

TROUBLESHOOTING

NOTE: Make sure the engine has a good ground before troubleshooting.

Engine

STARTING PROBLEM

PROBLEM	CHECK	RESULT	SOLUTION
Engine will not turn over, stay running or only runs when choked	Test spark plug firing	No spark	See <i>Ignition troubleshooting</i>
		Sparks inconsistently	Examine spark plug condition
	Examine spark plug condition	If spark plug is dry	See <i>Carburetor/fuel delivery troubleshooting</i> .
		If spark plug is wet:	Check compression
	Compression	Poor compression	See <i>Compression Troubleshooting</i>
		Good Compression	Test start mechanism
	Start mechanism	Engine does not turn over	See <i>Starter/Battery Troubleshooting</i>
		Engine turns over	See <i>Ignition troubleshooting</i>
	Check fuel condition	Poor fuel	See <i>Carburetor/Fuel Delivery Troubleshooting</i>
		Adequate Fuel	See <i>Oil Alert Troubleshooting</i>

PERFORMANCE PROBLEM

PROBLEM	CHECK	RESULT	SOLUTION
Engine: Lacks power Overheats Surges or runs unevenly Vibration or noise level is excessive	Test spark plug firing	No spark	See <i>Ignition troubleshooting</i>
		Sparks inconsistently	See <i>Governor Troubleshooting</i>
	Examine spark plug condition	If spark plug is dry	See <i>Carburetor/fuel delivery troubleshooting</i> .
		If spark plug is wet:	Check compression
	Compression	Poor compression	See <i>Compression Troubleshooting</i>
		Good Compression	Check fuel condition
	Check fuel condition	Poor fuel	See <i>Carburetor/Fuel Delivery Troubleshooting</i>
		Adequate Fuel	See <i>Oil Alert Troubleshooting</i>

Starter/Battery

RECOIL STARTER

PROBLEM	CAUSE	SOLUTION
Engine does not turn over correctly	Starter cord cut	Disassemble and replace starter cord
	Return spring broken	Replace or realign return spring.
	Ratchet assembly malfunctioning	Replace ratchet
	Debris is locking up flywheel	Disassemble and clear any debris from blower housing and recoil assembly. See Flywheel Ignition breakdown.

BATTERY STARTER/BATTERY FAILURE

PROBLEM	CAUSE	SOLUTION
Battery does not supply charge	Battery leads faulty	Check for debris blocking connections If worn, replace battery
	Battery is dead	Check for blown fuse Charge battery

BATTERY STARTER/STARTER MOTOR FAILURE

PROBLEM	CAUSE	SOLUTION
Starter motor fails	Pinion gear not engaged with flywheel	Remove starter motor and make sure the pinion gear slides freely on helix
	Solenoid faulty	Make sure gear teeth have not been stripped
	Starter motor damaged	Repair or replace starter motor
Electrical relay fails	Starter toggle switch faulty	Check for continuity on starter toggle switch in the ON position. See Fan Cover breakdown section.

Carburetor/Fuel Delivery

STARTING PROBLEM

PROBLEM	CAUSE	SOLUTION
Fuel quality	Stale or old fuel	Perform fuel condition check
	Contaminated fuel	Perform fuel condition check
	Wrong type fuel	Perform fuel condition check

PROBLEM	CAUSE	SOLUTION
Excessive fuel	Over choking	Check choke linkages for alignment/set governor
	Air flow to carburetor restriction	Check/clean air filter
	Carburetor float/needle damaged	Disassemble and repair carburetor
	Pressure problem in carburetor	Disassemble and repair carburetor
Insufficient fuel	Tank/fuel line leaking or kinked	Check for leaks
	Fuel system clogged	See Fuel Filtration Service under <i>Maintenance</i> .
	Vapor lock	Clean fuel cap with compressed air
	Under choke	Check choke linkages/set governor
	Leaking carburetor gasket	Test start without fuel cap

PERFORMANCE PROBLEM

PROBLEM	CAUSE	SOLUTION
Engine will not stay running	Float level wrong	Disassemble and repair carburetor
	Fuel system clogged	See Fuel Filtration Service under <i>Maintenance</i> .
	Debris in Carburetor	Disassemble and repair carburetor
	Fuel leak kink	Check fuel lines for restrictions
Engine dies at idles	Carburetor restriction	Disassemble and repair carburetor
	Pilot jet clogged	Disassemble and repair carburetor
	Misadjusted idle speed	Disassemble and repair carburetor
	Leaks at gasket	Replace gasket
Engine overspeeds/underspeeds	Throttle plate stuck	Disassemble and repair carburetor
	Choke plate stuck	Clean or replace carburetor

PROBLEM	CAUSE	SOLUTION
Can not handle load	Float level off	Disassemble and repair carburetor
	Debris in carburetor	Disassemble and repair carburetor
	Main jet clogged	Clear main jet
	Air cleaner clogged	Clean air filter
	Fuel line/tank leaking	Check for kink in fuel line

Ignition**STARTING PROBLEM**

PROBLEM	CAUSE	SOLUTION
No Spark	Spark plug is bridged or fouled	Test spark plug, clean, set gap or replace. See Spark Plug under <i>Maintenance</i> .
	Debris is locking up flywheel	Clear debris from blower housing
	Incorrect armature air gap	Check and set armature air gap
	Worn flywheel key	Replace key
	Electrical short	Look for short/Test On-Off switch
	Broken oil alert	Replace

PERFORMANCE PROBLEM

PROBLEM	CAUSE	SOLUTION
Weak Spark	Spark plug is fouled	Test spark plug, clean, set gap or replace. See Spark Plug under <i>Maintenance</i> .
	Spark plug boot connection worn	Replace spark plug boot
	Charge coil damaged	Replace charge coil
	Incorrect armature air gap	Set armature air gap

Governor

PROBLEM	CAUSE	SOLUTION
Dies at idle	External linkage damaged	Check governor setting
	Internal linkage damaged	Adjust linkages. See Throttle Adjustment under <i>Maintenance</i> .
	Idle speed set too low	Disassemble crankcase and repair

PROBLEM	CAUSE	SOLUTION
Overspeed/ Underspeed	Throttle/governor linkage	Check throttle/governor linkage for damage
	Idle speed misadjusted	Set idle speed
	Internal governor control damaged	Check governor for damage
Can not handle load	Internal governor arm damaged	Check governor setting
	Linkage damaged	Repair linkages
	Internal governor flyweight damaged	Disassemble carburetor and repair

Compression

STARTING PROBLEM

PROBLEM	CAUSE	SOLUTION
Poor compression	Leaking/stuck valves	Valve job/replacement
	Head gasket burned	Replace head gasket
	Worn piston rings	Service/replace rings or piston or crankcase
	Worn cylinder bore	See <i>Compression</i> breakdown
	Warped/cracked cylinder head	Replace cylinder head

PERFORMANCE PROBLEM

PROBLEM	CAUSE	SOLUTION
Engine overheats	Cooling fins obstructed	Clear fins of debris
	Excessive load	Clean combustion chamber
	Carbon in combustion chamber	Clean combustion chamber
	Lubrication problem	Add oil
	Set at wrong idle speed	See <i>Governor Troubleshooting</i>
Low power	Worn piston rings	Replace/Add oil
	Low oil lubrication	Check oil passages
	Valves leaking	Perform valve job, see Inspection under <i>Cylinder Head Valves Breakdown</i> .
	Intake exhaust manifolds clogged	Clean manifolds
	Carbon build up	Clean combustion chamber
Black exhaust smoke	Carbon in combustion chamber	Clean combustion chamber
	Valves leaking stuck	Repair rings/bore

PROBLEM	CAUSE	SOLUTION
Blue exhaust smoke	Piston rings/cylinder bore worn and passing oil	Perform valve job/check air filter
Can not handle load	Improper valve clearance	Perform valve job, see Inspection under <i>Cylinder Head Valves Breakdown</i> .
	Weak valve spring	Perform valve job, see Inspection under <i>Cylinder Head Valves Breakdown</i> .
	Valve/valve seats worn or damaged	Perform valve job, see Inspection under <i>Cylinder Head Valves Breakdown</i> .
Excessive vibration/ knocking	Loose/worn connecting rod	Repair connection
	Carbon in combustion chamber	Clean carbon from chamber
	Bent crankshaft	Disassemble crankcase and repair
	Engine mount damaged	Check engine mounting bolts
	Timing out	Check flywheel key

Oil Alert

PROBLEM	CAUSE	SOLUTION
Engine will not start	Engine not on level surface	Make sure unit is level
	Insufficient oil in crankcase	Add recommended oil
	On/Off switch control panel mistaken wiring/broken	Test On/Off switch continuity/Replace
	Oil alert lead improperly grounded	Check engine grounding connection
	Crankcase gasket blown	Replace gasket
	Ignition system problem	See <i>Ignition</i> breakdown
Engine does not stop when oil is low	Oil alert lead faulty	Drain oil, disconnect oil alert unit and test start if starts replace unit. Check continuity between oil alerts leads if necessary replace unit.
	Panel wired incorrectly	Check panel wiring
	On/Off switch leads not continuous	Disconnect start switch and test start if necessary replace on/off switch.