# SERVICE PROCEDURES AND SPECIFICATIONS

## Electrical components

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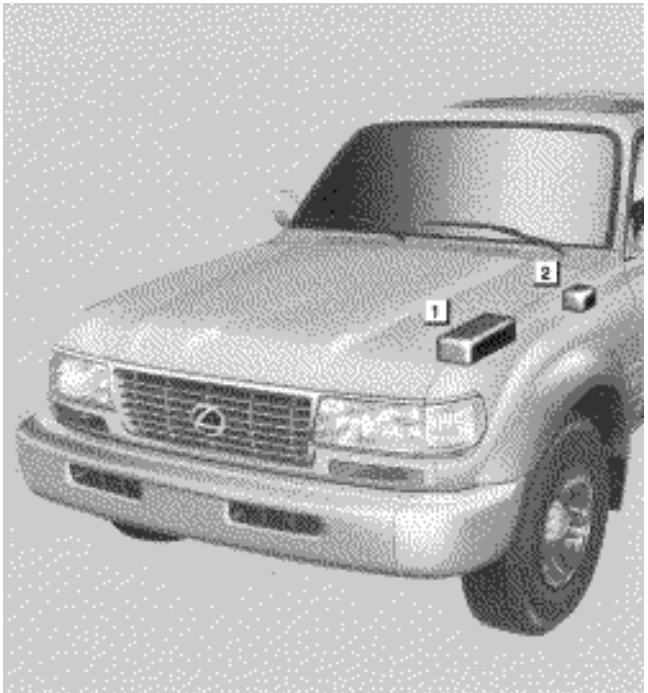
# SPECIFICATIONS

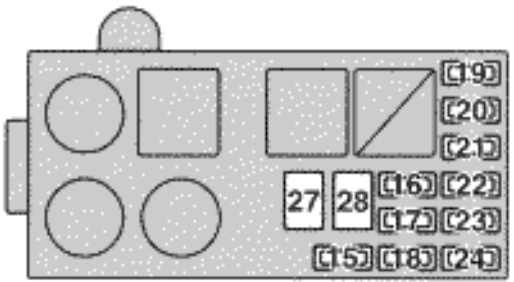
## – FUSE LOCATIONS




▶ 1 *Engine compartment*
2 *Driver's side instrument panel*

## – FUSES


▶ *Driver's side instrument panel*




▶ *Engine compartment*

| No. | FUSE | AMPERE | CIRCUIT |
|---|---|---|---|
| 1 | CIG | 15 | Cigarette lighter, Power rear view mirrors, Digital clock display, Radio, Cassette tape player, Power antenna, Automatic transmission shift lock system, SRS airbag system |
| 2 | TAIL | 15 | Tail lights, License plate lights, Parking and front side marker lights, Instrument panel lights, Clock, Glovebox light |
| 3 | OBD | 15 | On–board diagnosis system |
| 4 | STOP | 10 | Stop lights, Multiport fuel injection system/sequential multiport fuel injection system, Cruise control cancel device, Automatic transmission shift lock system |
| 5 | DEFOG | 20 | Rear window defogger |
| 6 | WIPER | 20 | Windshield wipers and washer, Rear window wiper and washer |
| 7 | GAUGE | 10 | Gauges and meters, Service reminder indicators and warning buzzers (except discharge and open door warning lights), Back–up lights |
| 8 | TURN | 7.5 | Turn signal lights |
| 9 | ECU–IG | 10 | Cruise control system |
| 10 | ECU–B | 10 | SRS airbag system |

| No. | FUSE | AMPERE | CIRCUIT |
|---|---|---|---|
| 11 | REAR–HTR | 20 | Air conditioning system |
| 12 | IGN | 7.5 | Multiport fuel injection system/sequential multiport fuel injection system, Emission control system, SRS airbag system |
| 13 | A.C | 10 | Air conditioning system |
| 14 | DIFF | 30 | Differential lock system |
| 15 | EFI | 15 | **Vehicle sold in Canada** Multiport fuel injection system/sequential multiport fuel injection system |
| 16 | CHARGE | 7.5 | **Vehicles sold in U.S.A.** Charging system, Discharge warning light |
| | DRL | 7.5 | **Vehicles sold in Canada** Daytime Running Light System |
| 17 | EFI | 15 | **Vehicles sold in U.S.A.** Multiport fuel injection system/sequential multiport fuel injection system |
| | RADIO | 20 | **Vehicles sold in Canada** Audio system |
| 18 | TEL | 15 | **Vehicles sold in Canada** Telephone |

| No. | FUSE | AMPERE | CIRCUIT |
|---|---|---|---|
| 19 | HEAD (RH) | 15 | **Vehicles sold in U.S.A.** Right–hand headlights |
| | HEAD (RH–UPR) | 15 | **Vehicles sold in Canada** Right–hand headlights (High beam) |
| 20 | HEAD (LH) | 15 | **Vehicles sold in U.S.A.** Left–hand headlights |
| | HEAD (LH–UPR) | 15 | **Vehicles sold in Canada** Left–hand headlights (High beam) |
| 21 | RADIO | 20 | **Vehicles sold in U.S.A.** Audio system |
| | HEAD (RH–UWR) | 15 | **Vehicles sold in Canada** Right–hand headlights (Low beam) |
| 22 | TEL | 15 | **Vehicles sold in U.S.A.** Telephone |
| | HEAD (LH–UWR) | 15 | **Vehicles sold in Canada** Left–hand headlights (Low beam) |
| 23 | HAZ– HORN | 15 | Emergency flashers, Horns |
| 24 | DOME | 10 | Interior lights, Personal light, Luggage compartment light, Ignition switch light, Open door warning light, Clock, Radio, Cassette tape player, Power antenna, Vanity lights |
| 25 | FL HEATER | 40 | Air conditioning system |
| 26 | FL POWER | 30 | Power windows, Power door lock system, Electric moon roof |
| 27 | AM 1 | 50 | All components in “CIG”, “WIPER”, “GAUGE”, “TURN”, “EGU–IG”, “REAR–HTR”, “IGN”, “DIFF” and “FL POWER” circuits |
| 28 | ABS | 60 | Anti–lock brake system |

# CHECKING BATTERY CONDITION

## Precautions

**CAUTION**

**BATTERY PRECAUTIONS**

**The battery produces flammable and explosive hydrogen gas.**

- **Do not cause a spark by contacting the battery terminals with tools.**
- **Do not smoke or light a match near the battery.**

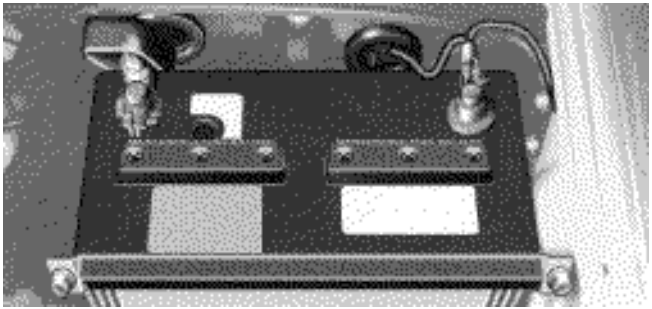
**The electrolyte contains poisonous and corrosive sulfuric acid.**

- **Avoid contact with eyes, skin or clothes.**
- **Never inhale or swallow electrolyte.**
- **Wear protective safety glasses when working near the battery.**
- **Keep children away from the battery.**

**EMERGENCY MEASURES**

- **If electrolyte gets in your eyes, flush your eyes with clean water for at least 15 minutes and get immediate medical attention. If possible, continue to apply water with a sponge or cloth while traveling to the medical office.**
- **If electrolyte gets in your skin, thoroughly wash the contacted area. If you feel a pain or burn, get medical attention immediately.**
- **If electrolyte gets on your clothes, there is a possibility of its soaking through to your skin, so immediately take off the exposed clothing and follow the procedure above, if necessary.**
- **If you happen to swallow electrolyte, drink a large quantity of water or milk. Follow with milk of magnesia, beaten raw egg or vegetable oil. Then go immediately for emergency help.**

## Checking battery exterior



▶ 1 *Terminals* 2 *Hold–down clamp*

**Check the battery for corroded or loose connections, cracks, or loose hold–down clamps.**

1. If the battery is corroded, wash it off with a solution of warm water and baking soda. Coat the terminals with grease to prevent further corrosion.

2. If the connections are loose, tighten the clamp bolts – but do not overtighten.

3. Tighten the hold–down clamp only enough to keep the battery firmly in place. Overtightening may damage the battery case.

***NOTICE***

- ***Make sure the engine and all accessories are turned off before performing maintenance.***
- ***When checking the battery, remove the ground cable first and reinstall it last.***
- ***Be careful not to cause a short circuit with tools.***
- ***Take care no solution gets into the battery when washing it.***

## Checking battery fluid

**There are 2 types of batteries: maintenance type and non–maintenance type.**

A non–maintenance battery has “MAINTENANCE FREE BATTERY” on its top. A maintenance type battery does not have such indication.

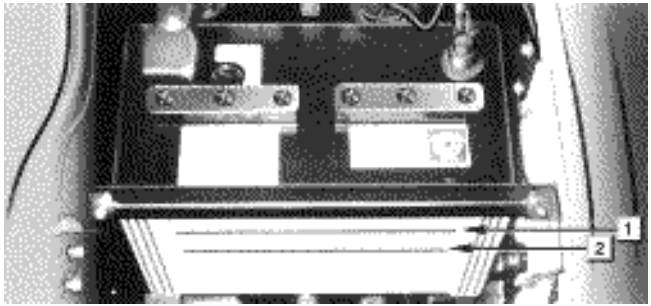
**Maintenance type battery**

Check the fluid condition by the fluid level lines on the side of the battery. Or if the battery has a hydrometer on its top, you can also check the hydrometer.

**Non–maintenance battery**

Check the battery condition by the hydrometer on top of the battery.

**(a) Checking by the fluid level lines (Maintenance type battery only)**



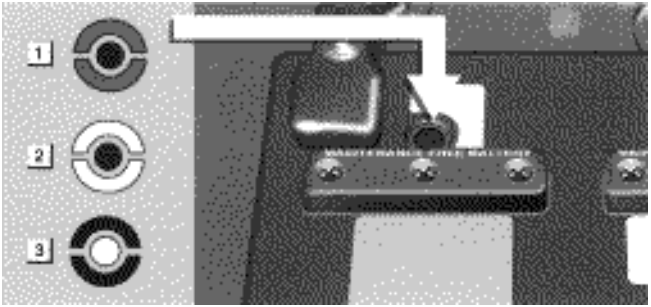

▶ 1 ***Upper line*** 2 ***Lower line***

**The fluid (electrolyte) level must be between the upper and lower lines.**

When checking the fluid level, look at all six cells, not just one or two.

If the level is lower than the lower line, add distilled water. (See “Adding distilled water” on page 241.)

**(b) Checking the hydrometer**




**Check the battery condition by the hydrometer color.**

**Maintenance type battery**

1 BLUE – Good condition

2 WHITE – Charging necessary. Have the battery checked by your Lexus dealer.

3 RED – Add distilled water. (See “Adding distilled water” on page 241.)

**Non–maintenance type battery**

1 BLUE – Good condition.

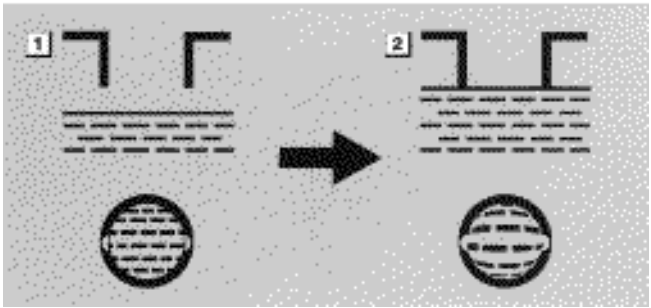
2 WHITE – Charging necessary. Have the battery checked by your Lexus dealer.

3 RED – Have the battery checked by your Lexus dealer.

***NOTICE***

***For non–maintenance battery:***
***Do not refill the battery with water.***

## Adding distilled water (Maintenance type battery only)




▶ 1 *Low* 2 *O.K.*

1. Remove the vent plugs.
2. Add distilled water to cells needing fluid.

If the side of the battery is covered, check the water level by looking down directly above the cell as illustrated above.

3. Retighten the vent plugs securely.

***NOTICE***

- ***Do not overfill the cells. Excess electrolyte could squirt out of the battery during heavy charging, causing corrosion or damage.***
- ***Use a cover on the battery for longer life.***

# BATTERY RECHARGING PRECAUTIONS

**During recharging, the battery is producing hydrogen gas.**

Therefore, before recharging:

1. Maintenance type batteries – Remove the vent plugs.
2. If recharging with the battery installed on the vehicle, be sure to disconnect the ground cable.
3. Make sure the power switch on the recharger is off when connecting the charger cables to the battery and when disconnecting them.

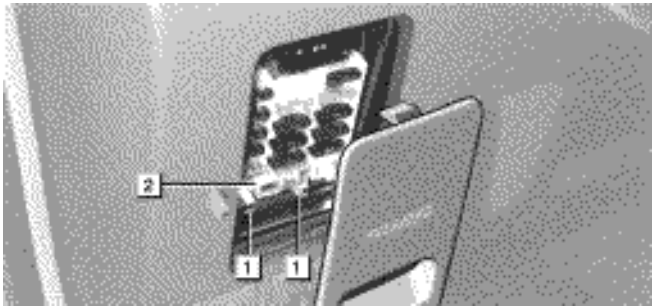
**CAUTION**

- **Always charge the battery in an unconfined area. Do not charge the battery in a garage or closed room where there is not sufficient ventilation.**
- **Non–maintenance batteries: Only do a slow charge (5A or less). Charging at a quicker rate is dangerous. The battery may explode causing personal injuries.**

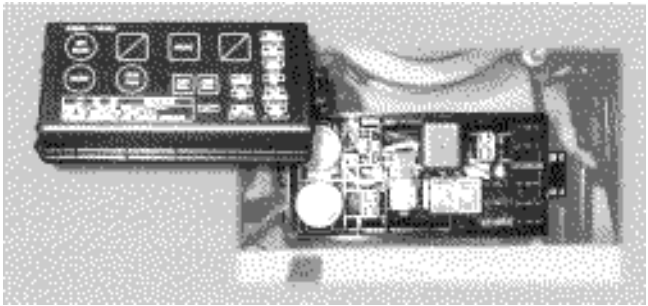
***NOTICE***

***Never recharge the battery while the engine is running. Also, be sure all accessories are turned off.***

# CHECKING AND REPLACING THE BLADE TYPE FUSES



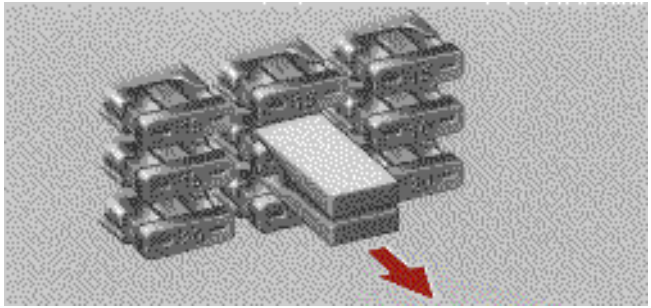

▶ ***Driver's side instrument panel***
1 ***Spare fuses*** 2 ***Pull–out tool***



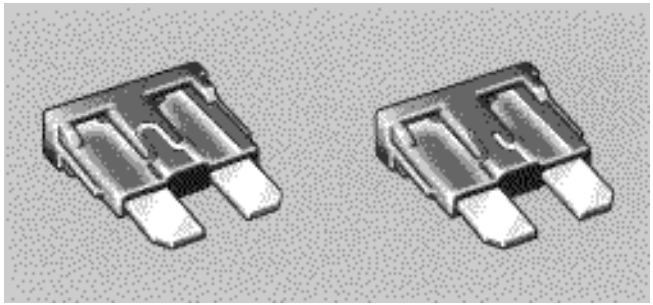
▶ ***Engine compartment***

**1. Turn the ignition switch off and open the fuse box lid.**

Determine which fuse may be causing the problem. The lid of the fuse box shows the name of the circuit for each fuse.



**2. Make sure the inoperative component is turned off. Pull the suspected fuse straight out with the pull–out tool and check it. If it has blown, push a new fuse into the clips.**



▶ ***Good*** ▶ ***Blown***

a. Look carefully at the fuse. If the thin wire is broken, the fuse has blown. If you are not sure or if it is too dark to see, try replacing the suspected fuse with one of the same value that you know is good.

b. Only Install a fuse with the amperage rating designated on the fuse box lid.

If you do not have a spare fuse, in an emergency you can pull out the “CIG,” “DOME” or “A.C” fuse, which may be dispensable for normal driving, and use it if its amperage rating is the same.

If you cannot use one of the same amperage, use one lower than, but as close as possible to, the amperage. If the amperage is lower than the specified, the fuse might blow out again but this does not indicate anything wrong. Be sure to get the correct fuse as soon as possible and return the substitute to its original clips.

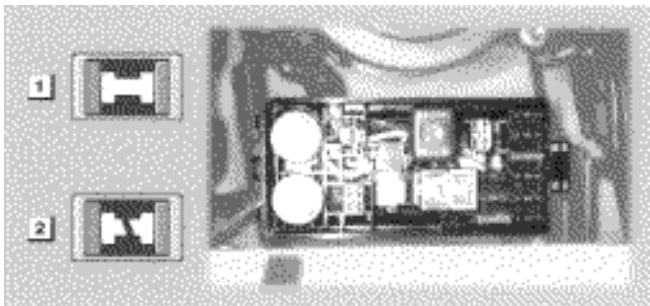
It is a good idea to purchase a set of spare fuses and keep them in your vehicle for emergencies.

If the new fuse immediately blows out, there is a problem with the electrical system. Have your Lexus dealer correct it as soon as possible.

**CAUTION**

**Never use a fuse with a higher amperage rating, or any other object, in place of a fuse. This may cause extensive damage and possibly a fire.**

## CHECKING THE CARTRIDGE TYPE FUSES




▶ 1 ***Good*** 2 ***Melted***

**If the headlights or other electrical components do not work and the blade type fuses are O.K., check the cartridge type fuses. If any of the cartridge type fuses are blown, they must be replaced.**

If there is an overload in the circuits from the battery, the fuses are designed to blow before the entire wiring harness is damaged.

***NOTICE***

***Before replacing the fuses, have the cause of electrical overload determined and repaired by your Lexus dealer.***

**CAUTION**

**Always use a genuine Lexus fuse or equivalent for replacement. Never install an ordinary wire – even for a temporary fix. This may cause extensive damage and possibly a fire.**

## CHECKING THE FUSIBLE LINKS

▶ ***Fusible links***

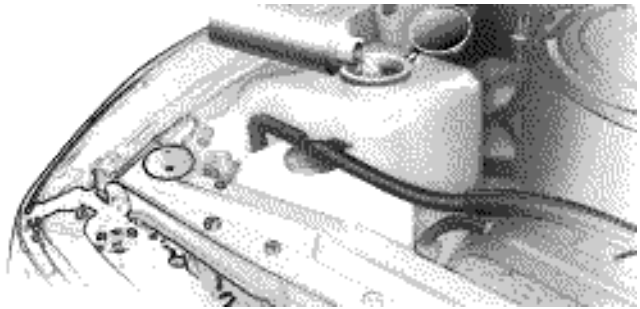
**If the headlights or other electrical components do not work and the fuses are O.K., check the fusible links. If any of the links is melted, it must be replaced.**

If there is an overload in the circuits from the battery, the fusible links are designed to melt before the entire wiring harness is damaged.

**NOTICE**

- ***Before replacing the fusible links, have the cause of electrical overload determined and repaired by your Lexus dealer.***
- ***Always use a genuine Lexus fusible link or equivalent for replacement. Never install a wire – even fro a temporary fix. It may cause extensive damage and possibly a fire.***

## ADDING WASHER FLUID



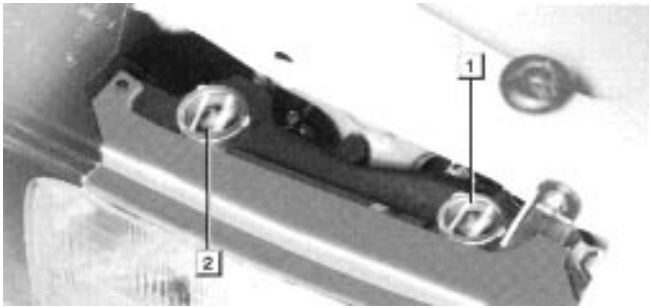
**If any washer does not work, the washer tank may be empty. Add washer fluid.**

You may use plain water as washer fluid. However, in cold areas where temperatures range below the freezing point, use washer fluid containing antifreeze. This product is available at your Lexus dealer and most auto parts stores. Follow the manufacturer's directions for how much to mix with water.

**NOTICE**

***Do not use engine antifreeze or any other substitute because it may damage your vehicle's paint.***

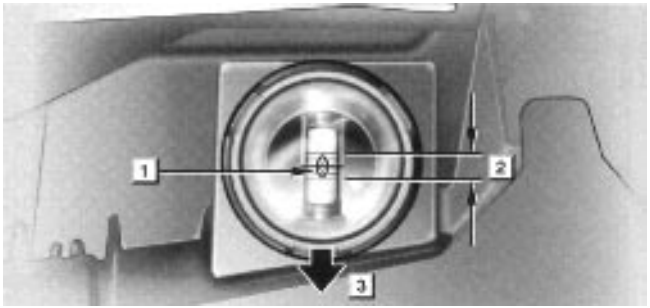
# CHECKING HEADLIGHT AIM




▶ 1 ***Beam angle gauge (vertical movement)***
2 ***Beam angle gauge (horizontal movement)***

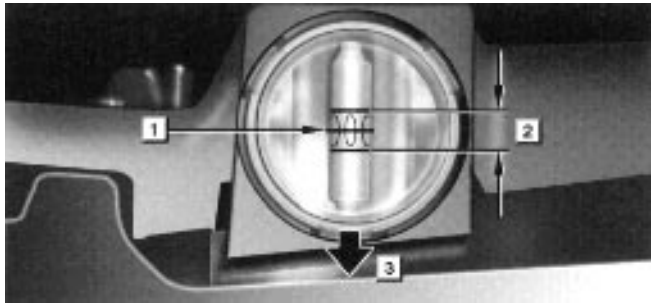
Before checking the headlight aim:

1. Be sure that the body around the headlights is not deformed.
2. Park the vehicle on a level spot.
3. The driver gets into the driver's seat and puts the vehicle in a state readying for a driving (with a full tankl).
4. Bounce the vehicle several times.




▶ 1 ***Bubble*** 2 ***Acceptable range*** 3 ***Front***

**Vertical movement gauge:** The bubble of the gauge should not deviate from the center of the gauge by more than two marks on either side of the gauge.




▶ 1 ***Mark*** 2 ***Acceptable range*** 3 ***Front***

**Horizontal movement gauge:** The red mark should not deviate by more than one mark on either side of the gauge.

If the error is over the value specified above, take the vehicle to your Lexus dealer to adjust the headlight aim.

# REPLACING LIGHT BULBS

The illustration on the following pages show the locations of light bulbs. If it is necessary to replace a bulb, take your vehicle to your Lexus dealer as soon as possible. Use bulbs with the bulb numbers and wattage ratings given in the table.

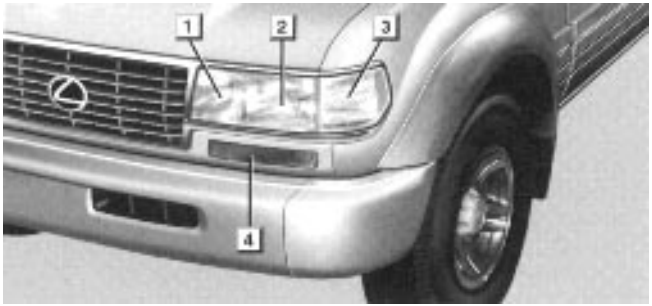
**CAUTION**

**Halogen bulbs have pressurized gas inside and require special handling. They can burst or shatter if scratched or dropped. Hold a bulb only by its plastic or metal case. Do not touch the glass part of a bulb with bare hands.**

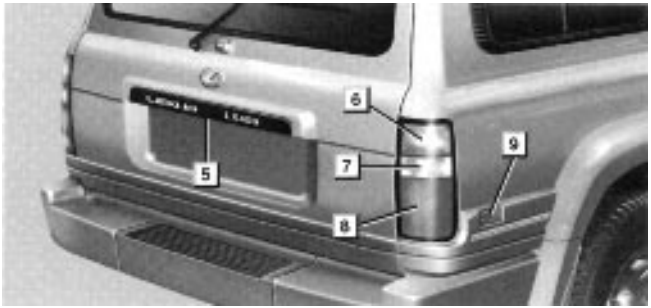
***NOTICE***

***Only use a bulb of the listed type.***

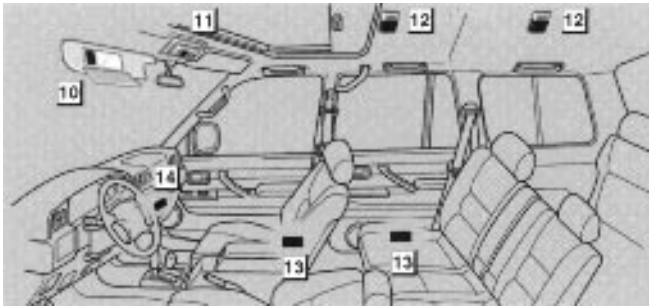
## LIGHT LOCATION




| | Light Bulbs | Bulb No. | W | Type |
|---|---|---|---|---|
| 1 | Headlights (inner) | 9005 | 65 | B |
| 2 | Headlights (outer) | 9006 | 55 | A |
| 3 | Parking and front side marker lights | 168 | 5 | D |
| 4 | Front turn signal lights | 1156 | 27 | C |




| | Light Bulbs | Bulb No. | W | Type |
|---|---|---|---|---|
| 5 | License plate lights | 168 | 5 | D |
| 6 | Rear turn signal lights | 1156 | 27 | C |
| 7 | Back–up lights | 1156 | 27 | C |
| 8 | Stop and tail lights | 1157 | 27/8 | C |
| 9 | Rear side marker lights | 194 | 3.8 | D |




| | Light Bulbs | Bulb No. | W | Type |
|---|---|---|---|---|
| 10 | Vanity lights | – | 3 | E |
| 11 | Personal light | – | 10 | C |
| 12 | Interior lights | – | 10 | E |
| 13 | Door courtesy light | – | 3 | D |
| 14 | Glovebox light | – | 1.4 | D |

A: HB4 halogen bulbs
B: HB3 halogen bulbs
C: Single end bulbs
D: Wedge base bulbs
E: Double end bulbs