

# **Solar 55**

Operation and Maintenance Manual

2022-7149E-R1

Serial Number 0001 and Up

October 1999

Daewoo reserves the right to improve our products in a continuing process to provide the best possible product to the market place. These improvements can be implemented at any time with no obligation to change materials on previously sold products. It is recommended that consumers periodically contact their distributors for recent documentation on purchased equipment.

This documentation may include attachments and optional equipment that is not available in your machine's package. Please call your distributor for additional items that you may require.

Illustrations used throughout this manual are used only as a representation of the actual piece of equipment, and may vary from the actual item.

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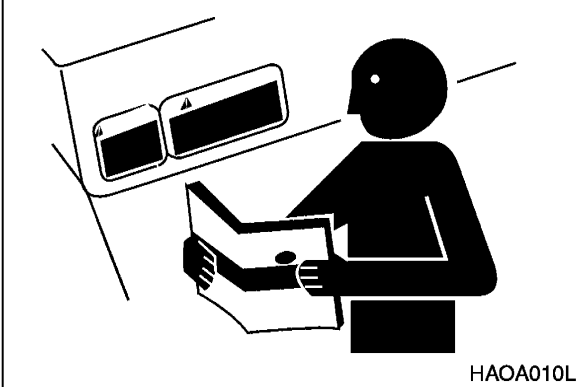


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Safety labels may be available in languages other than English, or labels providing a warning for other hazards than those that follow may be available. Contact your Daewoo distributor to find out what labels are available.

### 1. WARNING FOR OPERATION, INSPECTION MAINTENANCE (2190 - 3312)

 <b>CAUTION!</b>	
<ul style="list-style-type: none"><li>• Read manual and labels before operation and maintenance. Follow instructions and warnings in manual and on labels on the machine.</li><li>• Never get in under the machine while it is being jacked up with boom and arm.</li><li>• Turn Auto-Idle switch OFF, when loading or unloading the machine.</li><li>• Sound the horn to alert the people nearby before operating, and make sure all persons are clear of area.</li><li>• Always make sure when leaving operator's seat to:<ul style="list-style-type: none"><li>– Lower bucket or other working tools to the ground.</li><li>– Move SAFETY LOCK DEVICE (located near seat) to LOCK position.</li><li>– Turn key switch OFF. Remove key from switch.</li></ul></li></ul>	 HAA010L

### 2. WARNING WHEN OPENING FRONT WINDOW (2190 - 3388).

 <b>WARNING!</b>	
<p>When raising window, lock it in place with lock pins on both sides. Falling window can cause injury.</p>	

### 3. WARNING FOR SAFETY LEVER LOCKING (2190 - 3383).

 <b>WARNING!</b>	
<p>When putting down the side control stand, use the safety lever surely.</p>	

## **OBSERVE GENERAL SAFETY RULES**

Only trained and authorized personnel, with a good knowledge and awareness of safe procedures, may be allowed to operate or perform maintenance or service on the excavator.

All personnel at the work-site should be aware of assigned individual responsibilities and tasks. Communication and hand signals used should be understood by everyone.

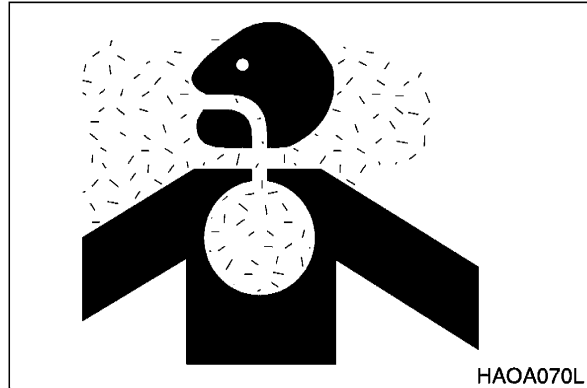
Terrain and soil conditions at the job site, approaching traffic, weather-related hazards and any above or below ground obstacles or hazards should be observed and monitored by all work crew members.

## **ENGINE VENTILATION**

Engine exhaust gases can cause fatal accidents, as well as unconsciousness, loss of alertness, judgement and motor control and serious injury.

Make sure of adequate ventilation before starting the engine in any enclosed area.

You should also be aware of open windows, doors or ductwork into which exhaust may be carried, or blown by the wind, exposing others to danger.



**Figure 9**

## **ASBESTOS DUST HAZARD PREVENTION**

Asbestos dust can be HAZARDOUS to your health if it is inhaled.

If you handle materials containing asbestos fibers, follow these guidelines as given below:

- Never use compressed air for cleaning
- Use water for cleaning to keep down the dust.
- Work on the machine or component with the wind at your back whenever possible.
- Use an approved respirator.

## **TAKE TIME TO PROVIDE GOOD VISIBILITY**

Halt work if visibility is poor. Strong rains, snow, fog and extremely dusty conditions can all obscure visibility so badly that it is best to wait for weather to change or dust to settle before continuing operation.

Night work in areas of limited visibility should be halted if installation of extra work lights on the machine (or work area) is necessary.

Keep dirt and dust off of windows and off the lens surfaces of work lights. Stop working if lights, windows or mirrors need cleaning or adjustment.

# EXCAVATOR RATED LIFT CAPACITY TABLES



## WARNING!

**All rated lift capacities are based on the machine and the load both remaining level at all times. DO NOT EXCEED THE RATED LIFT CAPACITY. Lifting loads greater than those shown in the rated capacity tables can cause catastrophic equipment failure and/or structural collapse of the machine.**

To operate safely the excavator should be on a firm, level and uniformly supporting surface. The operator is expected to make due allowance for all specific work site and lift-related conditions, and respond to changes in those conditions that could pose a hazard. The following could all cause hazardous conditions and accidents or injuries:

- Soft or uneven ground
- Off-level terrain
- Side loads
- Modifications or poor maintenance of the excavator
- Failure to lift squarely over the end or over the side of the machine

When a load is in the air, the operator must remain alert.

- Avoid side loads that may be caused by uneven slings, traveling with the load or swinging too quickly.
- The load can become unbalanced if the hookline is twisted and starts to rotate. If the surface area of the load is large enough, wind gusts can create side loads.
- Keep the bucket hook point directly over the load. Taglines on opposite sides of the load can help maintain greater stability against side loads and wind gusts.

Avoid traveling with a suspended load. Before swinging (or if required, traveling), bring the load in to an arm position (radius and height) that has a safer weight capacity rating **and adequate movement clearance**. The operator and all work-site personnel should be thoroughly familiar with safety instructions and procedures within this Operation and Maintenance Manual.



## WARNING!

**Lower the dozer blade to the ground to unload the chassis frame from weight of blade. By no way lift the chassis frame with the dozer blade which is not designed to increase the stability when performing a lifting task.**

## 10. BLADE CONTROL LEVER

The blade control lever, located on right-hand side of driver's seat, controls operation of blade. When the lever is released, it goes to the "NEUTRAL" position and the blade stops immediately.

- A. Pulling lever back raises blade.
- B. Pushing lever forward lowers blade.

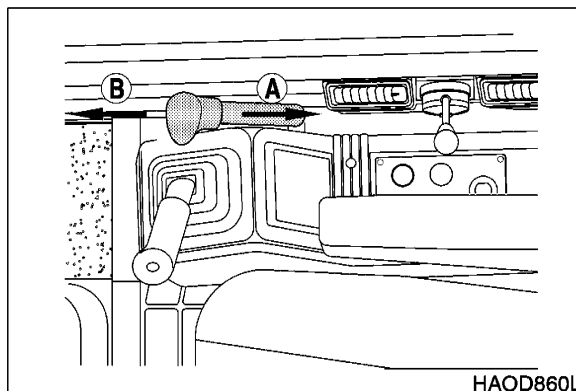


Figure 12

## 11. & 12. DIRECTIONAL CONTROL LEVERS (RIGHT AND LEFT)

These levers are used to control forward and reverse travel of the unit. Each lever controls one track. See "Travel" on page 3-13.

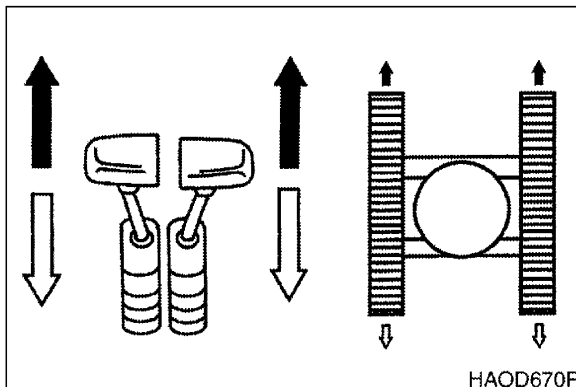


Figure 13

## 13. SHIFT-UP SHIFT PEDAL (S/N 0001 THRU 0525)

Depressing this pedal shifts travel drive system into "HIGH GEAR."

**NOTE:** *On units serial number 0526 and up, the shift-up pedal has been replaced with a travel speed selector switch.*

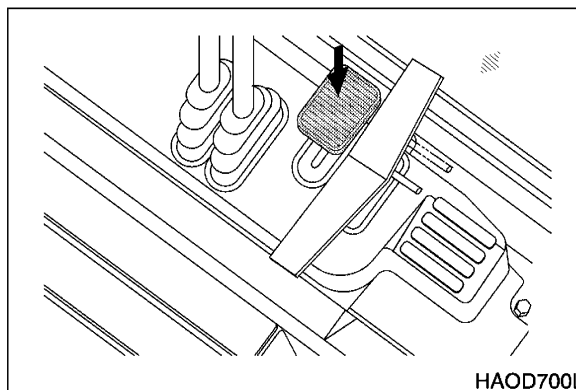


Figure 14

maintain the efficient and constant system performance, it is important to operate the system for 5 - 10 minutes once a week, regardless of the season.

As your DAEWOO excavator uses both a variable capacity type compressor and a temperature controller, the system produces the best cooling effect always.

The air-conditioning system not only cools indoor air but it also removes dust and moisture from the cabin. If the system is operated when the windshield is frosted or fogged over, the unit will remove the moisture so that normal visibility is possible.

**NOTE:** *Do not remove the refrigerant even in cold weather.*

#### 4. FUSIBLE LINK

A fusible link is located in the battery box.

If the engine does not crank, first check that the start switch is turned "ON" and that no power is available (No indicator lights will light.). Check that the "A" portion (Figure 59) of the fusible link is not broken or burned through. Replace the fusible link if damage and investigate cause.

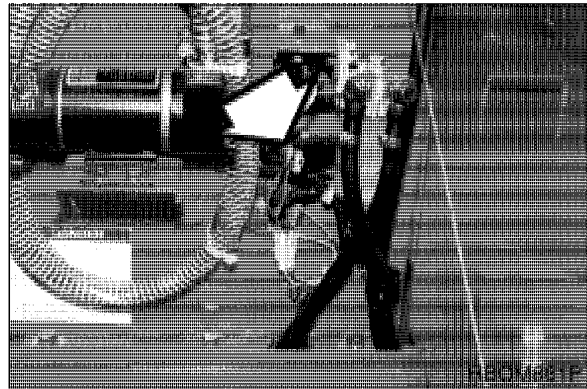


Figure 59

## EMERGENCY GLASS BREAKING TOOL

The excavator is equipped with a glass breaking tool. It is located to the left of the operator's seat on side of cab. This tool can be used in case of an emergency situation which requires the breaking of glass to exit from the operator's cabin. Grip the handle firmly and use the sharp point to break the glass.

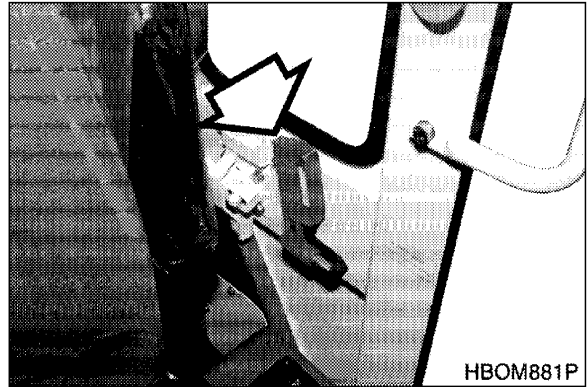


Figure 60

## HYDRAULIC SYSTEM WARM-UP – COLD WEATHER

1. Run engine at “LOW IDLE” (no load) for 5 minutes (Figure 18).

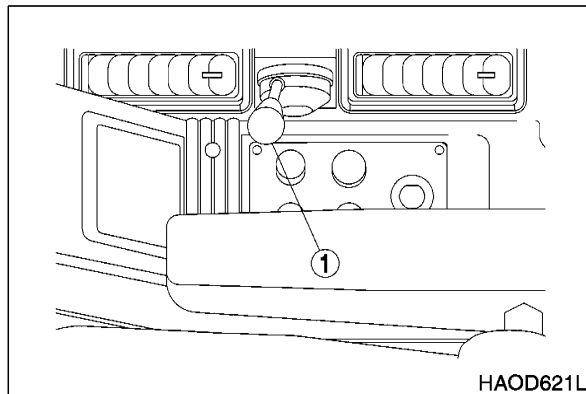


Figure 18

2. Run engine for approximately 5 minutes set at the middle of the speed range, without a load (Figure 19).

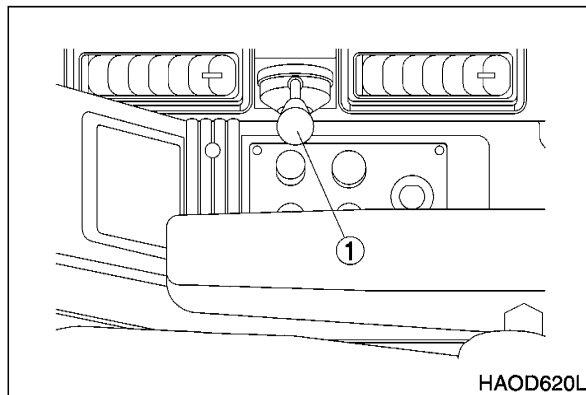


Figure 19

3. Set safety lever (1, Figure 20) on "UNLOCK" position

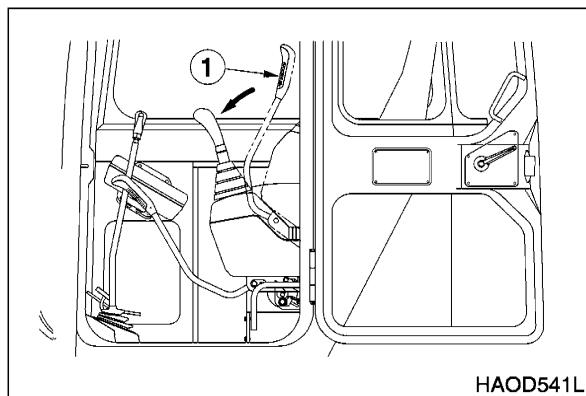


Figure 20

4. Slowly cycle boom, arm and bucket cylinders about five times without a load to circulate the oil through the system. Do this for 5 minutes.

**NOTE:** Do not allow cylinders to pass hydraulic oil over relief valve for more than twenty seconds at a time.

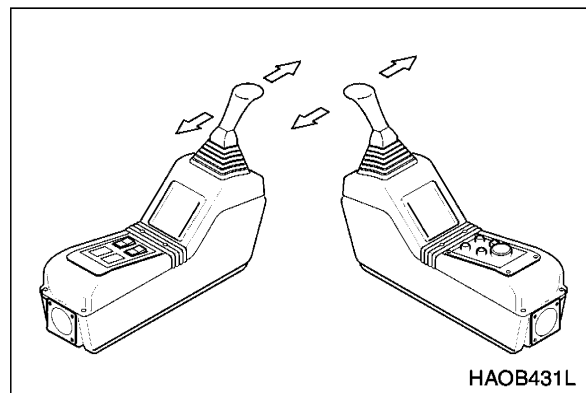


Figure 21

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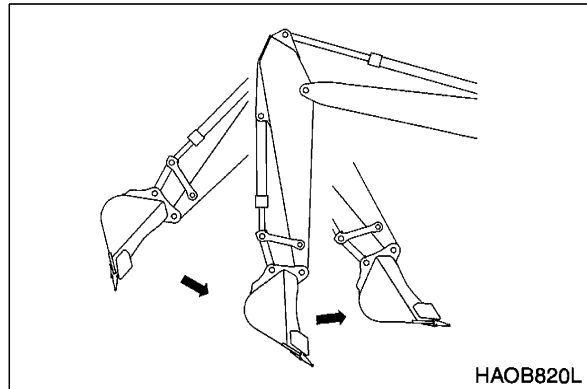
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**NOTE:** *The following is not a mechanical malfunction but a proper phenomenon of the excavator. When operating the arm, it may stop momentarily. When the arm is operated, the weight of the arm may cause it to move faster than the amount of oil being supplied.*

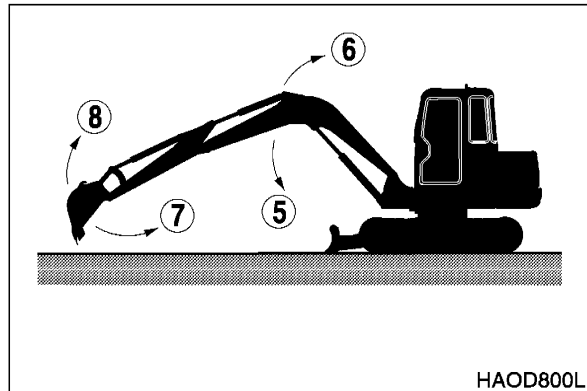


**Figure 46**

Right work lever (Figure 44 and Figure 47)

5. Boom down
6. Boom up
7. Bucket crowd
8. Bucket dump

**NOTE:** *Even after stopping the engine, the front can be lowered to the ground by operating joystick. Set safety lever on "UNLOCK" position and turn starter switch "ON."*



**Figure 47**

# PARKING EXCAVATOR



## WARNING!

Park excavator on firm level ground. Avoid parking on slopes. If excavator must be parked on a slope, block tracks and place bucket teeth in ground. See Figure 75

1. Park excavator on firm level ground. Lower bucket and blade to ground as shown in Figure 76.
2. Set engine accelerator lever (1, Figure 78) to "LOW IDLE." Allow engine to idle for 3 - 5 minutes.

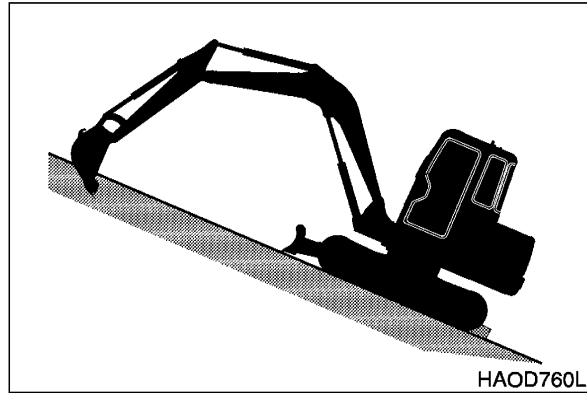


Figure 75

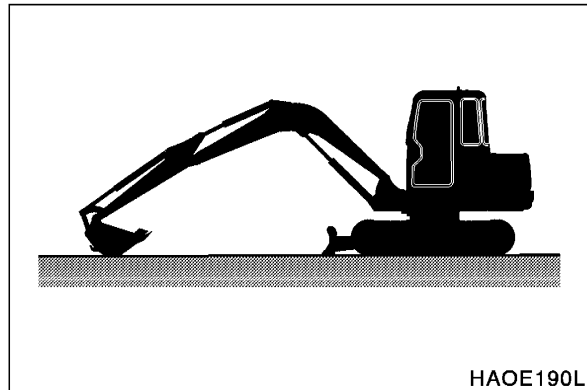


Figure 76

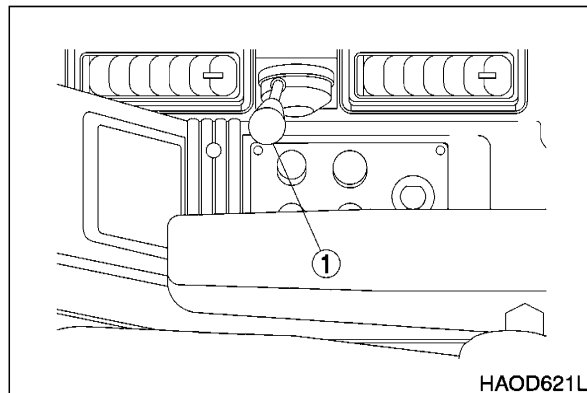
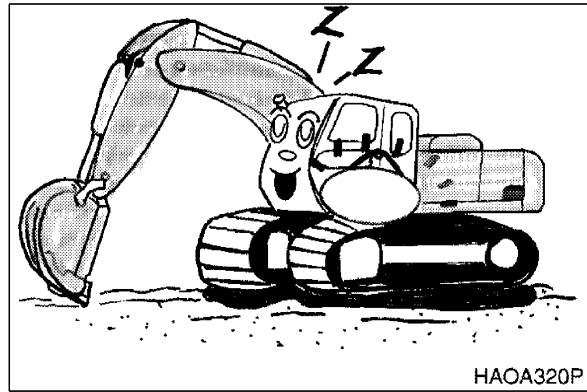


Figure 78

6. Before starting maintenance work, hang up a tag, "Do Not Touch When Performing Inspection or Maintenance" on cab door or work lever.



**Figure 6**

Ambient Temperature	Cooling Water	Antifreeze
-10°C (15°F)	80%	20%
-15°C (5°F)	73%	27%
-20°C (-5°F)	67%	33%
-25°C (-15°F)	60%	40%
-30°C (-20°F)	56%	44%
-40°C (-30°F)	50%	50%

#### CLEAN DUST NET IN FRONT OF RADIATOR

### IMPORTANT

If running excavator in dusty area, check dust net everyday and clean it if dirty.

1. Loosen the wing nut(s) and remove dust net from radiator.
2. Clean with compressed air or water.

#### CHECK LEVEL OF WINDOW WASHER LIQUID

1. Open left front door and check fluid level in windshield washer tank.
2. Open fill cap and add fluid.

**NOTE:** Use a washer liquid that is rated for all seasons. This will prevent freezing during cold weather operation.

#### INSPECT BUCKET TEETH AND SIDE CUTTERS FOR SIGNS OF WEAR

1. On a daily basis, inspect the bucket teeth to make sure that tooth wear or breakage has not developed.
2. Do not allow the replaceable bucket teeth to wear down to the point that the bucket adapter is exposed. See Figure 25.

**NOTE:** These instructions are only for Daewoo OEM buckets. If you are using other manufacturers' buckets, refer to their specific instructions.

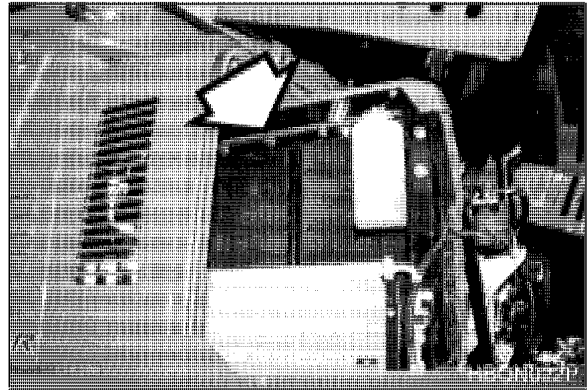


Figure 23

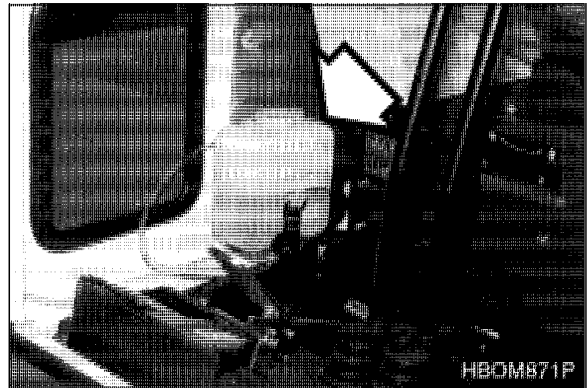


Figure 24

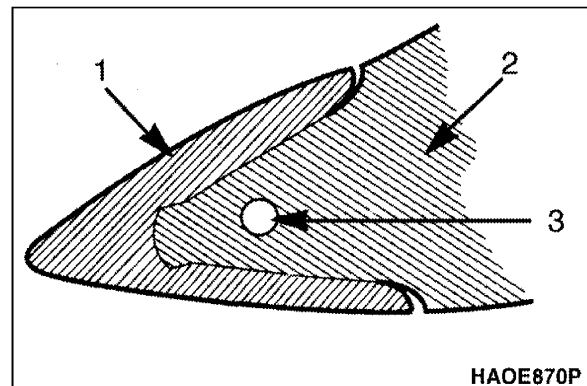


Figure 25 1. POINT, 2. ADAPTER & 3. PIN

## CLEAN AIR CLEANER FILTER ELEMENT



### WARNING!

Never clean or attempt to remove the air cleaner element if the engine is running.

If you are using compressed air to clean the element, make sure that proper eye protection is worn.

1. Locate the air filter assembly. Remove the access cover and filter element (Figure 50) from air cleaner assembly.

**NOTE:** *If indicator light on instrument panel comes "ON" the air cleaner must be serviced.*

**NOTE:** *Replace filter element every 500 hours / 3 months of service.*

2. Clean filter by blowing compressed air from the inside of the filter towards the outside. Do not use more than 205 kPa (30 psi) air pressure.
3. Clean the inside of the air filter housing and the inside of the air filter housing cover.
4. Properly reinstall the air filter and cover. Tighten the cover wing nut finger tight,. Do not use any tools to tighten the wing nut.

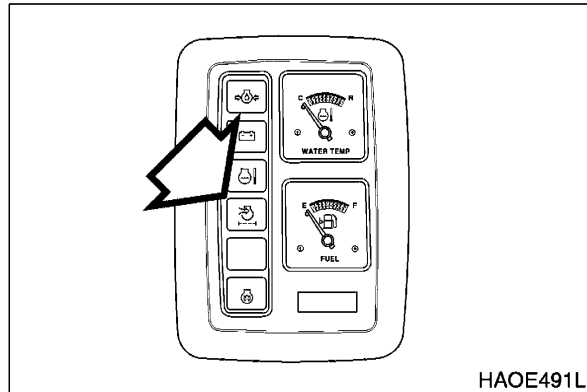


Figure 49

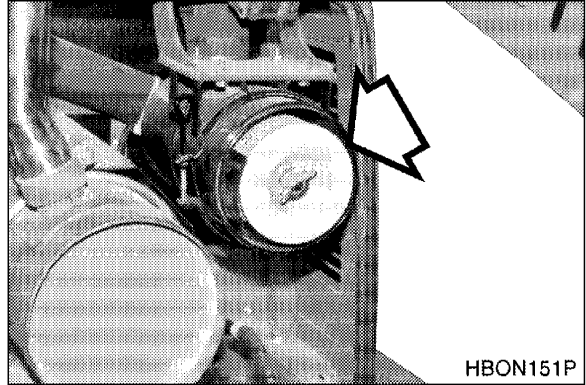


Figure 50

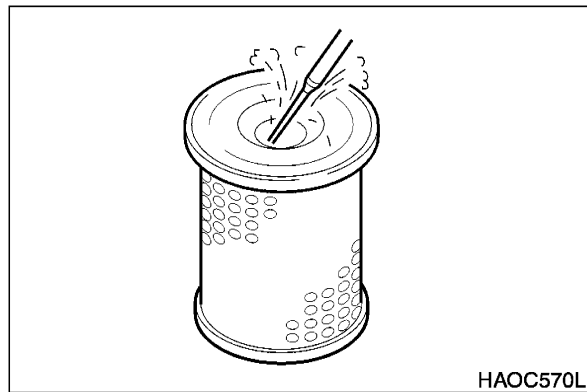


Figure 51

## CHANGE OIL IN TRAVEL REDUCER (ONE ON EACH SIDE OF UNIT)



### WARNING!

The gear oil is very hot after the machine has been operating. Shut all systems down and allow them to cool. Before fully removing any motor case inspection port plug, etc., loosen the plug slightly to allow pressurized air to escape.

**NOTE:** Drain oil after first 250 hours of operation and every 1000 hours thereafter.

**NOTE:** Gear case holds 0.6 liters (1 1/4 U.S. Pints). Do not mix oil brands.

1. Make sure that the machine is on a solid, level work area.
2. Rotate the track until ports (1 thru 3, Figure 67) are in their proper positions.
3. Place a container under plug (3, Figure 67) and remove plugs (1 and 3) to drain the travel motor fluid.
4. Install plug (3, Figure 67) Remove plug (2) Refill the travel motor case with fluid through port (1) until the fluid level is at port (2). Install plugs (1 and 2).
5. Repeat this procedure on the other travel motor.

**NOTE:** Torque upper and lower plugs to 46-51 Nm/4.7-5.2kg.m (34-38 ft lb) and center plug to 11.77-12.5 N.m /1.27-1.30kg.m (9.18-37.61 ft lb).

## CHANGE SWING REDUCTION DEVICE OIL

**NOTE:** Change swing reduction device oil after 250 hours on a new machine and every 1000 hours thereafter.

1. Remove cover (Figure 68) to gain access to swing reduction device.
2. Set a container under excavator.

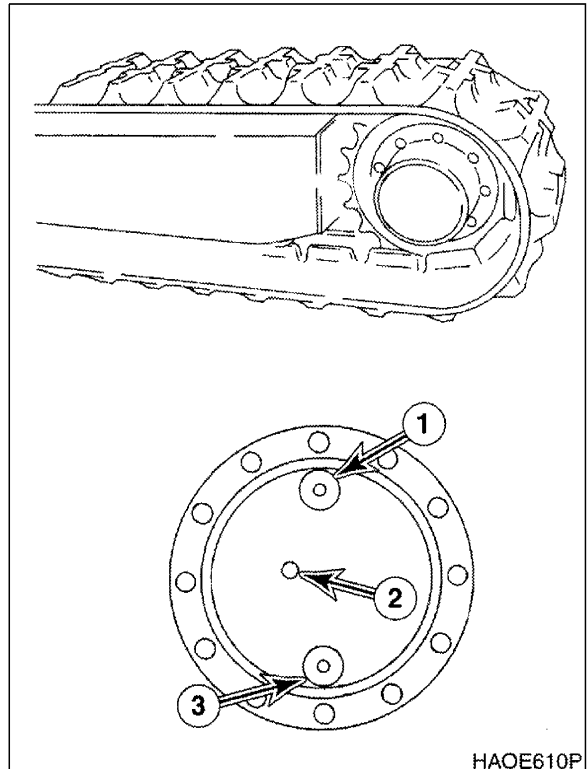


Figure 67

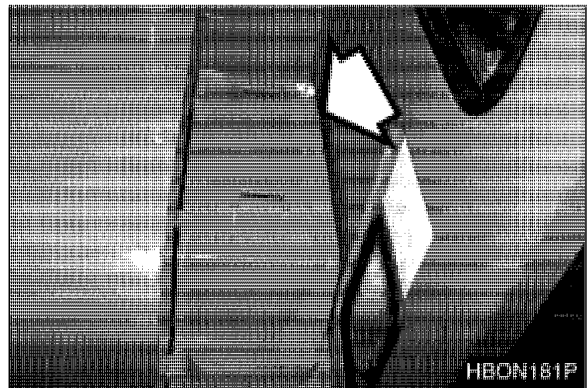


Figure 68

## FUSES

1. The fuses located in the fuse panel are used to protect the various electrical circuits and their components from damage. See Figure 81. The fuses used are standard automotive type fuses.
2. The fuse table lists the circuits and the fuse amperage required for each circuit. If a fuse blows, determine the cause and repair any faults or failures.
3. DO NOT insert a higher amperage fuse into a lower amperage slot. Serious damage to the electrical components or fire can result.

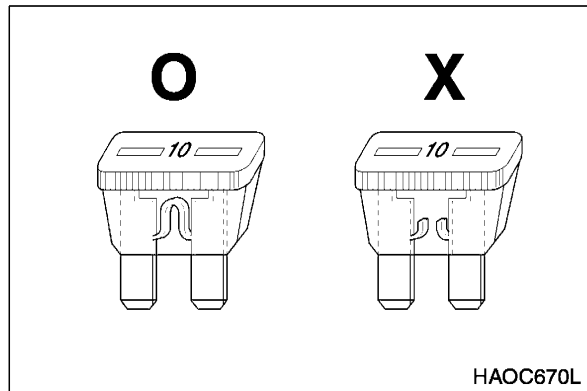


Figure 81

## FUSE BOX

The fuse box is located on the right side of the heater box. The fuses prevent electrical devices from overloading or shorting.

A decal attached to the inside of the fuse box

A spare fuse is in inner side of fuse box's cover.

Fuses are rated for the following amps;

- 10 AMP
- 15 AMP
- 20 AMP
- 30 AMP



Figure 82

# BOLT AND NUT INSPECTION

Inspect ALL fasteners after the first 50 hours of operation and every 250 hours thereafter. If any are loose or are missing tighten them or install new hardware. Always use a calibrated torque wrench.

## IMPORTANT

**Always clean fasteners before tightening.**

**If counterweight is loose, contact a DAEWOO distributor or sales agent.**

**NOTE:** *At installation, remove rust, sand, dirt and dust.*

*At installation, lubricate to reduce abrasion.*

*Apply Loctite to lower roller mounting bolts.*

No.	Point To Be Inspected		Bolt Dia. mm	Qty.	Bolt Head Size	Torque	
						Nm	lbf/ft
1	Engine Vibration dampening mount bolts	Front	14	4	22	137.2	14
		Rear	16	2	24	205.8	21
2	Hydraulic, Fuel Tank Mounting Bolts		12	6	19	107.8	11
3	Hydraulic Hose and Pipe Joint		PF1/4	-----	-----	26.5 - 29.4	2.7 - 3.0
			PF3/8	-----	-----	46 - 51	4.7 - 5.2
			PF1/2	-----	-----	56 - 62	5.7 - 6.3
4	Pump Mounting Bolt		16	4	24	205.8	21
5	Control Valve Mounting Bolt		8	4	13	21.6	2.2
6	Control Valve Base Mounting Valve		10	4	17	42.2	4.3
7	Swing Assembly Mounting Bolt		16	7	24	264.6	27
8	Cabin Mounting Bolt		12	4	19	107.8	11
9	Swing Bearing Mounting Bolt	Swing Body	16	24	24	264.6	27
		Track	16	24	24	264.6	27
10	Undercarriage Mounting Bolt		14	24	22	137.2	14
11	Sprocket Mounting Bolts		14	24	22	137.2	14
12	Lower Roller Mounting Bolt		12	40	19	107.8	11
13	Cover Mounting Bolt		8	-----	13	21.6	2.2
			10	-----	17	42.2	4.3
14	Counter Weight mounting Bolt		20	4	30	176.5	18

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