How to reclock a VNT 17 Turbocharger

This document outlines how to reclock and plumb the VNT 17 on TDIs equipped with the ALH engine; the North American 98-2003 Beetle and 99.5-2003 Golf/Jetta.

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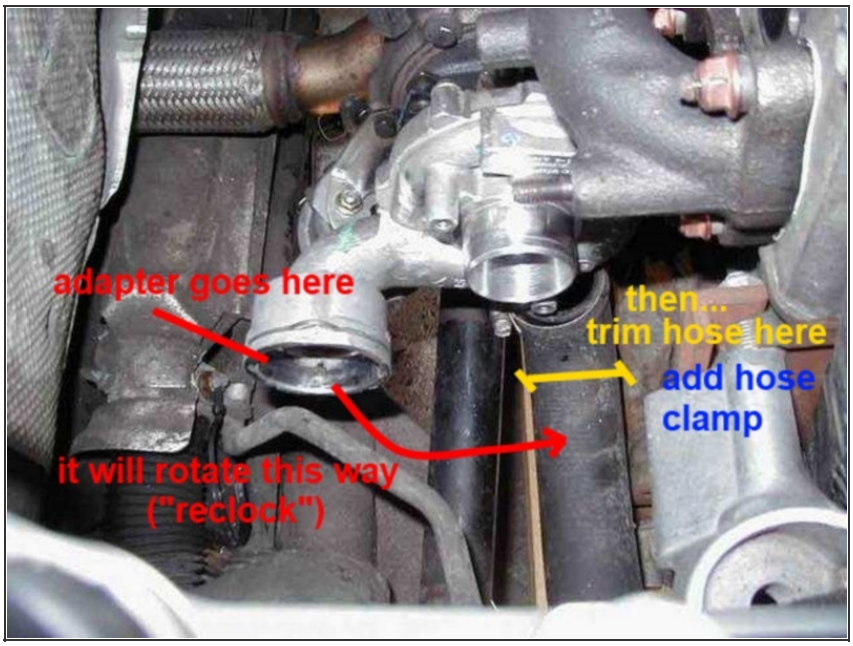
INTRODUCTION

Turbocharger install issues? Here's how to adjust the VNT 17 outlet flange position and use the kermatdi adapter.

This document outlines how to reclock and plumb the VNT 17 on TDIs equipped with the ALH engine; the North American 98-2003 Beetle and 99.5-2003 Golf/Jetta. If you have any questions; please contact KermaTDI technical support.

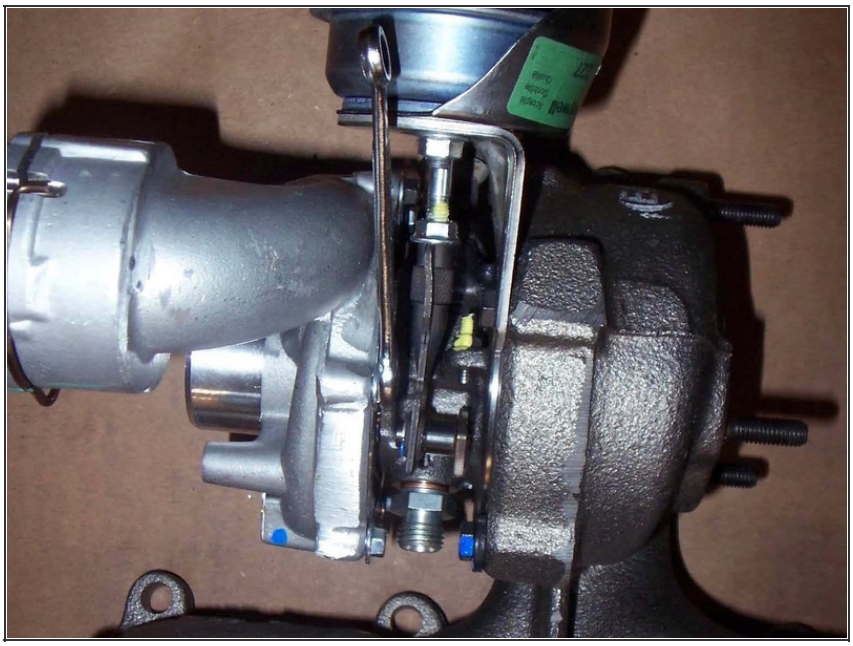
877-KERMATDI extension 117. (877-537-6283)

Step 1 — How to reclock a VNT 17 Turbocharger



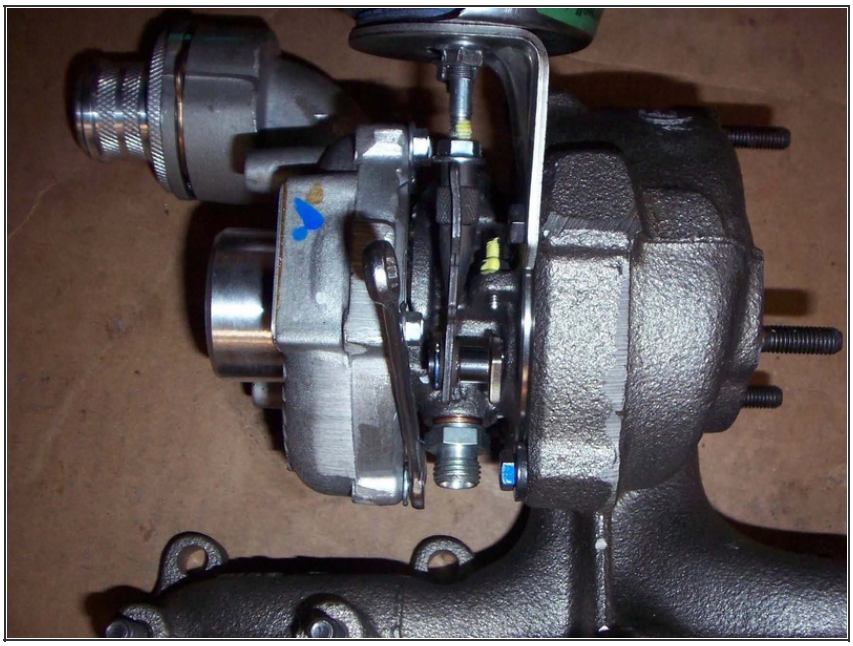
- As shown in the picture, installing the turbo as shipped places the compressor outlet directly facing the power steering return line.
- In order to workably install the VNT 17, the compressor housing must be reoriented, AKA ‘reclocked.’
- Before we begin, please note that it is essential to test fit the turbo and plumbing before completely tightening the turbo mounting nuts, connecting the downpipe, or modifying the rubber air charge hose. This saves time, and allows verification of fitment before permanently modifying any expensive hoses.

Step 2



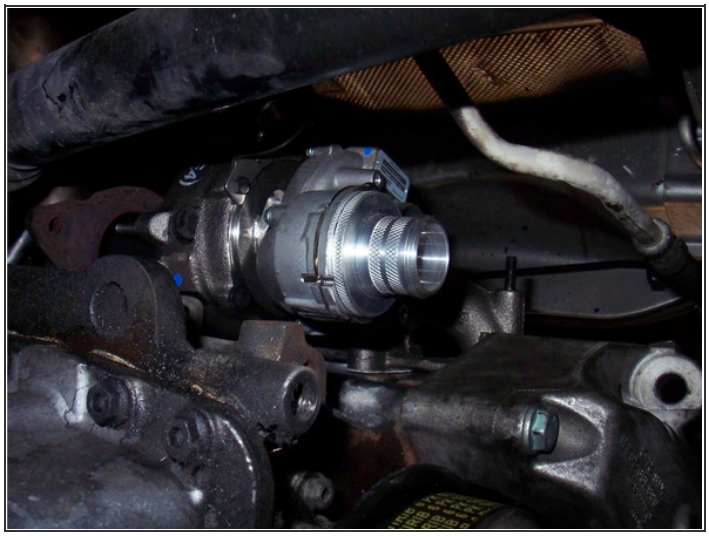
- Insert the compressor housing outlet adaptor into the compressor housing. It is secured by a ‘C’ shaped clip that will pop into place when the adaptor is fully seated.
- With the turbo on the bench; loosen and remove the 6 8mm-headed bolts holding the compressor housing together as shown in the picture.
- Take care to prevent the outer housing from contacting the compressor wheel. The compressor wheel is delicate, easily damaged, and precisely balanced. Rough handling of the compressor housing can result in wheel damage that will render the turbo unusable.
- With the securing bolts removed, gently guide the compressor housing away from the turbo.
- This is the "before" orientation, prior to being reclocked. Not the "up" orientation (closer to the viewer) of the compressor outlet, when the manifold is toward the table.

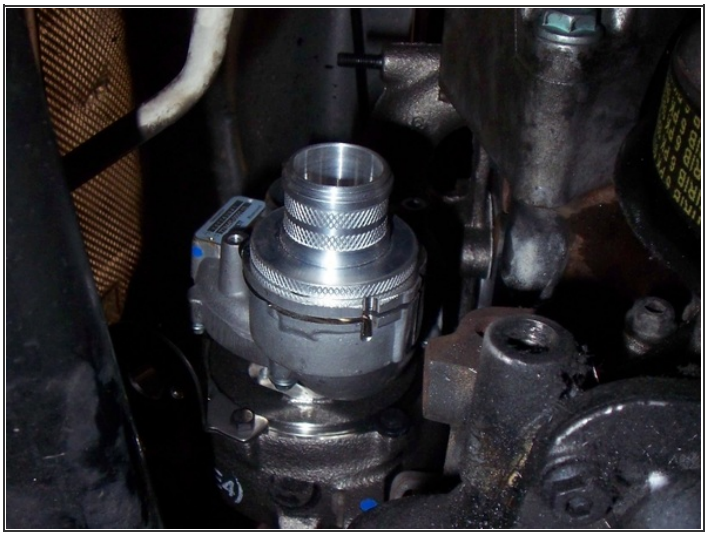
Step 3



- Re-install the housing and bolts with the compressor housing rotated roughly 90* counter clockwise (when viewing the compressor wheel through the compressor inlet). Note the pictures for clarification on adjusting the compressor housing output flange location.
- This is the "after" orientation, after being reclocked. Not the "down" orientation (closer to the table, away from the viewer) of the compressor outlet, when the manifold is toward the table. Imagine the table as the engine block and it will make sense.

Step 4





- With the compressor re-oriented, it is time to test fit with the turbo in its installation position. This way we can fine-tune the outlet position before the final tightening.
- Hang the turbo in place on its exhaust manifold studs. (use the gaskets too) You may snug down a couple (but not torque them) to ensure the turbo is in its proper position before fine-adjusting the compressor housing
- The turbo is shown here in its installed position. This is approximately the correct orientation, about 5-10mm from the block.
- You can verify by looking at how the hose lines up (next step)

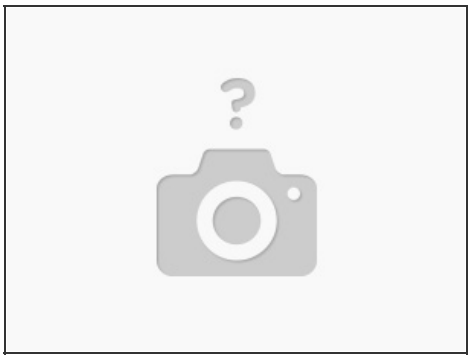
Step 5

- Here we see the hose and compressor outlet line up. This is the correct orientation.
- Once you are satisfied with the compressor orientation, snug up one of the compressor bolts to "lock" it into place.
- Then you can remove the turbo from the car again for the final tightening of the compressor housing bolts.
- Before the final tightening, with the turbo on the bench, mark the housing position with a sharpie. Then rotate the housing back and forth slightly to ensure you are not pinching the o-ring. Then re-align to your sharpie mark, and snug the down. They do not take a lot of torque, it is measured in inch-pounds. Just "snug" is just about right.
- The turbo may now be installed.

Step 6

- Note that the rubber portion of the air charge piping is too long, and now has an unnecessary 90* bend. It will be necessary to trim the hose as shown below to achieve proper fitment. Double (or triple) check the location of your cut before cutting.
- The picture shows the approximate location to cut.
- Ensure that any debris created by cutting have been removed from the air charge hose.

Step 7



- Ensure that any curf (debris created by cutting) have been removed from the air charge hose.
- It is important that all debris and oil be removed from the charge piping that may be leftover from the prior turbo. These metal bits can fly into the engine and/or new turbo and cause damage! Do not take a shortcut here... make sure your turbo piping and intercooler is spotless inside.
- The turbo can now be fully installed. Secure the air charge hose to the compressor adaptor by re-using the factory spring clamp or other suitable hose clamp.

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