Porsche 914 Fuel Pump Troubleshooting

Test Sequence	
1	**Test: Un-switched Power to the Relay Board (Power Relay)**
	Ignition Key off, Unplug 14 pin connector from relay board and check pin 12 on connector for 12V.
	No 12V = faulty wire harness to battery. Check wires connected to + terminal at battery
	Yes 12V = Relay Board is getting un-switched power from the battery
	(Pin 12 is connected directly to the battery + terminal)
2	**Test: Switched power to Relay Board**
	Key on: Unplug 14 pin connector and check pin 8 on the connector for 12V.
	No 12V = Faulty ignition switch, wire harness from 14 pin connector to ignition switch, blown fuse under dash
	Yes: 12V = Relay Board is getting switched power
	(Black wire goes from 14 pin connector pin 8 to fuse panel under dash)
3	**Test: Trace connection in Relay Board from 14 pin connector to Power Relay**
	Key off, With the 14 pin connector plugged into the Relay Board remove the Power Relay and Test pin 30 for 12V.
	No 12V = faulty Relay Board
	Yes 12V = Power Relay is getting power from 14 pin connector
4	**Test: Trace connection in Relay Board from 14 pin connector to Power Relay**
	Key off, With the 14 pin connector plugged into the Relay Board remove the Power Relay and Test pin 30 for 12V.
	No 12V = faulty relay board
	Yes 12V = Power Relay is getting power from 14 pin connector
	(Inside the relay board the 14 pin connector pin 12 is connected to Power Relay pin 30)
5	**Test: Relay Board ground**
	Key off: Remove 14 pin connector and check continuity from pin 10 on the connector to negitave terminal on the battery
	No continuity = faulty wire harness ground.
	Yes continuity = good harness ground to relay board
	(Relay Board (pin 10) is grounded to the body next to the relay board)

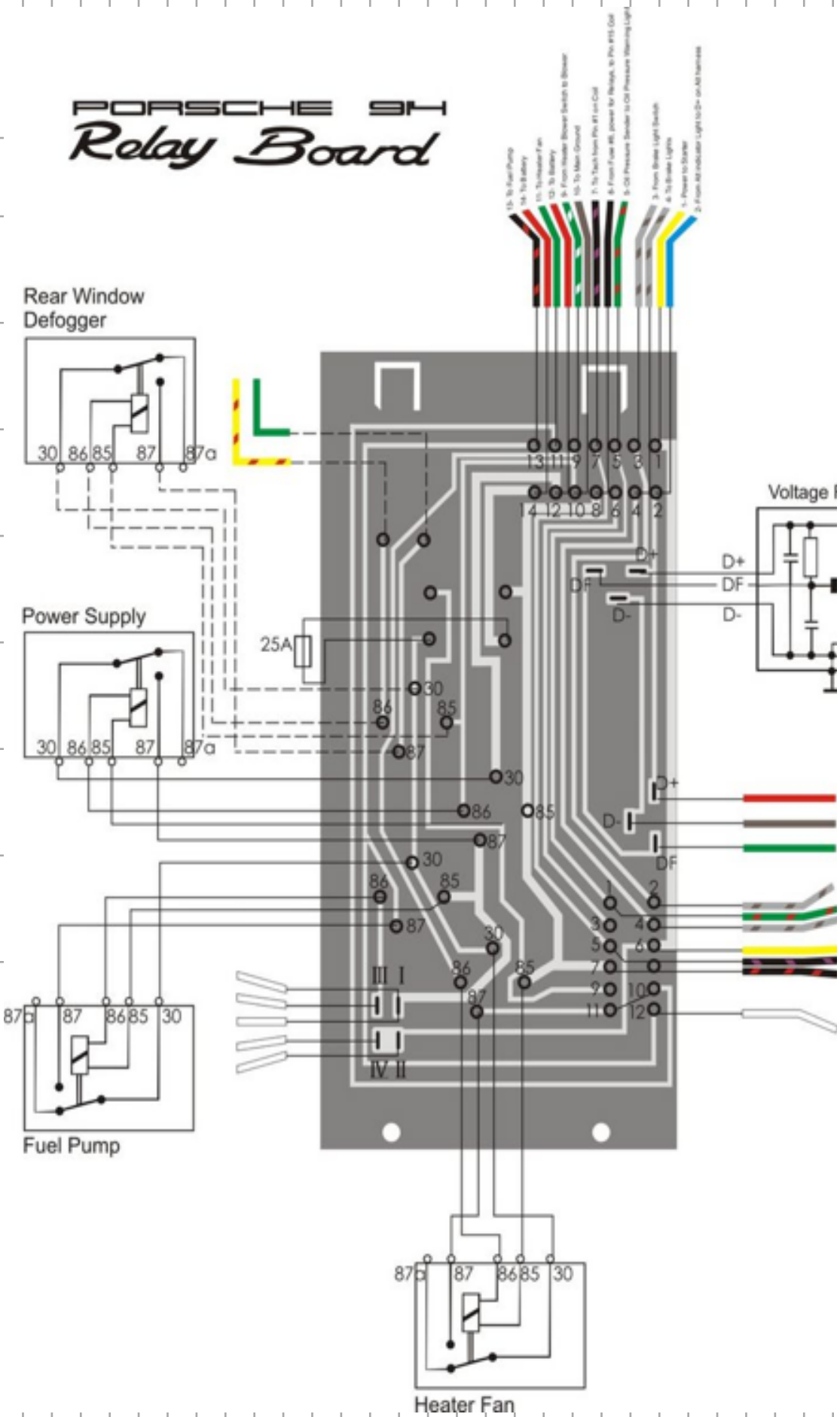
6	**Test: Trace connnection in Relay Board from 14 pin connector pin 10 (ground) to Power Relay pin 86**
	Key off: Plug 14 pin connector into board and remove Power Relay. Check continuity from pin 86 on Power Relay
	socket to ground.
	No continuity = faulty Relay Board
	Yes continuity = good Relay Board trace
7	**Test: Power Relay**
	Key off: With 14 pin connector plugged into Relay Board remove Power Relay and wrap small wire lead around
	Power Relay pin 87 and plug relay back into the board.
	Connect DMM(volts) to wire lead and ground.
	Key on: Test for 12V
	No 12V = faulty Power Relay
	Yes 12V = Good Power Relay
	(The relay pin out is labeled on bottom of relay)
8	**Test: Trace connection in Relay Board from Power Relay to Fuel Injector plug (for ECU)**
	Key on: Test pin I on 4 pin connector (Fuel injector harness aft - left side of relay board) for 12V
	(on relay board with plug removed).
	No 12V = faulty Relay Board
	Yes = Power to ECU harness connector on Relay Board
9	**Test: Power to ECU**
	Key off: Remove ECU connector from ECU.
	Key on: Test pins 16 and 24 for 12V on ECU connector plug
	No 12V = Faulty ECU wire harness
	Yes 12V = Power to ECU
10	**Test: ECU harness ground**
	Key off: Remove ECU harness connector at ECU and test continuity from pin 11 of ECU harness plug to ground
	Unplug white 4 pin connector at Relay Board.
	No continuity = faulty wire harness ground
	Continuity = Good harness ground
	(The ECU wire harness is grounded to the top of the engine case)

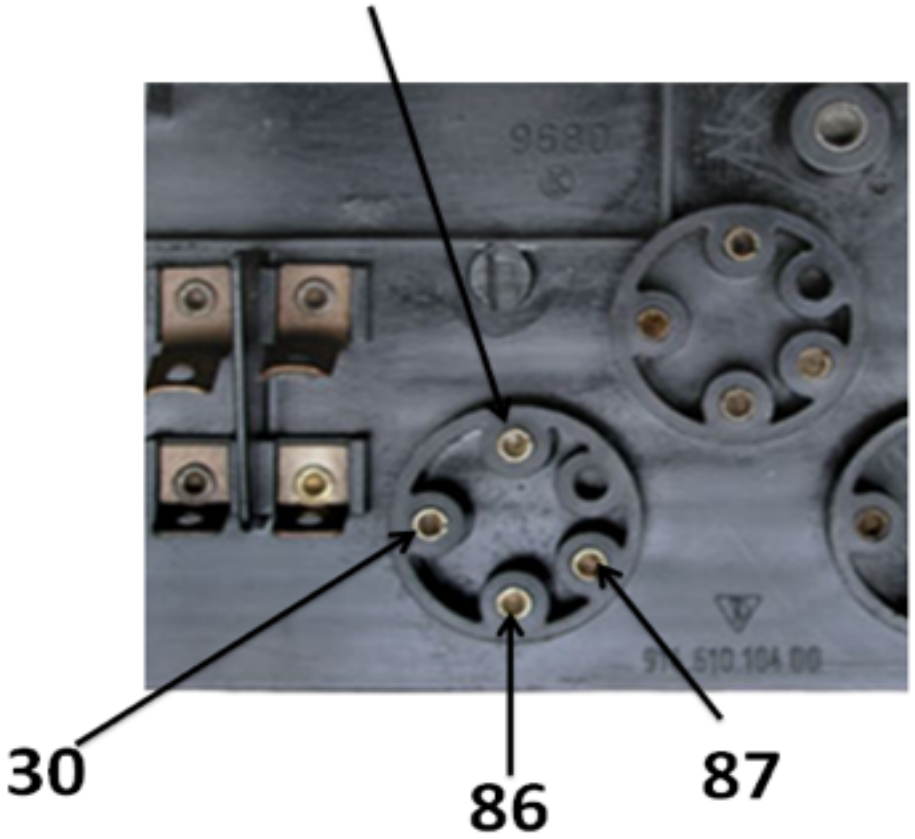
11	**Test: ECU harness from ECU to Relay Board**	
	Key off: Remove ECU harness connector at ECU and test continuity from pin 19 of ECU harness plug to pin III on	
	white plug at Relay Board.	
	No continuity = faulty ECU wire harness	
	Continuity = Good harness from ECU to Relay Board	
12	**Test: ECU control circuit**	
	Key off:Test continuity from Pin III on white 4 pin connector plug at Relay Board to ground (white plug harness	
	un plugged from Relay Board. ECU harness plugged into ECU).	
	Key on: Continuity to ground for 1.5 seconds = good ECU control cuircuit.	
	Key on: No continuity to ground for 1.5 seconds = faulty ECU control cuircuit	
	(The ECU grounds Pin III of the white 4 pin connector on the Relay Board to run the fuel pump for 1.5 sec. at key on)	
13	**Test: Un-switched Power to the relay board (Fuel Pump Relay)**	
	Key off, Unplug 14 pin connector from relay board and check pin 14 on connector for 12V.	
	No 12V = faulty wire harness to battery. Check wires connected to + terminal at battery	
	Yes 12V = Relay Board is getting power from the battery	
	(Pin 14 is connected directly to the battery + terminal)	
14	**Test: Trace connnection in Relay Board from 14 pin connector pin 14 to fuse**	
	Key off: Check voltage at right side fuse terminal on Relay Board.	
	No 12V = faulty Relay Board	
	Yes 12V = Power to fuse	
	(Check the voltage at the other side of the fuse to test the fuse)	
15	**Test: Trace connnection in Relay Board from fuse to Fuel Pump Relay pin 30 (relay removed)**	
	Key off: Check voltage at Fuel Pump Relay pin 30 on Relay Board.	
	No 12V = faulty Relay Board	
	Yes 12V = power to Fuel Pump Relay pin 30	
16	**Test: Power to Fuel Pump Relay pin 85**	
	Key on: Check voltage at Fuel Pump Relay pin 85 on Relay Board (relay removed).	
	No 12V = faulty Relay Board	
	Yes 12V = Power to Fuel Pump Relay pin 85	

17	**Test: Trace connnection in Relay Board from Fuel Pump Relay pin 86 (relay removed) to 4 pin connector pin III (connector remov**								
		Key off: Check continuity from Fuel Pump Relay to 4 pin connector pin III.							
		No continuity = faulty Relay Board							
		Continuity = Good Relay Board trace							
18	**Test: Trace connnection in Relay Board from Fuel Pump Relay pin 87 (relay removed) to 14 pin connector pin 13 on Relay Board**								
		Key off: Check continuity from Fuel Pump Relay to 4 pin connector pin III.							
		No continuity = faulty Relay Board							
		Continuity = Good Relay Board trace							
		(Fuel Pump Relay pin 87 supplies power thru the 14 pin connector pin 13 to the fuel pump)							
19	**Test: Fuel Pump Relay**								
		Key off: With 14 pin connector plugged into Relay Board remove the Fuel Pump Relay and wrap a small wire							
		lead around the Fuel Pump Relay pin 87 and plug the relay back into the Relay Board.							
		Connect DMM(volts) to wire lead and ground							
		Key on: Test for 12V for 1.5 seconds							
		No 12V for the first 1.5 sconds = faulty Fuel Pump Relay Relay							
		Yes 12V for the first 1.2 seconds = Good Fuel Pump Relay							
		(When the key is first turned on the relay will be powered for 1.5 sec)							
20	**Test: Fuel Pump Ground**								
		Key off: Disconnect plug at fuel pump. Test brown wire on harness for continuity to ground.							
		No continuity = faulty wire harness or harness ground							
		Continuity = Good ground from harness to Fuel Pump							
21	**Test: Fuel Pump harness from Relay Board**								
		Connect DMM(volts) to Fuel Pump ?? Wire and ground.							
		Key on: Test for 12V for 1.5 seconds							
		No 12V for the first 1.5 sconds = faulty wire harness							
		Yes 12V for the first 1.2 seconds = Power to Fuel Pump							

22	**Test: Fuel Pump**								
		Connect Fuel Pump ?? Wire to battery +							
		Connect Fuel Pump ?? Wire to battery -							
		Fuel Pump runs = good Fuel Pump							
		Fuel Pump does not run = faulty Fuel Pump							

PORSCHE 911
Relay Board

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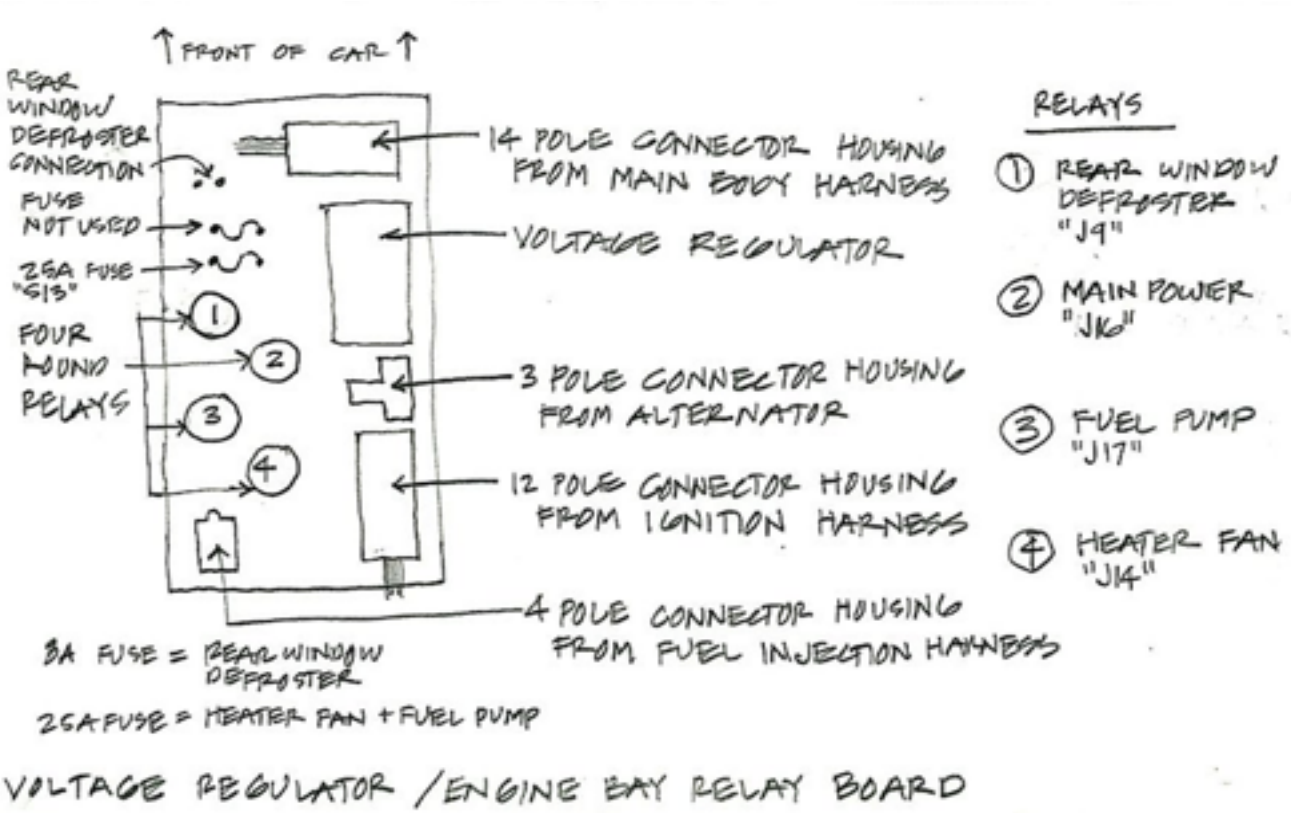
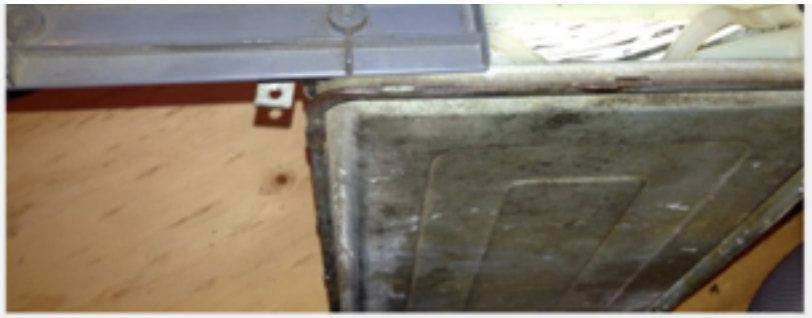


VOLTAGE REGULATOR / ENGINE BAY RELAY BOARD



You will then be able to grab the plastic handle and unplug the harness from the ECU. Carefully pull it straight out

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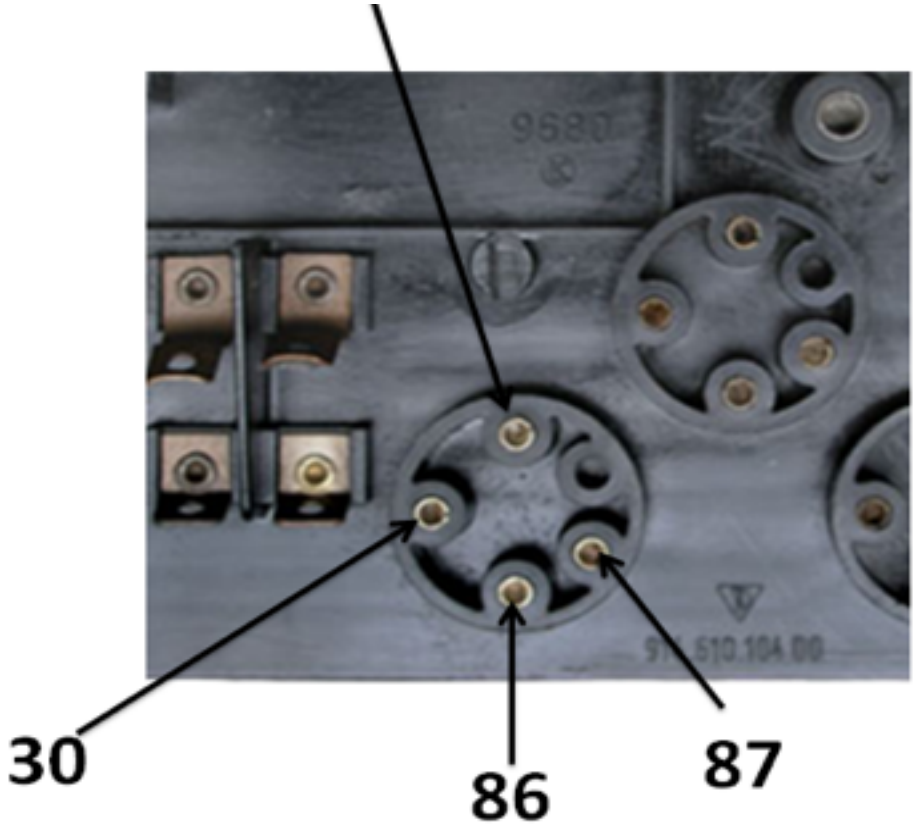
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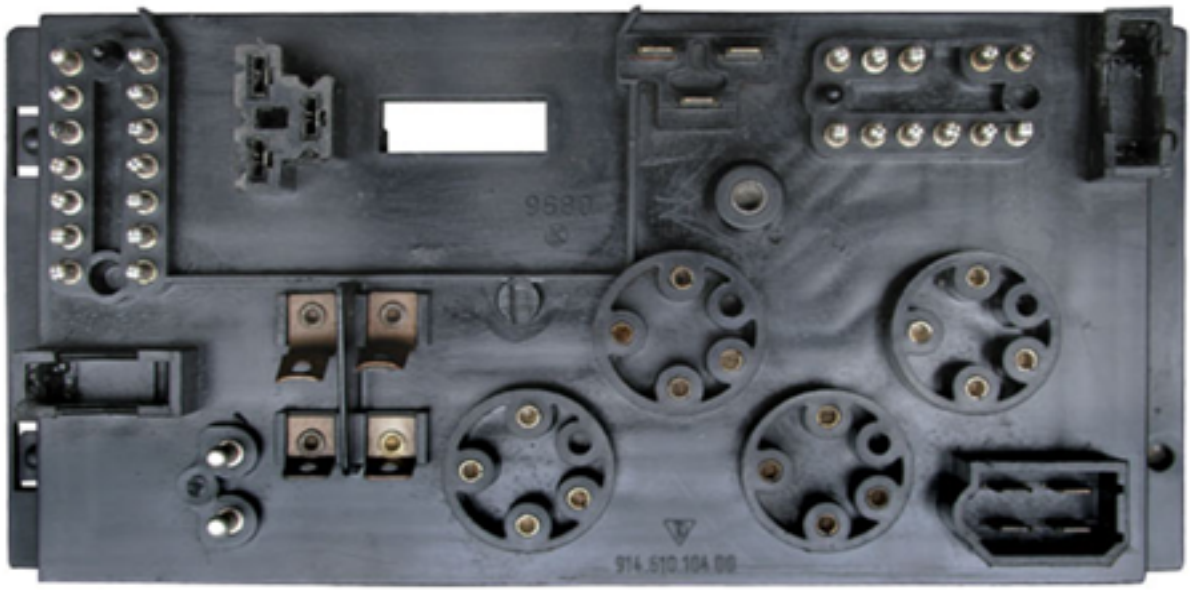
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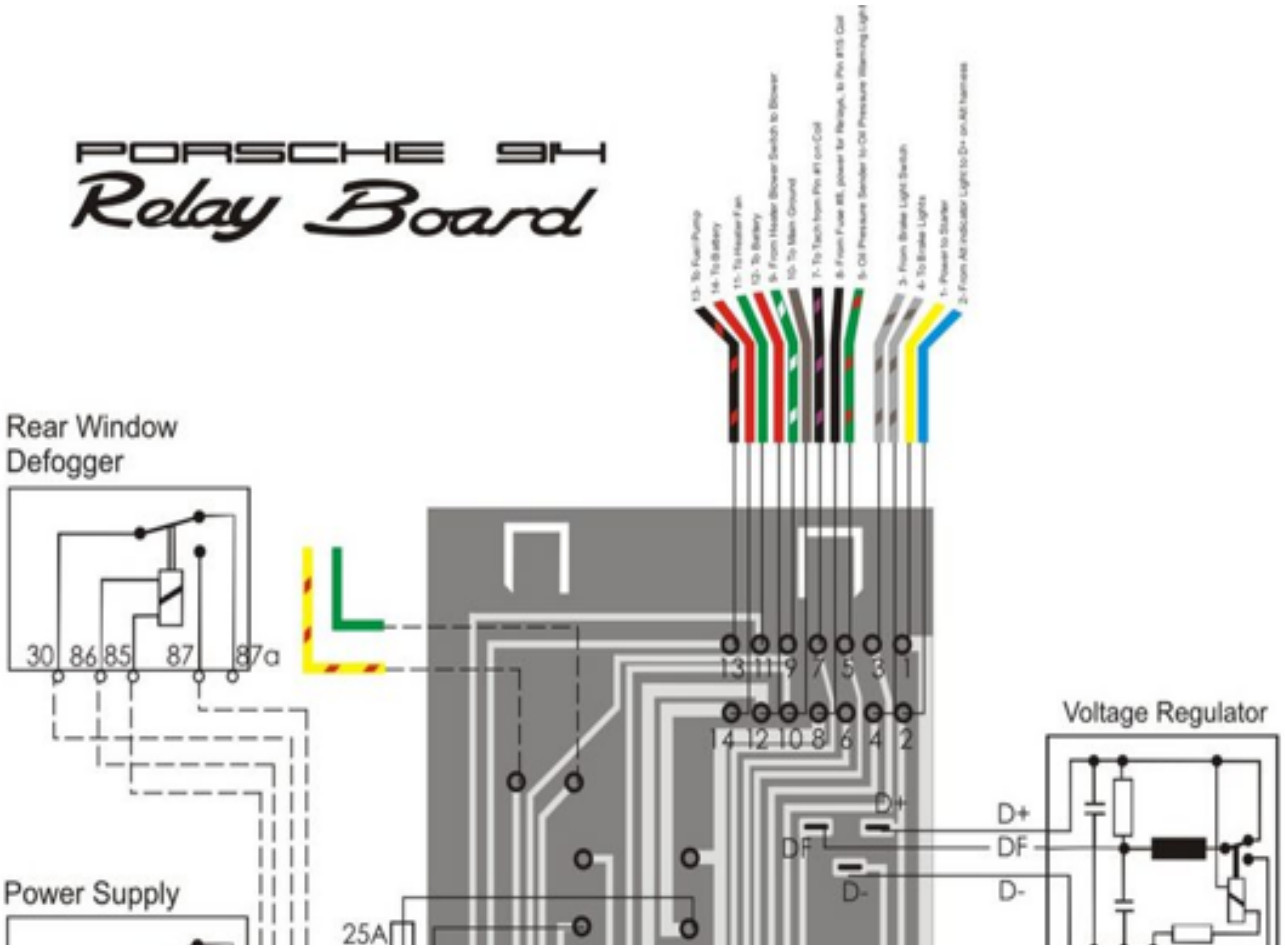
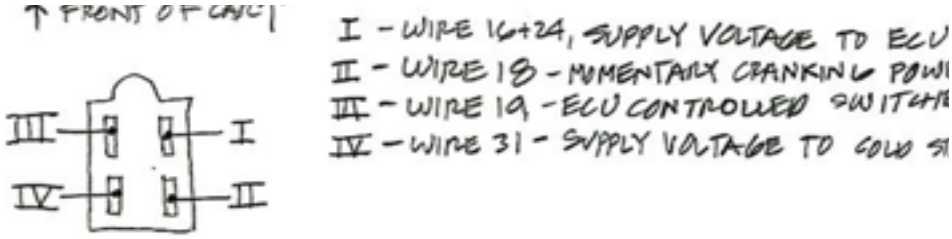
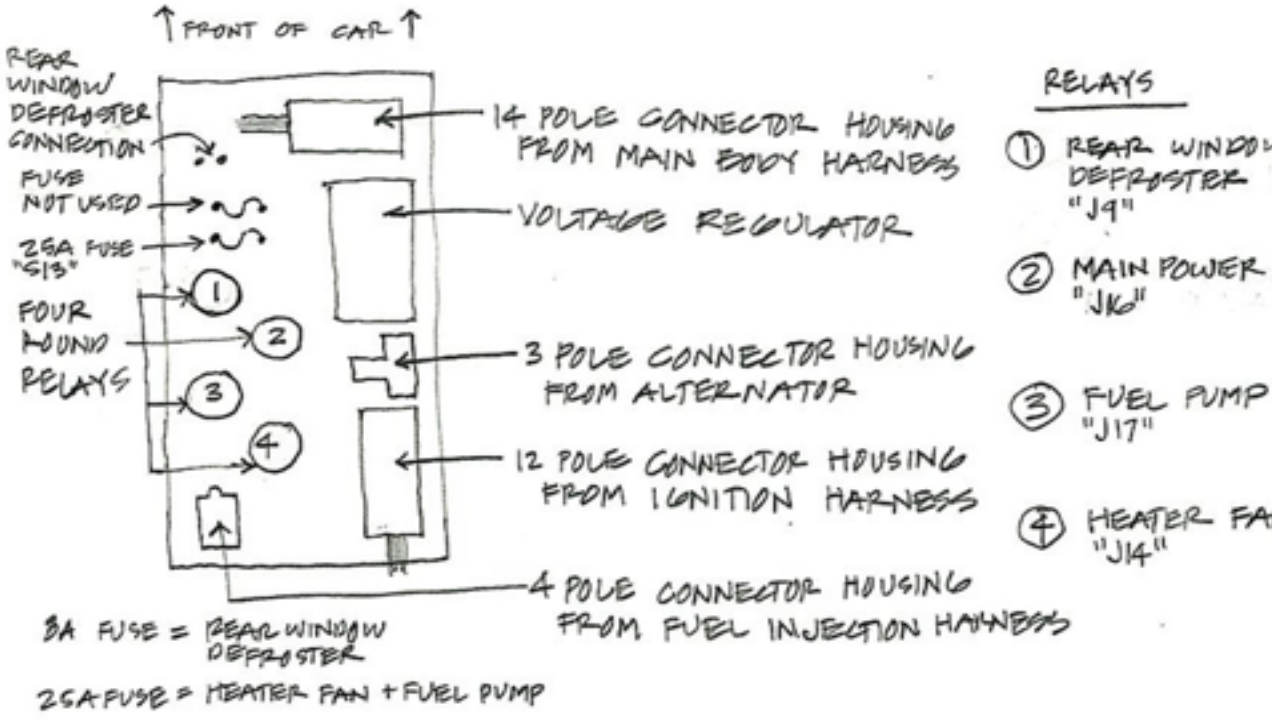
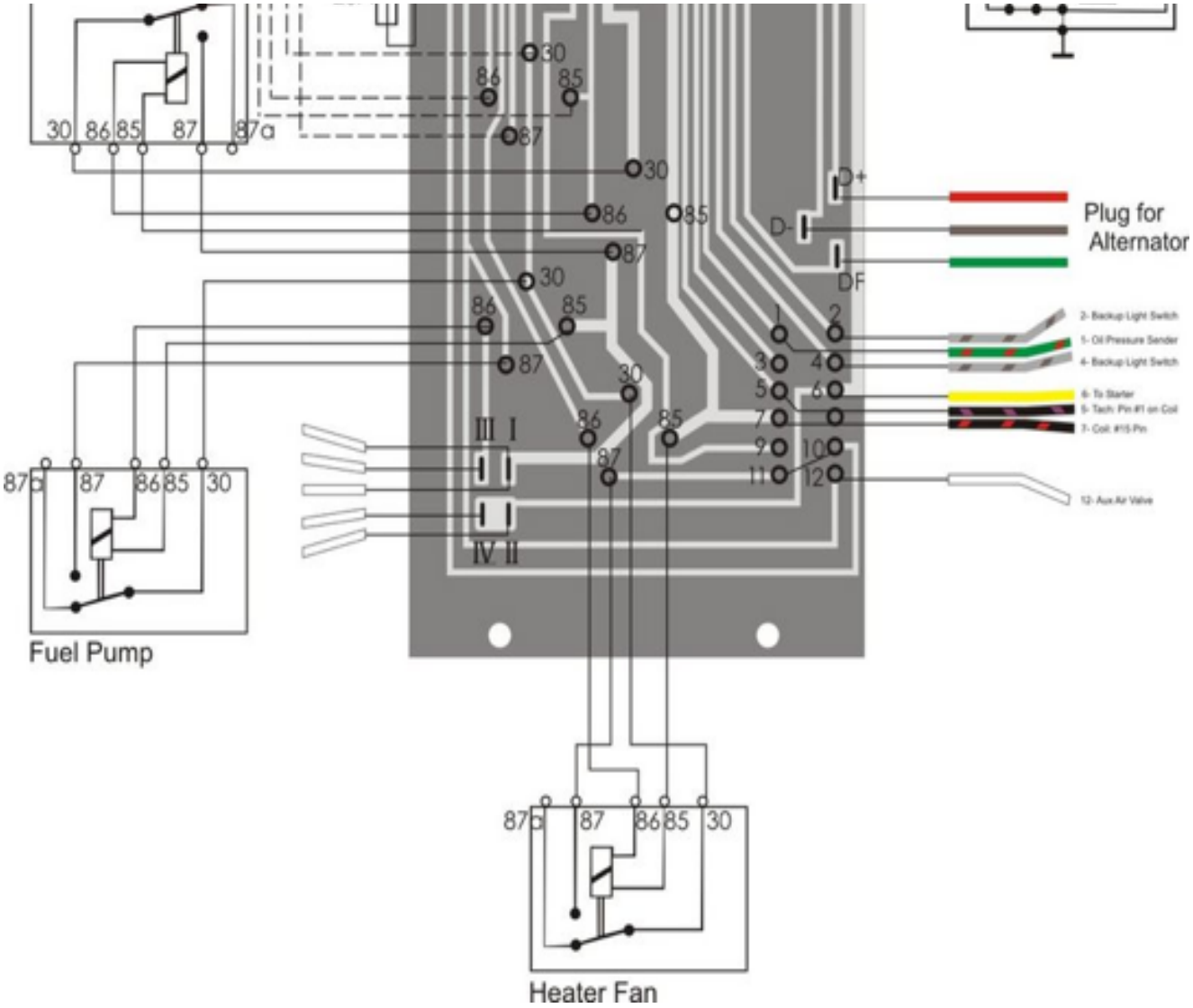

PORSCHE 914
Relay Board
Rear Window
Defogger
30 86 85 87 87a
Power Supply
25A
13 11 9 7 5 3 1
14 12 10 8 6 4 2
D+
DF
D-
Voltage Regulator
D+
DF
D-



FUEL INJECTION
HARNESS CONNECTION
ON VOLT. REG. BOARD



VOLTAGE REGULATOR / ENGINE BAY RELAY BOARD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86
85
87
87a
D+
D-
DF
Plug for
Alternator
2- Backup Light Switch
1- Oil Pressure Sender
4- Backup Light Switch
6- To Starter
5- Tach. Pin #1 on Coil
7- Coil. #15 Pin
12- Aux Air Valve
III I
IV II
87b
Fuel Pump
Heater Fan

ER TO ECU (FUEL PUMP?)
ED GROUND TO F.P. RELAY
AIR VALVE

Loosen it and slide the plastic cover off.

You will then be able to grab the plastic handle and unplug the harness from the ECU. Carefully pull it straight out