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**METRIC FASTENERS STANDARD TIGHTENING TORQUE**

Each fastener should be tightened to the torque specified in each section of this manual.

If no description or specification is provided, refer to the following tightening torque chart for the applicable torque for each fastener. When a fastener of greater strength than the original one is used, however, use the torque specified for the original fastener.

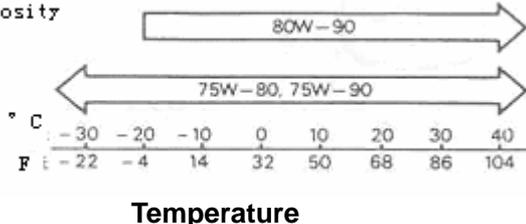
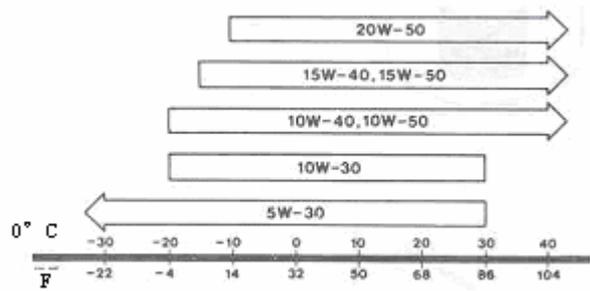
**NOTE:**

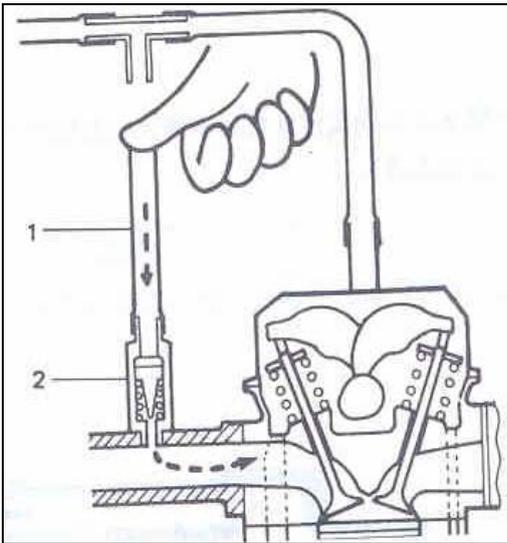
● For the flanged bolt, flanged nut and self-lock nut of 4T and 7T strength, add 10% to the tightening torque given in the following chart.

● The following chart is applicable only where the fastened parts are made of steel light alloy.

**Tightening Torque Table**

THREAD DIAMETER(mm)		4	5	6	8	10	12	14	16	18
STRENGTH										
equal to 4T strength torque 	N·m	1.5	3.0	5.5	13	29	45	65	105	160
	kg·m	0.15	0.30	0.55	1.3	2.9	4.5	6.5	10.5	16
	lb·ft	1.0	2.5	4.0	9.5	21.0	32.5	47.0	76.0	116.0
flangeless equal to 6.8 strength torque 	N·m	2.4	4.7	8.4	20	42	80	125	193	280
	kg·m	0.24	0.47	0.84	2.0	4.2	8.0	12.5	19.3	28
	lb·ft	2.0	3.5	6.0	14.5	30.5	58.0	90.5	139.5	202.5
flange equal to 6.8 strength torque seal lock nut 	N·m	2.4	4.9	8.8	21	44	84	133	203	298
	kg·m	0.24	0.49	0.88	2.1	4.4	8.4	13.3	20.3	29.8
	lb·ft	2.0	3.5	6.5	15.5	32.0	61.0	96.5	147.0	215.5
flangeless equal to 7T strength torque 	N·m	2.3	4.5	10	23	50	85	135	210	240
	kg·m	0.23	0.45	1.0	2.3	5.0	8.5	13.5	21	24
	lb·ft	2.0	3.5	7.5	17.0	36.5	61.5	98.0	152.0	174.0
flangeless equal to 8.8 strength torque 	N·m	3.1	6.3	11	27	56	105	168	258	373
	kg·m	0.31	0.63	1.1	2.7	5.6	10.5	16.8	25.8	37.3
	lb·ft	2.5	4.5	8.0	19.5	40.5	76.0	121.5	187.0	270.0
flange equal to 8.8 strength torque 	N·m	3.2	6.5	12	29	59	113	175	270	395
	kg·m	0.32	0.65	1.2	2.9	5.9	11.3	17.5	27	39.5
	lb·ft	2.5	5.0	9.0	21.0	43.0	82.0	126.5	195.5	286.0

<p>5</p>	<p><b>Super grease (E)</b> (99000-25050)</p>	<ul style="list-style-type: none"> <li>● Apply the steering case (rack and pinion) interior parts.</li> </ul>						
<p>6</p>	<p><b>Gear oil</b></p> <table border="1" data-bbox="223 465 813 600"> <thead> <tr> <th>Gear oil standard</th> <th>SAE</th> </tr> </thead> <tbody> <tr> <td>Transmission oil rank</td> <td>75W-85 GL-4</td> </tr> <tr> <td>Differential oil rank</td> <td>75W-85 GL-5</td> </tr> </tbody> </table> <p>SAE viscosity chart</p>  <p>The chart shows two horizontal bars representing temperature ranges. The top bar is labeled '80W-90' and spans from approximately -10°C to 40°C. The bottom bar is labeled '75W-80, 75W-90' and spans from -30°C to 40°C. Below the bars are two temperature scales: Celsius (°C) from -30 to 40 and Fahrenheit (°F) from -22 to 104.</p>	Gear oil standard	SAE	Transmission oil rank	75W-85 GL-4	Differential oil rank	75W-85 GL-5	<ul style="list-style-type: none"> <li>● Transmission case                     <ul style="list-style-type: none"> <li>4speed : 1.0l[2.1/1.8 (American/British) pint]</li> <li>5speed : 1.3l[2.7/2.3 (American/British) pint]</li> </ul> </li> <li>● Transmission gear and bearing.</li> <li>● Differential gear case(hyperbola gear oil)                     <ul style="list-style-type: none"> <li>1.3l[2.7/2.3 (American/British) pint]</li> </ul> </li> </ul>
Gear oil standard	SAE							
Transmission oil rank	75W-85 GL-4							
Differential oil rank	75W-85 GL-5							
<p>7</p>	<p><b>Silicon grease</b> (99000-25190)</p>	<ul style="list-style-type: none"> <li>● Steel plate spring bush</li> </ul>						
<p>8</p>	<p><b>4 Stroke engine oil</b> Recommend to use SE, SF, SG or SH engine oil.</p> <p>Condign engine oil viscosity chart</p>  <p>The chart shows five horizontal bars representing temperature ranges for different oil grades. From top to bottom: '20W-50' (approx. -10°C to 40°C), '15W-40, 15W-50' (approx. -20°C to 40°C), '10W-40, 10W-50' (approx. -30°C to 40°C), '10W-30' (approx. -30°C to 30°C), and '5W-30' (approx. -30°C to 30°C). Below the bars are two temperature scales: Celsius (°C) from -30 to 40 and Fahrenheit (°F) from -22 to 104.</p>	<ul style="list-style-type: none"> <li>● Engine oil pan:                     <ul style="list-style-type: none"> <li>( Be used in the period of replacing engine oil )</li> </ul> </li> <li>● Crankshaft neck and pulley</li> <li>● connecting rod big end and little end bearing</li> <li>● Camshaft neck</li> <li>● Valve rocker shaft</li> <li>● Oil pump gear</li> <li>● Piston and piston ring</li> <li>● Engine oil seal</li> <li>● Valve rod</li> <li>● Accelerate pedal, brake and clutch pedal axes</li> <li>● Door lock and hinge</li> <li>● Shunt gear</li> </ul>						



1. PCV hose    2. PCV valve

**Engine idle speed inspection**

Check the rotate speed of idle speed adjust as necessary. A bout the steps of engine idle speed inspection and adjustment, refer to engine service.

<b>Engine Type</b>	DA465QE/2F	DA471Q	K14
<b>idle speed</b>	850 ± 50r/min	900r/min	

**Fuel Evaporative Emission Control System Inspection**

**Crankcase PCV Valve Inspection**

**Ventilation hose and connector**

Check crankcase ventilation hose and PCV hose for leaks, cracks or clog. If there is any bad situation, then fix or replace. Check hose and make sure it is close and firm.

**PCV Valve Inspection**

- 1) Disconnect PCV valve hose from 3-way joint.
- 2) Run engine at idle. Place your finger over end of PCV valve to check for vacuum. If there is no vacuum, check for clogged valve. Replace as necessary.
- 3) Stop engine and connect PCV valve hose to 3-way joint.
- 4) PCV Valve replacement: For validly protecting the vehicle exhaust system, use the PCV valve type and factory which is appointed by my company.

**Fuel Evaporative Emission Control System**

- 1) Visually inspect hoses for cracks, damage, or excessive bends. Inspect all clamps for damage and proper position.
- 2) If malfunction is found, repair or replace.
- 3) Check EVAP canister for operation and clog, refer to “in Section 3 ”.

Condition	Possible	Correction
<p><b>Erratic</b></p>	<p><b>Ignition system</b></p> <ol style="list-style-type: none"> <li>1. Improper ignition timing.</li> <li>2. Defective spark plug, or improper gap.</li> <li>3. High tension cord bad insulation.</li> </ol> <p><b>Electricity injection system</b></p> <ol style="list-style-type: none"> <li>1. Step motor</li> <li>2. Throttle position sensor</li> <li>3. ECU</li> <li>4. Intake temperature pressure sensor</li> </ol> <p><b>Others</b></p> <ol style="list-style-type: none"> <li>1. Air filter dirty and clogged</li> <li>2. Intake system leak</li> <li>3. Exhaust manifold have carbon deposit</li> <li>4. Clearance of valve improperly adjusted</li> <li>5. Valves not seating tight</li> <li>6. Cylinder gasket break</li> </ol>	<p>Adjust</p> <p>Replace or adjust</p> <p>Replace</p> <p>Check circuit or replace</p> <p>Check circuit or replace</p> <p>Replace</p> <p>Check circuit or replace</p> <p>Clean</p> <p>Adjust</p> <p>Clean or replace</p> <p>Adjust</p> <p>Repair</p> <p>Replace</p>
<p><b>Abnormity slap</b> (knocking、advanced sparking、combustion lag)</p>	<p><b>Ignition system</b></p> <ol style="list-style-type: none"> <li>1. Spark plug overheating</li> <li>2. Improper ignition timing</li> </ol> <p><b>Fuel system</b></p> <ol style="list-style-type: none"> <li>1. Fuel quality is not good</li> </ol> <p><b>Electricity injection system</b></p> <ol style="list-style-type: none"> <li>1. knock meter (or have) .</li> <li>2. Intake temperature pressure sensor</li> </ol> <p><b>Others</b></p> <ol style="list-style-type: none"> <li>1. Carbon deposit on piston head or cylinder head</li> <li>2. Abnormity cylinder cushion</li> <li>3. Improper valve clearance</li> <li>4. Valve lock</li> <li>5. Weakened valve spring</li> </ol>	<p>Replace</p> <p>Adjust</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Clean</p> <p>Replace</p> <p>Adjust</p> <p>Repair or replace</p> <p>Replace</p>
<p><b>Overheating</b></p>	<p><b>Ignition system</b></p> <ol style="list-style-type: none"> <li>1. Improper ignition timing</li> <li>2. Spark plug calorie value ineptitude</li> </ol> <p><b>Exhaust system</b></p> <ol style="list-style-type: none"> <li>1. Clogged exhaust pipe</li> </ol> <p><b>Cooling system</b></p> <ol style="list-style-type: none"> <li>1. No enough coolant</li> <li>2. Loose or broken water pump belt</li> <li>3. Erratically working thermostat</li> <li>4. Poor water pump performance</li> <li>5. Leaky radiator</li> </ol>	<p>Adjust</p> <p>Replace</p> <p>Clean</p> <p>Refill and check circle</p> <p>Adjust or replace</p> <p>Replace</p> <p>Replace</p> <p>Repair or replace</p>



Fig. 3-082

Install cylinder head onto cylinder block. Tighten cylinder head bolts gradually with torque wrench to specified torque.

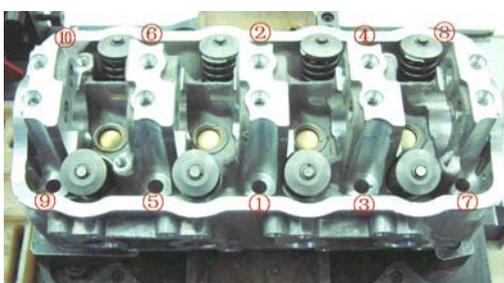


Fig. 3-083

### Camshaft

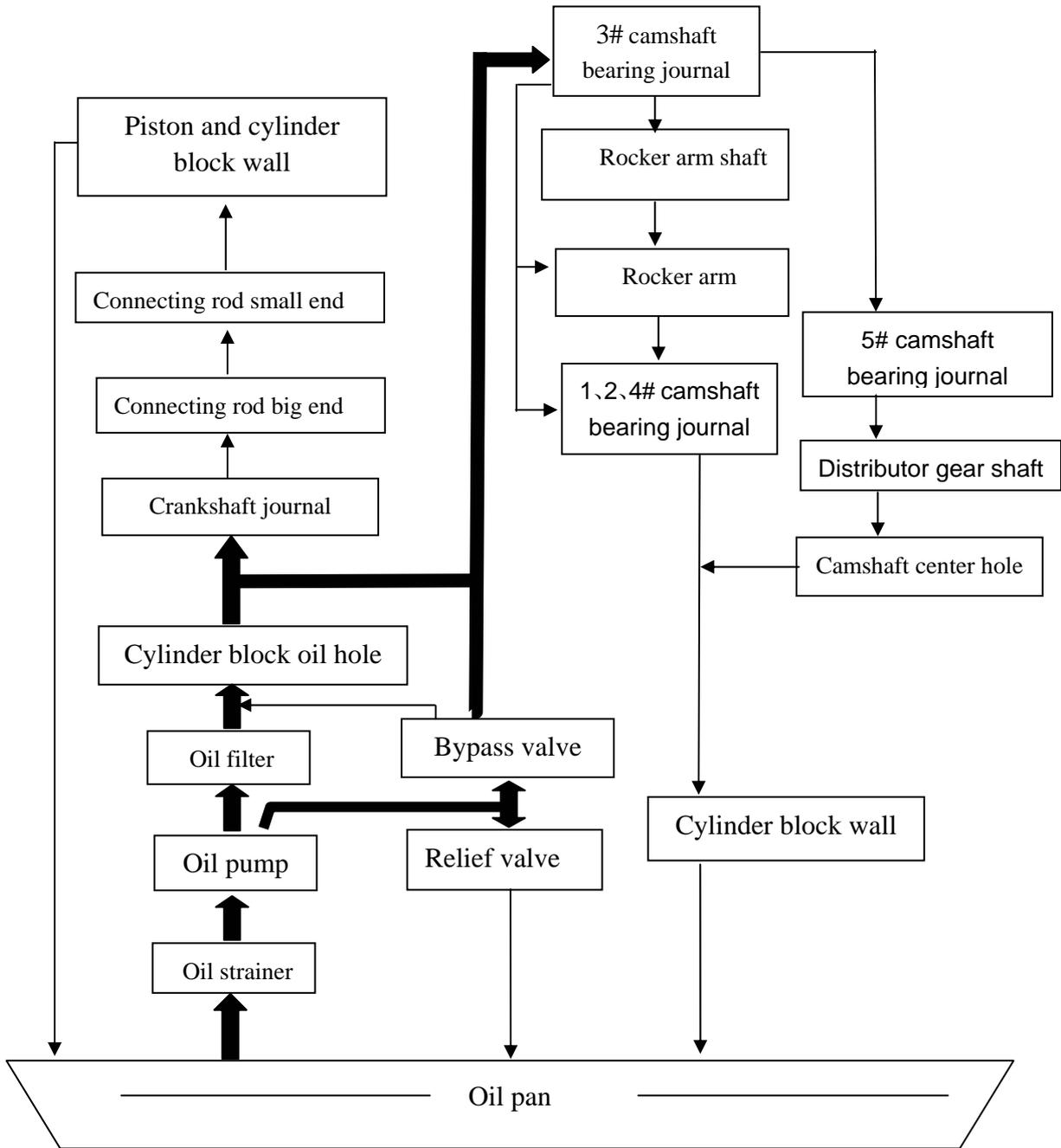
Apply engine oil to cams and journals on camshaft, and oil seal on cylinder head. Then install it to cylinder head from transmission case side.

Be careful not to leave out the thrust plate when installing the camshaft. After setting this shaft in place, with its thrust plate properly fitted, turn the shaft by hand to be sure it rotates smoothly.



Fig. 3-084

二、The Work Flow Of Lubricate System (chart 5-1)



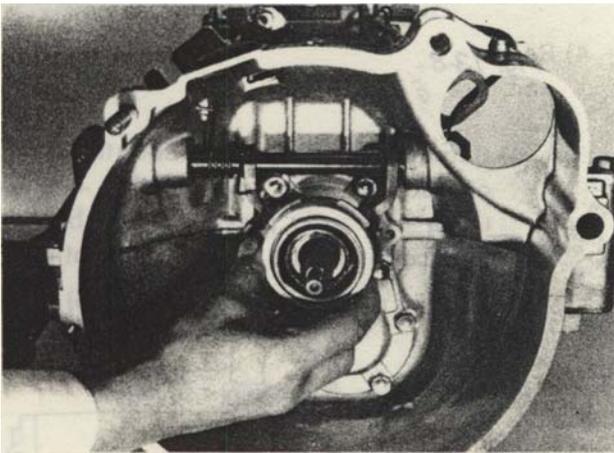


Fig. 13-4-1

**Separating Upper Case from Lower Case**

1) Remove clutch release bearing from transmission input shaft.

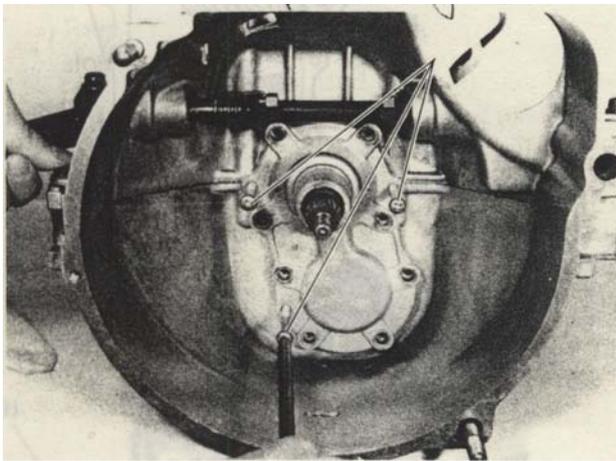


Fig.. 13-4-2

2) Remove input shaft bearing retainer bolts and pull out retainer by using 3 conventional 6 mm bolts.

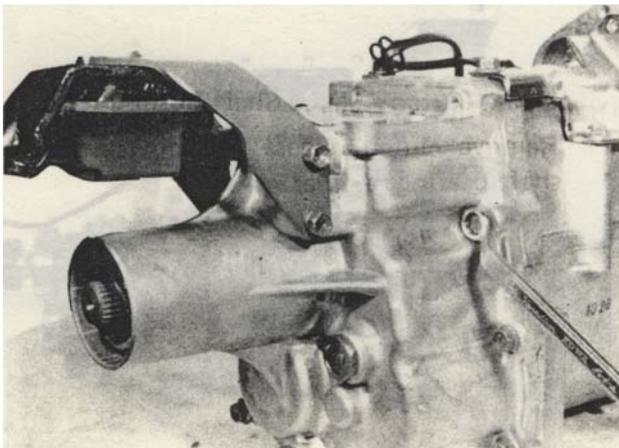
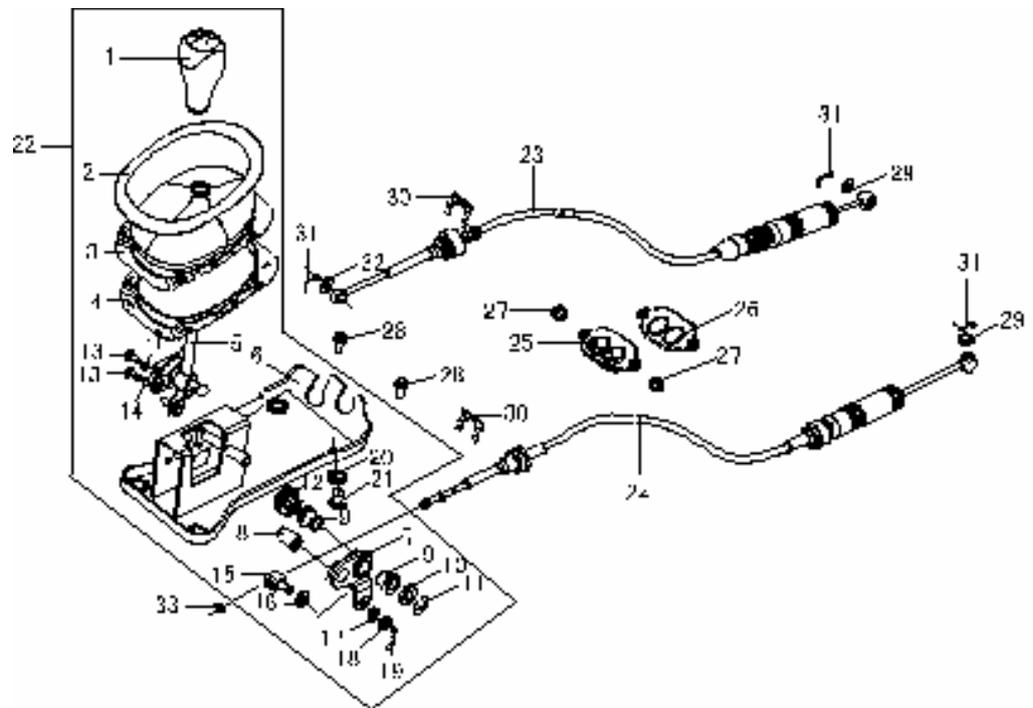


Fig.. 13-4-3

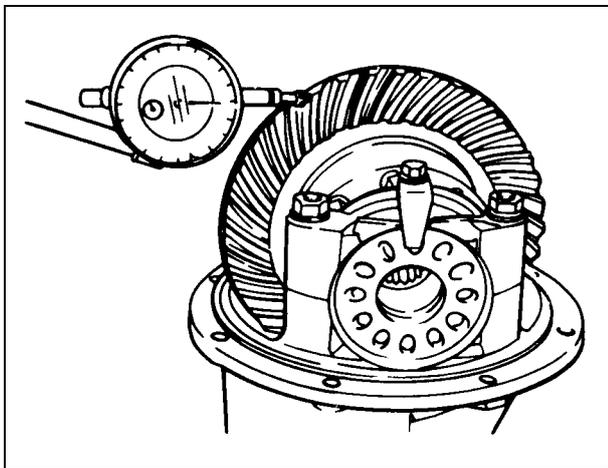
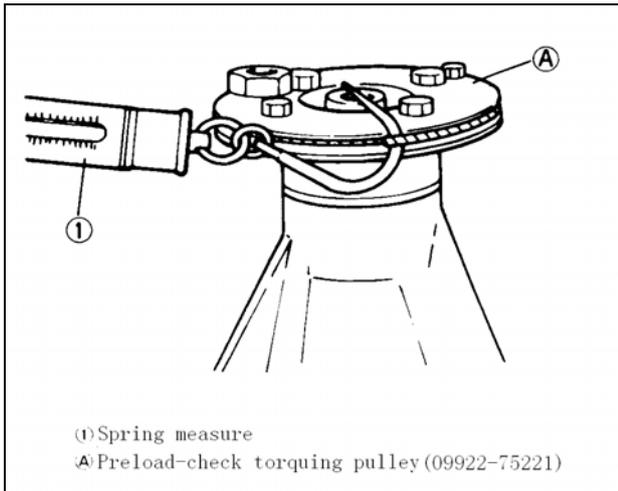
3) Remove gear shift lever case and speed meter driven gear case.

4) Remove bolts securing extension case to transmission case and take off extension case.

图 1 Gear shift and select cables



- |                       |                                 |
|-----------------------|---------------------------------|
| 1. Control lever knob | 17. Washer                      |
| 2. Accessorize case   | 18. Washer                      |
| 3. Control lever boot | 19. Pin                         |
| 4. Bolster            | 20. Cushion                     |
| 5. Gear control lever | 21. Washer                      |
| 6. Lever sub assy     | 22. Gear shift control sub assy |
| 7. Select control arm | 23. Gear shift control cable    |
| 8. Bush               | 24. Gear select control cable   |
| 9. Bush               | 25. Grommet                     |
| 10. Washer            | 26. Plate                       |
| 11. E-ring            | 27. Screw                       |
| 12. Spring            | 28. Bolt                        |
| 13. Bolt              | 29. Washer                      |
| 14. Washer            | 30. E-clip                      |
| 15. Gear select joint | 31. Pin                         |
| 16. Bush              | 32. Washer                      |
|                       | 33. Nut                         |



**Bevel pinion bearing preload adjustment**

The bevel pinion, as installed in the normal manner in the carrier, is required to offer a certain torque resistance when checked with the use of a prescribed torquing pulley (special tool A) as shown in the following figure. This resistance is a "preload," which is due to the tightness of the two tapered roller bearings by which the pinion is held in the carrier. And this tightness is determined primarily by the thickness of the adjusting collar plus a shim. Check the preload and, if the preload measurement is off the specified range indicated below, increase or decrease shim thickness. The method is as follows:

1) Tentatively install pinion in carrier, using adjusting collar and a 1 mm thick shim, and tighten the nut to secure splined yoke. Torque the nut to the following specification.

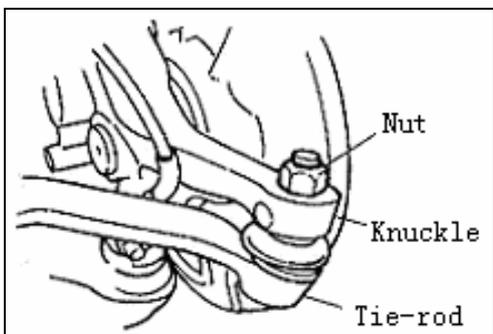
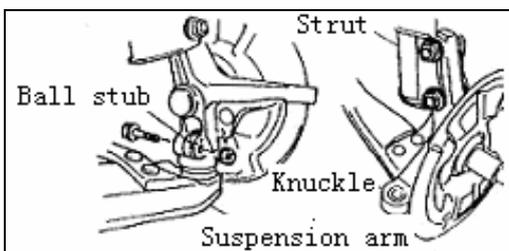
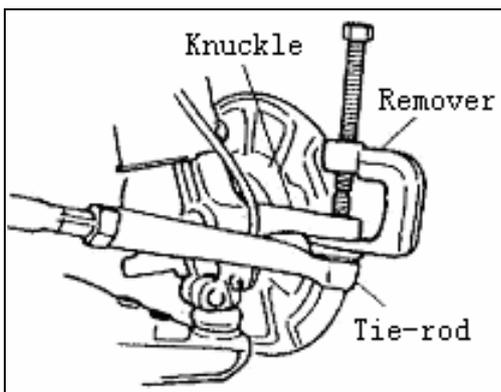
2) Put on torquing pulley (special tool) and give a pull, as left shown, and read spring balance indication just when the pulley begins to turn. The reading is a starting torque, and is required to be within the specified torque range.

3) Increasing shim thickness decreases this preload, and vice versa. Four size shim stock available for "mounting distance" adjustment, mentioned above, is meant to be used in producing a proper shim thickness in this preload adjustment, too.

**NOTICE:**

- When tentatively installing pinion in carrier, be sure to oil bearings lightly with gear oil, and to leave out the oil seal.
- Make a note of the starting torque.

Pinion bearing preload	5.0—13.0kg—cm (4.3—11.2 1b—in)
Starting torque (with pulley)	1.0—2.6kg (2.2—5.7 1b)



condition when tightening them to specified torque ( $68 \pm 7\text{N.M}$ ) .

- 6) Check toe-in setting, adjust as required

**Knuckle**

**Removal**

- 1) Hoist vehicle and remove wheel.
- 2) Remove wheel hub.
- 3) Disconnect tie-rod end from knuckle with remover.
- 4) Remove ball stub bolt from knuckle, then remove strut bracket bolts from strut bracket.
- 5) Remove knuckle.

**Installation**

- 1) Install knuckle to ball stud on suspension arm and strut bracket. Align knuckle bolt hole with ball stud groove as shown and install ball stud bolt. Tighten each bolt and nuts to specified torque.

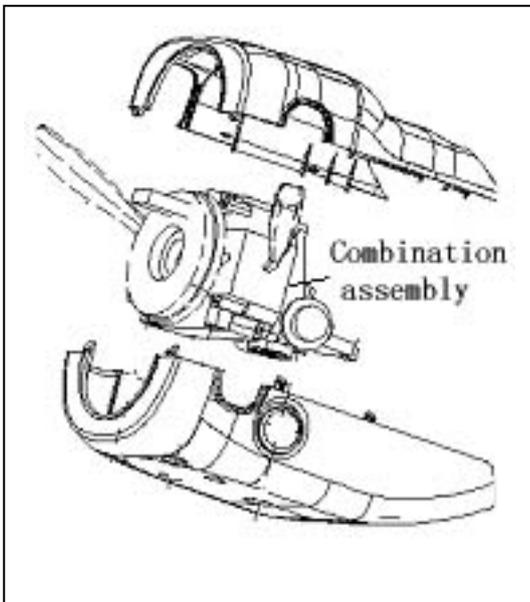
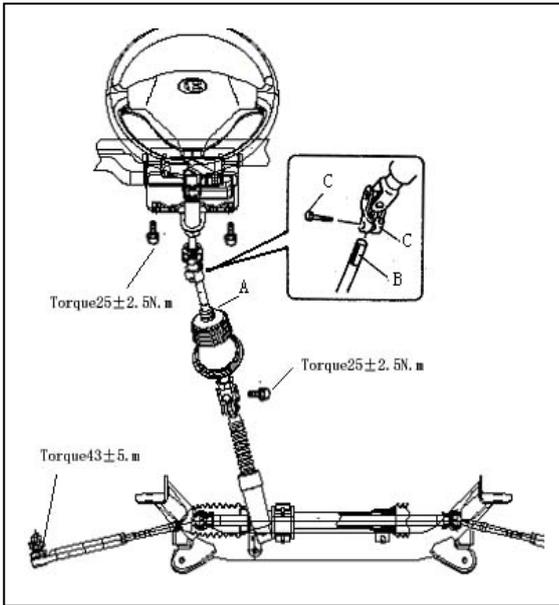
**Torque:  $55 \pm 5.5\text{N.M}$   
 $95 \pm 10\text{N.M}$**

- 2) Connect tie-rod end to knuckle and tighten tie-rod end castle nut to specified torque ( $50 \pm 5\text{N.M}$ ) .

**NOTE:**

**As tight tie-rod end nut, push the tie-rod up with garage jack to prevent ball stub from rotation.**

- 5) Have vehicle off hoist and in non-loaded



**NOTE:**

When servicing steering column or any column-mounted component, remove steering wheel. But when removing steering column simply to gain access to instrument panel components, leave steering wheel installed on steering column.

**INSTALLATION**

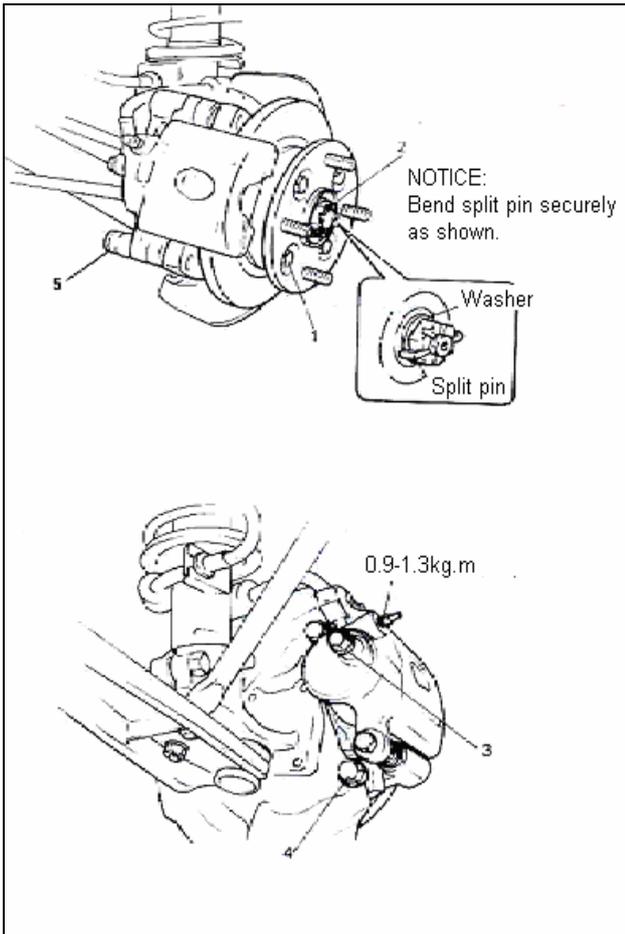
- 1) Be sure that front wheels and steering wheel are in straight forward state and insert lower joint into steering pinion shafts
- 2) Tighten steering shaft lower joint bolts to specified torque.
- 3) Apply grease to steering shaft seal "A", and install steering shaft seal to dash panel, as shown in left figure .
- 4) Align flat part "B" of lower joint shaft with bolt hole "C" of steering column joint as shown, then insert lower joint shaft into steering column joint .
- 5) Tighten steering column mounting bolts to specified torque.
- 6) Install combination switch.
- 7) Connect harness of combination switch and ignition switch with connector.
- 8) Install combination switch upper and lower cover.
- 9) Install steering wheel, if necessary.
- 10) Connect the negative cable with the battery.

**CAUTION:**

Once the steering column is removed from the vehicle, the column is extremely susceptible to damage. Dropping the column assembly on its end could collapse the steering shaft or loosen the plastic shear pins which maintain column length.

Leaning on the column assembly could cause it to bend or deform. Any of the above damage could impair the column's collapsible design.

Steering column mounting nuts should not be loosened with steering shaft joint upper side bolt tightened as this could cause damage to shaft joint bearing.



**Tightening torque**

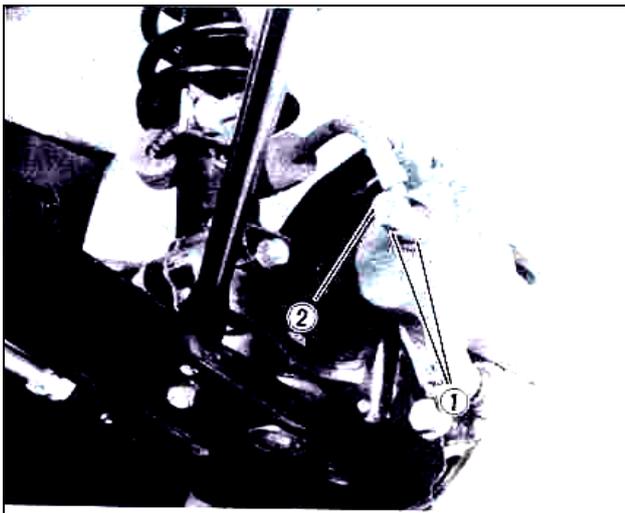
Fastening parts	kg.m
1. Disc bolt	4.0-6.0
2. Steering knuckle castle nut	15.0-25.0
3. Flexible hose bolt	2.0-2.5
4. Caliper bolt	7.0-10.0
5. Caliper pin bolt	3.0-3.8
6. Caliper pin	5.0-6.0
7. Wheel nut	5.0-8.0

**Front Brake Flexible Hose**

Connect flexible hose to caliper as show below and tighten hose bolt to specification.

**NOTICE:**

After completing installation, fill reservoir with brake fluid and bleed brake system. Perform brake test and check each installed part for oil leakage.



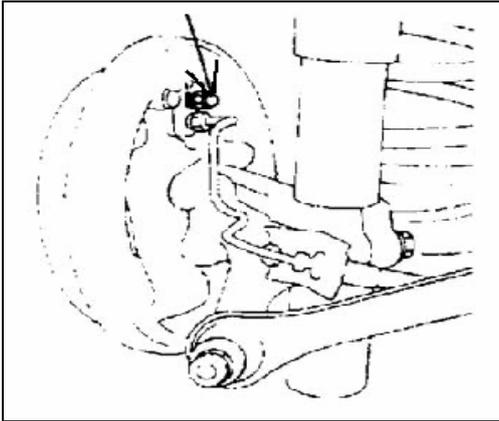
**Inspection for After Installing Front Brake**

Mount tires and make certain that they rotate smoothly, with a force of less than 3.3 kg (7.3 lb).

**NOTICE:**

For the above check, the following must be observed.

- 1) Jack up front wheels, both right and left, off the ground.
- 2) The below figure shows outer periphery of tire.
- 3) Be careful not to depress brake pedal when checking tire for rotation.



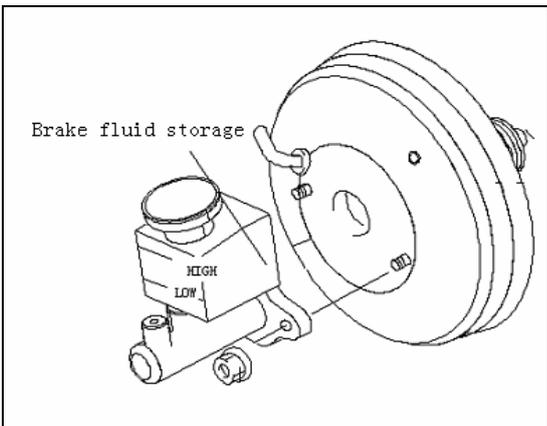
6) When bubbles stop, depress and hold brake pedal and tighten bleeder plug.

7) Then attach bleeder plug cap.

8) After completing bleeding operation, apply fluid pressure to pipe line and check for leakage.

9) Replenish fluid into reservoir up to specified level.

10) Check brake pedal for "sponginess". If found spongy, repeat entire procedure of bleeding.



**INSPECT BOOSTER OPERATION**

There are two ways to perform this inspection, with and without a tester. Ordinarily, it is possible to roughly determine its condition without using a tester.

**NOTE:**

For this check, make sure that no air is in hydraulic line.

**[INSPECTION WITHOUT TESTER]**

**Check Air Tightness**

1) Start engine.

2) Stop engine after running for 1 to 2 minutes.

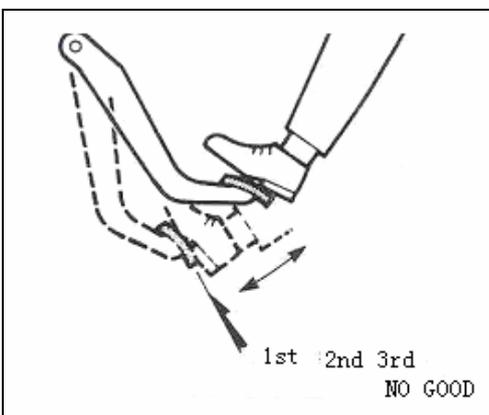
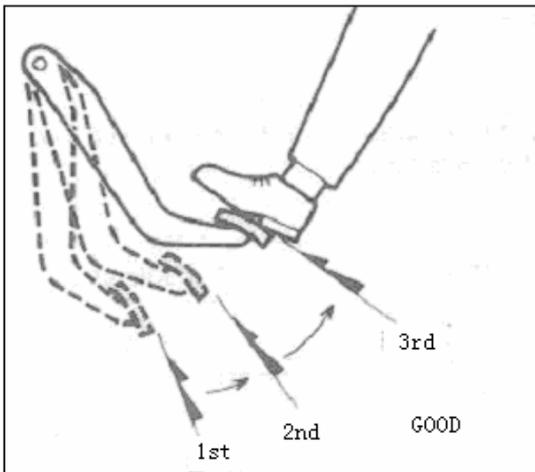
3) Depress brake pedal several times with the same load as in ordinary braking and observe pedal travel. If pedal goes down deep the first time but its travel decreases as it is depressed the second and more times, air tightness is obtained.

4) If pedal travel doesn't change, air tightness isn't obtained.

**NOTE:**

If defective, inspect vacuum lines and sealing parts, and replace any faulty part.

When this has been done, repeat the entire test.



RADIO 、 CIGAR LIGHTER AND ELECTRONIC LOCK

