

Examining 1993 to 2001 Villager/Quest Engine Electrical Systems Part II

Courtesy Haynes Publishing

Starting System General Information

The starting system is composed of the starter motor, starter/inhibit relay, battery, ignition switch and connecting wires.

Turning the ignition key to the start position actuates the starter relay through the starter control circuit. The starter relay then connects the battery to the starter solenoid.

These models are equipped with a starter/solenoid assembly that is mounted to the transmission bellhousing.

All vehicles are equipped with a transmission range sensor in the starter control circuit, which prevents operation of the starter unless the shift lever is in neutral or park.

The starter circuit is equipped with a starter/inhibit relay. This relay is located in the engine compartment LH fuse/relay box.

Never operate the starter motor for more than 15 seconds at a time without pausing to allow it to cool for at least two minutes. Excessive cranking can cause overheating, which can seriously damage the starter.

Starter Motor and Circuit In-Vehicle Check

If a malfunction occurs in the starting circuit, do not immediately assume that the starter is causing the problem. First, check the following items:

1. Make sure the battery cable clamps, where they connect to the battery, are clean and tight.
2. Check the condition of the battery cables. Replace any defective battery cables with new parts.
3. Test the condition of the battery. If it does not pass all the tests, replace it with a new battery.
4. Check the starter solenoid wiring and connections.
5. Check the starter mounting bolts for tightness.

If the starter does not activate when the ignition switch is turned to the start position, check for battery voltage to the

solenoid with the ignition switch off. There should be battery voltage at the positive battery cable on the solenoid if the battery and/or cables are in good working order.

Backprobe the "S" terminal on the starter solenoid and check for voltage as the ignition switch is turned to the start position. This will determine if the solenoid is receiving the correct voltage signal from the ignition switch. If voltage is not available, check the fusible links in the engine compartment fuse box. If they're burned, determine the cause and repair the circuit. Also, check the ignition switch fuse (30 amp) in the engine compartment fuse box and the electronic transaxle fuse (10 amp) in the passenger compartment fuse panel. If the fuses and fusible links are OK, check the starter/inhibit relay and circuit for proper operation.

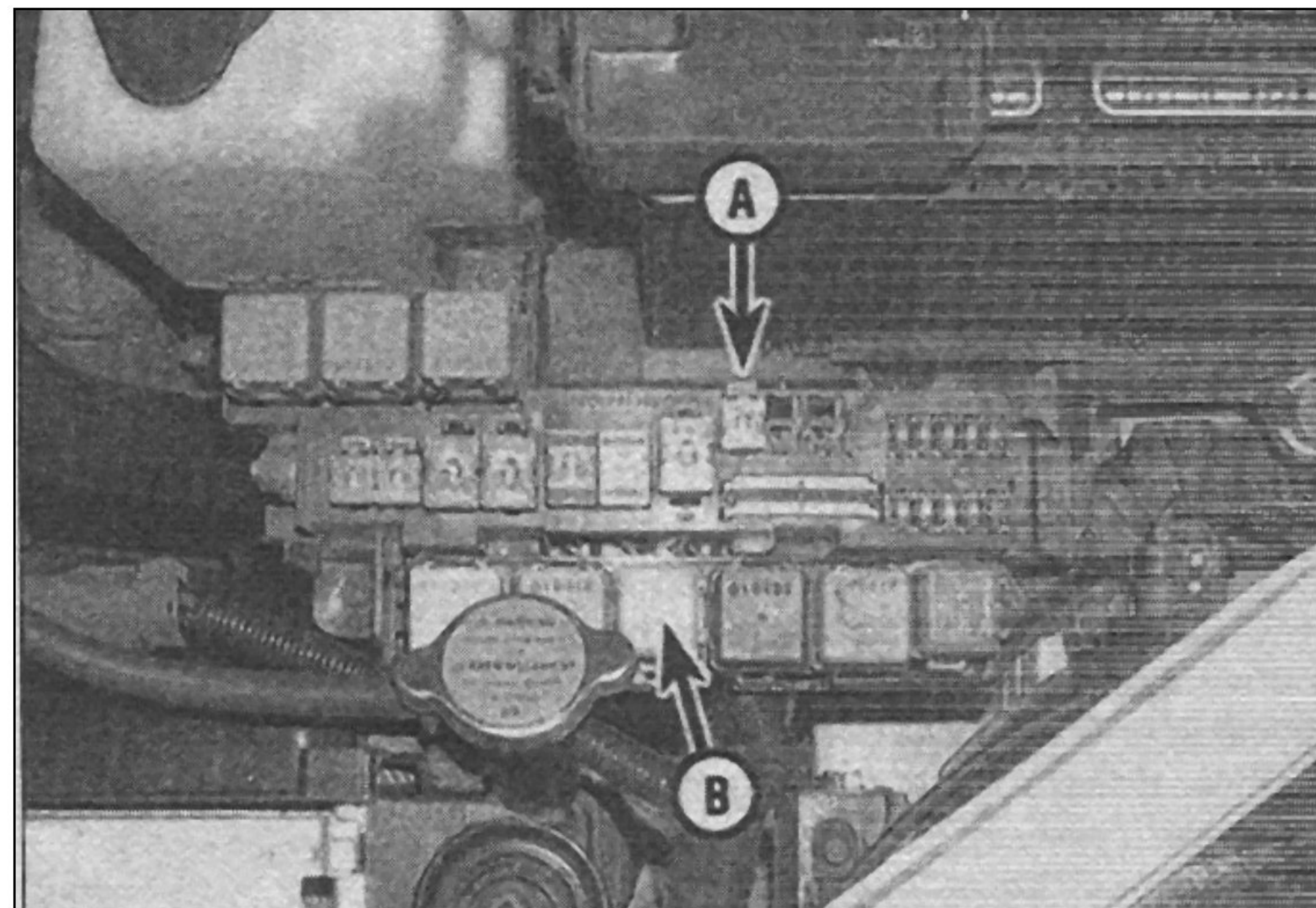
If the starter/inhibit relay circuit is not functioning, check the operation of the transaxle range sensor. Make sure the shift lever is in park or neutral.

If the vehicle is equipped with an anti-theft alarm, check the circuit and the control module for shorts or damaged components.

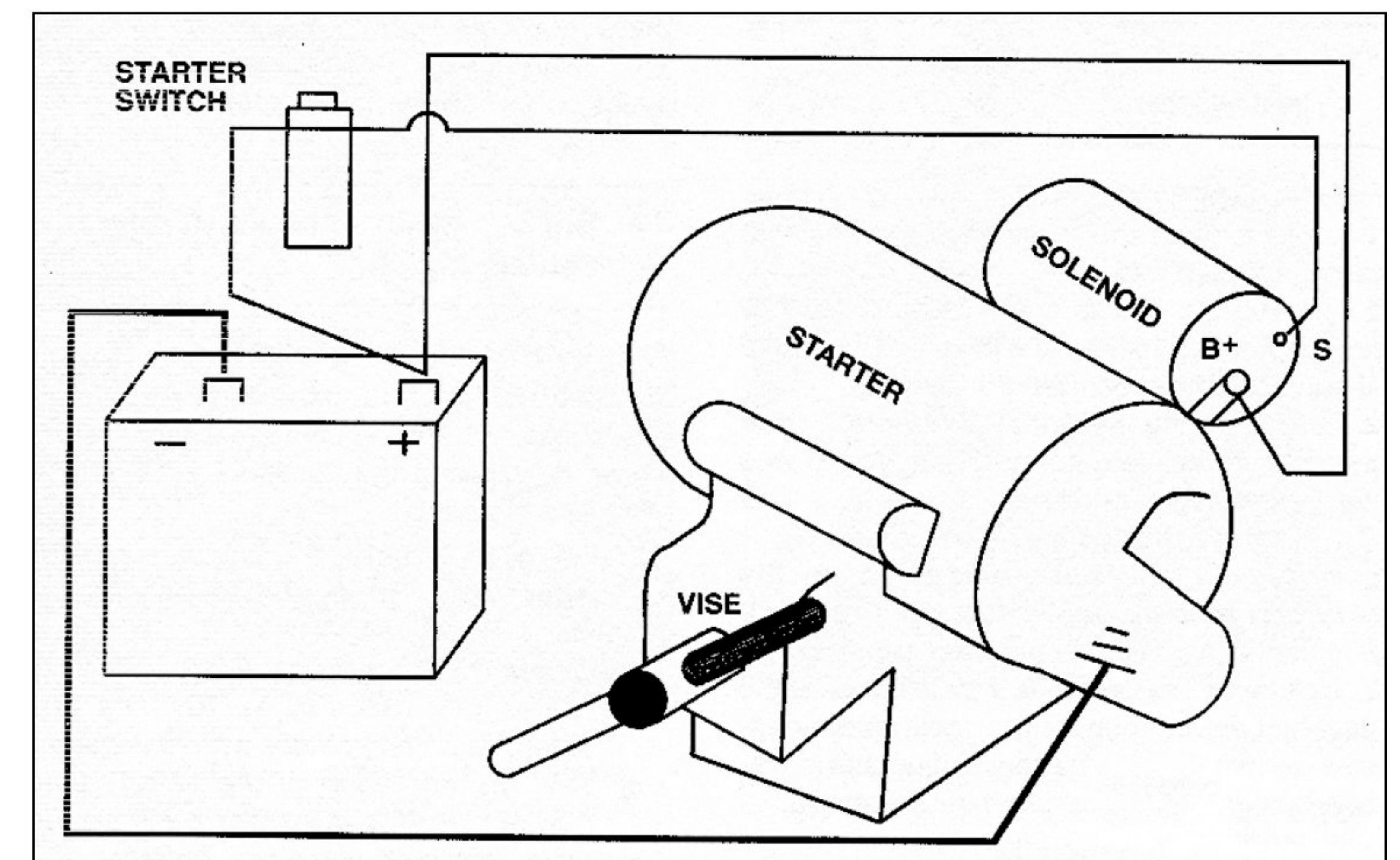
If voltage is available and there is no movement from the starter motor, remove the starter from the engine and bench test the starter.

If the starter is receiving voltage but does not activate, remove and check the starter/solenoid assembly on the bench. Most likely the solenoid is defective. In some rare cases, the engine may be seized so be sure to try and rotate the crankshaft pulley before proceeding.

With the starter/solenoid assembly mounted in a vise on the bench, install one jumper cable from the negative

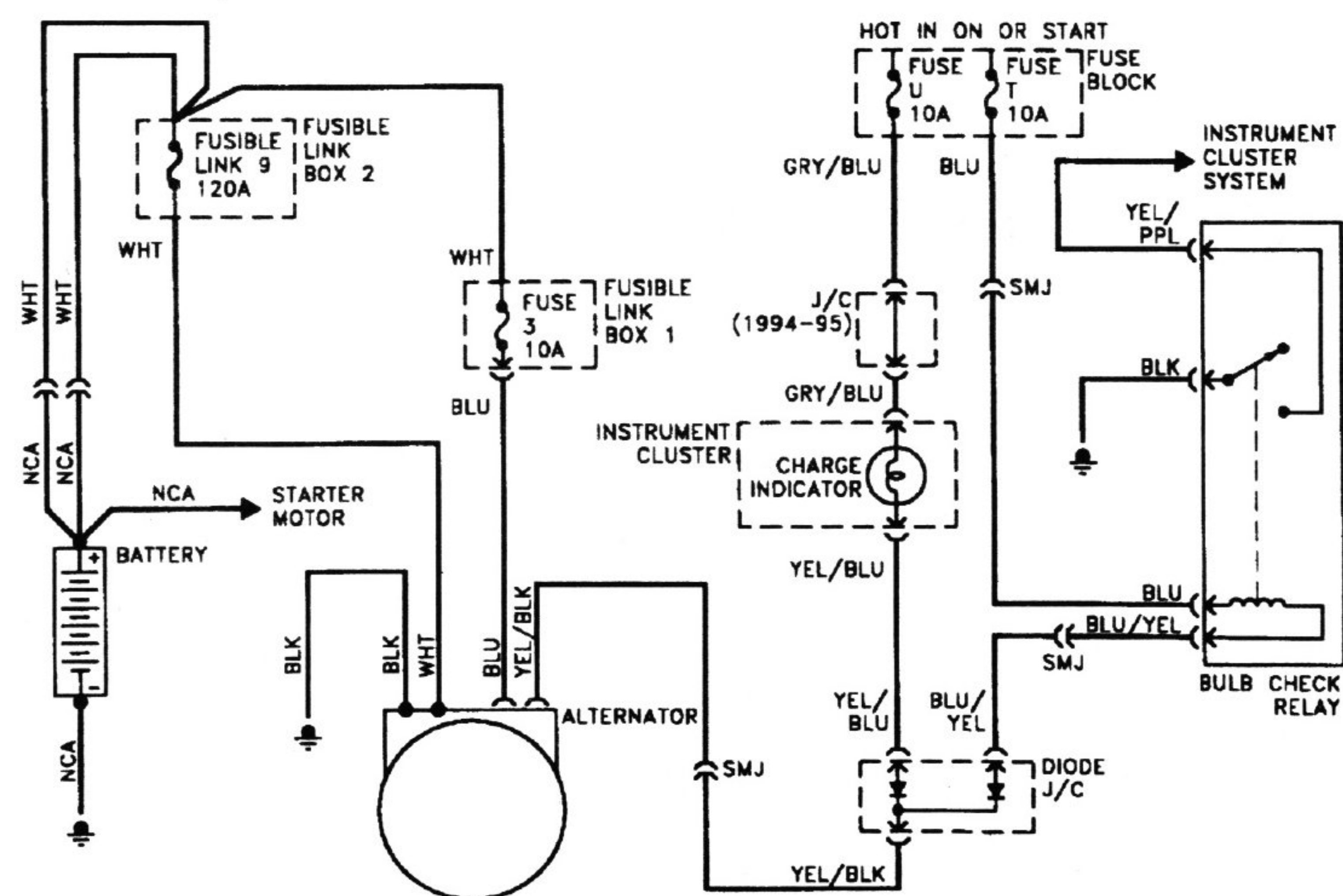
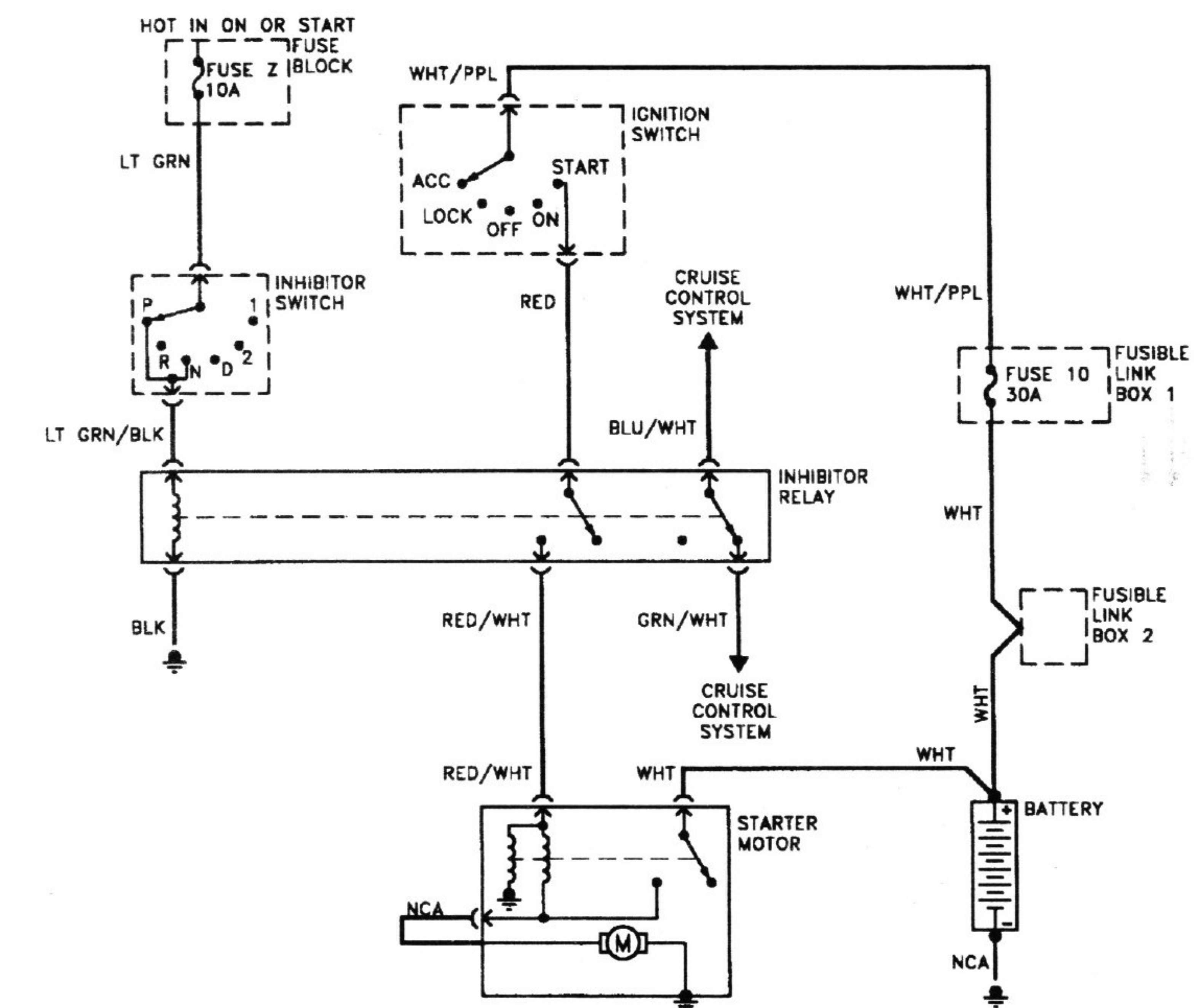


Location of the ignition switch fuse (A) and starter/inhibit relay (B) (1996 and later).

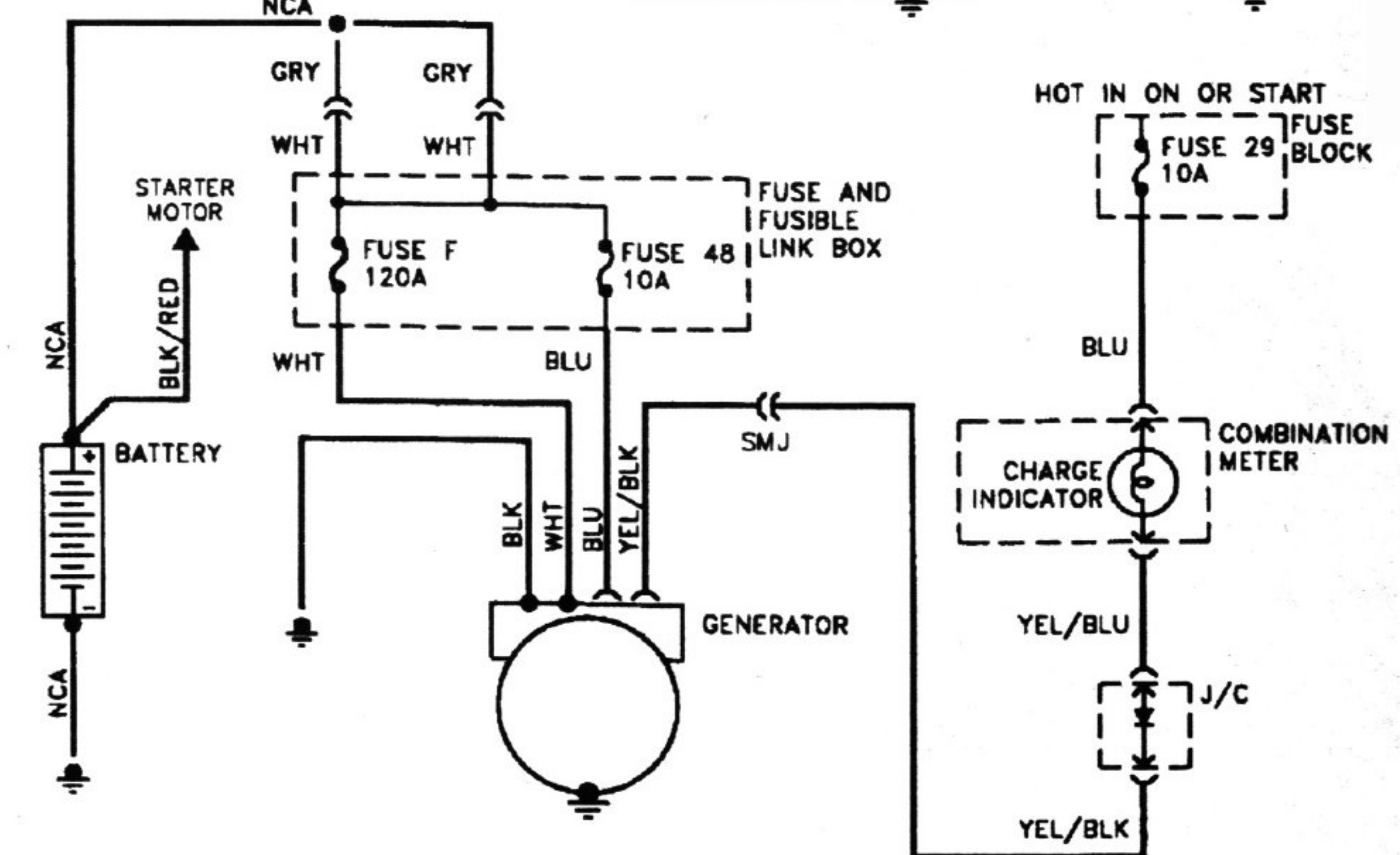
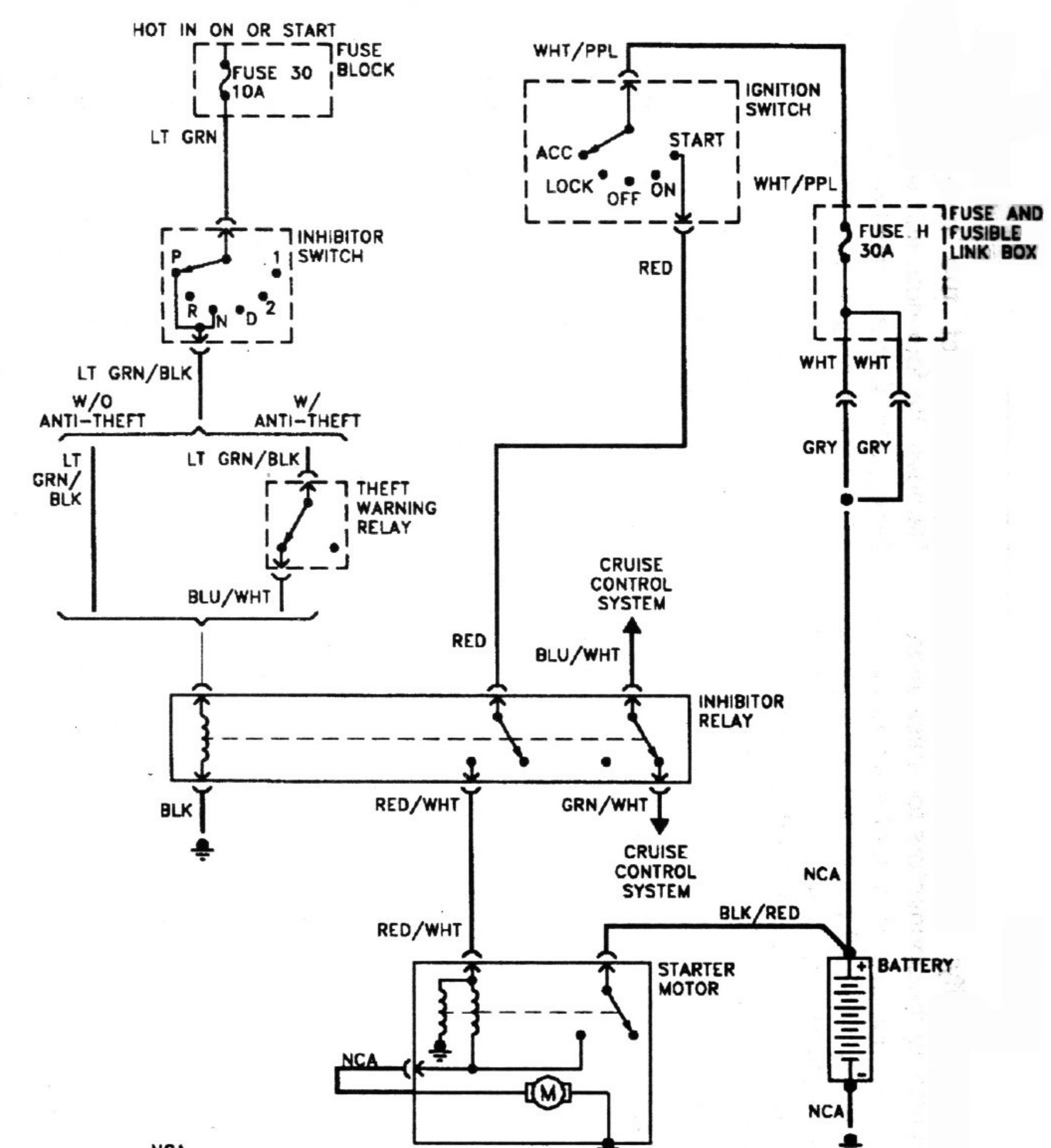


Starter motor bench testing details.

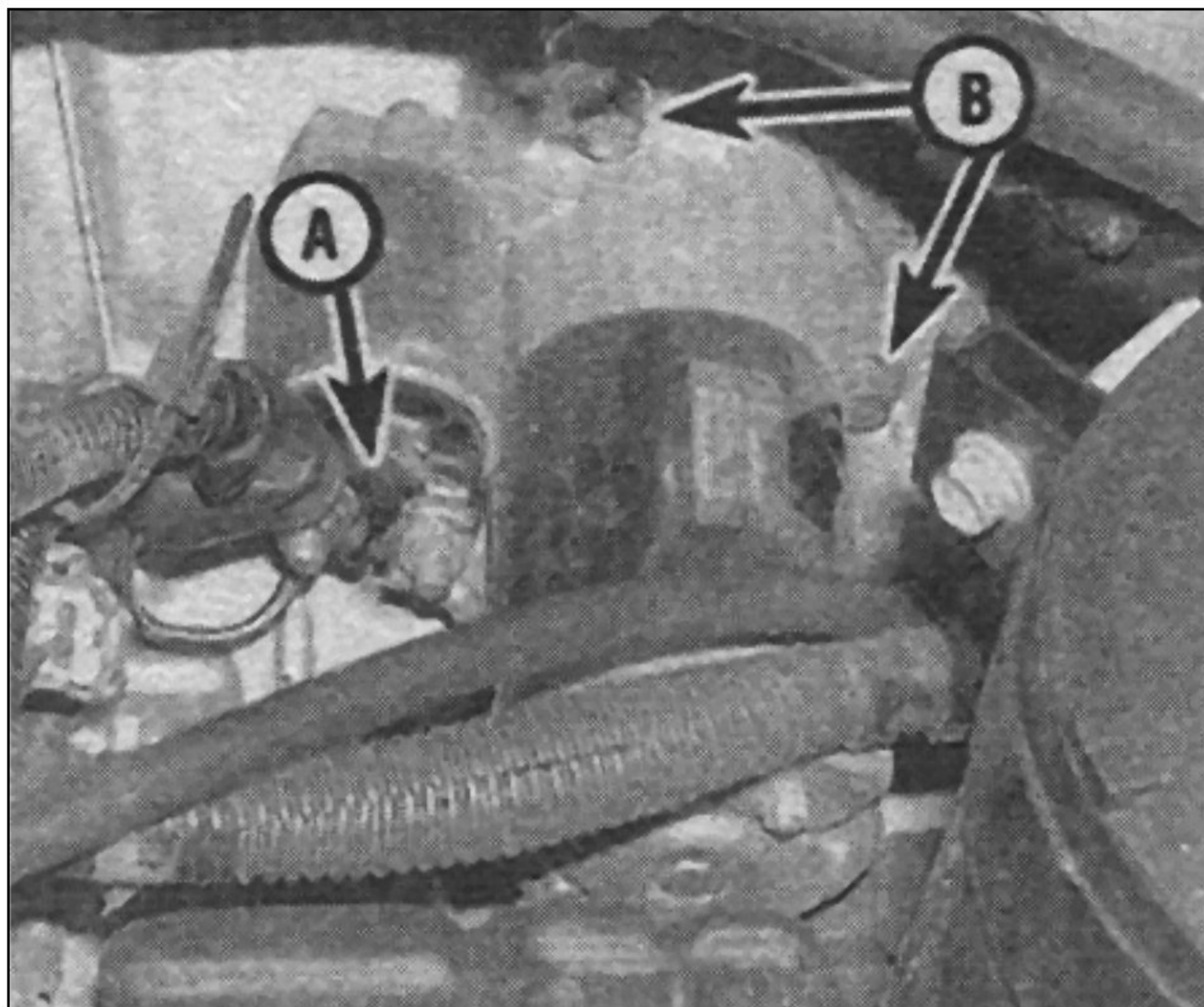
Villager/Quest Electrical Systems



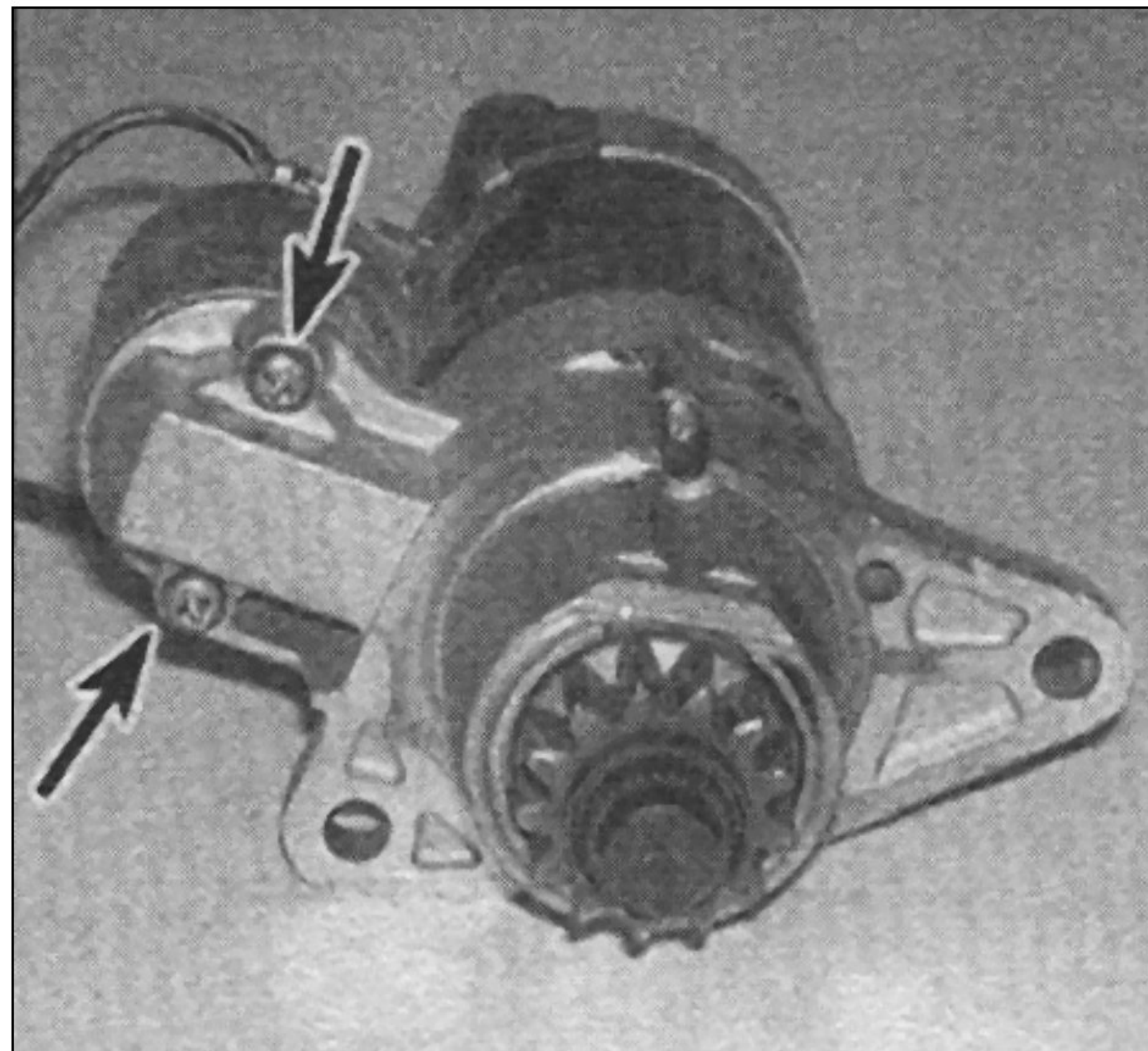
Starting and charging systems-1995 and earlier models



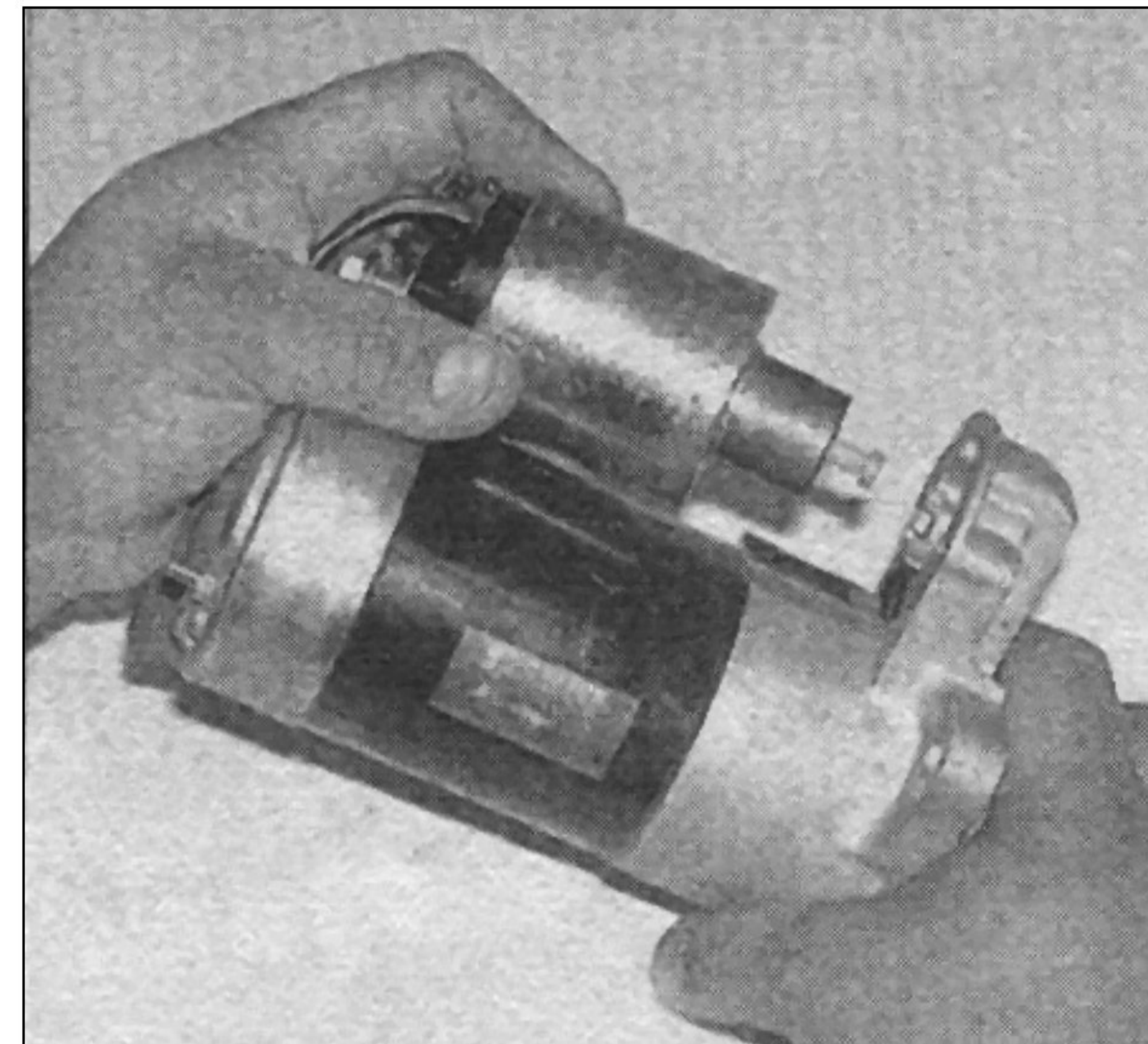
Starting and charging systems-1996 and later models



Remove the electrical connectors (A) and the starter mounting bolts (B) and separate the assembly from the transaxle bellhousing.



Remove solenoid mounting screws (arrows).



Separate the solenoid from the starter.

terminal to the body of the starter. Install another jumper cable from the positive terminal on the battery to the "B+" terminal on the starter. Install a starter switch and apply battery voltage to the solenoid "S" terminal (for 10 seconds or less) and observe the solenoid plunger, shift lever and overrunning clutch extend and rotate the pinion drive. If the pinion drive extends but does not rotate, the solenoid is

operating but the starter motor is defective. If there is no movement but the solenoid clicks, the solenoid and/or the starter motor is defective. If the solenoid plunger extends and rotates the pinion drive, the starter/solenoid assembly is working properly.

Starter Motor Removal and Installation

Disconnect the cable from the negative

terminal of the battery.

Remove the air intake duct and the air cleaner housing assembly from the engine compartment.

Disconnect the battery cable and the solenoid terminal connection from the starter solenoid.

Remove the starter motor mounting bolts and detach the starter from the engine.

Installation is the reverse of removal.

Starter Solenoid Replacement

Remove the starter assembly from the engine compartment.

Remove the electrical connector from the solenoid lower terminal.

Remove the solenoid mounting screws and separate the solenoid from the starter body.

Installation is the reverse of removal.