

Product: EXCAVATOR  
Model: 320C EXCAVATOR PAA  
Configuration: ISJ HEX COMMONALITY CHART PAA00001-UP (MACHINE)

## **Operation and Maintenance Manual 311C-330C, 345B Series II, 365B and 385B Excavators**

Media Number -SEBU7957-01

Publication Date -01/12/2003

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s00037320

## **Foreword**

SMCS - 7606

## **Literature Information**

This manual should be stored in the operator's compartment in the literature holder or seat back literature storage area.

This manual contains safety information, operation instructions, transportation information, lubrication information and maintenance information.

Some photographs or illustrations in this publication show details or attachments that can be different from your machine. Guards and covers might have been removed for illustrative purposes.

Continuing improvement and advancement of product design might have caused changes to your machine which are not included in this publication. Read, study and keep this manual with the machine.

Whenever a question arises regarding your machine, or this publication, please consult your Cat dealer for the latest available information.

## **Safety**

The safety section lists basic safety precautions. In addition, this section identifies the text and locations of warning signs and labels used on the machine.

Read and understand the basic precautions listed in the safety section before operating or performing lubrication, maintenance and repair on this machine.

## **Operation**

The operation section is a reference for the new operator and a refresher for the experienced operator. This section includes a discussion of gauges, switches, machine controls, attachment controls, transportation and towing information.

Photographs and illustrations guide the operator through correct procedures of checking, starting, operating and stopping the machine.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the machine and its capabilities.

## Maintenance

The maintenance section is a guide to equipment care. The Maintenance Interval Schedule (MIS) lists the items to be maintained at a specific service interval. Items without specific intervals are listed under the "When Required" service interval. The Maintenance Interval Schedule lists the page number for the step-by-step instructions required to accomplish the scheduled maintenance. Use the Maintenance Interval Schedule as an index or "one safe source" for all maintenance procedures.

### Maintenance Intervals

Use the service hour meter to determine servicing intervals. Calendar intervals shown (daily, weekly, monthly, etc.) can be used instead of service hour meter intervals if they provide more convenient servicing schedules and approximate the indicated service hour meter reading. Recommended service should always be performed at the interval that occurs first.

Under extremely severe, dusty or wet operating conditions, more frequent lubrication than is specified in the maintenance intervals chart might be necessary.

Perform service on items at multiples of the original requirement. For example, at every 500 service hours or 3 months, also service those items listed under every 250 service hours or monthly and every 10 service hours or daily.

## California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.**

## Certified Engine Maintenance

Proper maintenance and repair is essential to keep the engine and machine systems operating correctly. As the heavy duty off-road diesel engine owner, you are responsible for the performance of the required maintenance listed in the Owner Manual, Operation and Maintenance Manual, and Service Manual.

It is prohibited for any person engaged in the business of repairing, servicing, selling, leasing, or trading engines or machines to remove, alter, or render inoperative any emission related device or element of design installed on or in an engine or machine that is in compliance with the

regulations (40 CFR Part 89). Certain elements of the machine and engine such as the exhaust system, fuel system, electrical system, intake air system and cooling system may be emission related and should not be altered unless approved by Caterpillar.

## Machine Capacity

Additional attachments or modifications may exceed machine design capacity which can adversely affect performance characteristics. Included would be stability and system certifications such as brakes, steering, and rollover protective structures (ROPS). Contact your Cat dealer for further information.

## Cat Product Identification Number

Effective First Quarter 2001 the Cat Product Identification Number (PIN) has changed from 8 to 17 characters. In an effort to provide uniform equipment identification, Caterpillar and other construction equipment manufacturers are moving to comply with the latest version of the product identification numbering standard. Non-road machine PINs are defined by ISO 10261. The new PIN format will apply to all Cat machines and generator sets. The PIN plates and frame marking will display the 17 character PIN. The new format will look like the following:



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Illustration 1

g00751314

Where:

1. Caterpillar's World Manufacturing Code (characters 1-3)
2. Machine Descriptor (characters 4-8)
3. Check Character (character 9)
4. Machine Indicator Section (MIS) or Product Sequence Number (characters 10-17). These were previously referred to as the Serial Number.

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Machines and generator sets produced before First Quarter 2001 will maintain their 8 character PIN format.

Components such as engines, transmissions, axles, etc. and work tools will continue to use an 8 character Serial Number (S/N).

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i02020913

# **Fuel Tank Shutoff and Drain Control**

SMCS - 1273

S/N - ADX139-UP

S/N - AKE197-UP

S/N - AKJ203-UP

S/N - AKX339-UP

S/N - ALD210-UP

S/N - AMC3758-UP

S/N - AMD355-UP

S/N - AMJ195-UP

S/N - AMN363-UP

S/N - ANB3816-UP

S/N - AYR272-UP

S/N - BKF209-UP

S/N - BKH349-UP

S/N - BKT342-UP

S/N - BKW271-UP

S/N - BKX167-UP

S/N - BLA214-UP

S/N - BLX308-UP

S/N - BLY169-UP

S/N - BMM413-UP

S/N - BTE160-UP

S/N - BTH163-UP

S/N - BTL181-UP

S/N - BTM194-UP

S/N - CAE2018-UP

S/N - CBA1695-UP

S/N - CFJ200-UP

S/N - CJC1110-UP

S/N - CKE1167-UP

S/N - CLK2378-UP

S/N - DAA160-UP

S/N - FBA3511-UP

S/N - FBB1252-UP

S/N - FDS336-UP

S/N - FED190-UP

S/N - GAA495-UP

S/N - GAB295-UP

S/N - GAG342-UP

S/N - GPA258-UP

S/N - HAA409-UP

S/N - HBC214-UP

S/N - HBG128-UP

S/N - JAB636-UP

S/N - KCF138-UP

S/N - KDD599-UP

S/N - MAA317-UP

S/N - MAB404-UP

S/N - MAC291-UP

S/N - MDY257-UP

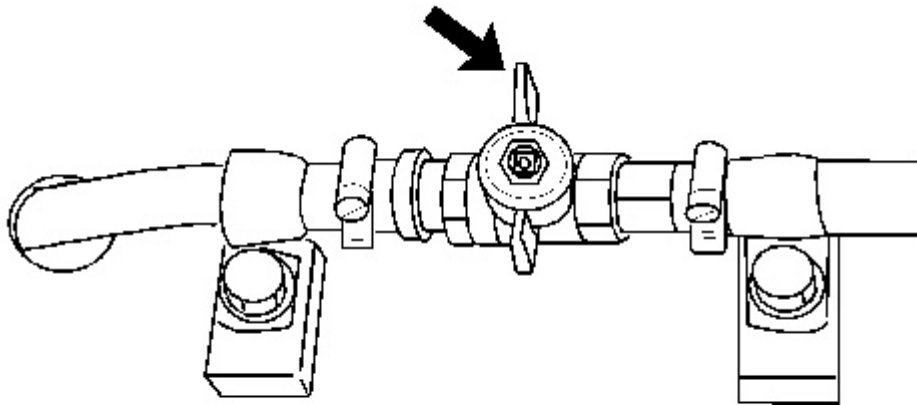
S/N - PAA344-UP

S/N - PAB1661-UP

S/N - PAC432-UP

S/N - RBH237-UP

The fuel tank drain valve is located under the main hydraulic pump. The fuel shutoff valve is located underneath the fuel tank.



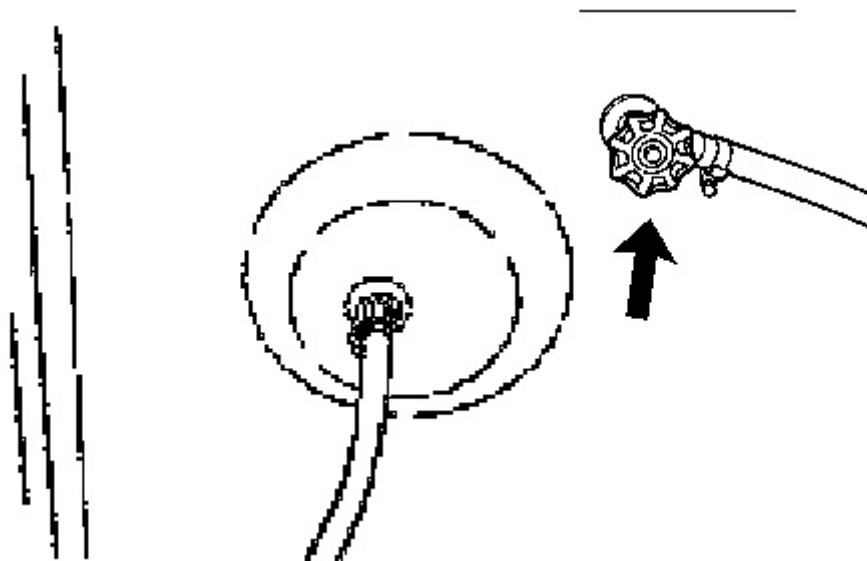
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Illustration 1

g01043694

Fuel tank drain valve (typical example)

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Illustration 2

g01043693

Fuel shutoff valve (typical example)

**Fuel Tank Drain Valve** - To drain the water and sediment from the fuel tank, turn the fuel drain valve counterclockwise. To close the fuel tank drain valve, turn the drain valve clockwise.

**Fuel Shutoff Valve** - To shut off the fuel supply, turn the fuel shutoff valve clockwise. To turn on the fuel supply, turn the fuel shutoff valve counterclockwise.

**Note:** For more detailed information that pertains to draining the water and sediment from the fuel tank, refer to Operation and Maintenance Manual, "Fuel Tank Water and Sediment - Drain".

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## **Operation and Maintenance Manual 311C-330C, 345B Series II, 365B and 385B Excavators**

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i02066211

### **Stopping the Engine**

SMCS - 1000; 7000

S/N - ADX139-UP

S/N - AKE197-UP

S/N - AKJ203-UP

S/N - AKX339-UP

S/N - ALD210-UP

S/N - AMC3758-UP

S/N - AMD355-UP

S/N - AMJ195-UP

S/N - AMN363-UP

S/N - ANB3816-UP

S/N - AYR272-UP

S/N - BKF209-UP

S/N - BKH349-UP

S/N - BKT342-UP

S/N - BKW271-UP

S/N - BKX167-UP

S/N - BLA214-UP

S/N - BLX308-UP

S/N - BLY169-UP

S/N - BMM413-UP

S/N - BTE160-UP

S/N - BTH163-UP

S/N - BTL181-UP

S/N - BTM194-UP

S/N - CAE1963-UP

S/N - CBA1646-UP

S/N - CFJ200-UP

S/N - CJC1019-UP

S/N - CKE1158-UP

S/N - CLK2341-UP

S/N - DAA160-UP

S/N - DAX184-UP

S/N - FBA3376-UP

S/N - FBB1191-UP

S/N - FDS333-UP

S/N - FED190-UP

S/N - GAA480-UP

S/N - GAB292-UP

S/N - GAG342-UP

S/N - GPA250-UP

S/N - HAA409-UP

S/N - HBC214-UP

S/N - HBG128-UP

S/N - HGF608-UP

S/N - JAB636-UP

S/N - KBB154-UP

S/N - KCF138-UP

S/N - KDD599-UP

S/N - KHB444-UP

S/N - KJA143-UP

S/N - MAA313-UP

S/N - MAB404-UP

S/N - MAC291-UP

S/N - MCF241-UP

S/N - MDY249-UP

S/N - PAA341-UP

S/N - PAB1547-UP

S/N - PAC417-UP

S/N - PCA326-UP

S/N - RBH237-UP

S/N - WSA337-UP

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## NOTICE

**Stopping the engine immediately after it has been working under load can result in overheating and accelerated wear of engine components.**

**Refer to the following procedure to allow the engine to cool and to prevent excessive temperatures in the turbocharger housing, which could cause oil coking problems.**

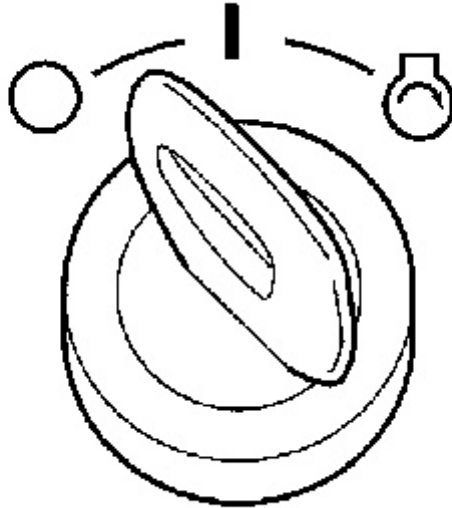
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1. Stop the machine and run the engine at low idle for five minutes.
-

## NOTICE

**Never turn the battery disconnect switch to the OFF position while the engine is running. Serious damage to the electrical system may result.**

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Illustration 1

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2. Turn the engine start switch to the OFF position and remove the engine start switch key.

## **Engine Shutdown Control**

Turn the engine start switch to the OFF position. If the engine does not stop, perform the following procedure.

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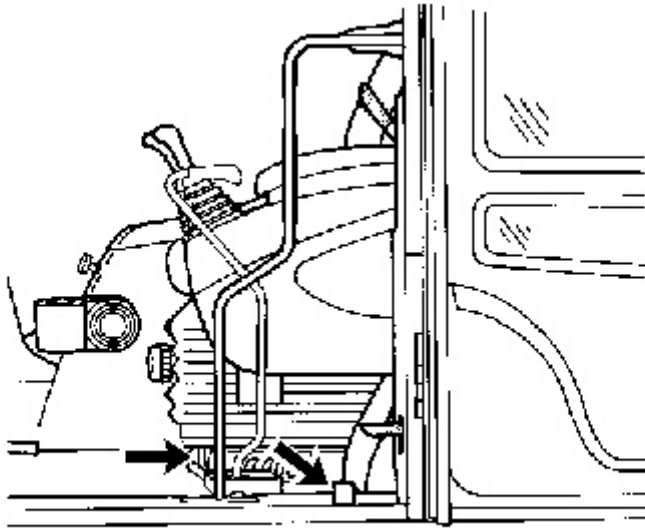


Illustration 2

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Typical mounting locations

The switch for the engine shutdown control can be mounted at the base of the operator's seat on the front side or on the left side.

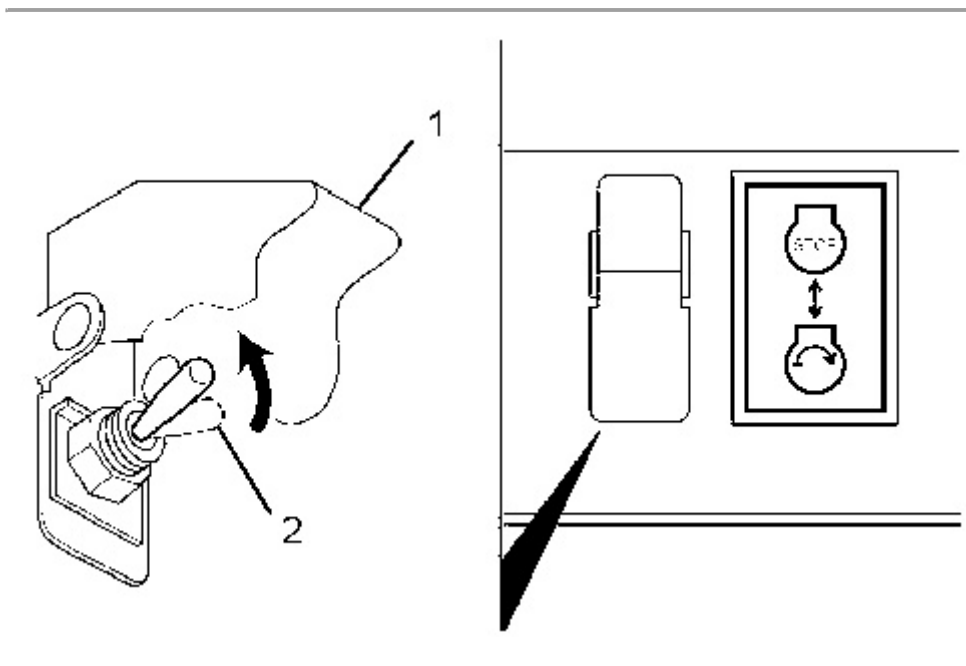


Illustration 3

g01048511

1. Lift cover (1) .
2. Push switch (2) upward. This should stop the engine.

**Note:** Use the engine start switch to stop the engine first. Use the engine shutdown switch as an alternative method to stop the engine.

3. Return the switch to the original position. The engine will be enabled to start.

**Note:** Do not operate the machine again until the malfunction has been corrected.

4. Use the method that follows if the previous steps do not stop the engine.

## Stop the Engine if an Electrical Malfunction Occurs

Turn the engine start switch to the OFF position. If the engine does not stop, perform the procedure that follows.

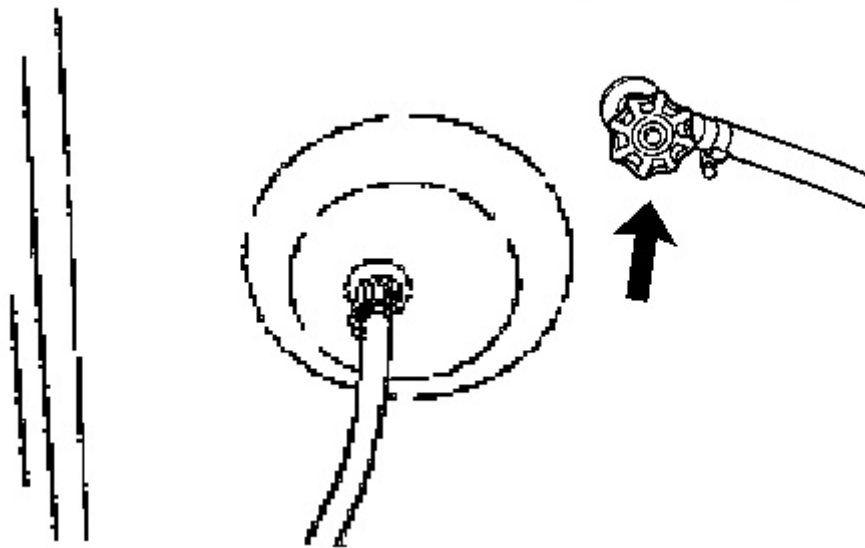


Illustration 4

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The fuel shutoff valve is located under the fuel tank.

Remove the access cover and shut off the fuel supply by turning the fuel shutoff valve clockwise. The engine will stop after consuming the fuel in the fuel line. The engine may continue to run for a few minutes.

Repair the engine before you restart the engine. The fuel system may need to be primed. See Operation and Maintenance Manual, "Fuel System Priming Pump - Operate" for instructions.

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## **Maintenance Interval Schedule**

SMCS - 7000

S/N - ADX139-UP

S/N - AKE197-UP

S/N - AKJ203-UP

S/N - AKX339-UP

S/N - ALD210-UP

S/N - AMC3758-UP

S/N - AMD355-UP

S/N - AMJ195-UP

S/N - AMN363-UP

S/N - ANB3816-UP

S/N - AYR272-UP

S/N - BKF209-UP

S/N - BKH349-UP

S/N - BKT342-UP

S/N - BKW271-UP

S/N - BKX167-UP

S/N - BLA214-UP

S/N - BLX308-UP

S/N - BLY169-UP

S/N - BMM413-UP

S/N - BTE160-UP

S/N - BTH163-UP

S/N - BTL181-UP

S/N - BTM194-UP

S/N - CAE2018-UP

S/N - CBA1695-UP

S/N - CFJ200-UP

S/N - CJC1110-UP

S/N - CKE1167-UP

S/N - CLK2378-UP

S/N - DAA160-UP

S/N - FBA3511-UP

S/N - FBB1252-UP

S/N - FDS336-UP

S/N - FED190-UP

S/N - GAA495-UP

S/N - GAB295-UP

S/N - GAG342-UP

S/N - GPA258-UP

S/N - HAA409-UP

S/N - HBC214-UP

S/N - HBG128-UP

S/N - JAB636-UP

S/N - KCF138-UP

S/N - KDD599-UP

S/N - MAA317-UP

S/N - MAB404-UP

S/N - MAC291-UP

S/N - MDY257-UP

S/N - PAA344-UP

S/N - PAB1661-UP

S/N - PAC432-UP

S/N - RBH237-UP

**Note:** All safety information, warnings, and instructions must be read and understood before you perform any operation or any maintenance procedure.

### **Every 10 Service Hours or Daily**

[Fuel Tank Water and Sediment - Drain](#)

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## **Operation and Maintenance Manual 311C-330C, 345B Series II, 365B and 385B Excavators**

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i02021218

### **Fuel Tank Water and Sediment - Drain**

SMCS - 1273-543

S/N - ADX139-UP

S/N - AKE197-UP

S/N - AKJ203-UP

S/N - AKX339-UP

S/N - ALD210-UP

S/N - AMC3758-UP

S/N - AMD355-UP

S/N - AMJ195-UP

S/N - AMN363-UP

S/N - ANB3816-UP

S/N - AYR272-UP

S/N - BKF209-UP

S/N - BKH349-UP

S/N - BKT342-UP

S/N - BKW271-UP

S/N - BKX167-UP

S/N - BLA214-UP

S/N - BLX308-UP

S/N - BLY169-UP

S/N - BMM413-UP

S/N - BTE160-UP

S/N - BTH163-UP

S/N - BTL181-UP

S/N - BTM194-UP

S/N - CAE2018-UP

S/N - CBA1695-UP

S/N - CFJ200-UP

S/N - CJC1110-UP

S/N - CKE1167-UP

S/N - CLK2378-UP

S/N - DAA160-UP

S/N - FBA3511-UP

S/N - FBB1252-UP

S/N - FDS336-UP

S/N - FED190-UP

S/N - GAA495-UP

S/N - GAB295-UP

S/N - GAG342-UP

S/N - GPA258-UP

S/N - HAA409-UP

S/N - HBC214-UP

S/N - HBG128-UP

S/N - JAB636-UP



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S/N - KCF138-UP

S/N - KDD599-UP

S/N - MAA317-UP

S/N - MAB404-UP

S/N - MAC291-UP

S/N - MDY257-UP

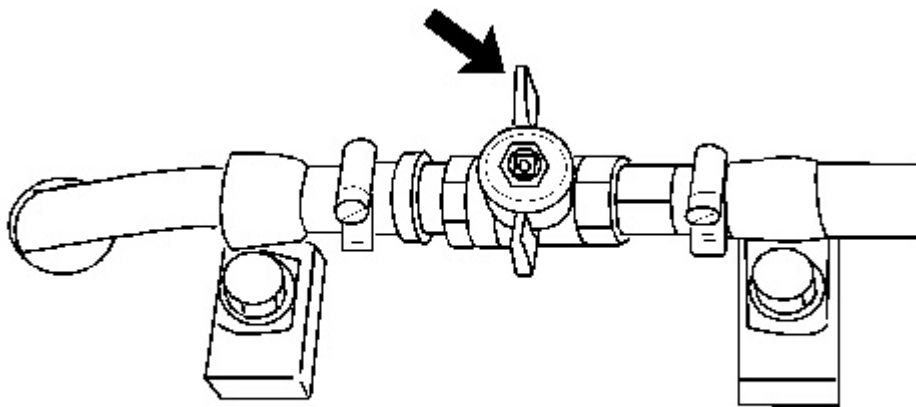
S/N - PAA344-UP

S/N - PAB1661-UP

S/N - PAC432-UP

S/N - RBH237-UP

The fuel tank drain valve is located underneath the main hydraulic pump.



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Illustration 1

g01043694

**Note:** Refer to Operation and Maintenance Manual, "General Hazard Information" for information on containing fluid spillage.

1. Open the drain valve by turning the valve counterclockwise. Allow the water and the sediment to drain into a suitable container.

**Note:** Dispose of drained fluids according to local regulations.

2. Close the drain valve by turning the valve clockwise.

## **Fill the Fuel Tank**

You can now add fuel to the fuel tank, if necessary. Remove the fuel tank cap and pump fuel through the opening.

Make sure that you lock the fuel tank cap after the refueling is complete.

Certain machines are equipped with electric refueling pumps. For more information, see Operation and Maintenance Manual, "Fuel Transfer Pump (Refueling)".

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