

## TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSE	CORRECTION
<b>Starter Fails to Operate</b>	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	Check battery charge and all wires and connections to starter Adjust or replace ignition switch Check and repair wires and connections as necessary See Testing in STARTERS See Testing in STARTERS
<b>Starter Does Not Operate and Headlights Dim</b>	Weak battery or dead battery cell Loose or corroded battery connections  Internal ground in starter windings Grounded starter fields Armature rubbing on pole shoes	Charge or replace battery as necessary Check that battery connection are clean and tight See Testing in STARTERS See Testing in STARTERS See Overhaul in STARTERS
<b>Starter Turns but Engine Does Not Rotate</b>	Starter clutch slipping Broken clutch housing Pinion shaft rusted or dry Engine basic timing incorrect Broken teeth on engine flywheel	See Overhaul in STARTERS See Overhaul in STARTERS See Overhaul in STARTERS See Ignition Timing in TUNE-UP Replace flywheel and check for starter pinion gear damage
<b>Starter Will Not Crank Engine</b>	Faulty overrunning clutch Broken clutch housing Broken flywheel teeth  Armature shaft sheared or reduction gear teeth stripped Weak battery Faulty solenoid Poor grounds  Ignition switch faulty or misadjusted	See Overhaul in STARTERS See Overhaul in STARTERS Replace flywheel and check for starter pinion gear damage See Overhaul in STARTERS  Charge or replace battery as necessary See On Vehicle Tests in STARTERS Check all ground connections for tight and clean connections Adjust or replace ignition switch as necessary
<b>Starter Cranks Engine Slowly</b>	Battery weak or defective Engine overheated Engine oil too heavy Poor battery-to-starter connections  Current draw too low or too high Bent armature, loose pole shoe screws or worn bearings  Burned solenoid contacts Faulty starter	Charge or replace battery as necessary See ENGINE COOLING SYSTEMS Check that proper viscosity oil is used Check that all connections between battery and starter are clean and tight See Bench Tests in STARTERS See Overhaul in STARTERS  Replace solenoid Replace starter
<b>Starter Engages Engine Only Momentarily</b>	Engine timing too far advanced Overrunning clutch not operating  Broken starter clutch housing Broken teeth on engine flywheel  Weak drive assembly thrust spring Weak hold-in coil	See Ignition Timing In TUNE-UP Replace overrunning clutch. See Overhaul in STARTERS  See Overhaul in STARTERS Replace flywheel and check starter pinion gear for damage  See Overhaul in STARTERS See Bench Tests in STARTERS
<b>Starter Drive Will Not Engage</b>	Defective point assembly Poor point assembly ground Defective pull-in coil	See Testing in STARTERS See Testing in STARTERS Replace starter solenoid
<b>Starter Relay Does Not Close</b>	Dead battery Faulty wiring  Neutral safety switch faulty Starter relay faulty	Charge or replace battery as necessary Check all wiring and connections leading to relay Replace neutral safety switch Replace starter relay

# Starting Systems

## TROUBLE SHOOTING (Cont.)

CONDITION	POSSIBLE CAUSE	CORRECTION
<b>Starter Drive Will Not Disengage</b>	Starter motor loose on mountings Worn drive end bushing Damaged engine flywheel teeth  Drive yolk return spring broken or missing Faulty ignition switch Solenoid contact switch plunger stuck Faulty starter relay Insufficient clearance between winding leads to solenoid terminal and main contact in solenoid Starter clutch not disengaging Ignition starter switch contacts sticking	Tighten starter attaching bolts See Overhaul in STARTERS Replace flywheel and check starter pinion gear for damage Replace return spring  Replace ignition switch Replace starter solenoid Replace starter relay Replace starter solenoid  Replace starter clutch Replace ignition switch
<b>Starter Relay Operates but Solenoid Does Not</b>	Faulty solenoid switch, switch connections or switch wiring Broken lead or loose soldered connections	Check all wiring between relay and solenoid or replace relay or solenoid as necessary Repair wire or wire connections as necessary
<b>Solenoid Plunger Vibrates When Switch is Engaged</b>	Weak battery Solenoid contacts corroded Faulty wiring Broken connections inside switch cover Open hold-in wire	Charge or replace battery as necessary Clean contacts or replace solenoid Check all wiring leading to solenoid Repair connections or replace solenoid Replace solenoid
<b>Low Current Draw</b>	Worn brushes or weak brush springs	Replace brushes or brush springs as necessary
<b>High Pitched Whine During Cranking Before Engine Fires but Engine Fires and Cranks Normally</b>	Distance too great between starter pinion and flywheel	Align starter or check that correct starter and flywheel are being used
<b>High Pitched Whine After Engine Fires With Key Released. Engine Fires and Cranks Normally</b>	Distance too small between starter pinion and flywheel. Flywheel runout contributes to the intermittent nature	Align starter or check that correct starter and flywheel are being used