Diagnosing 84-89 911 Carrera 3.2 Starting Problems

1. Remove a spark plug wire and insert a test plug into the wire, place it next to the engine, have someone crank the engine and look for a spark (or remove one of the plugs and do the same). If there is no spark, then it is an ignition problem.

2. Remove the air cleaner cover and air filter, and spray some fuel into the intake. You will have to hold open the little "door" inside there with something. If it starts briefly then dies you probably have a fuel problem.

3. Fuse numbers in the front bonnet (#21 is closest to the front bumper of the car):

- 1. window winder, seat heater, sun roof
- 2. booster fan, seat adjusters
- 3. headlamp washers, electric cabriolet top
- 4. clock, radio, interior lights
- 5. locking system
- 6. fuel pump
- 7. brake light, cruise control
- 8. electric mirror, heating control
- 9. fresh air blower, cig lighter, rear window defrost
- 10. wipers
- 11. rear blinkers, back up light
- 12. front left blinker
- 13. front right blinker
- 14. left high beam
- 15. right high beam
- 16. left dim
- 17. right dim
- 18. parking left
- 19. parking right
- 20. fog lamp switch, rear fog lamps
- 21. fog lights

4. You can jumper a hot wire to the fuel pump and listen to it whir to prove that it's working. Run a short wire from the fuel pump fuse (#6) to an adjacent fuse (#5 or 7) at the bottom of the fuse terminal, the pump should whir. If the fuel pump whirs (when jumpered), try starting the car this way (this overrides the DME control of the fuel pump). If it runs, it probably indicates some kind of DME problem (the DME is not sending power to the fuel pump). If still doesn't run, it's probably not a DME problem.

5. If it is a DME problem, replace the DME relay, which sends power to the fuel pump. This is another one of those parts that is known to be flaky. The relay is under the driver's seat next to the DME computer. It's highly recommended to carry a spare DME relay anyway, so get an extra just in case.

6. If the relay doesn't fix it, it could be the DME computer itself, faulty sensors (flywheel speed and position), or faulty grounds. Try disconnecting the DME computer and cleaning the contacts.

7. Check all ground connections (brown wires) for corrosion. Disconnect them, clean them, and replace. Check especially the ground points in the engine compartment. There's one on the manifold pipes, and another on the left side of the engine compartment behind the fuel filter. There is another one on the bottom of the car around the transmission.

8. Check all fuses for corrosion. Remove each fuse and replace. All DME-related fuses are up front, but there are three fuses under the plastic cover at the left rear side of the engine compartment.

9. If you have one available, swap in a known working DME computer from a 911 friend. Be careful that you have the right production year and part number because there are differences in the pin mappings.

10. Ensure the DME fuel quality switch is in the full counter-clockwise position. This dial is on the back of the DME unit covered by a cap and controls the fuel mix timing. The settings for the DME rotary switch are as follows:

- 0. Standard (full counter-clockwise)
- 1. 3% rich Std
- 2. 6% rich Std
- 3. 3% lean Std
- 4. Std 2.7 retard
- 5. 3% rich 2.7 retard
- 6. 6% rich 2.7 retard
- 7. 3% lean 2.7 retard

11. If the DME is okay, you can listen to the injectors with a stethoscope, if they click, then power is getting to the injectors. Also, test for a shorted fuel injector. Each injector should have a resistance of 2 to 3 ohms.

12. At this point you probably want to have a shop check the fuel pressure and flow rate in the system. This requires special tools. The fuel pressure regulator or damper are potential parts that may fail.

The following are the DME Connections (NTC stands for Negative Temperature Coefficient, meaning as temperature increases, resistance decreases)

- 1. coil ground (1)
- 2. micro switch (throttle, idle), closure to ground at idle position
- 3. micro switch (throttle, wide open throttle + throttle valve) test connection b, closure to ground at wot
- 4. t54, starter active, +12 volts while cranking engine
- 5. ground
- 6. ground, air flow sensor, NTC I
- 7. air flow sensor +
- 8. speed sensor + 0.6k to 1.6 k ohms between pins 8 and 27
- 9. air flow sensor -
- 10. plug for exhaust data (ground)
- 11. t54, speedo
- 12. test connection a
- NTC II
 1.4k to 3.6k ohms at 70oF
 160 to 210 ohms at 212oF
- 14. t55, injector control signal
- 15. t55, injector control signal
- 16. ground
- 17. ground
- 18. +12v
- 19. ground
- 20. control signal, DME relay
- 21. t54, goes to speedo
- 22. air flow sensor, NTC I +
- 23. 0.75ohm connection to pins 5, 25, 26, 8 & 27
- 24. oxygen sensor
- 25. ref mark sensor +
 - 0.6 to 1.6 k ohms between pins 25 and 26
- 26. ref mark sensor -
- 27. speed sensor -
- 28. altitude sensor
- 29. a/c compressor clutch 'on'
- 30.
- 31.
- 32.
- 33. idle speed positioner +
- 34. idle speed positioner -
- 35. +12v

Pin numbers looking at the DME connector, NOT the DME unit. The numbers decrease from left to right:

LHS-----RHS

| 35 to 19 |

+--+ - - - - - - - - - - - - - - +--+

| 18 to 1 |

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