

SECTION 11 - TROUBLESHOOTING

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Engine

■ **NOTE:** A Condition/Remedy marked with an asterisk (*) is for manual transmission models only.

Problem: Engine will not start or is hard to start (Compression too low)	
Condition	Remedy
1. Valve clearance out of adjustment	1. Adjust clearance
2. Valve guides worn - seated poorly	2. Repair - replace guides
3. Valves mistimed	3. Adjust valve timing
4. Piston rings worn excessively	4. Replace rings
5. Cylinder bore worn	5. Replace - rebore cylinder
6. Spark plug seating poorly	6. Tighten plug
7. Starter motor cranks too slowly - does not turn	7. See Electrical in this section
Problem: Engine will not start or is hard to start (No spark)	
Condition	Remedy
1. Spark plug fouled	1. Clean - replace plug
2. Spark plug wet	2. Clean - dry plug
3. Magneto defective	3. Replace magneto
4. CDI unit defective	4. Replace CDI unit
5. Ignition coil defective	5. Replace ignition coil
6. High-tension lead open - shorted	6. Replace high tension lead
Problem: Engine will not start or is hard to start (No fuel reaching the carburetor)	
Condition	Remedy
1. Gas tank vent hose obstructed	1. Clean vent hose
2. Carburetor inlet needle defective	2. Replace needle
3. Fuel hose obstructed	3. Clean - replace hose
4. Fuel screens obstructed	4. Clean - replace inlet screen - valve screen
Problem: Engine stalls easily	
Condition	Remedy
1. Spark plug fouled	1. Clean plug
2. Magneto defective	2. Replace magneto
3. CDI unit defective	3. Replace CDI unit
4. Carburetor jets obstructed	4. Clean jets
5. Valve clearance out of adjustment	5. Adjust clearance
Problem: Engine noisy (Excessive valve chatter)	
Condition	Remedy
1. Valve clearance too large	1. Adjust clearance
2. Valve spring(s) weak - broken	2. Replace spring(s)
3. Rocker arm - rocker arm shaft worn	3. Replace arm - shaft
4. Camshaft worn	4. Replace camshaft

Problem: Engine noisy (Noise seems to come from piston)	
Condition	Remedy
1. Piston - cylinder worn	1. Replace - service piston - cylinder
2. Combustion chamber carbon buildup	2. Clean chamber
3. Piston pin - piston pin bore worn	3. Replace - service pin - bore
4. Piston rings - ring groove(s) worn	4. Replace rings - piston
Problem: Engine noisy (Noise seems to come from timing chain)	
Condition	Remedy
1. Chain stretched	1. Replace chain
2. Sprockets worn	2. Replace sprockets
3. Tension adjuster malfunctioning	3. Repair - replace adjuster
Problem: Engine noisy (Noise seems to come from clutch)	
Condition *	Remedy *
1. Crankshaft splines - bearings worn	1. Replace crankshaft - bearings
2. Countershaft - hub splines worn	2. Replace countershaft - hub
3. Clutch plate teeth worn	3. Replace clutch plate(s)
4. Driven - drive clutch plates distorted - broken	4. Replace clutch plate(s)
5. Clutch dampers weak	5. Replace dampers
Problem: Engine noisy (Noise seems to come from crankshaft)	
Condition	Remedy
1. Bearing worn - burned	1. Replace bearing
2. Lower rod-end bearing worn - burned	2. Replace bearing
3. Connecting rod side clearance too large	3. Replace thrust washer(s)
Problem: Engine noisy (Noise seems to come from transmission)	
Condition	Remedy
1. Gears worn - rubbing	1. Replace gears
2. Splines worn	2. Replace shaft(s)
3. Primary gears worn - rubbing	3. Replace gears
4. Bearings worn	4. Replace bearings
5. Bushing worn	5. Replace bushing
Problem: Engine noisy (Noise seems to come from secondary-transmission/left-side cover)	
Condition *	Remedy *
1. Gears - shaft(s) worn	1. Replace gears - shafts
2. Bearing(s)/bushing(s) damaged	2. Replace bearing(s)/bushing(s)
Problem: Engine noisy (Noise seems to come from secondary bevel gear and final driven shaft)	
Condition	Remedy
1. Drive - driven bevel gears damaged - worn	1. Replace gears
2. Backlash excessive	2. Adjust backlash
3. Tooth contact improper	3. Adjust contact
4. Bearing damaged	4. Replace bearing
5. Gears worn - rubbing	5. Replace gears
6. Splines worn	6. Replace shaft(s)
7. Final driven shaft thrust clearance too large	7. Replace thrust washer(s)

Problem: Clutch slipping	
Condition *	Remedy *
<ol style="list-style-type: none"> 1. Release roller out of adjustment - loss of freeplay 2. Clutch springs weak 3. Clutch shoes worn 4. Pressure disc worn - distorted 5. Clutch plates (driven - drive) distorted 	<ol style="list-style-type: none"> 1. Adjust clutch bolts 1 & 2 2. Replace springs 3. Replace shoes 4. Replace disc 5. Replace plates
Problem: Clutch dragging	
Condition *	Remedy *
<ol style="list-style-type: none"> 1. Clutch release roller out of adjustment - too much freeplay 2. Clutch springs weak 3. Pressure disc - clutch plates distorted 4. Clutch release mechanism worn - damaged 	<ol style="list-style-type: none"> 1. Adjust clutch bolts 1 & 2 2. Replace springs 3. Replace disc - plates 4. Adjust - replace mechanism
Problem: Transmission will not shift	
Condition *	Remedy *
<ol style="list-style-type: none"> 1. Gearshift cam broken 2. Gearshift forks distorted 3. Gearshift shaft worn 4. Clutch release mechanism worn - damaged 5. Reverse cable adjusted improperly 6. Gearshift cable adjusted improperly 	<ol style="list-style-type: none"> 1. Replace cam 2. Replace forks 3. Replace shaft 4. Adjust - replace mechanism 5. Adjust cable 6. Adjust cable
Problem: Transmission will not shift back	
Condition *	Remedy *
<ol style="list-style-type: none"> 1. Reverse shift cam broken 2. Shift shafts rubbing - sticking 3. Gearshift forks distorted - worn 4. Gearshift lever return spring broken - damaged 	<ol style="list-style-type: none"> 1. Replace cam 2. Repair shafts 3. Replace forks 4. Replace spring
Problem: Transmission jumps out of gear	
Condition *	Remedy *
<ol style="list-style-type: none"> 1. Shifting gears (driveshaft - countershaft) worn 2. Gearshift forks distorted - worn 3. Cam stopper spring (gearshift cam) weak 4. Gearshift lever stopper pin worn 	<ol style="list-style-type: none"> 1. Replace gears 2. Replace forks 3. Replace spring 4. Replace pin
Problem: Secondary-transmission will not shift or shift back	
Condition *	Remedy *
<ol style="list-style-type: none"> 1. Sliding dog broken - worn 2. Gearshift fork broken - worn 3. Hi/Low shift lever out of adjustment 4. Gearshift cam worn 5. Cam stopper spring weak 6. Gearshift fork shaft worn 	<ol style="list-style-type: none"> 1. Replace dog 2. Replace fork 3. Adjust lever 4. Replace cam 5. Replace spring 6. Replace shaft

Problem: Engine idles poorly	
Condition	Remedy
1. Valve clearance out of adjustment	1. Adjust clearance
2. Valve seating poor	2. Replace - service seats - valves
3. Valve guides defective	3. Replace guides
4. Rocker arms - arm shaft worn	4. Replace arms - shafts
5. Magneto defective	5. Replace magneto
6. CDI unit defective	6. Replace CDI unit
7. Spark plug fouled - gap too wide	7. Adjust gap - replace plug
8. Ignition coil defective	8. Replace ignition coil
9. Float out of adjustment	9. Adjust float height
10. Jets obstructed	10. Clean jets
11. Pilot screw setting improper	11. Adjust pilot screw
Problem: Engine runs poorly at high speed	
Condition	Remedy
1. High RPM "cut out" against RPM limiter	1. Shift into higher gear - decrease speed
2. Valve springs weak	2. Replace springs
3. Valve timing out of adjustment	3. Adjust timing
4. Cams - rocker arms worn	4. Replace cams - arms
5. Spark plug gap too narrow	5. Adjust gap
6. Ignition coil defective	6. Replace ignition oil
7. Float level too low	7. Adjust float height
8. Air cleaner element obstructed	8. Clean element
9. Fuel hose obstructed	9. Clean - prime hose
Problem: Exhaust smoke dirty or heavy	
Condition	Remedy
1. Oil (in the engine) overfilled - contaminated	1. Drain excess oil - replace oil
2. Piston rings - cylinder worn	2. Replace - service rings - cylinder
3. Valve guides worn	3. Replace guides
4. Cylinder wall scored - scuffed	4. Replace - service cylinder
5. Valve stems worn	5. Replace valves
6. Stem seals defective	6. Replace seals

Problem: Engine lacks power	
Condition	Remedy
1. Valve clearance incorrect	1. Adjust clearance
2. Valve springs weak	2. Replace springs
3. Valve timing out of adjustment	3. Adjust timing
4. Piston ring(s) - cylinder worn	4. Replace - service rings - cylinder
5. Valve seating poor	5. Repair seats
6. Spark plug fouled	6. Clean - replace plug
7. Rocker arms - shafts worn	7. Replace arms - shafts
8. Spark plug gap incorrect	8. Adjust gap - replace plug
9. Carburetor jets obstructed	9. Clean jets
10. Float level out of adjustment	10. Adjust float height
11. Air cleaner element obstructed	11. Clean element
12. Oil (in the engine) overfilled - contaminated	12. Drain excess oil - change oil
13. Intake manifold leaking air	13. Tighten - replace manifold
14. Cam chain worn	14. Replace cam chain
Problem: Engine overheats	
Condition	Remedy
1. Carbon deposit (piston crown) excessive	1. Clean piston
2. Oil low	2. Add oil
3. Octane low - gasoline poor	3. Drain - replace gasoline
4. Oil pump defective	4. Replace pump
5. Oil circuit obstructed	5. Clean circuit
6. Gasoline level (in float chamber) too low	6. Adjust float height
7. Intake manifold leaking air	7. Tighten - replace manifold
8. Coolant level low	8. Fill - examine system for leaks
9. Fan malfunctioning	9. Check fan fuse - replace fan
10. Fan switch malfunctioning	10. Replace fan switch
11. Thermostat stuck - closed	11. Replace thermostat
12. Radiator hoses - cap damaged - obstructed	12. Clear obstruction - replace hoses

Drive

Problem: Power not transmitted from engine to wheels	
Condition	Remedy
1. Rear axle shaft serration worn - broken	1. Replace shaft
Problem: Power not transmitted from engine to either front wheel	
Condition	Remedy
1. Secondary drive - driven gear teeth broken	1. Replace gear(s)
2. Propeller shaft serration worn - broken	2. Replace shaft
3. Coupling damaged	3. Replace coupling
4. Coupling joint serration worn - damaged	4. Replace joint
5. Front drive - driven bevel gears broken - damaged	5. Replace gear(s)
6. Front differential gears/pinions broken - damaged	6. Replace gears - pinions
7. Sliding dog/shaft/fork worn - damaged	7. Replace gear(s)
8. Front drive axle worn - damaged	8. Replace axle
9. Front drive axle serration worn - damaged	9. Replace axle

Fuel System

Problem: Starting impaired	
Condition	Remedy
1. Starter jet obstructed	1. Clean jet
2. Starter jet passage obstructed	2. Clean passage
3. Starter body - carburetor leaking air	3. Tighten - adjust - replace gasket
4. Starter valve not operating properly	4. Check - adjust valve
Problem: Idling or low speed impaired	
Condition	Remedy
1. Slow jet obstructed - loose	1. Clean - tighten jet
2. Slow jet outlet obstructed	2. Clean outlet
3. Low speed fuel screw setting incorrect	3. Adjust screw
4. Starter valve not fully closed	4. Adjust valve
5. Float height incorrect	5. Adjust float height
Problem: Medium or high speed impaired	
Condition	Remedy
1. High RPM "cut out" against RPM limiter	1. Shift into higher gear - decrease RPM speed
2. Main jet obstructed	2. Clean main jet
3. Needle jet obstructed	3. Clean needle jet
4. Throttle vacuum piston not operating properly	4. Check piston operation
5. Filter obstructed	5. Clean filter
6. Float height incorrect	6. Adjust float height
7. Starter valve not fully closed	7. Adjust valve
Problem: Overflow and fuel level fluctuations	
Condition	Remedy
1. Float valve worn - damaged	1. Replace valve
2. Float valve spring broken	2. Replace spring
3. Float not working properly	3. Adjust float height - replace float
4. Float valve dirty	4. Clean valve
5. Float height too high - too low	5. Adjust float height

Electrical

Problem: Spark absent or weak	
Condition	Remedy
1. Ignition coil defective	1. Replace ignition coil
2. Spark plug defective	2. Replace plug
3. Magneto defective	3. Replace magneto
4. CDI unit defective	4. Replace CDI unit
5. Pick-up coil defective	5. Replace pick-up coil
Problem: Spark plug fouled with carbon	
Condition	Remedy
1. Mixture too rich	1. Adjust carburetor
2. Idling RPM too high	2. Adjust carburetor
3. Gasoline incorrect	3. Change to correct gasoline
4. Air cleaner element dirty	4. Clean element
5. Spark plug incorrect (too cold)	5. Replace plug
Problem: Spark plug electrodes overheat or burn	
Condition	Remedy
1. Spark plug incorrect (too hot)	1. Replace plug
2. Engine overheats	2. Service cooling system
3. Spark plug loose	3. Tighten plug
4. Mixture too lean	4. Adjust carburetor
Problem: Magneto does not charge	
Condition	Remedy
1. Lead wires/connections shorted - loose - open	1. Repair - replace - tighten lead wires
2. Magneto coils shorted - grounded - open	2. Replace magneto coils
3. Regulator/rectifier shorted - punctured	3. Replace regulator/rectifier
Problem: Magneto charges, but charging rate is below the specification	
Condition	Remedy
1. Lead wires shorted - open - loose (at terminals)	1. Repair - tighten lead wires
2. Stator coils (magneto) grounded - open	2. Replace stator coils
3. Regulator/rectifier defective	3. Replace regulator/rectifier
4. Electrolyte low	4. Add distilled water
5. Cell plates (battery) defective	5. Replace battery

Problem: Magneto overcharges	
Condition	Remedy
1. Internal battery short circuited	1. Replace battery
2. Regulator/rectifier resistor damaged - defective	2. Replace resistor
3. Regulator/rectifier poorly grounded	3. Clean - tighten ground connection
Problem: Charging unstable	
Condition	Remedy
1. Lead wire intermittently shorting	1. Replace lead wire
2. Magneto internally shorted	2. Replace magneto
3. Regulator/rectifier defective	3. Replace regulator/rectifier
Problem: Starter button not effective	
Condition	Remedy
1. Battery charge low	1. Recharge - replace battery
2. Switch contacts defective	2. Replace switch
3. Starter motor brushes not seating	3. Repair - replace brushes
4. Starter relay defective	4. Replace relay
5. Emergency stop - ignition switch off	5. Turn on switches
6. Wiring connections loose - disconnected	6. Connect - tighten - repair connections
Problem: Battery "sulfation" (Acidic white powdery substance or spots on surfaces of cell plates)	
Condition	Remedy
1. Charging rate too low - too high	1. Replace battery
2. Battery electrolyte excessive - insufficient	2. Keep electrolyte to prescribed level
3. Specific gravity too high - too low	3. Charge battery - add distilled water
4. Battery run-down - damaged	4. Replace battery
5. Electrolyte contaminated	5. Recharge - replace battery
Problem: Battery discharges too rapidly	
Condition	Remedy
1. Electrolyte contaminated	1. Replace battery
2. Specific gravity too high	2. Charge battery - add distilled water
3. Charging system (charging operation) not set properly	3. Check magneto - regulator/rectifier - circuit connections - adjust for specified charging operation
4. Cell plates overcharged - damaged	4. Replace battery - correct charging system
5. Battery short-circuited	5. Replace battery
6. Specific gravity too low	6. Recharge battery
7. Electrolyte contaminated	7. Replace battery
Problem: Battery polarity reversed	
Condition	Remedy
1. Battery incorrectly connected	1. Reverse connections - replace battery

Steering/Suspension

Problem: Handling too heavy or stiff	
Condition	Remedy
1. Front wheel alignment incorrect	1. Adjust alignment
2. Lubrication inadequate	2. Lubricate appropriate components
3. Tire inflation pressure incorrect	3. Adjust pressure
4. Tie rod ends seizing	4. Replace tie rod ends
5. Linkage connections seizing	5. Repair - replace connections
Problem: Steering oscillation	
Condition	Remedy
1. Tires inflated unequally	1. Adjust pressure
2. Wheel(s) wobbly	2. Replace wheel(s)
3. Wheel hub cap screw(s) loose - missing	3. Tighten - replace cap screws
4. Wheel hub bearing worn - damaged	4. Replace bearing
5. Tie rod ends worn - loose	5. Replace - tighten tie rod ends
6. Tires defective - incorrect	6. Replace tires
7. A-arm bushings damaged	7. Replace bushings
8. Bolts - nuts (frame) loose	8. Tighten bolts - nuts
Problem: Steering pulling to one side	
Condition	Remedy
1. Tires inflated unequally	1. Adjust pressure
2. Front wheel alignment incorrect	2. Adjust alignment
3. Wheel hub bearings worn - broken	3. Replace bearings
4. Frame distorted	4. Repair - replace frame
5. Shock absorber defective	5. Replace shock absorber
Problem: Steering impaired	
Condition	Remedy
1. Tire pressure too high	1. Adjust pressure
2. Steering linkage connections worn	2. Replace connections
3. Cap screws (suspension system) loose	3. Tighten cap screws
Problem: Tire wear rapid or uneven	
Condition	Remedy
1. Wheel hub bearings worn - loose	1. Replace bearings
2. Front wheel alignment incorrect	2. Adjust alignment
Problem: Steering noise	
Condition	Remedy
1. Caps screws - nuts loose	1. Tighten cap screws - nuts
2. Wheel hub bearings broken - damaged	2. Replace bearings
3. Lubrication inadequate	3. Lubricate appropriate components

Problem: Suspension too soft	
Condition	Remedy
1. Spring(s) weak	1. Replace spring(s)
2. Shock absorber damaged	2. Replace shock absorber
Problem: Suspension too stiff	
Condition	Remedy
1. A-arm-related bushings worn	1. Replace bushing
Problem: Suspension noisy	
Condition	Remedy
1. Cap screws (suspension system) loose	1. Tighten cap screws
2. A-arm-related bushings worn	2. Replace bushings
Problem: Rear wheel oscillation	
Condition	Remedy
1. Rear wheel hub bearings worn - loose	1. Replace bearings
2. Tires defective - incorrect	2. Replace tires
3. Wheel rim distorted	3. Replace rim
4. Wheel hub cap screws loose	4. Tighten cap screws
5. Axle shaft nut loose (Manual Transmission)	5. Tighten nut (Manual Transmission)
6. Auxiliary brake adjusted incorrectly	6. Adjust brake
7. Rear suspension arm-related bushing worn	7. Replace bushing
8. Rear shock absorber damaged	8. Replace shock absorber
9. Rear suspension arm nut loose	9. Tighten nut

Brakes

Problem: Braking poor	
Condition	Remedy
1. Pad worn	1. Replace pads
2. Pedal free-play excessive	2. Adjust free-play
3. Brake fluid leaking	3. Repair - replace hydraulic system
4. Hydraulic system leaking air	4. Bleed hydraulic system
5. Master cylinder/brake cylinder seal worn	5. Replace seal(s)
Problem: Brake lever travel excessive	
Condition	Remedy
1. Hydraulic system entrapped air	1. Bleed hydraulic system
2. Brake fluid low	2. Add fluid to proper level
3. Brake fluid incorrect	3. Replace with correct fluid
4. Piston seal - cup worn	4. Replace seal - cup
Problem: Brake fluid leaking	
Condition	Remedy
1. Connection joints loose	1. Tighten joints
2. Hose cracked	2. Replace hose
3. Piston seal worn	3. Replace seal