

GENERAL INFORMATION

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1 IMPORTANT SAFETY NOTICE

1-1 GENERAL DESCRIPTION

1. The vehicle is a machine comprising a great number of parts. Basically speaking, the vehicle is potentially hazardous. However, one can handle it safely if he has the required knowledge.
2. Correct service methods and repair procedures are very vital for assuring not only the safety and reliability of a vehicle, but also the safety of service personnel malfunctioned.
3. The methods and procedures contained in this manual describe in a general way the techniques which the manufacturer has recommended. Thus, they will contribute to ensuring the reliability of the products. The contents of the servicing operations come in a wide variety of ways. Moreover, techniques, tools and parts necessary for each operation are different widely from each other.
4. This manual does not cover all details of techniques, procedures, parts, tools and handling instructions which are necessary for these operations, for such coverage is impossible. Hence, any one who obtains this manual is expected first to make his responsible selection as to techniques, tools and parts which are necessary for servicing the vehicle malfunctioned properly. Furthermore, he must assume responsibility for his actions in connection with his own safety.
5. Therefore, one should not perform any service if he is not capable of making responsible selection and/or if he can not understand the contents herein described, for this manual has been prepared for experienced service personnel.

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1-2 WARNINGS, CAUTIONS AND NOTES

1. All these symbols have their specific purposes, respectively.

WARNING

- This symbol means that there is the possibility of personal injury of the operator himself or the nearby workers if the operator fails to follow the operating procedure prescribed in this manual.

CAUTION

- This symbol means that there is the possibility of damage to the component being repaired if the operator fails to follow the operating procedure prescribed in this manual.

NOTE

- To accomplish the operation in an efficient manner, additional instructions malfunctioning the operation are given in this section.

GI-1SN-K-Z-00001

1-3 GENERAL WARNINGS

(1) Warning over the whole service operations

1. Always wear safety glasses for eye protection.
2. Use safety stands whenever a procedure requires you to be under the vehicle.
3. Be sure that the Ignition switch is always in the OFF position, unless otherwise required by the procedure.
4. Set the parking brake when working on the vehicle.
5. Operate the engine only in a well-ventilated area to avoid the danger of carbon monoxide.
6. Keep yourself and your clothing away from moving parts, when the engine is running, especially from the fan and belts.
7. To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler.
8. Do not smoke while working on a vehicle.
9. To avoid injury, always remove rings, watches, loose hanging jewelry, and loose clothing before beginning to work on a vehicle.
10. Keep hands and other objects clear of the radiator fan blades! The electric cooling fan is mounted on the radiator and can start to operate at anytime by a rise in coolant temperature or turning ON of the air conditioner switch in the case of vehicles equipped with an air conditioner. The electric cooling fan is also mounted on the condenser for air conditioner and starts to operate anytime when the air conditioner switch is turned ON. For this reason care should be taken to ensure that the electric cooling fan motor is completely disconnected when working under the hood.

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2 HOW TO USE THIS MANUAL

2-1 PREPARATION TOOLS

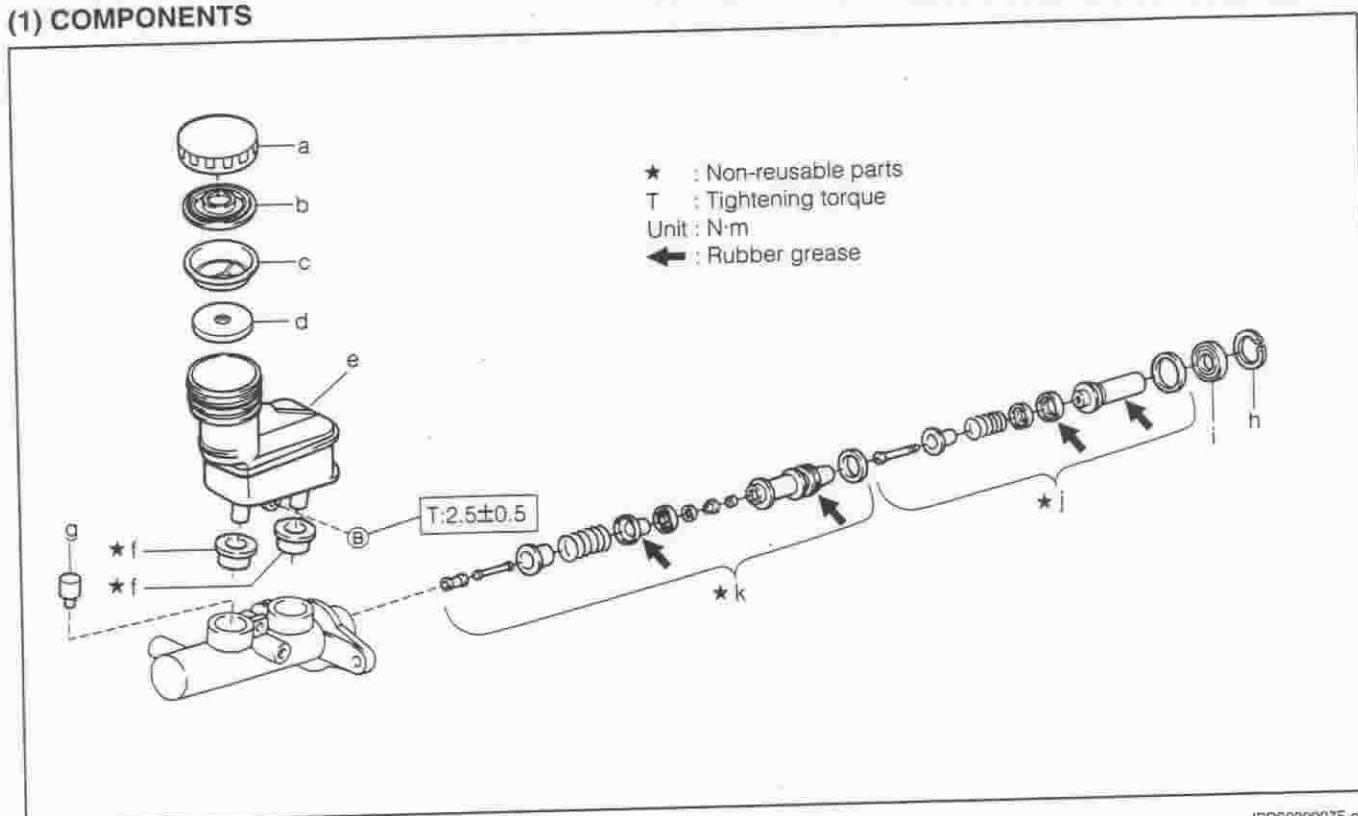
1. When SST, tool, measuring instrument, a sort of fat and oil to be prepared before operation are necessary, those are described by compiling in the table as preparation tools at the beginning of each item. However, the general tools, jacks, fixtures as considered being equipped always at the service shop are usually omitted.

GI-USE-P-Z-00001

2-2 REMOVAL AND INSTALLATION PROCEDURES

1. The explanatory figure for the removal and installation procedure is described and the shape and installing condition of each parts are shown in that figures.
2. The application of a sort of fat and oil and sealer are instructed in the figure with arrow. And the indication of a tightening torque and nonreusable parts are also described.
3. The removal and installation procedure list is shown just beneath of components figure. The removal (disassembling) procedure, the installation (assembling) procedure and parts name are described in the sequence from left side of list. And the alphabet written before a parts name links with alphabet in the figure. For example, if you install the parts, follow the sequential number which described on the second row from the left as reverse the removal procedure.
4. When the specific procedure is needed in an operation, the number of the removal and installation procedure shall be with rounded one, and then, the contents are described at the section of the point for the removal and installation (disassembling, assembling).

(1) COMPONENTS



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(2) REMOVAL AND INSTALLATION PROCEDURES

- | | | | | | | | |
|---|----|---|-------------------------------|---|---|---|----------------------------------|
| 1 | 11 | a | Cap, reservoir filler | 7 | 5 | g | Pin |
| 2 | 10 | b | diaphragm, reservoir | ⑧ | ④ | h | Ring, hole snap |
| 3 | 9 | c | Strainer, master cylinder | 9 | 3 | i | Guide, master cylinder |
| 4 | 8 | d | Float, master cylinder | ⑩ | 2 | j | Piston S/A, master cylinder No.1 |
| 5 | 7 | e | Reservoir Ay, master cylinder | ⑪ | 1 | k | Piston S/A, master cylinder No.2 |
| 6 | 6 | f | Grommet | | | | |

GI-USE-T-Z-00001

2-3 DESCRIPTION OF SERVICE STANDARD VALUE

1. The necessary service standard value for inspection and service operation are described with bold letter in the text as standard and allowable limit.
The detail of terms are described in the section for definition of terms.

GI-USE-S-Z-00001

2-4 CONTENTS NOT DESCRIBED IN THIS MANUAL

1. The description of the next elemental operation may omit in this service manual, but please perform in an actual operation.
 - (1) Jacking operation and lifting operation
 - (2) Cleaning and cleansing of removed parts to perform at need
 - (3) Visual inspection

GI-USE-R-Z-00001

2-5 DEFINITIONS OF TERMS

SPECIFIED VALUE	This mark shows the standard value at the time of the check or adjustment.
ALLOWABLE LIMIT	This mark shows the maximum or minimum value at the time of the check or adjustment.

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3 ABBREVIATION CODES

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

ABBREVIATION CODE	ORIGINAL WORD	ABBREVIATION CODE	ORIGINAL WORD
2WD	Two Wheel Drive	LHD	Left Hand Drive
4WD	Four Wheel Drive	LSPV	Load Sensing Proportioning Valve
ABS	Anti-lock Brake System	MP	Multipurpose
A/C	Air Conditioner	M/T	Manual Transmission
API	American Petroleum Institute	N/A	Natural Aspiration
A/T	Automatic Transmission (Transaxle)	NOx	Nitrogen Oxides
ATDC	After Top Dead Center	OPT	Option
ATF	Automatic Transmission Fluid	O/S	Over Size
Ay	Assembly	PCV	Positive Crankcase Ventilation
BTDC	Before Top Dead Center	PR	Ply Rating
DLC	Data Link Connector	RH	Right Hand
DLI	Distributor Less Ignition	RHD	Right Hand Drive
DVVT	Dynamic Variable Valve Timing	RR	Rear
EBD	Electronic Brake force Distribution	S/A	Sub-Assembly
ECU	Electronic Control Unit	SAE	Society of Automotive Engineers
EFI	Electronic Fuel Injection	SST	Special Service Tool
EGR	Exhaust Gas Recirculation System	STD	Standard
ESA	Electronic Spark Advance	SW	Switch
EX	Exhaust	T	Torque
F/L	Fusible Link	T/C	Turbocharger
FR	Front	TDC	Top Dead Center
GND	Ground	U/S	Under Size
HC	Hydro Carbon	VSV	Vacuum Switching Valve
IG	Ignition	VTV	Vacuum Transmitting Valve
IN	Intake	W/	With
ISC	Idle Speed Control	Ⓟ	Bolt
ITC	Integrated Timer Control	Ⓢ	Screw
LED	Light Emitting Diode	Ⓝ	Nut
LH	Left Hand	Ⓦ	Washer

GI-ABB-Z-2-00001

4 UNIT

1. SI unit is the international unit system established by aiming to proceed the communication in technology smoothly by unifying the former unit system which were different internationally each other into one value by one unit. The specification value is described in accordance with SI unit system in this service manual. Please refer the specification value according to the former unit systems described in the last part of each section.

ITEM	SI units	Conventional units	Conversion table
Force	N		1 = 9.80665 N
Torque	N·m	kgf·cm	1 kgf·cm = 0.0980665 N·m
Pressure	kPa	kgf/cm ²	1 kgf/cm ² = 98.0665 kPa
		mmHg	1 mmHg = 0.133322 kPa
Spring constant	N/mm	kgf/mm	1 kgf/mm = 9.80665 N/mm
Volume	ℓ	cc	1000cc = 1 ℓ
Power	W	PS	1PS = 0.735499 kW

GI-SI-U-Z-00001

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5 GENERAL SERVICE INSTRUCTION

1. Use fender covers, seat covers, and floor sheets so that the vehicle may not get dirty or be scratched.
2. Jacking up
 - (1) When only front section or rear section of a vehicle is jacked up, be sure to place chocks at the wheels so as to insure safety operations.
 - (2) When the vehicle has been jacked up, be sure to support the vehicle at the specified section using the safety stands.
 - (3) When the vehicle has been lifted up, be sure to set the cradle of the lift at the specified location, and lift it up. And after the jacking up, ensure to apply the protective safety device.
3. Installation and removal of battery terminal
 - (1) Before you start performing the electrical works, make certain to disconnect the battery ground cable terminal from the negative (-) terminal of the battery.
 - (2) Before disconnecting the battery ground cable terminal from the negative (-) terminal of the battery, be sure to read out the diagnosis code of the EFI systems if it is equipped.
 - (3) After reconnecting the battery ground cable terminal to the negative terminal of the battery, be sure to reset the watch or radio, if the vehicle is equipped with such equipment.
 - (4) When it becomes necessary to disconnect the battery power supply for the purpose of carrying out checks or repairs, always disconnect the negative (-) terminal of the battery ground cable from the negative terminal of the battery first.
 - (5) To avoid damaging battery plates, after the terminal nut has been loosened, pull out the battery ground cable terminal straight upward, rather than turning or prying the terminal.
 - (6) Be sure to employ a battery terminal puller (commercially available) to remove battery ground cable terminal from the negative terminal of the battery, if any difficulty is encountered.
 - (7) Clean the battery terminal posts or battery ground cable terminals, using a cloth. Never use a file or other abrasive agents.
 - (8) Install the battery cable terminals to the battery posts after loosening the nuts, and tighten the nuts after installation. Never tap the terminals on the battery posts using a hammer or the like.
 - (9) As for the cover at the positive (+) terminal side, be sure to install it at the correct position.
4. Repairing of fuel system
 - (1) Be sure to prevent the fuel from splashing with a cloth or the like, when the union bolt or other connected section of the fuel line is loosened or slackened.
 - (2) Tighten each connecting section to the specified torque.
 - (3) Attach the specified clips to each connecting section.
 - (4) Be certain to place a suitable container, a cloth, etc. under the connected section of the fuel line before disconnecting the fuel line.
 - (5) Before the fuel line is disconnected, be sure to release the inner pressure of the fuel tank by detaching the fuel filler cap.
 - (6) Do not work near open flames.
5. For increased work efficiency and improved accuracy, be sure to utilize the SSTs (Special Service Tools) effectively.
6. REMOVAL, DISASSEMBLY
 - (1) In case for the operation at the complicate place, the stamping and mating mark shall be put at the place where there is no influence to the function, so that the assembling operation becomes easy.
 - (2) At every time when each parts are removed, check the condition when it was assembled, deformation, breakage, roughness and existence of scratch.
 - (3) Arrange the removed parts in order, and divide them to the parts to replace and parts to reuse.
 - (4) Each parts to be reused shall be performed enough cleaning and cleansing operation.

7. INSPECTION AND MEASUREMENT OF PARTS

(1) Detailed inspection and measurement shall be performed at need for the parts to be reused.

8. INSTALLATION , ASSEMBLING

(1) Assemble the good parts with correct procedure following the specified standard (value for the adjusting , tightening torque).

(2) Use the genuine parts when replace the parts.

(3) Ensure to apply the seal packing and grease by a place.

(4) Ensure to use new packing, gasket or the like, cotter pin etc.

(5) When use the seal bolt , apply the specified liquid gasket and seal lock agent on.

(6) Use the specified bolt and nut and tighten by specified tightening torque.

9. ADJUSTMENT, OPERATION CONFIRMATION

(1) Adjust with the specified service standard value by using the gauge and the tester

10. HANDLING OF HOSE or the like

(1) Ensure to insert the the fuel hose, water hose or the like without coming out or leakage.

(2) Be careful that fuel shall not splash on the parts near by when remove the fuel hose. (Deep care shall be paid for engine mount rubber or the like, as there may be possibility to get material deterioration for liquid of gasoline series.)

11. TOUCH UP

(1) when removed the bolt or the like during body fitting operation and others, the scratch of the paint finishing surface on the body and bolt shall be repaired by the body color.

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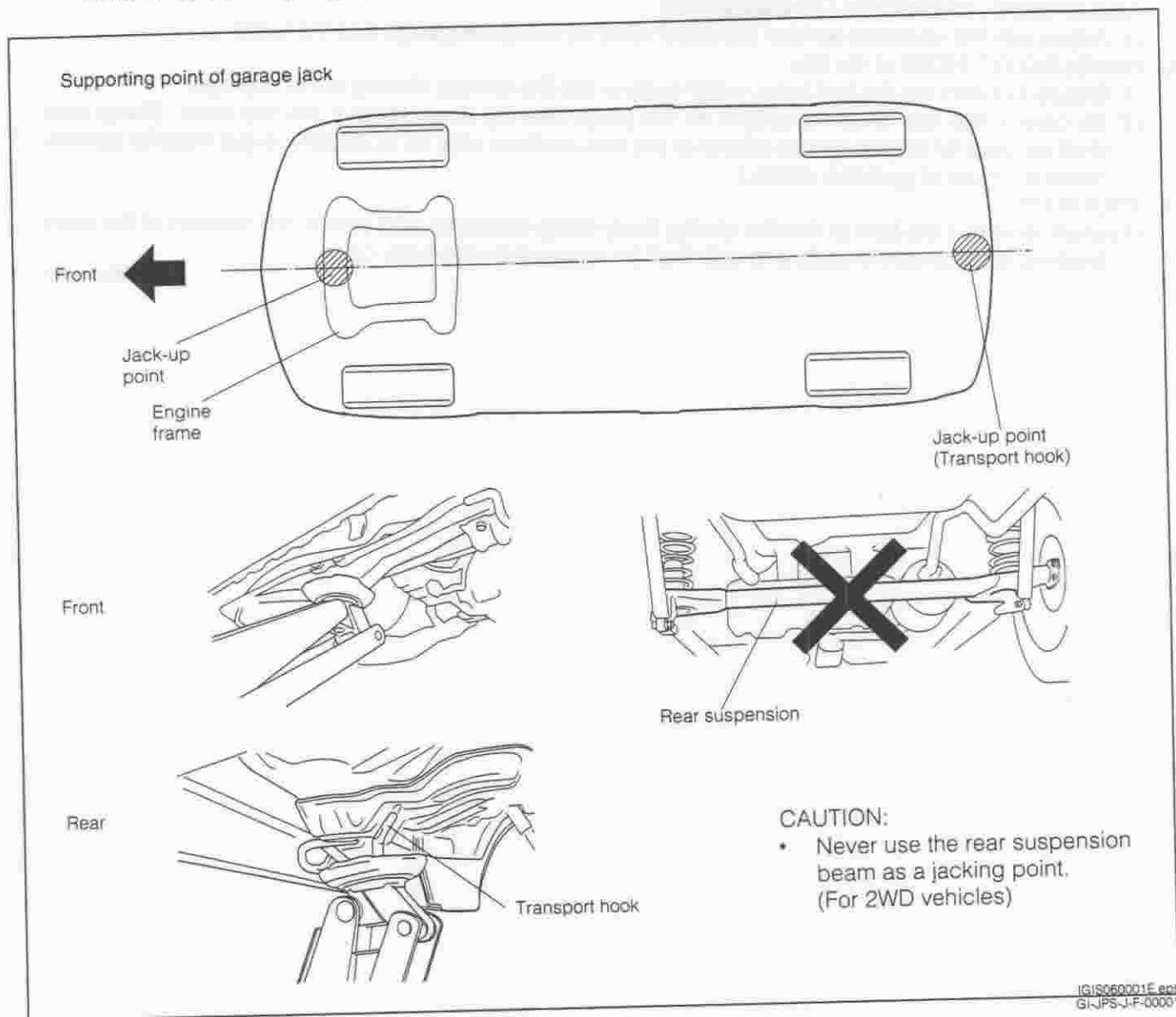
6 JACKING POINTS

6-1 JACKING POINTS AND SUPPORTING POINTS OF SAFETY STANDS

6-1-1 JACKING POINTS

CAUTION

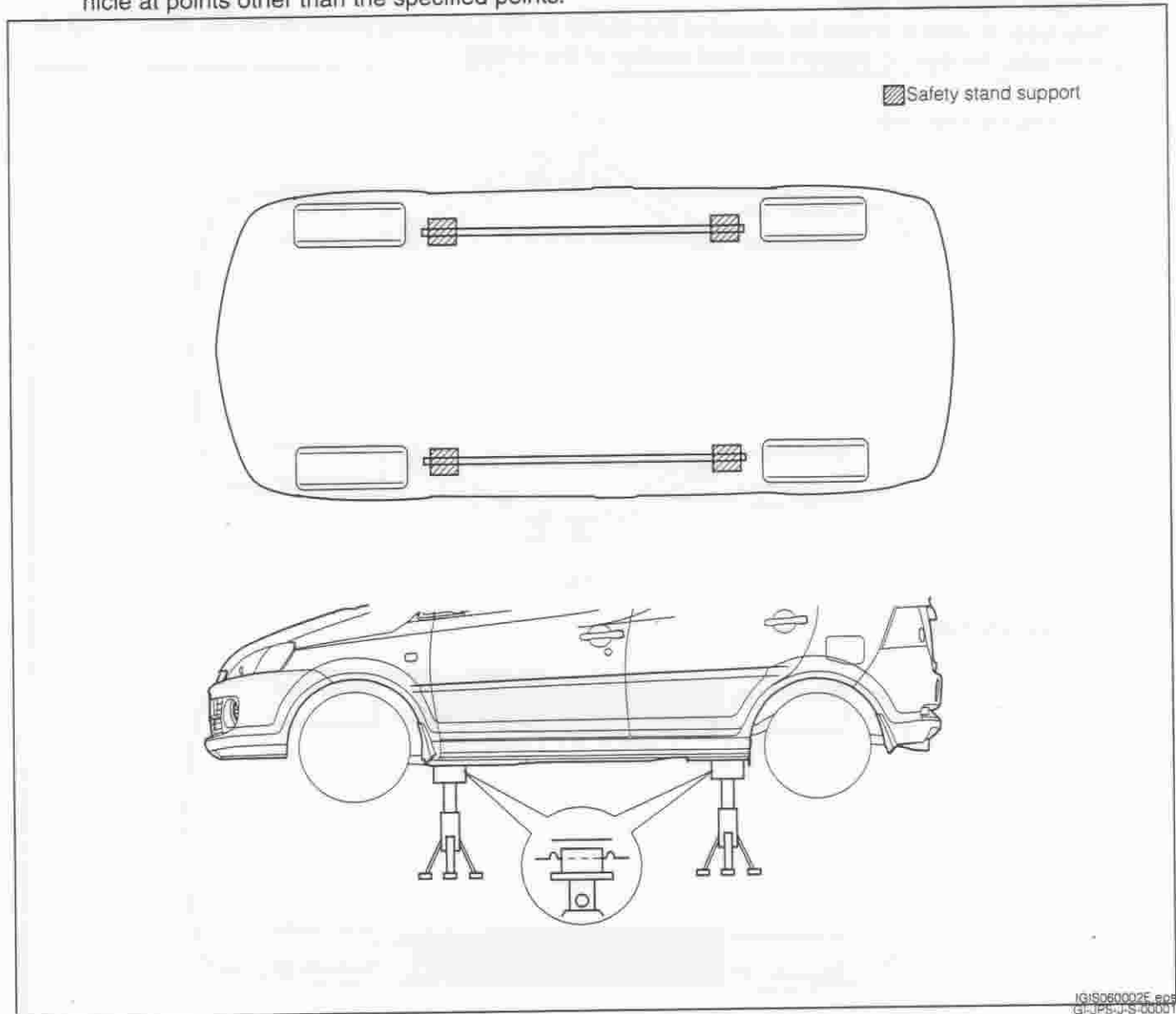
- The jacking-up operation must be carried out only on a level, flat place.
- Never use the rear suspension beam as a jacking point. If the vehicle should be raised with this point used as a jacking point, the beam may be damaged. (For 2WD vehicles)
- Never jack up the vehicle at the front and rear sides at the same time.
- Be sure to set the garage jack in such a way that the jack may not interfere with the bumper.



6-1-2 SUPPORTING POINTS OF SAFETY STANDS

CAUTION

- The supporting points have been strengthened by spot-welding reinforcement. Never support the vehicle at points other than the specified points.



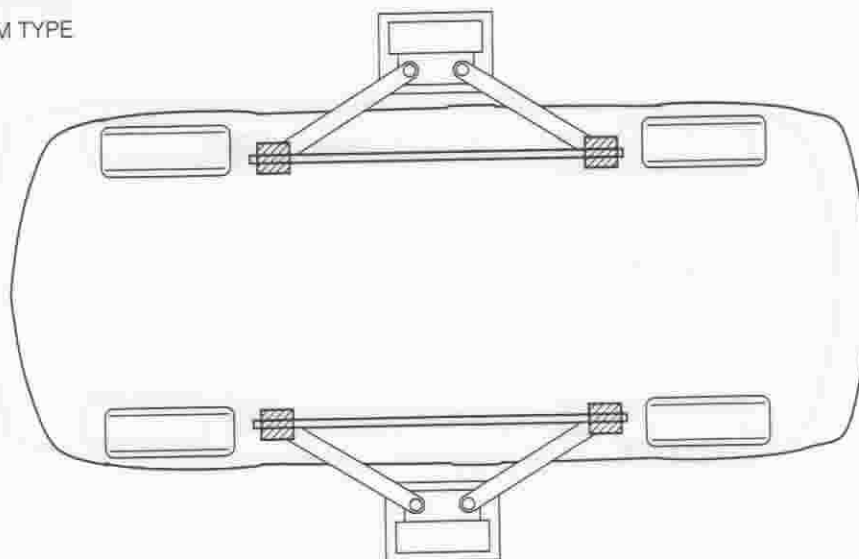
GI-12

6-2 SUPPORTING POINTS OF LIFTS

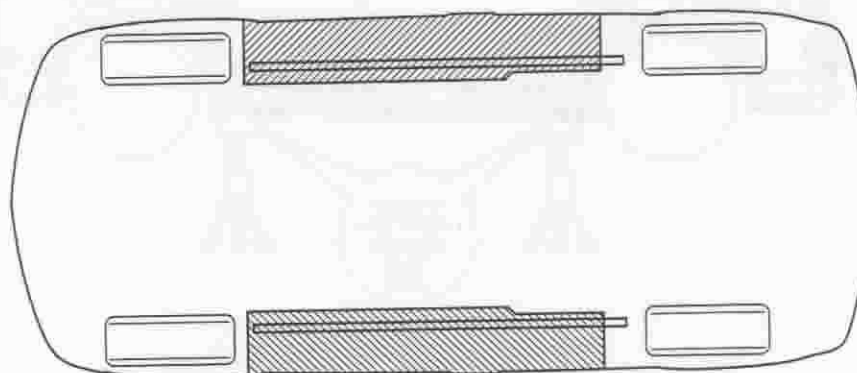
CAUTION

- Align the supporting pad of a two-post lift with the supporting points of safety stands, as indicated in the figure of previous page.
- Plate type: A vehicle should be placed at the center of the supporting plates of the lift. When lifting up the vehicle, be sure to support the front section of the vehicle.

• SWING ARM TYPE



• PLATE TYPE



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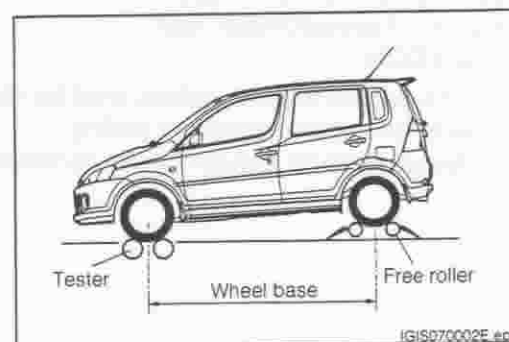
7 SERVICE INSTRUCTIONS FOR FOUR WHEEL DRIVE VEHICLES

1. A full time 4WD vehicle cannot make the front wheel or rear wheel free condition due to it's mechanism. Accordingly the brake test and speedometer test at the vehicle inspection shall be performed by setting one axis on the free rollers.

GI-4WD-Z-Z-00001

7-1 BRAKE TEST

1. Set the free rollers surely on the floor by mating to wheel base of the vehicle and tread of wheel to be measured (front wheel or rear wheel).

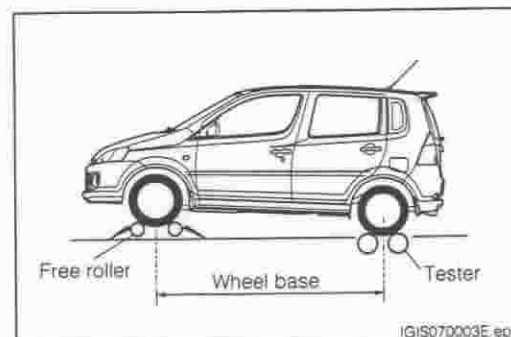


13 inch wheels	Wheel base	2355 mm
	Front tread	1405 mm
	Rear tread	1370 mm
14 inch wheels	Wheel base	2355 mm
	Front tread	1395 mm
	Rear tread	1360 mm

2. Set the wheel to be measured (front wheel or rear wheel) on the brake tester and the other wheel (front wheel or rear wheel) on the free rollers, then perform the brake test.

CAUTION

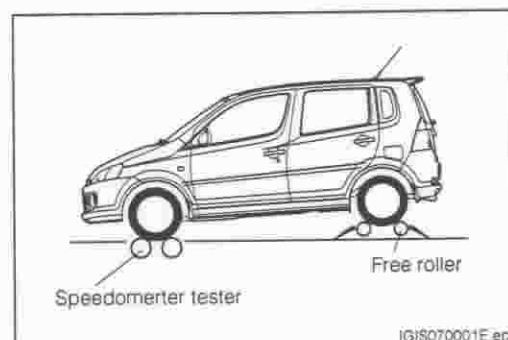
- There may be such case that the vehicle drift to backward at the point around wheel locking and then get out from the tester and free rollers.
- Therefore, confirm backward whether any human is or not before depressing the brake pedal.
- And also the brake pedal shall be kept depressing when vehicle drift to backward.
- The axle of the free rollers have to be set in parallel with the roller of each tester to prevent the drift to the side direction of the vehicle or pull of brake.



GI-4WD-B-Z-00001

7-2 SPEEDOMETER TESTER

1. Ensure to set the free rollers on the floor of rear wheel side by making it fit with wheel base and rear tread of a vehicle.



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13 inch wheels	Wheel base	2355 mm
	Rear tread	1370 mm
14 inch wheels	Wheel base	2355 mm
	Rear tread	1360 mm

- Set the front wheel on speedometer tester, and the rear wheel on the free rollers, then perform the operation of speedometer test.

CAUTION

- The axis of the free rollers shall be set to be parallel to the roller of each tester in order to prevent the side drift of the vehicle or pulling.
- Never perform sudden clutch connection and urgent acceleration and deceleration.

GI-4WD-M-Z-00001

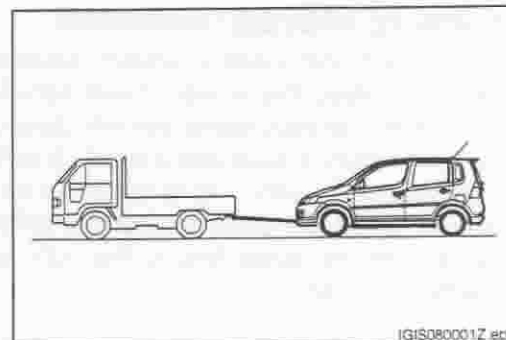
8 TOWING INSTRUCTIONS

8-1 TOWING WITH ROPE (ONLY FOR EMERGENCY)

1. Release parking brake, and turn IG switch to ACC position, and then put the shift lever into neutral range.

CAUTION

- Never tow with the rope when the running system and/or driving system seems to be abnormal.
- When drive with engine stopping, brake efficiency become less due to no functioning of the brake servo system. Depress the brake pedal more powerfully than the usual.
- For automatic transmission vehicle, be sure to always use a flat bed truck.



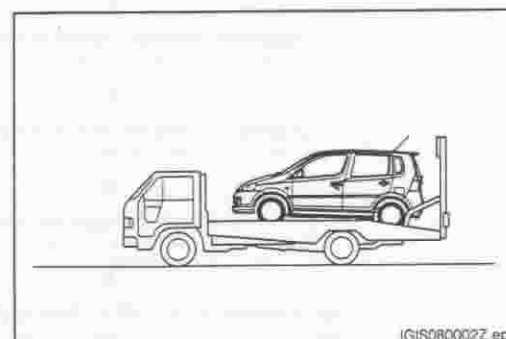
GI-TOW-R-Z-00001

8-2 USING FLAT BED TRUCK

1. Transfer the vehicle with applying parking brake and fixing the vehicle firmly.

CAUTION

- Be certain to transfer the vehicle by using the flat deck truck when the running system and/or driving system seems to be abnormal.

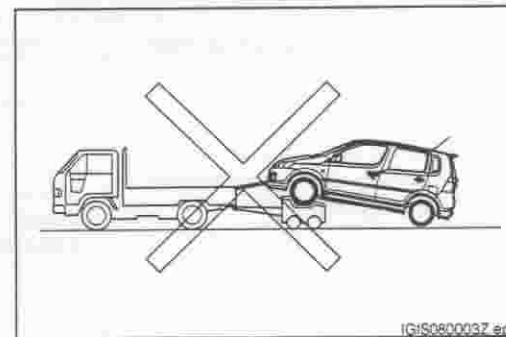


GI-TOW-O-Z-00001

8-3 TOWING WITH FRONT WHEEL OR REAR WHEEL LIFT TYPE TRUCK

WARNING

- In case of 4WD vehicle, never perform the towing with lifting up only the front wheel or rear wheel, because there shall be possibility to be over heat or sticking of the driving system during towing and running out from the flat deck truck.



GI-TOW-L-Z-00001

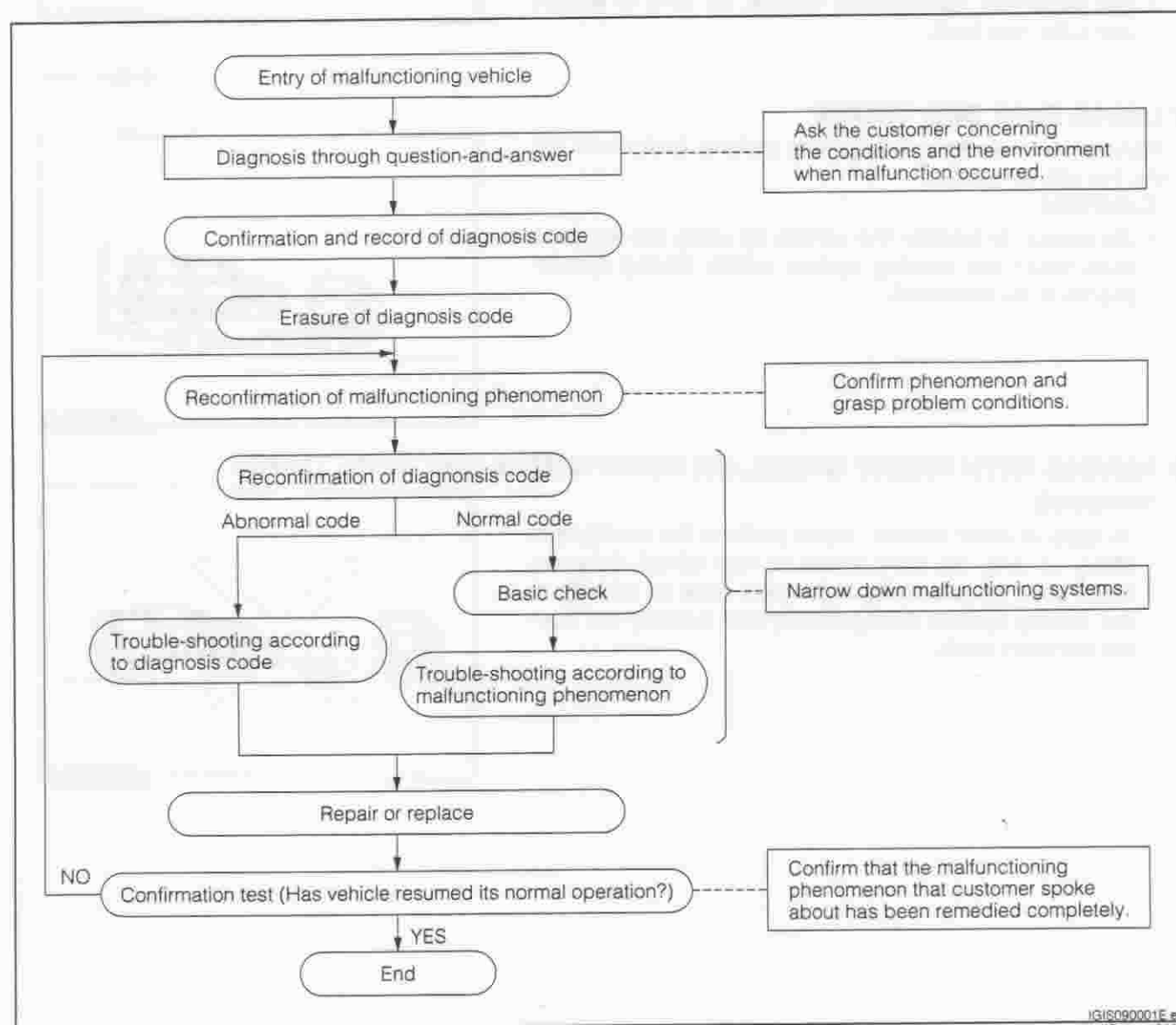
GI-16

9 DIAGNOSTICS INSTRUCTIONS

9-1 DIAGNOSIS

9-1-1 HOW TO PROCEED DIAGNOSIS

- Each electronic control system equipped on the vehicle is an important clue at performing trouble shooting. Also this system have self-diagnosis function to inspect the malfunction portion which occurred in corresponding system ,and battery back up (the function that power source for diagnosis code memory is supplied even if IG switch is OFF) is equipped for self-diagnosis function of electronic control system with, and is designed so that diagnosis code is memorized to each system. As the function of diagnosis code memory is different by each system, perform the confirmation / elimination of code memory according to the right operation procedure after confirming equipped diagnosis code memory function.



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GI-HOW-K-00001

9-1-2 CUSTOMER PROBLEM ANALYSIS

1. For the vehicle which malfunctions occurred, confirm first the malfunction phenomenon, and study the cause and then eliminate the cause. There is possibility that the vehicle does not return to normal condition even if perform many operation without study of cause. An asking about problems is to gather the information from the customer before confirming the malfunction phenomenon, and become an important clue when attempt to reproduce the malfunction. When perform the asking about problem, it is necessary to focus to the items relating to said malfunctions so that information attained with an asking about problems becomes useful reference of trouble shooting.

GI-HOW-K-Q-00001

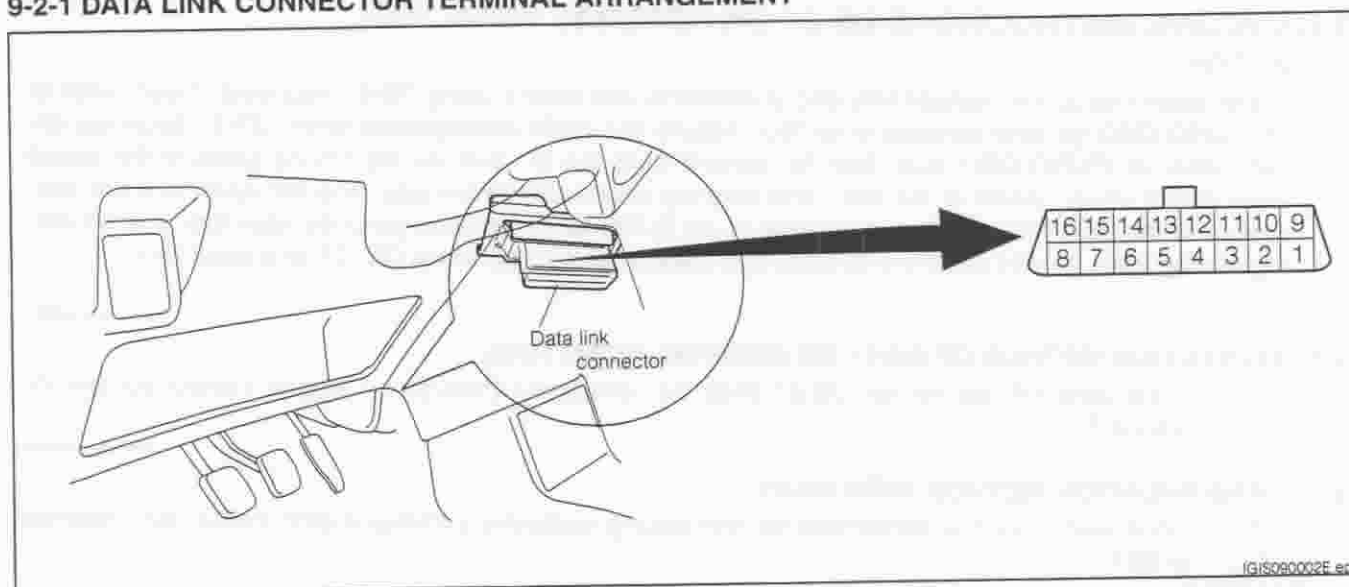
9-1-3 SYMPTOM CONFIRMATION

1. When perform trouble shooting, the operator himself have to confirm the phenomenon actually to pursue the cause. For that purpose, It is indispensable to reproduce the malfunction phenomenon by making similar condition and environment with generated condition of the malfunction on the basis of information that attained from an asking about problems. Regarding with the phenomenon of poor reproducibility, it is necessary to make condition which is closed to running condition in the malfunction (road surface condition, weather condition, operating condition) based on the information attained from an asking about problems. For that purpose, It is the most important to attempt to reproduce the malfunction phenomenon with perseverance by adding the external factor such as the vibration (move wire harness and relay by hand), the heat (blow by warm wind), the water (give humidity). Furthermore, the good or bad judgment for the portion where is to be the factor of malfunction can be performed simultaneously. And at the same time to attempt to reproduce the malfunction phenomenon, it is also important operation to confirm whether the code indicated before confirmation has been output by checking the diagnosis code indicated before and after confirmation of the malfunction phenomenon.

GI-HOW-K-M-00001

9-2 DATA LINK CONNECTOR

9-2-1 DATA LINK CONNECTOR TERMINAL ARRANGEMENT



GI-18

No.	Terminal code	No.	Terminal code
1	VF	9	REV
2	-	10	-
3	-	11	W (IMB)
4	GND (CHS)	12	T (EFI)
5	GND (SIG)	13	T (ECU)
6	-	14	-
7	SIO	15	-
8	T (ITC)	16	IG

GI-HOW-C-L-00001

9-2-2 CONNECTION METHOD OF DATA LINK CONNECTOR

1. Perform it by connecting the engine control system inspection wire (SST) with the data link connector. Perform the system check of each system by using the terminal for short circuit (SST), the terminal for detecting engine speed and the terminal for VF output monitoring (SST).

(1) CONNECTION METHOD OF EACH SYSTEM

1. Diagnosis code output of engine control system: Short circuit between T(EFI) - E
2. Functioning check of O₂ sensor for engine control system : Measure between VF -E
3. Engine speed check of engine control system: Measure between REV - Body earth
4. Diagnosis code output of ABS system: Short circuit between T(ECU) - E
5. Diagnosis code output of airbag system: Short circuit between T(ECU) - E
6. Diagnosis code output of automatic transmission system: Short circuit between T(ECU) - E
7. Functioning check of body integration controller and vehicle speed sensor: T(ITC)

GI-HOW-C-S-00001

9-3 HANDLING INSTRUCTIONS DS-21 OR GENERAL SCAN TOOL

CAUTION

- Read each instruction manual fully and understand well before using DS-21 diagnosis circuit tester or an EURO-OBd general purpose scan tool. Assure the cable arrangement when DS-21 diagnosis circuit tester or EURO-OBd scan tool for general purpose is used during driving (secure the space around foot place, pedal or the like, and steering wheel circumference). And two operators are necessary when DS-21 diagnosis circuit tester or an EURO-OBd general purpose scan tool is used during driving. One person drive the vehicle, and another person operates DS -21 or a scan tool.

GI-HOW-H-Z-00001

9-3-1 CONNECTION METHOD OF DS-21 OR GENERAL SCAN TOOL

1. Connect to the data link connector. DS-21 shall be connected through an engine control system inspection wire (SST).

GI-HOW-H-F-00001

9-3-2 COMMUNICATION METHOD WITH DS-21

1. Communication with DS-21 is performed by connecting exclusive communication cable (Accessories of DS-21) to SST.

CAUTION

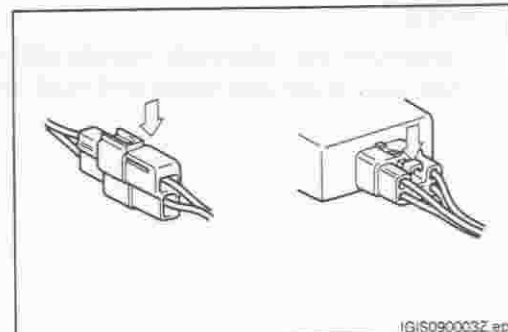
- Be sure not to connect with other than exclusive communication cable.

GI-HOW-H-D-00001

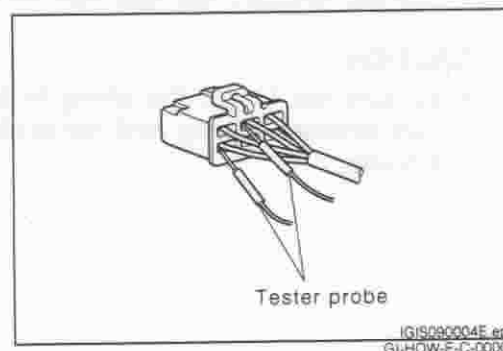
9-4 INSTRUCTIONS SYSTEM INSPECTION

9-4-1 HANDLING INSTRUCTION OF CONNECTOR

1. Connection or disconnection of the connector and each terminal shall be performed basically after the removal of negative terminal of the battery. However, there may be the case that diagnosis code is erased when remove the negative terminal of battery, so confirm the diagnosis code first before the removal of battery negative terminal when need to confirm.
2. Ensure to remove the connector with pulling it up not by pulling the harness but by having the connector body itself with the condition which released the lock of connector. When connect it, push it into surely till locking up with sound of click.



3. when put the tester probe on the connector, put it from back side of the coupler (harness).
4. To the objects which can not insert from the back side such as water-proof coupler, the tester probe shall be put with care without giving any deformation.
5. Never touch with the terminal of connector by hand directly.
6. Be careful not to be short-circuit by touching with two tester probes, when touch to the terminal which voltage is applied by the tester probe.



9-4-2 CHECK PROCEDURE OF WIRE HARNESS AND CONNECTOR

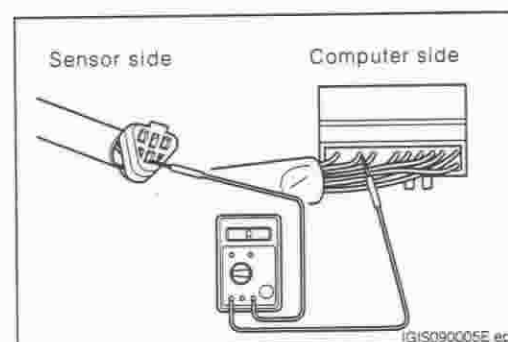
1. Perform the inspection of wire harness and connector portion in the distinctive system inspection in accordance with next points.

(1) CONTINUITY INSPECTION

1. Remove the connector of corresponding harness on both end.
 2. Measure the electrical resistance between corresponding terminal of connector on both end.
- SPECIFIED VALUE: Not more than 10Ω

NOTE

- Measure the electrical resistance while shaking wire harness in top and down and right and left lightly.
- In case of open circuit, as it is seldom that open circuit happen in central part of wiring harness, and most of part the open circuit happen are connector area. Particularly, check the connector of the sensor portion carefully.



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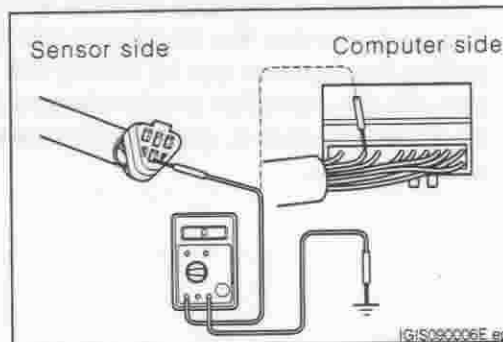
(2) SHORT CIRCUIT INSPECTION

1. Remove the connector of corresponding harness on both end.
2. Measure the electrical resistance between corresponding terminal of connector and body earth connecting. In addition to above, perform the inspection with the connector of each side.

SPECIFIED VALUE: Not less than $1M\Omega$

NOTE

- Measure the electrical resistance while shaking wire harness in top and down and right and left lightly.

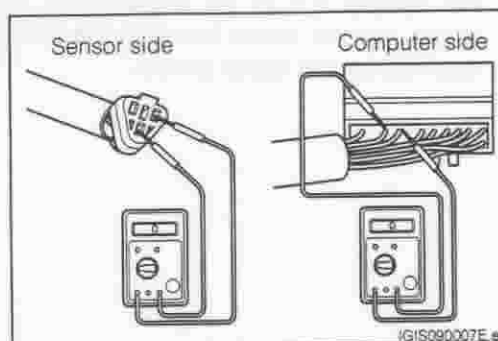


3. Measure electrical resistance between terminals in same connector with the connector of corresponding terminal (except between each power supply lines or earth lines). In addition to above, perform the inspection at the connector of both side.

SPECIFIED VALUE: Not less than $1M\Omega$

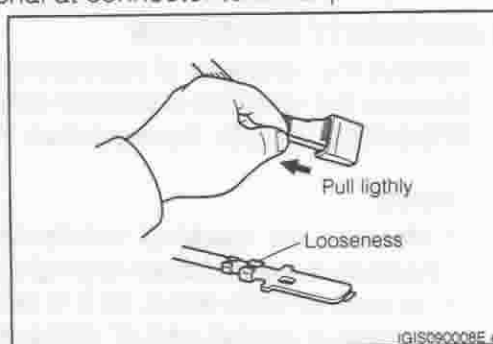
CAUTION

- Be sure not to get the wiring in passenger compartment jammed in body, and not to short-circuit by failure of clamp.



(3) VISUAL INSPECTION, CONTACT FORCE INSPECTION

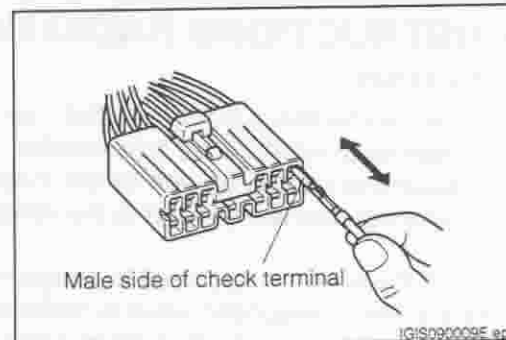
1. Remove the connector of corresponding harness on both end.
2. Check visually the rust generation or mixing of the foreign material at connector terminal portion.
3. Check whether there are looseness, damage at the staking portion and check the coming out from the coupler by pulling the wire harness lightly.



4. Check the pulling force by preparing the same one as male terminal of connector and plugging in to female terminal. There is possibility of irregular contact for the terminal with low pulling force by comparing other terminal.

NOTE

- When the rust generation, mixing of the foreign material or the drop of the contact force with the male terminal and the female terminal exist. There may be a case that display as "no abnormal" as contact condition may be changed by removing and installing the contacted connector once. Accordingly, attempt to confirm the malfunction phenomenon when result of the inspection for wire harness and connector are normal. Then, if the malfunction phenomenon is not reproduced, the cause of it may be considered as irregular contact of the male terminal and the female terminal.



GI-HOW-E-H-00001

9-4-3 HANDLING INSTRUCTION OF SYSTEM

1. Computer unit, each sensor or the like are precision parts. No big impact shall be applied while removing and installing. Do not reuse the parts which the impact have been applied once (i.e.: the case which fell down onto floor).
2. Ensure the water not to come into inside of vehicle and the water shall not splash on the computer unit, each sensors or the like during inspection in the rain or car washing.
3. When judged as computer unit is abnormal, and a vehicle recovered to normal by replacing it, After install computer unit which replaced one (it was the one judged as failure)once again, and confirm that the former malfunction(abnormality) is reproduced and then judge as computer unit is as abnormal finally.

GI-HOW-E-I-00001

9-4-4 CIRCUIT INSPECTION OF COMPUTER UNIT

1. Perform computer unit circuit inspection by the next point. If it is malfunction, repair the corresponding connector, circuit, and if normal, change the computer unit.

(1) VISUAL CHECK OF CONNECTOR PORTION, CONTACT FORCE INSPECTION

1. Check the connector of computer unit according to visual check and the contact force check point described in former page.

(2) COMPUTER UNIT EARTH CONNECTING INSPECTION

1. Remove the connector of computer unit, and then measure the applied voltage between each power source terminal, each earth connector and body earth connecting.

NOTE

- At the computer unit circuit check, there may be the case that the sign "not abnormal" is displayed by removing and installing the contacted connector once due to change of contact condition. Accordingly, when the result of computer unit circuit check is "not abnormal", judge computer unit as malfunction after confirm the generation of malfunction again by connecting the computer unit connector once again.

GI-HOW-E-Y-00001

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10 INSTRUCTIONS RADIO INSTALLATION

CAUTION

- Be careful about following point, as electronic control system has been deeply considered to protect from radio interference from outside, however there may be the case that the effect of it extend to the electronic control system by the location when the amateur radio instrument or mobile telephone for business use is equipped to the vehicle.
1. Install the antenna as possible as apart from electronic control system.
 2. As the electromagnetic wave is radiated from antenna feeder, so set the antenna feeder within the distance at least not less than 30 cm apart from computer unit and ECU harness. And do not arrange both line in parallel for the long distance.
 3. Never bind the antenna feeder together with the engine harness with binding tape.
 4. Regulate the antenna and the feeder to get rid of radio interference.
 5. Do not equip the radio instrument or the like with high output (exceeding 10 kW).

GI-RDT-Z-Z-00001

11 HANDLING INSTRUCTIONS CATALYTIC CONVERTER-EQUIPPED VEHICLES

WARNING

- When a great amount of unburnt gas is admitted into the catalytic converter, overheating is prone to occur, resulting in a fire hazard.
 - To avoid such trouble in advance, be certain to observe the following precautions. Also be sure to explain such precautions to your customers.
1. Use only unleaded gasoline to catalytic converter-equipped vehicles.
 2. Be sure to observe following points when performing the spark jump test.
 - (1) The spark jump test must be limited to cases where such test is absolutely necessary. Also, be sure to finish the test in the shortest possible time.
 - (2) Never race the engine during the test.
 - (3) Be sure to shut off the fuel supply when performing the spark jump test in advance.
 3. Do not run the engine when the fuel tank becomes nearly empty.
Failure to observe this caution will causes misfiring. Also it will apply excessive load to the catalytic converter, even leading to catalyst damage.
 4. Do not dispose the waste catalyst along with parts contaminated with gasoline or oil.

GI-GAT-Z-Z-00001

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12 PRECAUTION FOR VEHICLES EQUIPPED WITH SRS AIRBAG AND SEAT BELT PRETENSIONER

12-1 INSTRUCTIONS FOR SERVICE OPERATION

1. Ensure to perform the service operation for the vehicle equipped with the air bag and pretensioner seat belt according to the correct procedure and method, otherwise, the air bag or pretensioner may lead the malfunction and lead serious accident during the operation. And ensure to perform the service operation for the vehicle equipped with air bag and pretensioner according to the correct procedure and method described in this manual by reading out following items well.

GI-SRT-N-Z-00001

12-1-1 PRECAUTION PRIOR TO SERVICE OPERATION

1. Commence to perform the operation to remove the related parts of the air bag and pretensioner after 60 seconds following to the next sequence, after confirm the lighting condition of warning lamp, put ignition switch OFF(LOCK) and remove the negative terminal of battery.

WARNING

- There may be possibility for malfunction of air bag if commence the operation within 60 seconds.

NOTE

- As air bag system provide the back up capacitor (for ignition purpose), about 60 seconds is necessary as discharging time even though removed the battery negative terminal. (natural discharge)

CAUTION

- Be careful that memory of computer of other system (such as engine control) may be erased simultaneously when removed the battery negative terminal.

2. Ensure to use the digital circuit tester for the electric inspection of the vehicle equipped with the air bag, pretensioner, and use the circuit tester which satisfy the following standard.

WARNING

- Ensure beforehand to measure the electric current value of circuit tester to be used for an operation, and confirm if it satisfy the following specified value. When the circuit tester exceeding specified value is used, there may be possibility that malfunction or deterioration of air bag occur. In addition to above, measure the electric current of the circuit tester with minimal resistance (Ω) range.

SPECIFIED VALUE: Not more than about 50 mA (0.05A)

GI-SRT-N-B-00001

12-1-2 PRECAUTION TO PREVENT MISS OPERATION

1. Be sure not to drop the airbag system component parts during removal and installation of it.
2. Ensure not to give the impact or damage when remove the airbag system component parts.
3. Ensure to put the pad Ay and assistant driver's seat air bag unit with development surface upward during the operation though it is temporary operations. And never stack the pad Ay. (There is possibility to lead serious accident if metal surface is facing upward at an emergency)
4. Keep the airbag system component parts in the place where the effect of electricity noise, the high-temperature (not less than atmosphere temperature 85°C), and high humidity can be avoided.
5. Do not expose directly the airbag system component parts to high-temperature and the flame.
6. Considering the case an air bag is actuated at an emergency, perform the service operation with posture as not to get your body close to developing portion as much as possible.

GI-SRT-N-M-00001

12-1-3 GENERAL SERVICE INSTRUCTION

1. Follow the indication of the caution plate affixed on the parts to handle the airbag system related parts.
2. Ensure to mate the center when the steering roll connector is installed.
3. As a result of the following operation, if the relation of mutual position of parts is changed, as there may be the case that steering roll connector will be snapped when the steering wheel is operated, so perform the mating of the center for steering roll connector and marking to the separating portion.

(1) STEERING CONCERNED

1. Steering wheel, steering column, steering gear or the like

(2) VEHICLE BODY CONCERNED

1. Instrument panel or the like
2. Body electrical malfunctioned
3. Multi-use lever switch or the like

(3) POWER TRAIN CONCERNED

1. The case when separate the connection of steering gear at the removal and installation of the engine and transmission and so on.

GI-SRT-N-G-00001

12-1-4 PRECAUTION PRIOR TO BODY AND PAINT OPERATION

1. As an inflator or the like are installed in the steering wheel central part, the upper part of instrument panel, the root of A pillar, the root of B pillar, the front seat back. So, be sure not to give the strong impact with hammer or the like, and high temperature during repairing.
2. Perform the operation after removing airbag system component parts when use the electric welding machine.
3. Perform the operation after removing the airbag system component parts when give the impact and the high temperature.
4. Do not expose the painting surface near the air bag related parts to the high temperature not less than 85 °C during drying it.
5. Ensure to change with new parts when an air bag related parts have the external scratch, deformation.

GI-SRT-N-T-00001

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13 VEHICLE IDENTIFICATION

13-1 BODY COLOR CODE

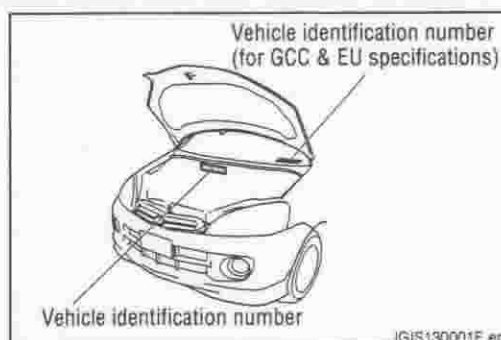
Body Color name	Color code
White	W09
Silver Metallic	S07
Black mica	N05
Red	R29
Blue mica Metallic	B50
Jade green Metallic	G31

Body Color name	Daihatsu	AKZO	DUPONT	GLASURIT	ICI AUTO COLOR	SPIES HECKER	STANDOX
White	W09	DAHWO9	K9344	DAI-W09	XM48	16461	W09
Silver Metallic	S07	DAHS07	L8842	DAI-S07	B127B	97076	S07
Black mica	N05	DAHN05	M5554	DAI-N05	VRP1B	75683	N05
Red	R29	DAHR29	F7986	DAI-R29	MXR4	34453	R29
Blue mica Metallic	B50	DAHB50	M6981	DAI-B50	WVF5B	69136	B50
Jade green Metallic	G31	DAHG31	F5146	DAI-G31	NMH2B	65649	G31

GI-VIN-B-Z-00001

13-2 CHASSIS SERIAL NUMBER

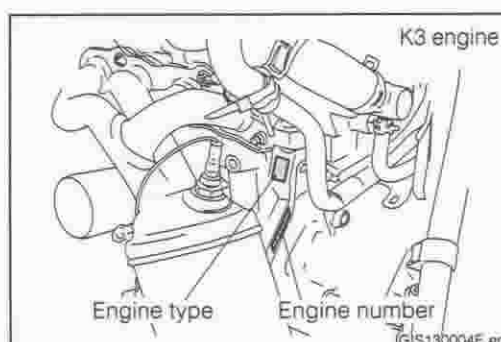
- The chassis serial number is stamped on the cowl in the engine compartment.
For GCC and EU specifications, the number is attached on the dashboard too.



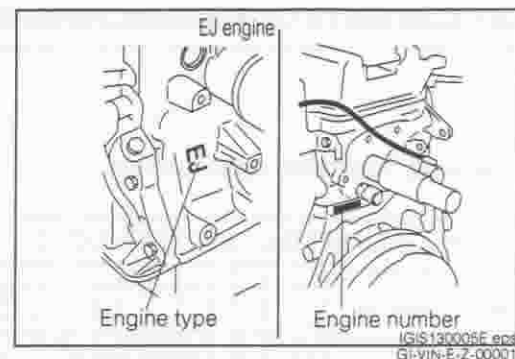
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GI-VIN-C-Z-00001

13-3 ENGINE TYPE AND ENGINE NUMBER

- The engine type and engine number are given on the places as shown in the illustration.

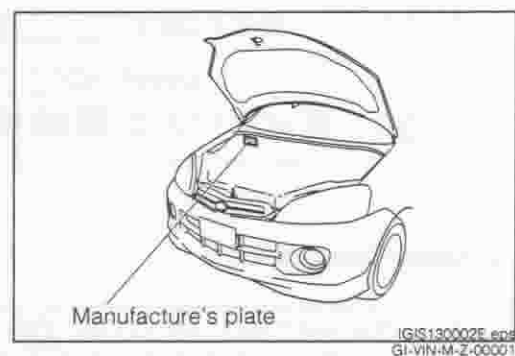


IG/S130004E.eps



13-4 MANUFACTURER'S PLATE POSITION

1. The manufacturer's plate is attached on the cowl panel in the engine compartment.



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13-4-1 CONTENTS OF MANUFACTURER'S PLATE

General, Australian specifications

①	DAIHATSU MOTOR CO. LTD. JAPAN															
②	TYPE															
③	CHASSIS NO.															
④	ENGINE															⑤
	○	COLOR				TRIM				○	⑦					
⑥	BUILT DATE															⑭
	ENGINE NO.															⑧
	ダイハツ工業株式会社															⑨

- ① Manufacturer's name, Country
- ② Vehicle model
- ③ Chassis No.
- ④ Engine type
- ⑤ Engine displacement
- ⑥ Body colors
- ⑦ Trim code
- ⑧ Engine number
- ⑨ Manufacturer's name in Japanese
- ⑩ Gross vehicle weight
- ⑪ Gross combination weight
- ⑫ Maximum permissible front axle weight
- ⑬ Maximum permissible rear axle weight
- ⑭ Production month-year (Only for AUS spec.)
- ⑮ Authorized number of W.V.T.A.
(Only for European spec.)

European Specification

①	DAIHATSU MOTOR CO. LTD															⑮
																③
																⑩
																⑪
																⑫
																⑬
②	TYPE															
④	ENGINE															⑥

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GI-VIN-M-C-00001