

Body (Interior & Exterior)

GENERAL	BD -2
EXTERIOR	BD -7
INTERIOR	BD -23
BUMPER	BD -37
SEAT	BD -41

GENERAL

ESHA0010

SPECIFICATIONS

Hood	
Type	Rear hinged, front opening type
Front door	
Construction	Front hinged, full door construction
Regulator system	Wire drum type
Locking system	Pin-fork system
Rear door	
Construction	Front hinged, full door construction
Regulator system	Wire drum type
Locking system	Pin-fork system
Tailgate	
Type	Inner hinged, gas lifter type
Glass thickness mm (in)	
Windshield glass	5 (0.20)
Front door glass	3.2 (0.13)
Rear door glass	3.2 (0.13)
Tailgate glass	3.2 (0.13)
Seat belt	E.L.R

E.L.R. : Emergency Locking Retractor

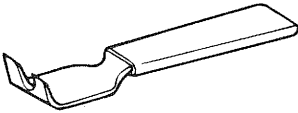
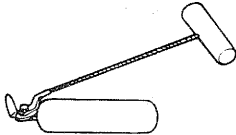
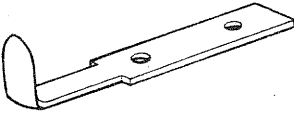
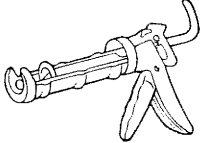
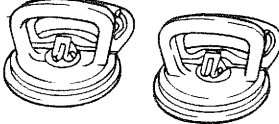
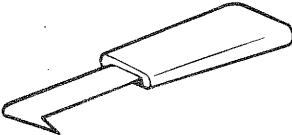
TIGHTENING TORQUE

ESHA0050

	Nm	kgf-cm	lb-ft
Front and rear doors			
Door hinge to body	34-42	340-420	24.6-30.4
Door hinge to door	13-26	130-260	9.4-18.8
Tailgate			
Tailgate lid hinge to body	7-9	70-90	5.1-6.5
Tailgate lid hinge to tailgate	7-9	70-90	5.1-6.5
Gas lifter to body	7-9	70-90	5.1-6.5
Gas lifter to tailgate	7-9	70-90	5.1-6.5
Hood			
Hood hinge to body	22-27	220-270	16-19.5
Hood hinge to hood	22-27	220-270	16-19.5
Hood latch to body	7-11	70-110	5.1-8.0
Seat belt			
Front seat belt upper anchor	40-55	400-550	28.9-39.8
Front seat belt retractor	40-55	400-550	28.9-39.8
Height adjuster	40-55	400-550	28.9-39.8
Second and third seat belt upper anchor	40-55	400-550	28.9-39.8
Second and third seat belt lower anchor	40-55	400-550	28.9-39.8
Second and third seat belt retractor anchor	40-55	400-550	28.9-39.8
Seat			
Front seat mounting bolts and nuts	35-55	350-550	25.4-40

SPECIAL TOOLS

ESHA0100

Tool (Number and name)	Illustration	Use
09793-21000 Door hinge adjusting wrench	 ESA9010F	Adjustment, removal, and installation of the door hinge
09800-21000 Ornament remover	 ESA9010G	Trim removal
09853-31000 Headlining clip remover	 ESA9010H	Removal of the headlining clip
09861-31100 Sealant cut-out tool	 ESA9010I	Cutting the sealant for the windshield glass (use with 09861-31200)
09861-31200 Sealant cutting blade	 ESA9010J	Cutting the sealant for the windshield glass (use with 09861-31100)
09861-31300 Sealant gun	 ESA9010K	Application of the sealant to the windshield glass
09681-31400 Glass holder	 ESA9010L	Removal and installation of the windshield glass
09681-31000 Windshield glass moulding remover	 ESA9010M	Removal of the windshield glass moulding

TROUBLESHOOTING

ESHA0150

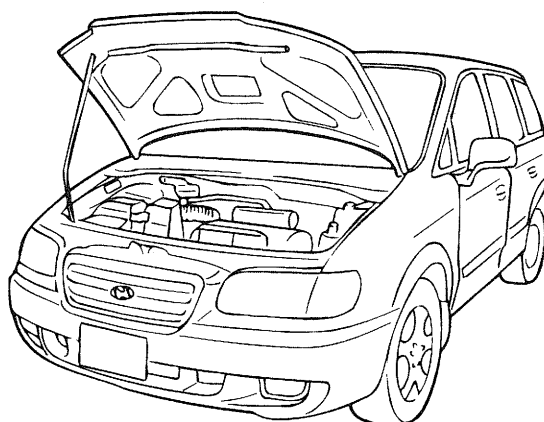
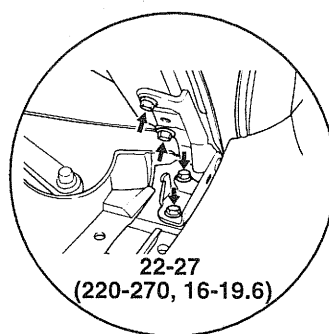
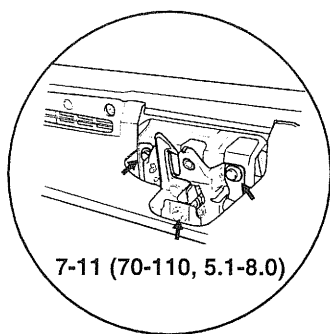
Trouble symptom	Probable cause	Remedy
Water leaks from sunroof	Dirt accumulated in drain pipe	Clear dirt inside of drain pipe
	Clogged drain pipe	Blow air into drain pipe to remove dirt
	Broken or dislocated drain pipe, defective or cracked clip	Check pipe installation and flange contact
	Deteriorated roof lid weatherstrip	Replace
	Excessive roof lid-to-body clearance and improperly fitted weatherstrip	Adjust
Wind noise	Loose or deformed deflector	Retighten or replace
Roof lid makes a noise when moved	Foreign particles lodged in guide rail	Check drive cable and guide rails for foreign particles
	Loosed guide rails and lid	Retighten
Motor runs but lid does not move or moves only halfway	Foreign particles lodged in guide rail	Check drive cable and guide rails for foreign particles
	Incorrect engagement of motor pinion with drive cable	Check for loose motor installation and damaged pinion
	Decrease in clutch slipping force of motor	Adjust
	Increased lid sliding resistance or interference of lid with drive cables, weatherstrip, etc. due to maladjustment of lid	Adjust or replace
Noise in motor (Clutch slipping noise from motor when lid is fully opened or closed is not an unusual noise.)	Incorrect engagement of motor pinion with drive cable	Check pinion installation and retighten motor
	Worn out or damaged motor pinion bearing	Replace motor assembly
	Worn out or deformed drive cable	Replace
Door glass fails to operate up and down	Incorrect window glass installation	Adjust position
	Damaged or faulty regulator arm or regulator	Correct or replace
Door does not open or close completely	Incorrect door installation	Adjust position
	Defective door check	Correct or replace
	Door hinge required grease	Apply grease
Hood does not open or close completely	Striker and latch not properly aligned	Adjust
	Incorrectly installed hood	Adjust
	Incorrect hood bumper height	Adjust
Water leak through windshield and rear window	Defective seal	Fill with sealant
	Defective flange	Correct

Trouble symptom	Probable cause	Remedy
Wind noise around door	Weatherstrip not holding firmly	Adjust fit of door
	Improperly installed weatherstrip or setting of weatherstrip setting of weatherstrip	Repair or replace
	Improperly closed door	Adjust
	Improperly fit door	Adjust
	Improper clearance between door glass and division channel	Adjust
	Deformed door	Repair or replace

EXTERIOR

HOOD

COMPONENTS ESHA0200

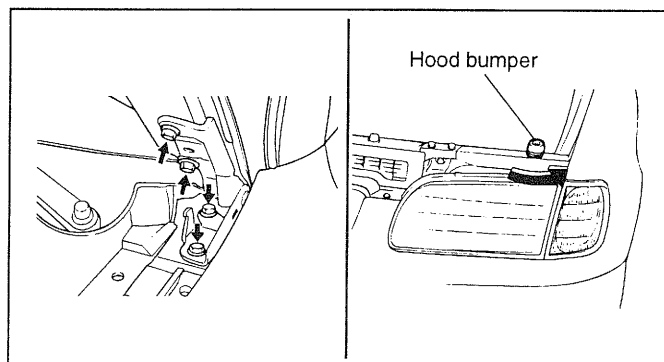


TORQUE : N·m (kg·cm, lb·ft)

ESHA005C

HOOD ALIGNMENT ADJUSTMENT ESHA0250

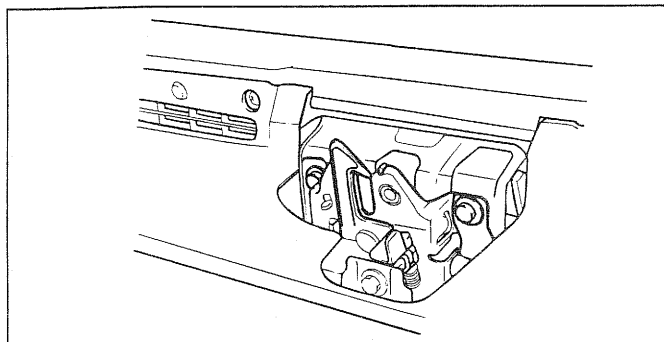
1. Adjust the longitudinal and lateral positions of the hood by utilizing the holes in the hinge.
2. Turn the hood bumpers either clockwise or counter-clockwise to adjust the height of the hood.



ESHA005A

3. Loosen the bolts holding the hood latch.

4. Adjust the alignment of the hood striker and the hood latch by adjusting the horizontal and vertical position of the latch and the height of the hood.

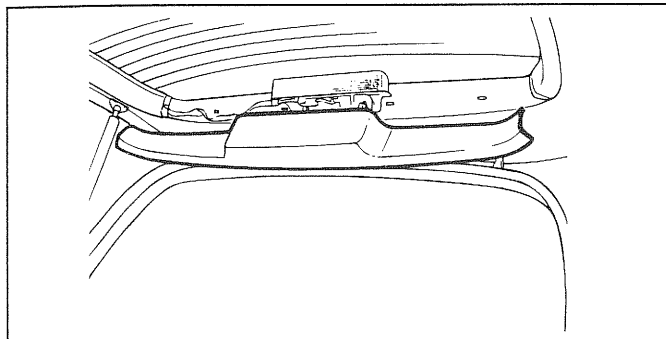


ESHA005B

TAILGATE

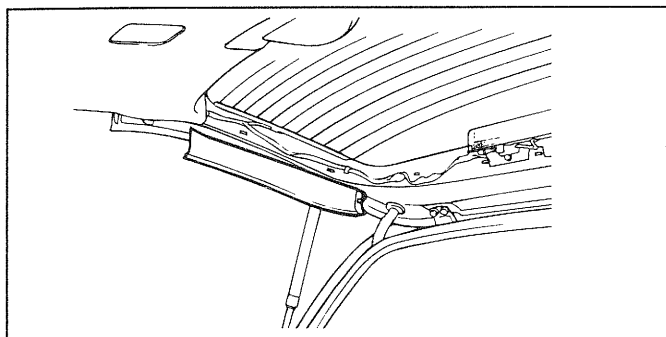
REMOVAL AND INSTALLATION ESHA0300

1. Remove the upper trim from the tailgate frame.



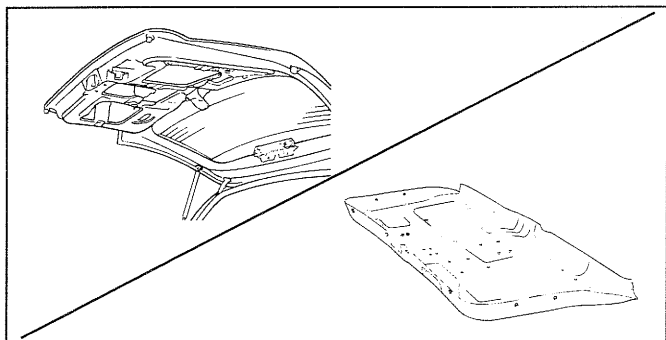
ESHA010A

2. Remove the side trim from the tailgate frame.



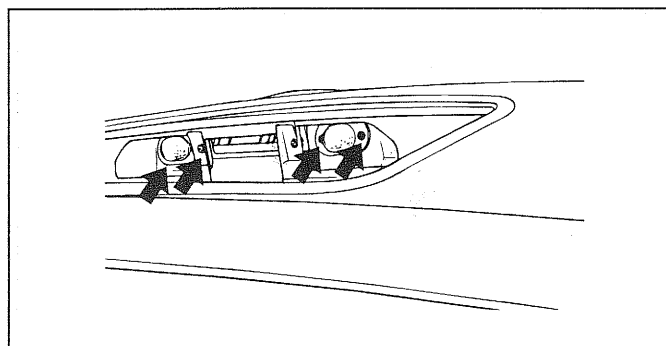
ESHA010B

3. Remove the tapping screw and the trim grip and then the tailgate trim panel.



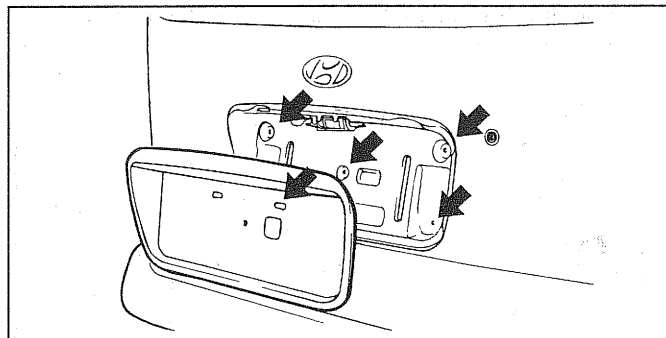
ESHA010C

4. Remove the license lamp



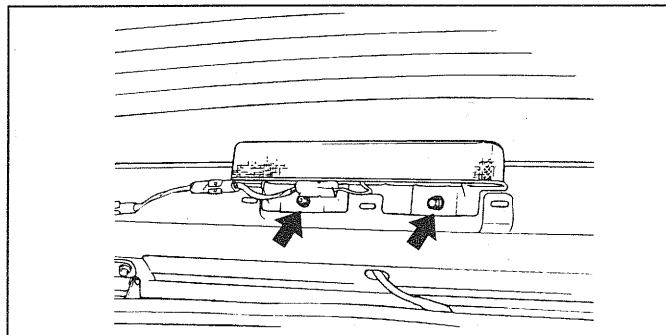
ESHA010E

5. Remove the back panel molding.



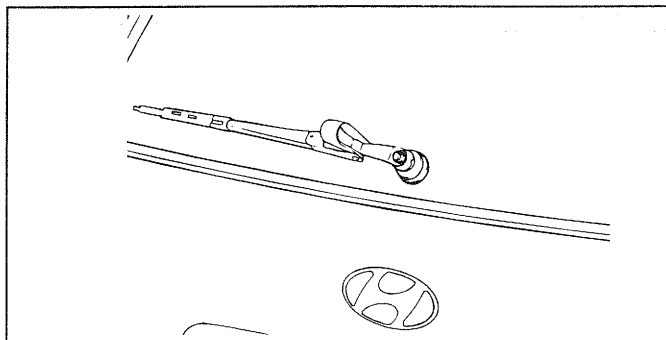
ESHA010F

6. Remove the high mounted stop lamp.

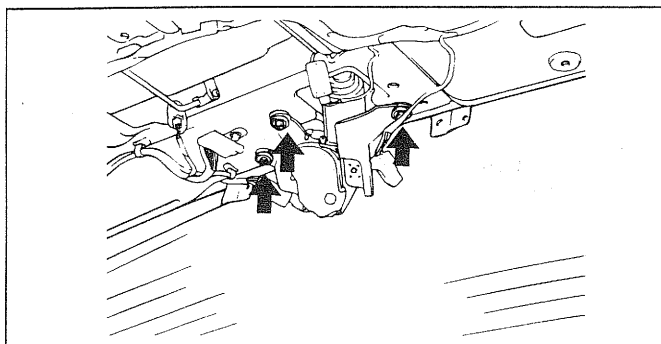


ESHA010H

7. Remove the rear wiper motor.

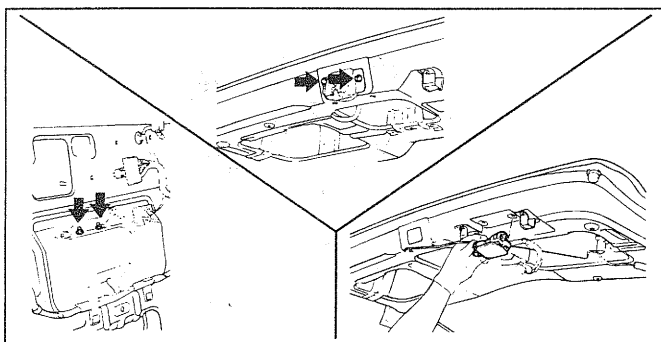


ESHA010I

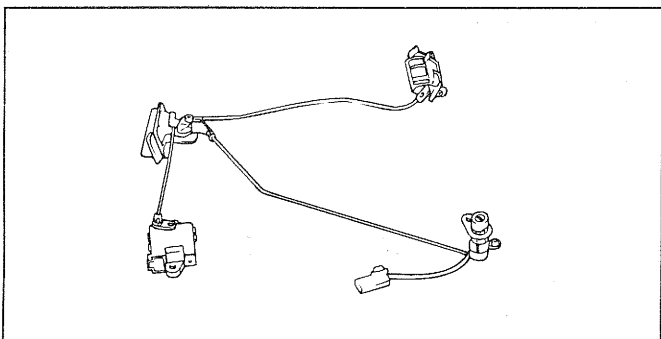


ESHA010J

8. Remove the tailgate outside handle, the tailgate actuator, the tailgate latch, and the key cylinder.



ESHA010G



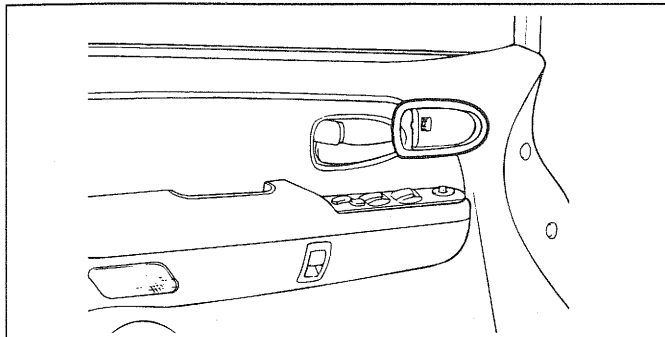
ESHA010M

9. Remove the tailgate lifter.
10. Installation is the reverse of the removal process.

FRONT DOOR

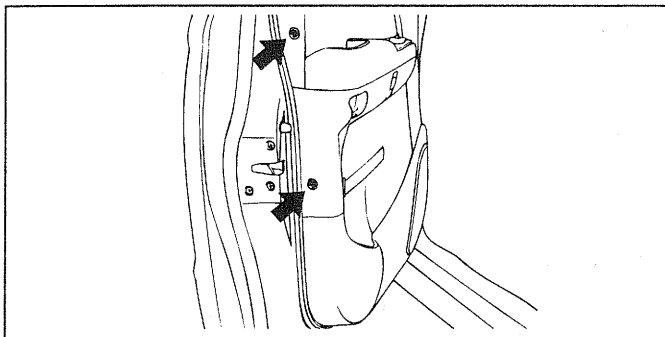
REMOVAL AND INSTALLATION ESHA0350

1. Loosen the screw holding the handle inside door.



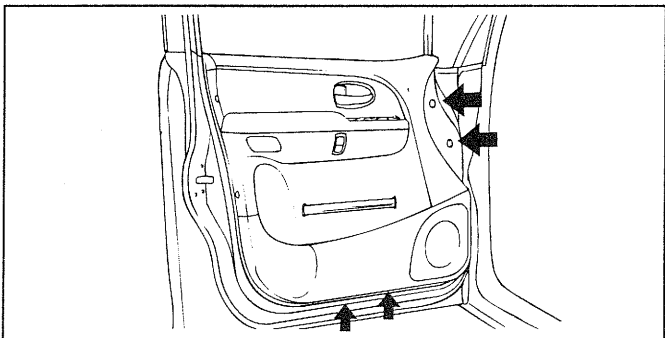
ESHA015A

2. Remove the tapping screw cap and loosen the tapping screws.



ESHA015B

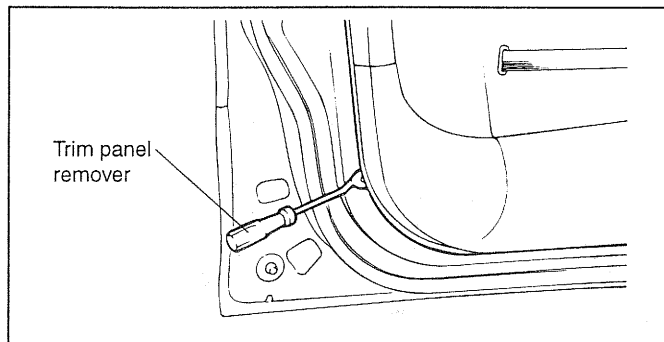
3. Loosen the screws holding the door trim panel.



ESHA015C

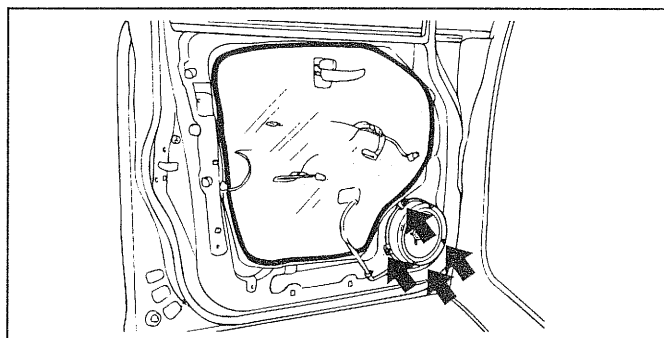
4. Insert a trim panel remover between the trim fasteners and the door trim panel to pry off.

Disconnect the wire connectors from the front door.



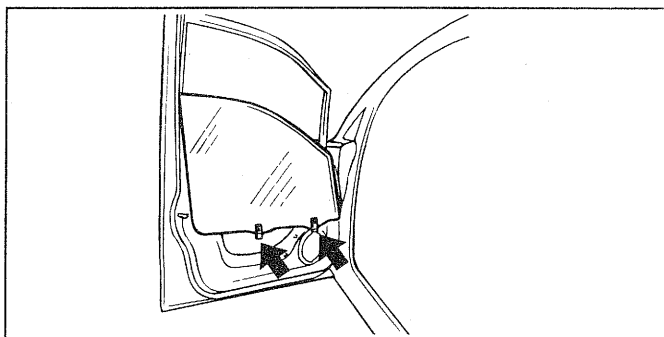
ESHA015D

5. Remove the front speaker and the door trim seal.



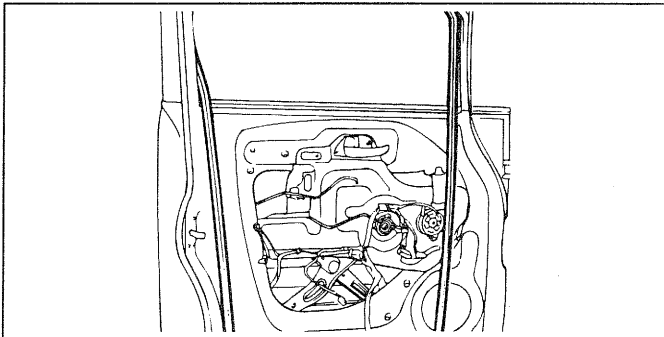
ESHA015E

6. Remove the front door glass from the front door module.



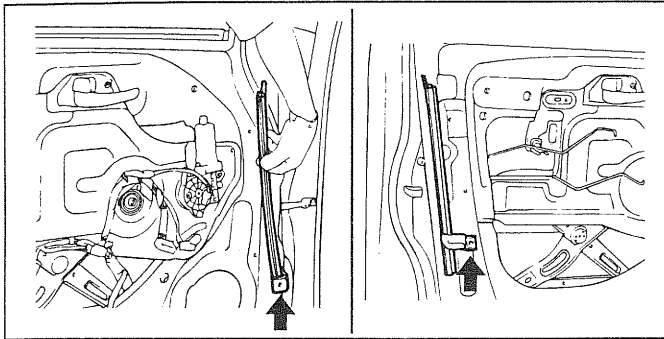
ESHA015F

7. Remove the front door window glass run.



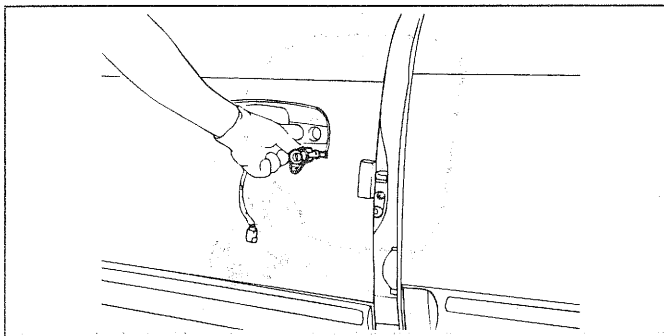
ESHA015G

8. Remove the front channel and the rear channel from the front door.



ESHA015H

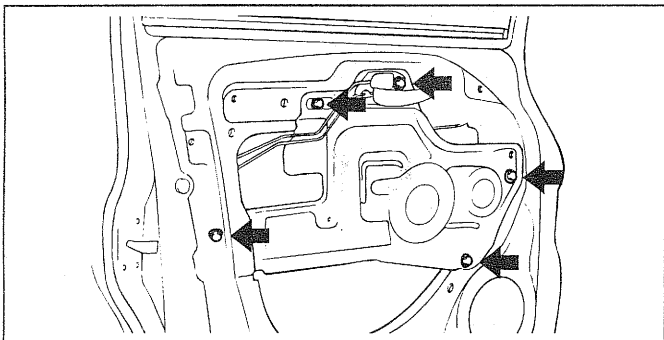
9. Remove the door key cylinder.



ESHA015J

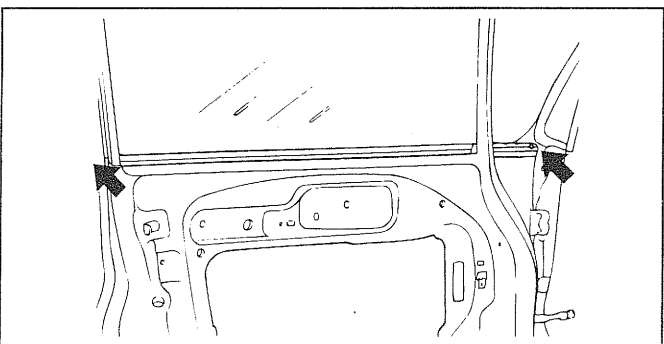
10. Loosen the bolts holding the handle outside front door, the latch, and the door lock actuator.

Remove the wire harness and the front door module.



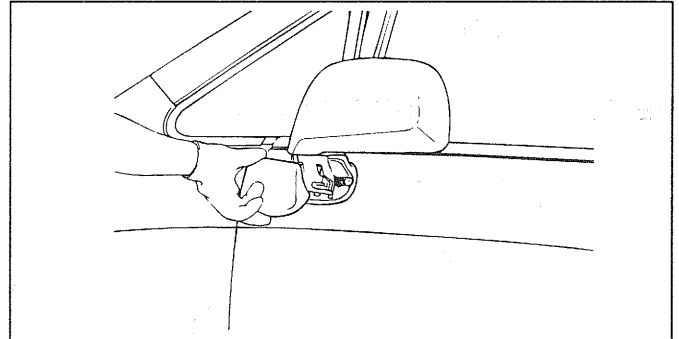
ESHA015K

11. Remove the weather strip outside door belt.



ESHA015L

12. Remove the outside rear view mirror.



ESHA015M

13. Installation is the reverse of the removal process.

When installing the door trim seal, butyl tape should not be placed over the area when installing the door trim fastener.

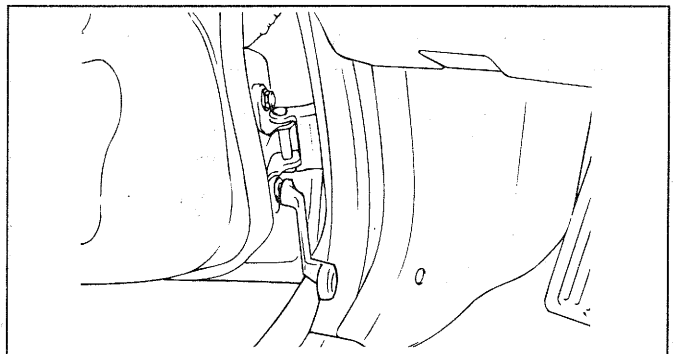
ADJUSTMENT ESHA0400

DOOR POSITION

Check for a flush fit with the body, then check for an equal gap between the front and rear, top and bottom door edges and the body. The door and body edges should also be parallel.

CAUTION

Attach protective tape to the fender edges where the hinge is installed.

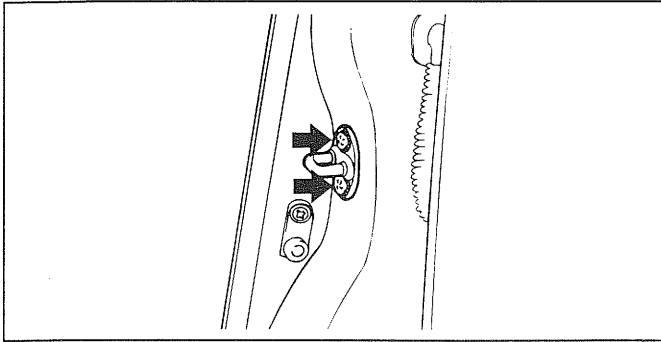


ESA9095A

DOOR STRIKER

Make sure the door is not loose, and that it latches securely without slamming. If necessary, adjust the door as follows :

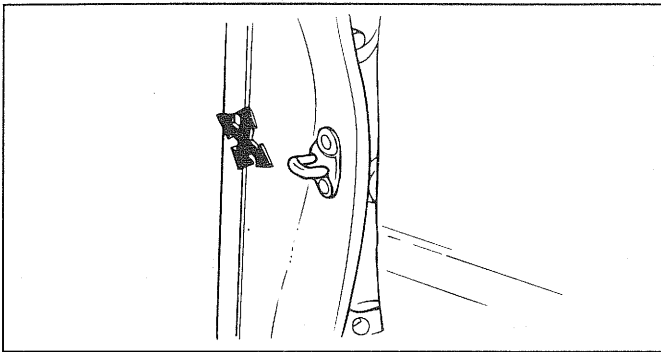
1. Draw a line around the striker plate for reference.
2. Loosen the striker screws, and move the striker IN and OUT to make the latch fit tighter or looser. Move the striker UP and DOWN to align it with the latch opening. Then lightly tighten the screws and recheck.



ESHA015N

NOTE

Hold the outside handle outward and push the door against the body to ensure the striker has a tight fit.

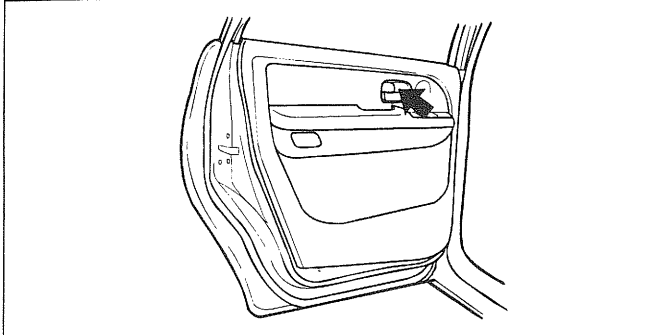


ESA9095B

REAR DOOR

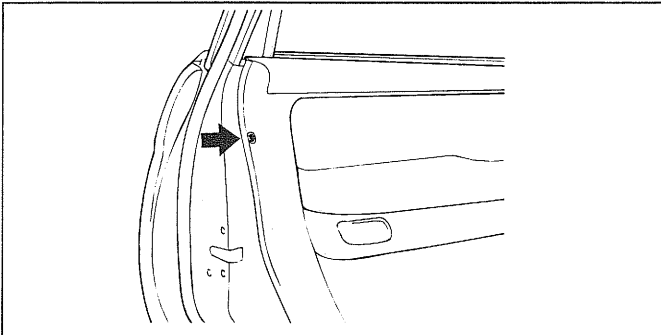
REMOVAL AND INSTALLATION ESHA0450

1. Loosen the screw holding the handle inside the door.



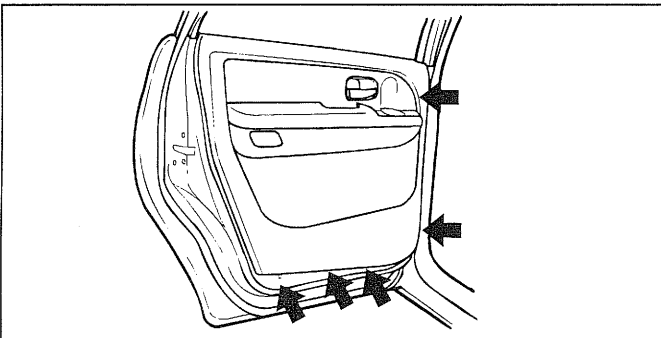
ESHA020A

2. Remove the tapping screw cap and then loosen the tapping screws.



ESHA020B

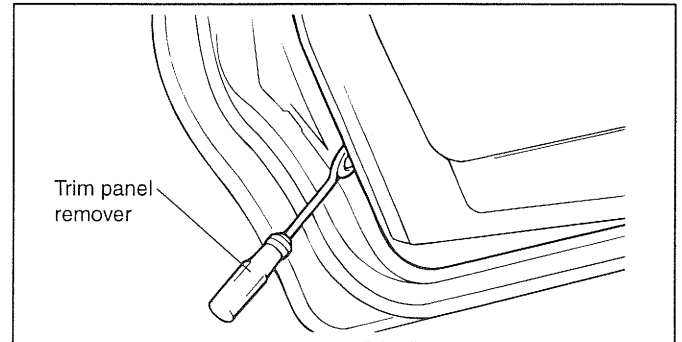
3. Remove the screws holding the door trim panel.



ESHA020C

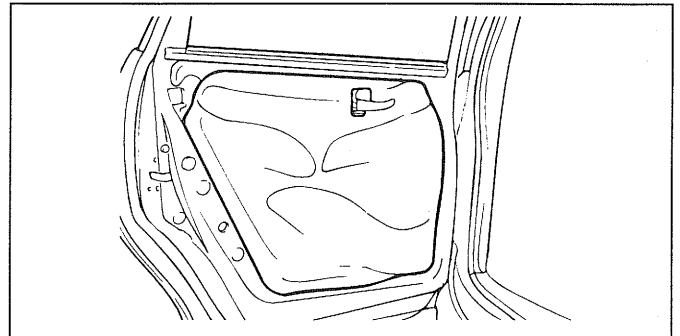
4. Insert a trim panel remover between the trim fasteners and the door trim panel to pry off.

Disconnect the wire connectors from the rear door.



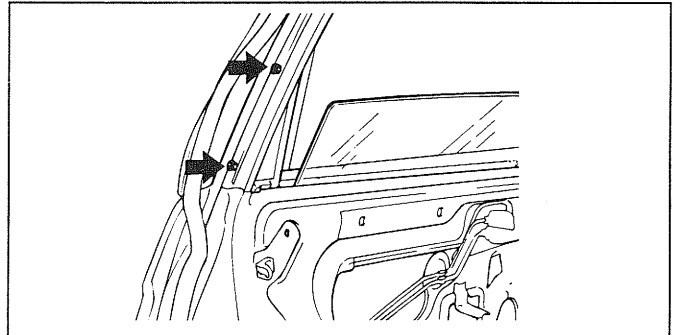
ESHA020D

5. Remove the door trim seal.



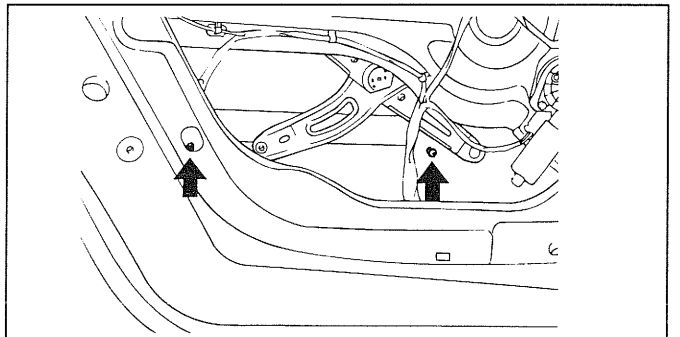
ESHA020E

6. Remove the delta cover from the rear door.



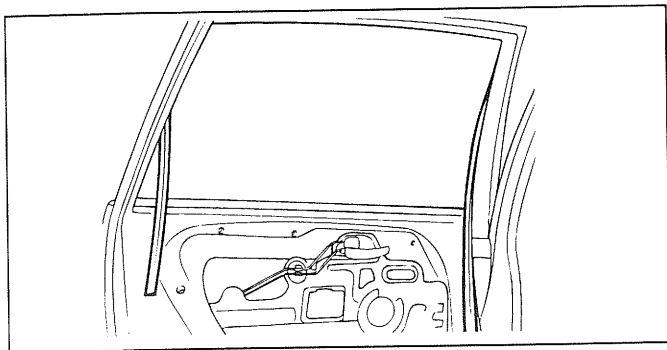
ESHA020F

7. Remove the rear door glass from the rear door module.



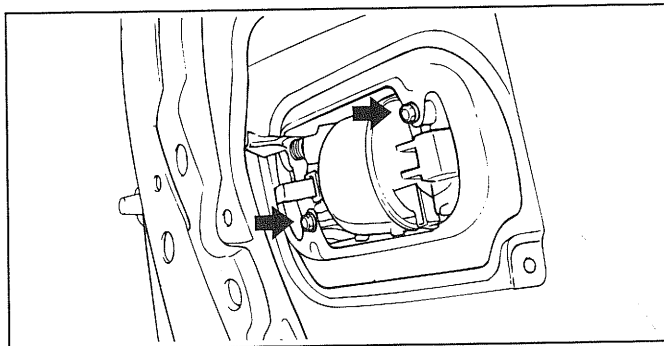
ESHA020G

8. Remove the rear door glass run.



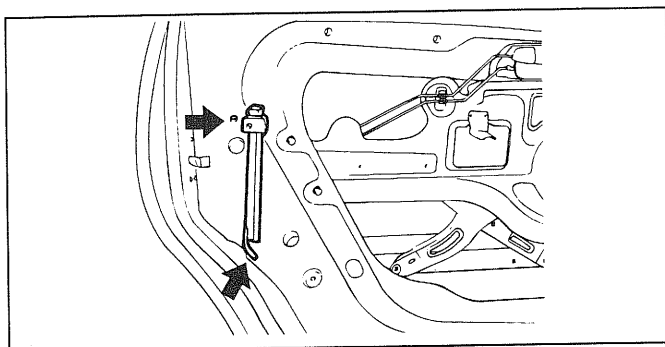
ESHA020H

12. Remove the rear door outside handle.



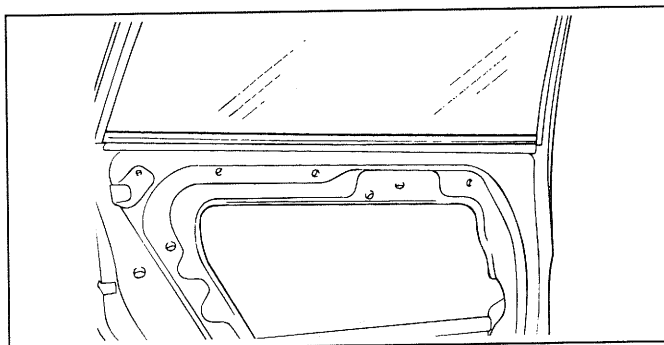
ESHA020J

9. Remove the rear panel from the rear door.



ESHA020I

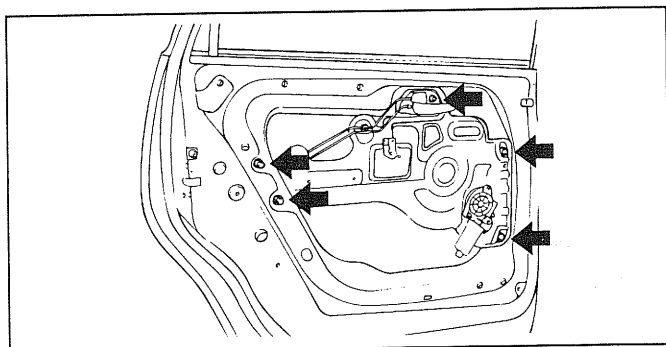
13. Remove the weather strip outside rear door belt.



ESHA020M

10. Disconnect the rod from the outside handle.

Remove the latch and the wire harness and the rear door module.

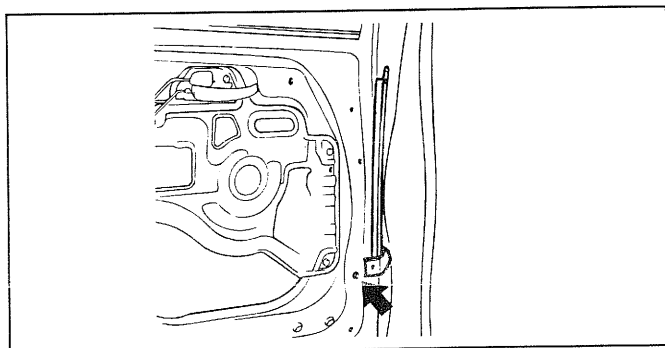


ESHA020K

14. Installation is the reverse of the removal process.

When installing the door trim seal, butyl tape should not be placed over the area installing the door trim fastener.

11. Remove the rear door front panel.



ESHA020L

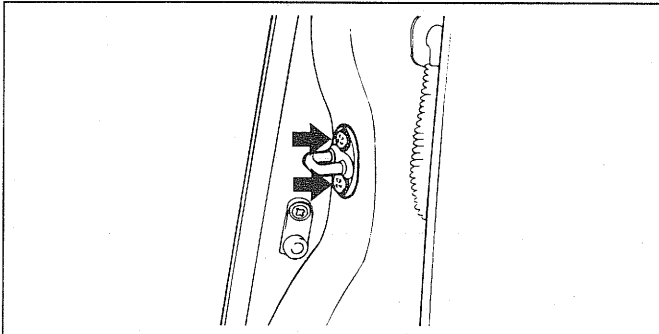
ADJUSTMENT ESHA0500**DOOR POSITION**

Check for a tight fit with the body, then check for an equal gap between the front and rear, top and bottom door edges and the body. The door and body edges should also be parallel.

DOOR STRIKER

Make sure the door is not loose, and that it latches securely without slamming. If necessary, adjust the door as follows :

1. Draw a line around the striker plate for reference.
2. Loosen the striker screws, and move the striker IN and OUT to make the latch fit tighter or looser. Move the striker UP and DOWN to align it with the latch opening. Then lightly tighten the screws and recheck.



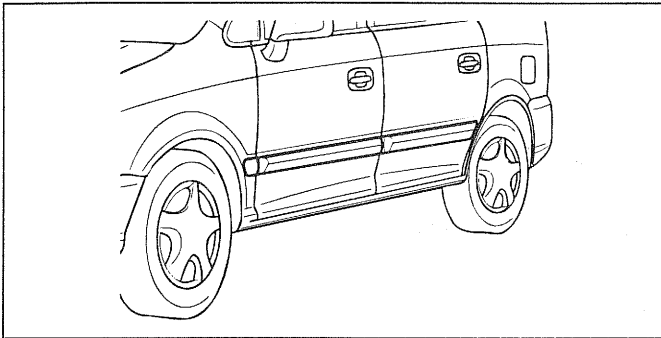
ESHA015N

BODY SIDE MOLDINGS**REMOVAL AND INSTALLATION** ESHA0550**WAISTLINE MOLDING**

Beginning from either end, remove the waistline molding using the special tool (09800-21000) from the front and rear doors.

CAUTION

Take care not to scratch or bend the door moldings.



ESHA025C

ROOF SIDE GARNISH ESHA0600

1. Remove the roof side garnish by using a flat bladed screwdriver.

CAUTION

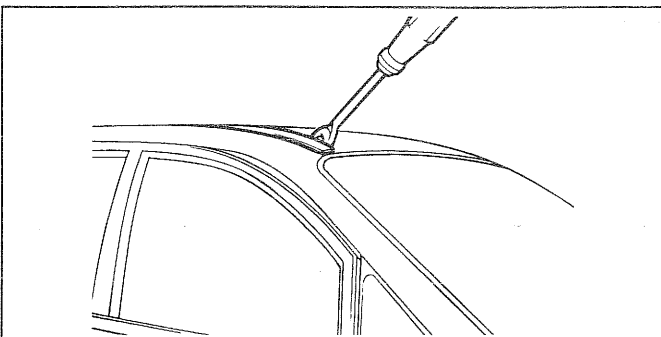
When prying with a flat bladed screwdriver, wrap it with protective tape to prevent damage.

In order not to scratch the body and roof side garnish, use protective tape on the body.

2. Pull the roof side garnish up, then remove the roof side garnish.
3. Installation is the reverse of the removal process.

NOTE

If necessary, replace any damaged clips.

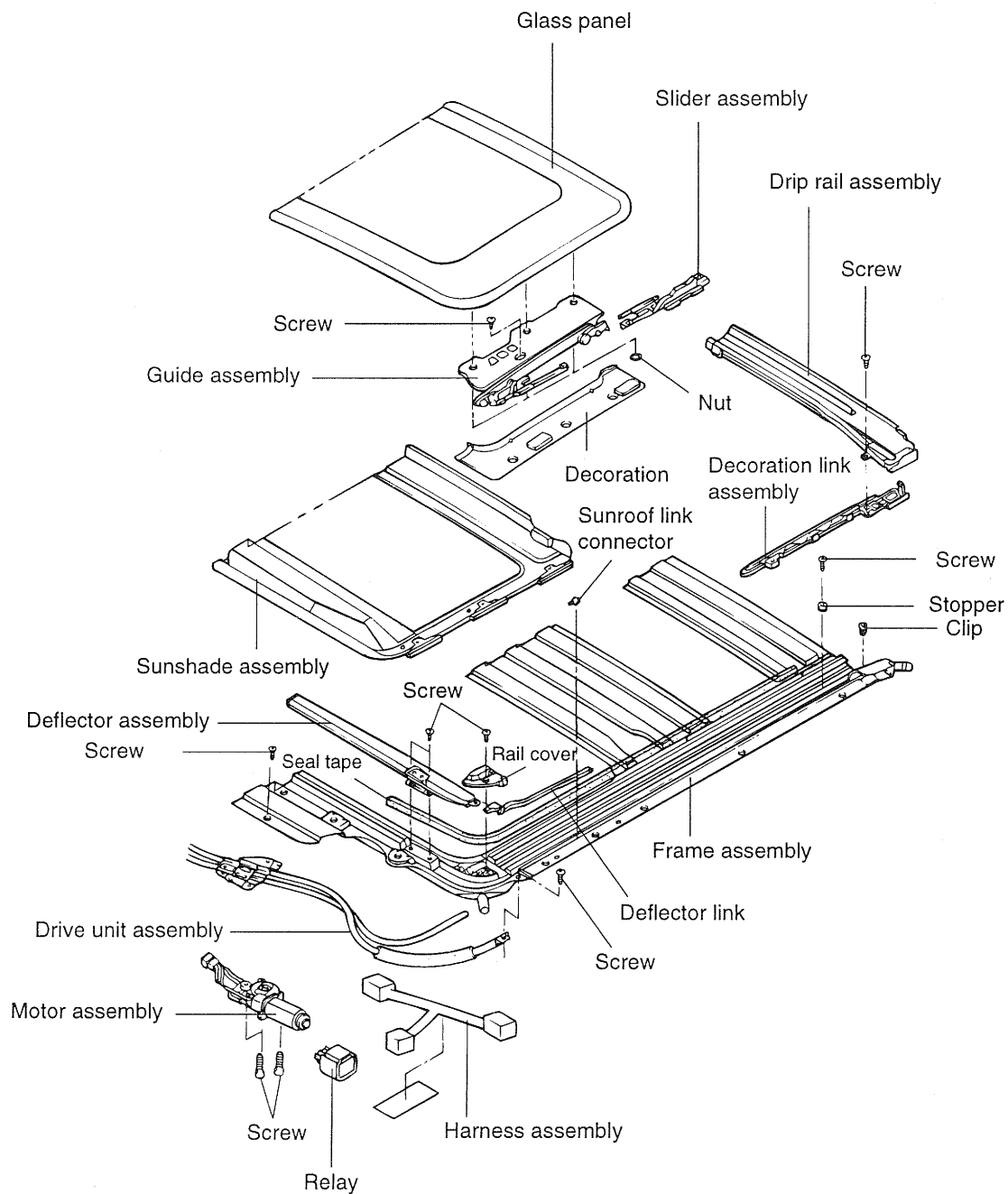


ESHA025B

SUN ROOF

COMPONENTS

ESHA0650



ESHA065A

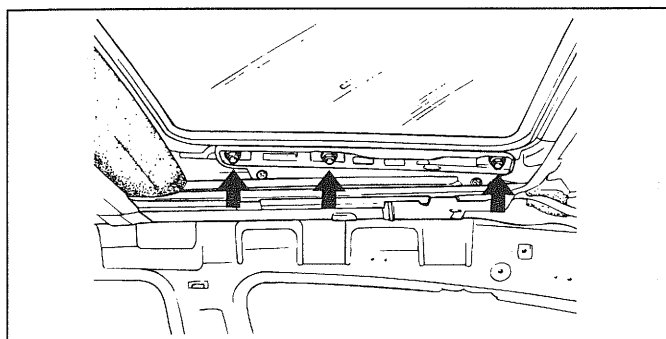
REMOVAL ESHA0700

1. To remove the sunroof, first remove the following parts :
 - 1) Overhead console lamp.
 - 2) Sunvisor and grip handle.
 - 3) Pillar trims.
2. Remove the decoration cover and the glass panel.

Tightening torque

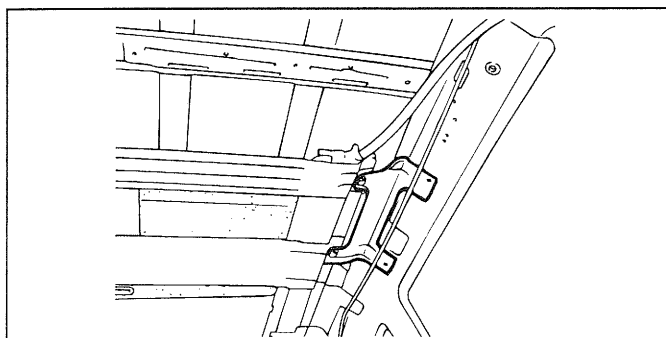
Glass panel mounting nuts :

4-6 Nm (40-60 kg·cm, 2.9-4.4 lb·ft)



ESA9011K

3. Disconnect the drain hose.



ESHA027A

4. Loosen the bolts and nuts holding the sunroof and then remove the sunroof assembly.

Tightening torque

Sunroof mounting bolts:

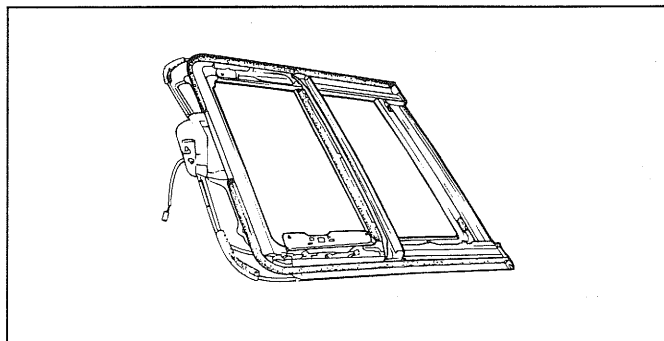
7-11 Nm (70-110 kg·cm, 5.1-8.0 lb·ft)

Sunroof mounting nuts:

4-6 Nm (40-60 kg·cm, 2.9-4.4 lb·ft)

NOTE

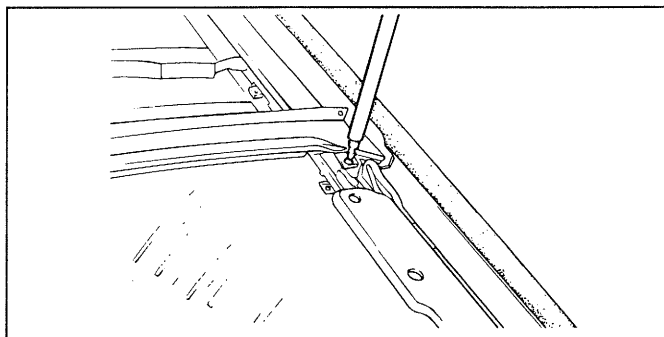
When removing the sunroof assembly, carefully pull out the sunroof assembly to avoid damage to the other parts.



ESA9011B

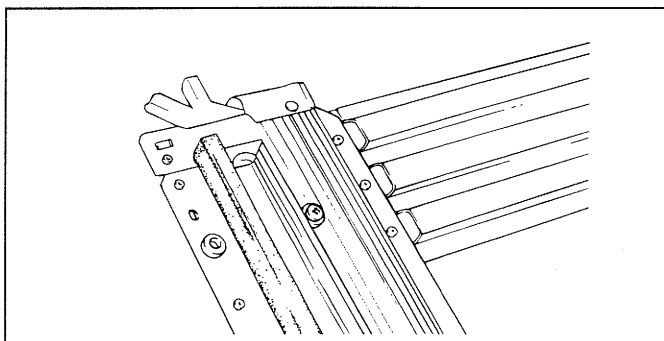
DISASSEMBLY ESHA0750

1. Remove the drip rail.



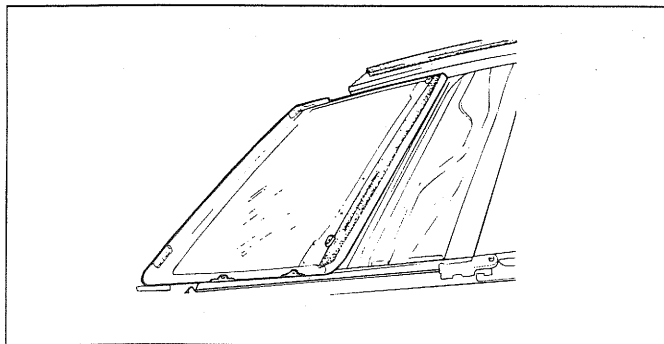
ESA9011C

2. Remove the stopper.



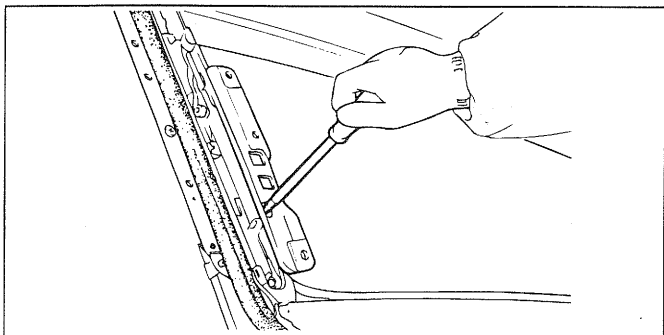
ESA9011D

3. Remove the sun shade.



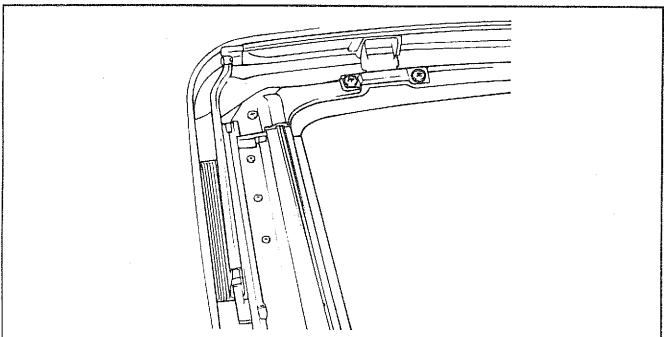
ESA9011E

4. Remove the guide assembly.



ESA9011F

5. Remove the deflector.

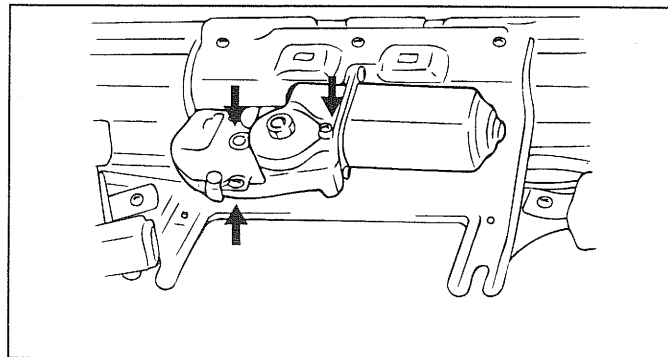


ESA9011G

6. Remove the motor assembly.

CAUTION

When removing the motor, the slider assembly should always be in a fully closed position. If there is discrepancy between the glass position and the motor ring in a fully closed position, the sunroof will not operate correctly.



ESA9060N

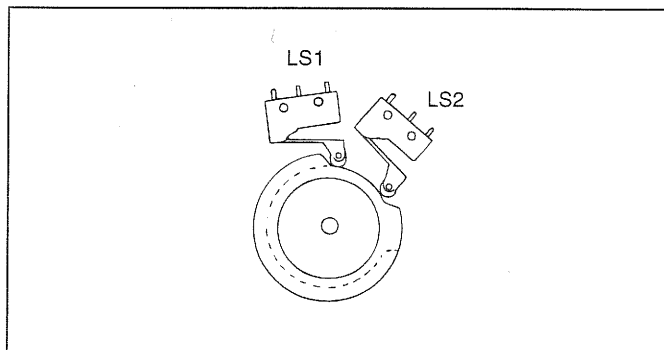
INSTALLATION

ESHA0850

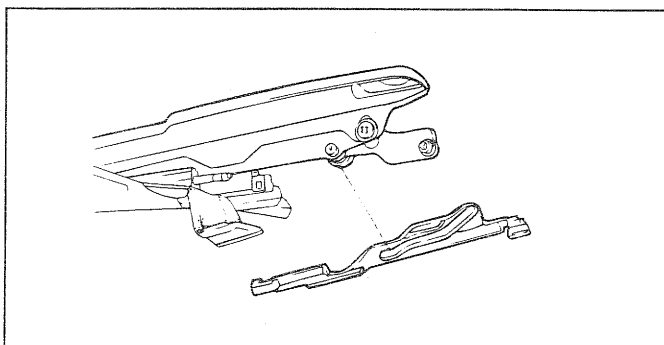
Installation is the reverse of the removal process.

NOTE

Check that the limit switches (LS1 and LS2) of the motor are the fully closed. Align the guide roller center and slider mating mark in the fully closed position.



ESA9070D



ESA9011H

CHECK OPERATING CONDITION AFTER INSTALLATION

ESHA0900

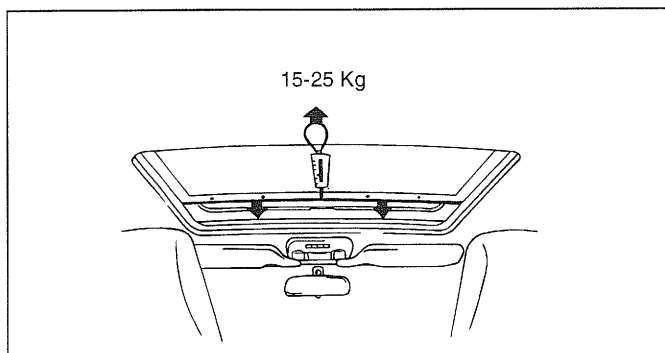
If the glass panel movement is difficult, check and adjust.

1. Make sure the battery voltage is normal.
2. Make sure that the sunroof sliding unit is free of abrasive materials.
3. Make sure that, when the glass panel opens, the rear position of the panel does not interfere with the roof panel. If interference occurs, fully open the glass panel and move the stopper forward.

NOTE

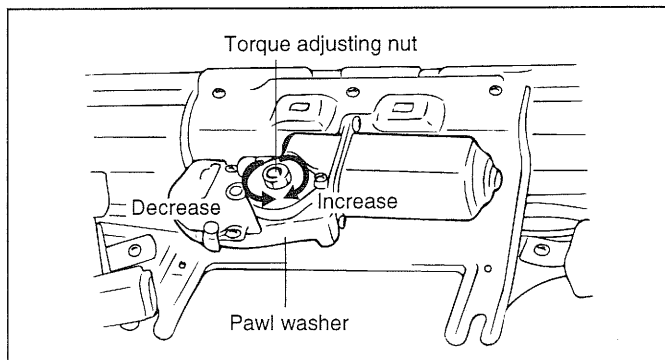
If the stopper is moved forward too far, it may cause malfunction or leaks. Make sure the gap between the glass panel and roof panel is not more than 0.3 mm.

4. Measure the driving force of the motor, and adjust it to 15-25 kg (33.1-55.7 lb) with the torque adjustment nut on the motor.



ESA9075D

5. After adjustment, be sure to lock the nut with the pawl washer.



ESA9075E

ADJUSTMENT

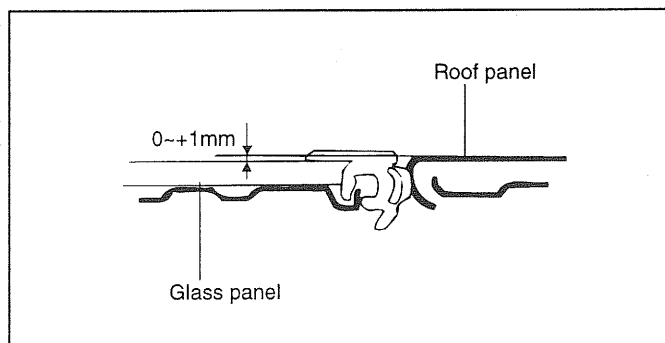
ESHA0950

Adjust the difference between the height of the glass panel and the roof panel.

Front side : 0 (+0, -1.0) mm

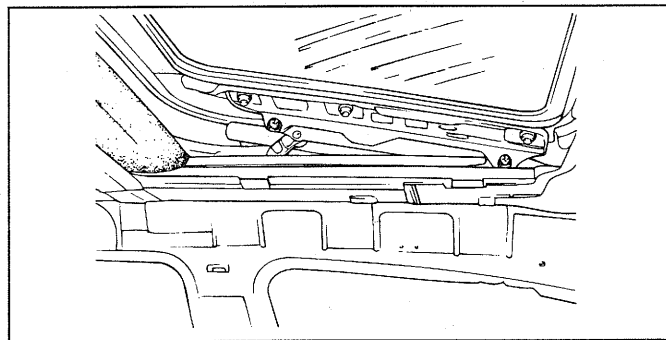
Rear side : 0 (+1, +0) mm

If the difference is not as specific, adjust the following procedure.



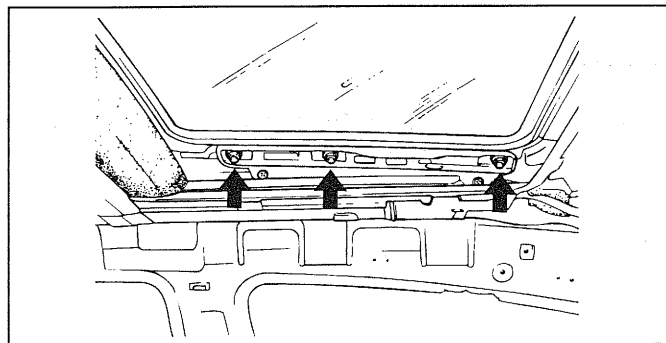
ESA9011J

1. Loosen the front screw and rear screw. Adjust the height between the glass panel and roof panel.



ESA9011I

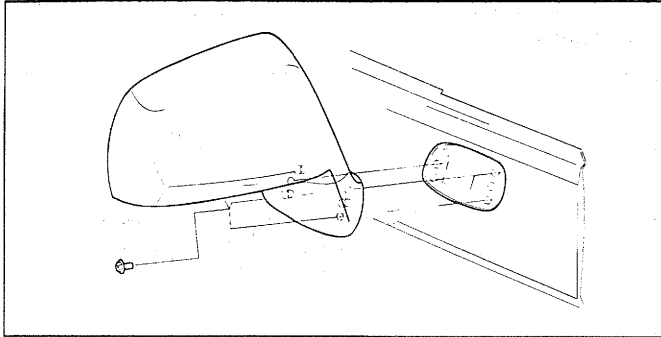
2. Loosen the nuts holding the glass panel and adjust the gap between the glass panel and roof panel.



ESA9011K

OUTSIDE REAR VIEW MIRROR

COMPONENTS ESHA1000



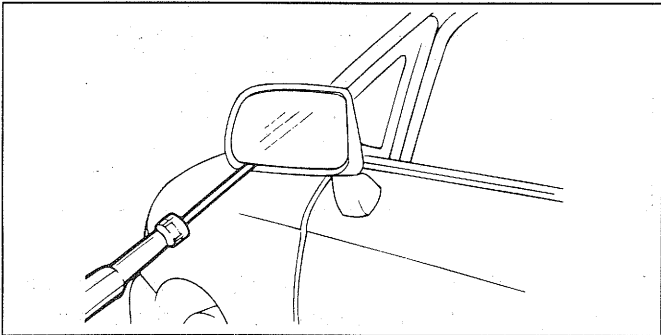
ESHA030A

REMOVAL AND INSTALLATION ESHA1050

CAUTION

Wear gloves to remove and install the mirror holder.

1. Insert flat bladed screwdriver between the outside rearview mirror holder and mirror assembly.

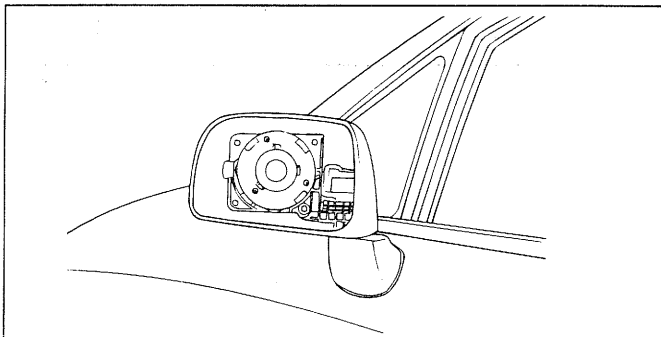


ESHA030B

CAUTION

When prying with a flat bladed screwdriver, wrap it with a shop towel to prevent damage.

2. Remove the outside rearview mirror actuator from outside rearview mirror housing.

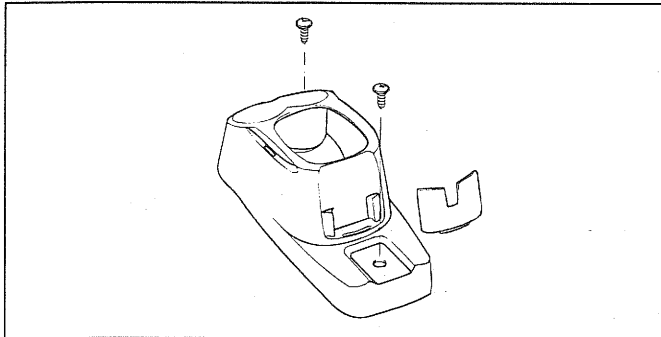


ESHA030C

3. Installation is the reverse of the removal process.

INTERIOR**CONSOLE****COMPONENTS**

ESHA1100

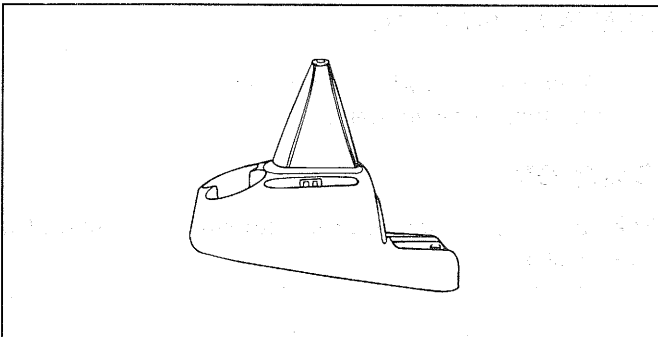


ESHA035A

REMOVAL AND INSTALLATION

ESHA1150

1. After removal of knob, loosen the screws holding the floor console and then pull out the floor console.
2. Installation is the reverse of the removal process.



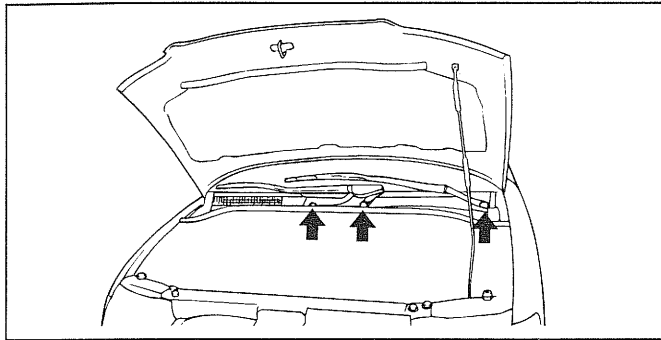
ESHA035B

CRASH PAD**REMOVAL AND INSTALLATION**

ESHA1200

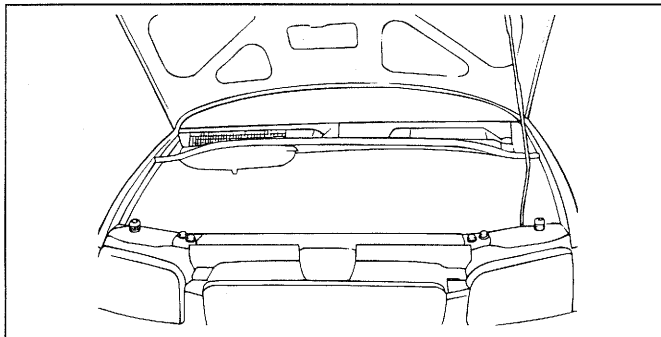
REMOVAL OUTDOORS

1. Separate the battery cable from the negative (-) battery terminal.
2. Remove the windshield wiper arm and blade.



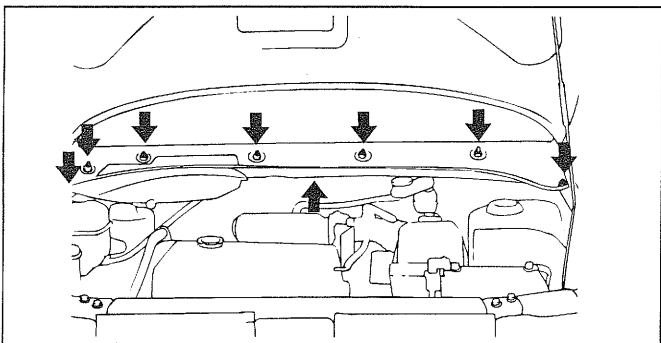
ESHA040A

3. Remove the weather strip and the cowl top cover.

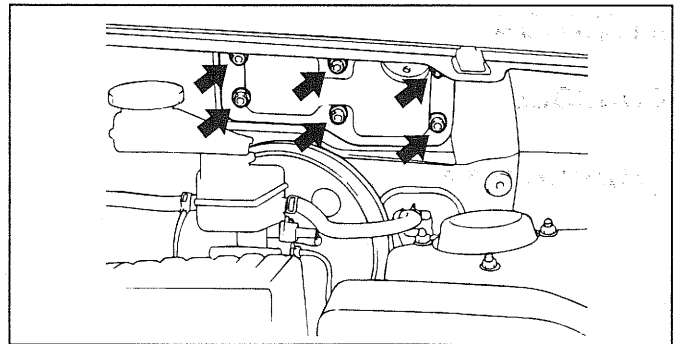


ESHA040B

4. Remove the cowl top outer front panel by installing the windshield wiper linkage.

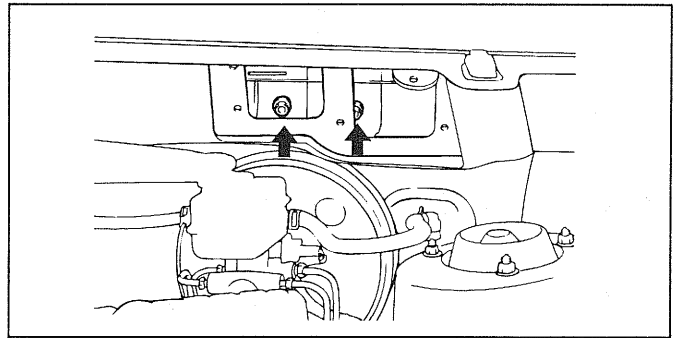


ESHA040C



ESHA040D

6. Remove the bolts holding the cowl cross bar.



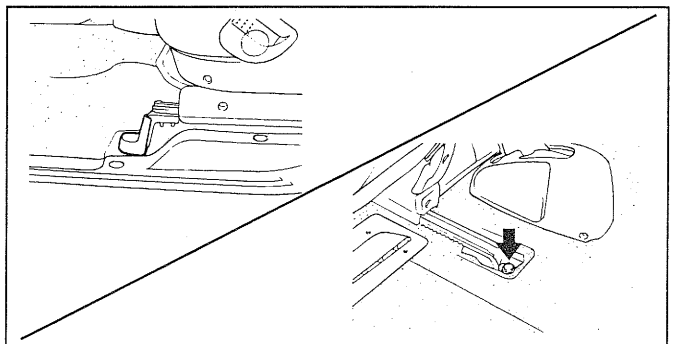
ESHA040E

REMOVAL INDOORS

1. Disconnect the wire connectors from the front seats and then remove them.

CAUTION

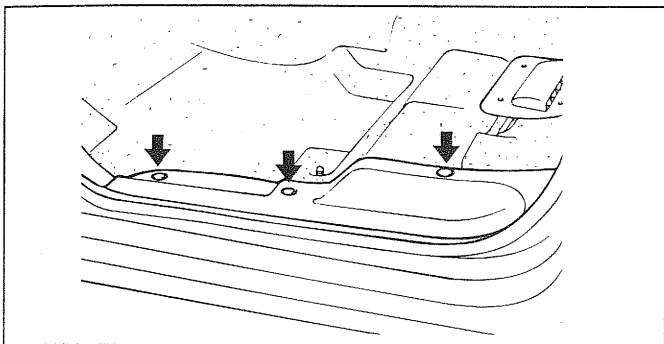
Take care not to scratch the trim when removing the front seats.



ESHA040F

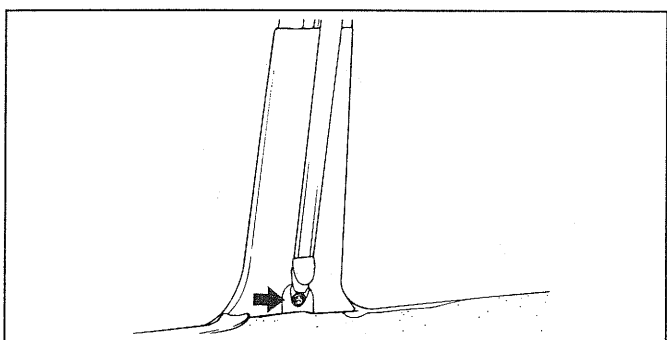
5. Remove the cover.

2. Remove the front door scuff trims.



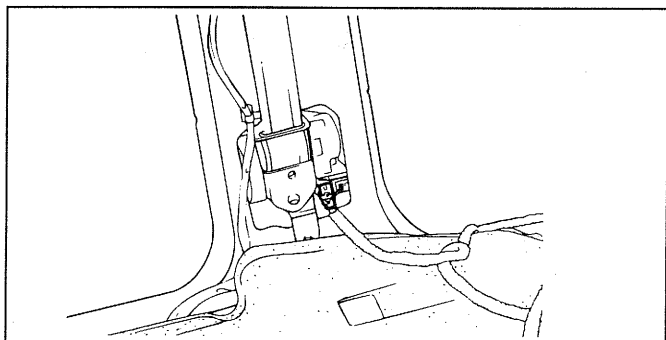
ESHA040H

3. Loosen the seat belt lower anchor bolt and remove the center pillar lower trim.



ESHA040I

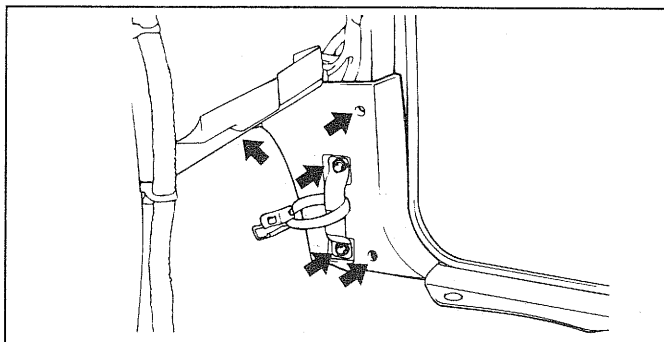
4. Remove the pretensioner connector and the load limiter connector (For vehicles equipped with pretensioner).



ESHA040J

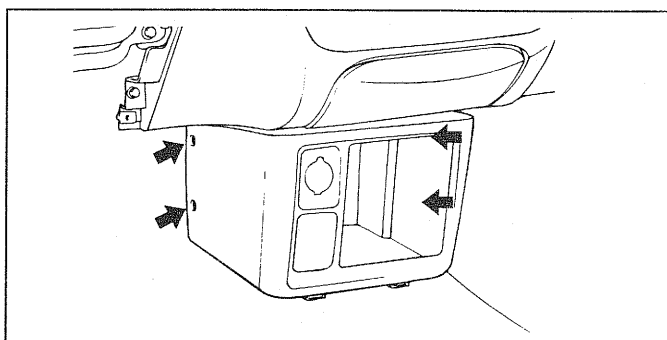
5. Remove the band holding the extinguisher and then remove the cowl side trim.

Remove the console.



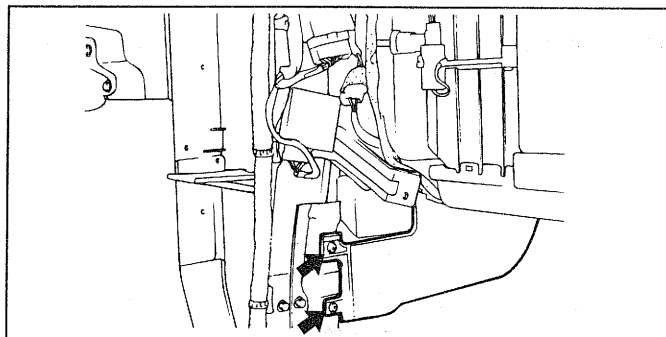
ESHA040K

6. Remove the multi box and disconnect the connectors.



ESHA040L

7. Remove the center lower side cover.

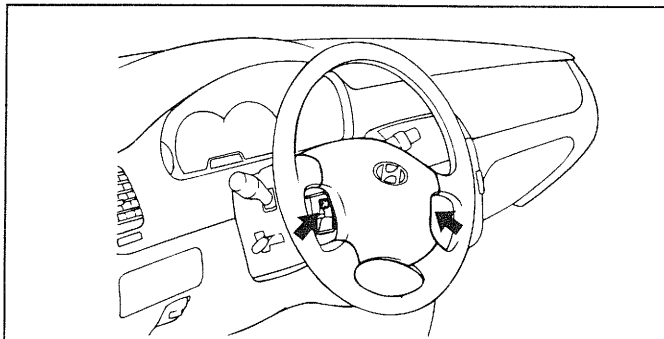


ESHA040R

8. Remove the air bag module.

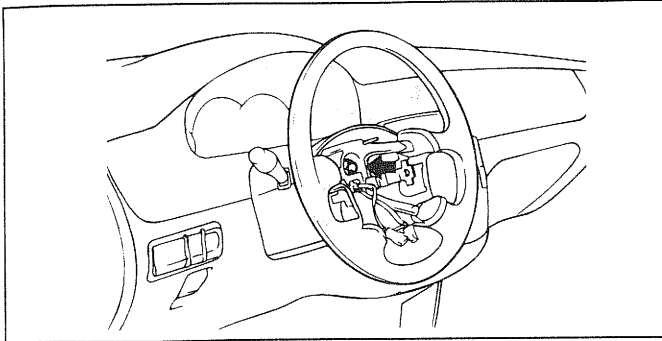
CAUTION

Before removal of the air bag module and clock spring, refer to the RT Group.



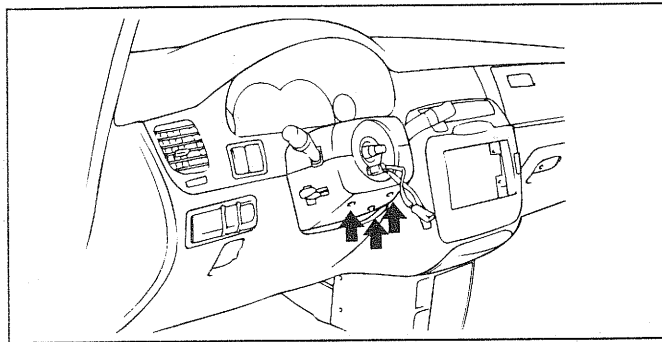
ESHA040M

9. Remove the steering wheel.



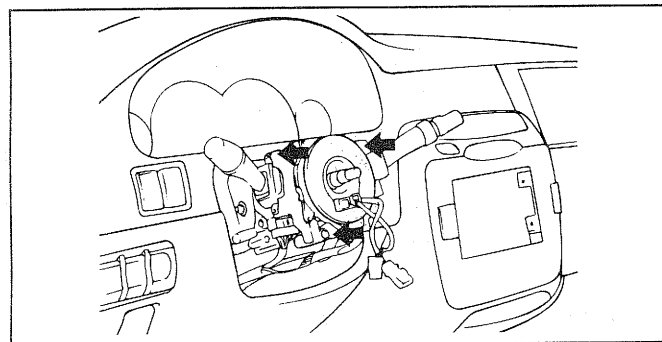
ESHA040N

10. Loosen the screws holding the steering column lower shroud and then remove the steering column lower and upper shroud.



ESHA040O

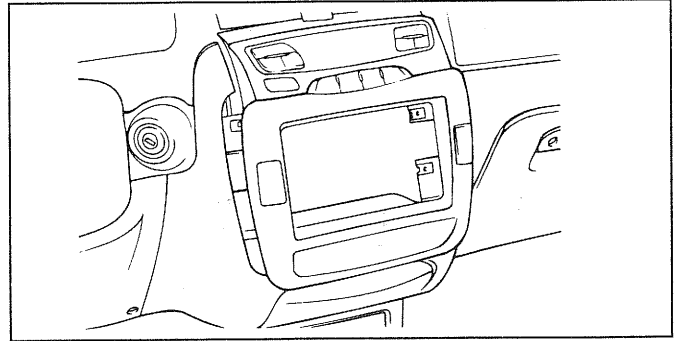
11. Remove the multifunction switch after disconnection of connectors.



ESHA040P

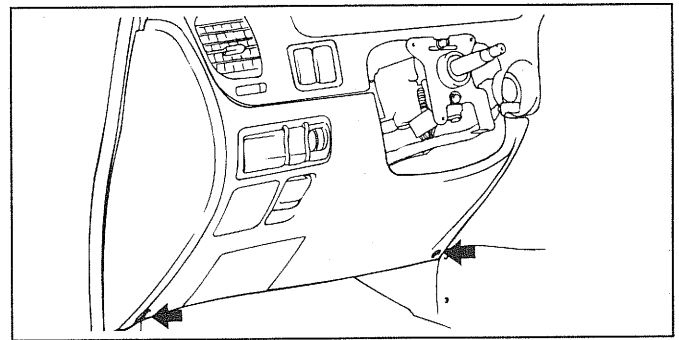
12. Remove the center facia panel and disconnect the connectors.

13. Remove the audio.



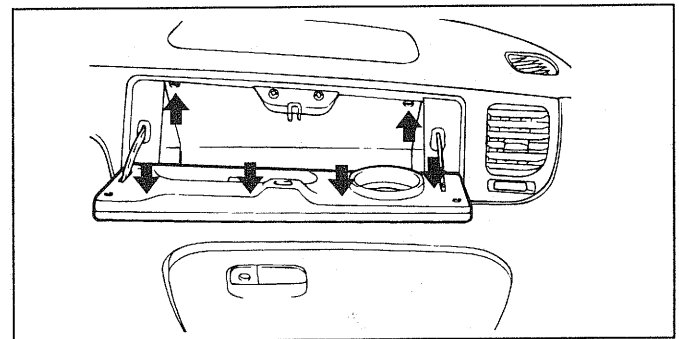
ESHA040Q

14. Remove the driver side lower crash pad panel and hood release cable.



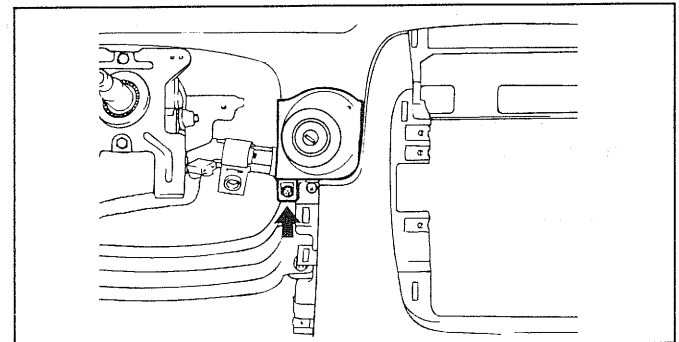
ESHA040S

15. Remove the crash pad upper tray housing.



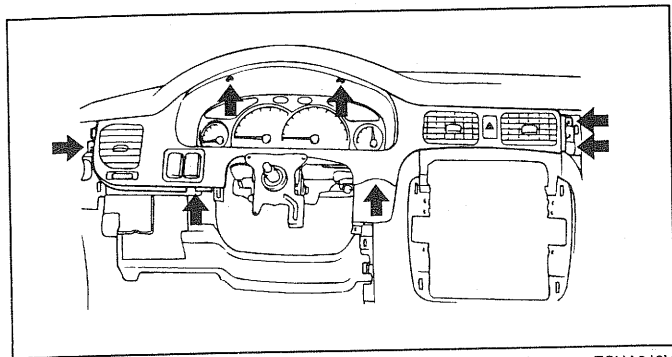
ESHA040T

16. Remove the ignition key bezel.



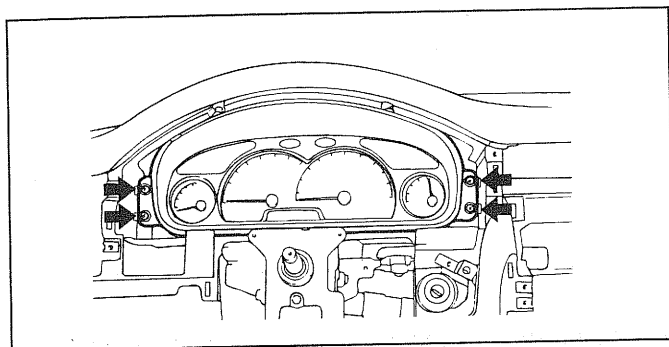
ESHA040U

17. Remove the cluster facia panel.



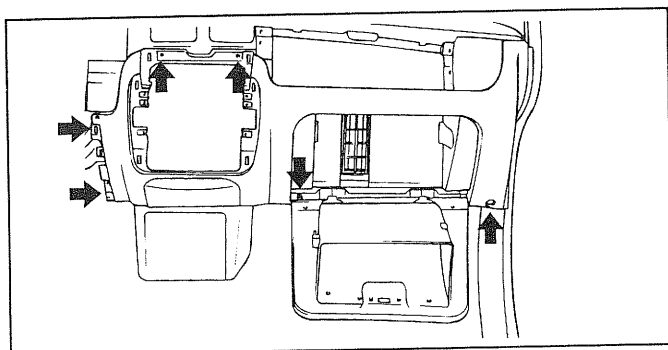
ESHA040V

18. Remove the cluster.



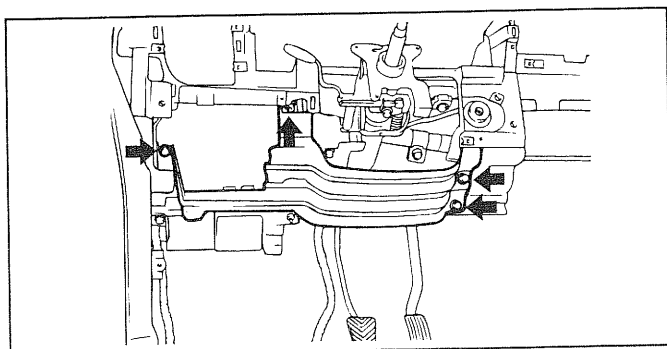
ESHA040W

19. Remove the lower main crash pad.



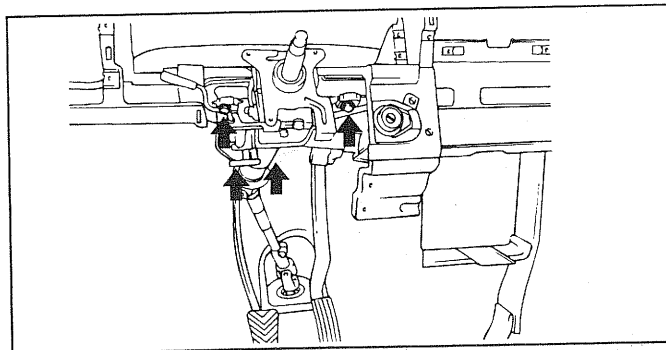
ESHA040Y

20. Remove the driver side support panel.



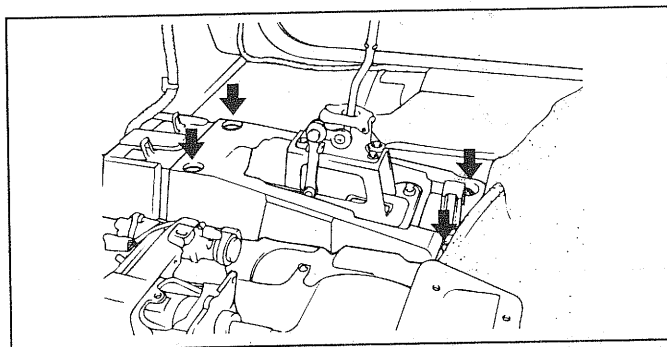
ESHA040X

21. Loosen the bolts holding the steering column and pull down the steering column.



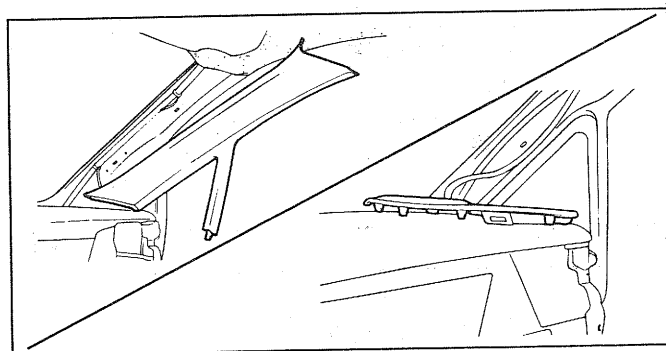
ESHA040Z

22. Remove the bracket holding console.



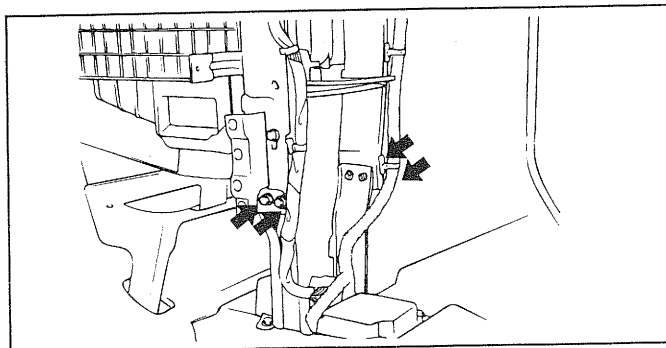
ESHA041A

23. Remove the front pillar trim and the crash pad upper side cover.

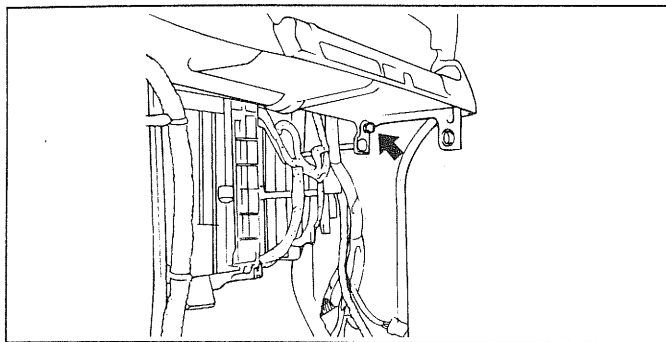


ESHA041C

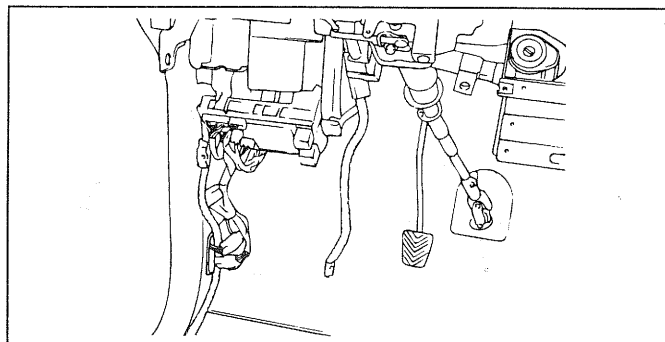
24. Loosen the bolts holding the main crash pad.



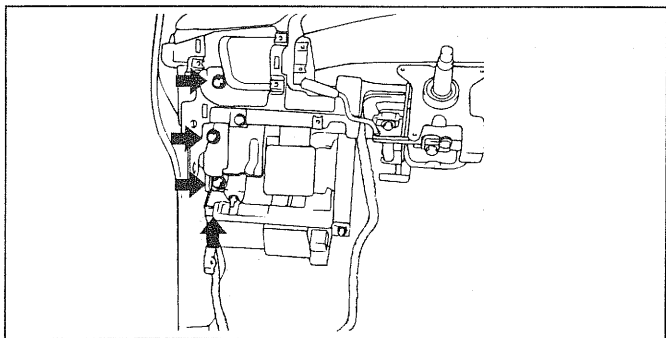
ESHA041D



ESHA041E

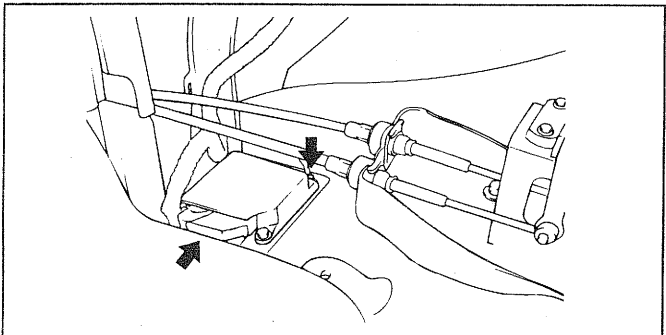


ESHA041I

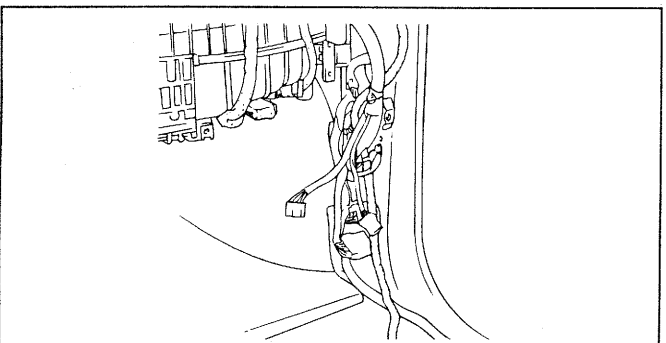


ESHA041F

25. Disconnect the ground and connectors.

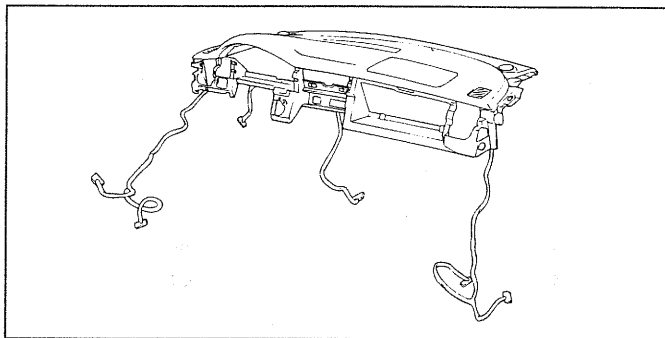


ESHA041G



ESHA041H

26. Remove the main crash pad.



ESHA041J

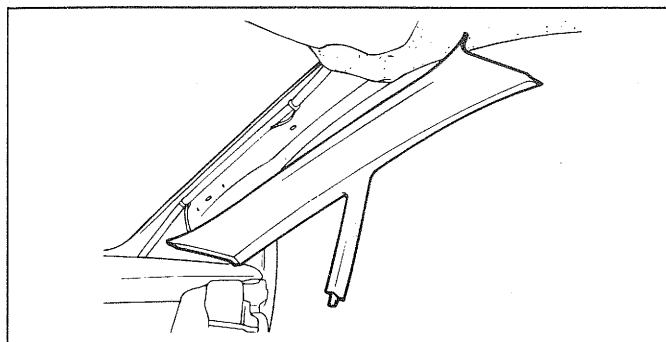
27. Installation is the reverse of the removal process.
Connect all connectors securely.

INTERIOR TRIM

REMOVAL ESHA1250

FRONT PILLAR TRIM

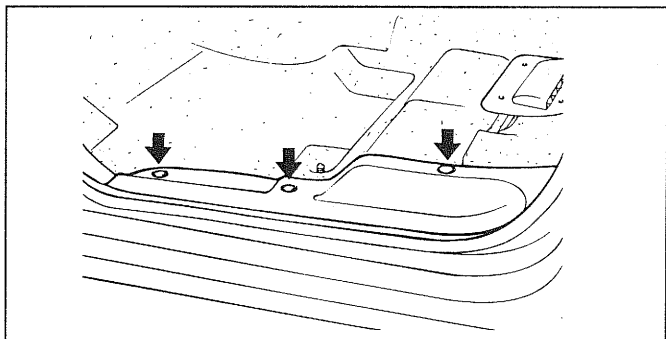
Remove the front pillar trim with a screwdriver.



ESHA041B

FRONT DOOR SCUFF TRIM

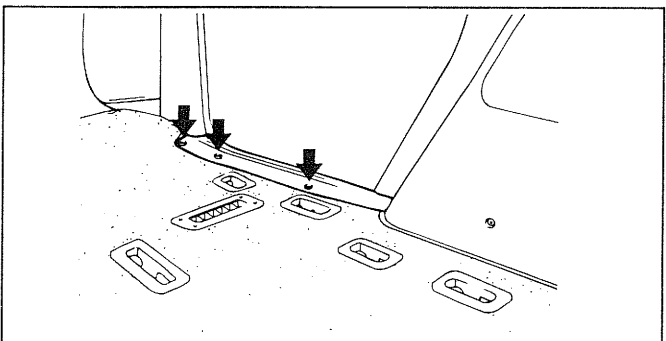
1. Remove the plugs from the front door scuff trim.
2. Remove the front door scuff trim.



ESHA040H

REAR DOOR SCUFF TRIM

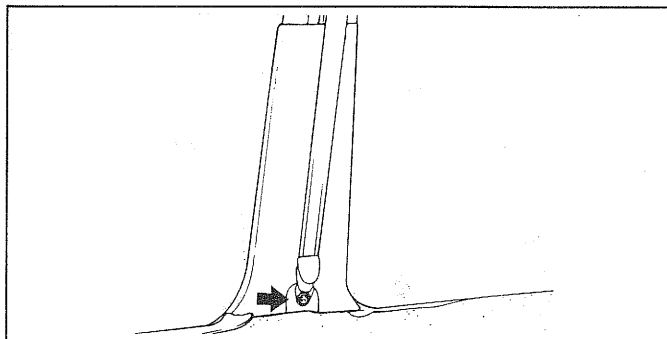
1. Remove the plugs from the rear door scuff trim.
2. Remove the rear door scuff trim.



ESHA045A

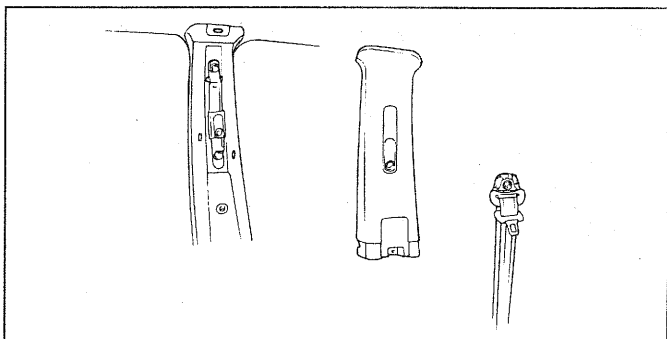
CENTER PILLAR TRIM

1. Loosen the bolt holding the seat belt lower anchor and remove the center pillar lower trim.



ESHA040I

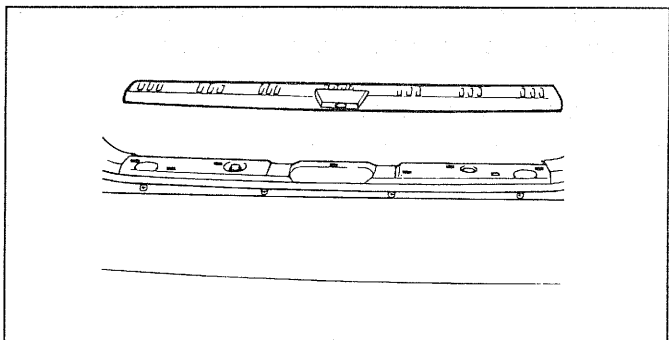
2. Loosen the bolt holding the seat belt upper anchor and remove the center pillar upper trim.



ESHA045B

REAR TRANSVERSE

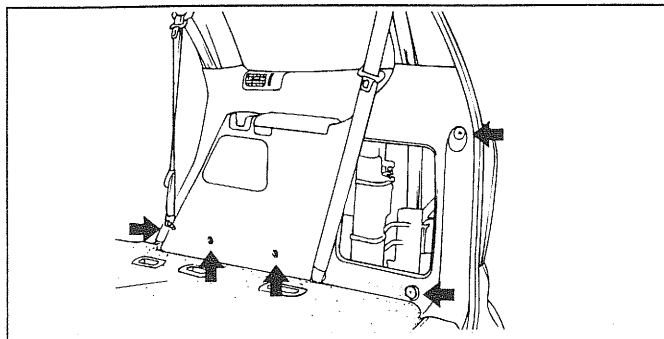
Remove the rear transverse trim with a flat bladed screwdriver.



ESHA045C

QUARTER TRIM

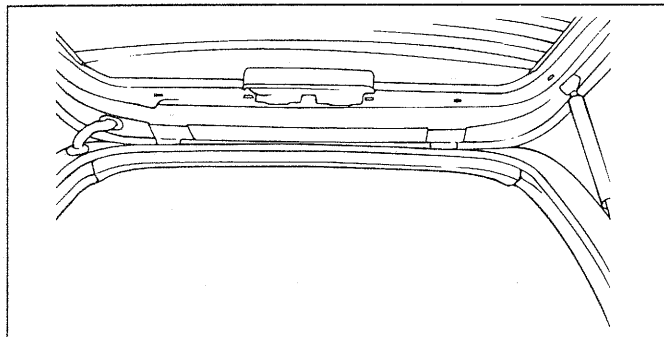
Loosen the bolts holding the center seat belt lower anchor and remove the quarter trim.



ESHA045D

HEADLINING REAR COVER

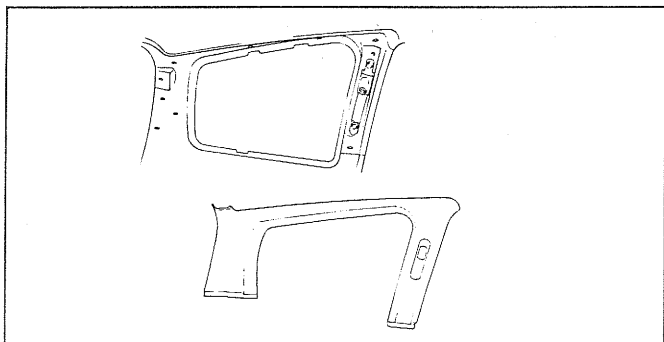
Remove the headlining rear cover with a screwdriver.



ESHA045E

REAR PILLAR TRIM

1. Loosen the bolts holding center seat belt upper anchor and rear seat belt upper anchor.
2. Remove the rear pillar trim.

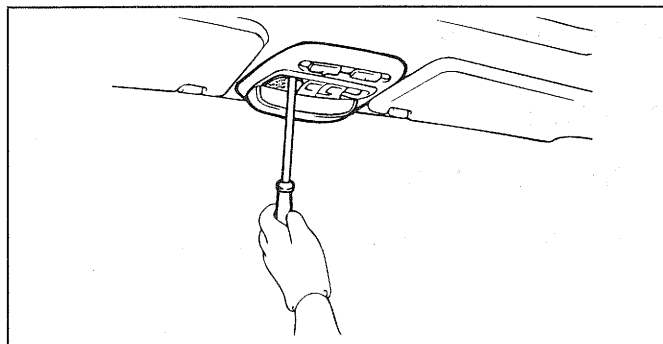


ESHA045F

HEADLINING

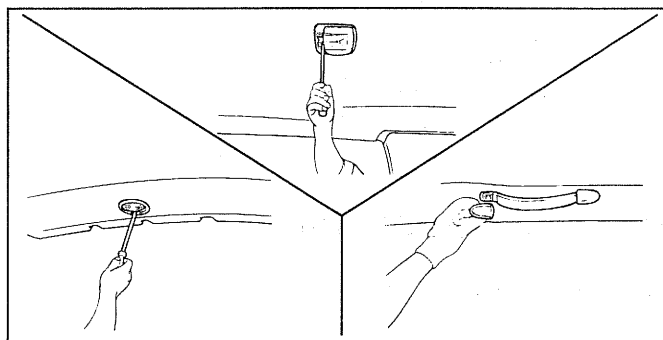
1. To remove the headlining, first remove the following parts :

- Overhead console lamp and assist grip.



ESHA045G

- Room lamp and assist grip.

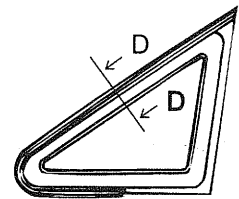
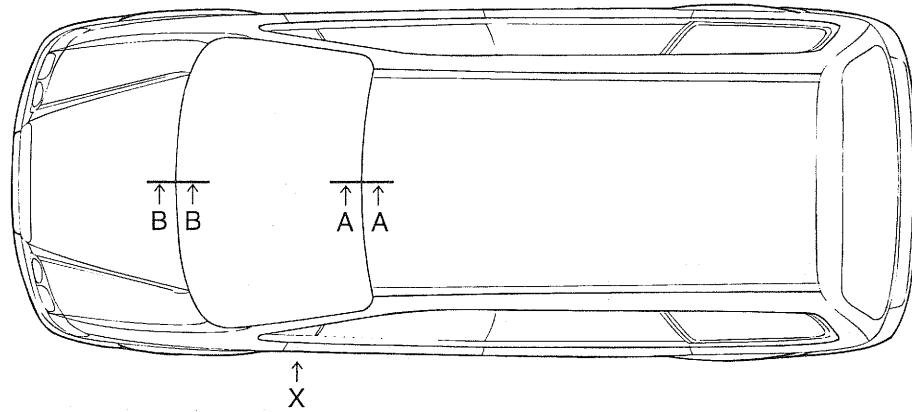


ESHA045H

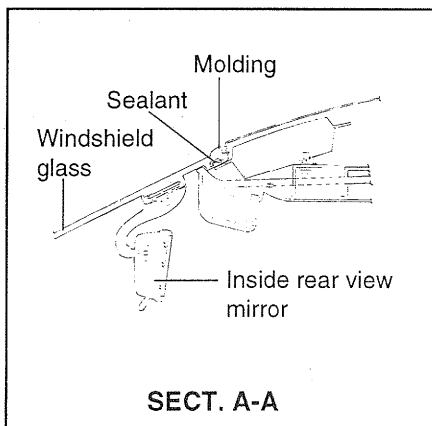
2. Installation is the reverse of the removal process.

WINDSHIELD GLASS

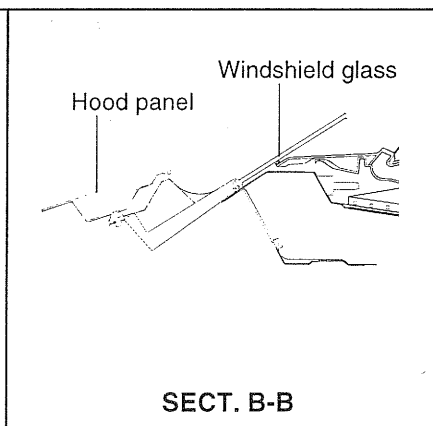
COMPONENTS ESHA1300



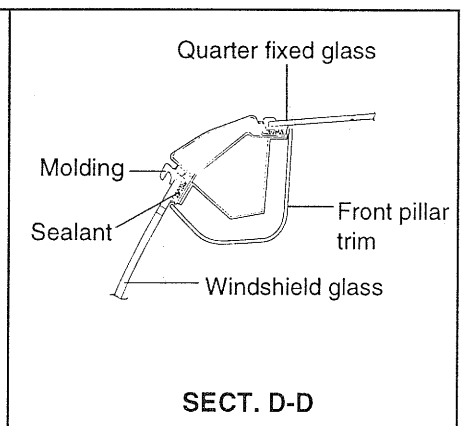
View "X"



SECT. A-A



SECT. B-B

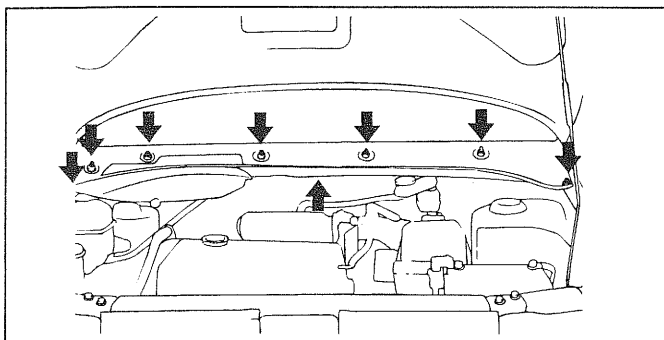


SECT. D-D

REMOVAL

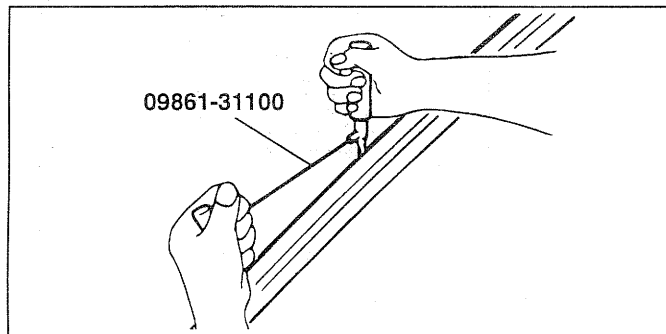
ESHA1350

1. To remove the windshield, first remove the following parts :
 - 1) Front pillar trims
 - 2) Inside rear view mirror
 - 3) Wiper arms
 - 4) Cowl top cover
 - 5) Windshield glass molding



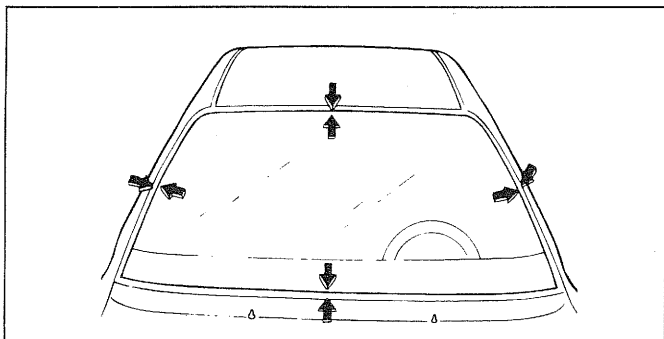
ESHA040C

2. Use the special tool (09861-31100) to cut through the sealant.



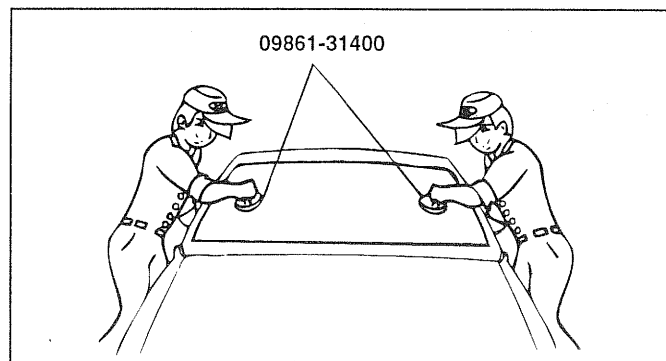
ESDA230B

3. Make mating marks on the glass and body if the glass is to be reinstalled.



X60-026A

4. Take out the windshield glass with the special tool using the Glass Holder.



ESDA230D

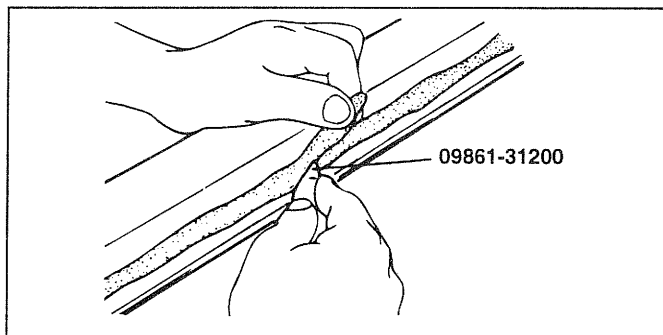
INSTALLATION

ESHA1400

1. Using a cutter knife or the special tool, scrape the old sealant smoothly to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire windshield flange.

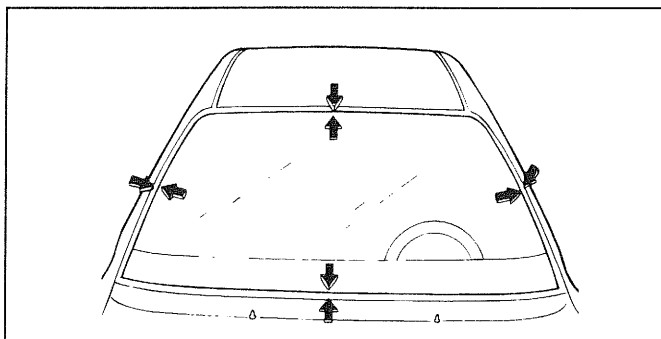
CAUTION

Be careful not to remove more adhesive than necessary, and also not to damage the paintwork on the body surface with the knife. If the paintwork is damaged, repair the damaged area with touch-up paint.



ESDA235B

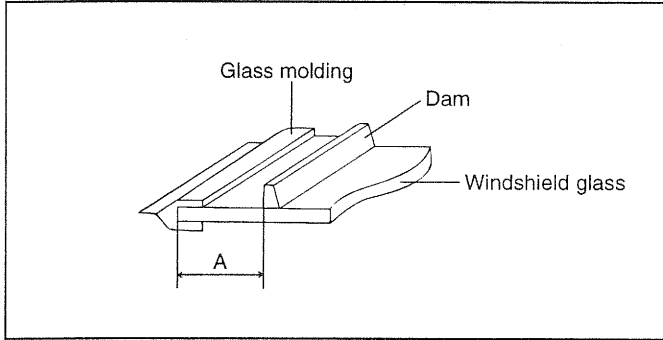
2. Clean the body bonding surface with a sponge dampened in alcohol or wax and grease remover.
3. Center a new windshield glass in the opening. Mark the location by marking lines across the glass and body with a grease pencil at the four points as shown.



X60-026A

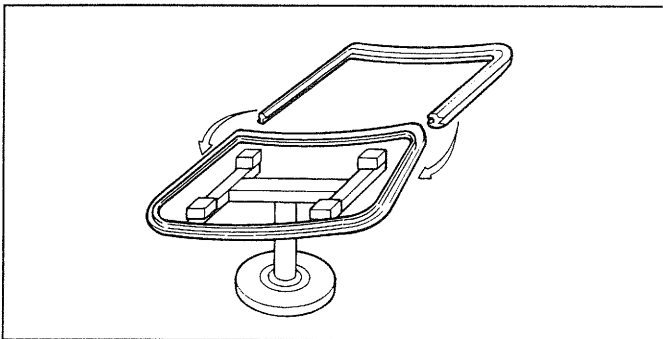
4. Glue the rubber dam to the inside surface of the windshield glass around the entire edge as shown, to contain the sealant during installation.

Part	"A"	Remarks
Upper	12.5mm constant	Glass molding sub
Side		



ESHA050E

5. Install the windshield glass molding without any gaps.

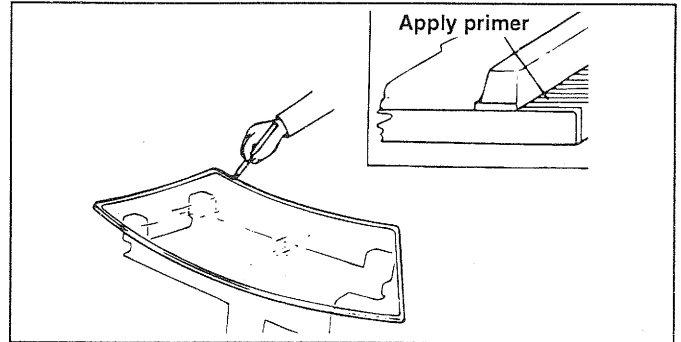


X60-027A

6. Apply a light coat of glass primer to the outside of the dam.

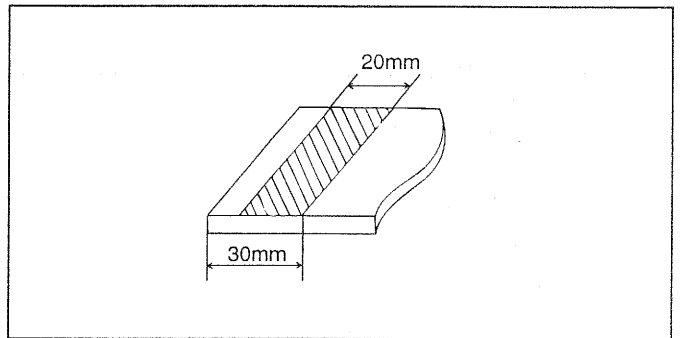
NOTE

1. Never touch the surface applied primer with your hand. If you do, the adhesive may not bond to the glass properly, causing a leak after the windshield glass is installed.
2. Do not apply body primer to the glass.
3. Keep water, dust, and abrasive materials away from the surface applied primer.



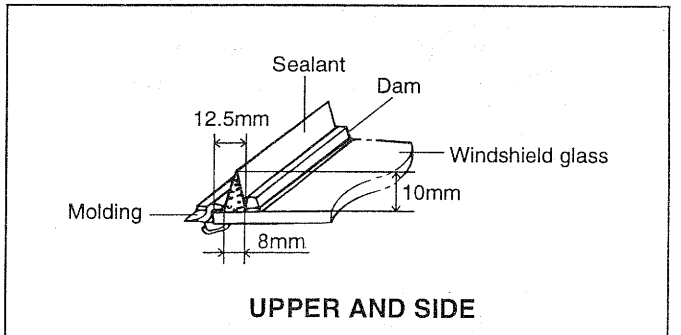
ESDA235E

7. Apply a primer to the lower glass as shown.

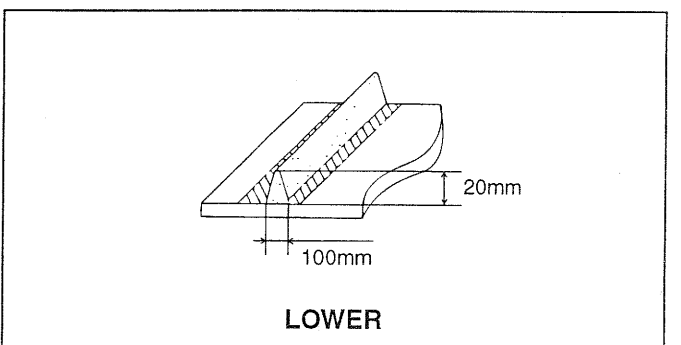


ESHA050F

8. Apply a sealant around the edge of the glass.



ESDA235A



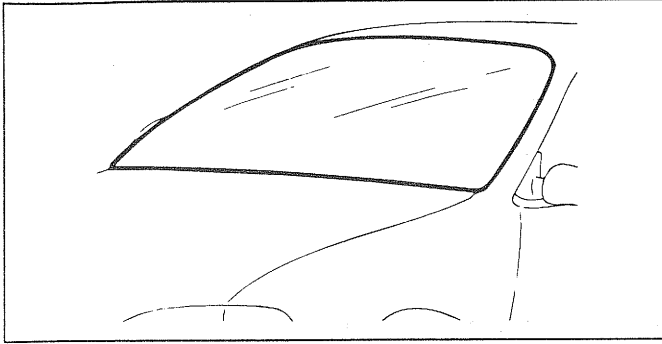
ESHA050G

NOTE

Apply the adhesive within 5 minutes after applying the primer to the glass.

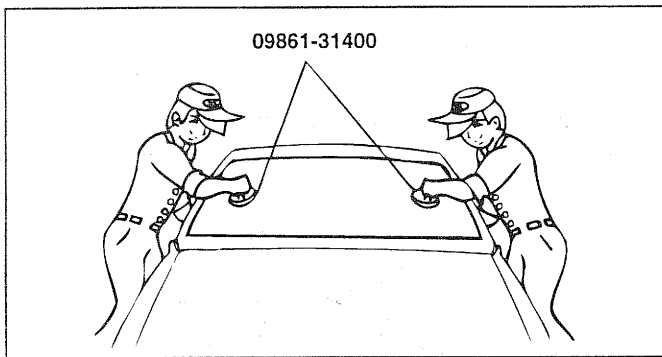
9. Apply a light coat of body primer to the original sealant remaining around the window opening

flange. The glass should be installed within 10 minutes after you apply the primer.



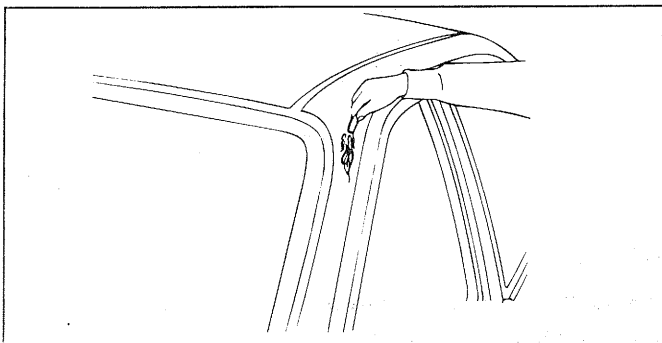
ESDA235F

10. Using suction cups or the special tool, lower the glass over the opening, align it with the marks made in step 3 and set it down on the sealant.
11. Scrape or wipe excess adhesive off with a putty knife or gauze. Fill all cavities around the windshield glass.



ESDA230D

12. Perform a water-leak test for the windshield. Use a cold water spray, being careful not to direct a powerful stream of water on the new adhesive material. Allow water to spill over the edges of the glass.
13. If there are leaks, dry the affected area, then apply sealant.



ESDA235G

14. Install the removed parts.

CAUTION

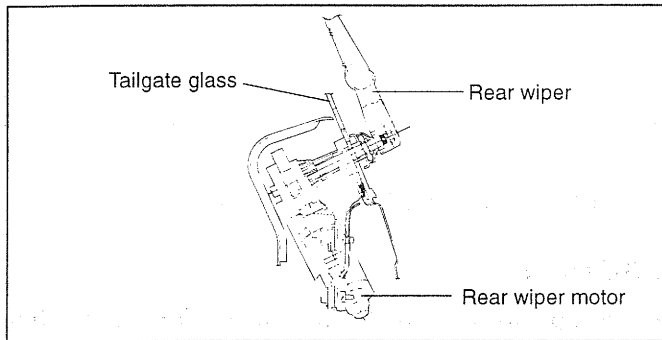
1. Keep the windshield dry for the first hour after installation.
2. Let the car stand for at least four hours after windshield installation. If the car has to be used within the first 8 hours, it must be driven slowly.
3. Take care not to slam the doors with all the windows rolled up.
4. Take care not to twist the vehicle excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

TAILGATE GLASS

REMOVAL ESHA1450

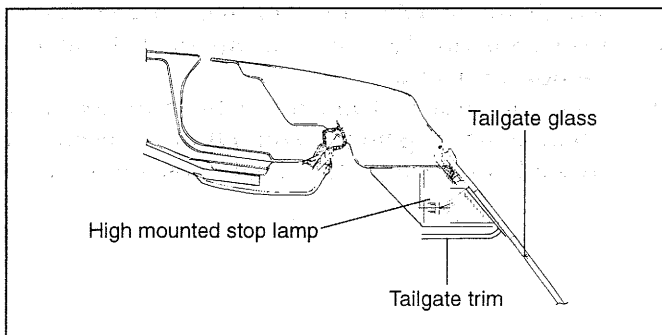
1. To remove the tailgate glass, first remove the following parts :

- 1) Rear window defogger wire connector.
- 2) Tailgate trims.
- 3) Rear wiper and wiper motor.



ESHA055A

- 4) High mounted stop lamp.



ESHA055B

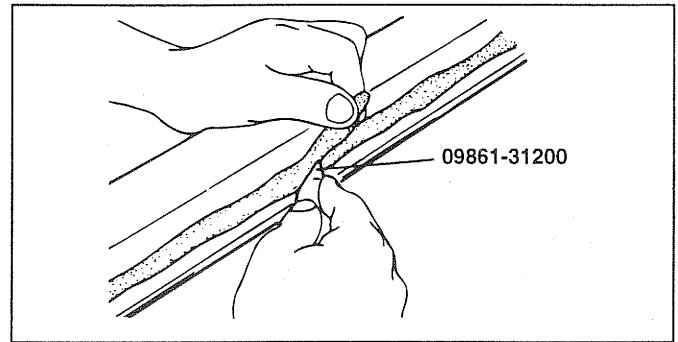
2. Remove the tailgate glass in the same manner as the windshield glass.

INSTALLATION ESHA1500

1. Using a cutter knife or the special tool, scrape the old sealant smoothly to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire tailgate glass.

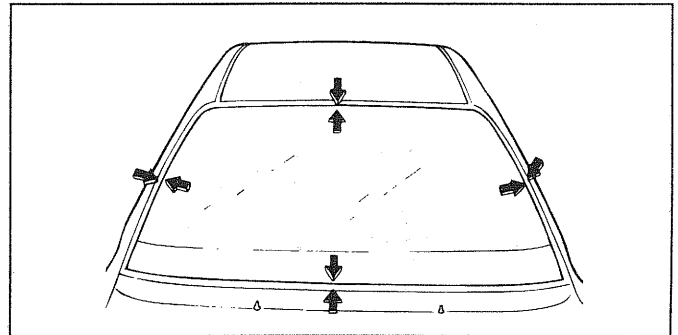
CAUTION

Be careful not to remove more adhesive than necessary, and also not to damage the paintwork on the body surface with the knife. If the paintwork is damaged, repair the damaged area with touch-up paint.



ESDA235B

2. Clean the body bonding surface with a sponge dampened in alcohol or wax and grease remover.
3. Center a new tailgate glass in the opening. Mark the location by marking lines across the glass and body with a grease pencil at the four points as shown.

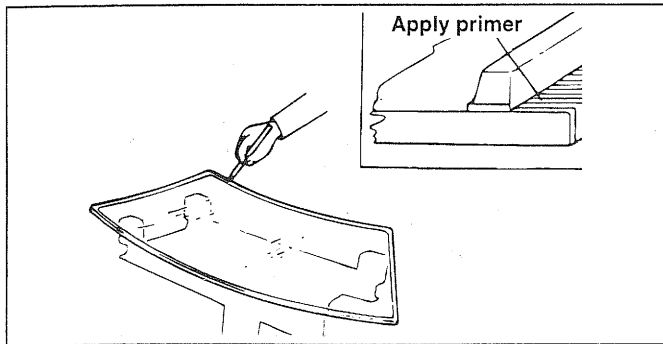


ESHA150B

4. Glue the rubber dam to the inside surface of the tailgate glass around the entire edge as shown, to contain the sealant during installation.
5. Install the tailgate glass molding without any gaps.
6. Apply a light coat of glass primer to the outside of the dam.

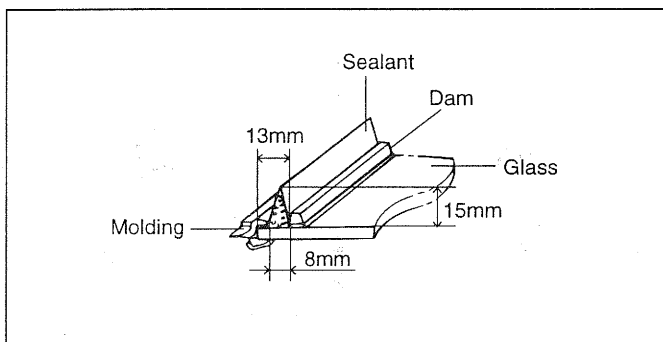
NOTE

1. Never touch the surface applied primer with your hands.
If you do, the adhesive may not bond to the glass properly, causing a leak after the tailgate glass has been installed.
2. Do not apply body primer to the glass.
3. Keep water, dust, and abrasive materials away from the surface applied primer.



ESDA235E

7. Apply a light coat of body primer to the original sealant remaining around the window opening flange. The glass should be installed within 10 minutes after you apply the primer.
8. Apply a sealant around the edge of the glass.

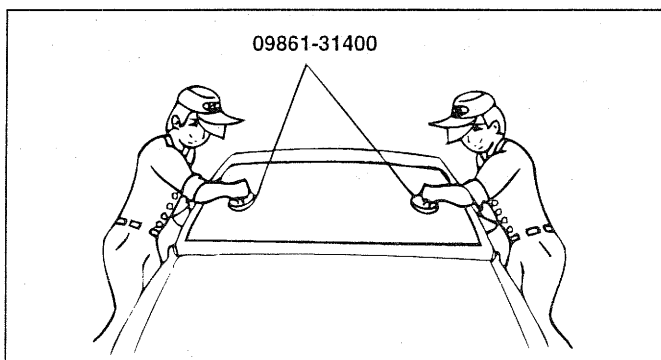


ESHA150A

NOTE

Apply the adhesive within 5 minutes after applying the primer to the glass.

9. Use suction cups or the special tool, lower the glass over the opening, align it with the marks made in step 3 and set it down on the sealant.
10. Scrape or wipe excess adhesive off with putty knife or gauze. Fill all cavities around the tailgate glass.

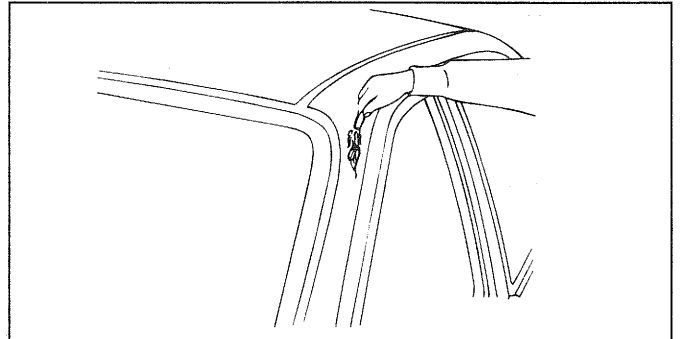


ESDA230D

11. Perform a water-leak test for the tailgate glass. Use a cold water spray, being careful not to direct a powerful stream of water on the new adhesive

material. Allow water to spill over the edges of the glass.

12. If there are leaks, dry the affected area, then apply sealant.



ESDA235G

13. Install the removed parts.

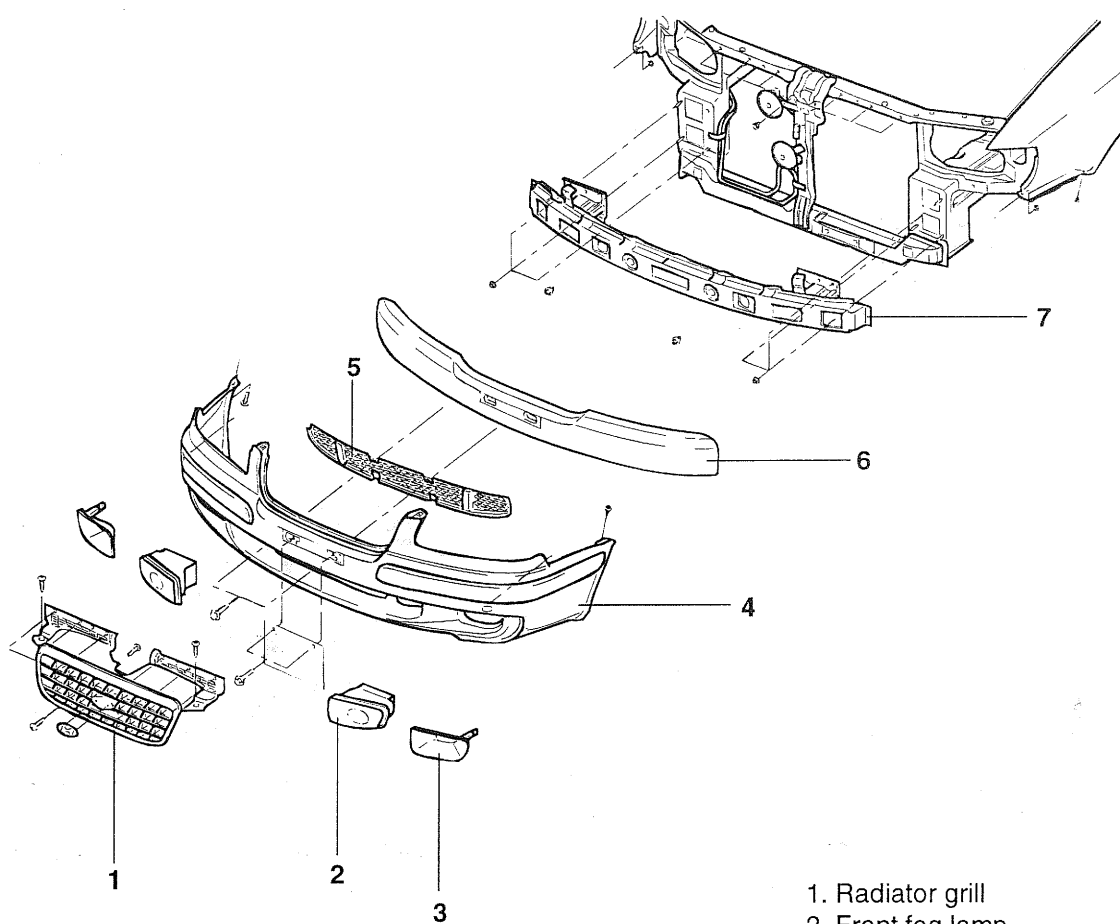
CAUTION

1. Keep the windshield dry for the first hour after installation.
2. Let the car stand for at least four hours after windshield installation. If the car has to be used within the first 8 hours, it must be driven slowly.
3. Take care not to slam the doors with all the windows rolled up.
4. Take care not to twist the vehicle excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

BUMPER

FRONT BUMPER

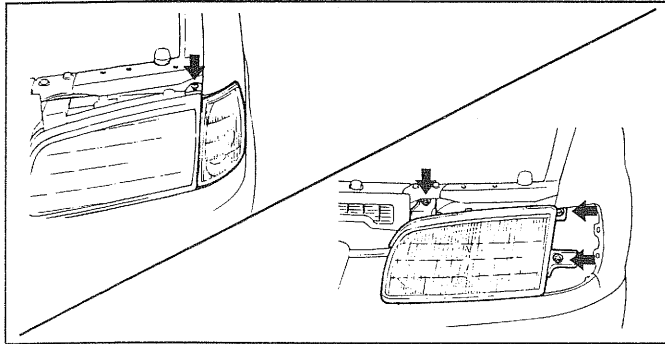
COMPONENTS ESHA1550



1. Radiator grill
2. Front fog lamp
3. Blanking cover
4. Bumper cover
5. Bumper cover mesh
6. Energy absorber
7. Bumper rail

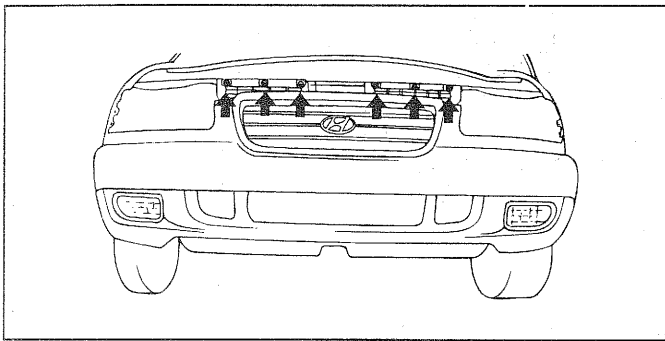
REMOVAL AND INSTALLATION ESHA1600

1. Remove the turn signal lamps and head lamps.



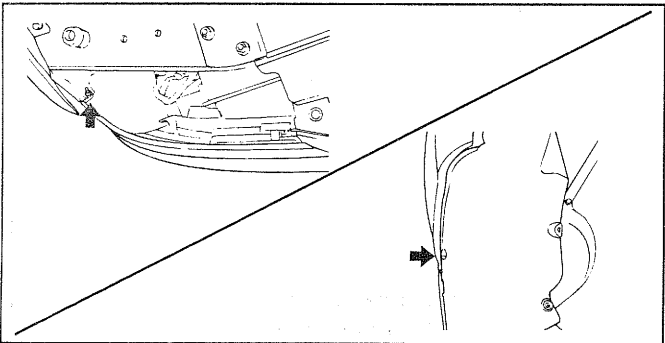
ESHA070B

2. Loosen the screws holding the radiator grill upper cover.



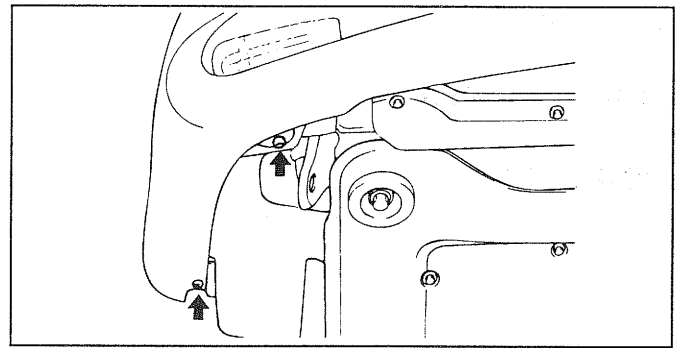
ESHA070D

3. Loosen the nuts and screws holding the front bumper cover.



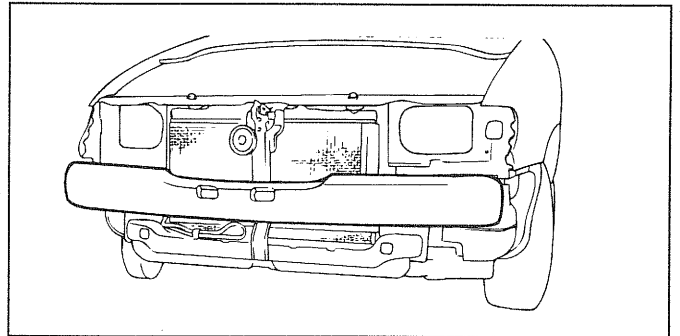
ESHA070E

4. Raise the vehicle then remove the front bumper and the screws holding the front wheel guard.



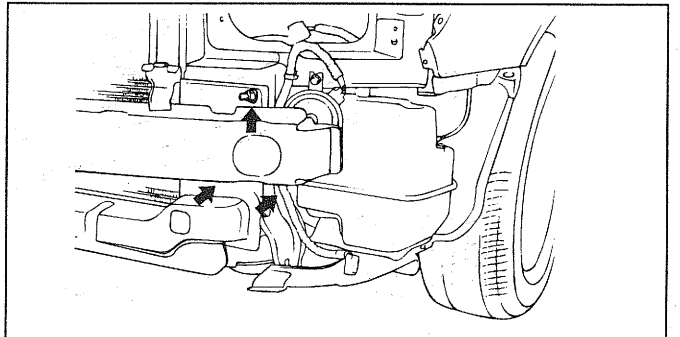
ESHA070G

5. Remove the front bumper cover and the bumper energy absorber.



ESHA070H

6. Remove the front bumper rail.

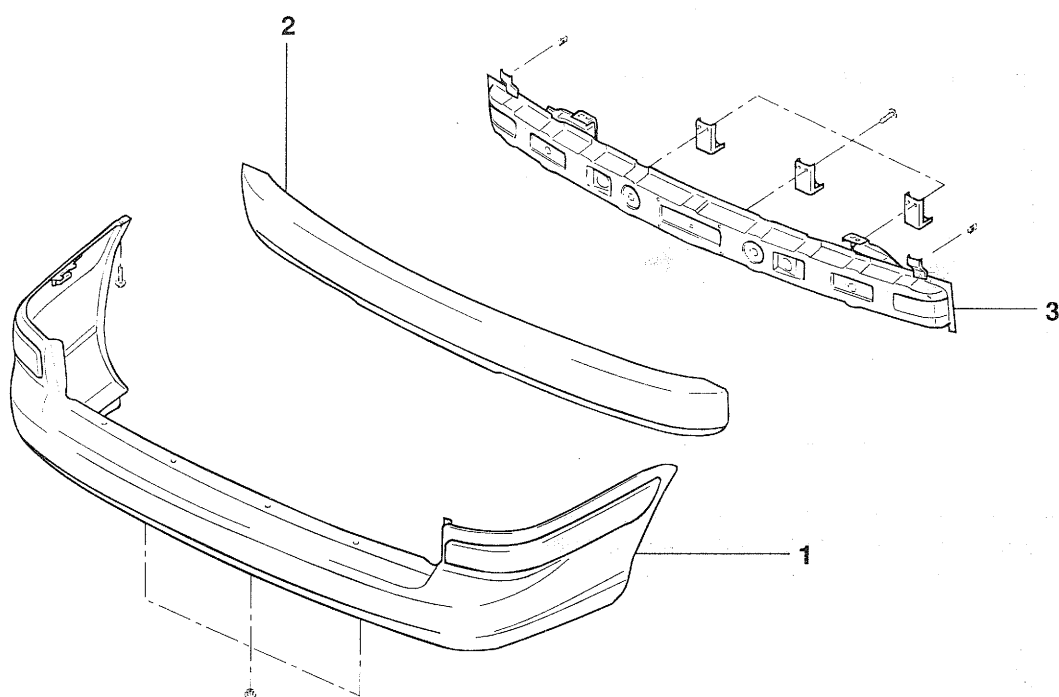


ESHA070I

7. Installation is the reverse of the removal process.

REAR BUMPER

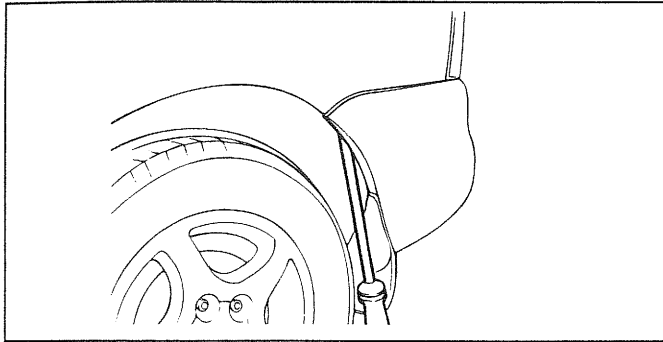
COMPONENTS ESHA1650



- 1. Bumper cover
- 2. Energy absorber
- 3. Bumper rail

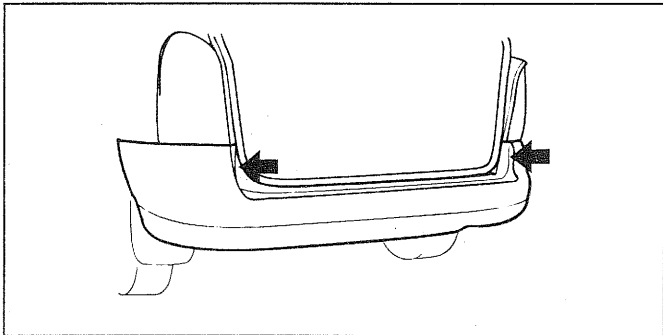
REMOVAL AND INSTALLATION ESHA1700

1. Remove the screws holding the rear mud guard and the screws holding the rear wheel house.



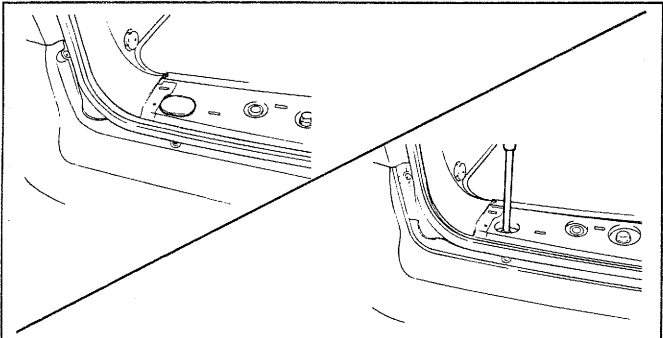
ESHA075B

2. Remove the screws holding the rear bumper cover.



ESHA075C

3. Remove the rear transverse trim and then remove the plugs and the screws holding the rear bumper.

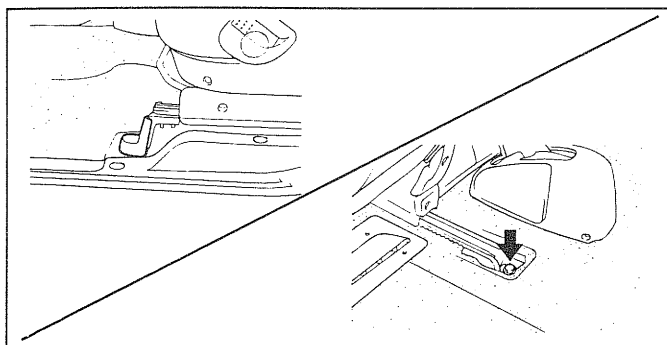


ESHA075D

4. Installation is the reverse of the removal process.

SEAT**FRONT SEAT****REMOVAL AND INSTALLATION** ESHA1750

1. Pull out the front seat mounting cover.
2. Loosen the bolts and nuts holding the front seat and remove the front seat.

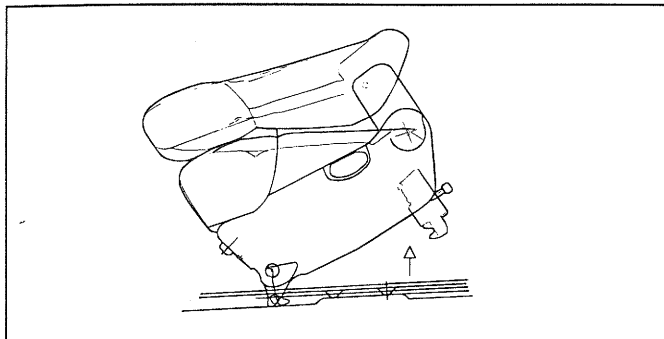


ESHA040F

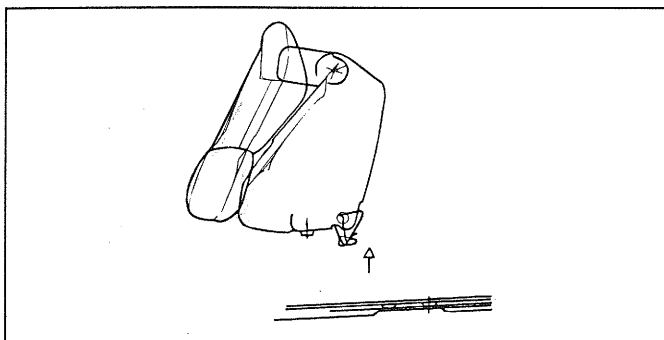
REAR SEAT

REMOVAL AND INSTALLATION ESHA1800

Remove the second seat and the third seat as shown.



ESHA080A

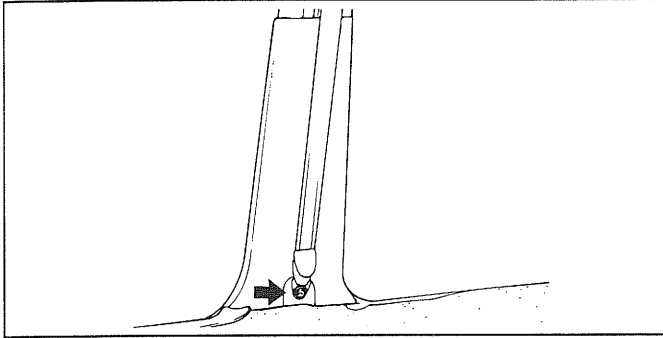


ESHA080B

FRONT SEAT BELT

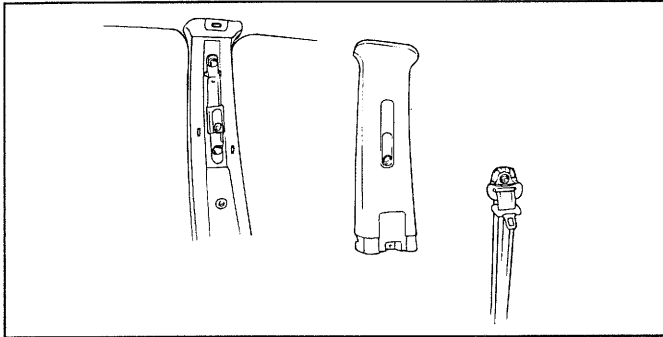
REMOVAL AND INSTALLATION ESHA1850

1. Loosen the seat belt lower anchor bolt and remove the center pillar lower trim.



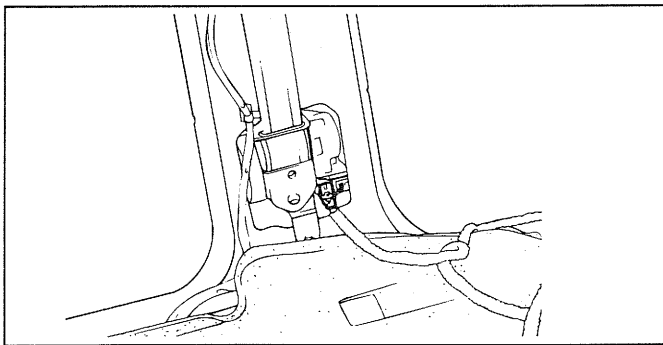
ESHA040I

2. Loosen the seat belt upper anchor bolt.



ESHA045B

3. In case of vehicles equipped with pretensioner seat belt, disconnect the negative (-) battery terminal and disconnect the connector from the gas generator and then remove the retractor.



ESHA040J

4. Installation is the reverse of the removal process.

CAUTION

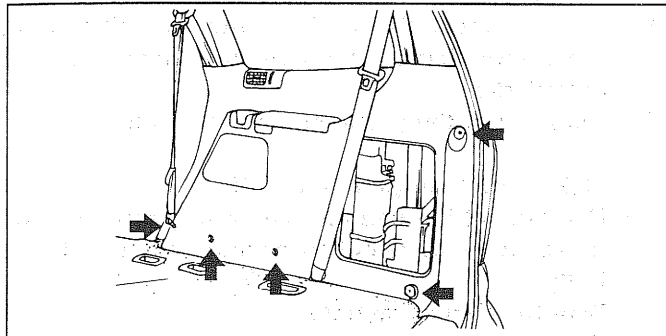
1. A pretensioner functions one time only. Be sure to replace the pretensioner seat belt after it is deployed.

2. Do not attempt to disassemble or repair the seat belt pre-tensioner. When it malfunctions, replace with a new pre-tensioner seat belt.
3. Be cautious in handling a pre-tensioner seat belt, and do not drop it in water, or oil. If crushed, damaged, or deformed, replace it with a new one.
4. Only connect the battery after installation of the pretensioner seat belt has been correctly completed.
5. Removal of the pretensioner seat belt :
 - Make sure that ignition is "Off".
 - Disconnect the negative (-) battery terminal and make sure it does not come into contact with the body.
 - Wait for about 1 minute.
 - Pull the plug out from the appropriate connector at the gas generator.
 - Loosen the bolt and remove the belt from the vehicle body.

REAR SEAT BELT

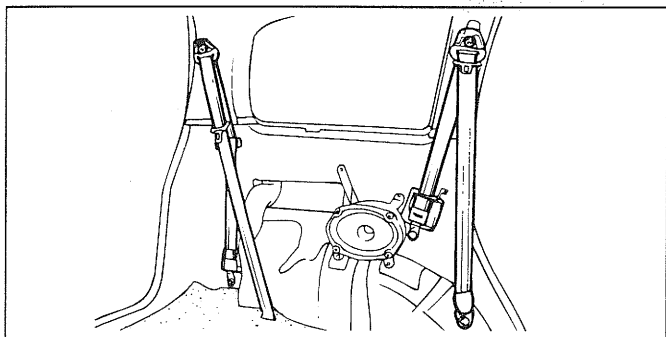
REMOVAL AND INSTALLATION ESHA1900

1. Loosen the seat belt lower anchor bolt and remove the quarter trim.



ESHA045D

2. Remove the rear seat belt retractor.



ESHA085B

3. Installation is the reverse of the removal process.

Body Electrical System

GENERAL	BE -2
AUDIO SYSTEM	BE -18
MULTI FUNCTION SWITCH	BE -23
HORNS	BE -27
ETACS (ELECTRONIC TIME AND ALARM CONTROL SYSTEM) ...	BE -28
FUSES AND RELAYS	BE -34
INDICATORS AND GAUGES	BE -36
POWER DOOR MIRRORS	BE -43
POWER WINDOWS	BE -46
REAR WINDOW DEFOGGER	BE -49
WINDSHIELD WIPER/WASHER	BE -51
REAR WIPER/WASHER	BE -58
SEAT WARMER	BE -62
SUNROOF	BE -63
HEAD LAMPS	BE -66
TURN/HAZARD LAMPS	BE -72
COURTESY AND TRUNK LAMPS	BE -74
IMMOBILIZER CONTROL SYSTEM	BE -77

GENERAL

INSTRUMENTS AND WARNING
SYSTEM

ETHA0010

SPECIFICATIONS

Warning lamps		Bulb wattage (W)	Color
Illumination		3.4	Beige
High Beam		3.0	Blue
Low fuel		3.0	Amber
Turn signal (LH, RH)		1.4	Green
Battery (Charge)		1.4	Red
Oil pressure		1.4	Red
Air bag		1.4	Red
Parking brake		1.4	Red
Seat belt		1.4	Red
Check engine		1.4	Amber
ABS		1.4	Amber
Door ajar		1.4	Red
Tailgate open		1.4	Amber
Cruise		1.4	Green
Fog lamp		1.4	Green
Immobilizer		1.4	Amber
A/T	P	1.4	Green
	R	1.4	Amber
	N	1.4	Green
	D	1.4	Green
	3	1.4	Green
	2	1.4	Green
	L	1.4	Green

SERVICE SPECIFICATIONS

ETHA0050

Items	Specifications																																																																																				
Speedometer																																																																																					
Type	o Cross coil type.																																																																																				
Input spec.	o Hall IC type : 4 pulses/rev.																																																																																				
Indication	o Km : At 637 rpm x 4 pulses/rev. indicate 60 Km/h o MILE : At 1026 rpm x 4 pulses/rev. indicate 60 MPH																																																																																				
Standard values	<table><tr><td>Velocity (Km/ h)</td><td>20</td><td>40</td><td>60</td><td>80</td><td>100</td><td>120</td></tr><tr><td>Tolerance (Km/ h)</td><td>20-24.1</td><td>40-43</td><td>60-64.1</td><td>80-85.2</td><td>100-105.2</td><td>120.5-126.3</td></tr><tr><td>Tolerance (Km/ h)</td><td>20.8-25.4</td><td>40-44</td><td>60.8-65.4</td><td>81.4-86.8</td><td>102.6-108.2</td><td>123.5-129.6</td></tr><tr><td>Velocity (Km/ h)</td><td>140</td><td>160</td><td>180</td><td>200</td><td colspan="2">Remarks</td></tr><tr><td>Tolerance (Km/ h)</td><td>140.5-146.7</td><td>160.5-167.5</td><td>181-188.4</td><td>201-209.1</td><td colspan="2">EXCEPT, EEC & GENERAL</td></tr><tr><td>Tolerance (Km/ h)</td><td>144.4-151</td><td>165.4-172.4</td><td>186.3-193.8</td><td>207.2-215.2</td><td colspan="2">EEC, GENERAL</td></tr></table> <table><tr><td>Velocity (MPH)</td><td>10</td><td>20</td><td>40</td><td>60</td><td>80</td><td>100</td></tr><tr><td>Tolerance (MPH)</td><td>10-12.5</td><td>20-22</td><td>40-42.6</td><td>60-63.4</td><td>80.3-84.1</td><td>100.3-104.7</td></tr><tr><td>Tolerance (MPH)</td><td>8.5-11.5</td><td>18.5-21.5</td><td>38.5-41.5</td><td>58.3-61.7</td><td>78-82</td><td>97.7-102.3</td></tr><tr><td>Velocity (MPH)</td><td>120</td><td colspan="5">Remarks</td></tr><tr><td>Tolerance (MPH)</td><td>120.3-125.3</td><td colspan="5">EXCEPT USA</td></tr><tr><td>Tolerance (MPH)</td><td>117.5-122.5</td><td colspan="5">USA</td></tr></table> o Must tap the speedometer with hand to prevent hysteresis effects when inspected.	Velocity (Km/ h)	20	40	60	80	100	120	Tolerance (Km/ h)	20-24.1	40-43	60-64.1	80-85.2	100-105.2	120.5-126.3	Tolerance (Km/ h)	20.8-25.4	40-44	60.8-65.4	81.4-86.8	102.6-108.2	123.5-129.6	Velocity (Km/ h)	140	160	180	200	Remarks		Tolerance (Km/ h)	140.5-146.7	160.5-167.5	181-188.4	201-209.1	EXCEPT, EEC & GENERAL		Tolerance (Km/ h)	144.4-151	165.4-172.4	186.3-193.8	207.2-215.2	EEC, GENERAL		Velocity (MPH)	10	20	40	60	80	100	Tolerance (MPH)	10-12.5	20-22	40-42.6	60-63.4	80.3-84.1	100.3-104.7	Tolerance (MPH)	8.5-11.5	18.5-21.5	38.5-41.5	58.3-61.7	78-82	97.7-102.3	Velocity (MPH)	120	Remarks					Tolerance (MPH)	120.3-125.3	EXCEPT USA					Tolerance (MPH)	117.5-122.5	USA				
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Tachometer																																																																																					
Type	o Cross coil type. (4 cyl: 2pulses/ rev, 6 cyl: 3pulses/ rev)																																																																																				
Standard values	<table><tr><td>Revolution(RPM)</td><td>1000</td><td>2,000</td><td>3,000</td><td>4,000</td><td>5,000</td><td>6,000</td><td>7,000</td></tr><tr><td>Tolerance(RPM)</td><td>±100</td><td>±125</td><td>±150</td><td>±200</td><td>±250</td><td>±300</td><td>±350</td></tr></table>	Revolution(RPM)	1000	2,000	3,000	4,000	5,000	6,000	7,000	Tolerance(RPM)	±100	±125	±150	±200	±250	±300	±350																																																																				
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Tolerance(RPM)	±100	±125	±150	±200	±250	±300	±350																																																																														
Fuel gauge																																																																																					
Type	o Must tap the tachometer with hand to prevent hysteresis effects when inspected. o Cross coil type (Fixed point type : Pointer should not fall into the "E" point but indicate remaining fuel level when I.G. off).																																																																																				
Standard values	<table><tr><td rowspan="2">Level</td><td>Gauge</td><td rowspan="2">Tolerance assembled with fuel sender (°)</td></tr><tr><td>Resistance (Ω)</td></tr><tr><td>E (Empty)</td><td>95</td><td>- 40 ^{+2.4}_{-2.2}</td></tr><tr><td>1/2</td><td>32.5</td><td>0±5.3</td></tr><tr><td>F (Full)</td><td>7</td><td>40±3.5</td></tr></table> o Inspection order : E→F→E The indications must be read at least 7 minutes after the input of the datum resistance value to each measuring point. o Point stability tolerance : Within 9° Apply the power for 10 minutes. Then turn off the power source for 30 minutes and read the position of the pointer.	Level	Gauge	Tolerance assembled with fuel sender (°)	Resistance (Ω)	E (Empty)	95	- 40 ^{+2.4} _{-2.2}	1/2	32.5	0±5.3	F (Full)	7	40±3.5																																																																							
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Items	Specifications															
Temperature gauge	o Cross coil type (Intermedia stability type). <table><tr><th>Temperature</th><th>Angle (°)</th><th>Assembled tolerance (°C)</th></tr><tr><td>55°C</td><td>-40</td><td>-</td></tr><tr><td>85°C~110°C</td><td>-7⁺²₋₃</td><td>-7⁺³₋₂</td></tr><tr><td>Red zone (over 125°C)</td><td>over 35±5</td><td>35⁺⁷₋₄</td></tr></table>				Temperature	Angle (°)	Assembled tolerance (°C)	55°C	-40	-	85°C~110°C	-7 ⁺² ₋₃	-7 ⁺³ ₋₂	Red zone (over 125°C)	over 35±5	35 ⁺⁷ ₋₄
Temperature					Angle (°)	Assembled tolerance (°C)										
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Red zone (over 125°C)					over 35±5	35 ⁺⁷ ₋₄										
Type																
Indication standard																
Resistance of temperature sender	o Inspection order : OFF→C→H															
	<table><tr><th>Temperature (°C)</th><td>55</td><td>85</td><td>110</td><td>125</td></tr><tr><th>Resistance (Ω)</th><td>157</td><td>48.4</td><td>24</td><td>15.2</td></tr></table>	Temperature (°C)	55	85	110	125	Resistance (Ω)	157	48.4	24	15.2					
Temperature (°C)	55	85	110	125												
Resistance (Ω)	157	48.4	24	15.2												

TROUBLESHOOTING ETHA0100

harness, the radio, the cassette tape deck, the CD player, the speaker, and antenna. Troubleshooting enables you to confine the problem to a particular area.

AUDIO

There are six areas where a problem can occur: wiring

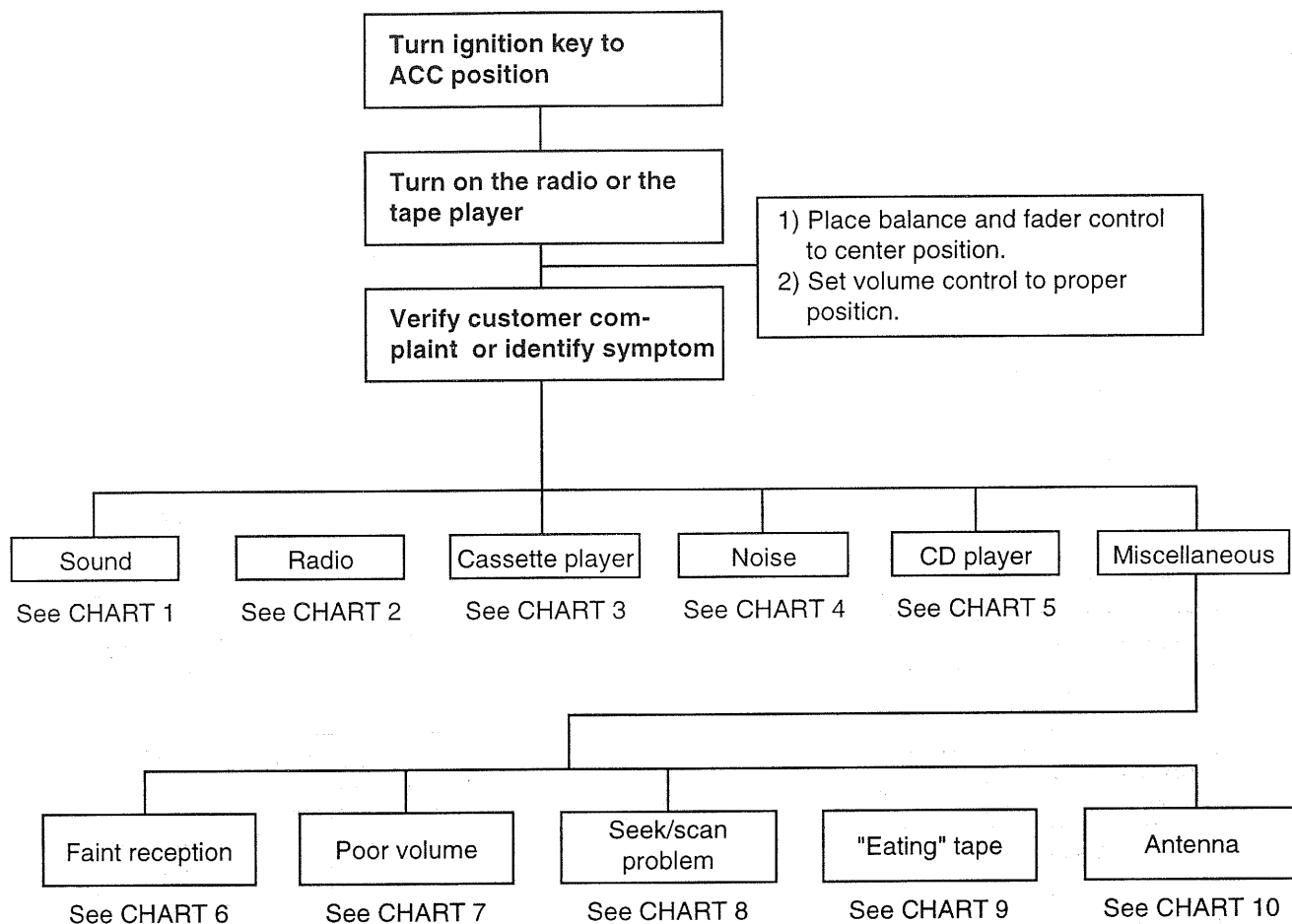
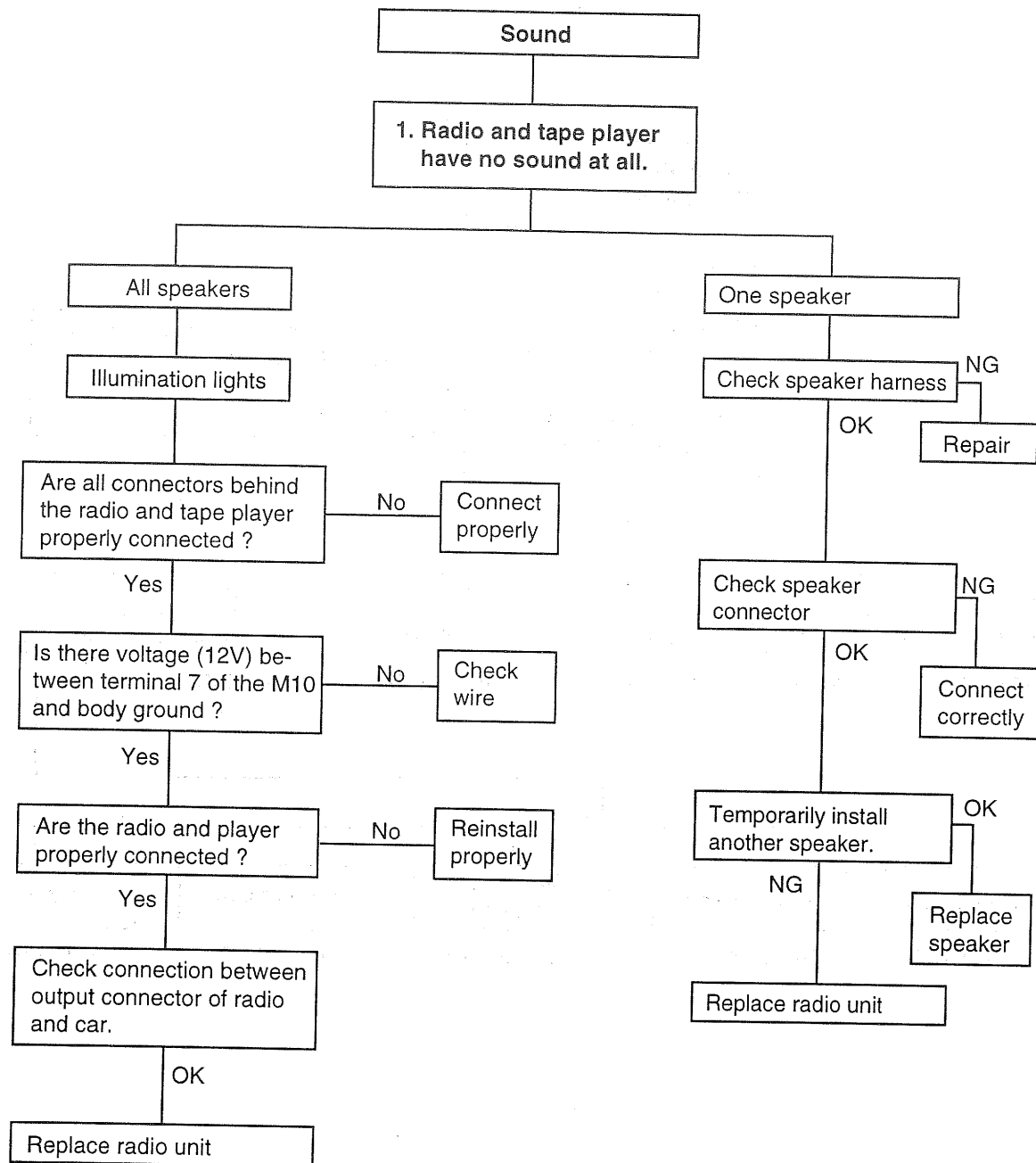
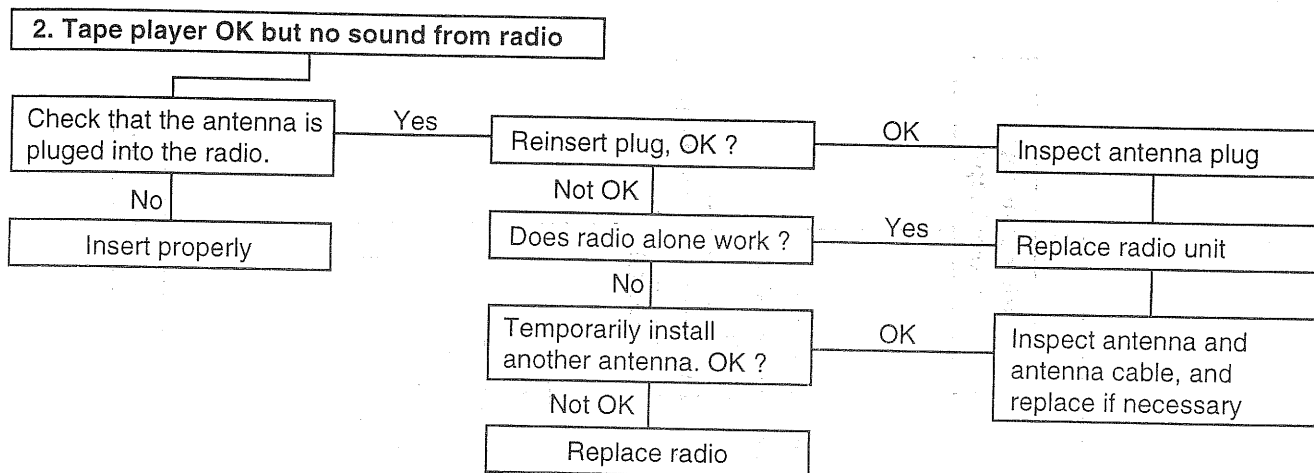


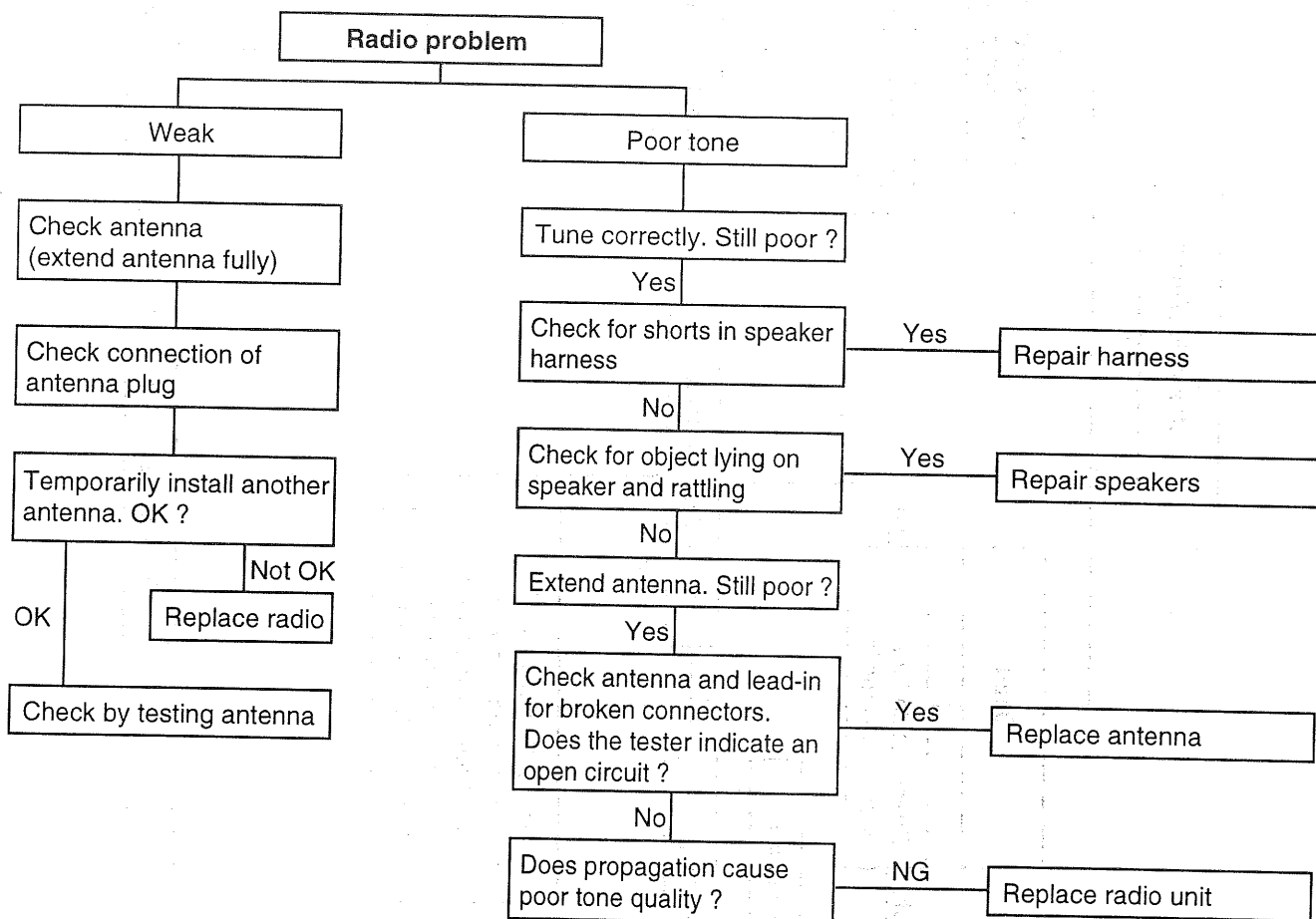
CHART 1 ETAA0110





ETA9010C

CHART 2 ETA90130



ETA9010D

CHART 3 ETA90140

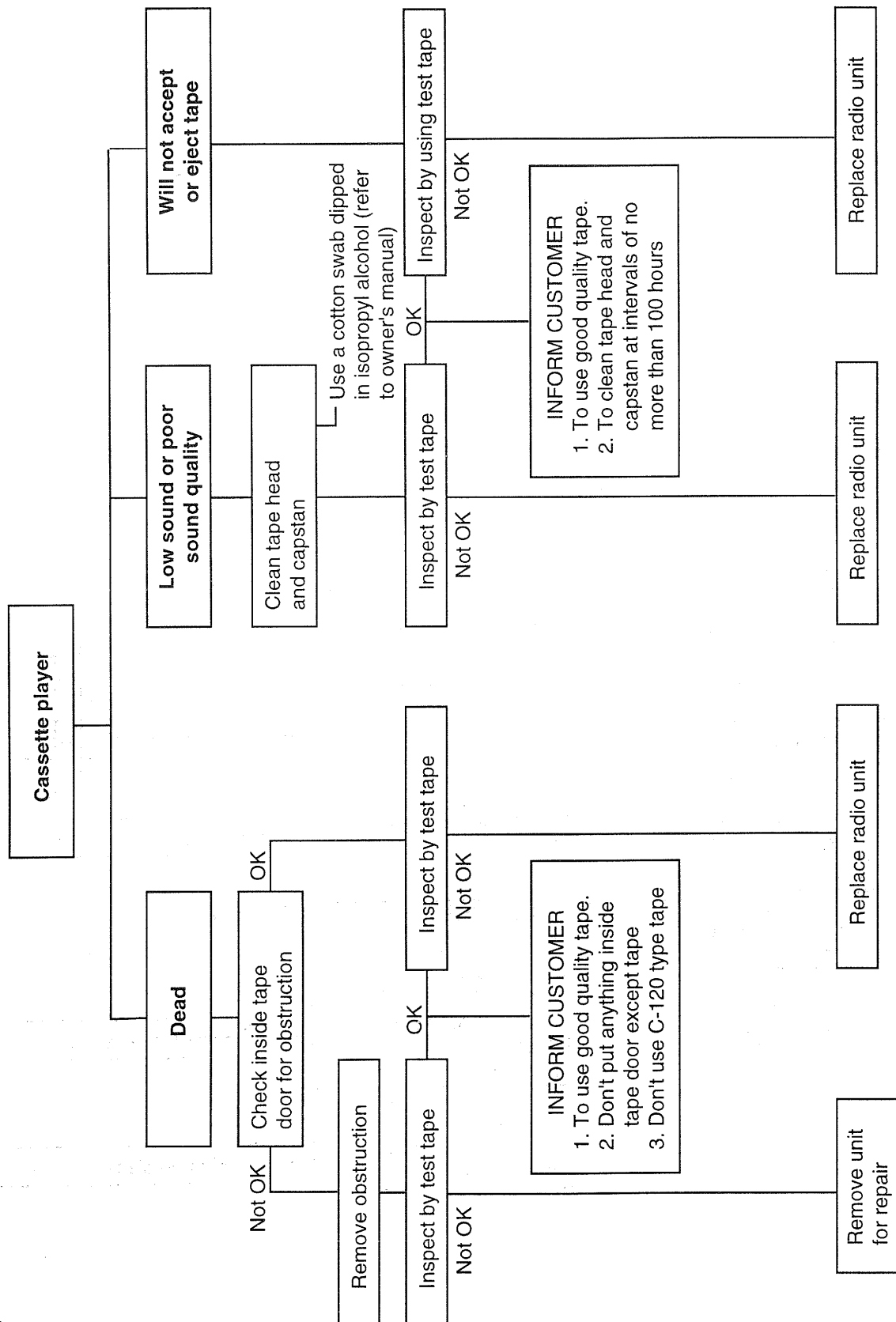


CHART 4 ETA90150

1. RADIO

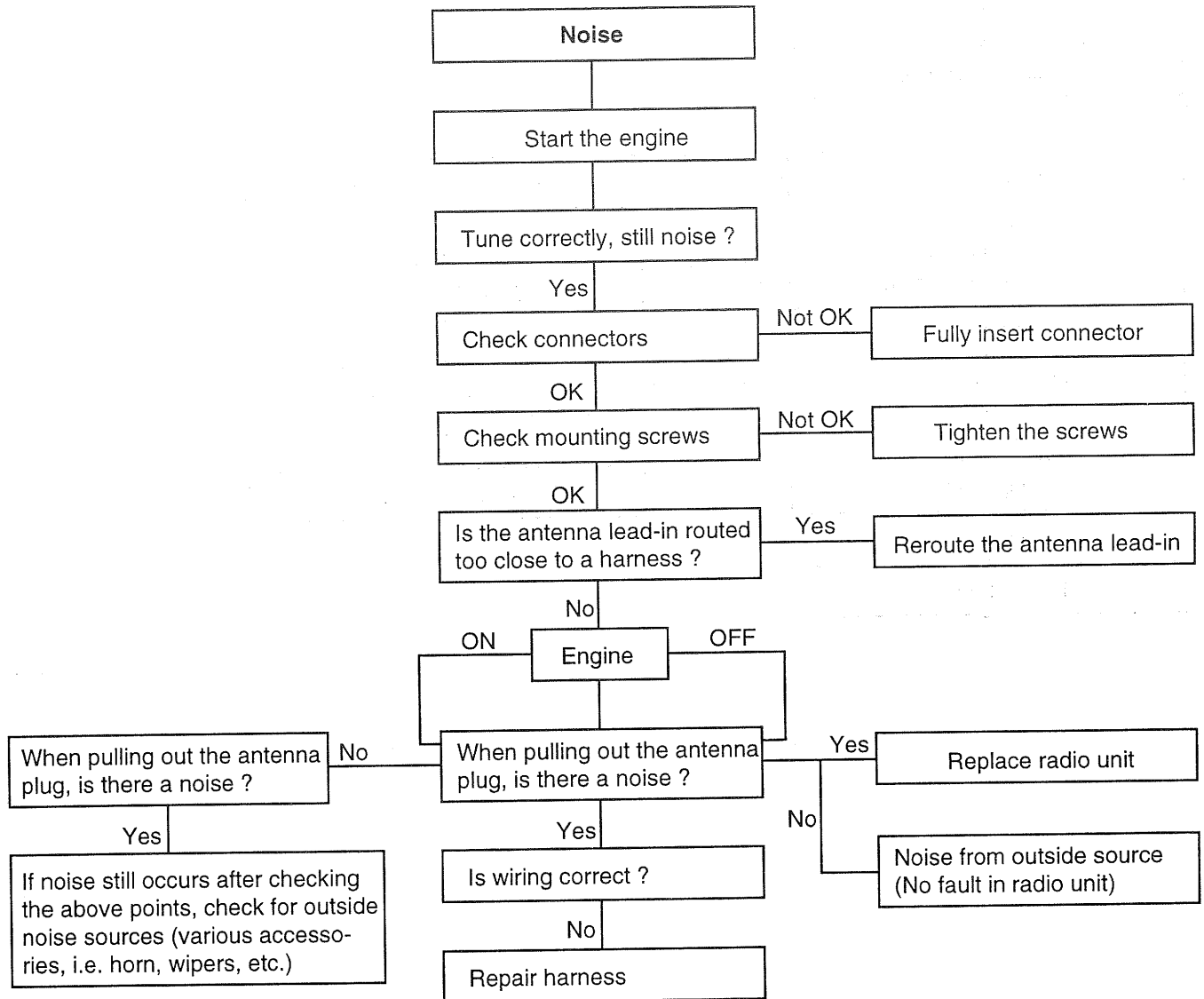


CHART 4 (CONTINUED) ETA90160

2. TAPE

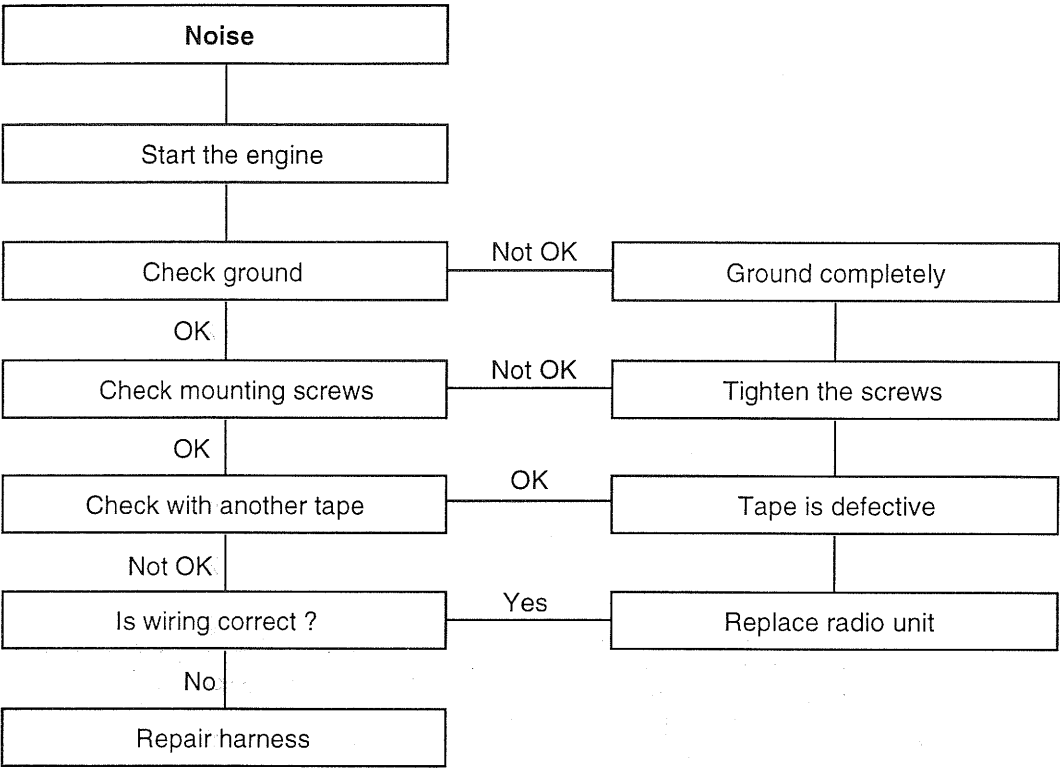
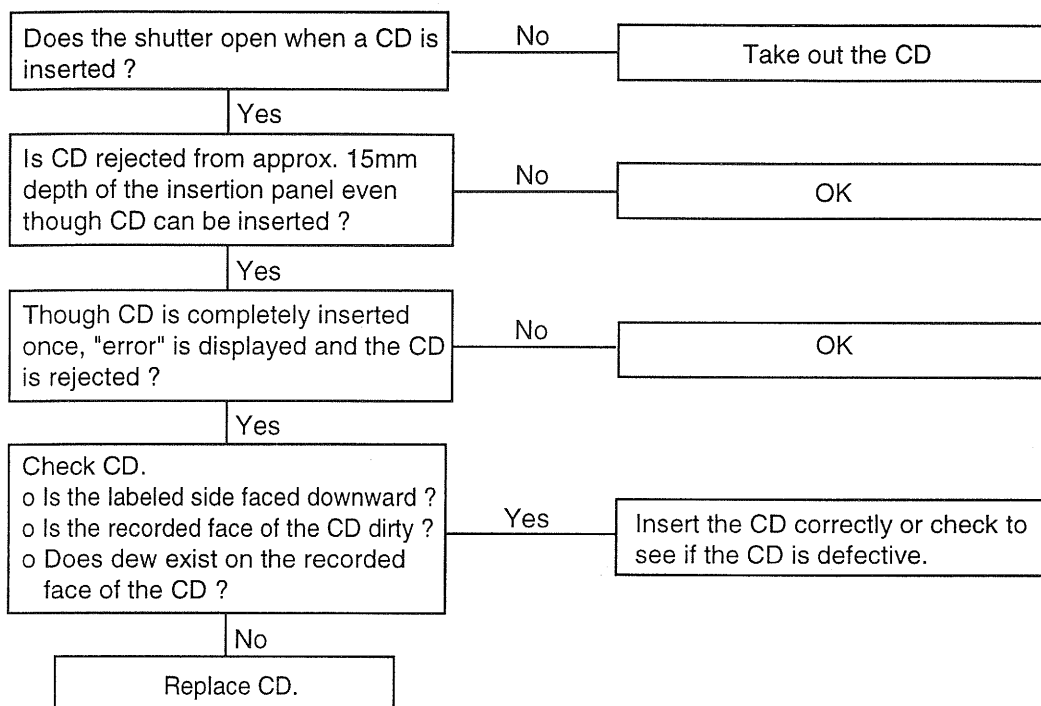


CHART 5

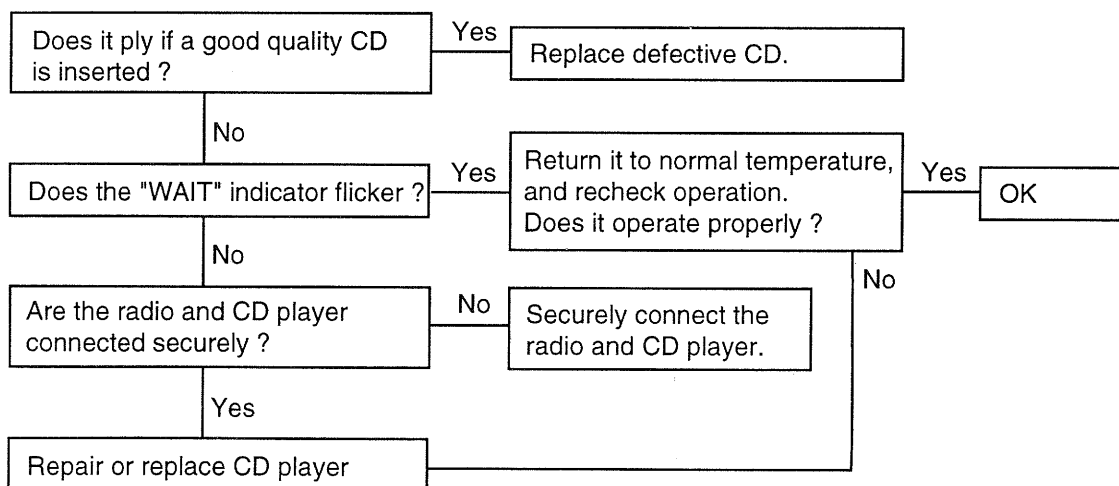
ETA90170

1. CD WILL NOT BE ACCEPTED



ETA9010H

2. NO SOUND

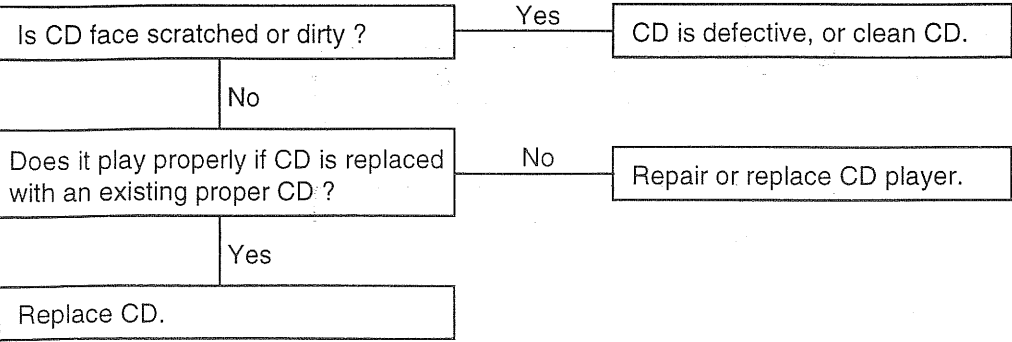


(The combined radio cassette must operate properly.)

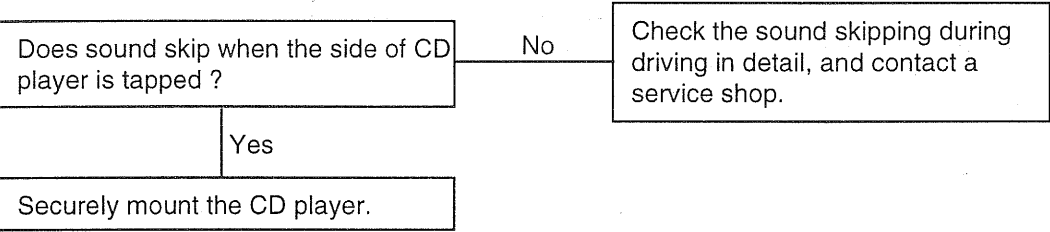
ETA9010O

3. CD SOUND SKIPS

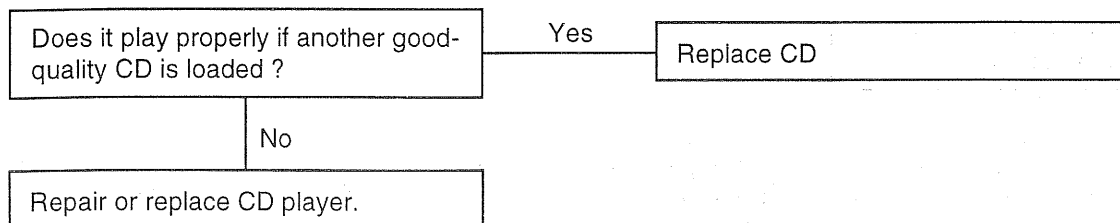
1. Sound sometimes skips during parking.



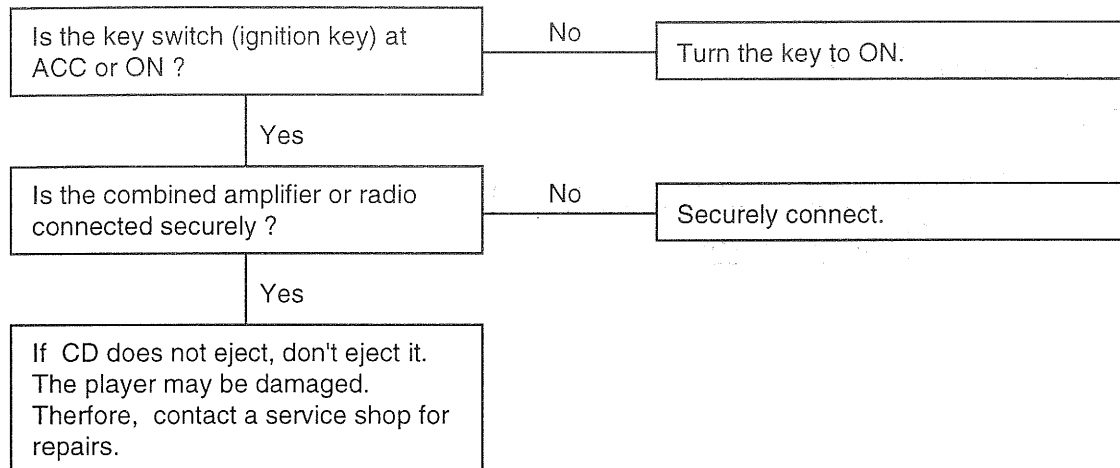
2. Sound sometimes skips during driving.
(Stop vehicle, and check it.)
(Check by using a CD which is free of scratches, dirt or other abnormalities.)



4. SOUND QUALITY IS POOR



5. CD WILL NOT EJECT



6. NO SOUND FROM ONE SPEAKER

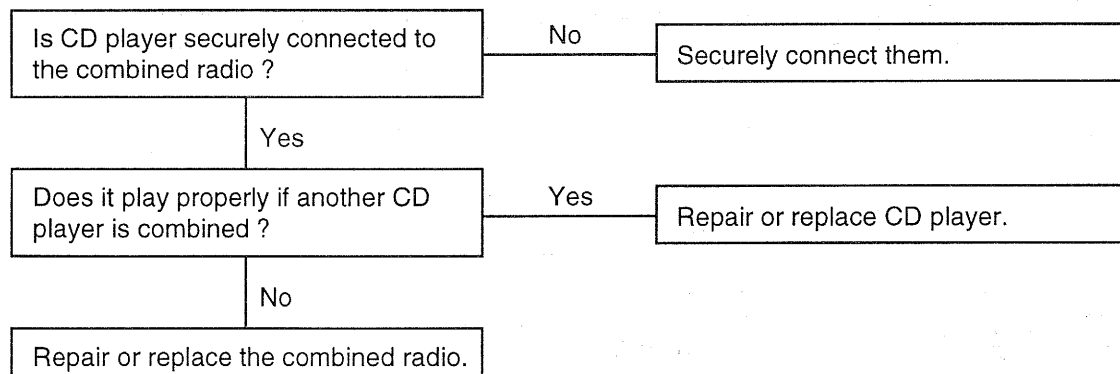
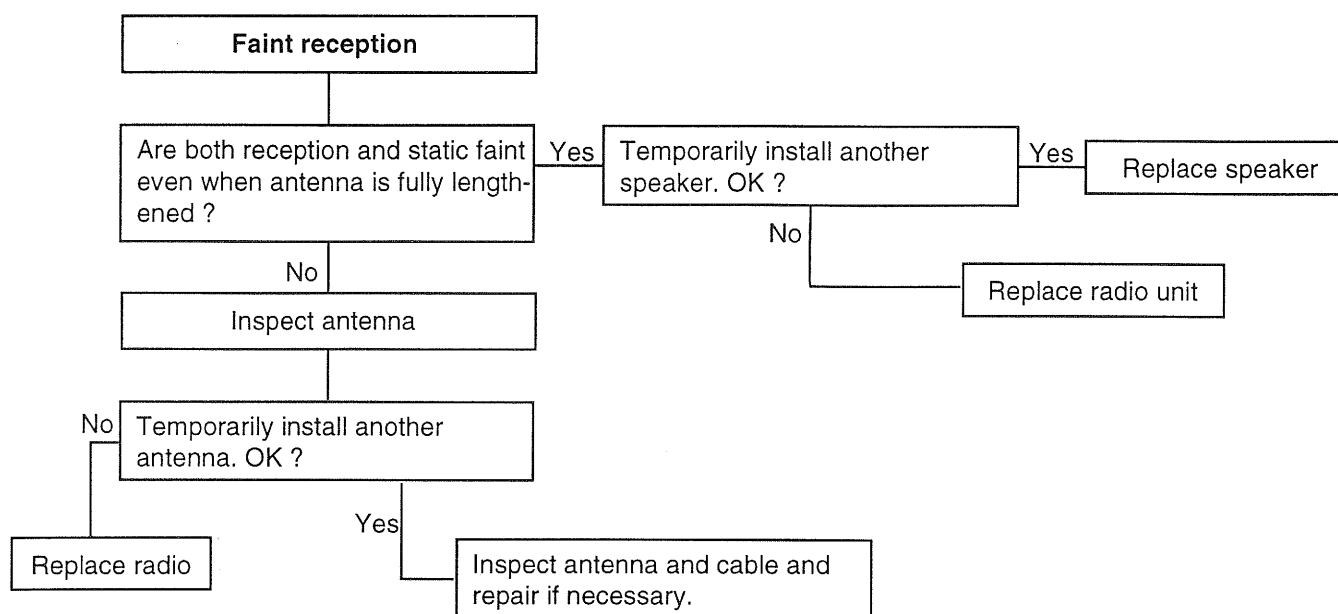
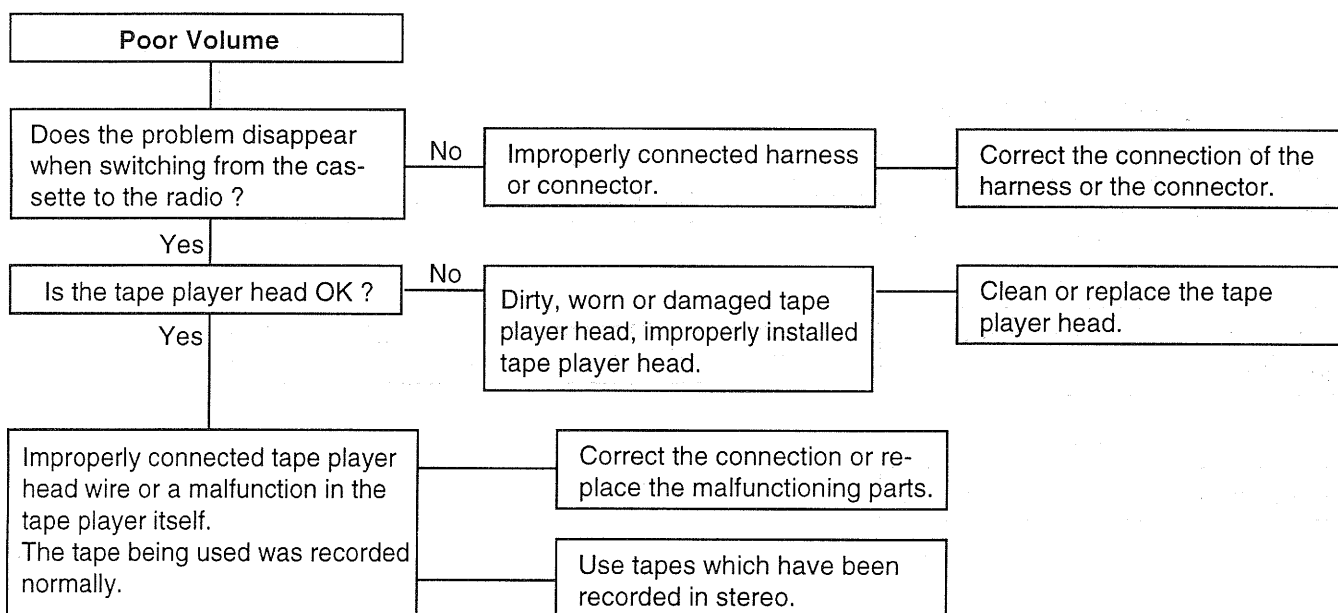


CHART 6 ETA90200

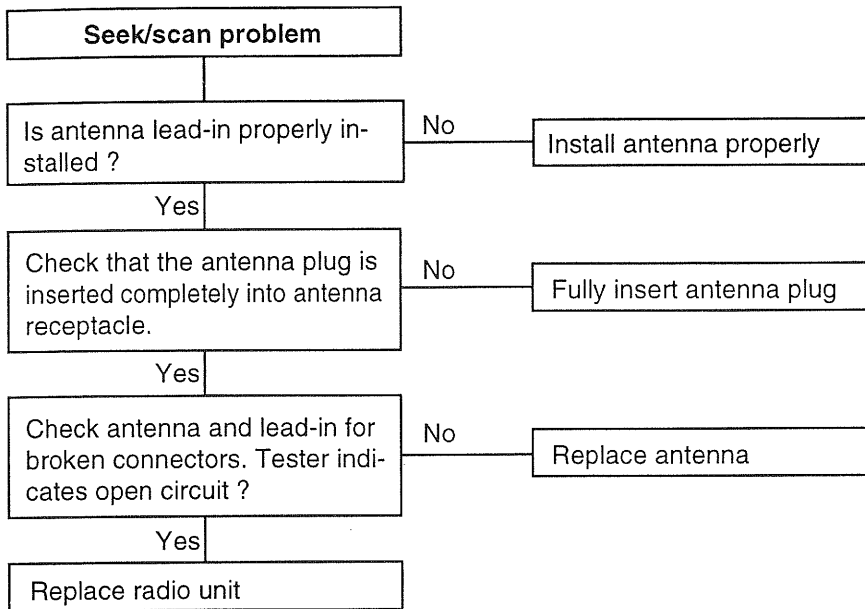


ETA9010K

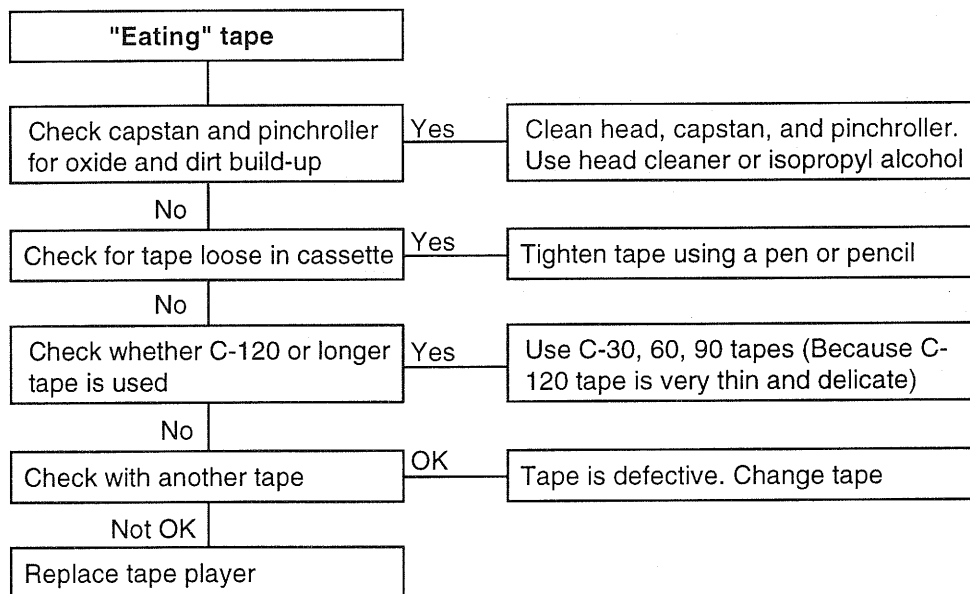
CHART 7 ETA90210.



ETA9010L

CHART 8 ETA90220

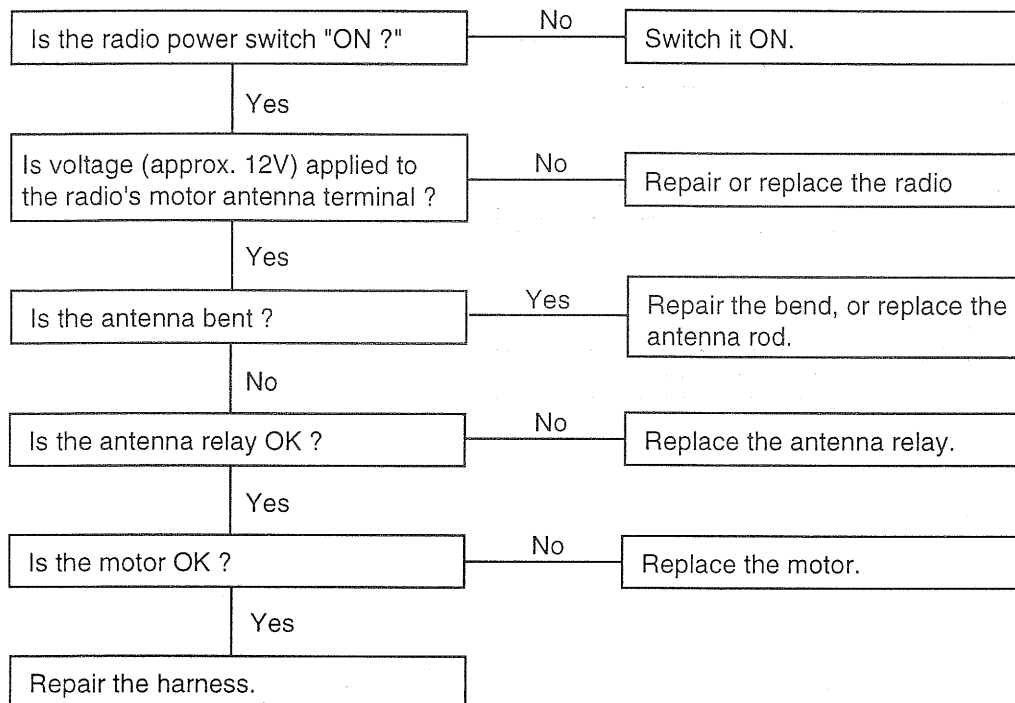
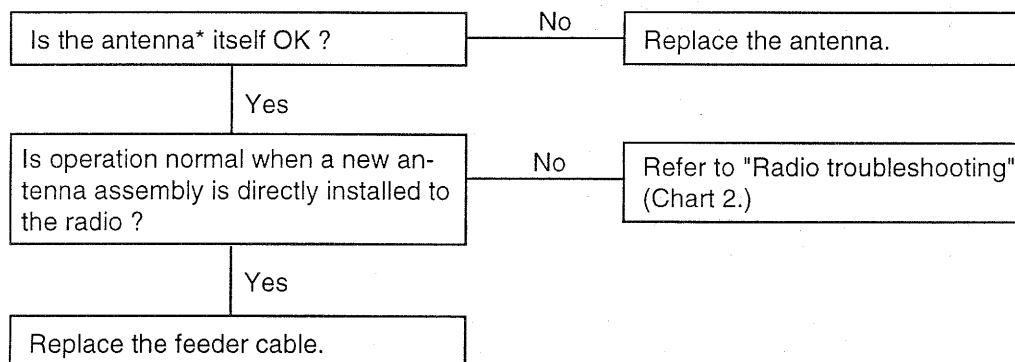
ETA9010M

CHART 9 ETA90230

ETA9010N

CHART 10 ETAA0240**1. MOTOR ANTENNA WON'T EXTEND OR RETRACT**

Clean and polish the surface of the antenna rod.

**2. MOTOR ANTENNA EXTENDS AND RETRACTS BUT DOES NOT RECEIVE**

ETAA010P

TROUBLESHOOTING

ETHA0700

Trouble symptom	Possible cause	Remedy
One lamp does not light (all exterior)	Bulb burned out	Replace bulb
	Socket, wiring or ground faulty	Repair if necessary

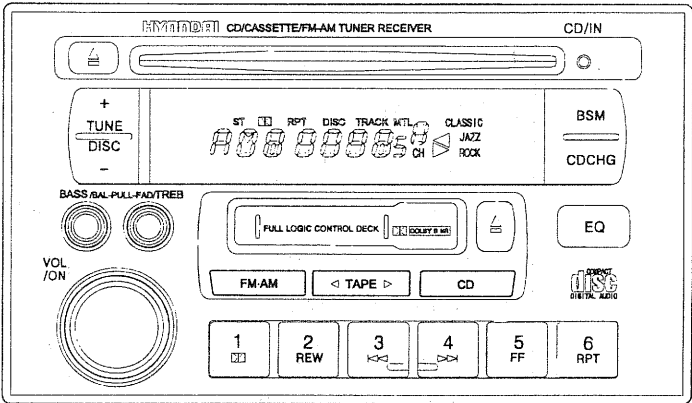
Trouble symptom	Possible cause	Remedy
Headlamps do not light	Bulb burned out Fuse 28 (10A) blown Headlamp relay faulty Lighting switch faulty Wiring or ground faulty	Replace bulb Replace fuse and check for short Check relay Check switch Repair if necessary
Tail and license lamp do not light	Tail lamp fuse blown (10A) Fusible link blown Taillamp relay faulty Lighting switch faulty Wiring or ground faulty	Replace fuse and check for short Replace fusible link Check relay Check switch Repair if necessary
Stop lamps do not light	Fuse 24 (15A) blown Stop lamp switch faulty Wiring or ground faulty Stop lamp relay faulty	Replace fuse and check for short Adjust or replace switch Repair if necessary Replace relay
Stop lamps stay on	Stop lamp switch faulty Stop lamp relay faulty	Adjust or replace switch Replace relay
Instrument lamps do not light (taillamps light)	Rheostat faulty Wiring or ground faulty	Check rheostat Repair if necessary
Turn signal lamp does not flash on one side	Bulb burned out Turn signal switch faulty Wiring or ground faulty	Replace bulb Check switch Repair if necessary
Turn signal lamp does not operate	Fuse 3 (10A) blown Flasher faulty Turn signal switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair if necessary
Hazard warning lamps do not operate	Fuse 23 (10A) blown Flasher faulty Hazard switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair if necessary
Flasher rate too slow or too fast	Lamps' wattage are smaller or larger than is specified for use Defective flasher	Replace lamps Replace flasher
Back up lamps do not light up	Fuse 11 (10A) blown Back up lamp switch faulty Wiring or ground faulty	Replace fuse and check for short Check switch Repair if necessary
Overhead console lamp do not light up	Fuse 16 blown Wiring or ground faulty	Replace fuse and check for short Repair if necessary

AUDIO SYSTEM

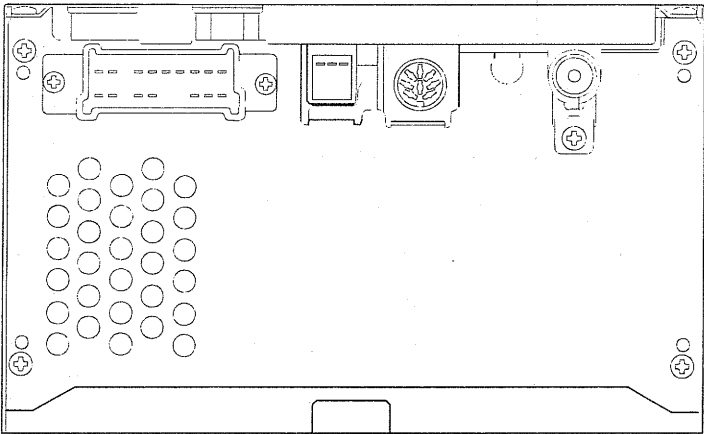
AUDIO UNIT

COMPONENTS ETHA0850

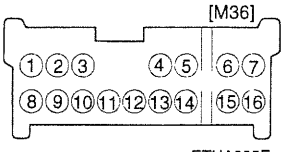
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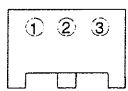


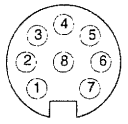
ETHA005C



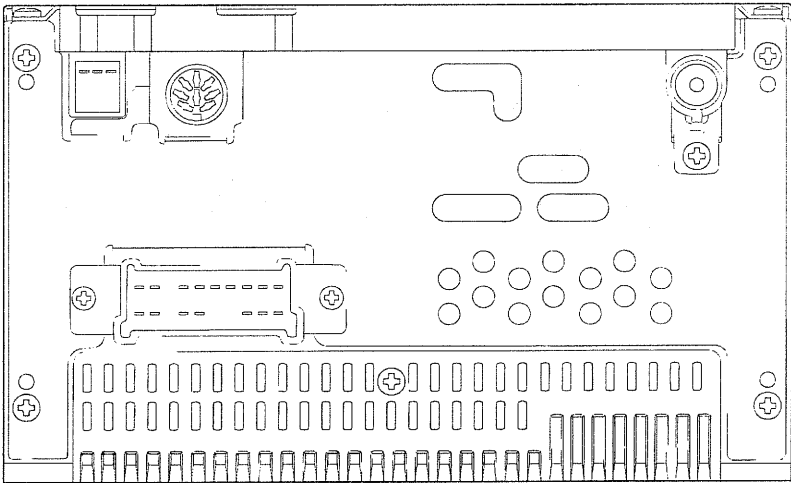
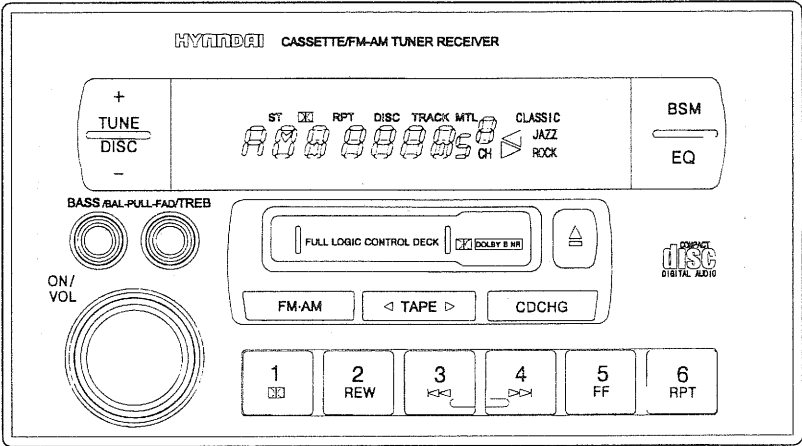
ETHA005D

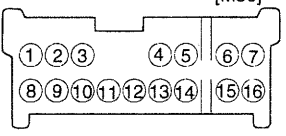
16P CONNECTOR	NO.	NOTE
	1	ANT B+
	2	EXT-AMP RR LH(-) INPUT
	3	EXT-AMP FRT LH(-) INPUT
	4	EXT-AMP FRT RH(-) INPUT
	5	EXT-AMP RR RH(-) INPUT
	6	ILL(-)
	7	ACC(+)
	8	GROUND
	9	EXT-AMP RR LH(+) INPUT
	10	EXT-AMP FRT LH(+) INPUT
	11	N.C
	12	AMP REMOTE
	13	EXT-AMP FRT RH(+) INPUT
	14	EXT-AMP RR RH(+) INPUT
	15	ILL(+)
	16	BACK UP(+)

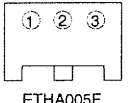
3P CONNECTOR	NO.	NOTE
	1	GROUND
	2	SIGNAL
	3	REAR SIGNAL

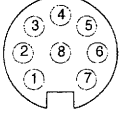
8P CONNECTOR	NO.	NOTE
	1	R
	2	CD ON
	3	BUS
	4	B+
	5	M.GROUND
	6	NC
	7	L
	8	A.GROUND

<H940B>

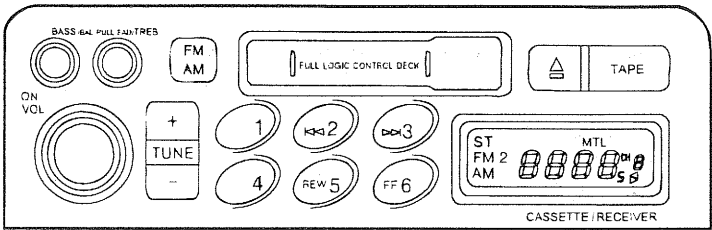


16P CONNECTOR	NO.	NOTE
	1	ANT B+
	2	EXT-AMP RR LH(-) INPUT
	3	EXT-AMP FRT LH(-) INPUT
	4	EXT-AMP FRT RH(-) INPUT
	5	EXT-AMP RR RH(-) INPUT
	6	ILL(-)
	7	ACC(+)
	8	GROUND
	9	EXT-AMP RR LH(+) INPUT
	10	EXT-AMP FRT LH(+) INPUT
	11	N.C
	12	AMP REMOTE
	13	EXT-AMP FRT RH(+) INPUT
	14	EXT-AMP RR RH(+) INPUT
	15	ILL(+)
	16	BACK UP(+)

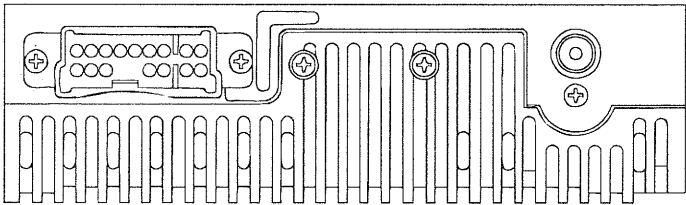
3P CONNECTOR	NO.	NOTE
	1	GROUND
	2	SIGNAL
	3	REAR SIGNAL

8P CONNECTOR	NO.	NOTE
	1	R
	2	CD ON
	3	BUS
	4	B+
	5	M.GROUND
	6	NC
	7	L
	8	A.GROUND

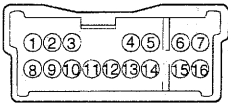
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ETHA005Q

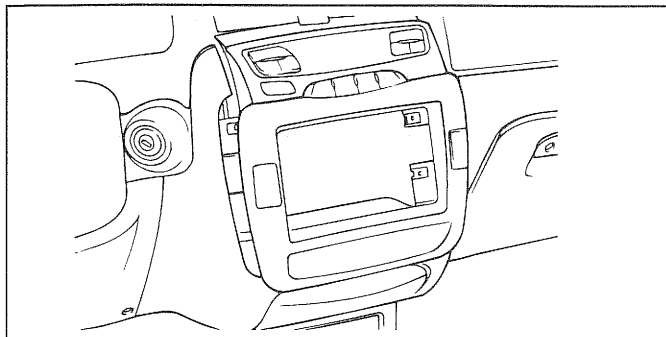


ETHA005R

16P CONNECTOR	NO.	NOTE
 ETHA005S	1	AUTO ANTENNA
	2	SPKR RR LH(-)
	3	SPKR FRT LH(-)
	4	SPKR FRT RH(-)
	5	SPKR RR RH(-)
	6	ILL(-)
	7	ACC(+)
	8	GROUND
	9	SPKR RR LH(+)
	10	SPKR FRT LH(+)
	11	N.C
	12	N.C
	13	SPKR FRT RH(+)
	14	SPKR RR RH(+)
	15	ILL(+)
	16	BACK UP(+)

REMOVAL AND INSTALLATION ETHA0900

1. Disconnect negative (-) battery terminal.
2. Remove the center facia panel and disconnect air temperature switch connector.



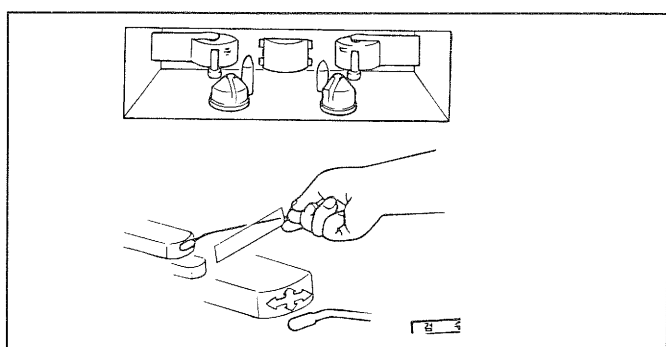
ESHA040Q

3. Loosen the screws holding the audio and remove the audio assembly from the mounting bracket.
4. Installation is the reverse of the removal process.

SERVICE INSTRUCTIONS ETHA0750

TAPE HEAD AND CAPSTAN CLEANING

1. To obtain optimum performance, clean the head, and capstan as often as necessary, depending on frequency of use and tape clean the head and capstan as often as necessary, depending on frequency of use and tape cleanness.
2. To clean the tape head and capstan, use a cotton swab dipped in ordinary rubbing alcohol. Wipe the head and capstan.



ETA9035A

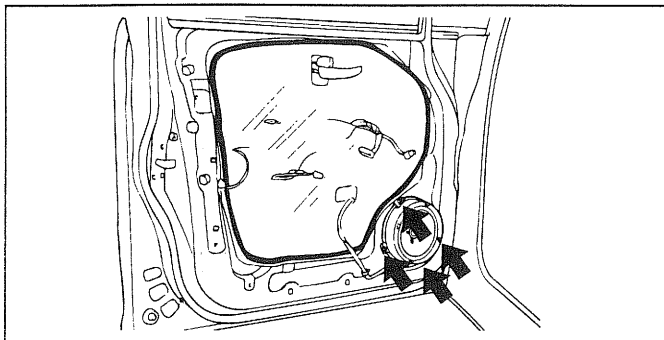
SPEAKERS

REMOVAL AND INSTALLATION

ETHA0950

FRONT SPEAKER

1. Remove the front door trim panel and remove the front speaker (Refer to the BD group).

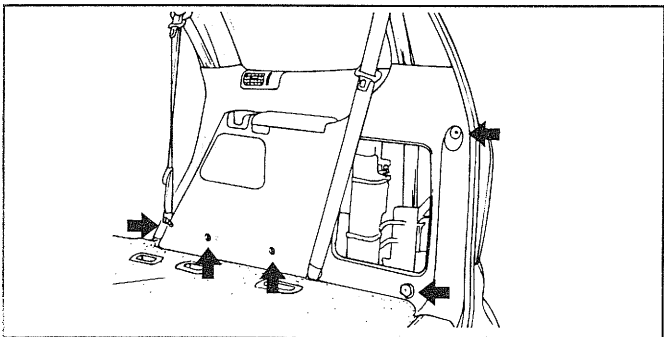


ESHA015E

2. Installation is the reverse of the removal process.

REAR SPEAKER

1. Remove the rear quarter trim (Refer to the BD group).



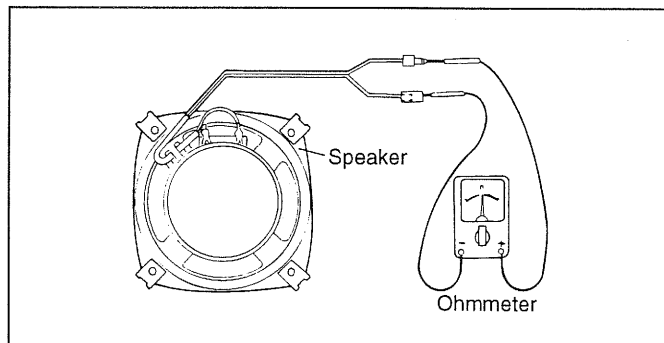
ESHA045D

2. Remove the rear speaker.

SPEAKER CHECKING

ETA90400

1. Check the speaker by using an ohmmeter. If an ohmmeter indicates the impedance of the speaker when checking between the speaker (+) and speaker (-) of the same channel, the speaker is ok.
2. If a clicking sound is emitted from the speaker when the ohmmeter plugs, touch the speaker terminals, the speaker is ok.

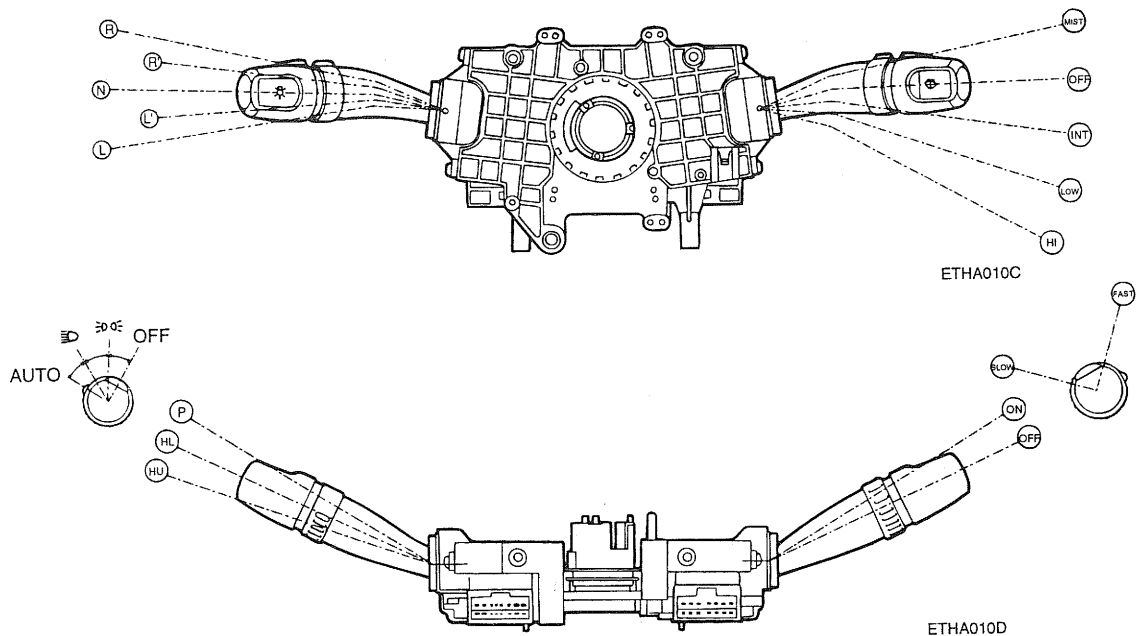


ETA9040A

MULTI FUNCTION SWITCH

MULTI FUNCTION SWITCH

COMPONENTS(WITHOUT AIR BAG) ETHA1000



M26-2

1	2	3	4	5	6	7
8	9	10	11	12	13	14

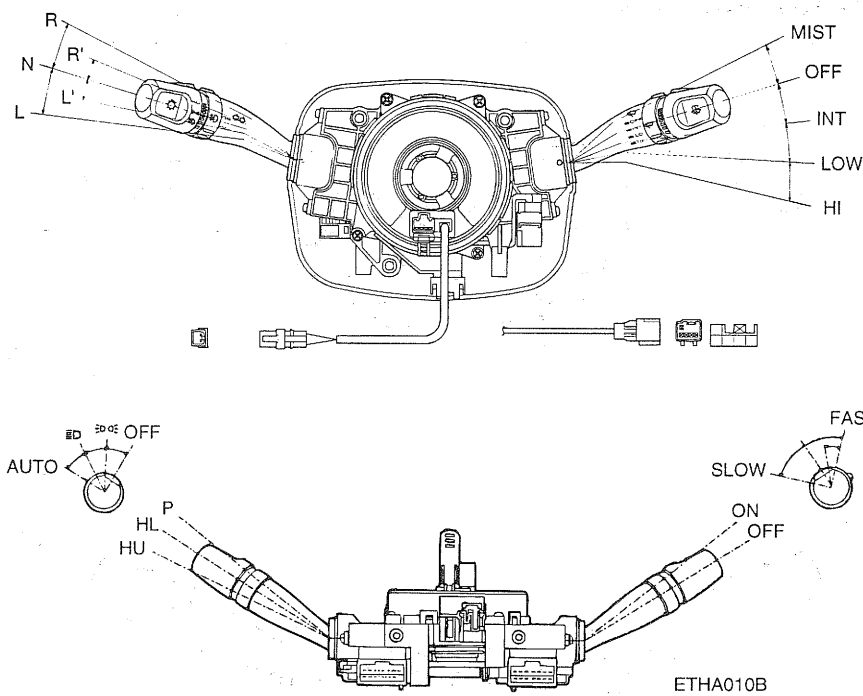
M26-1

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18

Circuit connection

Connector No.	Terminal No.	Description	Connector No.	Terminal No.	Description
M26-1	1	Head lamp passing switch	M26-2	1	Wiper high speed
	2	Head lamp high beam power		2	Wiper low speed
	3	-		3	Wiper parking
	4	-		4	Mist switch
	5	-		5	Wiper & washer ground
	6	-		6	Intermittent wiper
	7	Turn signal RH lamp switch		7	Front washer switch
	8	Flasher unit power		8	Horn
	9	Turn signal LH lamp switch		9	-
	10	Head lamp low beam power		10	-
	11	Dimmer & passing ground		11	-
	12	Front fog lamp switch		12	-
	13	Front fog lamp switch ground		13	Intermittent wiper
	14	Tail lamp switch		14	Intermittent wiper ground
	15	Head lamp switch			
	16	Auto light/Rear fog lamp switch			
	17	Lighting switch ground			
	18	-			

COMPONENTS(WITH AIR BAG)



M26-2

1	2	3	4	5	6	7
8	9	10	11	12	13	14

M26-1

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18

M26-3

1	2	3	4
---	---	---	---

Circuit connection

Connector No.	Terminal No.	Description	Connector No.	Terminal No.	Description
M26-1	1	Head lamp passing switch	M26-2	1	Wiper high speed
	2	Head lamp high beam power		2	Wiper low speed
	3	-		3	Wiper parking
	4	-		4	Mist switch
	5	-		5	Wiper & washer ground
	6	-		6	Intermittent wiper
	7	Turn signal RH lamp switch		7	Front washer switch
	8	Flasher unit power		13	Intermittent wiper
	9	Turn signal LH lamp switch		14	Intermittent wiper ground
	10	Head lamp low beam power	M26-3	1	-
	11	Dimmer & passing ground		2	Horn relay
	12	Front fog lamp switch		3	-
	13	Front fog lamp switch ground		4	-
	14	Tail lamp switch			
	15	Head lamp switch			
	16	Auto light/Rear fog lamp switch			
	17	Lighting switch ground			
	18	-			

KTDA030Y

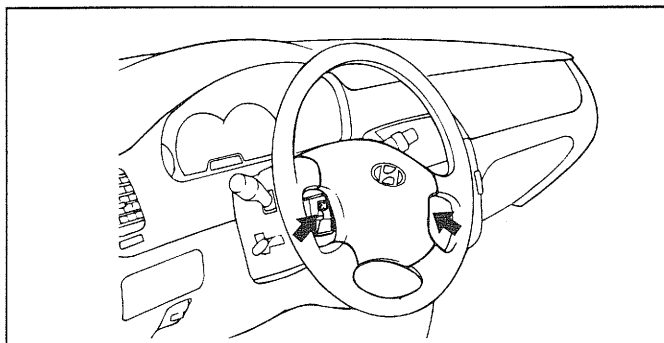
REMOVAL AND INSTALLATION ETHA1050

Prior to removing of the multifunction switch assembly in vehicles equipped with air bags, be careful to follow the following:

CAUTION

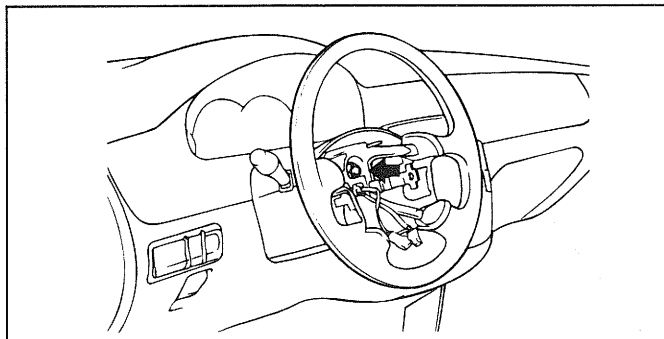
- Never attempt to disassemble or repair the air bag module or clock spring. If faulty, replace it.
- Do not drop the air bag module or clock spring or allow contact with water, grease or oil. Replace if a dent, crack, deformation or rust are detected.
- The air bag module should be stored on a flat surface and placed so that the pad surface is facing upward. Do not place anything on top of it.
- Do not expose the air bag module to temperatures over 93°C(200°F).
- After deployment of an air bag, replace the clock spring with a new one.
- Wear gloves and safety glasses when handling an air bag that has already been deployed.
- An undeployed air bag module should only be disposed of in accordance with the procedures mentioned in the restraints section.
- When you disconnect the air bag module-clock spring connector, take care not to apply excessive force.
- The removed air bag module should be stored in a clean, dry place.
- Prior to installing the clock spring, align the mating mark and "NEUTRAL" position indicator of the clock spring, and after turning the front wheels to the straight-ahead position, install the clock spring to the column switch. If the mating mark of the clock spring is not properly aligned, the steering wheel may not completely rotate during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading to serious injury to the vehicle's driver. To inspect the clock spring, refer to the restraints section.

1. Remove the air bag module.



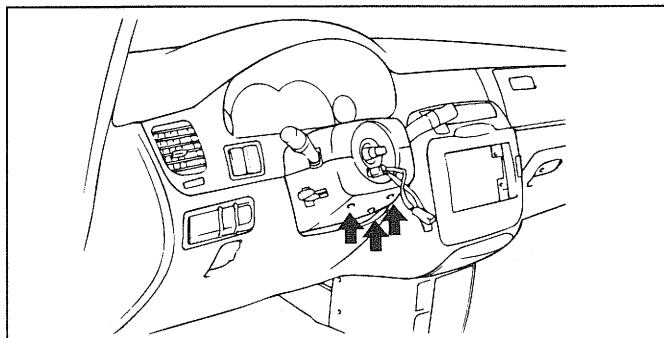
ESHA040M

2. Remove the steering wheel.



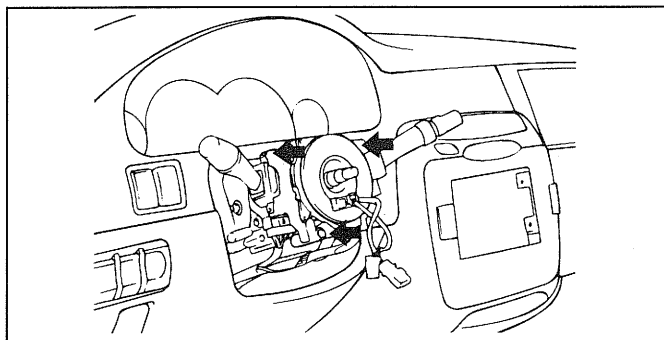
ESHA040N

3. Remove the steering column upper shroud and steering column lower shroud.



ESHA040O

4. Loosen the multifunction switch mounting screws and disconnect the connector. Remove the multifunction switch assembly.



ESHA040P

5. Installation is the reverse of the removal process.

INSPECTION ETHA1100

Check the continuity between the terminals while operating the switch.

LIGHTING SWITCH [M26-1]

Terminal Position	14	15	16	17
OFF				
I	○	—		○
II	○	○	○	○
AUTO			○	○

KTDA040A

FRONT FOG LAMP SWITCH [M26-1]

Terminal Position	12	13
OFF		
INT	○	○

KTDA040F

DIMMER AND PASSING SWITCH [M26-1]

Terminal Position	1	2	10	11
HU		○	—	○
HL			○	○
P	○	○	—	○

HU : Head lamp high beam

HL : Head lamp low beam

P : Head lamp passing switch

KTDA040B

TURN SIGNAL AND LANE CHANGE SWITCH [M26-1]

Hazard switch	Turn signal switch	Terminal 7	Terminal 8	Terminal 9
OFF	L		○	○
	N			
	R	○	○	

KTDA040C

WIPER AND INTERMITTENT VOLUME SWITCH [M26-2]

Terminal Position	1	2	3	4	5	6	13	14
MIST				○	○			
OFF		○	○					
INT		○	○		○	○	○	○
LOW		○	—	○				
HI	○	—	—	○				

KTDA040D

WASHER SWITCH [M26-2]

Terminal Position	7	8
OFF		
ON	○	○

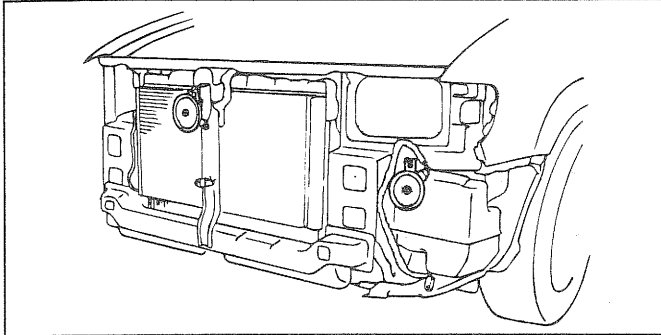
KTDA040E

HORNS

REMOVAL AND INSTALLATION

ETHA1150

1. Remove the bolts holding horn and remove the horn assembly.



ETHA015A

2. Installation is the reverse of the removal process.

INSPECTION

ETHA1200

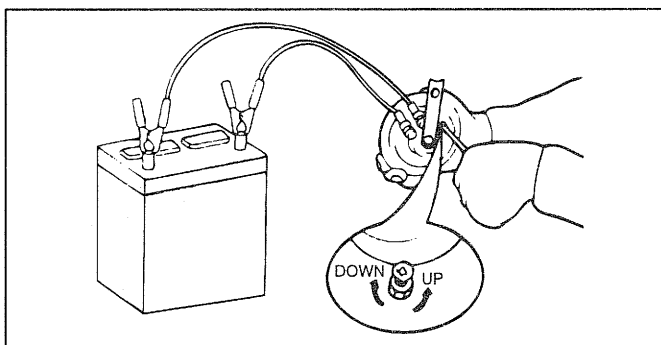
1. Test the horn by connecting battery voltage to the 1 and 2 terminals.
2. The horn should make a sound. If the horn fails to make a sound, replace it.

ADJUSTMENT

Operate the horn, and adjust the tone to a suitable level by turning the adjusting screw.

NOTE

After adjustment, apply a small amount of paint around the screw head to keep it from loosening.



ETDA050A

ETACS (ELECTRONIC TIME AND ALARM CONTROL SYSTEM)

ELECTRONIC TIME AND ALARM CONTROL MODULE OPERATION CHECK OF COMPONENTS

ETHA1250

While operating the components, check whether the operations are normal with timing chart.

ETACS FUNCTION

1. Vehicle speed sensing intermittent wiper

Time specification

T1 : Max. 0.6 sec.

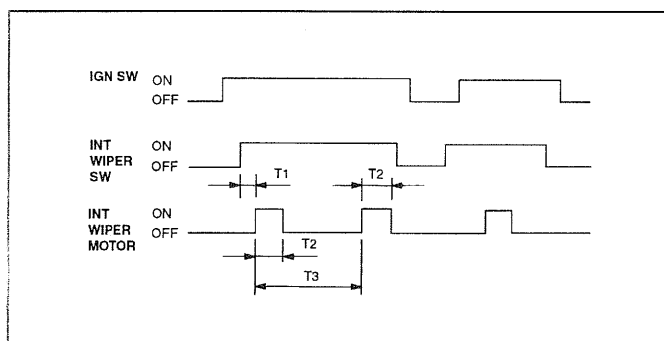
T2 : 0.6~0.7 sec. (Time of wiper motor 1 rotation)

T3 : At vehicle speed = 0km/h.

2.6±0.7 sec. (VR=0kΩ)~18.0±1sec (VR=50KΩ)

At vehicle speed = 100km/h or more.

1.0±0.2sec (VR=0kΩ)~10.0±1sec (VR=50KΩ)



ETHA115C

2. Washer

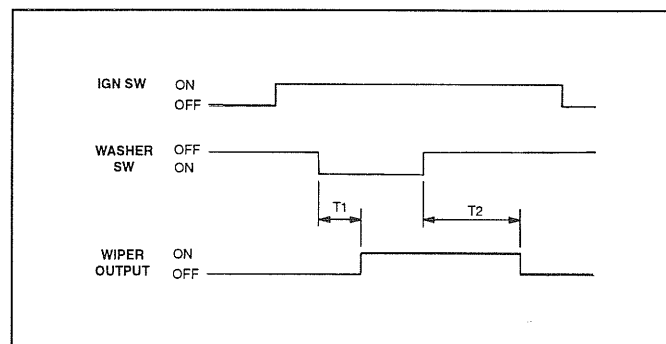
a. Time specification

T1 : 0.6 sec. or more

T2 : 2.5 - 3.8 sec.

T1 : 0.2 - 0.6 sec. (Mist)

b. This function should be operated preferentially even though the variable intermittent wiper is operating.

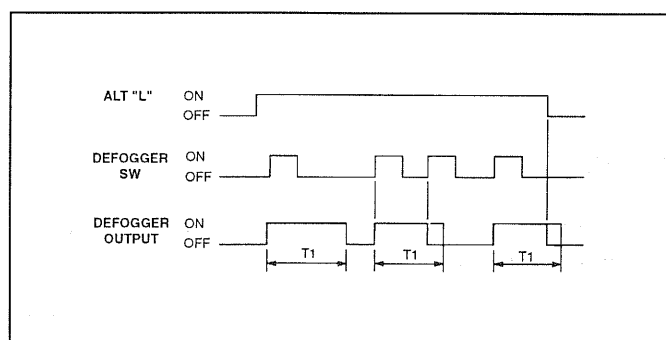


ETHA115D

3. Rear window defogger

Time specification

T1 : 20±1min.



ETHA115E

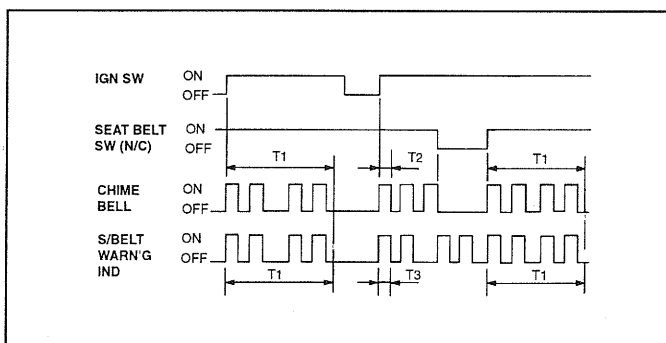
4. Seat belt warning

Time specification

T1 : 6 ± 1 sec.

T2 : 0.45±0.1 sec.

T3 : 0.3 ± 0.1 sec.



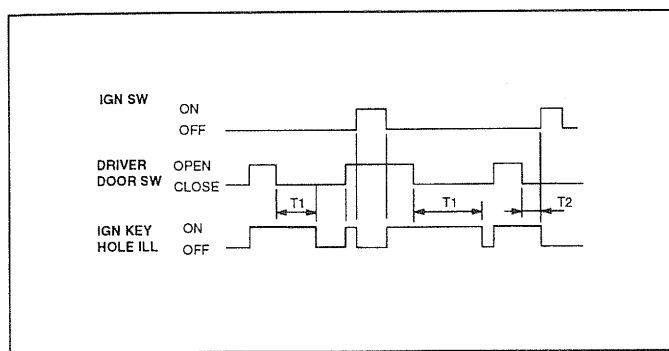
ETHA115F

5. Ignition key hole illumination

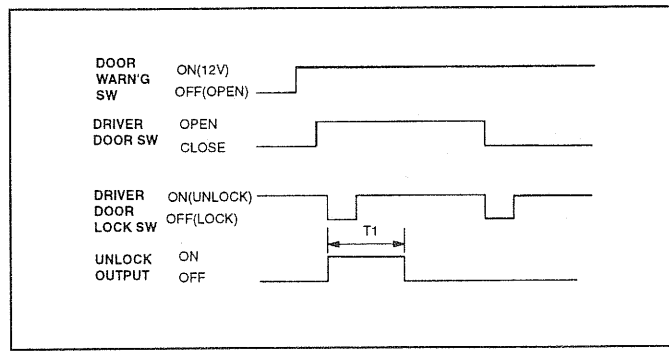
Time specification

T1 : 10 ± 1 sec.

T2 : 0 - 10 sec.



ETHA115J

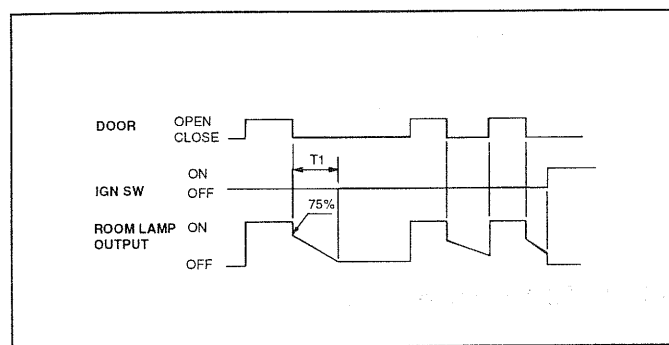


ETHA115I

6. Delayed out room lamp

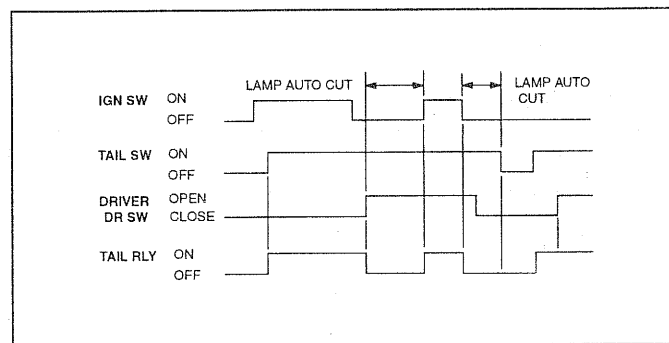
Time specification

T1 : 5.5 ± 0.5 sec.



ETHA115G

9. Tail lamp auto cut

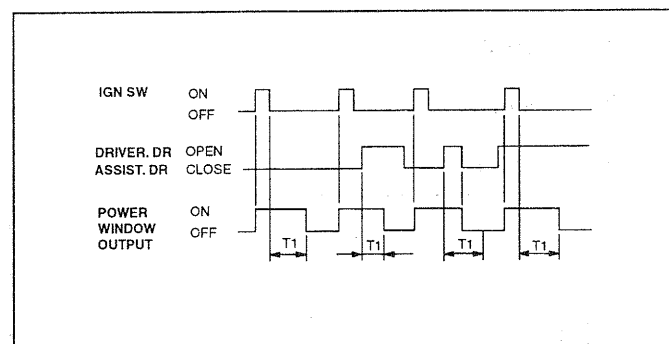


ETHA115M

10. Power window timer

Time specification

T1 : 30 ± 3 sec.

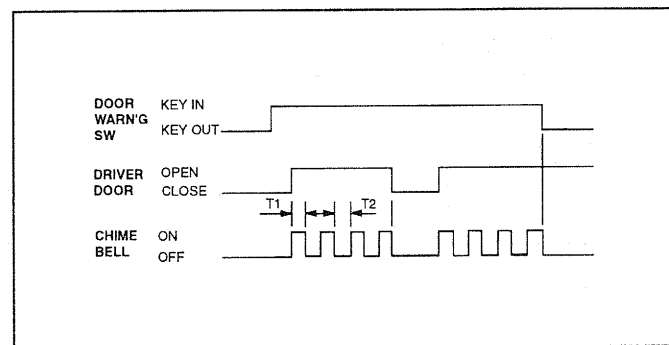


ETHA115K

7. Door warning

Time specification

T1, T2 : 0.45 ± 0.1 sec.



ETHA115L

8. Ignition key reminder

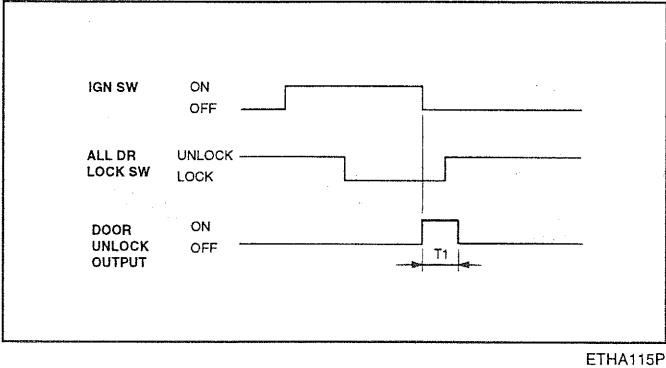
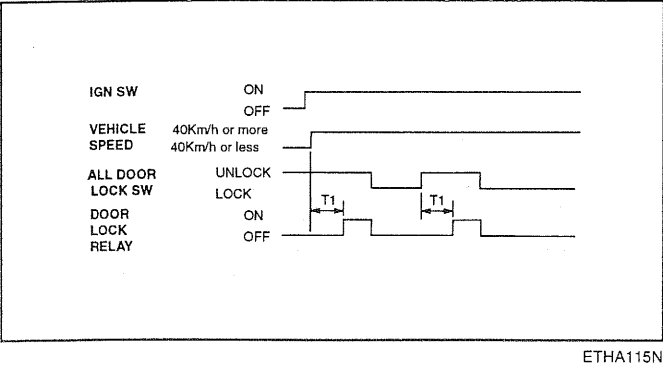
Time specification

T1 : 5 ± 0.5 sec.

11. Auto door lock

Time specification

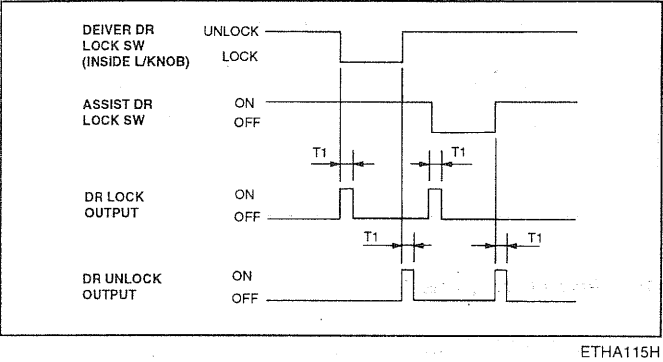
T1 : 2.5 ± 0.5 sec.



12. Central door lock/unlock

Time specification

T1 : 0.5±0.1 sec.

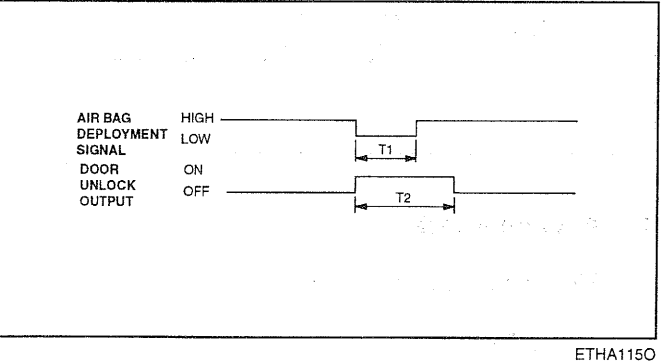


13. Auto door unlock

Time specification

T1 : 200ms

T2 : 1±0.2 sec.

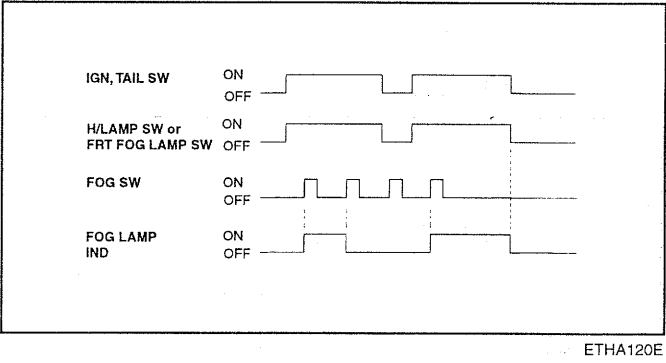


14. Ignition key off unlock.

Time specification

T1 : 0.5±0.5 sec

15. Rear fog lamp control



ANTI-THEFT FUNCTION

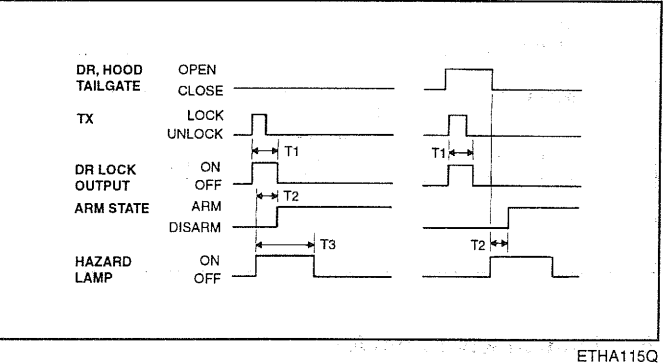
1. Arm function

Time specification

T1 : 0.5sec.

T2 : Max 2sec.

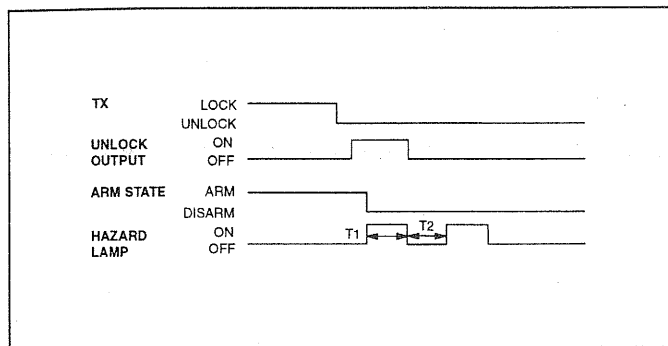
T3 : 1.0±0.2sec.



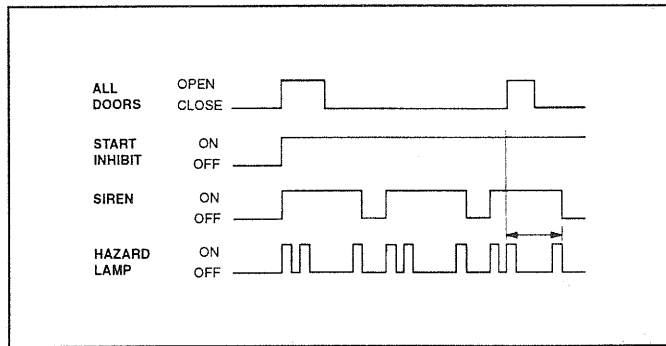
2. Disarm function

Time specification

T1, T2 : 0.5±0.1sec.



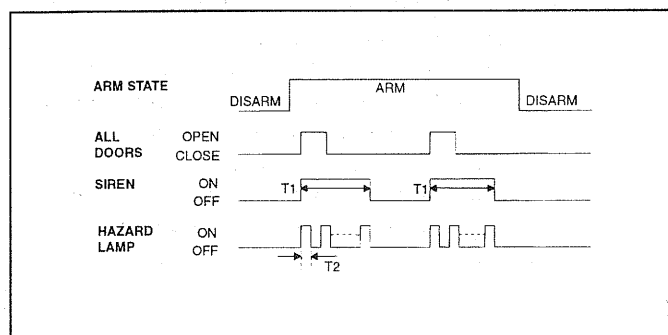
ETHA115R



ETHA115T

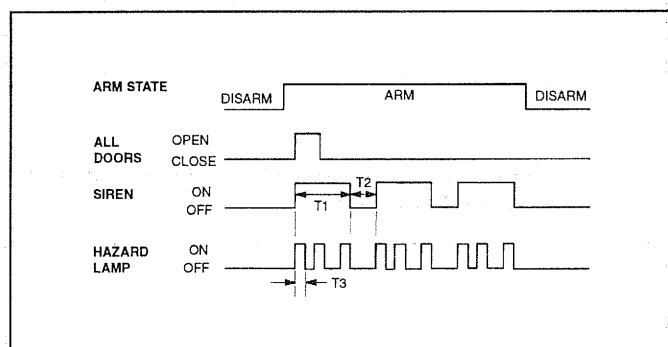
3. Alarm function

- a. Only EC Area
Time specification
T1 : 27 ± 2 sec.
T2 : 0.5 ± 0.1 sec.



ETHA120F

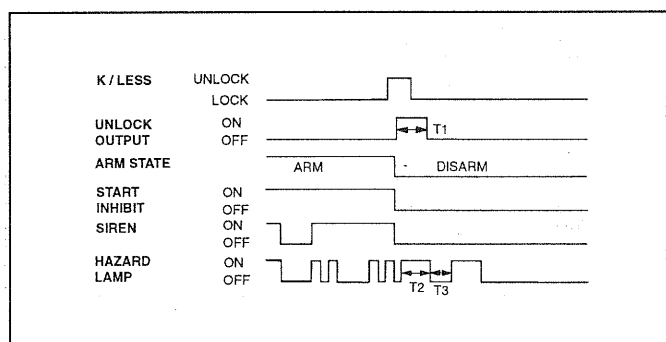
- b. Except EC Area
Time specification
T1 : 27 ± 2 sec.
T2 : 10 ± 1 sec.



ETHA115S

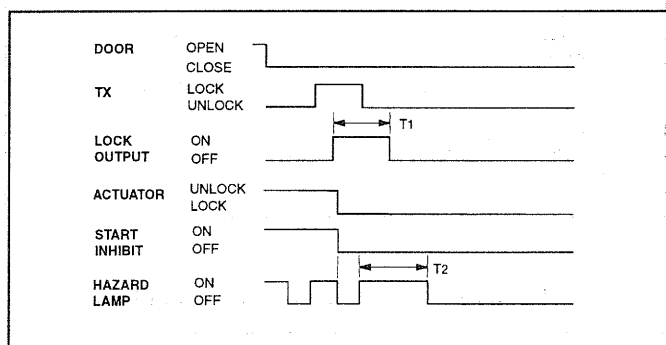
- c. New alarm occurs during the alarm state.

- d. Disarmed with TX (Transmitter) during the alarm state.
Time specification
T1, T2, T3 : 0.5 ± 0.1 sec.



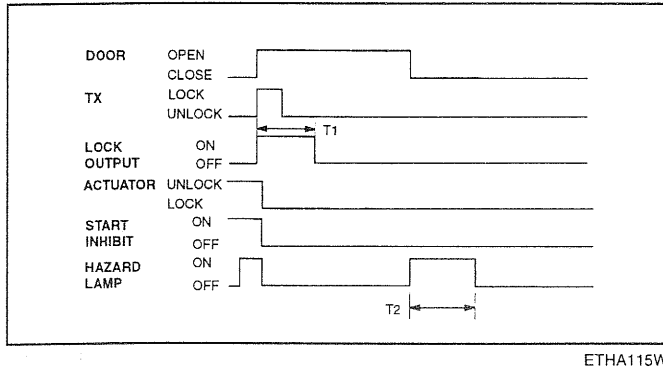
ETHA115U

- e. TX lock button pressed when the door closed during the alarm state.
Time specification
T1 : 0.5sec.
T2 : 1.0 ± 0.2 sec.

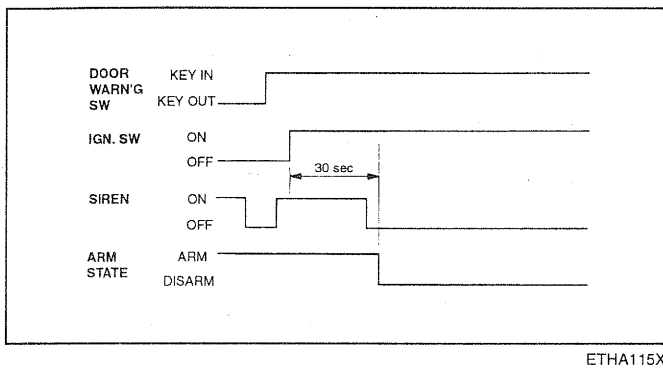


ETHA115V

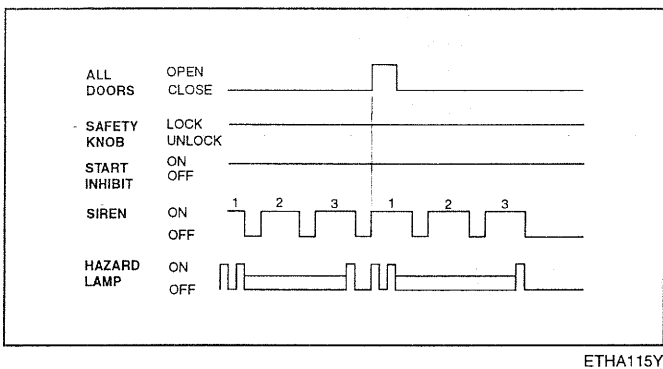
- f. TX lock button pressed when the door opened during the alarm state.
Time specification
T1 : 0.5sec.
T2 : 1.0 ± 0.2 sec.



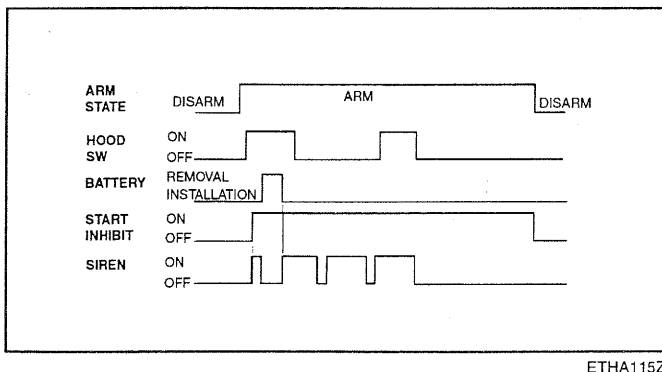
- g. Disarmed after 30 sec when the ignition switch turned on during the alarm state.



- h. Start inhibit is "ON" regardless of safety knob lock state.



- i. Battery is separated during the alarm state.



- a. Remove the lower crash panel.

NOTE

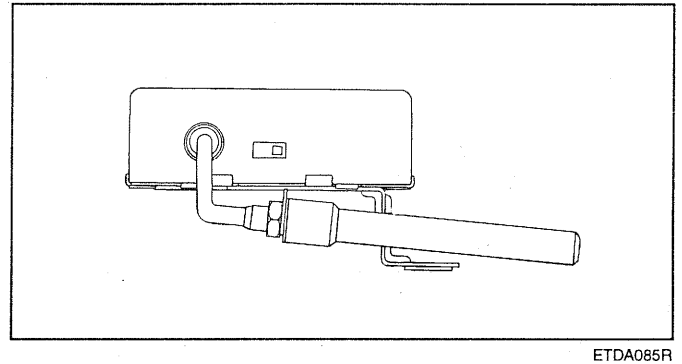
Don't disconnect the negative (-) battery terminal.

- b. Code saving :

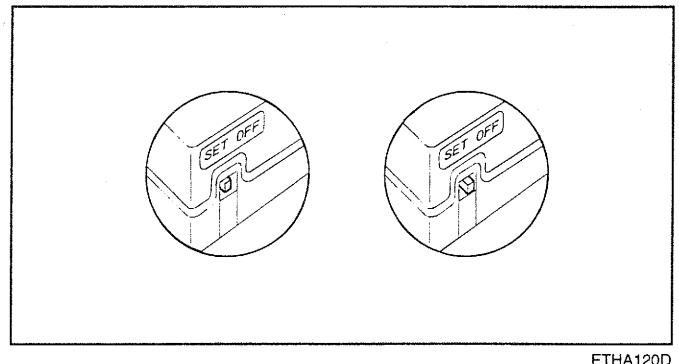
- Activating the keyless entry-receiver unit and change code saving switch of the receiver unit from "OFF" to "SET".
- The secret codes from the transmitter are stored into the receiver unit when the door lock button or unlock button pressed.

- c. Code saving :

- Change code saving switch of the receiver unit from "OFF" to "SET".
- The same secret code from transmitter are stored into the receiver unit when the door lock or unlock button from the changing transmitter are pressed.
- The code saving of 2nd transmitter unit will be achieved in the same method.



- d. Change code saving switch of the receiver unit from "SET" to "OFF".

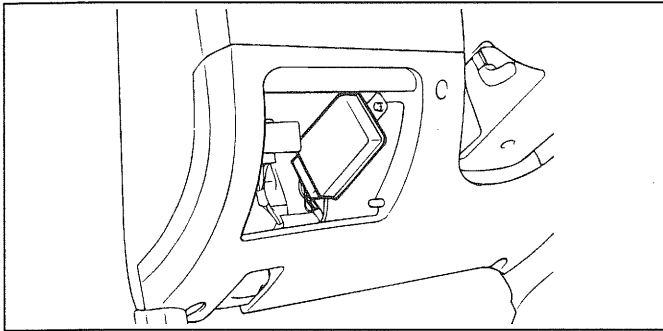


- e. Install the lower crash panel.

4. Code saving method.

REMOVAL AND INSTALLATION ETHA1300

1. Disconnect the negative (-) battery terminal
2. Remove the lower crash panel.
3. Remove the ETACM from the junction block and disconnect the connectors.



ETDA080A

4. Installation is the reverse of the removal process.

FUSES AND RELAYS

RELAY BOX (ENGINE COMPARTMENT)

FUSIBLE LINK ETHA1350

SPECIFICATIONS

Circuit	Rated Capacity	Circuit	Rated Capacity
Ignition switch 1	30A	ABS 1	30A
Ignition switch 2	50A	ABS 2	30A
Power window	30A	Radiator	30A
Condenser	20A		

INSPECTION

1. Check for a burnt fusible link with an ohmmeter.
2. If a fusible link burns out, there is a short or some other problem in the circuit. Carefully determine the cause and correct it before replacing the fusible link.

CAUTION

The fusible link will burn out within 15 seconds if a higher than specified current flows through the circuit.

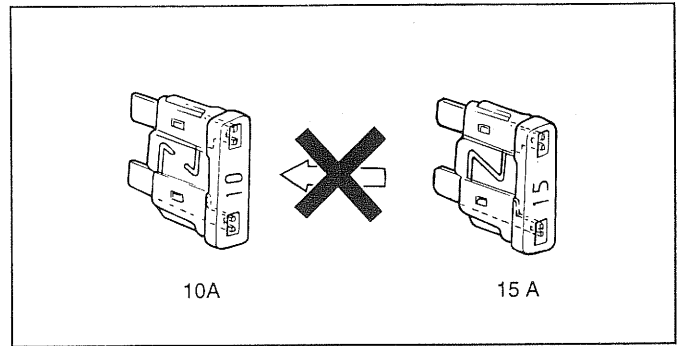
FUSES

INSPECTION ETDA0860

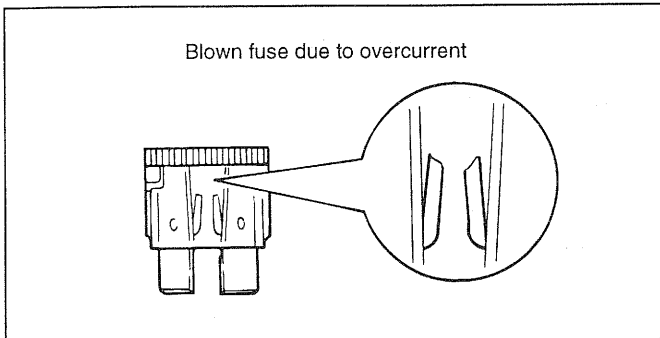
When a fuse is blown, there are two probable causes. The two causes can easily be determined by a visual check after removing the fuses.

1. Fuse blown due to over-current.

Prior to replacing the fuse with a new one, check the circuit for a short and the related parts for abnormal condition. Only after the correction of a short or replacement of abnormal parts, should a fuse with the same ampere rating be installed.



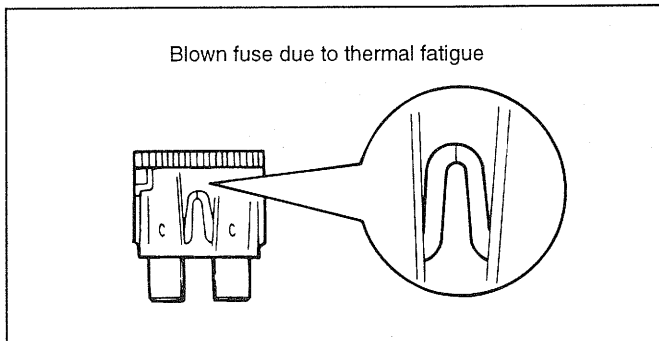
ETDA086C



ETDA086A

2. Fuse blown due to repeated current on-off.

Normally, this type of problem occurs after a fairly long period of use, and is less frequent than #1 above. In this case, you may simply replace with a new fuse of the same capacity.



ETDA086B

CAUTION

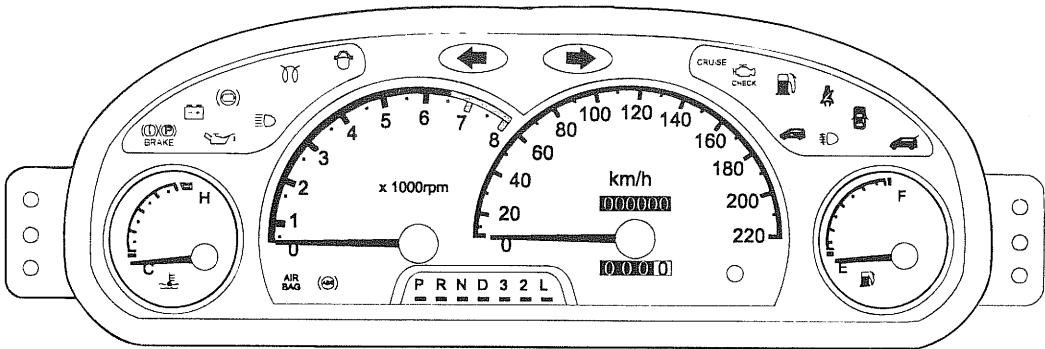
A blade type fuse is identified by the numbered value in amperes. If the fuse is blown, be sure to replace a fuse with the same ampere rating. If a fuse of higher capacity than specified is used, parts may be damaged and a danger of fire exists. To remove or insert a fuse, please use the fuse puller in the fuse box.

INDICATORS AND GAUGES

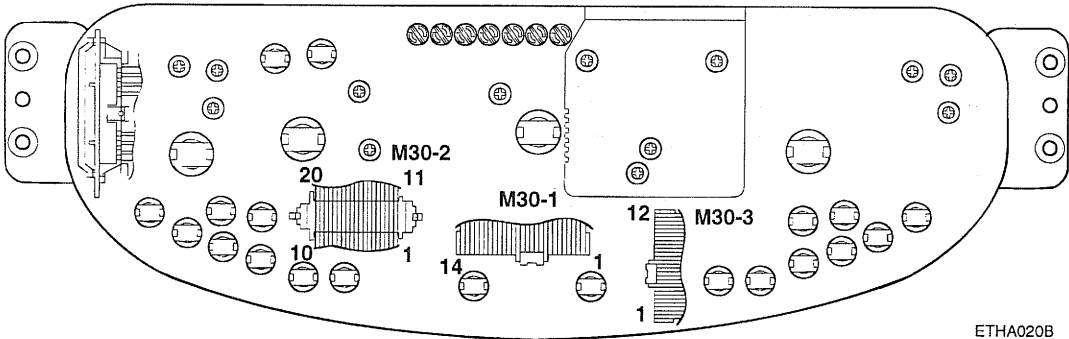
INSTRUMENT CLUSTER

COMPONENTS

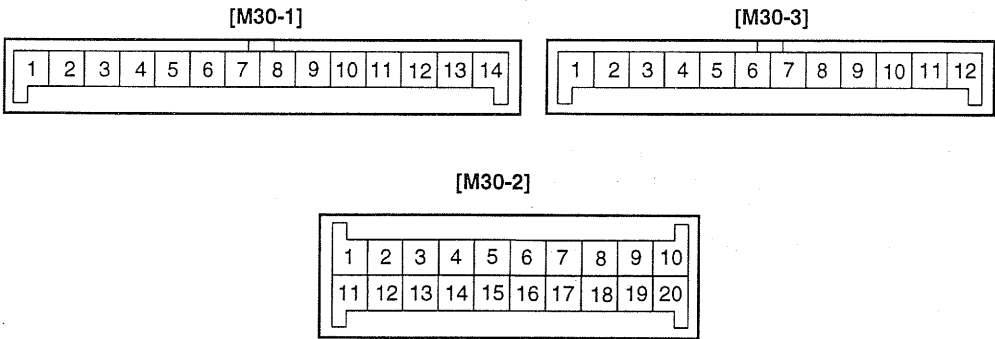
ETHA1450



ETHA020D



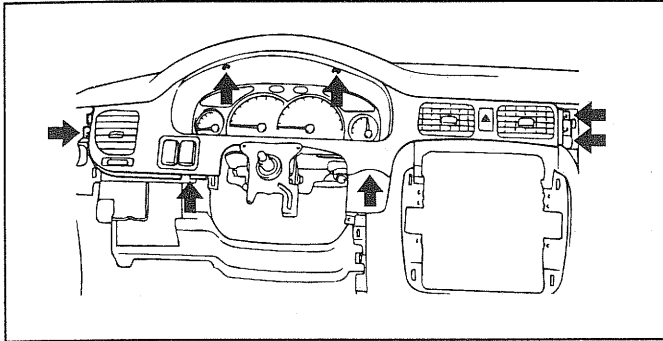
ETHA020B



KTDA095C

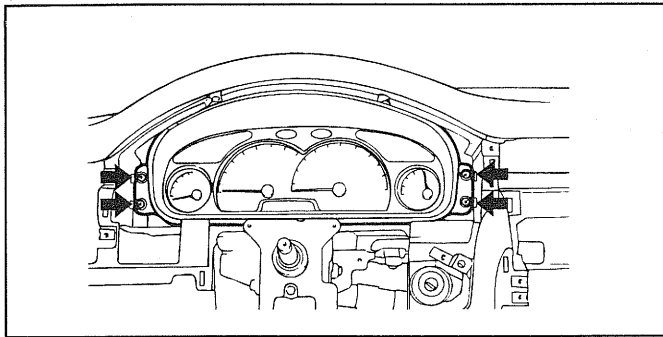
REMOVAL AND INSTALLATION ETHA1500

1. Disconnect the negative (-) battery terminal.
2. Remove the cluster facia panel.



ESHA040V

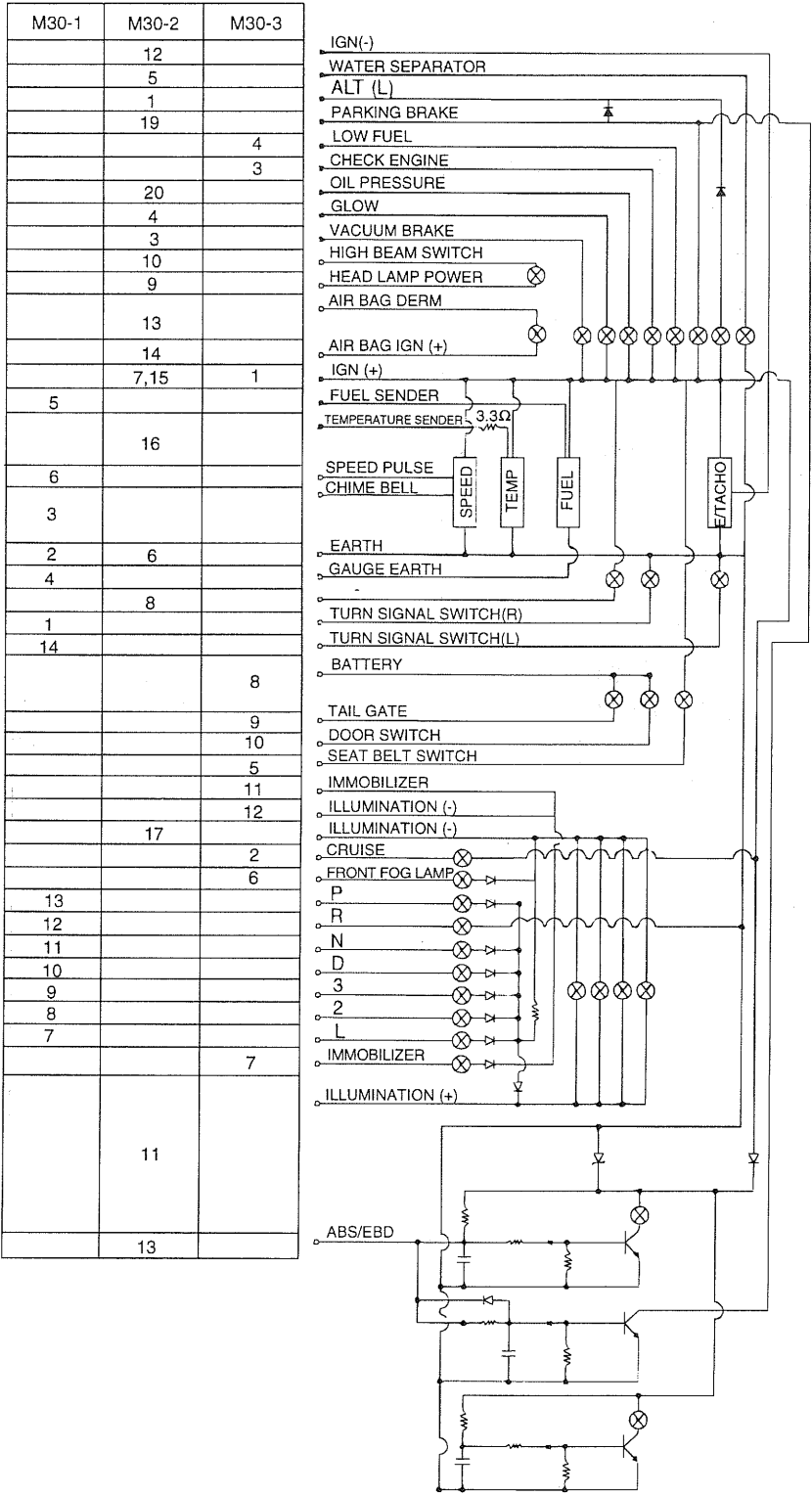
3. Loosen the screws holding the cluster and remove the instrument cluster



ESHA040W

4. Installation is the reverse of the removal process.

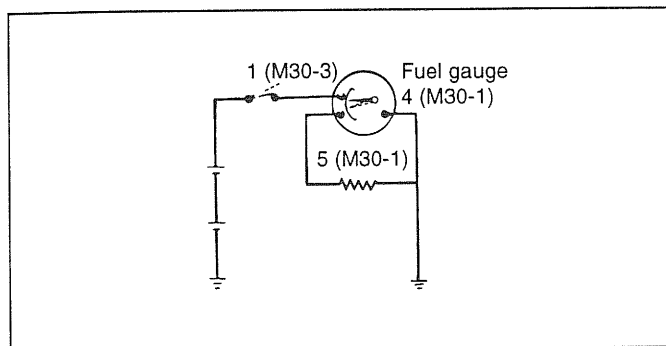
CIRCUIT DIAGRAM ETHA1550



FUEL GAUGE

INSPECTION

ETHA1600



ETHA160A

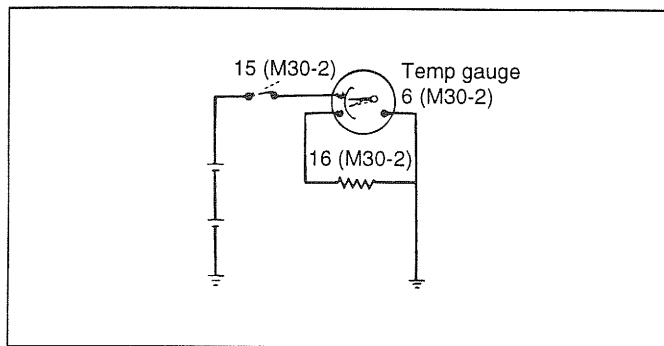
1. Connect the positive (+) lead from battery to terminal 1 (M30-3) and negative (-) lead to terminal 4 (M30-1).
2. Connect the variable resistance to terminal 5 (M30-1) and terminal 4 (M30-1).
3. Vary the variable resistance.
4. Check that the fuel gauge pointer moves. If the operation is not as specified, replace the gauge.

Resistance (Ω)	Gauge level
95	E
32.5	1/2
7	F

ENGINE COOLANT TEMPERATURE GAUGE

INSPECTION

ETHA1650



ETHA165A

1. Connect the positive (+) lead from battery to terminal 15 (M30-2) and negative (-) lead to terminal 6 (M30-2).
2. Connect the variable resistance to terminal 16 (M30-2) and terminal 6 (M30-2).
3. Vary the variable resistance.
4. Check that the temperature gauge pointer moves. If the operation is not as specified, replace the gauge.

Resistance (Ω)	Gauge level
157	-40°
48.4-24	-7°
15.2	+30°

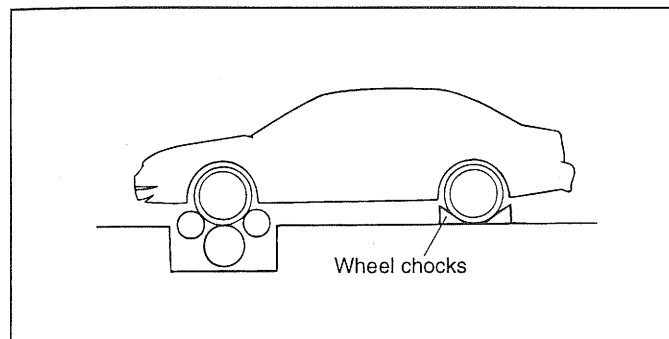
TACHOMETER**INSPECTION** ETHA1700

1. Connect the tune-up test tachometer and start the engine.
2. Compare the tester and tachometer indications. If the difference is excessive, replace the tachometer.

CAUTION

1. Reversing the connections of the tachometer will damage the transistor and diodes inside.
2. When removing or installing the tachometer, be careful not to drop it or subject it to severe shock.

Revolution (rpm)	1,000	2,000	3,000	4,000	5,000	6,000	7,000	Remark
Tolerance (rpm)	±100	±125	±150	±200	±250	±300	±350	

SPEEDOMETER**COMPONENT CHECK** ETHA1750**SPEEDOMETER**

ETA9100A

1. Adjust the pressure of the tires to the specified level.

Velocity (Km/ h)	20	40	60	80	100	120	140	160	180	200	Remark
Tolerance (Km/ h)	20-24.1	40-43	60-64.1	80-85.2	100-105.2	120.5-126.3	140.5-146.7	160.5-167.5	181-188.4	201-209.1	Except EEC& GENERAL
	20.8-25.4	40-44	60.8-65.4	81.4-86.8	102.6-108.2	123.5-129.6	144.4-151	165.4-172.4	186.3-193.8	207.2-215.2	EEC, GENERAL

Velocity (MPH)	10	20	40	60	80	100	120	Remark
Tolerance (MPH)	10-12.5	20-22	40-42.6	60-63.4	80.3-84.1	100.3-104.7	120.3-125.3	EXCEPT U.S.A
	8.5-11.5	18.5-21.5	38.5-41.5	58.3-61.7	78-82	97.7-102.3	117.5-122.5	U.S.A

2. Set the vehicle onto a speedometer tester and use wheel chocks to hold the front wheels.
3. Check if the speedometer indicator range is within the standard values.

CAUTION

Do not operate the clutch suddenly or increase/decrease speed rapidly while testing.

NOTE

Tire wear and tire over or under inflation will increase the indication error.

Pointer vibration can be caused by a loose or dry speedometer cable.

POWER DOOR MIRRORS

POWER DOOR MIRROR SWITCH

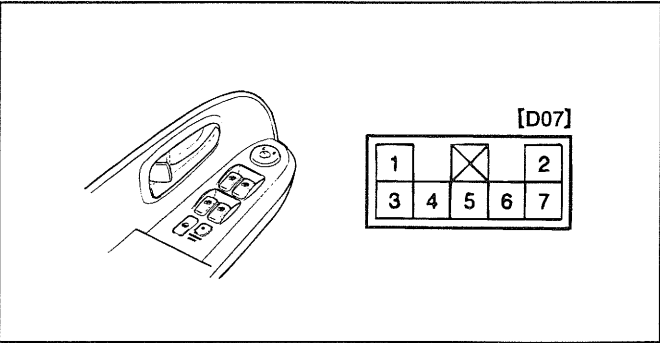
INSPECTION ETHA1800

- 1. Remove the power window main switch from the door trim panel.
- 2. Disconnect the outside rear view mirror connector from the harness.
- 3. Operate the switch and check for continuity between the terminals. If continuity is not as specified, replace the mirror switch.

[D07]

Class	Terminal Direction	1	2	3	4	5	6	7
LEFT HAND	UP	○		○			○	○
	DOWN	○		○		○	○	○
	OFF	○		○		○	○	
	LEFT	○		○		○		○
	RIGHT	○		○		○		○
RIGHT HAND	UP	○	○	○	○			○
	DOWN	○	○	○	○			○
	OFF	○	○	○	○			
	LEFT	○	○	○	○			○
	RIGHT	○	○	○	○			○

ETHA025B



ETHA180A

POWER DOOR MIRROR ACTUATOR

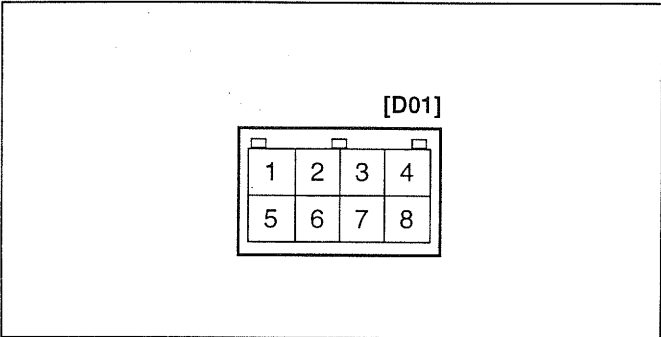
INSPECTION ETHA1850

- 1. Disconnect the outside rear view mirror connector from the harness.
- 2. Apply battery voltage to each terminal as shown in the table and confirm that the mirror operates properly.

[D01]

Terminal Position	6	7	8
UP	⊖	⊕	⊕
DOWN	⊕	⊖	⊖
LEFT	⊖	⊕	⊖
RIGHT	⊕	⊖	⊕

ETHA030B



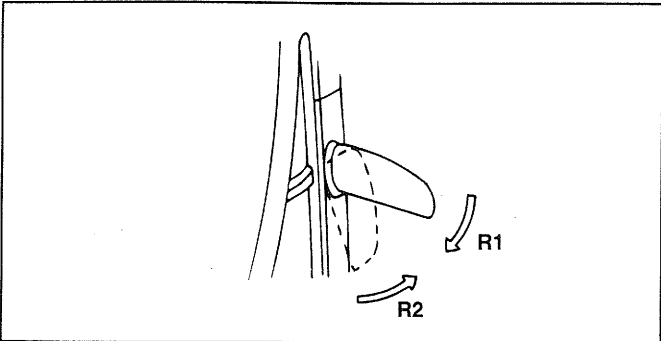
ETHA185A

MIRROR FOLDING

[D01]

Terminal Direction	3	4
R1	⊖	⊕
R2	⊕	⊖

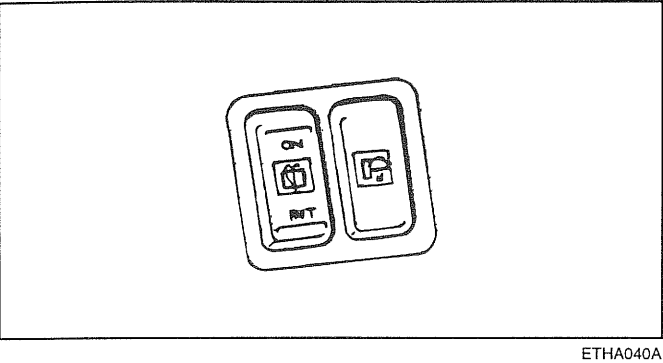
ETHA030D



ETHA030A

OUTSIDE MIRROR FOLDING SWITCH

ETHA2000



ETHA040A

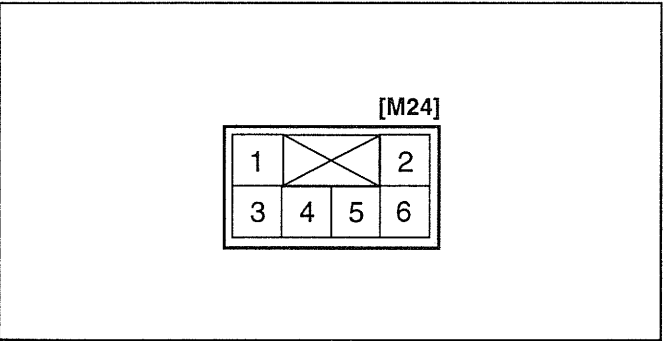
INSPECTION ETHA2050

- 1. Remove the cluster facia panel.
- 2. Disconnect the outside mirror folding switch and check for continuity between the terminals.

[M24]

Terminal Position	2	3	4	5
ON (PUSH)				
OFF (FREE)				

ETHA040B



[M24]

ETHA205A

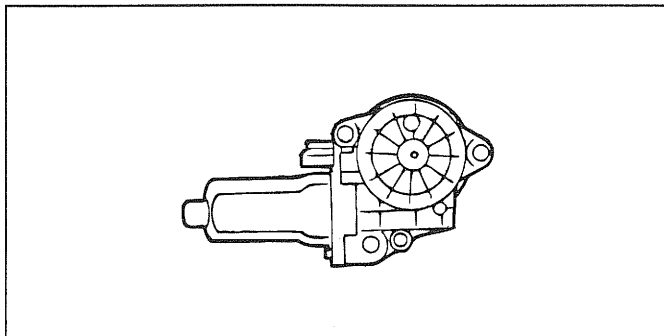
POWER WINDOWS

POWER WINDOW MOTOR

INSPECTION

ETHA1900

Connect the motor terminals directly to the battery and check that the motor operates smoothly. Next, reverse the polarity and check that the motor operates smoothly in the reverse direction. If the operation is abnormal, replace the motor.



ETHA035A

POWER WINDOW SWITCH

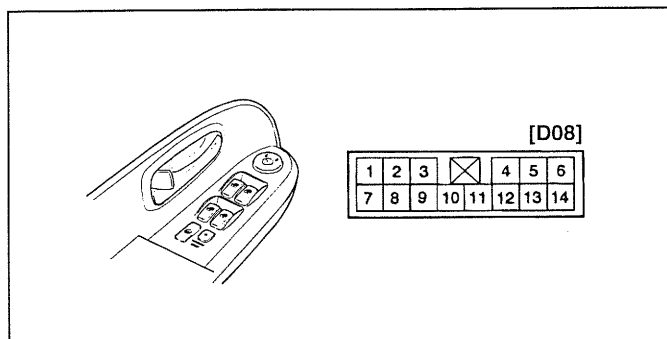
INSPECTION ETHA1950

1. Remove the power window main switch from the door trim panel.
2. Operate the switch, and check for continuity between the terminals.
3. If continuity is not as specified, replace the switch.

[D08]

Terminal Position	FRONT LEFT				FRONT RIGHT				REAR LEFT				REAR RIGHT			
	5	6	10	11	2	4	10	11	9	10	11	12	7	8	10	11
UP	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
OFF	○	○	○		○	○	○		○	○		○	○	○	○	
DOWN	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ETDA035C



ETHA195A

DOOR LOCK SWITCH [D08]

Terminal Position	10	13	14
LOCK	○		○
OFF			
UNLOCK	○	○	

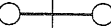
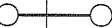
ETHA035D

WINDOW LOCK SWITCH [D08]

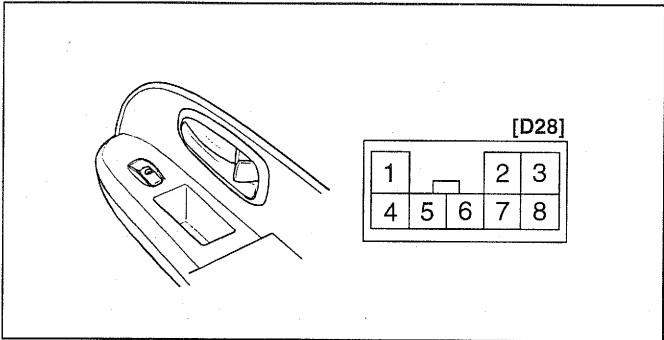
Terminal Position	1	11
NORMAL	○	○
LOCK		

ETHA035E

POWER WINDOW SUB SWITCH [D28]

Terminal Position	1	2	3	5	7
UP					
OFF					
DOWN					

ETHA035F



ETHA195B

REAR WINDOW DEFOGGER

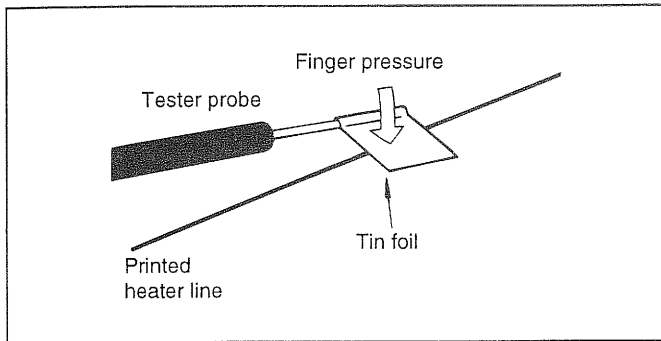
REAR WINDOW DEFOGGER PRINTED HEATER

INSPECTION

ETA91650

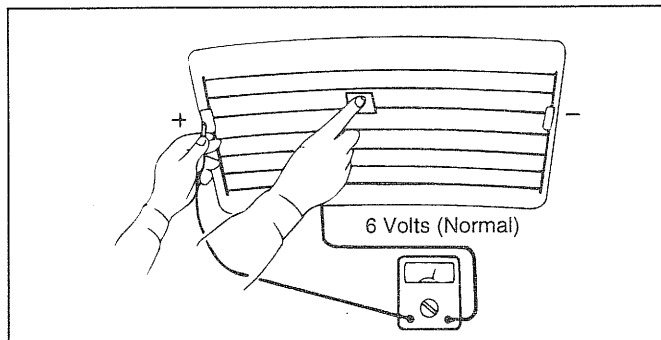
CAUTION

Wrap tin foil around the end of the voltmeter test lead to prevent damaging the heater line. Apply finger pressure on the tin foil, moving the tin foil along the grid line to check for open circuits.



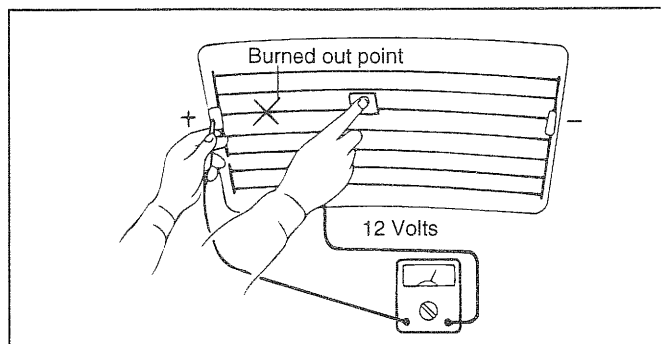
ETA9165A

1. Turn on the defogger switch and use a voltmeter to measure the voltage of each heater line at the glass center point. If a voltage of approximately 6V is indicated by the voltmeter, the heater line of the rear window is considered satisfactory.



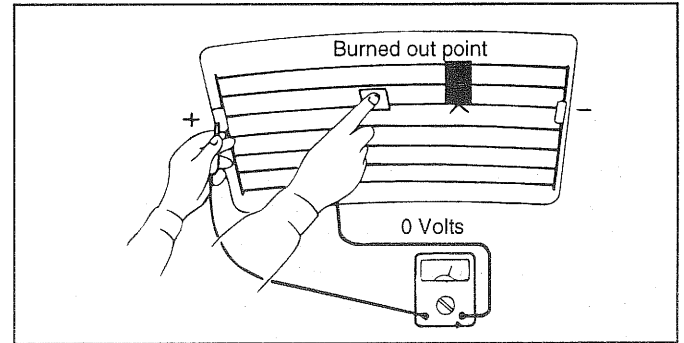
ETA9165B

2. If a heater line is burned out between the center point and (+) terminal, the voltmeter indicates 12 volts.



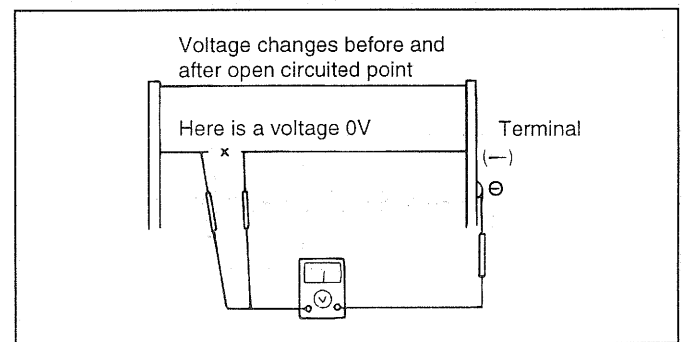
ETA9165C

3. If a heater line is burned out between the center point and (-) terminal, the voltmeter indicates 0 volts.



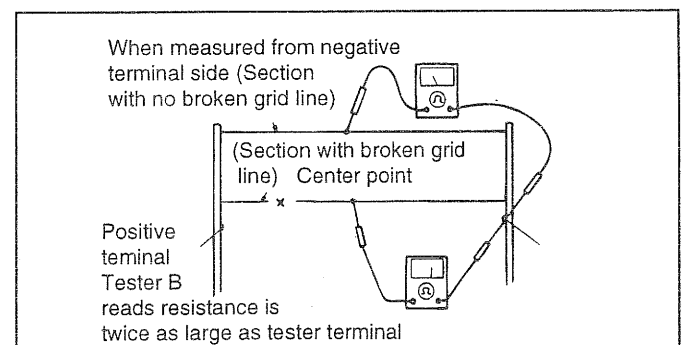
ETA9165D

4. To check for open circuits, slowly move the test lead in the direction that the open circuit seems to exist. Try to find a point where a voltage is generated or changes to 0V. The point where the voltage has changed is the open-circuited point.



ETA9165E

5. Use an ohmmeter to measure the resistance of each heater line between a terminal and the center of a grid line and between the same terminal and the center of one adjacent heater line after another. The section involving a broken heater line indicates resistance twice as that in other section. In the affected section, move the test lead to a position where resistance sharply changes.



ETA9165F

REPAIR OF BROKEN HEATER LINE

Prepare the following items:

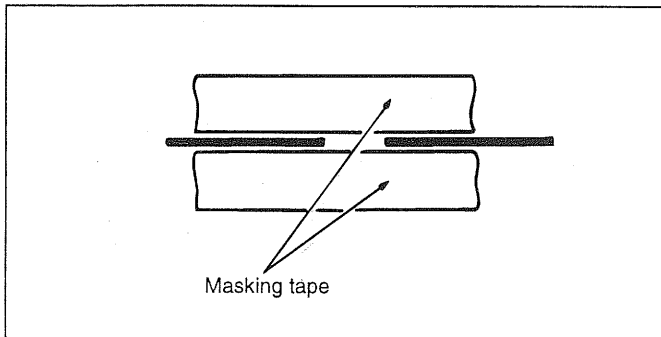
1. Conductive paint.

2. Paint thinner.
3. Masking taps.
4. Silicone remover.
5. Thin brush.

Wipe the glass adjacent to the broken heater line, clean with silicone remover and attach the masking tape as shown. Shake the conductive paint container well, and apply three coats with a brush at intervals of about 15 minutes apart. Remove the tape and allow sufficient time for drying before applying power. For a better finish, scrape away excess deposits with a knife after completely dried. (allow 24 hours).

CAUTION

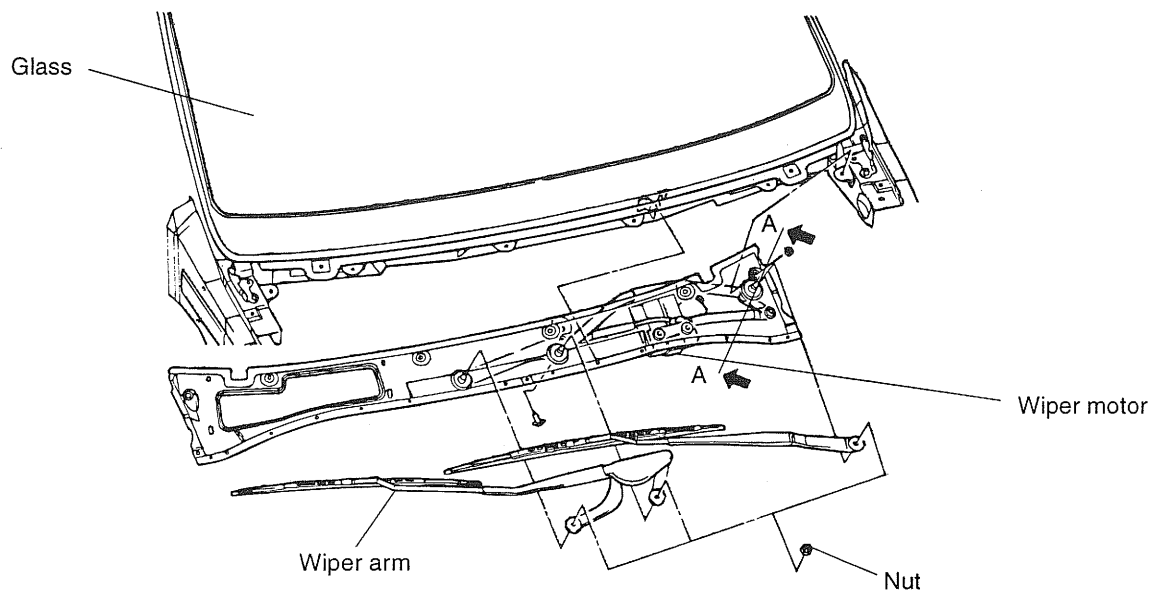
After repairing, clean the glass with a soft dry cloth or wipe along the grid line with a slightly moistened cloth.



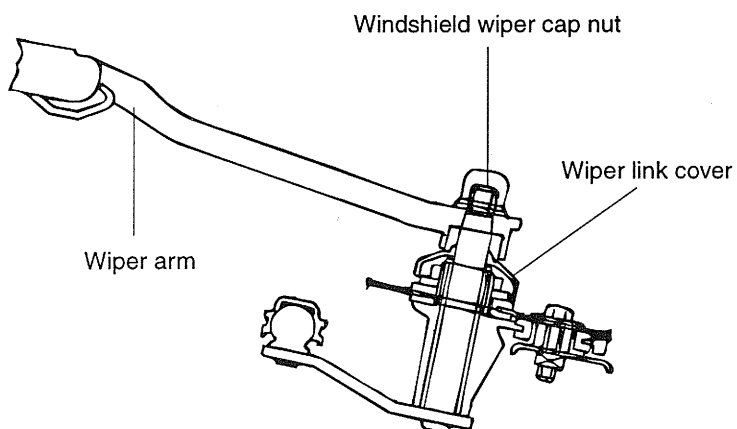
ETA9165G

WINDSHIELD WIPER/WASHER

COMPONENTS ETHA2300



ETHA065A



SECT. A-A

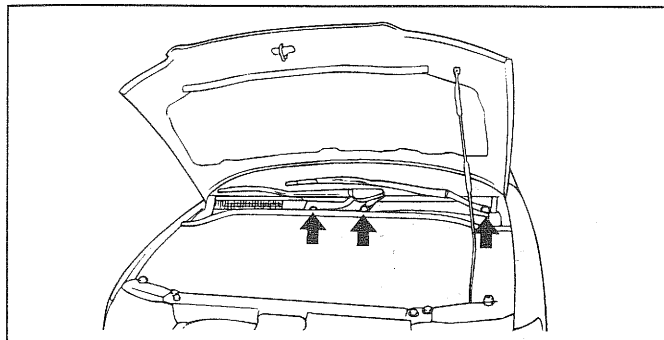
ETHA065B

REMOVAL ETHA2350

1. Remove the windshield wiper arm and blade.

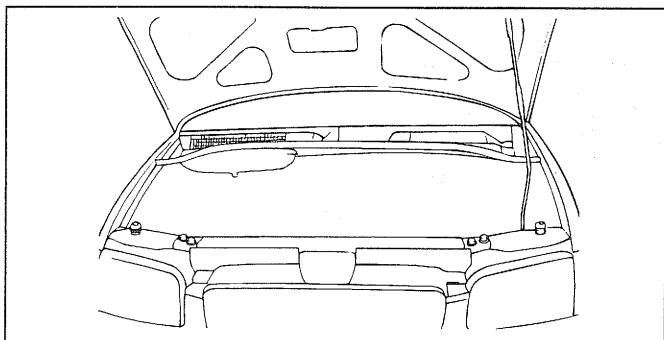
NOTE

Care must be taken not to scratch the engine hood.



ESHA040A

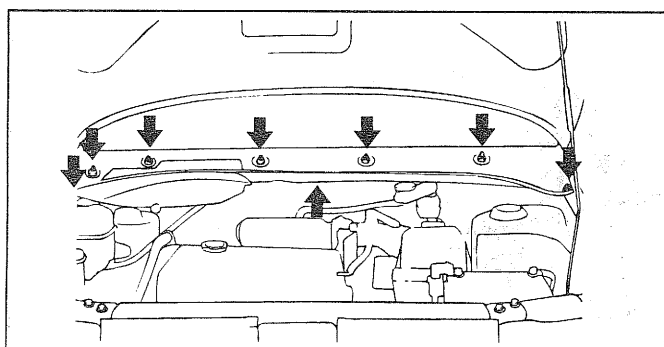
2. Remove the cowl top cover.



ESHA040B

3. Disconnect the windshield wiper motor connector and remove the windshield wiper motor and the link.

Tightening torque : 7-11Nm (70-110kg.cm, 5.1-8.0lb.ft)



ESHA040C

RAINSENSING WINDSHIELD WIPER SYSTEM

ETHA3000

DESCRIPTION

The Rainsensing windshield wiper system is a wiper system that, in addition to providing normal wiper

functions off, mist, manual low speed, manual high speed, and wash, provides automatic control of automatic int, automatic low, and automatic high speeds.

When the ignition key is in the ON position, the rainsensor will be activated.

OPERATING MODES

MULTIFUNCTION SWITCH POSITION	RAINSENSOR OPERATING MODE	SENSOR ACTION
MIST	MIST	Mist is controlled by the column switch. The sensor has no affect on this function.
OFF	OFF	If not already parked, wiper motor moves with low speed until blades are in the depressed park position.
AUTOMATIC Automatic mode has 5 sensitivity settings	AUTOMATIC	Automatic INT/speed control The sensitivity to raindrop accumulation on the windshield is set by the multifunction switch sensitivity adjustment.
LOW SPEED	MANUAL	Wiper motor runs continuously in low speed, for example 45 wipes/minute. The sensor has no affect on this function.
HI SPEED	MANUAL	Wiper motor moves continuously with high speed, for example 60 wipes/minute. The sensor has no affect on this function.
WASH When washer switch is turned on during 0.6 sec or more	WASH	If washer switch is turned on during 0.6 sec or more, the wiper operate during 2.5~3.8 sec
WASH When washer switch is turned on during 0.6 sec or less	WASH	If washer switch is turned on during 0.6 sec or less, the wiper operate only one time

1. OFF MODE

With the wiper switch "OFF" and the ignition switch "ON", the rainsensor is considered to be in the "OFF" mode. In this mode, the sensor commands the wiper motor to be "OFF".

2. AUTOMATIC MODE

When the multifunction switch is moved to auto position and the ignition switch is in the run or accessory positions, the rainsensor is considered to be in "automatic" mode. Once a single "instant wipe" has occurred, the wipers remain at "innerwipe/park" until the rainsensor determines that the dwell time at that position is appropriate for the amount of precipitation on the windshield, rainsensor provides input to the wiper motor to activate the wipers to clear the precipitation from the windshield.

3. AUTOMATIC INT

For all automatic int. operations the rainsensor commands the wipers to operate in low speed for one wipe, followed by a variable dwell period in the inner wipe position.

4. AUTOMATIC LOW

Automatic low speed operation is utilized when the amount of precipitation impinging on the windshield exceeds the automatic int to automatic low threshold. This threshold includes sufficient hysteresis to prevent cycling between automatic int and automatic low speed operation with a steady amount of precipitation accumulation on the windshield.

5. AUTOMATIC HIGH

Automatic high speed operation utilized when the amount of precipitation impinging on the windshield exceeds the automatic low to automatic high threshold. This threshold includes sufficient hysteresis to prevent cycling between automatic low and automatic high speed operation with a steady amount of precipitation accumulation on the windshield.

6. WASH MODE

The rainsensor monitors the multifunction switch to determine if the wash function is selected. Rainsensor enables the wiper motor to run in low speed during the wash mode and performs wipes from 2.5 to 3.8 sec.

7. MANUAL MODE

The rainsensor determines when a manual mode such as manual low, mist, off or manual high is selected. The column switch performs these modes and the rain sensor has no affect.

REPLACEMENT

The rainsensor module is mounted to the optocoupler using two snap fit stainless steel clips.

This allows the rainsensor module to be easily removed and replaced in the event of a rainsensor module failure.

If the windshield requires replacement, the existing rainsensor module may be unsnapped from the original windshield and reinstalled onto the new windshield. It is snap-fit to the new optocoupler, an integral portion of the replacement windshield as delivered by the replacement windshield manufacturer.

TROUBLESHOOTING

The rainsensor has two levels of fault detection as described below:

1. FAULT A

Fault A is indicated when the sensor has detected that the sensor servo operating point is above the expected limits. This is an indication of damage to the windscreen in the area of the coupler or the sensor has been removed from the coupler.

2. FAULT B

Fault B is indicated when the sensor has detected that it no longer is responding to rain signals.

This is an indication of damage to the windscreen in the area of the coupler or, more likely, that the sensor has detected an electrical failure within the sensor.

3. ATTACHMENT GRADE VALUE

Attachment grade is used to determine when a fault in A is detected. The attachment grade value is set at 140. This allows the product to operate in all conditions other than the most severe damage the windscreen.

4. USE SENSITIVITY ADJUSTMENT TO INDICATE FAULT

A method to indicate detected faults is available to a service garage technician by using the sensitivity input and the wipers as an indicator. The service method is described as follows:

- With ignition "ON", move the sensitivity adjustment to the high sensitivity setting.
- Decrease the sensitivity by one setting.
- If a wipe occurs, then Fault A has been detected and the service technician should assure that the coupler area on the windscreen is not damaged and the sensor is secured to the coupler.
- Decrease the sensitivity one more setting.
- If a wipe occurs, then Fault B has been detected and the sensor should be removed and replaced with a known good sensor.

CAUTION

When the ignition key is "ON" and the multifunction switch is in the auto position the wiper could operate in the following conditions.

- **Be careful not to touch the upper sensor front window glass.**
- **Be careful not to scrub the upper sensor front window glass with a cloth.**
- **Be careful not to vibrate the front window glass.**

WINDSHIELD WIPER/WASHER
SWITCH

ETHA2400

INSPECTION

Check the switch for continuity between the terminals.

WIPER AND INTERMITTENT VOLUME SWITCH
[M26-2]

Terminal Position	1	2	3	4	5	6	13	14
MIST				○	○			
OFF		○	○					
INT		○	○		○	○	○	○
LOW		○	○	○	○			
HI	○	○	○	○	○			

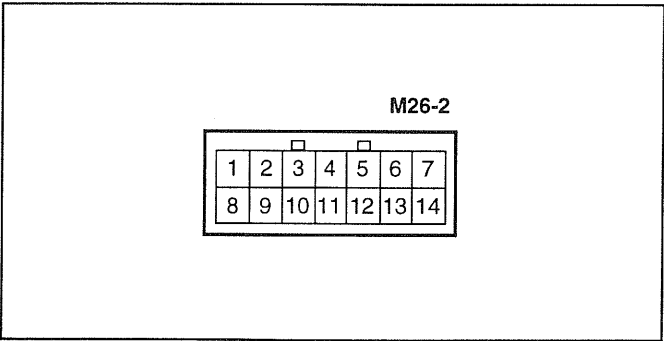
KTDA040D

WASHER SWITCH [M26-2]

Terminal Position	7	8
OFF		
ON	○	○

KTDA040E

If continuity is not as specified, replace the wiper and washer switch.



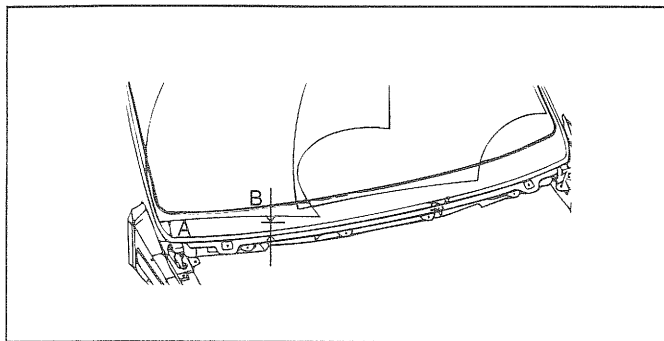
ETHA240A

INSTALLATION

ETHA2550

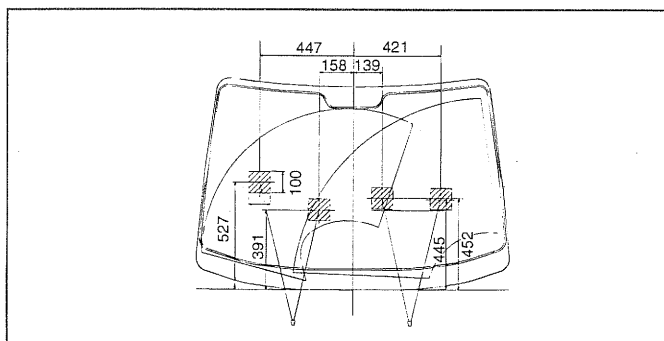
1. Install the wiper arm to the specified position.

Specified position	A	B
Distance (mm)	50	45



ETHA065C

2. Set the washer nozzle on the specified spray position.



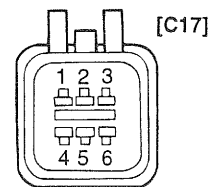
ETHA065D

FRONT WIPER MOTOR**INSPECTION**

ETHA2450

SPEED OPERATION CHECK

1. Remove the connector from the wiper motor.
2. Attach the positive (+) lead from the battery to terminals 4 and the negative (-) lead to terminal 1.
3. Check that the motor operates at low speed.
4. Connect the positive (+) lead from the battery to terminal 4 and the negative (-) lead to terminal 2.
5. Check that the motor operates at high speed.

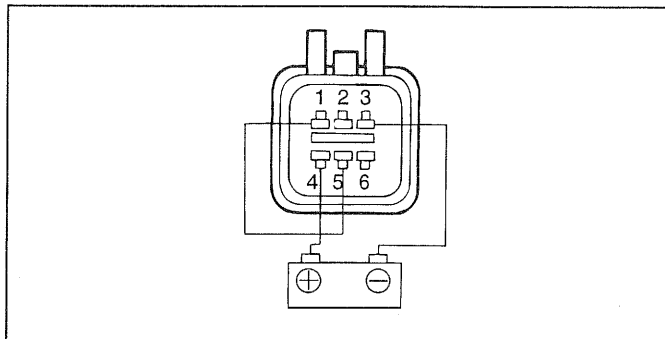


- | | |
|-----------|-------------|
| 1. Low | 4. Ignition |
| 2. High | 5. Parking |
| 3. Ground | 6. Blank |

ETHA245A

AUTOMATIC STOP OPERATION CHECK

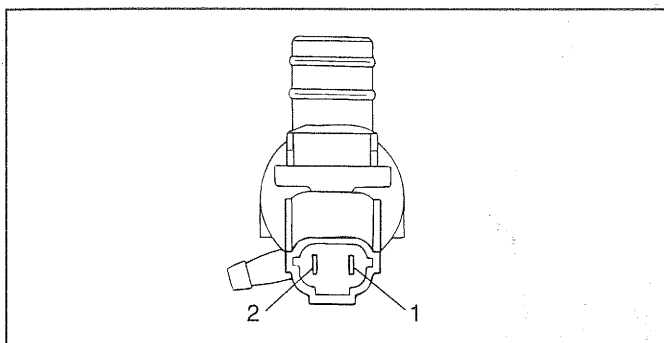
1. Operate the motor at low speed.
2. Stop the motor operation anywhere except at the off position by disconnecting terminal 1.
3. Connect terminals 5 and 1.
4. Connect the positive (+) lead from the battery to terminal 4 and the negative (-) lead to terminal 3.
5. Check that the motor stops running at the off position.



ETDA155B

FRONT WASHER MOTOR**INSPECTION** ETA91800

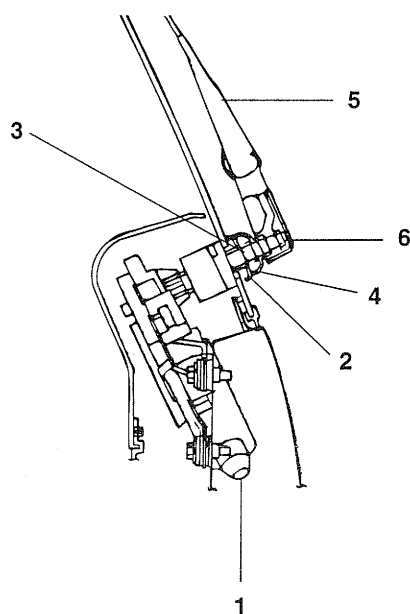
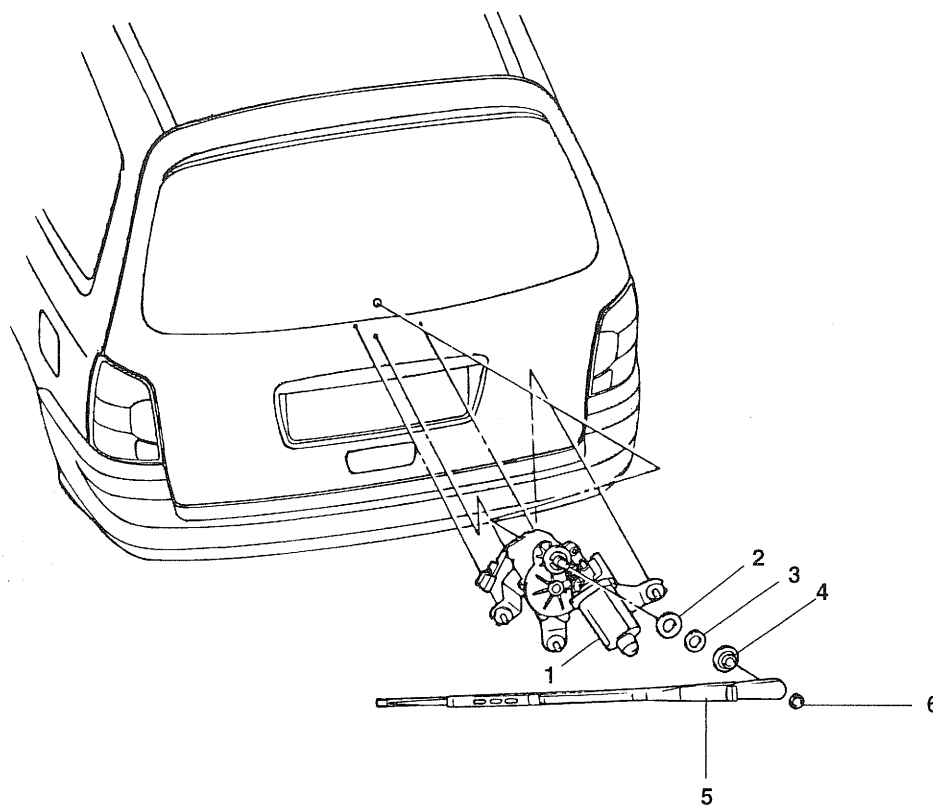
1. With the washer motor connected to the reservoir tank, fill the reservoir tank with water.
2. Connect positive (+) and negative (-) battery cables to terminals 2 and 1 respectively to see that the washer motor runs and water is pumped.



ETA9180A

REAR WIPER/WASHER

COMPONENTS ETHA2600

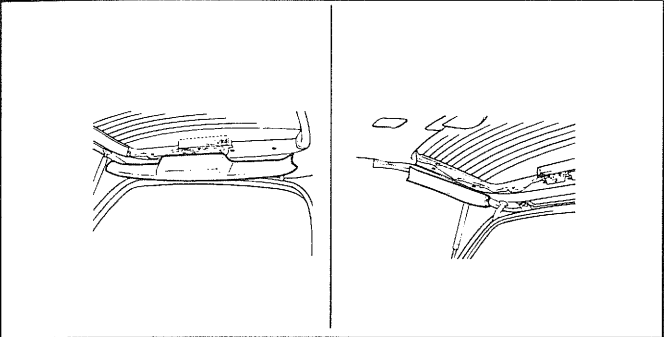


- 1. Rear wiper motor and link
- 2. Cap
- 3. Nut
- 4. Cover
- 5. Rear wiper arm and blade
- 6. Nut

REAR WIPER MOTOR

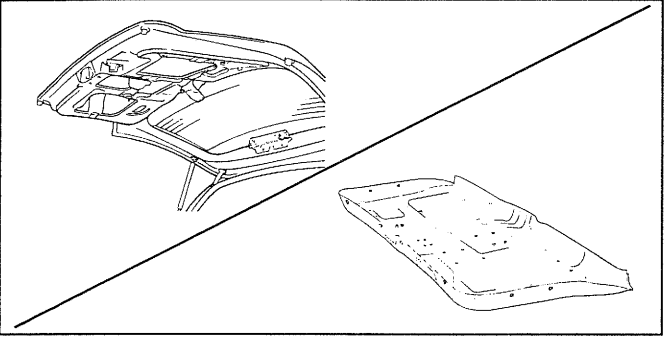
REMOVAL ETHA2650

1. Remove the tailgate frame upper and side trim.



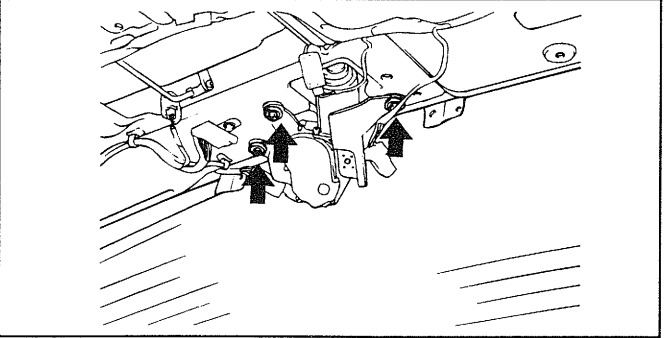
ETHA265A

2. Remove the tailgate trim panel.



ESHA010C

3. Remove the rear wiper motor.

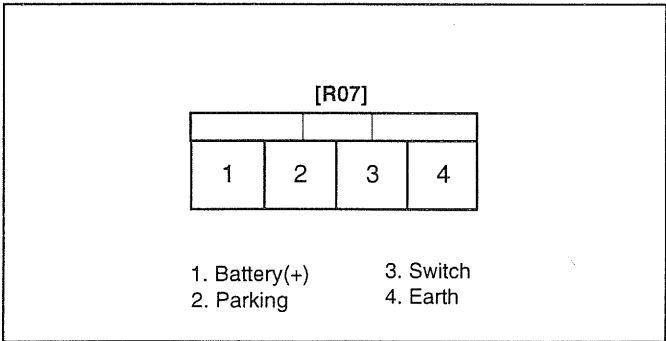


ESHA010J

4. Installation is the reverse of the removal process.

INSPECTION ETHA2700

1. Remove the connector from the rear wiper motor.
2. Connect positive(+) and negative(-) battery cables to terminals 1 and 4 respectively.
3. Check that the motor operates normally, and replace the motor if it operates abnormally.

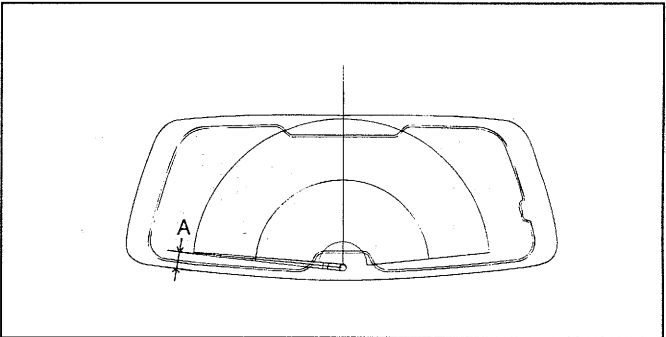


KTDA170A

INSTALLATION ETHA2800

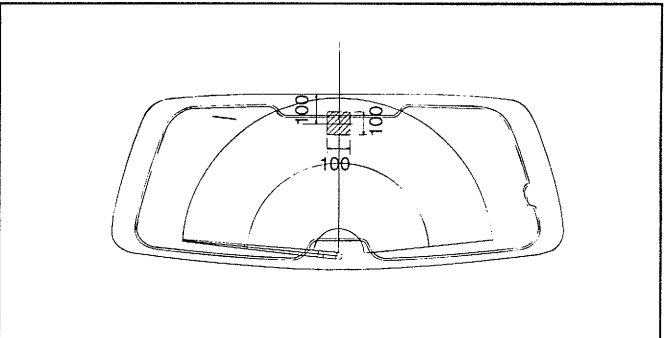
1. Install the rear wiper arm to the specified stop position.

Specified position	A
Distance	60mm



ETHA070C

2. Set the washer nozzle on the specified spray position.



ETHA070D

REAR WASHER SWITCH

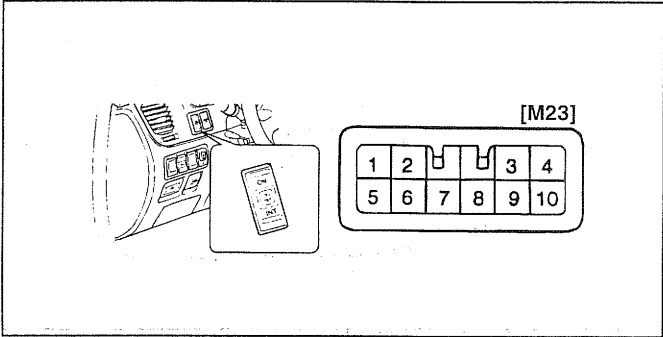
INSPECTION ETHA2850

- 1. Disconnect the connector from the rear wiper and washer switch.
- 2. Check for continuity between the terminals.

[M23]

Terminal		1	2	3	4	6	9	10
Wiper switch	ON				○	—	○	
	OFF			○	—		○	
	INT				○	○		
Washer switch	ON				○	—		○
Illumination	Tail	○	○	○				

KTDA171C

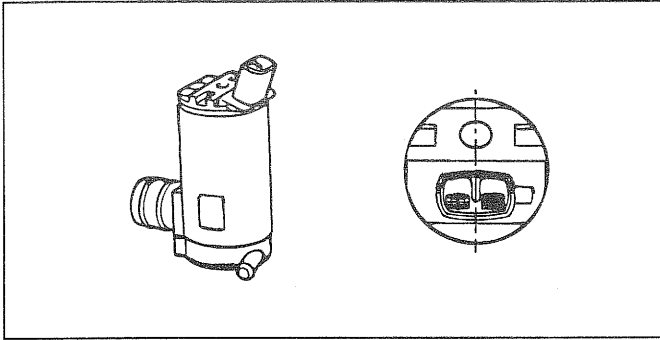


ETHA285A

REAR WASHER MOTOR

INSPECTION ETHA2750

1. With the washer motor connected to the reservoir tank, fill the reservoir tank with water.
2. Connect positive(+) and negative(-) battery cables to terminals 1 and 2 respectively to see that the washer motor runs and water is pumped.

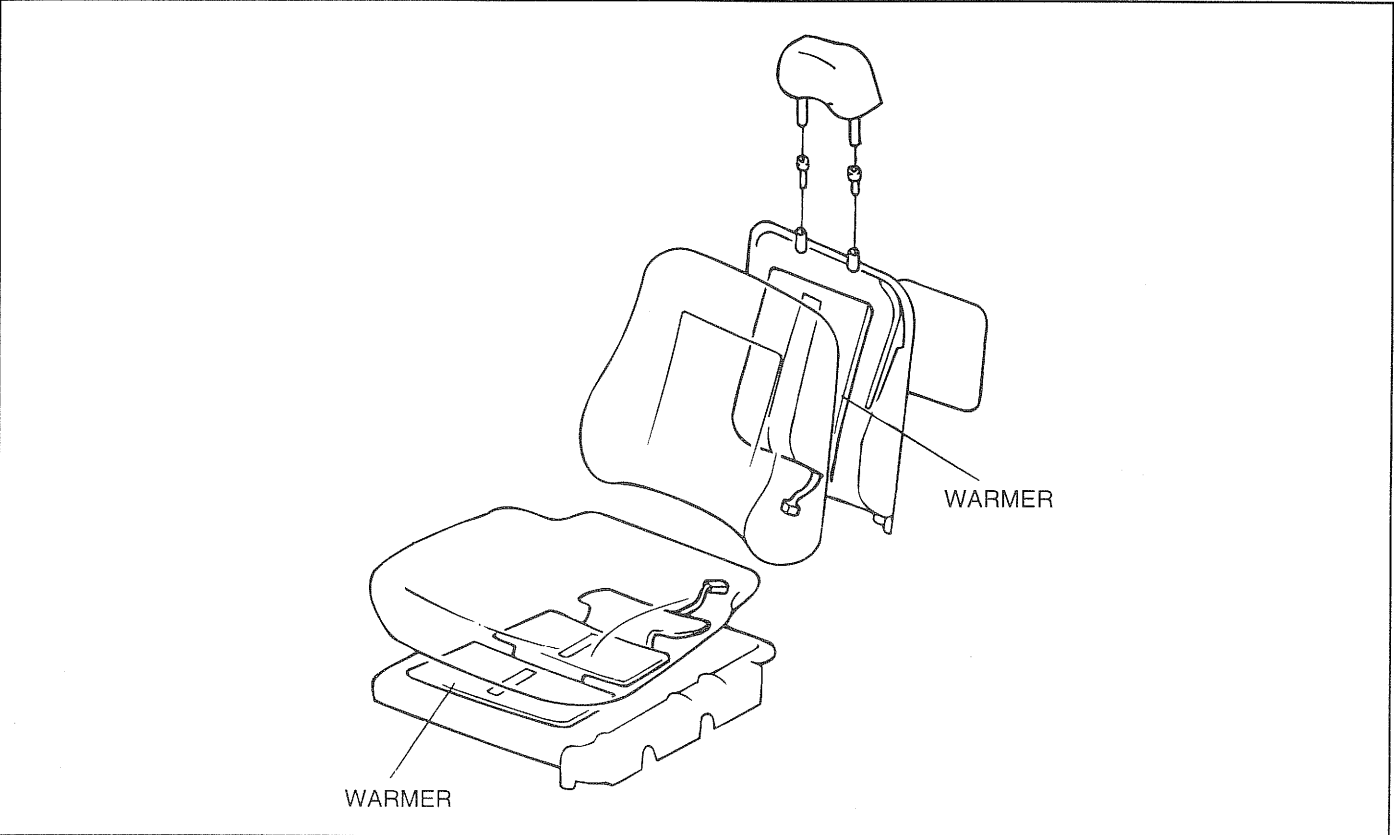


ETHA275A

SEAT WARMER

SEAT WARMER SYSTEM

ETA92050



ETA9205A

SEAT WARMER SWITCH

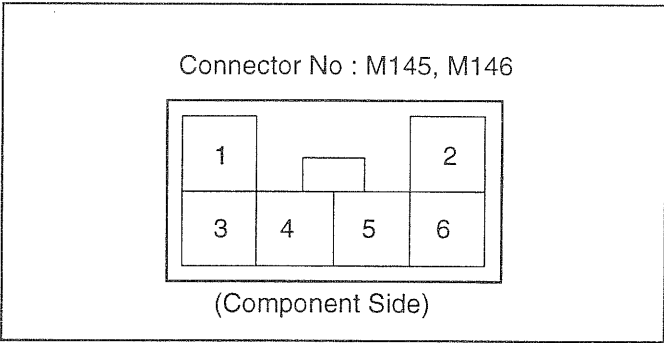
INSPECTION

ETHA3250

Inspect the switch continuity between terminals as below.

Terminal	1	2	3	4	5	6
Switch position						
ON	○	—	○	—	○	
OFF	○	—	○			

ETHA325A



ETHA325B

If the continuity is not as specified, replace the switch.

SUNROOF

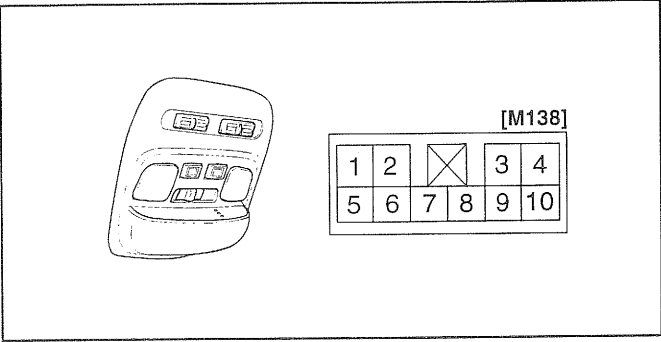
SUN ROOF SWITCH

INSPECTION ETHA3300

- 1. Using an ohmmeter, check for continuity between the terminals.
- 2. If the continuity is not as specified, replace the switch.

Terminal		1	2	3	4	5	6	7	8	9	10
Condition											
Slide switch	Open		○	○							
	Close			○	—	○					
Tilt switch	Up			○	—	○					
	Down	○	—	○							

ETHA330A



ETHA045C

SUN ROOF RELAY

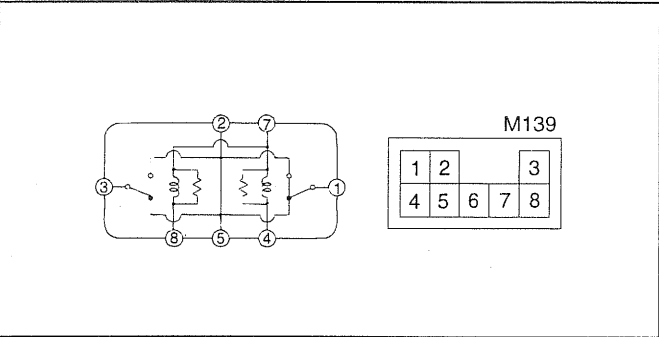
INSPECTION ETHA3350

Check for continuity between the terminals.

Terminal Position	1	2	3	4	5	6	7	8
Battery voltage not supplied (coils not energized)				○	—		○	○
Battery voltage supplied (coils energized)	○	○		⊖	---		⊕	
		○	○				⊕	⊖

⊕ --- ⊖ Indicates battery connection

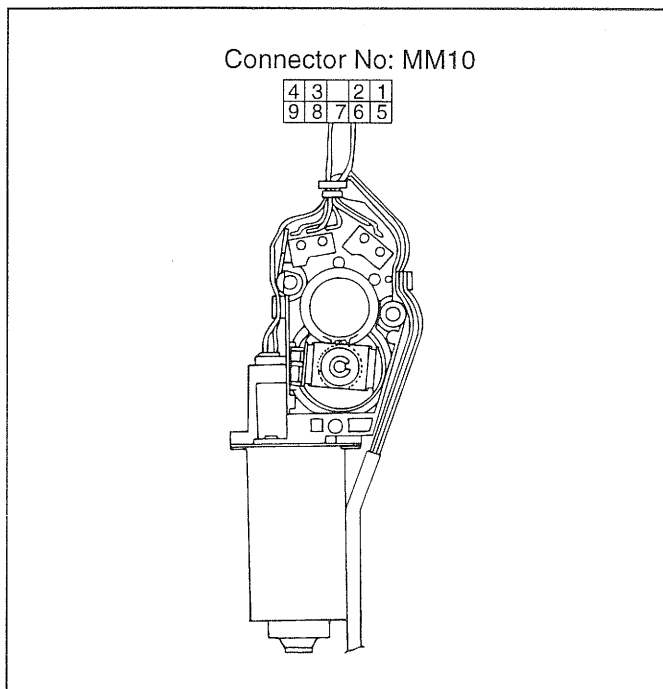
ETHA335A



ETHA130A

SUN ROOF MOTOR**INSPECTION** ETHA3400

1. Remove the overhead console lamp.
2. Disconnect the motor connector from sun roof harness.
3. After applying DC 12V to the terminal 8, apply the terminal 3 to the ground.
4. Check that the motor turns in the direction of the sunroof when tilted down and is open.
5. Reverse the connections and check that the motor turns in the direction when the sunroof is closed and tilted up.



ETAA215B

HEAD LAMPS

LIGHTING SYSTEM ETHA2900

PRE-AIMING INSTRUCTIONS

The headlamps should be aimed with the proper beam-setting equipment, and in accordance with the equipment manufacture's instructions.

NOTE

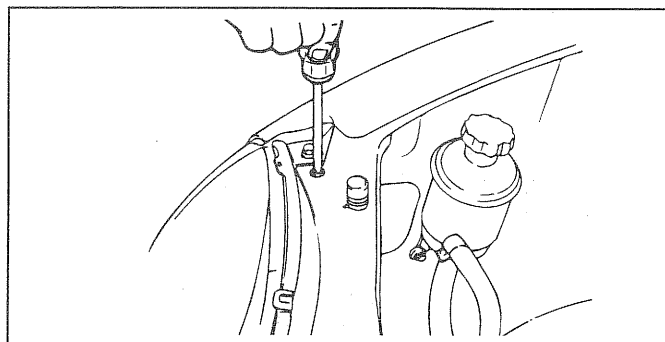
If there are any regulations pertinent to the aiming of headlamps in the area where the vehicle is to be used, adjust to as to meet those requirements.

Alternately turn the adjusting bolts to adjust the head-lamp aiming. If beam-setting equipment is not available, proceed as follows:

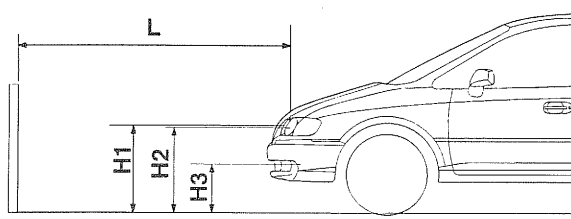
1. Inflate the tires to the specified pressure and remove the load from the vehicle except a driver, spare tire, and tool.
2. The vehicle should be placed on the flat floor.

3. Draw vertical lines (Vertical lines passing through respective headlamp centers) and a horizontal line (Horizontal line passing through center of headlamps) on the screen.
4. With the headlamp and battery in normal condition, aim the headlamps.

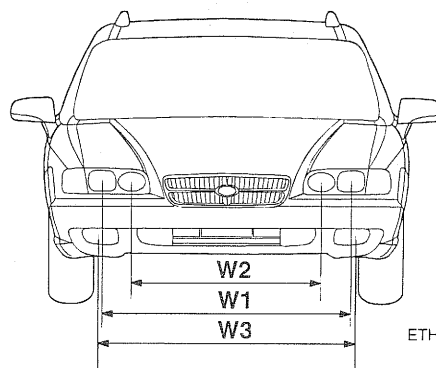
Make the vertical and horizontal adjustment of the lower beam to the standard values by using the adjusting knobs.



ETA9230A



ETHA075B



ETHA075A

H1 : Height between the head lamp bulb center and ground (low beam)
 H2 : Height between the head lamp bulb center and ground (high beam)
 H3 : Height between the fog lamp bulb center and ground

W1 : Distance between the head lamp bulb center (low beam)
 W2 : Distance between the head lamp bulb center (high beam)
 W3 : Distance between the fog lamp bulb center

ETHA290A

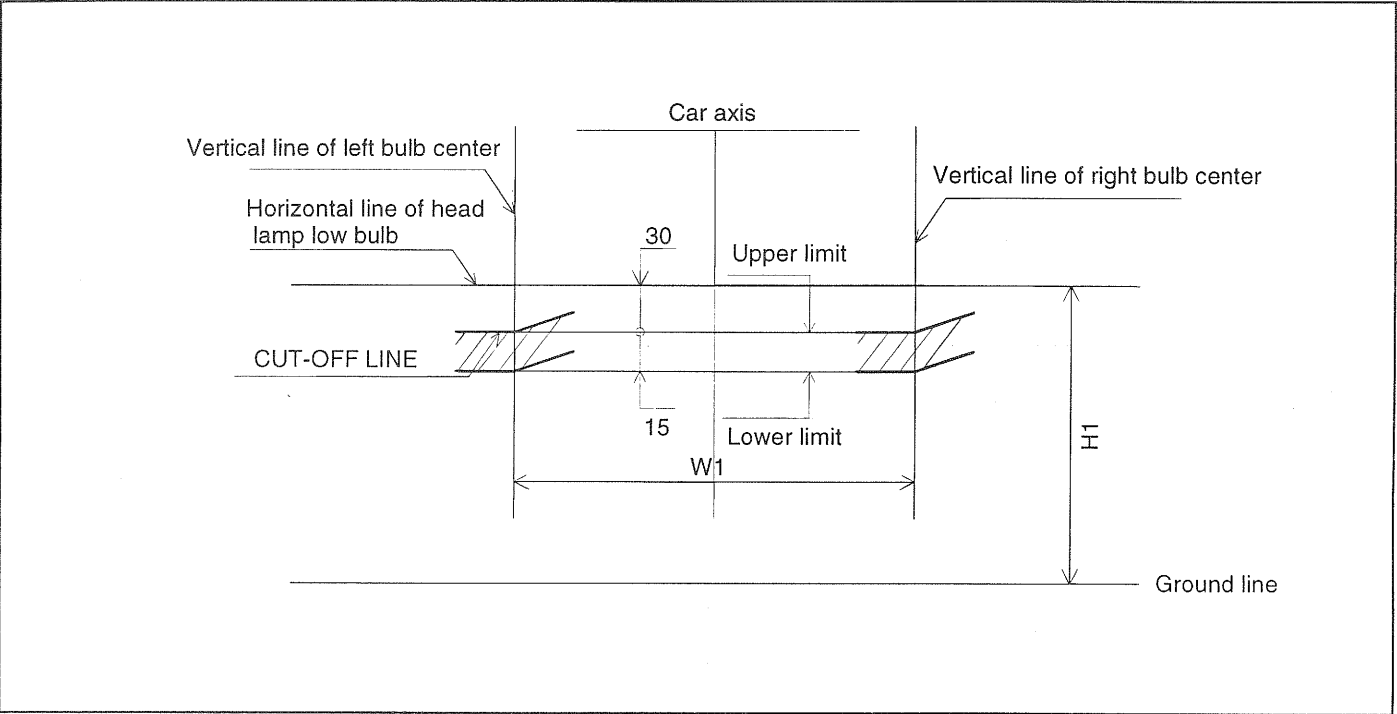
HEAD LAMP AND FOG LAMP AIMING POINT

Unit : mm

Vehicle condition	H1	H2	H3	W1	W2	W3	L
Without driver	700	694	365	1,254	978	1,270	3,000
With driver	685	679	350				

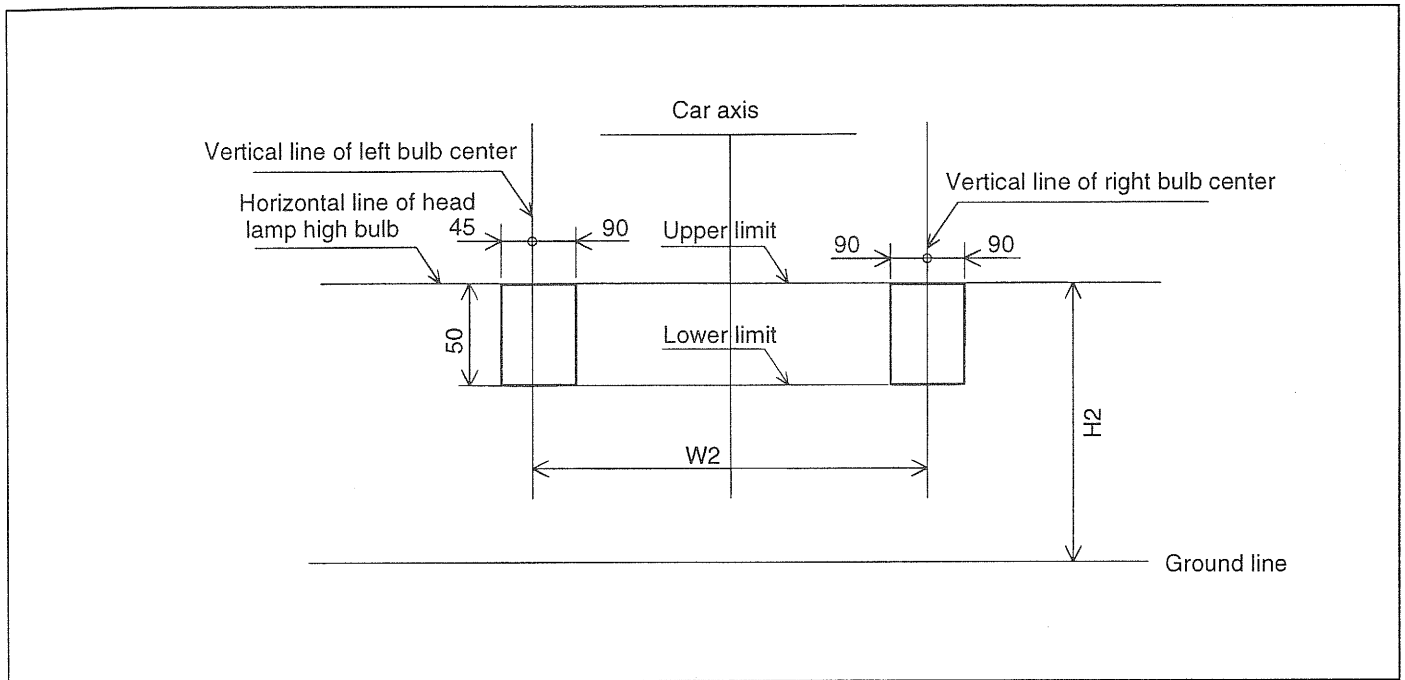
ETHA290B

- Turn the low beam on without driver. The cut-off line is projected in the allowable range (shaded region).



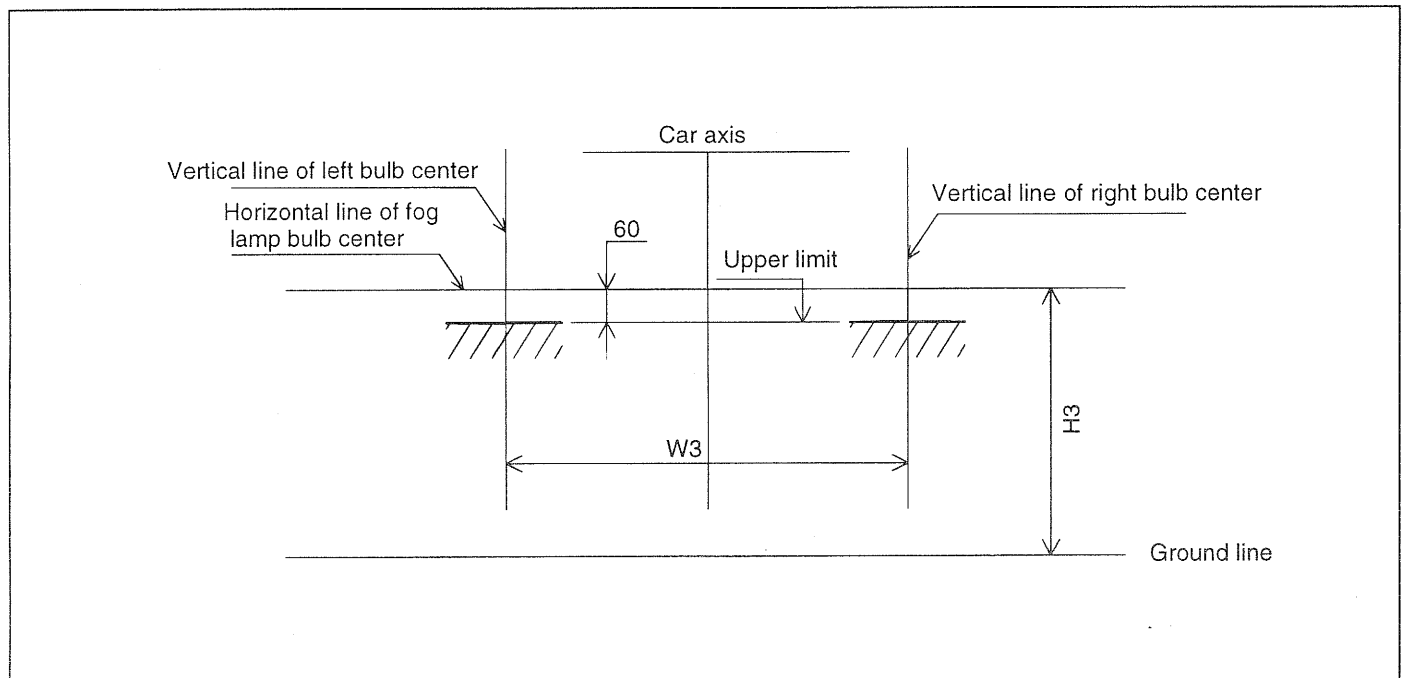
ETHA075C

- Turn the high beam on without driver. The hot-zone is projected in the allowable range (shaded region).



ETHA075D

- Turn the front fog lamp on without driver. The cut-off line is projected in the allowable range.



ETHA075E

HEAD LAMP RELAY ETHA3050

INSPECTION

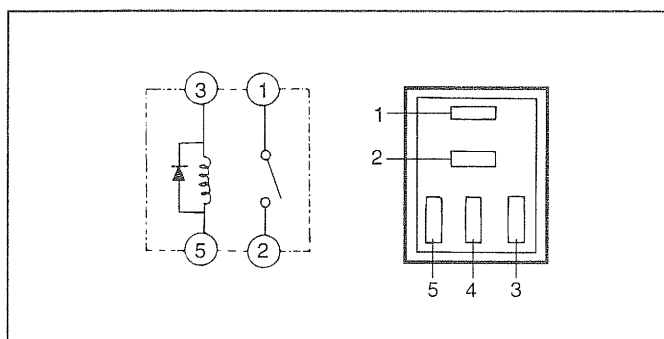
1. Pull out the headlamp relay from the relay box in the engine compartment.
2. Check for continuity between terminals.

Terminal Position	1	2	3	5
When de-energized			○ — ○	
When energized	○ — ○		⊕ — ⊖	

NOTE:

1. ○ — ○ : Indicates that there is continuity between the terminals.
2. ⊕ — ⊖ : Indicates that power is supplied.

ETHA305A



ETDA211B

AUTO LIGHT CONTROL MODULE ETHA2950

or off automatically in accordance with the detection illumination.

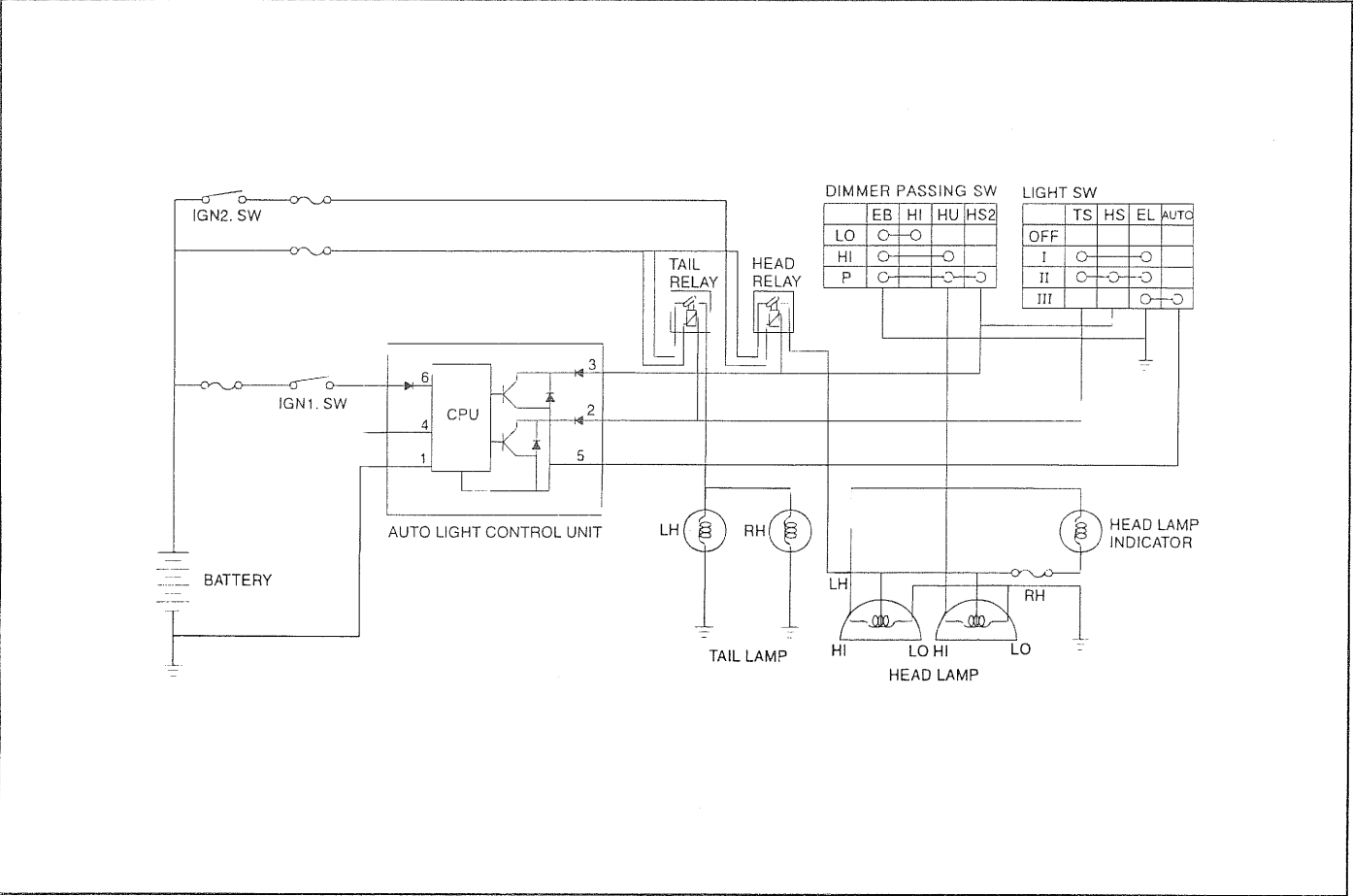
DESCRIPTION

The auto light control system operates by using the auto light switch, and turns the head lamp and tail lamp on

SPECIFICATIONS

Items	Specifications
Rated voltage	DC 12V
Operating voltage	DC 9V~16V
Load	Max. 200mA (Relay)
Operating temperature range	-30°C~+80°C

CIRCUIT DIAGRAM



PIN CONNECTION

[M65]

1

2

3

4

5

6

1. Ground

2. Tail lamp relay

3. Head lamp relay

4. Detection illumination input

5. Auto light switch

6. IGN. switch

Terminal	Voltage
1	Earth
2	5V(Normal), 0V(Tail lamp relay)
3	12V(Ignition ON)
5	5V(Normal), 0V(Switch ON)
6	12V(Ignition ON)

ETHA295A

DETECTION ILLUMINATION

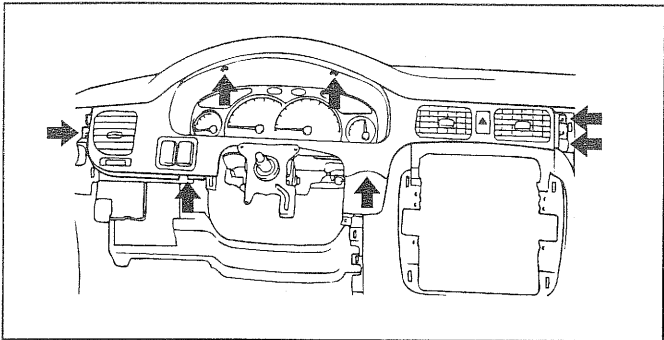
TYPE	CONDITION	TAIL LAMP	HEAD LAMP
Non solar glass	ON	50.8±3(LUX)	13.6±1.4(LUX)
	OFF	99.4±6(LUX)	25.9±3(LUX)
Solar glass	ON	23.8±3(LUX)	5.7±1.4(LUX)
	OFF	46.7±3(LUX)	12.2±1.4(LUX)

TURN/HAZARD LAMPS

TURN/HAZARD SWITCH

INSPECTION ETHA3100

- 1. Disconnect the negative (-) battery terminal.
- 2. Remove the cluster facia panel.
- 3. Disconnect the connector from the hazard lamp switch.



ESHA040V

- 4. Operate the switch and check for continuity between terminals by using an ohmmeter.

[M55]

Terminal Position	1	2	3	5	6	7	8	9	10
OFF		○	○	○	—		○		
ON					○	○	○	○	○

KTDA213C

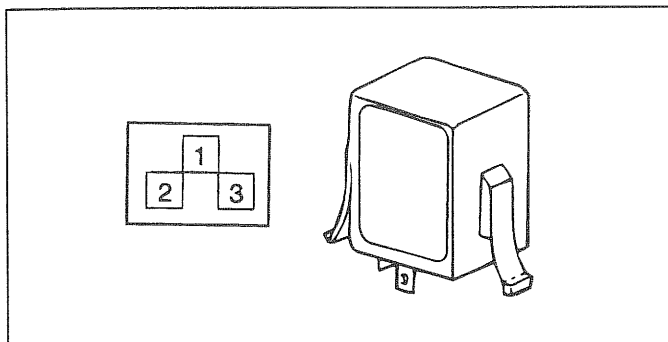
[M55]

1	2		3	4	
5	6	7	8	9	10

KTDA213B

FLASHER UNIT**INSPECTION** ETHA3150

1. Remove the flasher unit from the relay box.
2. Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 3.



KTDA212A

3. Connect the two turn signal lamps parallel to each other to terminals 2 and 3. Check that the bulbs turn on and off.

NOTE

The turn signal lamps should flash 60 to 120 times per minute. If one of the front or rear turn signal lamps has an open circuit, the number of flashes will be more than 120 per minute. If operation is not as specified, replace the flasher unit.

COURTESY AND TRUNK LAMPS

OVERHEAD CONSOLE LAMP

INSPECTION ETHA2100

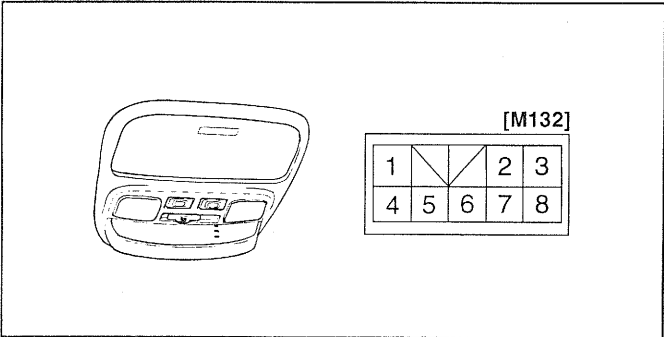
Remove the overhead console lamp and check for continuity between the terminals.

- VEHICLES WITHOUT SUNROOF

[M132]

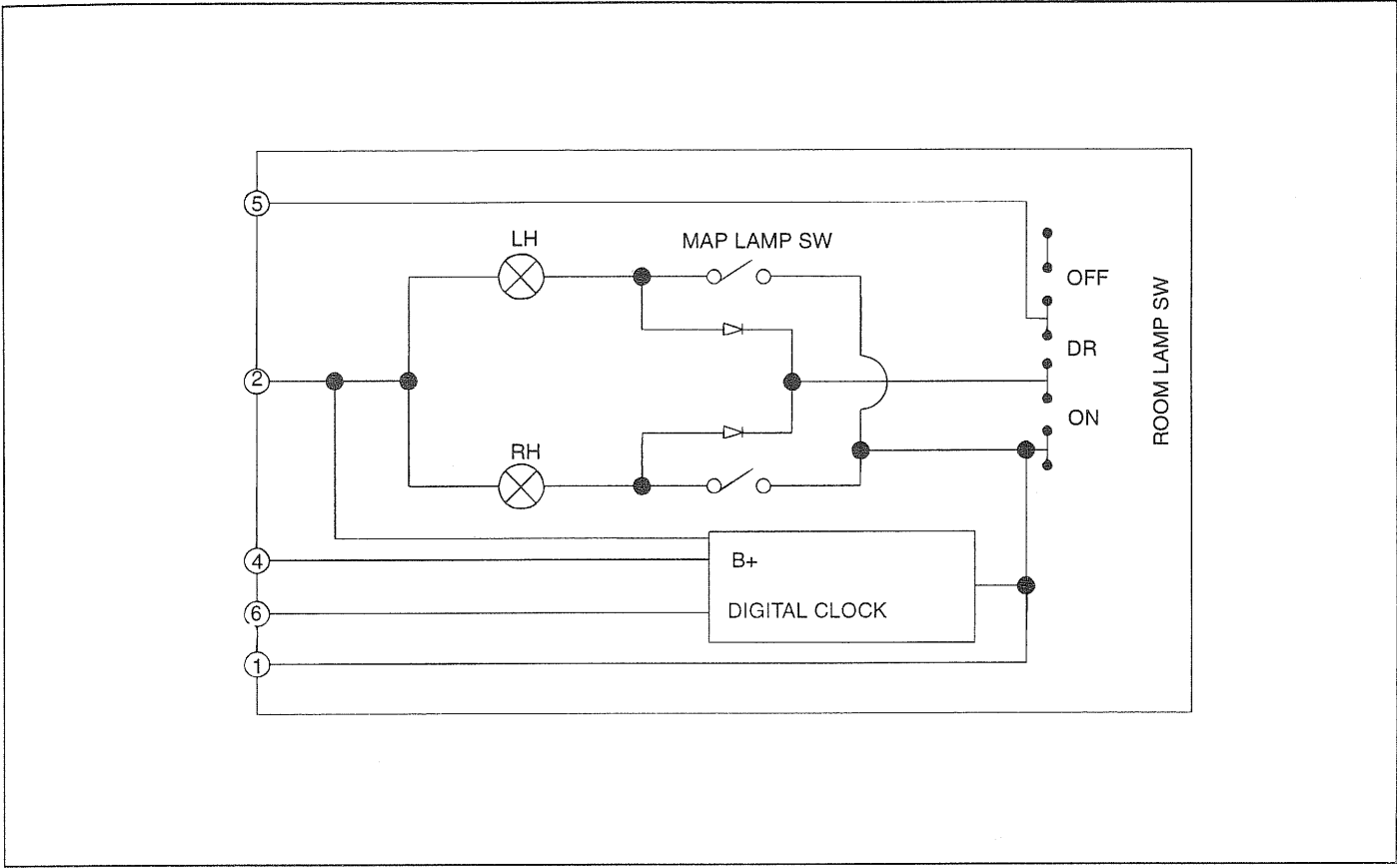
Sort Position Terminal	ROOM LAMP SWITCH			MAP LAMP SWITCH			
	ON	DR	OFF	LH		RH	
				ON	OFF	ON	OFF
1							
2							
5							

ETHA045E



ETHA045A

CIRCUIT DIAGRAM ETHA2150



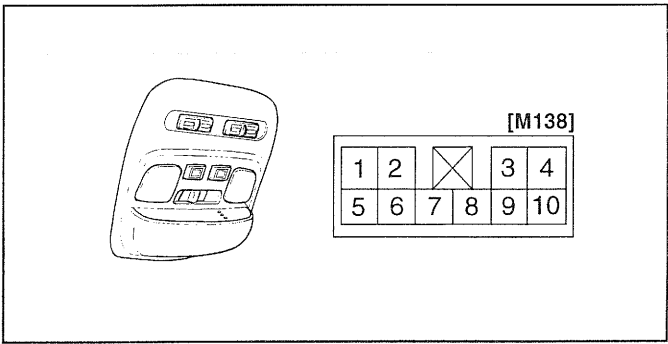
ETHA045B

• VEHICLES WITH SUNROOF

[M138]

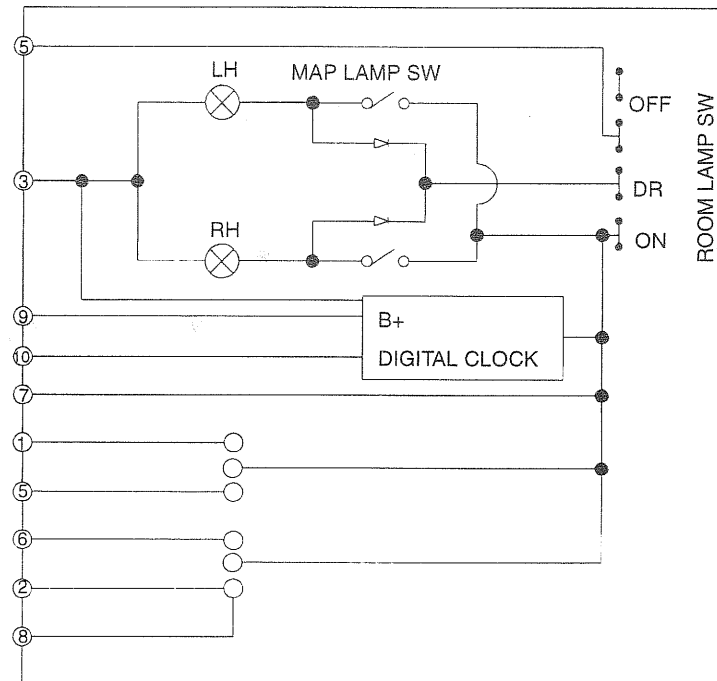
Sort Position Terminal	ROOM LAMP SWITCH			MAP LAMP SWITCH			
				LH		RH	
	ON	DR	OFF	ON	OFF	ON	OFF
3							
4							
7							

ETHA045F



ETHA045C

CIRCUIT DIAGRAM ETHA2200



IMMOBILIZER CONTROL SYSTEM

IMMOBILIZER SYSTEM ETHA3450

DESCRIPTION The immobilizer system is an anti-theft device which enables starting to be possible only when the mechanical and wireless secret codes are aligned simultaneously.

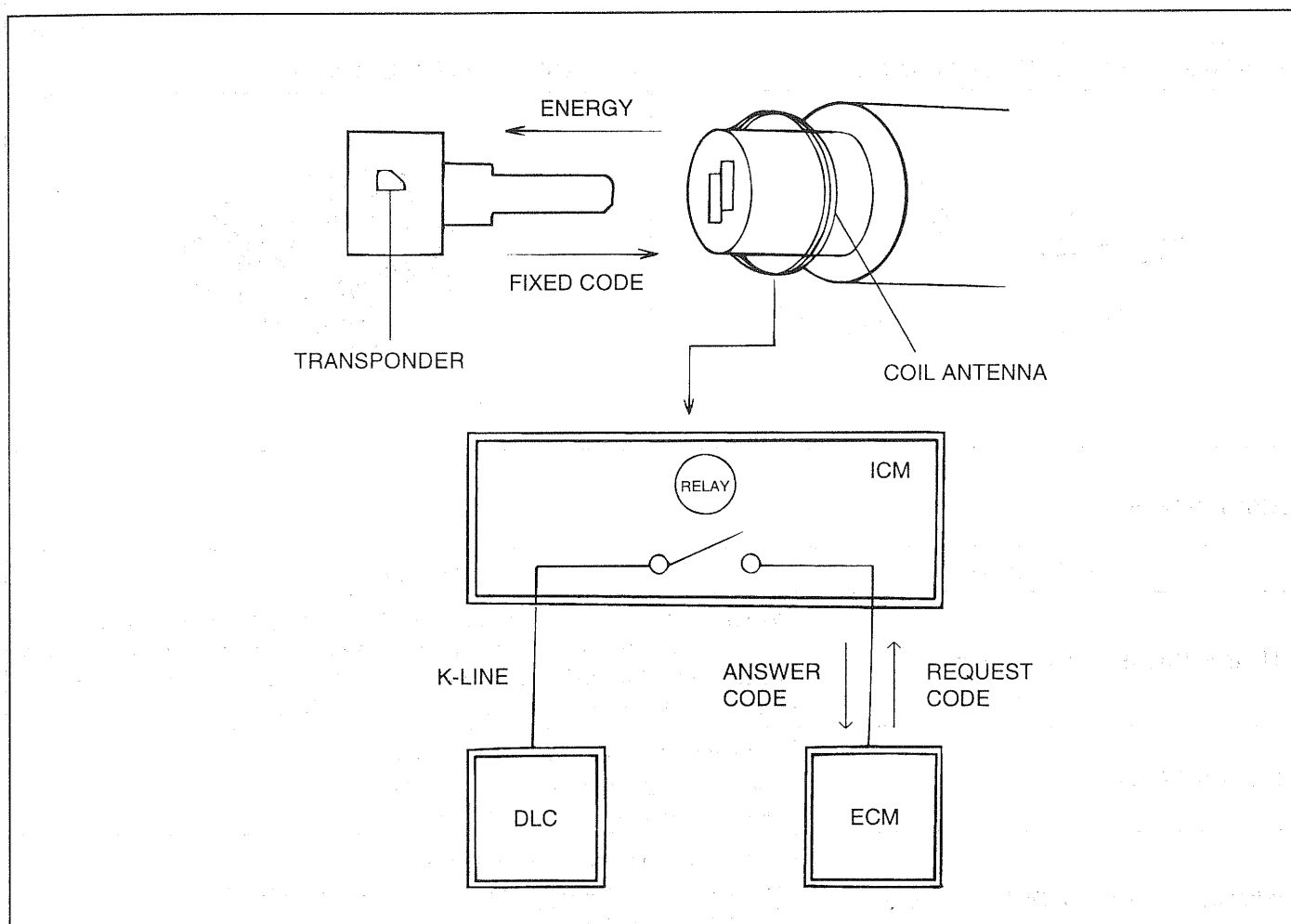
The transponder built in the ignition key signals its unique frequency code and at this time the ICM compares it with the memorized code.

When the codes are aligned, the ICM sends signals to the ECM so that starting is possible.

ICM : Immobilizer Control Module

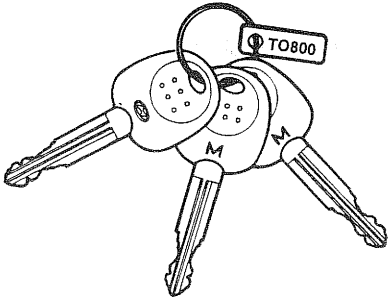
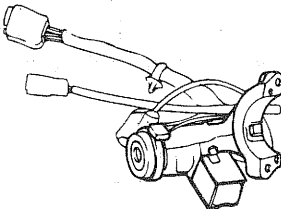
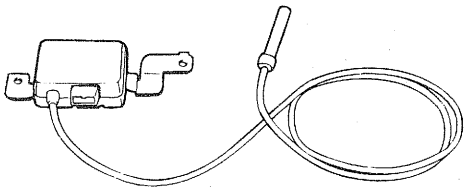
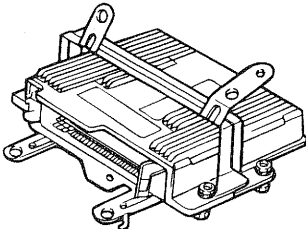
ECM : Engine Control Module

SYSTEM BLOCK DIAGRAM



B6BE705A

COMPONENT

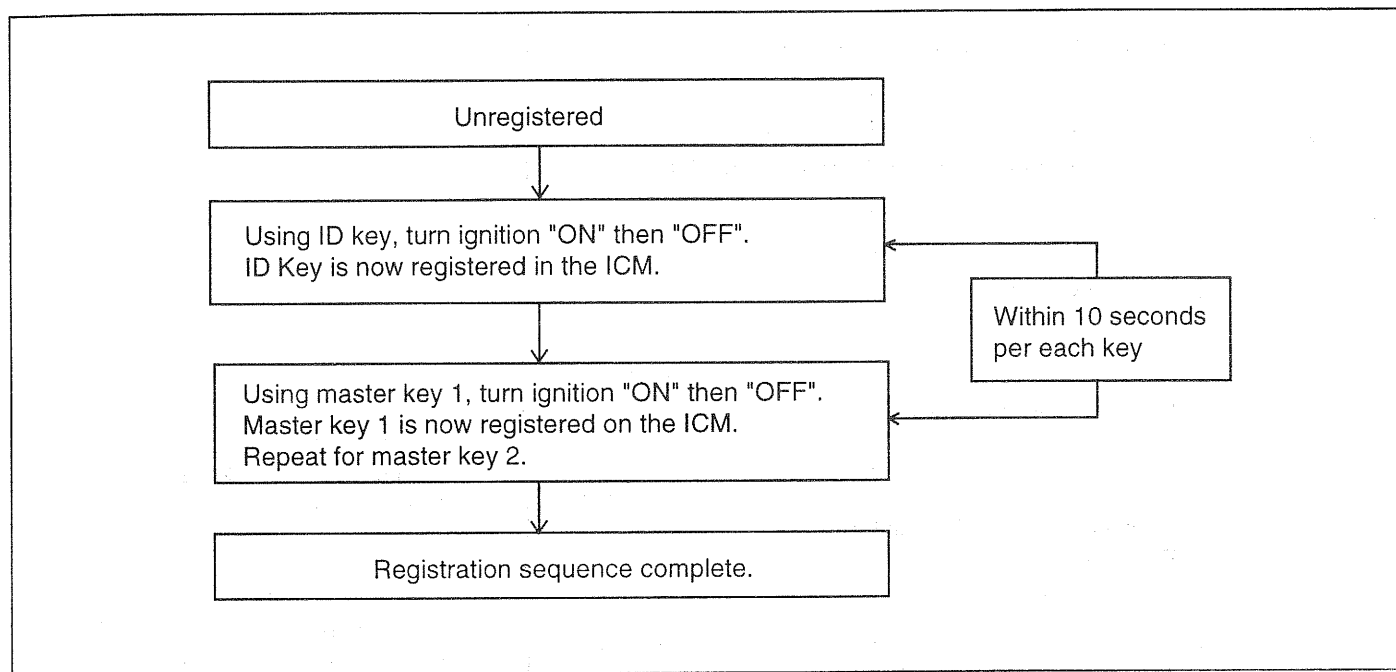
A. TRANSPONDER KEY	B. COIL ANTENNA
 B880B01A	 B6BE225C
C. IMMOBILIZER CONTROL MODULE	D. ENGINE CONTROL MODULE
 B6BE710D	 B6BE710E

DESCRIPTION

COMPONENT		DESCRIPTION
TRANSPONDER (built-in keys)		When ignition is "ON", the coil supplies energy to the transponder, which in turn accumulates energy in the condenser. Once the energy supply from the coil has stopped, using the stored energy in the condenser, the transponder transmits the ID CODE.
COIL ANTENNA		Supplies energy to the transponder. Receives signal from the transponder. Sends transponder signal to the ICM.
IMMOBILIZER CONTROL MODULE		Supplies power to the coil antenna. Receives and analyzes signal from the coil antenna. Transmits signal to ICM Stores VIN which composes of the ID CODE and password.
ENGINE CONTROL MODULE		With the ignition "ON", the ECM receives information from the ICM and permits injection to take place.
KEYS	ID KEY	Must be used first to register the unique ID CODE in the ICM. This ID CODE is then recorded into the master keys.
	MASTER	Once the ID CODE is recorded into the MASTER KEY, this key is for general use.
DATA LINK CONNECTOR		By connecting the voltmeter or HI-SCAN, control module diagnostic code can be read.

KEY REGISTRATION

1. ID Code registration sequence

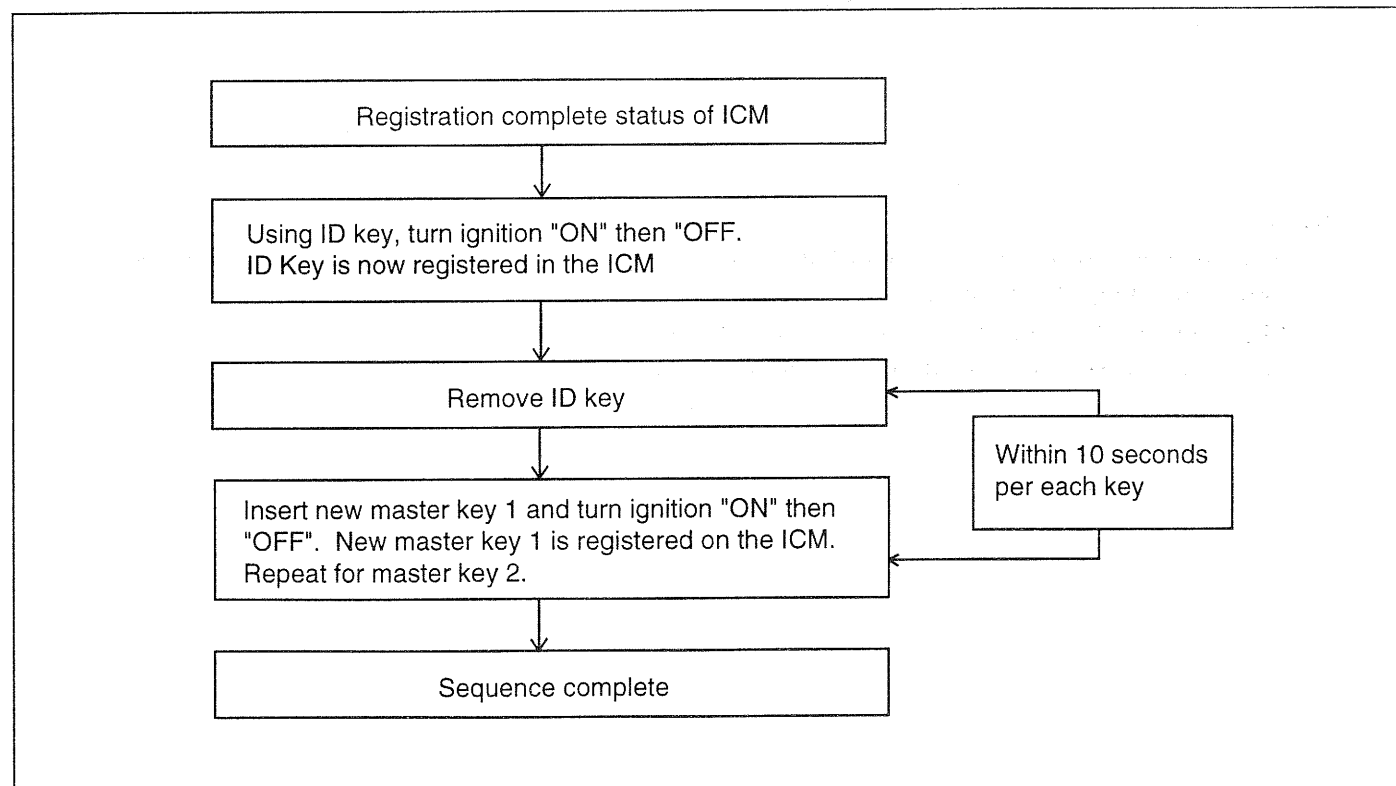


ETHA345A

2. Master key correction

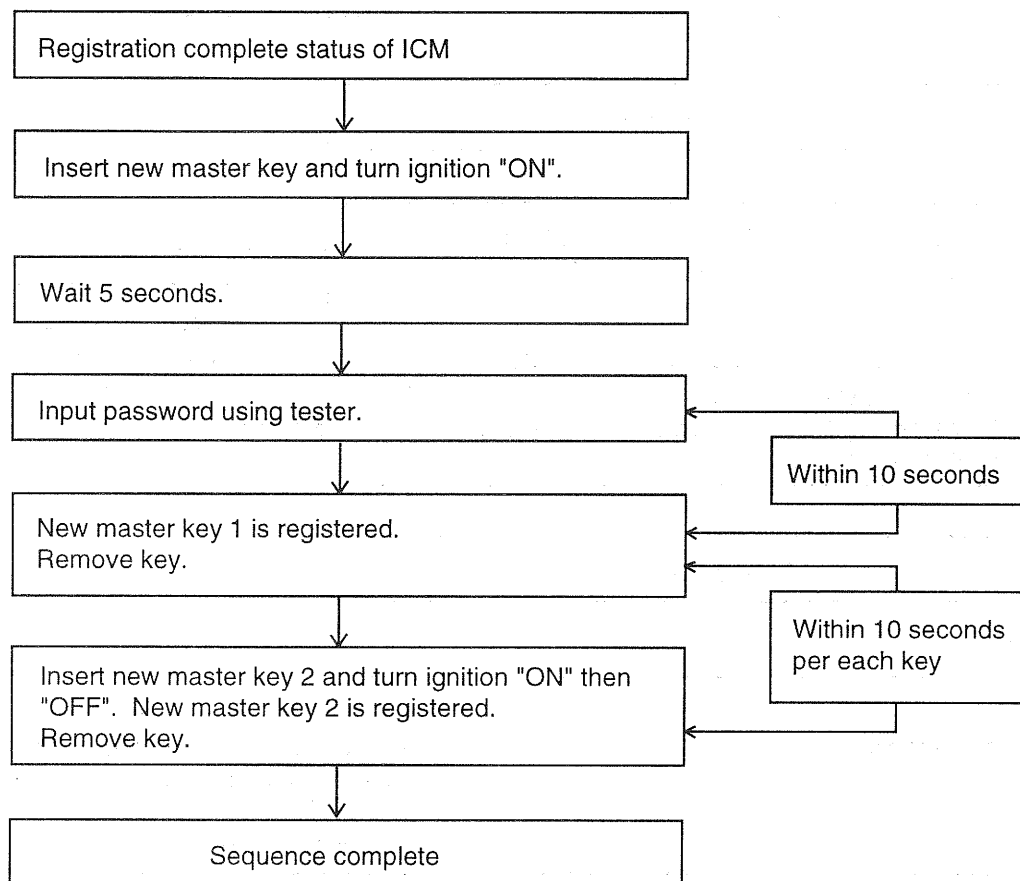
If a new set of master keys needs to be produced, it can be done by two methods:

a. Using ID key



ETHA345B

b. Using password

**NOTE**

- o Once the password is mis-registered, it is impossible to register new password during 10 seconds regardless of ignition ON/OFF.
- o When the master 3 keys have been registered, the codes for existing master keys are all cleared.
- o The password should consist of 4 numbers among ten (0~9) numbers.