Chapter 4

Suspension/Transmission and Axle

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Section 1 Specification

Fastener Tightening Specifications

Part number	Specification	Torque (N.m)	Quantity	Affixed assembly
Q330C10	M10×1.25	40~50	2	Connecting rod and front stabilizer bar
Q330C10	M10×1.25	40~50	2	Front connecting rod and front shock absorber
Q1420825	M8×25	22~28	4	Fix stabilizer bar clip to subframe
T11-2901011	M10×19	45~55	6	Front suspension strut and vehicle body
T11-2901013	M15×1.5	110~130	4	Steering knuckle and suspension strut
T11-2901015	M15×1.5×55	110~130	4	Steering knuckle and suspension strut
Q330C10	M10×1.25	40~50	2	Connecting rod and rear stabilizer bar
Q330C10	M10×1.25	40~50	2	Connecting rod with lower suspension lever
T11-2919037 (Q184B1280)	M12×1.25×82/80	100~120	2	One on each side to connect upper link with towing arm
Q330B12	M12×1.25	80~101	2	One on each side to connect upper link with towing arm
Q1401282 (Q184B1280)	M12×82	100~120	2	One on each side to connect upper link with rear subframe
Q330B12	M12×1.25	80~101	2	One on each side to connect upper link with rear subframe
Q1401282 (Q184B1280)	M12×82	100~120	2	One on each side to connect lower control arm with towing arm
T11—2919035 (Q184B12100)	M12×94×1.25 / 95	100~120	2	One on each side to connect lower control arm with rear subframe
T11—2919031	M12	100~120	2	One on each side, fit onto the T11-2919035.
Q334C10	M10×1.25	22~28	4	Two on each side to connect the upper end of rear shock absorber with vehicle body
T11—2915013	M10×19	40~50	2	Connect rear shock absorber with rear shock absorber mounting bracket (T11-3301110)
Q1400820	M8×20	22~28	1	Fix the rear rubber buffer assembly onto the vehicle body
T11-3100111		100~120	23	Wheel nut
Q184C1090	Dacroment Grade 10.9	75~85	1	Soft gasket and bracket of front suspension
Q330C10	Galvanization Grade 10	75~85	1	Front suspension and bracket
Q184B1285	Dacroment Grade 10.9	110~130	1	Soft gasket and bracket of rear suspension
Q330B12	Galvanization grade 10	115~125	1	Rear suspension and bracket
Q184C1260	Dacroment Grade 10.9	75~85	2	Connect the rear axle front suspension with rear driving axle

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Q330B12	Dacroment Grade 10.9	115~125	2	Connect rear axle front suspension with rear subframe, there are bolts on the suspension
Q140B1230	Dacroment Grade 10.9	75~85	1	Rear suspension, longitudinal beam of engine and subframe
Q330B12	Nut	110~130	2	Insert from the lower part of subframe, and the bolt is on the suspension. The middle part shall be clamped to the main longitudinal beam of engine.
T11 2402013	Dacroment Grade 10.9	75~85	2	Fix the rear axle rear suspension cushion assembly onto the rear axle
T11 2402011	Dacroment Grade 10.9	75~85	2	Fix the rear axle rear suspension cushion assembly onto vehicle body
T11 2203205	Grade 8	260~280	2	Connect the right and left assembly of front drive shaft with brake disc
T11 2201205	Grade 8	260~270	2	Connect the right and left assembly of rear drive shaft with brake disc
Q32608		20~26	12	Connect the right and left assembly of rear drive shaft with rear axle
T11 2202201	Grade 8.8	58~68	2	Connect intermediate propeller shaft with vehicle body
0142B1030	Grade10.9	75~85	4	Connect intermediate propeller shaft with rear axle
Q330B10	Grade 10	75~85	4	Connect intermediate propeller shaft with rear axle
N0111862	M12×12	35~45	2	Steering knuckle tie rod and steering knuckle
AQl40C1035	M10×1.25(with guide)	74~86	2	Longitudinal beam and flat gasket of vehicle (front) body
T11 2810011	M14×1.5(55)	170~190	2	Subframe and gasket of vehicle (rear) body
T11 2810013	M14×1.5 (118)	170~190	2	Subframe and gasket of vehicle (front) body
Q14081230/40	Bolt	75~85	2	Subframe and longitudinal beam welding assembly
Q330C10	Nut	75~85	1	Subframe and longitudinal beam welding assembly
01420820	M8×20×1.25	22~28	4	Rear stabilizer bar clip and vehicle body
T11-2919035	Grade 10.9	140~160	2	Rear towing arm and vehicle body
AQl84B1220	M12×1.25 ×20	140~160	2	Connect control arm knuckle pin with control arm
T11-2909063	M12×1.25	140~160	4	Connect control arm knuckle pin with control arm
T11-2909061	M12×1.25	140~160	4	Connect control arm knuckle pin with control arm
AQ330B14	M14×1.5	170~190	2	Control arm and subframe
Q184B1275	M12×60	75~85	2	Steering gear and subframe

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T11-2909011	M14×1.5	110~130	2	Connect control arm knuckle pin with knuckle assembly
T11-2909013	M14×1.5	170~190	4	Control arm and subframe
AQ330B14	M14×1.5	170~190	2	Rear gum cover of control arm and subframe

Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit in screw fastening, it must be replaced.

1) Pretension to 100N.m, then loosen capstan nut and tighten to 120N.m, finally rotate 90°. If the cotter pinhole cannot be aligned with capstan nut, loosen it and return to the next hole. Then fix it by cotter pin.

2) Pretension to 50N.m, and then tighten to 90Nm, finally rotate 45^0 to 60^0.

3) Tighten to 90N.m and then rotate 30^0 to 45^0.

4) Tighten to 50N.m and then rotate 90^0 to 105^0.

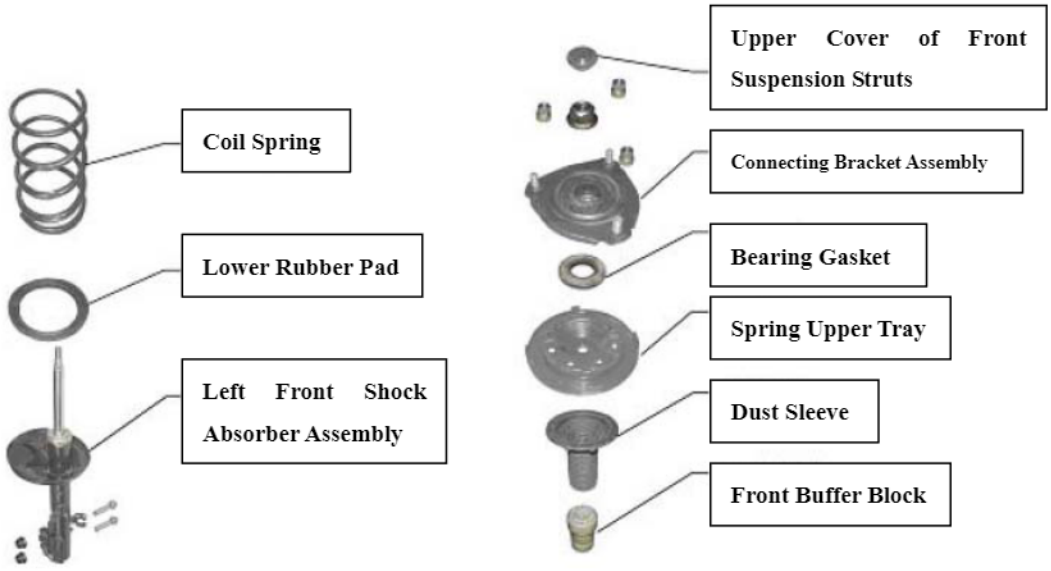
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Section 2 Removal and Installation of Front Shock Absorber

The front axle of Chery SQR7246/7247/7206 automobile employs on-off type steering driving axle, and the suspension is McPherson independent suspension. The front suspension of SQR7246/7247/7206 automobile performs dual functions such as driving and steering. The upper end of the suspension is connected to vehicle body, whereas the lower end is joined to steering knuckle. The camber angle is adjusted via the connecting bolt that joins suspension and steering knuckle.

I Exterior Identification

1. Disassembly drawing:



——Place lower rubber pad 68 on the tray of front shock absorber 52. Fit front buffer block 64 and front dust cover 62 over the piston rod of front shock absorber. And then fit coil spring 66. Compress the front coil spring to less than 275mm, then mount front spring upper tray 60, bearing gasket 58 and attachment bracket assembly 56 (including bearing) in sequence, finally torque nut 54 to specification and loosen the compressor of coil spring.

——When assembling, the two terminals of front coil spring shall contact with the corresponding set locations on the spring tray.

——Pay close attention to the mounting angle of front spring upper tray to prevent bearing from damage due to wrong fixing.

2. Removal and installation of front shock absorber

Disassembly procedure:

1) Jack the vehicle and then remove front wheels.

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2) Remove hose, vehicle speed sensor cable of ABS (if available), hose bracket and brake cable clip from shock absorber.

3) Remove the steering knuckle with brake disc assembly from shock absorber.

a) Unscrew two nuts and bolts that join the shock absorber and the steering knuckle with brake disc assembly.



b) Unscrew the bolt that connects steering knuckle tie rod knuckle pin and steering knuckle with brake disc assembly, and then loosen the knuckle pin.



c) Unscrew the bolt that connects the front connecting rod to the shock absorber, and then loosen the front connecting rod.



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d) Unscrew the bolt that connects the steering knuckle with brake disc assembly to control arm knuckle pin.



e) Unscrew the driving bolt from the front wheel.

f) Remove the steering knuckle with brake disc assembly from shock absorber.

Installation tips: apply engine oil to nut thread.



4) Remove both shock absorber and coil spring.

a) Remove the three nuts joining the shock absorber to vehicle body.

b) Remove the shock absorber together with coil spring.

Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

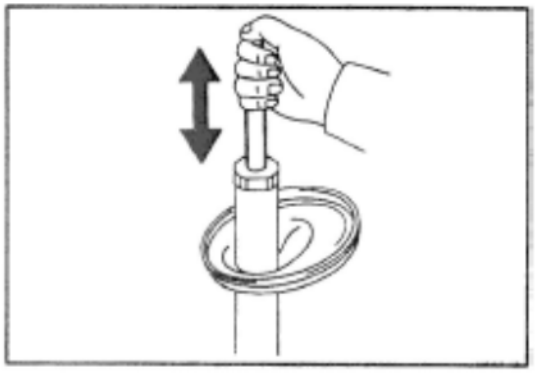
c) Check the wheel alignment after installation

3. Inspection

1) Inspect shock absorber.

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a) Inspect shock absorber for oil leakage, and replace if necessary. Then inspect the damping force of shock absorber, and replace it if not conform to the specification.

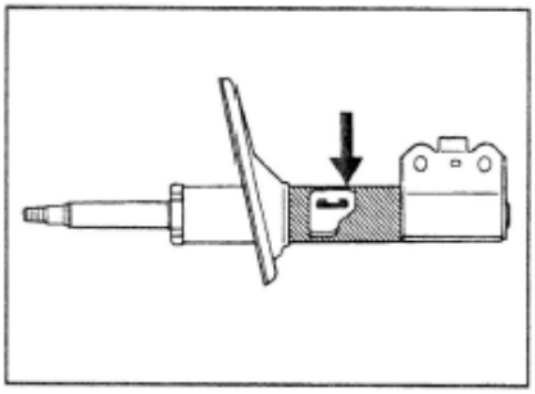


b) Inspect the thrust bearing for excessive wear or abnormal noise of block. Then inspect the lower spring seat for cracks or deformations. Subsequently inspect the limit stop for damages. Finally inspect the stop pad for wear, crack or deformation. **And** replace defective parts.

Note: Refer to the following procedures when discarding shock absorber.

2) Disposal of front shock absorber

a) Stretch the shock absorber rod as far as possible.



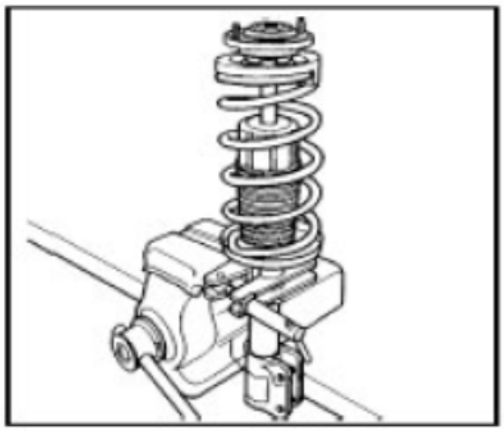
b) Discharge the gas inside the shock absorber cylinder by bit to drill a hole in the cylinder body (as shown in the figure).

Caution: The gas discharged is hazardous-free, however, and be cautious to scrap iron splashes when drilling the cylinder body.

4. Removal and installation of shock absorber bracket, shock absorber bracket components and/or spring

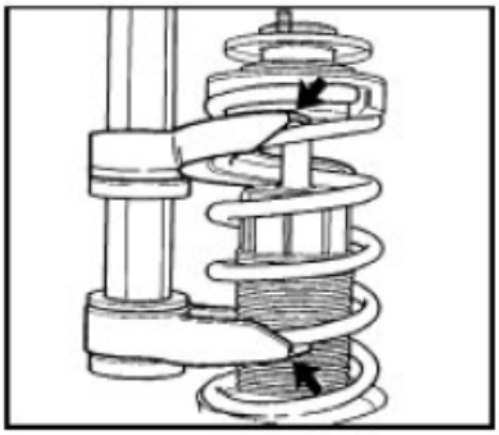
Removal and installation of spring

1) If the assembly fixture cannot be fixed onto the workbench, fix it into bench vice.



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2) Fix a pair of claws that match the spring diameter into the spring compressor.

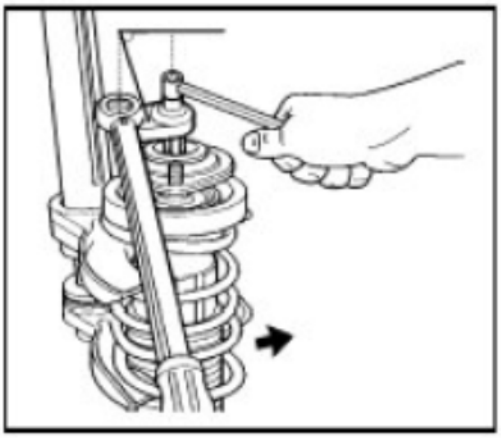


Disassembly procedures

1) Loosen the spring compressor, then locate the claws between the top and bottom of springs (As shown by the arrow).

2) Compress the spring till the spring is released from spring seat.

3) Remove the shock absorber support bracket with limiter and washer from connecting rod via ratchet wrench (as shown in the figure) that is used to unscrew lock nut.

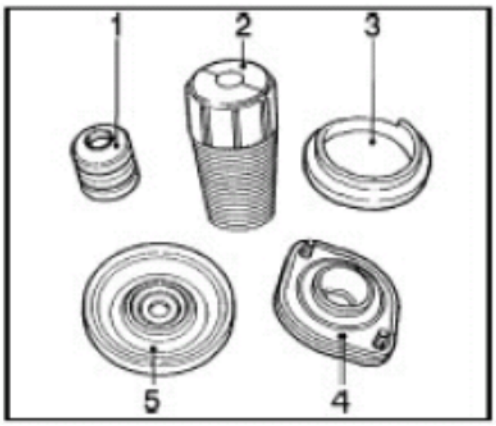


4) Remove the upper spring seat with absorber block.

5) Remove the spring compressor with spring and dust cover.

6) Remove buffer block.

7) Inspect the disassembled parts according to damage and wear condition.



a) Buffer block.

b) Dust cover.

c) Vibration isolator.

d) Shock absorber support bracket.

e) The upper spring seat with bearing and limiter.

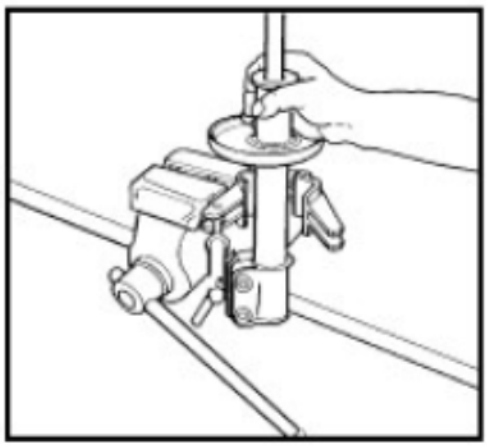
8) If the used shock absorber needs to be replaced, firstly remove wheel speed sensor harness bracket from the shock absorber, then fix it onto a new shock absorber (if there is no wheel sensor

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harness bracket, then directly replace the shock absorber).

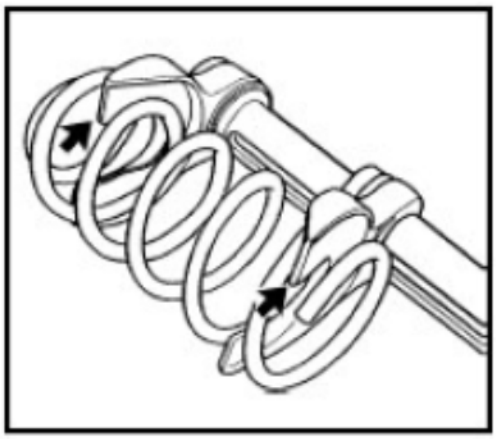
Installation procedures

1) Mount the new shock absorber into the assembling fixture.



2) If it is necessary to replace the used spring, loosen the spring, and then take out the used spring from the spring compressor.

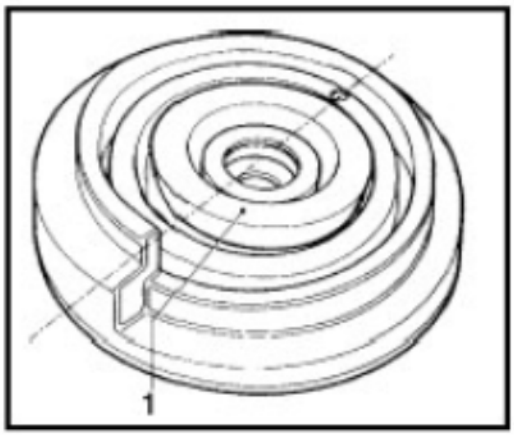
3) Insert the new spring into the spring compressor, then remain one circle at the upper part and one and a half circles at the lower part of the spring (as is shown by the arrow).



4) Compress the spring till the distance between the two claws is less than or equal to 120mm.

5) Confirm the position of buffer block limiter 1.

6) Fix the buffer block and pull the piston rod to the bottom.

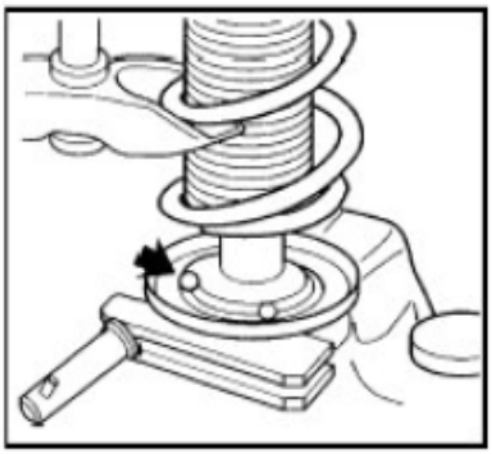


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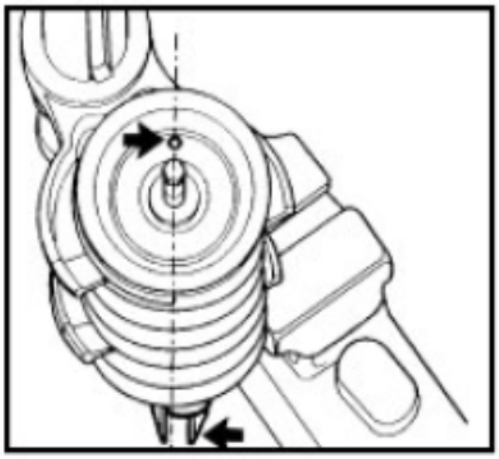
7) Place the spring onto spring seat.

Important cautions:

The spring end shall be located in the spacing hole (as shown by the arrow).



8) Fix the upper spring seat affixed with absorber block to the position where the punched hole offsets to tightening location of lower spring bracket by 180^0 (As shown by the arrow)

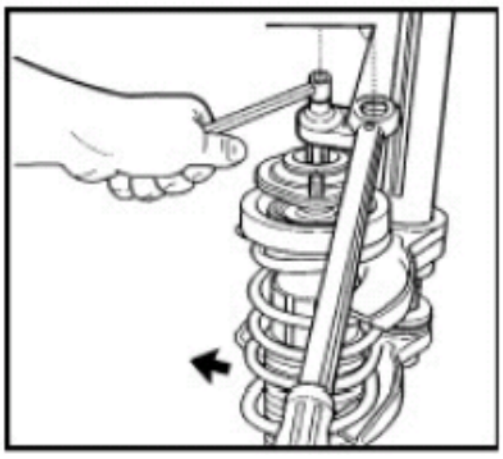


9) Fix the spacer bearing and localizer.

10) Tighten it by a new lock nut.

11) Tighten the new lock nut.

Important cautions: vertically use torque wrench(as shown in the figure).

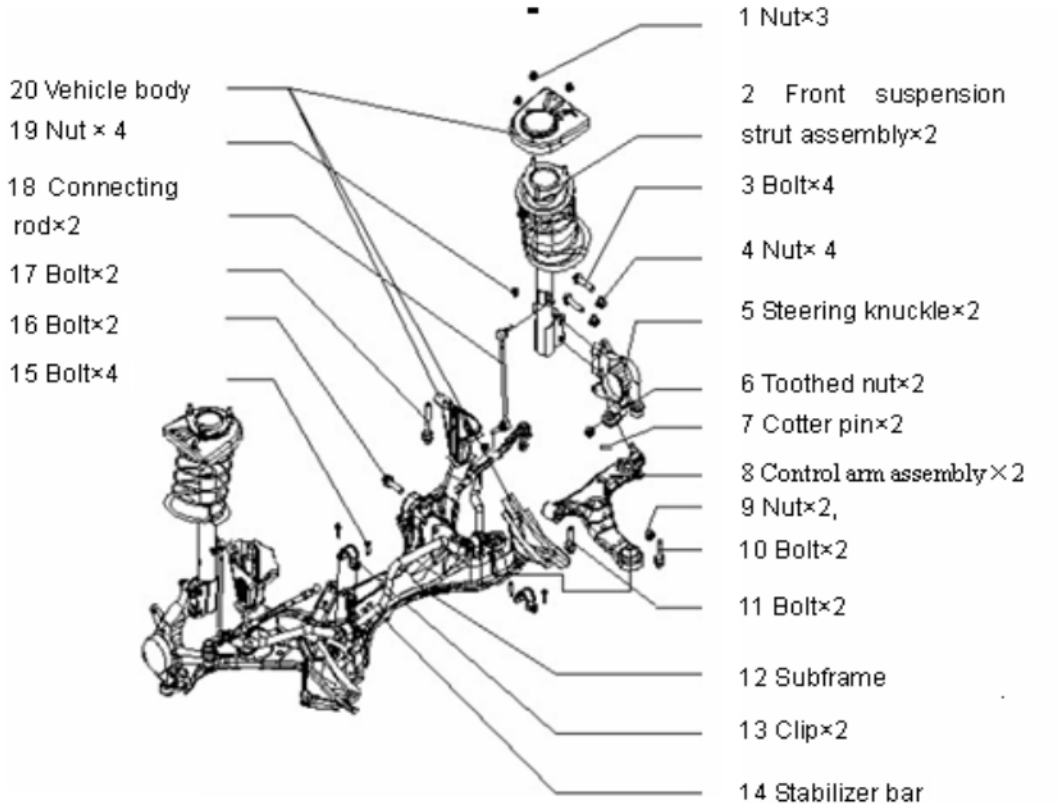


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Section 2 Front Axle and Front Suspension

I Exterior Identification

Disassembly drawing:



——Join the control arm assembly 8 to subframe 12 with bolt 10, nut 9 and bolt 16, then torque to specification, and the left and right side torque shall be identical.

—— Join front suspension strut 2 to steering knuckle 5 by bolt 3 and nut 4, then torque to specification, and the left and right side torque shall be identical.

—— Join front suspension strut with knuckle assembly to the control arm knuckle pin by toothed nut 6 and cotter pin, then torque to specification, and the left and right side torque shall be identical.

——Respectively join the upper and lower end of front connecting rod 18 to front suspension strut assembly 2 and stabilizer bar 14 by nut 19, and then torque to specification, and the right and left torque shall be identical.

—— Respectively join the front and the rear subframe to vehicle body by bolt 17 and bolt 4, then torque to specification, and the left and right side torque shall be identical.

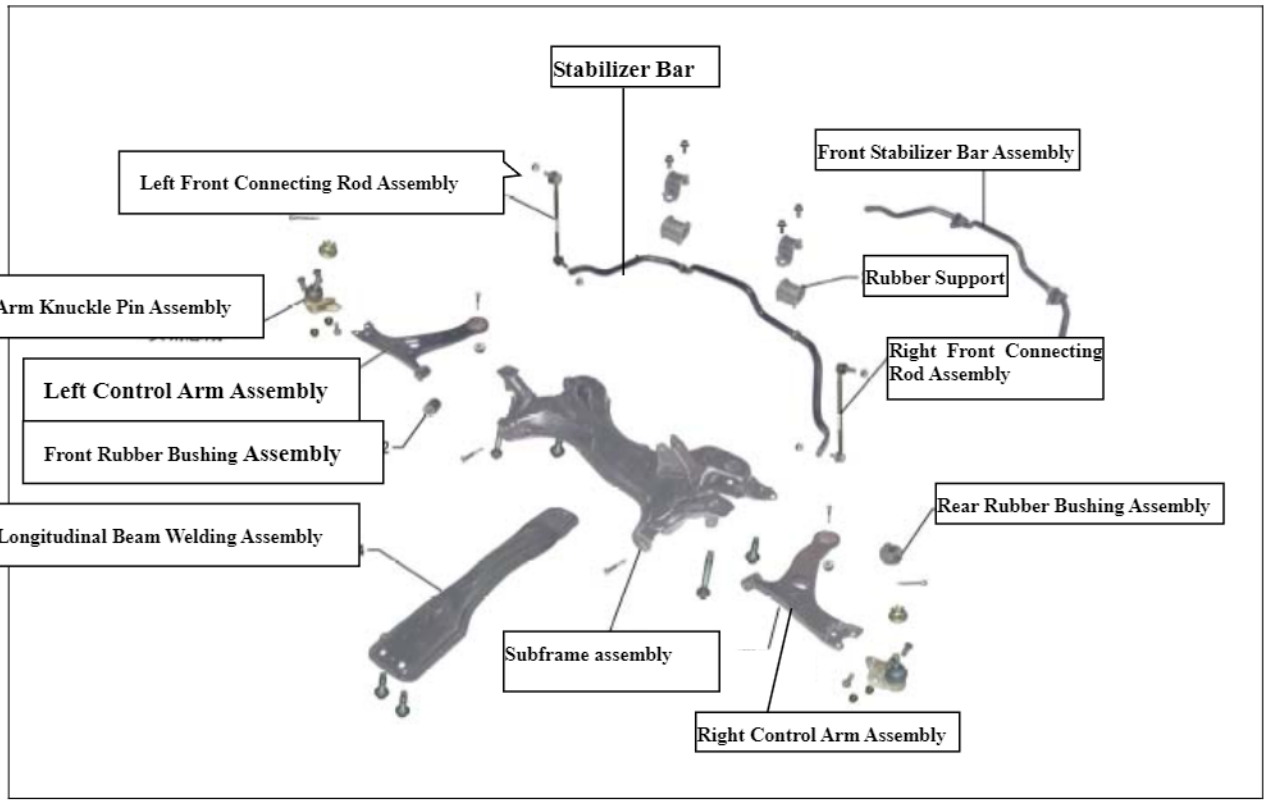
——Make the three studs of the front suspension strut assembly 2 go through the mounting holes

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of vehicle body, then employ nut 1 to tighten them to specified torque, and the right and left side torque shall be identical.

IIStructural Drawing of Front Axle

Disassembly drawing:



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III Removal and Installation of Control Arm Assembly

Disassembly procedures:

1) Unscrew the connecting bolt that joins control arm and subframe.



2) Unscrew the connecting bolt that joins control arm knuckle pin and steering knuckle with brake disc assembly.



3) Unscrew the connecting bolt that joins the rear gum cover of control arm and subframe.

4) Remove the control arm from the vehicle.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

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b) After installation, torque each bolt to specification.

IV Removal and Installation of Control Arm Knuckle Pin

Disassembly procedures:

1) Remove the control arm assembly (Refer to the removal and installation section of control arm assembly).

2) Unscrew the connecting bolt that joins control arm to control arm knuckle pin.

3) Remove the control arm knuckle pin

Assembly procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

VRemoval and Installation of Front Connecting Rod

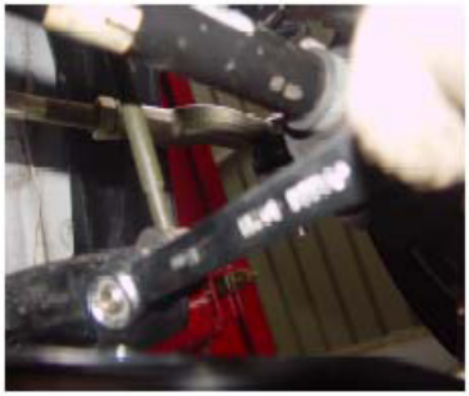
Disassembly procedures:

1) Unscrew the connecting bolt that joins front connecting rod and shock absorber.



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2) Unscrew the connecting bolt that joins front connecting rod and front stabilizer bar.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

VI Removal and Installation of Front Stabilizer Bar Bushing

Disassembly procedures:

1) Unscrew the fixing bolt of the left and right connecting rod bushing.



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(2) Loosen the fixing clip of balance bar bushing, then move the balance bar forward, and finally take out the bushing.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

VII Removal and Installation of Subframe Assembly

Disassembly procedure

1) Remove the left and right control arms (Refer to the removal and installation of control arms).

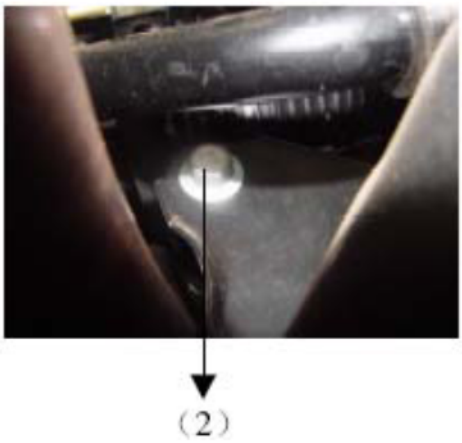
2) Unscrew the connecting bolt that joins front connecting rod and stabilizer bar (Refer to the removal and installation of connecting rod).

3) Unscrew the two connecting bolts (1) and (2) that joins steering gear and subframe.

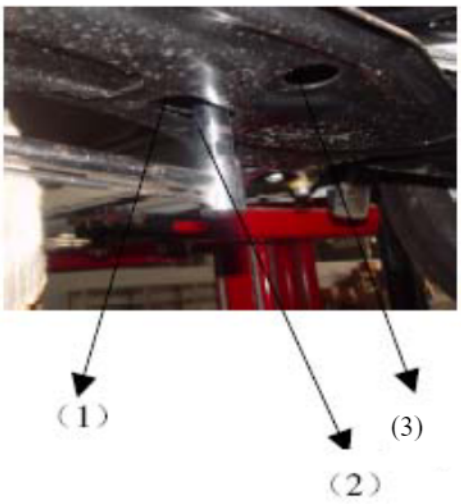


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4) Unscrew the connecting bolt and nut that joins subframe assembly and longitudinal beam welding assembly.



5) Unscrew the four connecting bolts that join subframe to vehicle body.

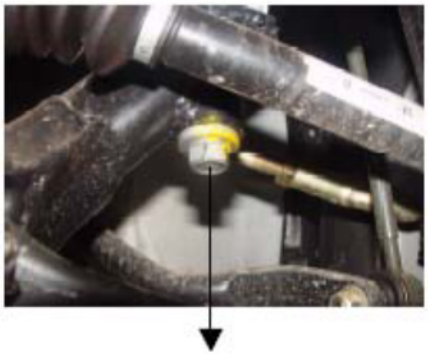
a) Unscrew the connecting bolt (1), (2), (3) and (4) that join subframe to vehicle body.

b) Remove the subframe assembly

Note: Prior to disassembling subframe, lift up the engine from front compartment so as to avoid engine from falling!



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(2)



(3)



(4)

Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit in screw fastening, it must be replaced.

b) After installation, torque each bolt to specification.

VIII Removal and Installation of Front Stabilizer Bar

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Disassembly procedures:

1) Remove the subframe assembly (Refer to removal and installation of subframe).

2) Remove the front stabilizer bar bushing (Refer to removal and installation of front stabilizer bar bushing).

3) Remove the stabilizer bar.

Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

IX Removal and Installation of Longitudinal Beam Welding Assembly

Disassembly procedures:

1) Remove the subframe assembly (Refer to removal and installation section of subframe assembly).

2) Unscrew the connecting bolt that joins engine front suspension and front suspension bracket.



3) Unscrew the two connecting bolts that join longitudinal beam welding assembly to vehicle body.



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4) Unscrew the connecting bolt that joins rear suspension of engine to rear suspension bracket.



5) Unscrew the connecting bolt that joins longitudinal beam welding assembly to subframe.

6) Remove longitudinal beam welding assembly



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

X Removal and Installation of Front Drive Shaft

Disassembly procedures:

1) Remove the front steering knuckle with brake disc assembly (Refer to the removal and installation section of steering knuckle with brake disc assembly).

2) Remove the jacket snap ring from the front drive shaft, and then draw out the drive shaft.

Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

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a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

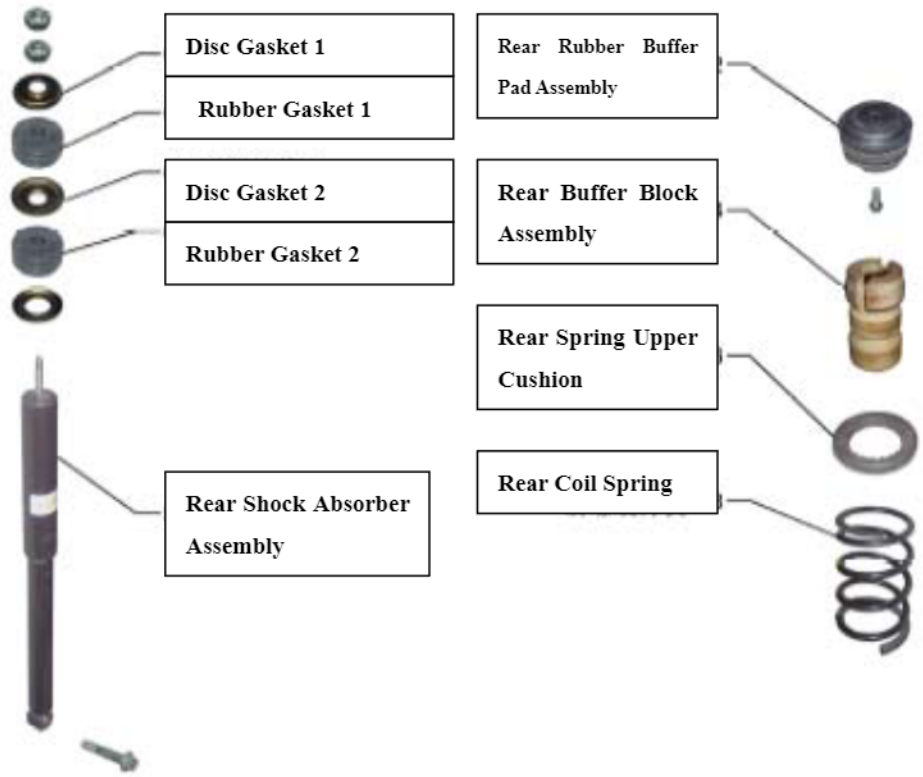
b) After installation, torque each bolt to specification.

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Section 3 Removal and Installation of Rear Suspension Shock Absorber

I Exterior Identification of Rear Shock Absorber

Disassembly drawing:



II Removal and Installation of Rear Shock Absorber

Disassembly procedures:

1) Remove the protective cap of the rear shock absorber on the lower guard plate of column C.

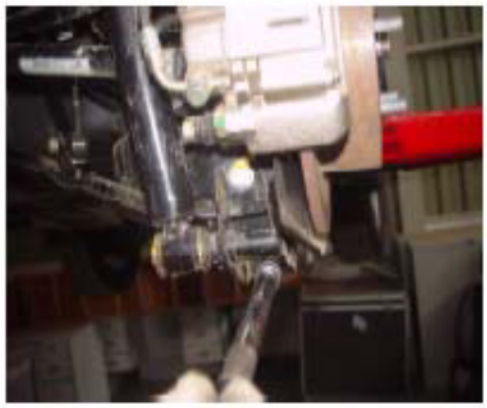


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2) Unscrew the connecting bolt that joins rear shock absorber to vehicle body.



3) Unscrew the fixing bolt that joins shock absorber to rear towing arm.



4) Remove the rear shock absorber.

5) Remove the shock absorber coil spring.

a) Remove the rear shock absorber.

b) Remove the rear connecting rod (refer to the removal and installation section of connecting rod).

c) Manually press the towing arm, and then the coil spring can be removed.

Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

c) Check the wheel alignment after installation

d) When assembling, first mount coil spring, then mount shock absorber (the towing arm shall be lifted when installing the fixing bolt for shock absorber and rear towing arm).

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III Inspection of Shock Absorber

1) Inspect shock absorber

a) Inspect shock absorber for oil leakage, replace it if necessary. Then inspect the damping force of the shock absorber, and replace it if not conform to specification.

b) Inspect the thrust bearing to see if there is any excessive wear or abnormal noise stuck; Inspect the lower spring seat for cracks or deformation; Inspect limit stop for damages; and inspect the stop pad for wear, cracks and deformation. Replace the defective parts.

Note: implement the following procedures when discarding shock absorber.

2) Discarding

a) Stretch the shock absorber rod as far as possible.

b) Discharge the gas inside the shock absorber cylinder by bit to drill a hole in the cylinder body.

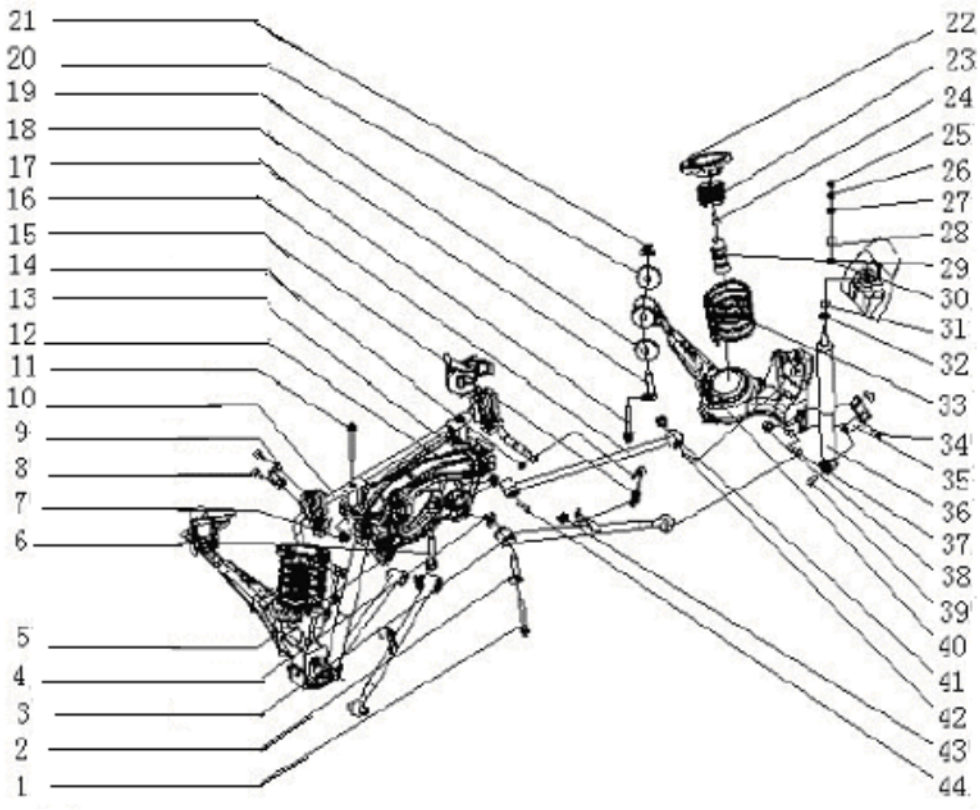
Caution: The gas discharged is hazardous-free, however, be cautious to scrap iron splashes when drilling the cylinder body.

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Section4 Removal and Installation of Rear Axle and Rear Suspension

IExterior Identification

Disassembly drawing:



1 Bolt×4
2. Eccentric compensating pipe×4
3. Lower control arm×2
4. Eccentric adjust nut×2
5. Nut×4
6. Bolt×2
7. Nut×2
8. Bolt×2
9. Clip×2
10. Stabilizer bar assembly
11. Bolt×2
12. Rear subframe
13. Nut ×8
14. Nut×4
15. Connecting rod×2
16. Upper link×2
17. Bolt identical to 1
18. Eccentric compensating pipe identical to 2
19. Thin rubber cushion×2
20. Thick rubber cushion×2
21. Eccentric adjust nut identical to 4
22. Rear spring upper cushion×2
23. Buffer block support×2
24. Bolt×2
25. Nut×4
26. Nut identical to 25
27. Gasket×2
28. Buffer jacket×2
29. Rear buffer block×2
30. Gasket×4
31. Buffer jacket×2
32. Gasket identical to 30
33. Rear coil spring×2
34. Bolt×4
35. Shock absorber mounting bracket×2
36. Shock absorber x 2
37. Bolt×2
38. Nut×2
39. Bolt×2
40. Rear towing arm×2
41. Nut identical to 13
42. Bolt×4
43. Nut identical to 14
44. Stud identical to 41

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—— Join the upper link assembly 16 to the upper end of rear subframe assembly 12 by bolt 44 and nut 14, and the left and right sides shall be identical. Do not tighten the fasteners.

—— Join the lower control arm assembly 3 to the lower end of rear subframe assembly 12 by bolt 1, eccentric compensating pipe 2 and eccentric adjust nut 4, and the left and right side shall be identical. Do not tighten the fasteners.

——Join stabilizer bar assembly 10 to vehicle body by bolt 8 and clip 9, and the left and right side shall be identical. Torque the fasteners to specification.

—— Join shock absorber mounting bracket 24 to rear towing arm assembly 40 by bolt 23, and the left and right side shall be identical. Torque the fasteners to specification.

——Join the upper link assembly 16 to rear towing arm assembly 40 by bolt 42 and nut 41, and the left and right side shall be identical. Do not tighten the fasteners.

—— Join the lower control arm assembly 3 to rear towing arm assembly 40 by bolt 37 and nut 38, and the left and right side shall be identical. Do not tighten the fasteners.

—— Join gasket 32 (opening facing upward), buffer jacket 31, gasket 30 (opening facing upward, located at the upper part of vehicle body), buffer jacket 28 (with tooth at both upper and lower end surfaces), gasket 27 (opening facing downward), nut 26and nut 25 to vehicle body, and the left and right side shall be identical. Do not tighten the fasteners. Then screw the rear buffer block 29 into buffer block support seat 23.

—— Using bolt 11 (front, turning-proof, insert from vehicle interior), nut 7 (front, 110~130N.m) and bolt 6 to torque the rear subframe to the vehicle body to specification.

—— Respectively join both the upper and the lower ends of connecting rod to stabilizer bar 10 and lower control arm by nut 14 and 43, and the left and right side shall be identical. Do not tighten the fasteners.

—— Join rear shock absorber 36 to shock absorber mounting bracket 35 by bolt 39, and the left and right side shall be identical. Do not tighten the fasteners.

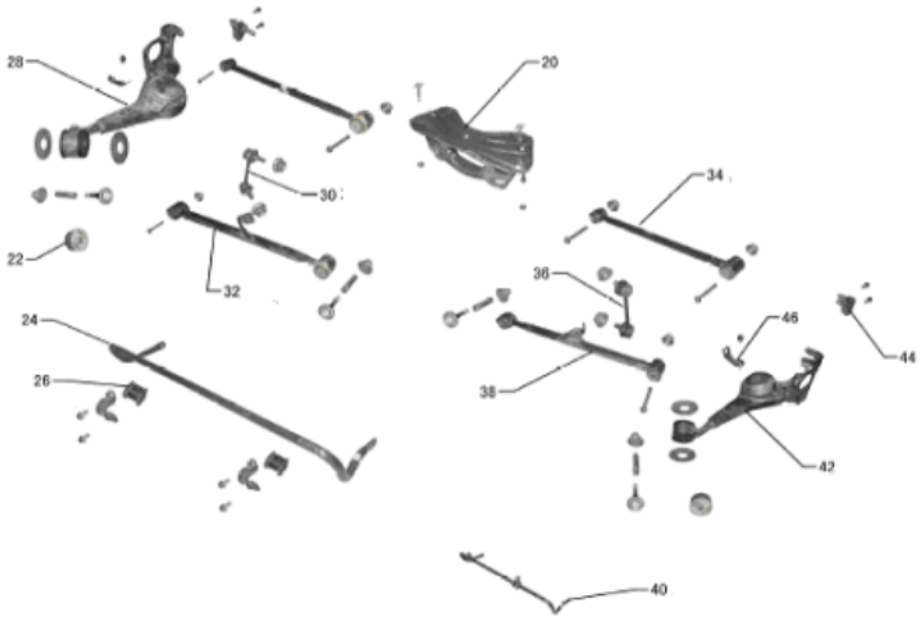
—— Place rear coil spring 33 onto the mounting seat of rear towing arm 40, and join rear towing arm assembly to vehicle body by bolt 17, eccentric compensating pipe 18, thin /thick rubber pad 19/20 as well as adjust nut 21. The left and right side shall be identical. **Then** torque the fasteners to specification.

—— Torque the above mentioned bolts and nuts (not being tightened) to specification in sequence.

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II Structural Drawing of Rear Axle

Disassembly drawing:



20. Rear subframe welding assembly
22. Rubber bushing assembly
24. Rear stabilizer bar
26. Rubber support seat
28. Right rear towing arm assembly
30. Right rear connecting rod
32. Rear suspension right lower control arm assembly
34. Rear suspension upper link assembly
36. Left and right connecting rod
38. Rear suspension left lower control arm assembly
40. Rear stabilizer bar assembly
42. Left rear towing arm assembly
44. Left rear shock absorber mounting bracket assembly
46. Left pipeline bracket

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III Removal and Installation of Rear Connecting Rod Assembly

Disassembly procedures:

1) Unscrew the fixing bolt that joins rear connecting rod and rear suspension lower control arm.



2) Unscrew the connecting bolt that joins rear connecting rod and rear stabilizer bar.

3) Remove the rear connecting rod.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

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IV Removal and Installation of Rear Suspension Lower Control Arm Assembly

Disassembly procedures:

1) Unscrew the connecting bolt that joins rear suspension lower control arm and rear towing arm.



2) Unscrew the connecting bolt that joins rear suspension lower control arm and rear connecting rod.



3) Unscrew the connecting bolt that joins rear suspension lower control arm and rear subframe welding assembly.

4) Remove the rear suspension lower control arm.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

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V Removal and Installation of Rear Suspension Upper Link Assembly

Disassembly procedures:

1) Unscrew the connecting bolt that joins rear suspension upper link and rear towing arm.



2) Unscrew the connecting bolt that joins rear suspension upper link and rear subframe welding assembly.

3) Remove the rear suspension upper link.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

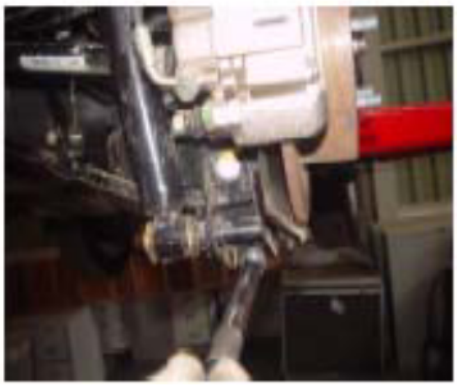
b) After installation, torque each bolt to specification.

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VI Removal and Installation of Rear Towing Arm Assembly

Disassembly procedures:

1) Unscrew the connecting bolt that joins rear towing arm and shock absorber hinge bracket.



2) Unscrew the connecting bolt that joins rear towing arm and upper link.



3) Unscrew the connecting bolt that joins rear towing arm and lower control arm.

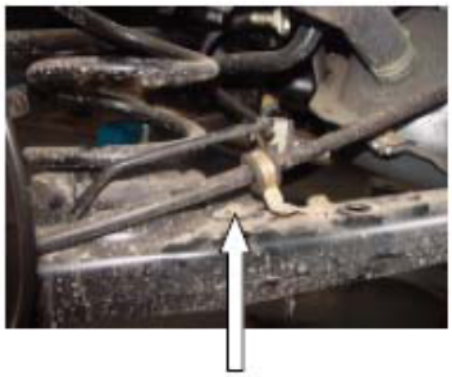


4) Unscrew the connecting bolt that joins rear towing arm and hand brake cable bracket.



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5) Unscrew the connecting bolt that joins rear towing arm and brake line bracket.



6) Unscrew the connecting bolt that joins rear-towing arm to vehicle body.

7) Remove the rear-towing arm.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

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VII Removal and Installation of Rear Drive Shaft

Disassembly procedures:

1) Remove the rear disc brake with brake hub assembly (Refer to the removal and installation section of the rear disc brake with brake hub).

2) Unscrew the connecting bolt that joins rear drive shaft and rear axle.

3) Draw the rear drive shaft out of rear axle.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

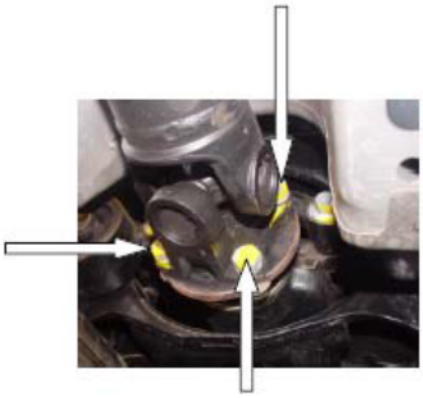
b) After installation, torque each bolt to specification.

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VIII Removal and Installation of Intermediate Propeller Shaft

Disassembly procedures:

1) Unscrew the four connecting bolts that join intermediate propeller shaft and rear axle.



2) Unscrew the connecting bolt that joins intermediate propeller shaft bracket to vehicle body, and then remove the bracket.



3) Draw the intermediate propeller shaft out of the front cross universal joint.



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IX Removal and Installation of Rear Axle

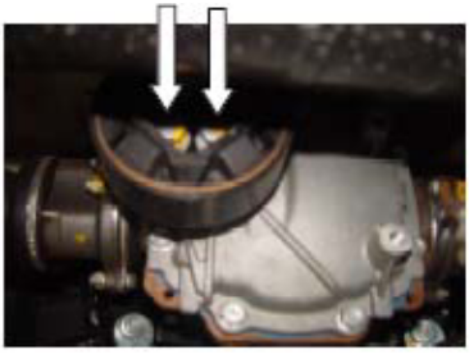
Disassembly procedures:

1) Remove the left and right rear drive shafts (Refer to the removal and installation section of rear drive shaft).

2) Unscrew the connecting bolt that joins rear suspension cushion of rear axle to vehicle body.



3) Unscrew the connecting bolt that joins rear suspension cushion of rear axle and the rear axle, and then remove the rear suspension cushion of rear axle.



4) Unscrew the connecting bolt that joins rear axle and the front suspension cushion of rear axle.

5) Unscrew the connecting bolt that joins rear axle and intermediate propeller shaft (Refer to the removal and installation section of intermediate propeller shaft).

6) Remove the rear axle.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

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X Removal and Installation of Rear Subframe Welding Assembly

Disassembly procedures:

1) Remove the intermediate pipe assembly (Refer to the removal and installation section of intermediate pipe assembly).

2) Remove the rear suspension lower control arm (Refer to the removal and installation section of rear suspension lower control arm).

3) Remove the left and right rear drive shafts assembly (Refer to the removal and installation section of rear drive shaft).

4) Remove rear suspension upper link (Refer to the removal and installation section of the rear suspension upper link).

5) Remove the rear axle assembly (Refer to the removal and installation section of rear axle).

6) Unscrew the four bolts that join the rear subframe welding assembly to the vehicle body.



7) Remove the rear subframe welding assembly.



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

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XI Removal and Installation of Rear Stabilizer Bar

Disassembly procedures:

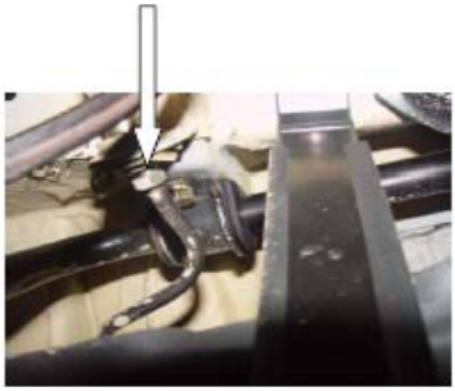
1) Remove the intermediate pipe assembly (Refer to the removal and installation section of intermediate pipe assembly).

2) Remove the intermediate propeller shaft assembly (Refer to the removal and installation section of intermediate propeller shaft).

3) Remove the fuel tank assembly (Refer to the removal and installation section of fuel tank assembly).

4) Unscrew the bolt that joins rear stabilizer bar and rear connecting rod (Refer to the removal and installation section of rear connecting rod).

5) Unscrew the bolt joining the rear brake line and the bracket, and then remove the rear brake line (one at each side).



6) Unscrew the bolt joining rear stabilizer bar to vehicle body. (One at each side).



Installation procedures:

1) Refer to disassembly procedures to perform assembly.

2) Precautions:

a) Once loosening the binding bolt whose torque and angle tightening condition is controlled by yield limit, it must be replaced.

b) After installation, torque each bolt to specification.

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Steering System

General Description

T11 employs hydraulic power steering system, which consists of steering pump, steering engine, steering line, steering liquid reservoir, etc.

The steering gear is a kind of rack-and-gear power type. It employs rotary plug valve structure and outputs at two terminals. There is a dust cover at the joint of steering link and rack. The piston rod and rack are integrated into a single unit. The length of steering link can be adjusted to fit the toe-in. Steering gear link exterior ball is tightened to the knuckle by self-locking nut, so it is unnecessary to employ lock pin.

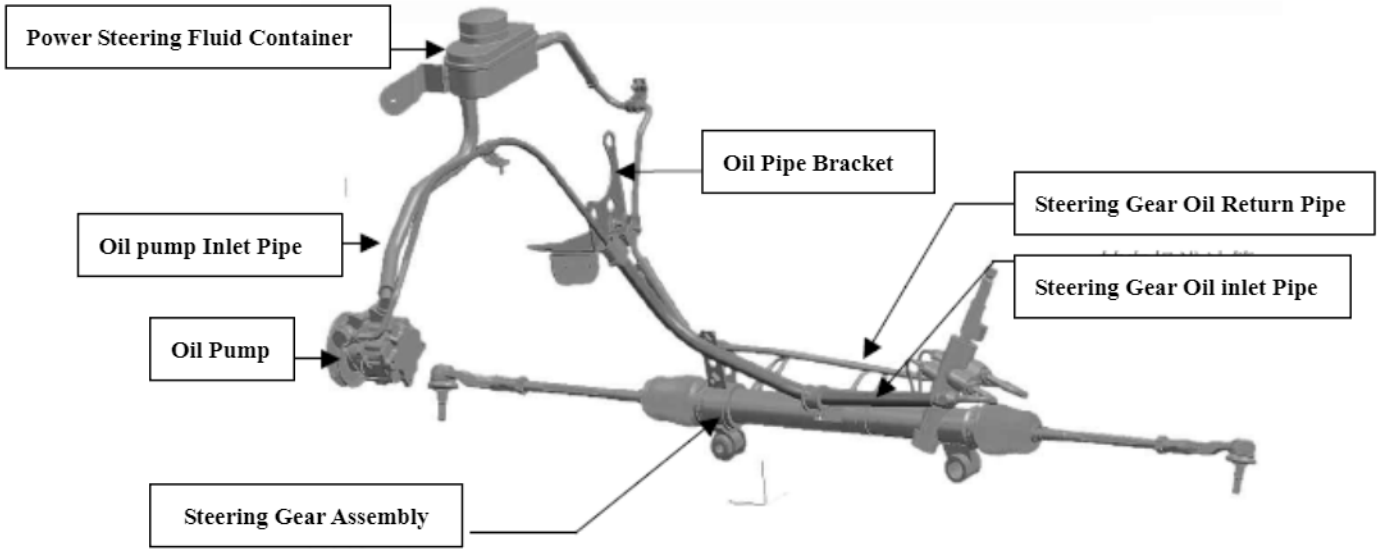
Steering pump is a kind of permanent flow vane type, and the maximum working pressure is 8±0.5Mpa. When the speed is between 1250rpm and 3000 rpm, the flow tends downward. When exceeding 3000rpm, the flow is not markedly increased. So it can guarantee satisfied "road felt" when running at high speed. It also improves driving safety when vehicle running at high speed. So please make every effort to avoid steering to the limit position for over 10 seconds when the vehicle is in service.

Steering oil pipe is used to supply steering oil. According to different distances and working characteristics among varied assembly components, the steering oil pipe of T11 is a kind of hybrid type combining steel pipe and hose. The connection between steel pipe and hose of high-pressure oil pipe assembly is a kind of cutting sleeve junction, so it has reliable sealing performance. The connection of oil pipe and steering gear employs bolt and O-ring, which also ensures reliable sealing.

The main functions of steering liquid reservoir include: store oil and supply oil to oil pump and system; radiate heat and reduce the oil working temperature; filter impurities and ensure the cleanliness of working oil and fluid. Oil type shall be Shell Donax ATF, and the implementation standard of automatic gearbox oil shall be Dexron III.

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Layout



Fastener Tightening Specification

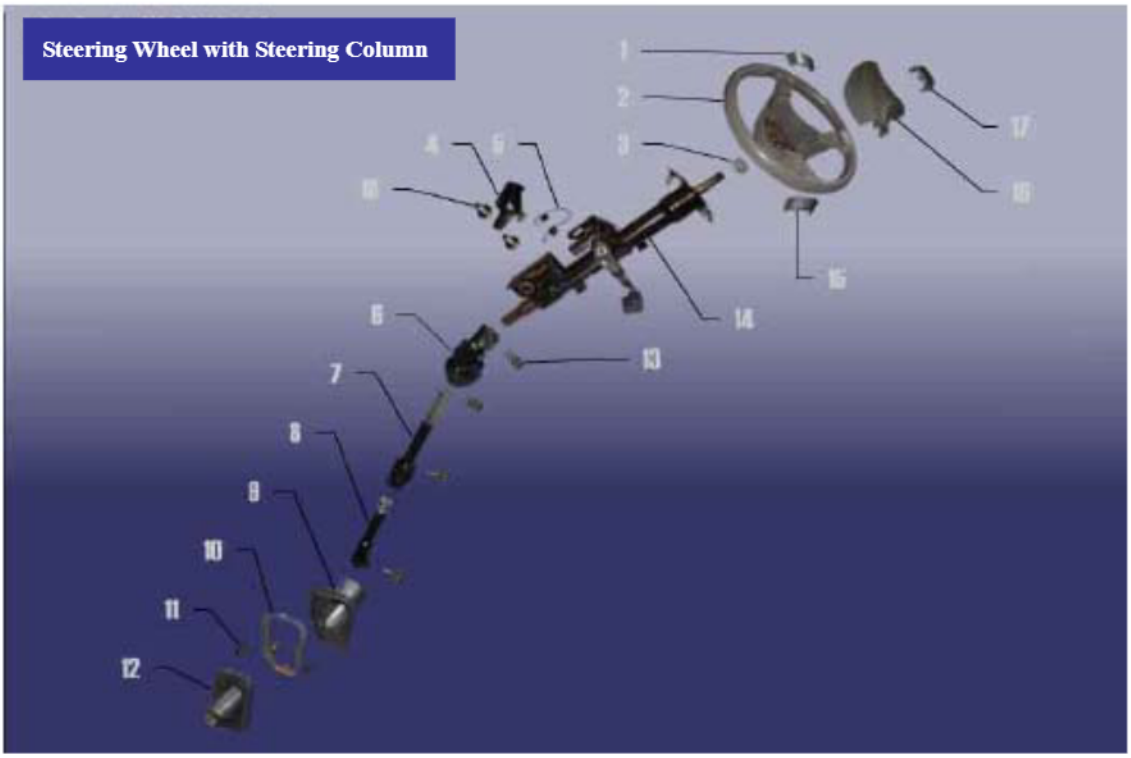
Application	Specification	Tightening torque
Steering wheel fixing nut	M12×1.2 5	27~33N.m
Steering column upper bracket fixing bolt	M8×25	23~27N.m
Steering column lower bracket fixing bolt	M8×50	23~27N.m
Steering column pivot and universal joint fixing bolt	M8×30	20~30N.m
Binding bolt of middle steering universal joint spline	M8×30	25~30N.m
Binding bolt of middle and lower universal joint	M8×30	25~30N.m
Binding bolt of steering gear input shaft	M8×30	25~30N.m
Mounting bolt of power steering gear	M12×65	75~85N.m
Steering gear steering knuckle tie rod and rack clamp nut	M18×1.5	122.6~142.2N.m
Steering gear steering knuckle tie rod and knuckle fixing nut	M12×1.5	35~45N.m
Steering pump and bracket	M8×1.2 5	20~30N.m
Steering pump and engine cylinder housing	M10×1.5	70~80N.m
Tension pulley lock nut	M10×1.25	20~30N.m

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Joint Tightening Specification

Application	Specification	Tightening torque
Two oil pipe joints of power steering gear		24.5~34.3N.m
Power steering high pressure hard tube and steering gear	M18×1.5	27~33N.m
Power steering high-pressure oil pipe and steering pump		40~50N.m
Steering gear and oil return pipe joint	M16×1.5	27~33N.m

Disassembly Drawing



1-15-17. Spoke trim cover
2. Steering wheel
3. Steering wheel nut
4. Mounting bracket
5. Adjusting spring
6. Upper universal joint universal joint
7. Lower
8. Intermediate shaft
9. Steering upper shield
10. Jacket fixing bracket
12. Steering lower shield
13. Fixing bolt
14. Adjustable steering column
17. Horn hood assembly
18. Fixing bolt

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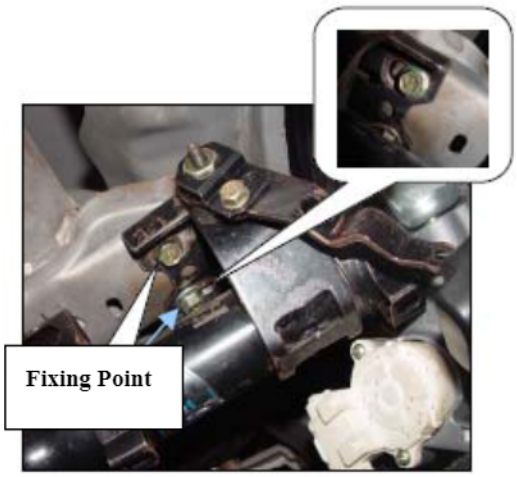
Removal and Installation of Steering System

Steering Column

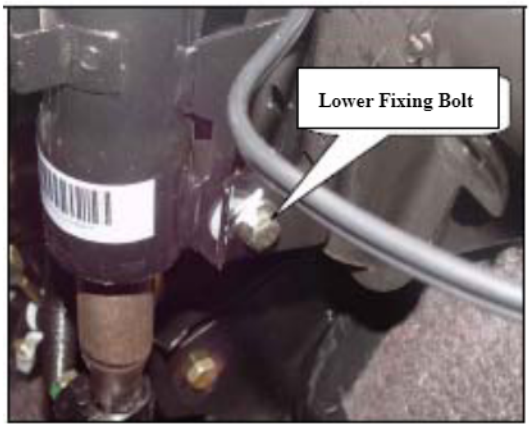
1) Remove the steering wheel (Refer to the section of accessory removal and installation).

2) Remove the left lower shield (Refer to the section of accessory removal and installation).

3) Loosen the upper fixing bolt of steering column.



4) Loosen the lower fixing bolt of steering column.



5) Loosen the intermediate shaft lock nut that connects to the steering gear.



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6) Remove the steering upper and lower shield.

7) Remove the steering column assembly.

8) The mounting of steering column shall be performed in accordance with the inverted sequence of removal.

Torque:

Steering wheel nut :27～33N.m

Upper fixing bolt: 25～30N.m

Intermediate shaft and steering gear input shaft: 25～30N.m

Steering Gear

1) Drain the power steering liquid.

a) Lift the vehicle to make the wheel off the ground.

b) Dismount the power steering oil-return hose from power steering liquid reservoir.

c) Put oil-return hose into a tank than can contain the discharged steering liquid.

d) Start the engine, and perform idle running.

e) Turn the steering wheel come-and-go to the limit position.

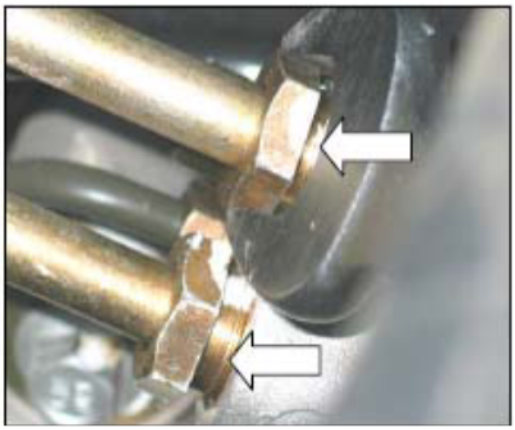
Caution: never keep still when bringing down, otherwise hydraulic system will be damaged.

f) Ensure the steering liquid is completely drained, and then stop the engine.

2) Elevate the vehicle.

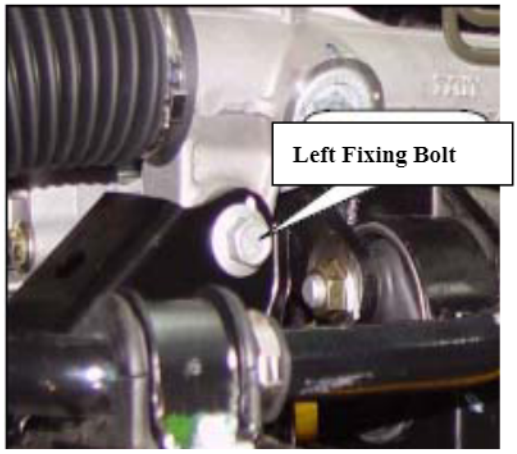
3) Loosen the upper and lower jacket of steering gear.

4) Loosen the high and low-pressure oil pipe.

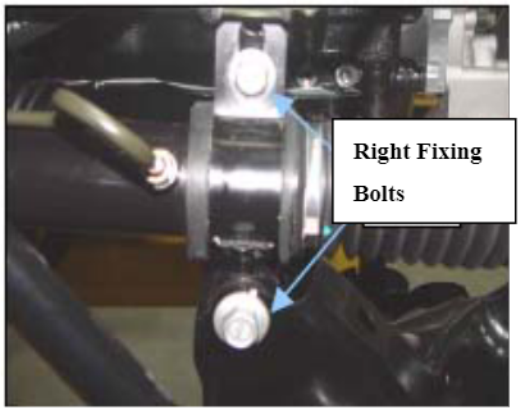


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5) Loosen the left side fixing bolt of steering gear.



6) Loosen the right side fixing bolt of steering gear.



7) Loosen the bolt that connects right and left steering knuckle tie rod and the knuckle.



8) Remove the steering gear assembly.

9) The mounting of steering gear shall be performed in accordance with the inverted sequence of removal.

Torque:

Mounting bolt of power steering gear: 75～85N.m

The connection between steering tie rod and the knuckle: 45N.m

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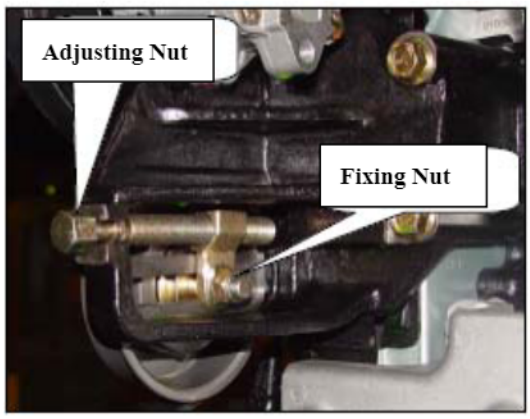
Steering Oil Pump

1) Drain the power steering liquid

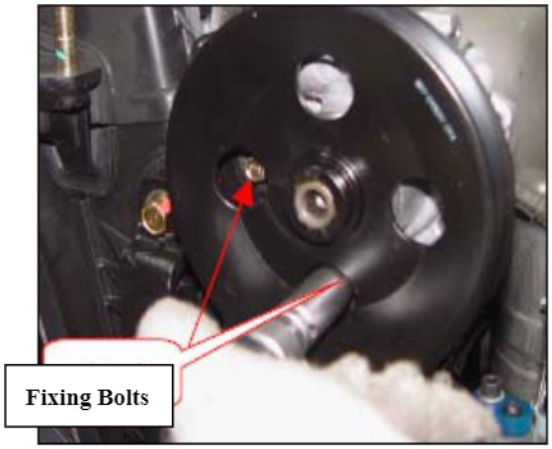
2) Loosen the oil pump belt.

a) Loosen the fixing bolt of tension pulley

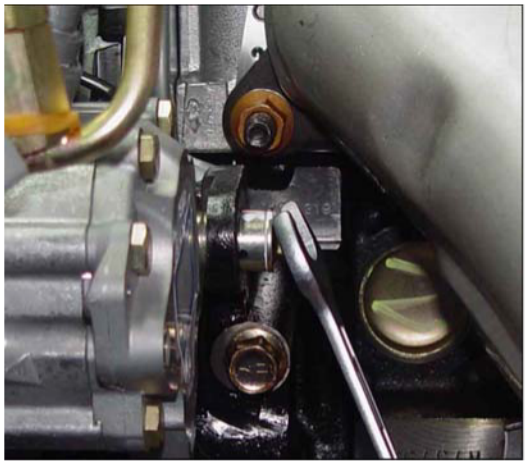
b) Turn the adjusting bolt counterclockwise to loosen the belt.



4) Loosen the two fixing bolts under the pulley.



5) Loosen the fixing bolt at opposite side.



6) Remove the oil pump.

7) The mounting of steering oil pump shall be performed in accordance with the inverted sequence of removal.

Torque:

Tightening of steering oil pump: 20～30N.m

Lock nut of tension pulley: 32～38N.m

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Steering oil pump and high-pressure oil pipe: 40～50N.m

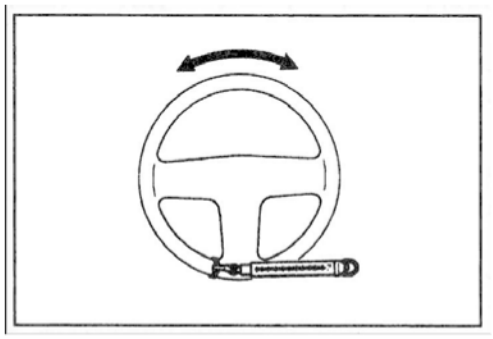
Maintenance Guide

I Inspection of Steering Wheel Play

1) Keep the front wheel straightly facing forward when the engine is working (hydraulic system is working).

2) Slightly turn steering wheel to the right and left, and before the steering wheel begins turning, measure the free play of steering wheel circle.

Limit value: 40mm.



3) If the free play exceeds limit value, inspect the gap of steering shaft joint and steering linkage, finally rectify or replace related spare parts according to certain circumstances. If the free play still exceeds limit value, turn steering wheel right ahead when engine stops, finally apply 5N load to the steering wheel circle and inspect the free play again.

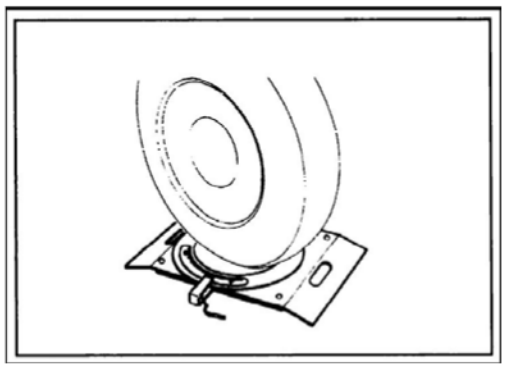
Standard value (steering wheel free play when engine stops): less than 15mm.

If free play exceeds standard value, dismount steering gear housing and inspect the gross torque of pinion gear.

IIInspection of Steering Angle

1) Put the front wheel on a steering radius testing device, then measure the steering angle.

Standard value: the inner side wheel shall be 37°45′16″, and the outer side wheel shall be 29°46′34″.



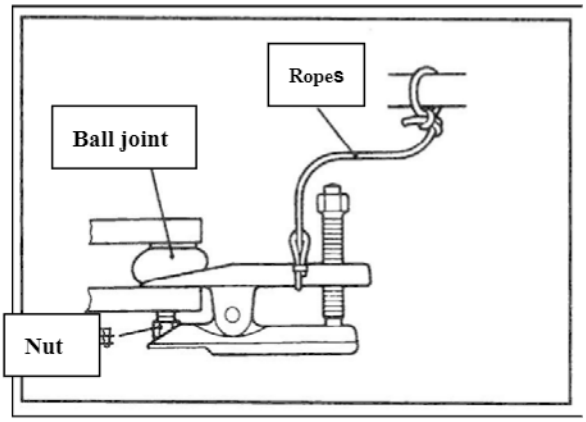
3) When the steering angle exceeds the scope of standard value, the toe-in may have troubles, then adjust the toe-in, finally inspect the steering angle again.

4)

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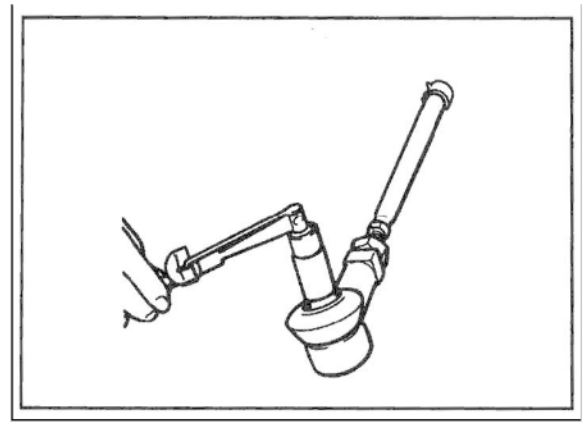
III Inspection of the Starting Torque of Steering Tie Rod Ball Joint

1) Apply special tools to disconnect steering tie rod and knuckle.



2) When the starting torque exceeds standard value, replace the steering tie rod end.

3) When the starting torque is less than standard value, inspect ball joint to see whether there exists axial play or engagement problem. If there is no problem, the said ball joint still can be used.

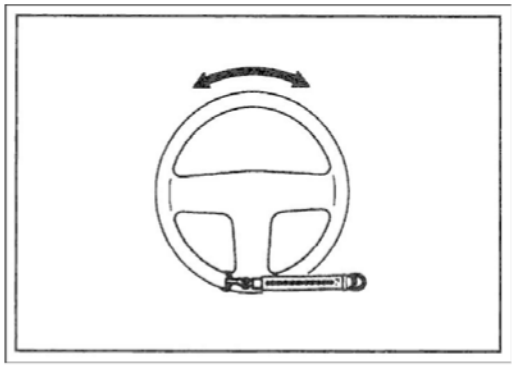


IV Inspection of Static Steering Force

1) Park the vehicle at a level road, and turn the steering wheel right ahead. Start the engine, adjust engine speed to 1000±100r / min.

Caution: after examining the engine speed, by all means return it back to standard idle speed.

2) Connect a spring balance to the outer circle of steering wheel, then measure the steering force required when turning the steering wheel leftward and rightwards (within 1.5 circles) at dead-ahead position. Additionally, the required steering force shall also be inspected to see whether there exists obvious fluctuation.



Standard steering force: less than 34N.

Fluctuation tolerance: less than 5.9N.

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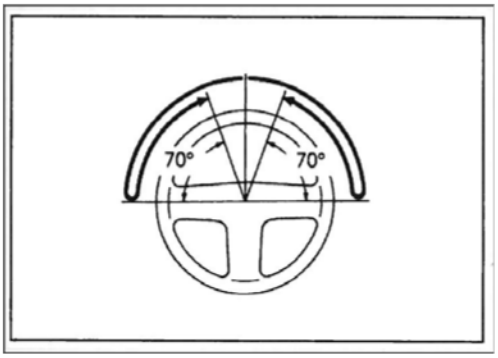
3) If the measured force exceeds standard value, please refer to trouble shooting section for inspection and adjustment.

VInspection of the Performance of Steering Wheel Returning Back to the Center

This test shall be performed during road performance test and inspect the following contents:

1) Make smooth turn and sharp turn, then check the driving "sense" to ensure there is no difference between left and right turning in terms of steering force and steering wheel returning center.

2) When vehicle speed is between 20 to 30km / h, turn the steering wheel by 90°, after 1 or 2 seconds and release the steering wheel. If steering wheel subsequently returns over 70°, the returning function can be deemed as all right.



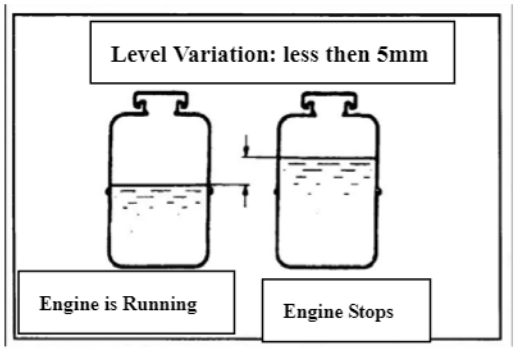
Remark: when rapidly turning the steering wheel, there will be a transient sense of “heavy”, however, this does not indicate it is abnormal (this is because of insufficient oil supply of oil pump during the period of idle speed).

VI Inspection of Liquid Level

Park the vehicle at a horizontal and level road, and then start the engine. After that, turn the steering wheel for several times to heat the oil to 50 - 60°C.

1) When the engine is running, turn the steering wheel left and right to the limit position, and repeat this operation for several times.

2) Check the oil reservoir to see whether there are foams or presents milk-like material, and check the liquid level difference when the engine is off and running. If liquid level variation exceeds over 5mm, the air shall be exhausted.



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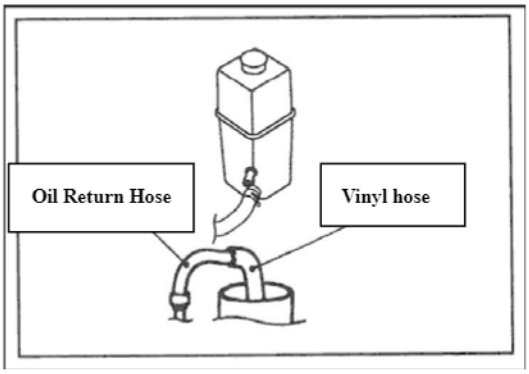
VII Replacement of Steering Gear Oil

1) Jack the front wheel, and apply rigid bracket to sustain it.

2) Disengage the oil-return hose coupling.

3) Connect vinyl hose onto oil-return hose, and then drain the oil into a container.

4) Disconnect high voltage cable, then discontinuously run the starting motor, in the mean time, turn the steering wheel left and right to the limit position and repeat this operation for several times to discharge all of the steering gear oil.



Caution: never place high voltage cable beside a carburetor or oil outlet pipe.

5) Firmly connect the oil-return hose, and then secure it by fastener.

6) Fill specified steering gear oil into oil reservoir till reach the lower limit position of oil filter, and then exhaust the air. Specified steering gear oil: automatic transmission oil ATFIII.

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