Service Manual for Chery V525 Car

(Chassis)

Service & Technical Department of Chery Automobile Company

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Chapter One Brake System....4
Ⅰ. System overhaul parameters....4
1. Brake disk surface check....4
2. Brake disk thickness check....4
3. Brake disk runout check....4
4. Brake lining thickness check....4
Ⅱ. Disassembly, assembly and overhaul of front brake and brake caliper....5
1. System structural diagram....5
2. Preparation....6
3. Note....6
4. Disassembly procedure....6
5. Assembly procedures....10
Ⅲ. Disassembly, assembly and overhaul of rear brake....11
1. System constructional drawing....11
2. Preparation....11
3. Precautions....11
4. Disassembly procedures....12
5. Assembly procedures....13
Ⅳ.Adjustment and replacement of handbrake control cable....14
1. System structural diagram....14
2. Preparation....14
3. Precautions....14
4. Disassembly and assembly procedures....14
4.1. Disassembly of rear hand brake control cable....14
4.2 Disassembly of hand brake control mechanism and hand brake front control cable....16
4.3. Assembly procedures....17
4.4 Adjustment of handbrake control cable....17
Ⅴ. Disassembly, assembly and overhaul of ABS system, brake master cylinder as well as vacuum booster....18
1. System structural diagram....18
2. Preparation....18
3. Precautions....18
4. Disassembly and assembly procedures....19
4.1. Removal of ABS assembly....19
4.2 Disassembly of brake master cylinder....20
4.3 Disassembly of vacuum booster....21
4.4 Assembly procedures....21
4.5 Ventilation of brake system....21
Chapter Two Adjustment to Suspension System and Four-wheel Alignment....23
Ⅰ. Disassembly, assembly and overhaul of front axle and suspension....23
1. System constructional drawing....23
2. Preparation....24
3 Precautions....24

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4 Disassembly and assembly procedures 24
4.1 Removal of shock absorber assembly 24
4.2 Removal of control arm assembly 25
4.3 Removal of front axle assembly 26
5. Assembly procedures 29
II . Disassembly, assembly and overhaul of rear axle and suspension 30
1. System constructional drawing 30
2. Preparation 30
3. Precautions 31
4. Disassembly and assembly procedures 31
4.1. Removal of shock absorber assembly 31
4.2 Removal of rear axle assembly 33
5. Assembly procedures 33
III. Adjustment of four-wheel alignment 33
1. Adjustment of front wheel toe-in 33
2. Adjustment of front-wheel camber angle 34
3. Adjustment of kingpin caster angle 34
4. Adjustment of rear wheel positional parameters 34
IV .Installation of tire and regulation of air pressure 35
1. Fit tire valve 35
2. Fit the tire 35
3. Tire inflation 35
4. Installation of wheel and tire assembly 35
5. Tightening method of wheel nut 35
6. Assembly of trim cover 35
Chapter Three Disassembly, Assembly and Overhaul of Steering System 36
I . Disassembly and assembly of steering gear 36
1. System structural diagram 36
2. Preparation 36
3. Precautions 37
4. Disassembly and assembly procedures 37
5. Assembly procedures 38
II . Disassembly and assembly of steering post 39
1. System structural diagram 39
2.Preparation 40
3.Precautions 40
4. Disassembly procedures 40
5. Assembly procedures 42
III. Adjustment to clearance of steering gear 43

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Chapter One Brake System

Ⅰ. System overhaul parameters

1. Brake disk surface check

The friction surface of brake disk shall be smooth, without conspicuous pits or groove. Otherwise, replace it.

2. Brake disk thickness check

Use caliper to check the thickness of brake disk:

Standard thickness of front disk（ventilation disk）shall be 22mm, application limit shall be 19mm, otherwise replace it.

Standard thickness of rear disk（solid disk）shall be 10mm, application limit shall be 8mm, otherwise replace it.

3. Brake disk runout check

Use dial gauge to check the face runout of brake disk, the application limit of front disk shall be 0.03mm, the application limit of rear disk shall be 0.03mm, otherwise replace it.

4. Brake lining thickness check

Standard thickness of front brake lining shall be 19.3mm, application limit shall be 9mm, and the remaining thickness of limit brake pad thickness shall be not less than 1mm.

Standard thickness of rear brake lining shall be 16mm, application limit shall be 8mm, and the remaining thickness of limit brake pad thickness shall be not less than 1mm.

Important notice:

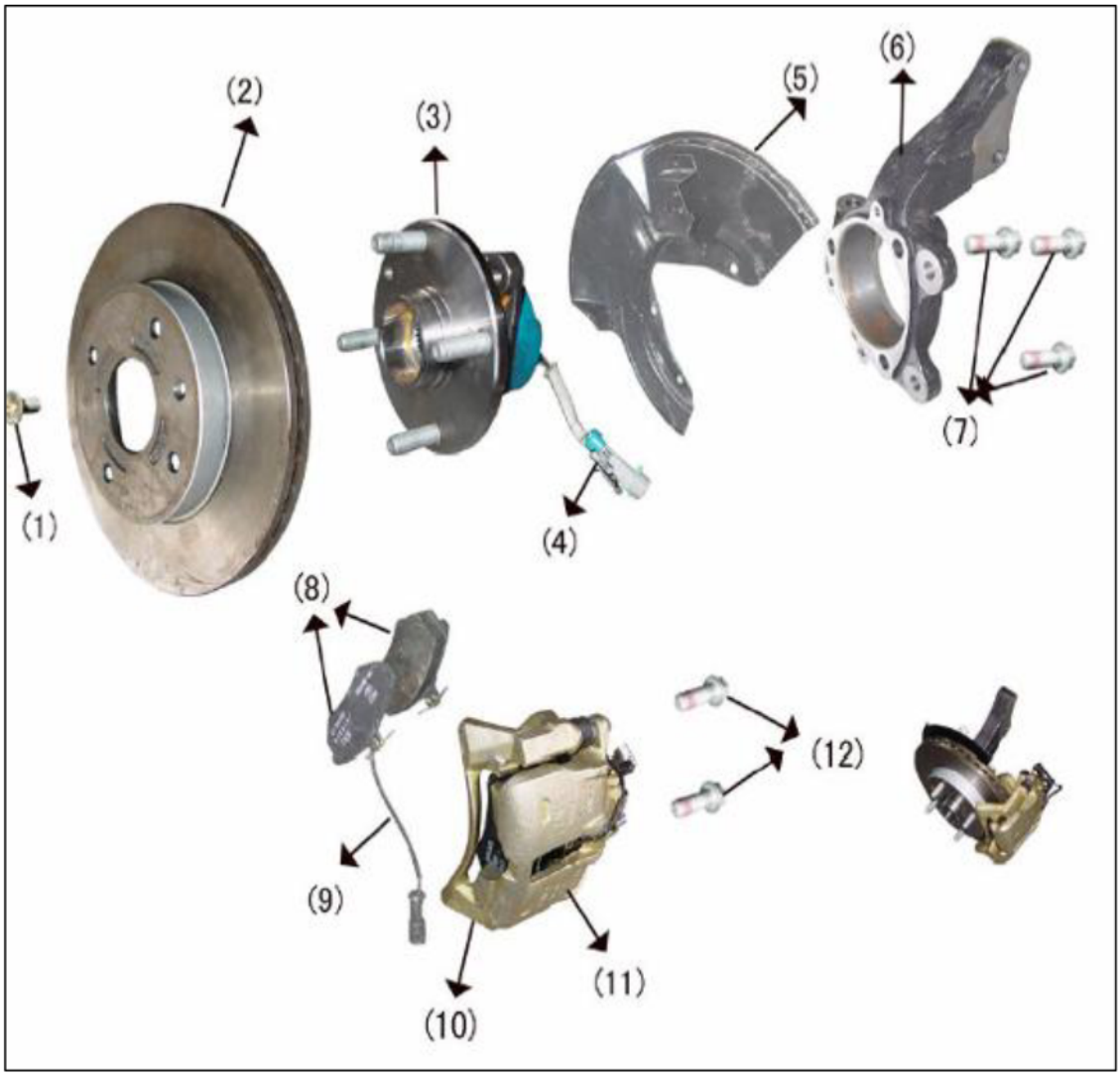
After completion of replacing friction lining or brake disk, apply the brake for several times to enable breaking-in between brake lining and brake disk. Always ensure safety!

After replacing brake lining, check brake fluid level to ensure it is between MIN and MAX.

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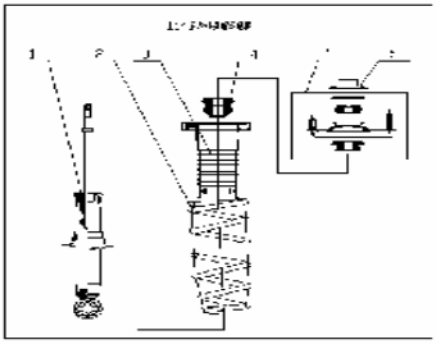
Ⅱ. Disassembly, assembly and overhaul of front brake and brake caliper

1. System structural diagram



Structural Diagram of Front B

（1）Positioning bolt of brake disk （2
（3）Hub bearing unit （4
（5）Splash shield （6
（7）Fixing bolt （8
（9）Friction lining position sensor plug （1
（11）Brake caliper assembly （1



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2. Preparation

Tools: ratchet, ratchet rod, 8#, 13#, 15#, 19#, 20#, 32# sleeve, 11#, 13#, 14#, 17#, 30# box end wrench, vices, torque spanner.
Accessories: brake fluid

3. Note

3.1 Wear necessary labor protection supplies to avoid accidents.
3.2 Brake fluid is a kind of toxic liquid; if contact with skin or eyes, please wash using large quantity of fresh water, and go to a doctor if necessary.
3.3 Waste brake fluid shall be put into vessels. It is prohibited to pour into sewerage or stack with domestic wastes.
3.4 When carrying out disassembly and assembly, never step on the brake pedal nor move the vehicle.
3.5 Keep oil or liquid away from friction lining or friction disk, it may affect brake performance.

4. Disassembly procedure

4.1 Unscrew tire clamp nut clockwise using 19# torque spanner or driver's spanner and then remove the tire.
Torque: 110N.m



4.2 Loosen the connecting bolt of brake caliper assembly and steering knuckle using torque spanner and 17# sleeve.
Torque: 85±5N.m



4.3 Use 11# and 19# box end wrench to unscrew the connecting nut of brake hose and copper tube.
(if only replace friction disk, it is unnecessary to loosen the brake line)
Caution: brake fluid is toxic,
when disassembling brake hose, always avoid brake fluid to splash onto clothing or skin.



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4.4 Remove the brake caliper from steering knuckle, then separate brake caliper and brake hose.



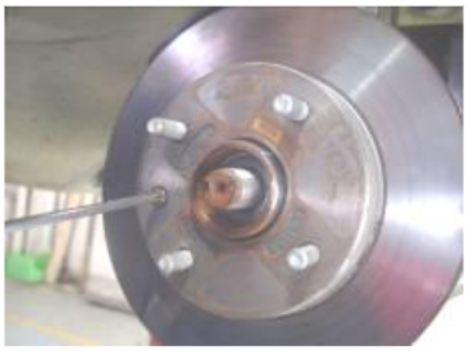
4.5 Use punch to drift the lock trough, which drives nut shim from semi-axle head, until it is able to turn.



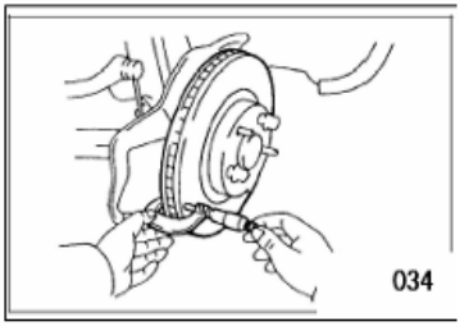
4.6Remove the driving nut using 32# sleeve and torque spanner. Torque: 180±10 N.m



4.7 Use cross screwdriver to unscrew the fastening screw of brake disk, and then remove the brake disk. Torque: 7-9 N.m

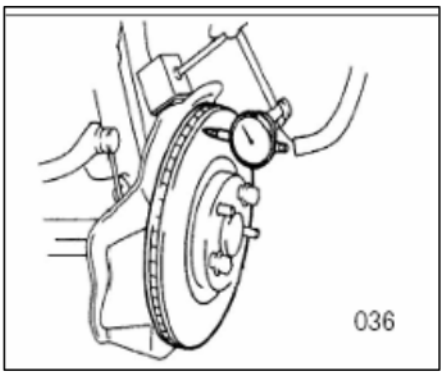


4.8 Check the thickness of brake disk, if it is less than minimum thickness, replace accordingly. Caution: replace the two brake disks of the same vehicle axles together, and when using new brake disks, the replace friction lining at the same time.



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4.9 Check the max. circular runout of brake disk end face via dial indicator, if it is greater than 0.03mm, replace accordingly. (If the brake disk thickness can be guaranteed, appropriate mechanical processing also can be performed to satisfy maximum. circular runout)



4.10 Remove the connecting nut of knuckle and control arm using torque spanner and 18# sleeve.
Torque: 110±5N.m



4.11 Remove three fixing bolts of hub bearing unit and knuckle using 17# sleeve.
Torque: 120-128 N.m



4.12 Dismount the monitoring harness of friction lining thickness from bracket.
4.13 Dismount brake caliper assembly.



4.14 Removal of brake caliper assembly:
4.14.1 Remove the fixing bolt of brake caliper bracket respectively using a 13# and a 15# open-end wrench.
Torque: 22-23N.m

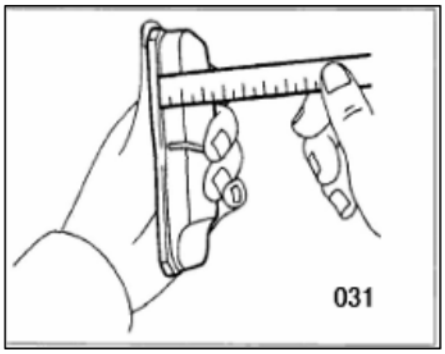


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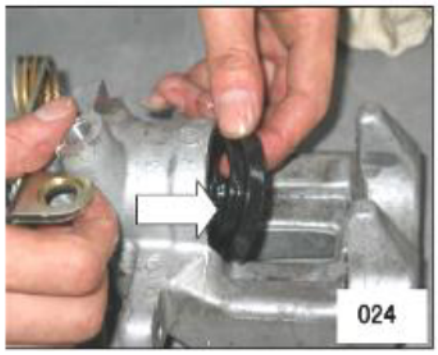
4.14.2 Lift the fixing bracket of brake caliper, and then takes out brake lining.



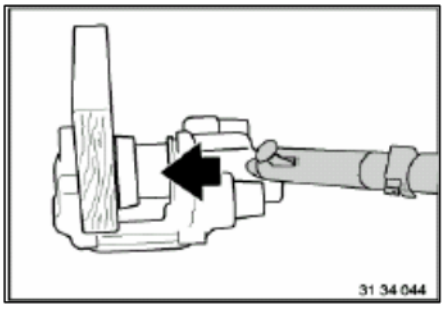
4.14.3 Measure the thickness of friction lining, if less than 10mm, please replace in pairs timely.



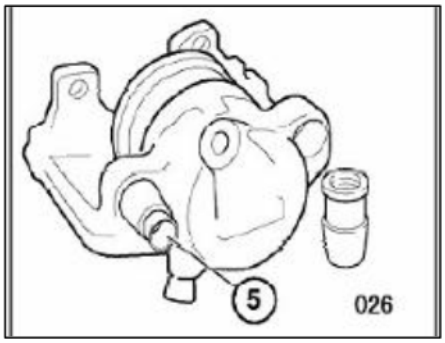
4.14.4 Remove the dust seal, check its damage condition, and replace if necessary. Clean the contact surface of brake piston and then coat with a thin noise silencing paste. Caution: due to noise silencing paste may cause expansion of dust seal, it is prohibited to contact with each other.



4.14.5 Remove the piston. Place a piece of board between piston and brake caliper wall to block the piston. Carefully squeeze out the piston via compressed air through attachment hole. Place a plate guard (hardwood, etc.) at the notch of brake caliper to protect the piston.
Caution: never hold the piston using fingers-watch clamping!
It is prohibited to dismantle brake caliper piston other then professionals or with the help of professionals.

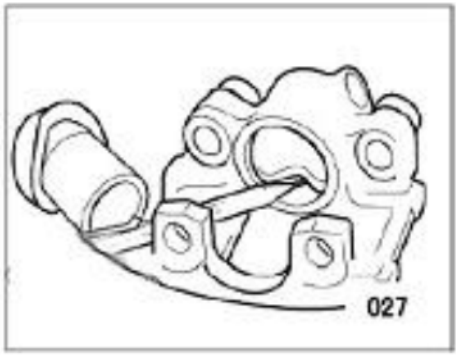


4.14.6 Check the guide sleeve. The guide sleeve shall be flexible and smooth when pushing by hand, if stagnation or heaviness occurs, replace accordingly.
Caution: when assembly, grease shall be applied on the guide sleeve.



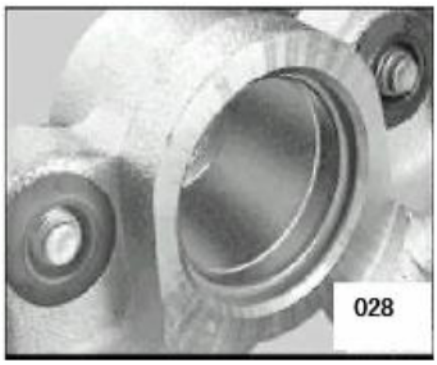
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4.14.7 Carefully remove seal ring using plastic pin, then clean the brake cylinder and components via alcohol, blow via compressed air. Carefully check surface of brake cylinder, piston and flange, it is prohibited to carry out mechanical processing to the brake cylinder and piston.



5. Assembly procedures

5.1 Assembly of brake cylinder
5.1.1 Apply a think coat of brake cylinder paste onto cylinder body, plunger and seal sleeve. Fix seal ring in the circular groove at rear brake cylinder. Then mount dust seal in the front circular groove, and the press it in position completely.

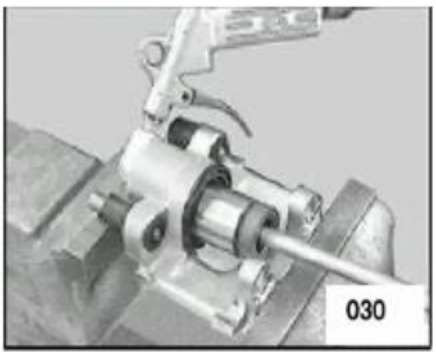


5.1.2 Keep the space between dust seal and brake caliper housing dry. It is prohibited to contact brake cylinder paste or brake fluid to ensure dust seal is in the right position.



5.1.3 Secure brake piston using common part available in the market, slightly press it onto dust seal, blow the dust seal via compressed air (Max. 3.0bar), then fit the expansion ring over the piston. Note: soak the dust seal and piston in the brake fluid to enable easier access of seal ring.

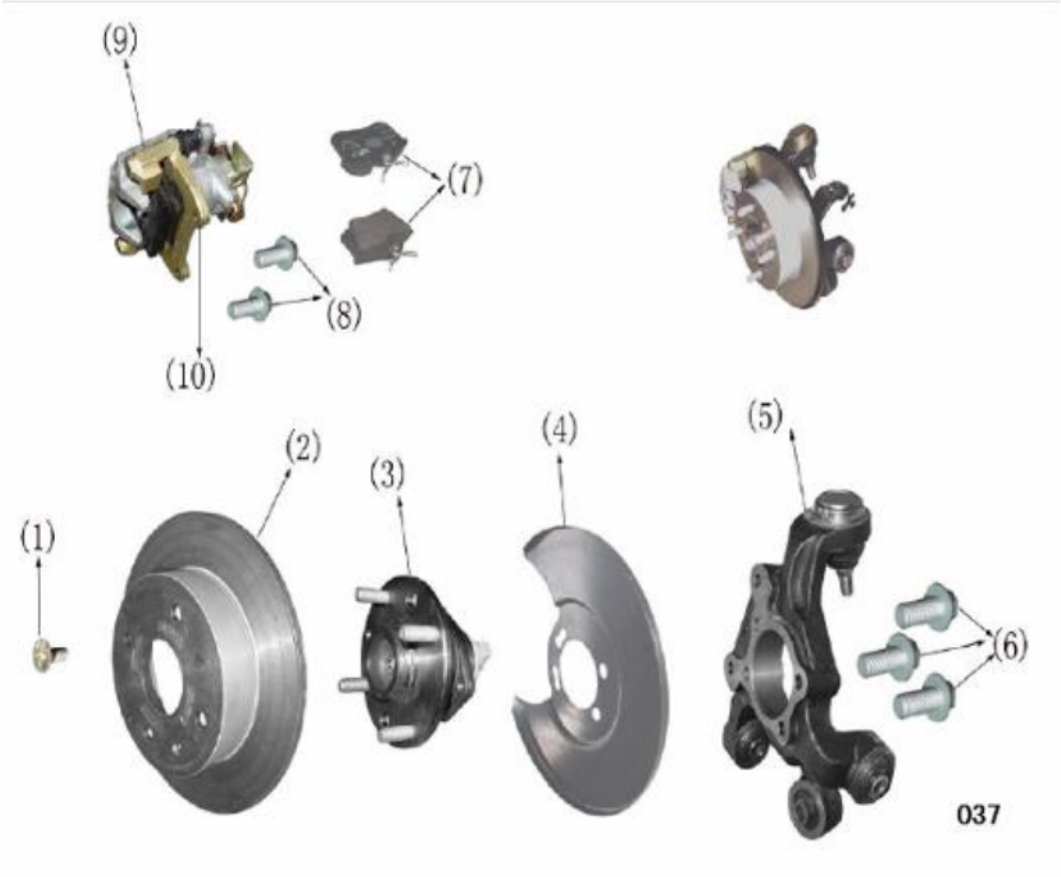
5.2 Refer to disassembly procedures for the assembly of other parts.



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Ⅲ. Disassembly, assembly and overhaul of rear brake

1. System constructional drawing



（To be handled)

2. Preparation

Tools:

Ratchet wheel, ratchet rod, 8#, 13#, 15#, 20# sleeve, 13#, 14#, 17#, 30# box end wrench, vice, torque spanner and flat-tip screwdriver.

Accessories: brake fluid

3. Precautions

3.1 Wear necessary labor protection supplies to avoid accidents.

3.2 Brake fluid is toxic, if contact with skin or eyes, please wash using large quantity of fresh water, and go to a doctor if necessary.

3.3 Waste brake fluid shall be put in vessels. It is prohibited to pour into sewerage or stack with domestic wastes.

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3.4 When carrying out disassembly and assembly, never step on the brake pedal nor move the vehicle.
3.5 Keep oil or liquid away from friction lining or friction disk, it may affect brake performance.

4. Disassembly procedures

4.1 Remove the rear wheel (refer to the disassembly procedures for front wheel).



4.2 Unscrew the connecting nut of brake oil pipe and brake caliper via 13# box end wrench, then discharge the brake fluid (if only friction disk is replaced, it is unnecessary to remove the brake line).
Torque: 16~18Nm



4.3 Loosen the connecting screw rods (2 pieces) of brake caliper and brake backing plate via 13# box end wrench, and then remove the rear-brake caliper assembly.
Torque: 70±5N.m



4.4 Remove the fixing bolts of brake disk, then dismount brake disk.
Torque: 7-9 N.m



4.5 Pull out the plug of ABS sensor, remove four connecting bolts of hub bearing and rear axle via 13# sleeve and torque spanner.
Torque: 70±5 N.m



4.6 Remove hub-bearing assembly.

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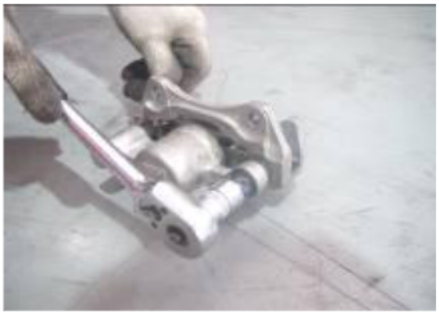
4.7 Remove brake caliper assembly.



4.8 Removal of brake caliper assembly:

4.8.1 Remove guide bolt using 17# box end wrench.

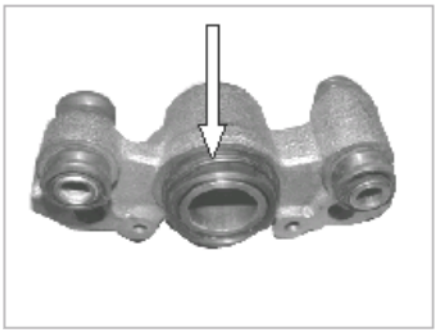
Torque: 22-23N.m



4.8.2 Take out friction lining assembly.



4.8.3 Remove another guide bolt, separate brake cylinder.



4.8.4 Dismantle and overhaul brake cylinder (refer to the methods for front wheel brake cylinder)

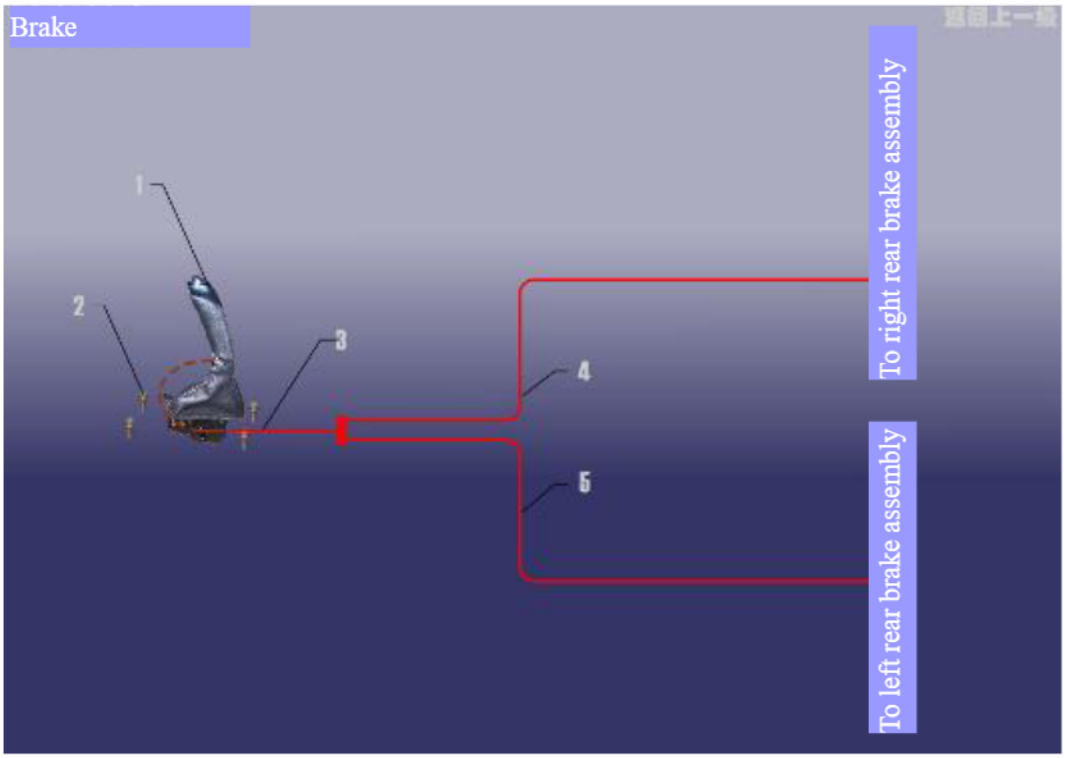
5. Assembly procedures

Refer to disassembly procedures.

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Ⅳ.Adjustment and replacement of handbrake control cable

1. System structural diagram



1. Handle 2. Fixing bolt 3. Brake cable 4, 5. Right and left rear-wheel control cable

2. Preparation

Tools: flat-tip screwdriver, cross screwdriver, pincers, 10#, 16#, 18# sleeve, knock stick.
Accessories: none

3. Precautions

3.1 Wear necessary labor protection supplies to avoid accidents.
3.2 When carrying out disassembly and assembly of elastic element, make every effort to avoid being injured.
3.3 Before carry out disassembly and assembly to exhaust pipe, in case of scald, the pipe temperature must be dropped to room temperature.

4. Disassembly and assembly procedures

4.1. Disassembly of rear hand brake control cable

4.1.1 In accordance with disassembly and assembly method of rear-wheel brakes, remove such assemblies as tire, brake caliper, brake disk, etc. of rear wheel. Then completely expose the hand brake assembly (take right rear wheel for example).



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4.1.2 Remove the return spring of hand brake shoes via screwdriver.



4.1.3 Turn the guide pin of brake shoes to align the spring seat via pliers, and then take out the guide pin.



4.1.4 Compress the return spring of control cable until the control cable clip gets out of the guide pin of hand brake.



4.1.5 Remove the fixing bolt that fastens control cable and lower plate of hand brake assembly via 10# spanner.
Torque: 7-14N.m

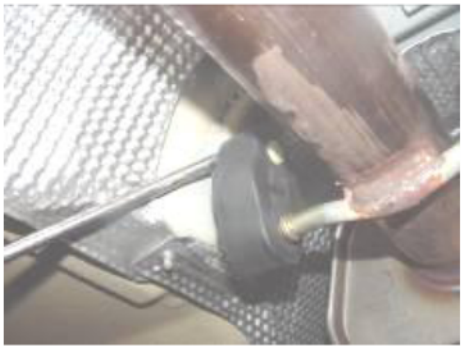


4.1.6 Remove three fixing bolts that fasten hand brake control cable and chassis via 10# sleeve.
Torque: 9-12N.m



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4.1.7 Prize out the lifting eye of exhaust pipe via screwdriver (it is unnecessary to remove the lifting eye behind silencer).



4.1.8 Disconnect the connecting nut of exhaust pipe and 3-way catalytic converter via 18# sleeve, and then remove the rear oxygen sensor (caution: along with the descend of exhaust pipe, it may result in rupture of rear oxygen sensor harness).
Torque: 60±5 N.m



4.1.9 Loosen the heat insulation fixing shims (6 pieces total) of exhaust pipe via flat tip screwdriver, then remove the heat insulation shim of exhaust pipe.



4.1.10 Detach the hand brake control cable of right-rear wheel from the control cable branch joint by hand, the right-rear wheel hand brake control cable then can be removed.



4.2 Disassembly of hand brake control mechanism and hand brake front control cable

4.2.1 Remove front-seat assembly using 16# sleeve.
Torque: 25±3N.m



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4.2.2 Unscrew total four screws of the plate guard of hand brake control mechanism via cross screwdriver.



4.2.3 Remove four fixing bolts of hand brake control mechanism via 10# sleeve, and then pull out the switch plug of hand brake.
Torque: 25±3N.m



4.2.4 Remove the fixing nut of front hand brake control cable via 10# spanner.
Torque: to be determined



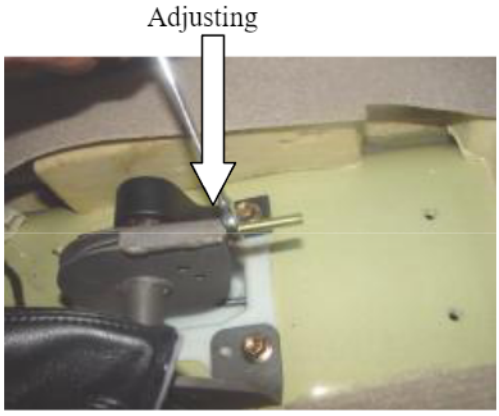
4.3. Assembly procedures

Refer to disassembly sequence.

4.4 Adjustment of handbrake control cable

After replacing hand brake shoes, control cable and control mechanism, adjust hand brake clearance to prevent from poor braking effect or blocking failures. The process of adjustment is described as follows:

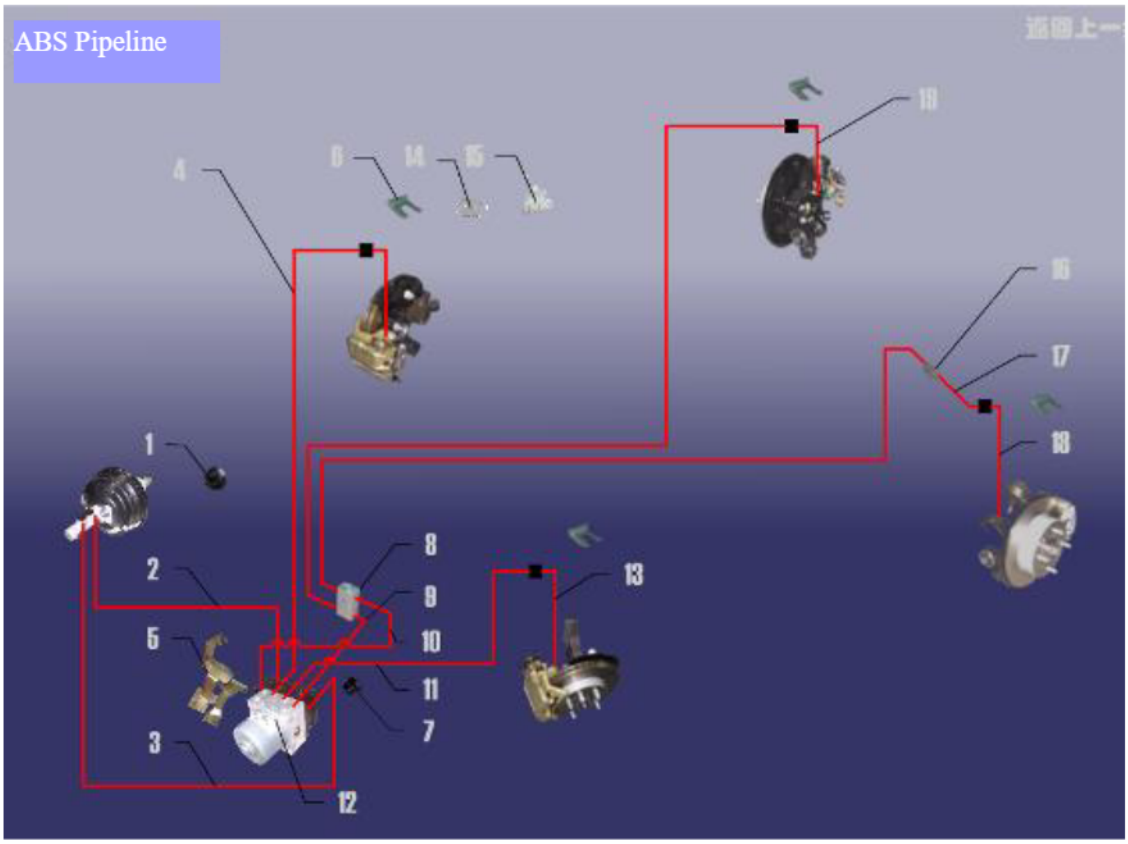
3.4.1 Release the parking brake handle.
3.4.2 Forcibly apply the brake pedal once.
3.4.3 Pull up parking brake handle until four teeth are exposed.
3.4.4 Tighten up adjusting nut until the two wheels cannot be turned by hand.
3..4.5 After adjusting the hand brake, never fail to carry out road test on a down slope road. If not applying the brake and without power output, meanwhile, the vehicle is traveling at lower speed, under this condition, if pulling up the hand brake can stop the vehicle, and releasing the hand brake can travel again, that means the hand brake is normal, otherwise readjust accordingly.



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Ⅴ. Disassembly, assembly and overhaul of ABS system, brake master cylinder as well as vacuum booster

1. System structural diagram



1. Pipeline clip
2. Master cylinder brake line
3. Master cylinder brake line
4. Right-front wheel brake line
5. ABS pump rack
6. Fixing spring leaf
7. ABS master cylinder fixing cushion
8. Brake line fixed seat
9. Right-rear wheel brake line
10. Left-rear wheel brake line
11. Left-front wheel brake line
12. ABS assembly
13. Left-front wheel brake hose
14.Pipe clip
15. Flange tri-slot fixing pipe clip
16. Pipe connection
17. Brake copper tube
18. Brake hose

2. Preparation

Tools: cross screwdriver, clamp pliers, pliers, 8#, 10#, 12#, 13#, 22# box end wrench and adjustable spanner.
Accessories: brake fluid

3. Precautions

3.1 Switch off storage battery to protect ABS and other electric system.

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3.2 When carry out maintenance to hydraulic system, first, completely discharge the high-pressure brake fluid in accumulator to avoid splashing injuries. When discharging high-pressure brake fluid in the accumulator, repeatedly apply and release the brake pedal, until the brake pedal become very hard.

3.3 Make sure electronic control unit is free from collision, knock, and avoid damage.

3.4 Never let oil stain contract ECU, especially connecting terminals, otherwise it may result in poor contact of the connecting terminals.

3.5 It is preferred to select tires recommended by automakers. If intend to use other types of tires, the external diameter, adhesiveness and moment of inertia shall be close to the original ones. However, it shall not use tires with different specifications at the same time, because this may affect ABS performance.

4. Disassembly and assembly procedures

4.1. Removal of ABS assembly

4.1.1 Remove the two bolts connecting intake pipe nozzle and engine hood cross beam via 10# sleeve.
Torque: 10±1N.m



4.1.2 Remove four fixing bolts of air filter box via 10# sleeve.
Torque: 10±1N.m



4.1.3 Loosen the clip at intake manifold and intake hose via cross screwdriver, and then pull out the connecting pipeline between intake hose and valve housing cover.



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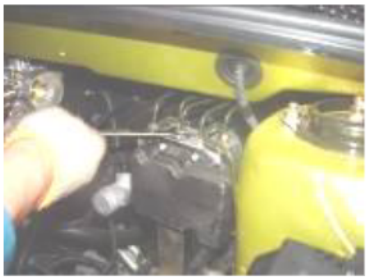
4.1.4 Remove the fixing bracket of brake reservoir via 8# sleeve, and then pull out the plug of brake fluid-level alarm.
Torque: 11±1N.m



4.1.5 Dismount the connecting pipe between reservoir and brake master cylinder via clamp pliers. Then take out the small reservoir that is connected with brake master cylinder.



4.1.6 Loosen the connecting nuts of various pipelines of ABS assembly via 12# open-end wrench. When loosening each pipeline, pay attention to the position of pipelines on the ABS assembly to avoid wrong assembly.
Torque: 17-20N.m



4.1.7 Remove the fixing bolt that fastens ABS assembly and bracket via 10# spanner.
Torque: 11±2N.m



4.1.8 Manually press the black button on the plug of ABS harness, turn counterclockwise to fix the clip, remove the plug and then take out ABS assembly.
Caution: the ABS assembly of this vehicle model cannot be repaired, if malfunction occurs, please completely replace it.



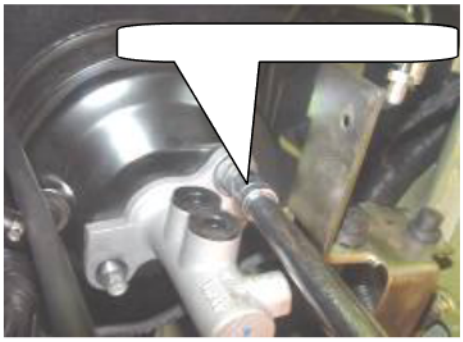
4.2 Disassembly of brake master cylinder

4.2.1 Loosen the fixing nut of brake line at brake master cylinder via adjustable spanner. Note: this nut is of inch size, when disassembly and assembly, please select appropriate to avoid skidding. When take out two brake lines, pay attention to make marks so as to avoid being mixed up.
Torque: 17-20N.m



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4.2.2 Remove two stay bolts that secure vacuum booster via 13# sleeve.
Note: there are two nuts behind the brake pedal in the driver's cabin connect with these stay bolts.
Torque: 25±2.5Nm



4.2.3 Loosen the two nuts securing brake master cylinder and vacuum booster via 22# sleeve, and then take out brake master cylinder.

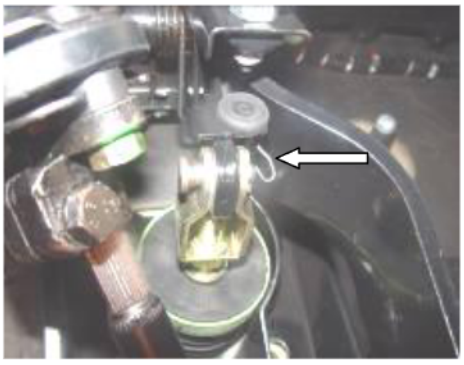


4.3 Disassembly of vacuum booster

4.3.1 Loosen the two fixing bolts of vacuum booster behind the brake pedal inside the driver's cabin via 13# sleeve.
Torque: 25±2.5N.m



4.3.2 Remove the circlip of vacuum booster and brake pedal joint pin via pincers, and then take out the pin. Loosen the clamp clip, and then pull out the vacuum tube of vacuum booster and intake pipe. Take out the vacuum booster from front compartment. If the vacuum booster assembly is out of service, please replace accordingly.



4.4 Assembly procedures

Assembly sequence is reverse to that of disassembly.

4.5 Ventilation of brake system

4.5.1 After disassembly and assembly of brake system, it is required to carry out system ventilation to ensure satisfactory braking effect.

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4.5.2 If replacing ABS control assembly, first, confirm whether the new assembly is of dry type (brake fluid is not full of the valve body) or wet type (brake fluid is full of the valve body). If it is of dry type, after assembly, carry out ventilation to the ABS assembly via Chery dedicated diagnostic instrument, if it is of wet type, it is unnecessary to carry out ventilation.

4.5.3 No matter whether ABS control system is subject to ventilation, brake line shall be ventilated.

4.5.4 Lift and adequately sustain the vehicle.

4.5.5 Continuously apply the brake pedal for five to six times (each time must apply to the maximum limit), for the last time, it must be applied to the limit.

4.5.6 Slowly open exhaust valve until brake fluid is able to flow.

4.5.7 Close the exhaust valve until no bubble exists in the brake fluid.

4.5.8 Perform ventilation to each wheel one by one in accordance with sequence of rear left, right front, right back and left front.

Caution: the above procedures are applicable for brake line ventilation for each brake. After ventilation, when step on the brake pedal, the driver ought to feel it is obviously hard as prior to disassembly and assembly.

4.5.9 After ventilation, fill in brake fluid in accordance with the liquid level mark on the brake reservoir. The brake fluid (DOT3 or DOT4) shall conform to national standards. Different types of brake fluids are not compatible, therefore, before filling, pay close attention to the type of brake fluid.

4.5.10 Check whether there is leakage in the brake line to ensure safe driving.

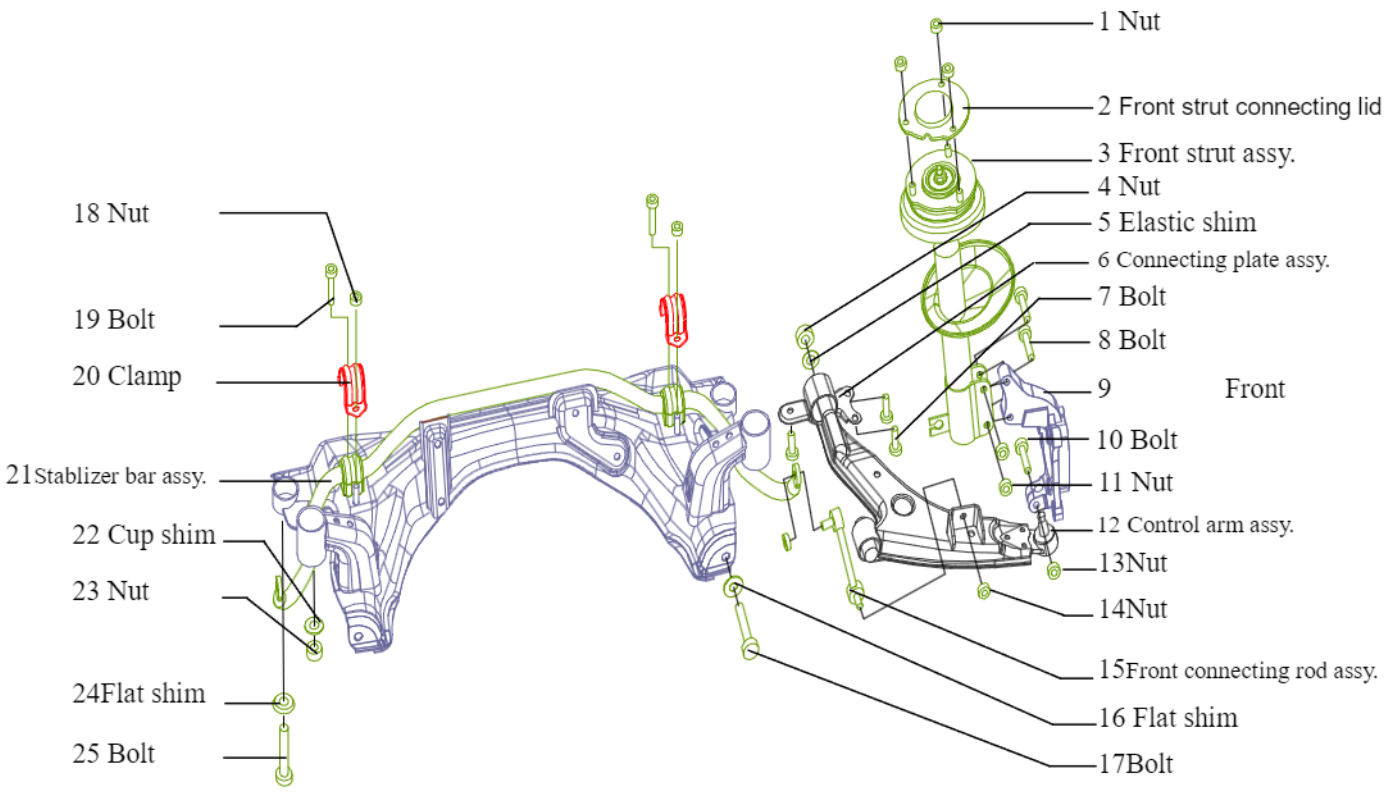
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Chapter Two Adjustment to Suspension System and Four-wheel Alignment

Ⅰ. Disassembly, assembly and overhaul of front axle and suspension

1. System constructional drawing

The front axle of Chery V325 car is a kind of disconnection turning and driving axle, it uses McPherson independent suspension, whose front suspension has driving and turning dual functions. The upper end of the suspension connects with vehicle body; lower end connects with steering knuckle. Subframe connects with vehicle body via elastic element, which improves diving stability and ride comfort.



Structural diagram of Front Axle and Suspension System

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2. Preparation

Tools: 8#, 13#, 15#, 18#, 19#, 21#, 22#, 24# sleeve, screwdriver

3. Precautions

2.1 Wear necessary labor protection supplies to avoid accidents.
2.2 When carry out maintenance and repair to chassis, please note that whether safety-lock of lifting machine is locked.
2.3 When carry out disassembly and assembly to shock absorber spring, prevent spring ejection from being injured.
2.4 Never carry out welding and rectification to the supporting parts of wheel suspension and guiding parts of wheel.
2.5 When demounting chassis assembly, always replace self-locking nut and corrosive nut to ensure safety.

4. Disassembly and assembly procedures

4.1 Removal of shock absorber assembly

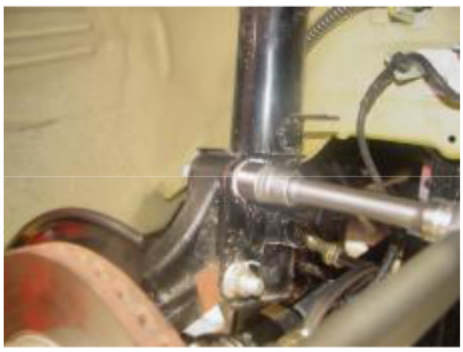
4.1.1 Unscrew tire clamp nut clockwise using 19# torque spanner or driver's spanner, and then remove the tire (take the left side tire for example).
Torque: 110N.m



4.1.2 Remove ABS harness fixing clip via screwdriver.

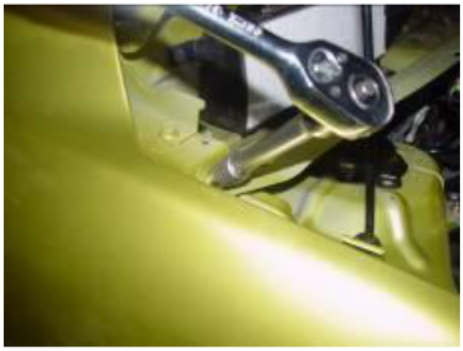


4.1.3 Remove the fixing bolts of steering knuckle and shock absorber via 18# sleeve.
Torque: 135±12 N.m



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4.1.4 Remove a fixing bolt at shock absorber assembly that is close to front guard-board assembly via 10# sleeve.
Torque: 10±1 N.m



4.1.5 Prize up a corner of front guard-board using screwdriver, and then remove shock absorber bolt.



4.1.6 Remove three fixing bolts fastening shock absorber assembly and frame via 15# sleeve.
Torque: 45±5N.m



4.1.7 Remove the shock absorber assembly.

4.1.8 When assembling shock absorber, it should be noted that the gap of shock absorber connection board must align corresponding protrusion on the vehicle body; otherwise, it cannot be assembled.



4.2 Removal of control arm assembly

4.2.1 Remove the fixing bolt that fastens balance bar and control arm via 15# sleeve.
Torque: 90±8 N.m



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4.2.2 Remove the fixing bolts fastening control arm and steering universal joint ball via 18# sleeve.
Torque: 105±10N.m



4.2.3 Remove the connecting bolts fastening control arm and front axle via 18# sleeve.
Torque: 180±15 N.m



4.2.4 Remove three rear fixing bolts fastening control arm and subframe via 13# sleeve, and then remove the control arm assembly.
Torque: 90±8 N.m



4.2.5 Remove the self-locking nut that fastens control arm and connection board via 24# sleeve.
Torque: 110±10 N.m



4.3 Removal of front axle assembly

4.3.1 Remove three rear fixing bolts fastening chassis mudguard via 8# sleeve, and then remove the mudguard assembly.
Torque: 3±0.5 N.m



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4.3.2 Remove rear support-bracket bolt of transmission on the front side member via 15# sleeve.
Torque: 80±6N.m



4.3.3Remove front support-bracket bolt fastening transmission and side member via 24# sleeve.
Torque: 80±6N.m



4.3.4 Remove two front bolts of side member via 18# sleeve.
Torque: 100-120 N.m



4.3.5 Remove two rear-fixing bolts of side member via 15# sleeve.
Then remove side member assembly.
Torque: 100-120 N.m

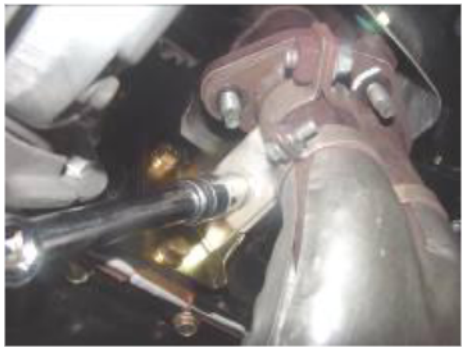


4.3.6 Remove three connecting bolts of head exhaust pipe via 15# sleeve.
Torque: 45±5N.m



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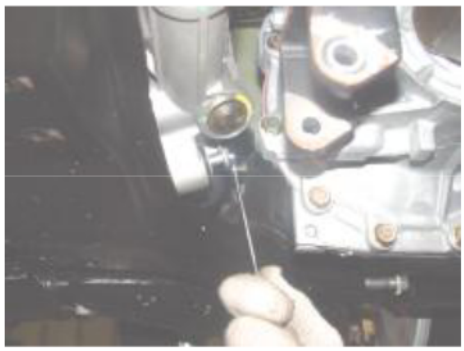
4.3.7 Remove the fixing bolt connecting head exhaust pipe and engine cylinder body via 13# sleeve.
Torque: 45±5N.m



4.3.8 Remove the connecting bolts of head exhaust pipe and three-way catalytic converter via 18# sleeve.
Torque: 55±5N.m



4.3.9 Remove the fixing bolt of power steering gear via 13# sleeve.
Torque: 75±5 N.m



4.3.10 Remove the fixing bolt and nut at the left side of power steering gear via 13# and 15# sleeve.
Bolt torque: 75±5 N.m
Nut torque: 70±5 N.m



4.3.11 Remove the connecting bolts fastening front axle and vehicle body via 22# sleeve.
Torque: 150±10 N.m



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4.3.12 Remove another fixing bolts fastening subframe and vehicle body via 21# sleeve, and then removes the front axle assembly.
Torque: 150±10 N.m



4.3.13 Remove the fixing bolt and nut of gum cover of stabilizer rod via 13# sleeve.
Torque: 50±5N.m



5. Assembly procedures

Refer to the disassembly procedures of front axle and front suspension.

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Ⅱ. Disassembly, assembly and overhaul of rear axle and suspension

1. System constructional drawing

Structural diagram of Rear Axle and Suspension System

1. Fixing nut of shock absorber
2. Flat-tip shim
3. Shock absorber assembly
4. Fixing bolt of shock absorber
5. Fixing nut of shock absorber bearing
6. Fixing nut of shock absorber bearing
7. Rear axle connection hinge
8. Knuckle joint bolt

2. Preparation

Tools: 8#, 10#, 13#, 17#, 19# sleeve

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3. Precautions

3.1Please wear necessary labor protection supplies to avoid accidents.
3.2When carry out maintenance and repair to chassis, please note that whether the safety lock of lifting machine is locked.
3.3When carry out disassembly and assembly to shock absorber spring, prevent spring ejection from being injured.

4. Disassembly and assembly procedures

4.1. Removal of shock absorber assembly

4.1.1 Unscrew tire clamp nut clockwise using 19# torque spanner or driver's spanner, and then remove the tire (take the left side tire for example).
Torque: 110N.m



4.1.2 Remove the fixing bolt fastening hand brake control cable and rear axle via 10# sleeve.
Torque: 9-12N.m



4.1.3Remove the connecting bolts of shock absorber assembly and rear axle via 19# sleeve.
Torque: 110±10N.m



4.1.4Remove the two fixing bolts of the luggage compartment via 7# sleeve.
Torque: 7±1N.m



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4.1.5 Remove the fixing bolt of the back plate assembly of storage box via 8# sleeve.
Torque: 7±1N.m



4.1.6 Remove the fixing bolt of seat via 17# sleeve.
Torque: 25±3N.m



4.1.7 Prize up inner trim panel assembly via screwdriver.



4.1.8Remove the fixing nut of shock absorber bearing via 13# sleeve, and then remove shock absorber assembly.
Torque: 90±8 N.m



4.1.9 Structural diagram of shock absorber assembly.

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4.2 Removal of rear axle assembly

4.2.1Remove the four connecting bolts of rear axle and brake assembly via 13# sleeve.
Torque: 70±5N.m



4.2.2 Remove the hinged bolts connecting rear axle and vehicle body via 17# sleeve. Then remove the rear axle.
Torque: 110±10N.m



5. Assembly procedures

The assembly procedure is reverse to that of disassembly.

Ⅲ. Adjustment of four-wheel alignment

Please use four-wheel alignment gauge as recommended by Chery Company to carry out parameters detection and adjustment.

1. Adjustment of front wheel toe-in

Optic test instrument or mechanical toe-in regulator can be used for toe-in adjustment.

1.1 In accordance with requirements for test instrument, make adjustment preparations for wheel alignment.

1.2 Loosen the lock nut fastening rightward connecting tie rod and elastic ring, turn the toe-in regulation rod to adjust length as required to get prescribed value.

Toe-in value: 10′±6′

1.3 Fasten the lock nut, remount circlip of the jacket, and check whether the lock nut is tightened, and ensure the jacket is in right position;

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Torque: 55±5N.m

1.4 After adjusting toe-in of front wheel, check whether the steering wheel is horizontal. Otherwise, loosen the lock nut of steering wheel, adjust steering wheel to horizontal position, and tighten up the lock nut of steering wheel to the torque value as required.

2. Adjustment of front-wheel camber angle



2.1 Under normal condition, it is unnecessary to adjust camber angle after assembling independent suspension and wheel steering knuckle, if found camber angle exceeds tolerance range due to other reasons, the connecting bolt of independent suspension and steering knuckle can be used for adjustment. Front-wheel camber angle: - 30′±60′.

2.2 Prior to adjustment, check (visual inspection) the parts of running system, and replace worn parts accordingly.

2.3 If found front-wheel camber angle exceeding tolerance, loosen the connecting bolt fastening shock absorber and steering knuckle, and move the wheel for rectification.

3. Adjustment of kingpin caster angle

Kingpin caster angle guaranteed by designed structure, it is unnecessary to adjust in service. Kingpin caster angle: 3.13°±1°, if parameters exceed prescribed limit, only replace steering knuckle.

4. Adjustment of rear wheel positional parameters

All of the rear wheel positional parameters shall be guaranteed through design process.

4.1 Rear wheel camber angle: 30′±30′.

4.2 Rear wheel toe-in: 15′±15′.

4.3 If rear wheel positional parameters are changed and exceed prescribed limit due to rear axle deformation resulted from tremendous impact force, it can only be remedied via rectifying or replacing rear axle.

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Ⅳ.Installation of tire and regulation of air pressure

1. Fit tire valve

Prior to installing tire valve, firstly check the valve port to ensure whether it is smooth and free from burr, and then apply glycerol on the rubber body surface, will soak the tire valve into glycerol. Pull or press (200 - 400N) using special tools to make the locating ring of the valve can go through the wheel holes, to this point, the assembly is completed (soap water is allowed to substitute glycerol).

2. Fit the tire

Before fit the tire, apply glycerol or soap water along the cycle of tire bead, meanwhile, note that:
2.1 When there is colored dot on the wheel rim, align the uniformity testing mark of tire to the colored dot mark of wheel rim.
2.2 When without colored dot on the wheel rim, align the dynamic balance testing mark of tire to valve position.
2.3 When without colored dot on the wheel rim, additionally, there is no dynamic balance testing mark, however, static balance testing mark is available, at this point, align the tire valve to the static balance testing mark.
2.4 The description concerning the uniformity, dynamic balance and static balance testing marks for tires will be additionally provided in writing by the product division of Chery Company or suppliers. In addition, this kind of descriptions will clearly be indicated on process sheet.
2.5 Carry out tire inflation strictly in accordance with specified pressure. During inflating process, air pressure shall not exceed 10% of rated pressure. When performing separate packaging to spare wheel assembly, the rated inflation pressure shall be 3.5bar, and the spare wheel assembly shall be stored separately from four wheels. Prior to carrying out four-wheel alignment, check four-wheel tire pressure and adjust air pressure. Front wheel pressure shall be 2.0±0.2 bar; the rear wheel shall be 2.2± 0.2bar.

3. Tire inflation

After completion of tire inflation, screw up the protective cap of valve, and then carry out dynamic balancing test. Fit appropriate balance weight at the internal and external fringe of wheel rim as required. It is required that the unbalancedness of the final assembly shall be less than 100g·cm, which is approximately equivalent to a 5g balance weight at the internal and external fringe of wheel rim.
Note: each wheel and each side can use only one balance weight. Additionally, its maximum mass shall not be more than 70g. During assembling process, never hit the balance weight too heavy. Otherwise, replace balance weight in time. In addition, never use the replaced balance weight again.

4. Installation of wheel and tire assembly

When fixing wheel and tire assembly, first, manually screw up the wheel bolt onto the hub for pretension, after that use special tools for tightening in accordance with diagonal process. Tightening torque shall be 110±10N.m. It is prohibited to use impact wrench to prevent from wheel damage, over loose or over tight. It is not allowed to apply grease on wheel bolt (For newly assembled wheel and tire assembly, after initial 100km traveling, it is required to tighten the wheel bolts once to guarantee appropriate tightening torque, and the inspection of wheel bolt tightening torque is one of the routine maintenances).

5. Tightening method of wheel nut

Tighten the fixing nut in a decussate way, the tightening force shall be approximately equal, then wheel shall be able to turn freely. When carry out final tightening, the wheel shall be on the ground.

6. Assembly of trim cover

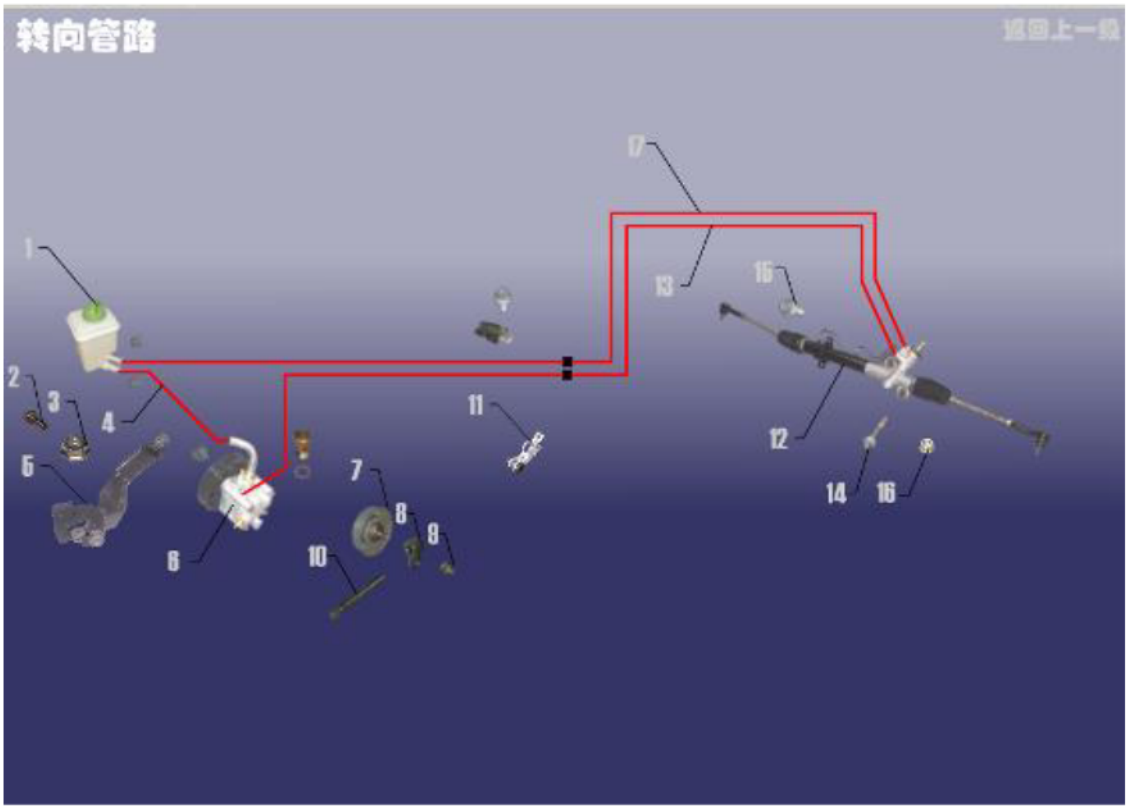
Mount trim cover or place trim cover as required. When fitting clip- type trim cover, place knock in position by hand or via rubber tools.

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Chapter Three Disassembly, Assembly and Overhaul of Steering System

Ⅰ. Disassembly and assembly of steering gear

1. System structural diagram



1. Power steering reservoir
2. Bracket fixing bolt
3. Bracket fixing nut
4. Oil outlet pipe
5. Fixing bracket of reservoir
6. Steering pump
7. Tension pulley
8. Self-locking nut
9. Adjusting nut
10. Regulating pull rod
11. Pipe clip
12. Steering gear
13. Oil outlet pipe
14, 15. Fixing bolt
16. Fixing nut
17. Oil return pipe

System Structural diagram

2. Preparation

Tools: screwdriver, 8#, 10#, 13#, 18#, 19# sleeve, 5# hexagon socket spanner.

Accessories: power steering fluid

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3. Precautions

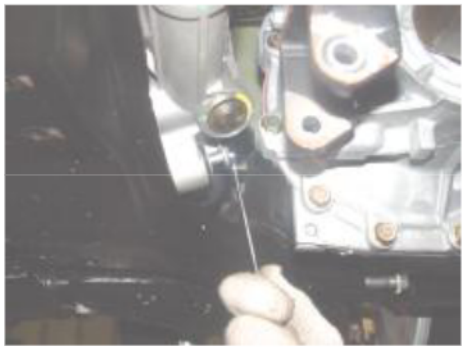
3.1 Please wear necessary labor protection supplies to avoid accidents.
3.2 Avoid steering fluid to contact with skin or eyes when disassembling steering system.

4. Disassembly and assembly procedures

4.1 Remove the fixing nut of steering ball pin via 19# sleeve.
Torque: 40±3 N.m



4.2 Remove the fixing bolt of power steering gear via 13# sleeve.
Torque: 75±5 N.m



4.3 Remove the fixing bolt and nut at the left side of power steering gear via 13# and 15# sleeve.
Bolt torque: 75±5 N.m
Nut torque: 70±5 N.m



4.4 Remove the fixing nut of power steering oil pipe via 18# sleeve.
Torque: 30±3N.m



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4.5 Remove the fixing bolt of steering universal joint via 13# spanner.

Torque: 25±3N.m



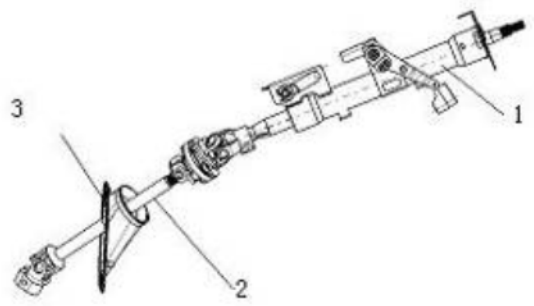
5. Assembly procedures

Refer to disassembly procedures.

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Ⅱ. Disassembly and assembly of steering post

1. System structural diagram



1. Steering post 2. Knuckle joint 3. Protective rubber cup

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2.Preparation

Tools: slotted screwdriver, cross screwdriver, 5.0 hexagon socket spanner, 8#, 10#, 13#, 22# sleeve, steering wheel puller.

3.Precautions

3.1Please wear necessary labor protection supplies to avoid accidents.
3.2Avoid steering fluid to contact with skin or eyes when disassembling steering system.
3.3Before disassembling steering wheel, disconnect negative of battery cell to avoid airbag ejection.

4. Disassembly procedures

4.1 Prize up two cover board at the side of steering wheel via screwdriver.



4.2 Remove two fixing bolt of airbag via 5# hexagon socket spanner.
Torque: 16±2N.m



4.3 Remove the fixing nut of steering wheel via 22# sleeve.
Torque: 30±3 N.m



4.4 Pull out steering wheel via steering wheel puller.



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4.5 Remove two clamp screws of steering wheel plate guard via cross screwdriver.
Torque: 1.5±0.5N.m



4. 6Remove four fixing bolts of screw cable via cross screwdriver. Then remove screw cable.
Torque: 1.5±0.5N.m



4.7 It should be noted that when fitting the screw cable, turn the inner disk to one direction until unable to be turned further, and then turn about 3.2 circles at a reverse direction, after aligning the mark, and confirm the steering wheel is in horizontal position, and then carry out assembly.



4.8 Remove the clip of combination switch via flat-tip screwdriver, then pull out ignition switch and the plug of combination switch.



4.9 Remove the fixing handle of engine hood via 8# sleeve.



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4.10 Remove two fixing bolts of air conditioning air outlet via screwdriver.
Torque: 1.5±0.5N.m



4.11 Remove the connecting bolt of steering universal joint inside engine hood via 13# sleeve.
Torque: 25±3N.m



4.12 Remove the lower fixing bolt of steering post via 10# sleeve.
Torque: 25±3 N.m



4.13 Remove the two upper fixing nuts of steering post via 10# sleeve. Then remove the ignition-lock barrel assembly of steering post.
Torque: 25±3 N.m



4.14 Remove the protective cover of steering gear.

4.15 Take out steering universal joint assembly.

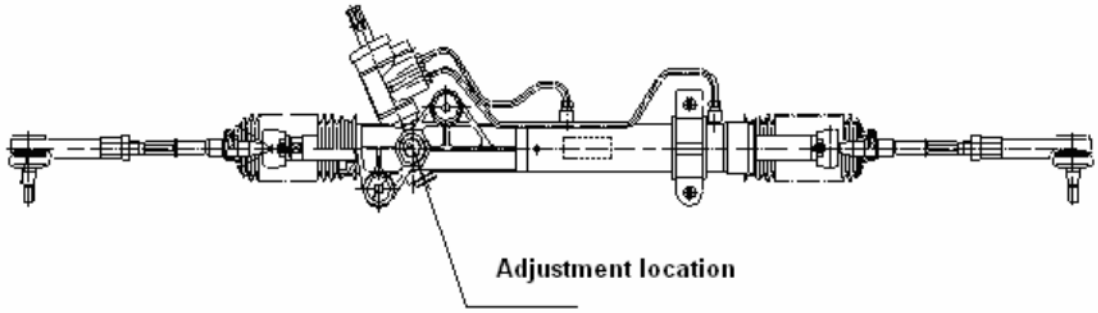
5. Assembly procedures

Refer to disassembly procedures.

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Ⅲ. Adjustment to clearance of steering gear

1. Maintain wheel at straight line traveling position;
2. Turn steering wheel to both sides;
3. If heard noise of steering gear, adjust the bolt as shown in the diagram until no impinge noise is heard when turning steering wheel;
4. Tighten up the bolt for another 1 / 8 circle (about 45°);
5. Road test;
6. If the steering mechanism can not return to the central position by itself, then loosen the bolt for 15°;
7. Road test.



Ⅳ. Adjustment to power steering system

1. Correctly connect power steering oil pipe，where the tightening torque for the connector between oil return pipe, high-pressure oil pipe and steering gear shall be 35±3N.m, the tightening torque of hollow bolt connecting high-pressure oil pipe and power steering pump shall be 45±3N.m. When filling power steering oil, it is recommended to use special purpose vacuum pumping oil. The specifications for filling power steering hydraulic fluid and exhaustion are described as below:
Fill power steering hydraulic fluid into steering reservoir assembly to the maximum level, start engine at low speed (idle speed) to drive the steering pump, the steering system will be quickly full of hydraulic fluid. In the oil filling process, only let engine run at idle speed to drive vane pump. Meanwhile, continuously add hydraulic fluid to prevent vane from sucking air due to oil level drops.
2. When hydraulic fluid in the oil tank presents emulsification state, or the pump emits excessive noise (under normal condition, max. noise shall be 80 db), it must carry out exhaustion process. The exhaustion procedure is described as below:
Jack the front part of the vehicle till two front wheels are hung up, start the engine, turn the steering wheel to right and left till reach limit position (caution: after come to the limit position, try not to stop, even if stop, never maintain over 2 seconds). Repeat above action for several times, until the air in the system is gradually exhausted from the oil reservoir. In this process, with the drop of oil level, continuously supplement hydraulic fluid until the oil comes to specified level.
3. Regularly check and adjust the tension of power steering belt: vertically apply a 100N force at the middle of the belt, the max. deflection of belt shall be less than 5 mm, otherwise adjust the belt tension until meet the above requirement via adjusting tension bolt.
4. When in service, it is prohibited to turn the steering wheel to limit position, even if it has to do so, never maintain at this position over 10 seconds. It is strictly prohibited to use power steering pump without oil. If the driver suddenly feels the steering heavy in service, immediately stop the vehicle, dismantle and repair accordingly.

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