

6. MACHINE INSPECTION

1. MAINTENANCE CHECK LIST

1) DAILY CHECK ITEM

Service Schedule		Remarks
Item	Inspection description	
Engine oil level	Check the oil level and add as needed. Do not overfill.	6-6
Hydraulic (transmission/front axle) oil level	Check level and add as needed.	6-8
Air cleaner and its filter	Check the filter condition for leakage and damage. Clean the element.	6-14
Engine cooling system	Clean the radiator, screen and grill. Check coolant level and add anti-freeze if necessary.	6-10
Seat belt and seat bar	Check the seat belt and mounting hardware. And if necessary, repair or replace it. Check the seat bar operation.	6-11
Tires	Check for wear, damaged tires and ensure for proper sized tires and correct air pressure.	
Parking brake	Check for automatic rotation and have it adjusted by your dealer if necessary.	
Cleaning pedals	Clean brake pedals, accelerator pedal, and footrest area.	
General information	Check for loose or broken parts, damaged cabin component, instrument panel operation, loose wheel nuts / bolts, oil leaks and damaged or missing signs (decals) and floor mat. Replace them as necessary.	
Bucket and boom	Check mounting hardware for loose or broken parts.	
Battery	Check the voltage and check for discharge.	6-17
Cabin (if installed)	Check each device for proper operation and cleanliness	6-11

※ Refer to section "Maintenance code" for detailed information related to maintenance codes.

2) MAINTENANCE SCHEDULE CHART

No.	Inspection item	Schedule	Run hour								As necessary	Remarks	Maintenance code
			10	100	200	250	500	800	1000	2000			
1	Operating oil (hydraulic oil)	Check and replenish	○										6-8
		Replace							○				6-9
2	Battery (voltage)	Check		○									6-17
3	Hydraulic oil filter	Replace and adjust				⊙	○						6-9
4	Safety bar - check for any malfunctioning	Check	○										-
5	Air cleaner element	Check and clean				○							6-14
		Replace									○		6-20
6	Radiator coolant	Check and replenish	○										6-10
		Replace								○	2 years	at coming first	6-21
7	Engine oil	Check		○									6-5
		Replace				○							6-6
8	Engine oil filter	Replace				○							6-6
9	Pins - grease	Check and replenish	○										6-11
10	Fuel filter element	Replace			○								6-13
11	Fan belt tension and damage	Check			○								6-16
12	Fuel-water separator	Check			○								6-13
13	Fuel hose	Check		○									6-15
		Replace										At every two years	-
14	Tire wheel nut - torque	Check	○										6-13
15	Tire (inflation pressure)	Check and replenish	○										-
16	Chain case oil	Check	⊙										6-10
		Replace							○				6-10
17	HST filter	Replace				⊙	○						-
18	Engine valve clearance	Adjust						○					-
19	Chain tensioner	Replace and adjust							○		○		-

※ ⊙ must be done after the first 10 hours or 250 hours of operation.

※ The service interval is based on the hour meter on the instrument panel.

※ This service interval assumes general maintenance condition and may not be suitable for other conditions, depending on the work site's conditions.

※ Make sure to stop the engine before replenishing oil or fluid.

※ If the oil temperature is high, it may flow out and therefore, do not loosen the cap or the drain plug.

※ Loosen the cap slowly so that the internal pressure can be slowly released.

※ The surface of the instrument panel and the control panel should be always kept clean, and any damaged or defect parts should be replaced with new ones.

2. LUBRICANTS

To prevent serious damage to the equipment, use only genuine fluids, oils and greases or equivalent

No.	Item	Capacity [ℓ (U.S. gal)]	Oil
1	Fuel	HS80V : 94 (24.8) HS120V : 100 (26.4)	Ultra low sulfur diesel (sulfur content: 15 ppm or less)
2	Operating oil (hydraulic oil)	HS80V : 31 (8.2) HS120V : 38 (10.0)	Hydraulic oil ISO VG 46, Hyundai Oil
3	Radiator coolant	10.4 (2.75)	Anti-freezing solution: Ethylene glycol + Pure water (50:50)
4	Engine oil	9.0 (2.4)	Spec: API CJ-4 or higher Viscosity (SAE): SAE 15W40
5	Pins - grease	Sufficient amount	Grease oil NLGI #2
6	Chain case oil	13 (3.4)	SAE 10W-30 or equivalent

▲ Check the oil level periodically. Correct the oil level, if needed, before operating.

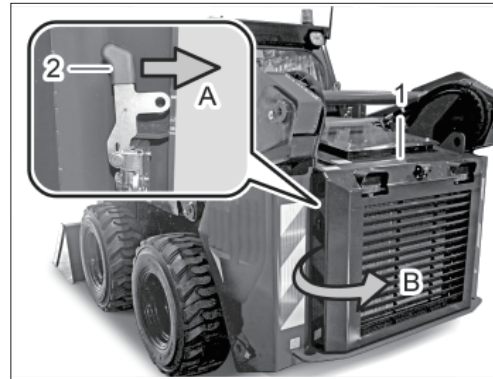
▲ Always check and add oil with the machine on a flat, level surface.

3. MAINTENANCE CODE

1) OPENING THE REAR DOOR

- 1 Rear door
- 2 Opening knob
- A Pull
- B Open

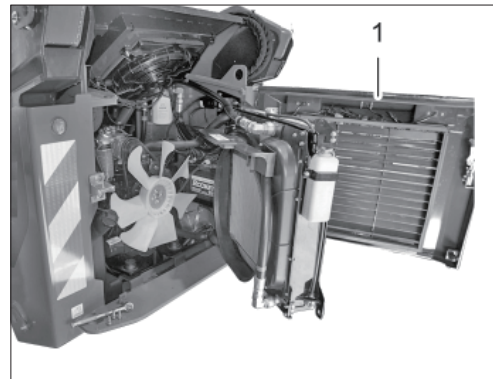
- (1) It is very easy to open the rear door with one touch pulling knob.
- (2) The hood stays open by itself with air cylinder. To close it, just press down without any bothering process.



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- 1 Rear door

- ▲ **Never open the rear door while the engine is running.**
- ▲ **Be careful not to trap your fingers when closing the side cover.**
- ▲ **Never open the side covers while the engine is running.**



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2) CHECKING AND ADDING FUEL

- 1 Fuel Tank Cap

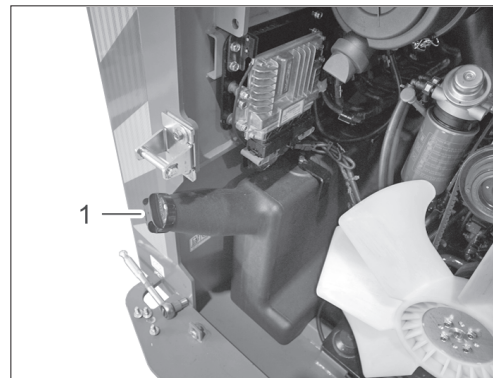
The fuel tank is installed in the middle of the machine body. Make sure to use pure and high-quality diesel fuel.

· Fuel tank capacity : See page 6-3.

- (1) Turn the key switch to "ON" and check the amount of fuel with the fuel gauge.
- (2) If the needle on the fuel gauge is close to "E" or the fuel level is low, open the fuel tank filler cap and add the fuel.
- (3) After adding the fuel, close the fuel tank filler cap.

▲ **To avoid personal injury:**

- Do not smoke while refueling.
- Add fuel in a well-ventilated area.
- Be sure to stop the engine before refueling.
- As dirt or sand contained in fuel may cause malfunction to the fuel injection pump, use the strainer when refueling.



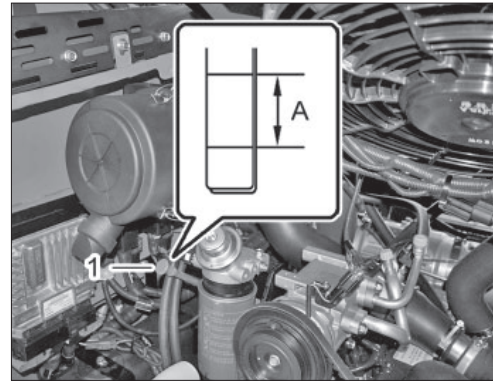
LF1O603A

- ※ Be careful not to let the fuel tank become empty. Otherwise air will enter the fuel system, necessitating bleeding before next engine start.
- ※ Be careful not to spill during refueling. If a spill occur, wipe it off at once, or it may cause a fire.
- ※ When operating the machine in winter season after a long period of time, fuel for winter season should be used.

3) CHECKING ENGINE OIL LEVEL

- 1 Oil filler neck
- 2 Oil dipstick
- A Oil Level is Acceptable Within This Range

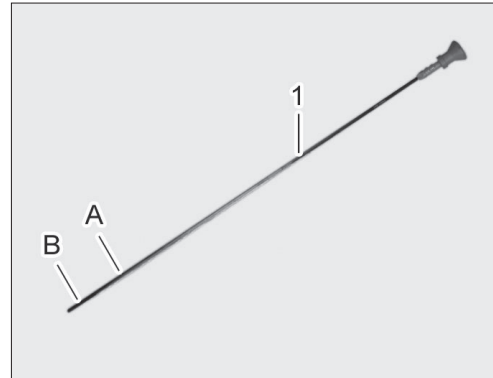
- (1) Check the engine oil daily.
- (2) Park the machine on a level ground and lower the implement.
- (3) If the engine was just running, wait for approx. 5 minutes before checking the oil level.
- ※ **To avoid injury: Be sure to stop the engine before checking the oil level.**



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- 1 Oil dipstick
- A Upper limit
- B Lower limit

- (4) Pull out the oil dipstick, clean it, and then insert it into its original position. Then, pull it out again and check if the oil level is within the specified range.
- (5) If the oil level is too low, add some new oil so that the level is within the allowable range.
- ※ **When using oil of different maker or viscosity from the previous one, remove all of the old oil. Never mix two different types of oil.**
- ※ **Do not start the engine when the oil level is below the lower limit.**
- ※ **Wipe the oil dipstick with clean cloth or tissue. If foreign material enters the oil sump, it can lead to malfunction of the engine.**
- ※ **Never add oil over the upper limit.**

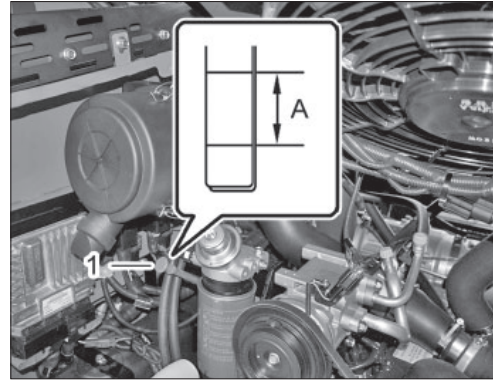


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4) CHANGING ENGINE OIL AND REPLACING FILTER

- 1 Oil filler hole
- 2 Oil dipstick
- A Oil level is acceptable within this range

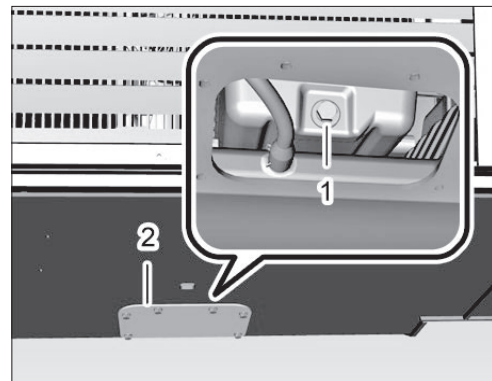
- (1) Park the machine on a level ground and start the engine to warm it up.
- (2) Stop the engine, set the parking switch to the parking state (P).
- (3) Wait until the oil is cooled down.



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- 1 Drain Plug
- 2 Maintenance cover

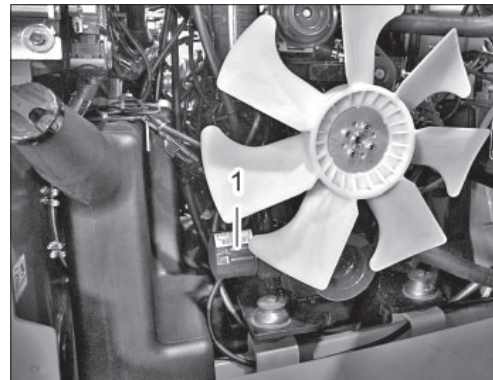
- (4) To drain the oil used, first install the oil pan at the bottom of the engine, remove the maintenance cover, and turn the drain plug counterclockwise to drain the oil completely. Used engine oil can be drained more easily before the engine cools.



LF1O628B

- 1 Engine oil filter

- (5) Remove the oil filter from the bottom of the fuel filter on the right side of the engine.
- (6) Apply a thin film of oil to the O-ring of a new filter and tighten the new filter firmly by hand.
- (7) Fill the engine oil to the specified level and tighten the oil filter to the specified torque.
 - Oil capacity : 9 ℓ (2.4 U.S. gal)



LF1O607A

- (8) Run the start motor for approx. 10 seconds to distribute oil to each part of the engine.
- (9) Run the engine for approx. 5 minutes and check for proper operation through the engine oil warning lamp. Then, stop the engine. (It is normal that the oil warning lamp is off while the engine running)
- (10) Check the engine oil level again with the oil dipstick. If the level is low, add more oil.

※ **The engine oil filter should be replaced when changing the engine oil.**

▲ **The engine oil is very hot while the engine is running or right after the engine is stopped. Be careful not to be burnt.**

▲ **Avoid oil contact while changing or adding engine oil and wear eye protection to prevent eye contact.**

▲ **Prolonged and repeated contact with the engine oil may cause skin disorders and skin cancer. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.**

▲ **Keep the used oil out of reach of children.**

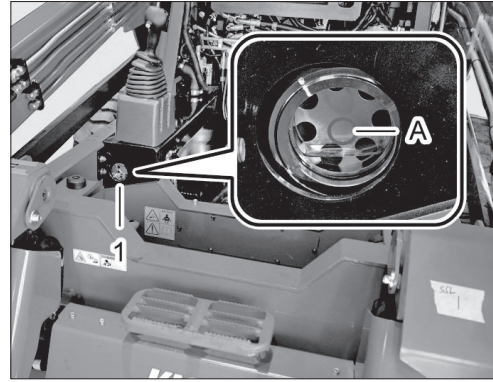
※ **Use only specified engine oil and Hyundai genuine filter to insure smooth operation and durability of the engine.**

▲ **To avoid injury:**

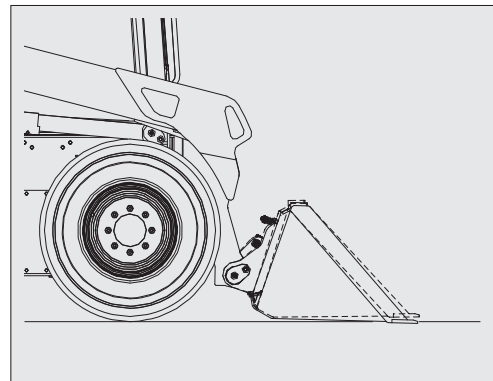
- **Be sure to stop the engine before changing the fluid or replacing the filter.**
- **Check the engine oil level before every operation of the machine. If the engine oil is insufficient, the engine can be damaged, and this is not covered by warranty. Be sure to add the engine oil when its level is below the lower limit of the oil dipstick.**
- **Do not dispose of used oil and oil filter into drainage and other places not designated by regulations. Observe applicable regulations when disposing used oil and filters.**

5) CHECKING THE HYDRAULIC OIL LEVEL

- 1 Hydraulic oil level sight glass
- A Optimal level
(it should be up to the center of the gauge.)



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LF1O527A

1 Hydraulic oil filler neck

- (1) Park the machine on a level ground and lower the bucket onto the ground.
- (2) Stop the engine and wait for some five minutes.
- (3) The hydraulic oil level should be up to the center of the gauge. (The gauge is located at the lower right of the seat inside the cabin.)
- (4) If the oil level is too low, add some new oil so that the level is within the allowable range.

- ※ If the level is low, do not run the engine.
- ※ Never add oil over the upper limit.
- ※ Be sure to check the oil level after installing a hydraulic implement. Add fluid as needed.
- ※ Check the oil level with the cylinders of an implement extended and check again with the cylinders retracted. Add oil to adjust the oil level within the range of



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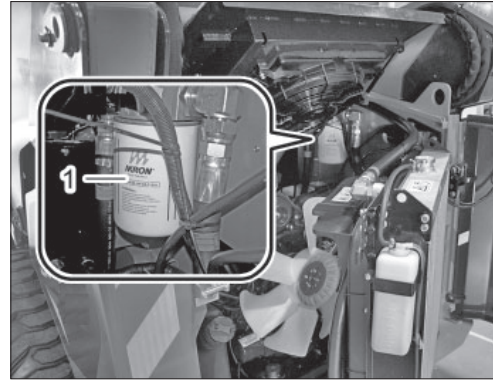
6) REPLACING THE HYDRAULIC OIL AND FILTER

1 Return filter

If hydraulic oil is contaminated or a repair is required, it should be replaced. Make sure to replace the hydraulic oil filter element as well.

However, replace the hydraulic oil filter element only at every 500 hours of operation.

- (1) Park the machine on a level ground and start the engine to warm it up.
- (2) Stop the engine, and remove the drain plug.



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- 1 Drain hole
- 2 Drain hose
- 3 Plug

- (3) To drain used oil, point the drain hose below the step toward the hole on the floor in the front wheel (left), and loosen the plug to drain the oil (4) completely.

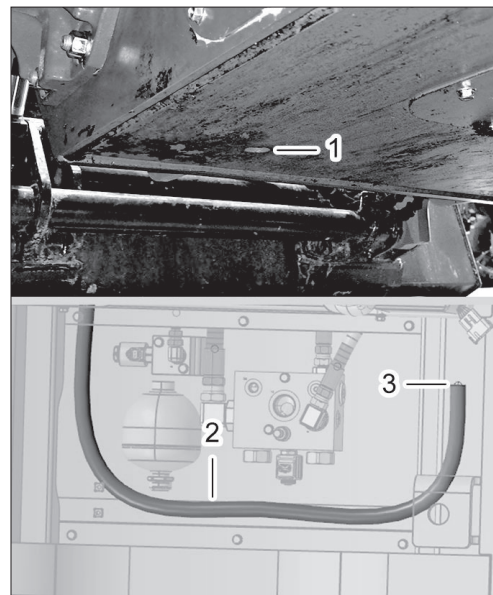
Apply a thin film of clean oil onto the O-ring of a (5) new filter.

Tighten the filter until it touches the mounting surface. Then, tighten the filter for a half turn (6) further with a hand.

After installing a new filter, run the engine for a (7) few minutes and stop it.

Check the oil level again and add more oil to the specified level.

- Oil Capacity
 - HS80V : 31 ℓ (8.2 U.S. gal)
 - HS120V : 38 ℓ (10 U.S. gal)



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▲ To avoid injury:

- Be sure to stop the engine before changing the fluid or replacing the filter.
- Cool down the fluid sufficiently. You can get burnt by hot fluid.

- ※ To prevent serious damage to the hydraulic system, use only a Hyundai genuine filter.
- ※ Do not operate the machine immediately after changing transmission fluid. Run the engine at medium speed for a few minutes to prevent damage to the hydraulic system.

7) CHECKING AND REPLACING CHAIN CASE OIL

- 1 Sight glass & filler hole
- 2 Drain plug

Replace the oil according to the driving chain maintenance interval or chain case oil replacement interval.

- (1) Park the machine on a level ground and stop the engine.
- (2) Open the drain plug and drain the oil completely.
- (3) Check the oil level again and refill oil to the specified level.
 - Oil Capacity : 13 ℓ (3.4 U.S. gal)

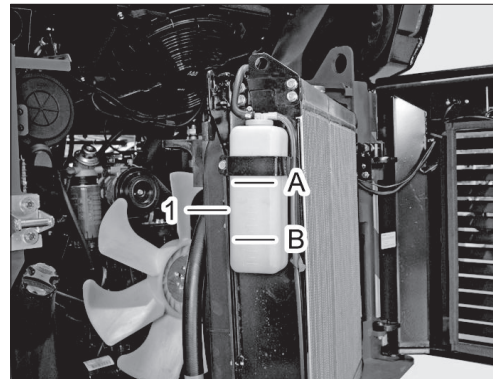


LF1O706A

8) CHECKING THE COOLANT LEVEL

- 1 Reservoir Tank
- A FULL
- B LOW

- (1) Check to see that the coolant level is between the "FULL" and "LOW" marks of the reservoir tank.
- (2) When the coolant level drops due to evaporation, add water only up to the "full" level mark. in case of leakage, add anti-freeze and water in the specified mixing ratio up to the "full" level mark. (refer to the instructions for cleaning the cooling system and changing coolant in chapter maintenance for every two years.)
- (3) The machine is furnished in the factory with a mixture of anti-freeze (ethylene glycol) and water in a ratio of 50:50 which is usable in any season.



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9) CLEANING THE RADIATOR OR

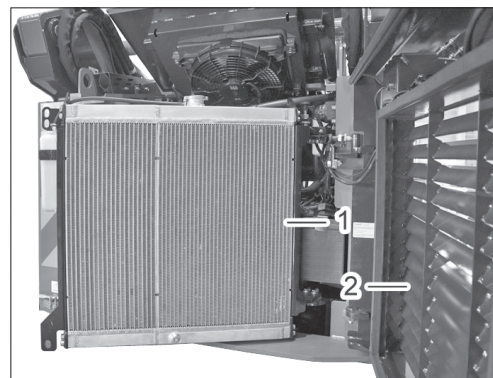
- 1 Radiator
- 2 Rear cover

- (1) Check for foreign materials on the radiator and the rear cover.
- (2) Remove any foreign materials.

▲ To avoid accidents:

- Be sure to stop the engine before cleaning.

※ The radiator and the rear cover must be clean from debris to prevent the engine from overheating and to allow good air intake for the air cleaner.



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10) CHECKING GAUGES, METERS AND INDICATORS

- (1) Inspect the instrument panel for broken gauge(s), meter(s) and indicators.
- (2) Replace if broken.

11) CHECKING HEAD LIGHT, HAZARD LIGHT ETC.

- (1) Inspect the lights for broken bulbs and lenses.
- (2) Replace if broken.

12) CHECKING SEAT BELT AND CABIN

- (1) Always check the condition of the seat belt and cabin before operating the machine.
- (2) Replace if damaged.

13) LUBRICATING GREASE NIPPLE

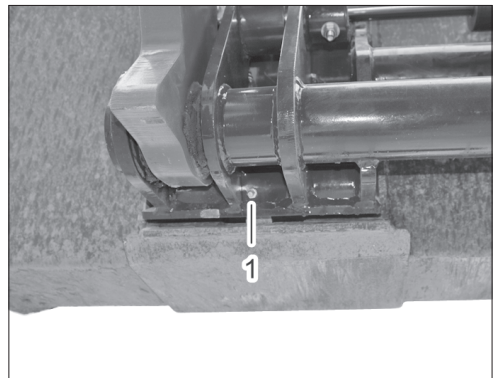
Apply quality multi-purpose grease to the locations specified in the following figure at every 10 hours of use or when necessary. Also, record the operating hour on every application.

- 1 Upper part of the bucket lift cylinder



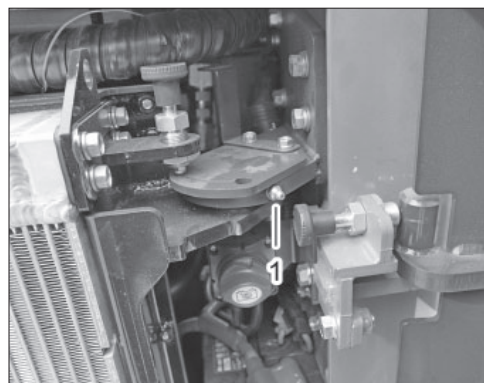
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- 1 Lower part of the bucket



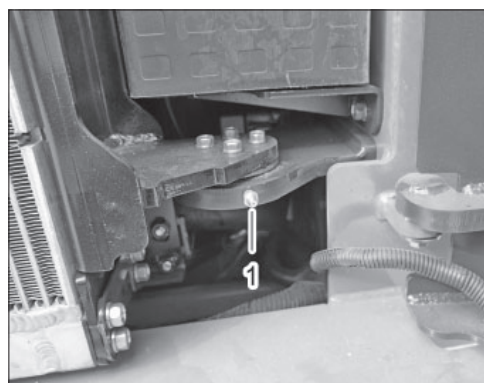
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- 1 Upper part of the opening of the engine compartment.



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- 1 Lower part of the opening of the engine compartment



LF1O639A

- 1 Boom cylinder
- 2 Lower part of the bucket



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- 1 Upper/lower parts of the boom cylinder



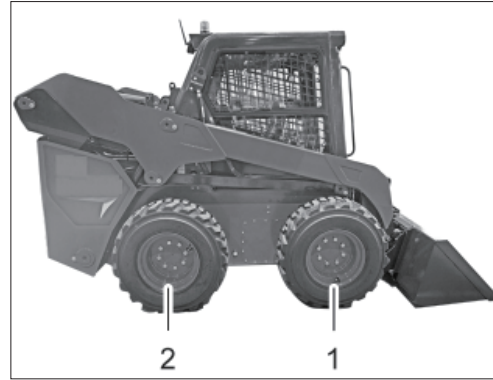
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14) CHECKING WHEEL BOLT/NUT TORQUE

- 1 Front wheel
- 2 Rear wheel

Check the wheel bolts and nuts regularly especially when new. If they are loose, tighten them as follows.

Item		Tightening torque
Front wheel	Nut	20~23 kgf·m (144~166 lbf·ft)
Rear wheel	Nut	



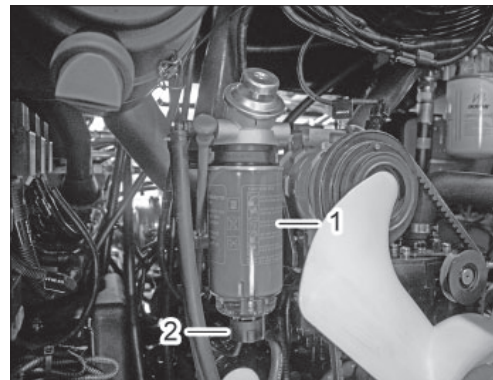
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▲ To avoid injury:

- Never operate the machine with a loose rim, wheel, or axle.
- Any time bolts and nuts are loosened, retighten to specified torque.
- Check all bolts and nuts frequently and keep them tight.

15) FUEL FILTER

- 1 Fuel filter
- 2 Drain plug



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16) REMOVING WATER FROM FUEL FILTER

- (1) Water and dust in fuel are accumulated in the filter. Remove the plug from the bottom of the fuel filter to drain water.
- (2) After draining, tighten the plug with a hand. (Do not use a tool.)
- (3) Start the engine and check for fuel leakage.

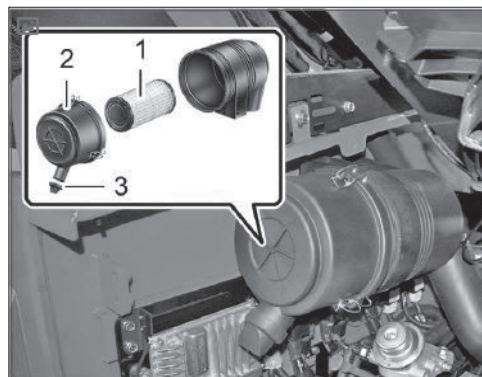
17) REPLACING FUEL FILTER

- (1) Wipe the surface of the fuel filter clean.
- (2) Unscrew the plug on the bottom of the fuel filter to drain fuel.
- (3) Separate the fuel filter.
- (4) Remove foreign materials, such as dirt, thoroughly and replace the fuel filter with a new one.

18) CLEANING AND REPLACING AIR CLEANER FILTER

- 1 Filter
- 2 Dust cap
- 3 Evacuator valve

If the air cleaner is not in a good condition, the lifetime of the engine can be shortened, excessive soot can be produced, and the engine power can be deteriorated. Therefore, the filter should be inspected frequently. Its replacement interval can be changed according to driving conditions. Replace the filter according to the following procedure:



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- (1) Open the rear door and check the suction hose and air cleaner housing for damage.
- (2) Unscrew the air cleaner clip and remove the cover.
- (3) Clean the inside of the air cleaner housing thoroughly.
- (4) Replace the filter and check the housing for damage.
- (5) Install the cover and fix it with the clip.

※ **The air cleaner will only fulfill its function if it is correctly and regularly maintained.**

A poorly maintained air cleaner will mean loss of power, excessive fuel consumption and a reduction in engine life.

※ **Do not run the engine with filter element removed.**

▲ **Use only a Hyundai genuine filter. If using a product other than the genuine one, it can damage the engine internal section and sensor.**

▲ **Make sure that no dust enters the system by installing the cover firmly.**

When removing the filter, be careful not to let foreign material enter the air inlet.

※ The air cleaner uses a dry element. Never apply oil.

※ Make sure that dust is not accumulated over the half of the dust cap. Remove the dust cap, wipe out any dust and clean the filter every week. If the machine is operated in extremely dusty conditions, daily inspection is required.

※ Do not service the filter unless it should be cleaned.

※ For filter replacement, refer to the instruction for replacing the air cleaner filter for every year.

※ When installing the cover, make sure that the dust collection valve is heading down.

※ **Be sure to refit the cover with the arrow ↑ (on the rear of cover) upright. If the cover is improperly fitted, the evacuator valve will not function and dust will adhere to the element. (Refer to the instructions for replacing the air cleaner filter for every year in Chapter Maintenance.)**

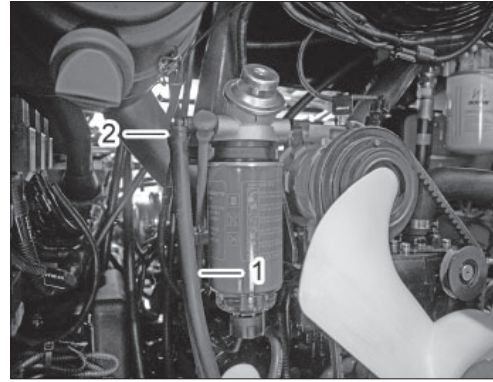
19) EVACUATOR VALVE

Open the evacuator valve gap by fingers once a week under ordinary conditions or daily when used in dusty conditions to get rid of large particles of dust and dirt.

20) CHECKING FUEL LINE

- 1 Fuel line
- 2 Fuel hose clamp

It is recommended to check the fuel pipe connections every 100 hours, and should be replaced every 2 years unless the operation exceeds 1,000 hours in 2 years.



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- (1) If the hose clamps are loose, apply a slight coat of lubricant onto the threads and securely tighten it.
- (2) The fuel line is made of rubber and ages regardless of period of service.
Change the fuel line together with the hose clamps every two years and securely tighten.
- (3) If the fuel line and hose clamps are found damaged or deteriorated earlier than two years, then change them immediately.
- (4) After the fuel line and hose clamps have been changed, bleed the fuel system

▲ Stop the engine when checking the items above.

▲ Inspect the fuel pipe regularly.

The fuel pipes are subject to wear and aging. Failure to perform periodic inspections may lead to a fuel leak. Fuel leaking on a hot engine could cause a fire.

- ※ When disconnecting the fuel pipe for replacement, plug both ends with cloth or paper to prevent dust or foreign material from entering it. Otherwise, the fuel injection pump can be damaged. Pay extra caution to the fuel pump to prevent dust from entering it.

21) ADJUSTING FAN BELT TENSION

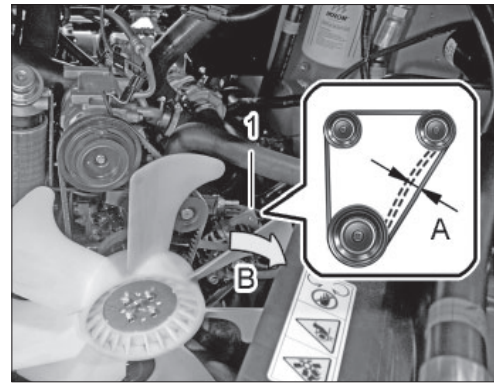
- 1 Adjusting Bolt
- A Adjusting Belt Tension
- B Pull

In order to extend the fan belt's lifetime, the tension of the belt should be correctly adjusted if it slips. The belt tension should be inspected regularly according to the following procedure:

- (1) Stop the engine and check the parking status on the instrument panel.
- (2) Open the rear door.
- (3) In order to measure the belt tension, apply thumb pressure strongly to the "A" location of belt.
 - Belt deflection for proper fan belt tension (A) :
A deflection of between 7~9 mm when the belt is pressed in the middle of the span
- (4) If the tension is incorrect, loosen the alternator mounting bolts and, using a lever placed between the alternator and engine block, pull the alternator out until the deflection of the belt falls within acceptable limits.
- (5) Be sure to retighten the alternator mounting bolt and hinge bolt securely after adjusting belt tension.
- (6) Replace the fan belt if it is damaged, cracked or worn.

To avoid injury:

- Be sure to stop the engine before checking belt tension.



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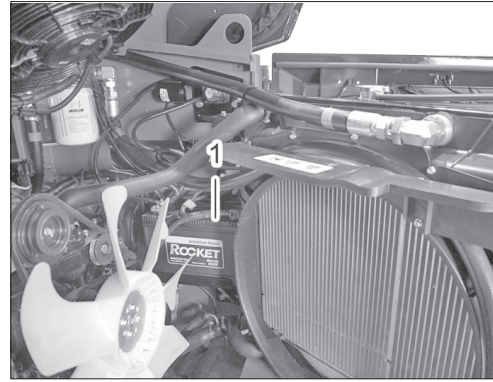
22) BATTERY

(1) Precautions for handling

1 Battery

Mishandling the battery shortens the service life and adds to maintenance costs. If the battery is insufficiently charged, the headlights may dim and the engine is hard to start. It is important to inspect the battery periodically.

- ① The battery cable should always be clean and firmly connected. When installing a new or used battery, clean its terminals.
 - ② Check the battery and cable for damage and corrosion.
 - ③ Apply grease to the terminals and cable end in order to prevent corrosion.
- ▲ The battery gas can explode. Do not expose the battery to flames or sparks. It may cause a fire.
 - ▲ The battery fluid contains sulfuric acid that can burn you. Do not allow the battery fluid to contact your eyes, skin, or painted surfaces. If you accidentally get it in your eyes or on your skin, flush with water and contact your doctor.
 - ▲ Be sure to wear eye protection while working on the battery. The battery fluid can hurt your eyes.
 - ▲ Use only the battery with the specified voltage. Otherwise, it may cause a fire.



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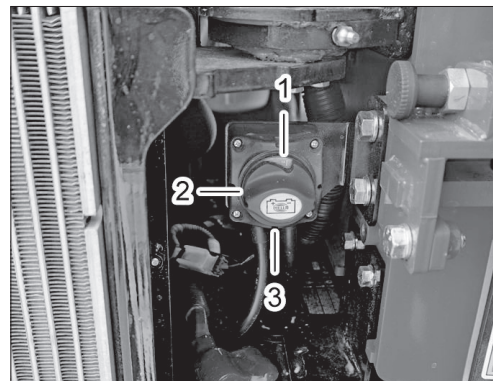
(2) BATTERY SHUT OFF SWITCH

- 1 Battery shut off switch
- A Power shut off (OFF)
- B Power ON (ON)
- C Removing the handle

Setting the battery switch OFF shuts off the power while setting it ON supplies the power. For long-term storage, set the switch OFF.

For long-term storage, turn the handle to the removal position to remove it and place it in a safe place.

- ▲ Stop the engine and wait for about two minutes, and then turn the battery switch to "OFF" or disconnect the battery terminal.
- ▲ After the engine is stopped, the ECU self-check takes about 2 minutes. If the battery is removed before this 2 minutes, ECU errors would occur.



LF1O629B

(3) Charging

- ① To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, and then recharge in the standard fashion.
- ② Boost charging is only for emergencies. It will partially charge the battery at a high rate and in a short time. Failure to do this will shorten the battery's service life.
- ③ When the battery is discharged and should be replaced, replace it with a new one with same specification and capacity.

Battery type	Volts (V)
110 AH	12

- ⚠ The charge warning lamp comes on if the charging system is defective. If it comes on while driving, have the system checked or repaired by your local Hyundai dealer.
- ⚠ Keep the battery fully charged. If the battery fluid concentration is too low during the winter season, the battery may be frozen.
- ⚠ Do not start the engine when the battery is frozen. Try to warm it up first.
- ⚠ If the battery is not securely installed, the battery case and electrolytes could be damaged by vibration. To prevent the battery acid from contacting the terminals, apply grease around the battery terminals and connections.
- ⚠ Never check the charge status of the battery by placing a metal object across the posts. Use a voltmeter or hydrometer.

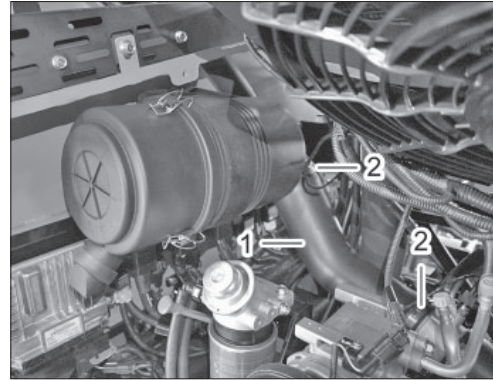
(4) Direction for Storage

- ① When storing the machine for a long period, remove the battery from the machine and store in a dry place out of direct sunlight.
- ② The battery self discharges while it is stored. Recharge it once every three months in hot seasons and once every six months in cold seasons.

23) CHECKING INTAKE AIR LINE

- 1 Air line hose
- 2 Clamp

- (1) If the hose clamps are loose, tighten clamps securely.
- (2) If the hoses and clamps are damaged, you must replace them at once. Failure to do so could lead to engine damage.



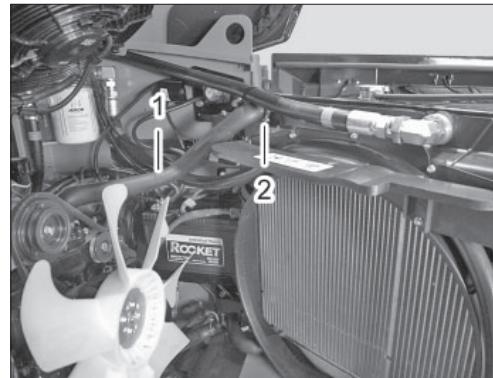
LF1O615A

24) CHECKING RADIATOR HOSE AND CLAMP

- 1 Clamp
- 2 Radiator hose

Check to ensure the radiator hoses are free from damage and are tightened properly every 200 hours or every 6 months, whichever comes first.

- (1) If the hose clamps are loose or water leaks from hose, tighten clamps securely.
- (2) If the radiator hose is swollen, hardened, cracked or damaged, it should be replaced immediately. Also, it should be replaced every 2 years.



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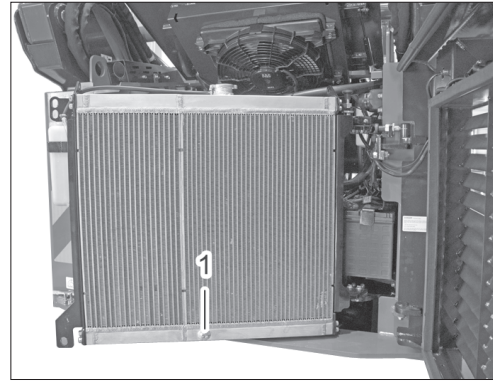
Take the following actions in the event the coolant temperature reaches the boiling point, what is called "Over-heating".

- (1) Stop the machine in a safe place and keep the engine unloaded idling.
- (2) After 5 minutes of unloaded idling, shut the engine down.
- (3) Keep yourself away from the machine for another 10 minutes or until steam has stopped blowing out of the engine.
- (4) Make sure that there is no danger and repair the cause of the overheating according to the manual's instruction. (Refer to the instruction in Chapter. Troubleshooting before starting the engine.)

25) FLUSHING COOLING SYSTEM AND CHANGING COOLANT

1 Drain plug

- (1) Park the machine on level ground, stop the engine and let the engine cool down.
- (2) To drain coolant, remove the drain plug from the radiator and turn the radiator cap to the 1st notch to release pressure in the radiator. Then, remove the cap completely.
- (3) After all coolant is drained, fit the drain plug.
- (4) Use clean, fresh water and anti-freeze to fill the reservoir tank.
- (5) Follow the cleaner manufacturer's instruction.



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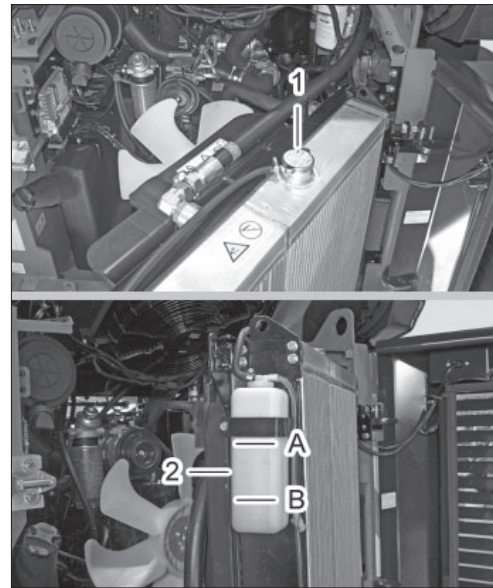
- 1 Radiator cap
- 2 Reservoir tank
- A FULL
- B LOW

- (6) Install the radiator cap securely.
- (7) Start and idle the engine for few minutes.
- (8) Stop the engine and let it cool.
- (9) Drain water and cooling system cleaner and close drain cock. Then, fill with antifreeze and water mixture and close radiator cap securely. Idle the machine until it reaches the operating temperature.
- (10) Check the coolant level in the reservoir tank. If the level is low, add coolant.

· Coolant capacity : 10.4 ℓ (2.75 U.S. gal)

▲ To avoid accidents:

- Do not remove the radiator cap while the coolant is hot. Steam or scalding liquids released from hot cooling system can burn you seriously. Cool down the engine first.
 - Even though the coolant is cooled down, turn the cap to its first stop and then wait until it is depressurized before removing the cap completely.
- ※ Do not start engine without coolant.
 - ※ Use clean, fresh water and anti-freeze to fill the radiator and reservoir tank.
 - ※ When the anti-freeze is mixed with water, the anti-freeze mixing ratio must be no less than 50% mixture of water and antifreeze.
 - ※ Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.
 - ※ If the radiator cap has to be removed, follow the caution above and securely retighten the cap.
 - ※ Use clean, fresh water and anti-freeze to fill the reservoir tank.
 - ※ If the coolant leaks, contact your local Hyundai Dealer.



LF10619A

26) ANTI-FREEZE

This machine is filled with 50% of ethylene glycol at factory. If the anti-freeze has been replaced by tap water later on, the coolant can freeze, leading to damage to the cylinder and radiator when the ambient temperature is below zero (32°F). Therefore, make sure to change water into anti-freeze before winter season comes. When changing the anti-freeze with one of another type, flush the cooling system several times and contact a professional for the mixture ratio.

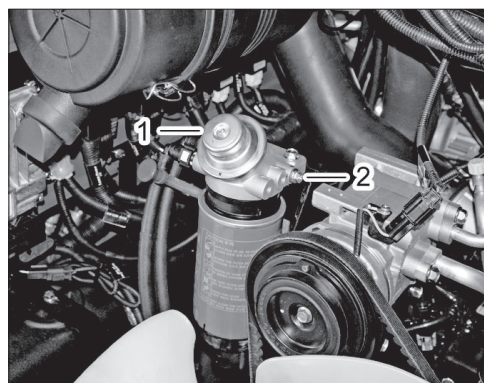
Anti-freeze % (Ethylene glycol)	Freezing Point		Boiling Point	
	°F	°C	°F	°C
40	-12	-24	222	106
50	-34	-37	226	108

- ※ At 760 mm Hg pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap.
- ※ The temperatures shown on the left are industry standards that necessitate a minimum glycol content in the concentrated antifreeze.
- ※ When the coolant level drops due to evaporation, add water only. in case of leakage, add anti-freeze and water in the specified mixing ratio.
- ※ Anti-freeze absorbs moisture. Keep unused anti-freeze in a tightly sealed container.
- ※ Do not use radiator cleaning agents when anti-freeze has been added to the cooling water.
(anti-freeze contains an anti-corrosive agent, which will react with the radiator cleaning agent forming sludge which will affect the engine parts)

27) BLEEDING FUEL SYSTEM

- 1 Drive pump
- 2 Air bleeding bolt

- (1) Make sure that the amount of fuel in the fuel tank is sufficient.
- (2) If air is introduced into the fuel filter, unscrew the air bleeding bolt shown in the above figure, and turn the key switch to run the drive motor. Then, air in the fuel filter is bled through the bleeding bolt as shown in the figure above.



LF1O621B

※ Bleeding is not necessary if installing the fuel port after fueling.

(3) When fuel is visible through the bleeding bolt, tighten the bolt and start the engine.

※ To protect the catalyst filter, keep the followings:

- Make sure to use only genuine fuel.
- Keep the engine oil replacement schedule.
- Check the engine oil level frequently to keep it to the specified level.
- Avoid any unnecessary engine idling.
- Never stop the engine during driving.
- Never place the shift lever into the neutral position when driving downhill.
- Do not use any engine oil additive or fuel additive.
- Avoid driving with any warning lamp illuminated.
- Do not allow any flammable materials, such as dry grass and paper, to come near the catalyst filter while parked.

▲ Never bleed the fuel system while the engine is hot.

※ After bleeding, fuel without air bubbles is filtered by the fuel filter and is transferred to the fuel injection pump. Maintain the proper fuel level in the fuel tank before the fuel tank becomes empty. If all fuel is completely consumed in a Diesel engine, fuel should be added to the fuel tank and then the fuel system should be bled.

※ If the engine cannot be started even after bleeding the fuel system, contact your local Dealer.

28) CHECKING AND REPLACING WIPERS

(1) Checking

1 Wiper

Check the operation and wear condition of wiper blades regularly. When replacing the wiper blades, press and separate the wiper mounting lever, then pull the blade out.

When removing the wiper arms, pull up the cap of the wiper arm and remove the nut. Next, stand the wiper arm, hold the head of the wiper arm, and shake it left and right to pull out the wiper arm from the drive spindle.

Separate the washer fluid hose, and reinstall a new wiper arm at the original angle.

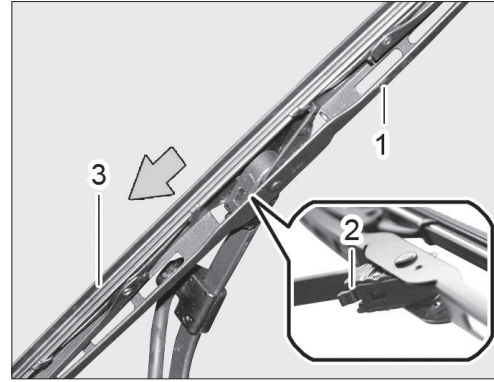


LF1O622B

(2) Changing

- 1 Wiper arm
- 2 Wiper mounting lever
- 3 Wiper blade

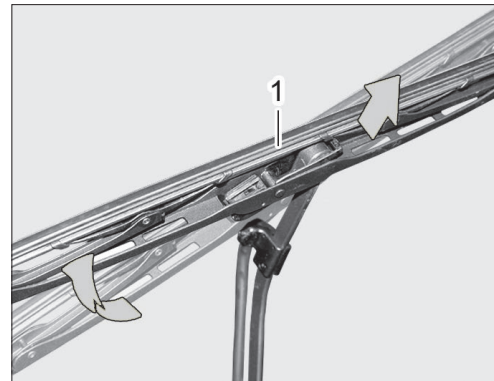
- ① Stand the wiper arm and prepare it so as to replace the wiper blade.
- ② Hold the blade with one hand. Press the blade mounting lever with the other hand and separate the blade from the mounting device.



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- 1 Wiper blade

- ③ Push the blade down and take it out in the direction of the arrow as if drawing a U-shape.

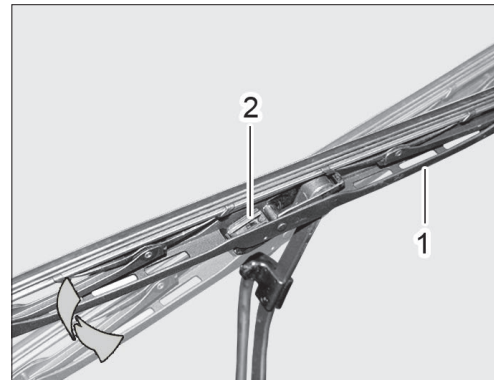


H11O650A

- 1 Wiper arm
- 2 Mounting lever

- ④ Place the new wiper blade in parallel, point the mounting lever downward, and put the wiper arm down to the mounting lever groove.

▲ **With the wiper blade removed, make sure not to have the wiper arm touch the window. It may damage window glass.**



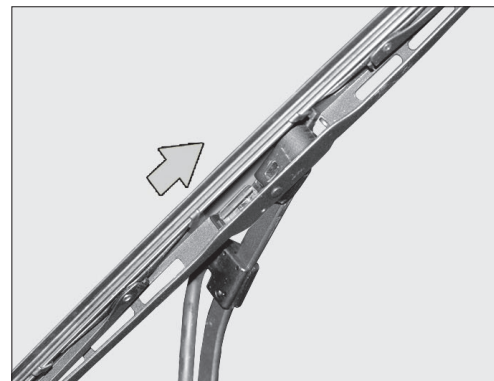
H11O651A

- ⑤ Push the wiper blade all the way up and install it so that the mounting lever is engaged with the wiper arm (make sure that you hear a click.)

▲ **When cleaning the windshield, stand the wiper blade, spray water using a hose, etc., and wipe it with clean cloth.**

▲ **Do not continue operating the wipers when the wiper blade is frozen in winter or there is no washer fluid.**

▲ **To prevent the damage of the wiper blades, do not use synthetic detergent, thinner or other solvents on the windshield.**



H11O652A

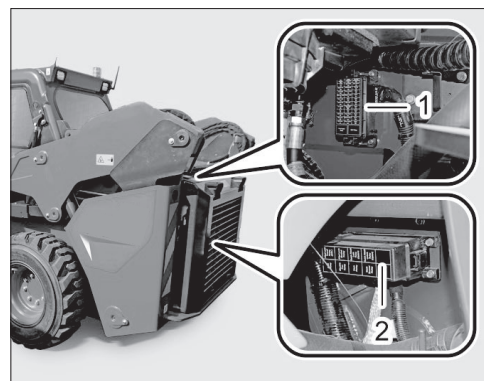
29) BODY FUSE

- 1 Body fuse box
- 2 Body relay box

Fuses protect the machine's electrical system from potential damage.

A blown fuse indicates that there is an overload or short somewhere in the electrical system.

The fuse panel is located in the right section of the engine compartment.



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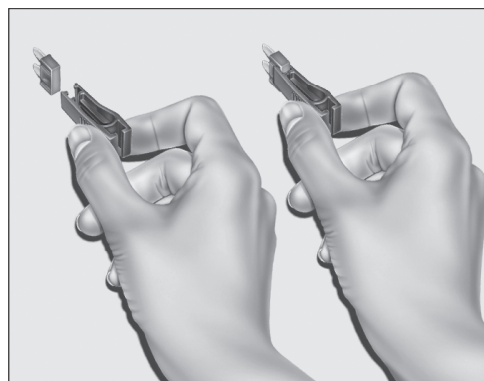
RMS Alternator 10A	14Pin C/D/E/F/G/H 30A	Back Buzzer 10A
14Pin 10A	Light FR/RR 20A	Pilot Lock Bucket/Travel 20A
Electric Fan 25A	MCU/Cluster 15A	Parking 10A
Fuel Heater 25A	Power Socket 10A	Seat 15A
ECU_Key_Power 10A	Beacon Lamp 10A	Fan Clutch 5A
Room Lamp 10A	Aircon 30A	Spare 5A
Flasher Unit 10A	Stop Lamp 10A	Spare 10A
Left Joystick 10A	Right Joystick 10A	Spare 10A
Horn 10A	Cabin 10A	Spare 15A
ECU Sensor 10A	Valve Power 30A	Spare 20A
ECU Power 25A	Bluetooth Player 10A	Spare 25A
ECU Relay 5A	Wiper Washer 15A	Spare 30A

Fuel Heater Relay	ECU Relay
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LF1O624C

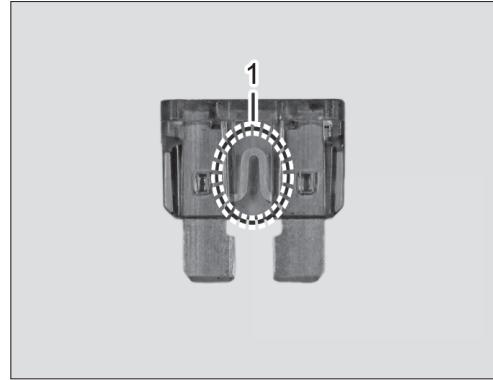
There are marks for the fuse capacity and location on the cover of the fuse panel. Replace the fuse according to the following procedure:

- (1) Turn the key switch to the "OFF" position and turn off all the electrical devices.
- (2) Open the fuse box cover and check the fuse in question using fuse tongs.
- (3) If the fuse is blown, replace it with a new fuse with same capacity. Make sure it is firmly installed.
- (4) Install the fuse box cover.



H11O655A

1 Normal fuse



TG1O769A

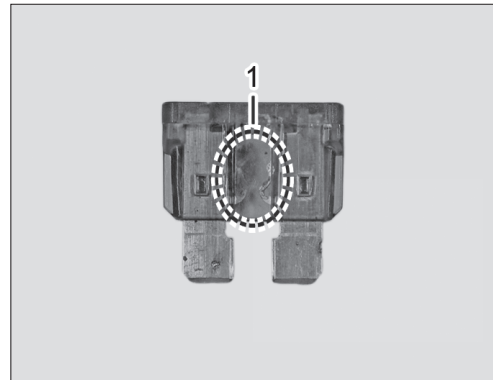
1 Blown fuse

▲ Never use a fuse with the capacity higher than specified on the fuse box cover.

If using a faulty fuse, steel wire, or foil, the electrical device can be damaged or even can catch a fire.

※ If the replaced fuse is blown soon, it is probable that the wiring system is faulty. In this case, contact your local Hyundai Dealer.

※ If the fusible link, relay or other electric component is defective, contact your local Hyundai Dealer.



TG1O770A

30) BODY RELAY

In case of relay defects, the machine will not work normally. Please have it checked at a nearby dealer.

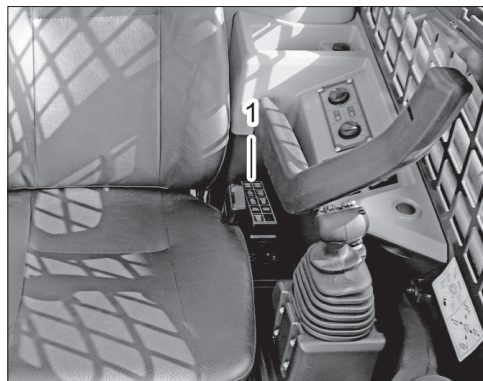
Start 시동	Pilot Lock Travel Relay (SSL) 파일럿락 주행(SSL)
Electric Fan 전동팬	Pilot Lock Bucket 파일럿락 버킷
Horn 경음기	Quick Attach Lock (Option) 퀵어태치 잠금(옵션)
Back Buzzer 후방부저	Quick Attach Unlock (Option) 퀵어태치 풀림(옵션)
BRAKE LAMP 정지등	

LF1O625D

31) CABIN RELAY

1 Cabin relay box

- ※ If the relay or other electric component is defective, contact your local Hyundai Dealer.



LF1O645A

DOOR SENSOR (LOW PROFILE) 도어센서 (저전고)	SELF LEVELING (OPTION) 셀프레벨링 (옵션)
POWER3 전원3	PARKING 주차
2 SPEED (OPTION) 2 스피드 (옵션)	REAR WORK LAMP (OPTION) 후방작업등 (옵션)
RIDE CONTROL (OPTION) 라이드컨트롤 (옵션)	FRONT WORK LAMP 전방작업등
HI FLOW (OPTION) 하이플로우 (옵션)	BEACON (OPTION) 경광등 (옵션)

LF1O625B-1

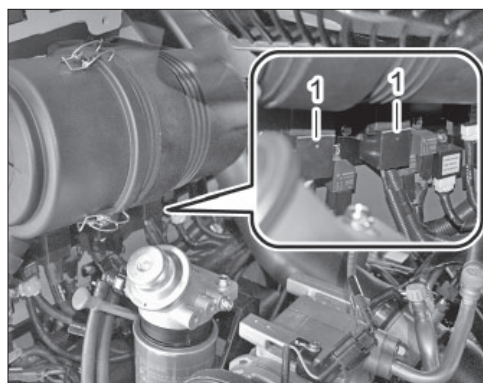
32) SLOW BLOW FUSE

1 Slow Blow Fuse

The slow blow fuse is to protect the electric wiring. If it is blown, find and repair the cause and replace it with a new genuine part.

Slow blow fuse	
Engine / Start	40A / 30A
Glow / Power	80A / 100A
Lamp / Power 2	60A / 70A

- ※ Using a non-approved slow blow fuse can damage electrical systems in the machine severely.
- ※ Refer to the chapter "Troubleshooting" in this manual or contact your local Dealer for specific information dealing with electrical problems.



LF1O642A

33) REPLACE THE BULB

The bulbs and their capacity used in this machine are listed in the below table. This section only describes procedures the users can handle.

Sequence	Bulb	Capacity
1	Stop lamps / tail lamps	21W/5W
2	Turn signal lamp	21W
3	Interior lamp	10W

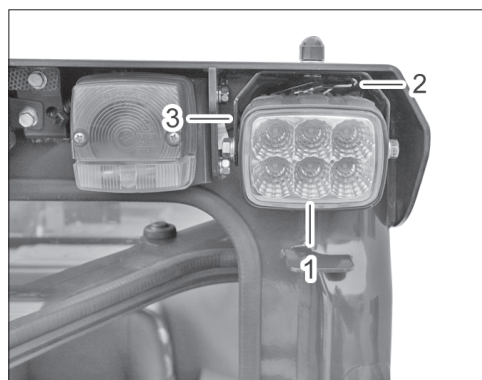
(1) Work lamp (FRT/RR)

The LED work lamp is installed to improve visibility for working at night. If replacement is needed, the whole work lamp assembly needs to be replaced.

▲ Make sure to use a genuine lamp. Using a non-recommended lamp can cause a fire.

- 1 LED work lamp
- 2 Wiring
- 3 Work lamp mounting bracket

- ① Turn the key switch “OFF” and remove the LED work lamp assembly from the work lamp mounting bracket.
- ② Remove the connector and replace it with a new LED work lamp.

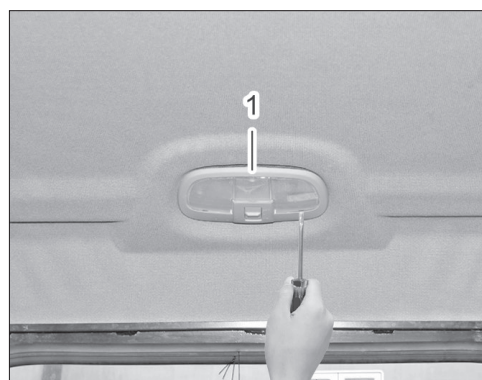


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(2) Interior lamp

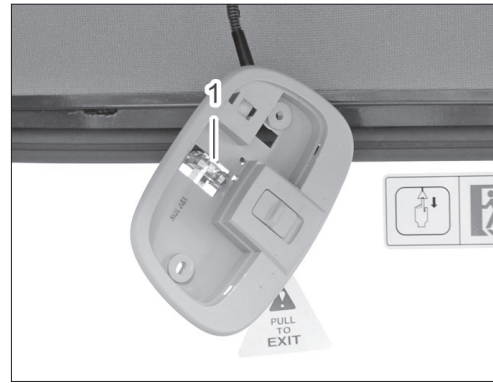
- 1 Interior lamp

- ① Insert a flathead screw driver into the gap of the interior lamp to remove the interior lamp cover.



LF1O646A

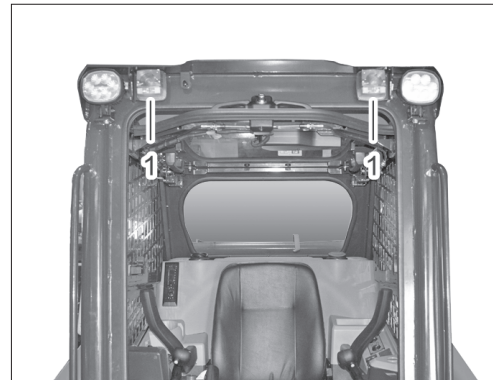
- 1 Interior lamp bulb
- ② Pull up and remove the interior lamp bulb, and replace it with a new bulb.



LF1O647A

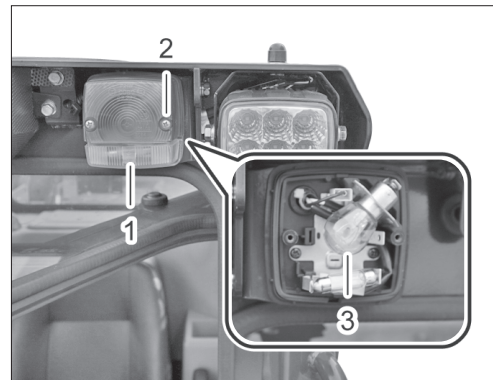
(3) Front turn signal lamp

- 1 Front turn signal lamp
- ① The turn signal lamp (front) is installed on the front cabin frame.



LF1O632A

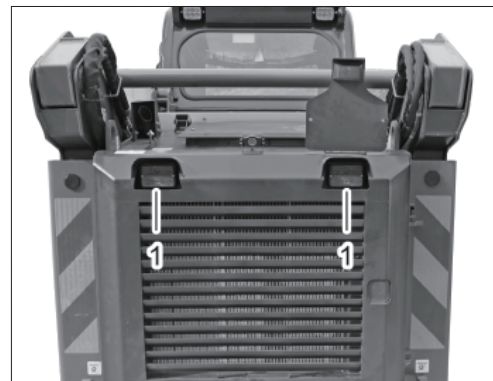
- 1 Turn signal lamp (front)
- 2 Mounting bolt
- 3 Turn signal lamp (front) bulb
- ② Unscrew the two mounting bolts to remove the lens.
- ③ Turn the bulb counterclockwise and remove the bulb body.
- ④ Remove the bulb by pressing it gently, replace it with a new bulb, and place the socket to the groove and turn it clockwise to install it.



LF1O633A

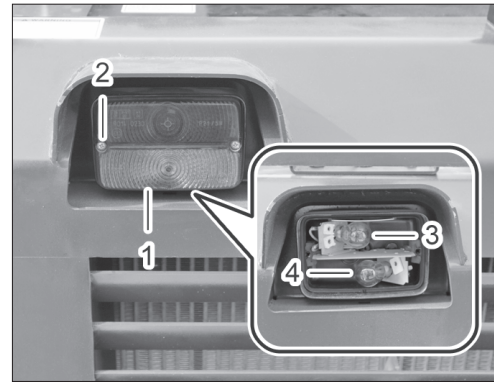
(4) Brake lamp and rear turn signal lamp

- 1 Brake lamp and turn signal lamp
- ① The brake lamp and the rear turn signal lamp are installed on the rear cover.



LF1O634A

- 1 Brake lamp and turn signal lamp
 - 2 Screw
 - 3 Brake lamp bulb
 - 4 Turn signal lamp bulb
- ② Loosen the screw and remove the cover.
 - ③ Turn the socket counterclockwise to remove the bulb and replace it with a new one.



LF1O635A

34) REFRIGERANT INSPECTION

Insufficient refrigerant degrades the A/C performance. Excessive amount of refrigerant also damages the A/C system, and therefore, if any defect is identified, have it checked at a local dealer immediately.

(1) Operate the A/C in the following spec.

- ① Engine RPM: About 1,500 rpm
- ② Temperature control switch: At the point of maximum cooling temperature
- ③ Blower speed control dial: Step 4
- ④ A/C switch: "ON"

▲ **Park the machine on even ground and choke the wheels.**

▲ **Put the shuttle shift lever, main shift lever and PTO lever in the neutral position.**

▲ **The refrigerant is at high pressure, and therefore, make sure to have only a certified specialist repair the A/C. An injury can occur.**