

SECTION 11 - TROUBLESHOOTING

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Engine

| Problem: Engine will not start or is hard to start (Compression too low) | |
|--|--|
| Condition | Remedy |
| 1. Valve clearance out of adjustment 2. Valve guides worn - seated poorly 3. Valves mistimed 4. Piston rings worn excessively 5. Cylinder bore worn 6. Spark plug seating poorly 7. Starter motor cranks too slowly - does not turn | 1. Adjust clearance 2. Repair - replace guides 3. Time camshafts 4. Replace rings 5. Replace - rebore cylinder 6. Tighten plug 7. See Electrical in this section |
| Problem: Engine will not start or is hard to start (No spark) | |
| Condition | Remedy |
| 1. Spark plug fouled 2. Spark plug wet 3. Magneto defective 4. CDI unit defective 5. Ignition coil defective 6. High-tension lead open - shorted | 1. Clean - replace plug 2. Clean - dry plug 3. Replace magneto 4. Replace CDI unit 5. Replace ignition coil 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 2. Carburetor inlet needle defective 3. Fuel hose obstructed 4. Fuel screens obstructed 5. Fuel valve clogged - defective | 1. Clean vent hose 2. Replace needle 3. Clean - replace hose 4. Clean - replace inlet screen - valve screen 5. Clean - replace valve |
| Problem: Engine stalls easily | |
| Condition | Remedy |
| 1. Spark plug fouled 2. Magneto defective 3. CDI unit defective 4. Carburetor jets obstructed 5. Valve clearance out of adjustment | 1. Clean plug 2. Replace magneto 3. Replace CDI unit 4. Clean jets 5. Adjust clearance |
| Problem: Engine noisy (Excessive valve chatter) | |
| Condition | Remedy |
| 1. Valve clearance too large 2. Valve spring(s) weak - broken 3. Tappet(s) worn 4. Camshaft worn | 1. Adjust clearance 2. Replace spring(s) 3. Replace tappet(s) and camshaft(s) 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: Clutch slipping | |
| Condition | Remedy |
| 1. Clutch cable out of adjustment - loss of freeplay | 1. Adjust clutch cable |
| 2. Clutch springs weak | 2. Replace springs |
| 3. Pressure disc worn - distorted | 3. Replace disc |
| 4. Clutch plates (driven - drive) distorted | 4. Replace plates |

| Problem: Clutch dragging | |
|---|--------------------------------------|
| Condition | Remedy |
| 1. Clutch cable out of adjustment - too much free-play | 1. Adjust cable |
| 2. Clutch springs weak | 2. Replace springs |
| 3. Pressure disc - clutch plates distorted | 3. Replace disc - plates |
| 4. Clutch release mechanism worn - damaged | 4. Adjust - replace mechanism |
| Problem: Transmission will not shift | |
| Condition | Remedy |
| 1. Gearshift cam broken | 1. Replace cam |
| 2. Gearshift forks distorted | 2. Replace forks |
| 3. Gearshift shaft worn | 3. Replace shaft |
| 4. Clutch cable out of adjustment | 4. Adjust cable |
| 5. Reverse selector cable adjusted improperly | 5. Adjust cable |
| Problem: Transmission will not shift back | |
| Condition | Remedy |
| 1. Reverse shift cam broken | 1. Replace cam |
| 2. Shift shafts rubbing - sticking | 2. Repair shafts |
| 3. Gearshift forks distorted - worn | 3. Replace forks |
| 4. Gearshift lever return spring broken - damaged | 4. Replace spring |
| 5. Clutch cable out of adjustment | 5. Adjust cable |
| Problem: Transmission jumps out of gear | |
| Condition | Remedy |
| 1. Shifting gears (driveshaft - countershaft) worn | 1. Replace gears |
| 2. Gearshift forks distorted - worn | 2. Replace forks |
| 3. Cam stopper spring (gearshift cam) weak | 3. Replace spring |
| 4. Gearshift lever stopper pin worn | 4. Replace pin |
| 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. Tappet(s) worn | 4. Replace tappet(s) and camshaft(s) |
| 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 |
| <ol style="list-style-type: none"> 1. Timing advance circuit malfunctioning 2. Valve springs weak 3. Valve timing incorrect 4. Cams worn 5. Spark plug gap too narrow 6. Ignition coil defective 7. Float level too low 8. Air cleaner element obstructed 9. Fuel hose obstructed | <ol style="list-style-type: none"> 1. Replace CDI unit 2. Replace springs 3. Reset timing 4. Replace cams 5. Adjust gap 6. Replace ignition oil 7. Adjust float height 8. Clean element 9. Clean - replace hose |
| Problem: Exhaust smoke dirty or heavy | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Piston rings - cylinder worn 2. Valve guides worn 3. Cylinder wall scored - scuffed 4. Valve stems worn 5. Stem seals defective | <ol style="list-style-type: none"> 1. Replace - service rings - cylinder 2. Replace guides 3. Replace - service cylinder 4. Replace valves 5. Replace seals |
| Problem: Engine lacks power | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Valve clearance incorrect 2. Valve springs weak 3. Valve timing out of adjustment 4. Piston ring(s) - cylinder worn 5. Valve seating poor 6. Spark plug fouled 7. Tappet(s) worn 8. Spark plug gap incorrect 9. Carburetor jets obstructed 10. Float level out of adjustment 11. Air cleaner element obstructed 12. Oil (in the engine) overfilled - contaminated 13. Intake manifold leaking air 14. Cam chain worn | <ol style="list-style-type: none"> 1. Adjust clearance 2. Replace springs 3. Adjust timing 4. Replace - service rings - cylinder 5. Repair seats 6. Clean - replace plug 7. Replace tappet(s) and camshaft(s) 8. Adjust gap - replace plug 9. Clean jets 10. Adjust float height 11. Clean element 12. Drain excess oil - change oil 13. Tighten - replace manifold 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 cap - hoses |

Fuel System

| Problem: Starting impaired | |
|--|---|
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Starter jet obstructed 2. Starter jet passage obstructed 3. Starter body - carburetor leaking air 4. Starter valve not operating properly | <ol style="list-style-type: none"> 1. Clean jet 2. Clean passage 3. Tighten - adjust - replace gasket 4. Check - adjust valve |
| Problem: Idling or low speed impaired | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Slow jet obstructed - loose 2. Slow jet outlet obstructed 3. Pilot screw setting incorrect 4. Starter valve not fully closed 5. Float height incorrect | <ol style="list-style-type: none"> 1. Clean - tighten jet 2. Clean outlet 3. Adjust screw 4. Adjust valve 5. Adjust float height |
| Problem: Medium or high speed impaired | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Main jet obstructed 2. Needle jet obstructed 3. Throttle vacuum piston not operating properly 4. Filter obstructed 5. Float height incorrect 6. Starter valve not fully closed | <ol style="list-style-type: none"> 1. Clean main jet 2. Clean needle jet 3. Check piston operation 4. Clean filter 5. Adjust float height 6. Adjust valve |
| Problem: Overflow and fuel level fluctuations | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Float valve worn - damaged 2. Float valve spring broken 3. Float cracked - fuel-soaked 4. Float valve dirty 5. Float height too high - too low | <ol style="list-style-type: none"> 1. Replace valve 2. Replace spring 3. Replace float 4. Clean valve 5. Adjust float height |

Electrical

| Problem: Spark absent or weak | |
|---|--|
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Ignition coil defective 2. Spark plug defective 3. Magneto defective 4. CDI unit defective 5. Pick-up coil defective | <ol style="list-style-type: none"> 1. Replace ignition coil 2. Replace plug 3. Replace magneto 4. Replace CDI unit 5. Replace pick-up coil |
| Problem: Spark plug fouled with carbon | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Mixture too rich 2. Idling RPM too high 3. Gasoline incorrect 4. Air cleaner element dirty 5. Spark plug incorrect (too cold) 6. Valve seals cracked - missing 7. Oil rings worn - broken | <ol style="list-style-type: none"> 1. Adjust carburetor 2. Adjust carburetor 3. Change to correct gasoline 4. Clean element 5. Replace plug 6. Replace seals 7. Replace rings |
| Problem: Spark plug electrodes overheat or burn | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Spark plug incorrect (too hot) 2. Engine overheats 3. Spark plug loose 4. Mixture too lean | <ol style="list-style-type: none"> 1. Replace plug 2. Service cooling system 3. Tighten plug 4. Adjust carburetor |
| Problem: Magneto does not charge | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Lead wires/connections shorted - loose - open 2. Magneto coils shorted - grounded - open 3. Regulator/rectifier shorted - punctured | <ol style="list-style-type: none"> 1. Repair - replace - tighten lead wires 2. Replace magneto coils 3. Replace regulator/rectifier |
| Problem: Magneto charges, but charging rate is below the specification | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Lead wires shorted - open - loose (at terminals) 2. Stator coils (magneto) grounded - open 3. Regulator/rectifier defective 4. Cell plates (battery) defective | <ol style="list-style-type: none"> 1. Repair - tighten lead wires 2. Replace stator coils 3. Replace regulator/rectifier 4. 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 |
| 7. Clutch position switch defective | 7. Replace switch |
| Problem: Battery discharges too rapidly | |
| Condition | Remedy |
| 1. Electrical load too high | 1. Reduce electrical load |
| 2. Battery short-circuited | 2. 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 |
| <ol style="list-style-type: none"> 1. Front wheel alignment incorrect 2. Lubrication inadequate 3. Tire inflation pressure incorrect 4. Tie rod ends seizing 5. Linkage connections seizing | <ol style="list-style-type: none"> 1. Adjust alignment 2. Lubricate appropriate components 3. Adjust pressure 4. Replace tie rod ends 5. Repair - replace connections |
| Problem: Steering oscillation | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Tires inflated unequally 2. Wheel(s) wobbly 3. Wheel hub cap screw(s) loose - missing 4. Wheel hub bearing worn - damaged 5. Tie rod ends worn - loose 6. Tires defective - incorrect 7. A-arm bushings damaged 8. Bolts - nuts (frame) loose | <ol style="list-style-type: none"> 1. Adjust pressure 2. Replace wheel(s) 3. Tighten - replace cap screws 4. Replace bearing 5. Replace - tighten tie rod ends 6. Replace tires 7. Replace bushings 8. Tighten bolts - nuts |
| Problem: Steering pulling to one side | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Tires inflated unequally 2. Front wheel alignment incorrect 3. Wheel hub bearings worn - broken 4. Frame distorted 5. Shock absorber defective | <ol style="list-style-type: none"> 1. Adjust pressure 2. Adjust alignment 3. Replace bearings 4. Repair - replace frame 5. Replace shock absorber |
| Problem: Steering impaired | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Tire pressure too high 2. Steering linkage connections worn 3. Cap screws (suspension system) loose 4. Toe-in incorrect | <ol style="list-style-type: none"> 1. Adjust pressure 2. Replace connections 3. Tighten cap screws 4. Set toe-in to specifications |
| Problem: Tire wear rapid or uneven | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Wheel hub bearings worn - loose 2. Front wheel alignment incorrect | <ol style="list-style-type: none"> 1. Replace bearings 2. Adjust alignment |
| Problem: Steering noise | |
| Condition | Remedy |
| <ol style="list-style-type: none"> 1. Caps screws - nuts loose 2. Wheel hub bearings broken - damaged 3. Lubrication inadequate | <ol style="list-style-type: none"> 1. Tighten cap screws - nuts 2. Replace bearings 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 bushings |
| 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 axle/housing 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 hub nut loose | 5. Tighten nut |
| 6. Parking brake adjusted incorrectly | 6. Adjust brake |
| 7. Rear suspension swing-arm bushing worn | 7. Replace bushing |
| 8. Rear shock absorber damaged | 8. Replace shock absorber |
| 9. Rear axle housing cap screws loose | 9. Tighten cap screws |

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/pedal 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 |

NOTES