CONTINENTAL CONTROLS CORPORATION

– A VALVE YOU CAN TRUST –

VI200, VI400 & VI600

VENTURI INSERTS

BENEFITS

- Zero maintenance
- Improved emissions
- Better engine stability
- Lower pressure drop
- Reduced fuel consumption
- Replaces old Impco diaphragm actuator and mixing bowl
- Simple installation
- Consistent fuel pressure at all loads
- Better fuel-air mixing
- No moving parts
- Improved load balancing between cylinders

GENERAL DESCRIPTION

Continental Controls mixing Venturi insert is a device designed to replace the spring mass, diaphragm actuator, and mixing bowl apparatus in existing Impco 200, 400 and 600 gaseous fuel carburetors. These inserts can be useful on single- or dual-bank gas engines running in either rich- or lean-burn modes. By adding the mixing Venturi insert, gas valve jet, and mixing module in the carburetor, the operator will be able to reduce emissions and very likely, reduce fuel consumption.

The mixing Venturi inserts should be used in conjunction with the ECV5 Emission Control Valve, or other air-to-fuel ratio controllers. Each insert is designed and sized for a specific size carburetor such that it is simple to install by replacing existing components in the carburetor with the appropriate insert.

APPLICATIONS

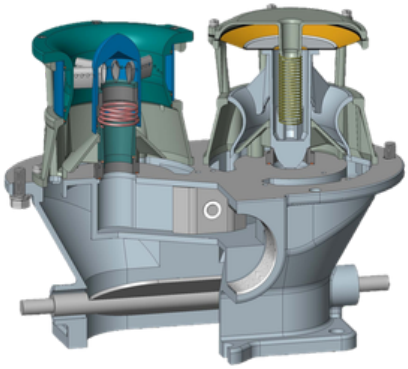
Rich-burn: The combination of the Venturi Insert and the ECV5 constitutes a true electronic carburetor for natural gas engines. When used with an O_2 sensor in the exhaust, it is an ideal device to maintain a stoichiometric fuel mixture required for use with a 3-way catalytic converter.

Lean-burn: For these applications, a wideband O_2 sensor is used with the ECV5 and the Venturi insert to maintain a constant lean mixture. The mixture can be programmed to change with the load signal if required.

Side by side comparison



CCC VI600 close-up



Impco 600

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WHY YOU SHOULD UPGRADE

Most carburetors include an air-fuel mixing section that is comprised of a spring mass diaphragm actuator which has the potential to create unstable engine performance due to interaction with the upstream pressure regulator. Mixtures in traditional carburetors, when operating between idle and full-load, are controlled by the design of the gas metering nozzle. Fuel nozzles included in traditional carburetors are designed to produce lean mixtures at light loads, and increasingly rich mixtures at heavier loads and higher engine speeds. This fuel profile (lean to rich) causes any air-fuel controller that is controlling simply on the O_2 sensor to constantly chase load changes. By replacing the original diaphragm and mixing module with a CCC Venturi insert, the fuel profile will flatten with the desired mix of air and fuel throughout the load range. In a case of a large load change, the Venturi insert automatically draws in a proportional amount of fuel to the air stream in order to maintain the same air-fuel ratio. No mechanical action is required to make this fuel adjustment.

IMPROVED MIXING

Traditional gas carburetors introduce the fuel into the center of the air stream from a single location. This can create a lean mixture at the outer edges of the flow stream and a richer mixture in the center. This can make it more difficult for the engine to completely burn all of the incoming fuel, often resulting in higher exhaust emissions, and a reduction in horsepower. The mixing Venturi insert has a multitude of fuel inlet vanes and passages evenly dispersed throughout the low-pressure region of its throat. The fuel is evenly distributed across the flow profile, resulting in a homogenous air-fuel mixture entering the engine. The exhaust emissions are lower, easier to control, and the engine runs more efficiently.

MECHANICAL DIMENSIONS

Continental Controls Venturi inserts are available in three sizes: the VI200 for Impco 200 carburetors, VI400 for Impco 400 carburetors, and the VI600 for the Impco 600 carburetors. The required mounting hardware is included in each insert kit.

INSTALLATION

Installation of CCC's Venturi inserts are so simple that many times it can be accomplished with the carburetor still mounted to the engine. The user first needs to remove the carburetor's hood, cover, and diaphragm spring assembly. The new Venturi insert is then installed, following with the reinstallation of the hood. No plumbing or flanges need to be replaced or modified.

CUT-AWAY DESCRIPTION

The carburetor pictured on the cover is the Impco 600. This dual carburetor requires two CCC Venturi inserts to replace each of the diaphragm actuators.

CCC's Venturi inserts family is designed so that the original lean/rich screw on the carburetor becomes the trim adjustment for the Venturi insert, allowing the user to adjust the fuel inlet pressure to be nearly zero at all engine loads. Ideally, this operating fuel pressure will be in the 0–2" of H_2O over air inlet throughout the entire load range.

WARNING

The carburetor with a diaphragm normally provides for one last gas shutoff. With the diaphragm removed, this final shut off has been eliminated. The user is responsible for ensuring that the control system has the ability to reliably shut off all fuel to the engine.

1-858-453-9880
info@continentalcontrols.com
7710 Kenamar Court, San Diego, CA 92121

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