Installation Facility

The Technocarb S.V.I. (propane) System on your vehicle has been Professionally installed by:

Contents

1. Introduction

Your vehicle has been fitted with a Technocarb S.V.I.S. (Sequential Vapor Injection) fuel system. This manual will acquaint you with some of the features and functions of our "SVI" line of products.
The fuel management system is an integrated fuel control system designed to meet the requirements of today's automotive applications.
Designed as tamper-proof, the "SVI" fuel control unit utilizes gasoline injector opening command from the OEM power train control module to trigger the initial opening of our alternative fuel injector. Our "SVI" controller then modifies the OEM injector signal to satisfy the engine's fuelling requirements under all operating conditions. There are no mechanical adjustments on the system, thus all maintenance and repairs MUST BE performed by a Technocarb recognized repair facility.

By utilizing the Original Equipment Manufacturer's (OEM) injector command signal as a signal reference, we are able to take advantage of its computing abilities to provide excellent drivability and fuel economy characteristics via very precise fuel calculations under all vehicle operating conditions.
On Bi-Fuel systems (those with both LPG and gasoline) the system's software is calibrated to automatically switch back to gasoline when the LPG storage is depleted. Under this situation an audible buzzer inside the fuel selector switch will generate a signal notifying the operator than the vehicle has now reverted back to gasoline operation.

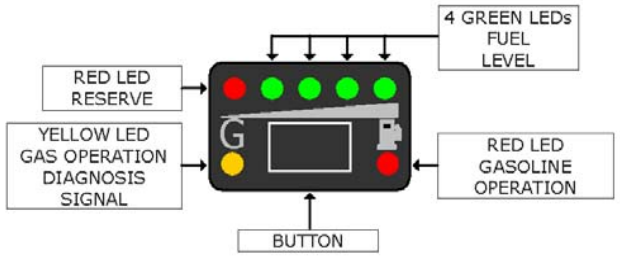
2. Components

Electronics

Fuel Control Module

The fuel controller is a software programmable microprocessor. Utilizing our laptop interfacing program each and every "SVI" system is "loaded" with a software calibration program tailor designed at our facility to meet the specific needs of you….**THE CUSTOMER**. The system will automatically adjust for ambient temperature and altitude, fuel quality, engine speed and load. Additionally, the system can be interfaced to either read LPG storage level from the OEM gasoline gauge or through a series of l.e.d. lights incorporated into the selector switch.

Fuel Selector Switch



If your vehicle has been converted for dual fuel operation, you will have a fuel selector switch installed on the dashboard. The yellow LED indicates propane operation. Depressing the button switches the fuel mode from gasoline to LPG and vise versa.
In the event that your LPG storage is depleted during normal operation, the system will automatically switch back to gasoline, all the led lights will begin to flash, and an audible buzzer will emit a "buzzing" sound notifying the operator that the engine is now operating on gasoline.

6. Maintenance Log

System Installation date: _____
Vehicle Mileage at Installation _____

Operation Performed	Date & Mileage	Technician Comments

Component	Action	Comment
LPG Filters 1-liquid, 2 or more Vapor filters are in your system	Inspect every 5,000 miles, replace as required. **Replace every 10,000 miles or sooner.**	Or more frequently if fuel quality is poor
Ignition system (spark plugs and leads)	Inspect every 25,000 miles, replace if damaged or sign of abnormal wear or combustion	LPG is a dry fuel and requires a high quality ignition system to meet emission and performance requirements
Pressure regulator	Inspect and service every 15,000 miles	Or more frequently if fuel quality is poor
Propane injectors	Inspect every 20, 000 miles	Or more frequently if fuel quality is poor

Propane fuel composition and quality can vary seasonally and regionally. Therefore fuel filter and regulator/converter maintenance will be dependant upon the fuel quality in your region. As a minimum, every 10,000-miles/15000-kilometers the propane fuel filters should be replaced, and the converter should be inspected for fuel contaminant deposits.

5. Troubleshooting

Bypassing

The SVI propane system can be by-passed by removing the 15-amp inline fuse from the system. (Bi-Fuel Applications Only)

Technocarb's interfacing software is required for all diagnostics and repairs to the system. Due to the complexity of all modern day engine families, technical support cannot be provided to anyone other than Technocarb certified installation and repair facilities. For a list of these facilities near you please contact our technical department directly. As always it would be our pleasure to be of assistance.

- **Mechanical**

Under the hood of your vehicle there are several new components installed. These components comprise the mechanical portion of the conversion. These parts should only be serviced by a qualified technician, who has been trained in the installation and operation of Technocarb's "SVI" technology.

- **Fuel Tank**

The tank is equipped with a manual shut off valve. This valve controls the fuel flow out of the tank to the fuel lock-off in the engine compartment. Have your conversion dealer show you the location and operation of this valve.
This valve should be all the way open (counter clockwise) for normal use. In the unlikely event that you can detect the odor of propane, you should turn this valve all the way off (clockwise), switch the fuel selector to gasoline and arrange to have a qualified conversion shop check your fuel system for the cause of the propane odor.

- **Fuel Filler Valve**

This valve is for fuelling the vehicle. The fuel filler valve can be remotely mounted or installed directly into the fuel tank. Have your conversion dealer show you the location and operation of this valve.

- **Fuel Lock-Off**

This valve shuts off the supply of propane from the storage tank to the vapor regulator when your vehicle is not running on LPG. The fuel lock-off is controlled through the SVI control module, or via relayed OEM gasoline fuel pump circuit. In both cases, the LPG lock-off is closed unless the engine is running with the fuel selector switch set in the propane mode.

- **LPG Converter**

The converter is an integrated vaporizer and pressure regulator, changing the liquid propane from a variable pressure liquid into a constant pressure vapor.

- **LPG Injectors**

The SVI module controls fuel delivery to the engine via one calibrated injector per engine cylinder. By utilizing gasoline injector command, lpg rail pressure and temperature, the injectors are electronically manipulated to deliver precise fuel metering under all engine-operating conditions.

- **System Sensors**

In addition to utilizing the entire OEM sensor network in calculating fuel delivery, the system has several addition sensors to determine regulator temperature, vapor pressure and temperature, and manifold absolute pressure.

3. Operation

Starting

Technocarb conversions are designed to be as seamless as possible. Starting your vehicle on propane is as easy as starting your vehicle on gasoline. Bi-fuel conversions equipped with auto switch over capability always start on gasoline and then automatically switch to propane. This is to ensure that the gasoline system is always operating correctly, and no problems occur when the propane storage is depleted.

Starting Procedure

I. Start as normal. (All applications)
II. If your system is calibrated for Bi-Fuel with auto-switch capability the vehicle will always start on gasoline.
III. (Yellow led flashing with key "ON" engine "OFF")
IV. Once a predetermined engine speed has been reached the yellow led will change from flashing to "ON" You are now running the engine on propane.
V. By depressing the button (on the switch) once, the yellow led will turn "OFF" and the lower right red led will illuminate. You are now back on gasoline.

- ***Never Depress The Accelerator Pedal When Starting any fuel injected engine.***
- ***Do Not Attempt To Start A Flooded Engine By Fully Depressing The Accelerator Pedal, As This Action May Result In Backfiring. Whenever Flooding Is Suspected, Allow The Engine To Sit For 10 To 15 Minutes Before Restarting.***

- **Driving**

Drive your vehicle as you normally drive on gasoline. Should you deplete you propane storage during normal operation the system will automatically switch back to gasoline. (On Bi-fuel applications only)
Never operate your vehicle on gasoline until you run out of fuel.
Doing so will likely damage the gasoline fuel pump. If you are out of gasoline, you will be unable to restart the engine.
This system will not auto-switch from gasoline to propane.

- **Fuel Level Indicator**

Most vehicles utilize the gasoline fuel level indicator when operating on propane. Some vehicles only have a sight gauge on the propane tank and some have an indicator integrated into the fuel selector switch. Have your conversion dealer inform you of the type and operation of your fuel level indicator.

- **Fuelling Your Vehicle**

You should have your LPG fuel supplier demonstrate the proper procedures for fuelling your vehicle with the type of fuelling equipment in use in your region. Liquid propane is a refrigerant and can cause frostbite; therefore, you must exercise caution whenever you are fuelling a propane system. If your vehicle is equipped with an 80% liquid level valve, ensure that you have been instructed in the proper use of this device.

4. Maintenance

- ✓ **Gasoline Components**

Follow your vehicle manufacturer's maintenance schedule.

- ✓ **Propane Components**

There are no user serviceable components. Should you require service or maintenance, go to an authorized service facility such as the conversion center where the Technocarb system was installed. The system should be inspected at least once per year or at the recommended inspection/maintenance interval shown on the following page: