




INTER CHARGER®

Improving Engine Performance

DIESEL ENGINE LIGHT/MEDIUM DUTY CLOSED CRANKCASE SYSTEMS INSTALLATION MANUAL


Certificate of Warranty Agreement

Future Combustions Systems, Inc., hereinafter called the "Manufacturer" warrants that the InterCharger, hereinafter called "the Products" are safe to use in the method and applications for which they were designed for up to three-years from date of purchase and within those parameters, their use of itself will not void the warranty issued by the manufacturer of the treated vehicle or equipment.

The Manufacturer guarantees to employ every care in the production of their products to ensure reliability and consistently high standards of performance. However, in the event any of their products are found to be defective, the manufacturer's liability will be limited to the replacement of the product itself.

In the event of the occurrence of damage to vehicles or equipment, which is accepted by the manufacturer to be related to the use of their products and which occurred in spite of the application proven to have been made according to manufacturer's instructions, the manufacturer's liability will be limited to replacement of those components directly damaged by the products for up to three years from date of purchase.

Future Combustion Systems Inc.

INSTALLATION MANUAL
DIESEL ENGINE - INTERCHARGER®

SAFETY MESSAGE:
Engines that have been operating may be hot and have many moving parts. Allow the engine to cool, after shut down. The Engine must not be running during installation of this product.

These Installation Instructions cover the following InterCharger part numbers: FCS-R-V, FCS-P-V, and FCS-G-V. Ensure the correct InterCharger application is on hand for installation to the appropriate engine size. Improper application will result in this unit not performing to the optimum levels as designed.

Applicable Vehicle Models and Years:
1998-2009 passenger cars and light/medium-duty trucks and equipment with diesel engines up to 8.5L

Parts List	Tools Required
Included in your kit is: 1ea. InterCharger 2ea. Fittings 1ea. Venturi fitting for the intake (if required for an open system) Other parts required to install the InterCharger include: 2ea. Compression or screw type hose clamps. 2ea. Plastic tie strips. Additional oil/fuel resistant vent line hose or piping, as required to complete installation.	Knife to cut rubber lines. Pipe cutting tool to cut metal lines. Screwdriver to tighten the hose clamps. Standard hand tools as required to connect additional hosing or piping.

CALIFORNIA CUSTOMER WARNING

California Air Resources Board regulation requires that the E.O. Identification markings and / or the label engraved on the InterCharger be present in order to pass the Smog Check inspection.

Model/Serial:FCS-x-xxx ARB E.O. No. D-671

Manufactured by: FCS (604)792-2216

PRODUCT INFORMATION:

Please read all of the instructional information and instructions before beginning the installation.

Determine that the engine is equipped with a re-cycled (closed) system. Review the hose size used from the factory to ensure properly sized fittings are on hand, before disabling the engine. Several pictures and drawings are included in these Installation Instructions to familiarize the installer with varying applications and locations. Engine manufacturers use different size hoses. For example: Chevrolet Duramax Diesel (2005 – 2007 year models) use a ½ inch hose. VW TDI uses a ¾ inch hose and Caterpillar diesel's use 1 inch hoses.

When the engine crankcase emissions are factory recycled (closed system), the installation involves splicing the InterCharger into the recycled line. If space is restrictive, installation of an additional hose to reconfigure the routing will have little resistance to the vapor flow through the InterCharger. Always ensure use of oil/fuel resistant hoses.

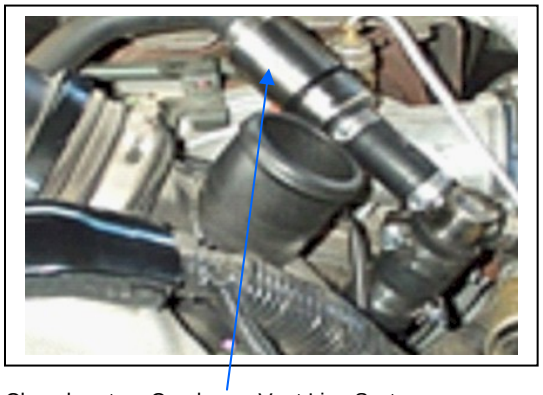
VW 2.3L Diesel Closed System Purple Unit

Minimum 45 degree angle from vertical installation

Some installation applications of this product may require purchase and installation of standard hardware that can be purchased from your dealer/distributor, to complete the proper installation and direct crankcase emissions from the vent outlet to the device and from the device to the intake tubing of the engine. An example of using standard fittings will be experienced on the Dodge 5.9 Cummins engines, which uses a ¾ inch hose. This ¾ inch hose corresponds to ½ inch NPT pipe thread fittings. Maximum performance, from the InterCharger is achieved when the unit is installed perpendicular to the ground. The unit must not be horizontal or parallel to the ground. A vertical installation is desirable. A minimum angle of 45 degrees, from horizontal is required to allow oil and condensed liquids to drain. If minimum angle is not achieved, the unit will experience premature restriction and required more frequent cleaning. It is recommended to perform an InterCharger internal cleaning with parts solution annually simply by flushing the unit thoroughly and allowing it to dry before reinstalling.

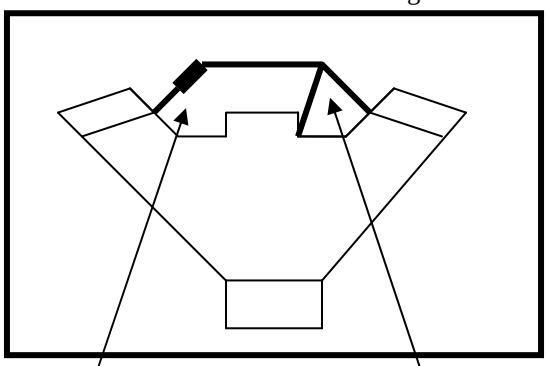
INSTALLATION INSTRUCTIONS:

1. Locate the Crankcase Ventilation tube. Determine if the system is an open or re-cycle (closed) system and hose size used from the factory.



Closed system Crankcase Vent Line System.
Installed at a minimum 45 degree from vertical

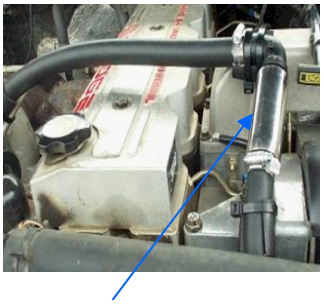
2005-2007 Duramax Diesel Engine



InterCharger Recycle Crankcase Emission Tube
½ inch diameter

For recycled (closed) systems:

When the engines crankcase emissions are factory recycled (closed system) installation usually involves a simple splicing of the InterCharger into the recycled line. If space is restrictive, configure a logical hose routed that will result in minimal resistance to the vapor flow through the InterCharger.



5.9 Cummins Engine Installation. Note the minimum 45 degree angle from vertical.

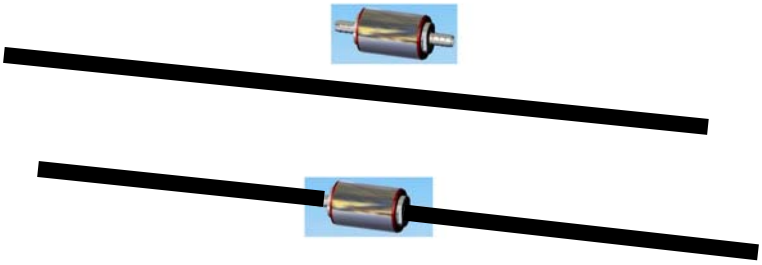
Typical Diesel Installation for closed systems. Note the minimum 45 degree angle from vertical.

2. Determine a suitable location where the InterCharger will be installed. The most desirable location will allow for a vertical installation. **At a minimum, the InterCharger must be installed at least to a 45 degree angle off vertical to allow for drainage of condensed liquids.** Location must not interfere with air cleaner housing and other moving levers and springs. Ensure the InterCharger will fit in the location by holding the part against the tube or hose.

3. Determine the hose size required to go over tubes and ensure you have the proper hoses fittings that affect installation. Each application will differ slightly and in some cases, installation may require the purchase of additional hose and/or fittings to install the InterCharger. Ensure that new hose is oil/fuel resistant.

4. Install the InterCharger fittings supplied using thread sealant. **Do not over tighten.**

5. On closed-systems, measure the InterCharger against the existing crankcase re-cycle line and remove a section of the tube or hose where the InterCharger will be installed.



6. Place a short hose on either end of the InterCharger (if needed for installation on metal tubing.

7. Place hose clamps over the end of both hoses.

8. Push the ends of the hose over each of the fittings on the InterCharger.

9. Tighten the clamps. **Do not over tighten.**

10. Using the plastic ties, secure the InterCharger to prevent movement during engine operation.

11. Schedule an inspection of the InterCharger installation within 30 days to ensure there are no loose connections and movement.

12. Annually remove the InterCharger and flush clean with parts cleaning solution. Then allow the unit to dry and reinstall.

FOR ADDITIONAL EXAMPLES OF DIESEL ENGINE INSTALLATIONS, visit www.intercharger.com for more installation pictures.

