1HZ Installation Instructions

Thank you for purchasing a GTurbo for your Toyota Landcruiser 1HZ. This sheet is intended to guide you on the installation of the turbocharger.

The 1HZ turbo kit comes with:

- GTurbo turbocharger (typically set to 18psi)
- Turbo manifold section (for front four cylinders)
- Gaskets for between manifold, turbo and dump
- Nickel plated oil feed / drain plate
- Braided oil feed line with 1/8”BSP T piece
- Brass oil drain sump fitting 3/4” barb with 3/8" BSP male thread.
- Larger steel washer to go behind the brass sump drain.
- 2 x water gallery plates with gaskets
- 8 x manifold studs
- rubber drain hose and 2 x hose clamps

The 1HZ kit requires the standard rear manifold section. The front manifold section is a replacement similar to the factory 1HDT manifold. IF you don’t have the rear section they can be ordered from Toyota.

Procedure

1 Remove air cleaner box

2 Remove the exhaust manifold and front exhaust pipe. Often the studs will come out of the head. This is generally a good thing, although having a few there to support the manifold gasket during assembly is good too.

Hint: take the opportunity to slot the new manifold onto the rear section and make sure you are confident the sealing rings are satisfactory and that it will all clamp evenly onto the cylinder head.

3 Remove the inlet manifold crossover pipe and block off the crankcase ventilation pipe. IMPORTANT: as the inlet manifold will now be pressurised, if the original ventilation connection is left you can pop out the engine seals. The pipe can be blocked off using a heater pipe rubber plug, but welding it closed is better as rubber is typically not oil tolerant..

4 If you have an injection pump with boost compensator then install a barbed fitting into the inlet manifold to supply a boost signal to the IP. Use a second fitting if interested in installing a boost gauge. To do this (with the inlet manifold off) drill a 8.5mm hole in the front of the manifold for tapping a 1/8”BSP thread.

5 Install oil supply feed. This is taken from the oil pressure sender near the starter motor. Use a 14mm spanner to remove. The main power feed to the starter motor should be rotated around to allow the T piece to sit between block and sender. Put

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fittings together with thread sealant and point T down to connect braided line.

6 To install oil drain to sump this is done by punching a hole in the sump and then tapped to screw in the brass fitting. This should be located between the 3rd and 4th bolts from the rear above the oil line. Take care when drilling into the sump and catch metal swath by putting grease on the drill bit. A 7.5mm hole should be drilled and then a drift/larger centre punch used to open the hole to 15.5mm. The drift should be coated with a grease and then hit until the hole is opened to the correct size. This can be made easy by jacking the car up, removing the front right wheel, supporting the chassis with support stand and lowering the diff to improve access.

7 Once the sump is tapped, the thread should be cleaned with thinners etc and some quality gasket silicon used to seal and hold the brass fitting and steel washer in place.

8 Prepare your new Gturbo turbocharger by installing water gallery blanking plates and oil feed/drain fittings.

9 Put a hose between the wastegate actuator and boost supply on the compressor housing. Your actuator is set to control boost at approximately 18psi. If you expect to run more than 18psi, a boost controller will be required and now is the time to do this. If running the std setup boost then a hose should be installed between the actuator and fitting on the compressor cover. Use clamps or sturdy tie wraps on the fittings so these don't pop or pull off.

10 Install 10mm studs into cast iron turbine housing on turbo. The dump studs can be left for later to aid fitting of the dump pipe. Note: the compressor cover has additional mounting points for different orientations of the housings - some threaded sections will be empty.

11 Attach the turbo to the exhaust manifold (with gasket), but do not fully tighten as this will allow movement to align the dump pipe.

12 Mount the turbo and manifold on the engine with 10mm studs to cylinder head. It is not uncommon for the studs to be cracked already and break off while installing. New studs may be worth considering.

13 Check clearance between the turbo actuator arm and the steel heater lines on the engine. Use a large screwdriver to lever them apart if they look like they could touch.

14 Before tightening studs/nuts, fit the dump pipe. Make sure the head studs go fully into head. Tighten the manifold to head studs.

15 Tighten dump bolts and install the exhaust system fully. Check clearances to eliminate rattles.

16 Tighten the four nuts holding the turbo on the exhaust manifold.

17 Install braided oil feed line to turbo. Use two spanners to put braided line onto the

turbo fitting. Do not tighten against the fitting with one spanner as it will bend/twist.

18 Fit the rubber drain hose and hose clamps

19 Install inlet manifold crossover pipe and join to turbo with silicon fittings.

20 Install rubber fittings between turbo inlet and air cleaner.

21 Connect crankcase ventilation between airbox and turbo.

22 Start the engine and idle until oil pressure has returned (only a few seconds). The turbos are built as required and have some oil inside already so no damage will occur during this time.

Additional items you may need:
1 x 63mm 90deg silicon elbow
1 x 50mm x 63mm straight silicon reducer
63mm pipe for between silicon - 75mm long with lips required on each end to prevent hose popping off when under boost.
4 x Hose clamps for pressure side - we recommend Breeze Aero clamps
2 x 3" rubber elbows for between air cleaner and turbo inlet.
4 x hose clamps for rubber hose
3" steel pipe approx. 175mm long with 3/4" tube on side to connect engine crankcase ventilation between airbox and turbo.
19mm Hose for crankcase ventilation (580mm long)

1 or 2 Brass 1/8"BSP x 1/4" barb (the second if you plan on installing a boost gauge) thread taps 1/8"BSP and 3/8" BSP. None will be required if you IP has not aneroid (boost compensator) and you do not plan to install a boost gauge.

If you have a HZJ105, consider installing the larger filter element from the factory turbo diesel or petrol variant. The factory units are water washable too.

Notes of caution.

- Please note the turbocharger is pinned internally and no attempt to rotate any of the housings should be made. You should not undo any of the clamps on the turbocharger housing, nor attempt to remove the large circle holding the front cover.
- Check for leaks.The turbo itself should be very quiet.Squealing noises are typically exhaust gas leaks from the exhaust manifold gasket, rear section sealing rings on exhaust manifold.

Manifold leaks.

- The manifold and it's gaskets need to seal against substantially more pressure

than without a turbo fitted, and any leak points will show up as a squeal, and detract from performance.

Exhaust System

- We can supply a short dump pipe that bolts onto the turbo and allows a 3" exhaust pipe to be welded to it.
- For an 80 series a HDJ80 'turbo back' exhaust system may (depending on the vehicle model) be sourced from an of the large exhaust suppliers.
- For the 105 series Manta systems will do a 3" turbo back to suit a factory turbo setup and will bolt onto your Gturbo.

Tuning

- Until your injection pump is tuned to deliver more fuel, you may not notice a significant improvement in performance.
- We can dynotune your engine onsite at our Balcatta facility.
- A tuning guide is available on request to sales@gturbo.com.au

Useful part numbers

The Toyota part numbers are

1714217011 Manifold, rear section
1715117010 Exhaust ring (need two)
9673224042 Exhaust manifold ring (need two)
1718317010 Collar need one (or reuse)
1717317010 Exhaust manifold gasket - optional

Care for you new turbocharged engine.

- Maintain servicing at 5,000km intervals or less as the oil is used to lubricate the bearings and items are under more load.
- Consider a boost gauge and pyrometer. If your engines injection pump is not fitted with an aneroid for adding fuel under boost then a boost gauge is very important as the system is tuned to give additional fuel to match the additional air. If you boost level drops then the engine will become very smokey and EGT potentially very high.

Are cooling lines required?

We do not require you to connect cooling lines to the GTurbo. Toyota developed the CT26, on which the GTurbo is based, for a wide variety of installations including petrol and diesel engines. Petrol engines NEED coolant cooling, our GTurbo does not. Your GTurbo is safe with no coolant cooling and doing so will not affect your warranty with us.

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