

FITTING GUIDE

Split Pulse Exhaust Manifold

Toyota Landcruiser · 1HD-FTE 4.2L

CT26 turbo flange · One-piece SiMo ductile iron · Square port

APPLICATION
HDJ100 / HDJ79 / HDJ80/ HZJ79

ENGINE
1HD-FTE · 1HD-FT · 1HZ - 1HD-T

FLANGE
CT26 factory pattern

MATERIAL
SiMo Ductile Cast Iron

* Square ports designed for 1HD-FT / 1HD-FTE. Also bolts to 1HZ and 1HD-T.

tillix.com.au

Document ref. TIL-1HD-SP-FG · Rev A · September 2026

1. Why this manifold

Tillix split-pulse manifolds keep exhaust pulses separated until they enter the turbine housing. On a six-cylinder 1HD-FTE this improves cylinder scavenging, turbo response and torque across the rev range compared with a conventional log or early-merge casting.

The factory 1HD-FTE manifold is a two-piece casting joined by a slip collar and sealing rings. That joint is a well-known leak and crack point. The Tillix unit is a single SiMo ductile-iron casting — no slip joint, no rings, no mid-manifold gasket to cook out. Turbo flange and turbo position match the factory CT26 layout so the existing dump pipe and intercooler pipework can stay.

WHAT'S IN THE BOX

- 1 × Tillix one-piece split-pulse manifold, CT26 turbo flange (raw or HPC Extreme Temp black)
- 1 × MLS stainless CT26 turbine-inlet gasket
- 4 × M10 × 1.5 turbo-to-manifold studs (high-tensile steel, or optional Inconel/Titanium
- 4 × stainless washers and 4 × Würth copper-coated lock nuts
- This fitting guide

WHAT YOU MUST SUPPLY

- New multi-layer steel (MLS) exhaust manifold-to-head gaskets — Toyota 17173-17010 or equivalent quality aftermarket. Do not reuse the old gaskets.
- New manifold-to-head studs and nuts if the originals are stretched, rusted or have previously snapped. Strongly recommended: Tillix Inconel 625 stud kit (M10 × 1.25, 12 studs).
- EGR blanking hardware if the EGR pipe is being deleted (Tillix 1HD-FTE EGR Delete Kit).

TOOLS

- Metric sockets and spanners 10 / 12 / 14 mm, 3/8 and 1/2 drive, long and wobble extensions, universal joint
- Torque wrench covering 20–60 N·m
- E-Torx / hex keys if replacing head studs (factory studs often have an internal drive)
- Gasket scraper, brass brush, brake-clean or acetone, compressed air
- Penetrating oil applied 24 hours before the job. Engine hoist or 4-post hoist preferred. Fire extinguisher nearby.

READ THIS BEFORE YOU START

Factory 1HD-FTE exhaust studs are notorious for snapping in the head. Soak every nut and the turbo flange overnight. If a stud starts to twist rather than the nut turning, stop and heat or extract — do not keep loading it. Work only on a stone-cold engine. Hot iron and oil lines will burn you and warp a fresh gasket.

2. Removing the factory manifold

ACCESS

- Park on level ground, handbrake on, wheels chocked. Disconnect the negative battery terminal.
- On HDJ100 it is usually easier from above with the vehicle on a hoist so you can also reach the dump-pipe flange from below.
- Photograph every vacuum line, EGR pipe, oil feed, oil drain and water hose before you undo them.

DISCONNECT IN THIS ORDER

- **Dump pipe / downpipe** — four nuts at the turbo outlet. Support the pipe so it does not hang on the turbo.
- **Turbo oil feed** (banjo or pipe at the top of the cartridge) and **oil drain** at the bottom. Cap both ports immediately so grit cannot fall in. Catch residual oil.
- **Turbo coolant pipes** if fitted. Clamp hoses and plug the ports.
- **Compressor inlet and outlet** — loosen the clamps and ease the pipes off. Do not twist the compressor housing against a seized clamp.
- **EGR pipe** from the rear of the manifold to the intake. On 1HD-FTE this is a common seizure point. Heat and patience beat broken studs.
- **Turbo stay / support bracket** between the block/head and the turbo.
- **Turbo from manifold** — four M10 nuts on the CT26 flange. Wiggle the turbo off the studs. Inspect the turbine wheel for contact or oil coking while it is off.

MANIFOLD OFF THE HEAD

There are 12 nuts on M10 × 1.25 studs. The factory manifold is two pieces (front three cylinders and rear three) joined by a collar and two metal sealing rings plus assembly O-rings. You can unbolt the assembly as one unit, then split it on the bench, or separate it on the engine if space is tight.

- Crack every nut a fraction first, working from the ends toward the centre so the casting is not levered against one stud.
- Once all 12 are off, ease the manifold straight back off the studs. Do not pry on the head face with a screwdriver — use a plastic or brass drift on a thick section of the casting if it is stuck.
- On the bench: pull the two halves apart, discard the collar, rings and any remaining O-ring material. These parts are not reused.
- Bag and label every fastener. Factory turbo-flange studs are M10 × 1.5; head studs are M10 × 1.25. Do not mix them.

HEAD-FACE PREP — THIS DECIDES WHETHER IT SEALS

Scrape the head ports back to clean iron. No old gasket, carbon or silicone. A thin smear of oil-wet carbon is enough to leak. Check every head stud is tight in the head (they should not spin). Chase threads if needed. Blow the ports out with air so nothing falls into a cylinder. Inspect the head flange for erosion around ports 4–6 — common on high-mileage 1HD-FTE engines that have been leaking.

3. Fitting the Tillix manifold

DRY FIT FIRST

- Place the manifold onto the head studs with no gaskets. It must sit flat on every port. If a stud is bent or a thread is proud, fix that now.
- Confirm the CT26 turbo flange lines up with the turbo and that the dump pipe still reaches without being forced.
- Check clearance to the steering shaft, heater hoses, firewall and any aftermarket pipework. The Tillix casting follows factory turbo position; a heavily modified dump may need a small tweak.
- If you are deleting EGR, trial-fit the blanking plate on the rear EGR pad now.

GASKETS AND ANTI-SEIZE

- Fit new MLS manifold-to-head gaskets over the studs. Orientation matters — the raised / multi-layer face typically sits toward the manifold. Confirm against the gasket maker's mark.
- A very light film of nickel anti-seize on the stud threads and under the nut face only. Keep it off the gasket and off the port faces.
- Do not use silicone, exhaust paste or copper spray on the head face. MLS gaskets seal metal-to-metal.

TURBO ONTO THE MANIFOLD

- Install the four supplied M10 × 1.5 studs into the Tillix CT26 flange. A drop of high-temp thread locker or anti-seize on the manifold end only.
- New stainless CT26 gasket between manifold and turbine housing. Do not use RTV.
- Lower the turbo onto the studs. Fit stainless washers and Würth copper lock nuts.
- Torque turbo-to-manifold nuts to **52 N·m (38 ft-lb)** in a diagonal pattern, in two stages (25 N·m then 52 N·m).
- Refit the turbo stay and torque to factory spec (typically ~19–25 N·m on the small fasteners — confirm against the stay you have).

MANIFOLD ONTO THE HEAD

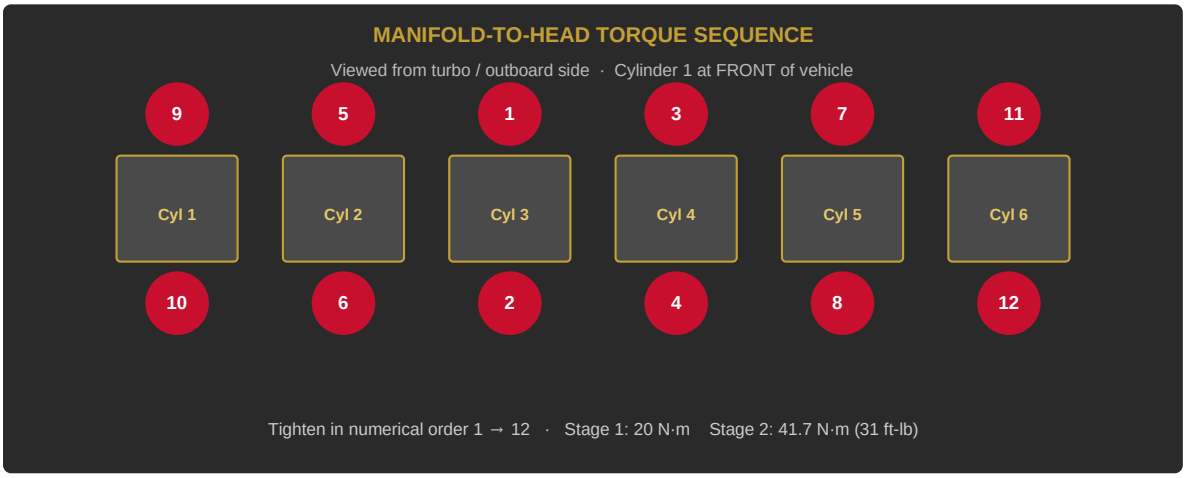
- Slide the Tillix manifold straight on. It is a one-piece unit — there is nothing to assemble mid-casting.
- Start every nut by hand. If a nut will not start, the manifold is not fully seated or a gasket has folded. Do not force it.
- Snug all 12 nuts finger-tight until the flange is evenly pulled in.
- Torque in two stages using the sequence on page 5: **20 N·m**, then **40-45 N·m (31 ft-lb)**.
- If you fitted new Tillix Inconel head studs, use the same sequence and the same 40-45 N·m unless the stud kit card specifies otherwise.

OIL AND WATER BEFORE YOU CRANK

Prime the turbo. Fill the oil-feed gallery with clean engine oil before connecting the feed pipe. New gaskets on the oil feed banjo and the drain flange. A dry-start will kill a turbo in seconds. If coolant lines were opened, refill and bleed the cooling system after the job — 1HD-FTE is sensitive to airlocks around the turbo housing.

4. Torque values and sequence

Joint	Fastener	Stage 1	Final
Manifold to cylinder head	12 × M10 × 1.25 nut	20 N·m	41.7 N·m (31 ft-lb)
Turbo to manifold (CT26)	4 × M10 × 1.5 lock nut	25 N·m	52 N·m (38 ft-lb)
Turbo outlet / dump pipe	Factory nuts	—	Factory spec (~39–52 N·m)
Turbo oil feed banjo	Banjo bolt	—	Factory spec (~19–25 N·m)
Turbo stay / bracket	As fitted	—	Factory spec
Heat shield bolts	M6 / M8	—	8–12 N·m (do not strip)



Sequence rationale: start at the centre of the six-cylinder head and work outward, alternating slightly so the flange is drawn down evenly. Never fully torque one end first — that is how MLS gaskets pinch and how castings crack. After the first full heat cycle (drive to operating temperature, then cool completely to ambient), re-torque the 12 head nuts to 41.7 N·m. This is not optional on a fresh iron manifold.

RE-TORQUE SCHEDULE

1. After first cool-down from operating temperature. 2. Again at 500 km. 3. Check at the next service. A ticking noise on cold start that disappears when hot is almost always a manifold gasket that needed a second pass — not a “character” of the 1HD-FTE.

5. Reassembly and first start

EGR ON HDJ100 1HD-FTE

(Tillix 1HD-FTE EGR Delete Kit) — Or Equivalent will be required as no EGR port exists on the new manifold.

REMAINING CONNECTIONS

- Refit oil drain, oil feed (primed), coolant pipes, compressor hoses and dump pipe. New gaskets everywhere you broke a joint.
- Reconnect the battery. Check oil and coolant levels.

FIRST START PROCEDURE

- Crank without fueling if you can (or keep load off) for 10–15 seconds so oil reaches the turbo bearings.
- Start and hold a fast idle (~1,200 rpm) for 30–60 seconds. Do not rev it. Watch the oil-pressure light.
- Inspect every joint — head flange, turbo flange, oil feed, oil drain and dump pipe — for soot or wet oil. Shut down and fix anything that weeps.
- Bring the engine to full operating temperature with a short drive, then shut down and allow a complete cool. Re-torque the 12 head nuts.
- A light smell of burning oil or coating smoke from an HPC-coated manifold on the first heat cycle is normal. It should be gone by the second trip.

WHAT YOU SHOULD FEEL

Expect a cleaner, sharper spool than the factory two-piece log. The split-pulse layout feeds the turbine with discrete pulses rather than a muddled merge, so driveability below 2,000 rpm is usually the first thing owners notice. Peak power still depends on the turbo, exhaust and tune — this manifold is the foundation, not the whole combination.

6. Support

Tillix Performance & Tuning is an Australian-owned company. If something does not line up on your particular HDJ100 (early vacuum-EGR vs later electronic throttle, CT26 vs later VNT turbo), contact us before you cut or weld.

- Web · tillix.com.au
- Email · sales@tillix.com.au
- Phone · 0450 756 515 (Mon–Fri 08:00–17:00 AEST, Sat 09:00–13:00)
- Related parts · Inconel 625 manifold stud kit · CT26 turbine gasket · 1HD-FTE EGR delete kit · 1HD-FTE forward-facing intake elbow

WARRANTY NOTE

Incorrect torque sequence, reused head gaskets, missing re-torque, or silicone on an MLS face can lead to premature leaks. Keep this guide with the vehicle service file. Torque figures above follow Toyota RM617E / RM896E for the 1HD-FTE head joint and turbo flange.

© Tillix Performance & Tuning. Fitting must be carried out by a competent diesel technician. Specifications subject to change.