FITTING A NEW TURBOCHARGER

Before fitting a new turbocharger, it's important to determine why the original failed & fix it. If not, the replacement unit may fail too, costing you & your customer, more time & money, whilst also invalidating your warranty.

Prepare the engine & oil supply:

- Drain the engine oil, fit a new OE quality oil filter (pre-filled with oil) & refill the sump to/with the recommended level & grade of oil.
- Check the air inlet ducting/manifold & air induction pipes for any debris, cracks or damage. Clean thoroughly & replace where necessary.
- Install a new OE quality air filter.
- Ensure the exhaust ducting/manifold, exhaust pipework, EGR & associated pipes are clean, clear & undamaged. Replace if necessary.
- Fit new OE quality oil feed & return pipes.
- Clean & prepare all gasket or joint surfaces – ensure faces are flat & not corroded.

Install the turbo:

- Prime the turbo by injecting 10ml of the VM specified oil into the oil return outlet hole, using the syringe – you may have to turn it upside down to do this.
- Gently rotate the compressor wheel & shaft by hand for 30 seconds, while rocking it from side-to-side – the wheel should spin freely.
- Cover the hole with the sealing bung until ready to fit.
- Position the turbo, making sure the new oil feed & return pipes are correctly routed & primed.
- Fit new gaskets & o-rings, as required.
- Torque tighten the nuts & bolts securing the turbo to the exhaust manifold & exhaust gas outlet to VM settings.
- Fill the oil inlet hole with the correct engine oil & rotate the compressor wheel by hand again, for a minimum of 10 revolutions.
- Refit all turbo & boost pipework – ensure they are seated correctly & fasteners are in good condition.

Operate the vehicle:

- Before starting, crank the engine continuously with fuel shut off for 10 - 15 seconds to build oil pressure.
- Start the engine & allow it to run at idle for 3-4 minutes before accelerating.
- Check for any air, oil or exhaust gas leaks – whistling, buzzing, ticking or vibration signals a problem.
- Drive the vehicle gently for the first 10 to 20 minutes so the oil can reach optimum operating temperature.
- It is also good practice to let the engine cool before switching off after a lengthy or high-speed journey.

For your safety:

- Turbos can get very hot, so always allow it to cool down before touching.
- Keep hands, tools & material away from rotating parts when in use.
- Never remove the air intake pipe whilst in operation.
- Handle the unit with care – lift using the main housing only & not the actuator or pipes.

Sales: 01623 863600
Tech: 01623 867996
E-mail: turbo@carwood.org
carwood.co.uk

TURBOCHARGER FAULT GUIDE

CARWOOD®

MAIN CAUSES

MAIN ON-VEHICLE SYMPTOMS	Insufficient oil supply to turbo	Turbine housing/flap damaged	Engine air collector cracked/missing or loose gaskets	Exhaust gas leakage between turbine outlet & exhaust pipe	Foreign body damage on compressor or turbine wheel	Bearing damage	Piston ring sealing defective	Pipe assembly to swing valve/poppet valve defective	Boost pressure control swing valve/poppet valve does not open	Boost pressure control swing valve/poppet valve does not close	Dirty compressor or charge air cooler	Valve guide, piston rings, engine or cylinder lines worn/increased blowby	Fuel system/injection feed system defective or incorrectly adjusted	Coke & sludge in bearing housing	Crankcase ventilation clogged &/or distorted	Oil feed & drain lines clogged, leaking or distorted	Excessive flow resistance in exhaust system/leakage upstream of turbine	Suction & pressure line distorted or leaking	Dirty air filter system
DAMAGED COMPRESSOR/TURBINE WHEEL	•	•			•	•													
LOW BOOST PRESSURE (UNDERBOOST)	•	•	•		•	•		•		•	•	•	•				•	•	•
HIGH BOOST PRESSURE (OVERBOOST)								•	•				•						
BLACK SMOKE	•	•	•		•	•				•	•	•	•				•	•	•
BLUE SMOKE						•	•				•	•		•	•	•	•		•
EXCESSIVE NOISE	•	•	•	•	•	•					•						•	•	
HIGH OIL CONSUMPTION						•	•				•	•		•	•	•	•		•
OIL LEAK AT COMPRESSOR HOUSING						•	•				•	•		•	•	•	•		•
OIL LEAK AT TURBINE HOUSING						•	•					•		•	•	•			

Sales: 01623 863600
Tech: 01623 867996

E-mail: turbo@carwood.org
carwood.co.uk

CMU 073