P0603: INTERNAL CONTROL MODULE KEEP ALIVE MEMORY (KAM) ERROR

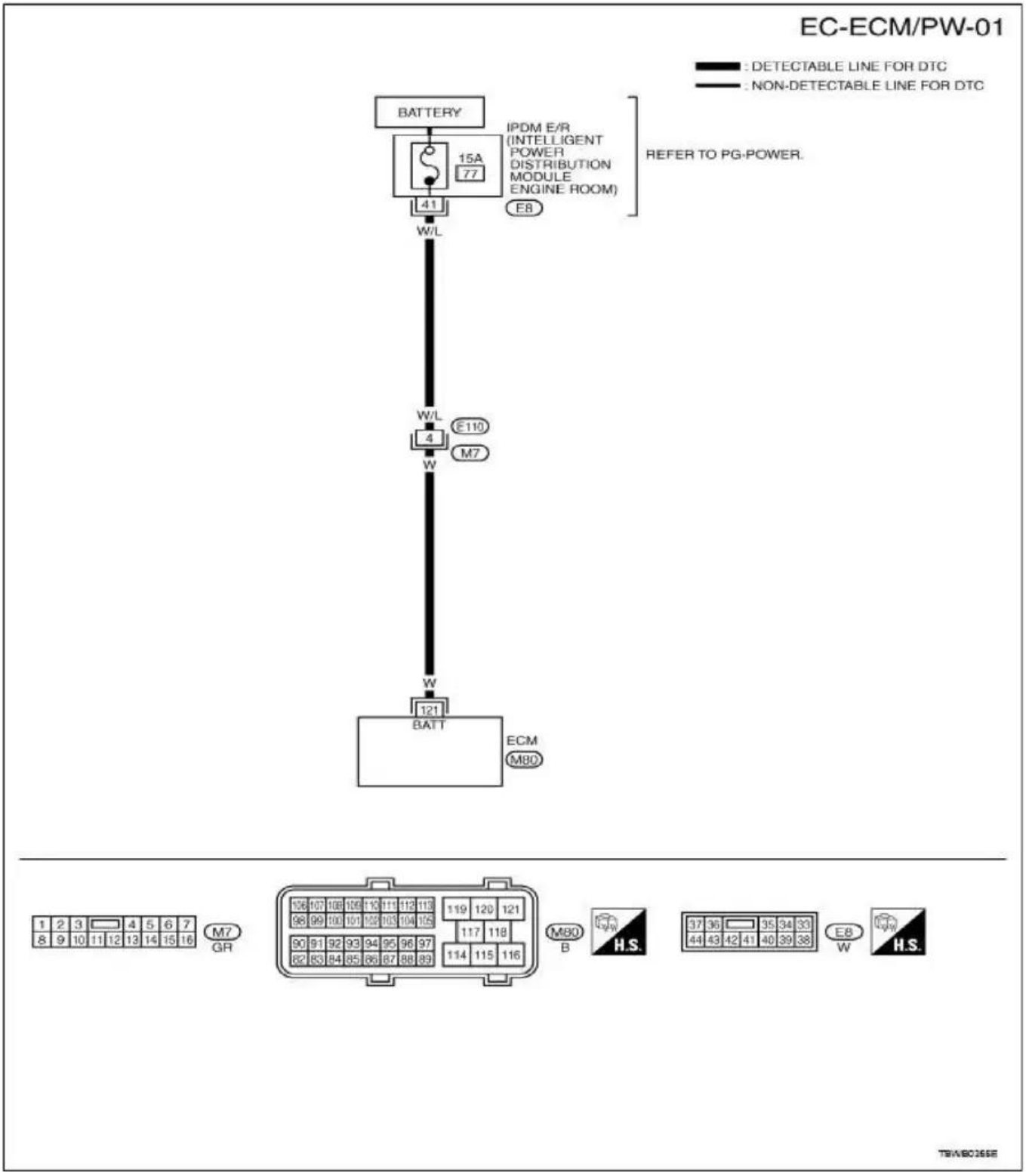
OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Advanced
Repair Cost	:	**$300-$900**
Can I Still Drive?	:	**Yes**

What Does The P0603 Code Mean?

The keep alive memory is the memory that is stored in the powertrain control module (PCM) in regards to drive cycles. This memory is ever changing based on driving inputs and sensor inputs. When you disconnect your battery this memory is erased and the computer goes into “dumb” mode as it is using the built in parameters to run the engine and not the learned values based on driving inputs and habits as well as what the engine sensors see.

This is different than “limp” mode as the PCM is not seeing a fault. The PCM memory hasn’t adapted to the needed engine parameters. As stated this is NOT the hard programmed values but the ever-changing values that help for fuel economy, smooth running, easier starts, etc. This data is an adaptive formula used by the PCM to improve engine performance, shift fuel, fuel trims, etc.



P0603 wiring diagram

Other internal control module error trouble codes include:

- P0601 Internal Control Module Memory Check Sum Error
- P0602 Control Module Programming Error

- P0604 Internal Control Module Random Access Memory (RAM) Error
- P0605 Internal Control Module Read Only Memory (ROM) Error

What Are The Symptoms Of The P0603 Code?

Symptoms of a P0603 DTC will include MIL (malfunction indicator lamp) illumination, although there may be other symptoms including but not limited to engine stall, various warning lights on dash, module communication codes, no start conditions.

What Are The Potential Causes Of The P0603 Code?

Potential causes may include:

- Battery terminal corrosion or loose connections
- Keep Alive Power (KAPWR) circuit wire routing
- Open wire in the KAPWR circuit
- Damaged PCM, water intrusion / internal fault
- Charging system fault
- Ignition system fault causing secondary ignition voltage inference
- Internal PCM program fault

How Can You Fix The P0603 Code?

This is quite a difficult problem to isolate. In my experience it has been both a wire issue and a PCM issue. It could be interference from a component that fried the PCM.

Inspect the battery cables. It may be as simply as a highly corroded terminal or loose connection. Also check all grounds and fuse box and PCM connections.

Check the charging system. Run the car with the alternator disconnected. There may be interference coming from the alternator. Does the code come back with the alternator disconnected?

Inspect wire harnesses that run close to the ignition system. Interference from these components may be being “thrown” into the circuit. Also check spark plug wires, coil for cracks or anywhere where ignition voltage can “leak”.

Using a voltmeter find the power supply circuits to the PCM. Monitor voltages while wiggling, bending, shaking the harness all around the engine and fuse boxes.

In many vehicles the PCM is located in a secluded spot. Meaning there’s a chance that water may have gotten into the PCM case. Also a chance for vibration transfer. If no faults are found there may be an issue with the PCM itself.

Finally, if your vehicle has an aftermarket chip or program in the vehicle, this may be the issue. Also, many manufacturers constantly update the software that is available for your computer, the code may be corrected with a reflash.

Reference Sources

Diagnostic Trouble Code (DTC) Charts and Descriptions for P0603 - Page 90.