

Product: EXCAVATOR
Model: 206 EXCAVATOR 3GC
Configuration: 206 EXCAVATOR WHEEL TYPE 3GC00001-UP (MACHINE)

Operation and Maintenance Manual 206 AND 212 WHEEL-TYPE EXCAVATORS

Media Number -SEBU6044-01

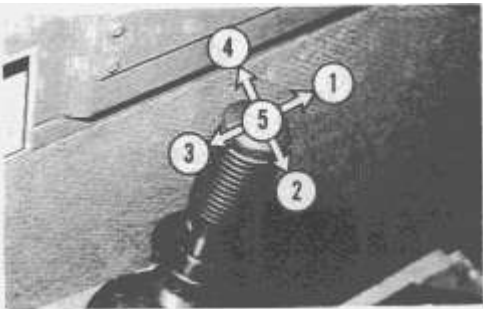
Publication Date -01/08/1989

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Implement Controls

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Swing and Stick Control



Stick Out (1.) - Push the lever forward to move the stick out.

Swing Right (2.) - Move the lever to the right to swing the upper structure to the right.

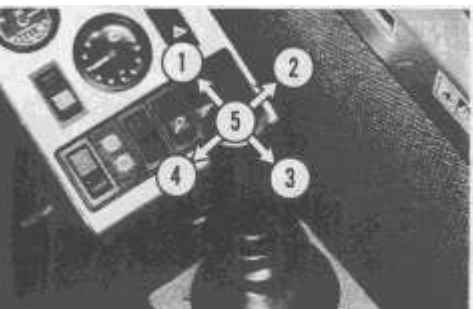
Stick In (3.) - Pull the lever to the rear to move the stick in.

Swing Left (4.) - Move the lever to the left to swing the upper structure to the left.

Hold (5.) - When released from any position, the lever will return to hold.

Stick and swing functions may be performed at the same time. For example, to move the stick out and swing right at the same time, move the lever forward and to the right.

Backhoe Bucket and Boom Control



Boom Lower (1.) - Push the lever forward to lower the boom.

Bucket Dump (2.) - Move the lever to the right to dump the bucket.

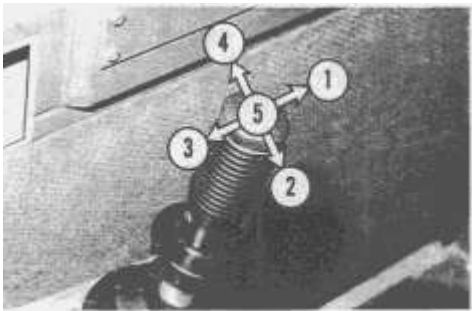
Boom Raise (3.) - Pull the lever back to raise the boom.

Bucket Close (4.) - Move the lever to the left to close the bucket.

Hold (5.) - When released from any position, the lever will return to hold.

Bucket and Boom functions can be performed at the same time. For example, to lower the boom and dump the bucket at the same time, push the lever forward and to the right.

Clamshell Stick and Swing Control



Stick Out (1.) - Push the lever forward to move the stick out.

Swing Right (2.) - Move the lever to the right to swing the upper structure to the right.

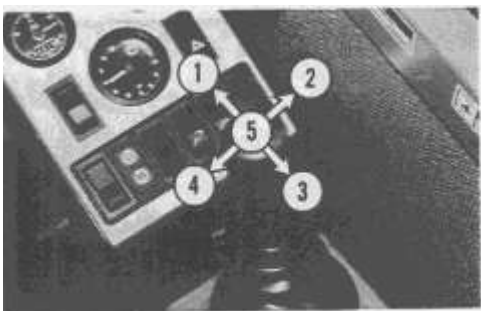
Stick In (3.) - Pull the lever to the rear to move the stick in.

Swing Left (4.) - Move the lever to the left to swing the upper structure to the left.

Hold (5.) - When released from any position, the lever will return to hold.

Stick and swing functions may be performed at the same time. For example, to move the stick out and swing to the right at the same time, move the lever forward and to the right.

Clamshell Bucket and Boom Control



1. Boom Lower - Push the lever forward to lower the boom.

Bucket Open (2.) - Move the lever to the right to open the bucket.

3. Boom Raise - Pull the lever to the rear to raise the boom.

Bucket Close (4.) - Move the lever to the left to close the bucket.

Hold (5.) - When released from any position, the lever will return to hold.

Bucket and boom functions can be performed at the same time. For example, to lower the boom and dump the bucket at the same time, push the lever forward and to the right.

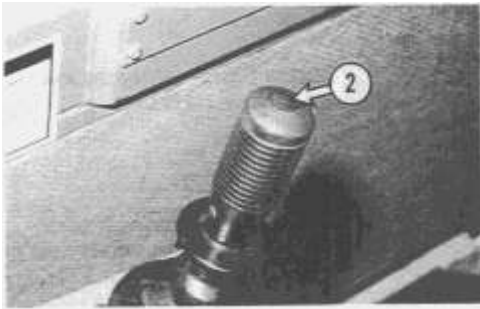
Clamshell Rotator/Angle Bucket Control



Rotation or bucket control is located on the top of the swing and stick controls. It is under the grip and can not be seen. Follow the instruction decals on the console.

Clamshell Left - Push the button down to activate counterclockwise clamshell rotation.

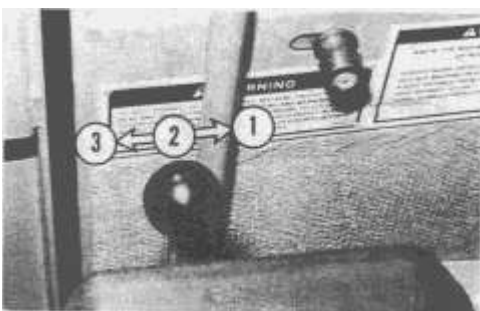
Angle Bucket - Push the button down to activate the right side of the bucket.



Clamshell Right - Push the button down to activate clockwise clamshell rotation.

Angle Bucket - Push the button down to activate the left side of the bucket.

Dozer Blade

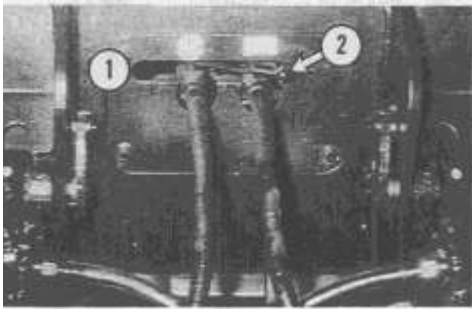


Lower (1.) - Push the lever forward to lower the blade. Release the lever and it will return to HOLD.

Hold (2.) - Release the lever from either RAISE or LOWER, and it will return to HOLD. The blade movement will stop.

Raise (3.) - Pull the lever back to raise the blade. Release the lever and it will return to HOLD.

Dozer Blade Travel Lock



Blade Travel Lock - Move the lever to the left (1) to lock the blade in the RAISE position (travel).

Blade Unlocked - Move the lever to the right (2) to unlock the blade (operation). Stand clear of blade while unlocking. Make sure the front stabilizers (if equipped), are in the full raised position before unlocking.

Blade travel lock must be engaged when traveling on the road, to avoid accidental lowering.

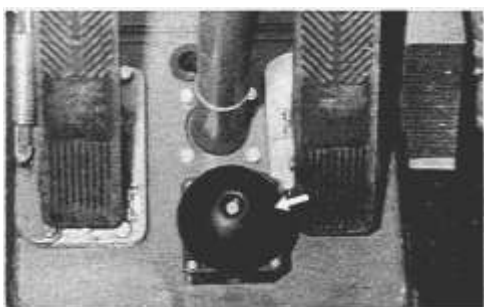
Hydraulic Hammer (If Equipped)



Switch Off (1.) - Push the switch to this position for machine operation.

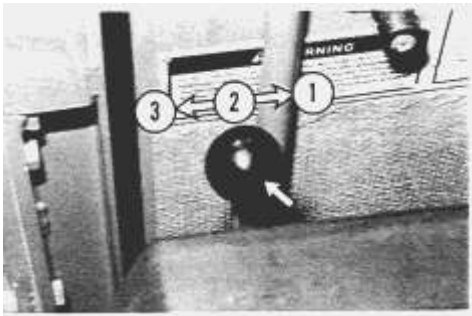
Switch On (2.) - Push the switch to this position for hammer operation.

Stroke and Frequency of Hammer (If Equipped) (3.) - Push the switch to slow or fast stroke position.



Push the switch down to activate the hammer. Release to deactivate the hammer.

Stabilizers (If Equipped)



Lower (1.) - Push the lever forward to lower the stabilizer. Release the lever and it will return to HOLD.

Hold (2.) - Release the lever from either RAISE or LOWER, and it will return to HOLD. The stabilizer movement will stop.

Raise (3.) - Pull the lever back to raise the stabilizer. Release the lever and it will return to HOLD.

Individually Controlled Stabilizers

Mounted on the steering column (if equipped) is the individual switch control.

Each switch controls a single stabilizer. The control can have two or four switches depending on the amount of stabilizers. This allows quick leveling of excavator on uneven ground. Move the switch on or off to allow single or all stabilizer movement.

Move the above lever to control stabilizer, after the selected switch or switches have been activated.

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Before Starting the Engine

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Hot oil and components can cause personal injury. Do not allow hot oil or components to contact skin.

At operating temperature, the engine coolant is hot and under pressure.

Steam can cause personal injury.

Check the coolant level only after the engine has been stopped and the fill cap is cool enough to touch with your bare hand.

Remove the fill cap slowly to relieve pressure.

Cooling system conditioner contains alkali. Avoid contact with the skin and eyes to prevent personal injury.

Pressure air can cause personal injury.

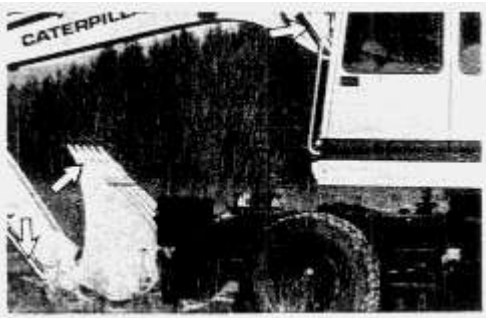
When using pressure air for cleaning, wear a protective face shield, protective clothing and protective shoes.

The maximum air pressure must be below 205 kPa (30 psi) for cleaning purposes.

Walk-Around Inspection

For your own safety and maximum service life of the machine, make a thorough walk-around inspection before mounting the machine to start the engine.

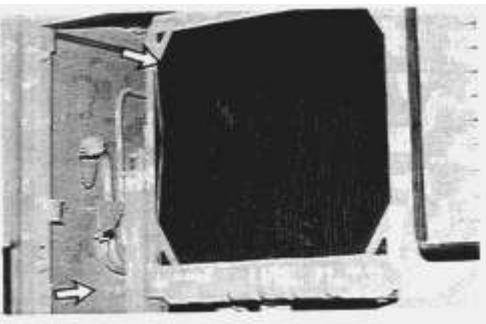
Look around and under the machine for such items as loose bolts, trash build-up, oil or coolant leaks (Perkins Engine), broken or worn parts. Inspect the condition of the implements and the hydraulic components.



1. Inspect the implements for damage or excessive wear. Repair if damaged.
2. Inspect implement cylinders and linkage for damage or excessive wear. Repair if damaged.



3. Inspect and replace lights, broken bulbs and lenses.



4. Remove trash build-up in and around the engine.
5. Inspect and repair any cooling system or engine component leaks.



6. Inspect the engine precleaner screen for dirt build-up, and clean with pressure air when there is accumulation.



7. Inspect steps and handholds for condition and cleanliness. Repair or clean if necessary. Inspect the Falling Object Protective Structure (FOPS) (if equipped) for damage. Tighten any loose bolts. Repair if necessary.



8. Inspect and repair any hydraulic system leaks.

9. Inspect and repair any axle leaks.



10. Be sure covers and guards are firmly in place. Inspect for damage.

11. Inspect and repair any transmission or swing drive leaks.



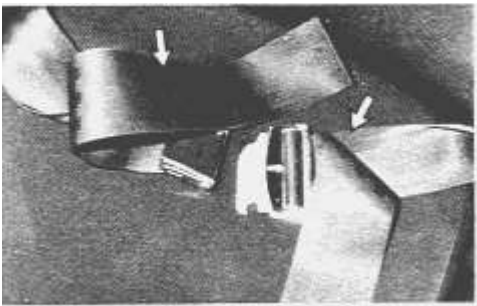
12. Inspect and repair damaged and excessively worn tires.

Make sure the tires air pressures are at operating pressures.



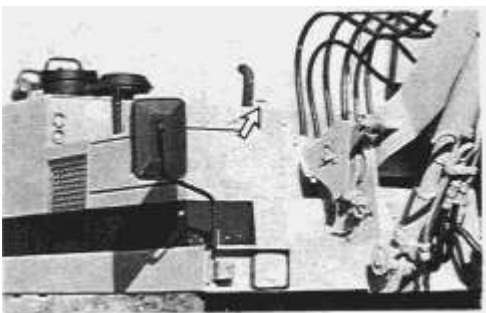
13. Inspect operator's compartment for cleanliness and remove all trash.

14. Inspect and repair the instrument panel when broken gauges and lights are found.



15. Inspect seat belt for excessive wear and damage. Replace if damaged.

Pre-Start Checks



1. Lift up the access cover.

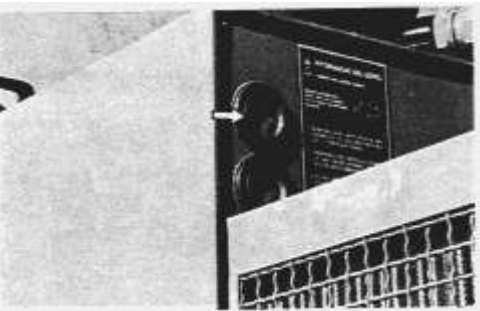




2. Maintain the engine oil level to the upper mark on the dipstick. Close the access cover.



3. Machine must be on level ground with bucket cylinders extended and the bucket on the ground. Clamshell bucket should be open and on the ground.



4. Maintain the hydraulic oil to the middle of the upper sight glass.



5. Remove the fill cap.

6. Maintain the brake fluid reservoir so it is no more than 10 mm (.38 inch) below the upper edge of the reservoir.

7. Install the cap.



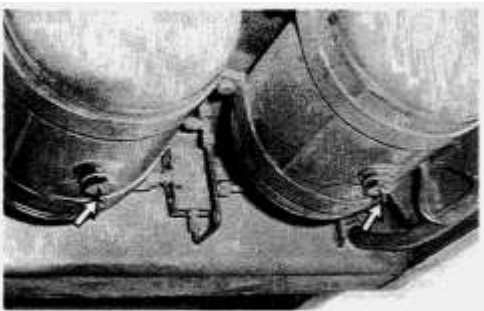
8. The fuel tank drain valve is located under the fuel tank.

9. Open the valve and allow moisture to drain. Close the valve.



10. The fuel should be just above the middle of the fuel sight gauge.

The fuel tank should be almost full at the beginning of a shift.

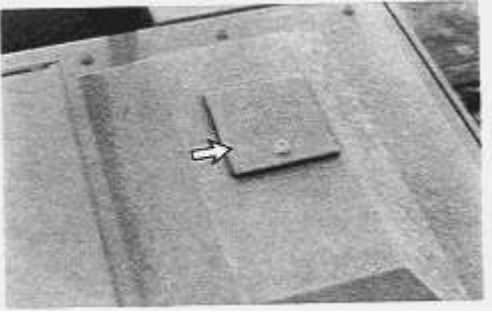


11. Push the valve up to remove any moisture from the air tanks.



12. Service the air filter elements when the window shows all red in the indicator.

The indicator is located behind the operator's seat in the cab.



1. Remove the access cover.



2. Remove the radiator fill cap.

3. Maintain the coolant to 15 mm (.62 inch) below the top of the fill tube.

4. Install the cap and access cover.

Cab Adjustments



1. Adjust the seat to allow full brake pedal travel with the operator's back against seat back.

2. Adjust the mirror to allow proper viewing from the seat to see close behind the machine.

3. Adjust the seat belt to fit snug.

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Starting the Engine

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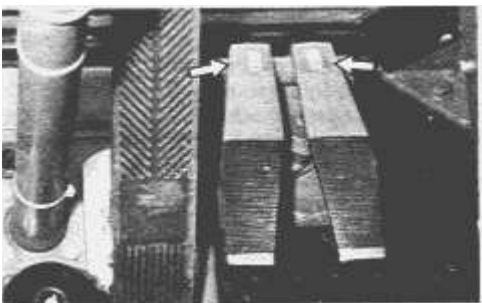
This engine has an inlet manifold heater for cold weather starting. Do not use other types of starting aids such as ether. Such use could result in an explosion and personal injury.

Be sure no one is working on or close to the machine.

Fasten the seat belt.



1. Engage the parking brake.
2. Lower all implements to the ground and move the hydraulic controls to the HOLD position.



3. Release the directional control pedals.



4. Move the governor control lever to the LOW IDLE position.



5. Turn the key to the START position.

6. Release the key after the engine starts.

NOTICE

If the engine does not start after 20 seconds of cranking, stop cranking. Allow two minutes for the starting motor to cool to avoid damage to starting motor.

For starting below -18°C (0°F), use of optional cold weather starting aids is recommended. A coolant heater, fuel heater, jacket water heater or extra battery capacity may be required.

At temperatures below -18°C (0°F), consult your Caterpillar dealer, or refer to the "Cold Weather Recommendations" Operation and Maintenance Guide, Form SEBU5898, available from your Caterpillar dealer.



NOTE: Cold weather could require activation of the heat start system.

See "Starting Aid-Heat Start" in the "Operator's Compartment" section.

Starting With Boost Cables



Batteries give off flammable fumes that can explode.

Do not smoke when observing the battery electrolyte levels.

Electrolyte is an acid and can cause personal injury if it contacts skin or eyes.

Always wear protective glasses when working with batteries.

When starting from another machine, make sure the machines do not touch. This prevents sparks near the battery, which could ignite the hydrogen gas given off by the battery, causing the battery to explode.

To prevent possible personal injury, use care when removing the cables from the machine that has been started. Do not allow the cable ends to contact each other or the machine.

With the switch in the OFF position, connecting an auxiliary power supply to the machine can energize the electrical system.

Always turn the machine start switch, starter and accessory switches to the OFF position before connecting an external power source.

Improper jumper cable connections can cause an explosion resulting in personal injury. Batteries in series may be located in separate compartments. When using jumper cables always connect positive (+) cable to positive (+) terminal of battery connected to starter solenoid and negative (-) cable from external source to starter negative (-) terminal. (If not equipped with starter negative terminal, connect to engine block.)

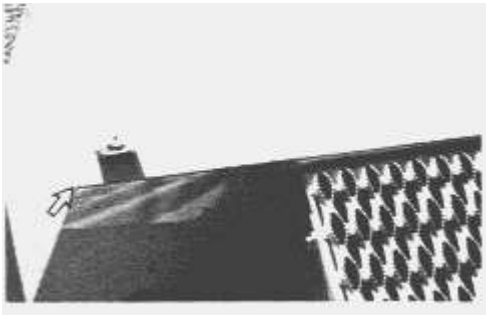
NOTICE

When boost starting machine, refer to the instructions that follow to properly start the machine.

When using external electrical source to start machine, turn key switch off and remove key before attaching booster cables.

This machine has a 24 Volt starting system. Use only equal voltage for boost starting. Use of welder or higher voltage will damage electrical system.

1. Release the directional control pedals.
2. Engage the parking brake.
3. Lower all implements to the ground and move all hydraulic controls to the HOLD position.
4. Turn the start key to the OFF position. Move the governor control lever all the way forward.



5. Raise the battery compartment access cover.
 6. Lift the clamp protectors out of the way. Fasten the positive (+) terminal from the booster to the positive (+) (RED) cable clamp post.
 7. Fasten the negative (-) terminal from booster to the machine starter negative terminal.
 8. Start the engine.
 9. After the engine starts, disconnect the negative (-) cable from the machine starter negative terminal.
 10. Disconnect the positive (+) terminal on the battery.
 11. Disconnect the cable from the negative (-) terminal on the boost power source.
 12. Disconnect the cable from positive (+) terminal on the boost power source.
 13. Close the access cover.
-

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After Starting the Engine

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NOTICE

Keep engine speed low until the engine oil pressure light goes out. If it does not register within 10 seconds, stop the engine and investigate the cause before starting again.



NOTE: Armrest must be down and engaged to activate the hydraulics.

1. Allow the engine to warm up at LOW IDLE for five minutes. Engage and disengage all implement controls to help speed warm-up of hydraulic components.



2. Look at the gauges frequently during operation.

Also, to speed hydraulic oil warm-up, hold the bucket control in the CLOSE position for short periods, not more than 10 seconds.

This will allow the oil to reach relief pressure, which causes it to warm more rapidly.

Cycle all controls to allow warm oil to circulate through all cylinders and lines.

When idling the engine for warm-up, observe the following recommendations:

In temperatures above 0°C (32°F), warm-up requires approximately 15 minutes.

In temperatures below 0°C (32°F), warm-up requires approximately 30 minutes or more.

In temperatures below -18°C (0°F) or if hydraulic functions are sluggish, more time may be required.

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Moving and Stopping the Machine

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NOTICE

Keep the machine under control at all times.

Do not shift the directional control to neutral to allow the machine to coast.

Select the low gear range speed before starting on more than a 12% downgrade. Do not change gear speeds while going downhill.

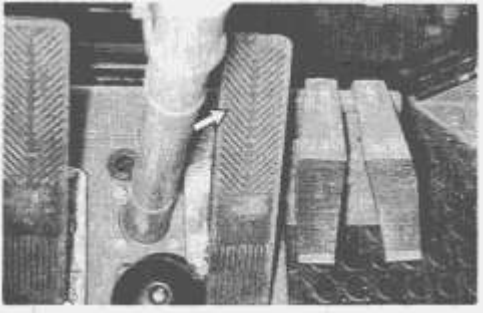
A good practice is to use the same gear speed going downgrade that would be used to go up the grade.

Do not allow the engine to overspeed when going downhill. Use the brake pedal to reduce engine speed when going downhill.

Travel only with the boom over the front steering axles for proper machine retarding.



Raise all lowered implements enough to clear any obstructions before moving.



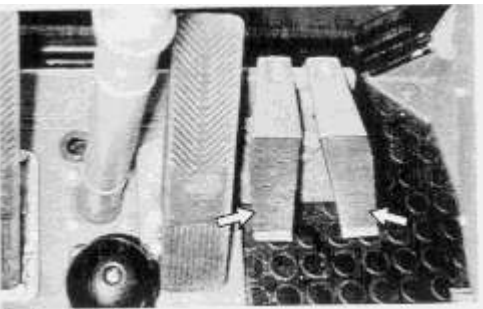
1. Push the service brake pedal down before moving or to stop the machine.



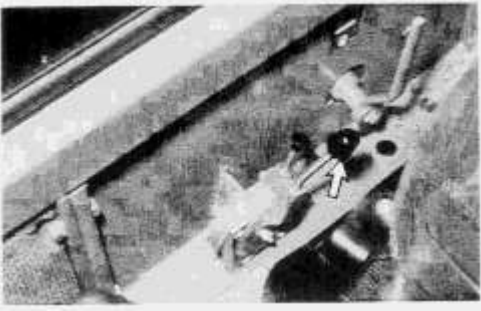
2. Disengage the parking brake.



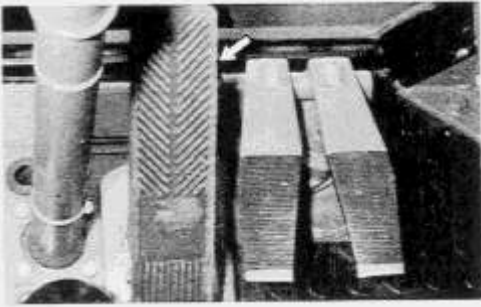
3. Select the required gear range.



4. Move the transmission direction pedal to the desired direction and speed.



5. Move the governor control lever to the desired engine speed.



6. Release the brake pedal to allow the machine to move. Push the brake pedal DOWN to slow or stop.

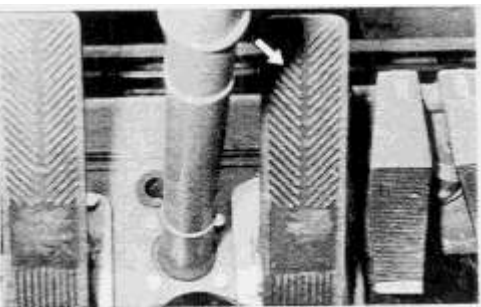
Changing Speed Ranges and/or Direction

LOW to HIGH speed and directional changes at full engine speed are possible. However, for operator comfort and maximum service life of power train components, decelerating and/or braking, when changing directions is recommended.

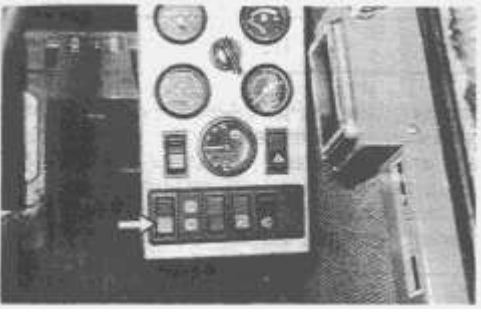


1. Release the directional pedals.

2. Decrease engine speed with the governor control lever.



3. Push brake pedal down to stop the machine.



4. Move the transmission speed switch to the desired speed.



5. Release the brake pedal.

6. Push down on the desired directional pedal.

7. Increase the engine speed with the governor control lever.

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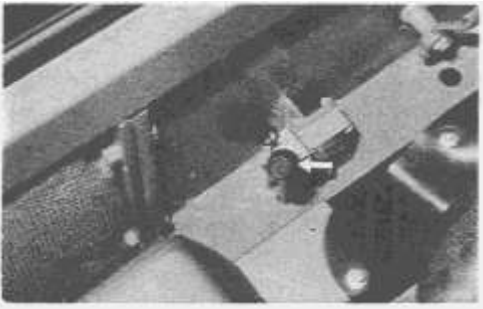
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Parking the Machine

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Stopping the Machine



1. Move the governor control lever forward slightly to reduce the engine speed.

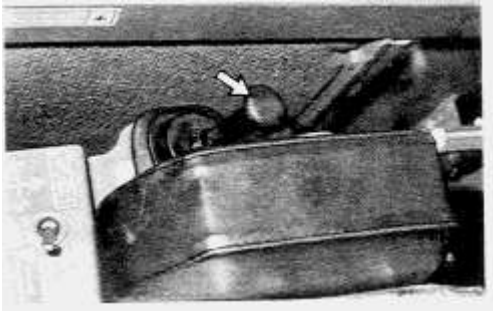
Stop the machine on level ground.



2. Release the transmission directional pedal.



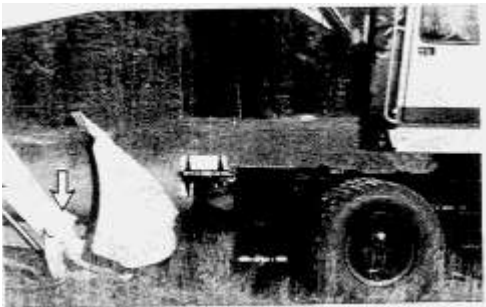
3. Push the brake pedal down to stop the machine.



4. Engage the parking brake lever.



5. Engage the armrest toggle switch to lock the brake system.



6. Lower all raised implements to the ground. Apply a slight down pressure.

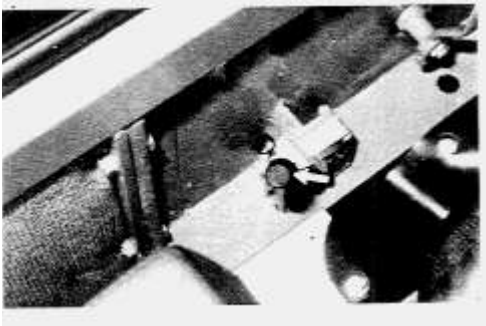
7. Return the hydraulic levers to the HOLD position.

Stopping the Engine

NOTICE

Stopping the engine immediately after it has been working under load, can result in overheating and accelerated wear of the engine components. Follow the stopping procedure outlined below to allow the engine to cool and to prevent excessive temperatures.

1. Stop the machine. See "Stopping the Machine" in the "Parking the Machine" section.



2. Operate the engine at LOW IDLE for five minutes.

This allows hot areas in the engine to cool gradually, extending engine life.

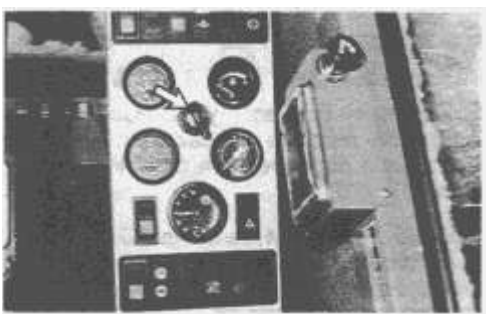


3. Move the governor control lever all the way forward, past detent, to stop the engine and turn the key to OFF.



3. Turn the start switch key to OFF to stop the engine.

Leaving the Machine



1. Remove the key.

This will prevent the engine from being started or lights being turned on by unauthorized persons.

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