

North Montco Technical Career Center

Reading Grid

Name: Jane Student

Session: PM

Date: 10/01/04

Chapter/ASE Area: Chapter 15 Engine Front End Construction

Grid: 1 of 4

Main/General Topic: Engine Construction

Sub-Heading: Engine Front End

A- Details	B - Process	C- Additional Information
List Major Parts - Why Is It There	How/Why Does It Work	Vocabulary Words
1. Engine front end consists of the parts attached to the front of the engine.	1. These parts include the camshaft drive mechanism (timing gears or belts), front cover mounted oil pumps, water pump, auxiliary shafts	1. Water pump: Belt driven pump that circulates coolant through the engine.
2. Harmonic vibration is a high-frequency movement resulting from twisting and untwisting of the crankshaft.	2. If harmonic vibration is not controlled, the crankshaft could vibrate like a musician's tuning fork or a string type instrument.	2. Dual mass harmonic balancer: Has one weight mounted on the outside of the crankshaft pulley and another on the inside to control engine vibration.
3. Vibration damper is used to control engine vibration.	3. The vibration damper removes load vibration caused by the trimming belts, chains or gears so the parts last longer.	3. Inertia ring: Sets up a damping action on the crankshaft as it tries to twist and untwist.
4. Timing chains and gears are used to drive the engine by transferring the energy of the crankshaft to the camshaft via timing chains or belts.	4. Timing gears and chains are usually found if cam-in-block engine designs.	4. Timing marks: Located on the timing gears they show the technician where to properly install the gears to maintain proper gear phasing and valve timing.

Complete an *Outline Grid*, then fill out 3-*Reading Grid* Sheets When all Grids are complete, fill out a *Summary Worksheet* describing what was covered in the chapter, what material you already knew and any difference's between your and the author's findings.