

HYDRAULIC EXCAVATOR

**OPERATOR'S
MANUAL**

Doosan

140LS

HYUNDAI

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



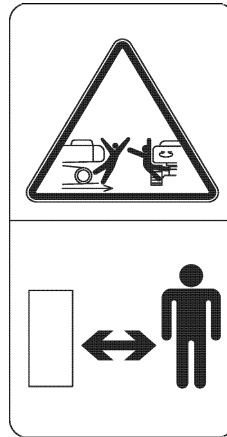
- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

11) SIDE KEEP CLEAR (item 13)

This warning label is positioned on the LH side cover.

- ⚠ To prevent serious personal injury or death keep clear of machine swing radius.
- ⚠ Do not deface or remove this label from the machine.

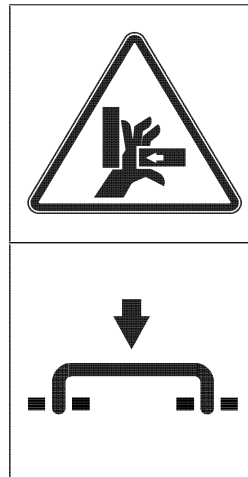


21070FW13

12) STAY FIX (item 14)

This warning label is positioned on the both side cover.

- ⚠ Be sure to support the stay when the door needs to be opened.
- ⚠ Be careful that the opened door may be closed by the external or natural force like strong wind.

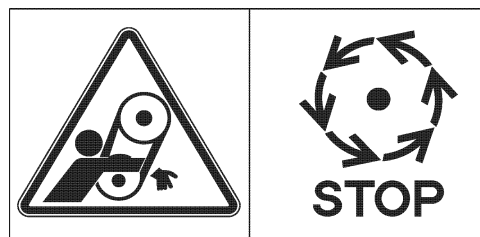


21070FW14

13) SHEARING-ENGINE HOOD (item 15)

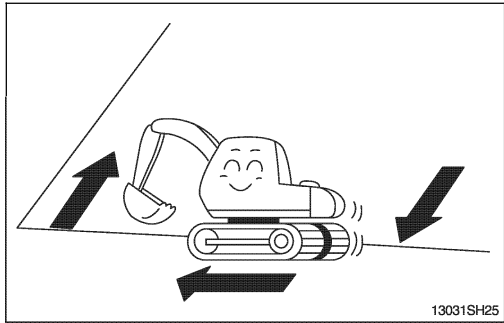
This warning label is positioned on the engine hood.

- ⚠ Don't open the engine hood during the engine's running.
- ⚠ Don't touch exhaust pipe or it may cause severe burn.

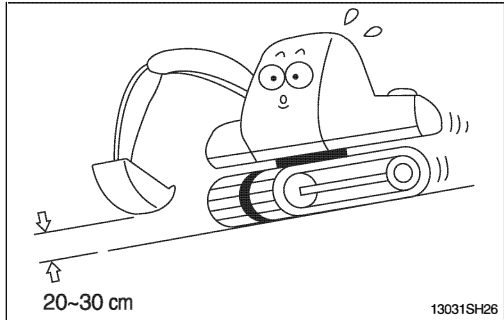


21070FW15

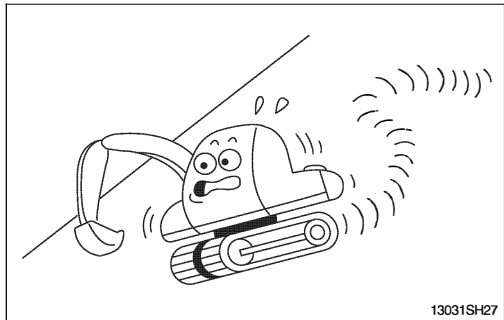
Avoid traveling in a cross direction on a slope as it can cause the danger of rolling over and sliding.



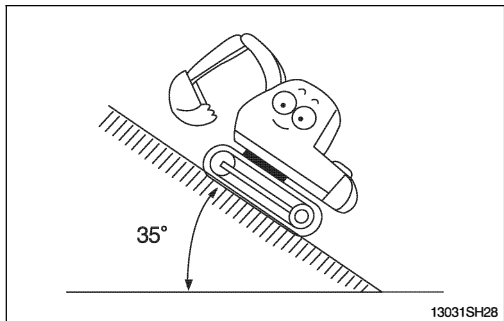
Traveling on a slope is dangerous. Be sure to operate slowly when traveling down a slope and maintain the bucket at a height of 20~30 cm (1 ft) above the ground so that it can be used as brake in an emergency.



Steering of the machine while traveling on a slope is dangerous. When an inevitable turning of direction is required, turn on the flat and solid ground.



The engine angularity limits are 35 degree. Do not operate by more than the engine limits in any case.



4. WEIGHT

1) R140LS

Item	R140LS	
	kg	lb
Upper structure assembly	5630	12420
Main frame weld assembly	1120	2470
Engine assembly	550	1210
Main pump assembly	100	220
Main control valve assembly	140	310
Swing motor assembly	120	260
Hydraulic oil tank assembly	160	350
Fuel tank assembly	130	290
Counterweight	1900	4190
Cab assembly	310	680
Lower chassis assembly	5340	11760
Track frame weld assembly	1590	3510
Swing bearing	215	475
Travel motor assembly	480	1060
Turning joint	50	110
Track recoil spring	210	460
Idler	250	550
Carrier roller	40	90
Track roller	490	1080
Track-chain assembly (600 mm standard triple grouser shoe)	1010	2230
Front attachment assembly (4.6 m boom, 2.1 m arm, 0.65 m ³ SAE heaped bucket)	2380	5250
4.6 m boom assembly	830	1830
2.1 m arm assembly	370	820
0.65 m ³ SAE heaped bucket	560	1235
Boom cylinder assembly	130	290
Arm cylinder assembly	160	350
Bucket cylinder assembly	100	220
Bucket control rod assembly	90	200

7) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	∅ 105 × ∅ 75 × 1075 mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	∅ 115 × ∅ 80 × 1138 mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	∅ 100 × ∅ 70 × 840 mm
	Cushion	Extend only

※ **Discoloration of cylinder rod can occur when the friction reduction additive of lubrication oil spreads on the rod surface.**

※ **Discoloration does not cause any harmful effect on the cylinder performance.**

8) SHOE

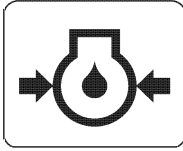
Item		Width	Ground pressure	Link quantity	Overall width
R140LS	Standard	600 mm (24")	0.36 kgf/cm ² (5.12 psi)	46	2600 mm (8' 6")
	Option	500 mm (20")	0.43 kgf/cm ² (6.11 psi)	46	2500 mm (8' 2")

9) BUCKET

Item		Capacity		Tooth quantity	Width	
		SAE heaped	CECE heaped		Without side cutter	With side cutter
R140LS	Standard	0.65 m ³ (0.85 yd ³)	0.55 m ³ (0.72 yd ³)	5	1105 mm (43.5")	1205 mm (47.4")
	Option	0.52 m ³ (0.68 yd ³)	0.45 m ³ (0.59 yd ³)	5	915 mm (36.0")	1015 mm (40.0")
		0.72 m ³ (0.93 yd ³)	0.60 m ³ (0.78 yd ³)	5	1190 mm (46.9")	1290 mm (50.8")

5) Warning and pilot lamp

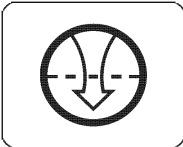
(1) Engine oil pressure warning lamp



21073CD07

- ① This lamp blinks and the buzzer sounds after starting the engine because of the low oil pressure.
- ② If the lamp blinks during engine operation, shut OFF engine immediately. Check oil level.

(2) Air cleaner warning lamp



21073CD08

- ① This lamp blinks and the buzzer sounds when the filter of air cleaner is clogged.
- ② Check the filter and clean or replace it.

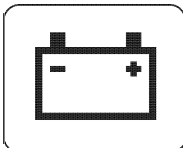
(3) MCU check warning lamp



21073CD10

- ① If any fault code is received from MCU, this lamp blinks and the buzzer sounds.
- ② Check the communication line between MCU and cluster.

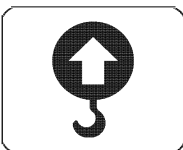
(4) Battery charging warning lamp



21073CD13

- ① This lamp blinks and the buzzer sounds when the starting switch is ON, it is turned OFF after starting the engine.
- ② Check the battery charging circuit when this lamp blinks during engine operation.

(5) Overload warning lamp (opt)



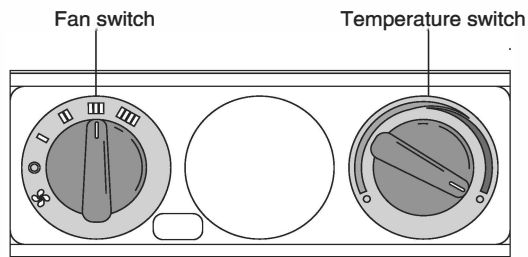
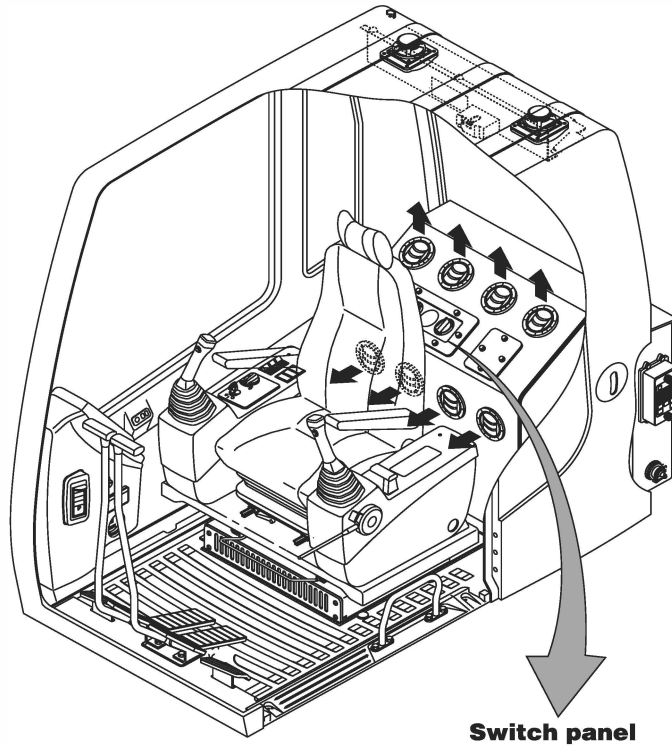
21073CD15

- ① When the machine is overload, the overload warning lamp blinks during the overload switch is ON.

5. AIR CONDITIONER AND HEATER

Air conditioner and heater are equipped for pleasant operation against outside temperature and defrost on window glass.

- Location of air flow ducts



RD21073CD48

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



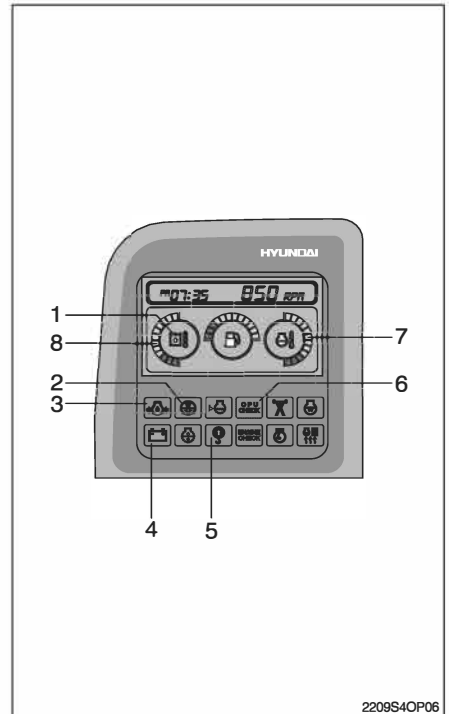
- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

4) INSPECTION AFTER ENGINE START

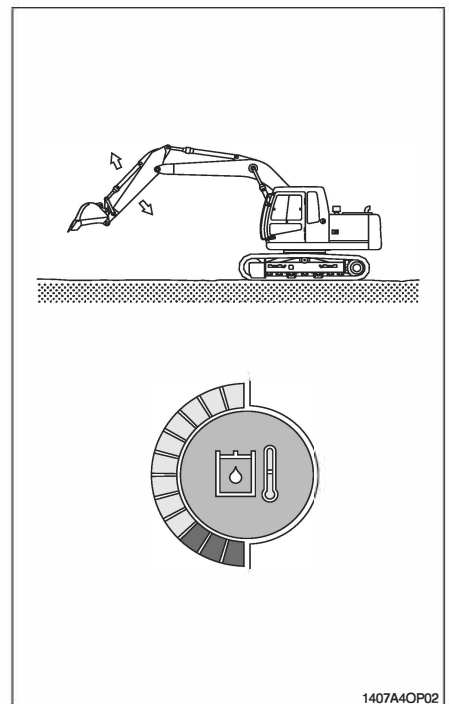
Inspect and confirm the following after engine starts.

- (1) Is the level gauge of hydraulic oil tank in the normal level?
- (2) Are there leakages of oil or water?
- (3) Are all the warning lamps turned OFF (1-6)?
- (4) Are the indicator of water temperature gauge (7) and hydraulic temperature gauge (8) in the green zone?
- (5) Are the engine sound and the color of exhaust gas normal?
- (6) Are the sound and vibration normal?
 - ※ Do not increase engine speed quickly after starting, it can damage engine or turbocharger.
 - ※ If there are problems in the control panel, stop the engine immediately and correct problem as required.

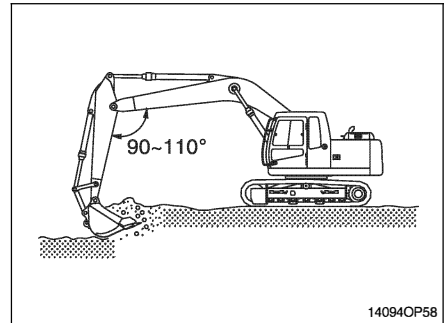


5) WARMING-UP OPERATION

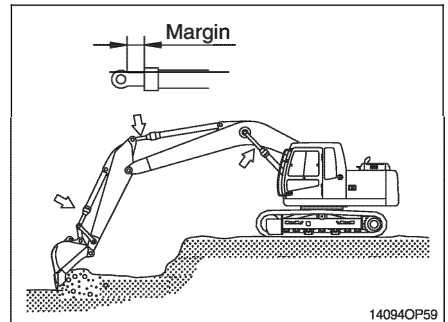
- ※ The most suitable temperature for the hydraulic oil is about 50°C (122°F). It can cause serious trouble in the hydraulic system by sudden operation when the hydraulic oil temperature is below 25°C (77°F). Then temperature must be raised to at least 25°C (77°F) before starting work.
- (1) Run the engine at low idling for 5 minutes.
 - (2) Speed up the idling and run the engine at mid-range speed.
 - (3) Operate bucket lever for 5 minutes.
 - ※ Do not operate anything except bucket lever.
 - (4) Run the engine at the high speed and operate the bucket lever and arm lever for 5-10 minutes.
 - ※ Operate only the bucket lever and arm lever.
 - (5) This warming-up operation will be completed by operation of all cylinders several times, and operation of swing and traveling.



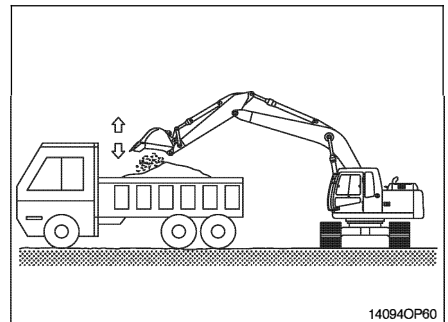
- 5) Dig slowly with keeping the angle of boom and arm, 90-110 degree when maximum digging force is required.



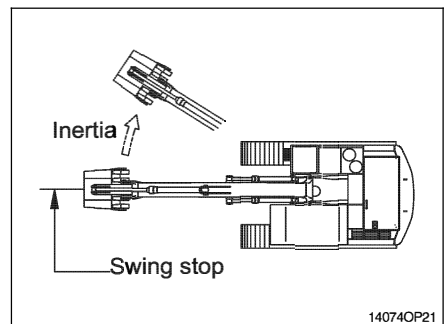
- 6) Operate leaving a small safety margin of cylinder stroke to prevent damage of cylinder when working with the machine.



- 7) Keep the bucket to the dumping position and the arm horizontal when dumping the soil from the bucket.
Operate bucket lever 2 or 3 times when hard to dump.
※ Do not use the impact of bucket tooth when dumping.

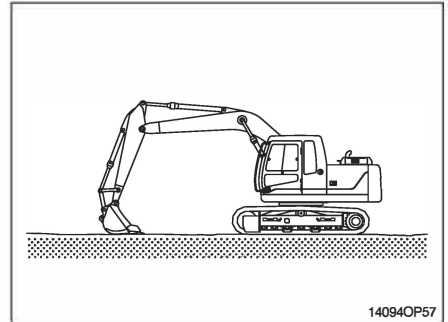


- 8) Operate stop of swing considering the swing slip distance is created by inertia after neutralizing the swing lever.

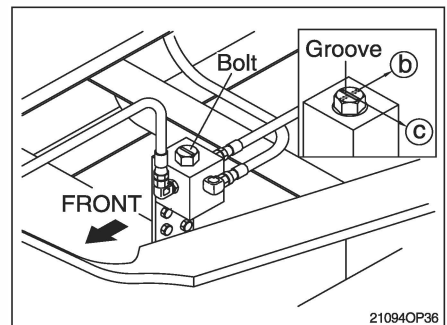


13. SWITCHING HYDRAULIC ATTACHMENT CIRCUIT

- 1) The combined hydraulic attachment circuit is capable of providing single action or double action.
- 2) The position of 3 way valve selects the single action hydraulic attachment circuit or the double action hydraulic attachment circuit.
- 3) Before you change the flow mode of hydraulic attachment circuit, place the machine in the servicing position as shown. Stop the engine.



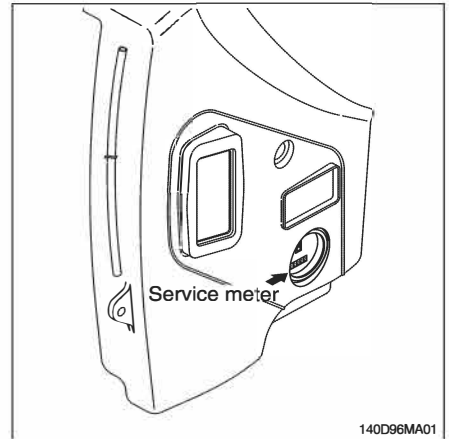
- 4) Use the spanner to turn the bolt of 3 way valve. Make sure that you turn the bolt between (b) and (c).
 - (1) **One way flow (hydraulic breaker)**
Position the groove parallel to the piping (b).
 - (2) **Two way flow (clamshell or shear)**
Position the groove perpendicular to the piping (c).



1. INSTRUCTION

1) INTERVAL OF MAINTENANCE

- (1) You may inspect and service the machine by the period as described at page 6-11 based on hour meter at cluster support.
- (2) Shorten the interval of inspect and service depending on site condition. (such as dusty area, quarry, sea shore and etc.)
- (3) Practice the entire related details at the same time when the service interval is doubled.
For example, in case of 100 hours, carry out all the maintenance 「Each 100 hours, each 50 hours and daily service」 at the same time.



2) PRECAUTION

- (1) Start to maintenance after you have the full knowledge of machine.
- (2) The monitor installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to clause 4, maintenance check list.
- (3) Engine and hydraulic components have been preset in the factory. Do not allow unauthorized personnel to reset them.
- (4) Ask to your local dealer or Hyundai for the maintenance advice if unknown.
- (5) Drain the used oil and coolant in a container and handle according to the method of handling for industrial waste to meet with regulations of each province or country.

4. MAINTENANCE CHECK LIST

1) DAILY SERVICE BEFORE STARTING

Check items	Service	Page
Visual check		
Fuel tank	Check, Refill	6-25
Hydraulic oil level	Check, Add	6-27
Engine oil level	Check, Add	6-18
Coolant level	Check, Add	6-20
Control panel & pilot lamp	Check, Clean	6-35
Prefilter	Check, Clean	6-26
Fan belt tension	Check, Adjust	6-24
★ Attachment pin and bushing	Lubricate	6-34
· Boom cylinder tube end		
· Boom foot		
· Boom cylinder rod end		
· Arm cylinder tube end		
· Arm cylinder rod end		
· Boom + Arm connecting		
· Bucket cylinder tube end		

★ Lubricate every 10 hours or daily for initial 100 hours.

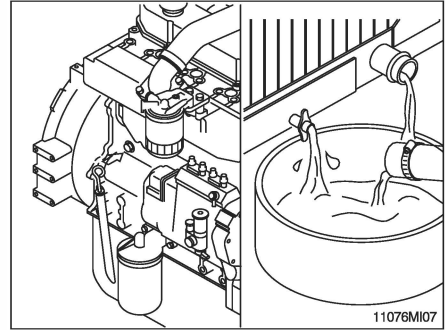
2) EVERY 50 HOURS SERVICE

Check items	Service	Page
Fuel tank (water, sediment)	Drain	6-25
Track tension	Check, Adjust	6-33
Swing reduction gear oil	Check, Add	6-31
Attachment pin and bushing	Lubricate	6-34
· Bucket cylinder rod end		
· Bucket + Arm connecting		
· Bucket control link + Arm		
· Bucket control rod		

- ⚠ Wait until the temperature is below 50 °C (122 °F) before removing the coolant system pressure cap.

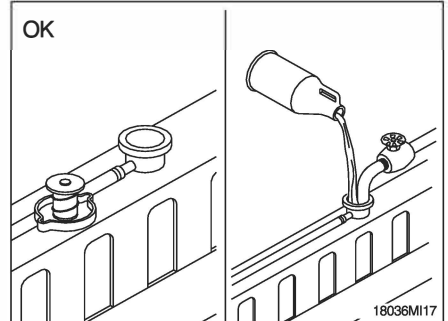
Failure to do so can cause personal injury from heated coolant spray.

Drain the cooling system by opening the drain valve on the radiator and removing the plug in the bottom of the water inlet. A drain pan with a capacity of 40 liters (10 U.S.gallons) will be adequate in most applications.

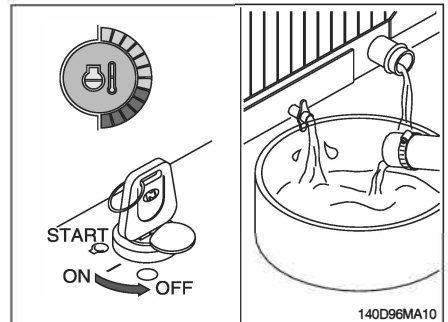


(2) Flushing of cooling system

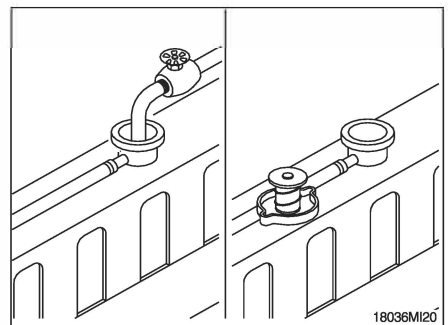
- ① Fill the system with a mixture of sodium carbonate and water (or a commercially available equivalent).
 - ※ Use 0.5kg (1.0 pound) of sodium carbonate for every 23 liters (6.0 U.S. gallons) of water.
 - ※ Do not install the radiator cap. The engine is to be operated without the cap for this process.



- ② Operate the engine for 5 minutes with the coolant temperature above 80 °C (176 °F). Shut the engine off, and drain the cooling system.

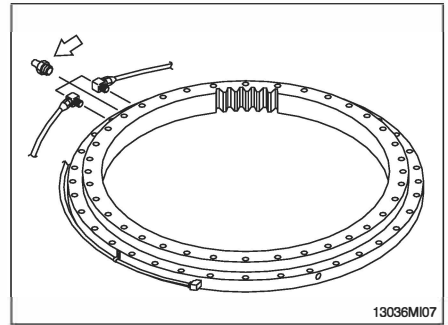


- ③ Fill the cooling system with clean water.
 - ※ Be sure to vent the engine and aftercooler for complete filling.
 - ※ Do not install the radiator cap or the new coolant filter.



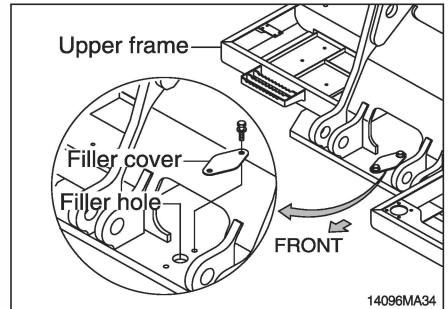
25) LUBRICATE SWING BEARING

- (1) Grease at 3 fitting.
- ※ Lubricate every 250 hours.



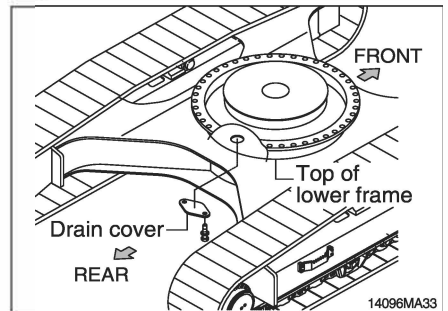
26) SWING GEAR AND PINION

- (1) Drain old grease
 - ① Remove under cover of lower frame.
 - ② Remove drain cover of lower frame.
 - ③ Remove filler cover of upper frame.
 - ④ Operate full turn (360°) of swing several times.



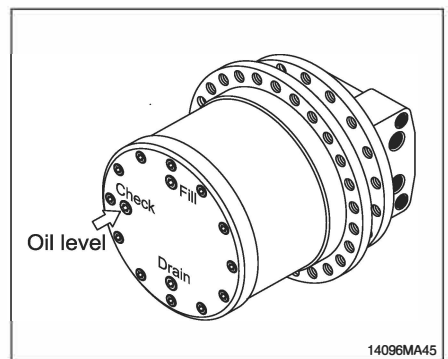
(2) Refill new grease

- ① Install drain cover.
- ② Fill with new grease.
- ③ Install filler cover.
 - Capacity : 7.4 kg (16.3 lb)



27) CHECK THE TRAVEL REDUCTION GEAR OIL

- (1) Operate the machine to the position of drain plug down to the flat ground.
- (2) Loosen the level plug and check the oil level.
If the level is at the hole of the plug, it is normal.
Fill the oil if it is not sufficient.
 - Amount of gear oil : 2.2 l (0.6 U.S.gal)

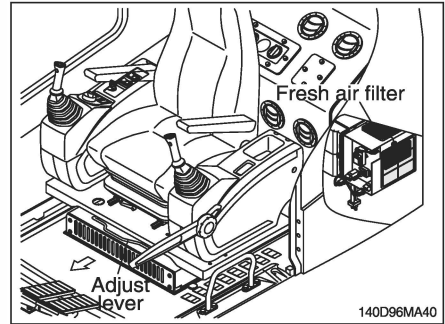


8. AIR CONDITIONER

1) CLEAN AND REPLACE OF FRESH AIR FILTER

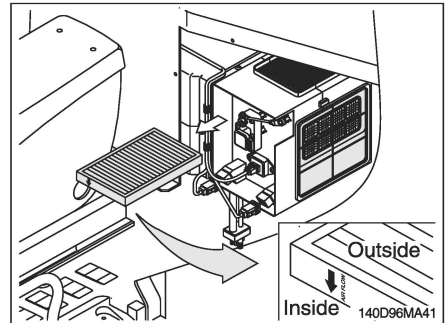
※ Always stop the engine before servicing.

- (1) Move seat and console box to arrow direction using the adjust lever.



- (2) Remove the fresh air filter.

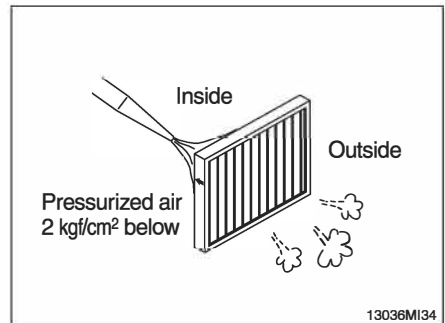
※ When installing a filter, be careful not to change the filter direction.



- (3) Clean the filter using a pressurized air (below 2 kgf/cm², 28 psi).

△ When using pressurized air, be sure to wear safety glasses.

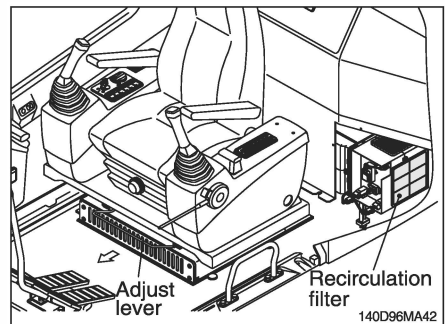
- (4) Inspect the filter after cleaning. If it is damaged or badly contaminated, use a new filter.



2) CLEAN AND REPLACE OF RECIRCULATION FILTER

※ Always stop the engine before servicing.

- (1) Move seat and console box to arrow direction using the adjust lever.



CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL