PART NO. EM1E8-NA2-1

Operator's Manual

EX120-5

Excavator

Serial No. 054557 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

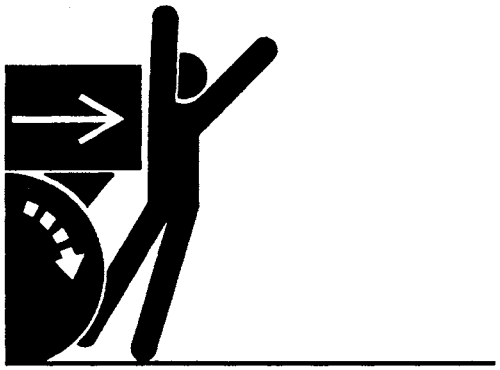
UNDERSTAND SIGNAL WORDS

- 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.

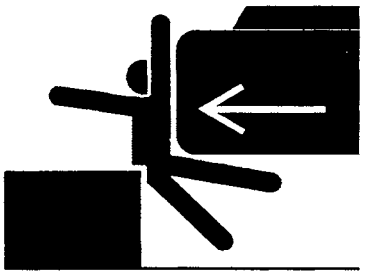
SA-1223

002-E01A-1223

AVOID INJURY FROM BACK-OVER AND SWING ACCIDENTS



SA-383



SA-384

- 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 BYSTANDERS 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.

021-E01A-0494

PREVENT BURNS

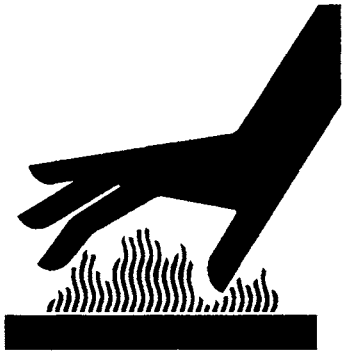
Hot spraying fluids:

- 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

505-E01B-0498

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.

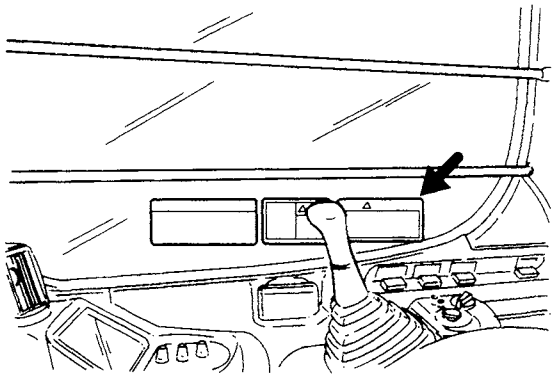
S506-E01A-0019

⚠ CAUTION

- AVOID DEATH OR SERIOUS INJURY - READ AND UNDERSTAND THE OPERATOR'S MANUAL AND SAFETY MANUAL PRIOR TO OPERATING THIS MACHINE.
- Controls may be changed for attachment or operator preference. Try control pattern before operating.
- Always lower working tools to the ground and engage hydraulic control lockout lever before leaving operator's seat.
- Keep riders off machine..
- Avoid contact between boom/attachments and overhead obstacles whenever operating, traveling or transporting machine.
- Keep bystanders clear of machine; especially before moving boom, swinging upperstructure or traveling.
- Upperstructure position affects travel direction. Try pedals or levers to determine travel direction before moving machine.
- Avoid tipping - Do not lift or move objects that exceed machine stability.
- Avoid parking machine on an incline.

3070586

SS-439



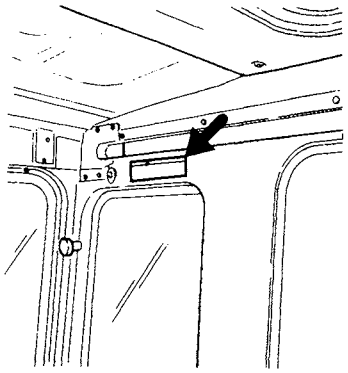
SS-1654

⚠ CAUTION

To prevent injury from falling front window, secure with lock pins on both sides of window.

4371798

SS-863



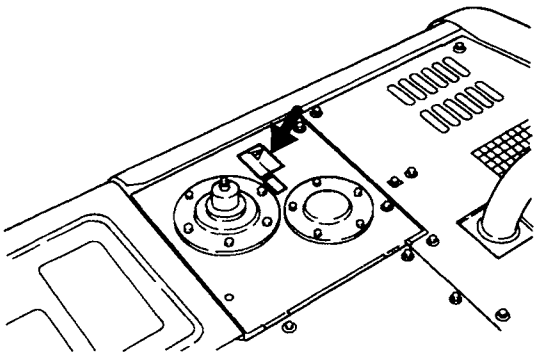
SS-1655

⚠ CAUTION

- BEFORE REMOVING HYDRAULIC RESERVOIR CAP AND AIR BREATHER ALWAYS STOP ENGINE.
- BEFORE REMOVING CAP ALWAYS PRESS AIR BREATHER BUTTON TO RELEASE INTERNAL PRESSURE.
- DO NOT REMOVE CAP WHEN OIL TEMPERATURE IS HOT.
- DO NOT LOOSEN DRAIN PLUG WHEN OIL TEMPERATURE IS HOT.

3077560

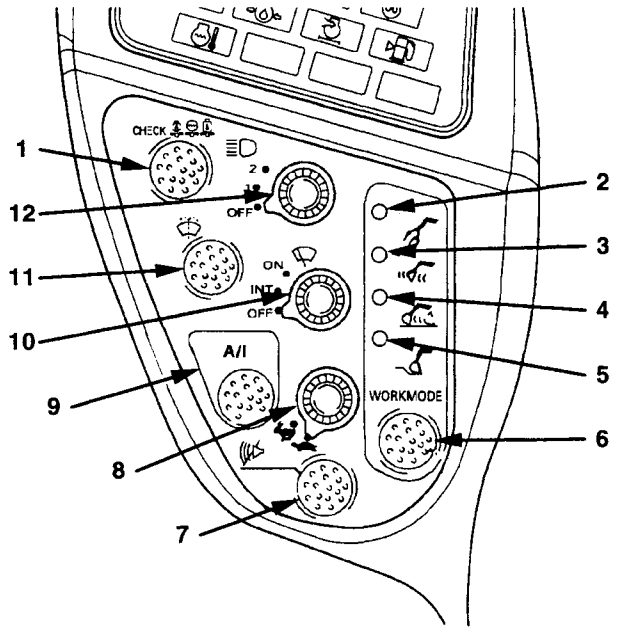
SS-864



SS-737

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



M157-01-145

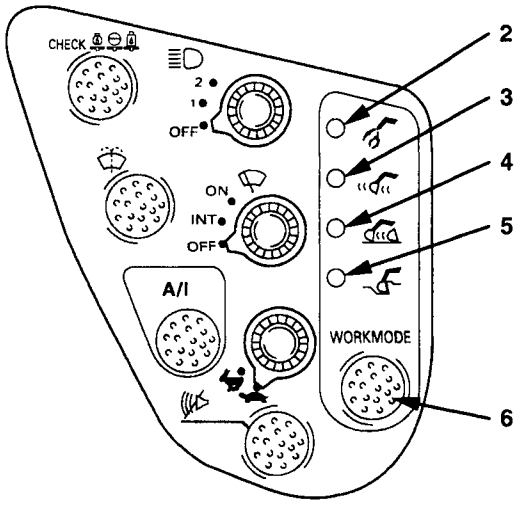
WORK MODE SELECT SWITCH

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

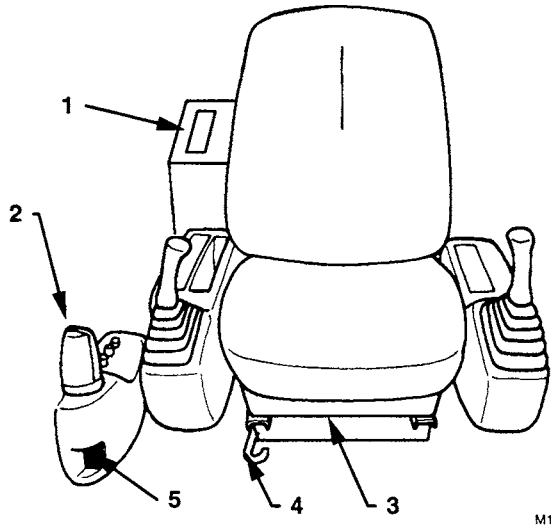
Selected work mode is indicated by indicators (2), (3), (4), or (5).



M157-01-092

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

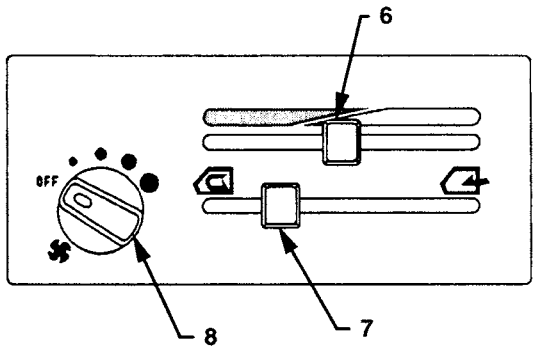


M157-01-108

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

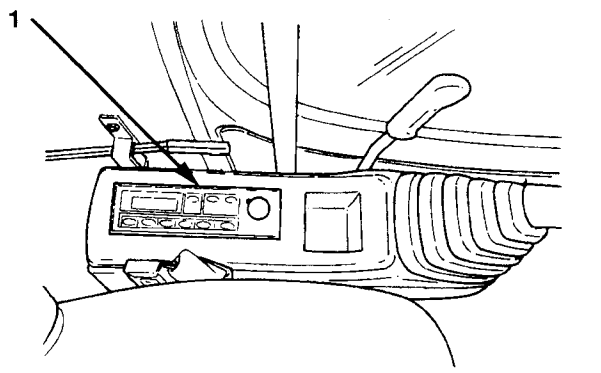
- Temperature Control Lever (6)
  Air temperature is the warmest with the lever in the rightmost position and the coolest in the leftmost position.
- Fresh Air/Recirculation Select Lever (7)
  The leftmost position is for recirculation and the rightmost position is for fresh air.
- Blower Switch (8)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



M157-01-109

LEFT CONSOLE

1- RADIO/CLOCK



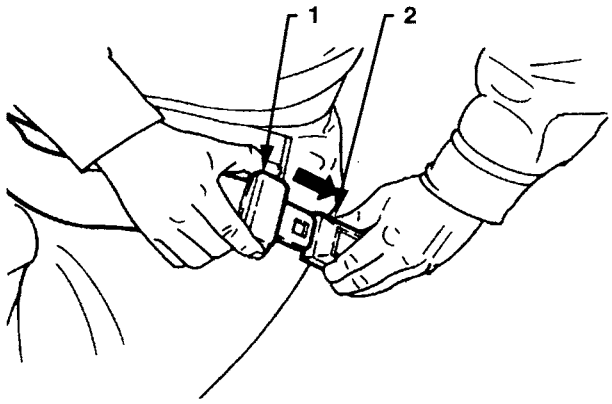
M157-01-165

SEAT BELT

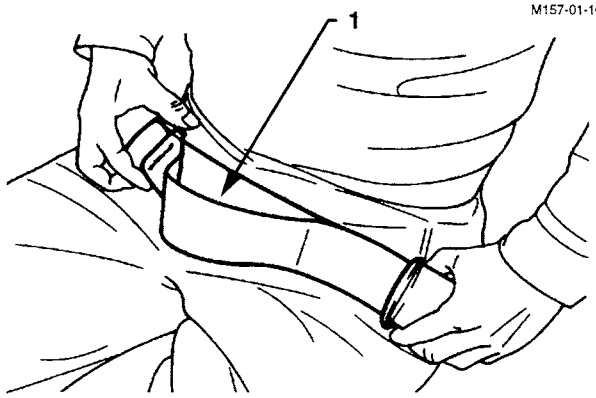
CAUTION: Be sure to use the seat belt when operating the machine.
Before operating the machine, be sure to examine seat belt (1), buckle (2), and attaching hardware. Replace seat belt (1), buckle (2), or attaching hardware if they are damaged, or worn.
Replace seat belt (1) every three years, regardless of appearance.

Seat Belt

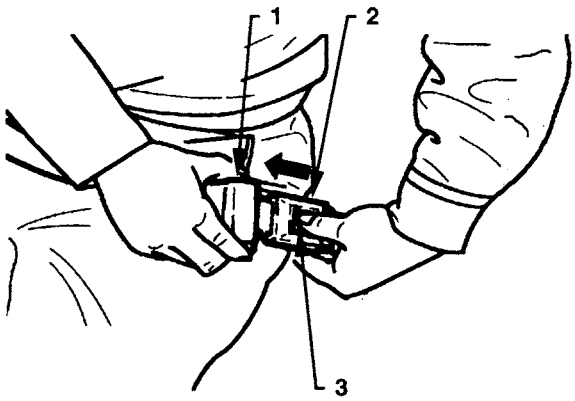
1. Confirm that seat belt (1) is not twisted. Securely insert the end of seat belt (1) into buckle (2). Lightly pull on the belt to confirm that the buckle latches securely.
2. Adjust seat belt (1) so that the belt is snug but comfortable.
3. Push button (3) on buckle (2) to unfasten seat belt (1).



M157-01-168



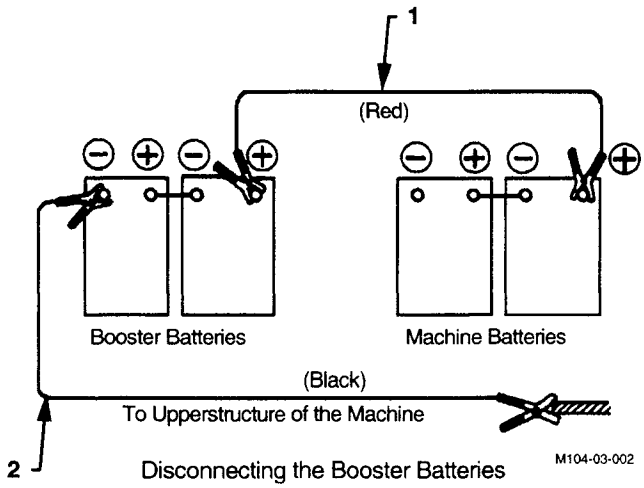
M157-01-169



M157-01-170

Disconnecting the booster batteries

1. Disconnect black negative (–) cable (2) from the machine frame first.
2. Disconnect the other end of black negative (–) cable (2) from the booster batteries.
3. Disconnect red positive (+) cable (1) from the booster batteries.
4. Disconnect red positive (+) cable (1) from the machine batteries.

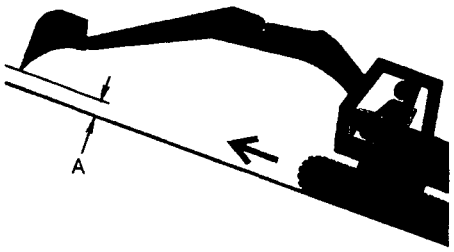


Disconnecting the Booster Batteries

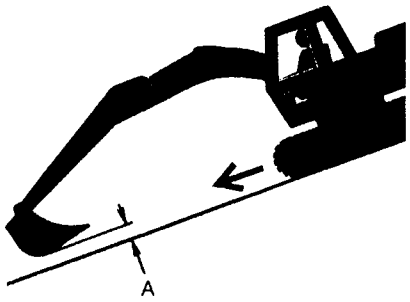
PRECAUTIONS FOR TRAVELING ON SLOPES

CAUTION: Avoid possible injury from traveling on slopes. Tipping over or skidding down of the machine may result. Thoroughly read and understand precautions below and be sure to travel at slow speed on slopes. Never attempt to travel on slopes with the bucket loaded or any load suspended by the bucket.

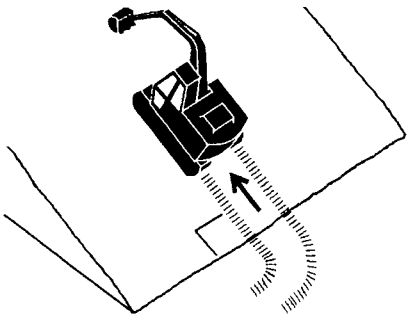
1. Never attempt to ascend or descend 30 degrees or steeper slopes.
2. Be sure to fasten the seat belt.
3. Keep the bucket pointed in the direction of travel, approximately 200 to 300 mm (8 to 12 in) (A) above the ground. If the machine starts to skid or becomes unstable, lower the bucket immediately.
4. Driving across the face of a slope or steering on a slope may cause the machine to skid or turnover. If the direction must be changed, move the machine to level ground, then, change the direction to ensure safe operation.
5. Avoid swinging the upperstructure on slopes. Never attempt to swing the upperstructure downhill. The machine may tip over. If swinging uphill is unavoidable, carefully operate the upperstructure and boom at slow speed.
6. If the engine stalls on a slope, immediately lower the bucket to the ground. Return the control levers to neutral. Then, restart the engine.
7. Be sure to thoroughly warm up the machine before ascending steep slopes. If hydraulic oil has not warmed up sufficiently, sufficient performance may not be obtained.



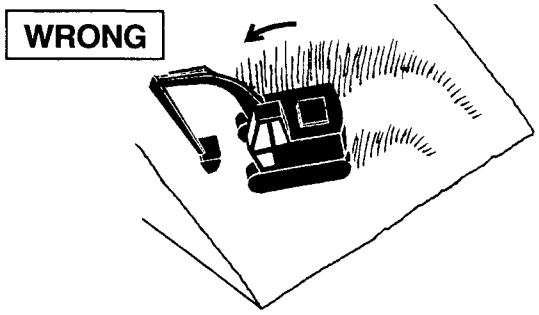
SA-657



SA-658



SA-441



SA-442

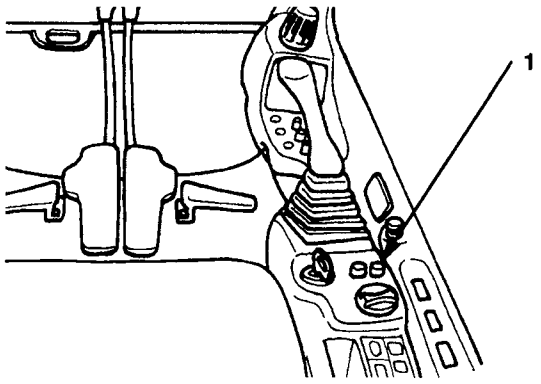
E (ECONOMY) MODE

Use the E mode when the priority is given to fuel consumption performance rather than work performance.

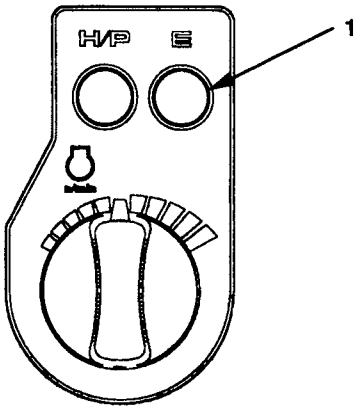
Although the engine speed decreases, the digging power is the same as that of the standard mode*. The work performance will decrease somewhat, but fuel consumption will also decrease, improving fuel efficiency and decreasing noise level. The E mode becomes effective when the general purpose mode is selected as the work mode.

NOTE: Standard Mode:
H/P Mode Switch..... OFF
E Mode Switch..... OFF

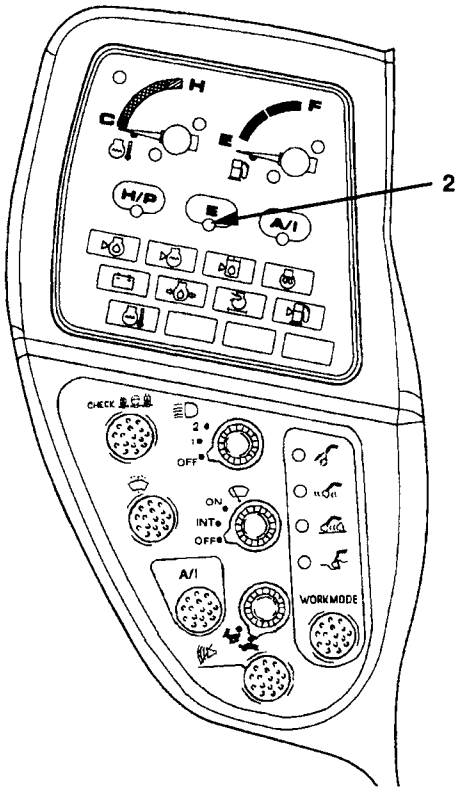
When E mode switch (1) is pushed down, the switch will stay down. At the same time, E mode indicator (2) will light. Pushing the E mode switch again, the switch will pop up to the original position, deactivating the E mode.



M157-05-012



M157-05-003



M157-01-093

LONG ARM OPERATION --- IF EQUIPPED

1. The optional [3.01 m (9′ 11″)] long arm is only for light works such as loam loading, sludge handling,etc.. Do not use it for heavy works such as digging gravel. When the arm is used for digging, apply shallow cut to the ground to avoid tough digging, or arm damage may result.

2. When the machine is equipped with the [2.81 m (9′ 2″)] long arm, the hoe-bucket size must be limited to the followings due to stability and strength of the machine;
   EX120-5 PCSA 0.46 m^3 (0.60 yd^3)

3. When the machine is equipped with the long arm, connect the arm cylinder end to:

   Pin bore A (when the machine is in operation)

   Pin bore B (when the machine is transported)

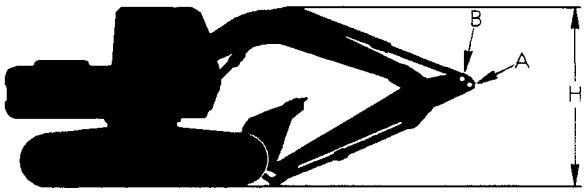
IMPORTANT: Connect the arm cylinder rod end to pin bore B only when the machine is transported.
Do not operate the digging or loading function with the arm cylinder connected to pin bore B as the bucket may hit the cab accidentally with this connection.

When transporting the machine, follow the procedure shown below to convert it into the transporting posture.

(a) Position the bucket cylinder with rod retracted a little from the fully extended position.

(b) Position the arm cylinder with rod retracted a little from the fully extended position.

(c) Lower the boom until the arm top comes into contact with the ground.



T105-01-02-002

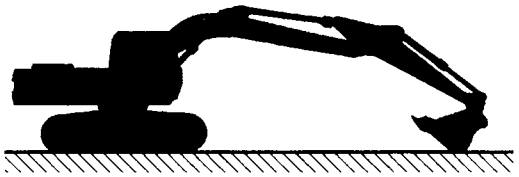
Unit : mm (ft·in)

Arm Cylinder Rod End Connected To:	Height of Front Attachment (H)	
	EX110M-5	
	Without Bucket	With Bucket
Pin Bore A	2800(9′ 2″)	3070 (10′ 2″)
Pin Bore B	2520 (8′ 3″)	2670 (8′ 9″)

Dimensions include shoe-lug height.

PREPARE MACHINE FOR MAINTENANCE

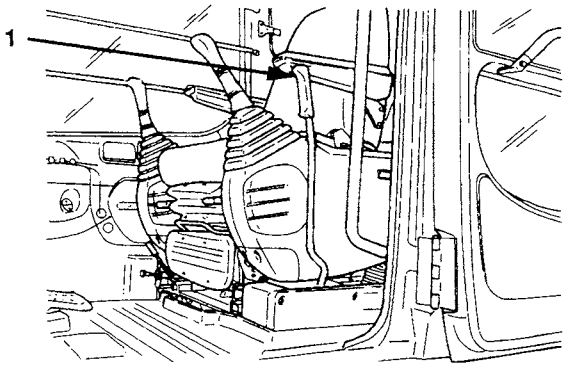
Before performing the maintenance procedures given in the following chapters, park the machine as described below, unless otherwise specified.



M104-07-021

1. Park the machine on a level surface.
2. Lower the bucket to the ground.
3. Turn the auto-idle switch off.

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



M157-01-148

4. Run the engine at slow idle speed without load for five minutes.
5. Turn the key switch OFF. Remove key from switch. (If maintenance must be performed with engine running, do not leave machine unattended.)
6. Pull the pilot control shut-off lever (1) to the LOCK position.
7. Before performing any work on the machine, attach a "Do Not Operate" tag on the right control lever.

SA-287

3 **Swing Internal Gear --- every 500 hours**

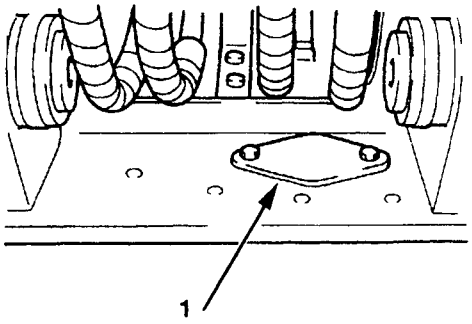
CAUTION: Adding or changing swing internal gear grease and rotating the upperstructure must be done by one person. Before you start, clear the area of all persons.

Each time you leave the cab
- **Lower the bucket to the ground.**
- **Stop the engine.**
- **Pull the pilot control shut-off lever to the LOCK position.**
- **Use handrails.**

1. Park the machine on a level surface.
2. Lower the bucket to the ground.
3. Turn the auto-idle switch off.

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

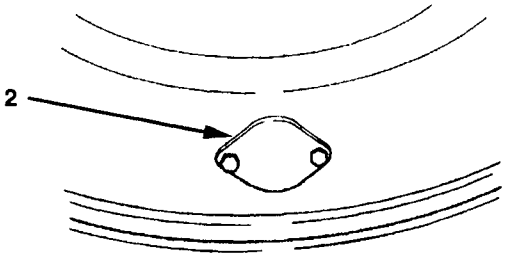
4. Run the engine at slow idle speed without load for five minutes.
5. Turn the key switch OFF. Remove the key from the key switch.
6. Pull the pilot control shut-off lever to the LOCK position.
7. Open the tool box cover on the upperstructure and remove cover (1).
8. Grease must be to the top of all internal gear teeth of the swing bearing and be free of contamination. Add approximately 0.5 kg (1.1 lb) of grease, if required. If the grease is contaminated, remove grease and replace with clean grease.



M104-07-007

IMPORTANT: If water or mud is found in the swing gear area, see Operating in Water or Mud in the "Driving the Machine" section.

9. Install the cover.
10. If grease shows any sign of water or mud, replace all the grease on the internal gear. Remove cover (2) from the bottom of the swing gear housing, located near the center joint.



Grease capacity: 5 L (1.3 US gal)

M157-07-161

INSPECTION AND MAINTENANCE OF HYDRAULIC EQUIPMENT

CAUTION: During operation, the parts of the hydraulic system become very hot.
Allow the machine to cool down before beginning inspection or maintenance.

1. Be sure that the machine is parked on a level, firm surface before servicing hydraulic equipment.
2. Lower the bucket to the ground and stop the engine.
3. Begin servicing hydraulic components only after components, hydraulic oil and lubricants are completely cooled, and after releasing residual pressure.

3.1 Bleed air from the hydraulic oil tank to release internal pressure.

3.2 Allow the machine to cool down.
Note that servicing heated and pressurized hydraulic components may cause hot parts and/or oil to fly off or escape suddenly, possibly resulting in personal injury.

3.3 Keep body parts and face away from plugs or screws when removing them.
Hydraulic components may be pressurized even when cooled.

3.4 Never attempt to service or inspect the travel and swing motor circuits on slopes. They are highly pressurized due to self-weight.

4. When connecting hydraulic hoses and pipes, take special care to keep seal surfaces free from dirt and to avoid damaging them. Keep these precautions in mind:

4.1 Wash hoses, pipes, and the tank interior with a washing liquid and thoroughly wipe it out before reconnecting them.

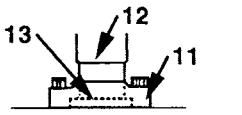
4.2 Only use O-rings that are free of damage or defects. Be careful not to damage them during reassembly.

4.3 Do not allow high pressure hoses to twist when connecting them. The life of twisted hoses will be shortened considerably.

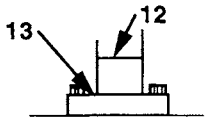
4.4 Carefully tighten low pressure hose clamps.
Do not overtighten them.

Table 2. Lines

Interval(hours)	Check Points	Abnormalities	Remedies
Daily	Contact surfaces of flange joints	Leak (11)	Replace O-ring and/or retighten bolts
	Welded surfaces on joints	Leak (12)	Replace
Every 250 hours	Joint neck	Crack (13)	Replace
	Welded surfaces on joints	Crack (12)	Replace
	Clamps	Missing	Replace
		Deformation	Replace
		Loose	Retighten



M137-07-001



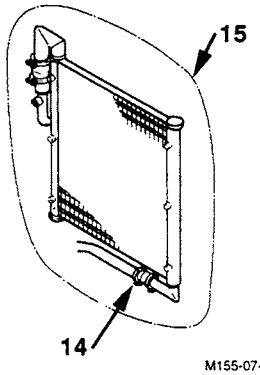
M137-07-007

Fig.2

NOTE: Refer to the illustrations in Fig.2 for each check point location or for a description of the abnormality. Use genuine Hitachi parts.

Table 3. Oil cooler

Interval(hours)	Check Points	Abnormalities	Remedies
Every 250 hours	Contact surfaces of flange joints	Leak (14)	Replace O-ring and/or retighten bolts
	Oil cooler	Leak (15)	Replace



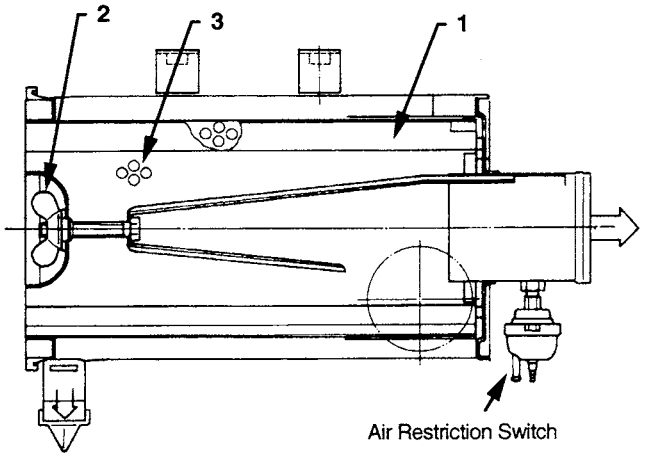
M155-07-049

Fig.3

NOTE: Refer to the illustrations in Fig.3 for each check point location .

CAUTION: Use reduced compressed air pressure. (Less than 0.2 MPa, 2 kgf/cm^2). Clear area of bystanders, guard against flying chips, and wear personal protection equipment including goggles or safety glasses.

10. Clean outer element (1) using compressed air. Direct the air to the inside of the filter element, blowing out.
11. Clean the filter interior before installing outer element (1).
12. Install outer element (1).
13. Install cover and tighten clamps (2).
14. Start the engine and run at slow idle.
15. Check the air filter restriction indicator on the monitor panel. If the air filter restriction indicator comes ON, stop the engine and replace the outer element (1).
16. When replacing the air cleaner filter element, replace both outer (1) and inner (3) elements together. Remove outer element (1). Clean the filter interior before removing inner element (3). Remove inner element (3). First install inner element (3) and then install outer element (1).



M104-07-047

REPLACE BATTERIES

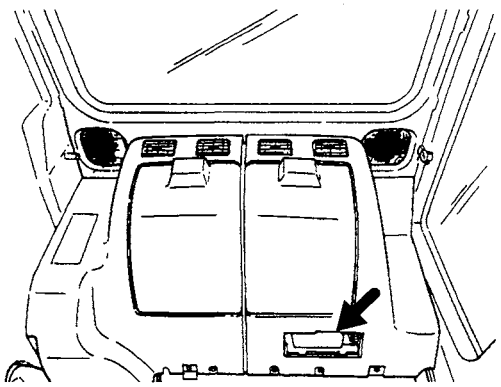
Your machine has two 12-volt batteries with negative (–) ground.
If one battery in a 24-volt system has failed but the other is still good, replace the failed battery with one of the same type. For example, replace a failed maintenance-free battery with a new maintenance-free battery. Different types of batteries may have different rates of charge. This difference could overload one of the batteries and cause it to fail.

REPLACING FUSES

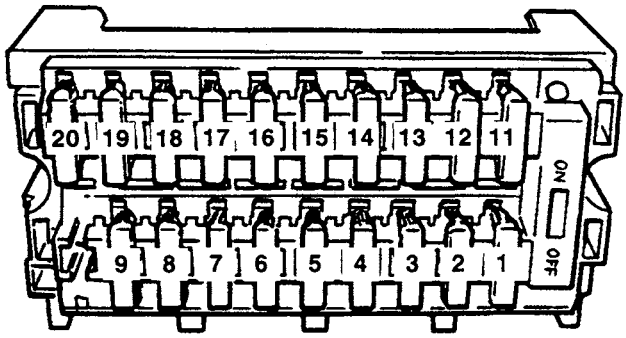
If any electrical equipment fails to operate, first check the fuses. Fuse box is located behind the operator's seat. A fuse location/specification decal is attached to the fuse box cover.

Remove the fuse box cover by lifting it upward. Spare fuses are located on the underside of the cover.

IMPORTANT: Be sure to install fuses with correct amperage ratings to prevent electrical system damage due to overload.



M157-01-150



M157-07-038

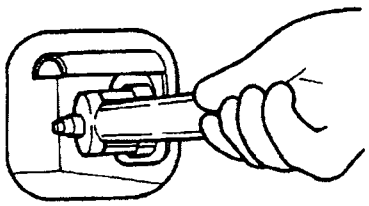
1- BACK UP 5A
2- CONTROLLER 5A
3- EC.MOTOR 5A
4- SOLENOID 10A
5- POW.ON 5A
6- SW BOX 5A
7- OPTION 1 5A
8- OPTION 2 10A
9- OPTION 3 5A
11- LAMP 20A
12- WIPER 10A
13- HEATER 20A
14- AIR CON 10A
15- HORN 10A
16- RADIO 5A
17- LIGHTER 10A
18- ROOM LAMP 5A
19- AUXILIALY 10A
20- GLOW.R 5A

Loosen the Track

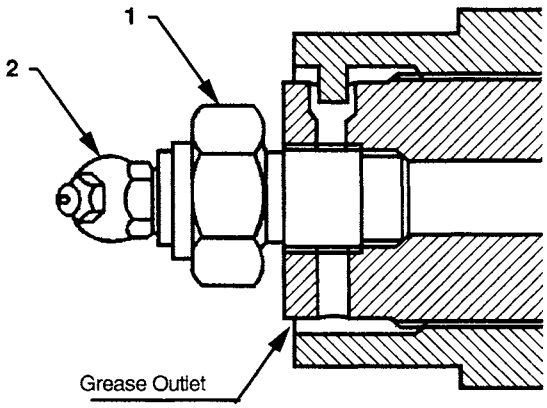
CAUTION: Do not loosen valve (1) quickly or loosen it too much as high-pressure grease in the adjusting cylinder may spout out. Loosen carefully, keeping body parts and face away from valve (1).
Never loosen grease fitting (2).

IMPORTANT: When gravel or mud is packed between sprockets and track links, remove it before loosening.

1. To loosen the track, slowly turn valve (1) counterclockwise using long socket 24; grease will escape from the grease outlet.
2. Between 1 to 1.5 turns of valve (1) is sufficient to loosen the track.
3. If grease does not drain smoothly, slowly rotate the raised track.
4. When proper track sag is obtained, turn valve (1) clockwise and tighten to 147 N·m (15 kgf·m, 108 lbf·ft).



M107-07-075



M104-07-119

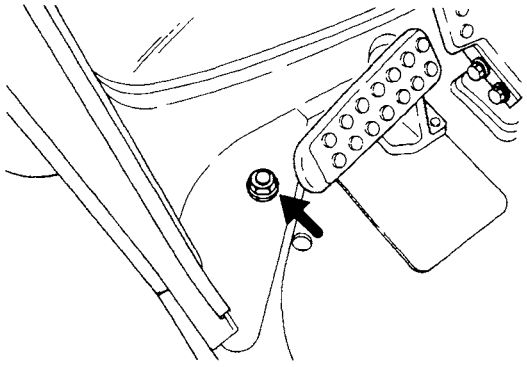
Tighten the Track

CAUTION: It is abnormal if the track remains tight after turning valve (1) counterclockwise or if the track is still loose after charging grease to fitting (2). In such cases, NEVER ATTEMPT TO DISASSEMBLE the track or track adjuster, because of dangerous high-pressure grease inside the track adjuster. See your authorized dealer immediately.

To tighten the track, connect a grease gun to grease fitting (2) and add grease until the sag is within specifications.

11. Retighten the cab mounting nuts.

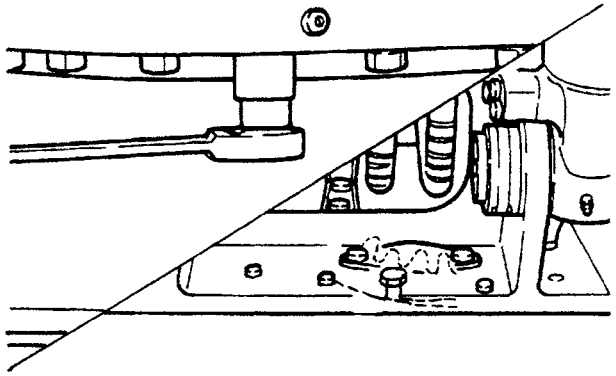
Tool: 24 mm
Torque: 205 N·m (21 kgf·m, 152 lbf·ft)



M157-07-219

12. Retighten the swing bearing mounting bolts to the upperstructure.

Tool: 27 mm
Torque: 390 N·m (40 kgf·m, 290 lbf·ft)



M104-07-086

Retighten the swing bearing mounting bolts to the undercarriage.

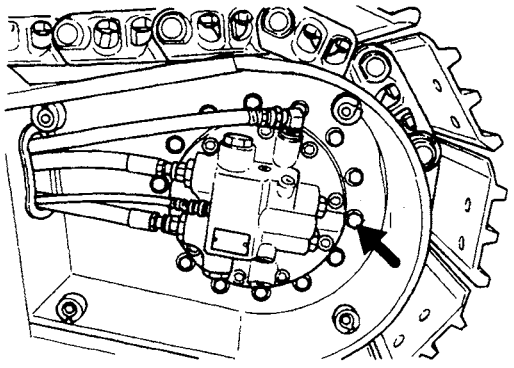
Tool: 24 mm
Torque: 265 N·m (27 kgf·m, 195 lbf·ft)

13. Retighten the travel device mounting bolts.

Tool: 24 mm
Torque: 300 N·m (31 kgf·m, 225 lbf·ft)

Retighten the travel device cover mounting bolts.

Tool: 22 mm
Torque: 175 N·m (18 kgf·m, 130 lbf·ft)

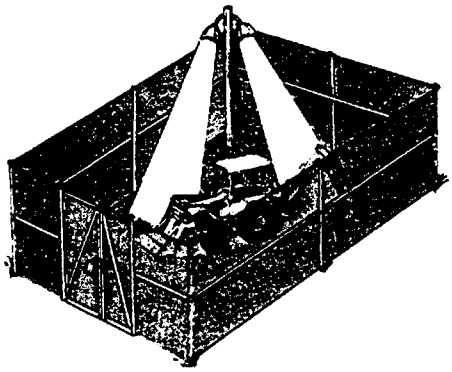


M155-07-044

WHEN PARKING OUTDOORS

Make machines hard to move:

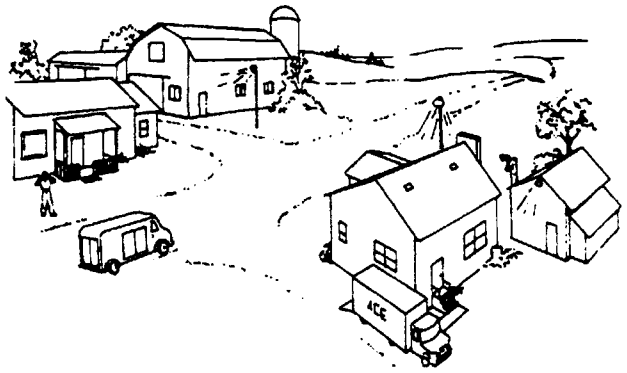
- Park in a well-lighted, fenced area.
- Lower all equipment to the ground.
- Remove ignition key.
- Remove battery when unit is storage.
- Lock cab doors, windows, and vandal-proof devices.



M107-09-003

REDUCE VANDALISM

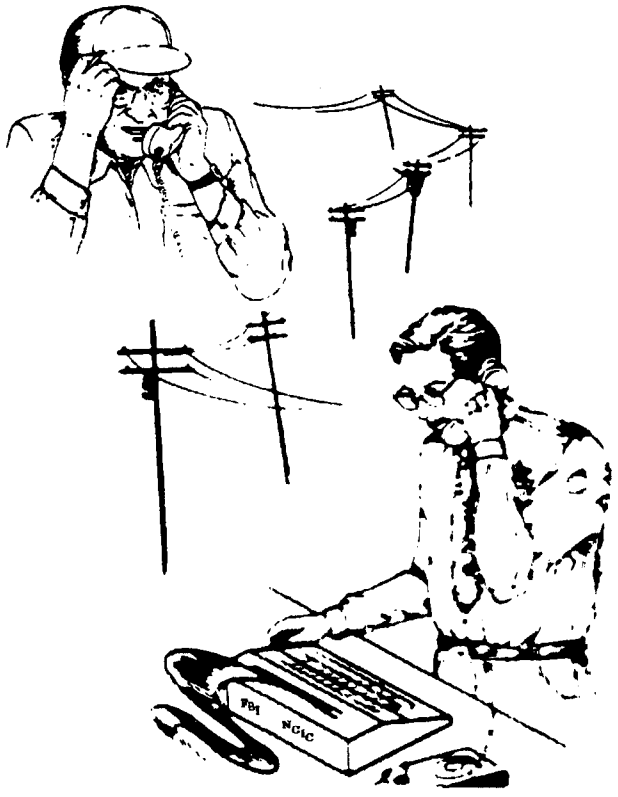
1. Install vandal-proof devices.
2. Participate in a neighborhood watch program. Take written notes of suspicious vehicles or persons and report your findings to law enforcement agency.
3. Regularly verify that identification plates have not been removed. If they have, notify law enforcement agency. Order duplicate plates from your authorized dealer.



M107-09-004

REPORT THEFTS IMMEDIATELY

1. Immediately notify your local law enforcement agency and insurance agent.
2. Provide a complete description of the machine, all of the documented identification numbers and color photographs.
3. Request verification of the identification numbers after they have been entered with any regional or national crime information center. Double check the numbers to be sure they are correct.
4. Notify your authorized dealer of the theft and request that its loss be posted with full description and identification numbers.



M107-09-005

CONTROL LEVERS

Problem	Cause	Solution
Moves Hard	Corroded joint	See your authorized dealer.
	Worn out pusher	See your authorized dealer.
Does Nothing	Worn out pusher	See your authorized dealer.
	Pilot valve	See your authorized dealer.
Does Not Return to Neutral	Pilot valve	See your authorized dealer.
Too Much Play	Worn out pivot joint	See your authorized dealer.
Lever is Not Vertical In Neutral	Pilot valve	See your authorized dealer.

HYDRAULIC SYSTEM

Problem	Cause	Solution
Hydraulic Functions are Slow	Low oil level	Fill reservoir to full mark.
	Cold oil	Push hydraulic warm up switch.
	Wrong oil	Drain tank. Use correct oil.
	Engine speed too low	Increase speed or see your authorized dealer.
	Pilot circuit	See your authorized dealer.
	Worn pump	See your authorized dealer.
	Restricted pump suction line	See your authorized dealer.
Hydraulic Oil Overheats	Wrong oil	Use correct oil.
	Air leak in pump suction line	See your authorized dealer.
	Oil lines restricted	See your authorized dealer.
	Low oil level	Fill reservoir to full mark.
	Plugged filters	Install new filters.
	Worn pump	See your authorized dealer.
	Plugged radiator or oil cooler	Clean and straighten fins.
	Oil cooler bypass	See your authorized dealer.

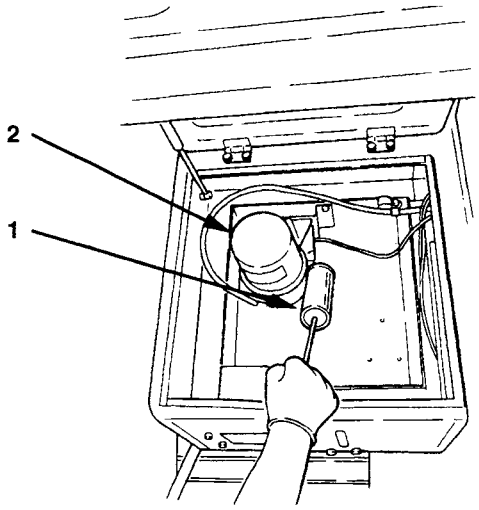
Check Grease Quantity/Add Grease

Check Grease Quantity:

1. Park the machine on a firm, level surface.
2. Lower the bucket to the ground.
3. Check remaining grease quantity in grease tank (2) located in the tool box.

Add grease as necessary referring to the procedures below.

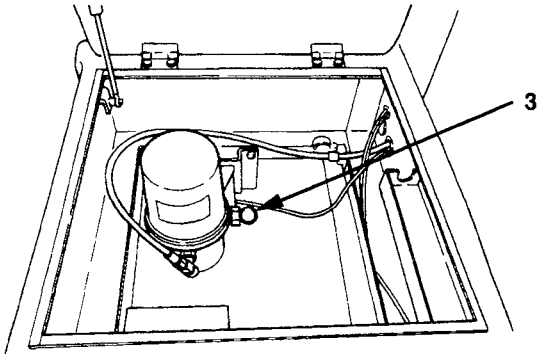
IMPORTANT: Check grease tank (2) and add grease as needed so that the tank does not become empty. If the electric pump is operated with the grease tank empty, air will get into lubrication lines, resulting in insufficient lubrication.



M157-13-005

Adding Grease Using Specially Designed Refilling Pump:

1. Remove the cap from the grease cartridge 0.4 L Insert the cartridge into refilling pump (1).
2. Remove the filler cap from grease tank (2).
3. Apply the tip of refilling pump (1) to the filler opening of grease tank (2), and secure the joint using the cap nut.
4. Slowly push the handle straight into refilling pump (1) to the stop.
5. Remove refilling pump (1). Securely tighten cap (3) onto the filler opening.



M157-14-019

Adding Grease Via Grease Fittings Using Grease Gun:
Add grease into the grease tank via the grease fitting located on the side of the tank using a grease gun.
Note that grease may not be able to added via the grease fitting in cold weather as grease becomes hard. Be sure to fill the tank full before this happens so that adding grease is not required while the weather is cold. If adding grease is required in cold weather, warm the grease cartridge, then add using the specially designed refilling pump described above. (The capacity of the tank is approximately 2 liters which could cover approximately 1000 to 1200 operating hours.)

NOTE: The electric pump is equipped with a safety valve. If the pump delivery pressure exceeds 34 MPa (350 kgf/cm^2, 4980 psi), grease will be discharged from the safety valve. If this happens, contact your authorized dealer for inspection.

Also, contact your authorized dealer for any failure of equipment or lines, or for any inquiries.

BREAKER MAINTENANCE

Change Hydraulic Oil and Replace Hydraulic Oil Tank Filter

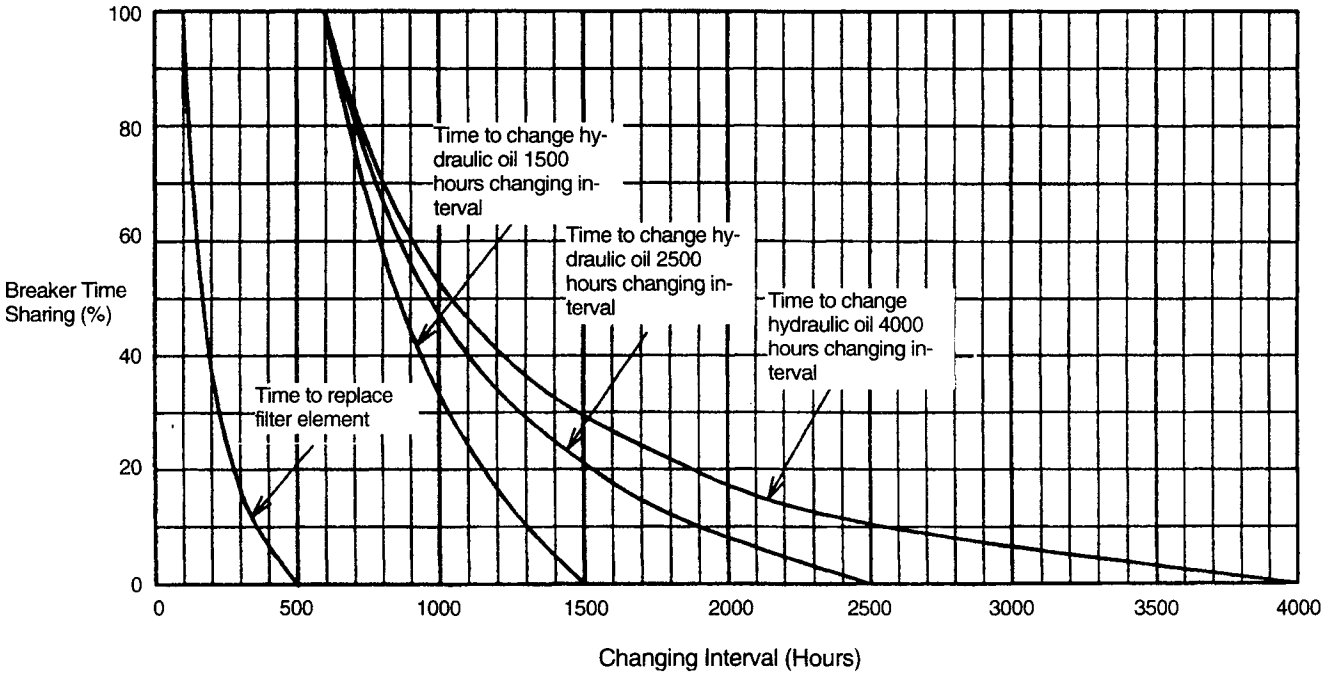
Hydraulic breaker operation subjects the hydraulic system to become contaminated faster and to deteriorate the hydraulic oil quickly. For this reason, hydraulic oil must be changed and the hydraulic oil tank filter must be replaced more often than the machine attached with a bucket. Failure to do so 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.



M157-14-021