

CHOATE ENGINEERING BILLET VALVE COVERS WITH INTEGRATED OILING

Thank you for your purchase of the Choate Engineering 6.4L Valve Covers with integrated oiling.

These covers are designed to address the factory shortcomings of oiling to the rocker assemblies that lead to failure of rocker arms, lifters, and camshafts. Before installation, please take time to read the manual for all information needed to successfully complete the new addition to your engine.

CONTENTS

☐ **Valve Cover Set** (Note that the valve covers are different for driver and passenger side applications)

☐ **Oil Standpipe** - This will be used for the crankcase vent coming from the block, as well as the turbo vent line for extraction of the combustion gasses in the crankcase. Additionally, is the open plug on the back of the standpipe that can be used for the crankcase ventilation Removal, that will be used to run to a catch can or exhaust. It is imperative that exhaust gasses have some form of vacuum for negative pressure extraction. This means that routing of the catch can must be through the catch can to the turbo and not the other way around.

☐ **Oil Fill Cap**

☐ **(2) Orifice Fittings** (THESE ARE EXTREMELY IMPORTANT AND MUST BE INSTALLED. IMPROPER INSTALLATION OF THE FITTINGS COULD REDUCE THE OILING TO THE TURBOCHARGER.)

☐ **Banjo Fitting**

☐ **Extended banjo bolt**

☐ **(3) Small Washers**

☐ **(2) Stainless Oil Feed Lines**

☐ **4AN T-fitting with swivel nuts**

☐ **1/8 Fitting to 4AN adapter**

☐ **(2) Straight 3/8 NPT Barbed Fitting**

☐ **CCV Extension** (1/2 Barbed Splitter, 3 in. Hose, 2 Hose Clamps.)

**** Also note included but can be purchased separately are the turbo U-Pipe Bracket. (Not used in a single charger application.)**

☐ **Valve Cover Bracket**

☐ **(8) Bracket Washers**

☐ **(4) Bracket Mounting Bolts**



GUIDANCE AND GOOD PRACTICE

- ☐ Install the orifices provided into 90 degree fittings on each end of valve cover and tighten.

Warning

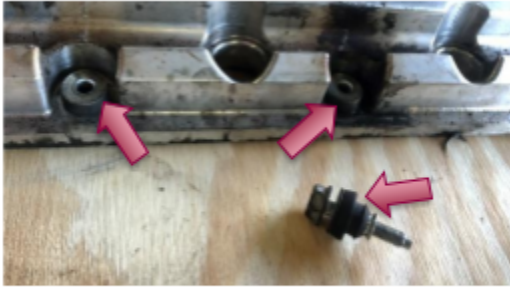
Be sure not to overtighten and strip the covers!

- ☐ Remove old valve covers from the engine. If valve cover gaskets are being reused be sure to remove them from existing covers.
- ☐ Remove the “U” shaped plastic conduit from the glow plug harness. This will no longer fit in the “trench” that is machined into the valve cover and can cause the glow plug harness to not seat into their respective bores.
- ☐ Loosen plastic shielding around the a/c drier for cab on installation. This will allow the passenger side valve cover to be slid between the compact engine bay.
- ☐ Install the valve covers on their respective sides. The valve cover with the oil fill will go as is factory, on the passenger side.

**Please see the following picture on what to do with the glow plug module bracket.
Cut along the white line.**

- ☐ Use the hardware (12mm bolts) from the old valve cover to mount the new cover.
- ☐ When installing the glow plug harness, it is MANDATORY to apply TA31 Ford RTV to the harness as it fits into the glow plug holes. Due to the extreme lack of oiling from the oem valve cover. Factory harness was not designed to seal any additional oil in the cylinder head. Failure to apply sealant may result in leakage. Be sure the harness is fully seated into the cover all the way for proper sealing.
- ☐ If using with stock turbo setup, install the bracket on the driver side of the turbo “U” Pipe. *(Sold Separately)*





- ☐ Removal of the back two holes of the original mounting bracket is necessary. This can be removed



After



- ☐ Remove grommets from factory bolts and install in respective locations. Use of all thread (M6 x 1.0, 3.5 in in length) for the spacers on the new bracket will be necessary for attachment. (Must Use all 8 Included Washers) FAILURE TO USE WASHERS ABOVE GROMMETS RESULTS IN CRUSHING OF GROMMET.
- ☐ Remove the turbo feed banjo bolt and save the seals from the bolt. They will be reused
- ☐ Install the banjo on top of the turbo feed line with sealing washers between each of the lines and the adapter. Install the extra-long banjo bolt and tighten to factory specs.
- ☐ Install the stainless t-fitting on to the banjo adapter.
- ☐ Connect stainless lines to each end of the T-fitting.

*** Warning***

Be sure to use a backup wrench when tightening! Failure to do so could lead to stripping the cover!

- ☐ Route and secure hoses away from the turbocharger exhaust and other sources of heat.
- ☐ Install the standpipe on to the passenger side of the valve cover. The thin O-ring should be on the bottom of the standpipe. Tighten the standpipe so as to have the hole that is closest to the cap, facing the turbo feed line. Some modifications may be needed to suit your application. Such as aftermarket airboxes.
- ☐ Connect the turbo feed line into the standpipe
- ☐ (Optional) Either plug off the rear opening or use it as a CCV Delete.
- ☐ Install cap into standpipe.

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