STARTING SYSTEMS TROUBLE SHOOTING

CONDITION & POSSIBLE CAUSE	CONDITION & POSSIBLE CAUSE
Starter Fails to Operate • Dead battery or bad connections between starter and battery. • Ignition switch faulty or misadjusted. • Open circuit between starter switch and ignition terminal on starter relay. • Starter relay or starter defective. • Open solenoid pull-in wire.	**Starter Drive Will Not Engage** • Defective point assembly. • Poor point assembly ground. • Defective pull-in coil.
Starter Does Not Operate and Headlights Dim • Weak battery or dead battery cell. • Loose or corroded battery connections. • Internal ground in windings. • Grounded starter fields. • Armature rubbing on pole shoes.	**Starter Drive Will Not Disengage** • Starter motor loose on mountings. • Worn drive end bushing. • Damaged ring gear teeth. • Drive yolk return spring broken or missing. • Faulty ignition starter switch. • Solenoid contact switch plunger stuck. • Faulty relay. • Insufficient clearance between winding leads to solenoid terminal and main contact in solenoid. • Starter clutch not disengaging. • Ignition starter switch contacts sticking.
Starter Turns but Engine Does Not Rotate • Starter clutch slipping. • Broken clutch housing. • Pinion shaft rusted or dry. • Engine basic timing incorrect. • Broken teeth on engine ring gear.	**Starter Relay Does Not Close** • Dead battery. • Faulty wiring. • Neutral safety switch faulty. • Starter relay faulty.
Starter Will Not Crank Engine • Faulty overrunning clutch. • Broken clutch housing. • Broken ring gear teeth. • Armature shaft sheared or reduction gear teeth stripped. • Weak battery. • Faulty solenoid. • Starter spins slowly and draws high current. • Poor grounds. • Engine siezed. • Ignition switch faulty or misadjusted.	**Starter Relay Operates but Solenoid Does Not** • Faulty solenoid switch, switch connections or switch wiring. • Broken lead or loose soldered connections.
Starter Cranks Engine Slowly • Battery weak or defective. • Engine overheated. • Engine oil too heavy. • Poor battery-to-starter connections. • Current draw too low or too high. • Tight engine bearings or pistons. • Bent armature, loose pole shoe screws or worn bearings. • Burned solenoid contacts. • Faulty starter.	**Solenoid Plunger Vibrates When Switch is Engaged** • Weak battery. • Solenoid contacts corroded. • Faulty wiring. • Broken connections inside switch cover. • Open hold-in wire.
Starter Engages Engine Only Momentarily • Engine timing too far advanced. • Overrunning clutch not operating. • Broken starter clutch housing. • Broken teeth on engine ring gear. • Weak drive assembly thrust spring. • Weak hold-in coil.	**Low Current Draw** • Worn brushes or weak brush springs. **High Pitched Whine During Cranking Before Engine Fires but Engine Fires and Cranks Normally** • Distance too great between starter pinion and flywheel. **High Pitched Whine After Engine Fires With Key Released. Engine Fires and Cranks Normally** • Distance too small between starter pinion and flywheel. Flywheel runout contributes to the intermittent nature.