



TROUBLESHOOTING

Symptom	Suspect area	Remedy (See page)
Engine misfire with abnormal internal lower engine noises.	Loose or improperly installed engine flywheel.	Repair or replace the flywheel as required.
	Worn piston rings (Oil consumption may or may not cause the engine to misfire.)	Inspect the cylinder for a loss of compression. Repair or replace as required.
	Worn crankshaft thrust bearings	Replace the crankshaft and bearings as required
Engine misfire with abnormal valve train noise.	Stuck valves. (Carbon buildup on the valve stem)	Repair or replace as required
	Excessive worn or mis-aligned timing chain	Replace the timing chain and sprocket as required.
	Worn camshaft lobes.	Replace the camshaft and valve lifters.
Engine misfire with coolant consumption	<ul style="list-style-type: none"> Faulty cylinder head gasket and/or cranking or other damage to the cylinder head and engine block cooling system. Coolant consumption may or may not cause the engine to overheat. 	<ul style="list-style-type: none"> Inspect the cylinder head and engine block for damage to the coolant passages and/or a faulty head gasket. Repair or replace as required.
Engine misfire with excessive oil consumption	Worn valves, guides and/or valve stem oil seals.	Repair or replace as required.
	Worn piston rings. (Oil consumption may or may not cause the engine to misfire)	<ul style="list-style-type: none"> Inspect the cylinder for a loss of compression. Repair or replace as required.
Engine noise on start-up, but only lasting a few seconds.	Incorrect oil viscosity	<ul style="list-style-type: none"> Drain the oil. Install the correct viscosity oil.
	Worn crankshaft thrust bearing.	<ul style="list-style-type: none"> Inspect the thrust bearing and crankshaft. Repair or replace as required.
Upper engine noise, regardless of engine speed.	Low oil pressure	Repair or replace as required.
	Broken valve spring.	Replace the valve spring.

	Worn or dirty valve lifters.	Replace the valve lifters.
	Stetched or broken timing chain and/or damaged sprocket teeth.	Replace the timing chain and sprockets.
	Worn timing chain tensioner, if applicable.	Replace the timing chain tensioner as required.
	Worn camshaft lobes.	<ul style="list-style-type: none"> • Inspect the camshaft lobes. • Replace the timing camshaft and valve lifters as required.
	Worn valve guides or valve stems.	Inspect the valves and valve guides, then repair as required.
	Stuck valves. (Carbon on the valve stem or valve seat may cause the valve to stay open.	Inspect the valves and valve guides, then repair as required.
Lower engine noise, regardless of engine speed	Low oli pressure.	Repair or required.
	Loose or damaged flywheel.	Repair or replace the flywheel.
	Damaged oil pan, contacting the oil pump screen.	<ul style="list-style-type: none"> • Inspect the oil pan. • Inspect the oil pump screen. • Repair or replace as required.
	Oil pump screen loose, damaged or restircted.	<ul style="list-style-type: none"> • Inspect the oil pump screen. • Repair or replace as required.
	Excessive piston-to-cylinder bore clearance.	<ul style="list-style-type: none"> • Inspect the piston, piston pin and cylinder bore. • Repair as required.
	Excessive piston pin-to-clearance	<ul style="list-style-type: none"> • Inspect the piston, piston pin and the connecting rod. • Repair or replace as required.
	Excessive connecting rod bearing rod clearance	<p>Inspect the following components and repair as required.</p> <ul style="list-style-type: none"> • The connecting rod bearings. • The connecting rods. • The crankshaft. • The crankshaft journal.

	Excessive crankshaft bearing clearance	<p>Inspect the following components, and repair as required.</p> <ul style="list-style-type: none"> •The crankshaft bearing. •The crankshaft journals.
	Incorrect piston, piston pin and connecting rod installation	<ul style="list-style-type: none"> •Verify the piston pins and connecting rods are installed correctly. •Repair as required.
Engine noise under load	Low oil pressure	Repair or replace as required.
	Excessive connecting rod bearing clearance	<p>Inspect the following components and repair as required :</p> <ul style="list-style-type: none"> •The connecting rod bearings. •The connecting rods. •The crankshaft
	Excessive crankshaft bearing clearance	<p>Inspect the following components, and repair as required.</p> <ul style="list-style-type: none"> •The crankshaft bearings. •The crankshaft journals. •The cylinder block crankshaft
Engine will not crank- crankshaft will not rotate	<p>Hydraulically cylinder</p> <ul style="list-style-type: none"> •Coolant/antifreeze in cylinder. •Oil in cylinder. •Fuel in cylinder 	<ol style="list-style-type: none"> 1.Remove spark plugs and check for fluid. 2. Inspect for broken head gasket. 3. Inspect for cracked engine block or cylinder head. 4. Inspect for a sticking fuel injector and/or leaking fuel regulator.
	Broken timing chain and/or timing chain and/or timing chain gears.	<ol style="list-style-type: none"> 1. Inspect timing chain and gears. 2. Repair as required.
	<p>Material cylinder</p> <ul style="list-style-type: none"> •Broken valve •Piston material •Foreign material 	<ol style="list-style-type: none"> 1. Inspect cylinder for damaged components and/or foreign materials. 2. Repair or replace as required.
	Seized crankshaft or connecting rod bearings.	<ol style="list-style-type: none"> 1. Inspect crankshaft and connecting rod bearing. 2. Repair as required.

Bent or broken connecting rod.	1. Inspect connecing rods. 2. Repair as required.
Broken crankshaft	1. Inspect crankshaft. 2. Repair as required.