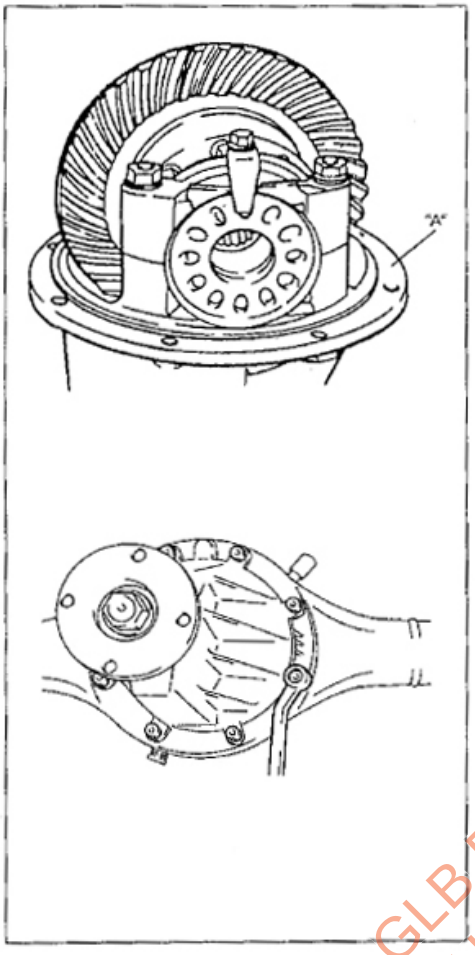


INSTALLATION

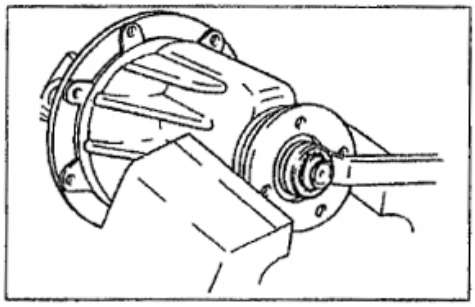
Reverse removal procedure for installation, noting the following.

- Before installing differential ass'y to axle housing, clean mating surfaces of differential carrier and housing and apply sealant to them. After installing it, tighten carrier bolts to specified torque.

  "A": Sealant 99000-31110

  Tightening Torque
  (a): 23 N·m (2.3 kg-m, 17.0 lb-ft)

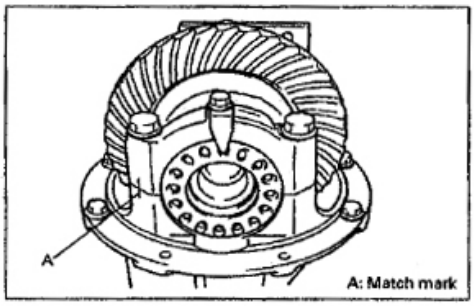
- For installation of rear suspension, refer to "Rear axle shaft installation" in SECTION 3E REAR SUSPENSION of this manual.
- Fill gear oil referring to "Oil Change".
- Make sure to purge air out of brake circuit.
  Refer to SECTION 5 BRAKES for "air purging" operation. Then check to ensure that joint seam of pipe is free from oil leak.



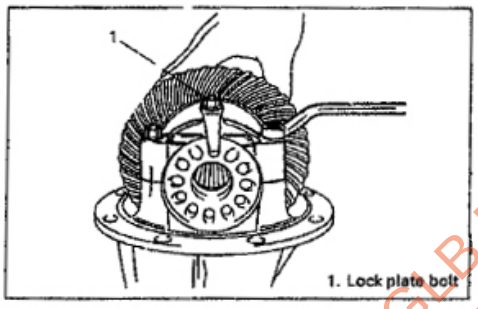
UNIT REPAIR

DISASSEMBLY

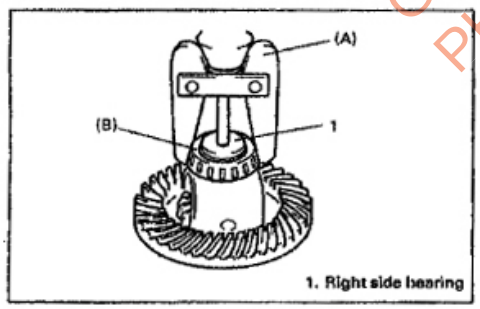
1) Lock the flange immovable, and remove the nut from the end of the bevel pinion shank.



2) Scribe marks on each cap bolted to the saddle portion of the carrier case and holding down the side bearing. The marks are to identify the cap. This means that there are right and left caps, so identified and so handled at the time of reassembly.

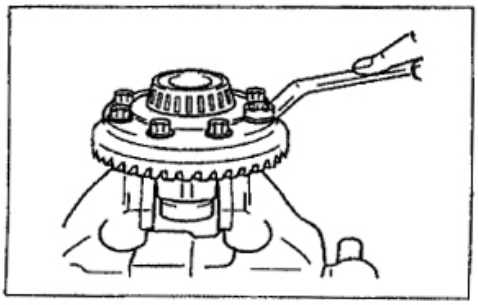


3) Remove the two bearing caps, right and left, and lift the differential case assembly off the carrier case, after loosening lock plate bolts and bearing cap bolts.

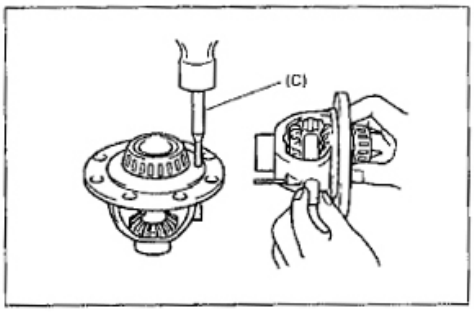


4) Using the special tools indicated below, extract the right side bearing from the differential case.

Special Tool
(A): 09913-60910
(B): 09913-85230

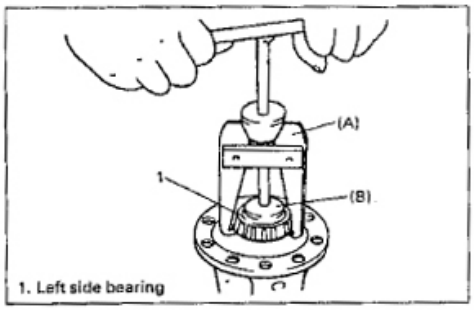


5) Remove the bolts fastening bevel gear to differential case, and take off bevel gear.



6) Draw out side pinion shaft, as shown, and remove side pinions, side gears and thrust washers.

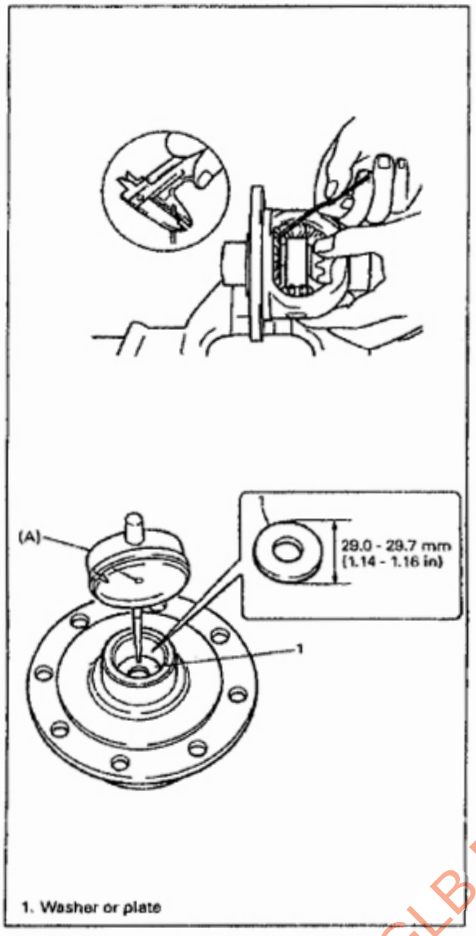
Special Tool
(C): 09922-85811



1. Left side bearing

7) Using special tools indicated below, extract left side bearing from differential case.

Special Tool
(A): 09913-60910
(B): 09913-85230



1. Washer or plate

ADJUSTMENT

Side gear backlash

Use soft fuse stock in checking the backlash.

After flattening fuse stock according to the standard practice of backlash checking, measure thickness of fuse stock, and compare the reading with backlash specification indicated below.

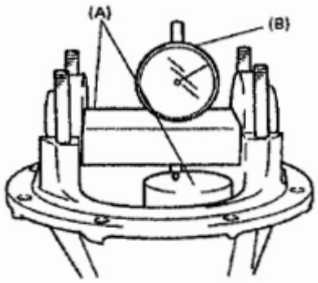
Adjust backlash, as necessary, by varying thickness of thrust washer.

Side gear backlash specification	0.05 – 0.15 mm (0.002 – 0.006 in.)
Available thrust washer size (thickness)	0.9, 1.0, 1.1 & 1.2mm (0.035, 0.039, 0.043 & 0.047 in.)

NOTE:

When a fuse stock to measure differential side gear backlash is not available,measure side gear thrust play. If it is 0.37 mm (0.0145 in.) at the maximum, an acceptable backlash value is obtained. To measure thrust play, put an appropriate flat washer or plate on the side gear end as shown.

Special Tool
(A): 09900-20606

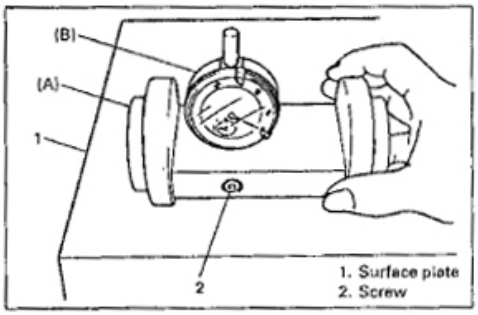


Determination of shim thickness of bevel pinion

The amount of shims to be used on the bevel pinion varies from one machine to another on account of a number of factors involved in machining and assembling. Thus, for each machine, the amount of shims necessary for locating the pinion in the correct position (for producing a proper backlash in the mesh between pinion and gear) must be determined anew at the time of reassembly.

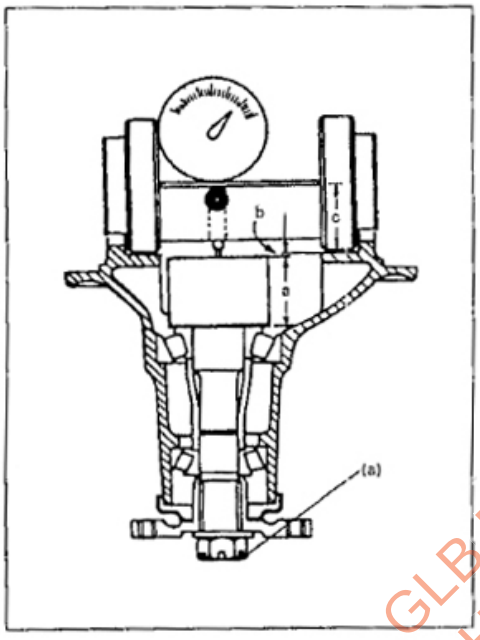
In order to facilitate this determination, a two-piece dummy tool (special tool) is made available. The following procedure is based on the use of this tool and supposes that the pinion dummy (one of the two pieces) is set in the carrier, without any shims, as shown in figure.

Special Tool
(A): 09924-36320
(B): 09900-20606



1) Set dial indicator on dummy, letting indicator spindle protrude 5 to 6 mm from the bottom of dummy.
Rest dummy on the surface plate, and set dial indicator to zero.

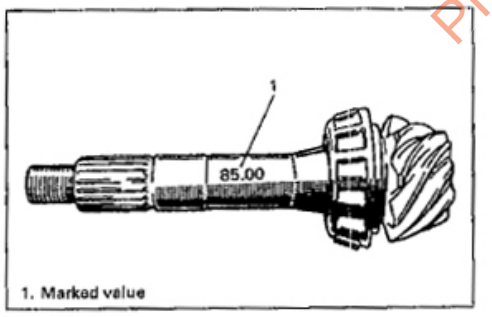
Special Tool
(A): 09924-36320
(B): 09900-20606



2) Feed dummy pinion into carrier, positioning it properly as shown in figure; and install joint flange. Secure joint flange in place by tightening its nut.

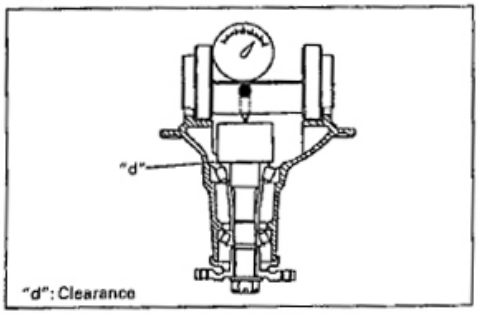
Tightening Torque
(a): 7 N·m (0.7 kg-m, 5.0 lb-ft)

3) Referring to the figure, note that three dimensions are involved: "a", "b" and "c".
The value of "b" is unknown, and is to be determined now for calculating the required thickness of shims. The value of "a" + "c" is 85 mm (3.35 in).



4) With dummy now secured, dial indicator hand may have deflected from the "0" mark to show a certain value; read this value, which is value "b". Add this reading to 85 mm (= "a" + "c") and, from the sum, subtract the value marked on the bevel pinion. The remainder is the required shim thickness:

("a" + "c") – marked value = required shim thickness



5) The shim stock is available in four selective thicknesses. Select and combine shim sizes to produce a total thickness as close to the required thickness as possible, and insert selected shim pieces into clearance "d" indicated in the figure.

Sizes of shims for bevel pinion	0.05, 0.1, 0.2, 0.3 & 0.5 mm (0.002, 0.004, 0.008, 0.012 & 0.02 in.)

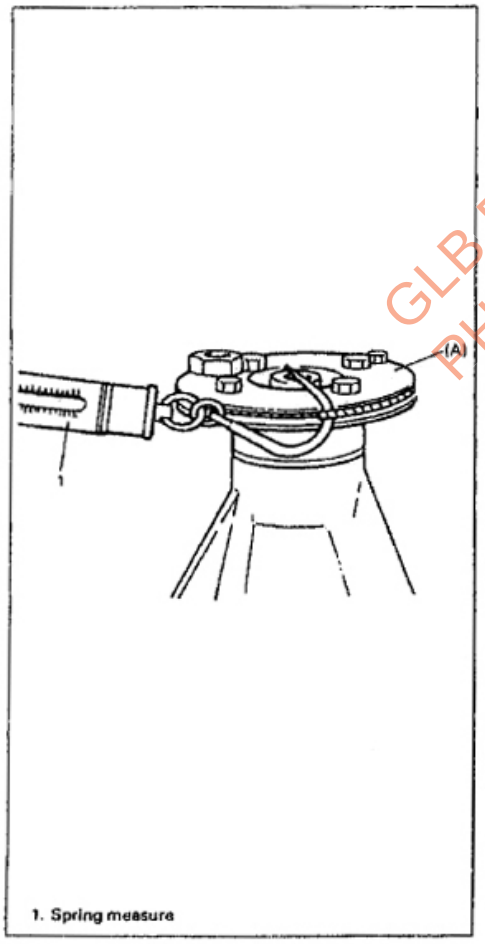
Bevel pinion bearing preload adjustment

The bevel pinion, as installed in the normal manner in the carrier, is required to offer a certain torque resistance when checked with the use of a prescribed torquing pulley (special tool) as shown in the following figure. This resistance is a "preload," which is due to the tightness of the two tapered roller bearings by which the pinion is held in the carrier. And this tightness is determined primarily by the thickness of the adjusting collar plus a shim.

Check the preload and, if the preload measurement is off the specified range indicated below, increase or decrease shim thickness. The method is as follows:

1) Tentatively install pinion in carrier, using adjusting collar and a 1 mm thick shim, and tighten the nut to secure splined yoke. Torque the nut to the following specification.

   Tightening torque for bevel pinion nut:
   200 N·m (20.0 kg-m, 144.5 lb-ft)



1. Spring measure

2) Put on torquing pulley (special tool) and give a pull, as shown in figure, and read spring balance indication just when the pulley begins to turn.
   The reading is a starting torque, and is required to be within the specified torque range.

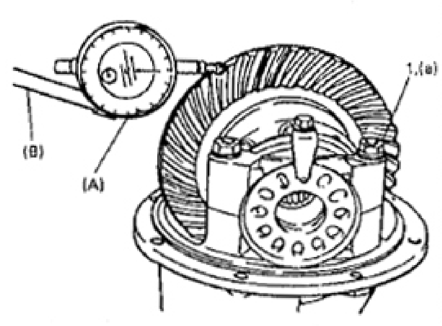
   Special Tool
   (A): 09922-75222

Pinion bearing preload	5.0 – 13.0kg-cm (4.3 – 11.3 lb-in.)
Spring measure reading (with special tool)	1.0 – 2.6kg (2.2 – 5.7 lb)

Increasing shim thickness decreases this preload, and vice versa. Five size shim stock available for "mounting distance" adjustment, mentioned above, is meant to be used in producing a proper shim thickness in this preload adjustment, too.

NOTE:

- **When tentatively installing pinion in carrier, be sure to oil bearings lightly with gear oil, and to leave out the oil seal.**
- **Make a note of the starting torque.**



1. Bearing cap bolt

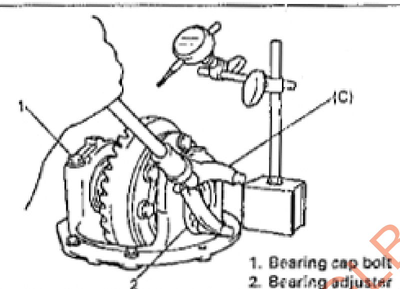
Bevel gear backlash adjustment

1) The backlash between bevel gear and pinion is checked in the manner shown in the figure. Note that the differential case assembly is mounted in the normal manner, and fastened down by tightening the side bearing cap bolts temporarily to the specified torque. The dial indicator spindle is pointed squarely to the "heel" on the drive side (convex side) of a gear tooth. Hold the bevel pinion rigidly, and turn the gear back and forth.
   The dial indicator reading, which is a backlash value, is required to be within this range:

   Tightening Torque
   (a): 15 N·m (1.5 kg-m, 11.0 lb-ft)

   Special Tool
   (A): 09900-20606
   (B): 09900-20701

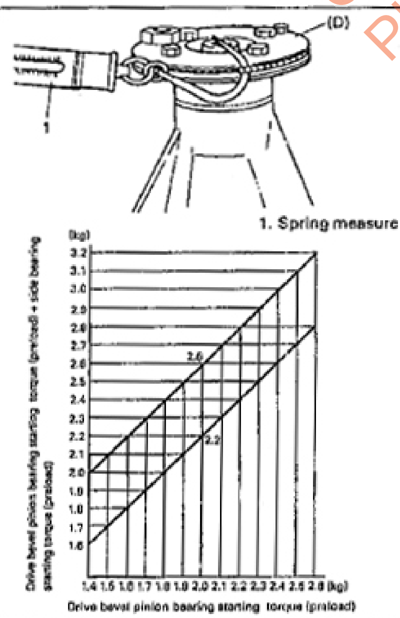
   Bevel gear backlash: 0.10 – 0.20 mm (0.004 – 0.008 in.)



1. Bearing cap bolt
2. Bearing adjuster

2) To increase or decrease the backlash for adjustment, displace the bevel gear toward or away from the pinion by running in one adjuster and running out the other adjuster by an equal amount (with the side bearing cap nuts slightly loosened).
   Turning the adjuster one notch changes the backlash by about 0.1 mm (0.004 in.).

   Special Tool
   (C): 09930-40113

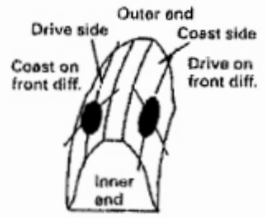
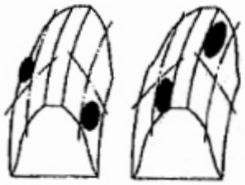
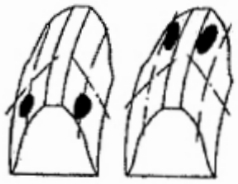
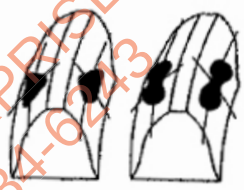


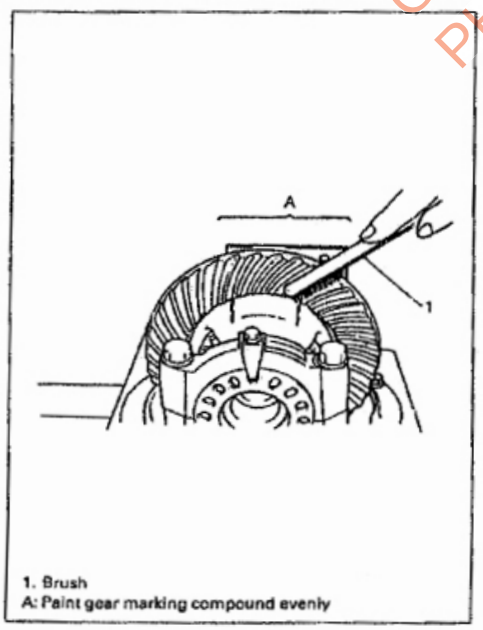
> **CAUTION:**
> **Adjust preload on side bearing during backlash adjustment: mount preload check torquing pulley (special tool) on drive bevel pinion and measure using spring measure. When the reading at the instant side bevel gear starts moving is within the range as indicated in the below graph, the side bearing preload is acceptable. Referring to the graph, for example, when drive bevel pinion bearing preload measured as shown below is 2.0 kg (4.41 lb), drive bevel pinion bearing preload (kg) + side bevel gear bearing preload (kg) should be 2.2 – 2.6 kg (4.85 – 5.73 lb).**
> **Upon completion of this adjustment, be sure to tighten bearing cap bolts to the specified torque.**

Special Tool
(D): 09922-75222

Tightening torque for bearing cap bolts after adjustment: 50 N·m (5.0 kg-m, 36.5 lb-ft)

Pinion-to-gear Tooth Contact Pattern Check and Adjustment

Contact patterns	Diagnosis and remedy	Contact patterns	Diagnosis and remedy
	NORMAL		Replace differential carrier.
	HIGH CONTACT Pinion is too far back, therefore, increase bevel pinion adjusting shim.		1. Check seating of bevel gear or differential case. 2. Replace pinion and gear set. 3. Replace differential carrier.
	LOW CONTACT Pinion is too far out from differential carrier. Decrease bevel pinion adjusting shim.		1. Replace pinion and gear set. 2. Replace differential case.



1. Brush
A: Paint gear marking compound evenly

Check gear tooth contact as follows.

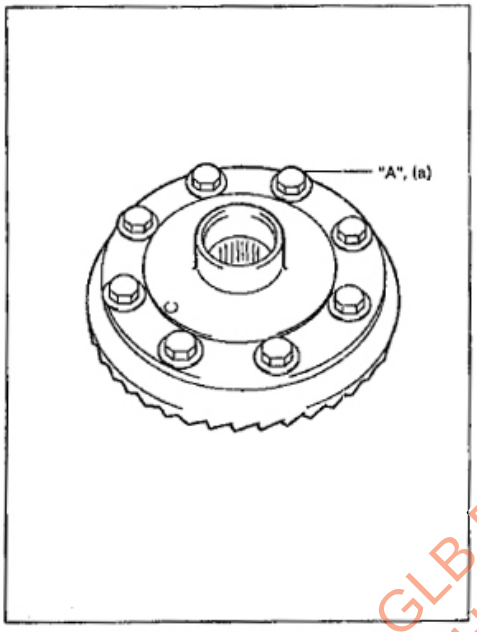
1) After cleaning tooth surface of 10 bevel gears, paint them with gear marking compound evenly by using brush or sponge etc.
2) Turn gear to bring its painted part in mesh with bevel pinion and turn it back and forth by hand to repeat their contact.
3) Bring painted part up and check contact pattern, referring to following chart. If contact pattern is not normal, readjust or replace as necessary according to instruction in chart.

NOTE:
Be careful not to turn bevel gear more than one full revolution, for it will hinder accurate check.

REASSEMBLY

Reverse disassembly procedure for reassembly, noting the following.

NOTE:
Bevel pinion and bevel gear are supplied as a set. Even when only bevel pinion or bevel gear replacement is necessary, be sure to replace both as a set.



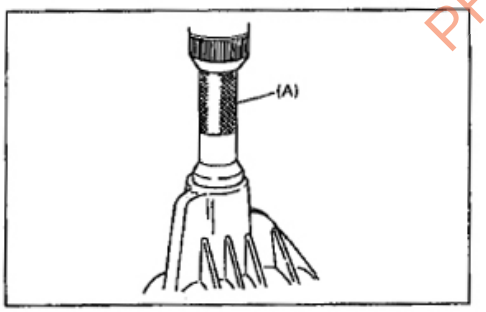
Drive bevel gear bolts

The bolts securing the bevel gear to the differential case are subject to shear stress since drive is transmitted by these bolts from the gear to the case. For this reason, they are special bolts made from chrome steel and must never be replaced with common bolts.

When mounting gear on case, be sure to apply thread lock cement to these bolts before running them in.

"A": Cement 99000-32020

Tightening Torque
(a): 85 N·m (8.5 kg-m, 61.5 lb-ft)

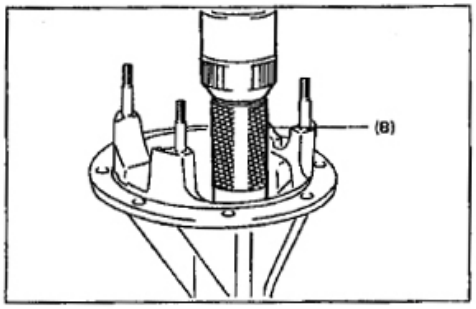


Bevel pinion bearings

A press must be used to install 2 tapered roller bearings on bevel pinion. Outer races are to be press-fitted into differential carrier and inner races onto pinion.

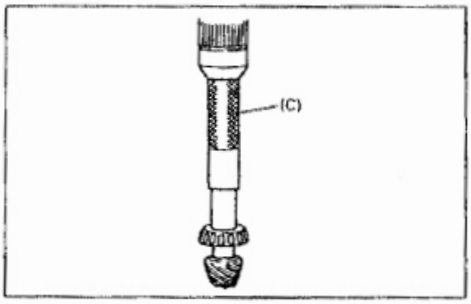
1) For outer race of front bearing (yoke side), special tool indicated here, must be used:

   Special Tool
   (A): 09913-75520



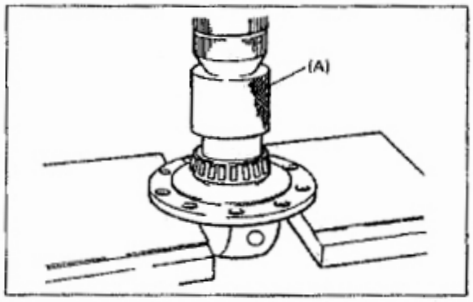
2) For outer race of rear bearing (gear side):

   Special Tool
   (B): 09913-75510



3) For inner races, use this special tool.

Special Tool
(C): 09940-51710



Differential side bearings

Press-fit these bearings into differential case by using special tool. Driving bearing into the case is not permitted.

Special Tool
(A): 09940-53111

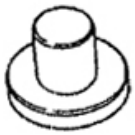
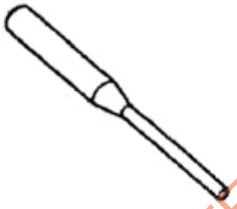
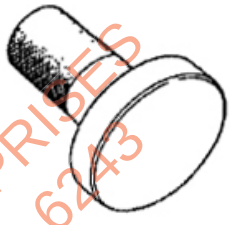
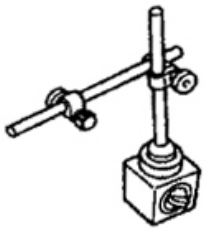
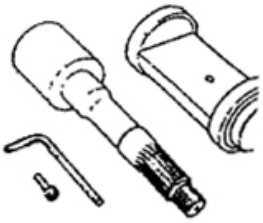
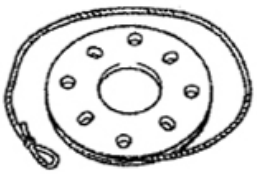
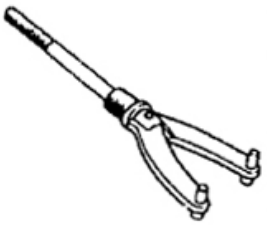
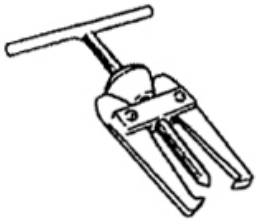
TIGHTENING TORQUE SPECIFICATIONS

Fastening portion	Tightening torque		
	N·m	kg-m	lb-ft
Differential oil filler/level plug	50	5.0	36.5
Differential oil drain plug	55	5.5	40.0
Propeller shaft flange bolts	50	5.0	36.5
Bevel gear bolts	85	8.5	61.5
Bearing cap bolts	50	5.0	36.5
Lock plate bolts	11.5	1.15	8.5
Rear differential carrier nuts	23	2.3	17.0
Bevel pinion nut	200	20.0	144.5

REQUIRED SERVICE MATERIALS

MATERIALS	USE
Thread lock cement	Bevel gear bolts
Lithium grease	Oil seal lips
Sealant	• Rear differential drain plug • Mating surface of differential housing

SPECIAL TOOLS

 09913-85230 Bearing removing jig	 09922-85811 Spring pin remover	 09913-75510 (O.D.70.5 mm) 09913-75520 (O.D.60.5 mm) Bearing installer	 09900-20701 Magnetic stand
 09900-20606 Dial gauge	 09940-51710 Bearing installer	 09924-36320 (For Front Diff) Bevel pinion mounting dummy	 09922-75222 Preload adjuster
 09940-53111 Bearing installer	 09930-40113 Rotor holder	 09913-60910 Bearing/Gear puller	

SECTION 8

BODY ELECTRICAL SYSTEM

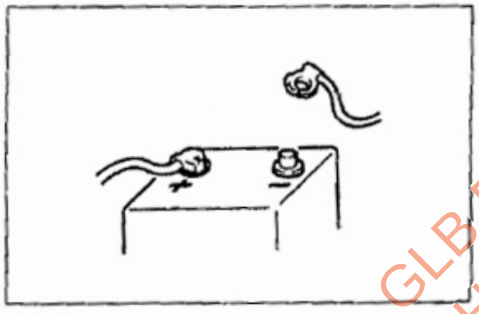
CONTENTS

GENERAL DESCRIPTION

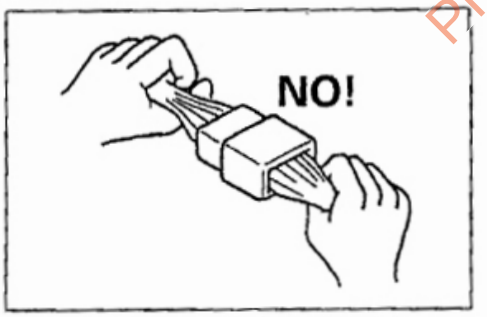
The body electrical components of this vehicle are designed to operate on 12 Volts power supplied by the battery. The electrical system utilizes negative ground polarity.

CAUTIONS IN SERVICING

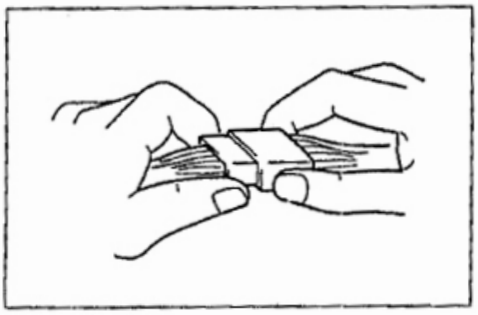
When performing works related to electric systems, observe following cautions for the purpose of protection of electrical parts and prevention of a fire from occurrence.



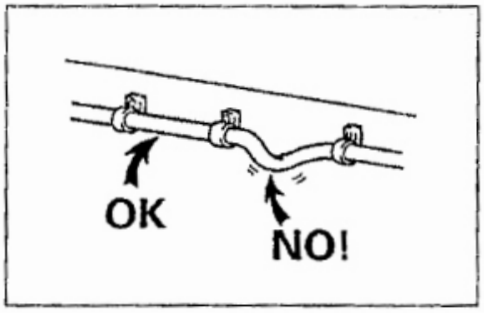
- When removing the battery from the vehicle or disconnecting the cable from the battery terminals for inspection or service works on the electric systems, always confirm first that the ignition switch and all the other switches have been turned OFF. Otherwise, the semi-conductor part may be damaged.
- When disconnecting cables from the battery, be sure to disconnect the one from the negative (–) terminal first and then the other from the positive (+) terminal.
- Reverse the above order when connecting the cables to the battery terminals.



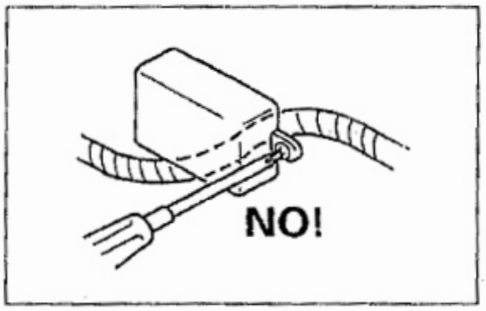
- When disconnecting connectors, never pull the wiring harnesses. Unlock the connector lock first and then pull them apart by holding connectors themselves.



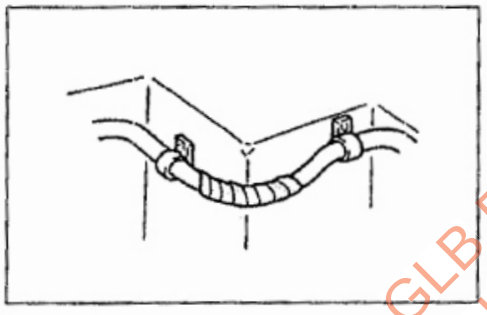
- When connecting connectors, also hold connectors and push them together until they lock securely (a click is heard).



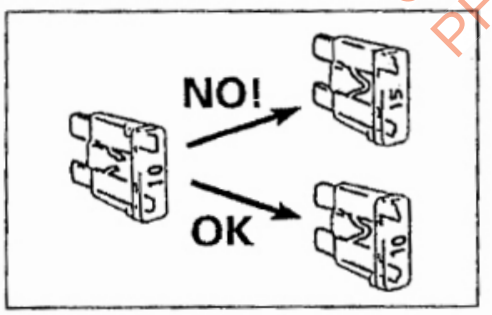
- When installing the wiring harness, fix it with clamps so that no slack is left.



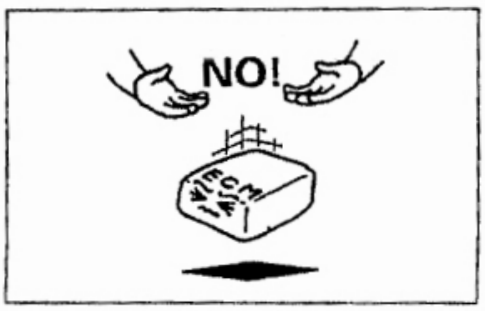
- When installing vehicle parts, be careful so that the wiring harness is not interfered with or caught by any other part.



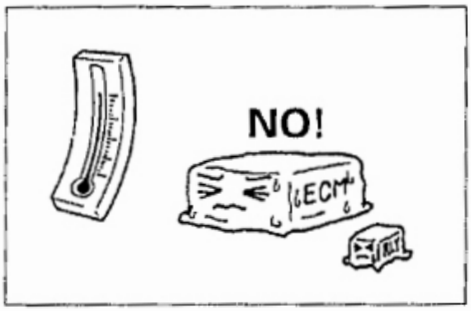
- To avoid damage to the harness, protect its part which may contact against a part forming a sharp angle by winding tape or the like around it.



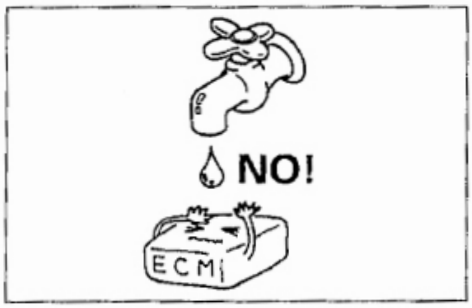
- When replacing a fuse, make sure to use a fuse of the specified capacity. Use of a fuse with a larger capacity will cause a damage to the electrical parts and a fire.



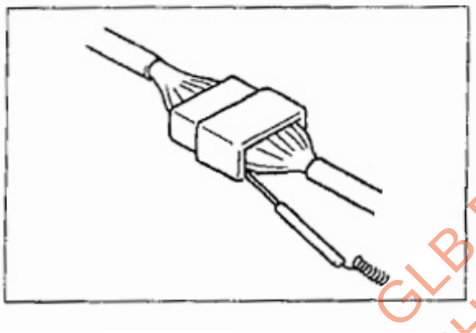
- Always be careful not to handle electrical parts (computer, relay, etc.) in a rough manner or drop them.



- When performing a work that produces a heat exceeding 80°C in the vicinity of the electrical parts, remove the heat sensitive electrical part(s) beforehand.



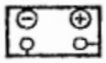
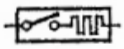
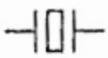
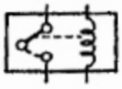
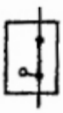
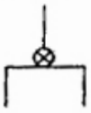
- Use care not to expose connectors and electrical parts to water which will be a cause of a trouble.



- When using a tester for checking continuity or measuring voltage, be sure to insert the tester probe from the wire harness side.

SYMBOLS AND MARKS

In the diagrams of this manual, each equipments are represented by the symbols and marks as shown below.

Battery	Ground		Fuse	Main fuse
				
Circuit breaker	**Coil, Solenoid**	**Heater**	**Bulb**	
				
Cigarette lighter	**Motor**	**Pump**	**Horn**	**Speaker**
				
Buzzer	**Chime**	**Condenser**	**Thermistor**	**Reed switch**
				
Resistance	**Variable resistance**		**Transistor**	
			 NPN	 PNP
Photo transistor	**Diode**	**Reference (zener) diode**	**Light emitting diode**	**Photo diode**
				
Piezoelectric element	**Harness**		**Relay**	
	 (Connected)	 (Not connected)	 Normal open relay	 Normal closed relay
Connector	**Switch**		**"O" Type terminal**	
				

ABBREVIATIONS

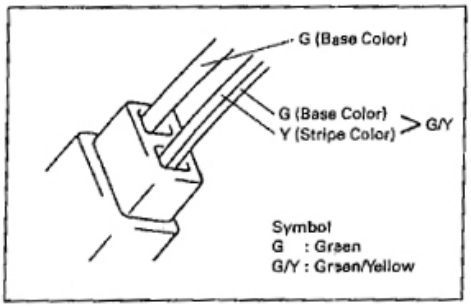
Listed below are the abbreviations as used in this manual and their full terms.

Abbreviation	Full term	Abbreviation	Full term
2WD	2 Wheel Drive vehicles	IG	Ignition
4WD	4 Wheel Drive vehicles	ILL	Illumination
A/C	Air Conditioning	IND	Indicator
ACC	Accessory	J/B	Junction/Fuse Block
CAMI	Vehicles assembled at CAMI plant in Canada	J/C	Joint Connector
CKP	Crankshaft Position	KOSAI	Vehicles assembled at KOSAI plant in Japan
CMP	Camshaft Position	LH	Left Hand
DLC	Data Link Connector	LO	Low
DRL	Daytime Running Light (If equipped)	MAP	Manifold Absolute Pressure
ECT	Engine Coolant Temperature	PSP	Power Steering Pressure
EFE	Early Fuel Evaporation	RH	Right Hand
EGR	Exhaust Gas Recirculation	SDM	Sensing and Diagnostic Module
F/L	Fusible Link	SEDAN	SEDAN model
HATCH-BACK	HATCH-BACK model	ST	Starter
HI	High	TCC	Torque Converter Clutch
IAC	Idle Air Control	VSS	Vehicle Speed Sensor
IAT	Intake Air Temperature		

WIRE COLOR SYMBOLS

The wire color is abbreviated to the first (or first two) alphabet(s) of each color.

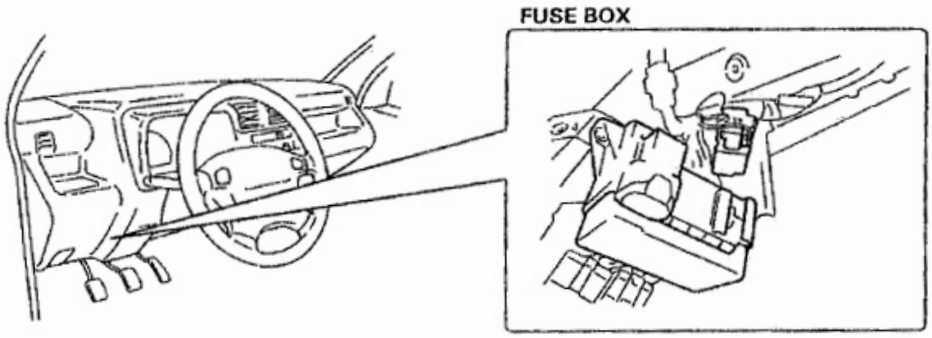
Symbol	Wire Color	Symbol	Wire Color
B	Black	O	Orange
Bl	Blue	R	Red
Br	Brown	W	White
G	Green	Y	Yellow
Gr	Gray	P	Pink
Lbl	Light blue	V	Violet
Lg	Light green		

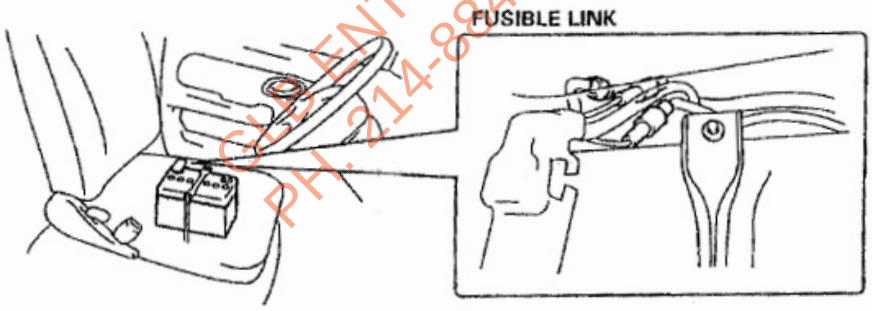


There are two kinds of colored wire used in this vehicle. One is single-colored wire and the other is dual-colored (striped) wire.
The single-colored wire uses only one color symbol (i.e. "G"). The dual-colored wire uses two color symbols (i.e. "G/Y"). The first symbol represents the base color of the wire ("G" in the figure) and the second symbol represents the color of the stripe ("Y" in the figure).

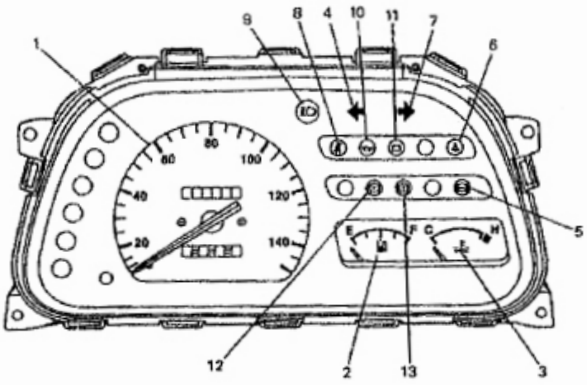
FUSE BOX AND RELAY

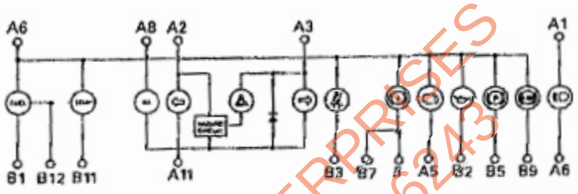
FUSE BOX





COMBINATION METER

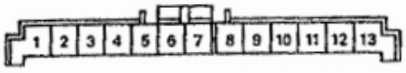




NOTE:
Terminal arrangement viewed from the harness side.

Coupler A

Coupler B

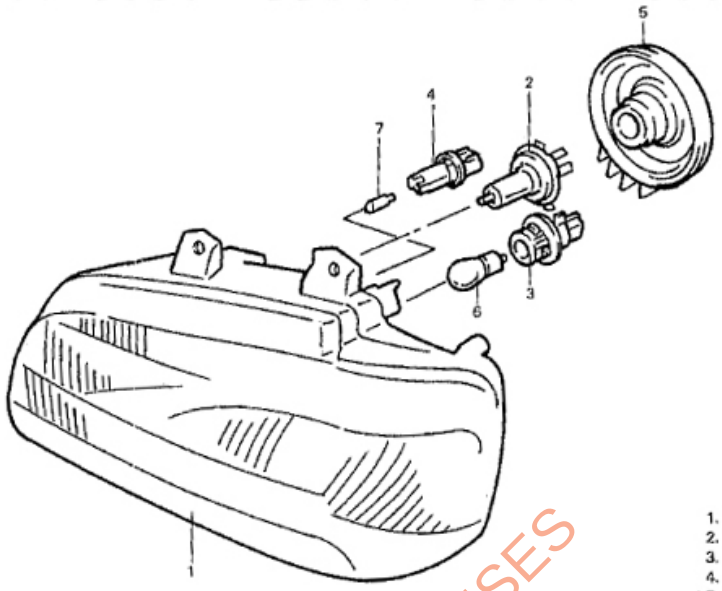


1. Speedometer
2. Fuel lever meter
3. Water temperature meter
4. Turn signal pilot light (LH)
5. ABS warning light (if equipped)
6. Hazard pilot light (if equipped)
7. Turn signal pilot light (RH)
8. Faster seat belt light (if equipped)
9. High beam light
10. Oil pressure warning light
11. Charge warning light
12. Parking brake warning light
13. Brake warning light
14. Illumination light

Coupler A		
1.	To fuse box	W/Bl
2.	To combination switch	G/R
3.	To combination switch	G/Y
4.	Blank	-
5.	To generator	W/R
6.	To fuse box	B/W
7.	Blank	-
8.	To combination switch	R/Y
9.	Blank	-
10.	Blank	-
11.	To ground	B
12.	Blank	-
13.	Blank	-
14.	Blank	-
15.	Blank	-
16.	To combination switch	R

Coupler B		
1.	To fuel level gauge	Y/R
2.	To oil pressure switch	Y/B
3.	To seat belt switch	Gr/B
4.	Blank	-
5.	To parking brake switch	V
6.	To brake fluid level switch	R/B
7.	To ignition switch	Br/B
8.	Blank	-
9.	To ABS controller	R/Bl
10.	Blank	-
11.	To ECT sensor	Y/W
12.	To ground	B/Y
13.	Blank	-

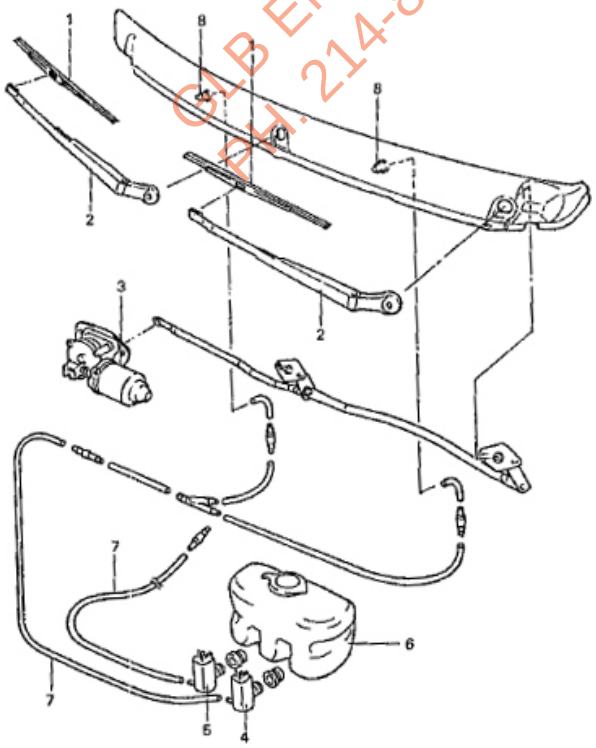
HEADLIGHT



1. Headlight assembly
2. Halogen bulb
3. Turn signal light socket
4. Position light socket
5. Socket cover
6. Turn signal light bulb
7. Position light bulb

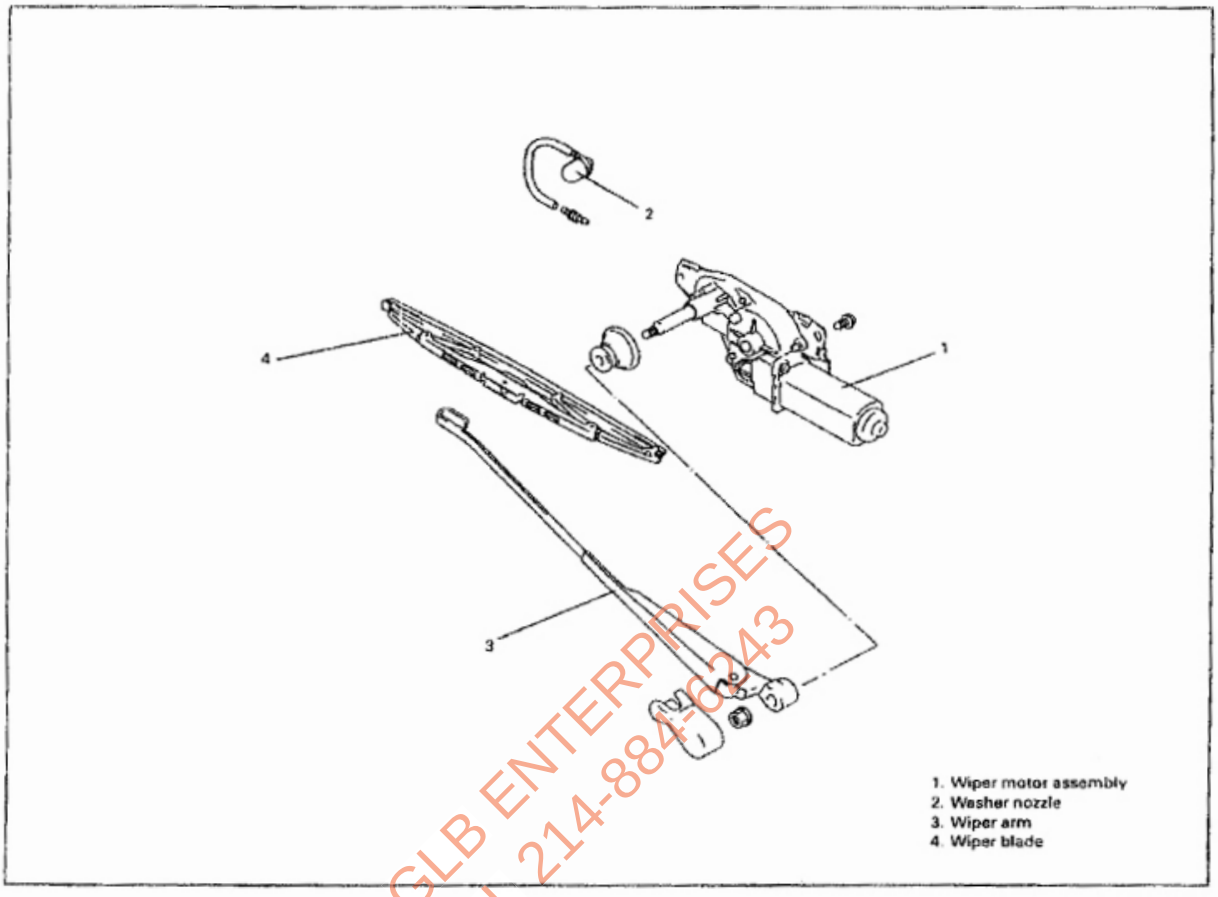
WINDSHIELD WIPER

FRONT WIPER



1. Wiper blade
2. Wiper arm
3. Wiper motor
4. Washer pump (for front washer)
5. Washer pump (for rear washer)
6. Washer tank
7. Washer hose
8. Washer nozzle (front)

REAR WIPER (IF EQUIPPED)



DIAGNOSIS

HEADLIGHT

Trouble	Possible Cause	Correction
Headlights do not light up	Bulb blown	Check bulb
	Headlight switch faulty	Check headlight switch
	HEAD R and L fuses blown	Check fuses and replace as necessary (If replace, check short circuit)
	Wiring or grounding faulty	Repair circuit
Only one headlight does not light up	Bulb blown	Check bulb
	HEAD R or L fuse blown	Check fuse and replace as necessary
	Headlight switch faulty	Check headlight switch
	Wiring or grounding faulty	Repair circuit

FRONT FOG LIGHT (IF EQUIPPED)

Trouble	Possible Cause	Correction
Front fog lights do not light up	Bulb blown	Check bulb
	FOG fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Front fog light switch faulty	Check front fog light switch
	Front fog light relay faulty	Check relay
	Headlight switch faulty	Check switch
	Wiring or grounding faulty	Repair circuit
Only one headlight does not light up	Bulb blown	Check bulb
	Wiring or grounding faulty	Repair circuit

TURN SIGNAL AND HAZARD WARNING LIGHTS

Trouble	Possible Cause	Correction
Flash rate high or one side only flashes	Bulb blown on "flash rate high"-side	Check bulb
	Incorrect bulb	Check bulb
	Turn signal/hazard warning relay faulty	Check relay
	Open circuit or high resistance existing between turn signal/hazard warning switch and light on one side	Repair circuit
	Wiring or grounding faulty	Repair circuit
No flashing	HAZARD HORN and/or	Check fuse and replace as necessary (If replace, check short circuit)
	TURN BACK fuse blown	
	Open circuit or high resistance existing between battery and switch	Check bulb and check circuit
	Turn signal/hazard relay faulty	Check relay
	Combination switch and/or hazard switch faulty	Check switch
Flash rate low	Supply voltage low	Check charging system
	Turn signal/hazard relay faulty	Check relay

CLEARANCE, TAIL AND LICENSE PLATE LIGHTS

Trouble	Possible Cause	Correction
All lights do not light up	Bulb(s) blown	Check bulb
	TAIL•STOP fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Wiring or grounding faulty	Repair circuit
Some lights do not light up	Bulb(s) blown	Check bulb
	Wiring or grounding faulty	Repair circuit

BACK-UP LIGHT

Trouble	Possible Cause	Correction
Back-up lights do not light up	Bulb(s) blown	Check bulb
	TURN BACK fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Back-up light switch faulty	Check switch
	Wiring or grounding faulty	Repair circuit
Back-up lights stay on	Back-up light switch faulty	Check or replace switch

BRAKE LIGHTS

Trouble	Possible Cause	Correction
Brake lights do not light up	Bulb(s) blown	Check bulb
	TAIL STOP fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Brake light switch faulty	Check switch
	Wiring or grounding faulty	Repair circuit
Brake lights stay on	Brake light switch faulty	Check, adjust or replace switch

REAR FOG LIGHT (IF EQUIPPED)

Trouble	Possible Cause	Correction
Rear fog light does not light up	Bulb blown	Check bulb
	FOG fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Rear fog light switch faulty	Check rear fog light switch
	Headlight switch faulty	Check switch
	Wiring or grounding faulty	Repair circuit

FUEL METER AND FUEL GAUGE UNIT

Trouble	Possible Cause	Correction
Fuel meter shows no operation	IG COIL METER fuse blown	Check fuse (If replace, check short circuit)
	Fuel gauge unit	Check fuel gauge unit
	Fuel meter	Check fuel meter
	Wiring or grounding	Repair circuit

ENGINE COOLANT TEMP. (ECT) METER AND ECT SENSOR

Trouble	Possible Cause	Correction
Engine coolant temp. meter shows no operation	IG COIL METER fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	ECT meter faulty	Check ECT meter
	ECT sensor faulty	Check ECT sensor
	Wiring or grounding faulty	Repair circuit

OIL PRESSURE LIGHT

Trouble	Possible Cause	Correction
Oil pressure warning light does not light up when ignition switch is on at engine off	Bulb in combination meter blown	Check bulb
	IG COIL METER fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Combination meter wiring circuit faulty	Check combination meter wiring circuit
	Oil pressure switch faulty	Check oil pressure switch
	Wiring or grounding faulty	Repair circuit

BRAKE AND PARKING BRAKE WARNING LIGHT

Trouble	Possible Cause	Correction
Brake warning light does not light up when fluid low level	Bulb in combination meter blown	Check bulb
	IG COIL METER fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Combination meter wiring circuit faulty	Check combination meter wiring circuit
	Brake fluid level switch faulty	Check brake fluid level switch
	Wiring or grounding faulty	Repair circuit
Brake warning light does not light up when cranking (when ignition switch at ST position)	Ignition switch faulty	Check ignition switch
	Combination meter wiring circuit faulty	Check combination meter wiring circuit
	Wiring or grounding faulty	Repair circuit
Parking brake warning light does not light up	Bulb in combination meter blown	Check bulb
	IG COIL METER fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Combination meter wiring circuit faulty	Check combination meter wiring circuit
	Parking brake switch faulty	Check parking brake switch
	Wiring or grounding faulty	Repair circuit

SEAT BELT WARNING LIGHT

Trouble	Possible Cause	Correction
Seat belt warning light does not light up	Bulb in combination meter blown	Check bulb
	Seat belt switch faulty	Check seat belt switch
	IG COIL METER fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Wiring or grounding faulty	Repair circuit

REAR WINDOW DEFOGGER (IF EQUIPPED)

Trouble	Possible Cause	Correction
Defogger does not operate	REAR DEFG fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Heat wire faulty	Check heat wire
	Rear window defogger switch faulty	Check switch
	Wiring or grounding faulty	Repair circuit

WINDSHIELD WIPER AND WASHER
FRONT WIPER AND WASHER
REAR WIPER AND WASHER (IF EQUIPPED)

Trouble	Possible Cause	Correction
Wiper malfunctions or does not return to its original position	WIPER WASHER fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Wiper motor faulty	Check wiper motor
	Wiper switch (combination switch) faulty	Check wiper switch
	Wiring or grounding faulty	Repair circuit
Washer malfunctions	Washer hose or nozzle clogged	Clean or repair clogged hose or nozzle
	Washer motor faulty	Check washer motor
	Wiper switch (combination switch) faulty	Check wiper switch
	Wiring or grounding faulty	Repair circuit

POWER WINDOW CONTROL SYSTEM (IF EQUIPPED)

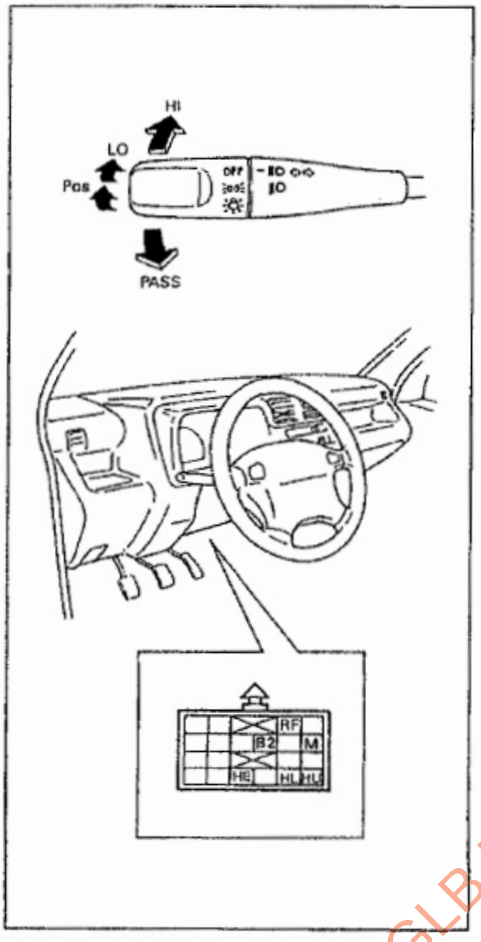
Trouble	Possible Cause	Correction
All power windows do not operate	Power window fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Ignition (main) switch faulty	Check ignition (main) switch
	Power window switch faulty	Check power window switch
	Wiring or grounding faulty	Repair circuit
Only one power window does not operate	Wiring and/or coupler faulty	Check wiring and/or coupler
	Power window switch (main or sub) faulty	Check power window switch
	Window actuator faulty	Check window actuator
	Window lock switch faulty	Check window lock switch
	Grounding faulty	Repair

CIGARETTE LIGHTER

Trouble	Possible Cause	Correction
Cigarette lighter shows no operation	RADIO CIGAR fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Ignition switch faulty	Check ignition switch
	Cigarette lighter faulty	Check cigarette lighter
	Wiring or grounding faulty	Repair circuit

INTERIOR LIGHTS

Trouble	Possible Cause	Correction
Interior lights do not light up	Bulbs blown	Replace
	TAIL STOP fuse blown	Check fuse and replace as necessary (If replace, check short circuit)
	Interior light switch faulty	Check switch
	Door switch faulty	Check switch
	Wiring or grounding	Repair
One of interior light does not light up	Bulb blown	Replace
	Interior light switch faulty	Check switch
	Door switch faulty	Check switch
	Wiring or grounding	Repair



ON-VEHICLE SERVICE

HEADLIGHT

HEADLIGHT SWITCH

INSPECTION

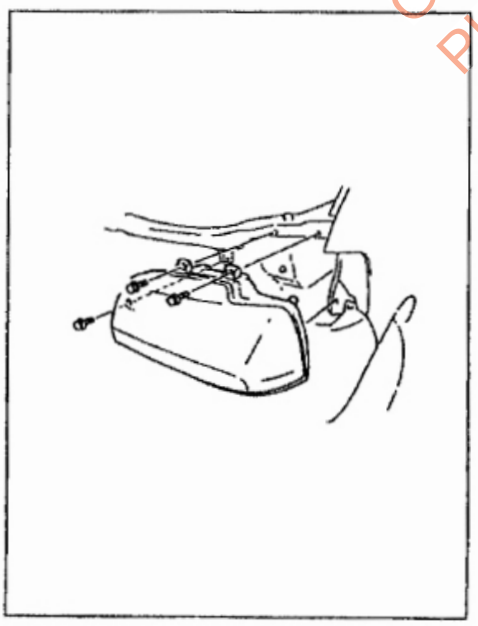
1) Disconnect negative (-) cable at battery.
2) Disconnect combination switch lead wire couplers from junction/fuse block.
3) Use a circuit tester to check the continuity at each switch position shown below.

Switch Position \ Terminal / Wire Color	HE	HU	HL	RF
	B	R	R/W	G/B
Passing	○—○			
Low Beam			○—○	
High Beam		○—	—○	

Switch Position \ Terminal / Wire Color	HE	RF	B2	M
	B	G/B	W	R/Y
OFF				
			○—○	
	○—○		○—	—○

REMOVAL AND INSTALLATION

Refer to COMBINATION SWITCH, STEERING COLUMN AND STEERING LOWER SHAFT in Section 3C (for vehicle without air bag system) or Section 3C1 (for vehicle with air bag system) for details.



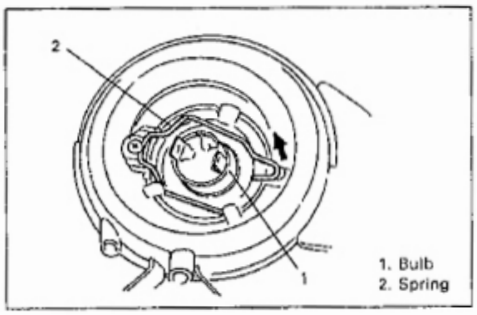
HEADLIGHT

REMOVAL

1) Disconnect negative cable at battery.
2) Remove headlight mounting bolts.
3) Detach headlight assembly from vehicle.
4) Disconnect couplers from headlight assembly.
5) Remove headlight assembly.

INSTALLATION

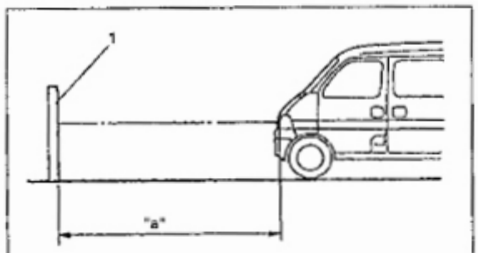
Reverse removal procedure for installation.



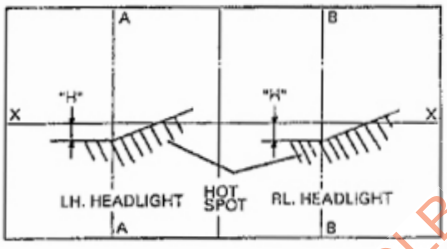
BULB REPLACEMENT

WARNING:
Don't touch when the bulb is hot.

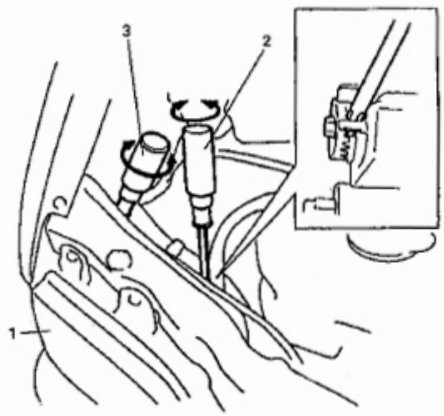
1) Disconnect negative (–) cable at battery.
2) Disconnect harness from bulb.
3) Remove socket cover and bulb.
4) Replace bulb and assemble all removed parts.



1. Screen



X - X: Horizontal center light of headl ghts
A - A: Vertical center line of left headlight
B - B: Vertical center line of right headlight



1. Headlight ass'y
2. Aiming (for right/left adjustment)
3. Aiming (for up/down adjustment)

HEADLIGHT AIMING WITH SCREEN

NOTE:

- **Unless otherwise obligated by local regulations, adjust headlight aiming according to following procedure.**
- **After replacing headlight, be sure to adjust aiming.**

Before adjustment, make sure the following.

a) Place vehicle on a flat surface in front of blank wall (screen) ahead of headlight surface.

Clearance "a": 10 m (32.8 ft.)

b) Adjust air pressure of all tires to a specified value respectively.
c) Bounce vehicle body up and down by hand to stabilize suspension.
d) Carry out with one driver aboard.

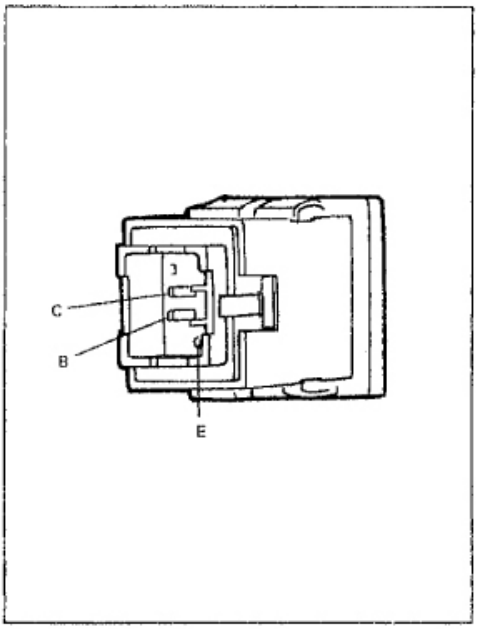
Driver's weight: 75 kg (165 lb)

Adjustment

1) Check to see if hot spot (high intensity zone) of each main (low) beam axis falls as illustrated.

Clearance "H": Approx. 130 mm (5.15 in.)

2) If headlight aiming is not set properly, align it to specification by adjusting aiming screw and aiming gear.



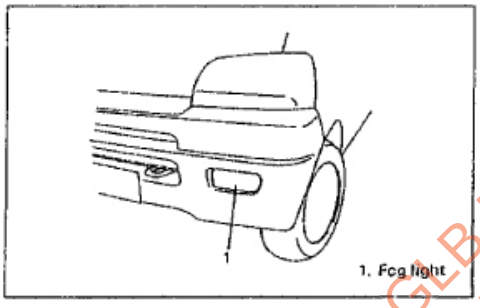
FRONT FOG LIGHT (IF EQUIPPED)

FRONT FOG LIGHT SWITCH

INSPECTION

Use a circuit tester to check switch for continuity between each terminals shown below.

Switch Position \ Terminal	C	B	E
OFF		○	○
ON	○	○	○



1. Fog light

FRONT FOG LIGHT

REMOVAL

1) Remove head light.
2) Remove front bumper.
3) Disconnect fog light coupler.
4) Remove fog light assembly from bumper.

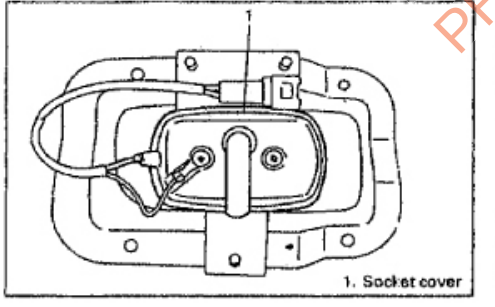
INSTALLATION

Reverse removal procedure for installation.

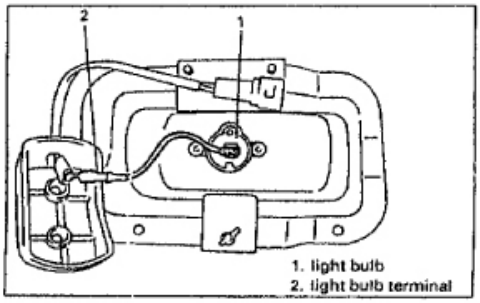
BULB REPLACEMENT

WARNING:
Don't touch when the bulb is hot.

1) Disconnect negative (–) cable at battery.
2) Remove head light.
3) Remove front bumper.
4) Disconnect fog light coupler.
5) Remove socket cover and disconnect wire terminal.



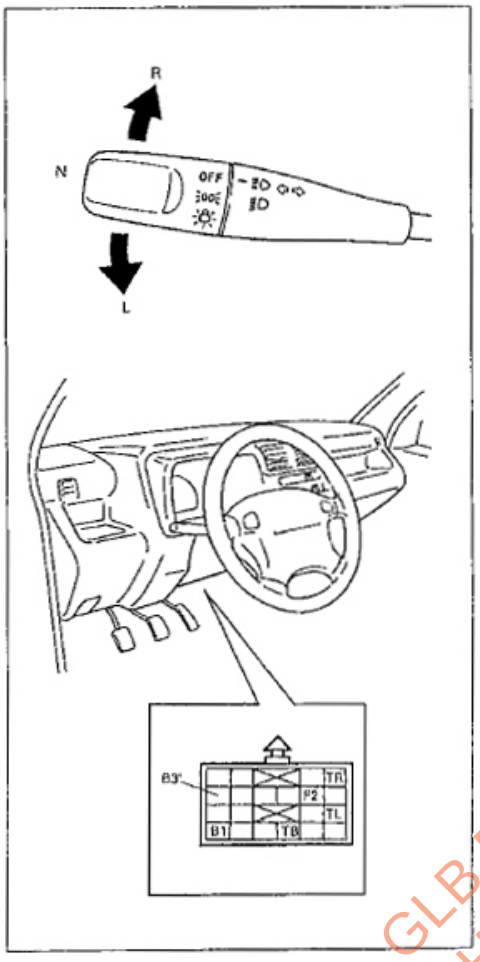
1. Socket cover



1. light bulb
2. light bulb terminal

4) Remove screw fixing light bulb, then remove light bulb from fog light assembly.
5) Replace light bulb and assemble all removed parts.

NOTE:
Make sure to cover light bulb terminal.



TURN SIGNAL AND HAZARD WARNING LIGHT

TURN SIGNAL LIGHT SWITCH

INSPECTION

1) Disconnect negative (–) cable at battery.
2) Disconnect combination switch lead wire coupler.
3) Use a circuit tester to check the continuity at each switch position shown below.

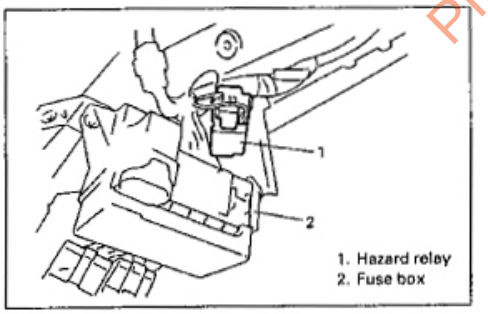
Terminal / Wire Color		TL	TB	TR	B3'	B1	F2
Hazard SW / Turn Signal SW		G/R	G	G/Y	Y	Y/Bl	W/G
OFF	L	○—○			○—○		
	N						
	R		○—○	○—○			
ON		○—○	○—○	○—○		○—○	

REMOVAL AND INSTALLATION

Refer to COMBINATION SWITCH, STEERING COLUMN AND STEERING LOWER SHAFT in Section 3C (for vehicle without air bag system) or Section 3C1 (for vehicle with air bag system) for details.

HAZARD RELAY

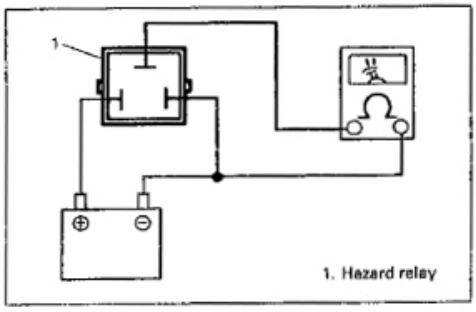
The turn signal/hazard relay is located near the fuse box.



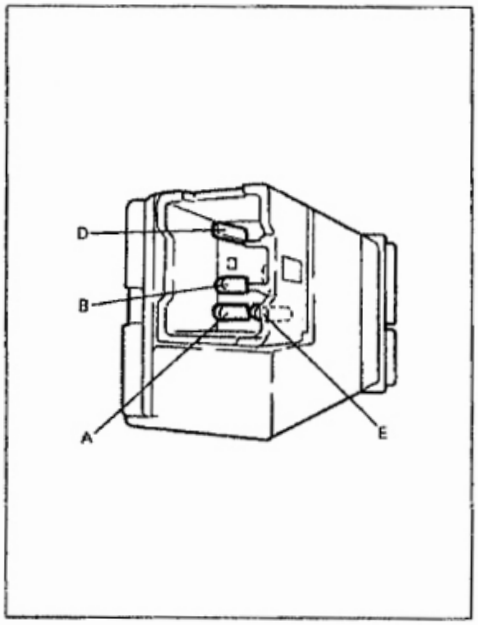
1. Hazard relay
2. Fuse box

INSPECTION

Connect battery and tester as shown left.
Unless a continued click sound is heard, replace relay.



1. Hazard relay



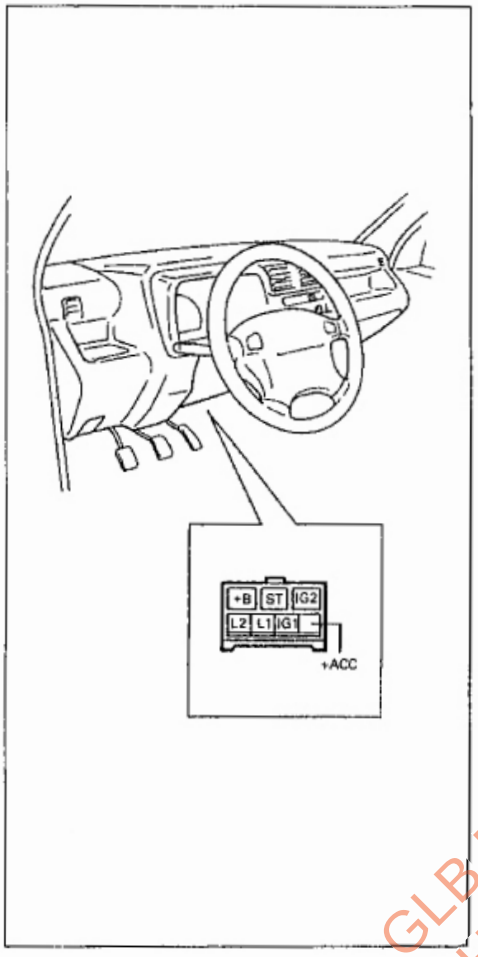
REAR FOG LIGHT (IF EQUIPPED)

REAR FOG LIGHT SWITCH

INSPECTION

Use a circuit tester to check switch for continuity between terminals shown below.

RR FOG SW / OFF SW / TERMINAL		B	E	D	A
FREE	FREE				
	PUSH				
PUSH	FREE				
	PUSH				



IGNITION SWITCH

INSPECTION

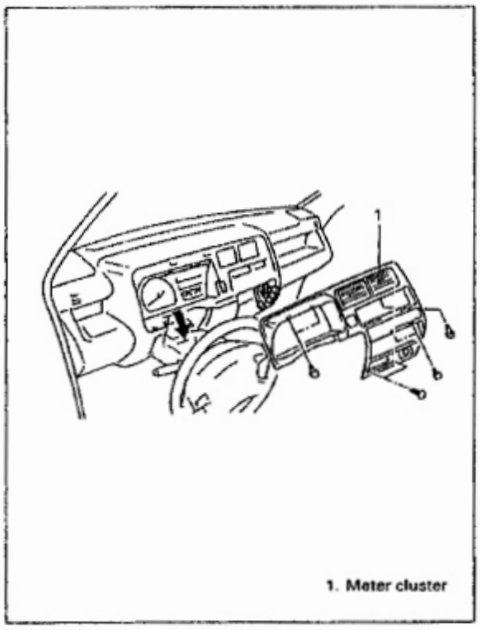
1) Disconnect negative cable at battery.
2) Disconnect ignition switch lead wire coupler.
3) Use a circuit tester to check the continuity at each switch position. If any continuity is not obtained, replace main switch.

Terminal / Wire color / key / Position		+B	+ACC	IG1	IG2	ST	L1	L2
		W/G	BI	B/BI	Y/B	B/Y	Br/B	B
OUT	LOCK	○						
IN	ACC	○—○						
	ON	○—○	○—○	○—○				
	START	○	○	○		○	○—○	

ACC : Accessory

REMOVAL AND INSTALLATION

Refer to STEERING LOCK (IGNITION SWITCH) in Section 3C (for vehicle without air bag system) or Section 3C1 (for vehicle with air bag system) for details.

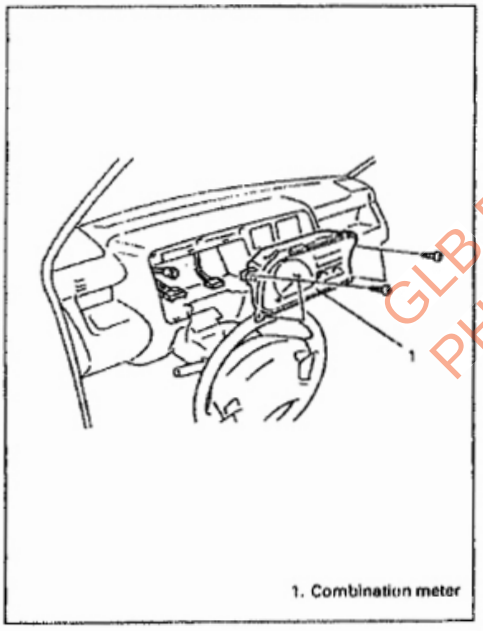


1. Meter cluster

COMBINATION METER

REMOVAL

1) Disconnect negative cable at battery.
2) Loosen steering column mounting bolts. (Refer to Section 3C, 3C1.)
3) Remove meter cluster panel. Make sure to disconnect all couplers of switches and wires of cigarette lighter on meter cluster.

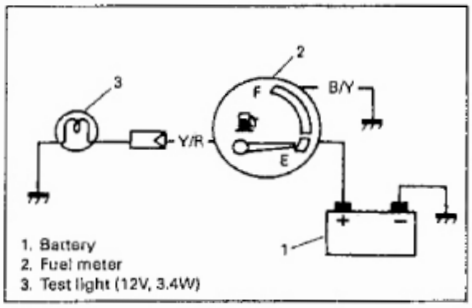


1. Combination meter

4) Detach speedometer cable and disconnect couplers from combination meter.
   Remove combination meter.

INSTALLATION

Reverse removal procedure for installation.



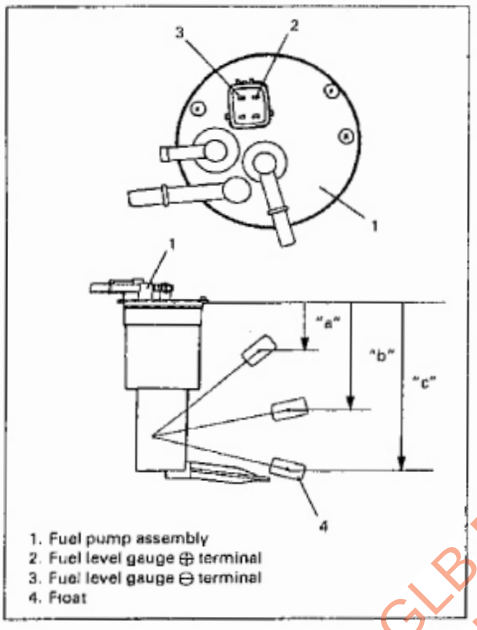
1. Battery
2. Fuel meter
3. Test light (12V, 3.4W)

FUEL METER/FUEL GAUGE UNIT

FUEL LEVEL METER

INSPECTION

1) Remove rear seat and peel rear end of the carpet.
2) Disconnect Y/R lead wire going to gauge unit.
3) Use a bulb (12V 3.4W) in position to ground lead wire as illustrated.
4) Turn ignition switch ON.
   Make sure that bulb is lighted with meter pointer fluctuating several seconds thereafter. If meter is faulty, replace.



1. Fuel pump assembly
2. Fuel level gauge ⊕ terminal
3. Fuel level gauge ⊖ terminal
4. Float

FUEL SENDER GAUGE

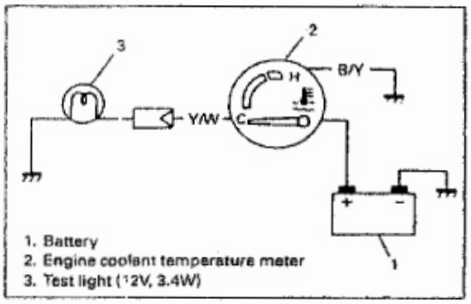
INSPECTION

Remove fuel pump assembly referring to Section 6C of this manual.

Use an ohmmeter to confirm that resistance of sender gauge unit changes with change of float position.

Float Position		Resistance (Ω)	
"a"	102.3 mm (4.03 in.)	F	2 - 4
"b"	156.9 mm (6.20 in.)	1/2	29.5 - 35.5
"c"	218.5 mm (8.60 in.)	E	117 - 123

If the measured value is out of specification, replace.



1. Battery
2. Engine coolant temperature meter
3. Test light (12V, 3.4W)

ENGINE COOLANT TEMPERATURE METER AND SENSOR UNIT

ENGINE COOLANT TEMPERATURE METER

INSPECTION

1) Disconnect Y/W lead wire going to sender gauge installed to thermostat case.
2) Use a bulb (12V 3.4W) in position to ground wire as illustrated.
3) Turn main switch ON. Confirm that bulb is lighted with meter pointer fluctuating several seconds thereafter.
   If not, replace.

ENGINE COOLANT TEMPERATURE SENSOR

REMOVAL

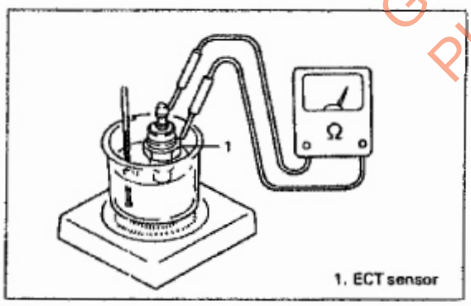
WARNING:
- **Make sure that engine coolant temperature is cold before removing any part of cooling system.**
- **Also be sure to disconnect negative cable from battery terminal before removing any part.**

1. ECT sensor
2. Radiator cap

1) Drain coolant.
2) Remove air cleaner ass'y.
3) Remove engine coolant temperature sensor.

INSPECTION

Warm up sender gauge. Thus make sure its resistance is decreased with increase of its temperature.



1. ECT sensor

Temperature	Resistance
50°C (122°F)	190 - 260 Ω
115°C (239°F)	24.2 - 28.1 Ω

INSTALLATION

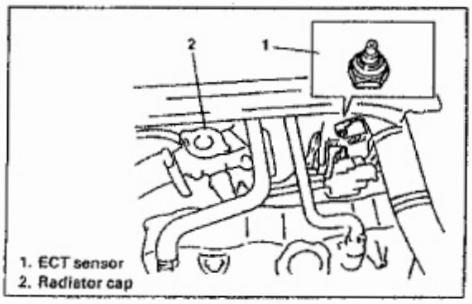
Reverse removal procedure for installation noting the following:

Apply sealant to the thread of ECT sensor.

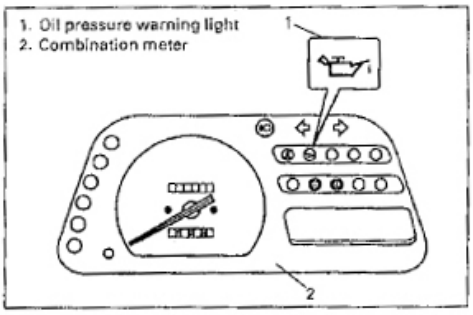
(A) : Sealant 99000 - 31150

Tightening Torque

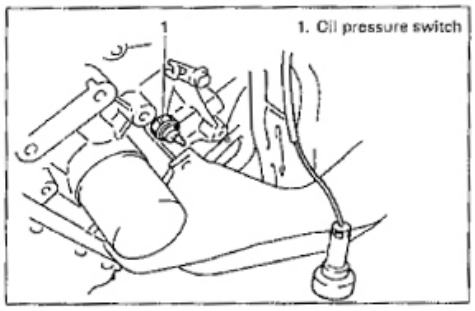
(a) : 8 N·m (0.8 kg-m, 6.0 lb-ft)

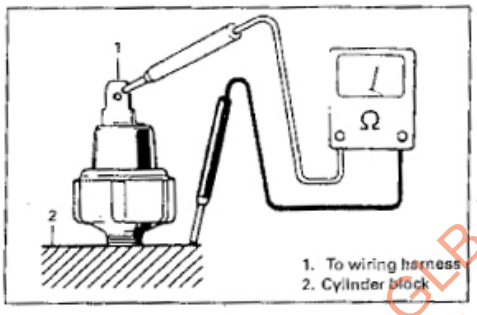


1. ECT sensor
2. Radiator cap



OIL PRESSURE WARNING LIGHT





OIL PRESSURE SWITCH

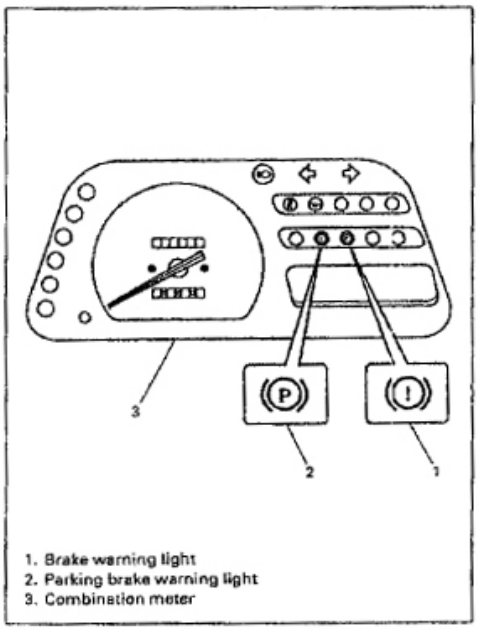
INSPECTION

Use an ohmmeter to check switch continuity.

During Engine Running	No continuity (∞ Ω)
At Engine Stop	Continuity (0 Ω)

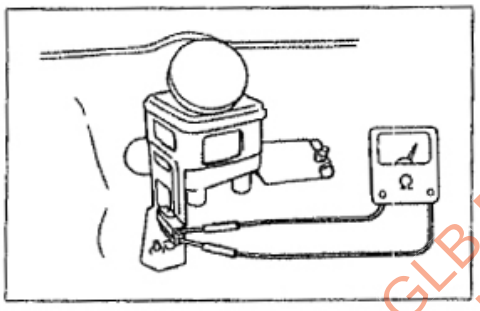
REMOVAL AND INSTALLATION

Refer to Section 6A OIL PRESSURE CHECK in this manual.



1. Brake warning light
2. Parking brake warning light
3. Combination meter

BRAKE AND PARKING BRAKE WARNING LIGHT

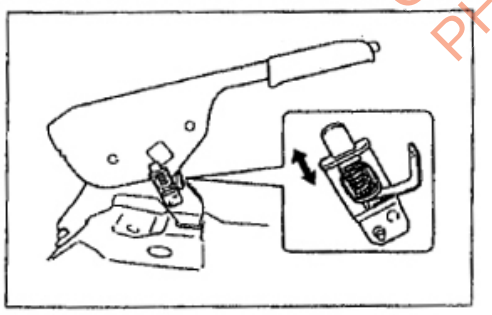


INSPECTION

- BRAKE FLUID LEVEL SWITCH

  Use an ohmmeter to check switch for continuity.
  If found defective, replace switch.

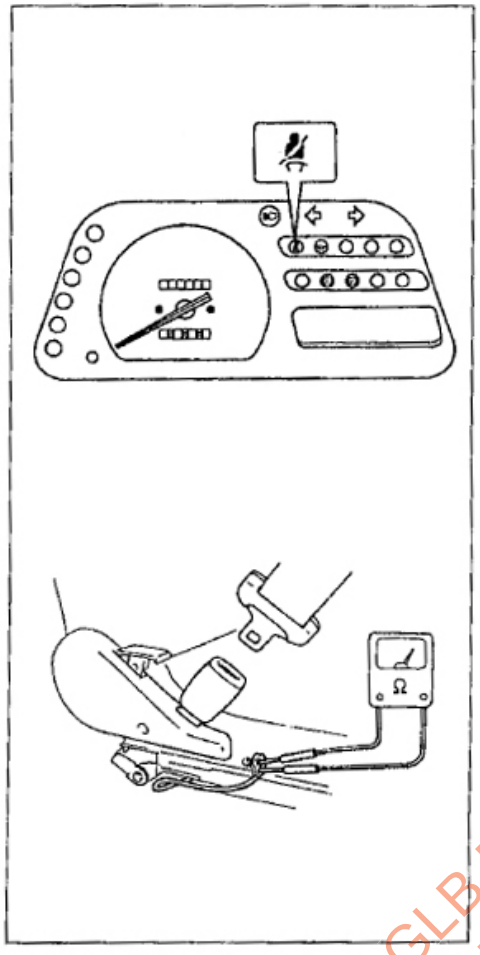
OFF position (float up)	No continuity
ON position (float down)	Continuity



- PARKING BRAKE SWITCH

  Use an ohmmeter to check switch for continuity.
  If found defective, replace switch.

OFF position (parking brake released)	No continuity
ON position (parking brake lever pulled up)	Continuity



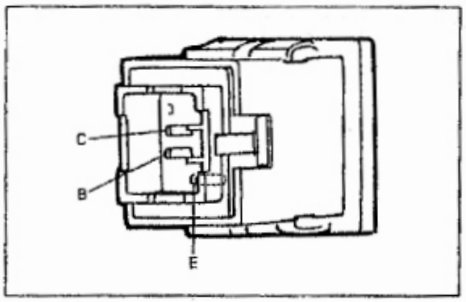
SEAT BELT WARNING LIGHT

SEAT BELT SWITCH

INSPECTION

Use an ohmmeter to check switch for continuity.
If found defective, replace switch.

OFF position (seat belt fastened)	No continuity
ON position (seat belt not fastened)	Continuity



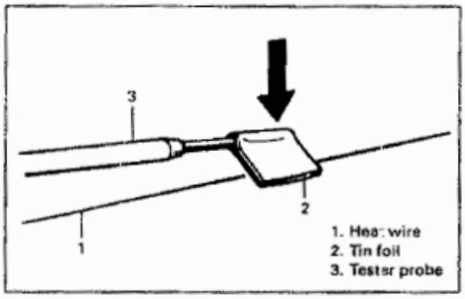
REAR WINDOW DEFOGGER (IF EQUIPPED)

DEFOGGER SWITCH

INSPECTION

Use a circuit tester to check defogger switch for continuity. If switch has no continuity between terminals, replace.

Defogger SW \ Terminal	B	C	E
OFF		○	○
ON	○	○	○

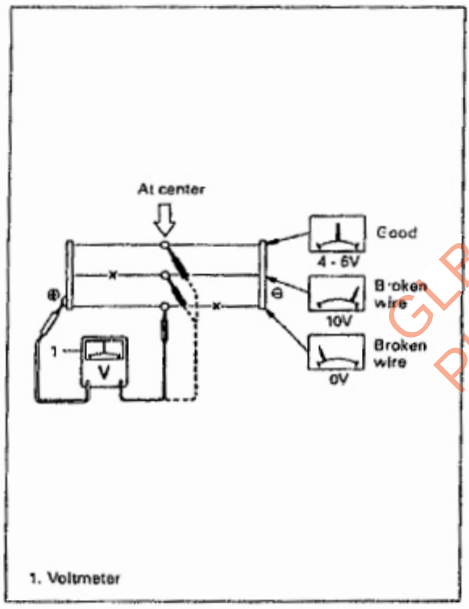


DEFOGGER WIRE

INSPECTION

NOTE:

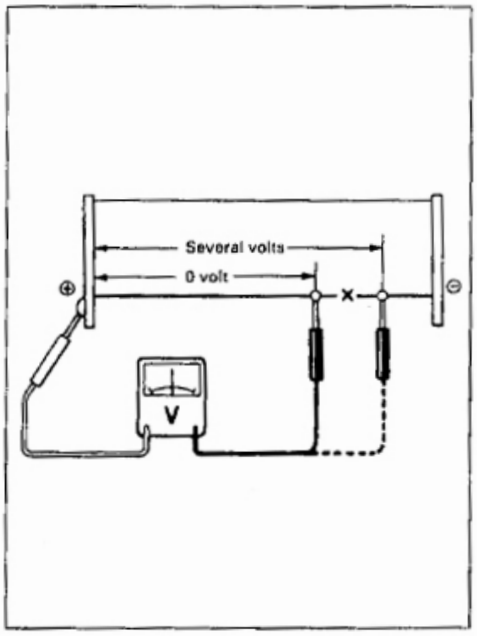
- **When cleaning rear window glass, use a dry cloth to wipe it along wire direction.**
- **When cleaning glass, do not use detergent or abrassive-containing glass cleaner.**
- **When measuring wire voltage, use a tester with negative probe wrapped with a tin foil which should be held down on wire by finger pressure.**



1) Checking wire damage
   a. Turn main switch ON.
   b. Turn defogger switch ON.
   c. Use a voltmeter to check voltage at the center of each heat wire, as shown.

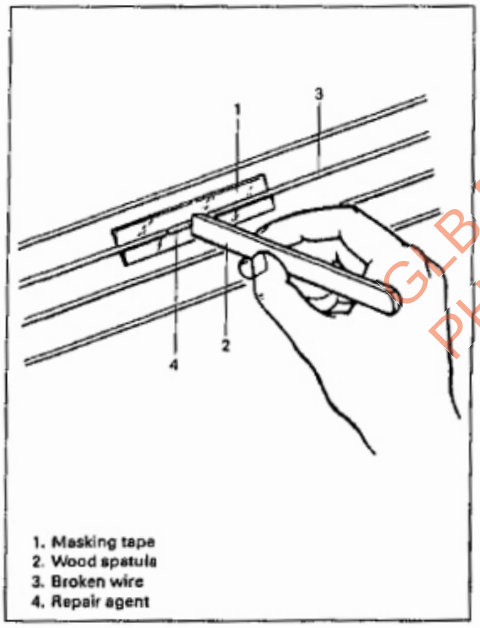
Voltage	Criteria
Approx. 5V	Good (No break in wire)
Approx. 10V or 0V	Broken wire

If measured voltage is 10V, wire must be damaged between its center and positive end. If voltage is zero, wire must be damaged between its center and ground.



2) Locating damage in wire
   a. Touch voltmeter positive (+) lead to heat wire positive terminal end.
   b. Touch voltmeter negative (–) lead with a foil strip to heat wire positive terminal end, then move it along wire to the negative terminal end.
   c. The place where voltmeter fluctuates from zero to several volts is where there is damage.

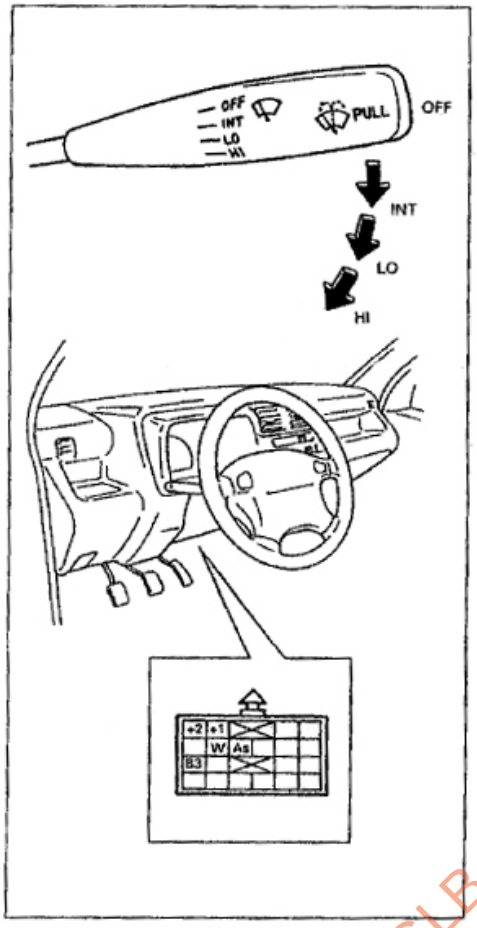
NOTE:
If heat wire is free from damage, voltmeter should indicate 12V at heat wire positive terminal end and its indication should decrease gradually toward zero at the other terminal (ground).



1. Masking tape
2. Wood spatula
3. Broken wire
4. Repair agent

DEFOGGER CIRCUIT REPAIR

1) Use white gasoline for cleaning.
2) Apply masking tape at both upper and lower sides of heat wire to be repaired.
3) Apply commercially-available repair agent with a fine-tip brush.
4) Two to three minutes later, remove masking tapes previously applied.
5) Leave repaired heat wire as it is for at least 24 hours before operating defogger again.



WINDSHIELD WIPERS

FRONT WIPER AND WASHER

FRONT WIPER/WASHER SWITCH

Inspection

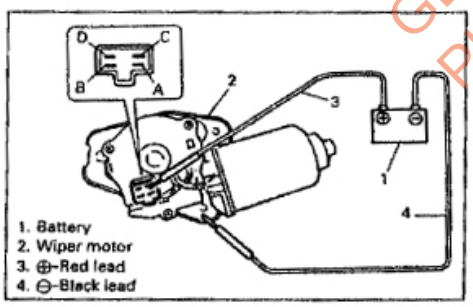
1) Disconnect negative cable at battery.
2) Disconnect combination switch lead wire coupler.
3) Use a circuit tester to check the continuity at each switch position as shown below.

Terminal / Wire Color / Wiper SW	B3	+2	+1	As
	Y/Bl	Bl/R	Bl	Bl/W
OFF			○—○	
INT			○—○	
LO	○——	——	○	
HI	○——	——○		

Terminal / Wire Color / Washer SW	B3	W
	Y/Bl	B/Bl
OFF		
ON	○	○

Removal and Installation

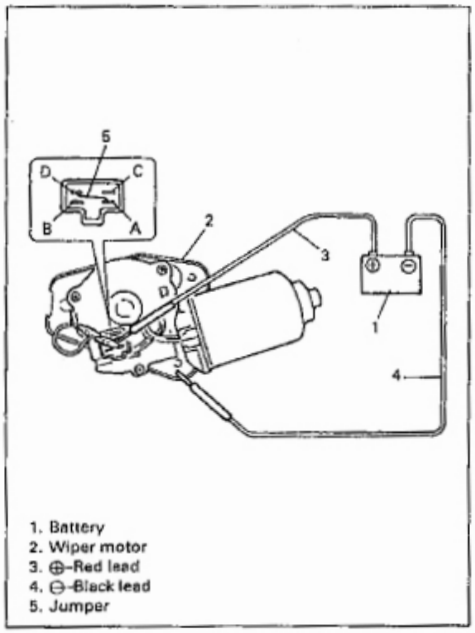
Refer to COMBINATION SWITCH, STEERING COLUMN AND STEERING LOWER SHAFT in Section 3C (for vehicle without air bag system) or Section 3C1 (for vehicle with air bag system) for details.



WIPER MOTOR

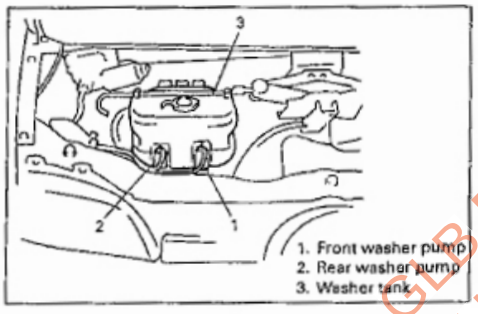
Inspection

1) As illustrated left, have a 12V battery and connect its (+) terminal to terminal "A", and its (−) terminal to bracket (wiper ground). If motor rotates at a low revolution speed of 44 to 52 rpm, it is proper. As for high speed check, connect battery (+) terminal to terminal "B", and its (−) terminal to bracket (wiper ground). If motor rotates at a high revolution speed of 64 to 78 rpm, it is proper.



1. Battery
2. Wiper motor
3. ⊕–Red lead
4. ⊖–Black lead
5. Jumper

2) Testing automatic stop action
   a) Connect 12V battery (+) terminal to terminal "A" of wiper motor and (–) terminal to bracket (wiper ground) and let the motor turn.
   b) Disconnect terminal "A" from battery, and let the motor stop.
   c) Connect terminal "A" and "D" with a jumper wire, and connect terminal "C" to battery (+) terminal. Observe the motor turns once again then stops at a given position.
   d) Repeat a) thru c) several times and inspect if the motor stops at the given position every time.

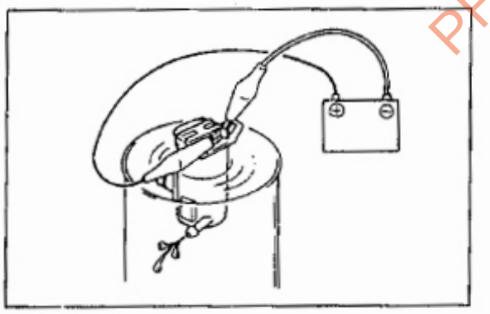


1. Front washer pump
2. Rear washer pump
3. Washer tank

WASHER PUMP

Removal

1) Disconnect battery (–) cable.
2) Remove washer tank fitting screws.
3) Disconnect pump lead wire coupler(s) and hose(s).
4) Remove washer tank.
5) Remove pump from tank.

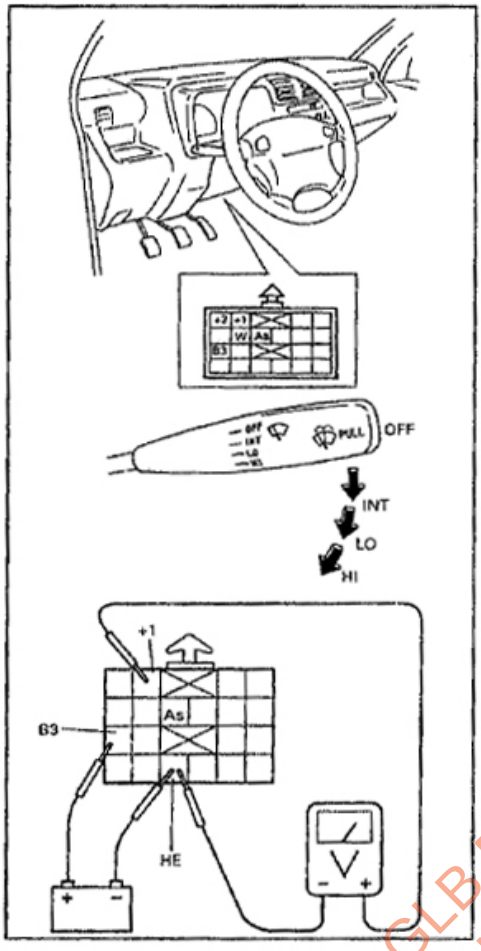


Inspection

Connect battery (+) and (–) terminals to pump (+) and (–) terminals respectively to check pumping rate.
Check for both front and rear washer pump.
Pumping Rate:
Front more than 1.0 l/min (2.1 US pt./min, 1.76 Imp pt./min)
Rear more than 0.72 l/min (1.5 US pt./min, 1.26 Imp pt./min)

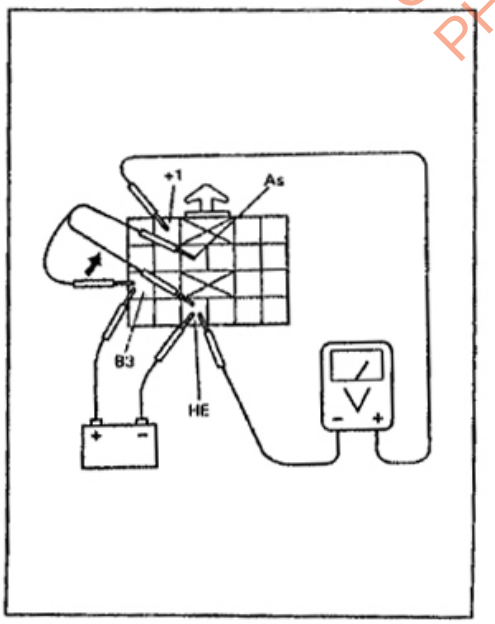
Installation

Reverse removal procedure for installation.

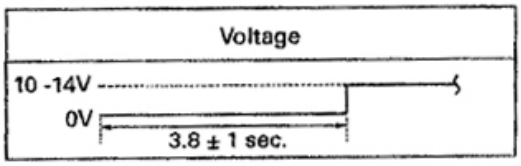


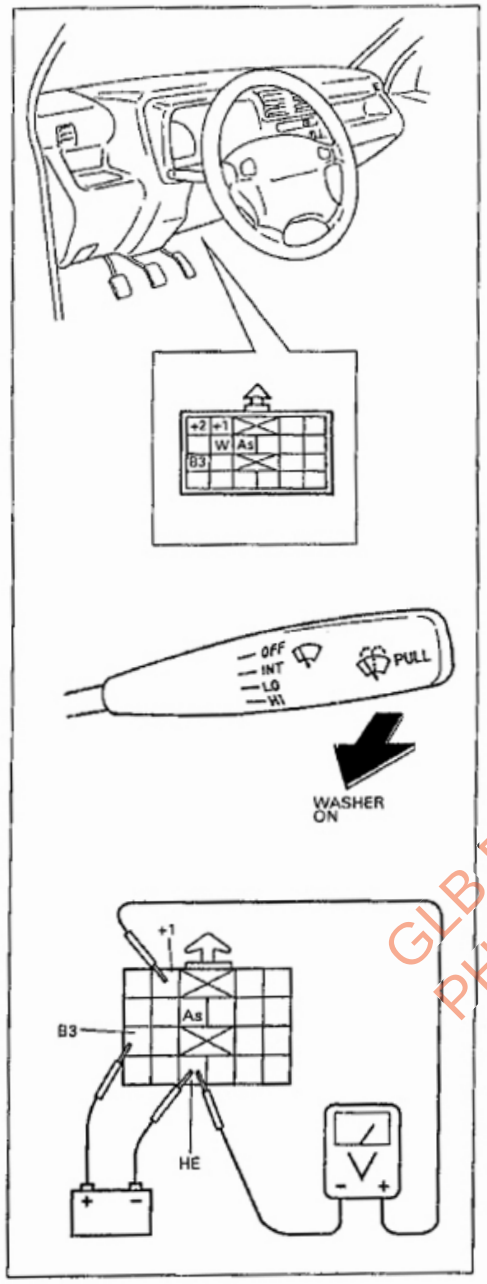
Intermittent Wiper Relay Circuit

1) Disconnect negative cable at battery.
2) Disconnect combination switch lead wire coupler.
3) Turn the front wiper switch to INT position.
4) Connect battery positive terminal to terminal "B3" and battery negative terminal to terminal "HE".
5) Connect voltmeter positive lead to terminal "+1" and negative lead to terminal "HE"
   Check that the voltmeter indicates the battery voltage (10 – 14V).



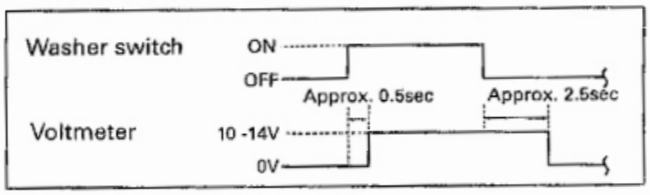
6) Connect terminal "As" and terminal "B3" by a jumper wire. Then connect terminal "B3" end to terminal "HE". Observe the voltmeter voltage drops to 0V right after connecting the jumper wire from terminal "B3'" to "HE". Then the voltage rises to battery voltage (10 – 14 V) within the time shown below.

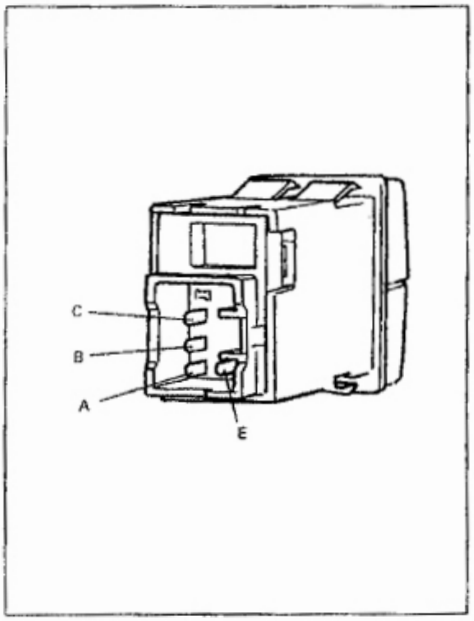




Washer Linked Operation

1) Disconnect negative cable at battery.
2) Disconnect combination switch lead wire coupler.
3) Make sure that front wiper switch is at OFF position.
4) Connect battery positive terminal to terminal "B3" and battery negative terminal to terminal "HE".
5) Connect voltmeter positive lead to terminal "+1" and negative lead to terminal "HE".
6) Push washer switch check that voltage changes as shown in the table.





REAR WIPER AND WASHER (IF EQUIPPED)

INSPECTION

A. Wiper And Washer Switches

Use a circuit tester to check switches for continuity.

Wiper & Washer SW \ Terminal	Wiper SW	C	B	A	E
OFF	OFF		○—○		
	ON	○—○			
Washer ON	OFF	○			○
	ON	○	○		○
ON	OFF	○	○		○
	ON	○	○		○

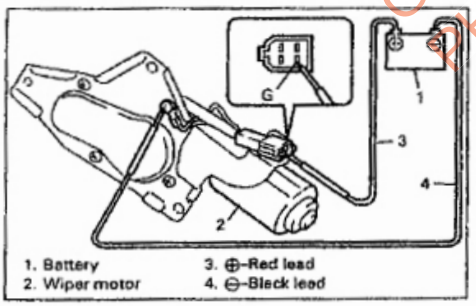
B. Washer Pump

Refer to FRONT WIPER AND WASHER INSPECTION in this section.

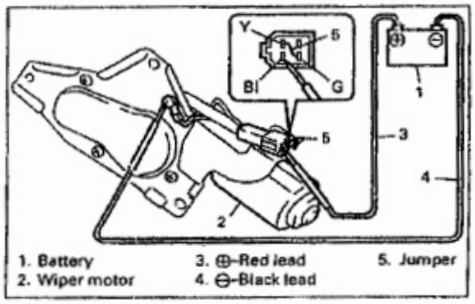
C. Wiper Motor

1) TESTING WIPER MOTOR

As shown left, use a 12V battery to connect its (+) and (–) terminals to terminal "G" and Black lead wire respectively. Then motor should rotate at 33 to 43 rpm.



1. Battery
2. Wiper motor
3. ⊕-Red lead
4. ⊖-Black lead



1. Battery
2. Wiper motor
3. ⊕-Red lead
4. ⊖-Black lead
5. Jumper

2) TESTING AUTOMATIC STOP ACTION

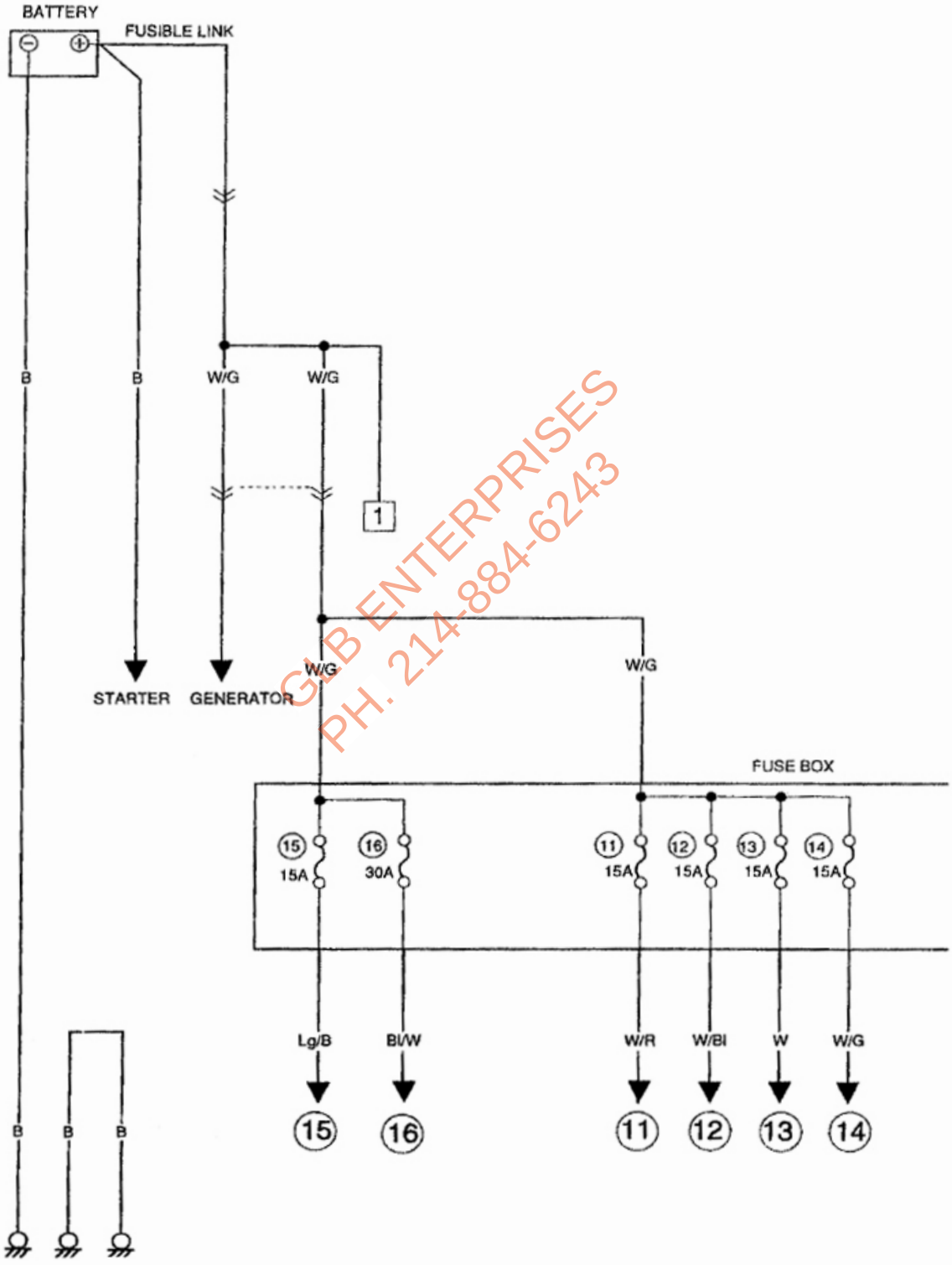
a) First, connect battery (+) terminal to terminal "G" and battery (–) terminal to black lead wire and let the motor turn.
b) Then disconnect terminal "G" from battery and let the motor stop.
c) Next connect terminal "G" and terminal "Y" with a jumper wire and connect terminal "Bl" to battery (+) terminal. Observe the wiper motor turns once again, then stops at a given position.
d) Repeat these steps several times, and inspect if the motor stops at the given position every time.

SECTION 8A-1

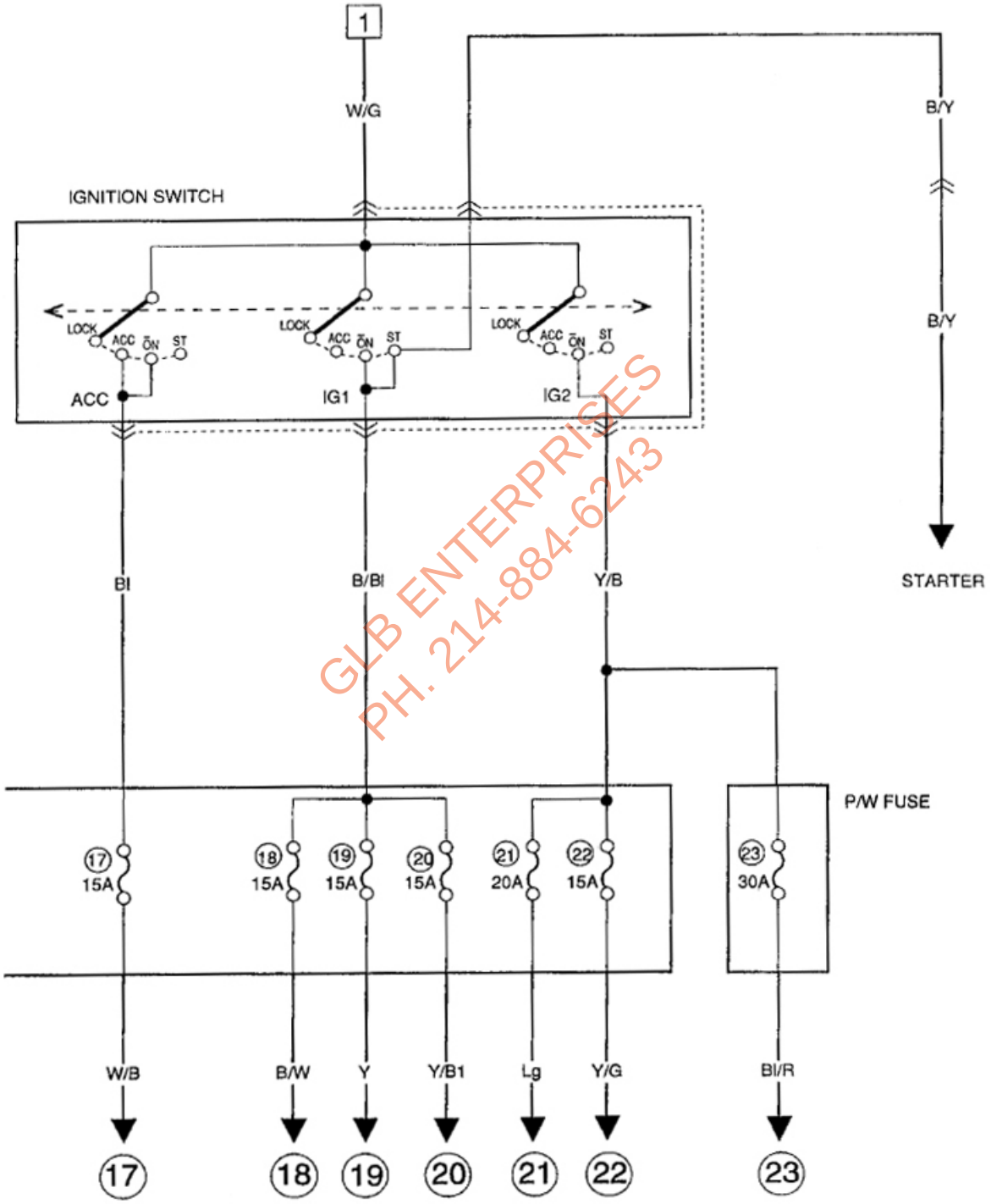
POWER SUPPLY DIAGRAM

CONTENTS

WER SUPPLY DIAGRAM

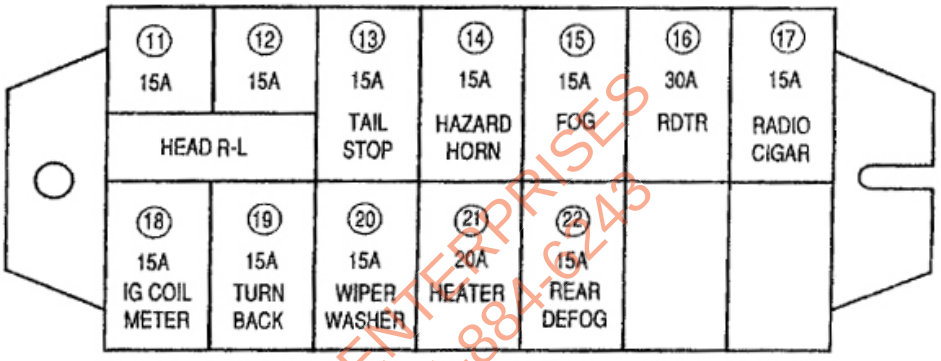


POWER SUPPLY DIAGRM



FUSE BOX

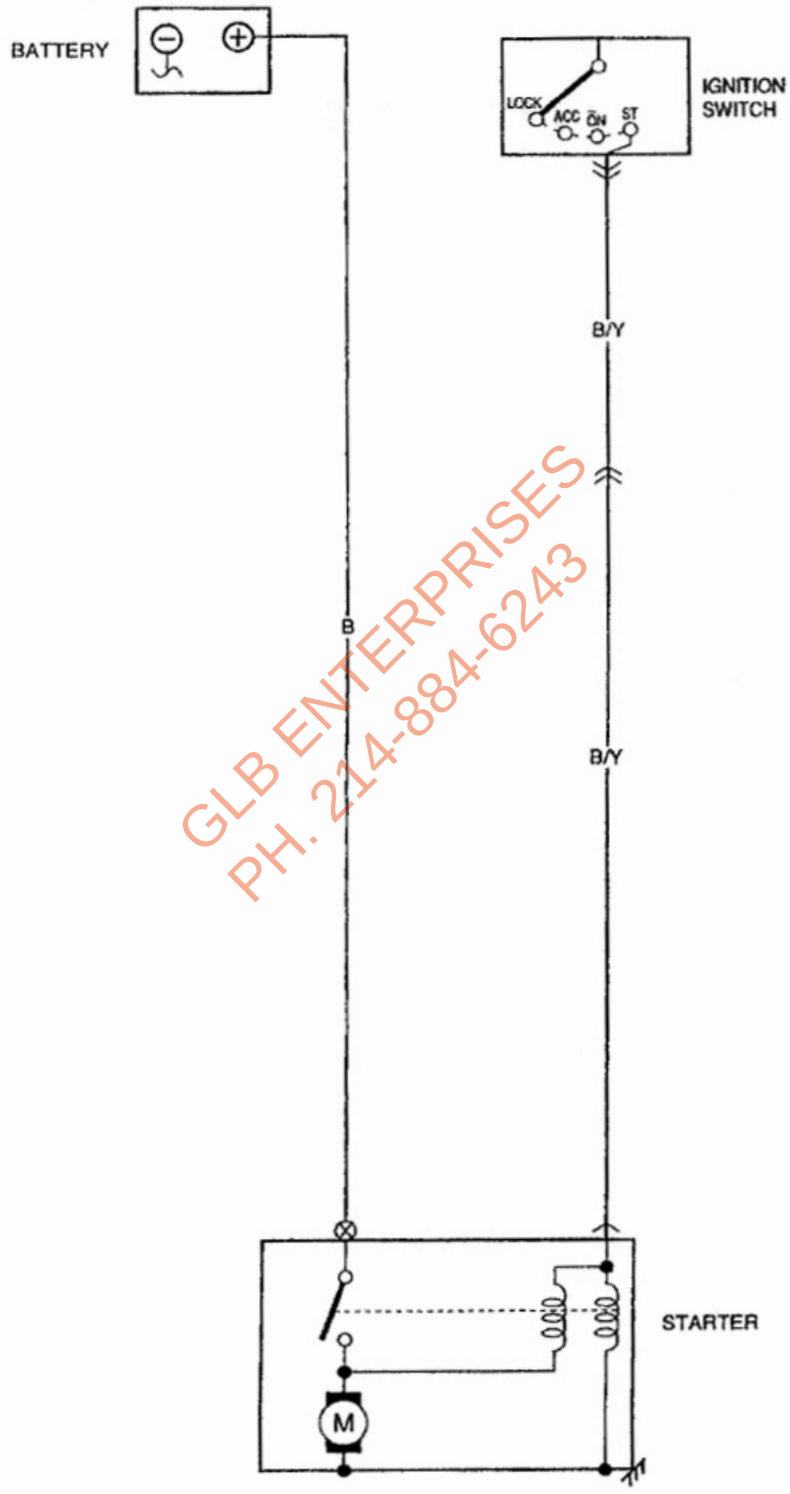
FUSE BOX



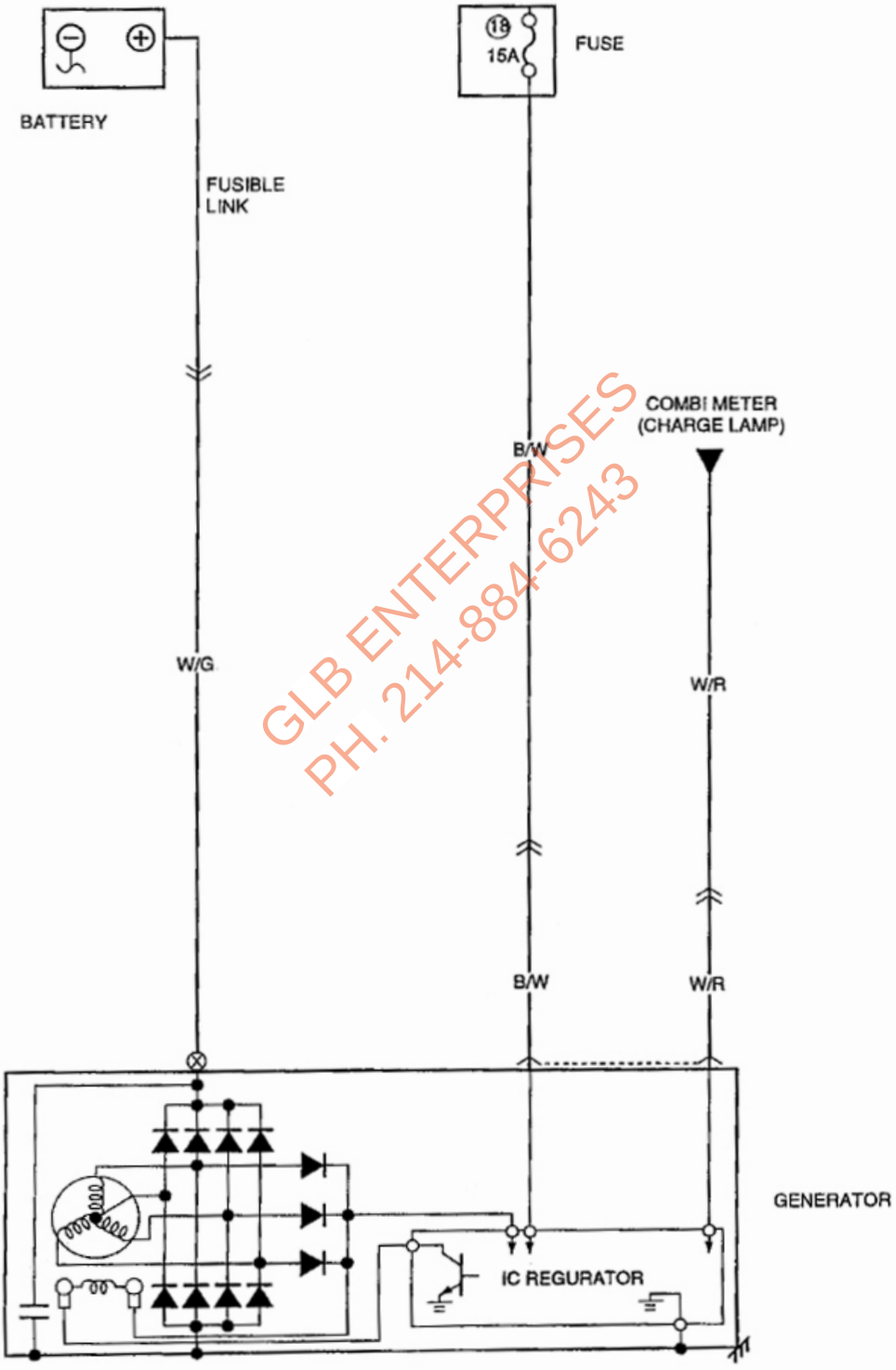
SECTION 8A-2
SYSTEM CIRCUIT DIAGRAM

CONTENTS

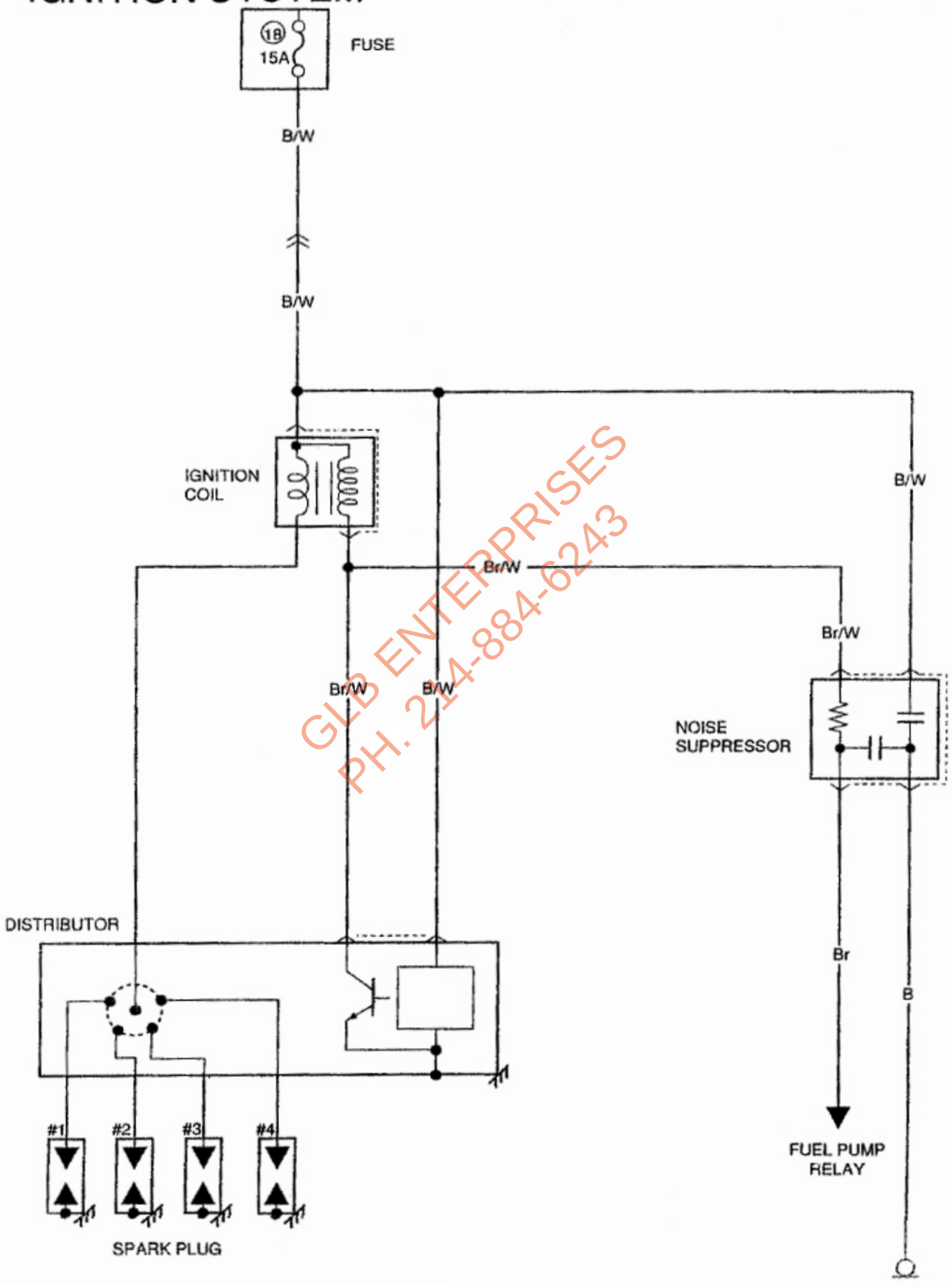
CRANKING SYSTEM



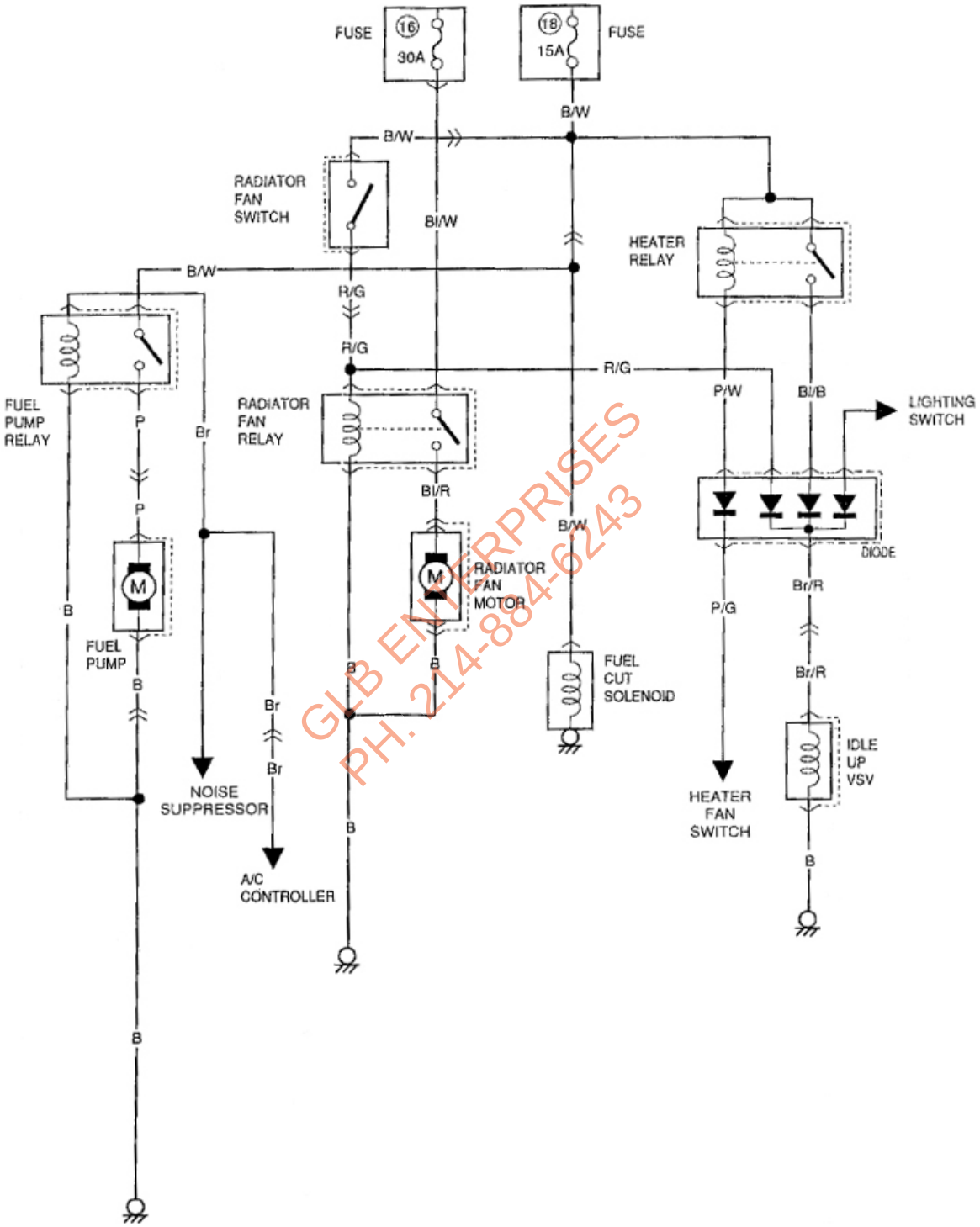
CHARGING SYSTEM



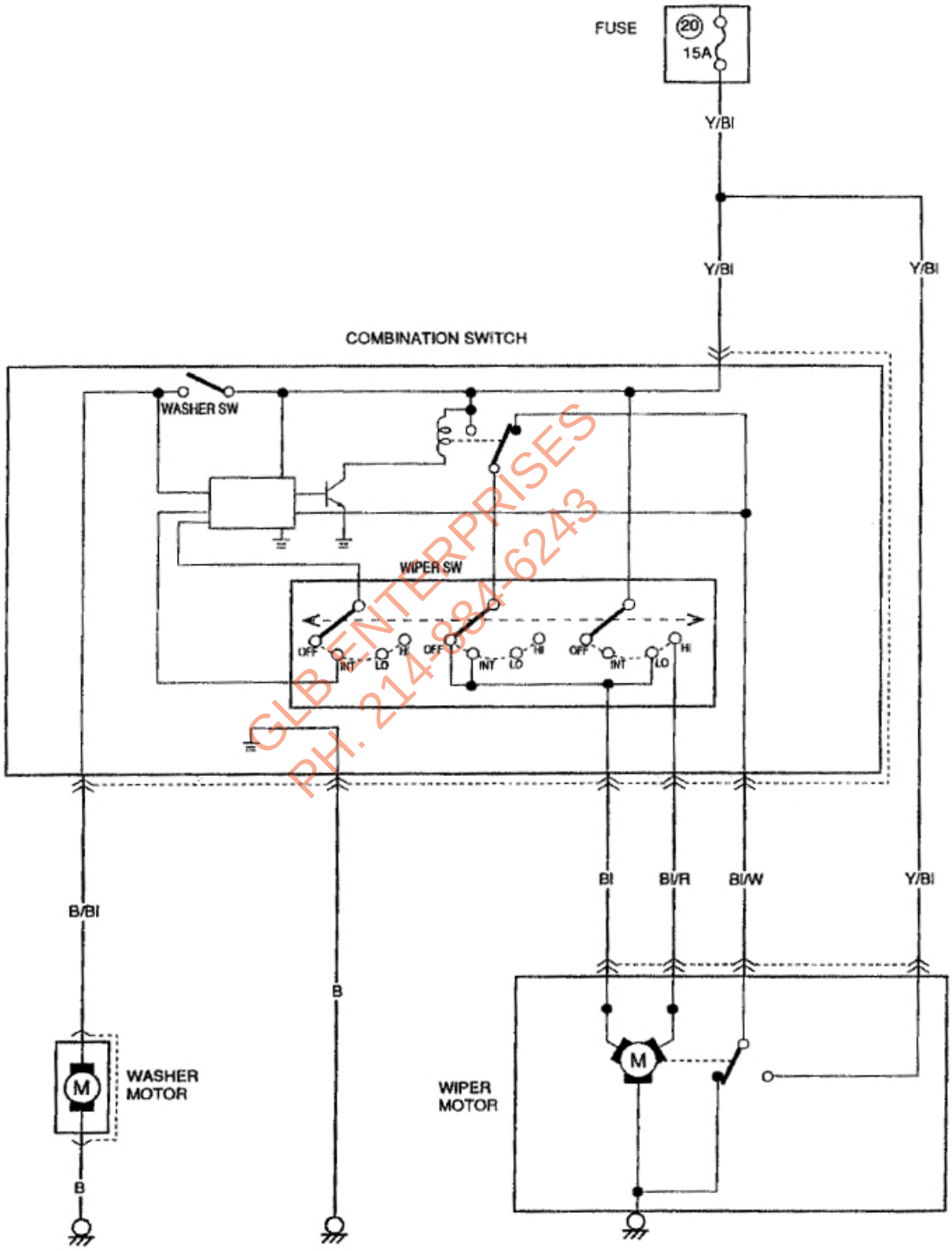
IGNITION SYSTEM



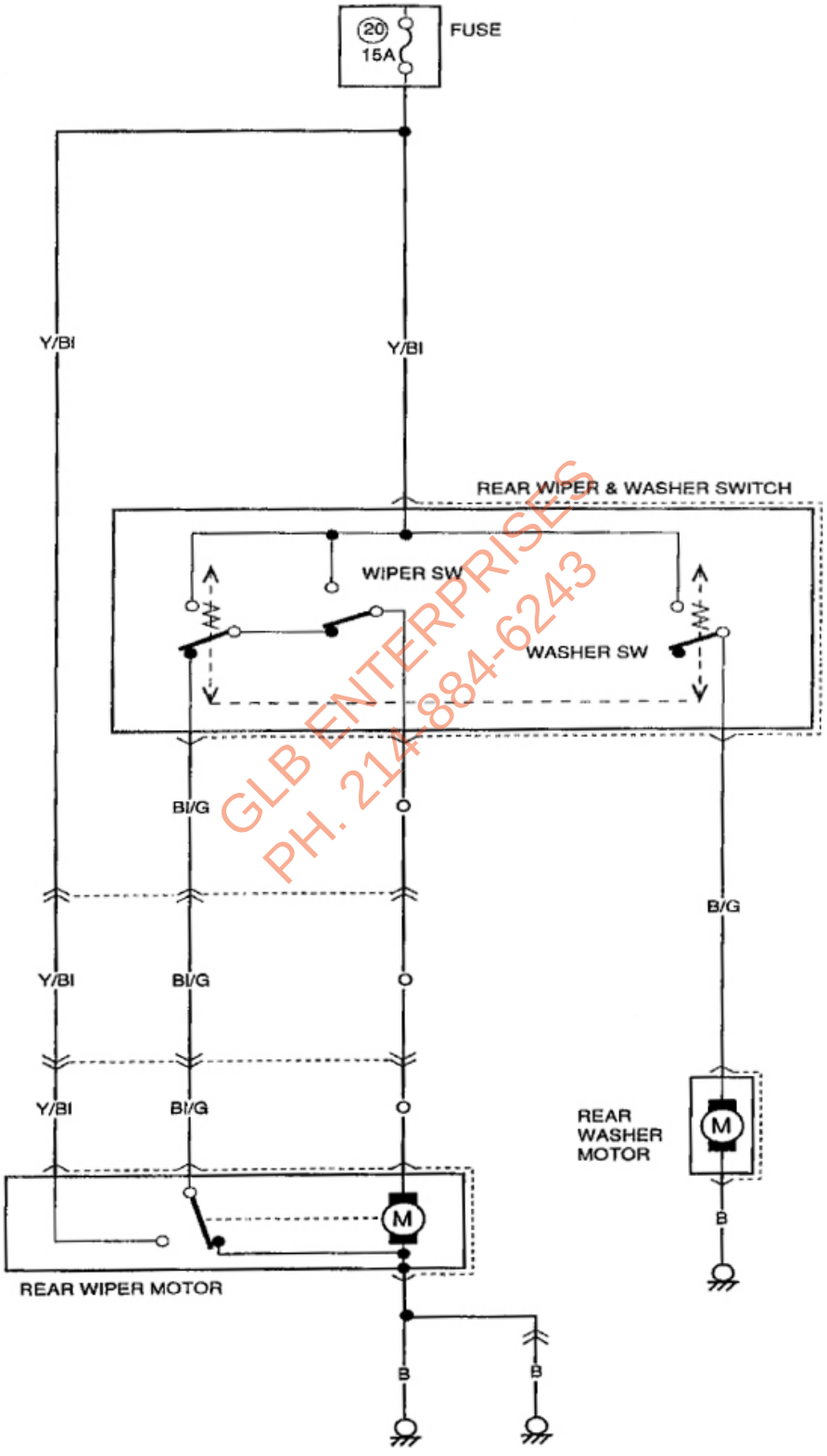
CARBURETOR CONTROL SYSTEM



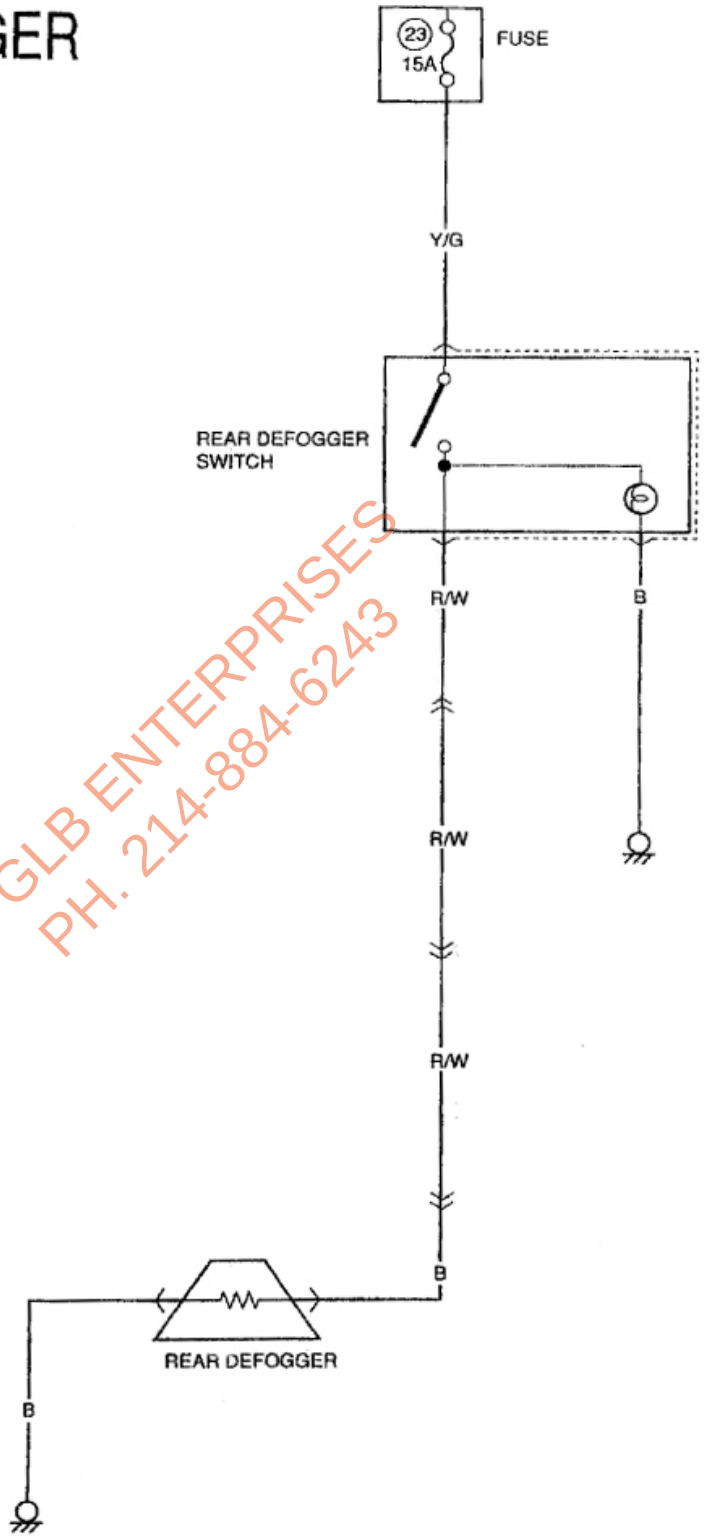
FRONT WIPER & WASHER



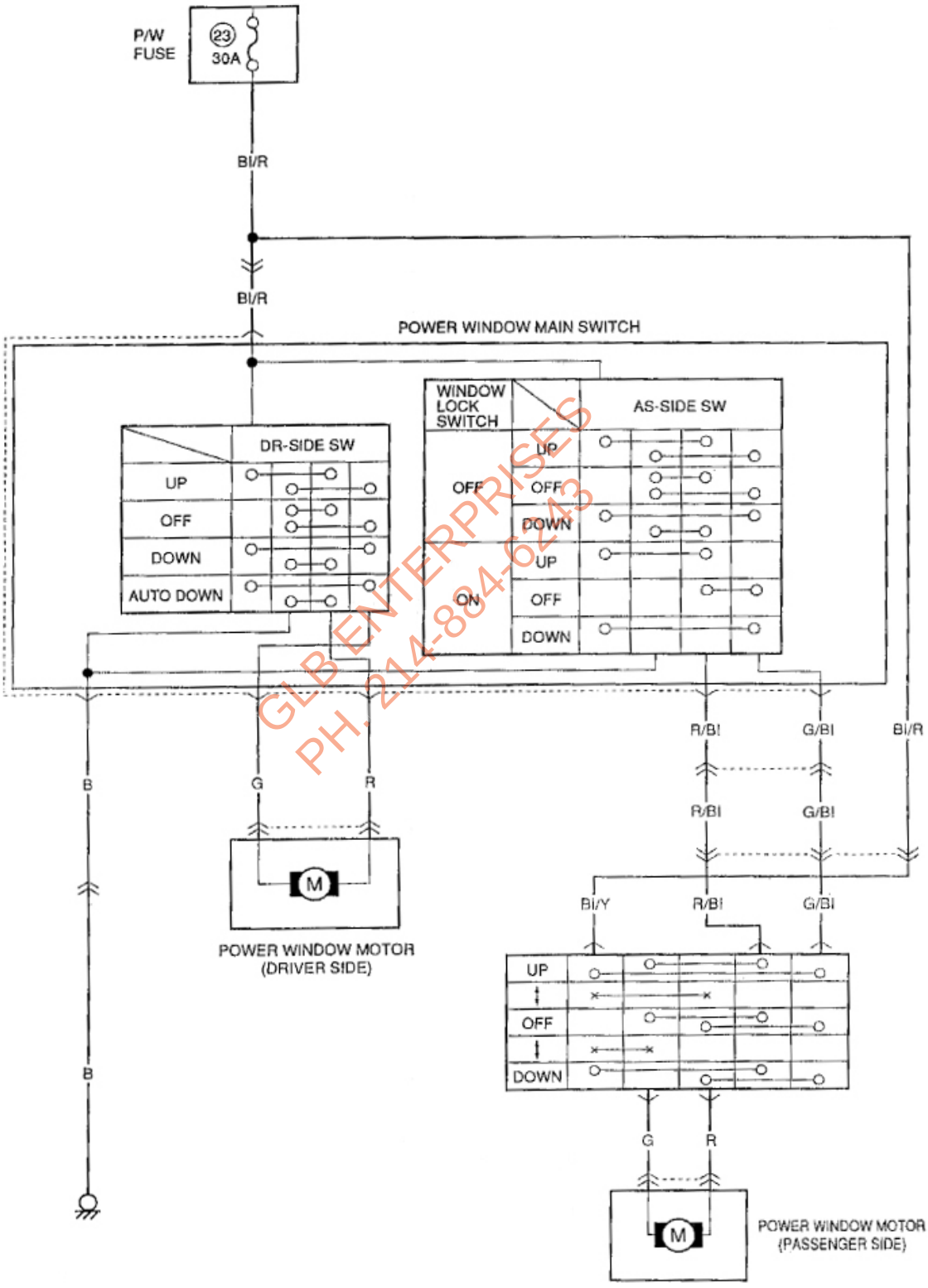
REAR WIPER & WASHER



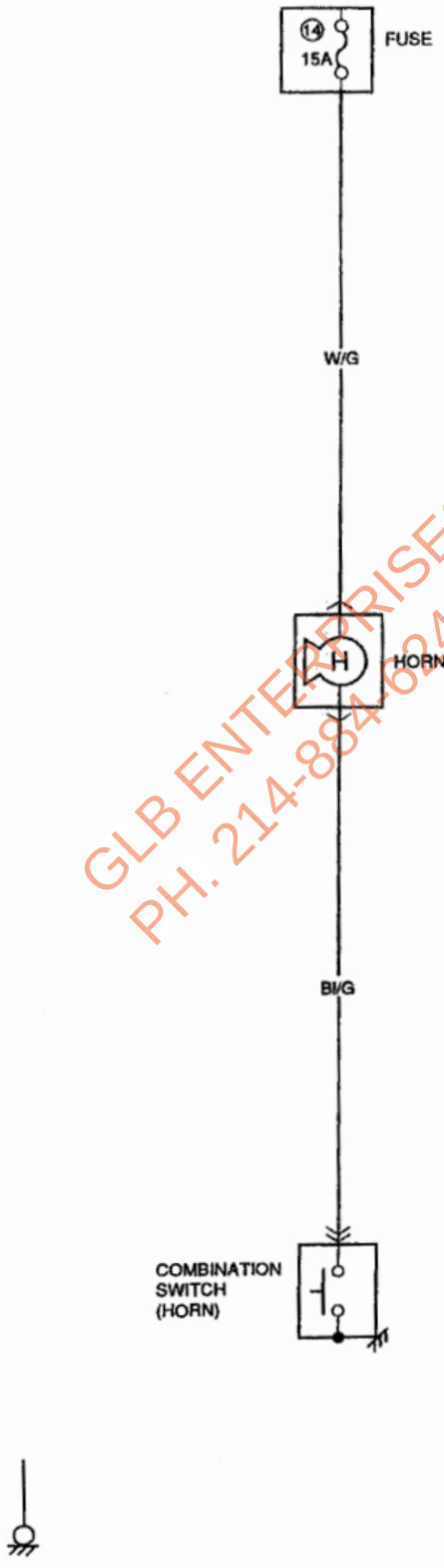
REAR DEFOGGER



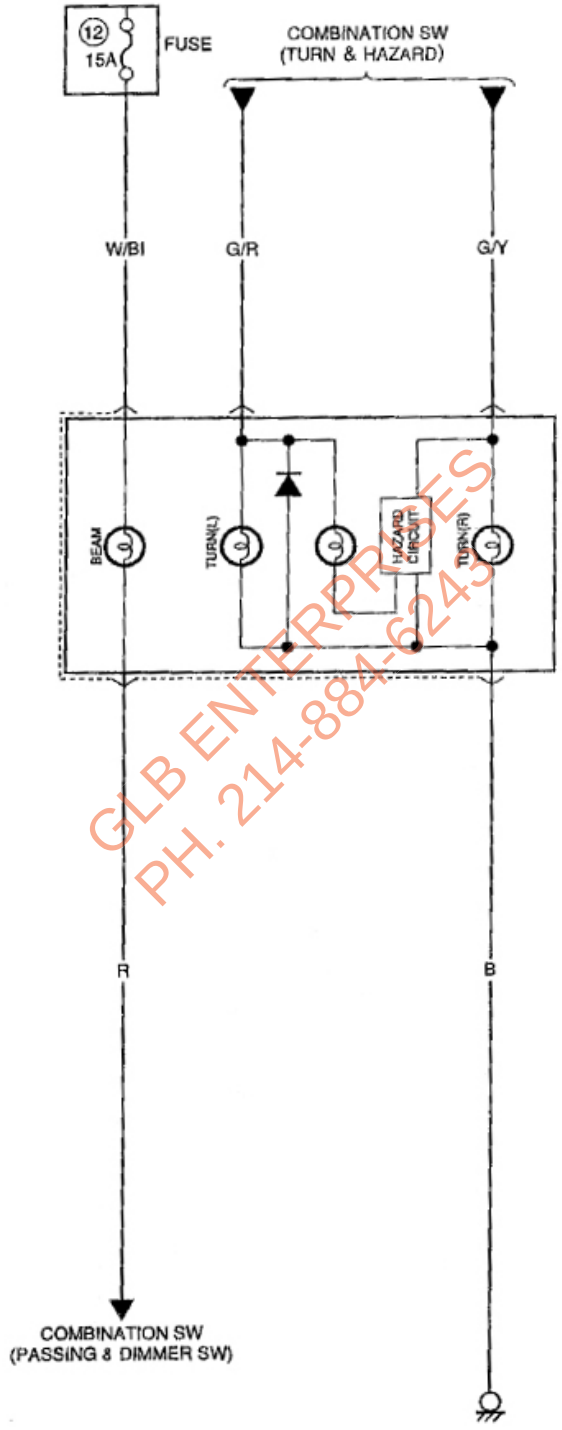
POWER WINDOW



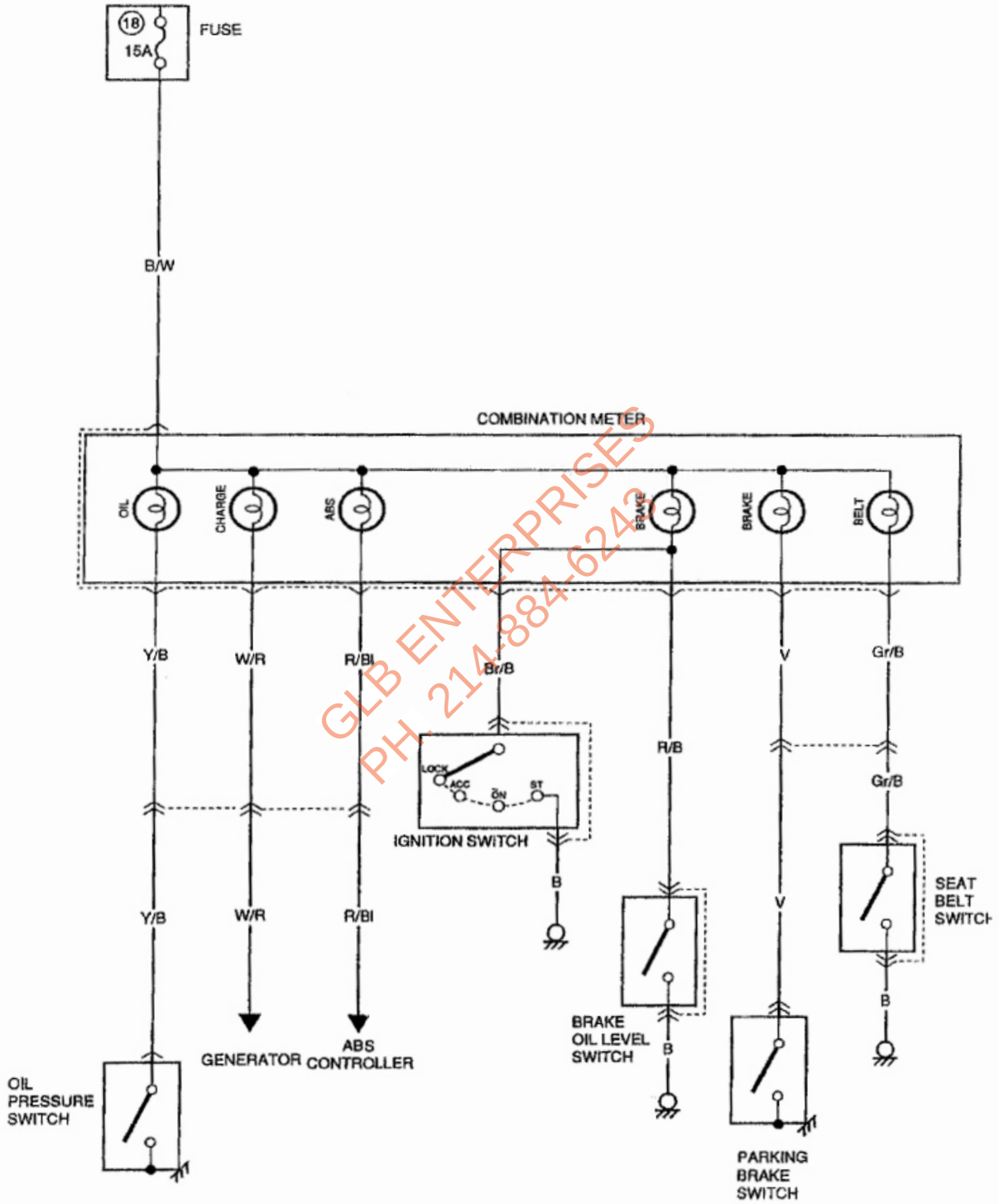
HORN



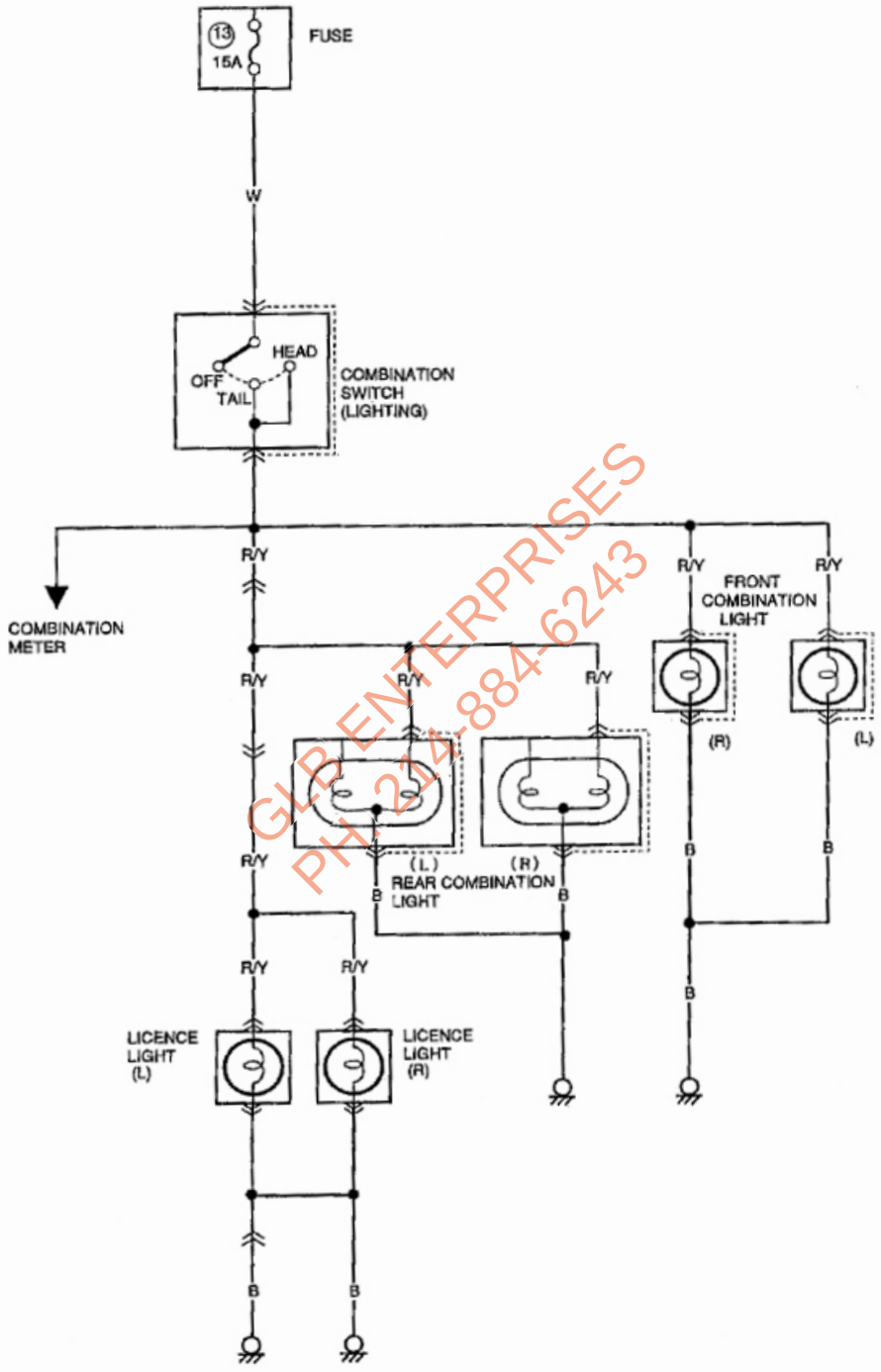
COMBINATION METER



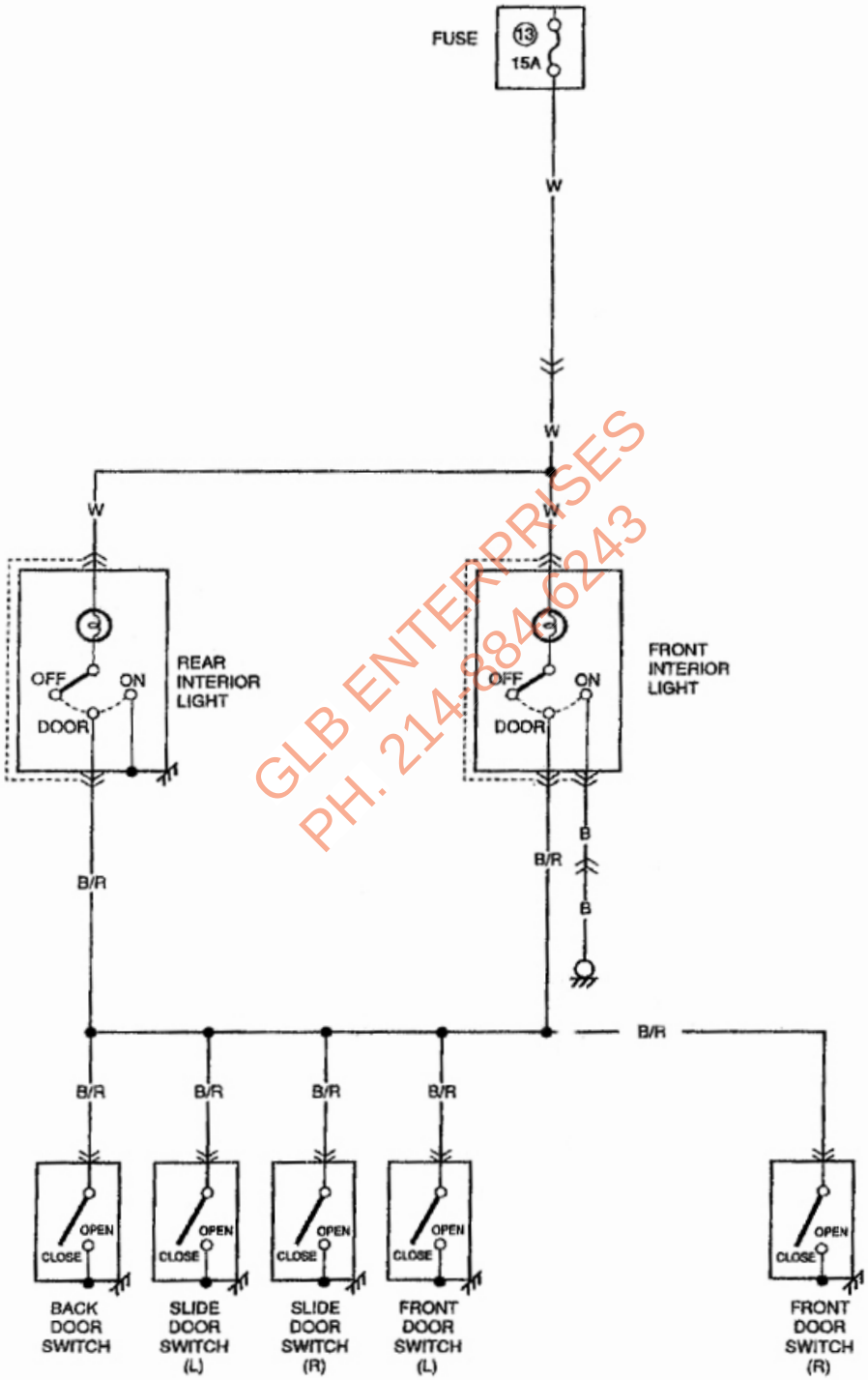
COMBINATION METER



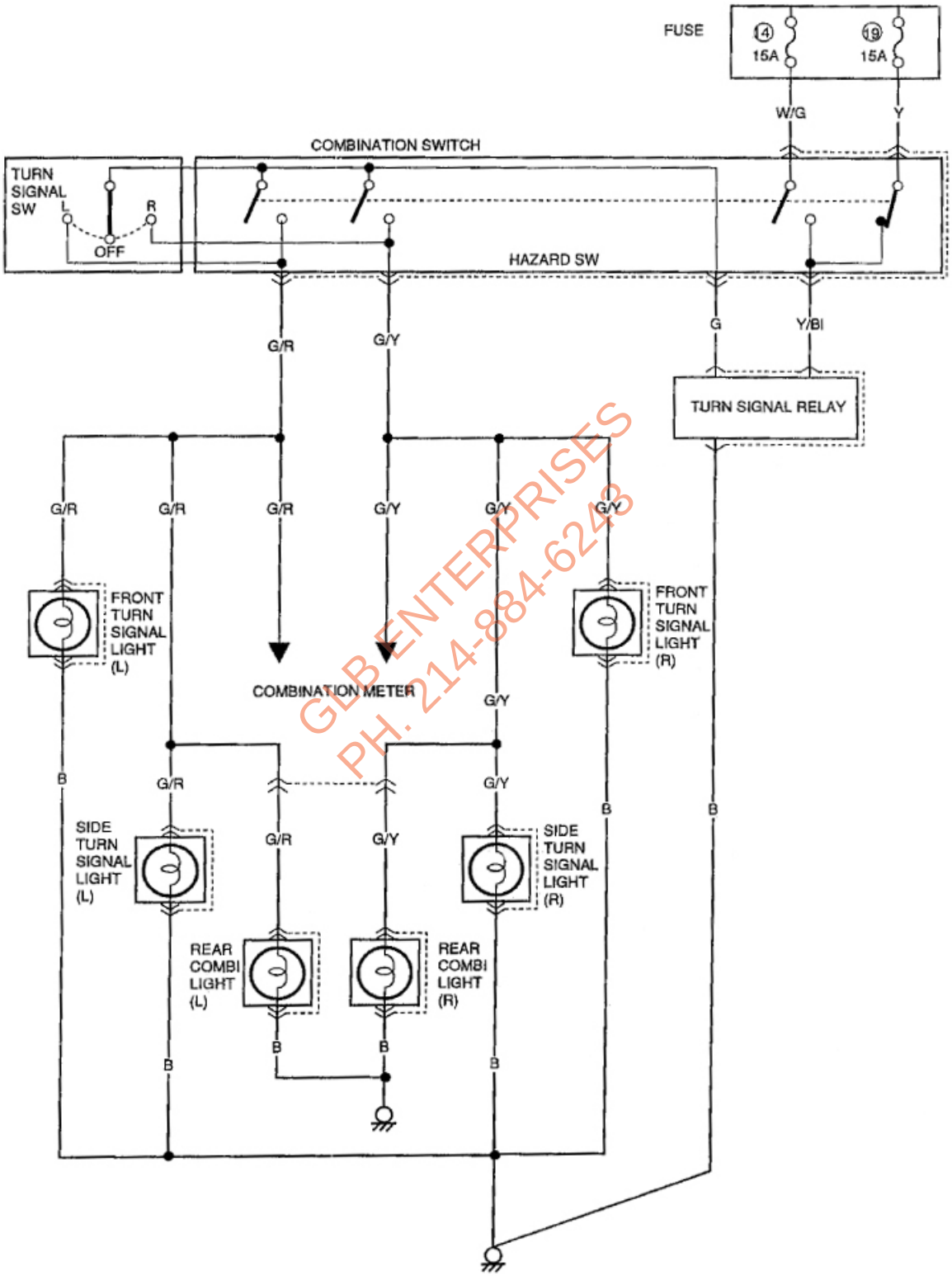
POSITION / TAIL / LICENCE LIGHT



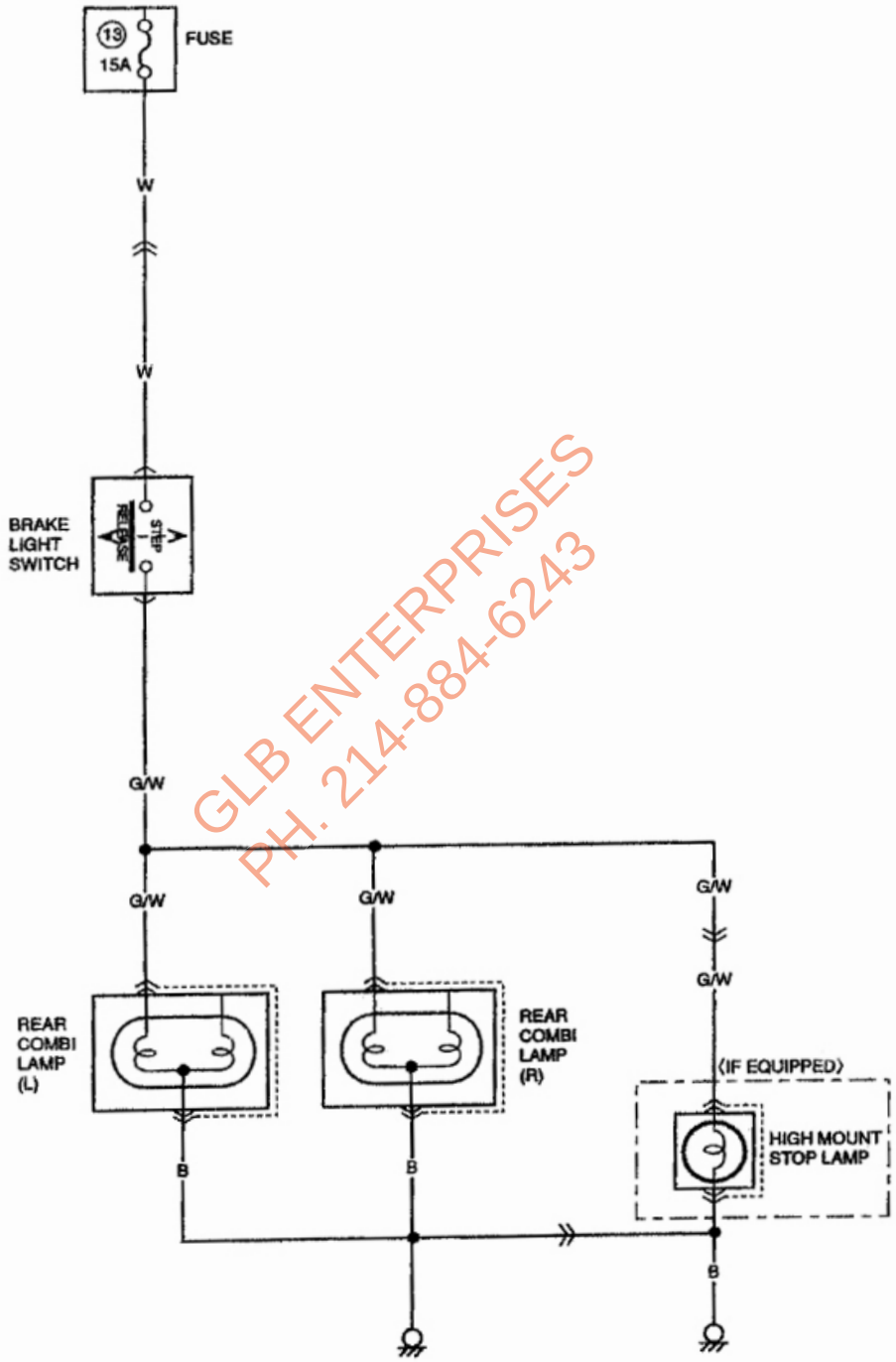
INTERIOR LIGHT



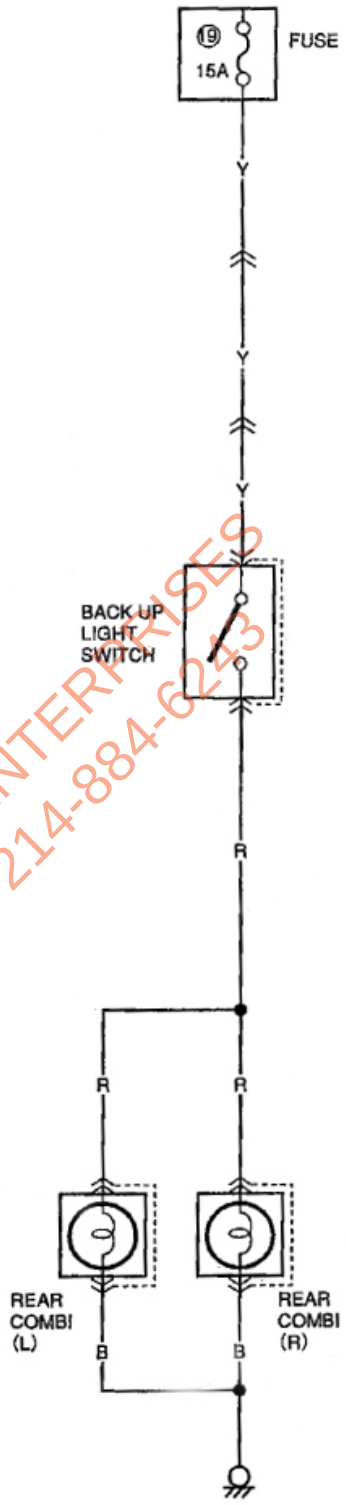
TURN SIGNAL & HAZARD WARNING LIGHT



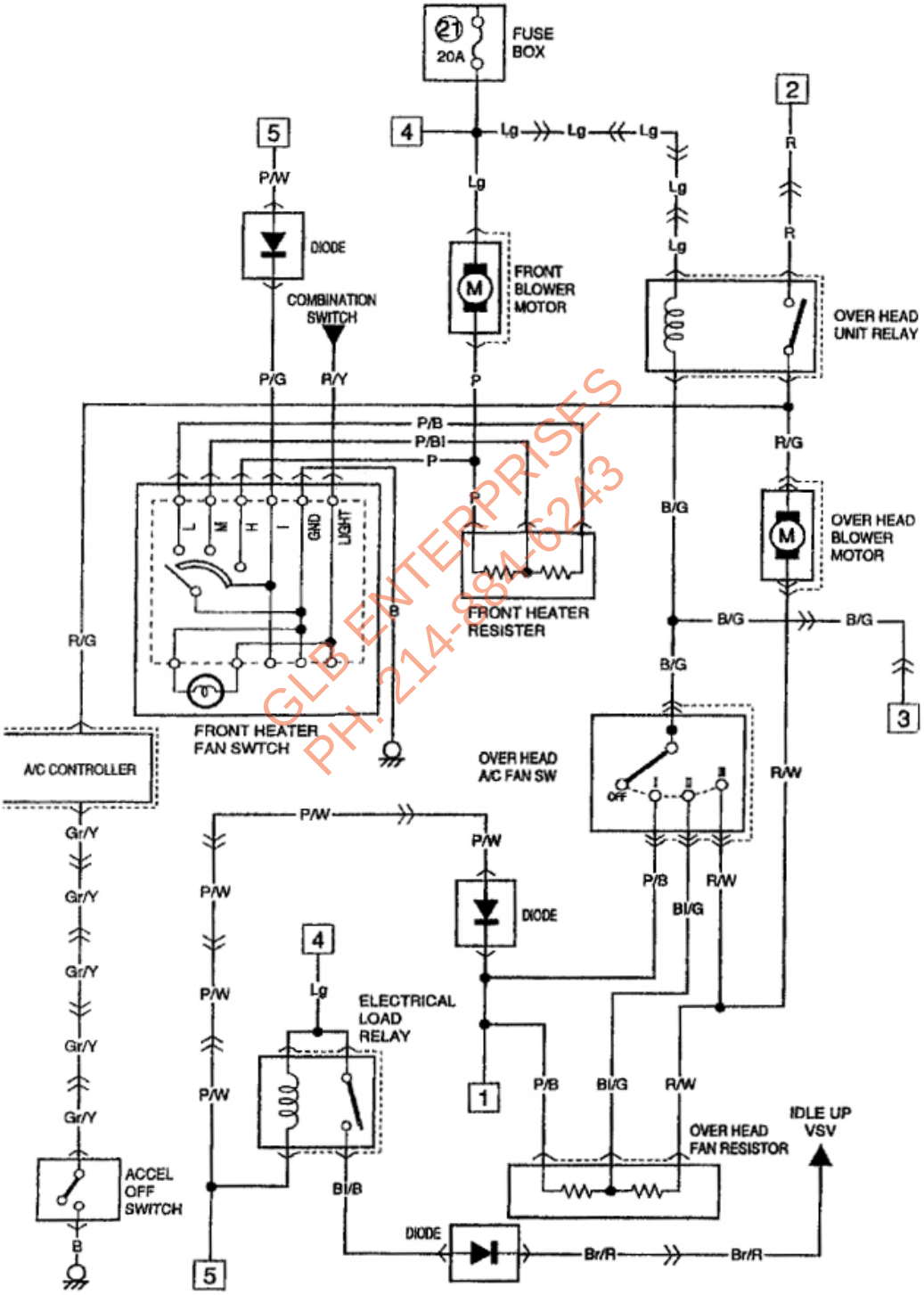
BRAKE LIGHT



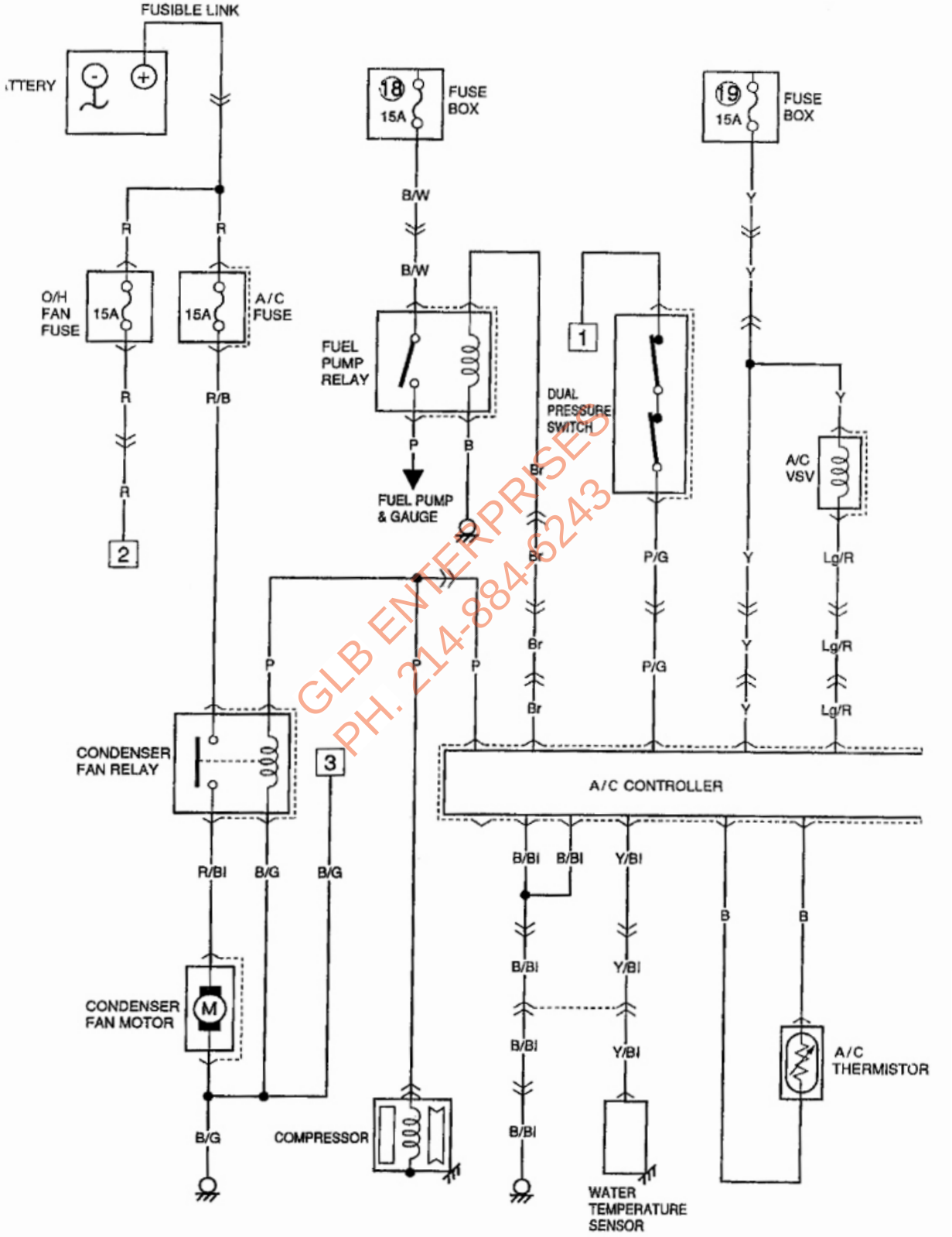
BACK UP LIGHT



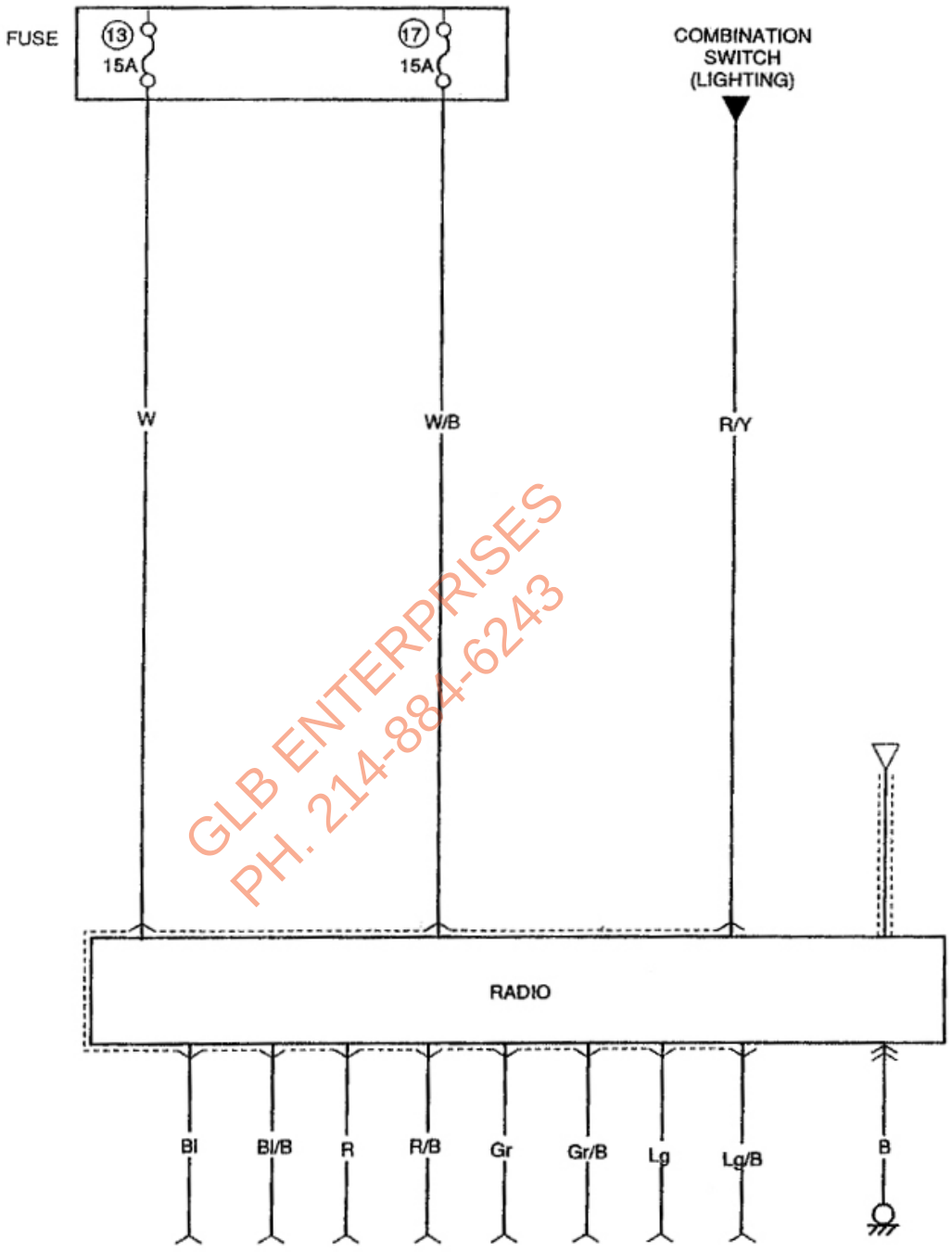
HEATER AND AIR CONDITIONING



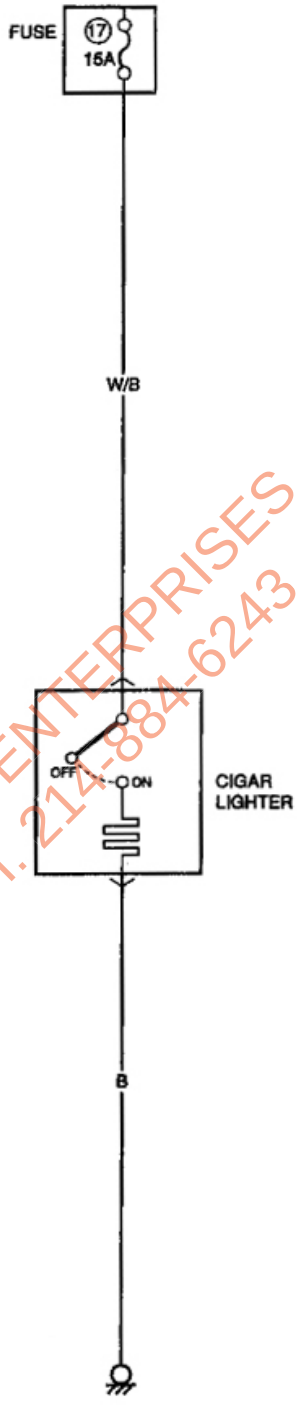
HEATER AND AIR CONDITIONING



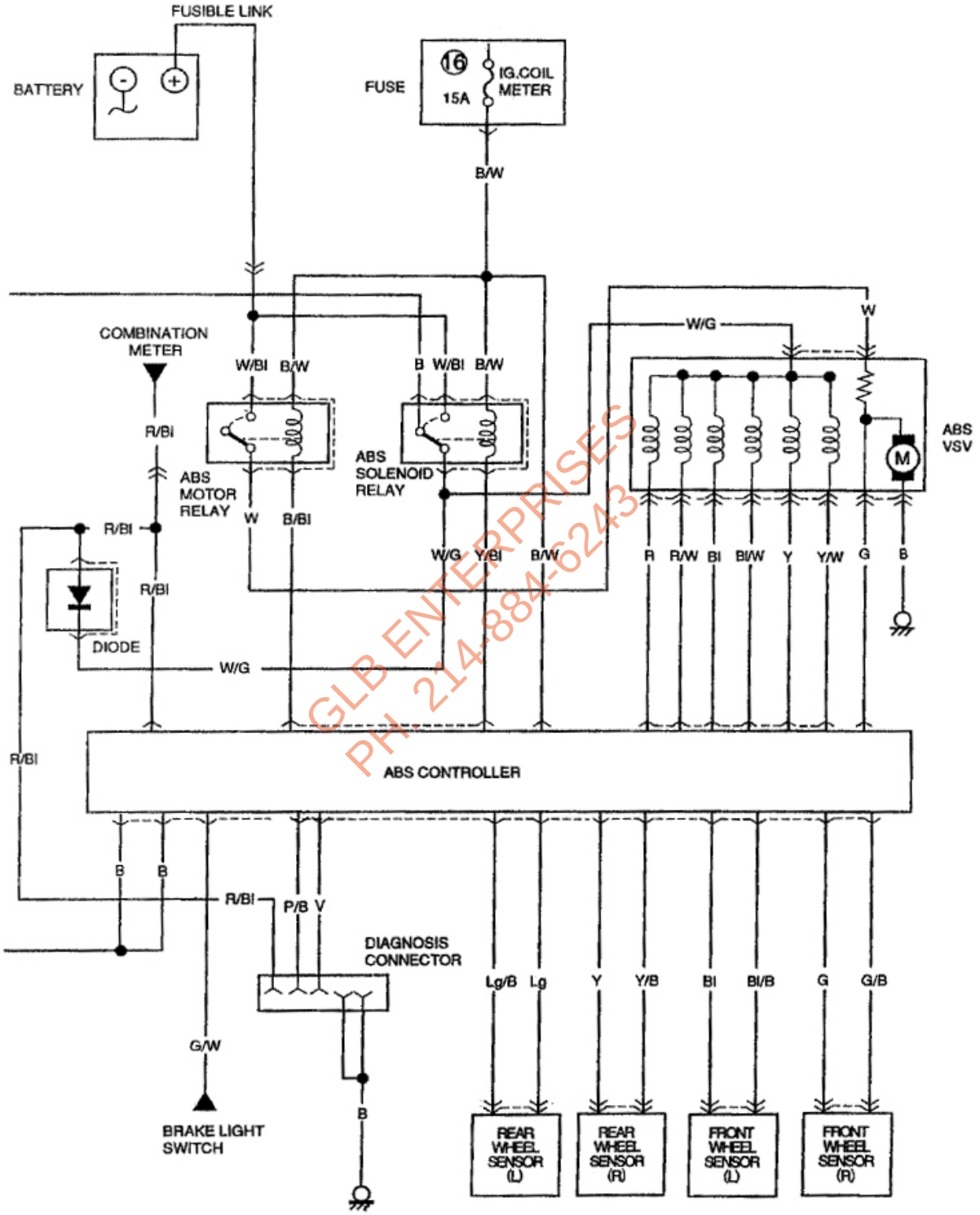
RADIO



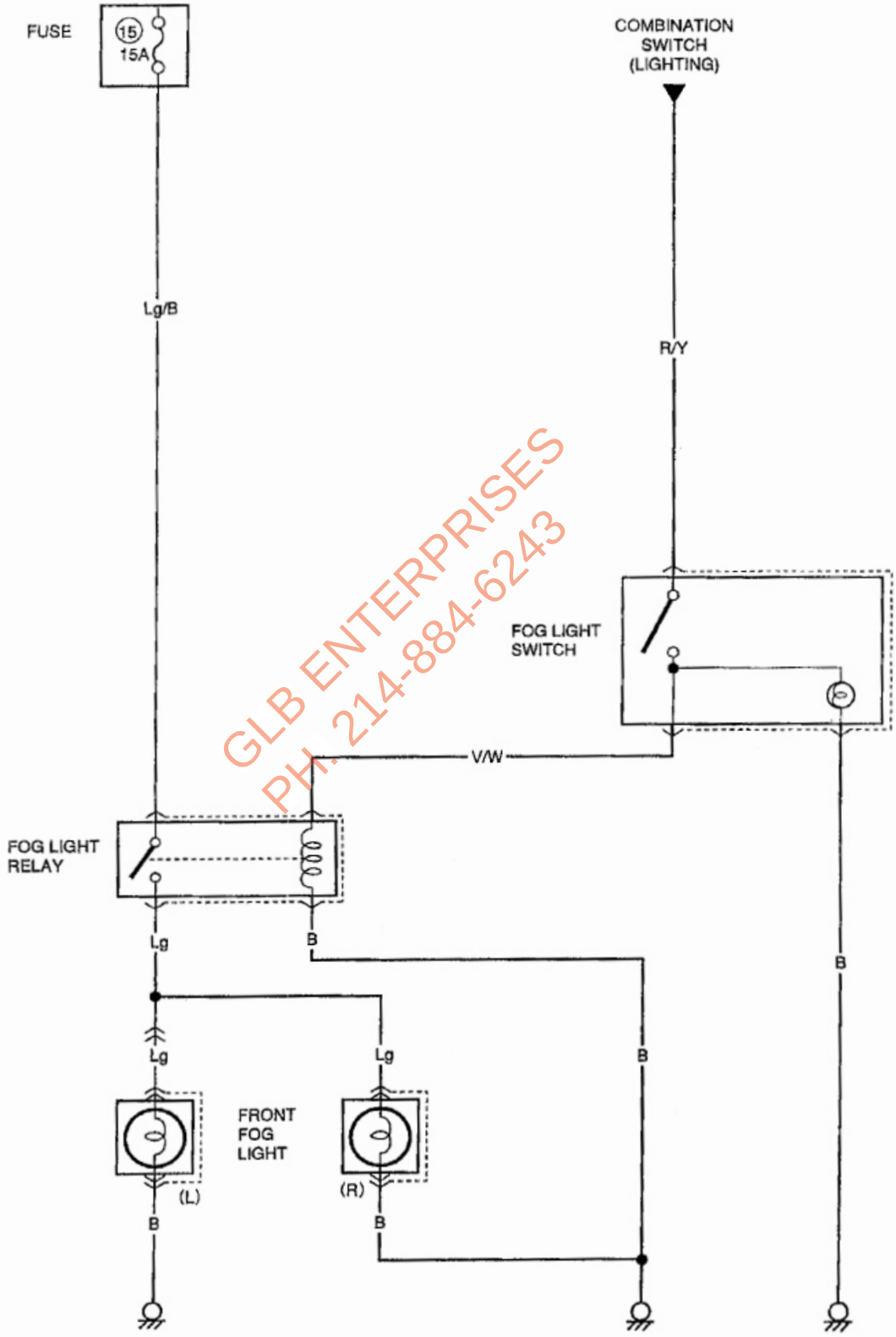
CIGAR LIGHTER



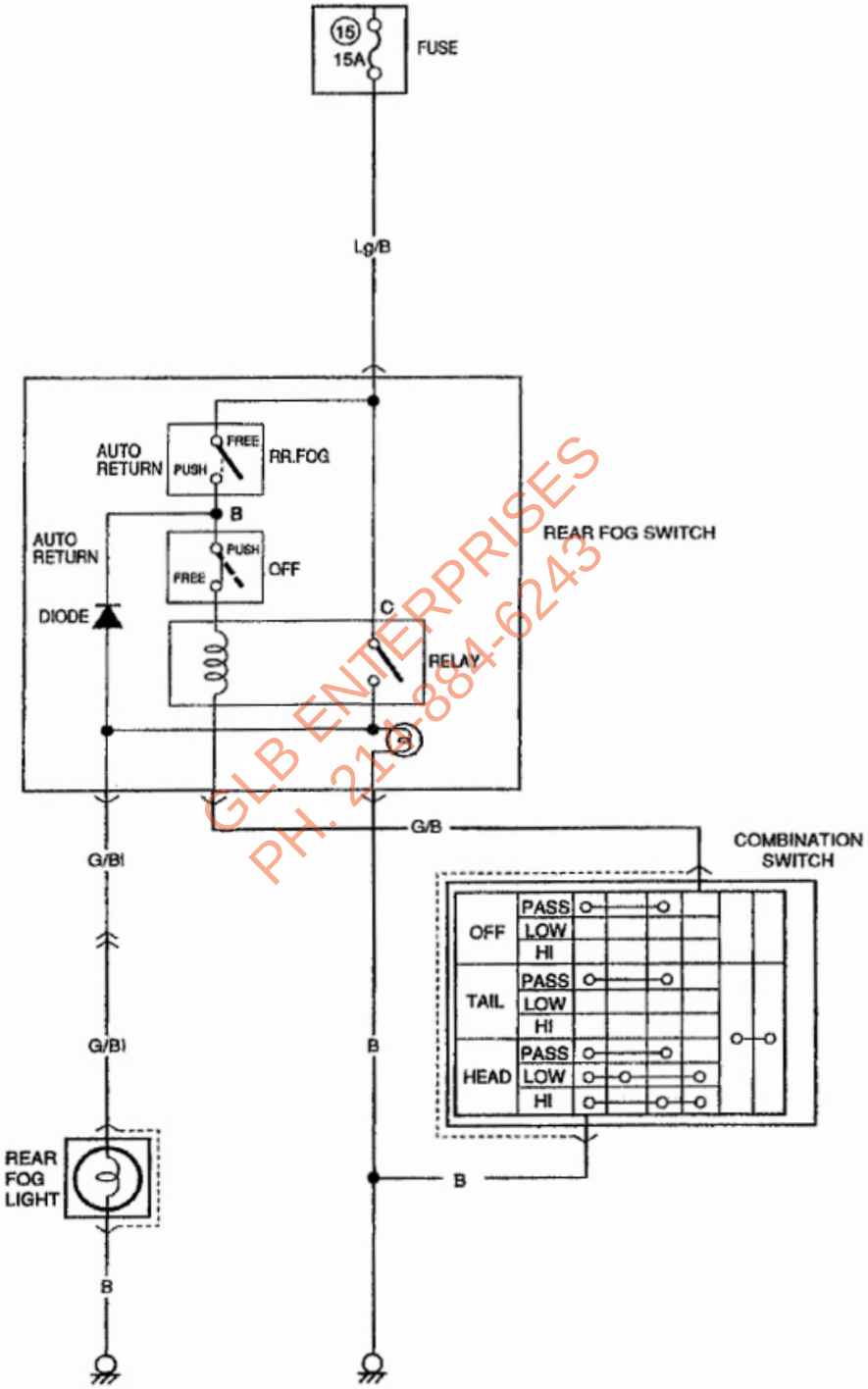
ANTI-LOCK BRAKE SYSTEM



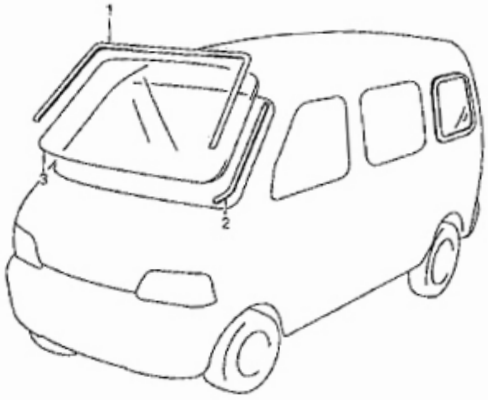
FRONT FOG LIGHT



REAR FOG LIGHT



WINDSHIELD



1. Molding
2. Windshield trim
3. Windshield

The windshield is installed by using a special type of adhesive (that is, one component urethane adhesive used with primer). For windshield glass replacement, it is important to use an adhesive which provides sufficient adhesion strength and to follow the proper procedure.

CAUTION:

- **Described in this section is the glass replacement by using 2 types of primers and 1 type of adhesive made by YOKOHAMA (one component urethane adhesive to be used with primer in combination). When using primer and adhesive made by other manufacturers, be sure to refer to handling instructions supplied with them. Negligence in following such procedure or misuse of the adhesive in any way hinders its inherent adhesive property. Therefore, before the work, make sure to read carefully the instruction and description given by the maker of the adhesive to be used and be sure to follow the procedure and observe each precaution throughout the work.**
- **Should coated surface be scratched or otherwise damaged, be sure to repair damaged part, or corrosion may start from there.**

Use an adhesive of above mentioned type which has following property.

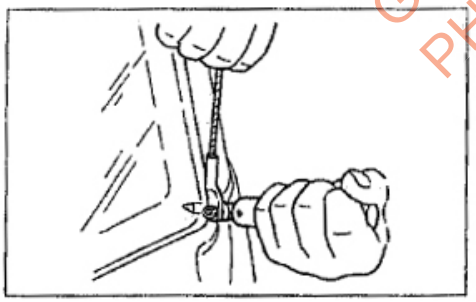
Shearing strength: 40 kg/cm^2 (569 lb/in^2) or more

Adhesive materials and tools required for removal and installation.

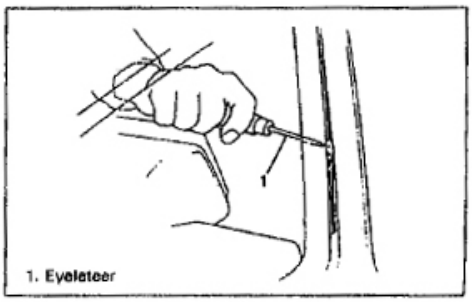
- One component urethane adhesive and primers used in combination (For one sheet of windshield).
  Adhesive (300 g (14.1 oz.))
  Primer for glass (15 g (0.5 oz.))
  Primer for body (15 g (0.5 oz.))
- Eyeleteer
- Piano string
- Brush for primer application (2 pcs)
- Knife
- Rubber sucker grip
- Sealant gun (for filling adhesive)
- Putty spatula (for correcting adhered parts)

REMOVAL

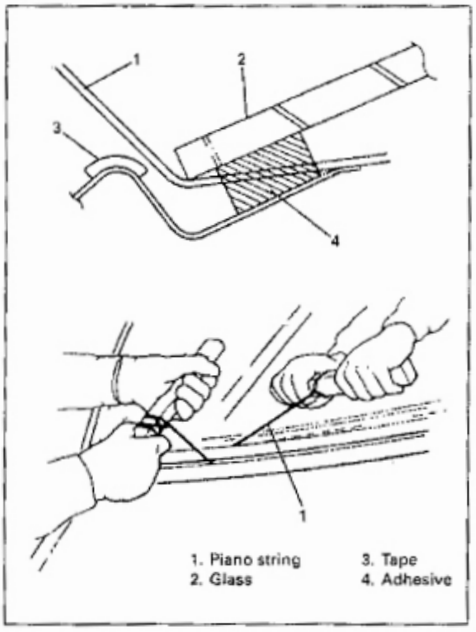
1) Clean both inside and outside of glass and around it.
2) Remove wiper arms.
3) Remove garnish and stoppers.
4) Using tape, cover body surface around glass to prevent any damage.
5) Remove instrument panel and head lining.



6) Remove rear view mirror, sunvisor, front pillar trims and then windshield trims from front pillars (right & left).
7) Remove (or cut) windshield molding all around until windshield edge comes out.
8) Cut adhesive all around glass with windshield knife.
   If cut with piano string, follow step 9) and 10).

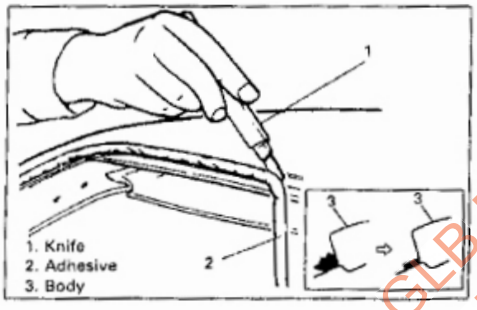


9) Drill hole with eyeleteer through adhesive and let piano string through it.



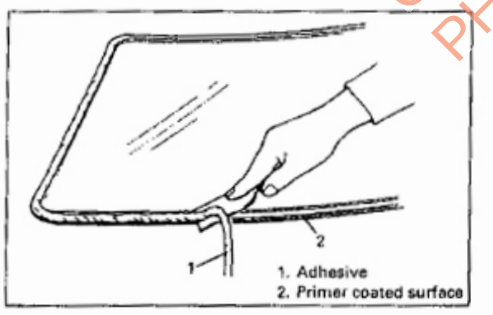
10) Cut adhesive all around glass with piano string.

NOTE:
Use piano string as close to glass as possible so as to prevent damage to body.



11) Using knife, smooth adhesive remaining on body side so that it is 1 – 2 mm (0.04 to 0.08 in.) thick all around.

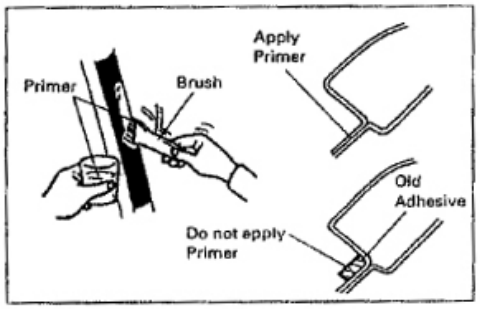
NOTE:
Before using knife, clean it with alcohol or the like to remove oil from it.



12) When re-using glass, remove spacer and adhesive from glass completely.

INSTALLATION

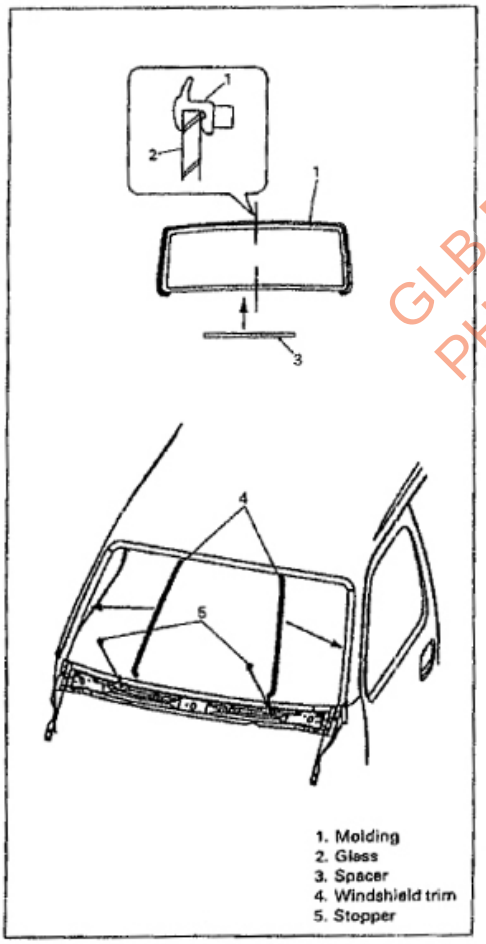
1) Using cleaning solvent (white gasoline), clean surface of adhesive remaining on body (or windshield edge) where windshield glass is to be adhered. (Let it dry for more than 10 minutes.)



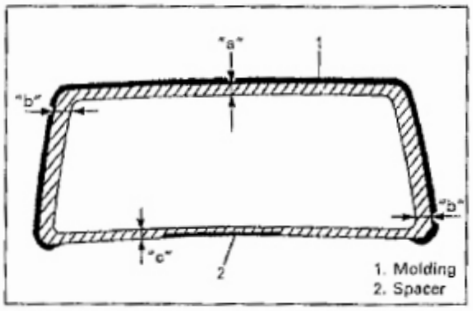
2) Clean contact surfaces of old adhesive, paint or bare metal thoroughly.
If surfaces of paint or bare metal come out, apply primer for body with caution not to apply primer to surface of adhesive remaining on body.

NOTE:

- **Be sure to refer to primer maker's instruction for proper handling and drying time.**
- **Do not touch body and old adhesive surfaces where glass is to be adhered.**



3) Install new molding and spacer to glass. Warming molding for over half an hour at 35°C (95°F) temperature will facilitate work.
4) Clean glass surface to be adhered to body with clean cloth. If cleaning solvent is used, let it dry for more than 10 minutes.
5) Install windshield trims to front pillars.
Install stopper.

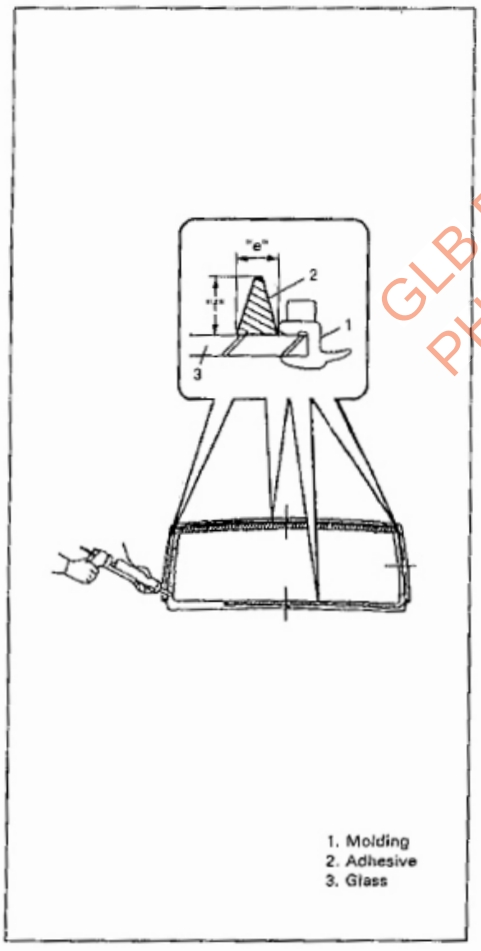


6) Using new brush, apply sufficient amount of primer for glass along glass surface to be adhered to body.

NOTE:

- **Be sure to refer to maker's instruction for proper handling and drying time.**
- **Do not apply primer on outside of ceramic coated surface.**
- **Do not touch primer coated surface.**

Width "a": Approx. 20 mm (0.78 in.)
"b": Approx. 15 mm (0.59 in.)
"c": Approx. 18 mm (0.70 in.)



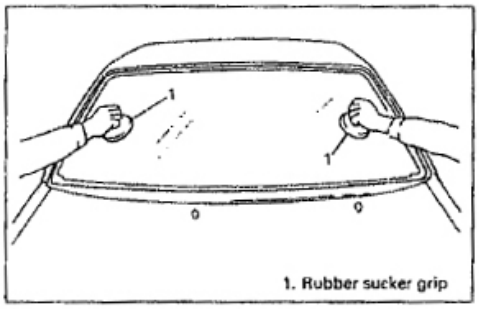
7) Apply adhesive referring to figure at the left.

NOTE:

- **Start from bottom side of glass.**
- **Be careful not to damage primer.**
- **Height of adhesive applied to lower side should be higher than that of other three sides.**

Upper, right and left sides
Width "e" : Approx. 8 mm (0.31 in.)
Height "f" : Approx. 14 mm (0.55 in.)

- **Press glass against body quickly after adhesive is applied.**
- **Use of rubber sucker grip is helpful to hold and carry glass after adhesive is applied.**
- **Perform step 7) to 9) within 10 min. to ensure sufficient adhesion.**
- **Be sure to refer to adhesive maker's instruction for proper handling and drying time.**

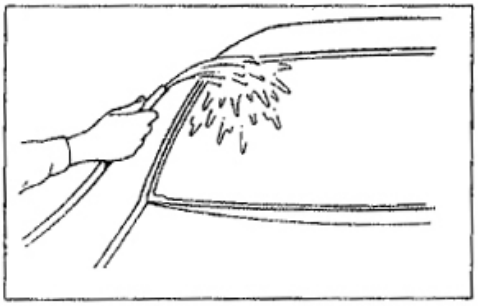


1. Rubber sucker grip

8) Peel remaining paper from molding and spacer.
9) Holding rubber sucker grips, press glass onto body and place the glass securely by tapping glass surface and molding all around.

NOTE:
Use care not to damage glass surface or body.

10) Attach roof molding.



11) Check for water leakage by running water from hose over window. If leakage is found, dry window and fill leaky point with adhesive. If water still leaks even after that, remove glass and start installation procedure all over again.

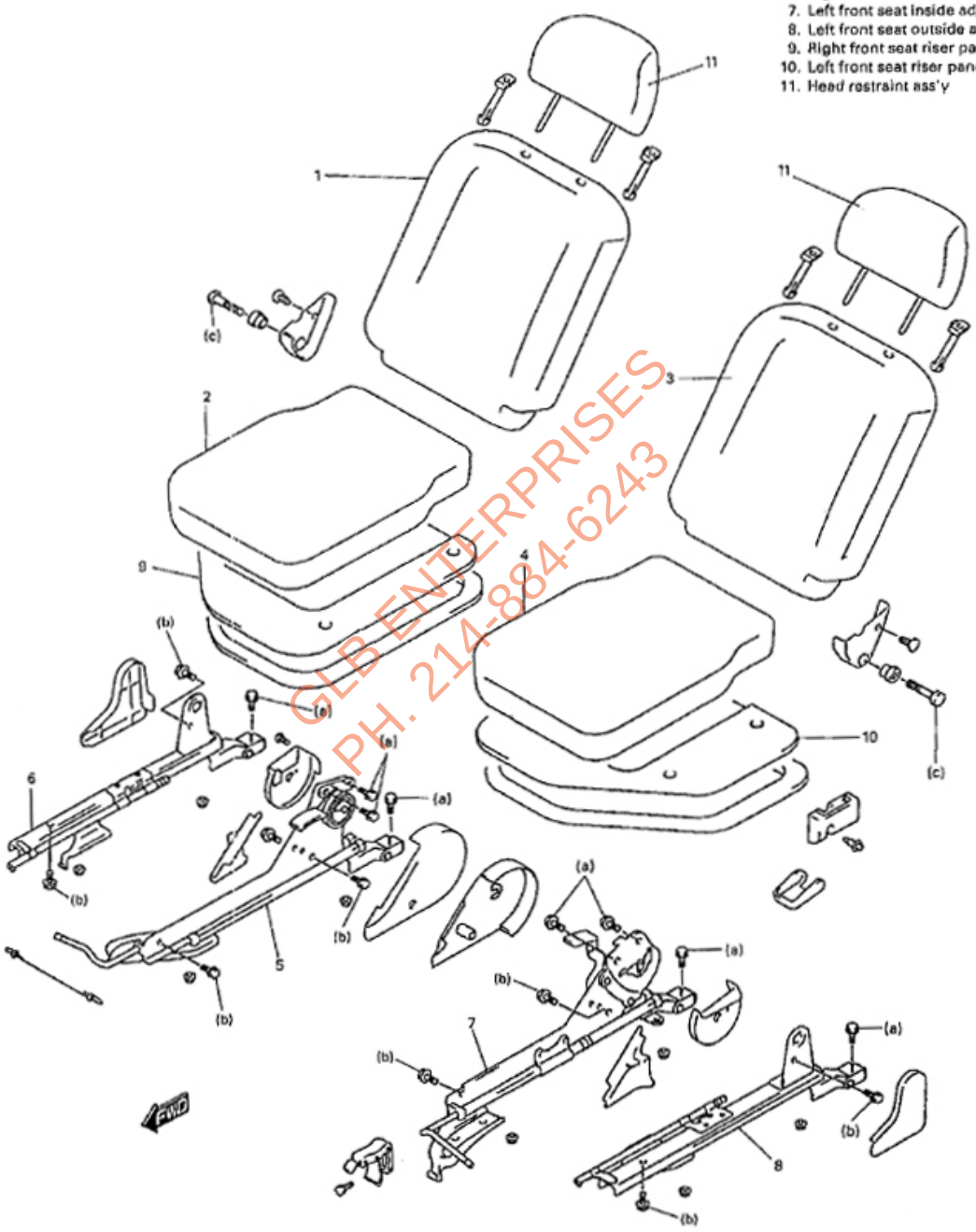
NOTE:
- **Do not use high pressure water.**
- **Do not blow compressed air directly at adhesive applied part when drying.**
- **Do not use infrared lamp or the like for drying.**

CAUTION:
Upon completion of installation, note the following.
- **Sudden closing of door before adhesive is completely set may cause glass to become loose or to come off. Therefore, if door is opened or closed before adhesive is completely set, make sure to open all door glasses and use proper care.**
- **If molding is not securely in place, hold it down with a tape until adhesive is completely set.**
- **Each adhesive has its own setting time. Be sure to refer to maker's instruction, check setting time of adhesive to be used and observe precautions to be taken before adhesive is set.**
- **Refrain form driving till adhesive is completely set so as to ensure proper and sufficient adhesion.**

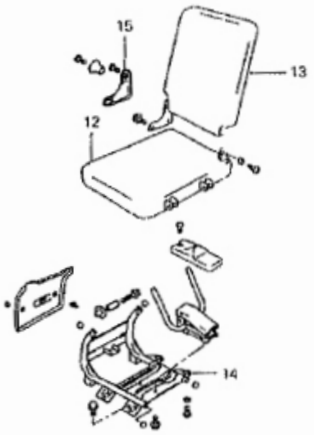
SEATS

FRONT SEAT

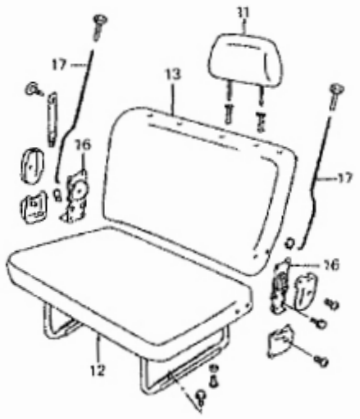
1. Right front seat back ass'y
2. Right front seat cushion ass'y
3. Left front seat back ass'y
4. Left front seat cushion ass'y
5. Right front seat inside adjuster
6. Right front seat outside adjuster
7. Left front seat inside adjuster
8. Left front seat outside adjuster
9. Right front seat riser panel
10. Left front seat riser panel
11. Head restraint ass'y



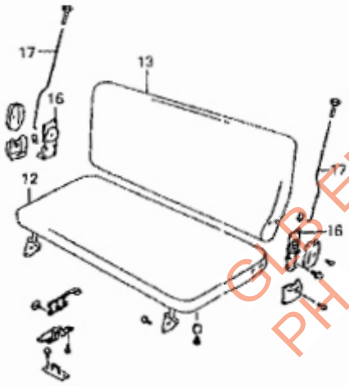
2ND R SEAT
(for vehicle equipped with third seat)



2ND L SEAT
(for vehicle equipped with third seat)



3RD SEAT (for vehicle equipped with third seat)
2ND SEAT (for vehicle equipped with second seat)



11. Head restraint ass'y
12. Rear seat cushion ass'y
13. Rear seat back ass'y
14. Rear seat leg ass'y
15. Rear seat hinge ass'y
16. Rear seat reclining ass'y
17. Rear seat reclining rod

REMOVAL

1) Remove seat rail mounting bolts. Then, remove seat ass'y with seat rail (front seats).
2) Disassemble and repair seat as necessary.

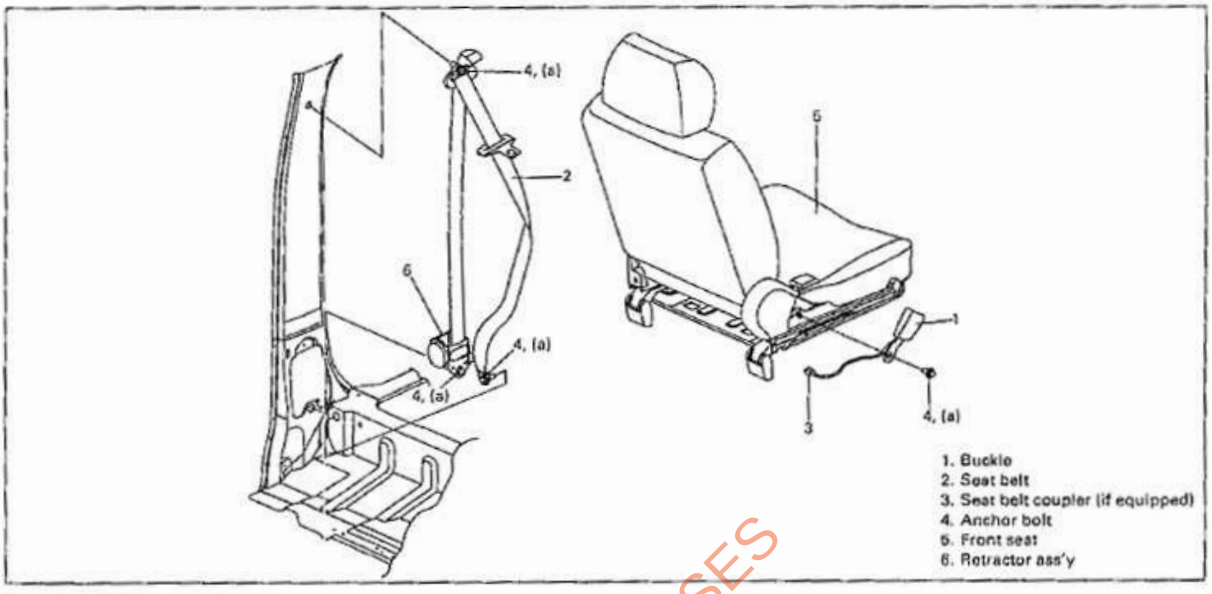
INSTALLATION

Reverse removal procedure to install front seat.
Torque it to specifications, as given below.

Tightening Torque

(a): 35 N·m (3.5 kg-m, 25.3 lb-ft)
(b): 23 N·m (2.3 kg-m, 16.6 lb-ft)
(c): 5 N·m (0.5 kg-m, 3.61 lb-ft)

SEAT BELT



WARNING:
If replacing seat belt is necessary, replace buckle and ELR (or webbing) together as a set. This is for the reason of ensuring locking of tongue plate with buckle.
If these parts are replaced individually, such a locking condition may become unreliable. For this reason, Suzuki will supply only the spare buckle and ELR (or webbing) in a set part.

SERVICING SEAT BELTS

Before servicing or replacing seat belts, refer to following precautionary items.

1) Seat belts should be normal relative to strap retractor and buckle portions.
2) Keep sharp edges and damaging objects away from belts.
3) Avoid bending or damaging any portion of belt buckle or latch plate.
4) Do not bleach or dye belt webbing. (Use only mild soap and lukewarm water to clean it.)
5) When installing a seat belt anchor bolt and nut, start bolt and nut by hand to prevent cross-threading.
6) Do not attempt any repairs on retractor mechanisms or retractor covers. Replace defective assemblies with new replacement parts.
7) Keep belts dry and clean at all times.
8) If there exist any parts in question, replace such parts.
9) Replace belts whose webbing is cut or otherwise damaged.
10) Do not put anything into trim panel opening which seat belt webbing passes through.

REMOVAL AND INSTALLATION

Refer to figure on previous page to remove and install front and rear seat belts.

NOTE:
Be sure to tighten seat belt anchor bolts to specified torque below.
Seat belt anchor bolt and nut should have an unified fine thread (7/16 – 20 UNF). Under no circumstances should any different sized or metric screw threads be used.

Tightening Torque
(a): 35 N·m (3.5 kg-m, 25.3 lb-ft)

INSPECTION

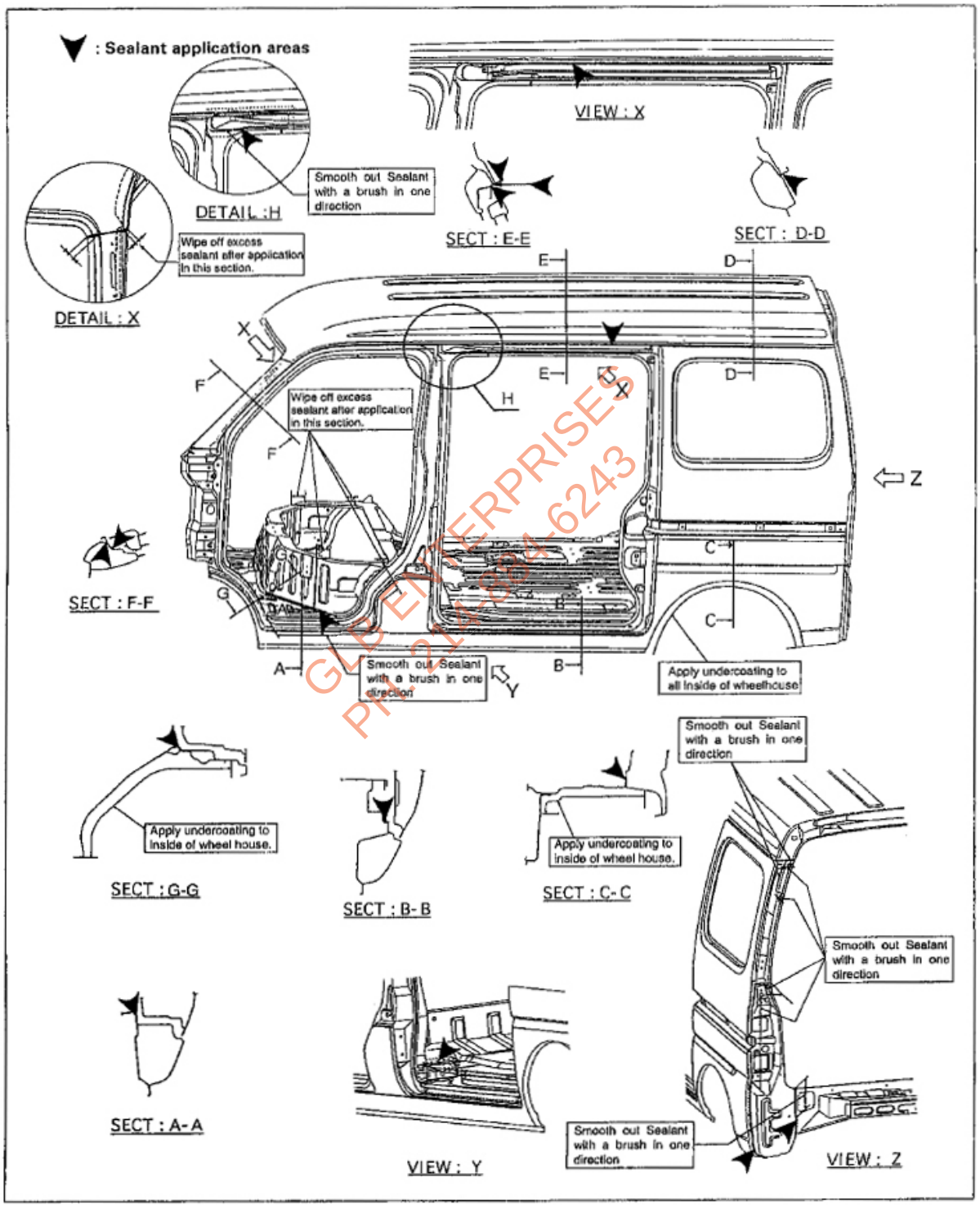
Seat belts and attaching parts can affect the vital components and systems of a vehicle.
Therefore, they should be inspected carefully and replaced with genuine parts only.

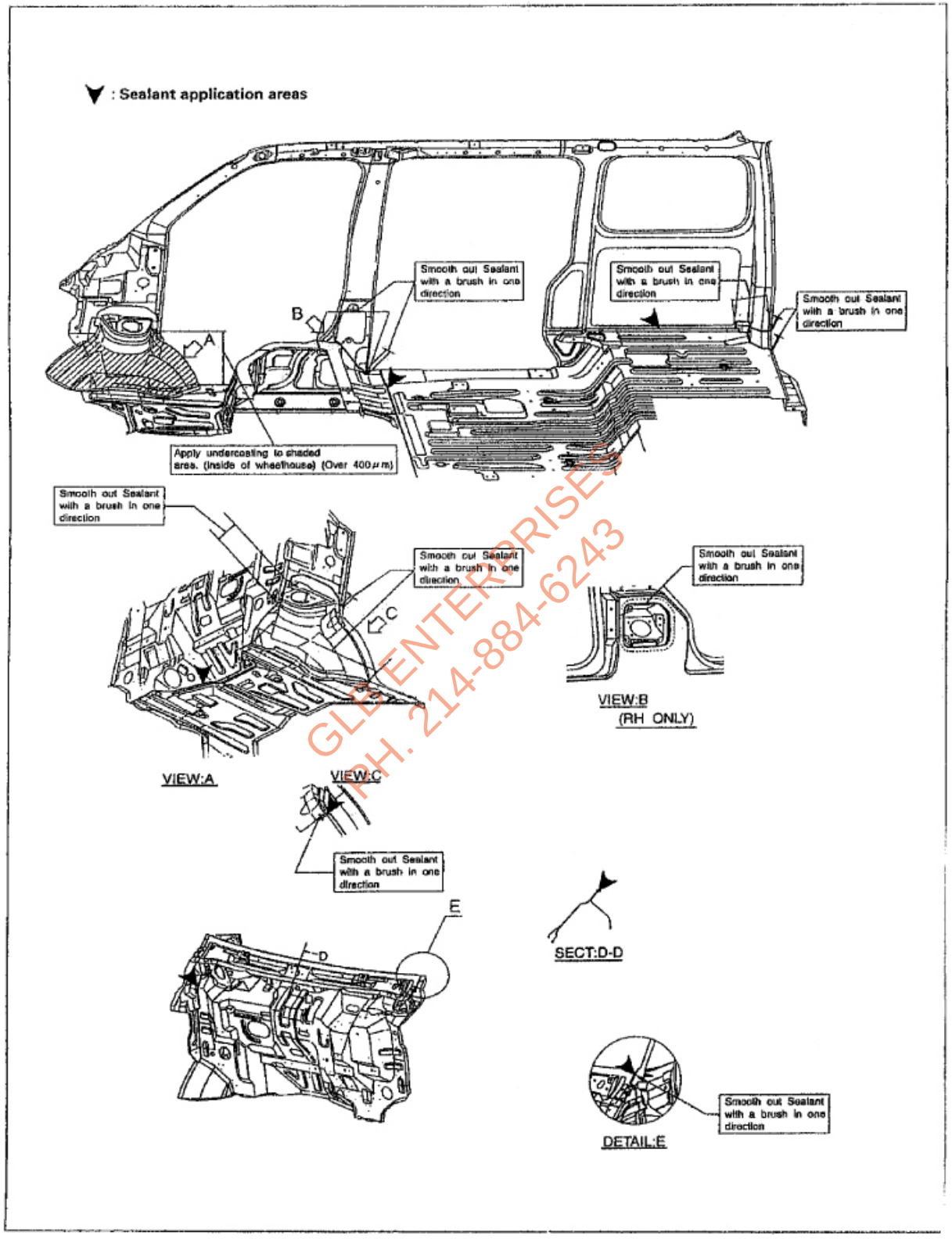
1) Seat belt
   Its webbing or strap should be free from damage.
2) Retractor
   It should lock webbing when pulled quickly.
   The front seat belt retractor should pass the above inspection and should lock webbing even when tilted (approx. 15°) toward the fore and aft or right and left directions.
3) Anchor bolt
   Anchor bolts should be torqued to specification.
4) Belt latch
   It should be secure when latched.
5) Warning system
   Check driver's seat belt strap switch.

   For the details of seat belt warning system, refer to the Section 8 "BODY ELECTRICAL SYSTEM".

ANTI-CORROSION TREATMENT

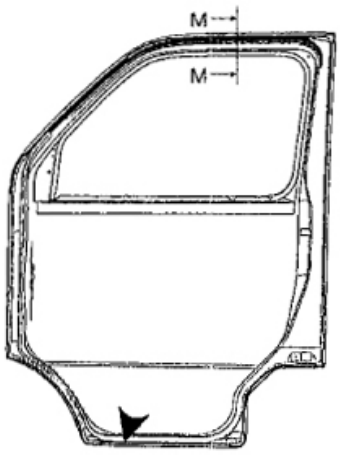
SEALANT APPLICATION AREAS





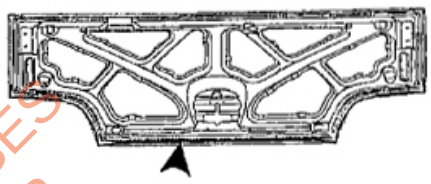
: Apply sealant

FRONT DOOR

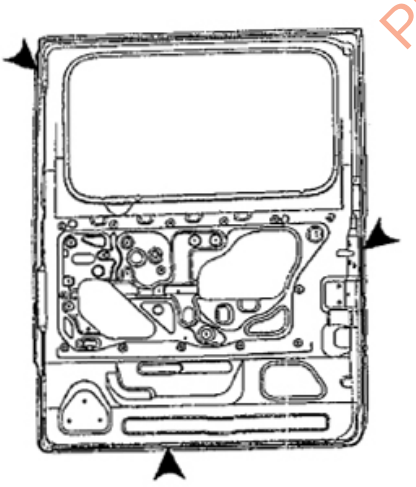


SECT : M-M

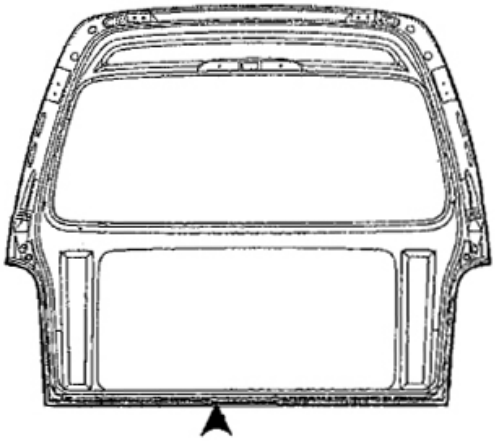
HOOD



REAR DOOR



BACK DOOR

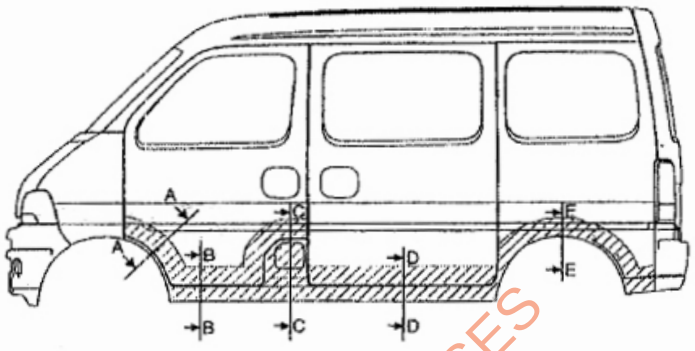


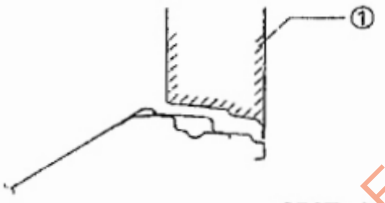
RUST-PROOF TREATMENT

////: Apply rust preventive to shaded area.

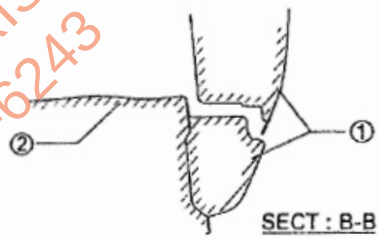
①: Hot wax

②: Underbody coat wax

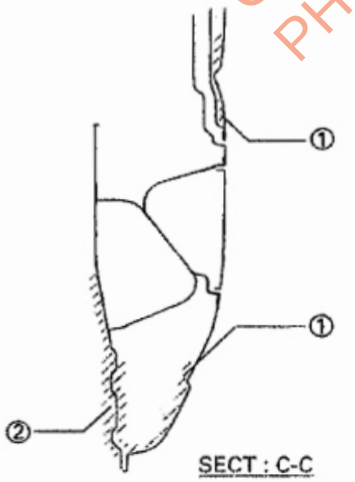




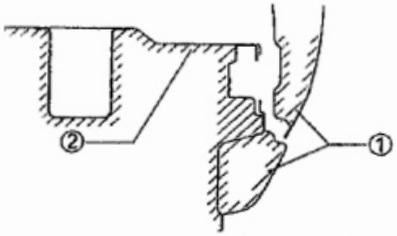
SECT : A-A



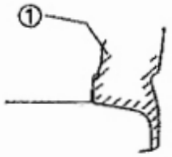
SECT : B-B



SECT : C-C



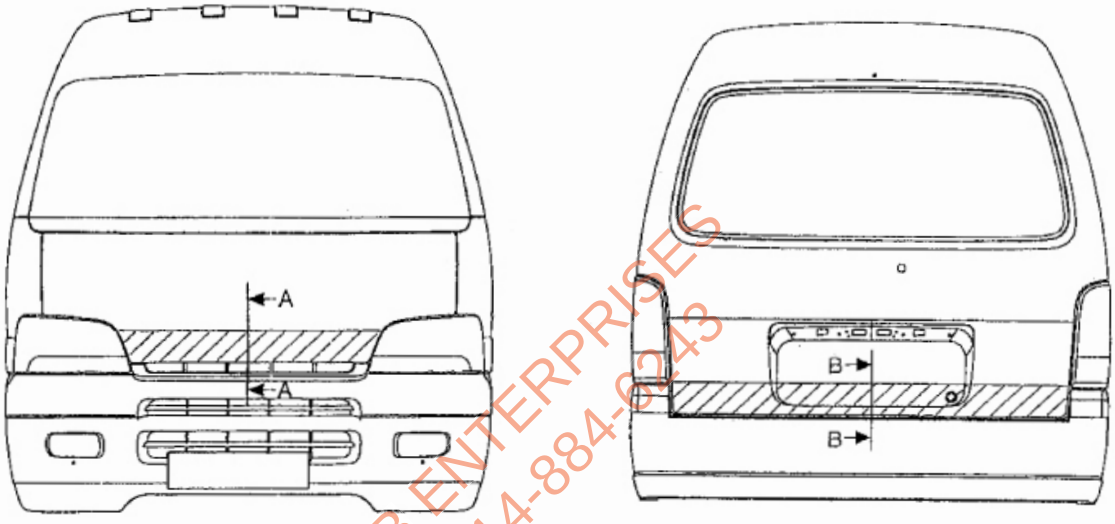
SECT : D-D

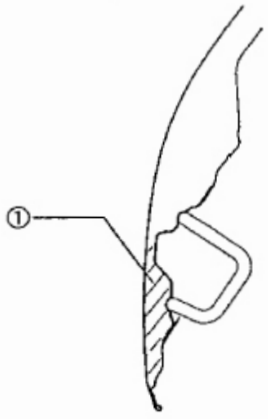


SECT : E-E

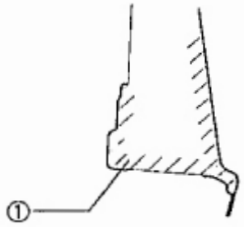
////: Apply rust preventive to shaded area.

①: Hot wax



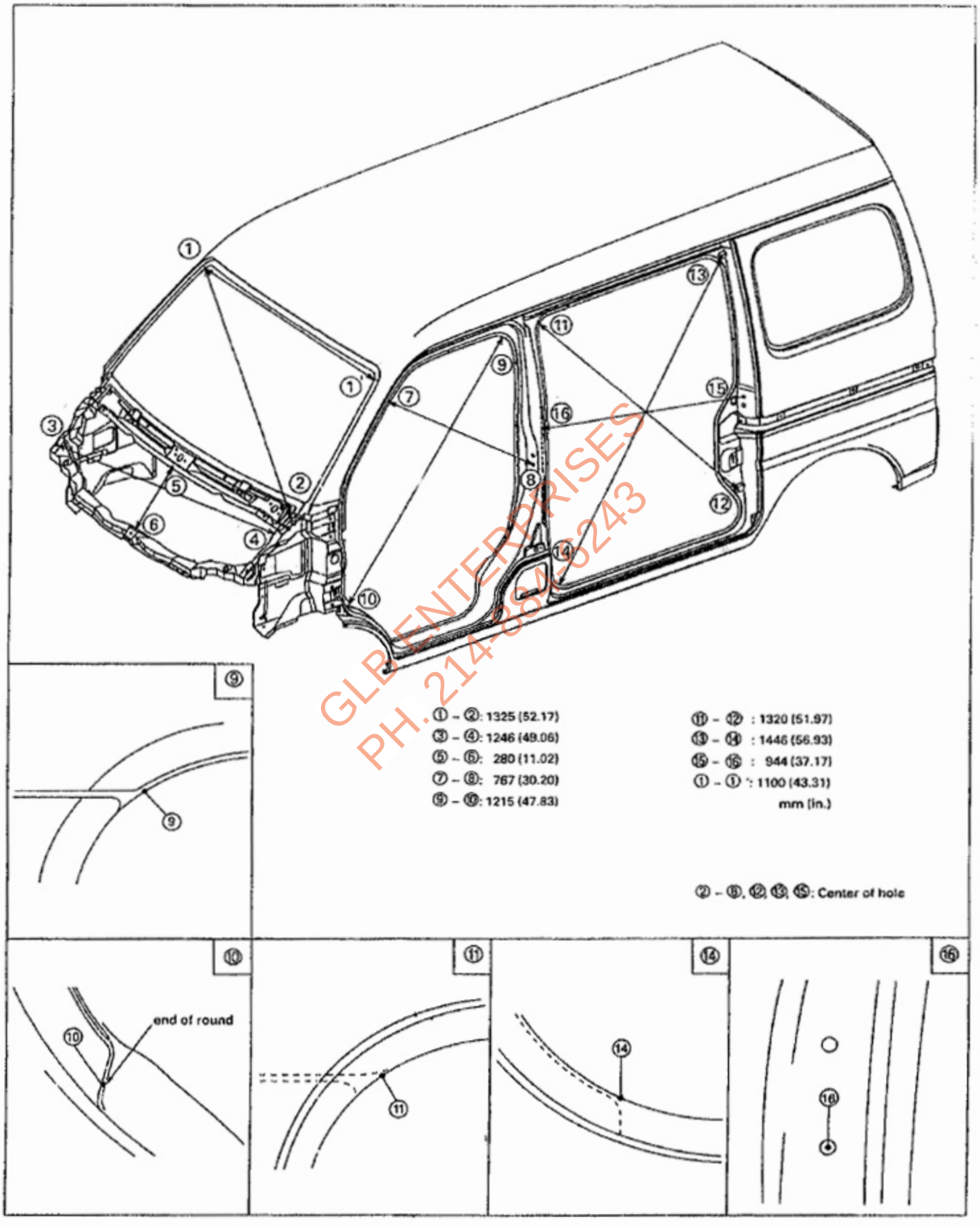


SECT : A-A

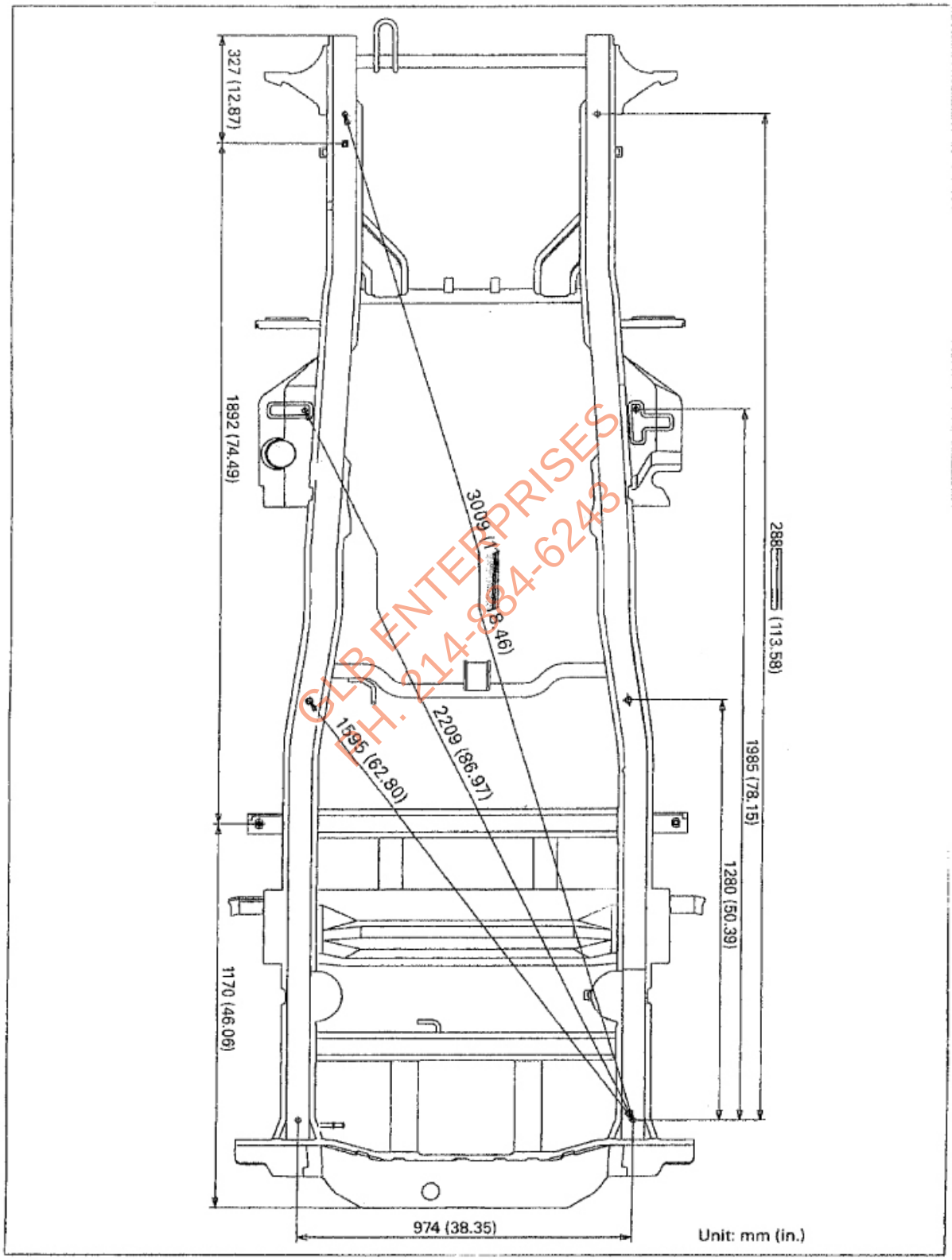


SECT : B-B

BODY DIMENSIONS



UNDERBODY DIMENSIONS



REMOVAL AND INSTALLATION

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(a): 35 N·m (3.5 kg-m, 25.3 lb-ft)

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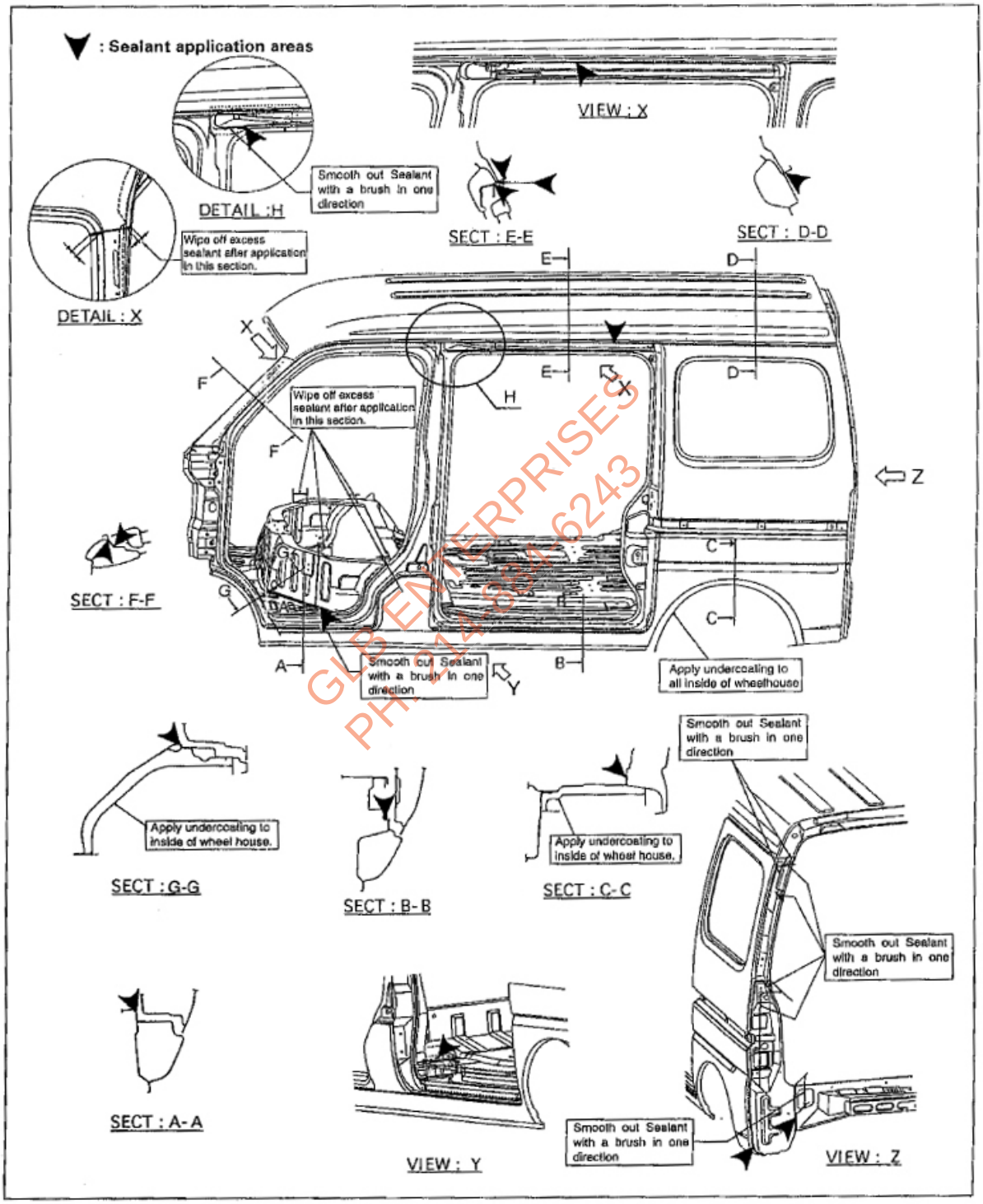
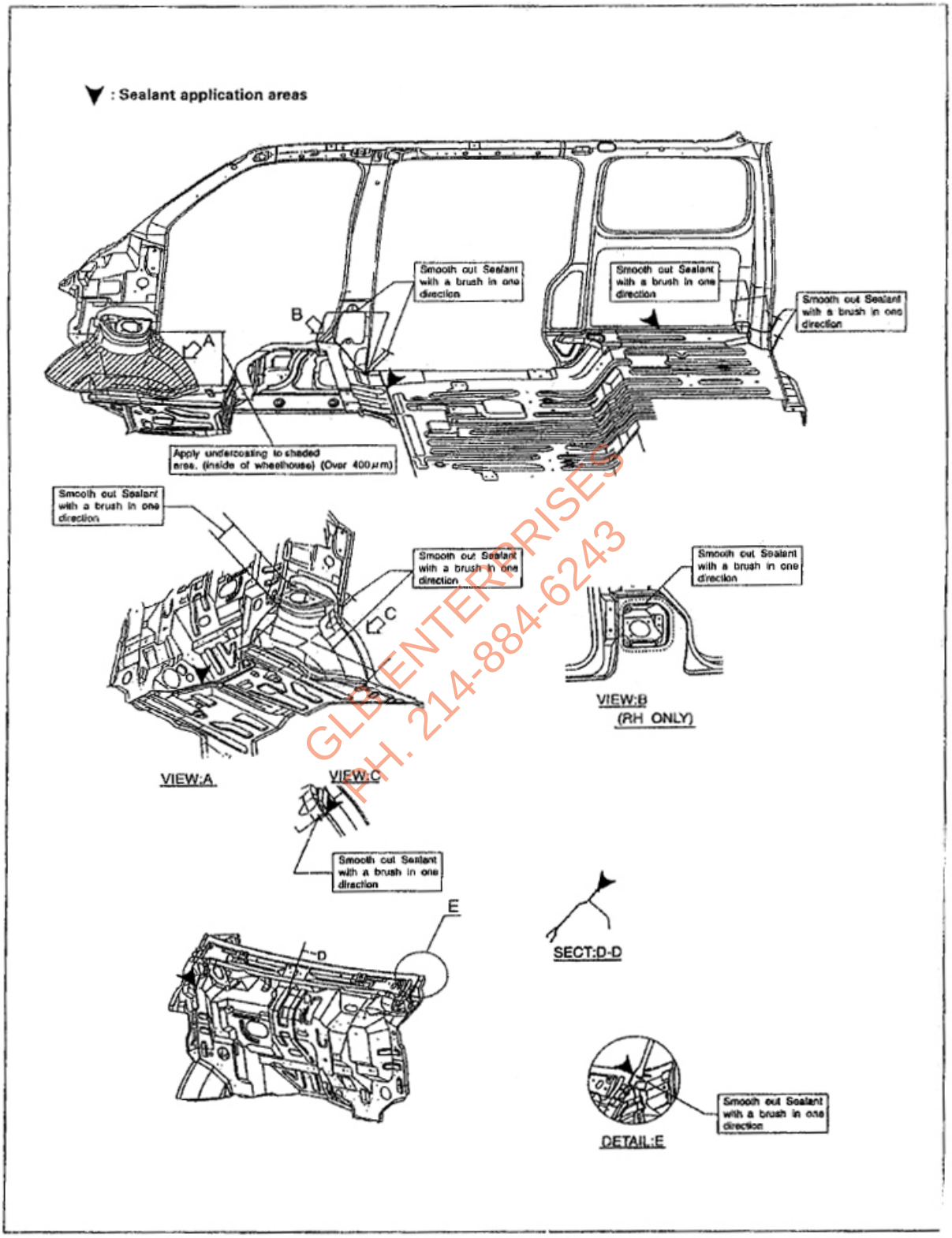
   Check driver's seat belt strap switch.

   For the details of seat belt warning system, refer to the Section 8 "BODY ELECTRICAL SYSTEM".

ANTI-CORROSION TREATMENT

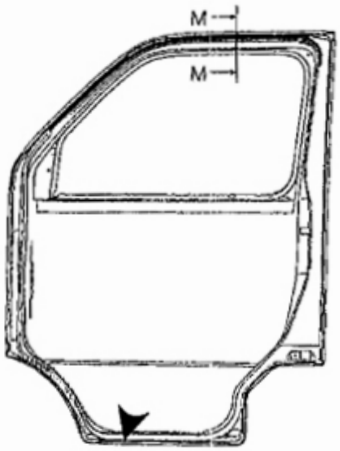
SEALANT APPLICATION AREAS





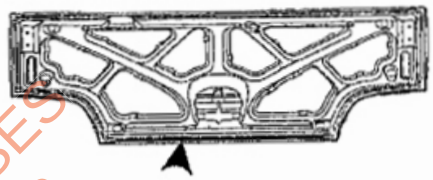
: Apply sealant

FRONT DOOR

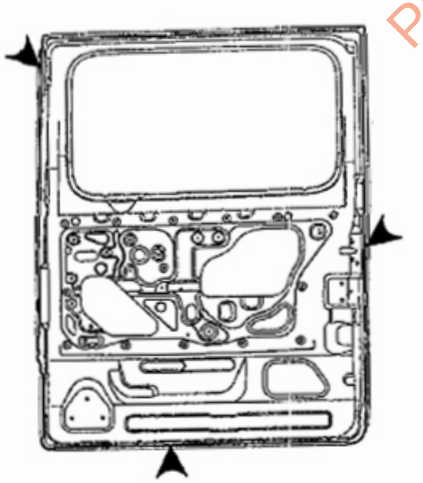


SECT : M-M

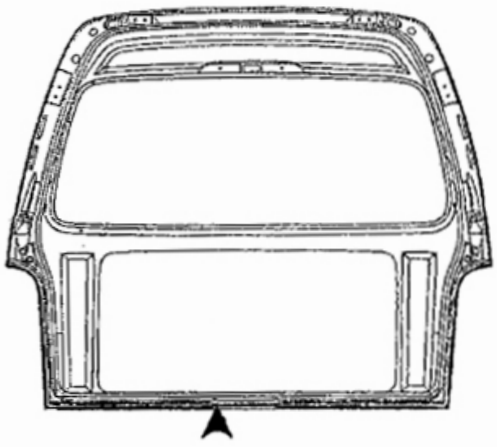
HOOD



REAR DOOR



BACK DOOR

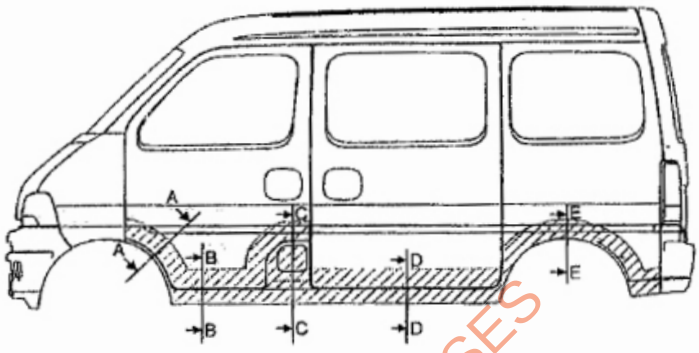


RUST-PROOF TREATMENT

////: Apply rust preventive to shaded area.

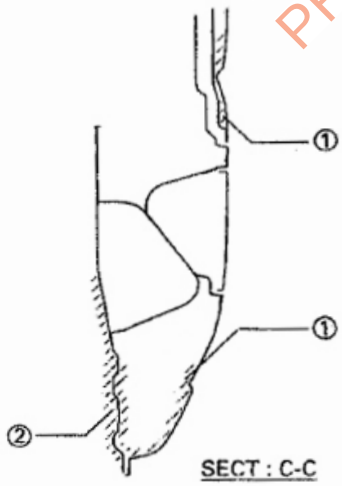
① : Hot wax

② : Underbody coat wax

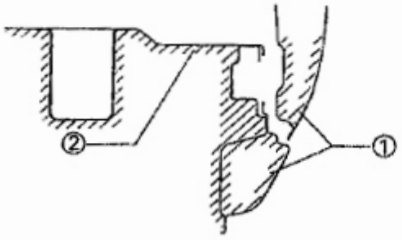


SECT : A-A

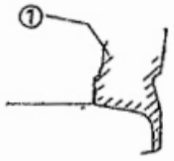
SECT : B-B



SECT : C-C



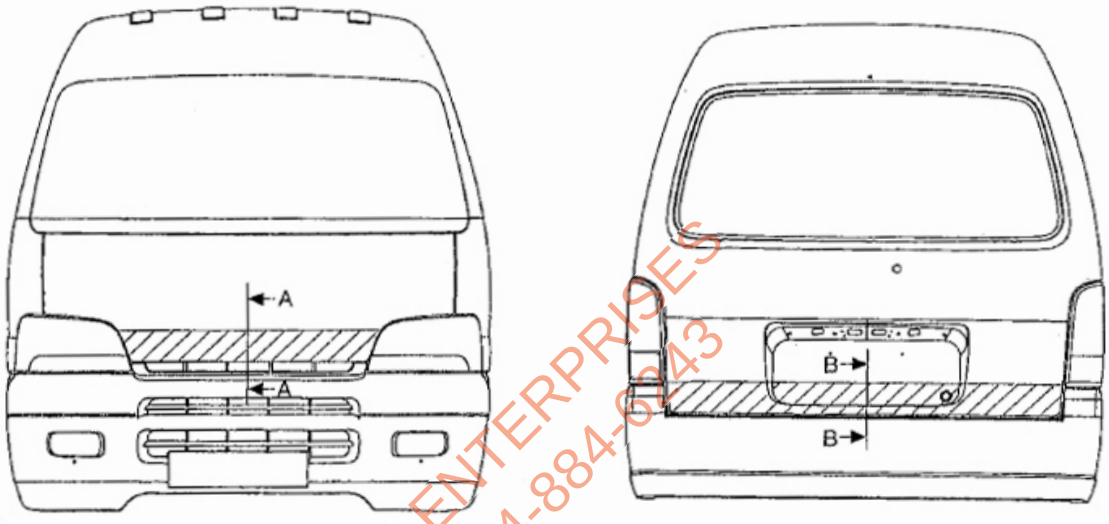
SECT : D-D

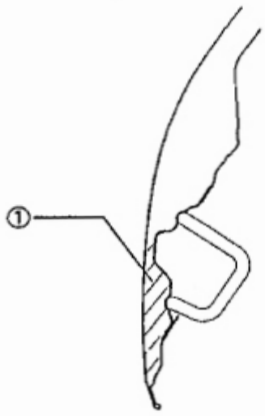


SECT : E-E

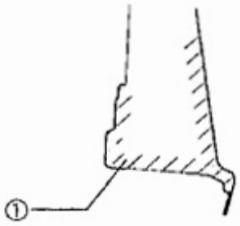
////: Apply rust preventive to shaded area.

①: Hot wax



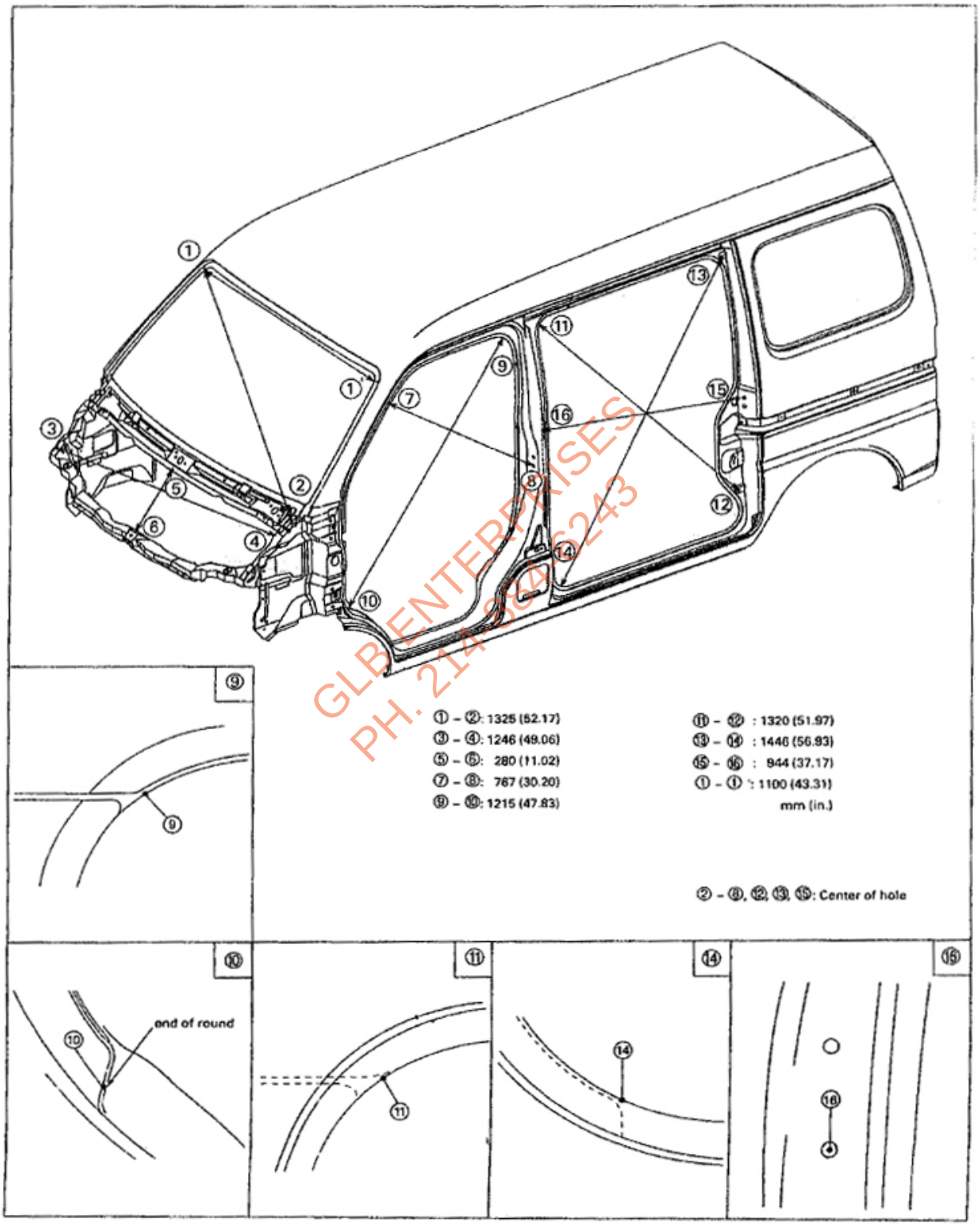


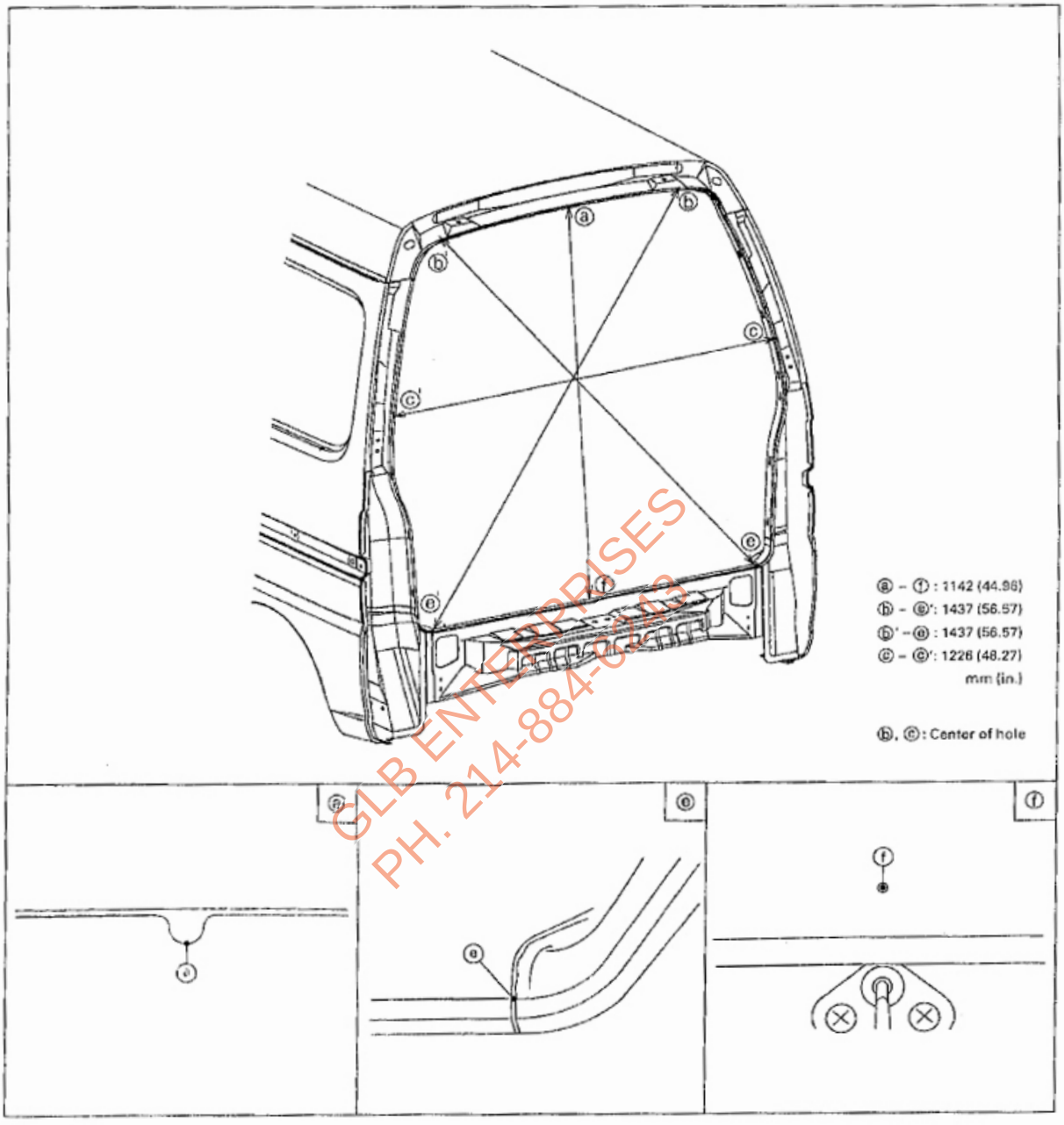
SECT : A-A



SECT : B-B

BODY DIMENSIONS





UNDERBODY DIMENSIONS