

DGS

1.6 Engine Hardware – Nov 2006 FR - 1



1.6 L Engine
Hardware Training Program
1. st Slide



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PSI
POWER SOLUTIONS, INC.



- Base Engine Components
- Classroom and Hands-On Engine
- Ignition Systems & Fuel System Set-Up
- Speed Governing
- Provide overview of major engine systems
- Review discussions on the engine
- Provide theory of operation for fuel system and speed governing systems
- Run engines to perform fuel system and governing set-up.

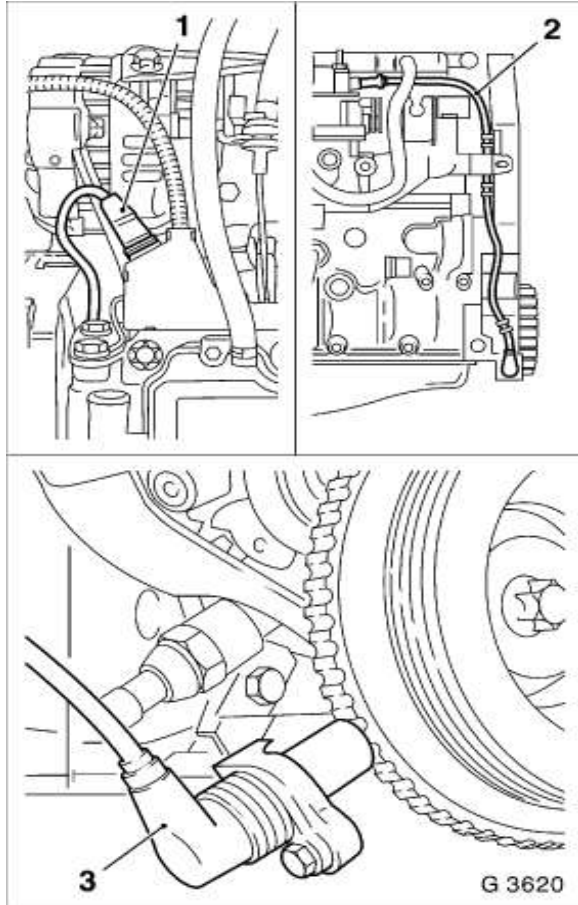


- **VBatt** **Battery Voltage**
- BP** **Barometric Pressure.** The pressure of the outside air.
- CHT** **Cylinder Head Temperature**
- CL** **Closed Loop - Fuel and timing modified based on feedback from the O2 sensor.**
- DBW** **Drive by wire.**
- DTC** **Diagnostic Trouble Code.** A code which is stored in the ECM when an ECM initiated test fails.
- ECT** **Engine Coolant Temperature.**
- ECM** **Engine Control Module.** The computer that controls the fuel and ignition system on the engine.
- EGO** **See HO2S**
- EST** **Electronic Spark Timing**
- ETC** **Electronic Throttle Control**
- FPP** **Foot Pedal Position.**
- HO2S** **Heated Oxygen Sensor**
- IAT** **Intake Air Temperature**
- IVS** **Idle Validation Switch**
- MAP** **Manifold Absolute Pressure.** The pressure of the air in the intake manifold.
- MAT** **Manifold Air Temperature.** The temperature of the air in the intake manifold
- MIL** **Malfunction Indicator Light.** A dash mounted light that illuminates when the ECM senses a system fault.
- Ms** **Milli-seconds.** 1/1000 of a second.
- Open Loop** **Fuel and timing based strictly on tables stored in the ECM.**
- PSIA** **Pounds per square inch absolute.** 14.7 psia = 0 psig
- RAM** **Random Access Memory.** The portion of computer memory within the ECM, which changes as the engine is running and is stored while the engine is off.
- TPS** **Throttle Position Sensor.** The throttle position sensor measures the opening of the throttle.
- TMAP** **Manifold Absolute Pressure Air Temperature.** The pressure and temperature of the air in the intake manifold

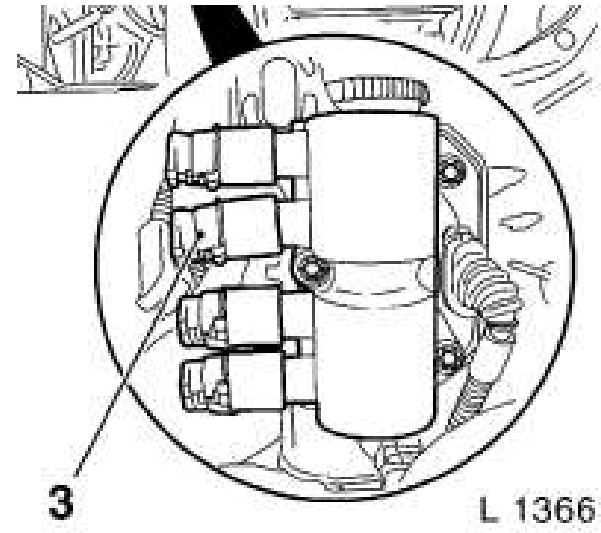


- Displacement: 98 cid (1.6 Lc)
- Compression Ratio: 9.4:1
- Valve Configuration: Single Overhead Cam
- Valve Lifters: Hydraulic Cam Follower
- Bore: 79 mm Stroke: 81.5 mm
- Main Bearing Caps: 2-Bolt
- Balance Method: Internal
- Firing Order: 1-3-4-2
- Oil Pan Capacity: 3.5L with Filter
- Engine Rotation: Clockwise (from the front).

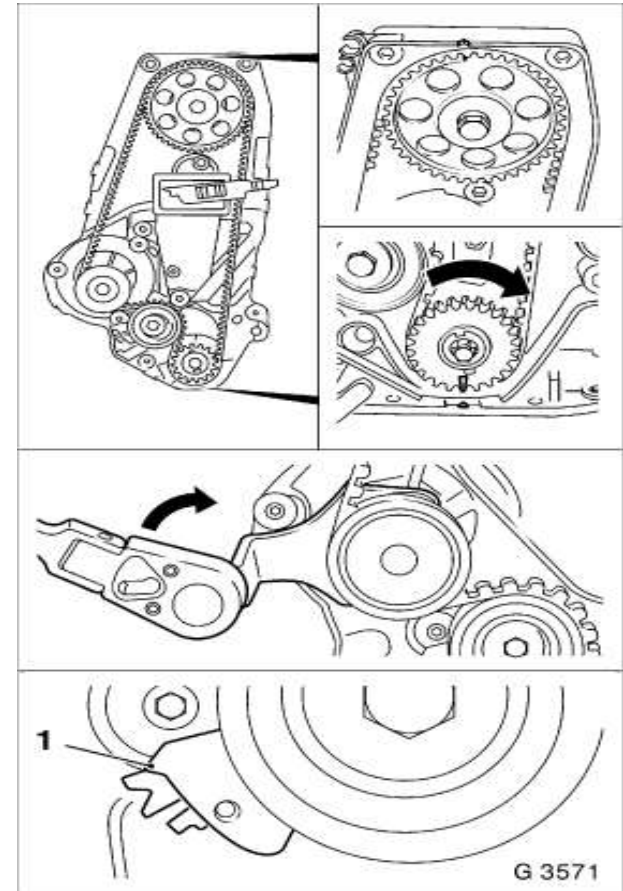
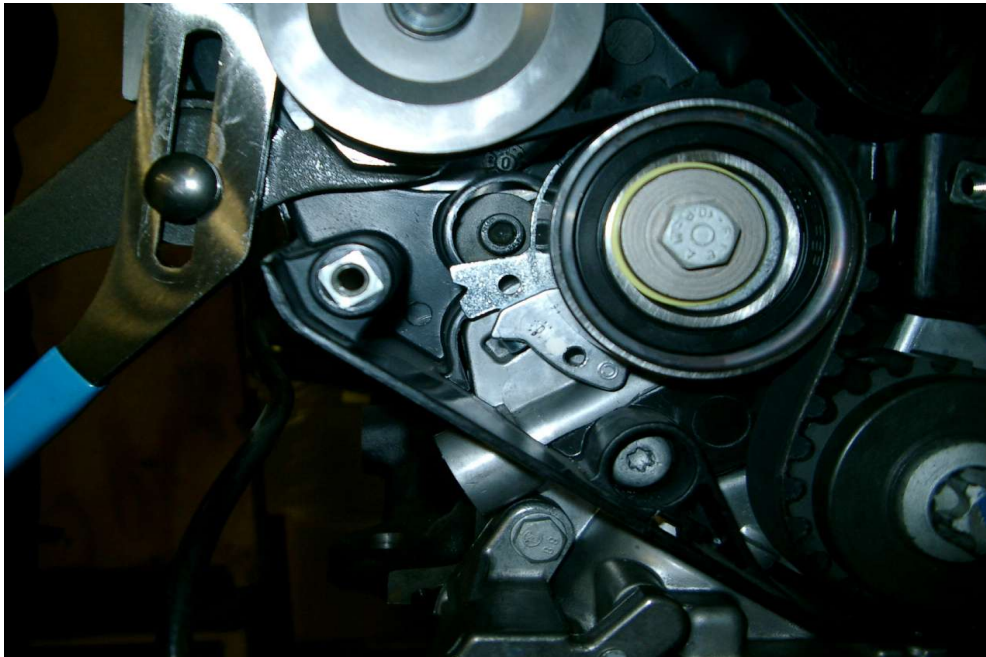




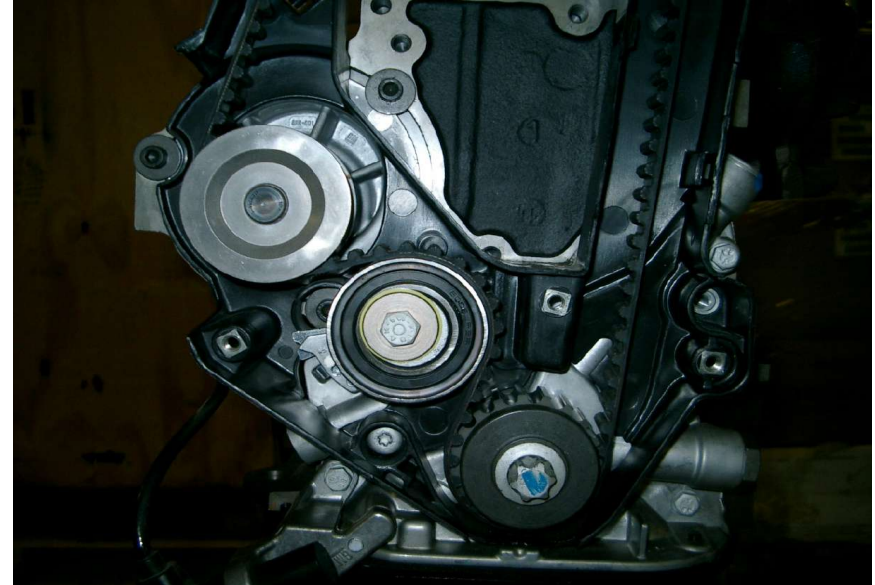
- DIS Distributorless Ignition System
- Crank Sensor Generates RPM Signal
- Ground Side of Coil Controlled by ECM
- TMAP & ECT Input for Spark Control



- Driven Overhead Cam Drive
- Spring Loader Belt Tensioner
- Index on Belt Cam and Crank Gears
- Tension Adjustment by Water Pump Tension Indicator



- Cam belt adjustment & installation



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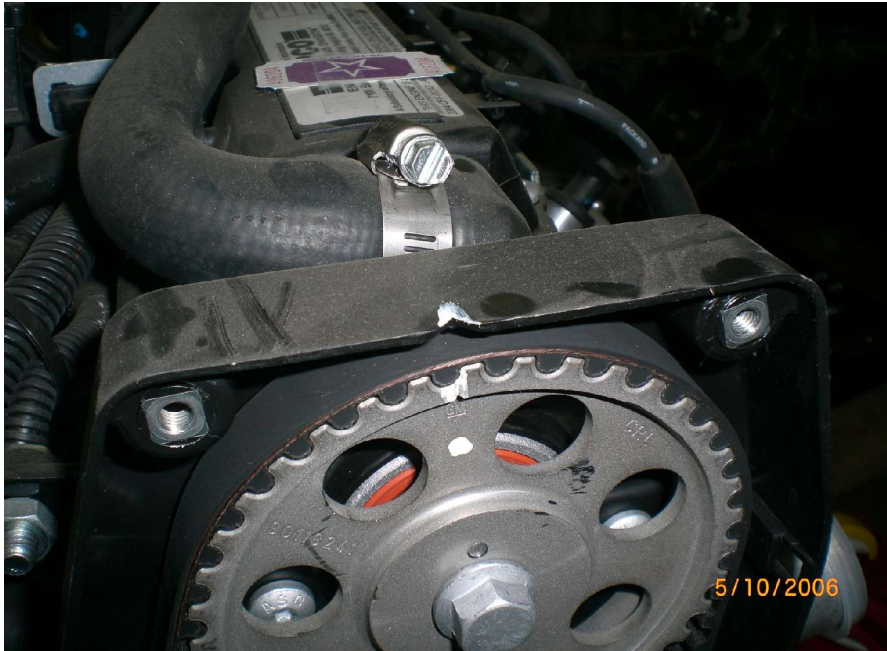
Cam Drive Gear



Cam Drive Gear



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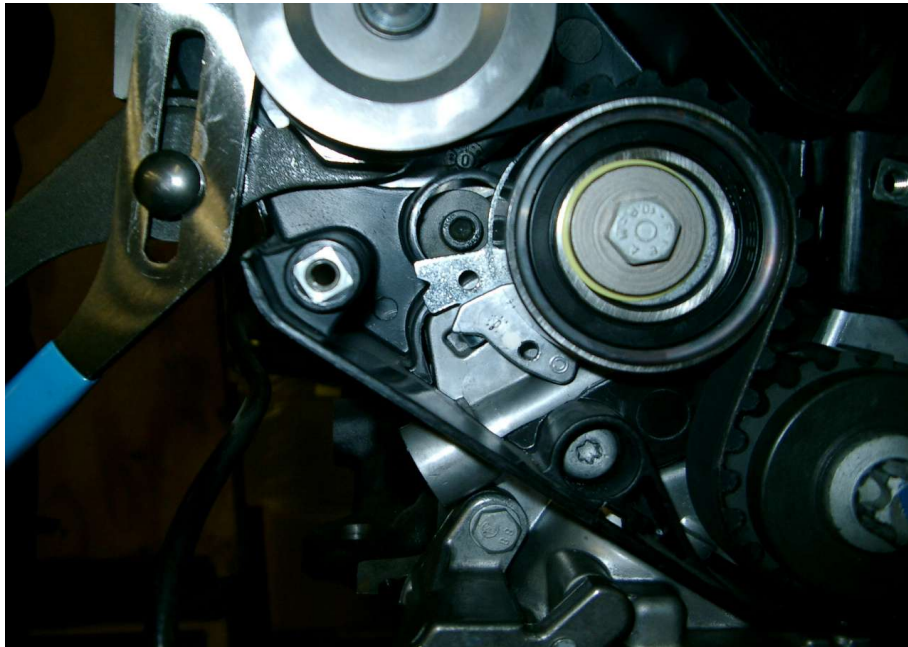
Crank Drive Gear



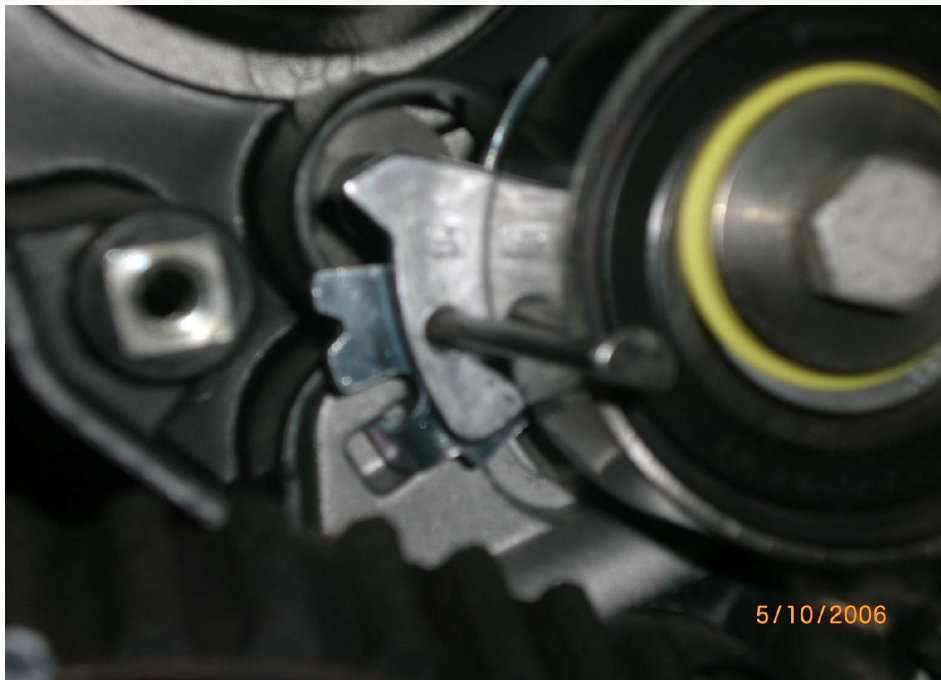
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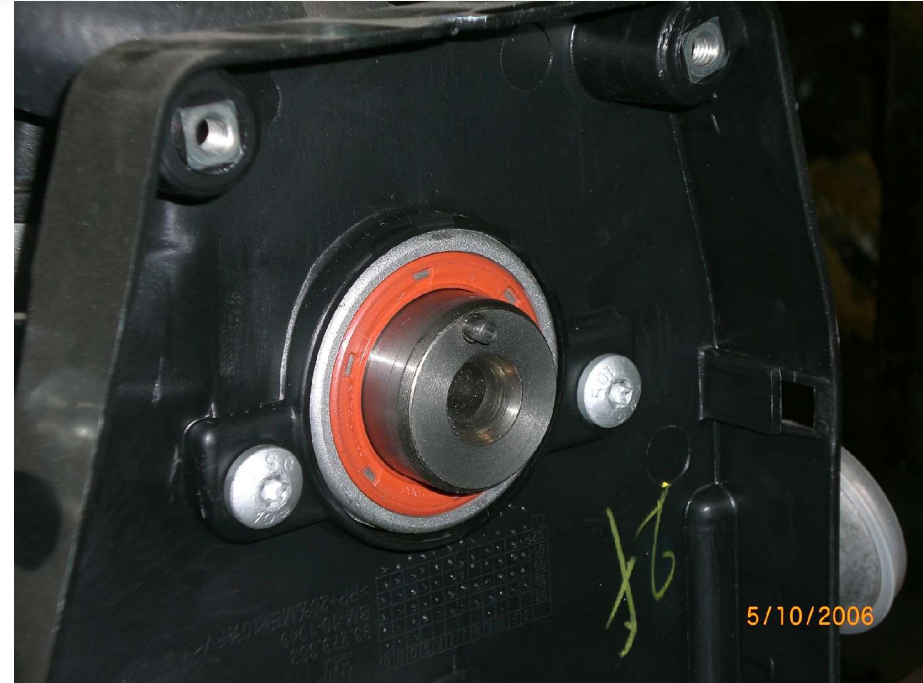
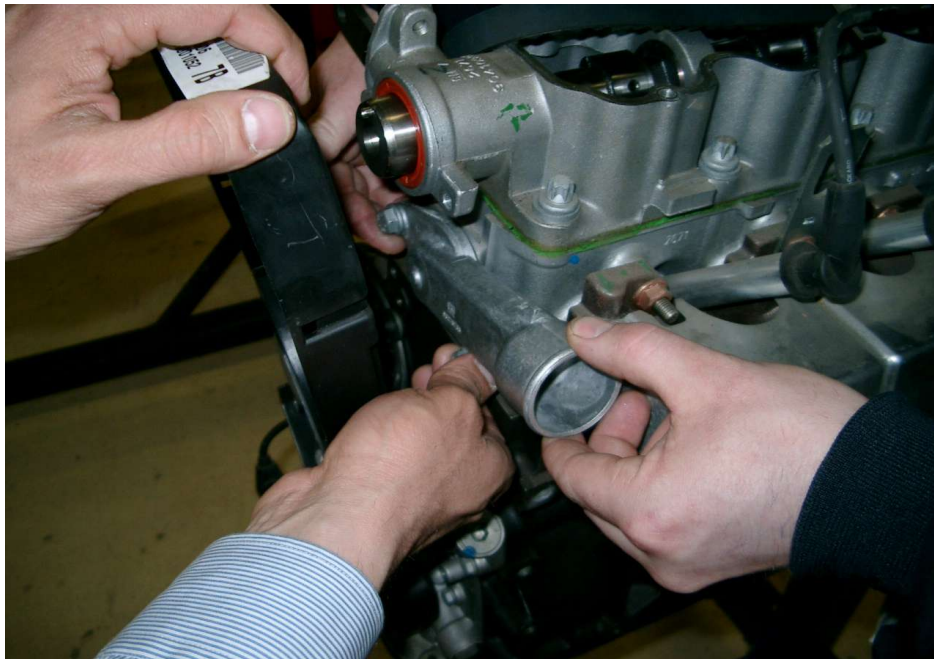
Belt Tensioner Pointer



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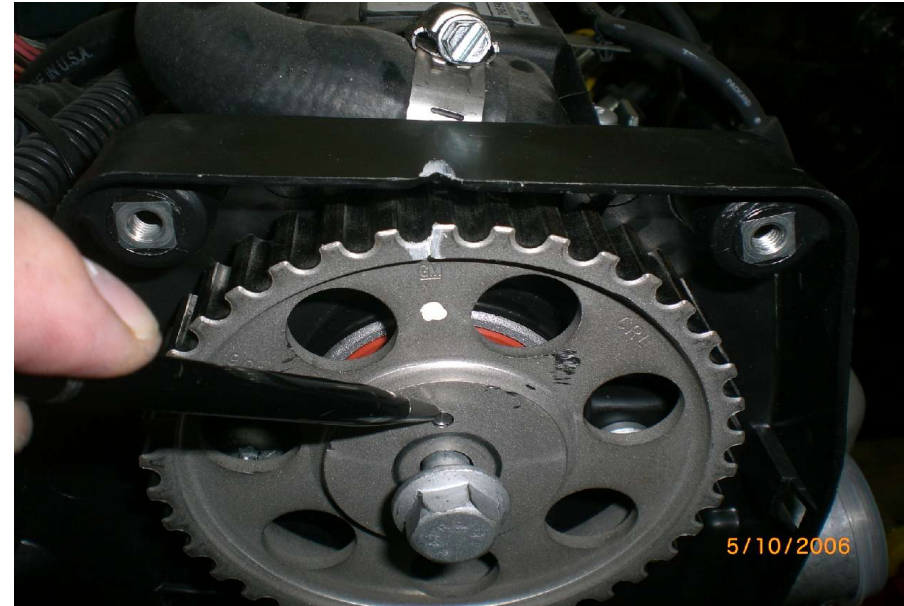
Cam Drive & Thermostat Housing



Thermostat & Housing



Dowel Pins on Cam & Crank



Questions ?
Remarks ?
Comments ?