

TROUBLESHOOTING HINTS

- Try following checks before doing the System Check.
1. Check the key pellet sensing contacts in the Ignition Key Lock Cylinder by looking into the key opening. If the contacts are damaged, or not silver in color, replace the Ignition Key Lock Cylinder.
 2. Check I/P Fuse Block Fuse 17 by visual inspection
 3. Check RH Underhood Fuse Block Fuse 4 by visual inspection.
 4. Check all of the ignition keys using the J 35628 Pass Key Interrogator or equivalent. If the Key Code window shows "E", or the display is erratic, replace the owner's key.
 5. Check the ignition key for a cracked resistor pellet or a pellet that is dirty or coated. Also check that the ignition key is free from excess plastic around the resistor pellet contacts.
 6. If the Pass Key System is intermittent, check that the connector to the Pass Key Decoder Module is tight and the terminals are clean.
 7. If vehicle is equipped with the Universal Theft Deterrent, the SECURITY Indicator and associated wiring can be checked by observing the Theft Deterrent arming sequence.
 8. If the Starter Enable Relay must be replaced, also check the PPL (6) wire to the Starter Solenoid for a possible short. A short may have caused the relay to fail.
- Go to System Check Table for a guide to normal operation.

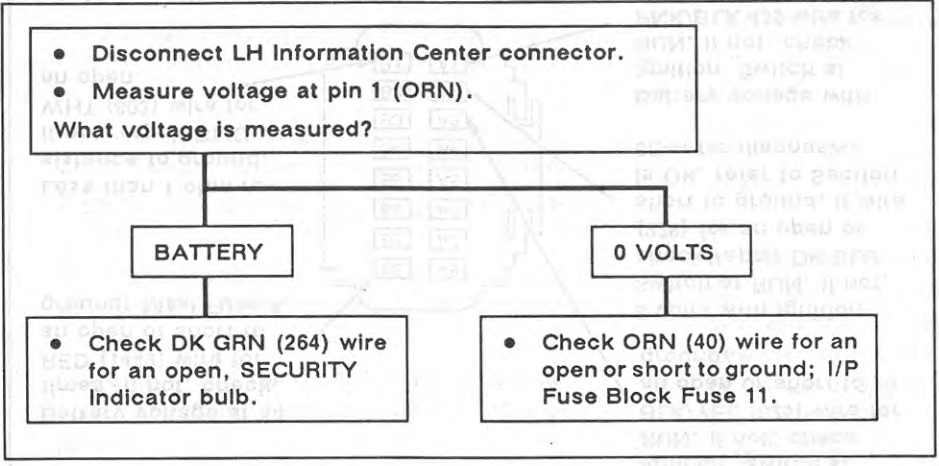
COMPONENT LOCATION

| | Page-Figure |
|------------------------------------|------------------------------------------------------------------------------------|
| I/P Fuse Block | LH side of I/P, behind access door 201- 9-A |
| Ignition Switch | Center of steering column 201- 9-B |
| Neutral Safety Back Up Switch | LH rear of engine compartment, top of transaxle 201- 3-C |
| Pass Key Decoder Module | Behind RH side of I/P, at RH shroud, behind Relay Center 201- 14-A |
| Powertrain Control Module (PCM) . | Behind RH side of I/P, near top of shroud 201- 5-E |
| RH Underhood Fuse Block | Center rear of engine compartment, front of dash 201- 4-A |
| Starter Enable Relay | Behind RH side of I/P, behind glove box 201- 22-B |
| Starter Solenoid | Lower LH front of engine, above Starter Motor ... 201- 0-C |
| C108 (1 cavity) | Lower RH side of engine compartment, left of RH Horns 201- 3-B |
| C109 (7 cavities) | LH side of engine compartment, left of transaxle 201- 3-C |
| C206 (48 cavities) | Below LH side of I/P, left of steering column 201- 10-C |
| G100 | RH side of engine compartment, right of Battery 201- 1-C |
| G101 | Lower front of engine, left of Starter Solenoid 201- 1-C |
| P100 | LH rear of engine compartment, front of dash 201- 11-B |
| P101 | RH rear of engine compartment, front of dash 201- 4-A |
| S120 | Body main harness, lower RH side of engine compartment 201- 3-B |
| S209 | Body main harness, behind LH side of I/P, right of steering column 201- 11-B |
| S219 | Body main harness, behind I/P, left of steering column 201- 11-B |
| S230 | Body main harness, behind RH side of I/P 201- 11-B |
| S258 (IDC) | Body main harness, behind RH side of I/P 201- 11-B |

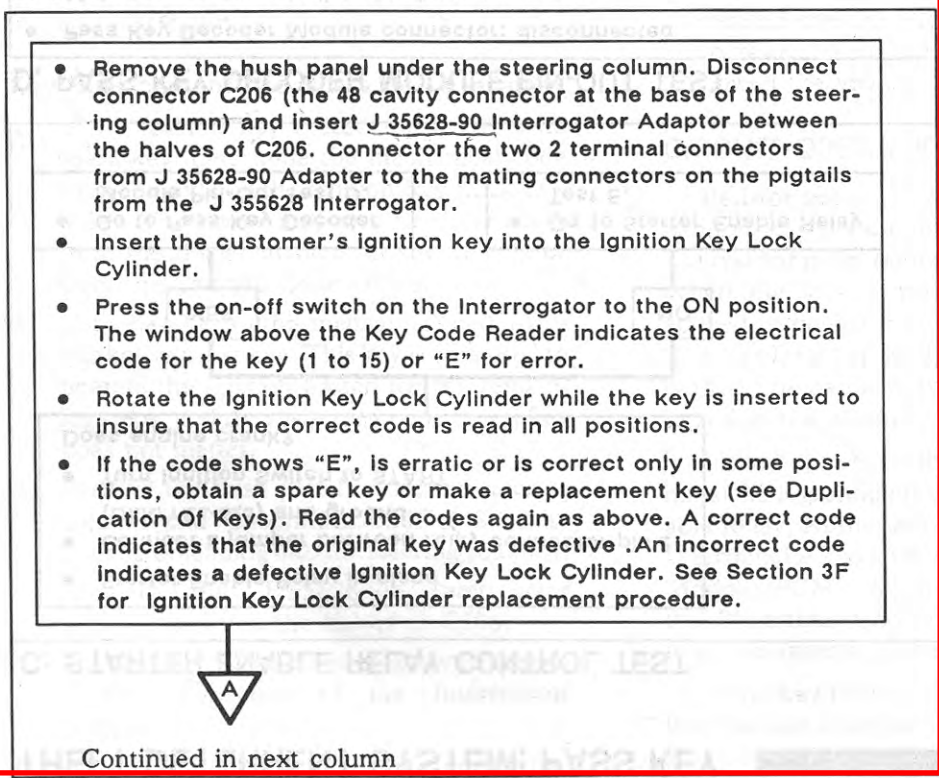
SYSTEM CHECK TABLE

| ACTION | NORMAL RESULT | FOR DIAGNOSIS |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ignition Switch: OFF All doors: CLOSED | SECURITY Indicator OFF | Check DK GRN (264) wiring for a short to ground. |
| Ignition Switch: RUN | SECURITY Indicator lights for approximately 2 seconds then goes out; engine cranks | <ul style="list-style-type: none"> ● If engine cranks, but SECURITY Indicator did not light, do Test A. <li style="border: 2px solid red;">● If engine cranks, but SECURITY Indicator remains lit, do Test B. ● If engine does not crank, but SECURITY Indicator lights for 2 seconds then goes out, do Test C. ● If engine does not crank and SECURITY Indicator remains lit, do Test B. ● If engine does not crank, and SECURITY Indicator does not light, do Test D. ● If engine cranks, but does not start and SECURITY Indicator operates properly, do Test D, check pin A2. |
| <p>● Do the following to check that Pass Key will detect the use of an incorrect Key.</p> | | |
| <p>Shut off engine. Remove hush panel under steering column and disconnect C206 (48 cavity connector at base of steering column). Insert the J 35628-90 Interrogator Adapter between the halves of C206. Connect the two 2 pin connectors from the J 35628-90 Adapter to the mating connectors on the pigtailed from the J 35628 Interrogator. Set the Key Code selector on the J 35628 Interrogator to an incorrect resistance value (any code but the one noted in step 4 of Troubleshooting Hints). Attempt to start engine.</p> | <p>Engine does not crank, and the SECURITY Indicator will stay on, indicating an incorrect Key Code.</p> | <ul style="list-style-type: none"> ● If engine cranks, do Test E. |

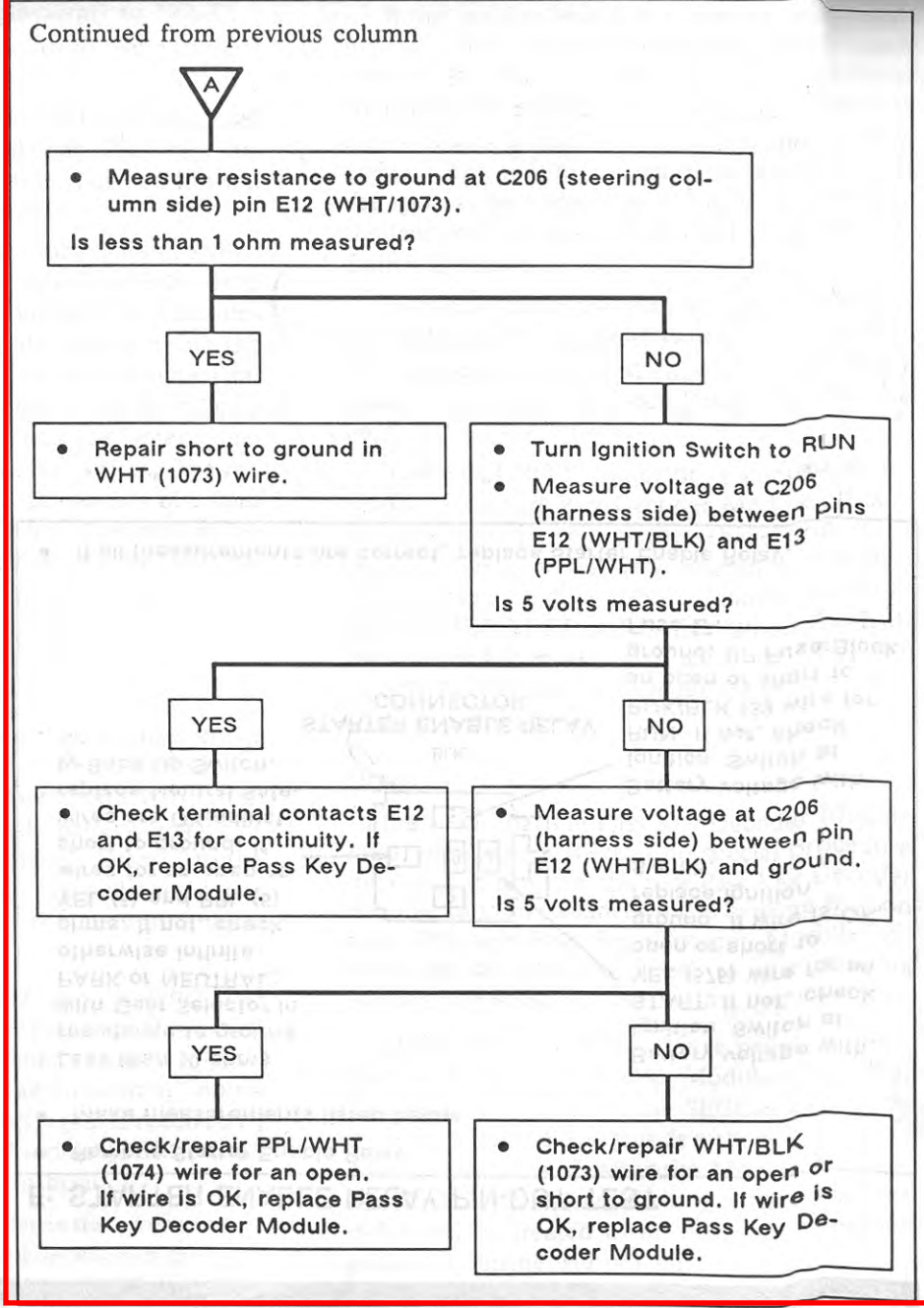
A: SECURITY INDICATOR TEST



B. IGNITION KEY LOCK CYLINDER TEST



B. IGNITION KEY LOCK CYLINDER TEST (continued)



C: STARTER ENABLE RELAY CONTROL TEST

- Starter Enable Relay in place
- Connect a jumper between relay connector pin 2 (BLK/YEL-625) and ground
- Turn Ignition Switch to START

Does engine crank?

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    graph TD
      Start[Does engine crank?] -- YES --> D[Test D]
      Start -- NO --> E[Test E]
      subgraph D [D. PASS KEY DECODER MODULE PIN-OUT TEST]
        D1[Go to Pass Key Decoder Module Pin-Out Test D.]
      end
      subgraph E [E. STARTER ENABLE RELAY PIN-OUT TEST]
        E1[Go to Starter Enable Relay Test E.]
      end
  
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- Go to Pass Key Decoder Module Pin-Out Test D.
- Go to Starter Enable Relay Test E.

D. PASS KEY DECODER MODULE PIN-OUT TEST

- Pass Key Decoder Module connector: disconnected
- Make measurements listed below

Battery voltage at all times. If not, check RED (1449) wire for an open or short to ground; Maxi Fuse 4.

Less than 1 ohm resistance to ground. If not, repair BLK/WHT (803) wire for an open.

Battery voltage with Ignition Switch at RUN. If not, check BLK/YEL (625) wire for an open or short to ground.

5 volts with Ignition Switch at RUN. If not, check/repair DK BLU (229) for an open or short to ground. If wire is OK, refer to Section 6E-A for diagnosis.

Battery voltage with Ignition Switch at RUN. If not, check PNK/BLK 439 wire for an open or short to ground; I/P Fuse Block Fuse 17.

BLK
PASS KEY DECODER
MODULE CONNECTOR

- If all measurements are correct, replace Pass Key Decoder Module.

E: STARTER ENABLE RELAY PIN-OUT TEST

- Remove Starter Enable Relay
- Make measurements listed below

Less than 10 ohms resistance to ground with Gear Selector in PARK or NEUTRAL; otherwise infinite ohms. If not, check YEL (5) and PPL (6) wires for an open or short to ground. If wires are OK, adjust/replace Neutral Safety Back Up Switch.

Battery voltage with Ignition Switch at START. If not, check YEL (575) wire for an open or short to ground. If wire is OK, replace Ignition Switch.

Battery voltage with Ignition Switch at RUN. If not, check PNK/BLK 439 wire for an open or short to ground; I/P Fuse Block Fuse 17.

BLK
STARTER ENABLE RELAY
CONNECTOR

- If all measurements are correct, replace Starter Enable Relay.

Key Replacement (Spare Key Available)

The J 35628 Interrogator or equivalent must be used to determine the proper electrical code of the key.

1. Insert the spare ignition key into the Key Code Reader on the J 35628 Interrogator.
2. Press the on-off rocker switch to the ON position.
3. A number from 1 to 15 will appear in the window designating the electrical code of the key.
4. Cut a new key having the same electrical code determined from the J 35628 Interrogator.
5. Start the engine using the new key to insure that the key is correct both mechanically and electrically.

Key Replacement (No Spare Key Available)

1. If the ignition key is lost and there is no spare key, determine the mechanical code from the code on the Ignition Key Lock Cylinder. The codes may also be determined from the dealer invoice for the vehicle or from the Cadillac Zone Office.
2. Cut a new key to this mechanical code. Use this key as a test key. This key will be used to operate the Ignition Switch for the remaining steps, and the resistance code of test key does not matter.
3. Remove the hush panel under the steering column and disconnect C206 (48 cavity connector leading into the steering column).
4. Connect the J 35628-90 Interrogator Adapter between the halves of C206.
5. Connect the J 35628 Interrogator to the two 2 pin connectors of the Interrogator Adapter.
6. Set the Key Code Selector on the Interro-

gator (J 35628 or equivalent) to "1".7.

7. Attempt to start engine using using the key made in step 2.
 - If engine starts, the Key Code Selector is set to the correct electrical code. Cut a new key having this electrical code. The new key will be the replacement key.
 - If engine does not start, turn Ignition Switch to OFF, then turn the Key Code Selector to the next higher position. Wait four minutes and attempt to start the engine using the new electrical code. Use the 4-minute Timer on the J 35628 Interrogator to indicate the 4-minute interval. Start the Timer by depressing the "Start" rocker switch. The red indicator will turn off at the end of a four minute interval. This procedure must be repeated until the engine can be started. Cut a new key having the electrical code which allowed the vehicle to start.

CIRCUIT OPERATION

Resistor sensing contacts are located in the Ignition Key Lock Cylinder. These contact the key resistor pellet on the key when it is inserted. When the lock is rotated, battery voltage is applied through I/P Fuse Block Fuse 17 to the Pass Key Decoder Module. The pellet resistance is then compared against the resistance value stored in the Module.

If the key pellet is the proper resistance, terminal A3 is grounded, energizing the Starter Enable Relay. At the same time, a signal is applied at terminal A2 to enable the Powertrain Control Module (PCM). When this signal is received by the Powertrain Control Module (PCM), it allows fuel injector pulses to begin.

If the key resistor pellet is the wrong value, the Pass Key Decoder Module will shut down for 2 to 4 minutes. During this interval there will be no output at terminals A2 or A3.

If the Ignition Switch is turned on again during this interval, the Timer will begin over again and the Pass Key Decoder Module will remain shut down for another 2 to 4 minutes. The Pass Key Decoder Module will continue this process even if a key with the correct pellet is used to turn the ignition back on. The Timer is restarted by the ignition voltage at terminal A1 when Ignition Switch is turned to RUN.

Once the Timer has completed its 2 to 4 minute cycle with the Ignition Switch OFF, the Pass Key Decoder Module and Timer are reset. A key having the correct Resistor Pellet can then be used to start the engine.

The SECURITY Indicator is controlled directly by the Pass Key Decoder Module. If pass key is actively preventing the vehicle from starting, this Indicator will be grounded by the Pass Key Decoder Module with the Ignition Switch in RUN, BULB TEST or START. When the Ignition Switch is first placed in RUN, BULB TEST or START, the Indicator lights for about 2 seconds as a bulb check.

NOTE:

In the event that the Pass Key Decoder Module must be replaced, there is no special procedure necessary to program the new Pass Key Decoder Module to the resistance in the existing ignition key. The new Pass Key Decoder Module will automatically program itself to the existing ignition key resistance on the first ignition cycle.

If the wiring to the resistance pellet is defective and a Pass Key Decoder Module is installed, the engine will start, but the SECURITY Indicator will remain on. Use this as a check for proper Module installation. After the Module has programmed itself, defective wiring to the resistance pellet will be treated as an incorrect resistance code; the engine will not start.