

Product: BACKHOE LOADER

Model: 438C BACKHOE LOADER 9KN

Configuration: 438C Backhoe Loader Center Pivot, Single Tilt 9KN01200-01418 (MACHINE) POWERED BY 3054 Engine

## Operation and Maintenance Manual 416C, 426C, 428C, 436C and 438C Backhoe Loaders

Media Number -SEBU6873-05

Publication Date -01/07/2008

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i00996339

### Parking Brake

SMCS - 7000

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#### NOTICE

**The parking brake must be engaged before the operator leaves the seat.**

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#### NOTICE

**Do not engage the parking brake while the machine is moving unless the primary service brake fails. The use of the parking brake as a service brake in regular operation will cause severe damage to the brake system.**

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The parking brake indicator (1) on the operator panel will light when the parking brake lever (2) is pulled up. An audible alarm will sound if the direction control lever is shifted to the FORWARD position or to the REVERSE position while the parking brake is engaged.

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### NOTICE

**Moving the machine with the parking brake engaged can cause excessive wear or damage to the brake. If necessary, have the brake repaired before operating the machine.**

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### **Secondary Steering - If Equipped**

#### **SMCS - 7000**

If the primary steering has failed, steer the machine immediately to a convenient location and stop the machine. Stop the engine and investigate the cause. Do not operate the machine until the cause has been found and the cause has been corrected.

Steering effort will increase when the secondary steering system is used.

Steering effort and braking effort will increase while the engine is stopped.

While the engine is off, turn the steering wheel to the left and to the right. As the steering wheel is turned, the tires should track in the same direction.

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i00596994

### **Changing Direction and Speed**

SMCS - 1000; 7000

Changing from low speed to high speed at full engine speed is possible. Directional changes at full engine speed are possible. However, if you are changing direction, reducing the machine speed and/or braking the machine is recommended. This will provide operator comfort and the maximum service life of the power train components. Keep a loaded bucket low to the ground. Stop the machine in order to avoid an unstable machine.

1. Lower the engine speed with the accelerator pedal.
  2. Push the brake pedals downward in order to slow the machine. Push the brake pedals downward in order to stop the machine.
  3. Move the transmission direction control lever to the desired speed and to the desired direction.
  4. Release the brake pedals.
  5. Increase the engine speed with the accelerator pedal.
-

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# Machine Security System - If Equipped

SMCS - 7631

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### NOTICE

**This machine is equipped with a Caterpillar Machine Security System (MSS) and may not start under certain conditions. Read the following information and know your machine's settings. Your Caterpillar Dealer can identify your machine settings.**

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**Machine Security System (MSS) -** Machines that are equipped with a Caterpillar Machine Security System (MSS) can be identified by a decal in the operator station. MSS is designed to prevent theft of the machine or unauthorized operation.

## Basic Operation

MSS may be programmed to read a standard Caterpillar key or an electronic key. The electronic key contains an electronic chip within the plastic housing for the key. Each key emits a unique signal to the MSS. The keys can be identified by a gray housing or a yellow housing. MSS can have programmed settings to require an electronic key or a standard Caterpillar key for starting during certain periods of time.

When the key start switch of the machine is turned to the ON position, the ECM will read the unique ID that is stored in the electronic key. The ECM will then compare this ID to the list of authorized keys. The following table tells the operator the status for starting the machine. The status light is located near the key start switch.

Table 1

Green light	The machine will start.
Red light	The key is not authorized.

**Note:** MSS will not shut down the machine after the machine has started.

## Security Management

The MSS has the capability to allow you to program the system to automatically activate at different time periods with different keys. The MSS can also be programmed to reject a specific electronic key after a selected date and time. When you turn the key to the OFF position and the MSS is active, you have a 30 second interval in order to restart the machine with an unauthorized key. Also if the machine stalls, there is a 30 second interval for restarting the machine. This 30 second interval is counted from the time of turning the key to the OFF position.

**Note:** Know your machine's settings because the use of an electronic key is no guarantee that the machine can be restarted.

An expiration date can be set for each electronic key that is contained in the list of keys for the machine. The key will no longer start the machine when the internal clock in the security system passes the expiration date. Each entry in the list of keys can have a different expiration date.

Spare keys are available from your dealer. Before a key can operate the machine, the MSS must be set to accept that particular key. Contact your Caterpillar dealer for information on additional features of the MSS.

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### **Engine Start Switch**

SMCS - 1416

S/N - 1CR1-UP

S/N - 1ER1-899

S/N - 1FR1-UP

S/N - 1JR1-1149

S/N - 1MR1-UP

S/N - 1NR1-1049

S/N - 1PR1-UP

S/N - 1RR1-1099

S/N - 1TR1-1849

S/N - 1WR1-UP

S/N - 1XR1-2249

S/N - 1YR1-UP

S/N - 1ZR1-999

S/N - 2AR1-UP

S/N - 2BR1-999

S/N - 2CR1-19309

S/N - 2DR1-3449

S/N - 4ZN1-UP

S/N - 5YN1-16589

S/N - 6XN1-UP

S/N - 7WN1-1099

S/N - 8RN1-4989

S/N - 8TN1-UP

S/N - 9JN1-1049

S/N - 9KN1-1399



Illustration 1

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Type I Console

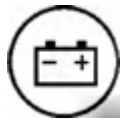


Illustration 2

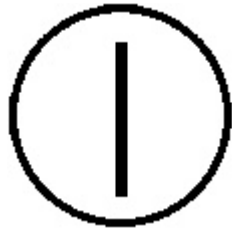
g00291791



**OFF (1)** - Turn the engine start switch key to the OFF position in order to stop the engine. Insert the engine start switch key only while the start switch is in the OFF position. Remove the engine start switch key only while the start switch is in the OFF position. If the engine is not running, turn the engine start switch key to the OFF position in order to prevent the fault alarm from sounding.



**ACCESSORY (2)** - Turn the engine start switch clockwise to this position in order to activate the accessories in the cab.



**ON (3)** - The engine start switch will return to the ON position when the engine start switch key is released from the START position. When the engine is not running, the indicator lights and the fault alarm will remain on until the engine start switch is turned to the OFF position.



**START (4)** - Turn the engine start switch key to the START position in order to start the engine. Release the engine start switch key after the engine starts. The fault alarm should shut off after the engine oil pressure rises.

The transmission control lever must be in the NEUTRAL position and the hydraulic control levers must be in the HOLD position before you turn the engine start switch and before you start the engine.

**Note:** If the engine fails to start after turning the key to the start position, the key must be returned to the OFF position. Attempt to start the engine again.

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Illustration 3

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When you are not operating the machine, remove the key and place the cover over the engine start switch.

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### **Engine Start Switch**

SMCS - 1416

S/N - 1ER900-UP

S/N - 1JR1150-UP

S/N - 1NR1050-UP

S/N - 1RR1100-UP

S/N - 1TR1850-UP

S/N - 1XR2250-UP

S/N - 1ZR1000-UP

S/N - 2BR1000-UP

S/N - 2CR19310-UP

S/N - 2DR3450-UP

S/N - 5YN16590-UP

S/N - 7WN1100-UP

S/N - 8RN4990-UP

S/N - 9JN1050-UP

S/N - 9KN1400-UP

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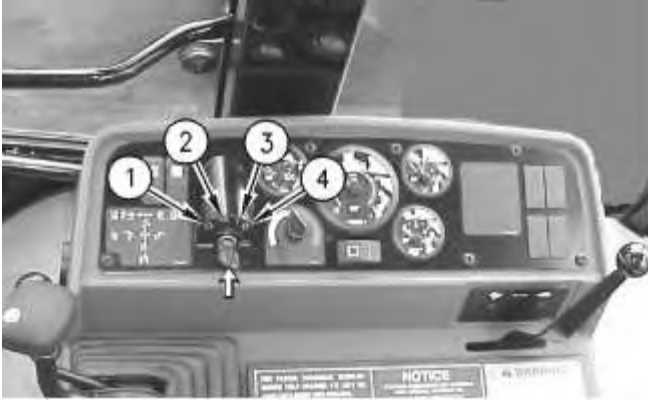
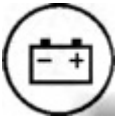


Illustration 1

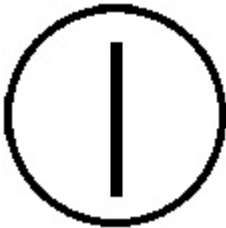
g00603865



**OFF (1)** - Turn the engine start switch key to the OFF position in order to stop the engine. Insert the engine start switch key only while the start switch is in the OFF position. Remove the engine start switch key only while the start switch is in the OFF position. If the engine is not running, turn the engine start switch key to the OFF position in order to prevent the fault alarm from sounding.



**ACCESSORY (2)** - Turn the engine start switch clockwise to this position in order to activate the accessories in the cab.



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**START (4)** - Turn the engine start switch key to the START position in order to start the engine. Release the engine start switch key after the engine starts. The fault alarm should shut off after the engine oil pressure rises.

The transmission control lever must be in the NEUTRAL position and the hydraulic control levers must be in the HOLD position before you turn the engine start switch and before you start the engine.

**Note:** The engine may fail to start after the key is turned to the start position. If this happens, the key must be returned to the OFF position. Attempt to start the engine again.



Illustration 2

g00634439

When you are not operating the machine, remove the key.

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### **Gauges**

SMCS - 7450

S/N - 1CR1-UP

S/N - 1ER1-899

S/N - 1FR1-UP

S/N - 1JR1-1149

S/N - 1MR1-UP

S/N - 1NR1-1049

S/N - 1PR1-UP

S/N - 1RR1-1099

S/N - 1TR1-1849

S/N - 1WR1-UP

S/N - 1XR1-2249

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S/N - 9KN1-1399



Illustration 1

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Type I Console

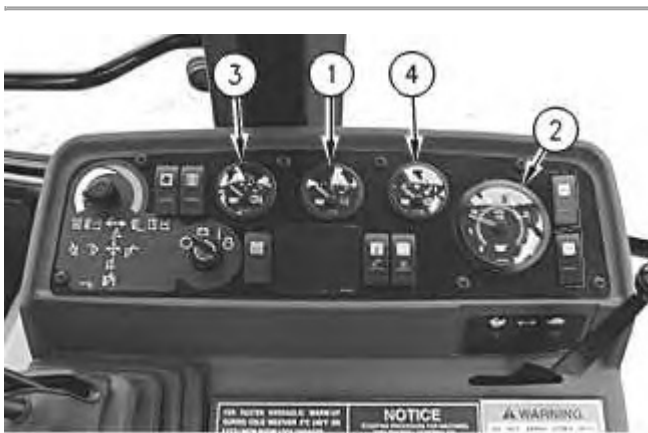


Illustration 2

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