Electrical Service

Electrical Gremlins

We're starting something new with this month's **Electrical Service**. In past editions of this perennial feature, we've offered a grab bag of electrical tips on vehicles from several different manufacturers. It's time to change things around just a little. Each new edition of **Electrical Service** will concentrate on electrical tips for vehicles produced by a single auto manufacturer. We'll begin with the cars and trucks from Nissan Motor Corporation.

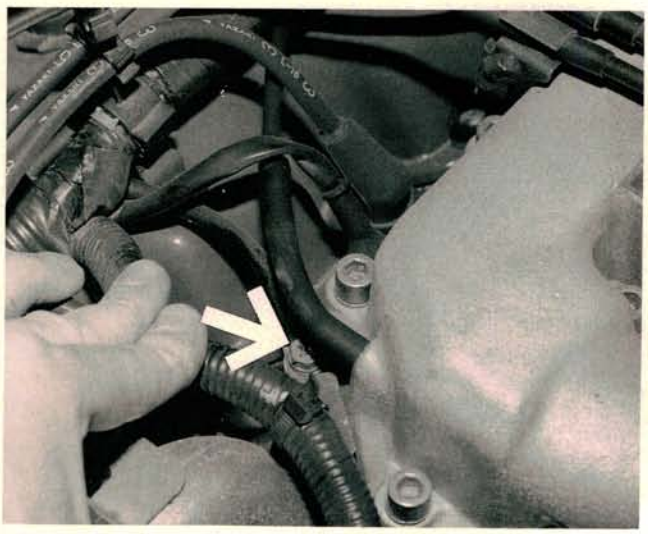
This should make it easier to use **Electrical Service** as a reference source. All of the electrical tips for a particular manufacturer will be included in the same month. If there's an electrical tip on a certain model that you need to look up several months from now, referring to the annual index will tell you which month we featured that manufacturer.

We're also inviting your participation in the new **Electrical Service** format. If you have discovered a time saving or problem solving method to chase away the electrical gremlins, we would like to hear from you. Send us your electrical tip on the Tech Tip card included in this magazine. Send a letter if you need more room. Photos illustrating your tip are always welcome.

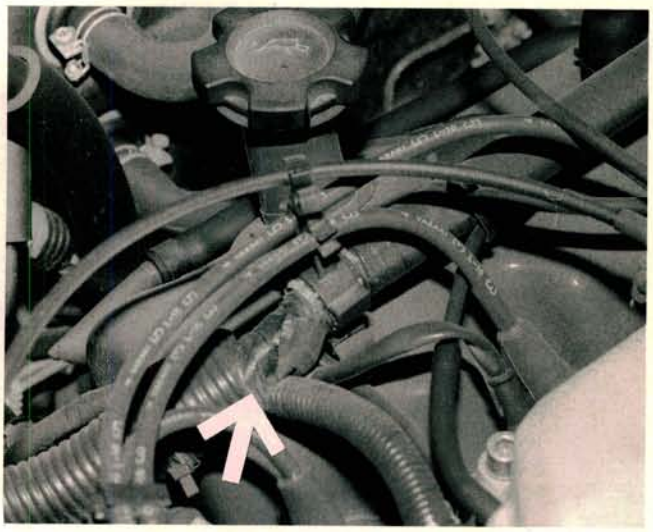
The best tips will be published in upcoming editions of **Electrical Service**. If your tip is selected, we'll send you a special "Gremmy Award" and a prize to show our appreciation for your participation.

1 A poor connection at the ECCS relay on 1989-91 Maximas may cause the engine to hesitate and the tachometer to momentarily drop to zero when accelerating. This usually occurs while the vehicle is in motion and no diagnostic codes will be stored. If the fuel system checks okay and if other diagnostic procedures don't eliminate the hesitation, clean and tighten the ECCS relay connector terminals. The ECCS relay is located at the front of the underhood fuse and relay panel, next to the battery (arrow).

2 Using jumper cables to start a 1989 or later Maxima with a dead battery may damage the driver's power window switch. Voltage spikes caused by connecting or disconnecting the jumper cables can damage the solid state window switch. The damaged window switch causes a dead short, and the circuit breaker that protects the power window and power seat circuits will click on and off. The circuit breaker may overload too. Replacing the window switch will correct the problem, but jump starting is the original cause.

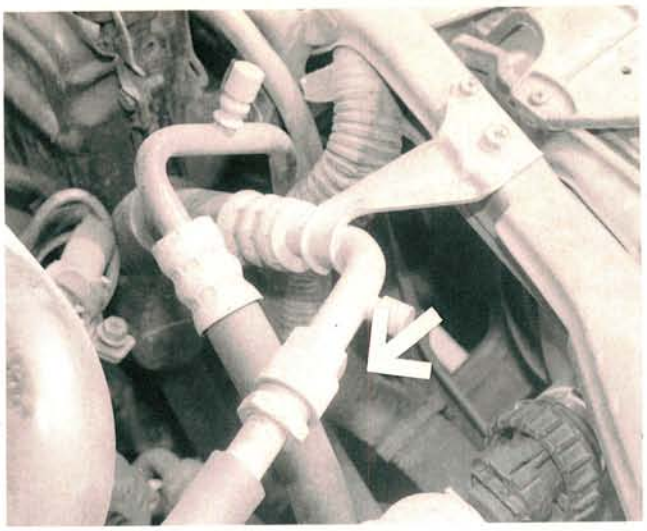


3 A damaged or broken ground wire on 1990 Maxima models may force the ECU into "limp home" mode and prevent the engine from accelerating above 2000 RPM. The broken ground wire will also cause the condenser fans to run continuously. ECU self-diagnosis will indicate a Code 43 (throttle sensor). The broken wire is located in the engine harness, near the plastic protector at the rear of the valve cover (arrow). Repair and insulate the ground wire as necessary to prevent further damage.

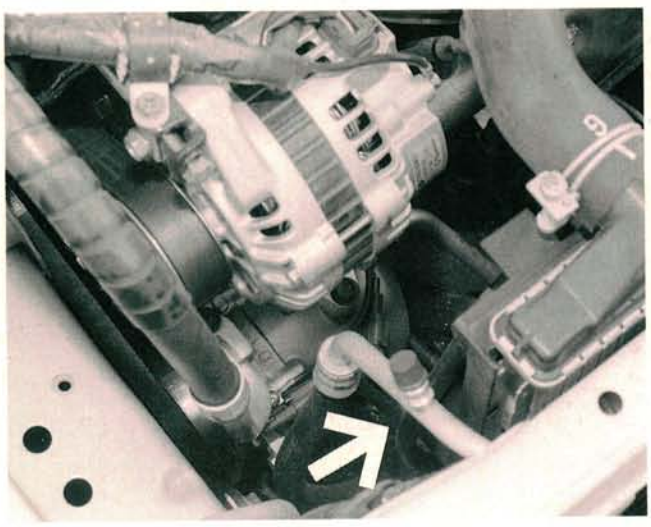


4 A shorted or damaged ECCS wire in the main engine wiring harness may cause 1989 Maxima models to buck or stall. The problem usually occurs during vehicle acceleration or braking. The green/red wire is located near the "Y" in the engine harness, next to the valve cover (arrow). Slit open the wiring harness and repair the damaged wiring as necessary. Reroute the repaired engine harness away from sharp surfaces to prevent further damage.

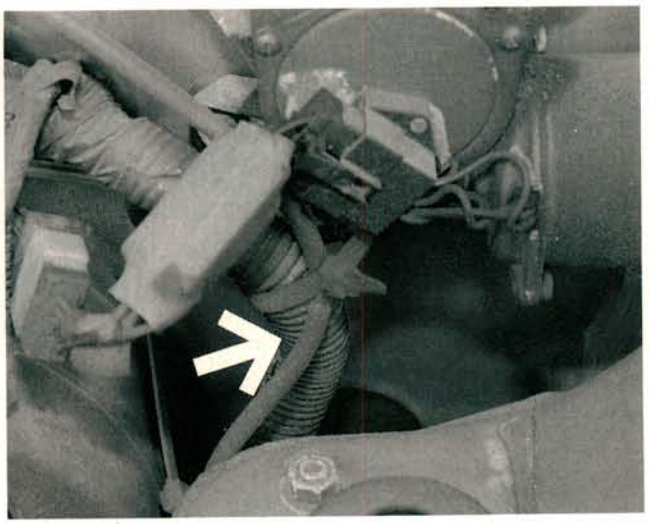
5 A damaged steering column wiring harness may cause 1989 or later Maxima models to stall when tilting the steering wheel. This problem may also occur on 1990-91 Stanza and Sentra sedans. The ignition fusible link will blow, preventing the vehicle from restarting. Remove the lower dash panel and steering column cover. Check for a damaged harness on the left side of the column. Repair the white/red wire, then add three inches of insulation on either side of the existing insulation and replace the fusible link.



6 On 1989 Stanza models, a damaged main wiring harness may cause the 10 amp A/C fuse to intermittently blow. Check for momentary shorts while driving over large bumps, backing uphill, or decelerating (conditions that cause the engine to roll forward on its mounts). Inspect the main harness along the right side of the radiator support. The gray number 2 thermo switch wire may be grounding against the headlight bucket mounting stud. Repair any damaged wiring and reposition the wiring harness as necessary.

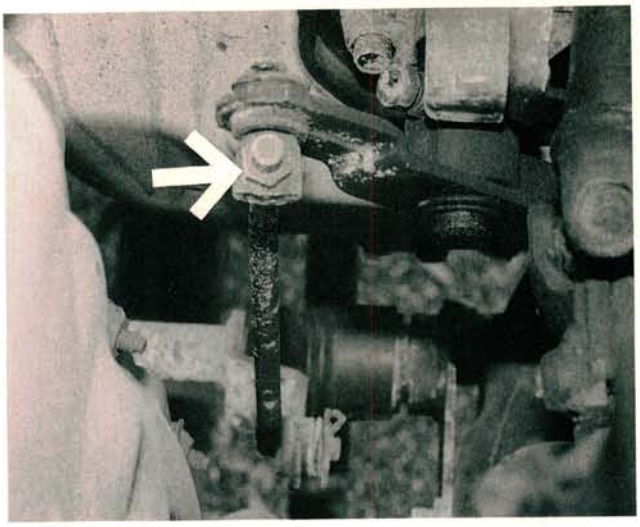


7 Moving along to 1990 Stanza models, a broken wire at the A/C compressor clutch wiring harness connector may disable the air conditioning on vehicles equipped with factory A/C. The wiring harness is attached to the radiator support with a wire tie. If the wire tie is too tight, engine movement and vibration may pull the compressor clutch power supply wire out of the connector. Repair the wiring harness and reposition the wire tie as necessary to allow for normal engine movement.

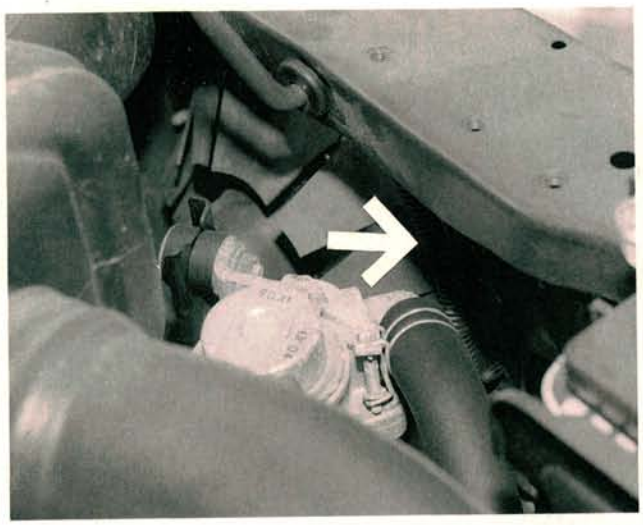


8 A main wiring harness that's corrosion damaged near the firewall may cause a no-start condition on Stanza wagon models. Check for voltage at the injectors with a DVOM. If the injectors are receiving less than battery voltage, open the main harness and look in the area indicated for a corrosion damaged white supply wire that leads from the fusible link to the injectors. Repair the damaged injector wiring, then insulate the wiring harness to keep moisture out.

9 Before you replace a failed air flow meter on a Stanza wagon, be sure to check the air injection valve (AIV) too. A faulty AIV can damage the air flow meter by allowing moisture and exhaust gas to back up from the exhaust system and pass through the air flow meter. Remove the air cleaner and check the AIV intake at the air flow meter inlet. If you find soot or a moisture trail leading into the air flow meter, the AIV should be replaced. A leaking AIV will ruin the new air flow meter in a hurry.

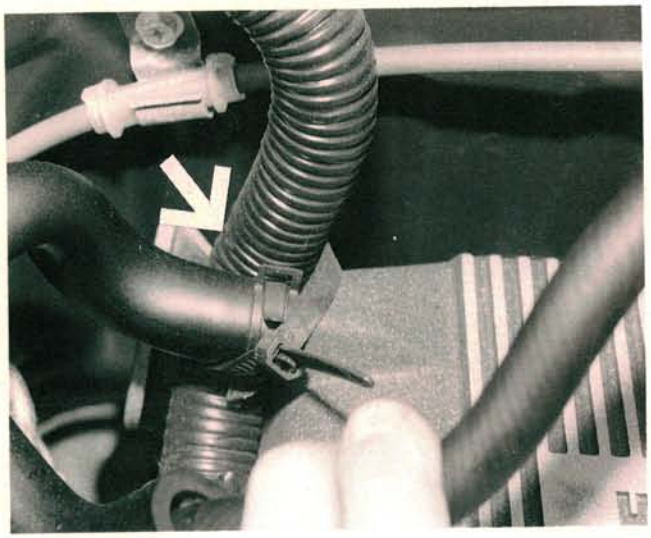


10 A misadjusted shift linkage or inhibitor switch may cause grinding starter engagement on truck models equipped with automatic transmissions and column mounted shifters. While cranking, engine movement moves the shift linkage. This causes the transmission mounted inhibitor switch to make and break the circuit to the starter solenoid. The starter then clashes with the moving flywheel as the starter engages and disengages. Adjust the shift linkage and inhibitor switch to correct the problem.



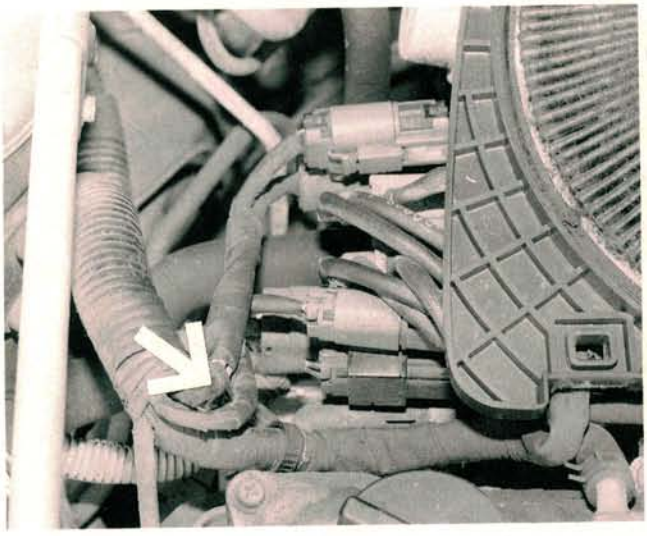
11 A damaged wiring harness may cause the horn to blow intermittently when using the turn signals on 1986 and later truck models. Check the wiring harness for chafing or cuts in the area behind the headlights and also behind the front bumper. Wiring for the turn signal lamps and horns follows the same harness. Damaged wires may be rubbing together inside the harness. Repair the damaged wiring, then isolate the wiring harness from any sharp metal edges to prevent future damage.

12 A poor connection at a splice joint in the engine wiring harness may cause a surge or intermittent idle fluctuation on 1990-92 truck models equipped with KA24E four cylinder engines. A loose or broken splice of four black/green wires may interrupt the reference voltage supply from the ECU to the head temperature sensor, exhaust gas temperature sensor, and throttle valve switch. Wiggling the harness may start or stop the symptoms. Open the harness, then solder the splice joint to repair the loose connection.

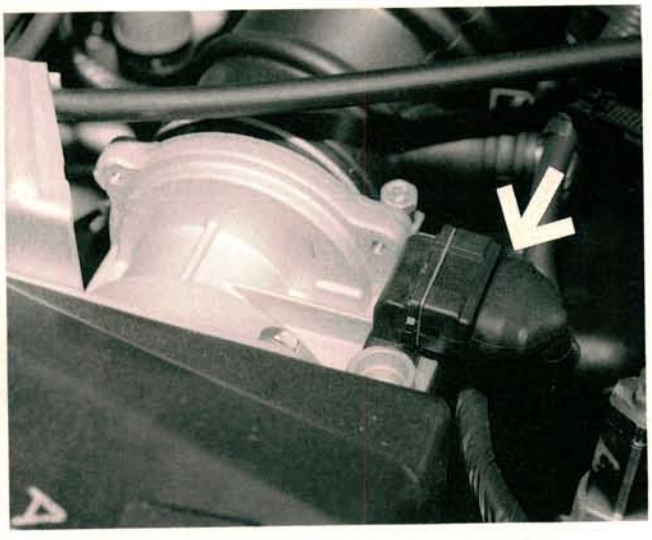


13 Also on KA24E four cylinder trucks, the same section of engine wiring harness may be damaged by rubbing against the engine lifting bracket at the rear of the engine. Damaged injector control wiring inside the harness may cause the engine to miss under load, but rev normally with no load. The number 4 spark plug may also become fouled if the injector control wiring grounds and holds the injector open. Repair the damaged injector wiring, then position the wiring harness away from the bracket.

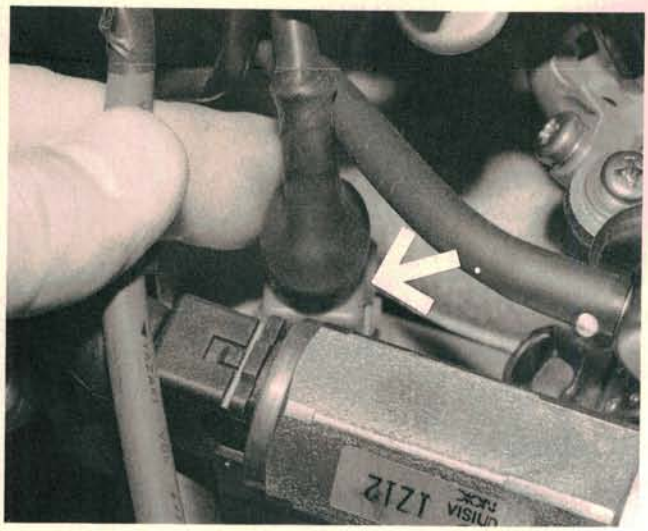
14 A loose or missing engine ground bolt (arrow) may cause an intermittent hard start on 1990 300ZX models. The engine may also run rough or the ignition power transistor may burn out, causing a no-start. This small but important bolt provides the grounding point for many components in the ECCS engine management system. Remove and clean the bolt and wiring harness eyelet connectors. Reinstall the bolt, using a drop of thread locker to keep the bolt from vibrating loose in the future.



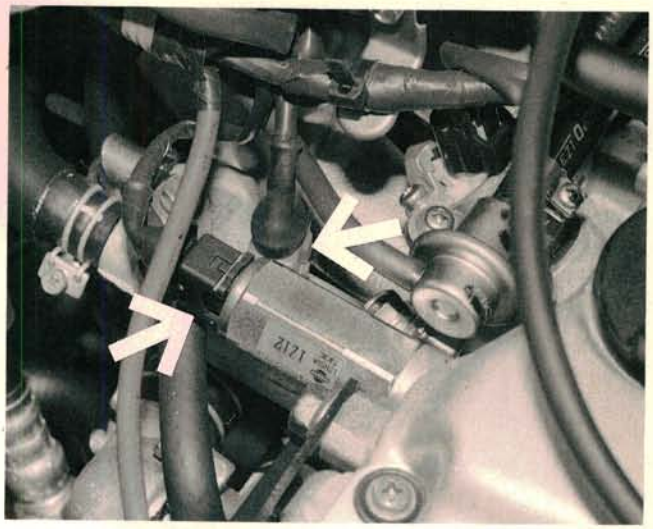
15 An open or damaged black/blue injector power supply wire may cause a no-start condition on fuel injected 1990 Sentra models. If there's no voltage at the injector connector, check for battery voltage at the injector dropping resistor. If battery voltage is present at the black/red dropping resistor supply wire, check the engine wiring harness on the right side of the engine for damage (arrow). The damaged injector wire may also short against the ground wire that's located nearby.



16 A poor connection at the air flow meter may cause hesitation or bucking on 1991-92 Sentra models. The hesitation usually occurs in drive, but not in reverse. Check the wiring harness near the air flow meter. Look for sharp bends in the wiring, a loose harness connector, or loose pins in the connector. Wiggle the harness to see if it affects the problem. Slit the harness cover and check for breaks in the orange or white air flow meter wires where they exit the harness shielding, and repair as necessary.



17 A poor connection at the engine temperature sensor may cause hard cold starting, spark plug fouling, or a no-start when cold on 1991-92 Sentra models. Once the engine warms up, it may start and run normally. Make sure both terminals fit the temperature sensor connector properly. Remove the connector and check for corrosion, soot, coolant, or other contamination inside the connector. If corrosion is found, remove the harness cover to check the wiring for further damage and repair as necessary.



18 Reversing two engine wiring harness connectors on 1991 Sentra models causes the radiator fan to run whenever the ignition is on. The A/C is also disabled. The engine temperature sensor and valve timing control harness connectors are different colors (arrows), but they will fit the wrong component. Reversing the connectors makes the ECU think the engine is overheating, so A/C operation is disabled and the radiator fan switches on. Swap the connectors, then check the A/C and fan for proper operation.