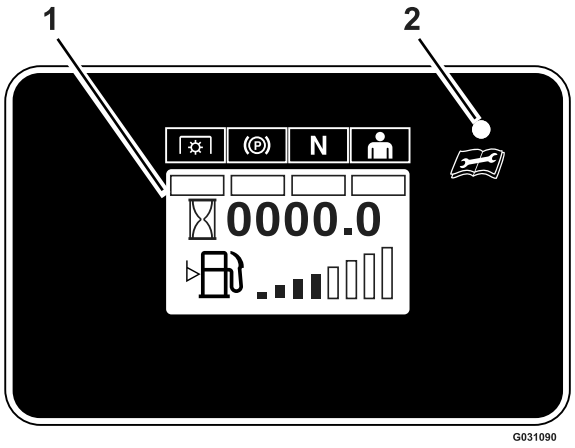
3417-746 D

Screen Icons

The screen uses the following icons:

 PTO	 Parking Brake	 Neutral Lock
 Operator Presence Control (OPC)	 Battery Voltage	 Fuel Level
 Hour Meter	 Transmission-Fluid Maintenance	 Engine-Oil Maintenance
 Check Engine Error	 Voltage Error	 Power to Run Error
 Low Engine-Oil Pressure Error	 Clutch Error	 Clutch Reset Required
 Check Fault Error	 Engine Over Temperature Error	

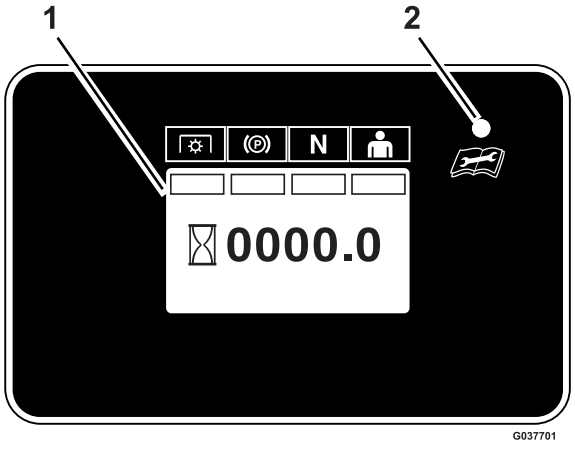
Product Overview



g031090

Figure 1
Models with Fuel Sender

1. Screen
2. LED status light



g037701

Figure 2
Models without Fuel Sender

1. Screen
2. LED status light

Controls

Information Screen

The information screen displays icons and information relative to machine operation.

LED Status Light

The LED is multi-colored to indicate the system status and is located on the right side of the panel.

- **Solid Green**—indicates normal operating activity.
- **Blinking Red**—indicates a fault is active.
- **Blinking Green and Orange**—indicates a clutch reset is required.
- **Solid Red**—indicates maintenance is required.

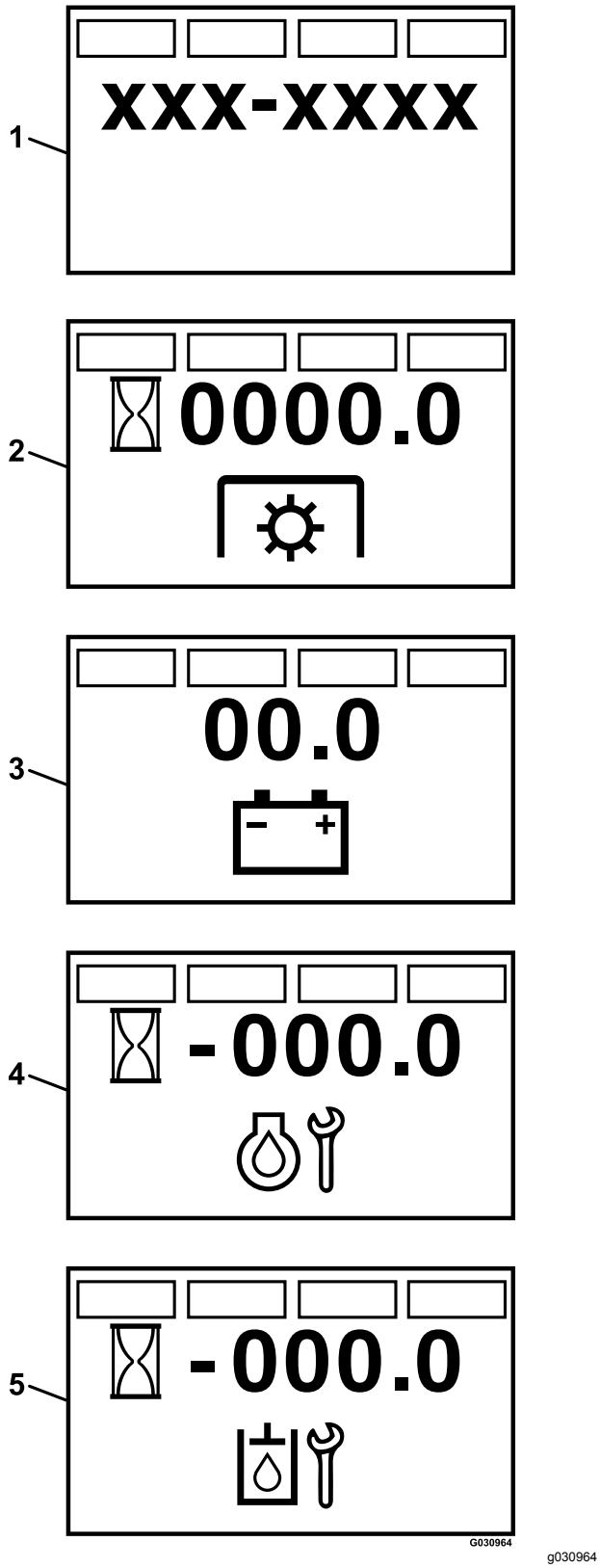
Information Screens

The main information screens are as follows:

- **Startup Screens (page 3)**
- **PTO Hour Meter Screen (page 5)**
- **Battery Voltage Screen (page 5)**
- **Fuel Meter Screen (page 5)**
- **Hour Meter Screen (page 5)**
- **Default Screen (page 6)**
- **Maintenance Reminders and Alerts (page 7)**
- **Manually Resetting Maintenance Reminders (page 8)**
- **Alerts and Error Messages (page 8)**

Startup Screens

When the key is in the RUN position, the screens (Figure 3) display for approximately 2 seconds. The LED status light changes from red to orange to green.



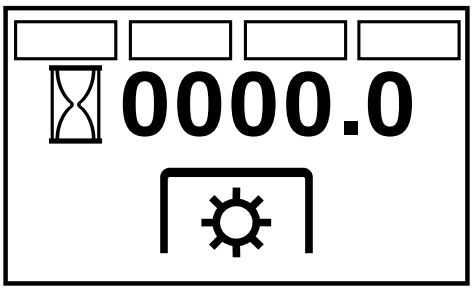
g030964

Figure 3
Startup Screen

1. Firmware version
2. PTO hours
3. Battery voltage
4. Hours until engine-oil maintenance is required
5. Hours until transmission-oil maintenance is required

PTO Hour Meter Screen

This displays the number of hours that the PTO has been engaged (Figure 4).

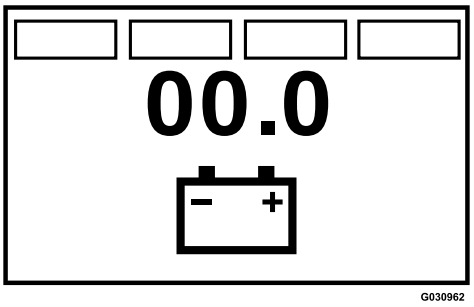


g222036

Figure 4

Battery Voltage Screen

This screen displays the current battery voltage (Figure 5).



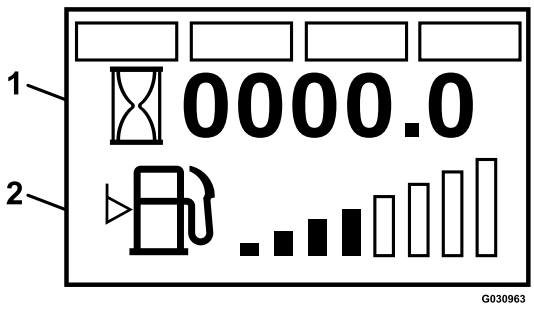
g030962

Figure 5

Fuel Meter Screen

If the machine is equipped with a fuel sender, the fuel level displays in the same panel as the hour meter and is shown as an 8-segment bar (Figure 6).

Eight solid bars indicates a full fuel tank.



g030963

Figure 6

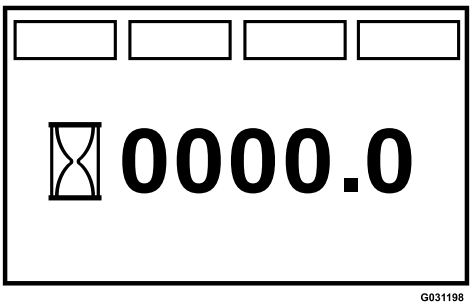
Fuel meter and hour meter

1. Hour meter
2. Fuel level

Hour Meter Screen

The hour meter records hours when the hour meter symbol flashes.

Hours display when the machine is off or when the machine is running. The display turns off after 5 minutes.



g031198

Figure 7

Hour meter without a fuel sender

Default Screen

After the startup screens display, the default screen displays (Figure 8).

The safety-interlock indicators illuminate when each control meets the SAFE TO START mode (PTO disengaged, parking brake engaged, motion-control levers in the NEUTRAL-LOCK position, and operator present).

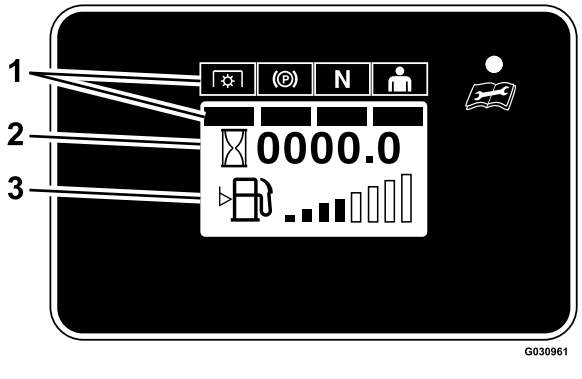


Figure 8

1. Safety-interlock indicators
2. Hour meter
3. Fuel level (if equipped)

- You must have the PTO disengaged, the parking brake engaged, and the motion-control levers in the NEUTRAL-LOCK position to start the engine.

  Note: You do not need to be in the seat to start the engine.

  Note: The module allows the engine to start with the PTO switch engaged; however, the system will disengage the PTO and a PTO reset error will occur. Engaging the PTO requires you to reset the PTO switch by disengaging it, then engaging it.

- You must be in the seat when the PTO is engaged, the parking brake is disengaged, or the motion-control levers are moved in; otherwise, the engine shuts off.
- The engine shuts off if either the left, right, or both levers move from the NEUTRAL-LOCK position while the parking brake is engaged.
- If the mower is equipped with a fuel sender, the default screen shown in Figure 8 will display.
- If the mower is not equipped with a fuel sender, only the safety-interlock indicators and the hour meter will display as shown in Figure 9.

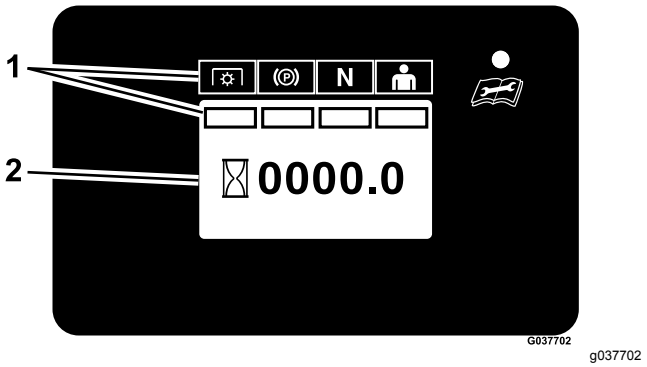


Figure 9

1. Safety-interlock indicators
2. Hour meter

Maintenance Reminders and Alerts

The hour meter displays the number of engine hours until either the engine oil or transmission-fluid maintenance is due. The reminder flashes and the LED displays a solid, red light.

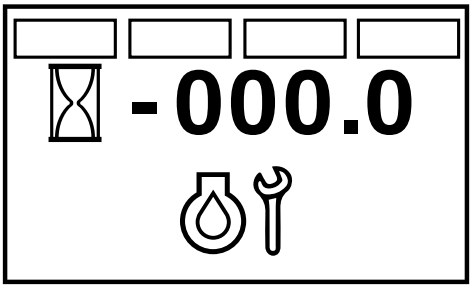
An alert occurs when the hour counter has reached zero. If you do not perform the maintenance, the time records as negative hours to indicate the number of hours past due for maintenance (up to -100.0 hours); refer to Figure 10 and Figure 11. The hour meter switches between the default screen and the active alert screen. If more than 1 alert is active, the display cycles between the alerts in the order that they occurred before cycling back to the default screen.

The alerts display only after the default screen has been active for 2 seconds; however, if the key moves to the START position, the alerts occur immediately.

There are 2 maintenance reminders:

- **Service Engine**

  The engine oil service reminder counts down from the initial break-in service interval of 5 engine hours and then counts down from 100 hours for each service interval thereafter.

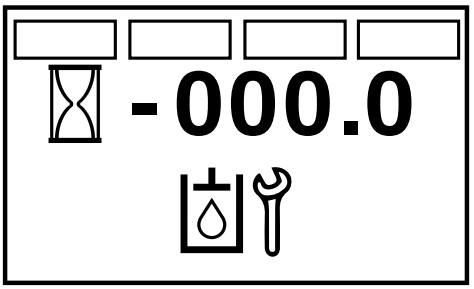


g030960

Figure 10

- **Service Transmission**

  The transmission fluid maintenance reminder counts down from the initial break-in service interval of 250 engine hours and then counts down from 500 hours for each service interval thereafter.



g030965

Figure 11

Manually Resetting Maintenance Reminders

To access the **Service Engine** screen you must disengage the blade-control switch (PTO), move the motion-control levers to the NEUTRAL-LOCK position, and engage the parking brake.

- Sit in the operator's seat. Then, you can enter the engine service reminder reset mode by cycling the key switch between the RUN position and OFF position 4 times within 8 seconds, with all the safety interlocks in the SAFE position.

  When the **Service Engine** screen displays and flashes, you can reset the engine oil maintenance reminder by cycling either 1 or both motion-control levers from the NEUTRAL-LOCK position to the NEUTRAL position, and back to the NEUTRAL-LOCK position. Once the reminder resets, the screen exits the **Service Engine** screen and returns to the default screen.

  You can exit the **Service Engine** screen at any time by turning the key to either the OFF or START position.

- Sit in the operator's seat. Then, you can enter the transmission fluid maintenance reminder reset mode by cycling the key switch from the RUN position to the OFF position and back to the RUN position 6 times within 8 seconds, with all the safety interlocks in the SAFE position.

  When the **Service Transmission** screen displays and flashes, you can reset the transmission fluid maintenance reminder by cycling either 1 or both motion-control levers from the NEUTRAL-LOCK position to the NEUTRAL position, and back to the NEUTRAL-LOCK position.

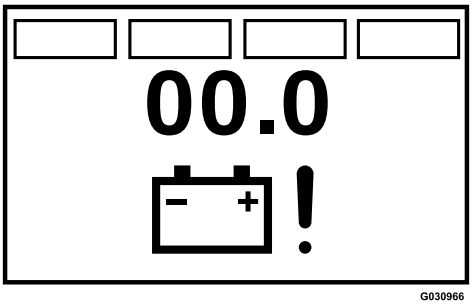
  You can exit the **Service Transmission** screen at any time by turning the key to either the OFF or START position.

Alerts and Error Messages

The system is capable of displaying the following errors:

- **Voltage Error**

  When the key-run voltage is less than 12.3 V or greater than 16 V, a voltage error flashes. The LED flashes a red light.

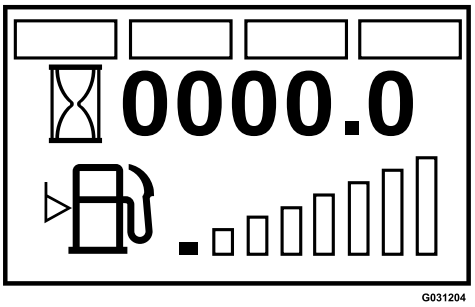


g030966

Figure 12

- **Low Fuel Level Error**

  If the fuel sender is installed, an error appears when the fuel level is 1/8 or less. The LED flashes a red light and the fuel-level symbol on the default screen flashes.

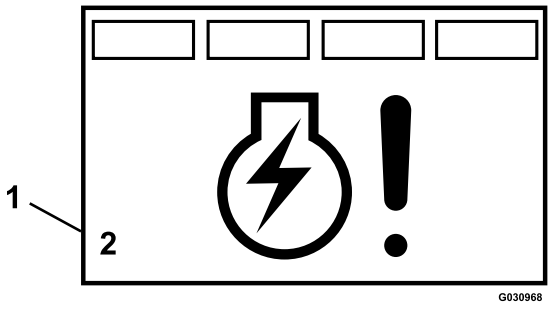


g031204

Figure 13

- **Power to Run Output Over-Current Error**

  If an over-current occurs, the number "2" displays in the lower, left corner of the screen. The LED flashes a red light.



g030968

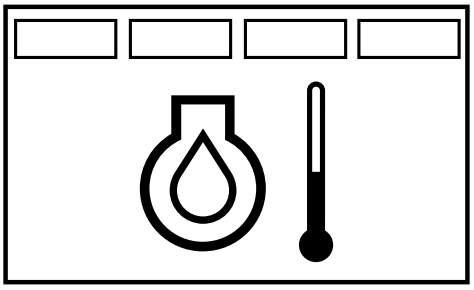
Figure 14

1. Number "2" displays

- **Engine Over Temperature Error**

  This occurs if an engine over temperature is detected. Check the engine oil and clean debris from the engine. The LED flashes a red light and the clutch disengages.

  After you resolve the issue that caused the error, the module displays the **Clutch Reset Required** alert to indicate that you must disengage the PTO switch and then engage it.



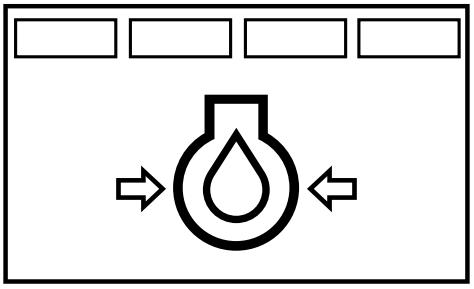
g030969

Figure 15

- **Low-Oil Pressure Error**

  This occurs when low-oil pressure is detected. Check the engine oil and contact an Authorized Service Dealer. The LED flashes a red light and the clutch disengages.

  After you resolve the issue that caused the error, the module displays the **Clutch Reset Required** alert to indicate that you must disengage the PTO switch and then engage it.

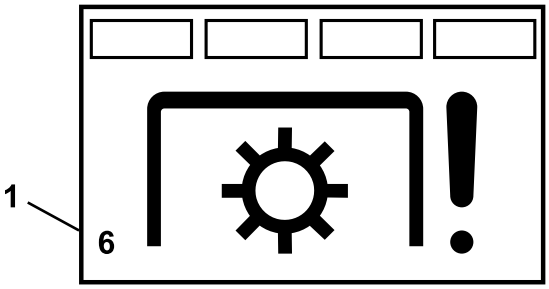


g030970

Figure 16

- **Clutch Open Error**

  If the clutch output disconnects, the number “6” displays in the lower, left corner of the screen. The LED flashes a red light.



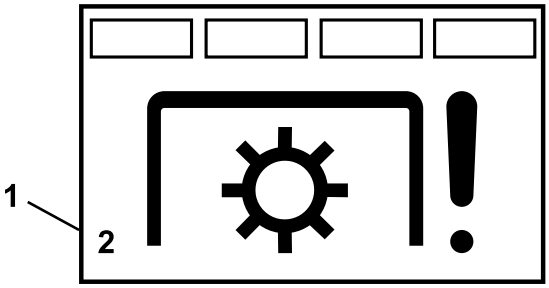
g030971

Figure 17

1. Number “6” displays

- **Clutch Over-Current Error**

  If the current draw on the clutch output is excessive or the output circuit overheats, the number “2” displays in the lower, left corner of the screen. Check the PTO clutch and inspect for damage and wear. The LED flashes a red light.



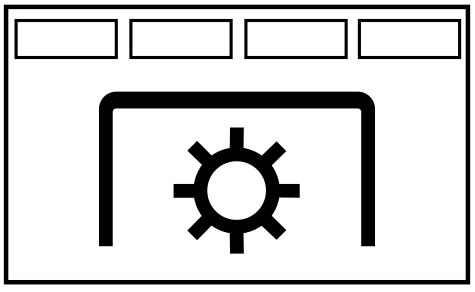
g030972

Figure 18

1. Number “2” displays

- **Clutch Reset Required**

  If the PTO switch is engaged and the module disengages, the clutch-output error displays. The LED light illuminates green, then orange. You must then disengage the PTO switch and then engage it.



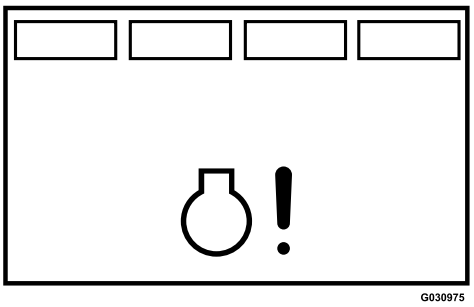
g030973

Figure 19

- **Check-Engine Error**

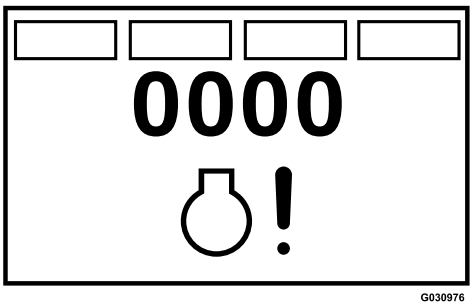
  If an engine fault occurs, the system displays the **Check Engine** alert and flashes a red light. To retrieve the specific fault(s), follow the key cycle procedure provided in the engine owner's manual.

  If more than 1 error occurs, the display alternates between codes. In order to display the diagnostic codes, you must cycle the key switch 2 times between the ON and OFF positions, then to the ON position, but do not start the engine.



g030975

Figure 20

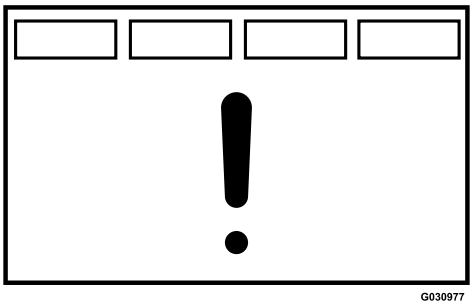


g030976

Figure 21

- **Check Fault Error**

  The system displays the **Check Fault** alert and the LED flashes red when an error is detected by an optional switch.



g030977

Figure 22

Notes:



Count on it.