

DAIHATSU

F300

GENERAL INFORMATION

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This Service Manual applies to those vehicles with the following chassis numbers onward and with the owner's manual F270-9008-E1, FG1, S1 or A1 furnished.

JDA00F30000026439

WF90-GI001

GENERAL INFORMATION

IMPORTANT SAFETY NOTICE

The vehicle is a machine comprising a great number of parts. Basically speaking, the vehicle is potentially hazard. However, one can handle it safely if he has the required knowledge.

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 concerned.

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.

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 concerned properly. Furthermore, he must assume responsibility for his actions in connection with his own safety.

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.

WARNINGS, CAUTIONS AND NOTES

All these symbols have their specific purposes, respectively.

WARNING:

This symbol means that there is a 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 a 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 concerning the operation are given in this section.

The following list describes general WARNINGS:

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

YOU SHOULD OBSERVE THE FOLLOWING WARNING WHEN WORKING ON THE VEHICLE AS LAID DOWN BY THE HEALTH AND SAFETY EXECUTIVE.

THE DANGER

Some vehicle parts contain asbestos. Working with them can create dust. Breathing this dust is harmful. Cases of asbestos related cancer have been reported in garage workers.

The dangerous jobs are:

- cleaning brake assemblies
- cleaning clutch housings
- grinding brake linings
- drilling brake linings
- sweeping floors

Brake and clutch linings and disc pads may contain asbestos. If in doubt assume that they do.

WHO IS AT RISK?

Anyone in the garage could be at risk. There is no known safe level of asbestos dust. But the more dust you breath, the greater the chance of lung damage.

The problem is that the dust particles are too small to be seen by the naked eye. And the diseases caused can take years to develop.

Don't put the brakes on your life. Avoid breathing asbestos dust. Prevent dust getting into the air. Follow the WARNING.

WARNING

1. DON'T blow dust out of brake drums or clutch housings with an air line.
2. DO use properly designed drum cleaning equipment which prevents dust escaping
or
use clean wet rags to clean out drums or housings.
Put used rags in a plastic waste bag while still wet.
3. DON'T grind or drill linings unless the machine has exhaust ventilation or there is a ventilated booth to do the work in.
4. DON'T use brushes to sweep up dust.
5. DO use a special vacuum cleaner to remove dust.
6. DO wet dust *thoroughly* and scrape it up if you haven't got a vacuum.
7. DO wear the protective clothing, such as overalls, provided by your employer.
8. DON'T take the protective clothing home. It should be cleaned by your employer.
9. DON'T use equipment if it is not maintained and checked. Ask to see the examination reports for ventilation systems.

GENERAL INFORMATION

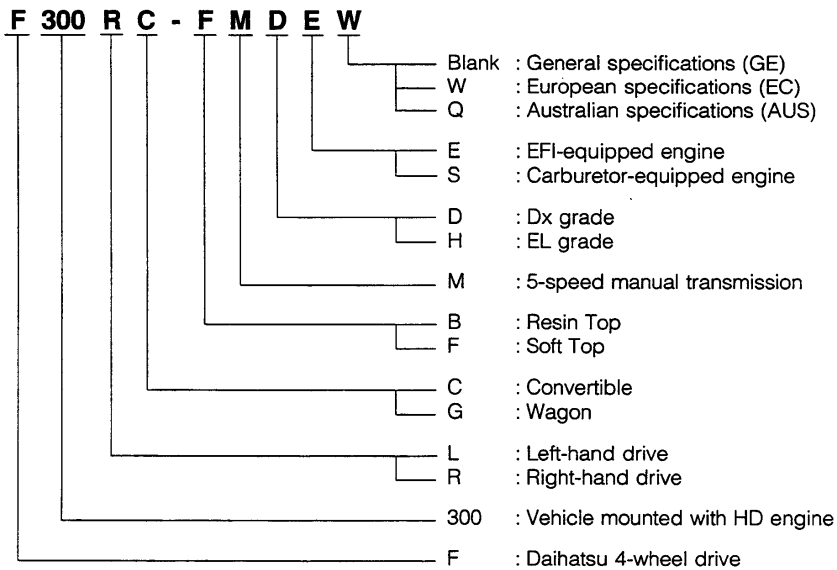
1. VEHICLE MODELS

Model code	Destination	Engine	Catalyzer	Fuel evap. canister	Fuel system
F300RC-FMDS	General	HD-C	N/A	N/A	Carburetor
F300RG-BMDS -BMHS					
F300LC-FMDS				Canister (Only G.C.C.)	
F300LG-BMDS -BMHS					
F300RC-FMDSW	Europe	HD-C	N/A	N/A	Carburetor
F300RG-BMDSW -BMHSW					
F300LC-FMDSW					
F300LG-BMDSW -BMHSW					
F300RC-FMDEW	Europe	HD-E	3-WAY	Canister	EFI ⁽¹⁾
F300RG-BMHEW					
F300LC-FMDEW					
F300LG-BMDEW -BMHEW					
F300RC-FMDEQ	Australia	HD-E	3-WAY	Canister	EFI ⁽¹⁾
F300RG-BMDEQ -BMHEQ					

Note: (1) Electronic Fuel Injection

WFE90-GI002

EXPLANATION OF VEHICLE MODEL CODE



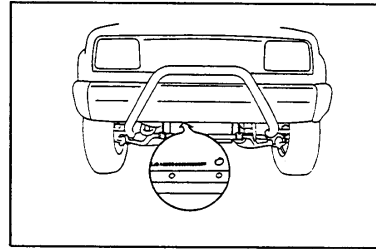
WFE90-GI003

GENERAL INFORMATION

2. CHASSIS SERIAL NUMBER & MANUFACTURER'S PLATE

FIRST CHASSIS SERIAL NUMBER

F300LC-
F300LG-

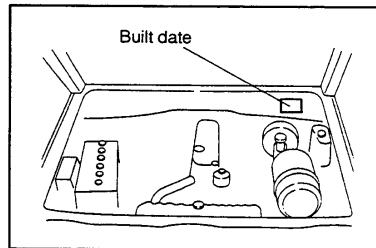


WFE90-GI004

CHASSIS NUMBER & MANUFACTURER'S PLATE

1. Position

The chassis number is stamped on the crossmember at the front section of the vehicle.
Manufacturer's plate is attached on the cowl panel.



WFE90-GI005

2. Contents of manufacturer's plate

(1) General & Australian Specification

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

- 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.)

(2) European Specification

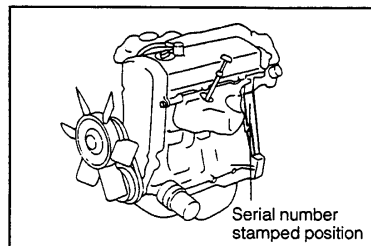
①	DAIHATSU MOTOR CO..LTD	
②	TYPE	
④	ENGINE	COLOR

WT90-GI007

GENERAL INFORMATION

3. ENGINE NUMBER AND ENGINE TYPE

The engine type and serial number is stamped on the place as shown in the illustration.



WFE90-GI006

4. BODY COLOR INFORMATION

Body color	Daihatsu color code	Stripe color		
		A	B	C
Red Gray M. San Remo green/Grey M.	3E7 168 NB1 (G09/168)	Dark Gray Metallic	Silver Metallic	Dark Blue
Green Dark blue M. Black M. Red mica/silver M. Dark blue M./silver M. Black M./silver M. White/silver M. White	G05 8G4 6A5 NA1 (3H1/148) NA2 (8G4/148) NA3 (6A5/148) NA4 (045/148) 045		Gray Metallic	Red

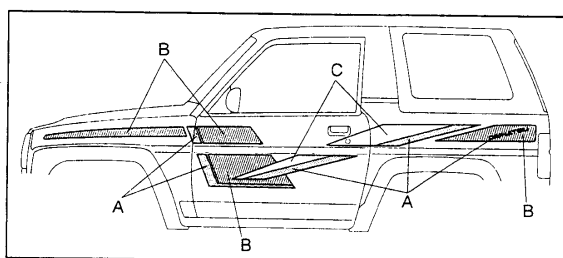
WFE90-GI007

COLOR CODE OF THE WORLD

COLOR		AXZO	DUPONT	I.C.I	SPIES HECKER	STANDOX
WHITE	045	DAH045	L8997	NW-80	16067	045
RED	3E7	DAH3E7	G8690	KK26	38299	3E7
GREEN	G05	DAHG05	G8691	KV77	68470	G05
GRAY. M	168	DAH168	N8832	B936B	97728	168
DARK BLUE. M	8G4	DAH8G4	K9131	C247B	97909	8G4
BLACK. M	6A5	DAH6A5	G8742	A403B	97806	6A5
TWO TONE	NA1	DAHNA1	G8730/N8221	PC86B/0985B	47840	NA1
TWO TONE	NA2	DAHNA2	K9131/N8221	C247B/0985B	48225	NA2
TWO TONE	NA3	DAHNA3	G8742/N8221	A403/0985B	48231	NA3
TWO TONE	NA4	DAHNA4	L8997/N8221	NW80/0985B	48232	NA4
TWO TONE	NB1	DAHNB1	N9305/N8832	XW13/B936B	48480	NB1

WFE90-GI100

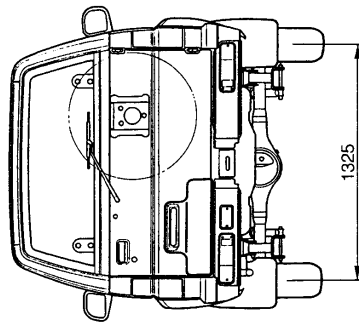
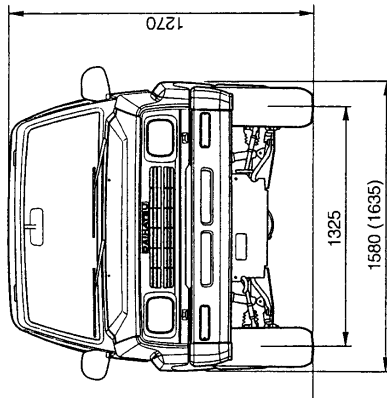
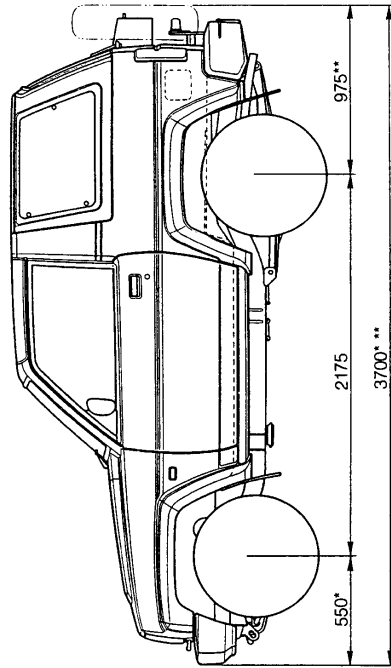
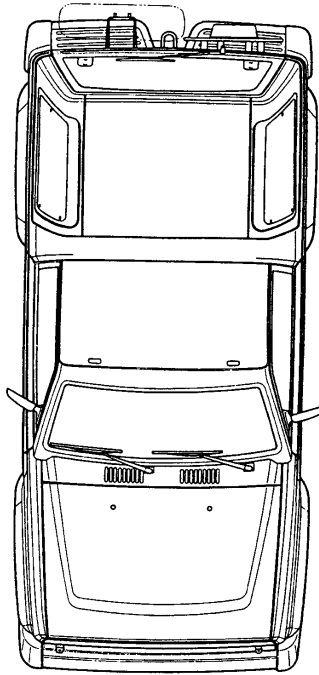
BODY STRIPE INFORMATION



WFE90-GI101

5. VEHICLE 4-PLANE DIAGRAMS

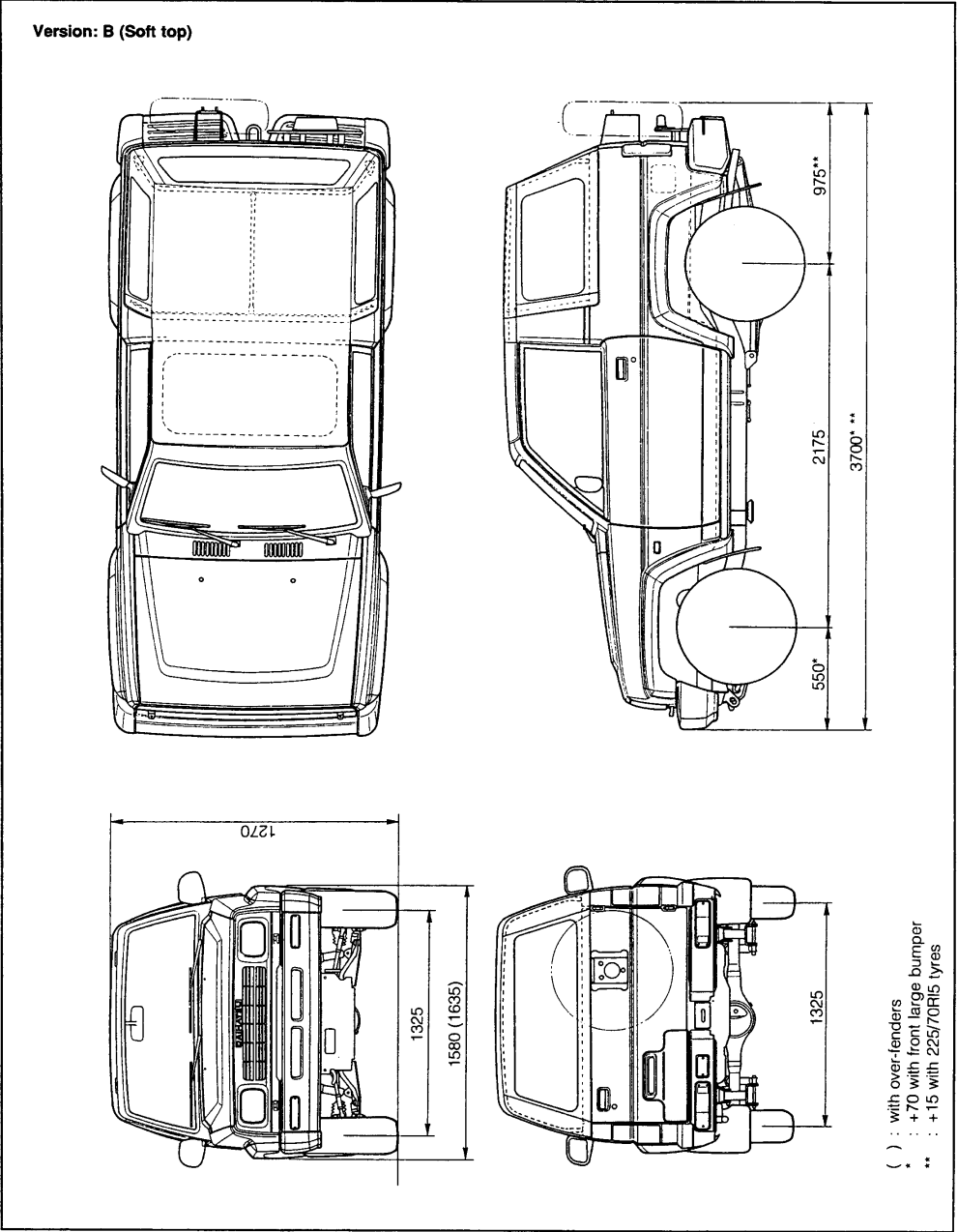
Version: A (Resin top)



() : with over-fenders
 * : +70 with front large bumper
 ** : +15 with 225/70R15 tyres

WFE90-GI009

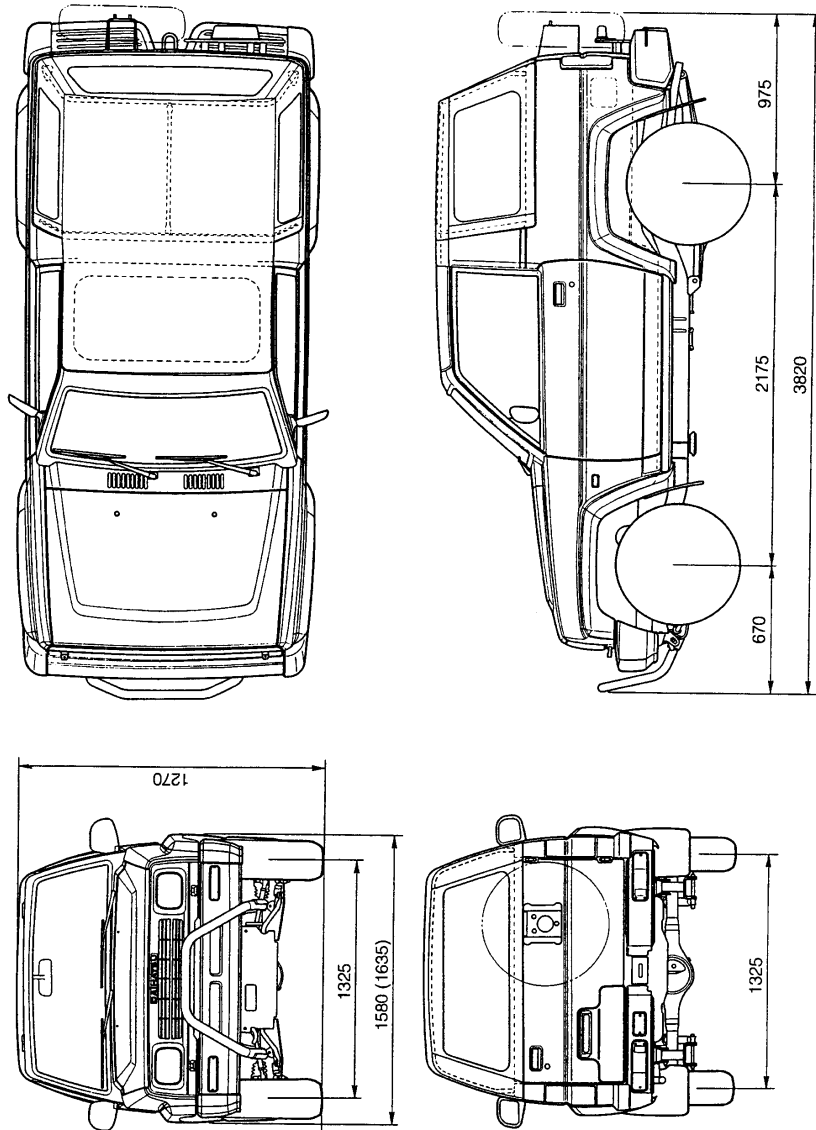
GENERAL INFORMATION



WFE90-GI010

GENERAL INFORMATION

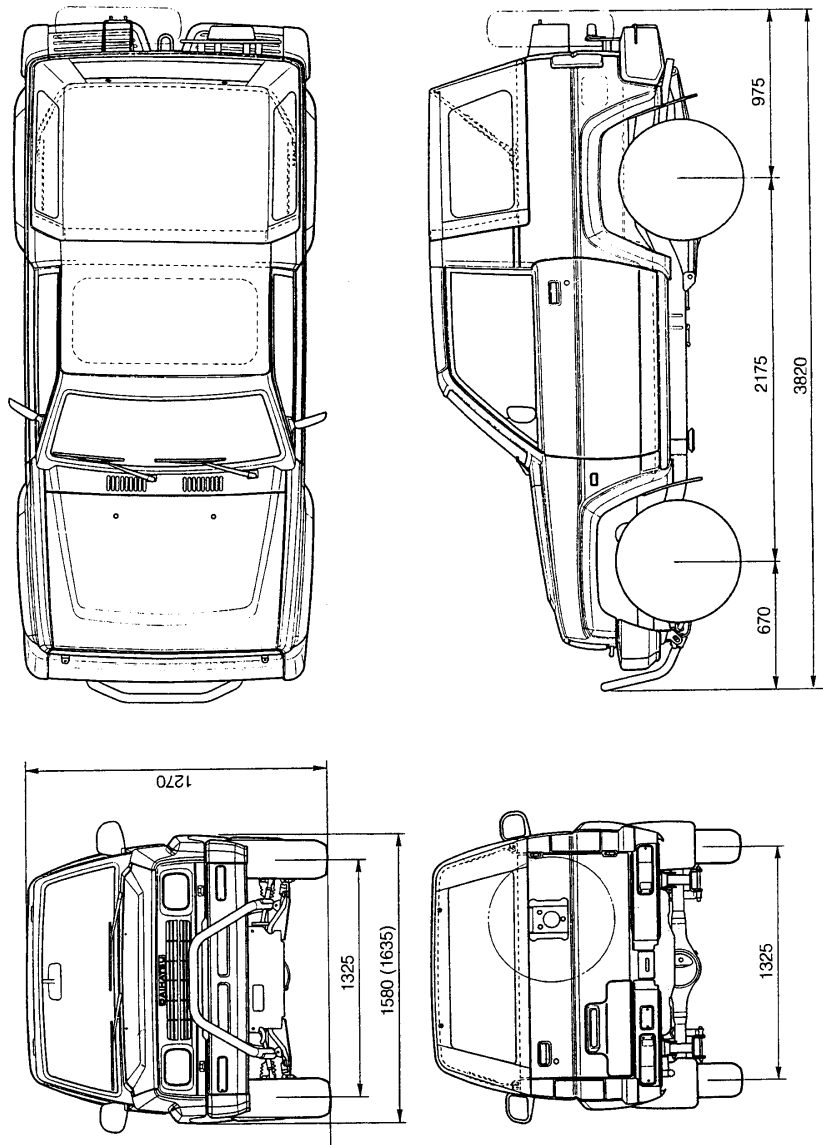
Version: C (Soft top)



WFE90-G1101

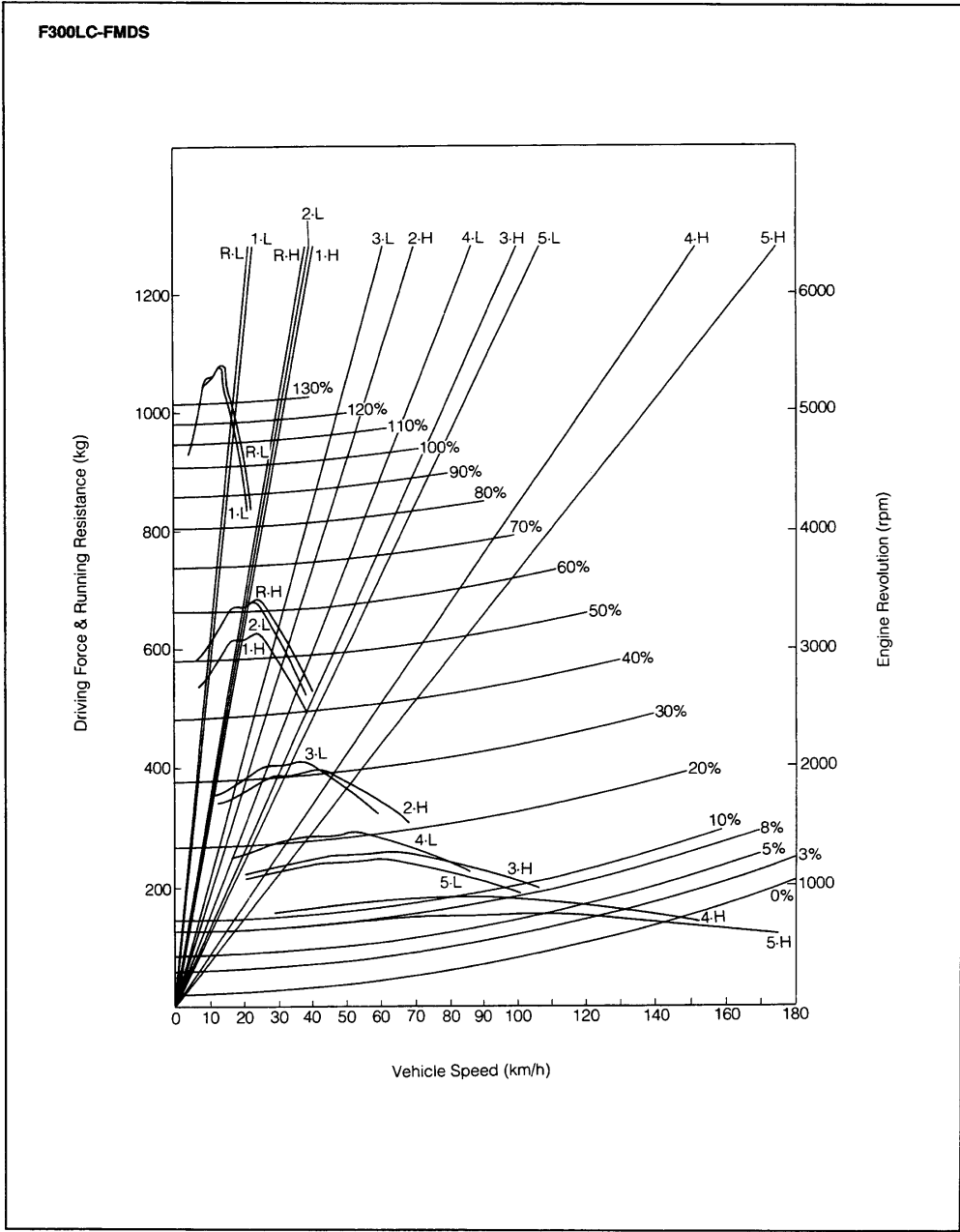
GENERAL INFORMATION

Version: D (Soft top)



WFE90-GI102

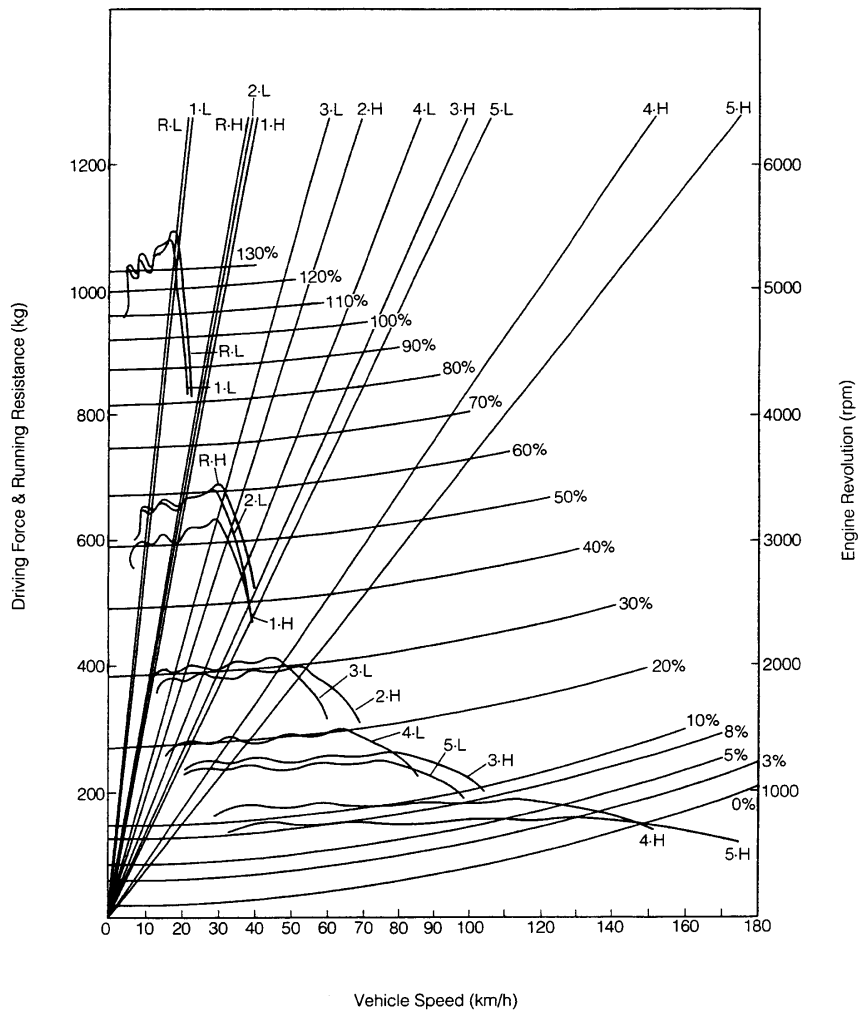
6. PERFORMANCE DIAGRAMS



WFE90-GI011

GENERAL INFORMATION

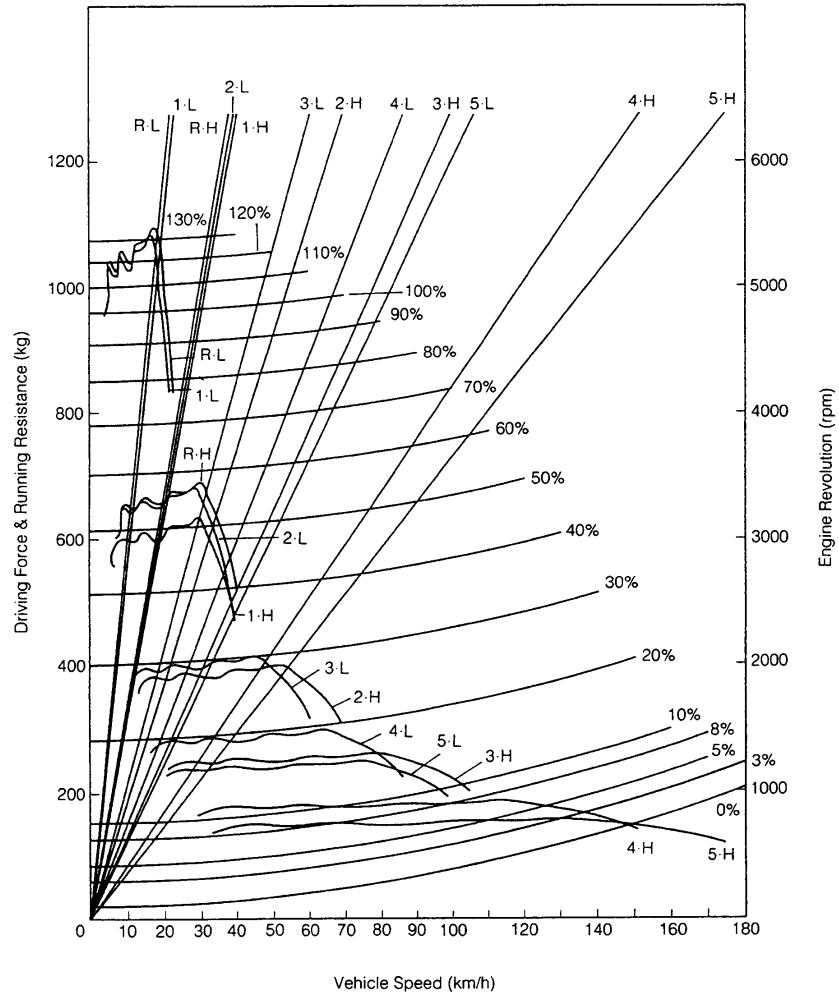
F300RC-FMDEQ



WFE90-GI012

GENERAL INFORMATION

F300LG-BMHEW



WF90-G1013

GENERAL INFORMATION

7. SPECIFICATIONS

7-1. PRE-DELIVERY INSPECTION SPECIFICATIONS

Items		Specifications
Tire Inflation Pressure Front/Rear bar	195R15	STD: 1.6/2.1, Full load: 1.6/2.3
	225/70R15 bar	STD: 1.6/2.1, Full load: 1.6/2.3
	195/80R15	STD: 1.6/2.1, Full load: 1.6/2.3
Spare tire inflation pressure		2.3
Wheel nut tightening torque N-m (kgf-m)		88.2 - 117.6 (9 - 12)
Accelerator pedal free play mm		1 - 5
Engine idling speed rpm	HD-C	850 ± 50
	HD-E	850 ± 50
Engine oil	Capacity dm ³	3.8
	Grade	API SE or higher
Transmission oil	Capacity dm ³	1.7
	Grade	API GL-3 or GL-4
	Viscosity	SAE-75W-90
Transfer oil	Capacity dm ³	Part time: 1.4, Full time: 1.7
	Grade	API GL-3 or GL-4
	Viscosity	SAE-75W-90
Differential oil	Capacity dm ³	Front: 0.9
		Rear: 1.95
	Grade	API GL-5
	Viscosity	SAE 90 or 80W-90
Brake fluid	Grade	FMVSS116DOT3 or SAE J1703
Brake pedal (While engine is running)	Free travel mm	1 - 3
	Reserve travel mm	Not less than 80
Clutch pedal free travel mm		18 - 27
Parking brake working travel		Should "set" within 4-6 notches when apply 25 kgf by hand
Exhaust emission at tail pipe. (Manufacturer's standard)	Idle CO vol. %	HD-C: 1.5 ± 0.5, HD-E: 0.5 (Max.)
	Idle HC max. ppm	HD-C: 2200, HD-E: 200
	Idle CO ₂ min. %	HD-C: 12.1, HD-E: 14.0

WFE90-GI014

GENERAL INFORMATION

7-2. VEHICLE SPECIFICATIONS

Items			Specifications
ENGINE	Type	HD-C	Gasoline, Carburetor, 4 Cycle
		HD-E	Gasoline, EFI, 4 Cycle
	Displacement (Bore x Stroke) cm ³		1589 (76 x 87.6 mm)
	Compression ratio		9.5
	Firing order		1 - 3 - 4 - 2
	Ignition timing	HD-C	B.T.D.C. 3° ± 2°/850 ± 50 rpm
		HD-E	B.T.D.C. 3° ± 2°/850 ± 50 rpm
	Valve mechanism		Belt-driven, SOHC
	Valve clearance mm	Intake	0.25 (Hot condition)
		Exhaust	0.33 (Hot condition)
	Spark plug type (Spark gap) mm	CHAMPION	RC9YC4 (1.0 - 1.1)
		NIPPONDENSO	K20PR-U11 (1.0 - 1.1)
		NGK	BKR6E-11 (1.0 - 1.1)
	Coolant capacity dm ³		5.5 (Excluding 1.0 dm ³ in reserve tank)
	Max. output power kW/r.p.m	HD-C	63/6000
		HD-E	70/5700
CLUTCH	Max. output torque N·m/r.p.m	HD-C	126/3500
		HD-E	128/4800
	Recommendation fuel	HD-C	Leaded or Unleaded, Octane 90 or higher (Ron)
		HD-E	Unleaded, Octane 90 or higher (Ron)
	Fuel tank capacity dm ³		60
CLUTCH	Type	Dry single plate, diaphragm	
	Operation	Mechanical	
TRANSMISSION	Type		5-Speed, synchromesh
	Gear ratio (tooth number)	1st	3,752 (34/23 x 33/13)
		2nd	2,182 (34/23 x 31/21)
		3rd	1,529
		4th	1,000
		5th	0,865 (34/23 x 24/41)
		Reverse	3.942 (34/23 x 23/12 x 32/23)
TRANSFER	Gear ratio	High	1,000
		Low	1,754 (32/33 x 38/21)
DIFFERENTIAL	Gear ratio		5,285 (37/7)

GENERAL INFORMATION

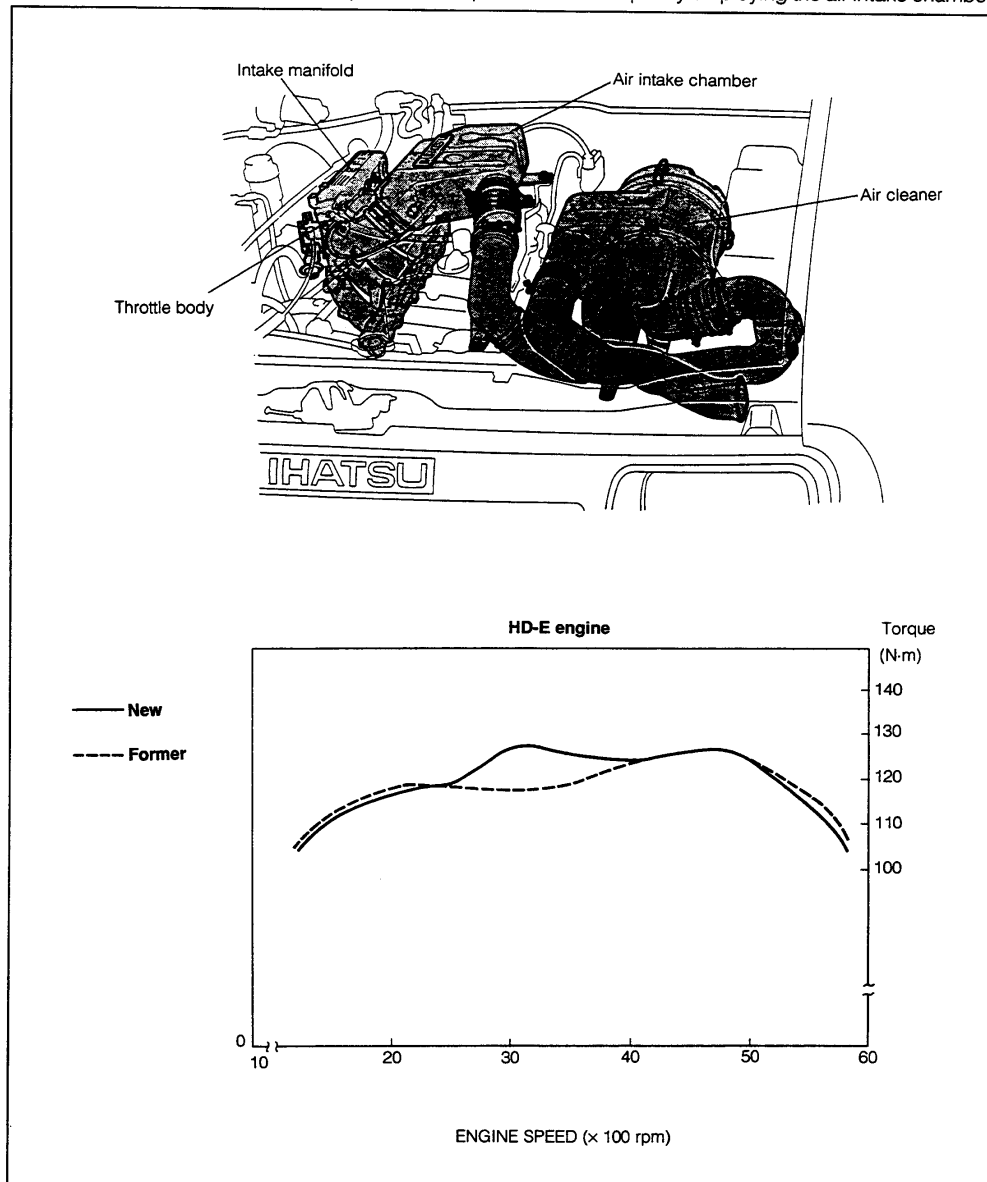
Items			Specifications	
SUSPENSION	Suspension Type	Front	Double wish bone	Toe-in 4 mm
				Camber 1°
				Caster 2°
		Rear	Rigid	
	Spring	Front	Torsion bar	
		Rear	Leaf spring	
	Shock absorber	Front	Double-acting telescopic type	
STEERING			Double-acting telescopic type	
	Type		Ball-nut type	
	Over all gear ratio		24.2, 18.4 (With power steering)	
BRAKES	Type	Front	Disc, (Option: Ventilated rotor)	
			Drum (Leading and Trailing)	
	Service brake system		Vacuum booster, Power-assisted	
	Emergency brake system		Front/Rear split, hydraulic circuits	
	Parking brake system		Mechanical hand operation which applies to rear wheels.	
WHEEL & RIM	Tire size		195R15, 225/70R15, 195/80R15	
	Inflation pressure bar		Front: 1.6, Rear: 2.3	
	Rim	Size	15 × 655	
		Off-set	19 mm	
BULB	Headlamp	W	Candescant	45/40
			Halogen	60/55
			Yellow	45/40
	Front lamp	W	Clearance	5 (White)
			21 (Amber)	
	Side turn signal lamp		W	5 (Amber)
	Rear lamp	W	Stop/tail	21/5 (Red)
			Turn Signal	23 (21: for European)
			21 (White)	
	License plate lamp		W	5
	Rear fog lamp		W	21
	Interior lamp		W	10
	Luggage room lamp		W	8

WFE90-GI015

8. SUMMARY OF ENGINE CONSTRUCTION

8-1. AIR INTAKE SYSTEM MODIFICATION (HD-E)

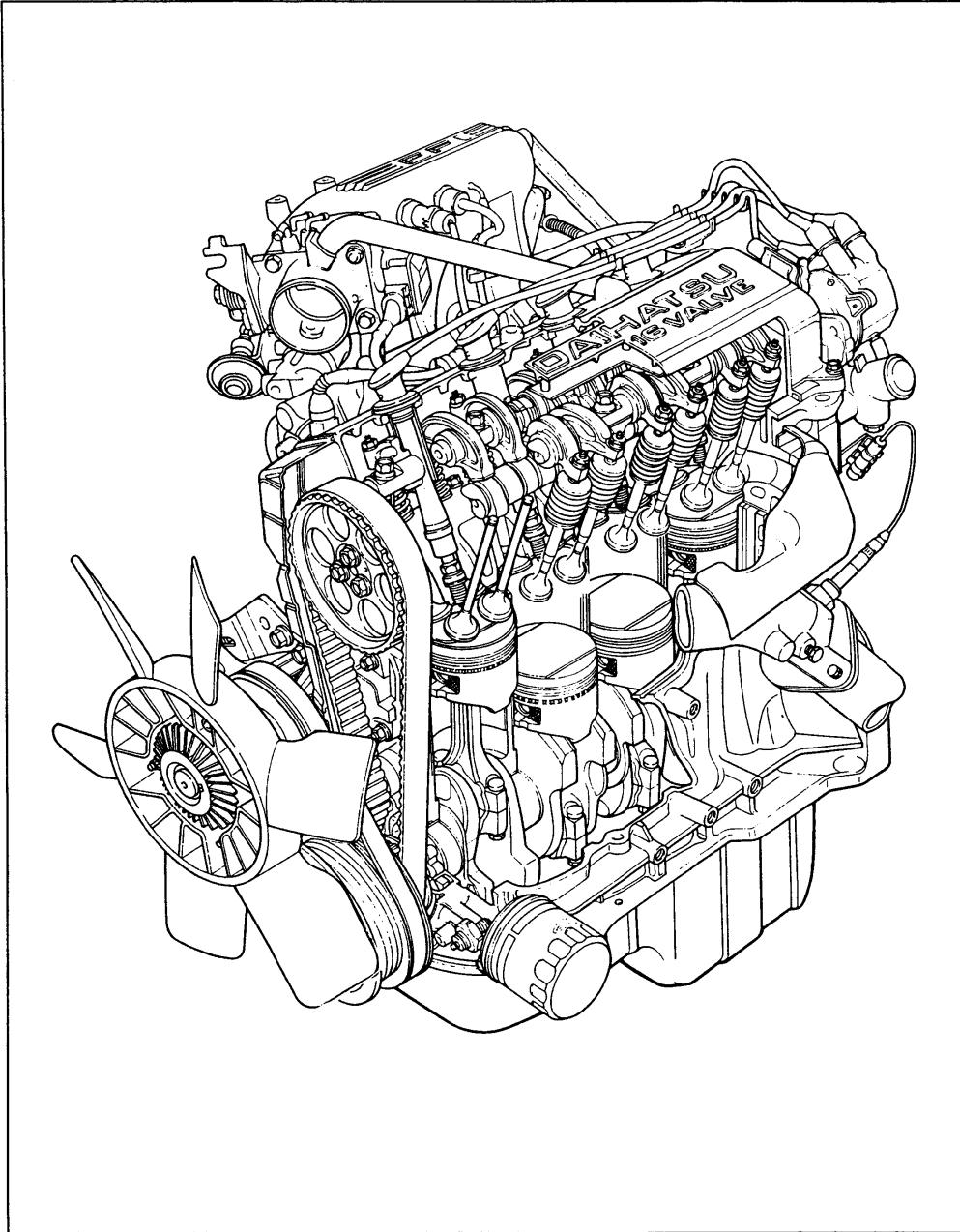
The air intake system consists of the air cleaner, air intake chamber, throttle body, intake manifold, ducts and hoses. It becomes possible to improve the torque around 3200 rpm by employing the air intake chamber.



WFE90-GI016

GENERAL INFORMATION

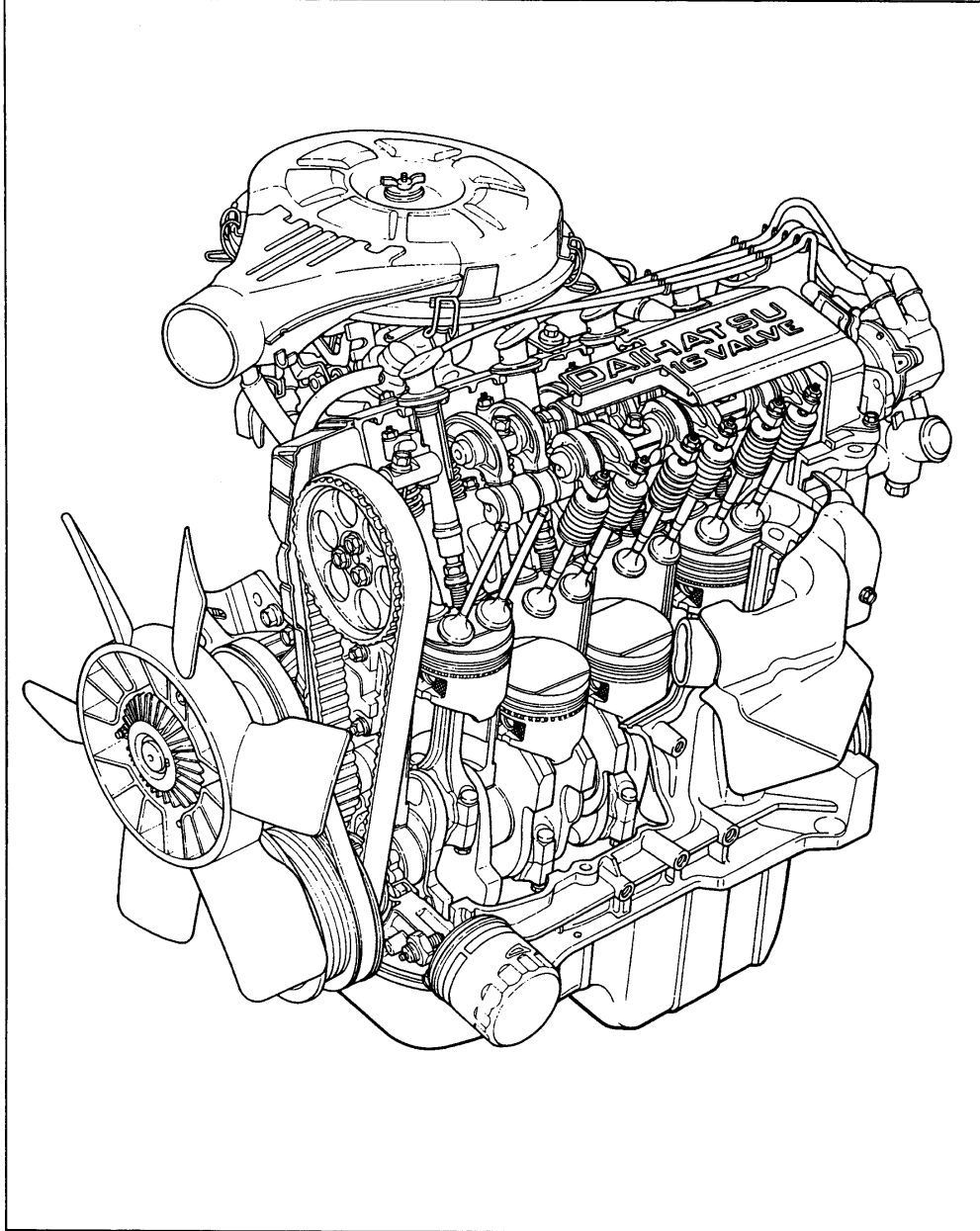
8-2. STEREOSCOPIC VIEWS OF HD-E ENGINE



WFE90-G1017

8-3. STEREOSCOPIC VIEWS OF HD-C ENGINE

No modification has been made on Type HD-C engine.

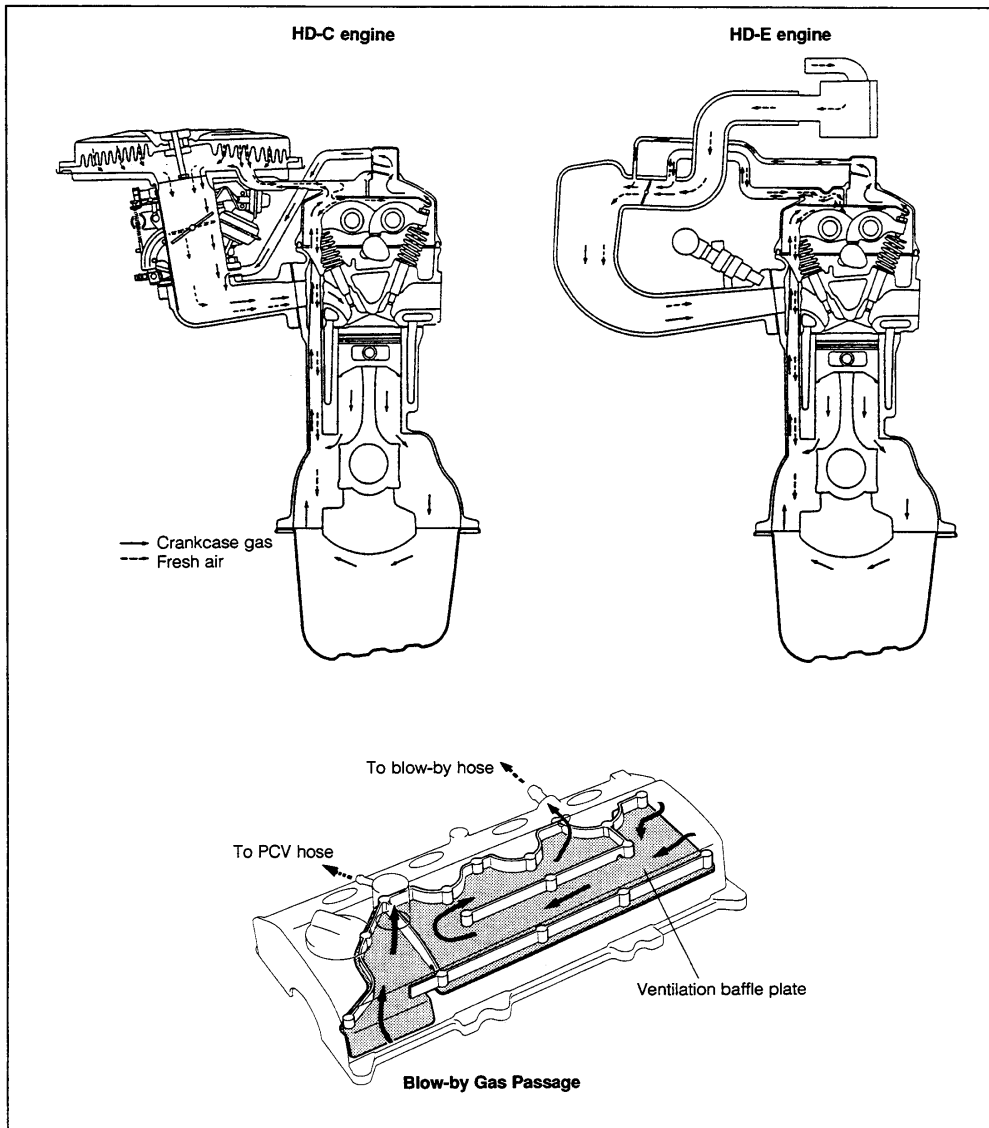


WFE90-GI018

GENERAL INFORMATION

8-4. BLOW-BY GAS RECIRCULATING SYSTEM

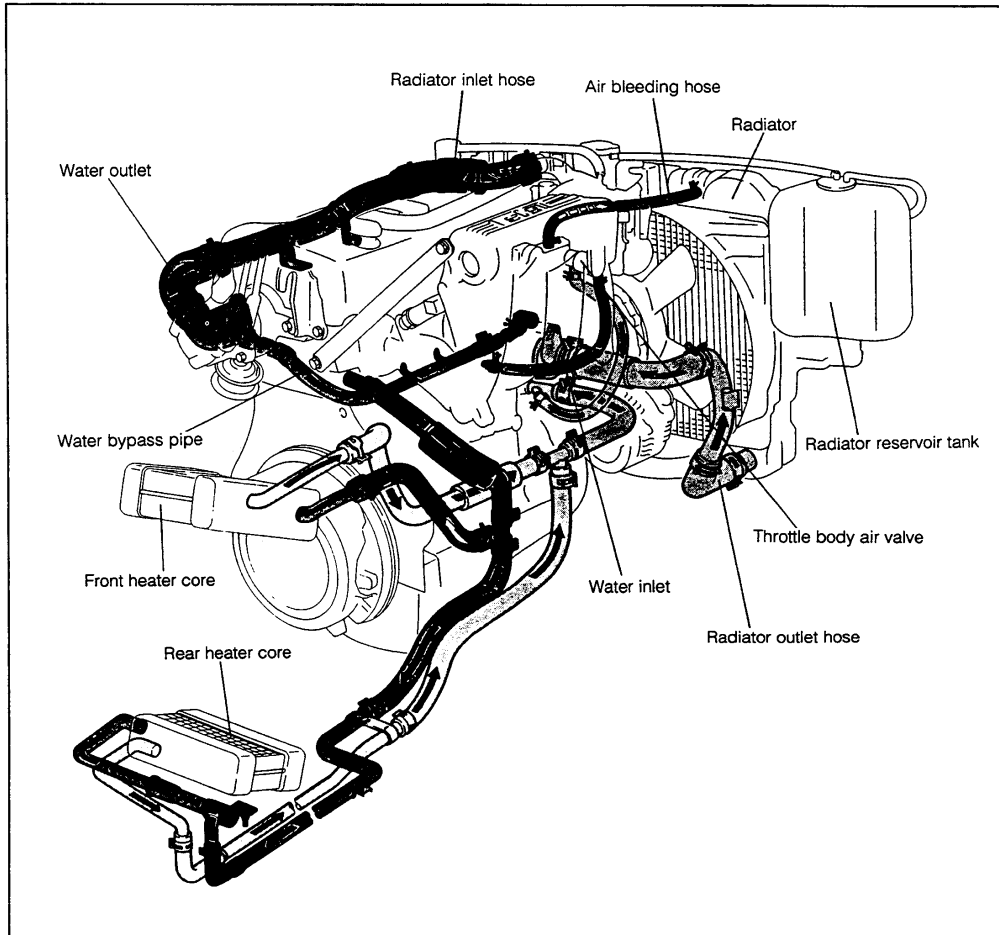
Any blow-by gas in the crankcase flows into the cylinder head side after passing through the blow-by gas passage in the cylinder block. Then, the gas travels through an oil separator and will be sucked by the intake manifold negative pressure. Thus, the blow-by gas is reburnt in the combustion chamber. Furthermore, this recirculation takes place also at the air cleaner in the case of the carburetor specification engine (HD-C); at the upper stream of the throttle body in the case of the EFI specification engine (HD-E). Both engines adopt a closed type blow-by gas recirculating system.



WFE90-GI019

8-5. COOLING SYSTEM

The cooling system is a water-cooled, forced-circulation type. This system employs an inlet water-temperature control bypass method in which a thermostat equipped with a bypass valve is arranged at the water inlet section. The fin pitch of the radiator has been changed.

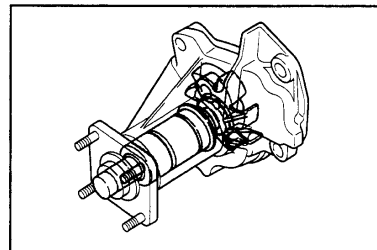


WFE90-GI020

The water pump is a centrifugal type. In order to install the fluid coupling and fan at the flange section, cast iron is used at the body so as to assure the rigidity.

NOTE:

This pump can not be disassembled. Therefore, when replacing the pump during repair works, it is necessary to replace it as the water pump assembly.



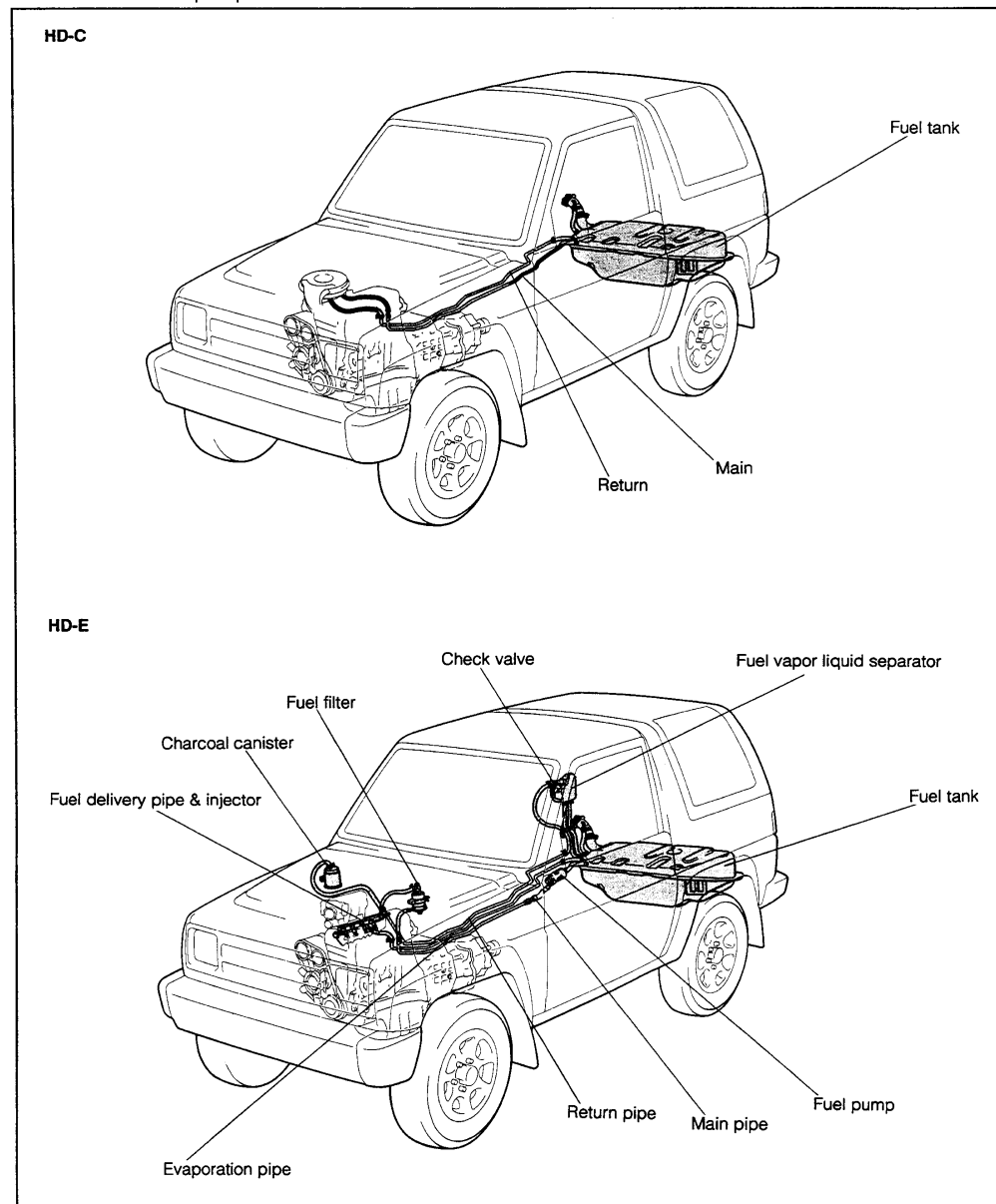
WFE90-GI021

GENERAL INFORMATION

8-6. FUEL SYSTEM

No modification has been made on the fuel system.

On Type HD-E engine, the installation method has been changed to a two-point support so as to reduce the vibration of the fuel pump bracket.

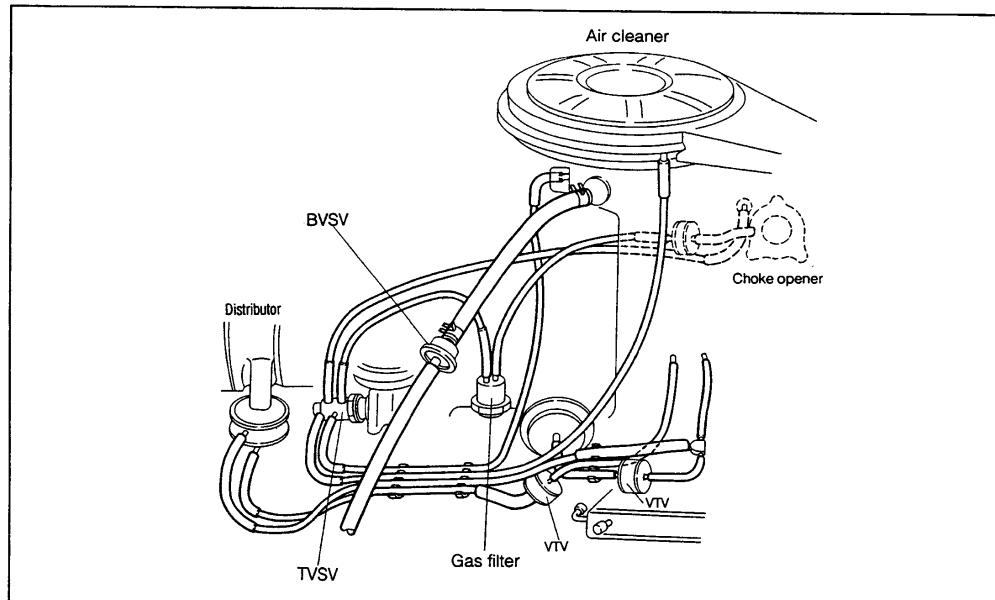


WPE90-GI022

GENERAL INFORMATION

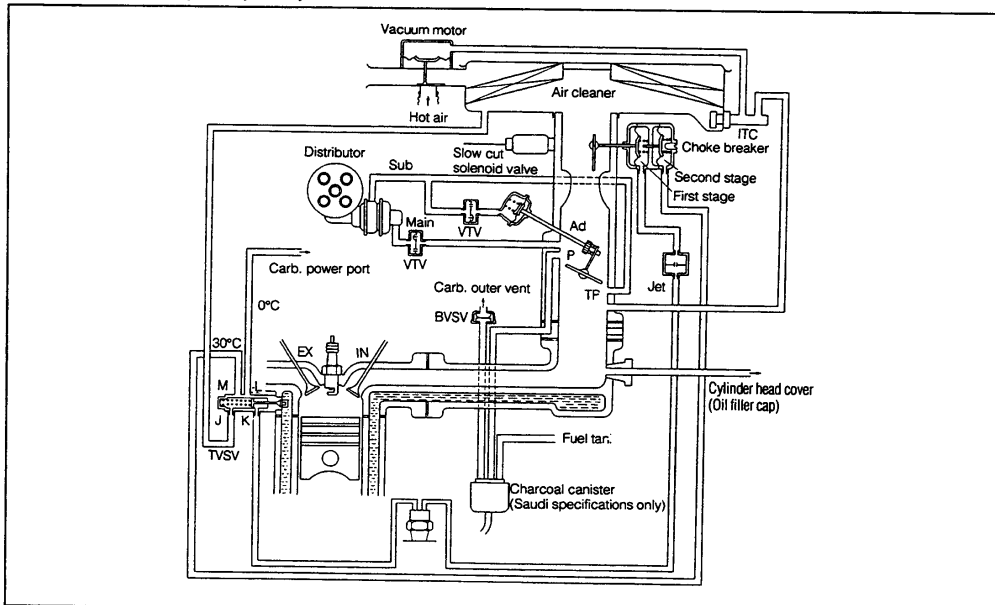
8-7. EMISSION CONTROL SYSTEM

(1) Rubber hose piping (HD-C)



WFE90-GI023

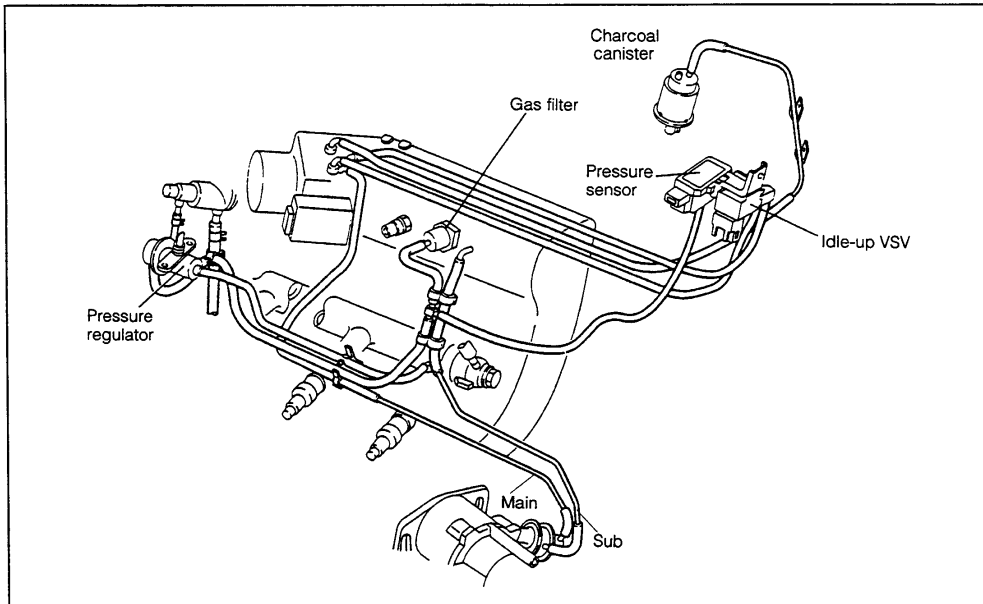
(2) Schematic diagram (HD-C)



WFE90-GI024

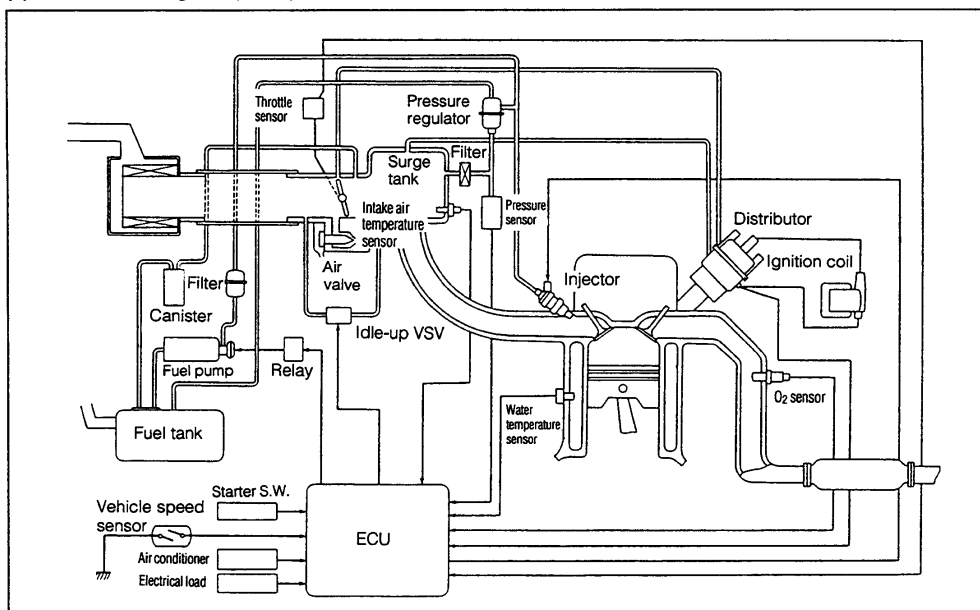
GENERAL INFORMATION

(3) Rubber hose piping (HD-E)



WFE90-GI025

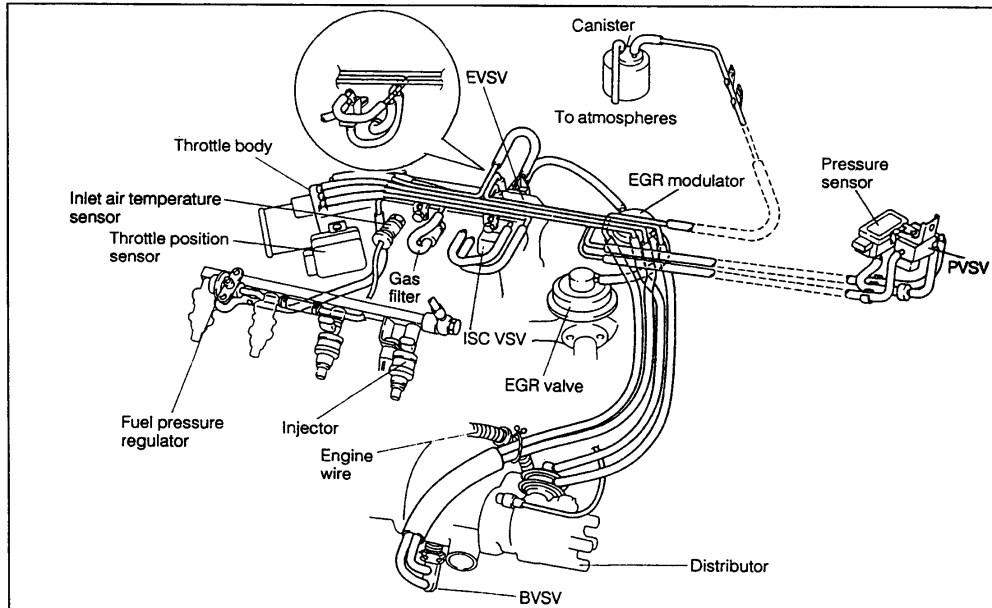
(4) Schematic diagram (HD-E)



WFE90-GI026

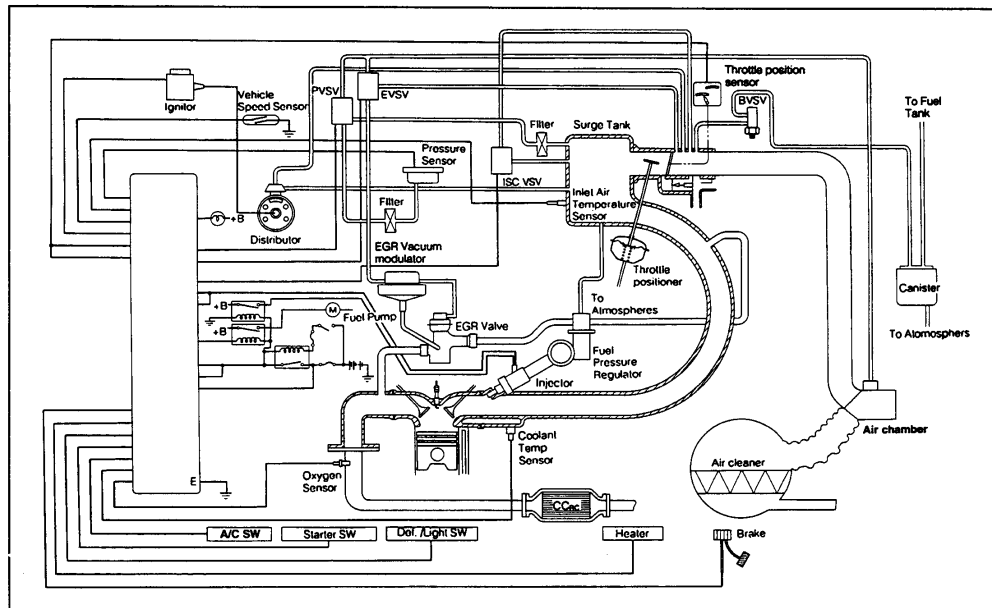
GENERAL INFORMATION

(5) Rubber hose piping (HD-E/US)



WFE90-GI103

(6) Schematic diagram (HD-E/US)



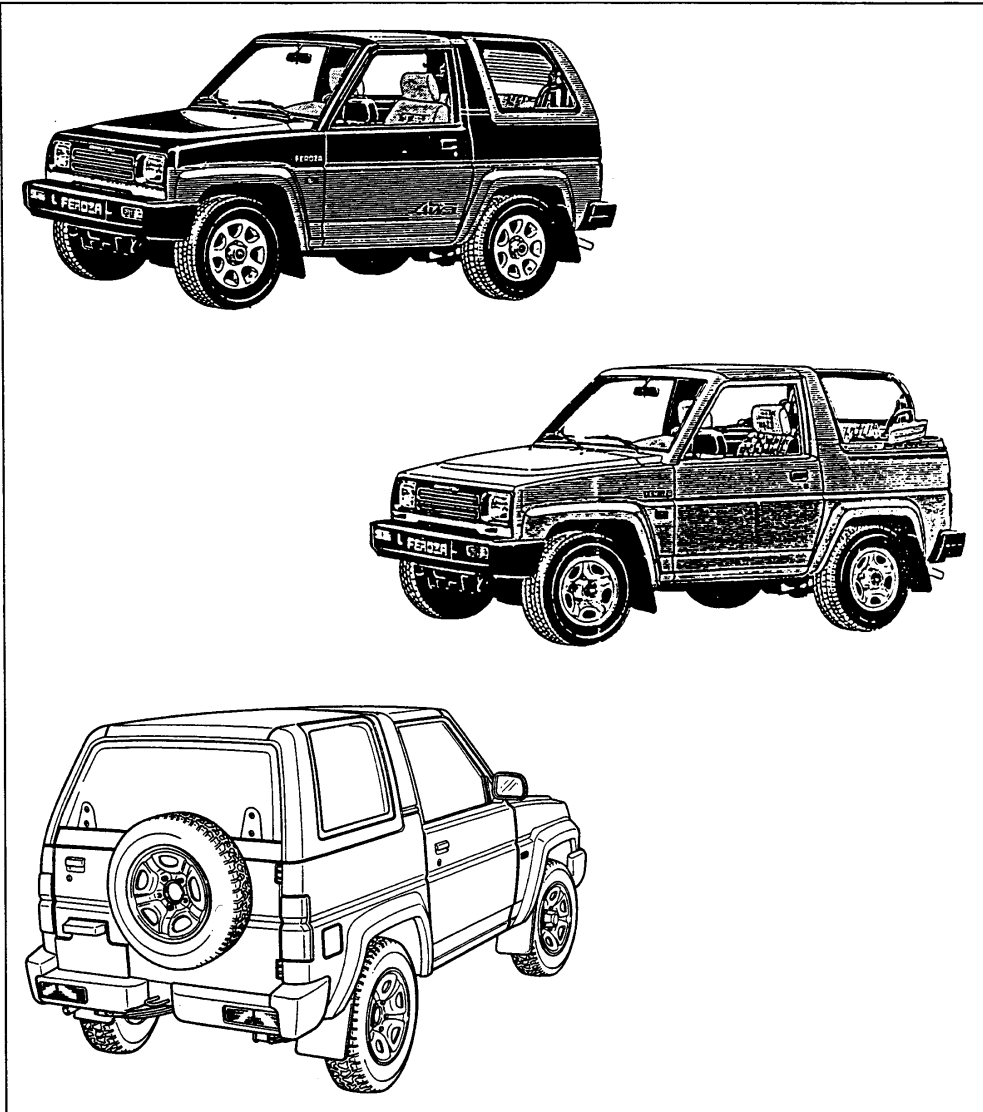
WFE90-GI104

GENERAL INFORMATION

9. SUMMARY OF BODY AND OTHER CONSTRUCTIONS

9-1. BASIC DESIGN

- (1) The F300 was introduced in 1988 as a light 4WD vehicle.
Since its debut, the F300 has been widely praised as a futuristic 4WD offering excellent performance both on-road and off the road.
- (2) The new F300 has been refined to enhance the image as a casual, stylish 4WD city cruiser offering both ruggedness and beauty.



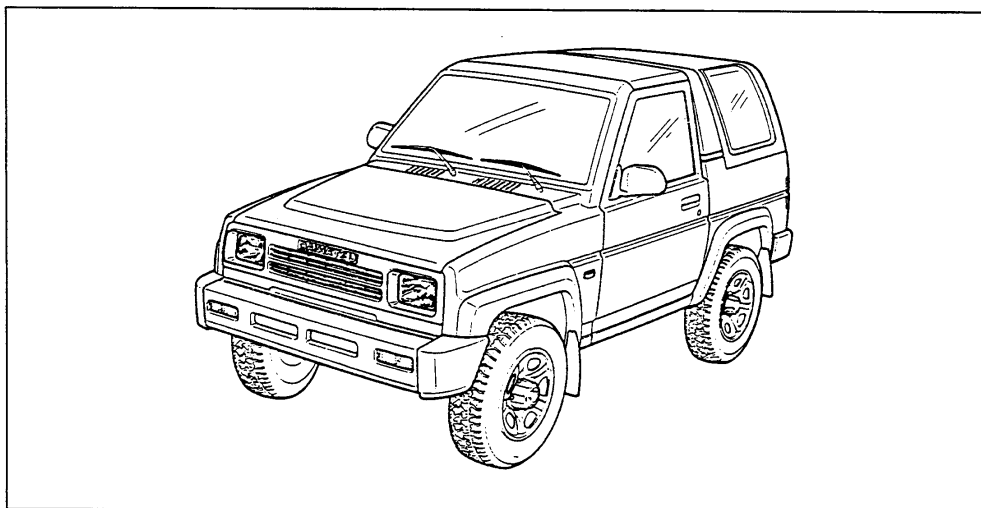
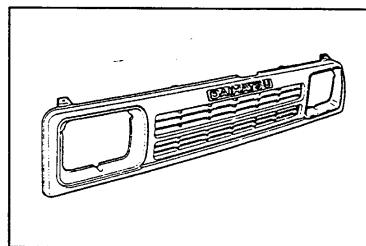
WFE90-G1027

GENERAL INFORMATION

9-2. EXTERIOR MODIFICATION

(1) Front grille

The grid-shaped radiator grille has been changed. On the new model, horizontal grille louvres create a rugged front mask. A grey radiator grille is standard. A chrome-plated grille is available as an option. The 16VALVE emblem has been discontinued.



WFE90-GI028

(2) Extended wheel arch

To match the rugged 225/70R15 100S wide radial tyres, resin extended wheel arches have been added. (To save transport costs, these are packed together with the vehicles for installation at their destination.)

● : Option

Model	Resin top			Soft top	
	DX	EL	EL-II	DX	EL
Wheel arch colour					
Black	○	●	●	○	○
Body colour	○	○	○	○	○

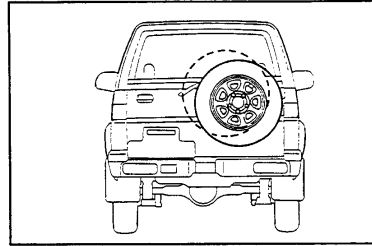
WFE90-GI029

GENERAL INFORMATION

(3) Improved rear visibility

(Only European and Australian markets)

To improve rear visibility, the spare tyre position has been lowered 65 mm, and moved 190 mm to the right. (For the Norwegian market, the spare tyre was only moved to the right so as not to block the license plate.)

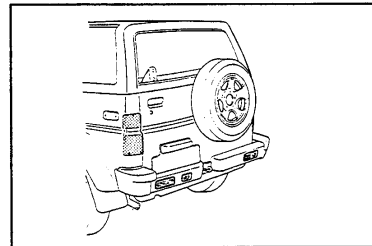


WFE90-GI030

(4) Rear combination lamps

(Only European and Australian markets)

To improve the visibility of the rear lamps, the tail lamp, brake lamps and side turn signals have been incorporated into a combination lamp and built into the rear bumper. A maroon-coloured lens is provided in the current rear combination lamp position in which only the left-side back-up lamp lights.



WFE90-GI031

(5) Improved loadability through the back door (Only European market)

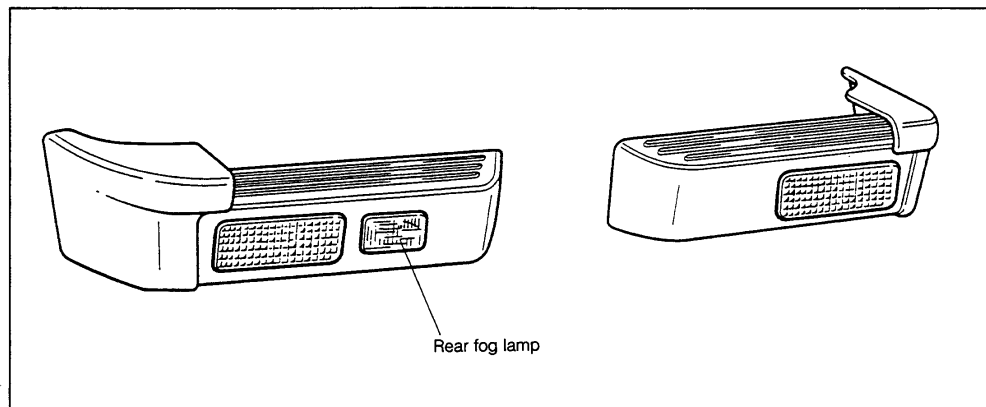
Improved visibility, achieved by building the rear combination lamps into the bumper, allowed adjustment of the back door to allow it to open a full 90°, improving loadability. (Only on models for UK, Denmark, Belgium, Netherlands, Iceland — due to elimination of the full-open stopper)

WFE90-GI032

(6) New rear fog lamp built in to rear bumper (Only European market)

The rear fog lamp has also been changed to a built-in type for greater visibility.

The fog lamp is mounted on the driver's side on both RHD and LHD models. (Standard on RHD, optional for LHD)



WFE90-GI033

9-3. INTERIOR MODIFICATION

The seat upholstery and upholstered door trim on the higher grades have been completely changed to enhance the image of the car and add style.
(Printed leatherette seat still offered.)

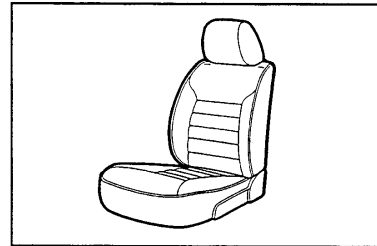
WFE90-GI034

(1) Front seat

Without altering the body-contouring and cushioning quality of the seats, the upholstery has been changed to offer a smarter image. (See colour chart.)

Modification of front head-restraint

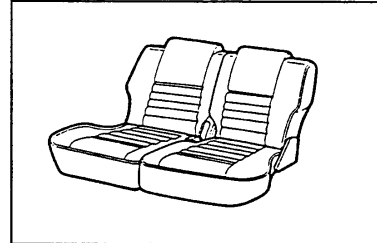
The head-restraints of the EL and EL-II grades have been upgraded from the skeleton type to a large full-form type covered with the same upholstery as the seat.
The skeleton type formerly offered in the soft-top EL grade has been changed for the full-form-model (vinyl covered) offered in the DX grade.



WFE90-GI035

(2) Rear seat

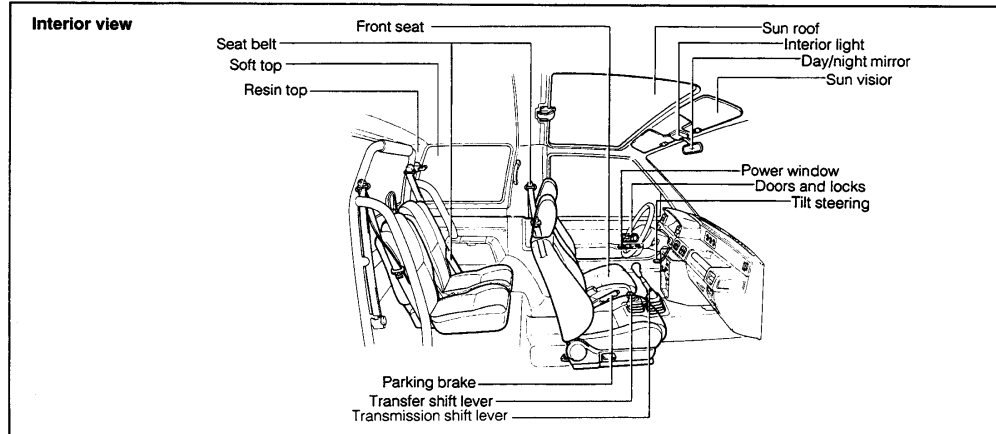
The seat has been exchanged for a new split-type which folds in two stages for improved loadability. The split-type rear seat is optional on the EL and the EL-II.



WFE90-GI036

(3) Matching upholstered front door trim

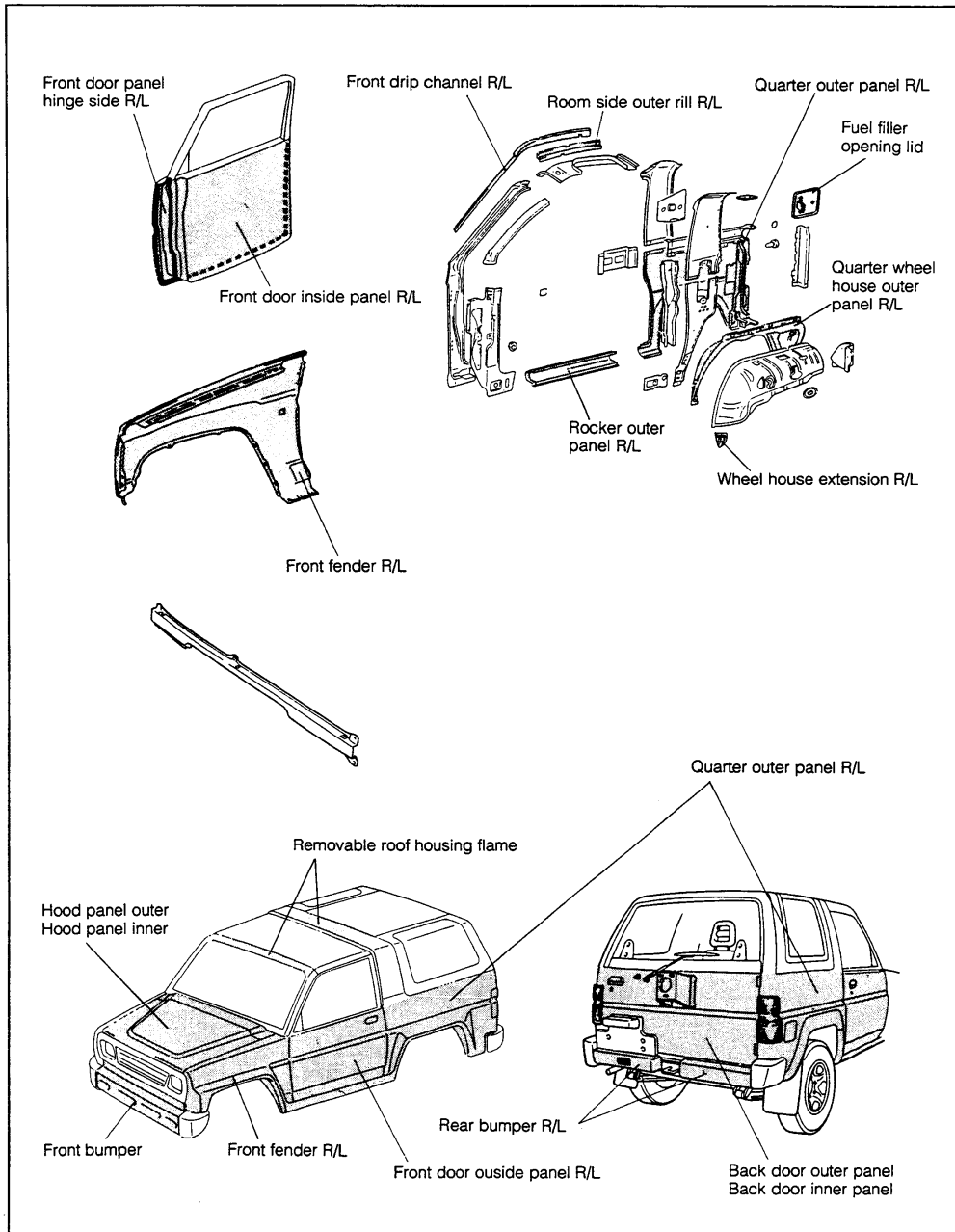
The upholstery used for the ornamental front door trim has also been changed in the resin-top EL and EL-II grades to match the seat upholstery.



WFE90-GI037

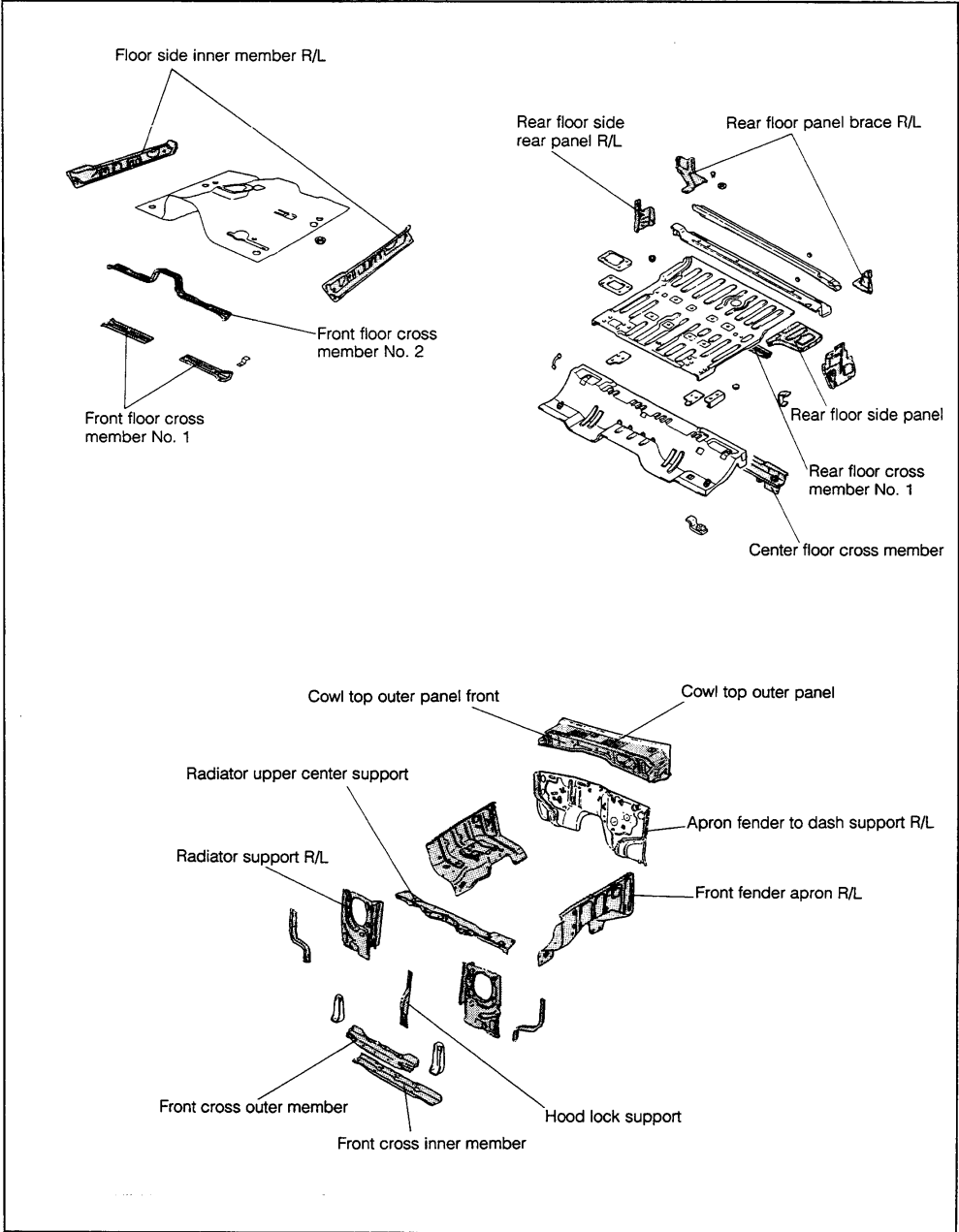
GENERAL INFORMATION

9-4. PARTS WHERE GALVANIZED STEEL SHEETS ARE USED



WFE90-GI038

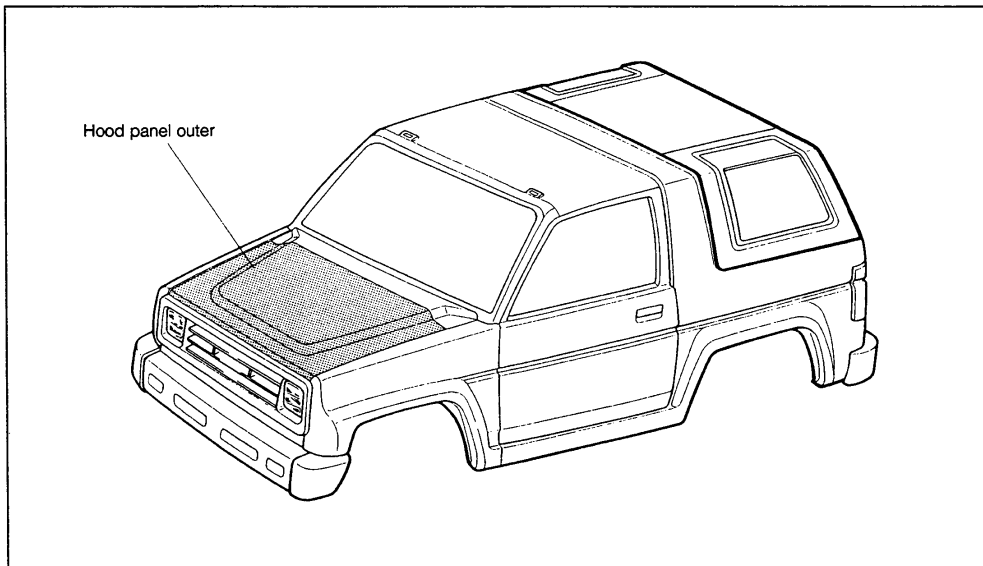
(Continued)



WFE90-GI039

GENERAL INFORMATION

9-5. PARTS WHERE HIGH-TENSILE STEEL SHEETS ARE USED



WFE90-GI040

9-6. BODY MOUNTINGS

The mountings used for connecting the vehicle body to the frame have been further improved so that the transmission of noise from the suspensions and power train system to the vehicle body may be kept at a minimum level.

No.	1	2	3	4	5
Hardness (Hs)	46	Upper 50 Lower 44	60	Upper 50 Lower 44	60
Identification	Yellow	Black	White	Black	White
Shape					

A line drawing of a vehicle body frame, showing the front, side, and rear sections. Five lines originate from the bottom of the table and point to specific mounting locations on the frame: 1. Front left corner. 2. Front center. 3. Front right corner. 4. Rear center. 5. Rear right corner.

Cad mounting cushion

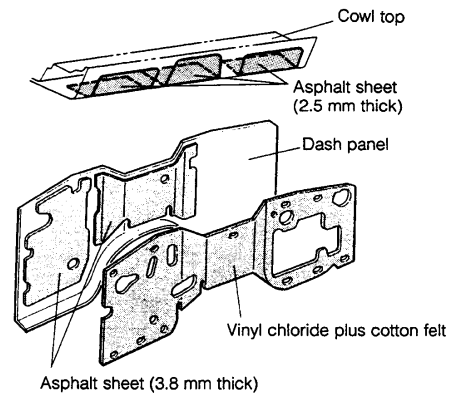
A circular component with a central hole and a raised rim. The label "Identification" points to the central hole.

WFE90-GI041

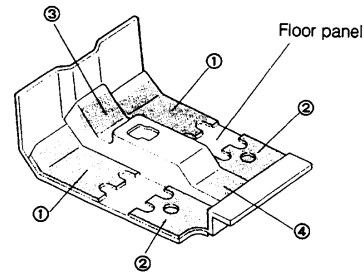
9-7. SILENCERS

On all models, various silencers are provided at the dash panel and floor panel so as to prevent the noise at the vehicle exterior and engine from being transmitted into the vehicle interior. Furthermore, on those vehicles with EFI specifications, as a noise control measure silencers (glass wool plus polyester base unwoven cloth) are mounted on the apron fender.

Dash silencer

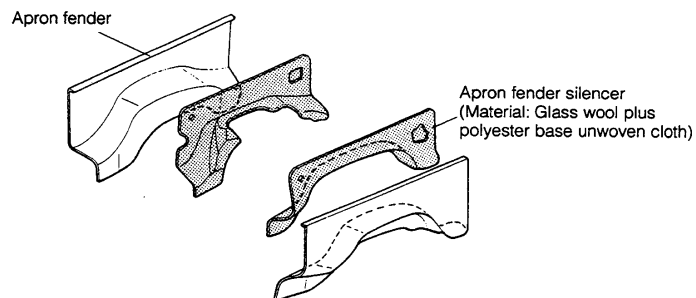


Floor silencer



No.	Nomenclature	Resin top vehicle	Soft top vehicle
		Material	Material
①	Front floor silencer pad	Asphalt sheet + Cotton felt	Asphalt sheet + Cotton felt
②	Center floor silencer pad	Asphalt sheet + Cotton felt	Asphalt sheet + Cotton felt
③	Front floor silencer pad	Asphalt sheet	Asphalt sheet
④	Center floor silencer rear center pad	Asphalt sheet	

Apron fender silencer (Only for EFI vehicle)



GENERAL INFORMATION

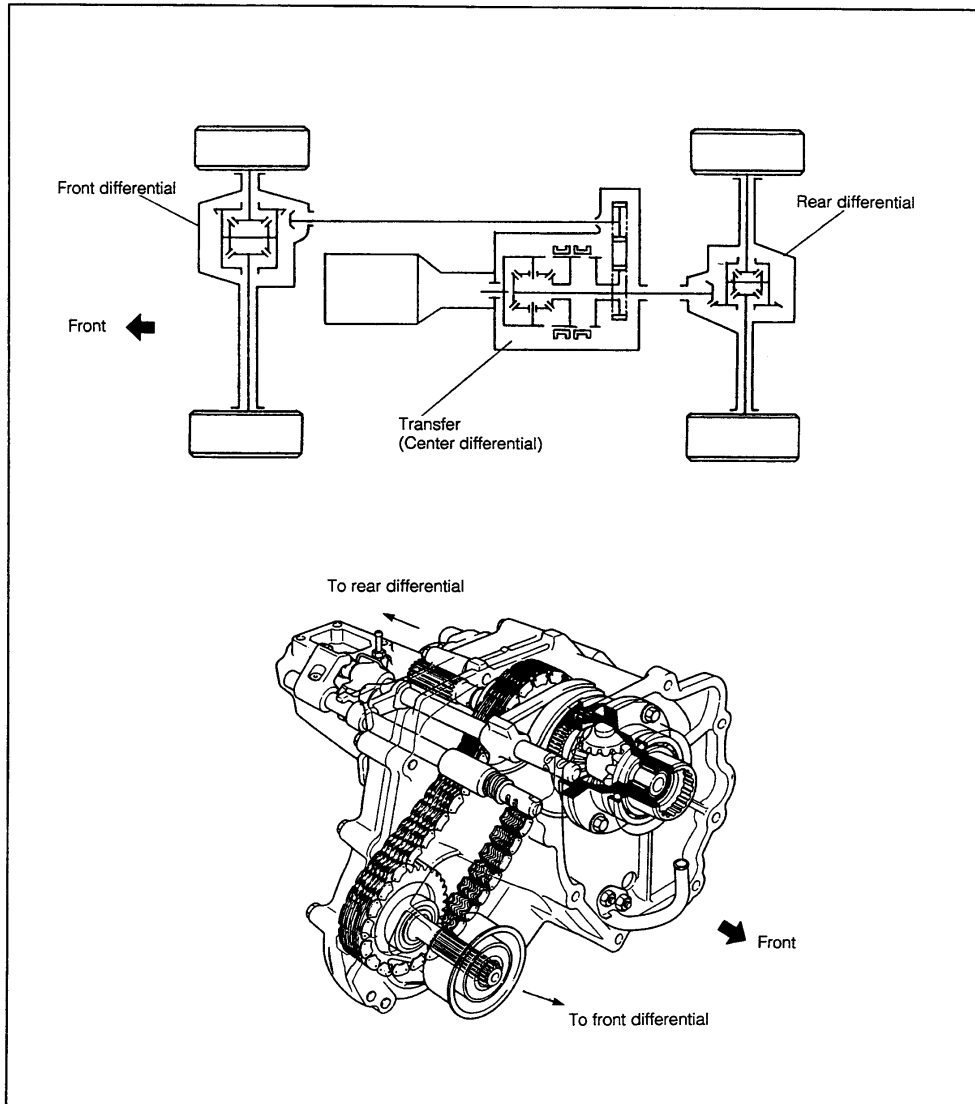
10. SUMMARY OF POWER TRAIN CONSTRUCTION

10-1. TRANSFER FOR FULL TIME 4WD

(Newly added for optional equipment)

A newly developed, centre-differential type full-time 4WD is available. The system uses a differential gear in the transfer case.

A centre differential lock system is also provided for an emergency state. The 2WD (rear wheel drive only) is available.



WFE90-GI043

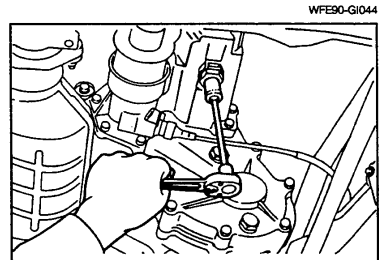
GENERAL INFORMATION

SWITCHING FROM FULL-TIME 4WD TO 2WD

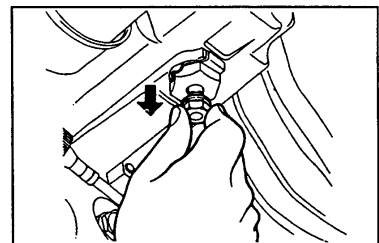
If it becomes necessary to switch from the full-time 4WD to 2WD, for example, in the case of towing a troubled vehicle or during the vehicle inspections (use of brake testers, etc.), the switching can be made, following the procedure given below. Under this state, power from the output shaft of the transmission is not transmitted to the front wheels. The vehicle is driven by the rear wheels only.

However, it must be avoided to always use the vehicle in the 2WD state.

- (1) Jack up the vehicle.
- (2) Loosen the set bolt at the lower section of the output shaft bearing retainer in the right figure.



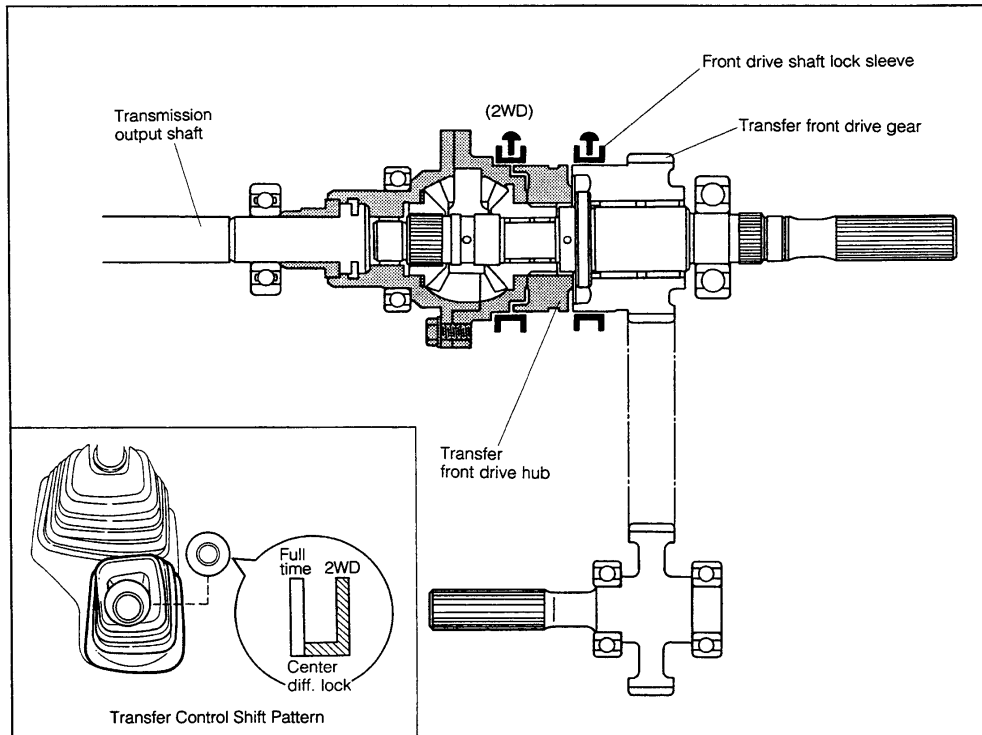
- (3) Pull out the set bolt loosened in the step (2) as far as it will stop, as indicated in the right figure.



WFE90-GI046

GENERAL INFORMATION

(4) Shift the transfer control lever to the 2WD, as indicated in the figure below.



WFE90-G1047

10-2. AUTOMATIC LOCKING HUB SYSTEM (ALH)

(1) Objective of setting

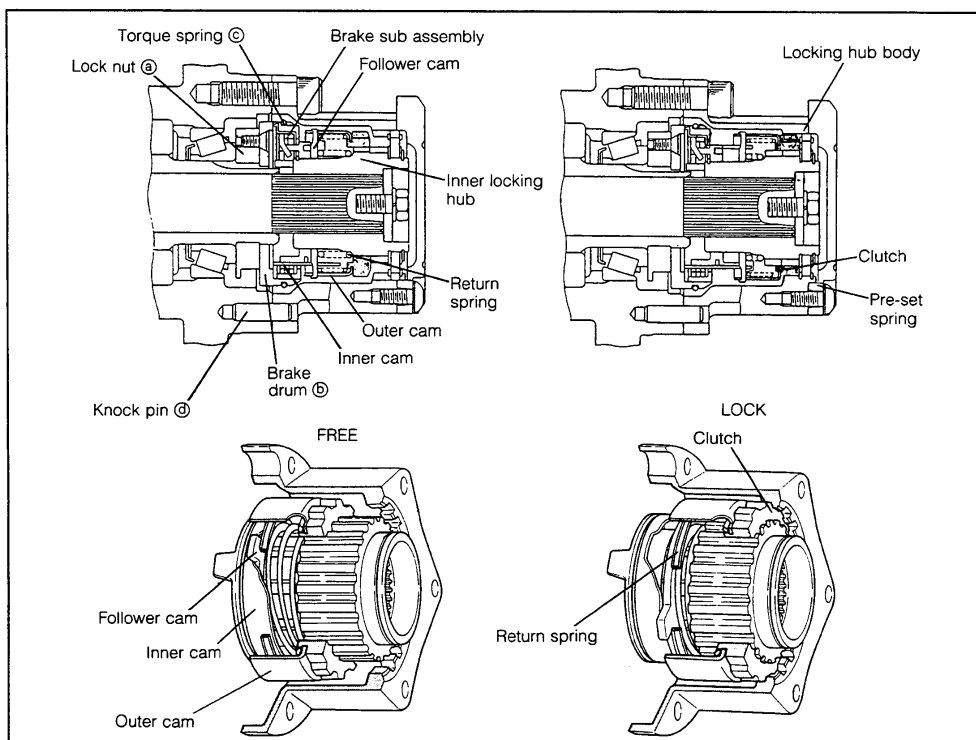
The ALH is set for improving the free ↔ lock switching operability from the conventional manual free wheel hub.

Namely, the ALH is capable of automatic switching by just starting the car while the free ↔ lock switching is to be done manually in the manual free wheel hub.

The ALH is mounted at the same position as the manual free wheel hub.

WFE90-GI048

(2) Outline of structure



Major differences with manual free wheel hub (Assembly parts)

- (i) A bearing lock nut ㉑ is provided. (The existing bearing nut is not required.)
- (ii) A brake drum ㉒ is provided to also replace the claw washer. (A claw washer is not required.)
- (iii) ㉑ and ㉒ are tightened and fixed by the torque spring ㉔.
- (iv) A knock pin ㉓ is set instead of the axle hub and ALH socket joint.
All of ㉑ - ㉓ are ALH-dedicated parts.
- (V) Drive shaft is also required for automatic locking hub, when modification from manual to auto locking hub.

WFE90-GI049

GENERAL INFORMATION

(3) Operation method

FREE → LOCK

- (1) Stop the car and change the T/F to 4WD.
- (2) Start the car slowly holding the steering wheel in a straight forward travelling condition. (Note 1)
- (3) Run about 3 m or more, and the system will lock automatically.

LOCK → FREE

- (1) Stop the car and change the T/F to 2WD.
- (2) Back up the car slowly holding the steering wheel in a straight forward travelling condition. (Note 2)
- (3) Run about 3 m or more, and the system become free automatically.

Notes

1. It doesn't matter whether forward or backward.
2. Strictly speaking, start the car in the opposite direction to the direction of travelling just before changing the T/F to 2WD.

WFE90-GI050

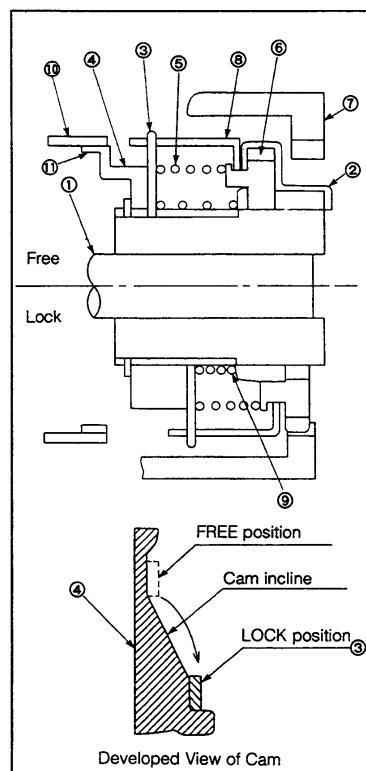
(4) Operating principle

FREE → LOCK

- (1) When the car is started after changing the T/F to 4WD, the drive shaft ① turns to turn the inner ② and the cam follower ③ as one.
- (2) The brake drum ⑩, which is fixed to another part (bearing lock nut), does not turn. The brake sub-assembly ⑪ is suppressed from turning by the frictional force with ⑩. ④, which is engaged with the claw of ⑪, is also suppressed from turning. (Note 1)
- (3) As a result, ③ climbs the cam incline of ④ while turning to move to the right-hand side of the diagram. (See the developed view of the cam.)
- (4) As ③ moves to the right-hand side, the clutch ⑥ attached to the preset spring ⑤ also moves to engage the hub body's ⑦ inner teeth to lock.

Note 1.

When locked, ⑪ starts turning to slide along the frictional face of ⑩.



WFE90-GI051

GENERAL INFORMATION

LOCK → FREE

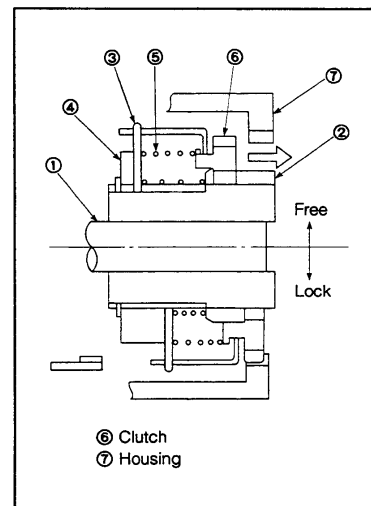
- (1) When the car is backed up after changing the T/F to 2WD, the system is driven backward from the wheel side to turn ⑦, ⑥ and the hub joint ③, ④ backward as one.
(② and ① also turn as one until unlocked.)
- (2) ③, which is pressed onto the cam incline of ④ by the return spring ⑤, goes down the cam incline of ④ to move to the left-hand side of the diagram.
- (3) As ③ moves to the left-hand side, ⑥ is pulled to the left-hand side by ③ to free the system.

WFE90-GI052

Cautions on user handling

In the event of ratcheting, stop the car once, change the T/F to 4WD, and then start the car.

1. Avoidance of Ratcheting
The gear noise that occurs when the clutch and the housing are about to lock while there is a difference between the speeds of the two.
2. Prevention of T/F Operation during Travelling Ratcheting
occurs if the T/F is shifted 2WD → 4WD by mistake while travelling with the T/F at 2WD and the ALH free. In that case, take the disposition of 1.
3. Observance of Straight Forward Starting at ALH Change
when changing the ALH free ↔ lock, hold the steering wheel in a straight forward travelling condition and run about 3 m or more. (If the steering wheel is turned before running a minimum of 3 m, one of the ALH's on both sides locks while the other becomes free to cause ratcheting.)



WFE90-GI053

GENERAL INFORMATION

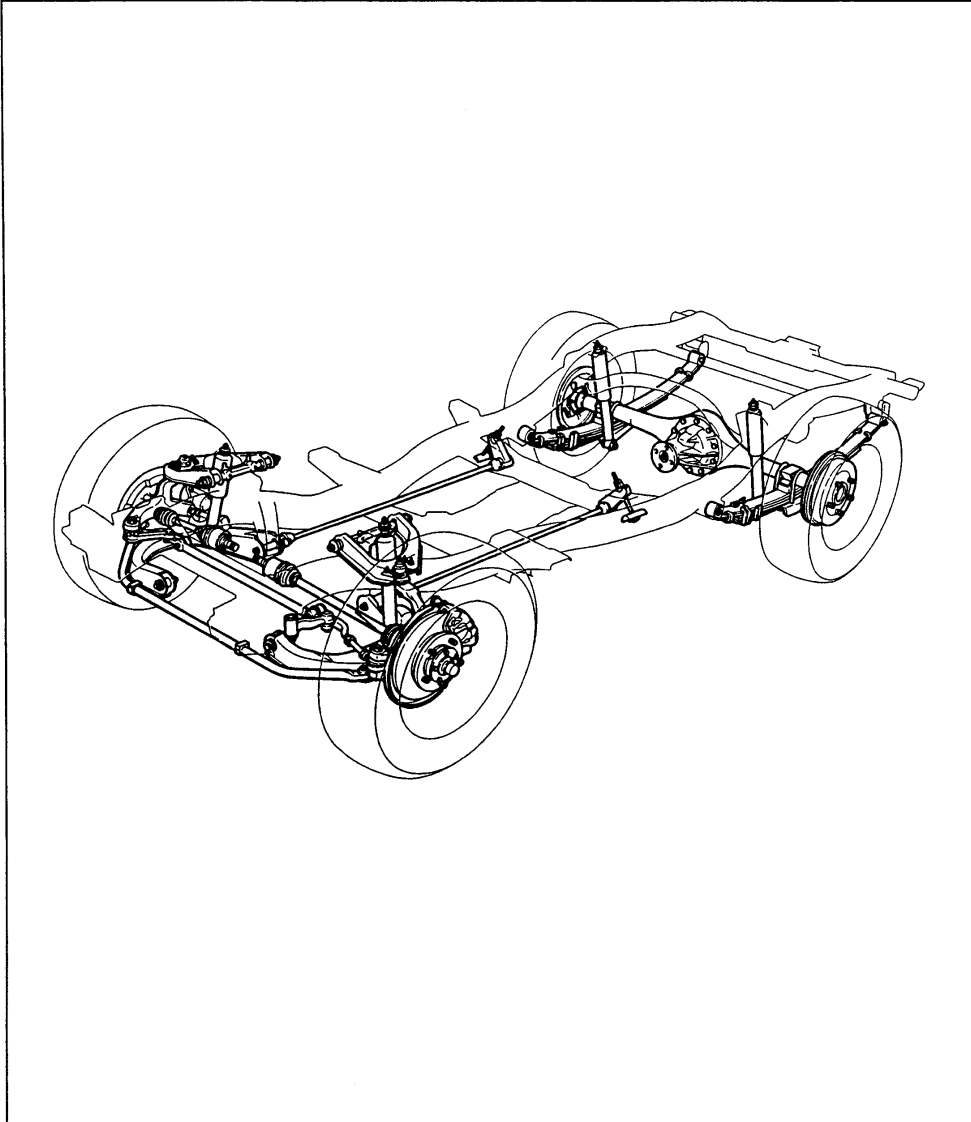
11. SUMMARY OF CHASSIS CONSTRUCTION

11-1. SUSPENSION

The front suspension employs the double wishbone type. The springs employ torsion bar springs.

The rear suspension is the rigid type. The spring employs leaf springs.

As regards the front and rear shock absorbers, a switch which changes the damping force of the shock absorbers to the H (hard), N (normal) or S (soft) mode is provided on the instrument panel. (Option)

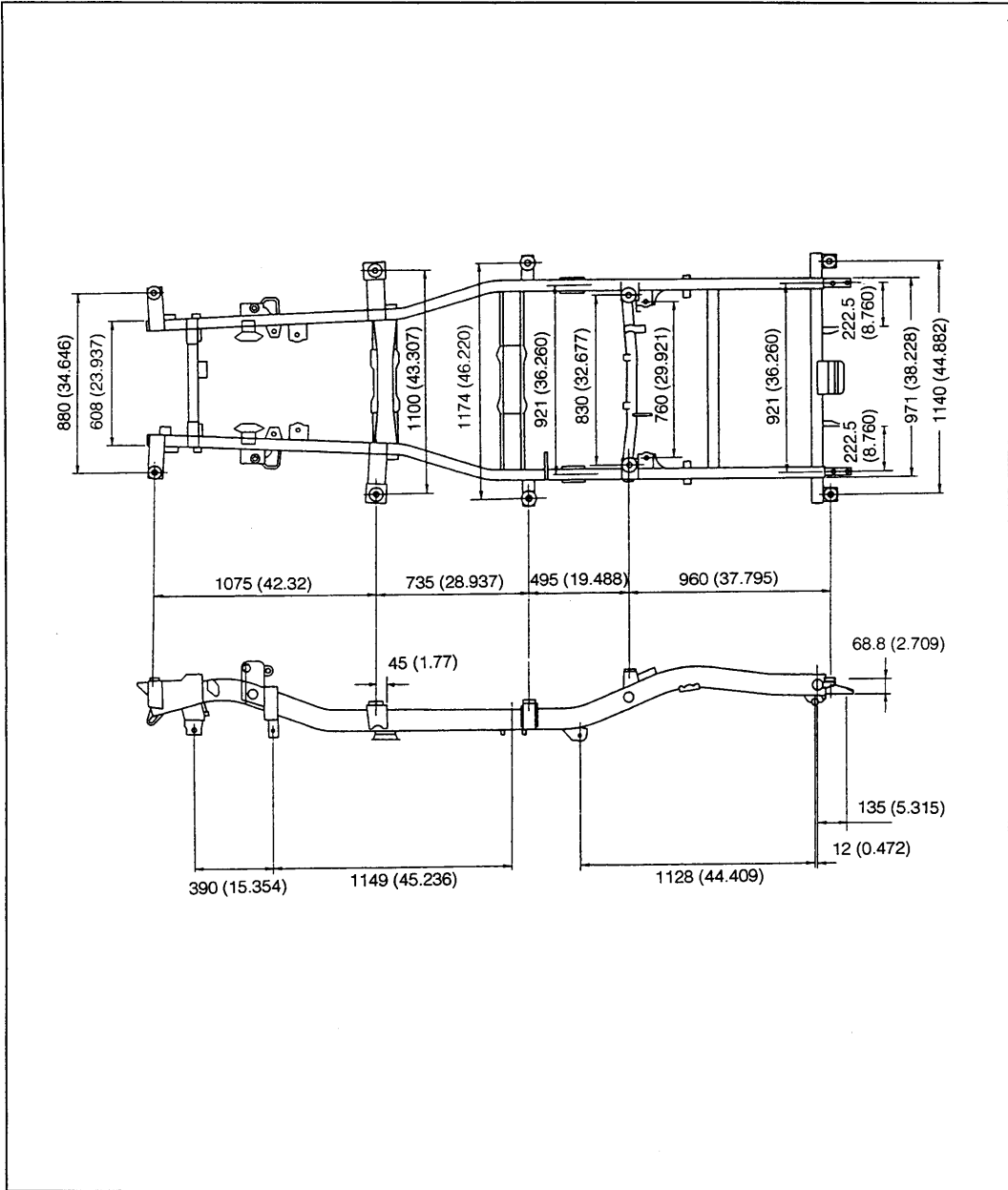


WFE90-GI054

11-2. FRAME

The frame employs a ladder type frame which retards the transmission of vibrations and noises from the road or engine to the body. Furthermore, the ladder type frame contributes to soft riding comfort and quieter vehicle interior.

The frame has a box shaped cross-section.

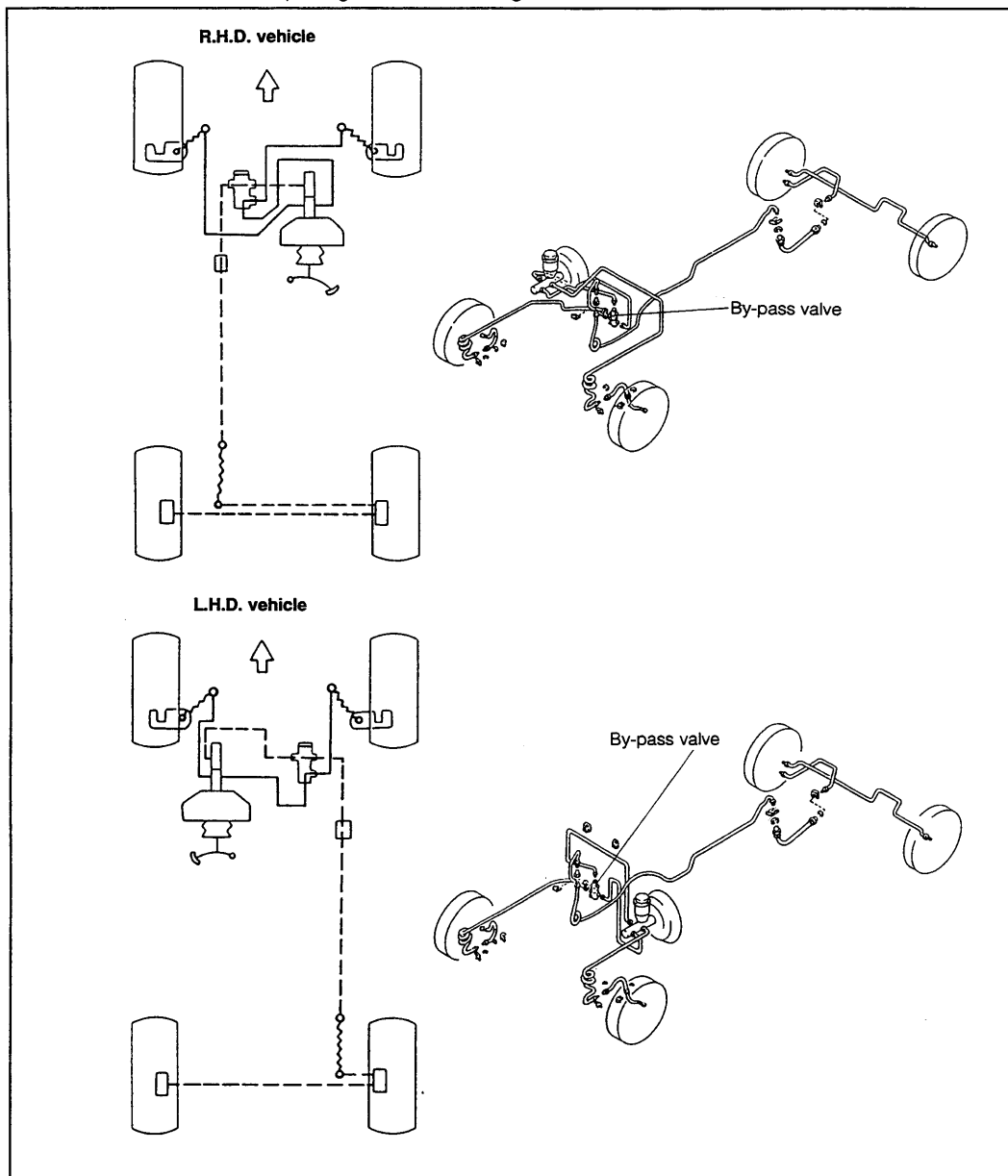


WFE90-G1062

GENERAL INFORMATION

11-3. BRAKE LINE

The brake line comes in two kinds; one for the R.H.D. vehicles and the other for the L.H.D. vehicles. On all models, the disc brake is provided at the front wheels, while the drum brake is installed at the rear wheels. The front and rear brake systems are operated through a proportioning valve. The brake pipe employs a two-winding copper tube, the inside of which is treated with Cu plating, while the outside is treated with Cu-Zn plating and resin coating as anticorrosion treatment.

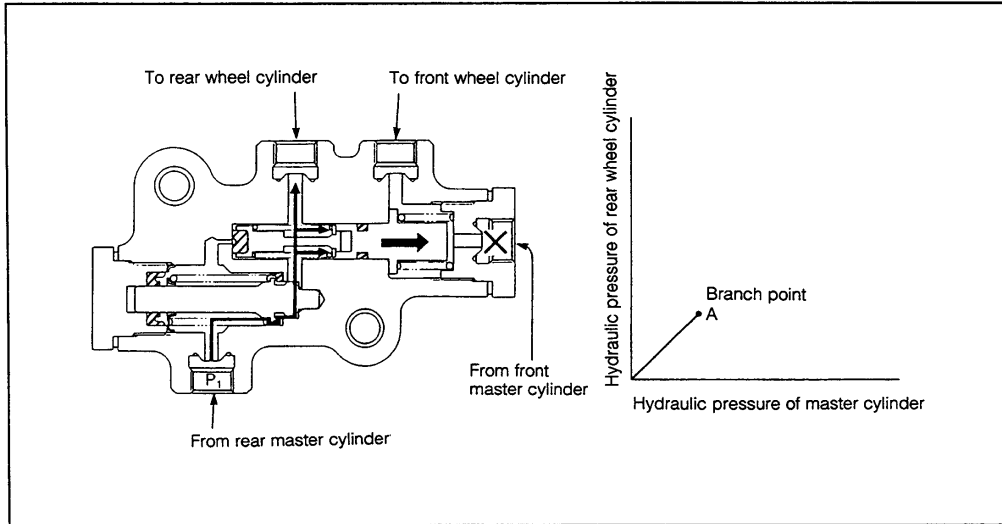


WFE90-GI063

GENERAL INFORMATION

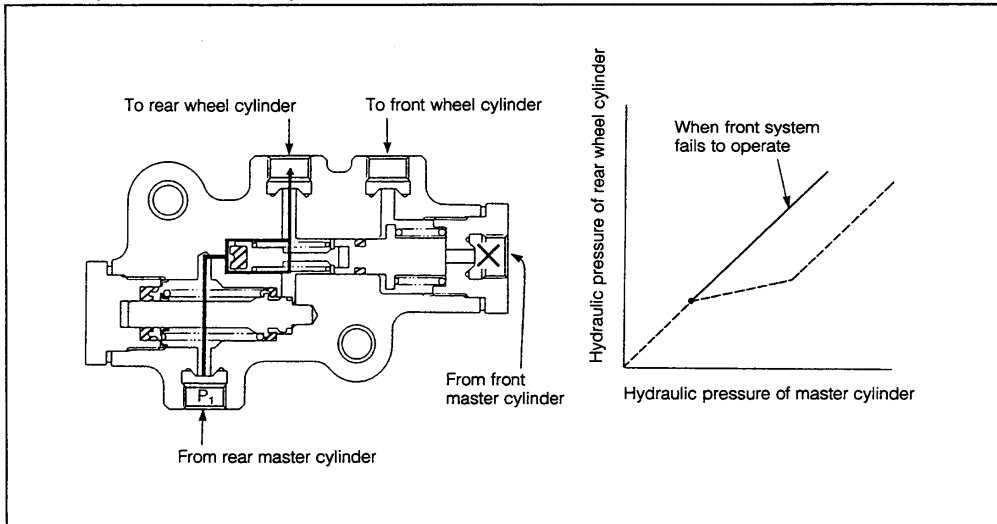
Operation principle of by-pass valve

- (1) If the front brake system should fail to operate due to some reasons, the hydraulic pressure applied to the front wheel cylinders drops. Then, the hydraulic pressure P_1 which has been applied to the rear wheel cylinder overcomes the spring tension of the by-pass valve, thus causing the by-pass valve to start moving to the right. This operation takes place at a branch point A in the figure below.



WFE90-GI064

- (2) In as much as the hydraulic pressure of the front wheel cylinder drops, the by-pass valve moves to the right. This by-pass valve's movement to the right forms a by-pass circuit for the hydraulic pressure of the rear wheel cylinders. Hence, the pressure is no longer reduced by the proportioning valve and is applied directly to the rear wheel cylinders. As a result, no turning point exists, as shown in the figure below.



WFE90-GI065

GENERAL INFORMATION

12. SUMMARY OF BODY ELECTRICAL

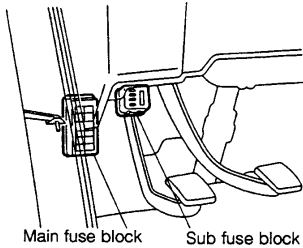
12-1. FUSE BLOCK

The fuse block is located at the cowl side of the driver's seat side.

Blade type fuses have been employed. A fuse is provided independently for each of the right and left headlamps in order that the load for each circuit may be reduced.

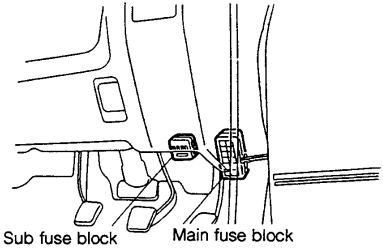
A sub-fuse block is installed below the instrument panel at the driver's seat side.

L.H.D.



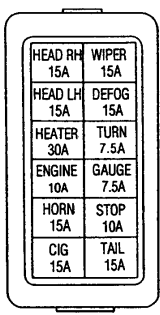
Main fuse block Sub fuse block

R.H.D.

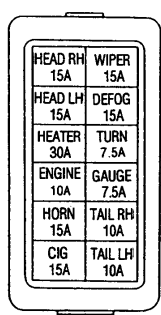


Sub fuse block Main fuse block

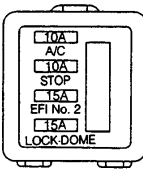
w/o Germany Specification



Germany Specification



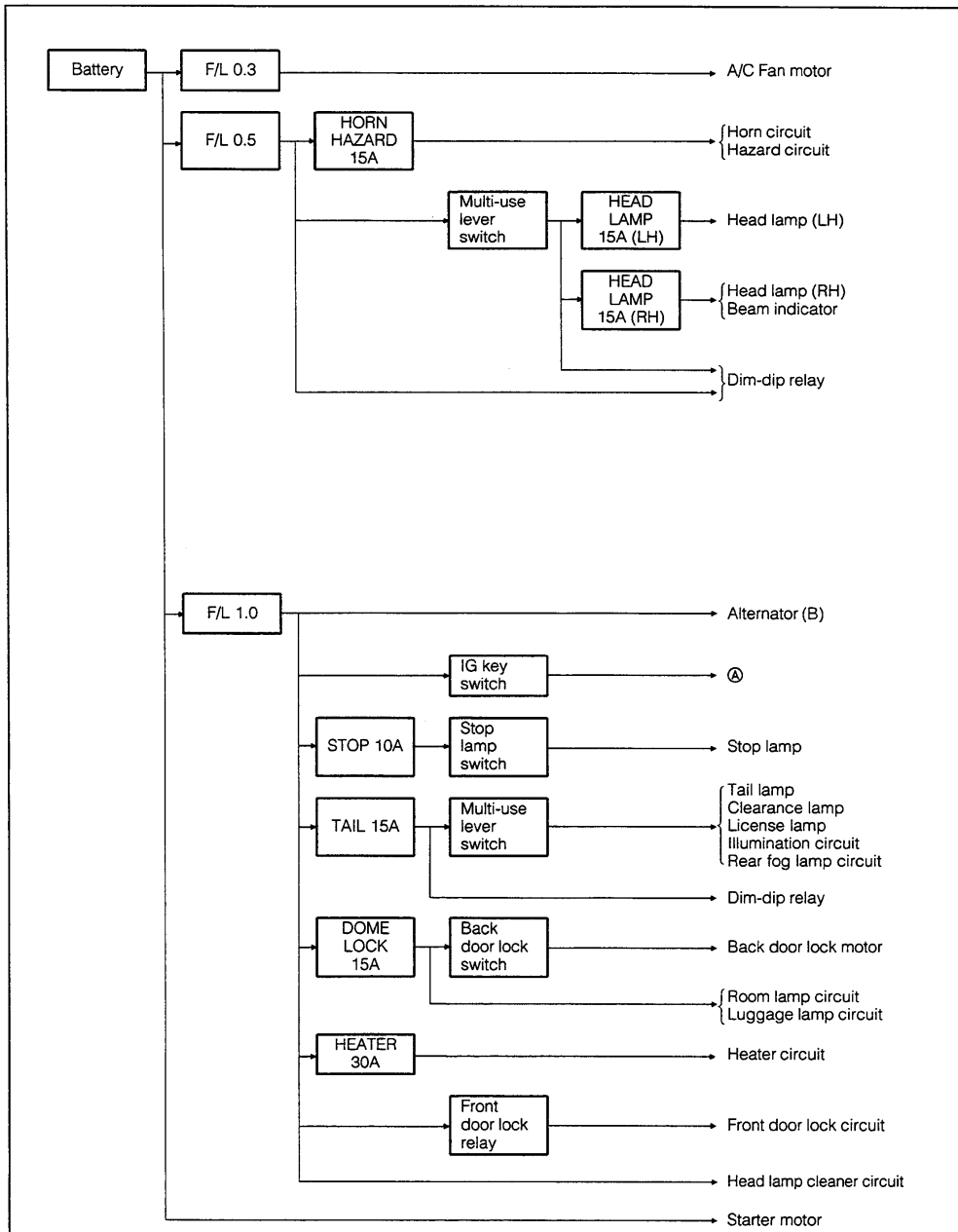
Sub fuse block



	LOCK-DOME 15A	EFI No. 2 15A	STOP 10A	A/C 10A
R.H.D. EFI vehicle (With A/C)	○	○	—	○
R.H.D. carburetor vehicle (With A/C)	○	—	—	○
L.H.D. carburetor vehicle (With A/C)	○	—	—	○
L.H.D. carburetor vehicle (Without A/C)	○	—	—	—
L.H.D. carburetor vehicle (Without A/C)	○	—	—	—
L.H.D. EFI vehicle (With A/C)	○	○	○	○
L.H.D. EFI vehicle (Without A/C)	○	○	○	—
L.H.D. carburetor vehicle (Without A/C)	○	—	○	—

WFE90-GI066

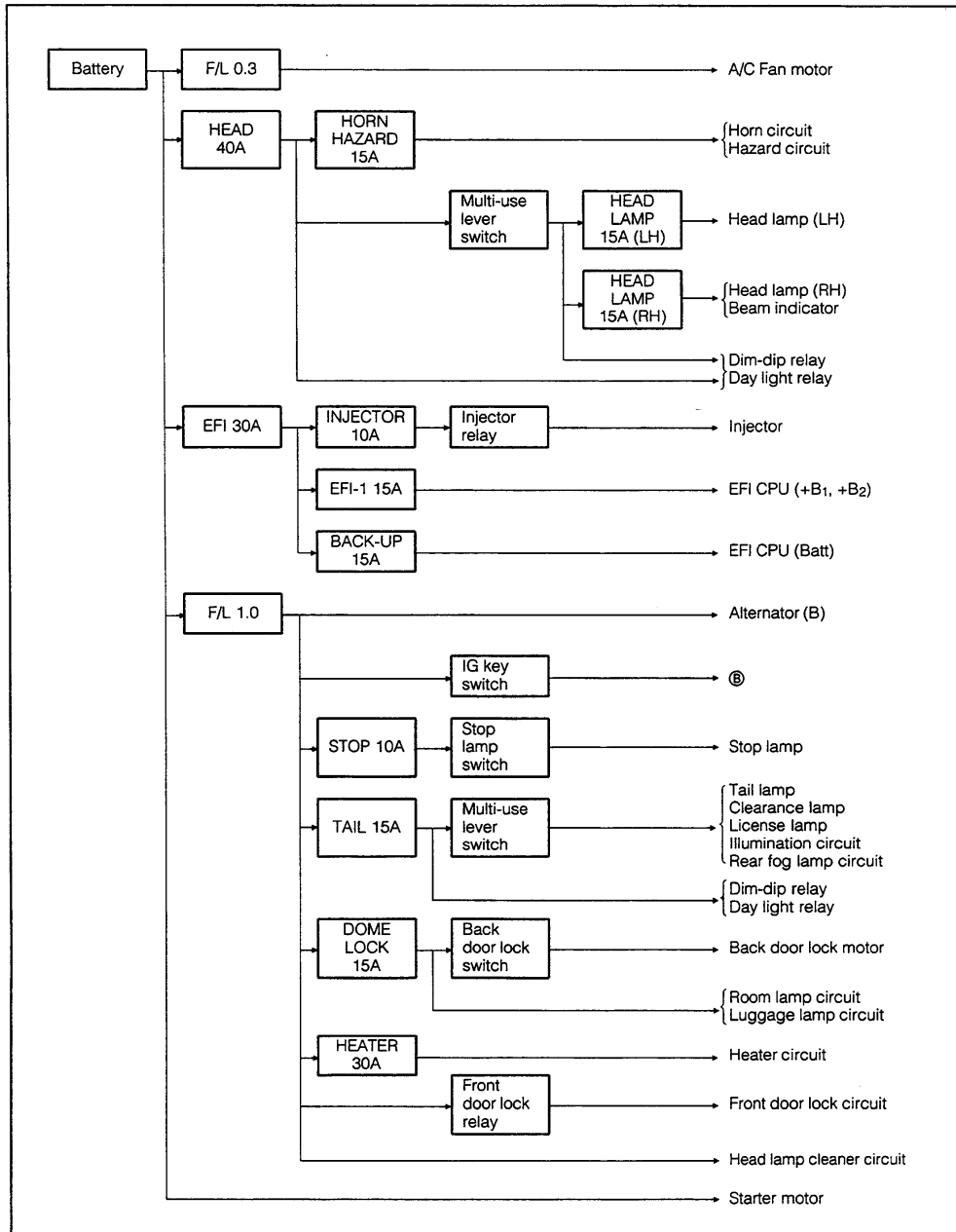
12-2. FUSE CIRCUIT (HD-C engine)



WFE90-GI 105

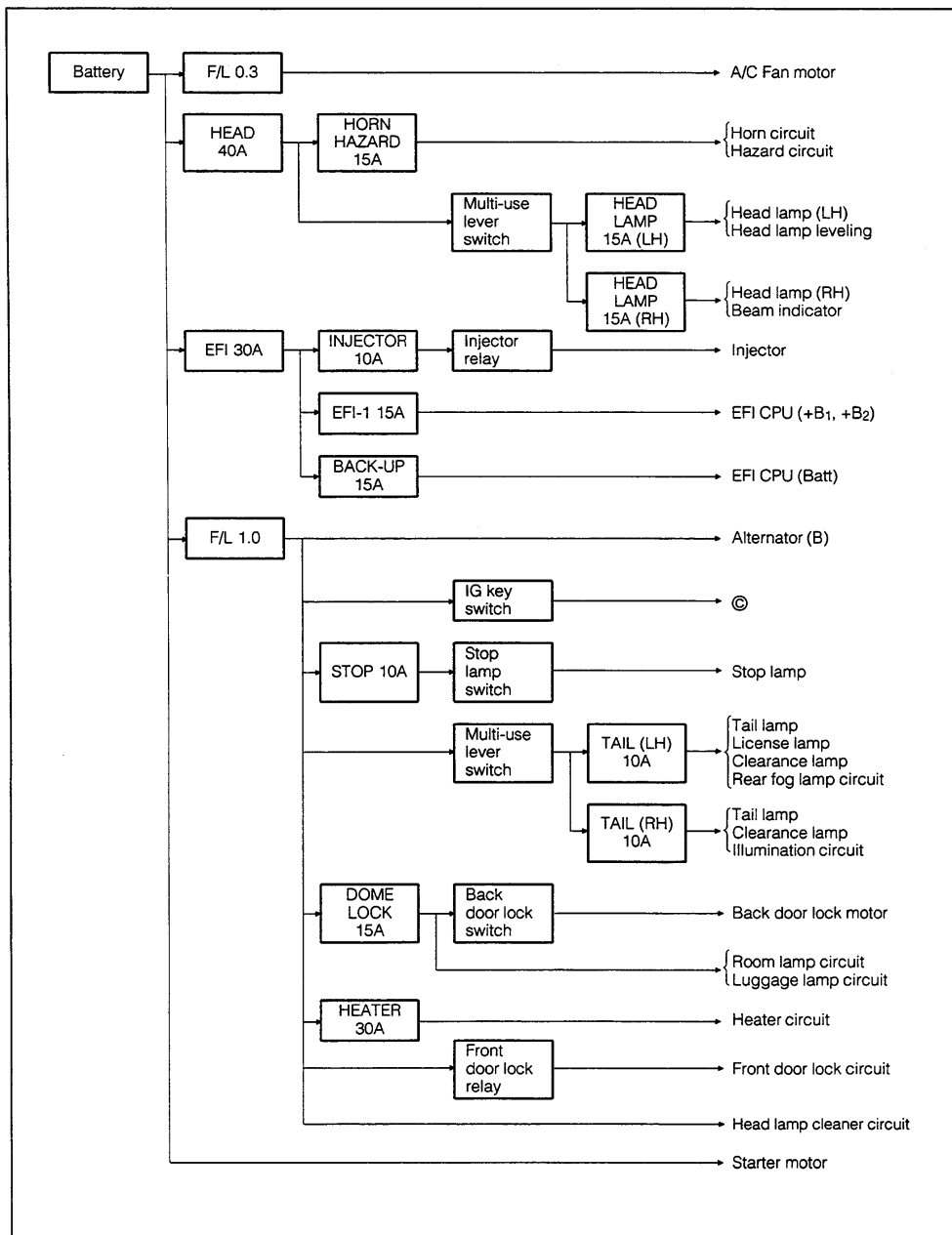
GENERAL INFORMATION

FUSE CIRCUIT (HD-E engine)



WFE90-GI106

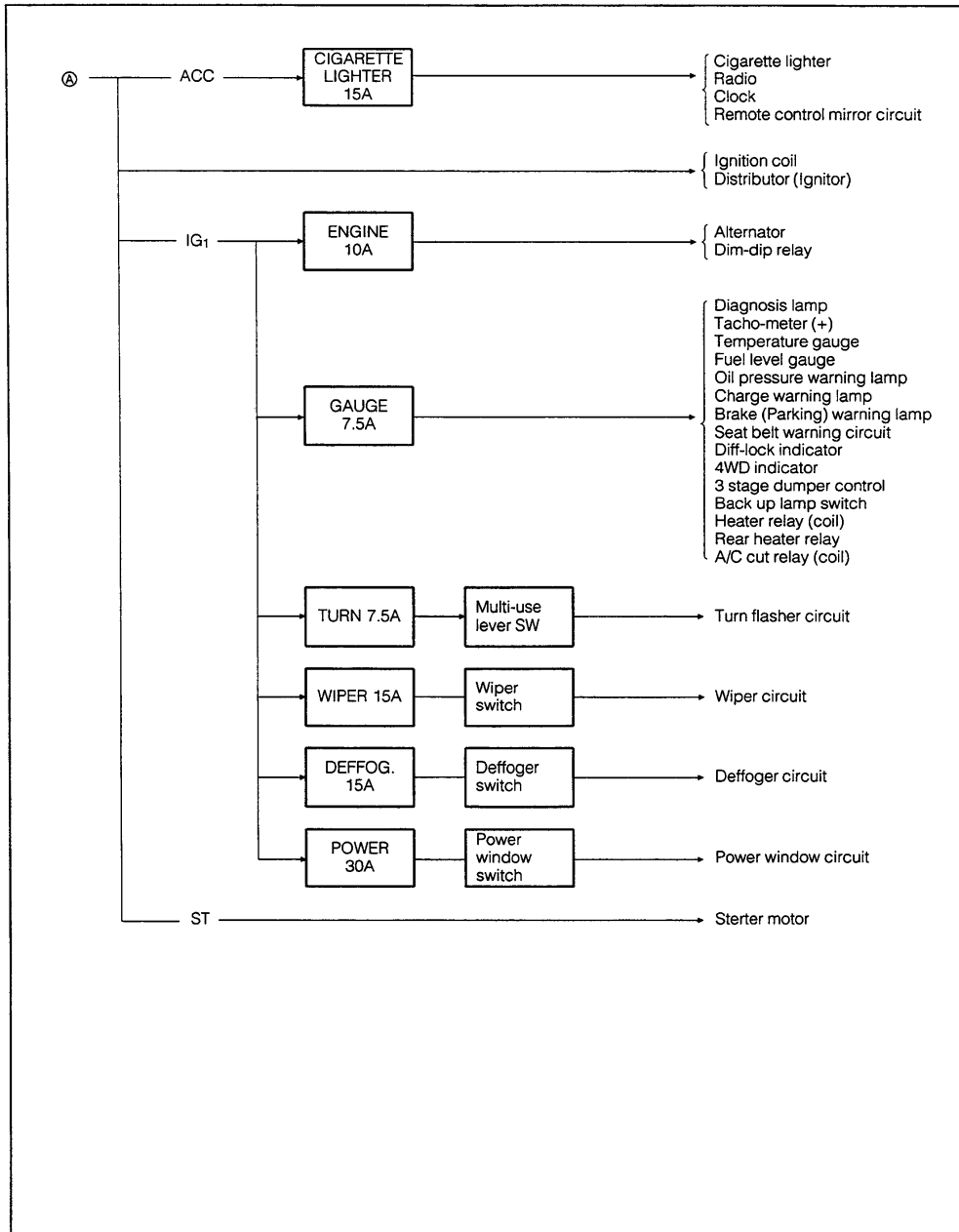
FUSE CIRCUIT (HD-E/German Specification)



WFE90-GI107

GENERAL INFORMATION

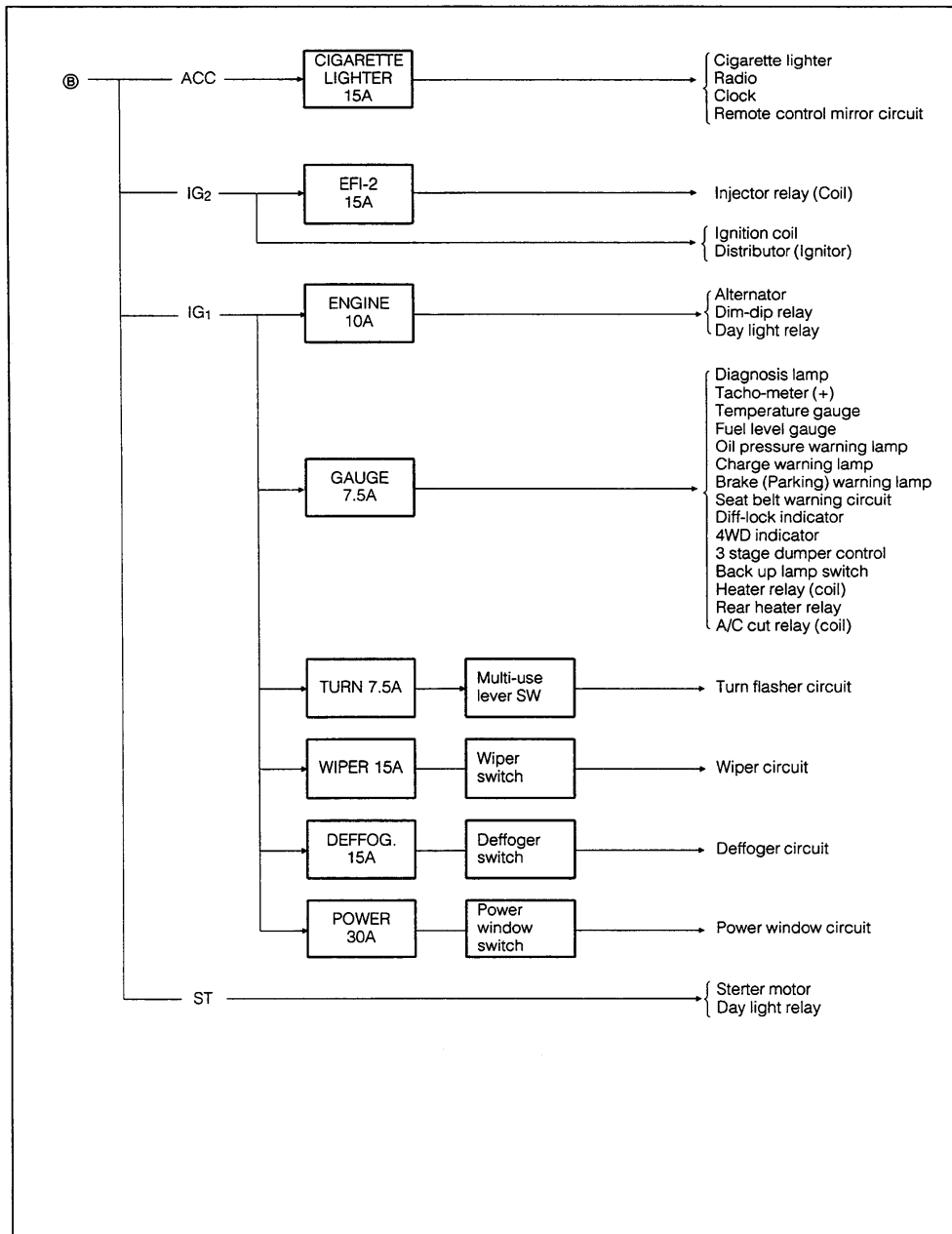
FUSE CIRCUIT (HD-C engine)



WFE90-GI108

GENERAL INFORMATION

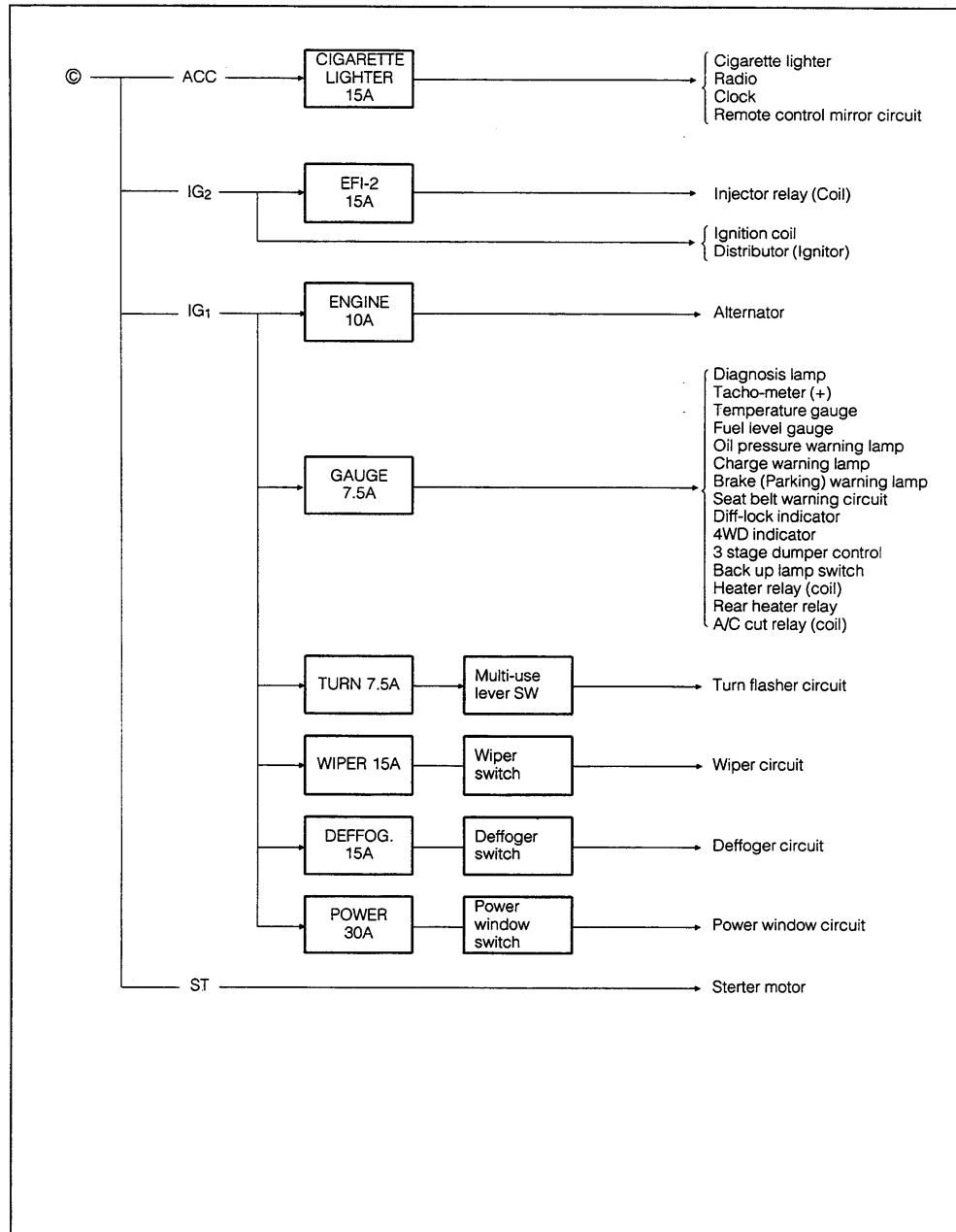
FUSE CIRCUIT (HD-E engine)



WFE90-GI109

GENERAL INFORMATION

FUSE CIRCUIT (HD-E/German Specification)



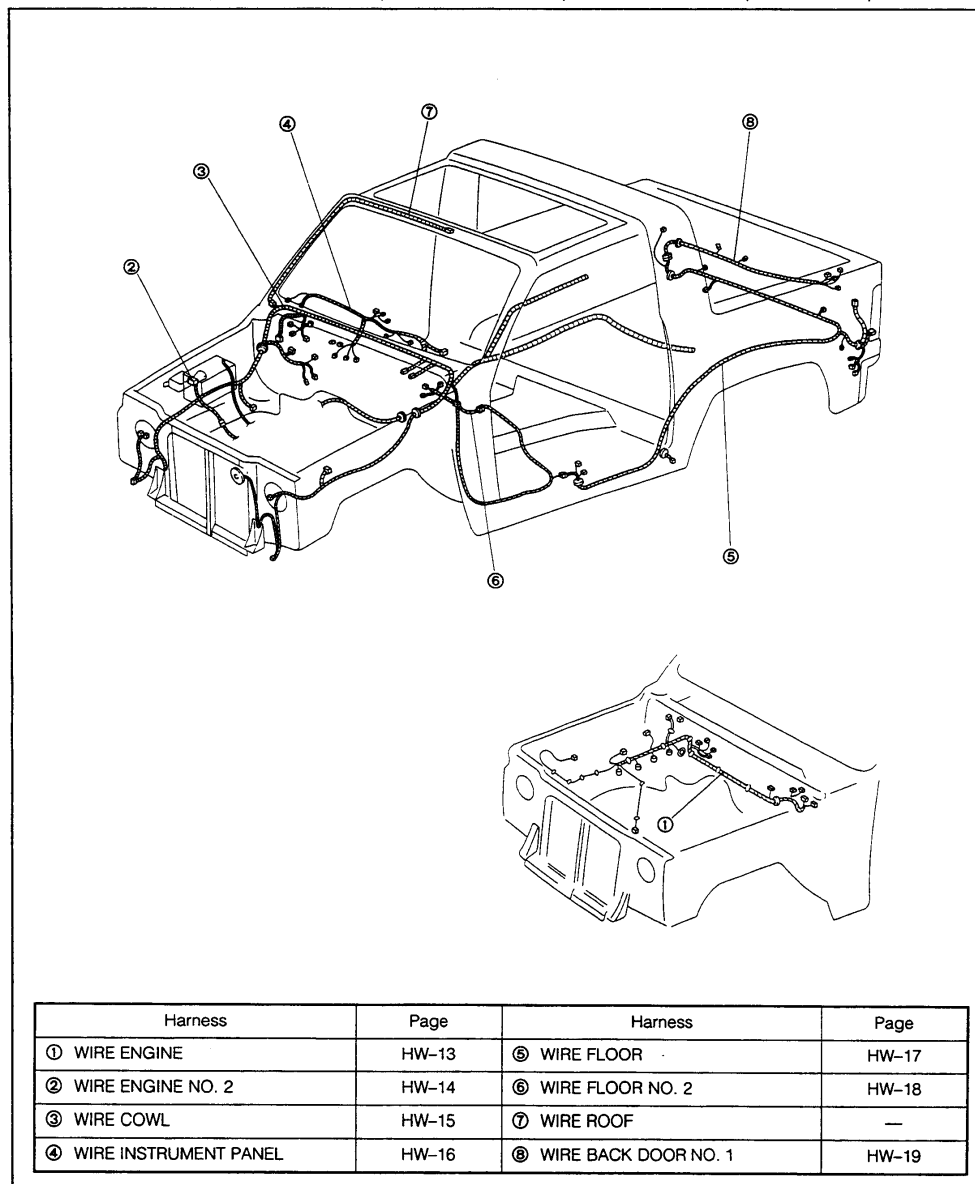
WFE90-GI110

GENERAL INFORMATION

12-3. WIRING HARNESS

As for extra wirings for optional equipment, they are clamped at those points in close proximity of the installation position of respective pieces of equipment.

For improved reliability, protectors, clamps and so forth are provided at various points, as required.

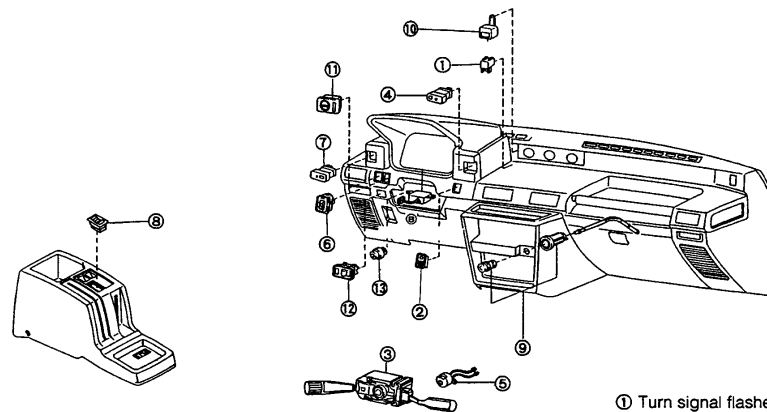


WFE90-GI072

GENERAL INFORMATION

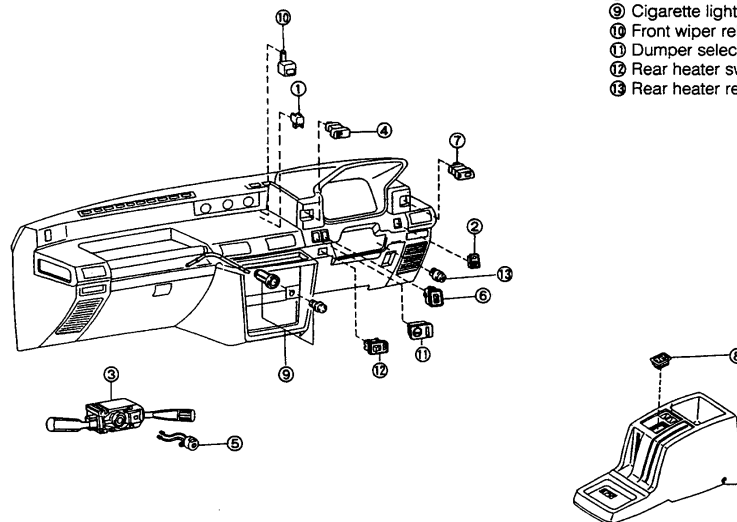
12-4. ARRANGEMENT OF SWITCHES AND RELAYS

L.H.D.



- ① Turn signal flasher
- ② Fog lamp switch
- ③ Turn signal switch
- ④ Hazard warning signal sw
- ⑤ Ignition switch
- ⑥ Rear wiper switch
- ⑦ Rear defogger switch
- ⑧ Door control switch
- ⑨ Cigarette lighter
- ⑩ Front wiper relay
- ⑪ Dumper select switch
- ⑫ Rear heater switch
- ⑬ Rear heater relay

R.H.D.

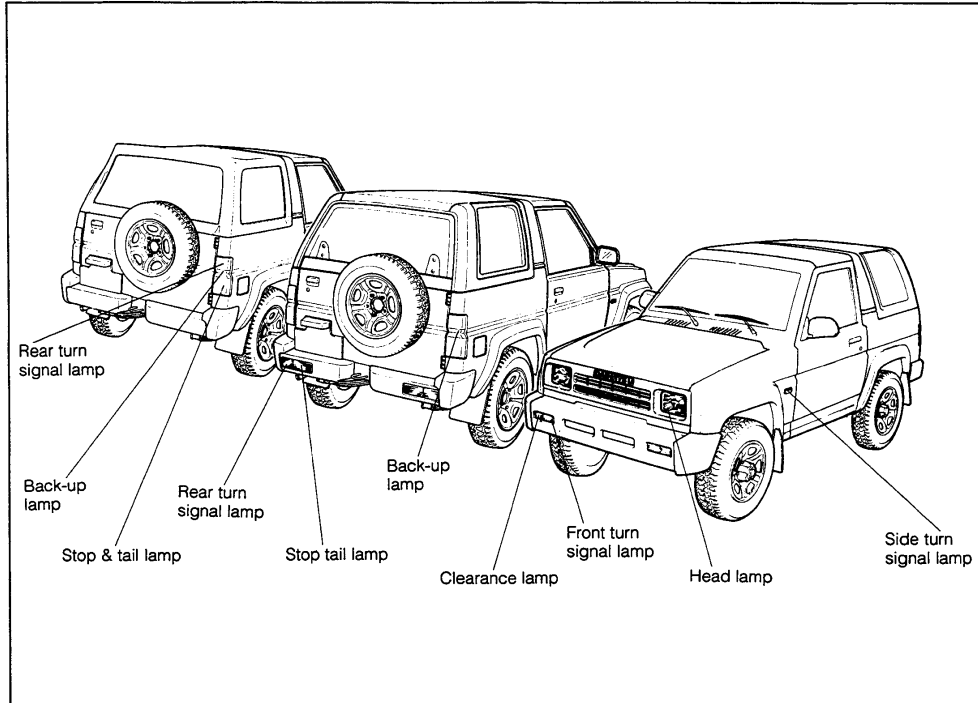


WFE90-GI073

GENERAL INFORMATION

12-5. LAMPS

The rear combination lamp has been built into the rear bumper for only European and Australian markets.



WFE90-GI074

Lamp specifications

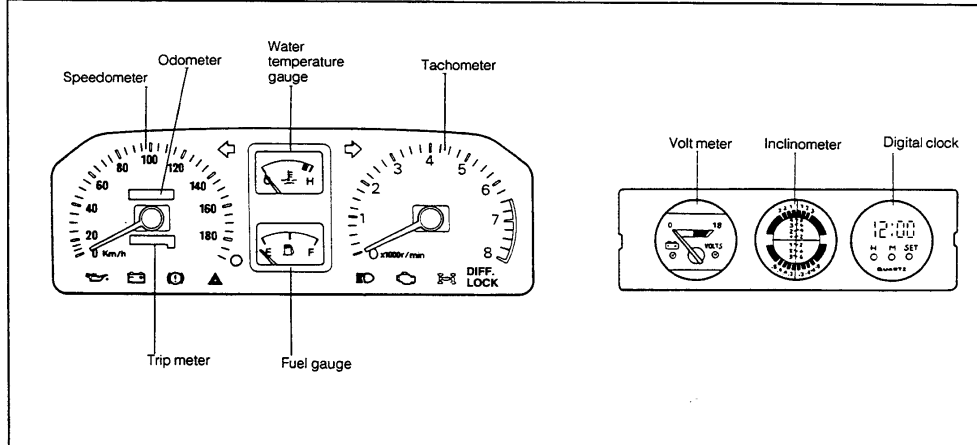
Lamp		Specifications	Wattage	Remarks
Headlamp	Bulb specifications	Candescent	45/40	
		Halogen	60/55	
		Yellow	45/40	
Front combination lamp		Clearance lamp	5	
		Turn signal lamp	21	
Side turn signal lamp			5	
Rear combination lamp		Stop/tail lamp	21/5	Figures in () denote European specifications
		Turn signal lamp	23 (21)	
		Back up lamp	21	
License plate lamp			5	
Room lamp			10	
Fog lamp		Front	35	• Option on Australian & General specifications
		Rear	21	• Standard on R.H.D. vehicles for European specifications • Option on L.H.D. vehicles for European specifications

WFE90-GI075

GENERAL INFORMATION

12-6. COMBINATION METER

(1) Meter panel overview



WFE90-GI076

(2) Warning & indicator lamps

	Kind	Indication	Function
Warning lamp	Hazard warning		Flashes when hazard switch is turned ON. Indicating color: Red
	Brake warning	BRAKE	Glow when brake fluid becomes too low or empty, or when parking brake is applied. Indicating color: Red
	Oil pressure warning	OIL	Glow when engine oil pressure system is encountered with abnormality while engine is running. Indicating color: Red
	Charge warning	CHARGE	Glow when engine charging system is encountered with abnormality while engine is running. Indicating color: Red
	Seat belt warning		Glow for about six seconds when driver fails to buckle up seat belt at driver's seat after ignition switch has been turned ON or engine has started. Indicating color: Red
	Check engine warning	CHECK ENGINE	Glow when CPU detects malfunction of Electronic Fuel Injection system. Indicating color: Amber
Indicator lamp	High beam indicator		Glow when upper beams of headlamps are turned ON. Indicating color: Amber
	Turn signal indicator		Flashes when turn signal switch or hazard warning switch is turned ON. Indicating color: Green
	4WD indicator		Glow when the transfer shift lever is moved to the 4H or 4L position with the engine switch turned ON. Indicating color: Green
	Differential lock indicator	DIFF-LOCK	Glow when the transfer shift lever is shifted to CENTER DIFF-LOCK with the engine switch turned ON. Indicating color: Amber

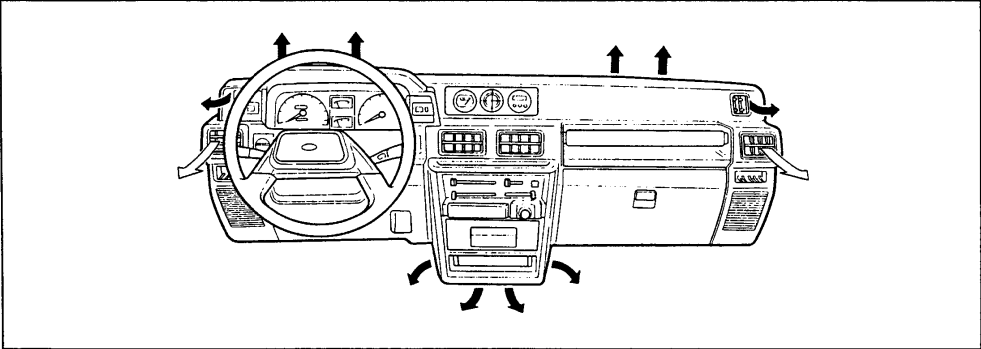
WFE90-GI077

12-7. HEATER & VENTILATION

(1) FRONT HEATER

The heater employs a full air mixing type heater having remarkable air temperature regulating characteristics. Air outlets are provided at the center and both sides of the instrument panel as well as at the right and left sides on a feet level.

For improved visibility, side defrosters are employed so as to prevent door windows from misting.



WFE90-GI078

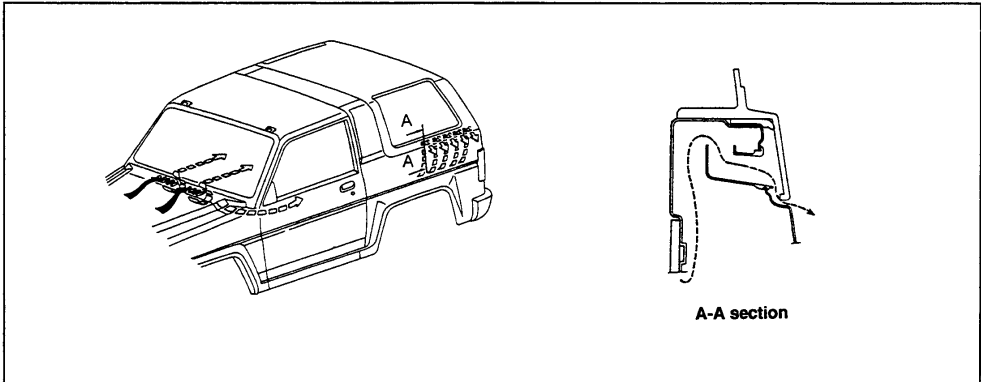
Heater specifications

Heat radiating rate	kCal/h	3,000
Air flow rate	m ³ /h (ft ³ /h)	245 (8625)
Power consumption	W	140
Fan diameter	mm (inch)	140 (5.51)

WFE90-GI079

(2) Ventilation (fresh air system)

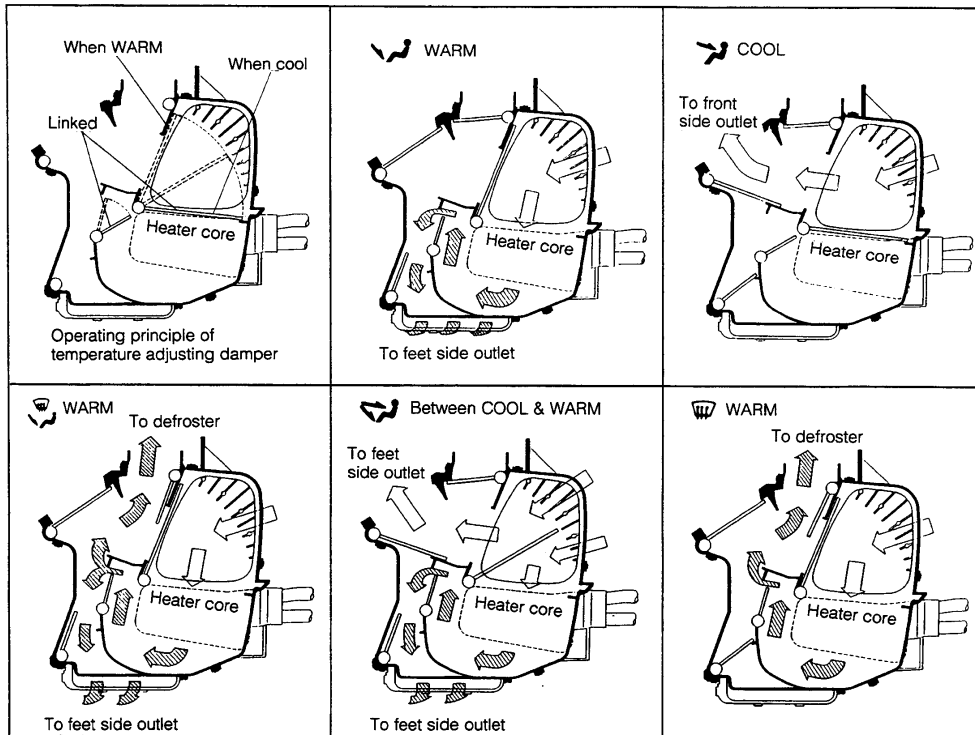
Fresh air is introduced from the louvers provided on the cowl panels. After passing through the heater proper, the fresh air is discharged to the vehicle interior from the ventilators provided at the center as well as at either side of the instrument panel. Then, the air in the vehicle interior is released from the quarter panel ventilation louvers to the outside.



WFE90-GI080

GENERAL INFORMATION

(3) Heater construction



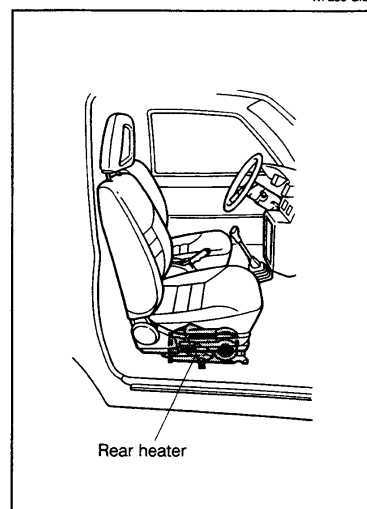
WFE90-G1081

(4) Rear heater

Rear heater is available except for Australian specification.
Rear heater is located at the under position of the co-drivers seat.

Heater specifications

Heat radiating rate	kCal/h	1,600
Air flow rate	m ³ /h (ft ³ /h)	120 (4238)
Power consumption	W	30
Fan diameter	mm (inch)	80 (3.1)



WFE90-G1082