

Guide to fitting YD25.COM.AU timing chain kit to D40 & R51 (approx. 9hrs labour. Except 140Kw Models)

- 1 Remove, under body parts, bash tray, drain 3 litres from radiator, fan shroud, power steer rear 1 bolt, front wheels, sit cross member on 10cm blocks.
- 2 Remove top radiator hose and 2 x intercooler to engine hoses, radiator shroud 3 bolts.
- 3 Remove fan shroud and the electric fan together.
- 4 Loosen fan remove drive belts and remove fan.
- 5 Remove power steering pump & idler pulley, remove egr pipe use heat on manifold nuts.
- 6 Lock crankshaft up, use tool in harmonic balancer. (p224)
- 7 Loosen front crank bolt, it is very tight, use large breaker bar with pipe. (p224)
- 8 Remove front pulley, use special harmonic balancer puller tool. (p225) **WARNING**
check wear on balancer to oil pump drive faces.
- 9 Remove plastic top timing chain cover.
- 10 Remove sump to timing cover x 3 12mm bolts 11 10mm bolts, remove bottom timing cover. **WARNING** *after removal, check oil pump rear cover screws are tight, check for wear on oil pump drive faces.* A yd25.com.au oil pump has stronger Australian made gears.
- 11 Rotate crank until you can feel the locking hole in the scissor gear, insert tool into hole. Position the handle to allow the scissor gear to be rotated. (p225)
- 12 Rotate crank until you can insert 5.5 mm pin into fuel pump sprocket locking hole. (p226) this is TDC. Paint mark scissor gear tooth between 2 dots on crank gear (p225)
- 13 Remove crank gear. **DO NOT TURN SCISSOR GEAR!** Do not wash this paint mark off.
- 14 Loosen, vac pump nut, [3/8 – 1/2 breaker bar] fuel pump cap screws. (p227)
- 15 Remove all chains and guides and sprockets, except **FUEL PUMP SHIM!**
- 16 Fit fuel pump engine oil seal if supplied, remove t70 nut and sprocket boss.
- 17 Check cam timing marks are at 10 o'clock intake side and 2 o'clock exhaust side (p229)
- 18 If there are broken guides, swarf or debris, remove the black sump tank and oil pick up, wash timing chain housing. Splash diesel into sump washing debris out.
- 19 Fit vac pump sprocket, use flat washer spring washer and tube nut, **apply thread locker to tube nut**, wrap a rag around sprocket and tighten with impact wrench, 45 flb. With a straight edge check the alignment of vac pump and fuel pump sprockets. Various fuel

- pump shims are available. Ensure true alignment. Misalignment destroys chains guides and tensioners.
- 20 Insert crank sprocket part of the way on and hang the primary timing chain on the fuel pump sprocket marks [dot to marked link] fit chain to crank sprocket marks [notch to marked link] slowly push home. (p229)
 - 21 Fit bottom tensioner guides and primary timing chain. (p229)
 - 22 Fit top chain and guides as per marked links and sprocket marks. (p229)
 - 23 Top tensioner, remove plunger, insert spacer **dowel** into housing, insert plunger. Fit right hand tensioner bolt, press plunger in rotate and fit left hand tensioner bolt
 - 24 Ensure crank is at TDC, replace crank counter shaft gear making sure to align paint marks with seizer gear marks. (p81)
 - 25 Rotate crank and remove tool pin from seizer gear.
 - 26 If the crank outer woodruff key is loose **super glue the woodruff key to the crankshaft**, this prevents the woodruff key fall into the sump when putting the front pulley back on!
 - 27 Rotate crank 2 x turns clock wise, checking there are no tight spots, [the valves touching the pistons]
 - 28 Front cover, **oil pump check for wear to the drive flat surfaces**, if worn contact yd25.com.au for Australian made upgraded oil pump. **SHORTEN DOWEL ABOVE OIL PICK UP SO IT ONLY PROTRUDES 3MM OUT OF FRONT COVER** this prevents the suction o ring being cut or pinched, Check harmonic balancer and **oil pump drive surface** for wear. Apply silicon, replace bottom and top timing cover.
 - 29 File a lead into crank pulley keyway, align and tap home.
Torque crank bolt 55 ft lb + 120 deg (p235) grease bolt thread and face
 - 30 Replace oil pick up, sump tank, fill with oil, {if removed}
 - 31 **Start engine and test run for a few minutes.** Check for vibrations balance shaft not timed correctly
 - 32 Continue to replace all other parts.

Any questions call 0424 034 935

Or visit website

www.yd25.com.au

Guide to fitting YD25.COM.AU timing chain kit to D22 (The sump has to be removed) approx. 16-18hrs labour.

- 1 Drain oil, a drain 3 litre of coolant from radiator and remove bottom shroud, D22 has radiator drain bung.
- 2 Lock crankshaft up, 4th gear, bar tyre leaver through the prop shaft.
- 3 Loosen front crank bolt, it is very tight, use large breaker bar with pipe. (p224)
- 4 Remove bell housing and starter bolts, remove gearbox cross member 4 x bolts, remove crank angle sender, and slip gearbox back 25mm.
- 5 Remove diff cross member bolts, except 1 x closest to prop shaft, remove right hand CV 6 x bolts, remove power steer bracket mount, 14mm bolt under vac. pump.
- 6 Remove steering idler arm 3 x bolts from chassis.
- 7 Remove AC compressor 4 x bolts and AC mount to sump 2 x bolts.
- 8 Remove all black sump pan 10mm bolts, remove aluminium sump bolts 12mm and 10mm bolts in rear main seal housing, remove sump.
- 9 Remove top radiator hose, radiator shroud 2 x bolts, remove fan shroud.
- 10 Loosen fan, remove drive belts and remove fan.
- 11 Remove power steering pump, remove EGR pipe.
- 12 Remove front pulley, need 6 mm fine thread bolts to screw into pulley. (p225)
- 13 Remove plastic top timing chain cover.
- 14 Remove oil pump timing cover 11 10mm bolts, remove bottom timing cover.
WARNING *after removal, check oil pump rear cover screws are tight, check for wear on oil pump drive faces. A yd25.com.au oil pump has stronger Australian made gears. The rear cover has been redesigned so as to allow removal of the oil pump with out removal of the sump. The rear cover is available as a replacement part fitting the original oil pump housing.*

- 15 Rotate crank and insert 5.5 mm pin into fuel pump sprocket locking hole, (p226) this is TDC.
- 16 Loosen vac. pump nut, fuel pump cap screws. (p227)
- 17 Remove all chains and guides and sprockets, except **FUEL PUMP SHIM!**
- 18 Fit fuel pump engine oil seal if supplied, remove t70 nut and sprocket boss.
- 19 Check cam marks are at 10 o'clock intake side and 2 o'clock exhaust side (p229)
- 20 Fit vac pump sprocket, use flat washer spring washer and tube nut, **apply thread locker to tube nut**, wrap a rag around sprocket and tighten with impact wrench, 45 flb. With a straight edge check the alignment of vac pump and fuel pump sprockets. Various fuel pump shims are available. Ensure true alignment. Misalignment destroys chains guides and tensioners.
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- 25 If the crank outer woodruff key is loose **super glue the woodruff key to the crankshaft**, this prevents the woodruff key fall into the sump when putting the front pulley back on!
- 26 Rotate crank 2 x turns clock wise checking no tight spots, [the valves touching the pistons]
- 27 Front cover, **oil pump, check for wear to the drive flat surfaces**, if worn contact yd25.com.au for Australian made upgraded oil pump. Check **crankshaft oil pump drive bush** for **surface** wear. Apply silicon replace bottom timing cover and top timing chain cover.
- 28 File a lead into crank pulley keyway, align and tap home, **torque crank bolt 55 ft lb + 120 deg** (p235) grease bolt thread and face.
- 29 Replace sump, oil pick up, sump tank, fill with oil.
- 30 **Start engine and test run for a few minutes.**
- 31 Continue to replace all other parts.

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