

Electrical System—Wiring, General

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(Water-cooled Digijet, Digifant)

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Cautions and Warnings

Whenever working on Volkswagen cars, follow procedures described in the appropriate section of the Repair Manual. Use of tools or procedures other than those recommended may be detrimental to the safe operation of the vehicle as well as the safety of the person doing the repair.

Before working on any car, read Cautions and Warnings:

CAUTION

- If you lack the skills, tools and equipment, or a suitable workshop for repair on the electrical system, we suggest you leave such repairs to an Authorized Dealer or other qualified shop.
- Before starting a job, make certain that you have all necessary tools and parts on hand. Read all instructions thoroughly; do not attempt shortcuts. Use tools appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts, and procedures will not make good repairs.
- Before working on any part of electrical system, disconnect battery ground cable. Do not substitute fuse links with fuse links of other wire gauge or with standard wire. Always replace entire length of fuse link.
- Relay locations are subject to change and may vary from vehicle to vehicle depending on options.
- Use extreme care when troubleshooting the electrical system.
- If you encounter problems identifying a particular relay, consult your Parts Department.

WARNING

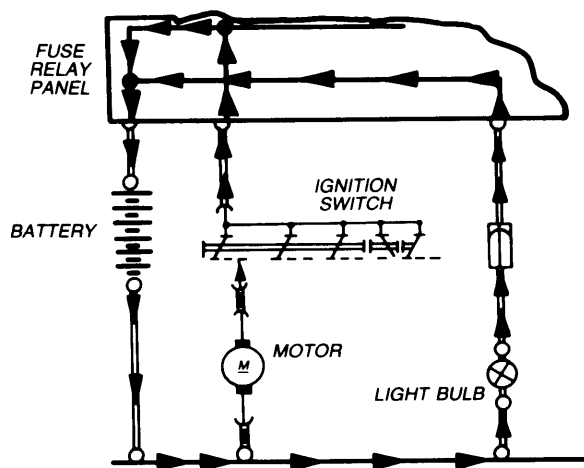
- Never work under a lifted car unless it is solidly supported on stands intended for the purpose. Do not support a car on cinder blocks, hollow tiles, or other props that may crumble under continuous load. Do not work under a car that is supported solely by a jack.
- If you are going to work under a car on the ground, make sure that the ground is level. Block the wheels to keep the car from rolling. Disconnect the battery ground strap to prevent others from starting the car while you are under it.
- Never run the engine unless the work area is well-ventilated. Carbon monoxide kills.
- Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the car. Make sure its bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If hydrogen gas escaping from the cap vents is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with battery acid. Gloves or other protective clothing should be worn whenever the job requires it.

Working On The Electrical System

The electrical system of our cars is getting more and more sophisticated. If guesswork and hit-and-miss replacement of parts did not work in the past when attempting repairs, it surely won't work today.

The schematics in this book are called "Wiring Diagrams." By showing how electrical current flows through electrical components that work together in circuits, troubleshooting is much easier with these schematics.

Each diagram in this book shows the powerflow through all wires, connectors, switches, and motors beginning at the top of the page down to ground at the bottom. A test light, or better still, a volt/ohm meter can be very helpful for testing circuits.



To trace a circuit you should start with the ground and then follow the wires back to the source of power. Note the color of wires in the diagram. Sometimes the color will be different on the car. Don't be concerned, just be sure to learn that the wires connect the proper terminals.

To learn more about the details in the diagrams, see 'How to read wiring diagrams' on page 97.4.

Troubleshooting Procedure

Verify the complaint:

If you are a professional mechanic, check customer's complaint to understand what the problem is. If possible, let customer show you what happens.

Analyze the problem:

Find the diagram in the book that applies to the car. Identify the circuit that most likely affects your problem. By following the circuit from ground to power source, get an understanding of how the circuit works.

Find the problem:

You will find the problem if you follow a simple and logical step-by-step procedure. Test portions of the circuit, one at a time, starting with the most likely area. Test at points that you can reach easily.

Repair the problem:

When you find the cause of the problem, make the repair.

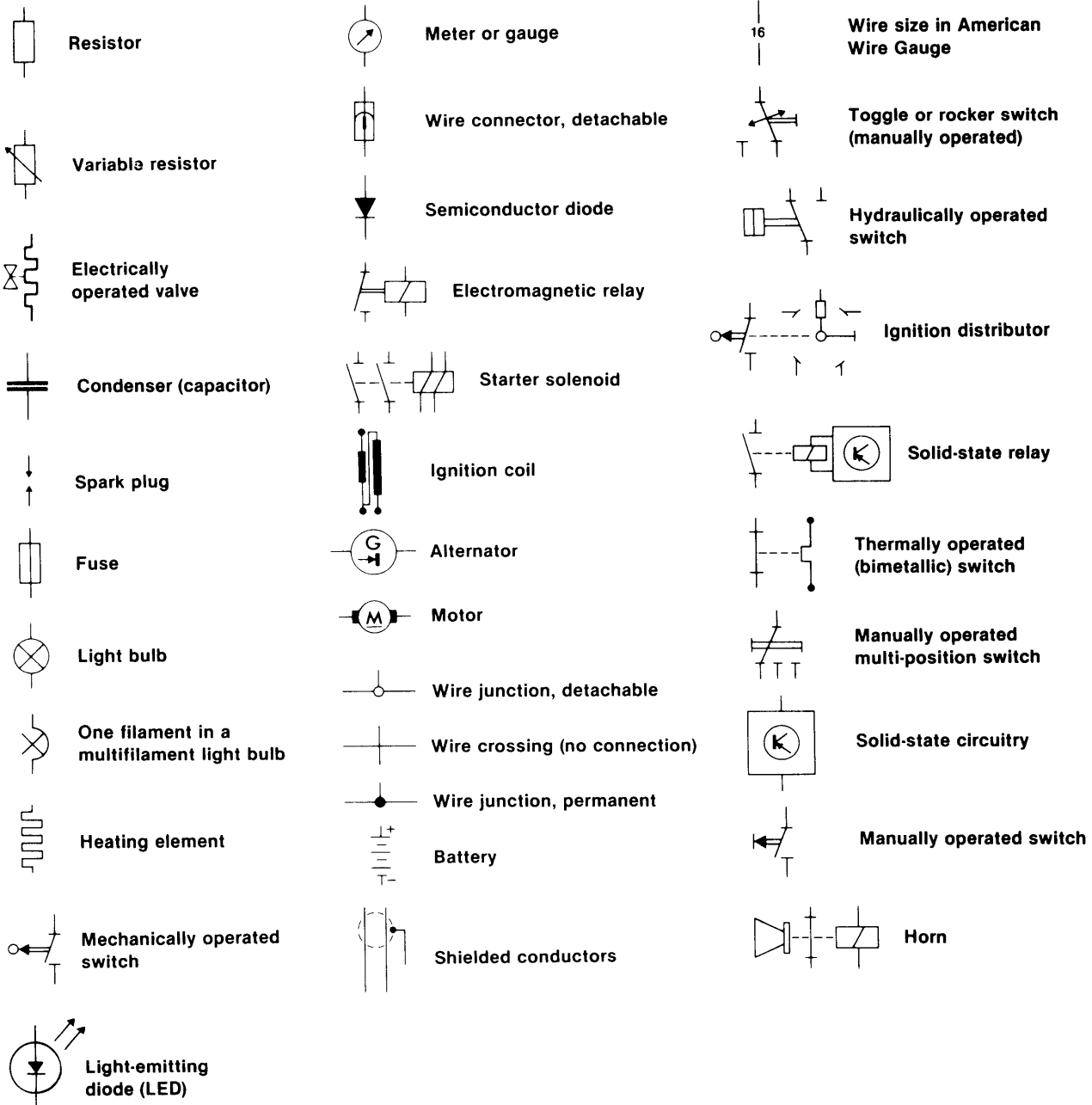
Check the results:

Be sure it works. Check all parts of the circuit that you worked on.



Where to find a wire connector on car →

Description	Current Track	Wire Connectors	Current Track
Parking light, right front	79	T2d — behind dash	79
Rear window defogger element	85	T2e — behind dash	83, 84
Rear window defogger indicator light	87	⑩ — Ground connector, instrum. clstr.	87, 88
Rear window defogger relay	85	⑪ — Ground connector, body	
Rear window defogger switch	86		
Sidemarkers, right front	80		
Sidemarkers, rear	77, 82		
Tail light, right	81		
Windshield wiper intermittent switch	68		
Windshield wiper motor	88, 89		



Color Code

Black — BK	Green — G
Brown — BR	Light Green — LT. G
Clear — CL	Blue — BL
Red — R	Violet — V
Yellow — Y	Gray — GY
	White — W

Wire Connector Code

T1 —single	T6 —6-point
T2 —double	T8 —8-point
T3 —3-point	T12—12-point
T4 —4-point	T14—14-point

Engine/Body ground connections

Poor ground connections may cause speedometer or brake warning light problems.

If speedometer needle will not return to zero or if brake warning light will not go out, ground connections may be bad or may have been connected to the wrong location on the vehicle.

Poor grounds may weaken speedometer needle return spring by allowing battery current to flow through speedometer cable.

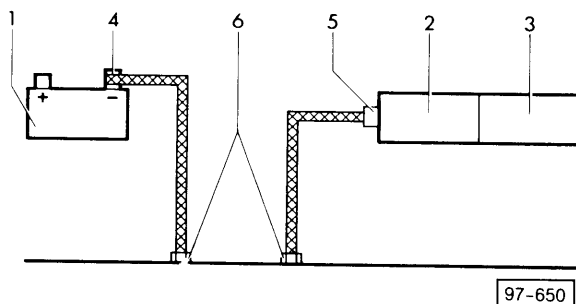
Battery/Ground cables, disconnecting/connecting

Disconnecting

- disconnect battery ground cable from negative terminal of battery
- disconnect ground cable from transmission (not from body)

Connecting

- clean ground connection on transmission to bare metal
- connect ground cable to transmission
- connect ground cable to negative terminal of battery



Ground straps

- 1 = Battery
- 2 = Transmission
- 3 = Engine
- 4 = Negative terminal of battery
- 5 = Ground point (transmission)
- 6 = Ground point (body)
 - do **not** disconnect

WARNING

Batteries produce explosive gasses. Keep flames and sparks away from batteries. Do not smoke near batteries

CAUTION

To avoid voltage drops and corrosion damage, ground cables on vehicle body must not be disconnected. Disconnect ground cables from battery or transmission ends only.

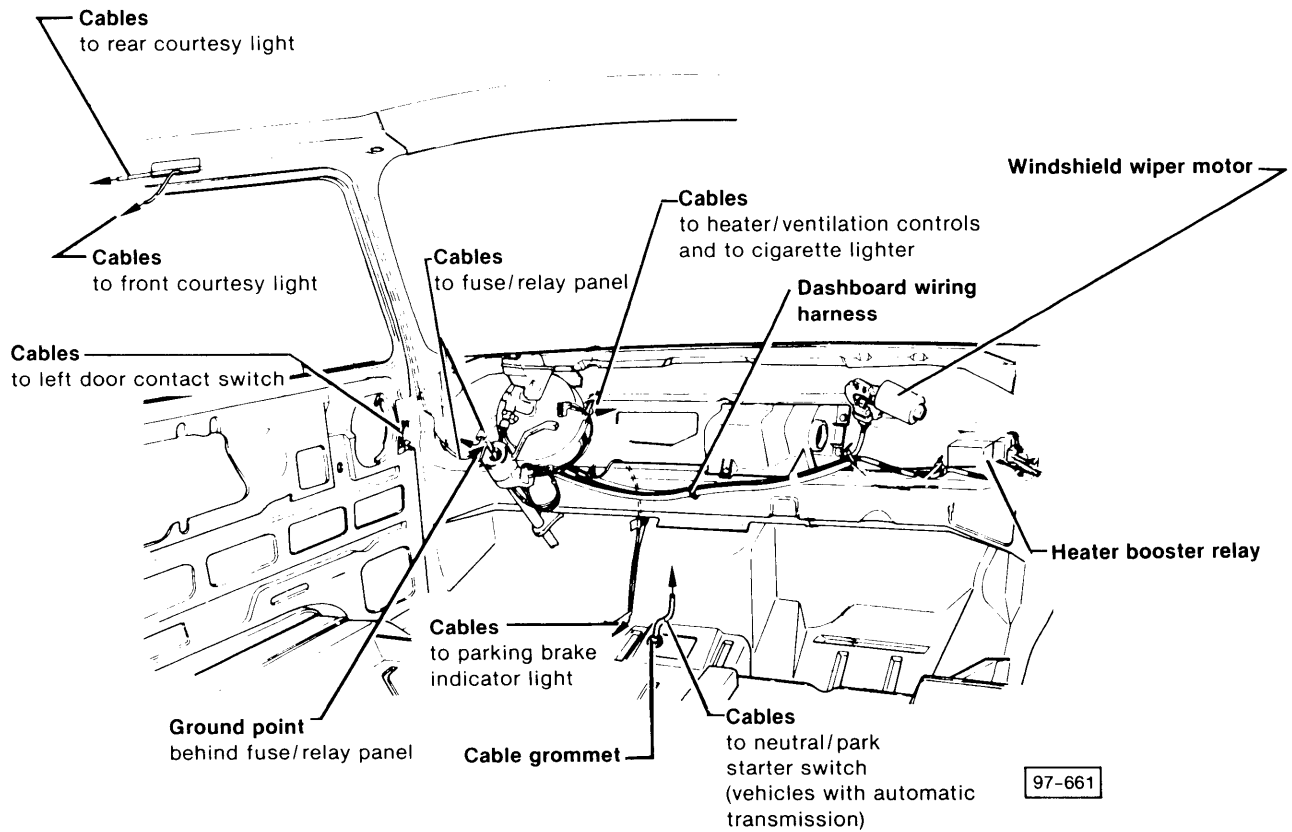
When connecting cables/ground straps, all connections must be cleaned to bare metal. Be sure mounting bolts are tight.

Note

A special bolt is used to attach the ground strap to the body. If the bolt has been loosened, it must be removed and cleaned free of paint and undercoating. The mounting area must also be cleaned free of paint and undercoating. After installing, coat the bolt and mounting area with corrosion resistant material.

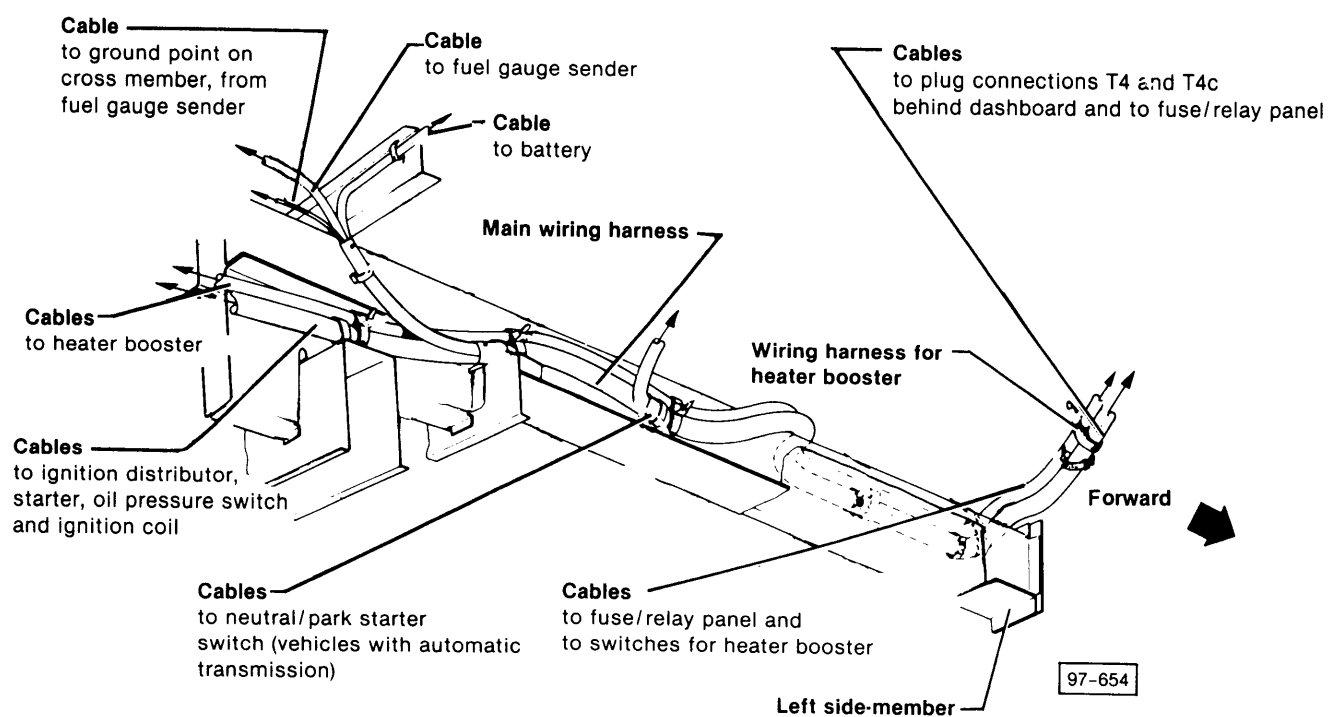
CAUTION

Before working on any part of electrical system, disconnect battery ground strap



CAUTION

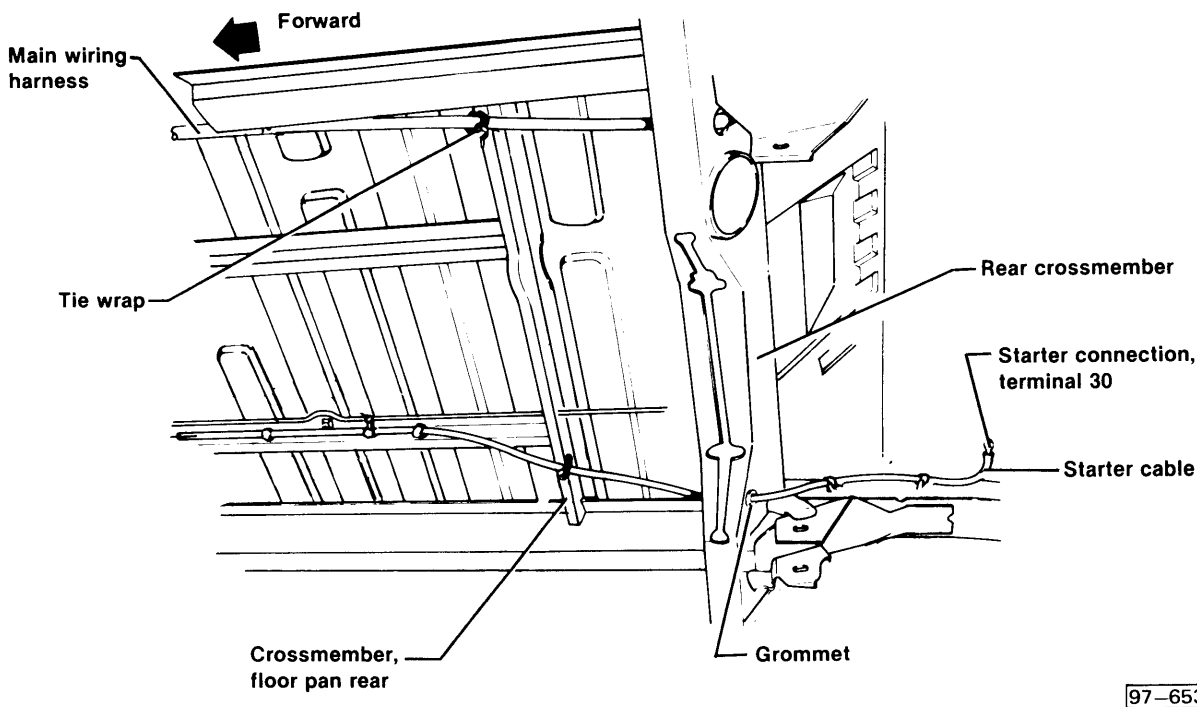
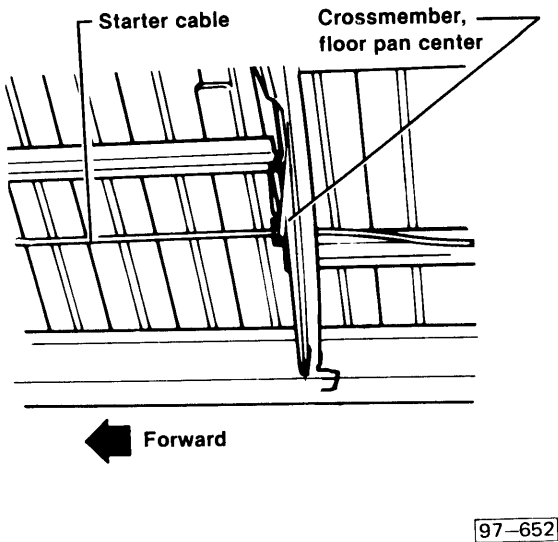
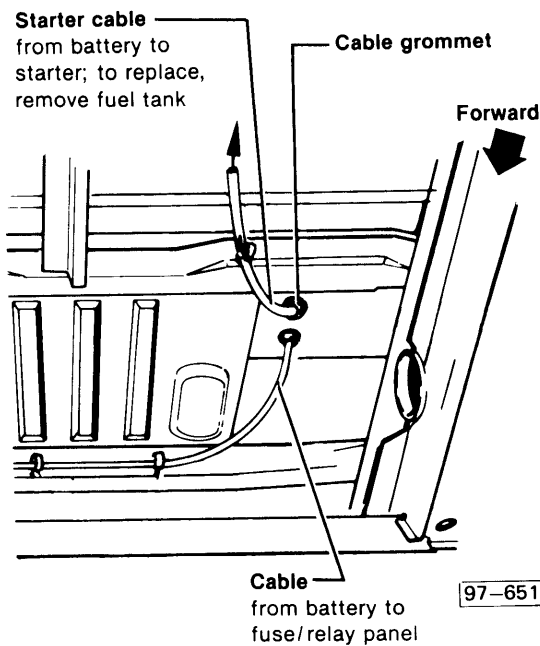
Before working on any part of electrical system, disconnect battery ground strap



Starter cable routing

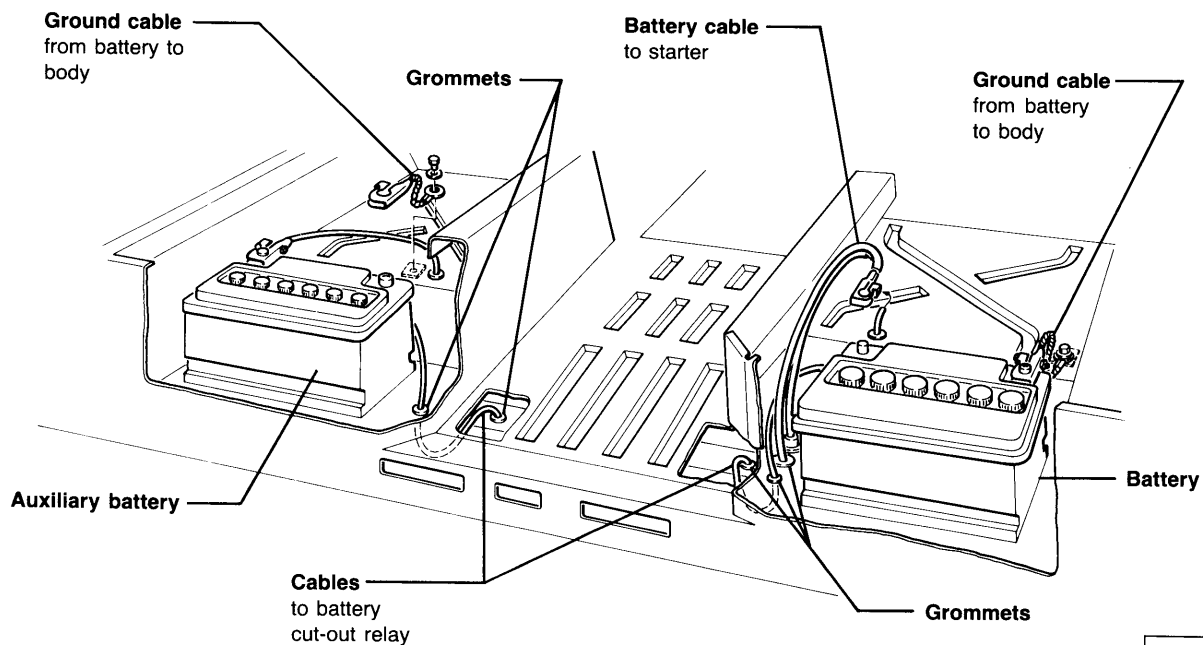
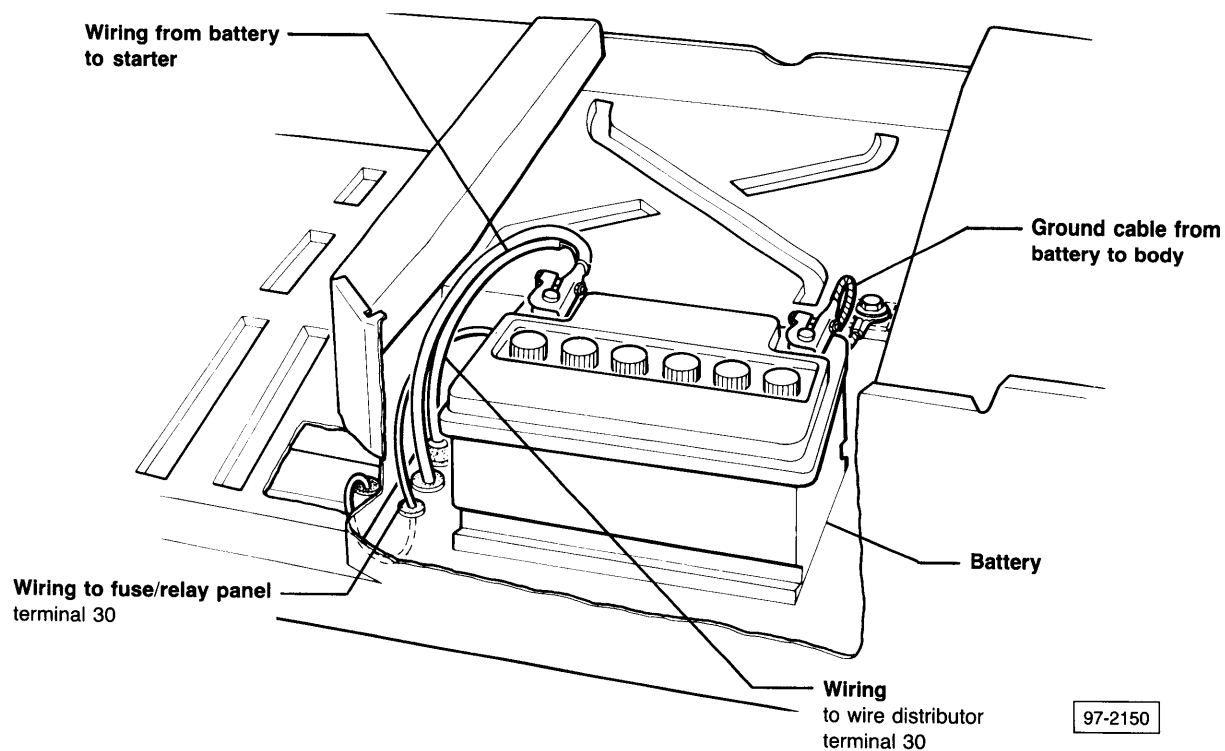
CAUTION

Before working on any part of electrical system, disconnect battery ground strap



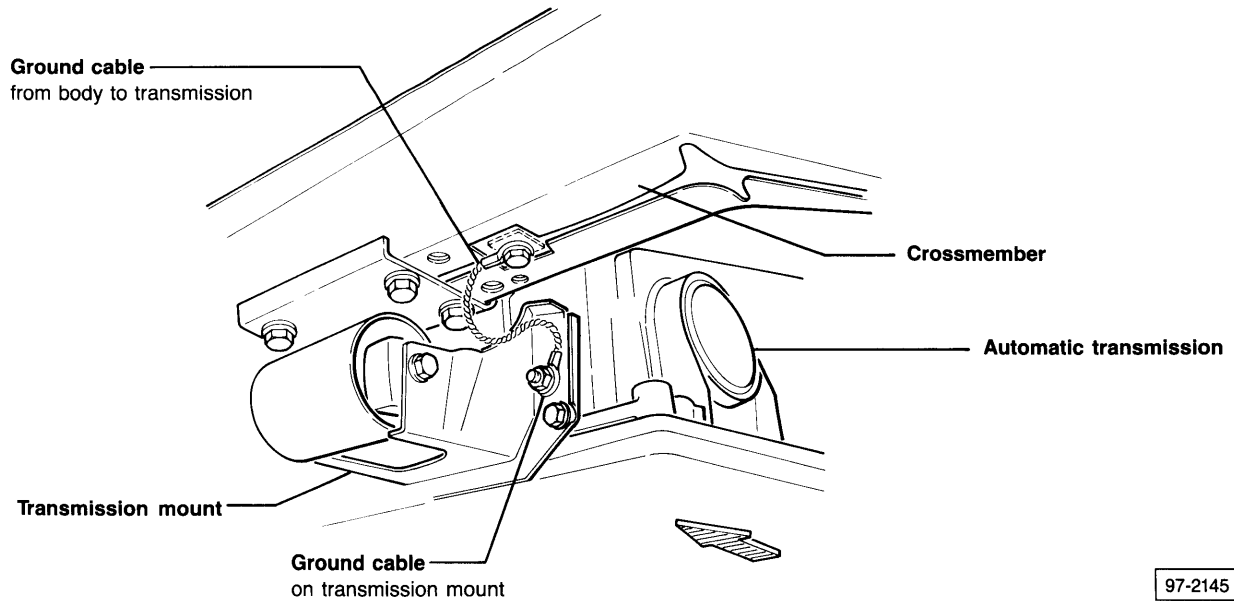
97 Electrical System—Wiring, General

Battery cables, location

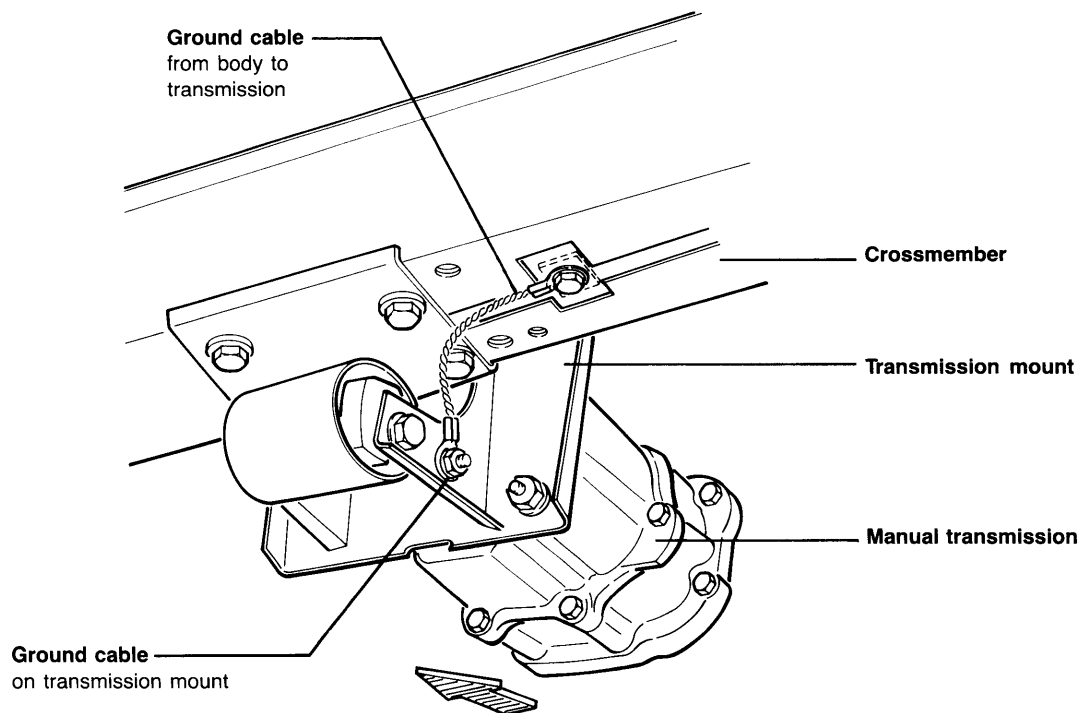


97.9a Battery cables

Ground cable from body to automatic transmission



Ground cable from body to manual transmission



97 Electrical System—Wiring, General

Fuse/relay panel, removing

CAUTION

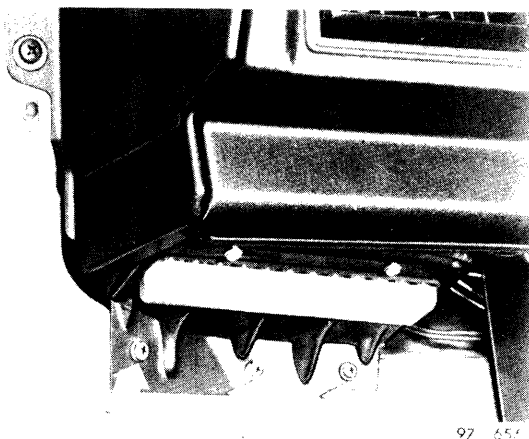
Before working on any part of electrical system, disconnect battery ground strap

CAUTION

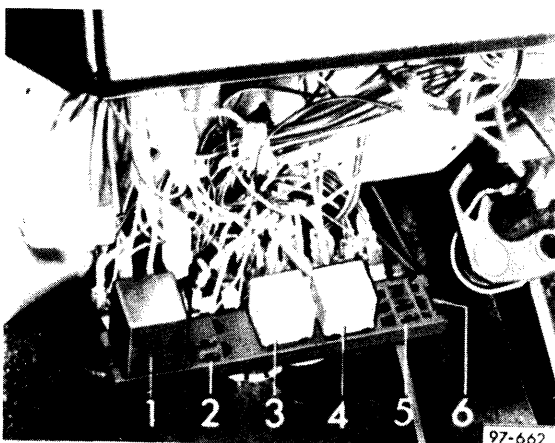
Relay locations are subject to change and may vary from vehicle to vehicle depending on options.

Use extreme care when troubleshooting the electrical system.

If you encounter problems identifying a particular relay, consult your Parts Department.

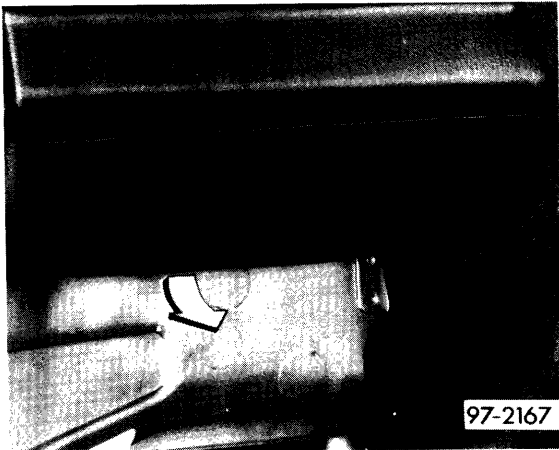


- remove screws (arrows)
- pull down fuse/relay panel

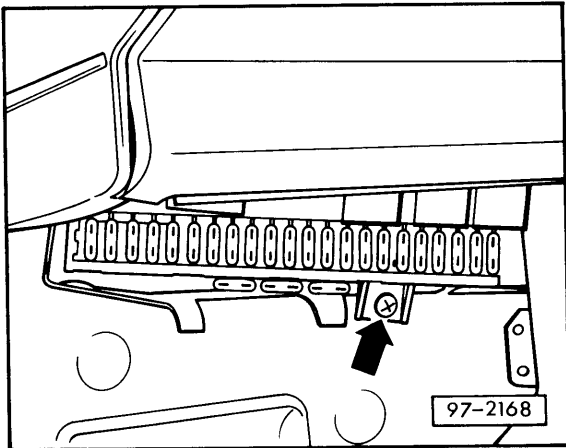


- 1 = emergency flasher relay
- 2 = vacant
- 3 = load reduction relay
- 4 = ignition key warning buzzer/relay
- 5 = windshield wiper/washer intermittent relay (optional)
- 6 = overheat fuse (8A) for heater booster (not shown in illustration, see Repair Group 82)

Fuse/relay panel, removing



— pull fuse/relay panel cover upward and unhook



- remove screw (**arrow**)
- unhook fuse/relay panel and pull down

Note

Before working on the electrical system, disconnect battery ground cable.

Electrical System—Wiring, Air-cooled—AFC

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- Cautions and warnings 97.2
- Fresh air fan 97.23
- Fuse/Relay panel 97.10
- Heater booster 97.24, 97.25
- Main wiring diagram 97.18–97.22
- Rear window wiper 97.26
- Seat belt interlock system
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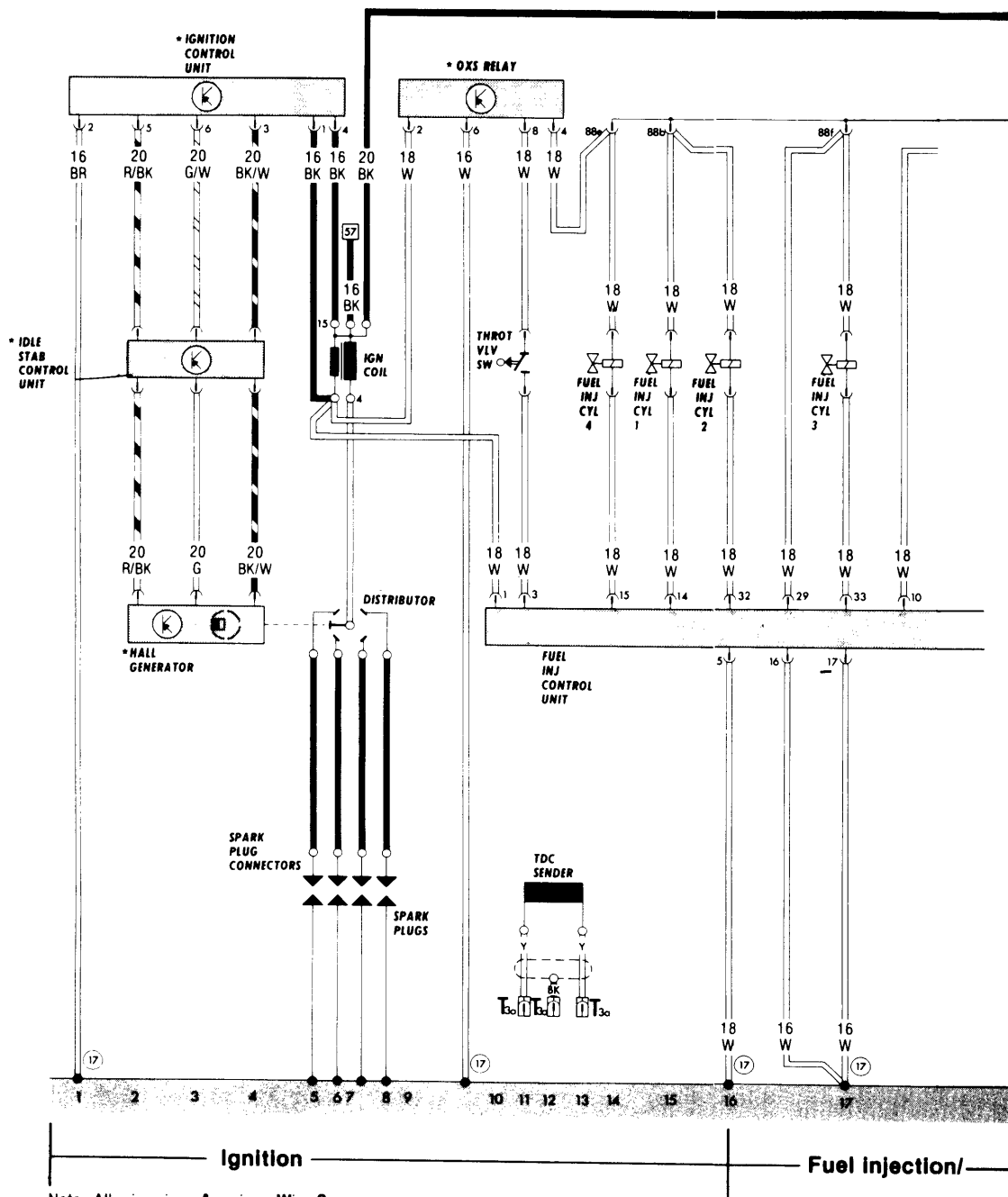
97 Electrical System—Wiring, Air-cooled—AFC

Wiring Color Code	
Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— LT.G
Blue	— BL
Violet	— V
Gray	— GY
White	— W

*California only

Note

On 49 state and Canada vehicles, a series resistance is located between fuel injection control unit and injectors.
On California vehicles, series resistance is built into fuel injection control unit.



Note: All wire sizes American Wire Gauge

Description

Alternator
Alternator charging indicator light
Auxiliary air regulator
Back-up light, left
Back-up light, right
Back-up light switch
Battery
Brake light, left
Brake light, right
Brake light switch

*California only

Current Track

31, 32 Brake warning light
32 Cigarette lighter
22 Cigarette lighter light
55 Clock
59 Cold start valve
58 Distributor
26 Door switch, left front, with buzzer contact
76 Door switch, right front
75 Elapsed mileage switch for OXS indicator*
75, 76 Emergency flasher indicator light

Current Track

73-76 Emergency flasher relay
71 Emergency flasher switch
70 Fuel gauge
56 Fuel gauge sender
24 Fuel injection control unit
5-8 Fuel pump
78, 79 Fuel pump relay
80 Fuses S1-S12 on fuse/relay panel (under dash)
33, 34 Hall generator*

Current Track

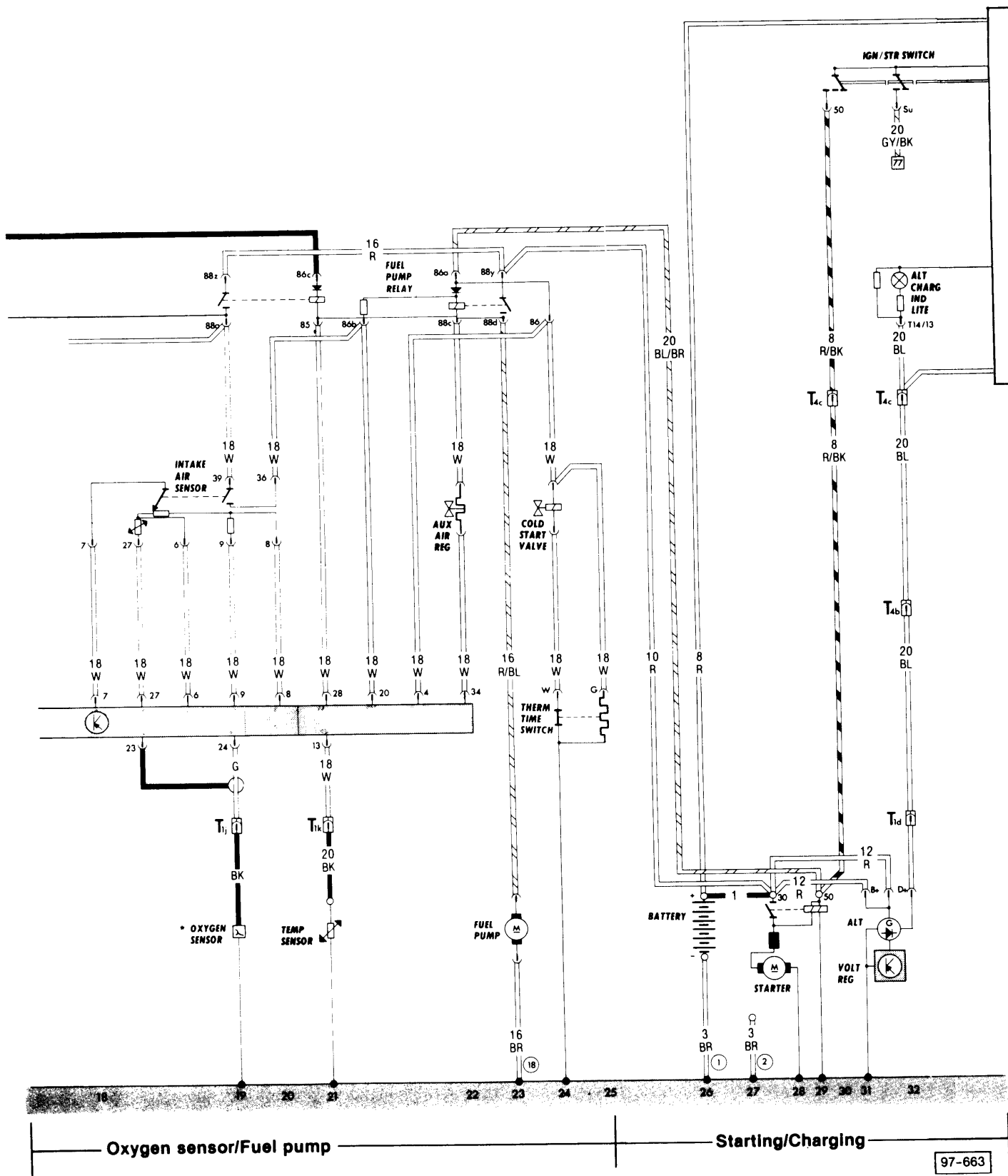
88-81
81-88
39
39
10-22
23
19-24
2-4

97.12

Main wiring diagram

AFC 1980, 1981

F-12



Description

Headlight dimmer switch/flasher
 Headlight, left, high
 Headlight, left, low
 Headlight, right, high
 Headlight, right, low
 Heater/fresh air controls light
 High beam indicator light
 Horn
 Horn button
 Idle stabilizer control unit*

*California only

Current Track

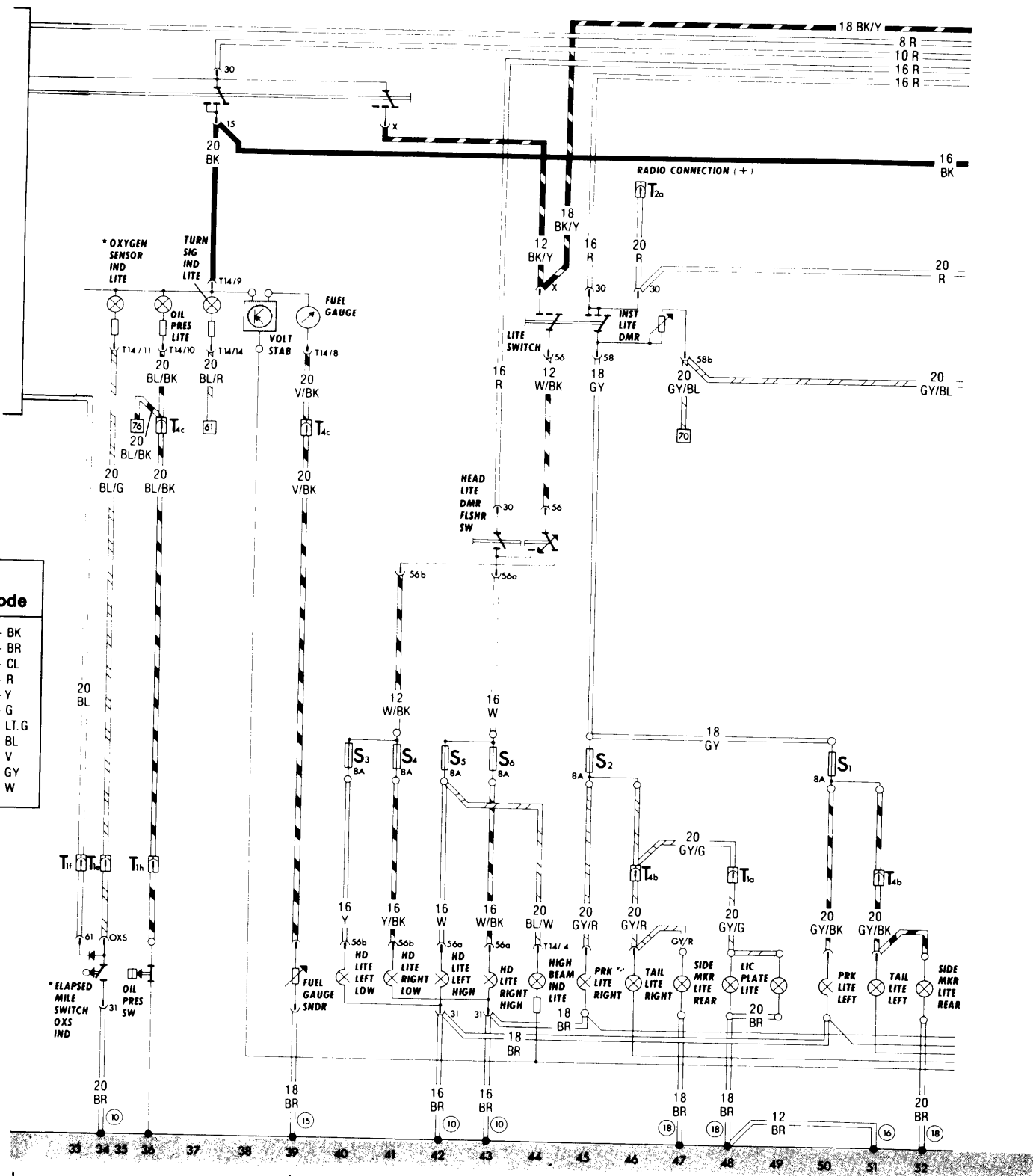
43, 44 Ignition coil
 42 Ignition control unit*
 40 Ignition key warning buzzer
 43 Ignition/starter switch
 41 Injector, cylinder 1
 69 Injector, cylinder 2
 44 Injector, cylinder 3
 57 Injector, cylinder 4
 57 Instrument light dimmer
 2-4 Instrument panel lights

Current Track

7 Intake air sensor
 1-6 Interior light, front
 77, 78 Interior light, rear
 30-40 License plate light
 15 Light switch
 16 Load reduction relay
 17 Oil pressure light
 14 Oil pressure switch
 46 Oxygen sensor (OXS)*
 53-55 Oxygen sensor (OXS) indicator light*

Description

18-20
 78-81
 82, 83
 48, 49
 44-47
 88-93
 38
 36
 19
 34



Wiring Color Code

Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— LT.G
Blue	— BL
Violet	— V
Gray	— GY
White	— W

*California only

Instrument cluster | Lighting/Radio connection (cont.)

Note: All wire sizes American Wire Gauge

Description

Oxygen sensor (OXS) relay*
 Parking brake indicator light switch
 Parking light, left
 Parking light, right
 Radio connection (—)
 Radio connection (+)
 Rear window defogger
 Rear window defogger switch
 Side marker light, left
 Side marker light, right

*California only

Current Track

9-12
 73
 60
 45
 72
 46
 81
 81, 82
 62
 47

Description

Sliding door switch
 Spark plug connectors
 Spark plugs
 Starter
 Tail light, left
 Tail light, right
 TDC sender
 Temperature sensor
 Thermo time switch
 Throttle valve switch
 Turn signal indicator light

Current Track

83
 5-8
 5-8
 28, 29
 51
 46
 11-13
 21
 24, 25
 11
 37

Description

Turn signal, left front
 Turn signal, left rear
 Turn signal, right front
 Turn signal, right rear
 Turn signal switch
 Voltage regulator
 Voltage stabilizer
 Windshield washer pump
 Windshield wiper motor
 Windshield wiper switch
 Windshield wiper/washer intermittent relay

Current Track

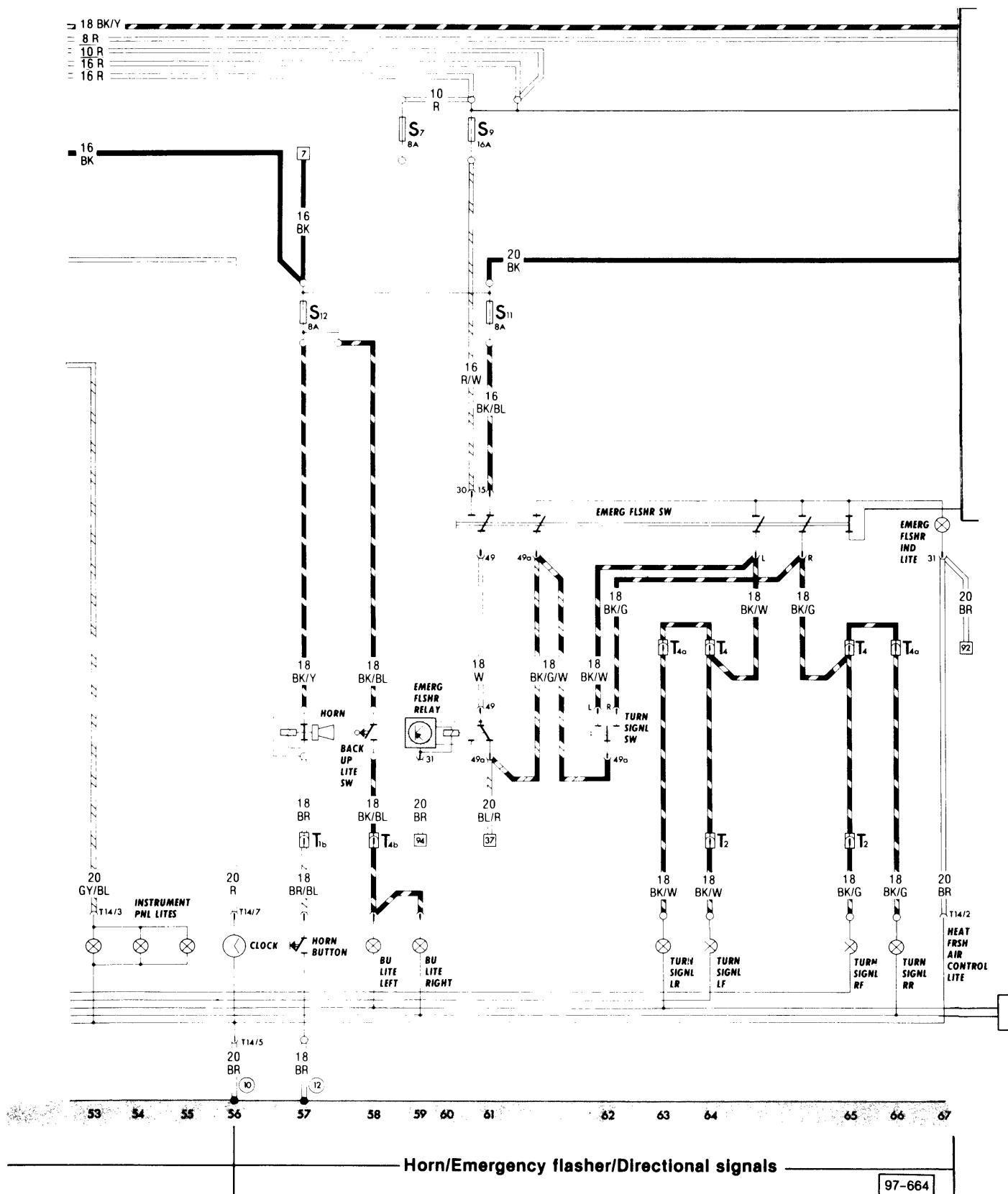
84
 63
 65
 66
 62
 31
 36
 64
 86-89
 85-88
 85-87

97.14

Main wiring diagram

AFC 1980, 1981

F-14



Description

Alternator
Alternator charging indicator light
Auxiliary air regulator
Back-up light, left
Back-up light, right
Back-up light switch
Battery
Brake light, left
Brake light, right
Brake light switch

*California only

Current Track

31,32
32
22
58
59
58
26
76
75
75, 76

Description

Brake warning light
Cigarette lighter
Cigarette lighter light
Clock
Cold start valve
Distributor
Door switch, left front, with buzzer contact
Door switch, right front
Elapsed mileage switch for OXS indicator*
Emergency flasher indicator light

Current Track

73-76
71
70
56
24
5-8
78, 79
80
33, 34
67

Description

Emergency flasher relay
Emergency flasher switch
Fuel gauge
Fuel gauge sender
Fuel injection control unit
Fuel pump
Fuel pump relay
Fuses S1-S12 on fuse/relay panel (under dash)
Hall generator*

Current Track

59-61
61-69
39
39
10-22
23
19-24
2-4

Note

USA and Canada vehicles are equipped with EGR system instead of OXS system. OXS system is for California only.

Wire Connectors

- T1a - at fuse/relay panel
- T1b - behind dash
- T1c - behind dash
- T1d - in engine compart. near alternator
- T1e - behind instr. panel
- T1f - behind instr. panel
- T1g - behind dash
- T1h - in engine compart.
- T1i - behind dash
- T1j - behind dash
- T1j - in engine compart.
- T1k - in engine compart.
- T2 - behind dash
- T2a - behind dash
- T3a - in engine compart.
- T4 - behind dash
- T4a - at fuse/relay panel
- T4b - at fuse/relay panel
- T4c - behind instr. panel
- T8 - at brake warning light
- T14 - at instr. panel insert

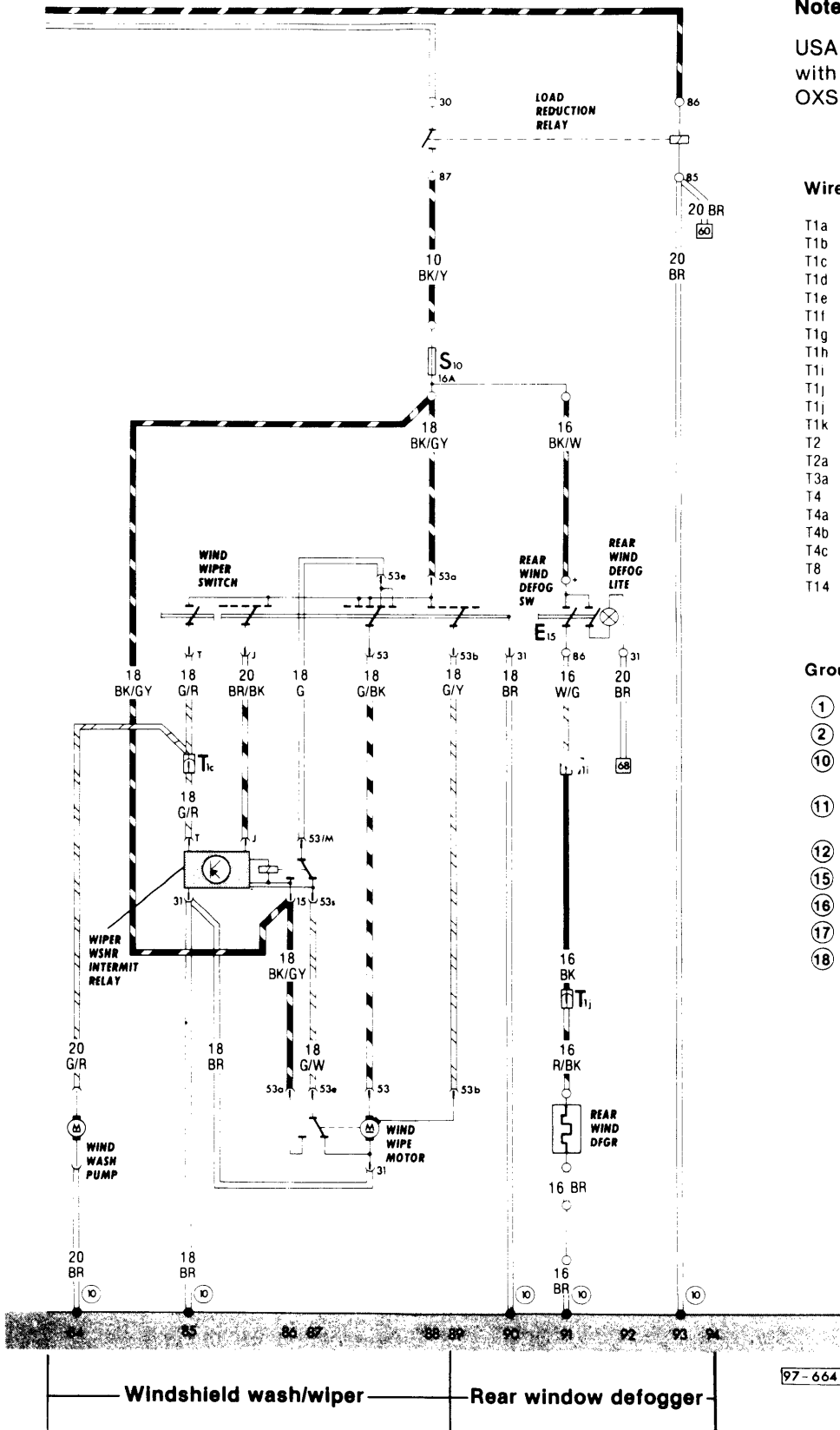
Ground Connectors

- ① - from battery to body
- ② - from transmission to body
- ⑩ - behind instr. panel, to left of fuse/relay panel
- ⑪ - behind instr. panel, to left of fuse/relay panel
- ⑫ - on steering gear
- ⑮ - at left front of crossmember
- ⑯ - near fuse/relay panel
- ⑰ - near ignition distributor
- ⑱ - at fuse/relay panel

Wiring Color Code

Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— LT. G
Blue	— BL
Violet	— V
Gray	— GY
White	— W

*California only



97-664

Description

- Parking light, left
- Parking light, right
- Radio connection (—)
- Radio connection (+)
- Rear window defogger
- Rear window defogger switch
- Side marker light, left
- Side marker light, right
- Sliding door switch
- Spark plug connectors

*California only

Current Track

- 50
- 45
- 72
- 46
- 91
- 91, 92
- 52
- 47
- 83
- 5-8

Description

- Spark plugs
- Starter
- Tail light, left
- Tail light, right
- TDC sender
- Temperature sensor
- Thermo time switch
- Throttle valve switch
- Turn signal indicator light
- Turn signal, left front

Current Track

- 5-8
- 28, 29
- 51
- 46
- 11-13
- 21
- 24, 25
- 11
- 37
- 64

Description

- Turn signal, left rear
- Turn signal, right front
- Turn signal, right rear
- Turn signal switch
- Voltage regulator
- Voltage stabilizer
- Windshield washer pump
- Windshield wiper motor
- Windshield wiper switch
- Windshield wiper/washer intermittent relay

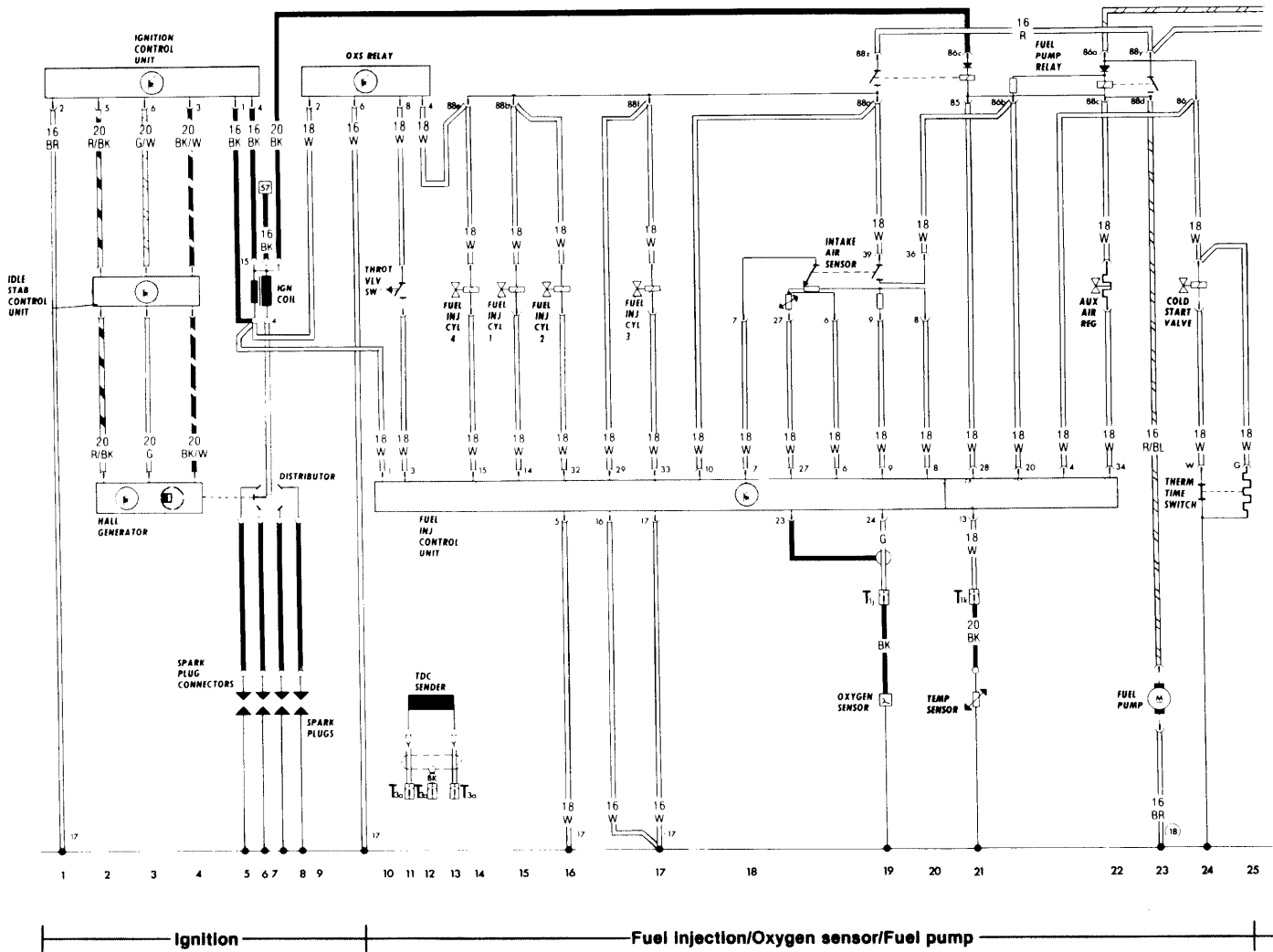
Current Track

- 63
- 65
- 66
- 62
- 31
- 38
- 84
- 86-89
- 85-90
- 85-87

1982-1983 Vanagon

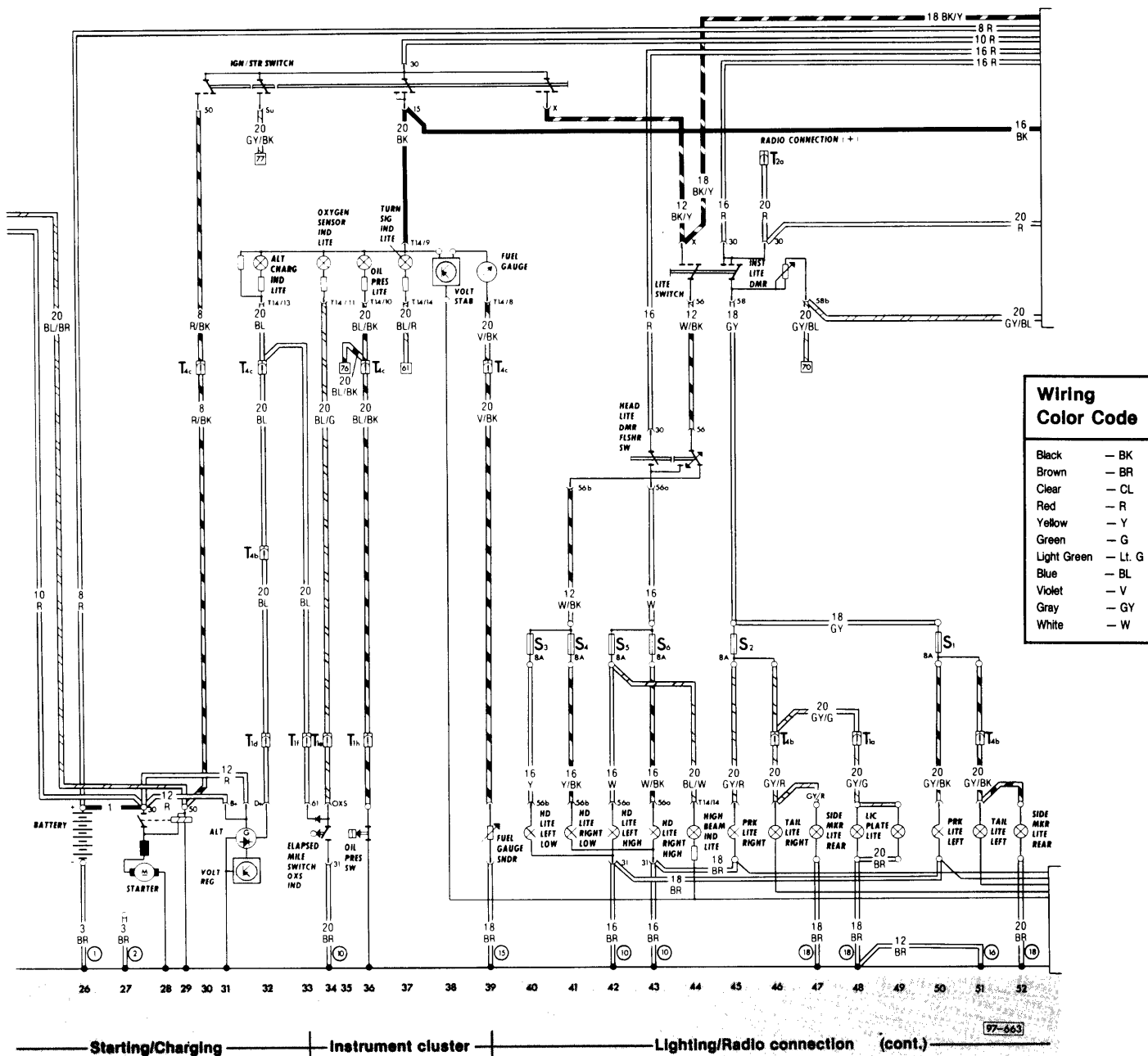
Air-cooled—AFC

Description	Current Track	Description	Current Track
Alternator	31, 32	Side marker light, left	52
Alternator charging indicator light	32	Side marker light, right	47
Auxiliary air regular	22	Sliding door switch	83
		Spark plug connector	5-8
Back-up light, left	58	Spark plugs	5-8
Back-up light, right	59	Starter	28, 29
Back-up light switch	58		
Battery	26	Tail light, left	51
Brake light, left	76	Tail light, right	46
Brake light, right	75	TDC sender	11-13
Brake light switch	75, 76	Temperature sensor	21
Brake warning light	73-76	Thermo time switch	24, 25
		Throttle valve switch	11
Cigarette lighter	71	Turn signal indicator light	37
Cigarette lighter light	70	Turn signal, left front	64
Clock	56	Turn signal, left rear	63
Cold start valve	24	Turn signal, right front	65
		Turn signal, right rear	66
Distributor	5-8	Turn signal switch	62
Door switch, left front, with buzzer contact	78, 79	Voltage regulator	31
Door switch, right front	80	Voltage stabilizer	38
Elapsed mileage switch for OXS indicator	33, 34	Windshield washer pump	84
Emergency flasher indicator light	67	Windshield wiper motor	86-89
Emergency flasher relay	59-61	Windshield wiper switch	85-90
Emergency flasher switch	61-69	Windshield wiper/washer intermittent relay	85-87
Fuel gauge	39	Wire Connectors	
Fuel gauge sender	39	T1a — at fuse/relay panel	
Fuel pump	23	T1b — behind dash	
Fuel pump relay	19-24	T1c — behind dash	
Fuses S1-S12 on fuse/relay panel (under dash)		T1d — in engine compart, near alternator	
		T1e — behind instr. panel	
Hall generator	2-4	T1f — behind instr. panel	
Headlight dimmer switch/flasher	43, 44	T1g — behind dash	
Headlight, left, high	42	T1h — in engine compart.	
Headlight, left, low	40	T1i — behind dash	
Headlight, right, high	43	T1j — behind dash	
Headlight, right, low	41	T1j — in engine compart.	
Heater/fresh air controls light	69	T1k — in engine compart.	
High beam indicator light	44	T2 — behind dash	
Horn	57	T2a — behind dash	
Horn button	57	T3a — in engine compart	
		T4 — behind dash	
Idle stabilizer control unit	2-4	T4a — at fuse/relay panel	
Ignition coil	7	T4b — at fuse/relay panel	
Ignition control unit	1-6	T4c — behind instr. panel	
Ignition key warning buzzer	77, 78	T8 — at brake warning light	
Ignition/starter switch	30-40	T14 — at instr. panel insert	
Injector, cylinder 1	15		
Injector, cylinder 2	16	Ground Connectors	
Injector, cylinder 3	17	1 — from battery to body	
Injector, cylinder 4	14	2 — from transmission to body	
Instrument light dimmer	46	10 — behind instr. panel to left of fuse/relay panel	
Instrument panel lights	53-55	11 — behind instr. panel to left of fuse/relay panel	
Intake air sensor	18-20	12 — on steering gear	
Interior light, front	79-81	15 — at left front of crossmember	
Interior light, rear	82, 83	16 — near fuse/relay panel	
		17 — near ignition distributor	
License plate light	48, 49	18 — at fuse/relay panel	
Light switch	44-47		
Load reduction relay	88-93		
Oil pressure light	36		
Oil pressure switch	36		
Oxygen sensor (OXS)	19		
Oxygen sensor (OXS) indicator light	34		
Oxygen sensor (OXS) relay	9-12		
Parking brake indicator light switch	73		
Parking light, left	50		
Parking light, right	45		
Radio connection (-)	72		
Radio connection (+)	46		
Rear window defogger	91		
Rear window defogger switch	91, 92		



Note: All wire sizes American Wire Gauge

97 Electrical System—Wiring, Air-cooled—AFC



97.20

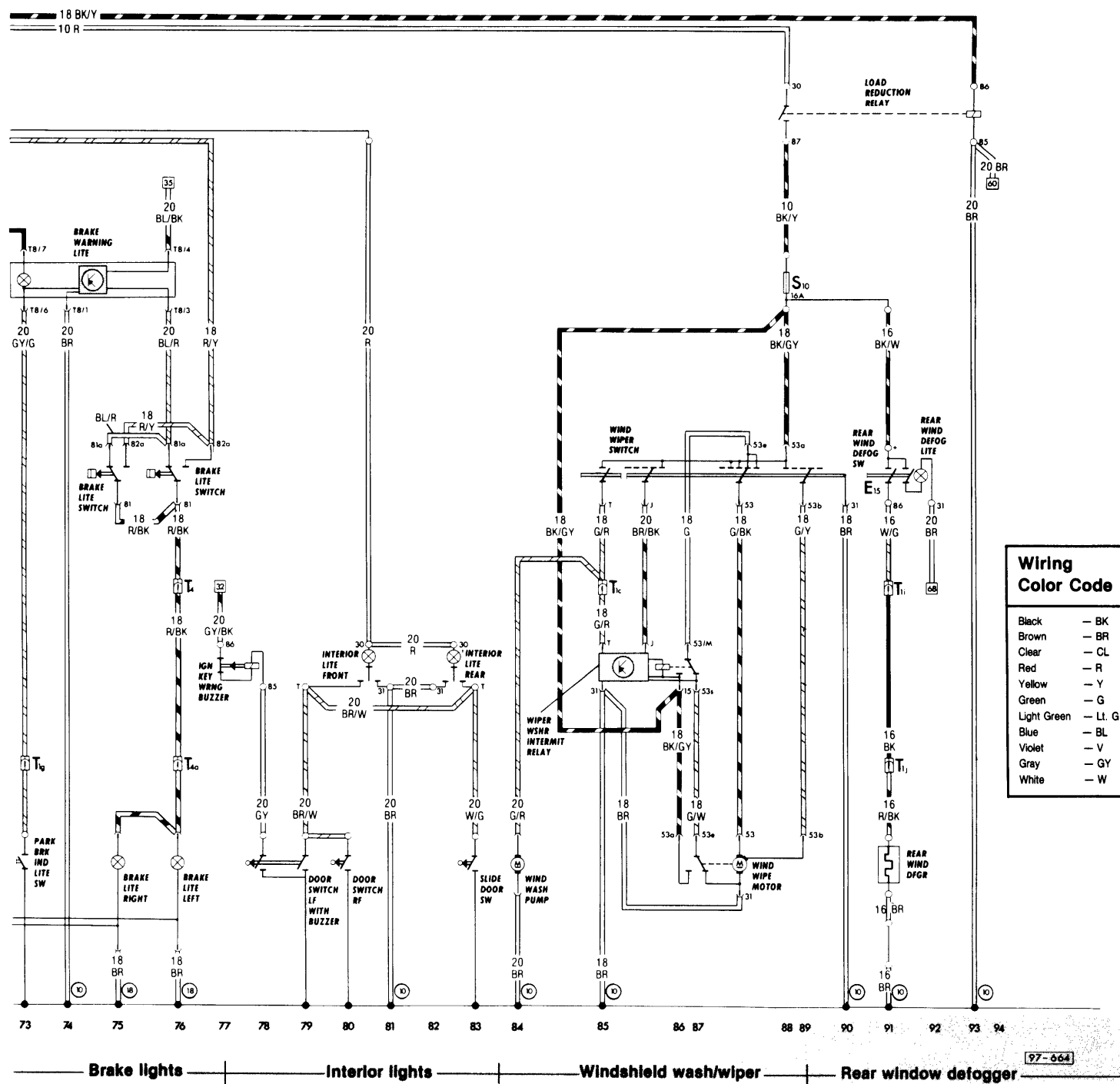
Main wiring diagram

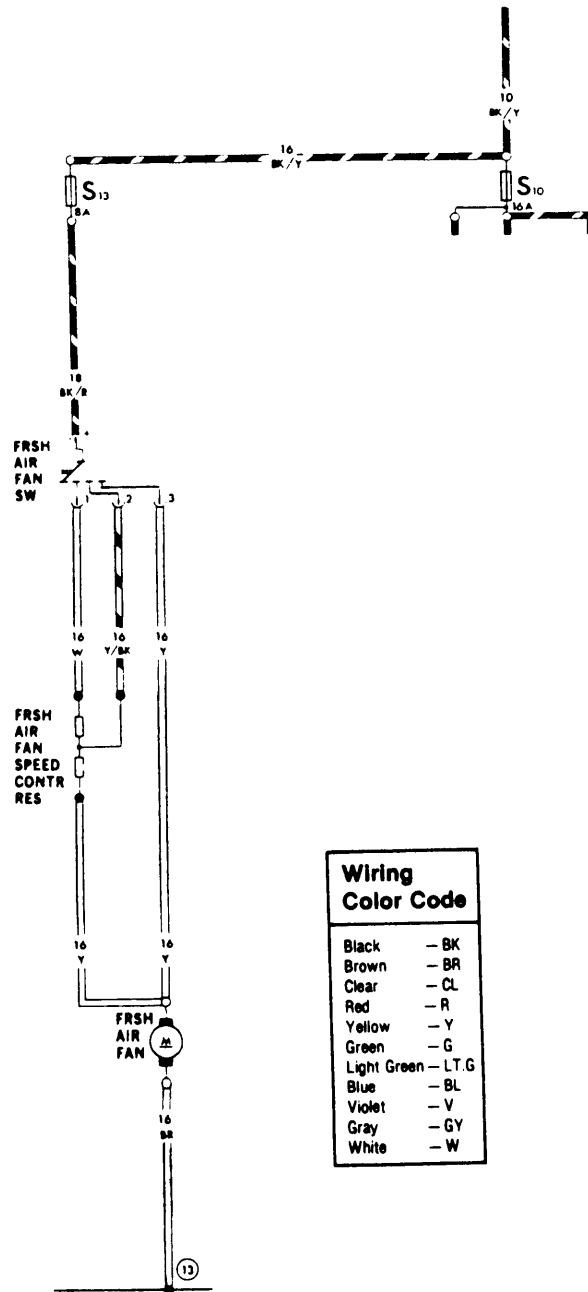
AFC 1982, 1983



97.21

97 Electrical System—Wiring, Air-cooled—AFC





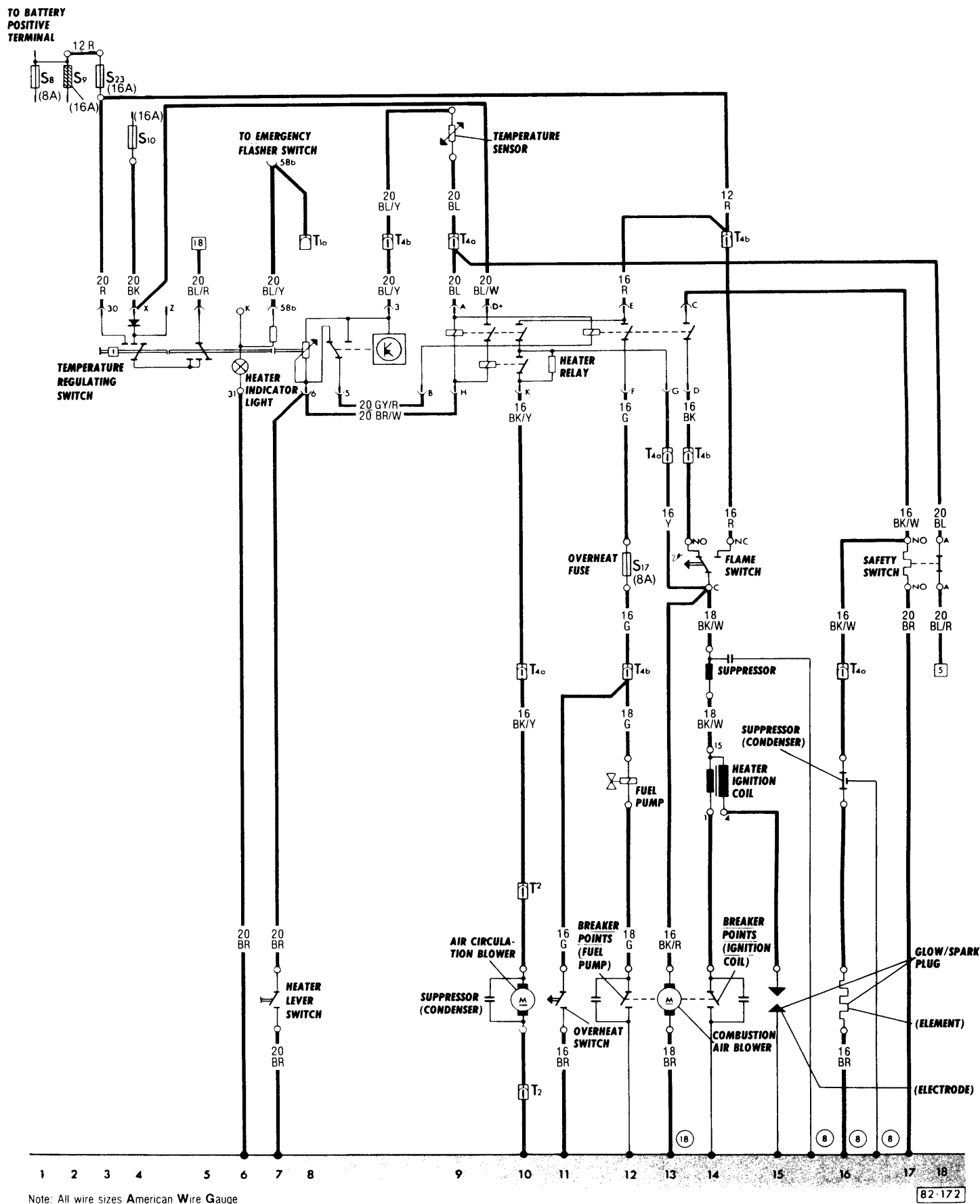
Wiring Color Code	
Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— LT.G
Blue	— BL
Violet	— V
Gray	— GY
White	— W

Ground Connector
 ⑬ behind dash

NOTE: All wire sizes American Wire Gauge

97 Electrical System—Wiring, Air-cooled-AFC

Heater booster



97.24

Heater booster

AFC 1980-1983

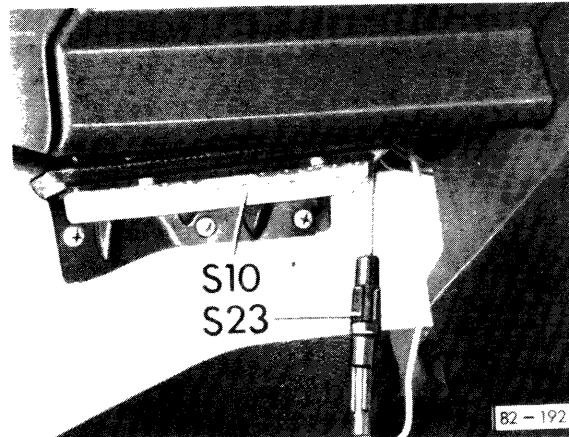
Description	Current Track
Air circulation blower	10
Breaker points for fuel pump	12
Breaker points for ignition coil	14
Combustion air blower	13
(to) Emergency flasher switch, term. 58b	7
Flame switch	14
Fuel pump	1, 3
Glow/spark plug—element	16
Glow/spark plug—electrode	15
Heater indicator light	6
Heater lever switch	7
Heater relay	9-14
Ignition coil	14
Ignition/starter switch	9
Main fuse S23	3
Overheat fuse S17	12
Overheat switch	11
Safety switch	17, 18
Suppressor for air circulation blower	10
Suppressor for glow/spark plug	16
Suppressor for ignition coil	14, 15
Temperature regulating switch	1-8
Temperature sensor	9
Wire connectors	
T1a—at fuse holder	7
T2 —at air circulation blower	10
T4a—at heater	9,10,13,16
T4b—at heater	8,12,13,14

- (8)—ground connector, at heater
 (18)—ground connector, at combustion air blower

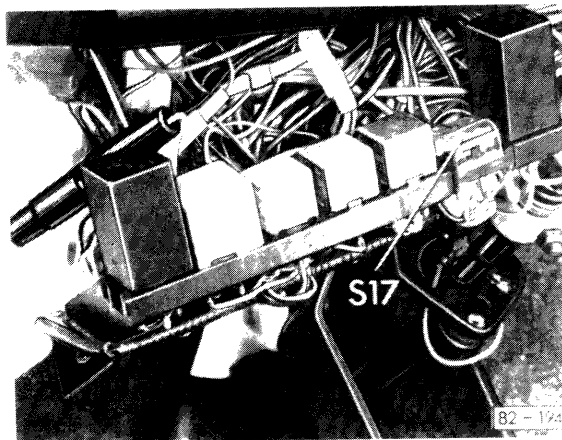
Wiring Color Code	
Black	—BK
Brown	—BR
Clear	—CL
Red	—R
Yellow	—Y
Green	—G
Light Green	—LTG
Blue	—BL
Violet	—V
Gray	—GY
White	—W

CAUTION

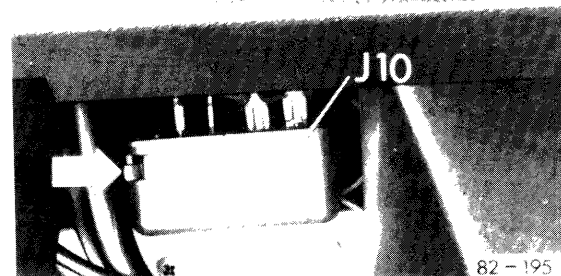
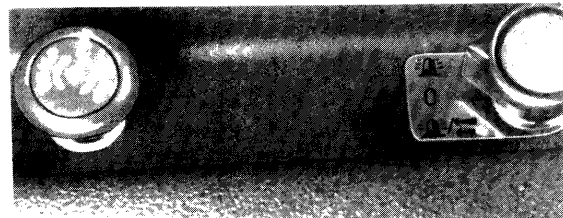
Before working on any part of electrical system, disconnect battery ground strap



S10 = Fuse in fuse/relay panel (16A)
 S23 = Main fuse, in-line (16A)



S17 = Overheat fuse (8A)



J10 = Safety switch

Note

To reset switch, wait three minutes and then press reset lever in direction of arrow



Wire connectors

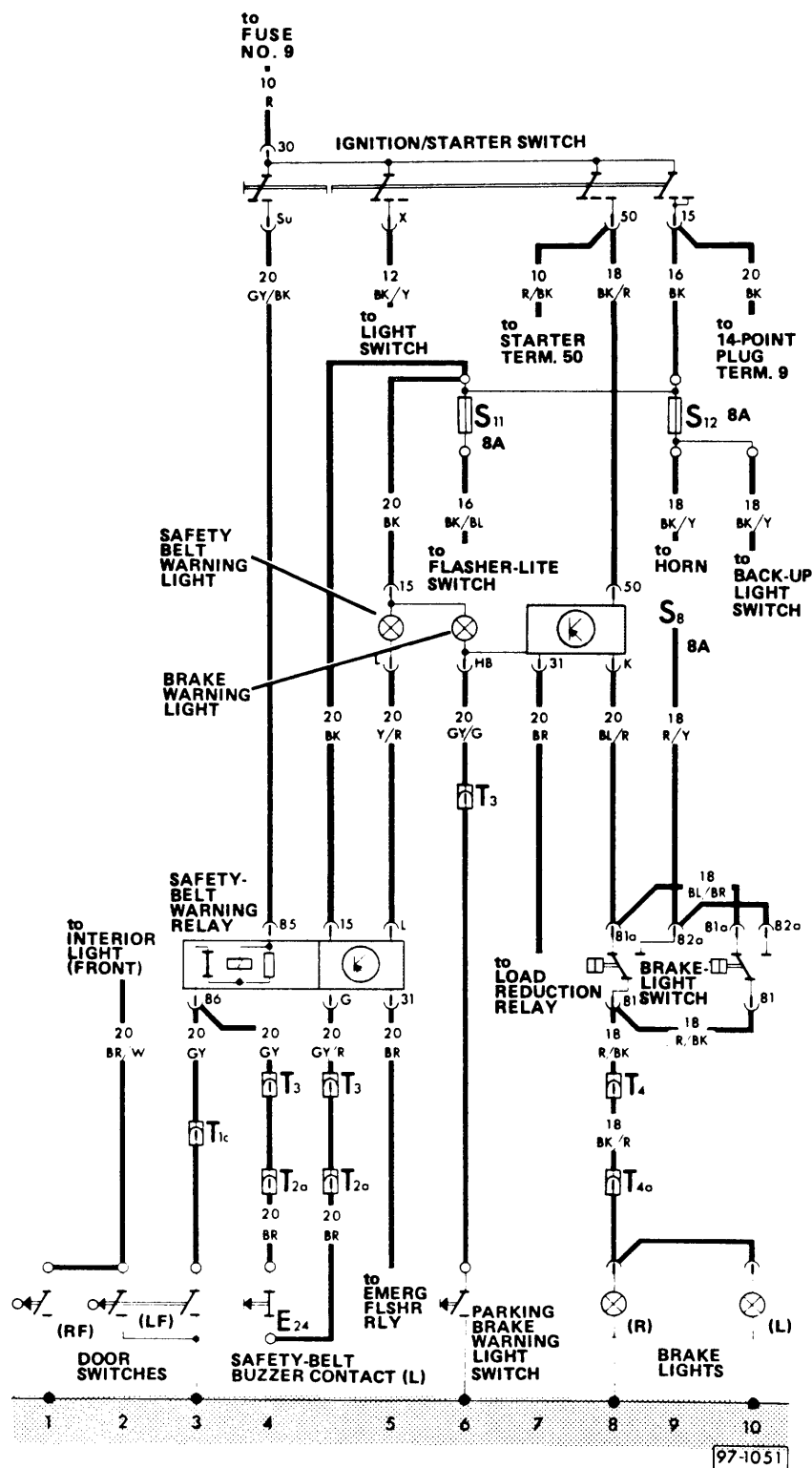
T1c	single, behind dash
T2a	double, under driver's seat
T3	3-point, behind dash
T4	4-point, behind dash
T4a	4-point, in engine compartment

Current
Track

3
4
4, 6
8
8

Wiring Color Code

Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— LT.G
Blue	— BL
Violet	— V
Gray	— GY
White	— W



Electrical System—Wiring, Camper

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- Battery/Ground cables
 - disconnecting/connecting 97.6
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 - 1986 from VIN G 055 690 97.10a, 97.89
 - 1987 97.10a, 97.146
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1980–1985 Camper

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- Cautions and warnings 97.2
- Fuse/Relay panel 97.10
- Indicator lights
 - battery level 97.30
 - water tank level 97.30
- Water pump 97.31

1986–1987 Camper

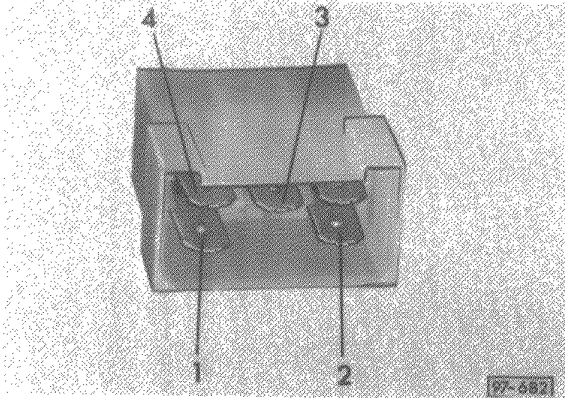
- Auxiliary battery wiring
 - automatic trans. 97.137–97.139
 - manual trans. 97.140–97.142
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- Fuse/Relay panel
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- Indicator lights
 - battery level 97.30
 - water tank level 97.30
- Refrigerator wiring 97.143–97.145
- Water pump 97.31

Battery level indicator lights, checking

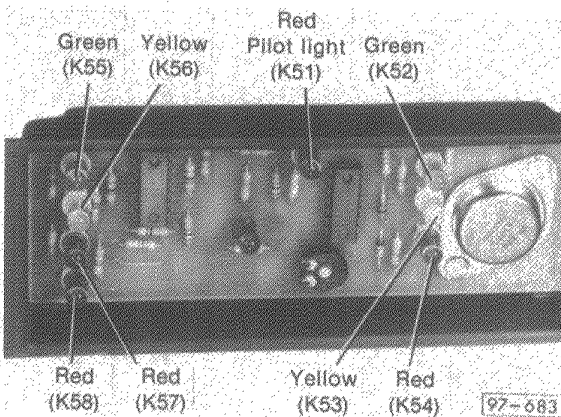
Note

Ignore indicator lights which light but are not mentioned in test being performed

- check indicator light panel fuse located under driver's seat
- remove indicator light panel from sink cabinet and disconnect multi-point connector



- connect indicator light panel to fully charged 12-volt battery as follows:
 - terminal 1 to battery positive terminal
 - terminal 2 to battery negative terminal



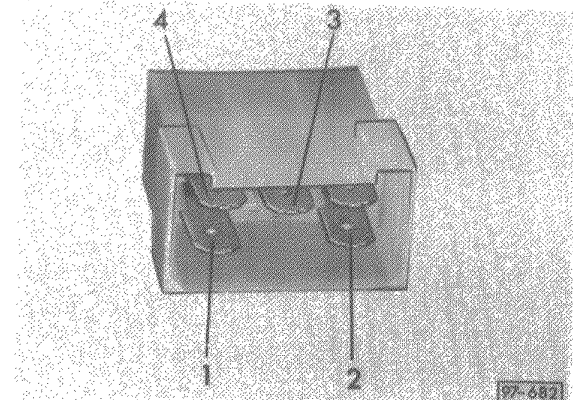
- red pilot light(K51) and green battery level indicator light(K52) will light—battery level above 12.5 volts
- using Sun VAT-40 or equivalent, load battery to maximum 110 A. Battery voltage will start to drop
- battery level indicator lights will light in the following sequence:
 - green(K52)—battery level above 12.5 volts
 - yellow(K53)—battery level below 12.5 volts
 - red(K54)—battery level above 12 volts
- if any indicator light does not light during test, indicator light panel is defective
- replace complete indicator light panel if necessary
- if indicator light panel OK, check wiring

Water tank level indicator lights, checking

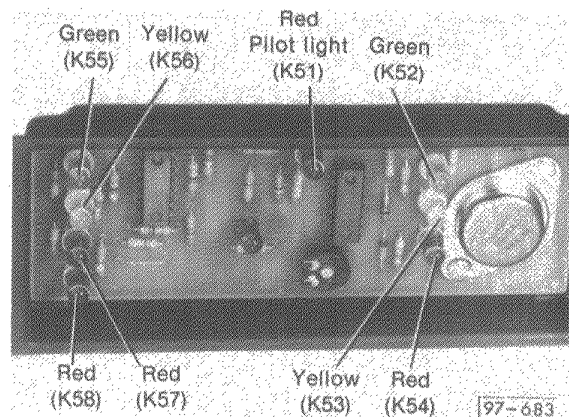
Note

Ignore indicator lights which light but are not mentioned in test being performed

- check indicator light panel fuse located under driver's seat
- remove indicator light panel from sink cabinet and disconnect multi-point connector



- connect indicator light panel to fully charged 12-volt battery as follows:
 - terminal 1 to battery positive terminal
 - terminal 2 to battery negative terminal



- red pilot light(K51) and red water level indicator light(K58) will light
- connect green wire from known good water tank sender unit to terminal 3 in multi-point connector
- connect one end of jumper wire to battery negative terminal
- connect other end of jumper wire to white, yellow, and green wire of sender unit one after another
 - water tank level indicator lights red(K57), yellow(K56), and green(K55), will light—red water tank level light(K58) will go out
- go to next page

- if any indicator light does not light during test, indicator light panel is defective
- replace complete indicator light panel if necessary
- if indicator light panel **OK**, check wiring
- if wiring **OK**, replace water tank sender unit

Water pump, checking

- visually check level of water in water tank— must be minimum 1 US gal. (approximate)

Note

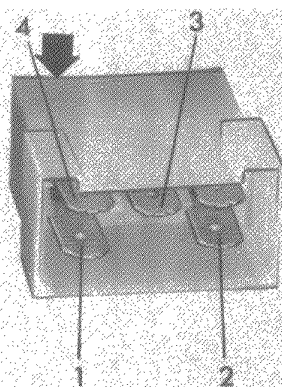
Water pump shuts off automatically if water level is below 0.5 US gal. (Basic model) or 0.8 US gal. (DeLuxe model) to prevent pump from running dry

- check fuse on water pump and fuse located under driver's seat
- remove indicator light panel from sink cabinet but do **not** disconnect multi-point connector

- if test light does not light, indicator light panel is defective
- replace complete indicator light panel if necessary
- if test light lights, check wiring and water pump switch in faucet
- if wiring and switch **OK**, replace water pump

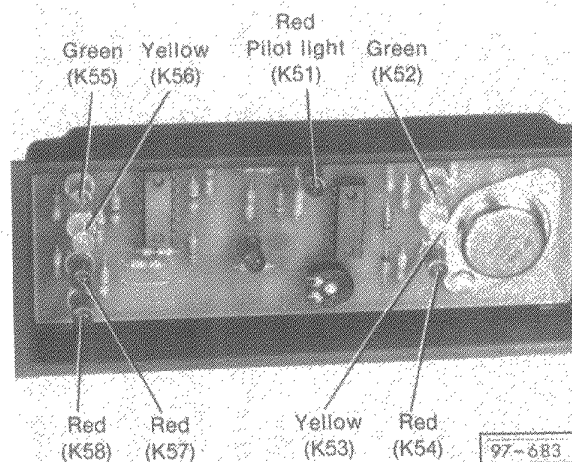
WARNING

Never remove/install external electrical outlet, inside electrical outlets, circuit breaker with switch, or refrigerator if vehicle is connected to 115 volts AC. Check for good ground connections on 115-volt system after installing electrical equipment or components. Use suitable test equipment to check voltage on 115-volt system.



97-682

- connect test light to back-side of terminal 4 (arrow)

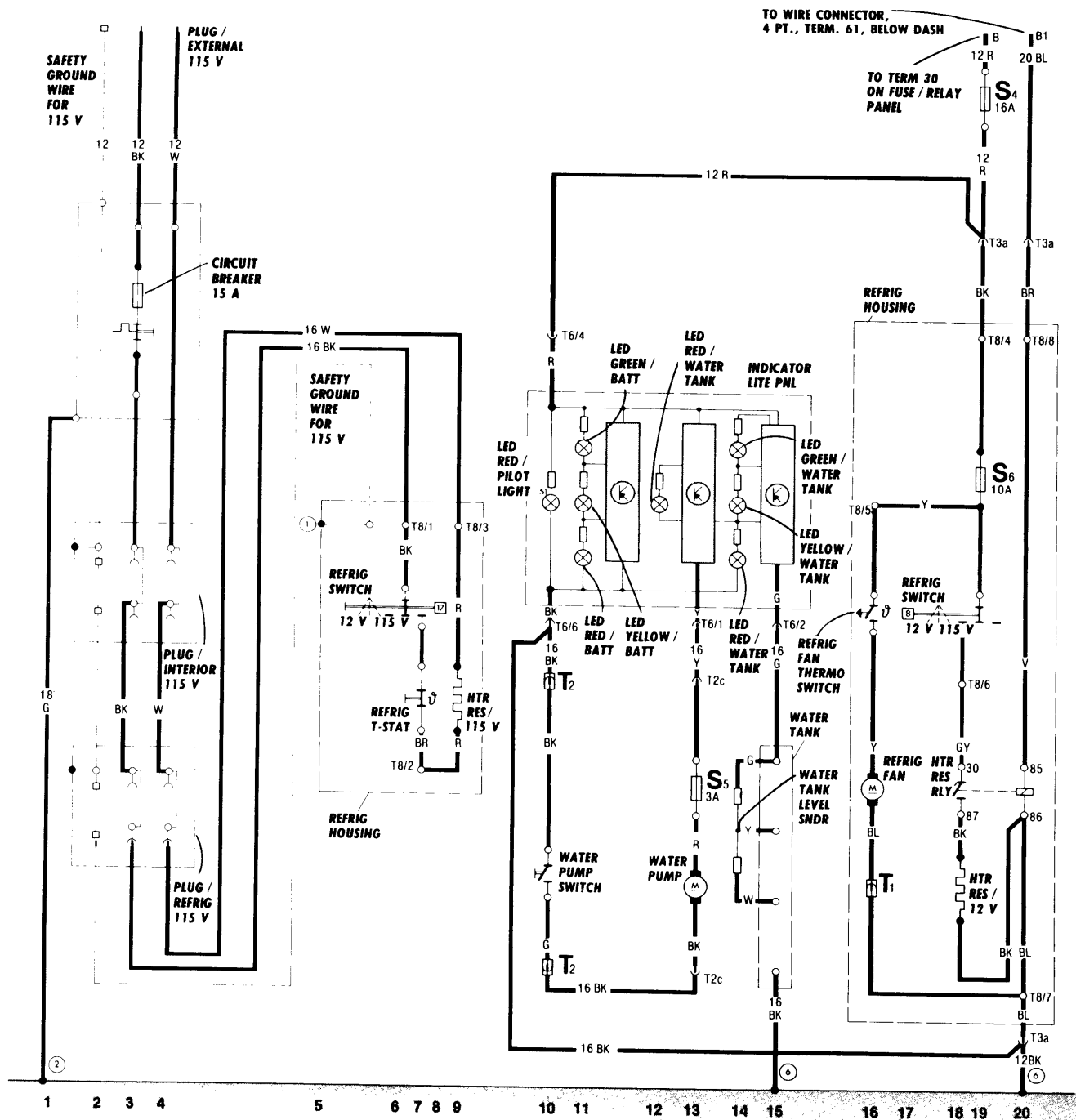


97-683

- if either green(K55), yellow(K56), or red(K57) water tank level indicator light is lit, test light must also light

97

Camper wiring



Note: All wire sizes **American Wire Gauge**

97-679

Description	Current Track
Circuit breaker (15A) in cabinet front	3
Fuse S4, main, (16A) in storage compartment under driver's seat	19
Fuse S5, (3A) for water pump, on water pump	13
Fuse S6, (10A) for refrigerator 12-volt system in switch panel	19
Heater resistor for refrigerator, 12-volt, 85-watt, 1.7-ohm	18
Heater resistor for refrigerator, 115-volt, 85-watt, 150-ohm	9
Heater resistor relay for refrigerator, 12-volt system	18-20
Indicator light panel	10-15
LED—green, for battery level—above 12.5 volts	11
LED—green, for water tank level—at least 40 liters (10 1/2 gal.)	14
LED—yellow, for battery level—below 12.5 volts	11
LED—yellow, for water tank level—at least 10 liters (2 1/2 gal.)	14
LED—red, indicator light panel pilot light	10
LED—red, for battery level—above 12 volts	11
LED—red, for water tank level—at least 2 liters (1/2 gal.)	14
LED—red, for water tank level—empty (pump automatically shut off)	12
Plug, external, 115-volt, outside vehicle	2-4
Plug, interior, 115-volt, in cabinet front	2-4
Plug, refrigerator, 115-volt, in storage cabinet	2-4
Refrigerator fan, behind refrigerator	16
Refrigerator fan thermoswitch, rear of refrigerator	16
Refrigerator housing	5-9, 16-20
Refrigerator switch, 12-volt, 115-volt, or gas	6, 7, 18, 19
Refrigerator thermostat, 115-volt and gas systems	7
Safety ground wire for 115-volt plugs	1-5
Water pump, underneath cover in cabinet below sink	13
Water pump switch, in faucet	10
Water tank	15
Water tank level sender unit	14

Wire connectors

- T1 —at rear of refrigerator
- T2 —below sink
- T2c—next to water pump
- T3a—upper right of sink/stove cabinet
- T6 —on indicator light panel
- T8 —on refrigerator

Ground connectors

- ① —on refrigerator
- ② —on body, left side
- ③ —in 115 volt plugs
- ⑥ —behind sink/stove cabinet, left side

Wiring Color Code

Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— LT.G
Blue	— BL
Violet	— V
Gray	— GY
White	— W

WARNING

Never remove/install external electrical outlet, inside electrical outlets, circuit breaker with switch, or refrigerator if vehicle is connected to 115 volts AC. Check for good ground connections on 115-volt system after installing electrical equipment or components. Use suitable test equipment to check voltage on 115-volt system.

CAUTION

Before working on any part of electrical system, disconnect battery ground strap

Electrical System—Wiring, Diesel

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 - disconnecting/connecting 97.6
 - locating 97.9a, 97.9b
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1982 Diesel

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 - (Canada only) 97.47, 97.48
- Cautions and warnings 97.2
- Fuse/Relay panel 97.10
- Heater Booster 97.49–97.51
- Main wiring diagram 97.36–97.40
 - current track index 97.36
- Rear window wiper 97.26

1983 Diesel

- Auxiliary heater BA 6
 - (Canada only) 97.47, 97.48
- Cautions and warnings 97.2
- Fuse/Relay panel 97.10
- Heater Booster 97.49–97.51
- Main wiring diagram 97.41–97.46
 - current track index 97.41
- Rear window wiper 97.26

1982 Vanagon Diesel

Description	Current Track	Description	Current Track
Alternator	28, 29	Safety belt switch, left	4
Alternator warning light	29	Safety belt warning system warning light	5
Back-up light, left	14	Safety belt warning system relay	3-5
Back-up light, right	15	Sealed-beam unit, left	40-42
Back-up light switch	14	Sealed-beam unit, right	41, 43
Battery	22	Side-marker light, rear	47, 52
Brake light, left	11	Side-marker lights, rear	88
Brake light, right	8	Starter	24-26
Brake light switch	8-12		
Brake warning/parking brake warning light, dual circuit	6-8	Tail light, left	51
Cigarette lighter	84	Tail light, right	46
Cigarette lighter light	83	Turn signal, front left	76
Clock	56	Turn signal, front right	77
Coolant over-temperature warning light	36	Turn signal, rear left	75
Coolant temperature gauge	34	Turn signal, rear right	78
Coolant temperature gauge sender	34	Turn signal switch	73
		Turn signal warning light	32
Door contact switch/buzzer, front left	3	Voltage regulator	28
Door contact switch, front right		Voltage stabilizer	37
Electro-magnetic cut-off	16	Windshield washer pump	59
Emergency flasher relay	69-71	Windshield wiper motor	64-66
Emergency flasher switch	70-79	Windshield wiper switch	59-66
Emergency flasher warning light	79	Windshield wiper/washer intermittent relay	60-63
Engine oil pressure switch	31		
Engine oil pressure warning light	31		
Engine temperature sender (pre-glow system)	17		
Fresh air controls light	82		
Fresh air fan	58		
Fresh air fan resistor	57		
Fresh air fan switch	57, 58		
Fuel gauge	33		
Fuel gauge sender	33		
Fuses, in fuse/relay panel (S-1 to S13)			
Fuse strip for glow plug, in engine compartment	20		
Glow plugs	20, 21		
Glow plugs relay			
Headlight dimmer and flasher switch	43-44		
Headlight high-beam warning light	38		
Horn	13		
Horn button	13		
Instrument panel light	53-55		
Instrument panel light resistor	46		
Interior light, front	86, 87		
Interior light, rear	88-89		
License plate light	48, 49		
Light switch	44-47		
Load reduction relay (X-contact)	65-68		
Parking brake warning light switch	6		
Parking light, left	50		
Parking light, right	45		
Pre-glow/starter switch	24-31		
Pre-glow time indicator light	30		
Radiator cooling fan	90		
Radiator cooling fan relay for 2nd stage	91, 92		
Radiator cooling fan thermoswitch (switch on at 95°C/203°F)	90		
Radiator cooling fan thermoswitch (switched on at 110°C/230°F)	92		
Radio connectors	46, 85		
Rear-window defogger heating element	81		
Rear-window defogger switch	81-83		
Rear-window defogger switch light	82		
Rear-window defogger warning light	81		

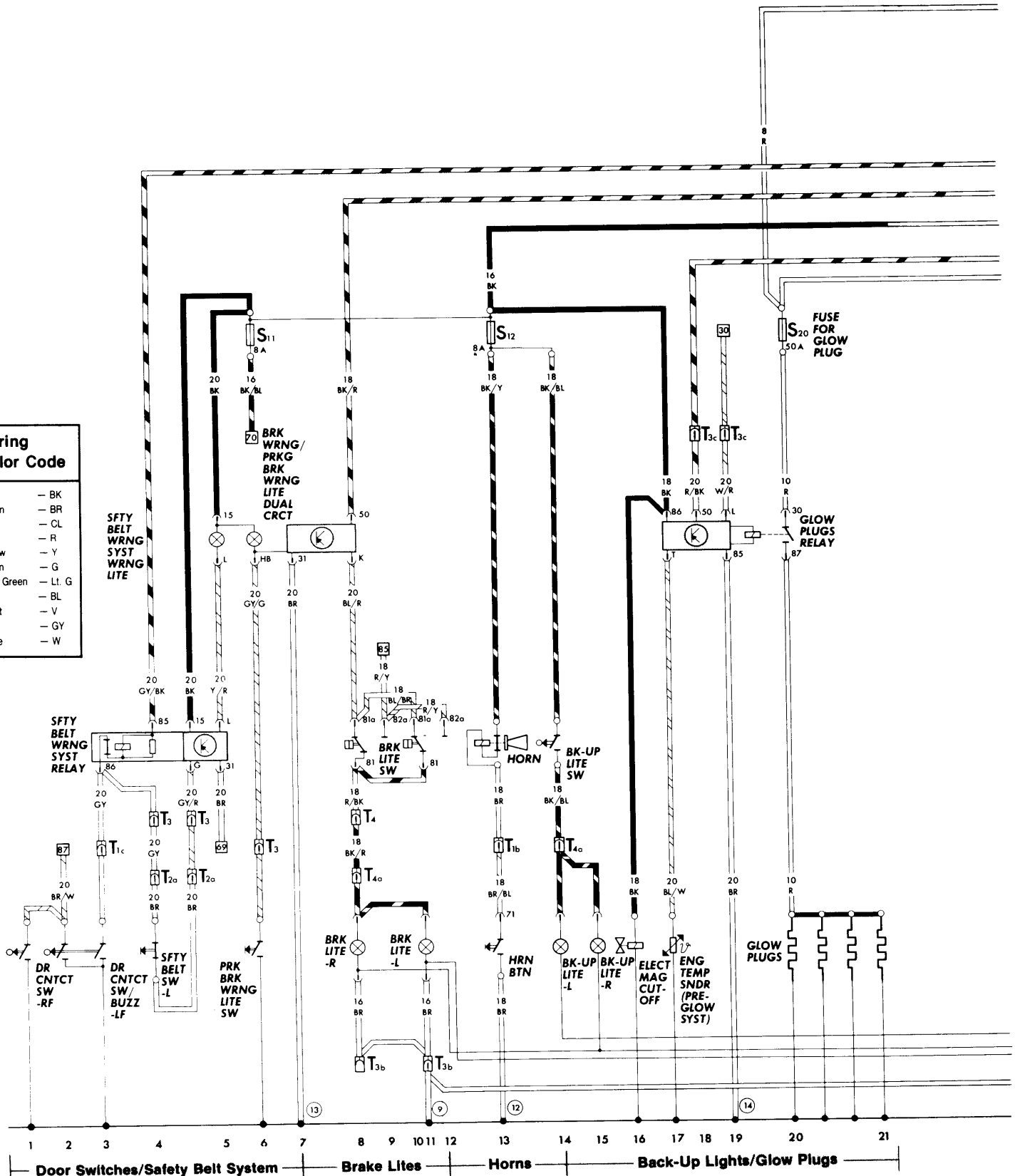
Wire Connectors

- T1b — single, behind dash
- T1c — single, behind dash
- T1d — single, in engine compartment next to alternator
- T — single, behind dash
- T1f — single, next to interior light rear, left
- T1k — single, behind dash
- T2 — double, behind dash
- T3 — double, under driver's seat
- T3b — three-point, in connector
- T3c — three-point, behind dash
- T4a — four-point, in connection
- T4b — four-point, in connection
- T4c — four-point, behind dash
- T14/ — fourteen-point, on instrument cluster

Ground Connectors

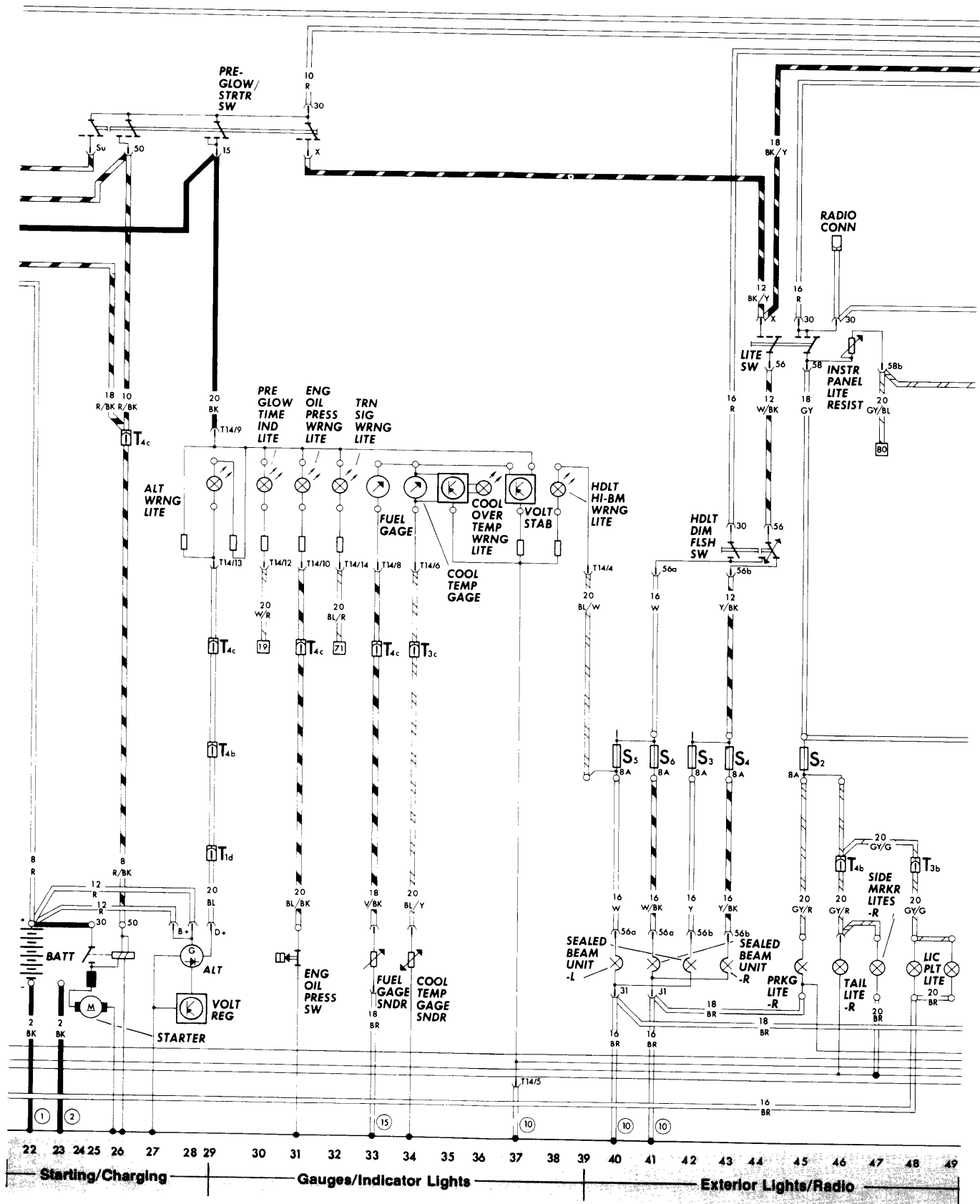
- ① — Battery ground strap, to body
- ② — transmission/body
- ⑨ — in connection box
- ⑩ — behind dash, next to fuse/relay panel holder
- ⑪ — on rear lid
- ⑫ — on steering box
- ⑬ — behind fuse box
- ⑭ — in engine compartment, next to glowing-time relay
- ⑮ — on crossmember, front left

Wiring Color Code	
Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— Lt. G
Blue	— BL
Violet	— V
Gray	— GY
White	— W



All wire sizes American Wire Gauge

97 Electrical System—Wiring, Diesel

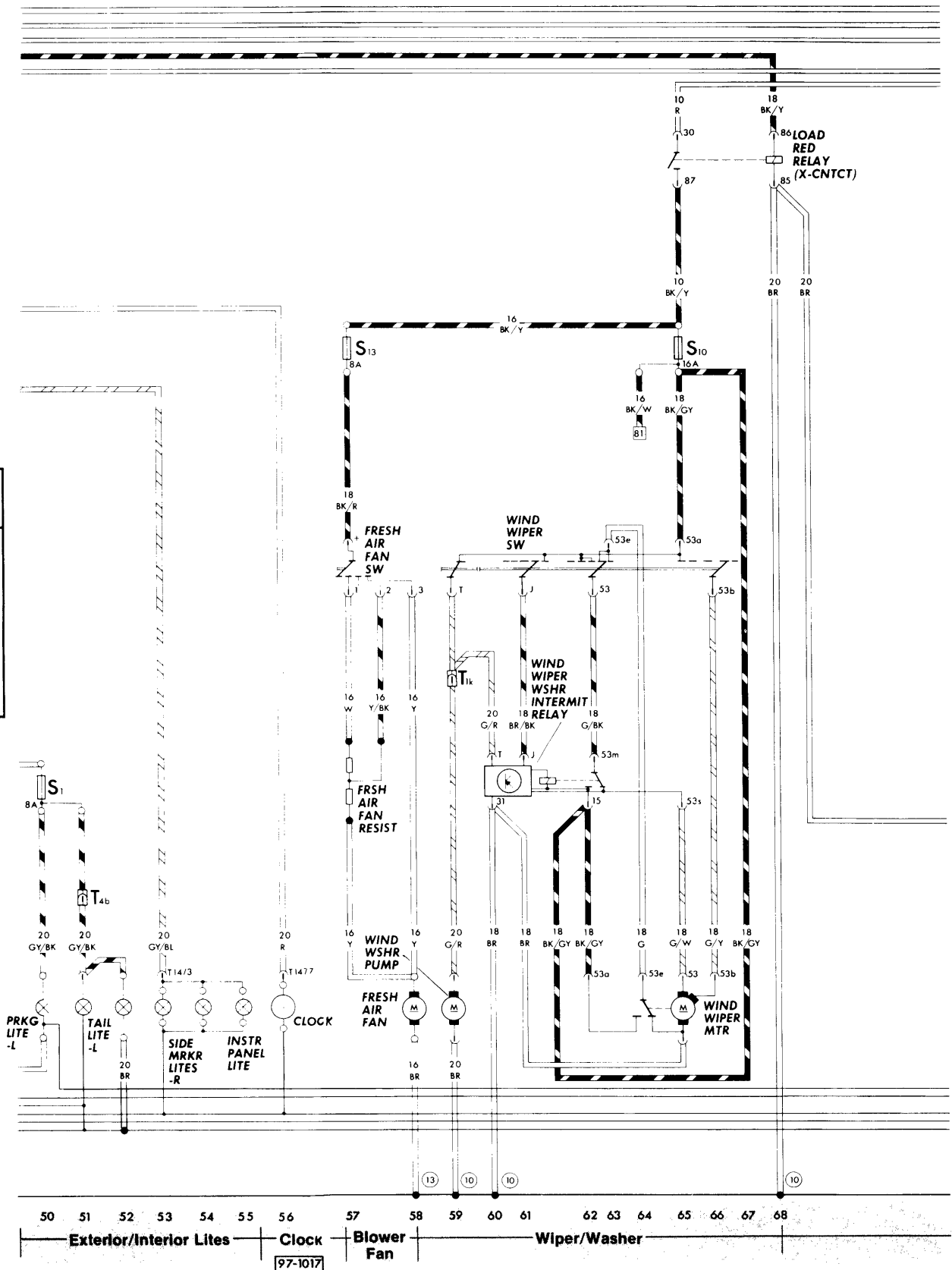


97.38

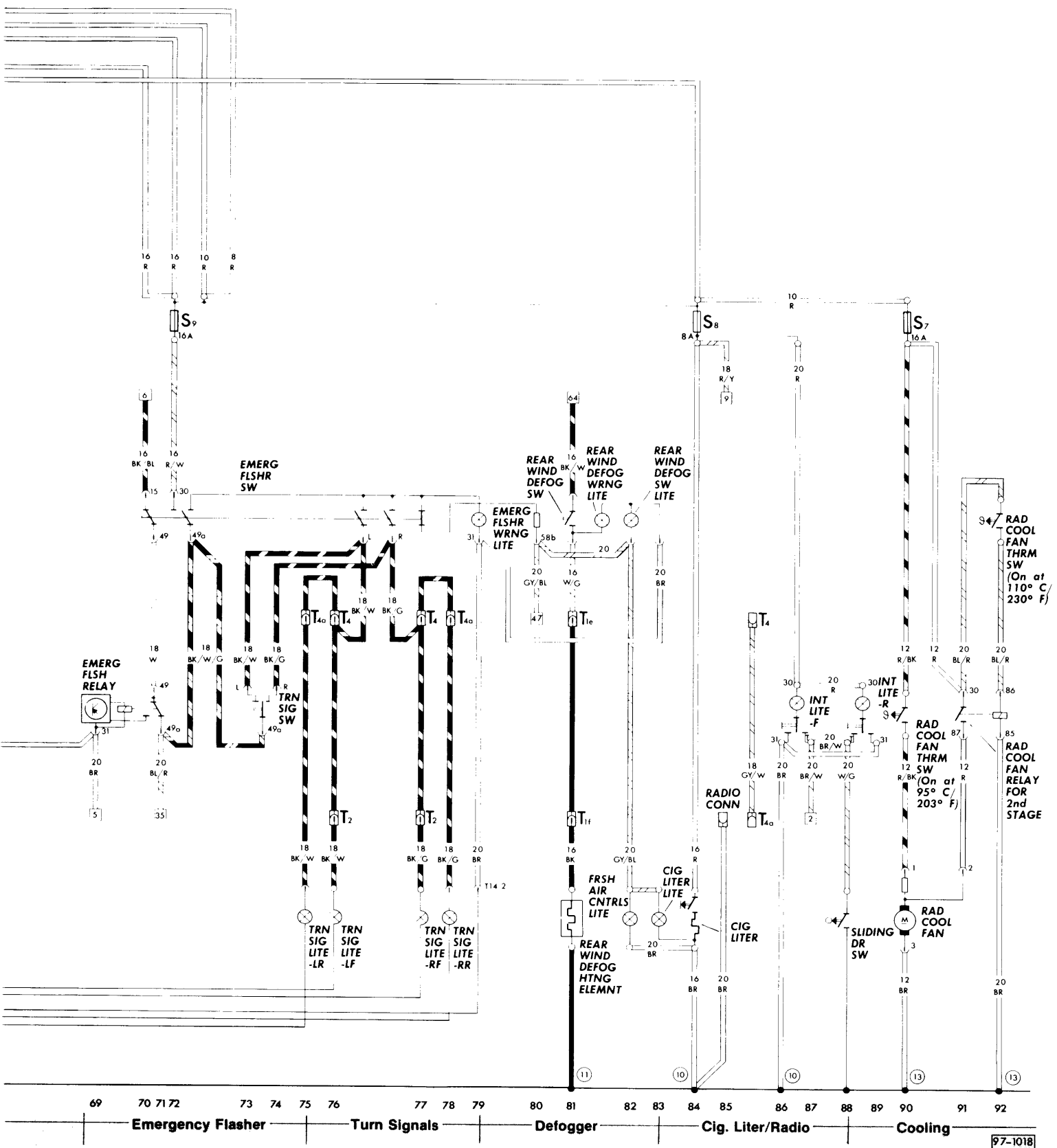
Main wiring diagram

Diesel 1982

Wiring Color Code	
Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— Lt. G
Blue	— BL
Violet	— V
Gray	— GY
White	— W



97 Electrical System—Wiring, Diesel



97.40

Main wiring diagram

Diesel 1982

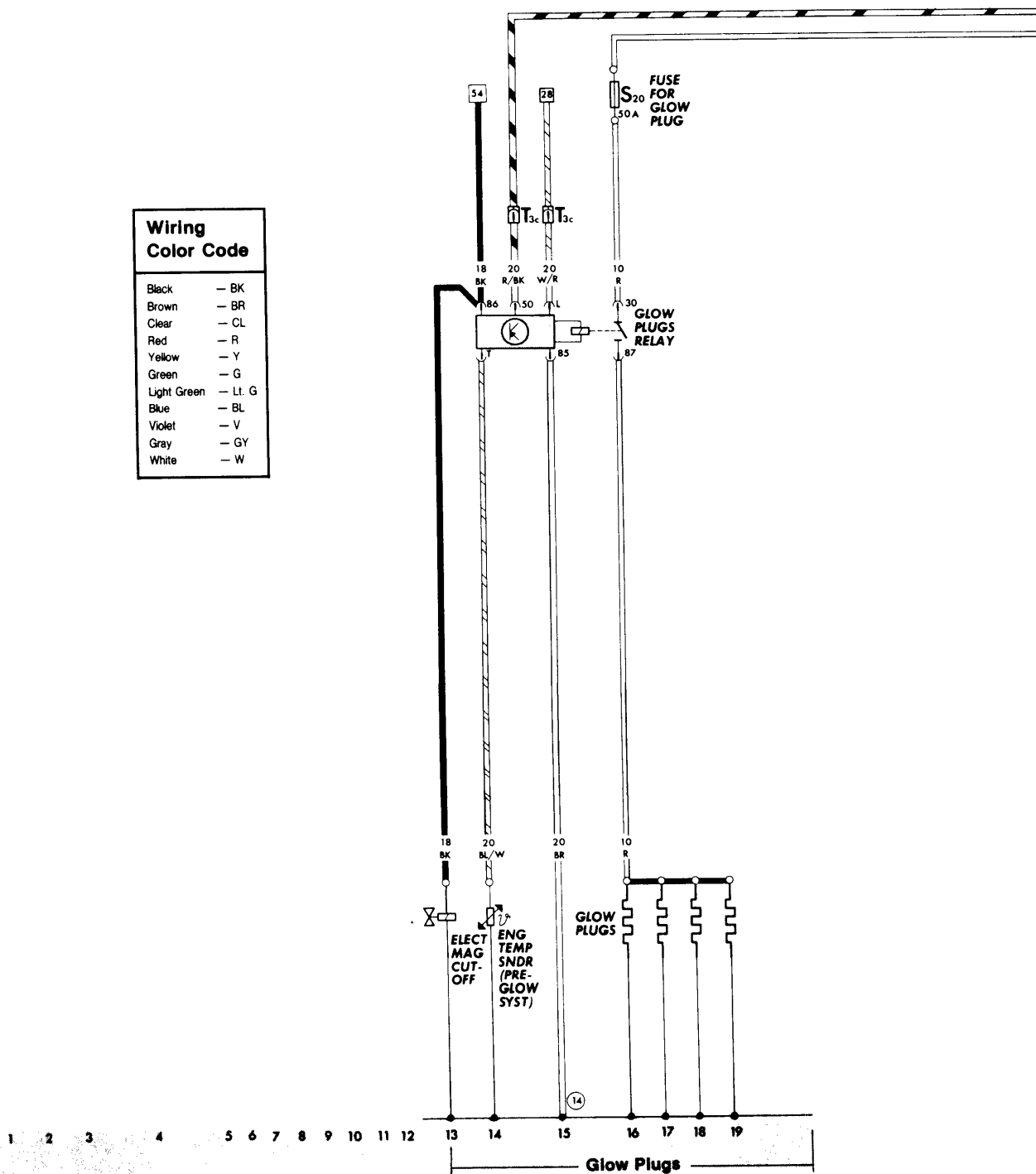
97-1018

1983 Vanagon Diesel

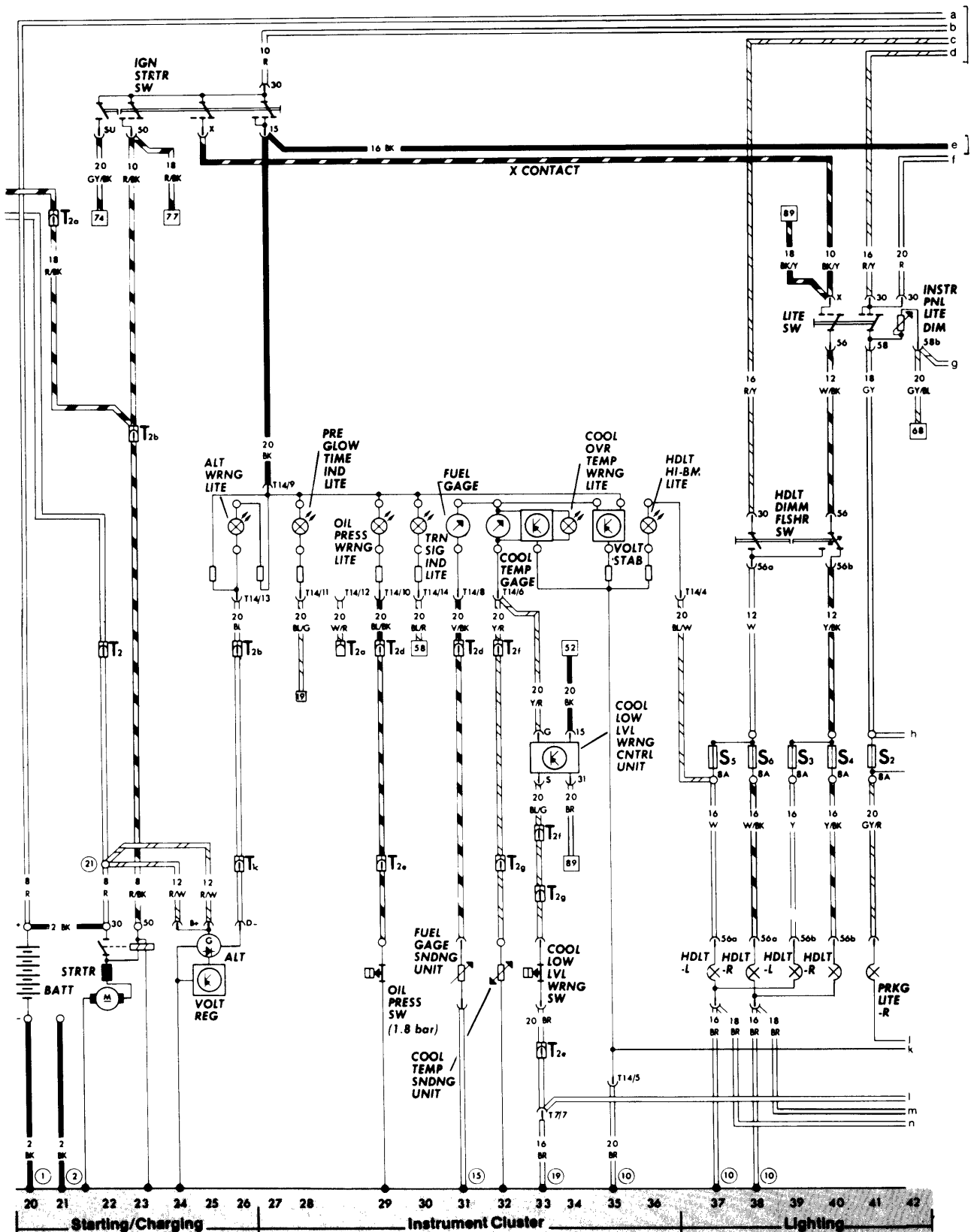
Description	Current Track	Description	Current Track	Wire Connectors
Alternator	24-26	Ignition starter switch	22-27	T1 — single, in engine compart. left
Alternator warning light	26	Instrument panel light	49, 50	T1a — single, in connector housing
Battery	20	Instrument-panel light dimmer	42	T1b — single, in connector housing
Back-up light, left	55	Interior light, front	81-83	T1c — single, near alternator in engine compart.
Back-up light, right	56	Interior light, rear	84-86	T1d — single, behind dash
Back-up light switch	55			T1e — single, in connector housing
Blower fan	105			T1f — single, behind dash
Blower-fan control-lever light	67	License plate light	42, 43	T1g — single, behind dash
Blower-fan resistance	104	Light switch	40-42	T1h — behind dash
Blower switch	104, 105			T1i — at roof cross-beam, rear right
Brake light, left	80	Oil-pressure switch (1.8 bar)	29	T1k — single, behind dash
Brake light, right	79	Oil pressure warning light	29	T2 — double, on fuse/relay panel
Brake-light switch	79, 80			T2a — double, behind dash
Brake warning light	66	Parking light, left	48	T2b — double, behind dash
		Parking light, right	41	T2c — double, behind dash
Cigarette lighter	70	Parking-brake warning light switch	76	T2d — double, behind dash
Cigarette lighter light	69			T2e — double, in connector housing
Clock	51	Radiator fan	87	T2f — double, behind dash
Coolant low-level-warning control unit	33, 34	Radiator-fan relay	88-90	T2g — double, in connector housing
Coolant low-level-warning switch	33	Radiator-fan thermoswitch I	87	T2h — double, in connector housing
Coolant over-temperature warning light	34	Radiator-fan thermoswitch II	90	T2i — double, in connector housing
Coolant-temperature gauge	32	Radio connection	60, 94	T2k — double, behind dash
Coolant-temperature sending unit	32	Rear side-marker lights	45, 46	T2l — double, below driver's seat
		Rear-window defogger heater element	92	T3 — 3-point, near alternator in engine compart
Defogger cut-out relay (X-contact)	91-97	Rear-window defogger indicator light	93	T3a — 3-point, behind dash
Door contact/buzzer switch, left	72, 73	Rear-window defogger switch	92	T4 — 4-point, behind dash
Door contact switch, front right	71	Rear-window defogger switch light	94	T4a — 4-point, behind dash
Door contact switch, right sliding door	84			T7 — 7-point, in connector housing
		Seat-belt buzzer contact, left	74	T8 — 8-point, behind dash, near brake warning lights
Electromagnetic fuel cut-off	16	Seat-belt warning light	75	T14 — 14-point on instrument cluster
Emergency-flasher relay	56-58	Seat-belt warning relay	73, 75	
Emergency-flasher switch	58-68	Starter	22, 23	Ground Connectors
Emergency-flasher warning light	66			① — from battery to body
Engine temperature sender (pre-glow system)	17	Tail light, left	47	② — from transmission to body
		Tail light, right	44	⑨ — behind dash near fuse/relay panel
Fuel gauge	31	Temperature sensor II	6	⑩ — behind dash
Fuel-gauge sending unit	31	Turn-signal indicator light	30	⑫ — at steering-gear housing
Fuse for glow plugs (S20)	20	Turn-signal light, front-left	65	⑬ — behind air vent
Fuses (S1-S13) on fuse/relay panel	—	Turn-signal light, front-right	62	⑭ — at rear deck
		Turn-signal light, rear-left	64	⑮ — near fuel pump at floor board/crossmember
		Turn-signal light, rear-right	63	⑰ — near ignition distributor
		Turn-signal switch	61	⑱ — left at cylinder head
Glow plugs	20-21	Voltage regulator	24-26	⑲ — near ignition coil in engine compart., left
Glow plugs relay	17-20	Voltage stabilizer	35	⑳ — plus connection, in connector housing
Headlight dimmer/flasher switch	38-40	Washer-wiper intermittent relay	98-100	
Headlight-high-beam light	36	Windshield-washer pump	96	
Headlight, left	37, 39	Windshield-wiper intermittent switch	98-103	
Headlight, right	38, 40	Windshield wiper motor	100-103	
Horn	53			
Horn button	53			

97 Electrical System—Wiring, Diesel

Wiring Color Code	
Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— Lt. G
Blue	— BL
Violet	— V
Gray	— GY
White	— W



Note: All wire sizes American Wire Gauge

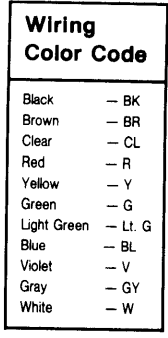


97





97



Description	Current Track
Air recirculation blower	8
Combustion air blower	11
Condensor	14
Flame switch	12
Fuel pump	10
Fuel pump contact breaker	10
Glow plug	13
Heater contact breaker	12
Heater element	14
Heater ignition coil	12
Heater indicator lite	6
Heater relay	7-12
Main suppressor	8
Overheat switch	9
Safety switch	15, 16
Suppressor	12, 13
Temp. regulating switch	1-6
Temp. sensor	8
To load reduction relay	6

Wire Connectors

T1a — single, under instrument panel
T2 — double, on air recirc. blower
T4a — four point, on heater control
T4b — four point, on heater control

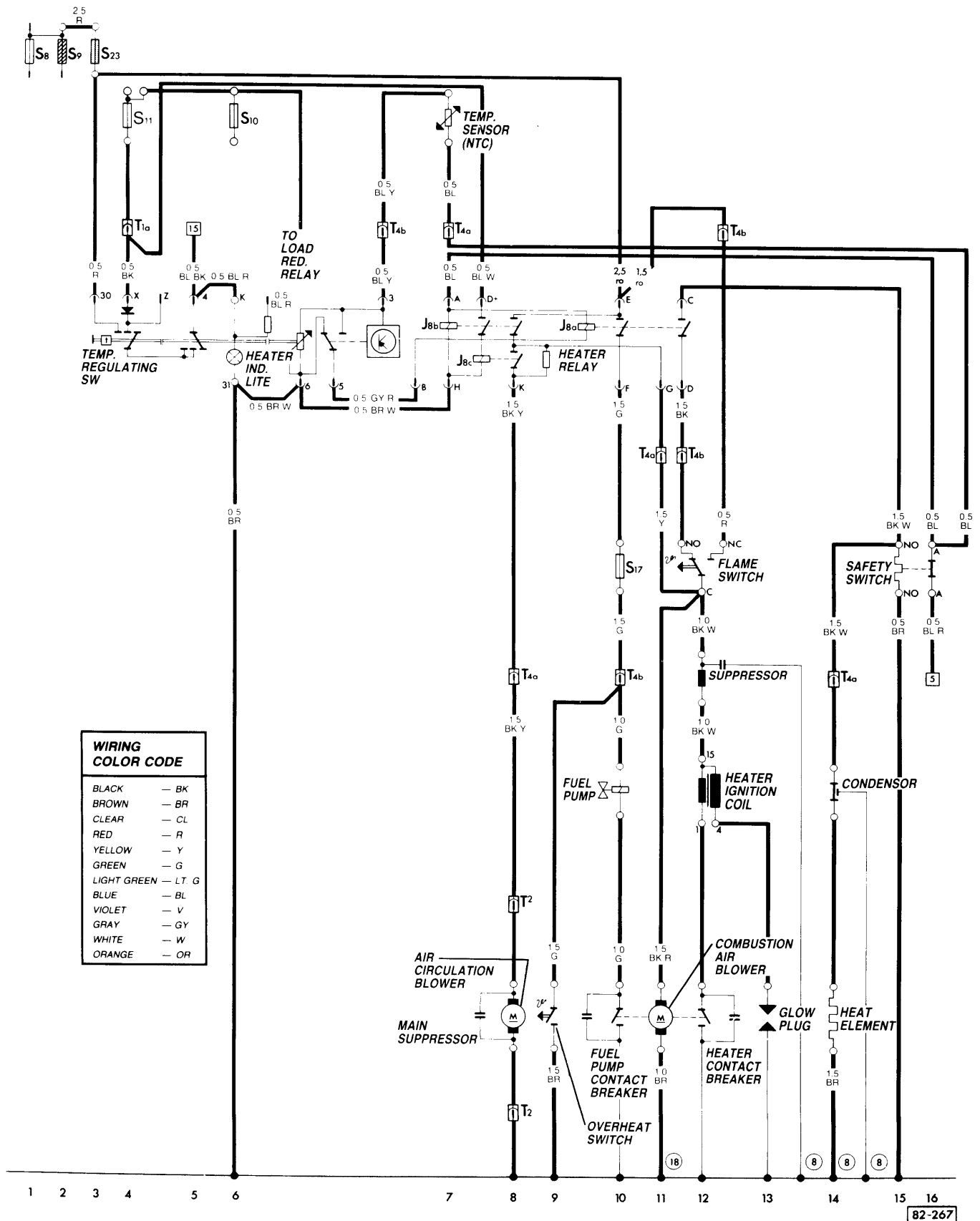
Ground Connections

- ⑧ — bolt on heater control
⑱ — bolt on heater ignition coil

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97 Electrical System—Wiring, Diesel

TO BATTERY + TERMINAL



Heater Booster Diesel

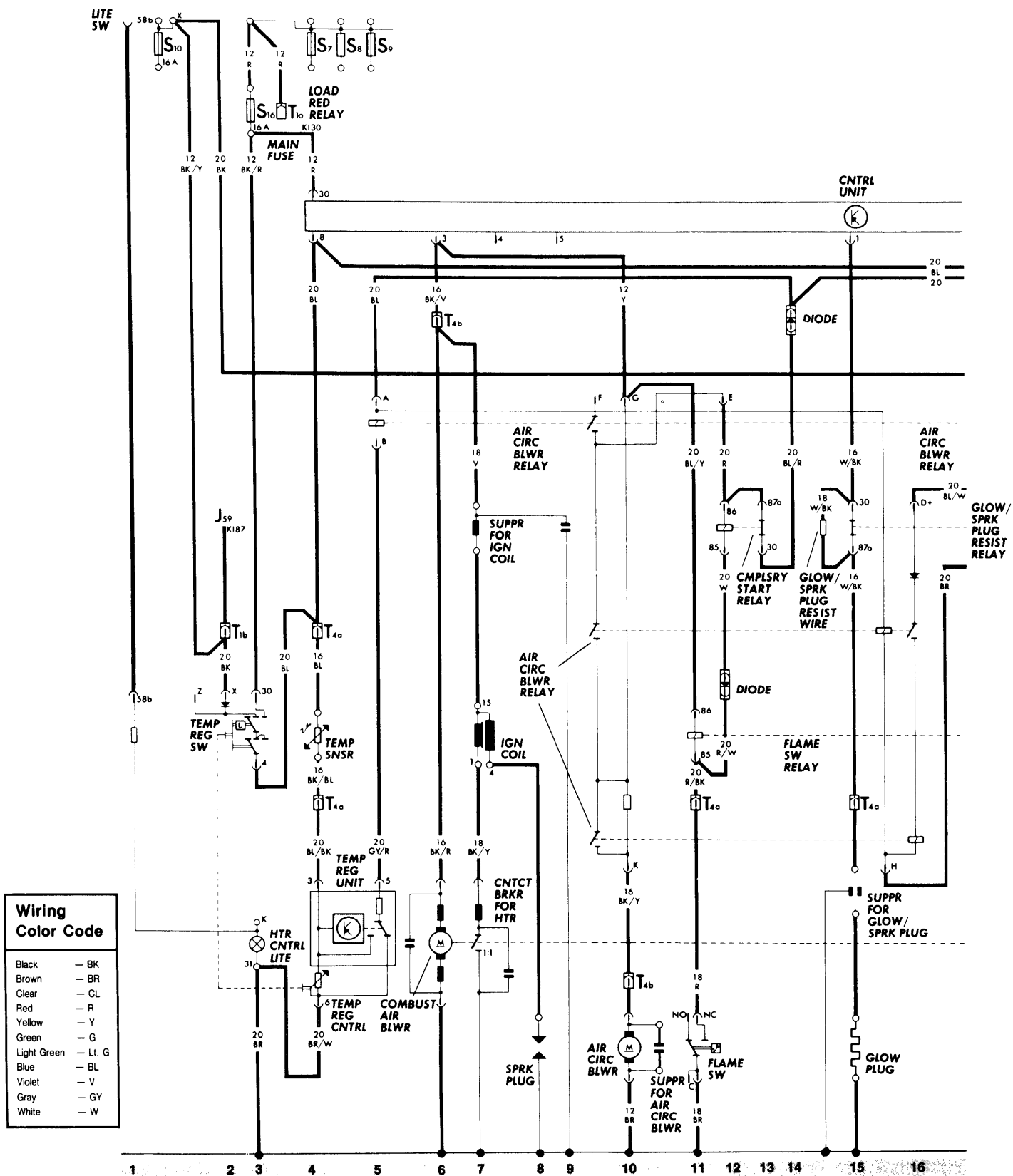
Description	Current Track
Air circulation blower	10
Air circulation blower relay	5-18
Combustion air blower	6-22
Combustion air valve	20
Compulsary start relay	12-13
Contact breaker for fuel pumps (in combustion air blower)	22
Contact breaker for heater (in combustion air blower)	7
Control unit	4-24
Diode (behind dash next to relay)	12, 14
Flame switch	11
Flame switch relay	11-17
Fuel pump (large quantity)	22
Fuel pump (small quantity)	22
Fuel pump relays	18-22
Fuse main (16A)	3
Fuse, overheating (8A)	23
Fuses on fuse/relay panel S7, 8, 9, 10	—
Glow plug	15
Glow/spark plug resistance wire	15
Glow/spark plug resistor relay	15-17
Heater control light	3
Ignition coil	7
Light switch	1
Load-reduction relay	4
Overheat switch	23
Spark plug	8
Suppressor for air circulation blower	10
Suppressor for glow/spark plug	15
Suppressor for ignition coil	7-8
Temperature regulator control	4-5
Temperature regulator switch	1-3
Temperature regulator unit	4-5
Temperature sensor	4

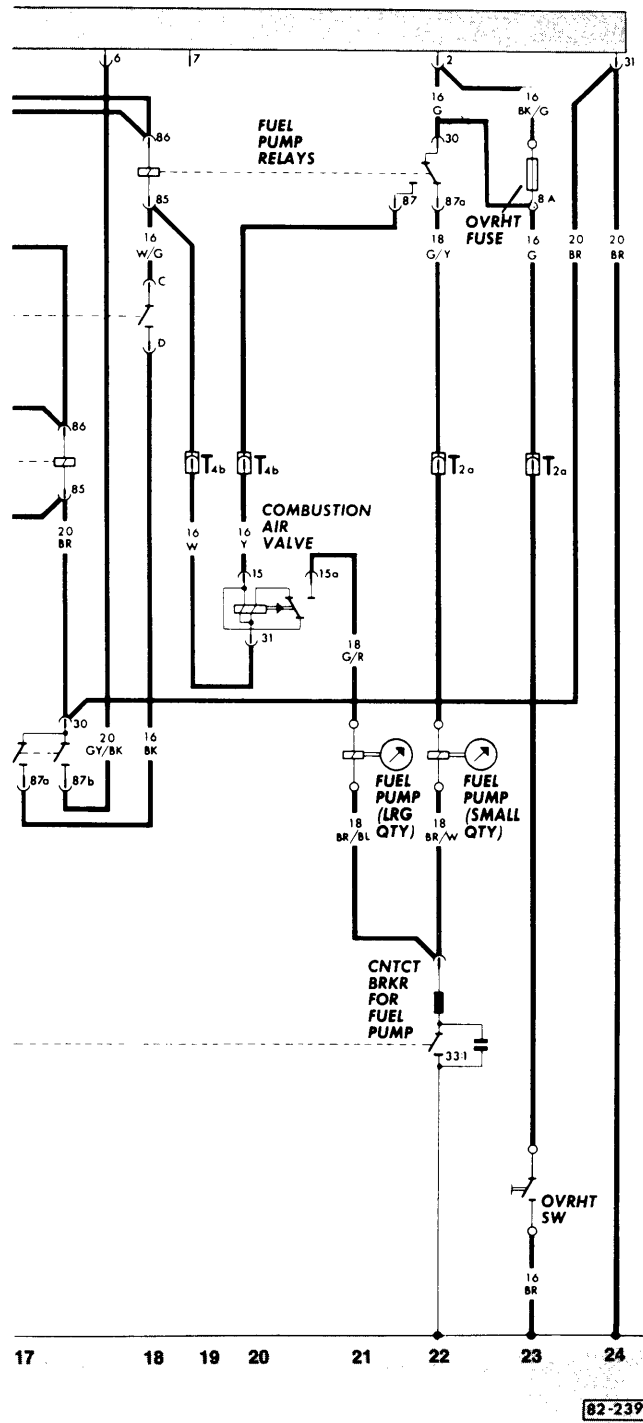
Wire Connectors

T1a — single, fuse relay panel
 T1b — single, fuse relay panel
 T2a — two-point, behind dash, left
 T4a — four-point, behind dash, left
 T4b — four-point, behind dash, left

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97 Electrical System—Wiring, Diesel





Electrical System—Wiring, Waterboxer

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1987 Waterboxer/Syncro

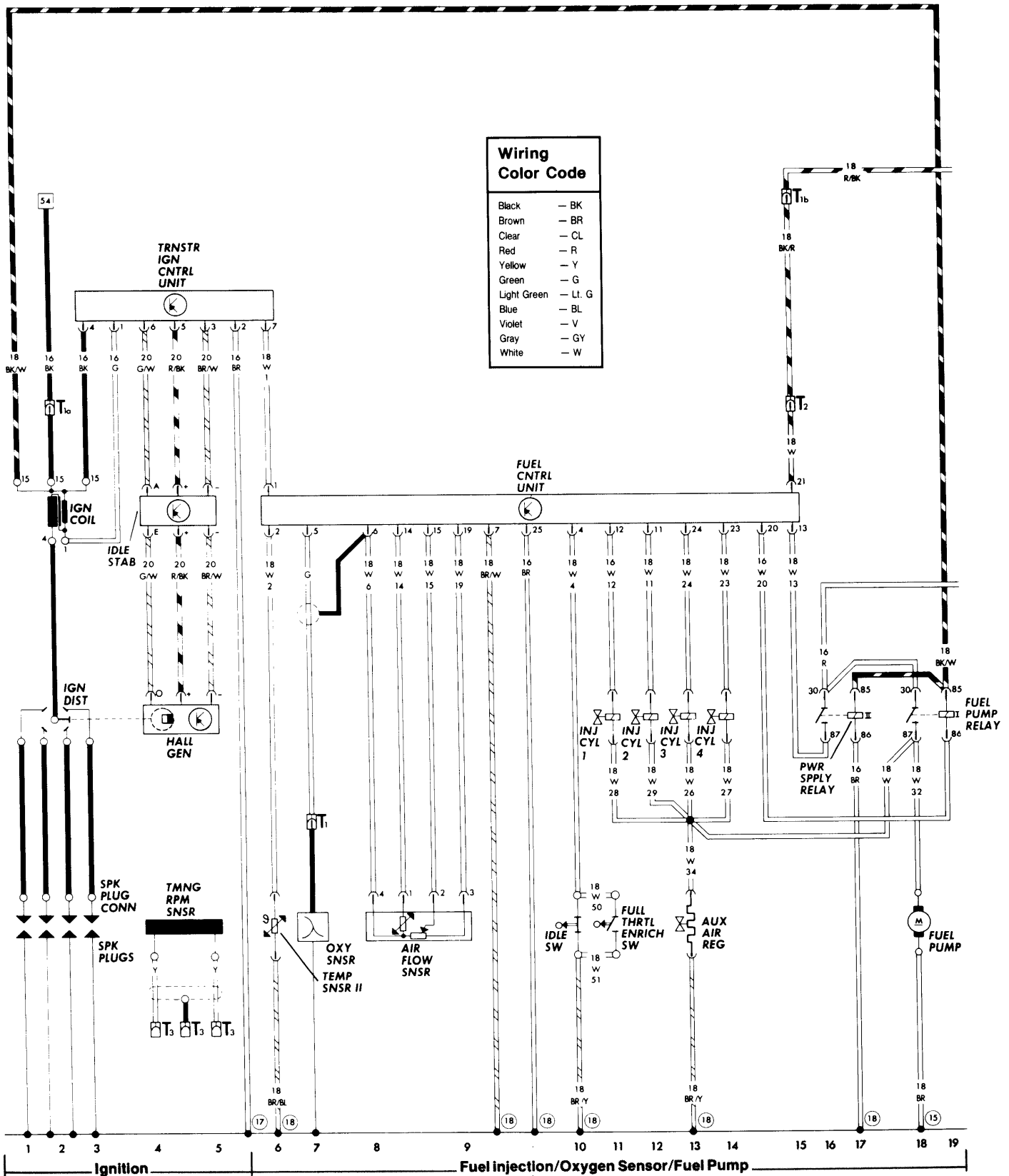
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1983-84 Vanagon Waterboxer

Description	Current Track	Description	Current Track	Wire Connectors
Air flow sensor	8.9	Ignition distributor	1-3	T1 — single, in engine compart, left
Alternator	24-26	Ignition starter switch	22-27	T1a — single, in connector housing
Alternator warning light	26	Injector cylinder 1	11	T1b — single, in connector housing
Auxiliary air regulator	13	Injector cylinder 2	12	T1c — single, near alternator in engine compart.
Battery	20	Injector cylinder 3	13	T1d — single, behind dash
Back-up light, left	55	Injector cylinder 4	14	T1e — single, in connector housing
Back-up light, right	56	Instrument panel light	49, 50	T1f — single, behind dash
Back-up light switch	55	Instrument-panel light dimmer	42	T1g — single, behind dash
Blower fan	105	Interior light, front	81-83	T1h — behind dash
Blower-fan control-lever light	67	Interior light, rear	84-86	T1i — at roof cross-beam, rear right
Blower-fan resistance	104	License plate light	42, 43	T1k — single, behind dash
Blower switch	104, 105	Light switch	40-42	T2 — double, on fuse/relay panel
Brake light, left	80	Oil-pressure switch (1.8 bar)	29	T2a — double, behind dash
Brake light, right	79	Oil pressure warning light	29	T2b — double, behind dash
Brake-light switch	79, 80	Oxygen sensor	7	T2c — double, behind dash
Brake warning light	66	Oxygen sensor elapsed- milage indicator light	28	T2d — double, behind dash
Cigarette lighter	70	Oxygen sensor elapsed- milage switch	28	T2e — double, in connector housing
Cigarette-lighter light	69	Parking light left	48	T2f — double, behind dash
Clock	51	Parking light, right	41	T2g — double, in connector housing
Coolant low-level-warning control unit	33, 34	Parking-brake warning light switch	76	T2h — double, in connector housing
Coolant low-level-warning switch	33	Power supply relay	16, 17	T2i — double, in connector housing
Coolant over-temperature warning light	34	Radiator fan	87	T2k — double, behind dash
Coolant-temperature gauge	32	Radiator-fan relay	88-90	T2l — double, below driver's seat
Coolant-temperature sending unit	32	Radiator-fan thermostswitch I	87	T3 — 3-point, near alternator in engine compart.
Defogger cut-out relay (X-contact)	91-97	Radiator-fan thermostswitch II	90	T3a — 3-point, behind dash
Door contact buzzer switch, left	72, 73	Radio connection	60, 94	T4 — 4-point, behind dash
Door contact switch, front right	71	Rear side-marker lights	45, 46	T4a — 4-point, behind dash
Door contact switch, right sliding door	84	Rear-window defogger heater element	92	T7 — 7-point, in connector housing
Emergency flasher relay	56-58	Rear-window defogger indicator light	93	T8 — 8-point, behind dash
Emergency-flasher switch	58-68	Rear-window defogger switch	92	T14 — 14-point on instrument cluster
Emergency-flasher warning light	66	Rear-window defogger switch light	94	
Fuel control unit	6-15	Seat-belt buzzer contact, left	74	
Fuel gauge	31	Seat-belt warning light	75	
Fuel-gauge sending unit	31	Seat-belt warning relay	73, 75	
Fuel pump	18	Spark plugs	1-3	
Fuel pump relay	18, 19	Spark plug connectors	1-3	
Full-throttle enrichment switch	11	Starter	22, 23	
Fuses (S1-S13) on fuse relay panel	—	Tail light, left	47	
Hall generator	4, 5	Tail light, right	44	
Headlight dimmer-flasher switch	38-40	Temperature sensor II	6	
Headlight-high-beam light	36	Timing RPM sensor	4, 5	
Headlight, left	37, 39	Transistorized ignition control unit	3-6	
Headlight, right	38, 40	Turn-signal indicator light	30	
Horn	53	Turn-signal light, front-left	65	
Horn button	53	Turn-signal light, front-right	62	
Idle stabilizer	4, 5	Turn-signal light, rear-left	64	
Idle switch	4, 5	Turn-signal light, rear-right	63	
Ignition coil	1-3	Turn-signal switch	61	
		Voltage regulator	24-26	
		Voltage stabilizer	35	
		Washer wiper intermittent relay	98-100	
		Windshield-washer pump	96	
		Windshield-wiper intermittent switch	98-103	
		Winshield-wiper motor	100-103	

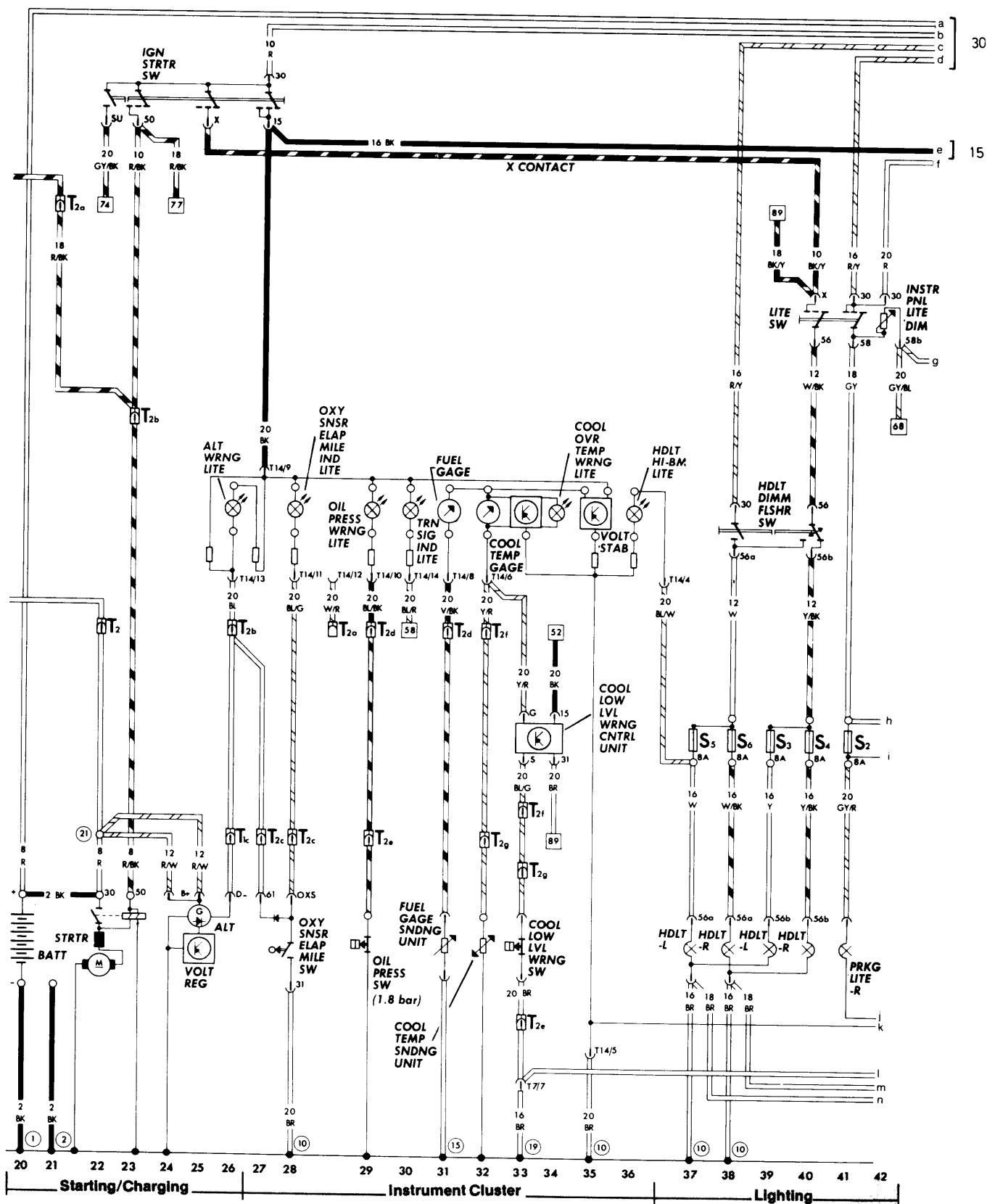
Ground Connectors

- ① — from battery to body
- ② — from transmission to body
- ⑨ — behind dash near fuse/relay panel
- ⑩ — behind dash
- ⑫ — at steering-gear housing
- ⑬ — behind air vent
- ⑭ — at rear deck
- ⑮ — near fuel pump at floor
board/crossmember
- ⑰ — near ignition distributor
- ⑱ — left at cylinder head
- ⑲ — near ignition coil,
in engine compart, left
- ㉑ — plus connection, in connector
housing



Note: All wire sizes American Wire Gauge

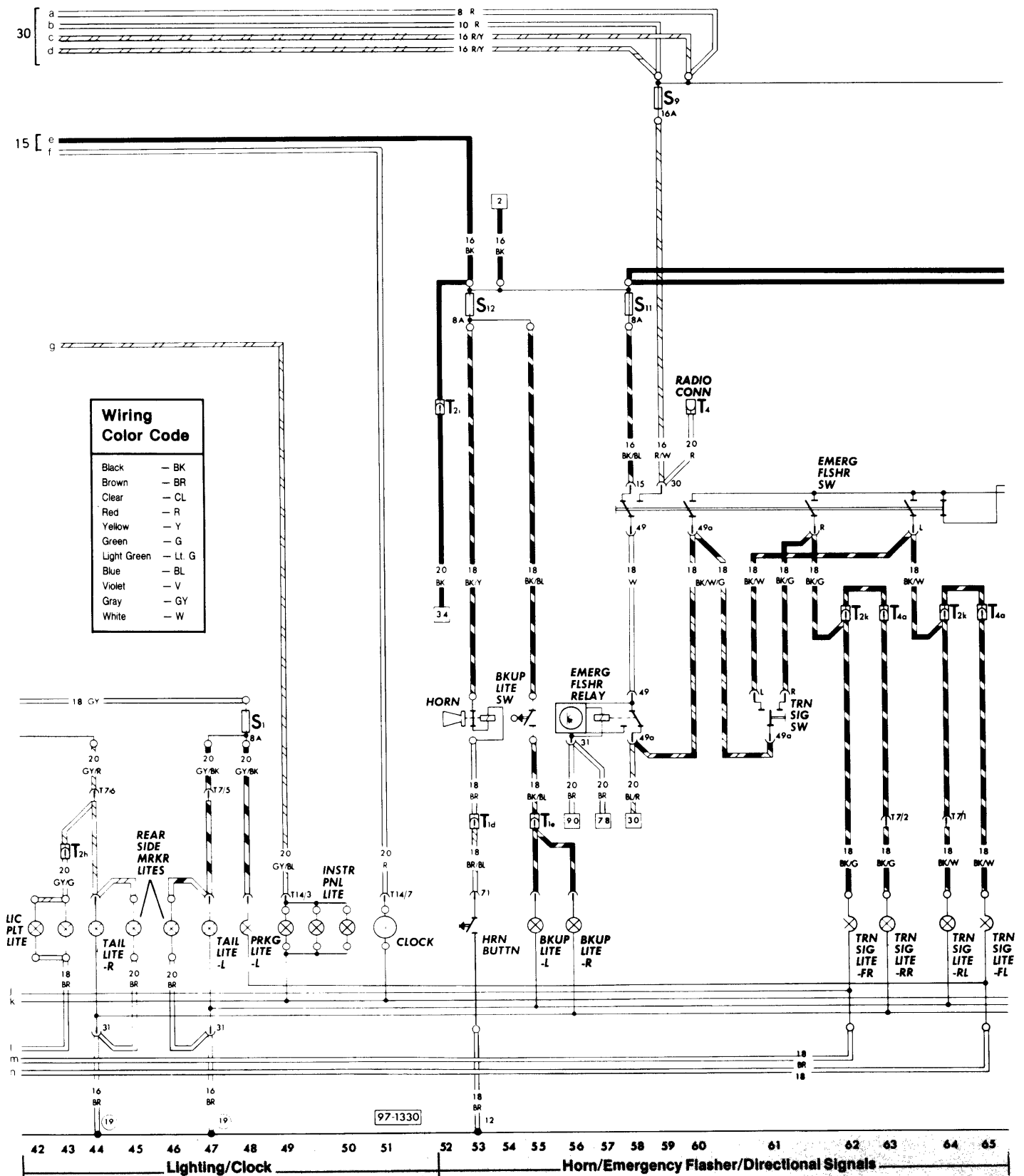
97 Electrical System—Wiring, Waterboxer



97.56

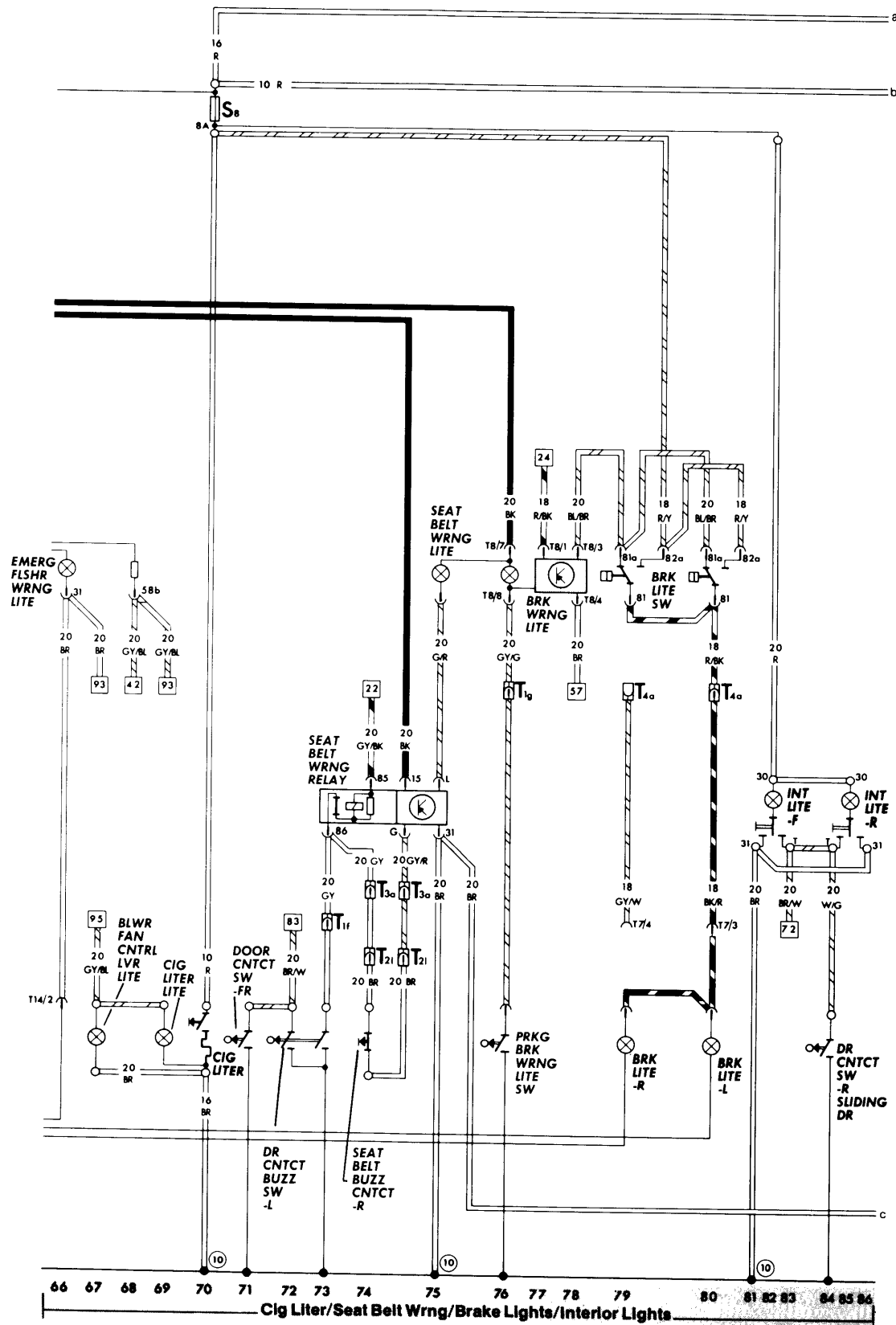
Main wiring diagram

Water-cooled—Digijet 1983, 1984



Note: All wire sizes American Wire Gauge

97 Electrical System—Wiring, Waterboxer



97.58

Main wiring diagram

Water-cooled—Digijet 1983, 1984

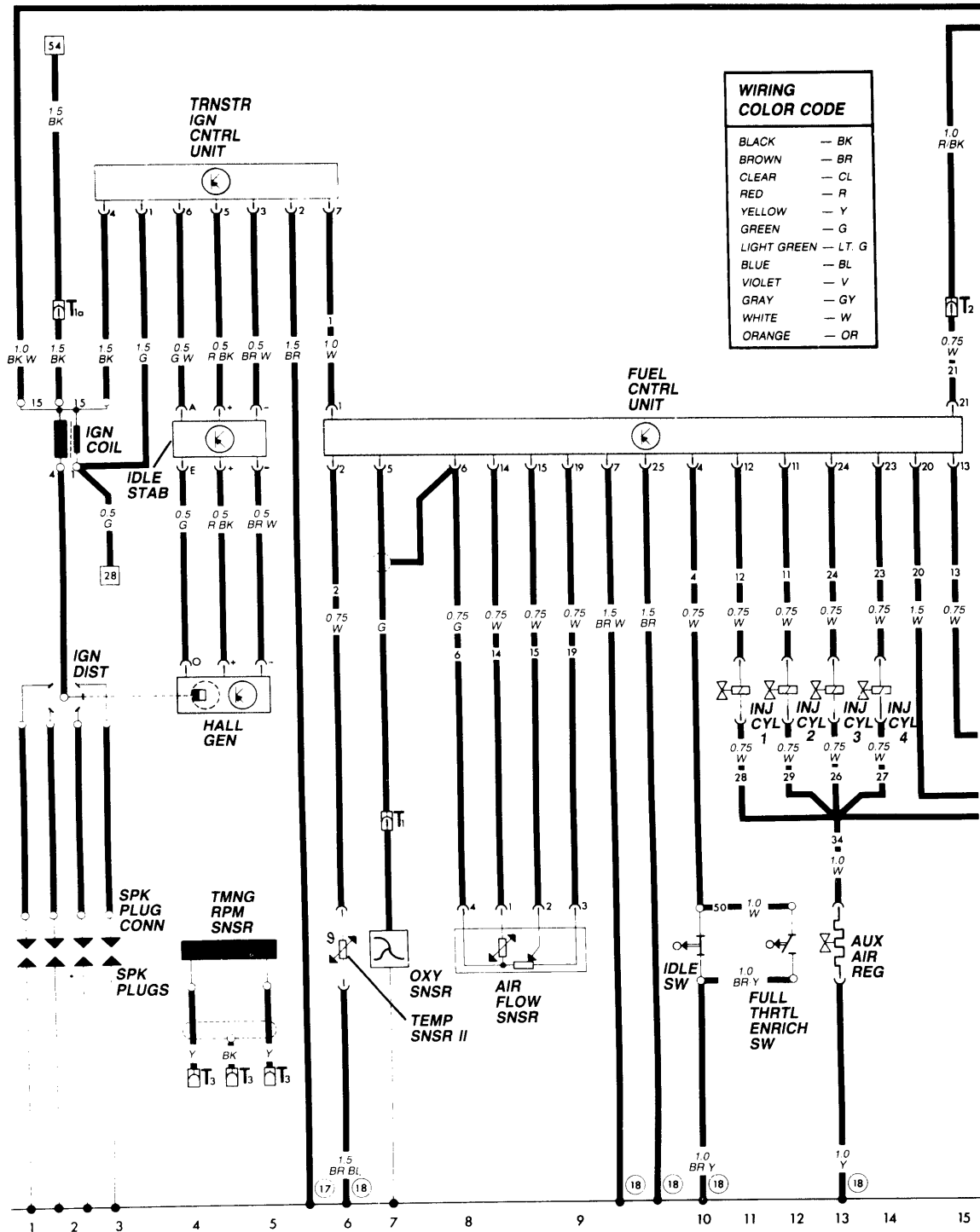


97 Electrical System—Wiring, Waterboxer

Description	Current Track	Description	Current Track	Wire Connectors
Air flow sensor	8, 9	License plate light	42, 43	T1 — single, in engine compart., left
Alternator	24	Light switch	40-42	T1a — single, in connector housing
Alternator warning light	26			T1c — single, in connector housing
Auxiliary air regulator	13	Oil-pressure switch (1.8 bar)	29	T1d — single, behind dash
Battery	20	Oil-pressure warning light	29	T1e — single, in connector housing
Back-up light, left	55	Oxygen sensor	7	T1f — single, behind dash
Back-up light, right	54	Oxygen-sensor elapsed-mileage indicator light	28	T1h — behind dash
Back-up light switch	54	Oxygen-sensor elapsed-mileage switch	28	T1i — at roof cross-beam, rear left
Blower fan	105			T2 — double, on fuse/relay panel
Blower-fan control-lever light	67	Parking light, left	48	T2b — double, behind dash, left
Blower-fan resistance	104	Parking light, right	42	T2c — double, behind dash
Blower switch	104, 105	Parking-brake warning light switch	76	T2f — double, behind dash
Brake light, left	80	Power supply relay	16, 17	T2h — double, in connector housing
Brake light, right	79			T2i — double, behind dash
Brake light switch	79, 80	Radiator fan	88	T3 — 3-point, near alternator in engine compart.
Brake warning light	77-79	Radiator-fan relay	88-90	T4 — 4-point, behind dash
Cigarette lighter	69	Radiator-fan thermoswitch I	88	T4b — 4-point, in connector housing
Cigarette-lighter light	68	Radiator-fan thermoswitch II	90	T7 — 7-point, in connector housing
Clock	51	Radio connection	60	T7a — 7-point, in connector housing
Coolant low-level-warning control unit	33, 34	Rear side-marker lights	46, 47	T14 — 14-point on instrument cluster
Coolant low-level-warning switch	33	Rear-window defogger heater element	93	
Coolant over-temperature warning light	34	Rear-window defogger indicator light	94	
Coolant-temperature gauge	32	Rear-window defogger switch	93-95	
Coolant-temp. sending unit	32	Rear-window defogger switch light	95	
Defogger cut-out relay (X-contact)	91-97	Seat-belt buzzer contact, left	73	
Door contact/buzzer switch, left	72, 73	Seat-belt warning light	75	
Door contact switch, front right	71	Seat-belt warning relay	73, 75	
Door contact switch, right sliding door	84	Spark plugs	1-3	
Emergency-flasher relay	55-57	Spark plug connectors	1-3	
Emergency-flasher switch	57-68	Starter	20, 22	
Emergency-flasher warning light	66	Tail light, left	48	
Fuel control unit	6-15	Tail light, right	45	
Fuel gauge	31	Temperature sensor	6	
Fuel-gauge sending unit	31	Timing RPM sensor	4, 5	
Fuel pump	18	Transistorized ignition control unit	3-6	
Fuel pump relay	16-19	Turn-signal indicator light	30	
Full-throttle enrichment switch	11-12	Turn-signal light, front-left	64	
Hall generator	4, 5	Turn-signal light, front-right	62	
Headlight dimmer-flasher switch	37, 39	Turn-signal light, rear-left	65	
Headlight-high-beam light	36	Turn-signal light, rear-right	63	
Headlight, left	37, 39	Turn-signal switch	61	
Headlight, right	38, 40	Voltage stabilizer	35	
Horn	53	Washer/wiper interm. relay	98-100	
Horn button	53	Windshield-washer pump	96	
Idler stabilizer	4, 5	Windshield-wiper interm. switch	98-103	
Idle switch	10	Windshield-wiper motor	100-103	
Ignition coil	1-3			
Ignition distributor	1-3			
Ignition/starter switch	22-27			
Injector cylinder 1	11			
Injector cylinder 2	12			
Injector cylinder 3	13			
Injector cylinder 4	14			
Instrument-panel light	49, 50			
Instrument-panel light dimmer	43			
Interior light, front	81-83			
Interior light, rear	86, 87			

Ground Connectors

- ① — from battery to body
- ② — from transmission to body
- ⑨ — behind dash near fuse/relay panel
- ⑩ — behind dash
- ⑫ — at steering-gear housing
- ⑬ — behind air vent
- ⑭ — at rear deck
- ⑮ — near fuel pump at floor board/crossmember
- ⑰ — near ignition distributor
- ⑱ — left at cylinder head
- ⑲ — near ignition coil, in engine compart., left
- ⑳ — plus connection, in connector housing

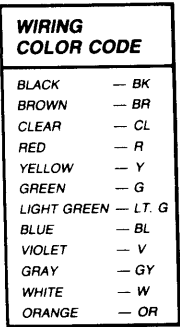




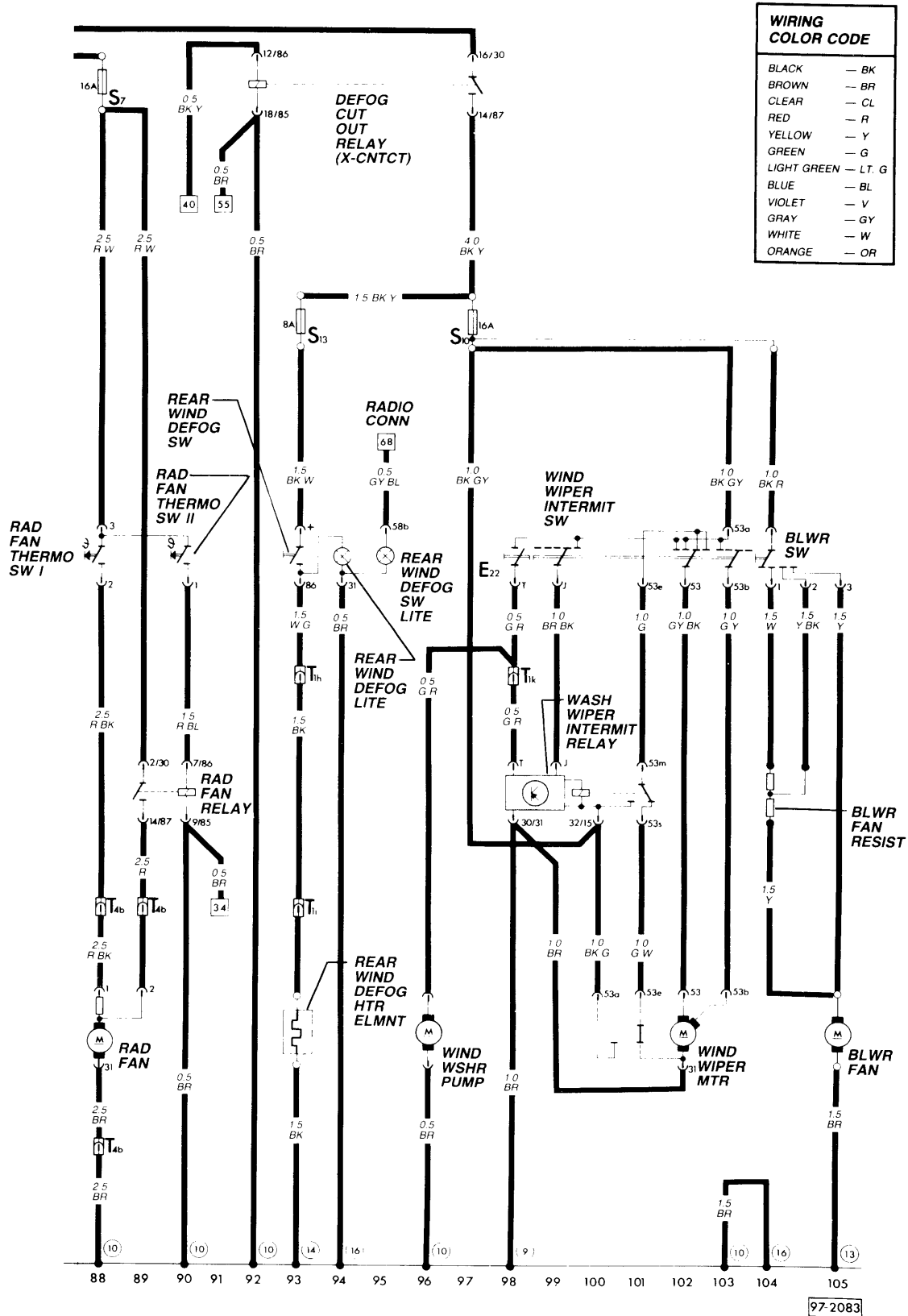


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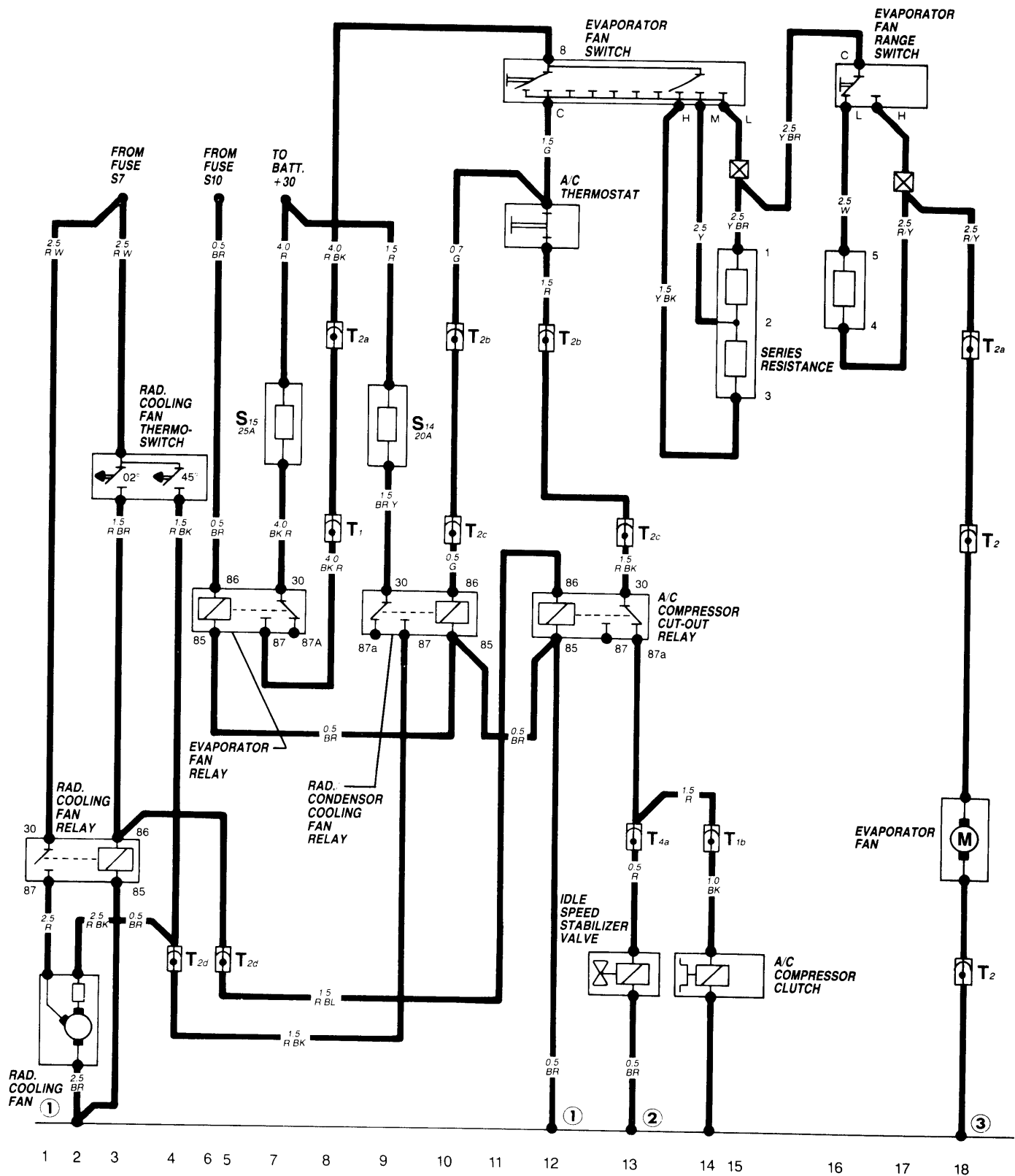
97 Electrical System—Wiring, Waterboxer



Description	Current Track	Connectors
A/C compressor clutch	14	T1 — single, behind left 'B' pillar cover
A/C compressor cut-out relay	12-13	T1a — single, eng. comp., left
A/C thermostat	13	T1b — single, eng. comp., left
Evaporator fan	18	T2 — double, in evaporator housing
Evaporator fan range switch	16, 17	T2a — double, in air tunnel
Evaporator fan relay	3	T2b — double, in air tunnel
Evaporator fan switch	13-15	T2c — double, behind left 'B' pillar cover
Idle speed stabilizer valve	13	T2d — double, above fuse panel
Rad./condensor cool. fan relay	9, 10	Ground Connections
Rad. cooling fan	2	① — near fuse panel
Rad. cool. fan relay	1-3	② — in engine compartment
Rad. cool. fan thermoswitch	3, 4	③ — in evaporator housing (near left side)

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97 Electrical System—Wiring, Waterboxer



87-833

Rear footwell heater blower

Description	Current track
Fuse S10	1
Series resistance	2
Warm air blower	1
Warm air blower switch	1-2

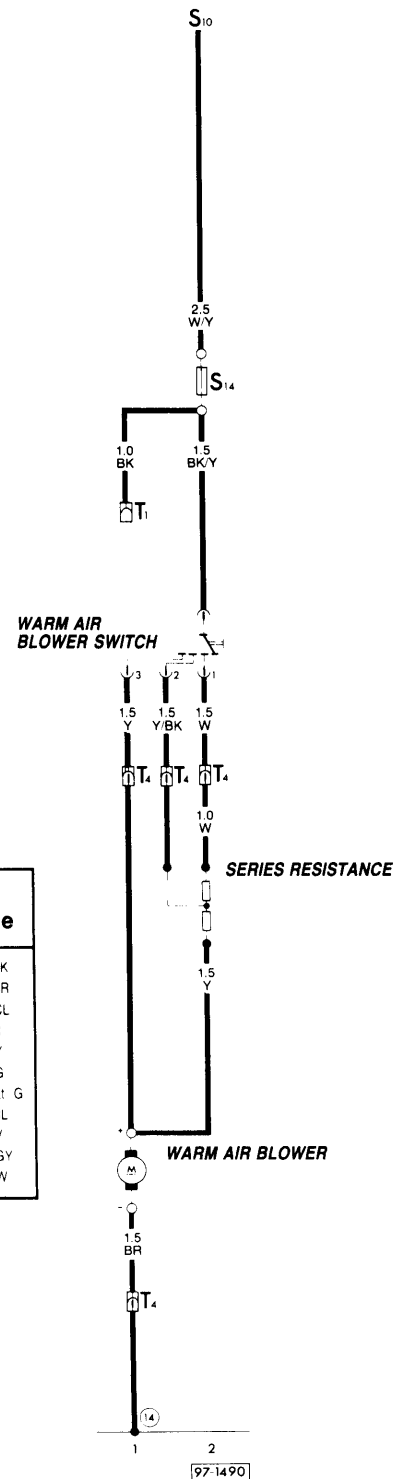
Wire connectors

T4 — 4-point, under rear bench seat

Ground connectors

⑭ — under rear bench seat

Wiring Color Code	
Black	— BK
Brown	— BR
Clear	— CL
Red	— R
Yellow	— Y
Green	— G
Light Green	— Lt G
Blue	— BL
Violet	— V
Gray	— GY
White	— W



97

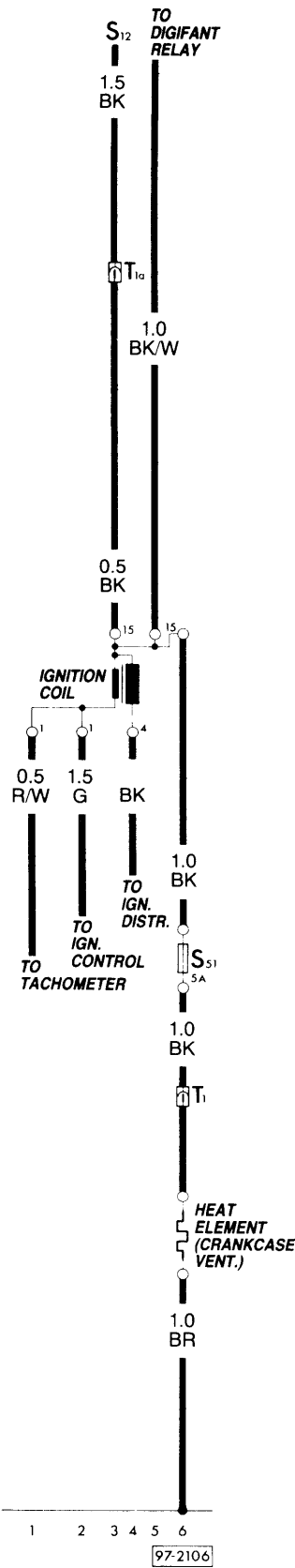
Electrical System - Wiring, Waterboxer

Description

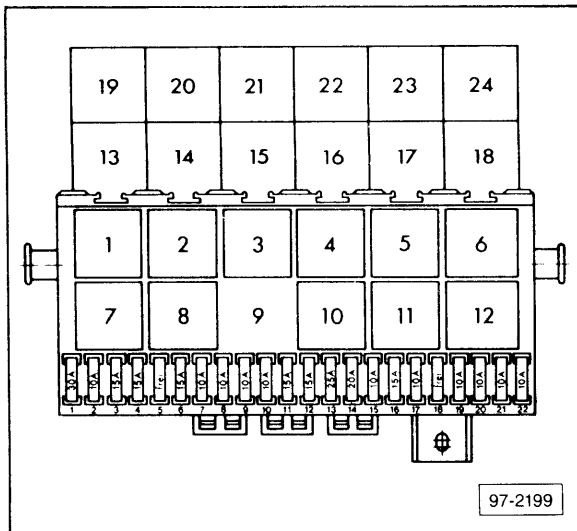
- Heat element (crankcase vent)
- Ignition coil
- Wire connectors
- T1 — in wire distributor
- T1a — in engine compartment

Current
Track

- 6
- 4-5



WIRING COLOR CODE	
BK	— BLACK
BR	— BROWN
CL	— CLEAR
R	— RED
Y	— YELLOW
G	— GREEN
LT G	— LIGHT GREEN
BL	— BLUE
V	— VIOLET
GY	— GRAY
W	— WHITE
OR	— ORANGE



Fuse/Relay Panel

- 3** — coolant level control unit
- 5** — rad. cool. fan relay, 2nd stage
- 8** — load reduction relay
- 10** — intermitt. wash/wiper relay
- 11** — rear window wash/wiper relay
- 12** — emerg. flash/turn sig. relay

CAUTION

Relay locations are subject to change and may vary from vehicle to vehicle depending on options.

Use extreme care when troubleshooting the electrical system.

If you encounter problems identifying a particular relay, consult your Parts Department.

Fuse Arrangement

according to numbers on fuse panel as seen from left to right:

No.	Component	Amp.
1	Radiator fan	30
2	Brake lights	10
3	Interior lights, illuminated Make-up mirror, clock	15
4	Emergency flasher system	15
5	Vacant	
6	Vacant	
7	Tail and side light left	10
8	Tail and side light right	10
9	High beam right	10
10	High beam left	10
11	Windshield washer	15
12	Rear wiper, Cruise control system	15
13	Rear window heating, fresh air fan	25
14	Auxiliary heat exchanger, light for lighting switch	20
15	Back-up lights	10
16	Double tone horn	15
17	Windshield wiper	10
18	Brake warning light, heated driver's seat	10
19	Turn signals	10
20	Number plate light, headlight washer	10
21	Low beam right	10
22	Low beam left	10

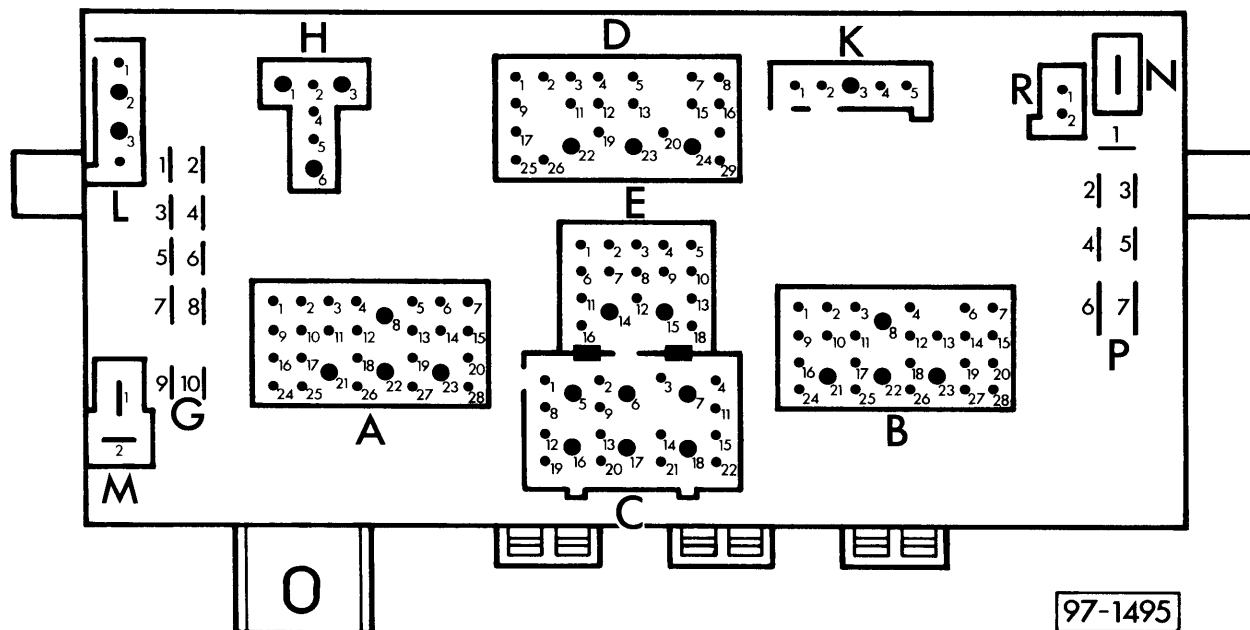
Additional Fuses

(in separate holders)
above the fuse box:

Instrument lighting	10
Overheating fuse for auxiliary heater	10
Main fuse for auxiliary heater	20
Emergency horn system	15
Central locking	20
Automatic fuse for power windows	20

97 Electrical System - Wiring, Waterboxer

Fuse/relay panel, rear view



- A — multi-point connector (blue) for instrument panel wiring harness
- B — multi-point connector (red) for instrument panel wiring harness
- C — multi-point connector (yellow) for front wiring harness
- D — multi-point connector (white) for windshield wiper harness and main wiring harness
- E — multi-point connector (black) for main wiring harness
- F — single connector
- H — multi-point connector (brown), relay connections for rad. cool. fan, 2nd stage
- K — multi-point connector (colorless), connectors for low coolant warning control unit
- L — multi-point connector (gray), horn connections
- M — multi-point connector (black), open terminal (used for light switch terminal 56) and switch for hand operated brights and dimmers terminal 56b
- N — single plug
- P — single plug — terminal 30
- R — open

CAUTION

Relay locations are subject to change and may vary from vehicle to vehicle depending on options.

Use extreme care when troubleshooting the electrical system.

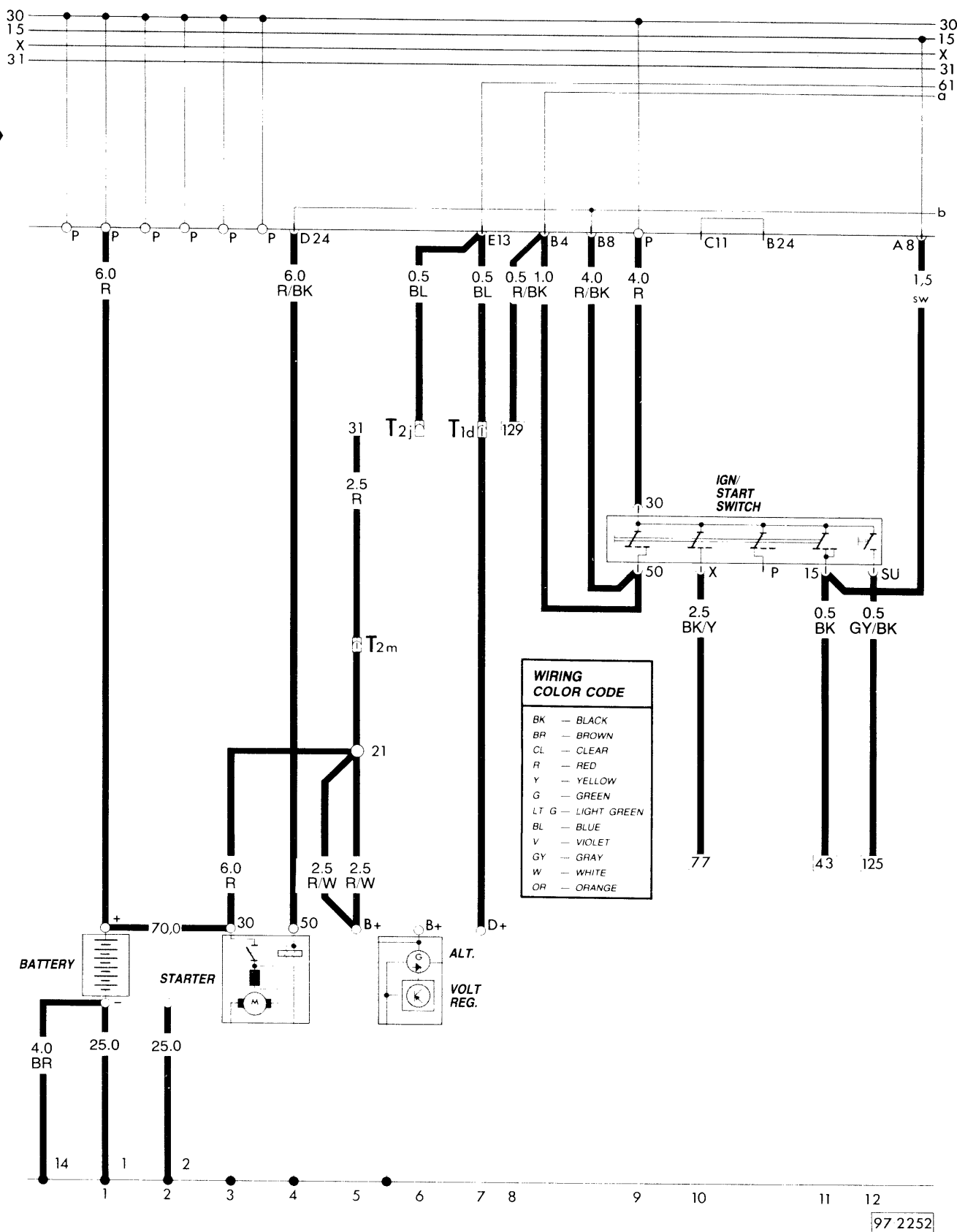
If you encounter problems identifying a particular relay, consult your Parts Department.

Description	Current Track	Description	Current Track	Wire Connectors
Air flow sensor	21-22	Ign./start sw.	9-12	T1c — single, in eng. compart., left
Alternator	5-7	Inst. panel lite dimmer	83-84	T1d — single, in wire distributor box
Alt. warn. lite	46	Inst. panel lites	52-53	T1e — single, in eng. compart., middle
Back-up lite, L	118	Interior lite, front	69-70	T1f — single, under instrument panel
Back-up lite, R	117	Interior lite, rear	72	T1k — single, in eng. compart., middle
Back-up lite switch	118	License plate lites	85-86	T2 — double, under driver's seat
Battery	1	Lite switch	74-83	T2a — double, in eng. compart., left
Brake fluid level switch	130	Load reduction relay	76-78	T2b — double, in the relay panel
Brake lite, L	116	Make-up mirror lite	68	T2c — double, under instrument panel, left
Brake lite, R	115			T2d — double, in upper right "A" pillar
Brake lite switch	113-114	OXS/CAT elapsed mile counter	40	T2e — double, in rear deck lid
Brake/park brake warn. lite	128-130	OXS ind. lite	46	T2f — double, behind RR side trim panel
		OXS sensor with heater	24-25	T2j — double, under instrument panel, left
Cigar lighter	65			T2i — double, in wire distributor box
Cigar lighter lite	66	Park brake lite sw.	128	T2m — double, in the relay panel
Clock	47	Park lite, left	90	T3 — three point, in eng. compart. on alternator
Clock lite	54	Park lite, right	96	T3a — three point, under instrument panel
Coolant low-level control unit	61-62	Power steer. press. sw.	32	T3b — three point, behind upper air intake flap (near radiator)
Coolant low-level switch	61-62			T3c — three point, behind instrument panel
Coolant temp. gauge	58	Rad. cool fan	137	T3d — three point, behind "C" pillar cover
Coolant temp. sender	73	Rad. cool fan relay 2nd stage	139-141	T4 — four point, under instrument panel
Coolant temp. warn. lite	59	Rad. cool fan thermost switch	137-138	T4a — four point, on series resistor for heater fan, under rear seat
Digifant control unit	16-26	Radio connections	67-68	T7/ — seven point, in wire distributor box
Door contact sw., LF	123-124	Rear defogg. heat element	123	T7a/ — seven point, in wire distributor box
Door contact sw., RF	122	Rear defogg. ind. lite	132	T8 — eight point, on brake warning indicator
Emerg. flasher relay	102-103	Rear defogg. sw.	133	T14/ — 14 point, on instrument cluster
Emerg. flasher switch	100-107	Rear defogg. sw. lite	131	
Eng. oil press. control unit	49, 50	Rear washer motor	151	
Eng. oil press. sw. (0.3 bar)	42	Rear wiper motor	153-154	
Eng. oil press. sw. (0.9 bar)	41	Rear wiper/washer relay	152-153	
Fresh air control lvr. lite	134	Seat belt switch, LF	125-126	
Fresh air fan	135	Seat belt warn. lite	127	
Fresh air fan switch	135-136	Seat belt warn. relay	124-128	
Fuel enrich switch	19	Series resist. for fresh air fan	136	
Fuel inj. cyl. 1	26	Series resist. for heater fan	143	
Fuel inj. cyl. 2	27	Side marker lites, rear	94	
Fuel inj. cyl. 3	28	Spark plug connectors	13-14	
Fuel inj. cyl. 4	29	Spark plugs	13-14	
Fuel gauge	57	Starter	3-4	
Fuel gauge sender	64	Tachometer	48	
Fuel pump	30	Tail lite, left	91	
Hall generator	17-18	Tail lite, right	95	
Headlite flash/dim sw.	92-93	TDC sensor	37-38	
Headlite, hi-beam ind.	56	Temp. sensor II	20	
Headlite, hi-beam, left	87	Turn sig. ind.	55	
Headlite, hi-beam, right	99	Turn sig. lite, LF	110	
Headlite, left	88-89	Turn sig. lite, LR	109	
Headlite, right	97-98	Turn sig. lite, RF	112	
Heater fan	142	Turn sig. lite, RR	111	
Heater switch	142-143	Voltage regulator	5-7	
Heater switch lite	141	Voltage stabilizer	57	
Horn	121	Washer motor	150	
Horn button	119	Wash/wipe intermitt. relay	147-149	
Idle stab. control unit	32-36	Wash/wiper intermitt. switch	146-149	
Idle stab. valve	34-35	Wiper motor	150	
Idle switch	18			
Ign. coil	14-15	Wire connectors		
Ign. distributor	13-14	T1 — single, in eng. compart., left		
		T1a — single, in eng. compart., left		
		T1b — single, in wire distributor box		

Ground connections

- ⑥ — under rear bench seat
 - ⑦ — on steering gear box
 - ⑧ — under instrument panel near relay panel
 - ⑨ — on rear deck lid
 - ⑩ — under instrument panel near relay panel
 - ⑪ — on rear deck lid
 - ⑫ — on left front crossmember
 - ⑬ — on rear washer fluid bracket
 - ⑮ — in eng. compart. under ign. coil
 - ⑱ — on sheet metal bracket near fuel pump
 - ⑲ — on left side of cylinder head
 - ⑳ — in instrument panel wiring harness
 - ㉕ — in Digifant wiring harness
- Welded wiring points (+)**
- ㉔ — terminal 58b in inst. panel wiring harness
 - ㉔ — + connection bolted to wire distributor box

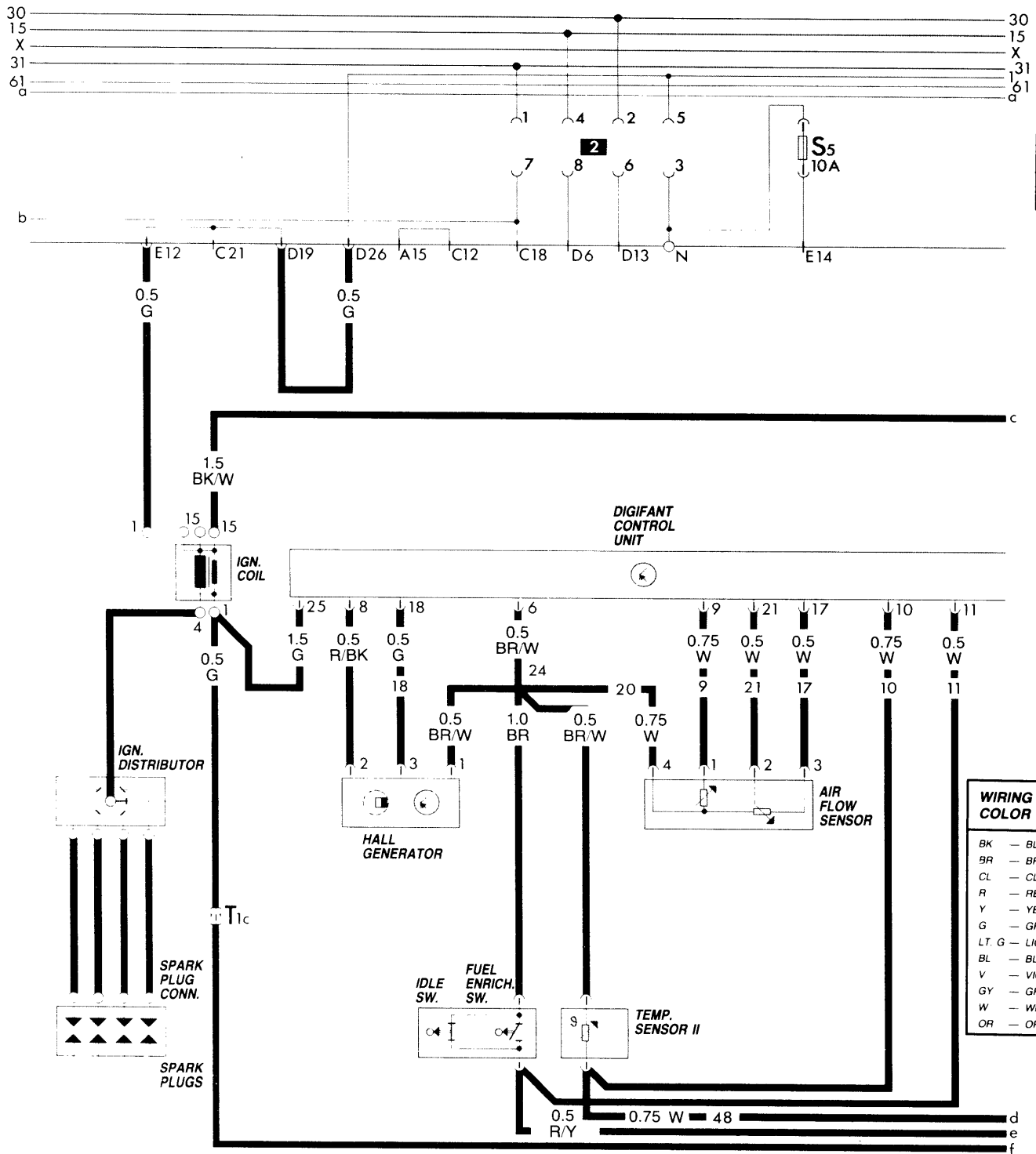
97 Electrical System - Wiring, Waterboxer



97.74

Main wiring diagram
Alternator/Starter/Ignition
up to VIN G 055 689

Water-cooled—Digifant 1986



13 14 15 16 17 18 19 20 21 22 23

97-2253

Water-cooled—Digifant 1986

Main wiring diagram
Digifant control unit
up to VIN G 055 689

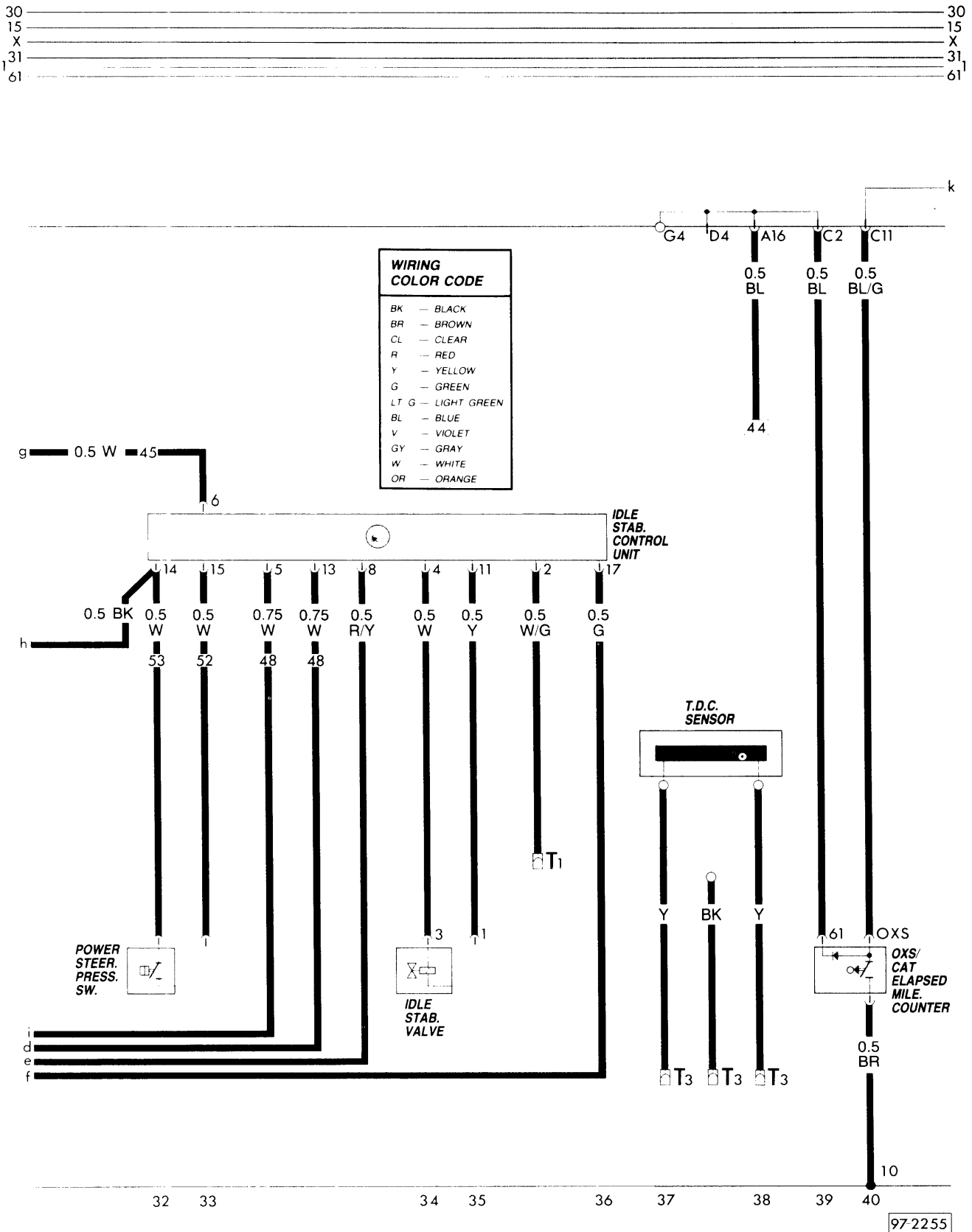
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**Main wiring diagram
Fuel injection
up to VIN G 055 689**

Water-cooled—Digifant 1986

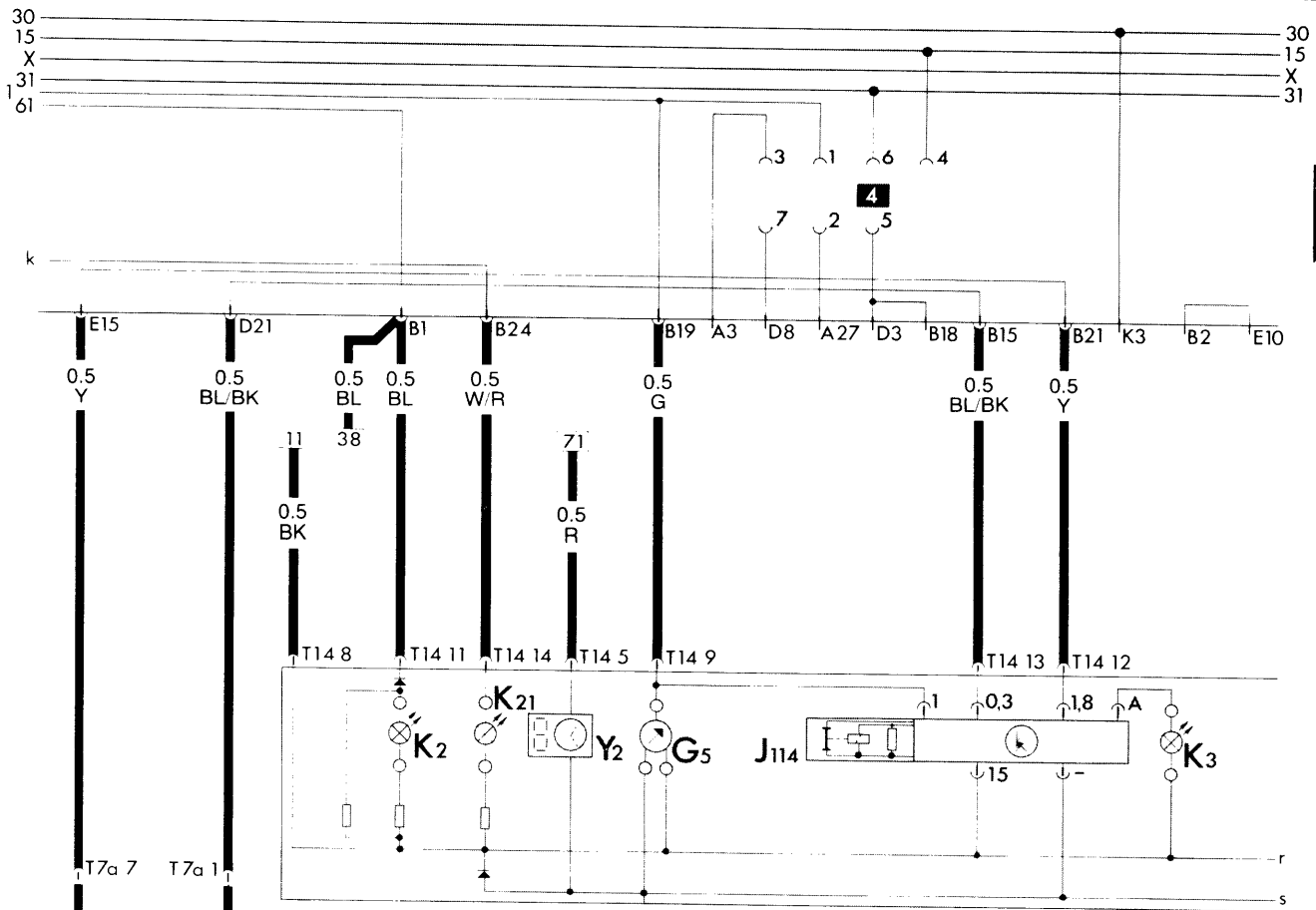


Water-cooled—Digifant 1986

Main wiring diagram
Idle stabilizer
up to VIN G 055 689

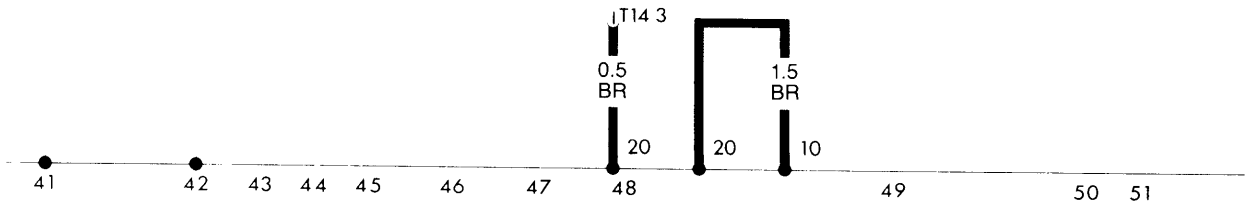
97.77

97 Electrical System - Wiring, Waterboxer



WIRING COLOR CODE	
BK	— BLACK
BR	— BROWN
CL	— CLEAR
R	— RED
Y	— YELLOW
G	— GREEN
LT G	— LIGHT GREEN
BL	— BLUE
V	— VIOLET
GY	— GRAY
W	— WHITE
OR	— ORANGE

K2	ALT. WARN. LITE
K21	OXS IND. LITE
Y2	CLOCK
G5	TACHOMETER
J114	ENG. OIL PRESS. CONT. UNIT
K3	OIL PRESS. WARN. LITE

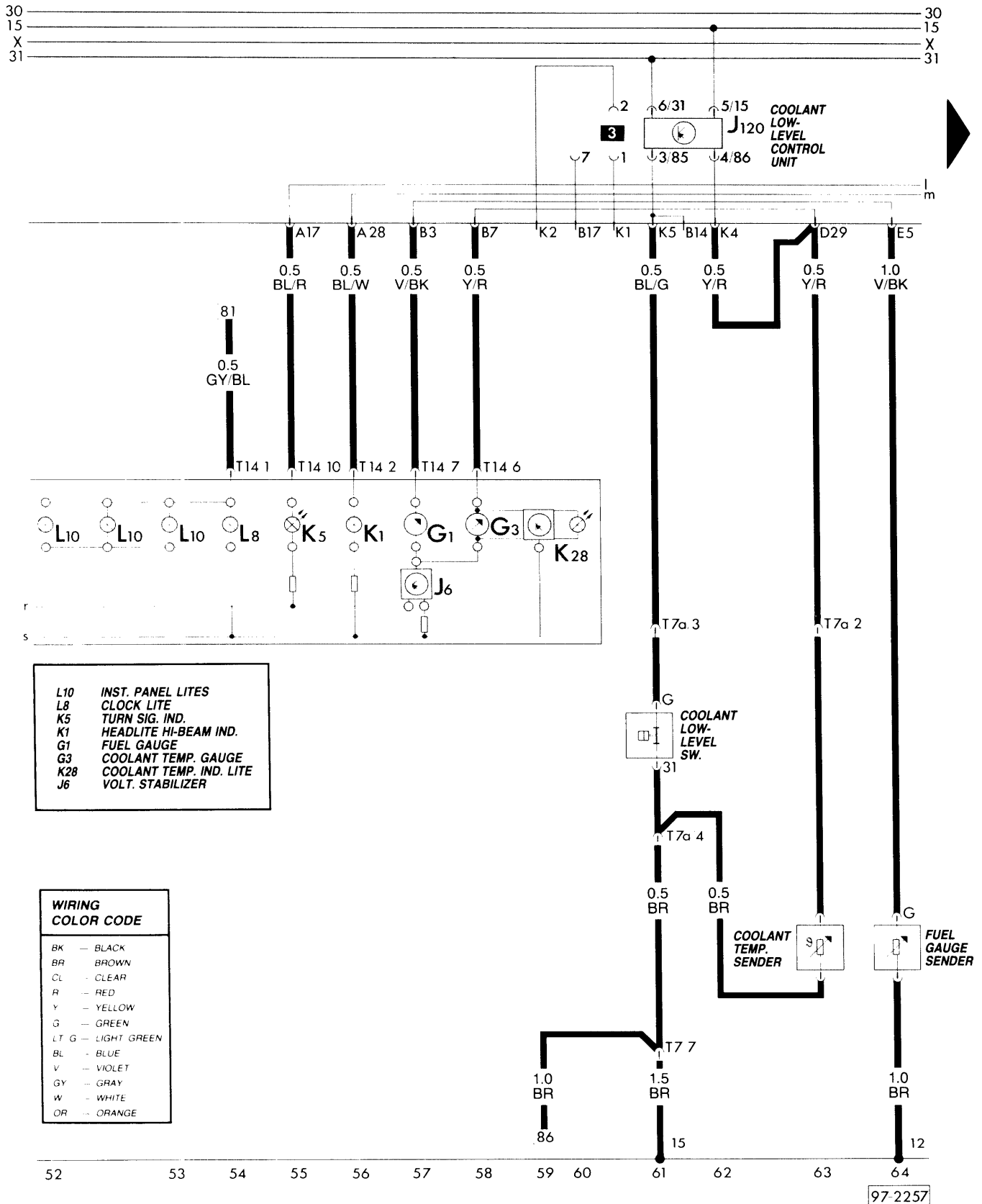


97-2256

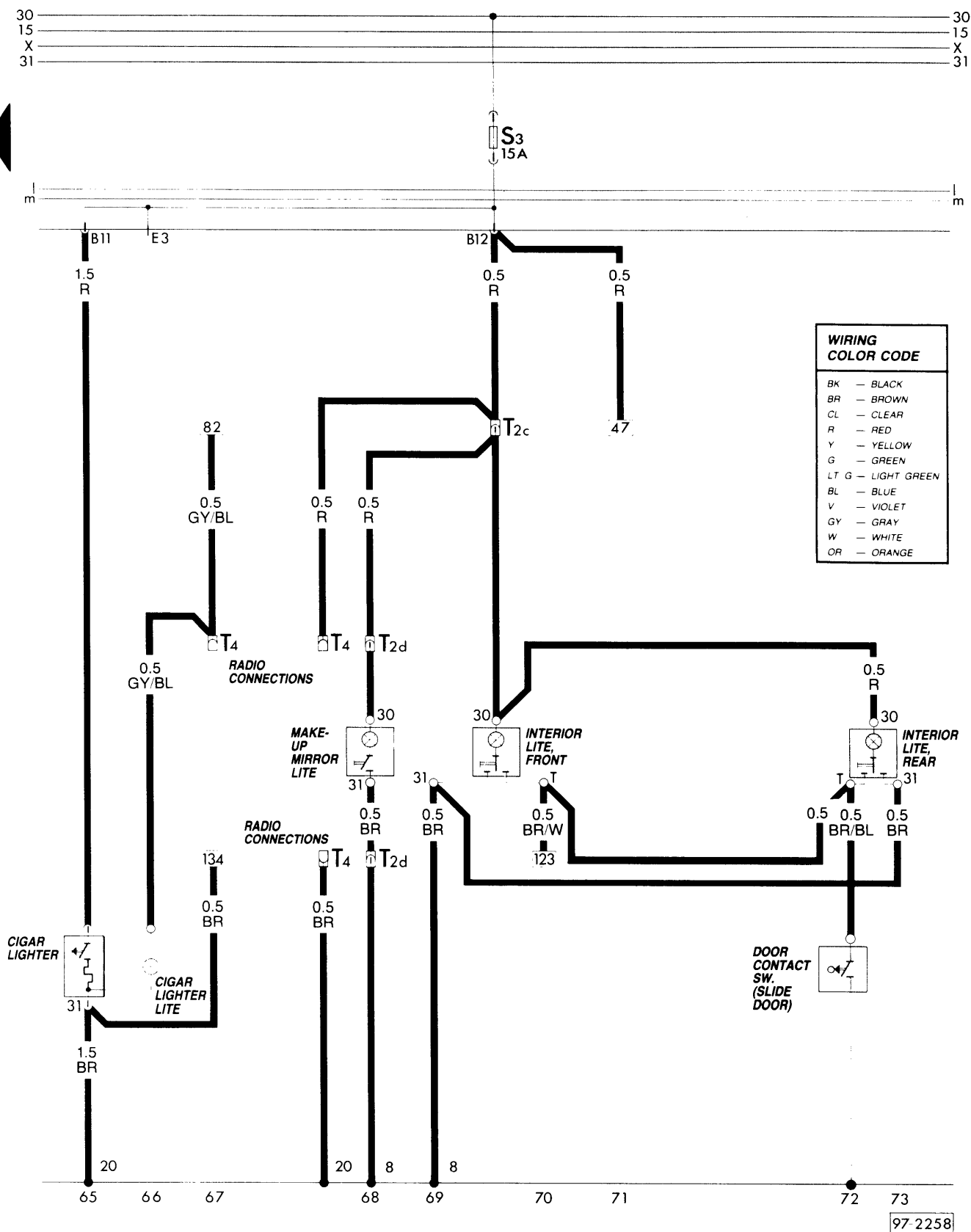
97.78

Main wiring diagram
Instruments
up to VIN G 055 689

Water-cooled—Digifant 1986



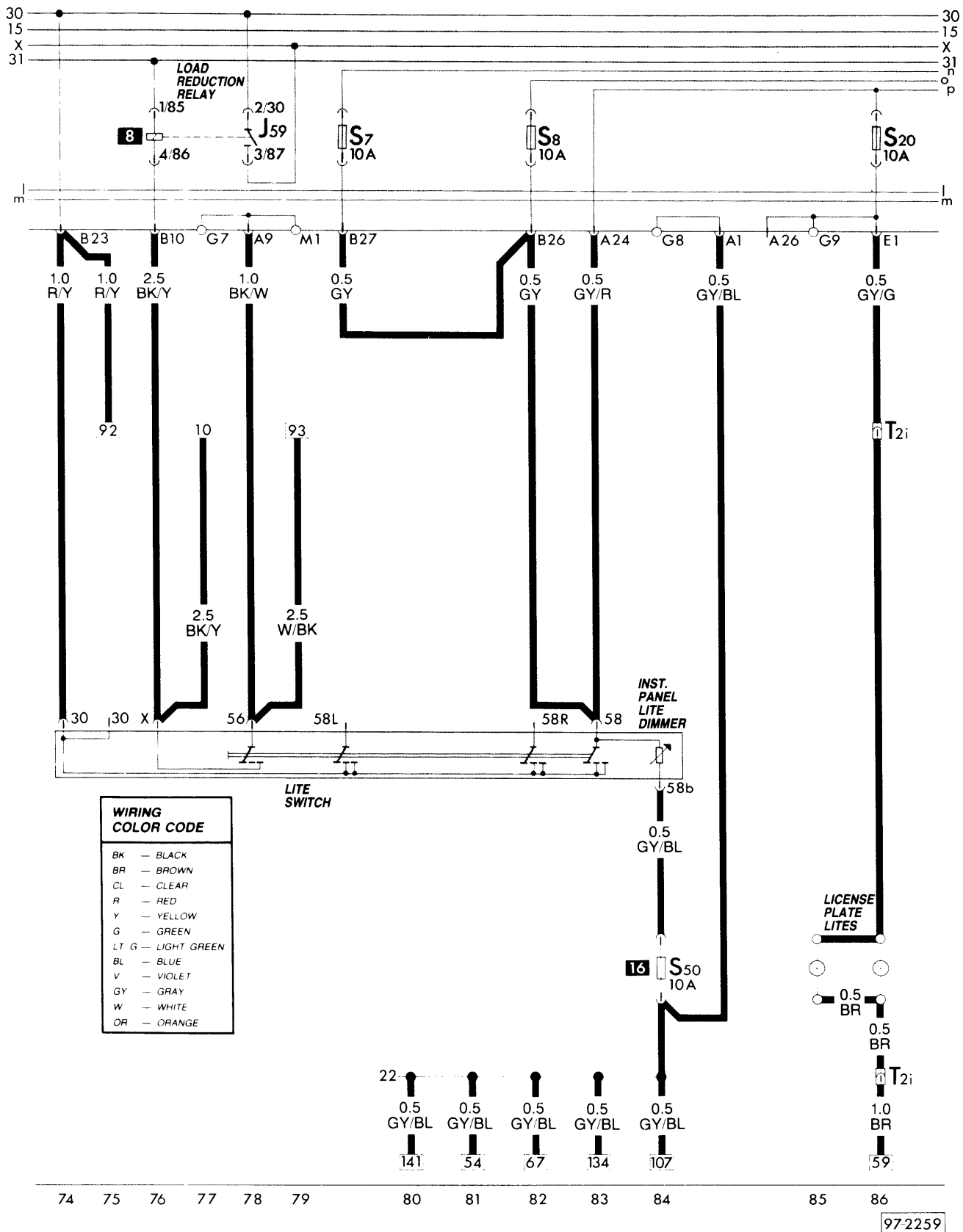
97 Electrical System - Wiring, Waterboxer



97.80

Main wiring diagram
Interior lights
up to VIN G 055 689

Water-cooled—Digifant 1986

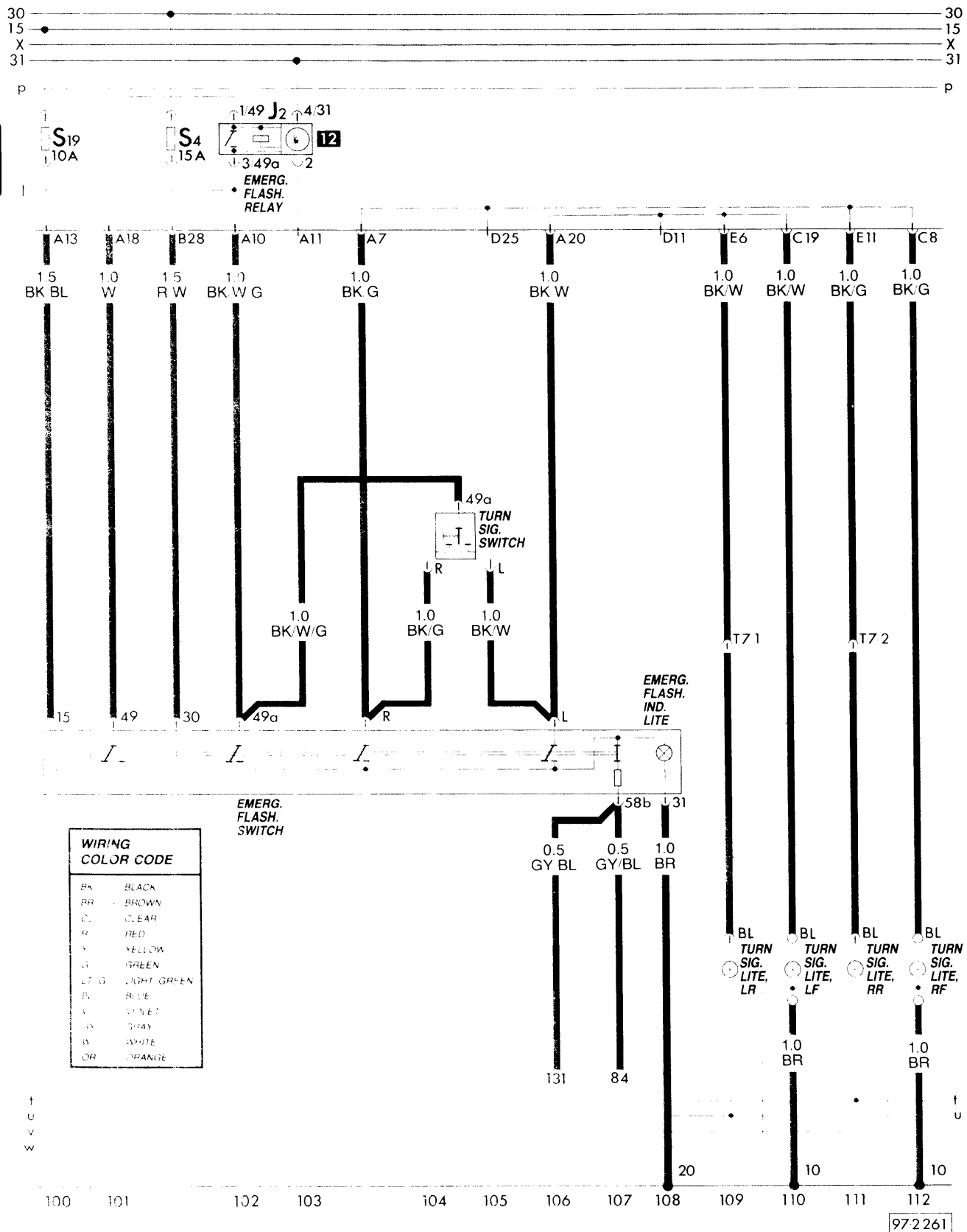


Water-cooled—Digifant 1986

Main wiring diagram
Light switch
up to VIN G 055 689

97.81



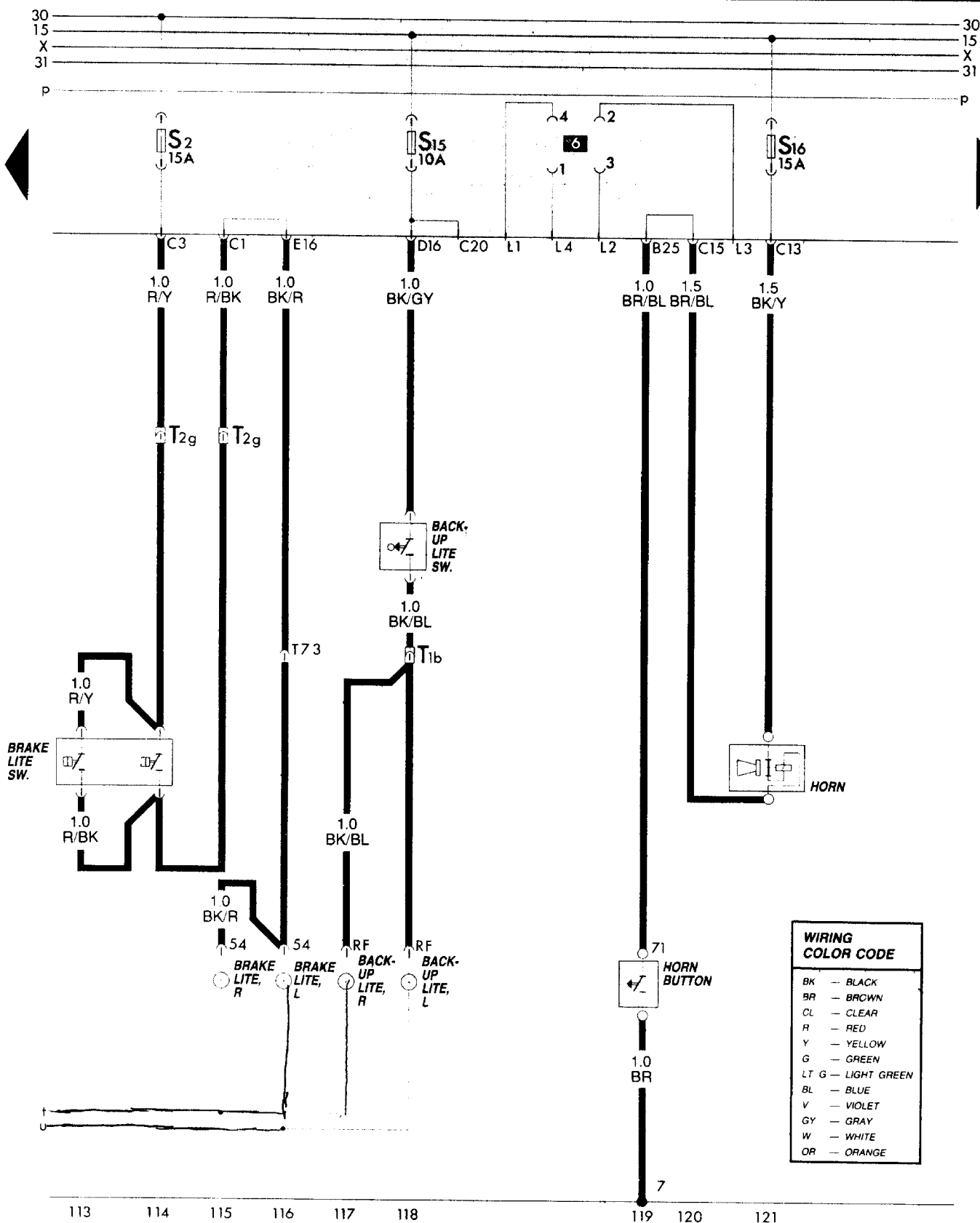


Water-cooled—Digifant 1986

Main wiring diagram
Flashers/Turn signals
up to VIN G 055 689

97.83

97 Electrical System - Wiring, Waterboxer



97.84

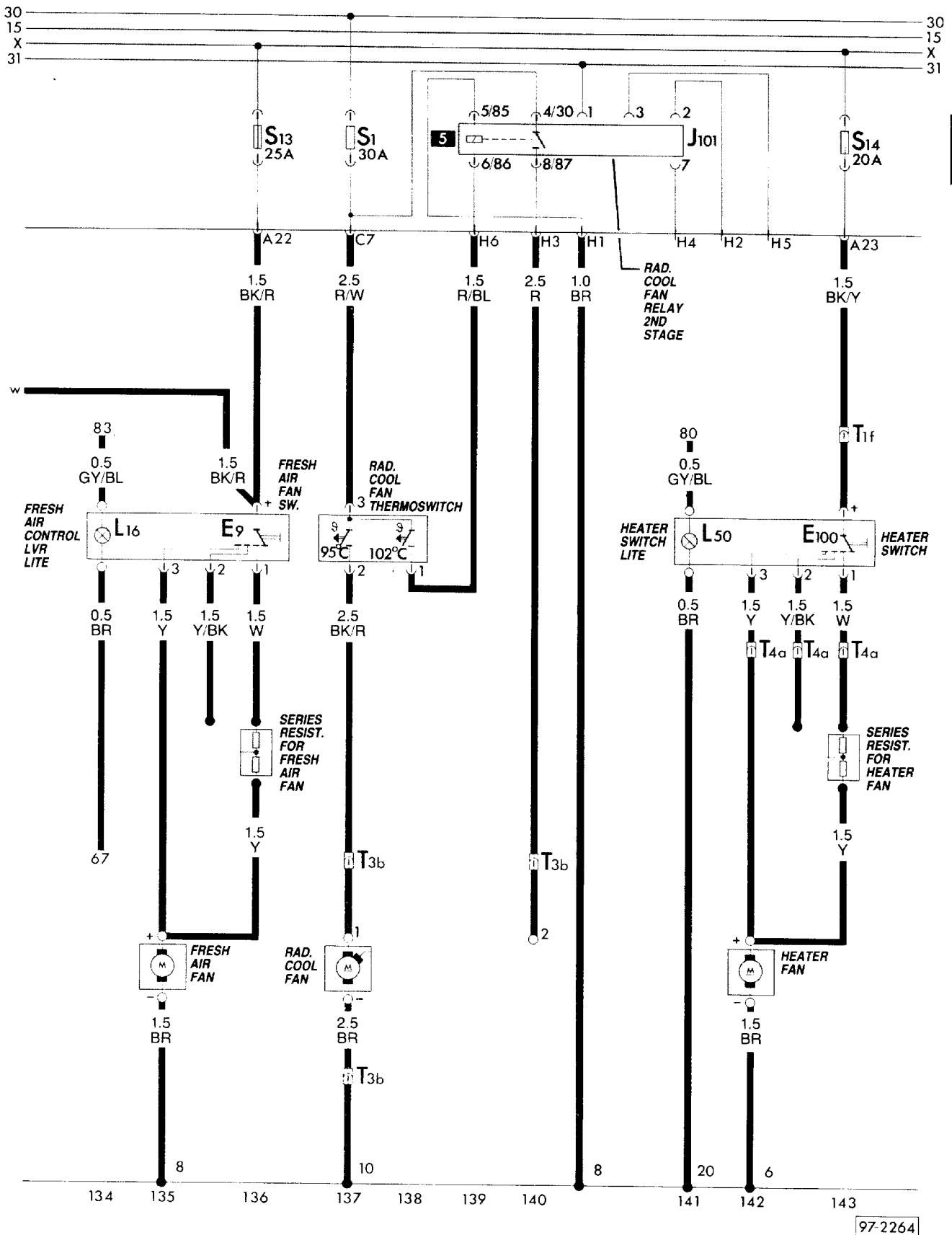
Main wiring diagram
Rear lights
up to VIN G 055 689

Water-cooled—Digifant 1986

97 2262



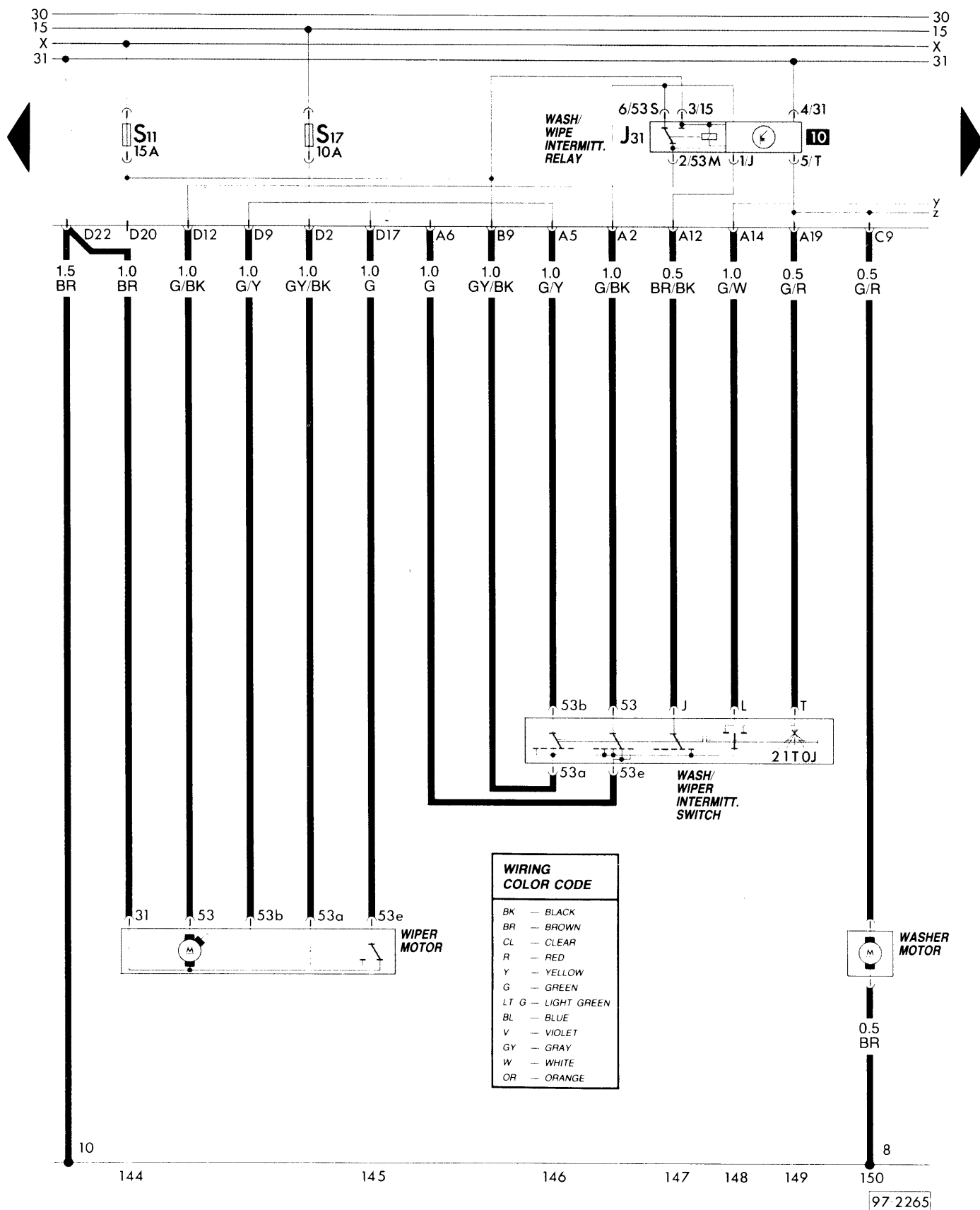
97 Electrical System - Wiring, Waterboxer



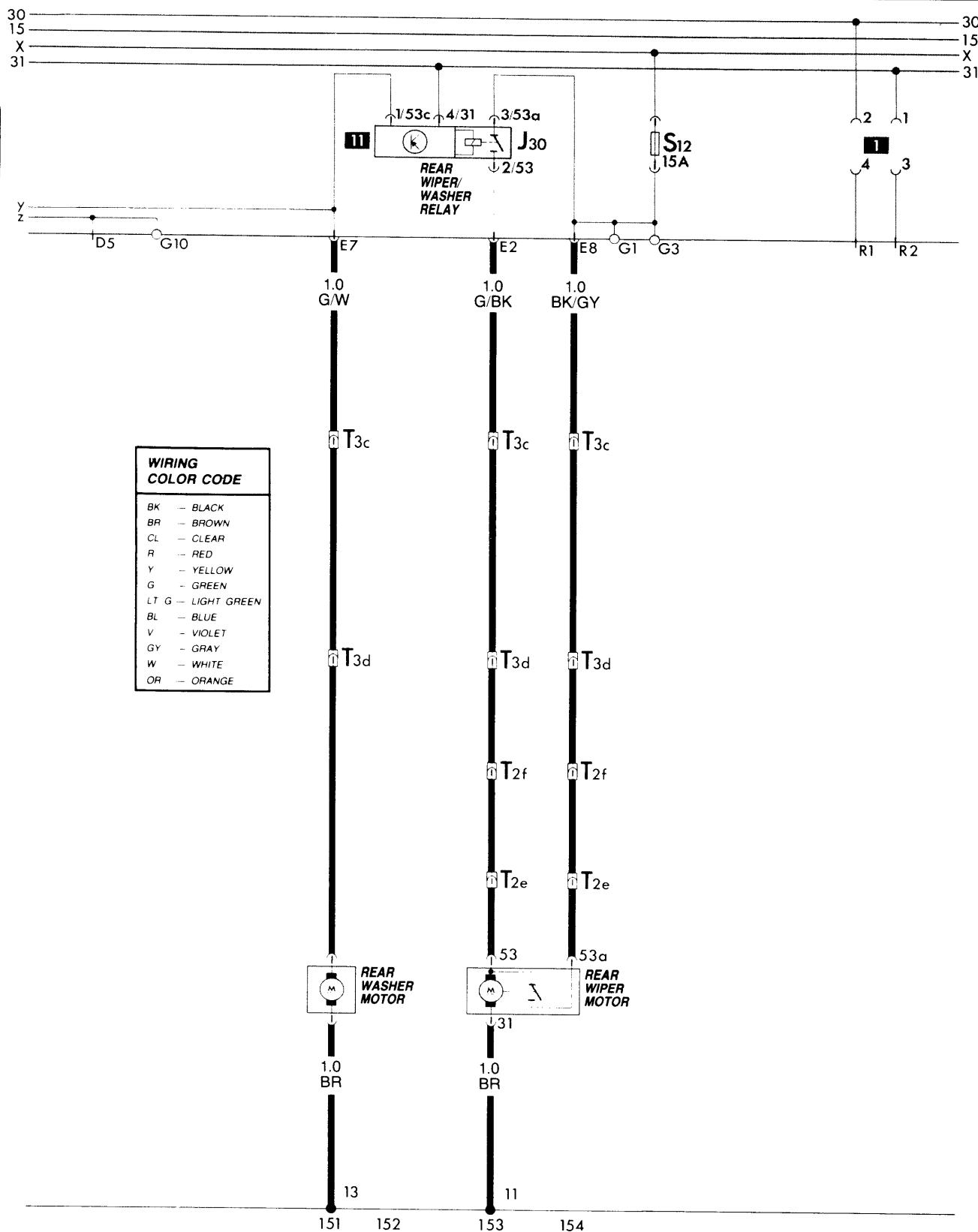
97.86

Main wiring diagram
Fans
up to VIN G 055 689

Water-cooled—Digifant 1986



97 Electrical System - Wiring, Waterboxer

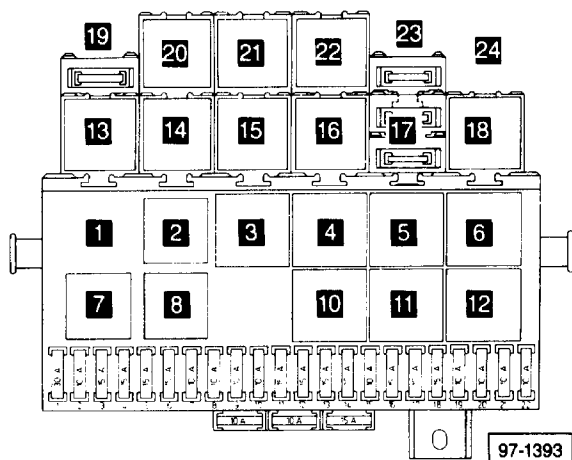


97-2266

97.88

Main wiring diagram
Rear wiper
up to VIN G 055 689

Water-cooled—Digifant 1986



Fuse arrangement

according to numbers on fuse panel as seen from left to right:

	Amp.
1 Radiator fan	30
2 Stop lights	10
3 Cigarette lighter, radio, clock, interior lights, central locking system	10
4 Emergency flasher system	15
5 Electric fuel pump	15
6 Vacant	
7 Tail, parking and side marker lights, left ...	10
8 Tail, parking and side marker lights, right ...	10
9 High beam right, high beam indicator light ...	10
10 High beam left	10
11 Wind. wipers and washer	15
12 Heated seats, outside rear view mirror adjustment	15
13 Rear window defogger, heated rear view mirror	15
14 Fresh air fan, glove compartment light	20
15 Back-up lights, shift console light (Auto. Transmission)	10
16 Horn (single tone)	15
17 Vacant	
18 Dual horn, coolant level and temp. warning light	10
19 Turn signals, brake warning light	10
20 License plate lights	10
21 Low beam left	10
22 Low beam right	10

CAUTION

Relay locations are subject to change and may vary from vehicle to vehicle depending on options.

Use extreme care when troubleshooting the electrical system.

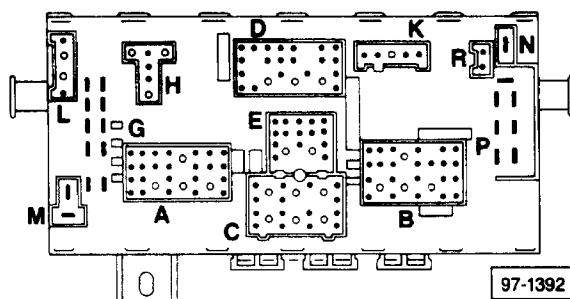
If you encounter problems identifying a particular relay, consult your Parts Department.

Separate fuses above fuse panel

Power windows	30
A/C	30

Fuse/Relay Panel

- 3** — coolant level control unit
- 5** — rad. cool. fan relay, 2nd stage
- 8** — load reduction relay
- 10** — intermitt. wash/wiper relay
- 11** — rear window wash/wiper relay
- 12** — emerg. flash/turn sig. relay



Connections and plugs on fuse/relay panel

- A — multi-point connector (blue) for instrument panel wiring harness
- B — multi-point connector (red) for instrument panel wiring harness
- C — multi-point connector (yellow) for front wiring harness
- D — multi-point connector (white) for windshield wiper and main wiring harness
- E — multi-point connector (black) for main wiring harness
- G — single connector
- H — multi-point connector (brown) to connector for rad. cool fan relay, 2nd stage
- K — multi-point connector (colorless) to radiator coolant low-level control unit
- L — multi-point connector (gray) for horns
- M — open position
- N — single connector
- P — single connector (terminal 30)
- R — open position

97 Electrical System - Wiring, Waterboxer

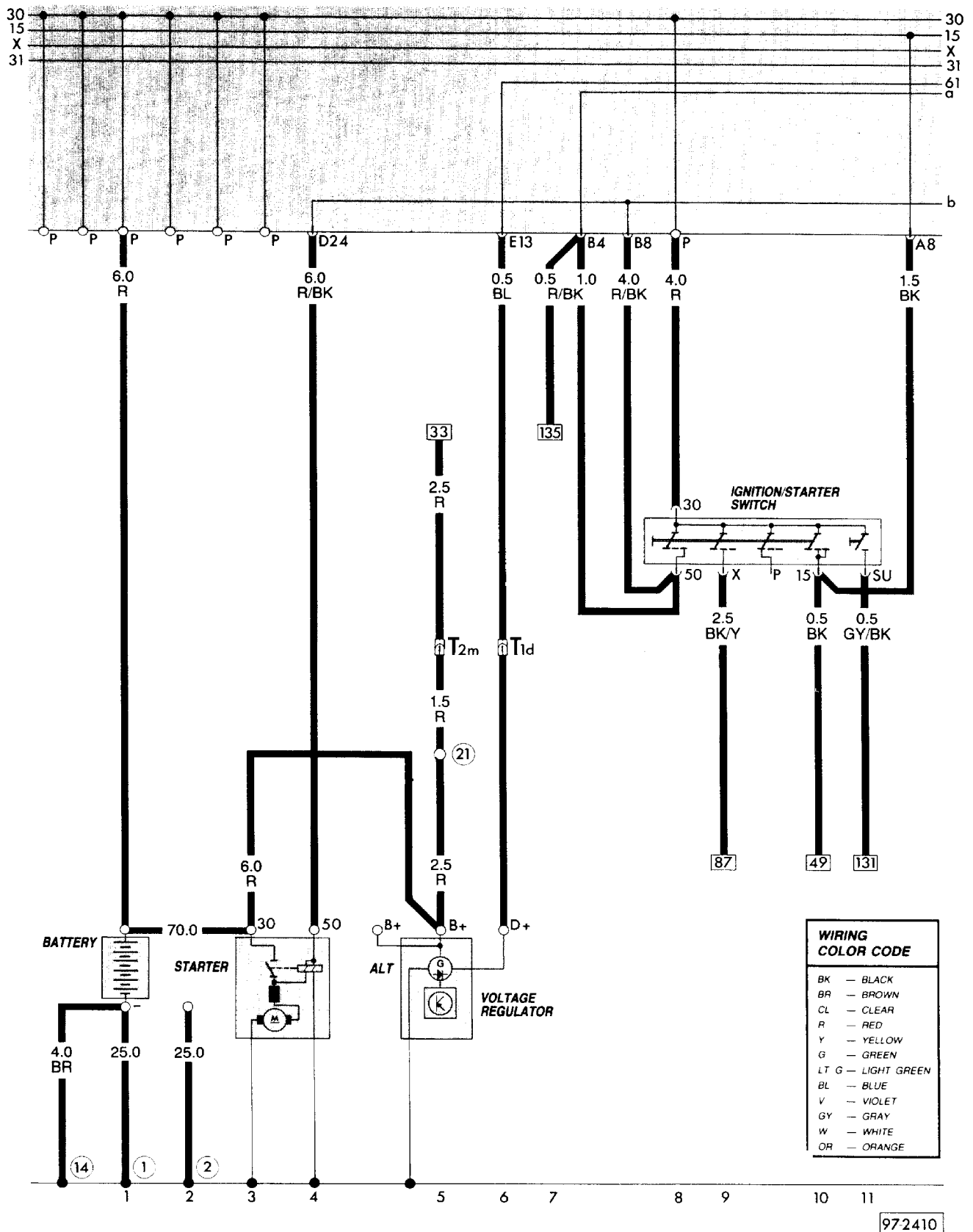
Description	Current track	Description	Current track	Wire Connectors
Air flow sensor potentiometer	22-24	Injector, cyl. 1	27	T1a — single, under instrument panel
Alternator	5,6	Injector, cyl. 2	28	T1c — single, eng. compart., left
Alternator warning lite	51	Injector, cyl. 3	29	T1d — single, in wire distributor box
Back-up lite switch	127	Injector, cyl. 4	30	T1e — single, eng. compart., left
Back-up lite, left	127	Instrument panel lite	58-60	T1f — single, under instrument panel
Back-up lite, right	126	Instrument panel lite dimmer switch	94	T1g — single, under instrument panel
Battery	1	Interior lite, front	77,78	T1h — single, eng. compart., left
Brake and parking brake indicator lite	134	Interior lite, rear	82,83	T2a — double, eng. compart., left
Brake fluid level warning contact	136	Interior lite, right	80,81	T2b — double, eng. compart., left
Brake lite switch	122,123	License plate lite	95,96	T2c — double, behind inst. panel, left
Brake lite, left	125	Lite switch	85,94	T2d — double, behind sunvisor attaching screws, right
Brake lite, right	124	Load reduction relay	86-88	T2e — double, in rear decklid
CAT elapsed mileage counter	45,46	Make-up mirror lite	76	T2f — double, behind right 'c' pillar cover
Cigarette lighter	72	Map/reading lite, right front	75	T2g — double, under instrument panel
Cigarette lighter lite	73	OXS elapsed mileage indicator	52	T2m — double, near fuse/relay panel
Clock lite	61	Oxygen sensor	25,26	T2x — double, eng. compart., middle
Coolant low level control unit	68,69	Parking brake warning lite switch	134	T3 — three-point, on alternator
Coolant low level warning switch	68	Parking lite, left	100	T3a — three-point, under instrument panel
Coolant overheat warning lite	67	Parking lite, right	106	T3b — three-point, behind front air duct
Coolant temperature gauge	65	Power steering pressure switch	36,37	T3c — three-point, under instrument panel
Coolant temperature sending unit	70	Radiator cooling fan	143	T3d — three-point, under right 'c' pillar cover
Digifant control unit	16-27	Radiator cooling fan relay (2nd stage)	147	T4 — four-point, under instrument panel
Dijet control unit relay	32,34	Radiator cooling fan thermoswitch	143,144	T4a — four point, under rear seat bench
Digital clock	53	Rear window defogger indicator lite	38	T7/ — seven-point, in wire distributor box
Door contact switch, left front	77,78	Rear window defogger switch	139	T7a/ — seven-point, in wire distributor box
Door contact switch, right front	81	Rear window defogger switch lite	137	T14/ — fourteen-point, on instrument cluster
Emergency flasher relay	111	Rear window washer pump	157	
Emergency flasher switch	110,117	Rear window wiper motor	159,160	
Emergency flasher warning lite	117	Rear window wiper/washer relay	158,159	
Engine oil pressure control unit	55,56	Safety belt switch, right	131,132	
Engine oil pressure switch (0.3 bar)	48	Seat belt warning lite	133	
Engine oil pressure switch (1.8 bar)	47	Seat belt warning relay	130-133	
Engine oil pressure warning lite	57	Side marker lites, rear	102,104	
Fresh air blower series resistance	142	Spark plug connectors	13-15	
Fresh air control lever lite	140	Spark plugs	13-15	
Fresh air fan	141	Starter	3,4	
Fresh air fan switch	141,142	T.D.C. sensor	43,44	
Fuel gauge	64	Tachometer	54	
Fuel gauge sending unit	71	Tail lite, left	101	
Fuel pump	31	Tail lite, right	105	
Fuel pump relay	30,31	Temperature sensor II	21	
Hall generator	17-19	Throttle valve switch (enrichment)	20	
Headlite dimmer/flasher switch	102,103	Turn signal indicator lite	62	
Headlite high beam warning lite	63	Turn signal lite, left front	119	
Headlite, left	97,99	Turn signal lite, left rear	118	
Headlite, right	107,108	Turn signal lite, right front	121	
Heater blower series resistance	149	Turn signal lite, right rear	120	
Heater fan switch illumination lite	147	Turn signal switch	113,114	
Heating element (crankcase ventilation)	12	Voltage regulator	5,6	
High-beam headlite, left	98	Voltage stabilizer	64	
High-beam headlite, right	109	Warm air blower	148	
Horn button	128	Warm air blower switch	148,149	
Horns	129	Washer/wiper intermittent relay	153-155	
Idle speed stabilizer valve	40,41	Windshield washer pump	156	
Idle stabilizer control unit	36,42	Windshield wiper motor	150,151	
Ignition coil	14	Windshield-wiper intermittent switch	152-155	
Ignition distributor	13-15			
Ignition/starter switch	8-11			

Ground Connections

- ① — battery to body
- ② — from body to transmission
- ⑦ — on steering rack
- ⑩ — near fuse/relay panel
- ⑪ — in rear decklid
- ⑫ — on left front crossmember
- ⑬ — near rear washer fluid bottle
- ⑭ — under rear seat bench
- ⑮ — under ignition coil
- ⑰ — under rear seat bench
- ⑱ — near fuel pump
- ⑲ — on cylinder head
- ⑳ — in instrument panel wiring harness
- ㉔ — near digifant wiring harness

Plus Connections

- ㉔ — terminal 30, in wire distributor box
- ㉔ — terminal 58b, in instrument panel wiring harness
- ㉔ — in digifant wiring harness

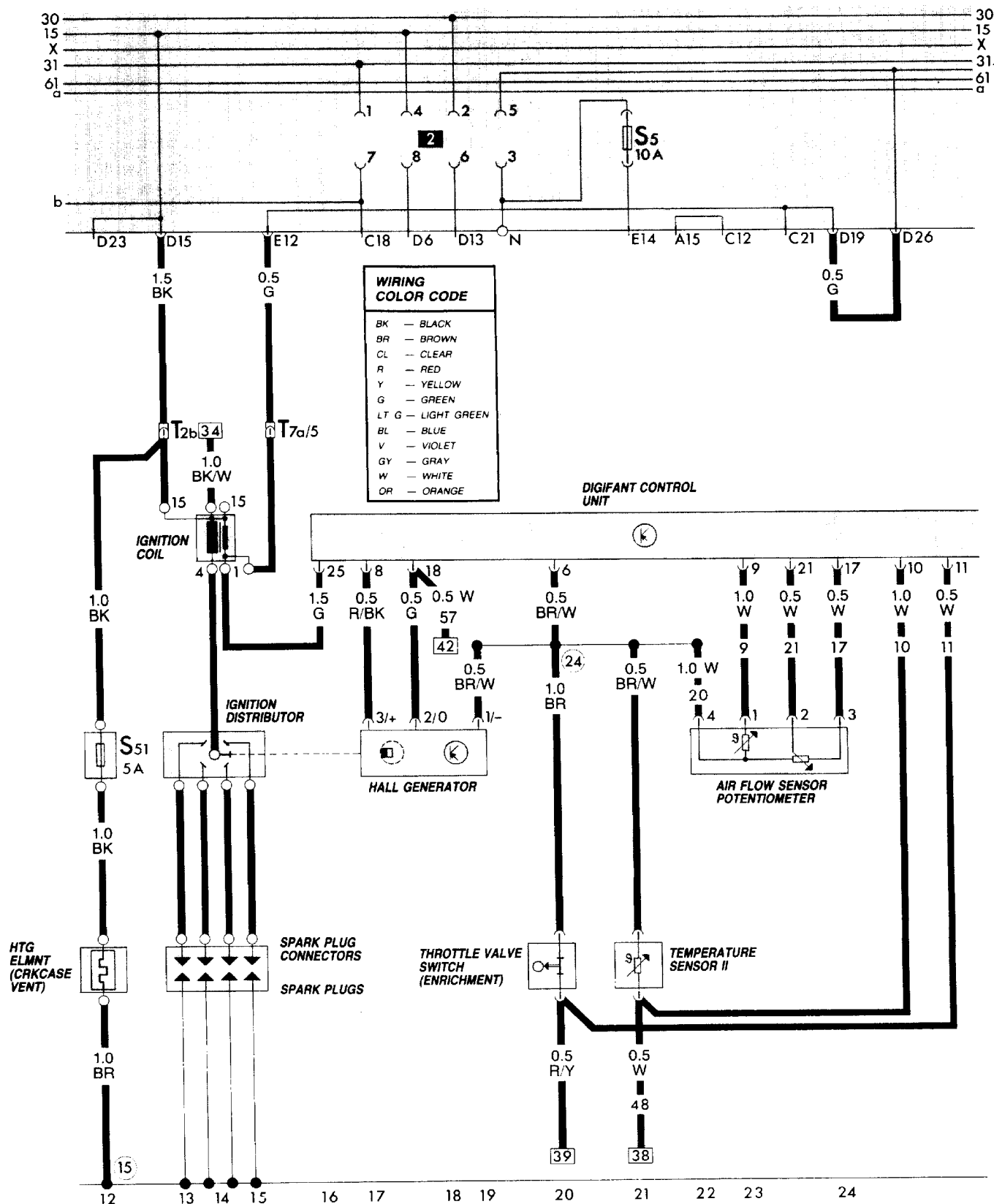


Water-cooled—Digifant 1986

Main wiring diagram
Alternator/Starter
from VIN G 055 690

97.91

97 Electrical System - Wiring, Waterboxer

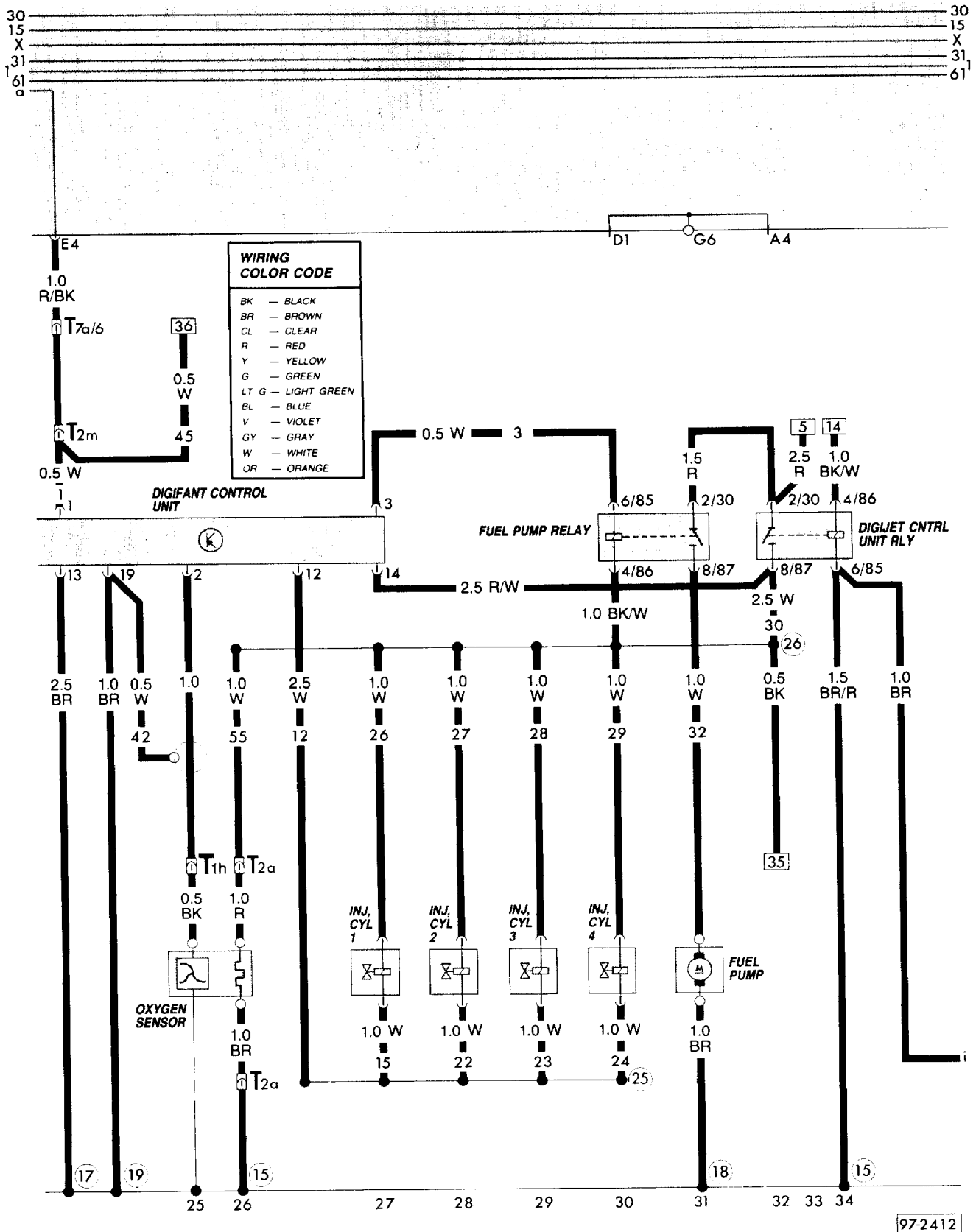


972411

97.92

Main wiring diagram
Digifant system
from VIN G 055 690

Water-cooled—Digifant 1986

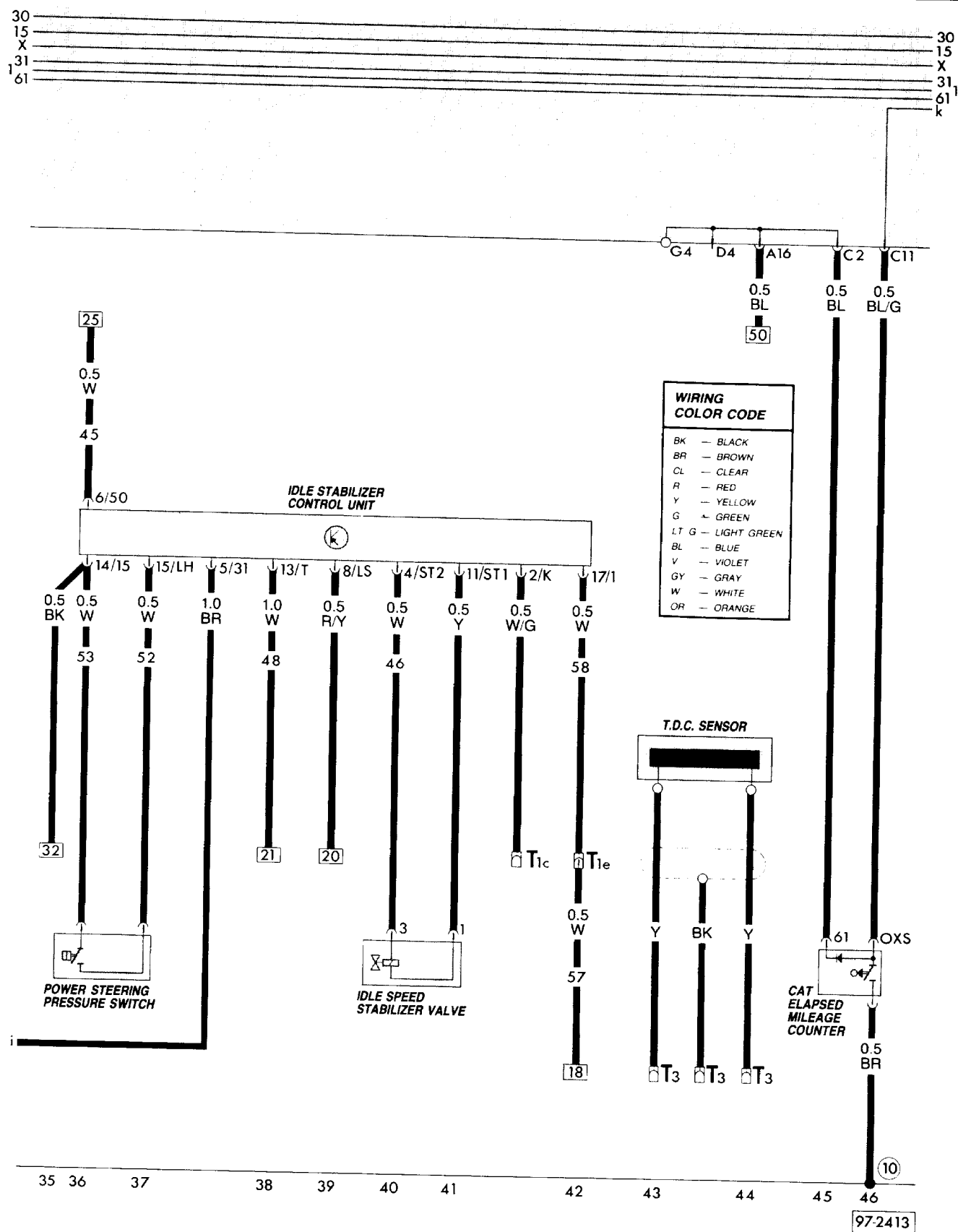


Water-cooled—Digifant 1986

Main wiring diagram
Digifant system
from VIN G 055 690

97.93

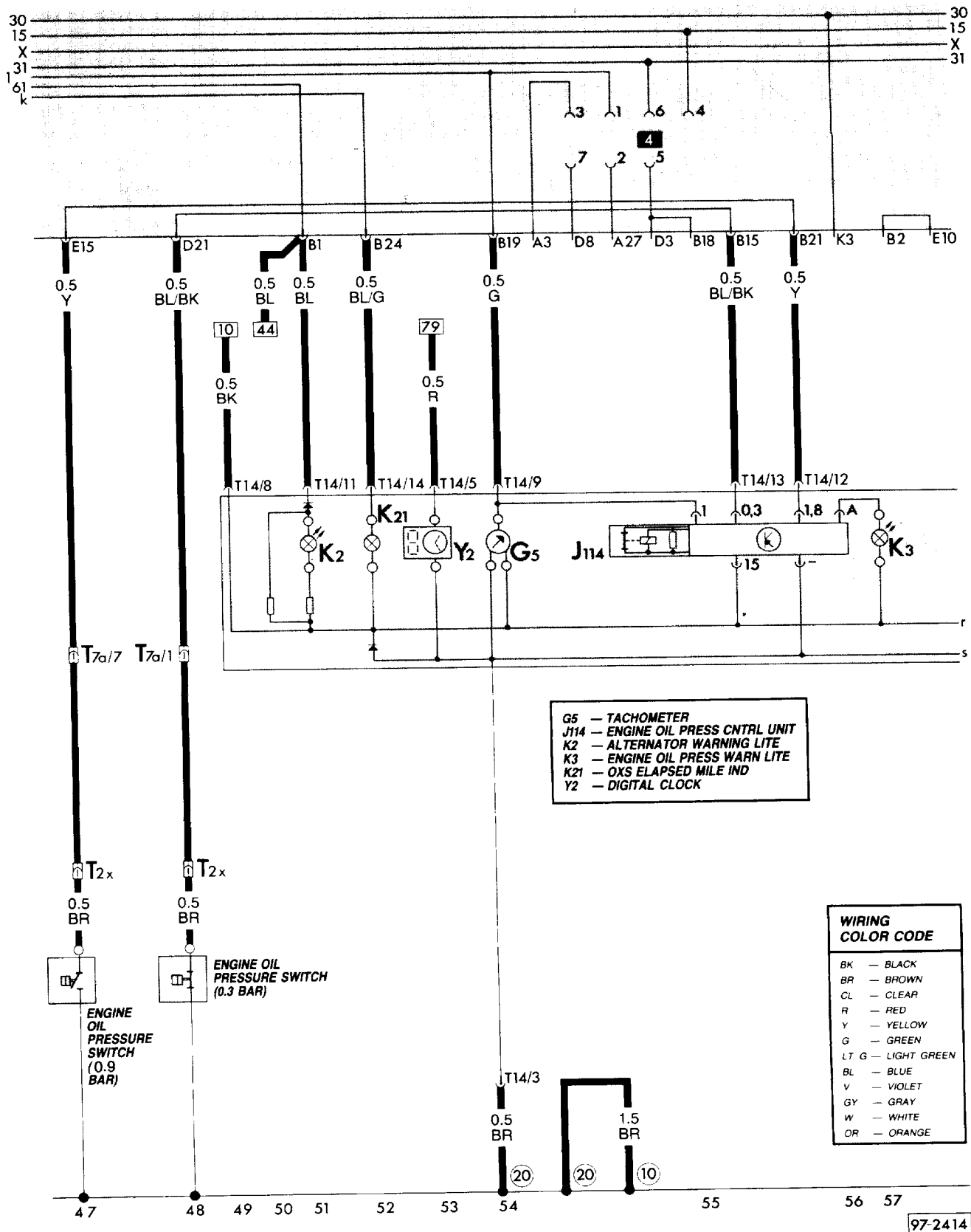
97 Electrical System - Wiring, Waterboxer



Main wiring diagram
Idle stabilizer control
from VIN G 055 690

Water-cooled—Digifant 1986

97.94

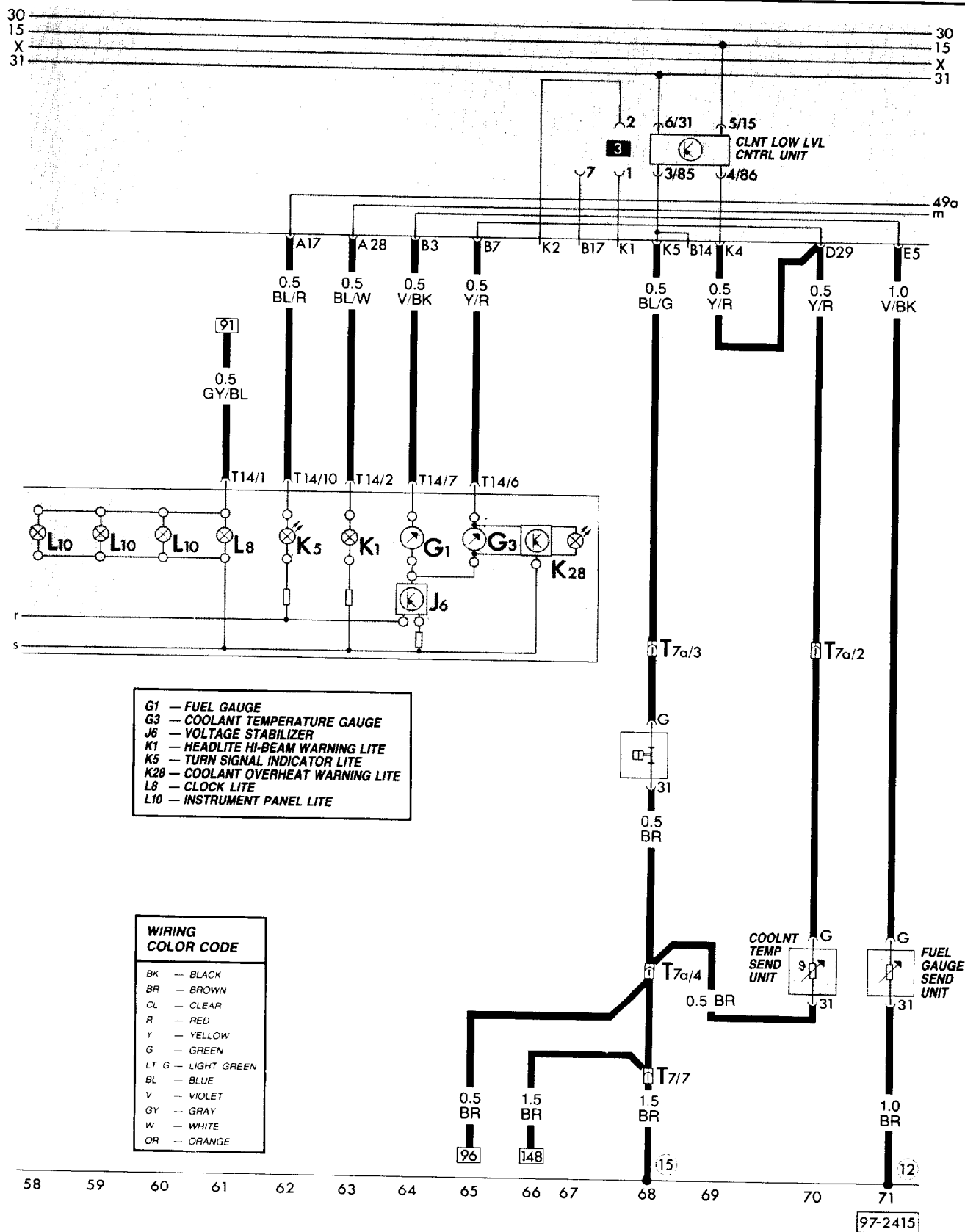


Water-cooled—Digifant 1986

Main wiring diagram
Instrument cluster
from VIN G 055 690

97.95

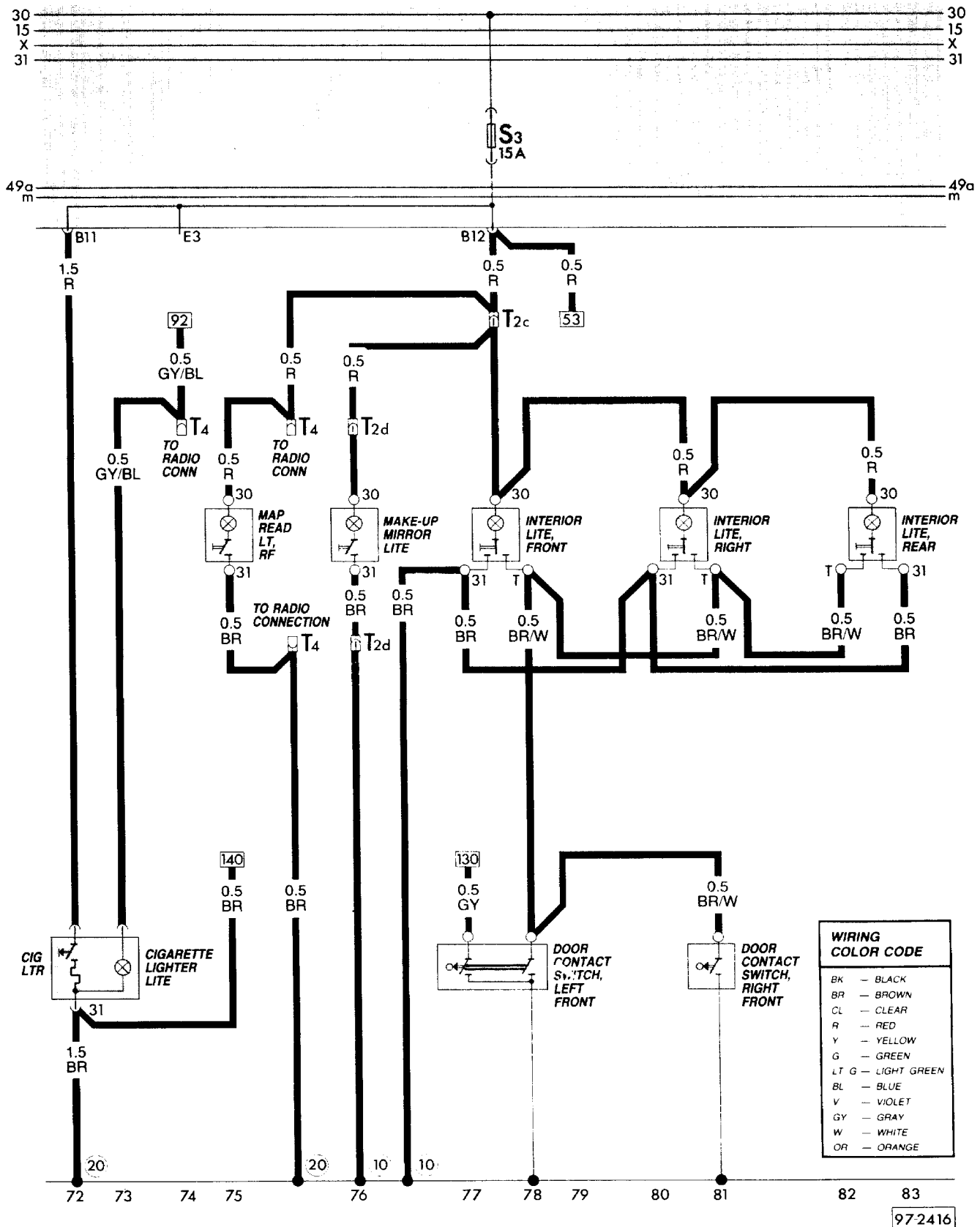
97 Electrical System - Wiring, Waterboxer



97.96

Main wiring diagram
Instrument cluster
from VIN G 055 690

Water-cooled—Digifant 1986

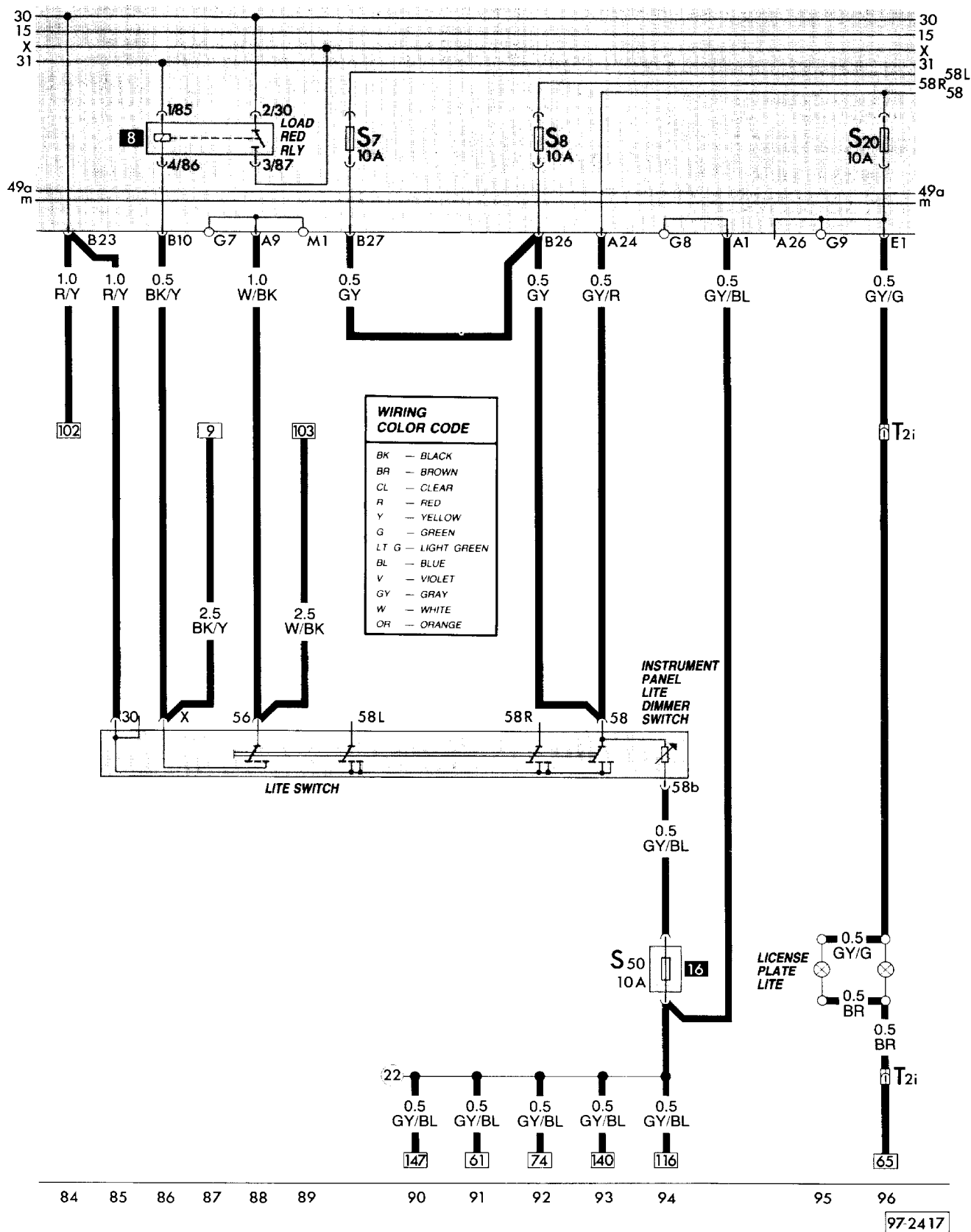


Water-cooled—Digifant 1986

Main wiring diagram
Interior lights
from VIN G 055 690

97.97

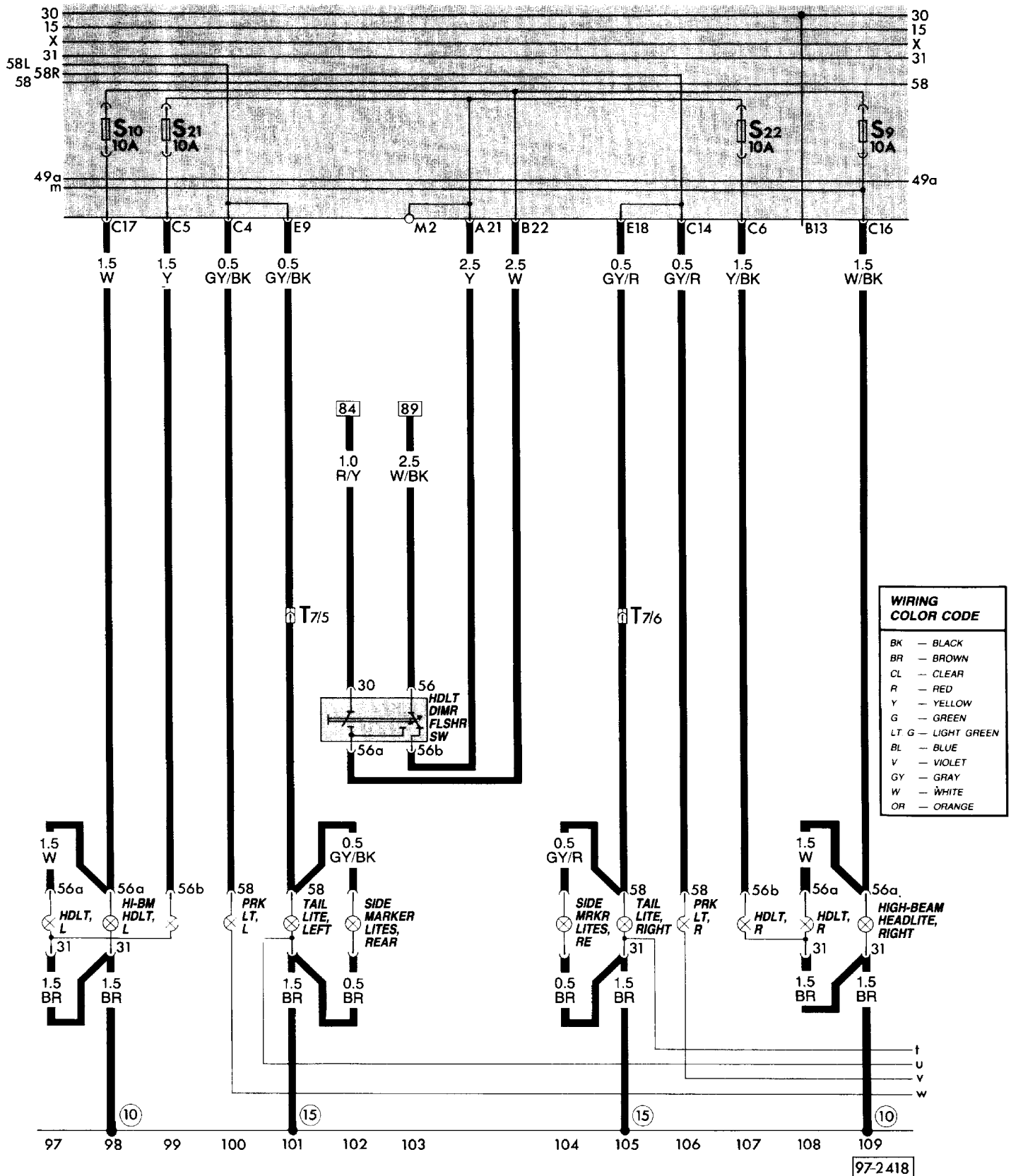
97 Electrical System - Wiring, Waterboxer



97.98

Main wiring diagram
Light switch
from VIN G 055 690

Water-cooled—Digifant 1986

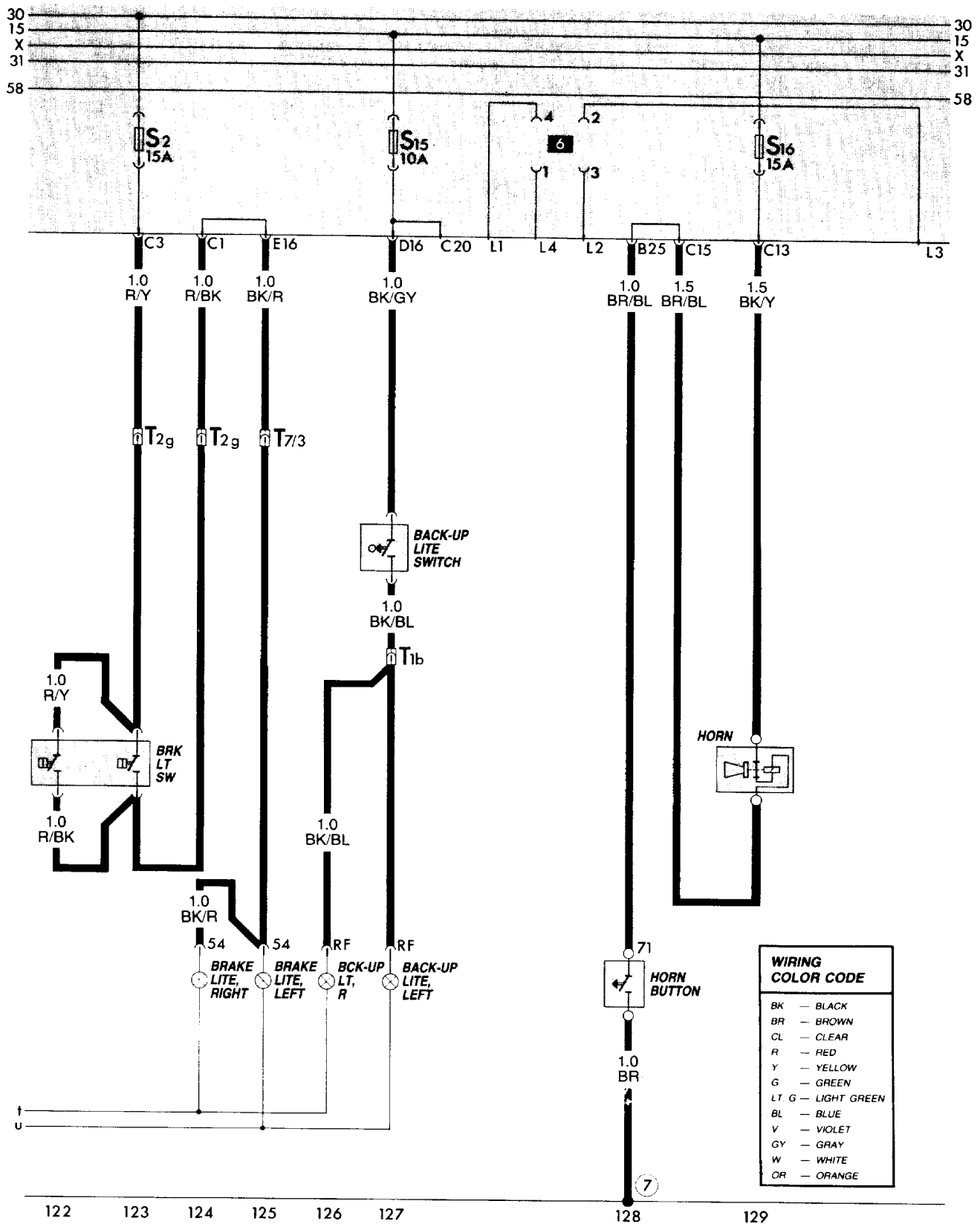


Water-cooled—Digifant 1986

Main wiring diagram
Exterior lights
from VIN G 055 690

97.99





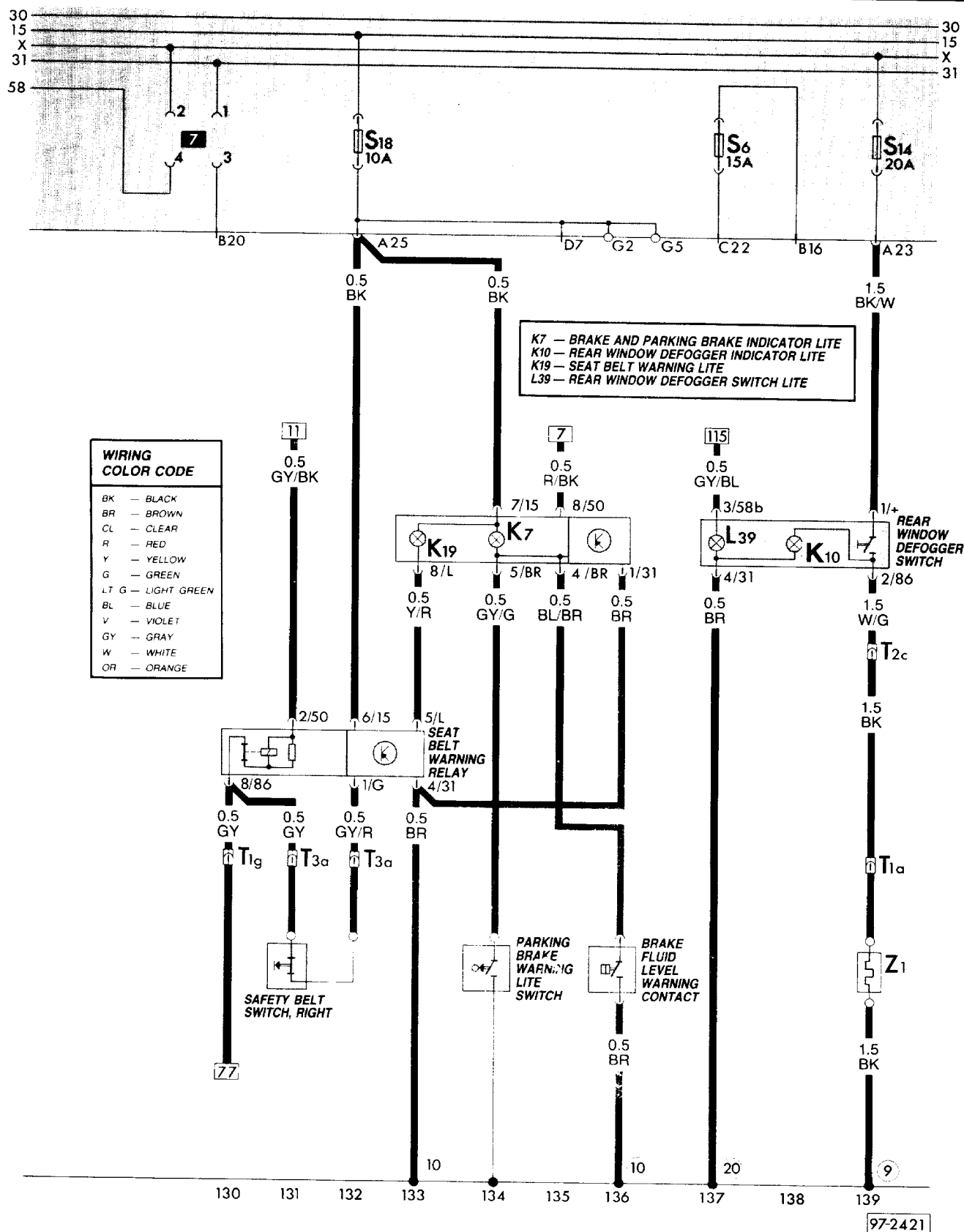
97-2420

Water-cooled—Digifant 1986

Main wiring diagram
Brake lights/Horns
from VIN G 055 690

97.101

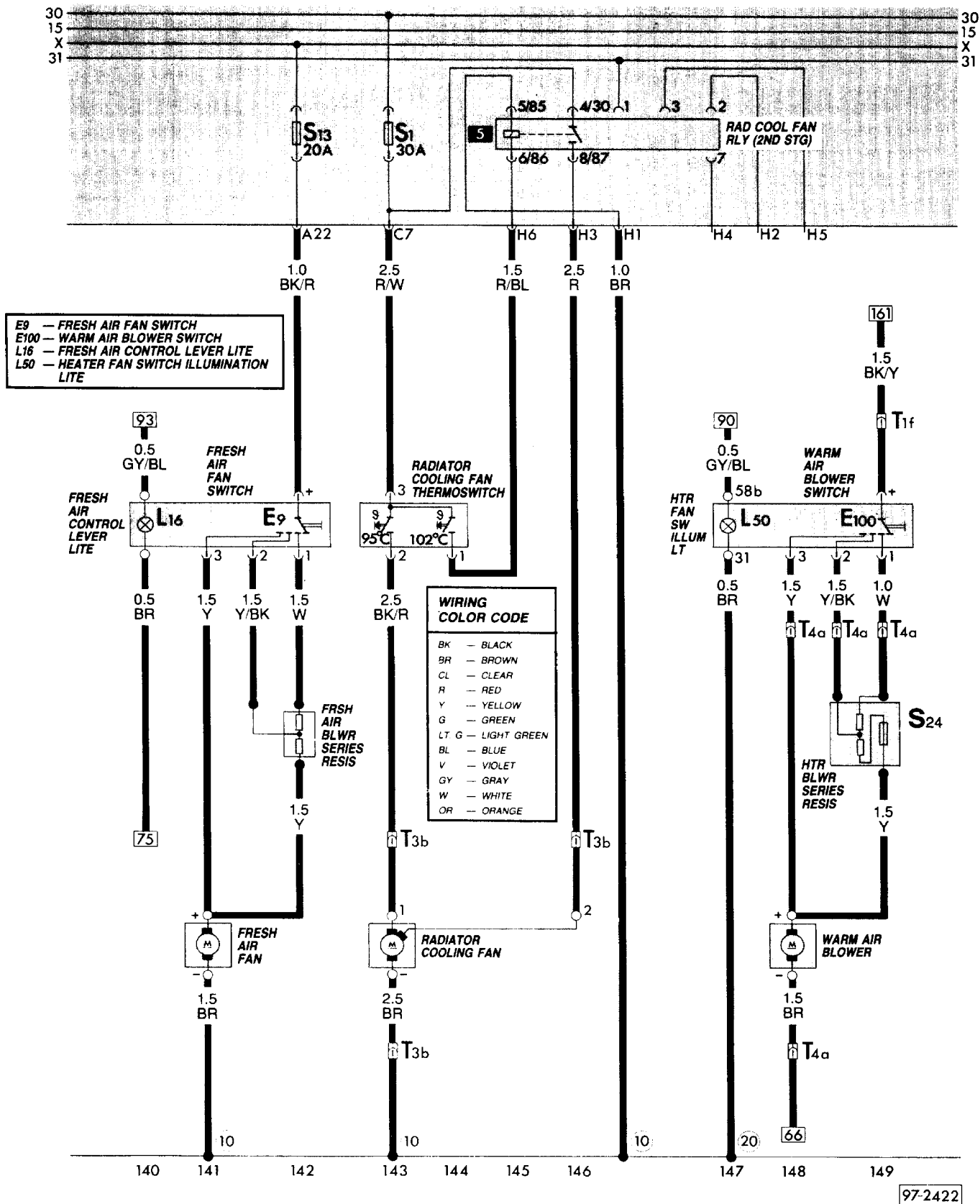
97 Electrical System - Wiring, Waterboxer



97.102

Main wiring diagram
Indicator lights
from VIN G 055 690

Water-cooled—Digifant 1986

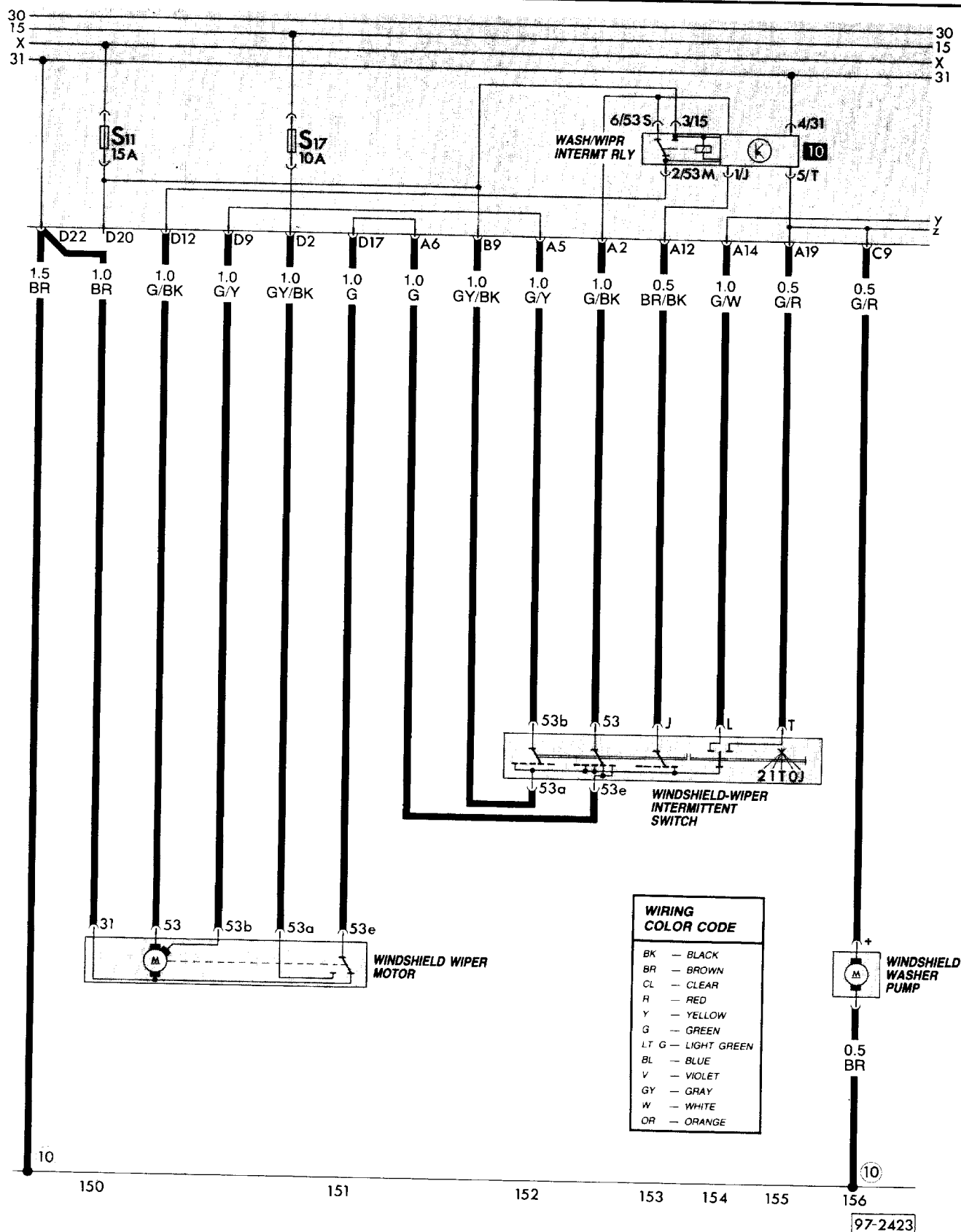


Water-cooled—Digifant 1986

Main wiring diagram
Fans
from VIN G 055 690

97.103

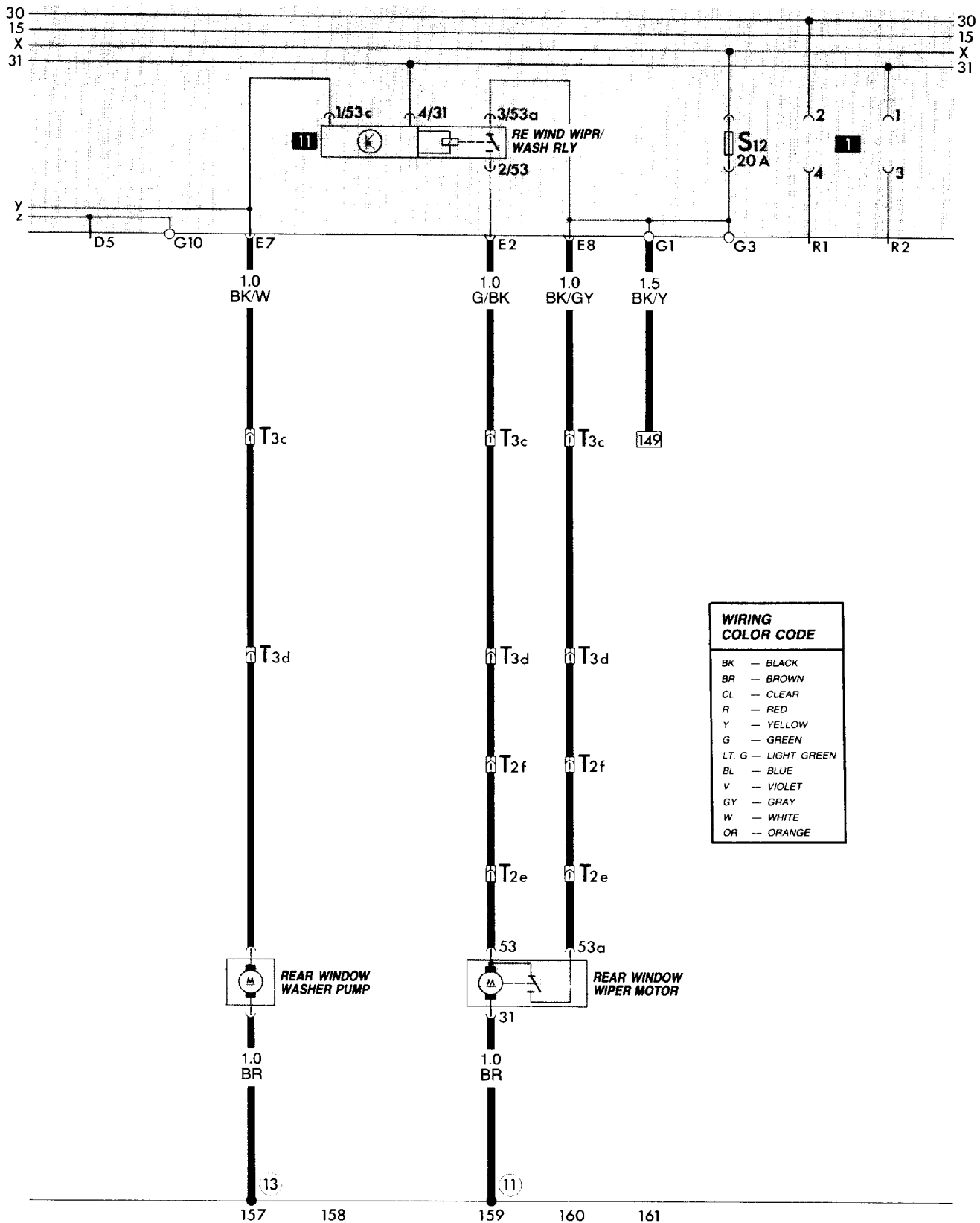
97 Electrical System - Wiring, Waterboxer



97.104

Main wiring diagram
Windshield wipers
from VIN G 055 690

Water-cooled—Digifant 1986



97-2424

Water-cooled—Digifant 1986

Main wiring diagram
Rear window wiper
from VIN G 055 690

97.105

97 Electrical System - Wiring, Waterboxer

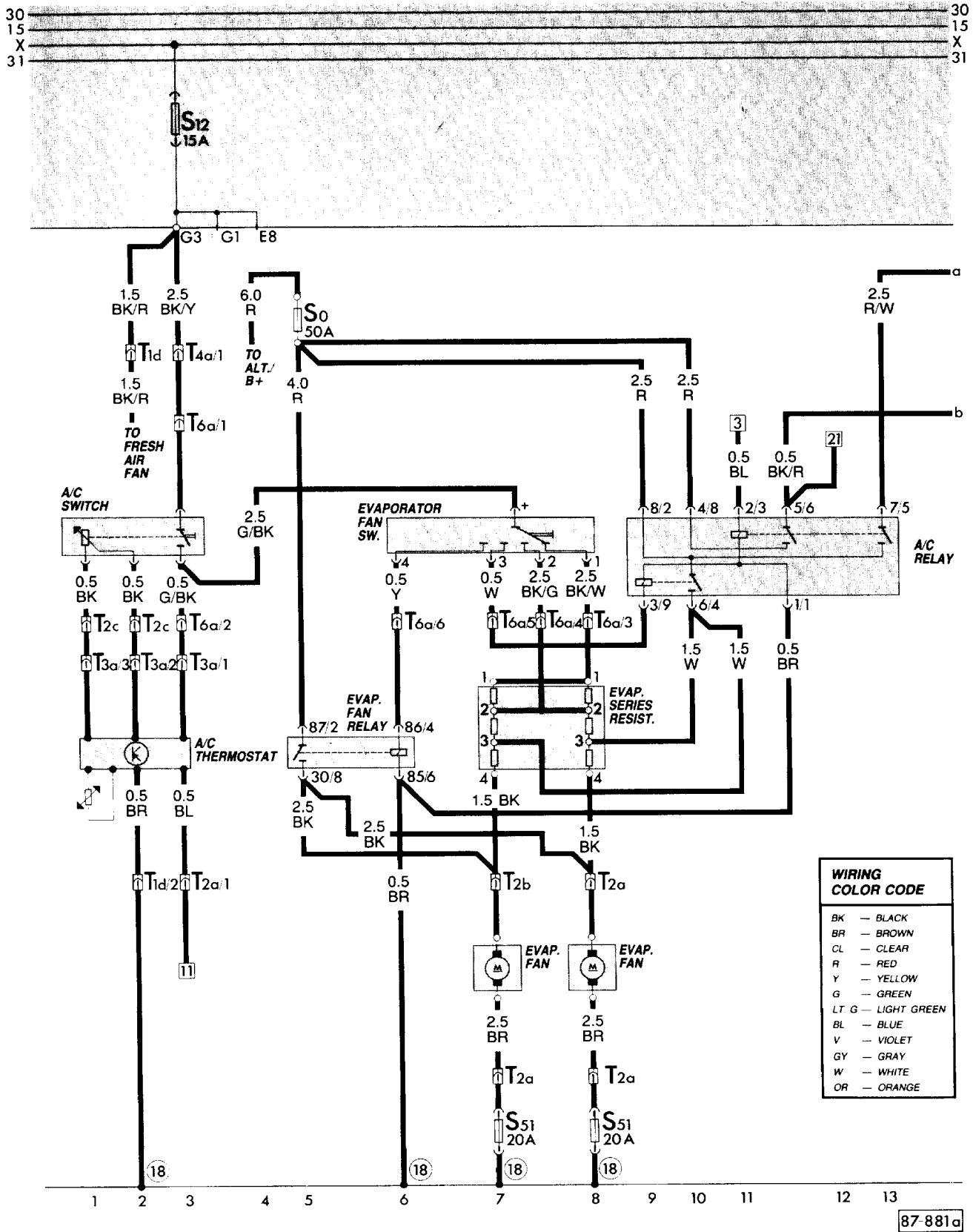
Description	Current Track
A/C compress. clutch	15
A/C compress. clutch relay	15-17
A/C refrig. high press. sw.	14
A/C refrig. low press. sw.	15
A/C switch	1-3
A/C thermostat	1-3
Ambient air temp. sw.	15
Evap. fan	7-8
Evap. fan sw.	6-8
Evap. fan relay	5-6
Evap. series resistance	7-8
Rad. cool fan	20
Rad. cool fan relay 2 nd stage	21-23
Rad. cool fan relay 3 rd stage	18-20
Rad. cool fan resistance	22
Rad. cool fan thermostwitches	18-20

Wire Connectors

T1 — single, behind instrument panel
T1a — single, in engine compartment
T1b — single, behind instrument panel
T1c — single, behind instrument panel
T1d — single, behind instrument panel
T2 — double, left rear C-pillar
T2a — double, left rear C-pillar
T2b — double, on evaporator
T2c — double, left rear C-pillar
T2e — double, left rear C-pillar
T2f — double, at A/C compress. clutch
T2g — double, left rear C-pillar
T2h — double, left rear C-pillar
T3a — three-point, left rear C-pillar
T4a — four-point, in air duct
T6a — six-point, in left rear C-pillar

Ground Connections

- ⑩ — near fuse/relay panel
- ⑱ — near left rear C-pillar



97



Description	Current Track
Brake lite, left	1
Brake lite, right	3
Brake lite, switch	2-3
Cruise control main control	4-9
Cruise control switch	5-9
Inductive sender	6
Vacuum control motor	8-10
Vacuum vent valve, brake pedal	4
Vacuum vent valve, clutch pedal	4

Wire Connectors

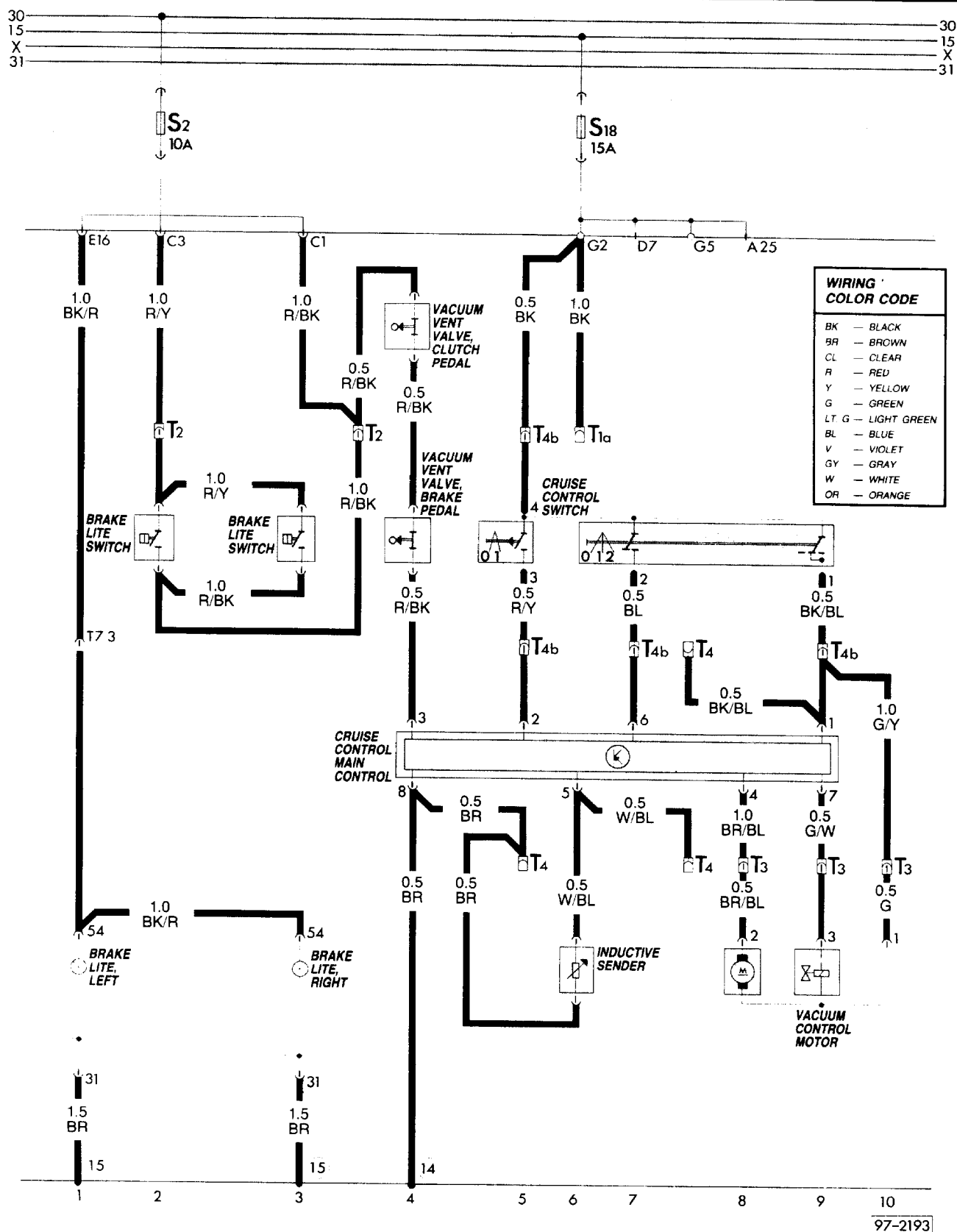
T1a — single, under instrument panel
T2 — double, under instrument panel
T3 — three-point, in eng. compart.
T4 — four-point, near cruise control main control
T4b — four-point, under instrument panel
T7/ — seven-point, in wire distributor box

Ground Connections

- ⑭ — under instrument panel
- ⑮ — in eng. compart., under coil

Go to next page ➡

97 Electrical System - Wiring, Waterboxer



97-2193

Description	Current track
Automatic transmission console lite	4,5
Automatic transmission relay	12,13
Back-up lite, left	7
Back-up lite, right	6
Brake lite switch	9,10
Brake lite, left	8
Brake lite, right	9
Cruise control inductive sender	16
Cruise control switch	15-17
Cruise control, main control unit	14-18
Starter	2,3
Starter cut-out/back-up lite switch	3,4
Vacuum control motor	17,18
Vacuum vent valve, brake	11

Wire connectors

T1 — single, under instrument panel
 T1a — single, under instrument panel
 T1c — single, eng. compart., near starter
 T1f — single, in wire distributor
 T2 — double, under instrument panel
 T2a — double, under instrument panel
 T2b — double, under instrument panel
 T3 — three point, in eng. compartment
 T3a — three point, under instrument panel
 T4 — four point, near cruise control main control
 T4b — four point, under instrument panel
 T7/ — seven point, in wire distributor box

Ground connections

⑨ — under instrument panel
 ⑫ — on left front crossmember
 ⑮ — in eng. compart., under ign. coil

Go to next page ➡

97



Cruise control

Auto. trans.

Water-cooled—Digifant 1986



97.113

97 Electrical System - Wiring, Waterboxer

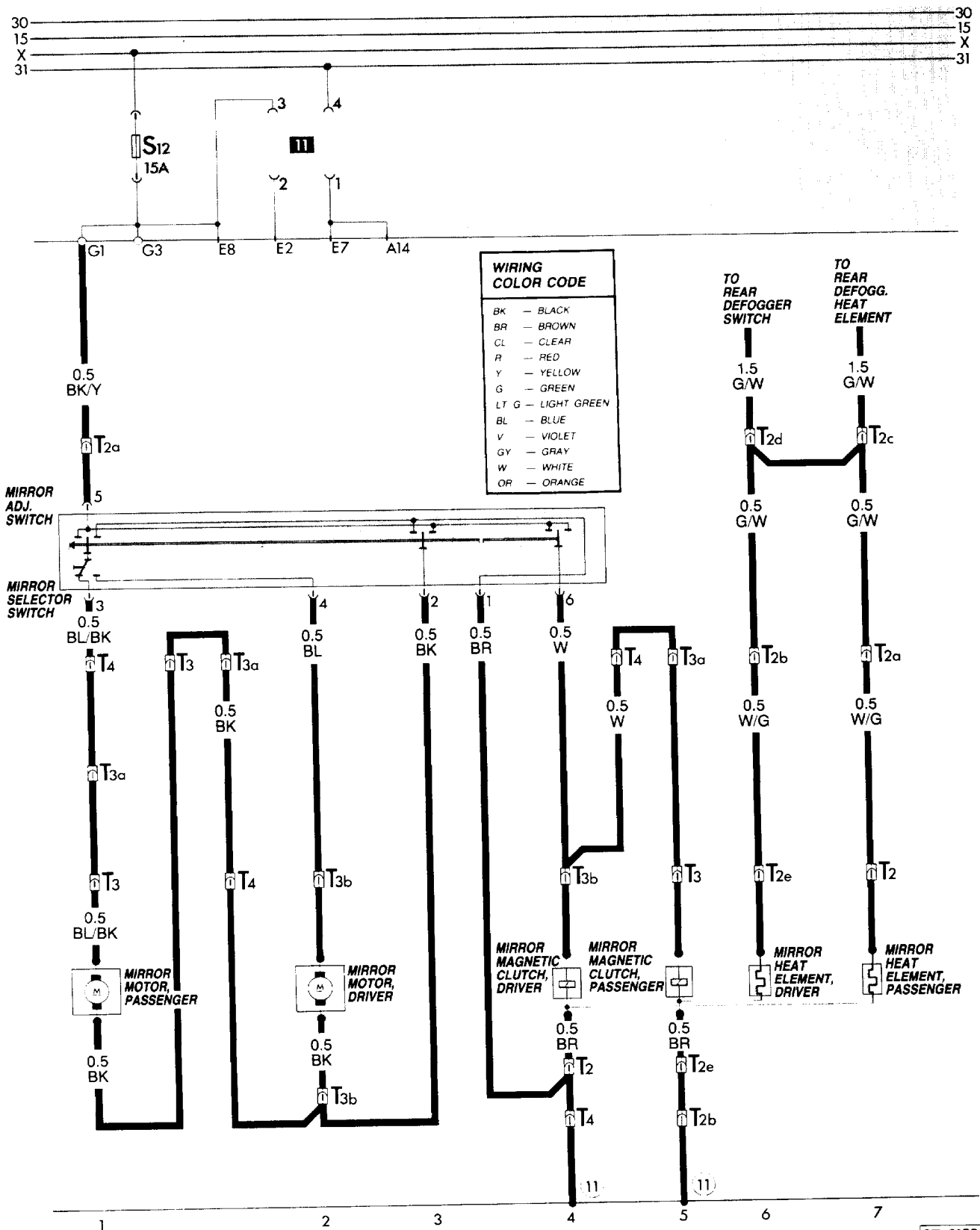
Description	Current Track
Mirror adj. switch	1-4
Mirror heat element, driver	6
Mirror heat element, passenger	7
Mirror magnetic clutch, driver	4
Mirror magnetic clutch, passenger	5
Mirror motor, driver	2
Mirror motor, passenger	1
Mirror selector switch	1-2

Wire connectors

T2 — double, in driver door
T2a — double, under instrument panel
T2b — double, under instrument panel
T2c — double, under instrument panel
T2d — double, under instrument panel
T2e — double, in passenger door
T3 — three-point, in passenger door
T3a — three-point, under instrument panel
T3b — three-point, in driver door
T4 — four-point, under instrument panel

Ground connector

⑪ — under instrument panel



97-2192

Water-cooled—Digifant 1986

Power mirrors
up to VIN G 105 000

97.115

97 Electrical System - Wiring, Waterboxer

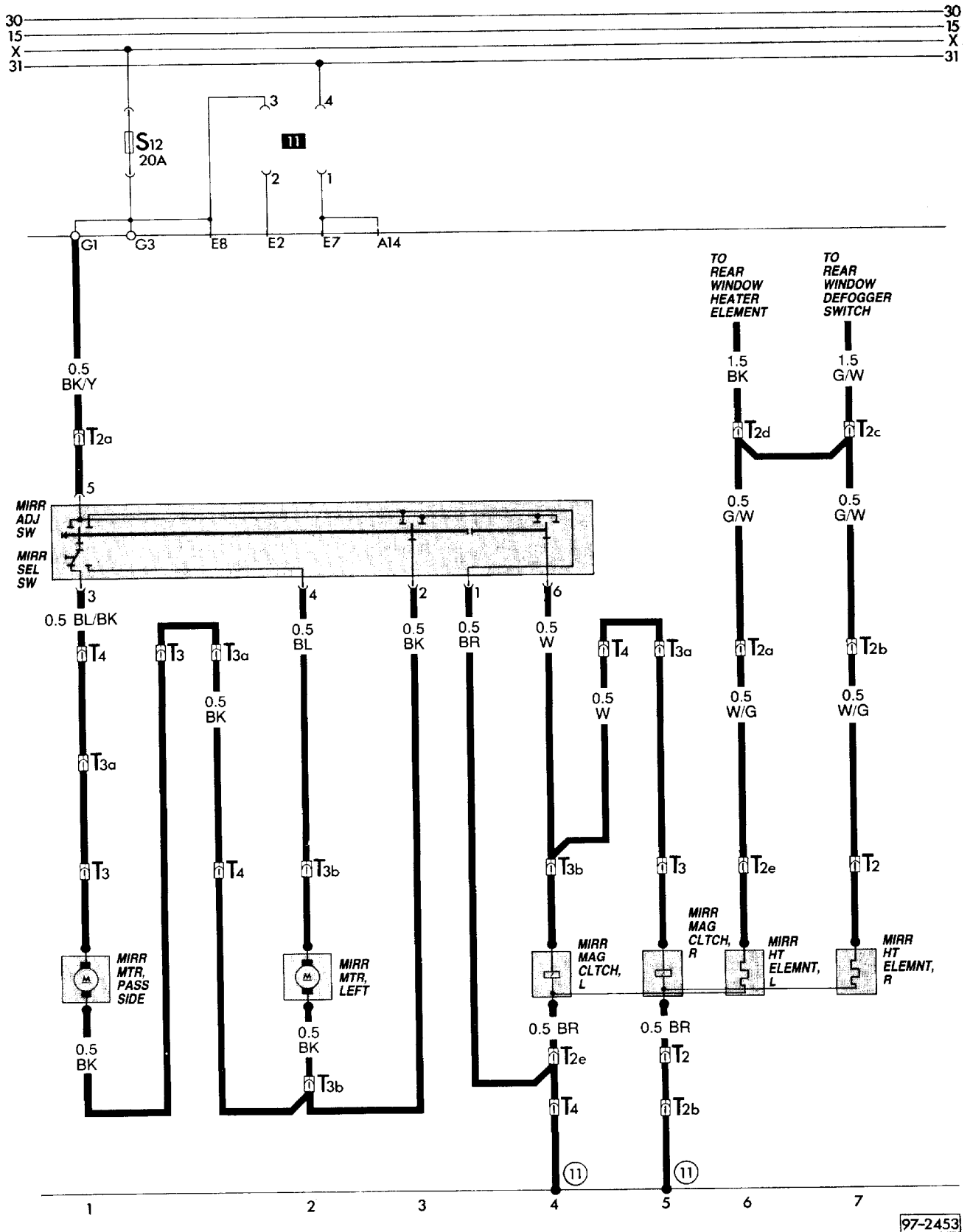
Description	Current track
Mirror adjustment switch	1-4
Mirror heat element, left	6
Mirror heated element, right	7
Mirror magnetic clutch, left	4
Mirror magnetic clutch, right	5
Mirror motor, left	2
Mirror motor, passenger side	1
Mirror selector switch	1,2

Wire connectors

T2 — double, in passenger door
T2a — double, under instrument panel
T2b — double, under instrument panel
T2c — double, under instrument panel
T2d — double, under instrument panel
T2e — double, in driver door
T3 — three point, in passenger door
T3a — three point, under instrument panel
T3b — three point, in driver door
T4 — under instrument panel

Ground connections

⑪ — under instrument panel



97 Electrical System - Wiring, Waterboxer

Description	Current Track
Auto trans. console lites	1-2
Back-up lite, left	3
Back-up lite, right	5
Brake lite, left	2-3
Brake lite, right	5-6
Neutral safety/back-up lite sw.	2-5
Side marker lite, LR	1
Side marker lite, RR	8
Tail lite, left	2
Tail lite, right	7
Turn sig., LR	2-3
Turn sig., RR	6

Wire Connectors

T1b — single, wire distributor, eng. compart.

Ground Connections

⑫ — on sub-frame, LF

⑮ — eng. compart., under ignition coil



97 Electrical System - Wiring, Waterboxer

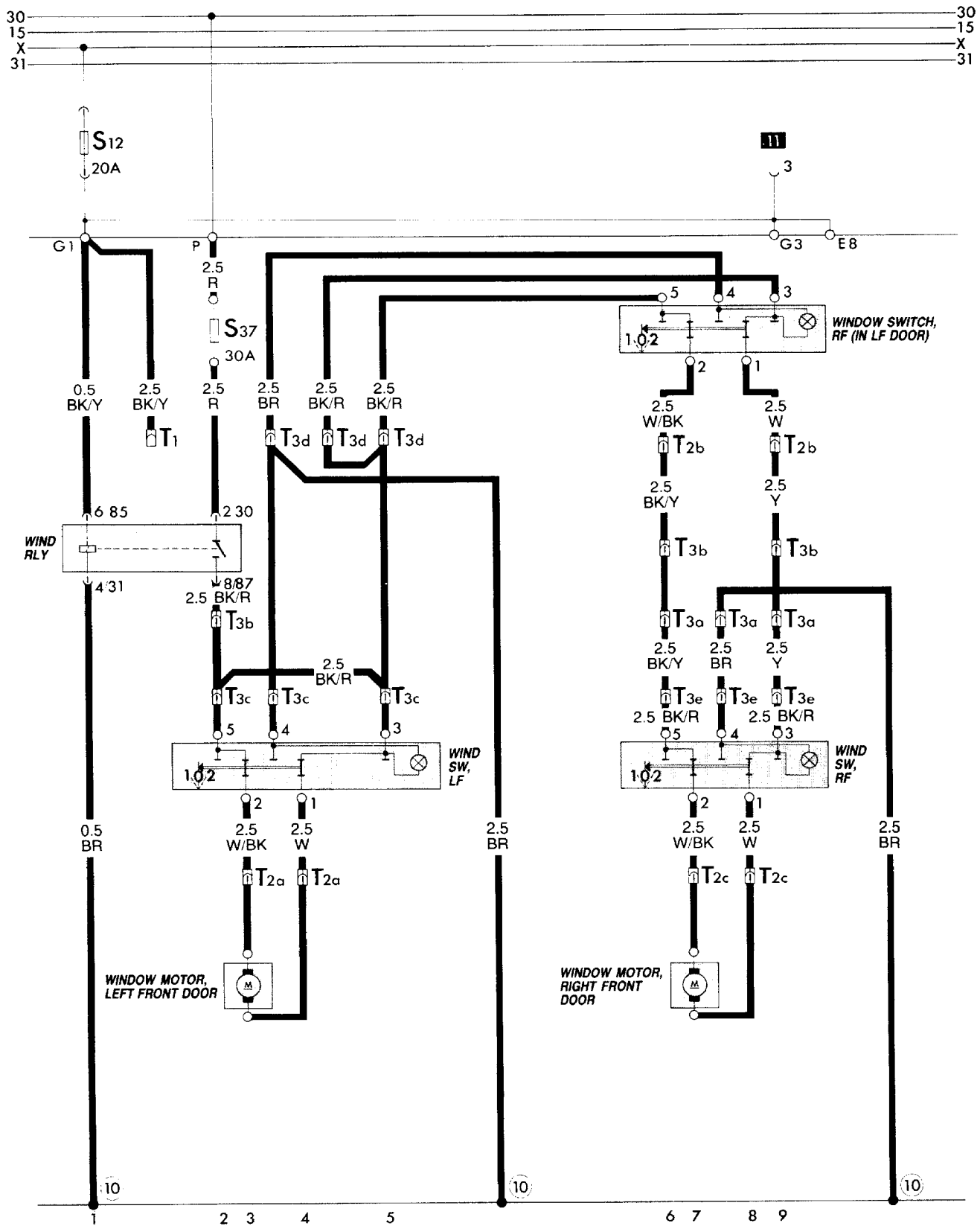
Description	Current track
Window motor, left front door	3
Window motor, right front door	7
Window relay	1,2
Window switch, left front	2-5
Window switch, RF (in LF door)	6-9
Window switch, right front	6-9

Wire connectors

T1 — single, under fuse/relay panel
T2a — double, in driver door
T2b — double, in driver door
T2c — double, in passenger door
T3a — three-point, in passenger door
T3b — three-point, in driver door
T3c — three-point, in driver door
T3d — three point, in driver door
T3e — three point, in passenger door

Ground connections

⑩ — near fuse/relay panel



97-2460

97 Electrical System - Wiring, Waterboxer

Description	Current Track
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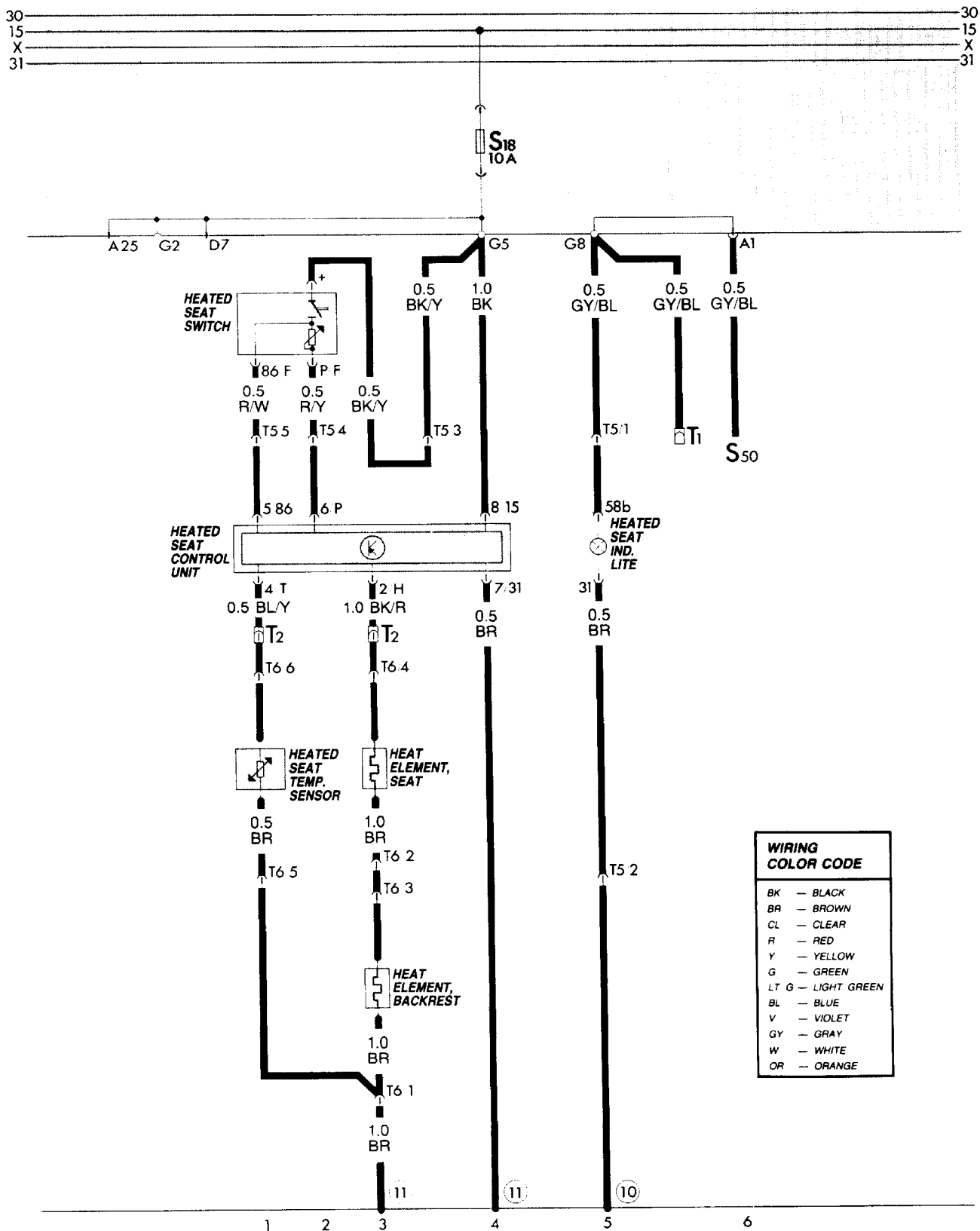
Heated seat control unit	1-4
Heated seat indicator lite	5
Heated seat switch	1-2
Heated seat temp. sensor	1
Heat element, backrest	3
Heat element, seat	3

Wire connectors

- T1 — single, behind instrument panel
- T2 — double, behind instrument panel
- T5/ — five-point, behind instrument panel
- T6/ — six-point, behind instrument panel

Ground connections

- ⑩ — behind inst. panel, near fuse/relay panel
- ⑪ — behind instrument panel



97-2191

Water-cooled—Digifant 1986

Heated driver's seat

97.123

97 Electrical System - Wiring, Waterboxer

Description	Current Track
-------------	---------------

Antenna	3
Balance control	9-12
Cigar lighter	1
Cigar lighter lite	5-6
Radio	4-8
Speaker, LF	12
Speaker, LR	11
Speaker, RF	9
Speaker, RR	10

Wire connectors

T2 — double, behind instrument panel
T2a — double, behind instrument panel
T2b — double, behind instrument panel
T2c — double, behind instrument panel
T3 — three-point, behind instrument panel

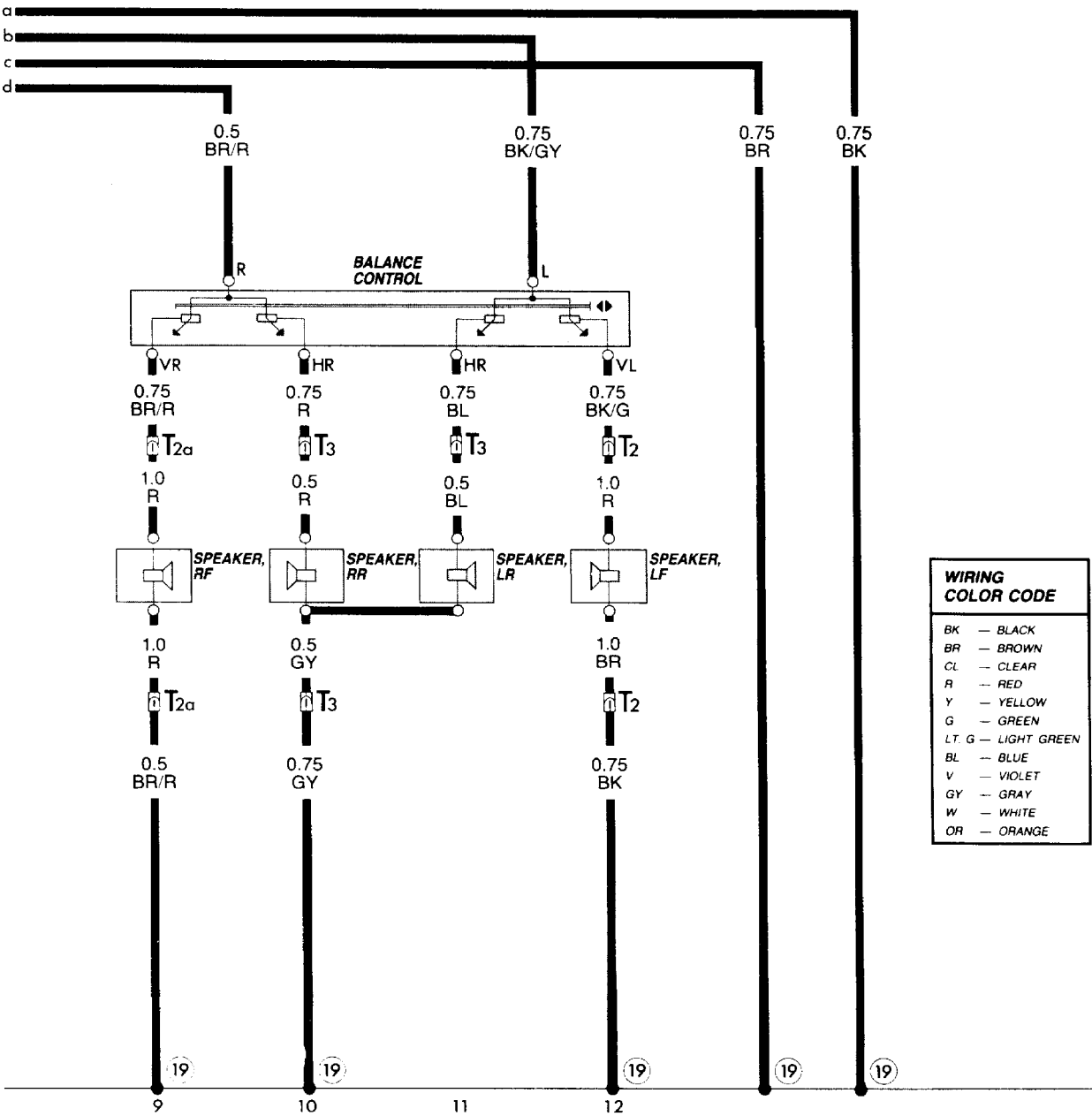
Ground connections

①9 — in balance control wiring harness



97 Electrical System - Wiring, Waterboxer

30		30
15		15
X		X
31		31



97-2294

97.126

Radio

Water-cooled—Digifant 1986

Description	Current Track
Heat element (crankcase vent)	4
Ignition coil	2-3

Wire connectors

- T1 — single, eng. compartment
- T2 — double, wire distributor, eng. compart, LF
- T2a — double, under rear seat, left
- T3 — three-point, under rear seat, right

Ground connections

- ①6 — on left cylinder head

97



Description	Current track
Door lock contact, sliding door	9-11
Lock motor, driver door	1,2
Lock motor, passenger door	7,8
Lock motor, rear door	12, 13
Lock motor, sliding door	9-11

Wire connectors

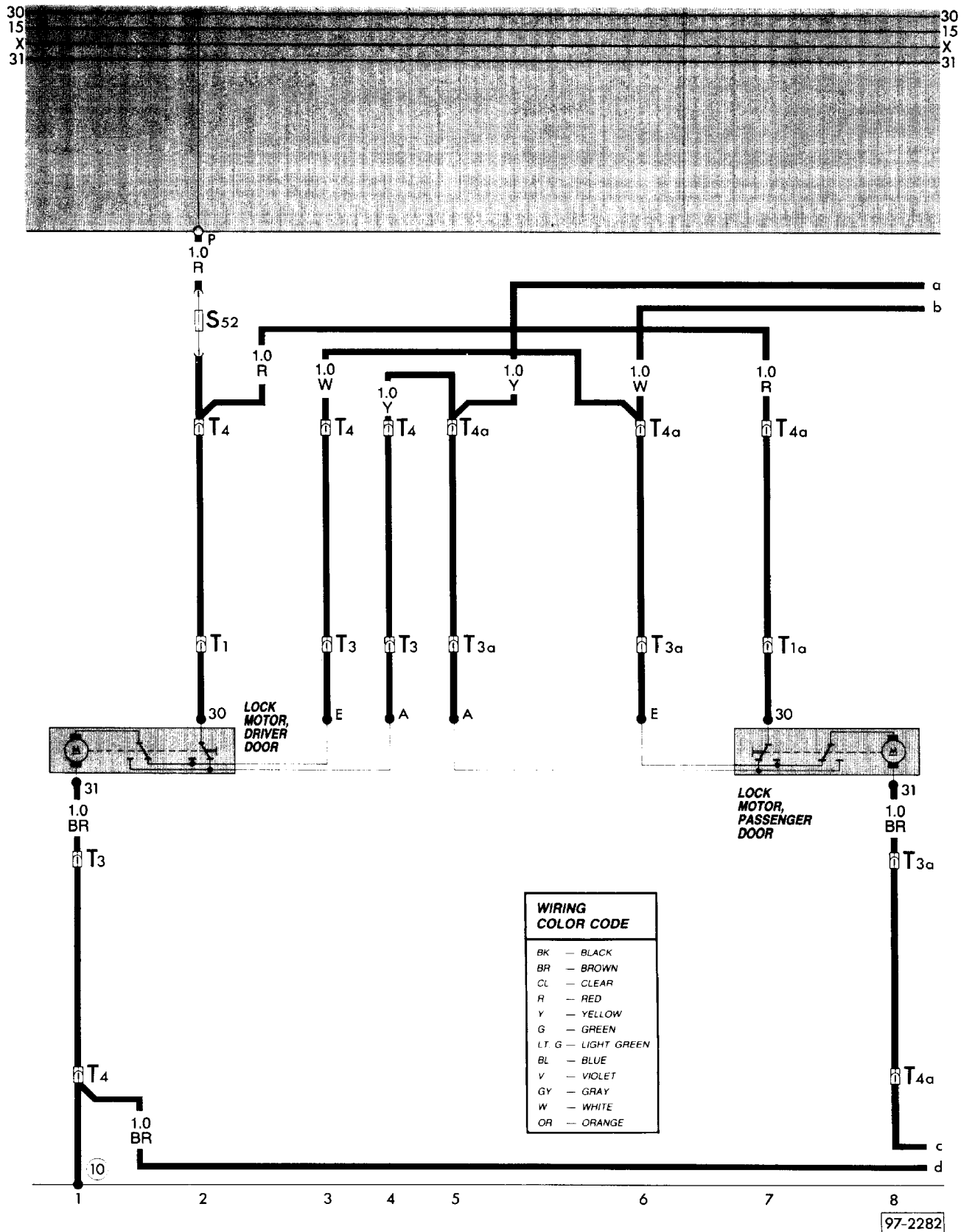
T1 — single, in driver door
T1a — single, in passenger door
T3 — three point, in driver door
T3a — three point, in passenger door
T3b — three point, under instrument panel
T3c — three point, in sliding door
T3d — three point, in rear door
T4 — four point, under instrument panel
T4a — four point, under instrument panel

Ground connector

⑩ — under instrument panel

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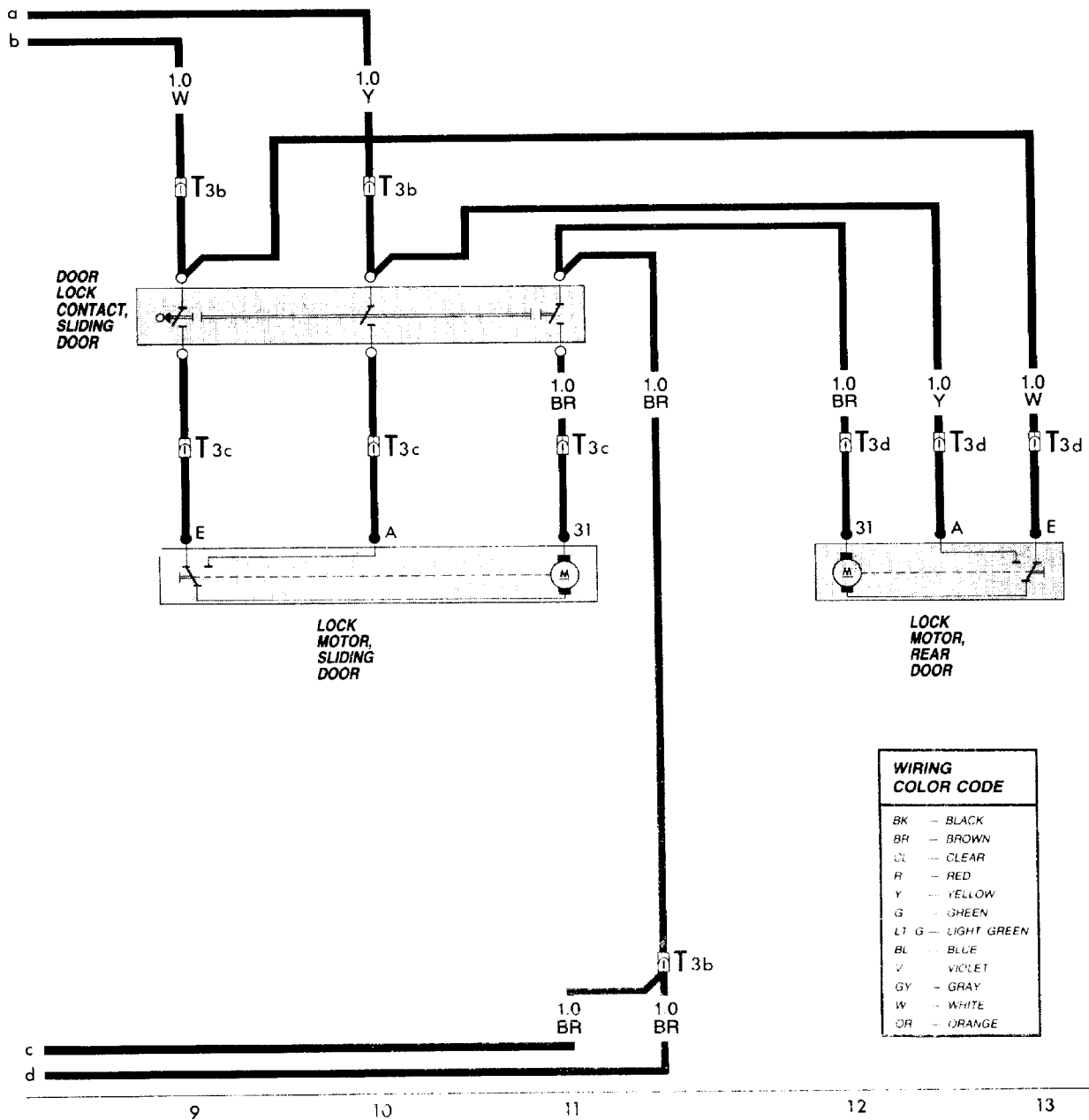
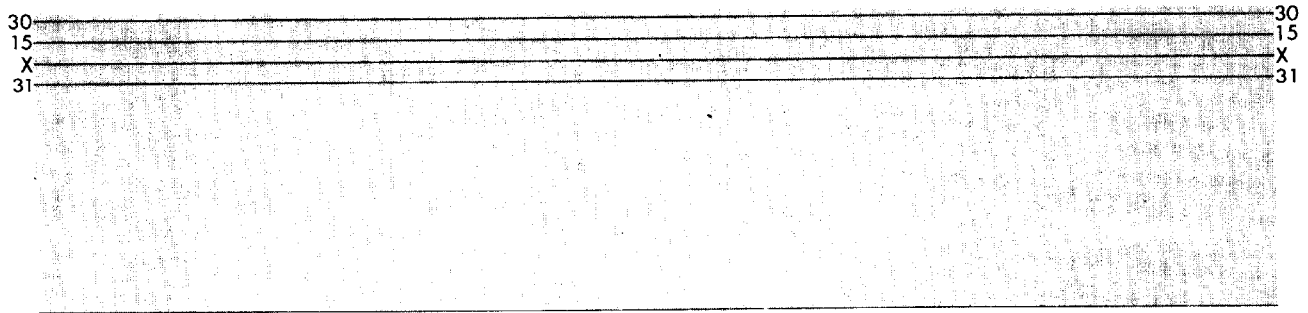
97 Electrical System - Wiring, Waterboxer



97.130

Central locking system

Water-cooled—Digifant 1986



97-2283

Description	Current track	Wire connectors
By-pass air blower	7	T1a — single, under instrument panel T2 — double, on fresh air blower
Combustion air blower	10	T4a — four-point, under instrument panel
Combustion air blower suppressor	12	T4b — four-point, under instrument panel
Fuel pump	9	Ground connections
Fuel pump contact breaker	9	⑧ — near fuse/relay panel
Glow/spark plug	13,14	⑱ — on crossmember near fuel pump
Glowplug/heater condenser	14	
Heater contact breaker	12	
Heater indicator lite	3	
Heater relay	8-11	
Heater relay	5-7	
Heater-time temperature control switch	1-4	
Heater/combustion sensor	11-13	
Heater/overheat control switch	8	
Ignition coil	12	
Main suppressor	7	
Safety switch (relay)	15,16	
Temperature sensor (NTC)	17	

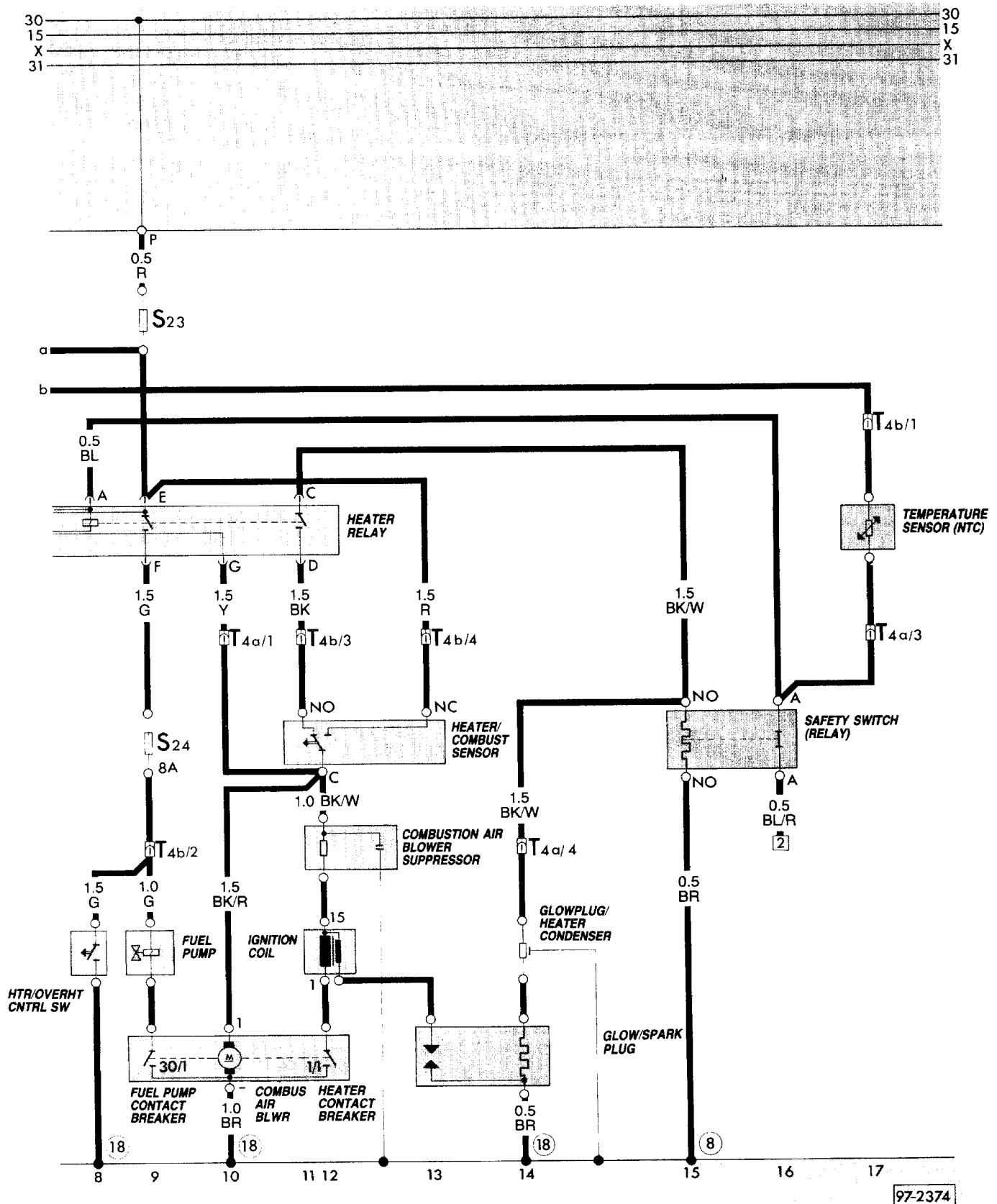
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97



Auxiliary heater

Water-cooled—Digifant 1986



Canada

Water-cooled—Digifant 1986

Auxiliary heater

97.135

97 Electrical System - Wiring, Waterboxer

Description	Current track
Differential lock indicator lite	2
Differential lock switch	2

Wire connectors

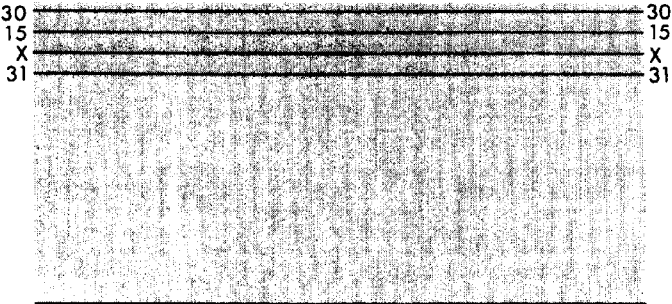
- T3 — three point, under instrument panel
- T3a — three point, under inst. panel, near fuse/relay panel

Ground connections

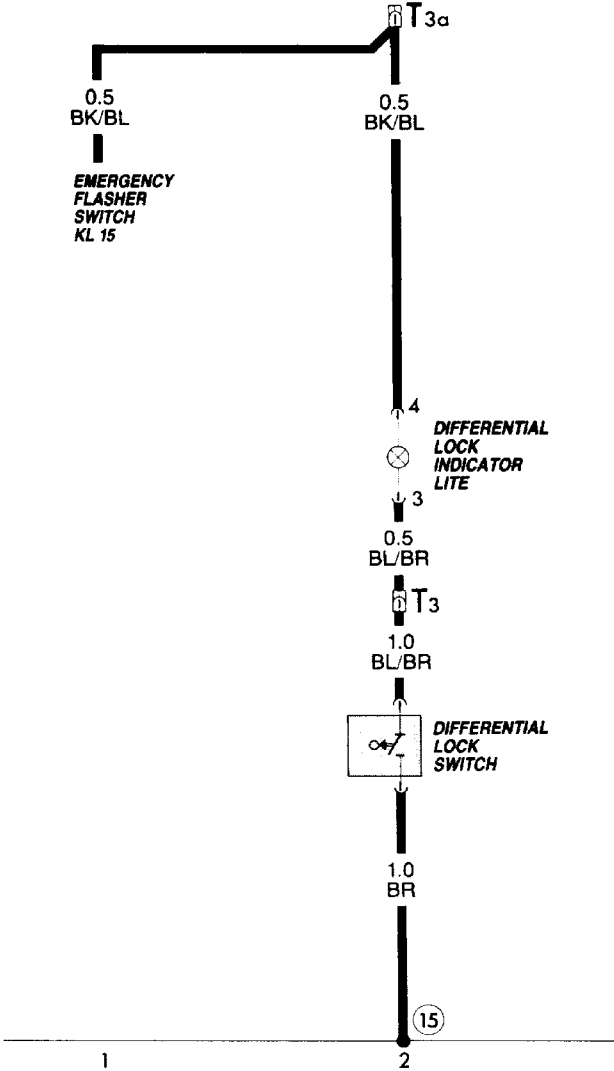
- (15) — in eng. compart, under ign. coil

Note

Differential switches on instrument panel are vacuum operated and do not appear on the wiring diagram.



WIRING COLOR CODE	
BK	— BLACK
BR	— BROWN
CL	— CLEAR
R	— RED
Y	— YELLOW
G	— GREEN
LT. G	— LIGHT GREEN
BL	— BLUE
V	— VIOLET
GY	— GRAY
W	— WHITE
OR	— ORANGE



97-2333

97.136

Differential lock

Syncro

Water-cooled—Digifant 1986

Description	Current Track
Alternator	6
Auto trans. console lites	13-14
Auxiliary battery	2
Back-up lite, left	15
Back-up lite, right	17
Battery	1
Battery cut-out relay	2-4
Ign./start sw.	9-12
Neutral safety switch	15-17

Wire connectors

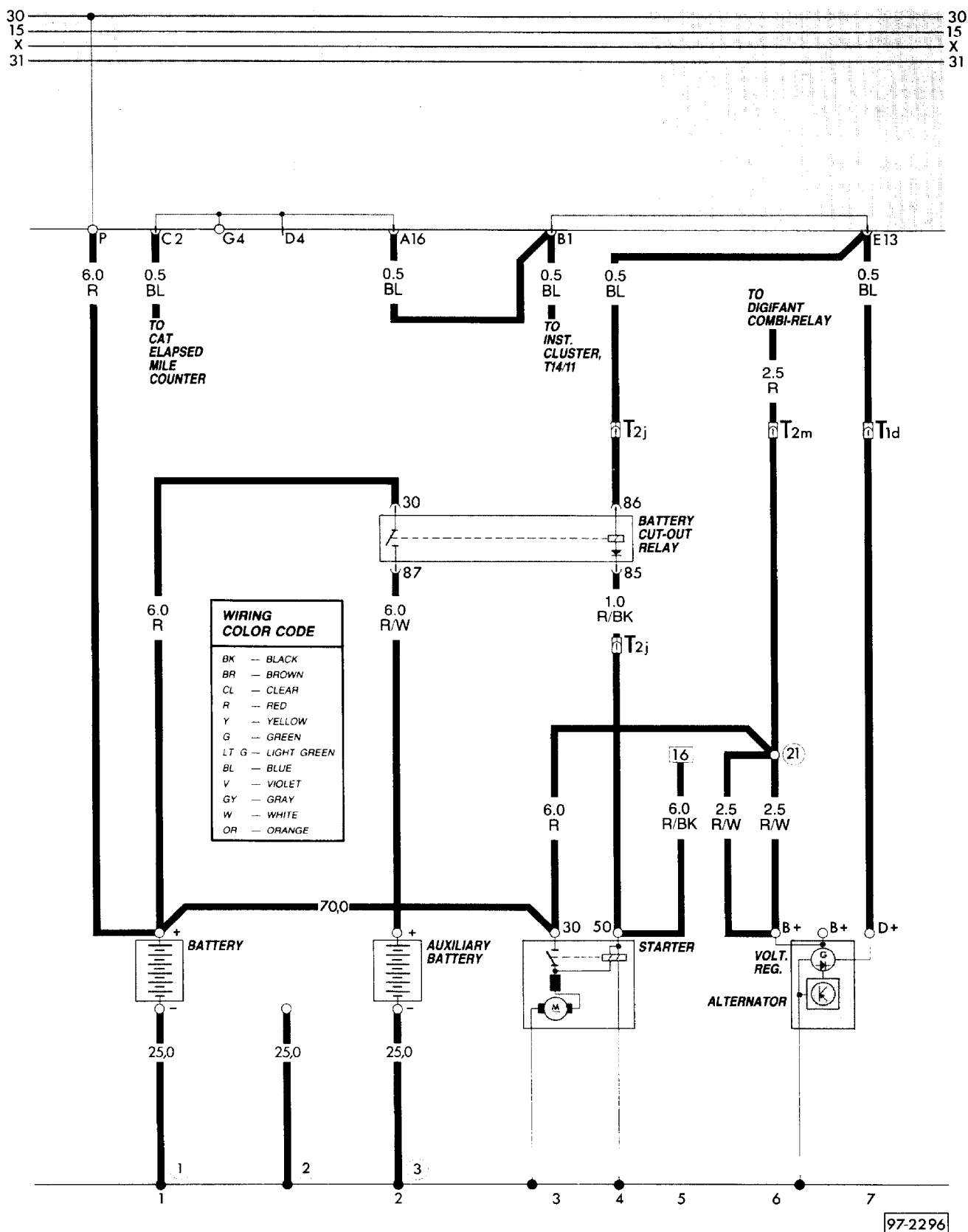
T1b — single, wire distributor, LF eng. compart.
 T1d — single, wire distributor, LF eng. compart.
 T2j — double, under fuse/relay panel
 T2m — double, under fuse/relay panel
 T7a/ — seven-point, wire distributor, LF eng. compart.
 T14/ — fourteen-point, on inst. cluster

Ground Connections

- ① — ground from battery to body
- ② — ground from transmission to body
- ③ — ground from aux. battery to ground
- ⑫ — on LF cross member
- ⑮ — in eng. compart. near ign. coil

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97 Electrical System - Wiring, Camper



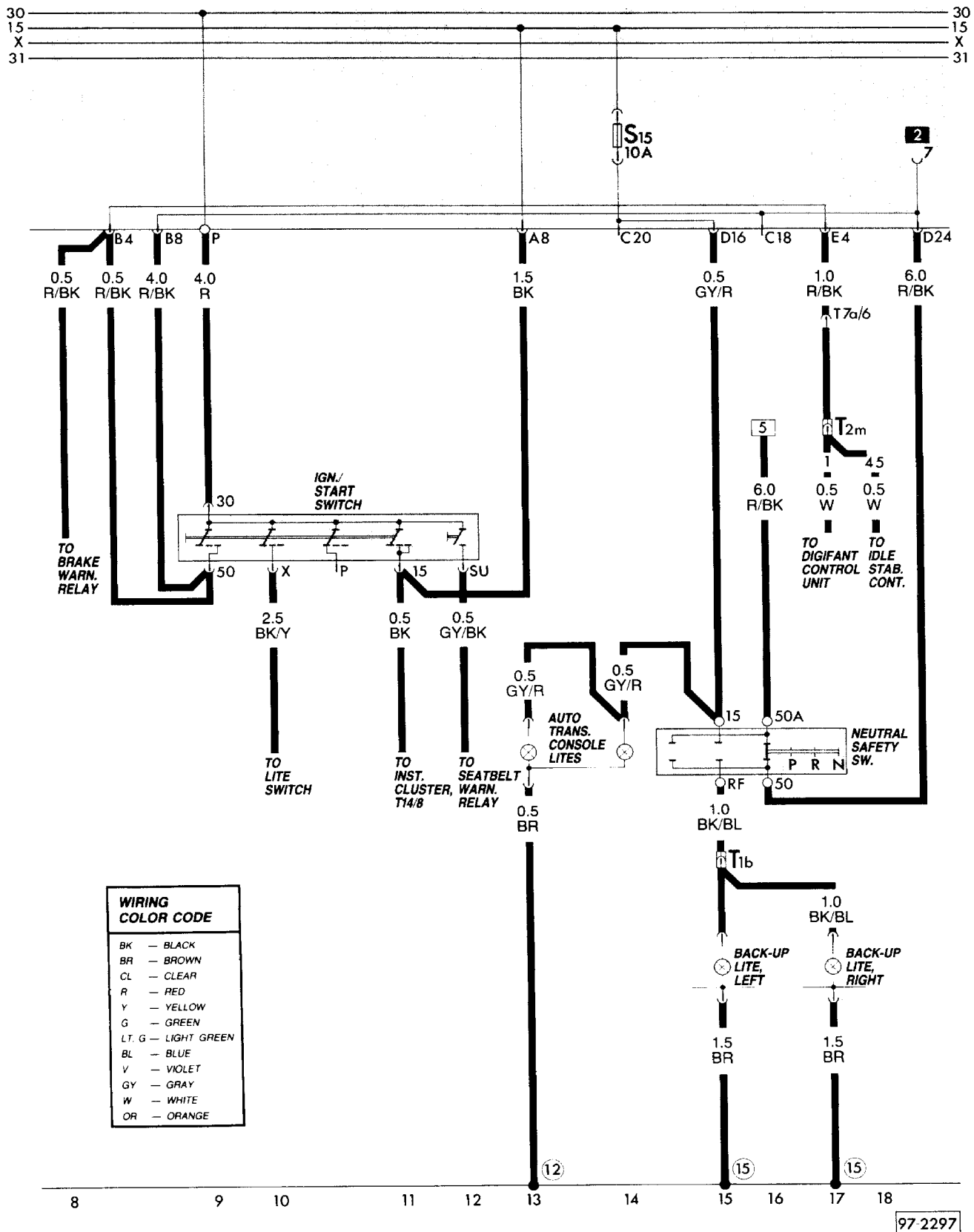
97-2296

97.138

Auxiliary battery

Auto. trans.

Camper 1986



Auto. trans.

Camper 1986

Auxiliary battery

97.139

97 Electrical System - Wiring, Camper

Description	Current Track
Alternator	6
Auxiliary battery	2
Battery	3
Battery cut-out relay	1-2
Ignition/start switch	12-15
Starter	4-5
Voltage regulator	6-7

Wire connectors

T1d — single, wire distributor, LF eng. compart.
T2k — double, under fuse/relay panel
T2m — double, under fuse/relay panel
T7a — seven point, wire distributor, LF eng. compart.
T14/ — fourteen point, on inst. cluster

Ground Connections

- ① — ground from battery to body
- ② — ground from transmission to body
- ③ — ground from aux. battery to body



97.141

97



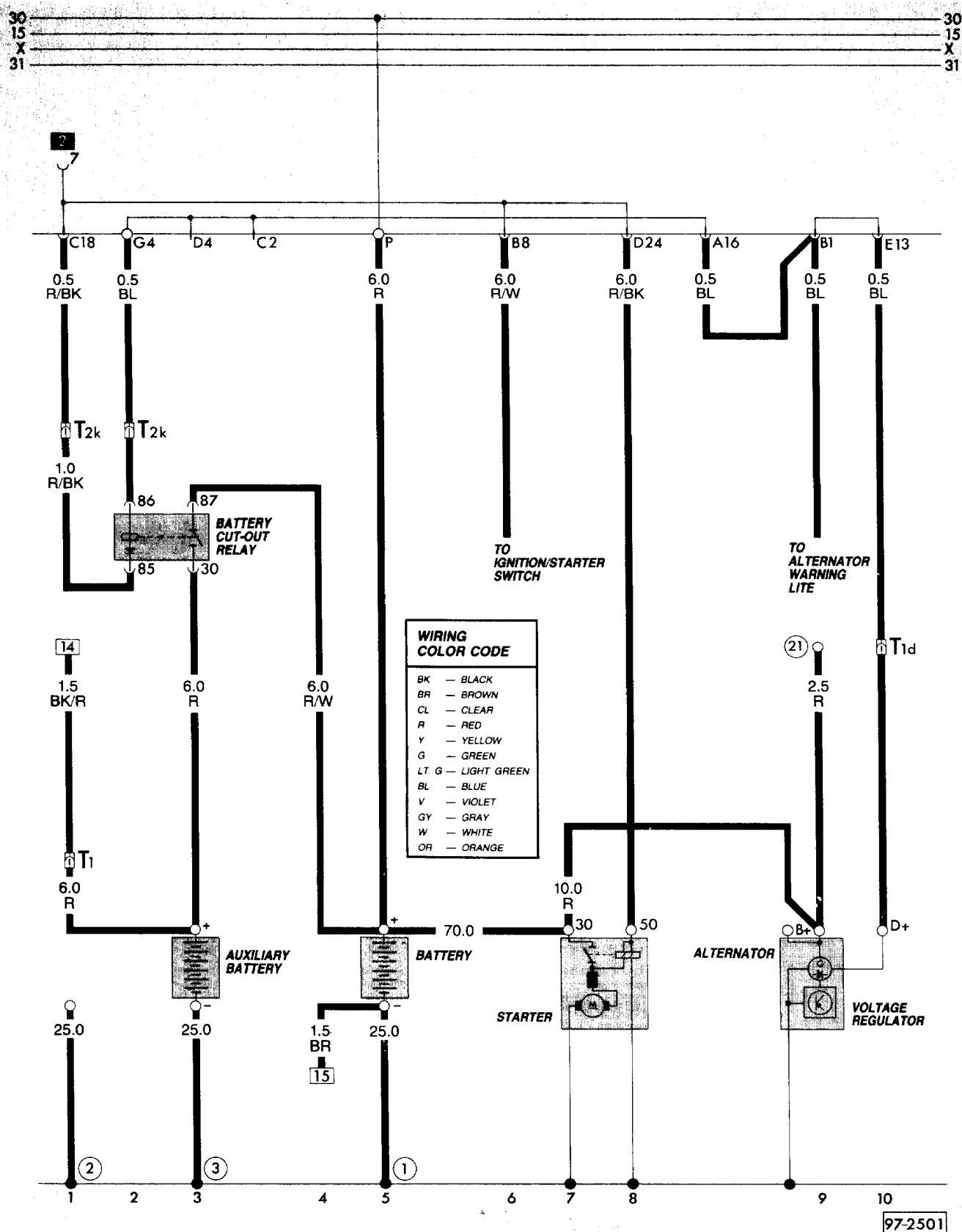
Auxiliary battery

Camper 1986

Description	Current track	Wire connectors
Alternator	9,10	T1 — single, near auxiliary battery
Auxiliary battery	3	T1a — single, under instrument panel
Battery	5	T1d — single, wire distributor, engine compart.
Battery cut-out relay	2,3	T2c — double, under instrument panel
Door contact switch, left front	20	T2k — double, under driver seat
Door contact switch, right front	24	T6/ — six-point, in refrigerator
Flourescent lite	16	Ground connections
Interior lite, front	19,20	① — ground cable from battery to body
Rear window defogger indicator lite	23	② — ground cable from trans. to body
Rear window defogger switch	24	③ — ground cable from aux. battery to body
Rear window defogger switch lite	22	⑤ —
Rear window heater element	24	⑨ — ground in rear deck lid, right
Refrigerator 12 Volt resistance	14	⑩ — near fuse/relay panel
Refrigerator 120V connector	11-13	⑳ — in inst. panel wiring harness
Refrigerator 12V connector	14,15	
Refrigerator 220/110 Volt resistance	13	
Refrigerator fan thermoswitch	12	
Starter	7,8	Plus connections
Voltage regulator	9	㉑ — in wire distributor, eng. compart.

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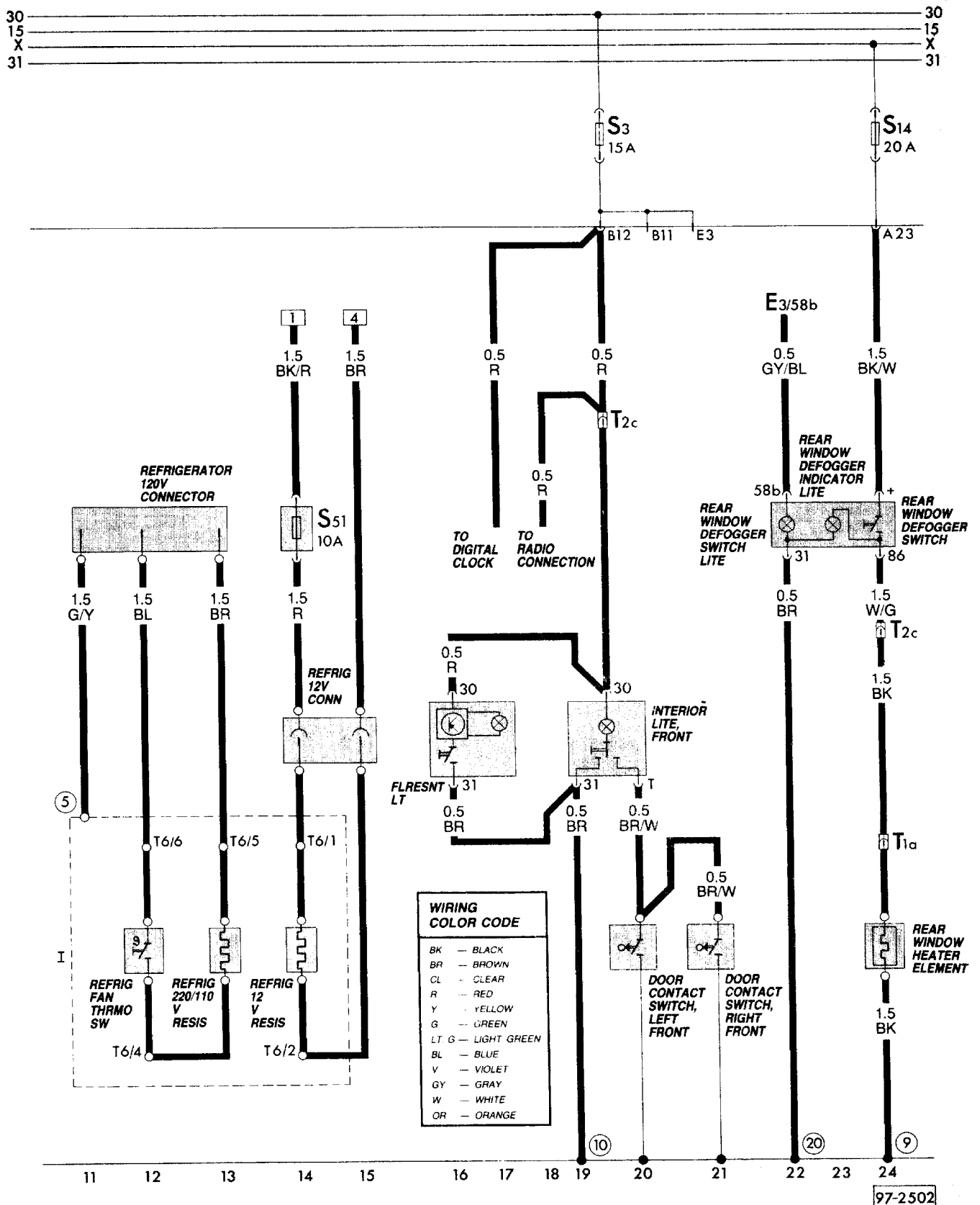
97 Electrical System - Wiring, Camper

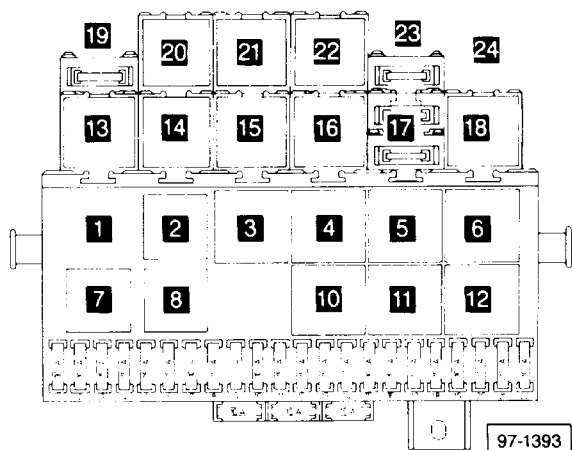


97.144

Refrigerator

Camper 1986





Fuse arrangement

according to numbers on fuse panel as seen from left to right:

	Amp.
1 Radiator fan	30
2 Stop lights	10
3 Cigarette lighter, radio, clock, interior lights, central locking system	10
4 Emergency flasher system	15
5 Electric fuel pump	15
6 Vacant	
7 Tail, parking and side marker lights, left ...	10
8 Tail, parking and side marker lights, right ...	10
9 High beam right, high beam indicator light ...	10
10 High beam left	10
11 Wind. wipers and washer	15
12 Heated seats, outside rear view mirror adjustment	15
13 Rear window defogger, heated rear view mirror	15
14 Fresh air fan, glove compartment light	20
15 Back-up lights, shift console light (Auto. Transmission)	10
16 Horn (single tone)	15
17 Vacant	
18 Dual horn, coolant level and temp. warning light	10
19 Turn signals, brake warning light	10
20 License plate lights	10
21 Low beam left	10
22 Low beam right	10

CAUTION

Relay locations are subject to change and may vary from vehicle to vehicle depending on options.

Use extreme care when troubleshooting the electrical system.

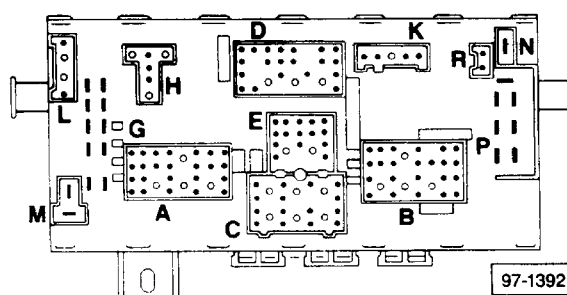
If you encounter problems identifying a particular relay, consult your Parts Department.

Separate fuses above fuse panel

Power windows	30
A/C	30

Fuse/Relay Panel

- 3** — coolant low-level control unit
- 5** — rad. cool. fan relay, 2nd stage
- 8** — load reduction relay
- 10** — intermitt. wash/wiper relay
- 11** — rear window wash/wiper intermitt. relay
- 12** — emerg. flash/turn sig. relay
- 16** — fuse, terminal 56b



Connections and plugs on fuse/relay panel

- A — multi-point connector (blue) for instrument panel wiring harness
- B — multi-point connector (red) for instrument panel wiring harness
- C — multi-point connector (yellow) for front wiring harness
- D — multi-point connector (white) for windshield wiper and main wiring harness
- E — multi-point connector (black) for main wiring harness
- G — single connector
- H — multi-point connector (brown) to connector for rad. cool fan relay, 2nd stage
- K — multi-point connector (colorless) to radiator coolant low-level control unit
- L — multi-point connector (gray) for horns
- M — open position
- N — single connector
- P — single connector (terminal 30)
- R — open position

97 Electrical System - Wiring, Waterboxer

Description	Current track	Description	Current track	Wire connectors
A/C compressor overheat fuse	151	Instrument panel lite dimmer switch	95	T2c — double, under inst. panel, left
Air flow sensor potentiometer	22-24	Interior lite, front	77,78	T2d — double, under upper right 'A' pillar
Alternator	5			T2e — double, in decklid near washer motor
Alternator warning lite	51	License plate lite	96,97	T2f — double, under upper right 'C' pillar cover
		Lite switch	85-95	T2g — double, under inst. panel
Back-up lite switch	128	Load reduction relay	86-88	T2i — double, in wire distrib., eng. compart.
Back-up lite, left	128			T2k — double, eng. compart., left
Back-up lite, right	129	Make-up mirror lite	76	T2m — double, in relay plate, eng. compart.
Battery	1	Map/reading lite, right front	75	T2o — double, near seat belt switch
Brake and parking brake indicator lite	137			T2p — double, near horn
Brake fluid level warning contact	138	OXS elapsed mileage indicator	52	T2x — double, eng. compart., middle
Brake lite switch	125,126	Oxygen sensor	25,26	
Brake lite, left	127			T3 — three-point, near alternator
Brake lite, right	126	Parking brake warning lite switch	137	T3a — three-point, under inst. panel, right
CAT elapsed mileage counter	45,46	Parking lite, left	101	T3b — three-point, under inst. panel, left
Cigarette lighter	72	Parking lite, right	107	T3d — three-point, behind upper front grille
Cigarette lighter lite	73	Power steering pressure switch	36,37	T3x — three point, under inst. panel
Clock lite	61			
Coolant low level control unit	68,69	Radiator cooling fan	145	T7/ — seven point, in wire distrib., eng. compart.
Coolant low level warning switch	68	Radiator cooling fan relay (2nd stage)	147-150	T7a/ — seven point, in wire distrib., eng. compart.
Coolant overheat warning lite	66	Reading lite, behind driver's seat	80,81	
Coolant temperature gauge	65	Reading lite, left rear	82,83	T14/ — fourteen point, on inst. cluster
Coolant temperature sending unit	70	Rear window defogger indicator lite	140	
		Rear window defogger switch	139-141	
Digifant control unit	16-27	Rear window defogger switch lite	139	
Digijet control unit relay	32-34	Rear window heater element	141	
Digital clock	53	Rear window washer pump	160	
Door contact switch, left front	77,78	Rear window wiper motor	162,163	
Door contact switch, right front	81	Rear window wiper/washer relay	161,162	
				Ground connections
Emergency flasher relay	114,115	Safety belt switch, left	134	① — battery to body
Emergency flasher switch	111-120	Seat belt warning lite	136	② — transmission to body
Emergency flasher warning lite	120	Seat belt warning relay	133-136	⑫ — in eng. compart., left
Engine oil pressure control unit	55,56	Side marker lites, rear	104,105	⑮ — on engine block
Engine oil pressure switch (0.3 bar)	48	Spark plug connectors	13-15	⑳ — ground cable, above steering box
Engine oil pressure switch (0.9 bar)	47	Spark plugs	13-15	㉑ — near Digifant control unit
Engine oil pressure warning lite	57	Starter	3,4	⑳ — under relay panel
				㉒ — in rear decklid, left
Fresh air blower series resistance	144	T.D.C. sensor	43,44	㉓ — in rear decklid, right
Fresh air control lever lite	142	Tachometer	54	㉔ — near rear washer bottle bracket
Fresh air fan	143,144	Tail lite, left	102	㉕ — near rear wiper motor
Fresh air fan switch	142-144	Tail lite, right	106	㉖ — near left rear decklid hinge
Fuel gauge	64	Temperature sensor II	21	㉗ — in inst. panel wiring harness
Fuel gauge sending unit	71	Terminal 58b fuse	95	㉘ — in Digifant wiring harness
Fuel pump	31	Throttle valve switch (enrichment)	20	
Fuel pump relay	30,31	Turn signal indicator lite	62	
Fuse	12	Turn signal lite, left front	122	
		Turn signal lite, left rear	121	
Hall generator	17-19	Turn signal lite, right front	124	
Headlite dimmer/flasher switch	103,104	Turn signal lite, right rear	123	
Headlite high beam warning lite	63	Turn signal switch	116,117	
Headlite, left	98,100			Plus (+) connections
Headlite, right	106,110	Voltage regulator	5	P1 — (term. 30) in wire distrib., eng. compart.
Heater blower series resistance	151,152	Voltage stabilizer	64	G1 — in Digifant wiring harness
Heater fan switch illumination lite	149	Warm air blower	150-152	G2 — in Digifant wiring harness
Heating element (crankcase ventilation)	12	Warm air blower switch	149-152	A4 — (term. 586) in inst. panel wiring harness
High-beam headlite, left	99	Washer/wiper intermittent relay	156-158	
High-beam headlite, right	109	Windshield washer pump	159	
Horn button	130	Windshield wiper motor	153,154	
Horns	132	Windshield-wiper intermittent switch	155-158	
				Wire connectors
Idle speed stabilizer valve	40,41			T1a — single, near left rear roof bow
Idle stabilizer control unit	36-42			T1b — single, in wire distrib., eng. compart.
Ignition coil	14			T1d — single, in wire distrib., eng. compart.
Ignition distributor	13-15			T1e — single, under inst. panel, left
Ignition/starter switch	8-11			T1f — single, under inst. panel
Injector, cyl. 1	27			T1g — single, in wire distrib., eng. compart.
Injector, cyl. 2	28			T1h — single, in eng. compart., left
Injector, cyl. 3	29			T1i — single, under inst. panel
Injector, cyl. 4	30			T1k — single, in eng. compart., left
Instrument panel lite	58-60			



Main wiring diagram Alternator/Starter/ Ignition switch

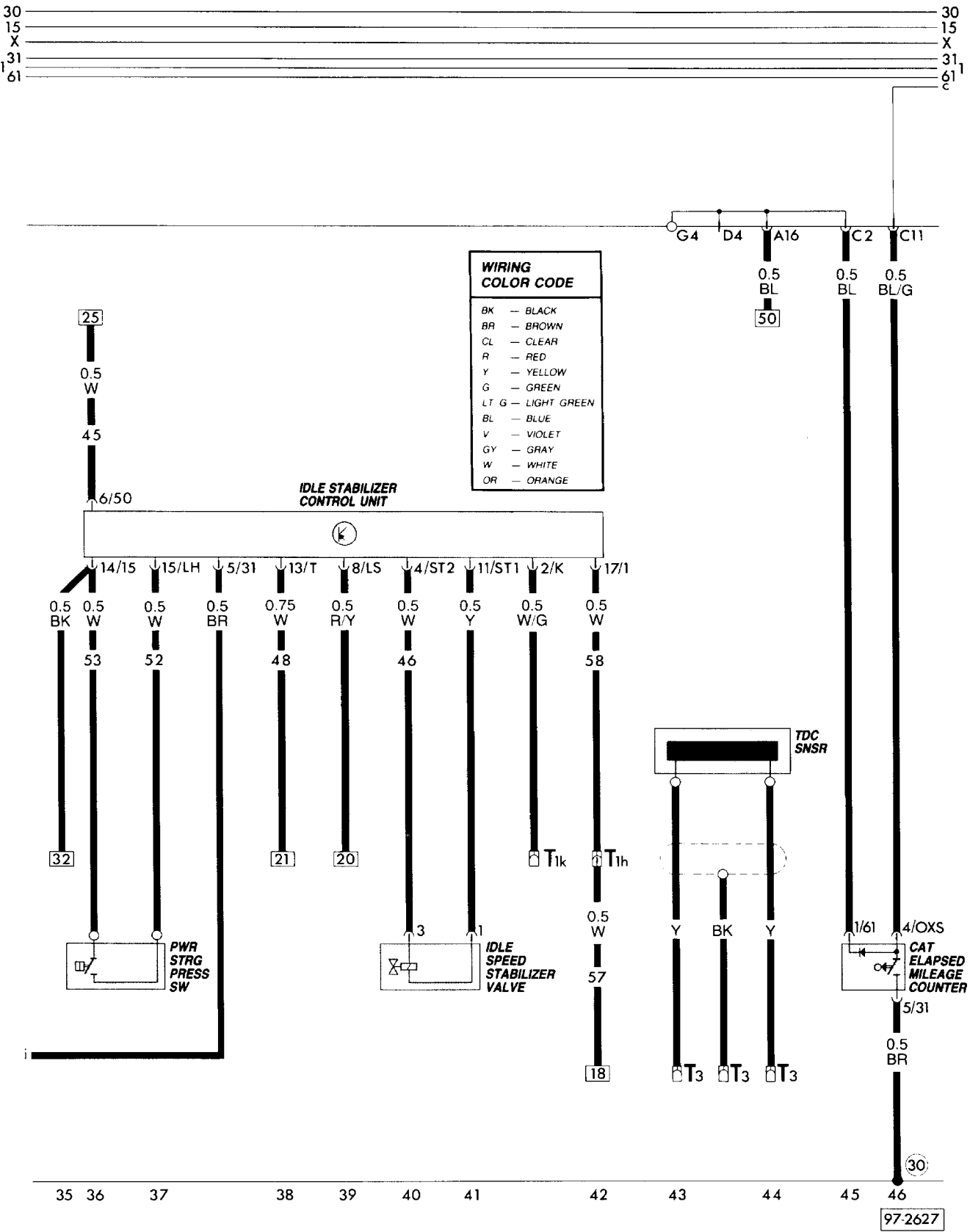
97.149





97

Electrical System - Wiring, Waterboxer



97.152

Main wiring diagram
Idle stabilizer

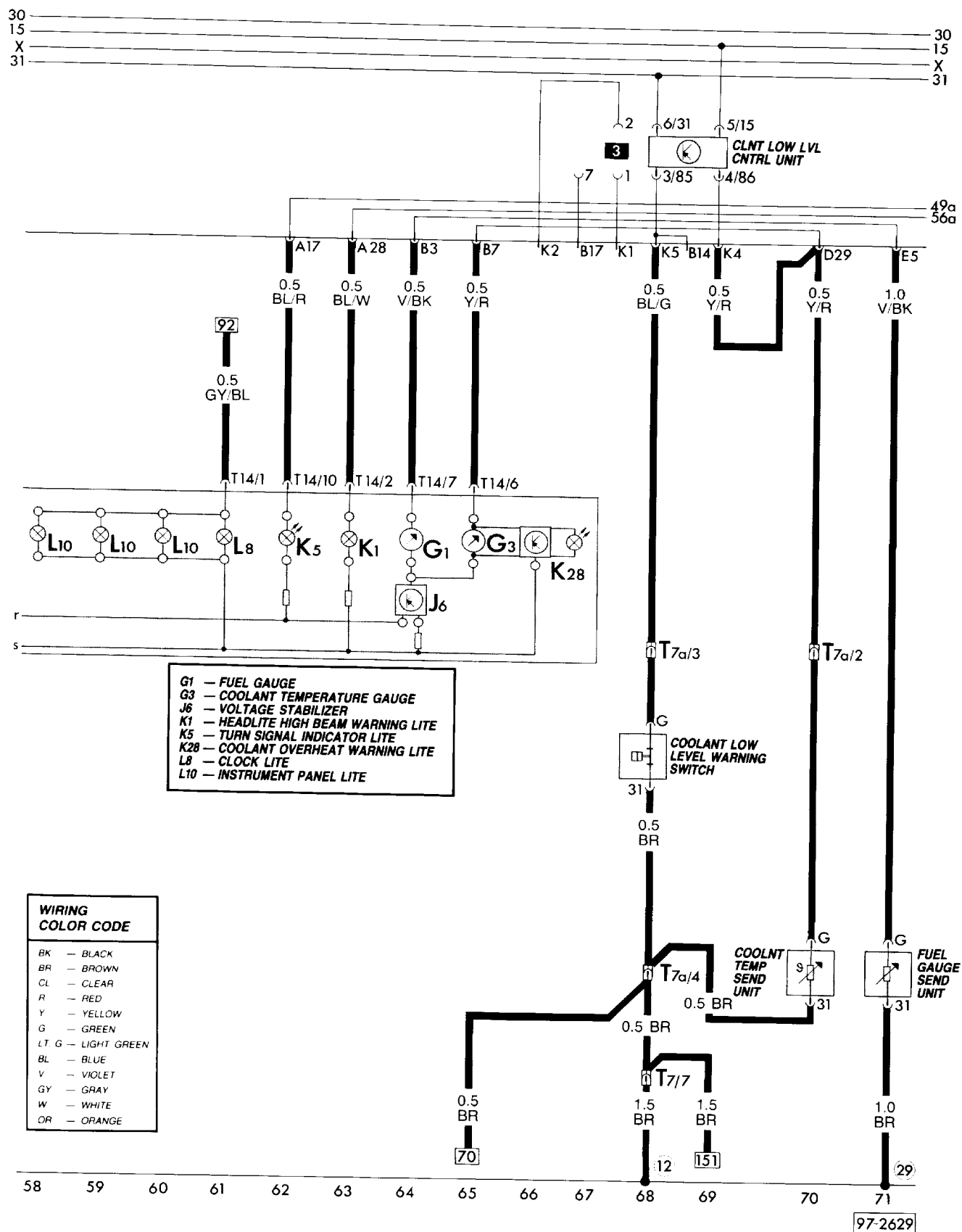
Water-cooled—Digifant 1987



Main wiring diagram
Oil pressure warning
Instrument cluster

97.153

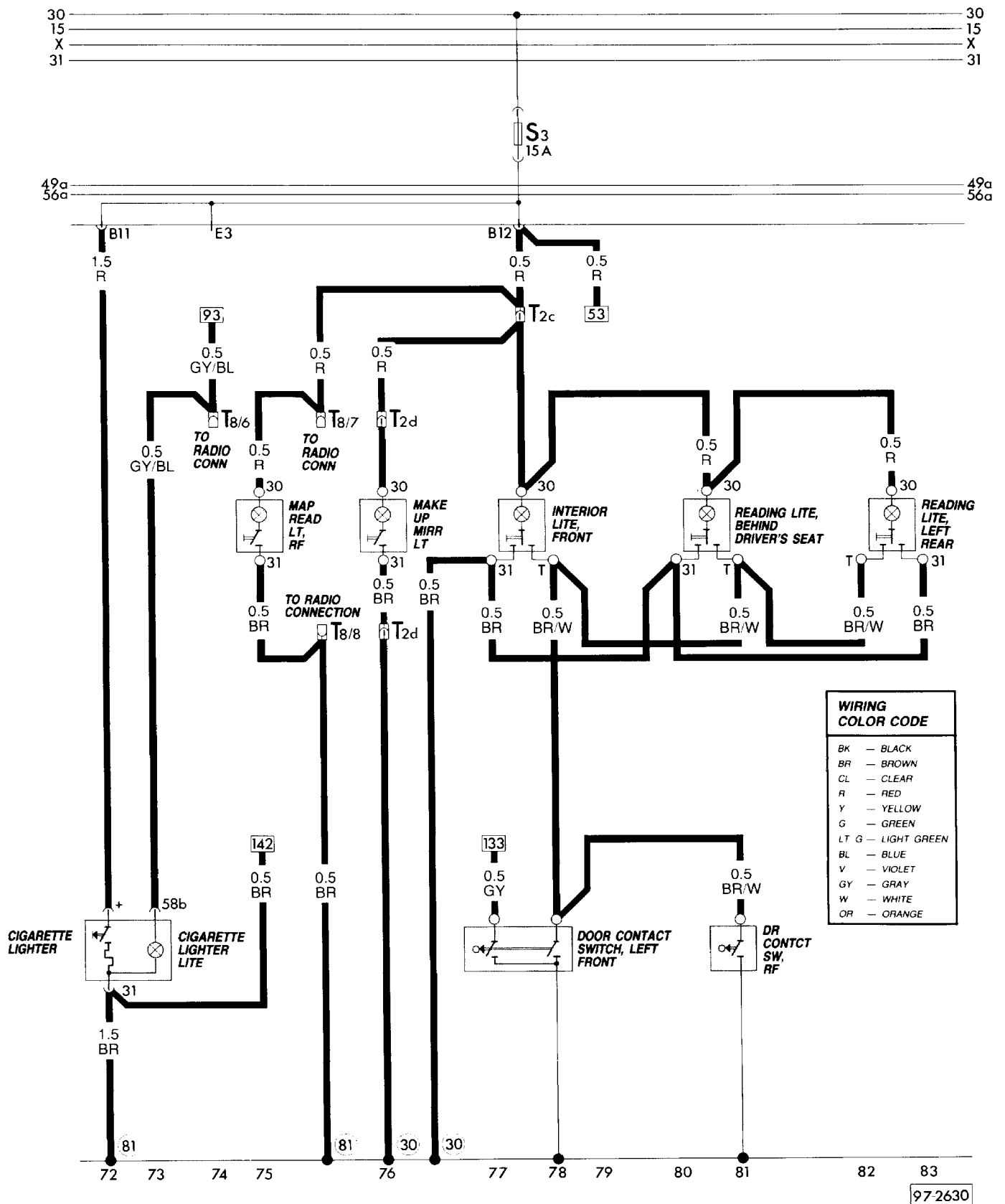
97 Electrical System - Wiring, Waterboxer



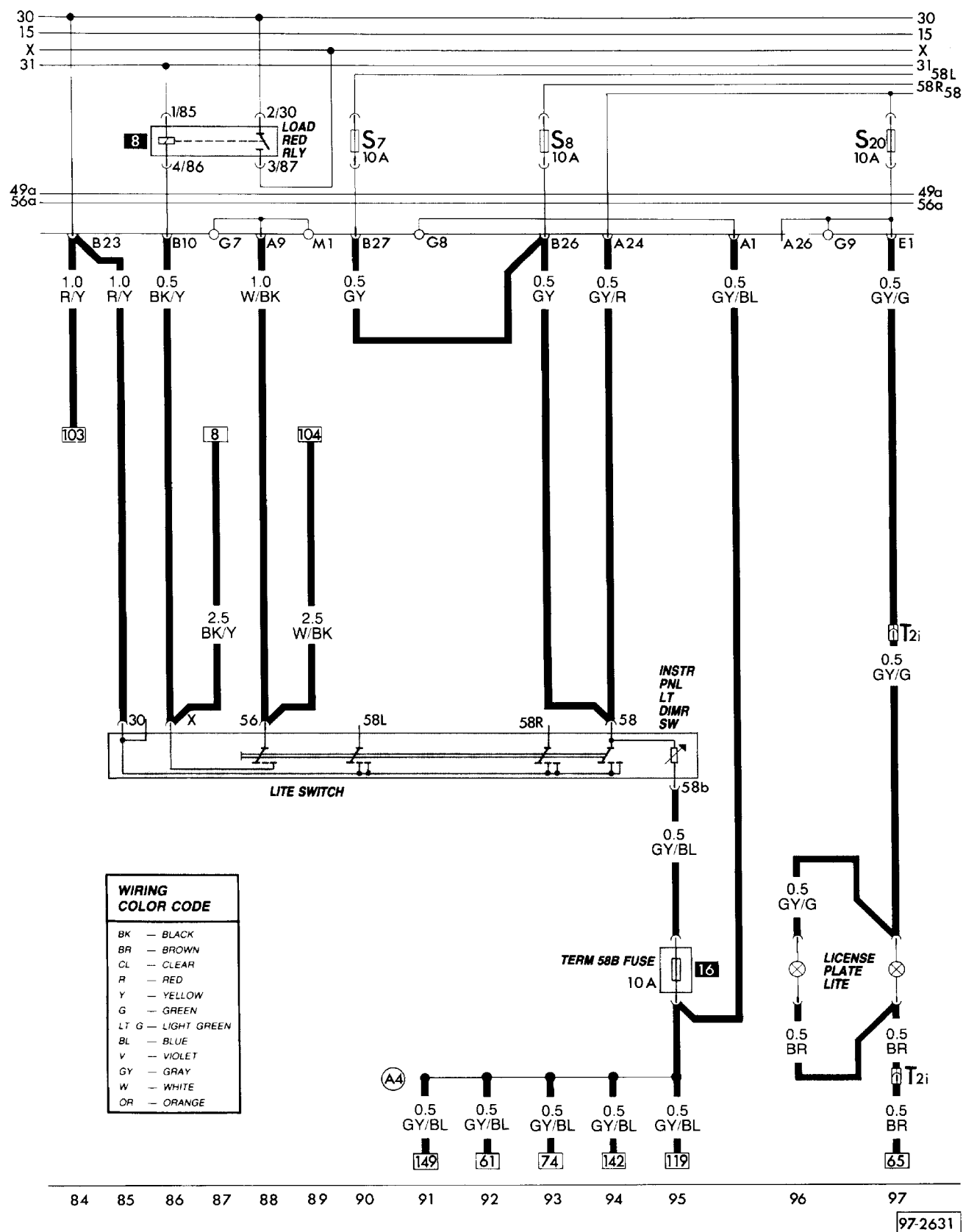
97.154

Main wiring diagram
Instrument cluster

Water-cooled—Digifant 1987



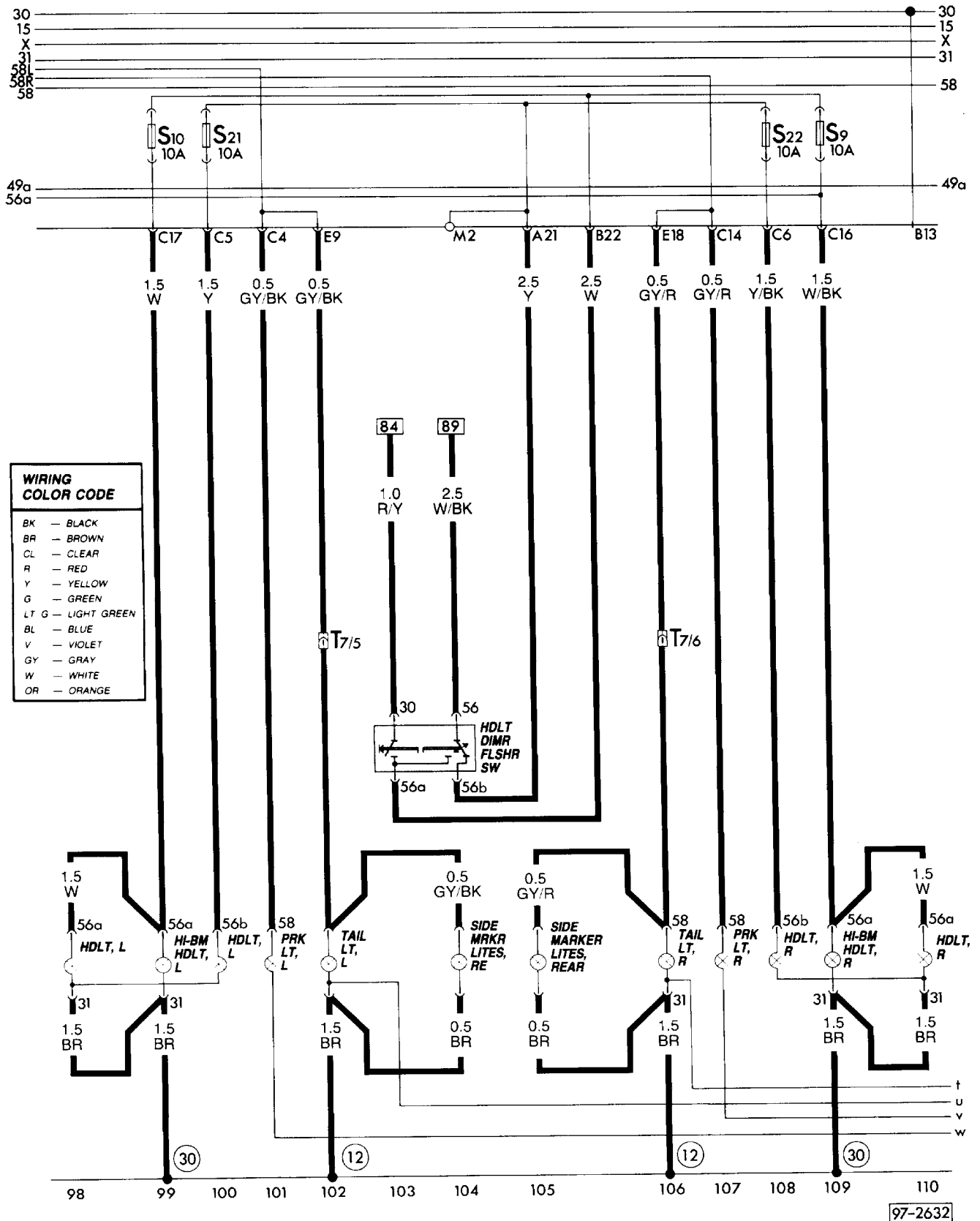
97 Electrical System - Wiring, Waterboxer



97.156

Main wiring diagram
Load reduction relay
Light switch

Water-cooled—Digifant 1987



Water-cooled—Digifant 1987

Main wiring diagram
Exterior lights

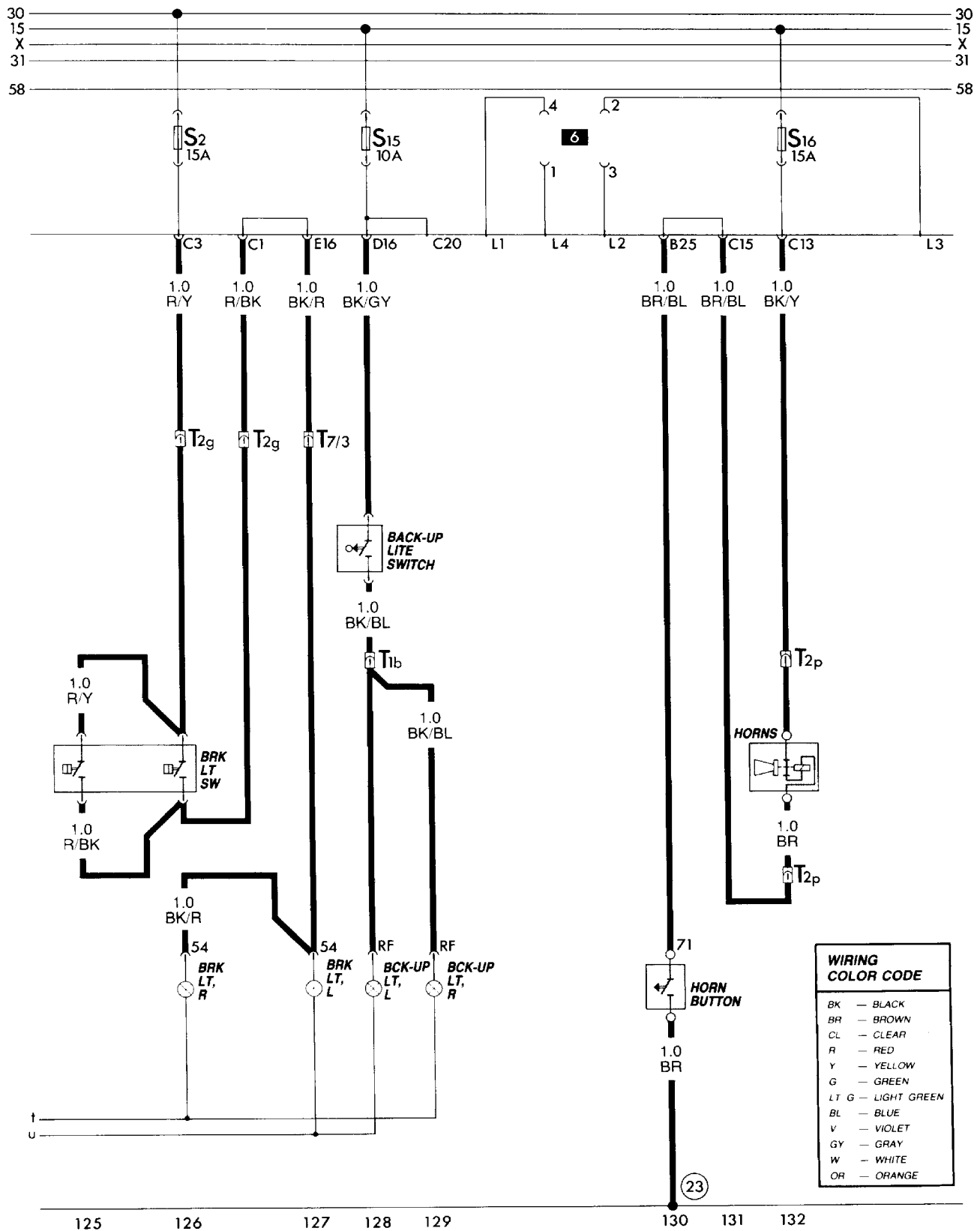
97.157

97



Main wiring diagram
Emergency flashers
Turn signals

Water-cooled—Digifant 1987



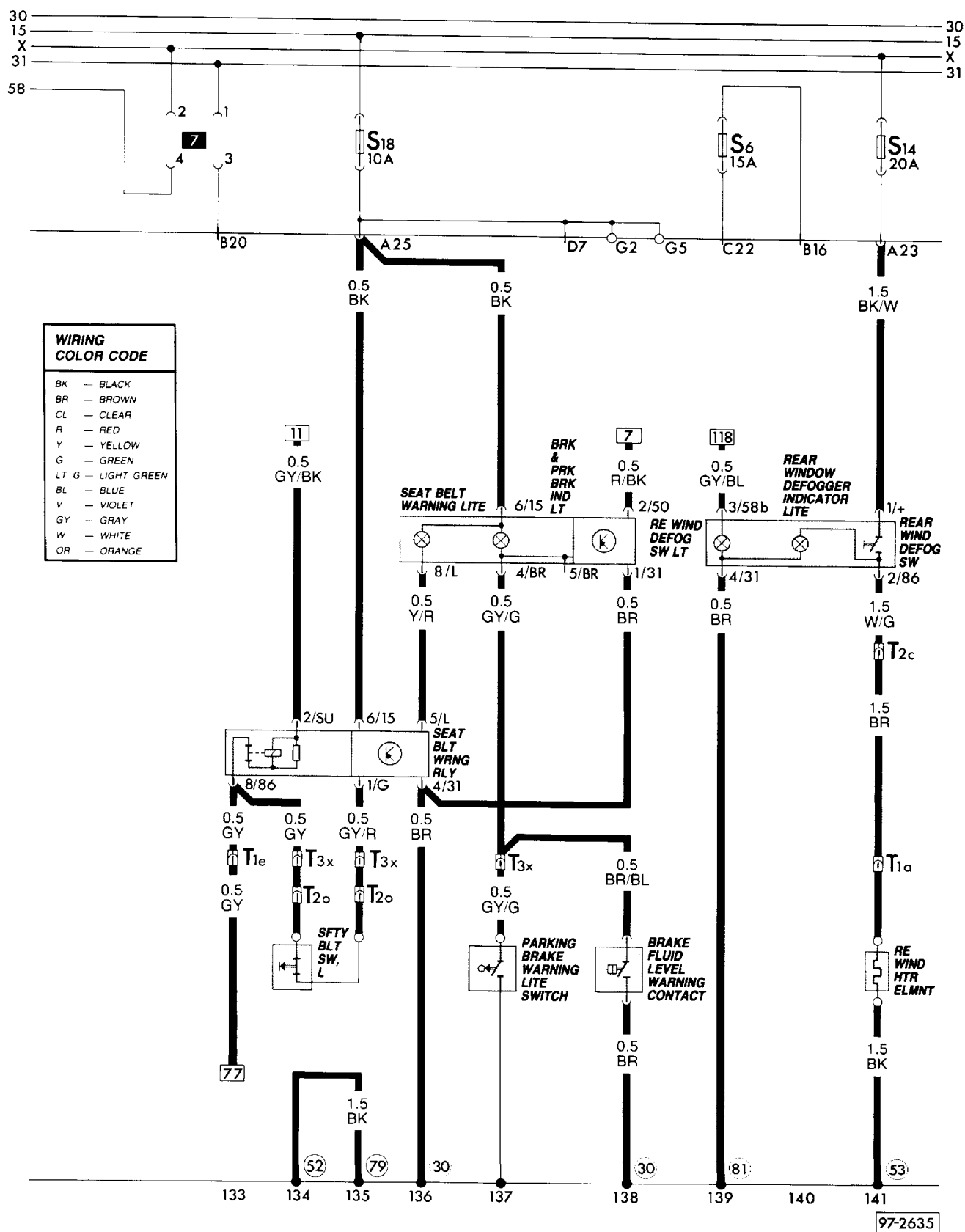
97-2634

Water-cooled—Digifant 1987

Main wiring diagram
Brake lights
Horns

97.159

97 Electrical System - Wiring, Waterboxer



97.160

Main wiring diagram
Seat belt system
Rear defogger

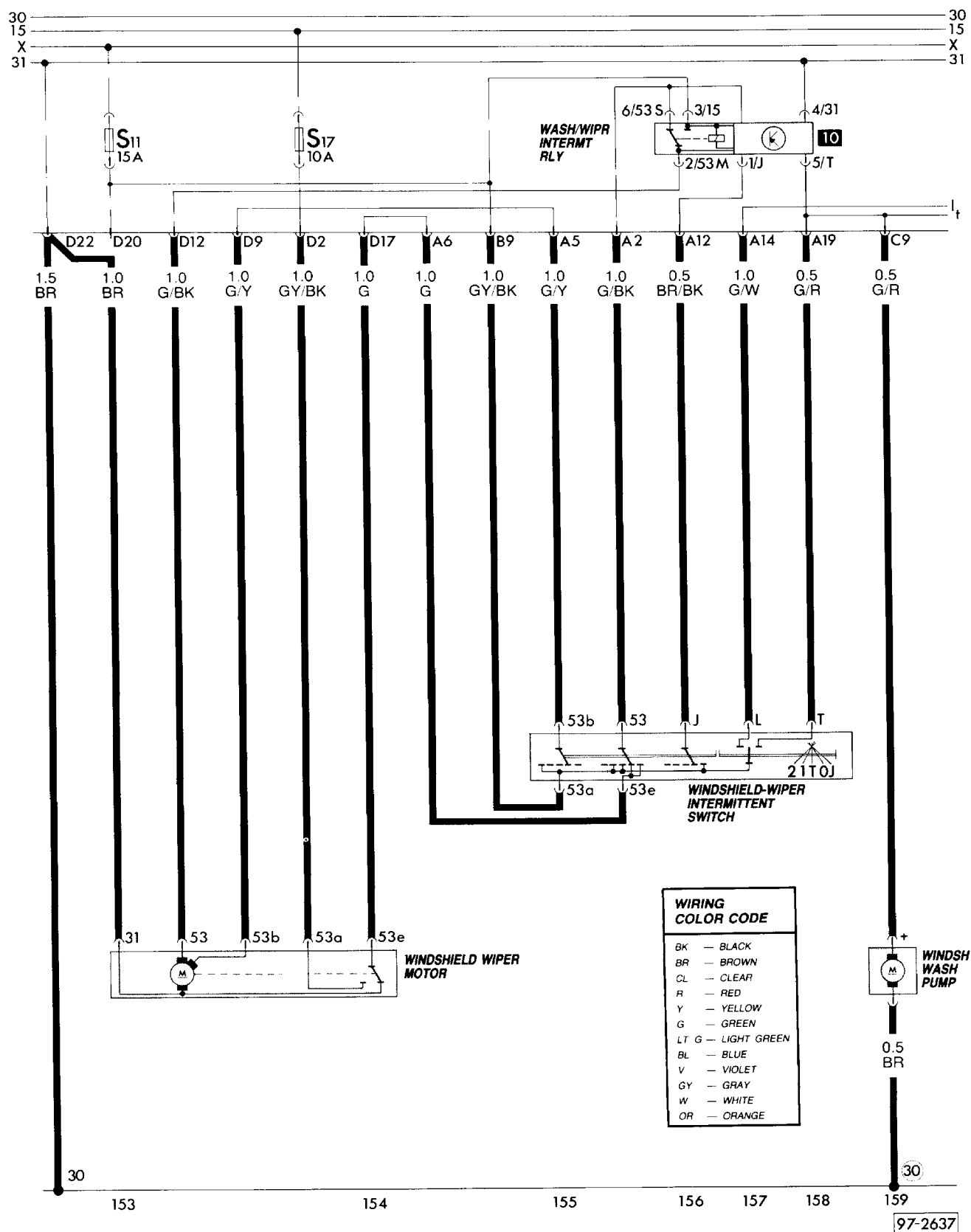
Water-cooled—Digifant 1987



Main wiring diagram
Radiator cooling fan
Fresh air fan

97.161

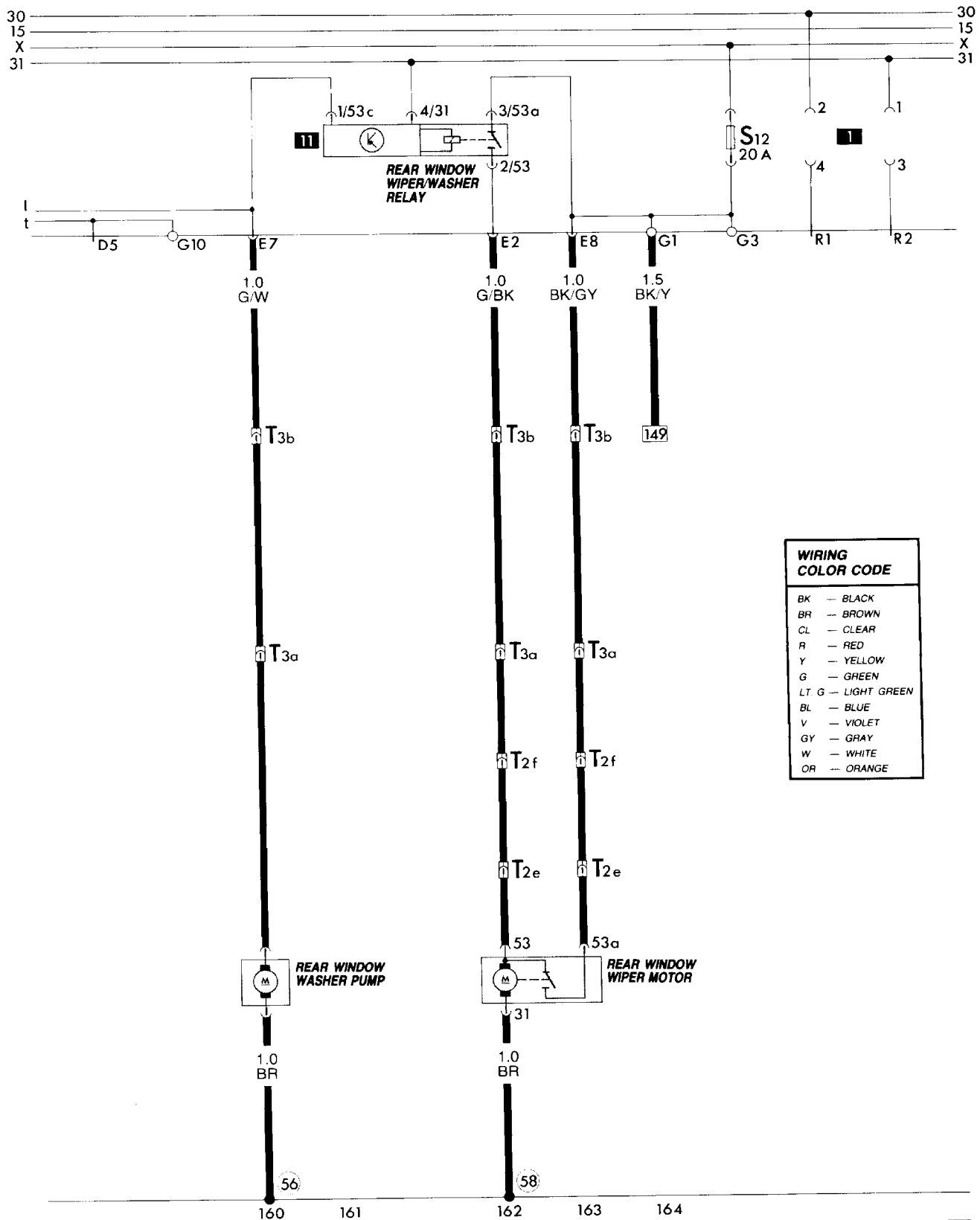
97 Electrical System - Wiring, Waterboxer



97.162

Main wiring diagram
Windshield wipers

Water-cooled—Digifant 1987



97-2638

Water-cooled—Digifant 1987

Main wiring diagram
Rear window wiper

97.163