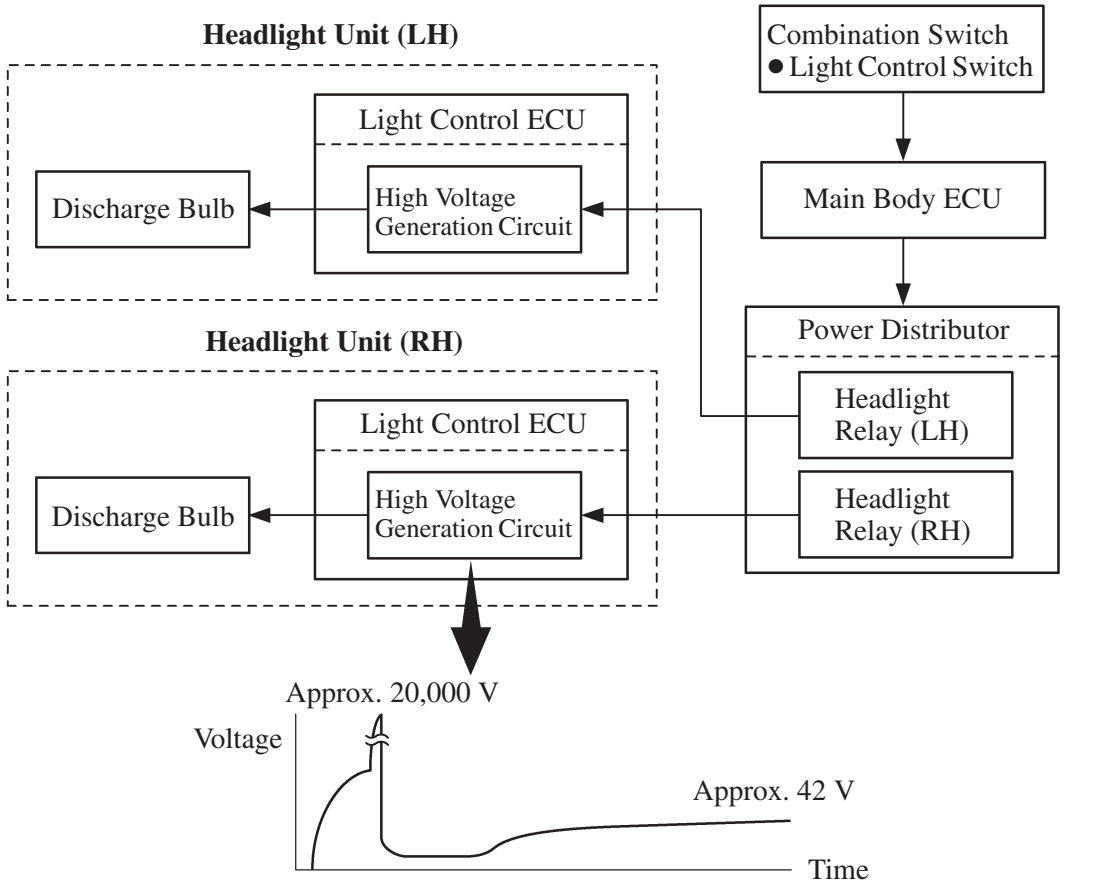
## ■HID HEADLIGHT SYSTEM

### 1. General

The HID (High Intensity Discharge) headlight system uses discharge bulbs as its light source for the Lo beam. Discharge bulbs are superior to halogen bulbs.

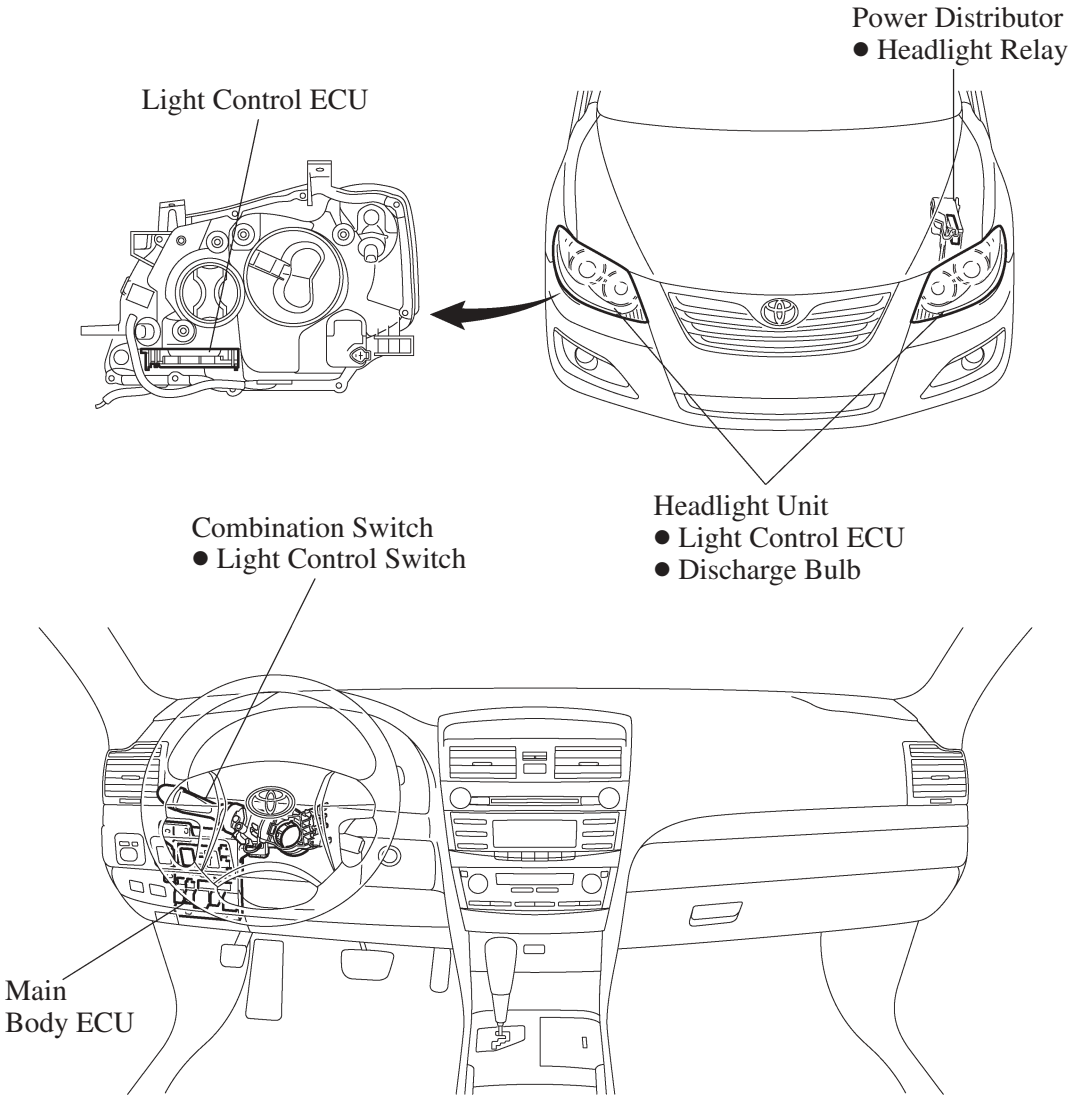
- Discharge bulbs have the following features.
  - The light emitted by the bulb is close in color to sunlight. The light shines ahead over a broader area and further forward, increasing the area visible to the driver.
  - Less power is consumed.
- This system consists of discharge bulbs and light control ECUs.
- The Light control ECU transforms the voltage that is input from the battery to a high voltage of up to 20,000 V and applies it to the discharge bulbs in order to illuminate them.
- A fail-safe function is provided as a countermeasure against the high voltage that is generated in case a problem occurs in the headlight system.

**▶ System Diagram ◀**




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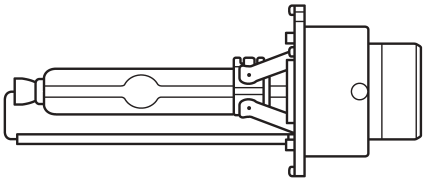
## 2. Layout of Main Components




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## 3. Discharge Bulb

Instead of the filament contained in an incandescent bulb, a discharge bulb contains an arc tube, which is filled with xenon gas, and metal halide.



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## 4. Fail-Safe Function

The light control ECU executes the fail-safe actions listed below in accordance with the problem that has been detected.

| Problem | Outline |
|---|---|
| Detection of Abnormal Input Voltage | If the voltage that is input to the light control ECU deviates from the normal operating voltage (9 – 16 volts), the light control ECU stops illuminating the headlights. It resumes illuminating the headlights once the voltage reverts to the operating voltage range.<br>However, if the input voltage decreases after the headlights have illuminated, the headlights will remain illuminated until the input voltage is insufficient to light the bulbs. |
| Detection of Abnormal Output (Open Circuit or Short Circuit) or Flashing Bulb | If an abnormal condition (open or short) occurs in the voltage that is output by the light control ECU, or if the bulb flashes, the light control ECU stops illuminating the headlights and maintains this state until the power is reinstated. Power is reinstated by turning the headlight control switch from OFF to ON. |
| Detection of Bulb Open | If a bulb is not inserted in its socket, the light control ECU stops generating a high voltage until a bulb is inserted correctly and the power is reinstated. The power is reinstated by turning the headlight control switch from OFF to ON or turning the ignition switch from OFF to ON. |

## 5. Precautions for HID Headlight System

- When the HID headlights illuminate, a high voltage (approximately 20,000V) is applied momentarily to the bulb sockets, which could lead to a serious accident. Never connect the tester to the high voltage socket of the HID headlights for measurement, as this may lead to a serious accident because of the high voltage.
- Whenever inspecting the HID headlight system, make sure that no water or rain is present in order to prevent electric shocks, the light control switch is OFF, the battery terminal is removed, and the connector of the light control ECU is disconnected.
- Whenever operating the HID headlights, make sure it is only after assembly has been completed and never operate them without bulbs installed.
- Do not operate the HID headlights using any power source other than the vehicle's.
- When there is a defect in a HID headlight or any shock has been applied to it, replace the bulb with a new one.
- A discharge bulb reaches a high temperature when it is illuminated. For this reason, the life of the bulb could be shortened if any oil comes in contact with the glass portion of the bulb. Do not touch the glass portion of a bulb with bare hands.