

TROUBLE CHART

TROUBLES	POSSIBLE CAUSES
ENGINE HARD TO START	Weak battery Defective magneto or distributor (a)—Worn brushes (b)—Oil or water soaked (c)—Breaker points worn (d)—Coils broken or soaked (e)—Breaker arm or brushes sticking Throttle valve loose on shafts Spark plugs fouled Spark plugs cracked Loose or defective wiring Wires connected to wrong plugs Improper timing Improper gas mixture Gasoline flow obstructed Valve seats bad Valve tappets improperly adjusted Intake manifold leaking Water in fuel supply
ENGINE MISSING	Spark plugs fouled Spark plugs cracked Spark plug gap wrong Defective wiring Ignition breaker points sticking Priming cups leaking Manifold or head gaskets leaking Valves warped or burned Valves or tappets stuck Valve tappets improperly adjusted.
ENGINE OVERHEATING	Lack of oil Oil badly diluted Lack of water Radiator clogged Water hose obstructed Water pump vane stuck Limed up cylinders Carburetor choke valve partly closed Valves leaking Fan belt slipping Improper gas mixture Improper timing Spark retarded too far
ENGINE LACKS POWER	Valves not seating Piston rings weak Piston rings stuck Improper gas mixture Improper timing Muffler stopped up Governor or throttle valves loose Oil badly diluted Poor compression

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ENGINE KNOCKS	Carbon in cylinders Loose main bearing Loose rod bearing Worn pistons and cylinders Loose push rods Motor overheated Tight pistons Loose flywheel Lack of oil or water
FAULTY CARBURETION	Carburetor improperly adjusted Valves leaking Intake manifold leaking Gaskets leaking Shut-off valve closed Using too much fuel Water in fuel Sediment in fuel tank
EXCESSIVE SMOKE FROM EXHAUST	Too much oil in crank-case Carburetor needle valve open too far Carburetor float sticking or leaking Lubricating oil thin—not sealing pistons Worn bearings
EXPLOSION IN MUFFLER	Ignition too late Weak spark Exhaust valve holding open Exhaust valves warped
EXPLOSION IN CARBURETOR OR INTAKE MANIFOLD	Gas mixture too lean Intake valves sticking Intake tappets sticking Intake valve spring weak Intake manifold leaking Intake valves warped or broken Intake tappets set too close
POOR COMPRESSION	Valves not seating Valves sticking Valve tappets sticking Valve tappets set too close Piston rings weak Piston rings broken Piston rings stuck Loose spark plugs Cracked spark plugs Cylinder head loose Cylinder head gasket leaking Oil too thin—not sealing piston Scored cylinders Worn pistons and cylinders



