

Service Manual For CHERY QQ6

(Maintenance And Care)

After Sales Service Department of Chery
Automobile Sales Co., Ltd

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Chapter 1 Overview of Vehicle

1. Overview of Engine

The QQ6 car is equipped with a engine of 1.3L or 1.1L displacements which is developed and produced by CHERY Automobile Co.. Ltd. The models of the eninge are: SQR473 F and SQR472 F respectively. Two kinds of engines have the following characteristics:

SQR473 F series:

Vertical, four cylinders, water-cooled, 4 strokes, in-line, double overhead camshaft, 4 valves, multipoint electronic gasoline injection.

SQR472 F series:

Vertical, four cylinders, water-cooled, 4 strokes, in-line, double overhead camshaft, 4 valves, multipoint electronic gasoline injection.

2. Overview of Transmission

QQ6 car is equipped with two kinds of manual transmissions developed by CHERY Automobile Co.. Ltd.: QR513MHA and QR512. These transmissions have the following characteristics:

QR513MHA:

Integrated variable differential transmission, two shafts, five gears (five forward gears, one reverse gear), five forward gears have a synchronizer.

QR512:

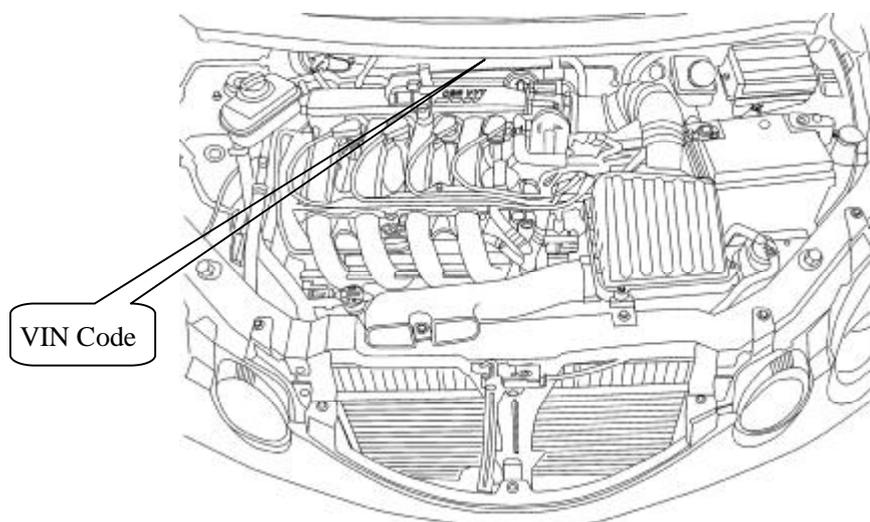
Integrated variable differential transmission, two shafts, five gears (five forward gears, one reverse gear), five forward gears have a synchronizer.

3. Rubbing Numbers

3.1. Vehicle Identification Number (VIN)

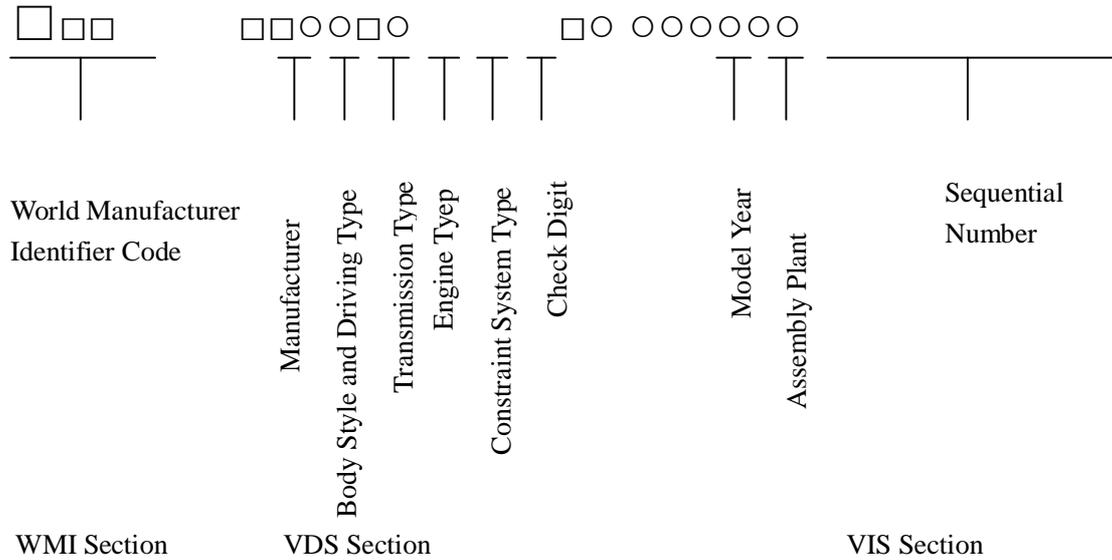
3.1.1. VIN position

VIN code is engraved on the lower of gutter channel at front side of the vehicle, as shown in the figure below:



3.1.2. Meaning of VIN code

1) The VIN code is structured according to the requirements of GB16735.



- 2) The application for the World Manufacturer Identifier (WMI) Section is submitted by the CHERY Company to the Bureau of Automotive Industry of the Ministry of Machinery Industry, P.R China. Now, the CHERY Automobile Co., Ltd.'s WMI code is LVV.
- 3) The Vehicle Descriptor Section (VDS) consists of manufacturer, body style and driving type, transmission type, engine type, constraint system type and check digit.
- The first character of VDS section identifies the make of the vehicle, and the CHERY brand vehicle is represented as the character D.
 - The second character of VDS section represents the body style and driving type: A for the three-compartment five-door 4×2 type; B for the two-compartment five-door 4×2 type; C for the three-compartment four-door 4×2 type; D for the two-compartment five-door 4×4 type; E for the two-compartment four-door 4×2 type, F for the three-compartment two-door 4×2 type; and G for the two-compartment three-door 4×2 type.
 - The third character of VDS section means the transmission type, where the digit 1 represents the manual transmission and 2 for automatic transmission.
 - The fourth character of VDS section represents the engine type, where the digit 1 represents the 1.5L - 2.0L (2.0L exclusive) series EFI gasoline engine; digit 2 for the 1.5L (1.5L exclusive) or below EFI gasoline engine; digit 4 for the 2.0L - 2.5L (2.5L exclusive) series EFI gasoline engine.
 - The fifth character of VDS section identifies the constraint system, where the character A represents the seat belt, and the character B for the seat belt + air bag.
- 4) The sixth character of VDS section is the check digit whose purpose is to provide a means for verifying the accuracy of any VIN transcription. After the other 16 characters in VIN have been determined, the check digit shall be calculated.

The Vehicle Indicator Section (VIS) consists of vehicle model year, plant of manufacture, and sequential number.

① The first character of VIS section represents the vehicle model year. The year shall be designated as indicated in Table 1 as follows:

Table 1

Year	Code	Year	Code	Year	Code	Year	Code
1999	X	2002	2	2005	5	2008	8
2000	Y	2003	3	2006	6	2009	9
2001	1	2004	4	2007	7	2010	A

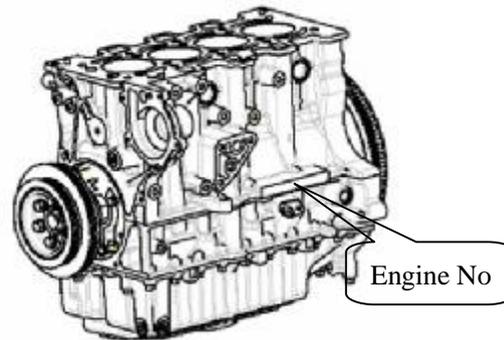
② The second character of VIS section represents the plant of manufacture. The CHERY Automobile Co., Ltd. is represented as the character D.

③ The third through the eighth of VIS section represents the number sequentially assigned by the manufacturer in the production process. The number is assigned yearly, starting from 000001.

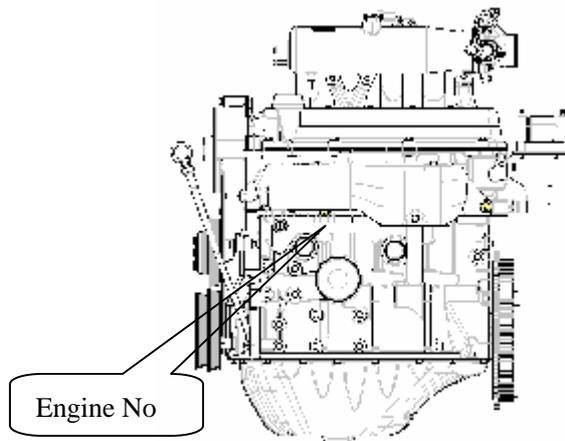
3.2. Engine Number

3.2.1. Engine number position

1). Number of SQR473F series engine is printed on the boss of cylinder body near the engine exhaust side oil cleaner (as shown in the figure below).



2). Number of SQR472F series engine is printed on the boss of cylinder body over the engine exhaust side oil cleaner (as shown in the figure below).



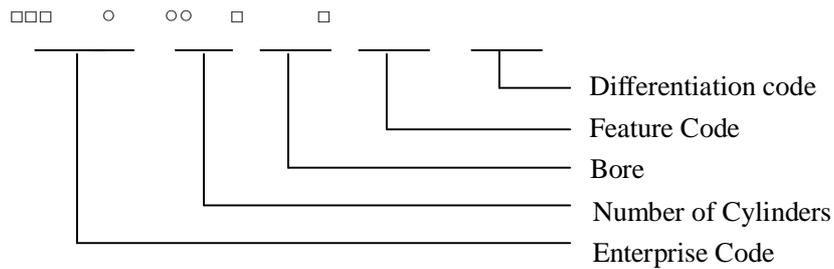
3.2.2. Meaning of Engine Number

As shown in the figure above, the engine number located at the engine block consists of engine type and serial number.

1. Engine type

The engine type conforms to the requirements of GB725, which consists of enterprise code, number of engine cylinders, bore, feature code and differentiation code.

A complete engine type is structured as follows:



where, ○ represents an arabic numeral, and □ represents an alphabetic character.

1.1 The enterprise code is fixed as SQR;

1.2 The number of engine cylinders is a 1 to 2-digit integer;

1.3 The bore is the diameter of cylinder barrel, expressed by a 2 to 3-digit integer, and its decimal is rounded to a integer with the unit of mm according to the rounding principle.

1.4 Feature code: Represent the basic feature of an engine, expressed with a capital English alphabet, and its meaning is shown in Table 1. If multiple features in Table 1 appear at the same time, a feature code is chosen in turn according to the sequence specified in Table 2. In case that the line engine's basic feature code L is omitted, the other feature codes in Table 2 can be chosen in turn according to the sequence of these codes.

Table 1 Feature Code of Engine

Engine Characteristics	Line engine	V-engine		
Feature Code	L	V		
Engine Characteristics	Direct injection	Gasoline combustion rate variable valve timing		
Feature Code	J	H		
Engine Characteristics	Diesel natural aspiration	Diesel turbo	Diesel turbo intercooler	Gasoline turbo intercooler
Feature Code	D	T	A	B
Engine Characteristics	Carburetor	Single point injection	Two-valve multipoint injection	Four-valve multipoint injection
Feature Code	C	M	E	F

Table 2 Sequence of Engine Feature Code Optional

1 st	Structure	Line L (omitted)	V		
2 nd	Special technique	J	H		
3 rd	Air intake	D	T	A	B
4 th	Fuel supply	C	M	E	F

1.5 Differentiation code: Expressed with a capital English alphabet, used as a complementary code to differentiate the type of engine when all the number of engine cylinders, bore and feature code are the same while the structure, main parameter(s) or fuel supply method and etc change (e.g., the change of engine stroke, bifuel engine, etc). For the change of engine's peripheral parts (such as intake and exhaust manifolds), the engine type is invaried but differentiated by changing the number of engine assy.

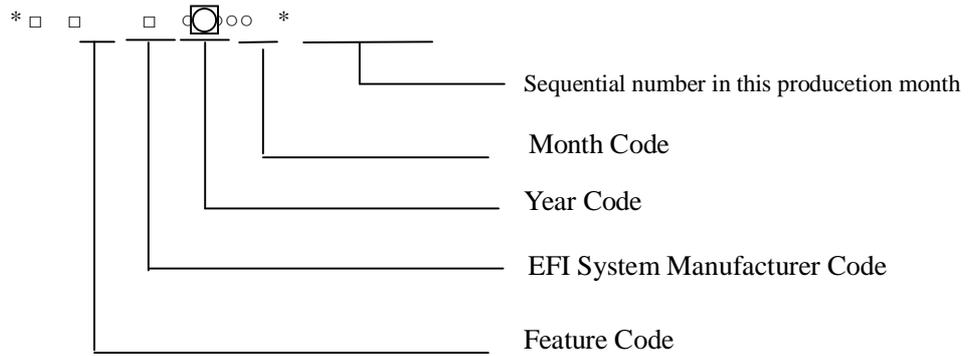
1.6. Example of engine type:

“SQR473F” means a 4-cylinders, 73 mm bore , line gasoline engine manufactured by the CHERY Automobile

Co., Ltd., which is a four-valve multipoint injection engine (the line gasoline engine feature code “L” is omitted and then is occupied by the “four-valve multipoint injection, and the first structure differentiation code A is also omitted).

2. Serial number

The serial number of an engine consists of engine feature code, EFI system manufacturer code, manufacture year code, month code, the number sequentially assigned by the manufacturer of the engine in the production month of this type of engines and the start/end symbol *. A complete serial number for an engine is as follows:



where ○ represents an arabic numeral, □ represents an alphabet, □ represents an arabic numeral or alphabet.

2.1. The engine feature code is performed according to the provisions in paragraph 2.1.4.

2.2. EFI system manufacturer:

- C – Motorola; D – Marelli; E – Delphi; F – United Automotive Electronic Systems (UAES) Co., Ltd.;
- G – Siemens; H – TROITEC Automotive Electronics Co., Ltd.; B – Bosch

2.3. The year and month codes are performed in accordance with Tables 3 and 4 respectively.

Table 3 Characters used for designating the year (recycleable)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Code	1	2	3	4	5	6	7	8	9	A
Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Code	B	C	D	E	F	G	H	J	K	L
Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	M	N	P	R	S	T	V	W	X	Y

Table 4 Characters used for designating the month

Month	January	February	March	April	May	June	July	August	September	October	November	December
Code	A	B	C	D	E	F	G	H	J	K	L	M

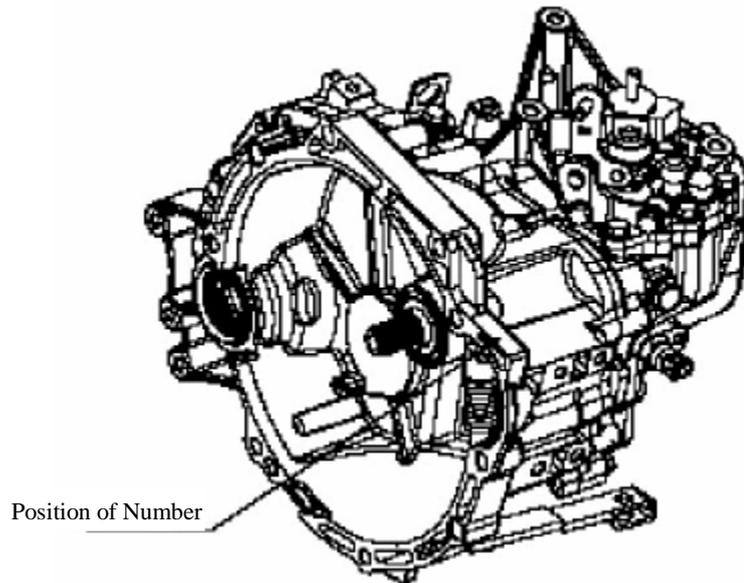
2.4. Example of serial number

“* FF5H00106 *” means the 106th UAES four-valve multipoint EFI engine manufactured in August 2005.

3.3. Transmission Number

3.3.1. QR513 series transmission number position

The position of QR513 series transmission number is as shown in the figure:



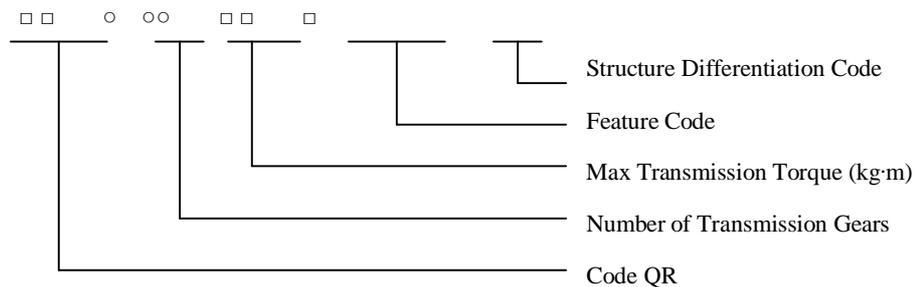
3.3.2. Meaning of QR513 series transmission number

The number of QR513 series transmission consists of transmission type and serial number.

1). Transmission type

The transmission type consists of code QR, number of transmission gears, max transmission torque, feature code and structure differentiation code.

A complete transmission type is as follows:

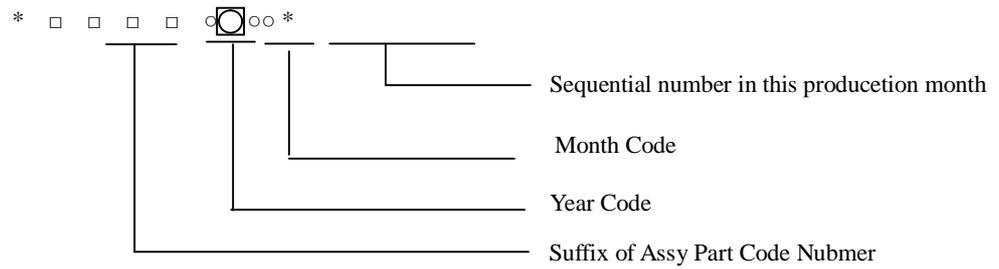


where, ○ represents an arabic numeral, and □ represents an alphabet.

2). Serial number

The serial number consists of the suffix of assy part code number (AA for the part code number without suffix), manufacture year code, month code, the number sequentially assigned by the manufacturer of the transmission in the production month of this type of transmission and the start/end symbol *. The year and month codes are performed according to Tables 3 and 4 respectively.

A complete serial number for a transmission is as follows:



where, ○ represents an arabic numeral, □ represents an alphabet, and □ represents an arabic numeral or alphabet. The suffix is located the last portion of the part code number, and unavailable for the basic type transmission.. In case that its structure, dimension, materials, heat treatment requirements, surface treatment and etc of part and assy are changed on basis of the original products, the suffix shall be modified. In the codes, the English alphabets shall be capital ones, and used in ture starting from A. To avoid the confusion, the alphabets “I”, “O” and “X” shall not be used. When the modification makes no influence on the interchangeability, the alphabet A shall take the lead; and if the modification makes an influence on the interchangeability, the alphabet A shall be neglected and B takes the lead.

Table 5 Characters used for designating the year

Year	Code	Year	Code
1999	X	2015	F
2000	Y	2016	G
2001	1	2017	H
2002	2	2018	J
2003	3	2019	K
2004	4	2020	L
2005	5	2021	M
2006	6	2022	N
2007	7	2023	P
2008	8	2024	R
2009	9	2025	S
2010	A	2026	T
2011	B	2027	V
2012	C	2028	W
2013	D	2029	X
2014	E	2030	Y

Table 2 Characters used for designating the month

Month	Code	Month	Code
January	A	July	G
February	B	August	H
March	C	September	J
April	D	October	K
May	E	November	L
June	F	December	M

3). Example

For example: QR513MHA MH5H00001 means the first model QR513MHA transmission manufactured in August 2005.

Chapter 2 Technical Specifications

1. Specification Table

1.1. Engine specification table

Model	SQR473F	SQR472F
Bore (mm)	73	72
Piston Stroke (mm)	77.5	66.5
Displacement (ml)	1297	1083
Compression Ratio	10	9.5:1
Rated Power (kw)	61	50
Speed at rated power (r/min)	6000	6000
Max. Torque (N·m)	114	90
Speed at Max. Torque (r/min)	3800 - 4500	3500 - 4000
Min Fuel Consumption (g/kw·h)	280	275

1.2. Transmission specification table

Gear Shift \ Model	QR513MHA	QR512
1 st Gear	3.545	3.818
2 nd Gear	2.050	2.158
3 rd Gear	1.423	1.400
4 th Gear	1.065	1.029
5 th Gear	0.865	0.838
Reverse Gear	3.364	3.583
Final Drive Ratio	4.056	4.111

2. Oil/Fluid Capacity Table

Engine Oil (Including strainer)	SQR473F series: 4.0L±0.5 L SQR472F series: 3.5 L
M/T (Manual Transmission)	QR513MHA: 1.8±0.1L QR512: 2.1L
Power Assisted Steering	MAX mark
Cooling System	1.3L displacement: 6.5 L 1.1L displacement: 6.0 L
Windscreen Cleaning System	MAX mark
Brake Fluid /Clutch Oil Reservoir	MAX mark

3. Oil/Fluid Specifications Table

Item	Oil/Fluid
SQR473F	API SJ SAE 10W-40
SQR472F	API SF SAE 10W-30
QR513MHA	75W-90
QR512	75W-90
Power steering oil	ATF-3
Brake fluid	Dot 4

Chapter 3 Basic Operation and Adjustment

1. Vehicle Delivery Check

1.1. Interior and exterior

- (1) Interior and appearance defects
- (2) Paintwork, electroplated parts and interior ornaments
- (3) Attached articles, tools, spare tire, jack, user's manual, warranty manual, attached keys.

1.2. Engine compartment section

- (1) Engine hood lock and hinge
- (2) Battery motor
- (3) Electrolyte level
- (4) Main ground wire
- (5) Main fuse and spare parts
- (6) Engine oil level
- (7) Coolant level and water quality
- (8) Power steering fluid level
- (9) A/T oil level
- (10) Glass cleaning fluid level
- (11) Tension of driving belts (power steering, generator, compressor)
- (12) Accelerator pedal control cable (A/T control cable)

1.3. Manipulation and control section

- (1) Clutch pedal height and free travel
- (2) Transmission pedal height and free travel
- (3) Accelerator pedal
- (4) Check the interior fuses and spare parts
- (5) Check the radio/recorder/CD player and antenna
- (6) All warning lights, generator, hand brake, oil pressure, brake failure, AT gear position display, ABS, SRS
- (7) AT starter protectors

1.4. Engine startup check

- (1) Working condition of battery and starter and the display of all warning lights
- (2) Working condition of front washer

- (3) Working condition of front wiper
- (4) Turn signal indicator lamps and its automatic releasing
- (5) Working condition of side lamps and number plate lamp
- (6) Working condition of headlamps and high beam (high beam indicator lamp)
- (7) Working condition of fog lamp
- (8) Working condition of stop and backup lamps
- (9) Working condition of instrument light and dimmer
- (10) Working condition of horn
- (11) Working condition of cigarette lighter
- (12) Operation of sunroof
- (13) Working condition of rear window defroster and its indicator light
- (14) Performance of A/C system at any gear position (cooling, air delivery)
- (15) Working condition of the cycling switch
- (16) Working condition of electric rear-view mirror
- (17) Clock setting and check

1.5. Engine shutdown check

- (1) “Lamp ON” warning light

1.6. Each light turnoff check

- (1) Steering wheel self-locking function
- (2) Hand brake regulating function
- (3) Steering wheel's angle regulating function
- (4) Sun visor function
- (5) Central door lock and remote control (warning) function
- (6) Interior lights function
- (7) Read light function
- (8) Front/rear seat belt function
- (9) Seat backrest's angle, seat regulating function
- (10) Luggage boot lid (rear door) unlock function
- (11) Luggage compartment light function
- (12) Filler cap unlock and fuel designation
- (13) Luggage boot lid (rear door) close and lock function

1.7. All doors open check

- (1) Manual window function
- (2) Rear door's child lock function
- (3) Refill the lubrication oil into lock/hinge
- (4) Check the installation of all doors after closing

1.8. Vehicle uplift check

- (1) The wear or damage of bottom, engine, brake and fuel pipes
- (2) Suspension fixing and its bolts
- (3) Transmission oil level

1.9. Vehicle jackdown c.Check

- (1) Confirm the torque of all wheel nuts
- (2) Tire pressure label
- (3) Tire pressure (including spare tire)
- (4) Tools and jack
- (5) Driving performance
- (6) Noise from the interior, suspension and brake
- (7) Brake and hand brake function
- (8) Steering wheel automatic return function
- (9) Steering wheel vibration and position
- (10) Transmission gear shift (UP, DOWN)
- (11) Odometer reading and cancel

1.10. Final check

- (1) Working condition of cooling fan
- (2) Idling/exhaust
- (3) Leakage of fuel, engine oil, coolant and exhaust gas
- (4) Hot start performance
- (5) Check the performance of ABS with a tester

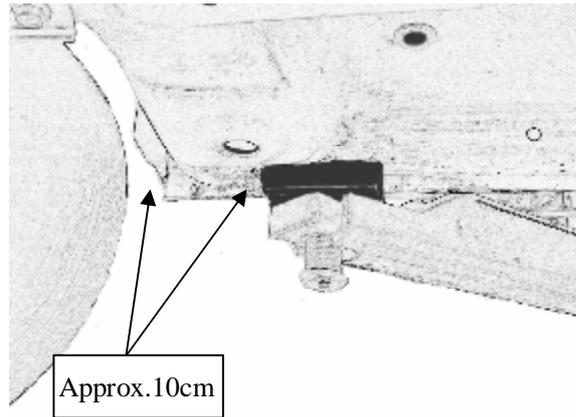
1.11. Final preparation

- (1) Wash the interior and exterior of the vehicle
- (2) Check whether the water enters into the interior including the luggage compartment

2. Vehicle Jack Lift Points

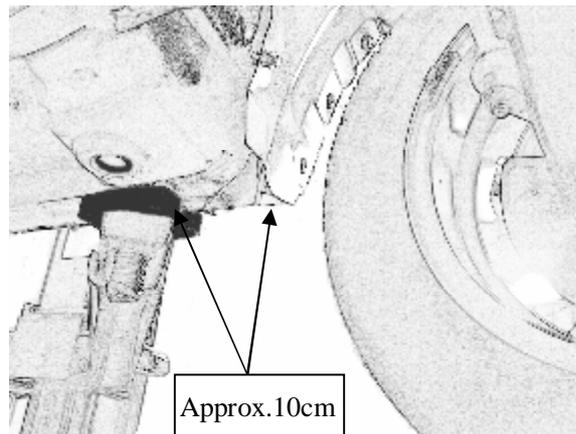
2.1. Position of front jack lift point

The front jack lift point is located at the convex edge of the lower front part of the vehicle, 10 cm away from the extreme point, and the points at the left and right sides are the same. The figure below shows the right front jack lift point where a jack supports the vehicle:



2.2. Position of rear jack lift point

The rear jack lift point is located at the convex edge of the lower rear part of the vehicle, 10 cm away from the extreme point, and the points at the left and right sides are the same. The figure below shows the right rear jack lift point where a jack supports the vehicle:

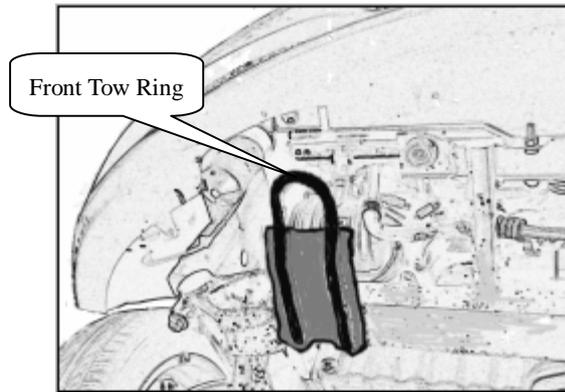


3. Towing

3.1. Towing position

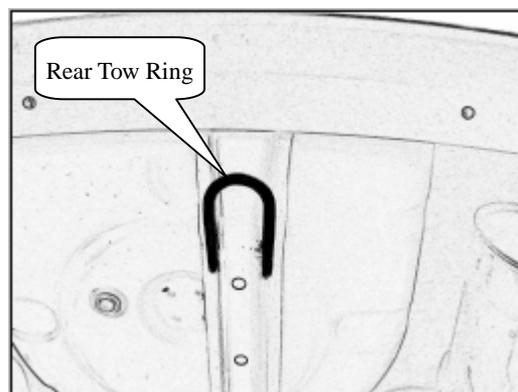
3.1.1. Front tow ring

The front tow ring is located under the right front of body, as shown in the figure below:



3.1.2. Rear tow ring

The rear tow ring is located under the rear of body, as shown in the figure below:



3.2. Towing method

3.2.1. The vehicle with manual transmission

The vehicle with manual transmission can be directly towed by the front tow ring of tractor, and, at the same time, the traveling direction of the vehicle towed shall be controlled by a driver; and if the vehicle is a tractor, please ensure that the towing rope connect reliably with the rear tow ring.

3.2.2. The vehicle with automatic transmission (*)

Two front wheels of the vehicle with automatic transmission are trailed by a tractor so as to tow the vehicle. Please DO NOT directly tow the vehicle; and if the vehicle is a tractor, please ensure that the towing rope connect reliably with the rear tow ring.

4. Instrument Setting

4.1. Clock setting

Time is displayed on the left side of odometer in two modes: pointer and digital. The clock can be adjusted by pressing the control button on the speedometer for a long time.

4.2. Mileage setting

The upper right of the odometer displays the one-way mileage (switchable), and the lower right displays the total mileage. In the case of vehicle equipped with reversing radar, when the reverse gear is engaged, the distance behind the vehicle can be displayed on the upper right of odometer.

4.3. Maintenance indicator light reset

In case that the ignition switch turns off, press the regulating button, 3 s later, after the ignition switch turns on, release the button,, and then the indicator light automatically resets.

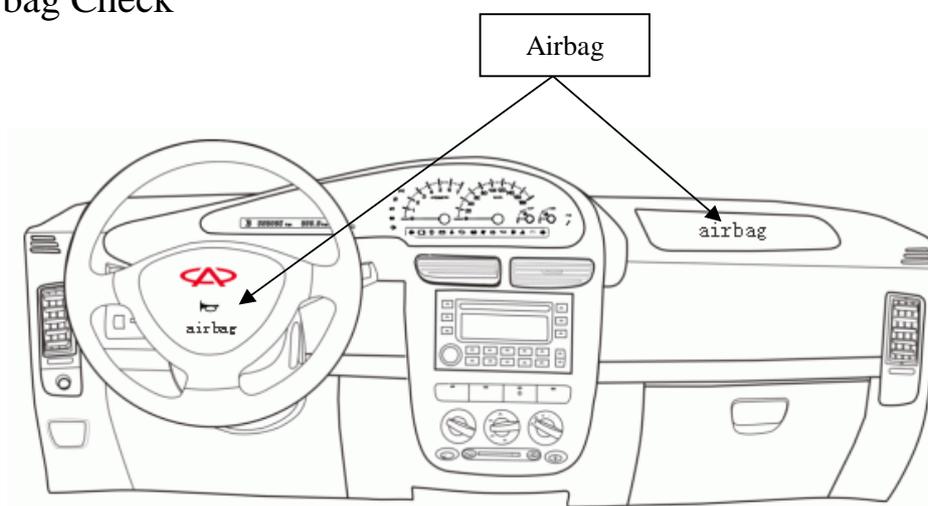
5. Battery Check



Check whether the connection of battery is secure and reliable; observe the prompt in the battery status access hole, and charge or replace the battery if necessary.

The vehicle equips with the maintenance-free battery, and it is not recommended to use other types of batteries. If it is necessary to replace the battery, the current and capacity of a new battery must conform to that of old battery or CHERY's specifications available.

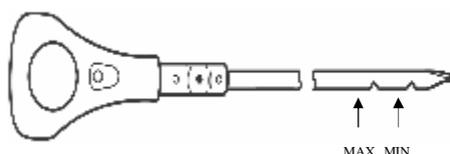
6. Airbag Check



The air bag is an optional configuration. If your vehicle is equipped with the air bags, please ensure that there is clean and no damage in the “air bag” positions shown in the figure above. DO NOT let any cleaning fluid or liquid enter into the airbags.

7. Engine Oil Check

7.1. Oil level check



Engine oil consumption is affected by many factors. A new engine reaches the normal value only after the mileage of approx. 5,000 KM. More engine oil might be consumed under the high-load of engine.

Stop your vehicle on a level surface before the engine oil check. Turn off the ignition switch and wait for a few minutes to let the engine oil flows into the oil pan (it may spend more time if the exterior temperature is low or the temperature of engine does not reach the normal working temperature). Before the engine oil check, please DO NOT start up the engine in the cold state. Pull out the dipstick and clean it with a flannelette-free cloth, and then fully insert the dipstick into the tank and pull it out again.

If the oil level is between MIN and MAX marks at the lower of dipstick, DO NOT refill the oil. The hot engine oil may exceed the upper mark several millimeters due to its thermal expansion.

7.2. Method to replace the engine oil

In case that the engine oil is replaced, it is necessary to wait until the engine cools down to the normal temperature, and then replace the engine oil according to the following procedures:

- Ø Stop the vehicle over a jack, and then unscrew the filler cap (the cap is shown in the figure below);
- Ø Lift the vehicle up to an appropriate height, unscrew the drain plug with a torque wrench, and flow the used engine oil into a container at the same time.;
- Ø Then, tighten the drain plug with the torque wrench to the specified torque ($25\pm 3\text{Nm}$);
- Ø Jack down the vehicle, and then refill proper quantity of new engine oil according to the specifications;
- Ø Screw up the filler cap.

The oil refilled shall not exceed the upper limit.

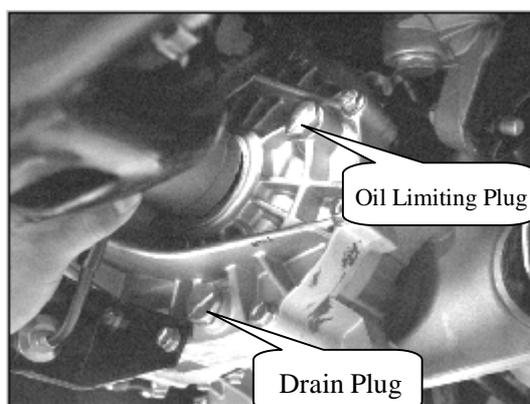


Note: Please refill the engine oil conforming to the CHERY's specifications only to the level between MIN and MAX marks.

8. Transmission Oil Check

8.1. Oil level check

Shut down the engine and wait for several minutes, and then lift up the vehicle with a jack, unscrew the oil limiting plug with a torque wrench, and check the transmission oil level. If the distance between the oil level and filler opening is large, please appropriately refill the transmission oil (until the oil level increases up to the filler opening), and then tighten the oil limiting plug with a torque wrench to the specified torque. (The tightening torque of **44Nm** for QR513MHA, and tightening torque of **30Nm** for QR512.)



8.2. Method to replace the transmission oil

Shut down the engine and wait for several minutes, and then lift up the vehicle with a jack, unscrew the refiller plug with a torque wrench, and then carefully unscrew the drain plug and collect the used transmission oil with a container. In case that the used transmission oil nearly drains away, tighten the drain plug with a torque wrench to the specified torque; and then refill the transmission oil specified by the CHERY Company (until the oil level increases up to the filler opening according to the specified quantity). Then tighten the refiller plug with a torque wrench to the specified torque.

9. Trouble Diagnosis of Electronic Control System

Please utilize the CHERY Company's special diagnostic testers X431 and K81/K61 to diagnose the electronic control system, and the updated version of program of the diagnostic testers is also required at the same time.

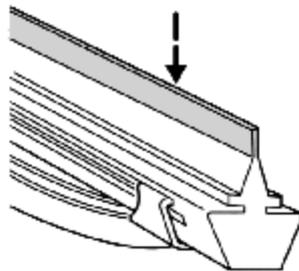
10. Lubrication and Maintenance of All Hinges and Door Locks

All the hinges and door locks are the maintenance-free products. Please make certain that the bush of any hinge is in good condition. If damaged, replace it in time.

11. Wiper System Check

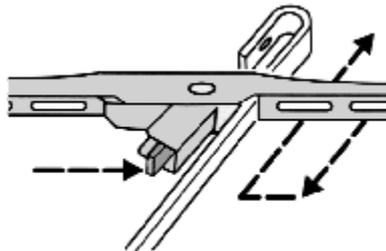
11.1. Wiper blade check and maintenance

Check wiper blade



Slide the tip of your finger on the edge of a wiper blade to check the roughness of the blade. The butter, silicone resin and fuel may enable the wiper blade not to normally work. It is recommended that the glass cleaning fluid is applied to clean the wiper blade.

Replace the wiper blade



Lift the wiper arm and make it perpendicular to the wiper blade. To remove the wiper blade, press down the retaining clip according to the arrow as shown in the figure, loosen the wiper blade and then pull out the wiper arm in the reverse direction.

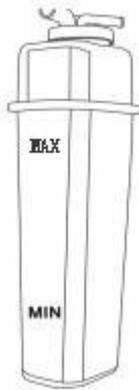
11.2. Nozzle check and adjustment

Keep the nozzle clean. If the spraying angle is improper, please insert the needle-like article into the nozzle to adjust the spraying angle. If the spraying angle can't be adjusted to its proper position, adjust it again.

12. Coolant Check

QQ6 engine has a main radiator and an auxiliary radiator.

Check whether the auxiliary radiator's coolant level is between the MAX and MIN marks. If below the MIN mark, please refill the coolant.



CAUTION: Please DO NOT refill the coolant when the engine is in hot state. Please refill the coolant after the engine cools down.

When refilling the coolant, pay attention to the following methods:

Method to refill the coolant at the filler cap: In case of the engine's cold state and standstill, turn the filler cap in the clockwise direction and apply the pressure on the cap to open it, and then refill the coolant until it can be seen viewing from the filler opening. Tighten the filler cap in the anticlockwise direction, start up the engine and let it operate at the idle speed for about 1 minute, and then shut down the engine. Open the filler cap and continuously refill the coolant until it can be visible viewing from the filler opening. In case that the engine's water temperature is high or in case of each maintenance, note that the coolant is refilled in time from the filler cap.



Method to refill the coolant into an auxiliary radiator: In case of the engine's cold state and standstill, pull upwards and open the auxiliary radiator filler cap. The capacity of coolant refilled must exceed the MIN mark and below the MAN mark. Regularly observe the capacity of coolant in the auxiliary radiator. Refill the coolant in time if below the MIN mark. The coolant level can be checked through the semi-transparent auxiliary radiator. When the engine is in the cold state, the coolant level shall be between the MIN and MAX marks.

If it is necessary to refill the coolant when the engine is hot, wait for 10 minutes first to cool the engine. Loosen the filler cap one quarter turn to release the pressure. Wait for a period of time, and then fully open the cap to refill the coolant which conforms to the specifications of this vehicle.

Using the coolant with the proper concentration can't only protect the engine free from be frozen in

winter, but also provide the corrosion protection all the year around. Now, the engine can operate under very high temperature but the bad coolant can't provide the cooling system the proper corrosion protection. So, please use the coolant conforming to the CHERY's specifications. DO NOT substitute the coolant with the main water.

If refilling the antifreeze fluid into the vehicles in the cold region, please select the antifreeze fluid which has proper antifreezing capacity.

Antifreeze fluid testing tool: T10007 refractometer



Directions for use of T10007 refractometer 明:

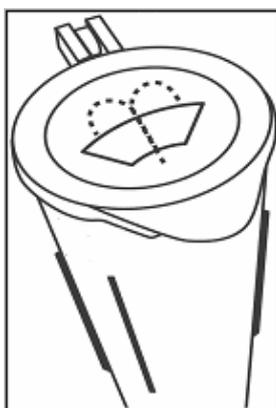
Refer to the user's manual, properly dip the T10007 refractometer into the antifreeze fluid and directly read out the temperature of antifreeze, and then refill the proper antifreeze fluid according to the antifreezing temperature required.

CHERY's special antifreeze fluid:

Part Number of Antifreeze	Antifreezing Temperature	Capacity per barrel
A11-8BE47041113520	-35°C	2 L
A11-8BE47041114520	-45°C	2 L

Total antifreeze fluid refilled: 1.3L displacement model: 6.5 L; and 1.1L displacement model: 6.0 L.

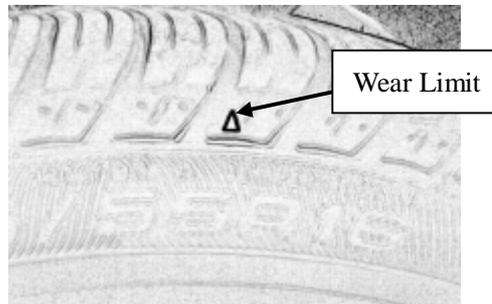
13. Check and Maintenance of Windscreen Cleaning Fluid



The windscreen cleaning fluid is a kind of consumptive fluid. Please regularly check the fluid (every two weeks or one month). If shortage, please refill the fluid (up to approx. 10 cm away from the opening). If necessary, refill the clean water and windscreen cleaning fluid according to the concentration of (1: 20). Please close the cover of reservoir after refilling.

14. Tire Check

14.1. Pattern depth check



The related regulations specify the depth of the tire surface. When the remaining depth of tire pattern reaches the limit of 1.6 mm or the tire pattern is worn to the tip of triangular mark as shown in the figure above, a wear strip will appear on the tire tread, which indicates the performance and safety of tire here considerably reduce and the tire must be replaced.

14.2. Tire pressure check

Tire Pressure:

Item		Tire Pressure (kPa)	Spare Tire
Front Wheel	Unloaded/Semi-loaded	230	230
	Laden	230	
Rear Wheel	Unloaded/Semi-loaded	210	
	Laden	210	

Precautions on tire pressure

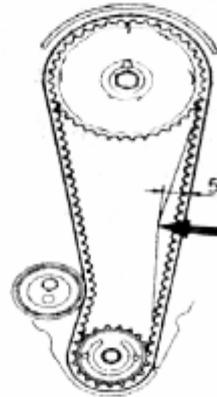
The pressure values listed in the table above are applicable to the tire in cold state. The air pressure will slightly increase if the tire is heated, but it is unnecessary to reduce the air pressure; and the pressure values listed in the table above shall increase by 20Kpa if the winter tire is available.

In order to facilitate your search of specified charging pressure value, there is a self-adhesive label attached to the inner side of the filler cap, on which is printed with the specified value of tire charging pressure.

15. Timing Belt Check

Check its wear and tension of the timing belt, and regulate or replace it if necessary. The tension requirement after the timing belt is regulated: In the intermediate position of two wheels at the

timing belt pulled side, when the timing belt is pressed down approx. 5 mm by hand, the force required is: 19.6 - 29.4 N (2.0 - 3.0 kg), and its schematic diagram is shown below;



16. Check and Maintenance of Engine Accessories' Belts

Wedge belt: Check its tension, and regulate or replace it if necessary. Refer to the "Timing belt" for the requirement on tension after regulating;

17. Check and Adjustment of Clutch

Check whether the travel of clutch pedal is proper. If not, regulate the clutch control cable under the transmission to adjust the travel of pedal. The regulating position is shown in the figure below:



The regulating method.: The clutch control cable regulating nut is a lock nut. In case of regulating, push outwards the control cable to make the regulating nut have a proper clearance away from the clutch separation arm. In this case, the travel of clutch can be adjusted only. Turn the nut in the clockwise direction to reduce the free travel; and turn the nut in the anticlockwise direction to increase the free travel.

18. Check and Maintenance of Brake System

18.1. Brake master cylinder and vacuum booster with brake master cylinder

Check the brake fluid level, and check the leakage of brake master cylinder and vacuum booster

with brake master cylinder.

18.2. Disc brake

18.2.1. Thickness of brake disc

The standard thickness of front brake disc (ventilation disc) shall be 17 mm with the serviceability limit of 15 mm; and if above the limit, the front brake disc shall be replaced.

18.2.2. Thickness of brake lining

The standard thickness of front brake lining shall be 10 mm, with the serviceability limit of 3 mm, and the remaining thickness while the brake lining thickness limit shall not be less than 3mm.

The standard thickness of rear brake lining shall be 5 mm, with the serviceability limit of 1 mm, and the remaining thickness while the brake lining thickness limit shall not be less than 1 mm.

18.3. Brake disc runout check

Check the brake disc face runout with a dial gauge. The serviceability of front brake disc shall be 0.03 mm. If above the limit, replace it.

IMPORTANT NOTICE:

After the completion of replacement of friction lining or brake disc, step on the brake several times to enable the brake lining to run-in with the brake disc. Caution the safety!

After the replacement of brake lining, check whether the brake fluid level is between MIN and MAX marks.

18.4. Brake fluid check and replacement

The brake fluid reservoir is located at the right rear portion of engine compartment. The fluid level must be between the MIN and MAX marks at the side of the fluid reservoir. If the fluid level falls down to the MIN mark, the brake fluid level warning light will light. In this case, please refill the brake fluid conforming to the CHERY's specification, and check the leakage of this system.



In case that the brake fluid is refilled, make certain that it is absolutely clean.

19. Check and Maintenance of Vehicle Bottom

19.1. Bolt torque check

Check the torque of chassis bolts one-by-one with a torque wrench. The reference torques are as shown in the table below:

Part Description	QTY per single vehicle	Remark	Torque (Nm)
Bolt	2	Used to secure the steering wheel and subframe (right)	100±10
Bolt	2	Used to secure the steering wheel and	100±10

		subframe (left)	
Nut	2	Used to secure the tie rod and steering knuckle	35±3
Bolt	2	Lower swing arm and subframe connecting rod (left, right)	100±10
Flange face metal retaining nut	2	Lower swing arm and subframe connecting rod (left, right)	100±10
Bolt	2	Subframe and body (front)	150±10
Bolt	2	Subframe and body (rear)	150±10
Bolt	1	Lateral support bar and body	100±10
Nut	1	Lateral support bar and body	100±10
Bolt	1	Lateral support bar and rear shaft	100±10
Bolt	2	Rear trailing arm and body	100±10
Bolt	4	Rear trailing arm hinge and rear shaft	60±5
Nut	4	Rear trailing arm hinge and rear shaft	60±5
Flange face metal retaining nut	4	Sliding column and steering knuckle	100±10
Bolt	4	Sliding column and steering knuckle	100±10
Nut	4	Stabilizer bar and lower swing	60±5
Bolt	4	Installed to the subframe	25±5
Flange face metal retaining nut	2	Push bar and subframe	100±10
Flange face metal retaining nut	4	Push bar and lower swing	60±5
Flange face metal retaining nut	4	Push bar and lower swing	100±10
Nut	2	Used to connect the rear shock absorber and body	100±10
Bolt	2	Used to connect the rear shock absorber and rear shaft	100±10
Wheel nut	16	Used to secure the tire and brake	110±10
Self-locking nut	2	Used to secure the drive shaft and tire (front)	270±10
Lock nut	2	brake drum and rear shaft	250±10

19.2. Rubber parts check

Check the ageing or damage of the rubber parts at the bottom of vehicle. If aged or damaged, replace it in time.

19.3. Ball pin check

Check the crack and other possible defects of ball pin. If any abnormal symptom is found, replace it in time.

20. Check and Maintenance of Intake and Exhaust Systems

Check the cleanness of air cleaner element, and replace it as required;

Check the leakage and clogging of intake and exhaust systems;

Check the damage of precatalytic converter assy, three-way catalytic converter assy, front muffler assy, and rear muffler assy. If damaged, replace it.

21. Check and Maintenance of Fuel System

Check the ageing, breakage and leakage of fuel pipes. If the symptom(s) occur, please replace the related pipe;

Check the fuel pressure of fuel system.

22. Check and Maintenance of Steering System

Check the torque of bolts of steering system. The reference torques are shown in the table below:

Part Description	QTY per single vehicle	Remark	Torque (Nm)
Bolt	1	Used to secure the steering wheel input shaft and universal joint	25±5
Steering wheel installation nut	1	Steering wheel fixing nut	35±3
Nut	4	Used to secure the steering column and IP cross beam	25±5
Bolt	3	Used to secure the universal joint protective sleeve and front side	9±3
Bolt	2	Used to secure the steering wheel and subframe (right)	100±10
Bolt	2	Used to secure the steering wheel and subframe (left)	100±10
Nut	2	Used to secure the tie rod and steering knuckle	35±3
Bolt	2	Used to secure the single pipe clamp to the suspension support, and secure the high-pressure pipe to the vehicle body	9±3

Check the leakage of power steering pump and its pipes; and check the power steering oil level.

23. Check and Maintenance of A/C System

In case of the maintenance of the vehicle A/C system, the following procedures shall be conducted: first, listen; second, look; third, touch; and fourth, check. Its specific content is:

First, listen:

Determine the operating condition of compressor according to the sound from the compressor. For the normal operating, only the even valve plate motion sound from the compressor can be heard. If the slap sound can be heard, it is generally the fluid slugging sound or hammering of the coolant. If a serious friction sound is emitted from the machine body and the clutch sometimes gives out the friction sound and is heated, it is caused due to the excessive load of compressor, shortage of lubrication oil or oil-break, and the slippage of the clutch. If there is a slap sound in the exterior of the vehicle, it is caused due to either the belt loose, or the serious wear.

If the continuous impact sounds of the motion parts in the machine body can be clearly heard during the shutdown of the machine, it is caused due to the serious wear of interior motion parts, which results that the clearance between the shaft and bearing, piston and cylinder body, and connecting rod and shaft is large or loose.

Second, look:

Check the cleanness of surface of the condenser first, avoid that the foreign materials and mud attach to the condenser, which may make an influence on the cooling effect. In general, regularly rinse the condenser with water. CAUTION: When the condenser is rinsing, DO NOT touch the fins to deform them. For the deformed fins, carefully correct them with a long nosed pliers.

At the air inlet of vehicle air conditioner's evaporator, some air filters are generally installed. Regularly check the evaporator every week, clear the foreign materials, and clean the mud from the evaporator surface with the high-pressed air so as to avoid that the heat transfer coefficient falls down and the A/C air is contaminated. The contents checked regularly are:

- Ø Check whether there are some oil stains in all connecting sections of the A/C cooling system. If there are some oil stains, it indicates that the leakage may occurs here. Immediately remove the trouble A.S.A.P. For the cooling system, the leakage position(s) must be mainly inspected. The mainly-inspected positions also include: compressor shaft seal, front and rear cover plate gasket, safety valve and etc.
- Ø Check the wear, ageing, blister, crack and leaky oil stains of all hoses. Since the vehicle's cooling and heating systems adopt a lot of rubber hoses, these hoses may be worn due to contact with the vehicle body during the vehicle is traveling and vibrating. The brake hoses in the engine compartment are subject to the high temperature ageing, and easily have alligating symptom, which may result that the brake fluid and coolant drain out but the moisture, air and dust enter into the hoses to damage the compressor and all parts. So, it is very important to regularly check these rubber hoses. If it is found that the rubber hose contact the engine, separate the rubber hose from the engine in time, and reliably secure the rubber hose. The rubber hose goes across the metal plate, in general, with a protective sleeve. Otherwise the metal may cut the rubber hose.

Third, touch:

Touch the pipes and all parts of the A/C system which is working, and determine its temperature. In the normal condition, the temperature of pipes at the high pressure end shall be 55°C - 65°C while the low pressure pipes are in the low temperature state and there are some water dews on the parts,

pipes and joints at the low pressure end. Touch the high pressure area, especially the metal parts at the high pressure end, such as compressor's exhaust pipe, condenser, stock fluid dryer and etc, and find these sections are hot. Be care! If you touch these positions and find that your hand is hot but doesn't feel burning, it is normal; and if your hand feels hurning, check whether the condenser is in the good cooling conditio, the surface of condenser is clean without foreign materials, and etc.

If your hand feels that the temperature is not high at the high pressure end, it indicates that the coolant level is low; and if there is no temperature which can be felt by your hand, it indicates that the coolant fully leaks.

If the frosting symptom or water dews can be found on the fluid reservoir, it indicates that the dessicant is broken and blocks the pipe from which the coolant flows and the temperature of high pressure area at the front end of this reservoir is very high. In this case, solve the clogging problem A.S.A.P, replace it with a new dryer and clean the system at the same time.

The temperature of the expansion valve is special when you feel it by hand: its coolant inlet joint is hot while its outlet joint is cold, with some water dews. If the frosting symptom is found at the outlet of the expansion valve, it indicates that the expansion valve port is clogged. It may be caused due to either the foreign materials or the ice generated by the moisture which enters into the cooling system. The trouble must be handled immediately: either clean the system, replace it with a new dryer and expansion valve, or revacuumize it and remove the moisture.

Touch the low-pressure reservoir and find your hand feels cold, with water dews but without frosting symptom. If there is the frosting symptom, it indicates that the system has trouble. Find out the reason. Touch the intake and exhaust pipes of the compressor, and find that the temperature your hand feels shall be considerably different. If not, it indicates that the coolant has fully leaked; and if the difference is not big, it indicates that the coolant level is low.

IMPORTANT: When the A/C system is touched by hand, absolutely pay more attention to the safety, and avoid the injured by the belt and other motion parts.

Fourth, check:

1. Check the tensile force of belt first. The tensile force of new and old belts is different. Even if it is a new belt, its tensile force may also change considerably after the use of 5 minutes. As a newly-installed belt, it must be regulated twice: After the first installation of the belt, its tensile force must be regulated to the specified value; and after it operates for 30 minutes, it must be regulated for the second time.
2. Check the magnetic clutch
3. Check the A/C blower
4. Check the high/low pressure switch and overheat protector
5. Check the heating system
6. Check the expansion valve

With the check above-metioned, make certain that the A/C system is in good working condition.

24. Check and Replacement of Three Filters

The three filters means the air cleaner, oil cleaner, and gasoline filter. These three filters are checked and replaced as follows:

Air cleaner

Remove two screws as shown in the figure below with a cross screwdriver, take off the element of

air cleaner and then replace the element, and then reinstall the air cleaner after the replacement of the element.



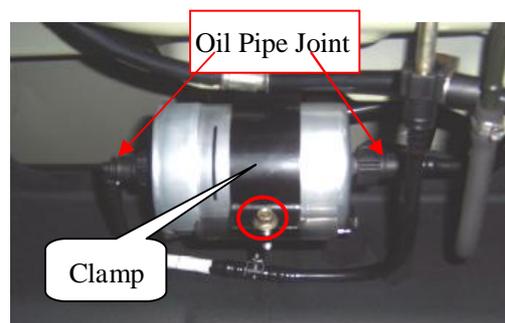
Engine oil filter

Fully drain out the engine oil, and then remove and replace the filter with a special oil filter spanner. To ensure the sealing effect, it is best to appropriately apply a little of engine oil on the screwed end of the new oil filter, and then reinstall it.



Fuel filter

Remove the bolts as shown in the figure below, take off the clamp from the gasoline filter, and then remove the oil pipe joints from the both extremes, install a new gasoline filter in the reverse order.



25. Four-Wheel Alignment Check

Please refer to *Service Manual For Chassis*, and check the four-wheel alignment parameters with a four-wheel alignment machine according to the parameters listed in the table below. If not

conforming to the specifications in the table below, please properly adjust the wheels.

Item		Parameter	
Model		SQR7130S21	SQR7110S21
Front Wheel	Front Camber Angle	0.87°±50'	0.87°±50'
	Kingpin Caster Angle	3.4°±30'	3.4°±30'
	Kingpin Inclination	12.7°	12.7°
	Front Wheel Toe-In	(1±3)mm	(1±3)mm
Rear Wheel	Rear Camber Angle	0°±30'	0°±30'
	Rear Wheel Toe-In	0°±10'	0°±10'
Sideslip		≤ 3m/km	≤ 3m/km

26. Lamp Check

26.1. Position Lamp:

Shift the headlamp switch on the instrument panel to the 1st gear position, i.e., the clearance lamp position. In this case, the front and rear position lamps, and number plate lamp are turned on at the same time. And, after the clearance lamp turns on, all nightlights of instrument, audio, air conditioner, switch and etc light; and the interior backlight can be adjusted by manipulating the nightlight regulating switch.

26.2. Low beam lamp:

After the clearance lamp turns on, if the low beam lamp switch turns on, the low beam lamp shall light;

26.3. High beam lamp:

If the high beam lamp switch turns on, the high beam lamp shall light, and the instrument shall display the symbol of high beam lamp at the same time;

Fog lamp:

The front fog lamp can turns on only after the clearance lamp turns on, and the rear fog lamp can turns on only after the front fog lamp turns on;

26.4. Turn signal lamp:

- A. In case that the left turn signal lamp turns on, all the left front/left/left rear turn signal lamps shall light at the same time;
- B. In case that the right turn signal lamp turns on, all the right front/right/right rear turn signal lamps shall light at the same time;

26.5. Hazard warning light:

In case that the warning light switch turns on, six turn signal lamps shall light at the same time, and the warning light switch flashes, the left and right turn signal indicator lights on the

instruement panel shall flash;

26.6. Stop lamp:

In case that the stop lamp switch is stepped on, the stop lamp and high mount stop lamp shall light at the same time;

26.7. Rear luggage compartment light:

In case that the rear luggage compartment opens, this light shall light;

26.8. Door lamp:

After the door opens, the door contact switch turns on, and then the door lamp shall light.

27. Exhaust Emission

Standard(s) applicable:

Type I test – Exhaust contaminant emission test after cold starting.

Euro II emission standard:

Type I Test Emission Limit		Unit: g/km
Limit		
Carbon Monoxide (CO) L1	Hydrocarbons +Nitrogen oxides (HC+NOx) L2	
2.2	0.5	

Euro III emission standard:

Type I Test Emission Limit			Unit: g/km
Limit			
Carbon Monoxide (CO) L1	Hydrocarbons (HC) L2	Nitrogen oxides (NOx) L3	
2.3	0.2	0.15	

Chapter 4 Regular Maintenance Specifications

1. Regular Maintenance Schedule

Maintenance Item	Mileage (Km)		
	5000	15000	30000
Lighting, warning flasher devices, horn: Check its performance		★	★
Wiper and cleaning devices: Check its performance, and refill the cleaning fluid, if necessary		★	★
Check the free travel and liquid level of clutch, and adjust it if necessary		★	★

Maintenance Item	Mileage (Km)		
	5000	15000	30000
Engine oil: Replace it	★	★	★
Oil cleaner: Replace it	★	★	★
Transmission oil: Check the oil level, quality, color, and refill it, if necessary	★	★	★
Engine: Check the leakage (engine oil, antifreeze fluid, fuel, A/C system, etc)	★	★	★
Battery: Check the electrolyte level, and refill the distilled water if necessary (equipped with the maintenance-free battery)		★	★
Timing belt: Check the wear and tension, and adjust or replace it if necessary			★
Engine hood hinge and lock body: Lubricate it	★	★	★
Door hinge and door stopper: Lubricate it	★	★	★
Spark plug: Check it, and replace it, if necessary		★	★
Air cleaner: Clean its housing, clear the element, and replace its element, if necessary	★	★	★
A/C filter: Check its cleanness, and replace it, if necessary		★	★
Ignition timing: Check it	★	★	★
Fuel cleaner: Replace it			★
Wedge-shaped belt: Check its tension, and adjust or replace it, if necessary		★	★
Transmission: Check its leakage or damage		★	★
Dust cap of constant velocity universal joint: Check its damage	★	★	★
Steering tie rod end: Check its free play and the damage of dust cap	★	★	★
Protective sleeve of steering universal joint assy: Check its dislocation or damage		★	★
Hand brake: Check its travel and adjust it, if necessary		★	★
Brake lining/shoe: Check its thickness, and replace it, if necessary	★	★	★
Brake disc/drum: Check its working condition, damage, and replace it, if necessary		★	★
Vehicle bottom protector: Visually check its damage			★
Seat belt: Check its damage		★	★
Toe-in value, camber angle: Check it, and adjust it, if necessary		★	★
Ball pin: Check its clearance		★	★
Rubber rear axle hingle: Check its damage		★	★
Steering knuckle/front wheel bearing: Check the looseness of connection, abnormal sound			★
Engine oil pan bolt: Check its looseness, and tighten it if necessary			★
Control arm rubber sleeve: Check its damage		★	★
Brake hose: Check its ageing, damage		★	★
Brake pipe: Check its damage, corrosion and the leakage at any joint		★	★
Suspension components: Check its abnormal looseness or friction, damage, and normal working	★	★	★
All joints of fuel system: Check its ageing, damage, abnormal looseness or friction			★

Maintenance Item	Mileage (Km)		
	5000	15000	30000
Exhaust system: Check its leakage and damage, adjust or replace it, if necessary		★	★
Steering system: Check the power steering fluid level, whether the clearance between the racks of steering wheel's gear is proper, the connection condition of all linkages, whether the system works normally, and repair or replace it, if necessary		★	★
Cooling system: Check the antifreeze fluid level, the status of all connecting pipes, leakage, and replace it, if necessary	★	★	★
Brake system: Check the brake fluid level, the status of all connecting pipes, damage and leakage, the working condition of the system, and repair or replace it, if necessary	★	★	★
A/C system: Check whether its pressure is normal, damaged, has abnormal sound, odor, and works normally	★	★	★
Tire (including spare tire): Check the depth of tire pattern, regulate the air pressure of tire, and check the tightening torque of wheel bolt.	★	★	★
Tire position change		★	★
Chassis and body connecting bolt: Check its looseness, and tighten it, if necessary	★	★	★
Wheel: Check its looseness	★	★	★
Engine idling check: Check whether the engine working condition of the engine, parameters of electronic fuel injector, and its exhaust are normal when the engine operates at the idle speed, adjust it, if necessary	★	★	★
Trail driving: Check whether the functions of all mechanisms are normal or not, adjust it, if necessary	★	★	★
Note: For the manual transmission, the transmission gear oil shall be replaced every one-year of traveling or the mileage of 30,000 KM, and the brake fluid must be replaced every two-year of travelling or the mileage of 50,000 KM.			

2. Regular Maintenance Process

2.1. Standard first maintenance (5,000 KM) work procedure

- 2.1.1. Receive the vehicle to be maintained, wear the “four-piece series” (seat cover, steering wheel cover, shift lever cover, driver’s foot pad) on the vehicle, drive the vehicle to the lifting jack, and support the vehicle;
- 2.1.2. Prepare for the related tools and special devices;
- 2.1.3. Wear the left and right fenders protective covers and front protective covers on the vehicle to be maintained;
- 2.1.4. Replace the engine oil, and oil cleaner (refer to the replacement above-mentioned in this manual);
- 2.1.5. Check transmission oil: Check the leakage of transmission oil viewing from the engine

compartment; and then lift up the vehicle and check the leakage of transmission oil viewing from the bottom of vehicle;

- 2.1.6. Check the oil/fluid: Check the levels of brake fluid, antifreeze fluid, glass cleaning fluid and power steering oil, and the leakage of the related pipelines;
- 2.1.7. Check the door lock, hinge and stopper: Check the working condition of all door locks, hinges and stoppers, and appropriately add the lubrication oil if there is abnormal sound or the resistance is big;
- 2.1.8. Check the air cleaner: Clean the element (with the high-pressure air), and replace it, if necessary;
- 2.1.9. Check the dislocation or damage of the dust cap of constant velocity joint;
- 2.1.10. Check the damage of steering tie rod end and its dust cap;
- 2.1.11. Check the thickness of brake lining/shoe, and replace it, if necessary. The standard thickness of front brake lining is 10 mm, with the serviceability limit of 3 mm, and the remaining thickness while the brake lining thickness limit shall not be less than 3 mm; and the standard thickness of rear brake lining is 5 mm, with the serviceability limit of 1 mm, and the remaining thickness while the brake lining thickness limit shall not be less than 1 mm;
- 2.1.12. Check the suspension components: Check its abnormal looseness or friction, damage, and the working condition;
- 2.1.13. Check the brake system: Check the brake fluid level, the status of all connecting pipes, leakage and damage, the working condition of the system, and repair or replace it, if necessary;
- 2.1.14. Check the A/C system: clean the element (with the high-pressure air), check its pressure (it is different according to the various working conditions, etc, and the reference value while idling is: low pressure: 2.5 - 3.0 Bar; high pressure: 15 - 17 Bar), the leakage, abnormal sound, odor, and the working condition;
- 2.1.15. Check tire (including spare tire): Check the depth of tire pattern, which the depth of tire pattern shall not be less than 1.6 mm; regulate the air pressure of tire: 230kPa for front wheel, 210 kPa for rear wheel, and 230 kPa for spare tire; and check the wheel bolt tightening torque ($110 \pm 10 \text{Nm}$);
- 2.1.16. Check the chassis bolt: Check the chassis bolts one-by-one with a torque wrench, and tighten it to the specified torque if loose ;
- 2.1.17. Check the engine while idling: Check the engine's working condition, electronic fuel injector parameters and exhaust whiling idling, and adjust it, if necessary;
- 2.1.18. Lower the vehicle, and take off the "four-piece series" and the protective covers of left and right fenders and the front protective cover;
- 2.1.19. Trial driving: Check the display status of combination instrument, the working condition of four-door regulator, and the function of the steering, braking and gear shifting mechanisms, pay attention to the abnormal sound from the engine and body, and examine and repair it, if necessary;
- 2.1.20. Look around the vehicle, and wash it if there is no abnormal symptom, then deliver the vehicle to its owner.

2.2. Standard 15,000 KM maintenance work procedure

- 2.1.1. Receive the vehicle to be maintained, wear the “four-piece series” (seat cover, steering wheel cover, shift lever cover, driver’s foot pad) on the vehicle, drive the vehicle to the lifting jack, and support the vehicle;
- 2.1.2. Prepare for the related tools and special devices;
- 2.1.3. Wear the left and right fenders protective covers and front protective covers on the vehicle to be maintained;
- 2.1.4. Replace the engine oil, and oil cleaner(refer to the replacement above-mentioned in this manual);
- 2.2.5. Check transmission oil: Check the leakage of transmission oil viewing from the engine compartment; and then lift up the vehicle and check the leakage of transmission oil viewing from the bottom of vehicle;
- 2.2.6. Check the free travel of clutch,and regulate it, if necessary;
- 2.2.7. Check the oil/fluid: Check the levels of brake fluid, antifreeze fluid, glass cleaning fluid and power steering oil, and the leakage of the related pipelines;
- 2.2.8. Battery: Check the electrolyte level, and refill the distilled water if necessary (the maintenance-free battery exclusive);
- 2.2.9. Wiper and cleaning equipment: Check its working condition;
- 2.2.10. Check the door lock, hinge and stopper: Check the working condition of all door locks, hinges and stoppers, and appropriately add the lubrication oil if there is abnormal sound or the resistance is big;
- 2.2.11. Check the air cleaner: Clean the element (with the high-pressure air), and replace it, if necessary;
- 2.2.12. Check the dislocation or damage of the dust cap of constant velocity joint;
- 2.2.13. Check the damage of steering tie rod end and its dust cap;
- 2.2.14. Ball pin: Check its looseness and scratch;
- 2.2.15. Check the thickness of brake lining/shoe, and replace it, if necessary. The standard thickness of front brake lining is 10 mm, with the serviceability limit of 3 mm, and the remaining thickness while the brake lining thickness limit shall not be less than 3 mm; and the standard thickness of rear brake lining is 5 mm, with the serviceability limit of 1 mm, and the remaining thickness while brake lining thickness limit shall not be less than 1 mm;
- 2.2.16. Brake disc/drum: Check its working condition, the damage, and replace it, if necessary;
- 2.2.17. Hand brake: Check its travel, and regulate it, if necessary;
- 2.2.18. Tire position change: Change the position of tires according to the description as shown in the figure, and note that the status of tire of the front wheel shall be better than that of rear wheel after position changing;



- 2.2.19. Brake hose: Check its ageing and damage;
- 2.2.20. Brake pipe: Check its damage, corrosion and the leakage of all joints;
- 2.2.21. Check the suspension components: Check its abnormal looseness or friction, damage, and the working condition;
- 2.2.22. Rear shaft rubber hinge: Check its damage;
- 2.2.23. Control arm rubber sleeve: Check its damage;
- 2.2.24. Check the brake system: Check the brake fluid level, the status of all connecting pipes, leakage and damage, the working condition of the system, and repair or replace it, if necessary;
- 2.2.25. Check the A/C system: clean the element (with the high-pressure air), check its pressure (it is different according to the various working conditions, etc, and the reference value while idling is: low pressure: 2.5 - 3.0 Bar; high pressure: 15 - 17 Bar), the leakage, abnormal sound, odor, and the working condition;
- 2.2.26. Check tire (including spare tire): Check the depth of tire pattern, which the depth of tire pattern shall not be less than 1.6 mm; regulate the air pressure of tire: 230kPa for front wheel, and 210 kPa for rear wheel; and check the wheel bolt tightening torque ($110 \pm 10 \text{Nm}$);
- 2.2.27. Check the chassis bolt: Check the chassis bolts one-by-one with a torque wrench, and tighten it to the specified torque if loose ;
- 2.2.28. Toe-in value and camber angle: Check the toe-in value, camber angle, and adjust it if necessary (refer to the parameters above for the adjustment);
- 2.2.29. Check the spark plug: Check whether the spark plug has the carbon deposits, ablation symptom, etc, and replace it if necessary (the service life of a spark plug is in general 30,000 KM);
- 2.2.30. Wedge belt: Check its tension, and regulate or replace it if necessary. Refer to the “Timing belt” in the *Standard 30,000 KM maintenance work procedure* for the tension requirement after regulating;
- 2.2.31. Check the engine while idling: Check the working condition of the engine while idling, check the working condition of electronic fuel injector parameters and exhaust, and adjust it if necessary;
- 2.2.32. Exhaust system: Check its leakage and damage, and regulate or replace it if necessary;
- 2.2.33. Lower the vehicle, and take off the “four-piece series” and the protective covers of left and right fenders and the front protective cover;
- 2.2.34. Check the lighting, warning flasher devices, horn: Check its working condition;

- 2.2.35. Seat belt: Check its damage;
- 2.2.36. Trial driving: Check the display status of combination instrument, the working condition of four-door regulator, and the function of the steering, braking and gear shifting mechanisms, pay attention to the abnormal sound from the engine and body, and examine and repair it, if necessary;
- 2.2.37. Look around the vehicle, and wash it if there is no abnormal symptom, then deliver the vehicle to its owner.

2.3. Standard 30,000 KM maintenance work procedure

- 2.1.1. Receive the vehicle to be maintained, wear the “four-piece series” (seat cover, steering wheel cover, shift lever cover, driver’s foot pad) on the vehicle, drive the vehicle to the lifting jack, and support the vehicle;
- 2.1.2. Prepare for the related tools and special devices;
- 2.1.3. Wear the left and right fenders protective covers and front protective covers on the vehicle to be maintained;
- 2.1.4. Replace the engine oil, and oil cleaner(refer to the replacement above-mentioned in this manual);
- 2.3.5. fuel filter: refer to the replacement above-mentioned in this manual;
- 2.3.6. All joints of fuel system: Check its ageing, damage, abnormal looseness or friction;
- 2.3.7. Check transmission oil: Check the leakage of transmission oil viewing from the engine compartment; and then lift up the vehicle and check the leakage of transmission oil viewing from the bottom of vehicle;
- 2.3.8. Check the free travel of clutch,and regulate it, if necessary;
- 2.3.9. Check the oil/fluid: Check the levels of brake fluid, antifreeze fluid, glass cleaning fluid and power steering oil, and the leakage of the related pipelines;
- 2.3.10. Battery: Check the electrolyte level, and refill the distilled water if necessary (the maintenance-free battery exclusive);
- 2.3.11. Wiper and cleaning equipment: Check its working condition;
- 2.3.12. Check the door lock, hinge and stopper: Check the working condition of all door locks, hinges and stoppers, and appropriately add the lubrication oil if there is abnormal sound or the resistance is big;
- 2.3.13. Check the air cleaner: Clean the element (with the high-pressure air), and replace it, if necessary;
- 2.3.14. Check the dislocation or damage of the dust cap of constant velocity joint;
- 2.3.15. Check the damage of steering tie rod end and its dust cap;
- 2.3.16. Ball pin: Check its looseness and scratch;
- 2.3.17. Check the thickness of brake lining/shoe, and replace it, if necessary. The standard thickness of front brake lining is 10 mm, with the serviceability limit of 3 mm, and the remaining thickness while the brake lining thickness limit shall not be less than 3 mm; and the standard thickness of rear brake lining is 5 mm, with the serviceability limit of 1 mm, and the remaining thickness while brake lining thickness limit shall not be less than 1 mm;
- 2.3.18. Brake disc/drum: Check its working condition, the damage, and replace it, if necessary;

- 2.3.19. Hand brake: Check its travel, and regulate it, if necessary;
- 2.3.20. Tire position change: Change the position of tires according to the description as shown in the figure, and note that the status of tire of the front wheel shall be better than that of rear wheel after position changing;



- 2.3.21. Brake hose: Check its ageing and damage;
- 2.3.22. Brake pipe: Check its damage, corrosion and the leakage of all joints;
- 2.3.23. Check the suspension components: Check its abnormal looseness or friction, damage, and the working condition;
- 2.3.24. Steering knuckle/front wheel bearing: Check the looseness of joint, and the abnormal sound;
- 2.3.25. Rear shaft rubber hinge: Check its damage;
- 2.3.26. Control arm rubber sleeve: Check its damage;
- 2.3.27. Check the brake system: Check the brake fluid level, the status of all connecting pipes, leakage and damage, the working condition of the system, and repair or replace it, if necessary;
- 2.3.28. Check the A/C system: Check its pressure, the leakage, abnormal sound, odor and the working condition;
- 2.3.29. Check tire (including spare tire): Check the depth of tire pattern, which the depth of tire pattern shall not be less than 1.6 mm; regulate the air pressure of tire: 230kPa for front wheel, and 210 kPa for rear wheel; and check the wheel bolt tightening torque ($110\pm 10\text{Nm}$);
- 2.3.30. Check the chassis bolt: Check the chassis bolts one-by-one with a torque wrench, and tighten it to the specified torque if loose ;
Body bottom protector: Visually check its damage;
- 2.3.31. Toe-in value and camber angle: Check the toe-in value, camber angle, and adjust it if necessary (refer to the parameters above for the adjustment);
- 2.3.32. Check the spark plug: Check whether the spark plug has the carbon deposits, ablation symptom, etc, and replace it if necessary (the service life of a spark plug is in general 30,000 KM);
- 2.3.33. Wedge belt: Check its tension, and regulate or replace it if necessary. Refer to the “Timing belt” for the tension requirement after regulating;
- 2.3.34. Timing belt: Check its wear and tension, and regulate or replace it if necessary. The tension requirement after the timing belt is regulated: In the intermediate position of two

wheels at the timing belt pulled side, when the timing belt is pressed down approx. 5 mm by hand, the force required is: 19.6 - 29.4 N(2.0 - 3.0 kg);

- 2.3.35. Check the engine while idling: Check the working condition of the engine while idling, check the working condition of electronic fuel injector parameters and exhaust with the CHERY Company's special tester, and adjust it if necessary;
- 2.3.36. Exhaust system: Check its leakage and damage, and regulate or replace it if necessary;
- 2.3.37. Lower the vehicle, and take off the "four-piece series" and the protective covers of left and right fenders and the front protective cover;
- 2.3.38. Check the lighting, warning flasher devices, horn: Check its working condition;
- 2.3.39. Seat belt: Check its damage;
- 2.3.40. Trial driving: Check the display status of combination instrument, the working condition of four-door regulator, and the function of the steering, braking and gear shifting mechanisms, pay attention to the abnormal sound from the engine and body, and examine and repair it, if necessary;
- 2.3.41. Look around the vehicle, and wash it if there is no abnormal symptom, then deliver the vehicle to its owner.