

# FUSES & CIRCUIT BREAKERS

## Article Text

1993 Volkswagen EuroVan  
For Volkswagen Technical Site  
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Saturday, March 18, 2000 10:32PM

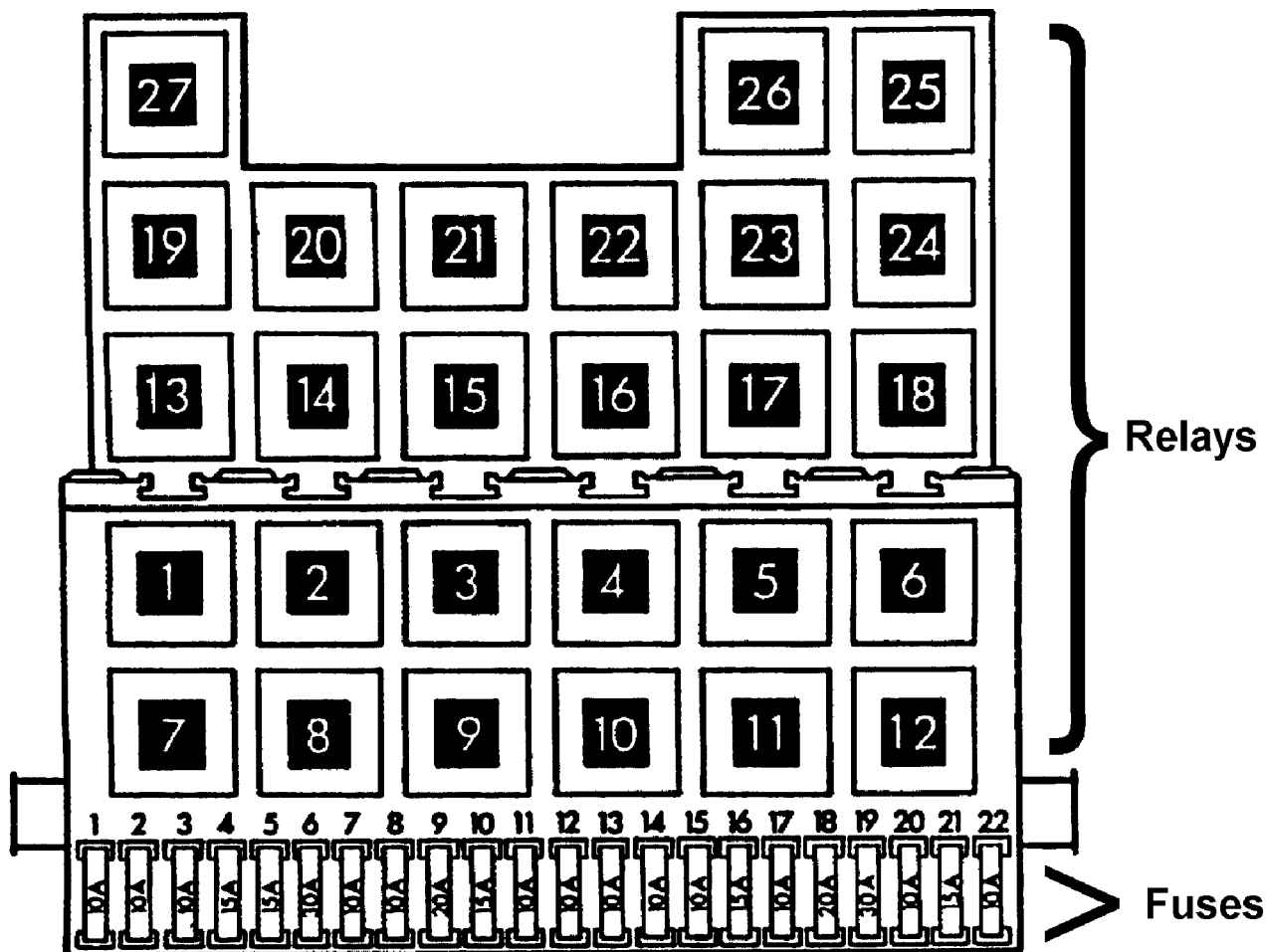
### ARTICLE BEGINNING

Fuses & Circuit Breakers  
1993-95 Volkswagen

Euro Van CL  
GL  
MV (Camper)

### FUSES & CIRCUIT BREAKERS

Fuses are located to right side of steering wheel behind storage compartment. Fuses are numbered from left to right.



50H11962

Fig. 1: Fuse Panel Identification  
Courtesy of Volkswagen United States, Inc.

### Fuse & Circuit Breaker Identification

- 1 - 10 Amp (Red)  
Left Headlight Low Beam

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- 2 - 10 Amp (Red)  
Right Headlight Low Beam
- 3 - 10 Amp (Red)  
Instrument & License Lights
- 4 - 15 Amp (Blue)  
Rear Window Wiper/Washer, Heated Front Seats
- 5 - 15 Amp (Blue)  
Windshield Wiper/Washer, Rear Window Washer,  
Heated Washer Jets
- 6 - 30 Amp (Green)  
A/C, Fresh Air Fan
- 7 - 10 Amp (Red)  
Right Tail Light & Side Marker Light, Engine Compartment Lamp
- 8 - 10 Amp (Red)  
Left Taillight & Side Marker Light
- 9 - 20 Amp (Yellow)  
Rear Window & Mirror Heater
- 10 - 15 Amp (Blue)  
Fog Lamps
- 11 - 10 Amp (Red)  
Left Headlight High Beam & High Beam Indicator
- 12 - 10 Amp (Red)  
Right Headlight High Beam
- 13 - 10 Amp (Red)  
Horn, Radiator Cooling Fan
- 14 - 10 Amp (Red)  
Backup Lights, Electric Mirrors, Heated Front Seats,  
Windshield Washer Jets, Cruise Control, Power Roof
- 15 - 10 Amp (Red)  
Engine Electronics
- 16 - 15 Amp (Blue)  
Warning/Indicator Lights, Multi-Function Indicator,  
Glove Box Light, ABS
- 17 - 10 Amp (Red)  
Turn Signals
- 18 - 20 Amp (Yellow)  
Fuel Pump
- 19 - 30 Amp (Green)  
A/C, Radiator Cooling Fan
- 20 - 10 Amp (Red)  
Brake Lights
- 21 - 15 Amp (Blue)  
Dome & Luggage Lamps, Clock, Radio, Central Locking System,  
Multi-Function Indicator, Vanity Mirror, OBD Diagnostic
- 22 - 10 Amp (Red)  
Cigarette Lighter

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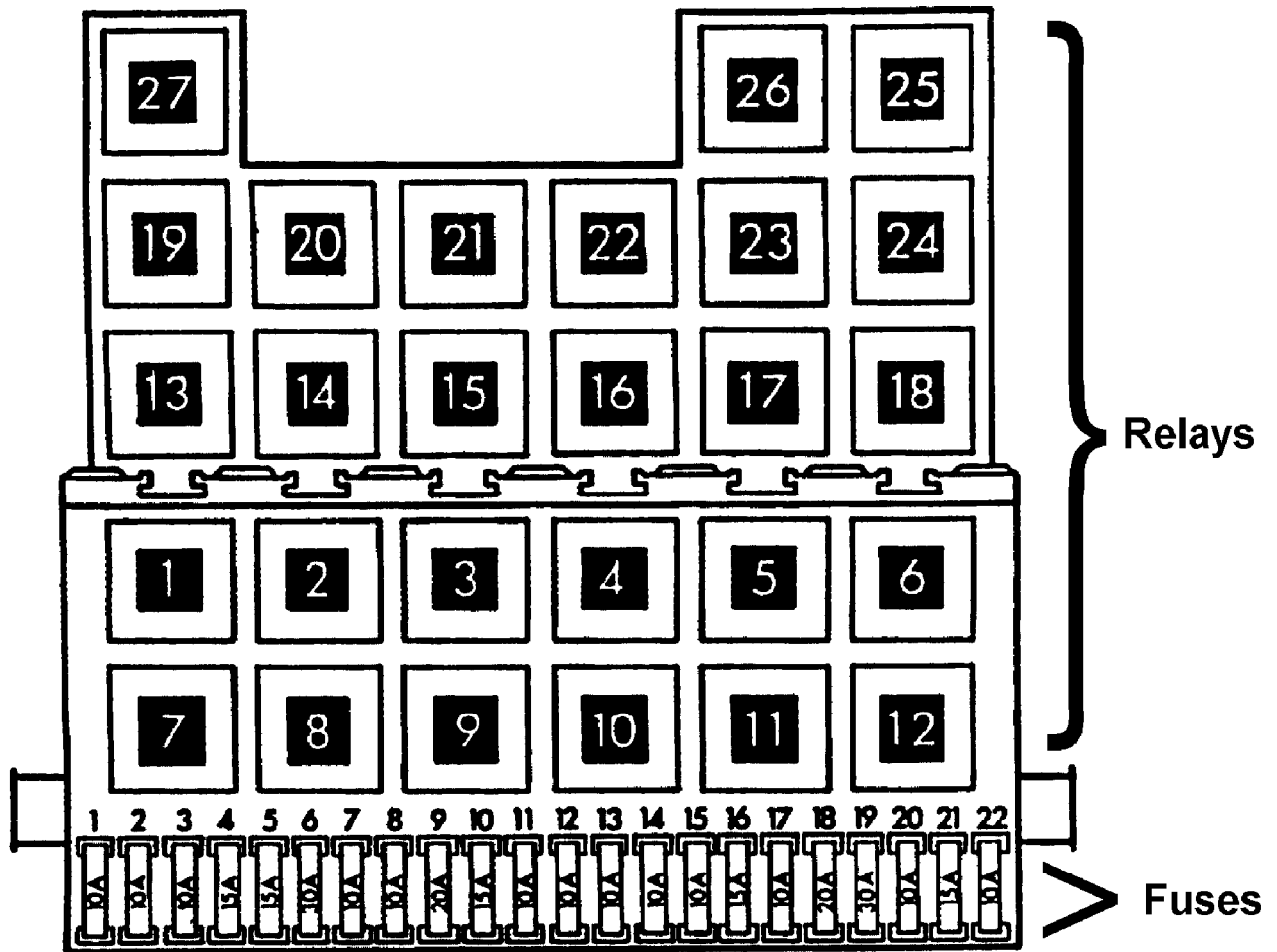
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Fig. 2: Relay Panel Identification  
Courtesy of Volkswagen United States, Inc.

#### Fuse, Relay & Circuit Breaker Identification

- 1 - A/C Control Module Relay
- 2 - Rear Window Wiper/Washer Relay
- 3 - ECM Power Supply Relay
- 4 - Load Reduction Relay
- 5 - Open
- 6 - Emergency Flasher Relay
- 7 - Headlight Washer Relay
- 8 - Washer/Wiper Intermittent Relay
- 9 - Seat Belt Warning Relay
- 10 - Fog Lamp/Parking Lamp Relay
- 11 - Dual Horn Relay
- 12 - Fuel Pump Relay
- 13 - Heater Control Module Relay
- 14 - Coolant Pump After-Run Relay
- 15 - Open
- 16 - Open
- 17 - Open

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- 18 - Fuse
  - Roof Ventilator Fan
- 19 - Heater Air Blower Relay
- 20 - Starter Interlock/Back-up Light Relay
- 21 - 5 Amp Fuse
  - Back-up Lights, Cruise Control
- 22 - 20 Amp Fuse
  - A/C (Second Evaporator)
- 23 - Rear Window Defroster/Heated Mirror Relay
- 24 - 20 Amp (Circuit Breaker)
  - Power Windows, Central Locking System
- 25 - 10 Amp Fuse
  - ABS System
- 26 - 15 Amp (Blue)
  - Rear Window Defroster, Heated Mirrors
- 27 - A/C Compressor Clutch Relay

#### Additional Fuse Identification

**WARNING:** Always disconnect battery ground cable before servicing "high-current fuses. It is recommended that "high-current" fuses be replaced by a qualified technician.

**NOTE:** Located on left side of engine compartment, above battery.

- 1 - 50 Amp
  - Radiator Fan

**NOTE:** Located in the engine compartment, above the brake booster.

- 1 - 50 Amp (1995 Diesel)
  - Glow Plugs (1995 Diesel Models Only)

**NOTE:** Located under drivers seat.

- 1 - 25 Amp (Clear)
  - Auxiliary HVAC Fan
- 2 - 20 Amp (Yellow)
  - Blower for Auxiliary Heater
- 3 - 30 Amp (Green) (MV Camper Models Only)
  - Refrigerator Socket, Socket below Folding Table (MV Models)
- 4 - 5 Amp (Lt. Brown) (MV Camper Models Only)
  - Fluorescent Light (MV Models)

## BATTERY SPECIFICATIONS

**CAUTION:** When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See COMPUTER RELEARN PROCEDURES article in the GENERAL INFORMATION section.

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### **AUXILIARY BATTERY - CAMPER MODELS**

All models use a battery located under the hood. Some models have an optional second battery located under the left front seat. This battery is connected to the electrical system with a relay and supplies power to the interior accessories (refrigerator, fluorescent light and power socket) when the engine is off. Replacement batteries should always have the same specifications and dimensions as shown on the battery housing.

### **CAUTIONS & WARNINGS**

#### **SUPPLEMENTAL RESTRAINT SYSTEM (AIR BAG)**

**NOTE:** See the AIR BAGS article in the ACCESSORIES/SAFETY EQUIPMENT Section.

Modifications or improper maintenance, including incorrect removal and installation of the Supplemental Restraint System (SRS), can adversely affect system performance. DO NOT cover, obstruct or change the steering wheel horn pad in any way, as such action could cause improper function of the system. Use only plain water when cleaning the horn pad. Solvents or cleaners could adversely affect the air bag cover and cause improper deployment of the system.

**WARNING:** To avoid injury from accidental air bag deployment, read and carefully follow all warnings and service precautions. See appropriate AIR BAGS article in ACCESSORIES/SAFETY EQUIPMENT.

**CAUTION:** Disconnect negative battery cable before servicing any air bag system, steering column or passenger side dash component. After any repair, turn ignition key to the ON position from passenger's side of vehicle in case of accidental air bag inflation

#### **SUPPLEMENTAL RESTRAINT SYSTEM (SRS) AIR BAR WARNING**

**NOTE:** For information on air bag DIAGNOSIS & TESTING or DISPOSAL PROCEDURES, see AIR BAGS article in the ACCESSORIES/SAFETY EQUIPMENT Section.

System circuit is grounded by 2 screws beneath the driver's seat. DO NOT use these screws to ground any other accessory. DO NOT ground any other components near this system.

#### **AIR CONDITIONING SERVICING (1993 MODELS)**

**CAUTION:** Avoid breathing R-134a refrigerant and PAG lubricant vapors, exposure may irritate eyes, nose and throat. To remove R-134a from system use R-134a recycling equipment that meets SAE J2210 specifications. If accidental system discharge

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occurs, ventilate work area before resuming service.

WARNING: R-134a service equipment or vehicle A/C systems SHOULD NOT be pressure tested or leak tested with compressed air. Some mixtures of air/R134a have shown to be combustible at elevated pressures. These mixtures are dangerous and may cause fire and/or explosions. See AIR CONDITIONING SERVICE article in GENERAL INFORMATION section.

### ANTI-LOCK BRAKE SYSTEM

The anti-lock brake system contains electronic equipment that can be susceptible to interference caused by improperly installed or high output radio transmitting equipment. Since this interference could cause the possible loss of the anti-lock braking capability, such equipment should be installed by qualified professionals.

On models equipped with anti-lock brake systems, ALWAYS observe the following cautions:

- \* DO NOT attempt to bleed hydraulic system without first referring to the appropriate ANTI-LOCK BRAKE SYSTEM article in the BRAKES Section.
- \* DO NOT mix tire sizes. As long as tires remain close to the original diameter, increasing the width is acceptable. Rolling diameter must be identical for all 4 tires. Some manufacturers recommend tires of the same brand, style and type. Failure to follow this precaution may cause inaccurate wheel speed readings.
- \* Use ONLY recommended brake fluids. DO NOT use silicone brake fluids in an ABS-equipped vehicle.

### BATTERY WARNING

WARNING: When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION section.

### REPLACING BLOWN FUSES

Before replacing a blown fuse, remove ignition key, turn off all lights and accessories to avoid damaging the electrical system. Be sure to use fuse with the correct indicated amperage rating. The use of an incorrect amperage rating fuse may result in a dangerous electrical system overload.

### BRAKE PAD REPLACEMENT

WARNING: Use caution when checking and/or changing brake pads, some pads may contain asbestos which can irritate eyes and may

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cause other health hazards. A water based solution should be used to clean brake dust from wheel and brake components. DO NOT use compressed air to blow off brake dust.

### BRAKE SYSTEM

CAUTION: Extreme brake pedal pressure is required if the engine is not running.

CAUTION: If brake warning light comes on while driving it indicates a low fluid level or failure in one of the braking circuits. If the brake pedal can be depressed further than normal it is an indication that one of the brake circuits is not functioning. Stop vehicle and check brake reservoir fluid level. If level is below MIN mark, DO NOT drive vehicle. Have it towed to a repair shop. If level is between the MIN and MAX marks, proceed cautiously to a repair shop.

### BRAKE PAD WEAR INDICATOR

Indicator will cause a squealing or scraping noise, warning that brake pads need replacement.

### CATALYTIC CONVERTER

Continued operation of vehicle with a severe malfunction could cause converter to overheat, resulting in possible damage to converter and vehicle.

Any modification to the exhaust system on turbo models, which reduces exhaust backpressure, will lead to lean fuel mixtures and excessive spark advance. This could cause serious engine damage.

### COOLANT (PROPYLENE-GLYCOL FORMULATIONS)

To avoid possible damage to vehicle use only ethylene-glycol based coolants with a mixture ratio from 44-68% anti-freeze. DO NOT use 100% anti-freeze as it will cause the formation of cooling system deposits. This results in coolant temperatures of over 300°F (149°C) which can melt plastics. 100% anti-freeze has a freeze point of only -8°F (-22°C).

CAUTION: Propylene-Glycol Mixtures has a smaller temperature range than Ethylene-Glycol. The temperature range (freeze-boil) of a 50/50 Anti-Freeze/Water Mix is as follows:

Propylene-Glycol	-26°F (-32°C)	-	257°F (125°C)
Ethylene-Glycol	-35°F (-37°C)	-	263°F (128°C)

CAUTION: Propylene-Glycol/Ethylene-Glycol Mixtures can cause the destabilization of various corrosion inhibitors. Also Propylene-Glycol/Ethylene-Glycol has a different specific gravity than Ethylene-Glycol coolant, which will result in

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inaccurate freeze point calculations.

### DIESEL FUEL ANTI-FUNGAL ADDITIVES

CAUTION: If fuel contamination due to fungi or other microorganisms is suspected a fuel additive with a biocide may be used. Follow the manufacturers dosage as recommended on product label. Use biocides ONLY when necessary, excessive use can may cause other fuel system problems.

### DIESEL FUEL CONTAMINATION

WARNING: Diesel fuel system may be contaminated with fungi or other microorganisms. Keep contaminated fuel away from open skin cuts or sores to prevent skin irritation or infection.

### DIESEL FUEL REQUIREMENTS

CAUTION: All diesel engines are to use Diesel Fuel #2 when the outside temperature is above 20°F (-7°C). In temperatures that are below 20°F (-7°C) use Diesel Fuel #1, this will reduce the chance of the fuel thickening and forming wax.

Note: A Diesel Fuel #1 & #2 combination (Blended Fuel) may be used, and is recommended for mild winter driving.

### STARTING FLUID USE (DIESEL)

WARNING: DO NOT USE starting fluids (ether) or flammable liquids to aid the starting of a Diesel engine. NEVER pour diesel fuel, flammable liquids or starting fluids into the air cleaner canister, air intake or turbocharger housing in an attempt to start the vehicle. A flash fire may result causing personal injury.

### ELECTRICAL SHOCK

WARNING: Contact with live components of ignition system while engine is running could lead to a fatal electric shock.

### ELECTROSTATIC DISCHARGE SENSITIVE (ESD) PARTS

WARNING: Many solid state electrical components can be damaged by static electricity (ESD). Some will display a warning label, but many will not. Discharge personal static electricity by touching a metal ground point on the vehicle prior to servicing any ESD sensitive component.

### ENGINE OIL

CAUTION: Never use non-detergent or straight mineral oil.



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#### **FUEL SYSTEM SERVICE**

**WARNING:** Relieve fuel system pressure prior to servicing any fuel system component (fuel injection models).

#### **HALOGEN BULBS**

Halogen bulbs contain pressurized gas which may explode if overheated. DO NOT touch glass portion of bulb with bare hands. Eye protection should be worn when handling or working around halogen bulbs.

#### **RADIATOR CAP**

**CAUTION:** Always disconnect the fan motor when working near the radiator fan. The fan is temperature controlled and could start at any time even when the ignition key is in the OFF position. DO NOT loosen or remove radiator cap when cooling system is hot.

#### **RADIATOR FAN**

**WARNING:** Keep hands away from radiator fan. Fan is controlled by a thermostatic switch which may come on or run for up to 15 minutes even after engine is turned off.

**END OF ARTICLE**