

Preface

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Overview of the entire car-2

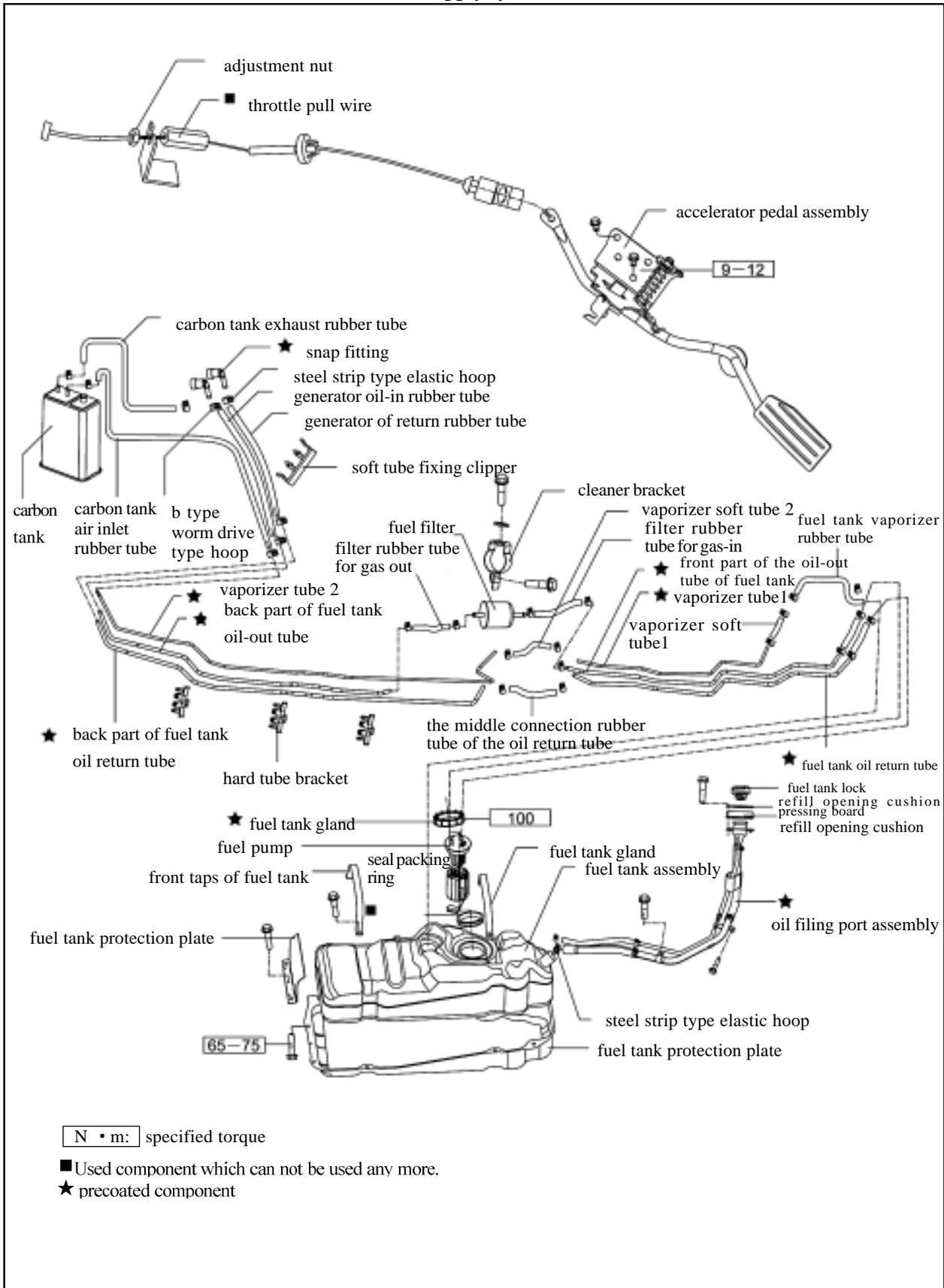
Basic parameter

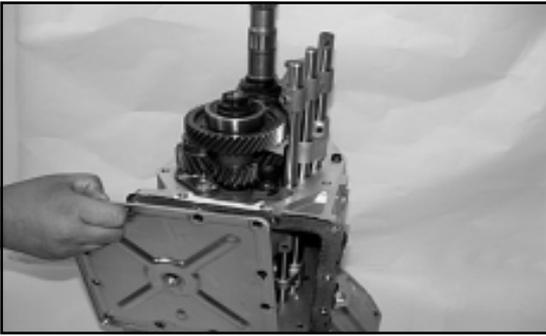
The basic parameters of the complete vehicle of CC6460K and CC6460KY estate car should be in accordance with the regulation in Table 1.

Basic parameters of the complete vehicle of CC6460K and CC6460KY

Item	CC6460K	CC6460KY
Dimension parameter(no-load)(mm)		
L	4620	
W	1800	
H	1710(car body)/1755(with tail fin and luggage carrier)	1700(car body)/1765(with tail fin and luggage carrier)
Axle tread	2700	
Wheel tread: front/rear	1515/1520	
Front suspension	850	
Rear suspension	1070	
weight parameter:		
Loading weight(kg)	5 person × 65kg/person + 150kg	
Complete weight(kg)	1720	1830
Max. total weight(kg)	2195	2305
No-load axial load distribution: front/rear(kg)	890/830	980/850
full-load axial load distribution: front/rear(kg)	980/1215	1070/1235
Traffic ability parameter		
Min. turning diameter(m)	≤13	
Min. ground clearance (mm)	≥180	≥175
Approach angle(°)	≥28(no-load)	
departure angle(°)	≥27.5(no-load)	
Dynamic parameter:		
Min. stable speed of direct step(km/h)	≤25	
30km/h~100km/h acceleration time of direct step(s)	≤32	
acceleration time from 1 step starting to 100km/h(s)	≤20	
Max. speed(km/h)	≥160	
Max. Climbing capability(%)	≥35	
Economical character:		
Slipping distance in initial speed of 50km/h(m)	≥500	
Traveling fuel consumption in 90km/h constant speed (L/100km)	≤10.19	
Traveling fuel consumption in 120km/h constant speed (L/100km)	≤13.24	
Under simulated urban and suburb comprehensive operating condition(L/100km)	≤11.9	≤12.5
Braking characteristics:		
Traveling braking distance in 50km/h braking initial speed (m)	≤19(no-load), ≤20(full-load)	
Emergency braking distance in 50km/h braking initial speed(m)	≤38	
Slope stop braking(%)	≥20(no-load), ≥18(full-load)	

Fuel supply system





b. Remove the lower cover plate assembly



17. Remove the declutch shift shaft assembly

a. Use the punch to remove the reverse gear 5 shift fork elastic cylindrical pin



b. Use the punch to remove the Gear 1/2 shift fork elastic cylindrical pin



c. Use the punch to remove the Gear 3/4 shift fork cylinder pin.



d. Remove the reverse gear 5 declutch shift shaft assembly

Table 2.1 Gear selection and its function

Gear selection	function
1 st -Gear (manual 1 st -Gear)	The first gear is using for climbing and braking. It is a function which limits the speed of the car. The speed limitation by engine is realized by reduce the opening degree of throttle position.
2nd-Gear (automatic, manual 2 nd -Gear)	In economic mode, it can process the 1 st and 2 nd shifting operation when engage the 2 nd –Gear. The limitation of vehicle speed by engine is realized through reducing the opening of throttle position. in 4WD 4 high, , the transmission will maintain 2 nd -Gear position The manual mode and winter-Mode will only maintain 2nd-Gear .
3 rd -Gear (automatic, manual 3rd-Gea)	In economic mode and dynamic mode, it can process the shifting operation of 1 st , 2 nd and 3rd-Gear when engage the 3rd-Gear, and can reaches the very high vehicle speed. At this time the locking clutch can process the locking action, refer to vehicle user manual. The limitation of vehicle speed by engine is realized by reduce the opening of throttle position. In 4WD 4 low, the transmission should be maintained in 3 rd –Gear position. Under manual mode, the transmission will be kept in 3rd-Gear.
D-gear (drive)	It can process the 1 st , 2 nd , 3 rd and 4 th –Gear position operation and gear-shifting operation of (1-2), (1-3), (2-3), (2-4), (3-4), (4-3), (4-2), (3-1) and (2-1). This shifting operation is processed by taking the vehicle speed, throttle position, throttle position switching frequency (or forced Gear-decreasing) as the parameter. The locking clutch can process the locking action in 3rd –Gear, 4 th -Gear according to the type of vehicle. Refer to user manual of vehicle.
N-Gear (neutral gear)	Only the rear brake belt is engaged at this time. It determines whether the function can be realized according to the vehicle speed, engine speed and throttle position. But the gear-position sensor allows the starting of engine. Allow the slide of N-Gear.
R-Gear (reverse gear)	Set the anti-misoperation in forward function according to the vehicle speed, engine speed and throttle position opening to realize the reverse operation. The gear-position sensor can start the reverse lamp.
P-gear (parking gear)	Only the rear brake belt is engaged at this time. The function can be determined according to the vehicle speed, engine speed and throttle position. The output shaft of transmission is locked. The gear-position sensor can start the engine.

The distribution of FAQ table is shown as follows:

- Table 6.2.1 Drive failure ● Table 6.2.3 Shift quality failure
- Table 6.2.2 Shift mode failure ● Table 6.2.4 Disassembly failure

failure	Possible reason	Corresponding measure
“D”-Gear operation has not drive	The automatic transmission fluid is insufficient. The oil-entering of C1/C2 piston is blocked. The “Z” is assembled incorrectly. The primary regulating valve plug is opened. The overspeed shaft or input shaft sealing ring is failure. 3→4, 1→2 single-way clutch is installed in reverse or failure.	Check the liquid level. Fill it up if necessary. Check and wash the C1/C2 oil inlet device. Reinstall the “Z” connection. Remove, wash and reinstall the primary regulating valve. Check and replace it if necessary. Check and replace it if necessary.
The reverse shifting operation is without drive. The manual 1 st -Gear has not engine brake. The engine brake is normal in manual 1 st -Gear.	The input shaft oil seal ring is damaged. The rear brake belt or servo system is faulty. C3, C3 wheel shaft or C1/C2 cylinder are out of work.	Check and replace it if necessary. Test the servo system or replace the rear brake belt according to the requirement. Test the failure C3, C3 wheel axle or C1/C2 cylinder. Repair it in time if necessary.
“D” –Gear and reverse –Gear operation is without drive.	The primary regulating valve is blocked. The pump gear is damaged. Take out the output shaft clasp.	Detect and clean the primary regulating valve. Check and replace the pump gear if necessary. Check and repair it if necessary.
Only can 2→3 shifting (can not realize the 4 th -Gear and 1 st -Gear)	S1 is closed always.	Test the S1. Repair or replace it if necessary. Test the failure of S1 12V power supply voltage or wire bundle.
Only can 1→4 shifting 1→3→4 shifting (1→2 shifting delay).	S1 is opened always	Test the S1. Repair or replace it if necessary. Test the failure of S1 12V power supply voltage or wire bundle.
Only can 4→3 shifting	S2 is closed always.	Test the S2. Repair or replace it if necessary. Test the failure of circuit break or wire bundle.
1→2→neutral position shifting (1 st -Gear transition)	S2 is opened always	Test the S2. Repair or replace it if necessary. Test the failure of circuit break or wire bundle.
Only can 1→3 shifting	B1 is out of work The brake belt is loose. The front servo piston or oil seal is out of work. S1/S2 ball spool is reinstalled in wrong place.	Test and adjust it according to the requirement. Test and maintain it according to the requirement. Test and replace or reinstall it according to the requirement.
Only can 1→3→4 shifting	The small O-ring of front servo piston is invalid or lost. 2→3 Gear position shifting valve is blocked.	Detect the O-ring. Process the replacement or reinstallation if necessary. Detect the 2→3 Gear shifting valve; Process the maintenance or replacement according to the requirement.
Only can 1→2→1 shifting	C1 is invalid or 3 rd -Gear and 4 th -Gear is loose. (give to 1 st -Gear in 3 rd -gear; give to 2 nd -Gear in 4 th -Gear)	Detect the clutch C1. Repair or replace it if necessary.
Can not realize the manual 4→3, 3→2, 2→1	Overspeed clutch /ball spool has displacement. C4 is invalid.	Detect the ball spool. Process the replacement or reinstallation according to the requirement. Detect the C4. Repair C4 or replace the C4 wave pan according to the necessary.

Shifting point

Opening degree of throttle position	Shifting				Opening degree of throttle position	shifting			
	1/2	2/3	3/4	4L		1/2	2/3	3/4	4L
0%	10	20	34	63	0%	14	26	41	87
40%	26	47	82	95	40%	30	56	76	113
100% (WOT)	53	93	126	150	100% (WOT)	53	94	127	152
decreasing	55	89	137	152	decreasing	55	96	137	152

Table 9.3- Shifting point-km/h

Maximum speed of typical Gear-decreasing of vehicle

The Gear-decreasing will be disabled when beyond the following speed.

Gear-decreasing type	Speed point for disable of Gear-decreasing
Manual 2-1	In 59 km/h
Manual 3-2	89 km/h
Manual 4-3	119 km/h
Manual 4-2 (4-2 direct)	68 km/h
Manual 4-2 (sequence of 4-3-2)	89 km/h

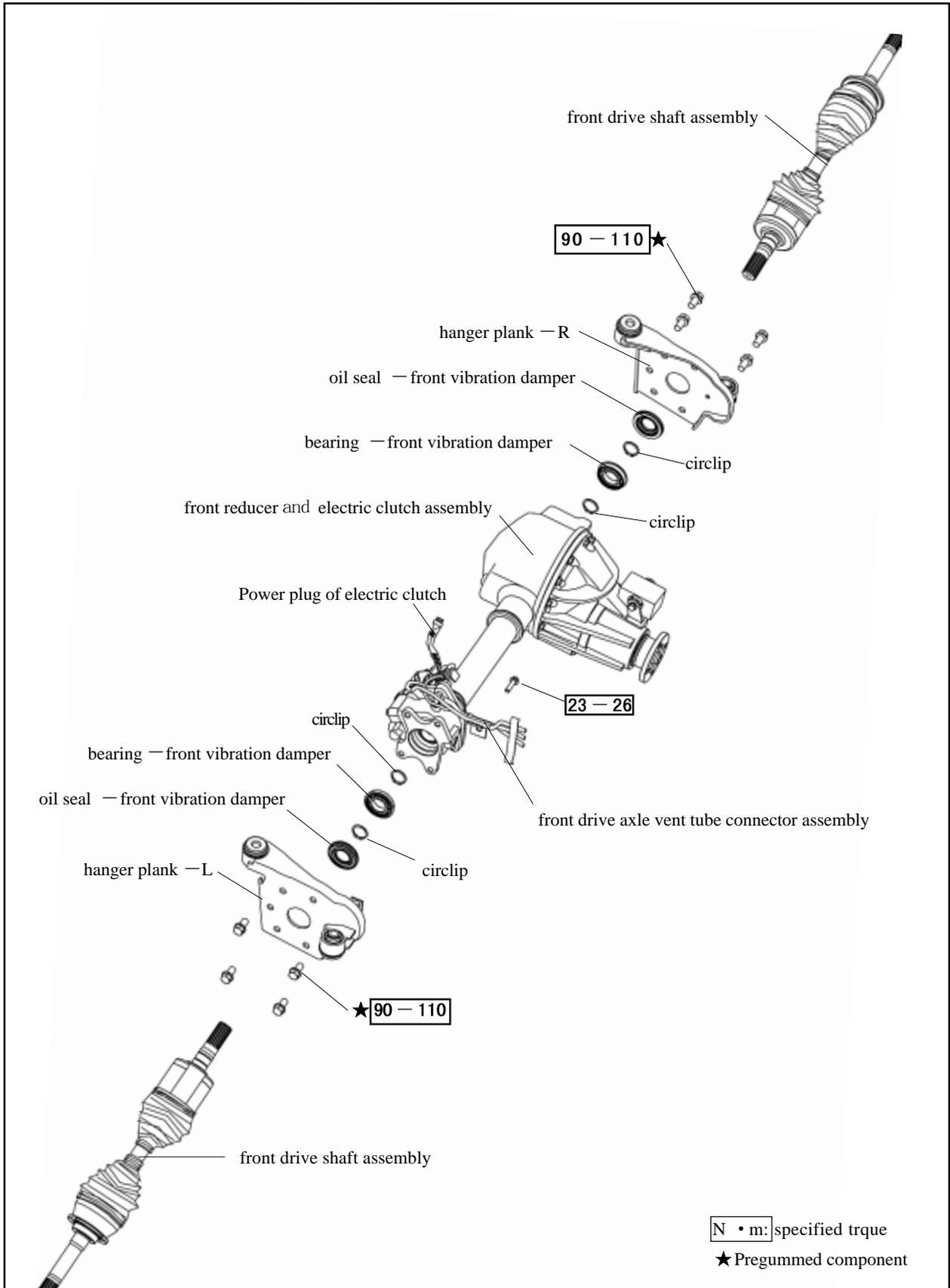
Figure 9.4 - Special tools for maximum disable speed of manual Gear-decreasing

Special tools

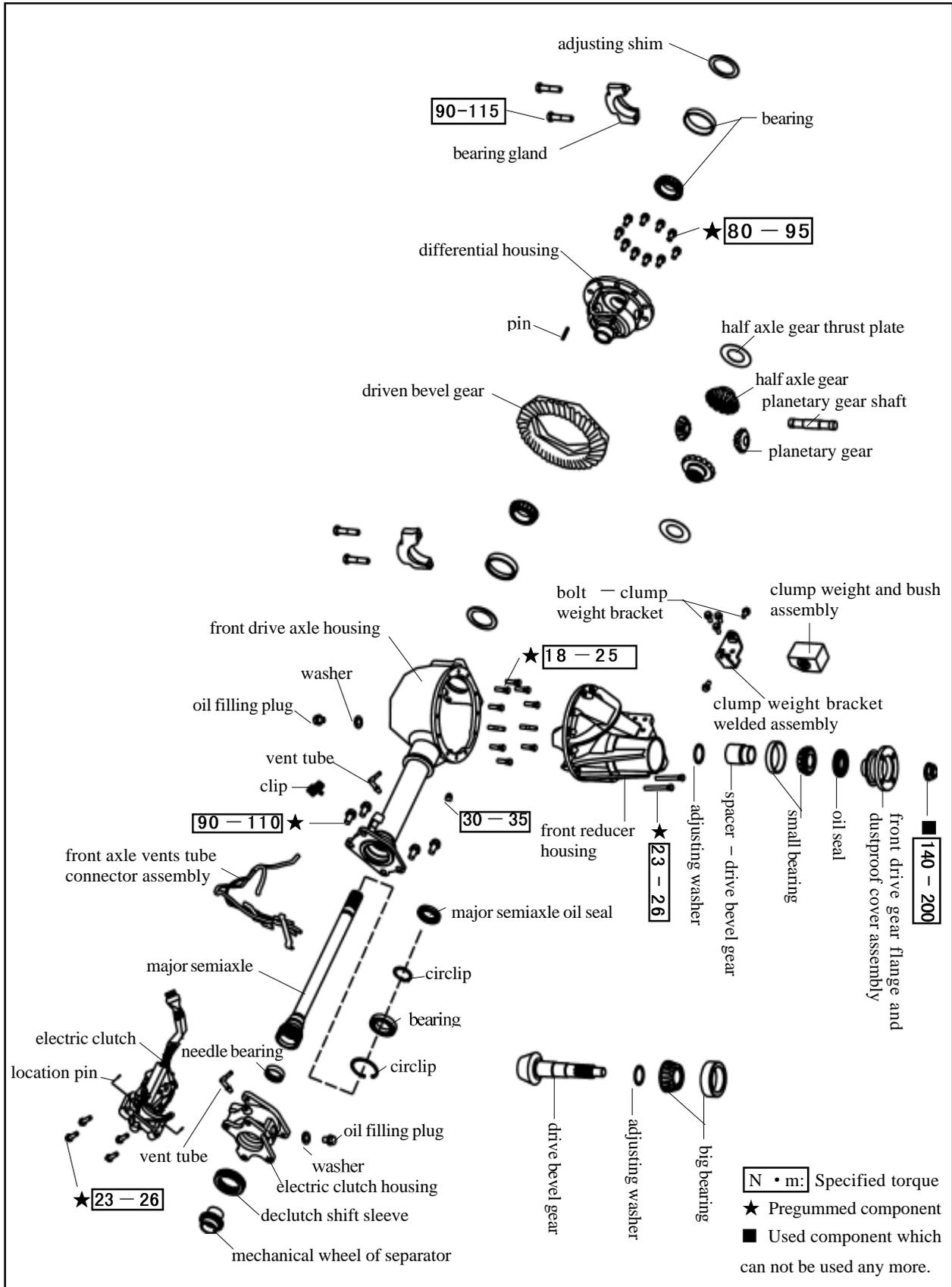
tools	Part No.
Platform bracket of transmission	
oil pump remover	
Cross shaft disassembly /installation (brake lever)	
clutch spring compressing tools	
clutch assembly clearance positioning tools	
Shaft end floating connector	
Shaft end floating measuring tools	
cross shaft seal disassembly tools	
cross shaft seal installation tools	
Pump sealing installation tools	
Sealing ring expander extender /compressor	
Cross shaft lever disassembly /installation (disable switch)	
solenoid valve /electric heating regulator, electric meter	
solenoid valve, platform meter	
Assembly ball spool	
Sealing gasket disc	

Figure 9.5 Special tools

Front reducer assembly



Disassembly and assembly of front reducer assembly and electric clutch



Cautions

- 1. It should be carefully when replace each part. For any mistake may affect the performance of brake system and cause the accident and danger during driving. The replaced components must be the component with same component number or equivalent.**
- 2. It is very important that maintain the clean of component and each place when repair the brake system.**

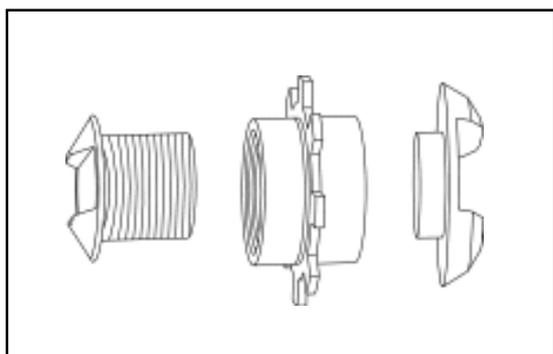
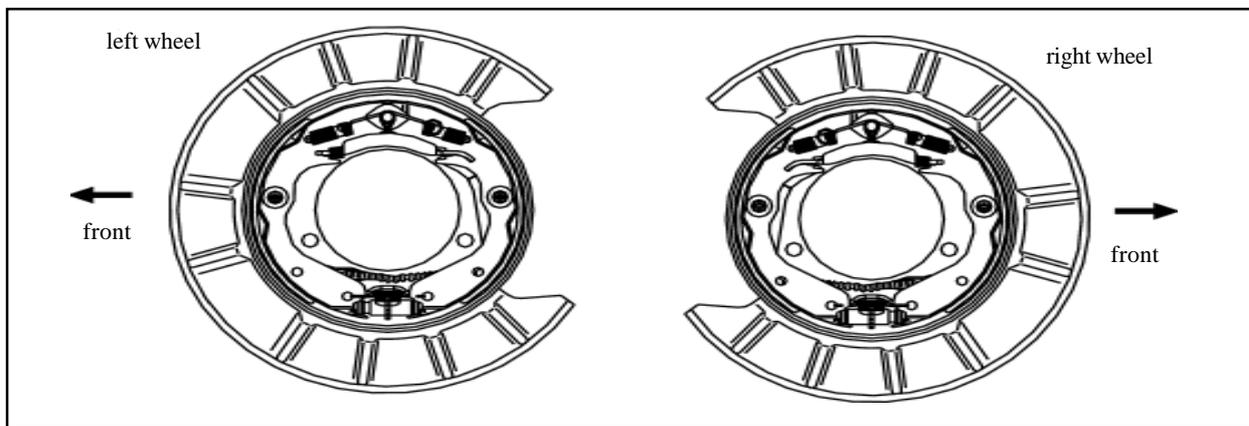
Troubleshooting

Failure	cause	Inspection content
Pedal is low or soft	brake pad is worn brake block is worn brake system is leaked master pump has failure Brake system has air Brake pump has failure Auto adjuster of rear brake has failure	Replace the brake shoe Replace the brake block Repair the leakage Repair or replace the master pump Drain the air from brake system Replace the brake pump Repair or replace the adjuster
Lag of brake	Parking brake is adjusted badly. Pull wire of parking brake is locked Assist push rod is adjust badly Extension spring or return spring has fault Pipeline is blocked brake pad is broken or deformed brake block is broken or deformed Auto adjuster is damaged Master pump has failure.	Adjust the parking brake Repair if necessary Adjust the push rod Replace the extension spring Repair if necessary Replace the brake shoe Replace the brake block Replace the adjuster Replace the master pump
Brake is stagnant	Improper inflation of tyre There is grease spot or lubricant oil on the brake shoe or brake block. The brake shoe is deformed ; the brake pad is worn or smoothed The brake block is deformed, worn or smoothed The brake drum or brake disc is deformed Extension spring or return spring has failure Wheel pump has failure Pump has failure Brake block is blocked	Charge the tyre to the proper pressure. Find out the cause. Replace the brake shoe or block. Replace the brake shoe Replace the brake block Replace the brake drum or brake disc Replace the spring Repair the wheel pump Replace Replace the brake block
brake pedal is hard	There is the grease spot or lubrication oil on the brake disc or brake block. The brake shoe is deformed; the brake pad is worn or smoothed The brake block is deformed, worn or smoothed Brake pump has failure. Brake assist has failure Improper vacuum degree The brake pipeline is blocked.	Find out the cause . Replace the brake shoe or brake block Replace the brake block Replace Replace the assist Repair if necessary Repair if necessary

Assembly of rear parking brake

Remarks: Assemble the component according to the direction shown in figure;

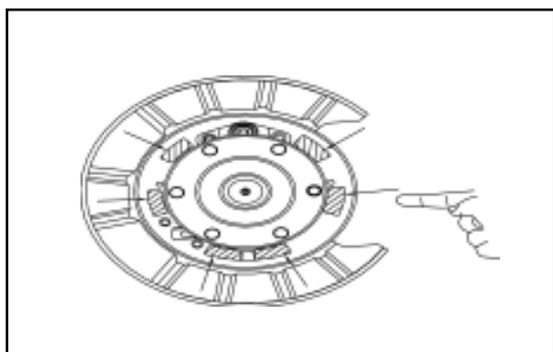
It is prohibited strictly that the working surface of brake drum and abrasion disk is polluted by the paint and grease. It should be removed by the fine abrasive paper if the abrasion disk has little dirty. The brake shoe should be replaced when the polluted area is large, otherwise it will cause the serious effect of insufficient brake force.



1. Install the clearance-adjusting device assembly

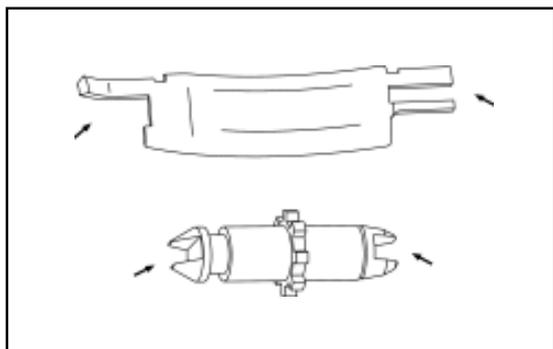
Insert the clearance-adjusting shaft head into the clearance-adjusting wheel; screw the clearance-adjusting screw rod into the clearance adjusting wheel.

Remarks: The screw direction of left clearance-adjusting screw rod is the left hand.
The screw direction of right clearance-adjusting screw rod is the right hand.



2. Coat the following components with the proper anti-high temperature grease :

- a. Contact position of brake soleplate and brake shoe.
- b. Contacting surface of push plate and shoe plate; contacting surface of clearance-adjusting device assembly and shoe plate.



wire harness relationship and plug-in unit connection serial number diagram

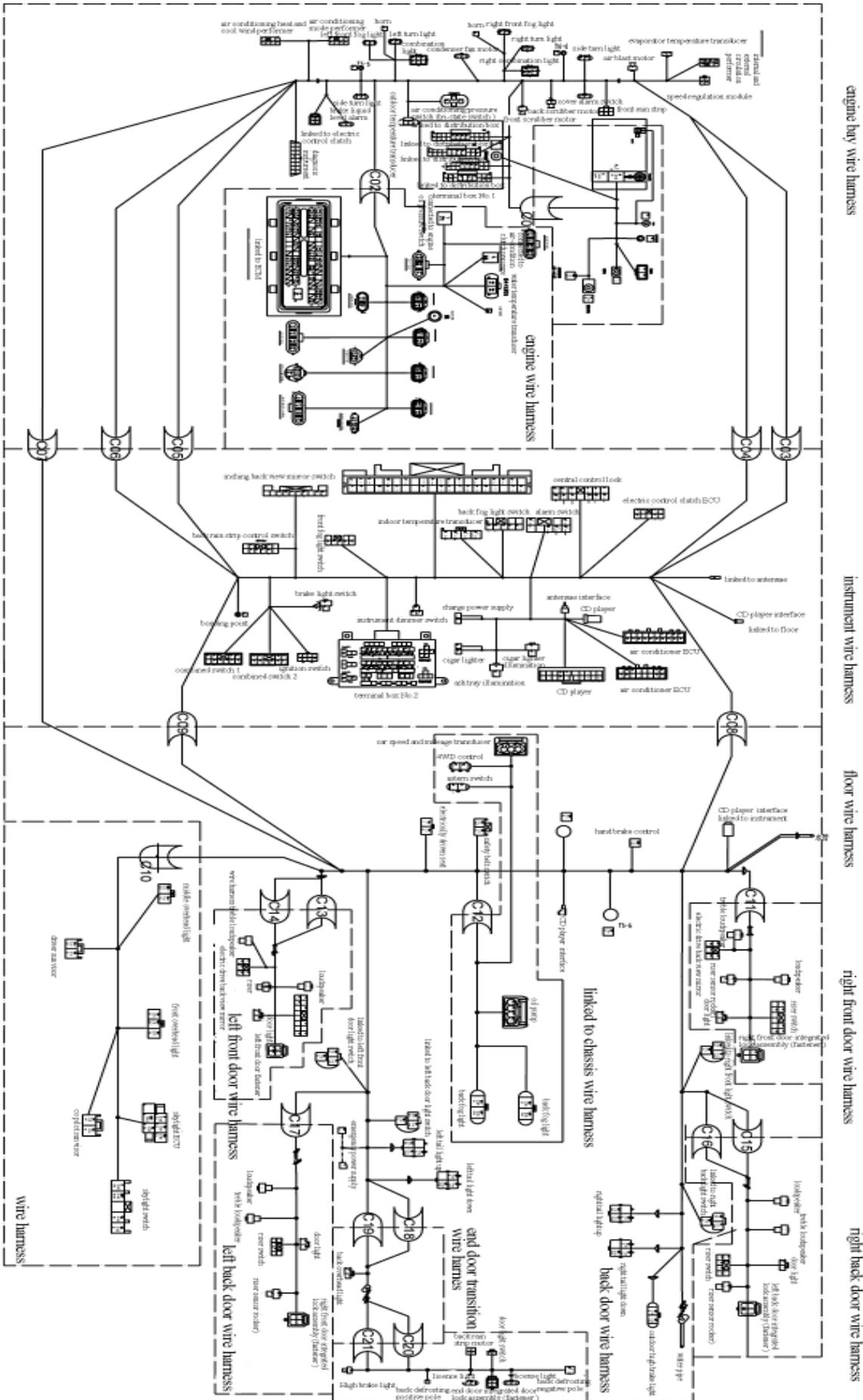


Figure VIII 2.1

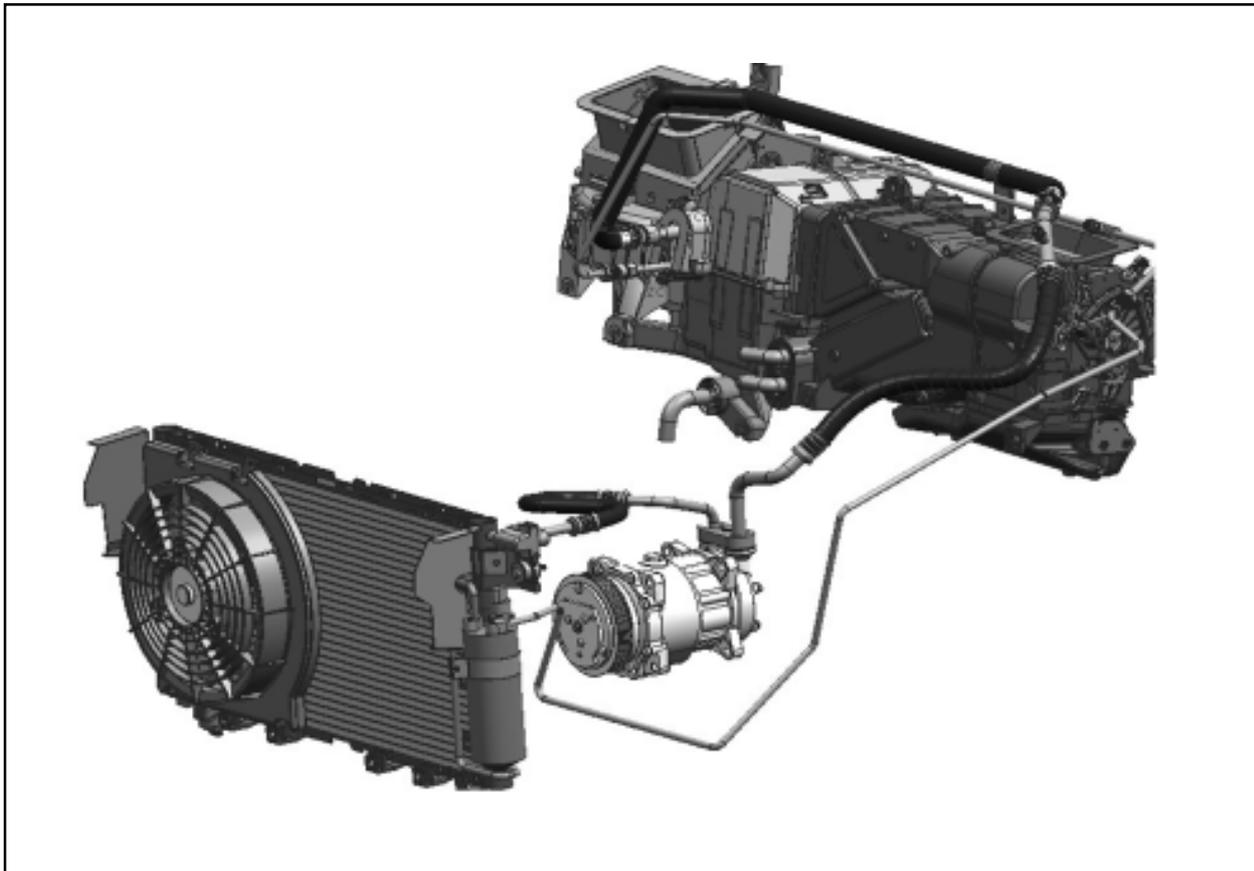
Controller of the Central Door Lock

1. Positive pole of the power supply (12V) is connected to the positive pole of car's battery through a 15A fuse; when the engine is started, the voltage is not less than 10V.
2. Output of the central door lock. The unlock cable connected to the executor of the central door lock is usually grounded through the normally-closed contact of the internal relay; when the door is unlocked by the remote controller or unlocked manually, the public contact of the relay will get through with the normally-open contact, realizing an output of 12V voltage.
3. Output of the central door lock. The lock cable connected to the executor of the central door lock is usually grounded through the normally-closed contact of the internal relay; when the door is locked by the remote controller or locked manually, the public contact of the relay will get through the normally-open contact, realizing an output of 12V voltage.
4. Key detection cable. This cable is connected to the ignition lock of the car and will get through with the grounding wire when the key is inserted into. (negative input)
5. Right direction indicator. The cable is connected to the positive pole of the right direction indicator of the car; an output of 12V voltage will be available when this cable is at work.
6. Left direction indicator. The cable is connected to the positive pole of the right direction indicator of the car; an output of 12V voltage will be available when this cable is at work.
7. Negative input of door switch, which is connected to the door switch of the car; this cable will be earthed when the door is opened. (Interior lights will be on)
 - a. Open the door and then close it, the reading light will be on for 10 seconds; if during this period, it is detected that the key has been inserted into the ignition lock or the door closed, then the reading light will turn off.
 - b. When the key is pulled out of the ignition lock, then reading light will turn on, during this period, if the key is reinserted into the ignition lock or the door lock, the reading light will be off; if there is not any action when the door is closed within 1 minute, the reading light will automatically turn off.
8. ON power supply detection cable. A conductive wire connected to the ON gear of the ignition lock. (When the key is turned to the ON position, a 12V output will be available)
9. Car speedometer detection cable, which is connected to the detection cable of car's speedometer. (When the car is accelerated to the speed of 15km/h, the instruments unit will output a 500mS rectangular positive pulse to the central door lock controller, which will control the locking of the central door lock when this 500mS rectangular positive pulse signal is detected by the controller.)
10. Output of window closing signal. When the door is locked by the remote controller, this line will be available with an output of 12V positive current for one second and then be off. (No output)
11. Locking signal. The locking signal line connected to the central door lock of car's left front door is connected through with the grounding line when at work. (Earthing)
12. Unlocking signal. The unlocking signal line connected to the central door lock of car's left front door is connected through with the grounding line when at work. (Earthing)
13. Negative pole of the power supply, which is connected to the car body, (earthing) line shall be as short as possible, over-length will produce the interference.

Function of controller of the central door lock

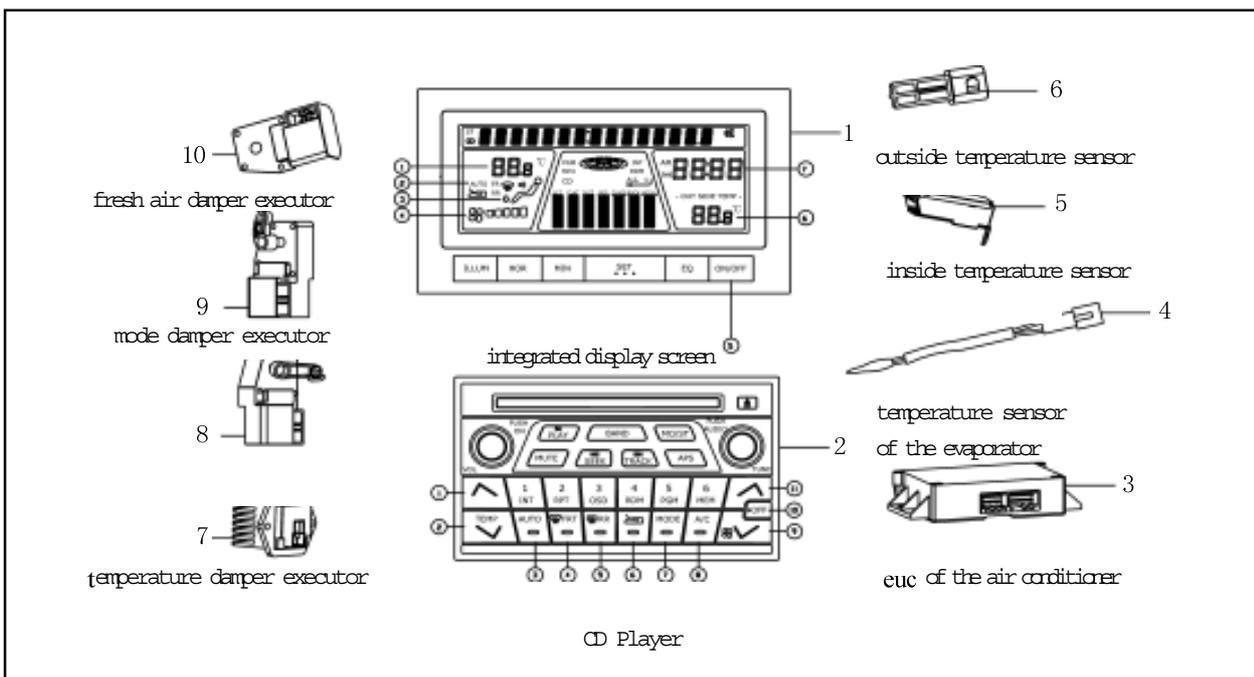
1. Locking. When all the car doors are closed, press LOCK button of the remote controller once, at this time, the direction indicator will flash once and the central door lock is closed.
2. Unlocking. At the locking state, press UNLOCK button of the remote controller once, at this time, the direction indicator will flash two times and the central door lock is opened.
3. Car-finding function. At the locking state, press LOCK bottom of the remote controller once, and at this time, the direction indicator will flash ten times quickly. Press UNLOCK button of the remote controller to quit the car-finding function.
4. Automatic prevention function. At the locking state, press UNLOCK button of the remote controller to open the lock; if the

Air Conditioning System



Composition of Air Conditioning System

Air conditioning system mainly consists of air conditioner control unit, display unit, sensors and executor elements.



Test instrument

Instrument	Name	Utility
	<p>X-431 diagnostic scanner</p>	<p>Test the systematic failures in SRS safety airbag system, debug ECU. failure codes.</p>

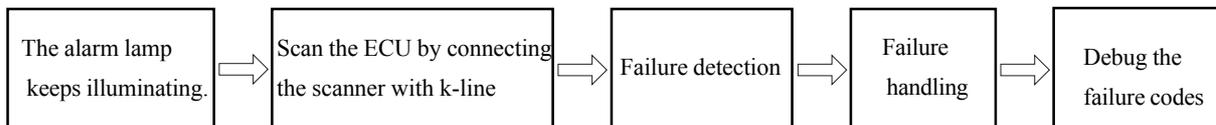
Failure handling

The basic failure diagnosis process

The failure code DTC of both present and history-accumulated failures may co-exist.

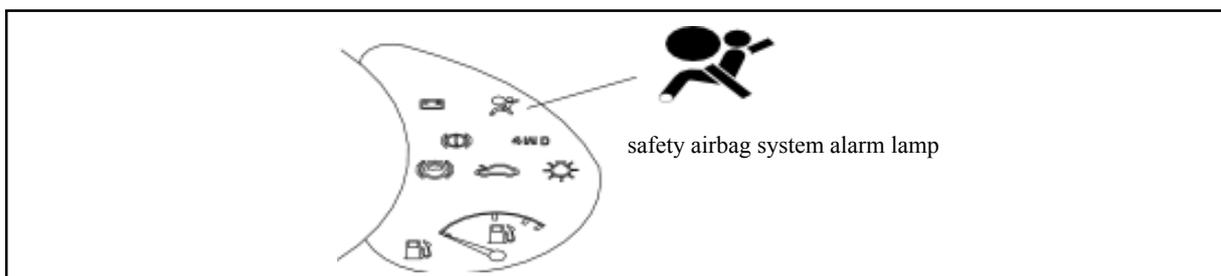
Caution

- The safety airbag alarm lamp flashes for 6 times and then extinguishes when the ignition switch is in ON position after the installation of new safety airbag system electronic control unit, which demonstrates the normal function of SRS safety airbag system. In this case the system does not need to be tested, otherwise it should be diagnosed and repaired.
- If the alarm lamp does not illuminate when the ignition switch is in ON position, repair the alarm lamp relevant circuit and, then further operate to get it into work.



The test for SRS safety airbag alarm lamp

- a. Place the ignition switch in ON position and confirm whether the alarm lamp is lighted.
- b. Check whether the alarm lamp permanently extinguishes after flashing for 6 times.
- c. The diagnosis and test is also required besides the previous measures.



system diagnosis

SRS-ECU will execute a series of diagnosis and test to check whether the function of airbag system is prepares. The check can prevent the restriction system from mis-explosion and ensure the necessary explosion during collision. If found the failure, SRS-ECU will save a proper failure code and light the alarm lamp to indicate a failure status for the convenience of maintenance. If connect the pin 2# wire 488# (diagnosis request wire) on the diagnosis port to the ground (wire 50#) for more than 2s, the safety airbag alarm lamp will flash the code. For detailed position refer to following figure.