# P0647: A/C CLUTCH RELAY CONTROL CIRCUIT HIGH

OVERVIEW

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|---|---|---|
| **Severity** | : | Medium |
| **DIY Difficulty Level** | : | Intermediate |
| **Repair Cost** | : | **$100-$200** |
| **Can I Still Drive?** | : | **Yes** |

## What Does The P0647 Code Mean?

The P0647 OBD-II trouble code is associated with the air conditioning (A/C) clutch relay control circuit. When the Powertrain Control Module (PCM) or one of the other supporting control modules has detected improper signals within the A/C clutch relay control electrical circuit, code P0647 will be set.

Based on the vehicle and the specific malfunction this code may be set as many as eight times before the check engine light is illuminated.

The purpose of the A/C clutch relay control circuit is to control the operation of the air conditioning. This is accomplished by providing power to the A/C clutch to engage the A/C compressor. Based on the specific vehicle, this circuit can be very complex and include several control modules.

Code P0647 is set by the PCM when it detects a too high voltage condition within the air conditioning relay control circuit.

## What Are The Symptoms Of The P0647 Code?

Symptoms of a P0647 trouble code may include:

- A/C functioning poorly
- A/C not working at all
- Check engine light illuminated

## What Are The Potential Causes Of The P0647 Code?

Causes for this P0647 code may include:

- Faulty A/C clutch relay
- Defective A/C clutch
- Broken control module ground strap
- Defective control module
- Blown fuse or fuse-able link (if applicable)
- Corroded or damaged connector
- Low or over serviced A/C system
- Faulty or damaged wiring
- Faulty A/C Compressor
- Faulty PCM

## How Can You Fix The P0647 Code?

The first step in the troubleshooting process for any malfunction is to research the Technical Service Bulletins (TSB's) for the specific vehicle by year, model and power plant. In some circumstances this can save a lot of time in the long run by pointing you in the right direction.

The second step is a thorough visual inspection to check the associated wiring for obvious defects such as scraping, rubbing, bare wires, or burn spots.

Next is to check the connectors and connections for security, corrosion and damaged pins. This process must include all wiring connectors and connections to components including control modules and ground straps. This circuit can be very complex and include several relays, fuse-able links and fuses in some circumstances.

## Advanced Steps

The advanced steps become very vehicle specific and require the appropriate advanced equipment to perform accurately. These procedures require a digital multi meter and the specific technical references for the vehicle. Voltage requirements will very based on the specific year and model of the vehicle.

## Voltage Checks

The voltage check process for this circuit requires troubleshooting guidelines that are specific and in the proper sequence. The optional equipment on the automobile involved will determine the troubleshooting requirements. More options and equipment effect the number of control modules involved in the troubleshooting process. Please reference the list of possible supporting control modules listed above.

If this process identifies the absence of a power source or ground, continuity testing may be required to check the integrity of the wiring, control modules and other components. All of the control module ground straps may need to be included in this process.

Continuity tests should always be performed with the power removed from the circuit and the normal readings for wiring and connections should be 0 ohms of resistance unless otherwise specified by the technical data. Resistance or no continuity is an indication of faulty wiring that is open or shorted and must be repaired or replaced.

## Severity Description

The severity of this code can vary from just an illuminated check engine light with the air conditioning working fine to it running poorly or not at all.

## Reference Sources

Diagnostic Trouble Code (DTC) Guide for P0647 - Ominitek Advanced Technologies, page 127.