FOREWORD

This workshop manual contains essential information regarding the construction, disassembly/reassembly procedures and servicing methods of the power train, suspension, brake system, steering system, body and electrical system of the DAIHATSU CHARADE.

We hope that this workshop manual is consulted to the fullest extent, in combination with the workshop manual of the Type CB Engine, Type CL Engine, and Trouble shooting for Engine control system of Type CB-80 Engine so that quality servicing may be assured at all times.

Furthermore, due to continuing improvements in the design, contents and specifications in this workshop manual may be partly revised without advance notice and without incurring any obligation to us.

Published in April, 1987

DAIHATSU MOTOR CO., LTD.
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DAIHATSU
CHARADE
Chassis

SECTION 1
GENERAL INFORMATION

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1. Schematic Diagram of Component

(1) The schematic diagram of components that appears at the beginning of each section describes the nomenclature and installed conditions of each component. Furthermore, the tightening torque is posted in the figure.

(2) Those parts whose reuse is not permitted bear a "★" mark for an identification purpose. Be certain to replace these parts with new ones during the assembly.

(Example)

2. Servicing Procedure

(1) In principle, the servicing procedure is described in the following sequence given below: Removal → Inspection → Installation and Disassembly → Inspection → Assembly.

(2) The explanation covers detailed servicing methods, specifications and notes.

(3) The main point of each item explains the servicing section and servicing procedure, using illustrations.

(Example)

3. Brake tube installation

(1) Install the brake tube to the wheel cylinder temporarily by hands.

(2) Tighten the brake tube to the wheel cylinder using the following SST.

SST: 09751-36011-000
3. **Trouble Shooting**
   (1) As for the three-speed automatic transmission, the trouble shooting table is provided in this book so that you may readily locate causes of troubles.

4. **Table of SSTs Used**
   (1) The SSTs appearing in this book are listed in the appendix of the book.

5. **Table of Service Specifications**
   (1) The service specifications necessary for the service are summarized in the appendix of this book.

6. **Table of Tightening Torque**
   (1) As for those sections where their tightening torque must be controlled during the service, the tightening torque is specified in the appendix of this book.

7. **Wiring Diagrams**
   (1) The vehicle wiring diagrams are posted in the appendix of this book separately for Type CB and Type CL engines.

**DEFINITIONS OF TERMS**

Specified Value ..... A value which represents the allowable range during the inspection and adjustment.
Limit ........... ........ A maximum or a minimum limit which the value should not exceed or fall below.
Note .......... ........ An item which requires special attention or an item which is prohibited during the service.
### Abbreviation Codes

The abbreviation codes that appear in this workshop manual stand for the following, respectively.

<table>
<thead>
<tr>
<th>Abbreviation Code</th>
<th>Original Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH</td>
<td>Right Hand</td>
<td>Refers to right side.</td>
</tr>
<tr>
<td>R.H.D.</td>
<td>Right-Hand Drive</td>
<td>Vehicle with right-hand drive.</td>
</tr>
<tr>
<td>LH</td>
<td>Left Hand</td>
<td>Refers to left side.</td>
</tr>
<tr>
<td>L.H.D.</td>
<td>Left-Hand Drive</td>
<td>Vehicle with left-hand drive.</td>
</tr>
<tr>
<td>STD</td>
<td>Standard</td>
<td>When referring to automotive parts, &quot;standard&quot; represents those parts which have been installed originally by the manufacturer and which have standard dimensions.</td>
</tr>
<tr>
<td>O/S</td>
<td>Over Size</td>
<td>In instances where lining becomes too loose due to wear resulting from use for a long period of time or due to frequent removal/installation operations, it is recommended that the exact part (e.g. piston) be replaced with a part having larger dimensions. The other mating part may be put into use again. &quot;Over sized&quot; parts denote those parts having larger dimensions compared to standard parts.</td>
</tr>
<tr>
<td>US</td>
<td>Under Size</td>
<td>In the same manner as with the &quot;oversize&quot; parts, if lining part (e.g. bush and bearing) is replaced with a part having smaller bore dimensions, the other mating part may be put into use again. &quot;Under sized&quot; parts denote those parts having smaller dimensions compared to standard parts.</td>
</tr>
<tr>
<td>PR</td>
<td>Ply Rating</td>
<td>Represents strength of tires. The larger the ply rating number, the stronger the tire strength.</td>
</tr>
<tr>
<td>SAE</td>
<td>Society of Automotive Engineers</td>
<td>For example, automotive oils are designated as SAE 5W and 10W number. These designation numbers have been set forth by the Society of Automotive Engineers in the United States of America (SAE). The larger the SAE number, the higher the oil viscosity. Conversely, the smaller the SAE number, the lower the oil viscosity.</td>
</tr>
<tr>
<td>API</td>
<td>American Petroleum Institute</td>
<td>The standards set forth by the American Petroleum Institute (abbreviated as API Classification) have been employed to evaluate and classify properties of various oils. Engine oils for gasoline engines are classified as SD, SE, SF and so on, whereas engine oils for diesel engines are classified as CC, CD, CE and so on.</td>
</tr>
<tr>
<td>SST</td>
<td>Special Service Tool</td>
<td>Refers to a tool designed for a specific purpose.</td>
</tr>
<tr>
<td>T</td>
<td>Torque</td>
<td>Refers to tightening torque.</td>
</tr>
<tr>
<td>S/A</td>
<td>Sub-Assembly</td>
<td>Refers to a component comprising more than two single parts which are welded, stacked, or studded to each other to form a single component.</td>
</tr>
<tr>
<td>A/1</td>
<td>Assembly</td>
<td>Refers to an assembled component comprising more than two single parts or sub-assembly parts.</td>
</tr>
<tr>
<td>W</td>
<td>With</td>
<td>Denotes that the following part is attached.</td>
</tr>
<tr>
<td>L</td>
<td>Less</td>
<td>Denotes that the following part is not attached.</td>
</tr>
<tr>
<td>A/T</td>
<td>Automatic Transmision</td>
<td>Refers to automatic transmission.</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
<td>The standards set forth by the International Organization for Standardization (abbreviated as ISO Classification) have been employed to evaluate and classify properties of various component parts and oils etc.</td>
</tr>
</tbody>
</table>

The abbreviation codes that appear in the figure stand for the following, respectively.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø</td>
<td>Bolt</td>
</tr>
<tr>
<td>Ø</td>
<td>Screw</td>
</tr>
<tr>
<td>Ø</td>
<td>Nut</td>
</tr>
<tr>
<td>Ø</td>
<td>Washer</td>
</tr>
</tbody>
</table>
SERVICING OPERATIONS

1. Jacking up
   (1) When only the front section or rear section of the vehicle is jacked up, be sure to place chocks at the wheels so as to insure safe operations.
   (2) When the vehicle has been jacked up, be sure to support the vehicle at the specified sections using safety stands.

2. In the case of repairs on the electrical system or the removal/installation of the engine, first disconnect the negative ⚫ terminal of the battery. Then, proceed to the operations. (On clock-equipped vehicles, set the time of the clock after the negative ⚫ terminal of the battery is connected.)

3. Repairing fuel system of Type CB-80 engine
   Type CB-80 engine employs a high fuel pressure. Therefore, the following notes should be observed
   (1) When the union bolt is removed, take a measure to prevent the fuel from splashing with a cloth or the like. Sacken the union bolt gradually.
   (2) Tighten each connecting section to the specified torque.
   (3) Attach the specified clip to each connecting section.

4. For increased work efficiency and improved accuracy, be sure to utilize the SSTs (Special Service Tools) effectively.

5. Removal and disassembly
   (1) When disassembling complicated components, put stampad marks or mating marks on those sections where such marks do not affect their functions so that the assembling operation may be performed easily.
   (2) Each time a part is removed, check the part for the assembled condition, deformation, breakage, roughness and scratches.
   (3) Arrange the disassembled parts in the disassembling order. In addition, separate and arrange those parts to be replaced and those parts to be reused.
   (4) Thoroughly clean and wash those parts to be reused.
   (5) Inspection and measurement of part
       Perform thorough inspection and measurement on those parts to be reused, as required.

6. Installation and assembly
   (1) Assemble those satisfactory parts, following the proper procedure and specified standards (adjusting values and tightening torque etc.).
   (2) Ensure that seal packings and grease are applied to those sections where such application is needed.
   (3) Be sure to use new packings, gaskets, cotter pins and so forth.
   (4) Ensure that the specified bolts and nuts only be used. Moreover, where specified, make sure to employ a torque wrench to tighten bolts and nuts to the specified torque.
       Make sure to use only genuine parts for every replacement.

7. Adjustment and operation check
   Adjust the reassembled or replaced components to the servicing specifications, using gauges and testers, as required.

8. Handling of hose, etc.
   (1) Connect fuel hoses and water hoses, etc. securely so that they exhibit no leakage
   (2) When disconnecting fuel hoses, make sure that no fuel is splashed around the hose. (Special care must be exercised as to the engine mount rubber, etc., for there is a possibility that the rubber is deteriorated by the petrol-based liquid.)
9. Touch-up painting
If paint finish surfaces of the body and bolts should be scratched when bolts, etc. are removed during the body alignment, etc. touch up the scratch with a paint having the same color as that of the body.

JACKING POINTS AND SUPPORTING POINTS OF SAFETY STANDS

- Jacking point
  Front side: Engine mounting center member (Place the jack below the member, exercising care of the exhaust pipe.)
  Rear side: Center of rear floor cross member

- Supporting points of safety stands
  Four supporting points are located at the right and left sides. (The supporting points have been strengthened by spot-welding reinforcements. Never support the vehicle at points other than the specified points.)

SUPPORTING POINTS OF TWO-POST LIFT
Align the supporting pads of a two-post lift with the supporting points of safety stands, as indicated in the figure above.
SECTION 2
CLUTCH

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COMPONENTS ........................................... 2–7
REMOVAL .................................................. 2–7
INSPECTION ............................................. 2–8
INSTALLATION ........................................... 2–10
## CLUTCH

### DESCRIPTION

#### TROUBLE SHOOTING

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<th>Possible causes</th>
<th>Remedies</th>
<th>Page</th>
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<td>Gear shifting is hard or impossible</td>
<td>• Excessive clutch pedal free travel.</td>
<td>• Adjust clutch pedal free travel.</td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td>• Excessive clutch disc runout, or damaged lining.</td>
<td>• Check clutch disc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Input shaft or disc splined section contaminated or sticking.</td>
<td>• Repair, as required.</td>
<td>2-8</td>
</tr>
<tr>
<td></td>
<td>• Faulty clutch pressure plate.</td>
<td>• Replace clutch cover.</td>
<td>2-8</td>
</tr>
<tr>
<td>Slipping clutch</td>
<td>• Improper clutch pedal free travel.</td>
<td>• Adjust clutch pedal free travel.</td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td>• Worn or oily clutch disc linings.</td>
<td>• Replace clutch disc.</td>
<td>2-7</td>
</tr>
<tr>
<td></td>
<td>• Faulty pressure plate.</td>
<td>• Replace clutch cover.</td>
<td>2-7</td>
</tr>
<tr>
<td></td>
<td>• Flatted diaphragm spring.</td>
<td>• Replace clutch cover.</td>
<td>2-7</td>
</tr>
<tr>
<td>Grabbing and chattering clutch</td>
<td>• Worn or oily clutch disc linings.</td>
<td>• Check clutch disc and replace, as required.</td>
<td>2-8</td>
</tr>
<tr>
<td></td>
<td>• Faulty pressure plate.</td>
<td>• Replace clutch cover.</td>
<td>2-7</td>
</tr>
<tr>
<td></td>
<td>• Flatted disc torsion spring.</td>
<td>• Replace clutch disc.</td>
<td>2-7</td>
</tr>
<tr>
<td></td>
<td>• Bent diaphragm spring.</td>
<td>• Replace clutch cover.</td>
<td>2-7</td>
</tr>
<tr>
<td>Clutch noises</td>
<td>• Parts in housing loose.</td>
<td>• Repair, as required.</td>
<td>2-7</td>
</tr>
<tr>
<td></td>
<td>• Worn or contaminated release bearing.</td>
<td>• Replace release bearing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Release fork and linkage seized.</td>
<td>• Repair, as required.</td>
<td></td>
</tr>
<tr>
<td>Dragging clutch (Poor clutch disengage-</td>
<td>• Clutch pedal free travel improperly adjusted.</td>
<td>• Adjust clutch pedal free travel.</td>
<td>2-3</td>
</tr>
<tr>
<td>ment)</td>
<td>• Flatted diaphragm spring, or worn lip end of spring.</td>
<td>• Replace clutch cover.</td>
<td>2-7</td>
</tr>
</tbody>
</table>

## CLUTCH PEDAL ADJUSTMENT

1. Check the clutch pedal for the installation height.
   Pedal installation height
   (Distance between pedal pad upper surface's center and dash panel)
   - R.H.D. vehicle 189.5 - 194.5 mm (7.46 - 7.66 inch)
   - L.H.D. vehicle 181.5 - 186.5 mm (7.15 - 7.34 inch)

2. Adjust the pedal installation height, as required.
   (1) Slacken the lock nut. Turn the stopper bolt until the installation height conforms to the specification.
   (2) Tighten the lock nut.
3. Clutch cable adjustment
   (1) Pull the outer cable lightly with a force of 2 - 5 kg (4.4 - 11.0 lb). Check the clearance.
   (2) Ensure that the stopper (protruding portion) is fitted securely in the adjusting groove.
   (3) Adjusting position of clutch outer cable
       3.6 mm (0.12 - 0.24 inch)

4. Adjust the clutch pedal free travel
   (1) Depress the clutch pedal gradually until you feel a resistance from the clutch. Measure the depressing distance up to this point.
       Pedal Free Travel: 15 - 30 mm (0.59 - 1.18 inch)

5. Adjust the clearance between the clutch pedal and the floor with the pedal fully depressed. (Minimum clearance between the dash panel and the pedal arm)
   Vehicles mounted with Type CB-80 engine:
       not less than 20 mm (0.79 inch)
   Vehicles other than those mounted with Type CB-80 engine: not less than 25 mm (0.98 inch)
**CLUTCH PEDAL AND CLUTCH RELEASE CABLE COMPONENTS**

![Diagram showing clutch pedal and release cable components](image)

**T**: Tightening Torque
Unit: kg-m (ft-lb)

1. Nut
2. Clutch release cable
3. Nut & bolt
4. Bolt
5. Clutch release cable
6. Clutch pedal A
7. Spring
8. Bush
9. Spacer

**REMOVAL**

1. Remove the brake pedal Ay. (Only for L.H.D. vehicles. See page 8-7)
2. Remove the nut located at the clutch pedal installation section. Separate the end section of the clutch release cable.

3. Remove the adjusting bolt.
4. Remove the bolt with washer.

5. Remove the cable bracket attaching bolt. Remove the clutch cable.

6. Remove the clutch pedal assembly. Remove the spring, bush and spacer.

**INSPECTION**
Inspect the following parts:
1. Bush for wear or damage.
2. Pedal spacer for wear or damage
3. Pedal for damage or deformation
4. Pedal pad for wear or damage.
5. Spring for flattened condition.

6. Each section of clutch cable
INSTALLATION

1. Apply MP grease to the following points.
   (1) Inside of bush and spacer
   (2) Connecting section of clutch pedal and release cable

2. Install the spring, bush and spacer to the clutch pedal assembly. Then, install the assembly to the pedal bracket.
3. Install the bolt with washer in position.

4. Install both ends of the clutch cable. Tighten the bracket with the bolts.
   **Tightening Torque:** 0.4 - 0.7 kg-m (2.9 - 5.1 lb)

5. Install the adjusting bolt.

6. Tighten the nut.
   **Tightening Torque:** 1.5 - 2.2 kg-m (11 - 16 lb)

7. Depress the clutch pedal two or three times. Proceed to adjust the clutch pedal, following the procedure at page 2-2

8. Install the brake pedal Ay. (Only for L.H.D. vehicles. See page 8-8)
CLUTCH UNIT
COMPONENTS

① Washer bolt
② Lock plate
③ Clutch release fork lever
④ Bushing
⑤ Clutch release lever yoke
⑥ Torsion spring
⑦ Bushing No. 1
⑧ Dust seal
⑨ Release bearing clip
⑩ Clutch release bearing hub
⑪ Clutch cover
⑫ Clutch disc

REMOVAL
1. Remove the transmission assembly from the vehicle. (See page 3-3)

2. Release the lock plate. Proceed to remove the lock plate along with the bolt.

SEE TRANSMISSION REMOVAL SECTION
Page 3-3 to 3-7.
CLUTCH

3. Pull out the clutch release fork lever. Remove the bush, release lever yoke, spring, release bearing clip and release bearing hub.

4. Remove the clutch cover from the flywheel. Take out the clutch disc.

INSPECTION

1. Check the pressure plate and flywheel surface for scores, cracks and discoloration.

2. Check the diaphragm spring tips for wear, rust and breakage.

3. Check the clutch disc for wear and runout.
   Allowable Wear Limit (Rivet Depth):
   0.3 mm (0.012 inch)
Allowable Limit of Lateral Runout:
1.34 mm (0.0528 inch)

NOTE:
Measure the lateral runout with the clutch disc assembled onto a new input shaft.

4. Check to see if the release bearing rotates smoothly. Rotate the release bearing by your hand while applying a pressure to the bearing in a thrust direction. Check to see if the bearing rotates without any abnormal feeling or binding.

5. Check the release bearing hub, clip-contacting surface and hub-to-housing sliding section for damage and wear.

6. Check to see if the clip has the configuration as shown in the figure in its horizontal plane.

Abnormal configuration -> replace

<Criteria>
Must be lower than the horizontal surface
CLUTCH

INSTALLATION

1. Install the clutch disc and clutch cover, using the following SST:
   SST: 09301-87202-000
   Bolt Tightening Torque: 1.5 - 2.2 kg-m (11 - 16 ft-lb)

   NOTE:
   (1) Assemble the clutch disc in the direction as shown in the figure.
   (2) Tighten the bolts evenly, starting with those bolts provided near the locating pin.
   (3) Apply long-life chassis grease to the clutch disc splined section.

2. Check the clutch cover diaphragm spring tips for variation in height. Adjust the diaphragm spring tips, as required.
   Check
   Allowable Limit of Variation in Height:
   0.7 mm (0.028 inch)
   SST: 09302-87701-000

   Adjustment
   Align the diaphragm spring tips at such a height that makes the number of tips to be adjusted at a minimum number.
   SST: 09333-00011-000

3. Assemble the clutch release bearing hub and release bearing clip to the clutch release lever yoke.
   (1) Bring the cut-out section of the release lever yoke in contact with the clip.
   (2) Under the condition described in (1), assemble the lever yoke by turning it 180 degrees.

   NOTE:
   Apply long-life chassis grease to the yoke-to-hub sliding section and bearing-to-housing case sliding section.
4. Assemble the bush, dust seal, torsion spring and clutch release lever in position.

5. Assemble the bolt with washer, with the lock plate interposed.
   
   Tightening Torque: 3.0 - 4.0 kg-m (22 - 29 ft-lb)

6. Check the release hub and yoke for proper operation. Operate the clutch release lever about 50 times. Check the section A of the clip. If the clip exhibits excessive spread and there is a likelihood that the clip may be detached, replace it with a new clip.

7. Install the transmission assembly to the vehicle.
   (See page 3-7.)
SECTION 3
MANUAL TRANSMISSION

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MANUAL TRANSMISSION

SECTIONAL VIEW

5-speed transmission

Part of 4-speed transmission

Fig. 3-1

3-2
### MANUAL TRANSMISSION

#### ASSEMBLY

**REMOVAL**

1. Remove the engine hood assembly.
2. Remove the hold-down clamp and battery.
3. Remove the battery carrier stay.

4. Disconnect the following harnesses:
   (1) Harness to starter
   (2) Transmission earth
   (3) Backup lamp harness

---

<table>
<thead>
<tr>
<th>Item</th>
<th>Kind</th>
<th>4-speed</th>
<th>5-speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CS-23</td>
<td>CB-23</td>
</tr>
<tr>
<td>Engine type</td>
<td></td>
<td>3.090 (34/11)</td>
<td>3.090 (34/11)</td>
</tr>
<tr>
<td>Transmission type</td>
<td>Forward gears, Constant mesh, Reverse gear, Selective sliding</td>
<td>1.842 (35/19)</td>
<td>1.842 (35/19)</td>
</tr>
<tr>
<td>1st gear</td>
<td>1.230 (32/26)</td>
<td>1.230 (32/26)</td>
<td>1.230 (32/26)</td>
</tr>
<tr>
<td>2nd gear</td>
<td>0.864 (32/37)</td>
<td>0.864 (32/37)</td>
<td>0.864 (32/37)</td>
</tr>
<tr>
<td>3rd gear</td>
<td>0.707 (29/41)</td>
<td>0.707 (29/41)</td>
<td>0.707 (29/41)</td>
</tr>
<tr>
<td>4th gear</td>
<td>3.142 (44/30/14)</td>
<td>3.142 (44/30/14)</td>
<td>3.142 (44/30/14)</td>
</tr>
<tr>
<td>Final reduction gear ratio</td>
<td>4.500 (72/6)</td>
<td>4.500 (72/16)</td>
<td>4.933 (74/15)</td>
</tr>
<tr>
<td>Number of speedometer gear teeth (driven/drive)</td>
<td>16/4</td>
<td>18/4</td>
<td>21/5</td>
</tr>
<tr>
<td>Transmission oil</td>
<td>Kind</td>
<td>SAE 80, GL-3</td>
<td>SAE-80, GL-3</td>
</tr>
<tr>
<td>Capacity (Imp. qts)</td>
<td>1.9 - 2.0</td>
<td>2.1 - 2.2</td>
<td>2.1 - 2.2</td>
</tr>
<tr>
<td>(1.67 - 1.76)</td>
<td>(1.85 - 1.94)</td>
<td>(1.85 - 1.94)</td>
<td>(1.85 - 1.94)</td>
</tr>
<tr>
<td>2.0 - 2.1</td>
<td>2.2 - 2.3</td>
<td>2.2 - 2.3</td>
<td>2.2 - 2.3</td>
</tr>
</tbody>
</table>

*14.923 (74/15), 14.923 (74/16) for Swiss & Swedish specifications
*14.923 (74/15), 14.923 (74/16) for Swiss & Swedish specifications
*17/4 When 155/83 P13 tires are used*
5. Remove the intercooler assembly.  
   (Vehicles mounted with Type CB-80 engine only)

6. Remove the starter assembly.

7. Disconnect the speedometer cable

8. Detach the three harness clamps.

9. Disconnect the clutch cable
10. Remove the two bolts that directly attach the transmission assembly to the engine.

11. Jack up the vehicle. Remove the front tires at the right and left sides of the vehicle.
   NOTE: Be sure to support the vehicle securely by means of safety stands.

12. Drain the transmission oil.

13. Detach the engine undercover (Type CL engine only)

14. Remove the lower suspension brace (Types CB-61 and CB-80 engines only)

15. Disconnect the front exhaust pipe at the bracket support No.1 and manifold sides.

16. Disconnect the following control linkage-related parts from the transmission housing
   (1) Shift & select shaft S/A
   (2) Extension rod S/A
17. Remove the stabilizer bar
   (1) Remove the stabilizer bar end nut and retainer.
   (2) Remove the stabilizer bar installing nuts.

18. Disconnect the lower arm at the bracket side.

19. Remove the drive shafts at the right and left sides, using
   the following SST.
   SST: 09843-87201-000
   NOTE:
   1. No stopper is provided at the inboard side of the drive
   shaft. Hence, be sure to support the inboard joint section
   during the removal.
   2. Be very careful not to damage the lip section of the oil
   seal during the removal.

3. As for the right side of vehicles mounted with Type
   CB-80 engine, insert a crowbar into between the protruding
   section of the bearing shaft and the drive shaft.
   Then take out the front drive shaft, being very careful not
   to deform the dust cover of the drive shaft.

20. Remove the front drive bearing shaft assembly.
   (Vehicles mounted with Type CB-80 engine only)
   (1) Remove the two bolts and pull out the front driveshaft
       bearing shaft from the transmission assembly
21. Remove the transmission assembly attaching bolts.
   NOTE:
   Be sure to leave the one bolt located at the front central part.

22. Lightly support the lower part of the transmission, using a jack. Then, remove the engine mounting lower left bracket attaching bolts.
   Turn the engine mounting lower left insulator 90 degrees so that it may point upward.

23. Remove the one bolt located at the front central part of the transmission assembly. Slowly jack down the transmission assembly and take it out from below the vehicle.

INSTALLATION
1. Install the transmission assembly to the engine assembly as follows:
   (1) Ensure that the clutch disc is centered in position, using the SST given below.
      SST: 09301-87702-000
   (2) Install the transmission, making sure that the clutch disc may not be dried. Temporarily tighten the attaching bolts.
2. Tighten the transmission assembly attaching bolts securely.
   **Tightening Torque:** 5.0 - 7.0 kg-m (36 - 51 ft-lb)

3. Install the engine mounting lower left insulator and engine mounting lower left bracket.
   **Bracket Tightening Torque:**
   3.0 - 4.5 kg-m (22 - 33 ft-lb)
   **Insulator Tightening Torque:**
   7.5 - 10.5 kg-m (54 - 76 ft-lb)

4. Install the front drive bearing shaft assembly as follows.
   (Vehicles mounted with Type CB-50 engine only)
   (1) Slowly install the bearing shaft assembly to the differential case, making sure that no damage is made to the lip section of the oil seal.
   (2) Tighten the two attaching bolts.
   **Tightening Torque:** 3.0 - 4.5 kg-m (22 - 33 ft-lb)

5. Install the drive shafts at the right and left sides
   **NOTE:**
   Slowly install the drive shaft to the differential case, making sure that no damage is made to the lip section of the oil seal.

6. Install the lower arm (at the bracket side). Temporarily tighten the attaching bolts
7. Install the stabilizer bar.
   (1) Temporarily tighten the stabilizer bar end nut
   (2) Tighten the cushion and stabilizer bar bracket
   **Tightening Torque:** 4.0 - 6.0 kg-m (29 - 43 ft-lb)

8. Install the following control linkage-related parts
   (1) Shift & select shaft S/A
       **Tightening Torque:** 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)
   (2) Extension rod S/A
       **Tightening Torque:** 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)

9. Install the manifold side of the front exhaust pipe. Install
    the bracket support No.1.
    (1) Manifold side
        **Tightening Torque:** 3.0 - 5.0 kg-m (22 - 36 ft-lb)
    (2) Bracket support No.1
        **Tightening Torque:** 2.0 - 3.0 kg-m (14.5 - 22 ft-lb)

10. Install the lower suspension brace.
    (Vehicles mounted with Type CB-61 and CB-80 engines only)
    **Tightening Torque:** 4.0 - 5.5 kg-m (29 - 40 ft-lb)

11. Install the engine undercover.
    (Vehicles mounted with Type CL engine only)

12. Install the front wheels at the right and left wheels. Jack
    down the vehicle.

13. Rock the vehicle in a up-and-down direction a few times
    so as to settle the suspension.
    With the vehicle in an unloaded, tighten the nuts.
    (1) Stabilizer bar installing nuts
        **Tightening Torque:** 7.5 - 11.0 kg-m (54 - 80 ft-lb)
    (2) Lower arm (bracket side)
        **Tightening Torque:** 7.0 - 10.0 kg-m (51 - 72 ft-lb)
13. Fill the transmission oil.
   Oil capacity:
   4-speed transmission: 1.9 - 2.0 L
   (1.7 - 1.9 Imp qts, 2.0 - 2.1 U.S. qts.)
   5-speed transmission: 2.1 - 2.2 L
   (1.8 - 1.9 Imp qts, 2.2 - 2.3 U.S. qts.)

14. Install the clutch cable
   (See page 2-3.)
15. Attach the three harness clamps.

16. Install the speedometer cable.

17. Install the starter assembly.
   Tightening Torque: 5.0 - 7.0 kg-m (36 - 51 ft-lb)

18. Install the intercooler assembly.
   (Vehicles mounted with Type CB-8G engine only)
19. Install the following harnesses:
   (1) Harness to starter
   (2) Transmission earth
   (3) Backup lamp harness

20. Install the battery carrier stay, battery, hold-down clamp and engine hood assembly.
DISASSEMBLY, INSPECTION AND ASSEMBLY OF TRANSMISSION HOUSING, CASE S/A AND CASE COVER

COMPONENTS (PART 1)

1. Wind straight screw plug (1st side)
2. Wind straight screw plug (drum side)
3. Clutch cable bracket
4. Engine mount "g" bracket
5. Breather plug
6. Backup lamp switch Ay & gasket
7. Lock plate
8. Speedometer shaft sleeve S-A
9. Transmission case cover S/A
10. Case cover oil pipe
11. Gasket & lock b a p l a t e
12. Ball & compression spring
13. Transmission case
14. Ho-e snap ring

* : Non-reusable parts.
COMPONENTS (PART 2)

* : Non-reusable parts.

Control related parts
Input shaft bearing lock plate
Input shaft Ay & output shaft Ay
Selector support Ay & shifting bell crank
Different sh case Ay

Transaxle case
1, 2, 3 Oil seal
4. Output shaft bearing lock plate
5. Needle roller bearing
6. Output shaft cover

Fig. 3-41

3-13
DISASSEMBLY

1. Remove the screw plugs (at the drain and filler sides).

2. Remove the clutch cable bracket and engine mounting bracket.

3. Remove backup lamp switch assembly and breather plug.

4. Remove the lock plate and speedometer shaft sleeve subassembly.

5. Remove the oil seal, using the SST given below
   SST: 09921-00010-000

6. Remove the transmission case cover subassembly as follows:
   (1) To drive out the case cover subassembly, tap the flange section lightly in the axial direction, using a plastic hammer.

   NOTE:
   Never tap the case cover at its side.
7. Remove the case cover oil pipe.

8. Remove the lock bail plate and gasket. Take out the compression spring and bail. (In the case of the 5-speed transmission, proceed to this operation after the 5th gear has been disassembled.)

9. Remove the transmission case as follows:
   (1) With the hole snap ring for output shaft bearing use held in an expanded state by means of the SST, drop the shaft.
   SST: 09905-00012-000
   (2) To drive out the transmission case, tap the case rib with a plastic hammer.

10. Detach the hole snap ring.

11. Remove the control linkage-related parts
    (For the disassembly procedure for each part, see page 3-50.)
12. Remove the input shaft bearing lock plate.

13. Remove the input shaft assembly and output shaft assembly at the same time.
   (1) Alternately pull out both shafts a little at a time.

14. Remove the selector support assembly, shifting bell crank and magnet.

15. Remove the differential case as follows.
   (1) With a brass bar placed on the inner race of the side bearing lightly tap the bar so that the differential case may be driven out from the transaxle case.

REPLACEMENT
Inspect the following parts. (See page 3-15.) Replace any parts that exhibit defects, following the procedure given below.

1 Oil seal for control shaft use
   Disassembly: Remove the oil seal by pinching its flange section with pliers.
   Assembly: Drive the oil seal into position, until it comes into contact with the axle case
   SST: 09515-87201-000
2 Oil seal for input shaft use

**Disassembly:** Remove the oil seal with a common screwdriver.

**Assembly:** Drive the oil seal into position, until it becomes flush with the edge surface of the transaxle case.

SST: 09606-87201-000

3 Needle Roller Bearing

**Disassembly:** After the output shaft bearing lock plate has been removed, remove the roller bearing, using the SST given below.

SST: 09308-00010-000

**Assembly:**

1. Assemble the roller bearing, using the SST given below.

SST: 09309-87201-000

**NOTE:** Visually check to see if the output shaft cover exhibits severe distortion or clogging.

2. Install the bearing lock plate.

**Tightening Torque:** 0.7 - 1.0 kg-m (5.1 - 7.2 ft-lb)

4 Oil seal for differential use

**Disassembly:** Remove the oil seal with a common screwdriver.

**Assembly:** Drive the oil seal into position, until it comes into contact with the rib of the axle case.

SST: 09517-87701-000 (Case side) 09517-87702-000 (Housing side)

**INSPECTION**

1. Check each bearing for wear or damage

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing</td>
<td>When the inner race is rotated by your fingers, it should rotate smoothly without any binding.</td>
</tr>
</tbody>
</table>

2. Check each oil seal for wear or damage

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lip section of oil seal</td>
<td>Visually inspect to see if the lip section exhibits excessive carriage or wear.</td>
</tr>
</tbody>
</table>

Fig. 3-57

Fig. 3-58

Fig. 3-59

Fig. 3-60

Fig. 3-61
3. Check the speedometer shaft sleeve subassembly for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driven gear shaft diameter</td>
<td>6.2563 (0.2465)</td>
<td>7.96 (0.3131)</td>
</tr>
<tr>
<td>Shaft sleeve bore</td>
<td>6.2563 (0.2465)</td>
<td>6.30 (0.2453)</td>
</tr>
<tr>
<td>Oil seal in section</td>
<td>Visually inspect for excessive wear or damage</td>
<td></td>
</tr>
<tr>
<td>&quot;O&quot; ring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driven gear tooth surface</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ASSEMBLY**

1. Assemble the differential case.
   (For the assembly procedure for each part, see page 3-47.)

2. Assemble the magnet and selecting & shifting bell crank support assembly.
   (For the assembly procedure for each part, see page 3-57.)
   
   Tightening Torque: 0.7 - 1.0 kg-m (5.1 - 7.2 ft-lb)

3. Assemble the input shaft assembly and output shaft assembly at the same time.

4. Assemble the input shaft bearing lock plate
   
   Tightening Torque: 1.5 - 2.2 kg-m (11 - 16 ft-lb)
5. Assemble the control linkage-related parts.
   (For the assembly procedure for each part, see page 3-57.)

6. Install the hole snap ring in the transmission case.

7. Assemble the transmission case as follows:
   (1) Apply the Three Bond sealer 1216 to the mating surface of the housing. While the hole snap ring of the bearing is held in an expanded state, assemble the transmission case in the axle case.
   SST: 09905-00012-000
   NOTE:
   Make sure that the snap ring is fitted positively in the bearing, by raising the output shaft by your hand.
   (2) Tighten the housing attaching bolts.
   Tightening Torque: 1.5 - 2.2 kg-m (11 - 16 ft-lb)

8. Assemble the ball and compression spring.

9. Assemble the lock ball plate and gasket as follows:
   (1) Perform the assembling, using the bolts.
10. Install the case cover oil pipe as follows:
   (1) Insert the oil pipe, until it is in contact with the case.

   **NOTE:**
   The oil pipe for the 4-speed transmission differs from that for the 5-speed transmission in its overall length and tip-end shape.

   - **Overall length:**
     - Oil pipe for 4-speed transmission: 126 mm (5.0 inch)
     - Oil pipe for 5-speed transmission: 167 mm (6.5 inch)

11. Assemble the transmission case cover as follows:
   (1) Apply the liquid gasket sealer (Three Bond 1216) to the mating surfaces of the case, except for those hole areas (See page 3-19.)
   - **Tightening Torque:** 0.7 - 1.0 kg-m (5.1 - 7.2 ft-lb)

12. Assemble the oil seal for speedometer shaft sleeve, using the SST given below
   - **SST:** 09201-60011-000

13. Assemble the speedometer shaft sleeve subassembly and lock plate.
   - **Tightening Torque:** 0.7 - 1.0 kg-m (5.1 - 7.2 ft-lb)

14. Install the backup lamp switch and breather plug.
   - **Tightening Torque**
     - Backup Lamp Switch: 3.0 - 5.0 kg-m (22 - 36 ft-lb)
     - Breather Plug: 1.0 - 1.3 kg-m (7.2 - 9.4 ft-lb)
15. Install the clutch cable bracket and engine mounting bracket.
   
   **Tightening Torques**
   - Clutch Cable Bracket: 1.5 - 2.2 kg-m (11 - 16 ft-lb)
   - Engine Mounting Bracket: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

16. Install the screw plugs (at the drain and filler sides).
   
   **Tightening Torque:** 3.0 - 5.0 kg-m (22 - 36 ft-lb)
Application Points of Grease & Bond and Application Procedure

NOTE:
As for each gear clustered on the input and output shafts and the rotary and sliding sections of the oil seals, apply gear oil to the entire surface of each part.

Application Procedure for Liquid Gasket Sealer
(Three Bond 1216 ... Part No. 999-0480-9U50-00)

1. Cut the first stage of the nozzle of the Daihatsu genuine sealer (Three Bond 1216) that is furnished in accessories.

2. Remove any remaining trace of the liquid gasket that may be found on the housing or the case with thinner or a scraper. Care must be exercised not to scratch the surfaces during the cleaning.
3. Apply the liquid sealer to the entire periphery of the housing and case without any unapplied spot, as indicated in the illustration at the right.

NOTE:
1. Apply the liquid sealer to the inside of each hole, excluding those bolts holes.
2. Be sure to perform the assembling within five minutes after the application of the liquid sealer.
3. Make sure to dry the thinner completely.

NOTE:
<Handling Instructions on Liquid gasket>
1. The liquid gasket starts to cure when it reacts with the moisture in the atmosphere. Hence, upon completion of the work, be sure to expel any air trapped in the tube and tighten the tube cap securely.
2. As regards the storage place for this liquid gasket, avoid such places where high temperature or high humidity prevails or those exposed to direct sunrays. Make sure to store it in a dry, cold and dark place. (The allowable limit for use is approximately six months.)
DISASSEMBLY, INSPECTION AND ASSEMBLY OF INPUT SHAFT COMPONENTS

T: Tightening Torque
Unit: kg-m (ft-lb)
*: Non-reusable parts

1. Lock nut
2. Conical washer
3. Bearing
4. 4th gear bush
5. 4th gear
6. Synchronizer ring
7. Synchronizer hub Ay No.2
8. Synchronizer ring
9. 3rd gear
10. Shaft snap ring
11. Bearing
12. Input shaft

Fig. 3-81
Operation Prior to Disassembly
Pull out the input shaft and the output shaft at the same time from the transmission case. Proceed to the next disassembly operation. (See page 3-16.)

DISASSEMBLY
1. Remove the lock nut (4-speed transmission only)
   (1) Clamp the 1st gear section of the input shaft in a v-se., making sure that no scratch is made to the clamped section.
   (2) Release the staked section of the lock nut, using a chisel.
   (3) Remove the lock nut.
   NOTE: For the 5-speed transmission, see page 3-39.

2. Remove the conical spring washer. Then, remove the bearing using the SST given below.
   SST: 09692-67301-000

3. Remove the 4th gear and 4th gear bush.

4. Remove the synchronizer ring. Then, remove the synchronizer hub assembly No.2.
   (1) Detach the two synchromesh shifting springs and three synchromesh shifting keys.
5. Remove the synchronizer ring and 3rd gear.

6. Detach the shaft snap ring, using two common screwdrivers.

**NOTE:**
1. Special care must be exercised as to the snap ring which may jump out during the disassembly.
2. Particular attention should be paid to avoid scratching the shaft.

7. Remove the bearing, using the SST given below.
   **SST:** 09602-87301-000

---

**INSPECTION**

1. Check the 4th gear bush for wear or damage

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>25.02</td>
</tr>
<tr>
<td></td>
<td>(0.984)</td>
<td>(0.985)</td>
</tr>
<tr>
<td>Outer diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.984)</td>
<td>36.89</td>
</tr>
<tr>
<td></td>
<td>(1.4567)</td>
<td>(1.452)</td>
</tr>
<tr>
<td>Overall length</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>28.97</td>
</tr>
<tr>
<td></td>
<td>(1.1417)</td>
<td>(1.141)</td>
</tr>
<tr>
<td>Thickness of flange section</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 ± 0.05</td>
<td>2.94</td>
</tr>
<tr>
<td></td>
<td>(0.1181 ± 0.0024)</td>
<td>(0.116)</td>
</tr>
</tbody>
</table>
2. Check each gear for wear or damage

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
<th>mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>in (inch)</td>
<td>mm</td>
</tr>
<tr>
<td>Bore 1</td>
<td>Width 6</td>
<td>1.4356</td>
<td>0.0566</td>
</tr>
<tr>
<td>Bore 2</td>
<td>Width 6</td>
<td>1.4356</td>
<td>0.0566</td>
</tr>
</tbody>
</table>

3rd gear (input) | 37.5 | 1.4817 | 37.05 | 1.4625 |
4th gear (input) | 28.6 | 1.1273 | 28.7 | 1.1273 |

Spindle section
Gear sector & tapered section
Basement surface of gear
Fitting section with sleeve

Visually inspect the section for excessive damage or wear.

Inspect the section for excessive play, nick or rounded edge.

3. Check the clutch hub and sleeve for the 3rd & 4th gear use for wear or damage.

Clutch Hub

<table>
<thead>
<tr>
<th>Part</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle section 1</td>
<td></td>
</tr>
<tr>
<td>Synchro mesh shifting key fitting groove 2</td>
<td>Visually inspect the section for excessive damage or wear</td>
</tr>
</tbody>
</table>

With the hub lifted into the sleeve, check for excessive looseness in up-down direction and slant of the hub and sleeve.

Sleeve

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
<th>mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>in (inch)</td>
<td>mm</td>
</tr>
<tr>
<td>Shift fork groove width 3</td>
<td>7.0</td>
<td>0.276</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Fitting section with gear 4 | Visually inspect the section for excessive damage, wear, nick or rounded edge.

4. Check the input shaft for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
<th>mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>in (inch)</td>
<td>mm</td>
</tr>
<tr>
<td>Outer diameter of bush bore-contact section 1</td>
<td>24.99</td>
<td>(0.984)</td>
<td>24.99</td>
</tr>
</tbody>
</table>

Tooth surfaces of gear and spline | Visually inspect the surface for excessive damage, wear, nick or rounded edge.
5. Check the synchronizer shifting key and key spring for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key for 3rd &amp; 4th gear (dimension H)</td>
<td>5.0 - 5 1/4 (0.197 - 0.199)</td>
<td>4.3 (0.169)</td>
</tr>
<tr>
<td>Spring</td>
<td>Visually inspect the spring for damage or distortion.</td>
<td></td>
</tr>
</tbody>
</table>

6. Check the synchronizer ring for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap when synchronizer ring is pressed to gear</td>
<td>0.85 - 1.45 (0.034 - 0.06)</td>
<td>0.5 (0.020)</td>
</tr>
<tr>
<td>Damage at inner tapered section</td>
<td>Visually inspect the section for excessive damage.</td>
<td></td>
</tr>
<tr>
<td>Damage at spline</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Check the bearing for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing</td>
<td>When the inner race is rotated by your fingers, it should rotate smoothly without any binding.</td>
</tr>
</tbody>
</table>

**ASSEMBLY**

1. Apply gear oil to the entire surface of the rotary or sliding section of each gear of the input shaft.

**NOTE:**

The overall length of the input shaft differs depending upon the transmission type. Hence, special care must be exercised as to its overall length.

<table>
<thead>
<tr>
<th>Transmission type</th>
<th>Overall length mm (inch)</th>
<th>Presence of splines at section A</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Speed</td>
<td>269 (10.59)</td>
<td>No</td>
</tr>
<tr>
<td>5-Speed</td>
<td>31 (12.24)</td>
<td>Yes</td>
</tr>
</tbody>
</table>
2. Assemble the bearing, using the SST given below.
   SST: 09309-87201-000

3. Drive a new snap ring into position, using a common screwdriver.
   For easier installation, hold the snap ring with the SST given below.
   SST: 09309-87201-000
   **NOTE:**
   Be very careful not to scratch the shaft.

4. Assemble the 3rd gear.

5. Assemble the synchronizer ring and synchronizer hub assembly No.2.
   (1) Assemble the clutch and sleeve. Ensure that both parts can slide smoothly.
   (2) Assemble the shifting keys and springs.

6. Assemble the synchronizer ring and 4th gear.
7. Assembly the 4th gear bush.
8. Assemble the bearing using the SST given below.
   SST: 09309-67201-000

   NOTE:
   On the 5-speed transmission, measure the end play of each gear after the bearing has been assembled.
   (See page 3-43.)

9. Assemble the conical spring washer and lock nut.
   (4-speed transmission)
   (1) Install the conical spring in such a way that its expanded side may face toward the shaft side.
   (2) Clamp the reduction gear section in a vise, making sure that no scratch may be made to the section.
   (3) Tighten the lock nut.
      Tightening Torque: 10.0 - 14.0 kg-m (72 - 101 ft-lb)

10. Upon completion of the assembly, measure the end play of each part of the input shaft.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd gear</td>
<td>0.1 - 0.23 (0.0039 - 0.0091)</td>
<td>0.4 (0.016)</td>
</tr>
<tr>
<td>4th gear</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   NOTE:
   If the end play does not comply with the specification, check the gear, bush and clutch hub sliding section. Replace any parts which exhibit defects.

11. Stake the lock nut, using a chise.
   NOTE:
   Be sure to stake the central part of the lock nut so as to avoid dislocation or cracks.
DISASSEMBLY, INSPECTION AND ASSEMBLY OF OUTPUT SHAFT COMPONENTS

T : Tightening Torque
Unit: kg-m (ft-lb)
* : Non-reusable parts

1. Lock nut
2. Conical spring washer
3. Bearing
4. Output 4th gear
5. Speedometer drive gear
6. Output 3rd gear
7. 2nd gear Ay
8. Bush
9. Synchronizer ring No. 3
10. Synchronizer hub Ay
11. Synchronizer ring No. 3
12. 1st gear Ay
13. Washer
14. Needle roller bearing
15. Output shaft

T : 10.0 - 14.0 (72 - 101)

Fig. 3-106

3-31
Operation Prior to Disassembly
Pull out the output shaft and the input shaft at the same time from the transmission case. Proceed to the next disassembly operation. (See page 3-53.)

DISASSEMBLY
1. Remove the lock nut. (4-speed transmission only)
   (1) Clamp the reduction gear section of the output shaft in a vise, making sure that no scratch is made to the clamped section.
   (2) Release the staked section of the lock nut using a chisel.
   (3) Remove the lock nut.
   NOTE: For the 5-speed transmission, see page 3-39.

2. Remove the conical spring washer. Then remove the bearing using the SST given below.
   SST: 09602-97301-000

3. Remove the output 4th gear, speedometer drive gear and output 3rd gear.

4. Remove the 2nd gear assembly
   (1) Detach the shaft snap ring using the SST given below.
      SST: 09905-00012-000
   (2) Remove the 2nd subgear.
   (3) Remove the conical spring washer.
5. Remove the 2nd gear bush and synchronizer ring No.3.

6. Remove the synchronizer hub assembly No.2
   (1) Remove the two synchronmesh shifting key springs and three synchronmesh shifting keys.

7. Remove the synchronizer ring No.3

8. Remove the 1st gear assembly.
   (1) Detach the shaft snap ring, using the SST given below.
      SST: 09905-00012-000
   (2) Remove the 1st subgear.
   (3) Remove the conical spring washer.

9. Remove the spacer and needle roller bearing.
INSPECTION

1. Check the 2nd gear bush for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore</td>
<td>29 = 1.1417 = 0.115</td>
<td>28.84</td>
</tr>
<tr>
<td></td>
<td>(1.1417 = 0.115)</td>
<td>(1.135)</td>
</tr>
<tr>
<td>Outer diameter</td>
<td>37 = 1.4567 = 0.045</td>
<td>36.68</td>
</tr>
<tr>
<td></td>
<td>(1.4567 = 0.045)</td>
<td>(1.4524)</td>
</tr>
<tr>
<td>Overall length</td>
<td>32.5 = 0.03</td>
<td>32.47</td>
</tr>
<tr>
<td></td>
<td>(*2.795 = 0.0012)</td>
<td>(1.2783)</td>
</tr>
</tbody>
</table>

2. Check each gear for wear or damage

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st gear (output)</td>
<td>37 = 1.4567 = 0.025</td>
<td>37.05</td>
</tr>
<tr>
<td></td>
<td>(1.4567 = 0.025)</td>
<td>(1.459)</td>
</tr>
<tr>
<td>2nd gear (output)</td>
<td>37 = 1.4567 = 0.025</td>
<td>37.05</td>
</tr>
<tr>
<td></td>
<td>(1.4567 = 0.025)</td>
<td>(1.459)</td>
</tr>
<tr>
<td>Spline section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tapered section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear section</td>
<td>3</td>
<td>Visually inspect the section for excessive damage or wear</td>
</tr>
<tr>
<td>Bush edge surfaces</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fitting section with</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>hub sleeve</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Check the clutch hub for the 1st & 2nd gears and reverse gear for wear or damage.

Clutch Hub

<table>
<thead>
<tr>
<th>Part</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spline section</td>
<td>Visually inspect the section for excessive damage or wear</td>
</tr>
<tr>
<td>Synchronmesh shifting key</td>
<td>Fitting groove</td>
</tr>
<tr>
<td>With the hub fitted into the sleeve, check for excessive looseness in up &amp; down direction and slant of the hub and sleeve</td>
<td></td>
</tr>
</tbody>
</table>

Reverse Gear

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift fork groove width</td>
<td>7.2 = 0.285</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>(0.285)</td>
<td>(0.287)</td>
</tr>
<tr>
<td>Fitting section with gear</td>
<td>Visually inspect the section for excessive damage, wear, nick or rounded edge</td>
<td></td>
</tr>
<tr>
<td>Reverse gear tooth surface</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3-34
4. Check the output shaft for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm (inch)</td>
<td>mm (inch)</td>
</tr>
<tr>
<td>Outer diameter of the needle roller bearing- contact-section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>30 ± 0.052</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.1811 ± 0.002)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>28.96</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.1435)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>32 ± 0.030</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.2594 ± 0.0011)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31.96</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.2583)</td>
<td></td>
</tr>
<tr>
<td>Tooth surfaces of gear and spline</td>
<td>Visually inspect the surface for excessive damage, wear, nick or rounded edge.</td>
<td></td>
</tr>
</tbody>
</table>

5. Check the synchromesh shifting key and key spring for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm (inch)</td>
<td>mm (inch)</td>
</tr>
<tr>
<td>Shifting key for 1st &amp; 2nd gears (dimension F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.1 ± 0.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.2008 ± 0.0039)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.185)</td>
<td></td>
</tr>
<tr>
<td>Spring</td>
<td>Visually inspect the spring for damage or distortion</td>
<td></td>
</tr>
</tbody>
</table>

6. Check the 1st and 2nd subgears and conical spring washer for damage or wear. (Except for vehicles mounted with Type CB-6C engine)

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm (inch)</td>
<td>mm (inch)</td>
</tr>
<tr>
<td>Bore of subgear</td>
<td>47 ± 0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.8504 ± 0.008)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>47.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.870)</td>
<td></td>
</tr>
<tr>
<td>Subgear-to-conical spring washer sliding surface</td>
<td>Visually inspect the surface for damage or distortion</td>
<td></td>
</tr>
</tbody>
</table>

7. Check the synchronizer ring for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm (inch)</td>
<td>mm (inch)</td>
</tr>
<tr>
<td>Gear when synchronizer ring is pressed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st and 2nd gears</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.85 - 1.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.0335 - 0.057)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.020)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damage at inner tapered sector</td>
<td>Visually inspect the section for excessive damage</td>
<td></td>
</tr>
<tr>
<td>Damage at: spline</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Check the bearing for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing</td>
<td>When the inner race is rotated by your fingers, it should rotate smoothly without any binding.</td>
</tr>
</tbody>
</table>
ASSEMBLY

NOTE:
Apply gear oil to the entire surface of the rotary or sliding section of each gear of the output shaft.

1. Assemble the needle roller bearing and spacer.

2. Assemble the 1st gear assembly.
   (1) Install the conical spring in such a way that its expanded side may face toward the subgear side.
   (2) Assemble the 1st subgear.
   (3) Assemble a new snap ring, using the SST given below.
       SST: 09905-00012-000

3. Assemble the synchronizer ring No.3.

4. Assemble the synchronizer hub assembly.
   (1) Assemble the hub clutch and reverse gear. Ensure that both parts can slide smoothly.
   (2) Assemble the shifting keys and springs.

5. Assemble the synchronizer ring No 3 and 2nd gear bush.

6. Assemble the 2nd gear assembly.
   (1) Install the conical spring in such a way that its expanded side may face toward the subgear side.
   (2) Assemble the 2nd subgear.
   (3) Assemble a new snap ring, using the SST given below.
       SST: 09905-00012-000
7. Assemble the output 3rd gear, speedometer drive gear and output 4th gear.  
**NOTE:**
The number of the speedometer drive gear teeth differs depending upon the gear reduction ratio. Hence, care must be exercised as to the number of gear teeth during the assembly. (See page 3-3.) 
Apply gear oil to the entire surface of the rotary or sliding section of each gear.

8. Assemble the bearing, using the SST given below. 
**SST:** 09309-87201-000

9. Assemble the conical spring washer and lock nut.
(4-speed transmission)
(1) Instal the conical spring in such a way that its expanded side may face toward the gear side.
(2) Clamping the reduction gear section in a vise, making sure that no scratch may be made to the section.
(3) Tighten the lock nut.
Tightening Torque: 10.0 - 14.0 kg-m (72 - 101 ft-lb)

10. Upon completion of the assembly, measure the end play of each part of the output shaft.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value(mm/inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st gear</td>
<td>1</td>
<td>0.1 - 0.37</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>(0.039 - 0.0145)</td>
</tr>
<tr>
<td>3rd gear</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**
If the end play does not comply with the specification, check the gear, bush and clutch hub sliding section. Replace any parts which exhibit defects.

11. Stake the lock nut, using a chisel.
**NOTE:**
Be sure to stake the central part of the lock nut so as to avoid dislocation or cracks.
DISASSEMBLY, INSPECTION AND ASSEMBLY OF 5TH GEAR COMPONENTS

1. Slotted spring pin
2. Lock nut
3. Conical spring washer
4. Transmission hub sleeve stopper
5. 5th shift fork
6. Transmission clutch No.3 hub Ay
7. Synchronizer ring
8. 5th gear
9. 5th gear bush
10. Lock nut
11. Conical spring washer
12. Output 5th gear

T: Tightening Torque
Unit: kg-m (R-Rb)
+: Non-reusable parts.
DISASSEMBLY

1. Remove the slotted spring pin.

2. Remove the lock nut.
   (1) Lock the input shaft, using the recommended tool for this application. (See page 3-66)
   (2) Release the stake lock nut, using a chisel
   NOTE:
   Be very careful not to damage the threaded portion of the input shaft.

   (3) Remove the lock nut at the input shaft, using a socket whose width across flats is 32 mm.
   (4) Set the sleeve for 5th gear to the 5th gear position.
   (5) Remove the lock nut at the output shaft side.

3. Remove the conical spring washer at the input shaft side and transmission hub sleeve stopper

4. Remove the 5th shift fork and transmission clutch hub assembly No.3.
   (1) Remove the 5th shift fork and transmission clutch hub assembly No.3 at the same time
5. Remove the synchronizer ring and 5th gear.
6. Remove the 5th gear bush.

7. Remove the conical spring washer at the output shaft side. Remove the output 5th gear.

**INSPECTION**

1. Check the bush wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified Value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bush bore</td>
<td>25 - 0.026</td>
<td>25.02</td>
</tr>
<tr>
<td>(0.9843 - 0.0010)</td>
<td>(0.985)</td>
<td></td>
</tr>
<tr>
<td>Bush outer diameter</td>
<td>37 - 0.049</td>
<td>36.89</td>
</tr>
<tr>
<td>(1.4567 - 0.0019)</td>
<td>(1.422)</td>
<td></td>
</tr>
<tr>
<td>Overall length</td>
<td>29 ± 0.03</td>
<td>29.57</td>
</tr>
<tr>
<td>(1.141)</td>
<td>(1.141)</td>
<td></td>
</tr>
<tr>
<td>Thickness of flange section</td>
<td>3 ± 0.06</td>
<td>2.94</td>
</tr>
<tr>
<td>(0.118 ± 0.0024)</td>
<td>(0.116)</td>
<td></td>
</tr>
</tbody>
</table>

2. Check the 5th gear for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified Value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th gear (input)</td>
<td>25 ± 0.025</td>
<td>25.02</td>
</tr>
<tr>
<td>(1.4567 - 0.0010)</td>
<td>(1.422)</td>
<td></td>
</tr>
<tr>
<td>Spindled section</td>
<td>Visually inspect the section for excessive damage or wear:</td>
<td></td>
</tr>
<tr>
<td>Tapered section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th edge surface of gear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ring sector w/rib section</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3-40
3. Check the clutch hub and sleeve for the 5th gear for wear or damage.

**Clutch Hub**

<table>
<thead>
<tr>
<th>Part</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Splined section</td>
<td>Visually inspect the section for excessive damage or wear.</td>
</tr>
<tr>
<td>Synchronmesh shifting key fitting groove</td>
<td>With the hub fitted into the sleeve, check for excessive looseness (in up-down direction) and play of the hub are sleeve.</td>
</tr>
</tbody>
</table>

**Sleeve**

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift fork groove width</td>
<td>70.12 (2.76)</td>
<td>7.3 (0.29)</td>
</tr>
<tr>
<td>Fitting section with gear</td>
<td>Visually inspect the section for excessive damage, wear, nick or rounded edge.</td>
<td></td>
</tr>
</tbody>
</table>

4. Check the synchronmesh shifting key and key spring for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key for 5th gear (Dimension A)</td>
<td>50.0 - 55.0 (2.00 - 2.17)</td>
<td>4.3 (0.17)</td>
</tr>
<tr>
<td>Spring</td>
<td>Visually inspect the spring for damage or distortion.</td>
<td></td>
</tr>
</tbody>
</table>

5. Check the synchronizer ring for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap when synchronizer ring is pressed to gear</td>
<td>0.85 - 1.45 (0.033 - 0.057)</td>
<td>0.5 (0.020)</td>
</tr>
<tr>
<td>Damage at inner tapered section</td>
<td>Visually inspect the section for excessive damage.</td>
<td></td>
</tr>
</tbody>
</table>

6. Check the shift fork for the 5th gear for damage or wear.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness at tip section of fork</td>
<td>7.0 (0.26)</td>
<td>6.3 (0.25)</td>
</tr>
</tbody>
</table>
ASSEMBLY

NOTE:
Apply gear oil to the entire surface of the rotary or sliding section of each gear of the output shaft.

1. Assemble the output 5th gear and the conical spring washer for the output shaft.
   NOTE:
   Tighten a new lock nut temporarily.

2. Assemble the 5th gear bush
3. Assemble the 5th gear and synchronizer ring.

4. Assemble the transmission clutch hub assembly.
   (1) Assemble the clutch and sleeve. Ensure that both parts can slide smoothly
   (2) Assemble the shifting keys and springs.
   NOTE:
   1. The hub assembly for the 3rd and 4th gear use differs from the hub assembly for the 5th gear use only in the inner diameter of the clutch hub. Other parts are shared in common.
   2. The sleeve and clutch do not have any installing direction to be observed during their assembly.

5. Assemble the transmission clutch hub assembly and the 5th gear shift fork at the same time.

6. Assemble the transmission hub sleeve stopper.
7. Assemble the conical spring washer.
   (1) Install the conical spring in such a way that its expanded side may face toward the transmission side.
8. Install a new lock nut.
   (1) Lock the input shaft, using the recommended tool for this application. (See page 3-66.)
   (2) Tighten the lock nut at the input shaft to the specified torque. Using a socket whose width across flats is 32 mm.

   **Tightening Torque:** 10.0 - 14.0 kg-m (72 - 101 ft-lb)

   (3) Set the transmission to the 5th gear position.
   (4) Tighten the lock nut at the output shaft to the specified torque.

   **Tightening Torque:** 10.0 - 14.0 kg-m (72 - 101 ft-lb)

   (5) Before the lock nut is staked, measure the end play of the 5th gear.

   **Specified Value:** 0.1 - 0.23 mm (0.004 - 0.009 inch)
   **Limit:** 0.4 mm (0.016 inch)

   (6) Stake the lock nut, using a chisel.

   **NOTE:**
   Be sure to stake the central part of the lock nut so as to avoid dislocation or cracks.

9. Drive the slotted spring pin into position, until it becomes flush with the edge surface of the shift fork.
COMPONENTS

T : 8.0 - 9.0 (58 - 65)

- Radial ball bearing
- Radial ball bearing
- Differential gear
- Slecot spring pin
- Differential pinion
- Differential side gear
- Differential washer
- Oil seal

* : Non-reusable parts

T : Tightening Torque
Unit: kg-m (ft-lb)
DISASSEMBLY

1. Remove the radial ball bearing
   (1) Remove the bearing at the engine side, using the SST given below
       SST: 09602-87301-000

   (2) Remove the bearing at the transmission side, using the SST given below
       SST: 09306-87302-000

   NOTE:
   Grinding off the interfering section of the SST will make the operation easier.

2. Remove the differential ring gear.
   (1) Clamp the differential case in a vise. Remove the attaching bolts.

   (2) Remove the differential ring gear.
       If any difficulty in removing the ring gear is encountered, evenly tap the peripheral section of the ring gear, using a plastic hammer.

3. Drive out the slotted spring pin, using a punch pin
4. Pull out the differential pinion shaft.

5. Remove the differential pinion, differential side gear and differential pinion washer.

**INSPECTION**

1. Check the differential ring gear for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear tooth surface</td>
<td>Visually inspect the surface for wear, damage, nick or rounded edge</td>
</tr>
</tbody>
</table>

2. Check the side gear, pinion and pinion shaft for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value (mm (inch))</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer diameter of side gear (less section)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Except vehicles mounted with Type CB-80 engine</td>
<td>32.0 - 32.82 (1.2600 - 1.2860)</td>
<td>31.97 (1.2600)</td>
</tr>
<tr>
<td>Vehicles mounted with Type CB-80 engine</td>
<td>35.0 - 35.82 (1.3700 - 1.3900)</td>
<td>34.87 (1.3700)</td>
</tr>
<tr>
<td>Pinion shaft tilting hole of pinion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Except vehicles mounted with Type CB-80 engine</td>
<td>5.0 - 5.82 (0.1969 - 0.2283)</td>
<td>5.03 (0.1984)</td>
</tr>
<tr>
<td>Vehicles mounted with Type CB-80 engine</td>
<td>6.0 - 6.82 (0.2362 - 0.2673)</td>
<td>6.03 (0.2362)</td>
</tr>
<tr>
<td>Outer diameter of pinion shaft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Except vehicles mounted with Type CB-80 engine</td>
<td>10.500 - 10.506 (0.4134 - 0.4150)</td>
<td>10.500 (0.4134)</td>
</tr>
<tr>
<td>Vehicles mounted with Type CB-80 engine</td>
<td>15.000 - 15.006 (0.5906 - 0.5930)</td>
<td>15.000 (0.5906)</td>
</tr>
</tbody>
</table>

Check the gear tooth surface and the splined section of the side gear for wear or damage.
3. Check the differential case and thrust washer for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of thrust washer</td>
<td>0.6 ± 0.06</td>
<td>0.7</td>
</tr>
<tr>
<td>(0.0313 ± 0.0020)</td>
<td>(0.0320)</td>
<td></td>
</tr>
<tr>
<td>Vehicles mounted with C6-40 engine</td>
<td>1.1 ± 0.05</td>
<td>1.0</td>
</tr>
<tr>
<td>(0.043 ± 0.0020)</td>
<td>(0.042)</td>
<td></td>
</tr>
<tr>
<td>Side gear boss housing (except vehicles mounted with C6-40 engine)</td>
<td>22.9 ± 0.05</td>
<td>22.86</td>
</tr>
<tr>
<td>(229.9 ± 0.203)</td>
<td>(229.85)</td>
<td></td>
</tr>
<tr>
<td>Drive shaft hole (vehicles mounted with C6-40 engine)</td>
<td>28 ± 0.05</td>
<td>28.08</td>
</tr>
<tr>
<td>(280.0 ± 0.203)</td>
<td>(280.05)</td>
<td></td>
</tr>
<tr>
<td>Pinion gear-contact-section</td>
<td>Visually inspect the section for excessive wear or damage</td>
<td></td>
</tr>
<tr>
<td>Side gear thrust washer-contact-section</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**ASSEMBLY**

1. Assemble the differential pinion washers and differential side gears.

2. Assemble the differential pinions.
   1. Make the two pinions mesh with the side gears, working from the case side. Rotate the side gear so that the pinion's hole may align with the pinion shaft hole provided in the case.

3. Assemble the differential pinion shaft.
**Measurement of Side Gear Backlash**

(1) Fix the side gear at one side.

(2) Measure the backlash of each side gear at the right and left sides at several points, using a dial gauge.

Specified Backlash: 0.02 - 0.20 mm (0.001 - 0.008 inch)

---

4. Drive a new slotted spring pin into position

(1) Align the pin hole of the pinion shaft with the corresponding pin hole in the case.

(2) Working from the backside of the case (ring gear side), drive a new slotted spring pin into position, until it becomes flush with the case edge surface.

---

5. Assemble the differential ring gear.

(1) Install the ring gear in such a way that the side having large chamfer at its inner diameter comes at the case side.

**NOTE:**

1. The number of gear teeth varies depending upon each reduction ratio. Hence, it is necessary to identify the ring gear by checking the identification groove.

2. Care must be exercised to ensure that no foreign matter gets into the mating surface.

**Identification of Ring Gear**

<table>
<thead>
<tr>
<th>Number of gear teeth</th>
<th>Identification groove</th>
<th>Final reduction gear ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>One</td>
<td>4.500</td>
</tr>
<tr>
<td>74</td>
<td>None</td>
<td>4.933</td>
</tr>
<tr>
<td>65</td>
<td>Two</td>
<td>4.642</td>
</tr>
<tr>
<td>* 65</td>
<td>Three</td>
<td>4.642</td>
</tr>
</tbody>
</table>

* For Type CB-30 engine

(2) Tighten the ring gear attaching bolts.

Tightening Torque: 8.0 - 9.0 kg-m (58 - 65 ft-lb)
8. Assemble the radial ball bearings, using the SST given below.

SST: 09518-87301-000

NOTE:
Install the radial ball bearings with the bearing having a smaller outer diameter assembled at the ring gear side.
DISASSEMBLY, INSPECTION AND ASSEMBLY OF CONTROL LINKAGE-RELATED PARTS

COMPONENTS (PART 1)

① Select support Ay & shifting bell crank
② Reverse shift arm (4 M-TJ)
③ Shift arm pin & washer
④ E ring & washer
⑤ Compressor spring
⑥ Slotted spring pin
⑦ Reverse restrict cam
⑧ Reverse restrict shaft
⑨ Shift interlock plate
⑩ Shift, interlock plate
⑪ Wave washer, bolt and nut set
⑫ Shift & select shaft
⑬ Shift inner lever
⑭ Control shaft bolt

T : Tightening Torque
Unit: kg-m (ft-lb)
* : Non-reusable parts

Fig. 3-177
Fig. 3-176

1. Reverse idler shaft
2. Reverse idler gear
3. Compression spring
4. Slotted spring pin x 4
5. 5th & reverse shift lock shaft
6. Reverse shift arm head

*: Non-reusable parts

7. 3rd & 4th shift fork shaft
8. 1st & 2nd shift fork shaft
9. 1st & 2nd shift head
10. 3rd & 4th shift fork
11. 1st & 2nd shift fork
DISASSEMBLY

1. Pull out the reverse idler gear shaft. Remove the reverse idler gear together with the compression spring.

2. Pull out the slotted spring pin.
   (1) Working from the arrow-headed direction in the figure, drive out the slotted spring pin by means of a punch pin. (Four points)

3. Pull out the 5th & reverse shift fork shaft. Remove the reverse shift arm head.


5. Pull out the 1st & 2nd shift fork shaft. Remove the 1st & 2nd shift fork and the 1st & 2nd shift head.
6. Remove the input shaft and output shaft at the same time.

7. Remove the selecting & shifting bell crank support assembly and magnet.

**NOTE:**
1. Be sure not to release the staked section of the bell crank.
2. On both the 4-speed and 5-speed transmissions, replacement parts are supplied only as those with the bell crank support assembly. (In the case of the replacement parts for the 5-speed transmission, the reverse restricting cam is excluded.) Furthermore, it should be noted that the reverse restricting cam can not be disassembled.

8. Remove the shift interlock plate.

9. Remove the wave washer, nut and set bolt
   (*) After the nut has been slackened, proceed to slacken the set bolt.

10. After the differential case assembly has been removed (see page 3-16), remove the shift & select shaft.
11. Remove the shift inner lever and control shaft boot.

**INSPECTION**

1. Check the shift fork shafts, balls and springs for damage or wear.

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball lock section and interlock section of fork shaft (①)</td>
<td>Visually inspect the section for excessive damage or wear.</td>
</tr>
</tbody>
</table>

2. Check the 1st shift fork, the 2nd shift fork and the reverse shift head for damage or wear.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness at 1-section of fork</td>
<td>7.9 (0.278)</td>
<td>6.3 (0.248)</td>
</tr>
<tr>
<td>Groove width of shift inner lever-contact-section</td>
<td>12.1 ±0.1 0.476 0.004</td>
<td>12.7 (0.500)</td>
</tr>
<tr>
<td>Groove width of reverse shift arm pin-contact-section</td>
<td>15.0 ±0.43 0.5906 0.097</td>
<td>15.1 (0.595)</td>
</tr>
</tbody>
</table>

3. Check the interlock plate for damage or wear.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of lock plate</td>
<td>16.3 ±0.15 (0.642 ± 0.006)</td>
<td>16.0 (0.630)</td>
</tr>
<tr>
<td>Roller section</td>
<td>Check the section for excessive damage or wear</td>
<td></td>
</tr>
</tbody>
</table>

*Two lock plates must be replaced at the same time.

4. Check the control shaft and inner lever for damage or wear.

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control shaft</td>
<td>Visually inspect the following items given below.</td>
</tr>
<tr>
<td>Inner lever recessed sector and shaft inserting section</td>
<td>Shaft for bend</td>
</tr>
<tr>
<td>Sliding section of dust boot and breakage</td>
<td>Recessed section of inner lever and shaft inserting section for wear or damage.</td>
</tr>
<tr>
<td>Tip-end of lock bolt</td>
<td>Dust boot for cracks or wear.</td>
</tr>
<tr>
<td></td>
<td>Tip-end of lock bolt for wear.</td>
</tr>
</tbody>
</table>
5. Check the selecting & shifting bell crank and the reverse shift arm for damage or wear.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve shift arm pin diameter</td>
<td>15.6 ± 0.036 (0.6105 - 0.0014)</td>
<td>14.85 (0.585)</td>
</tr>
<tr>
<td>Tip-end width of reverse shift arm</td>
<td>8.0 ± 0.016 (0.3150 - 0.0003)</td>
<td>7.8 (0.307)</td>
</tr>
<tr>
<td>Operation of selecting &amp; shifting bell crank</td>
<td></td>
<td>Check to see if the bell crank can move in up-and-down direction with detent feeling</td>
</tr>
</tbody>
</table>

6. Check the reverse restricting cam and shaft for damage or wear. (5-speed transmission only)

<table>
<thead>
<tr>
<th>Part</th>
<th>Inspection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation of restricting cam</td>
<td>Ensure that the mis-operation preventing mechanism functions at the support assembly</td>
</tr>
<tr>
<td></td>
<td>① The cam should be raised at the same time when the section ③ is lifted.</td>
</tr>
<tr>
<td></td>
<td>② When turned to the left, ensure that the cam drops and the section ③ is locked.</td>
</tr>
<tr>
<td>Each part of reverse restricting cam and shaft</td>
<td>Visually inspect each part for damage or wear</td>
</tr>
</tbody>
</table>

7. Check the reverse idler gear and shaft for wear or damage.

<table>
<thead>
<tr>
<th>Part</th>
<th>Specified value mm (inch)</th>
<th>Limit mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bush inner diameter</td>
<td>17 ± 0.027 (0.6693 ± 0.001)</td>
<td>17.05 (0.671)</td>
</tr>
<tr>
<td>Shaft outer diameter</td>
<td>17 ± 0.027 (0.6693 ± 0.0013)</td>
<td>16.9 (0.665)</td>
</tr>
<tr>
<td>Groove width</td>
<td>8 ± 0.056 (0.3150 ± 0.0023)</td>
<td>8.2 (0.323)</td>
</tr>
<tr>
<td>Wear or damage of spring</td>
<td>Visually inspect the spring for flattened condition and the washer for wear or damage.</td>
<td></td>
</tr>
</tbody>
</table>

ASSEMBLY

1. Assemble the boot and shift inner lever on the control shaft.
   NOTE: Be very careful not to scratch the boot.

2. Assemble the shift & select shaft in the case.
3. After the differential case assembly has been installed assemble the wave washer, nut and setting bolt.
   (1) Align the hole of the shift inner lever with the cut-out section of the shift & select shaft. Proceed to tighten the set bolt to the specified torque.
   Tightening Torque: 4.0 - 5.0 kg-m (29 - 36 ft-lb)

(2) Tighten the nut to the specified torque
   Tightening Torque: 2.0 - 3.0 kg-m (16 - 22 ft-lb)

4. Assemble the shift interlock plate:
   (1) Assemble the plate in the Neutral position.

5. Install the magnet into position.

6. Assemble the input shaft and output shaft at the same time.

7. Install the input shaft bearing lock plate. Tighten the nuts
8. Assemble the selecting & shifting bell crank support assembly.
   (1) Working from the inside of the case, install the shift arm pin. Assemble the washer.
   (2) Drive the slotted spring pin into position until it becomes flush with the edge surface of the restricting cam.
   (3) Assemble the restricting cam
      (1) Assemble the restricting cam so that the slotted spring pin may be inserted into the hole.

**NOTE:**
Be sure not to forget to attach the spring in place.

   **NOTE:**
   Prior to the assembling, apply gear oil to the sliding section of each shift fork.
   (1) Assemble the 1st & 2nd shift fork onto the synchronizer hub for the 1st & 2nd gear use provided at the output shaft side.
   (2) Assemble the 3rd & 4th shift fork onto the synchronizer hub for the 3rd & 4th gear use provided at the input shaft side.

10. Assemble the 1st & 2nd shift head, the 1st & 2nd shift fork shaft and the 3rd & 4th shift fork shaft.

11. Assemble the reverse shift arm head.
    (1) Assemble the arm head in the direction as indicated in the right figure.

**NOTE:**
It should be noted that the arm head for the 4-speed transmission differs from that for the 5-speed transmission in its shape.
12. Assemble the 5th & reverse shift fork shaft.

NOTE:
It should be noted that the fork shaft for the 4-speed transmission differs from that for the 5-speed transmission in its length.

Shaft Length
For 4-speed transmission: 175 mm (6.89 inch)
For 5-speed transmission: 223 mm (8.79 inch)

13. Working from the direction as indicated in the figure, drive the sotted spring pin into position, until it becomes flush with the edge surface of the shift fork.

14. Assemble the compression spring, reverse idler gear and reverse idler gear shaft
SHIFT LEVER & SHIFTING SELECTING ROD

COMPONENTS

1. Shift lever knob
2. Shift & select lever boot
3. Dust seal retainer
4. Dust boot
5. Shift & select shaft S/A (transmission side)
6. Bush
7. Extension rod S/A
8. Floor shift: support No.2
9. Floor shift: support No.1

Fig. 3-296
REMOVAL

1. Detach the shift lever knob and the shift & select lever boot.

2. Detach the dust seal retainer and dust boot.

3. Disconnect the shift & select shaft subassembly at the transmission side.
4. Remove the bush.

5. Remove the extension rod subassembly and floor shift support No.2.
INSPECTION
Check to see if each joint section under an assembled condition rotates smoothly without any binding.
(See the figure below.)

DISASSEMBLY
1. Working from the case side, pull out the hole snap ring by means of the SST
   SST: 09905-B7001-000

2. Disassemble the plate washer, bush and shift lever seat.

3. Remove the extension rod subassembly from the shift lever subassembly.
4. Disassemble the plate washer and shift lever retainer dust boot.

5. Disassemble the bush, nut, plate washer and floor shift support No.1.

6. Grind off the staked section of the extension rod sub-assembly using a grinder.

7. Grind off the staked section of the shift & select sub-assembly using a grinder.
INSPECTION
Inspect the following parts. Replace any parts which exhibit defects.

Grease Application Points

Apply grease to ball surface.

Fig. 3-221

Fig. 3-222
ASSEMBLY

1. Assemble the extension rod.
   NOTE:
   On replacement parts, the connecting method with the support employs a bolt. Hence, care must be exercised to ensure that the assembling is carried out in the correct direction.

2. Insert the bush into position.
   NOTE:
   If any difficulty is encountered in inserting the bush, apply soap water to the case side for easier installation.

3. Assemble the floor shift support No.1. Install the nut and washer.

4. Assemble the bush in the shift lever subassembly.

1. Assemble the shift & select shaft
   NOTE:
   On replacement parts, the connecting method with the shift lever employs a bolt. Hence, care must be exercised to ensure that the assembling is carried out in the correct direction.
   Tightening Torque: 1.0 - 1.8 kg-m (7.2 - 11.6 ft-lb)

3-64
6. Assemble the shift lever retainer dust boot and plate washer onto the extension rod.

7. After the shift lever subassembly has been installed, assemble the shift lever seat, bush and plate washer.

8. Assemble the hole snap ring, using the SST given below.
SST: 09905-87001-000

INSTALLATION
1. Install the floor shift support No.2, shift lever and extension rod as a set on the vehicle.

2. Install the extension rod subassembly, onto the transmission.
   Tightening Torque: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)
3. Assemble the bush in the shift & select shaft, install the transmission side of the shift & select shaft subassembly.

4. Install the dust boot and dust seal retainer.

5. Install the shift & select lever boot and the shift lever knob.

Input Shaft Locking Tool

Clutch disc of New Charade (G100, G101)

Make the input shaft locking tool with clutch disc of new Charade (G100, G101) as shown in the above illustration.
<table>
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<th>SECTION 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOMATIC TRANSMISSION</td>
</tr>
</tbody>
</table>

<table>
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<th>4-2</th>
</tr>
</thead>
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<td>4-2</td>
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<td>4-3</td>
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<td>4-6</td>
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<td>4-7</td>
</tr>
<tr>
<td>UNIT INSPECTION</td>
<td>4-15</td>
</tr>
<tr>
<td>TROUBLE SHOOTING</td>
<td>4-19</td>
</tr>
<tr>
<td>FLUID CHANGE</td>
<td>4-23</td>
</tr>
</tbody>
</table>

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### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine type</strong></td>
<td>CB-23</td>
</tr>
<tr>
<td><strong>Torque converter</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Three-element, one-stage, two-phase type</td>
</tr>
<tr>
<td>Stall torque ratio</td>
<td>2.26</td>
</tr>
<tr>
<td>One-way clutch type</td>
<td>Sprag type</td>
</tr>
<tr>
<td><strong>Control element</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Spiral gear type planetary gear (two-row)</td>
</tr>
<tr>
<td>Wet type multiple clutch</td>
<td></td>
</tr>
<tr>
<td>Band type brake</td>
<td>1 set</td>
</tr>
<tr>
<td>Wet type multiple brake</td>
<td></td>
</tr>
<tr>
<td>One-way clutch</td>
<td>1 piece</td>
</tr>
<tr>
<td><strong>Transmission type</strong></td>
<td></td>
</tr>
<tr>
<td>Gear ratio</td>
<td></td>
</tr>
<tr>
<td>1st gear: 2.810</td>
<td>2nd gear: 1.549; 3rd gear: 1.000 reverse gear: 2.296</td>
</tr>
<tr>
<td>Reduction gear ratio</td>
<td>Reduction gear ratio: 3.880; final gear ratio: 3.872</td>
</tr>
<tr>
<td>Speedometer</td>
<td>Number of drive gear teeth: 27; Number of driven gear teeth: 24</td>
</tr>
<tr>
<td>Oil pump</td>
<td>Internal gear type</td>
</tr>
<tr>
<td>Fluid to be used</td>
<td>Automatic fluid Dextron-II</td>
</tr>
<tr>
<td>Fluid capacity</td>
<td>Approx 5 (4.4, 3.3)</td>
</tr>
<tr>
<td>Water-cooled</td>
<td>Water-cooled (radiator built-in type)</td>
</tr>
<tr>
<td>Gear shift control method</td>
<td>Electronic hydraulic pressure control method</td>
</tr>
<tr>
<td>Automatic gear shift</td>
<td>Three forward speeds, full automatic shift</td>
</tr>
<tr>
<td>Manual control pattern</td>
<td>P-R-N-D-2-L</td>
</tr>
</tbody>
</table>
OPERATING INSTRUCTIONS ON VEHICLE EQUIPPED WITH 3-SPEED AUTOMATIC TRANSMISSION

1. When the transmission is downshifted from the D or 2 range to the 1 range during running, as a precautionary measure perform the downshift at a vehicle speed below 50 km/h. The transmission has such function that, even if the transmission is downshifted to the 1 range, no downshift to the 1st gear will take place at a vehicle speed above 58 km/h.

2. When the automatic transmission-equipped vehicle is towed, set the change lever to the N position and tow the vehicle at a speed below 30 km/h. Towing distance is to be limited to 80 km.
   It troubles seem to exist inside the transmission, move the vehicle with front wheels raised by a wrecker.
   If the engine is not running, no oil circulates in the transmission. Hence, there is a possibility that the gear, clutch and so forth may get seized.

3. If the electronic control system, such as the computer should be encountered with abnormality, resulting in malfunctioning gear shift, and yet you must perform emergency running, you may operate the vehicle, following the procedure given below.
   1) Disconnect the 2-pole connector (elliptical and white) leading to the solenoid of the transmission
      Secure the disconnected harness leading to the solenoid so that it may not be caught by the drive shaft.
   2) When the shift lever is selected to the D, 2 and 1 ranges progressively in this order, upshift occurs as follows: the 1st gear in the 1 range, the 2nd gear in the 2 range and the 3rd gear in the 1 range.
## BASIC CHECKS

<table>
<thead>
<tr>
<th>Item</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of check</td>
<td>1. Park the vehicle on a flat road. 2. Ensure the safety at the forward and rear areas of the vehicle. Perform the following checks.</td>
</tr>
</tbody>
</table>

### Neutral Start Switch Check

1. Apply the parking brake.  
2. Ensure that the engine can start when the shift lever is set to the P or N range. Also ensure that the engine will not start when other ranges are selected.  
3. Check each continuity specified in the connection table, using a circuit tester.  

#### Connection Table

<table>
<thead>
<tr>
<th>Range</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Shift Lever Position Check

1. Start the engine. Release the parking brake. Ensure that the vehicle moves forward when the shift lever is shifted from the P range to the D, 2, or L ranges. Also, ensure that the vehicle moves backward when the shift lever is shifted to the R range.  
2. Stop the engine, and apply the parking brake.  
3. Set the shift lever from the D range to each of the 2 and L ranges. Make sure that the shift lever can be operated smoothly and shifted to each range with a good detent feeling. Also ensure that the position indicator functions properly. Moreover, set the engine key switch to the [ON] position. Ensure that the position indicator in the combination meter functions properly.  
4. Set the engine key switch to the [ON] position. Switch the shift lever from the 2 or L range to the D range. Ensure that the backup lamp goes on.

### Engine Idling Speed Check

**Specified Value:** 800 - 850 rpm

1. Apply the parking brake.  
2. Attach an engine tachometer.  
3. With the 2 range selected, warm up the engine.  
4. Ensure that the engine idling speed complies with the specification.

### Automatic Transmission Fluid Level Check

*When oil is warmed up (approx. 75°C (167°F)):*

1. Apply the parking brake.  
2. With the brake pedal depressed and the engine running at the idling speed, select the shift lever all through the ranges from the P to 2. Finally, return the shift lever to the P range.  
3. Take out the level gauge and wipe off the fluid with a cloth. Insert the level gauge and take it out again. Check to see if the fluid level is between the upper and lower limits.

#### NOTE

1. Perform this check when the fluid temperature is 70 - 80°C (158 - 176°F), which is the normal operating temperature.  
2. If the fluid level is low, check for fluid leakage.  
3. Care must be exercised as to a too-low fluid level, for it will cause various troubles.

### Solenoid Valve Connector Check

1. Check to see if any connector is disconnected.

### Computer Connector Check

1. Check to see if the speedometer pointer is moving.  
2. Check to see if the various speed indicators are normal.  
3. Check to see if the vehicle speed sensor is producing an output. (See page 4-15.)
## ADJUSTMENTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift Lever Adjustment</td>
<td>1. Check the joint section between the control rod and the manual valve outer lever for wear.</td>
</tr>
<tr>
<td></td>
<td>Check other joint sections for wear and deformation.</td>
</tr>
<tr>
<td></td>
<td>2. Turn the manual valve outer lever to the left as far as it goes (A range). Then, back off two stages (B range).</td>
</tr>
<tr>
<td></td>
<td>3. Slacken the swivel bracket attaching bolt (adjusting bolt) located at the end section of the control cable.</td>
</tr>
<tr>
<td></td>
<td>4. Set the shift lever to the B range. With the shift lever slightly pushed to the B range side, tighten the attaching bolt in Step 3. (While drawing the control cable to the transmission side, securely tighten the control cable.)</td>
</tr>
<tr>
<td></td>
<td>5. After completion of the adjustment, check the shift lever operation. Ensure that the shift lever is operated with a good detent feeling and that the position indicator functions properly for each range. Also, make sure that the vehicle moves forward in the D, 2, and 1 ranges, whereas the vehicle backs up in the B range.</td>
</tr>
<tr>
<td>Throttle Cable Adjustment</td>
<td>Adjust the adjusting nut in such a way that the dimension A complies with the specified value when the throttle is fully closed.</td>
</tr>
<tr>
<td></td>
<td>Specified Value: 0 - 0.5 mm (0 - 0.02 inch)</td>
</tr>
<tr>
<td></td>
<td>Tightening Torque: 0.85 - 1.55 kg·m (6.15 - 11.2 ft·lb)</td>
</tr>
<tr>
<td>Throttle Sensor Adjustment</td>
<td>1. Using a MityVac (a hand vacuum pump), keep the dashpot in a contracted state.</td>
</tr>
<tr>
<td></td>
<td>2. Slacken the throttle adjusting screw so that it may be once cleared from the throttle shaft arm.</td>
</tr>
<tr>
<td></td>
<td>3. Screw in the throttle adjusting screw until it comes in contact with the throttle shaft arm. Further screw in the throttle adjusting screw 7 turns (At this point, the periphery of the throttle lever travels 10 mm (0.39 inch).)</td>
</tr>
<tr>
<td></td>
<td>4. Adjust the throttle sensor so that the switch &quot;S4&quot; to &quot;earth&quot; continuity of the throttle sensor may be changed from (OFF) to (ON) at this opening degree of the throttle valve. Perform this adjustment by turning the adjusting screw located at the back of the throttle sensor, using the SST. (See page 4-14.)</td>
</tr>
<tr>
<td></td>
<td>5. Remove the MityVac. Back off the throttle adjusting screw so that the idling speed may be adjusted to 800 - 850 rpm.</td>
</tr>
</tbody>
</table>
TESTS
Prior to the following tests, be sure to perform basic checks and adjustments.

1. STALL TEST
   This test checks the total performance of the transaxle and engine, by measuring the maximum engine revolution speed at each range.
   **NOTE:**
   1. Perform this test when the fluid temperature is 70 - 80°C (158 - 176°F), which is the normal operating temperature.
   2. Never perform this test continuously for more than six seconds.

   Specified stall revolution speed:
   2100 - 2900 rpm

   **Reference:** If the measured value does not conform to the specification, the following are possible causes.

   | Case where stall revolution speeds for both ranges are the same, but lower than the specified value | 1. Lack of engine output |
   | Case where stall revolution speed for D range is greater than the specified value | 2. Torque converter malfunctioning |
   | Case where stall revolution speed for R range is greater than the specified value | 1. Forward clutch slipping |
   | | 2. One-way clutch of torque converter malfunctioning |
   | | 3. Line pressure too low |
   | Case where stall revolution speed for R range is greater than the specified value | 1. Direct clutch slipping |
   | | 2. 1st & reverse brake slipping |
   | | 3. Line pressure too low |
2. **TIME LAG TEST**

When the shift lever is shifted while the engine is idling, a certain time elapses before a shock is felt. This time is called the time lag. This time lag test evaluates the conditions of the clutch, brake and line pressure.

**NOTE:**

1. Perform this test when the fluid temperature is 70 - 80°C (158 - 176°F), which is the normal operating temperature.
2. If the time lag is to be measured consecutively, be sure to put an one-minute interval between the tests.

---

**Specified time lag**

| N → D Range | 1.0 Second or Less |
| N → R Range | 1.4 Seconds or Less |

**Reference:** If the measured value does not conform to the specification, the following are possible causes.

| Case where time lag for N to D shift is greater than the specified value | 1. Forward clutch worn |
| | 2. Line pressure too low |
| Case where time lag for N to R shift is greater than the specified value | 1. Direct clutch worn |
| | 2. First & reverse brake worn |
| | 3. Line pressure too low |
3. HYDRAULIC PRESSURE TEST
This test checks operating condition of each section by measuring the fluid line pressure.

NOTE:
1. Perform this test when the fluid temperature is 70 - 80°C (158 - 176°F), which is the normal operating temperature.
2. Be sure to replace the test plug with a new one.

Articles to be prepared

<table>
<thead>
<tr>
<th>Instruments</th>
<th>09992-00092-000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil pressure gauge for automatic transmission</td>
<td></td>
</tr>
<tr>
<td>Tool handled by Banzai Ltd Type: OPG-100</td>
<td></td>
</tr>
</tbody>
</table>

| Oil pressure gauge adaptor (For A35 and A55) |
| Tool handled by Banzai Ltd Type: OPG-41 |

Test plug position

- Apply the parking brake
- Remove the test plug
- Attach a hydraulic pressure gauge
- Start the engine
- Shift to "R" range
- Measure the hydraulic pressure

While depressing the brake pedal strongly with your left foot, manipulate the accelerator pedal with your right foot.
## Specified hydraulic pressure

<table>
<thead>
<tr>
<th>Engine running condition</th>
<th>Hydraulic pressure</th>
<th>kg/cm² (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>D</strong> range</td>
<td><strong>R</strong> range</td>
</tr>
<tr>
<td>Idling revolution</td>
<td>2 - 4 (28 - 57)</td>
<td>5 - 8 (71 - 114)</td>
</tr>
<tr>
<td>Stall revolution</td>
<td>4 - 6 (57 - 85)</td>
<td>B - 12 (114 - 171)</td>
</tr>
</tbody>
</table>

Reference: If the measured value does not conform to the specification, the following are possible causes.

- **Case where hydraulic pressure for each range is greater than the specified value**
  1. Regulator valve malfunctioning
  2. Throttle valve malfunctioning
  3. Throttle cable improperly adjusted

- **Case where hydraulic pressure for each range is lower than the specified value**
  1. Oil pump faulty
  2. Regulator valve malfunctioning
  3. Throttle valve malfunctioning
  4. Throttle cable improperly adjusted

- **Case where hydraulic pressure for **D** range is lower than the specified value**
  1. Forward clutch malfunctioning
  2. Oil leakage at **D** range circuit

- **Case where hydraulic pressure for **R** range is lower than the specified value**
  1. Direct clutch malfunctioning
  2. First & reverse brake malfunctioning
  3. Oil leakage at **R** range circuit
4. SYSTEM CHECKS ON TEST VEHICLE

(1) Running test

Check the gear shift at each shift point in accordance with the shift point characteristics diagram. Determine whether or not the gear shift occurs by your body feeling.

Fig. 4-6

D range test

1. From the standstill state, start the vehicle by fully depressing the accelerator pedal (in D range). Ensure that the upshift from 1st gear to 2nd gear occurs at a vehicle speed of approx. 50 km/h.

2. From the standstill state, start the vehicle by depressing the accelerator pedal about halfway. Ensure that the upshift from the 2nd gear to the 3rd gear occurs at a vehicle speed of approx. 54 km/h.
3. While running in the 3rd gear of the D range at a vehicle speed of 80 km/h or less, depress the accelerator pedal fully. Ensure that the downshift from the 3rd gear to the 2nd gear occurs.

4. While running in the 2nd gear of the D range at a vehicle speed of 36 km/h or less, depress the accelerator pedal fully. Ensure that the downshift from the 2nd gear to the 1st gear occurs.

<table>
<thead>
<tr>
<th>Trouble symptom</th>
<th>Possible causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>No upshift from 1st gear to 2nd gear takes place.</td>
<td>1. 1 – 2 shift valve malfunctioning</td>
</tr>
<tr>
<td></td>
<td>2. Solenoid valve No. 2 malfunctioning</td>
</tr>
<tr>
<td></td>
<td>3. Shift control system malfunctioning</td>
</tr>
<tr>
<td>No upshift from 2nd gear to 3rd gear takes place.</td>
<td>1. 2 – 3 shift valve malfunctioning</td>
</tr>
<tr>
<td></td>
<td>2. Solenoid valve No. 1 malfunctioning</td>
</tr>
<tr>
<td></td>
<td>3. Shift control system malfunctioning</td>
</tr>
<tr>
<td>Incorrect shift points</td>
<td>1. 1 – 2 and 2 – 3 shift valves malfunctioning</td>
</tr>
<tr>
<td></td>
<td>2. Shift control system malfunctioning</td>
</tr>
<tr>
<td>Excessive shocks</td>
<td>1. Idling speed too high</td>
</tr>
<tr>
<td></td>
<td>2. Line pressure too high</td>
</tr>
<tr>
<td></td>
<td>3. Accumulator malfunctioning</td>
</tr>
</tbody>
</table>
AUTOMATIC TRANSMISSION

(2) Engine brake test

While running in the 3rd gear of the D range, shift to the 2 or L range. Check the engine brake operation in each range.

Reference: If the engine brake does not work effectively, the following are possible causes.

<table>
<thead>
<tr>
<th>Case where engine brake will not work in</th>
<th>2nd brake malfunctioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case where engine brake will not work in</td>
<td>First &amp; reverse brake malfunctioning</td>
</tr>
<tr>
<td>L range</td>
<td></td>
</tr>
</tbody>
</table>

(3) Manual running test

Remove the harness of the solenoid valves No. 1 and No. 2 at its connector section (white, 2-pole). Run the vehicle by manually shifting the shift lever to each range. Check to see if the gear shifts occur in accordance with each range.

NOTE:

Secure the disconnected harness, using vinyl tape or the like, so that it may not be caught by the rotating sections.

Specifications

<table>
<thead>
<tr>
<th>Shift lever position</th>
<th>D</th>
<th>2</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gear position</td>
<td>3rd</td>
<td>2nd</td>
<td>1st</td>
</tr>
</tbody>
</table>

(4) P range test

1. Place the vehicle on a grade (about 5 degrees or more) with the vehicle in an upright state. Set the lever to the P range and release the parking brake lever.

   Ensure that the vehicle will not move by the operation of the parking lock mechanism.

2. Repeat this test in the same procedure for the vehicle facing downhill.

3. Check to see if the vehicle moves when the shift lever is changed from the P range to other ranges.

4-13
# Automatic Transmission

## 5. Electrical System Check

### Articles to be Prepared

<table>
<thead>
<tr>
<th>Shape</th>
<th>Number and nomenclature of parts</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>09842-87702-000 Transmission control computer check subharness</td>
<td>For checking computer input/output voltages</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>09843 87702-000 A+X computer check lamp</td>
<td>Diagnosis display</td>
</tr>
</tbody>
</table>

### How to use SST

Connect the transmission control computer check subharness between the computer and the connector of the harness at the vehicle side. This subharness is used for checking input/output voltages of each terminal.

When measuring the connector terminal voltage, use a circuit tester with adequate internal resistance of more than 40 kΩ. If a circuit tester with small internal resistance is used, no correct voltage is indicated.

After completion of the connection, confirm the following items and perform the check.

1. Continuity exists between the body earth and each of the earth terminals ⑥ and ⑦.
2. Regardless of the key switch position, the battery voltage is applied across ② and ③ (earth).
3. When the key switch is set to the (LOCK) and (ACC) position, no voltage is applied across ④ and ⑤ (earth); when set to the (ON) position, the battery voltage is applied.

### Computer terminals

<table>
<thead>
<tr>
<th>IG</th>
<th>L1</th>
<th>L2</th>
<th>E01</th>
<th>S3</th>
<th>P</th>
<th>D</th>
<th>2</th>
<th>L</th>
<th>E9</th>
<th>B9</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-</td>
<td>FP</td>
<td>②</td>
<td>③</td>
<td>④</td>
<td>⑤</td>
<td>⑥</td>
<td>⑦</td>
<td>⑧</td>
<td>⑨</td>
<td>⑩</td>
</tr>
</tbody>
</table>

### SST terminal

- (White)
- (Black)

Check terminal

---

Check subharness

Computer

Fig. 4-13
Diagnosis display

This system is provided with a diagnosis function. Therefore, if the vehicle is encountered with any abnormality, first check to see if any abnormality code indication is present. If any abnormality code is displayed, check the corresponding item according to the table below. (For display method, see page 3-50 of the Technical Information No. 9331-GE.)

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Lamp flashing number</th>
<th>Diagnosis item</th>
<th>Page to be referred to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Abnormality in pulse signal of vehicle speed sensor No. 1</td>
<td>P 4-15</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Open wire or short in solenoid valve No. 1</td>
<td>P 4-17</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Open wire or short in solenoid valve No. 2</td>
<td>P 4-17</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Abnormality in signal input of throttle sensor</td>
<td>P 4-17</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Abnormality in shift position signal</td>
<td>P 4-16</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>Abnormality in pulse signal of vehicle speed sensor No. 2</td>
<td>P 4-15</td>
</tr>
</tbody>
</table>

UNIT INSPECTION

1. VEHICLE SPEED SENSOR CHECK (Refer to page 3-47 of the Technical Information No. 9331-GE)

Perform this check with the key switch set to the [ON] position, but without starting the engine.

When Font tire is rotated, check to see if those voltages of (X - (Y) and (Z) - (Y) becomes 0 V or more repeatedly. NG

When engine is started, check to see if no target of (X) - (Y) is 0 V or more, but not more than 16 V (engine revolution speed: 3000 rpm or more) NG

NG

In case of (X - (Y) NG, speed sensor No. 1 is defective. In case of (Z) - (Y) NG, speed sensor No. 2 is defective

OK

Normal

OK

Engine signal system is faulty

OK

Normal
3. NEUTRAL START SW CHECK (Refer to page 3-47 of the Technical Information No. 9331-GE)

Perform this check with the key switch set to the [ON] position, but without starting the engine.

**Diagram Description:**
- **Shift to P range.**
- Check to see if those voltages of (6) - (8) and (6) - (8) are 0 V and those voltages of (2) - (6), (6) - (8) and (8) - (10) are 10 V or more.
  - **NG**
  - **OK**
- Shift to R range.
- Check to see if those voltages of (6) - (2) and (6) - (8) are 0 V and those voltages of (2) - (6), (6) - (8) and (8) - (10) are 10 V or more.
  - **NG**
  - **OK**
- Shift to N range.
- Check to see if those voltages of (6) - (2) and (6) - (8) are 0 V and those voltages of (2) - (6), (6) - (8) and (8) - (10) are 10 V or more.
  - **NG**
  - **OK**
- Shift to D range.
- Check to see if those voltages of (6) - (2) and (6) - (8) are 0 V and those voltages of (2) - (6), (6) - (8) and (8) - (10) are 10 V or more.
  - **NG**
  - **OK**
- Shift to L range.
- Check to see if those voltages of (6) - (2) and (6) - (8) are 0 V and those voltages of (2) - (6), (6) - (8) and (8) - (10) are 10 V or more.
  - **NG**
  - **OK**
- Normal

**Voltage between (6) (EO1) and each terminal**

<table>
<thead>
<tr>
<th>Shift position</th>
<th>Terminal No.</th>
<th>(6p)</th>
<th>(6a)</th>
<th>(6n)</th>
<th>(6d)</th>
<th>(62)</th>
<th>(64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>R</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>N</td>
<td>H</td>
<td>L</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>D</td>
<td>H</td>
<td>L</td>
<td>L</td>
<td>H</td>
<td>L</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>2</td>
<td>H</td>
<td>L</td>
<td>L</td>
<td>H</td>
<td>L</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>L</td>
<td>H</td>
<td>L</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
</tr>
</tbody>
</table>

L: 0 V  H: 10 V or more

4-16
4. THROTTLE SENSOR CHECK (Refer to page 3-46 of the Technical Information No. 9331-GE)
Perform this check with the key switch set to the [ON] position, but without starting the engine.

Set accelerator to [OFF] state.

Check to see if those voltages of $\Omega_2\cdot\Omega_3$, $\Omega_4\cdot\Omega_7$, $\Omega_5\cdot\Omega_9$ and $\Omega_7\cdot\Omega_9$ are 10 V or more.

OK

Depress accelerator pedal fully.

Check to see if those voltages of $\Omega_7\cdot\Omega_9$, $\Omega_4\cdot\Omega_7$, $\Omega_6\cdot\Omega_8$ and $\Omega_6\cdot\Omega_8$ are 0 V.

In accordance with depression of accelerator pedal, voltages become 0 V in the following order: $\Omega_4\cdot\Omega_7$, $\Omega_6\cdot\Omega_8$ and $\Omega_6\cdot\Omega_8$.

NG

OK

Normal

NG

Throttle sensor system is faulty.

5. SOLENOID VALVE CHECK (2 POINTS) (Refer to page 3-48 of the Technical Information No. 9331-GE)
With the connector of the solenoid harness disconnected, apply the battery voltage to the connector at the transaxle side. Check to see if any operating sound occurs.

Apply battery voltage to connector terminal, thus switching [ON] and [OFF] solenoid valve. Check to see if any operating sound is emitted. Perform this check for two terminals.

NG

Solenoid system is faulty.

OK

Normal
6. TRANSMISSION CONTROL COMPUTER

The computer itself cannot be checked
(1) Be very careful not to apply impacts (e.g., dropping) to the transmission control computer.
(2) The connector should be connected, while paying attention to the locking direction. Furthermore, the connector should be disconnected with the lock button being depressed, making sure that the connector is not twisted.
(3) Be certain to turn OFF the engine switch before the connector is connected or disconnected.
(4) When the computer is mounted onto the body, be sure to tighten the two attaching bolts evenly and alternately in order that the bracket may not be distorted.
(5) Never open the sealing of the computer proper. Also, be sure not to modify the computer.
(6) Prior to the removal/installation of the battery terminals, make sure to turn OFF the engine switch.
(7) Under no circumstances should the battery be connected reversely.
(8) Care must be exercised to ensure that no water or dust gets to the computer proper. If the computer proper should be soaked by water or the like, do not reuse the computer proper.

NOTE:
The computer is installed on the upper side of the glove compartment box.
TROUBLE SHOOTING

When checks and repairs have been made on abnormal codes, set the key switch to the [OFF] position and remove the fuse (tail) or battery negative terminal, thus canceling the memory.

- Vehicle will not move forward at all → Replace transaxle Ay. (P 4-24)
- Vehicle will not move backward at all → Perform check A. (P 4-19)
- No shift will occur at all → Perform check B. (P 4-20)
- Shifts occur, but they are not normal → Perform check C. (P 4-20)
- No diagnostic output is present → Perform check D. (P 4-21)
- Engine will not start even when key switch is set to [ON] position → Perform check E. (P 4-21)
- Engine stops when key switch is returned to [OFF] position → Perform check F. (4-22)

1. CHECK A

- Perform neutral start SW check. (P 4-18)
  - NG → Neutral start SW system is faulty
    - Shift to BR range.
  - CK →
    - Check los: both voltages of 95.65 and 96.65 are G.
      - NG → Replace computer
      - CK →
        - Perform solenoid valve check. (P 4-17)
          - NG → Solenoid system is faulty
          - OK → Replace transaxle.

NOTE:
Here, "So-and-so system is faulty" means not only that sensors are faulty but also that there are disconnected connectors, open wires, short and so forth at the vehicle side, as viewed from the computer side.
2. CHECK B

- Perform neutral start SW check (P 4-16) → OK
  - NG: Neutral start SW system is faulty.

- Perform vehicle speed sensor check (P 4-15) → OK
  - NG: Vehicle speed sensor system is faulty.

- Shift to 3 range.

- Check to see if those voltages of ⑤・⑧ and ⑥・⑨ are 10 V or more.
  - NG: Replace computer.

- Run vehicle at a speed above 25 km/h and set accelerator to (OFF) state. Check to see if a ⑥・⑨ voltage is 0 V.
  - OK
  - NG: Replace computer.

- Perform solenoid valve check (P 4-17) → OK
  - NG: Solenoid system is faulty.

  Replace transaxle.

3. CHECK C

- Perform neutral start SW check (P 4-16) → OK
  - NG: Neutral start SW system is faulty.

- Perform throttle sensor check (P 4-17) → OK
  - NG: Throttle sensor system is faulty.

- Shift to 3 range.

- With vehicle stopped, check to see if a ⑨・⑥ voltage is 10 V or more and a ④・⑩ voltage is 0 V.
  - NG: Replace computer.

- Run vehicle at a speed above 25 km/h and set accelerator to (OFF) state. Check to see if a ⑤・⑧ voltage is 3 V and a ⑦・⑨ voltage is 10 V or more.
  - OK
  - NG: Replace computer.

- Perform solenoid valve check (P 4-17) → OK
  - NG: Solenoid system is faulty.

  Replace transaxle.
4. CHECK D
Prior to this check, ensure that the battery voltage is applied to the terminal shown in the figure.

- Select diagnosis output state.
- Perform vehicle speed sensor. (P 4 - 15)
  - OK
  - NG → Vehicle speed sensor system is faulty
- Perform IG pulse check. (P 4 - 15)
  - OK
  - NG → IG pulse system is faulty.
- Check to see if a (6) - (7) voltage is 0 V.
  - OK
  - NG → Test terminal or vacuum SW system is faulty.
- Check to see if a (6) - (7) voltage becomes 9 V and 10 V alternately.
  - OK
  - NG → Replace computer

Open lead wire between check terminal and computer.

5. CHECK E
Perform this check with the key switch set to the [ON] position, but without starting the engine.

- Check to see if a (6) - (8) voltage is 10 V or more.
  - OK
  - NG → Lead wire to battery is open or disconnected.
  - Set key switch to [ST] position
- Check to see if a (6) - (11) voltage is 10 V or more.
  - OK
  - NG → Starter system is faulty.
- Check to see if a (6) - (12) voltage is 9 V or more.
  - OK
  - NG → Replace computer

Lead wire to fuel pump is open, or "fuel, pump and engine, etc are faulty."
6. CHECK F
Perform this check with the key switch set to the [ON] position, but without starting the engine.

- Check to see if @ voltage is 10 V or more.
  - OK
  - NG Lead wire to battery is open or disconnected.

- Set key switch to [ST] position

- Check to see if wave form at primary side of KS comes between @ @
  - NG Wire to primary side of KS set is open or connector is disconnected
  - OK

- Return key switch to [ON] position. While engine is still running, check to see if a @ voltage is 10 V or more.
  - NG Replace computer.
  - OK Lead wire to fuel pump is open or fuel pump and engine, etc. are faulty.

7. MEMORY ELIMINATION OF DIAGNOSIS CODE
After repairing abnormal part, remove the fuse (tail) or battery negative @ terminal for more than 10 seconds in order to cancel the memory.
FLUID CHANGE

1. Jack up the vehicle
2. Allow the transmission to cool. Remove the drain plug and drain out the automatic fluid

3. Install the drain plug gasket and drain plug. Tighten the plug to the specified torque
   Tightening Torque: 1.8 - 2.3 kg-m (13 - 17 ft-lb)

4. While the vehicle is still in a raised state, check the transmission and adjacent areas (including oil hose and oil cooler) for oil leakage, loose connecting sections or damage.

5. Pull out the oil level gauge from the oil filler tube. Add 1.5 l (2.64 Imp.p) of new fluid through the oil filler tube.
   NOTE 1:
   When the automatic transmission has been overhauled and the torque converter is to be reused, add 3.5 l (6.2 Imp.p) of new automatic fluid.

   NOTE 2:
   As for the torque converter and automatic transmission which contain no fluid at all, add 5 l (8.8 Imp.p) of new automatic fluid.

6. Check the fluid level only after the vehicle has reached the running state (70 - 80°C, 158 - 176°F).

Fig. 4-15

OK if fluid level is within this range
AUTOMATIC TRANSMISSION

TRANSMISSION REMOVAL AND INSTALLATION

REMOVAL

1. Remove the air suction guide from the air cleaner.
2. Disconnect the negative \(-\) terminal of the battery.
3. Disconnect the positive \(+\) terminal of the battery.
4. Remove the battery and battery tray.
5. Disconnect the earth terminal from the transmission.
6. Disconnect the solenoid wire coupler and neutral start switch wire coupler.
7. Disconnect the wire harness from the transmission.
8. Disconnect the speedometer cable from the transmission.
9. Disconnect the oil pressure control cable from the accelerator cable. Remove the accelerator cable from the transmission.
10. Remove the control cable from the transmission. (See APPENDIX.)
11. Remove the starter motor.
12. Drain out the automatic fluid from the transmission.
13. Disconnect the fluid inlet/outlet pipes. Then, hang them by means of wire so that no fluid may flow out from the oil cooler and hose.
14. Jack up or lift up the vehicle.
15. Remove the exhaust front pipe.
16. Remove the clutch housing undercover.
17. Remove the six bolts at the drive plate.

NOTE:
It is advisable to lock the drive plate by inserting a common screwdriver to the drive plate gear through the clutch housing cut-out section.

18. Remove the right and left drive shafts in accordance with the "DRIVE SHAFT DISASSEMBLY" of the SECTION 5 (FRONT AXLE).
19. In order to remove the transmission, securely support the engine and transmission separately, using jacks or the like.
20. Remove the engine lower/left mounting.
21. Remove the bolt connecting the engine and transmission.
22. Remove the transmission from the engine. Carefully lower the transmission.

NOTE 1:
When removing the transmission from the engine, be very careful not to apply excessive forces to the drive plate or the torque converter.

NOTE 2:
After the transmission has been removed, keep the transmission in such a way that the oil pan may come at the bottom so that no fluid may flow out.
INSTALLATION
Reverse the removal procedure to install the transmission, following the operating instructions given below.

NOTE 1:
Prior to the installation, apply grease around the cup located at the center of the torque converter.

NOTE 2:
Prior to the installation, measure the dimension A indicated in the right figure.
Specified Value: 27.2 mm (1.07 inch) or more
If the measured value does not conform to the specifications, rework the installation.

NOTE 3:
Tighten the six bolts on the drive plate and the torque converter to the following torque.
Tightening Torque: 1.5 - 2.2 kg-m (11 - 15 ft-lb)

NOTE 4:
Tighten the bolts attaching the transmission to the engine to the following torque.
Tightening Torque: 5.0 - 7.0 kg-m (35 - 51 ft-lb)

NOTE 5:
Tighten the lower/left mounting bracket to the following torque.
Tightening Torque: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

NOTE 6:
Install the right and left drive shafts in accordance with the "ASSEMBLY OF DRIVE SHAFT" of the SECTION 5 (FRONT AXLE).

NOTE 7:
After completion of the installation, check the automatic fluid level with the vehicle placed on a level place.
AUTOMATIC TRANSMISSION

DISASSEMBLY OF TRANSMISSION

INSTRUCTIONS ON DISASSEMBLY

1. In order to prevent dirt or dust from getting into the transmission case, observe the following instructions.
   (1) Prior to the disassembly, thoroughly wash off any sand or mud adhering to the outside of the transmission case.
   (2) Perform the disassembly at a clean place.
   (3) Do not wear gloves or use cloth.

2. Prior to the disassembly, check to see if any fluid leakage exists.

3. To prevent the removed parts from being lost or mixed with each other, place those parts removed from the transmission case in order.

4. Perform the disassembly while paying attention to the trouble shooting, too.

5. Do not remove any parts unnecessarily.

6. Completely peel off any trace of the gaskets from the parts, making sure that no damage is made to the gasket mating surfaces.

7. When removing the snap rings, care must be exercised not to damage other parts.

8. When removing the bearings, be very careful not to apply forces to the balls and rollers.

9. When disassembling the transmission case, rear cover, oil pump, housing, valve body and so forth, never pry them off by a common screwdriver. Instead, disassemble them by lightly tapping them using a plastic hammer.

1. Remove the torque converter.

   NOTE:
   Be sure to receive fluid which may leak with a pan or the like.

2. Remove the oil filler tube and oil level gauge.

3. Remove the drain plug and drain out the transmission fluid.

   NOTE:
   Completely drain out the fluid remaining inside the differential case by tilting it in various directions.
4. Remove the oil pan and oil pan gasket.

NOTE:
(1) Do not raise the oil pan side higher than the transmission case during the removal. Failure to observe this note will cause foreign matters at the bottom of the oil pan to contaminate the valve body.
(2) Remove the oil pan by lightly tapping the entire periphery of the oil pan using a plastic hammer. Never pry off the oil pan, using a common screwdriver.

5. Disconnect the solenoid connector (Two points)

6. Remove the oil tube.

NOTE:
Raise the end of the tube, using a common screwdriver.

7. Remove the throttle cable from the throttle valve cam.

8. Remove the valve body and oil strainer

NOTE:
Remove the 11 bolts indicated in the figure.

9. Remove the throttle cable from the transmission case.
9. Removal of the accumulator piston
(1) Cover with a cloth so as to prevent the piston from jumping out or the fluid from splashing.
(2) To remove the piston, gently apply compressed air with a low pressure (1 kg/cm², 15 psia: the maximum) into the oil hole indicated in the figure.

NOTE:
Care must be exercised as to jumping out of the piston or fluid splashing.

10. Removal of the neutral start switch and the case side cover
(1) Prior to the removal, shift to N range and scribe marks between the manual valve control lever and the neutral start switch and between the switch and the switch attaching position of the case in order to be easy to install.
(2) Remove the manual valve control lever and the neutral start switch.
(3) Remove the case side cover and the gasket.

11. Check of the 2nd brake piston rod stroke
(1) Scribe a mark on the piston rod.
(2) Apply compressed air into the oil hole indicated in the figure and measure the rod stroke.
   Specified value: 1.5 - 3.0 mm (0.059 - 0.118 inch)
   (The length of difference (A) represents the rod stroke.)

   (3) If the measured value does not comply with the specification, select a rod from the table below and replace it. Or replace the brake band.

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Piston rod length</th>
<th>Identification mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too short</td>
<td>21.3 mm (0.84 inch)</td>
<td>Not provided</td>
</tr>
<tr>
<td>Too long</td>
<td>122.7 mm (4.83 inch)</td>
<td>Provided (See figure below)</td>
</tr>
</tbody>
</table>
12. Removal of the 2nd brake piston
   (1) Detach the snap ring, using a common screwdriver or
       the like. Remove the cover and piston
   NOTE 1:
   If the 2nd brake piston and rod are encountered with no
   trouble, this removal is not required.
   NOTE 2:
   When removing the 2nd brake piston by applying com-
   pressed air, care must be exercised as to jumping out of
   the piston or fluid splashing.

13. Removal of the solenoid wire harness
   (1) Remove the nut retaining the lock plate. Remove the
       wire
   (2) Remove the wire clamps (2 points) of the rear cover.

14. Removal of the oil pump
   (1) Remove the oil pump attaching bolts (6 pieces)
   (2) Remove the oil pump, using the following SST.
       SST: 09350-87702-000

15. Removal of the torque converter housing
   (1) Remove the bolts at both inside and outside of the
       housing
   (2) Remove the housing by lightly tapping the periphery of
       the housing, using a plastic hammer.
   NOTE:
   Before removing the housing, detach the speedometer
   driven gear.

16. Draw out the straight pin, using pliers.
17. Remove the direct clutch and forward clutch.
   (1) While holding the input shaft, remove the direct clutch and forward clutch at the same time.

   (2) Remove the direct clutch from the input shaft.

18. Remove the 2nd brake band.

19. Remove the front planetary ring gear.
    **NOTE:**
    Check the thrust needle roller bearing.

20. Remove the front planetary ring gear assembly.
    **NOTE:**
    Check the thrust needle roller bearing.
1. Remove the thrust needle bearing from the planetary sun gear.
   NOTE:
   Check the thrust needle roller bearing.

22. Remove the planetary sun gear assembly
    NOTE:
    Check the thrustwasher.

23. Detach the one-way clutch snap ring.
    NOTE:
    Be very careful not to scratch other parts.

24. Remove the one-way clutch and rear planetary gear
    NOTE:
    Check the thrust washer.

25. Remove the rear planetary ring gear and thrust bearing
    NOTE:
    Check the thrust needle roller bearing.
26 Check of the 1st & reverse brake clearance
   (1) Measure the clearance indicated in the right figure, using a thickness gauge.
      Specified Value: 0.58 - 1.92 mm (0.023 - 0.075 inch)

   (2) If the measure value does not comply with the specification, replace the clutch disc or the plate.

27. Detach the snap rings (2 pieces), using a common screwdriver
    NOTE:
    Be very careful not to scratch other parts.

28 Remove the 1st & reverse brake flange, disc, plate and damper plate.

29 Remove the differential gear assembly.

30 Remove of the rear cover
   (1) Remove the bolts (7 pieces) and nuts (2 pieces).
   (2) Remove the rear cover by lightly tapping the position indicated in the figure, using a plastic hammer.
1. Removal of the counter shaft lock nut
   (1) Release the staked slats of the lock nut by means of a chisel.
   (2) Shift to the P range so that the gear may not turn.
   (3) Loosen the lock nut.
   NOTE:
   Carefully loosen the lock nut so that no shocks may be given to the parking lock pawl and output shaft.

32. Draw out the reduction driven gear.

33. Remove the drive counter shaft by lightly tapping it, using a plastic hammer.

34. Removal of the counter drive gear:
   (1) Remove the output shaft by pushing the bearing outer race of the inner output shaft. During this operation, use the following SST as shown in the figure.
   NOTE:
   Never tap the output shaft.
   SST: 09350-87702-000

35. Removal of the parking lock pawl
   (1) Draw out the parking lock pawl shaft and spring.
   (2) Remove the parking lock pawl.
(3) Remove the parking lock pawl sleeve.

36 Removal of the 1st & reverse brake piston
(1) Compress the return spring, using the SST indicated in the figure.
SST: 09350-87702-000

NOTE:
Do not compress the return spring beyond its compression allowance (deflection allowance).

(2) Detach the snap ring.

(3) Remove the return spring subassembly.

(4) Remove the piston by applying compressed air into the oil hole indicated in the figure.

NOTE:
Slowly apply compressed air with a low pressure (1 kg/cm², 15 psi) so that the piston may not tilt.

(5) Remove the "O" ring from the piston.
INSPECTION AND REPAIRS OF EACH PART

OIL PUMP

COMPONENTS

T: Tightening torque
Unit: kg-m (ft-lb)
*: Non-reusable parts

DISASSEMBLY
1. Remove the following parts from the oil pump body.
   (1) "O" ring
   (2) Bolts (11 pieces)
   (3) Slator shaft.

INSPECTION
1. Check the pump body oil seal for wear, damage, and cracks.

NOTE:
Replace any parts that exhibit defects.
AUTOMATIC TRANSMISSION

2. Body clearance check
   (1) Push the driven gear against the one side of the body.
   (2) Measure the clearance between the driven gear and
       the body, using a thickness gauge.
       Specified Value: 0.07 - 0.15 mm
       (0.0028 - 0.0059 inch)
       Allowable Limit: 0.30 mm (0.011 inch)

   NOTE:
   If the clearance exceeds the allowable limit, replace the
   driven gear.

3. Tip clearance check
   (1) Measure the clearance between the driven gear tooth
       and the crescent, using a thickness gauge
       Specified Value: 0.11 - 0.14 mm
       (0.0043 - 0.0055 inch)
       Allowable Limit: 0.30 mm (0.011 inch)

   NOTE:
   If the clearance exceeds the allowable limit, replace the
   driven gear.

4. Side clearance check
   (1) Measure the side clearance between the gear and the
       installation surface of the stator shaft over the entire
       periphery, using a straight edge (square) in combina-
       tion with a thickness gauge.
       Specified Value: 0.02 - 0.05 mm
       (0.0008 - 0.0019 inch)
       Allowable Limit: 0.1 mm (0.0039 inch)

   NOTE:
   If the side clearance exceeds the allowable limit, replace
   the part.

ASSEMBLY

NOTE:
Be sure to replace the "O" rings with new ones.

1. Install the driven gear and drive gear into the pump body.
   NOTE:
   Prior to the installation, apply the automatic fluid to the
   parts.

2. Install the stator shaft to the pump body. Tighten the bolts
   (11 pieces)
   Tightening Torque: 9.8 - 12 kg-m (6.9 - 8.5 ft-lb)

3. Install the cover seal rings (2 pieces)
4. Apply the automatic fluid to the oil pump bush and "O" ring.
5. Install the "O" ring.
   NOTE:
   Ensure that the seal is not corrugated and that it is fitted
   properly in the groove.

6. Ensure that the drive gear rotates smoothly
DISASSEMBLY

1. Compress the return spring using the following SST. Remove the spring seat snap ring.

   SST: 09350-87702-000

   NOTE:
   Do not compress the return spring beyond its compression allowance (deflection allowance).

2. Remove the spring seat and return spring.

3. Detach the clutch plate snap ring. Remove the flange disc and plate.
4. Remove the forward clutch piston by applying compressed air into the oil hole indicated in the figure.
5. Remove the outer and inner 'O' rings from the forward clutch piston.

**INSPECTION**
1. Ensure that the valve (ball) moves freely in the clutch piston.
2. Check the valve for leakage by applying compressed air with a low pressure.
   **NOTE:**
   If any valve seizure or air leakage exists, replace the forward clutch piston.

**ASSEMBLY**
   **NOTE:**
   Be sure to replace the "O" rings and the seal rings with new ones.
1. Apply the automatic fluid to "O" rings (both inner and outer). Proceed to install the "O" rings to the forward clutch piston.
2. Insert the forward clutch piston into the input shaft.
   **NOTE:**
   Be careful not to twist the "O" rings or to have them caught by other parts.
3. Install the return springs (18 pieces) and spring seats.

4. Compress the return spring and attach the spring seat snap ring, using the following SST.
   **SST:** 09350-87702-000
   **NOTE 1:**
   Check to see if the spring seat snap ring is fitted properly on the spring seat.
   **NOTE 2:**
   Do not compress the return spring beyond its compression allowance (deflection allowance).
5. Install the following parts in this order:
   (1) Plate
   (2) Clutch disc
   (3) Plate
   (4) Clutch disc
   (5) Plate
   (6) Clutch disc
   (7) Flange

6. Attach the clutch plate snap ring.

7. Clutch clearance measurement:
   (1) Measure the clearance indicated in the figure, using a thickness gauge.
   Specified Value: 0.41 - 1.08 mm (0.016 - 0.043 inch)
   NOTE 1:
   If the measured clearance does not comply with the specification, replace the clutch disc or plate.

   NOTE 2:
   If the measured clearance does not comply with the specification although a new clutch disc or plate has been used, select a proper one from the following two flanges having different thicknesses.

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Flange thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too small</td>
<td>2.00 mm (0.118 inch)</td>
</tr>
<tr>
<td>Too large</td>
<td>3.37 mm (0.132 inch)</td>
</tr>
</tbody>
</table>

8. Apply compressed air into the oil hole of the input shaft indicated in the figure and check to see if the clutch piston moves freely.
DISASSEMBLY

1. Compress the return spring and detach the spring seat snap ring, using the following SST.
   SST: 09350-87702-000

   NOTE:
   Do not compress the return spring beyond its compression allowance (deflection allowance).

2. Remove the return spring seat and return spring sub-assembly.

3. Detach the clutch plate snap ring. Remove the flange, disc and plate.
4. Remove the direct clutch piston by applying compressed air into the oil hole indicated in the figure.

5. Remove the "O" ring from the direct clutch drum.
6. Remove the "O" ring from the direct clutch piston.

**INSPECTION**
1. Check to see if the check valve (pail) moves freely in the clutch piston.
2. Check the valve for leakage by applying compressed air with a low pressure.

**NOTE:**
If any valve seizure or air leakage exists, replace the direct clutch piston.

**ASSEMBLY**

**NOTE:**
Be sure to replace the "O" rings with new ones.
1. Apply the automatic fluid to the "O" ring. Proceed to install the "O" ring to the direct clutch drum.
2. Apply the automatic fluid to the "O" ring. Proceed to install the "O" ring to the direct clutch piston.
3. Insert the direct clutch piston to the direct clutch drum.

**NOTE:**
Be careful not to twist the "O" ring or not to have it caught by other parts.

4. Install the spring seat subassembly.
5. Install the spring seal.
6. Compress the return spring and attach the spring seat snap ring, using the following SST.

   SST: 09350-87702-000

   NOTE 1:
   Check to see if the spring seat snap ring is fitted properly on the spring seat.

   NOTE 2:
   Do not compress the return spring beyond the compression allowance (deflection allowance).

7. Install the following parts in this order:
   (1) Plate
   (2) Clutch disc
   (3) Plate
   (4) Plate
   (5) Clutch disc
   (6) Flange

   NOTE:
   Prior to the installation, immerse the clutch discs in the automatic fluid for at least two hours.

8. Attach the clutch plate snap ring.

9. Measurement of the clutch (C2) clearance
   (1) Measure the clearance indicated in the figure using a thickness gauge.

   Specified Value: 0.89 - 1.46 mm (0.035 - 0.057 inch)

   NOTE 1:
   If the measured clearance does not comply with the specification, replace the clutch disc or plate.

   NOTE 2:
   If the measured clearance does not comply with the specification although a new clutch disc or plate has been used, select a proper one from the following two flanges having different thicknesses.

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Flange thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too large</td>
<td>3.37 mm (0.132 inch)</td>
</tr>
<tr>
<td>Too small</td>
<td>3.00 mm (0.118 inch)</td>
</tr>
</tbody>
</table>

10. Apply compressed air into the oil hole indicated in the figure and check to see if the direct clutch moves.
VALVE BODY
COMPONENTS
Upper valve body

T: Tightening torque
Unit: kg-m (ft-lb)

1. Upper valve body
2. Pressure regulator valve sleeve
3. No. 1 key (d = 9.2 mm, 0.36 inch)
4. Primary regulator valve spring
5. Plate washer
6. Primary regulator valve spring
   (Red. Length: 52.5 mm)
7. Primary regulator valve
8. Plug
9. No. 3 key (d = 11 mm, 0.43 inch)
10. B1 control valve
11. B1 control valve spring
    (Yellow-green Length: 34.1 mm)
12. Manual valve
13. Throttle valve spring
14. Throttle valve cam p.n
15. Throttle valve cam
16. Downshift plug
17. Throttle valve No. 2 spring
   (Red. Length: 31.5 mm)
18. Throttle valve
19. Throttle valve ring(s)
20. Throttle valve No. 1 spring
    (Red. Length: 22.2 mm)
21. Throttle valve cam bolt
22. Washer plate
23. Spring washer

Fig. 4-86

4 - 43
DISASSEMBLY

instructions on disassembly
(1) The automatic transmission employs many valves, springs, plugs and so forth which are similar in their shapes. It is, therefore, advisable to arrange disassembled parts by putting a mark showing the item No. on each part.
(2) The "E" rings on the throttle valve are used to adjust the hydraulic pressure. Hence, when disassembling the "E" rings, record the number of the "E" rings.
(3) Thoroughly wash the valve body and components.
(4) Store the gasket in a vinyl bag. Do not leave the gasket in the atmosphere for more than three hours.
(5) Before disassembling, draw out the manual valve for fear of fall itself.

Separation of the upper valve body and lower valve body
(1) Remove the bolts (16 pieces) indicated in the figure.
(Upper valve body side)

NOTE:
Prior to the disassembly, take out the manual valve, for it drops by its own weight.

(2) With the upper valve body held at the lower side, separate the lower valve body.

NOTE 1:
If this separation is made with the upper valve body held at the upper side, there is a possibility that the steel balls drop and will be lost.

NOTE 2:
After completion of the separation, remove the steel balls from the upper valve body.

2. Disassembly of the upper valve body assembly
(1) Remove the throttle valve cam attaching bolt. Remove the cam, spring and pin.
(2) Remove the downshift plug and spring

(3) Remove the throttle valve after the "E" rings have been removed from the outside of the valve body.

NOTE:
Record the number of the "E" rings used.
(4) While lightly pushing the plug at the valve inserting hole, remove the straight key. Remove the plug, B-control valve and spring.

(5) While lightly pushing the sleeve at the valve inserting hole, remove the straight key. Remove the sleeve, plunger, washer, spring and primary regulator valve

3. Disassembly of the lower valve body assembly
   (1) Remove the direct clutch solenoid assembly and second brake solenoid assembly.
   (2) Remove the gasket and lower valve body cover.
   NOTE:
   Care must be exercised as to the jumping out of the cooler bypass valve during this operation.

(3) Remove the straight key. Remove the plug, secondary regulator valve and spring.
(4) Remove the straight key. Remove the plug, 2 - 3 shift valve and spring.

(5) Remove the straight key. Remove the plug, B2 control valve and spring.
(6) Remove the straight key. Remove the plug, 1 - 2 shift valve and spring.
AUTOMATIC TRANSMISSION

INSPECTION
1. Check the oil passage of the valve body for restriction.
2. Check to see if scratches are present at the valve body hole and valve sliding surface
3. Check the spring for a flattened condition
   (See "LIST OF SPRINGS" of the APPENDIX at page 4–73)

ASSEMBLY

NOTE:
Be sure to replace the "O" rings and gaskets with new ones.

Instructions on assembly
(1) Prior to the installation, apply the automatic fluid to the valve, spring, plug, straight key and so forth.
(2) Correctly insert the valve into the spring.
(3) Be very careful to insert the components, such as the valves and springs, to their correct positions
   NOTE 1:
   Install these parts in accordance with the marks showing the item numbers which were put during the
disassembly.
   NOTE 2:
   See “LIST OF SPRINGS” at page 4–73 during the assembly.

Care must be exercised to ensure that the valves are inserted in their correct directions.

When inserting the valve, spring, plug and straight key, be careful not to damage the valve body.

Check to see if the valve moves smoothly.

NOTE 1:
Make sure that each part (particularly plunger and sleeve) goes in by its own weight during the insertion.

1. Assembly of the upper valve body
   (1) Installation of primary regulator valve
      ① Hold the valve body horizontally. Insert the primary regulator valve approx. 80% of its overall
      length. Then, push the spring (red) so as to insert the primary regulator valve
      ② Put the plunger into the sleeve. Install the washer plate. Then, insert it into position
      ③ Insert the straight key (l = 9.2 mm, 0.36 inch) so as to secure the sleeve.
   (2) Installation of B1 control valve
      ① Install the spring to the valve. Insert them together into position
      ② Insert the plug. Secure it by means of the straight key (l = 11 mm, 0.43 inch).
   (3) Installation of throttle valve and downshift plug
      ① Push the spring (purple) so as to insert the throttle valve
      ② Working from the outside of the valve body, install the "E" rings to the throttle valve.

NOTE:
Install the "E" rings in the same number as that prior to the disassembly.

③ Install the spring (white).
④ Install the downshift plug.
(4) Installation of throttle valve cam
   ① Install the pin and spring to the cam.

NOTE:
Attach the hook of the spring to the cam hole.
AUTOMATIC TRANSMISSION

② Tighten the throttle valve cam, together with the spring washer and washer plate, to the valve body.

M6 bolt Nominal length: 28 mm (1.1 inch)
Tightening Torque: 0.6 - 0.9 kg-m (4.3 - 6.5 ft-lb)

NOTE 1.
Attach the other end of the spring to the outside of the valve body.

NOTE 2:
While pushing the cam against the roller section of the downshift plug, screw in the cam.

NOTE 3:
Make sure that the roller of the downshift plug is located at the center of the throttle valve cam.

NOTE 4:
Insert the manual valve after the upper body and lower body have been assembled.

2. Assembly of the lower valve body
   (1) Installation of secondary regulator valve
      ① Insert the spring (yellow) secondary regulator valve and plug.
      ② Insert the straight key (l = 11 mm, 0.43 inch). Secure it by means of the plug
   (2) Installation of 1 - 2 shift valve
      ① Insert the spring (pink), 1 - 2 shift valve and plug.
      ② Insert the straight key (l = 11 mm, 0.43 inch). Secure it by means of the plug
   (3) Installation of B2 control valve
      ① Insert the spring (blue), B2 control valve and plug.
      ② Insert the straight key (l = 15 mm, 0.59 inch). Secure it by means of the plug
   (4) Installation of 2 - 3 shift valve
      ① Insert the spring (pink), 2 - 3 shift valve and plug
      ② Insert the straight key (l = 15 mm, 0.59 inch). Secure it by means of the plug
   (5) Installation of direct clutch solenoid assembly and secondary brake solenoid assembly
      ① Prior to the insertion, apply the automatic fluid to the new "O" ring
      ② Care must be exercised as to the tightening bolt holes. When tightening the bolts, be sure not to mistake the right and left holes.

M6 bolt Nominal length: 10 mm (0.39 inch) × 2 pieces
Tightening Torque: 0.64 - 0.96 kg-m (4.6 - 6.9 ft-lb)

(6) Installation of lower valve body cover
      ① Install the cover, using a new gasket.

M6 bolt Nominal length:
" l = 14 mm (0.55 inch) × 10 pieces
Tightening Torque: 0.50 - 0.60 kg-m (3.6 - 4.3 ft-lb)
3. Assembly of the valve body assembly
   (1) Insert the spring (orange) and cooler bypass valve to the lower valve body.
   (2) Install the steel balls (4 pieces) to the upper valve body.

(3) Install new gaskets on both surfaces of the valve body plate. Place the valve body plate on the upper valve body.
(4) Turn over the upper valve body, while making sure that the plate may not separate from the upper valve body. Then, place the upper valve body on the lower valve body.

NOTE 1:
When the upper valve body is being turned over, be very careful not to allow the steel balls to drop.

NOTE 2:
Do not pry the cooler bypass valve.

NOTE 3:
Ensure that the plate or gasket may not be displaced from its installation position.

4. Installation of the bolts
   (1) List of bolts used:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Nominal length</th>
<th>Shape of head</th>
<th>Number</th>
<th>Installation position</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>29.5 mm (1.16 inch)</td>
<td>Deep recess</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Length of threaded portion 22.0 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M5</td>
<td>38.0 mm (1.50 inch)</td>
<td>Deep recess</td>
<td>6</td>
<td>B</td>
</tr>
<tr>
<td>M5</td>
<td>44.0 mm (1.73 inch)</td>
<td>Deep recess</td>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>M5</td>
<td>29.5 mm (1.16 inch)</td>
<td>Normal recess</td>
<td>2</td>
<td>D</td>
</tr>
<tr>
<td>M5</td>
<td>Length of threaded portion: 19.5 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(2) Tightening sequence of bolts
   Lightly tighten two bolts marked with ①.
   Securely tighten four bolts marked with ②.
   Securely tighten eight bolts marked with ③.
   Securely tighten four bolts marked with ④.

   NOTE:
   At the same time, securely tighten the bolts which were
temporarily tightened in step ①.
   Tightening Torque: 0.5 - 0.8 kg-m (3.3 - 4.3 ft-lb)

5. Insert the manual valve into the upper valve body.

ASSEMBLY OF TRANSMISSION

INSTRUCTIONS ON ASSEMBLY

1. Be sure to replace the following parts with new ones: gaskets, lock nut, "O" rings, oil seals, seal rings of each piston, seal washers of the oil pump set bolts, oil deflector and test plug.

2. When replacing the low brake band and clutch disc with new ones, immerse the new parts in the automatic fluid for at least two hours preceding the assembly.

3. Be sure to apply the automatic fluid to the sliding sections of the parts.

4. Thoroughly clean the bolts or threaded holes, to which a sealing agent has been applied.

5. Prior to the assembly, ensure that air continuity exists in each oil passage by applying compressed air into each oil passage.

6. Be careful not to damage each gasket surface of the transmission case, rear cover, oil pump, valve body and housing.

7. Tighten the bolts and nuts to the specified torque.

8. Install the bearing and race in their correct positions and directions.

9. In order to prevent foreign matters, such as dust or dirt, from getting into the transmission case, clean each part by applying compressed air prior to the installation.

10. When applying grease, use the specified MP (multipurpose) type.

11. Installation of the manual shift shaft and parking lock pawl
   (1) Install the lower washer and parking rod to the manual shift shaft.

   (2) Insert the manual shift shaft into the transmission case

   NOTE:
   When the manual shift shaft passes through the oil seal, be careful not to damage the lip section of the oil seal.

   (3) Lock the shift shaft by the washer and the "E" ring.
3. Install the manual detent spring subassembly.

4. Install the pin and snap ring to the parking lock pawl sleeve. Install the sleeve in the transmission case in such a way that the rod may get into the sleeve.

5. Installation of parking lock pawl and parking lock pawl shaft
   1. Install the pawl in the correct position.
   2. Pass the shaft through the spring. Install them to the pawl, as shown in the right figure.
   3. Shift the manual shift lever to the [P] range. Ensure that the parking lock pawl moves smoothly.

2. Installation of the 1st & reverse brake piston
   1. Apply the automatic fluid to the "O" rings (both inner and outer). Then, install them to the piston.
   2. Insert the piston into the transmission case in the direction indicated in the right figure.

NOTE:
Be careful not to twist the "O" rings or not to have them caught by other parts.
(3) Install the return spring subassembly in such a way that it is fitted into the round groove of the piston. Compress the spring as shown in the right figure, using the following SST. Then, attach the return spring snap ring.

SST: 09350-87702-000

NOTE 1:
Ensure that the snap ring is attached to four grooves of the spring seat.

NOTE 2:
Do not compress the return spring beyond its compression allowance (deflection allowance).

(4) Install the following parts in this order:
- Cushion plate
- Plato
- Disc
- Plate Total number of plates: 4
- Disc Total number of discs: 4
- Plate
- Disc
- Plate
- Disc
- Flange

NOTE 1:
Make sure that the cushion plate is installed in the correct installing direction.
(Install it in such a way that, as viewed from above, the floated side may come to the center, whereas the recessed side may come to the outside.)

NOTE 2:
Immerse the discs in the automatic fluid for at least two hours preceding the installation.

NOTE 3:
Care must be exercised as to the assembling sequence and the number of the discs and plates.

(5) Install the snap ring.
(6) Measure the clearance indicated in the right figure, using a thickness gauge.

Specified Value: 0.56 - 1.92 mm (0.023 - 0.075 inch)

NOTE:
If the measure value does not comply with the specification, check the installing condition of the clutch discs and the plates.
(7) Apply compressed air into the oil hole indicated in the right figure and check to see if the piston moves freely.

3 Installation of the counter shaft, reduction gear and rear cover

(1) Press the ball bearing into the output shaft using the following SST.
   SST: 09350-87702-000
   NOTE:
   Prior to the press-fitting, apply the automatic fluid to the inner race and outer race.

(2) Drive the ball bearing into the transmission case, using a hammer in combination with the following SST
   SST: 09608-30011-000
   NOTE:
   Prior to the press-fitting, apply the automatic fluid to the inner race and outer race.

(3) Press the output shaft into the transmission case using the following SST, as indicated in the figure
   SST: 09350-87702-000

(4) Press the roller bearing from the differential gear side of the counter shaft case, using the following SST
   Then, attach the snap ring.
   SST: 09608-30011-000
   NOTE:
   Prior to the press-fitting of the bearing, apply the automatic fluid to the inner race and outer race.
(5) In advance, put the spacer on the counter shaft case.
(6) Press the ball bearing from the reduction gear side of the counter shaft case using the following SST SST: 09608-30011-000

NOTE:
Prior to the press-fitting of the bearing, apply the automatic fluid to the inner race and outer race.

(7) Install the bearing packing plate along the groove. Attach the snap ring.

(8) While the inner race of the ball bearing is being sustained, pass the spacer through the counter shaft and press the counter shaft into position.
SST: 09350-87702-000

(9) Install the reduction driven gear to the counter shaft.
Tighten the lock nut.
Tightening Torque: 11 - 15 kg-m (80 - 106 ft-lb)

(10) Stake the lock nut using a chisel.
NOTE:
Be careful not to apply excessive forces to the counter shaft.
(11) Install the gasket, making sure that it is aligned with the straight pin of the case. Install the rear cover.

**NOTE 1:**
Be sure that the bearing smoothly gets into the bearing hole of the rear cover.

**NOTE 2:**
Check to see if the shaft emits any abnormal gear sound, while rotating the shaft.

(12) Secure the rear cover by tightening the ten bolts and two nuts.

**Tightening Torque:**
- Bolt: 1.6 - 2.3 kg-m (12 - 16 ft-lb)
- Nut: 1.1 - 1.5 kg-m (8.0 - 10 ft-lb)

**NOTE:**
As for the arrow-headed bolt in the right figure, use this bolt to secure the solenoid wire harness in common.

(13) Working from the inside of the case, push the bearing outer race against the rear cover side, using the following SST.

**SST:** 09350-87702-000

**NOTE 1:**
For this operation, use the four cut-out sections of the transmission case.

**Pushing Force:** 500 kg (1100 lb)

4. Installation of the rear planetary gear and one-way clutch

(1) Install the rear planetary ring gear, making sure that it is aligned with the spline of the output shaft.
(2) Install the bearing races (both sides) and thrust needle roller bearing.

(3) Fit the one-way clutch race snap ring to the groove at the 1st reverse brake side of the transmission case.

(4) Install the thrust washers on each of the front and rear sections of the planetary gear assembly.

NOTE 1:
Apply grease to the washers.

NOTE 2:
Fit the recessed sections of the gear assembly with the two protruding sections correctly.

(5) While turning the one-way clutch assembly counter clockwise, install it to the planetary gear assembly.

NOTE:
After completion of the installation, be sure that the planetary gear assembly freely rotates clockwise when the one-way clutch outer race is secured.

(6) Insert the planetary gear assembly fitted with the one-way clutch assembly into the transmission case while rotating the planetary gear assembly.

NOTE 1:
For easier insertion, align the pawls of the brake disc in advance.

NOTE 2:
If the shift lever is shifted to the P range, the shaft is locked, thus making it easier to align the cut-out sections with each other.
NOTE 3:
After completion of the insertion, check the one-way clutch operation:
Clockwise rotation: Free
Counterclockwise rotation: Locked

(7) Attach the one-way clutch race snap ring to secure the one-way clutch assembly.

5 Installation of the planetary sun gear assembly
(1) Install the cushion plate and the snap ring (sheet type) to the sun gear
NOTE:
Be sure to install the cushion plate in the correct direction.

(2) Insert the sun gear into the sun gear input drum.

(3) Temporarily lock the sun gear input drum with another snap ring (wire type)
(4) Install the snap ring (wire type) in the correct position by pressing the cushion plate.

(5) Insert the straight pin into the sun gear.

(6) Install the washer in such a way that the straight pin gets into the cut-out section of the planetary thrust washer.

NOTE:
Prior to the installation, apply grease to the washer to prevent it from dropping.

(7) While meshing the sun gear assembly with the rear planetary gear, insert the sun gear assembly into the transmission case.

NOTE 1:
Be careful not to damage the bush provided inside of the sun gear.

NOTE 2:
Be certain that the flange section of the thrust bearing race, which was installed in the previous step, has been installed positively into the sun gear bore.

6. Installation of the front planetary gear
(1) Place the thrust needle roller bearing and bearing race on the sun gear.

NOTE:
Be sure to place the bearing race in the correct direction on the sun gear.

(2) While rotating the front planetary gear assembly, fit the pinion gear in the sun gear.

NOTE:
Care must be exercised to ensure that the thrust bearing or the race may not be displaced from the correct position.
(3) Place the following parts on the front planetary gear assembly in the order:
   ① Bearing race
   ② Thrust needle roller bearing
   ③ Bearing race

   **NOTE:**
   Be sure to place the bearing races in the correct direction on the front planetary gear assembly.

(4) Install the front planetary ring gear to the thrust bearing which was installed in the preceding step.

(5) Install the "O" ring at the forward end of the output shaft.

   **NOTE:**
   Do not expand the "O" ring excessively during the installation.

7. Installation of the 2nd brake band
   (1) Install the brake 2nd band in the transmission case
   **NOTE:**
   Be sure to install the brake band in the correct direction.

8. Installation of the forward clutch and direct clutch
   (1) When the "O" ring of the input shaft is replaced, apply grease to the input shaft side before installing the new "O" ring.

   **NOTE 1:**
   Be sure to install the "O" ring to the correct groove.

   **NOTE 2:**
   Do not expand the "O" ring excessively during the installation.
(2) Apply grease to the thrust bearing race and thrust needle roller bearing as well as to their installing sections at the forward clutch. Then, install these parts into positions.

NOTE:
Be certain to install the bearing race in the correct direction.

(3) Install the thrust washer with the side having no groove facing toward the direct clutch. For easier installation, apply grease to the side of the direct clutch.

NOTE:
Be sure to install the thrust washer in the correct direction.

(4) Install the direct clutch to the forward clutch.

NOTE 1:
For easier insertion, align the pawls of the clutch disc prior to the installation.

NOTE 2:
Be careful not to drop the thrust washer which was installed in the preceding step.

(5) Apply grease on the front planetary ring gear in the transmission case. Install the thrust bearing race and thrust needle roller bearing in position.

NOTE:
Care must be exercised as to the installing direction and sequence.

(6) While holding the input shaft of the forward clutch, install the forward clutch fitted with the direct clutch to the transmission.

NOTE 1:
For easier insertion, align the pawls of the forward clutch disc prior to the installation.

NOTE 2:
Be careful not to drop the thrust bearing which was installed in the preceding step.

NOTE 3:
Be very careful not to damage the oil seal of the output shaft.
(7) Secure the 2nd brake band by passing the straight pin through the transmission case and the hole of the 2nd brake band.

NOTE:
Prior to the installation, apply the automatic fluid to the pin.

9. Installation of the differential assembly
   (1) Place the transmission case, with its rear cover side facing downward. While meshing the pinion gear of the counter shaft with the teeth of the differential ring gear, install the differential assembly.

   NOTE 1:
   Be careful not to damage the teeth of the gear during the installation.

   NOTE 2:
The counter shaft pinion gear and the differential ring gear have been set as a pair. Hence, be careful not to mix these parts with other parts.

10. Installation of the torque converter housing
   (1) Install the gasket

   NOTE:
   Make sure that the gasket is not protruding to the inside.

   (2) While aligning the center of the differential gear bearing and the locating pin position install the housing in the transmission case.

   (3) Tighten the housing attaching bolts indicated in the right figure.

   Tightening Torque: 1.6 - 2.3 kg-m (12 - 16 ft-lb)

   NOTE:
   Apply the sealant to the entire threaded portion of each bolt which bears a star mark (indicated by an arrow mark in the figure).

** Installation of the oil pump assembly
   (1) Apply grease to the thrust bearing race and thrust needle roller bearing. Install them to the input shaft

   NOTE 1:
   Be sure to install the bearing race in the correct direction.

   NOTE 2:
   Make sure that the bearing race and bearing are fitted positively.
(2) Install the thrust bearing race, after coating the oil pump side with grease.

(3) Attach the clutch drum thrust washer to the oil pump.

NOTE 1:
Align the flange of the washer with the cut-out section of the pump.

NOTE 2:
Prior to the installation, apply grease to retain the thrust washer.

(4) When the oil seal is replaced, apply grease to the oil seal prior to the installation.

NOTE 1:
Do not expand the oil seal excessively during the installation.

NOTE 2:
Be certain to install the oil seal to the correct groove.

(5) Install the “O” ring to the periphery of the oil pump.

NOTE 1:
Prior to the installation, apply grease to the “O” ring.

NOTE 2:
Use a new “O” ring.

NOTE 3:
Make sure that the “O” ring is not twisted or displaced from the groove on the periphery of the oil pump.

(6) Install the oil pump assembly in the transmission case.

NOTE:
Care must be exercised to ensure that the “O” ring of the input shaft and the “O” rings provided inside or outside of the pump may not be pinched or damaged.
(7) Tighten the six flange bolts.
   Tightening Torque: 1.8 - 2.7 kg-m (14 - 19 fl-lb)

   NOTE:
   Note that only the bolt indicated by the ▼ mark in the figure is a M10 bolt.

12. Check of the input shaft end play
   (1) Measure the play in the axial direction by applying the plunger of a dial gauge to the end surface of the input shaft.
      Specified Value: 0.3 - 0.9 mm (0.012 - 0.035 inch)

   (2) If the measured value does not comply with the specification, select a proper one from the following two thrust bearing races having different thicknesses. Then, replace the race which was installed in Step 12-(3) at page 00 with the newly-selected bearing race.
      Thrust bearing race thickness
      Too large end play → 1.4 mm (0.055 inch)
      Too small end play → 0.8 mm (0.031 inch)

   (3) After the reinstallation, ensure that the input shaft rotates smoothly.

13. Installation of the solenoid wire harness
   (1) Fit the lock plate into the groove of the solenoid wire grommet. Install the solenoid wire to the stud bolt of the transmission case.
   (2) Attach the washer to the stud bolt and tighten it with the nut
   (3) Clamp the wire harness at two points of the rear cover.

14. Installation of the throttle cable
   (1) Insert the throttle cable into the hole of the transmission case.

   NOTE 1:
   Apply the automatic fluid to the "O" ring.

   NOTE 2:
   Care must be exercised to ensure that the "O" ring may not be damaged or pinched.
15. Installation of the 2nd brake piston

(1) Install the "O" ring and washer to the piston rod.

NOTE:
Prior to the installation, apply grease to the "O" ring.

(2) Insert the spring and rod to the piston. Secure it with the "E" ring.

NOTE:
Prior to the installation, apply the automatic fluid to the inserting section of the rod.

(3) Install the two "O" rings to the piston

NOTE 1:
Be careful not to damage the "O" rings.

NOTE 2:
Do not expand the "O" rings excessively.

(4) Pull the spring in the transmission case. Insert the piston assembly into the case.

NOTE 1:
Apply the automatic fluid to the inserting section of the piston rod.

NOTE 2:
Care must be exercised to ensure that the "O" ring may not be damaged or pinched.

NOTE 3:
Make sure that the forward end of the rod is aligned with the metal fitting of the brake band.

(5) Install two "O" rings to the piston cover

NOTE:
Prior to the installation, apply the automatic fluid to the "O" rings.

(6) Insert the piston cover into the transmission case.

NOTE:
Care must be exercised to ensure that the "O" ring may not be damaged or pinched.

(7) With the piston cover pushed to the inside, attach the snap ring in position.

(8) Through the side cover hole, check to see if the forward end of the rod is in contact with the metal fitting of the brake band at its specified position.
(9) Perform the 2nd brake piston stroke check in the same way as with the disassembly.

(10) Install the transmission case side cover and its gasket. Tighten them by means of the four bolts.
Tightening Torque: 0.7 - 0.9 kg-m (5.5 - 6.5 ft-lb)

16 Installation of the neutral start switch and the manual valve outer ever

(1) Install the neutral start switch.
① Set the manual shaft to the 'N' position.
② Insert the switch into the control shaft.
③ Temporarily secure the switch bolt (nominal length: 35 mm).
④ Align the scribe lines on the control rod and switch with each other.
⑤ Securely tighten the bolt which has been secured temporarily in the step ③ above.
Tightening Torque: 1.6 - 2.3 kg-m (12 - 17 ft-lb)
⑥ Ensure that the switch is functioning properly.

(2) Pass the upper washer and then the shift lever through the manual shift shaft which protrudes above the transmission upper section. Then secure them by means of double nuts.

NOTE:
The following shows the tightening sequence of double nuts.
① Tighten the lower nut.
Tightening Torque: 0.9 - 1.7 kg-m (6.5 - 12 ft-lb)
② Tighten the upper nut.
Tightening Torque: 0.9 - 1.7 kg-m (6.5 - 12 ft-lb)
③ With the upper nut locked, tighten the lower nut in the reverse direction.
Tightening Torque: 0.9 - 1.7 kg-m (6.5 - 12 ft-lb)

(3) Check to see if the shaft rotates smoothly.
17. Installation of the accumulator piston
   (1) Install the "O" ring on the piston.
   NOTE:
   Prior to the installation, apply the automatic fluid to the piston and "O" ring.

   (2) Insert the spring into the piston.
   (3) Insert the piston into the transmission case.
   NOTE 1:

<p>| Number of | Spring length | Spring outer diameter |</p>
<table>
<thead>
<tr>
<th>&quot;O&quot; ring</th>
<th>mm (inch)</th>
<th>mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>2</td>
<td>62 (2.05)</td>
</tr>
<tr>
<td>C1</td>
<td>1</td>
<td>64.1 (2.52)</td>
</tr>
</tbody>
</table>

   NOTE 2:
   Care must be exercised to ensure that the "O" ring may not be damaged or pinched.

18. Installation of the valve body assembly
   (1) Place the valve body assembly on the transmission case
   (2) Install the pin of the manual lever in the manual valve
   (3) Temporarily tighten the two bolts indicated in the figure.

   (4) Install the throttle cable to the throttle cam.
   NOTE:
   Do not pull the cable more than 40 mm (1.57 inches).
(5) Tighten all bolts.

<table>
<thead>
<tr>
<th>No</th>
<th>Standard</th>
<th>Tightening torque</th>
<th>Hanger</th>
<th>Shape of head</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M6</td>
<td>36 (1.417)</td>
<td>0.80 - 1.20 (6.0 - 8.5)</td>
<td>7 Deep recess</td>
</tr>
<tr>
<td>2</td>
<td>M6</td>
<td>47 (1.550)</td>
<td>0.80 - 1.20 (6.0 - 8.5)</td>
<td>1 Deep recess</td>
</tr>
<tr>
<td>3</td>
<td>M6</td>
<td>25 (0.984)</td>
<td>0.80 - 1.20 (6.0 - 8.5)</td>
<td>2 Normal recess</td>
</tr>
<tr>
<td>4</td>
<td>M6</td>
<td>32 (.260)</td>
<td>0.80 - 1.20 (6.0 - 8.5)</td>
<td>1 Normal recess</td>
</tr>
</tbody>
</table>

(6) Install the oil tubes.

**NOTE 1:**
First insert the oil tube's end having no stopper (1 in the right figure) about 2 mm (0.079 inch). Then, insert the end having a stopper (2 in the right figure).

**NOTE 2:**
To prevent the tube from being deformed, lightly tap the tube using a plastic hammer.

**NOTE 3:**
Positively insert the tube, until the stopper of the tube comes into contact with the case.

**NOTE 4:**
Install the tubes in parallel with the valve body.

(7) Connect the solenoid connector.

**NOTE:**
The wire harness differs in length to prevent wrong connections. Therefore, do not pull it forcibly.

(8) Install the oil strainer. At the same time, clamp the two solenoid connectors. Tighten them all together.

Tightening Torque: 0.4 - 0.6 kg-m (3.0 - 4.0 ft-lb)
9 Installation of the oil pan
(1) Set the gasket on the transmission case.

NOTE:
Make sure that the bolt holes of the gasket are aligned with those in the transmission case.

(2) Place the magnet on the oil pan.

NOTE:
It is advisable to place the magnet at the position indicated in the figure.

(3) Tighten the oil pan by means of the bolts (13 pieces) and screws (two pieces).

Tightening Torque: 0.4 - 0.6 kg-m (3.0 - 4.0 ft-lb)

NOTE 1:
Apply the sealant to the two screws indicated in the figure.

NOTE 2:
Make sure that the tube and oil pan do not interfere with each other.

(4) Tighten the drain plug.

Tightening Torque: 1.8 - 2.3 kg-m (13.5 - 16.5 ft-lb)

20 Installation of the oil filler tube
(1) Install the "O" ring to the oil filler tube. Insert the oil filler tube into the transmission case.

NOTE 1:
Apply the automatic fluid to the "O" ring.

NOTE 2:
Insert the oil filler tube up to the flange position.

(2) Secure the oil filler tube by means of the bolt.

Tightening Torque: 0.3 - 0.7 kg-m (2.4 - 5.6 ft-lb)

21. Installation of the test plug at the detecting hole
(1) Install the "O" ring and tighten the plug.

Tightening Torque: 0.6 - 0.9 kg-m (4.3 - 6.5 ft-lb)

NOTE:
Apply the automatic fluid to the "O" ring.
Installation of the torque converter

1. Install the torque converter. Check to see if the attaching dimension indicated in the right figure complies with the specification.

NOTE 1:
Be careful not to damage the oil seal.

NOTE 2:
Make sure that the torque converter rotates lightly.

NOTE 3:
Apply grease to the point indicated in the figure.
CONTROL CABLE CONSTRUCTION

Fig. 4-180

Control cable components

Fig. 4-181
### AUTOMATIC TRANSMISSION

#### ASSEMBLING POSITION AND DIRECTION OF THRUST BEARING

![Diagram of automatic transmission](image)

<table>
<thead>
<tr>
<th>Position</th>
<th>Part</th>
<th>Inner Diameter (mm)</th>
<th>Outer Diameter (inch)</th>
<th>Flange</th>
<th>Thickness</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Race</td>
<td>22.15 (0.872)</td>
<td>37.3 (1.47)</td>
<td>Inner diameter flange</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bearing</td>
<td>24 (0.94)</td>
<td>37.9 (1.47)</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>24 (0.94)</td>
<td>27.5 (1.08)</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Bearing</td>
<td>30 (1.18)</td>
<td>45 (1.77)</td>
<td>Inner diameter flange</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>28 (1.10)</td>
<td>45 (1.77)</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Bearing</td>
<td>19 (0.75)</td>
<td>35 (1.38)</td>
<td>Inner diameter flange</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>22.3 (0.88)</td>
<td>36 (1.42)</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>22 (0.87)</td>
<td>37.9 (1.49)</td>
<td>Outer diameter flange</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Bearing</td>
<td>23 (0.91)</td>
<td>35.5 (1.41)</td>
<td>Outer diameter flange</td>
<td>—</td>
<td>Shared in common with C 2</td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>22.3 (0.88)</td>
<td>36 (1.42)</td>
<td>—</td>
<td>—</td>
<td>Shared in common with C 3</td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>22 (0.87)</td>
<td>37.9 (1.49)</td>
<td>Outer diameter flange</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Bearing</td>
<td>27.1 (1.07)</td>
<td>42 (1.65)</td>
<td>Inner diameter flange</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>30.5 (1.20)</td>
<td>43 (1.69)</td>
<td>Not provided</td>
<td>0.8</td>
<td>Option</td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>30.5 (1.20)</td>
<td>43 (1.69)</td>
<td>Not provided</td>
<td>1.4</td>
<td>Option</td>
</tr>
</tbody>
</table>

**Fig. 4-162**

4-72
# LIST OF SPRINGS

<table>
<thead>
<tr>
<th>Installing position</th>
<th>Color</th>
<th>Free length (\text{Reference value}) mm (inch)</th>
<th>Coil outer diameter mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary regulator valve</td>
<td>Red</td>
<td>52.5 (2.06)</td>
<td>10 (0.39)</td>
</tr>
<tr>
<td>Orifice control valve</td>
<td>Yellowgreen</td>
<td>34.6 (1.34)</td>
<td>8.5 (0.33)</td>
</tr>
<tr>
<td>Throttle valve</td>
<td>White</td>
<td>22.25 (0.8760)</td>
<td>9.2 (0.36)</td>
</tr>
<tr>
<td>Throttle valve (\text{Gasoline turbo, diesel turbo})</td>
<td>Purple</td>
<td>31.81 (1.252)</td>
<td>Inner diameter 6.0 (0.24)</td>
</tr>
<tr>
<td>Throttle valve (\text{Gasoline turbo, diesel turbo})</td>
<td>Light blue</td>
<td>31.04 (1.252)</td>
<td>Inner diameter 6.0 (0.24)</td>
</tr>
</tbody>
</table>

| Secondary regulator valve \(\text{Same as above}\) | Yellow | 31.4 (1.24) | 7.4 (0.29) |
|                                                     | Brown  | 30.17 (1.183) | 7.4 (0.29) |
| 2 - 3 shift valve                                   | Pink   | 39.8 (1.56) | 10.5 (0.413) |
| 1 - 2 shift valve                                   | Pink   | 39.6 (1.56) | 10.5 (0.413) |
| B\(_2\) control valve                              | Blue   | 28.1 (1.11) | 7.9 (0.31) |
| Cooler bypass                                       | Orange | 19.9 (0.783) | 11.0 (0.433) |
| B\(_2\) accumulator                                 |       | 52.0 (2.05) | 10.0 (0.394) |
| C\(_1\) accumulator                                  |       | 64.1 (2.52) | 15.0 (0.591) |
| Outer                                             |       | 18 (0.71) | 23 (0.91) |
| For forward clutch \(18 \text{pieces}\)           |       | 49.0 (1.936) | 7.7 (0.30) |
| Shaft parking paw\(^\dagger\)                       |       |             | Inner diameter 10.25 (0.4035) |

**NOTE**
1. Figures in \(\) in the column of "Coil outer diameter" represent the inner diameter.
2. Figures in \{\} in the column of "Installing point" represent the number of the part.
3. This list does not post those springs which are incorporated in assemblies.

---

# LIST OF "O" RINGS

<table>
<thead>
<tr>
<th>Installing point</th>
<th>Inner diameter (\text{mm (inch)})</th>
<th>Installing point</th>
<th>Inner diameter (\text{mm (inch)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil pump body</td>
<td>200 (7.87)</td>
<td>B(_2) brake</td>
<td>135 (5.31)</td>
</tr>
<tr>
<td>Direct clutch drum inner</td>
<td>75.9 (3.00)</td>
<td>B(_1) servo rod</td>
<td>8.8 (0.35)</td>
</tr>
<tr>
<td>C(_2) piston, outer</td>
<td>117 (4.61)</td>
<td>C(_2), B(_1) accumulators</td>
<td>23.47 (0.9240)</td>
</tr>
<tr>
<td>B(_1) servo cover</td>
<td>59.6 (2.35)</td>
<td>B(_1) accumulator</td>
<td>15.4 (0.606)</td>
</tr>
<tr>
<td>C(_1) piston, inner</td>
<td>46.5 (1.831)</td>
<td>Filler tube</td>
<td>9.6 (0.38)</td>
</tr>
<tr>
<td>C(_1) piston outer</td>
<td>117 (4.61)</td>
<td>Speedometer</td>
<td>19.7 (0.776)</td>
</tr>
<tr>
<td>B(_2) brake</td>
<td>94.1 (3.70)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(C\_1\): Forward clutch
\(C\_2\): Direct clutch
\(B\_1\): 2nd brake
\(B\_2\): 1st & reverse brake
## LIST OF BOLTS USED (I)

<table>
<thead>
<tr>
<th>Installing point</th>
<th>Number</th>
<th>Standard</th>
<th>Tightening torque kg-m (ft-lb)</th>
<th>Nominal length (mm)</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing × case</td>
<td>11</td>
<td>M8</td>
<td>1.6 - 2.3 (12 - 18)</td>
<td>35</td>
<td>B, WW</td>
</tr>
<tr>
<td>Rear cover × case</td>
<td>10</td>
<td>M8</td>
<td>1.6 - 2.3 (12 - 18)</td>
<td>35</td>
<td>B, WW</td>
</tr>
<tr>
<td>Rear cover × case</td>
<td>2</td>
<td>M6</td>
<td>0.5 (3.6)</td>
<td>9/16</td>
<td>B, S</td>
</tr>
<tr>
<td>Rear cover × case</td>
<td>2</td>
<td>M6</td>
<td>1.1 - 1.5 (8.0 - 10)</td>
<td>—</td>
<td>N</td>
</tr>
<tr>
<td>Rear cover × case</td>
<td>2</td>
<td>φ B</td>
<td>—</td>
<td>—</td>
<td>W</td>
</tr>
<tr>
<td>Oil pump assembly × case</td>
<td>5</td>
<td>M6</td>
<td>1.8 - 2.7 (14 - 19)</td>
<td>28</td>
<td>B, F</td>
</tr>
<tr>
<td>Stater shaft × Oil pump body</td>
<td>11</td>
<td>M6</td>
<td>0.8 - 1.2 (6.0 - 8.5)</td>
<td>17</td>
<td>B, WW</td>
</tr>
<tr>
<td>Case side cover × case</td>
<td>4</td>
<td>M6</td>
<td>0.7 - 0.9 (5.5 - 6.5)</td>
<td>18</td>
<td>B, WW</td>
</tr>
<tr>
<td>Counter shaft × counter drive gear</td>
<td>1</td>
<td>M22</td>
<td>1.5 - 15 (100 - 108)</td>
<td>—</td>
<td>N</td>
</tr>
<tr>
<td>Differential gear × differential ring gear</td>
<td>10</td>
<td>M10</td>
<td>8.0 - 1.0 (56 - 72)</td>
<td>—</td>
<td>B, F</td>
</tr>
<tr>
<td>Manual shift shaft × Manual valve outer lever</td>
<td>2</td>
<td>M6</td>
<td>0.9 - 1.7 (6.5 - 12)</td>
<td>—</td>
<td>N</td>
</tr>
<tr>
<td>Detent × case</td>
<td>1</td>
<td>M6</td>
<td>0.8 - 1.2 (6.0 - 8.5)</td>
<td>16.5</td>
<td>B, WW</td>
</tr>
<tr>
<td>Detent × case</td>
<td>1</td>
<td>M6</td>
<td>0.2 (1.4)</td>
<td>12/8</td>
<td>B, S</td>
</tr>
<tr>
<td>Detent × case</td>
<td>5</td>
<td>φ 6</td>
<td>—</td>
<td>—</td>
<td>W</td>
</tr>
<tr>
<td>Valve body assembly × case</td>
<td>7</td>
<td>M6</td>
<td>0.8 - 1.2 (6.0 - 8.5)</td>
<td>36</td>
<td>B, F</td>
</tr>
<tr>
<td>Valve body assembly × case</td>
<td>7</td>
<td>M6</td>
<td>0.3 - 1.2 (5.0 - 8.5)</td>
<td>47</td>
<td>B, F</td>
</tr>
<tr>
<td>Valve body assembly × case</td>
<td>7</td>
<td>M6</td>
<td>0.9 - 1.2 (6.0 - 8.5)</td>
<td>25</td>
<td>B, F</td>
</tr>
<tr>
<td>Valve body assembly × case</td>
<td>7</td>
<td>M6</td>
<td>0.8 - 1.2 (6.0 - 8.5)</td>
<td>32</td>
<td>B, F</td>
</tr>
<tr>
<td>Upper valve body × lower valve body</td>
<td>6</td>
<td>M5</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
<td>29.5</td>
<td>B, F</td>
</tr>
<tr>
<td>Upper valve body × lower valve body</td>
<td>6</td>
<td>M5</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
<td>38</td>
<td>B, F</td>
</tr>
<tr>
<td>Upper valve body × lower valve body</td>
<td>2</td>
<td>M5</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
<td>44</td>
<td>B, F</td>
</tr>
<tr>
<td>Upper valve body × lower valve body</td>
<td>2</td>
<td>M5</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
<td>29.5</td>
<td>B, F</td>
</tr>
<tr>
<td>Lower cover × lower valve body</td>
<td>6</td>
<td>M5</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
<td>14</td>
<td>B, F</td>
</tr>
<tr>
<td>Strainer × lower valve body</td>
<td>6</td>
<td>M5</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
<td>1.4</td>
<td>B, F</td>
</tr>
<tr>
<td>Solenoid × lower valve body</td>
<td>2</td>
<td>M6</td>
<td>0.64 - 0.96 (4.6 - 5.9)</td>
<td>1.6</td>
<td>B, WW</td>
</tr>
<tr>
<td>Throttle cam × lower valve body</td>
<td>1</td>
<td>M6</td>
<td>0.6 - 0.9 (4.3 - 6.5)</td>
<td>28</td>
<td>B, F</td>
</tr>
<tr>
<td>Oil pan × case</td>
<td>1</td>
<td>M6</td>
<td>0.4 - 0.6 (3.0 - 4.3)</td>
<td>16</td>
<td>B, WW</td>
</tr>
<tr>
<td>Drain plug × oil pan</td>
<td>1</td>
<td>M10</td>
<td>1.8 - 2.3 (13 - 17)</td>
<td>33</td>
<td>P</td>
</tr>
<tr>
<td>Wire-to-solenoid × case</td>
<td>1</td>
<td>M6</td>
<td>0.2 (1.4)</td>
<td>12/8</td>
<td>B, S</td>
</tr>
<tr>
<td>Wire-to-solenoid × case</td>
<td>1</td>
<td>M6</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
<td>—</td>
<td>N</td>
</tr>
<tr>
<td>Wire-to-solenoid × case</td>
<td>1</td>
<td>φ 6</td>
<td>—</td>
<td>—</td>
<td>W</td>
</tr>
</tbody>
</table>
## LIST OF BOLTS USED (II)

<table>
<thead>
<tr>
<th>Installing point</th>
<th>No.</th>
<th>Standard</th>
<th>Tightening torque</th>
<th>Nominal length</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speedometer × housing</td>
<td>1</td>
<td>M6</td>
<td>0.7 - 1.0 (5.1 - 7.2)</td>
<td>12</td>
<td>B, WW</td>
</tr>
<tr>
<td>Filler tube × case</td>
<td>1</td>
<td>M8</td>
<td>0.3 - 0.7 (2.6 - 5.6)</td>
<td>20</td>
<td>B, WW</td>
</tr>
<tr>
<td>Test plug × case</td>
<td>1</td>
<td>S1C</td>
<td>0.6 - 0.9 (4 3 - 6.5)</td>
<td>9.5</td>
<td>P</td>
</tr>
<tr>
<td>Oil pan × case</td>
<td>2</td>
<td>N6</td>
<td>0.4 - 0.6 (3.0 - 4.3)</td>
<td>16</td>
<td>S, WW</td>
</tr>
<tr>
<td>Housing × case</td>
<td>3</td>
<td>M8</td>
<td>1.6 - 2.3 (12 - 16)</td>
<td>35</td>
<td>B, WW</td>
</tr>
<tr>
<td>Housing × case</td>
<td>7</td>
<td>M8</td>
<td>1.6 - 2.3 (12 - 16)</td>
<td>50</td>
<td>B, WW</td>
</tr>
<tr>
<td>Speedometer sleeve plate lock × case</td>
<td>1</td>
<td>M6</td>
<td>0.6 - 0.9 (4.3 - 6.5)</td>
<td>12</td>
<td>B, WW</td>
</tr>
<tr>
<td>Throttle cable clamp × case</td>
<td>1</td>
<td>M6</td>
<td>0.6 - 0.9 (4.3 - 6.5)</td>
<td>12</td>
<td>B, WW</td>
</tr>
<tr>
<td>O/R assembly × case</td>
<td>1</td>
<td>M10</td>
<td>1.8 - 2.7 (14 - 19)</td>
<td>28</td>
<td>B, F</td>
</tr>
<tr>
<td>Neutral start switch × case</td>
<td>1</td>
<td>M8</td>
<td>1.6 - 2.3 (12 - 16)</td>
<td>35</td>
<td>B, WW</td>
</tr>
<tr>
<td>Clamp × case</td>
<td>1</td>
<td>M8</td>
<td>0.9 - 1.7 (6.5 - 12)</td>
<td>20</td>
<td>B, WW</td>
</tr>
<tr>
<td>Vaunt bracket × case</td>
<td>3 (5)</td>
<td>M10</td>
<td>3.0 - 4.5 (22 - 33)</td>
<td>25</td>
<td>B, WW</td>
</tr>
</tbody>
</table>

*: Apply sealant to the bolt bearing the *** mark.

**Explanation of shape**

- **B, WW**: Bolt with washer
- **B, S**: Stud bolt
- **N**: Nut
- **W**: Washer
- **B, F**: Bolt flange
- **P**: Plug
- **S, WW**: Screw with washer
SECTION 5
FRONT AXLE & SUSPENSION

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REMOVAL

1. Jack up the vehicle at the front side. Support the body with safety stands.

2. Remove the front wheel.

3. Disc brake caliper removal
   (1) Remove the attaching bolts of the disc brake caliper.
   (2) Suspend the caliper.

4. Remove the disc rotor.

5. Front axle hub removal
   (1) Remove the cotter pin and front wheel adjusting lock cap.
   (2) Remove the castle nut, using the following SST.
       SST: 09511-87202-000
   (3) Draw out the axle hub, using the following SST.

NOTE: Do not separate the axle hub from the steering knuckle unless such separation is necessary.

   SST: 09520-00031-000
6. Tie rod end separation
   (1) Remove the cotter pin castle nut from the tie rod end.
   (2) Separate the tie rod end from the steering knuckle, using the following SST.
       SST: 09611-87701-000

   NOTE:
   While using the SST, be very careful not to damage the boot and threaded portion.

7. Remove the lower ball joint attaching bolt and nut.

8. Steering knuckle separation
   Remove the attaching nuts. Leave the bolts in their inserted conditions.

9. Steering knuckle removal
   (1) While supporting the steering knuckle, draw out the attaching bolts of the shock absorber lower bracket.
   (2) Disengage the axle hub from the drive shaft. Remove the steering knuckle.

   NOTE:
   • Protect the drive shaft boot with cloth or the like so that it may not be damaged during the operation.
   • Wind a tape or the like on the drive shaft threaded portion so that the oil seal may not be damaged.

10. Front axle bearing removal
   (1) Remove the dust seal from the axle hub, using a common screwdriver.
   (2) Remove the bearing inner race (outer side) from the axle hub, using the following SST.
       SST: 09950-20014-000
       09720-00010-000 (Use the item No.3 that is part of the set.)
(3) Detach the snap ring, using snap ring pliers.

(4) Remove the bearing from the steering knuckle, using a press in combination with the following SSTs:
   SST: 09527-87301-000
   09550-10012-000 (09554-10010-000, part of the preceding tool)

**INSPECTION**

Inspect the following parts:

- Axle hub for damage
- Disc surface for damage or wear
- Spigot section for damage
- Spindle section for wear
- Knuckle for cracks or damage
- Cover for deformation
1. Disc brake cover replacement
   (1) Separate the disc brake cover from the knuckle using a common screwdriver or the like.
   NOTE:
   Do not remove the disc brake cover unless its replacement is required.

   (2) Press the disc brake cover until it comes into close contact with the knuckle using the following SSTs.
   SST: 09506-87302-000
         09718-87701-000

INSTALLATION

1. Front axle bearing installation
   (1) Press the bearing into position using the following SSTs.
   SST: 09550-87302-000
        09550-10012-000 (09554-10010-000, part of the preceding tool)

   (2) Install a new snap ring using snap ring pliers.
   (3) Press the front axle hub into position using the following SST
   SST: 09550-10012-000 (09554-10010-000, part of the preceding tool)

2. Steering knuckle installation
   (1) Insert the steering knuckle into the drive shaft.
   NOTE:
   • Be careful not to allow the drive shaft to come into contact with the oil seal at the knuckle side.
   • Pay utmost attention not to damage the ball joint dust cover.
(2) Mount the steering knuckle on the lower ball joint.
(3) Mount the steering knuckle on the shock absorber lower bracket. Tighten the bolts and nuts.
   **Tightening Torque:** 9.0 - 13.0 kg-m (55 - 94 ft-lb)
   **NOTE:**
   With the knuckle pushed against the lower side, tighten the bolts and nuts.

(4) Install the lower ball joint. Tighten the bolt and nut.
   **Tightening Torque:** 9.0 - 10.5 kg-m (58 - 76 ft-lb)

(5) Install the washer. Install the nut temporarily.
   **NOTE:**
   Be sure to install the washer in the correct direction.

3. Install the disc rotor.
   **NOTE:**
   Care must be exercised to ensure that no foreign matter lodge between the hub and the disc rotor.

4. Disc brake caliper installation
   (1) Install the pad guide plate to the steering knuckle.
   (2) Tighten the attaching bolts of the disc brake caliper.
   **Tightening Torque:** 3.2 - 4.2 kg-m (23 - 30 ft-lb)
5. Tightening of castle nut using the following SST.
   (1) Tighten the castle nut
   SST: 09511-87202-000
   Tightening Torque: 18.0 - 23.0 kg-m (130 - 160 ft-lb)

(2) Install the front wheel adjusting lock cap and a new cotter pin.

6. Tie rod end installation
   (1) Attach the tie rod end to the steering knuckle and tighten the castle nut
   Tightening Torque: 3.0 - 4.5 kg-m (22 - 32.5 ft-lb)

(2) Install a new cotter pin.

7. Install the wheel
8. Front wheel alignment inspection and adjustment
   (See page 5-38.)
FRONT AXLE & SUSPENSION

FRONT SHOCK ABSORBER

COMPONENTS

- Tightening torque
  Unit: kg-m (ft-lb)

+ : Non-reusable parts

1. Bearing dust cover
2. Nut
3. Front suspension support
4. Bearing
5. Front spring upper seal
6. Coil spring
7. Spring bumper
8. Shock absorber

REMOVAL
1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the front wheel.

3. Flexible hose removal
   (1) Remove the clip at the shock absorber side.
   (2) Disconnect the flexible hose at the shock absorber bracket.

5-10
4. Shock absorber removal
   (1) Remove the attaching bolts and nuts of the steering knuckle. Separate the shock absorber from the steering knuckle.
   NOTE:
   Before removing the left shock absorber, remove the disc brake caliper attaching bolt (upper side).

   (2) Remove the two attaching nuts of the suspension support located at the header upper section. Remove the shock absorber from the body.
   NOTE:
   Be sure to protect the drive shaft boot with cloth or the like so that it may not be damaged.

DISASSEMBLY
1. Compress the coil spring using the following SST SST. 09727-87701-000

2. Coil spring disassembly
   (1) Clamp the front suspension support in a vise.
   (2) Remove the bearing dust cover and loosen the nut.
   NOTE:
   Never remove the nut by applying impacts on it, using an impact wrench or the like.
(3) Remove the following parts: the front suspension support, bearing, front spring upper seat, coil spring, and spring bumper.

**INSPECTION**

1. Inspect the following parts.
2. Shock absorber operation inspection

(1) Push or pull the piston rod of the shock absorber at a constant speed. Ensure that the force required to move the rod is uniform over the entire stroke. However, when the piston rod is pulled strongly, the pulling force may become slightly greater over the stroke 30 mm (1.2 inches) toward the end of the pulling stroke. It should be noted that this phenomenon is not abnormal.

(2) Move the piston rod quickly in a up-and-down direction with a stroke of 5 - 10 mm (0.2 - 0.4 inch). Ensure that the force required to move the rod will not change.

(3) If any abnormal feeling or noise is encountered during the inspection above, replace the shock absorber.

NOTE:
- Perform this inspection after the piston rod has been moved in a up-and-down direction three or four times.
- When the gas filling type shock absorber is replaced, previous to the disposal, be sure to release the gas from the shock absorber.

ASSEMBLY

1. Assembly of coil spring

(1) Insert the spring bumper at a point below the cut-out section of the piston rod.

(2) Compress the coil spring using the following SST. Install it to the shock absorber.

SST: 09727-87701-000

(3) Install the front spring, upper seat and bearing.

(4) Install the front suspension support.

NOTE:
Be sure to align the cut-out section of the front suspension support with that of the piston rod during the assembly.
(5) Clamp the front suspension support in a vice. Tighten the suspension support, using a new nut.
Tightening Torque: 3.5 - 5.5 kg-m (25 - 40 ft-lb)

(6) Install the bearing dust cover.

(7) Align the coil spring end with the recessed sections of the upper and lower seats. Proceed to remove the SST.

INSTALLATION

1. Installation of shock absorber upper section
   (1) Install the suspension support on the fender apron
       (Use a new nut )
       Tightening Torque: 2.0 - 3.0 kg-m (14.5 - 22 ft-lb)

2. Installation of steering knuckle section
   (1) Mount the steering knuckle on the shock absorber lower bracket.
   (2) Install the bolt and nut in position and tighten them.
       Tightening Torque: 9.0 - 13.0 kg-m (65 - 94 ft-lb)

   NOTE:
   With the knuckle pushed against the lower side, tighten the bolt and nut.

   NOTE:
   In the case of the removal/installation of the left shock absorber, install the attaching bolt (upper side) of the disc brake caliper after the steering knuckle section has been installed.
   Tightening Torque: 3.2 - 4.2 kg-m (23 - 30 ft-lb)

3. Install the flexible hose, as follows:
   (1) Install the flexible hose to the shock absorber bracket.
   (2) Install the flexible hose clip.

4. Install the wheel. Jack down the vehicle.

5. Front wheel alignment inspection (See page 5-38.)
FRONT STABILIZER BAR

COMPONENTS

1. Front stabilizer bar
2. Strut bar cushion
3. Suspension lower arm S-A
4. Strut bar cushion
5. Retainer cushion
6. Nut
7. Stabilizer bush
8. Stabilizer bracket
9. Steering knuckle
10. Front stabilizer lower bracket

REMOVAL

1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the engine under-cover (Vehicles mounted with Type CL-11 and CL-6 engines only)
3. Remove the stabilizer bar as follows.
   (1) Remove the stabilizer bar end nuts and retainer.
   (2) Remove the attaching bolts of the stabilizer bar brackets.
FRONT AXLE & SUSPENSION

(3) Remove the stabilizer bar from the vehicle

NOTE:
If any difficulty in removing the stabilizer bar is encountered, remove the stabilizer bar by using a jack on the tire.

(4) Remove the bush from the stabilizer bar.

INSPECTION

Inspect the following parts.

INSTALLATION

1. Stabilizer bar installation:
   (1) Install the cushions to the stabilizer bar

   (2) Install the stabilizer bar to the lower arm

   NOTE:
If the stabilizer bar end is not aligned with the lower arm attaching hole, use a jack on the tire so as to align the holes with each other.
(3) Install the cushion and stabilizer bar brackets.
   Tightening Torque: 4.0 - 6.0 kg-m (29 - 43 ft-lb)

(4) Install the cushions and retainers while paying attention to the direction of the retainer. Tighten them temporarily, using a new nuts.

(5) Rock the front section of the vehicle in an up-and-down direction two or three times so as to settle the suspension.

(6) With the vehicle in an unloaded state (the lower arm is horizontal), tighten the nuts.
   Tightening Torque: 7.5 - 11 kg-m (54 - 80 ft-lb)

NOTE:
If the nut is tightened at the rebound side, the cushion twisting angle will become large, resulting in reduced riding comfort.

2. Install the engine under-cover. (Vehicles equipped with Type CL-11 and CL-61 engines only)

3. Front wheel alignment inspection (See page 5-38)

LOWER ARM
COMPONENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Steering knuckle</td>
</tr>
<tr>
<td>2.</td>
<td>Lower arm bracket S/A</td>
</tr>
<tr>
<td>3.</td>
<td>Front stabilizer bar</td>
</tr>
<tr>
<td>4.</td>
<td>Shunt bar cushion</td>
</tr>
<tr>
<td>5.</td>
<td>Suspension lower arm S/A</td>
</tr>
<tr>
<td>6.</td>
<td>Retainer cushion</td>
</tr>
<tr>
<td>7.</td>
<td>Brake washer</td>
</tr>
<tr>
<td>8.</td>
<td>Lower arm bush</td>
</tr>
</tbody>
</table>

T : Tightening torque
Unit: kg-m (ft-lb)
* : Non-reusable parts
REMOVAL

1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the front wheel.
3. Lower arm removal.
   (1) Remove the stabilizer bar and nut.
   (2) Remove the attaching bolt and nut of the ball joint.
   (3) Remove the attaching nut of the lower arm at the body side.

   (4) Remove the attaching bolts of lower suspension brace.
       (TURBO and 3T:; grades only)
   (5) Remove the lower arm bracket.
   (6) Remove the lower arm.
1. Lower ball joint dust cover replacement
   (1) Remove the dust cover, using a common screwdriver.
   **NOTE:**
   Be very careful not to damage the socket section.

   (2) When assembling the lower ball joint dust cover, apply grease to the following sections.

   (3) Press the dust cover into position, using a press in combination with the following SST.
   SST: 09618-87301-000
   **NOTE:**
   Make sure that no grease or oil gets to the socket section (indicated by a "*" mark) during the press operation.
2. Lower arm bush replacement
   (1) Remove the bush, using the following SSTs.
   SST: 09301-87701
   09636-20010

   (2) Press the bush into position, using a press in conjunction with the following SSTs
   SST: 09301-87701
   09636-20010

INSTALLATION

1. Lower arm installation
   (1) Temporarily tighten the lower arm ball joint section and stabilizer bar end nut section.

   (2) Tighten the bolt and nut of the ball joint section.
   Tightening Torque: 8.0 - 10.5 kg-m (58 - 76 ft-lb)

   (3) Install the lower arm bracket.
   Tightening Torque: 7.5 - 10.5 kg-m (54 - 76 ft-lb)

   (4) Tighten the lower arm attaching nut temporarily.

   (5) Installation of lower suspension brace.
   (TURBO and GT1 grades only)
   Tightening Torque: 4.0 - 5.5 kg-m (29 - 40 ft-lb)
(6) Install the front wheel.
(7) Jack down the vehicle. Rock the front section of the vehicle in an up-and-down direction two or three times so as to settle the suspension
(8) With the vehicle in an unloaded state (lower arm is horizontal), tighten the nut

**Stabilizer bar**

Tightening Torque:

7.5 - 11.0 kg-m (54 - 80 ft-lb)

**Lower arm**

Tightening Torque:

7.0 - 10.0 kg-m (51 - 72 ft-lb)

2. Front wheel alignment inspection (See page 5-38.)
DRIVE SHAFT

1. Cotter pin
2. Front wheel adjusting lock cap
3. Nut
4. Tie rod Ay
5. Stabilizer bar
6. Lower arm Ay
7. Bolt
8. Extension rod S/A
9. Lower suspension arm
10. S/A & select shaft S/A
11. Front drive shaft Ay
12. Bolt
13. Front drive bearing shaft Ay

*: Non-reusable parts

Fig. 5-70

5-22
OPERATION PRIOR TO REMOVAL
1. Jack up the vehicle.
2. Drain the transmission fluid.
3. Remove the front wheels.

REMOVAL
1. Pull out the cotter pin. Remove the front wheel adjusting lock cap.

2. Remove the nut, using the following SST.
   SST: 09611-87202-000

3. Disconnect the tie rod, using the following SST.
   SST: 09611-87701-000

4. Remove the stabilizer bar.
5. Remove the lower arm. (Bracket side only)

6. Remove the bolts. Separate the extension rod subassembly and shift & select shaft subassembly from the transmission.

7. Pull out the front drive shaft, using the following SST.
   SST: 09648-87201-000

   NOTE:
   1. As for the inboard side of the drive shaft, no stopper is provided at the inside. Therefore, be sure to support the inboard joint section by your hand during the removal.

   2. As for the right side of vehicles mounted with Type CB-80 engine, insert a crowbar into between the protruding section of the bearing shaft and the drive shaft. Then, take out the front drive shaft, being very careful not to deform the dust cover of the drive shaft.

9. Remove the two bolts. Remove the front drive shaft bearing shaft assembly (Vehicles mounted with Type CB-80 engine only)
**INSPECTION**

Inspect the following sections:

- Oil seal-contacting section for damage or wear
- Bands for breakage or deformation
- Dust cover for deformation
- Boots for rupture

**Fig. 5-21**
NOTE:
When replacing the parts of the drive shaft, each of the boot, the inboard joint and the outboard joint (with the front axle shaft) should be replaced only as a complete unit.

"*: Non-reusable parts

1. Boot band
2. Outboard joint S/A
3. Front axle inboard joint S/A
4. Shaft snap ring
5. Inboard joint I port AY
6. Front axle joint boot

Fig. 5-82

5-26
DISASSEMBLY

1. Pry up the boot band clip with a common screwdriver. Detach the boot.
   NOTE:
   Be very careful not to damage the boot.

2. Put a mating mark on the inboard joint and shaft as shown in the figure. Remove the front axle inboard joint subassembly.
   NOTE:
   Put mating marks by painting. (Never use a punch to put mating marks.)

3. Detach the shaft snap ring, using a snap ring expander

4. Remove the inboard joint tripod assembly, as follows
   (1) Put a mating mark at the tip end of the tripod and shaft, using a punch.

   (2) Pull out the tripod from the shaft, using a brass bar.
   NOTE:
   Be sure to apply the brass bar to the tripod boss section, not to the roller section.

5. Remove the front axle joint boot

5-27
INSPECTION

Inspect the following sections.

ASSEMBLY

1. Assemble the front axle joint boot in position.
2. Assemble the inboard joint tripod assembly, as follows:
   (1) Face the non-splined side of the tripod toward the outboard joint.
   (2) Align the mating marks which were put during the disassembly.

   (3) Drive the tripod assembly into the shaft lightly, using a brass bar.

NOTE:
Be sure to apply the brass bar to the boss section of the tripod, not to the roller section.

3. Attach the shaft snap ring in position, using a snap ring expander.
4. Assemble the front axle inboard joint, as follows.
   (1) Pack the inboard joint with joint grease.
   NOTE:
   Use the grease which has been provided in the boot kit of the replacement parts.

   (2) Install the inboard joint, aligning the mating marks which were put during the disassembly.

5. Prior to assembling the boot of the front axle outboard joint, pack the outboard joint with joint grease.
   NOTE:
   1. Use the grease which has been provided in the boot kit of the replacement parts.
   2. On vehicles other than those mounted with Type CB-80 engine, it should be noted that the grease to be used for the inboard joint differs from that to be used for the outboard joint.
   Grease for inboard joint ... Yellow
   Grease for outboard joint ... Black

6. Assemble a new boot band, as shown in the figure.

INSTALLATION

Grease applying points
1. Apply chassis grease to the whole serrated section of the front axle hub installation section.
2. Install the front drive bearing shaft in position.
   (Vehicles mounted with Type CB-80 engine only)
   Tightening Torque: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

3. Install the front drive bearing shaft in position
   NOTE:
   Be very careful not to damage the oil seal during the installation.

4. Install the shift & select shaft subassembly and extension
   rod subassembly in position.
   Tightening Torque: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)

5. Install the bracket side of the lower arm assembly in
   position.
   Tightening Torque: 7.0 - 10.0 kg-m (51 - 72 ft-lb)

6. Install the stabilizer bar to the lower arm assembly
   Tightening Torque: 7.5 - 11.0 kg-m (54 - 80 ft-lb)

7. Install the stabilizer lower bracket to the body.
   Tightening Torque: 4.0 - 6.0 kg-m (29 - 43 ft-lb)
5. Install the tierod assembly to the steering knuckle.
   Tightening Torque: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

9. Install the drive shaft to the front axle hub. Secure the axle hub, using the following SST.
   SST: 09511-87202-000

10. Tighten the nut.
    Tightening Torque:
        18.0 - 23.0 kg-m (130 - 166 ft-lb)

**NOTE:**
1. When this nut is tightened to the specified torque, the specified preload of the front wheel is attained.
2. Assemble the spring washer in such a way that its recessed side comes to the hub side.

11. Install the front wheel adjusting lock cap to the nut.

12. Install the cotter pin as shown in the right figure.
FRONT AXLE & SUSPENSION

FRONT DRIVE BEARING SHAFT
(Vehicles Mounted with Type CB-80 Engine Only)

COMPONENTS

*: Non-reusable parts

1. Oil seal
2. Shaft snap ring
3. Drive shaft bearing bracket
4. Oil seal
5. Hinge snap ring
6. Flange ball bearing
7. Dust deflector
8. Front snapping
9. Universal joint spider SVA
10. Universal joint No 2 yoke
11. Universal joint yoke SVA

INSPECTION
Inspect the following parts.

Damage or wear
Deformation or damage
Damage

Excessive looseness or binding in round direction

Fig. 5-106
Fig. 5-107
5-32
DISASSEMBLY

1. Remove the oil seal, using a common screwdriver.
2. Detach the shaft snap ring using a snap ring expander.

3. Remove the drive shaft bearing bracket using the following SSTs.
   SST: 09334-87201-000
   SST: 09608-87501-000

4. Remove another oil seal, using a common screwdriver.
5. Detach the hole snap ring using a snap ring expander.

6. Remove the radial ball bearing, using the following SSTs.
   SST: 09547-87301-000
   SST: 09608-87501-000

7. Remove the dust deflector, using a brass bar and a hammer. Be careful not to damage the dust deflector during the removal.
8. Put a mating mark on the yoke and universal yoke.
9. Detach the hole snap ring, using a snap ring expander.

10. Remove the universal joint spider subassembly, following the procedure given below:
    (1) Push off the spider bearing cap, using a vice in combination with a 19 mm socket and the following SST.
        SST: 09628-10020-000

11. Disconnect the universal joint No.2 yoke from the universal joint yoke subassembly.
"INSPECTION"

Inspect the following sections:

![Diagram](Fig. 5-116)

"ASSEMBLY"

Grease applying points

Apply MP grease to the points shown in the right figure.

1. Assemble the universal joint yoke spider subassembly, following the procedure given below.
   (1) Assemble the spider to the universal joint yoke subassembly. Push them in a vise from both sides until the bearing cap becomes flush with the end surface of the yoke subassembly.

   (2) Using a 19 mm socket, push the spider cap in a vise until the snap ring can be inserted in position.

   (3) Install the universal joint yoke No.2 to the spider.

   Assemble 1 in the sequence (1) and (2) described above.

5-35
2. Assemble the hole snap ring using a snap ring expander, in accordance with the procedure given below.
(1) Select a proper snap ring so that the play of the spider in the axial direction will not exceed 0.05 mm (0.002 inch) and the thickness of the snap ring becomes the same at both sides.

Reference: Snap Ring Availability

<table>
<thead>
<tr>
<th>Part number</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>90045-21046 000</td>
<td>1.48 mm (0.057 inch)</td>
</tr>
<tr>
<td>90045-21047-000</td>
<td>1.50 mm (0.059 inch)</td>
</tr>
<tr>
<td>90045-21048-000</td>
<td>1.53 mm (0.061 inch)</td>
</tr>
</tbody>
</table>

(2) Assemble the selected snap ring.

(3) Check the spider bearing for excessive looseness.

3. Install the dust deflector, using the following SST.
   SST: 09547-87501-000

4. Assemble the radial ball bearing, using the following SSTs.
   SST: 09547-87301-000
   SST: 09608-87501-000
5. Attach the hole snap ring, using a snap ring expander.

6. Install the oil seal, using the following SST.
   SST: 09608-87501-000

7. Install the drive shaft bearing bracket, using the following SSTs.
   SST: 09506-30011-000
   SST: 09608-87501-000

8. Attach the shaft snap ring, using a snap ring expander.

9. Assemble the oil seal, using the following SST.
   SST: 09608-87501-000
WHEEL ALIGNMENT (FRONT AND REAR)

TOOLS AND INSTRUMENTS

<table>
<thead>
<tr>
<th>Shape</th>
<th>Nomenclature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools</td>
<td>CCK gauge compensator CCK-IN Supplied by Banzai Ltd.</td>
<td>Attachment for camber, caster and kingpin gauge</td>
</tr>
<tr>
<td>Instruments</td>
<td>Turning radius gauge, tire pressure gauge, camber, caster, kingpin gauge and dial gauge</td>
<td></td>
</tr>
</tbody>
</table>

Brake pusher, hexagon wrench key (width across flats: 8 mm)

CHECKS PRIOR TO WHEEL ALIGNMENT MEASUREMENT

1. Checking Tires for Wear
2. Checking Tires for Air Pressure

<table>
<thead>
<tr>
<th>Tire</th>
<th>Air inflation pressure [kg/cm² (psi)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 x 12.4PR</td>
<td>G-100 (15) G-101 (14.2)</td>
</tr>
<tr>
<td>145 x 80R13 74S, 145SR13</td>
<td>1.8 (26) 2.0 (29)</td>
</tr>
<tr>
<td>155 x 80R13 76S, 155SR13</td>
<td>1.8 (26) 2.0 (29)</td>
</tr>
<tr>
<td>165 x 70R13 79S, 165SR7CSR13</td>
<td>1.8 (26) 2.0 (29)</td>
</tr>
<tr>
<td>175 x 60R14 78H</td>
<td>1.8 (26)</td>
</tr>
<tr>
<td>185 x 60R14 82H (Pirelli)</td>
<td>1.8 (26)</td>
</tr>
</tbody>
</table>

3. Checking Tires for Runout
   (Up-and-down and right-and-left directions)
   Maximum Limit: 3.0 mm (0.12 inch)
   
4. Checking Bolts of Related Sections for Tightened Condition

5. Checking Related Sections for Excessive Play
   (1) Jack up the vehicle. Alternately push and pull the upper and lower parts of each tire. Ensure that the tire exhibits no excessive play.
   (2) If the tire exhibits an excessive play, perform the following check while the brake pedal is being depressed.
   - The excessive play disappears:
     This indicates that the front wheel bearing is loose.
   - The excessive play still persists:
     This indicates that the knuckle section, axle carrier section or suspension is loose.
(3) If the wheel bearing is judged as being loose, proceed to check the play in the axial direction, using the following SST.
SST: 09510-87301-000
(Front and rear wheel bearings)
Specified Value: Not to exceed 0.2 mm (0.008 inch)
Maximum Limit: 0.05 mm (0.002 inch)

CHECKS AND ADJUSTMENT OF FRONT WHEEL ALIGNMENT

1. Turning Radius Gauge Set
   (1) Set the turning radius gauge to the zero point. Proceed to lock the gauge.
   (2) Place the vehicle on the gauge in such a way that the center of the tire-to-floor contact surface may be aligned with the center of the turning radius gauge.

NOTE:
- Perform the check on a level floor.
- When a portable type turning radius gauge is employed, a plate having the same thickness as that of the gauge should be placed under the rear wheel so that the vehicle levelness may be maintained.
- Make sure that the wheels are in their straightahead conditions.
- Keep the vehicle in an unloaded state. In order to prevent the vehicle from moving during the check, be sure to apply the foot brake, using a brake pedal pusher or the like.
- Remove the stop lamp fuse so as to prevent the stop lamp from glowing.
2. Checking Wheel Turning Angle
   (1) Measure the wheel turning angle, using a turning
   radius gauge.
   Specified Value:

<table>
<thead>
<tr>
<th>Side</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner side</td>
<td>39°55' ± 2°</td>
</tr>
<tr>
<td>Outer side</td>
<td>3°56' ± 2°</td>
</tr>
</tbody>
</table>

   (2) If the wheel turning angle differs between the right and
      left sides, correct the turning angle.

3. Correction Wheel Turning Angle
   (1) Slacken the lock nuts of the tie rod ends.
   (2) Make the length indicated in the right figure equal
      between the right and left sides
   NOTE:
   - Make sure that the boot is not twisted during the
     correction.
   - Make sure that the tie rods at the right and left sides are
     turned by the same amount.

4. Checking Camber, Caster and Kingpin Angles
   (1) In the case of steel wheels, perform the measurement,
       using the following SST (attachment).
       SST: 09722-87702-000

   (2) In the case of aluminum wheels, perform the measure-  
       ment, using the CCK (Camber, Caster, Kingpin) gauge
       compensator (available in the market).
   NOTE:
   The CCK gauge compensator can be used for the
   measurement on steel wheels, too.

   (3) Installation procedure for the CCK gauge compensa-  
       tor, and the camber, caster and kingpin gauge.
• Jack up the vehicle.
• Before installing the CCK gauge to the wheel, set the CCK gauge compensator to the mechanical zero line by turning the compensating dial of the compensator.

• While turning the clamp dial of the CCK gauge compensator, hook the four paws to the wheel edges securely. While pushing the compensator,lock the compensator positively by turning the clamp dial.

NOTE:
In order to prevent the wheel edges from being scratched, affix tapes or the like on the wheel edge sections to which the four paws of the compensator are hooked.

• Set the camber caster and kingpin gauge to the installation plate of the CCK gauge compensator. At this point, align the set lines on the gauge and compensator with each other.

• Turn the wheel so that the level air bubble in the gauge may come to the central position. At this position, turn the caster adjusting screw of the gauge so that the caster air bubble may be aligned with the graduation zero position.

• Turn the wheel 180 degrees so that the gauge may be turned over. Proceed to align the set lines on the gauge and compensator with each other. Next, turn the wheel so that the level air bubble in the gauge may come to the central position.
- Record the caster reading of the gauge. Turn the compensating dial of the compensator so that it may be aligned with the 1/2 of the recorded caster reading.

**NOTE:**
Be sure not to tamper the caster adjusting screw of the gauge.
- Repeat the steps described in Fig 5-86 and Fig. 5-87.
  Ensure that the air bubble of the caster gauge registers the same reading when the wheel is turned 180 degrees in a normal direction and in a reversed direction.
- Jack down the wheel on the turning radius gauge. Rock the vehicle in an up-and-down direction so as to settle the suspension.

(4) Camber check
- Ensure that the wheels are in their straight-ahead conditions.
- Align the level air bubble with the central position.
- Take the camber reading of the gauge

**Specified Value:**
\[ 0^\circ 20' \pm 1^\circ \]
\[ 0^\circ 20' \pm 40' \]
\[ -20' \]
(5) Checking caster and kingpin angles
   (Right wheel)
   • Turn the steering wheel to the right side, until the right front tire comes at a point where the turning radius gauge registers 20 degrees.
   • Turn each of the caster and kingpin adjusting screws so that the respective air bubble may be aligned with the zero point.
   • Turn the steering wheel to the left side, until the right front tire comes at a point where the turning radius gauge registers 20 degrees.
   • Take the gauge readings of the caster and kingpin angles.
   Specified Value:  Caster: \(2^\circ 55' \pm 1'\)
   Kingpin angle: \(12^\circ \pm 30'\)

   (Left wheel)
   • Perform the check following the same procedure as with the right wheel. However, the turning direction of the steering wheel must be reversed.

5. Toe-In Measurement
   (1) Rock the vehicle so that the vehicle height may stabilize.
   (2) Move the vehicle forward about five meters so that the front wheels may become in their straight-ahead conditions.

   NOTE:
   Do not move the vehicle backward during the measurement.
   (3) Align the height of the toe-in gauge pointers with the center height of the front wheels.
   (4) Put a mark on the tread center of each front wheel tire at the rear side. Measure the distance between the two marks (Dimension A) in the figure.
(5) Slowly move the vehicle forward by pushing the vehicle, until the wheels turn 180 degrees.

(6) Measure the distance (Dimension B) between the two marks which were put in the preceding step. This measurement is performed at the front side of the vehicle.
Calculate the amount of toe-in, i.e. (Dimension A - Dimension B).
Specified Value: -1 - +3 mm (-0.04 - +0.12 inch)

6. Toe-In Adjustment
(1) Slacken the lock nuts of the tie rod ends.
(2) Perform the toe-in adjustment by turning the tie rod ends.

NOTE:
- Care must be exercised to ensure that the boot is not twisted during the adjustment.
- When adjusting the toe-in, the tie rods at the right and left sides should be turned by the same amount.
- The length indicated in the right figure must be the same amount.
(If the length differs between the right and left sides, a difference occurs in the wheel turning angle between the right and left sides.)

7. Sideslip Check
Check the sideslip, using a sideslip tester.
Specified Value: -9 - +3 mm (-0.12 - +0.12 inch)
Per 1 meter (3.28 ft)

CHECK AND ADJUSTMENT OF REAR TOE-IN
1. Toe-In Check
(1) Rock the vehicle so that the vehicle height may stabilize.
(2) Move the vehicle forward about five meters so that the front wheels may become in their straight-ahead conditions.
(3) Align the height of the toe-in gauge pointers with the center height of the rear wheels.
(4) Put a mark on the tread center of each rear wheel tire at the rear side. Measure the distance between the two marks (Dimension A) in the figure.
(5) Slowly move the vehicle forward by pushing the vehicle, until the wheels turn 180 degrees.

(6) Measure the distance (Dimension B) between the two marks which were put in the preceding step. This measurement is performed at the front side of the rear wheels.

(7) Calculate the amount of toe-in, i.e. (Dimension A - Dimension B).
   Specified Value: +4 - +8 mm (+0.16 - +0.31)

2. Toe-In Adjustment
   (1) Slacken the set bolt of the toe adjusting cam.

   (2) Insert a hexagon wrench key into the hexagonal hole provided at the back side of the toe adjusting cam.
   Turn the hexagon wrench key.
   (Inside: IN, Outside: OUT)
   (Reference)
   When each of the adjusting cams provided at both sides is turned by one graduation, the toe-in will change approximately 5 mm (0.20 inch).

3. Sideslip Check
   Check the sideslip, using a sideslip tester.
   Specified Value: 1 - 7 mm (-0.04 - 0.28 inch)
   Per 1 meter (3.28 ft)
SECTION 6
REAR AXLE & SUSPENSION

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COMPONENTS

T: Tightening torque
Unit: kg-m (ft-lb)
* : Non-reusable parts

1. Radial ball bearing
2. Rear axle bearing outer retainer
3. Radial ball bearing
4. Rear axle carrier S/A
5. Rear axle bearing inner retainer
6. Nut
7. Bolt
8. Bolt
9. Bolt
10. Rear brake A
11. Rear brake drum
12. Plate washer
13. Castle nut
14. Cotter pin
15. Grease retainer cap

Fig. 6-2

6-3
REAR AXLE & SUSPENSION

REMOVAL
1. Jack up the vehicle at the rear side. Support the body with safety stands.
2. Remove the rear wheel.

3. Backing plate removal
   (Drum brake equipped vehicle)
   (1) Remove the grease retainer cap.
   (2) Remove the cotter pin, castle nut, and plate washer.

   (3) Remove the brake drum using the following SST.
       Remove the bearing inner retainer.
       SST: 09510-87301-000

   (4) Disconnect the brake tube from the wheel cylinder, using the following SST.
       SST: 09751-36011-000

   (5) Remove the backing plate with the brake shoe installed.
(Disc brake equipped vehicle):
(1) Remove the parking cable guide.
(2) Remove the anti-rattle spring.

(3) Remove the caliper.
NOTE:
Suspend the caliper as shown in the right figure.

(4) Remove the caliper support.

(5) Remove the grease retainer cap.
(6) Remove the cotter pin, castle nut and plate washer.

(7) Remove the disc rotor and bearing inner retainer.

6-5
4 Axle carrier removal

(1) Remove the attaching bolt and nut of the axle carrier from the strut rod.

(2) Remove the attaching bolt and nut of the axle carrier from the suspension arm No.1.

(3) Remove the attaching bolt and nut of the axle carrier from the suspension arm No.2.

(4) Remove the attaching bolts and nuts of the axle carrier from the shock absorber. Remove the axle carrier.
5. Hub bearing removal
   (1) Drive out the inner bearing, using a brass bar. At the same time, drive out the bearing outer retainer, too.
   (2) Drive out the outer bearing, using a brass bar.

**INSPECTION**

Inspect the following parts:

- Spindle for damage
- Threaded portion for damage
- Bearing for wear or damage
- Brake drum for wear or damage
  - Specified inner diameter: 180 mm (7.08 inches)
  - Maximum Limit: 101.5 mm (4.0 inches)
- Bearing for wear and damage
- Brake drum for wear or damage
- Bushes for damage
- Damage
- Both ends for wear or damage
- Deformation
- Hub and bolt for fitting condition threaded portion for damage
- Disc surface for damage and wear
  - Specified thickness: 10 mm (0.39 inch)
  - Minimum Limit: 9 mm (0.35 inch)
INSTALLATION

1. Hub bearing installation
   Pack the hub and bearing with grease. Then, press the outer bearing, outer retainer and inner bearing in this order, using a press in conjunction with the following SST.
   SST: 09608-12010-000
   (For the outer bearing, use No. 13 of the SST set.)
   (For the inner bearing, use No. 5 of the SST set.)

2. Axle carrier installation
   **NOTE:**
   As for those suspension-related bolts and nuts on which a friction stabilizing agent has been coated, be certain not to reuse them if they have been once removed
   (1) Mount the axle carrier to the shock absorber.
   (2) Install the attaching bolts and new nuts of the axle carrier. Proceed to tighten them.
      Tightening Torque: 9.0 - 12.0 kg-m (65 - 87 ft-lb)
   **NOTE:**
   Tighten the bolts and nuts while pushing the axle carrier to the lower side (positive side).

(3) Mount the axle carrier on the suspension arm No. 1. Tighten the new bolt and nut temporarily.
(4) Mount the axle carrier on the suspension arm No. 2. Temporarily tighten the new bolt and nut.
5. Hub bearing removal
(1) Drive out the inner bearing, using a brass bar. At the same time, drive out the bearing outer retainer, too.
(2) Drive out the outer bearing, using a brass bar.

INSPECTION
Inspect the following parts.

- Spindle for damage
- Cracks or damage
- Threaded portion for damage
- Bearing for wear or damage
- Brake drum for wear or damage
  - Specified inner diameter: 80 mm (7.08 inches)
  - Maximum Limit: 118.5 mm (7.15 inches)
- Bearing for wear and damage
- Damage
- Both ends for wear or damage
- Detonation
- Hub and bolt for fitting condition threaded portion for damage
- Disc surface for damage and wear
  - Specified thickness: 10 mm (0.39 inch)
  - Minimum Limit: 9 mm (0.35 inch)
INSTALLATION

1. Hub bearing installation
   Pack the hub and bearing with grease. Then, press the outer bearing, outer retainer and inner bearing, in this order, using a press in conjunction with the following SST.
   SST: 09608-12010-000
   (For the outer bearing, use No. 13 of the SST set.)
   (For the inner bearing, use No. 5 of the SST set.)

2. Axle carrier installation
   NOTE:
As for those suspension-related bolts and nuts on which a friction stabilizing agent has been coated, be certain not to reuse them if they have been once removed.
   (1) Mount the axle carrier to the shock absorber.
   (2) Install the attaching bolts and new nuts of the axle carrier. Proceed to tighten them.
   Tightening Torque: 9.0 - 12.0 kg-m (65 - 87 ft-lb)
   NOTE:
Tighten the bolts and nuts while pushing the axle carrier to the lower side (positive side).

(3) Mount the axle carrier on the suspension arm No.1. Tighten the new bolt and nut temporarily.
(4) Mount the axle carrier on the suspension arm No.2. Temporarily tighten the new bolt and nut.
3. Installation of brake drum or disc rotor:
   (Drum brake equipped vehicle)
   (1) Install the backing plate.
   
   Tightening Torque: 4.0 - 5.5 kg-m (29 - 40 ft-lb)

   NOTE:
   Be sure to apply DAHATSU Bond No.4 (999-6304-6323-00) to the mating surface between the rear brake and the axle carrier. During this sealer application, be very careful not to restrict the 5 mm (0.20 inch) dia. grease releasing hole.

   (2) Install the brake tube to the backing plate.
   
   Tightening Torque: 1.3 - 1.8 kg-m (9.4 - 13.0 ft-lb)

   (3) Install the bearing inner retainer brake drum plate washer and castle nut.

   (4) Tighten the castle nut.
   
   Tightening Torque: 6.0 - 10.0 kg-m (43 - 72 ft-lb)

   (5) Install a new cotter pin. Install the grease retainer cap.

   (6) Perform air bleeding for the brake system. (See page 8-5.)

   (Disc brake equipped vehicle)

   (1) Install the backing plate.

   Tightening Torque: 4.0 - 5.5 kg-m (29 - 40 ft-lb)

   (2) Install the bearing inner retainer, disc rotor, plate washer and castle nut.

   (3) Tighten the castle nut.

   Tightening Torque: 6.0 - 10.0 kg-m (43 - 72 ft-lb)

   (4) Install a new cotter pin. Install the grease retainer cap.
(5) Install the caliper support.
   **Tightening Torque:**  4.0 - 5.5 kg-m (29 - 40 ft-lb)

(6) Install the caliper.

(7) Install the anti-rattle spring.
(8) Install the parking cable guide.

4. Tightening of axle carrier attaching bolts
   (1) Install the tires.
   (2) With the vehicle in an unloaded state, jack down the vehicle. Rock the vehicle in an up-and-down direction several times to settle the suspensions.

   (3) With the vehicle weight being applied to the suspensions, tighten the bolt and nut of each section.
   **Tightening Torque:**  7.5 - 10.5 kg-m (54 - 75 ft-lb)

5. Rear wheel alignment inspection
   (See Fig. 5-38)
REAR AXLE & SUSPENSION

REMOVAL
1. Jack up the vehicle at the rear section. Support the body with safety stands.
2. Remove the wheel.

3. Removal of brake tube and flexible hose
   (1) Disconnect the brake tube from the flexible hose.
       SST: 09751-36011-000
   (2) Detach the clip. Disconnect the flexible hose from the shock absorber.

4. Remove the nuts attaching the shock absorber to the axle carrier. Leave the bolts in an inserted condition.

5. Trim removal
   (1) Remove the package tray.
   (2) Remove the package tray side trim.
3. Slacken the nut attaching the shock absorber to the suspension support.

   NOTE:
   Do not remove the nut.

7. Remove the nuts attaching the suspension support to the body.

8. Remove the attaching bolts of the axle carrier and shock absorber. Remove the shock absorber from the body.

DISASSEMBLY

1. Coil spring removal
   (1) Compress the coil spring, using the following SST
       SST: 09727-87701-000

   (2) Remove the nut.
REAR AXLE & SUSPENSION

(3) Remove the rear shock absorber cushion, rear suspension support, rear coil spring insulator, spring bumper and coil spring.

INSPECTION

1. Inspect the following parts.
2. Shock absorber operation inspection
   (1) Push or pull the piston rod of the shock absorber at a constant speed. Ensure that the force required to move the rod is uniform over the entire stroke. However, when the piston rod is pulled strongly, the pulling force may become slightly greater over the stroke 30 mm (1 2 inches) toward the end of the pulling stroke. It should be noted that this phenomenon is not abnormal.
   (2) Move the piston rod quickly in a up and down direction with a stroke of 5 - 10 mm (0.2 - 0.4 inch). Ensure that the force required to move the rod will not change.
   (3) If any abnormal feeling or noise is encountered during the inspection above, replace the shock absorber.

NOTE:
- Perform this inspection after the piston rod has been moved in a up-and-down direction three or four times.
- When the gas filling type shock absorber is replaced, previous to the disposal, be sure to release the gas from the shock absorber.

ASSEMBLY
1. Assembly of coil spring
   (1) Install the spring bumper at a point below the cut-out section of the piston rod.
   (2) Compress the coil spring, using the following SST. Install it to the shock absorber.
      SST: 09727-87701-000

   (3) Install the rear shock absorber cushion to the rear suspension support.
   (4) Install the rear coil spring insulator to the rear suspension support.

NOTE:
Be sure to align the cut-out section of the rear coil spring insulator with the stud bolt section of the rear suspension support during the assembly.

   (5) Install the rear suspension support.

NOTE:
- Be sure to align the cut-out section of the rear suspension support with that of the piston rod during the assembly.
- Align the rear suspension support on the shock absorber lower bracket, as shown in Fig. 6-53.

   (6) Fit the suspension support. Tighten it temporarily, using a new nut.
(7) Align the coil spring end with the recessed sections of the upper and lower seats. Proceed to remove the SST.

**INSTALLATION**

1. Install the suspension support to the body, using a new nuts.
   
   **Tightening Torque**: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)

2. Mount the axle carrier on the shock absorber. Fit the bolts and new nuts in position and tighten them.
   
   **Tightening Torque**: 9.0 - 12.0 kg-m (65 - 87 ft-lb)

   **NOTE**:
   - The steering carrier attaching nuts are special nuts on which a friction stabilizing agent has been coated. Hence, be certain not to reuse them.
   - Tighten the bolts and nuts while pushing the axle carrier to the lower side (positive side).

3. Install the flexible hose and brake tube, as follows:
   
   (1) Install the flexible hose to the shock absorber. Secure it with the clip.
   (2) Install the brake tube to the flexible hose

   **SST**: 09751-36011-000
4. Tighten the suspension support attaching nut.
   Tightening Torque: 3.5 - 5.5 kg-m (25 - 40 ft-lb)

5. Trim installation
   (1) Install the package tray side trim.
   (2) Install the package tray.

6. Perform air bleeding for the brake system. (See page 8-5)
7. Install the wheels. Jack down the vehicle.
8. Check the rear wheel alignment. (See page 5-38.)
REAR AXLE & SUSPENSION

SUSPENSION ARM

COMPONENTS

Fig. 6-61

REMOVAL

1. Jack up the vehicle.
   (1) Jack up the vehicle and support the body with safety stands.
   (2) Remove the wheel.

2. Removal of suspension arm No. 2
   (1) Remove the attaching bolt and nut of the stabilizer link

(2) Remove the attaching bolt and nut of the suspension arm at the axle carrier side
(3) Remove the attaching bolt of the suspension arm and cam at the body side. Then, remove the suspension arm.

**NOTE:**
Put a mate mark on the body bracket and the toe adjusting cam so that the mark may be used as guide during the installation.

(4) Remove the rear stabilizer bar bracket from the suspension arm.

3. Removal of suspension arm No.1

   (1) Remove the attaching bolt and nut of the suspension arm at the axle carrier side.

   (2) Remove the attaching bolt and nut of the suspension arm at the body side. Then, remove the suspension arm.
INSPECTION

Inspect the parts as right figure.

INSTALLATION

NOTE:
The suspension arm attaching bolts are special bolts on which a friction stabilizing agent has been coated. Hence, be certain not to reuse them.

1. Installation of suspension arm No. 1
   (1) Tighten the suspension arm to the body temporarily with the new bolt and nut.
   (2) Tighten the suspension arm to the axle carrier temporarily with the new bolt and nut.

2. Installation of suspension arm No. 2
   (1) Install the rear stabilizer bar bracket to the suspension arm.
      Tightening Torque: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)

(2) Mount the suspension arm on the body.
(3) Tighten the suspension arm to the body temporarily with the new bolt and cam.
(4) Prior to secure tightening, align the marks on the toe adjuster cam and body with each other.
(5) Tighten the suspension arm to the axle carrier temporarily with the new bolt and nut.

(6) Tighten the attaching bolt and nut of the stabilizer link to the specified torque
   **Tightening Torque:** 1.9 - 3.1 kg-m (14 - 22 ft-lb)

3. Tightening of suspension arm attaching bolt
   (1) Install the wheel.
   (2) With the vehicle in an unloaded state, jack down the vehicle. Rock the vehicle in an up-and-down direction a few times so as to settle the suspension.

(3) With the vehicle weight applied to the suspension, tighten the bolts and nuts.
   **[Suspension arm No.1]**
   (Axle carrier side)
   **Tightening Torque:** 7.5 - 10.5 kg-m (54 - 76 ft-lb)
   (Body side)
   **Tightening Torque:** 7.5 - 10.5 kg-m (54 - 76 ft-lb)

   **[Suspension arm No.2]**
   (Axle carrier side)
   **Tightening Torque:** 7.5 - 10.5 kg-m (54 - 76 ft-lb)
   (Body side)
   **Tightening Torque:** 7.1 - 8.8 kg-m (51 - 64 ft-lb)

4. Check the rear wheel alignment.
   (See page 5-38.)
REAR AXLE & SUSPENSION

STRUT ROD

REMOVAL

1. Jack up the vehicle.
   (1) Jack up the vehicle. Support the body with safety stands
   (2) Remove the wheel.

2. Strut rod removal
   (1) Remove the attaching bolt and nut of the strut rod at
       the axle carrier side.
   (2) Remove the attaching bolt and nut of the strut rod at
       the body side. Then, remove the strut rod.

INSPECTION

Inspect the parts as right figure.

INSTALLATION

1. Strut rod installation
   (1) Tighten the strut rod to the body temporarily with the
       new bolt and nut.
   (2) Tighten the strut rod to the axle carrier temporarily with
       the new bolt and nut.

NOTE:
The strut rod attaching bolts are special bolts on which a
friction stabilizing agent has been coated. Hence, be
certain not to reuse them.

2. Tightening of strut rod attaching bolt
   (1) Install the wheel.
   (2) With the vehicle in an unloaded state, jack down the
       vehicle. Rock the vehicle in an up-and-down direction
       a few times so as to settle the suspension.
(3) With the vehicle weight applied to the suspension, tighten the bolt and nut.
   **Tightening Torque:** 7.5 - 10.5 kg-m (54 - 76 ft-lb)

3. Check the rear wheel alignment. (See page 5-38)

## STABILIZER BAR COMPONENTS

**T**

1. Nut
2. Washer
3. Bush
4. Bush
5. Washer
6. Stabilizer link S/A
7. Rear stabilizer bar bracket
8. Bush
9. Stabilizer bracket
10. Rear stabilizer

**T :** Tightening torque
   **Unit:** kg-m (ft-lb)

**T : 1.0 - 1.8**
   *(7.2 - 11.8)*

**T : 1.0 - 1.6**
   *(7.2 - 11.8)*

**T : 1.9 - 3.1**
   *(14 - 22)*

**T : 1.0 - 1.6**
   *(7.2 - 11.8)*

## REMOVAL

1. Jack up the vehicle. Support the body with safety stands.
2. Stabilizer bar removal
   1. Remove the stabilizer bar attaching nuts from the stabilizer link
(2) Remove the stabilizer bar attaching bolts at the body side. Remove the stabilizer bar.

(3) Remove the attaching bolts and nuts of the stabilizer link. Remove the stabilizer link.

(4) Remove the rear stabilizer bar bracket attaching bolts. Proceed to remove the stabilizer bar bracket.

**INSPECTION**
Inspect the following parts.
1. Stabilizer bar installation
   (1) Install the rear stabilizer bar bracket to the suspension arm No.2.
       Tightening Torque: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)

   (2) Tighten the stabilizer link to the rear stabilizer bar bracket temporarily with the bolts and nuts

   (3) Fit temporarily the bush, bracket and stabilizer bar to the body

   (4) Fit the stabilizer bar to the stabilizer link. Tighten the nuts temporarily

**NOTE:**
Assemble the bush and bracket, as shown in the right figure.

2. Tightening of bolts and nuts
   (1) Tighten the nuts attaching the stabilizer bar to the stabilizer link.
       Tightening Torque: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)
(2) Tighten the stabilizer bar attaching bolts at the body side.
   Tightening Torque: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)

(3) Tighten the attaching bolts and nuts of the stabilizer link.
   Tightening Torque: 1.9 - 3.1 kg-m (14 - 22 ft-lb)
SECTION 7
STEERING

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STEERING WHEEL

COMPONENTS

Resin type

1. Steering wheel
2. Horn contact spring
3. Horn button contact ring or plate
4. Steering wheel pad set spring
5. Steering wheel pad screw

Urethane type

1. Steering wheel
2. Steering wheel base lower cover
3. Horn button contact plate
4. Horn contact spring
5. Horn contact spring set plate
6. Steering wheel cover screw
7. Horn contact ring

REMOVAL

1. Disconnect the battery negative (−) terminal.
2. Hold the steering wheel pad at its lower end by your fingers. Then, detach the steering wheel pad by pulling it toward your side.

3. Remove the steering wheel lock nut.
4. Remove the steering wheel, using the following SST.
   SST: 09609-20011-000

INSTALLATION

1. Fit the steering wheel and tighten the lock nut.
   Tightening Torque: 3.5 - 5.5 kg-m (25 - 40 ft-lb)

2. Install the steering wheel pad.
3. Connect the battery negative (−) terminal.
ENGINE KEY CYLINDER

REMOVAL

1. Loosen six screws and remove the steering column lower cover.

2. Engine key cylinder removal
   (1) Fabricate a rod as shown in the right figure, by bending an approx. 2 mm (.08 inch) diameter rod.
   (2) Set the engine key to the [ACC] position.

   (3) While pushing the stop pin by means of the rod, draw out the cylinder.

INSTALLATION

1. Engine key cylinder installation
   (1) Insert a common screwdriver into the pawl groove of the lock cylinder. Set the pawl groove to the [ACC] position.
   (2) Set the engine key to the [ACC] position. Insert the key cylinder. Ensure that the stop pin is locked to the lock cylinder.

2. Install the steering column lower cover.
REMOVAL

1. Disconnect the battery negative (−) terminal.
2. Remove the steering wheel. (See page 7-3.)
3. Detach the instrument lower frish panel and steering column lower cover.
4. Remove the instrument panel lower reinforcement
5. Remove the connectors for the multi-use lever switch and engine key switch.

6. Remove the bolt of the universal joint.

7. Steering column assembly removal
   (1) Remove three bolts and two nuts
   (2) Remove the steering column assembly from the body.

8. Remove the steering column upper cover and multi-use lever switch from the steering column assembly

**Disassembly**

1. Detach the snap ring and plate washer located on the lower side of the steering main shaft.
2. Detach the snap ring located at the upper side of the steering main shaft.

3. Steering main shaft subassembly removal
   (1) Remove the steering main shaft subassembly by tapping the main shaft lightly with a plastic hammer.
   NOTE:
   Never tap the main shaft strongly. If the main shaft should be tapped strongly, the resin pin of the steering main shaft may be damaged. (ECE & EEC and Australian specifications)

   (2) Remove the stopper from the steering main shaft.

   (3) Detach the snap ring from the steering main shaft.
INSPECTION

Inspect the following parts.

ASSEMBLY

1. Assembly of steering main shaft
   (1) Fit a new snap ring to the steering main shaft.
   (2) Place the stopper on the bearing.

2. Insert the main shaft (with the bearing) into the steering column, using a plug wrench.
3. Fit the new snap ring to the upper side of the steering main shaft.

4. Install the plate washer and snap ring.

5. Install the multi-use lever switch to the steering column.

INSTALLATION

1. Steering column assembly installation
   (1) Install the steering column upper cover to the steering column.
   (2) Tighten the attaching bolt of the universal joint:
       Tightening Torque: 2.5 - 3.5 kg-m (18 - 25 ft-lb)

(3) Install the steering column with the three bolts and two nuts.
   Tightening Torque:
   Bolt 1.5 - 2.2 kg-m (11 - 16 ft-lb)
   Nut 2.5 - 3.5 kg-m (18 - 25 ft-lb)
2. Install the connector for the multi-use lever and engine key switch.
3. Install the instrument panel lower reinforcement.
4. Install the instrument lower finish panel and steering column lower cover.
5. Install the steering wheel.
   (See page 7-4.)
6. Install the battery negative (−) terminal.

Fig. 7-31
STEERING GEAR ASSEMBLY

COMPONENTS

1. Cotter pin
2. Castle nut
3. Steering rack housing No 1 bracket
4. Steering gear Ay
5. Ball joint
6. Universal joint

REMOVAL
1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the wheel.
3. Steering universal joint removal:
   (1) Remove the bolt.
   (2) Remove the universal joint.
4. Tie rod end removal
   (1) Remove the cotter pins and castle nuts
   (2) Remove the tie rod end from the knuckle arm, using
       the following SST.
       SST: 09611-87701-000

5. Steering gear assembly removal
   (1) Remove the four pieces of steering rack housing
       bracket set bolts.

   (2) Remove the steering gear assembly from the vehicle
STEERING

STEERING GEAR HOUSING

SECTIONAL VIEW

Fig. 7-38

Specifications

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum turns from lock to lock</td>
<td>3.82</td>
</tr>
<tr>
<td>Rack stroke</td>
<td>mm. (inch)</td>
</tr>
<tr>
<td>Steering pinion tooth number</td>
<td>6</td>
</tr>
<tr>
<td>Rack tooth number</td>
<td>26</td>
</tr>
</tbody>
</table>
COMPONENTS

T: Tightening torque
Unit: kg-m (ft-lb)
*: Non-reusable parts

1. Steering rack housing gromme:
2. Tie rod end S/A
3. Nut
4. Steering ocol band No.2
5. Steering rack boot band
6. Steering rack boot
7. Steering rack end
8. Rack end plug
9. Hexagon nut
10. Rack guide spring cap

3. Compression spring
4. Rack guide
5. Steering rack
6. Oil seal
7. Snap ring
8. Shaft snap ring
9. Radial ball bearing
10. Steering pinion
11. Needle roller bearing
12. Steering rack housing S/A

Fig. 7-39

7-15
DISASSEMBLY

1. Clamp the mounting section of the steering rack housing in a vice with copper sheets or aluminum sheets interposed.

2. Tie rod end removal
   (1) Before the steering tie rod end is removed, put a mark on the rack end section in order that this mark may be used as guide to ensure easier toe-in adjustment during the reassembly.
   (2) Slacken the lock nut. Remove the tie rod and from the rack end.

3. Remove the boot band No.2 and rack boot band. Remove the rack boot.

4. Steering rack end removal
   (1) Slacken the rack end plug, using the flat sections of the steering rack (width across flats: 19 mm) and the flat sections of the rack end plug (width across flats: 26 mm).
   (2) Remove the steering rack end from the steering rack.
   (3) Remove the rack end plug from the steering rack end.

5. Remove the lock nut (hexagon nut), using the following SST.
   SST: 09617-22030-000

6. Rack guide spring cap removal
   (1) Remove the rack guide spring cap, using a simple spinner.
       Simple Spinner (Width across flats: 17 mm)
   (2) Remove the compression spring and rack guide from the steering rack housing.
7. Remove the steering rack.
   NOTE:
   • Be sure to draw out the rack toward the housing side so that the rack bush may not be damaged by the rack tooth surface.
   • Draw out the rack straight, not allowing the rack to rotate.

8. Remove the oil seal, using a common screwdriver or the like. Be careful not to damage the housing during the removal.

9. Detach the snap ring, using a snap ring expander.

10. Remove the steering pinion, together with the bearing, from the steering rack housing.

11. Radial ball bearing removal
    (1) Detach the shaft snap ring, using a snap ring expander
    (2) Remove the bearing, using the following SST.
        SST: 09950-20014-000
INSPECTION
Inspect the following parts.

ASSEMBLY
1. Apply grease to the following sections
2. Radial ball bearing installation
   (1) Install the bearing to the steering pinion, using the following SST.
       SST: 09612-10061-000

   (2) Attach the shaft snap ring, using a snap ring expander.

3. Steering pinion installation
   (1) Install the steering pinion to the steering rack housing,
       using the following SST.
       SST: 09309-87102-000

   (2) Attach the snap ring using a snap ring expander.

3. Install the oil seal to the steering rack housing, using the following SST.
   SST: 09309-87201-000

4. Assembly of steering rack
   (1) Apply EP grease to the tooth surface and whole peripheral portion of the steering rack.

   (2) Assemble the steering rack, paying attention not to damage the rack bush.

Fig. 7-51
Fig. 7-52
Fig. 7-53
Fig. 7-54
Fig. 7-55
5. Assemble the rack guide, compression spring and rack guide spring cap to the steering rack housing.

6. Rack preload adjustment
   (1) Tighten the rack guide spring cap using a simple spinner.
       Tightening Torque: 0.7 kg-m (5.1 ft-lb)

   (2) Move the steering rack back and forth about 15 times so as to settle the steering rack. Then, proceed to tighten the rack guide spring cap again.
       Tightening Torque: 1.25 kg-m (9.1 ft-lb)

   (3) Back off the rack guide spring cap 45°-50° using a simple spinner.

   (4) Measure the rack preload, using the following SST.
       SST: 09616-87701-000
       Specified Value [Starting Torque]:
       3 - 6 kg-cm (2.6 - 5.2 inch-lb)

   (5) If the preload does not comply with the specification, repeat the operations (1) through (4).

7. Hexagon nut (lock nut) installation
   (1) Tighten the lock nut using the SST, while holding the rack guide spring cap with a simple spinner so as to prevent the rack guide spring cap from turning during the tightening.
       SST: 09617-22030-000
       Tightening Torque: 3.5 - 4.5 kg-m (25.5 - 32.5 ft-lb)

   **NOTE:**
   The actual reading of the torque wrench will be a product that is obtained by multiplying the figure above by the following figure given below:

   \[ \text{Length of torque wrench} = \frac{\text{Length of torque wrench} + 6 \text{ cm}}{2} \]

   (2) Check the pinion starting torque again.
       SST: 09616-87701-000
       Specified Value [Starting Torque]:
       3 - 6 kg-cm (2.6 - 5.2 inch-lb)
9. Steering rack end installation
   (1) Screw in the rack end plug into the rack end
       (Set the rack end plug in such a way that the side
        having a larger flange comes to the rack end side.)
   (2) Under the condition described in (1), tighten the rack
       end to the steering rack.
   (3) Secure the steering rack. Tighten the rack end plug
       Tightening Torque: 5.0 - 6.5 kg-m (36 - 47 ft-lb)

9. Install the steering rack boot, install the boot band No.2
   and rack boot band.

10. Tie rod end installation
    (1) Screw in the lock nut and tie rod end into the rack end
         up to the mating mark. Tighten the lock nut tempo-
         rarily.
    (2) Tighten the lock nut securely after the toe-in check
        and adjustment have been carried out.

INSTALLATION
1. Steering rack assembly installation
   (1) Install the grommet to the steering rack assembly
       Then, insert it to the vehicle
       NOTE:
       Be very careful not to damage the steering rack boot
       during the insertion.
   (2) Install the steering universal joint to the steering pinion.
       Tighten the bolt temporarily.
   (3) Install the steering rack assembly to the body.
       Tightening Torque: 4.0 - 5.5 kg-m (29 - 40 ft-lb)
2. Tighten the attaching bolt of the steering universal joint.
   
   **Tightening Torque:** 2.5 - 3.5 kg-m (18 - 25 ft-lb)
   
   **NOTE:**
   When tightening the bolt, be sure to limit the protruding length of the serration sections of the universal joint and pinion to 5 mm (0.20 inch).

3. Tie rod end installation
   
   (1) Install the tie rod end to the knuckle. Tighten the castle nuts.
   
   **Tightening Torque:** 3.0 - 4.5 kg-m (22 - 32.5 ft-lb)

   (2) Install a new cotter pins.

4. Install the wheel. Jack down the vehicle.
5. Check the steering wheel play.
6. Perform the toe-in adjustment. (See page 5-44.)
7. Confirm the straight-ahead position of steering wheel.
DAIHATSU CHARADE
Chassis

SECTION 8
BRAKES

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1. **Pedal height check**
   Measure the brake pedal height (the dimension from the center of the pedal applying surface to the dash panel).
   
   **Specified Value:** 175 - 181 mm (6.93 - 7.13 inch)

2. **Pedal height adjustment**
   (1) Disconnect the connector from the stop lamp switch. Slacken the nut 1 and turn the switch, until the pedal has a free travel.
   (2) Slacken the nut 2. Turn the push rod 3 so as to adjust the pedal height. Lock the nut 2.
   (3) Turn the switch, until the pedal cushion comes in contact with the edge of the threaded portion of the stop lamp switch. Lock the nut 1.
   (4) Connect the connector of the stop lamp switch.
   (5) Upon completion of the pedal height adjustment, ensure that the pedal free travel is proper and the stop lamp functions properly.

3. **Pedal free travel check**
   After stopping the engine, depress the brake pedal strongly several times so that no vacuum may remain the brake booster. Measure the brake pedal free travel by pushing the brake pedal tightly by fingers. Here, the pedal free travel means the distance from a point where the brake pedal is free to a point where you begin to feel a resistance.
   
   **Specified Value:**
   - 6-inch Booster 3 - 7 mm (0.12 - 0.28 inch)
   - 7-inch Booster 0.5 - 2 mm (0.02 - 0.08 inch)

4. **Pedal free travel adjustment**
   (1) Slacken the nut 2. Turn the push rod 3 so as to adjust the pedal free travel.
   (2) Upon completion of the adjustment, ensure that the pedal height is proper and the stop lamp functions properly.

5. **Pedal reserve travel check**
   With the engine running at the idling speed and with the parking brake lever in its returned state, depress the brake pedal with a pedal applying force of 30 kg (66 lb). Measure the gap between the position where the depressed pedal stops and the floor panel.
   
   **Specified Value:** 102 mm (4.0 inches) or more
BRAKE BOOSTER OPERATION CHECK

1. SIMPLE CHECK
   (1) Booster air-tight performance check
   Start the engine. After running the engine for one to two minutes, stop the engine. Depress the brake pedal several times, applying a force which will be used during normal brake applications. If the position of the brake pedal rises progressively at the second and third applications and so on, it indicates the brake booster is functioning properly.

   NOTE:
   Intervals between the first and second applications as well as between the second and third applications should be at least five seconds.

   (2) Booster air-tight performance check under loaded condition
   With the engine running, depress the brake pedal. While maintaining this condition, stop the engine. If the brake pedal height remains at the same level at least 30 seconds, it indicates that the booster is functioning properly.

   (3) Booster operation check
   With the engine stopped depress the brake pedal several times, applying the same force at each brake application. Ensure that the brake pedal height will not vary at each brake application. Then, start the engine while depressing the brake pedal. If the brake pedal moves slightly, it indicates that the booster is functioning properly.

2. CHECK EMPLOYING PORTABLE BRAKE BOOSTER TESTER
   (1) Connection of portable brake booster tester
   Connect the portable booster tester. Carry out air bleeding for the booster tester.

   ![Diagram of brake booster tester connection](image-url)
(2) Booster air-tight performance check
Start the engine. When the negative pressure exceeds 500 mmHg, stop the engine. Proceed to measure the negative pressure. Ensure that the negative pressure will not drop for a period of 15 seconds following the stoppage of the engine.

![Negative pressure gauge](image)

(3) Booster air-tight performance check under loaded condition
With the engine running, depress the brake pedal with a pedal applying force of 20 kg (44 lb). Stop the engine when the negative pressure exceeds 500 mmHg, stop the engine. Proceed to measure the negative pressure. Ensure that the negative pressure will not drop more than 25 mmHg for a period of 15 seconds following the stoppage of the engine.

![Engine running](image)

(4) No-boosting operation check
With the engine stopped, set the reading of the negative pressure gauge to zero. Under this condition, check the relationship between the pedal applying force and the hydraulic pressure.

**Specified Value:**

<table>
<thead>
<tr>
<th>Pedal applying force</th>
<th>Hydraulic pressure (kg/cm²)</th>
<th>3/4 inch (Ps</th>
<th>7 inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (22)</td>
<td>6.5 (92)</td>
<td>5.5 (80)</td>
<td></td>
</tr>
<tr>
<td>30 (66)</td>
<td>37.8 (538)</td>
<td>32.4 (461)</td>
<td></td>
</tr>
</tbody>
</table>

(5) Boosting operation check
With the engine running, set the reading of the negative pressure gauge to 500 mmHg. After stopping the engine, depress the brake pedal. Check the relationship between the pedal applying force and the hydraulic pressure.

**Specified Value:**

<table>
<thead>
<tr>
<th>Pedal applying force (lb)</th>
<th>Hydraulic pressure (kg/cm²)</th>
<th>6/4 inch</th>
<th>7-inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (11)</td>
<td>18.4 (262)</td>
<td>13.6 (193)</td>
<td></td>
</tr>
<tr>
<td>10 (22)</td>
<td>46.4 (660)</td>
<td>34.2 (487)</td>
<td></td>
</tr>
<tr>
<td>15 (33)</td>
<td>56.0 (797)</td>
<td>54.8 (797)</td>
<td></td>
</tr>
<tr>
<td>20 (44)</td>
<td>63.9 (909)</td>
<td>67.2 (955)</td>
<td></td>
</tr>
</tbody>
</table>
AIR BLEEDING OF BRAKE SYSTEM

1. Filling brake fluid
   Fill the brake master cylinder reservoir with the brake fluid.
   NOTE:
   If the brake fluid is spilled inadvertently over the paint-finish surface of the vehicle, quickly wipe off the brake fluid.

2. Connection of vinyl hose to bleeder plug of wheel cylinder
   (1) Submerge one end of a vinyl hose in a container filled with the brake fluid. Connect the other end of the vinyl hose to the wheel cylinder bleeder plug of the vehicle.
   (2) Start the air bleeding operation at the wheel cylinder which is located at the farthest point from the master cylinder.

3. Air bleeding
   (1) Perform the operation by two persons. One person should depress the brake pedal slowly and hold it in a depressed state.
   (2) The other person slackens the bleeder plug 1/3 through 1/2 turn at a time. Be sure to tighten the bleeder plug before the hydraulic pressure ceases to exist in the cylinder.
   (3) Repeat the steps (1) and (2) above until you no longer observe bubbles in the fluid.

4. Checking of brake fluid leakage
   Depress the brake pedal and ensure that each section of the pipe line exhibits no fluid leakage.
**BRAKE PEDAL**

**COMPONENTS**

**Manual Transmission**

1. Brake pedal
2. Brake pedal pad
3. Cushion
4. Spacer
5. Spring
6. Bush

**Automatic Transmission**

1. Brake pedal
2. Brake pedal pad
3. Cushion
4. Spacer
5. Spring
6. Bush

**RHD: T : 1.5 - 2.2 (11 - 16)**

**LHD: T : 1.5 - 2.0 (11 - 15)**

**T : Tightening torque Unit: kg-m (lb-ft)**

- 7. Bolt
- 8. Nut
- 9. With-hole pin
- 10. Clip
- 11. Brake pedal bracket

**REMOVAL**

1. Detach the clamp of the stop lamp switch wiring.
2. Remove the clip and the with-hole pin from the connecting section of the master cylinder push rod with the brake pedal.
3. Remove the brake pedal attaching bolt and nut.
4. Remove the brake pedal from the brake pedal bracket.

5. Remove the spring, bush, spacer, brake pedal pad and cushion from the brake pedal.

**INSPECTION**
Inspect the following parts.

**INSTALLATION**
1. Install the cushion, brake pedal pad, spacer, bush and spring on the brake pedal.
2. Install the brake pedal on the brake pad brake.
3. Install the brake pedal attaching bolt and nut.

4. Install the with-hole pin and the clip on the connecting section of the master cylinder push rod with the brake pedal.
5. Attach the clamp of the stop lamp switch wiring.
6. Perform the check and adjustment of the brake pedal. (See page 8-2.)
MASTER CYLINDER
COMPONENTS

6 inch

1. Brake master cylinder Ay
2. Reservoir filler cap
3. Reservoir cap spacer
4. Reservoir diaphragm
5. Master cylinder reservoir float

6. Master cylinder reservoir Ay
7. Clamp
8. Set bolt
9. Gasket
10. Gasket
11. Tandem master cylinder repair kit

T: Tightening torque
Unit: kg-m (ft-lb)
* : Non-reusable parts

Fig. 8-23

8-11
REMOVAL

1. Remove the level switch connector.
2. Drain the brake fluid.
3. Disconnect the three brake tubes, using the following SST.
   SST: 09751-36011-000
   NOTE:
   If the brake fluid is spilled inadvertently over the paint-finish
   surface of the vehicle, quickly wipe off the brake fluid.

4. Remove the two attaching nuts of the master cylinder
   Remove the master cylinder and gasket from the brake booster.

DISASSEMBLY

1. Clamp the flange section of the master cylinder in a vise
   with jaw plates or the like interposed
   NOTE:
   Be sure not to clamp the cylinder portion of the master
   cylinder in a vise. Failure to observe this caution will cause
   cylinder distortion.

2. Remove the reservoir filler cap, reservoir diaphragm,
   reservoir cap spacer, master cylinder reservoir floor,
   clamp and master cylinder reservoir assembly from the
   master cylinder.

3. Remove the set bolt and gasket while the pistons are
   being pushed fully by means of a cross point screwdriver.
   NOTE:
   During the removal, be sure to push the piston slowly so as
   to prevent the brake fluid from splashing.

4. Detach the snap ring.
   Using a snap ring, detach the snap ring while the pistons
   are being pushed by means of a screwdriver.

5. Remove the pistons No. 1 and No. 2 from the master
   cylinder.
**INSPECTION**

Inspect the following parts:

- Damage
- Deterioration or deformation
- Cylinder bore for uneven wear damage or corrosion

---

**ASSEMBLY**

1. Assemble a new tandem master cylinder repair kit (comprising the pistons No. 1 and No. 2) in the master cylinder.

   **NOTE:**
   Apply rubber grease to those points indicated by arrow heads in the figure below.

2. Install the snap ring.
   With the pistons in their fully pushed-in state, install a new snap ring.
3. While pushing the pistons fully by means of a cross point screwdriver, assemble the set bolt with a new gasket interposed.

4. Install the clamp, master cylinder reservoir assembly, master cylinder reservoir float, reservoir cap spacer, reservoir diaphragm and reservoir filler cap.

INSTALLATION

1. Adjust the clearance of the brake booster push rod.
   6-inch Booster: See page 8-20.
   7-inch Booster: See page 8-26.
2. With a new gasket interposed, install the master cylinder using the two nuts.
   NOTE:
   The master cylinder's attaching nut at the right side, as viewed toward the vehicle, should be used to tighten the bracket, too.

3. Connect the brake tubes
   (1) Temporarily connect the three brake tubes to the master cylinder by hands.
   (2) Tighten the brake tube using the following SST
       SST: 09751-36011-000

4. Connect the level switch connector
5. Fill the brake fluid.
6. Perform air bleeding for the brake system.
   (See page 8-5.)
7. Check the brake system for brake fluid leakage
8. Perform the checks and adjustments for the brake pedal.
   (See page 8-2.)
BRAKE BOOSTER
COMPONENTS
(6-inch Booster)

1. Master cylinder push rod clevis
2. Nut
3. Booster body
4. Booster spring
5. Output rod
6. Rod seal
7. Boot
8. Rod stopper
9. Reaction ring
10. Reaction rubber
11. Reaction plate
12. Snap ring
13. "E" ring
14. Plain washer
15. Element
16. Spring seal
17. Valve spring
18. Poppet spring
19. Valve stopper
20. Poppet valve
21. Booster housing
22. Push rod W/valve
23. Bush stopper
24. Bush
25. Piston seal
26. Diaphragm
27. Booster piston

T: Tightening torque
Unit: kg-m (ft-lb)
* : Non-reusable parts

Fig. 9-36
8-15
REMOVAL
1. Remove the master cylinder. (See page 8-12.)
2. Disconnect the vacuum hose.
3. Remove the front suspension upper brace subassembly.
   (RHD TURBO and GT; grades only)
4. Remove the clutch cable and ignition coil
   (LHD TURBO and GT; grades only)
5. Working from the passenger room side, remove the clip and the with-hole pin. Separate the master cylinder push rod clevis and from the brake pedal. (See Fig. 8-15.)
6. Remove the brake booster assembly.
   (1) Remove the four attaching nuts of the brake booster, using a long socket wrench (having a width across flat of 12 mm), as indicated in Fig. 8-38
   (2) Remove the brake booster assembly and gasket from the vehicle.

(6-Inch Booster)
DISASSEMBLY
1. Remove the master cylinder push rod clevis and lock nut.
2. Separate the booster housing from the booster body as follows.
   (1) Put mate marks on the booster body and booster housing.
   (2) Secure the brake booster on the following SST.
   SST: 09753-87701-000
   NOTE:
   Be certain to evenly tighten the SST nuts at the right and left sides. Also, be very careful not to tighten the SST nuts excessively.
   (3) Turn the SST screw clockwise so as to disengage the booster housing from the booster body.
   (4) Detach the brake booster from the SST.
(6) Disassemble the brake booster

**Inspection**

Inspect the following parts.

- Booster body
- Booster spring
- Output rod
- Rod seal
- Booster housing
- Piston seal
- Push rod valve
- Push stopper
- Bush
- Reaction rubber
- Rod stopper
- Reaction ring
- Reaction plate
- Snap ring
- Snap ring expander
- Valve spring
- Valve stopper
- Element
- Poppet valve
- Spring seat
- Plate washer
- "E" ring
- Bolen
- Damage or deformation
ASSEMBLY

1. Application of silicon grease
   Apply silicon grease to those points indicated by arrowheads in the figure below:

2. Assemble the following parts in the booster piston:
   1. Install the diaphragm in position.
   2. Assemble the push rod with valve. Retain it with the snap ring.
   3. Install the reaction plate, reaction rubber and reaction ring.
   4. Install the rod stopper.

3. Assemble the following parts in the booster housing:
   1. Install the piston seal, bush and bush stopper.
   2. Install the booster piston.
(3) Assemble the poppet valve to the valve stopper. Then, install them in the booster housing.
(4) Install the poppet spring, valve spring and spring seat in place.

(5) Install the element, plate washer and "E" ring.
(6) Install the boot.

4. Assemble the booster body and booster housing as follows:
(1) Place the booster body and booster spring in the following SST.
   SST: 09753-87701-000

(2) Place the booster housing in the following SST
   SST: 09753-87701-000

NOTE:
Be certain to evenly tighten the SST nuts at the right and left sides. Also, be very careful not to tighten the SST nuts excessively. Furthermore, care must be exercised to ensure that the diaphragm will not be pinched.

(3) Turn the SST screw counterclockwise so that the mating marks may be lined up.
   If the force required for turning is great, apply a small amount of silicon grease to the portion where the booster body is making contact with the booster housing.
(4) Remove the brake booster from the SST.
5. Install the output rod and rod seal in the brake booster.
6. Temporarily install the master cylinder push rod clevis and nut.

7. Adjust the brake booster push rod clearance as follows:
   (1) Set the SST in such a way that the SST rod makes a tight contact with the piston of the master cylinder, as indicated in Fig. 8-54.
   SST: 09737-22011-000

   NOTE:
   Be sure to carry out this adjustment with the gasket attached in position.

   (2) Connect a MityVac to the union of the brake booster. Apply a negative pressure of 500 mmHg.
   (3) Set the SST as indicated in Fig. 8-55. Adjust the push rod so that the push rod clearance may become zero.

   (4) Perform the adjustment of the push rod clearance by turning the nut provided at the tip end of the push rod.
COMPONENTS
(7-inch Booster)

1. Master cylinder push rod cover
2. N.1
3. Rod seal
4. Booster body
5. Retainer spring
6. Booster spring
7. Booster piston rod
8. Reaction disc
9. Reaction plate
10. Booster housing
11. Booster push rod seal, retainer
12. Valve ring
13. Piston seal
14. Nut
15. Adjuster "U1"
16. Element B
17. "E" ring
18. Element A
19. Control valve spring retainer
20. Piston return spring retainer
21. Valve spring
22. Control valve spring
23. Air valve spring retainer
24. Poppet valve
25. Booster with rod, valve S/A
26. Seal cover
27. Valve body
28. Diaphragm
29. Booster plate

T : Tightening torque
Unit: kg-m (ft-lb)
* : Non-reusable parts

T : 1.2 - 1.8
(8.7 - 13)
T : 1.8 - 2.5
(13 - 18)
BRAKES

(7-inch Booster)
DISASSEMBLY

1. Remove the master cylinder push rod clevis and lock nut.
2. Remove the rod seal
3. Separate the booster housing from the booster body as follows.
   (1) Put mate marks on the booster body and booster housing.

(2) Secure the brake booster on the following SST.
   SST: 09753-87701-000

NOTE:
Be certain to evenly tighten the SST nuts at the right and left sides. Also, be very careful not to tighten the SST nuts excessively.

(3) Turn the SST screw clockwise so as to disengage the booster housing from the booster body.
(4) Remove the brake booster from the SST.

4. Disassemble the brake booster.

![Diagram of brake assembly parts]
INSPECTION
Inspect the following parts:

ASSEMBLY
* Application of silicon grease
  Apply silicon grease to those points indicated by arrow heads in the figure below.
2. Assemble the following parts in the booster valve sub-assembly with rod.
   (1) Install the poppet valve in the air valve spring retainer. Install them in the booster valve subassembly with rod.
   (2) Install the control valve spring, valve spring, control valve spring retainer, element and "E" ring.

3. Install the booster valve subassembly with rod and the piston return spring retainer in the valve body.

4. Install the element, adjusting nut and nut in place.

5. Assemble the following parts in the booster plate.
   (1) Install the diaphragm.
   (2) Install the valve body, reaction plate, reaction disc and booster piston rod.

   (3) Install the set cover as follows:
   - Temporarily install the set cover on the booster plate.
   - Assemble the set cover by pinching the joint section of the booster plate with the claw section of the set cover, using pliers.
   - Slide the claw section of the set cover using a common screwdriver, until it is no longer possible to move the claw section.
5. Install the piston seal, valve ring and booster push rod seal retainer in the booster housing.

7. Assemble the booster housing and booster plate.

5. Assemble the booster body and booster housing as follows.
   (1) Place the booster body, spring retainer and booster spring in the following SST.
       SST: 09753-67701-000

   (2) Place the booster housing in the following SST
       SST: 09753-67701-000

NOTE:
Be certain to evenly tighten the SST nuts at the right and left sides. Also, be very careful not to tighten the SST nuts excessively.
Furthermore, care must be exercised to ensure that the diaphragm will not be pinched.

(3) Turn the SST screw counterclockwise so that the mating marks may be lined up
If the force required for turning is great, apply a small amount of silicon grease to the part of the booster body where it is making contact with the booster housing.
(4) Remove the brake booster from the SST.
9. Install the rod seal in the brake booster.
10. Temporarily install the master cylinder push rod clevis and nut.

11. Adjust the brake booster push rod clearance as follows:
   (1) Set the SST in such a way that the SST rod makes a light contact with the piston of the master cylinder as indicated in Fig. 8-73.
   SST: 09737-87001-000
   NOTE:
   Be sure to carry out this adjustment with the gasket attached in position.

   (2) Set the SST as indicated in Fig. 8-74. Adjust the push rod so that the push rod clearance may become zero.

   (3) Perform the adjustment of the push rod clearance by turning the nut provided at the tip end of the push rod.

**INSTALLATION**

1. Install the brake booster on the body with a new gasket interposed, using the four nuts.
2. Attach the master cylinder push rod clevis to the brake pedal by means of the with-hole pin and clip.
3. Attach the vacuum hose.
4. Install the front suspension upper brace subassembly.
   (RHD TURBO and GTi grades only)
5. Install the clutch cable and ignition coil.
   (LHD TURBO and GTi grades only)
6. Install the master cylinder. (See page 8-14)
COMPONENTS

1. Disc brake front caliper Ay
2. Bolt
3. "E" ring
4. Tube clamp
5. Flexible hose
6. Screw
7. Front disc
8. Disc brake pad
9. Anti-rattle spring No. 1
10. Pad wear indicator plate
11. Bush dust cap
12. Bush retainer
13. Cylinder slide bush
14. Piston boot
15. Bush retainer
16. Cylinder slide bush
17. Anti-rattle spring No. 2
18. Seal ring
19. Cylinder boss
20. Front disc brake piston
21. Piston seal
22. Breeder plug cap
23. Breeder plug
24. Disc brake pad guide plate
25. Anti-squeal shim No. 1
26. Anti-squeal shim No. 2

T : Tightening torque
Unit: kg-m (ft-lb)
* : Non-reusable parts

General specifications except for TURBO, GT, grade

Fig. 9-79

5-29
**DISC BRAKE PAD REMOVAL**

1. Jack up the front end of the vehicle. Support the body with safety stands. Remove the front wheel.
2. Inspect the brake pad thickness through the inspection hole provided in the disc brake front caliper.

<table>
<thead>
<tr>
<th>General specifications' except for TURBO, GT, grade</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specified Thickness</td>
<td>10 mm (0.39 inch)</td>
</tr>
<tr>
<td>Minimum Limit</td>
<td>1 mm (0.04 inch)</td>
</tr>
</tbody>
</table>

3. Remove the two attaching bolts of the disc brake front cylinder assembly.

4. Remove the disc brake pad and anti-squeal shim.
5. Detach the disc brake pad guide plate.
6. Check the front disc thickness. (See Fig. 8-98.)

<table>
<thead>
<tr>
<th>General specifications' except for TURBO, GT, grade</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specified Thickness</td>
<td>11 mm (0.43 inch)</td>
</tr>
<tr>
<td>Minimum Limit</td>
<td>10 mm (0.39 inch)</td>
</tr>
</tbody>
</table>

7. Drain a small amount of brake fluid from the master cylinder reservoir. Push in the piston with the handle of a hammer or the like.

**NOTE:**
Be sure to carry out the pad replacement operation for one wheel at a time, for there is a possibility that the piston at the opposite side may be jumped out.

**INSTALLATION**

1. Install a new disc brake pad guide plate on the knuckle.
2. Assemble a new anti-squeal shim at a new disc brake pad (outboard side). Then, install them on the disc brake front caliper.

3. Install the disc brake front caliper assembly on the knuckle.
   
   **Tightening Torque:** 3.2 - 4.2 kg-m (23 - 30 ft-lb)

   **NOTE:**
   Care must be exercised so that the caliper boot may not be pinched during the installation.

4. Install the front wheel.

5. Fill the brake fluid up to the "MAX" reference line of the master cylinder reservoir.

**DISC BRAKE FRONT CALIPER REMOVAL**

1. Jack up the front end of the vehicle. Support the body with safety stands. Remove the front wheel.

2. Disconnect the flexible hose as follows:
   - (Body side)
     1. Separate the flexible hose from the brake tube, using the following SST
     
     **SST:** 09751-36011-000
     2. Detach the clip.

   - (Shock absorber side)
     1. Detach the clip.
     2. Disconnect the flexible hose from the shock absorber bracket.

   (5) Disconnect the flexible hose from the disc brake front caliper, using the following SST.
   
   **SST:** 09751-36011-000
3. Remove the caliper from the vehicle by removing the two attaching bolts of the disc brake front caliper.

4. Detach the disc brake pad from the disc brake front caliper.

DISASSEMBLY

1. Remove the following parts from the disc brake front caliper.
   
   (1) General specifications except for TURBO, GT grade
      (Bush dust boot, Bush retainer, cylinder slide bush, bleeder plug and plug cap)

   (2) Other specifications
      (Piston boot, bush dust boot, bush retainer, cylinder slide bush, bleeder plug and plug cap)

2. Detach the cylinder boot set ring and cylinder boot, using a common screwdriver.

3. With a wooden piece or a cloth placed at the end of the disc cylinder, as indicated in the right figure, drive out the piston by applying compressed air.

   NOTE:
   Special caution must be exercised so that no brake fluid may be splashed. Also, be very careful not to allow your finger to be pinched.
4. Detach the piston seal, using a common screwdriver

**INSPECTION**

1. Inspect each part of the disc brake front caliper assembly.

2. Measurement of pad thickness

<table>
<thead>
<tr>
<th></th>
<th>General specifications except for TURBO, GT(_5) grade</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specified Thickness</td>
<td>10 mm (0.39 inch)</td>
<td>9 mm (0.35 inch)</td>
</tr>
<tr>
<td>Minimum Limit</td>
<td>1 mm (0.04 inch)</td>
<td>1 mm (0.04 inch)</td>
</tr>
</tbody>
</table>

3. Checking of disc thickness

<table>
<thead>
<tr>
<th></th>
<th>Specifications other than GT(_5)</th>
<th>GT(_5) grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specified Thickness</td>
<td>11 mm (0.43 inch)</td>
<td>18 mm (0.71 inch)</td>
</tr>
<tr>
<td>Minimum Limit</td>
<td>10 mm (0.39 inch)</td>
<td>7 mm (0.28 inch)</td>
</tr>
</tbody>
</table>

4. Replace the front disc.
ASSEMBLY

1. Apply rubber grease to those points indicated by arrow heads in the figure below.

(7) General specifications except for TURBO, GT8 grade

(8) Other specifications

2. Assemble the piston seal and piston.
   (1) Assemble the piston seal in the disc brake front caliper.

   (2) Insert the piston into the disc brake front caliper, making sure that the piston is not tilted during the installation.

3. Assemble the cylinder boot in the disc brake front caliper.
   NOTE: Make sure that the boot is fitted securely in the groove.

4. Assemble the cylinder boot: ser ring, making sure that no scratch is made to the boot.
5. Assemble those parts indicated in the figure below in the disc brake front caliper.

![Diagram of disc brake front caliper parts]

**INSTALLATION**

1. Install the disc brake pad guide plate on the knuckle. (See Fig. 8-84.)

2. Install the anti-squeal shim at the disc brake pad (outboard side). Then, install them on the disc brake front caliper.

3. Install the disc brake front caliper assembly on the knuckle.

   **Tightening Torque:** 3.2 - 4.2 kg-m (23 - 30 ft-lb)

   **NOTE:**
   Care must be exercised so that the caliper boot may not be pinched during the installation.

4. Install the flexible hose.
   (1) Attach the flexible hose to the disc brake front caliper, using the following SST
   SST: 08751-36011-000

   (2) Attach the flexible hose to the bracket section at the shock absorber side, using the clip.
(3) Temporarily install the flexible hose and brake tube by hands.
(4) Tighten the flexible hose and brake tube.
NOTE:
Make sure that the flexible hose is not twisted or stretched excessively.
(5) Attach the clip at the bracket section at the body side
NOTE:
After completion of the installation, turn the steering wheel from lock to lock position. Make sure that the flexible hose is not interfering with any part of the body.

5. Perform air bleeding for the brake system.
   (See page 8-5.)
6. Check the brake system for brake fluid leakage
   (See page 8-5.)
BRAKES

REMOVAL
1. Jack up the rear section of the vehicle. Support the body with safety stands. Remove the rear wheel.
2. Remove the grease cap, cotter pin, castle nut and plate washer.

3. Remove the brake drum, using the following SST
   SST: 09510-87301-000

4. Remove the tension spring, using the following SST.
   SST: 09703-30010-000

5. Detach the tension spring, using a common screwdriver

6. Removal of brake shoe (leading side)
   1) Detach the shoe hold-down spring and pin.
   2) Remove the brake shoe, parking brake shoe strut and tension spring at the eacing side.
7 Brake shoe (trailing side) removal
   (1) Remove the shoe hold-down spring and pin.
   (2) Remove the parking brake cable from the parking
       brake shoe using pliers.

8. Detach the "C" ring, using a common screwdriver. Remove the parking brake shoe lever and automatic
   adjusting lever-related parts.

9. Wheel cylinder removal
   (1) Disconnect the brake tube from the wheel cylinder,
       using the following SST.
       SST: 09751-36011-000
   (2) Remove the two attaching bolts of the wheel cylinder.
       Proceed to remove the wheel cylinder from the backing plate
   NOTE:
   The wheel cylinder can be disassembled or checked with
   the wheel cylinder mounted on the backing plate. It is,
   therefore, unnecessary to remove the wheel cylinder from
   the backing plate except for cases where the wheel
   cylinder assembly is replaced.
BRAKES

10. Remove the following parts from the wheel cylinder.
   (1) Wheel cylinder boots (2 pieces)
   (2) Wheel cylinder pistons (2 pieces)
   (3) Wheel cylinder piston cups (2 pieces)
   (4) Compression spring

INSPECTION

Inspect the following parts.

- Brake shoe contacting surface for wear
- Each tension spring for flatness and condition and deformation
- Brake shoe and lining
  - Shoe for: damage, deformation
  - Lining for wear
  - Specified thickness: 4.0 mm (0.1575 inch)
  - Minimum limit: 1.0 mm (0.0394 inch)

Brake drum for wear, damage
- Specified inner diameter: 165 mm (6.4961 inch)
- Maximum limit: 166.5 mm (6.5551 inch)

1. Rear brake backing plate replacement
   (1) Remove the four attaching bolts of the rear brake backing plate.
   (2) Apply Dainatsu Bond No. 4 (999-6304-6323-00) to the installation surface of the rear brake backing plate with the rear axle carrier. At this time, do not plug the grease releasing hole [5 mm (0.20 inch) dia.] with the grease.
   (3) Install the rear brake backing plate, using the four bolts.

2. Brake drum replacement
   (1) Apply Mp grease to the points indicated in the right figure.
(2) Install the outer bearing, using the following SST:
   SST: 09608-12010-000 (No. 13 in the set)

(3) Install the outer retainer.
(4) Install the inner bearing, using the following SST:
   SST: 09608-12011-000 (No. 5 in the set)

**INSTALLATION**

1. Assembly of wheel cylinder
   (1) Apply rubber grease to the points indicated by arrows.
   (2) Assemble the cup on the wheel cylinder piston
   **NOTE:**
   Be sure to install the cup in the correct direction.

   (3) Install the two pistons and compression spring to the wheel cylinder.
   (4) Assemble the two wheel cylinder boots.

2. Wheel cylinder installation
   (1) Apply liquid gasket to the installation section of the rear brake backing plate with the wheel cylinder.
   (2) Install the wheel cylinder to the rear brake backing plate, using the two bolts.
   **Tightening Torque:** 4.0 - 5.5 kg-m (28.9 - 39.8 ft-lb)

3. Brake tube installation
   (1) Install the brake tube to the wheel cylinder temporarily by hand.
   (2) Tighten the brake tube to the wheel cylinder, using the following SST
   SST: 09751-36011-000
4. Install the parking brake shoe lever and automatic adjusting lever-related parts to the brake shoe.

5. Apply brake grease to the contacting points of the rear brake backing plate with the brake shoe.

   NOTE: Be careful not to allow lubricants, such as grease, to get to the wheel cylinder boot.

6. Assembly of brake shoe (trailing side)
   (1) Assemble the parking brake cable to the parking brake shoe lever, using pliers.
   (2) Assemble the brake shoe on the rear brake backing plate. Install the shoe hold-down spring and pin.

   NOTE: Apply liquid gasket to the installation section of the rear brake backing plate with the shoe hold-down spring.
7. Assemble the brake shoe (leading side) on the rear brake backing plate. Install the shoe hold-down spring and pin.

8. Install the tension spring, using a cross point screwdriver.

9. Install the tension spring, using the following SST
   SST: 09703-30010-000

   NOTE:
   Be careful not to damage the wheel cylinder boot during the installation.
10. Ensure that the rear brake components have been assembled properly.

11. Brake adjustment procedure
   (1) Retract the shoe by moving the engagement of the parking brake shoe strut using a common screwdriver or the like.

   (2) Brake drum installation
       (Bearing inner retainer, brake drum, plate washer, castle nut, new cotter pin and grease cap)
       Tightening Torque: 6.0 - 10.0 kg-m (43 - 72 ft-lb)

   (3) Perform air bleeding for the brake system. (See page 8-5.)
   (4) Check the brake system for brake fluid leakage.
   (5) Depress the brake pedal and ensure that the automatic adjusting mechanism emits operating sound. Repeat this operation until you no longer hear the operating sound.
   (6) Adjust the working travel of the parking brake lever. (See page 8-57.)
Brakes

Components

- T: Tightening torque
  - Unit: kg·m (ft-lb)
  - *: Non-reusable parts

1. Grease cap
2. Cotter pin
3. Castle nut
4. Plate washer
5. Brake rear disc S/A
6. Brake dust cover
7. Disc brake caliper Ay
8. Hexagon socket head cap bolts
9. Bush dust boot
10. Cylinder side bush
11. Bolt
12. Cable support bracket
13. Anti-rattle spring
14. Disc brake cylinder mounting
15. Disc brake pad
16. Torsion spring
17. Clip
18. Parking brake clamp S/A
19. Parking brake strut
20. Oil seal
21. Screw plug
22. Gasket
23. Bleeder plug cap
24. Bleeder plug
25. Set ring
26. Cylinder boot
27. Disc brake piston S/A
28. Piston seal
29. Hole snap ring
30. "O" ring
31. Pad adjusting bolt
32. Disc brake rear cylinder

Fig. 8-138

8-46
DISC BRAKE PAD REMOVAL

1. Jack up the rear section of the vehicle. Support the body with safety stands. Remove the rear wheel.
2. Inspect the pad thickness through the inspection hole provided in the disc brake caliper.
   - Specified Thickness: 9 mm (0.35 inch)
   - Minimum Limit: 1 mm (0.04 inch)

3. Remove the parking cable guide.
4. Detach the anti-rattle spring.

5. Remove the screw plug.
6. Turn the adjusting gear counterclockwise as far as it will go, using a hexagon wrench key, so that the piston may be retracted.
   NOTE:
   It should be noted that the adjusting gear cannot be removed.

7. Remove the hexagon socket head cap bolts (2 pieces), using a hexagon wrench key.

8. Remove the disc brake pad.
INSTALLATION

1. Disc brake pad installation
   (1) Install the inner disc brake pad to the disc brake caliper.
   (2) Install the outer disc brake pad to the disc brake cylinder mounting.

   NOTE:
   Be careful not to allow oil, grease and other dirt to get to the friction surfaces of the pad and brake disc.

2. Disc brake caliper assembly installation
   (1) Tighten the hexagon socket head cap bolt, using a hexagon wrench key. Assemble the disc brake caliper assembly.
   (2) Install the anti-rattle spring.

3. Turn the adjusting gear clockwise, using a hexagon wrench key, until the disc brake pad is pressed against the brake disc. Then, back off the adjusting gear about 180 degrees counterclockwise.

4. Install the gasket and screw plug.

5. Install the parking cable guide.

6. Depress the brake pedal about 40 times. (This operation makes it possible to adjust the clearance between the disc brake pad and the rear brake disc.)

7. Adjust the working travel of the parking brake lever. (See Fig 8-181.)

8. Install the rear wheel. Jack down the vehicle.
DISC BRAKE REAR CYLINDER
REMOVAL

1. Jack up the rear section of the vehicle. Support the body with safety stands. Remove the rear wheel.
2. Disconnect the brake hose from the disc brake rear cylinder.
3. Detach the clip and torsion spring.

4. Parking brake cable removal:
   (1) Remove the parking brake cable guide.
   (2) Remove the cable support bracket.
   (3) Remove the parking brake cable from the disc brake cylinder.

5. Remove the anti-rattle spring.
6. Remove the hexagon socket head cap bolts (2 pieces) using a hexagon wrench key.

7. Remove the disc brake rear cylinder from the vehicle. Remove the disc brake pad.

DISASSEMBLY

1. Remove the set ring and cylinder boot from the disc brake rear cylinder.
2. Disc brake piston assembly removal
   (1) Remove the screw plug and gasket.
   (2) Turn the adjusting gear clockwise, using a hexagon wrench key, so that the adjusting screw may be disengaged from the piston assembly. (Turn the adjusting gear, until it can be turned lightly.)
   (3) With a wooden piece or a cloth placed at the end of the disc brake cylinder, drive out the piston, using compressed air.

   NOTE:
   During this operation, care must be exercised as to the piston being jumped out from position.

3. Remove the piston seal

4. Pad adjusting bolt removal
   (1) Detach the hole snap ring, using the SST.
       SST: 09905-87701-000
   (2) Take out the pad adjusting bolt from the disc brake cylinder. Remove the "O" ring from the pad adjusting bolt.

5. Remove the parking brake strut, parking brake clamp subassembly and oil seal from the disc brake cylinder.

8-50
6. Remove the bush dust boot and cylinder slide bush from the disc brake cylinder.

INSPECTION

1. Inspect the following parts.

    Flattened condition
    Wear
    Damage, deterioration
    Replace with new one.
    Cylinder for deformation and cracks
    Cylinder bore for uneven wear
    Uneven wear, damage
    Replace with new one.

2. Pad thickness measurement
   
   Specified Thickness: 9 mm (0.35 inch)
   Minimum Limit: 1 mm (0.04 inch)

3. Brake rear disc thickness check
   
   Specified Thickness: 10 mm (0.39 inch)
   Minimum Limit: 9 mm (0.35 inch)
4. Checking of brake rear disc for runout
   (1) Before the brake rear disc is checked for runout, ensure that the rear axle bearing exhibits no excessive looseness.
   (2) Measure the runout of the brake rear disc at the outer edge surface.
       Maximum Limit: 0.08 mm (0.003 inch)

5. Brake rear disc replacement
   (1) Remove the disc brake cylinder mounting, grease retainer cap, cotter pin, castle nut and brake rear disc.
   (2) Check the brake dust cover for defects, such as damage, cracks and deformation. Replace the brake dust cover which exhibits any defect.
       Tightening Torque: 4.0 - 5.5 kg-m (28.9 - 39.8 ft-lb)

   (3) Install the outer bearing, outer retainer and inner bearing to the brake rear disc, using the following SSTs.
       (Outer bearing)
       SST: 09808-12010-000 (No.13)
       (Inner bearing)
       SST: 09808-12010-000 (No.5)

   (4) Apply chassis grease to the points indicated in the right figure.

   (5) Install the bearing inner retainer, brake rear disc, plate washer and castle nut.
       Tightening Torque: 6.0 - 10.0 kg-m (43 - 72 ft-lb)

   (6) Install a new cotter pin. Attach the grease retainer cap.

   (7) Install the disc brake cylinder mounting.
       Tightening Torque: 4.0 - 5.5 kg-m (28 - 40 ft-lb)
ASSEMBLY

1. Apply rubber grease to the points indicated in the figure below.

2. Install the oil seal, parking brake clamp subassembly and parking brake stopper to the disc brake cylinder.

3. Pad adjusting bolt installation
   (1) Install the "O" ring to the pad adjusting bolt. Assemble the pad adjusting bolt to the disc brake cylinder.
   (2) Attach the hole snap ring, using the following SST.
       SST: 09905-87701-000

4. Installation of disc brake piston assembly
   (1) Install the piston seal in the disc brake cylinder.
   (2) Insert the piston into the caliper. With the piston pushed lightly, turn the adjusting gear counterclockwise as far as it will go, using a hexagon wrench key. Then, pull back the piston, until it is no longer possible to turn the adjusting gear.
5. Install the cylinder boot and set ring to the disc brake cylinder.

6. Install the bush dust boot and cylinder slide bush to the disc brake cylinder.

**INSTALLATION**

1. Disc brake cylinder installation
   (1) Install the disc brake cylinder to the disc brake cylinder mounting, using a hexagon wrench key.
   (2) Install the anti-rattle spring.

2. Parking brake cable installation
   (1) Attach the tip end of the parking brake cable to the parking brake clamp subassembly.
   (2) Install the cable support bracket.

3. Install the parking brake guide

4. Install the following parts to the disc brake cylinder.
   (1) Install the torsion spring and clip.
   (2) Connect the brake hose.
   (Use a new gasket.)
5. **Disc brake pad clearance adjustment**

   (1) Turn the adjusting gear clockwise, using a hexagon wrench key, until the disc brake pad is pressed against the brake disc. Then, back off the adjusting gear about 180 degrees counterclockwise.

   (2) Install the gasket and screw plug.

   (3) Perform air bleeding for the brake system. Depress the brake pedal about 40 times. (This operation makes it possible to adjust the clearance between the disc brake pad and the brake disc.)

   (4) Adjust the working travel of the parking brake lever. (See Fig. 8-181.)
BRAKES

PARKING BRAKE

PARKING BRAKE LEVER

COMPONENTS

1. Console box
   (1) Remove the coin box.
   (2) Remove the console box from the vehicle by removing the bolts and screws, two each.

2. Remove the connector and adjusting nut.

3. Remove the two bolts. Remove the parking brake handle assembly from the vehicle.
INSTALLATION

1. Install the parking brake handle assembly with the two bolts.
   
   Tightening Torque: 1.0 - 1.5 kg-m (7.2 - 11.6 ft-lb)

2. Install the connector and adjusting nut. Adjust the working travel by turning the adjusting nut. (Check the parking brake indicator lamp for proper operation.)
   
   Specified Value: 5 - 9 Notches
   [When pulled by a force of 20 kg (44 lb)]

3. Install the console box
   (1) Install the console box to the vehicle with the bolts and screws, two each.
   (2) Install the coin box.
PARKING BRAKE CABLE

COMPONENTS

1. Adjusting nut
2. Parking brake pull rod
3. Parking brake tube protector
4. Clamp
5. Parking brake cable Ay

REMOVAL

1. Remove the console box. (See Fig. 8-177.)
2. Remove the parking brake tube protector

3. Remove the parking brake cable from the parking brake pull rod.
1. Jack up the vehicle. Remove the clamp-related parts provided under the body.

5. Removal of rear brake-related parts
   (Drum brake)
   (1) Remove the brake shoe. (See page 8–33.)
   (2) Remove the parking brake cable from the rear brake backing plate.

   (Disc brake)
   (1) Remove the clip attaching the parking brake cable to the cable support bracket.
   (2) Detach the clip from the parking brake clamp. Then, remove the parking brake cable.
1. Installation of rear brake-related parts
   (Drum brake)
   (1) Install the parking brake cable to the rear brake backing plate.
   (2) Install the brake shoe-related parts. (See page 8-41.)

   (Disc brake)
   (1) Install the parking brake cable to the disc brake caliper.
   (2) Install the clips at two points.

2. Install the clamp-related parts provided under the body. (See Fig. 8-186.)
3. Attach the parking brake cable to the cable end.

4. Install the parking brake hose protector.

5. Rear brake adjustment
   Drum brake (See Fig. 8-44.)
6. Adjust the working travel of the parking brake.
   Specified Value: 5 - 9 Notches
   [When pulled by a force of 20 kg (44 lb)]
7. Install the console box. (See Fig. 8-182.)
# Daihatsu Charade Chassis

## Section 9

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ALIGNMENT ADJUSTMENTS

ENGINE HOOD ALIGNMENT ADJUSTMENT

1. Adjustment of engine hood-to-front fender gap
   Loosen the bolts (3). Perform the adjustment by moving the hood.

2. Hood lock adjustment
   Loosen the three attaching bolts of the hood lock. Perform the adjustment by moving the hood lock.
   (Adjust the hood lock in such a way that you will feel a slight looseness when the center section of the hood end is pushed strongly.)
FRONT DOOR ALIGNMENT ADJUSTMENT

1. Adjustments of Front Door-to-Front Fender Gap and Front Door-to-Quarter Panel Gap
Replace the bolts ②. Perform the adjustment by moving the door panel in a fore-and-aft direction.
SST: 09812-30010-000

NOTE:
Adjustment-free bolts have been employed in the assembly plant. Hence, the adjustment should be performed after replacing the bolts with the following bolts.
Part Number of Bolt: 91661-60820-000

2. Adjustments of Front Door-to-Rocker Panel Gap and Front Door-to-Roof Panel Gap
Loosen the bolt ①. Perform the adjustment by moving the door panel in an up-and-down direction.
SST: 09812-30010-000

3. Adjustment of Difference in Height between Front Door and Front Fender
Loosen the bolts ③. Perform the adjustment by moving the door panel in a right-and-left direction.
4. Door Lock Adjustment
Loosen the screws ③ of the lock striker. Perform the adjustment by tapping the striker lightly.

NOTE:
Never attempt to correct the door sagging at its rear part by the adjustment of this lock striker. The correction should be made by adjusting the door hinge section.

REAR DOOR ALIGNMENT ADJUSTMENT

Rear door-to-front door gap

- Specified Values:
  - Gap: 4.1 - 7.1 mm (0.16 - 0.28 inch)
  - Difference in height: 1.5 mm (0.06 inch)
  - Lateral deviation:
    - Not to exceed 1.5 mm (0.06 inch)

Rear door-to-roof panel gap

- Specified Values:
  - Gap: 2.5 - 7.5 mm (0.18 - 0.30 inch)
  - Lateral deviation:
    - Not to exceed 1.5 mm (0.06 inch)

Rear door-to-rocker panel gap

- Specified Values:
  - Gap: 3.6 - 7.6 mm (0.14 - 0.30 inch)
  - Lateral deviation:
    - Not to exceed 2.0 mm (0.08 inch)

Rear door-to-quarter panel gap and difference in height between rear door and quarter panel

- Specified Values:
  - Gap: 3.6 - 7.6 mm (0.14 - 0.30 inch)
  - Difference in height:
    - 1.5 mm (0.06 inch)
  - Lateral deviation:
    - Not to exceed 1.5 mm (0.06 inch)

1. Adjustments of Rear Door-to-Front Door Gap and Rear Door-to-Quarter Panel Gap
Replace the bolts ③. Perform the adjustment by moving the door panel in a fore-and-aft direction.
2. Adjustment of Difference in Height between Rear Door and Front Door
   Loosen the bolts (1). Perform the adjustment by moving the door panel.

3. Adjustments of Rear Door-to-Rocker Panel Gap and Rear Door-to-Roof Panel Gap
   Loosen the bolt (5). Perform the adjustment by moving the door panel in an up-and-down direction.

   NOTE:
   As for the bolts (5), adjustment-free bolts have been employed in the assembly plant. Hence, the adjustments described in the steps 2 and 3 should be performed after replacing the bolts with the following bolts.

   Part Number of Bolt: 91661-60820-000

4. Adjustment of Difference in Height between Rear Door and Quarter Panel
   Loosen the screws (2) of the lock striker. Perform the adjustment by moving the striker in a right-and-left direction.

5. Door Lock Adjustment
   Loosen the screws (2) of the lock striker. Perform the adjustment by tapping the striker lightly.

### Hatchback Door Alignment Adjustment

#### Hatchback door-to-roof panel gap

- **Specified Values**
  - Gap: 6.2 - 9.2 mm (0.24 - 0.36 inch)
  - Lateral deviation:
    - Not to exceed 1.5 mm (0.06 inch)

#### Hatchback door-to-quarter panel gap

- **Specified Values**
  - Gap: 4.1 - 7.1 mm (0.16 - 0.28 inch)
  - Lateral deviation:
    - Not to exceed 1.5 mm (0.06 inch)
  - Difference between right- and left- sides:
    - Not to exceed 1.5 mm (0.06 inch)

#### Hatchback door-to-rear bumper gap

- **Specified Values**
  - Gap: 2.5 - 5.5 mm (0.10 - 0.22 inch)
  - Lateral deviation:
    - Not to exceed 3 mm (0.12 inch)
1. Adjustments of Hatchback Door-to-Roof Panel Gap, Hatchback Door-to-Quarter Panel Gap and Hatchback Door-to-Rear Bumper Gap
   (1) Loosen the bolts ④. Perform the adjustment.
   (2) If the adjustment can not be performed properly, loosen the nuts ⑥ at the vehicle interior and perform
       the adjustment.

2. Hatchback Door Lock Adjustment:
   Loosen the screws ⑤ of the lock striker. Perform the adjustment by tapping the striker lightly.

POWER SUNROOF ALIGNMENT ADJUSTMENT

- Difference in height ⑧ between Sliding Roof and Roof Pane
  Specified Value:
  Difference in height: 0 - 3 mm (0 - 0.12 inch)
  Lateral deviation: Not to exceed 2 mm (0.08 inch)

(How to Move Sunroof Manually)
(1) Detach the sunroof switch cover.
(2) Loosen the screw ⑥ located at the right side of the motor
    about one turn, using the wrench for exclusive use in the
    sunroof.
(3) Move the sunroof by turning the screw ⑧ at the left side.
2. Adjustment of Difference in Height between Sliding Roof and Roof Panel
Correct any difference in height between the sliding roof and the roof panel by increasing or decreasing the adjusting shims provided between the sliding roof and the sliding roof drive cable bracket.

NOTE:
If the sliding roof is higher at the front section (even under a condition where no shims are employed), there is a possibility that the sliding roof is not closed fully. Hence, make sure that the sliding roof is closed fully.

3. Adjustment of Sliding Roof in a Fore-and-Aft Direction
Loosen the attaching bolts of the sliding roof at both sides. Perform the adjustment by moving the panel.

4. Adjustment of Sliding Roof in a Right-and-Left Direction
Loosen the nut of the rear shoe. Perform the adjustment by moving the sliding roof in a right-and-left direction.

5. Lateral Deviation in Sliding Roof-to-Roof Pane. Gap
   (1) If the sliding roof exhibits a deviation of about 2 mm (0.08 inch), detach the gear and advance the cable at the side having a wider gap one notch.
   [One notch of cable: 2.5 mm (0.10 inch)]
(2) If the gear has been detached, align the link position by inserting a pin or the like into the reference hole. Then, set the sliding roof in the slit fully-closed condition and attach the gear.

(3) If the sliding roof exhibits a deviation of about 1 mm (0.04 inch), loosen the nut of the rear shoe. Then, readjust the installation position of the sliding roof to the normal position.

Inspection After Adjustment:
1. Ensure that the sliding roof operates from the fully-opened position to the fully-closed position (while the engine is running).
2. Ensure that the sliding roof exhibits no binding or emits no abnormal noise during the operation.
3. Make sure that no water leaks into the vehicle when the sliding roof is fully closed.
FRONT BUMPER

COMPONENTS

REMOVAL

1. Remove the bolt attaching the front fender liner to the front bumper subassembly.
2. Remove the bolt attaching the front bumper subassembly to the front fender.
3. Remove the attaching bolts of the front bumper arm subassembly.
4. Remove the coupler for turn signal lamp use. Remove the front bumper assembly from the vehicle.

5. Remove the turn signal lamp assembly from the front bumper subassembly.

6. Remove the front bumper arm subassembly from the front bumper subassembly.

7. Remove the front spoiler cover from the front bumper subassembly (GTti grade vehicle)

**INSTALLATION**

1. Install the front spoiler cover to the front bumper subassembly. (GTti grade vehicle)  
   (See Fig. 9-28.)

2. Install the front bumper arm subassembly to the front bumper subassembly. (See Fig. 9-27.)

3. Install the turn signal lamp assembly to the front bumper subassembly.

4. Connect the coupler for turn signal lamp use. Set it to the holder of the bumper
5. Install the front bumper subassembly to the vehicle, as follows:
   (1) Install the attaching bolts of the front bumper arm subassembly temporarily.
   
   (2) Install the fender liner to the front bumper subassembly with the clip and bolt.
   (3) Install the front fender to the front bumper subassembly with the clip and bolt.
   (4) Tighten the attaching bolts of the front bumper arm subassembly.
REAR BUMPER

COMPONENTS

REMOVAL

1. Lower Back Trim Removal
   (1) Detach the clips at four points by pushing the center section [25 mm (0.10 inch)] of each clip.
   (2) Remove the lower back trim.

2. Removal of Rear Bumper Subassembly
   (1) Remove the body attaching bolts located at both sides of the rear bumper subassembly.
   (2) Remove the attaching bolts at the central part of the rear bumper.
   (3) Remove the attaching bolts of the rear bumper arm subassembly.
NOTE:
Before removing the bolt at the right side, remove the exhaust pipe support assembly.

(3) Move the rear bumper subassembly to the rear. Disconnect the couplers for license plate lamp assembly use. Detach the harness clamp.
(4) Remove the rear bumper subassembly from the vehicle.

3. Remove the license plate lamps assembly from the rear bumper subassembly.

4. Remove the rear bumper arm subassembly from the rear bumper subassembly.

INSTALLATION
1. Install the rear bumper arm subassembly to the rear bumper subassembly.
   (See Fig. 9-39.)
2. Install the license plate lamps assembly to the rear bumper subassembly.
   (See Fig. 9-38.)
3. Install the rear bumper subassembly to the vehicle, as follows:
   (1) Connect the couplers for license plate lamp use. Attach the harness clamp.

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(2) Install the four attaching bolts of the rear bumper arm subassembly.
(3) Install the rear bumper subassembly at both sides to the body with the bolts.
(4) Install the attaching bolts at the central part of the rear bumper.
(5) Install the exhaust pipe support.
RADIATOR GRILLE
COMPONENTS (EXCEPT FOR GTi GRADE)

Fig. 9-42

1. Clip
2. Radiator grille
3. Screw
4. Emblem (Turbo vehicle only)
5. Radiator grille emblem

REMOVAL
1. Remove the radiator grille by detaching the clips at five points
   (Push the pawl section at the upper side of the clip, using a common screwdriver. Then, pull the radiator grille toward your side.)

2. Remove the emblem (TURBO) by loosening the two screws.
   NOTE:
   The radiator grille emblem is attached to the radiator grille by means of two-faced adhesive tape.

INSTALLATION
1. Install the emblem (TURBO) with the two screws. (See Fig. 9-44.)
2. Radiator grille installation
   (1) Ensure that five clips are attached to the radiator grille.
   (2) Install the radiator grille to the vehicle.

9-15
REMOVAL
1. Remove the attaching screw of the radiator grille.

2. Detach the two clips
   To detach the clip, turn the center section of the clip 90 degrees clockwise, using a cross point screwdriver.
3. Detach the three clips, using a screwdriver.
4. Remove the radiator grille.

INSTALLATION
1. Install the radiator grille, aligning the positions of the three clips.
2. Install the radiator grille to the vehicle. To attach the clip, turn the center section of the clip 90 degrees counterclockwise, using a cross point screwdriver.
3. Install the screw at the center section of the radiator grille.
FRONT FENDER
COMPONENTS

REMOVAL
1. Front fender liner
   (1) Remove the three screws at the rear section of the front fender liner.

   (2) Cut off the hem of each screw grommet (at three points) at the rear section of the front fender liner.

   (3) Remove the screws attaching the front fender liner to the body and bumper.
(4) Remove the front fender liner by detaching the three clips, using a cross point screwdriver.

2. Remove the clearance lamp assembly by removing the two screws.

3. Remove the front fender attaching bolts.

4. Disconnect the coupler for side turn signal lamp use.
5. Remove the side turn signal lamp assembly from the front fender.
INSTALLATION

1. Install the side turn signal lamp to the front fender.
2. Connect the coupler for side turn signal lamp use.

3. Install the front fender.

4. Front fender liner installation
   (1) Attach the clips at three points, using a cross point screwdriver
   (2) Attach the screw at one point, using a cross point screwdriver.
   (3) Attach the three grommets at the rear section of the front fender liner. Install them with the three screws.

   (4) Install the screws attaching the front fender liner to the body and bumper.

5. Install the clearance lamp with the two screws. (See Fig. 9-55.)
HOOD LOCK CONTROL CABLE

COMPONENTS

Fig. 9-64

① Hood lock control cable Ay
② Front fender liner

REMOVAL

1. Remove the front fender liner. (See page 9-17.)
2. Hood lock control cable assembly
   (1) Remove the cable at the hood lock side.

(2) Remove the hood lock control cable at the interior side.
INSTALLATION

Install the hood lock control cable assembly, as indicated in the figure below.

(RHD) (LHD)
## WINDOWS
### FRONT WINDSHIELD
### ARTICLES TO BE PREPARED

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<td>For use in filling glass adhesive agent</td>
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<td>Wooden piece, etc.</td>
<td>For use in retaining piano wire during glass removal</td>
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### Handling Instructions on Seal Set
1. Store the seal set in a dark, cool place. (Be sure to use the seal set before the guarantee date indicated on the box expires.)
2. The adhesive agent and primer will begin curing when they are mixed with or brought into contact with water. Hence, be sure to store them under a sealed condition.
3. Once the adhesive agent and primer are opened, they can not be used again in the future by storing them.
4. If the seal set has been stored at a low temperature, previous to use, be sure to recover the working temperature of the materials.
5. The primer contains a flammable solvent. Hence keep it away from the fire.
REMOVAL

1. Affix the protective tape to the body

2. Removal of windshield wiper arm assembly
   (1) Remove the front wiper arm cover.
   (2) Remove the windshield wiper arm assembly by removing the attaching nut of the front wiper arm assembly.
3. Detach the clip. Remove the cowl top ventilator louver and the hood-to-cowl top weatherstrip.

4. Remove the inner rear-view mirror assembly by removing the cover and three screws.

5. Removal of front pillar garnish:
   (1) Disengage the clip by prying its fitting position, using a screwdriver wrapped with a protective tape.
   (2) Remove the front pillar garnish by pulling it up.

6. Remove the windshield outside upper, right and left moldings.
   Remove the molding by cutting off the leg section of the molding, using a cutter knife.
   NOTE:
   Be very careful not to scratch the paint finish surface of the body.
7. Windshield Glass Removal
   (1) Pass a piano wire through the adhesion layer from the interior. Tie each end of the piano wire to a wooden piece or the like.

   NOTE:
   When passing the piano wire through the adhesion layer, care must be exercised not to scratch the interior or exterior appointment trim.
   (2) Separate the adhesion layer by pulling each end of the piano wire alternately.

   NOTE:
   - Cut the adhesion layer at the glass side whenever possible.
   - Care must be exercised not to scratch the interior or exterior appointment trim during the cutting.
   (3) When glass at lower side is separated.
      Apply a plastic protective plate, such as B4-sized board for stationary use, on the instrument panel section where the piano wire may contact during the operation.

CHECK AND CLEANING
1. Cleaning of Adhesion Surface of Body
   (1) Smooth any irregularities on the adhesion surface of the body using a knife or the like. Clean the body surface and adhesion surface with white gasoline.

   NOTE:
   Do not remove the adhesion layer to such an extent that the body may be exposed. After the adhesion layer has been removed, allow the adhesion surface to dry.

2. Cleaning of Glass Surface
   (1) If the glass is reused, scrape away thoroughly any adhesive agent or dirt which may have collected on the glass. Then, clean the adhesion surface with white gasoline.

   NOTE:
   As for the laminated glass, there is a possibility that white gasoline may penetrate into the glass from the edges, affecting the intermediate film. Hence, do not use white gasoline excessively during the cleaning.
   (2) When a new glass is used, clean the glass margin 20 - 30 mm (0.79 - 1.18 inches) from the glass edge with white gasoline.
INSTALLATION

1. Windshield retainer installation

2. Window glass adhesive dam installation
   (1) Affix the dam at the position 8 mm (0.31 inch) from the glass edge.
   (2) Make cut-out sections at two or three points on the corner, using a cutter knife.

NOTE:
When affixing the dam, do not touch the cleaned surface by your hand.

3. Primer application
   (1) Apply the primer M for paint surface use to the roof pillar section and cowl section, using a clean brush or gauze.
   (2) Allow these sections to dry at least five minutes after the application.
   (3) Apply the primer G for glass surface use to the glass adhesion surface and glass side surface, using a sponge or gauze.

(4) After completion of the primer application, install the glass within the time given below.

Specified Time
Primer G: Within 70 Minutes
Primer M: Within 120 Minutes

NOTE:
1. The primer application strengthens the adhesive force. Hence, make sure that the primer is applied without any skipped portion. Also, it should be noted that the adhesive force drops if the primer is applied too thickly.
2. The primer once opened should not be reused.

4. Windshield glass installation
   (1) Application of adhesive agent
      - Cut the discharge port of the adhesive agent cartridge to the following dimension given in the table below.

<table>
<thead>
<tr>
<th>Presence/nonpresence of</th>
<th>Height of adhesive agent</th>
<th>Discharge port of cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>adhesion layer a: body</td>
<td>8 - 10 (0.31 - 0.39)</td>
<td>10 (0.39)</td>
</tr>
<tr>
<td>side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When layer is removed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When layer is not</td>
<td>3.5 - 5 (0.14 - 0.20)</td>
<td>3 (0.20)</td>
</tr>
</tbody>
</table>

- Using a sealant gun or air gun, apply a bead of adhesive agent over the entire periphery of the glass adhesion surface along the dam.
(2) Glass installation
While aligning the mating marks of the glass with the windshield retainers, install the glass on the retainers, using a sucking disc or the like.
Press the glass against the opening flange thoroughly, while pushing the entire surface of the glass lightly.

(3) Using a spatula, remove any excessive adhesive agent or add the adhesive agent where it is lacking.

NOTE:
Be sure to thoroughly apply the adhesive agent up to the glass edge.

5. Installation of windshield outside moldings
Attach the side moldings (RH & LH) to the upper molding. Then, install them in place.

NOTE:
Remove any excessive adhesive agent on the paint finish surface with white gasoline.

6. Water leakage check and repairs
Perform the water leakage check about one hour after the glass installation. If the water leakage exists, dry the leaky point. Then, repair the leaky point with the adhesive agent or non-drying window sealer.

7. Install the roof headlining.
8. Install the front pillar garnish.
9. Install the inner rear-view mirror assembly. (See Fig. 9-72.)
10. Install the cowl top ventilator louver and hood-to-cowl top weatherstrip.

11. Installation of windshield wiper arm assembly
   (1) Operate the wiper motor, until it assumes the automatic stopping position.
   (2) Set the wiper arms at the positions indicated in the right figure.
   (3) Tighten the nut and attach the front wiper arm cover.

BACK DOOR GLASS
ARTICLES TO BE PREPARED

<table>
<thead>
<tr>
<th>Part name</th>
<th>Description</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-drying window sealer</td>
<td>For use in filling after glass installation or in repairing water leakage</td>
<td></td>
</tr>
<tr>
<td>Tape</td>
<td>Preventor of damage to paint finish surface</td>
<td></td>
</tr>
<tr>
<td>Brush</td>
<td>For use in applying soap water</td>
<td></td>
</tr>
<tr>
<td>Cutter or knife</td>
<td>For use in cutting molding</td>
<td></td>
</tr>
<tr>
<td>Operation rope (approx. 3 - 4 mm dia.)</td>
<td>For use in installing glass</td>
<td></td>
</tr>
<tr>
<td>Soac water</td>
<td>For use in installing glass</td>
<td></td>
</tr>
<tr>
<td>Solvent (Alcohol, white gasoline)</td>
<td>For use in cleaning adhesion surface</td>
<td></td>
</tr>
</tbody>
</table>
REMOVAL
(1) Remove the rear wiper arm assembly. (Rear wiper-equipped vehicle only. (See Fig. 9-166.)
(2) Remove the coupler for defogger use. (Defogger-equipped vehicle only.)
(3) Remove the rear spoiler. (Rear spoiler-equipped vehicle only. (See page 9-36.)
(4) Back door glass
Push the lip section of the weatherstrip outward from the body flange, using a common screwdriver or a bamboo spatula. This operation is performed from the vehicle interior.
NOTE:
Be very careful not to scratch the body paint finish surface.
(5) Remove the back door weatherstrip from the back door glass.

INSPECTION AND CLEANING
Clean the adhesion sections of the glass and body, using a solvent such as alcohol or white gasoline.
INSTALLATION

1. Install the back door glass weatherstrip to the back door glass.

2. Install the back door glass, as follows:
   (1) Set an operation rope to the weatherstrip.
   NOTE:
   Never reuse any weatherstrip which exhibits deterioration. Failure to observe this instruction will cause water leakage.

   (2) Soap water application
   Apply soap water to the body flange contact sections of the weatherstrip. Also, apply soap water to the body flange.

   (3) Install the back door glass to the body

   (4) Hold the one end of the rope that is suspending in the vehicle interior. Pull the rope in such an angle that allows the weatherstrip to cross over the flange. While so doing, pound the surface of the glass at points adjacent to the weatherstrip using one's palm from the vehicle exterior in order that the windshield may be installed into position.

   (5) Pound the surface of the glass using one's palm from the vehicle exterior so that the windshield may be settled in place

   (6) Application of non-drying window sealer
   Working from the outside, apply the non-drying window sealer between the weatherstrip and the glass as well as between the weatherstrip and the body.

   NOTE.
   Remove any excessive sealer.

   (7) Water leakage check
   If water leakage exists, dry the leaky point thoroughly. Then, fill the leaky point with the non-drying sealer.

3. Connect the coupler for defogger use. [Defogger-equipped vehicle only]

4. Installation of rear wiper arm assembly [Rear wiper-equipped vehicle only]
   (*) Operate the wiper motor until it assumes the automatic stooping position.
   (2) Install the rear wiper arm, aligning the arm with the bottom line of the defogger pattern.
   Installation position:
   Bottom line of pattern ±5 mm (±0.2 inch)

   (3) Install the wiper link cap

5. Install the rear spoiler [Rear spoiler-equipped vehicle only. (See page 9-37.)]
QUARTER WINDOW GLASS

COMPONENTS

1. Removal of quarter window assembly
   1) Remove the screws attaching the quarter window lock to the body.
   2) Remove the screws attaching the quarter window hinge No.1 to the body.
   3) Remove the quarter window assembly from the body.
2. Remove the quarter window lock and quarter window hinge No.1 from the quarter window assembly.

INSTALLATION
1. Install the quarter window lock and quarter window hinge No.1 to the quarter window assembly.
2. Install the quarter window assembly to the body, as follows:
   1) Install the quarter window hinge No.1 to the body with the screws
   2) Install the quarter window lock to the body with the screws

NOTE: When tightening the screw, fill the nut with an adhesive agent (instantaneous adhesive agent).
OUTSIDE MOLDINGS

ARTICLES TO BE PREPARED

<table>
<thead>
<tr>
<th>Lubricants and others</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta seal 552 (Adhesive agent) (Cartridge capacity: 333 ml)</td>
<td>For use in installing outside moldings</td>
</tr>
<tr>
<td>Solvents (Alcohol white gasoline)</td>
<td>For use in cleaning body surface and molding surface</td>
</tr>
<tr>
<td>Plastic spatula</td>
<td>For use in removing outside moldings</td>
</tr>
</tbody>
</table>

COMPONENTS

3-door model

(1) Front fender outside molding
(2) Front door outside molding

5-door model

(3) Rear door outside molding
(4) Quarter outside molding

REMOVAL

1. Removal of Outside Moldings
   (1) Raise the lower end of the molding. Insert a plastic spatula into that section.

   (2) While raising the lower side of the molding, remove the molding with a plastic spatula.

   NOTE:
   Be very careful not to scratch the body.

INSPECTION AND CLEANING

Remove any adhesive agent remaining on the body surface with a cloth dampened with white gasoline.
INSTALLATION

(1) Heat the outside molding and body with an infrared lamp or the like.
(2) Remove the liner paper from the molding. Apply the adhesive agent to the points indicated in the figure below.

3-door model

5-door model

Fig. 9-102

(3) Position the molding at the specified points of the body. Press the molding lightly.

3-door model

5-door model

Unit: mm (inch)

A

B

C

D

E

F

3.0 (0.12) 4.0 (0.16)

3.0 (0.12) 4.0 (0.16)

3.0 (0.12)

3.0 (0.12)

7.5 (0.30)

1.5 (0.06)

9-33
(4) Press the molding against the body, using a roller or the like. Applying pressure: about 5 kg (11 lb)
(5) Press the end sections of the molding firmly by your hand.

NOTE:
1. When removing the liner paper, care must be exercised to ensure that no dirt or the like may get to the surface of the two-faced adhesive tape.
2. Never allow the adhesive agent to get to the two-faced adhesive tape.
3. Affix the molding within three minutes after the adhesive agent has been applied.
BACK DOOR GARNISH

ARTICLES TO BE PREPARED

<table>
<thead>
<tr>
<th>Tools</th>
<th>Shape</th>
<th>Nomenclature and part number</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/C</td>
<td></td>
<td>Screwdriver type clip clamping tool by Banzai, Ltd.</td>
<td>For use in removing back door garnish</td>
</tr>
<tr>
<td>Alcohol, white gasoline</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSTALLATION POSITION

![Diagram of back door garnish installation](image)

REMOVAL

1. Detach the clip sections from the body, using a screwdriver type clip clamping tool wrapped with a protective tape.
2. Remove the garnish slowly, starting from the end of it.

NOTE:
Remove the garnish slowly, for it has been attached by a two-faced adhesive tape.

INSTALLATION

1. Clean the body surface with alcohol or white gasoline.
2. Install the garnish and press the two-faced adhesive tape section.

![Diagram of installing garnish](image)
**BACK DOOR OUTSIDE GARNISH NO.2**

**ARTICLES TO BE PREPARED**

<table>
<thead>
<tr>
<th>Tools</th>
<th>Shape</th>
<th>Nomenclature and part number</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Screwdriver type clip clamping tool by Banzai, Ltd</td>
<td>For use in removing back door garnish</td>
<td></td>
</tr>
<tr>
<td>Lubricants and others</td>
<td>Alcohol, white gasoline</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMPONENTS**

![Diagram of components]

1. Back door outside garnish No 2
2. Spear (2 pcs.)
3. Bolt (2 pcs.)
4. Clip (2 pcs.)

**REMOVAL**

1. Remove the attaching bolt of the back door outside garnish No.2, using a socket wrench.

2. Back door outside garnish No.2
   (1) Detach the clip sections from the body, using a screwdriver type clip clamping tool wrapped with a protective tape.
INSTALLATION

1. Clean the installation surface (body side) of the back door outside garnish No.2 with alcohol or white gasoline.

2. Installation of back door outside garnish No.2
   (1) Attach the clips to the back door outside garnish No.2. Then install the garnish to the body.

(2) Secure the back door outside garnish No.2 to the body with the two bolts.
## FRONT DOOR
### ARTICLES TO BE PREPARED

<table>
<thead>
<tr>
<th>Tools</th>
<th>Screwdriver type clip clamping tool by Banza Ltd.</th>
<th>For use in removing door trim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubricants and others</td>
<td>MP grease, butyl tape, soap and brush, etc.</td>
<td></td>
</tr>
</tbody>
</table>

## DOOR TRIM AND SERVICE HOLE COVER
### COMPONENTS

#### 3-door model

- 1. Door pull handle
- 2. Shaft snap ring
- 3. Regulator inside handle plate
- 4. Front door window regulator handle Ay
- 5. Front door trim panel Ay
- 6. Clip
- 7. Power window master switch Ay
- 8. Front door service hole cover S/A

#### 6-door model

- 1. Door pull handle
- 2. Door inside handle Ay
- 3. Shaft snap ring
- 4. Regulator inside handle plate
- 5. Front door window regulator handle Ay
- 6. Front door trim panel Ay
- 7. Clip
- 8. Power window master switch Ay
- 9. Front door service hole cover S/A

* : Power window-equipped vehicle only

Fig. 9-111

9–38
REMOVAL

1. Remove the door pull handle
   (3-door model: two screws, 5-door model: one screw)
2. Remove the one attaching screw of the door inside handle (5-door model only)

3. Removal of front door window regulator handle assembly
   (1) Detach the shaft snap ring, using a cloth.
   (2) Remove the front door window regulator handle assembly and regulator inside handle plate.

4. Detach the two clips by pushing the center section of each clip
   NOTE:
   Never push the center section excessively. If pushed excessively, the center section of the clip may fall off.

5. Removal of front door trim panel assembly
   (1) Remove the front door trim panel assembly, using the clip clamping tool
   (2) Remove the coupler for power window use. (Power window-equipped vehicle only)
   (3) Remove the power window master switch assembly from the front door trim panel assembly. (Power window-equipped vehicle only)

6. Remove the door inside handle assembly and bracket.
7. Remove the front door service hole cover subassembly.

INSTALLATION

1. Installation of front door service hole cover subassembly
   (1) Affix butyl tape to the points indicated in the right figure.
   (2) Insert the cover at the lower end into the aperture at the lower side of the door panel. Affix adhesive tape on the holes.

NOTE:
1. Never plug the clip hole of the door trim with adhesive tape.
2. Replace any service hole cover which exhibits rupture.

2. Install the door inside handle assembly and bracket
   (5-door model: See Fig. 9-116.)
   (3-door model: See Fig. 9-117.)

3. Installation of front door trim panel assembly
   (1) Ensure that the clips are attached to the front door trim panel assembly.
   (2) Install the power window master switch assembly to the front door trim panel assembly (Power window-equipped vehicle only)
   (3) Connect the coupler for power window use. (Power window-equipped vehicle only)
   (4) Install the front door trim panel assembly to the front door.
1. Attachment of clips
   (1) Pull up the center section of each clip. Set it to the front door trim panel.
   (2) Push the center section of the clip.

5. Installation of front door window regulator handle assembly
   (1) Close the door glass fully.
   (2) Set the regulator inside handle plate to the trim side.
   (3) Set the shaft snap ring to the front door window regulator handle.
   (4) Install the front door window regulator handle in the angle specified in the right figure.

5. Install the door pull handle
   (3-door model: two screws, 5-door model: one screw)
   Install the door inside handle assembly. (5-door model only)
DOOR LOCK AND OUTSIDE DOOR HANDLE COMPONENTS

Fig. 9-124

REMVAL
1. Remove the trim-related parts. (See page 9-39.)
2. Remove the front door front lower frame subassembly.
   (3-door model only)

3. Removal of front door lock assembly
   (1) Detach the door locking button from the front door lock
       assembly.
   (2) Remove the trim-related parts.
   (3) Remove the three attaching screws of the front door lock
       assembly. (In the case of the passenger side on
       the magnetic lock-equipped vehicle, remove the bolt
       A.)
   (4) Take out the front door lock assembly from the front
       door.
(5) Remove the door control solenoid assembly from the
front door lock assembly. (Sides other than the driver's
seat on the magnetic lock-equipped vehicle)

(6) Remove the door lock switch assembly from the front
door lock assembly. (Driver's seat only on the magne-
tic lock-equipped vehicle)

4. Detach the front door outside handle assembly by remov-
ing the two bolts.

5. Detach the clip. Remove the key cylinder.

INSTALLATION

1. Install the front door outside handle assembly with the two
bolts. (See Fig. 9-128.)

2. Install the key cylinder into position with the clip. (See Fig.
9-128.)

3. Installation of front door lock assembly
   (1) Apply MP grease to the sliding sections.
   (2) Install the door lock switch assembly in the front door
   lock assembly. (Driver's seat only on the magnetic
   lock-equipped vehicle)
   (3) Install the door control solenoid assembly in the front
door lock assembly (Sides other than the driver's seat
on the magnetic lock-equipped vehicle)
   (4) Place the solenoid in a locking state. Adjust the
   solenoid assembly so that the clearance may become
   zero, as indicated in the right figure. Tighten the
   solenoid assembly securely. (Magnetic lock-equipped
   vehicle only)

(5) Install the front door lock assembly in the front door
using the three screws. (In the case of the passenger
side on the magnetic lock-equipped vehicle, install the
bolt (●))
(6) Install the link-related parts.
(7) Attach the door locking button
4. Install the front door front low frame subassembly in the front door. (3-door model only)
5. Install the door trim-related parts. (See page 9-40.)

**DOOR GLASS AND REGULATOR COMPONENTS**

*Fig. 9-131*

1. Front door glass S/A
2. Front door window regulator Ay
3. Door window glass holder
4. Door window glass holder cushion
5. Power window motor

*Fig. 9-132*

(Power window-equipped vehicle)

**REMOVAL**

1. Remove the door trim-related parts. (See page 9-39.)
2. Remove the two attaching bolts of the front door glass subassembly. Remove the front door glass subassembly from the front door.

3. Remove the door window glass holder & cushion from the front door glass subassembly.

*Fig. 9-133*

*Fig. 9-134*
5. Remove the front door window regulator assembly.

5. Remove the power window motor from the front door window regulator assembly. (Power window-equipped vehicle)

6. Remove the front door glass outer weatherstrip and front door glass run.

7. Remove the front door front and rear lower frame sub-assembly.
INSTALLATION
1. Install the front door front and rear lower frame sub-assembly.
2. Install the front door glass outer weatherstrip and front door glass run.
3. Install the door window glass holder and cushion to the front door glass.

4. Installation of front door window regulator assembly
   (1) Apply MP grease to the sliding section.
   (2) Install the power window motor to the front door window regulator assembly. (Power window-equipped vehicle)

   (3) Install the front door window regulator assembly.
       (Tighten the bolts other than the bolts ⑤. Then, tighten the two bolts ⑦ at the center section of the elongated hole of the door panel.)

5. Installation of front door glass subassembly
   (1) Install the front door glass subassembly. (See Fig. 9-133.)
   (2) Close the front door glass fully. Then, lower the front door glass 40 mm (1.57 inches).
   (3) First loosen the bolts ⑤ and then tighten them again.

6. Install the trim-related parts. (See page 9-40.)
**REAR DOOR**

**ARTICLES TO BE PREPARED**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Nomenclature and part number</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools</td>
<td>Screwdriver type clip clamping tool by Banzai, Ltd.</td>
<td>For use in removing door trim</td>
</tr>
</tbody>
</table>

Lubricants and others: MP grease and butyl tape

**DOOR TRIM AND SERVICE HOLE COMPONENTS**

(Power window-equipped vehicle)

1. Door pull handle
2. Door inside handle Ay
3. Rear door window regulator handle Ay
4. Regulator inside handle plate
5. Shaft snap ring
6. Rear door trim panel Ay
7. Power window subswitch Ay
8. Rear door service hole cover

**REMOVAL**

1. Detach the door pull handle.
2. Remove the door inside handle assembly.

3. Removal of rear door window regulator handle assembly
   (1) Detach the shaft snap ring, using a cloth.
   (2) Take out the rear door window regulator handle assembly and regulator inside handle plate.
4. Removal of rear door trim panel assembly
   (1) Detach the rear door trim panel assembly, using a clip remover.
   (2) Remove the coupler for power window use.
       (Power window-equipped vehicle only)
   (3) Remove the power window subswitch assembly from the rear door trim panel assembly.

5. Remove the door inside handle assembly and bracket.
6. Detach the rear door service hole cover subassembly.

INSTALLATION
1. Installation of rear door service hole cover subassembly
   (1) Affix butyl tape on the position specified in the right figure.
   (2) Place the lower edge of the cover in the aperture provided at the lower part of the door panel. Then, affix adhesive tape on it.

   NOTE:
   1. Be sure not to plug the clip hole with the adhesive tape.
   2. Replace the service hole cover if it exhibits rupture.
   3. Install the door inside handle assembly and bracket.

3. Installation of rear door trim panel assembly
   (1) Ensure that the clip is attached to the rear door trim panel assembly.
   (2) Install the power window subswitch assembly on the rear door trim panel assembly. Connect the coupler.
       (Power window-equipped vehicle only)
   (3) Attach the rear door trim panel assembly on the rear door.

4. Installation of rear door window regulator handle assembly
   (1) Close the door glass fully.
   (2) Set the regulator inside handle plate at the trim side.
   (3) Set the shaft snap ring in the rear door window regulator handle.
(4) Install the rear door window regulator handle in such a way that the handle may come within the angle indicated in the right figure.

5. Install the door pull handle.
6. Install the door inside handle assembly.

DOOR LOCK AND OUTSIDE DOOR HANDLE

Components

① Rear door locking link S.A
② Rear door open control link
③ Rear door lock Ay
④ Door locking button
⑤ Rear door outside handle Ay
⑥ Door lock striker plate S/A
REMOVAL
1. Remove the door trim-related parts. (See page 9-47.)
2. Remove the door control solenoid assembly by removing the two nuts and coupler.

3. Removal of rear door lock assembly
   (1) Remove the rear door locking button.
   (2) Remove the attaching screw of the rear door locking link subassembly.
   (3) Remove the three attaching screws of the rear door lock assembly.
   (4) Remove the rear door lock assembly (link-related parts) from the door.

4. Remove the following parts from the rear door lock assembly.
   (1) Remove the rear door locking link subassembly.
   (2) Remove the rear door opening control link.

5. Remove the rear door outside handle assembly.

INSTALLATION
1. Install the rear door outside handle assembly.
2. Install the following parts in the rear door lock assembly.
   (1) Install the rear door opening control link.
   (2) Install the rear door locking link subassembly.
3. Install the rear door lock assembly and rear door locking button in the rear door. (See Fig. 9-153.)
4. Install the rear control solenoid assembly. (See Fig 9-157.)
   The solenoid assembly should be installed at such a position that the lock button stroke may become at least 10 mm (0.37 inch).
5. Install the door trim-related parts. (See page 9-48.)
DOOR GLASS AND REGULATOR

COMPONENTS

- Rear door outer weatherstrip
- Rear door glass S/A
- Rear quarter glass
- Rear quarter glass weatherstrip
- Rear door glass filler
- Rear door glass channel S/A
- Rear door glass run
- Rear door window division bar S/A
- Rear door window regulator Ay
- Power window motor

REMOVAL

1. Remove the rear door trim board-related parts. (See page 9-47.)
2. Remove the rear door weatherstrip.
3. Removal of rear door window division bar subassembly
   (1) Remove the upper attaching screw and lower bolt at the rear door window division bar subassembly.
   (2) Remove the rear door window division bar subassembly from the rear door.
4. Remove the rear quarter glass and rear quarter glass weatherstrip.
5. Removal of rear door glass subassembly
   (1) Slide the rear door glass subassembly backward.
       Detach the roller of the rear door window regulator
       assembly from the rear door glass channel.
   (2) Remove the rear door glass subassembly from the
       rear door.

6. Removal of rear door window regulator assembly
   (1) Remove the rear door window regulator assembly by
       removing the three bolts.
   (2) Remove the power window motor from the rear door
       window regulator assembly. (Power window-equipped
       vehicle only)

7. Remove the rear door glass outer weatherstrip.

INSTALLATION

1. Install the rear door glass outer weatherstrip.
2. Installation of rear door window regulator assembly
   (1) Apply MP grease to the sliding sections.
   (2) Install the power window motor in the rear door
       regulator assembly. (Power window-equipped vehicle
       only)
   (3) Install the rear door window regulator assembly in the
       rear door. (See Fig. 9-161)

3. Installation of rear door glass subassembly
   (1) Apply soap water, etc. to the inner surface of the rear
       door glass filler. Install the glass filler in the glass
       channel.
   (2) Install the rear door glass filler and channel in the rear
       door glass subassembly. (Install these parts by tapping
       them lightly with a wooden hammer or the like.)

4. Install the rear quarter glass and rear quarter glass
   weatherstrip.
5. Install the rear door window division bar subassembly
6. Install the rear door glass weatherstrip.
7. Install the rear door trim board-related parts. (See Fig.
   9-48.)


**COMPONENTS**

1. Back door glass
2. Back door glass weatherstrip
3. Clip
4. Back door trim board
5. Back door service hole cover S/A
6. Coupler for defogger
   (Defogger-equipped vehicle only)
7. Rear wiper arm
   (Rear wiper-equipped vehicle only)
8. Rear wiper motor & bracket
   (Rear wiper-equipped vehicle only)
9. Rear washer nozzle A
10. Hose & grommet
11. Back door lock cylinder
12. Back door lock A
13. Harness 5 grommet
14. Back door stay A
15. Back door pane

**REMOVAL**

1. Remove the rear wiper arm attaching nut. Detach the rear wiper arm. (Rear wiper-equipped vehicle only)
2. Disconnect the couplers for defogger use at two points.
3. Remove the rear spoiler. (See page 9-36)
4. Remove the back door glass and weatherstrip. (See page 9-29)
5. Removal of back door trim board
   (1) Detach the back door trim board by removing the 10 clips. To remove the clip, push its central part.
   NOTE:
   Be very careful not to push the central part of the clip too strongly. Application of excessive force may drop the clip.
   (2) Detach the back door service hole cover sub-assembly.

6. Remove the rear wiper motor and bracket assembly as follows:
   (1) Working from the outside of the back door, remove the boot, nut, spacer and bush.
   (2) Working from the inside of the back door, disconnect the coupler, using a piece of wire.
   (3) Remove the rear wiper motor and bracket assembly by removing the three bolts.

7. Removal of rear washer nozzle assembly
   (1) Remove the rear washer nozzle assembly. Detach the hose from the nozzle assembly.
   (2) Remove the hose and grommet from the back door.

8. Detach the clip and remove the back door lock cylinder.
3. Remove the harness and grommet from the back door.

10. Remove the back door lock assembly.

11. Remove the back door stay assembly as follows:
   (1) Detach the attaching section at the body side.
   NOTE:
   Be sure to protect the body surface by means of adhesive tape or like, as indicated in the right figure.
   (2) Remove the back door stay assembly by removing the two attaching bolts at the back door side.
   NOTE:
   • Never attempt to disassemble the door stay assembly, for the cylinder is filled with high-pressure gas.
   • After the damper stay has been replaced, be certain to discharge the high-pressure gas from it, by making a 2 to 3 mm dia. hole at the bottom of the cylinder of the removed damper stay.
   (The discharging gas is colorless, odorless and non-poisonous. However, be very careful as to drilled metal chips being blown off.)
   • Utmost caution must be exercised as to the handling of the damper stay. Never let scratch, paint or oil get to the exposed section of the piston rod.
   • When the damper stay is in an extended state, be sure not to turn the piston rod or the cylinder.

12. Removal of back door panel
   (1) Detach the rear section of the roof headlining
   (2) Working from the vehicle interior, remove the back door panel from the vehicle by removing the two attaching nuts ③ of the back door panel.
INSTALLATION

1. Install the back door panel on the body.
2. Install the back door stay.
3. Install the back door lock assembly.
4. Install the harness and grommet.

5. Place the back door lock cylinder or the back door. Secure the lock cylinder with the clip.

6. Installation of rear washer nozzle
   (1) Attach the washer hose to the rear washer nozzle.
   (2) Install the rear washer nozzle to the back door.

7. Install the rear wiper motor and bracket assembly as follows:
   (1) Install the rear wiper motor and bracket assembly, using the three bolts
   (2) Connect the coupler.
   (3) Working from the outside, install the bush, spacer, nut and boot

8. Installation of back door trim board
   (1) Affix butyl tape on the position specified in the right figure. Install the back door service hole cover sub-assembly

   **NOTE:**
   Replace the service hole cover if it exhibits rupture.

   (2) Attach the back door trim board using the 10 clips. With the central part of the clip pulled out, set the clip on the trim. Push the central part of the clip so that the clip may retain the trim.

9. Install the back door glass and weatherstrip. (See page 9-30)
10. Install the rear spoiler. (See page 9-37)
1. Connect the occupier for defogger use at two points.

2. Installation of rear wiper
   (1) Install the battery terminals. Operate the wiper motor, until it assumes the automatic stopping position.
   (2) Attach the rear wiper arm so that it may align with the lowest line of the defogger pattern.
   Installation position:
   Lowest line of pattern ±5 mm (±0.2 inch)
   (3) Install the wiper link cap.

BACK DOOR OPENER AND FUEL LID OPENER

- Back door opener Ay
- Back door lock striker Ay
- Fuel filler opening lid lock S/A
- Clamp
- Clamp
REMOVAL
1. Remove the front seal
2. Remove the rear seat
3. Remove the trim-related parts
   (3-door model fuel lid opener)
   Remove the front door scuff plate at the left side. Remove the quarter trim at the right side.
   (3-door model back door opener)
   Remove the front door scuff plate at the right side, the package tray side trim at the right side, the quarter trim at the right side, the deck side trim at the right side and lower deck trim.
   (5-door model fuel lid opener)
   Remove the front door scuff plate at the right side, the rear door scuff plate at the right side, the package tray side trim at the right and left sides, the quarter wheel house cover at the right side, the deck side trim at the right and left sides and the lower deck trim.
   (5-door model back door opener)
   Remove the front door scuff plate at the right side, the rear door scuff plate at the right side, the package tray side trim at the right side, the quarter wheel house cover at the right side, the deck side trim at the right side and the lower deck trim.

4. Remove the back door opener assembly as follows:
   (1) Remove the attaching bolt. Remove the back door opener assembly.
   (2) Detach the spring. Remove the cable.

5. Removal of fuel filler opening lid lock subassembly
   (1) Remove the fuel filler opening lid lock subassembly.
   (2) Detach the fuel lid cable.
Removal of back door lock striker assembly

1. Remove the back door lock striker assembly by removing the two bolts.
2. Detach the back door cable.
3. Remove the fuel lid cable and back door cable.

INSTALLATION

1. Install the fuel lid cable and back door cable.
2. Install the back door lock striker assembly.
3. Install the fuel filler opening lid lock subassembly. (Perform the operation check.)
4. Install the back door opener assembly. (Perform the operation check.)
5. Install the trim-related parts.
6. Install the rear seal.
7. Install the front seal.
POWER GLASS SUNROOF WITH TILT-UP MECHANISM

ARTICLES TO BE PREPARED

<table>
<thead>
<tr>
<th>Shape</th>
<th>Nomenclature and part number</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screwdriver type clip clamp tool by Banza, Ltd.</td>
<td>For use in removing door trim</td>
<td></td>
</tr>
</tbody>
</table>

Lubricants and others: MP grease and butyl tape

COMPONENTS

- #1 Inner rear-view mirror W/room lamp
- #2 Switch bezel
- #3 Sun visor
- #4 Clip (at front side of roof headlining)
- #5 Front pillar garnish
- #6 Assist grip Ay (Detach the front section of the roof headlining)
- #7 Sliding roof switch Ay
- #8 Sliding roof drive gear Ay
- #9 Slide roof garnish (sunroof)
- #10 Sliding roof glass S/A
- #11 Roof window deflector arm S/A & roof window deflector panel S/A
- #12 Guide rail cover
- #13 Roof drip rear channel
- #14 Sliding roof drive cable S/A
- #15 Sun shade trim S/A

Fig. 9-187
EMOVAL

1. Open the sunroof fully.
2. Affix adhesive tape at the front side as well as at the right & left sides of the sunroof aperture.

3. Removal of front pillar garnish
   (1) Disengage the fitting of the garnish by prying the clip section by means of a common screwdriver.
   (2) Remove the front pillar garnish by pulling it upward.

4. Detach the front section of the roof headlining.
   (1) Prior to the operations given below, disconnect the negative terminal of the battery.
   (2) Remove the sun visor assembly.
   (3) Remove the inner rear-view mirror with room lamp.
   (4) Remove the switch bezel.
   (5) Detach the sunroof opening trim molding.
   (6) Remove the assist grip assembly.
   (7) Remove the clip, using the clip removing tool.
5. Remove the sliding roof switch assembly by removing the two screws and coupler.

6. Remove the sliding roof drive gear assembly by removing the two bolts and coupler.

7. Detach the sliding roof glass subassembly from the vehicle by removing the eight attaching nuts of the sliding roof glass subassembly.

8. Remove the roof window deflector arm subassembly and the roof window deflector panel subassembly by removing the four screws.

9. Detach the guide rail cover by removing the screws, one each at the right and left sides.

10. Remove the roof drip rear channel by removing the two screws.
11. Remove the sliding roof drive cable subassembly from the vehicle by removing the three screws.

12. Remove the sun shade trim subassembly from the back side of the sliding roof drive cable subassembly.

**INSTALLATION**

1. Install the sun shade trim from the back side of the sliding roof drive cable subassembly.

2. Installation of sliding roof drive cable subassembly
   
   (1) Align the link position with each other by inserting a pin or the like into the reference hole. Set the roof in a fully-closed state.

   (2) Place the drive cable subassembly into position from the front side of the roof while holding the both sides of the rail by hands.
(3) Secure the sliding roof cable subassembly on the vehicle with the three screws.

3. Installation of roof drip rear channel
   (1) Align the channel with the claw section of the rail at the right and left sides.
   (2) Install the roof drip rear channel with the two screws.

4. Attach the guide rail cover.

5. Install the roof window deflector arm subassembly and the roof window deflector panel subassembly with the four screws.

6. Install the sliding roof glass subassembly with the eight nuts.

7. Installation of sliding roof drive gear assembly
   (1) Remove the cover by removing the screws.
   (2) Turn the cam manually, until the punched marks on the housing and gear are aligned with each other so that the cam may be set to the fully-closed position
   (3) Attach the cover.
   (4) Install the sliding roof drive gear assembly with the two bolts. Connect the coupler.
Installation of sliding roof switch assembly
(1) Install the sliding roof switch with the two screws. Connect the coupler.
(2) Connect the negative \( \ominus \) terminal of the battery.
(3) Check the sunroof for proper operation. Perform the alignment adjustment.

9. Install the front section of the roof headlining
(1) Install the clip and assist grip assembly.
(2) Install the sun visor.
(3) Install the inner rear-view mirror with room lamp.
(4) Install the switch bezel.
(5) Attach the sunroof opening trim molding.

10. Installation of front pillar garnish
(1) Attach the hanger provided at the lower part of the front pillar garnish to the body.
(2) Align the positions of the two clips. Attach the garnish by tapping the garnish lightly by hands.
### ROOF Drip Molding

**Articles to Be Prepared**

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealant gun</td>
<td>For use in applying adhesive agent</td>
</tr>
<tr>
<td>Alcohol</td>
<td>For use in clearing installation surface of roof drip molding</td>
</tr>
<tr>
<td>Cutter knife or the like</td>
<td>For use in separating roof drip molding</td>
</tr>
<tr>
<td>Beta seal 552 (adhesive agent)</td>
<td>Adhesive agent for roof drip molding</td>
</tr>
</tbody>
</table>

* Beta seal 552 (adhesive agent) [Cartridge capacity 333 ml]*

**Handling of Beta seal 552**
1. Be sure to store this sealant in a cool, dark place. Avoid moisture, (for it will harden quickly.)
2. Once it is opened (after the nozzle is cut off), it will harden in two or three days. It is therefore, necessary to open it immediately prior to use.

### Installation Position

![Installation Position Diagram](image)

**Removal**

1. Detach the roof drip side finish molding by inserting a common screwdriver into the rear end of the molding.

**Note:**
When the molding is pried with a screwdriver, be very careful not to scratch the body.

![Removal Diagram](image)
**INSTALLATION**

1. Install the roof drip side finish molding
   (1) When a new finish molding is used, paint the molding to the same color as the vehicle body.
   (2) Clean the body attaching surface using alcohol or white gasoline.
   (3) Set the molding and clips in position. Peel off the lining paper.
   (4) Heat the body attaching surface to 40 to 60°C.
   (5) Apply the adhesive agent to the points indicated in the right figure. Install the finish molding by aligning it with the body.

**EXHAUST PIPE**

**COMPONENTS**

Gasoline-fueled vehicle

![Diagram of Gasoline-fueled Exhaust Pipe]

1. Gasket
2. Clamp
3. Exhaust front pipe
4. Exhaust pipe support
5. Exhaust center pipe
6. Gasket
7. Exhaust tail pipe

Diesel-powered vehicle

![Diagram of Diesel-powered Exhaust Pipe]

* : Non-reusable parts
FRONT PIPE

REMOVAL
1. Jack up the vehicle and support it with safety stands.
2. Separate the front pipe from the exhaust manifold by removing the three nuts.
3. Separate the bracket support No.1 by removing one bolt.
4. Separate the tail pipe or center pipe from the front pipe by removing the two nuts.
5. Separate the exhaust pipe support.
   CB-23, CB-61 and CB-80 engines: Two points
   CL-11 and CL-16 engines: One point

INSTALLATION
1. With a new gasket interposed, connect the tail pipe or the center pipe to the front pipe by tightening the two nuts temporarily.
2. With a new gasket interposed connect the front pipe to the exhaust manifold by tightening the two nuts temporarily.
3. Install the exhaust pipe support.
   CB-23, CB-61 and CB-80 engines: Two points
   CL-11 and CL-16 engines: One point
   NOTE: Replace any exhaust pipe support which exhibits damage.
4. Tighten the nuts attaching the tail pipe or center pipe to the front pipe.
   Tightening Torque: 4.0 - 6.0 kg-m (29 - 43 ft-lb)
5. Tighten the nuts attaching the front pipe to the exhaust manifold.
   Tightening Torque: 4.0 - 6.0 kg-m (29 - 43 ft-lb)
6. Install the bracket support No.1.
   Tightening Torque: 3.5 - 5.0 kg-m (25 - 35 ft-lb)
7. Remove the safety stands and jack down the vehicle.
ENTER PIPE (CL-11 and CL-61 Engines)

REMOVAL
1. Jack up the vehicle and support it with safety stands.
2. Separate the front pipe and tail pipe from the center pipe.
3. Remove the exhaust pipe support and take out the center pipe.

INSTALLATION
1. With new gaskets interposed, connect the front pipe and tail pipe to the center pipe by tightening the nuts temporarily.
2. Install the exhaust pipe support.
3. Tighten the center pipe attaching nuts.
   - Tightening Torque: 4.0 - 6.0 kg·m (39.8 - 43.4 ft·lb)
4. Remove the safety stands and jack down the vehicle.

TAIL PIPE

REMOVAL
1. Jack up the vehicle and support it with safety stands.
2. Separate the tail pipe from the front pipe or the center pipe.
3. Remove the two exhaust pipe supports.

INSTALLATION
1. With a new gasket interposed, connect the tail pipe to the front pipe or the center pipe by tightening the nuts temporarily.
2. Install the two exhaust pipe supports.
3. Tighten the tail pipe attaching nuts.
   - Tightening Torque: 4.0 - 6.0 kg·m (39.8 - 43.4 ft·lb)
4. Remove the safety stands and jack down the vehicle.
BODY

FUEL TANK

COMPONENTS

3-door model

5-door model

1. Fuel tank Ay
2. Fuel tank flange reinforcement
3. Gasket
4. Drain plug
5. Fuel hose No. 5
6. Clip
7. Fuel tank sub inlet hose
8. Grommet
9. Clamp
10. Breather tube
11. Clip
12. Fuel hose No. 4
13. Fuel inlet pipe seal lower plate
14. Fuel inlet pipe lower flange
15. Fuel inlet pipe S/A
16. Fuel inlet pipe shield
17. Fuel tank cap Ay
18. Fuel filter opening lid S/A
19. Clamp

Fig. 9-220
FUEL INLET PIPE

3-Door Model

1. Drain the fuel from the fuel tank by removing the drain plug. After the fuel has been drained, install the drain plug.

2. Remove the rear seatback and seat cushion (fixed type only) (See page 9-101.)

3. Remove the quarter trim panel assembly at the left side

4. Remove the two attaching screws of the fuel inlet pipe.

5. Detach the clamp and separate the fuel tank sub-inlet hose.

6. Remove the fuel inlet pipe seal lower plate and the fuel inlet pipe lower seal by removing the two bolts.

7. Detach the clip and remove the breather hose.

8. Working from the vehicle interior, remove the fuel inlet pipe attaching bolt. Detach the fuel inlet pipe sub-assembly

9. Detach the boot.

INSTALLATION

1. Attach the boot. Set the fuel inlet pipe in the vehicle.

2. Install the fuel inlet pipe attaching bolt at the vehicle interior, using the four bolts.

3. Working from the outside, install the fuel inlet pipe, using the two attaching screws.
4. Attach the breather hose to the fuel inlet pipe. Secure it with the clip.
5. Install the fuel inlet pipe seal lower plate and the fuel inlet pipe lower seal using the two bolts.
6. Attach the fuel tank subinlet hose to the fuel inlet pipe. Secure it with the clamp.
7. Install the quarter trim panel assembly.
8. Install the rear seatback and seat cushion.

5-Door Model
1. Drain the fuel from the fuel tank by removing the drain plug. After the fuel has been drained, install the drain plug.
2. Remove the rear seatback and seat cushion (fixed type only) (See page 9-101.)
3. Remove the package tray, package tray side trim, rear scuff plate, quarter wheel house and cover deck side trim.

4. Remove the fuel inlet box and fuel filter opening lid subassembly by removing the six screws.

5. Detach the clamp and separate the fuel tank subinlet hose.
6. Detach the clip and remove the breather hose.
7. Remove the fuel inlet pipe seal lower plate and the fuel inlet pipe lower seal by removing the two bolts.

8. Working from the vehicle interior, remove the three attaching bolts of the fuel inlet pipe subassembly. Detach the fuel inlet pipe subassembly.
INSTALLATION
1. Working from the vehicle interior, install the fuel inlet pipe subassembly with the three bolts.
2. Working from the outside, install the fuel inlet box and fuel filler opening lid subassembly with the six screws.
3. Install the fuel inlet pipe seal lower plate and the fuel inlet pipe lower seal, using the two bolts.
4. Attach the breather hose to the fuel inlet pipe subassembly. Secure it with the clip.
5. Install the fuel tank subinlet hose. Secure it with the clamp.
6. Install the cover deck side trim, quarter wheel house, rear scuff plate, package tray side trim and package tray. Install the rear seat back and seat cushion.

FUEL TANK
REMOVAL
1. Jack up the vehicle and support it with safety stands.
2. Drain the fuel from the fuel tank by removing the drain plug. After the fuel has been drained, install the drain plug.
3. Removal of fuel sender gauge and fuel pump connector

   (1) Remove the rear seat.
   (2) Detach the rear quarter trim at the right side (3-door model)
   (3) Detach the rear scuff plate at the right rear side (5-door model)
   (4) Disconnect the connector. Take out the connector together with the grommet to the vehicle exterior.

4. Removal of fuel tank subinlet hose and breather hose

   3-Door Model
   (1) Detach the clamp. Remove the fuel tank subinlet hose.
   (2) Detach the clip. Remove the breather hose.
5-Door Model

(1) Detach the clamp. Remove the fuel tank suction hose.
(2) Detach the clip and hose from both ends of the breather pipe.
(3) Remove the breather pipe by removing its attaching bolt.

5. Removal of fuel hose:
   (1) Disconnect the main fuel hose.
   (2) Disconnect the return fuel hose.
   (3) Disconnect the fuel hose for emission control.

6. Removal of fuel tank assembly
   (1) Support the fuel tank assembly with a jack.
   (2) Remove the four attaching bolts of the fuel tank.
   (3) Remove the fuel tank assembly from the vehicle.
7. Remove the fuel hose and pipe.
8. Remove the fuel sender gauge assembly by removing the coupler and five screws.
9. Remove the fuel pump assembly with bracket by removing the eight screws.

**INSTALLATION**

1. Install the fuel pump assembly with bracket and the fuel sender gauge assembly.
2. Install the fuel hose and pipe.
3. Install the fuel tank assembly with the four bolts.

**NOTE:**
Prior to the fuel tank installation, be sure to route the fuel gauge-related harness through the inside.

4. Installation of fuel hose
   (1) Connect the main fuel hose.
   (2) Connect the return fuel hose.
   (3) Connect the emission control fuel hose.
5. Install the fuel tank subinlet hose and breather hose
   **3-door model**
   (1) Connect the breather hose. Secure it with the clip.
   (2) Connect the fuel tank subinlet hose. Secure it with the clamp.

   **5-door model**
   (1) Connect the fuel tank subinlet hose. Secure it with the clamp.
   (2) Connect the hoses to both ends of the breather pipe. Secure them with the clips.
   (3) Install the breather pipe with one bolt.

6. Installation of fuel sender gauge and fuel pump connectors
   (1) Connect the connectors and install the grommet.
   (2) Attach the rear quarter trim at the right rear side. (3-door model)
   (3) Attach the scuff plate at the right rear side. (5-door model)
   (4) Install the rear seat.
INSTRUMENT PANEL
COMPONENTS

1. Steering wheel Ay
2. Turn signal switch Ay
3. Instrument cluster finish panel S/A
4. Combination meter Ay
5. Instrument panel finish lower panel
6. Glove compartment door S/A
7. Heater control Ay
8. Instrument cluster finish center pane
9. Radio Ay
10. Heater control cable (3 pcs.)
11. Instrument panel hole cover
12. Instrument panel-to-floor brace
13. Instrument panel Ay

Fig. 9-245

9-77
REMOVAL

1. Disconnect the negative \( \ominus \) terminal of the battery.

2. Remove the instrument lower finish panel by removing the two screws.

3. Remove the instrument panel lower reinforcement by removing the four bolts.

4. Remove the steering column by removing the attaching bolts and nuts of the steering column.

5. Removal of instrument cluster finish panel subassembly
   (1) Remove the four attaching screws of the instrument cluster finish panel subassembly.
   (2) Slightly pull out the instrument cluster finish panel subassembly toward your side. Then, disconnect the couplers of the rear window defogger and rear wiper switch.
   (3) Remove the instrument cluster finish panel subassembly
Removal of combination meter assembly
(1) Disconnect the speedometer cable at the transmission side.

(2) Remove the four attaching screws of the combination meter assembly.
(3) Pull out the combination meter assembly toward your side. Disconnect the speedometer cable and the coupler of the wire harness. Remove the combination meter assembly.

7. Remove the glove compartment door subassembly by removing the two screws.

8. Removal of instrument cluster finish center panel
(1) Remove the instrument cluster finish center panel by removing the four screws and pulling out the panel toward your side
(2) Disconnect the connectors of the cigar lighter.

9. Remove the heater control assembly by removing the three screws.
10. Disconnect the couplers and the wire harness clamps of the ECU (for EFI or 3-speed A/T use), blower fan motor, clock and remote controlled mirror switch.

11. Removal of instrument panel assembly
   (1) Remove the instrument hole covers and bolts at the four points of the upper section of the instrument panel assembly.
   (2) Remove the two attaching bolts at both sides of the instrument panel assembly.
   (3) Remove the two attaching bolts at the center of the instrument panel assembly.
   (4) Remove the instrument panel assembly from the vehicle.

12. Remove the following parts from the instrument panel assembly:
   (1) Remove the defroster nozzle assembly, side defroster nozzle duct, evaporator-to-register duct subassembly and front ventilator duct by removing the six screws.

   (2) Remove the ECM together with the bracket by removing the two screws and one bolt.
   (3) Remove the clock by removing the two screws. (LHD vehicle only)
(4) Remove the glove compartment door lock striker by removing the two screws.

(5) Remove the instrument panel reinforcement by removing the five screws and one bolt. (A/T-equipped vehicle and GTi grade)

(6) Remove the instrument panel reinforcement by removing the three screws. (Except for A/T-equipped vehicle and GTi grade)

(7) Remove the instrument panel center stay by removing the three screws.

(8) Detach the clamps by removing the screws (Two points)

(9) Remove the instrument box or the remote controlled mirror switch.

(10) Remove the instrument panel registers (R & L) and instrument panel center register

(11) Remove the instrument panel safety pad by removing the eight screws. (LHD vehicle only)

(12) Remove the radio tuning opening cover by removing the two screws.

(13) Remove the instrument panel reinforcement No. 3 by removing the four bolts
BODY

(14) Remove the instrument panel bracket No.2 by removing the four screws.
(15) Remove the instrument panel bracket No.1 by removing the two screws.

INSTALLATION

1. Install the following parts to the instrument panel assembly.
   (1) Install the instrument panel bracket No. 1 (two screws) and instrument panel bracket No. 2 (four screws).
   (2) Install the instrument panel reinforcement No. 3 with the four bolts.
   (3) Install the radio tuning opening cover with the two screws.

   (4) Install the instrument panel safety pad with the eight screws. (LHD vehicle only)
   (5) Install the instrument panel registers (R & L) and instrument panel center register.

   (6) Install the instrument box or the remote controlled mirror switch.
   (7) Attach the clamps with the screws (Two points)

   (8) Install the instrument panel center stay with the three screws.
(9) Install the instrument panel reinforcement with the two screws and one bolt. (AT-equipped vehicle and GTi grade)

(10) Install the instrument panel reinforcement with the three screws. (Except for AT-equipped vehicle and GTi grade)

(11) Install the glove compartment door lock striker with the two screws.

(12) Install the clock with the two screws. (LHD vehicle only)

(13) Install the ECU together with the bracket by means of the two screws and one bolt.

(14) Install the evaporator-to-register duct subassembly, front ventilator duct, defroster nozzle assembly and side defroster nozzle.

2. Installation of Instrument Panel Assembly
   (1) Temporarily install the four bolts ② at the upper side of the instrument panel assembly.
   (2) Temporarily install the two bolts ③ at both sides of the instrument panel assembly.
   (3) Temporarily install the two bolts ④ at the center of the instrument panel assembly.
   (4) Settle the instrument panel assembly and tighten the eight bolts.
   (5) Install the instrument panel hole covers.

3. Connect the coupler and wire harness clamps of the ECU (for EFI or AT use), blower fan motor, clock and remote controlled mirror switch.

4. Install the heater control assembly with the three screws.
5. Installation of instrument cluster finish center pane.
   (1) Connect the connectors of the cigar lighter.
   (2) Install the instrument cluster finish center pane with the four screws.
6. Install the glove compartment door subassembly with the two screws. (See Fig. 9-254.)

7. Installation of combination meter assembly
   (1) Connect the coupler of the wire harness and speedometer cable to the combination meter assembly.
   (2) Install the combination meter assembly with the four screws.
   (3) Connect the speedometer cable at the transmission side.

8. Installation of instrument cluster finish panel subassembly
   (1) Connect the couplers of the rear window defogger and rear wiper switch.
   (2) Install the instrument cluster finish panel subassembly with the four screws.

9. Install the steering column with the bolts and nuts.

10. Install the instrument panel lower reinforcement with the four bolts.
1. Install the instrument lower finish panel with the two screws.
2. Connect the negative terminal of the battery.
TRIMS

COMPONENTS

3-door model

1. Front pillar garnish
2. Cowl side trim
3. Front door scuff plate
4. Quarter trim
5. Center pillar upper garnish
6. Roof side inner garnish

5-door model

1. Front pillar garnish
2. Cowl side trim
3. Front door scuff plate
4. Rear door scuff plate
5. Quarter wheel house cover
6. Roof side inner garnish
7. Center pillar upper garnish
8. Center pillar lower garnish

Luggage room

1. Package tray side trim
2. Deck side trim
3. Rear combination lamp service hole cover
4. Lower back trim
5. Package tray trim

Fig. 9-282
FRONT PILLAR GARNISH

Removal
1. Disengage the clip section by prying the clip with a common screwdriver.
2. Remove the front pillar garnish by pulling it upward.

Installation
1. Hang the hanger located at the lower part of the front pillar garnish to the body.
2. Align the two clips in place. Install the front pillar garnish by tapping it lightly by your hand.

COWL SIDE TRIM

Removal
Remove the cowl side trim by detaching the two clips, using a clip clamping tool.

Installation
Install the cowl side trim with the two clips.

FRONT DOOR SCUFF PLATE
(3-DOOR MODEL)

Removal
Remove the front door scuff plate by removing the five screws.

Installation
Install the front door scuff plate with the five screws.

(5-DOOR MODEL)

Removal
Remove the front door scuff plate by removing the three screws.

Installation
Install the front door scuff plate with the three screws.

QUARTER TRIM
(3-DOOR MODEL)

Removal
1. Remove the two screws at the lower end of the trim.
2. Detach the three clips ② by pushing the center sections of the clips.
3. Detach the clips ③ (at six points), using a common screwdriver.
4. Remove the quarter trim by pulling it toward the front.

Installation
1. Attach the clip ③.
2. Attach the clips ② (at six points).
3. Attach the clips ① (at three points).
4. Install the two screws at the lower end of the trim.
REAR DOOR SCUFF PLATE
(5-DOOR MODEL)
Removal
Remove the rear door scuff plate by removing the two screws.

Installation
Install the rear door scuff plate with the two screws.

QUARTER WHEEL HOUSE COVER
(5-DOOR MODEL)
Removal
1. Remove the rear door scuff plate. (See Fig. 9-287)
2. Remove the one screw and two clips A.
3. Detach the four clips B, using a common screwdriver.

Installation
1. Align the clips A in place. Install the quarter wheel house cover by lightly tapping around the clips by hand.
2. Install the one screw and two clips A.
3. Install the rear door scuff plate.

CENTER PILLAR LOWER GARNISH
Removal
1. Disengage the clips A, using a common screwdriver.
2. Disengage the clips B, using a common screwdriver.
3. Remove the center pillar lower garnish.

Installation
1. Hang the lower end of the center pillar lower garnish to the rear door scuff plate.
2. Align the clips A and B in place. Install the center pillar lower garnish by lightly tapping around the clips by hand.

ROOF SIDE INNER UPPER GARNISH
Removal
1. Remove the quarter window lock cover.
2. Remove the two attaching screws of the quarter window lock assembly.
3. Disengage the clips A, using a common screwdriver.
4. Disengage the clips B and C, using a common screwdriver.
5. Remove the roof side inner upper garnish.

Installation
1. Align the clips A, B and C in place. Install the roof side inner upper garnish by lightly tapping around the clips by hand.
2. Install the quarter window lock assembly with the two screws.
3. Install the quarter window lock cover.
CENTER PILLAR GARNISH

Removal
1. Remove the attaching bolt of the front seat outer belt shoulder anchor.
2. Disengage the clips, using a common screwdriver.
3. Remove the center pillar garnish.

Installation
1. Align the clips in place. Install the center pillar garnish by lightly tapping around the clips by hand.
2. Install the attaching bolt of the front seat outer belt shoulder anchor.
   Tightening Torque: 2.9 - 5.4 kg-m (21 - 39 lb-ft)

DECK SIDE TRIM

Removal
1. Remove the package tray.
2. Remove the quarter trim.

3. Removal of package tray side trim
   (1) Remove the four bolts
   (2) Remove the package tray side trim.

4. Removal of lower back trim
   (1) Detach the four clips by pushing the center sections of the clips.
   (2) Remove the lower back trim
5. Deck side trim
   (1) Detach the five clips by pushing the center sections of the clips.
   (2) Remove the deck side trim.
   (3) Remove the rear combination lamp service hole cover from the deck side trim.

**Installation**

1. Installation of deck side trim
   (1) Install the deck side trim with the four clips.
   (2) Install the rear combination lamp service hole cover.

2. Install the lower back trim with the four clips.

3. Install the package tray side trim with the four bolts.
4. Install the package tray.
5. Install the quarter trim.
SUSPENDED CEILING

Removal
1. Remove the sun visor assembly.
2. Remove the inner rear-view mirror with room lamp.
3. Remove the front pillar garnish, center pillar garnish and roof side inner upper garnish. (Only vehicle equipped with those garnishes.)
4. Remove the upper side of the front and rear door opening trim molding. Proceed to disengage the hook of the roof headlining.

5. Remove the two-faced adhesive tapes at the quarter pillar and center pillar sections. Then, remove the roof headlining.

6. Disengage the three hooks at the rear of the roof headlining.

7. Remove the lifting wires from the body side rail holes one by one, starting from the rear of the roof headlining.

8. Remove the roof headlining retainer and roof headlining by removing the five screws.

**Installation**

1. Install the roof headlining retainer by tightening the five screws in the sequence indicated in the right figure.
   **NOTE:**
   Install the roof headlining retainer in such a direction that a cut-out section at the center section of the retainer faces forward.

2. Insert each lifting wire into the body side rail hole one by one, starting from the front of the roof headlining retainer. Each hole should be held at the uppermost position.

3. Attach the three hooks at the rear of the roof headlining.
Hang the roof headlining hook at the front and rear door opening section. Install the opening trim molding.

5. Install the roof headlining at the quarter pillar and center pillar sections to the body, using a two-faced adhesive tape.

6. Install the front door garnish, center pillar garnish and roof side inner upper garnish. (Only vehicle equipped with these garnishes)

**NOTE:**
Cut the roof headlining around the clip hole of the center pillar section, using a cutter.

7. Install the inner rear-view mirror with room lamp
8. Install the sun visor assembly.

**MOLDED CEILING**

**Removal**

1. Remove the sun visor assembly.
2. Remove the inner rear-view mirror with room lamp.
   - Detach the switch bezel.
4. Remove the sunroof opening trim molding.
5. Remove the front pillar garnish, center pillar garnish and roof side inner upper garnish.

- Remove the front and rear door opening trim molding (quarter window weatherstrip). Proceed to remove the roof headlining.
7. Removal of roof headlining
   (1) Remove the assist grips or clips.
   NOTE:
   Remove the clip, using a clip clamping tool.

   (2) Detach the three clips at the rear of the roof headlining.

   (3) Detach the two clips at the front of the roof headlining.
   (4) Remove the roof headlining from the vehicle.

Installation
1. Installation of roof headlining
   (1) Attach the front of the roof headlining with the two clips.

   (2) Attach the rear of the roof headlining with the three clips.
   NOTE:
   Be sure to replace any damaged clip with a new one during the operations (1) and (2).
(3) Install the assist grips or clips

2. Installation of front and rear door opening trim molding (quarter window weatherstrip)
   (1) Affix the roof headlining at the front and rear door (quarter window) section, using a two-faced adhesive tape.
   (2) Install the front and rear door opening trim molding (quarter window weatherstrip).

3. Install the front pillar garnish, center pillar garnish and roof side inner upper garnish
   1. Install the sunroof opening trim molding.
   3. Install the switch bezel.
   6. Install the inner rear-view mirror with room lamp.
   7. Install the sun visor assembly.
FRONT SEAT
COMPONENTS

VAN, TS, TC, TX and CX grades

TURBO and GTi grades

① Headrest Ay
② Front seatback cover
③ Hug snap ring
④ Front headrest support
⑤ Front seatback cover
⑥ Front seatback Ay
⑦ Front seat hinge cover
⑧ Nut

⑨ Front seat hinge cover
⑩ Front seat cushion cover
⑪ Front seat cushion Ay
⑫ Reclining hinge cover
⑬ Front seat cushion shield
⑭ Adjusting reclining release handle
⑮ Reclining seat adjuster Ay
⑯ Seat track Ay

T : Tightening torque
Unit: kg-m (ft-lb)

① Non-reusable parts

REMOVAL
Remove the front seat from the vehicle by removing the four bolts.
1. Remove the headrest with the stopper pushed toward "Unlock" direction.

2. Remove the adjusting reclining release handle by removing the one screw.

3. Remove the reclining hinge cover by removing the one screw. (TURBO and GTti grades only)

4. Remove the front seat cushion shield by removing the attaching screws.
   - VAN, TX and TC grades: two screws
   - Except for VAN, TX and TC grades: three screws

5. Remove the front seat hinge cover by removing the one screw (TURBO and GTti grades only). Remove the front seatback cover by pulling its lower end. (TURBO and GTti grades only)

7. Remove the front seatback assembly.
   1. Remove the four hug rings at the lower section of the seatback. (Except for TURBO and GTti grades)
   2. Remove the two hug rings at the reclining seat adjuster assembly side. (TURBO and GTti grades only)
(3) Remove the seatback by removing the one nut and two bolts which are attaching the seatback.
(4) Remove the front seat hinge cover from the seatback.

9. Remove the seat cushion, reclining seat adjuster assembly and seat track assembly by removing the four bolts.

10. Removal of front seatback cover
   (1) Remove the hug rings at the back side of the seatback. (TURBO and GTi grades only)

   (2) Remove the front headrest support by compressing the end of the front headrest support and pulling it upward by your fingers.

   (3) Turn over the front seatback cover. Remove the front seatback cover by removing the hug rings at the upper section of the seatback.
Removal of front seat cushion cover
(1) Remove the hug rings at the back side of the front seat cushion.

(2) Turn over the front seat cushion cover. Remove the hug rings at the front side.
(3) Remove the front seat cushion cover.

ASSEMBLY

1. Installation of front seat cushion cover
(1) Install the hug rings at the front side of the front seat cushion. (See Fig. 9-329.)
(2) Install the hug rings at the back side of the front seat cushion.

NOTE:
- Be very careful not to smear or scratch the seat cover during the assembly.
- When installing the hug rings, make sure that no wrinkle is formed on the front seat cushion cover wherever possible.

Installation of front seatback cover
(1) Install the hug rings at the front side of the front seatback.
(2) Install the front headrest support.

(3) Install the hug rings at the rear of the seatback at positions indicated in the right figure. (TURBO and GTti grades only)
3. Install the reclining seat adjuster assembly and seal track assembly to the seat cushion with the four bolts.

4. Installation of front seatback assembly
   (1) Install the front seat hinge cover to the front seatback assembly. Then, install them to the seat cushion with the two bolts and one nut.
   (2) Install the hug rings from the rear of the seatback.

5. Hook the two clips at the upper section of the front seatback cover to the seatback. Then, install the front seatback cover by pushing its lower side. (TURBO and GTi grades only)

6. Install the front seat hinge cover with one screw. (TURBO and GTi grades only)

7. Install the front seat cushion shield with the screws
   VAN, TC and TX grades: Two screws
   Except for VAN, TC and TX grades: Three screws

   5. Install the reclining hinge cover with the one screw. (TURBO and GTi grades only)

9. Install the adjusting reclining release handle with the one screw.

10. Install the headrest

**INSTALLATION**

Install the front seat with the four bolts.

Tightening Torque: 1.5 - 2.4 kg-m (11 - 17 ft-lb)
REAR SEAT COMPONENTS

Seatback (Bench type)

1. Hug ring
2. Rear seatback cover
3. Rear seatback Ay
4. Rear seatback stop release button
5. Rear seatback stop button grommet
6. Rear seatback lock Ay
7. Rear seatback cock striker S/A

Seat Cushion (Fixed type)

1. Rear seat cushion cover
2. Rear seat cushion Ay
3. Rear seat n.r.r. lock Ay
4. Cushion
5. Rear seat cushion hinge cover
6. Rear seat cushion hinge Ay
7. Hug ring

(Raise-up type)
REAR SEATBACK ASSEMBLY

Removal
1. Removal of rear seatback assembly
   (1) Turn over the deck carpet. Remove the attaching bolts of the rear seatback assembly.
   Bench type: Bolts 4 pcs.
   Split type: Bolts 8 pcs.
   (2) Remove the rear seatback assembly from the vehicle.

Disassembly
1. Remove the deck carpet from the rear seatback assembly by detaching the clips.
   Bench type: Clips 10 pcs.
   Split type: Clips 14 pcs.

2. Detach the rear seatback stop release buttons and rear seatback button grommets from the rear seatback assembly.

3. Removal of rear seatback cover
   (1) Detach the hug rings at the back side of the rear seatback.
(2) Turn over the rear seatback cushion cover. Detach the hug rings at the front side. 
(3) Remove the rear seatback cushion cover.

Assembly
1. Installation of rear seatback cover
   (1) Install the hug rings at the front side of the rear seatback.
   (2) Install the hug rings at the back side of the rear seatback.
   NOTE:
   • Be very careful not to smear or scratch the rear seatback cover during the assembly.
   • When installing the hug rings, make sure that no wrinkle is formed on the rear seatback cover whenever possible.
2. Install the rear seatback stop button grommets and rear seatback stop release buttons on the rear seatback assembly.
3. Install the deck carpet on the rear seatback assembly with the clips. (See Fig. 9-340.)
   Bench type: Clips 10 pcs.
   Split type: Clips 14 pcs.

Installation
1. Installation of rear seatback assembly
   (1) Temporarily install the rear seatback assembly on the vehicle with the bolts.
   Bench type: Bolts 4 pcs.
   Split type: Bolts 8 pcs.
   NOTE:
The rear seatback attaching bolts should be installed at those positions specified in the right figure.
(2) Tighten the bolts.
   Tightening Torque: 0.4 - 0.7 kg-m (2.9 - 5.1 ft-lb)
REAR SEAT CUSHION ASSEMBLY

Removal
1. Removal of fixed type rear seat cushion
   (1) Remove the rear seatback assembly. (See Fig. 9-339.)
   (2) Remove the two attaching bolts of the rear seat cushion assembly.
   (3) Slightly raise the forward section of the rear seat cushion assembly and push it backward so as to disengage the hook.
   (4) Remove the rear seat cushion assembly from the vehicle.

2. Removal of rise-up type rear seat cushion assembly
   (1) Remove the hinge cover.
   (2) Remove the rear seat cushion hinge attaching bolts.
   (3) Pull the belt and disengage the lock.
   (4) Remove the rear seat cushion assembly from the vehicle.

Disassembly
1. Detach the tug rings at the back side of the rear seat cushion assembly. (Fixed type only)

2. Remove the rear seat cushion hinge assembly and rear seat turn lock assembly. (Rise-up type only)

3. Remove the rear seat cushion cover from the rear seat cushion frame. (Rise-up type only)
Turn over the rear seat cushion cover. Detach the hug rings at the front side of the cover.
5. Remove the rear seat cushion cover.

**Assembly**
1. Install the hug rings at the front side of the rear seat cushion.
2. Install the hug rings at the back side of the rear seat cushion (Fixed type only).
3. Attach the rear seat cushion cover to the rear seat cushion frame. (Rise-up type only)
   **NOTE.**
   - Be very careful not to smear or scratch the rear seat cushion cover during the assembly.
   - When installing the rear seat cushion cover, make sure that no wrinkle is formed whenever possible.

4. Install the rear seat cushion hinge assembly and rear seat turlock assembly on the back side of the rear seat cushion. (Rise-up type only)

**Installation**
1. Installation of fixed type rear seat cushion assembly
   (1) Align and engage the hook at the rear seat cushion side with the hook at the floor side, as indicated in the right figure.
   (2) Install the rear seat cushion assembly with the two bolts.
      **Tightening Torque:** 1.5 - 2.4 kg·m (11 - 17 ft·lb)
   (3) Install the rear seatback assembly (See Fig. 9-345)

2. Installation of rise-up type rear seat cushion assembly
   (1) Temporarily install the attaching bolts of the rear seat cushion hinge assembly.
   (2) Ensure that the rear seat turlock is functioning properly.
   (3) Tighten the attaching bolts of the rear seat cushion hinge assembly.
      **Tightening Torque:** 1.5 - 2.4 kg·m (11 - 17 ft·lb)
   (4) Install the hinge cover.
Inspection
ELR Locking Check
Slowly tilt the retractor from the installation angle. Ensure that no belt locking takes place within 15 degrees in all directions. Also, ensure that the locked state is retained when the retractor's tilted 45 degrees or more.

NOTE:
- Never attempt to disassemble the retractor.
- After the anchor bolts have been tightened, make sure that each anchor can move in the bolt's circumferential direction.
- Be sure that the belt in the installed state can be pulled out smoothly and also it can be retracted smoothly into position.
<table>
<thead>
<tr>
<th>Point code</th>
<th>Measuring point</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, a</td>
<td>Fender installation nut, front</td>
<td>7 (0.28)</td>
</tr>
<tr>
<td>B, b</td>
<td>L front spring support hole, front</td>
<td>10 (0.39)</td>
</tr>
<tr>
<td>C, c</td>
<td>Fender installation nut, rear</td>
<td>7 (0.28)</td>
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<tr>
<td>D</td>
<td>Hood-to-cowl lip seal installation hole [Center of vehicle]</td>
<td>/ (0.28)</td>
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<table>
<thead>
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<th>Measuring point</th>
<th>Diameter</th>
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</thead>
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<td>E, e</td>
<td>Front side member bumper installation hole</td>
<td>11 (0.43)</td>
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<tr>
<td>F, f</td>
<td>Headlamp installation hole, upper</td>
<td>9 x 6.5 (0.35 x 0.25)</td>
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<tr>
<td>G, g</td>
<td>Headlamp installation hole, lower</td>
<td>9 (0.39)</td>
</tr>
</tbody>
</table>

[Engine compartment]

---

Fig. 1-358

(Unit: mm [inches])
SECTION 10
BODY ELECTRICAL SYSTEM

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(To be continued)
HANDLING AND INSPECTION

Removal
To disconnect the connector, simply pull out the connector while the lock lever is being pressed down, as indicated in the right figure.

Inspection
When you conduct continuity checks or voltage checks using a circuit tester, if you insert a test prod from the connector side, it is impossible to get an adequate fitting. Hence, be sure to positively insert the test prod from the names side, as indicated in the right figure.

REPLACEMENT

Removal
(1) From the aperture, insert a miniature type common screwdriver into between the locking lug and the terminal.

(2) While the locking lug is being pried upward by means of a screwdriver, pull out the terminal from the backside.

Installation
(1) Insert the terminal, until the locking lug is locked positively.
(2) Ensure that the locking lug is locked positively by raising the wire.
WIRING HARNESSES

SCHEMATIC DIAGRAM

(Above figures show R.H.D.)
USES

Fuse Block
The fuse block is located below the steering post at the driver's seat side. Detach the cover, as required, by removing the two screws.

Fig. 10-7

Turn signal flasher installing position

Lamp-ON-warning buzzer installing position

Intermittent wiper installing position

Junction block

West German specifications only

Except for West German specifications

For West German specifications

Fig. 10-8
BODY ELECTRICAL SYSTEM

Fuse replacement
The fuse replacement must be made at all times by using a new fuse with the correct amperage.

NOTE:
(1) Before any fuse is replaced, be certain to turn OFF all electrical equipment and ignition switch. Never use any fuse in excess of the designated rating.
(2) Be sure to employ a puller for removing/installing fuses. Also, the removal/installation of fuses must be performed straight.
If the fuse is removed or installed in a twisted condition, the terminal will be expanded unduly, resulting in poor contact.
If any fuse is blown out repeatedly, the likelihood is that there exists a short in the relevant system. Hence, perform checks for possible systems, referring to Page 10-9 and Section 11 under "Wiring Diagram."

Relay and fuse block
(Vehicles mounted with Type CB-80 engine)
The relay and fuse block are located next to the battery in the engine compartment.

Fig. 10-9
Fig. 10-10
Fig. 10-11
Connectors

<table>
<thead>
<tr>
<th>Code</th>
<th>Connected system</th>
<th>Code</th>
<th>Connected system</th>
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<tr>
<td>A</td>
<td>Cowl harness</td>
<td>H</td>
<td>Cowl harness</td>
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<tr>
<td>B</td>
<td>Cowl harness</td>
<td>I</td>
<td>Cowl harness</td>
</tr>
<tr>
<td>C</td>
<td>Cowl harness</td>
<td>K</td>
<td>Intermittent wiper relay</td>
</tr>
<tr>
<td>D</td>
<td>Cowl harness</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Multi-use lever switch harness</td>
<td>L</td>
<td>Lamp-ON-warning buzzer relay</td>
</tr>
<tr>
<td>G</td>
<td></td>
<td>M</td>
<td>Flasher relay</td>
</tr>
</tbody>
</table>

Fig. 10-12
FUSIBLE LINK BLOCK
(Vehicles Mounted with Type CB-80 Engine)

On vehicles mounted with Type CB-80 engine, a cartridge type fusible link block is employed.

Replacement

1. If visual inspection reveals that the fusible link is blown out, replace it with a new fusible link with the designated rating.

   NOTE:
   1. Before the fusible link is replaced, be sure to turn OFF the ignition key.
   2. Care must be exercised to ensure that the fusible link is not twisted during the removal/installation. If the fusible link is replaced forcibly, it will cause breakage or poor contact.

2. If the fusible link is blown out repeatedly, the likelihood is that there exists a short in the relevant system. Hence, perform checks for possible systems, referring to Page 10-5 and Section 'C' under "Wiring Diagram."
## Body Electrical System

### Fuse Nomenclature

<table>
<thead>
<tr>
<th>Fuse nomenclature</th>
<th>Capacity (A)</th>
<th>Connecting circuit</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>HORN-HAZARD</td>
<td>15</td>
<td>Horn, Hazard</td>
<td></td>
</tr>
<tr>
<td>CIGAR</td>
<td>15</td>
<td>Cigar lighter, Clock, Electronic remote control door mirror</td>
<td></td>
</tr>
<tr>
<td>STopped</td>
<td>10</td>
<td>Stop lamp, Room lamp, Luggage lamp, clock (for West Germany)</td>
<td></td>
</tr>
<tr>
<td>TAIL (LF)</td>
<td>10</td>
<td>Tail lamp (LF), Clearance lamp (RH), License lamp, Rear fog lamp</td>
<td>West German specifications only</td>
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<tr>
<td>TAIL</td>
<td>15</td>
<td>Clock, License lamp, Clearance lamp, Tail lamp, Meter illumination, Heater control illumination, Ashtray illumination, Day-light relay, Dim-up relay, Rheostat (for AUS), ATECU (B)</td>
<td>Except for West German specifications</td>
</tr>
<tr>
<td>TAIL (RH)</td>
<td>10</td>
<td>Tail lamp (RH), Clearance lamp (RH), Ashtray illumination, Meter illumination</td>
<td>West German specifications only</td>
</tr>
<tr>
<td>WIPER</td>
<td>15</td>
<td>Front wiper, Rear wiper, Headlamp cleaner</td>
<td></td>
</tr>
<tr>
<td>ENGINE</td>
<td>15</td>
<td>Alternator, Radiator fan motor, Fuel pump relay (CB), CDU switch (CL), Fuel cut-off relay (CB), Outer vent solenoid (CB), Fuel cut solenoid (CB), Vacuum warning relay, Day-light relay, Dim-on relay</td>
<td></td>
</tr>
<tr>
<td>GAUGE</td>
<td>10</td>
<td>Meter</td>
<td></td>
</tr>
<tr>
<td>TURN</td>
<td>15</td>
<td>Back lamp switch, lamp-ON warning buzzer</td>
<td></td>
</tr>
<tr>
<td>HEADLAMP (LF)</td>
<td>15</td>
<td>Headlamp (LF)</td>
<td></td>
</tr>
<tr>
<td>HEADLAMP (RH)</td>
<td>15</td>
<td>Headlamp (RH), High-beam indicator</td>
<td></td>
</tr>
<tr>
<td>DEFOG</td>
<td>15</td>
<td>Rear window defogger</td>
<td></td>
</tr>
<tr>
<td>HEATER</td>
<td>20</td>
<td>Heater, Power motor</td>
<td></td>
</tr>
<tr>
<td>ROOF</td>
<td>20</td>
<td>Power glass sunroof</td>
<td></td>
</tr>
<tr>
<td>EFI 1</td>
<td>15</td>
<td>EFI main</td>
<td></td>
</tr>
<tr>
<td>EFI 2</td>
<td>15</td>
<td>EFI relay, IG coil</td>
<td></td>
</tr>
</tbody>
</table>

### Circuit Breaker Nomenclature

<table>
<thead>
<tr>
<th>Circuit breaker nomenclature</th>
<th>Capacity (A)</th>
<th>Connecting circuit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>30</td>
<td>Power window</td>
<td></td>
</tr>
</tbody>
</table>
# BODY ELECTRICAL SYSTEM

## LAMPS

### TROUBLE SHOOTING

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible causes</th>
<th>Remedies</th>
<th>Page</th>
</tr>
</thead>
</table>
| One headlamp will not glow. | • Burnt bulb  
• Faulty socket  
• Faulty wiring or earth | • Replace bulb  
• Repair, as required | 10–11 |
| Headlamps will not glow | • Fusible link and/or fuse blown out  
• Faulty lighting switch  
• Faulty wiring or earth | • Replace fusible link and/or fuse  
• Check switch  
• Repair, as required | 10–6  
10–35 |
| High beam or low beam will not glow. | • Faulty lighting switch or dimmer switch  
• Faulty wiring | • Check switch  
• Repair, as required | 10–33 |
| Clearance lamp, taillamp, or license lamp will not glow | • ‘Tail’ fuse blown out  
• Fusible link blown out  
• Faulty side lamp switch  
• Faulty wiring or earth | • Check for short. Replace fuse.  
• Replace fusible link  
• Check switch  
• Repair, as required | 10–6  
10–8  
10–36 |
| Turn signal lamps at one side will not glow. | • Faulty turn signal lamp switch  
• Faulty wiring or earth | • Check switch  
• Repair, as required | 10–36 |
| Turn signal lamps at both sides will not glow | • ‘Turn’ fuse blown out  
• Faulty turn signal/hazard switch  
• Faulty turn signal flasher relay  
• Faulty wiring or earth | • Check for short. Replace fuse  
• Check switch  
• Check flasher relay  
• Repair, as required | 10–6  
10–36  
10–37 |
| Stop lamp will not glow | • ‘Stop’ fuse blown out  
• Faulty stop lamp switch  
• Faulty wiring or earth | • Check for short. Replace fuse.  
• Check switch  
• Repair, as required | 10–6  
10–47 |
| Stop lamp remains on glow state | • Faulty stop lamp switch | • Adjust or replace switch | 10–47 |
| Hazard warning lamp will not glow. | • ‘Horn’ fuse blown out  
• Faulty flasher relay  
• Faulty hazard switch  
• Faulty wiring or earth | • Check for short. Replace fuse  
• Check flasher  
• Check switch  
• Repair, as required | 10–6  
10–36 |
LEARANCE LAMP

Removal
1. Remove the clearance lamp by removing the two screws.
2. Detach the bulb from the socket.

Installation
1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the clearance lamp with the two screws.

HEAFLAMP

NOTE:
If should be noted that the bulb replacement can be performed only after socket cover has been detached.

Removal
1. Remove the radiator grille as follows.
   Except GT grade ..... Pull the grille toward you, while the upper part of the cowl is being pushed down, using a common screwdriver.
   GT grade ..... Detach the grille by turning the central part of the clip 90 degrees, using a cross point screwdriver.
2. Remove the clearance lamp.
   See the section under "Clearance Lamp" above.
3. Remove the headlamp assembly.
4. Remove the socket cover.
5. Detach the bulb.

CAUTION:
The halogen bulb reaches a very high temperature while it is put into use. If any lubricant gets on the bulb surface, it will result in significantly reduced lamp life. Hence, be very careful not allow your fingers, etc. to touch with the glass portion during the replacement. Be sure to hold the flange section to replace the bulb.
BODY ELECTRICAL SYSTEM

Installation
1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the socket cover in place.
   NOTE:
   Make sure that the socket cover is fitted securely.

3. Install the headlamp assembly with one bolt and two nuts.
4. Install the clearance lamps and radiator grille.
eadlamp aiming adjustment (Screen type)

Conditions of vehicle during aiming adjustment

1. Perform the aiming adjustment with the tire air inflation pressure set to the specified value and with one person seated at the driver's seat.

2. Rock the vehicle in an up-and-down direction as well as in a right-and-left direction so that the suspensions may be settled in a normal state.

3. Carry out the headlamp aiming adjustment while the engine is running at 1500 rpm or more.
   (If the revolution speed is too low, the lamp terminal voltage drops, thus making it difficult to recognize the hot zone.)

Halogen headlamps

1. Setting of reference points on screen
   (1) Measure the center height "H" of the headlamps. Draw an adjustment line on the screen at a height 23 mm (1.14 inches) below the center height "H".
   (2) Draw a vertical straight line on the screen at each center of the headlamps on both right and left sides. Thus, establish each intersection "F" made by the vertical center line and the adjustment line.

2. Headlamp aiming adjustment
   (1) Position the vehicle in front of the screen so that the headlamps of the vehicle are at a distance of 3 m (9.84 ft). Also, ensure that the vehicle is positioned normal to the screen.
   (2) When the headlamps are turned ON with the lower beam selected, you can get a light distribution pattern as indicated in the right figure. Therefore, the aiming adjustment can be carried out at an intersection made by the line "a" and the line "b" of cut-off lines.
   (3) Turn ON the headlamps with the low beam selected. Perform the adjustment using the adjusting screws in such a way that each intersection of the cut-off lines comes at the respective intersection "F" on the screen.
(4) Upon completion of the headlamp aiming adjustment, switch the low beam to the high beam. Ensure that each main beam is directed downward and it is aiming straight toward the forward direction of the vehicle.

FRONT TURN SIGNAL LAMP

Removal
1. Remove the front turn signal lamp by removing one screw.
2. After detaching the lens, remove the bulb.

Installation
1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the lens. Secure the front turn signal lamp assembly with the screw.

SIDE TURN SIGNAL LAMP

Removal
1. Using a common screwdriver, remove the side turn signal lamp assembly by pushing it toward the front part of the vehicle. This removal must be performed carefully with a cloth or the like placed on the body so that no scratch may be made to the paint finish surface.
2. After detaching the lens, remove the bulb.
Installation
1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the lens on the side turn signal lamp assembly.
3. Attach the side turn signal lamp assembly to the fender section.

LICENSE PLATE LAMP

Removal
1. Detach the clip. Remove the lower back trim.
   NOTE: It should be noted that the bulb replacement can be carried out without removing the lower back trim.
2. Disconnect the coupler.
3. Remove the license plate assembly and lens by removing the two tapping screws. Take out the bulb.

Installation
1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Ensure that the spring nut is mounted properly on the bumper rib.
3. Install the lens. Secure the lens with the tapping screws.
4. Connect the coupler.

5. Attach the lower back trim.
   As for the clip, install it with the central part in a pulled-out state. Then, push the central part until the part becomes flush with the other part.

REAR COMBINATION LAMP

NOTE:
It should be noted that the bulb replacement can be performed only after the rear combination lamp service cover has been detached.

Removal
1. Remove the rear bumper. (Refer to page 9-12.)

2. Detach the rear combination lamp service cover

3. Remove the rear combination lamp assembly from the body
4. Detach the socket and bulb
Installation

1. Install the bulb and socket in the rear combination lamp assembly.

2. Install the rear combination lamp assembly
   
   (1) Remove any remaining butyl tape (body gasket) from the body surface as well as from the gasket surface of the rear combination lamp.

   (2) Affix the butyl tape exclusively for this application onto the rear combination lamp.

**NOTE:**

1. Make sure that the application of butyl is limited only within the marked area.
2. Be sure that the application of butyl is started at around the mid-point of the inner side of the rear combination lamp.
3. Be certain that the ends of the butyl tape are overlapped about 10 mm (0.39 inch).

3. Attach the rear combination lamp service cover.
4. Install the rear bumper.

**ROOM LAMP**

**Removal**

1. Detach the room lamp cover. Remove the bulb.
Installation
1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the room lamp cover.

LUGGAGE ROOM LAMP

NOTE:
It should be noted that the bulb replacement can be performed only after the lens has been detached.

Removal
1. Detach the rear combination lamp service cover.
2. Disconnect the connector. Tie a string to the connector section. Working from above, remove the luggage room lamp assembly.
3. Remove the lens and bulb.

Installation
1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Attach the lens to the luggage room lamp assembly.
3. Install the luggage room lamp assembly. For easier operation, install the lamp assembly by tying the string which was used during the removal to the connector section.
4. Connect the connector. Attach the rear combination lamp service cover.
COMBINATION METER

Removal
1. Remove the instrument cluster panel finish panel sub-assembly from the instrument panel. (See page 9-78.)

2. Disconnect each connector. Remove the combination meter assembly from the instrument panel.

Installation
1. Connect each connector
   - Install the combination meter AY to the instrument panel.
2. Install the instrument cluster panel finish panel S/A to the instrument panel.
   (See page 9-82.)
COMPONENTS

Single-meter type standard

1. Combination meter glass
2. Combination meter cover
3. Speedometer Ay
4. Trip counter knob
5. Gauge Ay
6. Lens
7. Meter case
8. Meter bracket
9. Meter circuit plate S/A
10. Buzzer Ay (for GCC)
11. Socket
12. Bulb

Fig. 10-51

Two-meter type standard

(For Automatic Transmission-equipped vehicle)

1. Combination meter glass
2. Combination meter cover
3. Speedometer Ay
4. Engine tachometer Ay
5. Fuel receiver gauge Ay
6. Water temperature receiver gauge Ay
7. Lens
8. Meter circuit plate S/A (dim circuit)
9. Meter case
10. Meter bracket plate S/A
11. Meter circuit
12. Buzzer Ay (for GCC)
13. Socket
14. Bulb

Fig. 10-52

10-20
BODY ELECTRICAL SYSTEM

TWO-METER TYPE

Circuit panel

Circuit diagram

<table>
<thead>
<tr>
<th>No.</th>
<th>Connecting terminal at vehicle side</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thermo gauge</td>
</tr>
<tr>
<td>2</td>
<td>Tachometer pulse</td>
</tr>
<tr>
<td>3</td>
<td>Meter (+) terminal (IGN)</td>
</tr>
<tr>
<td>4</td>
<td>Fuel sender gauge</td>
</tr>
<tr>
<td>5</td>
<td>Choke or glow</td>
</tr>
<tr>
<td>6</td>
<td>Charge (-) terminal</td>
</tr>
<tr>
<td>7</td>
<td>Oil pressure switch</td>
</tr>
<tr>
<td>8</td>
<td>Brake fluid level switch, parking brake switch (except for ECE &amp; EEC, AUS and NZ specifications only)</td>
</tr>
<tr>
<td>9</td>
<td>Parking brake switch (ECE &amp; EEC, Australian and New Zealander specifications only)</td>
</tr>
<tr>
<td>10</td>
<td>Check engine terminal (only vehicle mounted with Type CB-8D engine)</td>
</tr>
<tr>
<td>11</td>
<td>Seat belt switch (fix GSC) or red hazard (-) terminal</td>
</tr>
<tr>
<td>12</td>
<td>Fuel sender gauge</td>
</tr>
<tr>
<td>13</td>
<td>Gauge earth</td>
</tr>
<tr>
<td>14</td>
<td>Dim signal (Australian and NZ specifications only)</td>
</tr>
<tr>
<td>15</td>
<td>Illumination (+) terminal</td>
</tr>
<tr>
<td>16</td>
<td>Meter power earth</td>
</tr>
<tr>
<td>17</td>
<td>Vehicle speed sensor (+) terminal</td>
</tr>
<tr>
<td></td>
<td>(3-speed A/T or Type CB-8D engine mounted vehicle)</td>
</tr>
<tr>
<td>18</td>
<td>Turbo indicator (-) terminal</td>
</tr>
<tr>
<td>19</td>
<td>Turn signal switch, right</td>
</tr>
<tr>
<td>20</td>
<td>Turn signal switch, left</td>
</tr>
<tr>
<td>21</td>
<td>Headlamp (-) terminal</td>
</tr>
<tr>
<td>22</td>
<td>Headlamp (+) terminal</td>
</tr>
<tr>
<td>23</td>
<td>A/T position switch L</td>
</tr>
<tr>
<td>24</td>
<td>A/T position switch 2</td>
</tr>
<tr>
<td>25</td>
<td>A/T position switch D</td>
</tr>
<tr>
<td>26</td>
<td>A/T position switch N</td>
</tr>
<tr>
<td>27</td>
<td>A/T position switch P</td>
</tr>
<tr>
<td>28</td>
<td>A/T shift indicator R (+) terminal</td>
</tr>
<tr>
<td>29</td>
<td>Blank</td>
</tr>
</tbody>
</table>
PEEDOMETER

1. In-vehicle check
Using a speedometer tester, check the speedometer for any indication error, pointer fluctuation and abnormal noise. Furthermore, check to see if the odometer and speed warning device (GCC specifications only) are functioning properly.

**NOTE:**
1. It should be noted that excessive tire wear, over-inflation or under-inflation will cause indication errors of the speedometer.
2. Fluctuations of the meter pointer are often attributable to a faulty meter cable.
3. The meter contains a mechanism using contact points. Hence, there will be instances where the pointer slightly fluctuates in the neighborhood of operating points of contact points (changeover points between ON and OFF). However, this does not constitute any malfunction.

<table>
<thead>
<tr>
<th>Item</th>
<th>Meter indication</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indication error</td>
<td>For Australia within +10% -10%</td>
<td>Relative Ic tester reading at a time when the actual vehicle speed is 35 km/h (22 mph) or more</td>
</tr>
<tr>
<td>Pointer fluctuation</td>
<td>within ±1 km/h (0.6 mph)</td>
<td></td>
</tr>
<tr>
<td>Speed warning device</td>
<td>124 ± 0 km/h</td>
<td>GCC specifications only</td>
</tr>
<tr>
<td>operating speed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Speed warning buzzer check (GCC specifications only)
Apply the battery voltage across the terminals of the buzzer unit. Ensure that the buzzer is set off.

**NOTE:**
Be sure to connect the buzzer's side having a (+) mark to the positive (+) terminal of the battery.

3. Checking of reed switch for vehicle speed sensor use (Only vehicles mounted with 3-speed A/T or Type CB-80 engine)
(1) Remove the combination meter
(2) Ensure that continuity occurs four times at the reed switch (between ⑥ and ⑦) while the speedometer drive shaft completes a turn.

---

**Fig. 10-57**

**Fig. 10-58**
FUEL RECEIVER GAUGE

1. In-Vehicle Inspection
   Disconnect the connector located at the upper part of the fuel tank. Carry out the following checks at the terminal at the receiver side.
   (1) Disconnect the connector from the harness of the fuel sender gauge. Ground the gauge through a test lamp (12V, 3.4W)
   (2) Turn ON the engine switch. Ensure that the test lamp goes on and, several seconds later, the test lamp starts flashing.
   (3) Ensure that the pointer of the receiver gauge starts to rise gradually

NOTE:
In case that the fuel sender earth terminal is used, in advance, make sure that it has continuity with the body earth.

Fig. 10-39
Unit Check
(1) Remove the combination meter.
(2) Measure the resistance between the terminals ① and ⑥.
   Specified Value: 55 Ω

(3) Connect the multi-pole connector to the combination meter. Turn ON the engine key. Ensure that the battery voltage is applied between the terminal ⑥ and the body earth.
(4) Under the conditions in the step (3) ensure that a voltage varying approximately from 2 to 7 V is applied between the terminal ⑥ and the body earth.

FUEL SENDER GAUGE
The fuel sender gauge is located at the upper part of the fuel tank.

1. Measurement of Resistance of Fuel Sender Gauge
   (1) Ensure that the resistance varies when the float is moved from the upper position to the lower position.

   (2) Measure the resistance between the fuel terminal and the body at each float level.

<table>
<thead>
<tr>
<th>Float position</th>
<th>Resistance (Ω)</th>
<th>Type CB-23, CL-11 engines</th>
<th>Type CE-61 and CB-80 engines</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:2</td>
<td>28 - 5 - 36.5</td>
<td>91 (3.58)</td>
<td>86 (3.4)</td>
</tr>
<tr>
<td>E</td>
<td>133 - 11.7</td>
<td>123 (5.08)</td>
<td>133 (5.2)</td>
</tr>
</tbody>
</table>
**WATER TEMPERATURE RECEIVER GAUGE**

1. **In-Vehicle Inspection**
   
   (1) Disconnect the connector from the harness of the water temperature sensor gauge. Ground the gauge to the connector at the harness through a test lamp (12 V - 3.4 W).
   
   (2) Turn ON the engine switch. Ensure that the test lamp goes on and, several seconds later, the test lamp starts flashing.
   
   (3) Ensure that the pointer of the receiver gauge starts to rise gradually.

2. **Unit Check**

   (1) Remove the combination meter.
   
   (2) Measure the resistance between the terminals and .

   **Specified Value:** Approx. 25 Ω

   (3) Connect the multi-pole connector to the combination meter. Turn ON the engine key. Ensure that the battery voltage is applied between the terminal and the body earth.

   (4) Under the conditions in the step (3), ensure that a voltage varying approximately from 2 to 7 V is applied between the terminal and the body earth.

---

**WATER TEMPERATURE SENDER GAUGE**

The water temperature sensor gauge is located at the following points given below:

- Type CB engine: Rear end of cylinder head
- Type CL engine: Left/rear section of cylinder head

**Unit Inspection**

Measure the resistance between the terminals and the earth, as indicated in the right figure.

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Resistance (Ω)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>226.3 ± 2.32</td>
</tr>
<tr>
<td>115</td>
<td>26.4 ± 2.50</td>
</tr>
</tbody>
</table>

---

10-26
FUEL RECEIVER GAUGE
(POINTER REMAINING TYPE)

1. In-Vehicle Inspection

(1) Disconnect the connector of the fuel sender gauge located at the upper part of the fuel tank. Under this condition, turn ON the engine switch. Ensure that the pointer of the receiver gauge returns to the position “E”.

(2) Turn OFF the engine switch. Ground the harness connector of the fuel sender gauge. Under this condition, turn ON the engine switch. Ensure that the pointer of the receiver gauge rises gradually and registers the position “F”.

(3) Turn OFF the engine switch. Ensure that the pointer of the receiver gauge remains stationary and registers the position “F”.

Fig. 10-69

Fig. 10-70

Fig. 10-71
BODY ELECTRICAL SYSTEM

2. Unit Check
   (1) Remove the combination meter. Measure the resistance between the terminals ① and ②.
   Specified Value: Approx. 52 Ω

   (2) Connect the multi-pole connector to the combination meter. Turn ON the engine switch. Ensure that the battery voltage is applied between the terminal ① and the body earth.

FUEL SENDER GAUGE

Inspection
Remove the sender gauge located at the upper part of the fuel tank. Measure the resistance between the terminal and the body at each float level.

<table>
<thead>
<tr>
<th>Float position</th>
<th>Resistance (Ω)</th>
<th>Reference dimension mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>1.5</td>
<td>28 ± 3 (1.1 ± 0.12)</td>
</tr>
<tr>
<td>1/2</td>
<td>28.5-36.5</td>
<td>88.4 (3.40)</td>
</tr>
<tr>
<td>E</td>
<td>103-117</td>
<td>133 ± 3 (5.24 ± 0.12)</td>
</tr>
</tbody>
</table>

WATER TEMPERATURE RECEIVER GAUGE

1. In-Vehicle Inspection
   (1) Disconnect the connector from the harness of the water temperature sender gauge. Ground the gauge through a test lamp (12 V - 3.4 W).
   (2) Turn ON the engine switch. Ensure that the test lamp goes on and the pointer of the receiver gauge starts to rise gradually.

2. Unit Check
   (1) Remove the combination meter. Measure the resistance between the terminals ③ and ④.
   Specified Value: Approx. 134 Ω

   (2) Connect the multi-pole connector to the combination meter. Turn ON the engine switch. Ensure that the battery voltage is applied between the terminal ④ and the body earth.
WATER TEMPERATURE SENDER GAUGE

The water temperature sensor gauge is located at the rear end of the cylinder head.

Unit inspection

Measure the resistance between the terminal and the earth, as indicated in the right figure.

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Resistance (Ω)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>226</td>
</tr>
<tr>
<td>115</td>
<td>26.4</td>
</tr>
</tbody>
</table>
BODY ELECTRICAL SYSTEM

WARNING AND INDICATOR SYSTEM

BRAKE LEVEL WARNING LAMP

Inspection
1. Start the engine
2. Return the parking brake lever to the original position (General specifications only)
3. Pull out the connector of the brake fluid level warning switch and short the connector at the harness side. Ensure that the level warning lamp glows.

PARKING BRAKE SWITCH

Inspection
1. Pull out the connector of the parking brake switch and conduct continuity checks between the terminal and the body earth.
   (1) Ensure that continuity exists between the terminals when the parking brake lever is pulled upward.
   (2) Ensure that no continuity exists between the terminals when the parking brake lever is returned.

Connector at harness side
RAKE LEVEL WARNING SWITCH

Inspection
1. Pull out the connector of the brake fluid level warning switch and connect a tester.

2. Press down the brake fluid level warning switch (float) with a rod. Ensure that continuity exists between the connector terminals.

NOTE:
As for a rod to be used for pressing down the float, be sure to thoroughly clean it. Special care must be exercised to ensure that no dust nor water gets into the reservoir.

OIL PRESSURE WARNING LAMP

Inspection
1. Pull out the connector located at the right/rear part of the cylinder block. Ground the connector at the harness side.
2. Ensure that the oil pressure warning lamp glows when the engine switch is turned ON.

OIL PRESSURE SWITCH

Inspection
1. Pull out the connector located at the right/rear part of the cylinder block.
2. Ensure that continuity exists between the oil pressure switch terminal and the earth.

NOTE:
It should be noted that continuity exists while the engine is stopped, whereas no continuity exists while the engine is running.

FUEL DRAIN WARNING LAMP (DIESEL-POWERED VEHICLES ONLY)

Inspection
1. Start the engine. Disconnect the connector of the sedimentor.
2. Ensure that the warning lamp glows when short is made between the terminals of the connector at the harness side.
BODY ELECTRICAL SYSTEM

Water level sensor
1. Remove the water level sensor from the sedimentor. Pull out the connector.
2. Connect a circuit tester to the connector. Ensure that continuity exists between the connector terminals when the float is lifted (when the switch is turned ON).

NOTE:
After the water level sensor has been installed, be certain to fill the fuel filler with fuel, using the priming pump.

SHIFT INDICATOR LAMP (3-SPEED A/T VEHICLE)

Inspection
1. Remove the combination meter. Disconnect the connector (5-pole) for shift indicator use.

2. With the ignition switch turned OFF, perform continuity check for each terminal of the connector for shift indicator use (at the vehicle harness side).
   (1) Ensure that continuity exists between ⑨ and the body earth.
   (2) Ensure that continuity exists between ① and ⑤ when the range [L] is selected.
   (3) Ensure that continuity exists between ② and ⑥ when the range [2] is selected.
   (4) Ensure that continuity exists between ④ and ⑤ when the range [D] is selected.
   (5) Ensure that continuity exists between ⑥ and ③ when the range [N] is selected.
   (6) Ensure that continuity exists between ⑦ and ⑨ when the range [P] is selected.
   (7) Turn ON the ignition switch. Ensure that the battery voltage is applied between ⑦ and the body earth when the range [R] is selected.

3. Under conditions where the connector for shift indicator use and other connectors are installed, turn ON the ignition switch. Ensure that the indicator lamp goes on in accordance with each relevant shift position.
**In-Vehicle Check**

1. Remove the combination meter (with the connector n a connected state) and turn ON the ignition switch. Ensure that the battery voltage is applied between the terminal A and the body earth.

2. Ensure that a voltage of 10.5 to 11.5 V is applied between the terminal B and the body earth when the turbo indicator terminal (multi-pole connector section) is grounded in the case of the turbocharged vehicle. Also, ensure that the same voltage is applied between the terminals B and the body earth when the shift switch is turned ON (L, D, N and P) in the case of the automatic transmission-equipped vehicle.

At this point, the indicator should be illuminated normally.

3. Under the conditions described above, turn ON the side lamp switch. Ensure that a voltage of 6.0 to 6.5 V is applied between the terminal C and the body earth. At this point, the indicator should be illuminated dimly.

**NOTE:**
For the turbo indicator terminal at the connector section, see page 10-22.
INSPECTION

1. Ensure that each of the turn signal, dimmer, lighting, hazard warning and front wiper switches is functioning smoothly with a positive dent feeling.

2. Disconnect the connector for multi-use lever switch. Ensure that continuity exists between the respective terminals in accordance with the continuity table in pages 10-38 through 10-46.

<table>
<thead>
<tr>
<th>Code</th>
<th>Kind of wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB</td>
<td>0.5 φ 12V in case of West German specification</td>
</tr>
<tr>
<td>L</td>
<td>0.5GY</td>
</tr>
<tr>
<td>+2</td>
<td>0.5L</td>
</tr>
<tr>
<td>R</td>
<td>0.5GW</td>
</tr>
<tr>
<td>WB</td>
<td>0.5LW</td>
</tr>
<tr>
<td>E</td>
<td>1.25WB</td>
</tr>
<tr>
<td>HS</td>
<td>0.6SPY</td>
</tr>
<tr>
<td>HO</td>
<td>0.3G</td>
</tr>
<tr>
<td>BN</td>
<td>0.5GR</td>
</tr>
<tr>
<td>HM</td>
<td>2.85SW</td>
</tr>
<tr>
<td>+1</td>
<td>0.5LY</td>
</tr>
<tr>
<td>S</td>
<td>0.5 RG 120A in case of West German specification</td>
</tr>
<tr>
<td>W</td>
<td>0.3LG</td>
</tr>
<tr>
<td>WS</td>
<td>0.5LR</td>
</tr>
<tr>
<td>F</td>
<td>0.5GC</td>
</tr>
<tr>
<td>Fr</td>
<td>0.5GB</td>
</tr>
<tr>
<td>NT</td>
<td>0.5LB</td>
</tr>
<tr>
<td>DM</td>
<td>0.5GL</td>
</tr>
<tr>
<td>M</td>
<td>0.5G</td>
</tr>
<tr>
<td>AF</td>
<td>0.5LY</td>
</tr>
<tr>
<td>B2</td>
<td>0.5GL</td>
</tr>
<tr>
<td>C1</td>
<td>2RW</td>
</tr>
<tr>
<td>C2</td>
<td>2R</td>
</tr>
</tbody>
</table>
BODY ELECTRICAL SYSTEM

TURN SIGNAL AND HAZARD SWITCH

Circuit diagram

INSPECTION
Disconnect the multi-pole connector. Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

NOTE:
Upon completion of the inspection, make sure that each connector is connected positively.

L.H.D. Vehicles with General Specifications

<table>
<thead>
<tr>
<th>Code</th>
<th>Kind of wires</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>0.5GC</td>
</tr>
<tr>
<td>L</td>
<td>0.5GY</td>
</tr>
<tr>
<td>R</td>
<td>0.5GW</td>
</tr>
<tr>
<td>M</td>
<td>0.5G</td>
</tr>
<tr>
<td>B3</td>
<td>0.5GL</td>
</tr>
<tr>
<td>B1</td>
<td>0.5GR</td>
</tr>
<tr>
<td>F1</td>
<td>0.5GB</td>
</tr>
</tbody>
</table>

Vehicles Other Than L.H.D. with General Specifications
JRN SIGNAL FLASHER
The turn signal flasher is located at the upper part of the fuse block.

INSPECTION
Check the flashing speed of the turn signal lamp.
Specific Flashing Speed: 85 ± 10 times/min.

NOTE:
If any of the front or rear turn signal lamps has open wire, the flashing speed will exceed 120 times/min.

FRONT WIPER AND WASHER SWITCH

INSPECTION
Disconnect the multi-pole connector. Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

Switch with Intermittent Wiper

<table>
<thead>
<tr>
<th>Lever position</th>
<th>Terminal</th>
<th>WS</th>
<th>+1</th>
<th>+2</th>
<th>INT</th>
<th>E</th>
<th>WB</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WASHER switch</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Switch without Intermittent Wiper

<table>
<thead>
<tr>
<th>Lever position</th>
<th>Terminal</th>
<th>WS</th>
<th>+1</th>
<th>+2</th>
<th>E</th>
<th>WB</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WASHER switch</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Code | Kind of wires
---|-------------------
WS  | 0.5LR
+1  | 0.5LY
+2  | 0.5L
INT | 0.5LB
E   | 1.25WB
WB  | 0.5LW
W   | 0.3LG
CONTINUITY TABLE OF MULTI-USE LEVER SWITCH BY DESTINATION
L.H.D. Vehicles with General Specifications (Two-speed Wiper)
R.H.D. Vehicles with ECE & EEC, General and Australian Specifications
(Two-speed, Intermittent Wiper)
BODY ELECTRICAL SYSTEM

4D. Vehicles with ECE & EEC Specifications, Except for West Germany (Two-speed Wiper)

Hazard warning switch

Wiper switch

Light switch

Dimmer passing switch

Washer switch
Auto return

Light & Dimmer Passing Switch

Turn Signal & Hazard Warning Switch

Wiper Switch

Washer Switch

Fig. 10-101
L.H.D. Vehicles with ECE & EEC Specifications, Except for West Germany
(Two-speed, Intermittent Wiper)
BODY ELECTRICAL SYSTEM

Vehicles with West German Specifications (Two-speed Wiper)

Hazard warning switch

Wiper switch

Light switch

Dimmer passing switch

Washer switch
Auto return

Light & Dimmer Passing Switch

Turn Signal & Hazard Warning Switch

Wiper Switch

Washer Switch

Fig. 10-163

10-43
BODY ELECTRICAL SYSTEM

Vehicles with West German Specifications (Two-speed, Intermittent Wiper)

Fig. 10-104

10-44
H.D. Vehicles with Day-light Specifications (Two-speed, Intermittent Wiper)
R.H.D. Vehicles with General Specifications and Australian Specifications (Two-speed, Wiper)
S Mystes

IGNITION KEY SWITCH
For the removal/installation procedure for the ignition key switch lock cylinder assembly, see page 7-5.

INSPECTION
Disconnect the connector of the ignition key switch. Ensure that continuity exists between the respective terminals as indicated in the continuity table.

Continuity Table (Except for GTa)

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>ACC</th>
<th>IG</th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>ACC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>START</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Continuity Table (For GTa)

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>ACC</th>
<th>IG1</th>
<th>IG2</th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>ACC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>START</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STOP LAMP SWITCH
The stop lamp switch is located at the pedal bracket section.

INSPECTION
1. Disconnect the connector of the stop lamp switch.
2. Ensure that continuity exists between the terminals when the brake pedal is depressed.
3. Ensure that no continuity exists between the terminals when the brake pedal is not depressed.

REAR WINDOW DEFOGGER SWITCH
On the R.H.D. vehicles, the rear window defogger switch is located at the right side of the instrument cluster finish panel. On the L.H.D. vehicles, this switch is located at the left side of the instrument cluster finish panel.

Removal
1. Remove the four screws. Pull the instrument cluster finish panel assembly toward your side.
2. Remove the switch by removing the connector and two screws.

Inspection
Disconnect the connector. Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

<table>
<thead>
<tr>
<th>Continuity Table</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Terminals</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>KNOB</td>
</tr>
<tr>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>E</td>
</tr>
</tbody>
</table>

- Bulb in installed state

INSTALLATION
1. Install the defogger switch to the cluster finish panel with the two screws.
2. Connect the connector securely.
3. Attach the cluster finish panel to the instrument panel by tightening the two screws.
EAR WINDOW DEFOGGER WIRE

NOTE:
(1) When wiping the glass surface, use a soft, dry cloth. Move the cloth along the wire. Be careful not to damage the wire.
(2) Never use washing agent or glass cleaner which contains abrasive compound.
(3) Wrap the tip end of the tester probe with foil strip so that the tester probe causes no damage on the heat wire during the voltage measurement. Check the voltage by pushing the foil strip against the heat wire by your finger, as shown in the figure.

1. Open wire check
(1) Turn ON the ignition key switch
(2) Turn ON the defogger switch so as to energize the defogger wire
(3) Check the voltage at the center section of each heat wire.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Judgement criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx 5 V</td>
<td>Good (No open wire)</td>
</tr>
<tr>
<td>Approx 10 V or 0 V</td>
<td>Open wire</td>
</tr>
</tbody>
</table>

Reference:
If the voltage is 10 V, it means that open wire exists between the center of the wire and the end of the positive + side. If the voltage is 0 V, it means that open wire exists between the center of the wire and the end of the earth side.

2. Locating Point of Open Wire
(1) Connect the positive + terminal of the voltmeter to the positive + side of the defogger wire
(2) Slide the voltmeter's negative - terminal wrapped with foil strip on the defogger wire from its positive + side to its negative - side.
(3) The voltmeter reading changes from 0 V to several volts at the point where open wire exists.

3. Repairing Point of Open Wire
(1) Clean the point of open wire with white gasoline.
(2) Affix masking tapes to both upper and lower portions of the point to be repaired.
(3) Stir repair agent (Du Pont Paste No. 4817) thoroughly. Apply a small amount of the repair agent to the repairing point, using a fine brush.
(4) Two to three minutes later, peel off the masking tapes.
(5) Do not energize the defogger wire within 24 hours after the repair.
BODY ELECTRICAL SYSTEM

FRONT WIPER AND WASHER
FRONT WIPER CIRCUIT DIAGRAM

Fig. 10-117

FRONT WIPER AND BLADES
COMPONENTS

Fig. 10-118

1. Nut
2. Wiper arm & blade
3. Cowl top ventilator louver
4. Hood-to-cowl top seal
5. Motor Ay
6. Windshield wiper link Ay

10-50
EMOVAL

1. Remove the front wiper arm cover. Remove the nut.
   NOTE:
   Care must be exercised to ensure that no scratch is made to the engine hood.

2. Remove the wiper arm and blades.

3. Remove the cowl top ventilator louver.

4. Remove the hood-to-cowl top seal.

5. Remove the wiper motor assembly.
   (1) Disconnect the connector.
   (2) Remove the set bolt.
   (3) Disconnect the motor from the link. Remove the motor.

6. Remove the wiper link assembly.
   (1) Remove the set bolt
(2) Take out the wiper link assembly from the cowl louver hole.

Checking of Front Wiper Motor Unit

1. Low Speed Operation Check
   (1) Connect the terminal +1 to the positive terminal of the battery, the body to the negative terminal of the battery. Ensure that the wiper operates at the low speed.

2. High Speed Operation Check
   (1) Connect the terminal +2 to the positive terminal of the battery, the body to the negative terminal of the battery. Ensure that the wiper operates at the high speed.

3. OFF Operation Check
   With the wiper motor body connected to the negative terminal of the battery, perform the following checks.
   (1) Connect the terminal B to the positive terminal of the battery.
   (2) Operate the wiper at the low speed by connecting the terminal −1 to the positive terminal of the battery.

   (3) Under the operating conditions in the step (2), disconnect the terminal +1 so as to interrupt the wiper motor operation.
INSTALLATION

1. Install the windshield wiper link assembly.
2. Install the motor assembly.
   
   NOTE:
   Connect the motor assembly with the link securely.

3. Install the hood-to-cowl top seal. Install the cowl top ventiler louver.

4. Install the wiper arm and blade.
   (1) Operate the wiper arm and set it to the automatic stopping position.
   (2) Set the wiper arm to the position as indicated in the right figure.

5. Install the front wiper arm cover.
FRONT WASHER TANK
INSTALLATION POSITION
1. Standard vehicle (1.2ℓ). Right side of engine compartment

2. Vehicles mounted with turbocharged engine or ECE & EEC specifications (2.5ℓ)
   ... Inside of left front fender

REMOVAL (VEHICLES MOUNTED WITH TURBOCHARGED ENGINE OR ECE & EEC SPECIFICATIONS)
1. Remove the front part of the left front fender liner.
2. Remove the left headlamp assembly.
3. Remove the left clearance lamp.
4. Remove the washer tank assembly.
   (1) Remove the connector, hose, two bolts (one is to be removed during the fender liner removal) and nut.
(2) Remove the washer tank assembly from the back side of the fender.

INSTALLATION
1. Install the washer tank assembly.
2. Install the left headlamp assembly.
3. Install the left clearance lamp
4. Install the left front fender liner.

FRONT WIPER CONTROL RELAY
The front wiper control relay is located at the upper side of the fuse block.

INSPECTION
1. Perform continuity checks between terminals given below.
   (1) Between terminals 2 and 3 ... Continuity exists.
   (2) Between terminals 2 and 4 ... No continuity exists

2. Relay operation check
   Connect the terminal 4 to the positive terminal of the battery; termi
   na 1 to the negative terminal of the battery. Ensure that the relay emi
   ts an operating sound (clicking sound).
3. **Intermittent operation check**

   (1) Connect the terminal 3 to the positive 6 terminal of the battery, terminal 1 to the negative 7 terminal of the battery.
   (At this time, the relay emits an operating sound.) The relay is turned ON.

   (2) Connect the terminal 3 to the positive 6 terminal of the battery for about one second. Then, ground the terminal 3.
   (The relay emits an operating sound.) The relay is turned OFF.

   (3) Ensure that, about four seconds later, the relay emits an operating sound (intermittent operation).
REAR WIPER AND WASHER
REAR WIPER CIRCUIT DIAGRAM

Fig. 10-146

REAR WIPER MOTOR AND BLADE
COMPONENTS

Fig. 10-147

1. Nut
2. Wiper arm & blade
3. Wiper arm cover
4. Hexagon nut
5. Washer
6. Wiper link packing
7. Back door trim board
8. Motor & bracket Ay
9. Wiper link cap
REMOVAL

1. Remove the wiper arm cover.

2. Remove the wiper arm and blade by removing the nut.

3. Remove the wiper link cap. Remove the washer and wiper link packing by removing the hexagon nut.

4. Remove the back door trim board, as follows:
   (1) Release the lock by pushing the center section of the clip. Then, detach the clip.
   (2) Remove the back door trim board (10 pieces of clips)

5. Disconnect the connector. Remove the rear wiper motor assembly.
REAR WIPER MOTOR CHECK

Ensure that the wiper motor is grounded to the body properly. Proceed to the following checks.

1. Connect the terminal L of the connector to the positive (+) terminal of the battery, terminal LW to the negative (-) terminal of the battery. Ensure that the wiper operates.

2. Disconnect the terminal LW from the negative (-) terminal of the battery. Ensure that the wiper stops at the automatic stopping position.

3. Connect the terminal L to the positive (+) terminal of the battery, terminal LB to the negative (-) terminal of the battery. Ensure that the wiper operates intermittently.

4. Disconnect the terminal LB from the negative (-) terminal of the battery. Ensure that the wiper stops at the automatic stopping position.

INSTALLATION

1. Install the rear wiper motor assembly, as follows:
   (1) Install the rear wiper motor assembly by tightening the set bolt.
   NOTE:
   Make sure that the body earth is provided properly.
   (2) Connect the connector.

2. Install the back door trim, as follows:
   (1) Pull out the center section of the clip. Attach the clip to the trim. Push the center section so as to lock the clip.
   (2) Install the back door trim boards (10 pieces).
3. Install the wiper link packing and washer by tightening the hexagon nut. Install the wiper link cap.

4. Install the wiper arm and blade, as follows.
   (1) Operate the wiper motor and set the wiper arm to the automatic stopping position.
   (2) Align the blade with the bottom line of the defogger pattern.
       Installation position:
       Bottom line of pattern ±5 mm (±0.2 inch)

5. Tighten the nut. Install the wiper arm cover.
**EAR WASHER TANK**

**COMPONENTS**

![Diagram of ear washer tank components]

---

**REMOVAL**

1. Remove the deck side trim RH.
2. Disconnect the connector and water hose. Remove the washer tank assembly.

---

**INSTALLATION**

1. Install the washer tank assembly by tightening the screws (2 pcs.).
2. Connect the connector and water hose.
3. Install the deck side trim RH.
BODY ELECTRICAL SYSTEM

REAR WIPER AND WASHER SWITCH

INSTALLATION POSITION
R.H.D. vehicles... Left side of instrument cluster finish panel
L.H.D. vehicles... Right side of instrument cluster finish panel.

INSPECTION
Ensure that continuity exists between the respective terminals as indicated in the continuity table.

<table>
<thead>
<tr>
<th>Knob position</th>
<th>Terminal</th>
<th>R+1</th>
<th>RINT</th>
<th>E3</th>
<th>RW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiper switch</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washer switch</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

For R.H.D. vehicles

For L.H.D. vehicles
DOOR MIRROR SWITCH

**INSTALLATION POSITION**
- H.D. vehicles ... Right side of steering post
- L.H.D. vehicles ... Left side of steering post

**REMOVAL**
Working from the back side of the instrument panel, push the switch toward your side.
BODY ELECTRICAL SYSTEM

INSPECTION
Ensure that continuity exists between the respective terminals as indicated in the continuity table.

Continuity Table

<table>
<thead>
<tr>
<th>Mirror</th>
<th>Switch position</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Left</td>
</tr>
<tr>
<td>Left</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Right</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

ELECTRICAL REMOTE CONTROL DOOR MIRROR
RELATED PARTS

1. Front door trim panel Ay
2. Front door service hole cover S/A
3. Front door cover frame bracket garnish
4. Connector
5. Outer rear view mirror Ay


**REMOVAL**
1. Remove the front door trim assembly.
   (1) Release the lock by pushing the center section of the clip. Detach the clip.
   (2) Remove the front door trim assembly.
2. Remove the front door service hole cover.
3. Remove the lower frame bracket garnish by pulling it toward you.
4. Disconnect the door mirror connector. Remove the outer rear view mirror assembly by removing the attaching bolt.

**INSPECTION**
- Apply the battery voltage to each terminal, as indicated in the table below. Ensure that the mirror operates properly.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Right door mirror</th>
<th>COM</th>
<th>MVR</th>
<th>MHL</th>
<th>Operation direction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left door mirror</td>
<td>COM</td>
<td>MVL</td>
<td>MHL</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Down</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Left</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Right</td>
</tr>
</tbody>
</table>
BODY ELECTRICAL SYSTEM

INSTALLATION
1. Connect the connector. Install the outer rear view mirror.
2. Install the lower frame bracket garnish.

3. Install the front service hole cover subassembly.
4. Install the front door trim assembly.
CENTRAL DOOR LOCK
CIRCUIT DIAGRAM

DOOR LOCK SWITCH AND SOLENOID
RELATED PARTS

1. Front door lock Ay
2. Door control solenoid Ay
3. Door control switch Ay
REMOVAL

1. Remove the front door trim panel assembly and service hole cover subassembly.

2. Disconnect the lock knob from the link section. Remove the front door lock assembly by removing the attaching bolt.

3. Disconnect the connector. Remove the door control solenoid assembly or switch assembly by removing the attaching bolt.

INSPECTION

Solenoid Assembly
(Front Doors on 3-Door Vehicles and 5-Door Vehicles)
Apply a voltage of 12 V between the following two terminals. Ensure that the plunger operates in accordance with the table below.

<table>
<thead>
<tr>
<th>Operation direction</th>
<th>Terminal 1</th>
<th>Terminal 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNLOCK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOCK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Rear Doors on 5-Door Vehicles)
Apply a voltage of 12 V between the following two terminals. Ensure that the plunger operates in accordance with the table below.

<table>
<thead>
<tr>
<th>Operation direction</th>
<th>Terminal 1</th>
<th>Terminal 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNLOCK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DOOR LOCK SWITCH

INSTALLATION
1. Install the door control switch assembly.
2. Install the door control solenoid assembly.
3. Install the front door lock assembly. Install the link and lock knob.
4. Install the service hole cover subassembly and front door trim panel assembly.
   (See page 9-39.)

NOTE:
Before connecting the battery, make sure that the lock knob is in an unlocked state.

DOOR CONTROL RELAY
CIRCUIT DIAGRAM
BODY ELECTRICAL SYSTEM

INSTALLATION POSITION
R.H.D. vehicles ... Right cowl side
L.H.D. vehicles ... Left cowl side

INSPECTION
Connect the terminal 6 to the positive + terminal of the battery, terminal 1 to the negative − terminal. Perform the following checks.

1. When the negative − terminal is connected to the terminal 3, ensure that the relay operates as follows: The relay "a" is turned ON, accompanying an operating sound. A voltage of 12 V is applied to the terminal 6. Immediately after this (about 0.2 seconds later), the relay is turned OFF, accompanying an operating sound. Then, the voltage at the terminal 3 drops to 0 V.

2. When the negative − terminal is connected to the terminal 2, ensure that the relay operates as follows: The relay "b" is turned ON, accompanying an operating sound. A voltage of 12 V is applied to the terminal 4. Immediately after this (about 0.2 seconds later), the relay is turned OFF, accompanying an operating sound. Then the voltage at the terminal 4 drops to 0 V.
POWER WINDOW

CIRCUIT DIAGRAM

The power window master switch is located at the door latch at the driver's seat side.

Fig. 10-192

Fig. 10-193
REMOVAL

1. Remove the front door trim panel Ay.
   See page 9-39

2. Remove the power window master switch from the door trim, as follows:
   (1) Disconnect the connector.
   (2) Remove the master switch from the door trim.
**ISPECTION**

Ensure that continuity exists between the respective terminals of the power window master switch connector.

1. **3-Door Vehicle**
   - ![Diagram](image)
   - Make sure that the lock switch is in the lock state.

2. **5-Door Vehicle (R.H.D. vehicles)**
   - ![Diagram](image)
   - Make sure that the lock switch is in the lock state.

3. **5-Door Vehicle (L.H.D. vehicles)**
   - ![Diagram](image)
   - Make sure that the lock switch is in the lock state.
4. Checking of Operation of Window Lock Switch

<table>
<thead>
<tr>
<th>Terminal</th>
<th>3-door</th>
<th>5-door</th>
<th>3-door</th>
<th>5-door</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORMAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOCK</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*: Perform the checks with the power window master switch in an inoperative state.

**POWER WINDOW SWITCHES**

The power window switch is located at each door trim except for that at the driver's seat side.

**NOTE:**
For the removal/installation procedure for the door trim, see page 9-39.

**INSPECTION**

Ensure that continuity exists between the respective terminals as indicated in the continuity table.

<table>
<thead>
<tr>
<th>Selection</th>
<th>Terminal</th>
<th>B</th>
<th>SJ</th>
<th>SD</th>
<th>U</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOWN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**POWER WINDOW REGULATOR MOTOR RELATED PARTS**

- Front door
- Rear door

1. Door window regulator Ay
2. Regulator motor
NOTE:
For the removal/installation procedure of the regulator motor, see page 9-52.

INSPECTION
(For Left side door)
1. Connect the terminal R to the positive terminal of the battery, the terminal G to the negative terminal of the battery. Ensure that the motor makes right rotation, as viewed from the driving shaft.
2. Connect the terminal R to the negative terminal of the battery, the terminal G to the positive terminal of the battery. Ensure that the motor makes left rotation, as viewed from the driving shaft.

(For Right side door)
The motor rotates opposite direction of the left side door motor.

CIRCUIT BREAKER
The circuit breaker is located inside of the sub-fuse block.
INSPECTION
With the circuit breaker turned ON, ensure that continuity exists between the terminals.
SUN ROOF SWITCH

The sun roof switch is located at the front end of the roof.

NOTE:
For the removal/installation procedure for the sun roof switch, see page 9-81.

INSPECTION

When the lift switch and slide switch are operated, ensure that continuity exists between the respective terminals as indicated in the continuity table.

<table>
<thead>
<tr>
<th>Switch</th>
<th>Operation</th>
<th>Terminal 1</th>
<th>Terminal 2</th>
<th>Terminal 3</th>
<th>Terminal 4</th>
<th>Terminal 5</th>
<th>Terminal 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide switch</td>
<td>OPEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLOSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilt switch</td>
<td>UP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DOWN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 10-204

Sun roof switch

Fig. 10-206

Tilt switch Slide switch

UP

Fig. 10-206

DOWN
BODY ELECTRICAL SYSTEM

SUN ROOF MOTOR

The sun roof motor is located at the back side of the sun roof switch.

NOTE:
For the removal/installation procedure for the sun roof motor, see page 9-62.

Motor Operation Check

1. Connect the terminal ➊ to the positive ➋ terminal of the battery; the terminal ➌ to the negative ➍ terminal of the battery. Ensure that the drive gear rotates to the right.

2. Connect the terminal ➊ to the negative ➋ terminal of the battery; the terminal ➌ to the positive ➍ terminal of the battery. Ensure that the drive gear rotates to the left.

Limit Switch Check

Remove the limit switch from the motor.

1. Limit switch No 1
   Ensure that no continuity exists between ➌ and ➍ when the switch is turned ON. Ensure that continuity exists between ➌ and ➋ when the switch is turned OFF.

2. Limit switch No 2
   Ensure that continuity exists between ➋ and ➋ when the switch is turned ON. Ensure that no continuity exists between ➋ and ➋ when the switch is turned OFF.
OPERATION PRIOR TO REMOVAL
1. Disconnect the negative \( \bigcirc \) terminal of the battery.
2. Drain the cooling water from the radiator. (As for the diesel-powered vehicles, perform this operation with the temperature regulating lever of the heater control set to the WARM side.)

REMOVAL
1. Remove the instrument panel. See page 9-78.
2. Disconnect the inside air/outside air switching cable from the blower assembly.

3. Disconnect the cable for the water valve in the engine compartment. (Diesel-powered vehicles only)

4. Disconnect the two water hoses from the heater assembly.

5. Remove the air duct.

6. Remove the blower assembly by removing the two nuts, bolt and connector.
Remove the heater radiator assembly by removing the two nuts and two bolts.

**INSPECTION**

1. **Blower Register**
   
   Ensure that the resistance between the respective terminals conforms to the specifications below.
   
   Specified Values:
   
   Between Terminals (L) and (M₁): 1.37Ω
   Between Terminals (L) and (M₂): 2.10Ω
   Between Terminals (H) and (M₉): 0Ω

2. **Blower Motor**
   
   Connect the connector positive + terminal of the blower motor to the positive + terminal of the battery, the negative - terminal of the blower motor to the negative - terminal of the battery. Ensure that the motor rotates.
3. Blower Switch

When the blower switch is set to each stage, ensure that continuity exists between the respective terminals as indicated in the continuity table.

<table>
<thead>
<tr>
<th>Switch</th>
<th>Terminal</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I</td>
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<td></td>
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<tr>
<td>II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C-● Continuity exists.

● Bulb in installed state

INSTALLATION

1. Install the radiator heater assembly to the dash panel.

2. Install the blower register and blower motor connector to the blower assembly.

3. Install the blower assembly by tightening the two nuts and one bolt.

4. Install the air duct. Connect the water hose at the engine compartment side to the heater assembly.

NOTE:
Connect the hose securely and clamp it.

5. Install the cable for the water valve, as follows:
   (Diesel-powered vehicle only)
   Set the water valve in the engine compartment to the close mode; the mode switching lever of the heater unit to the COOL side. Then, insert and clamp the cable.
Install the inside air/outside air switching cable to the blower assembly, as follows:
(1) Set the inside air/outside air switching lever of the heater control to the RECIRC side; the inside air/outside air switching lever of the blower assembly to the RECIRC side
(2) Insert and clamp the cable securely.

Operation After Installation
1. Fill the cooling water (For the diesel-powered vehicles, perform this operation with the temperature regulating lever of the heater control set to the WARM side.)
2. Install the negative terminal of the battery.
3. As for the vehicle equipped with a clock, set the time.

Inspection After Installation
Ensure that the air amount and air flowing direction vary correctly in accordance with the position of the heater control lever.

HEATER CONTROL ASSEMBLY
RELATED PARTS

* This figure shows the parts for R.H.O. vehicles.

1. Center cluster
2. Glove compartment door S/A
3. Inside air/inside air switching cable
4. Temperature regulating cable
5. Mode switching cable
6. Heater control indicator
REMOVAL

1. Remove the four tapping screws and take out the center cluster.

2. Remove the glove compartment door subassembly by removing the two screws at the lower side.

3. Disconnect the inside air/outside air switching cable from the blower assembly.

4. Disconnect the temperature regulating cable and mode switching cable from the heater assembly.

5. Remove the heater control indicator, as follows.
   (1) Remove the three screws. Remove the heater control indicator toward the back side of the instrument panel.
   (2) Take out the heater control indicator from the glove compartment door section.
ISPECTION
Blower switch
With the blower switch set to each stage ensure that continuity exists between the respective terminals as indicated in the continuity table.

<table>
<thead>
<tr>
<th>Switch</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>8</td>
</tr>
<tr>
<td>L</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td></td>
</tr>
</tbody>
</table>

○○ Continuity exists

○○○: Bulb in installed state

INSTALLATION
1. Install the heater control indicator by tightening the three screws.

2. Install the mode switching cable as follows:
   (1) Set the mode switching lever of the heater control to the DEF (DEF) side, the mode switching lever of the heater unit to the DEF side
   (2) Connect the mode switching cable. Insert it into the clamp securely.

3. Install the temperature regulating cable as follows
   (1) Set the temperature regulating lever of the heater control to the COOL (COOL) side; the temperature regulating lever of the heater unit to the COOL side
   (2) Connect the temperature regulating cable. Insert it into the clamp securely.
4. Install the inside air/outside air switching cable, as follows:
   (1) Set the inside air/outside air switching lever of the heater control to the RECIRC (RECIRC) side, the inside air/outside air switching lever of the blower assembly to the RECIRC side.
   (2) Connect the inside air/outside air switching cable. Insert it to the clamp securely.

5. Install the glove compartment door subassembly by tightening the two screws.
6. Install the center cluster by tightening the four screws.

**Inspection After Installation**
Ensure that the air amount and air flowing direction vary correctly in accordance with the position of the heater control lever.
REMOVAL
1. Remove the center cluster by removing the four screws.
2. Disconnect the connector for the cigar lighter.
3. Remove the radio assembly.

INSTALLATION
1. Install the radio assembly.
2. Connect the connector for the cigar lighter.
3. Install the center cluster by tightening the four screws.
SPEAKER ASSEMBLY AND ANTENNA ASSEMBLY

RELAT ED PARTS

Fig. 10-242

1. Remove the instrument panel
   See page 9–78
2. Disconnect the connector of the speaker, Remove the speaker assembly.

ANTENNA REMOVAL

1. Disconnect the feeder cord connector.
2. Remove the antenna base, using a Torx bit.
ANTENNA INSTALLATION

1. Insert the guide tube and feeder cord into the roof opening section.
   NOTE: Insert the guide tube in such a way that it comes to the vehicle front section.

2. Connect the antenna cord to the radio proper.
   NOTE: 1. As for the intersection of the feeder wire and the vehicle harness section, route wiring in such a way that the feeder wire comes under the harness section.
   2. As for the heater unit section, make sure that the link does not interfere with other parts when it is moved.

SPEAKER INSTALLATION

1. Connect the connector for the speaker. Install the speaker to the instrument panel.
2. Install the instrument panel.
   See page 9-82.
HEADLAMP CLEANER
(Option for Finland and Swedish Specifications)

OPERATION CHECK

1. Vehicles with Day-Light Feature
   While the engine is running, carry out the following check. Operate the washer switch once. If within about 0.8 second, operate the washer switch again. Ensure that the cleaner motor operates for about 0.5 second, regardless of the position of the lighting switch.

2. Vehicles without Day-Light Feature
   While the ignition switch is turned ON, carry out the following check. Operate the washer switch once. If within about 0.8 second, operate the washer switch again. Ensure that the cleaner motor operates for about 0.5 second.

NOZZLE
Removal
1. Remove the front bumper. (See page 9-9.)
2. Disconnect the water hose joint section located at the back side of the bumper.
3. Remove the nozzle assembly by slackening the two nuts.
**Installation**

1. Insert the nozzle into the bumper cover from the joint side, while rotating the nozzle 90 degrees.
2. Install the nozzle properly with the two nuts. Connect the water hose.
   **NOTE:**
   Clamp the water hose securely.
3. Install the front bumper. (See page 9-10.)

**ADJUSTING PROCEDURE FOR NOZZLE INJECTION ANGLE**

**Operation Prior to Adjustment**

1. Perform the headlamp aiming operation.
   (See page 10-13.)

**Adjustment**

1. Set the nozzle so that the center of squirt comes to the bulb installation position of the headlamp. (Bulb center, point: a)
2. Ensure that the variation in the squirt angle is within the allowable range.
Removal
1. Remove the front grille and front bumper. See page 9-78.
2. Disconnect the water hose from the washer motor. Disconnect the harness clamp.
3. Remove the washer tank assembly by removing the two bolts.

Installation
1. Insert the washer tank into the front cross member (at two points)
2. Working from the engine compartment, tighten the bolt at the vehicle outside. Working from the front of the vehicle tighten the bolt at the vehicle inside together with the hood lock.
3. Connect the water hose to the washer motor. Connect the harness connector.
   NOTE:
   Tighten the clamp securely.
4. Install the front bumper and front grille See page 9-10
OPERATION CHECK
Under the conditions given below, ensure that the luminous intensity of the dim-dip lamp is reduced 10% compared with the normal operation.

<table>
<thead>
<tr>
<th>Switch condition</th>
<th>Headlamp condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition switch</td>
<td>Tail switch, L, H</td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
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<tr>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
</tr>
</tbody>
</table>

Fig. 16 289
OPERATION CHECK

While the engine is rotating, ensure that the day-light goes on under the conditions given below.

- **O** ... Goes on
- **X** ... Goes off

<table>
<thead>
<tr>
<th>Engine</th>
<th>Ignition switch</th>
<th>Side lamp switch</th>
<th>Lighting switch</th>
<th>Dimmer switch</th>
<th>Tail &amp; license lamp</th>
<th>Headlamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOP</td>
<td>ON</td>
<td>Normal glowing mode</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Hi</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUN</td>
<td>ON, ON, ON, ON</td>
<td>ON, ON, ON</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi, Off</td>
<td>Hi, Off</td>
</tr>
<tr>
<td></td>
<td>ON, ON, ON, ON</td>
<td>ON, ON, ON</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi, Off</td>
<td>Hi, Off</td>
</tr>
<tr>
<td></td>
<td>ON, ON, ON, ON</td>
<td>ON, ON, ON</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi, Off</td>
<td>Hi, Off</td>
</tr>
<tr>
<td></td>
<td>ON, ON, ON, ON</td>
<td>ON, ON, ON</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi, Off</td>
<td>Hi, Off</td>
</tr>
<tr>
<td></td>
<td>ON, ON, ON, ON</td>
<td>ON, ON, ON</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi</td>
<td>Off, Off, Hi, Off</td>
<td>Hi, Off</td>
</tr>
</tbody>
</table>

WR-10269
DAIHATSU
CHARADE
Chassis

SECTION 11
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### Service Specifications

#### Clutch

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#### Manual Transmission and Differential

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### ANNUAL TRANSMISSION AND DIFFERENTIAL (Cont’d)

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<tbody>
<tr>
<td>Reverse gear and shaft</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Bush inner diameter</td>
<td>17.020 - 17.027</td>
<td>17.050 (0.6713)</td>
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</tr>
<tr>
<td>(0.6653 - 0.6704)</td>
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</tr>
<tr>
<td>Shaft outer diameter</td>
<td>16.941 - 16.968</td>
<td>16.900 (0.6634)</td>
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</tr>
<tr>
<td>(0.6670 - 0.6680)</td>
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</tr>
<tr>
<td>Bush-to-shaft clearance</td>
<td>0.032 - 0.066</td>
<td>0.150 (0.0059)</td>
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<tr>
<td>(0.0013 - 0.0034)</td>
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<tr>
<td>Input shaft outer diameter</td>
<td>25.002 - 25.017</td>
<td>24.990 (0.9839)</td>
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</tr>
<tr>
<td>(0.9813 - 0.9849)</td>
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<tr>
<td>Output shaft outer diameter</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Front</td>
<td>29.973 - 30.000</td>
<td>29.960 (1.1795)</td>
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</tr>
<tr>
<td>(1.1803 - 1.1831)</td>
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<tr>
<td>Rear</td>
<td>31.97 - 31.991</td>
<td>31.960 (1.2583)</td>
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</tr>
<tr>
<td>(1.2587 - 1.2615)</td>
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<tr>
<td>Synchronizer ring-to-gear clearance</td>
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<tr>
<td>Gear inner diameter</td>
<td>0.85 - 1.45</td>
<td>0.5 (0.0197)</td>
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</tr>
<tr>
<td>(0.336 - 0.571)</td>
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<tr>
<td>Differential union</td>
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<tr>
<td>Shaft outer diameter</td>
<td>4.950 - 4.963</td>
<td>4.970 (0.5894)</td>
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<tr>
<td>(0.5686 - 0.5693)</td>
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</tr>
<tr>
<td>Gear-to-shaft clearance</td>
<td>0.335 - 0.053</td>
<td>0.06 (0.0024)</td>
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</tr>
<tr>
<td>(0.0004 - 0.0021)</td>
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<tr>
<td>Differential side gear-to-pinion backlash</td>
<td>0.02 - 0.20</td>
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</tr>
<tr>
<td>(0.0008 - 0.0079)</td>
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<tr>
<td>Shift fork</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Fork tip end section thickness</td>
<td>7.6 (0.276)</td>
<td>6.3 (0.248)</td>
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</tr>
<tr>
<td>Shift inner lever contact groove width</td>
<td>12.1 - 12.2</td>
<td>12.3 (0.500)</td>
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</tr>
<tr>
<td>(0.476 - 0.480)</td>
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</tr>
<tr>
<td>Reverse shift arm pin contact groove width</td>
<td>14.957 - 15.000</td>
<td>15.000 (0.5945)</td>
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</tr>
<tr>
<td>(0.5889 - 0.5906)</td>
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<tr>
<td>Reverse shift arm</td>
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<tr>
<td>Pin diameter</td>
<td>14.807 - 14.950</td>
<td>14.850 (0.5845)</td>
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<td>(0.5865 - 0.5886)</td>
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<tr>
<td>Tip end section width</td>
<td>7.884 - 7.920</td>
<td>7.900 (0.3371)</td>
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<tr>
<td>(0.3104 - 0.3118)</td>
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</table>

### AUTOMATIC TRANSMISSION

<table>
<thead>
<tr>
<th>Item</th>
<th>Specified value</th>
<th>Allowable limit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stall revolution speed rpm</td>
<td>2100 - 2300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time lag N→D seconds</td>
<td>1 or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time lag N→R seconds</td>
<td>1.4 or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line pressure (at 2000rpm) kg/cm² (psi)</td>
<td>7 - 8 (100 - 114)</td>
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Appendix 1909
# APPENDIX

## AUTOMATIC TRANSMISSION (Cont’d)

<table>
<thead>
<tr>
<th>Position &amp; Item</th>
<th>Specified value (mm)</th>
<th>Allowable limit (mm)</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Oil pump</td>
<td></td>
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</tr>
<tr>
<td>Side clearance</td>
<td>0.02 - 0.05</td>
<td>0.1 (0.0039)</td>
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<tr>
<td></td>
<td>(0.0008 - 0.0015)</td>
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<tr>
<td>Body clearance</td>
<td>0.07 - 0.15</td>
<td>0.30 (0.011)</td>
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<tr>
<td></td>
<td>(0.0026 - 0.0056)</td>
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</tr>
<tr>
<td>Tip clearance</td>
<td>0.11 - 0.14</td>
<td>0.30 (0.011)</td>
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</tr>
<tr>
<td></td>
<td>(0.0043 - 0.0085)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clutch &amp; Brake</td>
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<td></td>
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</tr>
<tr>
<td>2nd brake piston stroke</td>
<td>1.5 - 3.0 (0.059 - 0.118)</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Direct clutch clearance</td>
<td>0.49 - 1.46 (0.035 - 0.057)</td>
<td>—</td>
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</tr>
<tr>
<td>Forward clutch clearance</td>
<td>0.41 - 1.08 (0.016 - 0.043)</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>1st &amp; reverse brake clearance</td>
<td>0.55 - 1.92 (0.023 - 0.075)</td>
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<tr>
<td>Gear</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counter gear backlash</td>
<td>0.1 or less (0.0039)</td>
<td>0.1 or less (0.0039)</td>
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<tr>
<td>Input shaft</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>End play</td>
<td>0.3 - 0.9 (0.012 - 0.035)</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Planetary gear</td>
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<td></td>
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<tr>
<td>Side clearance</td>
<td>0.20 - 0.50 (0.0079 - 0.020)</td>
<td>0.7 (0.028)</td>
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</tr>
<tr>
<td>Drive plate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive plate runout</td>
<td>—</td>
<td>0.2 (0.006)</td>
<td></td>
</tr>
<tr>
<td>Clutch</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Clutch disc thickness</td>
<td>2.5 (0.098)</td>
<td>2.3 (0.091)</td>
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<tr>
<td>Clutch plate thickness</td>
<td>1.6 (0.063)</td>
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## STEERING

<table>
<thead>
<tr>
<th>Item</th>
<th>Specified value</th>
<th>Allowable limit</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>Camber</td>
<td>0°20' ± 2°</td>
<td></td>
<td>Difference between RH &amp; LH — 2°</td>
</tr>
<tr>
<td>Caster</td>
<td>2°55' ± 1°</td>
<td></td>
<td>Difference between RH &amp; LH — 1°</td>
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<tr>
<td>Kingpin inclination angle</td>
<td>12°00' ± 30°</td>
<td></td>
<td>Difference between RH &amp; LH — 1°</td>
</tr>
<tr>
<td>Turning angle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inner</td>
<td>39°55' ± 2°</td>
<td></td>
<td>Difference between RH &amp; LH — 2°</td>
</tr>
<tr>
<td>Outer</td>
<td>35°00' ± 2°</td>
<td></td>
<td>Difference between RH &amp; LH — 2°</td>
</tr>
<tr>
<td>Toe-in mm (inch)</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-0.039 - +0.018)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sideslip mm (inch)</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-0.118 - +0.118)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear wheel alignment</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Camber</td>
<td>0°40' ± 35°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toe-in mm (inch)</td>
<td>5 (0.197) ± 5</td>
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<td></td>
</tr>
<tr>
<td>Sideslip mm (inch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-0.039 - +0.278)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering wheel play mm (inch)</td>
<td>Within 10 (0.39)</td>
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### BRAKE PEDAL

<table>
<thead>
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<th>Item</th>
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<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>6-inch booster</td>
<td>3 - 7 (0.1 - 0.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free travel</td>
<td>0.5 - 2</td>
<td></td>
<td>When engine is stopped</td>
</tr>
<tr>
<td>7-inch booster</td>
<td>(3.02 - 0.06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>178 - 181</td>
<td>(6.93 - 7.13)</td>
<td></td>
</tr>
<tr>
<td>Reserve travel</td>
<td>Not less than 102 (4.0)</td>
<td></td>
<td>Distance between center of pedal pad upper surface and dash panel</td>
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### FRONT BRAKE

<table>
<thead>
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<th>Item</th>
<th>Specified value</th>
<th>Allowable limit</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>Wheel cylinder inner diameter or caliper bore</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>mm (inch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General specifications</td>
<td>48.1 (1.89)</td>
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<td></td>
</tr>
<tr>
<td>mounted with Type CB-23, CL-11, 61 engines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Except for vehicles above</td>
<td>50.8 (2.0)</td>
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<tr>
<td>Pad thickness</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>mm (inch)</td>
<td>10 (0.394)</td>
<td>1 (0.039)</td>
<td>Effective disc diameter: 179 (7.05)</td>
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<tr>
<td>Solid type</td>
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<tr>
<td>Disc thickness</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>mm (inch)</td>
<td>16 (0.709)</td>
<td>17 (0.669)</td>
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### REAR BRAKE

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</thead>
<tbody>
<tr>
<td>Wheel cylinder inner diameter</td>
<td>15.67 (0.62)</td>
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<td>General specifications mounted with Type CB-23, CL-11, 61 engines</td>
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<tr>
<td>mm (inch)</td>
<td>17.46 (0.69)</td>
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<tr>
<td>Brake drum inner diameter</td>
<td>180 (7.09)</td>
<td>181 (7.126)</td>
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<tr>
<td>mm (inch)</td>
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</tr>
<tr>
<td>Brake lining thickness</td>
<td>4.0 (0.16)</td>
<td>1.0 (0.039)</td>
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</tr>
<tr>
<td>mm (inch)</td>
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<tr>
<td>Wheel cylinder inner diameter</td>
<td>30.16 (1.187)</td>
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<tr>
<td>mm (inch)</td>
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<tr>
<td>Pad thickness</td>
<td>9 (0.35)</td>
<td>1 (0.039)</td>
<td>Effective disc diameter: 202 (7.95)</td>
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<td>mm (inch)</td>
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<tr>
<td>Thickness</td>
<td>10 (0.39)</td>
<td>9 (0.354)</td>
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<td>mm (inch)</td>
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<tr>
<td>Disc</td>
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<td></td>
<td></td>
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<tr>
<td>Runout</td>
<td>0.06 (0.003)</td>
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</tr>
<tr>
<td>mm (inch)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Parking brake lever working travel</td>
<td>5 - 9</td>
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<tr>
<td>Notch</td>
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11-9
# APPENDIX

## SUSPENSION

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<tr>
<td>Free length of front coil spring mm (inch)</td>
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<td>Identification color White</td>
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</tr>
<tr>
<td>Standard and European standard</td>
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<td></td>
<td>Identification color Brown</td>
</tr>
<tr>
<td>CB-23</td>
<td>M/T</td>
<td>339 (13.3)</td>
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<tr>
<td>CL-11</td>
<td>Y/T</td>
<td>346 (13.7)</td>
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<tr>
<td>CL-61</td>
<td>M/T</td>
<td>358 (14.1)</td>
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<tr>
<td>Hard</td>
<td></td>
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<td>Identification color Green</td>
</tr>
<tr>
<td>CB-61</td>
<td>M/T</td>
<td>326 (12.8)</td>
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<tr>
<td>CB-80</td>
<td>M/T</td>
<td>338 (13.3)</td>
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<tr>
<td>Standard</td>
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<td>Free length or rear coil spring mm (inch)</td>
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<td>Identification color Green</td>
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<td></td>
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<tr>
<td>European standard</td>
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<td>Identification color Yellow</td>
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<td>Hard</td>
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<td>Identification color Red</td>
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</table>

WR-1-015

11-10
# GHTENING TORQUE FOR MAIN COMPONENTS

1. When you want to find out a suitable tightening torque for a bolt, first determine the strength division of the said bolt, using the table below. Then, locate suitable tightening torque in the tightening torque table described later.

2. As for the tightening torque for a nut, find out suitable tightening torque in the same way as with the paragraph 1 above, based on the mating bolt.

3. Tightening torque posted in the workshop manual is a standard value for steel fasteners. It is, therefore, necessary to modify these tightening torque when you tighten fasteners made of materials other than steel. This rule also applies to such instances where bolts are undergoing heat or other stress, such as vibratory loads and so forth.

## METHOD TO IDENTIFY STRENGTH DIVISION OF BOLTS

### 1. Identification Method by Checking Bolts Themselves

<table>
<thead>
<tr>
<th>Configuration and how to determine strength division</th>
<th>Strength division</th>
<th>Configuration and how to determine strength division</th>
<th>Strength division</th>
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</thead>
<tbody>
<tr>
<td>Bolt having an embossed or stamped figure at its head section</td>
<td></td>
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</tr>
<tr>
<td>4 = 4T</td>
<td></td>
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</tr>
<tr>
<td>5 = 5T</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6 = 6T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 = 7T</td>
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<td></td>
</tr>
<tr>
<td>Welded bolt</td>
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<td></td>
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<tr>
<td>4T</td>
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<tr>
<td>No mark</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4T</td>
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</tr>
<tr>
<td>Stud bolt</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5T</td>
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<td>6T</td>
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<td></td>
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<tr>
<td>Bolt having two embossed lines at its head section</td>
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<tr>
<td>5T</td>
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<tr>
<td>6T</td>
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<tr>
<td>Bolt having three embossed lines at its head section</td>
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<tr>
<td>7T</td>
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### 2. Identification Method by Part Numbers

**Hexagon Bolt**

<table>
<thead>
<tr>
<th>Part number example</th>
<th>Nominal length (mm)</th>
<th>Nominal diameter (mm)</th>
<th>Strength division</th>
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<tbody>
<tr>
<td>91111 - 40620</td>
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</table>

**Stud Bolt**

<table>
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<tr>
<th>Part number example</th>
<th>Nominal length (mm)</th>
<th>Nominal diameter (mm)</th>
<th>Strength division</th>
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<tbody>
<tr>
<td>92132 - 40620</td>
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## APPENDIX

### Tightening Torque Table for General Standard Bolts

<table>
<thead>
<tr>
<th>Category</th>
<th>Nominal diameter</th>
<th>Pitch</th>
<th>Standard tightening torque</th>
<th>1/2&quot;-13 (kg-m)</th>
<th>Tightening range</th>
</tr>
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<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>6</td>
<td>1</td>
<td>0.47 (3.4)</td>
<td>0.6 - 0.7 (2.9 - 5.1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>1.25</td>
<td>1.11 (8.0)</td>
<td>1.2 - 1.6 (7.2 - 11.6)</td>
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<tr>
<td></td>
<td>10</td>
<td>1.25</td>
<td>2.25 (16.3)</td>
<td>1.9 - 3.1 (14 - 22.6)</td>
<td></td>
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<tr>
<td></td>
<td>12</td>
<td>1.5</td>
<td>2.74 (15.5)</td>
<td>1.8 - 3.0 (13 - 22)</td>
<td></td>
</tr>
<tr>
<td>4T</td>
<td>12</td>
<td>1.25 (40)</td>
<td>4.40 (31.8)</td>
<td>3.5 - 5.5 (25 - 40)</td>
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<tr>
<td>(Bolt having a mark of &quot;4&quot; at its head section)</td>
<td></td>
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<tr>
<td>Example of part number</td>
<td>13</td>
<td>1.5</td>
<td>3.89 (28.1)</td>
<td>3.5 - 5.5 (25 - 40)</td>
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<tr>
<td>(91000 - 40000)</td>
<td>14</td>
<td>1.5</td>
<td>3.74 (27.1)</td>
<td>3.0 - 5.0 (22 - 36)</td>
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<tr>
<td></td>
<td>12</td>
<td>1.25 (ISO)</td>
<td>5.08 (36.7)</td>
<td>4.5 - 7.0 (33 - 51)</td>
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<tr>
<td></td>
<td>13</td>
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<td>6.33 (45.8)</td>
<td>5.0 - 8.0 (36 - 51)</td>
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</tr>
<tr>
<td></td>
<td>13</td>
<td>1.5</td>
<td>5.93 (42.9)</td>
<td>4.7 - 7.7 (34 - 51)</td>
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<tr>
<td></td>
<td>16</td>
<td>1.5</td>
<td>9.57 (69.2)</td>
<td>7.5 - 11.0 (54 - 80)</td>
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<tr>
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<td>16</td>
<td>2</td>
<td>9.10 (65.8)</td>
<td>7.1 - 10.6 (51 - 77.5)</td>
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<tr>
<td>5T</td>
<td>12</td>
<td>1.25 (ISO)</td>
<td>5.84 (42.2)</td>
<td>5.0 - 7.0 (36 - 51)</td>
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<td>(Bolt having a mark of &quot;5&quot; at its head section)</td>
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<tr>
<td>Example of part number</td>
<td>13</td>
<td>1.5</td>
<td>5.60 (40.5)</td>
<td>4.8 - 6.8 (34 - 49)</td>
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<tr>
<td>(91000 - 50000)</td>
<td>14</td>
<td>1.5</td>
<td>7.63 (55.2)</td>
<td>6.5 - 9.0 (47 - 65)</td>
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<tr>
<td></td>
<td>14</td>
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<td>9.50 (68.7)</td>
<td>7.5 - 11.0 (54 - 79.5)</td>
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<tr>
<td></td>
<td>16</td>
<td>1.5</td>
<td>14.36 (103.9)</td>
<td>12.0 - 17.0 (87 - 123)</td>
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</tr>
<tr>
<td></td>
<td>16</td>
<td>2</td>
<td>13.58 (98.2)</td>
<td>11.5 - 16.5 (83 - 119)</td>
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<tr>
<td>6T</td>
<td>12</td>
<td>1.25 (ISO)</td>
<td>5.64 (42.2)</td>
<td>5.0 - 7.0 (36 - 51)</td>
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<tr>
<td>(Bolt having a mark of &quot;6&quot; at its head section)</td>
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<tr>
<td>Example of part number</td>
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<td>1.5</td>
<td>5.64 (42.2)</td>
<td>5.0 - 7.0 (36 - 51)</td>
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</tr>
<tr>
<td>(91000 - 60000)</td>
<td>12</td>
<td>1.75</td>
<td>5.61 (40.6)</td>
<td>4.8 - 6.8 (35 - 49)</td>
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<tr>
<td></td>
<td>12</td>
<td>1.5</td>
<td>5.64 (42.2)</td>
<td>5.0 - 7.0 (36 - 51)</td>
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<tr>
<td></td>
<td>12</td>
<td>1.75</td>
<td>5.61 (40.6)</td>
<td>4.8 - 6.8 (35 - 49)</td>
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<tr>
<td>7T</td>
<td>12</td>
<td>1.25 (ISO)</td>
<td>7.76 (56.3)</td>
<td>7.0 - 9.0 (51 - 65)</td>
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<tr>
<td>(Bolt having a mark of &quot;7&quot; at its head section)</td>
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<tr>
<td>Example of part number</td>
<td>12</td>
<td>1.5</td>
<td>7.76 (56.3)</td>
<td>7.0 - 9.0 (51 - 65)</td>
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</tr>
<tr>
<td>(91000 - 70000)</td>
<td>12</td>
<td>1.75</td>
<td>7.18 (53.6)</td>
<td>6.0 - 8.5 (43 - 61.5)</td>
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<tr>
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<td>12</td>
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<td>10.17 (73.6)</td>
<td>8.0 - 12.0 (58 - 88)</td>
<td></td>
</tr>
<tr>
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<td>12</td>
<td>2</td>
<td>11.56 (85.8)</td>
<td>9.5 - 14.0 (69 - 101)</td>
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<tr>
<td></td>
<td>16</td>
<td>1.5</td>
<td>19.15 (138.5)</td>
<td>15.0 - 23.0 (106 - 166)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>2</td>
<td>18.11 (131.0)</td>
<td>14.9 - 22.0 (108 - 153)</td>
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</table>
## Uutch, Manual Transmission

<table>
<thead>
<tr>
<th>Tightening component</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission x Cylinder block</td>
<td>5.0 - 7.0 (36 - 51)</td>
</tr>
<tr>
<td>Output shaft hexagon nut</td>
<td>10.0 - 14.0 (72 - 101)</td>
</tr>
<tr>
<td>Input shaft hexagon nut</td>
<td>10.0 - 14.0 (72 - 101)</td>
</tr>
<tr>
<td>Transmission case x Clutch housing</td>
<td>1.5 - 2.2 (11 - 16)</td>
</tr>
<tr>
<td>Transmission case cover x Case</td>
<td>1.5 - 2.2 (11 - 16)</td>
</tr>
<tr>
<td>Drain plug</td>
<td>3.0 - 5.0 (22 - 36)</td>
</tr>
<tr>
<td>Back-up lamp switch</td>
<td>3.0 - 5.0 (22 - 36)</td>
</tr>
<tr>
<td>Speedometer sleeve lock plate</td>
<td>0.7 - 1.0 (5.1 - 7.2)</td>
</tr>
<tr>
<td>Breather plug</td>
<td>1.0 - 1.3 (7.2 - 9.4)</td>
</tr>
<tr>
<td>Differential ring gear</td>
<td>4.5 - 5.5 (33 - 29)</td>
</tr>
<tr>
<td>Clutch cover</td>
<td>0.7 - 1.0 (5.1 - 7.2)</td>
</tr>
<tr>
<td>Clutch release lever x Release lever yoke</td>
<td>3.0 - 4.0 (22 - 29)</td>
</tr>
<tr>
<td>Shift &amp; selector shaft x Shift inner lever</td>
<td>Bolt 4.0 - 5.0 (29 - 33) Nut 2.0 - 3.0 (14.5 - 22)</td>
</tr>
<tr>
<td>Shift &amp; selector shaft x Transmission case</td>
<td>2.0 - 3.0 (14.5 - 22)</td>
</tr>
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<td>Differential case x Differential ring gear</td>
<td>8.0 - 9.0 (58 - 65)</td>
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</tbody>
</table>

## Automatic Transmission

<table>
<thead>
<tr>
<th>Tightening component</th>
<th>Tightening torque</th>
</tr>
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<tbody>
<tr>
<td>Transmission case x Torque converter housing</td>
<td>1.8 - 2.3 (12 - 16)</td>
</tr>
<tr>
<td>Transmission case x Oil pan</td>
<td>0.4 - 0.5 (3.0 - 4.3)</td>
</tr>
<tr>
<td>Transmission case x Oil filler tube</td>
<td>0.3 - 0.7 (2.4 - 5.1)</td>
</tr>
<tr>
<td>Transmission case x Valve body Ay</td>
<td>0.60 - 1.20 (6.0 - 8.5)</td>
</tr>
<tr>
<td>Transmission case x Side cover</td>
<td>0.7 - 0.9 (5.1 - 6.5)</td>
</tr>
<tr>
<td>Transmission case x Rear cover</td>
<td>Bolt 1.6 - 2.3 (12 - 16) Nut 1.1 - 1.5 (8 - 10)</td>
</tr>
<tr>
<td>Transmission case x Oil pump Ay</td>
<td>1.8 - 2.7 (14 - 19)</td>
</tr>
<tr>
<td>Transmission case x Neutral start switch</td>
<td>1.5 - 2.3 (12 - 16)</td>
</tr>
<tr>
<td>Transmission case x Test plug</td>
<td>0.6 - 0.9 (4.3 - 6.5)</td>
</tr>
<tr>
<td>Transmission case x Lower left mounting bracket</td>
<td>3.0 - 4.5 (22 - 33)</td>
</tr>
<tr>
<td>Valve body x Valve body cover</td>
<td>0.5 - 0.6 (3.6 - 4.3)</td>
</tr>
<tr>
<td>Valve body x Throttle valve cam</td>
<td>0.6 - 0.9 (4.3 - 6.5)</td>
</tr>
<tr>
<td>Valve body x Solenoid Ay</td>
<td>0.64 - 0.96 (4.6 - 8.9)</td>
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<tr>
<td>Valve body x Oil strainer</td>
<td>0.4 - 0.6 (3.0 - 4.3)</td>
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<td>Upper valve body x Lower valve body</td>
<td>0.60 - 0.60 (36 - 43)</td>
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<tr>
<td>Oil pan x Drain bolt (plug)</td>
<td>1.8 - 2.3 (13 - 17)</td>
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<tr>
<td>Oil pump body x Stator shaft</td>
<td>0.8 - 1.2 (6.0 - 8.5)</td>
</tr>
<tr>
<td>Torque converter x Drive plate</td>
<td>1.5 - 2.2 (11 - 16)</td>
</tr>
<tr>
<td>Torque converter housing x Cylinder block</td>
<td>5.0 - 7.0 (36 - 51)</td>
</tr>
<tr>
<td>Manual shift shaft x Manual valve outer lever</td>
<td>2.7 - 3.3 (20 - 24)</td>
</tr>
<tr>
<td>Reduction driven gear x Counter shaft</td>
<td>11 - 16 (80 - 108)</td>
</tr>
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### DRIVE SHAFT, FRONT SUSPENSION

<table>
<thead>
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<th>Tightening component</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower arm bracket x Body</td>
<td>7.5 - 10.5 (54 - 76)</td>
</tr>
<tr>
<td>Lower arm x Lower arm bracket</td>
<td>7.0 - 10.0 (51 - 72)</td>
</tr>
<tr>
<td>Stabilizer bracket x Front stabilizer lower bracket</td>
<td>4.0 - 6.0 (29 - 43)</td>
</tr>
<tr>
<td>Lower arm x Stabilizer</td>
<td>7.5 - 10.5 (54 - 76)</td>
</tr>
<tr>
<td>Lower arm ball joint x Steering knuckle</td>
<td>8.0 - 10.5 (53 - 76)</td>
</tr>
<tr>
<td>Front shock absorber piston rod x Suspension support</td>
<td>3.5 - 5.5 (25 - 40)</td>
</tr>
<tr>
<td>Suspension support x Body</td>
<td>2.0 - 3.0 (14.5 - 22)</td>
</tr>
<tr>
<td>Front shock absorber x Steering knuckle</td>
<td>9.0 - 13.0 (65 - 94)</td>
</tr>
<tr>
<td>Drive shaft x Front axle hub</td>
<td>18.0 - 23.0 (130 - 166)</td>
</tr>
<tr>
<td>Disc wheel x Front axle hub</td>
<td>9.0 - 12.0 (65 - 87)</td>
</tr>
<tr>
<td>Front drive bearing shaft x Bracket</td>
<td>3.0 - 4.5 (22 - 32)</td>
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### REAR AXLE, REAR SUSPENSION

<table>
<thead>
<tr>
<th>Tightening Component</th>
<th>Tightening torque</th>
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<tbody>
<tr>
<td>Rear stabilizer x Stabilizer link</td>
<td>1.0 - 1.6 (7.2 - 11.6)</td>
</tr>
<tr>
<td>Stabilizer bracket x Rear suspension arm</td>
<td>1.0 - 1.6 (7.2 - 11.6)</td>
</tr>
<tr>
<td>Stabilizer bracket x Stabilizer bracket No.2</td>
<td>1.9 - 3.0 (14 - 22)</td>
</tr>
<tr>
<td>Rear suspension arm No.1 x Body</td>
<td>7.5 - 10.5 (54 - 76)</td>
</tr>
<tr>
<td>Rear suspension arm No.1 x Rear axle carrier</td>
<td>7.5 - 10.5 (54 - 76)</td>
</tr>
<tr>
<td>Rear suspension arm No.2 x Body</td>
<td>7.1 - 8.8 (51 - 64)</td>
</tr>
<tr>
<td>Rear suspension arm No.2 x Rear axle carrier</td>
<td>7.5 - 10.5 (54 - 76)</td>
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<tr>
<td>Rear strut rod x Body</td>
<td>7.5 - 10.5 (54 - 76)</td>
</tr>
<tr>
<td>Rear strut rod x Rear axle carrier</td>
<td>7.5 - 10.5 (54 - 76)</td>
</tr>
<tr>
<td>Rear axle carrier x Rear shock absorber</td>
<td>9.0 - 12.0 (65 - 87)</td>
</tr>
<tr>
<td>Suspension support x Body</td>
<td>1.0 - 1.5 (7.2 - 11.6)</td>
</tr>
<tr>
<td>Rear axle shaft x Brake drum (disc)</td>
<td>6.0 - 10.0 (43 - 72)</td>
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<tr>
<td>Rear brake hub x Disc wheel</td>
<td>9.0 - 12.0 (65 - 87)</td>
</tr>
<tr>
<td>Rear axle carrier x Rear brake backing plate</td>
<td>4.0 - 5.5 (29 - 40)</td>
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## STEERING

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<td>Steering wheel x Steering main shaft</td>
<td>3.5 - 5.5 (25 - 40)</td>
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<tr>
<td>Steering column tube x steering joint dust cover x Body</td>
<td>0.4 - 0.7 (29 - 50)</td>
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<tr>
<td>Steering rack end x Tie rod end</td>
<td>3.0 - 5.2 (22 - 38)</td>
</tr>
<tr>
<td>Steering rack housing x Rack guide lock nut</td>
<td>3.5 - 4.5 (25 - 32.5)</td>
</tr>
<tr>
<td>Steering rack housing x Body</td>
<td>4.0 - 5.5 (29 - 40)</td>
</tr>
<tr>
<td>Tie rod end x Steering knuckle</td>
<td>3.0 - 4.5 (22 - 32.5)</td>
</tr>
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<td>Steering rack end x Steering rack</td>
<td>5.0 - 6.5 (36 - 47)</td>
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## BRAKE

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<thead>
<tr>
<th>Tightening component</th>
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<tr>
<td>Master cylinder x Brake booster</td>
<td>1.2 - 1.8 (8.7 - 13)</td>
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<tr>
<td>Brake booster x Body x Pedal support</td>
<td>1.0 - 1.6 (7.2 - 11.6)</td>
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<tr>
<td>Disc brake caliper x Knuckle</td>
<td>3.2 - 4.2 (23 - 30)</td>
</tr>
<tr>
<td>Caliper x Bleeder plug</td>
<td>0.7 - 1.3 (5.1 - 7.2)</td>
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<tr>
<td>Rear wheel cylinder x Backing plate</td>
<td>1.0 - 1.3 (7.2 - 9.4)</td>
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<tr>
<td>Rear wheel cylinder x Bleeder plug</td>
<td>3.7 - 1.0 (5.1 - 7.2)</td>
</tr>
<tr>
<td>Brake tube each union nut</td>
<td>1.5 - 1.8 (9.4 - 13)</td>
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## BODY AND OTHERS

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<thead>
<tr>
<th>Tightening component</th>
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</thead>
<tbody>
<tr>
<td>Back door hinge x Body</td>
<td>2.5 - 3.0 (18 - 22)</td>
</tr>
<tr>
<td>Back door stay x Quarter panel</td>
<td>1.8 - 2.3 (13 - 16.6)</td>
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<tr>
<td>Back door stay x Back door</td>
<td>1.6 - 2.3 (11.6 - 16.6)</td>
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<tr>
<td>Engine lower mounting x Body</td>
<td>1.2 - 2.2 (8.7 - 16)</td>
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<tr>
<td>Exhaust manifold x Exhaust front pipe</td>
<td>3.0 - 5.0 (22 - 36)</td>
</tr>
<tr>
<td>Exhaust front pipe x Exhaust tail pipe</td>
<td>3.0 - 5.0 (22 - 36)</td>
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### Appendix

#### Wiring Diagram

#### System Index

<table>
<thead>
<tr>
<th>Systems</th>
<th>Location</th>
<th>Type</th>
<th>System</th>
<th>Location</th>
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<tbody>
<tr>
<td>Air Conditioner</td>
<td>1-5</td>
<td>1-3</td>
<td>Luggage Room Lamp</td>
<td>3-6</td>
</tr>
<tr>
<td>Alternator &amp; Regulator</td>
<td>1-2</td>
<td>1-1</td>
<td>Light-on-Warning Buzzar</td>
<td>3-5</td>
</tr>
<tr>
<td>Automatic Transmission ECU</td>
<td>4-2</td>
<td>----</td>
<td>Power Window</td>
<td>2-6</td>
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<tr>
<td>Battery</td>
<td>1-1</td>
<td>1-1</td>
<td>Preheating Timer</td>
<td>----</td>
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<tr>
<td>Central Door Lock</td>
<td>2-7</td>
<td>2-4</td>
<td>Radiator Fan Motor</td>
<td>1-6</td>
</tr>
<tr>
<td>Cigar Lighter</td>
<td>2-5</td>
<td>2-3</td>
<td>Radio</td>
<td>2-5</td>
</tr>
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<td>Clock</td>
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<td>Rear Window Defogger</td>
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<td>Combination Meter</td>
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<td>2-6</td>
<td>Rear Wiper &amp; Washer</td>
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<tr>
<td>Daylight Relay</td>
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<td>Room Lamp</td>
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<td>Dim-dip Relay</td>
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<td>Side Lamp</td>
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<td>Distributor</td>
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<td>Sun Roof</td>
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<td>EFI ECU (CB-80)</td>
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<td>Starter</td>
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<td>Electronic Door Mirror</td>
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<td>2-3</td>
<td>Stop Lamp</td>
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<td>Fuel Pump (Turbo)</td>
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<td>Turn Signal &amp; Hazard Lamp</td>
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<td>Front Wiper &amp; Washer</td>
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<td>Glow Plug</td>
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<td>Headlamp</td>
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<td>Headlamp Cleaner</td>
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<td>Heater</td>
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<td>Ignition Coil</td>
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