

Chapter Four Suspension and Axle

Section One Specifications

Specifications of fixings

Part No.	Qty	Fixing torque (N·m)	Remarks	Method of testing
Q32208	4	23±3	Connection between reinforcing bar and car body	
Q33010	6	50±5	Fixing between rear sliding bar and car body	
B11-2810015	2	150±15	Fixing subframe and car body	
Q330B14	2	150±15	Fixing subframe and car body	
B11-2911041	2	110±10	Fixing rear sliding bar	
Q330B12	2	110±10	Fixing rear axle and car body	
B11-3301017	2	110±10	Fixing rear axle and car body	
B11-2911043	2	110±10	Fixing rear sliding bar	
Q184B1260	6	90±8	Fixing rear axle bracket and car body	
Q33010	3	50±5	Fixing front suspension	
Q184B1255	2	80±6	Fixing girder and car body	
Q151B1245	2	80±6	Fixing girder and car body	
Q184C1020	4	50±5	Fixing rear stabilizer bar	
B11-2919027	2	110±10	Fixing front rocker arm of rear suspension	
Q1841280	10	110±10	Fixing rear rocker arm of rear suspension	
B11-2919030	1	110±10	Fixing left and right fork arms	
Q33014	4	130±5	Fixing rear brake disc	
Q18414100	2	130±10	Fixing rear axle bracket	
B11-2909011	2	110±10	Fixing joint plate and control arm	
Q184C1020	6	90±8	Fixing joint plate and subframe	
Q1841490	2	180±15	Fixing control arm and subframe	
Q184C1020	2	50±5	Fixing stabilizer bar and subframe	
Q33810	4	50±5	Fixing stabilizer bar and joint bar	
Q33010	2	50±5	Fixing stabilizer bar and subframe	
Q184B1260	2	135±10	Fixing front sliding bar and brake disc	
Q330B12	2	135±10	Fixing front sliding bar and brake disc	
Q184B1260	2	135±10	Fixing front sliding bar and brake disc	

Q330B12	2	135±10	Fixing front sliding bar and brake disc	
Q184B1250	2	105±10	Fixing brake and control arm	
Q330B12	2	105±10	Fixing brake and control arm	
N0111862	2	35±3	Fixing redirector and brake disc	
B11-2203205	2	180±15	Fixing drive nuts	Pre-tightened
B11-3100111	16	110±10	Connecting tyre and brake disc	Pre-tightened
B11-2203205	2	270±10	Fixing drive nuts	Retightened
B11-3100111	16	110±10	Connecting tyre and brake disc	Retightened

Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

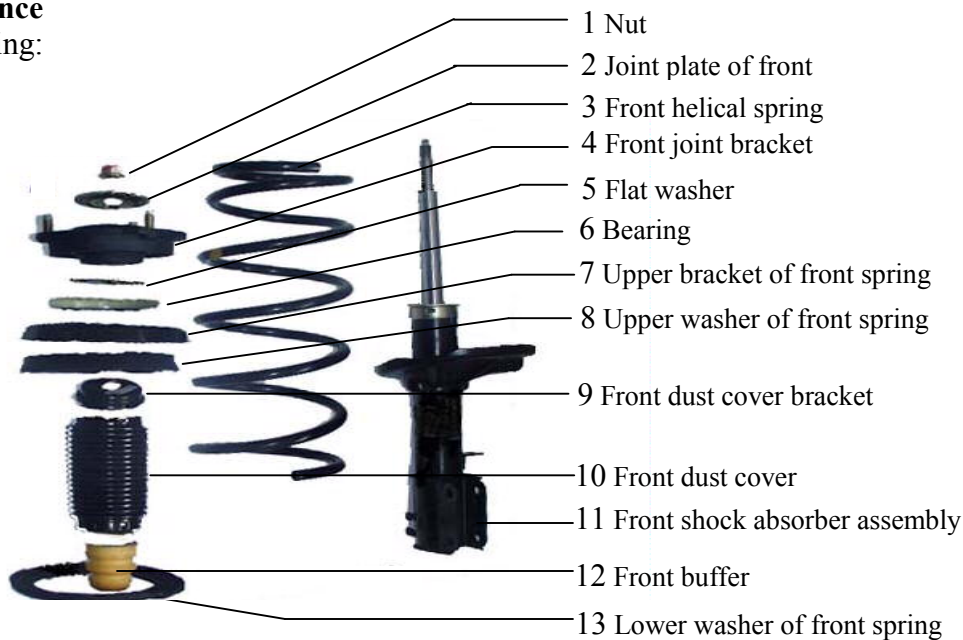
1. Pre-tighten with a torque of 100Nm, release the grooved nut, fasten with a torque of 20Nm and turn 90°. If the split pinhole does not match with the grooved nut, then release it, go to the next hole and fix with the split pin.
2. Pre-tighten with a torque of 50Nm, increase the torque to 90Nm and turn 45 to 60°.
3. Pre-tighten with a torque of 90Nm and then turn 30 to 45°.
4. Pre-tighten with a torque of 50Nm and then turn 90 to 105°.

Section Two. Fixing and Unfixing of Front Shock Absorber

Chery SQR724OT/7200T is assembled with detached steering drive axle as the front axle of a McPherson suspension. B11's front suspension functions as both driving and steering devices. The suspension's upper part is connected with the car body and its lower part is connected with the knuckle. The camber of wheels is adjusted through the joint bolts of suspension and knuckle. The subframe is connected to the car body with an elastic device that increases driving stability and comfort.

One. Appearance

Structure drawing:



- Place the lower washer of front spring 13 onto the bracket of shock absorber 11, hitch the front buffer 12, front dust cover 10 and front dust cover bracket 9 onto the piston of front shock absorber, fix front helical spring 3, compress it to below 250mm, fix upper washer 8 of front spring, upper bracket 7 of front spring, bearing assembly 6, flat washer 5, front joint bracket assembly 4, joint plate of front shock absorber 2, fasten nut 1 with the specified torque (65~75Nm) and release the compressor of the helical spring.
- Make sure that both ends of the front helical spring are butted against the spring bracket appropriately.
- Make sure that the fixing angle of the upper bracket of front spring is proper to avoid damaging the bearing.

Two. Fixing and unfixing of front shock absorber

Unfixing steps:

1. Jack up the car with a jack and unfix the front wheel.
2. Unfix the hose and ABS auto speed sensor wire (with ABS system), hose bracket and braking wire clamp from the shock absorber.
3. Unfix the shock absorber from the knuckle.
 - (1) Screw off the two nuts and bolts on the lower part of the shock absorber.
 - (2) Take the shock absorber off the knuckle.Note: apply engine oil onto the nut threads.
4. Unfix the shock absorber together with its helical springs.
 - (1) Unfix three nuts on the shock absorber.
 - (2) Unfix the shock absorber together with its helical springs.



Fixing steps:

1. Fix with reference to the unfixing steps;

2. Caution:

① Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

② Fasten each bolt with the required torque.

③ Check the wheel alignment after installation.

Three. Check

1. Check shock absorber

Check if the shock absorber suffers oil leakage and replace if so; check the damp of the shock absorber and replace if unsatisfactory.

Check if the thrust bearing is worn out, too noisy and stuck; check if the lower bracket of spring suffers any rupture or deformation; check if the limit block is damaged; check the suspension spring limit washer is worn out, cracked or deformed. Replace all defected parts.

Note: follow the following instructions if the shock absorber is to be discarded.

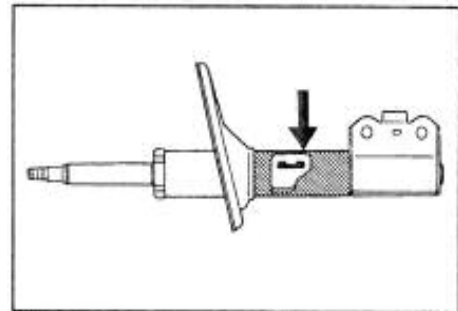
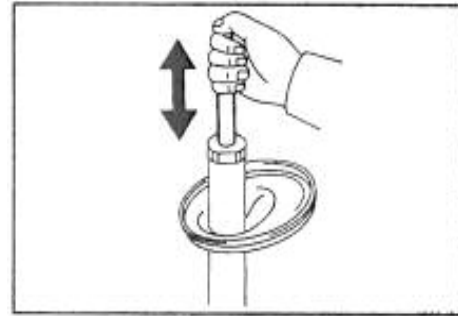
2. Discarding of shock absorber

(1) Stretch the shock absorber pole as much as possible.

(2) Drill to let out the gas inside the shock absorber cylinder.

Drill one hole in the cylinder with a drill to let out the gas inside.

Caution: the gas is not harmful; but do watch out for any possible flying scrap irons during drilling.



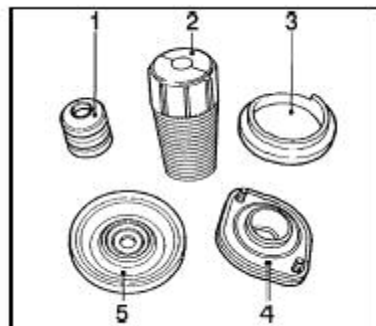
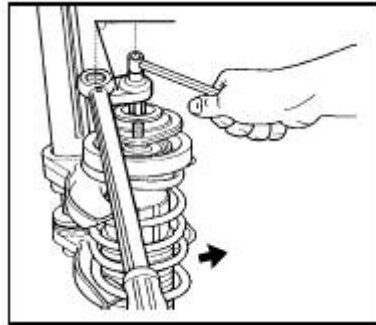
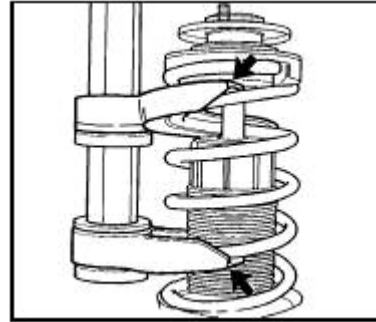
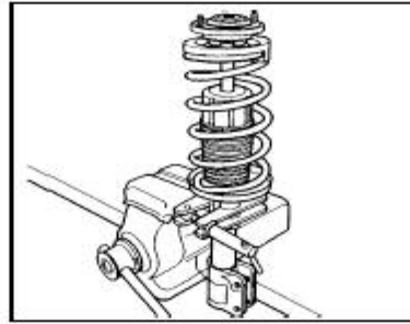
Four. Fixing and unfixing of shock strut, shock strut parts and/or springs

1. If the assembly clamp cannot be fixed onto the worktable, then fix it in a bench vice.
2. Fix one jaw, which fits the spring diameter onto the spring compressor.

Unfixing steps:

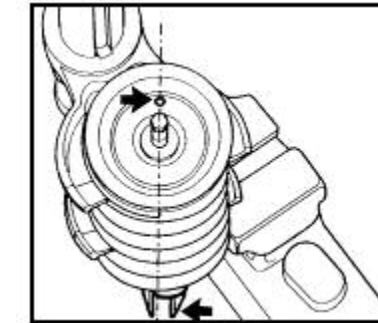
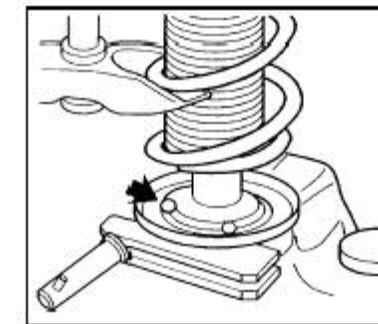
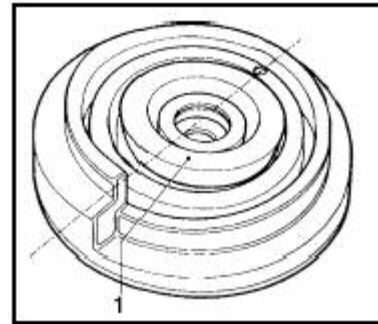
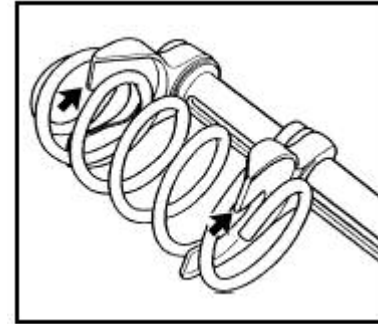
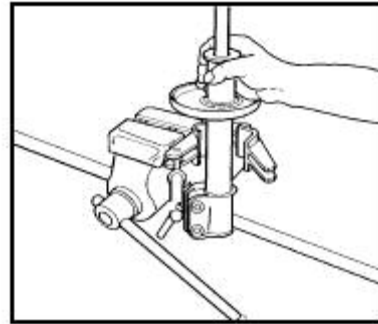
1. Release the spring compressor and then place the jaw between the top and bottom of the spring (as the arrow shows).
2. Compress the spring until it is detached from the upper and lower spring brackets.
3. Unfix the shock strut bracket together with the limit switch and washer from the connecting rod using a pair of ratchet spanners.
4. Unfix the upper spring bracket that is incorporated with a shock pad
5. Unfix the spring compressor that is incorporated with a spring and dust cover.
6. Unfix the buffer.
7. Check the unfixed components:
 - 1) Buffer
 - 2) Dust cover
 - 3) Shock spacer
 - 4) Shock strut bracket
 - 5) Upper spring bracket incorporated with a bearing and limit switch.

8. If the old absorber needs replacement, then unfix the old absorber, unfix the wheel speed sensor wire harness bracket and fix it to the new shock absorber (if there is no wheel speed sensor wire harness bracket, then replace the shock absorber directly).



Fixing steps:

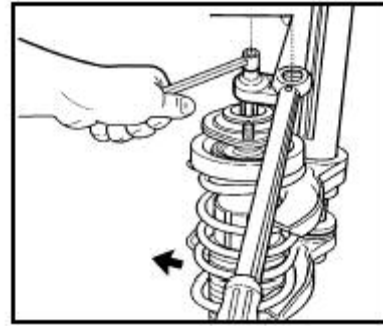
1. Fix the new shock absorber into the clamping apparatus.
2. If it is necessary to replace the old spring, then release the spring and take it out of the spring compressor.
3. Fix the new spring into the spring compressor with one turn of coil left on top and one and a half turn of coil left at bottom.
4. Compress the spring to realize the jaw distance of $\leq 120\text{mm}$.
5. Confirm the position of buffer limit switch (1).
6. Fix the buffer and pull the connecting rod to the utmost.
7. Fix the spring into the spring bracket.
Note:
The end of the spring shall match the alignment hole (as the arrow shows)
8. Fix the upper spring bracket that is incorporated with a shock pad to the extent that the punched hole is deviated 180° from the lower spring bracket (as the arrow shows).
9. Fix the spacer bearing and localizer.



10. Fix the new set screw.
11. Fasten the new set screw.

Note:

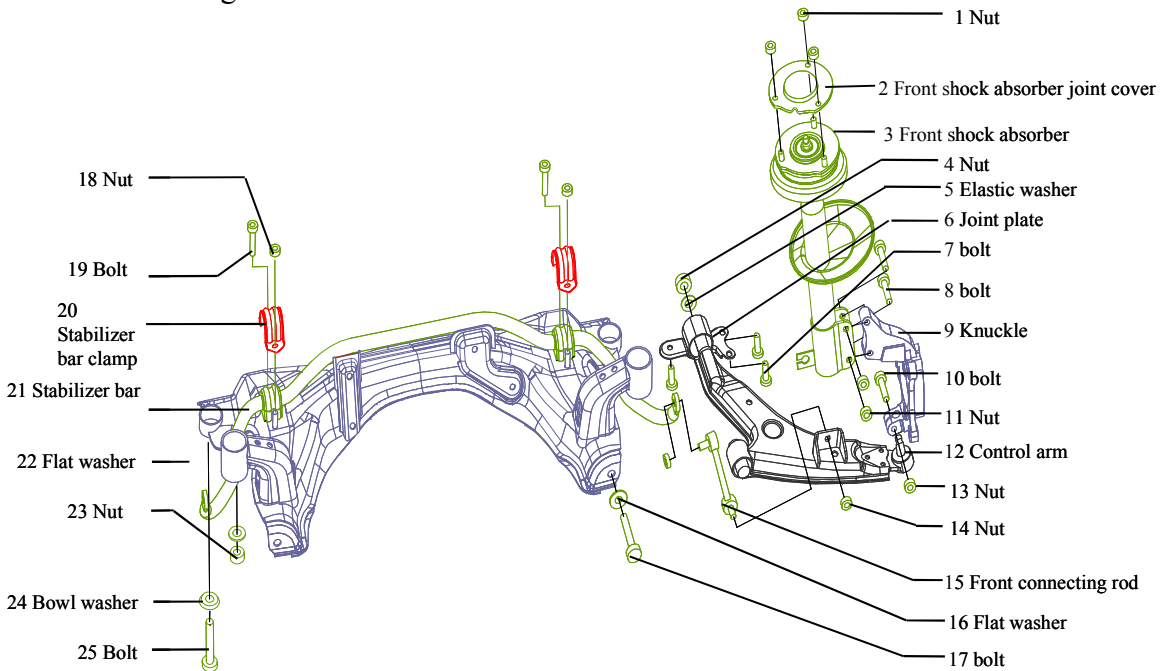
Use the spanners vertically (as the figure shows).



Section Two. Front axle and front suspension

One. Appearance

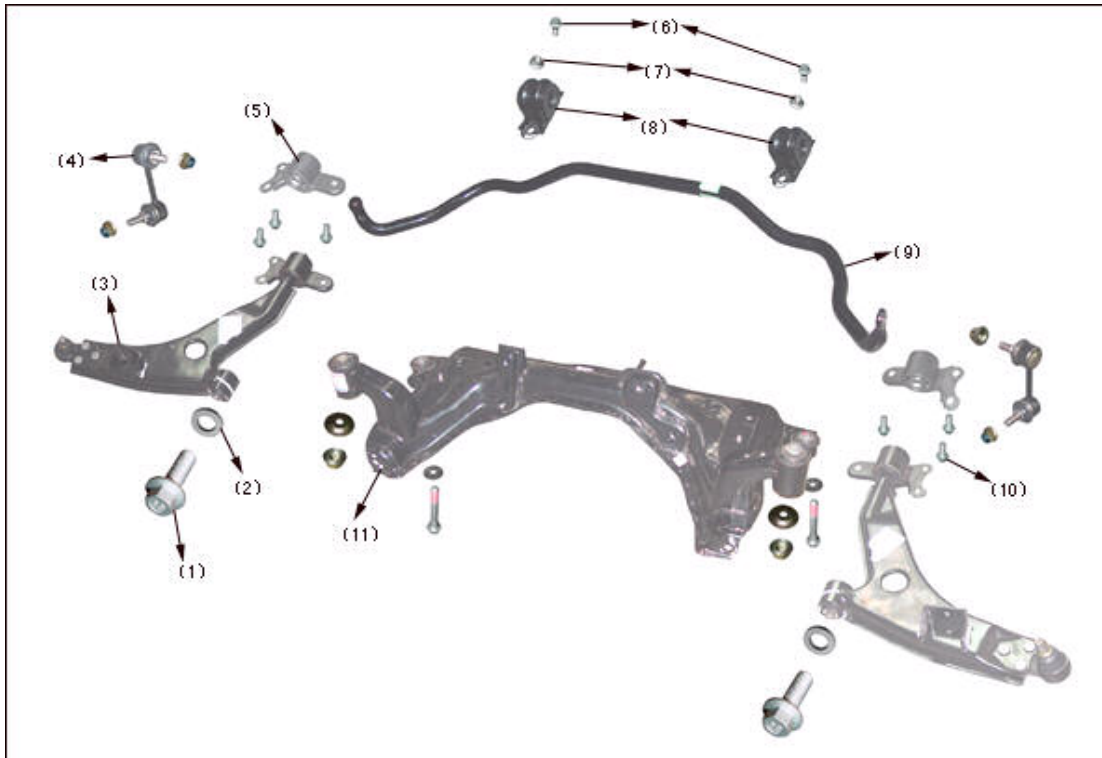
Structure drawing:



- Use elastic washer 5 and nut 4 to connect the joint plate assembly 6 with the control arm assembly 12, screw with the required torque. The same procedure applies to both the left and right sides.
- Use flat washer 16, bolt 17 and three pieces of bolt 7 to connect the control arm with the subframe. The same procedure applies to both the left and right sides.
- Fix clamp 20 onto the gum cover of stabilizer bar assembly 21, fasten bolt 19 and nut 18 with the required screwing torque. The same procedure applies to both the left and right sides.
- Use bolt 8 and nut 11 to fix the front shock absorber assembly with knuckle 9.
- Use bolt 10 and nut 13 to connect knuckle and the ball pin of control arm assembly; screw with the required torque.

- Use nut 14 to connect the front connecting rod assembly 15 with stabilizer bar assembly and control arm assembly respectively and fasten with the required torque.
- Use bowl washer 24, bolt 25, flat washer 22 and nut 23 to connect the subframe and car body and fasten with the required torque.
- Fix the three bolts of front shock absorber assembly into the fixing holes in the car body and place front shock absorber joint cover 2; match the cover notch with the car body and fasten nut 1 with the required torque.

Two. Structure drawing of front axle



1. Bolt 2. Bowl washer 3. Control arm 4. Connecting rod
5. Joint plate 6. Bolt 7. Nut 8. Clamp 9. Stabilizer bar 10. Bolt 11. Front axle

Three. Fixing and unfixing of front wheel rocker arm

Tools required: 13#, 15# and 8# sockets, 15# spanner, short joint bar, torque spanner, quick spanner.

Unfixing steps:

1. Jack up the auto with a jack and dismantle the wheel.
2. Release the set bolts connecting the front connecting rod and the rocker arm

and take out the front connecting rod.



3. Release the set bolts for the rocker arm and the horn.



4. Release the set bolts for the rear gum cover of rocker arm and the front axle.



5. Release the set bolts for the gum cover of lower rocker arm and front axle.

①Release the three joint bolts of rear bracket.



②Avoid to detach the lower rocker arm while releasing the bolt.



6. Unfix the lower lever off the auto.

Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

②Fasten the bolts with the required torque.

Four. Fixing and unfixing of front connecting rod of front wheel equalizer bar

Tools required: 15# socket, quick spanner

Unfixing steps:

1. Release the set bolts for the connecting rod and the equalizer bar.
2. Release the set bolts for the front connecting rod and the rocker arm.



Fixing steps:

1. Fix with reference to the unfixing steps.
2. Note:

①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

②Fasten the bolts with the required torque.

Five. Fixing and unfixing of front connecting rod bushing

Tools required: 15# and 18# spanners
hammer

1. Release the set bolts which connect the left and right front connecting rods with the equalizer bar.
2. Release the set bolts for the left and right connecting rod bushings.
3. Release the fixing jaw of equalizer bar bushing and move the equalizer bar forward to take out the bushing.



Fixing steps:

1. Fix with reference to the unfixing steps.
2. Note:

①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

②Fasten the bolts with the required torque



Six. Fixing and unfixing of front connecting rod

Unfixing steps:

1. Unfix the front axle (refer to Fixing and Unfixing of Front Axle)
2. Release the four set bolts on equalizer bar bushing and take down the equalizer bar.

Fixing steps:

1. Fix with reference to the unfixing steps.
2. Note:
 - ①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
 - ②Fasten the bolts with the required torque



Seven. Fixing and unfixing of front axle assembly

Tools required: 18, 19, 21 # sockets, 15# spanner, short connecting rod, torque spanner

Unfixing steps:

1. Release the three set bolts for the front exhaust pipe and engine manifold exhaust pipe.
2. Release the two set bolts for the front exhaust pipe and three-way catalytic converter.
3. Release the two fixing lugs of the exhaust pipe and take out the front exhaust pipe.
4. Release the set bolts for the front connecting rod and equalizer bar.
5. Unfix left and right rocker arm (refer to Fixing and Unfixing of Rocker Arm).
6. Release the four set bolts of the steering gear and the front axle.



7. Release the set bolts for the steering gear and the engine bracket in the front axle.

8. Release the four set bolts of the front axle.

①Screw off the set bolts of the front axle (1) (2) (3) (4).

② Take down the front axle.



(1)



(2)



(3)



(4)





Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

① Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

② Fasten the bolts with the required torque

Eight. Fixing of transmission shaft assembly

- Fix the inner rzeppa spline of the transmission shaft assembly into the gearbox output shaft.

- Fix the outer rzeppa spline of the transmission shaft assembly into the spline groove of front wheel hub, fix the washer and nut into the transmission shaft groove.

- The fixing steps of left and right transmission shafts are the same.

Section Three. Fixing and Unfixing of Shock Absorber of Rear Suspension

One. Appearance of Rear Shock absorber



Two. Fixing and unfixing of rear shock absorber

Unfixing steps:

1. Unfix the rear seat backrest (see Car Body).
2. Unfix the rear wheel.
3. Unfix the brake hose and ABS speed sensor wires from the shock absorber.
4. Unfix the shock absorber that is incorporated with a helical spring.
 - (1) Release the set bolts on the lower part of the shock absorber.
 - (2) Jack up the rear axle with a jack.
 - (3) Screw off the nut.
 - (4) Release the middle nut of suspension bracket.

Note: do not unfix it.



- (5) Screw off the three nuts on the suspension bracket.
- (6) Unfix the shock absorber and helical spring.

Fixing steps:

1. Fix with reference to the fixing steps;
2. Caution:
 - ① Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
 - ② Fasten each bolt with the required torque.
 - ③ Check the wheel alignment after installation.



Three. Check on shock absorber

1. Check shock absorber

- ① Check if the shock absorber suffers oil leakage and replace if so. Check the damp of the shock absorber and replace if unsatisfactory.
- ② Check if the thrust bearing is worn out, too noisy and stuck. Check if the lower bracket of spring suffers any rupture or deformation; check if the limit block is damaged; check if the suspension spring limit washer is worn out, cracked or deformed. Replace all defected parts.

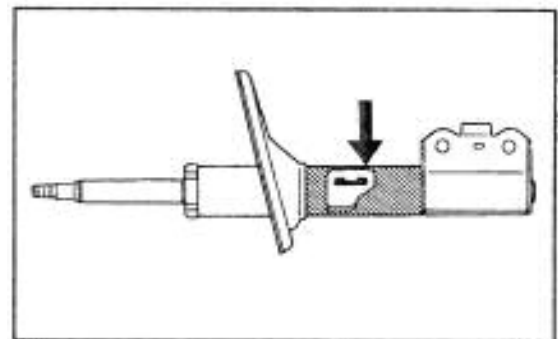
Note: follow the following instructions if the shock absorber is to be discarded.



2. Discarding

- (1) Stretch the shock absorber pole as much as possible.
- (2) Drill to let out the gas inside the shock absorber cylinder.
Drill one hole in the cylinder with a drill to let out the gas inside.

Caution: the gas is not harmful; but do watch out for any possible flying scrap irons during drilling.



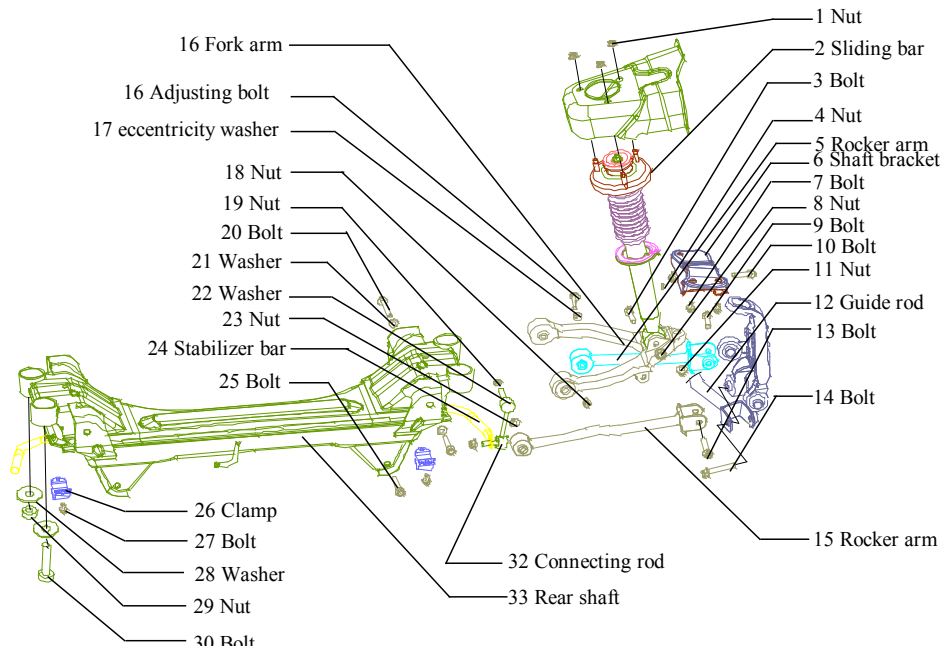
Four. Fixing and unfixing of shock strut, shock strut parts and/or springs

Please refer to the fixing and unfixing steps of the shock strut, shock strut parts and/or springs of the front shock absorber.

Section Four. Fixing and Unfixing of Rear Axle and Rear Suspension

One. Appearance

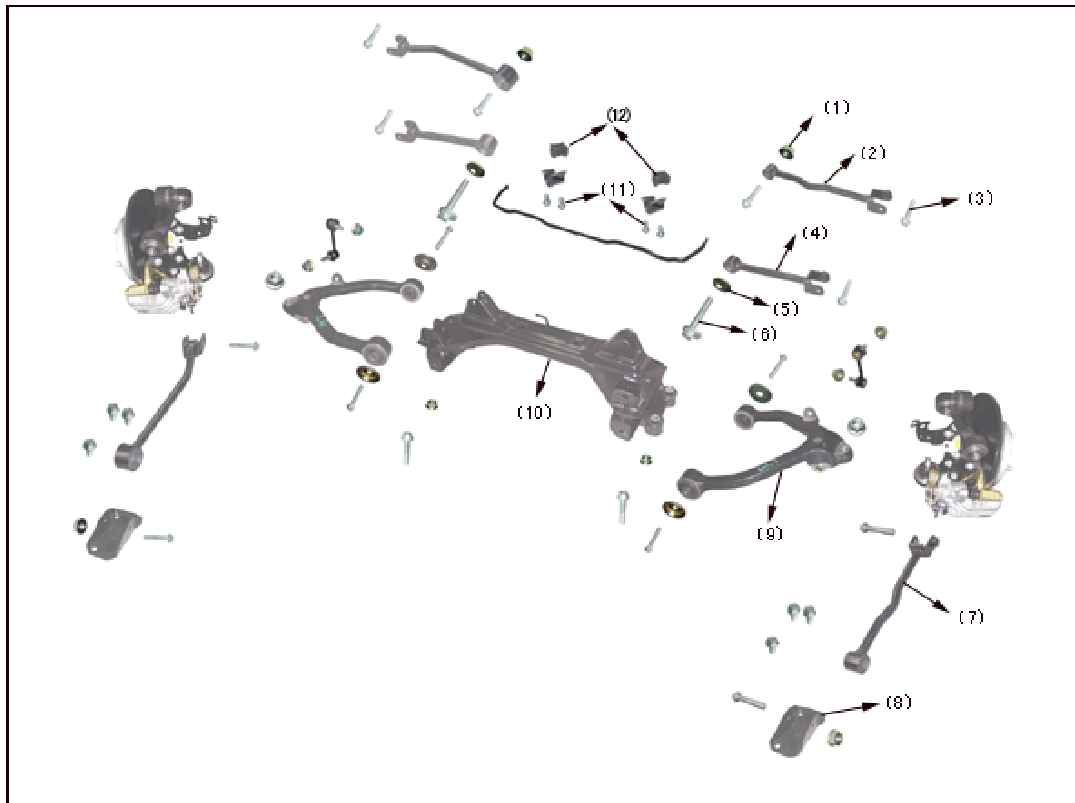
Structure drawing:



- Use adjusting bolt 16, eccentric flat washer 17 and nut 18 to connect front rocker arm assembly 5 and rear shaft assembly 31 together. The same procedure applies to the left and right side. Do not fasten it.
- Use bolt 25 and nut 23 to connect the rear rocker arm assembly 5 and rear shaft assembly 31. The same procedure applies to both the left and right sides. Do not fasten it.
- Use bolt 20 and washer 21 to connect the fork arm assembly and the rear shaft assembly 31. The same procedure applies to both the left and right side. Do not fasten it.
- Use bolt 9 and bolt 13 to connect the front/rear rocker arm assemblies and the knuckle. The same procedure applies to both the left and right side. Do not fasten it.
- Use nut 11 to connect the fork arm assembly and the knuckle; use bolt 14 to connect the rear rocker arm assembly and the knuckle; use bolt 10 and nut 4 to connect the rear rocker arm assembly and rear shaft bracket 6. The same procedure applies to both the left and right side. Do not fasten it.
- Use nut 1 to connect the front and rear sliding bar assembly to the car body and fasten with the required torque. The same procedure applies to both the left and right side.

- Use washer 28, nut 29 and washer 28, bolt 30 to connect the rear shaft assembly 31 with the car body and fasten with the required torque. The same procedure applies to both the left and right side.
- Use bolt 3 and nut 8 to connect the rear sliding bar assembly with the fork arm and fasten with the required torque. The same procedure applies to both the left and right side.
- Fasten all bolts and nuts with the required torque.

Two. Structure drawing of rear axle



- (1) Nut (2) Front Rocker Arm (3) Bolt (4) Rear Connecting Rod
 (5) Washer (6) Bolt (7) Rear Rocker Arm (8) Joint Plate (9) Fork Arm
 (10) Rear Axle (11) Bolt (12) Clamp

Three. Fixing and unfixing of rear wheel stabilizer bar

Tools required:

1. 10cm socket
2. 15cm spanner
3. 13cm spanner
4. Connecting bar
5. Quick spanner, 18cm socket

Unfixing steps:

Step 1: dismantle the wheel

Step 2: release the set bolts for the rear stabilizer bar and rear connecting rod



Step 3: release the set bolts of rear stabilizer bar and pull out the stabilizer bar.



Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

- ①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
- ②Fasten the bolts with the required torque

Four. Fixing and unfixing of the rear connecting rod of the rear wheel

Tools required: 15cm socket, 18cm socket

Unfixing steps:

Step 1: release the two set bolts of the rear connecting rod.

Step 2: take out the rear connecting rod



Fixing steps:

1. Fix with reference to the unfixing steps.
2. Note:
 - ①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
 - ②Fasten the bolts with the required torque

Five. Fixing and unfixing of rear rocker arm assembly of rear wheel

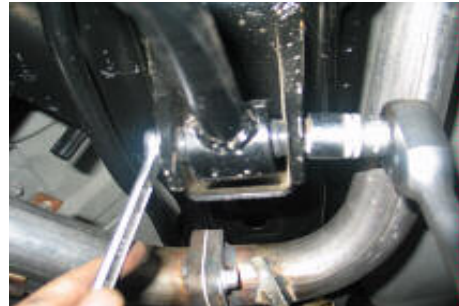
Tools required: 15cm socket, 18cm socket

Unfixing steps:

Step 1: release the set bolts for rear rocker arm and the horn.



Step 2: release the set bolts for rear rocker arm tie rod and the crossbeam and pull out the tie rod.



Fixing steps:

1. Fix with reference to the unfixing steps.
2. Note:
 - ①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
 - ②Fasten the bolts with the required torque

Six. Fixing and unfixing of rear wheel longitudinal stay bar.

Tools required: 18cm socket, short bar, 21cm spanner, short connecting rod, 18cm spanner.

Unfixing steps:

Step 1: release the two set bolts of the tie rod of longitudinal stay bar.



Step 2: take down the longitudinal tie bar.

Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

- ①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
- ②Fasten the bolts with the required torque

Seven. Fixing and unfixing of the front rocker arm assembly of the rear wheel

Tools required: 19cm socket, 17cm spanner, 15cm spanner

Unfixing steps:

Step 1: release the set bolts of the front rocker arm tie rod and the horn.

Step 2: release the set bolts of front rocker arm tie rod and rear axle assembly.

Step 3: replace the front rocker arm of the rear wheel (please note that the cam before the rear wheel need to be adjusted).

Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

- ①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
- ②Fasten the bolts with the required torque

Eight. Replacing the fork arm assembly of rear wheel

Tools required: 21cm socket, 15cm socket, 18cm socket, connecting rod and quick spanner

Unfixing steps:

Step 1: release the set bolts for the shock absorber and the fork arm.



Step 2: release the set bolts of rocker arm horn.



Step 3. release the set bolts of small connecting rod and the fork arm.



Step 4: release the two set bolts for the fork arm and the rear axle.

- ①Release front set bolts of the fork arm
- ②Release rear set bolts of the fork arm



Step 5: screw off the set bolts and take out the fork arm.

Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

- ①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.
- ②Fasten the bolts with the required torque



Nine. Replacing rear wheel shock absorber

Tool required: 15cm socket, quick spanner, 21cm socket, short connecting rod, torque spanner, 19cm socket

Unfixing steps:



Step 1: dismantle the wheel and jack up the car.

Step 2: release the three set bolts above the shock absorber.

Step 3: release the set bolts for the shock absorber and horn.



Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

②Fasten the bolts with the required torque

Ten. Fixing and unfixing of rear axle

Tools required: one set of sockets, connecting rod, torque spanner

Unfixing steps:

Step 1: dismantle the left and right wheel and jack up the car.

Step 2: release the middle and rear exhaust pipes.



Step 3. release the set bolts for shock absorbers and rocker arms on both sides.



Step 4: release the set bolts of manual brake cable and ABS wire harness (see Brake Assembly)



Step 5: release the set bolts for the horn and the rocker arm.



Step 6: release the set bolts of the brake sub-pump and displace the brake sub-pump.

Step 7: release the set bolts for left and right longitudinal stay bars.

Step 8: support the rear axle with the gearbox bracket, release the set bolts for rear axle and car body and dismantle the rear axle.

Fixing steps:

1. Fix with reference to the unfixing steps.

2. Note:

①Released set bolts which are subject to yielding limit in terms of torque + angle fixing during bolting must be replaced.

②Fasten the bolts with the required torque