

<b>Engine compartment</b> .....	<b>8-4</b>
<b>Maintenance services</b> .....	<b>8-6</b>
<b>Owner maintenance</b> .....	<b>8-7</b>
<b>Scheduled maintenance service</b> .....	<b>8-9</b>
<b>Explanation of scheduled maintenance items</b> .....	<b>8-14</b>
<b>Engine oil and filter</b> .....	<b>8-17</b>
• Checking the engine oil level.....	8-17
• Changing the engine oil and filter.....	8-18
<b>Engine coolant</b> .....	<b>8-19</b>
• Checking the coolant level.....	8-20
• Changing the coolant.....	8-21
<b>Brake/clutch fluid</b> .....	<b>8-22</b>
• Checking the brake/clutch fluid level.....	8-22
<b>Washer fluid</b> .....	<b>8-23</b>
• Checking the washer fluid level.....	8-23
<b>Parking brake</b> .....	<b>8-24</b>
• Checking the parking brake.....	8-24
<b>Air cleaner filter</b> .....	<b>8-25</b>
• Replacing air cleaner filter.....	8-25
<b>Climate control air filter</b> .....	<b>8-26</b>
• Inspecting and replacing climate control air filter.....	8-26
<b>Wiper blades</b> .....	<b>8-27</b>
• Replacing front windscreen wiper blade.....	8-28
• Replacing rear window wiper blade.....	8-28
<b>Battery</b> .....	<b>8-29</b>
<b>Tyres and wheels</b> .....	<b>8-32</b>
• Checking tyre inflation pressure.....	8-33
• Tyre rotation.....	8-34

# 8 Maintenance

• Wheel alignment and tyre balance .....	8-34
• Tyre replacement.....	8-34
• Compact spare tyre replacement.....	8-35
• Wheel replacement.....	8-35
• Tyre traction.....	8-35
• Tyre maintenance.....	8-36
• Tyre sidewall labeling.....	8-36
• Tyre terminology and definitions.....	8-38
• All season tyres.....	8-40
• Summer tyres.....	8-40
• Snow tyres.....	8-41
• Tyre chains.....	8-41
• Radial-ply tyres.....	8-41
<b>Fuses.....</b>	<b>8-42</b>
• Replacing inner panel fuse.....	8-44
• Replacing engine compartment fuse.....	8-45
<b>Light bulbs.....</b>	<b>8-53</b>
• Headlamp bulb.....	8-56
• Replacing headlamp (low/high)/turn signal lamp/position lamp (bulb type) (headlamp type A).....	8-57
• Replacing headlamp (low/high)/turn signal lamp/position lamp/daytime running lamp bulb (LED type) (headlamp type B).....	8-57
• Replacing front fog lamp (bulb type).....	8-58
• Replacing rear fog lamp (bulb type).....	8-58
• Replacing side direction indicator lamp bulb (bulb type).....	8-59
• Replacing side repeater lamp (LED Type) bulb.....	8-59
• Replacing rear turn signal lamp/tail and stop lamp bulb (bulb type) (rear combination lamp type A, B).....	8-59
• Replacing tail lamp/back up lamp bulb (bulb type).....	8-60
• Replacing tail lamp/tail and stop lamp (LED type) (rear combination lamp type B).....	8-61

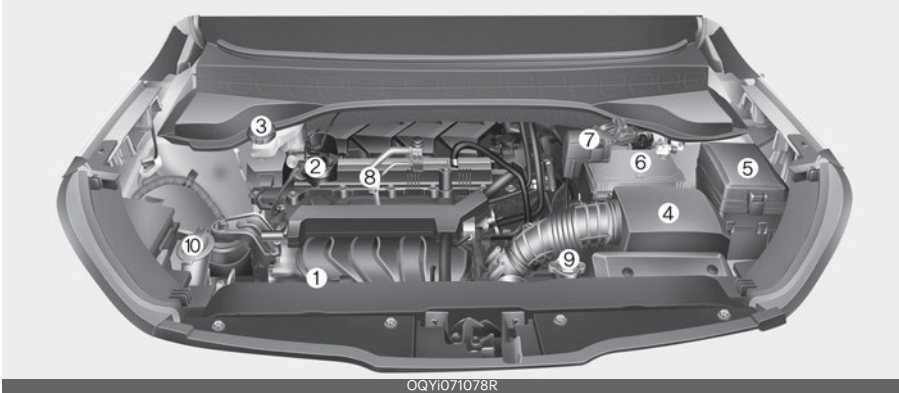
- Replacing high mounted stop lamp bulb (bulb type)..... 8-61
- Replacing license plate lamp bulb (bulb type).....8-62
- Replacing map lamp bulb (bulb type) .....8-62
- Replacing room lamp bulb (bulb type) .....8-63
- Replacing luggage room lamp bulb (bulb type) .....8-63
- Appearance care..... 8-64**
- Exterior care ..... 8-64
- Interior care ..... 8-68
- Emission control system ..... 8-70**
- 1. Crankcase emission control system ..... 8-70
- 2. Evaporative emission control (including Onboard Refuelling Vapor Recovery (ORVR)) system ..... 8-71
- 3. Exhaust emission control system..... 8-71
- 4. Self Regeneration Mode .....8-73

## Maintenance

### Engine compartment

Open the bonnet to see the engine compartment.

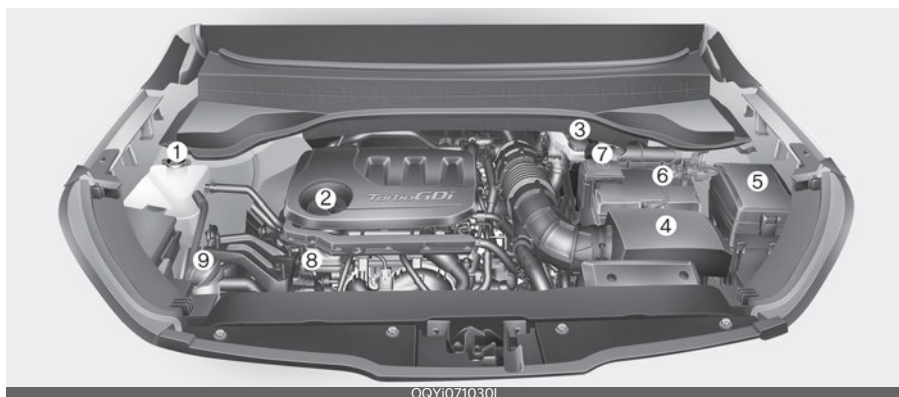
Smartstream G1.5



\* The actual engine room in the vehicle may differ from the illustration.

- 1 Engine coolant reservoir
- 2 Engine oil filler cap
- 3 Brake/clutch fluid reservoir
- 4 Air cleaner
- 5 Engine room fuse block
- 6 Negative battery terminal
- 7 Positive battery terminal
- 8 Engine oil dipstick
- 9 Engine coolant reservoir cap
- 10 Windscreen washer fluid reservoir

(petrol) 1.0 T-GDI



\* The actual engine room in the vehicle may differ from the illustration.

- 1 Engine coolant reservoir
- 2 Engine oil filler cap
- 3 Brake/clutch fluid reservoir
- 4 Air cleaner
- 5 Engine room fuse block
- 6 Negative battery terminal
- 7 Positive battery terminal
- 8 Engine oil dipstick
- 9 windscreen washer fluid reservoir

## 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.

Should you have any doubts concerning the inspection or servicing of your vehicle, we strongly recommend that you have an authorised Kia dealer perform this work.

An authorised Kia dealer has factory-trained technicians and genuine Kia parts to service your vehicle properly. For expert advice and quality service, see an authorised Kia dealer/service partner.

Inadequate, incomplete or insufficient servicing may result in operational problems with your vehicle that could lead to vehicle damage, an accident, or personal injury.

### Owner's responsibility

#### \* NOTICE

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 Warranty & Consumer Information manual.

Repairs and adjustments required as a result of improper maintenance or a lack

of required maintenance are not covered.

We recommend you have your vehicle maintained and repaired by an authorised Kia dealer/service partner. Authorised Kia dealers meet Kia's high service quality standards and receive technical support from Kia in order to provide you with a high level of service satisfaction.

### Owner maintenance precautions

Improper or incomplete service may result in problems. This section gives instructions only for the maintenance items that are easy to perform.

As explained earlier in this section, several procedures can be done only by an authorised Kia dealer with special tools.

#### \* NOTICE

Improper owner maintenance during the warranty period may affect warranty coverage. For details, read the separate Warranty & Consumer Information manual provided with the vehicle. If you're unsure about any servicing or maintenance procedure, we recommend that the system be serviced by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

#### ⚠ WARNING

##### Maintenance work

Do not wear jewelry or loose clothing whilst working under the bonnet of your vehicle with the engine running. These items can become entangled in moving parts, if you must run the engine whilst working under the bonnet, make certain that you remove all jewelry (especially rings, bracelets, watches, and necklaces) and all neckties, scarves, and similar

loose clothing before getting near cooling fans.

### **WARNING**

#### **Touching metal parts**

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

## **Owner maintenance**

The following lists detail the vehicle checks and inspections that should be performed by the owner or an authorised Kia dealer. They should be performed at the indicated frequencies to help ensure the safe and dependable operation of your vehicle.

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

These owner maintenance checks are generally not covered by warranties and you may be charged for labour, parts and lubricants used.

### **When you stop for fuel:**

- Check the coolant level in coolant reservoir.
- Check the windscreen washer fluid level.
- Look for low or under-inflated tyres. Check if the front of the radiator and condenser are clean and not blocked with leaves, dirt or insects etc. If any of the above parts are extremely dirty or you are not sure of their condition, we recommend that you contact a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### **WARNING**

#### **Hot coolant**

Be careful when checking your engine coolant level when the engine is hot. Scalding hot coolant and steam may blow out under pressure.

**Whilst operating your vehicle:**

- Check for vibrations in the steering wheel. Notice 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 travelling 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 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 the coolant level in the coolant reservoir.
- Check the operation of all exterior lights, including the stoplights, turn signals and hazard warning flashers.
- Check the inflation pressures of all tyres including the spare for tyres 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 Fall):**

- Check the radiator, heater and air conditioning hoses for leaks or damage.
- Check the windscreen washer spray and wiper operation. Clean the wiper blades with clean cloth dampened with washer fluid.
- Check the headlight alignment.
- Check the lap/shoulder belts for wear and function.

**At least once a year:**

- Clean the body and door drain holes.
- Lubricate the door hinges and check the bonnet hinges.
- Lubricate the door and bonnet locks and latches.
- Lubricate the door rubber weatherstrips.
- Check the air conditioning system.
- Clean the battery and terminals.
- Check the brake fluid level.
- Visually inspect steering, suspension, and chassis components for damaged, loose, or missing parts or signs of wear.



## Scheduled maintenance service

Follow the Normal maintenance schedule if the vehicle is usually operated where none of the following conditions apply.

Follow the Maintenance Under Severe Usage Conditions if any of the following conditions apply.

- Repeated driving short distance of less than 8 km in normal temperature or less than 16 km in freezing temperature.
- Extensive engine idling or low speed driving for long distances.
- Driving on rough, dusty, muddy, unpaved, graveled or salt-spread roads.
- Driving in areas using salt or other corrosive materials or in very cold weather.
- Driving in heavy dust condition.
- Driving in heavy traffic area.
- Driving on uphill, downhill, or mountain road repeatedly.
- Using for towing or camping and driving with loading on the roof.
- Driving as a patrol car, taxi, other commercial use of vehicle towing.
- Frequently driving under high speed or rapid acceleration/deceleration.
- Frequently driving in stop-and-go condition.
- Engine oil usage which is not recommended (Mineral type, Semi-synthetic, Lower grade spec, etc.)

If your vehicle is operated in any of the prior listed conditions, you should inspect, replace or refill more frequently, using the severe usage maintenance

schedule instead of the normal usage maintenance schedule.

### Normal maintenance schedule

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

NO.	ITEM	REMARK
*1	Engine oil and engine oil filter	<ul style="list-style-type: none"> <li>As it is normal for engine oil to be consumed during driving, the engine oil level should be checked on regular basis.</li> <li>The engine oil change interval for normal operating conditions is based on the use of the recommended engine specification. If the recommended engine oil specification is not used, then replace the engine oil according to the maintenance schedule under severe operating conditions.</li> </ul>
*2	Coolant (Engine)	When adding coolant, use only deionized water or soft water for your vehicle and never mix hard water in the coolant filled at the factory. An improper coolant mixture can result in serious malfunction or engine damage.
*3	Drive belts (Engine)	<ul style="list-style-type: none"> <li>Adjust alternator, water pump and air conditioner (if equipped) drive belt. Inspect and if necessary repair or replace.</li> <li>Inspect drive belt tensioner, idler and alternator pulley and if necessary correct or replace.</li> </ul>
*4	Valve clearance	Inspect for excessive valve noise and/or engine vibration and adjust if necessary. In this case, have the system checked by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.
*5	Spark plug	For your convenience, it can be replaced prior to it's interval when you do maintenance of other items.
*6	Manual transmission fluid/ Dual clutch transmission (DCT) fluid	Manual transmission fluid or Dual clutch transmission (DCT) fluid should be changed anytime it has been submerged in water.
*7	Fuel additives	<p>Kia recommends that you use unleaded petrol (petrol) which has an Octane Rating of RON (Research Octane Number) 92/AKI (Anti-Knock Index) 87 or higher.</p> <p>For customers who do not use good quality petrols (petrols) including fuel additives regularly, and have problems starting or the engine does not run smoothly, one bottle of additives should be added to the fuel tank when the engine oil is replaced.</p> <p>Additives are available from your authorised Kia dealer along with information on how to use them. Do not mix other additives.</p>

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

R: Replace or change

		Number of months or driving distance, whichever comes first								
		12	24	36	48	60	72	84	96	
		Months	12	24	36	48	60	72	84	
		Miles X 1,000	10	20	30	40	50	60	70	
		Km X 1,000	15	30	45	60	75	90	105	
Engine oil and engine oil filter <sup>1</sup>	Smartstream G1.5	Except Middle East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Brazil, Mexico	R	R	R	R	R	R	R	
		For Middle East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Brazil	Replace every 10,000 km (6,500 miles) or 12 months							
		For Mexico	Replace every 10,000 km (6,500 miles) or 6 months							
	(Petrol) 1.0 T-GDI	Except Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Mexico	R	R	R	R	R	R	R	R
		For Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America	Replace every 10,000 km (6,500 miles) or 12 months							
		For Mexico	Replace every 10,000 km (6,500 miles) or 6 months							
Coolant (Engine) <sup>2</sup>		At first, replace at 180,000 km (120,000 miles) or 120 months After that, replace every 30,000 km (20,000 miles) or 24 months								
Drive belts (Engine) <sup>3</sup>	Smartstream G1.5	-	I	-	I	-	I	-	I	
	(Petrol) 1.0 T-GDI									
Valve clearance <sup>4</sup>	(Petrol) 1.0 T-GDI	Inspect every 90,000 km (60,000 miles) or 72 months								
Vacuum hoses and crankcase ventilation hoses		-	I	-	I	-	I	-	I	
Spark plugs <sup>5</sup>	Smartstream G1.5	Replace every 150,000 km (100,000 miles)								
	(Petrol) 1.0 T-GDI	Replace every 70,000 km (45,500 miles)								
Manual transmission (MT) fluid <sup>6</sup>	Smartstream G1.5	No check, No service required								
Dual clutch transmission (DCT) fluid <sup>6</sup>	(Petrol) 1.0 T-GDI	No check, No service required								
Intelligent Variable Transmission (IVT) fluid	Smartstream G1.5	No check, No service required								
Drive shaft and boots		-	I	-	I	-	I	-	I	
Fuel additives <sup>7</sup>	(Petrol) 1.0 T-GDI	Except Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Mexico	Add every 15,000 km (10,000 miles) or 12 months							
		For Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America	Add every 10,000 km (6,500 miles) or 12 months							
		For Mexico	Add every 10,000 km (6,500 miles) or 6 months							

Number of months or driving distance, whichever comes first										
Months		12	24	36	48	60	72	84	96	
Miles X 1,000		10	20	30	40	50	60	70	80	
Km X 1,000		15	30	45	60	75	90	105	120	
Fuel lines, hoses and connections		-	-	-		-	-	-		
Fuel tank air filter		Except China		-		-	R	-		
		For China				R			R	
Fuel filter		For China, Brazil		-		-	R	-		
Vapor hose and fuel filler cap		-	-	-		-	-	-		
Intercooler, in/out hose, air intake hose	(Petrol) 1.0 T-GDI	Except Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Mexico								
		For Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America		Inspect every 10,000 km (6,500 miles) or 12 months						
		For Mexico		Inspect every 10,000 km (6,500 miles) or 6 months						
Air cleaner filter		Except China, India, Middle East				R			R	
		For China, India, Middle East		R	R	R	R	R	R	
Exhaust system		-		-		-		-		
Cooling system										
Air conditioner compressor/refrigerant										
Climate control air filter		R	R	R	R	R	R	R	R	
Brake discs, pads and calipers		-		-		-		-		
Drum brakes and linings		-		-		-		-		
Brake lines, hoses and connections		-		-		-		-		
Brake/clutch fluid				R			R			
Parking brake (Hand type)		-		-		-		-		
Steering gear rack, linkage and boots										
Suspension ball joints										
Tyre (pressure & tread wear)										
Battery condition		Except Middle East		-		-		-		
		For Middle East		Inspect every 10,000 km (6,500 miles) or 6 months						
UAE eCall system battery (if equipped)		Replace every 3 years								

## Maintenance Under Severe Usage Conditions

The following items must be serviced more frequently on cars mainly 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 engine oil filter	Smartstream G1.5	Except Middle East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Brazil, Mexico	R	Every 7,500 km (5,000 miles) or 6 months	A, B, C, D, E, F, G, H, I, J, K, L
		For Middle East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Brazil	R	Every 5,000 km (3,000 miles) or 6 months	
		For Mexico	R	Every 5,000 km (3,000 miles) or 3 months	
	(petrol) 1.0 T-GDI	Except Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America, Mexico	R	Every 7,500 km (5,000 miles) or 6 months	
		For Middle, East, India, Libya, Algeria, Iran, Morocco, Sudan, Tunisia, Egypt, Central & South America	R	Every 5,000 km (3,000 miles) or 6 months	
		For Mexico	R	Every 5,000 km (3,000 miles) or 3 months	
Spark plugs			R	More frequently	A, B, F, G, H, I, K
Manual transmission (MT) fluid			R	Every 120,000 km (80,000 miles)	C, D, E, F, G, H, I, J
Dual clutch transmission (DCT) fluid			R	Every 120,000 km (80,000 miles)	C, D, E, F, G, H, I, J
Intelligent Variable Transmission (IVT) fluid			R	Every 90,000 km (60,000 miles)	A, C, F, G, H, I, J, K
Air cleaner filter			R	More frequently	C, E
Climate control air filter			R	More frequently	C, E, G
Brake discs, pads and calipers			I	More frequently	C, D, E, G, H, I, J, K
Drum brakes and linings			I	More frequently	C, D, E, G, H, I, J, K
Parking brake (Hand type)			I	More frequently	C, D, G, H
Steering gear rack, linkage and boots			I	More frequently	C, D, E, F, G
Suspension ball joints			I	More frequently	C, D, E, G, H, I
Drive shafts and boots			I	More frequently	C, D, E, F, G, H, I, J

## Severe Driving Conditions

A: Repeatedly driving short distance of less than 8 km (5 miles) in normal temperature or less than 16 km (10 miles) in freezing temperature.

B: Extensive engine idling or low speed driving for long distances.

C: Driving on rough, dusty, muddy, unpaved, graveled or saltspread roads.

D: Driving in areas using salt or other corrosive materials or in very cold weather.

E: Driving in heavy dust condition.

F: Driving in heavy traffic area.

G: Driving on uphill, downhill, or mountain roads repeatedly.

H: Using for towing or camping and driving with loading on the roof.

I: Driving as a patrol car, taxi, other commercial use of vehicle towing.

J: Frequently driving under high speed or rapid acceleration/deceleration.

K: Frequently driving in stop-and-go conditions.

L: Engine oil usage which is not recommended (Mineral type, Semi-synthetic, Lower grade spec, etc.)

## Explanation of scheduled maintenance items

The following parts require scheduled maintenance.

### 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

Kia petrol vehicles are equipped with a lifetime fuel filter that is integrated with the fuel tank. Regular maintenance or replacement is generally not needed. This may vary depending on fuel quality. If you experience any of the following: fuel flow restriction, surging, loss of power, or a hard starting issue, inspection and, if necessary, replacement may be needed. We recommend that the fuel filter be replaced by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### Fuel lines, fuel hoses and connections

Check the fuel lines, fuel hoses and connections for leakage and damage. We recommend that the fuel lines, fuel

hoses and connections be replaced by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### **Vapour hose and fuel filler cap**

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

### **Vacuum crankcase ventilation hoses**

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 assure that the hoses do not come in contact with any heat source, sharp edges or moving components 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**

We recommend that the air cleaner filter be replaced by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### **Spark plugs**

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

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

### **Cooling system**

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

### **Coolant**

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

### **Manual transmission fluid (if equipped)**

Inspect the manual transmission fluid according to the maintenance schedule.

### **Intelligent variable transmission (IVT) fluid (if equipped)**

Intelligent Variable Transmission (IVT) fluid should not be checked under normal usage conditions. But in severe conditions, the fluid should be changed at an authorised Kia dealer in accordance to the scheduled maintenance at the beginning of this section.

We recommend that the Intelligent Variable Transmission fluid (IVT) be changed by an authorised Kia dealer according to the maintenance schedule.

### \* NOTICE

Intelligent Variable Transmission (IVT) fluid colour is usually light amber. As the vehicle is driven, the Intelligent Variable Transmission (IVT) fluid will begin to look darker. It is the normal condition and you should not judge the need to replace the fluid based upon the changed colour.

### ⚠ CAUTION

The use of non-specified fluid (even marked as compatible with genuine) could result in shift quality deterioration and vibrations, eventually, the transmission failure. Use only specified Intelligent Variable Transmission (IVT) fluid. (Refer to "Recommended lubricants and capacities" on page 9-6.)

## 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/clutch fluid

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

## Parking brake

Inspect the parking brake system including the parking brake lever (or pedal) and cables.

## 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.

## Brake discs, pads and calipers

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

For more information on checking the pads or lining wear limit, we recommend to visit an authorised Kia dealer/service partner.

## 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 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.

## Checking fluid levels

When checking engine oil, engine coolant, brake fluid, and washer fluid, always be sure to clean the area around any filler plug, drain plug, or dipstick before checking or draining any lubricant or fluid. This is especially important in dusty or sandy areas and when the vehicle is used on unpaved roads. Cleaning the plug and dipstick areas will prevent dirt and grit from entering the engine and other mechanisms that could be damaged.

## Engine oil and filter

### Checking the engine oil level

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

1. Be sure the vehicle is on level ground.
2. Start the engine and allow it to reach normal operating temperature.
3. Turn the engine off, remove the oil filler cap and pull the dipstick out. Wait for 15 minutes for the oil to return to the oil pan.
4. Wipe the dipstick clean and re-insert it fully.
5. Pull the dipstick out again and check the level. Check if the oil level is between the F-L line, and if it is below the L line, add enough oil to bring the level to F line.

### WARNING

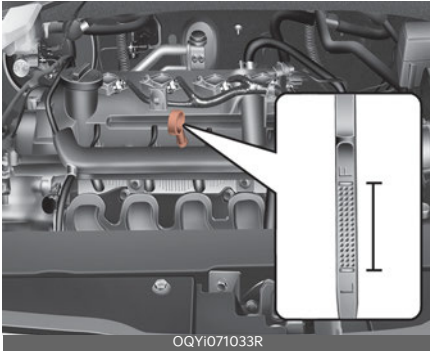
#### Radiator hose

Be very careful not to touch the radiator hose when checking or adding the engine oil as it may be hot enough to burn you.

### CAUTION

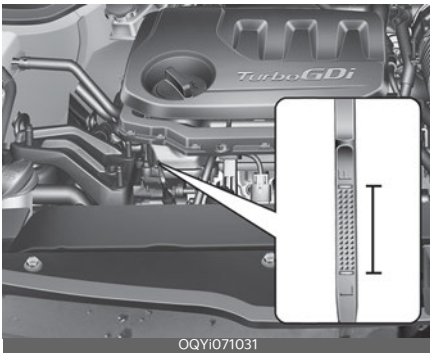
When you wipe the oil level gauge, you should wipe it with a clean cloth. When mixed with debris, it can cause engine damage.

Smartstream G1.5



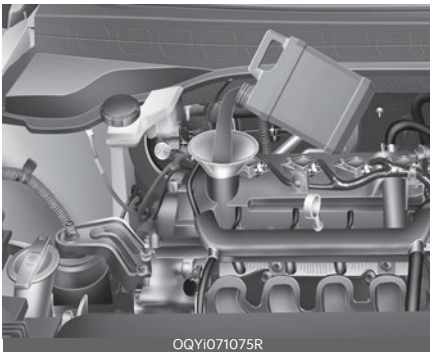
OQYI071033R

(petrol) 1.0 T-GDI



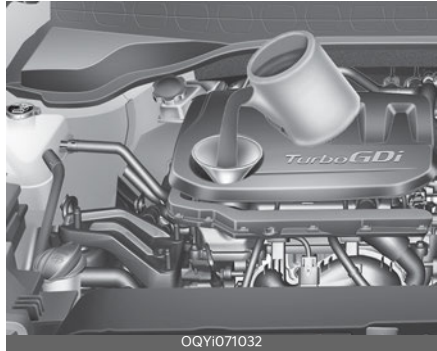
OQYI071031

Smartstream G1.5



OQYI071075R

(petrol) 1.0 T-GDI



OQYI071032

**Use a funnel to help prevent oil from being spilled on engine components.**

Use only the specified engine oil. (Refer to "Recommended lubricants and capacities" on page 9-6.)

- Do not spill engine oil when adding or changing engine oil. Wipe off spilled oil immediately.
- The engine oil consumption may increase whilst you break in a new vehicle and it will be stabilized after driving 6,000 km (4,000 miles).
- The engine oil consumption can be affected by driving habits, climate conditions, traffic conditions, oil quality, etc. Therefore, it is recommended that you inspect the engine oil level regularly and refill it if necessary.

**Changing the engine oil and filter**

We recommend that the engine oil and filter be replaced by an authorised Kia dealer according to the Maintenance Schedule at the beginning of this chapter.

If the maintenance schedule to replace engine oil is exceeded, the engine oil performance may deteriorate, and the engine condition may be affected.

Therefore, replace the engine oil according to the maintenance schedule.

To keep the engine in optimal condition, use the recommended engine oil and filter. If the recommended engine oil and filter are not used replace it according to the maintenance schedule under severe usage conditions.

The purpose of the maintenance schedule for engine oil replacement is to prevent oil deterioration and it is irrelevant to oil consumption. Check and refill engine oil regularly.

### **⚠ WARNING**

Used engine oil may cause irritation or cancer of the skin if left in contact with the skin for prolonged periods of time. Used engine oil contains chemicals that have caused cancer in laboratory animals. Always protect your skin by washing your hands thoroughly with soap and warm water as soon as possible after handling used oil. Do not leave used engine oil within the reach of children.

### **⚠ CAUTION**

The engine oil is very hot immediately after the vehicle has been driven and can cause burns during replacement. Replace the engine oil after the engine oil has cooled down.

## **Engine coolant**

The high-pressure cooling system has a reservoir filled with year round anti-freeze 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 travelling to a colder climate.

### **⚠ WARNING**

#### **Engine coolant reservoir cap**

Never attempt to remove the engine coolant reservoir cap whilst the engine is operating or hot. Doing so might lead to cooling system and engine damage and could result in serious bodily injury from escaping hot coolant or steam.

## **Recommended coolant**

When adding coolant, use only deionized water or soft water for your vehicle and never mix hard water in the coolant filled at the factory. An improper coolant mixture can result in serious malfunction or damage.

- 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.
- The cooling circuit of a vehicle equipped with a heat pump system may freeze in extremely low temperature when the concentration of the antifreezing liquid is below 45%.

For mixture percentage, refer to the following table.

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

**WARNING**

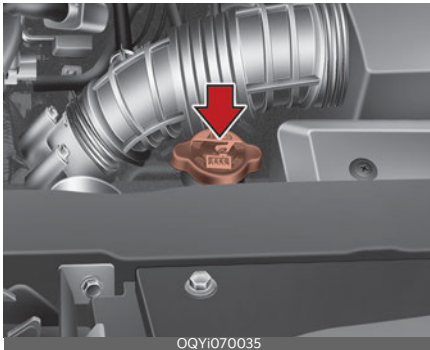


**Engine coolant reservoir cap**

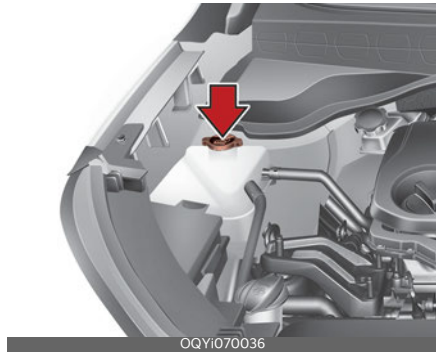
Do not remove the engine coolant reservoir cap when the

engine and radiator are hot. Scalding hot coolant and steam may blow out under pressure which may result in serious injury.

Smartstream G1.5



(petrol) 1.0 T-GDI



**Checking the coolant level**

**WARNING**



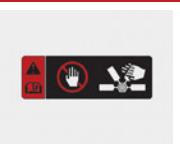
**Removing engine coolant reservoir cap**

Never attempt to remove the engine coolant reservoir cap

whilst the engine is operating or hot. Doing so might lead to cooling system damage and could result in serious personal injury from escaping hot coolant or steam.

1. Turn the vehicle off and wait until it cools down.
2. Use extreme care when removing the engine coolant reservoir cap. Wrap a thick towel around it, and turn it counterclockwise slowly to the first stop.
3. Step back whilst the pressure is released from the cooling system.
4. 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**



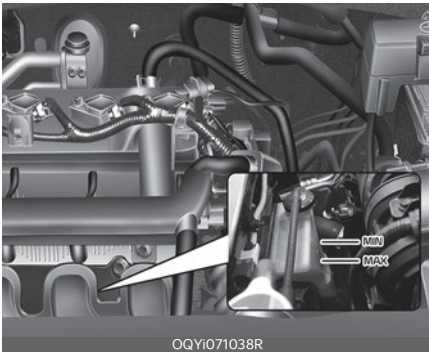
**Cooling fan**

Use caution when working near the blade of the cooling fan. The electric motor

(cooling fan) is controlled by coolant temperature, refrigerant pressure and vehicle speed. It may sometimes operate even when the vehicle is not running.

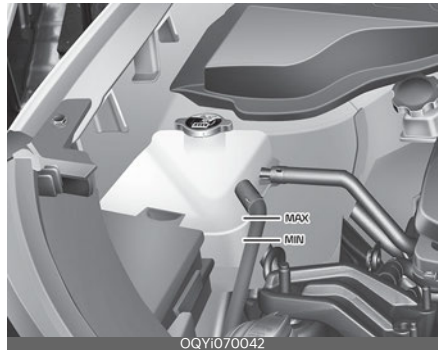
5. Check the condition and connections of all cooling system hoses and heater hoses.
6. Replace any swollen or deteriorated hoses.
7. Check the coolant level. The coolant level should be filled between F and L marks on the side of the coolant reservoir when the engine room is cool.

Smartstream G1.5



OQYi071038R

(petrol) 1.0 T-GDI



OQYi070042

8. If the coolant level is low, add enough specified coolant to provide protection against freezing and corrosion. Bring the level to F, but do not overfill.

If frequent additions are required, we recommend that the system be inspected by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

**Changing the coolant**

We recommend that the coolant be replaced by an authorised Kia dealer according to the Maintenance Schedule at the beginning of this chapter.

**CAUTION**

Put a thick cloth or fabric around the engine coolant reservoir cap before refilling the coolant in order to prevent the coolant from overflowing into engine parts such as the alternator.

## **⚠ WARNING**

### **Coolant**

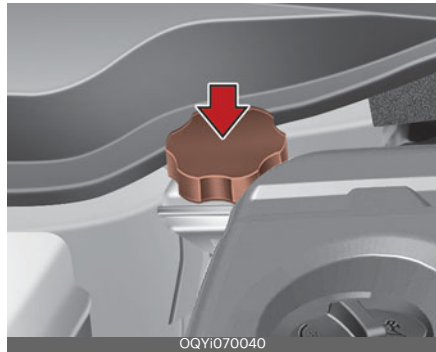
- Do not use radiator coolant or anti-freeze in the washer fluid reservoir.
  - Radiator coolant can severely obscure visibility when sprayed on the wind-screen and may cause loss of vehicle control or damage to paint and body trim.
- 

## **Brake/clutch fluid**

The brake/clutch fluid acts to transmit force to the brake when the driver depresses the brake pedal. brake/clutch fluid must be maintained periodically to ensure that the brakes operate smoothly.

### **Checking the brake/clutch 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.



1. Before removing the reservoir cap and adding brake/clutch fluid, clean the area around the reservoir cap thoroughly to prevent brake fluid contamination.
2. Periodically check that the fluid level in the brake/clutch fluid reservoir is between MIN and MAX. 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, we recommend that the system be checked by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

Use only the specified brake/clutch fluid. (Refer to "Recommended lubricants and capacities" on page 9-6.)

Never mix different types of fluid.

### **⚠ WARNING**

In the event the brake/clutch system requires frequent additions of fluid, we recommend that the system be checked by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### **⚠ WARNING**

When changing and adding brake/clutch fluid, handle it carefully. Do not let it come in contact with your eyes. If brake/clutch fluid should come in contact with your eyes, immediately flush them with a large quantity of fresh tap water. Have your eyes examined by a doctor as soon as possible.

### **⚠ CAUTION**

#### **Brake fluid**

Do not allow brake fluid to contact the vehicle's body paint, as paint damage will result.

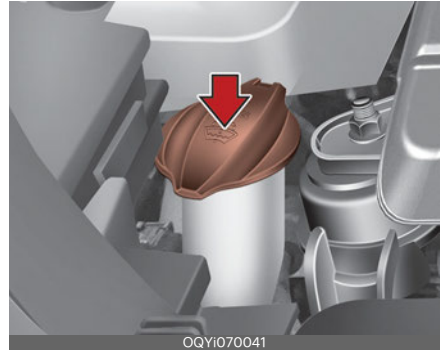
The brake fluid constantly absorbs moisture from the air. This lowers the boiling point of the brake fluid. If the boiling point is too low, vapour pockets may form in the brake system when the brakes are applied hard.

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.

## **Washer fluid**

Washer fluid is used when wiping the windscreen of the vehicle with a windscreen wiper. You should check and refill washer fluid periodically to make sure that it doesn't run out.

### **Checking the washer fluid level**



The reservoir is translucent so that you can check the level with a quick visual inspection.

- 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**

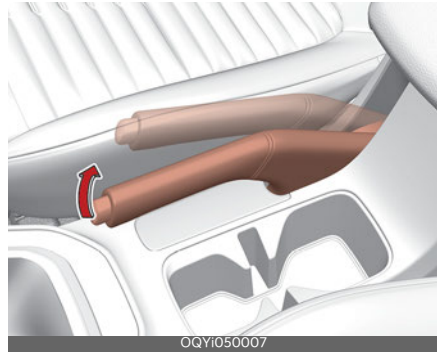
#### **Coolant**

- Do not use radiator coolant or anti-freeze in the washer fluid reservoir.
- Radiator coolant can severely obscure visibility when sprayed on the windscreen and may cause loss of vehicle control or damage to paint and body trim.

- Windscreen Washer fluid agents contain some amounts of alcohol and can be flammable under certain circumstances. Do not allow sparks or flame to contact the washer fluid or the washer fluid reservoir. Damage to the vehicle or occupants could occur.
  - Windscreen washer fluid is poisonous to humans and animals. Do not drink and avoid contacting windscreen washer fluid. Serious injury or death could occur.
- 

## Parking brake

### Checking the parking brake



Check the stroke of the parking brake by counting the number of "clicks" heard whilst 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, we recommend that the system be inspected by an authorised kia dealer.

**Stroke: 6~8 "clicks" at a force of 20 kgf (44 lbf, 196 N).**

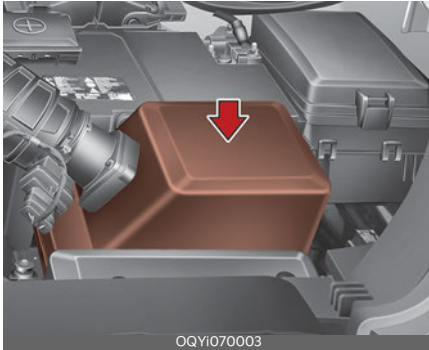


## Air cleaner filter

A Genuine Kia air cleaner filter is recommended when the filter is replaced.

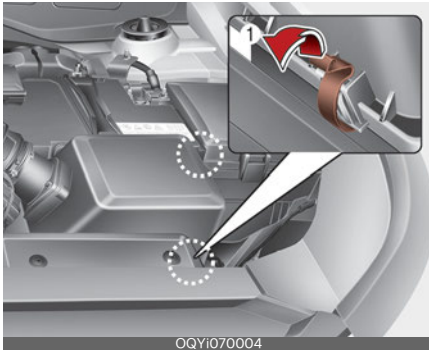
### Replacing air cleaner filter

Air cleaner filter must be replaced when necessary, and should not be washed.

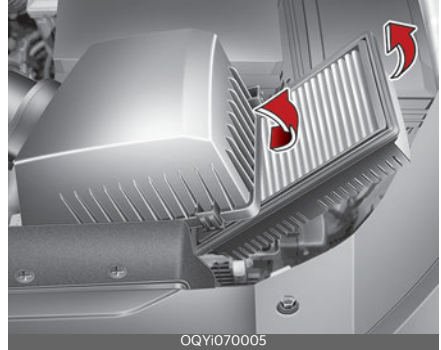


You can clean the filter when inspecting the air cleaner compartment. Clean the filter by using compressed air.

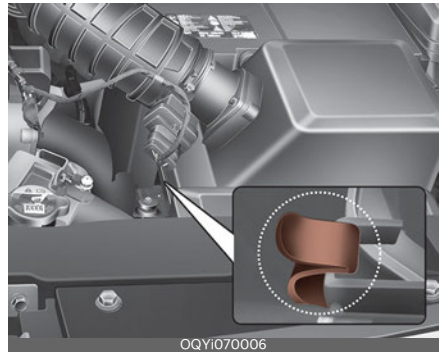
1. Loosen the air cleaner cover (1) attaching clips and open the cover.



2. Wipe the inside of the air cleaner.
3. Replace the air cleaner filter.



4. Lock the cover with the cover attaching clips.



Replace the filter according to the Maintenance Schedule.

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" on page 8-13.)

### **CAUTION**

#### **Air filter maintenance**

- Do not drive with the air cleaner 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 a Kia genuine part. Use of a non-genuine part could damage the air flow sensor.  
We recommend that you use parts for replacement from an authorised Kia dealer

Replace the filter according to the Maintenance Schedule.

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" on page 8-13.)

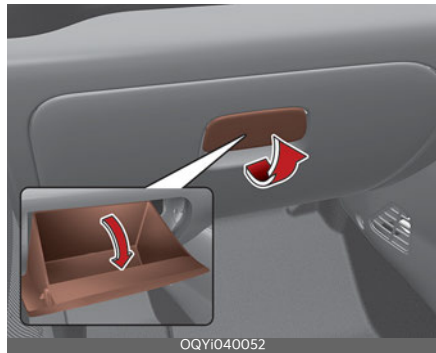
### Climate control air filter

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.

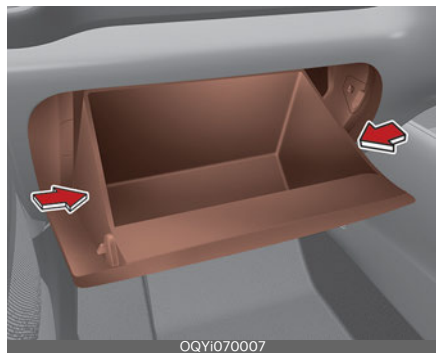
### Inspecting and replacing climate control air filter

When you replace the climate control air filter, replace it performing the following procedure. Be careful to avoid damaging other components.

1. Open the glove box.



2. Push both sides of the glove box.



- Remove the climate control air filter cover by pulling out right side of the cover.



- Replace the climate control air filter.



- Reassemble in the reverse order of disassembly.

When replacing the climate control air filter install it properly. Otherwise, the system may produce noise and the effectiveness of the filter may be reduced.

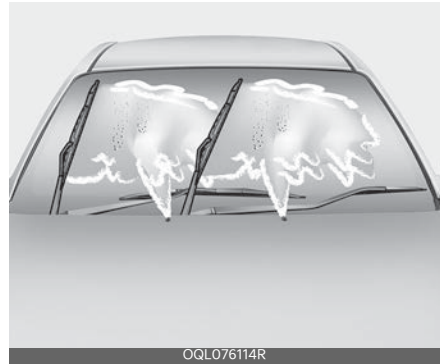
## Wiper blades

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

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

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

## Blade inspection



### \* NOTICE

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

Contamination of either the windshield or the wiper blades with foreign matter can reduce the effectiveness of the windshield wipers. Common sources of contamination are insects, tree sap, and hot wax treatments used by some commercial vehicle washes. If the blades are not wiping properly, clean both the window and the blades with a good cleaner or mild detergent, and rinse thoroughly with clean water.

**⚠ CAUTION**

To prevent damage to the wiper blades, do not use petrol, kerosene, paint thinner, or other solvents on or near them.

**Replacing front windscreen wiper blade**

To replace wiper blade, lift the arm first and replace the wiper blade as per procedure.



1. Raise the wiper arm and turn the wiper blade assembly to expose the plastic locking clip.

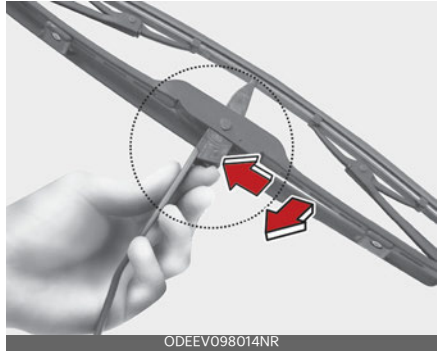


**⚠ CAUTION**

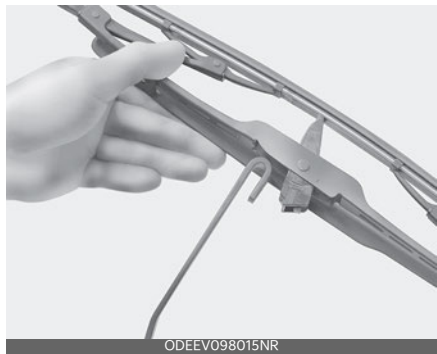
**Wiper arms**

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

2. Compress the clip and slide the blade assembly downward.



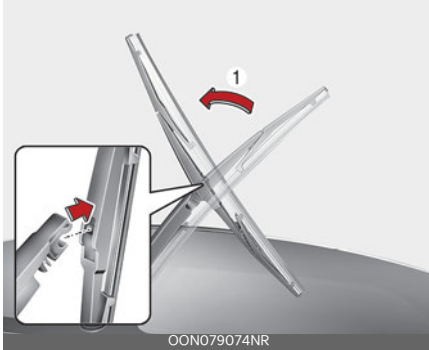
3. Lift it off the arm.



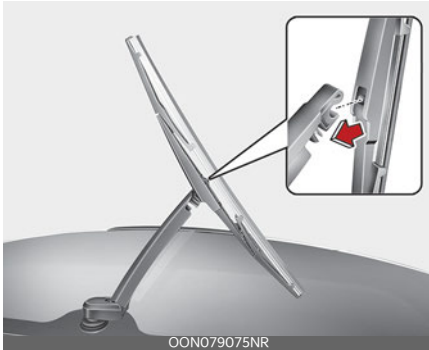
4. Install the blade assembly in the reverse order of removal.

**Replacing rear window wiper blade (if equipped)**

1. Raise the wiper arm and rotate the wiper blade assembly (1).
2. Pull out the wiper blade assembly.



3. Install the new blade assembly by inserting the centre part into the slot in the wiper arm until it clicks into place.
4. Make sure the blade assembly is installed firmly by trying to pull it slightly.

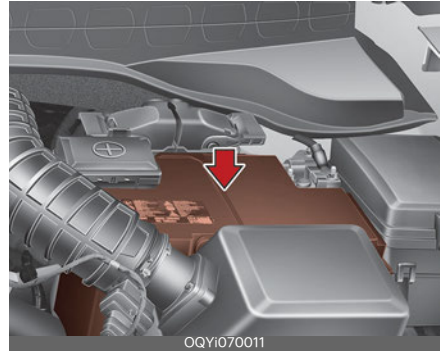


To prevent damage to the wiper arms or other components, have an authorised Kia dealer/service partner replace the wiper blade.

## Battery

The battery powers the engine in order to move the vehicle as well as supplying power to the various devices installed in the vehicle.

### For best battery service



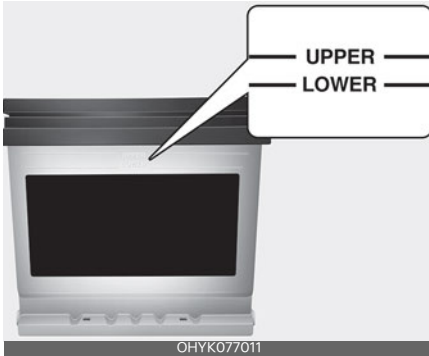
- Keep the battery securely mounted.
- Keep the battery top clean and dry.
- Keep the terminals and connections clean, tight, and coated with petroleum jelly or terminal grease.
- Rinse any spilled electrolyte from the battery immediately with a solution of water and baking soda.
- If the vehicle is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

### \* NOTICE

#### For batteries marked with UPPER and LOWER

Basically equipped battery is maintenance free type. If your vehicle is equipped with the battery marked with LOWER and UPPER on the side, you can check the electrolyte level. The electrolyte level should be between LOWER and UPPER. If the electrolyte level is low,

it needs to add distilled (demineralized) water (Never add sulfuric acid or other electrolyte). When refill, be careful not to splash the battery and adjacent components. And do not overfill the battery cells. It can cause corrosion on other parts. After then ensure that tighten the cell caps. We recommend that you contact an authorised Kia dealer.



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



Wear eye protection when charging or working near a battery. Always provide ventilation when working in an enclosed space.



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



The battery contains lead. Do not dispose of it after use. Please return the battery to an authorised Kia dealer to be recycled.

recycled.

**⚠ WARNING**

**Battery dangers**



Always read the following instructions carefully when handling a battery.



Keep lighted cigarettes and all other flames or sparks away from the battery.



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



Keep batteries out of the reach of children because batteries contain highly corrosive SULFURIC ACID. Do not allow battery acid to contact your skin, eyes, clothing or paint finish.



If any electrolyte gets into your eyes, flush your eyes with

- When lifting a plastic-cased battery, excessive pressure on the case may cause battery acid to leak, resulting in personal injury. Lift with a battery carrier or with your hands on opposite corners.
- Never attempt to recharge the battery when the battery cables are connected.
- The electrical ignition system works with high voltage. Never touch these components with the engine running or the ignition switched on.

Failure to follow the above warnings can result in serious bodily injury or death.

**⚠ CAUTION**

If you use unauthorised electronic devices, the battery may be discharged. Never use unauthorised devices.

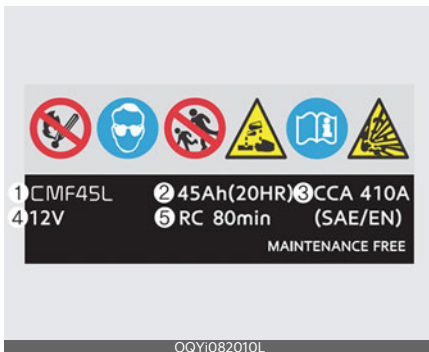
## ⚠ CAUTION

### AGM battery

- Absorbent Glass Matt (AGM) batteries are maintenance free and have the AGM battery serviced by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner. For charging your AGM battery, use only fully automatic battery chargers that are specially developed for AGM batteries.
- When replacing the AGM battery, use parts for replacement from a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.
- Do not open or remove the cap on top of the battery. This may cause leaks of internal electrolyte that could result in severe injury.

### Battery capacity label

example



\* The actual battery label in the vehicle may differ from the illustration.

- 1 The Kia model name of battery
- 2 The nominal capacity (in Ampere hours)

- 3 The cold-test current in amperes by SAE/EN
- 4 The nominal voltage
- 5 The nominal reserve capacity (in min.)

### Battery recharging

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

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

## ⚠ WARNING

When recharging the battery, observe the following precautions:

- The battery must be removed from the vehicle and placed in an area with good ventilation.
- Do not allow cigarettes, sparks, or flame near the battery.
- Watch the battery during charging, and stop or reduce the charging rate in following cases:
  1. the battery cells begin gassing (boiling) violently
  2. the electrolyte temperature of any cell exceeds 49 °C.
- Wear eye protection when checking the battery during charging.
- 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.
- Before performing maintenance or recharging the battery, turn off all accessories and stop the vehicle.
  - The negative battery cable must be removed first and installed last when the battery is disconnected.

## Reset items

The following items should be reset after the battery has been discharged or the battery has been disconnected.

- Auto up/down window (Refer to "Window opening and closing" on page 4-22)
- Trip computer (Refer to "Trip information (trip computer)" on page 4-52)
- Climate control system (Refer to "Automatic climate control system (if equipped)" on page 4-84)

## Tyres and wheels

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

### Recommended cold tyre inflation pressures

All tyre pressures should be checked when the tyres are cold. "Cold Tyres" means the vehicle has not been driven for at least three hours or driven less than 1.6 km.

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

For recommended inflation pressure, refer to "Tyres and wheels" on page 9-5. All specifications (sizes and pressures) can be found on a label attached to the driver's side centre pillar.



### **⚠ WARNING**

#### Tyre underinflation

Inflate your tyres consistent with the instructions provided in this manual. Regularly check the tyre inflation pressure, and correct it as needed: at least twice a month and before any long trips



on the road. If you fail to observe this precaution, you may be driving on underinflated tyres, which may not only compromise your vehicle's driving stability, but also lead to tyre damage and the risk of an accident. This risk is much higher on hot days and when driving for long periods at high speeds.

Failure to maintain specified pressure may result in excessive wear, poor handling, reduced fuel economy, deformation of tyre and/or wheel, harsh ride conditions, possibility for additional damage from road hazards, or result in tyre failure.

## Tyre pressure

Always observe the following:

- Check tyre pressure when the tyres are cold. (After vehicle has been parked for at least three hours or hasn't been driven more than 1.6 km since startup.)
- Check the pressure of your spare tyre each time you check the pressure of other tyres.
- Never overload your vehicle. Be careful not to overload a vehicle luggage rack if your vehicle is equipped with one.
- Warm tyres normally exceed recommended cold tyre pressures by 28~41 kPa. Do not release air from warm tyres to adjust the pressure or the tyres will be underinflated.

### WARNING

#### Tyre Inflation

Overinflation or underinflation can reduce tyre life, adversely affect vehicle handling, and lead to sudden tyre fail-

ure. This could result in loss of vehicle control and potential injury.

## Checking tyre inflation pressure

Check your tyres once a month or more.

Use a good quality gauge to check tyre pressure. You cannot tell if your tyres are properly inflated simply by looking at them. Radial tyres may look properly inflated even when they're underinflated.

Check the tyre's inflation pressure when the tyres are cold. "Cold" means your vehicle has been sitting or at least three hours or driven no more than 1.6 km.

1. Remove the valve cap from the tyre valve stem.
2. Press the tyre gauge firmly onto the valve to get a pressure measurement. If the cold tyre inflation pressure matches the recommended pressure on the tyre and loading information label, no further adjustment is necessary.
3. If the pressure is low, add air until you reach the recommended amount.
4. If you overfill the tyre, release air by pushing on the metal stem in the centre of the tyre valve.
5. Recheck the tyre pressure with the tyre gauge.
6. Be sure to put the valve caps back on the valve stems. They help prevent leaks by keeping out dirt and moisture.

Inspect your tyres frequently for proper inflation as well as wear and damage. Always use a tyre pressure gauge.

Tyres with too much or too little pressure wear unevenly. This could result in poor handling, loss of vehicle control, and sudden tyre failure leading to accidents,

injuries, and even death. The recommended cold tyre pressure for your vehicle can be found in this manual and on the tyre label located on the driver's side centre pillar.

## Tyre rotation

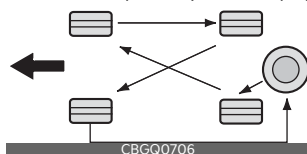
To equalize tread wear, it is recommended that the tyres be rotated every 10,000 km (6,500 miles) or sooner if irregular wear develops.

During rotation, check the tyres for correct balance.

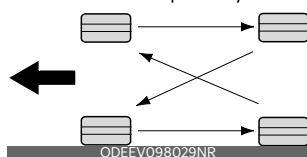
When rotating tyres, check for uneven wear and damage. Abnormal wear is usually caused by incorrect tyre pressure, improper wheel alignment, out-of-balance wheels, severe braking or severe cornering. Look for bumps or bulges in the tread or side of tyre. Replace the tyre if you find either of these conditions.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

Refer to "Tyres and wheels" on page 9-5. Disc brake pads should be inspected for wear whenever tyres are rotated.

With a full-size spare tyre (if equipped)



Without a spare tyre



Rotate radial tyres that have an asymmetric tread pattern only from front to rear and not from right to left.

## ⚠ WARNING

### Mixing tyres

Do not mix bias ply and radial ply tyres under any circumstances. This may cause unusual handling characteristics.

### Wheel alignment and tyre balance

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

In most cases, you will not need to have your wheels aligned again. However, if you notice unusual tyre 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.

## ⚠ CAUTION

### Wheel weight

Improper wheel weights can damage your vehicle's aluminium wheels. Use only approved wheel weights.

### Tyre replacement

If the tyre 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 of tread left on the tyre. Replace the tyre when this happens.

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

The Anti-lock Brake System (ABS) works by comparing the speed of the wheels. The tyre size affects wheel speed. When replacing tyres, all 4 tyres must use the same size originally supplied with the vehicle. Using tyres of a different size can cause the ABS and Electronic Stability Control (ESC) to work irregularly.

It is best to replace all four tyres at the same time. If that is not possible, or necessary, then replace the two front or two rear tyres as a pair. Replacing just one tyre can seriously affect your vehicle's handling.

#### \* NOTICE

We recommend that when replacing tyres, use the same originally supplied with the vehicles. If not, that affects driving performance.

### Compact spare tyre replacement (if equipped)

A compact spare tyre has a shorter tread life than a regular size tyre.

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

### 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.

A wheel with an incorrect size may adversely affect many things: wheel and bearing life, braking and stopping abilities, handling characteristics, ground clearance, body-to-tyre clearance, snow chain clearance, speedometer and odometer calibration, headlight aiming and bumper height.

#### ⚠ CAUTION

### Wheels

Wheels that do not meet Kia specifications may fit poorly and result in damage to the vehicle or unusual handling and poor vehicle control.

### Tyre traction

Tyre traction can be reduced if you drive on worn tyres, tyres that are improperly inflated or on slippery road surfaces.

Tyres should be replaced when tread wear indicators appear. Slow down whenever there is rain, snow or ice on the road to reduce the possibility of losing control of the vehicle.

## Tyre maintenance

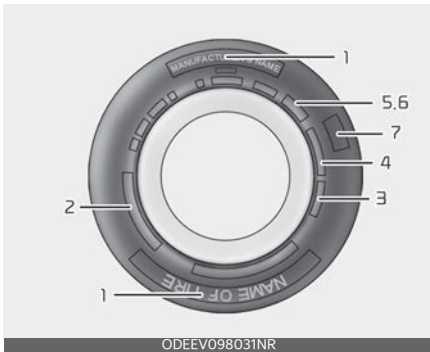
In addition to proper inflation, correct wheel alignment helps to decrease tyre wear.

If you find a tyre is worn unevenly, have your dealer check the wheel alignment.

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

## Tyre sidewall labeling

This information identifies and describes the fundamental characteristics of the tyre and also provides the Tyre Identification Number (TIN) for safety standard certification.



The TIN can be used to identify the tyre in case of a recall.

### 1. Manufacturer or brand name

Manufacturer or Brand name is shown.

### 2. Tyre size designation

A tyre's sidewall is marked with a tyre size designation. You will need this information when selecting replacement tyres for your vehicle. The following

explains what the letters and numbers in the tyre size designation mean.

Example tyre size designation:

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

#### **215/60R16 91H**

- 215: Tyre width in millimeters.
- 60: Aspect ratio. The tyre's section height as a percentage of its width.
- R: Tyre construction code (Radial).
- 16: Rim diameter in inches.
- 91: Load Index, a numerical code associated with the maximum load the tyre 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:

#### **6.5JX16**

- 6.5: Rim width in inches.
- J: Rim contour designation.
- 16: Rim diameter in inches.

## Tyre speed ratings

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

Speed Rating Symbol	Maximum Speed
S	180 km/h
T	190 km/h
H	210 km/h
V	240 km/h
W	270 km/h
Y	300 km/h

### 3. Checking tyre life

Any tyres that are over 6 years old, based on the manufacturing date, should be replaced by new ones. You can find the manufacturing date on the tyre sidewall (possibly on the inside of the wheel), displaying the DOT code. The DOT code is a series of numbers on a tyre 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 means a plant code number, tyre size and tread pattern and the last four numbers indicate week and year manufactured.

For example:

DOT XXXX XXXX 1622 represents that the tyre was produced in the 16th week of 2022.

#### **⚠ WARNING**

##### **Tyre age**

Replace tyres within the recommended time frame. Failure to replace tyres as recommended can result in sudden tyre failure, which could lead to a loss of control and an accident.

### 4. Tyre ply composition and material

The number of layers or plies of rubber-coated fabric in the tyre. Tyre manufacturers also must indicate the materials in the tyre, 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 tyre. Do not exceed the maximum permissible inflation pressure.

Refer to "Tyres and wheels" on page 9-5 for recommended inflation pressure.

### 6. Maximum load rating

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

### 7. Uniform tyre quality grading

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

For example:

- TREADWEAR 200
- TRACTION AA
- TEMPERATURE A

Tyres degrade over time, even when they are not being used. Regardless of the remaining tread, we recommend

that tyres be replaced after approximately six (6) years of normal service. Heat caused by hot climate or frequent high loading conditions can accelerate the aging process.

### Tread wear

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

The relative performance of tyres depends upon the actual conditions of their use. Performance 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 tyres. The tyres 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 tyre's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tyre marked C may have poor traction performance.

The traction grade assigned to this tyre 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 tyre'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 tyre to degenerate and reduce tyre life, and excessive temperature can lead to sudden tyre failure. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

#### WARNING

The traction grade assigned to this tyre is based on straight-ahead braking traction tests, and does not include acceleration, cornering, hydroplaning, or peak traction characteristics.

#### WARNING

#### Tyre temperature

The temperature grade for this tyre is established for a tyre that is properly inflated and not overloaded. Excessive speed, Under inflation, or excessive loading, either separately or in combination, can cause heat build-up and possible sudden tyre failure. This can cause loss of vehicle control and serious injury or death.

### Tyre terminology and definitions

Refer to the following for detailed definitions of the terms that are found in the tyre description.

**Air Pressure** The amount of air inside the tyre pressing outward on the tyre.

Air pressure is expressed in pounds per square inch (psi) or kilopascal (kPa).

**Accessory Weight** The combined weight of optional accessories. Some examples of optional accessories are intelligent variable transmission and air conditioning.

**Aspect Ratio** The relationship of a tyre'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 tyre bead contains steel wires wrapped by steel cords that hold the tyre onto the rim.

**Bias Ply Tyre** A pneumatic tyre in which the plies are laid at alternate angles less than 90 degrees to the centre line of the tread.

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

**Kerb Weight** 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 Tyre Identification Number (TIN), an alphanumeric designator which can also identify the tyre 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 tyre that must

always face outward when mounted on a vehicle.

**Kilopascal (kPa)** The metric unit for air pressure.

**Light truck (LT) tyre** A tyre designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

**Load ratings** The maximum load that a tyre 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 tyre.

**Maximum Inflation Pressure** The maximum air pressure to which a cold tyre may be inflated. The maximum air pressure is molded onto the sidewall.

**Maximum Load Rating** The load rating for a tyre at the maximum permissible inflation pressure for that tyre.

**Maximum Loaded Vehicle Weight** The sum of kerb 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 lbs.).

**Occupant Distribution** Designated seating positions.

**Outward Facing Sidewall** The side of a asymmetrical tyre that 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) Tyre** A tyre used on passenger cars and some light duty trucks and multipurpose vehicles.

**Ply** A layer of rubber-coated parallel cords.

**Pneumatic tyre** 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.

**Production 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 kerb weight or accessory weight. Examples include heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

**Recommended Inflation Pressure**

Vehicle manufacturer's recommended tyre inflation pressure and shown on the tyre placard.

**Radial Ply Tyre** A pneumatic tyre in which the ply cords that extend to the beads are laid at 90 degrees to the centre line of the tread.

**Rim** A metal support for a tyre and upon which the tyre beads are seated.

**Sidewall** The portion of a tyre between the tread and the bead.

**Speed Rating** An alphanumeric code assigned to a tyre indicating the maximum speed at which a tyre can operate.

**Traction** The friction between the tyre and the road surface. The amount of grip provided.

**Tread** The portion of a tyre that comes into contact with the road.

**Treadwear Indicators** Narrow bands, sometimes called "wear bars," that show across the tread of a tyre when only 1.6 mm (2/32 inch) of tread remains.

**UTQGS** Uniform Tyre Quality Grading Standards, a tyre information system

that provides consumers with ratings for a tyre's traction, temperature and treadwear. Ratings are determined by tyre manufacturers using government testing procedures. The ratings are molded into the sidewall of the tyre.

**Vehicle Capacity Weight** The weight of designated seating positions multiplied by 68 kg (150 lbs.) plus the rated cargo and luggage load.

**Vehicle Maximum Load on the Tyre**

Load on an individual tyre due to kerb and accessory weight plus maximum occupant and cargo weight.

**Vehicle Normal Load on the Tyre**

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

**Vehicle Placard** A label permanently attached to a vehicle showing the original equipment tyre size and recommended inflation pressure.

**All season tyres**

Kia specifies all season tyres on some models to provide good performance for use all year round, including snowy and icy road conditions.

All season tyres are identified by ALL SEASON and/or M+S (Mud and Snow) on the tyre sidewall. Snow tyres have better snow traction than all season tyres and may be more appropriate in some areas.

**Summer tyres**

Kia specifies summer tyres on some models to provide superior performance on dry roads.

Summer tyre performance is substantially reduced in snow and ice. Summer tyres do not have the tyre traction rating



M+S (Mud and Snow) on the tyre side wall. If you plan to operate your vehicle in snowy or icy conditions, Kia recommends the use of snow tyres or all season tyres on all four wheels.

### Snow tyres

If you equip your vehicle with snow tyres, they should be the same size and have the same load capacity as the original tyres.

Snow tyres should be installed on all four wheels; otherwise, poor handling may result.

Snow tyres should carry 4 psi (28 kPa) more air pressure than the pressure recommended for the standard tyres on the tyre label on the driver's side of the centre pillar, or up to the maximum pressure shown on the tyre sidewall, whichever is less.

Do not drive faster than 120 km/h (75 mph) when your vehicle is equipped with snow tyres.

### WARNING

Do not use summer tyres at temperatures below 7 °C (45 °F) or when driving on snow or ice. At temperatures below 7 °C (45 °F), summer tyres can lose elasticity, and therefore traction and braking power as well. Change the tyres on your vehicle to winter or all-weather tyres of the same size as the standard tyres of the vehicle. Both types of tyres are identified by the M+S (Mud and Snow) marking. Using summer tyres at very cold temperatures could cause cracks to form, thereby damaging the tyres permanently.

### Tyre chains

Tyre chains, if necessary, should be installed on the front wheels.

Be sure that the chains are installed in accordance with the manufacturer's instructions.

To minimise tyre and chain wear, do not continue to use tyre chains when they are no longer needed.

- When driving on roads covered with snow or ice, drive at less than 30 km/h (20 mph).
- Use the SAE "S" class or wire chains.
- If you hear noise caused by chains contacting the body, retighten the chain to avoid contact with the vehicle body.
- To prevent body damage, retighten the chains after driving 0.5~1.0 km (0.3~0.6 miles).
- Do not use tyre chains on vehicles equipped with aluminium wheels. In unavoidable circumstance, use a wire type chain.
- Use wire chains less than 15 mm (0.59 inches) to prevent damage to the chain's connection.

### Radial-ply tyres

Radial-ply tyres provide improved tread life, road hazard resistance and smoother high speed ride.

The radial-ply tyres used on this vehicle are of belted construction, and are selected to complement the ride and handling characteristics of your vehicle. Radial-ply tyres have the same load carrying capacity, as bias-ply or bias belted tyres of the same size, and use the same recommended inflation pressure.

Mixing of radial-ply tyres with bias-ply or bias belted tyres is not recommended. Any combinations of radial-ply and bias-

ply or bias belted tyres when used on the same vehicle will seriously deteriorate vehicle handling. The best rule to follow is: Identical radial-ply tyres should always be used as a set of four.

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

### Fuses

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

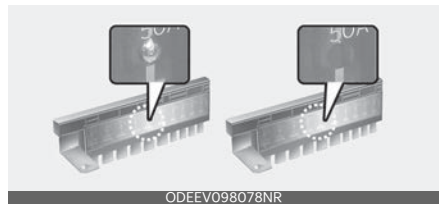
Blade type



Cartridge type



Multi fuse



BFT



\* Left side: Normal, Right side: Blown  
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 melt.

If the electrical system does not work, first check the driver's side fuse panel.

If the replacement fuse blows, this indicates an electrical problem. Avoid using the system involved and immediately consult a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

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

### WARNING

#### Fuse replacement

- Never replace a fuse with anything but another fuse of the same rating.
- A higher capacity fuse could cause damage and possibly a fire.
- Never install a wire or aluminium foil instead of the proper fuse - even as a temporary repair. It may cause extensive wiring damage and a possible fire.
- Do not arbitrarily modify or add-on electric wiring to the vehicle.

### CAUTION

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

### NOTICE

- When replacing a fuse, turn the ignition 'OFF' and turn off switches of all

electrical devices then remove battery (-) terminal.

- The actual fuse/relay panel label may differ from equipped items.

### WARNING

#### Electrical Fire

Always ensure replacements fuses and relays are securely fastened when installed. Failure to do so can result in a vehicle fire.

Do not remove fuses, relays and terminals fastened with bolts or nuts. The fuses, relays and terminals may be fastened incompletely, and it may cause a possible fire. If fuses, relays and terminals fastened with bolts or nuts are blown, we recommend that you consult a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### CAUTION

When replacing a blown fuse or relay, make sure the new fuse or relay fits tightly into the clips. Failure to tightly install the fuse or relay may cause damage to the wiring and electric systems.

### CAUTION

- Do not input any other objects except fuses or relays into fuse/relay terminals such as a screwdriver or wiring. It may cause contact failure and system malfunction.
- Do not plug in screwdrivers or after-market wiring into the terminal originally designed for fuse and relays only. The electrical system and wiring of the vehicle interior may be damaged or burned due to contact failure.

- If you directly connect the wire on the taillight or replace the bulb which is over the regulated capacity to install trailers etc., the inner Junction Block can get burned.

**⚠ WARNING**

**Electrical wiring repairs**

All electrical repairs should be performed by authorised Kia dealerships using approved Kia parts. Using other wiring components, especially when retrofitting multimedia or theft alarm system, car phone or radio may cause vehicle damage and increase the risk of a vehicle fire.

**\* NOTICE**

**Remodeling Prohibited**

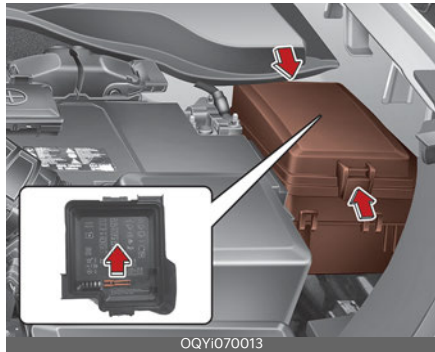
Do not rewire your vehicle in any way as doing so may affect the performance of several safety features in your vehicle. Rewiring your vehicle may also void your warranty and cause you to be responsible for any subsequent vehicle damage which may result.

**Replacing inner panel fuse**

1. Turn the ignition switch and all other switches off.
2. Open the fuse panel cover.



3. Pull the suspected fuse straight out. Use the removal tool provided on the engine fuse panel cover.



4. Check the removed fuse; replace it if it is blown. Spare fuses are provided 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.

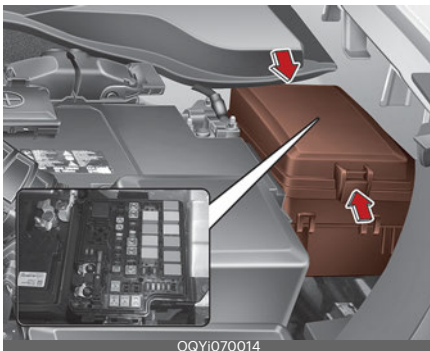
If it fits loosely, we recommend that you consult a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

If you do not have a spare, use a fuse of the same rating from a circuit you may not need for operating the vehicle, such as the power outlet fuse.

If the headlamp, turn signal lamp, stop signal lamp, fog lamp, DRL, tail lamp, High Mounted Stop Lamp (HMSL) do not work and the fuses are OK, check the fuse panel in the engine compartment. If a fuse is blown, it must be replaced.

### Replacing engine compartment fuse

1. Turn the ignition switch and all other switches off.
2. Remove the fuse panel cover by pressing the tab and pulling the cover up.



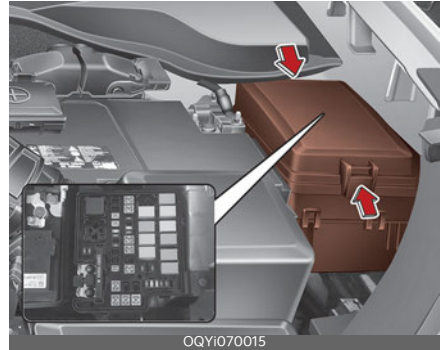
3. Check the removed fuse; replace it if it is blown. To remove or insert the fuse, use the fuse puller in the engine compartment fuse panel.
4. Push in a new fuse of the same rating, and make sure it fits tightly in the clips. If it fits loosely, we recommend that you consult a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### ⚠ CAUTION

After checking the fuse panel in the engine compartment, securely install the fuse panel cover through the audible clicking sound.

If not, electrical failures may occur from water contact.

### Main fuse (Multi fuse)



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

1. Turn the ignition switch and all other switches off.
2. Disconnect the negative battery cable.
3. Remove the nuts shown in the picture above.
4. Replace the fuse with a new one of the same rating.
5. Reverse these steps to reinstall the multi fuse.

### \* NOTICE






If the multi fuse is blown, consult a professional workshop. Kia recommends to consult an authorised Kia dealer/service partner.



## ICU Junction Block

Refer to the following table for a description of the fuse.

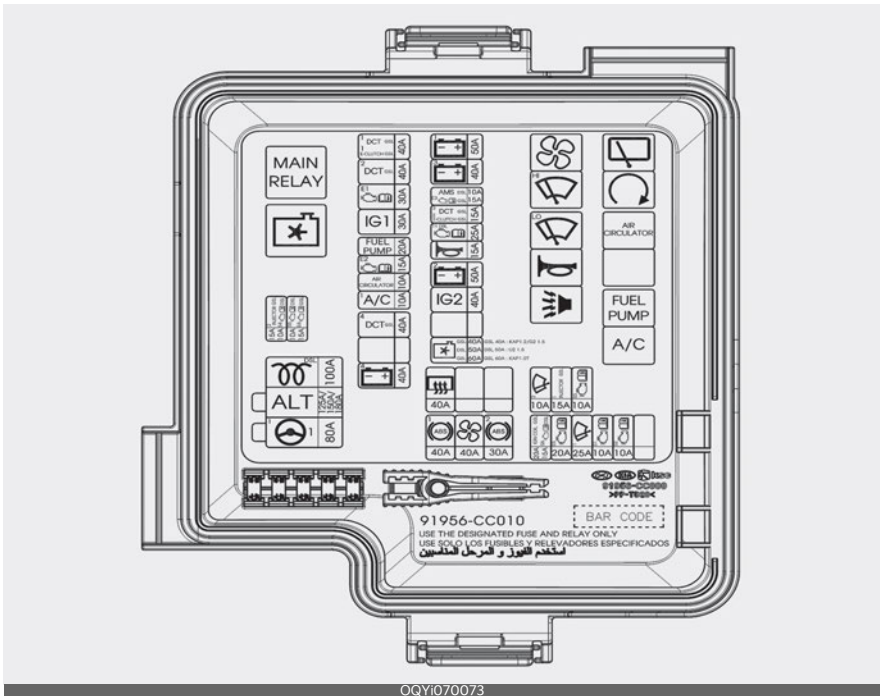
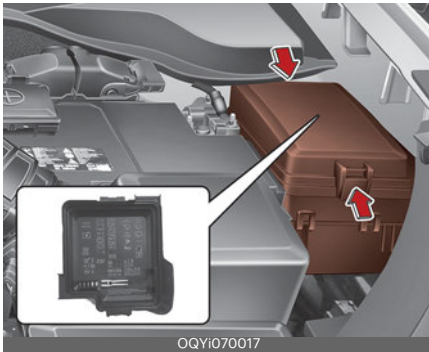
Fuse Name	Symbol	Fuse rating	Circuit Protected
HEATED MIRROR		10A	Rear HEATED MIRROR, ECU
SAFETY P/WINDOW LH		25A	SAFETY ECU
P/WINDOW RH		25A	POWER WINDOW MOTOR
TCU2		10A	DCT (Dual Clutch Transmission)/ECLUTCH/TCU (Transmission Control Unit), S_MODE_SW/ATM_LEVER, INHIBITOR SW
MODULE8		10A	MUT/VDMS/MOOD_LAMP_UNIT
MEMORY		10A	CLUSTER, FATC, MTC
AMP		25A	EXT. AMP (Amplifier)
SUNROOF		15A	SUNROOF MOTOR
P/WINDOW LH		25A	POWER WINDOW MOTOR
SENSOR7		10A	FUEL_WATER_SNSR, GLOW_RLY_UNIT
MODULE2		10A	O/S MIRR SW, AMP (Amplifier), IBU (Integrated Body Control Unit), AUDIO
SEAT VENT		20A	VENTILATION SEAT
MULTIMEDIA		20A	AUDIO
AIR BAG		10A	ACU
POWER OUTLET		20A	POWER OUTLET
A/C3		7.5A	MTC,FATC,ECU
DOOR LOCK		20A	DOOR ACTUATOR
SPARE		7.5A	E-CALL
MODULE5		10A	AT_LEVER_IND, HLLD, SEAT_EXTN_DRV, AUDIO, AMP (Amplifier), MTC/FATC, ECM_MIRR, WIRELESS CHARGER
ABS3		10A	ABS (ANTI-LOCK BRAKE SYSTEM)
BRAKE SWITCH		7.5A	STOP SWITCH
START1		7.5A	START Relay
CLUSTER		10A	CLUSTER
MODULE4		10A	RPAS, C_PAD_SW(ESC SW)
IBU2		15A	IBU (INTEGRATED BODY CONTROL UNIT)

Fuse Name	Symbol	Fuse rating	Circuit Protected
ACC1	<sup>1</sup> ACC	10A	AMP (Amplifier), O_S_MIRR_SW, AUDIO/AVN, IBU (Integrated Body Control Unit) (BCM (Body Control Module)), VDMS, REAR USB, USB_CHARGER
MODULE7	<sup>7</sup> MODULE	10A	MULTI FUNCTION SWITCH
WASHER		15A	M/F(WASHER PWR)
MODULE6	<sup>6</sup> MODULE	7.5A	IBU (INTEGRATED BODY CONTROL UNIT)
IBU1	<sup>1</sup> IBU	10A	IBU (INTEGRATED BODY CONTROL UNIT)
A/BAG IND	<sup>IND</sup> 	10A	CLUSTER
A/C2	<sup>2</sup> A/C	7.5A	MTC, FATC, ECU
WIPER RR		15A	REAR WIPER MOTOR
ECU4	<sup>E4</sup> 	10A	ECU
MDPS <sup>2</sup> 1	<sup>2</sup>  1	10A	MDPS <sup>1</sup> (Motor Driven Power Steering)

\*1: MDPS(Motor Driven Power Steering) is the same as EPS(Electric Power Steering).


















### Engine compartment fuse panel
















8

## Engine room Junction Block

Refer to the following table for a description of the fuse.









Fuse Name	Symbol	Fuse rating	Circuit Protected
MAIN FUSE (ALT+MDPS <sup>1</sup> +GLOW)		[(petrol) 1.0 T-GDI] 150A [Smartstream G1.5]125A+80A [Smartstream G1.2] 125A+80A [(Diesel) 1.5 WGT/VGT] 180A+80A+100A	ALT+MDPS <sup>1</sup> +GLOW
ABS1		40A	ABS (Anti-lock Brake System)
ABS2		30A	ABS (Anti-lock Brake System)
REAR HEATED		40A	REAR HEATED
BLOWER		40A	BLOWER
B+1		50A	HEAD LP, TURN SIG LP, EXT TAIL LP, DRL (Daytime Running Light), INT TAIL, BRAKE LP, FOG, LP
B+2		50A	HEAD LP, TURN SIG LP, EXT TAIL LP, DRL (Daytime Running Light), BRAKE LP
B+3		40A	MULTIMEDIA, HEATER, CLUSTER, BRAKE SW, IBU (Integrated Body Control Unit), DOOR LOCK, SEAT VENT
B+4		40A	S/ROOF, P/PWDW, AMP (Amplifier)
IG1	IG1	30A	AIR BAG, MDPS <sup>1</sup> (Motor Driven Power Steering), CLUSTER, IBU (Integrated Body Control Unit), ECU, TCU (Transmission Control Unit), SENSOR, ABS (Anti-lock Brake System)
A/C1	<sup>1</sup> A/C	10A	A/CON
COOLING FAN		[Smartstream G1.5] 40A [(petrol) 1.0 T-GDI] 60A Smartstream G1.2 40A [(Diesel) 1.5 WGT/VGT] 50A	[Smartstream G1.5] 40A [(petrol) 1.0 T-GDI] 60A Smartstream G1.2 40A [(Diesel) 1.5 WGT/VGT] 50A
IG2	IG2	40A	START
FUEL PUMP	FUEL PUMP	20A	FUEL PUMP
ECU2		15A	ECU
ECU3/AMS		[(petrol) 1.0 T-GDI]/Smartstream G1.5] 15A	[(petrol) 1.0 T-GDI/Smartstream G1.5] ECU3
DCT3/ECLUTCH2		15A	[(petrol) 1.0 T-GDI] DCT (Dual Clutch Transmission), ECLUTCH
ECU1		30A	ECU
SNSR6/IG-COIL		[(petrol) 1.0 T-GDI]/Smartstream G1.5] 20A	[(petrol) 1.0 T-GDI/Smartstream G1.5] IG-COIL IG-COIL

Fuse Name	Symbol	Fuse rating	Circuit Protected
ECU5		20A	ECU
SNSR1		10A	SENSOR
SNSR2		10A	SENSOR
SNSR3		10A	[(petrol) 1.0 T-GDI]SNSR3
INJECTOR1		15A	INJECTOR1
SNSR4/INJECTOR2		15A/10A	(Diesel) 1.5 WGT/VGT : SNSR4 Smartstream G1.2 : INJECTOR2
SNSR5/ECU6		10A/15A	[Smartstream G1.5 /[(petrol) 1.0 T-GDI]ECU6
WIPER FRT2		10A	WIPER
HORN		15A	HORN
DCT1/E-CLUTCH1		40A	[(petrol) 1.0 T-GDI] DCT (Dual Clutch Transmission), ECLUTCH
DCT2		40A	[(petrol) 1.0 T-GDI] DCT (Dual Clutch Transmission)
DCT4		40A	[(petrol) 1.0 T-GDI] DCT (Dual Clutch Transmission)
WIPER FRT1		25A	WIPER

\*1: MDPS(Motor Driven Power Steering) is the same as EPS(Electric Power Steering).

## Relay

Refer to the following table for the relay type.

Relay Name	Symbol	Fuse rating	Circuit Protected
BLOWER		35A	BLOWER MOTOR, ICU
A/CON	<b>A/C</b>	20A	A/CON, ECU
C/FAN		70A	COOLING FAN, ECU
START		35A	START SOLENOID, ECU
FUEL PUMP	FUEL PUMP	20A	FUEL PUMP, ECU
MAIN	MAIN RELAY	30A	ECU, PCU, TCU (Transmission Control Unit), SENSOR
FRT WIPER HIGH	<sup>HI</sup> 	35A	WIPER MOTOR
FRT WIPER LOW	<sup>LO</sup> 	35A	WIPER MOTOR
RR WIPER		20A	REAR WIPER MOTOR
HORN		20A	HORN Left Handle side/Right Handle side
B/HORN		20A	BURGLAR ALARM HORN

## Light bulbs

Light bulbs are installed in various parts of the vehicle to provide lighting inside and outside the vehicle as well as to alert other vehicles.

### Bulb replacement precaution

Please keep extra bulbs on hand with appropriate wattage ratings in case of emergencies.

Refer to "Bulb wattage" on page 9-4.

When changing lamps, first turn off the vehicle at a safe place, firmly apply the parking brake and detach the battery's negative (-) terminal.

### ⚠ WARNING

#### Working on the lights

Prior to working on the light, firmly apply the parking brake, ensure that turn the ignition switch and turn off the lights to avoid sudden movement of the vehicle and burning your fingers or receiving an electric shock.

Use only bulbs of the specified wattage.

### ⚠ CAUTION

#### Light replacement

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

Fully install light bulbs and any parts used to secure them. Failure to do so may result in heat damage, fire, or water entering the headlight unit. This may damage the headlights or cause condensation to build up on the lens. To prevent damage or fire, make sure bulbs are fully seated and locked.

### ⚠ CAUTION

#### Headlamp lens

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

### \* NOTICE

- If the light bulb or lamp connector is removed whilst the lamp is still on, the fuse box's electronic system may log it as a malfunction. Therefore, a lamp malfunction incident may be recorded as a Diagnostic Trouble Code (DTC) in the fuse box.
- It is normal for an operating lamp to flicker momentarily. This is due to a stabilization function of the vehicle's electronic control device. If the lamp lights up normally after momentarily blinking, then it is functioning as normal.

However, if the lamp continues to flicker several times or turns off completely, there may be an error in the vehicle's electronic control device. So we recommend that you have the vehicle checked by an authorised Kia dealer immediately.

### \* NOTICE

We recommend that the headlight aiming be adjusted by an authorised Kia dealer after an accident or after the headlight assembly is reinstalled.

### \* NOTICE

You can find moisture inside the lens of lamps after a car wash or driving in the rain. It is a natural event caused by the temperature difference between the inside and the outside of the lamp and

does not mean a problem with its functions. The moisture inside the lamp would disappear if you drive the vehicle with the headlamp turned on, however, the level at which the moisture is removed may differ depending on the size/location/condition of the lamp. If the moisture continues to stay inside the lamp, have the vehicle checked by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

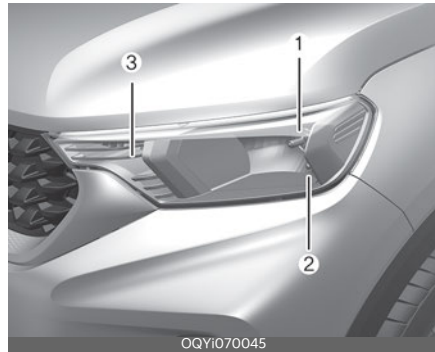
If you don't have the necessary tools, the correct bulbs and the expertise, consult a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner. In many cases, it is difficult to replace vehicle light bulbs because other parts of the vehicle must be removed before you can get to the bulb. This is especially true if you have to remove the headlamp assembly to get to the bulb(s).

Removing/installing the headlamp assembly can result in damage to the vehicle. If non-genuine parts or substandard bulbs are used, it may lead to blowing a fuse or other wiring damages.

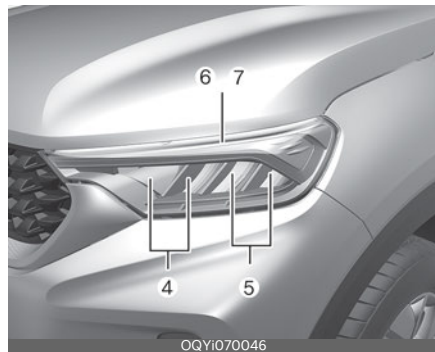
Do not install extra lamps or LEDs to the vehicle. If additional lights are installed, it may lead to lamp malfunctions and flickering. Additionally, the fuse box and other wiring may be damaged.

## Light bulb position (Front)

Headlamp - Type A



Headlamp - Type B



Fog lamp

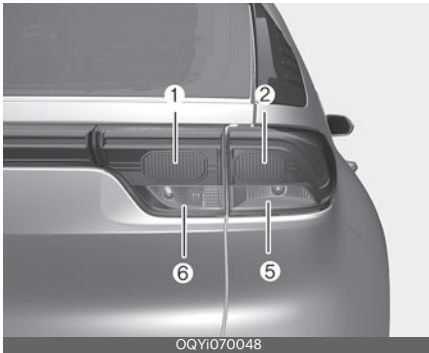


- 1 Headlamp (High & Low) (Bulb type)
- 2 Position lamp (Bulb type)

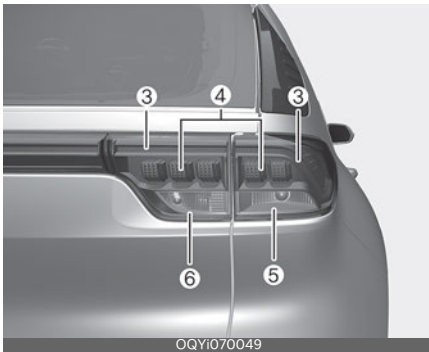
- 3 Turn signal lamp (Bulb type)
- 4 Headlamp (High) (LED type)
- 5 Headlamp (Low) (LED type)
- 6 Position lamp/Daytime running lamp (LED type)
- 7 Turn signal lamp (LED type)
- 8 Front fog lamp (Bulb type)

### Light bulb position (Rear)

Rear combination lamp - Type A



Rear combination lamp - Type B



License plate lamp



High mounted stop lamp



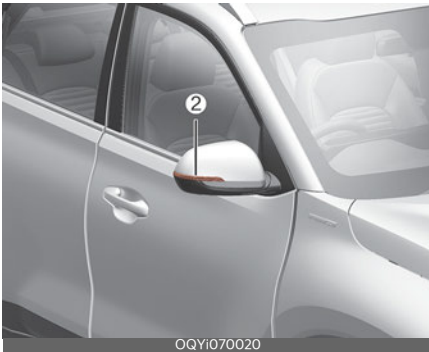
Rear fog lamp



- 1 Tail lamp (Bulb type)
- 2 Tail lamp/Stop lamp (Bulb type)
- 3 Tail lamp (LED type)

- 4 Tail lamp/Stop lamp (LED type)
- 5 Rear turn signal lamp (Bulb type)
- 6 Back up lamp (Bulb type)
- 7 License plate lamp (Bulb type)
- 8 High mounted stop lamp (Bulb type)
- 9 Rear fog lamp (Bulb type)

### Light bulb position (Side)



- 1 Side direction indicator lamp (Bulb type)
- 2 Side repeater lamp (LED type)

### Headlamp bulb



#### **WARNING**

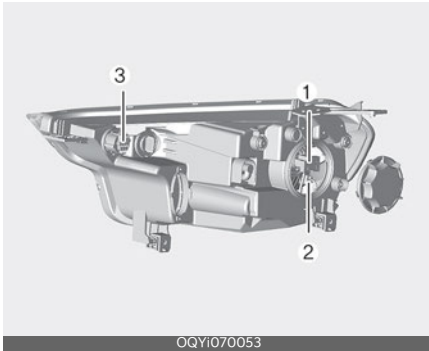
#### Halogen bulbs

Handle halogen bulbs with care.

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



## Replacing headlamp (low/high)/ turn signal lamp/position lamp (bulb type) (headlamp type A)



- 1 Headlamp (low and high)
- 2 Position lamp
- 3 Turn signal lamp

To prepare replacing the lamp bulb:

1. Open the bonnet.

To replace the headlamp (low/high) bulb:

1. Remove the front bumper.
2. Remove the headlight from vehicle by unscrewing the 2 bolts on top of the headlight.
3. Remove the headlight bulb cover by turning it counterclockwise.
4. Disconnect the headlight bulb socket-connector.
5. Unsnap the headlight bulb retaining wire by depressing the end and pushing it upward.
6. Remove the bulb from the headlight assembly.
7. Install a new headlight bulb and snap the headlight bulb retaining wire into position by aligning the wire with the groove on the bulb.
8. Connect the headlight bulb socket connector.

9. Install the headlight bulb cover by turning it clockwise.

To replace the turn signal lamp and position lamp bulb:

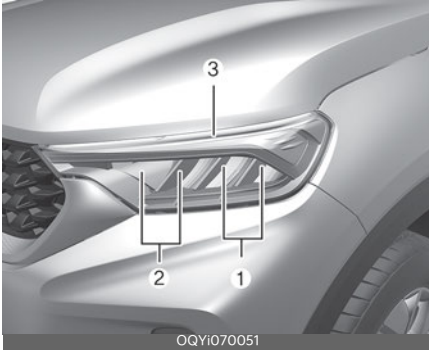
1. Remove the socket from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.
2. Insert a new bulb by inserting it into the socket and rotating it until it locks into place.
3. Install the socket in the assembly by aligning the tabs on the socket with the slots in the assembly.
4. Push the socket into the assembly and turn the socket clockwise.

### \* NOTICE

KIA recommends to visit authorised dealer for high/low bulb replacement as it involves disassembly of bumper and head light.

## Replacing headlamp (low/high)/ turn signal lamp/position lamp/ daytime running lamp bulb (LED type) (headlamp type B)

If the headlamp (low) (1), headlamp (high) (2), turn signal lamp/position lamp/daytime running lamp LED (3) does not operate, we recommend that the system be checked by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.



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

A skilled technician should check or repair the position lamp/daytime running lamp (LED), for it may damage related parts of the vehicle.

### Replacing front fog lamp (bulb type)



1. Remove the front bumper.
2. Remove the front fog lamp assembly (1) from the vehicle.
3. Disconnect the bulb electrical connector.
4. Separate the socket and the lens parts by turning the socket counterclock-

wise until the tabs on the socket align with the slots on the lens part.

5. Remove the bulb by pulling it straight out.
6. Insert a new bulb in the socket.
7. Reassemble the socket and the lens part.
8. Connect the bulb electrical connector.
9. Reinstall the lamp assembly to the body of the vehicle.

If it does not operate, Kia recommends to visit an authorised Kia dealer/service partner or a professional workshop.

### Replacing rear fog lamp (bulb type)



1. Remove the rear bumper.
2. Remove the rear fog lamp assembly (1) from the vehicle.
3. Disconnect the bulb electrical connector.
4. Separate the socket and the lens parts by turning the socket counterclockwise until the tabs on the socket align with the slots on the lens part.
5. Remove the bulb by pulling it straight out.
6. Insert a new bulb in the socket.
7. Reassemble the socket and the lens part.

8. Connect the bulb electrical connector.
9. Reinstall the lamp assembly to the body of the vehicle.

If it does not operate, Kia recommends to visit an authorised Kia dealer/service partner or a professional workshop.

### Replacing side direction indicator lamp bulb (bulb type)



1. Remove the lamp assembly from the vehicle by prying the lens and pulling the assembly out.
2. Disconnect the bulb electrical connector.
3. Separate the socket and the lens parts by turning the socket counterclockwise until the tabs on the socket align with the slots on the lens part.
4. Remove the bulb by pulling it straight out.
5. Insert a new bulb in the socket.
6. Reassemble the socket and the lens part.
7. Connect the bulb electrical connector.
8. Reinstall the lamp assembly to the body of the vehicle.

If it does not operate, Kia recommends to visit an authorised Kia dealer/service partner or a professional workshop.

### Replacing side repeater lamp (LED Type) bulb



If the side repeater lamp LED (1), does not operate, we recommend that the system be checked by a professional workshop. Kia recommends to visit an authorised Kia dealer/service partner.

### Replacing rear turn signal lamp/tail and stop lamp bulb (bulb type) (rear combination lamp type A, B)

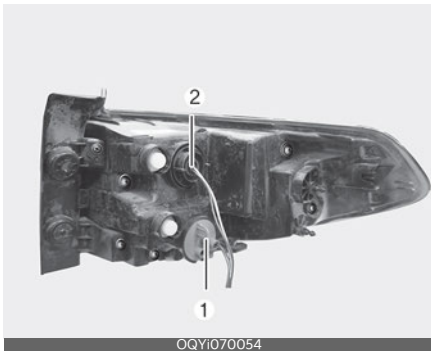
Type A



Type B

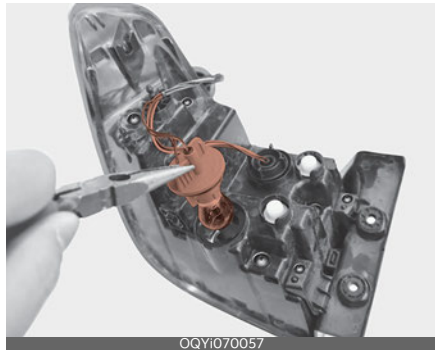


- 1 Turn signal lamp
  - 2 Tail and stop lamp
- To place the lamp bulb:
1. Open the tailgate.
  2. Loosen the light assembly retaining screws with a cross-tip screwdriver.
  3. Remove the rear combination light assembly from the body of the vehicle.



4. Remove the socket (1, 2) 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 counter-

clockwise until the tabs on the bulb align with the slots in the socket.



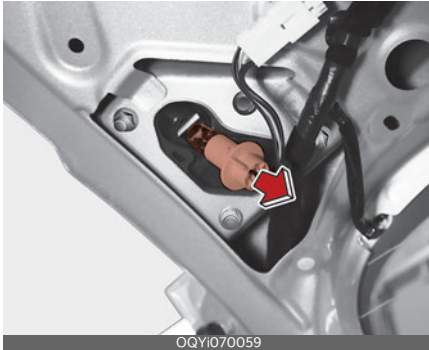
6. Pull the bulb out of the socket.
7. Insert a new bulb by inserting it into the socket and rotating it until it locks into place.
8. Install the socket in the assembly by aligning the tabs on the socket with the slots in the assembly.
9. Push the socket into the assembly and turn the socket clockwise.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

**Replacing tail lamp/back up lamp bulb (bulb type)**



1. Open the tailgate.
2. Remove the nuts from the tailgate lid cover.

- Remove the socket from the assembly by turning the socket counterclockwise until the tabs on the socket align with the slots on the assembly.
- 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.



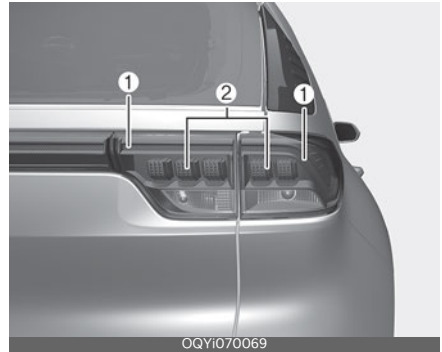
- Insert a new bulb by inserting it into the socket and rotating it until it locks into place.
- Install the socket in the assembly by aligning the tabs on the socket with the slots in the assembly. Push the socket into the assembly and turn the socket clockwise.
- Install the tailgate lid cover.

If you reassemble the tailgate trim after removing it to replace the lamp, it may cause unexpected problems. Kia recommends to visit an authorised Kia dealer/service partner.

### Replacing tail lamp/tail and stop lamp (LED type) (rear combination lamp type B)

If the tail lamp (1) or tail and stop lamp (2) does not operate, we recommend that the system be checked by a professional workshop. Kia recommends to

visit an authorised Kia dealer/service partner.



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

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

### Replacing high mounted stop lamp bulb (bulb type)

- Open the tailgate.



- Remove the three round head cap nut fixing the high mounted stop lamp using a wrench.
- Pull out the high mounted stop lamp assembly and unplug the connector.



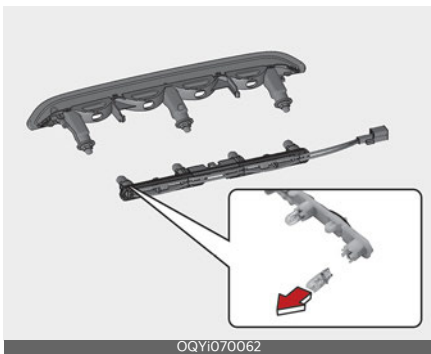
OQYI071024R

4. Remove the bulb holder bracket from the assembly.



OQYI070061

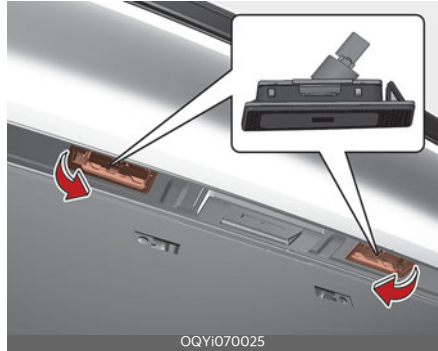
5. Pull out the bulb from the socket.



OQYI070062

6. Insert a new bulb in the socket.  
7. Install the high mounted stop lamp in the reverse order of removal.

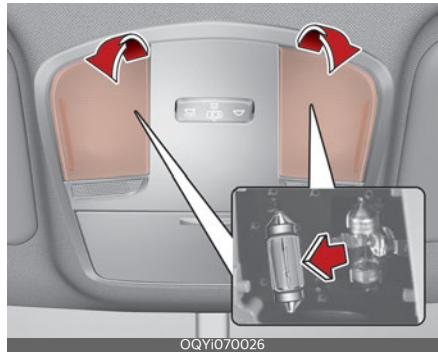
### Replacing license plate lamp bulb (bulb type)



OQYI070025

1. Using a screwdriver, gently pry the lamp assembly from interior.
2. Remove the bulb by pulling it straight out.
3. Install a new bulb in the socket.
4. Install the lamp assembly to interior.

### Replacing map lamp bulb (bulb type) (if equipped)



OQYI070026

### **⚠ WARNING**

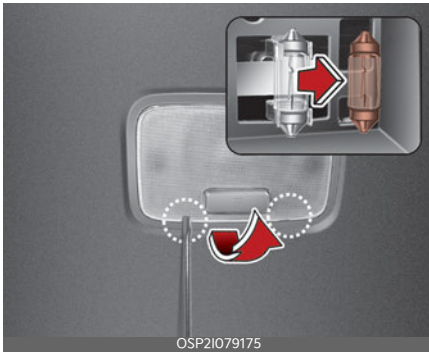
Prior to working on the Interior lamps, ensure that the "OFF" button is depressed to avoid burning your fingers or receiving an electric shock.

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

### \* NOTICE

Be careful not to dirty or damage the lens, lens tab, and plastic housings.

## Replacing room lamp bulb (bulb type)



### ⚠ WARNING

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

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

### \* NOTICE

Be careful not to dirty or damage the lens, lens tab, and plastic housings.

## Replacing luggage room lamp bulb (bulb type) (if equipped)



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

### ⚠ CAUTION

Be careful not to dirty or damage the lens, lens tab, and plastic housings.

## Appearance care

Use the information in the following sections to keep the exterior and interior of your vehicle clean.

### Exterior care

Use the information in the following sections to maintain the exterior of your vehicle. Keeping the exterior clean is not only aesthetically pleasing, but it also helps to prolong the life of the vehicle.

#### \* NOTICE

If you park the vehicle around a stainless signboard or windscreen building etc., the plastic exterior trim (bumper, spoiler, garnish, lamp, outside mirror etc.) may be damaged by reflected sunlight from the external structure. To avoid damaging the plastic exterior trim, park the vehicle away from the areas where the reflected light may occur or use a vehicle cover. (Depending on the vehicle, the type of exterior trim applied such as spoiler may differ.)

### Exterior general caution

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

### Finish maintenance

#### Washing

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

If you use your vehicle for off-road driving, you should wash it after each off-

road trip. Pay special attention to the removal of any accumulation of salt, dirt, mud, and other foreign materials. Make sure the drain holes in the lower edges of the doors and rocker panels are kept clear and clean.

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

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

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

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

#### ⚠ CAUTION

- 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 and lamps, do not clean with chemical solvents or strong detergents.

#### ⚠ WARNING

After washing the vehicle, test the brakes whilst driving slowly to see if they have been affected by water. If braking



performance is impaired, dry the brakes by applying them lightly whilst maintaining a slow forward speed.

### 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.

#### ⚠ CAUTION

#### Wetting engine compartment



- 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/elec-

tronic components and air duct inside the vehicle as this may damage them.

### Waxing

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.

Be careful not to touch the lens when waxing the lamps.

#### ⚠ CAUTION

#### Drying vehicle

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

### Finish damage repair

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

## \* NOTICE

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

### 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 the doors, rocker panels, and frame mem-

bers have drain holes that should not clog with dirt; trapped water in these areas can cause rusting.

### Aluminium wheel maintenance (if equipped)

The aluminium wheels are coated with a clear protective finish.

- Do not use any abrasive cleaner, polishing compound, solvent, or wire brushes on aluminium wheels. They may scratch or damage the finish.
- Clean the wheel when it has cooled.
- Use only a mild soap or neutral detergent, and rinse thoroughly with water. Also, be sure to clean the wheels after driving on salted roads. This helps prevent corrosion.
- Avoid washing the wheels with high speed vehicle wash brushes.
- Do not use any alkaline or acid detergents. It may damage and corrode the aluminium wheels coated with a clear protective finish.

### Corrosion protection

#### Protecting your vehicle from corrosion

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

#### Common causes of corrosion

The most common causes of corrosion on your vehicle are:

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

### High-corrosion areas

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

### Moisture breeds corrosion

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

Mud is particularly corrosive because it dries slowly 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

You can help prevent corrosion from beginning by observing the following:

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

### Don't neglect the interior

Moisture can collect under the floor mats and carpeting and cause corrosion. Check under the mats periodically to be sure the carpeting is dry. Use particular care if you carry fertilizers, cleaning materials or chemicals in the vehicle.

These should be carried only in proper containers and any spills or leaks should be cleaned up, flushed with clean water and thoroughly dried.

### Interior care

Use the information in the following sections to maintain the interior of your vehicle.

#### \* NOTICE

#### Interior general precautions

Prevent chemicals such as perfume, cosmetic oil, sun cream, hand cleaner, and air freshener from contacting the interior parts because they may cause damage

or discoloration. If they do contact the interior parts, wipe them off immediately. If necessary, use a mixture of warm water and mild non-detergent cleaner (test all cleaners on a concealed area before use). Use proper car cleaner to clean interior parts.

#### ⚠ CAUTION

#### Electrical components

Never allow water or other liquids to come in contact with electrical/electronic components inside the vehicle as this may damage them.

#### ⚠ CAUTION

#### Leather

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 colour of the leather may fade or the surface may get stripped off.

### Taking care of leather seats (if equipped)

- 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 leather seat cover often with dry or soft cloth.
- Sufficient use of a leather protective may prevent abrasion of the cover and helps maintain the colour. Be sure to read the instructions and consult a specialist when using leather coating or protective agents.
- Leather with bright colours (beige, cream beige) is easily contaminated

and clear in appearance. Clean the seats frequently.

- Avoid wiping with wet cloth. It may cause the surface to crack.

### **Cleaning the leather seats (if equipped)**

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 point. 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 for leather only.
- Chewing gum
  - Harden the gum with ice and remove gradually.

### **Fabric seat cover (if equipped)**

Please clean the fabric seats regularly with a vacuum cleaner in consideration of fabric material characteristics. If they are heavily soiled with beverage stains, etc., use a suitable interior cleaner. To prevent damage to seat covers, wipe off the seat covers down to the seams with a large wiping motion and moderate pressure using a soft sponge or microfibre cloth.

Velcro closures on clothing or sharp objects may cause snagging or scratches on the surface of the seats.

Make sure not to rub such objects against the surface.

### **Cleaning the upholstery and interior trim**

#### **Car interior surfaces**

Remove dust and loose dirt from interior surfaces with a whisk broom or a vacuum cleaner. If necessary, clean interior surfaces with a mixture of warm water and mild non-detergent cleaner (test all cleaners on a concealed area before use).

#### **Fabric**

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 colour can be affected. Also, its fire-resistant properties can be reduced if the material is not properly maintained.

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

### **Cleaning the lap/shoulder 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 it.

## 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 a glass cleaner. Follow the directions on the glass cleaner container.

### CAUTION

#### Rear window

Do not scrape or scratch the inside of the rear window. This may result in damage of 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 Warranty & Consumer Information manual in your vehicle.

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

1. Crankcase emission control system
2. Evaporative emission control system
3. Exhaust emission control system

In order to assure the proper function of the emission control systems, it is recommended that you have your vehicle inspected and maintained by an authorised Kia dealer in accordance with the maintenance schedule in this manual.

## Caution for the Inspection and Maintenance Test (With Electronic Stability Control (ESC) system)

- To prevent the vehicle from misfiring during dynamometer testing, turn the ESC off by pressing the ESC switch.
- After dynamometer testing is completed, turn the ESC 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 Positive Crankcase Ventilation (PCV) valve into the induction system.

## 2. Evaporative emission control (including Onboard Refuelling Vapor Recovery (ORVR)) system

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 whilst refuelling 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 (PCSV) 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 whilst maintaining good vehicle performance.

## Engine exhaust gas precautions (carbon monoxide)

- Carbon monoxide can be present with other exhaust fumes. Therefore, if you smell exhaust fumes of any kind inside your vehicle, have it inspected and repaired immediately. If you ever suspect exhaust fumes are coming into your vehicle, drive it only with all the windows fully open. Have your vehicle checked and repaired immediately.

### WARNING

#### Exhaust

Engine exhaust gases contain carbon monoxide (CO). Though colourless and odourless, 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

#### Catalytic converter

Keep away from the catalytic converter and exhaust system whilst the vehicle is running or immediately thereafter. The exhaust and catalytic systems are very hot and may burn you.

## WARNING

### Fire

- 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.
- Also, do not remove the heat sink around the exhaust system, do not seal the bottom of the vehicle or 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.

Therefore, the following precautions must be observed:

- Use only UNLEADED FUEL for petrol 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 ignition off and descending steep grades in gear with the ignition 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 a professional workshop. Kia recommends to

visit an authorised Kia dealer/service partner.

- Avoid driving with an extremely low fuel level. Running out of fuel could cause the engine to misfire, damaging the catalytic converter.


Failure to observe these precautions could result in damage to the catalytic converter and to your vehicle. Additionally, such actions could void your warranties.

### Petrol Particulate Filter (PPF) (if equipped)

The Petrol Particulate Filter (PPF) system removes the soot in the exhaust gas.

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

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

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


PPF Lamp stops illuminating, when the driving speed exceeds 80 km/h with engine rpm 1,500~4,000 and the gear in the 3rd position or above for approximately 30 minutes.




When the PPF lamp starts to blink or the warning message "check exhaust system" pops up even though the vehicle was driven as mentioned above, we recommend that you have the PPF system checked by an authorised Kia dealer. With the PPF lamp blinking for an extended period of time, it may damage the PPF system and lower the fuel economy.

### Diesel Particulate Filter (if equipped)

The Diesel Particulate Filter (DPF) system removes the soot in the exhaust gas.

Unlike a disposable air filter, the DPF system automatically burns (oxidizes) and removes the accumulated soot according to the driving condition. In other words, the active burning by engine control system and high exhaust gas temperature caused by normal/high driving condition burns and removes the accumulated soot. However, if the vehicle continues to be driven at repeated short distance or driven at low speed for a long time, the accumulated soot may not be automatically removed because of low exhaust gas temperature. More than a certain amount of soot deposited, the malfunction indicator light () illuminates.

When the malfunction indicator light blinks, it may stop blinking by driving the vehicle at more than 60 km/h (37 mph) or at more than second gear with 1500~2500 engine rpm for a certain time (for about 25 minutes).

If the malfunction indicator light () continues to be blinked or the warning message "Check exhaust system" illumi-

nates in spite of the procedure, visit a professional workshop and check the DPF system. Kia recommends to visit an authorised Kia dealer/service partner. If you continue to drive with the malfunction indicator light blinking for a long time, the DPF system can be damaged and fuel consumption can be worsen and engine durability can be worsen by oil dilution.

### CAUTION

#### Diesel Fuel (if equipped with DPF)

It is recommended to use the regulated automotive diesel fuel for diesel vehicle equipped with the DPF system.

If you use diesel fuel including high sulfur (more than 50 ppm sulfur) and unspecified additives, it can cause the DPF system to be damaged and white smoke can be emitted.

### Lean NOx Trap

The Lean NOx Trap (LNT) system removes the nitrogen oxide in the exhaust gas. The smell can occur in the exhaust gas depending on the quality of the fuel and it can degrade NOx reduction performance, please use the regulated automotive diesel fuel.

## 4. Self Regeneration Mode

### LCD Type

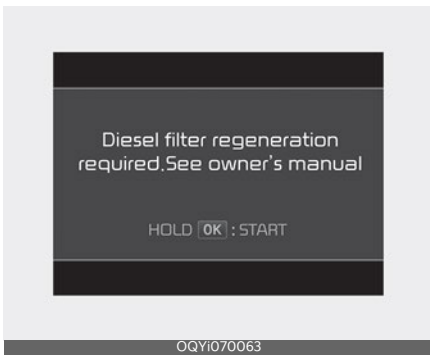
If the warning message "Self Regeneration" is stored in inspection message tap, it is operable in LCD warning message page.

### WARNING

- Make sure the vehicle parked on safety zone (to avoid the flammables like grass and traffic accident)

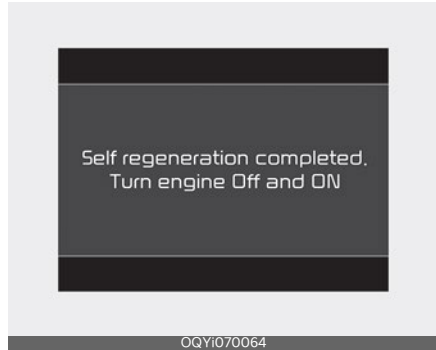
- Check remained fuel above 1/5 of full level fuel gauge to prevent fuel over-heat
- Open the bonnet to prevent engine room overheat
- Self regeneration should be done only when DPF indicator illuminates

If the warning message "Diesel filter regeneration required, See owner's manual." appears on the LCD display, Self Regeneration is required.



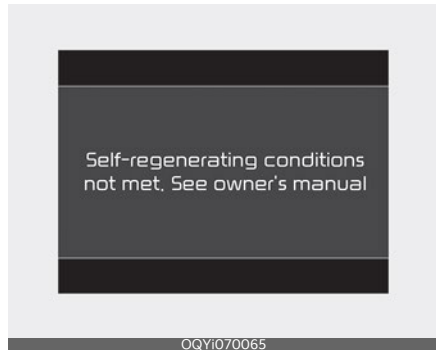
**To initiate Self Regeneration**

1. Engage parking brake and shift lever at P state.
2. Turn on the engine
3. Warm up the engine and check engine temperature gauge at the middle position
4. Turn on the air conditioner and set the blower to the maximum.
5. Turn on the high beam.
6. Operate the rear defog function.
7. Hold the OK button on the LCD warning message page.



8. Turn off and turn on the engine again.

**Not Operating Condition**



Under below condition, Diesel Catalyst regeneration process may be interrupted. (Engine RPM drops to idle state)

- Engine overheat or insufficient warm-up
- Shift lever change to D or R state
- Acceleration pedal is pressed
- Movement of Vehicle (Vehicle speed over 0)

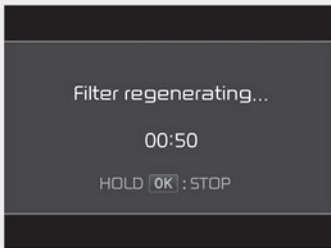
**Service Check**

If the DPF indicator change from illuminates to blink or Engine Check Lamp (MIL) illuminates with DPF indicator in spite of the procedure, please visit an

authorised Kia dealer and then check the Diesel Catalyst and engine system including oil level inspection.

Please note that the vehicle acceleration is limited to protect engine system when DPF indicator blinks or Engine Check Lamp (MIL) illuminates.

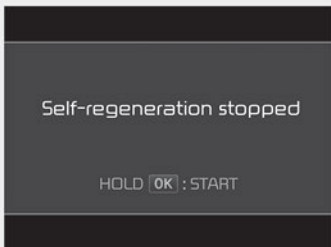
### Operating Self Regeneration Mode



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If the self regeneration mode starts, the message "Filter regenerating..." and the remaining time appears. It takes around 30~60 minutes.

### Self Regeneration Mode Fail



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The regeneration operation could be cancelled if the driver press the OK but-

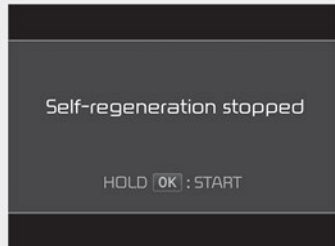
ton firmly whilst operating the self regeneration process.



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If the system still needs the self regeneration process after cancelling the operation, the warning message appears. (Diesel filter regeneration required.)

If the driver press the OK button firmly, it can restart the self regeneration mode again. (The Self regeneration conditions should be satisfied.)



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The self regeneration process stops if any of the self regeneration conditions is cancelled. If the self regeneration process is cancelled automatically, the system maintains "Self regeneration stopped" message.

If the driver press the OK button firmly, it can restart the self regeneration mode

again. (Self regeneration conditions should be satisfied.)

## Segment Type

### Regeneration

The self regeneration procedure is conducted as follows.

1. Repeat key position at LOCK (or ACC) ↔ ON state 5 times (within 30 seconds)
2. Start engine
3. Monitor engine state  
: Within 20 seconds, engine RPM rise to about 2000 and it continues for 30~60 minutes. After the end of regeneration, engine RPM drop to idle automatically.
4. Stop the engine (Key Off), wait for 20 seconds and restart the engine
5. Check malfunction indicator turn out

### CAUTION

Under below condition, Diesel Catalyst regeneration process may be interrupted. (Engine RPM drops to idle state)

- Engine overheat or insufficient warm-up
- Shift lever change to D or R state
- Acceleration pedal is pressed
- Movement of Vehicle (Vehicle speed over 0)

### WARNING

If vehicle doesn't enter regeneration mode or if regeneration mode is interrupted, stop the engine (Key Off), wait for 20 seconds and retry the self regeneration procedure.

### WARNING

Self regeneration should be done only when DPF indicator illuminates. Frequent regeneration may cause engine oil dilution and shortening of Diesel Catalyst durability.

### Service Check

If the DPF indicator change from illuminates to blink or Engine Check Lamp (MIL) illuminates with DPF indicator in spite of the procedure, please visit an authorised Kia dealer and then check the Diesel Catalyst and engine system including oil level inspection.

Please note that the vehicle acceleration is limited to protect engine system when DPF indicator blinks or Engine Check Lamp (MIL) illuminates.