

# Starting Systems

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## STARTING SYSTEMS TROUBLE SHOOTING

CONDITION & POSSIBLE CAUSE	CONDITION & POSSIBLE CAUSE
<p><b>Starter Fails to Operate</b></p> <ul style="list-style-type: none"><li>● Dead battery or bad connections between starter and battery.</li><li>● Ignition switch faulty or misadjusted.</li><li>● Open circuit between starter switch and ignition terminal on starter relay.</li><li>● Starter relay or starter defective.</li><li>● Open solenoid pull-in wire.</li></ul> <p><b>Starter Does Not Operate and Headlights Dim</b></p> <ul style="list-style-type: none"><li>● Weak battery or dead battery cell.</li><li>● Loose or corroded battery connections.</li><li>● Internal ground in windings.</li><li>● Grounded starter fields.</li><li>● Armature rubbing on pole shoes.</li></ul> <p><b>Starter Turns but Engine Does Not Rotate</b></p> <ul style="list-style-type: none"><li>● Starter clutch slipping.</li><li>● Broken clutch housing.</li><li>● Pinion shaft rusted or dry.</li><li>● Engine basic timing incorrect.</li><li>● Broken teeth on engine ring gear.</li></ul> <p><b>Starter Will Not Crank Engine</b></p> <ul style="list-style-type: none"><li>● Faulty overrunning clutch.</li><li>● Broken clutch housing.</li><li>● Broken ring gear teeth.</li><li>● Armature shaft sheared or reduction gear teeth stripped.</li><li>● Weak battery.</li><li>● Faulty solenoid.</li><li>● Starter spins slowly and draws high current.</li><li>● Poor grounds.</li><li>● Engine siezed.</li><li>● Ignition switch faulty or misadjusted.</li></ul> <p><b>Starter Cranks Engine Slowly</b></p> <ul style="list-style-type: none"><li>● Battery weak or defective.</li><li>● Engine overheated.</li><li>● Engine oil too heavy.</li><li>● Poor battery-to-starter connections.</li><li>● Current draw too low or too high.</li><li>● Tight engine bearings or pistons.</li><li>● Bent armature, loose pole shoe screws or worn bearings.</li><li>● Burned solenoid contacts.</li><li>● Faulty starter.</li></ul> <p><b>Starter Engages Engine Only Momentarily</b></p> <ul style="list-style-type: none"><li>● Engine timing too far advanced.</li><li>● Overrunning clutch not operating.</li><li>● Broken starter clutch housing.</li><li>● Broken teeth on engine ring gear.</li><li>● Weak drive assembly thrust spring.</li><li>● Weak hold-in coil.</li></ul>	<p><b>Starter Drive Will Not Engage</b></p> <ul style="list-style-type: none"><li>● Defective point assembly.</li><li>● Poor point assembly ground.</li><li>● Defective pull-in coil.</li></ul> <p><b>Starter Drive Will Not Disengage</b></p> <ul style="list-style-type: none"><li>● Starter motor loose on mountings.</li><li>● Worn drive end bushing.</li><li>● Damaged ring gear teeth.</li><li>● Drive yolk return spring broken or missing.</li><li>● Faulty ignition starter switch.</li><li>● Solenoid contact switch plunger stuck.</li><li>● Faulty relay.</li><li>● Insufficient clearance between winding leads to solenoid terminal and main contact in solenoid.</li><li>● Starter clutch not disengaging.</li><li>● Ignition starter switch contacts sticking.</li></ul> <p><b>Starter Relay Does Not Close</b></p> <ul style="list-style-type: none"><li>● Dead battery.</li><li>● Faulty wiring.</li><li>● Neutral safety switch faulty.</li><li>● Starter relay faulty.</li></ul> <p><b>Starter Relay Operates but Solenoid Does Not</b></p> <ul style="list-style-type: none"><li>● Faulty solenoid switch, switch connections or switch wiring.</li><li>● Broken lead or loose soldered connections.</li></ul> <p><b>Solenoid Plunger Vibrates When Switch is Engaged</b></p> <ul style="list-style-type: none"><li>● Weak battery.</li><li>● Solenoid contacts corroded.</li><li>● Faulty wiring.</li><li>● Broken connections inside switch cover.</li><li>● Open hold-in wire.</li></ul> <p><b>Low Current Draw</b></p> <ul style="list-style-type: none"><li>● Worn brushes or weak brush springs.</li></ul> <p><b>High Pitched Whine During Cranking Before Engine Fires but Engine Fires and Cranks Normally</b></p> <ul style="list-style-type: none"><li>● Distance too great between starter pinion and flywheel.</li></ul> <p><b>High Pitched Whine After Engine Fires With Key Released. Engine Fires and Cranks Normally</b></p> <ul style="list-style-type: none"><li>● Distance too small between starter pinion and flywheel. Flywheel runout contributes to the intermittent nature.</li></ul>