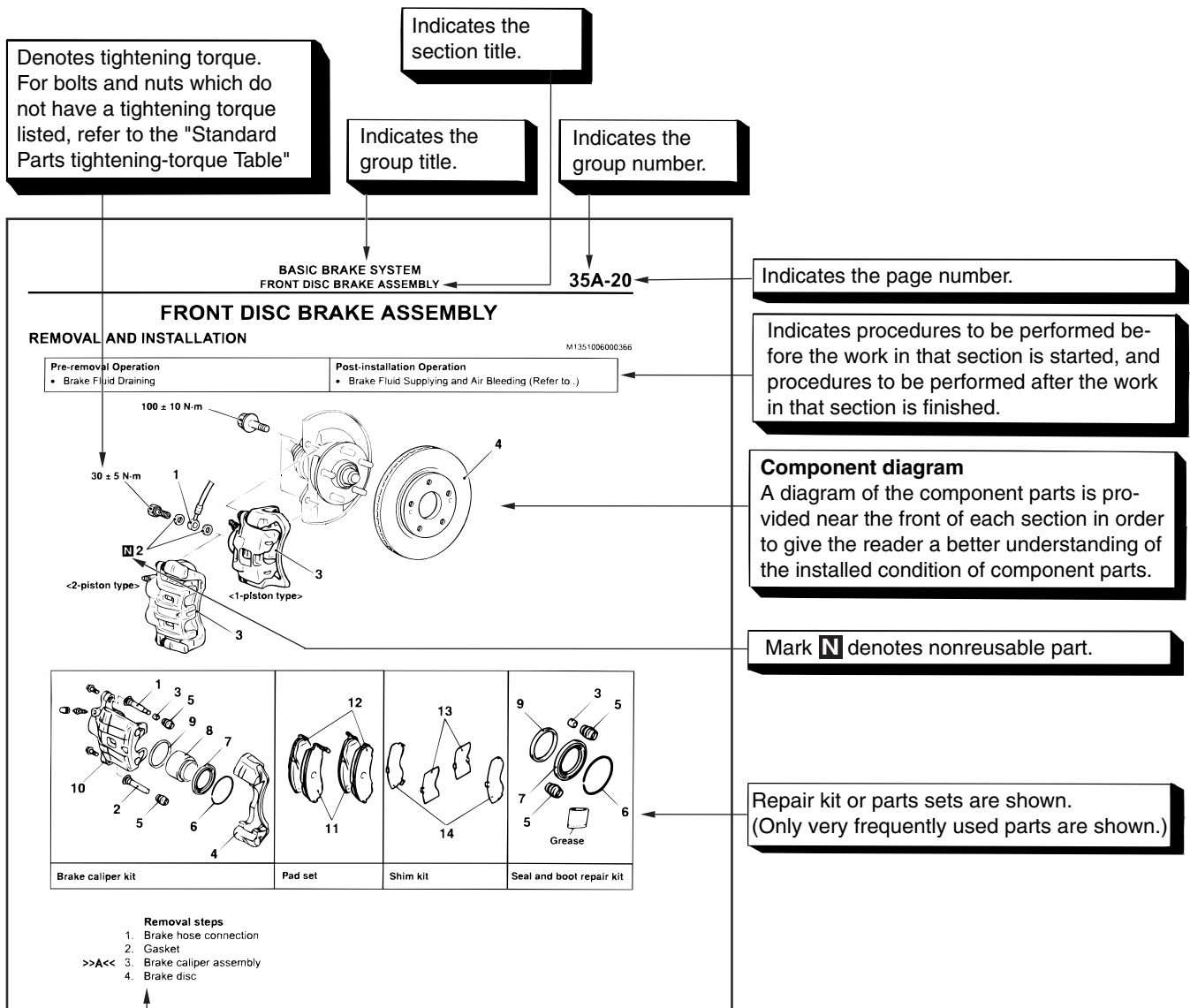


EXPLANATION OF MANUAL CONTENTS



**Maintenance and servicing procedures**

The numbers provided within the diagram indicate the sequence for maintenance and servicing procedures.

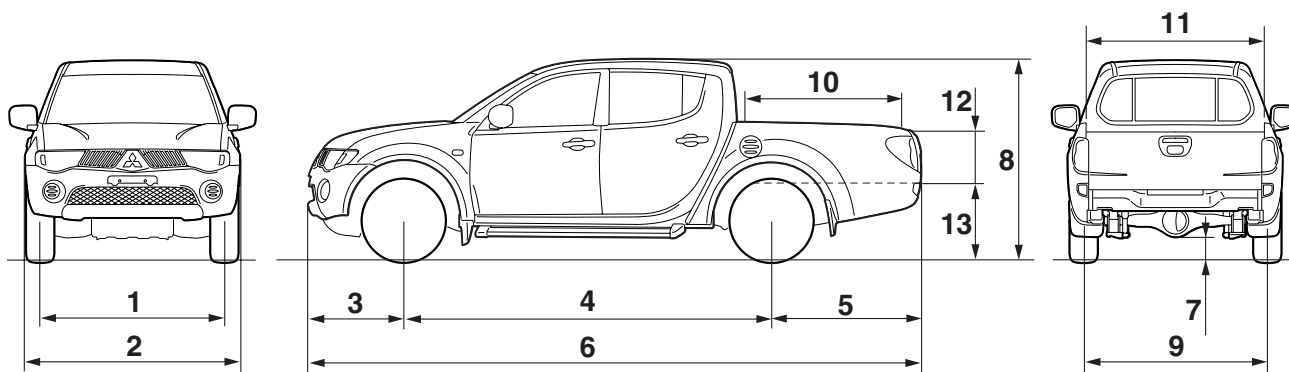
- Removal steps :  
The part designation number corresponds to the number in the illustration to indicate removal steps.
- Disassembly steps :  
The part designation number corresponds to the number in the illustration to indicate disassembly steps.

- Installation steps :  
Specified in case installation is impossible in reverse order of removal steps. Omitted if installation is possible in reverse order of removal steps.
- Reassembly steps :  
Specified in case installation is impossible in reverse order of removal steps. Omitted if reassembly is possible in reverse order of disassembly steps.

| Items            |                    | KB4T  | KB8T  |
|------------------|--------------------|---|---|
|                  |                    | GCNHZRU   | GCNHZRU   |
| Fuel system      | Fuel supply system | Electrical fuel injection<br>(common rail engine<br>control system) | Electrical fuel injection<br>(common rail engine<br>control system) |
| Max speed km/h   |                    | 175   | 175   |
| Turning radius m |                    | 5.9   | 5.9   |

**DOUBLE CAB**

&lt;2WD&gt;



AC502185AB

| Items                       |                               |    | KA4T    |         |        |
|-----------------------------|-------------------------------|----|---------|---------|--------|
|                             |                               |    | NJNMZRU | NJNUZRU | NJRZRU |
| Vehicle<br>dimensions<br>mm | Front track                   | 1  | 1,505   | 1,505   | 1,505  |
|                             | Overall width                 | 2  | 1,750   | 1,750   | 1,750  |
|                             | Front overhang                | 3  | 785     | 785     | 785    |
|                             | Wheel base                    | 4  | 3,000   | 3,000   | 3,000  |
|                             | Rear overhang                 | 5  | 1,210   | 1,210   | 1,210  |
|                             | Overall length                | 6  | 4,995   | 4,995   | 4,995  |
|                             | Ground clearance (unladen)    | 7  | 200     | 195     | 195    |
|                             | Overall height (unladen)      | 8  | 1,655   | 1,650   | 1,650  |
|                             | Rear track                    | 9  | 1,500   | 1,500   | 1,500  |
|                             | BED interior length           | 10 | 1,325   | 1,325   | 1,325  |
|                             | BED interior width            | 11 | 1,470   | 1,470   | 1,470  |
|                             | BED interior height           | 12 | 405     | 405     | 405    |
|                             | Cargo floor height (unladen)  | 13 | 715     | 710     | 710    |
| Vehicle<br>weight kg        | Kerb weight                   |    | 1,640   | 1,640   | 1,640  |
|                             | Max. gross vehicle weight     |    | 2,330   | 2,330   | 2,330  |
|                             | Max. axle weight rating-front |    | 1,030   | 1,030   | 1,030  |
|                             | Max. axle weight rating-rear  |    | 1,500   | 1,500   | 1,500  |
| Seating capacity            |                               |    | 5       | 5       | 5      |

# SUPPORT LOCATIONS FOR LIFTING AND JACKING

M1001000700286

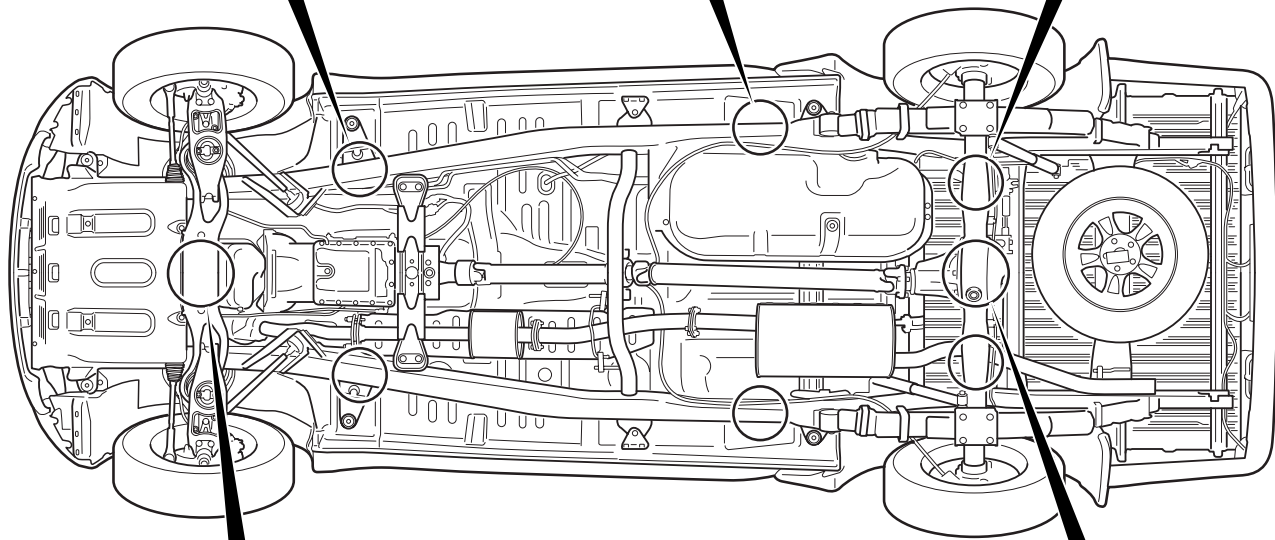
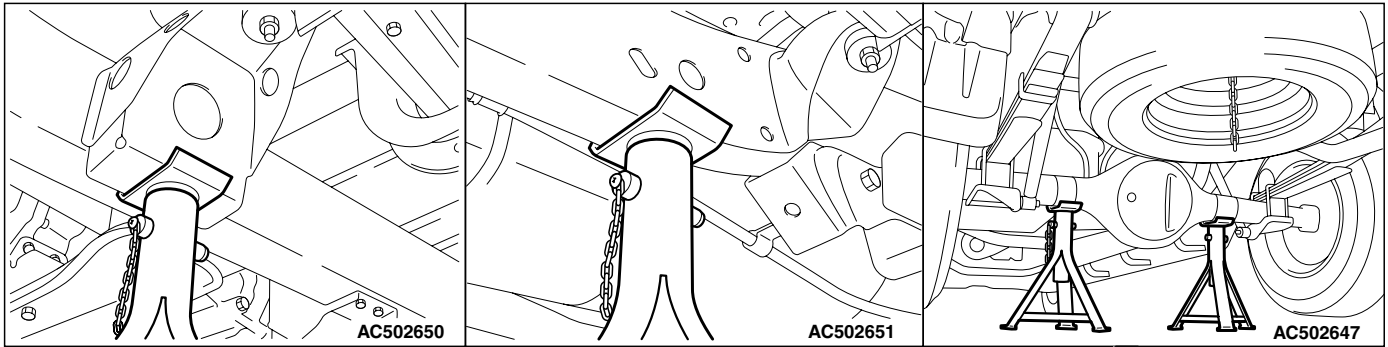
## SUPPORT POSITIONS FOR A GARAGE JACK AND AXLE STANDS

### ⚠ CAUTION

Do not support the vehicles at locations other than specified supporting points. Doing so will cause damage, etc.

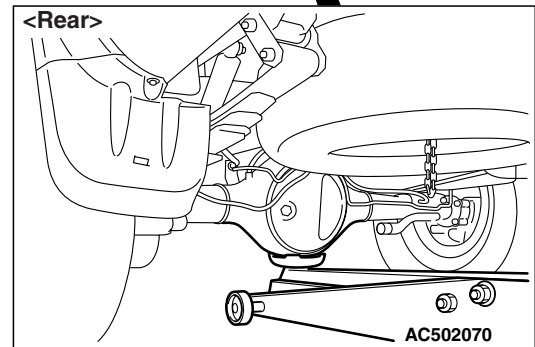
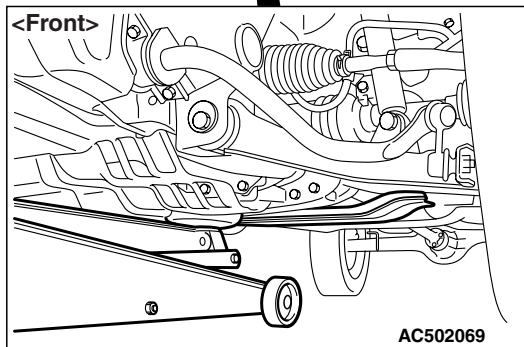
<2WD>

### AXLE STANDS

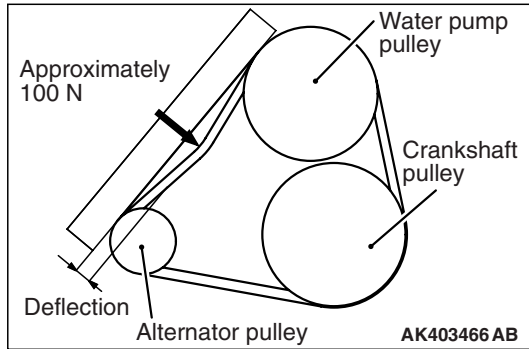


AC502074

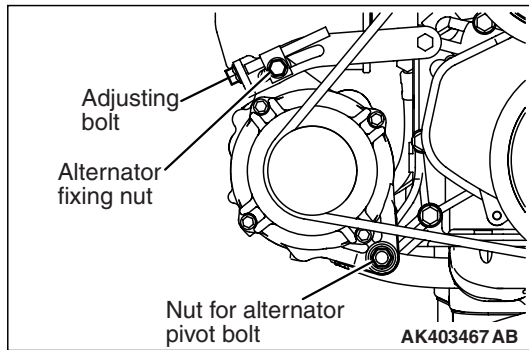
### GARAGE JACK



<Belt deflection check>



Apply approximately 100 N of force to the middle of the drive belt between the pulleys (at the place indicated by the arrow) and check that the amount of deflection is within the standard value.



If not within the standard value, adjust the belt tension by the following procedure.

1. Loosen the nut of the nut for alternator pivot bolt.
2. Loosen the alternator fixing nut.
3. Use the adjusting bolt to adjust the belt tension and belt deflection to the standard values.
4. Tighten the nut of the nut for alternator pivot bolt.

**Tightening torque: 44 ± 10 N·m**

5. Tighten the alternator fixing nut.

**Tightening torque: 23 ± 2 N·m**

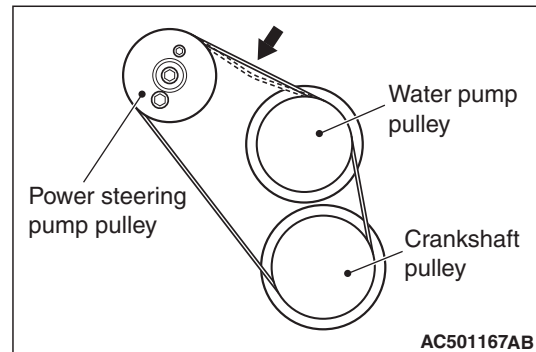
6. Tighten the adjusting bolt.

**Tightening torque: 5.0 ± 1.0 N·m**

**CAUTION**

Always replace the two V-belts together as a set, and do not apply any oil to the belts.

POWER STEERING OIL PUMP DRIVE  
BELT TENSION CHECK



Check the drive belt tension in the following procedure.

**Standard value:**

| Item                      | When checked | When adjusted | When replaced |
|---------------------------|--------------|---------------|---------------|
| Tension N                 | 294 – 490    | 343 – 441     | 490 – 686     |
| Deflection mm (Reference) | 8.0 – 12.0   | 9.0 – 11.5    | 6.0 – 8.0     |

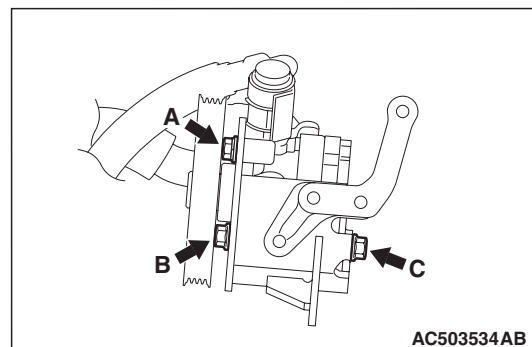
<When using the tension gauge>

Place a belt tension gauge at the centre of the belt between the pulleys (arrow), and check that the belt tension is within the standard value.

<Belt deflection check>

Apply approximately 100 N of pressure against the location between the pulleys shown by the arrow in the illustration and then measure the deflection.

If not within the standard value, adjust the belt tension by the following procedure.



1. Loosen the power steering oil pump fixing bolts A, B, and C.
2. Adjust the belt tension by placing a bar or others to the body of the power steering oil pump, giving an appropriate tension to the belt by hands.

# CAMSHAFT AND VALVE STEM SEAL

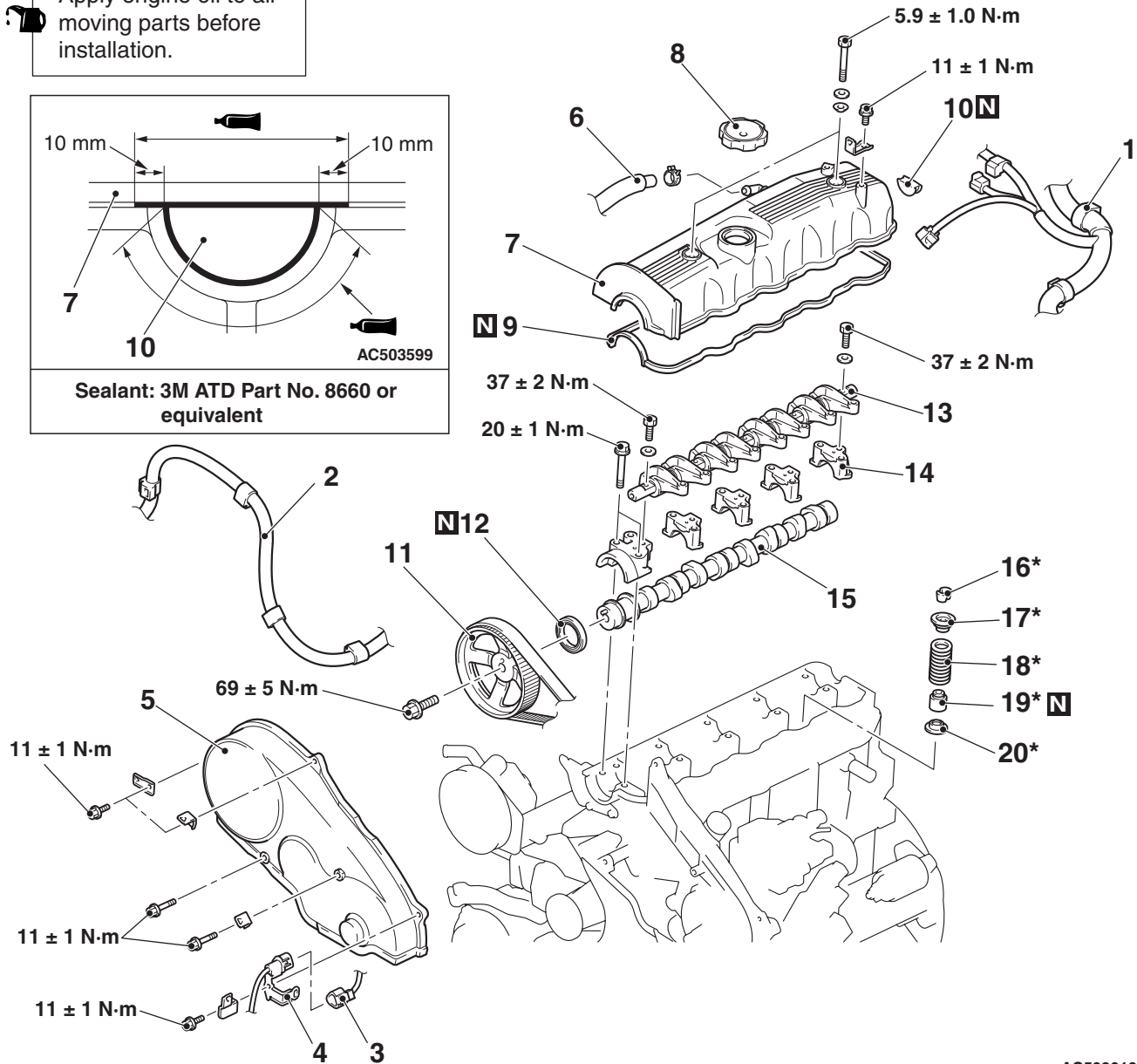
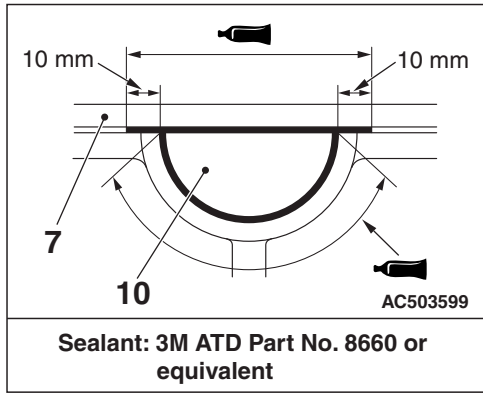
## REMOVAL AND INSTALLATION

M1112006600987

**CAUTION**

\*Remove and assemble the marked parts in each cylinder unit.

Apply engine oil to all moving parts before installation.



AC502018AB

**Camshaft removal steps**

1. Control wiring harness connector
2. Battery wiring harness connector
3. Crank angle position sensor connector
4. Crank angle position sensor connector clamp
5. Timing belt front upper cover
6. Breather hose connection
7. Rocker cover
8. Oil filler cap

>>E<<

<<A>>

<<B>>

>>H<<

>>G<<

>>D<<

>>F<<

**Camshaft removal steps**

9. Rocker cover gasket
10. Semi-circular packing
  - Valve clearance adjustment (Refer to P.11A-8).
11. Camshaft sprocket
12. Camshaft oil seal
13. Rocker arm and shaft assembly
14. Camshaft bearing caps
15. Camshaft

# TIMING BELT

## REMOVAL AND INSTALLATION

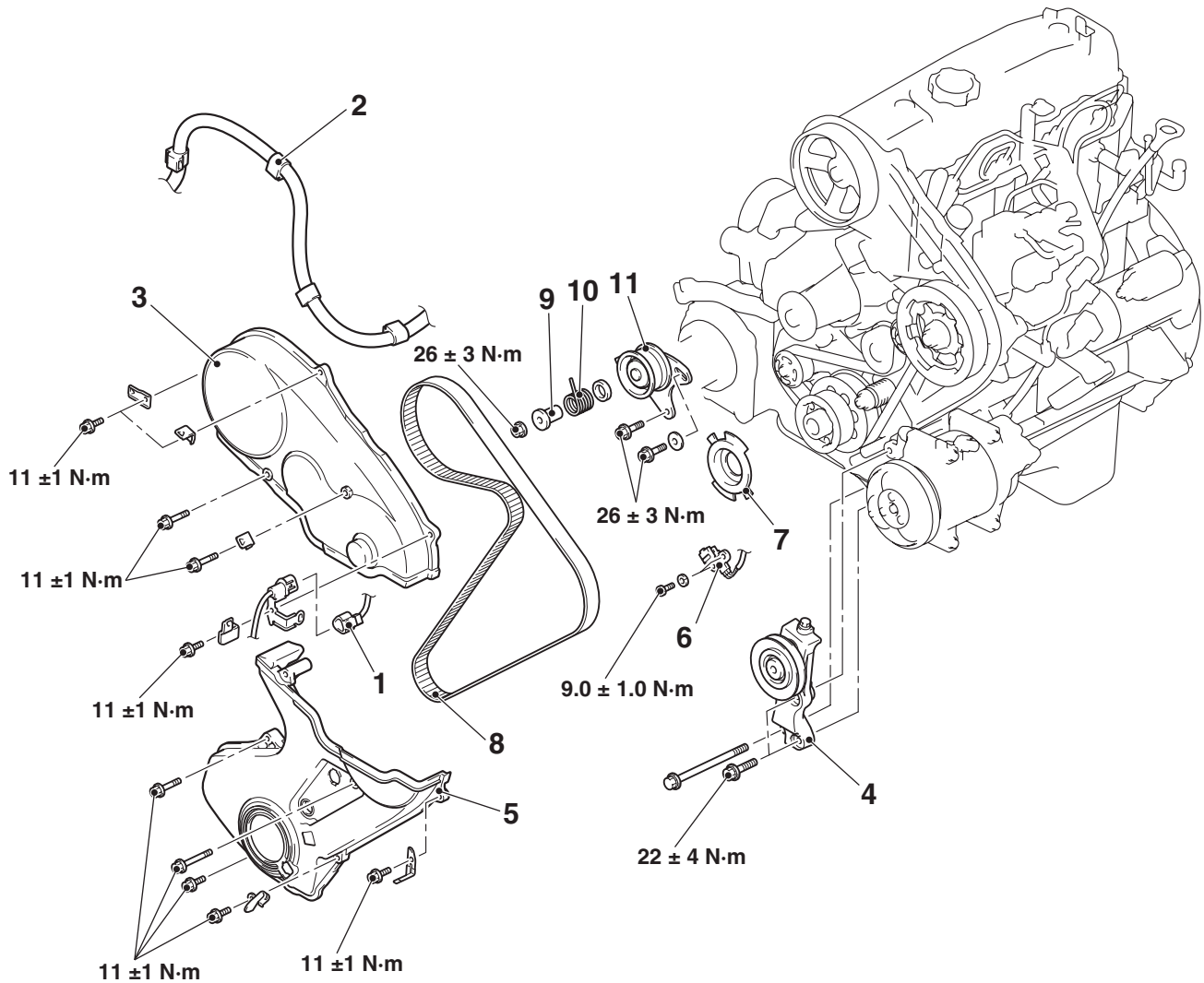
M1112004301358

### Pre-removal Operation

- Cooling Fan Removal (Refer to GROUP 14 –Radiator Fan ).

### Post-installation Operation

- Cooling Fan Installation (Refer to GROUP 14 –Radiator Fan ).
- Drive Belt Tension Check and Adjustment (Refer to P.11A-6).



AC502129AB

### Removal steps

1. Crank angle sensor connector
2. Battery wiring harness connector
3. Timing belt front upper cover
4. Tension pulley and tension pulley bracket assembly
5. Timing belt front lower cover

### Removal steps (Continued)

6. Crank angle sensor
7. Crankshaft sensing blade
8. Timing belt
9. Tensioner spacer
10. Tensioner spring
11. Timing belt tensioner



REMOVAL AND INSTALLATION <4D5-DOHC>

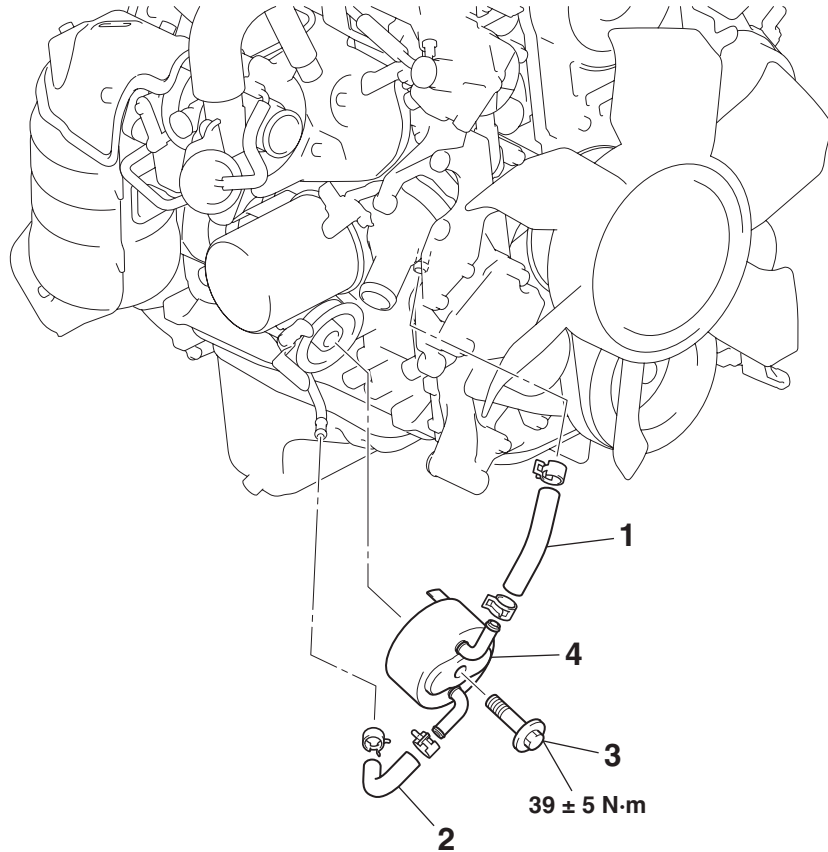
M1121001300235

**Pre-removal Operation**

- Engine Room Under Cover Removal (Refer to GROUP 51 –Under Cover ) <2WD>.
- Under Skid Plate and Engine Room Under Cover Removal (Refer to GROUP 51 –Under Cover ) <4WD>.
- Engine Coolant Draining (Refer to GROUP 14 –On-vehicle Service, Engine Coolant Replacement ).
- Engine Oil Draining (Refer to P.12-3).
- Alternator Removal (Refer to GROUP 16 –Alternator).

**Post-installation Operation**

- Alternator Installation (Refer to GROUP 16 –Alternator).
- Engine Coolant Refilling (Refer to GROUP 14 –On-vehicle Service, Engine Coolant Replacement ).
- Engine Oil Refilling (Refer to P.12-3).
- Engine Room Under Cover Installation (Refer to GROUP 51 –Under Cover ) <2WD>.
- Under Skid Plate and Engine Room Under Cover Installation (Refer to GROUP 51 –Under Cover ) <4WD>.



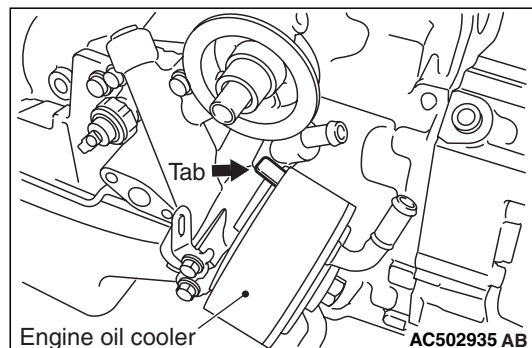
AC502934AB

**Removal steps**

1. Water hose
  2. Water hose
  3. Engine oil cooler bolt
  4. Engine oil cooler
- >>A<<

**INSTALLATION SERVICE POINT**

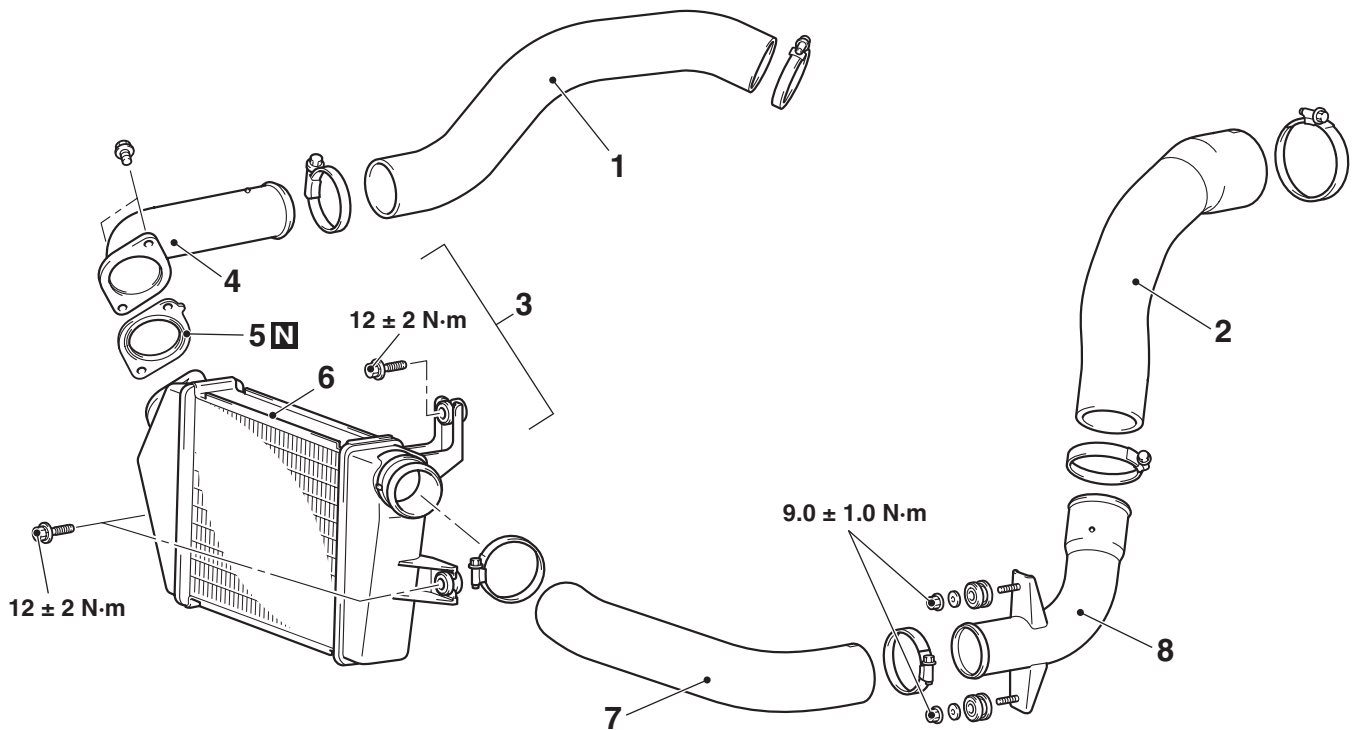
**>>A<< ENGINE OIL COOLER INSTALLATION**



Position the tab as shown in the illustration.

**INTERCOOLER <4D5-DOHC,4M4>****REMOVAL AND INSTALLATION**

M1151002400131

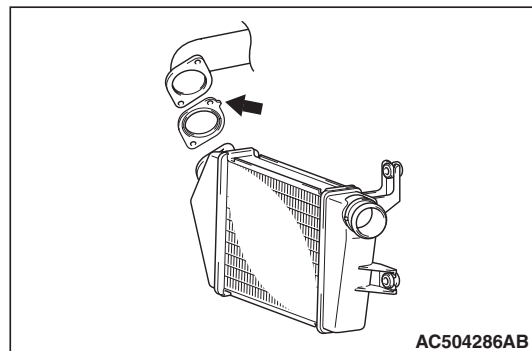


AC501310AB

**Removal steps**

- Air Duct (Refer to P.15-7).
- 1. Air A1 hose
- 2. Air B2 hose
- 3. Intercooler assembly, intercooler gasket, intercooler pipe
- Front bumper assembly (Refer to GROUP 51 –Front Bumper Assembly ).
- 4. Intercooler pipe
- 5. Intercooler gasket
- 6. Intercooler assembly
- 7. Air B1 hose
- Oil reservoir bolt (Refer to GROUP 37 –Power Steering Hose ). <4M4>
- 8. Air B1 pipe

&gt;&gt;A&lt;&lt;

**INSTALLATION SERVICE POINT****>>A<< INTERCOOLER GASKET INSTALLATION**

AC504286AB

The tab on the intercooler gasket should be position as shown.



# TURBOCHARGER ASSEMBLY <4D5-SOHC>

## REMOVAL AND INSTALLATION <4D5-SOHC>

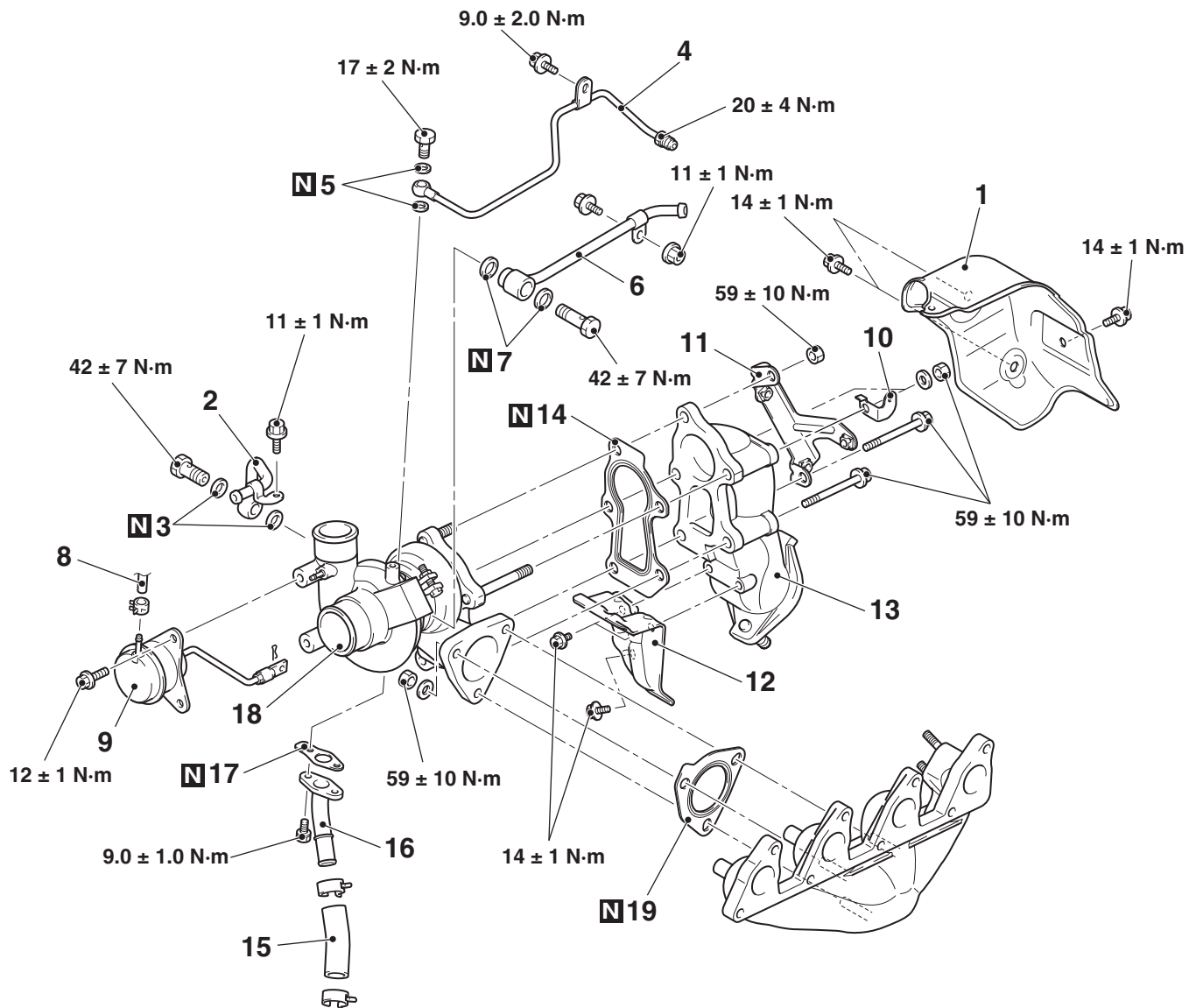
M1151004500037

### Pre-removal Operation

- Engine Oil Draining (Refer to GROUP 12 –On-vehicle Service, Engine Oil Replacement ).
- Engine Coolant Draining (Refer to GROUP 14 –On-vehicle Service, Engine Coolant Replacement ).
- Engine Room Under Cover Removal (Refer to GROUP 51 –Under Cover ).
- Air Cleaner Removal (Refer to P.15-6).
- Throttle Body Removal (Refer to GROUP 13A –Throttle Body ).
- EGR Cooler Removal (Refer to GROUP 17 –EGR Valve and EGR Cooler ).

### Post-installation Operation

- EGR Cooler Installation (Refer to GROUP 17 –EGR Valve and EGR Cooler ).
- Throttle Body Installation (Refer to GROUP 13A –Throttle Body ).
- Air Cleaner Installation (Refer to P.15-6).
- Engine Coolant Refilling (Refer to GROUP 14 –On-vehicle Service, Engine Coolant Replacement ).
- Engine Oil Refilling (Refer to GROUP 12 –On-vehicle Service, Engine Oil Replacement ).
- Engine Room Under Cover Installation (Refer to GROUP 51 –Under Cover ).



AC501678AB

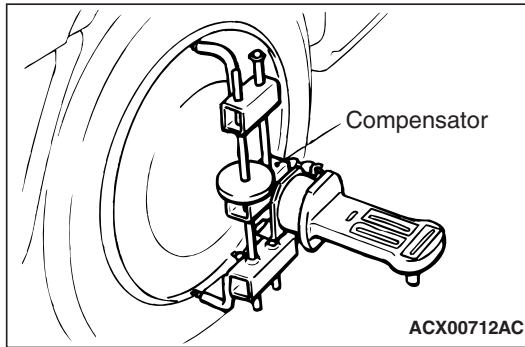
### Removal steps

1. Exhaust fitting upper cover
2. Water pipe A
3. Gasket
4. Oil pipe assembly

### Removal steps (Continued)

5. Gasket
6. Water pipe B
7. Gasket
8. Vacuum hose connection

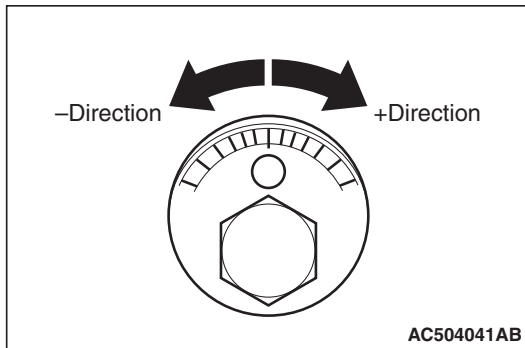
**CAMBER, CASTER AND KINGPIN INCLINATION**



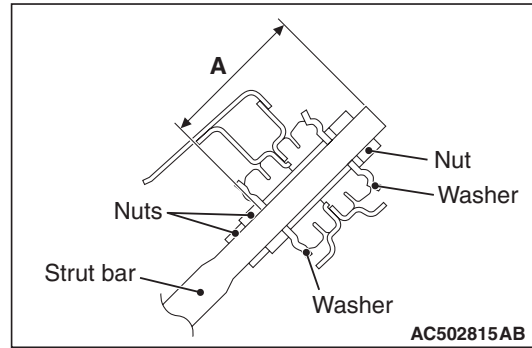
Standard value:

| Item                | Standard value   |                  |
|---------------------|------------------|------------------|
|                     | 2500-SOHC        | 2500-DOHC        |
| Camber              | 0° 00' ± 0° 30'* | 0° 00' ± 0° 30'* |
| Caster              | 3° 54' ± 1° 00'* | 3° 48' ± 1° 00'* |
| Kingpin inclination | 15° 24' ± 0° 30' | 15° 24' ± 0° 30' |

NOTE: \*: Difference between right and left wheels must be less than 30'



1. Adjust the camber and caster until they meet the standard value by turning the lower arm camber adjusting bolt according to the camber and caster reference table (Refer to ).
2. After adjusting the camber, the toe should be adjusted.



3. If the caster is not within the standard value, adjust by turning the nut on the strut bar bushing.

**Relation of variation:**

|               |         |
|---------------|---------|
| Dimension (A) | +1.0 mm |
| Caster angle  | +0° 13' |

NOTE: Turning the nut on the strut bar one turn clockwise will increase the dimension by 1.5 mm (A).

4. Measure the camber again to confirm that its value is within the standard value. If the value is not within the standard value, repeat the adjustment.

**CAMBER AND CASTER REFERENCE TABLE**

**RELATION OF VARIATION**

| Bolt scale   | -4      | -3      | -2      | -1      | 0  | +1      | +2      | +3      | +4      |
|--------------|---------|---------|---------|---------|----|---------|---------|---------|---------|
| Camber angle | +0° 56' | +0° 41' | +0° 28' | +0° 15' | 0° | -0° 15' | -0° 28' | -0° 40' | -0° 54' |
| Caster angle | +1° 11' | +0° 53' | +0° 36' | +0° 20' | 0° | -0° 20' | -0° 36' | -0° 53' | -1° 11' |

**FRONT WHEEL ALIGNMENT CHECK AND ADJUSTMENT <4WD>**

M1331000900808

Measure wheel alignment with alignment equipment on a level surface. The front suspension, steering system, wheels, and tyres should be serviced to normal condition before measuring wheel alignment.

## GENERAL INFORMATION

M1341000100654

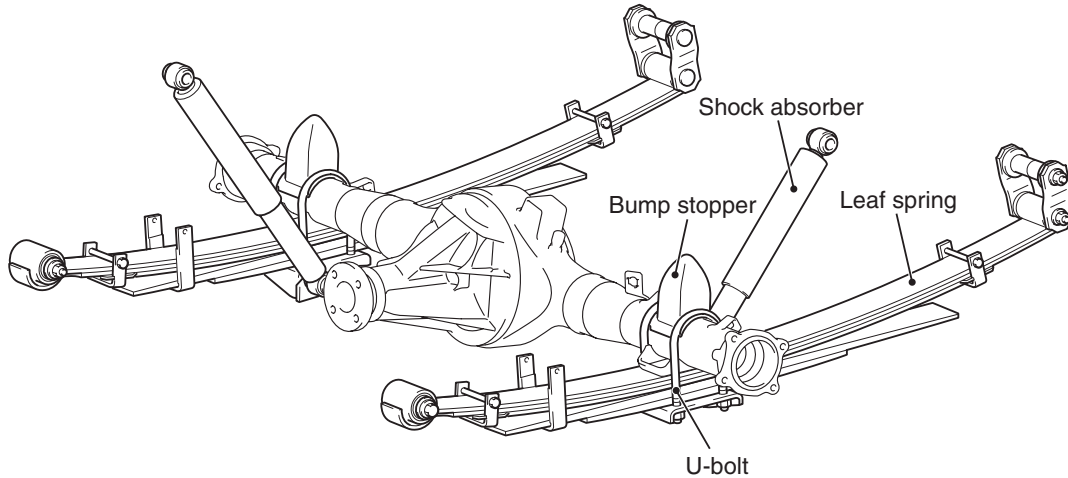
The leaf spring type rear suspension featuring the simple structure and outstanding strength has been adopted.

- The spring is fixed at the top to increase ground clearance.<4WD>

- The suspension geometry has been optimised to assure stability under loaded condition and to improve adhesion under unladen condition, and the SUV-like steering stability has been achieved.<4WD>

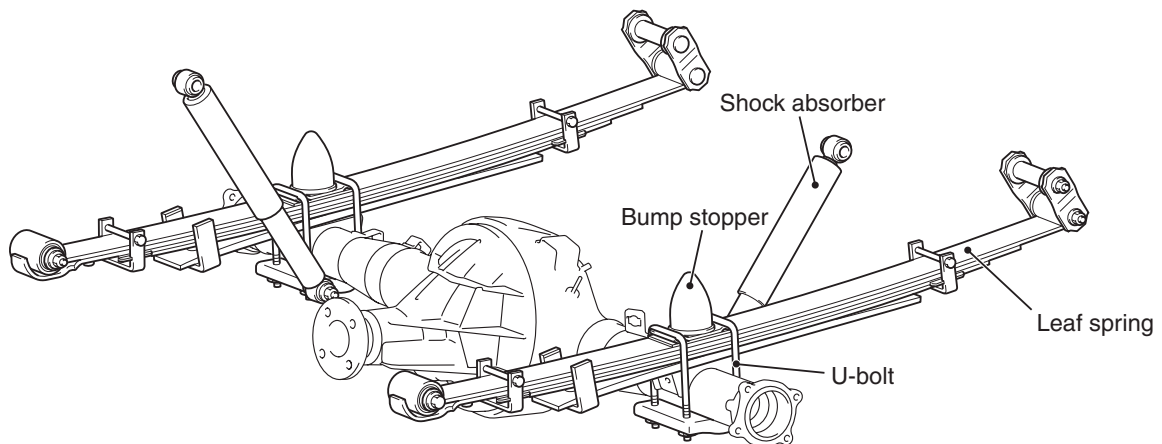
## CONSTRUCTION DIAGRAM

&lt;2WD&gt;



AC501757AB

&lt;4WD&gt;

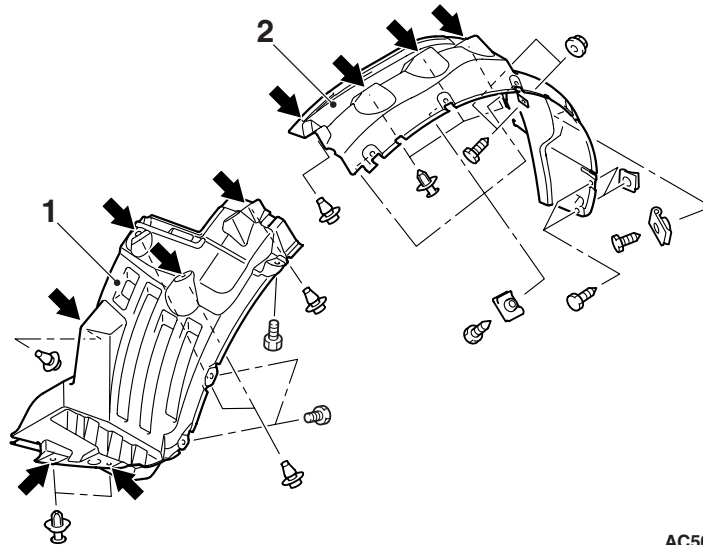


AC501758AB

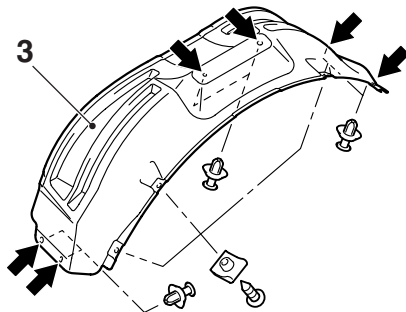
## SPLASH SHIELD

## REMOVAL AND INSTALLATION

M1421009700012

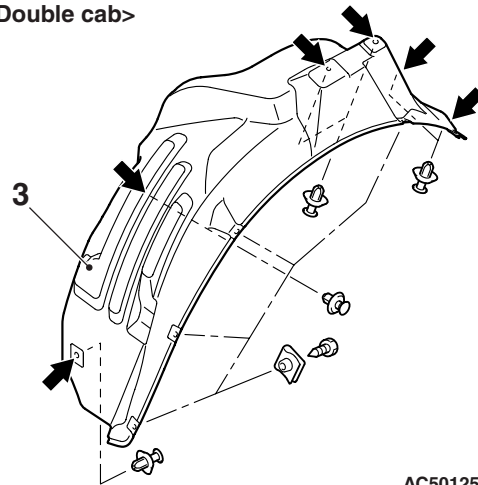


&lt;Club cab&gt;



AC501253

&lt;Double cab&gt;



AC501254

Note

: Clip positions

AC502958 AB

**Front splash shield removal steps**

- Front overfender <4WD> (Refer to GROUP 51, Overfender .)
  - Front mud guard (Refer to GROUP 51, Mud Guard .)
1. Front splash shield (Front bumper side)
  2. Front splash shield (Fender side)

**Rear splash shield removal steps**

- Rear overfender <4WD> (Refer to GROUP 51, Overfender .)
3. Rear splash shield

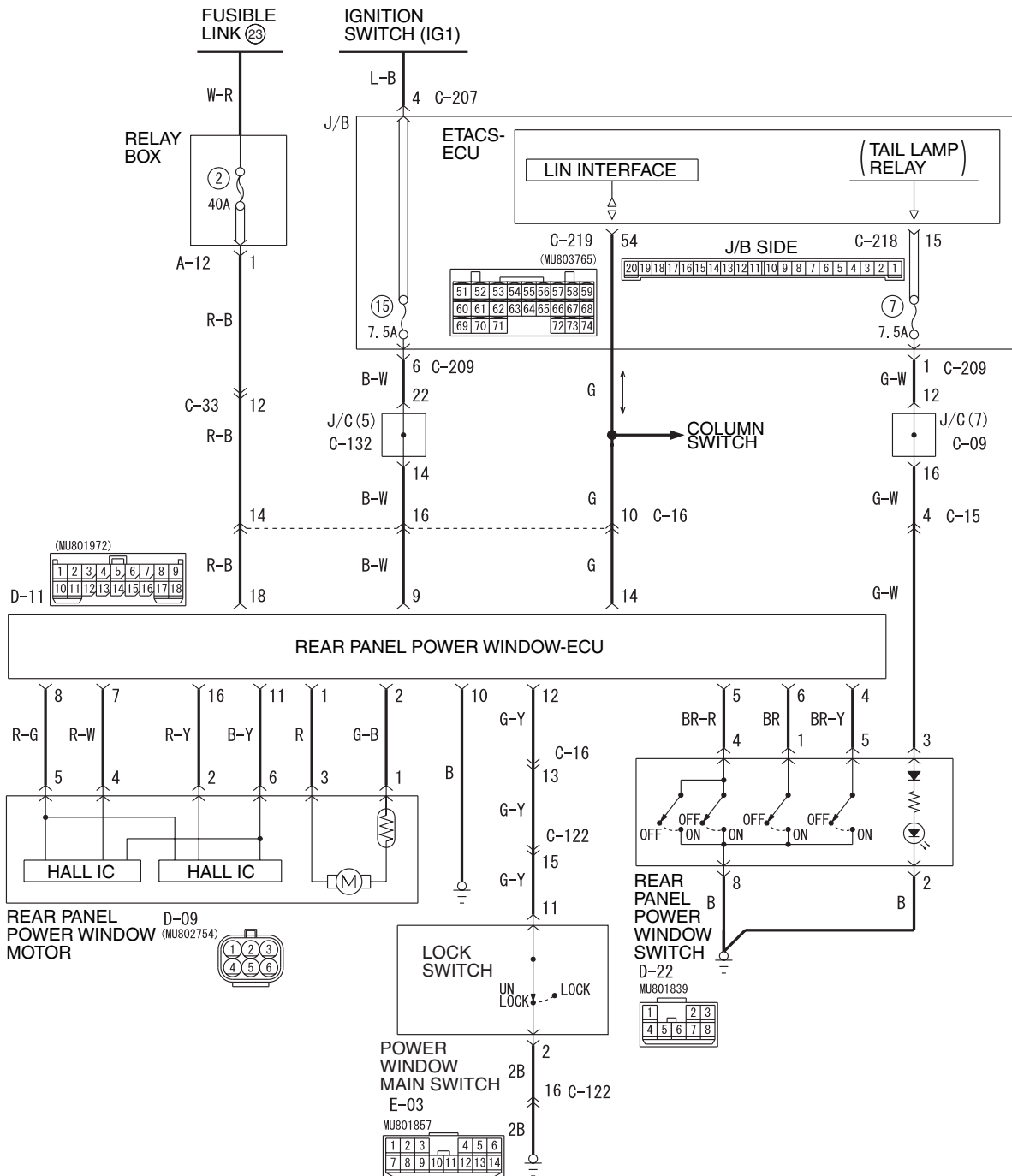
SYMPTOM PROCEDURES

Inspection Procedure 1: Rear Panel Power Window do not Work at All.

**CAUTION**

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Rear Panel Power Window Circuit



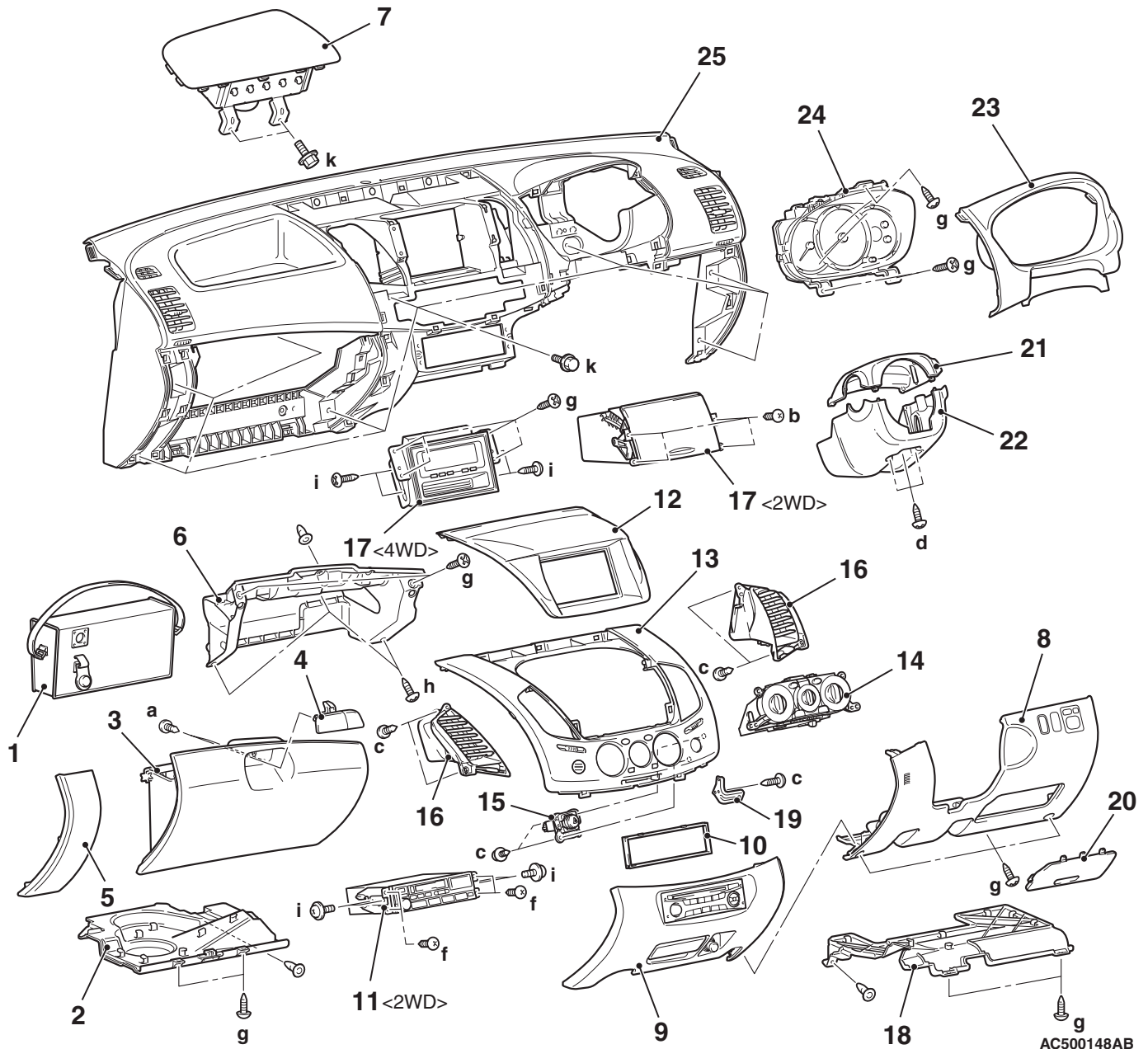
Wire colour code  
 B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue  
 BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

**CAUTION**

- Refer to **GROUP 52B, Service Precautions (Refer to ) and Driver's, Front Passenger's Air bag Module(s) and Clock Spring (Refer to )** before removing the passenger's (front) air bag module.
- Do not subject the SRS-ECU to any shocks when removing or installing the instrument panel.

**Pre-removal and Post-installation Operation**

- Removal and Installation of Front Pillar Trim (Refer to [P.52A-10](#)).
- Removal and Installation of Hood Lock Release Handle (Refer to **GROUP 42, Hood** ).
- Removal and Installation of Fuel filler lid lock release handle (Refer to **GROUP 42, Fuel filler lid <Club Cab> or <Double Cab>**).



AC500148AB

**Removal steps**

1. Cooler bag <GLS-S>
2. Passenger's side under cover <3200>

**Removal steps (Continued)**

3. Glove box
4. Glove box lock assembly
5. Instrument panel side cover



**TROUBLE JUDGMENT**

If the RV meter communication signal (IG ON signal from column ECU, buzzer request signal from RV meter) is not communicated from the CAN adapter, the diagnosis code No. 24 is set.

**COMMENT ON TROUBLE SYMPTOM**

The M.U.T.-III shows a diagnosis code status as active.

- The harness or connector between the RV meter and CAN adapter may be faulty.

The M.U.T.-III shows a diagnosis code status as stored.

- Diagnosis code No. 24 is stored as a past trouble, carry out the diagnosis with a particular emphasis on problems to harness and connector between the RV meter and CAN adapter. For diagnosis procedures, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Treat Past Trouble .

**NOTE:** For a past trouble, you cannot find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions and check the CAN bus lines. You can narrow down the probable cause of the trouble by referring to the diagnosis code, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C –CAN Bus Line Diagnostic Flow ).

**PROBABLE CAUSES**

- Malfunction of the CAN adapter
- Damaged harness wires and connectors
- Malfunction of the CAN bus

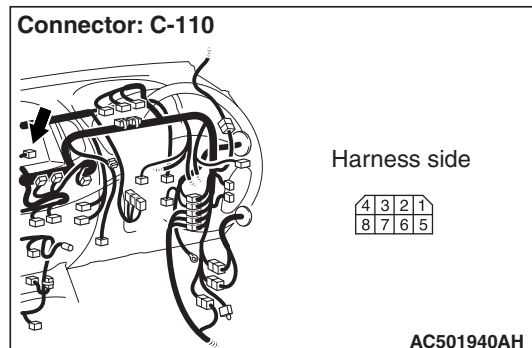
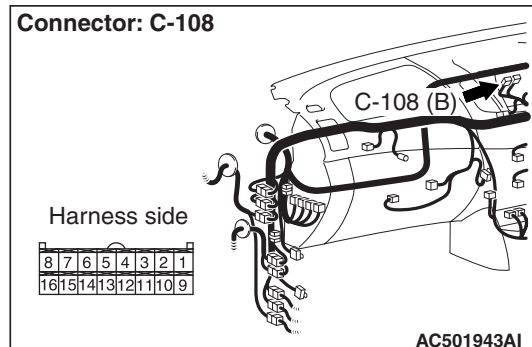
**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C –Troubleshooting ). On completion, go to Step 2.

**STEP 2. Connector check: RV meter connector C-108 and CAN adapter connector C-110**

**Q: Is the check result normal?**

**YES :** Go to Step 3.

**NO :** Repair the defective connector.