



febi info

Fitting Recommendation for Camshafts

Today's high performance engines use camshafts manufactured from high grade materials to precision tolerances. Following the fitting recommendation and the vehicle manufacturers instruction manual should ensure trouble free running.

Question: **WHY HAS THE OLD CAM FAILED?**
Answer: Failure can happen for a number of reasons including of inadequate oil supply or contaminated oil.

Question: **WILL REPLACING THE CAM ALONE SOLVE THE PROBLEM?**
Answer: No. If there is insufficient oil pressure due to worn bearings, camshaft housing, oil pump components, oil pressure relief valve or blockages in the oil feed system then there is no point in just replacing the cam.

Question: **WHAT WILL HAPPEN IF I DO?**
Answer: The cam will fail again.

Question: **HOW DO I SOLVE THIS PROBLEM?**
Answer: Follow the three golden rules.

COMPLETENESS

When replacing a cam it is **ESSENTIAL** that all relevant components in the valve train assembly are replaced at the same time i.e. cam, camfollowers, rockershaft, rocker arms, ball studs, hydraulic lifters and thrust pads. It is also recommended that a new timing belt or chain is also fitted. You must also rectify any cause of inadequate oil pressure.

CLEANLINESS

Drain and flush the engine before commencing work as additives can easily clog oilways, hydraulic lifters and oil feed pipe. Refill the crankcase with an approved oil, but do not overfill. Use a new oilfilter.

Remove the protective wax film from the new cam with parafin. Remove all traces of gasket debris, old engine oil and dirt from oil galleries and piston bores. Apply LL to all metal contact surfaces which is provided in the kits.

ALWAYS remove spark plugs or injectors and turn the engine over with just the battery. Check that oil is feeding all cam and lobe surfaces and then replace the plugs or injectors.

ACCURACY

Valve timing is **CRUCIAL** - especially with diesel engines - and great care must be taken. A stretched or incorrectly positioned timing belt can cause piston/valve collision resulting in damage to the cylinder head, piston or cylinder bore.

To illustrate:

An engine running at 4000 r.p.m. will mean that the cam rotates 33,3 times EVERY SECOND.

Question: **WHAT NEXT?**
Answer: If you have followed these general instructions, start the engine and run it as follows:

- For the first minute run the engine at 2000 r.p.m.
- For the second minute run the engine at 1500 r.p.m.
- For the third minute run the engine at 3000 r.p.m.
- For the fourth minute run the engine at 2000 r.p.m.

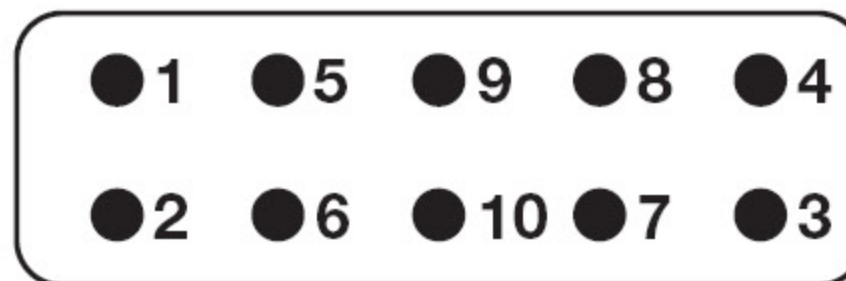
If the engine does not start or makes unusual noises, **STOP** and check everything again.

Renew the engine oil after a further 1000 km/600 miles. Check the operation of the automatic choke, if fitted. Check the cooling system.

CYLINDER HEAD REMOVAL AND INSTALLATION

Cylinder heads **MUST** be removed in cold condition. Gradually remove the cylinder head bolts in a spiral sequence as shown in this diagram. Start at the outside gradually releasing them towards the centre.

Installation is a reversal of this procedure. The cylinder head may crack if you do not follow this procedure.



Any components which are not being renewed **MUST** be installed in **EXACTLY** the same position i.e. push rods, valves, tappets, shims, springs etc.

INSTALLATION ERRORS OR NON-OBSERVANCE OF THIS INSTRUCTION MAY NEGATIVELY AFFECT THE PERFORMANCE OF THE NEW CAMSHAFT AND POSSIBLY VOID YOUR WARRANTY!

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