

## Diagnose Start Engine Push Button

by [Larry Carley](#) copyright 2019 AA1Car.com

Most newer vehicles have replaced the traditional key-style ignition switch with a Start Engine Push Button system. A Smart Fob sends a coded security signal to the Powertrain Control Module (PCM) via the vehicle's keyless entry system when the fob is inside the vehicle. This tells the PCM that the engine can be started at any time.

Before the engine will start, the transmission must be in Park or Neutral, and the driver must depress and hold the brake pedal. Pressing the Start Engine Button sends a command to the PCM. The PCM then checks the status of the Park/Neutral Safety switch and the Brake Pedal Switch. If the transmission is in Park or Neutral, and the brake is on, the PCM then sends a start command to the starter motor to crank the engine.

### Typical Push Button Start System



### NOTHING HAPPENS WHEN YOU PRESS THE START ENGINE BUTTON

If the engine does not crank when you press the Start Engine button, any of the following may be preventing the engine from starting:

### **Dead Battery inside Smart Key Fob**

What to do: Hold the dead key fob against the start button, then use the fob to press the Start Engine button down. This should allow the button to inductively read the security code in the fob and pass the start command to the PCM. Your engine should start.

Replace the dead battery inside the Smart Fob with a new battery as soon as possible.

### **Wrong Key Fob or Defective Key Fob**

If you accidentally picked up the wrong key fob for your vehicle, or the fob itself is defective, your engine will NOT start.

What To Do: Have your vehicle towed to your car dealer to have a new fob programmed for your vehicle, or call a certified locksmith who can replace and program a new key fob.

### **Defective Start Engine Button**

You have the correct key fob and the battery inside the fob is good, but nothing happens when you press the Start Engine Button or use the fob to press the Start Button.

What To Do: Replace the defective Start Engine Button with a new one.

### **Car Battery is Dead**

A dead or discharged car battery can prevent your engine from cranking or starting.

What To Do: Open the hood and check battery voltage with a volt meter. A battery that has more than about 12.4 volts should have enough voltage to start your engine. If the battery is low or dead, try jump starting the battery from another vehicle, or hook up a battery charger to recharge or boost the battery. Also, check the battery cable connections to make sure they are clean and tight. Have your battery tested to determine its condition. If it is more than 4 or 5 years old, chances are you need a new battery.

## **PCM Problem**

If the PCM has an internal fault, or there is a problem with the anti-theft system (such as not reading the fob correctly or the security codes have gotten out of sync), further diagnosis will be necessary to determine the problem. There may be a programming issue, or a fault in the keyless entry system or keyless entry module that routes the security signal to the PCM.

**What To Do:** This type of diagnosis is beyond the skill level of most do-it-yourselfers and requires a professional grade scan tool with bi-directional and reprogramming capability.

## **Bad Starter**

If the starter motor, or the relay, module or solenoid that energizes the starter is bad, the starter will not crank the engine.

**What To Do:** Try jumping the starter directly to see if it cranks the engine. This will tell you if the starter is working. The starter can also be removed and taken to an auto parts store that has a starter tester. If the starter tests bad, you need a new starter. If it tests good, the problem is not the start but likely a bad starter module, relay or solenoid. Be sure to inspect all the cables and wires that connect to the starter. Loose, corroded or damaged wire connections can prevent a good starter from cranking. So can a low battery.

Also, a damaged starter drive gear or missing or broken teeth on the engine's flywheel may prevent the starter from cranking the engine.

## **Blown Fuse**

**What To Do:** Locate the Power Center under the hood and check for blown fuses in the starter circuit. Replace as needed (always replace with same amp capacity fuse).

## **Engine Cranks But Will Not Start**

The problem is NOT the Start Engine Push Button but something else that is preventing the engine from getting spark, fuel or compression. This will require further diagnosis to determine the fault. Most likely causes are:

**Dead Fuel Pump (or bad fuel pump relay)**

**Fuel Tank Empty (or fuel contaminated with water)**

**Bad Crank Position Sensor**

**Broken Timing Belt (no Compression)**

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