

SECTION 6 – 4

SERVICE PROCEDURES AND SPECIFICATIONS

Electrical components

Specifications	554
Checking battery condition	562
Battery recharging precautions	567
Checking and replacing the blade type fuses	568
Checking the cartridge type fuses	570
Adding washer fluid	572
Replacing light bulbs	573

ELECTRICAL COMPONENTS

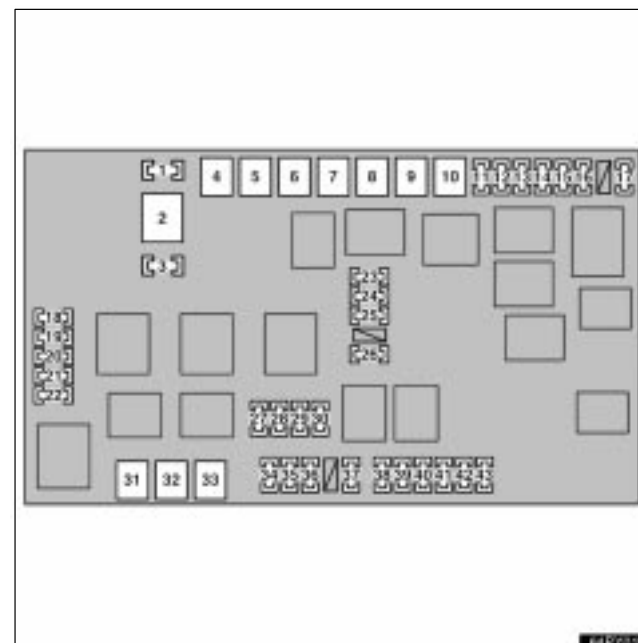
SPECIFICATIONS

— FUSE LOCATIONS



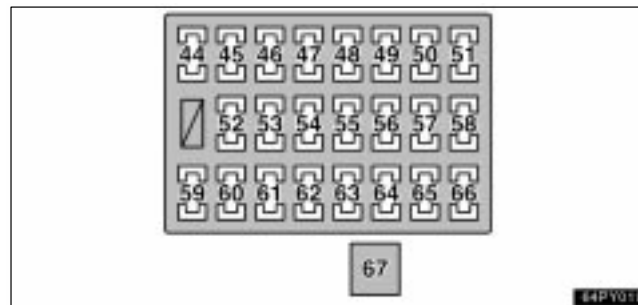
- **1** Engine compartment
- **2** Driver's side instrument panel

— FUSES



- Engine compartment

ELECTRICAL COMPONENTS



► *Driver's side instrument panel*

ELECTRICAL COMPONENTS

No.	FUSE	AMPERE	CIRCUIT
1	SPARE	10	Spare fuse
2	ALT	140	Charging system and all components in "AM1", "HEATER", "CDS FAN", "FR FOG", "DEFOG", "AIR SUS", "AC115V INV", "SEAT HEATER", "BATT CHG", "TOWING BRK" and "TOWING" fuses
3	SPARE	15	Spare fuse
4	HEATER	50	Air conditioning system
5	AIR SUS	50	Rear height control air suspension
6	AM1	50	All components in "ACC", "CIG", "IG1", "FR WIP-WSH", "RR WIP", "RR WSH", "DIFF", "TEMS" and "STA" fuses
7	TOWING BRK	30	Trailer brake controller
8	J/B	50	All components in "P FR P/W", "P RR P/W", "D RR P/W", "D P/SEAT", "P P/SEAT", "TAIL", "PANEL" and "POWER OR TI&TE" fuses
9	BATT CHG	30	Trailer sub battery
10	TOWING	40	Trailer lights
11	CDS FAN	20	Electric cooling fan
12	RR A/C	30	Rear air conditioning system
No.	FUSE	AMPERE	CIRCUIT

ELECTRICAL COMPONENTS

13	MIR HEATER	10	Outside rear view mirror defogger
14	STOP	10	Stop lights, high mounted stoplight, shift lock control system, vehicle stability control system, electronic modulated suspension, rear height control air suspension, multiport fuel injection system/sequential multiport fuel injection system
15	AC115V INV	15	Power outlet (115 VAC)
16	FR FOG	15	Front fog lights
17	OBD	7.5	On- board diagnosis system
18	HEAD (LO RH)	10	Right-hand headlight (low beam)
19	HEAD (LO LH)	10	Left-hand headlight (low beam)
20	HEAD (HI RH)	10	Right-hand headlight (high beam)
21	HEAD (HI LH)	10	Left-hand headlight (high beam)
22	EFI NO.2	10	Multiport fuel injection system/sequential multiport fuel injection system
23	HEATER NO.2	7.5	Air conditioning system
24	DEFOG	30	Rear window defogger
No.	FUSE	AMPERE	CIRCUIT

ELECTRICAL COMPONENTS

25	AIRSUS NO.2	10	Rear height control air suspension
26	SEAT HEATER	20	Seat heaters
27	DOME	10	Ignition switch light, interior lights, personal lights, foot lights, running board lights, door courtesy lights, inside door handle lights, multi- information display
28	RADIO NO.1	20	Car audio system, navigation system
29	ECU-B	10	Multiplex communication system, vehicle stability control system, wireless remote control system, inside rear view mirror, air conditioning system, electronic modulated suspension, driving position memory system, power windows, moon roof
30	ECU-B NO.2	10	Theft deterrent system
31	ABS MTR	40	Anti- lock brake system, vehicle stability control system, active traction control system, brake assist system
32	AM2	30	Starting system, all components in "IGN", "SRS", "GAUGE" and "ST2" fuses
No.	FUSE	AMPERE	CIRCUIT

ELECTRICAL COMPONENTS

33	ABS SOL	50	Anti-lock brake system, vehicle stability control system, active traction control system, brake assist system
34	ALT-S	7.5	Charging system
35	MAYDAY	7.5	Lexus link system
36	HORN	10	Horns
37	TRN-HAZ	15	Turn signal lights
38	ETCS	10	Electronic throttle control system
39	EFI	20	Multiport fuel injection system/sequential multiport fuel injection system
40	D FR P/W	20	Power window
41	DR/LCK	25	Power door lock
42	TOWING	30	Towing converter
43	RADIO NO.2	30	Car audio system, navigation system
44	IGN	10	Multiport fuel injection system/sequential multiport fuel injection system, vehicle stability control system
45	SRS	10	SRS airbag system
46	GAUGE	7.5	Gauges and meters
47	ST2	7.5	Multiport fuel injection system/sequential multiport fuel injection system
No.	FUSE	AMPERE	CIRCUIT

ELECTRICAL COMPONENTS


48	FR WIP-WSH	30	Windshield wipers, windshield washer
49	TEMS	20	Electronic modulated suspension
50	DIFF	20	Four-wheel drive system
51	RR WIP	15	Rear window wiper
52	D P/SEAT	30	Driver's power seat
53	P P/SEAT	30	Front passenger's power seat
54	PWR OUTLET	15	Power outlet (12 VDC)
55	IG1 NO.2	10	Rear air conditioning system, inside rear view mirror
56	RR WSH	15	Rear window washer
57	ECU-IG	10	Shift lock control system, power windows, outside rear view mirror defogger, anti-lock brake system, active traction control system, vehicle stability control system, air conditioning system, navigation system, power windows, moon roof, Lexus link system, tilt and telescopic steering, multi- information display, driving position memory system
58	IG1	10	Air conditioning system, back-up lights, rear window defogger, seat heaters, vehicle stability control system
No.	FUSE	AMPERE	CIRCUIT

ELECTRICAL COMPONENTS

59	STA	7.5	Multipoint fuel injection system/sequential multipoint fuel injection system
60	P FR P/W	20	Front passenger's power window
61	P RR P/W	20	Rear right side power window
62	D RR P/W	20	Rear left side power window
63	PANEL	10	Instrument panel lights
64	TAIL	10	Parking lights, tail lights, license plate lights, front fog lights
65	ACC	7.5	Shift lock control system, power outlets, outside rear view mirrors, car audio system, navigation system, power rear view mirrors, multi-information display
66	CIG	10	Cigarette lighter
67	POWER OR TI&TE	30	Power windows, moon roof, tilt and telescopic steering

CHECKING BATTERY CONDITION

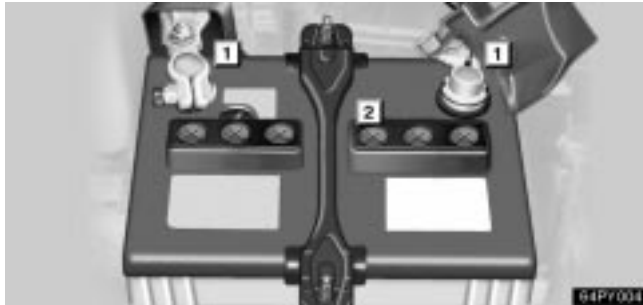
Precautions

 CAUTION
BATTERY PRECAUTIONS The battery produces flammable and explosive hydrogen gas. <ul style="list-style-type: none">• 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. <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 on 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 accidentally 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.

ELECTRICAL COMPONENTS

Checking battery exterior



► **1** *Terminals* **2** *Hold-down clamp*

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

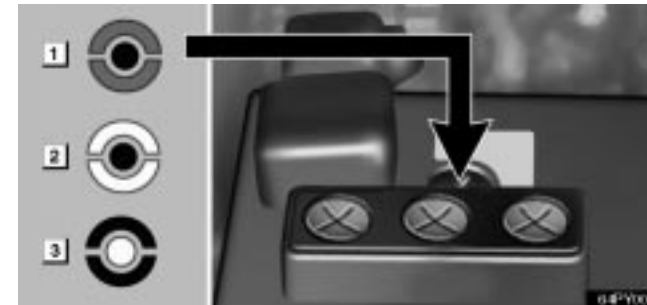
1. If the battery is corroded, wash it off with a solution of warm water and baking soda. Coat the terminals with grease to prevent further corrosion.
2. If the connections are loose, tighten the clamp bolts — but do not overtighten.
3. Tighten the hold-down clamp only enough to keep the battery firmly 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.*

If the battery is disconnected or run down

The power windows and moon roof may not operate automatically and the jam protection function will not function correctly after you reconnect, replace or recharge the battery. In any of these cases, you should normalize the power windows and moon roof. To normalize the power windows and moon roof, see pages 45 and 104.

Checking battery condition**Check the battery condition by the indicator color.**

- 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.

ELECTRICAL COMPONENTS

NOTICE

Do not refill the battery with water.

BATTERY RECHARGING PRECAUTIONS

During recharging, the battery is producing hydrogen gas.

Therefore, before recharging:

1. If recharging with the battery installed on the vehicle, be sure to disconnect the ground cable.
2. Make sure the power switch on the recharger is off when connecting the charger cables to the battery and when disconnecting them.

NOTICE

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



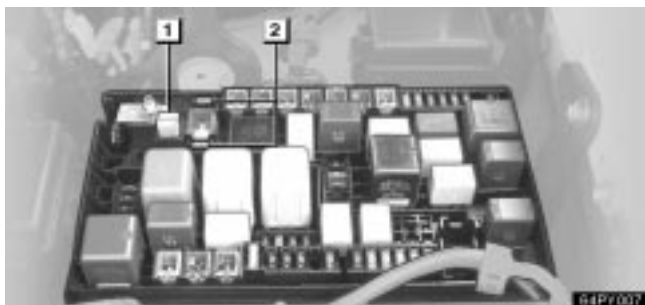
CAUTION

- 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.
- Only do a slow charge (5 A or less). Charging at a quicker rate is dangerous. The battery may explode causing personal injuries.

ELECTRICAL COMPONENTS

CHECKING AND REPLACING THE BLADE TYPE FUSES

The engine compartment fuse box is located under the left side engine compartment cover. Before checking the engine compartment fuses, remove the cover. (For details, see "Removing the engine compartment covers" on page 500.)



► *Engine compartment* **1** Pull-out tool **2** Spare fuses

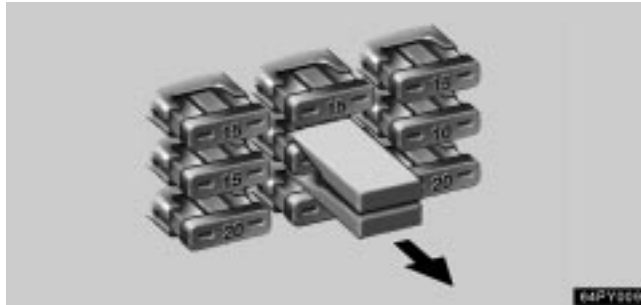


► *Driver's side instrument panel*

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.

ELECTRICAL COMPONENTS



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", "RADIO NO.1" or "SEAT HEATER" 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 that 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.

ELECTRICAL COMPONENTS

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.

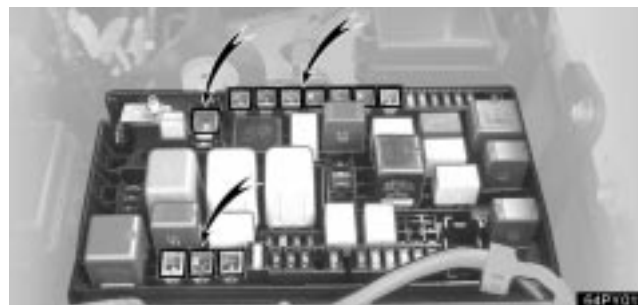


CAUTION

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

The engine compartment fuse box is located under the left side engine compartment cover. Before checking the engine compartment fuses, remove the cover. (For details, see “Removing the engine compartment covers” on page 500.)



► *Engine compartment*

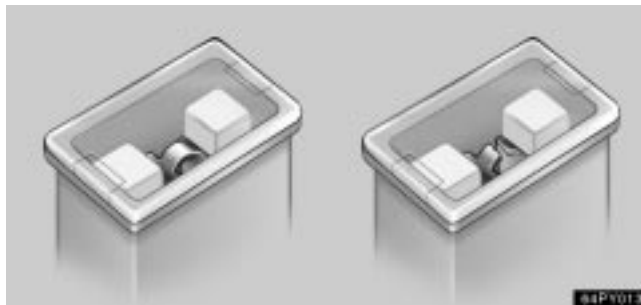
ELECTRICAL COMPONENTS



► *Driver's side instrument panel*

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.



► *Good*

► *Blown*

NOTICE

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

ELECTRICAL COMPONENTS



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.

NOTICE

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

ADDING WASHER FLUID



If the washer tank becomes nearly 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.

REPLACING LIGHT BULBS

The illustrations 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.

NOTICE

Only use a bulb of the listed type.

The inside of the lens of exterior lights such as headlights may temporarily fog up when the lens becomes wet in the rain or in a car wash. This is not a problem because the fogging is caused by the temperature difference between the outside and inside of the lens, just like the windshield fogged up in the rain. However, if there is a large drop of water on the inside of the lens, or if there is water pooled inside the light, contact your Lexus dealer.



CAUTION

- To prevent burning yourself, do not replace the light bulbs while they are hot.
- 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.

LIGHT LOCATION

ELECTRICAL COMPONENTS



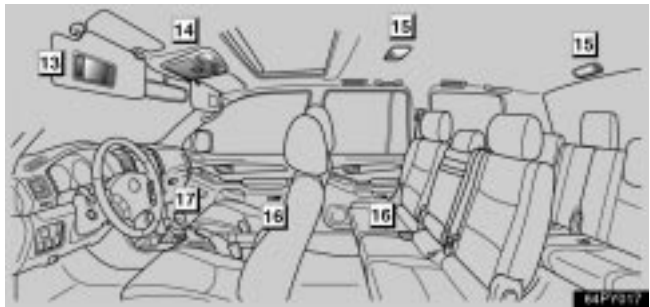
	Light Bulbs	Bulb No.	W	Type
1	Headlights (High beam)	9005	60	A
2	Headlights (Low beam)	--	55	B
3	Front side marker lights	168	5	C
4	Front turn signal lights	4157NAK	27/8	D
5	Parking lights	168	5	C
6	Fog lights	--	55	E

ELECTRICAL COMPONENTS



	Light Bulbs	Bulb No.	W	Type
7	Running board lights	194	3.8	C
8	Rear turn signal lights	7440	21	C
9	Stop/tail lights	7443	21/5	C
10	Stop/tail and rear side marker lights	7443	21/5	C
11	Back-up lights	7440	21	C
12	License plate lights	168	5	C

ELECTRICAL COMPONENTS



	Light Bulbs	Bulb No.	W	Type
13	Vanity lights	--	2	F
14	Personal lights	--	8	G
15	Interior lights	--	8	F
16	Door courtesy lights	--	3.8	G
17	Glove box light	--	1.2	C

- A: HB3 halogen bulbs
- B: H11 halogen bulbs
- C: Wedge base bulbs (clear)
- D: Wedge base bulbs (amber)
- E: H3 halogen bulbs
- F: Double end bulbs
- G: Single end bulbs

2