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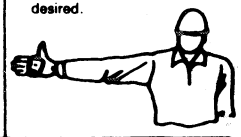
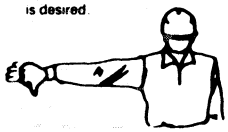
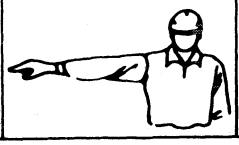
CAUTION: Always get a flagman if you cannot see a moving load. Make sure the flagman is in full view at all times. Know the signals that will be used.

USE LOAD LINE Tap fist on heart, then use regular signals 	**RAISE LOAD** 	**LOWER LOAD** 	**RAISE LOAD SLOWLY** 
LOWER LOAD SLOWLY 	**RAISE BOOM** 	**LOWER BOOM** 	**RAISE BOOM AND LOWER LOAD** Extend thumb upward and flex fingers in and out as long as load movement is desired. 
LOWER BOOM AND RAISE LOAD Extend thumb downward and flex fingers in and out as long as load movement is desired. 	**SWING** – Extend fore arm and hand in horizontal position and make slicing motion 	**STOP** – Extend fore arm and hand in horizontal position and make slicing motion 	**DOG EVERYTHING** 

CAUTION: Lower the boom or attachment to the ground before you leave the machine.

WARNING: Make sure you are on level ground before you stop the engine and leave the machine. Engage the digging brake to prevent machine movements.

WARNING: Secure latches when windows are in raised position. When closing hold grab handles while releasing each latch separately.

WARNING: Alkaline Solution. Keep where children cannot reach. Do not permit the additive to make contact with eyes, skin, or clothing. Use the additive only according to the instructions on the container. For first aid (1) if contact is made, immediately flush eyes or skin with water for at least 15 minutes (2) if taken internally, cause vomiting and take large quantities of water internally. Get a doctor immediately. If contact is made with clothing, remove and wash the clothing. Flush skin according to instructions above.

General Dimensions

	Machines through PIN 6204050	Machines with PIN 6204051 and After
A. Width of upper structure	7 ft 10½ in (2.40 m)	7 ft 10½ in (2.40 m)
B. Height of cab above grade*	10 ft (3.05 m)	10 ft (3.05 m)
C. Swing clearance	9 ft 1½ in (2.78 m)	9 ft 6½ in (2.90 m)
D. Boom pivot to center of rotation	12-5/8 in (322 mm)	12-5/8 in (322 mm)
E. Height of boom pivot above grade*	6 ft 5 in (1.96 m)	6 ft 5 in (1.96 m)
F. Distance under counterweight*	3 ft 7 in (1.9 m)	3 ft 7 in (1.09 m)
G. Overall length of crawler	13 ft 5 in (4.09 m)	13 ft 5 in (4.09 m)
H. Overall width of crawler (w/24 in shoes):		
1. Extended position	10 ft 10 in (3.30 m)	10 ft 10 in (3.30 m)
2. Retracted position	9 ft 10 in (3.0 m)	9 ft 10 in (3.0 m)
J. Track height	38 in (965 mm)	38 in. 965 mm)
K. Clearance -Undercarriage	18 in (457 mm)	18 in (457 mm)
L. Overall height - Transport position*	10 ft 8 in (3.25 m)	10 ft 8 in (3.25 m)
M. Overall length - Transport position	29 ft 11 in. (9.12 m)	30 ft 4 in (9.25 m)

*For machines with Leveler, add 8 inches (203 mm) to height dimensions.

Weights

Counterweight	6700 lb (3 040 Kg)	7500 lb (3 420 Kg)
Leveler		1900 lb (860 kg)
Overall Weight (approx.) with 1550 lb bucket, 10 ft 6 in dipper, leveler and 30 inch shoes		47,050 lb (21 320 kg)

Control Pattern D

1. CONTROL HANDLE FOR CROWD AND SWING: Forward and back movement of this handle controls the dipper. Left and right movement of the handle controls rotation of the upper structure.

2. BUTTON FOR OVERRIDE OF DRIVE RANGE AND DRIVE LOCK: Pressing this button returns the crawler drives to low range and disengages the crawler drive detent. See page 66.

3. CONTROL PEDAL FOR AUXILIARY FUNCTION: Controls the Wrist-o-Twist or other optional equipment.

4. CONTROL PEDAL FOR LEFT TRACK: Controls the drive for the left track.

5. CONTROL PEDAL FOR RIGHT TRACK: Controls the drive for the right track.

6. CONTROL PEDAL FOR LEVELER: Controls the tilt of the upper structure.

7. CONTROL HANDLE FOR HOIST AND TOOL: Forward and back movement of this handle controls the boom hoist. Left and right movement of the handle controls the bucket or tool.

8. BUTTON FOR FAST HOIST: Push this button to increase Hoist Up operation to approximately double the normal speed.

IMPORTANT: Industry does not have a standard for control patterns on machines of this classification. The design of the control linkage on this machine permits many possible patterns. Only 4 control patterns will be authorized by J I Case. The only person authorized by Case to change the control pattern is a Case Dealer. Under no conditions is an owner, operator or other person authorized to make this change.

The Case Dealer who changes the control pattern must install the correct decal for the control pattern in the cab. The identification on the decal is CONTROL PATTERN A, CONTROL PATTERN B, CONTROL PATTERN C or CONTROL PATTERN D.

Control Pattern C

1. CONTROL HANDLE FOR HOIST AND SWING: Forward and back movement of this handle controls the boom hoist. Left and right movement controls the rotation of the upper structure.

2. BUTTON FOR FAST HOIST: Push this button to increase Hoist Up operation to approximately double the normal speed.

3. CONTROL PEDAL FOR AUXILIARY FUNCTION: Controls the Wrist-o-Twist or other optional equipment.

4. CONTROL PEDAL FOR LEFT TRACK: Controls the drive for the left track.

5. CONTROL PEDAL FOR RIGHT TRACK: Controls the drive for the right track.

6. CONTROL PEDAL FOR LEVELER: Controls the leveler cylinders to tilt the upper structure.

7. CONTROL HANDLE FOR CROWD AND TOOL: Forward and back movement of this handle controls the dipper. Right and left movement controls the bucket or tool.

8. BUTTON FOR DRIVE LOCK: Pushing this button activates both track drives in a direction for forward travel. See page 66.

IMPORTANT: Industry does not have a standard for control patterns on machines of this classification. The design of the control linkage on this machine permits many possible patterns. Only 4 control patterns will be authorized by J I Case. The only person authorized by Case to change the control pattern is a Case Dealer. Under no conditions is an owner, operator or other person authorized to make this change.

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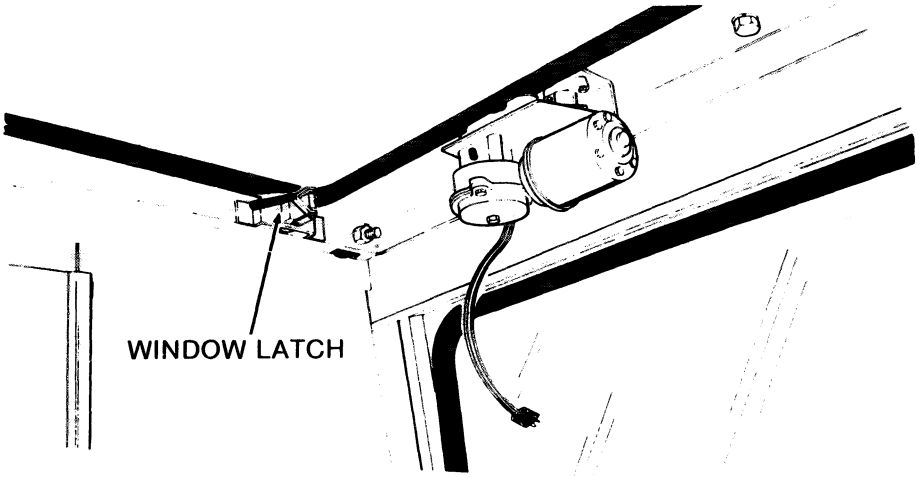


Windshield in Open Position

To close the windows:

1. Hold the grab handles on the lower window and release each latch separately. Use both grab handles and carefully lower the windcw to the closed position. Engage the window latches.

2. Hold the grab handles on the windshield and release each latch separately. Use both grab handles to move the windshield to the closed position. Push top of windshield tight against the cab and engage the window latches.

3. Connect the electrical connector for the windshield wiper.

WARNING: Make sure the windows of your cab are clean. Make sure the windshield wipers are operating correctly. Dirty windows can cause an accident.

WARNING: Secure latches when windows are in raised position. When closing hold grab handles while releasing each latch separately.

When You Operate During Cold Temperatures

When you operate during cold temperatures, do the following:

1. Keep the batteries at full charge.
2. Use correct oil in the engine. See chart on page 84.
3. Use a solution of 50% ethylene glycol antifreeze and 50% water in the cooling system. See page 85.
4. After operation, stop the machine on a hard level surface out of mud or water.
5. Fill the fuel tank before you stop operations each day. Remove water from trap on bottom of fuel tank.
6. Operate the engine at speeds high enough to keep the coolant temperature at the correct level. When you operate the engine at idle speed, the coolant temperature decreases.

Warming Procedure for the Hydraulic System

When temperatures are below freezing, the following procedures must be used to prevent damage to the pumps and other hydraulic components

Below Freezing (32° F, 0° C):

1. Start engine and run at approximately 1000 rpm (1/3 throttle) for about 5 minutes. Do not operate any hydraulic controls.
2. After engine is warm, operate each hydraulic control separately with a minimum load, to move the oil through the system until the oil is warm

Below 0° F (-18° C):

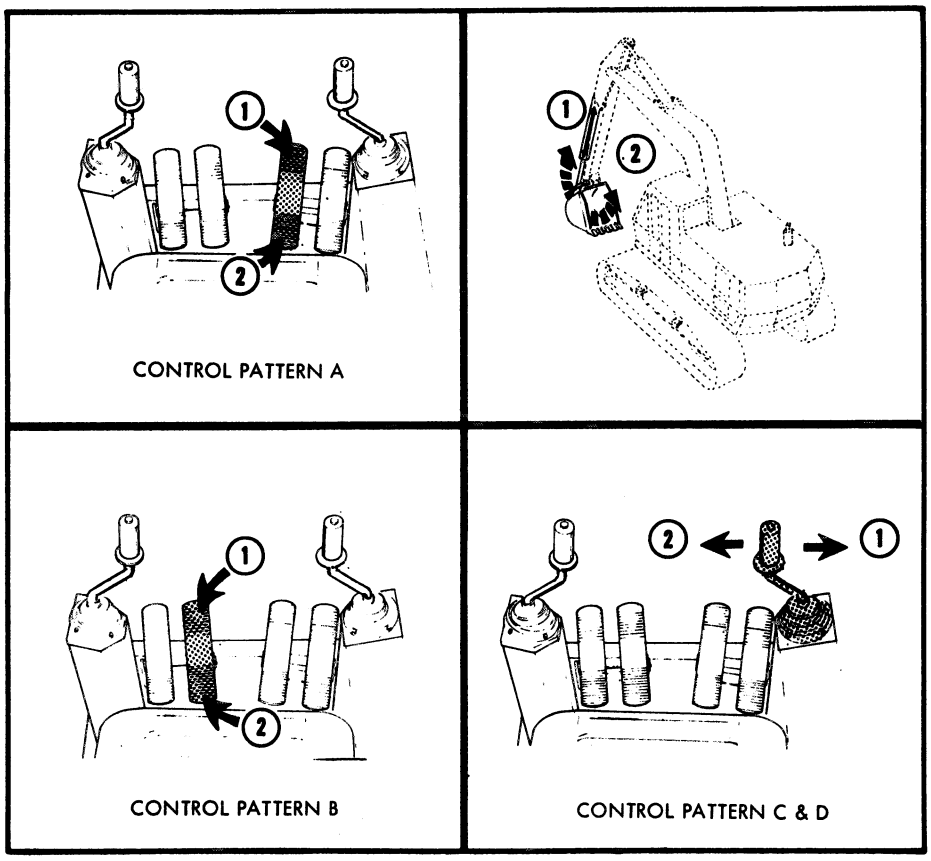
1. Run engine for 10 minutes with no load and for 15 minutes with a medium load before operation with full capacity loads.
2. In colder temperatures a longer warming period is necessary.

NOTE: If the hydraulic oil temperature is below the pour point of the hydraulic oil being used, do not start the system. The cold oil will immediately cause cavitation and damage to the pump.

The Tool Control

To roll the bucket out (dump), move Tool Control to position No. 1 (see illustration below). Return the control slowly to Neutral position to stop the movement.

To roll the bucket In (load), move the Control to position No. 2 (see illustration).



Tool

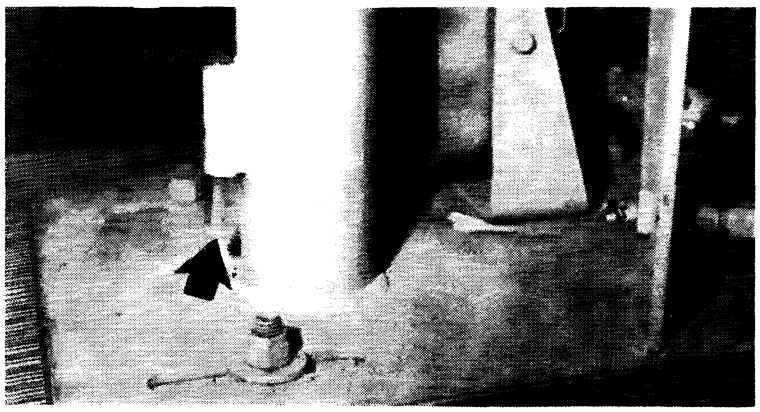
AFTER OPERATION

CAUTION: Lower the boom or attachment to the ground before you leave the machine.

WARNING: Make sure you are on level ground before you stop the engine and leave the machine. Engage the digging brake to prevent machine movements.

When the job is finished for the day, do the following:

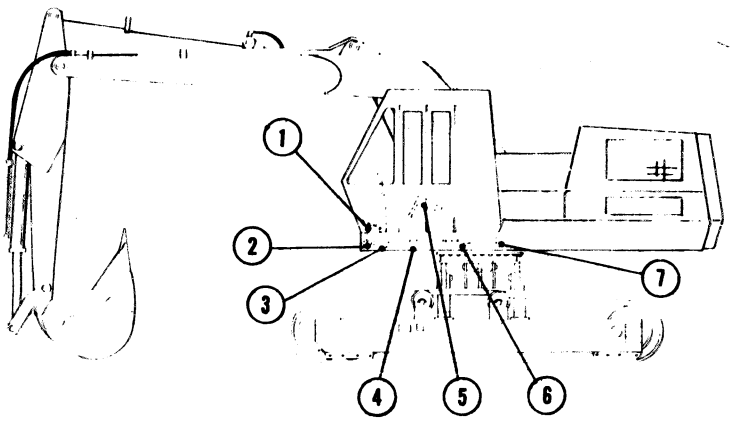
1. Move the machine to a hard, level area, away from the excavation.
2. Put the tool on the ground and engage the house brake.
3. Engage the crawler drive brake.
4. After normal cooling period, stop the engine. See page 57.
5. Close the cab windows. See page 51.
6. Make sure the heater is stopped.
7. Close all compartment doors. Put the square key for the compartment doors in the storage bracket on the seat pedestal.



Square Key for Compartment Doors

8. Remove the key from the key switch. Close and lock the cab door.

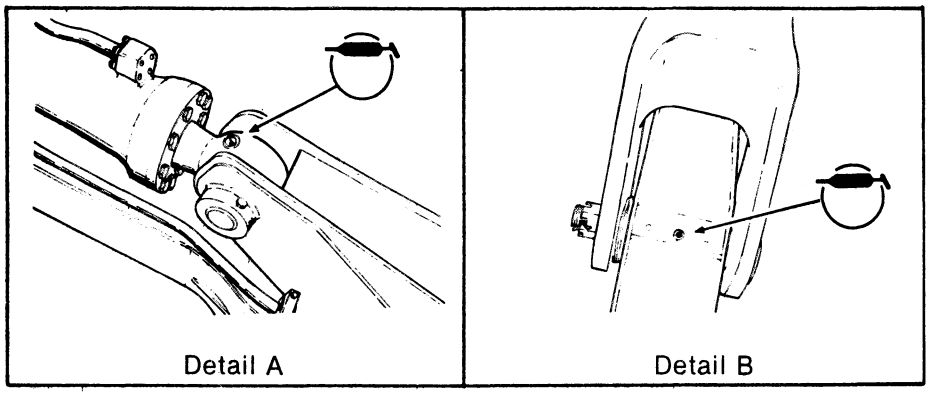
NOTE: In freezing conditions, put wood planks under the tracks to prevent freezing of the tracks to the ground.



After Every 50 Hours Or Each Week

1. Foot pedal pivots .....(4) one each pedal (See Detail L)
2. Foot pedal bellcranks .....(4) one each (See Detail M)
3. Control lever bellcranks .....(4) one each (See Detail M)
4. Bellcrank manifold blocks (Machines through PIN 6204050) .....(16) four manifolds (See Detail N)
5. Turntable bearing .....(1) located in cab (See Detail P)
6. Rear bellcrank .....1 (See Detail R)

LIST OF GREASE FITTINGS



Detail A

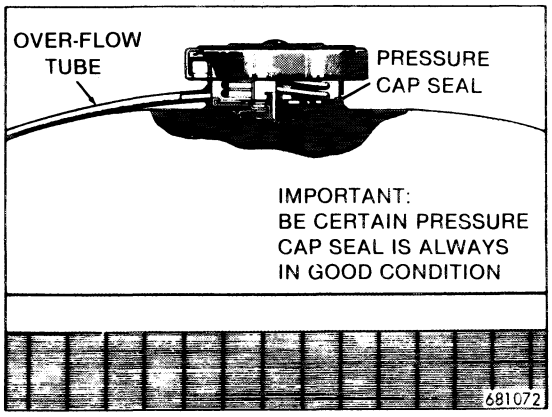
Detail B

ENGINE COOLING SYSTEM

Coolant Level

CAUTION: Pressure cooling system. Remove cap slowly and only when engine is cool or painful burns could result.

Check the coolant level every 10 hours of operation or daily. When the coolant is cold, the coolant level must be two inches (50 mm) below the level of the radiator opening. Add coolant if necessary. Do not add coolant above the correct level.



Coolant/Antifreeze

A mixture of 50% ethylene glycol and 50% water must be used in this machine. This mixture gives protection against freezing to -34° F (-37° C). For colder temperature conditions, more anti-freeze must be added.

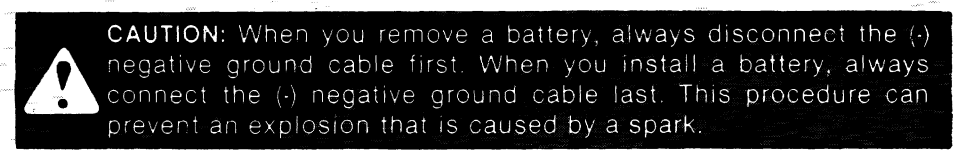
Ethylene glycol is a coolant antifreeze that can be used in your machine all year. Ethylene glycol and water, when mixed to the above specifications, will allow the engine to run cooler than with an engine filled with 100% water.

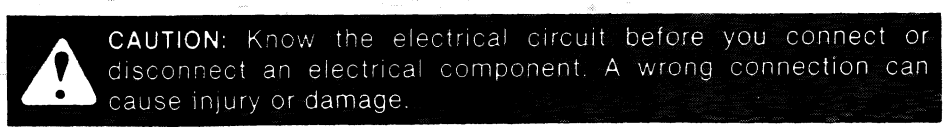
Do not mix different types or brands of antifreeze in the cooling system. These mixtures do not give correct test readings.

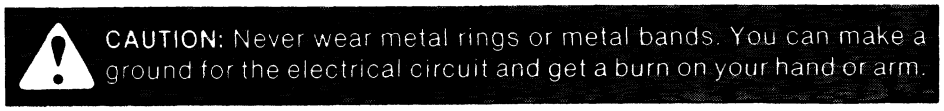
IMPORTANT: Mix the antifreeze and water thoroughly by running the engine at operating temperature for about 5 minutes. This procedure must be done before the machine is put outside in temperatures below 32° F (0° C).

ELECTRICAL SYSTEM

Alternator Charging System







Rules for Service

1. Before you make repairs to the electrical system or before you charge the battery, disconnect the battery cables.
2. Before you use an electric welder on this machine, disconnect the alternator wires.
3. Keep the correct tension on the drive belts. Replace the drive belts if they are not in good condition.
4. Always connect the negative battery cable to the negative (-) battery terminal. Always connect the positive battery cable to the positive (+) terminal on the battery. This machine has a negative ground.
5. Do not make a wrong connection with the wires of the alternator. See the service manual for this machine.
6. Do not operate the engine if the battery cables are disconnected.
7. Do not use a steam cleaner or a cleaning solvent to clean the alternator.

Procedure To Change The Hydraulic Oil

Change the hydraulic oil after every 1500 hours of operation, every 6 months, or when dirt or foreign material are found in the system.

The components of the hydraulic system are precision mechanisms. Damage can easily be caused by dirt or foreign material. Also, continued heating and cooling causes the oil to break down chemically. After a time, the lubrication ability of the hydraulic oil decreases.

To change oil in the hydraulic system, use the following procedure. Do this while the oil is still warm from operation.

1. Retract the cylinders so you remove as much oil as possible from the system. Stop the engine.

2. Be prepared to collect approximately 30 gallons (114 litres) of oil. Remove the cap from the drain line on the hydraulic reservoir. Wait until the reservoir is empty, then do the following steps.

3. Remove cover from top of hydraulic reservoir. Reach inside the reservoir and remove two 30 mesh diffusers. Clean these items in a solvent that is not flammable. Replace the diffusers if the screens have damage.

4. Clean the inside of the reservoir. Make sure all sediment is removed.

5. Install the diffusers. Clean the 200 mesh screen on the filter hole of the cover.

6. Use new gasket and install top cover. Tighten the bolts evenly to a torque of 17 lb-ft (23 Nm).

7. Clean or replace the breather for the hydraulic reservoir.

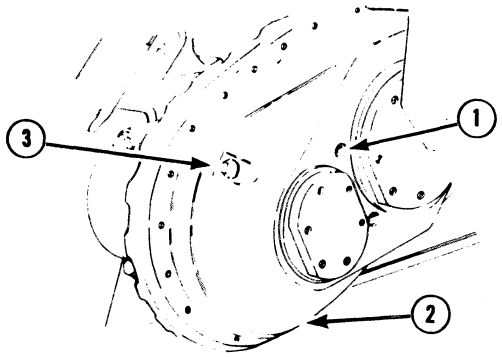
8. Replace the 33 micron filter and clean the 100 mesh screens in the hydraulic lines. See page 117.

9. Install cap on drain line of hydraulic reservoir. Fill the hydraulic reservoir with the correct oil. See page 84. Install filler cap.

10. Start the engine. Operate the hydraulic functions through several cycles to fill the lines and cylinders with oil. Stop the engine. Check the oil level in the hydraulic reservoir. Add oil as needed. See page 117. Look for leaks in the filter mountings and drain line.

Final Drive Transmission

Check the oil level each week or after every 50 hours of operation, whichever comes first. Change the oil every 6 months or after 1500 hours of operation. Look for large particles of metal in the oil which is an indication that an overhaul is needed.



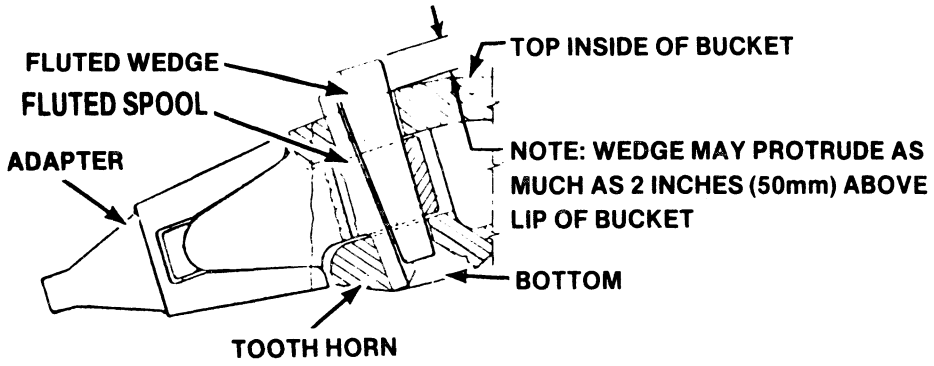
1. Oil Level Plug
2. Drain Plug Location
3. Filler Plug

Final Drive Transmission

Backhoe Buckets - Severe Duty Type

Maintenance of Bucket Teeth

Check the bucket teeth each day or more frequently when you are digging in hard materials. Make sure the wedges which fasten the tooth and adapter to the cutting edge are tight. Loose wedges will cause extra wear and early failure of the adapter.



Cross Section of Tooth and Cast Cutting Edge
on Severe Duty Bucket