

TIMING CHAIN & KIT FAULT FINDING

In all instances engine sumps and pickup pipes should be removed and cleaned to help ensure adequate oil supply to the timing chain assembly.

(1) Engine does not run smoothly (after fitting new kit).

CAUSES: If there is **NO** audible rattle then it is possible the timing is incorrect. Engines with variable timing hubs will need units checking for seizure and / or “original at idle” settings. Recheck all timing marks and procedures.

(2) Engine chain assembly giving audible chain rattle (after fitting new kit).

CAUSES:

- a) Timing tensioner mechanism not released.
- b) Insufficient oil pressure to activate hydraulic tensioner.
- c) Lack of oil flow to chain due to a blocked lubrication jet.
- d) Mistiming allowing valves to touch pistons.

CHECK AND RECTIFY ALL OF THE ABOVE

(3) Engine giving high pitched squeal (after fitting new kit).

CAUSES:

- a) Lack of lubrication to chain assembly.
G.M Corsas suffer from cylinder head primary oil jets blocking. (Located in the head underneath the centre feed/guide rail between camshaft sprockets).
- b) Oil pump/timing cover not located correctly. (G.M Corsa petrol engines)
It is essential to ensure both timing cover hollow dowels are present and in good condition. The omission of either dowel can allow the oil pump rotors to squeal against its offset cover.
- c) Timing chain too tight on the drive side i.e. between crankshaft sprocket and right hand camshaft sprocket. In some instances the camshaft train will not self tension and can remain too tight. In these instances a squeal can emanate from between the chain and the fixed guide rail. Timing procedure needs to be reset particularly where sprockets are not keyed and rely on bolt tightness only.

(4) Timing chain becomes noisy in early life.

CAUSES:

- a) Inherent lubrication deficiency due to poor flow delivery and/or inherent lubricant contamination (which degrades the oil and causes blockages etc.) In all instances the engine must be clean enough to provide contaminate free oil with adequate flow.
- b) Mistime or inherent timing error due to displaced camshaft lobes or bent rocker arms etc. If a condition exists whereby valves and pistons are hitting (for whatever reason) then the chain is subjected to an intermittent reverse snatch. The chain link pins and rollers will suffer material wear and the chain will elongate and become noisy. Any timing errors like these may require new camshafts etc. and should be rectified immediately, including fitment of another new timing chain kit.
- c) Natural wear & tear elongation of chain. In some instances resetting the timing (particularly corsa non keyed engines) will correct any audible chain lift.

(5) Timing chain tensioner seizure in early life.

CAUSES: Lack of adequate lubrication during initial start-up procedure. It is essential to obtain oil pressure before firing engine. A tensioner and piston will quickly seize if not provided with full oil supply. Obtain oil pressure at starter revolutions only and repeat to help purge air from the system.