

**Procedure:****Installation for the Stage II Turbo Upgrade for the 2.0L 8V Golf/Jetta/ GTI/Cabrio Model Years 1993 to 1998**

*Warning: Check local laws before adding turbo components to your vehicle. Some states prohibit the addition of an aftermarket turbo system on emissions controlled vehicles.*

**Parts Checklist (Bill Of Materials):**

- 1) Garrett Performance T3 Turbocharger with internal wastegate.
- 2) Turbo Manifold 8V
- 3) Turbo Downpipe 2.5"
- 4) Oil Feed Set
- 5) Oil Return Set
- 6) Oil Return Flange
- 7) Inlet Pipe for A3 2.0 8V
- 8) Hardware Kit, 8V A3
- 9) Blow-Off Valve, GReddy Type S.
- 10) Oil Pan Kit, 8V A3
- 11) Cartech FMU
- 12) Intercooler Kit, A3 2.0L along with pipingwork and connectors
- 13) EPROM 2.0L Turbo, Stage II - Refer to the EPROM Request Form to obtain the correct EPROM for your vehicle.

## Installation Instructions:

### Installation Tip #1:

It is strongly recommended that penetrating oil be applied to ALL nuts and bolts in the turbo->exhaust track prior to attempting to remove. Exhaust components on turbo vehicles endure a lot of heat cycling and can be prone to seizing. To avoid the breaking of exhaust nuts and bolts during removal, allow the penetrating oil to penetrate well before beginning disassembly.

### A. ECU Reprogramming

To keep downtime to a minimum, send in the request for the appropriate EPROM from the ECU reprogramming center. Follow the shipping instructions on that attached certificate.

ECU box can be found by removing the windshield wipers. Remove the rain tray/cowling under the windshield.

Do not re-install the ECU after reprogramming until the end of this install procedure.

### B. Drain fluids from engine

1. Unscrew oil drain plug on oil pan and drain oil pan – just like a regular oil change.
2. Replace oil drain plug and tighten.
3. Replace oil filter with new unit.

Disconnect lower coolant hose into engine and drain coolant from engine.

### C. Remove passenger side drive shaft to allow easy access

1. With front wheels on ground, break loose and remove 30mm axle nut.
2. With front of vehicle off ground, remove the (6) 8mm 12 point bolts.
3. Remove drive shaft cover near inner CV joint.
4. Remove drive shaft from vehicle.

### D. Remove stock components

1. Unbolt O2sensor from stock downpipe and remove downpipe.
2. Unbolt stock exhaust manifold and remove.
3. Unscrew rubber boot from airbox to throttle body.
4. Unbolt airbox and remove.

### E. Install new manifold and turbo

Caution: Protect the turbocharger from any dirt, debris, or chemicals during the install.

Take special care not to bang or drop the turbo. In addition, keep all oil passages on the turbo plugged until these holes are required to be install with the appropriate fittings. The smallest spec of foreign matter will destroy the turbo upon startup.

1. Place new gasket against cylinder head.
2. If small auxiliary exhaust ports are present on cylinder head, these must be plugged prior to installing new turbo manifold.
3. Install new exhaust manifold and torque nuts to 24 ft/lbs.
4. Place new gasket and 10mm studs at outlet end of exhaust manifold.
5. Install turbocharger onto manifold and tighten down the locknuts.

Note: Turbocharger should be pre-clocked along with internal wastegate pre-installed. Check to make sure that compressor outlet is pointing 45 degree between upwards and forward.

Also make sure that the oil feed hole (smaller of two) is pointing upwards and oil return hole is pointing downwards.

#### **F. Install Downpipe, O2 sensor, Oil Pan, and Return Line**

1. Place downpipe into position between turbo outlet (at wastegate) and catalytic converter.
2. With two halves of the downpipe slipped together and ends of the downpipe bolted up, the downpipe assembly must be welded together.
3. Re-install O2 sensor into larger port on downpipe.  
Note: Smaller ¼"NPT port on downpipe can be used for cars requiring EGR or just use as a post-turbo EGT port. Plug if not used.
4. Remove original oil pan and install newly supplied oil pan with oil return fitting pre-welded.
5. Install straight -10 NPT onto oil drain flange and bolt to bottom of turbo bearing housing with 2 8mm bolts supplied along with gasket.
6. Install large -10 oil drain line between oil return fitting at bottom of turbo and fitting on oil pan.

Note: While tightening down the oil return line, allow enough room for the drive shaft re-install to prevent any interference of these parts during reinstall.

7. Re-install the drive shaft.

#### **G. Oil feed Line**

1. Oil Feed Source—A TEE is supplied to TEE into the stock oil pressure sender. Disconnect the one wire going into the stock pressure sender (also on the oil filter housing), screw in the TEE supplied, screw in the fitting supplied into the open side of the TEE and run the new oil feed line from turbo to this fitting.
2. The oil feed hole on top of the turbo can now be unplugged. Screw the 45degree NPT fitting into the top of the turbo oil inlet hole.
3. Attach the other end of the oil supply line coming from the oil filter housing and tighten down.

#### **Installation Tip #2:**

Ensure that the oil lines never make direct contact with any part of the turbine, exhaust, manifold, or exhaust piping. Doing so will cause immediate rupture of the hoses.

#### **H. Turbo Wastegate Line**

The turbo is capable of generating over 25 psi of boost on an 8v engine. The wastegate is designed to open under a set level of boost to regulate the proper boost levels. The wastegate obtains its signal from the nipple on the turbo compressor outlet. A ¼" line must connect the nipple on turbo to the wastegate actuator.

The actual boost level on the stage II kit is 8 psi. A boost gauge is highly recommended to monitor correct boost levels.

#### **I. Cartech FMU – Adjustable fuel pressure regulator**

The FMU provides additional fuel to the engine under boost. The FMU piggybacks the stock Fuel Pressure Regulator and relies on the boost signal in order to operate.

1. Tee into vacuum hose leading into the Fuel Pressure Regulator.
2. Remove Fuel Return Hose (Blue writing on it) from Fuel Pressure regulator and plug into "OUT" barb connection on FMU.
3. Connect supplied ¼" hose from FMU to stock Fuel Pressure Regulator.
4. Mount FMP under engine bay.

## **J. Install Pipingwork**

1. Install air inlet elbow with inlet pipe to side of turbo inlet.
2. Install MAF to end of air inlet pipe. Note the direction of arrow on MAF should point to turbo. Airbox is eliminated.
3. Mount intercooler onto bumper per diagram and connect the 4 intercooler pipes.
4. Attach Blow Off Valve onto last pipe near throttle body. Tee in a vacuum source at the intake manifold into large vacuum port on Blow of Valve.

## **K. Startup Preparation**

1. Fill engine with proper amount of oil and coolant.
2. Check dipstick and coolant reservoir for proper levels.
3. Check to make sure there are no leaks present and continue with startup procedure if all of the above has been met.

## **L. Startup Procedure**

1. Do not re-connect ECU until step 2 is complete.
2. Crank ignition start continuously for 30 seconds to circulate some oil into the turbo bearing housing.
3. Reconnect the reprogrammed ECU modified for stagell.
4. Crank ignition again to start engine.
5. When engine starts, allow 10 minutes of idle while monitoring the oil and water temps.
6. If water and oil temps appear normal, and there are no leaks, take car for test drive.
7. While on initial drive, watch boost gauge to ensure that boost does not go higher than 8 psi.
8. Fueling is preset, but dyno tuning and adjusting fuel pressure might be necessary for fine tuning for optimum air fuel ratio.

End of Install