Form No. 3416-942 Rev A

# 4045 Directional Drill with Cab

## Software Versions A–L

**Model No. 23823/A/C/TE/W—Serial No. 315000001 and Up**

**Model No. 23825/A/C/TE/W—Serial No. 315000001 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.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready.

You may contact Toro directly at www.Toro.com for product safety and operation training materials, accessory information, help finding a dealer, or to register your product.

# Main Operating Screen

To access this screen, push button 4 or the down arrow on the Machine Information Screen (page 6).

The main operating screen displays the engine-speed (rpm) gauge, the fuel-quantity gauge, the engine-temperature gauge, the pipe-row selector, thrust control, and horsepower control (Figure 1).

The low-fuel indicator lights up on the main-operating screen when the machine is running low on fuel (Figure 1).

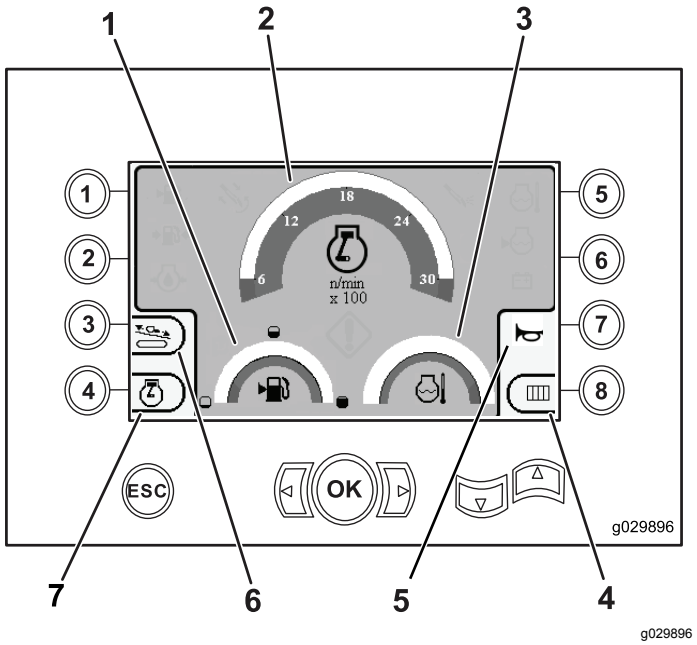
Push button 3 to select the thrust control (Figure 1).

Push button 4 to select the horsepower control (Figure 1).

Push button 7 to sound the horn (Figure 1).

Push button 8 for the pipe-row selector (Figure 1).

**Note:** The horn option (button 7) is only for software versions K and up.




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**Figure 1**

Main Operating Screen

1. Fuel gauge
2. Engine-speed (rpm) gauge
3. Coolant-temperature gauge
4. Pipe-row selector
5. Horn control
6. Thrust control
7. Horsepower control

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# Main Drill Functions Displayed in Pressure Screen

To access this screen, push the down-arrow button on the Main Operating Screen (page 1).

This screen provides measurements on rotary pressure in psi, drilling-fluid pressure in psi, carriage pressure in psi, and drilling-fluid flow rate in gpm (Figure 2).

There are also 4 indicators (listed from top to bottom in the middle of the screen), which indicate the following:

- Drilling and/or engine-fault code warning (Figure 2)
- Low-fuel warning (Figure 2)
- Drilling fluid is in the On position (Figure 2)
- Auto drill is in the On position (Figure 2)

**Note:** The horn option (button 7) is only for software versions K and up.

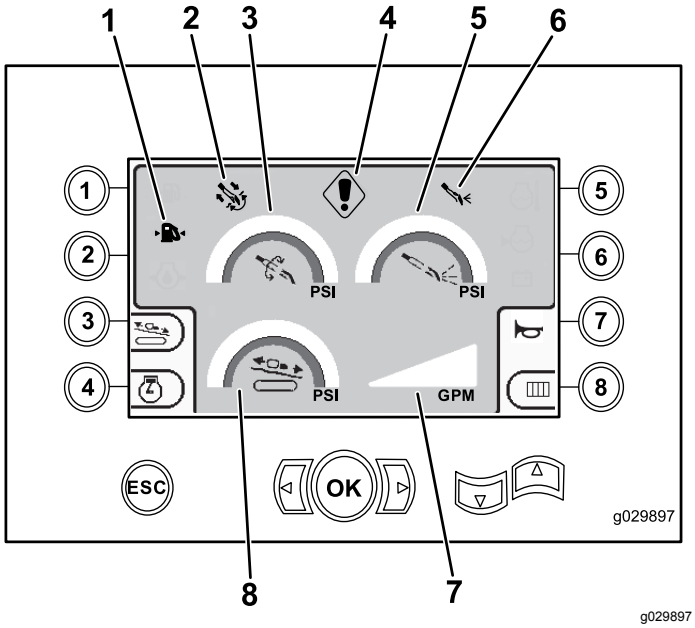



**Figure 2**

Main Drill Functions Displayed in Pressure Screen

1. Low-fuel indicator
2. Auto-drill indicator
3. Rotary pressure (psi)
4. Drilling-fault indicator
5. Drilling-fluid pressure (psi)
6. Drilling-fluid indicator
7. Drilling-fluid flow rate (gpm)
8. Carriage-pressure gauge (psi)

# Main Drill Functions Displayed in Torque Screen

To access this screen, push the down arrow on the Main Drill Functions Displayed in Pressure Screen (page 2).

This screen provides measurements on rotary torque in ft-lbs, drilling-fluid pressure in psi, carriage force in lbs, and drilling-fluid flow rate in gpm (Figure 3).

There are also 4 indicators (listed from top to bottom in the middle of the screen), which indicate the following:

- Drilling and/or engine-fault code warning (Figure 3)
- Low-fuel warning (Figure 3)
- Drilling fluid is in the On position (Figure 3)
- Auto drill is in the On position (Figure 3)

**Note:** The horn option (button 7) is only for software versions K and up.

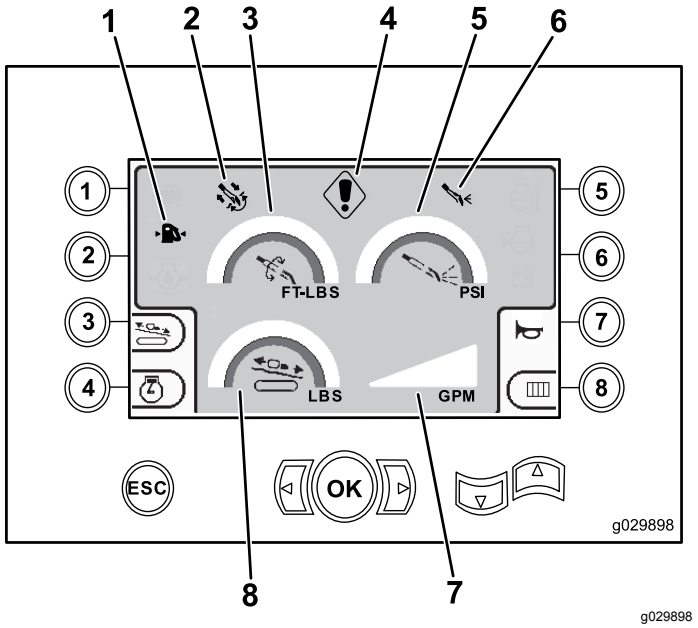



**Figure 3**

Main Drill Functions Displayed in Torque Screen

1. Low-fuel indicator
2. Auto-drill indicator
3. Rotary torque (ft-lbs)
4. Drilling-fault indicator
5. Drilling-fluid pressure (psi)
6. Drilling-fluid indicator
7. Drilling-fluid flow rate (gpm)
8. Carriage-thrust force (lbs)

**Note:** Push the left and right arrows along with the 8 button simultaneously to change the units to metric.

# Drill Rotation Speed Screen

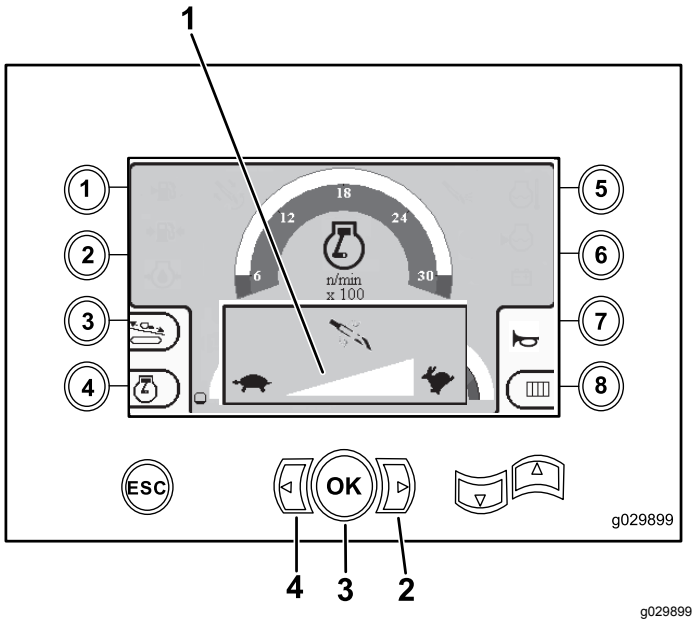
To access this screen, hold the OK button on the Main Operating Screen (page 1).

This screen allows the user to increase or decrease the rotation speed of the drill.

To change the rotation speed of the drill, perform the following:

1. Hold the OK button to access the drill-rotation-speed window.
2. Push the Left arrow to decrease the maximum speed, or push the Right arrow to increase the maximum speed (Figure 4).
3. Release the OK button to set the drill-rotation speed (Figure 4).

   **Note:** The horn option (button 7) is only for software versions K and up.




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**Figure 4**

Drill-rotation-speed Screen

1. Drill-rotation speed meter
2. Right arrow (increase speed)
3. OK button (sets the drill-rotation speed)
4. Left arrow (decrease speed)

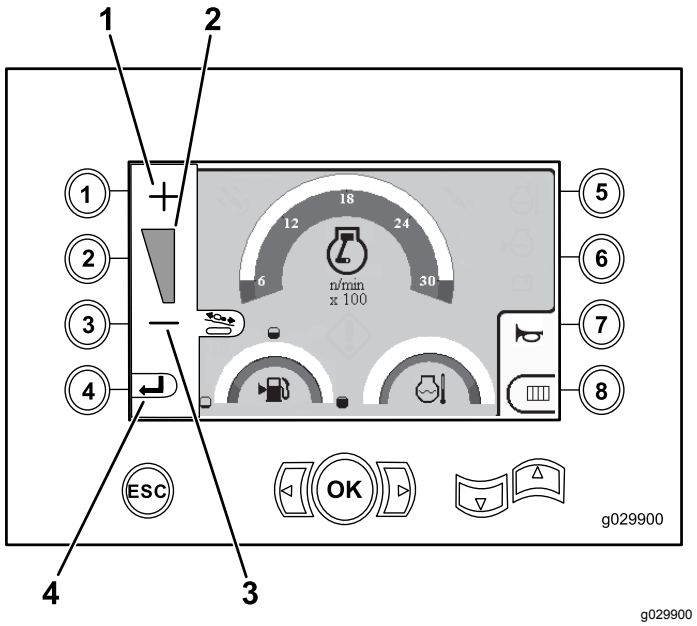
# Thrust Control Screen

This screen allows the user to increase or decrease the thrust output of the machine.

To access this screen, push button 3 on the Main Operating Screen (page 1) or on the Main Drill Functions Displayed in Pressure Screen (page 2).

To change the thrust output of the machine, perform the following:

1. Push button 1 to increase the thrust output, or button 3 to decrease the thrust output of the machine (Figure 5).




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**Figure 5**

Thrust-control Screen

1. Increase the thrust output
2. Thrust-output meter
3. Decrease the thrust output
4. Return to the previous screen

2. After setting the thrust output, push button 4 (Figure 5), and return to the Main Operating Screen (page 1) or Main Drill Functions Displayed in Pressure Screen (page 2).

   **Note:** The horn option (button 7) is only for software versions K and up.

# Horsepower Control Screen

To access this screen, push button 4 on the Main Operating Screen (page 1).

The horsepower control sets the maximum engine load to prevent stalling under heavy loads regardless of engine RPM.

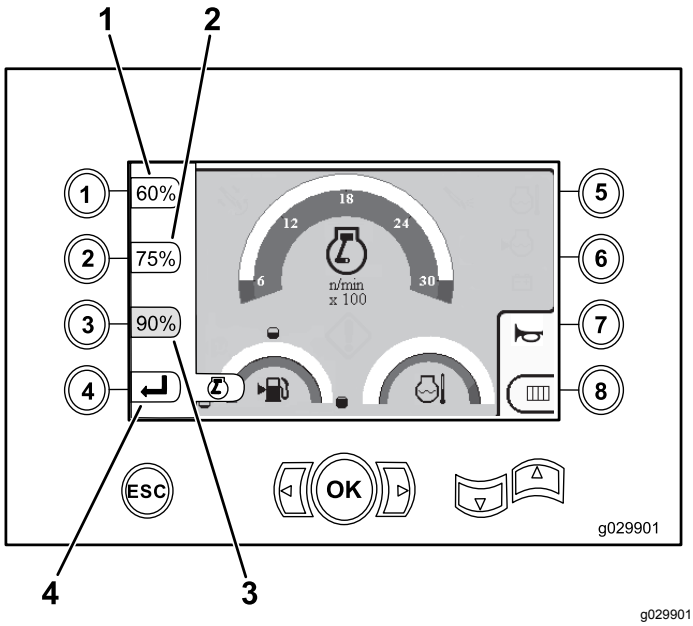
The horsepower control allows the user to change the speed setting that the engine can droop to before the horsepower control system can activate.

**Note:** For example, at the 60% engine-speed (rpm) setting, the engine can stall under heavy loads.

After pushing button 4 at access the horsepower control (Figure 1), select one of the following options:

- Button 1 to activate 60% engine speed (rpm) as shown in Figure 6.
- Button 2 to activate 75% engine speed (rpm) as shown in Figure 6.
- Button 3 to activate 90% engine speed (rpm) as shown in Figure 6.
- Button 4 to return to the main-operating screen (Figure 6).

  **Note:** The horn option (button 7) is only for software versions K and up.




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**Figure 6**

Horsepower-control Screen

1. 60% engine speed (rpm)
2. 75% engine speed (rpm)
3. 90% engine speed (rpm)
4. Return to the previous screen

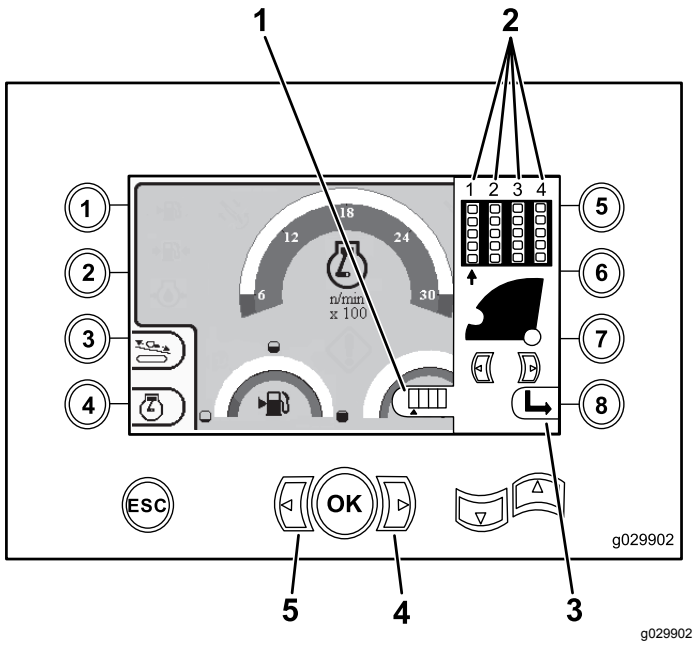
# Pipe Row Selector Screen

This screen allows you to select the row of pipe(s) that you want to use.

To access this screen, push button 8 on the Main Operating Screen (page 1).

To select your pipe row, perform the following:

1. Push the right or left arrow to select the row number to the row you want to access (Figure 7).




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**Figure 7**

Pipe-row-selector Screen

1. Row selector indicator
2. Row number
3. Hide the side window
4. Right arrow
5. Left arrow

2. After placing the arrow beneath the row number you want to access, push the 8 button (Figure 7) to hide the side window.

# Main Selection Screen

To access this screen, push the down arrow on the Main Drill Functions Displayed in Torque Screen (page 2).

This screen allows the user to choose from the following options:

- Button 1— Machine Information Screen (page 6) as shown in Figure 10
- Button 2—Lubrication and maintenance chart (Figure 11)
- Button 3—Read error codes (Figure 16)
- Button 4—Return to the previous screen.
- Button 5—Diagnose and adjust parameters (Figure 8)
- Button 6—Adjust the loader calibration (Figure 8)
- Button 7—Clear a service reminder (Figure 8)
- Button 8—Air-hammer control (Figure 8)
- OK button—Return to the Control Select Screen (page 5) as shown in Figure 8

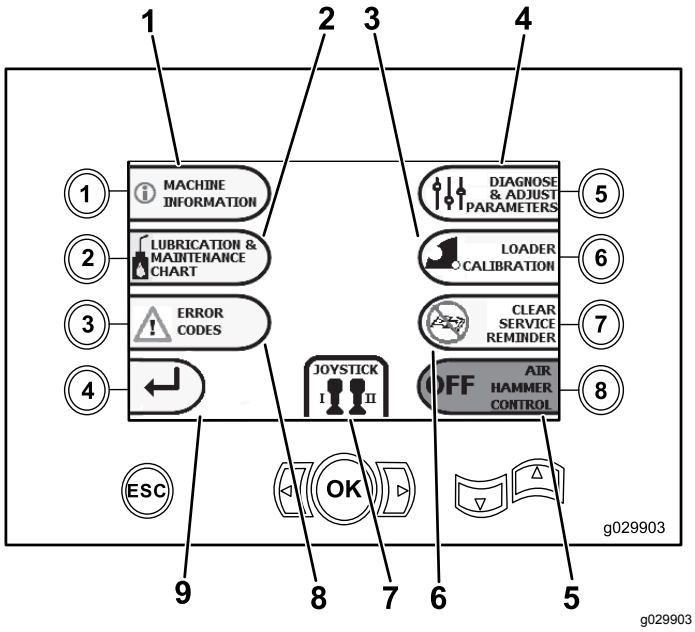



**Figure 8**

Main-selection Screen

1. Machine information
2. Lubrication and maintenance chart
3. Loader calibration
4. Diagnose and adjust parameters
5. Air-hammer control
6. Clear service reminder
7. Control/joystick selection
8. Error codes
9. Return to the Main Operating Screen

# Control Select Screen

To access this screen, push the OK button from the Main Selection Screen (page 5).

The 2 control layouts that you can choose from consist of the following:

- Mode I—Places the drilling functions on the right joystick, while the left joystick operates the pipe loader and the wrench functions (Figure 9).

  Push button 4 to select this mode (Figure 9).

- Mode II—Splits the drilling, wrench, and pipe loading between the left and right joysticks (Figure 9). The thrust controls will be on the RIGHT joystick and the rotation controls will be on the LEFT joystick.

  Push button 8 to select this mode (Figure 9).

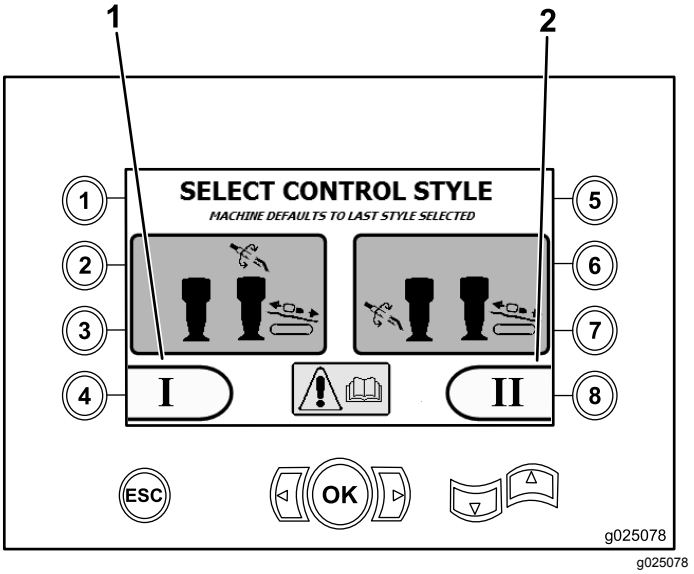



**Figure 9**

Control-select Screen

1. Mode I
2. Mode II

# Machine Information Screen

This screen contains the following information:

- The machine model and serial number (Figure 10).
- The number of engine hours for the machine (Figure 10).
- The number of drilling fluid-gallons used and the number of re-settable drilling-fluid (mud) gallons used (Figure 10).

**Note:** Push button 3 to reset the number of drilling-fluid (mud) gallons since the last reset (Figure 10).

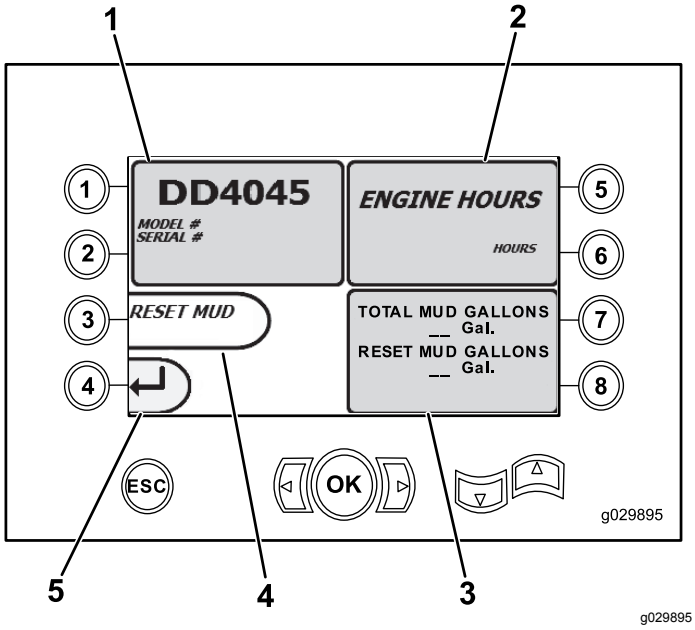



**Figure 10**
Machine-information Screen

1. Model and machine serial number
2. Number of engine hours
3. Total number of drilling-fluid (mud) gallons used and re-settable drilling-fluid (mud) gallons used
4. Reset drilling-fluid (mud) gallons
5. Previous screen

# Lubrication and Maintenance Screens

To access this screen, push button 2 on the Main Selection Screen (page 5).

These screens provide the user with the daily maintenance schedules and intervals shown below.

**Note:** Push the ESC button to exit this screen.

Push the OK button and enter PIN 13236573 to reset the maintenance schedules.

Push the following buttons to attain the subsequent maintenance schedules:

- Button 1—50-hours (Figure 12)
- Button 2—250-hours (Figure 13)
- Button 3—500-hours (Figure 14)
- Button 4—1,000-hours (Figure 15)

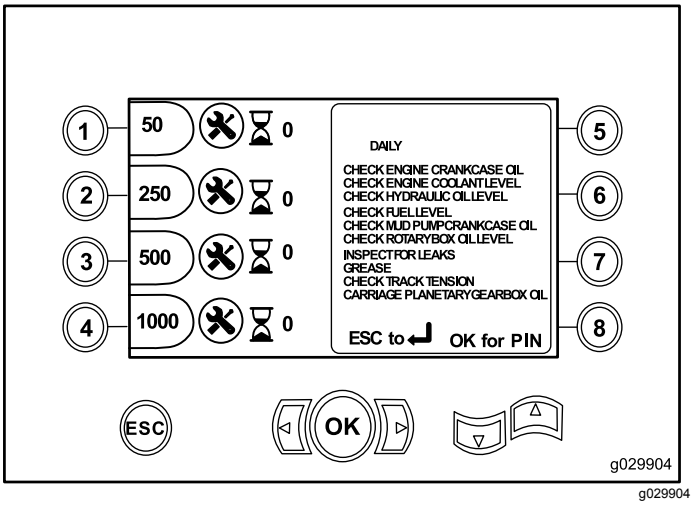



**Figure 11**
Main Maintenance Screen

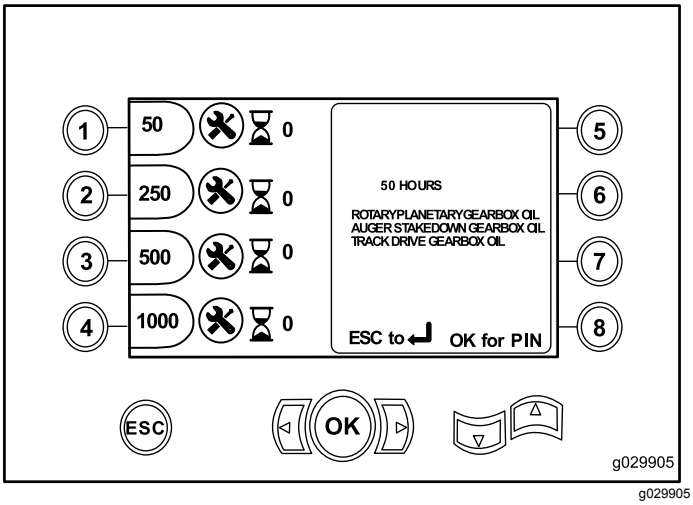
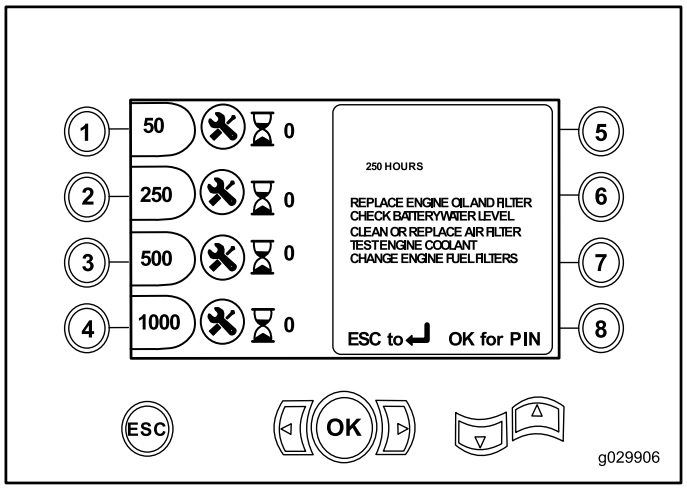


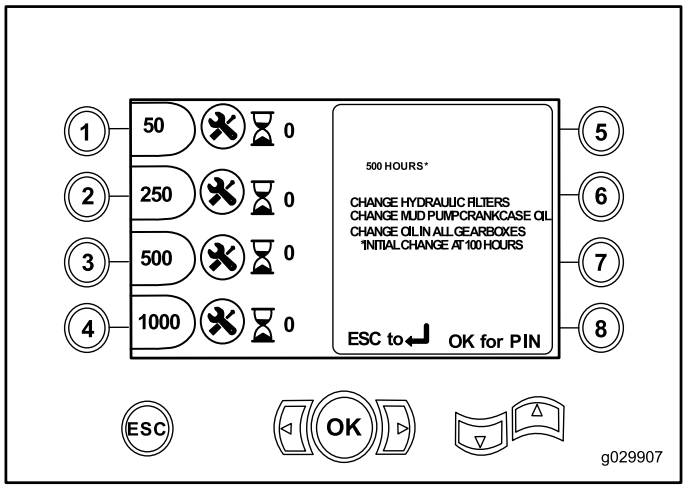

**Figure 12**
50-Hour Maintenance Screen




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**Figure 13**

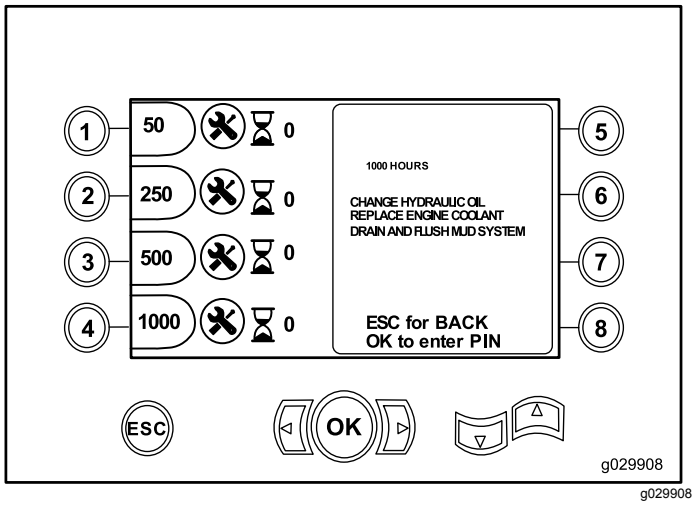
250-Hour Maintenance Screen




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**Figure 14**

500-Hour Maintenance Screen




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**Figure 15**

1,000-Hour Maintenance Screen

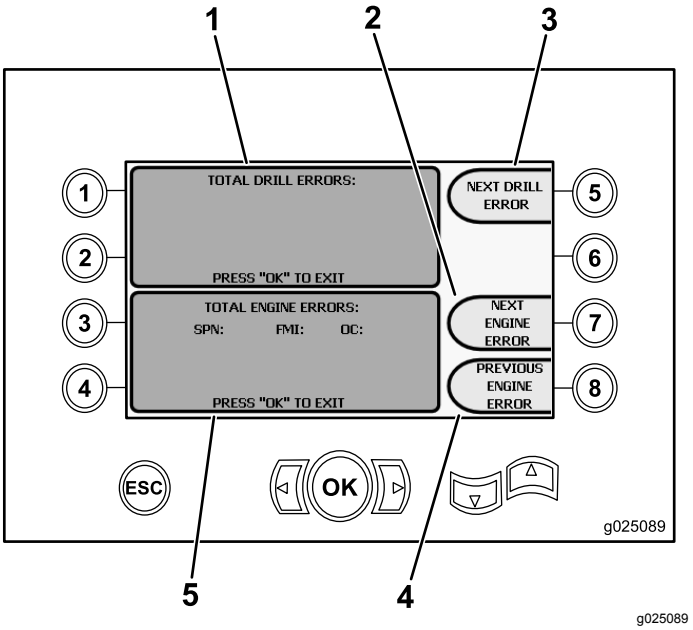
# Error Codes Screen

To access this screen, push button 3 on the Main Selection Screen (page 5).

This screen displays the number of drill errors and engine errors that have occurred.

If more than 1 drill or engine error is shown on the screen, push button 5 to see the next drilling error, button 7 to see the next engine error, or button 8 to see the previous engine error (Figure 16).

**Note:** If there are no drilling errors or engine errors, push the OK button to exit this screen (Figure 16).




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**Figure 16**

Error Codes Screen

1. Total number of drill errors
2. Next engine error
3. Next drill error
4. Previous engine error
5. Total number of engine errors

# Diagnose and Adjust Parameters Screen

To access this screen, push button 5 on the Main Operating Screen (page 1).

**Contact your Authorized Service Dealer to diagnose and adjust parameters.**

**Note:** To access the Diagnose and Adjust Parameters Screen, enter PIN 73236531.

# Loader Calibration Screen

To access this screen, push button 6 on the Main Selection Screen (page 5).

This screen allows you to calibrate the loader cam or to calibrate the loader arm.

This screen also allows you to adjust the cam-stop positions, ensuring that the cam is in line with the pipe row.

Push the following buttons to calibrate the loader cam or loader arm:

- Push button 1 to calibrate the loader cam (Figure 17)
- Push button 2 to calibrate the loader arm (Figure 17)

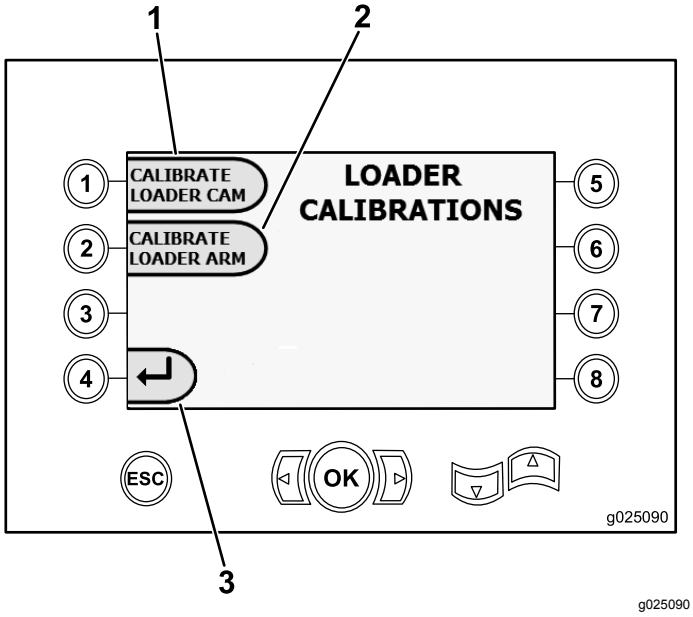



**Figure 17**

Loader-calibration Screen

1. Calibrate loader cam
2. Calibrate loader arm
3. Return to the Main-selection Screen

# Loader Cam Calibration Screen

To access this screen, push button 1 on the Loader Calibration Screen (page 8).

This screen allows the user to set the row positions for the pipe holder.

Push the following buttons to set the desired position:

- Button 1—Set position 1 (Figure 18)
- Button 2—Set position 2 (Figure 18)
- Button 3—Set position 3 (Figure 18)
- Button 4—Set position 4 (Figure 18)

To set the load or unload position, push button 5 (Figure 18).

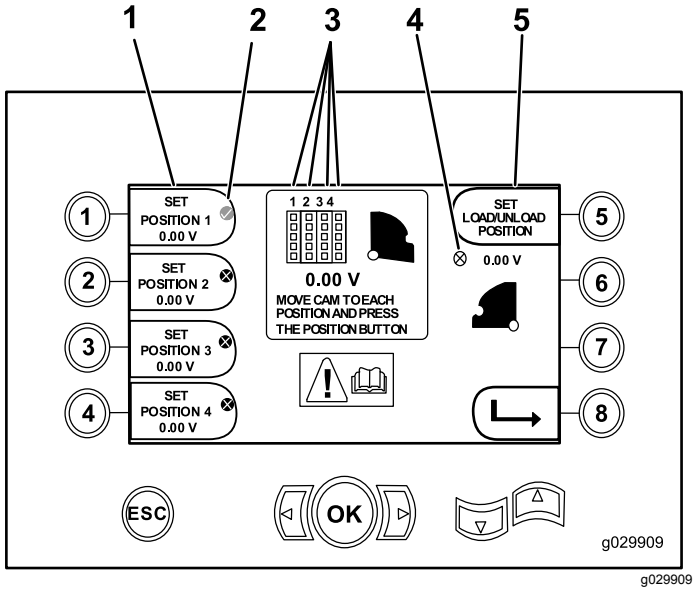



**Figure 18**

Loader-cam-calibration Screen

1. Set position 1
2. Row selected check mark
3. Row number
4. Loader cam not set (X in circle)
5. Set load/unload position

The screen will display Calibration Complete, if the calibration numbers are acceptable.

The screen will display Calibration Fail, if the calibration numbers are not acceptable.

# Loader Arm Calibration Screen

To access this screen, push button 2 on the Loader Calibration Screen (page 8).

This screen allows the user to set the loader arm to the In position (fully inward toward the machine), or to the Home position (fully out away from the machine).

The clamp/release point is set to where the grippers grab and release the pipe from the cam.

Push the following buttons set the loader arm to the In, Home, or Clamp/Release position:

- Button 1—Set arm In (Figure 19)
- Button 2—Set arm Home (Figure 19)
- **(Software versions K and up only)** Button 3—Clamp/Release (Figure 19)

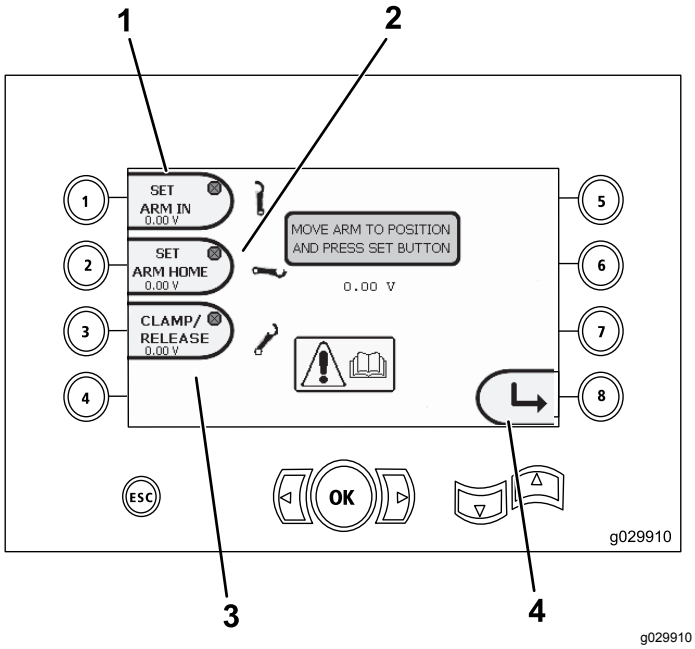



**Figure 19**

Loader-arm-calibration Screen

1. Set arm In
2. Set arm Home
3. Clamp / Release
4. Return to the previous screen

# Clear Service Reminder Screen

To access this screen, push button 7 on the Main Selection Screen (page 5).

To clear a service reminder, enter the 8-digit PIN (**13236573**) into this screen (Figure 20):

After entering the 8-digit PIN, the maintenance reminder has been cleared.

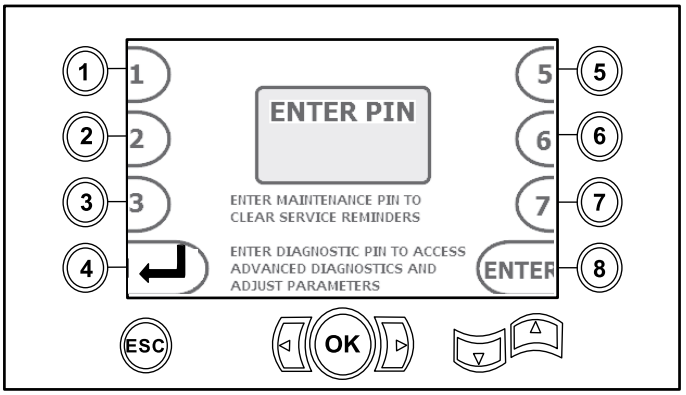



**Figure 20**

Enter-PIN Screen

# Air Cleaner Indicator Screen

This icon displays when the air-cleaner filter needs servicing. Refer to the machine *Operator's Manual* on servicing the air-cleaner filters.

**Note:** The horn option (button 7) is only for software versions K and up.

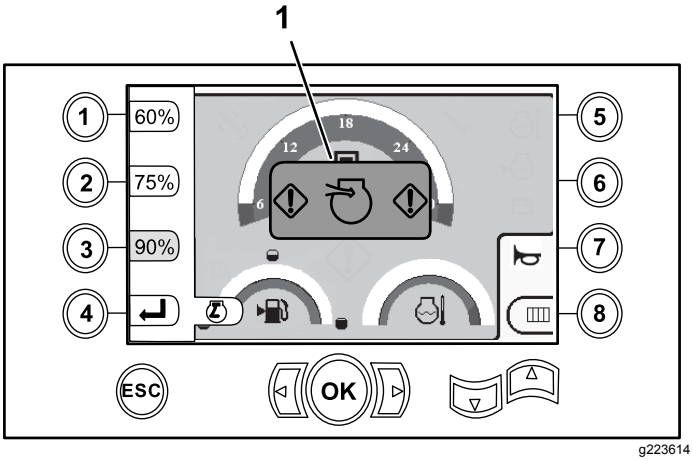



**Figure 21**

1. Restricted air-cleaner indicator

# Informational Screens

Push the 1 and 5 button simultaneously to access these screens.

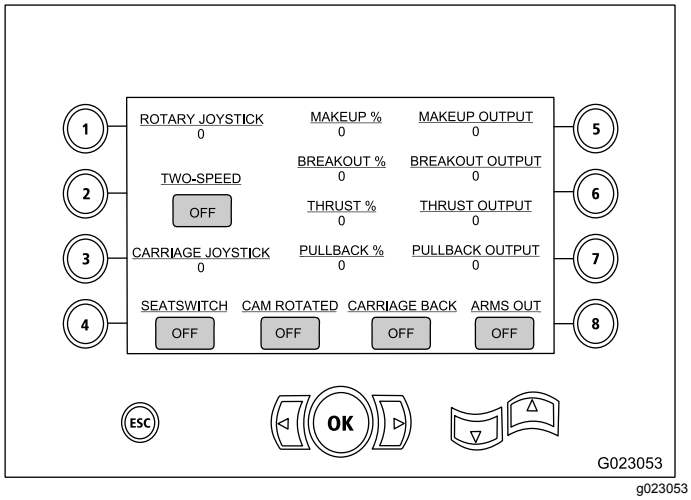
Push the up and down arrows to scroll through these screens.

Push the ESC button to return to the Main Operating Screen (page 1).

## Rotary and Carriage Diagnostic Screen

The rotary and carriage service screen (Figure 22) provides the following information:

- Rotary and carriage joystick output
- Makeup percentage and output
- Breakout percentage and output
- Thrust percentage and output
- Pullback percentage and output
- On and Off indicators for 2-speed, seat switch, cam rotation, carriage back, and arms out



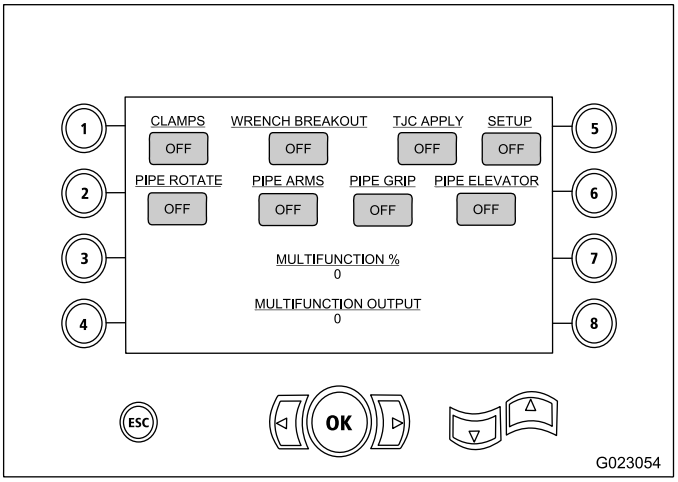

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**Figure 22**

## Auxiliary Activations Screen

The auxiliary-activations screen (Figure 23) provides the following information:

- On and Off indicators for clamps, wrench breakout (for upper wrench), TJC applicator, setup, pipe rotation, pipe arms, pipe grip, and pipe elevator
- Multifunction percentage and output



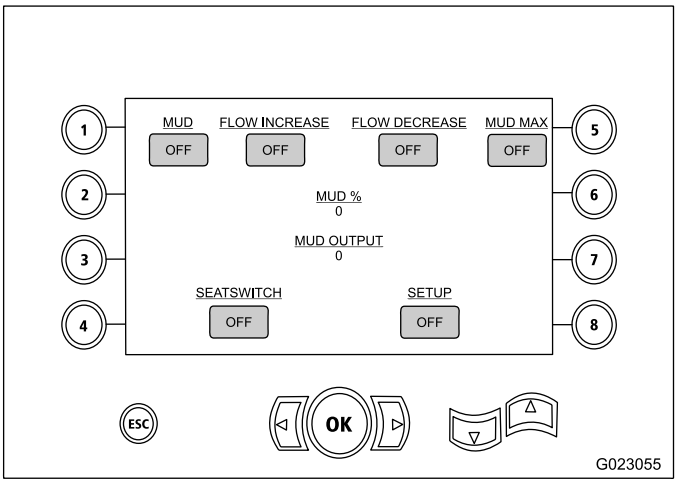

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**Figure 23**

## Drilling Fluid Information Screen

The drilling-fluid-information screen (Figure 24) provides the following information:

- On and Off indicators for drilling fluid, flow increase, flow decrease, and mud max
- On and Off indicators for seat switch and setup
- Drilling fluid percentage and output



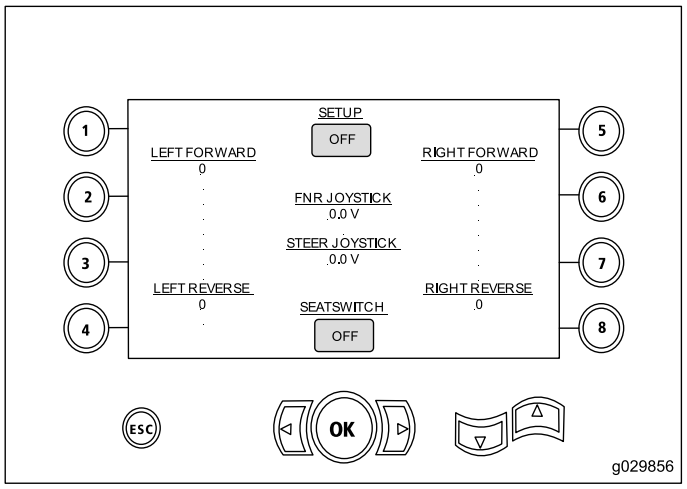

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**Figure 24**

## Track Drive Information Screen

The track drive information screen (Figure 27) provides the following information:

- Output for left forward, left reverse, right forward, and right reverse movements of the track drive
- Front-Neutral-Reverse (FNR) and steer joystick output
- On and Off indicators for setup and seat switch



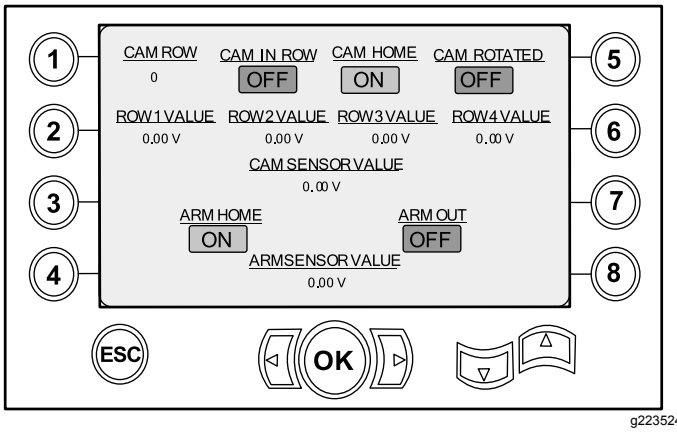

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**Figure 25**

## Cam Calibration Information Screen

The cam calibration information screen (Figure 27) provides the following information:

- Output for: cam row, rows 1–4 values, cam sensor value, and arm sensor value.
- On and Off indicators for: cam in row, cam home, cam rotated, arm home, and arm out.



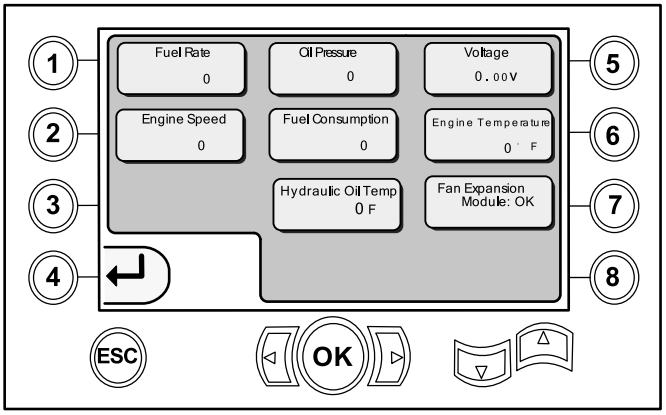

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**Figure 26**

## Machine Information Screen

The machine information screen (Figure 27) provides the following output information for:

- Fuel rate
- Oil pressure
- Voltage
- Engine speed
- Fuel consumption
- Engine temperature
- Hydraulic oil temperature
- Fan expansion module




g223525

**Figure 27**

# Informational and Warning Icons

Software Versions K and up Only

## Collision Condition Indicator Screen

The carriage stops and the icon displays when there is a collision condition between the drill head and the pipe/arm loader (Figure 28).

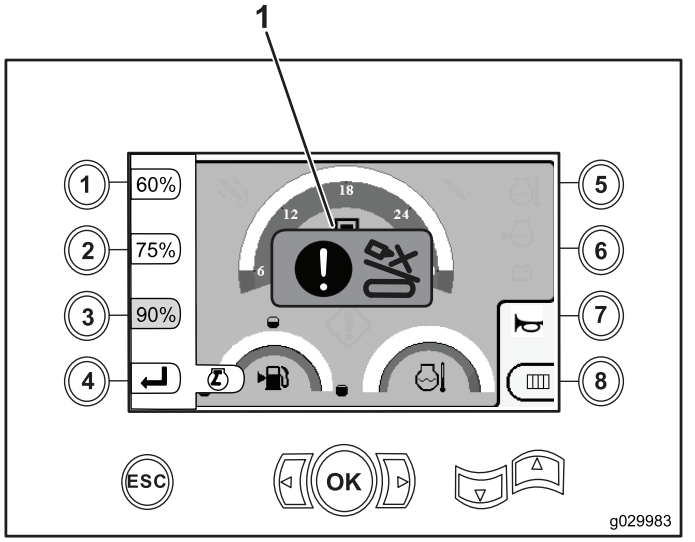



Figure 28

1. Collision condition icon

## Pedestrian Gate Warning Icon

This icon (Figure 29) will display if the pedestrian gate is not in the lowered position.

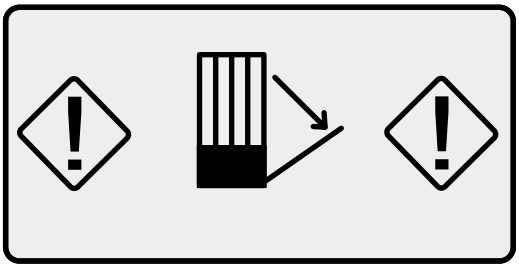



Figure 29

## Stake Down Cage Warning Icon (CE models only)

This icon (Figure 30) will display if the stake down cage door is not closed.

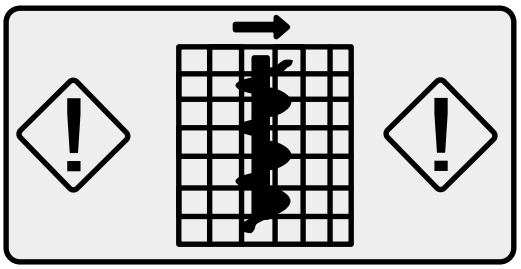



Figure 30