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Spica FI Cold Start Adjustment

The function of the cold-start solenoid is to get the car running. The cold-start solenoid is the rear most solenoid on the fuel injection pump, closest to the starter motor, and is powered directly off of the starter solenoid. It is only activated when the key is in the "start" position and the starter motor is engaged. The cold-start solenoid has a dashpot operating in an oil filled cylinder to allow the cold start action to slowly release over a few seconds after the ignition key is returned to "run" from "start".

The thermostatic actuator then takes over to keep the car running. The thermostatic actuator adjusts the cold-start solenoid to provide less fuel on hot starts to prevent flooding. There is always some action by the cold start solenoid, even on a hot start. Because of this, it is possible to occasionally flood the engine on a "sloppy" start, or if the car starts, then stalls shortly thereafter. A way to get around this flooding is to disconnect the wire coming from the starter solenoid going to the cold-start solenoid. Be sure to reconnect it before your next cold start. This flooding could also be an indication of the cold-start solenoid being set too rich.

If your Alfa does not want to start but once it is started runs fine, that is an indication that the cold-start solenoid is either not functioning or is set too lean. If your Alfa starts fine but does not keep running you should inspect the thermostatic actuator. To test that the solenoid is working, disconnect the wire connecting it to the starter solenoid and run 12 volts to the cold-start solenoid from another source. If you do not disconnect the starter wire, the starter will engage while the engine is running.

The cold-start solenoid should produce an audible and palpable click. Do not leave 12 volts connected to it for more than a few seconds as the solenoid will overheat and burn out. If the solenoid works, then it's time to adjust it. The official procedure requires removing the fuel-injection pump from the car, which is very boring. However, there is a seat-of-the-pants procedure that works just fine.

You will need a 24mm crowfoot wrench that is thin enough to slide between the solenoid and the body of the injection pump. Some grinding on the wrench may be required. Loosen the lock nut securing the solenoid. Screwing the solenoid out (up) will richen the cold start mixture, screwing it in leans the mixture. To check the mixture, start the engine and then disconnect the wire going to the cold-start solenoid from the starter solenoid. When the engine is warm connect 12 volts to the cold-start solenoid.

If the solenoid is properly adjusted, the engine will bog down with a rich mixture but will not stall immediately. It should stall in about 5 seconds. If the engine stalls immediately the solenoid is set too rich. If there is no change in the way the engine runs (assuming the solenoid is functioning) the solenoid is too lean. Richen or lean the solenoid to get the desired "boggling" without stalling. Usually one turn either way will be the most it needs to be adjusted.

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