

# Fuelstar installation instructions

It is important that Fuelstar units be installed by a duly qualified mechanical engineer. Fuelstar takes no responsibility of any kind where its product is installed by non-qualified personnel. If installed in LPG installations they should be installed between the tank and the lock-off valve and they must be installed only by an authorised LPG installer.

*Fuelstar units are not designed for aircraft and under no circumstances should they be used for such application.*

## 1. INSTALLATION

### **Where.**

The Fuelstar functions best where there is movement and vibration. It should preferably be bolted to the upper part of the engine. If unable to bolt it to the engine consult your Fuelstar dealer for advice. CAUTION: Do not bolt it to air cleaners or places where there is or may be excessive vibration. Do not install it directly on 4 cylinder diesel engines with excessive vibration e.g. Holden Rodeo and Mercedes Sprinter diesels. Also, avoid installing it over starter motors, fan blades, suspension or elsewhere where a problem could develop in the event of the Fuelstar unit slipping from its mounting.

### **Angle.**

PS105 - PS110 - PS115 units (of 25mm diameter) should be installed horizontally, preferably parallel to the engine crankshaft. PS225 - PS235 - PS245 - PSC75 - PSC100 - PSC150 of 63mm diameter and C and D series units for commercial & industrial application function best if they are installed upright (vertically). For optimum performance, all of the pellets in the canister should be immersed in fuel. The fuel should flow from bottom to top to avoid airlocks and for optimum operation. NOTE: In all cases, the Fuelstar should be arranged so the fuel flows in the direction of the arrow.

### **Filters.**

Ensure that the Fuelstar is installed on the engine side of all filters and the lift pump wherever possible. Thimble filters found at the inlet to the float chamber of some carburetors should be discarded, especially if plastic. They can be replaced with an in-line filter before the Fuelstar canister, if necessary. The closer the Fuelstar is to the engine the better.

### **New fuel line.**

The fuel line between the Fuelstar and the engine should be replaced with new line, especially if a diesel engine. This must be of no less diameter and quality than existing.

**Cleaning of fuel line.**

For immediate results, flush or spray the fuel line (even if new) between the Fuelstar and the engine with a heavy duty solvent such as Carby-R-Clean. Residue in the fuel line can attract the particles of metallic tin, delaying their passage to the combustion chambers. If this is not done, the Fuelstar may take several hundreds of kms of running for best results. For even better results, polish the internal surface of this section of fuel line by pulling a clean cotton wool plug, gauze or soft cleaning rag through the fuel line.

**Response time.**

The Fuelstar will normally give an improvement in running immediately after installation plus a further gradual improvement over 1,000 kms or so of running.

**Diminution (Reduction) of fuel flow.**

Ensure that there is no restriction of fuel flow and that the flow rate or fuel pressure is not diminished in any way upon installation. Be careful to avoid hose distortion. Ensure that hoses are not arranged with sharp bends as these can develop a kink and restrict fuel flow, especially when the hose becomes soft as the fuel heats up during operation. Always ensure that the Fuelstar fittings are of no less diameter than the original fuel line.

**Fuel line connectors.**

It is preferred that the custom made barbed tail fittings with 'O' rings, as supplied by Fuelstar, be used wherever possible. However, should it be necessary to use non-custom fittings with tapered threads, then Loctite 577 or Loctite 226 or similar adhesive must be used to prevent leaks. Any such adhesive must be fuel resistant. Do not use Teflon or thread tape as it degrades and will eventually cause a leak or a fuel blockage or both. Ensure that there are no fuel or air leaks in the system after installation. Where using right-angled bends, swept bends are preferred rather than sharp 90° bends, so as to minimise fuel flow restriction.

**Bleeding (Diesel).**

The canister should be connected at the entry or fuel tank end first. The unit should then be turned to a vertical and fuel primed (where possible) to remove air and then connected to the exit end. Unless this is done there is a possibility that there may be an air lock, thus preventing the pellets from working to their maximum capacity. There must be no air in the Fuelstar unit.

**2. POST INSTALLATION****Re-tuning.**

After installation of the Fuelstar, the engine settings should be reset, if necessary, to manufacturer's specifications.

**Oil change.**

Keep a frequent check on the condition of the engine oil for the first 1-2,000kms following installation. If the oil becomes gritty or black due to the purging of carbon deposits, the oil and oil filter should be changed.

**Mechanical defects.**

Fuelstar will not overcome mechanical defects or tuning abnormalities. It is essential that installers of Fuelstar be experienced mechanics, skilled in engine diagnostics.

**Fuel figures.**

If measuring fuel improvement, please ensure that baseline data is developed for 3 to 4 months prior to installation of the Fuelstar and that the type of running (routes, loads and drivers), before and after installation, is reasonably comparable.

**Replacement.**

The PS, PSC and C series models should be replaced after the greater of 5 years or 500,000 km (or 12,000 engine hours in the case of a stationary engine).

**Warranty.**

Fuelstar products are warranted free of manufacturing defect for 5 years. Fuelstar also warrants that installation of the Fuelstar combustion catalyst will not cause the emissions non-compliance of the engine on which it is installed. However, Fuelstar accepts no responsibility whatsoever where these instructions are not strictly adhered to. Fitting of the Fuelstar unit will not overcome an incorrectly or poorly tuned engine, faulty fuel, ignition or exhaust system or any other components that affect the normal operation of the engine.

**3. ENGINES DESIGNED FOR LEADED PETROL**

Fuelstar warrants that its product will prevent valve seat recession in engines designed for leaded petrol when operated on unleaded petrol, subject to the following conditions.

**Reconditioned engines.**

Where an engine designed for leaded petrol is operated on unleaded petrol and the engine has freshly cut valve seats, it is essential that the engine be run in, with the Fuelstar unit installed, for 5,000 kms of travel.

**Scientific testing.**

The ability of the Fuelstar product to prevent valve seat recession has been confirmed in tens of thousands of installations spanning more than a decade

**Pinking (pinging) or engine knock.**

Fuelstar warrants that its product will substantially reduce and, in most case, will totally eliminate pinking and detonation in most engines designed for leaded petrol when operating on unleaded petrol.