The location and identification of electrical fuses and relays in the Spider can be a mystery to new owners. Here’s some basic info that should fill in the blanks left by the owner’s manual for Spiders 1975-85 and some tips for routine maintenance.

**Fuses**

Spiders use a European style ceramic fuse originally developed by Bosch. They have conical copper or aluminum ends which gives them the nickname “bullet fuses”.

**Common Bosch Fuse Colors:**
- 3 amp- uncertain
- 5 amp- yellow
- 8 amp- white
- 16 amp- red
- 25 amp-blue

You can no longer count on being able to find them at the local auto store. They’ve long since gone out of style and the 3 amp size is particularly difficult to source. Fiat and German car parts vendors are the best bets. Every Spider should carry spares.

**Fuse Box Maintenance**

The function of a fuse is to protect the wiring harness itself. When a wire is overloaded the insulation melts. An automotive harness is in proximity to a sheet metal ground and when insulation begins to fail, an electrical fire is a likely unless the owner can quickly disconnect the battery.

As ceramic fuses age, their metal end caps oxidize and build resistance. Those with aluminum caps particularly trouble prone. The metal clips that hold them inside the box also oxidize and lose tension. Some owners periodically spin each fuse in its holder to make a fresh contact surface and feel them for looseness at the same time. The clips that hold them can be tightened by squeezing. By the time any fuse is 30 years old it is suspect and should be replaced.
Right- Spider fuse box with snap on cover. Note white in-line fuse holder dangling just below. This is typical of the casual way these were installed, even at the factory.

Fuse Location
Spiders have a fuse box with a snap-on cover located under the dash to the driver’s left of the steering column. Fuse locations inside the box vary year to year and are usually covered in the owner’s manual. However, by 1975 additional fuses were being added outside that box using separate in-line fuse holders in the harness. Often these fuses were tucked up on the right side of the steering column or behind the center console.

Left- Inline fuse holder and fuse. The holders unscrews or twists open after pressing the two pieces towards one another. This particular holder has a 3 amp Buss type glass fuse with flat ends. Fiat often used a miniature bullet style 3 amp fuse in these holders. Replacements are difficult to
find. Glass fuses like the one in this picture are often substituted but make poor contact unless the conical holder ends are modified. An alternative is to substitute a new universal holder like the one in this picture.

Radios were a dealer add-on and these too used an in-line fuse. It was common for dealers to splice the radio into the cigarette lighter power line. Years later these locally added circuits are particularly trouble-prone and are a common cause of 4-way flasher problems if the two share a common line.

Summary of in-line fuses from 1975 through 1985

1975-76
3 amp- key and seat belt buzzer
3 amp- EGR reminder light
16 amp- center console circuits for lighter, courtesy lights, 4-way flasher
8 amp- electric fuel pump

1977-78
all fuses in the fuse box

1979 and later
16 amp- cigarette lighter
16 amp- fuel injection system if so equipped

Relay Background
When the 124 sedan was designed auto accessories were fewer and electrical systems were much less complex. A car might have a relays for the turn signal flasher, horn, and perhaps a relay on the starter circuit, cooling fan, and headlights. The relays themselves were bulky and prone to failure.

In 1970 U.S. cars were required to have locking steering columns for the first time. Designers were forced to relocate ignition switches from the dash and limit their physical size just as accessory demands were increasing.

The solution was more relays. Enter Bosch with a micro-relay that could handling accessories up to 30amp and be unplugged for testing or replacement. By the early 1980s when fuel injection was added, a Spider might contain a dozen of these sugar cube shaped devices.

1975-76  Under hood, drivers side- horn, radiator fan and emission related
          Dash under driver side - turn flasher, 4-way flasher, intermittent wiper
          Dash under passenger side - remove key/fasten seat belt buzzer, diverter
          valve bypass, seat belt delay

1977  Engine compartment relays move to under dash, passenger side.

1978-79  Wiper and hazard light relays move from driver to passenger side

1979-85  All relays except turn signal flasher located in drop down relay tray
          under glovebox.  Additional relays for fuel injection, automatic transmission
          and power windows added.  Flasher remains in original position under
          steering column until the end of production.

Relay Tray in Later Spiders
I believe the relay tray in my '81 Spider is typical of those found in Spiders from 1979
onward, thought the position of individual components may vary year to year.  It's on
the passenger side under the glove box, held to the dash crossmember by two cad-
plated machine screws with hex heads which can be seen near the upper edge of the
picture below.
They control seat belt warnings, power windows, automatic transmission, intermittent wiper delay and most importantly the power to the fuel injection computer and its pump. The tray also provides a home for the seatbelt/key chime.

The illustration below was taken from the factory service manual. It shows six Bosch style plug-in relays lying on their side. Five are the usual style.

The component labeled fuel injection relay set is more commonly called the double relay. It is two Bosch relays packaged in a single black plastic shell and it unplugs from its base like the other relays. (see picture on next page)

The relays plug into nylon bases, the items with the honeycomb pattern. In the actual tray the honeycombs are filled with wiring. Also, most relay sockets are empty. On a thirty year old car, carrying a spare double relay and a tool to remove the two hex head screws that hold the tray up under the glovebox can spare you a long wait at the side of the road.

The most important thing to know about the relay tray is that it contains the double relay that powers the fuel injection system. This relay eventually begins to stick and is a
common cause of starting issues. It's is found on the rear corner of the tray on the driver's side. Tapping the case will often bring it back to life.

Bosch’s term for it is combo-relay or combination relay. It was used in a number of early 80's era European cars. It supplies both fuel pump and ECU power on fuel injected cars.

The relay in the picture carries the Bosch part number 0 332 514 127. It supersedes part 0 332 514 121 which is what came with my 1981 model. Both part numbers can still be found new, As with all genuine NOS Bosch parts, it pays to shop for price.

As a side note, Spiders did not have a factory installed air conditioner option from the beginning of production until the final units in 1985. They were installed by the importer, distributor or dealer. Typically the evaporator box was located in the passenger footwell below the glove box and hung in a position that blocked access to the relay tray. All bets on the location of relays are off if the car has had an a/c unit installed.

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