Leigh

T-SERIES

ENGINE

SPECIFICATION

Hugh Keam

Senior Engineer Powertrain

TE & TL engine

200kW @ 5000RPM
420Nm @ 3750RPM

CAMSHAFT (F3ZE-6250-CA)

VALVE TIMING

Intake opens @ 19° BTDC @ 0.100mm Lobe Lift }
Intake closes @ 71° ABDC @ 0.152mm Lobe Lift }
Max. lobe lift = 7.169mm (std AU 6.697mm)

Exhaust opens @ 75.5° BBDC @ 0.100mm Lobe Lift}
Exhaust closes @ 14.5° ATDC @ 0.152mm Lobe Lift}
Max. lobe lift = 7.169mm (std AU 7.114mm)

Valve actuation is via Roller Rocker with a 1.7 ratio

CYLINDER HEADS (std AU)

VALVE HEAD DIAMETERS

Intake valve = 46.66 - 46.913mm
Exhaust valve = 39.61 - 39.91mm

FUEL SUPPLY

Fuel Pump (std AU)
Fuel Pressure Regulator (std AU @ 2.7bar)
Fuel Injectors (std AU)

TE & TL engine continued

200kW @ 5000RPM
420Nm @ 3750RPM

SPARK CONTROL
Spark Plugs (std AU with 1.0 – 1.1 gap)
Spark Advance (4-5° over std V8)
Premium Unleaded ONLY

INTAKE SYSTEM
High Flow Inlet duct to air cleaner (larger effective diameter)
Air Cleaner and Filter (std XR8 which includes Venturi)
Throttle Body (std AU @ 65mm diameter)
Upper Manifold (std AU)
Lower Manifold (std AU)

EXHAUST SYSTEM
Exhaust Manifolds same as XR8 including ceramic coating
Intermediate Exhaust pipes externally same as XR8 with tri-flow mufflers (XR8 has straight through mufflers)
Tailpipe section has same muffler and inlet pipes as XR8 with turned down tips to suit bumper with concealed outlets. The concept is the same for the LWB but with longer outlet pipes.

ENGINE LUBRICATION
A unique grade of oil 15W40 is used (Std AU uses 5W30)

TS engine

220kW @ 5250RPM
435Nm @ 4000RPM

CAMSHAFT (F1ZE-6250-A1A)

VALVE TIMING

Intake opens @ 20° BTDC @ 0.113mm Lobe Lift }
Intake closes @ 76° ABDC @ 0.156mm Lobe Lift }
Max. lobe lift = 7.055mm

Exhaust opens @ 67° BBDC @ 0.122mm Lobe Lift}
Exhaust closes @ 19° ATDC @ 0.154mm Lobe Lift}
Max. lobe lift = 7.061mm

Valve actuation is via Roller Rocker with a 1.7 ratio

CYLINDER HEADS (SVO Y303)

VALVE HEAD DIAMETERS

Intake valve = 49.276mm
Exhaust valve = 39.116mm

FUEL SUPPLY

Fuel Pump (std AU)
Fuel Pressure Regulator (revised to 3.5bar)
Fuel Injectors (std AU)
Premium Unleaded ONLY

ENGINE LUBRICATION

A unique grade of oil 15W40 is used (Std AU uses 5W30)

TS engine continued

220kW @ 5250RPM
435Nm @ 4000RPM

SPARK CONTROL

Spark Plugs (AGSP 32 PP washer faced plug 1.0 - 1.1 gap)
Spark Advance (4-5° over std V8)

INTAKE SYSTEM

High Flow Inlet duct to air cleaner (larger effective diameter)
Air Cleaner and Filter (std XR8 which includes Venturi)
Large Throttle Body (70mm diameter)
Upper Manifold (machined inlet removing core shift & enlarged to min. 71mm dia.)
Lower Manifold (machined outlets removing core shift & enlarged to min. 28mm width)

EXHAUST SYSTEM

Exhaust Manifold primary pipes (to collector) same as TE engine with new high flow 1.8 litre catalysts (std AU 1.3 litre)
The manifold & catalyst assembly is ceramic coated as for TE engine.
Intermediate Exhaust same as for TE & TL engines
Tailpipe same as TE engine

ENGINE COOLING

An Oil Cooler is specified which is mounted in front of the radiator. A smaller oil filter is mounted to an adaptor which allows oil transfer to the cooler.

HANDY HINTS

Rough Idle

- Faulty HEGOS effect idle quality, in this case the idle will generally be okay for the first 100/70/40 seconds (cold/warm/hot engine start open loop operation duration) then becomes rough as closed loop control is entered into. NGS is generally good at picking up this fault.
- Faulty spark plug such as a cracked conductor or oversize gap can contribute to this.

Throttle Body

- Throttle Stop Screw is set to a specific air flow that determines the idle speed. It is important this screw is not altered. If for some reason it is, I recommend sending it back to Tickford for correction. *

Cam Position Sensor (CMP Sensor)

- If removal is required be sure to replace correctly. This is a magnetic field sensor that on the bench can be rotated without knowing. *

Customers complaining of poor Vehicle Performance

- Ensure wide open throttle is being achieved by removing inlet ducting and looking down throttle body while pedal is pushed to floor. Floor mat may be restricting this being achieved if passenger mat is on driver side.
- For a Manual vehicle (TE only) quickest times are not achieved by running to the red line. Best figures are achieved with shifts at around 5400 RPM.
- If the incorrect Fuel Pressure Regulator (3.5 bar on TS only) is not fitted then the fuel supply to the injectors will be starved. To identify the correct regulator you need to find an orange part mark and an engraved 350kPa on the body of the regulator.

HANDY HINTS Continued

Alloy Heads (TS only)

- Washers used under head bolts to prevent rough bolt head surface digging into aluminum surface. Ensure to reuse these washers.
- Some unique bolts & studs have been used to mount the lower intake manifold so better thread engagement is achieved to prevent stripping of threads.

Engine Cover

- Ensure you understand the mounting mechanism before removing, it is easy to break mounts if the wrong approach is used. *

Upper Manifold

- Note it is unique for these vehicles to accommodate the engine cover. The upper front mounting bolt surface is machined down 4mm to cater for the engine cover mounting bracket.

Plug Leads (TS only)

- Some revised routing has been established due to the differing spark plug angle in the alloy heads.

Oil Change (TS only)

- Ensure Oil from Oil Cooler has been drained as well as from the sump. You may need to blow some air through the oil lines to the cooler to ensure all is removed.