
GENERAL

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HOW TO USE THIS MANUAL

SCOPE OF MAINTENANCE, REPAIR AND SERVICING EXPLANATIONS

This manual provides explanations, etc. concerning procedures for the inspection, maintenance, repair and servicing of the subject model. Note, however, that for engine and transmission-related component parts, this manual covers only on-vehicle inspections, adjustments, and the removal and installation procedures for major components.

For detailed information concerning the inspection, checking, adjustment, disassembly and reassembly of the engine, transmission and major components after they have been removed from the vehicle, please refer to separate manuals covering the engine and the transmission.

ON-VEHICLE SERVICE

“On-vehicle Service” is procedures for performing inspections and adjustments of particularly important locations with regard to the construction and for maintenance and servicing, but other inspection (for looseness, play, cracking, damage, etc.) must also be performed.

INSPECTION

Under this title are presented inspection and checking procedures to be performed by using special tools and measuring instruments and by feeling, but, for actual maintenance and servicing procedures, visual inspections should always be performed as well.

DEFINITION OF TERMS

STANDARD VALUE

Indicates the value used as the standard for judging the quality of a part or assembly on inspection or the value to which the part or assembly is corrected and adjusted. It is given by tolerance.

LIMIT

Shows the standard for judging the quality of a part or assembly on inspection and means the maximum or minimum value within which the part or assembly must be kept functionally or in strength. It is a value established outside the range of standard value.

REFERENCE VALUE

Indicates the adjustment value prior to starting the work (presented in order to facilitate assembly and adjustment procedures, and so they can be completed in a shorter time).

CAUTION

Indicates the presentation of information particularly vital to the worker during the performance of maintenance and servicing procedures in order to avoid the possibility of injury to the worker, or damage to component parts, or a reduction of component or vehicle function or performance, etc.

INDICATION OF TIGHTENING TORQUE

The tightening torque shown in this manual is a basic value with a tolerance of $\pm 10\%$ except the following cases when the upper and lower limits of tightening torque are given.

- (1) The tolerance of the basic value is within $\pm 10\%$.
- (2) Special bolts or the like are in use.
- (3) Special tightening methods are used.

MODEL INDICATIONS

The following abbreviations are used in this manual for classification of model types.

GDI: Indicates the gasoline direct injection.

DOHC: Indicates an engine with the double overhead camshaft, or a model equipped with such an engine.

M/T: Indicates the manual transmission, or models equipped with the manual transmission.

A/T: Indicates the automatic transmission, or models equipped with the automatic transmission.

A/C: Indicates the air conditioner.

EXPLANATION OF MANUAL CONTENTS

Indicates procedures to be performed before the work in that section is started, and procedures to be performed after the work in that section is finished.

Component Diagram

A diagram of the component parts is provided near the front of each section in order to give a reader a better understanding of the installed condition of component parts.

Indicates (by symbols) where lubrication is necessary.

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 reassembly is impossible in reverse order of disassembly steps. Omitted if reassembly is possible in reverse order of disassembly steps.

Classifications of Major Maintenance/Service Points

When there are major points relative to maintenance and servicing procedures (such as essential maintenance and service points, maintenance and service standard values, information regarding the use of special tools, etc.), these are arranged together as major maintenance and service points and explained in detail.



: Indicates that there are essential points for removal or disassembly.



: Indicates that there are essential points for installation or reassembly.

Symbols for Lubrication, Sealants and Adhesives

Information concerning the locations for lubrication and for application of sealants and adhesives is provided, by using symbols, in the diagram of component parts or on the page following the component parts page, and explained.



: Grease
(multipurpose grease unless there is a brand or type specified)



: Sealant or adhesive



: Brake fluid or automatic transmission fluid



: Engine oil, gear oil or air conditioner compressor oil



: Adhesive tape or butyl rubber tape

- Indicates the group title.
- Indicates the section title.
- Indicates the group number.
- Indicates the page number.

STEERING – Power Steering Oil Pump **37A-29**

POWER STEERING GEAR BOX 120000039

REMOVAL AND INSTALLATION

Pre-removal Operation

- (1) Power Steering Fluid Draining (Refer to P. 37A-10.)
- (2) Air Cleaner Assembly Removal
- (3) Under Cover Removal (Refer to GROUP 42 – Under Cover.)

Sealant: 3M ATD Part No. 8661 or equivalent

Oil pump seal kit

Oil pump cartridge kit

Removal steps

1. Lower shaft assembly and gear box connecting bolt
2. Split pin
3. Connection for tie-rod end and knuckle
4. Connection for return tube
5. Connection for pressure tube
6. Clamp
7. Gear box assembly

REMOVAL SERVICE POINTS

◀A▶ TIE-ROD END DISCONNECTION

Caution

1. Using the special tool, loosen the tie rod end mounting nut. Only loosen the nut; do not remove it from the ball joint.
2. Support the special tool with a cord, etc. to prevent it from coming off.

HEADLAMP RELAY CONTINUITY INSPECTION

Battery voltage	Terminal No.			
	1	3	4	5
Power is not supplied	○—○			
Power is supplied	⊕—⊖	○—○		

35A-26 BASIC BRAKE SYSTEM – Master Cylinder and Brake Booster

Lubrication and sealing points

Sealant: 3M ATD Part No. 8663 or equivalent

N Denotes non-reusable part.

Denotes tightening torque. For bolts and nuts which do not have a tightening torque listed, refer to the "Standard Parts-tightening-torque Table".

Repair kit or set parts are shown. (Only very frequently used parts are shown.)

Operating procedures, cautions, etc. on removal, installation, disassembly and reassembly are described.

○—○ indicates that there is a continuity between the terminals.
 ⊕—⊖ indicates terminals to which battery voltage is applied.

The title of the page (following the page on which the diagram of component parts is presented) indicating the locations of lubrication and sealing procedures.

HOW TO USE TROUBLESHOOTING/INSPECTION SERVICE POINTS

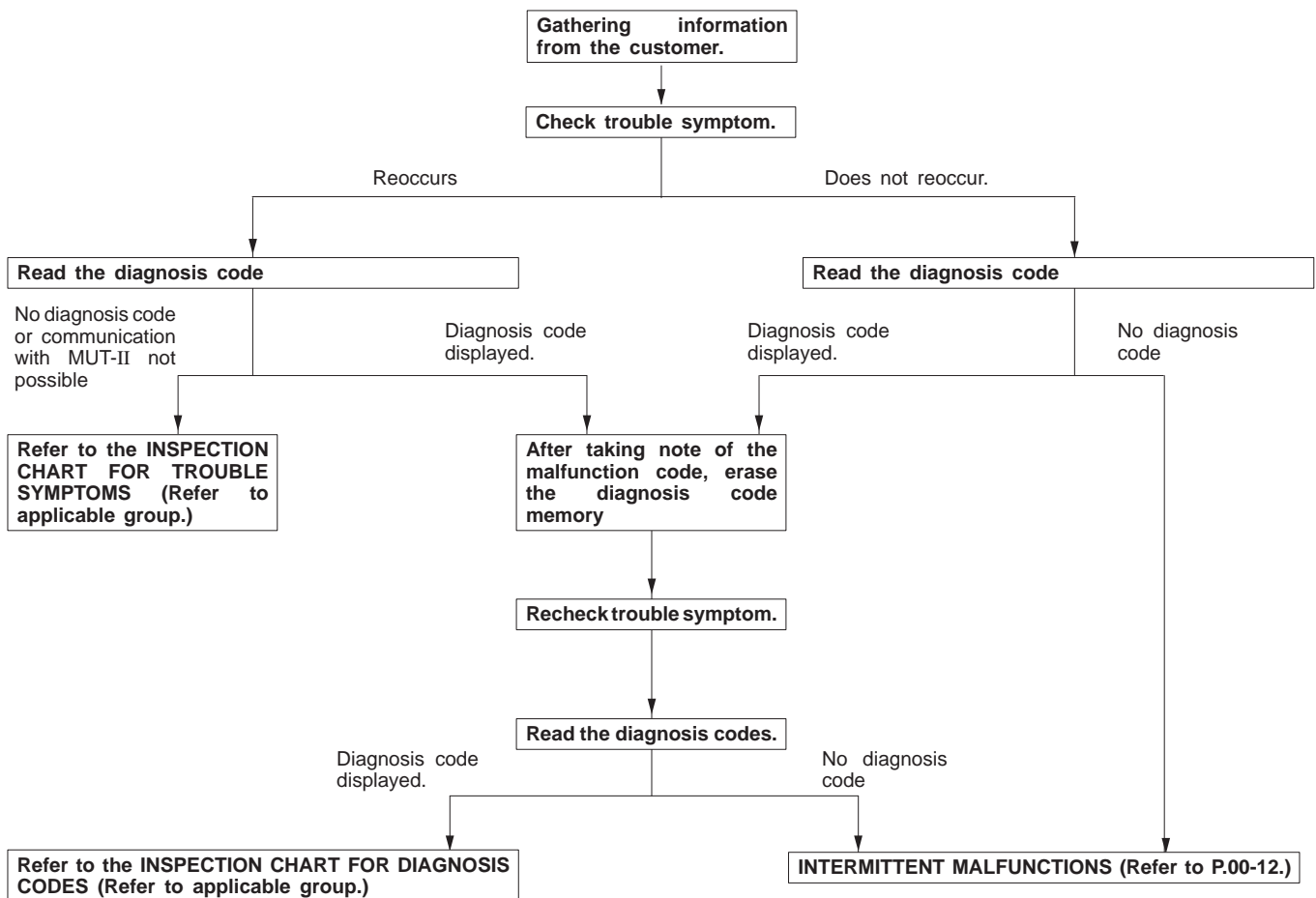
Troubleshooting of electronic control systems for which the MUT-II can be used follows the basic outline described below. Furthermore, even in systems for which the MUT-II cannot be used, part of these systems still follow this outline.

TROUBLESHOOTING CONTENTS

1. STANDARD FLOW OF DIAGNOSIS TROUBLESHOOTING

The troubleshooting sections follow the basic diagnosis flow which is given below. If the diagnosis flow is different from that given below, or if additional explanation is required, the details of such differences or additions will also be listed.

Diagnosis method



2. SYSTEM OPERATION AND SYMPTOM VERIFICATION TESTS

If verification of the trouble symptoms is difficult, procedures for checking operation and verifying trouble symptoms are shown.

3. DIAGNOSIS FUNCTION

Details which are different from those in the “Diagnosis Function” section on the next page are listed.

4. INSPECTION CHART FOR DIAGNOSIS CODES

5. INSPECTION PROCEDURE FOR DIAGNOSIS CODES

Indicates the inspection procedures corresponding to each diagnosis code. (Refer to P.00-9 for how to use the inspection procedures.)

6. INSPECTION CHART FOR TROUBLE SYMPTOMS

If there are trouble symptoms even though the results of inspection using the MUT-II show that all diagnosis codes are normal, inspection procedures for each trouble symptom will be found by means of this chart.

7. INSPECTION PROCEDURE FOR TROUBLE SYMPTOM

Indicates the inspection procedures corresponding to each trouble symptoms classified in the Inspection Chart for Trouble Symptoms. (Refer to P.00-9 for how to use the inspection procedures.)

8. SERVICE DATA REFERENCE TABLE

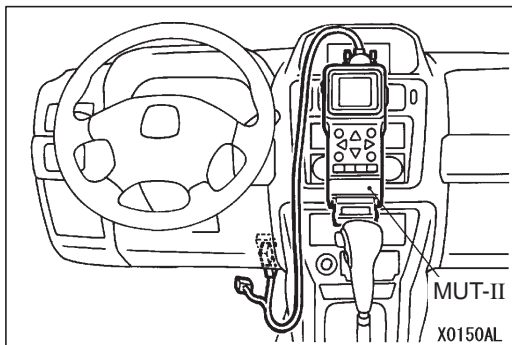
Inspection items and normal judgement values have been provided in this chart as reference information.

9. CHECK AT ECU TERMINALS

Terminal numbers for the ECU connectors, inspection items and standard values have been provided in this chart as reference information.

10. INSPECTION PROCEDURES USING AN OSCILLOSCOPE

When there are inspection procedures using an oscilloscope, these are listed here.



DIAGNOSIS FUNCTION

METHOD OF READING DIAGNOSIS CODES

WHEN USING THE MUT-II

Connect the MUT-II to the diagnosis connector and take a reading of the diagnosis codes.

Caution

Turn the ignition switch to the LOCK (OFF) position before connecting or disconnecting the MUT-II.

METHOD OF ERASING DIAGNOSIS CODES

WHEN USING THE MUT-II

Connect the MUT-II to the diagnosis connector and erase the diagnosis code.

Caution

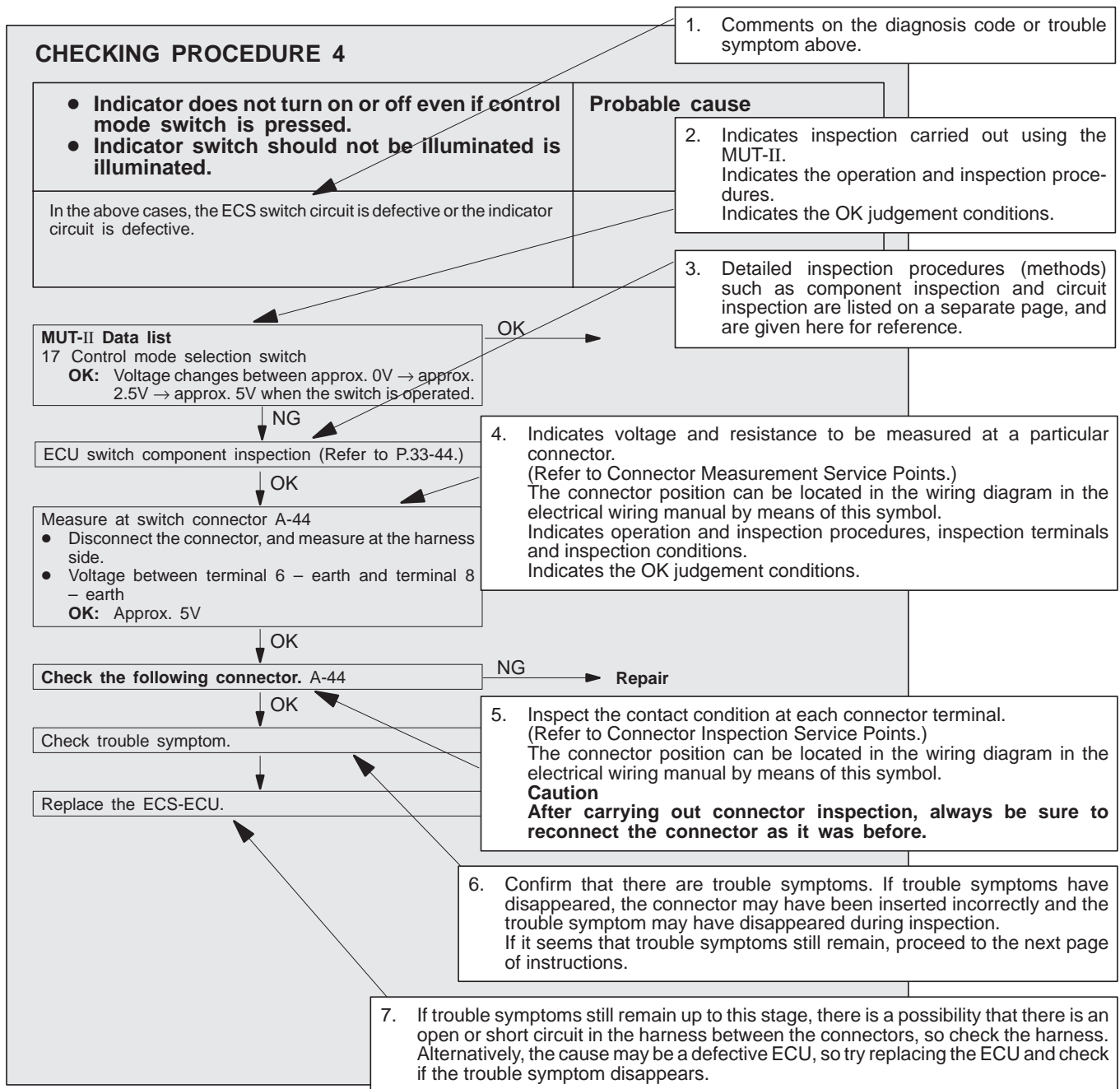
Turn the ignition switch to the LOCK (OFF) position before connecting or disconnecting the MUT-II.

WHEN NOT USING THE MUT-II

1. Turn the ignition switch to the LOCK (off) position.
2. After disconnecting the battery cable from the negative (-) battery terminal, wait for 10 seconds or more and reconnect the cable.
3. Warm up the engine and run at idle for about 15 minutes.

HOW TO USE THE INSPECTION PROCEDURES

The causes of a high frequency of problems occurring in electronic circuitry are generally the connectors, components, the ECU and the harnesses between connectors, in that order. These inspection procedures follow this order, and they first try to discover a problem with a connector or a defective component.



HARNESS INSPECTION

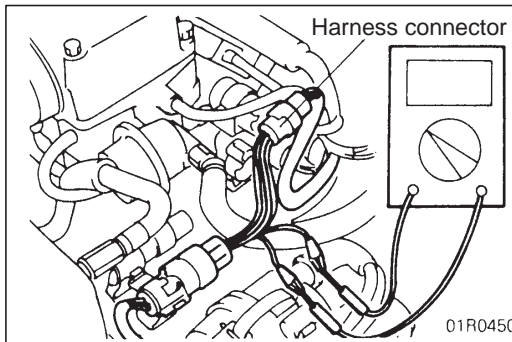
Check for an open or short circuit in the harness between the terminals which were defective according to the connector measurements. Carry out this inspection while referring to the electrical wiring manual. Here, “Check harness between power supply and terminal xx” also includes checking for blown fuses. For inspection service points when there is a blown fuse, refer to “Inspection Service Points for a Blown Fuse.”

MEASURES TO TAKE AFTER REPLACING THE ECU

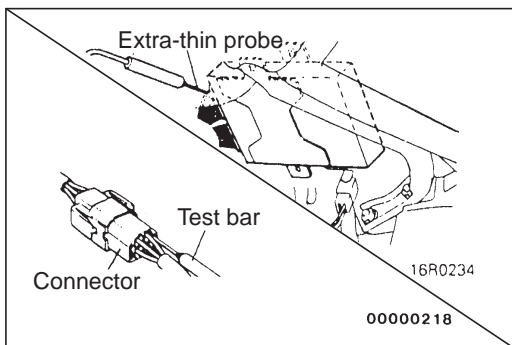
If the trouble symptoms have not disappeared even after replacing the ECU, repeat the inspection procedure from the beginning.

CONNECTOR MEASUREMENT SERVICE POINTS

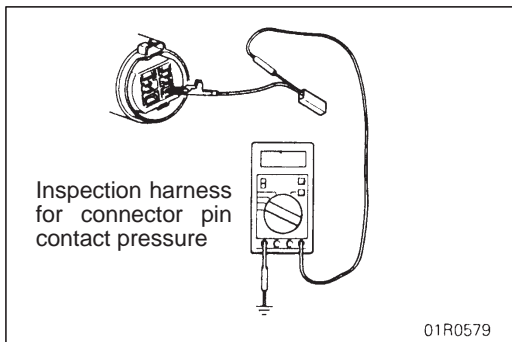
Turn the ignition switch to the LOCK (OFF) position when connecting or disconnecting the connectors and turn the ignition switch ON when measuring, unless otherwise instructed.

**WHEN INSPECTING WITH CONNECTOR CONNECTED (WITH CIRCUIT IN CONDITION OF CONTINUITY)****Waterproof Connectors**

Be sure to use the special tool (harness connector). Never insert a test bar from the harness side, because to do so will reduce the waterproof performance and result in corrosion.

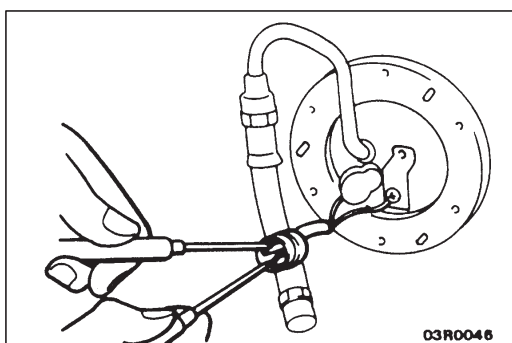
**Ordinary (non-waterproof) Connectors**

Check by inserting the test bar from the harness side. Note that if the connector (control unit, etc.) is too small to permit insertion of the test bar, it should not be forced; use a special tool (the extra-thin probe in the harness set for checking for this purpose).

**WHEN INSPECTING WITH CONNECTOR DISCONNECTED****<When Inspecting a Female Pin>**

Use the special tool (inspection harness for connector pin contact pressure in the harness set for inspection).

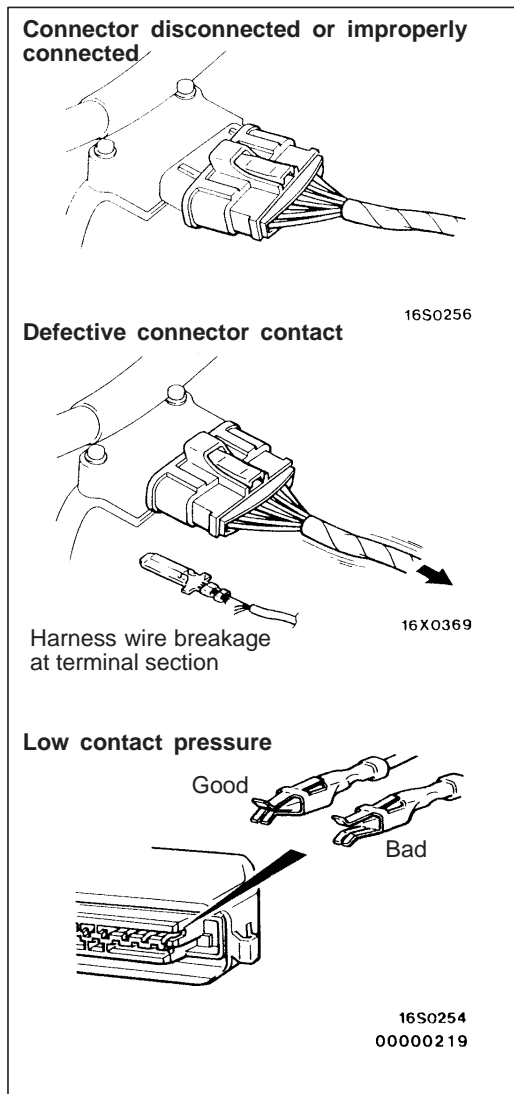
The inspection harness for connector pin contact pressure should be used. The test bar should never be forcibly inserted, as it may cause a defective contact.

**<When Inspecting a Male Pin>**

Touch the pin directly with the test bar.

Caution

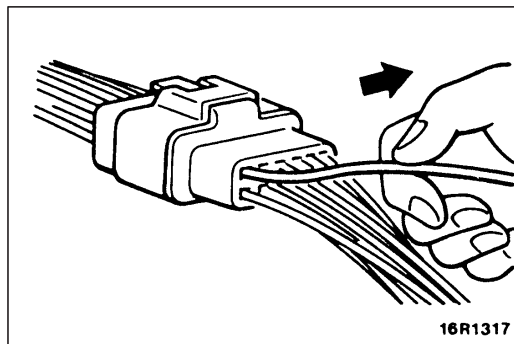
At this time, be careful not to short the connector pins with the test bars. To do so may damage the circuits inside the ECU.



CONNECTOR INSPECTION

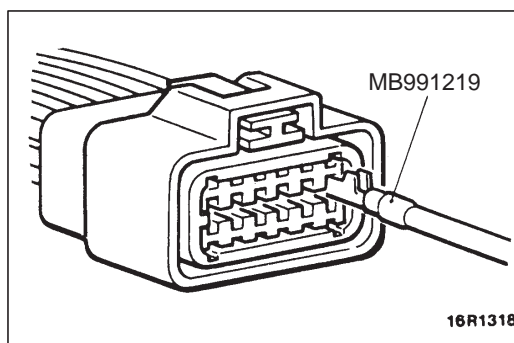
VISUAL INSPECTION

- Connector is disconnected or improperly connected
- Connector pins are pulled out
- Due to harness tension at terminal section
- Low contact pressure between male and female terminals
- Low connection pressure due to rusted terminals or foreign matter lodged in terminals



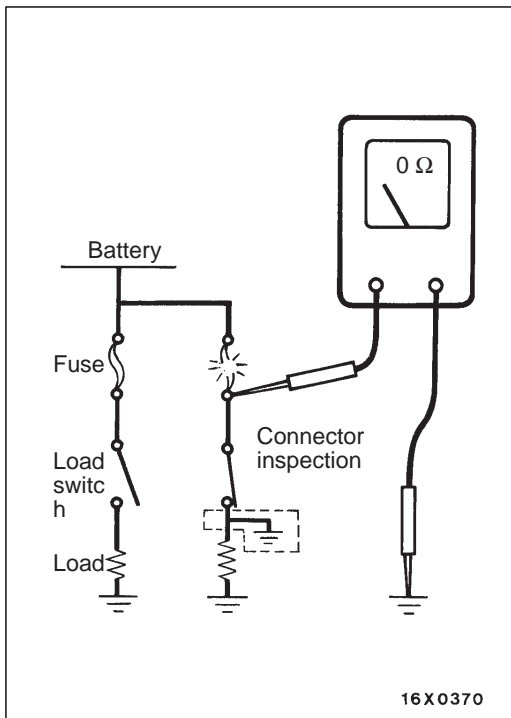
CONNECTOR PIN INSPECTION

If the connector pin stopper is damaged, the terminal connections (male and female pins) will not be perfect even if the connector body is connected, and the pins may pull out of the reverse side of the connector. Therefore, gently pull the harnesses one by one to make sure that no pins pull out of the connector.



CONNECTOR ENGAGEMENT INSPECTION

Use the special tool (connector pin connection pressure inspection harness of the inspection harness set) to inspect the engagement of the male pins and female pins. (Pin drawing force : 1 N or more)

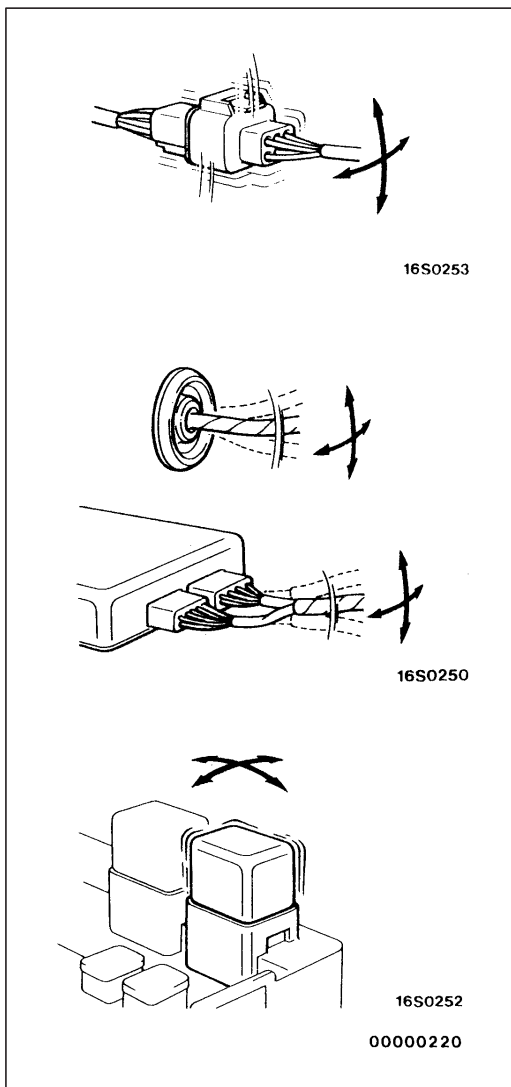


INSPECTION SERVICE POINTS FOR A BLOWN FUSE

Remove the fuse and measure the resistance between the load side of the fuse and the earth. Set the switches of all circuits which are connected to this fuse to a condition of continuity. If the resistance is almost 0 Ω at this time, there is a short somewhere between these switches and the load. If the resistance is not 0 Ω, there is no short at the present time, but a momentary short has probably caused the fuse to blow.

The main causes of a short circuit are the following.

- Harness being clamped by the vehicle body
- Damage to the outer casing of the harness due to wear or heat
- Water getting into the connector or circuitry
- Human error (mistakenly shorting a circuit, etc.)



POINTS TO NOTE FOR INTERMITTENT MALFUNCTIONS

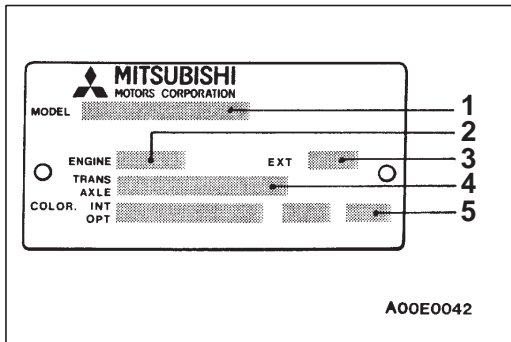
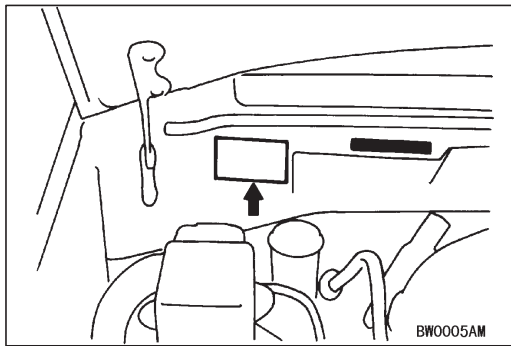
Intermittent malfunctions often occur under certain conditions, and if these conditions can be ascertained, determining the cause becomes simple. In order to ascertain the conditions under which an intermittent malfunction occurs, first ask the customer for details about the driving conditions, weather conditions, frequency of occurrence and trouble symptoms, and then try to recreate the trouble symptoms. Next, ascertain whether the reason why the trouble symptom occurred under these conditions is due to vibration, temperature or some other factor. If vibration is thought to be the cause, carry out the following checks with the connectors and components to confirm whether the trouble symptom occurs.

The objects to be checked are connectors and components which are indicated by inspection procedures or given as probable causes (which generates diagnosis codes or trouble symptoms.)

- Gently shake the connector up, down and to the left and right.
- Gently shake the wiring harness up, down and to the left and right.
- Gently rock each sensor and relay, etc. by hand.
- Gently shake the wiring harness at suspensions and other moving parts.

NOTE

If determining the cause is difficult, the flight recorder function of the MUT-II can also be used.



VEHICLE IDENTIFICATION

VEHICLE INFORMATION CODE PLATE

LOCATION

Vehicle information code plate is riveted on the toeboard inside the engine compartment.

CODE PLATE DESCRIPTION

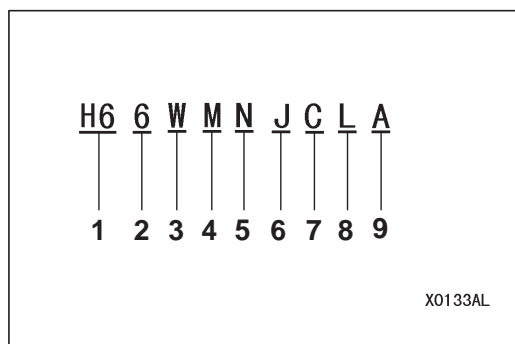
The plate shows model code, engine model, transmission model, and body colour code.

No.	Item	Contents	Contents
1	MODEL	H66W LNUEL	H66W: Vehicle model
			LNUEL: Model series
2	ENGINE	4G93	Engine model
3	EXT	A01A	Exterior code
4	TRANS AXLE	V5M21 4875	W5M21: Transmission code
			4875: Rear differential reduction
5	COLOR INT OPT	A01 11T 03V	A01: Body colour code
			11T: Interior code
			03V: Equipment code

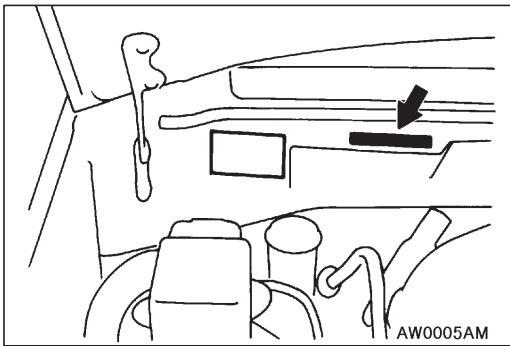
For monotone colour vehicles, the body colour code shall be indicated. For two-tone or three-way two-tone colour vehicles, each colour code only shall be indicated in series.

MODELS

Model code		Engine model	Transmission model	Fuel supply system
H66	WMNJCLA	4G93-DOHC (1,834 mℓ)	V5M21 <5M/T>	GDI
	WMNJCRA		V4AW4 <4A/T>	
	WMRJCLA			
	WMRJCRA			

**MODEL CODE**

No.	Items	Contents
1	Development	H6: MITSUBISHI PAJERO PININ Short wheelbase
2	Engine type	6: 1,800 mℓ petrol engine
3	Sort	W: Wagon
4	Body style	M: 3-door
5	Transmission type	N: 5-speed manual transmission R: 4-speed automatic transmission
6	Trim level	J: GL
7	Specification engine feature	C: GDI-DOHC
8	Steering wheel location	L: Left hand R: Right hand
9	Destination	A: For Europe



CHASSIS NUMBER

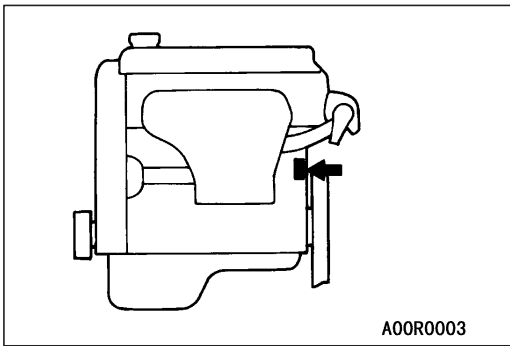
The chassis number is stamped on the toeboard inside the engine compartment.

* J M P 0 N H6 6 W Y X 000001 *

| | | | | | | | |
 1 2 3 4 5 6 7 8 9

X0152AL

No.	Items	Contents	
1	Steering wheel location	JMP	Left hand drive
		JMR	Right hand drive
2	Body style	0	Standard roof
3	Transmission type	N	5-speed manual transmission
		R	4-speed automatic transmission
4	Development order	H6	PAJERO PININ Short wheelbase
5	Engine	6	4G93: 1,834 ml petrol engine
6	Sort	W	Wagon
7	Model year	Y	2000
8	Plant	X	Ooe Plant of Pininfarina Works
9	Serial number	-	-



ENGINE MODEL NUMBER

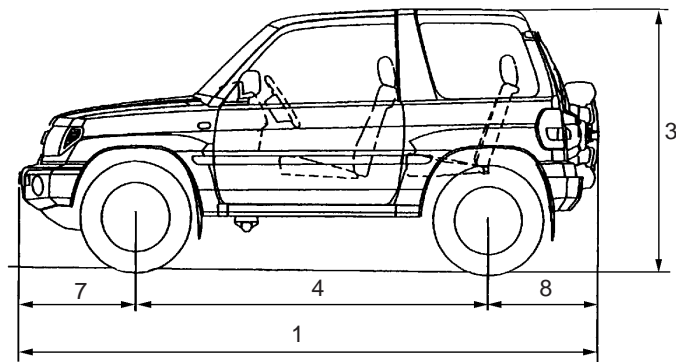
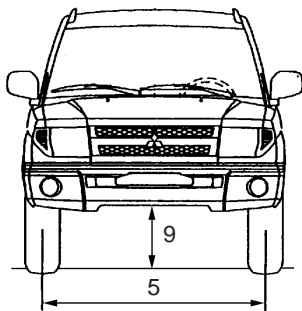
1. The engine model number is stamped on the cylinder block as shown below.

Engine model	Engine displacement ml
4G93	1,834

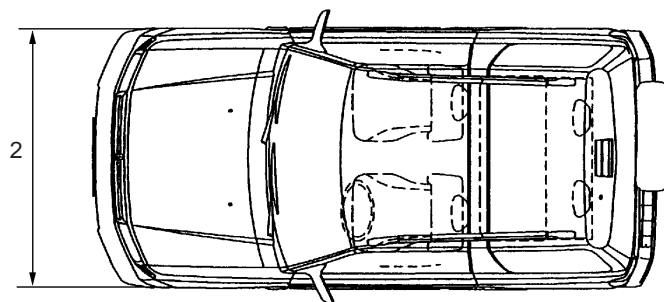
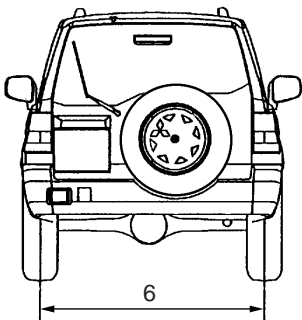
2. The engine serial number is stamped near the engine model number.

Engine serial number	AA0201 to YY9999
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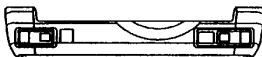
MAJOR SPECIFICATIONS



<L.H. drive vehicles>



<R.H. drive vehicles>



Items		H66WMNJCLA	H66WMNJCRA	H66WMRJCLA	H66WMRJCRA
Vehicle dimensions mm	Overall length	1	3,735/3,765*1		
	Overall width	2	1,695		
	Overall height (unladen)	3	1,695/1,735*2/1,705*3		
	Wheelbase	4	2,280		
	Track-front	5	1,435		
	Track-rear	6	1,445		
	Overhang-front	7	755/785*1		
	Overhang-rear	8	700		
	Ground clearance (unladen)	9	200		
Vehicle weight kg	Kerb weight	1,285		1,305	
	Max. gross vehicle weight	1,690		1,700	
	Max. axle weight rating-front	740		750	
	Max. axle weight rating-rear	545		555	
Seating capacity		4			
Engine	Model No.	4G93			
	Total displacement ml	1,834			
Transmission	Model No.	V5M21	V4AW4	V5M21	V4AW4
	Type	5-speed manual	4-speed automatic	5-speed manual	4-speed automatic
Fuel system	Fuel supply system	Gasoline Direct Injection			

NOTE:

*1: Vehicles with bumper extension

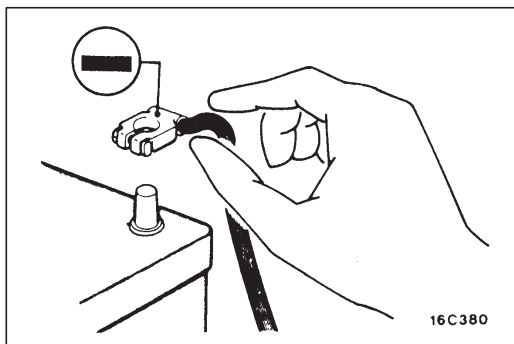
*2: Vehicles with roof rails

*3: Vehicles with roof spoiler

PRECAUTIONS BEFORE SERVICE

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

1. Items to follow when servicing SRS
 - (1) Be sure to read GROUP 52B – Supplemental Restraint System (SRS).
For safe operations, please follow the directions and heed all warnings.
 - (2) Wait at least 60 seconds after disconnecting the battery cable before doing any further work.
The SRS is designed to retain enough voltage to deploy the air bags even after the battery has been disconnected. Serious injury may result from unintended air bag deployment if work is done on the SRS immediately after the battery cable is disconnected.
 - (3) Warning/caution labels must be heeded when servicing or handling SRS components. Warning/caution labels are attached in the following locations.
 - Sun visor
 - Glove box
 - SRS air bag control unit (SRS-ECU)
 - Steering wheel
 - Steering gear box
 - Driver's and passenger's air bag modules
 - Clock spring
 - Side air bag modules
 - Side impact sensors
 - Instrument panel
 - Hood
 - Seat belt with pre-tensioner
 - (4) Always use the designated special tools and test equipment.
 - (5) Store components removed from the SRS in a clean and dry place.
The air bag modules should be stored on a flat surface and placed so that the deployment surfaces are facing upward.
Do not place anything on top of them.
 - (6) Never attempt to disassemble or repair the SRS components (SRS air bag control unit, air bag modules, clock spring and side impact sensors). If faulty replace them.
 - (7) Whenever you finish servicing the SRS, check the SRS warning lamp operation to make sure that the system functions properly.
 - (8) Be sure to deploy the air bag before disposing of the air bag modules or disposing of a vehicle equipped with air bag. (Refer to GROUP 52B – Air Bag Module Disposal Procedures.)
2. Observe the following when carrying out operations on places where SRS components are installed, including operations not directly related to the SRS air bag.
 - (1) When removing or installing parts do not allow any impact or shock to the SRS components.
 - (2) SRS components should not be subjected to heat over 93°C, so remove the SRS components before drying or baking the vehicle after painting.
After re-installing them, check the SRS warning lamp operation to make sure that the system functions properly.



SERVICING THE ELECTRICAL SYSTEM

Before replacing a component related to the electrical system and before undertaking any repair procedures involving the electrical system, be sure to first disconnect the negative (-) cable from the battery in order to avoid damage caused by short-circuiting.

Caution

Before connecting or disconnecting the negative (-) cable, be sure to turn off the ignition switch and the lighting switch.

(If this is not done, there is the possibility of semiconductor parts being damaged.)

APPLICATION OF ANTI-CORROSION AGENTS AND UNDERCOATS

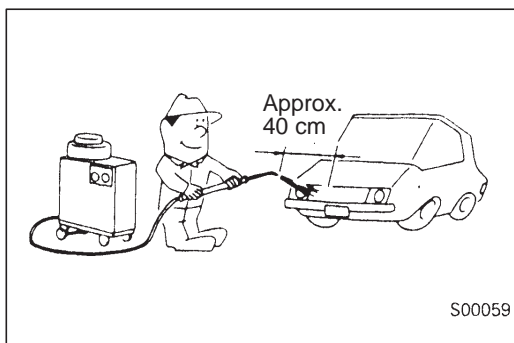
If oil or grease gets onto the oxygen sensor, it will cause a drop in the performance of the sensor.

Cover the oxygen sensor with a protective cover when applying anti-corrosion agents and undercoats.

PRE-INSPECTION CONDITION

“Pre-inspection condition” refers to the condition that the vehicle must be in before proper engine inspection can be carried out. If you see the words “Set the vehicle to the pre-inspection condition”. in this manual, it means to set the vehicle to the following condition.

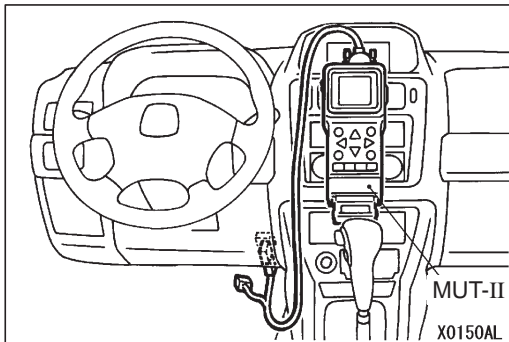
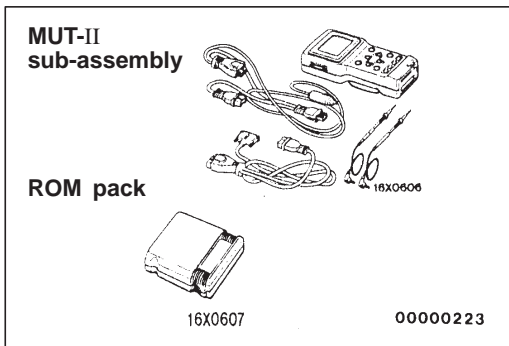
- Engine coolant temperature: 80 to 90°C
- Lamps, electric cooling fan and all accessories: OFF
- M/T: Neutral
- A/T: P range



VEHICLE WASHING

If high-pressure car-washing equipment or steam car-washing equipment is used to wash the vehicle, be sure to note the following information in order to avoid damage to plastic components, etc.

- Spray nozzle distance: Approx. 40 cm or more
- Spray pressure: 3,900 kPa or less
- Spray temperature: 82°C or less
- Time of concentrated spray to one point: within 30 sec.



MUT-II

Refer to the “MUT-II REFERENCE MANUAL” or “MUT-II OPERATING INSTRUCTIONS” for instructions on handling the MUT-II.

Connect the MUT-II to the diagnosis connector as shown in the illustration.

Caution

Turn the ignition switch to the **LOCK (OFF)** position before connecting or disconnecting the MUT-II.

IN ORDER TO PREVENT VEHICLES FROM FIRE

“Improper installation of electrical or fuel related parts could cause a fire. In order to retain the high quality and safety of the vehicle, it is important that any accessories that may be fitted or modifications/repairs that may be carried out which involve the electrical or fuel systems, **MUST** be carried out in accordance with MMC’s information/Instructions”.

ENGINE OILS

Health Warning

Prolonged and repeated contact with mineral oil will result in the removal of natural fats from the skin, leading to dryness, irritation and dermatitis. In addition, used engine oil contains potentially harmful contaminants which may cause skin cancer. Adequate means of skin protection and washing facilities must be provided.

Recommended Precautions

The most effective precaution is to adapt working practices which prevent, as far as practicable, the risk of skin contact with mineral oils, for example by using enclosed systems for handling used engine oil and by degreasing components, where practicable, before handling them.

Other precautions:

- Avoid prolonged and repeated contact with oils, particularly used engine oils.
- Wear protective clothing, including impervious gloves where practicable.
- Avoid contaminating clothes, particularly underpants, with oil.
- Do not put oily rags in pockets, the use of overalls without pockets will avoid this.
- Do not wear heavily soiled clothing and oil-impregnated foot-wear. Overalls must be cleaned regularly and kept separately from personal clothing.
- Where there is a risk of eye contact, eye protection should be worn, for example, chemical goggles or face shields; in addition an eye wash facility should be provided.
- Obtain First Aid treatment immediately for open cuts and wounds.
- Wash regularly with soap and water to ensure all oil is removed, especially before meals (skin cleansers and nail brushes will help). After cleaning, the application of preparations containing lanolin to replace the natural skin oils is advised.
- Do not use petrol, kerosine, diesel fuel, gas oil, thinners or solvents for cleaning skin.
- Use barrier creams, applying them before each work period, to help the removal of oil from the skin after work.
- If skin disorders develop, obtain medical advice without delay.

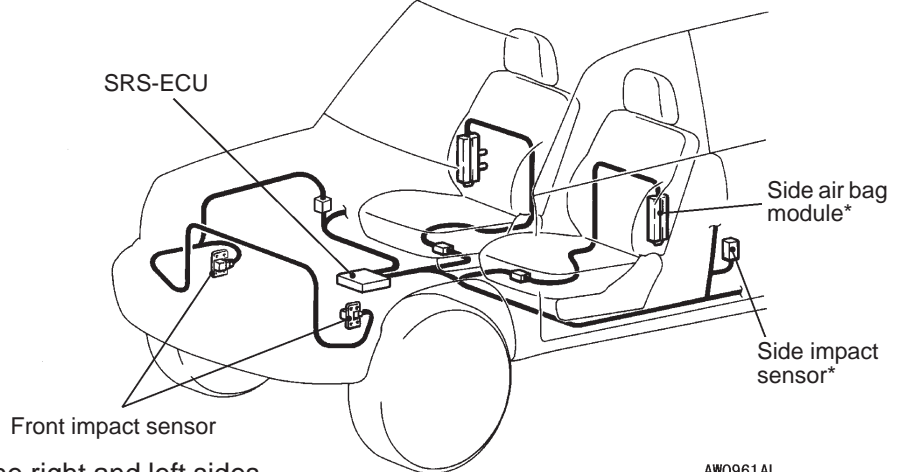
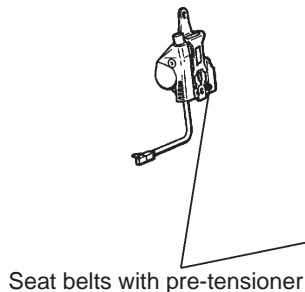
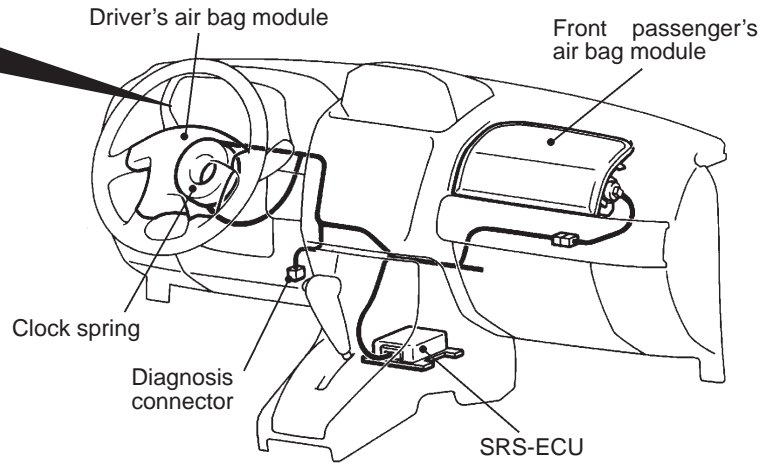
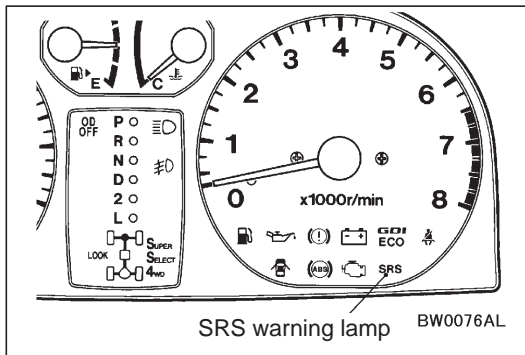
SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

To improve safety, the SRS is available as optional parts. This system enhances collision safety by restraining the front occupants in case of an accident.

The SRS consists of four air bag modules, SRS air bag control unit (SRS-ECU), front impact sensor, side impact sensors, seat belt pre-tensioner, SRS warning lamp and clock spring. The air bags are located in the centre of the steering wheel, above the glove box, and built into the front seat back assemblies. Each air bag has a folded air bag and an inflator unit. The SRS-ECU under the floor console monitors the system and has a safing G-sensor and an analog G-sensor. The front impact sensor are installed on the front side member. The side impact sensors inside the quarter panel inner

or the quarter panels, inner monitor any shocks coming from the side of the vehicle. The warning lamp on the instrument panel indicates the operational status of the SRS. The clock spring is installed in the steering column.

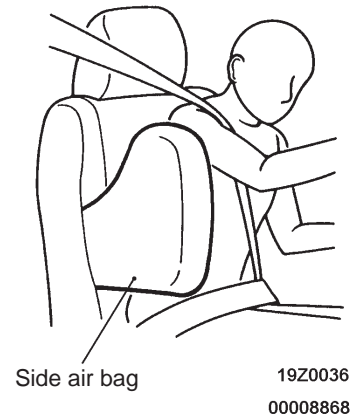
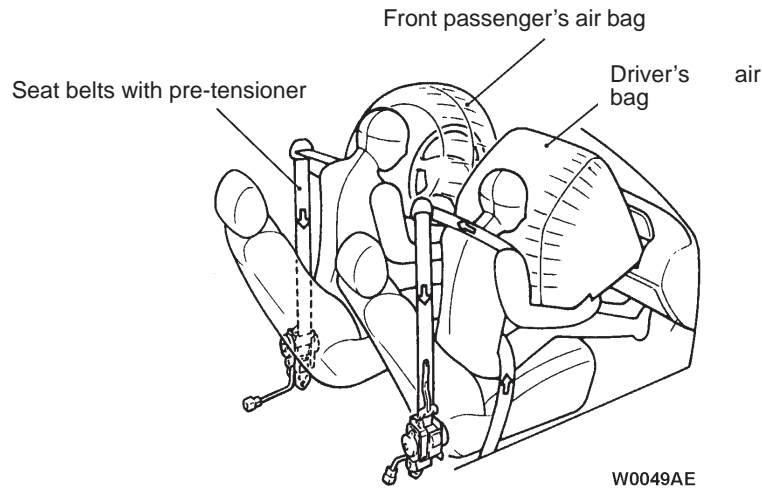
The SRS side air bags deploy if an impact received at the side of the vehicle is stronger than a certain set value, in order to protect the front seat occupant's torso in the event of a collision. Only authorized service personnel should do work on or around the SRS components. Those service personnel should read this manual carefully before starting any such work. Extreme care must be used when servicing the SRS to avoid injury to the service personnel (by inadvertent deployment of the air bags) or the driver (by rendering the SRS inoperative).



NOTE

*: Indicates the parts equipped on the right and left sides.

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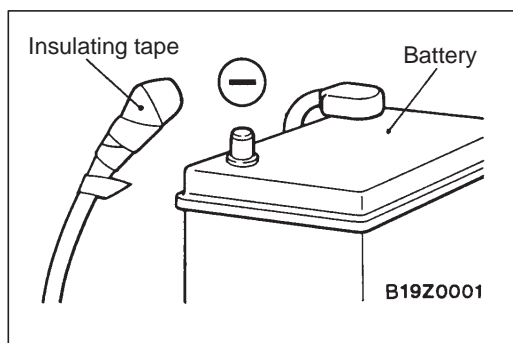


SRS SERVICE PRECAUTIONS

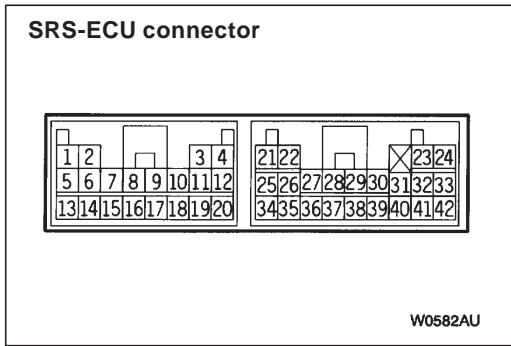
1. In order to avoid injury to yourself or others from accidental deployment of the air bag during servicing, read and carefully follow all the precautions and procedures described in this manual.
2. Do not use any electrical test equipment on or near SRS components, except those specified on GROUP 52B.
3. **Never Attempt to Repair the Following Components:**
 - SRS air bag control unit (SRS-ECU)
 - Clock spring
 - Driver's and front passenger's air bag modules
 - Side air bag modules
 - Side impact sensors

NOTE

If any of these components are diagnosed as faulty, they should only be replaced, in accordance with the **INDIVIDUAL COMPONENTS SERVICE** procedures in this manual. (Refer to GROUP 52B.)



4. **After disconnecting the negative (–) battery cable, wait 60 seconds at least before any service and insulate the disconnected cable with tape. The SRS retain enough voltage to deploy the air bags for a short time even after the disconnection of the battery. So, serious injury may result by accidental air bag deployment if a work is done on the SRS just after the disconnection of the battery.**

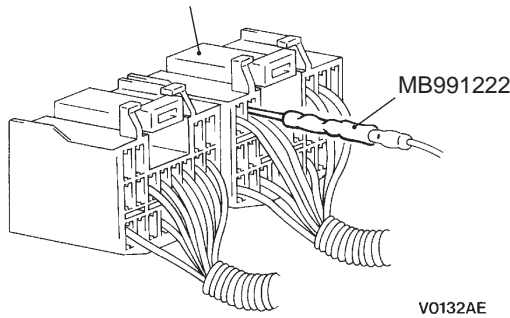


- Do not attempt to repair the wiring harness connectors of the SRS. If the connector(s) are diagnosed as defective, replace the wiring harness(es). If the harness(es) are diagnosed as faulty, replace or repair the wiring harness(es) according to the table that follows.

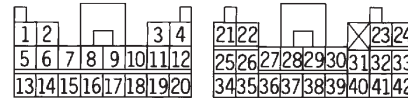
SRS-ECU Terminal No.	Destination of harness	Corrective action
1, 2, 3, 4	Instrument panel wiring harness → Front wiring harness → Front impact sensor	Repair or replace each wiring harness
7	Instrument panel wiring harness → Earth	
8	Instrument panel wiring harness → Combination meter (SRS warning lamp)	
9, 10	Instrument panel wiring harness → Front passenger's air bag module	
11, 12	Instrument panel wiring harness → Clock spring → Driver's air bag module)	
13	Instrument panel wiring harness → Junction block (fuse No.8)	Repair or replace each wiring harness.
16	Instrument panel wiring harness → Junction block (fuse No.6)	
20	Instrument panel wiring harness → Diagnosis connector	
21, 22	Body wiring harness → Side air bag module (L.H.)	
23, 24	Body wiring harness → Side air bag module (R.H.)	
27, 28	Body wiring harness → Seat belt with pre-tensioner (R.H.)	
29, 30	Body wiring harness → Seat belt with pre-tensioner (L.H.)	
34, 35, 36	Body wiring harness → Side impact sensor (L.H.)	
40, 41, 42	Body wiring harness → Side impact sensor (R.H.)	

6. Inspection of the SRS-ECU harness connector should be carried out by the following procedure. Insert the special tool (probe, MB991222, in the harness set) into the connector from harness side (rear side), and connect the tester to this probe. If any tool than specified is used, damage to the harness and other components will result. Furthermore, measurement should not be carried out by touching the probe directly against the terminals from the front of the connector. The terminals are plated to increase their conductivity, so that if they are touched directly by the probe, the plating may break, which will cause drops in reliability.

SRS-ECU harness connector



SRS-ECU harness connector (rear view)



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7. SRS components should not be subjected to temperature over 93°C, so remove the SRS-ECU, driver's and front passenger's air bag modules, clock spring, front impact sensor, side impact sensors and front seat assemblies (side air bag modules) before drying or baking the vehicle after painting.
8. Whenever you finish servicing the SRS, check warning lamp operation to make sure that the system functions properly. (Refer to GROUP 52B.)
9. Make certain that the ignition switch is LOCK (OFF) position when the MUT-II is connected or disconnected.
10. If you have any questions about the SRS, please contact your local distributor.

NOTE

SERIOUS INJURY CAN RESULT FROM UNINTENDED AIR BAG DEPLOYMENT, SO USE ONLY THE PROCEDURES AND EQUIPMENT SPECIFIED IN THIS MANUAL.

SUPPORT LOCATIONS FOR LIFTING AND JACKING

Caution

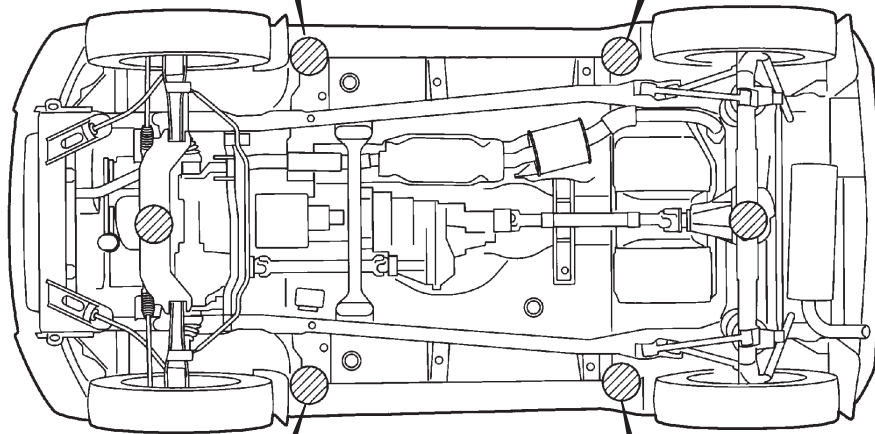
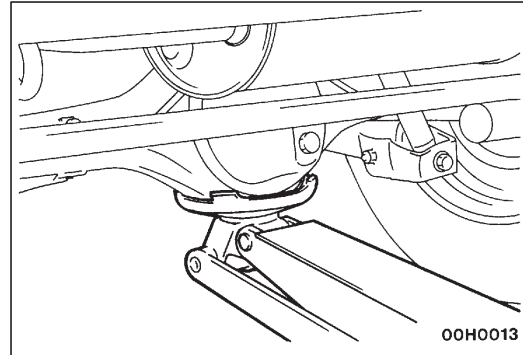
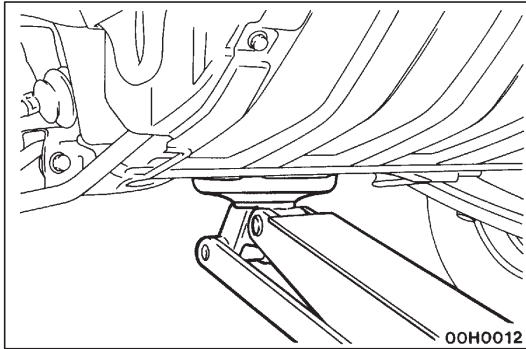
Do not support the vehicles at locations other than specified supporting points. Doing so will cause damage, etc.

SUPPORT POSITIONS FOR A GARAGE JACK AND AXLE STANDS

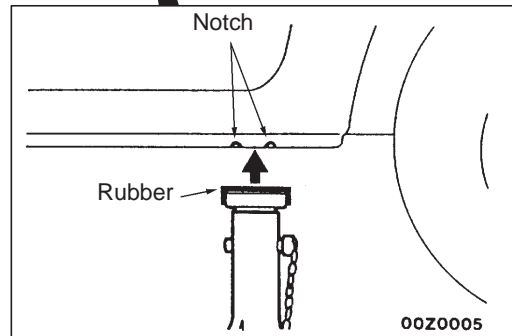
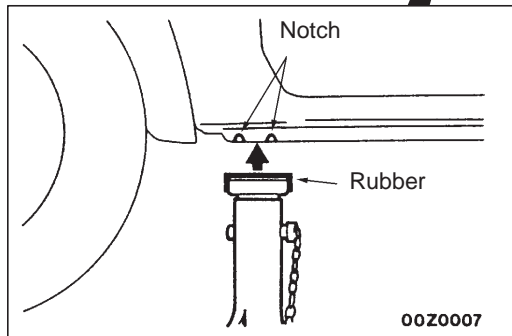
GARAGE JACK

Caution

Never support any point other than the specified ones, or deformation will result.



AXLE STANDS

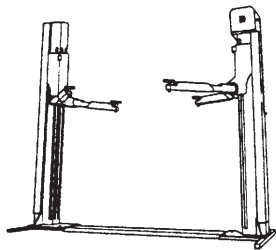


SUPPORT POSITIONS FOR A SINGLE-POST LIFT OR DOUBLE-POST LIFT

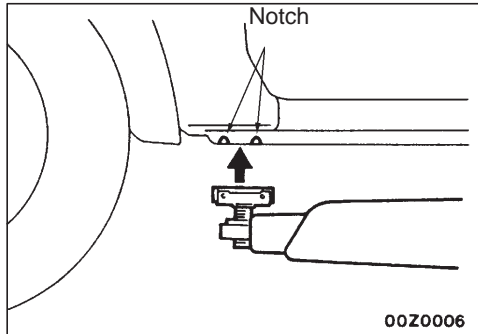
Caution

When service procedures require removing the rear suspension, spare tyre and rear bumper, place additional weight on rear end of vehicle to hoist to prevent tipping of centre of gravity changes.

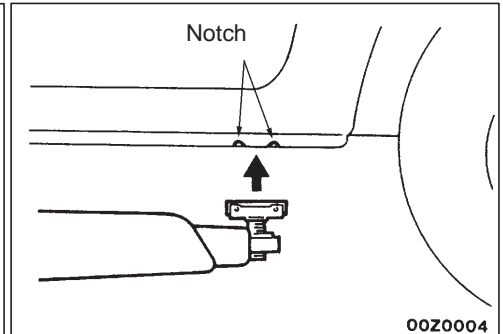
DOUBLE-POST LIFT



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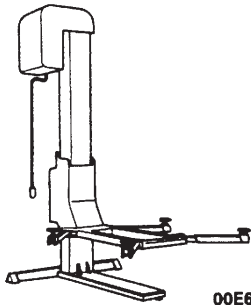


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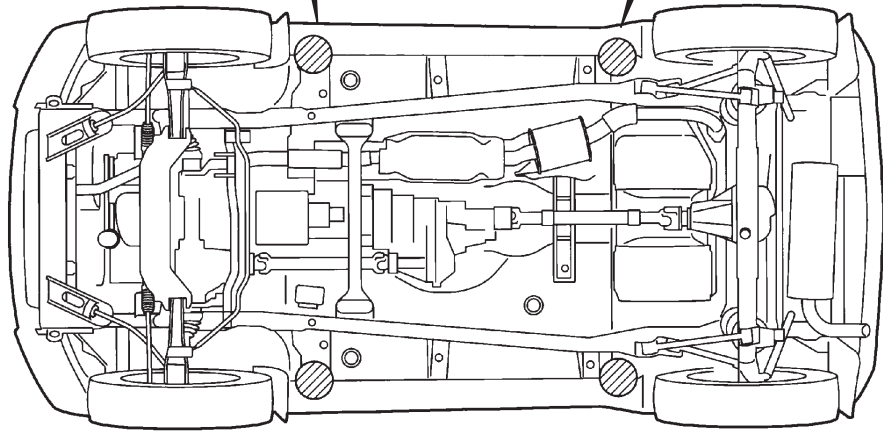


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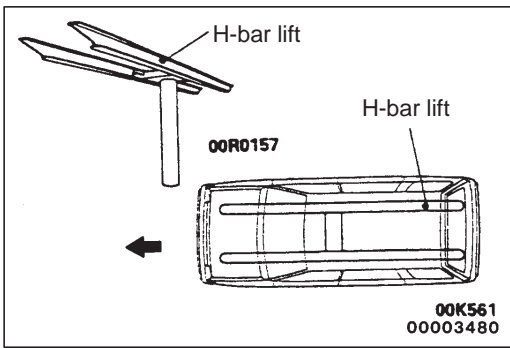
SINGLE-POST LIFT



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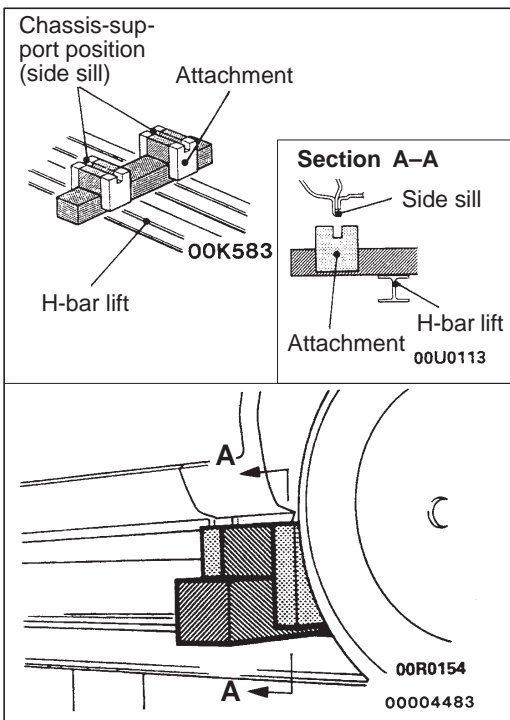


SUPPORT POSITIONS AND SUPPORT METHOD FOR AN H-BAR LIFT

Caution

When service procedures require removing the rear suspension, fuel tank, spare tyre and rear bumper, place additional weight on rear end of vehicle or anchor vehicle to hoist to prevent tipping of centre of gravity changes.

When H-bar lift is used to lift up vehicles, use of metallic attachment attached to the H-bar lift may cause damage to the suspension arm etc. Therefore, lift up the vehicle by the following procedure.

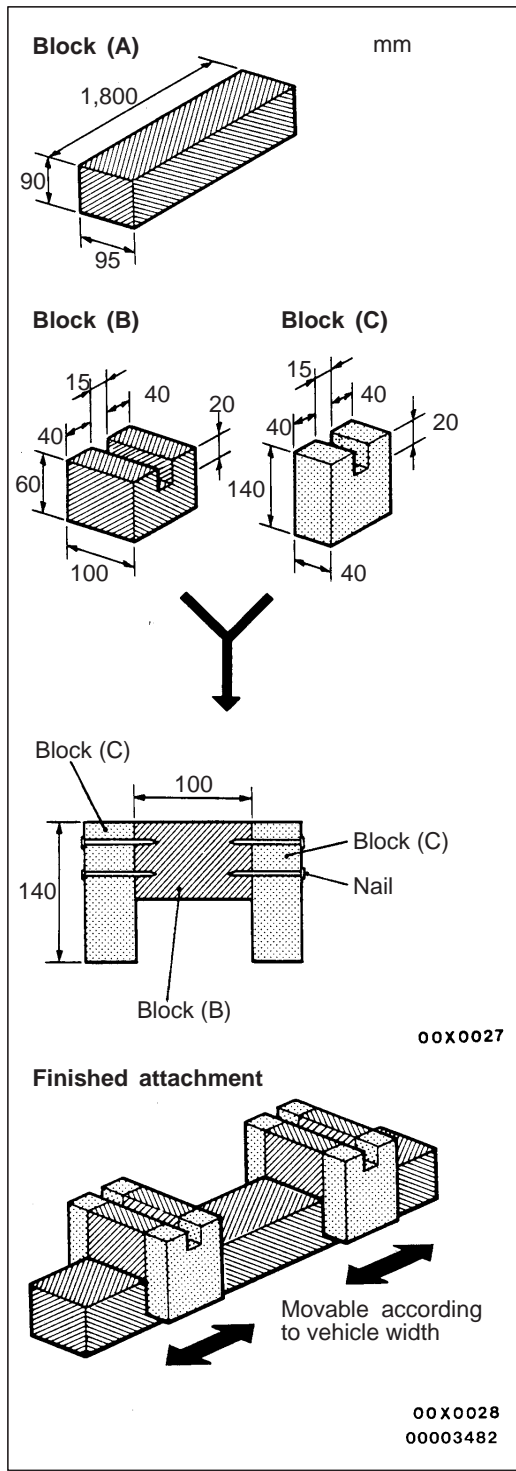


1. Place the vehicle on the H-bar lift (same direction).
2. Place attachments on the H-bar lift at the designated chassis-support positions. When making the attachments, refer to the section concerning making them.

Caution

If support is at any location other than the designated positions, the body or suspension might be deformed or otherwise damaged, so care should be taken to support only at the correct (designated) positions.

3. Raise the H-bar lift to the height at which the vehicle is slightly raised and check to be sure that the vehicle is correctly and sufficiently secured; then raise the vehicle.



PREPARATION OF “ATTACHMENTS”

1. Prepare the blocks (wooden) and nails as shown in the figure.

Item	Dimensions mm	Quantity
Block (A)	90 × 95 × 1,800	2
Block (B)	60 × 100 × 95	4
Block (C)	140 × 40 × 95	8
Nail	70 or more	32

Caution

The wood selected for the blocks must be hard.

2. For the (B) blocks and (C) blocks, use a saw and chisel or similar tool to make grooves of the dimensions shown in the figure.
3. Make four “ATTACHMENTS” such as shown in the figure nailing (B) and (C) blocks so that each (B) blocks is sandwiches between (C) blocks.

STANDARD PART/TIGHTENING-TORQUE TABLE

Each torque value in the table is a standard value for tightening under the following conditions.

- (1) Bolts, nuts and washers are all made of steel and plated with zinc.
- (2) The threads and bearing surface of bolts and nuts are all in dry condition.

The values in the table are not applicable:

- (1) If toothed washers are inserted.
- (2) If plastic parts are fastened.
- (3) If bolts are tightened to plastic or die-cast inserted nuts.
- (4) If self-tapping screws or self-locking nuts are used.

Standard bolt and nut tightening torque

Thread size		Torque Nm		
Bolt nominal diameter (mm)	Pitch (mm)	Head mark "4"	Head mark "7"	Head mark "8"
M5	0.8	2.5	4.9	5.9
M6	1.0	4.9	8.8	9.8
M8	1.25	12	22	25
M10	1.25	24	44	52
M12	1.25	41	81	96
M14	1.5	72	137	157
M16	1.5	111	206	235
M18	1.5	167	304	343
M20	1.5	226	412	481
M22	1.5	304	559	647
M24	1.5	392	735	853

Flange bolt and nut tightening torque

Thread size		Torque Nm		
Bolt nominal diameter (mm)	Pitch (mm)	Head mark "4"	Head mark "7"	Head mark "8"
M6	1.0	4.9	9.8	12
M8	1.25	13	24	28
M10	1.25	26	49	57
M10	1.5	24	44	54
M12	1.25	46	93	103
M12	1.75	42	81	96

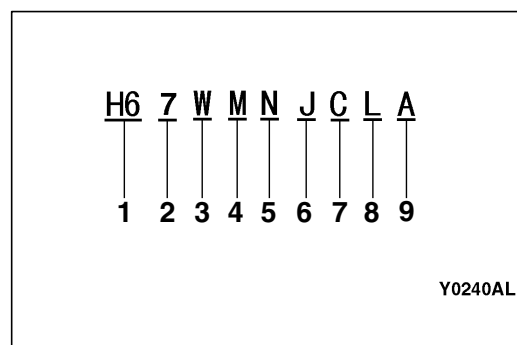
NOTES

GROUP 00 GENERAL

VEHICLE IDENTIFICATION

MODELS

Model code		Engine model	Transmission model	Fuel supply system
H67	WMNJCLA	4G94-DOHC (1,999 mL)	V5M21 <5M/T>	GDI
	WMNJCRA		V4AW4 <4A/T>	
	WMRJCLA			
	WMRJCRA			
H77	WLNJCLA		V5M21 <5M/T>	
	WLNJCRA		V4AW4 <4A/T>	
	WRNJCLA			
	WRNJCRA			



MODEL CODE

No.	Items	Contents
1	Development	H6: MITSUBISHI PAJERO PININ Short wheelbase H7: MITSUBISHI PAJERO PININ Long wheelbase
2	Engine type	7: 2,000 mL petrol engine
3	Sort	W: Wagon
4	Body style	M: 3-door L: 5-door
5	Transmission type	N: 5-speed manual transmission R: 4-speed automatic transmission
6	Trim level	J: GL
7	Specification engine feature	C: GDI-DOHC

No.	Items	Contents
8	Steering wheel location	L: Left hand R: Right hand
9	Destination	A: For Europe

CHASSIS NUMBER

* J M P 0 N H6 7 W 1 X 000001 *

 | | | | | | | | |

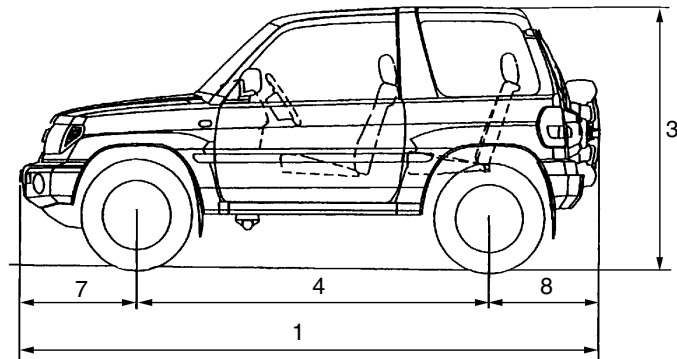
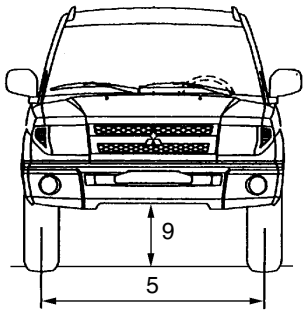
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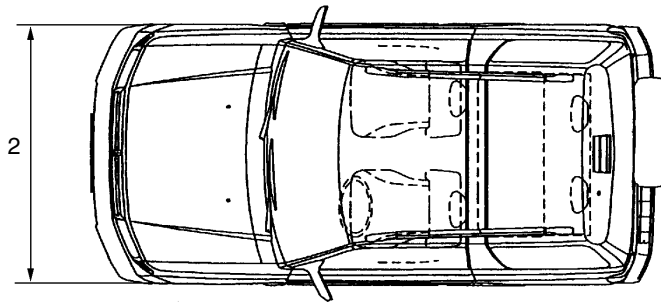
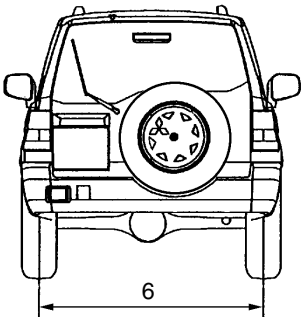
No.	Items		Contents
1	Steering wheel location	JMP	Left hand drive
		JMR	Right hand drive
2	Body style	0	Standard roof
3	Transmission type	N	5-speed manual transmission
		R	4-speed automatic transmission
4	Development order	H6	PAJERO PININ Short wheelbase
		H7	PAJERO PININ Long wheelbase
5	Engine	7	4G94: 1,999 mL petrol engine
6	Sort	W	Wagon
7	Model year	1	2001
8	Plant	X	IPF
9	Serial number	–	–

MAJOR SPECIFICATIONS

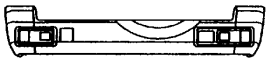
<3-door model>



<L.H. drive vehicles>



<R.H. drive vehicles>



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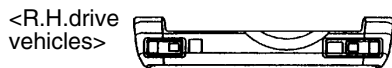
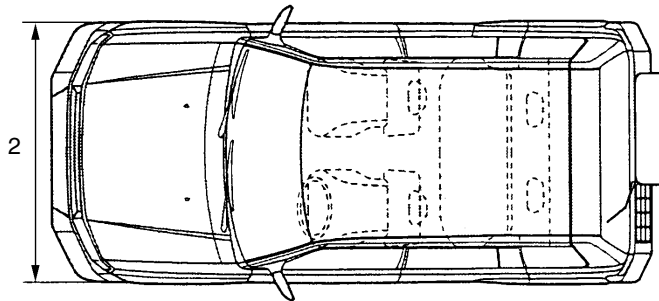
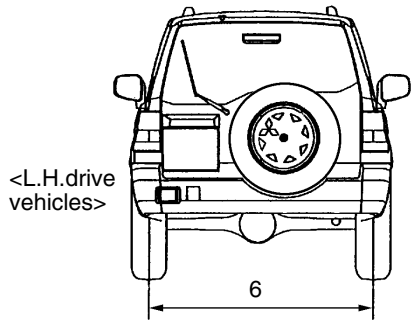
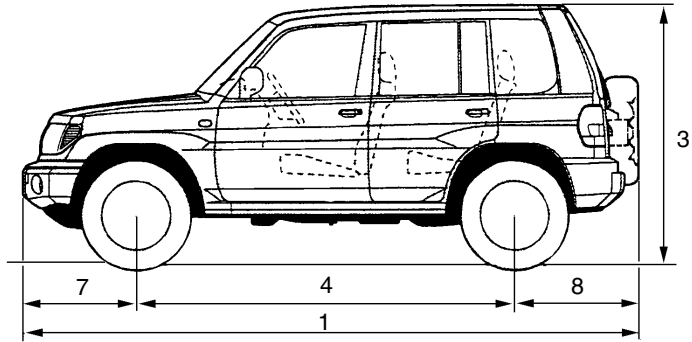
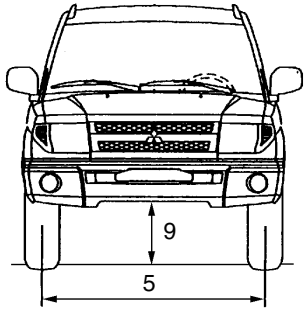
Items		H67WMNJCLA	H67WMNJCRA	H67WMRJCLA	H67WMRJCRA
Vehicle dimensions mm	Overall length	1	3,735		
	Overall width	2	1,695		
	Overall height (unladen)	3	1,690/1,725* ¹ /1,700* ²		
	Wheelbase	4	2,280		
	Track-front	5	1,435		
	Track-rear	6	1,445		
	Overhang-front	7	755		
	Overhang-rear	8	700		
	Ground clearance (unladen)	9	200		
Vehicle weight kg	Kerb weight	1,300		1,320	
	Max. gross vehicle weight	1,725			
	Max. axle weight rating-front	745		755	
	Max. axle weight rating-rear	555		565	
Seating capacity		4			
Engine	Model No.	4G94			
	Total displacement mL	1,999			
Transmission	Model No.	V5M21		V4AW4	
	Type	5-speed manual		4-speed automatic	
Fuel system	Fuel supply system	Gasoline Direct Injection			

NOTE:

*1: Vehicles with roof rails

*2: Vehicles with roof spoiler

<5-door model>



Y0241AL

Items		H77WLNJCLA	H77WLNJCRA	H77WRNJCLA	H77WRNJCRA
Vehicle dimensions mm	Overall length	1	4,035		
	Overall width	2	1,695		
	Overall height (unladen)	3	1,700/1,735* ¹ /1,720* ²		
	Wheelbase	4	2,450		
	Track-front	5	1,435		
	Track-rear	6	1,445		
	Overhang-front	7	755		
	Overhang-rear	8	830		
	Ground clearance (unladen)	9	200		
Vehicle weight kg	Kerb weight	1,390		1,410	
	Max. gross vehicle weight	1,890			
	Max. axle weight rating-front	770		785	
	Max. axle weight rating-rear	620		625	
Seating capacity		5			
Engine	Model No.	4G94			
	Total displacement mL	1,999			
Transmission	Model No.	V5M21		V4AW4	
	Type	5-speed manual		4-speed automatic	
Fuel system	Fuel supply system	Gasoline Direct Injection			

NOTE:

*1: Vehicles with roof rails

*2: Vehicles with roof spoiler

GROUP 00 GENERAL

HOW TO USE THIS MANUAL

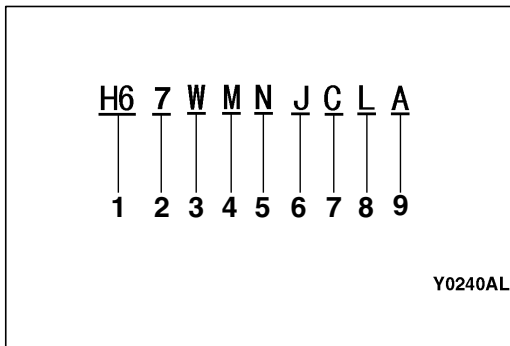
INDICATION OF TIGHTENING TORQUE

Tightening torques (units: N·m) are set to take into account the central value and the allowable tolerance. The central value is the target value, and the allowable tolerance provides the checking range for tightening torques. If bolts and nuts are not provided with tightening torques, refer to P.00-8.

VEHICLE IDENTIFICATION

MODELS

Model code		Engine model	Transmission model	Fuel supply system
H67	WMNJCLA	4G94-DOHC (1,999 mL)	V5M21 <5M/T>	GDI
	WMNJCRA			
	WMRJCLA		V4AW4 <4A/T>	
	WMRJCRA			
H66	WMNDELA	4G93-SOHC (1,834 mL)	V5M21 <5M/T>	MPI
	WMNDERA			
	WMRDELA		V4AW4 <4A/T>	
	WMRDERA			
H77	WLNJCLA	4G94-DOHC (1,999 mL)	V5M21 <5M/T>	GDI
	WLNJCRA			
	WLRJCLA		V4AW4 <4A/T>	
	WLRJCRA			
H76	WLNDELA	4G93-SOHC (1,834 mL)	V5M21 <5M/T>	MPI
	WLNDERA			
	WLRDELA		V4AW4 <4A/T>	
	WLRDERA			

**MODEL CODE**

No.	Items	Contents
1	Development	H6: MITSUBISHI PAJERO PININ Short wheelbase H7: MITSUBISHI PAJERO PININ Long wheelbase
2	Engine type	6: 1,800 mL petrol engine 7: 2,000 mL petrol engine
3	Sort	W: Wagon
4	Body style	M: 3-door L: 5-door
5	Transmission type	N: 5-speed manual transmission R: 4-speed automatic transmission
6	Trim level	D: L J: GL
7	Specification engine feature	E: MPI-SOHC C: GDI-DOHC
8	Steering wheel location	L: Left hand R: Right hand
9	Destination	A: For Europe

CHASSIS NUMBER

* J M P 0 N H6 7 W 2 X 000001 *

| | | | | | | | |
 1 2 3 4 5 6 7 8 9

10030AL

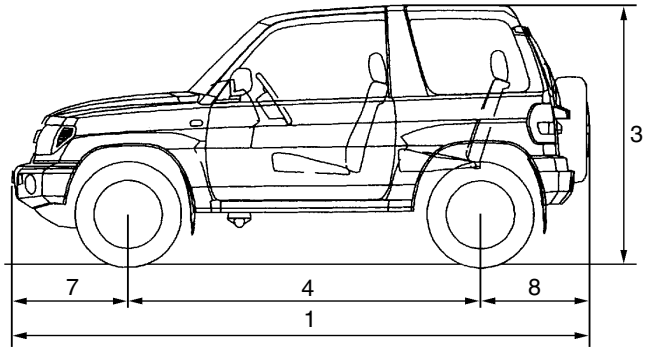
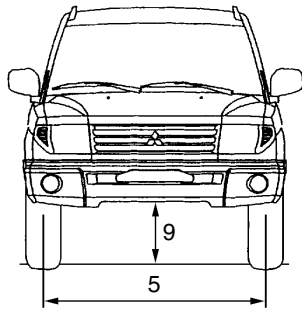
No.	Items		Contents
1	Steering wheel location	JMP	Left hand drive
		JMR	Right hand drive
2	Body style	0	Standard roof
3	Transmission type	N	5-speed manual transmission
		R	4-speed automatic transmission
4	Development order	H6	PAJERO PININ Short wheelbase
		H7	PAJERO PININ Long wheelbase
5	Engine	6	4G93: 1,834 mL petrol engine
		7	4G94: 1,999 mL petrol engine
6	Sort	W	Wagon
7	Model year	2*	2002
8	Plant	X	IPF
9	Serial number	–	–

NOTE

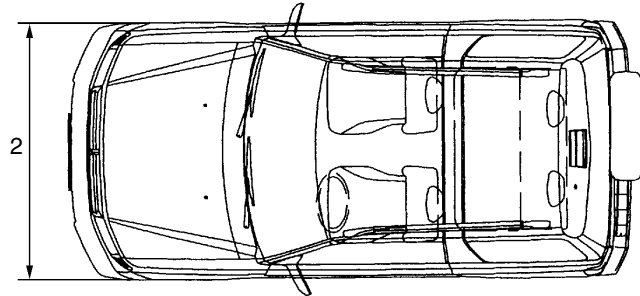
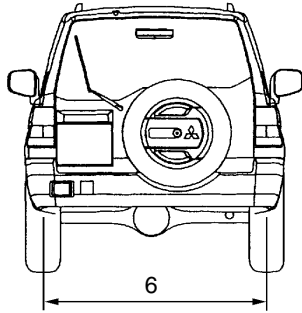
*: Indicates new model.

MAJOR SPECIFICATIONS

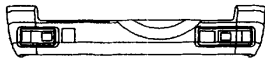
<3-door model>



<L.H. drive vehicles>



<R.H. drive vehicles>

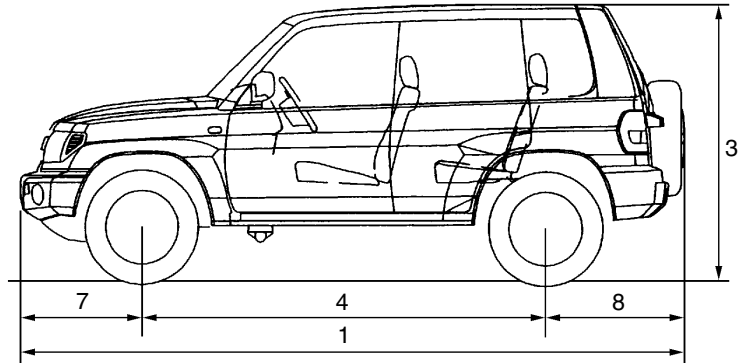
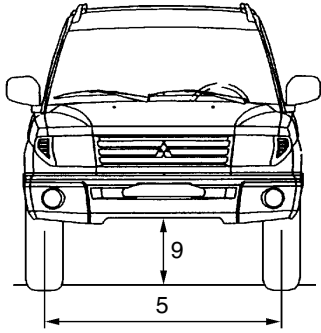


Items		H66WMNDELA	H66WMNDERA	H66WMRDELA	H66WMRDERA
Vehicle dimensions mm	Overall length	1	3,735		
	Overall width	2	1,680		
	Overall height (unladen)	3	1,690/1,725* ¹ /1,700* ²		
	Wheelbase	4	2,280/2,272* ³		
	Track-front	5	1,435		
	Track-rear	6	1,445		
	Overhang-front	7	755		
	Overhang-rear	8	700		
	Ground clearance (unladen)	9	200		
Vehicle weight kg	Kerb weight	1,255		1,275	
	Max. gross vehicle weight	1,680			
	Max. axle weight rating-front	710		720	
	Max. axle weight rating-rear	545		555	
Seating capacity		4			
Engine	Model No.	4G93			
	Total displacement mL	1,834			
Transmission	Model No.	V5M21		V4AW4	
	Type	5-speed manual		4-speed automatic	
Fuel system	Fuel supply system	Electronically controlled multipoint injection			

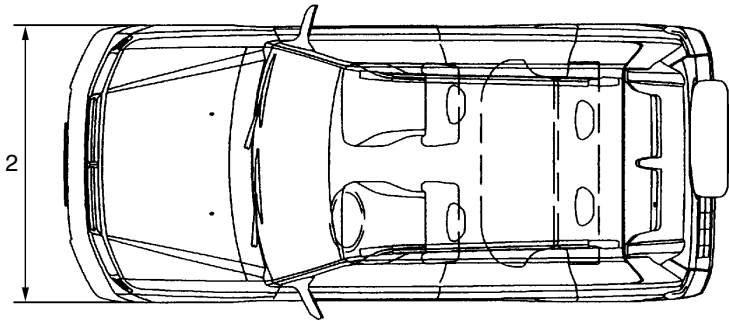
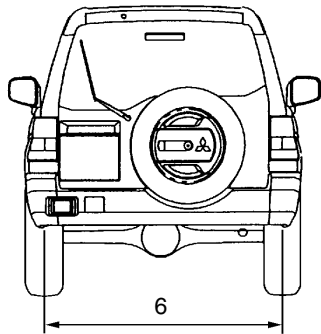
NOTE:

- *1: Vehicles with roof rails
- *2: Vehicles with roof spoiler
- *3: Measure in running condition

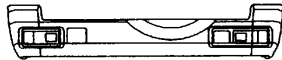
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<R.H.drive vehicles>



Items		H76WLNDELA	H76WLNDERA	H76WRNDELA	H76WRNDERA
Vehicle dimensions mm	Overall length	1	4,035		
	Overall width	2	1,680		
	Overall height (unladen)	3	1,700/1,735* ¹ /1,720* ²		
	Wheelbase	4	2,450/2,439* ³		
	Track-front	5	1,435		
	Track-rear	6	1,445		
	Overhang-front	7	755		
	Overhang-rear	8	830		
	Ground clearance (unladen)	9	200		
Vehicle weight kg	Kerb weight	1,340		1,360	
	Max. gross vehicle weight	1,840			
	Max. axle weight rating-front	735		750	
	Max. axle weight rating-rear	605		610	
Seating capacity		5			
Engine	Model No.	4G93			
	Total displacement mL	1,843			
Transmission	Model No.	V5M21		V4AW4	
	Type	5-speed manual		4-speed automatic	
Fuel system	Fuel supply system	Electronically controlled multipoint injection			

NOTE:

- *1: Vehicles with roof rails
- *2: Vehicles with roof spoiler
- *3: Measure in running condition

STANDARD PART/TIGHTENING TORQUE TABLE

Each torque value in the table is a standard value for tightening under the following conditions.

- (1) Bolts, nuts and washers are all made of steel and plated with zinc.
- (2) The threads and bearing surface of bolts and nuts are all in dry condition.

The values in the table are not applicable:

- (1) If toothed washers are inserted.
- (2) If plastic parts are fastened.
- (3) If bolts are tightened to plastic or die-cast inserted nuts.
- (4) If self-tapping screws or self-locking nuts are used.

Standard bolt and nut tightening torque

Thread size		Torque N·m		
Bolt nominal diameter (mm)	Pitch (mm)	Head mark "4"	Head mark "7"	Head mark "8"
M5	0.8	2.5 ± 0.5	5.0 ± 1.0	6.0 ± 1.0
M6	1.0	5.0 ± 1.0	9.0 ± 2.0	10 ± 2
M8	1.25	12 ± 2	22 ± 4	25 ± 4
M10	1.25	24 ± 4	44 ± 10	53 ± 7
M12	1.25	41 ± 8	83 ± 12	98 ± 12
M14	1.5	73 ± 12	140 ± 20	155 ± 25
M16	1.5	110 ± 20	210 ± 30	235 ± 35
M18	1.5	165 ± 25	300 ± 40	340 ± 50
M20	1.5	225 ± 35	410 ± 60	480 ± 70
M22	1.5	300 ± 40	555 ± 85	645 ± 95
M24	1.5	395 ± 55	735 ± 105	855 ± 125

Flange bolt and nut tightening torque

Thread size		Torque N·m		
Bolt nominal diameter (mm)	Pitch (mm)	Head mark "4"	Head mark "7"	Head mark "8"
M6	1.0	5.0 ± 1.0	10 ± 2	12 ± 2
M8	1.25	13 ± 2	24 ± 4	27 ± 5
M10	1.25	26 ± 4	49 ± 9	58 ± 7
M10	1.5	24 ± 4	45 ± 8	55 ± 10
M12	1.25	46 ± 8	95 ± 15	105 ± 15
M12	1.75	43 ± 8	83 ± 12	98 ± 12


NOTE

1. Be sure to use only the specified bolts and nuts, and always tighten them to the specified torques.
2. Bolts marked with indications such as 4T or 7T are reinforced bolts. The larger the number, the greater the bolt strength.



SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-00E00-505															
		Date: 2001-09-25	<table border="1"> <tr> <td><Model></td> <td><M/Y></td> </tr> <tr> <td>(EC)PAJERO/MONTERO(V60,70)</td> <td>01-10 99-10</td> </tr> <tr> <td>(EC)GALANT(EA0)</td> <td>99-10</td> </tr> <tr> <td>(EC)SPACE RUNNER/SPACE WAGON(N60,80,90)</td> <td>98-10 99-10 99-10</td> </tr> <tr> <td>(EC)CARISMA</td> <td></td> </tr> <tr> <td>(EC)SPACE STAR(H60,70)</td> <td></td> </tr> <tr> <td>(EC)PAJERO PININ</td> <td></td> </tr> </table>	<Model>	<M/Y>	(EC)PAJERO/MONTERO(V60,70)	01-10 99-10	(EC)GALANT(EA0)	99-10	(EC)SPACE RUNNER/SPACE WAGON(N60,80,90)	98-10 99-10 99-10	(EC)CARISMA		(EC)SPACE STAR(H60,70)		(EC)PAJERO PININ	
<Model>	<M/Y>																
(EC)PAJERO/MONTERO(V60,70)	01-10 99-10																
(EC)GALANT(EA0)	99-10																
(EC)SPACE RUNNER/SPACE WAGON(N60,80,90)	98-10 99-10 99-10																
(EC)CARISMA																	
(EC)SPACE STAR(H60,70)																	
(EC)PAJERO PININ																	
Subject: ESTABLISHMENT OF GDI ENGINE IDLE LEARNING FUNCTION																	
Group: GENERAL	Draft No.: 00AL610610																
CORRECTION	INTERNATIONAL CAR ADMINISTRATION OFFICE	 <small>T.MASAKI-MANAGER TECHNICAL SERVICE PLANNING</small>															

1. Description:

On the GDI engine equipped cars, an idle learning function that will be required after replacement of the ECU (for engine control) or after resetting of the battery* has been established.

*: Disconnection of ECU (for engine control) battery backup power supply (disconnection of battery terminals or ECU connectors)

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
2001 PAJERO Workshop Manual VOL.1	PWJE0001 (1/2)	(English)	00-29
2001 MONTERO Workshop Manual VOL.1	PWJS0002 (1/2)	(Spanish)	
2001 PAJERO/MONTERO Workshop Manual CD-ROM	PWJT0008R	(English)	
	PWJT0008R	(Spanish)	
	PWJT0008R	(French)	
	PWJT0008R	(German)	
1999 GALANT Workshop Manual Supplement	PWDE9611-A	(English)	00-12
	PWDS9612-A	(Spanish)	
	PWDF9613-A	(French)	
	PWDG9614-A	(German)	
	PWDD9615-A	(Dutch)	
	PWDW9616-A	(Swedish)	
1999 SPACE RUNNER/SPACE WAGON Workshop Manual	PWDE9803	(English)	00-20
	PWDS9804	(Spanish)	
	PWDF9805	(French)	
	PWDG9806	(German)	
	PWDD9807	(Dutch)	
	PWDW9808	(Swedish)	

Manual	Pub. No.	Language	Page(s)
1998 CARISMA Workshop Manual Supplement	PWDE9502-C	(English)	00-4
	PWDS9503-C	(Spanish)	
	PWDF9504-C	(French)	
	PWDG9505-C	(German)	
	PWDD9506-C	(Dutch)	
	PWDW9507-C	(Swedish)	
1999 SPACE STAR Workshop Manual	CMXE99E1	(English)	00-18
	CMXS99E1	(Spanish)	
	CMXF99E1	(French)	
	CMXG99E1	(German)	
	CMXD99E1	(Dutch)	
	CMXW99E1	(Swedish)	
	CMXI99E1	(Italian)	
1999 PAJERO PININ/MONTERO SPORT Workshop Manual	CKRE99E1	(English)	00-17
	CKRS99E1	(Spanish)	
	CKRF99E1	(French)	
	CKRG99E1	(German)	
	CKRD99E1	(Dutch)	
	CKRW99E1	(Swedish)	
	CKRI99E1	(Italian)	

3. Details:

Contents of Attachment are to be added to GROUP 00 (GENERAL).

PRECAUTIONS BEFORE SERVICE LEARNING FUNCTION OF GDI ENGINE

1. Purpose

On the GDI engine equipped cars, when replacement of the ECU (for engine control) or resetting of the battery* has been performed, an idle learning function of the ECU (for engine control) will be required.

The idle learning function will be completed by running the engine at idle by the following procedure.

NOTE:

*: Disconnection of ECU (for engine control) battery backup power supply (disconnection of battery terminals or ECU connectors)

2. Idle Learning Procedure

- (1) Start the engine, and warm up the engine until its coolant temperature reaches 85°C or higher. When the engine coolant temperature is 85°C or higher, you have only to turn the ignition switch to the ON position.
- (2) Turn the ignition switch to the LOCK (OFF) position, and stop the engine.
- (3) After lapse of ten or more seconds, restart the engine.
- (4) Run the engine at idle for ten minutes under the following conditions.
 - Transmission: Neutral (P range for automatic transmission)
 - Air conditioner and heater: Not operational
 - Engine coolant temperature: 83°C or higher
- (5) Stop the engine
- (6) Restart the engine, and run it at idle for ten minutes under the following condition.
 - Transmission: Neutral (P range for automatic transmission)
 - Air conditioner: Operational (Temperature set at "maximum cool", fan at high speed, and windows fully opened)
 - Engine coolant temperature: 83°C or higher
- (7) Repeat steps (5) and (6).

NOTE

- 1) When the atmospheric temperature is 20°C or more and the air conditioner has continuously been operated, step (7) may be omitted.
- 2) During idling operation of the engine in steps (4) and (6), when engine operation switches from lean operation to stoichiometric operation, engine stall can occur. In this case, clean the throttle body (throttle valve) thoroughly, and then repeat step (1) and the subsequent steps.