Gee I Wish I Had Known That Transmission Controlled Spark System

When I installed the components for the TCS circuit on my car I came across a lot of conflicting information. I thought I would pass along some information that seems to make sense. Please accept this with a grain of salt as this is my research in this text and I am by no means an expert in what is factory, or concourse, correct. Feel free to contact me with any questions or corrections.

TCS stands for Transmission Controlled Spark. In reality it is a system that controls vacuum advance to the distributor in low forward gears, based on engine temperature.

There are some differences between a vehicle set up with idiot lights and gauges. There has been some discussion on this though.

An electrically operated vacuum solenoid controls the vacuum source to the distributor, the transmission controls the current through the solenoid, and a temperature sensor controls a relay that can override the current from the transmission.

When in low gear under normal engine temperatures (82 thru 232 degrees Fahrenheit), current will flow through the solenoid. This results in the distributor vacuum advance being vented to clean air from the carburetor above the venture (no vacuum). In high gears, the current from the transmission is interrupted and this closes the solenoid allowing ported vacuum to be supplied to the distributor vacuum advance.

This is all overridden when the engine is below engine operating temperature (82 degrees Fahrenheit). The solenoid is closed in all gears and thus provides full ported vacuum advance to the distributor at all times. This override also takes place when the engine is hot (232 degrees Fahrenheit). Vacuum advance is restored to the distributor to promote engine cooling.



This is the left side of the engine. This car is equipped with idiot lights. In the picture you see the temperature-sending unit for the idiot light with a two wire stock connection.



This is the relay which is controlled by the engine temperature. It's purpose is to interrupt the current from the transmission used to control the vacuum solenoid which supplies either ported or open air to the distributor vacuum advance.





This is the Vacuum solenoid located on the right front of the engine. On my car it is not located in the correct orientation as the intake is not stock and it cannot be mounted across the intake. There are three vacuum hose connections. The vacuum hose connection on the end of the solenoid with the electrical connectors goes to the vacuum ported source on the carburetor. The vacuum hose connect that comes straight of the end of the solenoid goes to the vacuum advance on the distributor and the final vacuum hose connect that comes off at a 90 degree angle goes to a clear air, non-vacuum port on the carburetor.

This is the TCS temperature senor that is screwed into the right head. Note the single wire connector



