



2009 Geely EC718 , EC718RV and EC715, EC715RV Workshop Manual

This workshop manual provides model year 2009 EC718/EC718RV and EC715/EC715RV models specification, diagnostic and service information.

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Preface

This is EC718/EC718RV and EC715/EC715RV workshop manual. Please refer to the index to retrieve the section you need.

Models	EC718/EC718RV and EC715/EC715RV
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Please note that the following publication is also for the related components and systems maintenance. "

Manual Name	Publication Number
EC718/EC718RV and EC715/EC715RV Wiring Diagram	

All the information in this manual is based on the latest products available at the time of publishing. The specifications and the repair procedures may change without prior notice.

It is recommended that you contact Geely Automotive Co., Ltd. to obtain the information about the products, part numbers or special tools referred in this manual.

If there are any omissions or mistakes, please contact Geely Automotive Co., Ltd. to amend.

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Warnings

This manual does not include all the repair information required. It is for experienced and qualified personnel. A non-professional or non-qualified technician using the manual or not having the appropriate equipment and tools for repair, it may cause serious personal injury or damage to the vehicle.

To prevent personal injury or damage to the vehicles, please make sure follow the instructions below.

- Carefully read through this manual. Fully understanding of "Warnings and Notices" in the "Overview" section is particularly important.
- Repair procedures described in this manual is helpful for the repair work. When following the repair procedures in this manual, make sure use the recommended tools. If using tools other than recommended or not following the repair procedures, prior to commencing repair, ensure the safety of technical personnel and prevent personal injury or damage to customer vehicles.
- When replacing parts, please use parts approved by Geely Automotive Co., Ltd. with the same part numbers. Do not use inferior parts.
- To reduce the risk of causing bodily harm and to reduce the possibilities of causing vehicle damage, please strictly follow all the warnings and notes. It is also important to realize that the "Warning" and the "Note" are not exaggerated. Non-compliance may lead to dangerous consequences.
- Before repairing the airbag system components or working in the vicinity of airbag system, please refer to the "Airbag system component Locator" in the "Safety" section and the "Wiring Harness Routing Views" in the Wiring Diagram. Understand the airbag system components locations on a vehicle. Strictly follow all of the contents in the "Warnings and Notices". Violating these will result in airbag deployment, personal injury or to unnecessary airbag system repair.

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1 Vehicle Overview

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1.1 Warnings and Notices

1.1.1 Description and Operation

1.1.1.1 Warnings and Notices

Definition of the "Warning", "Notice" and "Note"

Diagnostic and repair procedures include general and specific, two types of "Warning", "Notice" and "Note". Geely is committed to provide information to assist service technicians with diagnostic and repair and to restore the vehicle to normal running condition. However, if the technician does not follow the recommended procedures, certain procedures may cause danger to the technician.

"Warning", "Notice" and "Note" are to prevent the occurrence of such danger. Not all risks are foreseeable. They are at apparent locations in the workshop manual. This information is prepared to prevent the following cases:

- Severe personal injury
- Vehicle damage
- Unnecessary vehicle repair
- Unnecessary replacement of parts
- Improper vehicle repair or part replacement

Definition of "Warning"

A "Warning" means a procedure must be taken or a prohibited procedure. If a "warning" is ignored, it may have the following consequences:

- Severe personal injury
- If a vehicle is not properly repaired, it may cause severe personal injury to the driver and / or passengers.

Definition of "Notice"

"Notice" requires to pay special attention to a must taken procedure or a prohibited procedure. If a "Notice" is ignored, it may have the following consequences:

- Vehicle damage
- Unnecessary vehicle repair
- Unnecessary replacement of parts
- Improper operation of the repaired systems or components
- Damage to related systems or components
- Damaged to fasteners, tools or special tools
- Engine coolant, lubricants, or other fluid leak

Definition of "Note"

"Note" states the importance of a diagnostic procedure or the need". The purpose of the "Note" is as following:

- Clarify the procedures
- Provide additional information for completing a procedure
- Clarify the recommended procedures for operational reasons
- Provide help for technicians to complete the repair more efficiently
- Provide experience to technicians to complete the repair more easily

Vehicle Lifting Warning

Warning: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

ABS Component Handling Warning

Warning: Certain components in the Anti-lock Brake System (ABS) are not intended to be serviced individually. Attempting to remove or disconnect certain system components may result in personal injury and/or improper system operation. Only those components with approved removal and installation procedures should be serviced.

Approved Equipment for Collision Repair Warning

Warning: To avoid personal injury when exposed to welding flashes or to galvanized (Zinc Oxide) metal toxic fumes while grinding/cutting on any type of metal or sheet molded compound, you must work in a properly ventilated area, wearing an approved respirator, eye protection, earplugs, welding gloves, and protective clothing.

Assistant Driving Warning

Warning: An assistant should drive the vehicle while the technician checks for the location of the reported condition. Otherwise, personal injury could result.

Battery Disconnect Warning

Warning: Unless directed otherwise, the ignition and start switch must be in the OFF or LOCK position, and all electrical loads must be OFF before servicing any electrical component. Disconnect the negative battery cable to prevent an electrical spark should a tool or equipment come in contact with an exposed electrical terminal. Failure to follow these precautions may result in personal injury and/or damage to the vehicle or its components.

Warning: If repair an airbag, the battery negative cable must be disconnected at least 90s before carry out operations.

Brake Dust Warning

Warning: Avoid taking the following actions when you service wheel brake parts:

- Do not grind brake linings.
- Do not sand brake linings.
- Do not clean wheel brake parts with a dry brush or with compressed air.

Warning: Some models or aftermarket brake parts may contain fibers which can become airborne in dust. Breathing dust with fibers may cause serious bodily harm. Use a water-dampened cloth in order to remove any dust on brake parts. Equipment is available commercially in order to perform this washing function. These wet methods prevent fibers from becoming airborne.

Brake Fluid Warning

Warning: Do not use fluid from an open container that may be contaminated with water. Incorrect or contaminated fluid could result in system failure, loss of vehicle control and personal injury.

Brake Fluid Irritant Warning

Warning: Brake fluid may be irritating to the skin or eyes. In case of contact, take the following actions:

- Eye contact--rinse eyes thoroughly with water.
- Skin contact--wash skin with soap and water.

Brake Pipe Replacement Warning

Warning: Carefully route and retain replacement brake pipes. Always use the correct fasteners and in the original location for replacement brake pipes. Failure to properly route and retain brake pipes may cause damage to the brake pipes and brake system resulting in personal injury.

Breathing R-134a Warning

Warning: Avoid breathing the A/C Refrigerant 134a (R-134a) and the lubricant vapor or the mist. Exposure may irritate the eyes, nose, and throat. Work in a well ventilated area. In order to remove R-134a from the A/C system, use service equipment that is certified to meet the requirements of SAEJ2210 (R-134a recycling equipment). If an accidental system discharge occurs, ventilate the work area before continuing service. Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

Clutch Dust Warning

Warning: When servicing clutch parts, do not create dust by grinding or sanding the clutch disc or by cleaning parts with a dry brush or with compressed air. A water-dampened cloth--NOT SOAKED--should be used. The clutch disc may contain fibers which can become airborne if dust is created during servicing. Breathing dust with fibers may cause serious bodily harm.

Collision Sectioning Warning

Warning: Sectioning should be performed only in the recommended areas. Failure to do so may compromise the structural integrity of the vehicle and cause personal injury if the vehicle is in a collision.

Cracked Window Warning

Warning: If a window is cracked but still intact, crisscross the window with masking tape in order to reduce the risk of damage or personal injury.

Exhaust Service Warning

Warning: In order to avoid being burned, do not service the exhaust system while it is still hot. Service the system when it is cool.

Express Window Down Warning

Warning: Disconnect the power window switch when working inside the driver door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.

Eye Protection Warning

Warning: Approved safety glasses and gloves should be worn when performing this procedure to reduce the chance of personal injury.

Foam Sound Deadener Warning

Warning: Foam sound deadener must be removed from areas within 152.4 mm (6 in) of where flame is to be used for body repairs. When reinstalling foam sound deadener, avoid inhaling fumes as bodily injury may result.

Fuel and Evaporative Emission Pipe Warning

Warning: In order to reduce the risk of fire and personal injury observe the following items:

- Replace all nylon fuel pipes that are nicked, scratched or damaged during installation, do not attempt to repair the sections of the nylon fuel pipes.
- Do not hammer directly on the fuel harness body clips when installing new fuel pipes. Damage to the nylon pipes may result in a fuel leak.
- Always cover nylon vapor pipes with a wet towel before using a torch near them. Also, never expose the vehicle to temperatures higher than 115°C (239°F) for more than one hour, or more than 90°C (194°F) for any extended period.
- Apply a few drops of clean engine oil to the male pipe ends before connecting fuel pipe fittings. This will ensure proper reconnection and prevent a possible fuel leak. (During normal operation, the O-rings located in the female connector will swell and may prevent proper reconnection if not lubricated.)

Fuel Gage Leak Warning

Warning: Wrap a shop towel around the fuel pressure connection in order to reduce the risk of fire and personal injury. The towel will absorb any fuel leakage that occurs during the connection of the fuel pressure gage. Place the towel in an approved container when the connection of the fuel pressure gage is complete.

Fuel Pipe Fitting Warning

Warning: Always apply a few drops of clean engine oil to the male pipe ends before connecting the fuel pipe fittings in order to reduce the risk of fire and personal injury. This will ensure proper reconnection and prevent a possible fuel leak. During normal operation, the O-rings located in the female connector will swell and may prevent proper reconnection if not lubricated.

Fuel Storage Warning

Warning: Do not drain the fuel into an open container. Never store the fuel in an open container due to the possibility of a fire or an explosion.

Fuel Vapors in Evaporative Emission Components Warning

Warning: Do not breathe the air through the EVAP component tubes or hoses. The fuel vapors inside the EVAP components may cause personal injury.

Gasoline/Gasoline Vapors Warning

Warning: Gasoline or gasoline vapors are highly flammable. A fire could occur if an ignition source is present. Never drain or store gasoline or diesel fuel in an open container, due to the possibility of fire or explosion. Have a dry chemical (Class B) fire extinguisher nearby.

Glass and Sheet Metal Handling Warning

Warning: When working with any type of glass or sheet metal with exposed or rough edges, wear approved safety glasses and gloves in order to reduce the chance of personal injury.

Halogen Bulb Warning

Warning: Halogen bulbs contain gas under pressure. Handling a bulb improperly could cause it to shatter into flying glass fragments. To help avoid personal injury:

- Turn off the lamp switch and allow the bulb to cool before changing the bulb.
- Leave the lamp switch OFF until the bulb change is complete.
- Always wear eye protection when changing a halogen bulb.
- Handle the bulb only by its base. Avoid touching the glass.
- Keep dirt and moisture off the bulb.
- Properly dispose of the used bulb.
- Keep halogen bulbs out of the reach of children.

Lower O-Ring Removal Warning

Warning: Verify that the lower (small) O-ring of each injector does not remain in the lower manifold in order to reduce the risk of fire and personal injury.

Warning: If the O-ring is not removed with the injector, the replacement injector with new O-rings will not seat properly in the injector socket. Improper seating could cause a fuel leak.

Moving Parts and Hot Surfaces Warning

Warning: Avoid contact with moving parts and hot surfaces while working around a running engine in order to prevent physical injury.

Protective Goggles and Glove Warning

Warning: Approved safety glasses and gloves should be worn when performing this procedure to reduce the chance of personal injury.

Radiator Cap Removal Warning

Warning: To avoid being burned, do not remove the radiator cap or surge tank cap while the engine is hot. The cooling system will release scalding fluid and steam under pressure if radiator cap or surge tank cap is removed while the engine and radiator are still hot.

Cooling System Repair Warning

Warning: The cooling system is pressurized. The fluid is hotter than boiled water. If open the cap when the engine is not cooled and the pressure is still very high, the engine coolant will boil immediately and may spray onto the operators body, causing serious burns.

Relieving Fuel Pressure Warning

Warning: Remove the fuel tank cap and relieve the fuel system pressure before servicing the fuel system in order to reduce the risk of personal injury. After you relieve the fuel system pressure, a small amount of fuel may be released when servicing the fuel lines, the fuel injection pump, or the connections. In order to reduce the risk of personal injury, cover the fuel system components with a shop towel before disconnection. This will catch any fuel that may leak out. Place the towel in an approved container when the disconnection is complete.

Road Test Warning

Warning: Road test a vehicle under safe conditions and while obeying all traffic laws. Do not attempt any maneuvers that could jeopardize vehicle control. Failure to adhere to these precautions could lead to serious personal injury and vehicle damage.

Safety Goggles and Fuel Warning

Warning: Always wear safety goggles when working with fuel in order to protect the eyes from fuel splash.

SIR Warning

Warning: This vehicle is equipped with a Supplemental Inflatable Restraint (SIR) System. Failure to follow the correct procedure could cause the following conditions:

- Airbag deployment

- Personal injury
- Unnecessary SIR system repairs

Warning: In order to avoid the above conditions, observe the following guidelines:

- Refer to SIR Component Views in order to determine if you are performing service on or near the SIR components or the SIR wiring.
- If you are performing service on or near the SIR components or the SIR wiring, disable the SIR system.

SIR Deployed Inflator Modules Are Hot Warning

Warning: After deployment, the metal surfaces of the SIR component may be very hot. To help avoid a fire or personal injury:

- Allow sufficient time for cooling before touching any metal surface of the SIR component.
- Do not place the deployed SIR component near any flammable objects.

SIR Inflator Module Coil Warning

Warning: Improper routing of the wire harness assembly may damage the inflatable restraint steering wheel module coil. This may result in a malfunction of the coil, which may cause personal injury.

SIR Inflator Module Disposal Warning

Warning: In order to prevent accidental deployment and the risk of personal injury, do not dispose of an undeployed inflator module as normal shop waste. Undeployed inflator modules contain substances that could cause severe illness or personal injury if their sealed containers are damaged during disposal. Use the following deployment procedures to safely dispose of an undeployed inflator module. Failure to observe the following disposal methods may be a violation of federal, state, or local laws.

SIR Inflator Module Handling and Storage Warning

Warning: When carrying an undeployed inflator module:

- Do not carry the inflator module by the wires or connector.
- Make sure the air bag opening points away from you and others.

Warning: When storing an undeployed inflator module, make sure the airbag opening point away from the surface on which the inflator module rests. Do not point the airbag opening to the ground. Do not place any items onto the airbag module. Provide free space for the airbag to expand in case of an accidental deployment.

Do not have the undeployed airbag module soaked in water or come into contact with other liquids.

Do not place the undeployed airbag module near the fire source or a high-temperature area. Prevent personal injury caused by accidental airbag deployment.

Airbag Collision Sensor Handling Warning

Warning: Do not hit or shake airbag system collision sensors. Before supply power to the collision sensors, ensure the collision sensors firmly tightened. Failure to follow the correct procedures may cause airbag accidental deployment or inoperative, resulting in personal injury.

Adding Fluid to the Brake System Notice

Notice: When adding fluid to the brake master cylinder reservoir, use DOT-4 brake fluid from a clean, sealed brake fluid container. The use of any type of fluid other than the recommended type of brake fluid may cause contamination which could result in damage to the internal rubber seals and/ or rubber linings of hydraulic brake system components.

Anti-Corrosion Materials Notice

Notice: If the power steering system has been serviced, an accurate fluid level reading cannot be obtained unless air is bled from the steering system. The air in the fluid may cause pump cavitation noise and may cause pump damage over a period of time.

Belt Dressing Notice

Notice: Do not use belt dressing on the drive belt. Belt dressing causes the breakdown of the composition of the drive belt. Failure to follow this recommendation will damage the drive belt.

Brake Caliper Notice

Notice: Support the caliper with a piece of wire to prevent damage to the brake line.

Brake Fluid Effects on Paint and Electrical Components Notice

Notice: Avoid spilling brake fluid onto painted surfaces, electrical connections, wiring, or cables. Brake fluid will

damage painted surfaces and cause corrosion to electrical components. If any brake fluid comes in contact with painted surfaces, immediately flush the area with water. If any brake fluid comes in contact with electrical connections, wiring, or cables, use a clean shop cloth to wipe away the fluid.

Damage to Fuel Tank Straps Notice

Notice: Do not bend the fuel tank straps. Bending the fuel tank straps may damage the straps.

Engine Emissions Notice

Notice: Modifications made to the engine or exhaust system can effect the vehicle's emission controls and may cause the Malfunction Indicator Lamp (MIL) or Check Engine Lamp to illuminate.

- Engine
- Transmission
- Exhaust System
- Fuel System

Notice: Replacement tires that do not meet the same Tire Performance Criteria (TPC) of the original tire can also affect the vehicle's emission controls. This may also cause the Malfunction Indicator Lamp (MIL) or Check Engine lamp to illuminate.

Notice: Modifications to these systems or the installation of incorrect the TPC tire could lead to repairs that are covered by the manufacturer's warranty. This may also cause a required Emission Inspection/Maintenance test to fail.

Engine Lifting Notice

Notice: When raising or supporting the engine for any reason, do not use a jack under the oil pan, any sheet metal, or the crankshaft pulley. Lifting the engine in an unapproved manner may cause component damage.

Engine Mounting Notice

Notice: Broken engine mountings can cause misalignment of certain drive-train components. Misalignment of drive-train components causes eventual destruction of the drive-train components.

Notice: If one engine mount breaks, the rest of the engine mounts will have increased stress put on them. This could cause the rest of the engine mounts to break.

Excessive Adhesive on Flywheel Bolts Notice

Notice: Apply the proper amount of the sealant to the fastener when assembling this component. Excessive use of the sealant can prohibit the component from being assembled properly or allow the fastener to loosen. A component or fastener that is not assembled properly can loosen or fall off leading to extensive engine damage.

Excessive Force and Oxygen Sensor Notice

Notice: The oxygen sensor may be difficult to remove when the engine temperature is above 48°C (120°F). Excessive force may damage threads in the exhaust manifold or the exhaust pipe.

Exhaust System Inspection Notice

Notice: When inspecting or replacing exhaust system components, make sure there is adequate clearance from all points on the under-body to prevent overheating of the floor pan and possible damage to the passenger compartment insulation and trim materials.

Torque Reaction Against Timing Drive Chain Notice

Notice: A wrench must be used on the hex of the camshaft when loosening or tightening in order to prevent component damage. Failure to prevent the torque reaction against the timing drive chain can lead to timing drive chain failure.

Exterior Trim Emblem Removal Notice

Notice: Use a plastic, flat-bladed tool to prevent paint damage when removing an emblem/name plate.

Fastener Notice

Notice: Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

Fuel Pressure Notice

Notice: Do not allow the fuel pressure to exceed the specified value because damage to the fuel pressure regulator or the fuel pressure gage may result.

Handling Electrostatic Discharge Sensitive Parts Notice

Notice: Electrostatic discharge (ESD) can damage many solid-state electrical components. ESD susceptible components may or may not be labeled with the ESD symbol. Handle all electrical components carefully. Use the following precautions in order to avoid ESD damage:

- Touch a metal ground point in order to remove your body's static charge before servicing any electronic component; especially after sliding across the vehicle seat.
- Do not touch exposed terminals. Terminals may connect to circuits susceptible the ESD damage.
- Do not allow tools to contact exposed terminals when servicing connectors.
- Do not remove components from their protective packaging until required to do so.
- Avoid the following actions unless required by the diagnostic procedure:
 - Jumping or grounding of the components or connectors.
 - Connecting test equipment probes to components or connectors. Connect the ground lead first when using test probes.

Ground the protective packaging of any component before opening. Do not rest solid-state components on metal workbenches, or on top of TVs, radios, or other electrical devices.

Heated Oxygen and Oxygen Sensor Notice

Notice: Do not remove the pigtail from either the heated oxygen sensor (HO2S) or the oxygen sensor (O2S). Removing the pigtail or the connector will affect sensor operation.

Notice: Handle the oxygen sensor carefully. Do not drop the HO2S. Keep the in-line electrical connector and the louvered end free of grease, dirt, or other contaminants. Do not use cleaning solvents of any type.

Notice: Do not repair the wiring, connector or terminals. Replace the oxygen sensor if the pigtail wiring, connector, or terminal is damaged.

Notice: This external clean air reference is obtained by way of the oxygen sensor signal and heater wires. Any attempt to repair the wires, connectors, or terminals could result in the obstruction of the air reference and degraded sensor performance.

Notice: The following guidelines should be used when servicing the heated oxygen sensor:

- Do not apply contact cleaner or other materials to the sensor or vehicle harness connectors. These materials may get into the sensor causing poor performance.
- Do not damage the sensor pigtail and harness wires in such a way that the wires inside are exposed. This could provide a path for foreign materials to enter the sensor and cause performance problems.
- Ensure the sensor or vehicle lead wires are not bent sharply or kinked. Sharp bends or kinks could block the reference air path through the lead wire.
- Ensure that the peripheral seal remains intact on the vehicle harness connector in order to prevent damage due to water intrusion.

Ignition OFF When Disconnecting Battery Notice

Notice: Always turn the ignition OFF when connecting or disconnecting battery cables, battery chargers, or jumper cables. Failing to do so may damage the Power Train Control Module (PCM) or other electronic components.

Installing Hoses without Twists or Bends Notice

Notice: The inlet and outlet hoses must not be twisted during installation. Do not bend or distort the inlet or outlet hoses to make installation easier. Failure to follow these procedures could result in component damage.

Machined Surface Damage Notice

Notice: Do not nick, scratch or damage the sealing surface. The sealing surface is a machined surface. Damage to the machined surface can cause leakage.

Power Train Control Module and Electrostatic Discharge Notice

Notice: Do not touch the connector pins or soldered components on the circuit board in order to prevent possible electrostatic discharge (ESD) damage to the PCM.

Power Steering Hose Disconnected Notice

Notice: Do not start the vehicle with any power steering gear inlet or outlet hoses disconnected. When disconnected, plug or cap all openings of components. Failure to do so could result in contamination or loss of power steering fluid and damage to the system.

Ring Gear Removal Notice

Notice: Do not pry the ring gear from the differential case. Prying the ring gear from the differential case may cause damage to the ring gear and/or the differential case.

Sealant Notice

Notice: Do not allow the RTV sealant to enter any blind threaded hole. RTV sealant that is allowed to enter a blind threaded hole can cause hydraulic lock of the fastener when the fastener is tightened. Hydraulic lock of a fastener can lead to damage to the fastener and/or the components. Hydraulic lock of a fastener can also prevent the proper clamping loads to be obtained when the fastener is tightened. Improper clamping loads can prevent proper sealing of the components allowing leakage to occur. Preventing proper fastener tightening can allow the components to loosen or separate leading to extensive engine damage.

Scan Tool Usage Notice

Notice: Before perform vehicle diagnostic, pay attention to the following, otherwise it may cause damage to the engine control module.

- The scan tool and the software must be up to date.
- Vehicle battery must be fully charged, battery voltage should be between 12-14 V.
- Scan tool terminals must be firmly connected.
- When programming the engine control module, do not connect the battery to the charger.

Steering Wheel in the Full Turn Position Notice

Notice: Do not hold the steering wheel in the full turn position longer than 5 seconds, as damage to the steering pump may result.

Test Probe Notice

Notice: Do not insert test equipment probes (DMM etc.) into any connector or fuse block terminal. The diameter of the test probes will deform most terminals. A deformed terminal will cause a poor connection, which will result in a system failure. Always use approved terminal test kit in order to front probe terminals. Do not use paper clips or other substitutes to probe terminals.

Notice: When using the approved terminal test kit, ensure the terminal test adapter choice is the correct size for the connector terminal. Do not visually choose the terminal test adapter because some connector terminal cavities may appear larger than the actual terminal in the cavity. Using a larger terminal test adapter will damage the terminal.

Using Proper Power Steering Fluid Notice

Notice: When adding fluid or making a complete fluid change, always use DEXRONIII Failure to use the proper fluid will cause hose and seal damage and fluid leaks.

Window Edge Damage Notice

Notice: Avoid damage to the window from impacting objects due to an exposed edge. The window must be 1 mm (0.025 in) below the surface of the sheet metal to avoid window damage.

1.2 Vehicle Inspection

1.2.1 Description and Operation

1.2.1.1 Inspection Items Before Operating The Vehicle

Horn Operation

Occasionally press the horn to ensure the speaker is working properly, check all the button positions.

Brake System Operation

Be aware of any abnormal noise when braking, brake pedal travel increase and repeatedly occurred wheel slip when braking. In addition, if the brake warning light illuminates or flashes, it indicates a fault in the brake system.

Exhaust System Operation

Be aware of the sound change in the exhaust system and odors. These indicate that the system may be leaking or overheating. Check the system immediately and repair if necessary.

Tire and Wheel Alignment

Be aware of the steering wheel and seats vibration when traveling under normal conditions. It indicates that there may be a need to balance the wheels. In addition, the wheel slip on even roads indicates that there may be a need for tire pressure adjustment or wheel alignment.

Steering System Operation

Be aware of the change in steering effort. When steering becomes hard, the steering wheel free travel is great or when there is abnormal sound while turning and parking, the steering system needs to be checked. Occasionally inspect the lighting pattern of the headlamp. If the headlamp lighting pattern is not correct, it should be adjusted.

1.2.1.2 Inspection Items Before Each Time Filling Fuel

Any system fluid leak(except the windshield washer) indicates that the system may be faulty. Check the system immediately and repair if necessary.

Engine Oil Level

Add engine oil if necessary, preferably when engine oil is warm.

1. When the engine is shut down, engine oil will flow back to the bottom of the oil pan after a few minutes.
2. Pull out the dipstick.

3. Wipe clean the dipstick and then insert it back.
4. Pull out the dipstick and inspect the oil level.
5. If necessary, add engine oil, so that the oil level maintained between MIN (minimum) line and the MAX (maximum) line. Do not fill an excessive amount of engine oil, otherwise it may cause damage to the engine.
6. After reading the engine oil level, reinstall the dipstick to the engine. If inspecting the engine oil level when the engine is cold, do not start the cold engine. The cold engine oil will not quickly return to the oil pan, thus the correct oil level reading will not be obtained.

Engine Coolant Level and Conditions

Add engine coolant if necessary. Check the engine coolant, replace the dirty engine coolant.

Windshield Washer Fluid Level

Inspect the washer fluid level and add fluid if necessary.

1.2.1.3 Monthly Inspection Items

Wheels, Tires and Tire Pressure

Inspect for abnormal tire wear or damage. Inspect the wheels for damage. Inspect the tire pressure when cold, also inspect the spare tire. Maintain tire pressure as recommended on the label.

Vehicle Lamp Operation

Inspect the license plate lamps, headlamps (including the high-beam lamps), parking lamps, fog lamps, tail lamps, brake lamps, turn lamps and indicators, reversing lamps and hazard warning lamps operation.

Oil and Fluid Leaks

When the vehicle is parked, regularly inspect whether there is water, engine oil, fuel or other liquids on the ground underneath the car. Water dripping from air-conditioning system after use is normal. If oil leaks or smoke is found, identify the reason and repair if necessary.

1.2.1.4 Inspection Items At Least Twice A Year

Power Steering System Fluid Level

Inspect power steering fluid surface to maintain the correct power steering fluid level.

Brake Master Cylinder Fluid Level

Inspect the brake fluid level and maintain the correct fluid level. If the fluid level is too low, it indicates that the brake pads have been worn and need repair. Inspect the vent lid to ensure that no dirt and air path blockage.

Clutch Pedal Free Travel

Inspect the clutch pedal free travel. Adjust if necessary. Without the clutch pedal being pressed, measure the distance between the clutch pedal center and the floor. Then, press the clutch pedal all the way and measure the distance between the pedal center and the floor. The difference between the two measurements must be greater than 130 mm (5.19 in).

Doors and Windows Seals Lubrication

With a clean cloth to apply a layer of silicon grease coated film.

1.2.1.5 Inspection Items When Changing Engine Oil

Manual Transmission Drive Axle

Inspect transmission fluid. Add transmission fluid if necessary. [3.3.8.1 Transmission Fluid Level Inspection.](#)

Brake System

Special attention: Low brake fluid level may indicate that disc brake pads have been worn and need repair. In addition, if the brake system warning lamp is always on, the brake system may be faulty. If the anti-lock brake system warning lamp is always on, the anti-lock braking system may be faulty. Inspect the ABS system when wheel removal and rotation is carried out. Inspect the pipe and hose connections are correct, and whether there are catching, leakage, cracks, or scratches. Inspect for the disc brake pads worn. Inspect brake disc surface conditions at the same time inspecting other brake system components, including brake wheel cylinders, park brake etc. Inspect the park brake adjustment. If the driving habits and driving conditions require frequent braking, brake inspection interval should be shortened.

Steering Systems, Suspension and Front Drive Axle Shields and Seals

Inspect front and rear suspension and steering system for component damage, loose or missing. Inspect for signs of wear or lack of lubrication. Inspect whether power steering system, pipe and hose is connected properly, and whether there are catching, leakage, cracks, or scratches. Clean the drive axle jacket and seals and inspect for damage, cracking or leakage, if necessary, replace the seals.

Exhaust System

Inspect the entire exhaust system, including the catalytic converter. Inspect vehicle body near the exhaust system, to refer to whether there are parts broken, damaged, missing or misaligned. Inspect whether there are cracks, holes or loose connections. Inspect other causes for poor floor heat ventilation. Inspect the cause for exhaust heat entering into the luggage compartment or passenger compartment.

Throttle Linkage

Inspect the throttle linkage to refer to whether there are scratch, parts damaged or missing. Apply the appropriate grease lubrication at all joints, the middle throttle shaft bearings, throttle valve assembly spring on the accelerator pedal and the pedal surface. Inspect for throttle linkage free movement.

Engine Drive Belt

Inspect the drive belt for cracking, wear and proper tension. If necessary, adjust or replace the drive belt.

Hood Locking Latch Operation

Open the hood. Observe the operation of auxiliary locking latch. When the main lock latch is released, the auxiliary locking latch should be able to prevent the hood fully open. The hood must be able to fully closed.

1.2.1.6 Inspection Items At Least Once A Year

The Condition and Operation Of Seat Belts

Inspect seat belt system, including the woven belt, buckle, release button, retractor, guide ring and fixtures.

Spare Tire and Jack Storage

Be aware of the rattle sound from the rear of vehicle. Spare tire, all the jacking equipment and tools must always be well fixed. Each time after use, lubricate ratchet jack or screw mechanism with the engine oil .

Key Lock Maintenance

Lubricate key cylinder.

Body Lubrication

Lubricate all door hinges, including the hood, the fuel filler door, luggage compartment (hatchback) hinges and locking latch, glove box, console door and any folding seat parts.

Wash The Vehicle Underbody

Firstly, loose deposited dust, and then rinse the bottom of the vehicle body with water. In winter, wash the bottom of the vehicle body at least once a year. Washing the bottom of the vehicle body can remove snow, ice and dust-proof corrosive substances.

Engine Cooling System

Warning!

When working around the running engine, avoid contact with moving parts and hot surfaces to prevent injuries.

Check the engine coolant. If the engine coolant is too dirty or rusty, drain the engine coolant. Flush the engine cooling system and refill the new engine coolant. Maintain an appropriate concentration of engine coolant in order to ensure the correct antifreeze, anti-boiled, anti-corrosion properties and engine operating temperature. Check the hoses. Replace the cracked, expanded, or aged hoses. Inspect fastening clip, cleaning radiators and air-conditioning system condenser outside. Clean filler cap and filler neck tube. Test the pressure in the cooling system and cover to ensure that the system operate properly.

1.3 Lifting and Jacking the Vehicle

1.3.1 Description and Operation

1.3.1.1 Lifting and Jacking the Vehicle

Warning!

Refer to "Vehicle Lifting Notice" in "Warnings and Notices".

To help avoid personal injury, always use jack stands when you are working on or under any vehicle that is supported only by a jack.

Note

When you are jacking or lifting a vehicle at the frame side rails or other prescribed lift points, be certain that the lift

pads do not contact the catalytic converter, the brake pipes or the fuel lines. If such contact occurs, vehicle damage or unsatisfactory vehicle performance may result. Before you begin any lifting procedure, be sure the vehicle is on a clean, hard, level surface. Be sure all the lifting equipment meets weight standards and is in good working order. Be sure all the vehicle loads are equally distributed and secure. If you are only supporting the vehicle at the frame side rails, make sure the lifting equipment does not put too much stress on or weaken the frame side rails.