PART NO. EM15J-2-1

Operator's Manual

EX270-5
EX270LC-5
EX280H-5
EX280LCH-5

Excavator

Serial No. 010505 and up

HITACHI

RECOGNIZE SAFETY INFORMATION

- This is the **SAFETY ALERT SYMBOL**.
  - When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.
  - Follow recommended precautions and safe operating practices.

SA-001

001-E01A-0001

UNDERSTAND SIGNAL WORDS

- On machine safety signs, signal words designating the degree or level of hazard - DANGER, WARNING, or CAUTION - are used with the safety alert symbol.
  - **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
  - **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
  - **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
  - **DANGER or WARNING safety signs** are located near specific hazards. General precautions are listed on **CAUTION safety signs**.
- **CAUTION** also calls attention to safety messages in this manual.
- To avoid confusing machine protection with personal safety messages, a signal word **IMPORTANT** indicates a situation which, if not avoided, could result in damage to the machine.
- ***NOTE*** indicates an additional explanation for an element of information.

DANGER

WARNING

CAUTION

IMPORTANT

NOTE

SA-1223

002-E01A-1223

AVOID INJURY FROM BACK-OVER AND SWING ACCIDENTS

- If any person is present near the machine when backing or swinging the upperstructure, the machine may hit or run over that person, resulting in serious injury or death.

To avoid back-over and swing accidents:

- Always look around BEFORE YOU BACK UP AND SWING THE MACHINE. BE SURE THAT ALL BY-STANDERS ARE CLEAR.
- Keep the travel alarm in working condition (if equipped).
  ALWAYS BE ALERT FOR BYSTANDERS MOVING INTO THE WORK AREA. USE THE HORN OR OTHER SIGNAL TO WARN BYSTANDERS BEFORE MOVING MACHINE.
- USE A SIGNAL PERSON WHEN BACKING UP IF YOUR VIEW IS OBSTRUCTED. ALWAYS KEEP THE SIGNAL PERSON IN VIEW.
  Use hand signals, which conform to your local regulations, when work conditions require a signal person.
- No machine motions shall be made unless signals are clearly understood by both signalman and operator.
- Learn the meanings of all flags, signs, and markings used on the job and confirm who has the responsibility for signaling.
- Keep windows, mirrors, and lights clean and in good condition.
- Dust, heavy rain, fog, etc., can reduce visibility. As visibility decreases, reduce speed and use proper lighting.
- Read and understand all operating instructions in the operator's manual.

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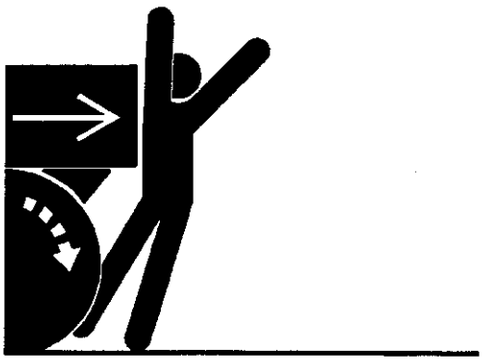

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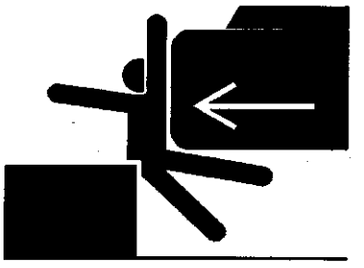

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PREVENT BURNS

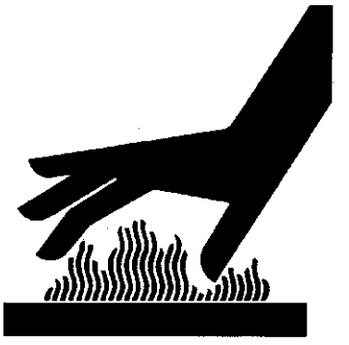
Hot spraying fluids:

- After operation, engine coolant is hot and under pressure. Hot water or steam is contained in the engine, radiator and heater lines.
  Skin contact with escaping hot water or steam can cause severe burns.
  - To avoid possible injury from hot spraying water, DO NOT remove the radiator cap until the engine is cool. When opening, turn the cap slowly to the stop. Allow all pressure to be released before removing the cap.
  - The hydraulic oil tank is pressurized. Again, be sure to release all pressure before removing the cap.

SA-039

Hot fluids and surfaces:

- Engine oil, gear oil and hydraulic oil also become hot during operation.
  The engine, hoses, lines and other parts become hot as well.
  - Wait for the oil and components to cool before starting any maintenance or inspection work.



SA-225

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REPLACE RUBBER HOSES PERIODICALLY

- Rubber hoses that contain flammable fluids under pressure may break due to aging, fatigue, and abrasion. It is very difficult to gauge the extent of deterioration due to aging, fatigue, and abrasion of rubber hoses by inspection alone.
  - Periodically replace the rubber hoses. (See the page of "Periodic replacement of parts" in the operator's manual.)

SA-019

- Failure to periodically replace rubber hoses may cause a fire, fluid injection into skin, or the front attachment to fall on a person nearby, which may result in severe burns, gangrene, or otherwise serious injury or death.

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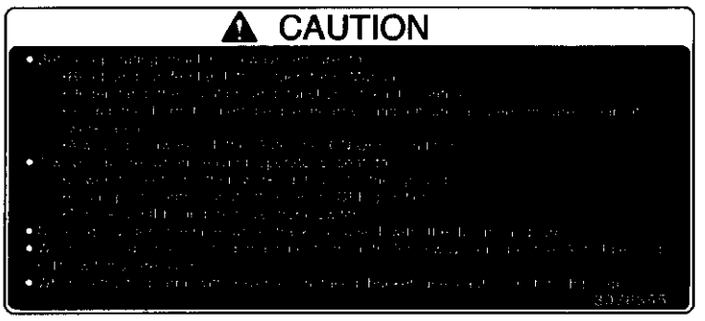

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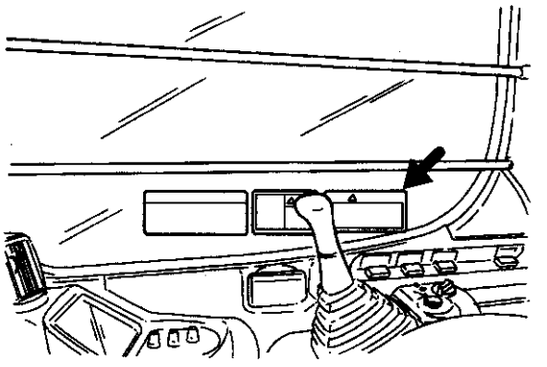

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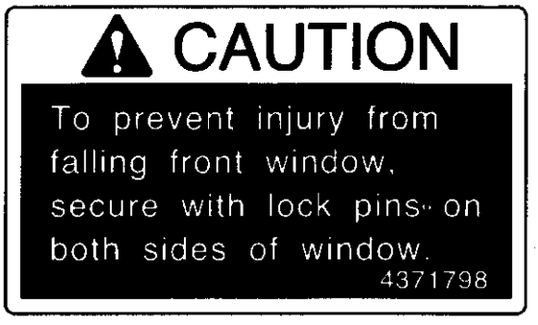

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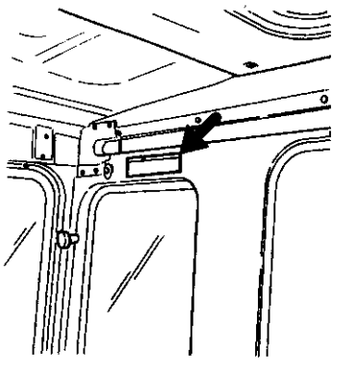

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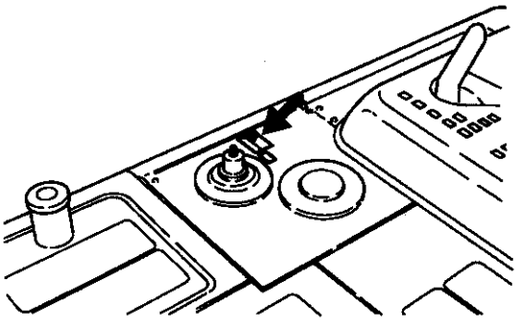
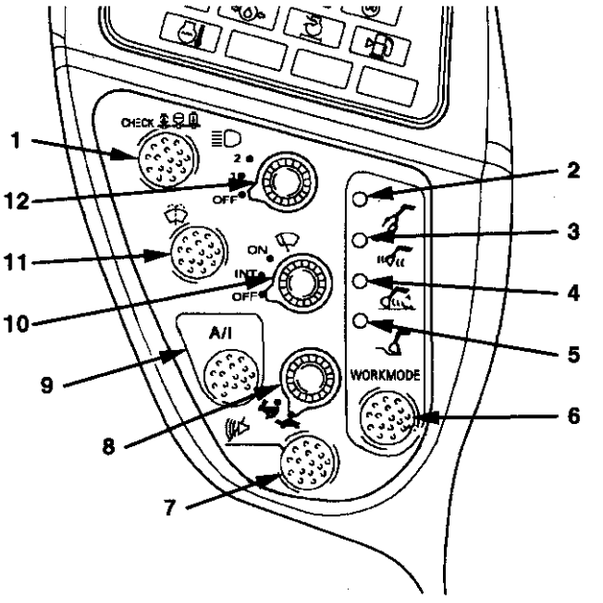


SS-1656

SWITCH PANEL

1- Level Check Switch
2- Attachment Mode Indicator
3- Precision Mode Indicator
4- Grading Mode Indicator
5- General Purpose Indicator
6- Work Mode Select Switch
7- Buzzer Stop Switch
8- Travel Mode Switch
9- Auto-Idle Switch
10- Wiper Switch
11- Washer Switch
12- Work Light Switch



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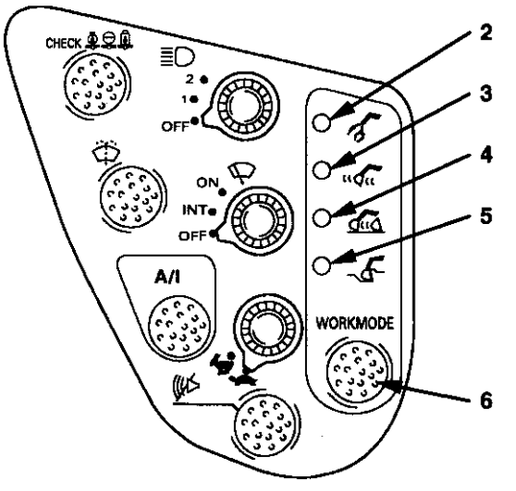
WORK MODE SELECT SWITCH

Work mode select switch (6) controls the speeds of the front and swing functions to match the work conditions at hand.

Each time work mode select switch (6) is pressed, one of the following indicators is selected:

- General Purpose Mode
- Grading Mode
- Precision Mode
- Attachment Mode

Selected work mode is indicated by indicators (2), (3), (4), or (5).



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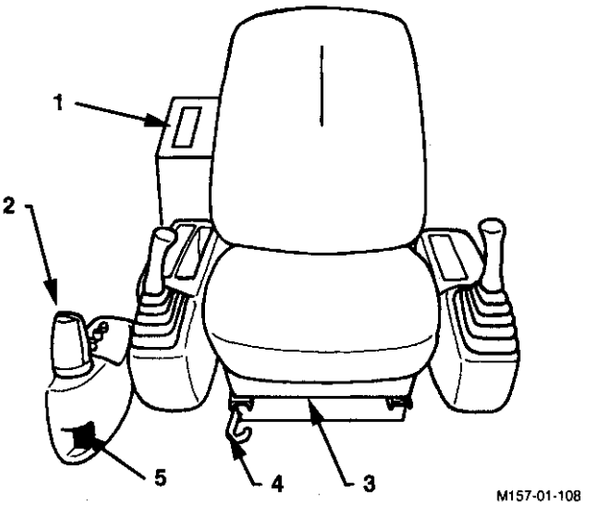
CAB HEATER

1- Control Panel
2- Front Vent
3- Foot Vent
4- Foot Vent Open/Close Lever
5- Defroster Vent
6- Temperature Control Lever
7- Fresh Air/Recirculation Select Lever
8- Blower Switch



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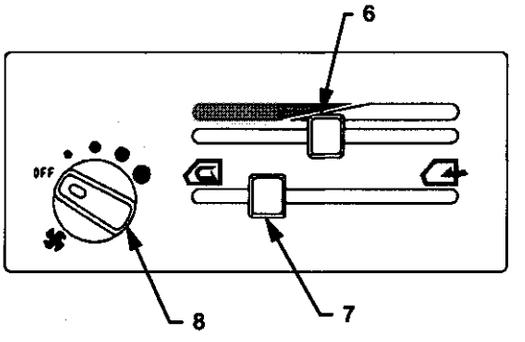
NOTE: Except for the foot vent, all vents are provided with louvers to adjust the air flow direction. In addition, the louvers on the front air flow vent and defroster vent can be completely closed.

Designation and Function of Levers and Switches on Control Panel

- Temperature Control Lever (6)
  Air temperature is the warmest with the lever in the rightmost position and the coolest in the leftmost position.
- Fresh Air/Recirculation Select Lever (7)
  The leftmost position is for recirculation and the rightmost position is for fresh air.
- Blower Switch (8)
  Four operating positions are provided. Turn the switch to the OFF position to stop the blower.



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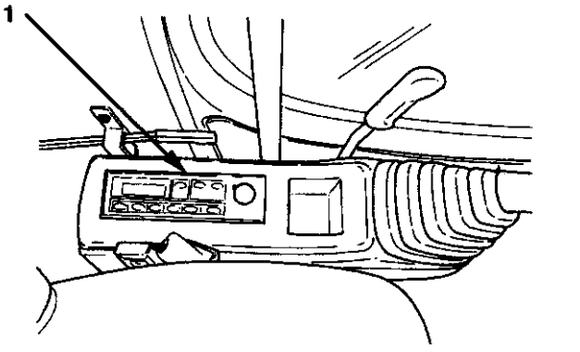
LEFT CONSOLE

1- RADIO/CLOCK



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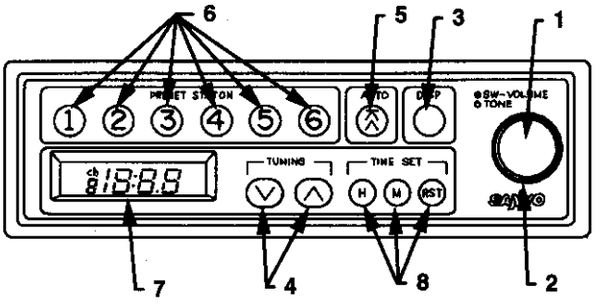
RADIO OPERATION

Controls and Switches

1. Power Switch/Volume Control Knob
2. Tone Adjustment Ring
3. Display Mode Change Switch
   When the power switch is turned on, the frequency will automatically be displayed on digital display (7). If display mode change switch (3) is pressed, current time (the clock) will be displayed for five seconds. Five seconds later or if any switch other than time set switch (8) ((H), (M),or (RST))is pressed, the display will return to the frequency display.
4. Tuning Switches
5. Automatic Search Switch
6. Station Presets
7. Digital Display
8. Time Set Switches



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Tuning Procedure

- Manual Tuning Procedure
  Tap either tuning switch (4) to select the desired station frequency.
  Each time the tuning switch is tapped, the frequency changes 9 kHz.

  Increase Switch ⌃: The frequency increases.
  Decrease Switch ⌄: The frequency decreases.

After the frequency reaches the highest or lowest level, the display will move to the lowest or highest frequency respectively, if the same switch is continuously tapped.

ADJUSTING THE SEAT

Seat height and angle adjustment

Seat height adjustment range is 60 mm (2.4 in) with steps every 15 mm (0.6 in) (5 positions in total). Moreover, the height of the front part and the rear part of the seat are adjusted independently, thus allowing the angle of the seat to be adjusted.

CAUTION: Avoid possible injury while operating lever (1). When pushing down lever (1), do not grab it. Fingers may be pinched between lever (1) and the seat stand. Be sure to push on the upper face of lever (1).

Use lever (1) to adjust the seat height and/or seat angle as follows:

- To adjust the front part of the seat
  Push down lever (1) while sitting on the seat, and apply or remove body weight to obtain the desired height. When the desired height is obtained, release lever (1).
- To adjust the front part of the seat
  Pull up lever (1) while sitting on the seat, and apply or remove body weight to obtain the desired height. When the desired height is obtained, release lever (1).

Console and seat fore-aft adjustment

Pull lever (2) to the right to adjust the seat and both right and left consoles to the desired distance from the travel pedals and levers. Release lever to lock seat and consoles into position.

NOTE: Seat and console fore-aft adjustment range is 120 mm (4.7 in) with steps every 20 mm (0.8 in).

Seat fore-aft adjustment

Pull lever (3) to the right to unlock the seat from both consoles. With lever held to the right, slide the seat to the desired distance from pilot control levers. Release the lever.

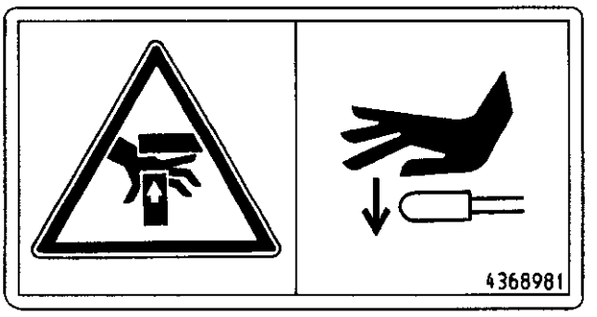
NOTE: Seat fore-aft adjustment range is 160 mm (6.3 in) with steps every 16mm (0.8 in).

Backrest adjustment

Push lever (4) forward to release backrest lock. Move backrest to the desired position and release lever.

Armrest adjustment

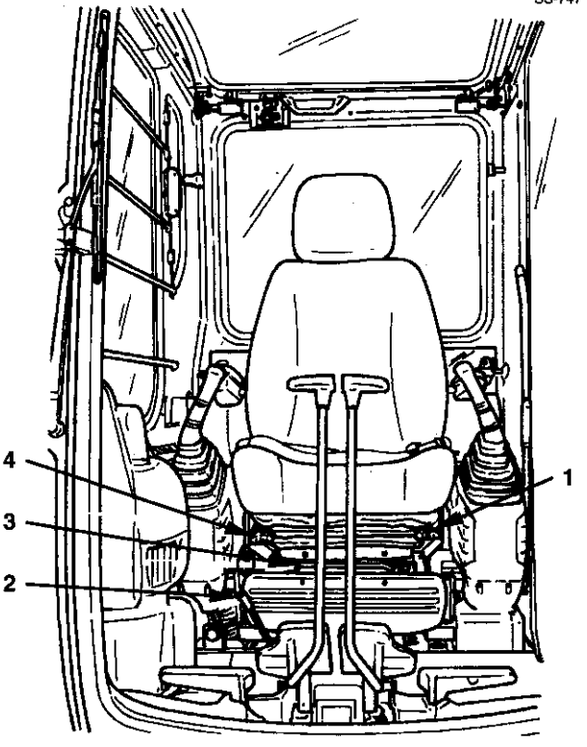
Armrest (5) can be pulled upright by hand for easy getting on and off the machine.
The angle of armrest (5) can be adjusted in the desired position by turning adjusting dial (6) located on the bottom of armrest (5).



Caution: Possibility of pinched fingers

Push down with the palm.

SS-747



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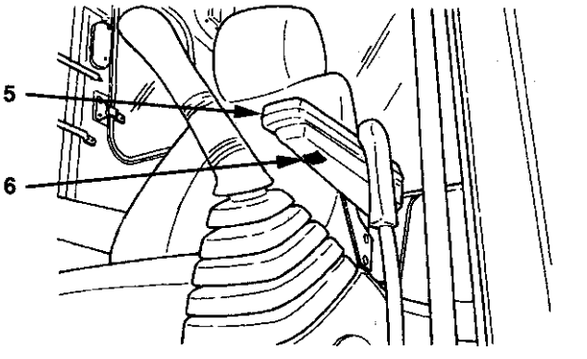

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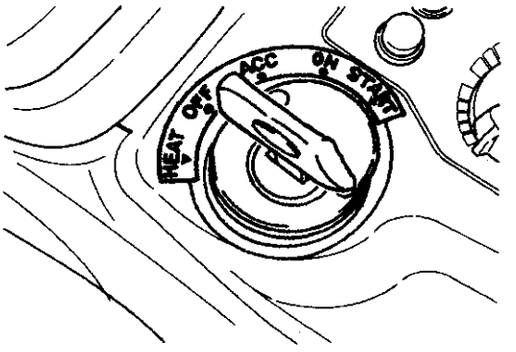
LEVEL CHECK

1. Turn key switch to the ON position.
2. Depress level check switch (1).
   Hydraulic oil level (2), coolant level (3) and engine oil level (4) indicators will light if levels are adequate for operation.

IMPORTANT: Prevent possible machine damage.
Check fluid levels individually.
The level check does not take the place of daily inspection at hydraulic oil level window, engine coolant reserve tank and engine oil level dipstick.



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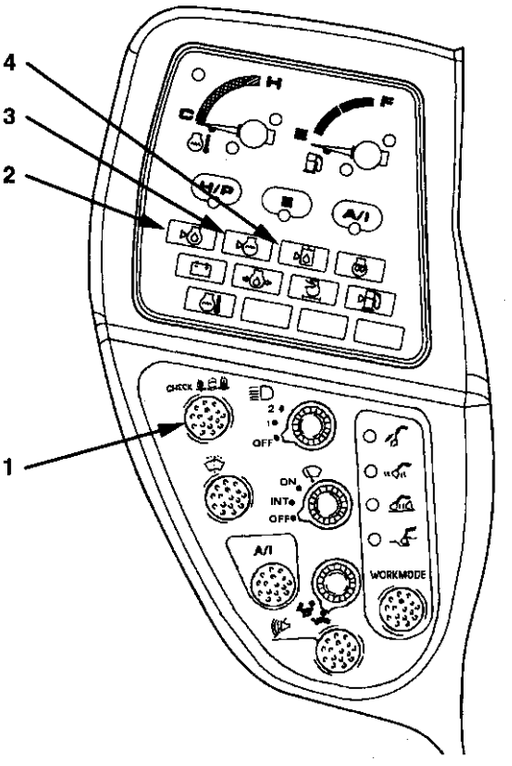

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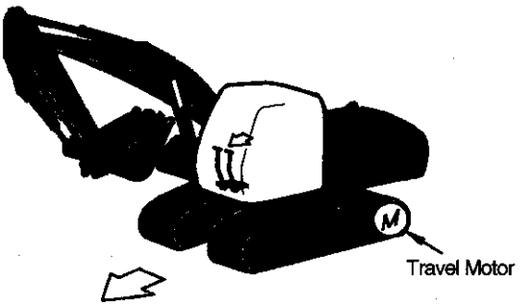
TRAVELING

CAUTION: Use a signal person when moving, swinging or operating the machine in congested areas. Coordinate hand signals before starting the machine.

- Before moving machine, determine which way to move travel pedals/levers for the direction you want to go. When the travel motors are in the rear, pushing down on the front of the travel pedals or pushing the levers forward moves the machine forward, towards the idlers.
- Select a travel route that is as flat as possible. Steer the machine as straight as possible, making small gradual changes in direction.
- Before traveling on them, check the strengths of bridges and road shoulders, and reinforce if necessary.
- Use wood plates in order not to damage the road surface. Be careful of steering when operating on asphalt roads in summer.
- When crossing train tracks, use wood plates in order not to damage them.
- Do not make contact with electric wires or bridges.
- When crossing a river, measure the depth of the river using the bucket, and cross slowly. Do not cross the river when the depth of the river is deeper than the upper edge of the upper roller.
- When traveling on rough terrain, reduce engine speed. Select slow travel speed. Slower speed will reduce possible damage to the machine.
- Avoid operations that may damage the track and undercarriage components.
- During freezing weather, always clean snow and ice from track shoes before loading and unloading machine, to prevent the machine from slipping.



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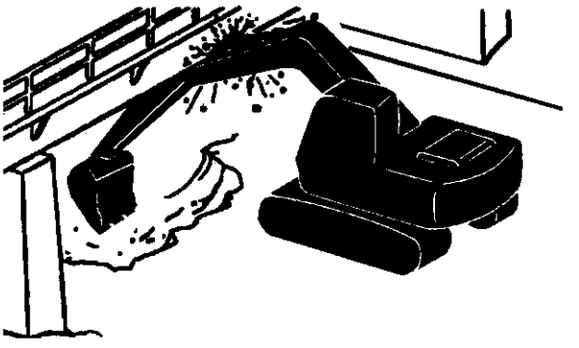
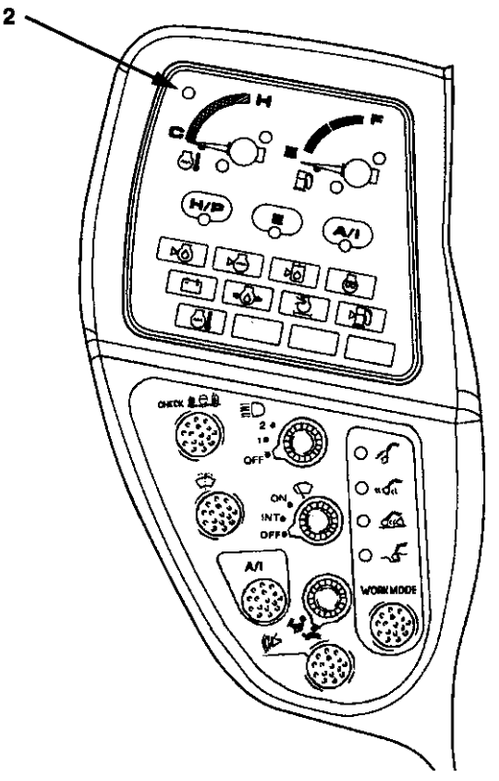


SA-011

Warming-up the Motor and the Cylinders

IMPORTANT: 1. In cold weather, be sure to thoroughly warm-up the motors and cylinders.
2. If the hydraulic circuit is continuously relieved for a certain amount of time, the temperature in the control valve would rise excessively. Never operate to stroke end more than 15 seconds. After relieving any function, up to 15 seconds, be sure to have a 5–10 second intermission.

1. Confirm that warm-up complete indicator (2) is off.
2. Turn engine control dial (1) to the medium position.
3. Operate the boom, arm and bucket cylinders slowly to each stroke end several times.
4. Operate travel and swing functions slowly, initially moving only short distances.
5. Continue to repeat steps 3 and 4 until bucket cycle time is normal.



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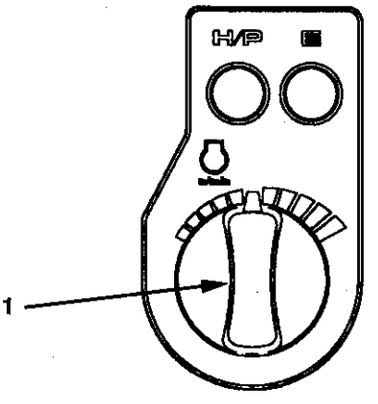

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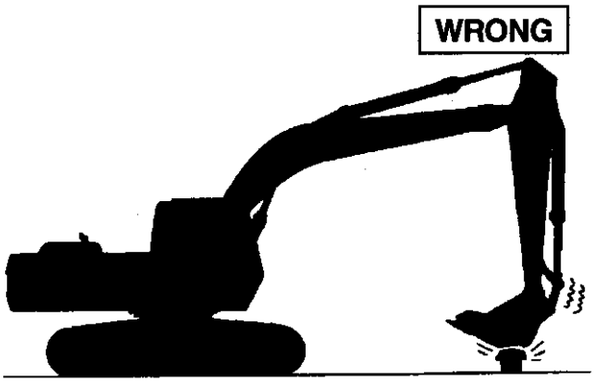
OPERATING TIPS



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Do not hit the track with the bucket when digging.
Whenever possible, position your machine on a level surface.
Do not use the bucket as a hammer or pile driver. Do not attempt to shift rocks and break walls using swing motion.

IMPORTANT: To avoid damaging cylinders, do not strike the ground with the bucket nor use the bucket for tamping with the bucket cylinder fully extended (the bucket completely curled under).

Adjust the length and depth of each cut to produce a full bucket with every pass.
Full loads on every pass is more productive than a faster cycle with a partially filled bucket.
Full load should be the first objective, followed by speed, to increase productivity.

IMPORTANT: Do not attempt to break ledge rock by extending the arm to maximum reach and dropping the front of the bucket on the bucket teeth for penetration. Serious damage to the machine can result.

Once the trench is open, ledge rock can be broken by pulling the bucket up under the layers. The top layers are pulled out first, with one or two layers being lifted at a time.
Do not side load the bucket. For example, do not swing the bucket to level material or do not strike objects from the side with the bucket.

SELECT CORRECT TRACK SHOES

IMPORTANT: Using wide track shoes on rough ground may result in shoe bending and/or loosening, and may damage other undercarriage components.

Never use wide track shoes on rough ground such as rocks, sand or gravel. Wide track shoes are designed for soft ground.

Track shoe bolts should be checked periodically for tightness.

CORRECT MAINTENANCE AND INSPECTION PROCEDURES

SA-005

Learn how to service your machine correctly. Follow the correct maintenance and inspection procedures shown in this manual.

Inspect machine daily before starting.

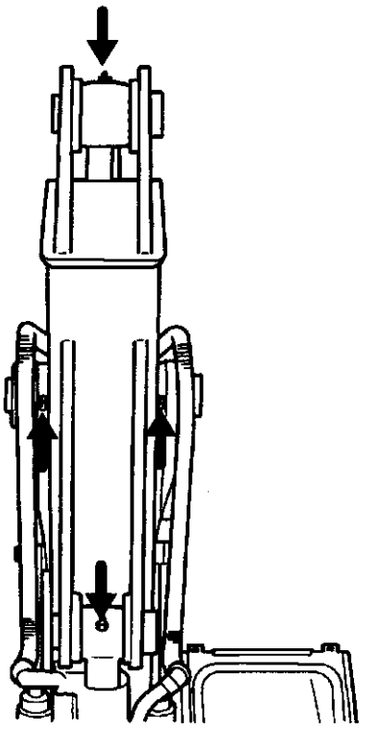
- Check controls and instruments.
- Check coolant, fuel and oil levels.
- Check for leaks, kinked, frayed or damaged hoses and lines.
- Walk around machine checking general appearance, noise, heat, etc.
- Check for loose or missing parts.

If there is any problem with your machine, repair it before operating or contact your authorized dealer.

IMPORTANT:

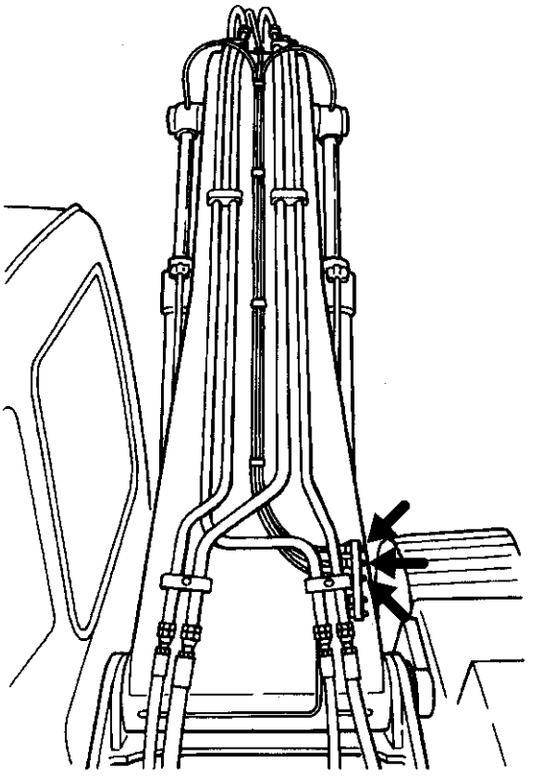
- **Use only recommended fuel and lubricants.**
- **Use only genuine HITACHI parts.**
- **Failure to use recommended fuel, lubricants, and genuine Hitachi parts will result in loss of Hitachi product warranty.**
- **Never adjust engine governor or hydraulic system relief valve.**
- **Protect electrical parts from water and steam.**
- **Never disassemble electrical components such as main controller, sensors, etc.**

- Boom and Arm Joint Pin, Arm Cylinder Rod Pin and Bucket Cylinder Bottom Pin.
  --- every 100 hours (every 8 hours for first 100 hours)



M157-07-157

- Boom Cylinder Rod Pins and Arm Cylinder Bottom Pin. (Centralized greasing system)
  --- every 100 hours (every 8 hours for first 100 hours)



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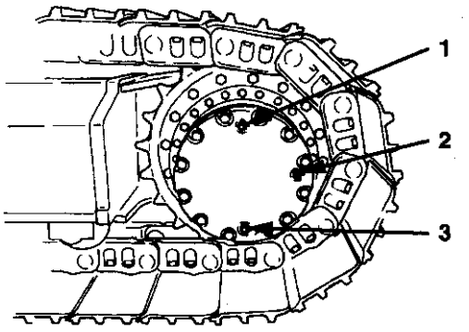
Change Gear Oil --- every 2000 hours



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1. Park the machine on a level surface.
2. Rotate the travel motor until the imaginary line through plug (1) and plug (3) is vertical.
3. Lower the bucket to the ground.
4. Turn the auto-idle switch off.

IMPORTANT: The turbocharger may be damaged if the engine is not properly shut down.

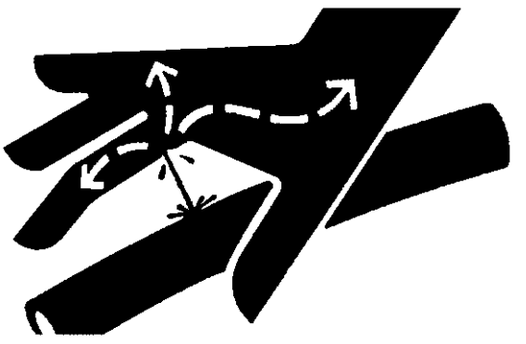
5. Run the engine at slow idle speed without load for five minutes.
6. Stop the engine. Remove the key from the key switch.
7. Pull the pilot control shut-off lever to the LOCK position.

CAUTION: Keep body and face away from the air release plug. Gear oil is hot. Wait for gear oil to cool and then gradually loosen the air release plug to release pressure.

8. After gear oil has cooled, slowly loosen air release plug (1) to release pressure, and temporarily retighten plug (1).
9. Remove drain plug (3) and plug (1), in that order, to drain oil.
10. Clean drain plug (3). Wrap the threads of the drain plug with sealing-type tape. Install the plug. Tighten the plug to 49 N·m (5 kgf·m, 36 lbf·ft).
11. Remove oil level check plug (2).
12. Add oil until oil flows out of the oil level check plug hole. (See gear oil chart)
13. Clean plugs (1) and (2). Wrap the threads of oil level check plug (2) and air release plug (1) with sealing-type tape. Reinstall the plugs. Tighten the plugs to 49 N·m (5 kgf·m, 36 lbf·ft).
14. Repeat steps 8. to 13. for the other travel reduction gear.

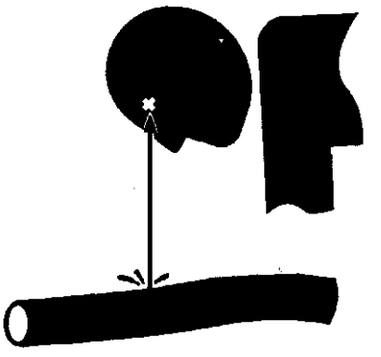
7

Check Hoses and Lines
--- daily
--- every 250 hours



SA-031

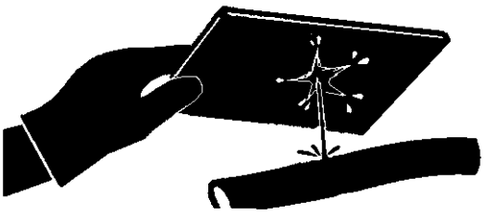
CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury.
To avoid this hazard, search for leaks with a piece of cardboard.
Take care to protect hands and body from high-pressure fluids.
If an accident occurs, see a doctor familiar with this type of injury immediately.
Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.



SA-292

CAUTION: Hydraulic oil and lubricant leaks can lead to fire that may result in serious injury.
To avoid this hazard :

1. **Park the machine on a firm, level surface. Lower the bucket to the ground. Stop the engine. Remove key from the key switch. Pull the pilot control shut-off lever to the LOCK position.**
2. **Check for missing or loose clamps, kinked hoses, lines or hoses that rub against each other, damaged oil cooler, and loose oil cooler flange bolts, for leaks. Check hoses, lines and oil cooler at the check points indicated below for leaks and other damage that may result in future leaks. If any abnormalities are found, replace or retighten them, as shown in Tables 1-3.**
3. **Tighten, repair or replace any missing, loose or damaged clamps, hoses, lines, oil cooler, and loose oil cooler flange bolts. Do not bend or strike high-pressure lines. Never install bent or damaged hoses or lines.**



SA-044

5 **Check Fuel Hoses**
--- daily
--- every 250 hours

CAUTION: Fuel leaks can lead to fires that may result in serious injury.
To avoid this hazard :

1. Park the machine on a firm, level surface. Lower the bucket to the ground. Stop the engine. Remove key from the key switch. Pull the pilot control shut-off lever to the LOCK position.
2. Check for kinked hoses, and hoses that rub against each other parts for leaks.
   Check hoses at the check points indicated below for leaks and other damage that may result in future leaks. If any abnormalities are found, replace or retighten them, as shown in Table 4.
3. Repair or replace any loose or damaged hoses.
   Never install bent or damaged hoses.

Table 4. Hoses

Interval(hours)	Check Points	Abnormalities	Remedies
Daily	Hose ends	Leak (1)	Retighten or replace
	Soutache braid hose	Friction (2) Crack (2)	Replace Replace
Every 250 hours	Soutache braid hose	Crack (3)	Replace
	Hose ends	Crack (4)	Replace
	Hose	Bend (5)	Replace
	Hose	Collapse (6)	Replace (Use proper bend radius)
	Hose ends and fittings	Deformation or Corrosion (7)	Replace

NOTE: Refer to the illustrations in Fig.1 for each check point location or for a description of the abnormality. Use genuine Hitachi parts.

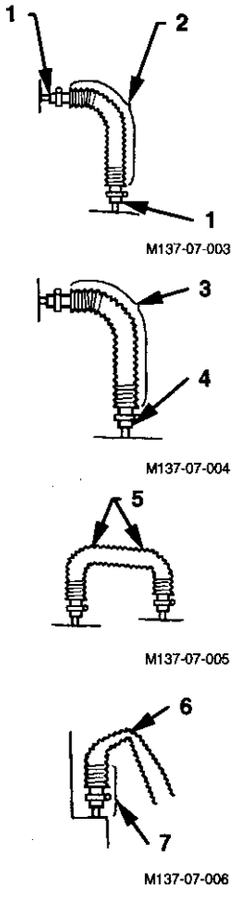


Fig.1

If acid is swallowed:

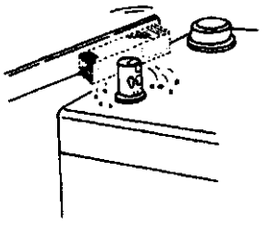
1. **Drink large amounts of water or milk.**
2. **Then drink milk of magnesia, beaten eggs, or vegetable oil.**
3. **Get medical attention immediately.**

IMPORTANT: Add water to batteries in freezing weather before you begin operating your machine for the day, or else charge the batteries.

a. The electrolyte level must be between the upper and lower level marks on the battery case. Supply distilled water if necessary; be sure to charge the battery after doing so.

CAUTION: Always remove the grounded (–) battery clamp first and replace it last.

b. Always keep the terminals and vent plugs, located on top of the battery, clean to prevent battery discharge. Check the battery terminals for looseness and rust. Apply petroleum jelly to the terminals to prevent corrosion.



M409-07-072

2. Check electrolyte specific gravity

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check the battery electrolyte level.

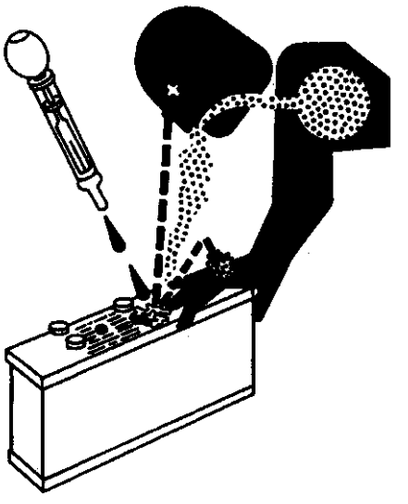
Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into the eyes.

Never check the battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove the grounded (–) battery clamp first and replace it last.

Avoid hazard by:

1. **Filling batteries in a well-ventilated area.**
2. **Wearing eye protection and rubber gloves.**
3. **Avoiding breathing fumes when electrolyte is added.**
4. **Avoiding spilling or dripping electrolyte.**



SA-036

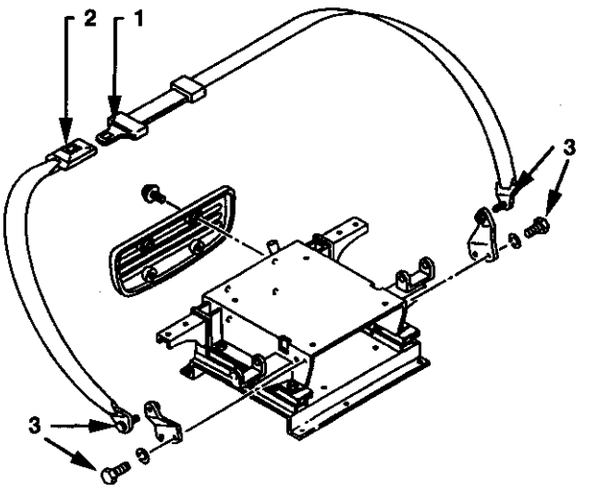
6

Check and Replace Seat Belt
Check --- daily
Replace --- every 3 years

Always maintain the seat belt in a functional condition and replace when necessary to ensure proper performance.

Prior to operating the machine, thoroughly examine belt (1), buckle (2) and attaching hardware (3). If any item is damaged or materially worn, replace the seat belt or component before operating the machine.

We recommend that the seat belt be replaced every three years regardless of its apparent condition.

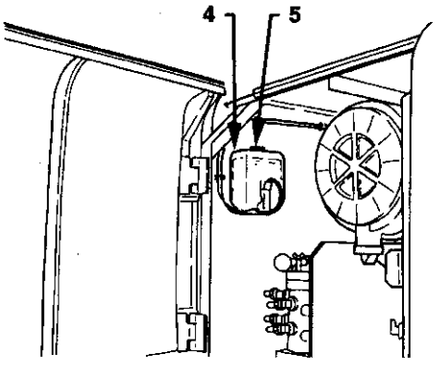


M157-07-207

7

Check Windshield Washer Fluid Level
--- as required.

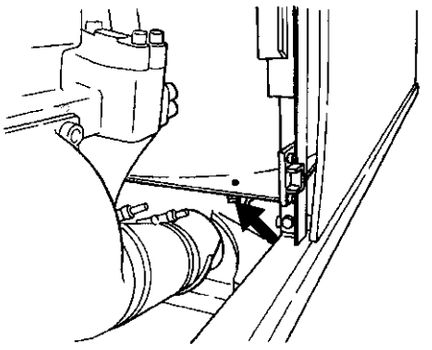
Check fluid in windshield washer tank (4).
If the fluid level is low, remove cap (5) and add fluid via the opening.
During winter season, use all season windshield washer which will not freeze.



M157-07-208

3. Retighten the hydraulic oil tank mounting bolts.

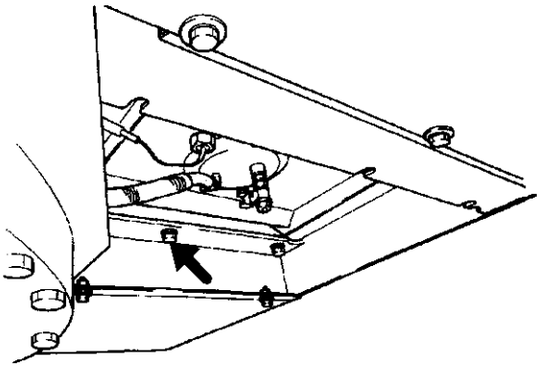
Tool: 24 mm
Torque: 205 N·m (21 kgf·m, 152 lbf·ft)



M157-07-213

4. Retighten the fuel tank mounting bolts.

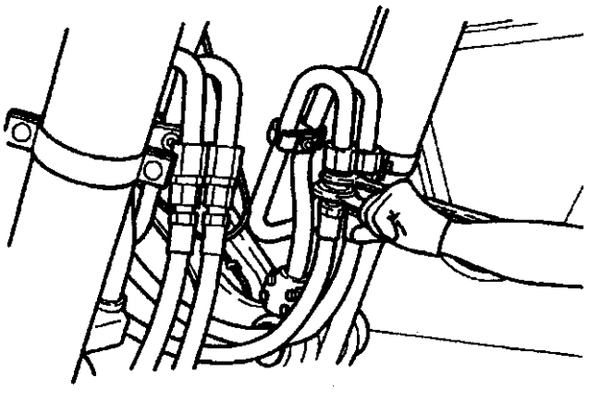
Tool: 24 mm
Torque: 205 N·m (21 kgf·m, 152 lbf·ft)



M158-07-012

5. Retighten the ORS fittings for hydraulic hoses and piping.

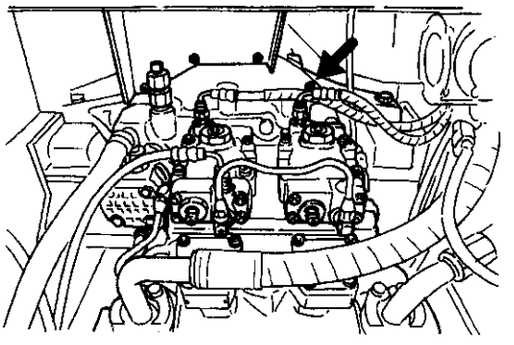
Tool: 36 mm
Torque: 175 N·m (18 kgf·m, 130 lbf·ft)
Tool: 41 mm
Torque: 205 N·m (21 kgf·m, 152 lbf·ft)



M107-07-081

6. Retighten the pump transmission mounting bolts.

Tool: 17 mm
Torque: 49 N·m (5 kgf·m, 36 lbf·ft)



M157-07-210

ENGINE

Problem	Cause	Solution
Engine Cranks But Will Not Start or Hard to Start	No fuel	Add fuel. Bleed air.
	Wrong fuel	Drain tank. Use correct fuel.
	Contaminated fuel	Drain tank and add clean fuel.
	Low battery power	Charge or install new battery.
	Injection pump	See your authorized dealer.
	Wrong preheat line or glow plugs	See your authorized dealer.
	Poor electrical connection	Clean and tighten battery and starter motor connections.
	Starter motor failure	Replace starter.
	Wrong engine oil	Drain oil. Use correct oil.
	Air filter plugged	Replace elements.
	Fuel filter plugged	Remove air from fuel system. Clean fuel tank strainer.
	Engine compression low	See your authorized dealer.
	Injection nozzles dirty or not working correctly	See your authorized dealer.
	Fuel shut-off linkage	Adjust or repair linkage.
	Leaks in fuel system	Check fuel system connections.
	Air in fuel system	Bleed air.
	Fuel feed pump plunger up	Push down and tighten knob.
	Feed pump strainer dirty	Clean or replace.
Engine Knocks, Runs Irregularly or Stops	Engine oil level low	Add oil.
	Plugged air intake system	Clean filter and system.
	Feed pump strainer dirty	Clean or replace.
	Injection pump out of time	See your authorized dealer.
	Plugged fuel filters	Install new filters.
	Low coolant temperature	Thermostat not working correctly or too "cool".
	Water, dirt or air in fuel system	Bleed air from fuel system. Clean fuel tank outlet screen.
	Injection nozzles dirty or faulty	See your authorized dealer.
	Fuel shut-off linkage	Adjust or repair linkage.

HYDRAULIC SYSTEM

Problem	Cause	Solution
One Control Lever Does Not Work	Relief valve pressure low	See your authorized dealer.
	Tube or hose damaged	Repair or replace.
	Hydraulic fittings loose	Tighten.
	Damaged O-rings in fittings	Install new O-ring.
	Hydraulic Pump	See your authorized dealer.
	Pilot valve	See your authorized dealer.
	Pilot lines	Repair or replace.
One Cylinder Does Not Work	Control valve spool damaged or contaminated with dirt	See your authorized dealer.
	Hydraulic lines damaged	Repair or replace.
	Fittings loose	Tighten.
	O-ring in fitting damaged	Install new O-ring.
	Pilot valve	See your authorized dealer.
	Pilot lines	Repair or replace.
One Cylinder Does Not Work or Has Little Power	Piston seals leaking	See your authorized dealer.
	Cylinder rod damaged	See your authorized dealer.
	Pilot lines	Repair or replace.
	Pilot valve	See your authorized dealer.
	Failed wiring harness	See your authorized dealer.
Both Travel Motors Do Not Work	Center joint failure	See your authorized dealer.
One Travel Motor Does Not Work	Travel motor	See your authorized dealer.
	Parking brake not releasing	See your authorized dealer.
	Pilot valve	See your authorized dealer.
	Pilot lines	Repair or replace.
Travel is Not Smooth	Track adjustment	Adjust tension.
	Track idler or rollers damaged	See your authorized dealer.
	Track frame bent	See your authorized dealer.

EX280LCH-5

Shoe Width		600 mm (24″) H Grouser Shoe	700 mm (27″) Grouser Shoe	800 mm (31″) Grouser Shoe	600 mm (24″) Flat Shoe
Application		For Ordinary Ground (Standard)	For Weak Footing (Option)	For Weak Footing (Option)	For Paved Road (Option)
Operating Weight	kg (lb)	28100 (62000)	28500 (62800)	28900 (63700)	28700 (63300)
Basic Machine Weight	kg (lb)	22000 (48500)	22400 (49400)	22800 (50300)	22600 (49800)
Cab Height	mm (ft·in)	3040 (10′ 0″)	3040 (10′ 0″)	3040 (10′ 0″)	3050 (10′ 0″)
Minimum Ground Clearance	(mm)	✱ 500 (20″)	✱ 500 (20″)	✱ 500 (20″)	✱ 540 (21″)
Undercarriage Length	mm (ft·in)	4950 (16′ 3″)	4950 (16′ 3″)	4950 (16′ 3″)	4970 (16′ 4″)
Undercarriage Width	mm (ft·in)	3190 (10′ 6″)	3290 (10′ 10″)	3390 (11′ 1″)	3190 (10′ 6″)
Ground Pressure		53 kPa (0.54 kgf/cm^2, 7.7 psi)	46 kPa (0.47 kgf/cm^2, 6.7 psi)	41 kPa (0.41 kgf/cm^2, 5.8 psi)	54 kPa (0.55 kgf/cm^2, 7.8 psi)

NOTE: • *The specifications for the front-end attachment are for 3.1 m (10 ft 2 in) arm with PCSA 1.1 m^3 (1.44 yd^3) bucket.*

• *800 mm (31 in) grouser shoe, 700 mm (27 in) grouser shoe and 600 mm (24 in) flat shoe should not be used on gravel or rocky ground.*

• ✱ *The dimensions do not include the height of the shoe lug.*

BREAKER MAINTENANCE

Change Hydraulic Oil and Replace Hydraulic Oil Tank Filter

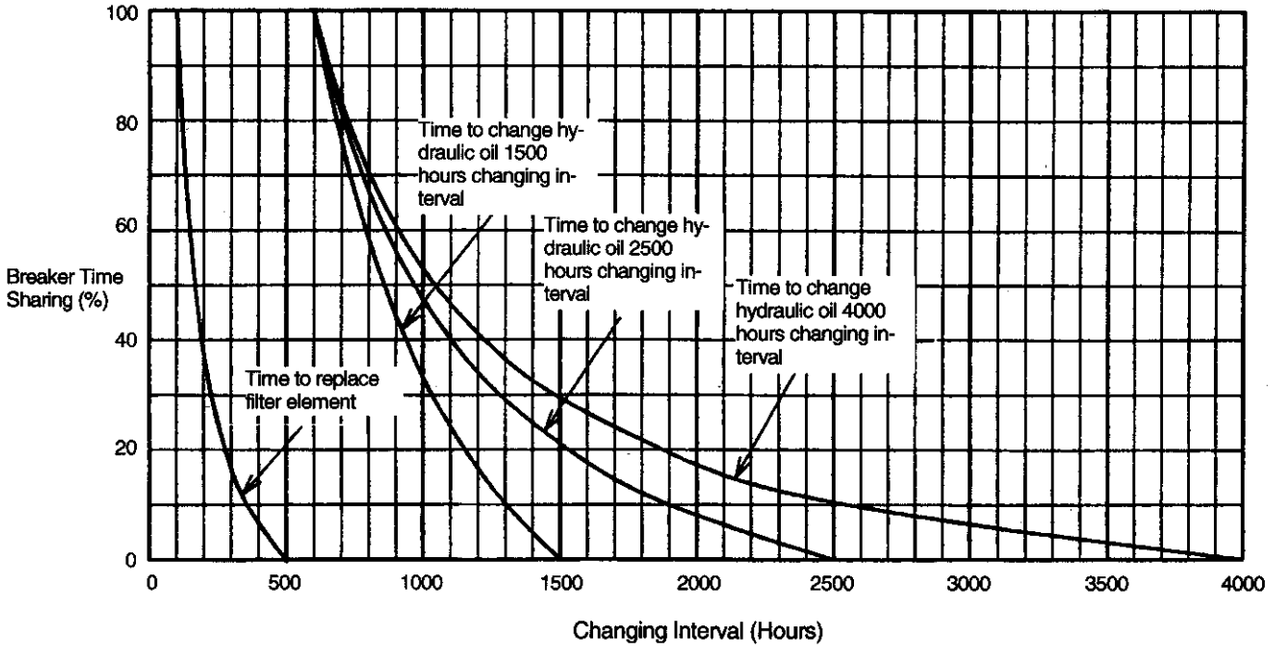
Hydraulic breaker operation subjects the hydraulic system to become contaminated faster and to deteriorate the hydraulic oil quickly. For this reason, hydraulic oil must be changed and the hydraulic oil tank filter must be replaced more often than the machine attached with a bucket. Failure to do so may result in damage to the breaker, hydraulic oil pump, and other hydraulic system components. Recommended changing intervals are shown below. (For filter replacement and oil changing procedures, refer to the "Hydraulic System" in the "MAINTENANCE" Section.)

Changing Interval (hours)

	Machine with Hydraulic Breaker	Machine with Ordinary Bucket
Hydraulic Oil	600*	1500 or 2500 or 4000
Filter Element	100*	500

*NOTE: *The above figures are for 100% breaker time share. When the breaker time share is less, changing intervals can be extended as shown in the diagram below.*

Be sure to replace elements when breaker has been operated for 100 hours continuously.



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