



Headlights and Fog Lights

– How the Circuit Works

WARNING

A transient high tension (25,000 V) occurs at the bulb sockets of the high intensity discharge (HID) lamps when the combination light switch is turned ON. It may cause serious electrical shock or electrocution if you do not observe the cautions below.

CAUTION

- Never turn on the combination light switch before fitting the HID bulbs to their bulb sockets and completing the reassembly of the headlight assembly.
- Do not service the headlight assembly in wet conditions, such as rain or snow, near a sprinkler system, or when your hands are wet to prevent electrocution.
- Do not touch the surface of the HID bulbs with your bare hands and do not stain it with any oils or fats.
- Do not disassemble the inverter unit and the igniter unit.
- Do not turn on the HID bulb by using a power source other than the battery mounted on the vehicle.

Low Beams

The headlight low beam and high beam relays receive battery voltage at all times. When you turn the headlight switch to the HEAD position with the dimmer switch in LOW, ground is applied through the BLU/RED wire and lighting diode to the coils of the headlight low beam and high beam relays. The relays are then energized, applying battery voltage to the left and right low and high beam headlights through fuses 45, 46 and 48, 49 respectively. The low beam bulbs come on because they are individually grounded by G301 and G201. The high beams and indicator remain off because their ground path is interrupted by the deenergized dimmer relay.

High Beams

When you pull the dimmer switch to HIGH with the low beams already on, ground is applied to the dimmer relay from the dimmer switch. This energizes the dimmer relay, applying ground to the high beam bulbs and high beam indicator, which turns on the high beams and indicator light. The low

beams go off because their ground path is interrupted by the activated dimmer relay.

Flash-to-Pass

When you hold the flash-to-pass switch in the ON position, ground is applied through the BLU/RED wire and lighting diode to the coils of the headlight low beam and high beam relays and through the RED/BLU wire to the coil of the dimmer relay. This energizes the headlight low beam and high beam relays, applying battery voltage to the low and high beam bulbs and to the dimmer relay. As the high beam bulbs receive battery voltage, the dimmer relay is energized, applying ground to the high beam bulbs and high beam indicator, which turns on the high beams and indicator light. The low beams go off because their ground path is interrupted by the activated dimmer relay.

Automatic Lighting

When you move the headlight switch to the AUTO position, the automatic lighting control unit will automatically turn on the headlights.

The automatic lighting control unit receives battery voltage through fuse 56 at all times and receives battery voltage through fuse 20 with the ignition switch in ON (II) and START (III). When the ignition switch is turned to ON (II), the automatic lighting control unit receives an "ignition on" signal through fuse 19. When the headlight switch is in the AUTO position with the driver's door closed, and if the automatic lighting sensor detects low ambient light, the automatic lighting control unit will apply ground to the BLU/RED wire and lighting diode and ground the headlight low beam and high beam relays. The relays energize and cause the high or low beam headlights to come on, depending on the position of the dimmer switch. The headlights will operate as if they had been turned on with the headlight switch. When the driver's door is open, ground is applied to the automatic lighting control unit through the GRN/BLU wire. When the control unit receives this ground signal, it removes ground from the headlight relay and causes the headlights to turn off. The automatic lighting control unit will also turn off the headlights if the ambient light levels rise to daylight conditions or if the headlight switch is moved out of the AUTO position.

Refer to the Service Manual (Section 23, Electrical) for specific tests and troubleshooting procedures.