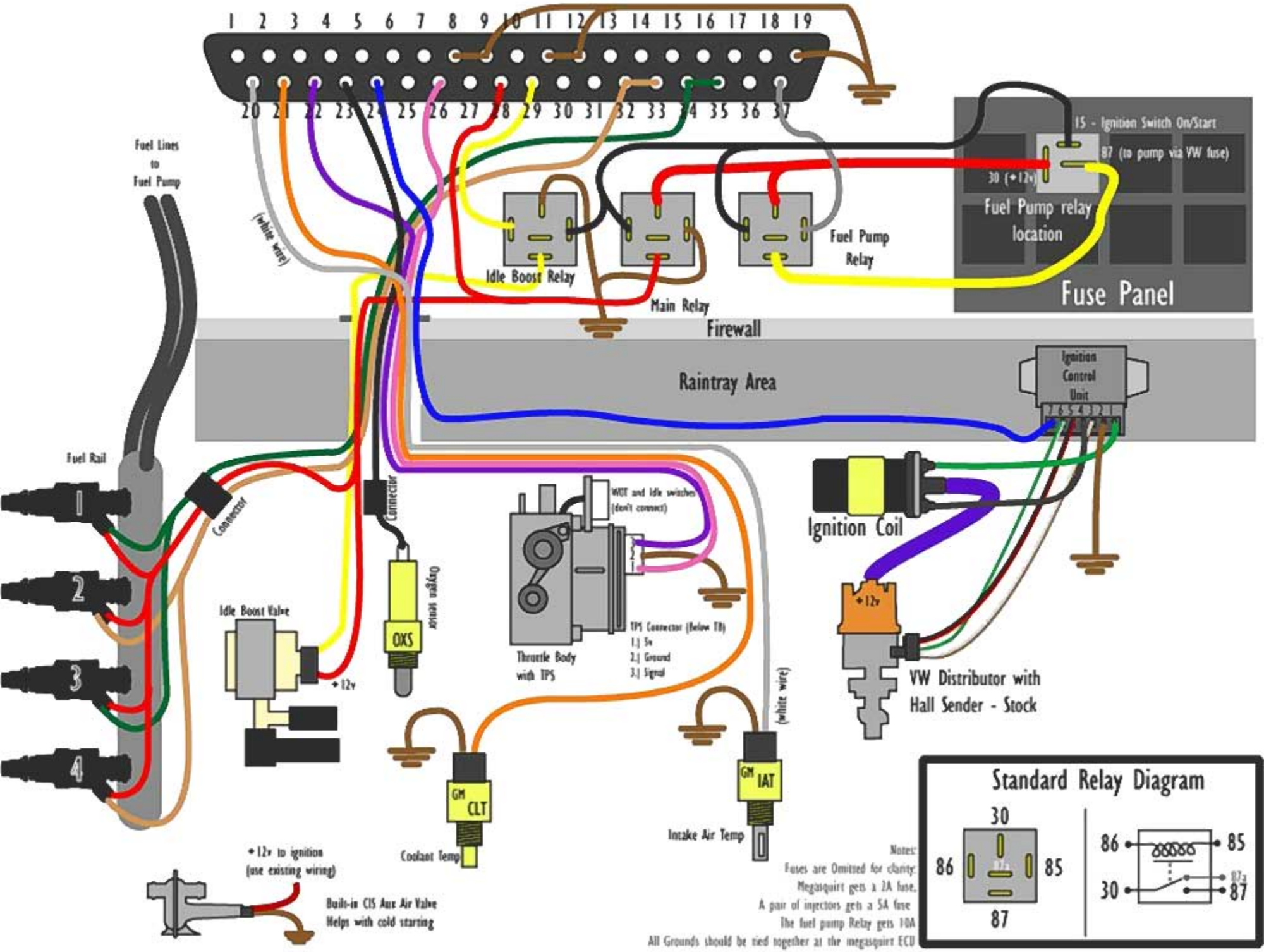
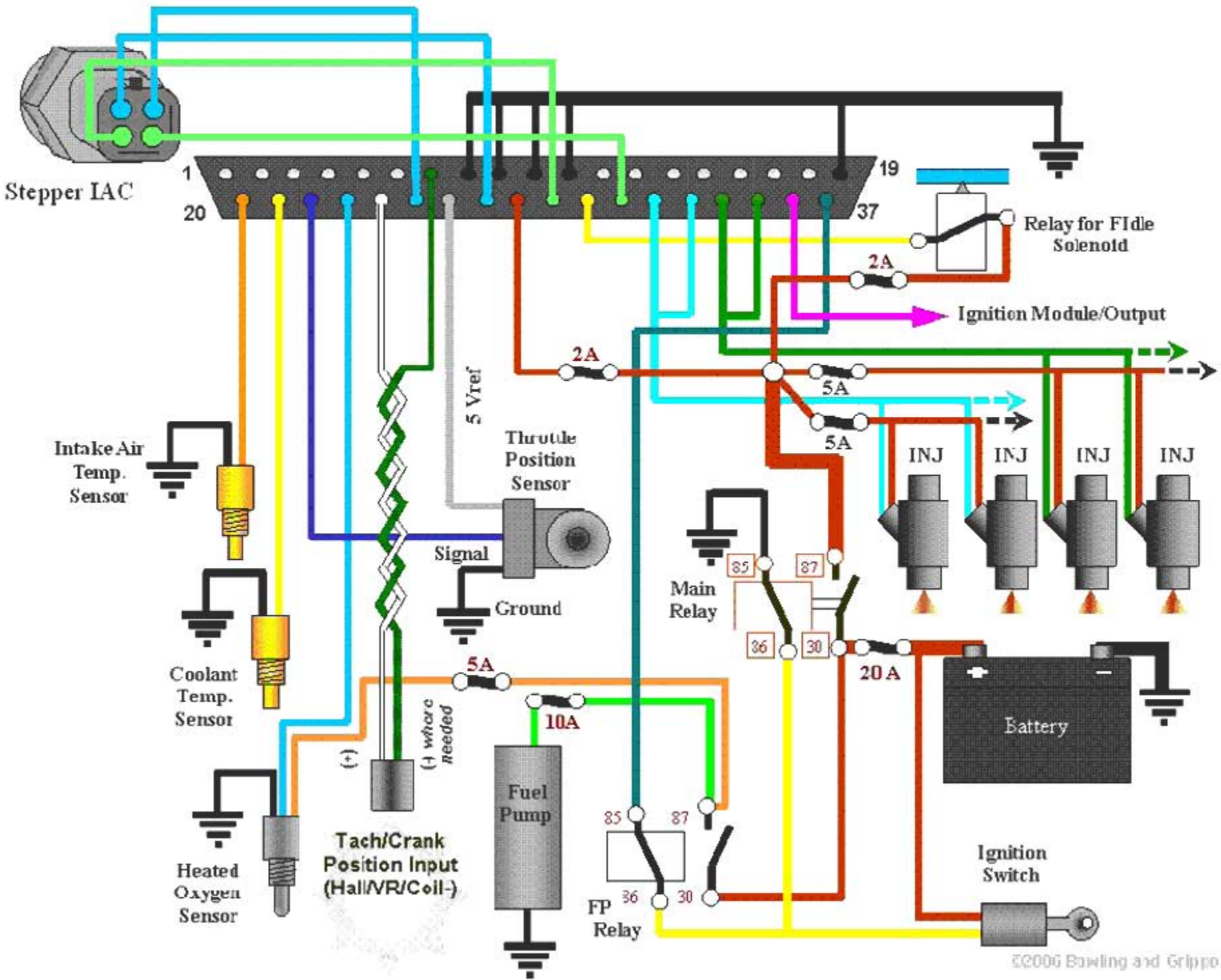
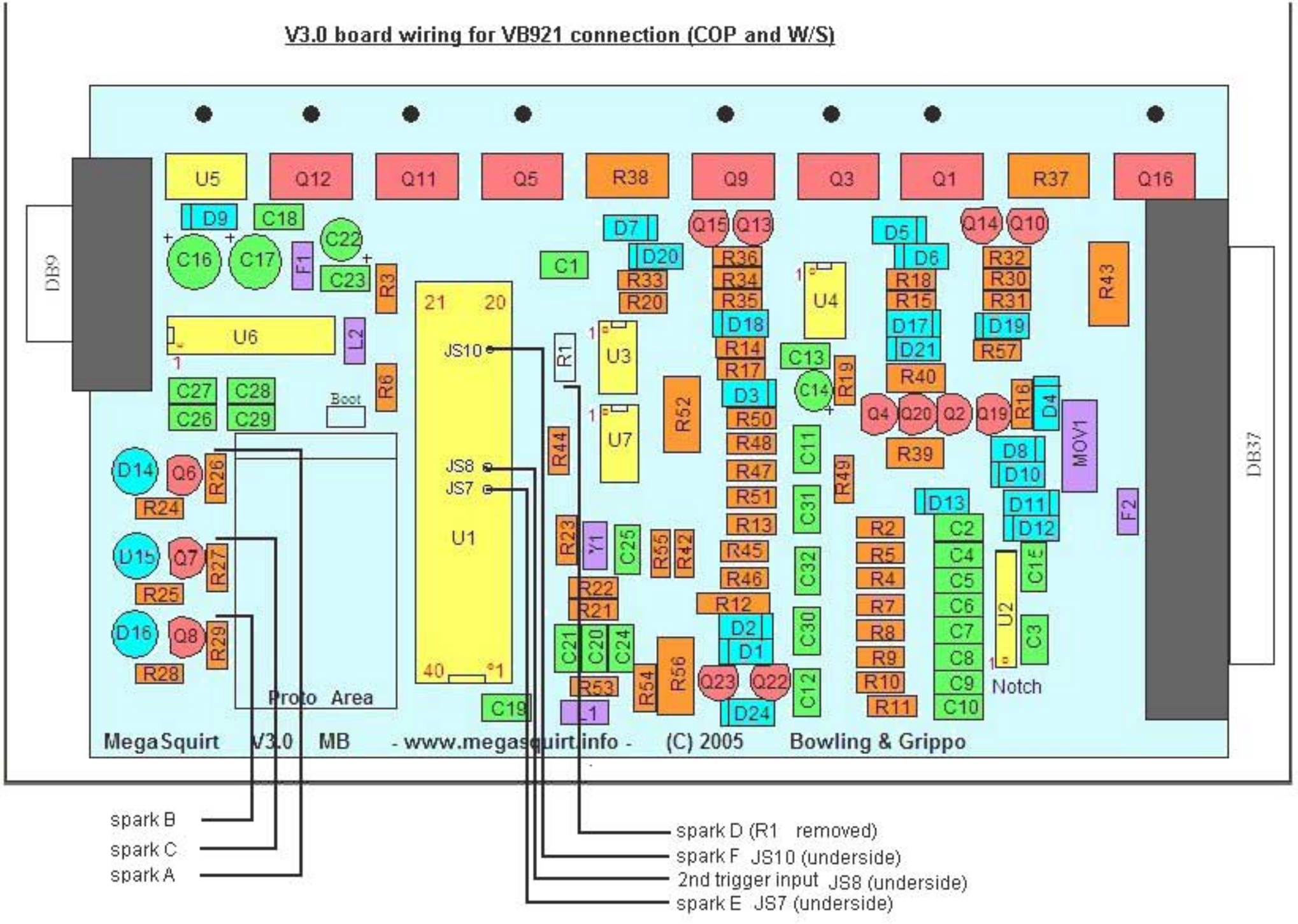
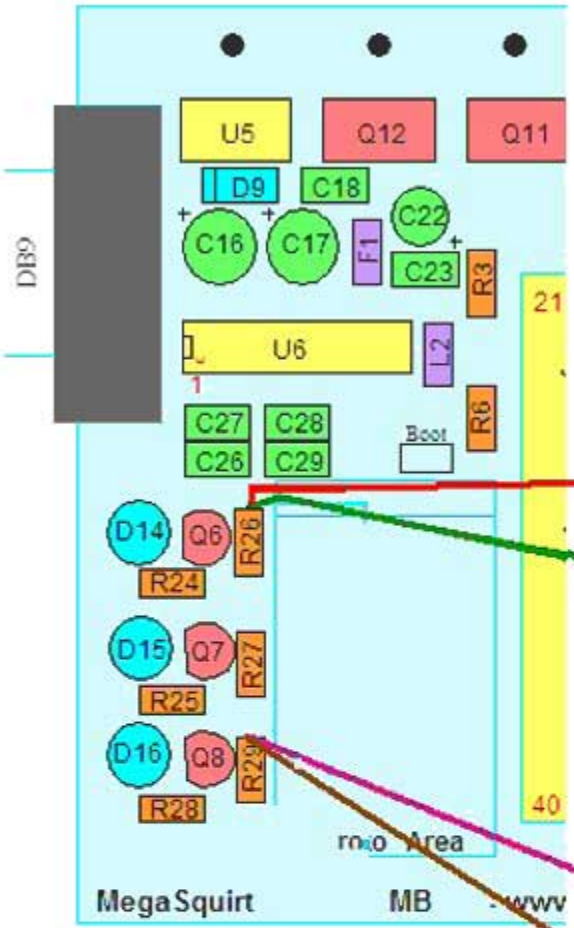

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
Fuel Lines to Fuel Pump
(white wire)
Idle Boost Relay
Main Relay
Fuel Pump Relay
15 - Ignition Switch On/Start
87 (to pump via VW fuse)
30 (+12v)
Fuel Pump relay location
Fuse Panel
Firewall
Raintray Area
Ignition Control Unit
7 6 5 4 3 2 1
Fuel Rail
1
2
3
4
Connector
Connector
Oxygen sensor
OXS
Idle Boost Valve
+12v
WOT and Idle switches (don't connect)
Throttle Body with TPS
TPS Connector (below TB)
1.) 5v
2.) Ground
3.) Signal
Ignition Coil
+12v
VW Distributor with Hall Sender - Stock
GM CLT
Coolant Temp
GM IAT
Intake Air Temp
(white wire)
+12v to ignition (use existing wiring)
Built-in CIS Aux Air Valve
Helps with cold starting
Notes:
Fuses are Omitted for clarity
Megasquirt gets a 2A fuse.
A pair of injectors gets a 5A fuse
The fuel pump Relay gets 10A
All Grounds should be tied together at the megasquirt ECU
Standard Relay Diagram
30
86
85
87
86
85
30
87
87a

# MegaSquirt V3.0 Main Board External Wiring Diagram



## V3.0 board wiring for VB921 connection (COP and W/S)






## For a V2.2 PCB

Right side of R25 = SparkA
Right side of R28 = Spark B
Right side of R26 = Spark C
JS1 pin 4 = Spark D

## For a V3.0 PCB

Top of R26 = Spark A
Top of R29 = Spark B
Top of R27 = Spark C
JS11 = Spark D

Spark A Drivers

VB921 1 2 3

VB921 1 2 3

750 Ohm

750 Ohm

Ground

Ground

Pin1+2 of DB15

Pin5+6 of DB15

Spark B Drivers

VB921 1 2 3

VB921 1 2 3

750 Ohm

750 Ohm

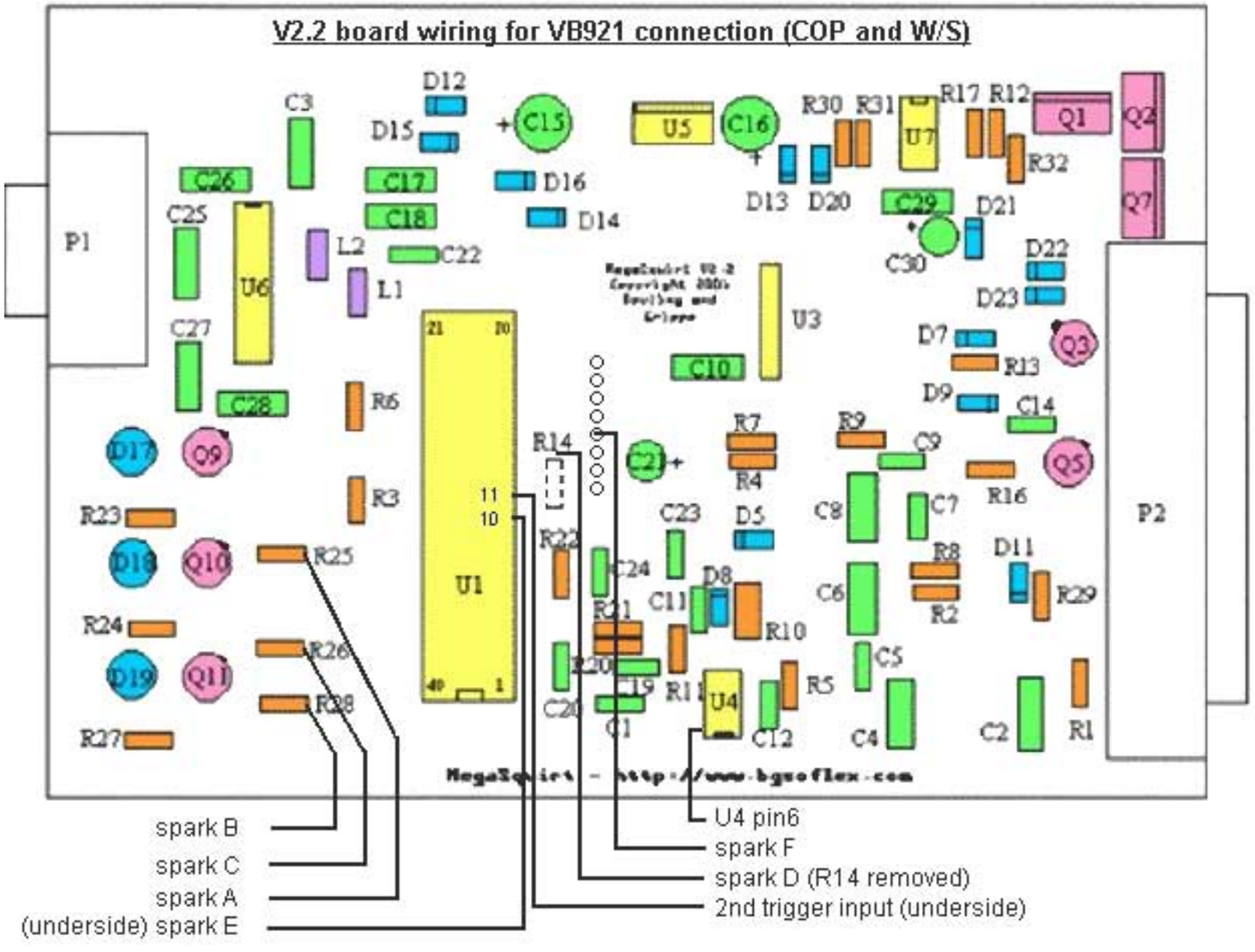
Ground

Ground

Pin3+4 of DB15

Pin7+8 of DB15

Connect all VB921 Grounds
To Pins 9 and 10 of DB15 connector


V2.2 board wiring for VB921 connection (COP and W/S)
P1
P2
U1
U3
U4
U5
U6
U7
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
L1
L2
Q1
Q2
Q3
Q4
Q5
Q7
Q9
Q10
Q11
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R16
R17
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
R32
21
20
11
10
40
1
spark B
spark C
spark A
(underside) spark E
U4 pin6
spark F
spark D (R14 removed)
2nd trigger input (underside)

# 1993 Megasquirt Wiring Pinout, and Color Code Chart

| Wire Function | MS Pin | MS Color | ECU Pin | ECU wire color | Action |
|---|---|---|---|---|---|
| Ground | G | Black | 3A (C246) | Black/Orange | Tap into ECU harness |
| Ground | G | Black | 3D (C246) | Black/Brown | Tap into ECU harness |
| Ground | G | Grey | | | Connect to Chassis |
| Intake Air Temperature | 20 | Orange | 2K (C247) | Red/Black | Tap into ECU harness |
| Engine Coolant Temperature | 21 | Yellow | 2E (C247) | /Blue | Tap into ECU harness |
| Throttle Position Input | 22 | Blue | 2F (C247) | Green/Yellow | Tap into ECU harness |
| Left (Front) HO2S Input (O2Sensor) | 23 ! | | 2C (C247) | White | Tap into ECU harness |
| Tach Signal | 24 ! | White | 3E (C246) | Violet/Green | Tap into ECU harness |
| Fan Output (Optional)* | 25 | Light Blue | 2P (C247)* | Blue/Green* | Tap into ECU harness |
| Reference Voltage Output | 26 | Grey | 2I (C247) | LightGreen/Red | Tap into ECU harness |
| Programable Output (X4)** | 27 | Orange | ** | | |
| 12+ Volt (PCM power) | 28 | Red | 1B (C248) | White/Red | Tap into ECU harness |
| Programable Output (X5)** | 29 | Tan | ** 3I, 3J (C246) | White/Green, Blue/Red | |
| Idle Air Control Valve | 30 | Dark Green | 3Q (C246) | Blue/Orange | Tap into ECU harness |
| Right (Rear) HO2S Input (O2Sensor) | 31 ! | Green/Grey | 2D (C247) | Blue/White | Tap into ECU harness |
| Injector Bank 1 | 32/33 ! | Green | 3V, 3X, 3Z (C246) | Yellow/Violet, Orange/White, Grey | Cut wire at ECU, splice to Injector. |
| Injector Bank 2 | 34/35 ! | Blue | 3U, 3W, 3Y (C246) | Orange, Yellow/Blue, Yellow/Red | Cut wire at ECU, splice to Injector. |
| Distributor Ignition Output | 36 | Brown | 1G (C248) | Orange | Cut wire at ECU, splice to disty. |
| Fuel Pump (Optional)*** | 37 | Purple | 3T (C246) | LightGreen | Tap into ECU harness |

NOTES:

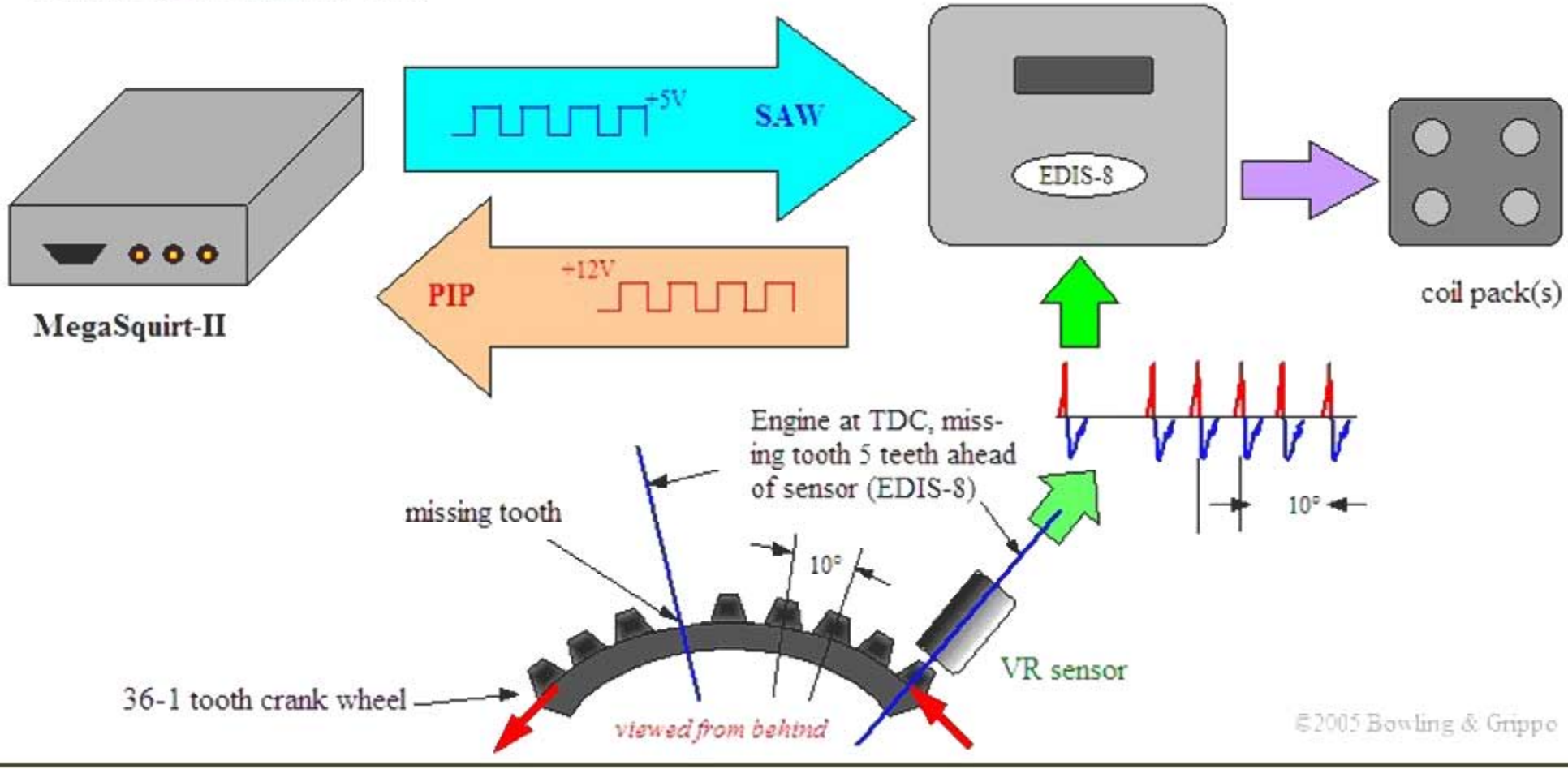
* There are three fan modes that can be activated by this output depending on which wire you tap at the stock ECU. See Pinout

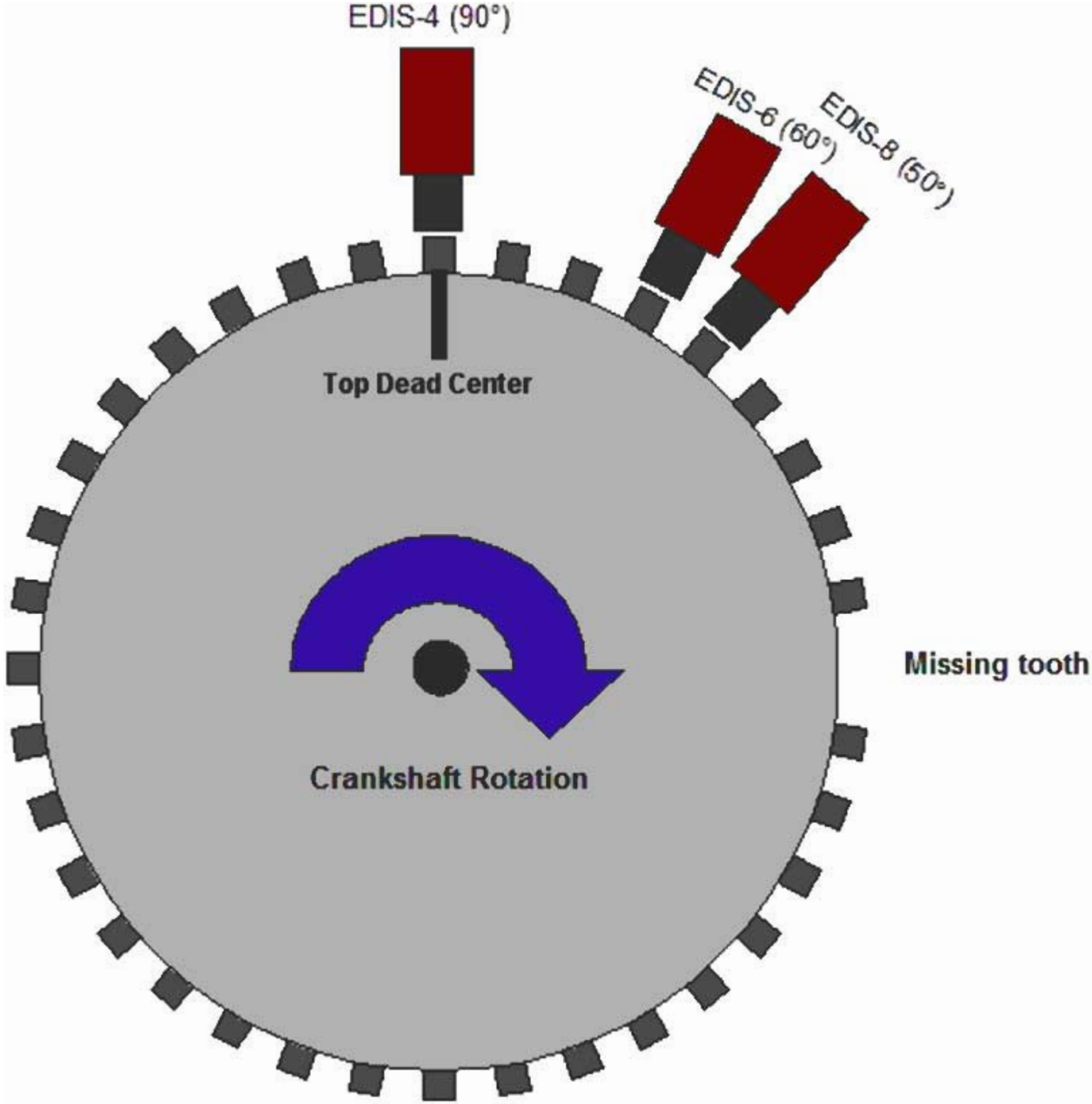
** These outputs short to ground when active and are programable through the MegatuneSS program.

*** This can be spliced into the ECU harness, but is not required since the stock ECU controls fuel pump operation. (redundant)

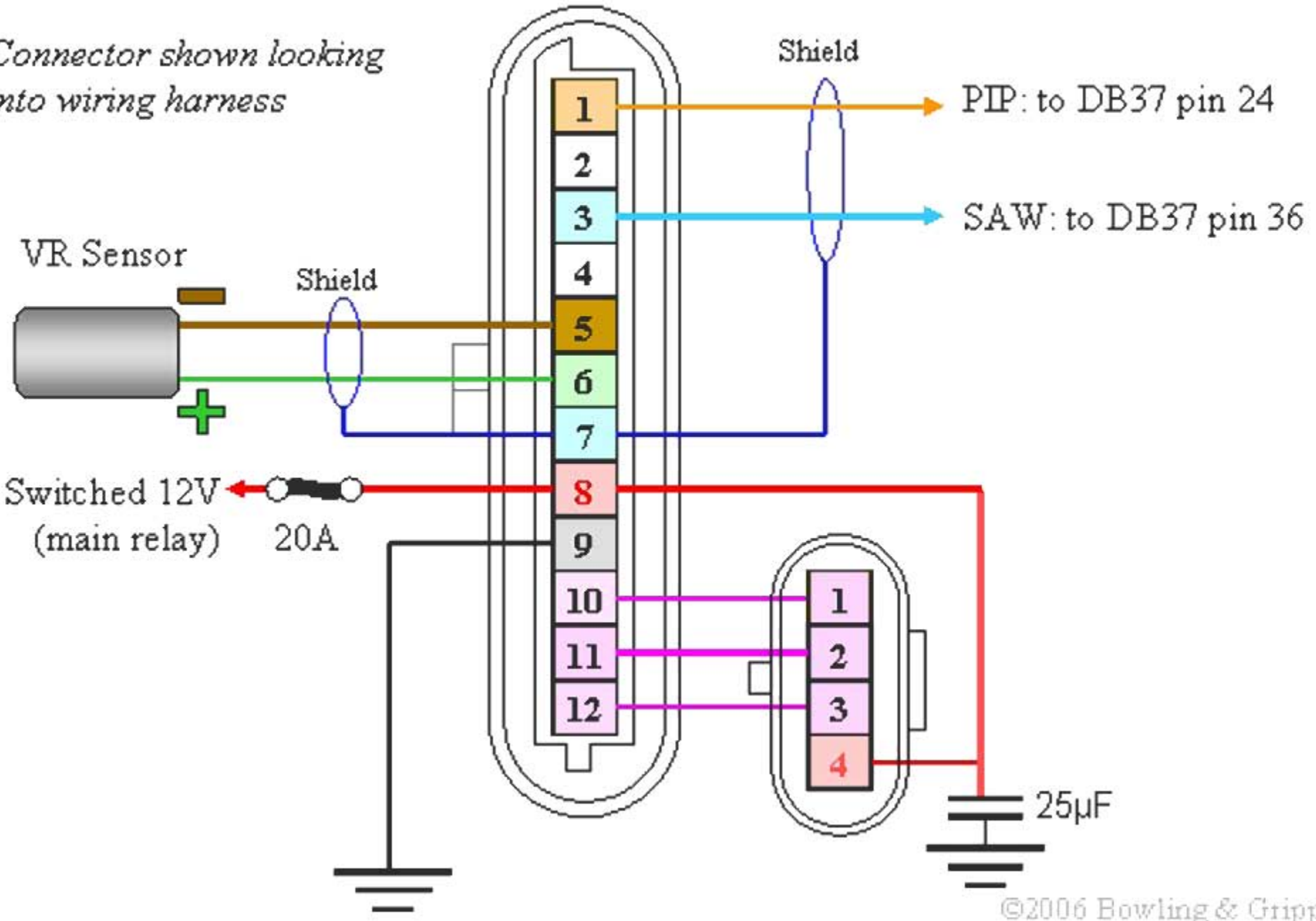
! This part of the harness is inside a grey plastic sheeth.

# MegaSquirt-II and EDIS

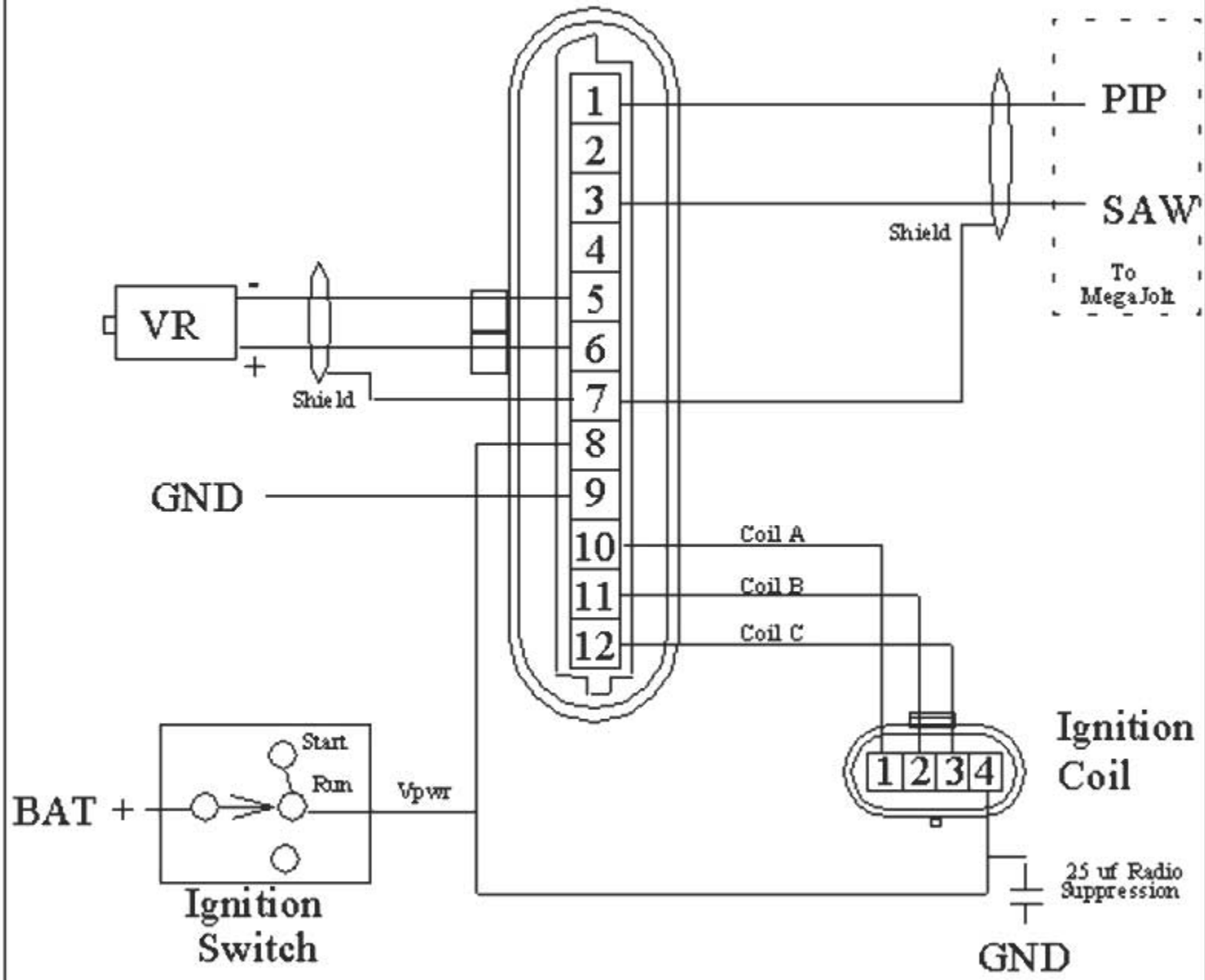



EDIS-4 (90°)
EDIS-6 (60°)
EDIS-8 (50°)
Top Dead Center
Missing tooth
Crankshaft Rotation

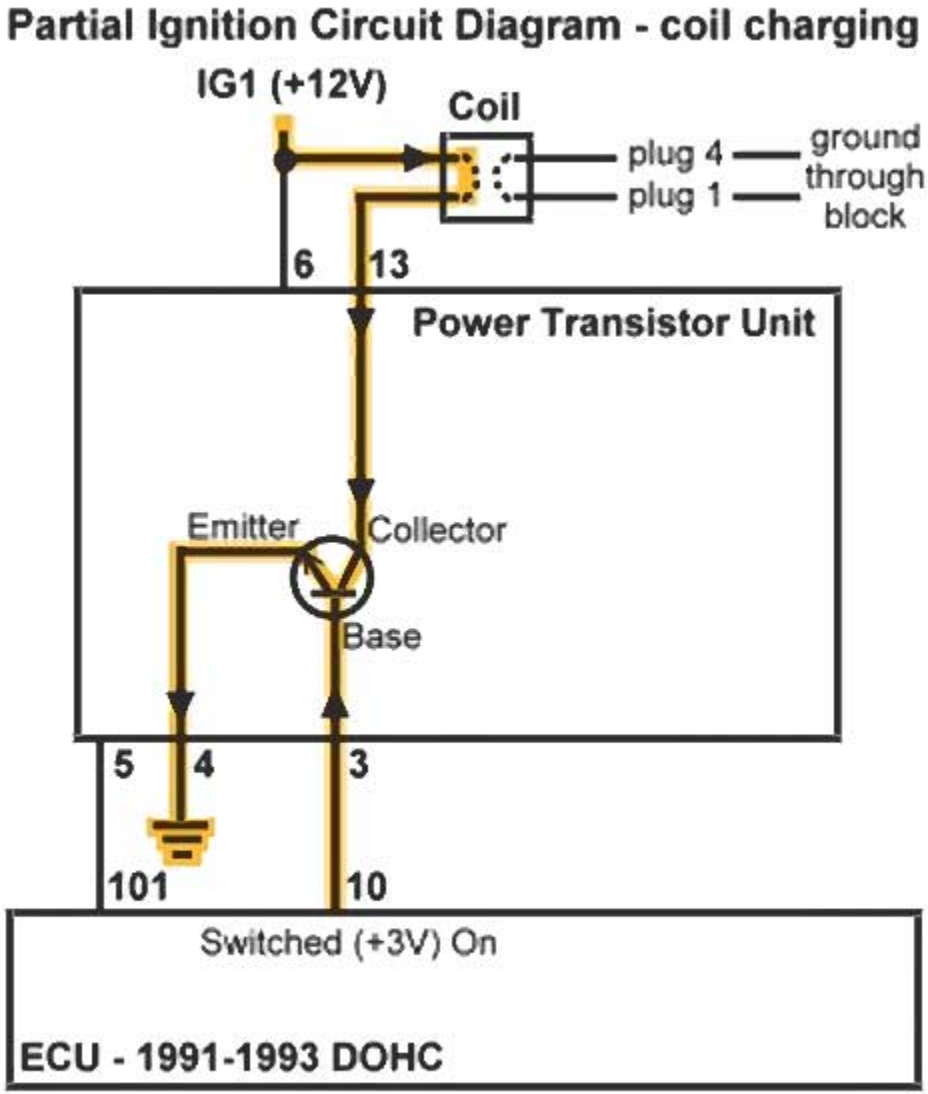
# EDIS-6 Wiring



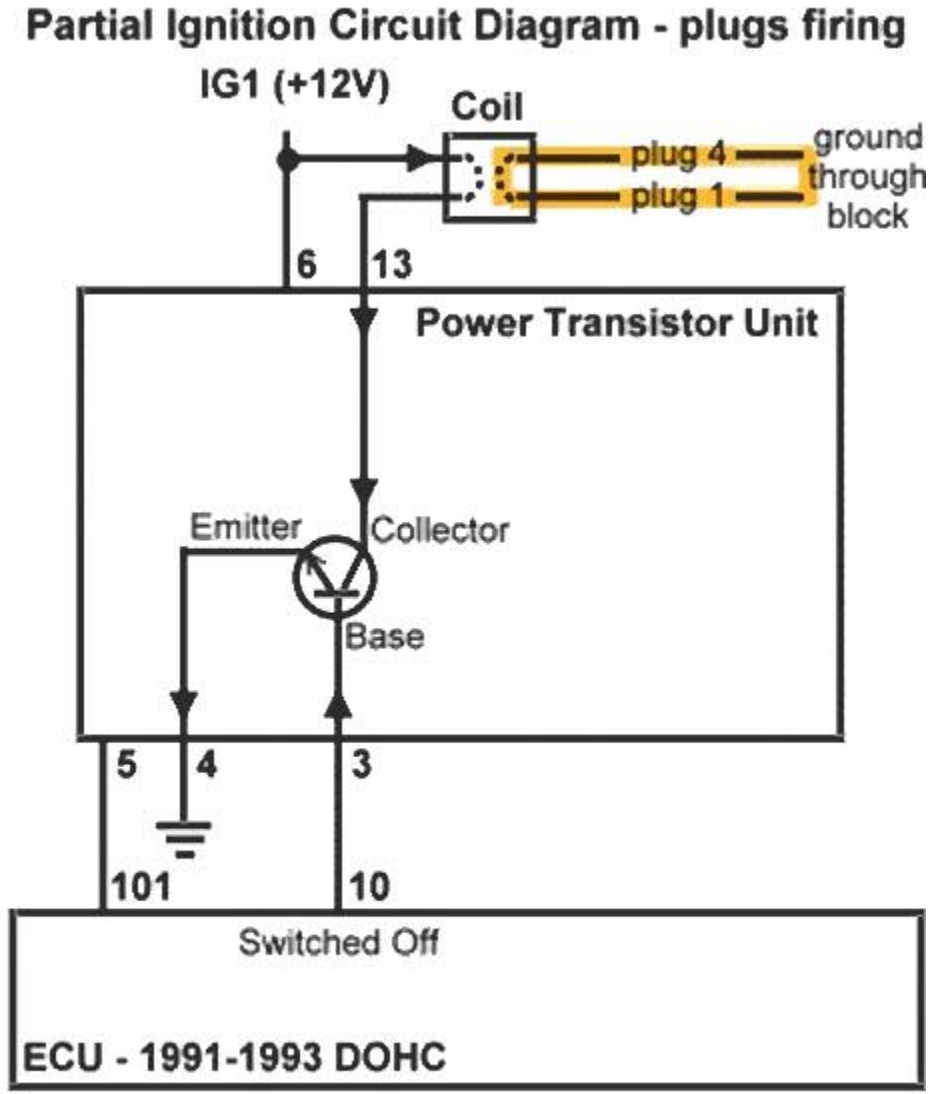
# EDIS-6 Wiring Schematic




Note: Connectors Are shown Looking into Wiring Harness

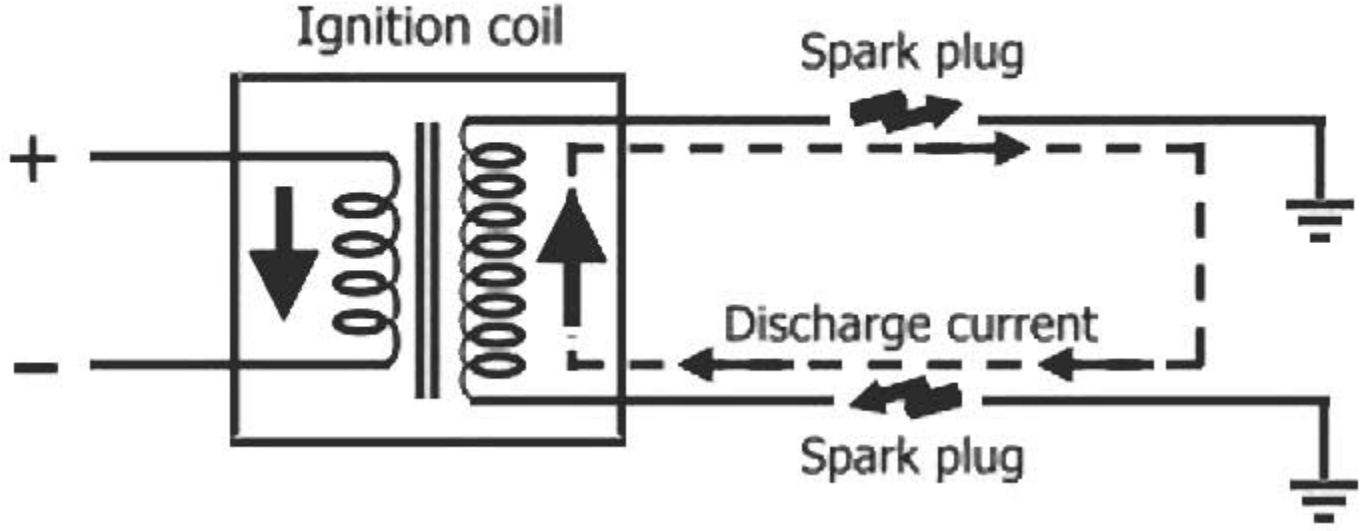



Sequence #1



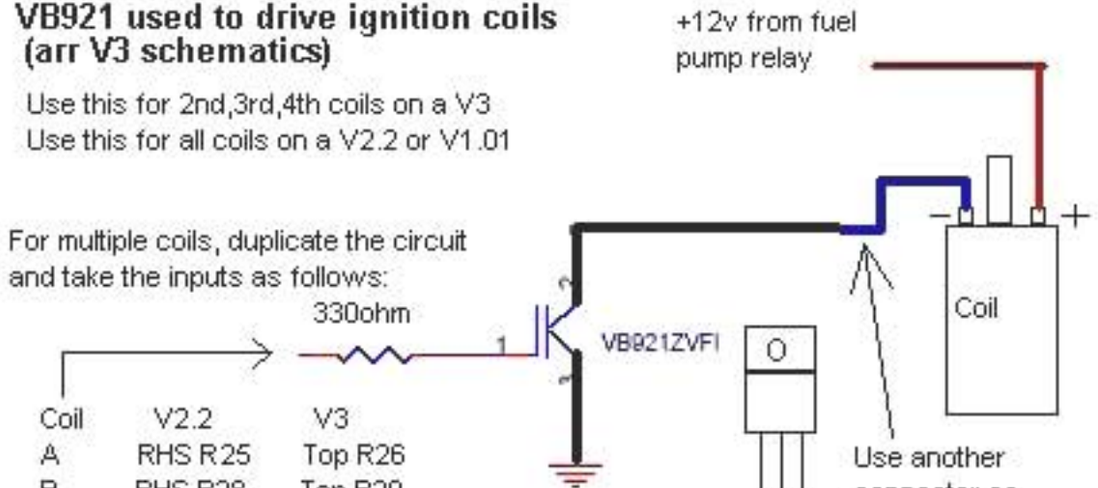

Sequence #2

## Wasted Spark Distribution



## VB921 used to drive ignition coils (arr V3 schematics)

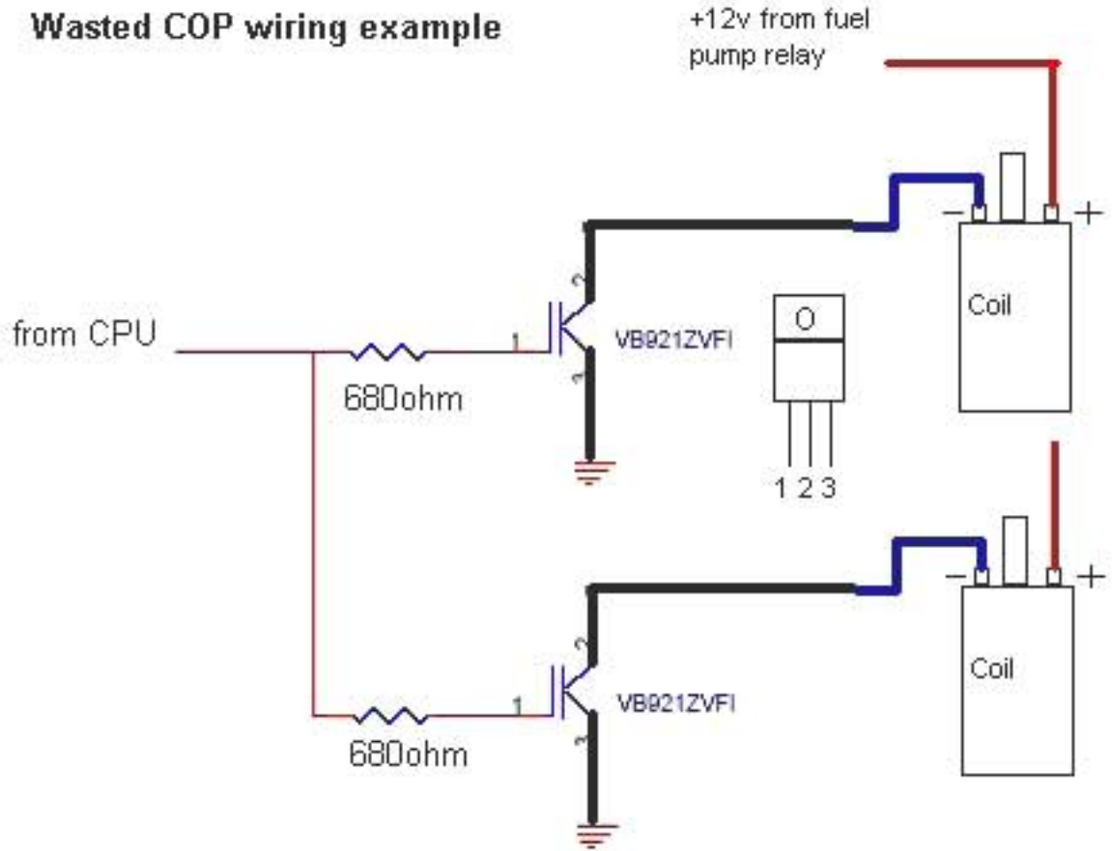
Use this for 2nd,3rd,4th coils on a V3
Use this for all coils on a V2.2 or V1.01




| Coil | V2.2 | V3 |
|---|---|---|
| A | RHS R25 | Top R26 |
| B | RHS R28 | Top R29 |
| C | RHS R26 | Top R27 |
| D | Top R14 (remove R14, | Btm R1 R1) |
| E | CPU pin 10 | CPU pin 10 (underside) |
| F | JP1/5 | JS10 |

Solder a wire onto the noted component and then to the 330ohm resistor (probably in heatshrink)

## Wasted COP wiring example



## Mitsubishi Power Transistor Unit MD152999 for DOHC 6G72

| | | | |
|---|---|---|---|
| VB | Battery power | IB1 Transistor "A" base | OC1 Transistor "A" collector |
| TACHO | Tachometer out | IB2 Transistor "B" base | OC2 Transistor "B" collector |
| GND | Ground | IB3 Transistor "C" base | OC3 Transistor "C" collector |

Terminals: 6 5 4 3 2 1 13 12 11

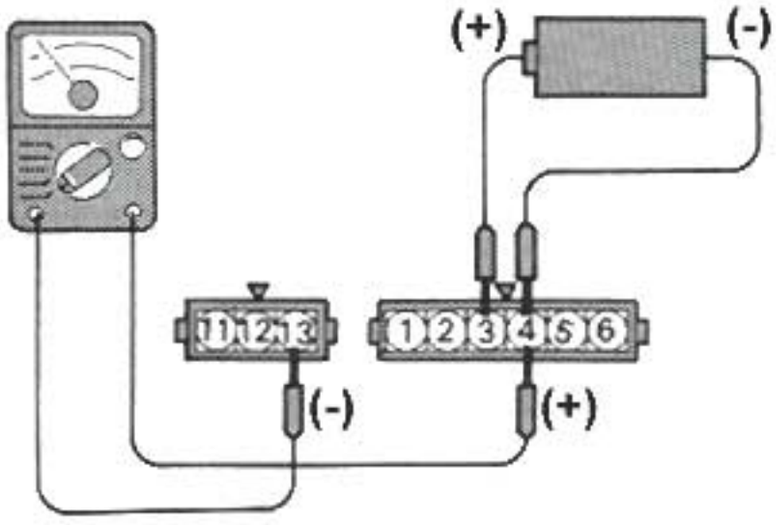

**The images to the right and below show the Mitsubishi DOHC 6G72 engine's ignition Power Transistor Unit (PTU)or basically a tripple ganged ignition Internally gated Bipolar Transistor (IGBT) for coil spark output control. There are three NPN transistors in the PTU which amplify and switch the current to the primary windings in the three ignition coils of a coil pack. The ECU applies a small current to the transistor base switching the transistor to "on". This allows current to flow from the transistor collector to the transistor emitter and therefore through the coil's primary windings. Using an internal resistor, the ECU controls the current to the transistor base to limit the current in the coil to 6 amps. When it is time to fire the spark plugs, the ECU very quickly withdraws current from the transistor, switching the transistor to "off". This produces an electric field in the coil's secondary windings.**

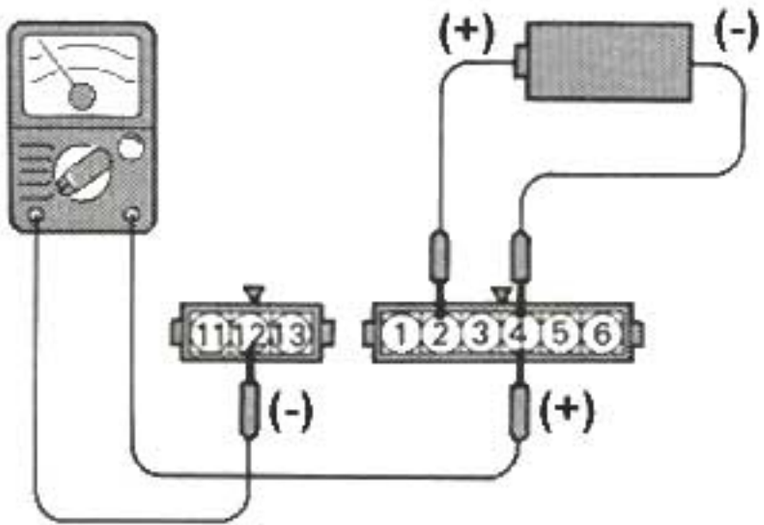
### Power TR Ohmmeter Checks

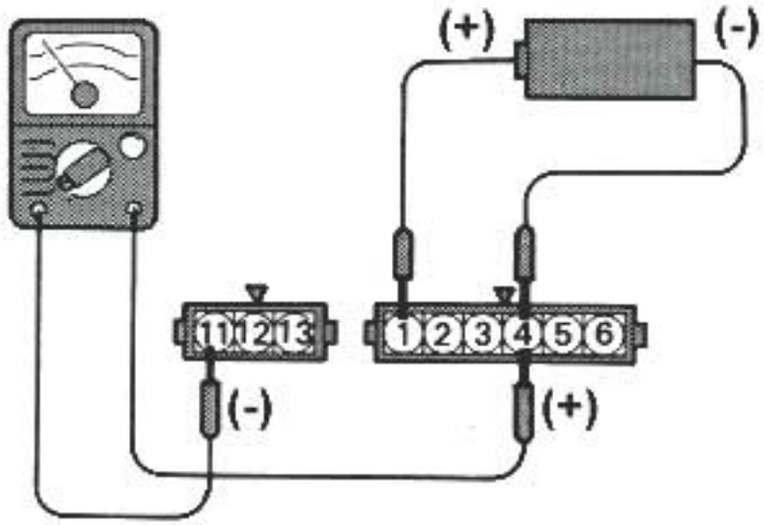
**1.** Power transistor for no. 1 - no. 4 coil (coil "A"). Set the meter to measure Ohms and touch the negative lead (black) to terminal 13 (OC1, the collector) and the positive lead (red) to terminal 4 (GND, the emitter). You should see some resistance. Now clip the jumper wire connected to the batttery's positive terminal to terminal 3 (IB1). Measure the resistance between terminals 13 and 4 as before. The resistance should be nominal or close to zero. The service manual states there should be continuity with the battery connected to terminal 3 (in fact, the resistance will be very low) and no continuity with the battery not connected (in fact, the resistance will be high). Note on an analog meter that zero ohms is on the right side of the scale.

**2.** Power transistor for no. 2 - no. 5 coil (coil "B"). Repeat the above test except connect the battery positive to terminal 2 and the VOM black lead to terminal 12.

**3.** Power transistor for no. 3 - no. 6 coil (coil "C"). Repeat the above test except connect the battery positive to terminal 1 and the VOM black lead to terminal 11.

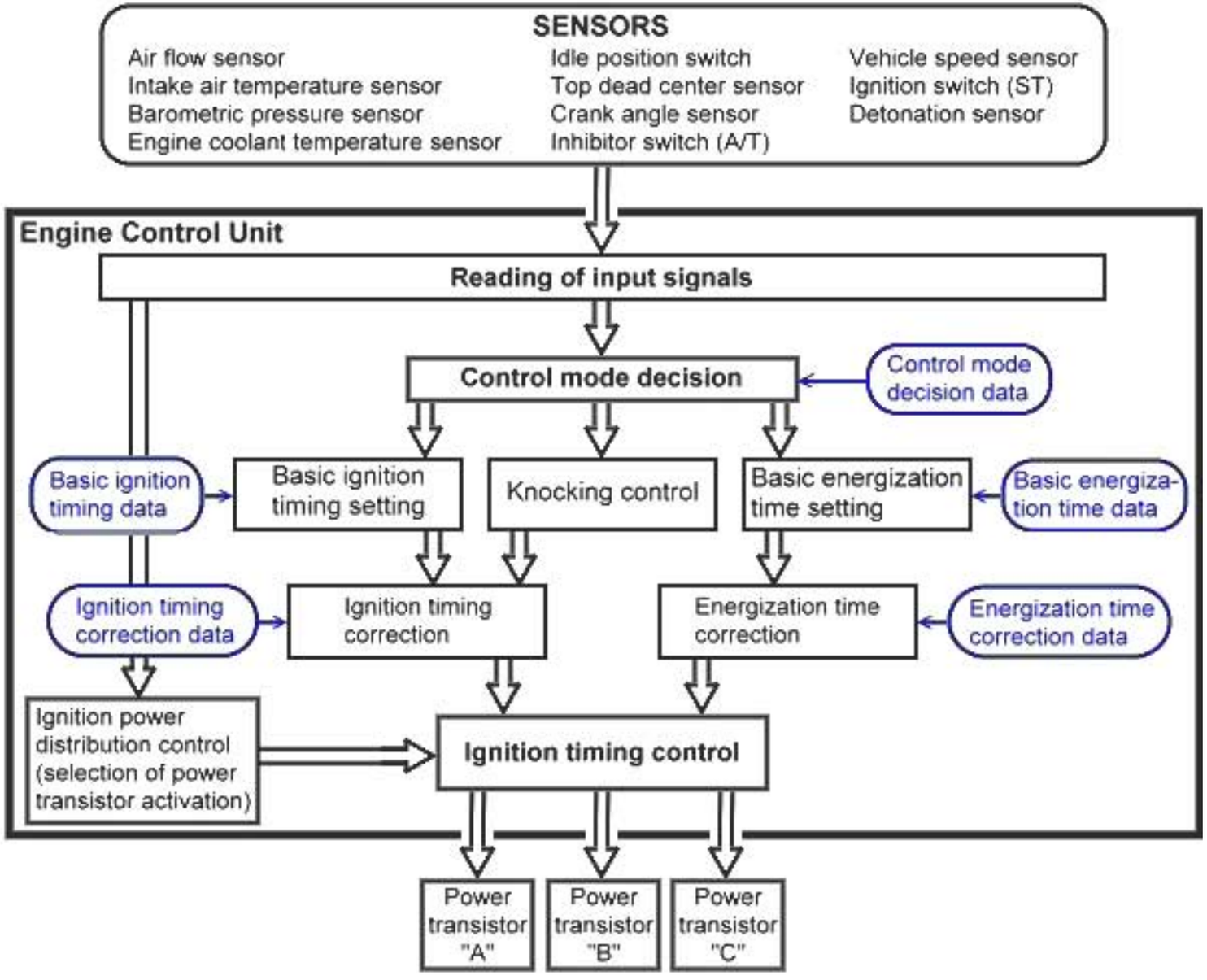


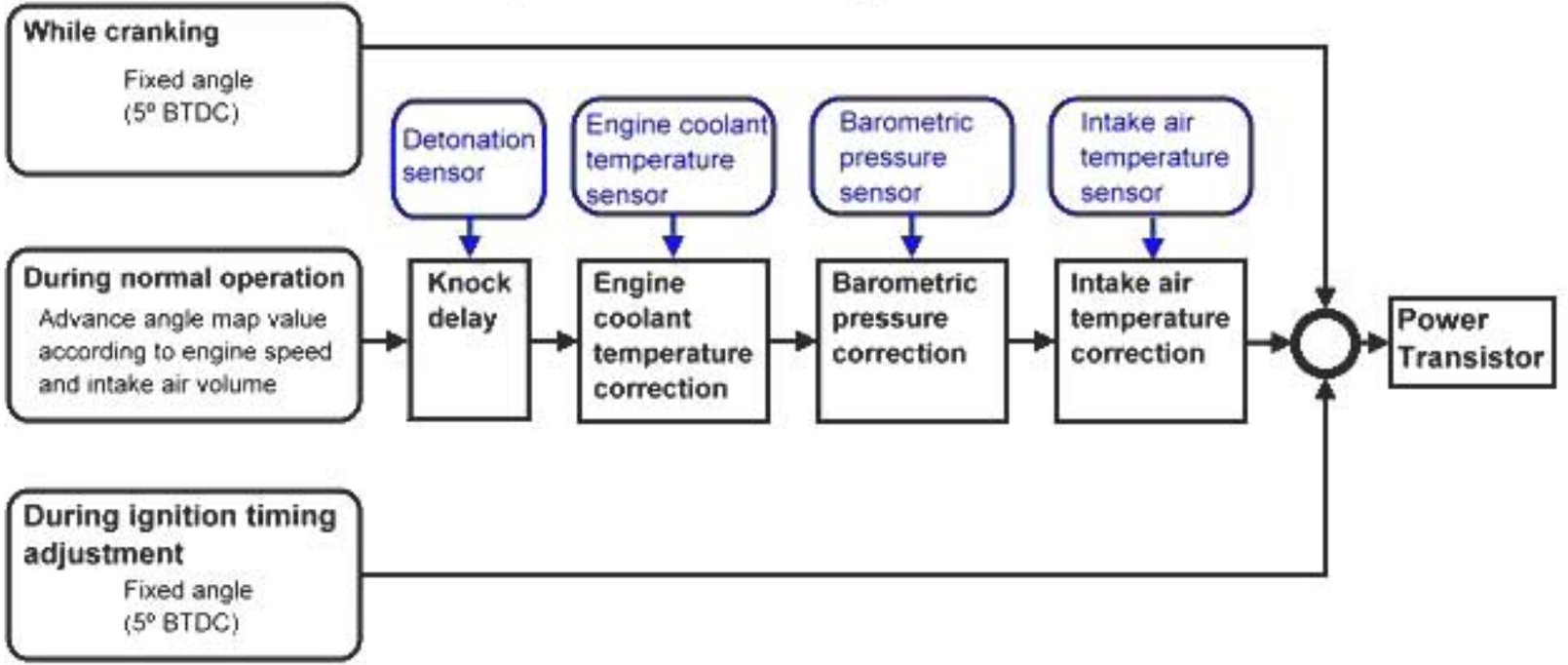



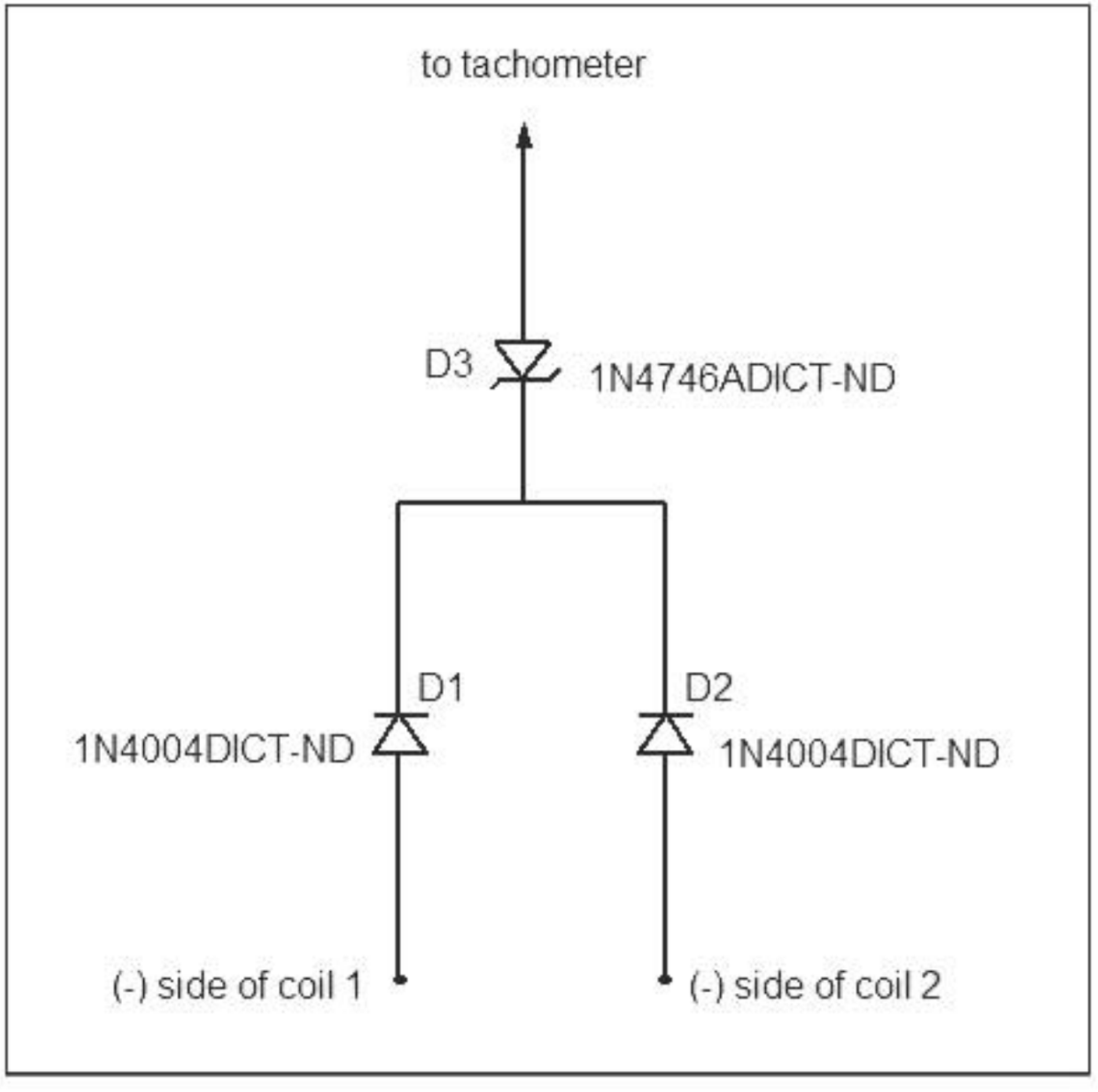
# Mitsubishi or Similar to 98+ Mazda 626 System

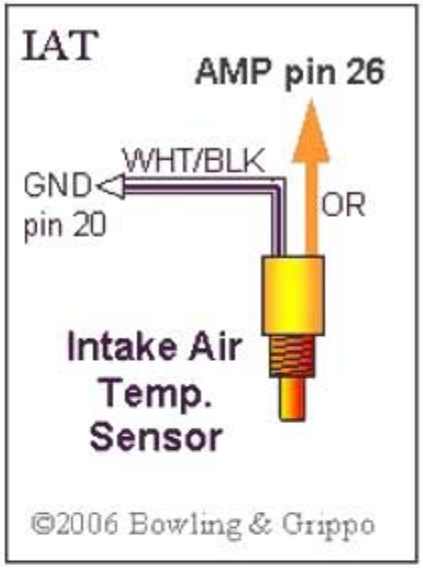
## ECU Functions for Ignition Timing Control

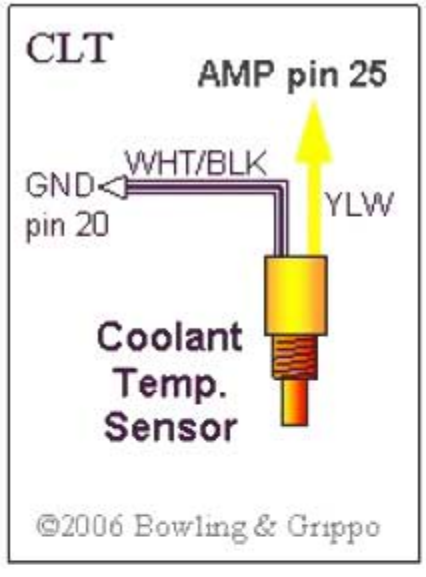


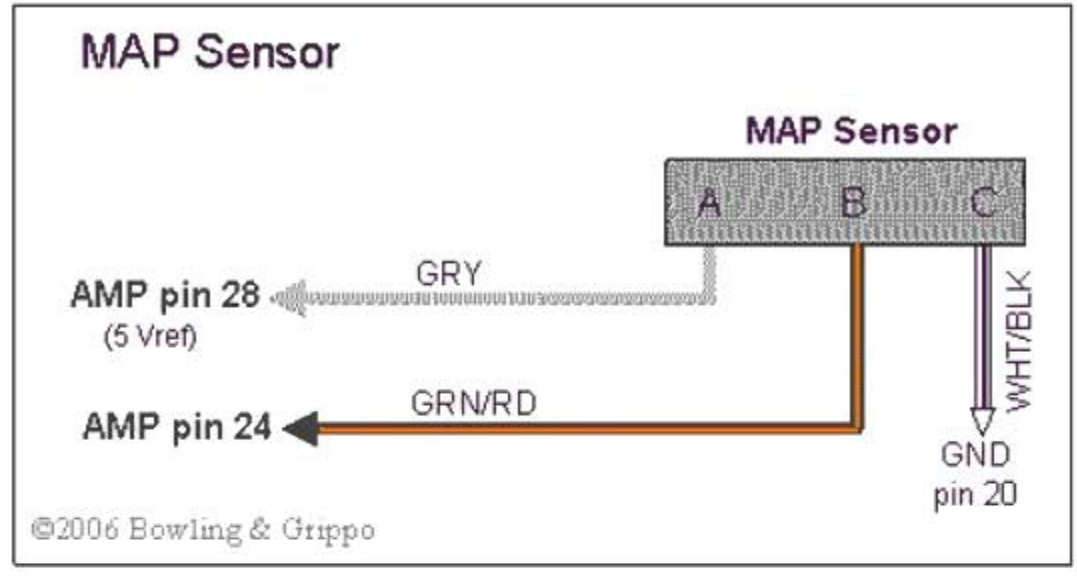
## Ignition Advance Angle Control

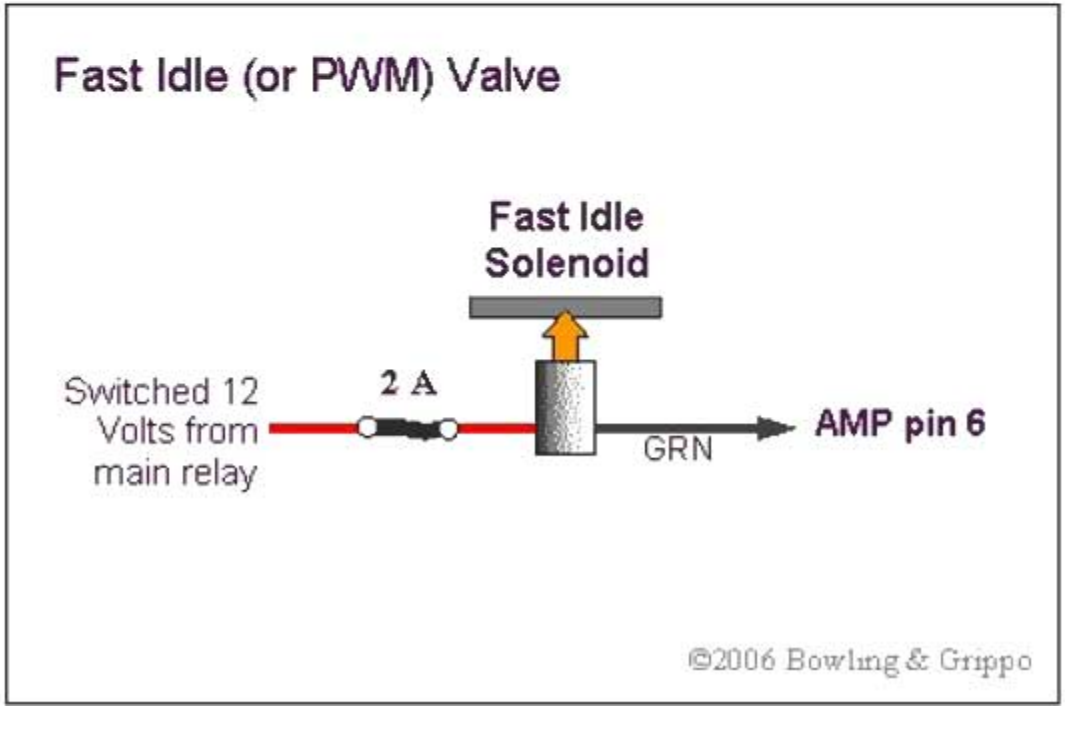


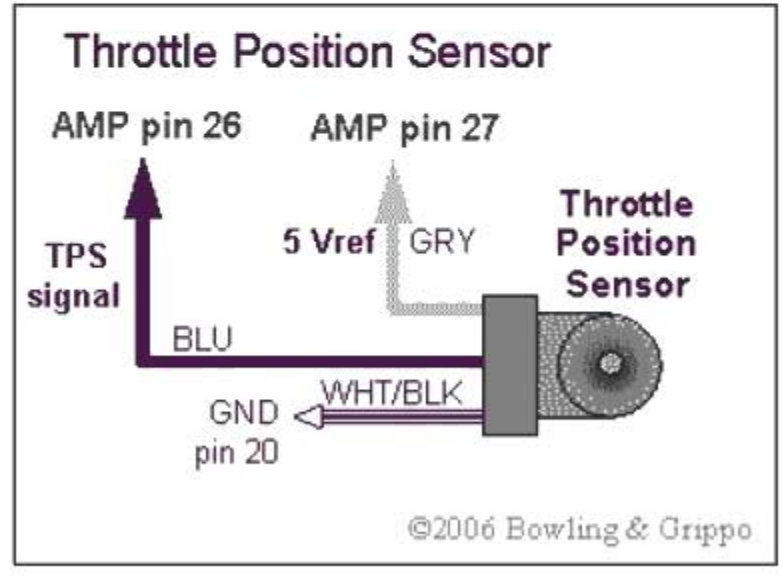

to tachometer
D3
1N4746ADICT-ND
D1
1N4004DICT-ND
D2
1N4004DICT-ND
(-) side of coil 1
(-) side of coil 2

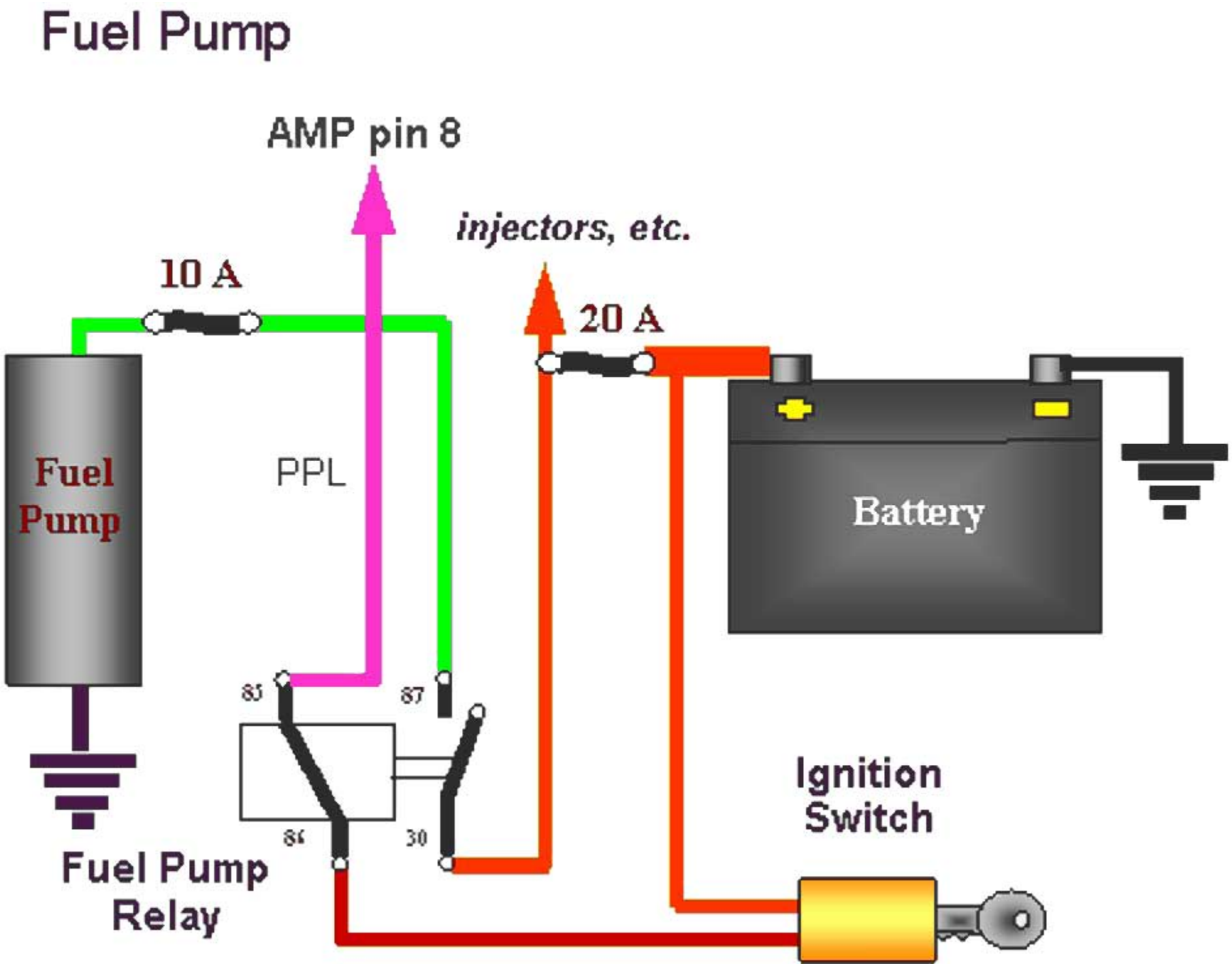

IAT
AMP pin 26
WHT/BLK
GND
pin 20
OR
Intake Air
Temp.
Sensor
©2006 Bowling & Grippo

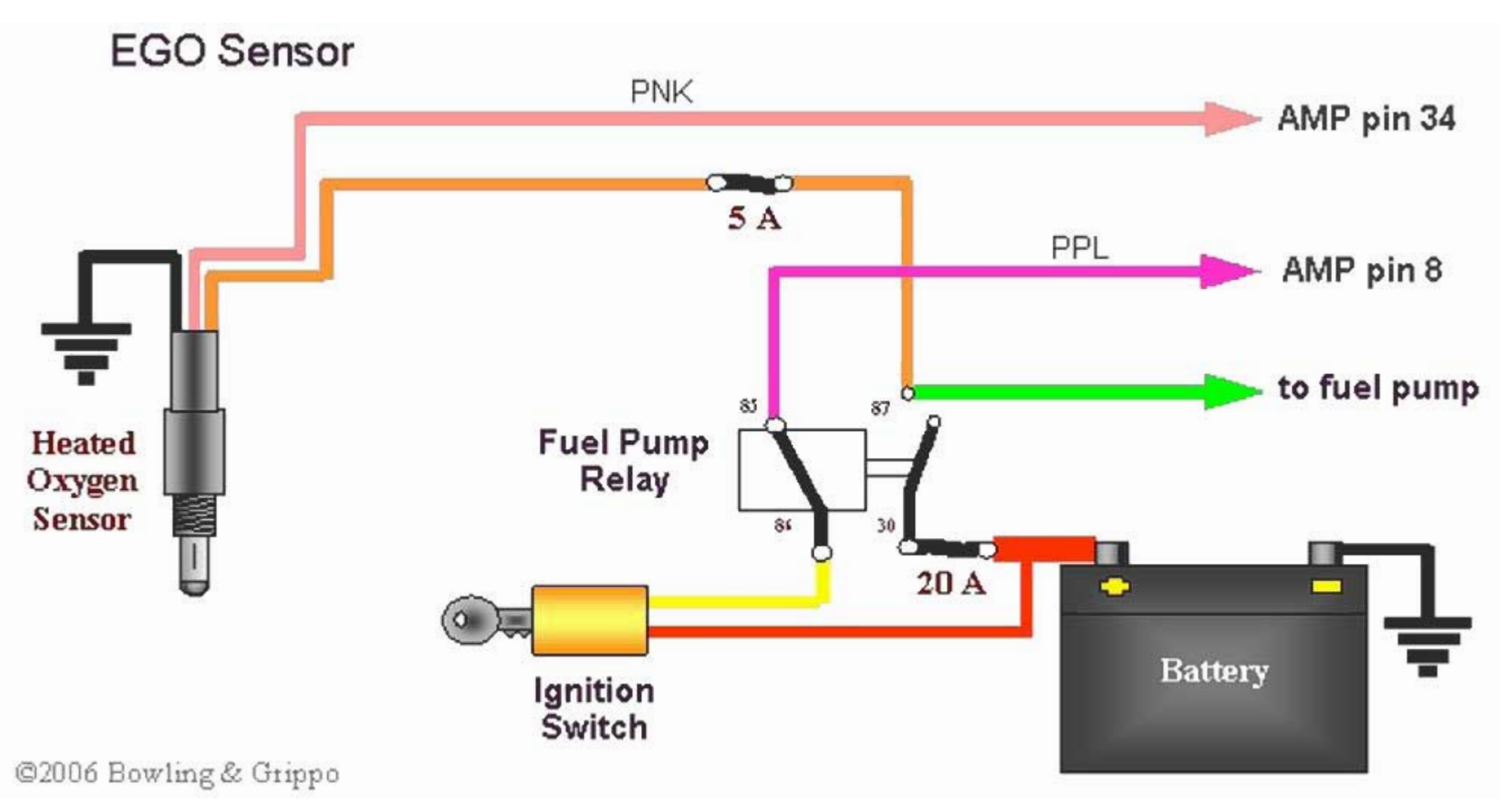

CLT
AMP pin 25
WHT/BLK
GND
pin 20
YLW
Coolant
Temp.
Sensor
©2006 Bowling & Grippo


MAP Sensor
MAP Sensor
A
B
C
GRY
AMP pin 28
(5 Vref)
GRN/RD
AMP pin 24
WHT/BLK
GND
pin 20
©2006 Bowling & Grippo


Fast Idle (or PWM) Valve
Fast Idle
Solenoid
Switched 12
Volts from
main relay
2 A
GRN
AMP pin 6
©2006 Bowling & Grippo


Throttle Position Sensor
AMP pin 26
AMP pin 27
TPS
signal
5 Vref
GRY
Throttle
Position
Sensor
BLU
WHT/BLK
GND
pin 20
©2006 Bowling & Grippo


Fuel Pump
AMP pin 8
injectors, etc.
10 A
20 A
Fuel Pump
PPL
Battery
85
87
86
30
Fuel Pump Relay
Ignition Switch


EGO Sensor
PNK
AMP pin 34
5 A
PPL
AMP pin 8
to fuel pump
Heated
Oxygen
Sensor
Fuel Pump
Relay
85
87
86
30
20 A
Battery
Ignition
Switch
©2006 Bowling & Grippo