

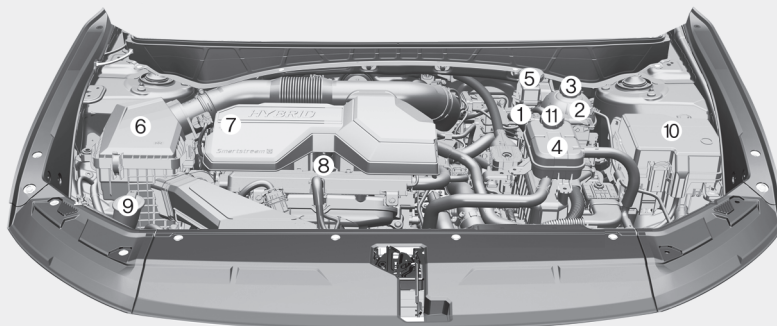
9. Maintenance

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ENGINE COMPARTMENT

■ Smartstream G1.6 T-GDi HEV



The actual engine compartment in the vehicle may differ from the illustration.

ONX4PH091001N

- | | |
|---------------------------------|--------------------------------------|
| 1. ECU | 5. Brake fluid reservoir |
| 2. Engine coolant reservoir | 6. Air cleaner |
| 3. Engine coolant reservoir cap | 7. Engine oil filler cap |
| 4. Inverter coolant reservoir | 8. Engine oil dipstick |
| 5. Brake fluid reservoir | 9. Windshield washer fluid reservoir |
| 6. Air cleaner | 10. Fuse box |
| | 11. Invert coolant reservoir cap |

MAINTENANCE SERVICES

You should exercise the utmost care to prevent damage to your vehicle and injury to yourself whenever performing any maintenance or inspection procedures.

Have your vehicle maintained and repaired by an authorized HYUNDAI dealer. An authorized HYUNDAI dealer meets HYUNDAI's high service quality standards and receives technical support from HYUNDAI in order to provide you with a high level of service satisfaction.

Owner's Responsibility

Maintenance service and record retention are the owner's responsibility.

You should retain documents that show proper maintenance has been performed on your vehicle in accordance with the scheduled maintenance service charts shown on the following pages. You need this information to establish your compliance with the servicing and maintenance requirements of your vehicle warranties.

Detailed warranty information is provided in your Service passport.

Repairs and adjustments required as a result of improper maintenance or a lack of required maintenance are not covered.

Owner Maintenance Precautions

Inadequate, incomplete or insufficient servicing may result in operational problems with your vehicle that could lead to vehicle damage, an accident, or personal injury. This chapter provides instructions only for the maintenance items that are easy to perform.

Your vehicle should not be modified in any way. Such modifications may adversely affect the performance, safety or durability of your vehicle and may, in addition, violate conditions of the limited warranties covering the vehicle.

NOTICE

Improper owner maintenance during the warranty period may affect warranty coverage. For details, read the separate Service Passport provided with the vehicle. If you're unsure about any servicing or maintenance procedure, have the system be serviced by an authorized HYUNDAI dealer.

OWNER MAINTENANCE



WARNING

Performing maintenance work on a vehicle can be dangerous. If you lack sufficient knowledge and experience or the proper tools and equipment to do the work, having it done by an authorized HYUNDAI dealer. **ALWAYS** follow these precautions for performing maintenance work:

- Park your vehicle on level ground, move the shift button into the P (Park) position, apply the parking brake, and place the ignition switch in the LOCK/OFF position.
- Block the tires (front and back) to prevent the vehicle from moving. Remove loose clothing or jewelry that can become entangled in moving parts.
- If you must run the engine during maintenance, do so out doors or in an area with plenty of ventilation.
- Keep flames, sparks, or smoking materials away from the battery and fuel-related parts.



WARNING

Touching metal parts Do not touch metal parts (including strut bars) while the engine is operating or hot. Doing so could result in serious personal injury. Turn the engine off and wait until the metal parts cool down to perform maintenance work on the vehicle.

The following lists are vehicle checks and inspections that should be performed by the owner or an authorized HYUNDAI dealer at the frequencies indicated to help ensure safe, dependable operation of your vehicle.

Any adverse conditions should be brought to the attention of your dealer as soon as possible.

These Owner Maintenance vehicle checks are generally not covered by warranties and you may be charged for labor, parts and lubricants used.

Owner Maintenance Schedule

When you stop for fuel:

- Check the coolant level in the engine coolant reservoir.
- Check the windshield washer fluid level.
- Check for low or under-inflated tires.



WARNING

Be careful when checking your engine coolant/inverter coolant level when the engine is hot. This may result in coolant being blown out of the opening and cause serious burns and other injuries.

While operating your vehicle:

- Note any changes in the sound of the exhaust or any smell of exhaust fumes in the vehicle.
- Check for vibrations in the steering wheel. Notice if there is any increased steering effort or looseness in the steering wheel, or change in its straight-ahead position.
- Notice if your vehicle constantly turns slightly or “pulls” to one side when traveling on smooth, level road.
- When stopping, listen and check for unusual sounds, pulling to one side, increased brake pedal travel or “hard-to-push” brake pedal.
- If any slipping or changes in the operation of your transmission occurs, check the transmission fluid level.
- Check the automatic transmission P (Park) function.
- Check the parking brake.
- Check for fluid leaks under your vehicle (water dripping from the air conditioning system during or after use is normal).

At least monthly:

- Check coolant level in the engine coolant reservoir.
- Check the operation of all exterior lights, including the stoplights, turn signals and hazard warning flashers.
- Check the inflation pressures of all tires including the spare for tires that are worn, show uneven wear, or are damaged.
- Check for loose wheel lug nuts.

At least twice a year: (for example, every Spring and Autumn)

- Check radiator, heater and air conditioning hoses for leaks or damage.
- Check windshield washer spray and wiper operation. Clean wiper blades with a clean cloth dampened with washer fluid.
- Check headlamp alignment.
- Check muffler, exhaust pipes, shields and clamps.
- Check the seat belts for wear and function.

At least once a year:

- Clean body and door drain holes.
- Lubricate door hinges and hood hinges.
- Lubricate door and hood locks and latches.
- Lubricate door rubber weather strips.
- Check the air conditioning system.
- Inspect and lubricate automatic transmission linkage and controls.
- Clean the battery and terminals.
- Check the brake fluid level.

SCHEDULED MAINTENANCE SERVICES Maintenance Schedule

The following maintenance services must be performed to ensure good emission control and performance. Keep receipts for all vehicle emission services to protect your warranty. Where both mileage and time are shown, the frequency of service is determined by whichever occurs first.

R : Replace, A : Add, S : Service, I : Inspect, L : Lubricate, R : Rotate

DESCRIPTION	KILOMETERS X 1000																				
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	
	MONTHS																				
Engine Oil And Filter Replacement *1 (Synthetic oil)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Steering gear box, linkage & boots/ lower arm ball joint, upper arm ball joint	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Drive shafts and boots			I			I			I			I			I			I			I
Fuel Injector Cleaner *2	A		A		A		A		A		A		A		A		A		A		A
Rotate tire or perform seasonal tire chage	Rotate every 16,000km or 12 months																				

*1: As it is normal for engine oil to be consumed during driving, the amount of engine oil should be checked regularly.

*2: If TOP TIER Detergent Gasoline is not available, one bottle of Fuel injector cleaner is recommended. Fuel injector cleaners are available from your authorized HYUNDAI dealer along with information on how to use them. Do not mix other Fuel injector cleaners.

Maintenance Schedule

R : Replace, A : Add, S : Service, I : Inspect, L : Lubricate, r : Rotate

DESCRIPTION	KILOMETERS X 1000																				
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	
	MONTHS																				
Brake Inspection (front disc/pads & calipers and rear disc/pads, includes tire rotation)																					
Brake Service (includes parking brake inspection and tire rotation)	I			S		I	S			I		S		I		S		I		S	
Brake Lines, Hoses and Connections	I			I		I		I		I		I		I		I		I		I	
Suspension Mounting Bolts	I			I		I		I		I		I		I		I		I		I	
Air Conditioning Refrigerant	I			I		I		I		I		I		I		I		I		I	
Exhaust Pipe and Muffler	I			I		I		I		I		I		I		I		I		I	
cabin air filter (for evaporator and blower unit)	Replace every 24,000km																				

Maintenance Schedule

R : Replace, A : Add, S : Service, I : Inspect, L : Lubricate, I : Inspect, L : Lubricate, r : Rotate

DESCRIPTION	KILOMETERS X 1000																			
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
	MONTHS																			
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
Fuel Tank, Fuel Filler Cap, Vapor Hose				I				I				I				I				I
Fuel Tank Air Filter				I				I				I				I				I
Fuel Filter				I				I				I				I				I
Fuel lines, hoses and connections of each part				I				I				I				I				I
Air Cleaner Filter	I	I	I	I	I	R	I	I	I	I	I	R	I	I	I	I	I	R	I	I
Brake fluid	I	I	I	I	I	R	I	I	I	I	I	R	I	I	I	I	I	R	I	I
Spark plugs	Replace every 160,000 km or 84 months																			
Engine coolant	At first, replace at 200,000 km or 120 months after that, replace every 40,000 km or 24 months																			
Inverter coolant	At first, replace at 200,000 km or 120 months after that, replace every 40,000 km or 24 months																			
	Replace every 56,000 km or 36 months																			
Air intake hose	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I

Maintenance Schedule

R : Replace, A : Add, S : Service, I : Inspect, L : Lubricate, r : Rotate

DESCRIPTION	KILOMETERS X 1000																			
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
	MONTHS																			
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
HSG belts *3	Inspect every 8,000 km or 6 months, Replace every 104,000 km or 48 months																			
Automatic transmission fluid	Replace every 96,000 km																			

*3: Inspect HSG belt for evidence of cuts, cracks, excessive wear or oil saturation and replace if necessary. If drive belt noise occurred, readjust drive belt tension before replace.

NOTICE

After 120 months or 160,000 km continue to follow the prescribed maintenance intervals.

EXPLANATION OF SCHEDULED MAINTENANCE ITEMS

Engine Oil and Filter

The engine oil and filter should be changed at the intervals specified in the maintenance schedule.

HSG (Hybrid Starter & Generator) belt

The HSG belt should be changed at the intervals specified in the maintenance schedule.

Fuel Lines, Fuel Hoses and Connections

Check the fuel lines, fuel hoses and connections for leakage and damage. Have an authorized HYUNDAI dealer replace any damaged or leaking parts immediately.

Fuel Filter

A clogged filter can limit the speed at which the vehicle may be driven, damage the emission system and cause multiple issues such as hard starting. If an excessive amount of foreign matter accumulates in the fuel tank, the filter may require replacement more frequently. After installing a new filter, run the engine for several minutes, and check for leaks at the connections. Fuel filters should be installed by an authorized HYUNDAI dealer.

Vapor Hose and Fuel Filler Cap

The vapor hose and fuel filler cap should be inspected at those intervals specified in the maintenance schedule. Make sure a new vapor hose or fuel filler cap is correctly replaced.

Air Cleaner Filter

A genuine HYUNDAI air cleaner filter is recommended when the filter is replaced.

Spark Plugs

Make sure to install new spark plugs of the correct heat range.

When assembling parts, be sure to wipe the inside and outside of the boot bottom of the ignition coil and the insulator of the spark plug with a soft cloth to prevent contamination of the spark plug insulator.

Cooling System

Check cooling system components, such as radiator, coolant reservoir, hoses and connections for leakage and damage. Replace any damaged parts.

Engine Coolant/Inverter Coolant

The coolant should be changed at the intervals specified in the maintenance schedule.

Automatic Transmission Fluid

Automatic Transmission Fluid should be replaced by an authorized HYUNDAI dealer at the intervals specified in the maintenance schedule.

Brake Hoses and Lines

Visually check for proper installation, chafing, cracks, deterioration and any leakage. Replace any deteriorated or damaged parts immediately.

Brake Fluid

Check the brake fluid level in the brake fluid reservoir. The level should be between the MIN and the MAX marks on the side of the reservoir. Use only hydraulic brake fluid conforming to DOT 4 specification.

Parking Brake

Inspect the parking brake system.

Brake Discs, Pads, Calipers and Rotors

Check the pads, the disc, and the rotor for any excessive wear-out. Inspect calipers for any fluid leakage

For more information on checking the pads or lining wear limit, refer to the HYUNDAI web site.

<http://service.hyundai-motor.com>

Exhaust Pipe and Muffler

Visually inspect the exhaust pipes, muffler and hangers for cracks, deterioration, or damage. Start the engine and listen carefully for any exhaust gas leakage. Tighten connections or replace parts as necessary.

Suspension Mounting Bolts

Check the suspension connections for looseness or damage. Retighten to the specified torque.

Steering Gear Box, Linkage & Boots/Lower Arm Ball Joint

With the vehicle stopped and the hybrid system off, check for excessive free-play in the steering wheel. Check the linkage for bends or damage. Check the dust boots and ball joints for deterioration, cracks, or damage.

Replace any damaged parts.

Drive Shafts and Boots

Check the drive shafts, boots and clamps for cracks, deterioration, or damage. Replace any damaged parts and, if necessary, repack the grease.

Air Conditioning Refrigerant

Check the air conditioning lines and connections for leakage and damage.

Propeller Shaft

Check the propeller shaft, boots, clamps, rubber couplings and center-bearing rubber for cracks, deterioration, or damage. Replace any damaged parts and if necessary, repack the grease.

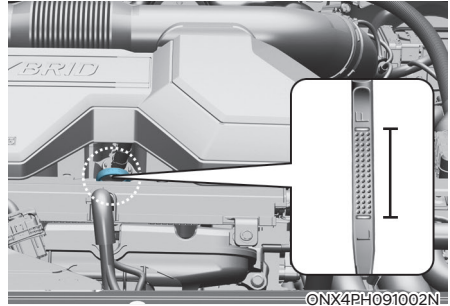
ENGINE OIL

Checking the Engine Oil Level

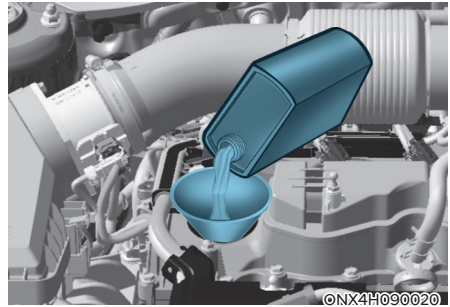
Engine oil is used for lubricating, cooling, and operating various hydraulic components in the engine. Engine oil consumption while driving is normal, and it is necessary to check and refill the engine oil regularly. Also, check and refill the oil level within the recommended maintenance schedule to prevent deterioration of oil performance.

Check the engine oil following the below procedure.

1. Follow all of the oil manufacturer's precautions.
2. Be sure the vehicle is on the level ground in P (Park) with the parking brake set and the wheels blocked.
3. Turn the engine on and warm the engine up until the coolant temperature reaches a constant normal temperature.
4. Turn the engine off, remove the oil filler cap and pull the dipstick out. Wait for 15 minutes for the oil to return to the oil pan.
5. Wipe the dipstick clean and re-insert it fully.



6. Pull the dipstick out again and check the level. The level should be between F (Full) and L (Low).



7. If the oil level is below L, add enough oil to bring the level to F.

Use only the specified engine oil (Refer to "Recommended Lubricants and Capacities" section in chapter 2).

NOTICE

To prevent damage to your engine:

- Do not overfill with engine oil. Add oil in small quantities and recheck level to ensure engine is not overfilled.
- The engine oil consumption may increase while you break in a new vehicle and it will be stabilized after driving 6,000 km (4,000 miles).
- The engine oil consumption can be affected by driving habits, climate conditions, traffic conditions, oil quality, etc. Therefore, inspect the engine oil level regularly and refill it if necessary.
- The Oil Life Management System is set for the purpose of preventing oil deterioration, and is not related the amount of oil consumption; so, check and refill the amount of the oil regularly.

Checking the Engine Oil and Filter



Have the engine oil and filter be changed by an authorized HYUNDAI dealer according to the Maintenance Schedule at the beginning of this chapter.

- If the maintenance schedule to replace engine oil is exceeded, the engine oil performance may deteriorate, and the engine condition may be affected. Therefore, replace the engine oil according to the maintenance schedule.
- To keep the engine in optimal condition, use the recommended engine oil and filter.
- The purpose of the maintenance schedule for engine oil replacement is to prevent oil deterioration and it is irrelevant to oil consumption. Check and refill engine oil regularly.

i Information

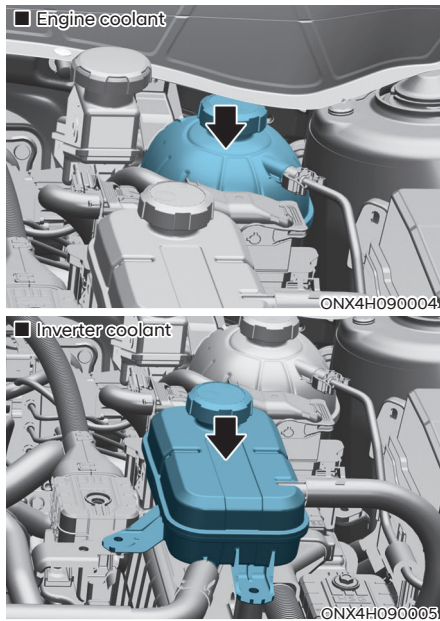
When the oil pressure is low due to insufficient engine oil, the Engine Oil Pressure (油圧) warning light will illuminate. In addition, the enhanced engine protection system, which limits the engine's power is activated and the Malfunction Indicator Lamp (故障灯) will illuminate when the vehicle is driven in this state continuously. When oil pressure is restored, the Engine Oil Pressure warning light will turn off and the engine power will no longer be limited.

ENGINE COOLANT/INVERTER COOLANT

The high-pressure cooling system has a reservoir filled with year-round antifreeze coolant. The reservoir is filled at the factory.

Check the antifreeze protection and coolant level at least once a year, at the beginning of the winter season and before traveling to a colder climate.

Checking the Coolant Level



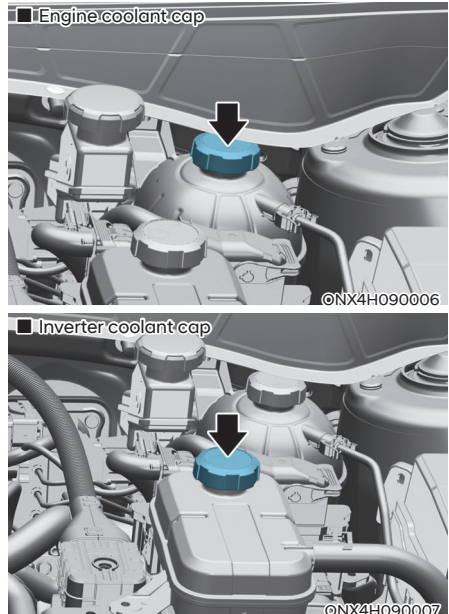
Check the condition and connections of all cooling system hoses and heater hoses. Replace any swollen or deteriorated hoses.

The coolant level should be filled between the MAX and the MIN marks on the side of the coolant reservoir when the engine is cool.

- Engine coolant /Inverter coolant for HEV
 - If the coolant level is low, add the selected anti-freeze according to the proper coolant mix ratio to bring the level to the MAX mark, but do not overfill.

- Inverter coolant for PHEV
 - If the inverter coolant level for the PHEV is low, it should be refilled by an authorized HYUNDAI dealer/ service partner.

If frequent additions are required, see an authorized HYUNDAI dealer for a cooling system inspection.



WARNING

- Inverter coolant for PHEV

Adding other cooling substances or water might lead to inverter cooling system degradation or even failure.

WARNING



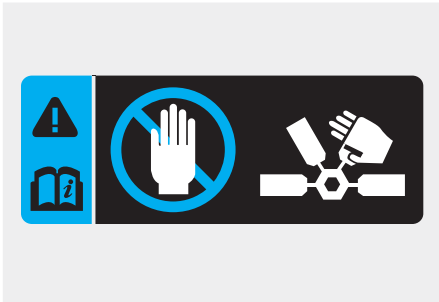
Never remove the engine coolant cap and/or inverter coolant cap or the drain plug while the engine and radiator are hot. Hot coolant and steam may blow out under pressure, causing serious injury.

Turn the vehicle off and wait until the engine cools down. Use extreme care when removing the engine coolant cap and/or inverter coolant cap. Wrap a thick towel around it, and turn it slowly to the first stop. Step back while the pressure is released from the cooling system. When you are sure all the pressure has been released, press down on the cap, using a thick towel, and continue turning to remove it.

i Information

The engine coolant and/or inverter coolant level is influenced by the hybrid system temperature. Before checking or refilling the engine coolant and/or inverter coolant, turn the hybrid vehicle off.

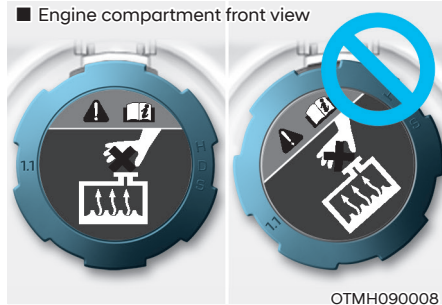
! WARNING



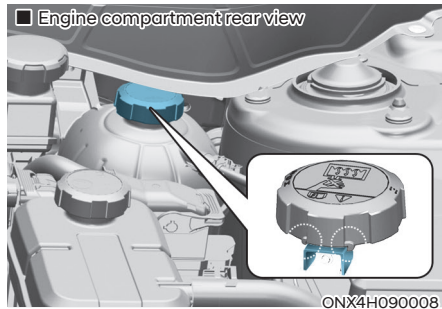
The electric motor for the cooling fan may continue to operate or start up when the engine is not running and can cause serious injury. Keep hands, clothing and tools away from the rotating fan blades of the cooling fan. Always turn off the vehicle unless the vehicle has to be inspected with the engine on. Be cautious as the cooling fan may operate if the negative (-) battery terminal is not disconnected.

! WARNING

Make sure the coolant cap is properly closed after refilling coolant. Otherwise the engine could be overheated while driving.



1. Check if the coolant cap label is straight In front.



2. Make sure that the tiny protrusions inside the coolant cap is securely interlocked.

Recommended coolant

- When adding coolant, use only deionized water, distilled water or soft water for your vehicle and never mix hard water in the coolant filled at the factory.
- An incorrect coolant mixture can result in severe malfunction or engine/hybrid system damage.
- The engine in your vehicle has aluminum engine parts and must be protected by an phosphate-based ethylene glycol coolant to prevent corrosion and freezing.
- Do not use alcohol or methanol coolant or mix them with the specified coolant.
- Do not use a solution that contains more than 60% antifreeze or less than 35% antifreeze, which would reduce the effectiveness of the solution.

For mixing percentage, refer to the following table:

Ambient Temperature	Mixture Percentage (volume)	
	Antifreeze	Water
-15°C (5°F)	35	65
-25°C (-13°F)	40	60
-35°C (-31°F)	50	50
-45°C (-49°F)	60	40

Information

If in doubt about the mix ratio, a 50% water and 50% antifreeze mix is the easiest to mix together as it will be the same quantity of each. It is suitable to use for most temperature ranges of -35°C (-31°F) and higher.

Changing Coolant

Have coolant be changed by an authorized HYUNDAI dealer according to the Maintenance Schedule at the beginning of this chapter.

WARNING

Do not use engine coolant or antifreeze in the washer fluid reservoir.

Engine coolant can severely obscure visibility when sprayed on the windshield and may cause loss of vehicle control resulting in an accident.

Engine coolant may also cause damage to paint and body trim.

NOTICE

To prevent damage to engine parts, put a thick towel around the engine coolant cap and/or inverter coolant cap before refilling the coolant to prevent the coolant from overflowing into engine parts, such as the alternator.

HYBRID STARTER & GENERATOR (HSG) BELT

Checking the Hybrid Starter & Generator (HSG) Belt

Have the Hybrid Starter & Generator (HSG) belt inspected or replaced according to the Maintenance Schedule in this chapter by an authorized HYUNDAI dealer.

CAUTION

When the HSG belt is worn out or damaged, replace the belt.

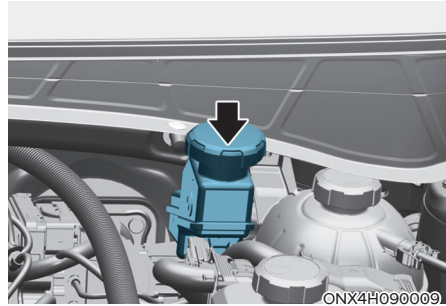
Otherwise, it may cause engine overheating or battery discharge.

WARNING

- **Turn the vehicle off while you inspect the engine or Hybrid Starter & Generator (HSG) belt. Otherwise it may result in serious injury.**
- **Keep hands, clothing etc. away from the Hybrid Starter & Generator (HSG) belt.**

BRAKE FLUID

Checking the Brake Fluid Level



Check the fluid level in the reservoir periodically. The fluid level should be between MAX and MIN marks on the side of the reservoir.

Before removing the reservoir cap and adding brake fluid, clean the area around the reservoir cap thoroughly to prevent brake fluid contamination.

If the level is low, add the specified brake fluid to the MAX level. The level will fall with accumulated mileage. This is a normal condition associated with the wear of the brake linings. If the fluid level is excessively low, have the brake system be checked by an authorized HYUNDAI dealer.

WARNING

If the brake system requires frequent additions of fluid this could indicate a leak in the brake system. Have the vehicle be inspected by an authorized HYUNDAI dealer.

WARNING

Do not allow brake fluid to come in contact with your eyes. If brake fluid comes in contact with your eyes, flush your eyes with clean water for at least 15 minutes and get immediate medical attention.

NOTICE

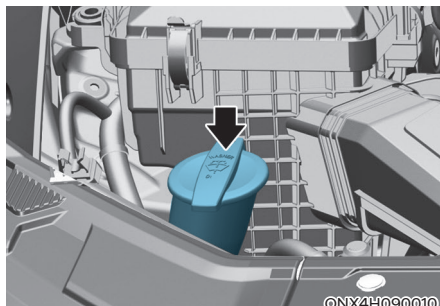
- Do not allow brake fluid to contact the vehicle's body paint, as paint damage will result.
- Brake fluid, which has been exposed to open air for an extended time should **NEVER** be used as its quality cannot be guaranteed. It should be disposed of properly.
- Do not use the wrong kind of brake fluid. A few drops of mineral based oil, such as engine oil, in your brake system can damage brake system parts.

Information

Use only the specified brake fluid (refer to “Recommended Lubricants and Capacities” section in chapter 2).

WASHER FLUID

Checking the Washer Fluid Level



Check the fluid level in the washer fluid reservoir and add fluid if necessary. Plain water may be used if washer fluid is not available. However, use washer solvent with antifreeze characteristics in cold climates to prevent freezing.

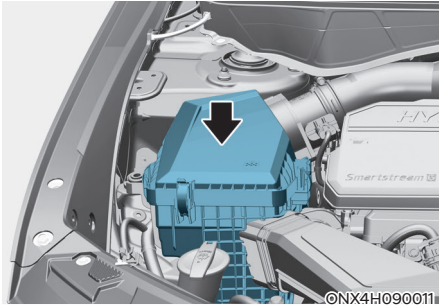
WARNING

To prevent serious injury or death, take the following safety precautions when using washer fluid:

- Do not use engine coolant or antifreeze in the washer fluid reservoir. Engine coolant can severely obscure visibility when sprayed on the windshield and may cause loss of vehicle control resulting in an accident or damage to paint and body trim.
- Do not allow sparks or flame to contact the washer fluid or the washer fluid reservoir. Washer fluid may contain alcohol and can be flammable.
- Do not drink washer fluid and avoid contact with skin. Washer fluid is harmful to humans and animals.
- Keep washer fluid away from children and animals.

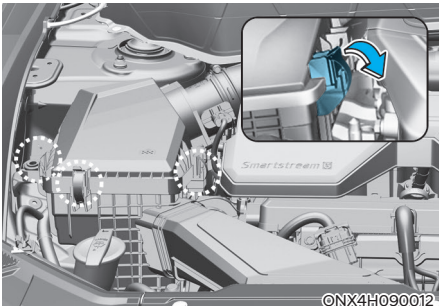
AIR CLEANER

Filter Replacement

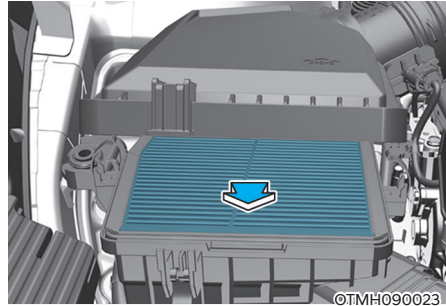


Do not attempt to wash or to rinse it, as water will damage the filter. If soiled, the air cleaner filter must be replaced.

Replace the filter according to the Maintenance Schedule.



1. Loosen the air cleaner cover attaching clips and open the cover.



2. Wipe the inside of the air cleaner.
3. Replace the air cleaner filter.
4. Lock the cover with the cover attaching clips.
5. Check that the cover is firmly installed.

NOTICE

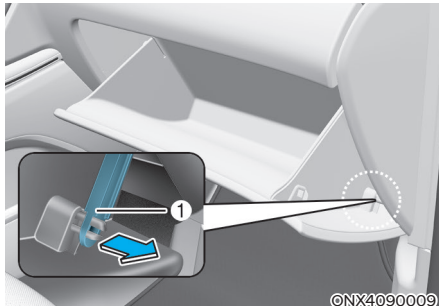
- Do not drive with the air cleaner filter removed. This will result in excessive engine wear.
- When removing the air cleaner filter, be careful that dust or dirt does not enter the air intake, or damage may result.
- Use HYUNDAI genuine parts or the equivalent specified for your vehicle. Use of parts without the matching quality could damage the air flow sensor.

CABIN AIR FILTER

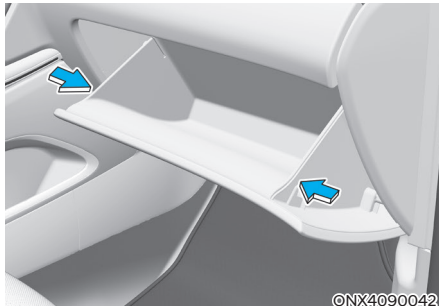
Filter Inspection

The cabin air filter should be replaced according to the Maintenance Schedule. If the vehicle is operated in severely air-polluted cities or on dusty rough roads for a long period, it should be inspected more frequently and replaced sooner. Replace the cabin air filter by following the procedure below and be careful to avoid damaging other components.

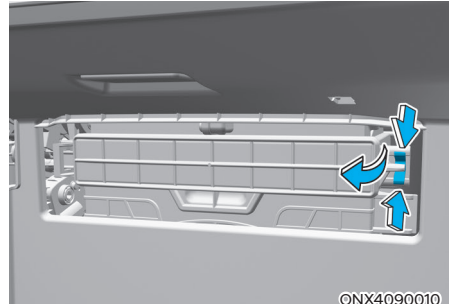
Filter Replacement



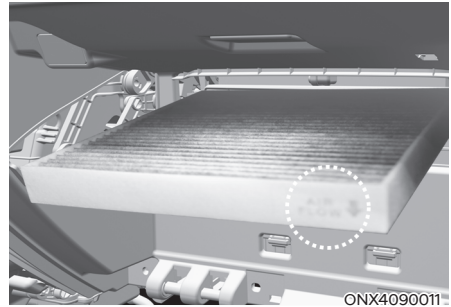
1. Remove the support rod (1).



2. Push in both sides of the glove box as shown. This will ensure that the glove box stopper pins will get released from its holding location allowing the glove box to hang.



3. Remove the climate control air filter case while pressing the lock on the right side of the cover.



4. Replace the climate control air filter.
5. Reassemble in the reverse order of disassembly.

NOTICE

Install a new climate control air filter in the correct direction with the arrow symbol (↴) facing downwards, otherwise, it may be noisy and the effectiveness of the filter may be reduced.

WIPER BLADES

Blade Inspection

Contamination of either the windshield or the wiper blades with foreign matter can reduce the effectiveness of the windshield wipers.

Common sources of contamination are insects, tree sap, and hot wax treatments used by some commercial car washes. If the blades are not wiping properly, clean both the window and the blades with a good cleaner or mild detergent, and rinse thoroughly with clean water.

NOTICE

To prevent damage to the wiper blades, arms or other components, do not:

- Use gasoline, kerosene, paint thinner, or other solvents on or near them.
- Attempt to move the wipers manually.
- Use non-specified wiper blades.

i Information

Commercial hot waxes applied by automatic car washes have been known to make the windshield difficult to clean.

Blade Replacement

When the wipers no longer clean adequately, the blades may be worn or cracked, and require replacement.

NOTICE

To prevent damage to the wiper arms or other components, do not attempt to move the wipers manually.

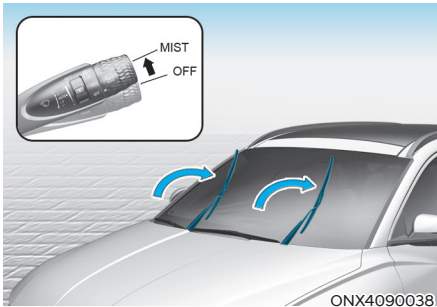
NOTICE

The use of a non-specified wiper blade could result in wiper malfunction and failure.

NOTICE

- In order to prevent damage to the hood and the wiper arms, the wiper arms should only be lifted when in the top wiping position.
- Always return the wiper arms to the windshield before driving.

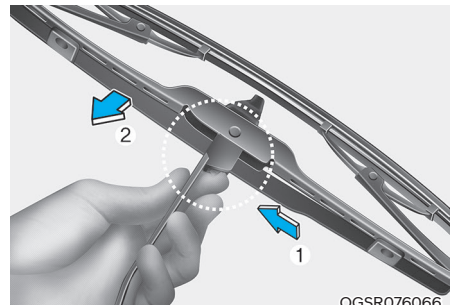
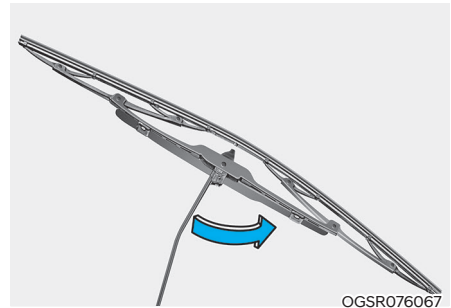
Front windshield wiper service positions



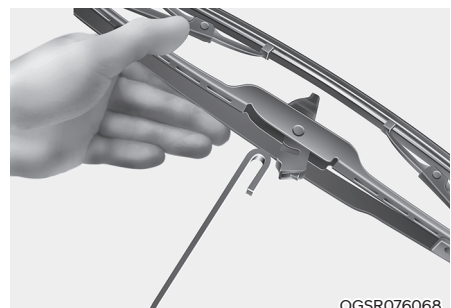
This vehicle has a “hidden” wiper design which means that the wipers cannot be lifted when they are in their bottom resting position.

1. Within 20 seconds of turning off the engine, lift and hold the wiper lever up to the MIST (or down to the ∨) position for about 2 seconds until the wipers move to the top wipe position.
2. At this time you can lift the wipers off the windshield.
3. Gently put the wipers back down onto the windshield.
4. Turn the wipers to any ON position to return the wipers to the bottom resting position.

Type A

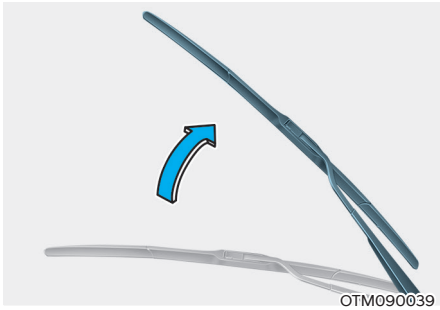


1. Lift up the wiper blade clip. Then lift up the wiper blade.
2. While pushing the lock (1), pull down the wiper blade (2).

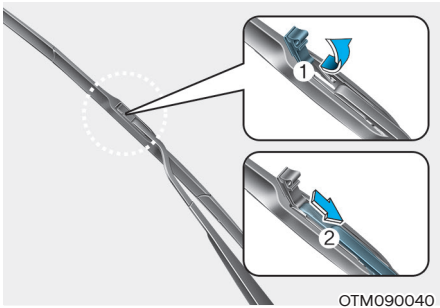


3. Remove the wiper blade from the wiper arm.
4. Install a new wiper blade assembly in the reverse order of removal.
5. Return the wiper arm on the windshield.

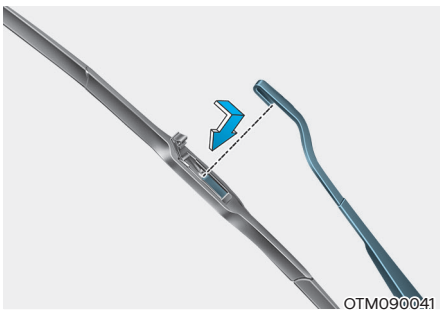
Type B



1. Raise the wiper arm.



2. Lift up the wiper blade clip. Then pull down the blade assembly and remove it.



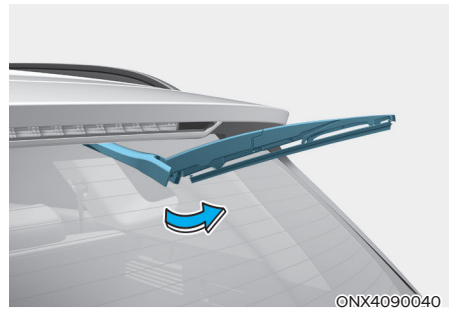
3. Install the new blade assembly in the reverse order of removal.
4. Return the wiper arm on the windshield.

Rear window wiper blade replacement

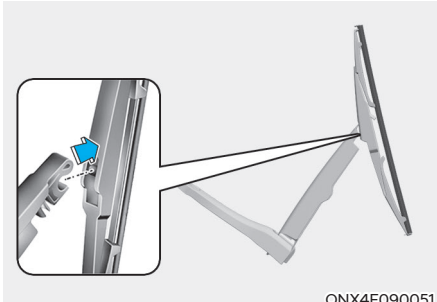
Move the rear wiper to the bottom middle part, and lift up the wiper arm. Pull the wiper blade to remove it.



1. Within 20 seconds after the vehicle ignition is OFF, pull down the wiper lever to MIST position for over 2 seconds until the wiper moves down to the bottom middle part.

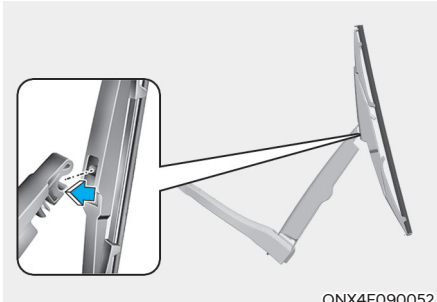


2. Raise the wiper arm.



ONX4E090051

3. Lift up the wiper blade, and pull it out.



ONX4E090052

4. Install the new blade assembly by inserting the center part into the slot in the wiper arm until it clicks into place.
If the replacement is complete, put down the wiper arm to place it on the rear windshield, and turn the vehicle ignition to ON and operate the wipers to check the blade is installed correctly.
5. Make sure the blade assembly is installed firmly by trying to pull it slightly.

To prevent damage to the wiper arms or other components, Have wiper blade be replaced by an authorized HYUNDAI dealer.

CAUTION

If the wiper arm receives too much force while pulling the blade, the center part may be damaged.

CAUTION

- The wiper could not operate for approx. 10 seconds when the wiper is operated without washer fluid or the blades are frozen. This is not a malfunction, it is a wiper protection system activated by motor overload circuit within the wiper motor.
- The front windshield should be cleaned with water hose and wiped with clean towel with wiper blades raised up. Also, the wiper blades should be wiped clean when the grease or wax is applied to the blades.

BATTERY (12 VOLT, PLUG-IN HYBRID VEHICLE)

WARNING

To prevent **SERIOUS INJURY** or **DEATH** to you or bystanders, always follow these precautions when working near or handling the battery:



Always read and follow instructions carefully when handling a battery.



Wear eye protection designed to protect the eyes from acid splashes.



Keep all flames, sparks, or smoking materials away from the battery.



Hydrogen is always present in battery cells, is highly combustible, and may explode if ignited.



Keep batteries out of reach of children.



Batteries contain sulfuric acid which is highly corrosive. Do not allow acid to contact your eyes, skin or clothing.

If acid gets into your eyes, flush your eyes with clean water for at least 15 minutes and get immediate medical attention. If acid gets on your skin, thoroughly wash the area. If you feel pain or a burning sensation, get medical attention immediately.

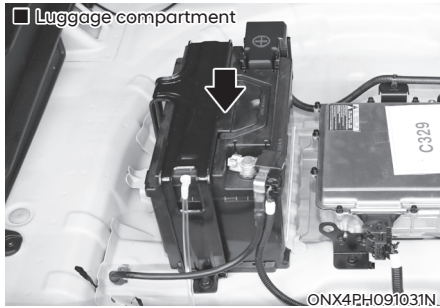
- When lifting a plastic-cased battery, excessive pressure on the case may cause battery acid to leak. Lift with a battery carrier or with your hands on opposite corners.
- Do not attempt to jump start your vehicle if your battery is frozen.
- **NEVER** attempt to recharge the battery when the vehicle's battery cables are connected to the battery.
- The electrical ignition system works with high voltage. **NEVER** touch these components with the engine running or when the Engine Start/ Stop button is in the ON position.

NOTICE

Always follow these instructions when handling your vehicle's battery to prevent damage to your battery:

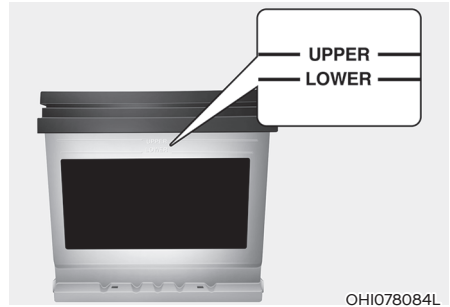
- When you do not use the vehicle for a long time in a low temperature area, disconnect the battery and keep it indoors.
- Always charge the battery fully to prevent battery case damage in low temperature areas.
- Prevent liquid from wetting the battery terminals. The performance of the battery may be degraded, and may cause injury. Be cautious when loading liquid in the tailgate.
- Do not tilt the battery.
- If you connect unauthorized electronic devices to the battery, the battery may be discharged. Never use unauthorized devices.

For Best Battery Service



- Keep the battery securely mounted.
- Keep the battery top clean and dry.
- Keep the terminals and connections clean, tight, and coated with petroleum jelly or terminal grease.
- Rinse any spilled electrolyte from the battery immediately with a solution of water and baking soda.
- If the vehicle is not going to be used for an extended time, disconnect the battery cables.

i Information - For batteries marked with UPPER and LOWER



If your vehicle is equipped with a battery marked with LOWER (MIN) and UPPER (MAX) on the side, you should check the electrolyte level.

The electrolyte level should be between LOWER (MIN) and UPPER (MAX). When the electrolyte level is low, add distilled (or de-mineralized) water. (Never add sulfuric acids or other electrolyte).

Be careful not to spill distilled (or demineralized) water over the battery surface or other adjacent components.

Also, do not overfill the battery cells.

If not, it may corrode the battery or other components. Finally, securely close the cell cap. However, contact an authorized HYUNDAI dealer for better battery service.

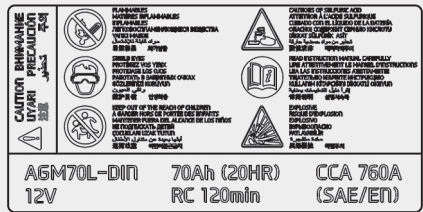
Battery Capacity Label

■ Type A



OTM090063L

■ Type B



OTM090064L

1. MF68L-DIN : The HYUNDAI model name of battery
2. 12V : The nominal voltage
3. 68Ah (20HR) : The nominal capacity (in Ampere hours)
4. RC 110min : The nominal capacity (in Ampere hours)
5. 600A : The cold-test current in amperes by SAE/EN

Battery Recharging

By battery charger

Your vehicle has a maintenance-free, calcium-based battery.

- If the battery becomes discharged over a short time (because, for example, the headlamps or interior lights were left on while the vehicle was not in use), recharge it by slow charging (trickle) for 10 hours.
- If the battery gradually discharges because of high electrical load while the vehicle is being used, recharge it at 20-30A for two hours.

WARNING

Always follow these instructions when recharging your vehicle's battery to avoid the risk of **SERIOUS INJURY** or **DEATH** from explosions or acid burns:

- Before performing maintenance or recharging the battery, turn off all accessories and stop the engine.
- Keep all flames, sparks, or smoking materials away from the battery.
- Always work outdoors or in an area with plenty of ventilation.
- Wear eye protection when checking the battery during charging.
- The battery must be removed from the vehicle and placed in a well ventilated area.
- Watch the battery during charging, and stop or reduce the charging rate if the battery cells begin boiling violently.

- The negative battery cable must be removed first and installed last when the battery is disconnected. Disconnect the battery charger in the following order:
 1. Turn off the battery charger main switch.
 2. Unhook the negative clamp from the negative battery terminal.
 3. Unhook the positive clamp from the positive battery terminal.
- Always use a genuine HYUNDAI approved battery when you replace the battery.

NOTICE

AGM battery (if equipped)

- Absorbent Glass Matt (AGM) batteries are maintenance-free and have the AGM battery be serviced by an authorized HYUNDAI dealer. For charging your AGM battery, use only fully automatic battery chargers that are specially developed for AGM batteries.
- When replacing the AGM battery, always use parts for replacement from an authorized HYUNDAI dealer.
- Do not open or remove the cap on top of the battery. This may cause leaks of internal electrolyte that could result in severe injury.

Information

For vehicles with power tailgates, note that the power tailgate needs to be reset after the battery has been replaced. For more details, refer to “Power tailgate” section in chapter 5.

NOTICE

Make sure the battery is installed securely when the it is replaced. If the battery vibrates while driving, the case and electrode plate can be damaged.

By jump starting

After a jump start from a good battery, drive the vehicle for 20-30 minutes before it is shutoff. The vehicle may not restart if you shut it off before the battery had a chance to adequately recharge. See “Jump Starting” in chapter 8 for more information on jump starting procedures.

Information



An inappropriately disposed battery can be harmful to the environment and human health. Dispose of the battery according to your local law(s) or regulation.

Reset items

The following items may need to be reset after the battery has been discharged or the battery has been disconnected.

- Auto up/down window (see chapter 5)
- Sunroof (see chapter 5)
- Trip computer (see chapter 5)
- Climate control system (see chapter 5)
- Driver position memory system (see chapter 5)
- Clock (see chapter 5)
- Infotainment system (see infotainment system manual)

TIRES AND WHEELS



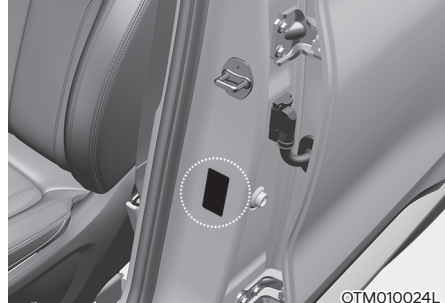
WARNING

Tire failure may cause loss of vehicle control resulting in an accident. To reduce risk of **SERIOUS INJURY or DEATH**, take the following precautions:

- Inspect your tires monthly for proper inflation as well as wear and damage.
- The recommended cold tire pressure for your vehicle can be found in this manual and on the tire label located on the driver's side center pillar. Always use a tire pressure gauge to measure tire pressure. Tires with too much or too little pressure wear unevenly causing poor handling.
- Check the pressure of the spare tire every time you check the pressure of the other tires on your vehicle.
- Replace tires that are worn, show uneven wear, or are damaged. Worn tires can cause loss of braking effectiveness, steering control, or traction.
- **ALWAYS** replace tires with the same size, type, construction and tread pattern as each tire that was originally supplied with this vehicle. Using tires and wheels other than the recommended sizes could cause unusual handling characteristics, poor vehicle control, or negatively affect your vehicle's Anti-Lock Brake System (ABS) resulting in a serious accident.

Tire Care

For proper maintenance, safety, and maximum fuel economy, you must always maintain recommended tire inflation pressures and stay within the load limits and weight distribution recommended for your vehicle.



All specifications (sizes and pressures) can be found on a label attached to the driver's side center pillar.

Recommended Cold Tire Inflation Pressures

All tire pressures (including the spare) should be checked when the tires are cold. "Cold tires" means the vehicle has not been driven for at least three hours or driven less than 1.6 km (one mile).

Warm tires normally exceed recommended cold tire pressures by 28 to 41 kPa (4 to 6 psi). Do not release air from warm tires to adjust the pressure or the tires will be under-inflated. For recommended inflation pressure, refer to "Tire and Wheels" section in chapter 2.



WARNING

Recommended pressures must be maintained for the best ride, vehicle handling, and minimum tire wear.

Over-inflation or under-inflation can reduce tire life, adversely affect vehicle handling, and lead to sudden tire failure that could result in loss of vehicle control resulting in an accident.

Severe under-inflation can lead to severe heat build-up, causing blowouts, tread separation and other tire failures that can result in the loss of vehicle control resulting in an accident. This risk is much higher on hot days and when driving for long periods at high speeds.



CAUTION

- **Under-inflation results in excessive wear, poor handling and reduced fuel economy. Wheel deformation is also possible. Keep your tire pressures at the proper levels. If a tire frequently needs refilling, have it be checked by an authorized HYUNDAI dealer.**
- **Over-inflation produces a harsh ride, excessive wear at the center of the tire tread, and a greater possibility of damage from road hazards.**

Check Tire Inflation Pressure

Check your tires, including the spare tire, once a month or more.

How to check

Use a good quality tire pressure gauge to check tire pressure. You can not tell if your tires are properly inflated simply by looking at them. Radial tires may look properly inflated when they are under-inflated.

Remove the valve cap from the tire valve stem. Press the tire gauge firmly onto the valve to get a pressure measurement. If the cold tire inflation pressure matches the recommended pressure on the tire and loading information label, no further adjustment is necessary. If the pressure is low, add air until you reach the recommended pressure. Make sure to put the valve caps back on the valve stems. Without the valve cap, dirt or moisture could get into the valve core and cause air leakage. If a valve cap is missing, install a new one as soon as possible.

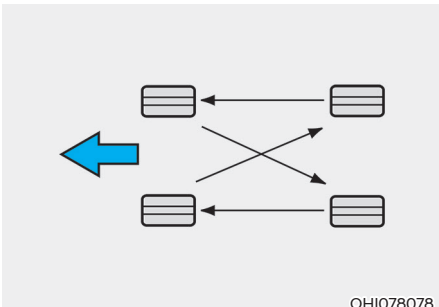
If you overfill the tire, release air by pushing on the metal stem in the center of the tire valve. Recheck the tire pressure with the tire gauge. Be sure to put the valve caps back on the valve stems. Without the valve cap, dirt or moisture could get into the valve core and cause air leakage. If a valve cap is missing, install a new one as soon as possible.

Tire Rotation

To equalize tread wear, HYUNDAI recommends that the tires be rotated according to the maintenance schedule or sooner if irregular wear develops.

During rotation, check the tires for correct balance.

When rotating tires, check for uneven wear and damage. Abnormal wear is usually caused by incorrect tire pressure, improper wheel alignment, out-of-balance wheels, severe braking or severe cornering. Look for bumps or bulges in the tread or side of the tire. Replace the tire if you find any of these conditions. Replace the tire if fabric or cord is visible. After rotation, be sure to bring the front and rear tire pressures to specification and check lug nut tightness (proper torque is 11~13 kgf·m [79~94 lbf·ft]).



Disc brake pads should be inspected for wear whenever tires are rotated.

i Information

The outside and inside of the unsymmetrical tire is distinguishable. When installing an unsymmetrical tire, be sure to install the side marked “outside” face the outside. If the side marked “inside” is installed on the outside, it will have a negative effect on vehicle performance.

! WARNING

- Do not use the compact spare tire for tire rotation.
- Do not mix bias ply and radial ply tires under any circumstances. This may cause unusual handling characteristics that may cause loss of vehicle control resulting in an accident.

Wheel Alignment and Tire Balance

The wheels on your vehicle were aligned and balanced carefully at the factory to give you the longest tire life and best overall performance.

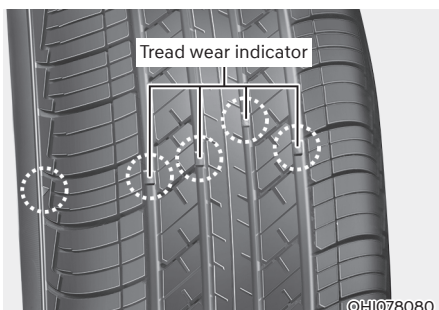
In most cases, you will not need to have your wheels aligned again. However, if you notice unusual tire wear or your vehicle pulling one way or the other, the alignment may need to be reset.

If you notice your vehicle vibrating when driving on a smooth road, your wheels may need to be rebalanced.

NOTICE

Incorrect wheel weights can damage your vehicle's aluminum wheels. Use only approved wheel weights.

Tire replacement



If the tire is worn evenly, a tread wear indicator will appear as a solid band across the tread. This shows there is less than 1.6 mm (1/16 in.) of tread left on the tire. Replace the tire when this happens.

Do not wait for the band to appear across the entire tread before replacing the tire.



WARNING

To reduce the risk of DEATH or SERIOUS INJURY:

- Replace tires that are worn, show uneven wear, or are damaged. Worn tires can cause loss of braking effectiveness, steering control, and traction.
- Always replace tires with the same size as each tire that was originally supplied with this vehicle. Using tires and wheels other than the recommended sizes could cause unusual handling characteristics, poor vehicle control, or negatively affect your vehicle's Anti-Lock Brake System (ABS) resulting in a serious accident.
- When replacing tires (or wheels), replace the two front or two rear tires (or wheels) as a pair. Replacing just one tire can seriously affect your vehicle's handling.
- Tires degrade over time, even when they are not being used. Regardless of the remaining tread, HYUNDAI recommends that tires be replaced after six (6) years of normal service.
- Heat caused by hot climates or frequent high loading conditions can accelerate the aging process. Failure to follow this warning may cause sudden tire failure, which could lead to a loss of vehicle control resulting in an accident.

Compact spare tire replacement (if equipped)

A compact spare tire has a shorter tread life than a regular size tire. Replace it when you can see the tread wear indicator bars on the tire. The replacement compact spare tire should be the same size and design tire as the one provided with your new vehicle and should be mounted on the same compact spare tire wheel. The compact spare tire is not designed to be mounted on a regular size wheel, and the compact spare tire wheel is not designed for mounting a regular size tire.



WARNING

The original tire should be repaired or replaced as soon as possible to avoid failure of the spare and loss of vehicle control resulting in an accident. The compact spare tire is for emergency use only. Do not operate your vehicle over 80 km/h (50 mph) when using the compact spare tire.

Wheel Replacement

When replacing the metal wheels for any reason, make sure the new wheels are equivalent to the original factory units in diameter, rim width and offset.

Tire Traction

Tire traction can be reduced if you drive on worn tires, tires that are improperly inflated or on slippery road surfaces. Tires should be replaced when tread wear indicators appear. To reduce the possibility of losing control, slow down whenever there is rain, snow or ice on the road.

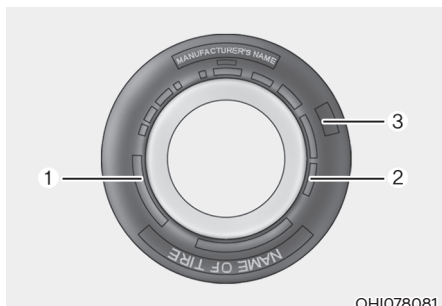
Tire Maintenance

In addition to proper inflation, correct wheel alignment helps to decrease tire wear. If you find a tire is worn unevenly, have your dealer check the wheel alignment.

When you have new tires installed, make sure they are balanced. This will increase vehicle ride comfort and tire life. Additionally, a tire should always be rebalanced if it is removed from the wheel.

Tire Sidewall Labeling

This information identifies and describes the fundamental characteristics of the tire and also provides the tire identification number (TIN) for safety standard certification. The TIN can be used to identify the tire in case of a recall.



1. Manufacturer or Brand Name

Manufacturer or brand name is shown.

2. Tire Size Designation

A tire's sidewall is marked with a tire size designation. You will need this information when selecting replacement tires for your car. The following explains what the letters and numbers in the tire size designation mean.

Example tire size designation:

(These numbers are provided as an example only; your tire size designator could vary depending on your vehicle.)

235/65 R17 95 H

235 - Tire width in millimeters.

65 - Aspect ratio. The tire's section height as a percentage of its width.

R - Tire construction code (Radial).

17 - Rim diameter in inches.

95 - Load Index, a numerical code associated with the maximum load the tire can carry.

H - Speed Rating Symbol. See the speed rating chart in this section for additional information.

Wheel size designation

Wheels are also marked with important information that you need if you ever have to replace one. The following explains what the letters and numbers in the wheel size designation mean.

Example wheel size designation:

7.0J X 17

7.0 - Rim width in inches.

J - Rim contour designation.

17 - Rim diameter in inches.

Tire speed ratings

The chart below lists many of the different speed ratings currently being used for passenger vehicle tires. The speed rating is part of the tire size designation on the sidewall of the tire. This symbol corresponds to that tire’s designed maximum safe operating speed.

Speed Rating Symbol	Maximum Speed
S	180 km/h (112 mph)
T	190 km/h (118 mph)
H	210 km/h (130 mph)
V	240 km/h (149 mph)
W	270 km/h (168 mph)
Y	300 km/h (186 mph)

3. Checking tire life (TIN : Tire Identification Number)

Any tires that are over six years old, based on the manufacturing date, (including the spare tire) should be replaced by new ones. You can find the manufacturing date on the tire sidewall (possibly on the inside of the wheel), displaying the DOT Code. The DOT Code is a series of numbers on a tire consisting of numbers and English letters. The manufacturing date is designated by the last four digits (characters) of the DOT code.

DOT : XXXX XXXX OOOO

The front part of the DOT shows a plant code number, tire size and tread pattern and the last four numbers indicate week and year manufactured.

For example:

DOT XXXX XXXX 1520 represents that the tire was produced in the 15th week of 2020.

4. Tire ply composition and material

The number of layers or plies of rubber-coated fabric in the tire. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others. The letter “R” means radial ply construction; the letter “D” means diagonal or bias ply construction; and the letter “B” means belted-bias ply construction.

5. Maximum permissible inflation pressure

This number is the greatest amount of air pressure that should be put in the tire. Do not exceed the maximum permissible inflation pressure. Refer to the Tire and Loading Information label for recommended inflation pressure.

6. Maximum load rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire. When replacing the tires on the vehicle, always use a tire that has the same load rating as the factory installed tire.

7. Uniform tire quality grading

Quality grades can be found where applicable on the tire sidewall between tread shoulder and maximum section width.

For example:

TREADWEAR 200

TRACTION AA

TEMPERATURE A

Tread wear

The tread wear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one-and-a-half times (1½) as well on the government course as a tire graded 100.

The relative performance of tires depends upon the actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices and differences in road characteristics and climate.

These grades are molded on the sidewalls of passenger vehicle tires. The tires available as standard or optional equipment on your vehicle may vary with respect to grade.

Traction - AA, A, B & C

The traction grades, from highest to lowest, are AA, A, B and C. Those grades represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.



WARNING

The traction grade assigned to this tire is based on straightahead braking traction tests, and does not include acceleration, cornering, hydroplaning, or peak traction characteristics.

Temperature - A, B & C

The temperature grades are A (the highest), B and C representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel.

Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.



WARNING

The temperature grade for this tire is established for a tire that is properly inflated and not overloaded. Excessive speed, under-inflation, over-inflation, or excessive loading, either separately or in combination, can cause heat build-up and possible sudden tire failure. This may cause loss of vehicle control resulting in an accident.

Tire Terminology and Definitions

Air Pressure

The amount of air inside the tire pressing outward on the tire. Air pressure is expressed in kilopascal (kPa) or pounds per square inch (psi).

Accessory Weight

This means the combined weight of optional accessories. Some examples of optional accessories are automatic transmission, power seats, and air conditioning.

Aspect Ratio

The relationship of a tire's height to its width.

Belt

A rubber coated layer of cords that is located between the plies and the tread. Cords may be made from steel or other reinforcing materials.

Bead

The tire bead contains steel wires wrapped by steel cords that hold the tire onto the rim.

Bias Ply Tire

A pneumatic tire in which the plies are laid at alternate angles less than 90 degrees to the centerline of the tread.

Cold Tire Pressure

The amount of air pressure in a tire, measured in kilopascals (kPa) or pounds per square inch (psi) before a tire has built up heat from driving.

Curb Weight

This means the weight of a motor vehicle with standard and optional equipment including the maximum capacity of fuel, oil and coolant, but without passengers and cargo.

DOT Markings

The DOT code includes the Tire Identification Number (TIN), an alphanumeric designator which can also identify the tire manufacturer, production plant, brand and date of production.

GVWR

Gross Vehicle Weight Rating

GAWR FRT

Gross Axle Weight Rating for the Front Axle.

GAWR RR

Gross Axle Weight Rating for the Rear axle.

Intended Outboard Sidewall

The side of an asymmetrical tire, that must always face outward when mounted on a vehicle.

Kilopascal (kPa)

The metric unit for air pressure.

Light truck (LT) tire

A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

Load ratings

The maximum load that a tire is rated to carry for a given inflation pressure.

Load Index

An assigned number ranging from 1 to 279 that corresponds to the load carrying capacity of a tire.

Maximum Inflation Pressure

The maximum air pressure to which a cold tire may be inflated. The maximum air pressure is molded onto the sidewall.

Maximum Load Rating

The load rating for a tire at the maximum permissible inflation pressure for that tire.

Maximum Loaded Vehicle Weight

The sum of curb weight; accessory weight; vehicle capacity weight; and production options weight.

Normal Occupant Weight

The number of occupants a vehicle is designed to seat multiplied by 68 kg (150 pounds).

Occupant Distribution

Designated seating positions.

Outward Facing Sidewall

An asymmetrical tire has a particular side that faces outward when mounted on a vehicle. The outward facing sidewall bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same moldings on the inner facing sidewall.

Passenger (P-Metric) tire

A tire used on passenger cars and some light duty trucks and multipurpose vehicles.

Ply

A layer of rubber-coated parallel cords.

Pneumatic tire

A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel provides the traction and contains the gas or fluid that sustains the load.

Pneumatic options weight

The combined weight of installed regular production options weighing over 2.3 kg (5 lb.) in excess of the standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty breaks, ride levelers, roof rack, heavy duty battery, and special trim.

Recommended Inflation Pressure

Vehicle manufacturer's recommended tire inflation pressure as shown on the tire placard.

Radial Ply Tire

A pneumatic tire in which the ply cords that extend to the beads are laid at 90 degrees to the centerline of the tread.

Rim

A metal support for a tire and upon which the tire beads are seated.

Sidewall

The portion of a tire between the tread and the bead.

Speed Rating

An alphanumeric code assigned to a tire indicating the maximum speed at which a tire can operate.

Traction

The friction between the tire and the road surface. The amount of grip provided.

Tread

The portion of a tire that comes into contact with the road.

Treadwear Indicators

Narrow bands, sometimes called “wear bars”, that show across the tread of a tire when only 1.6 mm (1/16 inch) of tread remains.

UTQGS

Uniform Tire Quality Grading Standards is a tire information system that provides consumers with ratings for a tire’s traction, temperature and treadwear. Ratings are determined by tire manufacturers using government testing procedures. The ratings are molded into the sidewall of the tire.

Vehicle Capacity Weight

The number of designated seating positions multiplied by 68 kg (150 lbs.) plus the rated cargo and luggage load.

Vehicle Maximum Load on the Tire

Load on an individual tire due to curb and accessory weight plus maximum occupant and cargo weight.

Vehicle Normal Load on the Tire

Load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight and dividing by 2.

Vehicle Placard

A label permanently attached to a vehicle showing the original equipment tire size and recommended inflation pressure.

All Season Tires

HYUNDAI specifies all season tires on some models to provide good performance for use all year round, including snowy and icy road conditions. All season tires are identified by ALL SEASON and/or M+S (Mud and Snow) on the tire sidewall. Snow tires have better snow traction than all season tires and may be more appropriate in some areas.

Summer Tires

HYUNDAI specifies summer tires on some models to provide superior performance on dry roads. Summer tire performance is substantially reduced in snow and ice. Summer tires do not have the tire traction rating M+S (Mud and Snow) on the tire side wall. If you plan to operate your vehicle in snowy or icy conditions, HYUNDAI recommends the use of snow tires or all season tires on all four wheels.

Snow Tires

If you equip your car with snow tires, they should be the same size and have the same load capacity as the original tires. Snow tires should be installed on all four wheels; otherwise, poor handling may result. Snow tires should carry 28 kPa (4 psi) more air pressure than the pressure recommended for the standard tires on the tire label on the driver’s side of the center pillar, or up to the maximum pressure shown on the tire sidewall, whichever is less. Do not drive faster than 120 km/h (75 mph) when your vehicle is equipped with snow tires.

Radial-Ply Tires

Radial-ply tires provide improved tread life, road hazard resistance and smoother high speed ride. The radial-ply tires used on this vehicle are of belted construction, and are selected to complement the ride and handling characteristics of your vehicle.

Radial-ply tires have the same load carrying capacity, as bias-ply or bias belted tires of the same size, and use the same recommended inflation pressure. Mixing of radial-ply tires with bias-ply or bias belted tires is not recommended. Any combinations of radial-ply and bias-ply or bias belted tires when used on the same vehicle will seriously deteriorate vehicle handling. The best rule to follow is: Identical pairs of radial-ply tires should always be used as a set for the front tires and a set for the rear tires.

Longer wearing tires can be more susceptible to irregular tread wear. It is very important to follow the tire rotation interval in this chapter to achieve the tread life potential of these tires. Cuts and punctures in radial-ply tires are repairable only in the tread area, because of sidewall flexing. Consult your tire dealer for radial-ply tire repairs.



WARNING

Do not mix bias ply and radial ply tires under any circumstances. This may cause unusual handling characteristics that may cause loss of vehicle control resulting in an accident.

Low Aspect Ratio Tires (if equipped)

The aspect ratio is lower than 50 on low aspect ratio tires.

Because low aspect ratio tires are optimized for handling and braking, their sidewall is a little stiffer than a standard tire. Also low aspect ratio tires tend to be wider and consequently have a greater contact patch with the road surface. In some instances they may generate more road noise compared with standard tires.



CAUTION

The side wall of a low aspect ratio tire is shorter than the normal one. Thus, the low-aspect wheel and tire are easily damaged. Follow the below instructions.

- When driving on a rough road or driving off a road, be careful not to damage the tires and wheels. After driving, inspect the tires and wheels.
- When passing over a pothole, speed bump, manhole, or curb stone, drive the vehicle slowly so as not to damage the tires and wheels.
- When there is an impact on a tire, inspect the tire condition. Or, you can contact an authorized HYUNDAI dealer.
- Inspect the tire condition and pressure every 3,000 km (1,800 miles) to prevent tire damage.
- It is difficult to recognize a tire damage only with your eyes. When there is a slight hint of a tire damage, check and replace the tire to prevent the damage caused by air leakage.
- When a tire is damaged while driving on a rough road, off a road, or over obstacles, such as a pothole, manhole, or curb stone, your warranty does not cover the damage.
- The tire information is specified on the tire side wall.

FUSES

■ Blade type



Normal



Blown

■ Cartridge type

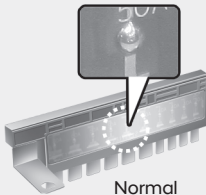


Normal

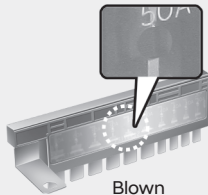


Blown

■ Multi fuse



Normal



Blown

OTM078035

A vehicle's electrical system is protected from electrical overload damage by fuses.

This vehicle has 2 (or 3) fuse panels, one located in the driver's side panel bolster, the other in the engine compartment.

If any of your vehicle's lights, accessories, or controls do not work, check the appropriate circuit fuse. If a fuse has blown, the element inside the fuse will be melted or broken.

If the electrical system does not work, first check the driver's side fuse panel. Before replacing a blown fuse, turn the engine and all switches off, and then disconnect the negative battery cable. Always replace a blown fuse with one of the same rating.

If the replacement fuse blows, this indicates an electrical problem. Avoid using the system involved and consult an authorized HYUNDAI dealer.

i Information

Three kinds of fuses are used: blade type for lower amperage rating, cartridge type, and multi fuse for higher amperage ratings.

⚠ WARNING

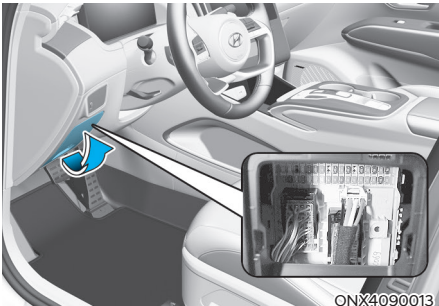
NEVER replace a fuse with anything but another fuse of the same rating.

- A higher capacity fuse could cause damage and possibly cause a fire.
- Do not install a wire or aluminum foil instead of the proper fuse - even as a temporary repair. It may cause extensive wiring damage and possibly a fire.

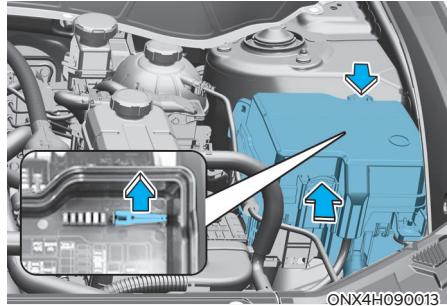
NOTICE

Do not use a screwdriver or any other metal object to remove fuses because it may cause a short circuit and damage the system.

Instrument panel fuse replacement



1. Turn the vehicle off.
2. Turn all other switches off.
3. Open the fuse panel cover.
4. Refer to the label on the inside of the fuse panel cover to locate the suspected fuse location.

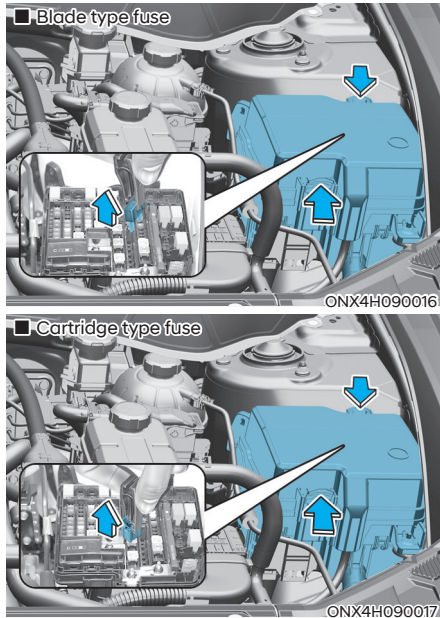


5. Pull the suspected fuse straight out. Use the removal tool provided in the engine compartment fuses panel cover.
6. Check the removed fuse; replace it if it is blown. Spare fuses are provided in the instrument panel fuse panels (or in the engine compartment fuse panel).
7. Push in a new fuse of the same rating, and make sure it fits tightly in the clips. If it fits loosely, consult an authorized HYUNDAI dealer.

In an emergency, if you do not have a spare fuse, use a fuse of the same rating from a circuit you may not need for operating the vehicle, such as the cigarette lighter fuse.

If the headlamps or other electrical components do not work and the fuses are undamaged, check the fuse panel in the engine compartment. If a fuse is blown, it must be replaced with the same rating.

Engine Compartment Panel Fuse Replacement

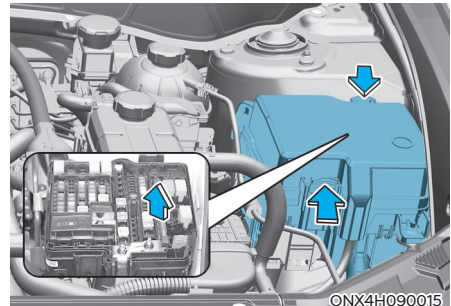


1. Turn the vehicle off.
2. Turn all other switches off.
3. Remove the fuse panel cover by pressing the tap and pulling up.
4. Check the removed fuse; replace it if it is blown. To remove or insert the fuse, use the fuse puller in the engine compartment fuse panel.
5. Push in a new fuse of the same rating, and make sure it fits tightly in the clips. If it fits loosely, consult an authorized HYUNDAI dealer.

NOTICE

After checking the fuse panel in the engine compartment, securely install the fuse panel cover. You may hear a clicking sound if the cover is securely latched. If it is not securely latched, electrical failure may occur from water contact.

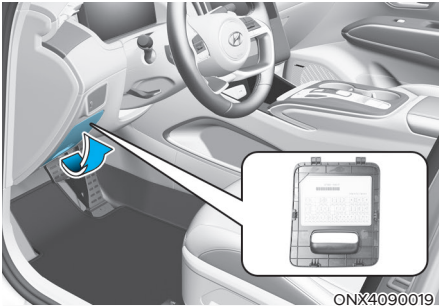
Multi fuse



If the multi fuse is blown, consult an authorized HYUNDAI dealer.

Fuse/Relay Panel Description

Instrument panel fuse panel (Hybrid vehicle/Plug-in hybrid vehicle)



ONX4090019

Inside the fuse/relay box cover, you can find the fuse/relay label describing fuse/relay names and ratings.

i Information

Not all fuse panel descriptions in this manual may be applicable to your vehicle; the information is accurate at the time of printing. When you inspect the fuse box on your vehicle, refer to the fuse box label.

91990-N9020

USE THE DESIGNATED FUSE ONLY
UTILISEZ SEULEMENT LE FUSIBLE DÉSIGNÉS

	¹ DOOR LOCK				SPARE	SPARE		MEMORY	SPARE	MULTIMEDIA	¹ AIR BAG		⁶ MODULE	A/BAG IND	⁴ MODULE	CLUSTER	⁷ MODULE
	20A	20A			10A	15A		10A	10A	20A	15A		10A	7.5A	7.5A	7.5A	7.5A
	P/WINDOW (RH)	S/HEATER (DRY/PASS)		² SUNROOF	² AIR BAG	³ MODULE	² IBU		⁷ MODULE	WASHER	A/C		¹ IBU	SPARE	E-SHIFTER	SPARE	MODS
	25A	20A		20A	10A	10A	10A		7.5A	15A	7.5A		7.5A	10A	7.5A	10A	7.5A
	P/WINDOW (LH)	P/SEAT (PASS)	SAFETY P/BLIND (RH)	P/SEAT (DRV)	AMP	¹ SUNROOF	SAFETY P/WINDOW (LH)	BRAKE SWITCH	TAILGATE OPEN	⁶ MODULE	² MODULE	¹ MODULE	⁵ MODULE	SPARE	SPARE	SPARE	START
	25A	30A	25A	30A	25A	20A	25A	10A	10A	7.5A	15A	10A	10A	10A	10A	7.5A	10A

ONX4H090023N

Instrument panel fuse panel

Fuse Name	Fuse Rating	Circuit Protected
DR Lock	20A	Dead Lock Relay, Data Link Connector, Door Unlock/Lock Relay
P/WDW RH	25A	Power Window Main Switch, Passenger Power Window Switch (LHD)
P/WDW LH	25A	Power Window Main Switch, Passenger Power Window Switch (RHD)
Seat Warmer (RR)	20A	Rear Seat Warmer Control Module
Seat Warmer (DR/PS)	20A	Front Seat Warmer Control Module, Front Air Ventilation Seat Control Module
P/Seat(PS)	30A	Passenger Power Seat Switch, Passenger Seat Relay Unit
ECS	15A	ECS Unit
Safety Window RH	25A	Driver(LHD)/Passenger(RHD) Safety Power Window Module, Rear Safety Power Window Module RH
Sunroof1	20A	Sunroof Control Unit (Blind)
P/Seat(DR)	30A	Driver Power Seat Switch, Driver IMS Control Module
A/BAG2	10A	SRS Control Module
AMP	25A	AMP
Module17	10A	"Driver/Passenger Smart Key Outside Handle, Crash Pad Switch, Hazard Switch, UIP Sensor UIP Siren, Data Link Connector, Rain Sensor"
Sunroof1	20A	Sunroof Control Unit (Glass)
IBU2	10A	IBU, Ignition Switch

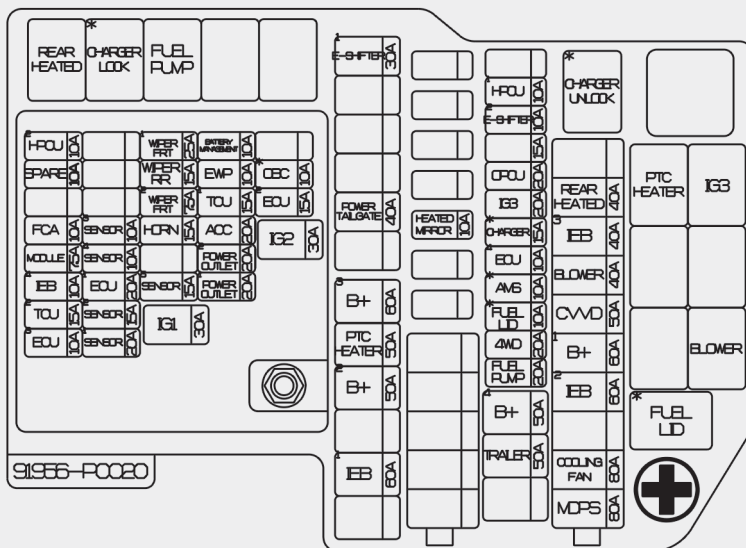
Instrument panel fuse panel

Fuse Name	Fuse Rating	Circuit Protected
Safety Window LH	25A	Driver(RHD)/Passenger(LHD) Safety Power Window Module, Rear Safety Power Window Module LH
10A	10A	Outside Mirror Folding/Unfolding Relay, ROA Sensor, Driver IMS Control Module, Power Tailgate Unit, Driver/Passenger Door Mood Lmap, A/C Control Module, Console Mood Lamp, Instrument Cluster, Mood Lamp Unit, A/C Control Switch, Crash Pad Mood Lamp
Brake Switch	10A	IBU, Stop Lamp Switch
E-Call	10A	E-Call Unit
Module7	7.5A	IBU
PTG	10A	Tailgate Relay
Multi Media	20A	Audio, A/V & Navigation Head Unit
Washer	15A	Multifunction Switch
Module8	7.5A	Front/Rear Seat Warmer Control Module, Front Air Ventilation Seat Control Module
A/BAG1	15A	SRS Control Module
A/C	7.5A	Electronic A/C Compressor, Front/Rear A/C Control Switch A/C Control Module, E/R Junction Block (RLY.10, RLY.13)
Module2	15A	Front USB Charge Connector, Rear USB Charge Connector
Module1	10A	E-Call Unit, Audio, A/V & Navigation Head Unit, AMP, Audio Keyboard, A/V & Navigation Keyboard, IBU, BMS, ADAS Parking ECU, Power Outside Mirror Switch
Module6	10A	Front Console Switch, EPB Switch
IBU1	7.5A	IBU

Instrument panel fuse panel

Fuse Name	Fuse Rating	Circuit Protected
Module5	10A	Front/Rear Seat Warmer Control Module, E-Call Unit, AMP, Driver IMS Control Module, Front/Rear A/C Control Switch, Audio, A/V & Navigation Head Unit, Wireless Charger Unit, Front Air Ventilation Seat Control Module, Data Link Connector, A/C Control Module, Heat Lamp LH/RH, Electro Chromic Mirror
A/BAG IND.	7.5A	Instrument Cluster, Overhead Console Lamp
IG3 4	10A	HPCU
IG3 2	10A	Electronic Water Pump (HEV)
Module4	7.5A	Front View Camera, IBU, AWD ECM, VESS Unit, Crash Pad Switch, ECS Unit, ADAS Parking ECU
E-Shifter	7.5A	Electronic Shift Switch, SCU
IG3 3	10A	BMS, E/R Junction Block (RLY.2)
Cluster	7.5A	Instrument Cluster
Module3	7.5A	Stop Lamp Switch, Overhead Console Lamp, Multifunction Switch (R-MDPS)
MDPS	7.5A	MDPS Unit (Column Type)

■ Plug-in hybrid vehicle



ONX4PH091030N

Engine compartment fuse panel

Fuse Name	Fuse rating	Circuit Protected
MDPS	80A/100A	MDPS Unit (Column Type-80A) / MDPS Unit (Rack Type-100A)
C/FAN	80A	Cooling Fan Motor
B+1	60A	ICU Junction Block (IPS01, IPS02, IPS03, IPS04, IPS05)
B+3	60A	ICU Junction Block (Power Window Main Relay, Fuse : F2, F3, F5, F6, F8, F9, F11, F12, F18, F15)
CVVD	50A	CVVD Actuator
Bower	40A	E/R Junction Block (RLY.10)
IEB3	40A	IEB Unit
Rear Defogger	40A	E/R Junction Block (RLY.14)
Trailer1	50A	Trailer Connector Unit
B+4	50A	ICU Junction Block (Long Term Load Latch Relay, Fuse : F1, F4, F14, F17, F20, F21, F24, F27)
IEB2	60A	IEB Unit
IEB1	60A	IEB Unit
B+2	50A	ICU Junction Block (IPS06, IPS07, IPS08, IPS10, IPS11)
PTC Heater	50A	E/R Junction Block (RLY.13)
PTG	40A	Power Tailgate Unit
E-Shifter1	30A	SCU
Fuel Pump	20A	E/R Junction Block (RLY.7)
4WD	20A	AWD ECM
ECU4	10A	ECM

Engine compartment fuse panel

Fuse Name	Fuse rating	Circuit Protected
IG3	20A	E/R Junction Block (RLY.3)
OPCU	20A	OPU
BATT C/ FAN	15A	E/R Junction Block (RLY.2)
E-Shifter2	10A	SCU, Electronic Shift Switch (SBW)
HPCU1	10A	HPCU
Trailer2	20A	Trailer Connector Unit
RR HTD	10A	Driver Power Outside Mirror, Passenger Power Outside Mirror
IG1	30A	PCB Block (PDM(IG1) Relay)
IG2	30A	PCB Block (PDM(IG2) Relay)
ECU3	10A	CVVD Actuator, ECM
TCU2	15A	TCM, OPU
IEB4	10A	IEB Unit
Module	7.5A	Electronic Water Pump (Engine)
AEB	10A	Front Radar
HPCU2	10A	HCPU
Sensor1	20A	Ignition Coil #1~#4
Sensor2	15A	Oxygen Sensor (Up/Down)
ECU1	20A	ECM

Engine compartment fuse panel

Fuse Name	Fuse rating	Circuit Protected
Sensor4	10A	E/R Junction Block (RLY.7)
Sensor3	10A	Oil Control Valve #1~#2, Purge Control Solenoid Valve, RCV Control Solenoid Valve, Variable Oil Pump, Cooling Fan Motor
B/Horn	15A	PCB Block (Burglar Alarm Horn Relay)
MDPS2	10A	MDPS Unit (Rack Type)
Sensor5	15A	Active Purge Pump
Horn	15A	PCB Block (Horn Relay)
Wiper(FR)2	7.5A	IBU
Wiper(RR)	15A	ICU Junction Block (Rear Wiper Relay)
Wiper(FR)1	25A	PCB Block (Front Wiper(Low) Relay), Front Wiper Motor
P/Outlet1	20A	Luggage Power Outlet
P/Outlet2	20A	Front Power Outlet
ACC	20A	ICU Junction Block (Fuse : F33, F36)
TCU1	15A	TCM
EWP	10A	Electronic Water Pump (Engine)
BMS	10A	BMS
ECU2	15A	ECM

LIGHT BULBS

Consult an authorized HYUNDAI dealer to replace most vehicle light bulbs. It is difficult to replace vehicle light bulbs because other parts of the vehicle must be removed before you can get to the bulb. This is especially true for removing the headlamp assembly to get to the bulb(s).

Removing/installing the headlamp assembly can result in damage to the vehicle.



WARNING

- Prior to working on a light, depress the foot brake, shift to P (Park), apply the parking brake, set the ignition switch to the LOCK/OFF position and take the key with you when leaving the vehicle to avoid sudden movement of the vehicle and to prevent possible electric shock.
- Be aware the bulbs may be hot and may burn your fingers.

NOTICE

Be sure to replace the burned-out bulb with one of the same wattage rating. Otherwise, it may cause damage to the fuse or electrical wiring system.

NOTICE

To prevent damage, do not clean the headlamp lens with chemical solvents or strong detergents.

i Information

The headlamp and tail lamp lenses could appear frosty if the vehicle is washed after driving or the vehicle is driven at night in wet weather. This condition is caused by temperature difference between the lamp inside and outside and, it does not indicate a problem with your vehicle. When moisture condenses in the lamp, it will be removed after driving with the headlamp on. The removable level may differ depending on lamp size, lamp position and environmental condition. However, if moisture is not removed, have your vehicle inspected by an authorized HYUNDAI dealer.

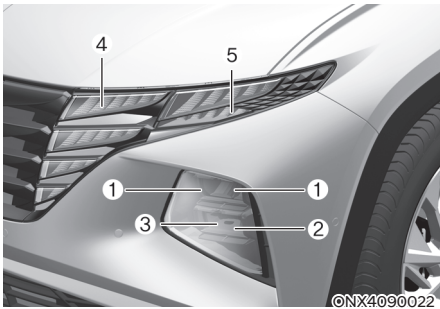
i Information

- A normally functioning lamp may flicker momentarily to stabilize the vehicle's electrical control system. However, if the lamp goes out after flickering momentarily, or continues to flicker, have system be checked by an authorized HYUNDAI dealer.
- The position lamp may not turn on when the position lamp switch is turned on, but the position lamp and headlamp switch may turn on when the headlamp switch is turned on. This may be caused by network failure or vehicle electrical control system malfunction. If this occurs, have system be checked by an authorized HYUNDAI dealer.

i Information

The headlamp aiming should be adjusted after an accident or after the headlamp assembly is reinstalled at an authorized HYUNDAI dealer.

Headlamp, Position Lamp, Turn Signal Lamp, Daytime Running Light (DRL) Replacement



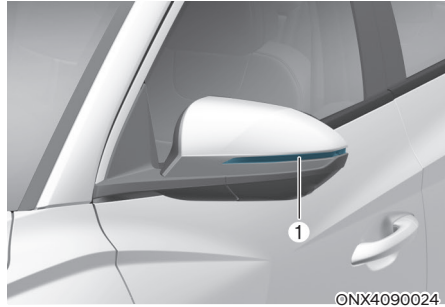
- (1) Headlamp (Low)
- (2) Headlamp (High)
- (3) Headlamp (High)
- (4) Daytime running light/Position light
- (5) Turn signal lamp

- Always handle them carefully, and avoid scratches and abrasions. If the bulbs are lit, avoid contact with liquids.
- Never touch the glass with bare hands. Residual oil may cause the bulb to overheat and burst when lit.
- A bulb should be operated only when installed in a headlamp.
- If a bulb becomes damaged or cracked, replace it immediately and carefully dispose of it.

Lamps

If the LED lamp does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

Side Repeater Lamp Replacement



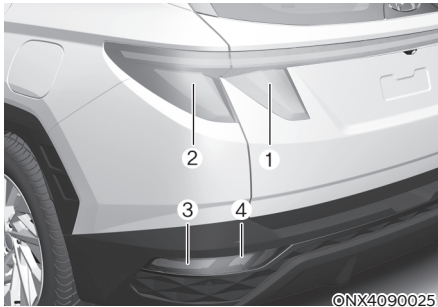
If the LED lamp (1) does not operate, have the system be inspected by an authorized HYUNDAI dealer.

The LED lamps cannot be replaced as a single unit because it is an integrated unit. The LED lamps has to be replaced with the unit.

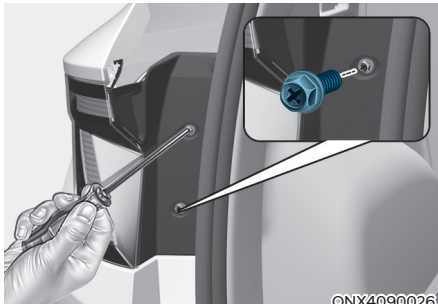
A skilled technician should check or repair the LED lamp, for it may damage related parts of the vehicle.

Rear Combination Lamp Replacement

Type A

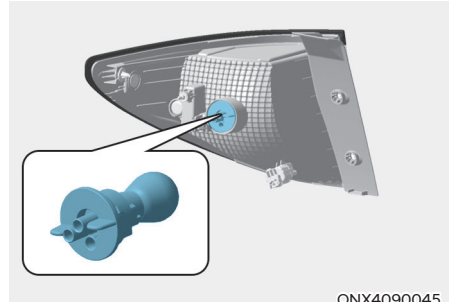


- (1) Tail lamp
- (2) Tail/Stop lamp
- (3) Turn signal lamp
- (4) Reverse lamp

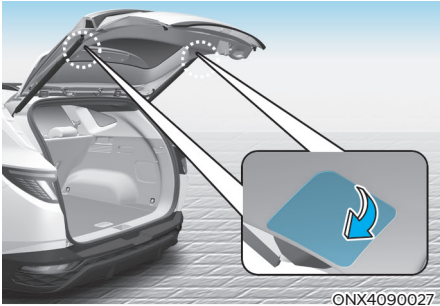


Stop/Tail lamp (Outside), Reverse lamp

1. Turn off the engine.
2. Open the tailgate.
3. Loosen the lamp assembly retaining screws with a cross-tip screwdriver.
4. Remove the rear combination lamp assembly from the body of the vehicle.
5. Remove the socket from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.

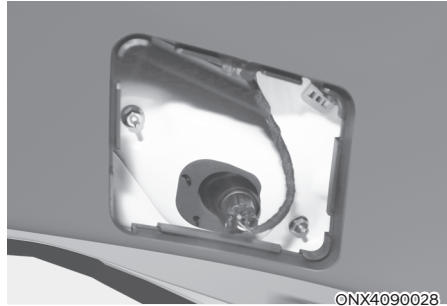


6. Remove the bulb from the socket by pressing it in and rotating it counterclockwise until the tabs on the bulb align with the slots in the socket. Pull the bulb out of the socket.
7. Insert a new bulb by inserting it into the socket and rotating it until it locks into place.
8. Install the socket into the assembly by aligning the tabs on the socket with the slots in the assembly. Push the socket into the assembly and turn the socket clockwise.
9. Reinstall the lamp assembly to the body of the vehicle.



Tail lamp (Inside)

1. Turn off the engine.
2. Open the tailgate.
3. Remove the service cover using a flat-blade screwdriver.
4. Remove the socket from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.

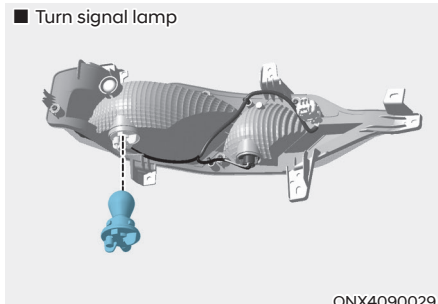


5. Remove the bulb from the socket by pressing it in and rotating it counterclockwise until the tabs on the bulb align with the slots in the socket. Pull the bulb out of the socket.
6. Insert a new bulb by inserting it into the socket and rotating it until it locks into place.
7. Install the socket into the assembly by aligning the tabs on the socket with the slots in the assembly. Push the socket into the assembly and turn the socket clockwise.
8. Reinstall the lamp assembly to the body of the vehicle.

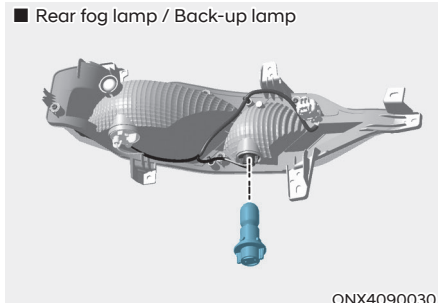
Turn signal lamp, Reverse lamp

1. Disconnect the negative battery cable.
2. Loosen the retaining clips under the bumper and screws on the wheel house trim.
3. Prey trim under the bumper toward the vehicle.

■ Turn signal lamp

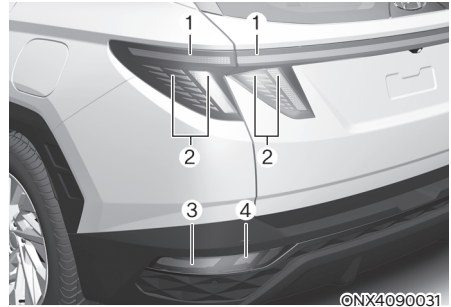


■ Rear fog lamp / Back-up lamp



4. Remove the socket from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.
5. Remove the bulb by pulling it straight out.
6. Insert a new bulb in the socket.
7. Reinstall the light assembly to the body of the vehicle.

Type B



- (1) Tail lamp
- (2) Tail/Stop lamp
- (3) Turn signal lamp
- (4) Reverse lamp

Tail / Stop lamp, Tail lamp

If these lamps do not operate, have the vehicle checked by an authorized HYUNDAI dealer.

High Mounted Stop Lamp Replacement

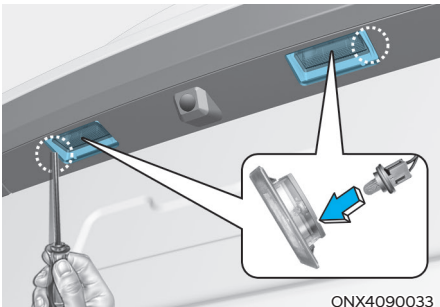


If the LED lamp (1) does not operate, have the system be inspected by an authorized HYUNDAI dealer.

The LED lamps cannot be replaced as a single unit because it is an integrated unit. The LED lamps has to be replaced with the unit.

A skilled technician should check or repair the LED lamp, for it may damage related parts of the vehicle.

License Plate Lamp Replacement



1. Using a flat-blade screwdriver, gently pry the lens cover from the lamp housing.
2. Remove the bulb by pulling it straight out.
3. Install a new bulb.
4. Reinstall in the reverse order.

Interior Light Replacement Map/personal lamp (LED)

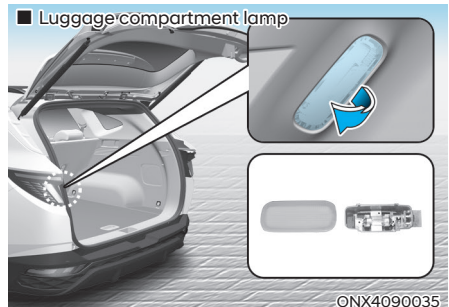
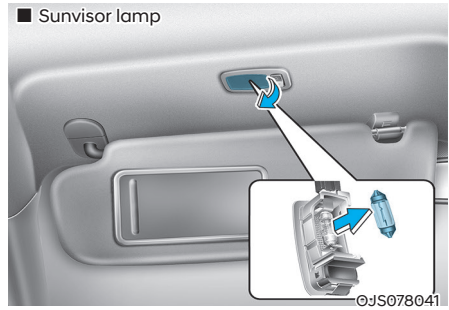
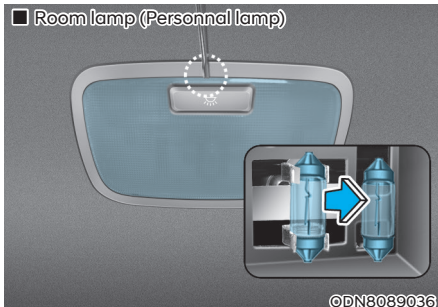
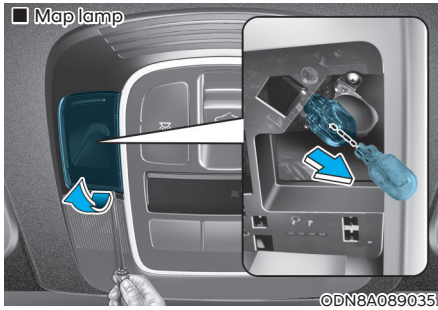


If the LED lamp does not operate, have the system be inspected by an authorized HYUNDAI dealer.

The LED lamps cannot be replaced as a single unit because it is an integrated unit. The LED lamps has to be replaced with the unit.

A skilled technician should check or repair the LED lamp, for it may damage related parts of the vehicle.

Room lamp, sunvisor lamp and luggage compartment lamp (Bulb type)



1. Using a flat-head screwdriver, gently pry the lens from the interior light housing.
2. Remove the bulb by pulling it straight out.
3. Install a new bulb into the socket.
4. Align the lens tabs with the interior light housing notches and snap the lens into place.

NOTICE

Be careful not to damage the cover, tab, and plastic housing.

APPEARANCE CARE

Exterior Care

If you park your vehicle near a stainless steel sign or glass facade building, the vehicle's exterior plastic parts such as a bumper, spoiler, garnish, lamp or outside rearview mirror might be damaged due to sunlight reflected from the sign or building. To prevent damage of the exterior plastic parts, you should avoid parking in areas where light may be reflected or use a car cover. (The exterior plastic parts applied to your vehicle may vary.)

Exterior general caution

It is very important to follow the label directions when using any chemical cleaner or polish. Read all warning and caution statements that appear on the label.

Finish maintenance

Washing

To help protect your vehicle's finish from rust and deterioration, wash it thoroughly and frequently at least once a month with lukewarm or cold water.

If you use your vehicle for off-road driving, you should wash it after each off-road trip. Pay special attention to the removal of any accumulation of salt, dirt, mud, and other foreign materials. Make sure the drain holes in the lower edges of the doors and rocker panels are kept clear and clean.

Insects, tar, tree sap, bird droppings, industrial pollution and similar deposits can damage your vehicle's finish if not removed immediately.

Even prompt washing with plain water may not completely remove all these deposits. A mild soap, safe for use on painted surfaces, should be used.

After washing, rinse the vehicle thoroughly with lukewarm or cold water. Do not allow soap to dry on the finish.

High-pressure washing

- When using high-pressure washers, make sure to maintain sufficient distance from the vehicle.
Insufficient clearance or excessive pressure can lead to component damage or water penetration.
- Do not spray the camera, sensors or its surrounding area directly with a high pressure washer. Shock applied from high pressure water may cause the device to not operate normally.
- Do not bring the nozzle tip close to boots (rubber or plastic covers) or connectors as they may be damaged if they come into contact with high pressure water.

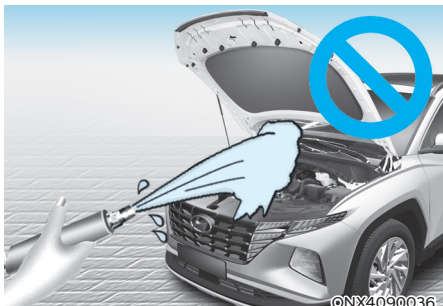


WARNING

After washing the vehicle, test the brakes while driving slowly to see if they have been affected by water before getting on the road. If braking performance is impaired, dry the brakes by applying them lightly while maintaining a slow forward speed.

NOTICE

- **Do not use strong soap, chemical detergents or hot water, and do not wash the vehicle in direct sunlight or when the body of the vehicle is warm.**
- **Be careful when washing the side windows of your vehicle.**
- **Especially, with high-pressure water, water may leak through the windows and wet the interior.**
- **To prevent damage to the plastic parts, do not clean with chemical solvents or strong detergents.**
- **To prevent damage to the charging door, make sure to close and lock the vehicle doors when washing (high-pressure washing, automatic car washing, etc.) the vehicle.**

NOTICE

- **Water washing in the engine compartment including high pressure water washing may cause the failure of electrical circuits located in the engine compartment.**
- **Never allow water or other liquids to come in contact with electrical/electronic components inside the vehicle as this may damage them.**

NOTICE

Matte paint finish vehicle (if equipped)
Automatic car wash which uses rotating brushes should not be used as this can damage the surface of your vehicle. A steam cleaner which washes the vehicle surface at high temperature may result the oil to adhere and leave stains that is difficult to remove.

Use a soft cloth (for example, microfiber towel or sponge) when washing your vehicle and dry with a microfiber towel. When you hand wash your vehicle, you should not use a cleaner that finishes with wax. If the vehicle surface is too dirty (sand, dirt, dust, contaminant, etc.), clean the surface with water before washing the car.

Waxing

A good coat of wax is a barrier between your paint and contaminate. Keeping a good coat of wax on your vehicle will help protect it.

Wax the vehicle when water will no longer bead on the paint.

Always wash and dry the vehicle before waxing. Use a good quality liquid or paste wax, and follow the manufacturer's instructions. Wax all metal trim to protect it and to maintain its luster.

Removing oil, tar, and similar materials with a spot remover will usually strip the wax from the finish. Be sure to re-wax these areas even if the rest of the vehicle does not yet need waxing.

NOTICE

- **Wiping dust or dirt off the body with a dry cloth will scratch the finish.**
- **Do not use steel wool, abrasive cleaners, or strong detergents containing highly alkaline or caustic agents on chrome-plated or anodized aluminum parts. This may result in damage to the protective coating and cause discoloration or paint deterioration.**

NOTICE

Matte paint finish vehicle (if equipped)
Do not use any polish protector such as a detergent, an abrasive and a polish. In case wax is applied, remove the wax immediately using a silicon remover and if any tar or tar contaminant is on the surface use a tar remover to clean. However, be careful not to apply too much pressure on the painted area.

Finish damage repair

Deep scratches or stone chips in the painted surface must be repaired promptly. Exposed metal will quickly rust and may develop into a major repair expense.

NOTICE

If your vehicle is damaged and requires any metal repair or replacement, be sure the body shop applies anti-corrosion materials to the parts repaired or replaced.

NOTICE

Matte paint finish vehicle (if equipped)

In case of matte paint finish vehicles, it is impossible to modify only the damaged area and repair of the whole part is necessary. If the vehicle is damaged and painting is required, have your vehicle maintained and repaired by an authorized HYUNDAI dealer. Take extreme care, as it is difficult to restore the quality after the repair.

Bright-metal maintenance

- To remove road tar and insects, use a tar remover, not a scraper or other sharp object.
- To protect the surfaces of brightmetal parts from corrosion, apply a coating of wax or chrome preservative and rub to a high luster.
- During winter weather or in coastal areas, cover the bright metal parts with a heavier coating of wax or preservative. If necessary, coat the parts with non-corrosive petroleum jelly or other protective compound.

Underbody maintenance

Corrosive materials used for ice and snow removal and dust control may collect on the underbody. If these materials are not removed, accelerated rusting can occur on underbody parts such as the fuel lines, frame, floor pan and exhaust system, even though they have been treated with rust protection.

Thoroughly flush the vehicle underbody and wheel openings with lukewarm or cold water once a month, after off-road driving and at the end of each winter. Pay special attention to these areas because it is difficult to see all the mud and dirt. It will do more harm than good to wet down the road grime without removing it. The lower edges of doors, rocker panels, and frame members have drain holes that should not be allowed to clog with dirt; trapped water in these areas can cause rusting.



WARNING

After washing the vehicle, test the brakes while driving slowly to see if they have been affected by water. If braking performance is impaired, dry the brakes by applying them lightly while maintaining a slow forward speed.

Aluminum wheel maintenance

The aluminum wheels are coated with a clear protective finish.

NOTICE

- **Do not use abrasive cleaner, polishing compound, solvent, or wire brushes on aluminum wheels.**
- **Clean the wheel when it has cooled.**
- **Use only a mild soap or neutral detergent, and rinse thoroughly with water. Also, clean the wheels after driving on salted roads.**
- **Do not wash the wheels with high-speed car wash brushes.**
- **Do not use any cleaners containing acid or alkaline detergents.**

Corrosion protection**Protecting your vehicle from corrosion**

By using the most advanced design and construction practices to combat corrosion, HYUNDAI produces vehicles of the highest quality. However, this is only part of the job. To achieve the long-term corrosion resistance your vehicle can deliver, the owner's cooperation and assistance is also required.

Common causes of corrosion

The most common causes of corrosion on your vehicle are:

- Road salt, dirt and moisture that is allowed to accumulate underneath the vehicle.
- Removal of paint or protective coatings by stones, gravel, abrasion or minor scrapes and dents which leave unprotected metal exposed to corrosion.

High-corrosion areas

If you live in an area where your vehicle is regularly exposed to corrosive materials, corrosion protection is particularly important. Some of the common causes of accelerated corrosion are road salts, dust control chemicals, ocean air and industrial pollution.

Moisture breeds corrosion

Moisture creates the conditions in which corrosion is most likely to occur. For example, corrosion is accelerated by high humidity, particularly when temperatures are just above freezing. In such conditions, the corrosive material is kept in contact with the vehicle surfaces by moisture that is slow to evaporate.

Mud is particularly corrosive because it is slow to dry and holds moisture in contact with the vehicle. Although the mud appears to be dry, it can still retain moisture and promote corrosion.

High temperatures can also accelerate corrosion of parts that are not properly ventilated so the moisture can be dispersed. For all these reasons, it is particularly important to keep your vehicle clean and free of mud or accumulations of other materials. This applies not only to the visible surfaces but particularly to the underside of the vehicle.

To help prevent corrosion

Keep your vehicle clean

The best way to prevent corrosion is to keep your vehicle clean and free of corrosive materials. Attention to the underside of the vehicle is particularly important.

- If you live in a high-corrosion area — where road salts are used, near the ocean, areas with industrial pollution, acid rain, etc.—, you should take extra care to prevent corrosion. In winter, hose off the underside of your vehicle at least once a month and be sure to clean the underside thoroughly when winter is over.
- When cleaning underneath the vehicle, pay particular attention to the components under the fenders and other areas that are hidden from view. Do a thorough job; just dampening the accumulated mud rather than washing it away will accelerate corrosion rather than prevent it. Water under high pressure and steam are particularly effective in removing accumulated mud and corrosive materials.
- When cleaning lower door panels, rocker panels and frame members, be sure that drain holes are kept open so that moisture can escape and not be trapped inside to accelerate corrosion.

Keep your garage dry

Don't park your vehicle in a damp, poorly ventilated garage. This creates a favorable environment for corrosion. This is particularly true if you wash your vehicle in the garage or drive it into the garage when it is still wet or covered with snow, ice or mud. Even a heated garage can contribute to corrosion unless it is well ventilated so moisture is dispersed.

Keep paint and trim in good condition

Scratches or chips in the finish should be covered with "touch-up" paint as soon as possible to reduce the possibility of corrosion. If bare metal is showing through, the attention of a qualified body and paint shop is recommended.

Bird droppings are highly corrosive and may damage painted surfaces in just a few hours. Always remove bird droppings as soon as possible.

Interior Care

Interior general precautions

Prevent caustic solutions such as perfume and cosmetic oil, from contacting the interior parts because they may cause damage or discoloration. If they do contact the interior parts, wipe them off immediately. See the instructions for the proper way to clean vinyl.

NOTICE

- **Never allow water or other liquids to come in contact with electrical/electronic components inside the vehicle as this may damage them.**
- **When cleaning leather products (steering wheel, seats etc.), use neutral detergents or low alcohol content solutions. If you use high alcohol content solutions or acid/alkaline detergents, the color of the leather may fade or the surface may get stripped off.**

Cleaning the upholstery and interior trim**Vinyl (if equipped)**

Remove dust and loose dirt from vinyl with a whisk broom or vacuum cleaner. Clean vinyl surfaces with a vinyl cleaner.

Fabric (if equipped)

Remove dust and loose dirt from fabric with a whisk broom or vacuum cleaner. Clean with a mild soap solution recommended for upholstery or carpets. Remove fresh spots immediately with a fabric spot cleaner. If fresh spots do not receive immediate attention, the fabric can be stained and its color can be affected. Also, its fire-resistant properties can be reduced if the material is not properly maintained.

NOTICE

Using anything but recommended cleaners and procedures may affect the fabric's appearance and fire-resistant properties.

Leather (if equipped)

- Features of seat leather
 - Leather is made from the outer skin of an animal, which goes through a special process to be available for use. Since it is a natural product, each part differs in thickness or density.
Wrinkles may appear as a natural result of stretching and shrinking depending on the temperature and humidity.
 - The seat is made of stretchable fabric to improve comfort.
 - The parts contacting the body are curved and the side supporting area is high which provides driving comfort and stability.
 - Wrinkles may appear naturally from usage. It is not a fault of the products.

NOTICE

- **Wrinkles or abrasions which appear naturally from usage are not covered by warranty.**
- **Belts with metallic accessories, zippers or keys inside the back pocket may damage the seat fabric.**
- **Make sure not to wet the seat. It may change the nature of natural leather.**
- **Jeans or clothes which could bleach may contaminate the surface of the seat covering fabric.**

- Caring for the leather seats
 - Vacuum the seat periodically to remove dust and sand on the seat. It will prevent abrasion or damage of the leather and maintain its quality.
 - Wipe the natural leather seat cover often with dry or soft cloth.
 - Use of proper leather protector may prevent abrasion of the cover and helps maintain the color. Be sure to read the instructions and consult a specialist when using leather coating or protective agent.
 - Light colored (beige, cream beige) leather is easily contaminated and the stain is noticeable. Clean the seats frequently.
 - Avoid wiping with wet cloth. It may cause the surface to crack.
- Cleaning the leather seats
 - Remove all contaminations instantly. Refer to instructions below for removal of each contaminant.
 - Cosmetic products (sunscreen, foundation, etc.)

Apply cleansing cream on a cloth and wipe the contaminated spot. Wipe off the cream with a wet cloth and remove water with a dry cloth.
 - Beverages (coffee, soft drink, etc.)

Apply a small amount of neutral detergent and wipe until contaminations do not smear.
 - Oil
Remove oil instantly with absorbable cloth and wipe with stain remover used only for natural leather.
 - Chewing gum
Harden the gum with ice and remove gradually.

Cleaning the seat belt webbing

Clean the belt webbing with any mild soap solution recommended for cleaning upholstery or carpet. Follow the instructions provided with the soap. Do not bleach or re-dye the webbing because this may weaken the seat belt.

Cleaning the interior window glass

If the interior glass surfaces of the vehicle become fogged (that is, covered with an oily, greasy or waxy film), they should be cleaned with glass cleaner. Follow the directions on the glass cleaner container.

NOTICE

Do not scrape or scratch the inside of the rear window. This may result in damage to the rear window defroster grid.

EMISSION CONTROL SYSTEM

The emission control system of your vehicle is covered by a written limited warranty. Please see the warranty information contained in the Service Passport in your vehicle.

Your vehicle is equipped with an emission control system to meet all applicable emission regulations. There are three emission control systems, as follows.

- (1) Crankcase emission control system
- (2) Evaporative emission control system
- (3) Exhaust emission control system

In order to ensure the proper function of the emission control systems, have your vehicle inspected and maintained by an authorized HYUNDAI dealer in accordance with the maintenance schedule in this manual.

NOTICE

For the Inspection and Maintenance Test (with Electronic Stability Control (ESC) system)

- **To prevent the vehicle from misfiring during dynamometer testing, turn the Electronic Stability Control (ESC) system off by pressing the ESC switch (ESC OFF light illuminated).**
- **After dynamometer testing is completed, turn the ESC system back on by pressing the ESC switch again.**

1. Crankcase Emission Control System

The positive crankcase ventilation system is employed to prevent air pollution caused by blow-by gases being emitted from the crankcase. This system supplies fresh filtered air to the crankcase through the air intake hose. Inside the crankcase, the fresh air mixes with blow-by gases, which then pass through the PCV valve into the induction system.

2. Evaporative Emission Control System

The Evaporative Emission Control System is designed to prevent fuel vapors from escaping into the atmosphere.

Canister

Fuel vapors generated inside the fuel tank are absorbed and stored in the onboard canister. When the engine is running, the fuel vapors absorbed in the canister are drawn into the surge tank through the purge control solenoid valve.

Purge Control Solenoid Valve (PCSV)

The purge control solenoid valve is controlled by the Engine Control Module (ECM); when the engine coolant temperature is low during idling, the PCSV closes so that evaporated fuel is not taken into the engine. After the engine warms-up during ordinary driving, the PCSV opens to introduce evaporated fuel to the engine.

3. Exhaust Emission Control System

The Exhaust Emission Control System is a highly effective system which controls exhaust emissions while maintaining good vehicle performance.

When the engine starts or fails to start, excessive attempts to restart the engine may cause damage to the emission system.

Engine Exhaust (carbon monoxide) Precautions

- Carbon monoxide can be present with other exhaust fumes. If you smell exhaust fumes of any kind in your vehicle, drive with all the windows fully open. Have your vehicle checked and repaired immediately.



WARNING

Engine exhaust gases contain carbon monoxide (CO). Though colorless and odorless, it is dangerous and could be lethal if inhaled. Follow the instructions on this page to avoid CO poisoning.

- Do not operate the engine in confined or closed areas (such as garages) any more than what is necessary to move the vehicle in or out of the area.
- When the vehicle is stopped in an open area for more than a short time with the engine running, adjust the ventilation system (as needed) to draw outside air into the vehicle.
- Never sit in a parked or stopped vehicle for any extended time with the engine running.
- When the engine stalls or fails to start, excessive attempts to restart the engine may cause damage to the emission control system.

Operating Precautions for Catalytic Converters (if equipped)



WARNING

The exhaust system and catalytic converter are very hot during and immediately after the engine has been running. To avoid SERIOUS INJURY or DEATH:

- **Do not park, idle, or drive the vehicle over or near flammable objects, such as grass, vegetation, paper, leaves, etc. A hot exhaust system can ignite flammable items under your vehicle.**
- **Keep away from the exhaust system and catalytic converter or you may get burned.**

Also, Do not remove the heat sink around the exhaust system, do not seal the bottom of the vehicle, and do not coat the vehicle for corrosion control. It may present a fire risk under certain conditions.

Your vehicle is equipped with a catalytic converter emission control device. To prevent damage to the catalytic converter and to your vehicle, take the following precautions:

- Use only UNLEADED FUEL for gasoline engines.
- Do not operate the vehicle when there are signs of engine malfunction, such as misfire or a noticeable loss of performance.
- Do not misuse or abuse the engine. Examples of misuse are coasting with the hybrid system off and descending steep grades in gear with the hybrid system off.
- Do not operate the engine at high idle speed for extended periods (5 minutes or more).


- Do not modify or tamper with any part of the engine or emission control system. All inspections and adjustments are made by an authorized HYUNDAI dealer.
- Avoid driving with an extremely low fuel level.
Running out of fuel could cause the engine to misfire, damaging the catalytic converter.

Gasoline Particulate Filter (GPF) (if equipped)

The Gasoline Particulate Filter (GPF) system removes the soot in the exhaust gas.

The GPF system automatically burns (or oxidizes) the accumulated soot in accordance with driving situations, unlike a disposable air filter.

In other words, the accumulated soot is automatically purged out by the engine control system and by the high exhaust-gas temperature at normal/high driving speeds.

However, when the vehicle is continually driven at repeated short distances or driven at low speed for a long time, the accumulated soot may not be automatically removed because of low exhaust gas temperature. In this case, the accumulated soot may reach a certain amount regardless of the soot oxidization process, then the GPF lamp () will illuminate.

The Gasoline Particulate Filter (GPF) Lamp stops illuminating, when the driving speed exceeds 80 km/h (50 mph) with engine RPM 1,500 ~ 4,000 and the gear in the 3rd position or above for approximately 30 minutes.

When the GPF lamp starts to blink or the warning message “Check exhaust system” pops up even though the vehicle was driven as mentioned above, have the GPF system checked by an authorized HYUNDAI dealer.

With GPF lamp blinking for an extended period of time, it may damage the GPF system and lower the fuel economy.



CAUTION

Use only the regulated gasoline fuels, when your vehicle is equipped with the GPF system.

When you use other gasoline fuels which contain unspecified additives, they may damage the GPF system and cause exhaust emission problems.