

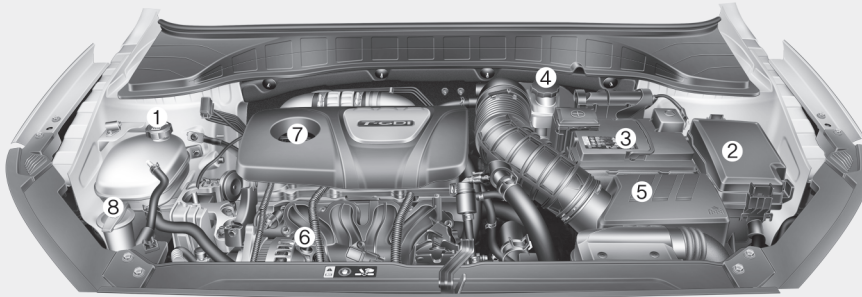
# Maintenance

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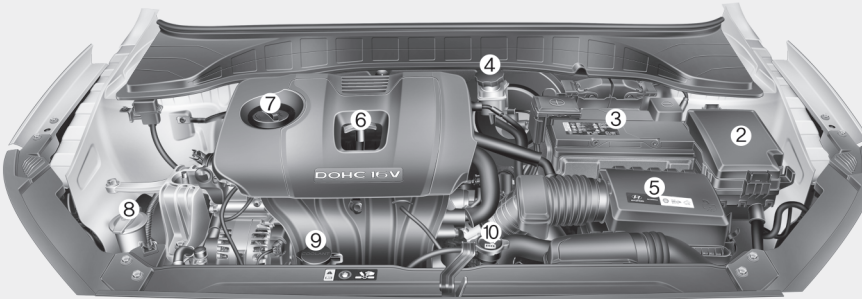
## ENGINE COMPARTMENT

### ■ Gamma 1.6 Turbo-GDI



1. Engine coolant reservoir/  
Engine coolant cap
2. Fuse box
3. Battery
4. Brake fluid reservoir
5. Air cleaner
6. Engine oil dipstick
7. Engine oil filler cap
8. Windshield washer fluid reservoir
9. Engine coolant reservoir
10. Engine coolant cap

### ■ Nu 2.0 MPI



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

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### 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.

We recommend you 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. Several procedures can be done only by an authorized HYUNDAI dealer with special tools.

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 service or maintenance procedure, have it done 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, have it done by an authorized HYUNDAI dealer.

**ALWAYS** follow these precautions for performing maintenance work:

- Park your vehicle on level ground, move the shift lever into the P (Park, for automatic transmission vehicle) position, 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.**

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

#### **WARNING**

**Be careful when checking your engine 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/ dual clutch 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 brake lights, 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:  
(i.e., 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.
- Lubricate door checker.
- 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

Follow Normal Maintenance Schedule if the vehicle is usually operated where none of the following conditions apply. If any of the following conditions apply, you must follow the Maintenance Under Severe Usage Conditions.

- Repeated short distance driving.
- Driving in dusty conditions or sandy areas.
- Extensive use of brakes.
- Driving in areas where salt or other corrosive materials are used.
- Driving on rough or muddy roads.
- Driving in mountainous areas.
- Extended periods of idling or low speed operation.
- Driving for a prolonged period in cold temperatures and/or extremely humid climates.
- More than 50% driving in heavy city traffic during hot weather above 32°C (90°F).

For additional information or assistance see your authorized HYUNDAI dealer.

## Maintenance

### Normal Maintenance Schedule (Nu 2.0 MPI)

MAINTENANCE INTERVALS	Months	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
	Km×1,000	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
Drive belts *1	At first, inspect at 96,000 km or 72 months. Thereafter, inspect every 24,000 km or 24 months															
Engine oil and engine oil filter	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Fuel additives *2	Add fuel additives every 12,000 km or 12 months															
Air cleaner filter	I	I	I	R	I	I	I	R	I	I	I	R	I	I	I	
Spark plugs	Replace every 156,000 km															
Rotate tires	Rotate tires every 12,000 km															
Climate control air filter (for evaporator and blower unit)	Replace every 24,000 km or 12 months															
Engine coolant	At first, replace at 192,000 km or 10 years : Thereafter, replace every 48,000 km or 24 month															
Vacuum hose	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Battery condition	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Brake lines, hoses and connections (including booster)	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

\*1 : The drive belt should be replaced when cracks occur or tension is reduced excessively.

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

## Normal Maintenance Schedule (Nu 2.0 MPI) (CONT)

MAINTENANCE INTERVALS	Months	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
	Km×1,000	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
Clutch (if equipped) and brake pedal free play		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Disc brakes and pads		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Steering gear rack, linkage and boots/ lower arm ball joint, upper arm ball joint		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Driveshaft and boots		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Suspension mounting bolts		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Air conditioner refrigerant		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Air conditioner compressor		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Cooling system hoses and connections		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Propeller shaft (AWD)			I		I		I		I		I		I		I	
Exhaust pipe and muffler		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Automatic transaxle fluid		No check, No service required														

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

## Normal Maintenance Schedule (Nu 2.0 MPI) (CONT)

MAINTENANCE INTERVALS	Months	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
	Km×1,000	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
Rear differential oil (AWD) * <sup>3</sup>																
Transfer case oil (AWD)* <sup>3</sup>																
Vapor hose, canister, fuel filler cap and fuel tank																
Fuel tank air filter * <sup>4</sup>																
Fuel filter * <sup>4</sup>																
Fuel lines, hoses and connections of each part																
Parking brake																
Brake fluid																
All latch, hinges and locks																

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

\*<sup>3</sup> : Transfer case oil and rear differential oil should be changed anytime they have been submerged in water.

\*<sup>4</sup> : Fuel filter & Fuel tank air filter are considered to be maintenance free but periodic inspection is recommended for this maintenance schedule depends on fuel quality. If there are some important safety matters like fuel flow restriction, surging, loss of power, hard starting problem, etc. replace the fuel filter immediately regardless of maintenance schedule and consult an authorized HYUNDAI dealer for details.

### NOTICE

**After 180,000 km or 180 months continue to follow the prescribed maintenance intervals.**

## Maintenance Under Severe Usage Conditions (Nu 2.0 MPI)

The following items must be serviced more frequently on cars normally used under severe driving conditions. Refer to the chart below for the appropriate maintenance intervals.

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

MAINTENANCE ITEM	MAINTENANCE OPERATION	MAINTENANCE INTERVALS	DRIVING CONDITION
Engine oil and filter	R	Every 6,000 km or 6 months	A, B, C, D, E, F, G, H, I, J, K
Air cleaner filter	R	More frequently	C, E
Spark plugs	R	More frequently	A, B, H, I, K
Automatic transmission fluid	R	Every 96,000 km	A, C, D, E, F, G, H, I, J
Front brake disc/pads, calipers	I	More frequently	C, D, G, H
Rear brake shoes or disc/pads	I	More frequently	C, D, G, F
Parking brake	I	More frequently	C, D, G, H

## Maintenance

MAINTENANCE ITEM	MAINTENANCE OPERATION	MAINTENANCE INTERVALS	DRIVING CONDITION
Steering gear box, linkage & boots/ lower arm ball joint, upper arm ball joint	I	More frequently	C, D, E, F, G, H, I
Drive shafts and boots	I	More frequently	C, D, E, F, G, H, I, J
Climate control air filter (for evaporator and blower unit)	R	More frequently	C, E
Propeller shaft (AWD)	I	More frequently	C, D, E, F, G, H, I, J
Transfer case oil (AWD)	R	Every 120,000 km	C, D, E, G, H, I, J
Rear differential oil (AWD)	R	Every 120,000 km	C, D, E, G, H, I, J

### Severe Driving Conditions

- A - Repeatedly driving short distances of less than 8 km in normal temperature or less than 16 km in freezing temperature
- B - Extensive engine idling or low speed driving for long distances
- C - Driving on rough, dusty, muddy, unpaved, graveled or salt-spread roads
- D - Driving in areas using salt or other corrosive materials or in very cold weather

- E - Driving in sandy areas
- F - Driving in heavy traffic area over 32°C (90°F)
- G - Driving on uphill, downhill, or mountain road
- H - Towing a Trailer, or using a camper, or roof rack
- I - Driving as a patrol car, taxi, other commercial use or vehicle towing
- J - Driving over 170 km/h (106 mph)
- K - Frequently driving in stop-and-go conditions

## Normal Maintenance Schedule (Gamma 1.6 Turbo-GDI)

MAINTENANCE INTERVALS	Months	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
	Km×1,000	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Drive belts *1	At first, inspect at 96,000 km or 72 months. Thereafter, inspect every 20,000 km or 24 months															
Engine oil and engine oil filter	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Fuel additives *2	Add fuel additives every 10,000 km or 12 months															
Air cleaner filter	I	I	I	R	I	I	I	R	I	I	I	R	I	I	I	
Spark plugs	Replace every 70,000 km															
Valve clearance *3	Inspect every 90,000 km or 72 months															
Rotate tires	Rotate tires every 10,000 km															
Climate control air filter (for evaporate and blower unit)	Replace every 20,000 km or 12 months															
Engine coolant	At first, replace at 192,000 km or 10 years : Thereafter, replace every 48,000 km or 24 month															
Intercooler, in/out hose, air intake hose	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

\*1 : The drive belt should be replaced when cracks occur or tension is reduced excessively.

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

\*3 : Inspect for excessive valve noise and/or engine vibration and adjust if necessary. Have an authorized HYUNDAI dealer perform the operation.

Normal Maintenance Schedule (Gamma 1.6 Turbo-GDI) (CONT)

MAINTENANCE INTERVALS	Months	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
	Km×1,000	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Vacuum hose		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Battery condition		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Brake lines, hoses and connections (including booster)		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Clutch (if equipped) and brake pedal free play		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Disc brakes and pads		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Steering gear rack, linkage and boots/ lower arm ball joint, upper arm ball joint		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Driveshaft and boots		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Suspension mounting bolts		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Air conditioner refrigerant		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Air conditioner compressor		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Cooling system hoses and connections		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Propeller shaft (AWD)			I		I		I		I		I		I		I	
Exhaust pipe and muffler		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Dual clutch transmission fluid					I				I				I			

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

## Normal Maintenance Schedule (Gamma 1.6 Turbo-GDI) (CONT)

MAINTENANCE INTERVALS	Months	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
	Km×1,000	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Rear differential oil (AWD) * <sup>4</sup>					I				I				I			
Transfer case oil (AWD)* <sup>4</sup>					I				I				I			
Vapor hose, canister, fuel filler cap and fuel tank			I		I			I			I		I			I
Fuel tank air filter * <sup>5</sup>			I		I			I			I		I			I
Fuel filter * <sup>5</sup>			I		I			I			I		I			I
Fuel lines, hoses and connections of each part					I				I				I			
Parking brake			I		I			I			I		I			I
Brake fluid			I		I			I			I		I			I
All latch, hinges and locks			I		I			I			I		I			I

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

\*<sup>4</sup> : Transfer case oil and rear differential oil should be changed anytime they have been submerged in water.

\*<sup>5</sup> : Fuel filter & Fuel tank air filter are considered to be maintenance free but periodic inspection is recommended for this maintenance schedule depends on fuel quality. If there are some important safety matters like fuel flow restriction, surging, loss of power, hard starting problem, etc. replace the fuel filter immediately regardless of maintenance schedule and consult an authorized HYUNDAI dealer for details.

### NOTICE

After 150,000 km or 180 months continue to follow the prescribed maintenance intervals.

### Maintenance Under Severe Usage Conditions (Gamma 1.6 Turbo-GDI)

The following items must be serviced more frequently on cars normally used under severe driving conditions. Refer to the chart below for the appropriate maintenance intervals.

I : Inspect and if necessary, adjust, correct, clean or replace.

R : Replace or change.

MAINTENANCE ITEM	MAINTENANCE OPERATION	MAINTENANCE INTERVALS	DRIVING CONDITION
Engine oil and filter	R	Every 5,000 km or 6 months	A, B, C, D, E, F, G, H, I, J, K
Air cleaner filter	R	More frequently	C, E
Spark plugs	R	More frequently	A, B, H, I, K
Dual clutch transmission fluid	R	Every 116,000 km	C, D, E, F, G, H, I, J
Front brake disc/pads, calipers	I	More frequently	C, D, G, H
Rear brake shoes or disc/pads	I	More frequently	C, D, G, F
Parking brake	I	More frequently	C, D, G, H

MAINTENANCE ITEM	MAINTENANCE OPERATION	MAINTENANCE INTERVALS	DRIVING CONDITION
Steering gear box, linkage & boots/ lower arm ball joint, upper arm ball joint	I	More frequently	C, D, E, F, G, H, I
Drive shafts and boots	I	More frequently	C, D, E, F, G, H, I, J
Climate control air filter (for evaporator and blower unit)	R	More frequently	C, E
Propeller shaft (AWD)	I	More frequently	C, D, E, F, G, H, I, J
Transfer case oil (AWD)	R	Every 120,000 km	C, D, E, G, H, I, J
Rear differential oil (AWD)	R	Every 120,000 km	C, D, E, G, H, I, J

### Severe Driving Conditions

- A - Repeatedly driving short distances of less than 8 km in normal temperature or less than 16 km in freezing temperature
- B - Extensive engine idling or low speed driving for long distances
- C - Driving on rough, dusty, muddy, unpaved, graveled or salt-spread roads
- D - Driving in areas using salt or other corrosive materials or in very cold weather

- E - Driving in sandy areas
- F - Driving in heavy traffic area over 32°C (90°F)
- G - Driving on uphill, downhill, or mountain road
- H - Towing a Trailer, or using a camper, or roof rack
- I - Driving as a patrol car, taxi, other commercial use or vehicle towing
- J - Driving over 170 km/h (106 mph)
- K - Frequently driving in stop-and-go conditions

### 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. If the vehicle is being driven in severe conditions, more frequent oil and filter changes are required.

#### Drive Belts

Inspect all drive belts for evidence of cuts, cracks, excessive wear or oil saturation and replace if necessary. Drive belts should be checked periodically for proper tension and adjusted as necessary.

#### Fuel Filter

A clogged-up fuel filter may limit the vehicle driving speed, damage the emission system, and cause the hard starting. When a considerable amount of foreign substances are accumulated in the fuel tank, the fuel filter should be replaced.

Upon installing a new fuel filter, operate the engine for several minutes, and check the connections for any leakages. Fuel filters should be installed by an authorized HYUNDAI dealer.

#### 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.

#### 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.

#### Vacuum Crankcase Ventilation Hoses (if equipped)

Inspect the surface of hoses for evidence of heat and/or mechanical damage. Hard and brittle rubber, cracking, tears, cuts, abrasions, and excessive swelling indicate deterioration. Particular attention should be paid to examine those hose surfaces nearest to high heat sources, such as the exhaust manifold.

Inspect the hose routing to ensure that the hoses do not come in contact with any heat source, sharp edges or moving component which might cause heat damage or mechanical wear. Inspect all hose connections, such as clamps and couplings, to make sure they are secure, and that no leaks are present. Hoses should be replaced immediately if there is any evidence of deterioration or damage.

### 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.

### Cooling System

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

### Engine Coolant

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

### Automatic Transmission Fluid (if equipped)

Automatic transmission fluid should not be checked under normal usage conditions. But in severe conditions, the fluid should be changed at an authorized HYUNDAI dealer in accordance to the scheduled maintenance at the beginning of this chapter.

#### NOTICE

**Automatic transmission fluid color is red when new.**

**As the vehicle is driven, the automatic transmission fluid will begin to look darker. This is a normal condition and you should not judge the need to replace the fluid based upon the changed color.**



#### CAUTION

**The use of a non-specified fluid could result in transmission malfunction and failure. Use only the specified automatic transmission fluid (refer to "Recommended Lubricants and Capacities" in chapter 8).**

### Dual Clutch Transmission Fluid (if equipped)

Inspect the dual clutch transmission fluid according to 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 3 or DOT 4 specification.

### Parking Brake

Inspect the parking brake system including the parking brake pedal and cables.

### Brake Discs, Pads, Calipers and Rotors

Check the pads for excessive wear, discs for run out and wear, and calipers for fluid leakage.

### 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 engine 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.

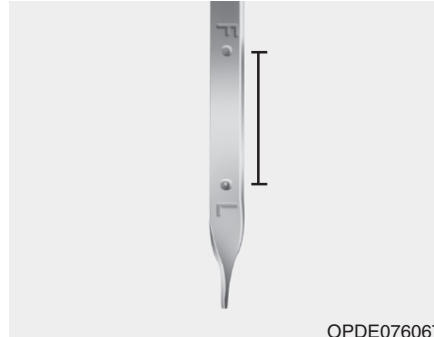
### Air Conditioning Refrigerant

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

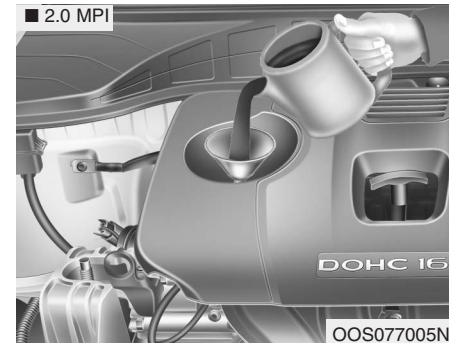
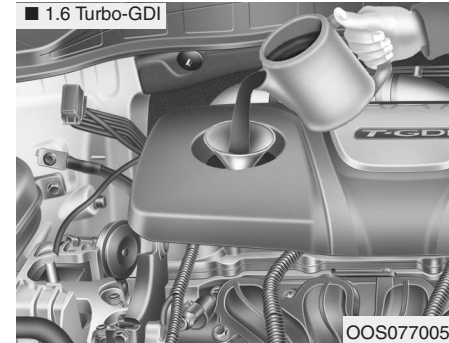
## ENGINE OIL

### Checking the Engine Oil Level

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. If possible, block the wheels.
3. Turn the engine on and allow the engine to reach normal operating temperature.
4. Turn the engine off and wait about five minutes for the oil to return to the oil pan.
5. Pull the dipstick out, wipe it clean, and re-insert it fully.



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



7. If it is near or at L, add enough oil to bring the level to F.

Use only the specified engine oil. (refer to "Recommended Lubricants and Capacities" in chapter 8).

### **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.
- Do not spill engine oil when adding or changing engine oil. Use a funnel to help prevent oil from being spilled on engine components. Wipe off spilled oil immediately.

### Checking the Engine Oil and Filter



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

### **⚠ WARNING**

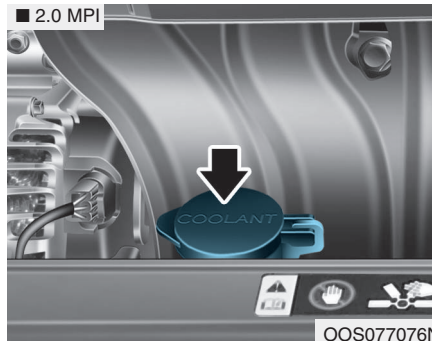
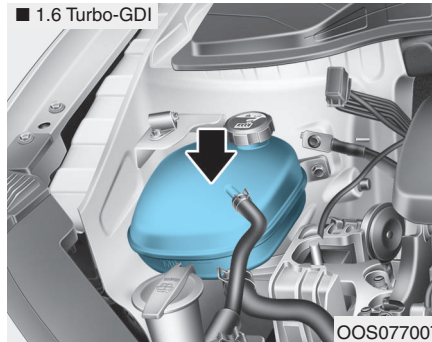
Used engine oil may cause irritation or cancer of the skin if left in contact with the skin for prolonged periods of time. Always protect your skin by washing your hands thoroughly with soap and warm water as soon as possible after handling used oil.

## ENGINE 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 Engine 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 F and the L marks on the side of the coolant reservoir when the engine is cool.

If the coolant level is low, add enough distilled (deionized) water to bring the level to the F mark, but do not overfill. If frequent additions are required, see an authorized HYUNDAI dealer for a cooling system inspection.

### **Recommended engine coolant**

- When adding coolant, use only distilled (deionized) water for your vehicle and never mix hard water in the coolant filled at the factory.
- An improper coolant mixture can result in severe malfunction or engine damage.
- The engine in your vehicle has aluminum engine parts and must be protected by an ethylene-glycol with phosphate based 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

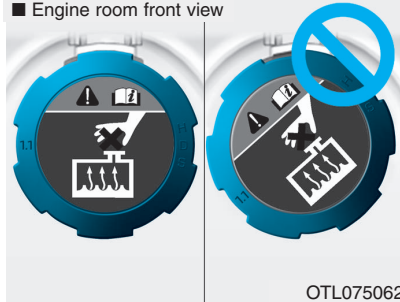
### **i** Information

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.

**⚠ WARNING**

**For 1.6 Turbo-GDI**  
**Make sure the coolant cap is properly closed after refilling coolant. Otherwise the engine could be overheated while driving.**

■ Engine room front view



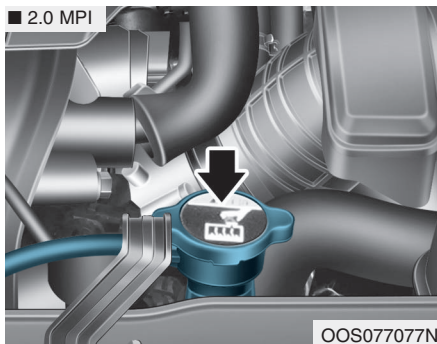
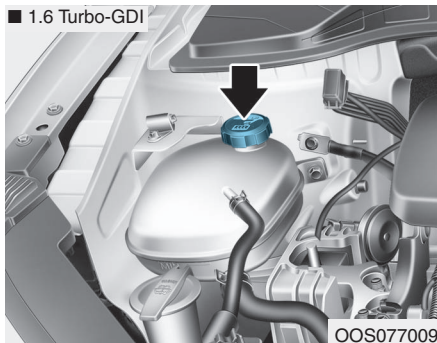
OTL075062

**1. Check if the coolant cap label is straight in front.**



OPDE076071

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



## ⚠ WARNING



Never remove the engine coolant reservoir tank/radiator 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 engine off and wait until the engine cools down. Use extreme care when removing the engine coolant reservoir tank/radiator cap. Wrap a thick towel around it, and turn it counterclockwise 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 counterclockwise to remove it.

## ⚠ 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.

The electric motor for the cooling fan is controlled by engine coolant temperature, refrigerant pressure and vehicle speed. As the engine coolant temperature decreases, the electric motor will automatically shut off. This is a normal condition. If your vehicle is equipped with GDI, the electric motor for the cooling fan may begin to operate at any time and continue to operate until you disconnect the negative battery cable.

### Changing Engine Coolant

Have coolant 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.**

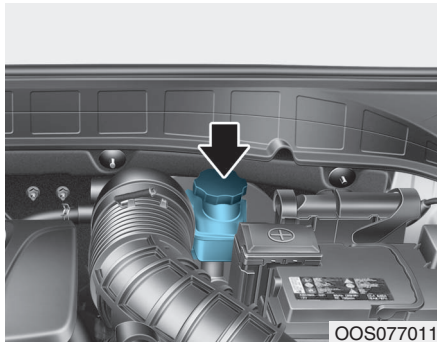
**Engine coolant may also cause damage to paint and body trim.**

#### **NOTICE**

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

## 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 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 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**

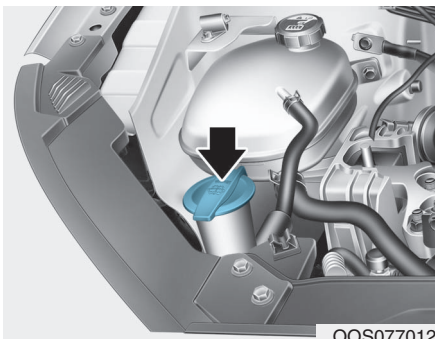
- Do not allow brake fluid to contact the vehicle's body paint, as paint damage will result.
- Brake fluid, which has been exposed to open air for an extended time should NEVER be used as its quality cannot be guaranteed. It should be disposed of properly.
- Do not use the wrong kind of brake fluid.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

#### **i Information**

Use only the specified brake fluid (refer to "Recommended Lubricants and Capacities" in chapter 8).

## 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.

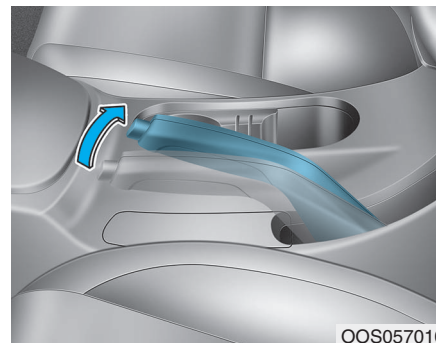
### WARNING

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 flames 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.

## PARKING BRAKE

### Checking the Parking Brake

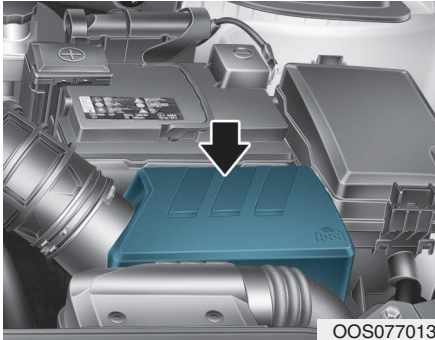


Check the stroke of the parking brake by counting the number of "clicks" heard while fully applying it from the released position. Also, the parking brake alone should securely hold the vehicle on a fairly steep grade. If the stroke is more or less than specified, have the parking brake adjusted by an authorized HYUNDAI dealer.

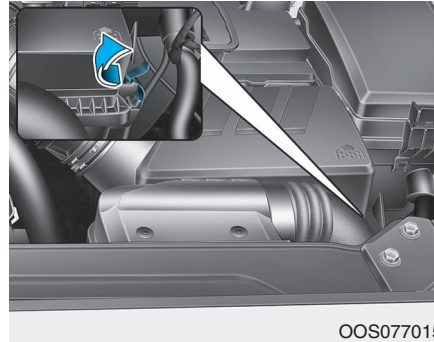
**Stroke : 5~7 clicks at a force of 20 kg (44 lbs, 196 N)**

## AIR CLEANER

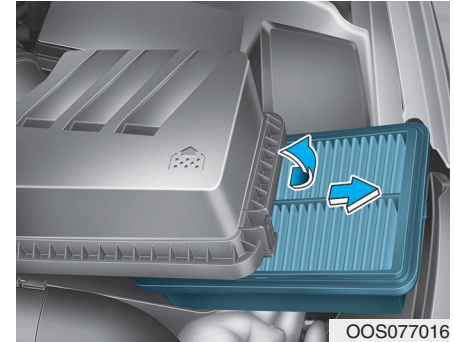
### Filter Replacement



The air cleaner filter can be cleaned for inspection using compressed air. Do not attempt to wash or to rinse it, as water will damage the filter. If soiled, the air cleaner filter must be replaced.



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.

### **i** Information

If the vehicle is operated in extremely dusty or sandy areas, replace the element more often than the usual recommended intervals (refer to "Maintenance Under Severe Usage Conditions" in this chapter).

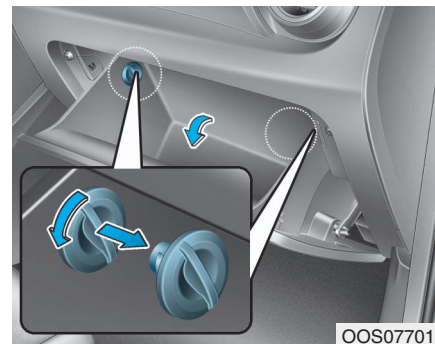
### **NOTICE**

- 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. Use of non-genuine parts could damage the air flow sensor.

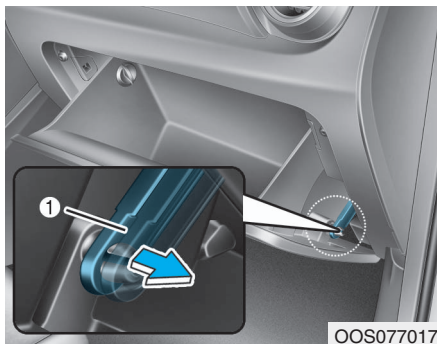
## CLIMATE CONTROL AIR FILTER

### Filter Inspection

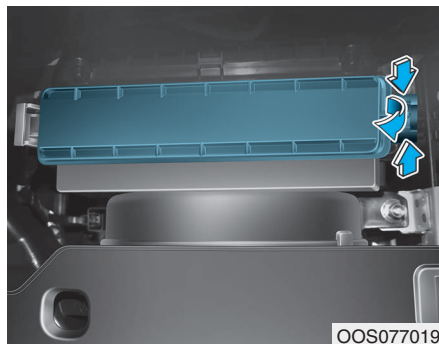
The climate control air filter should be replaced according to the Maintenance Schedule. If the vehicle is operated in severely air-polluted cities or on dusty rough roads for a long period, it should be inspected more frequently and replaced earlier. When you replace the climate control air filter, replace it performing the following procedure, and be careful to avoid damaging other components.



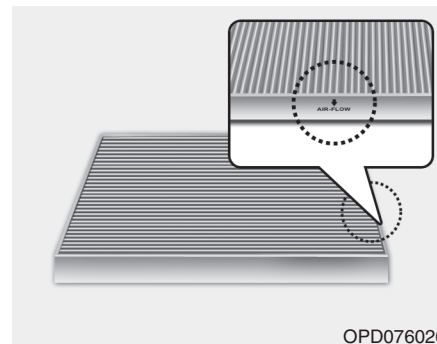
1. With the glove box open, remove the stoppers on both sides to allow the glove box to hang freely on the hinges.



2. Remove the support rod (1).



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 wiper functionality. 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 clean cloth dampened with washer fluid.

#### 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.

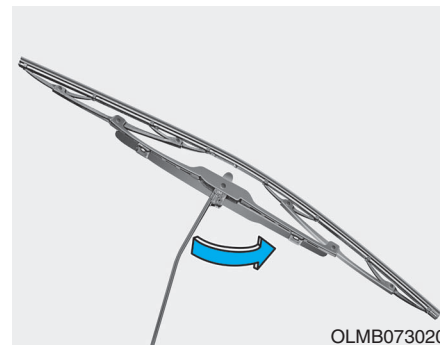
#### NOTICE

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 blade replacement

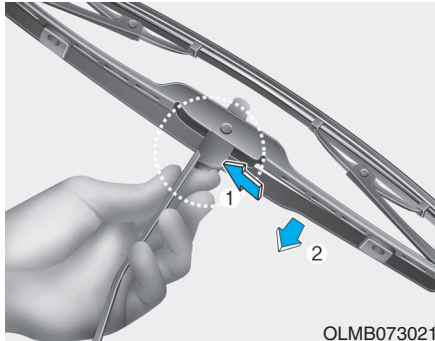


#### ■ Type A

1. Put the front windshield wipers into the service position.
2. Raise the wiper arm and slightly rotate the wiper blade assembly to expose the plastic locking clip.

#### NOTICE

Do not allow the wiper arm to fall against the windshield, since it may chip or crack the windshield.

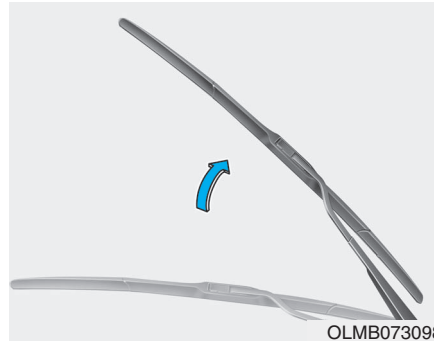


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3. Press the clip (1) and slide the blade assembly downward (2).
4. Lift it off the arm.
5. Install the blade assembly in the reverse order of removal.
6. Return the wiper arm on the windshield.



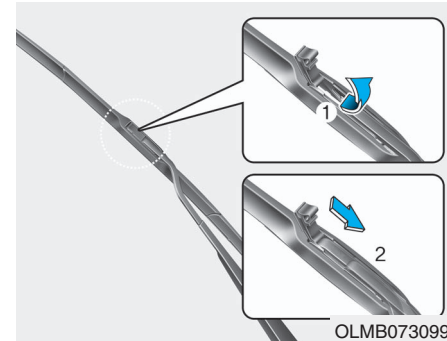
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### ■ Type B

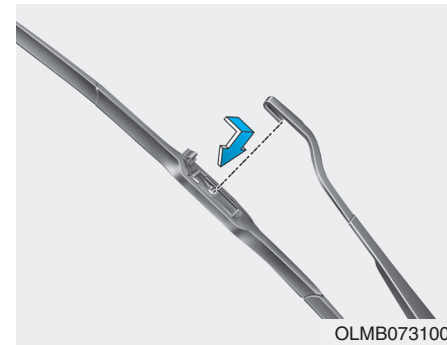
1. Raise the wiper arm.

### NOTICE

**Do not allow the wiper arm to fall against the windshield, since it may chip or crack the windshield.**



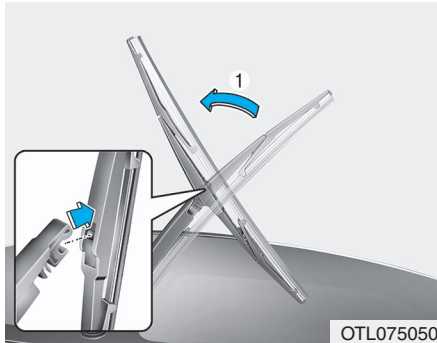
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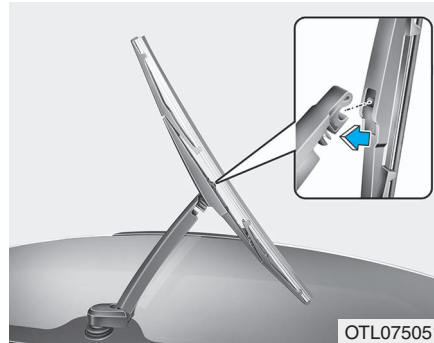
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2. Lift up the wiper blade clip (1). Then pull down the blade assembly (2) and remove it.
3. Install the new blade assembly in the reverse order of removal.
4. Return the wiper arm on the windshield.

### Rear window wiper blade replacement



1. Raise the wiper arm and pull out the wiper blade assembly.



2. Install the new blade assembly by inserting the center part into the slot in the wiper arm until it clicks into place.
3. 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 the wiper blades replaced by an authorized HYUNDAI dealer.

## BATTERY

### 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.

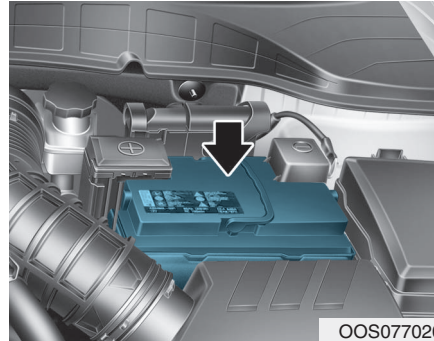
- When lifting a plastic-cased battery, excessive pressure on the case may cause battery acid to leak. Lift with a battery carrier or with your hands on opposite corners.
- Do not attempt to jump start your vehicle if your battery is frozen.

- **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 ignition switch is in the ON position.

### NOTICE

- 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.

### 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 acid from the battery immediately with a solution of water and baking soda.

### Battery Recharging

#### 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 place the ignition switch to the **LOCK/OFF** position.
- 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.

### ***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 6 for more information on jump starting procedures.

### ***i* 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 regulations.

### **Reset Features**

The following items may need to be reset after the battery has been discharged or the battery has been disconnected. See chapter 3 or 4 for:

- Power Windows
- Trip Computer
- Climate Control System
- Clock
- Audio System
- Sunroof

## TIRES AND WHEELS

### WARNING

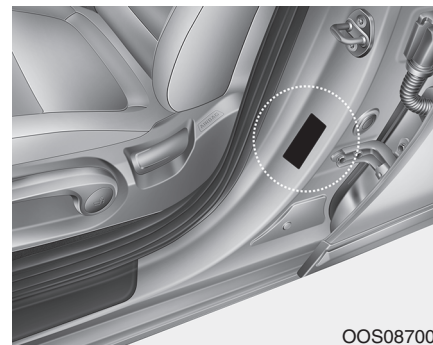
Tire failure may cause loss of vehicle control resulting in an accident. To reduce risk of **SERIOUS INJURY** or **DEATH**, take the following precautions:

- 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 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 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.



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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 has been driven for 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" in chapter 8.

### 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 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 label located on the driver's side center pillar or in this manual. 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.

A cold tire means the vehicle has been sitting for 3 hours and driven for less than 1.6 km (1 mile) in that 3 hour period.

Allow the tire to cool before measuring the inflation pressure. Always be sure the tire is cold before inflating to the recommended pressure.

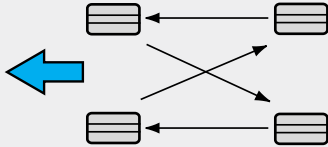
### Tire Rotation

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]).

■ Without a spare tire



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

### **i** Information

Tires that are asymmetrical or directional can only be installed on the wheel in one direction. The outside and inside of an asymmetrical tire is not easily distinguishable. Pay careful attention to the markings on the sidewalls of the tires, noting the "outside" marking and also the rotating direction before installing them on the vehicle.

### **⚠** 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.

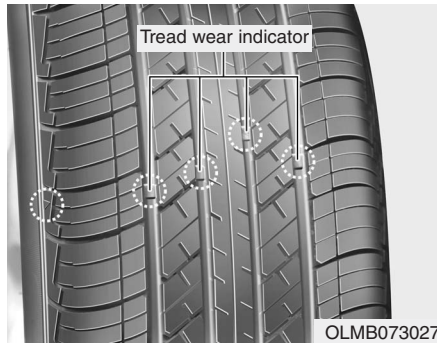
In most cases, you will not need to have your wheels aligned again. However, if you notice unusual tire wear or your vehicle pulling one way or the other, the alignment may need to be reset.

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

### **NOTICE**

Improper 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 (2/32 inch) of tread left on the tire. Replace the tire when this happens.

Do not wait for the tread surface to become level with the tread wear indicators 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.

- 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.
- When replacing tires (or wheels), it is recommended to replace the two front or two rear tires (or wheels) as a pair. Replacing just one tire can seriously affect your vehicle's handling. If only replacing one pair of tires, it is recommended to install the pair of new tires on the rear axle.
- 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**

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 the tread depth is at least 1.6 mm (2/32 inch). To reduce the possibility of losing control, slow down whenever there is rain, snow or ice on the road.

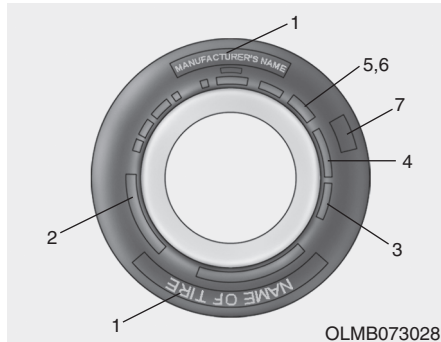
### **Tire Maintenance**

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.)

### **205/60R16 92H**

205 - Tire width in millimeters.

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

R - Tire construction code (Radial).

16 - Rim diameter in inches.

92 - 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:

### **6.5J x 16**

6.5 - Rim width in inches.

J - Rim contour designation.

16 - 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 0000**

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 1419 represents that the tire was produced in the 14th week of 2019.

### 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:

TREAD WEAR 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 ( $1\frac{1}{2}$ ) 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 straight-ahead 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 light-weight 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

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**

Because the sidewall of a low aspect ratio tire is shorter than a standard tire, the rim of the wheel and the tire itself is more easily susceptible to damage. Use caution when driving and follow the guidelines below to help minimize damage to the wheel and tire:

- When driving on a rough road or off road, drive cautiously because tires and wheels may be damaged. And after driving, inspect tires and wheels.
- When passing over a pothole, speed bump, manhole, or curb stone, drive slowly so that the tires and wheels are not damaged.
- If the tire is subjected to a severe impact, have the tire and wheel inspected by an authorized HYUNDAI dealer.
- Inspect the tire condition and pressure every 3,000 km (1,800 miles).

 **CAUTION**

- It is not easy to recognize tire damage with your own eyes. But if there is the slightest hint of tire damage, have the tire checked or replaced because the tire damage may cause air leakage from the tire.
- If the tire is damaged by driving on a rough road, off road, pothole, manhole, or curb stone, it will not be covered by the warranty.

## FUSES

### ■ Blade type



Normal



Blown

### ■ Cartridge type

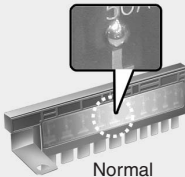


Normal

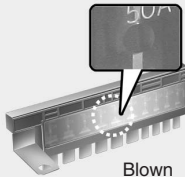


Blown

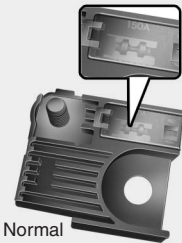
### ■ Multi fuse



Normal



Blown



Normal



Blown

OLF074075

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 near the battery.

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 immediately consult an authorized HYUNDAI dealer.

## ⚠ 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.

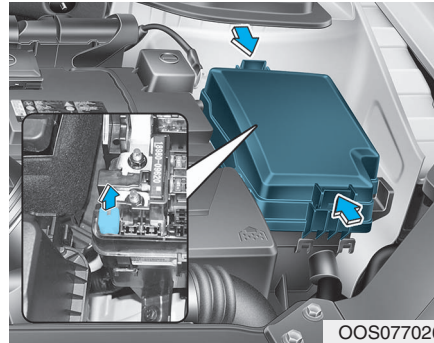
## NOTICE

**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 engine 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 fuse panel.
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.

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.

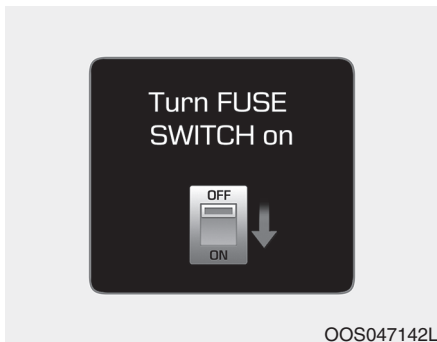
## Fuse switch



Always, place the fuse switch to the ON position.

If you move the switch to the OFF position, some items such as the audio system and digital clock must be reset and the smart key may not work properly.

## **i** Information

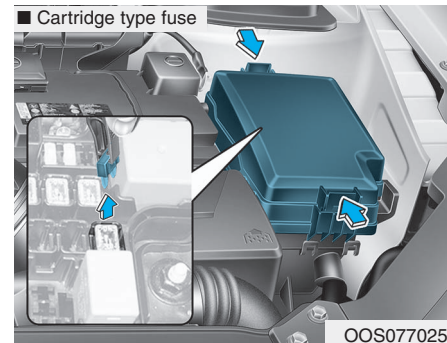
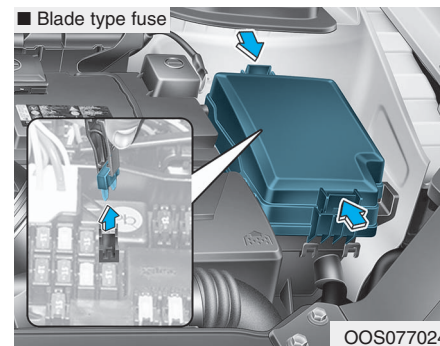


If the fuse switch is OFF, the above message will appear.

### **NOTICE**

- Always place the fuse switch in the ON position while driving the vehicle.
- Do not move the fuse switch repeatedly. The fuse switch may be damaged.

## Engine Compartment Panel Fuse Replacement



1. Turn the engine off.
2. Turn all other switches OFF.

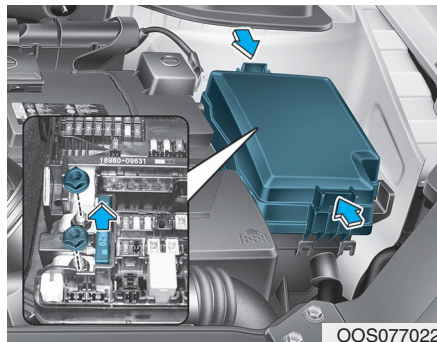
3. Remove the fuse panel cover by pressing the tap and pulling up.
4. Check the removed fuse; replace it if it is blown. To remove or insert the fuse, use the fuse puller in the engine compartment fuse panel.
5. Push in a new fuse of the same rating, and make sure it fits tightly in the clips. If it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

### CAUTION

**After checking the fuse box in the engine compartment securely close the fuse box cover inside the engine compartment, until it clicks.**

**If the fuse box is not closed properly, water may leak in side, possibly causing a malfunction with the electrical system.**

### Main fuse



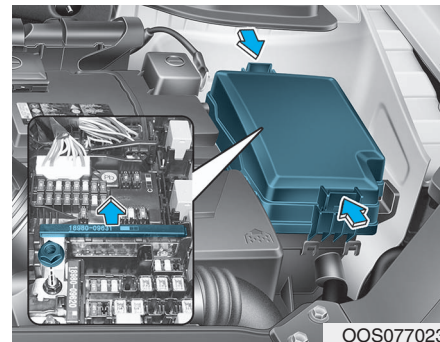
If the main fuse is blown, it must be removed as follows:

1. Turn off the engine.
2. Disconnect the negative battery cable.
3. Remove the fuse panel cover by pressing the tab and pulling it up.
4. Remove the nuts shown in the picture above.
5. Replace the fuse with a new one of the same rating.
6. Reinstall in the reverse order of removal.

### Information

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

### Multi fuse



If the multi fuse is blown, it must be removed as follows:

1. Turn off the engine.
2. Disconnect the negative battery cable.
3. Remove the fuse panel cover by pressing the tab and pulling it up.
4. Remove the nuts shown in the picture above.
5. Replace the fuse with a new one of the same rating.
6. Reinstall in the reverse order of removal.

### Information

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

## Fuse/Relay Panel Description

### Instrument panel fuse panel

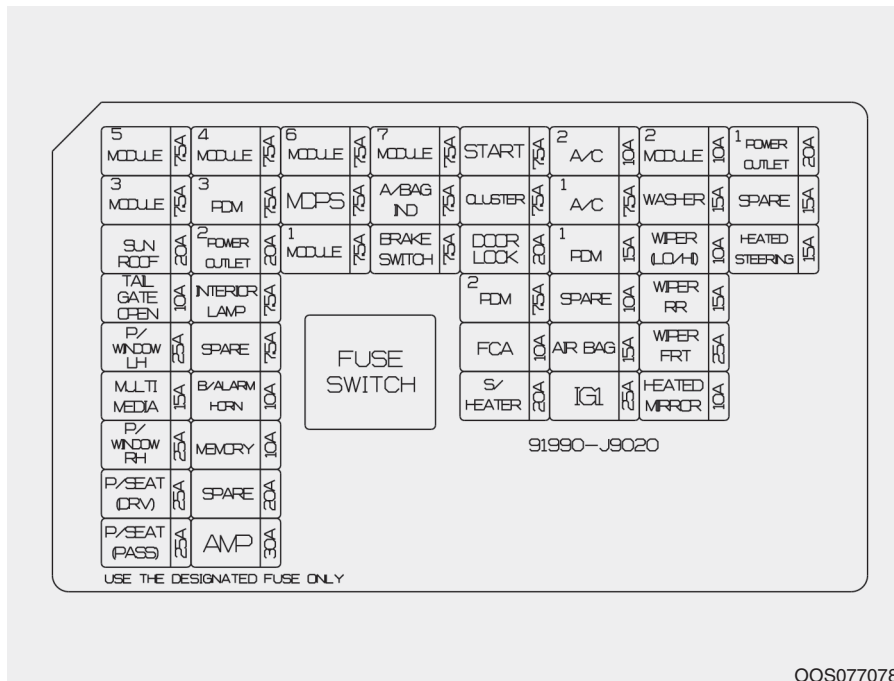


OOS077028

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.



OOS077078N

### Instrument panel fuse panel

Fuse Name	Fuse Rating	Protected Component
MODULE 5	7.5A	ATM Shift Lever IND., Electro Chromic Mirror, AMP, A/V & Navigation Head Unit, A/C Control Module, Front Air Ventilation Seat Module, Front Seat Warmer Module
MODULE 3	7.5A	Stop Lamp Switch, BCM, ATM Shift Lever
SUNROOF	20A	Sunroof Unit
TAIL GATE OPEN	10A	Tail Gate Relay
P/WINDOW LH	25A	Power Window LH Relay, Driver Safety Power Window Module
MULTI MEDIA	15A	A/V & Navigation Head Unit
P/WINDOW RH	25A	Power Window RH Relay, Passenger Safety Power Window Module
P/SEAT (DRV)	25A	Driver Seat Manual Switch
P/SEAT (PASS)	25A	Passenger Seat Manual Switch
MODULE 4	7.5A	Blind-Spot Collision Warning Unit LH/RH, Active Air Flap, BCM, Parking Distance Warning Buzzer, Lane Keeping Assist Unit (Line), 4WD ECM
PDM3	7.5A	Smart Key Control Module, Immobilizer Module
POWER OUTLET 2	20A	ICM Relay Box(Power Outlet Relay)

## Instrument panel fuse panel

Fuse Name	Fuse Rating	Protected Component
INTERIOR LAMP	7.5A	Glove Box Lamp, Vanity Lamp LH/RH, Room Lamp, Overhead Console Lamp, Wireless Charger Unit, Driver Console Switch, Luggage Lamp
B/ALARM HORN	10A	ICM Relay Box(Burglar Alarm Horn Relay)
MEMORY	10A	A/C Control Module, Head Up Display, Instrument Cluster, Electro Chromic Mirror
AMP	30A	AMP
MODULE 6	7.5A	Smart Key Control Module, BCM
MDPS	7.5A	MDPS Unit
MODULE 1	7.5A	Active Air Flap, Ignition key Interlock Switch, BCM, Hazard Switch, Data Link Connector, Rain sensor
MODULE 7	7.5A	Front Air Ventilation Seat Module, Front Seat Warmer Module
A/BAG IND	7.5A	Instrument Cluster, A/C Control Modulee
BRAKE SWITCH	7.5A	Stop Lamp Switch, Smart Key Control Module
START	7.5A	Transaxle Range Switch(A/T), ECM, ICM Relay Box(Burglar Alarm Relay)
CLUSTER	7.5A	Head Up Display, Instrument Cluster

### Instrument panel fuse panel

Fuse Name	Fuse Rating	Protected Component
DOOR LOCK	20A	Door Lock Relay, Door Unlock Relay, ICM Relay Box(Two Turn Unlock Relay)
PDM 2	7.5A	Start/Stop Button Switch, Immobilizer Module
FCA	10A	Forward Collision Avoidance Assist Unit
S/HEATER	20A	Front Seat Warmer Module, Front Air Ventilation Seat Module
A/C 2	20A	A/C Control Module, Blower Motor, Blower Resistor, E/R Junction Block (Blower Relay)
A/C 1	7.5A	A/C Control Module, E/R Junction Block(PTC Heater #2 Relay, Blower Relay, PTC Heater #1 Relay)
PDM 1	15A	Smart Key Control Module
AIR BAG	15A	SRS Control Module, Passenger Occupant Detection Sensor
IG1	25A	PCB Block(FUSE : ABS 3, ECU 5, SENSOR 4, TCU 2)
MODULE2	10A	Wireless Charger Unit, Smart Key Control Module, BCM, A/V & Navigation Head Unit, ICM Relay Box(Power Outlet Relay), Power Outside Mirror Switch, AMP
WASHER	15A	Multifunction Switch
WIPER (LO/HI)	10A	BCM, PCB Block (Front Wiper (Low) Relay), Front Wiper Motor

## Instrument panel fuse panel

Fuse Name	Fuse Rating	Protected Component
WIPER RR	15A	Rear Wiper Relay, Rear Wiper Motor
WIPER FRT	25A	Front Wiper Motor, PCB Block(Front Wiper(Low) Relay)
HEATED MIRROR	10A	Driver/Passenger Power Outside Mirror, A/C Control Module, ECM
POWER OUTLET 1	20A	Cigarette Lighter
HEATED STEERING	15A	BCM



## Engine compartment fuse panel

Fuse Name	Fuse Rating	Protected Component
ALT	150A	E/R Junction Block (Fuse - ABS 1, ABS 2, 4WD), Alternator
MDPS	80A	MDPS Unit
B+5	60A	PCB Block ((Fuse - HORN, H/LAMP HI, A/C, ECU 4, ECU 3), Engine Control Relay)
B+2	60A	IGPM ((Fuse - S/HEATER), IPS0, IPS1, IPS2)
B+3	60A	IGPM (IPS3, IPS4, IPS5, IPS6, IPS7, IPS8)
B+4	50A	IGPM (Fuse - P/WINDOW LH, P/WINDOW RH, TAIL GATE OPEN, SUNROOF, B/ALARM HORN, POWER OUTLET 2, AMP, P/SEAT (PASS),P/SEAT (DRV))
COOLING FAN	60A/50A	E/R Junction Block (Cooling Fan #2 Relay, Cooling Fan #1 Relay)
REAR HEATED	40A	E/R Junction Block (Rear Defogger Relay)
BLOWER	40A	E/R Junction Block (Blower Relay)
IG1	40A	W/O Smark Key : Ignition Switch With Smark Key : E/R Junction Block (PDM #3 (IG1) Relay, PDM #2 (ACC) Relay)
IG2	40A	W/O Smark Key : Ignition Switch, E/R Junction Block (Srart #1 Relay) With Smark Key : E/R Junction Block (PDM #4 (IG2) Relay, Srart #1 Relay)
PTC HEATER 1	50A	E/R Junction Block (PTC Heater #1 Relay)
PTC HEATER 2	50A	E/R Junction Block (PTC Heater #2 Relay)

### Engine compartment fuse panel

Fuse Name	Fuse Rating	Protected Component
TCU 1	15A	TCM
VACUUM PUMP	20A	Vacuum Pump
FUEL PUMP	20A	E/R Junction Block (Fuel Pump Relay)
B+1	40A	IGPM ((Fuse - BRAKE SWITCH, PDM 1, DOOR LOCK, MODULE 1, PDM 2), Leak Current Autocut Device)
DCT1	40A	TCM
DCT2	40A	TCM
4WD	20A	4WD ECM
ABS 1	40A	ESC Control Module, Multipurpose Check Connector
ABS 2	30A	ESC Control Module

## Engine compartment fuse panel

### ■ GAMMA 1.6L Turbo-GDI

Fuse Name	Fuse Rating	Protected Component
SENSOR 2	10A	PCB Block (A/CON Relay), E/R Junction Block (Cooling Fan #1 Relay), Purge Control Solenoid Valve, RCV Control Solenoid Valve, Oil Control Valve #1~#2, Canister Close Valve
ECU 2	10A	ECM
ECU 1	20A	ECM
INJECTOR	15A	-
SENSOR 1	15A	Oxygen Sensor (Up), Oxygen Sensor (Down)
IGN COIL	20A	Ignition Coil #1~#4
ECU 3	15A	ECM
A/C	10A	PCB Block (A/CON Relay)
ECU 5	10A	ECM
SENSOR 4	15A	Vacuum Pump
ABS 3	10A	ESC Control Module, Multipurpose Check Connector
TCU 2	15A	TCM, Transaxle Range Switch
SENSOR 3	10A	E/R Junction Block (Fuel Pump Relay)
ECU 4	15A	ECM

Fuse Name	Fuse Rating	Protected Component
H/LAMP HI	10A	PCB Block (Head Lamp(High) Relay)
HORN	15A	PCB Block (Horn Relay)

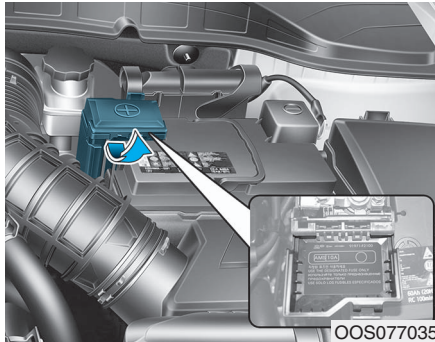
### Engine compartment fuse panel

#### ■ NU 2.0L MPI

Fuse Name	Fuse Rating	Protected Component
SENSOR 2	10A	PCB Block (A/CON Relay), E/R Junction Block (Cooling Fan #2 Relay, Cooling Fan #1 Relay), Purge Control Solenoid Valve, Electronic Thermostat, Variable Intake Solenoid Valve, Oil Control Valve #1~#3, Canister Close Valve
ECU 2	10A	-
ECU 1	20A	PCM
INJECTOR	15A	Injector #1~#4
SENSOR 1	15A	Oxygen Sensor (Up), Oxygen Sensor (Down)
IGN COIL	20A	Ignition Coil #1~#4
ECU 3	15A	PCM

Fuse Name	Fuse Rating	Protected Component
A/C	10A	PCB Block (A/CON Relay)
ECU 5	10A	PCM
SENSOR 4	15A	-
ABS 3	10A	Multipurpose Check Connector, ESC Control Module
TCU 2	15A	Transaxle Range Switch
SENSOR 3	10A	E/R Junction Block (Fuel Pump Relay)
ECU 4	15A	PCM
H/LAMP HI	10A	PCB Block (Head Lamp(High) Relay)
HORN	15A	PCB Block (Horn Relay)

### Engine compartment fuse panel (Battery terminal cover)



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 panel in your vehicle, refer to the fuse panel label.



#### **NOTICE**

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

## 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.

### **i** Information

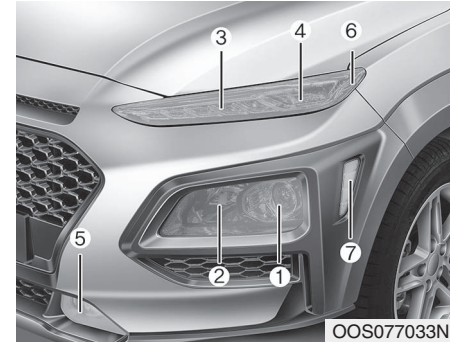
The headlamp and tail lamp lenses could appear frosty if the vehicle is washed after driving or the vehicle is driven at night in wet weather. This condition is caused by temperature difference between the lamp inside and outside and, it does not indicate a problem with your vehicle. When moisture condenses 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, we recommend that your vehicle is inspected by an authorized HYUNDAI dealer.

### **!** WARNING

- **Prior to replacing a lamp, depress the foot brake, move the shift lever into P (Park) apply the parking brake, place 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.**

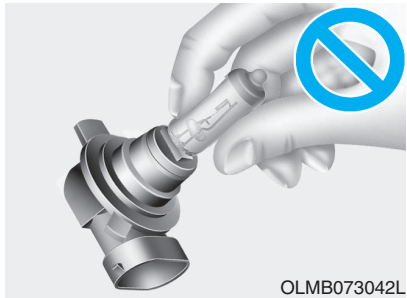
## Headlamp, Position lamp, Daytime Running Light, Turn signal lamp, Cornering lamp and Side marker

### Type A



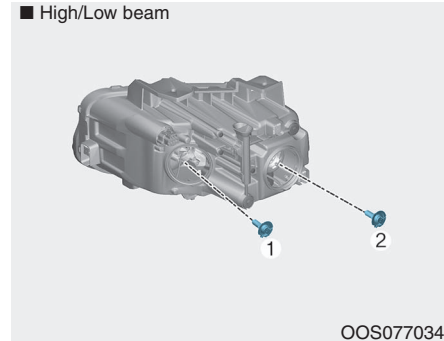
- (1) Headlamp (Low)
- (2) Headlamp (High)
- (3) Daytime running light (if equipped) /Position lamp
- (4) Turn signal lamp
- (5) Front fog lamp (if equipped)
- (6) Side marker
- (7) Side reflex reflector

### ⚠ WARNING



- Handle halogen bulbs with care. Halogen bulbs contain pressurized gas that will produce flying pieces of glass that could cause injuries if broken.
- Wear eye protection when changing a bulb. Allow the bulb to cool down before handling it.

- 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.



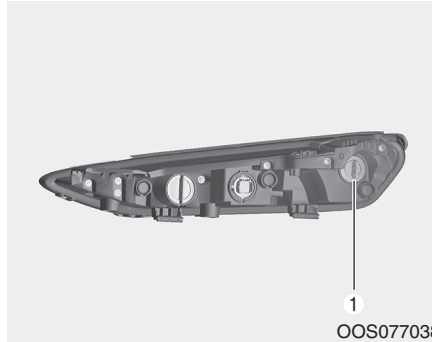
[1] : High beam, [2] : Low beam

1. Open the hood.
2. Disconnect the negative battery cable.
3. Remove the headlamp bulb cover by turning it counterclockwise.
4. Disconnect the headlamp bulb socket-connector.

5. Remove the bulb from the headlamp assembly.
6. Install a new headlamp bulb and snap the headlamp bulb retaining wire into position by aligning the wire with the groove on the bulb.
7. Connect the headlamp bulb socket-connector.
8. Install the headlamp bulb cover by turning it clockwise.

### **i** Information

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



#### Turn signal

1. Open the hood.
2. Disconnect the negative battery cable.
3. Remove the socket (1) from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.
4. 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.

5. Install a new bulb by inserting it into the socket and rotating it until it locks into place.
6. Install the socket in the assembly by aligning the tabs on the socket with the slots in the assembly.
7. Push the socket into the assembly and turn the socket clockwise.

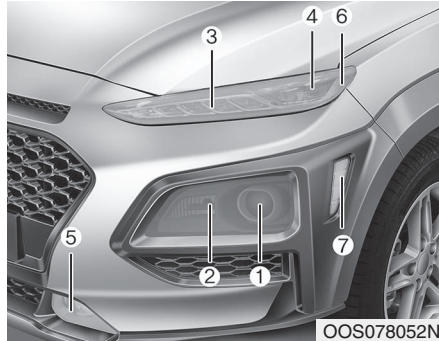
#### Position lamp and daytime running light

Your vehicle is equipped with LED lamps. LED lamps do not have replaceable bulbs. If the LED lamp does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

#### Side marker

If the light bulb does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

### Type B



- (1) Headlamp (Low/High)
- (2) Cornering light
- (3) Daytime running light (if equipped) /Position lamp
- (4) Turn signal lamp
- (5) Front fog lamp (if equipped)
- (6) Side marker
- (7) Side reflex reflector

**! WARNING**

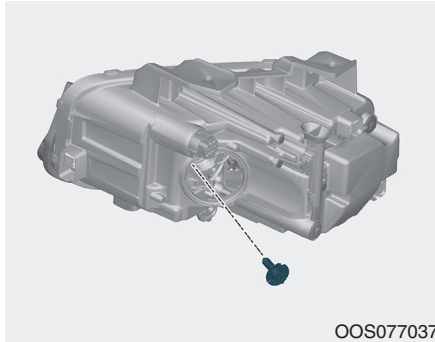
OLMB073042L

- **Handle halogen bulbs with care. Halogen bulbs contain pressurized gas that will produce flying pieces of glass that could cause injuries if broken.**
- **Wear eye protection when changing a bulb. Allow the bulb to cool down before handling it.**

- 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.

### Headlamp

Your vehicle is equipped with LED lamps. LED lamps do not have replaceable bulbs. If the LED lamp does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

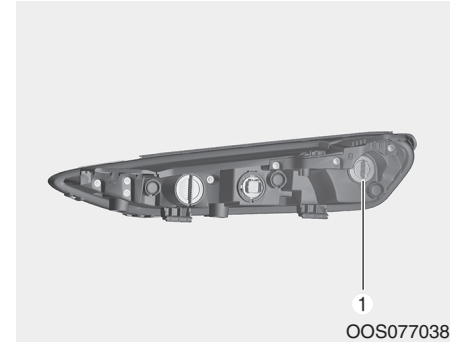


### Cornering Lamp

1. Open the hood.
2. Disconnect the negative battery cable.
3. Remove the socket from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.
4. 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.

5. Insert a new bulb by inserting it into the socket and rotating it until it locks into place.
6. Install the socket in the assembly by aligning the tabs on the socket with the slots in the assembly.
7. Push the socket into the assembly and turn the socket clockwise.



### Turn signal

1. Open the hood.
2. Disconnect the negative battery cable.
3. Remove the socket (1) from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.
4. 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.

5. Install a new bulb by inserting it into the socket and rotating it until it locks into place.
6. Install the socket in the assembly by aligning the tabs on the socket with the slots in the assembly.
7. Push the socket into the assembly and turn the socket clockwise.

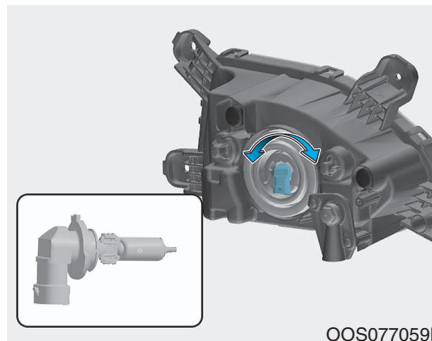
### Position lamp and daytime running light

Your vehicle is equipped with LED lamps. LED lamps do not have replaceable bulbs. If the LED lamp does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

### Side marker

If the light bulb does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

### Front fog lamp (if equipped)



1. Loosen the pin-type retainers of the under cover and then remove the undercover.
2. Reach your hand into the back of the front bumper.
3. Disconnect the power connector from the socket.
4. Remove the bulb-socket from the housing by turning the socket counterclockwise until the tabs on the socket align with the slots of the housing.

5. Install a new bulb-socket into the housing by aligning the tabs on the socket with the slots in the housing. Push the socket into the housing and turn the socket clockwise.

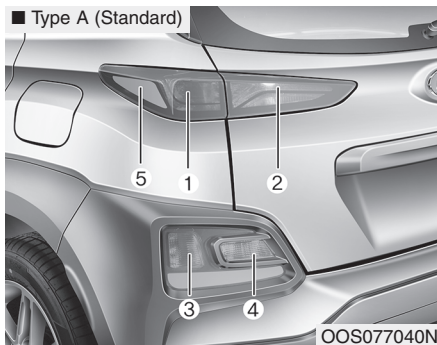
### Side Repeater Lamp Replacement



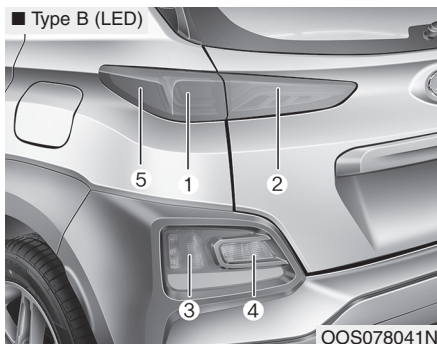
If the light bulb does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

## Rear Combination Light Bulb Replacement

### ■ Type A (Standard)

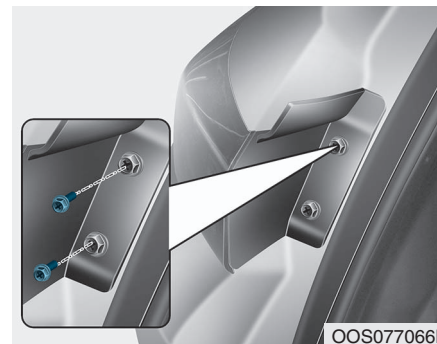


### ■ Type B (LED)



- (1) Stop/Tail lamp
- (2) Tail lamp (Type A),  
Stop/Tail lamp (Type B)

- (3) Turn signal lamp
- (4) Backup lamp
- (5) Side marker



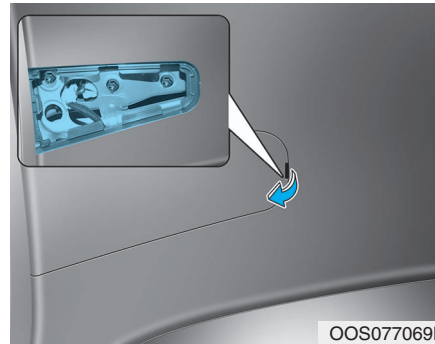
### Stop/Tail lamp

1. Open the tailgate.
2. Open the lamp assembly retaining screw covers.
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 (Type A)

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.

### Tail / Stop lamp (Type B)

Your vehicle is equipped with LED lamps. LED lamps do not have replaceable bulbs. If the LED lamp does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

### Turn signal lamp / Back up lamp

If the light bulb does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

### Side marker

Your vehicle is equipped with LED lamps. LED lamps do not have replaceable bulbs. If the LED lamp does not operate, have the vehicle checked by an authorized HYUNDAI dealer.

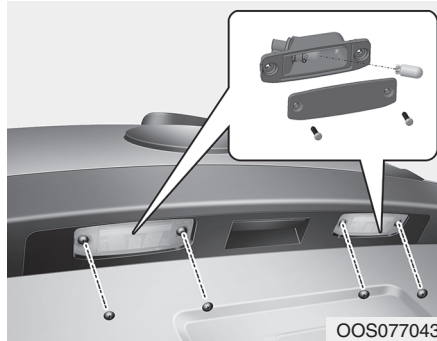
## High Mounted Stop Lamp Replacement



1. Open the tailgate.
2. Gently remove the cover of the tailgate trim.
3. Remove the spoiler plug hole.
4. Disconnect the connector and remove the washer hose and the plug holes.
5. Remove the mounting nuts.
6. Remove the rear spoiler assembly.

7. Remove the high mounted stop lamp after removing the mounting nuts.
8. Install a new lamp
9. Reinstall the rear spoiler and the tailgate upper trim in the reverse order.

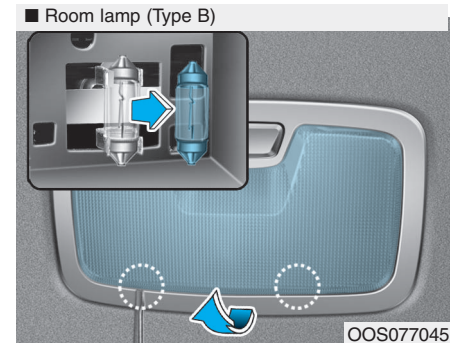
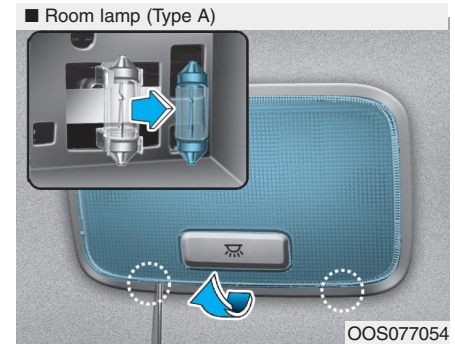
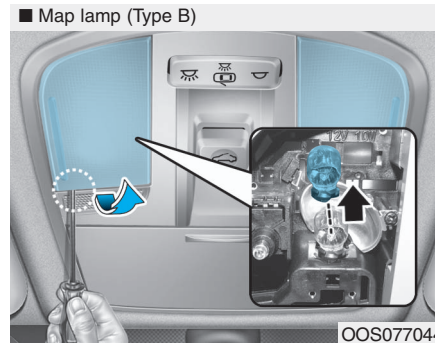
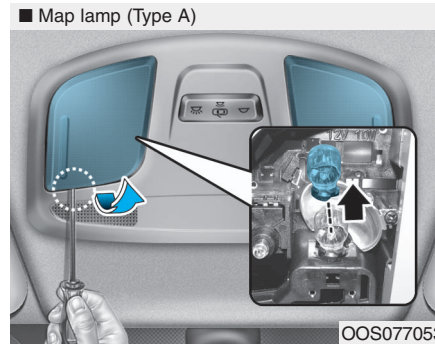
## License Plate Light Bulb Replacement

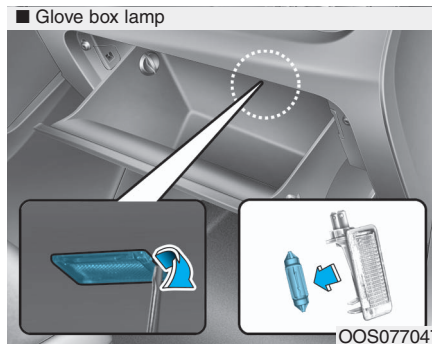
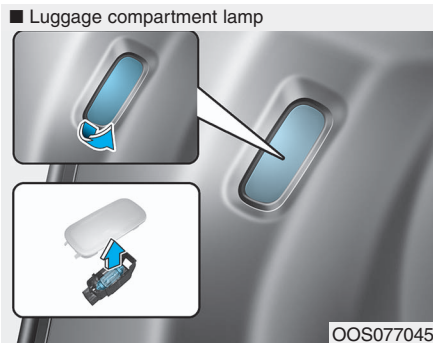
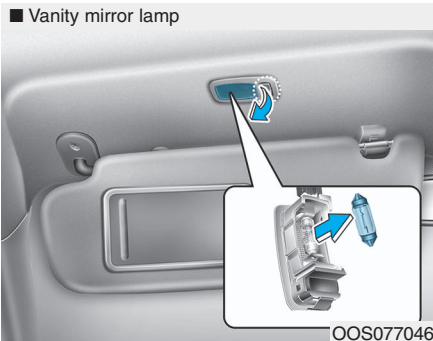


1. Using a flat-blade screwdriver, gently pry the lens cover from the lamp housing.
2. Remove the bulb by pulling it straight out.
3. Install a new bulb.
4. Reinstall in the reverse order.

## Interior Light Bulb Replacement

*Map lamp, Room lamp, Vanity mirror lamp, Luggage compartment lamp and Glove box lamp*





1. Using a flat-blade screwdriver, gently pry the lens from the interior lamp housing.
2. Remove the bulb by pulling it straight out.

**⚠ WARNING**

Prior to working on the Interior Lights, ensure that the "OFF" button is depressed to avoid burning your fingers or receiving an electric shock.

3. Install a new bulb in the socket.
4. Align the lens tabs with the interior lamp housing notches and snap the lens into place.

**NOTICE**

Use care not to dirty or damage lens, lens tab, and plastic housings.

### APPEARANCE CARE

#### Exterior Care

##### *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.

##### *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.
- Do not use any high-pressure nozzles, which induce either one-direct water stream or water swirling.

##### *Protecting your vehicle's finish*

###### 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.

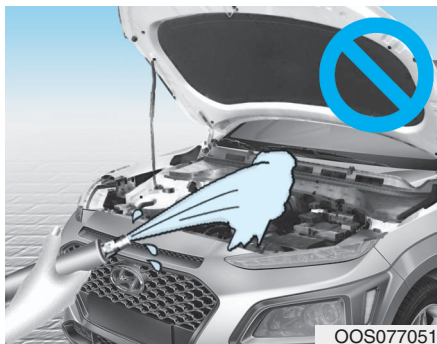
After washing, rinse the vehicle thoroughly with lukewarm or cold water. Do not allow soap to dry on the finish.

#### 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.**



#### 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 (e.g. 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 provides a barrier between your paint and environmental contamination.

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.**

### **Repairing your vehicle's finish**

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, we recommend that you 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 bright-metal 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 car 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 the 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.

#### CAUTION

- **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 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, it is recommended that you 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 Including Onboard Refueling Vapor Recovery (ORVR)

The Evaporative Emission Control System is designed to prevent fuel vapors from escaping into the atmosphere. The ORVR system is designed to allow the vapors from the fuel tank to be loaded into a canister while refueling at the gas station, preventing the escape of fuel vapors 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 engine off and descending steep grades in gear with the engine 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 must be made by an authorized HYUNDAI dealer.
- Avoid driving with extremely low fuel level. If you run out of gasoline, it could cause the engine to misfire and result in excessive loading of the catalytic converter.