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2006-07 cady dts headlights - diagram or logic documentation...

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Ask Your Own Cadillac Question



GmKindl, ASE Certified Technician

Satisfied Customers: 389

Experience: 15 Years ASE Master Certified, Advanced Engine Performance Specialist, GM Pro Service Guild

Hello and welcome to Just Answer. Are you wanting a description and operatin dialouge or a wiring diagram? Or both?

Customer reply

we are looking for a solution to our problem with cady lights on all our 2006-2007 cars, on some one light goes out, flick the switch, it come on, on others condensation in housing corroads plugs, on others ballasts fail. have on where d1s cable end at ballast has melted. I understand you cannot get that cable from cady have to buy whole assenbly. Have traced most of the wiring :

a diagram of the wiring within the assemble and

a brief discription of how it all works would be great.

from the sensor a black wire goes to turn lights and then to ??

from the sensor a purple wire go to the same place inside the assembly - where??

info on where to get used/cheap assenbly and companants whould be nice

thanks - XXXXX XXXXX XXX-XXX-XXXX



GMKINDL, ASE Certified Technician

Welcome! What's going on with your Cadillac?



I can definitely get you the wiring diagram and description and operation as is listed in the GM service manual. As far as internal wiring within the lamp module itself, that is more of an engineering thing. I know the assemblies are not cheap for these lamps, I am not aware of an aftermarket vendor that builds these as a direct fit replacement.

Let me get you what I do have and I will continue to research some of the other things you asked about.

Headlamp Operation

The low beam headlamps may be turned ON in 3 different ways:

- When the headlamp switch in the HEAD position for normal operations
- When the headlamp switch is in the AUTO position, for automatic lamp control (ALC)
- When the headlamp switch is placed in the AUTO position, with the windshield wipers ON in daylight conditions, after a 6 second delay

Headlamps ON/OFF operation is determined by the position of the headlamp switch and controlled by the body control module (BCM). When the headlamp switch is in the AUTO position, the BCM determines headlamps ON/OFF by the voltage signal from the ambient light sensor.

High Intensity Discharge (HID) Low Beam Headlamps

High intensity discharge (HID) headlamps do not have filaments like the traditional headlamp bulbs. Instead a ballast and an arc tube is used.

When the headlamp switch is placed in the HEAD position, ground is applied through the headlamps ON signal circuit to the body control module (BCM). In response to this signal, the BCM applies ground to the headlamp low beam relay control circuit energizing the LO BEAM PCB Relay. With the relay energized, battery voltage is applied through the switched side of the relay, the LT and RT LO BEAM fuses, and the supply voltage circuits to a ballast located in each headlamp assembly. The ballast is used to increase the input voltage into a higher voltage in order to create an arc between the electrodes in the arc tube illuminating the headlamp.

High Beam Headlamps

The high beam headlamps for this vehicle does not use separate high beam bulbs. Instead it uses a high beam solenoid with a shutter to re-direct the low beam headlamps for high beam use

When the headlamp dimmer switch is placed in the high beam position, ground is applied through the dimmer switch and the headlamp dimmer switch signal circuit to the BCM signaling the headlamp high beam request. In response to this signal, the BCM applies ground through the high beam relay control circuit energizing the HIGH BEAM PCB Relay. With the high beam relay energized, battery voltage is applied through the switch side of the relay, the left and right high beam fuses, and the high beam supply voltage circuits to the headlamp high beam solenoids re-directing the low beams for high beam operation. At the same time the BCM sends a serial data message to the instrument panel cluster (IPC) requesting the IPC to illuminate the high beam indicator.

[Run Up of the HID Lamp](#)

Each ballast requires higher amperage in order to ensure normal startup and run up of the lamp. Run up is the term used to describe the extra power level given to the bulb (arc tube). The input current during the steady state operation is lower than the start up amperage. After the lamp receives the strike from the starter and the arc is established, the ballast uses its operating voltage in order to provide the run up power needed to keep the lamp on. The lamp rapidly increases in intensity from a dim glow to a very high-intensity, bright light called a steady state. A high watt power level is necessary in order to bring the lamp to a steady state. Within 2 seconds of the arc being established in the bulb, 70 percent of steady state is complete. Within 30 seconds, 100 percent of the steady state is complete.

[When to Change the HID Bulb \(arc tube\)](#)

Bulb failure, end of life occurs when the bulb gets older and becomes unstable. The bulb may begin shutting itself OFF sporadically and unpredictably at first, perhaps only once during a 24 hour period. When the bulb begins shutting itself off occasionally, the ballast will automatically turn the bulb back on again within 0.5 seconds. The ballast will re-strike the bulb so quickly that the bulb may not appear to have shut OFF. As the bulb ages, the bulb may begin to shut OFF more frequently, eventually over 30 times per minute. When the bulb begins to shut off more frequently, the ballast receives excessive, repetitive current input. Repetitive and excessive restarts or re-strikes, without time for the ballast to cool down, will permanently damage the ballast. As a safeguard, when repetitive re-strikes are detected, the ballast will not attempt to re-strike the lamp. The ballast then shuts down and the bulb goes out.

The following symptoms are noticeable signs of bulb failure:

- Flickering light caused in the early stages of bulb failure

- Lights go out caused when the ballast detects excessive, repetitive bulb re-strike
- Color change--The lamp may change to a dim pink glow.

Input power to the ballast must be terminated in order to reset the ballasts fault circuitry. In order to terminate the input power to the ballast, turn the lights OFF and back ON again. Turning the lights OFF and back ON again resets all of the fault circuitry within the ballast until the next occurrence of excessive, repetitive bulb re-strikes. When excessive, repetitive bulb re-strikes occur, replace the starter/arc tube assembly. The ballast will begin the start-up process when the starter/arc tube assembly is replaced. Repeatedly resetting the input power can overheat the internal components and cause permanent damage to the ballast. Allow a few minutes of cool-down time in between reset attempts.

Bulb failures are often sporadic at first, and difficult to repeat. Bulb failure can be determined if the problem progressively gets worse over the next 100 hours of operation.

Light Color

HID headlamps have a different color rating than regular headlamps. The range of white light that is acceptable is broad when compared to halogens. Therefore, some variation in headlight coloring between the right and left headlamp will be normal. One HID at the end of the normal range may appear considerably different in color from one at the other end of the range. A difference in color is normal. Replace the arc tube only if the arc tube is determined to be at the bulb failure stage.

Daytime Running Lamps (DRL)

The front turn signal lamps are used for DRL operation. The DRLs will operate only when the engine is running and the headlamp switch is in the AUTO position. When the DRLs are ON, no other exterior lamps such as the parking lamps, tail lamps, etc. will be ON. Also, the instrument panel will not be illuminated.

DRL operation is determined by the ambient light sensor and the controlled by the body control module (BCM). The ambient light sensor is a light-sensitive transistor used to monitor outside lighting conditions. The BCM provides a 5-volt reference signal to the sensor. The sensor will vary this voltage signal between 0.2 and 4.9 volts depending on outside lighting conditions. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either DRL or headlamp operation. When the BCM determines the conditions are met for DRL operation, it turns ON the front turn signal lamps in a steady non-flashing mode. Any function or condition that turns on the headlamps will cancel DRL operation.

When the BCM detects low light conditions, it will turn OFF the daytime running lamps and turn ON the low beam headlamps as described above in Low Beam Headlamp Operation. The BCM will also


turn ON the low beam headlamps in daylight conditions when the windshield wipers are turned ON.

Flash to Pass (FTP)

When the low beam headlamps are ON and turn signal/multifunction switch handle is pulled toward the driver, ground is applied through the FTP switch and the flash to pass switch signal circuit to the BCM signaling the flash to pass request. The BCM then turns ON the high beam headlamps as described above, until the turn signal/multifunction switch handle is released. If the low beam headlamps were ON during FTP operation, they will remain ON.

IntelliBeam Intelligent High-Beam Headlamp Control System

IntelliBeam is an enhancement to your vehicle's headlamp system. Using a digital light sensor on the rearview mirror, the system will turn the vehicle's high beam headlamps ON and OFF according to surrounding traffic conditions. The IntelliBeam system will turn ON the high-beam headlamps when it is dark enough, there is no other traffic present, and the IntelliBeam system is enabled. When the conditions are met, the inside rearview mirror will send a serial data message to the BCM requesting high beam headlamp operation.

And the wiring diagram.  Object Number:(NNN) NNN-NNNN Size: FS

Let me know if this does it for you. If you need additional info, just ask.

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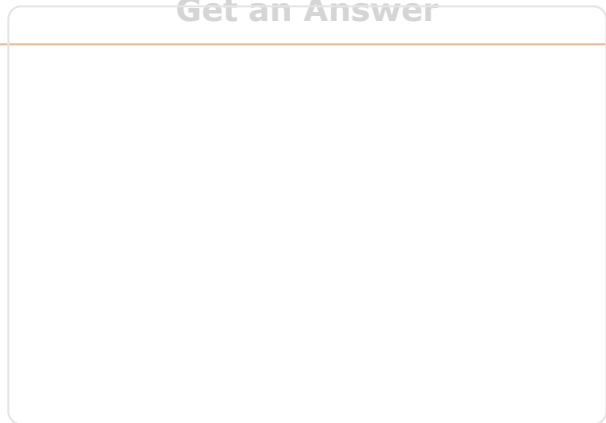
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★★★★★

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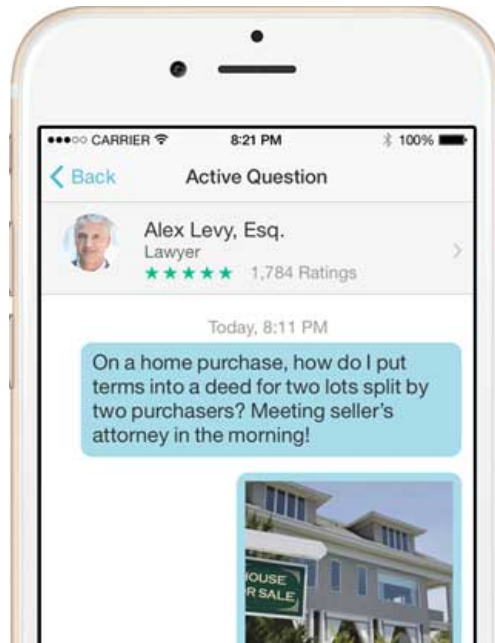


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