

MicroSquirt V3 for Volvo 240 4 Cylinder

CUSTOMER DIAGRAM

This engine harness has been design for the use of Microsquirt V3 on a Volvo 4 cylinder in a 240.

MicroSquirt V3 uses a 35-pin AMPSEAL connector and a sealed case to make a fully sealed unit. This harness uses a 35-pin AMPSEAL connector for this purpose.

MicroSquirt V3 has Dual Spark capability. Ver.2.822 embedded code offers the capability to use two inputs and two outputs for ignition.

MicroSquirt V3 has two injector driver outputs. Up to four high-impedance (saturated type) injectors may be used per driver for up to eight injectors. For this four cylinder harness, each driver will be assigned two injectors. Each driver limits injector current to ~5 amps and will drive high-impedance injectors without changes. If you opt for low-impedance (peak and hold type) injectors, they will require resistors in series to limit current. Instructions for building and adding a resistor pack are included in these diagrams.

MicroSquirt V3 has no internal MAP sensor, so an external MAP sensor is required and supported by this harness. A good choice is a General Motors type, which may be found with 1, 2, 3 bar, etc. capacity. A 2-bar sensor will support boost up to 14.7 PSI (1 bar over normal atmospheric pressure). This harness uses a General Motors MAP sensor plug.

This harness incorporates two leads for the alternator D+ connection so that you have your choice of mounting the alternator of the right (normal) side or left side.

An optional available coil harness may be added for Coil Near Plug configuration using four GM LS style coils, which would typically be used with an 8 valve head.

An optional available coil harness may be added to support a Coil On Plug configuration using four Denso pencil style coils for use with a 16 valve head.

Optional available adapter harnesses may also be used with a block mounted ignition distributor and single coil if needed using your choice for ignition (crank position) triggering and ignition amplification.

Ignition (crank position) triggering options include 1. DSM CAS (cam angle sensor), 2. LH 2.4 60-2 VR flywheel driven Volvo crank position sensor, or 3. Volvo LH 2.2 Hall sensor style distributor.

This harness supports an optional available harness for a MAF sensor, if desired. Microsquirt gives you the choice of using MAP only, MAF only or MAF/MAP blending. Several MAF sensor types can be used and are detailed in these diagrams.

In order to make room inside the compact Microsquirt case for dual ignition inputs and outputs, the stepper motor circuits for idle air control (IAC) are not included by the manufacturer. Microquirt provides PWM style idle valve support and old-school on/off style idle valve support. These options are detailed in these diagrams. If a stepper motor IAC circuit is desired, an optional Microsquirt Stepper Adapter Module is available and can be added. Stepper IAC circuits are also detailed here.

Microsquirt V3 will not support a knock sensor directly and knock sensing is not directly supported by this harness, however it is possible to add an external interface module for a knock sensor if needed.

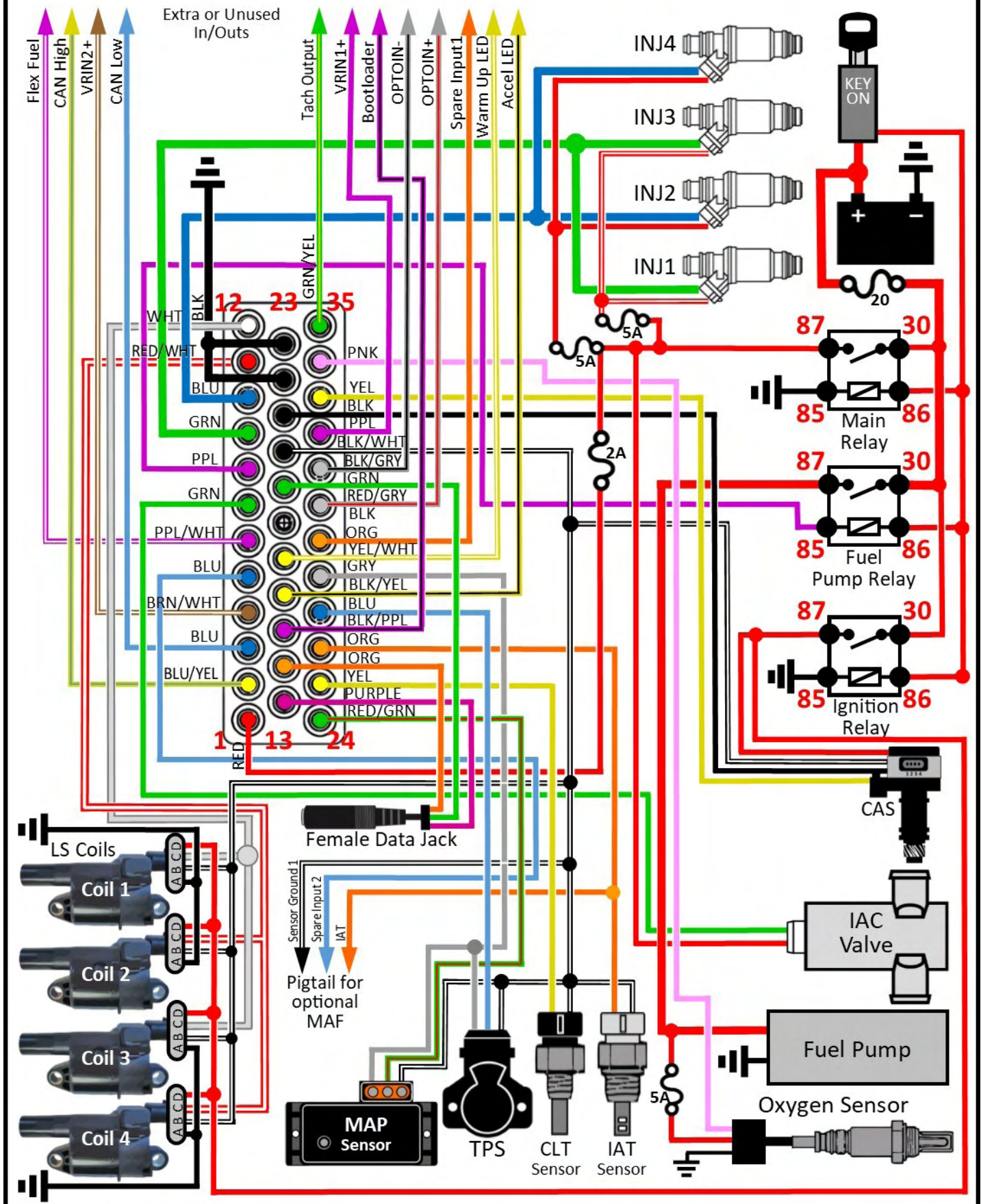
MicroSquirt V3 comes with preloaded embedded code (unlike MegaSquirt -II). You may upgrade to newer code as new versions are released, but you will not have to load the code initially to get MicroSquirt running.

The bootloader function in MicroSquirt is externally accessible. Serial RS-232 signals are directed through the 35-pin AMPSEAL connector to an external 3.5 mm data jack provided near the ECU for convenient connection to your computer.

A note about battery power. Power to the Microsquirt ECU will go through a relay before going to the ECU. The 12v battery power source to the relays used in this harness should have a direct path to battery positive. Do not use power from just any 12v source you can find in your car. Using a dedicated power wire to these relays is the best choice.

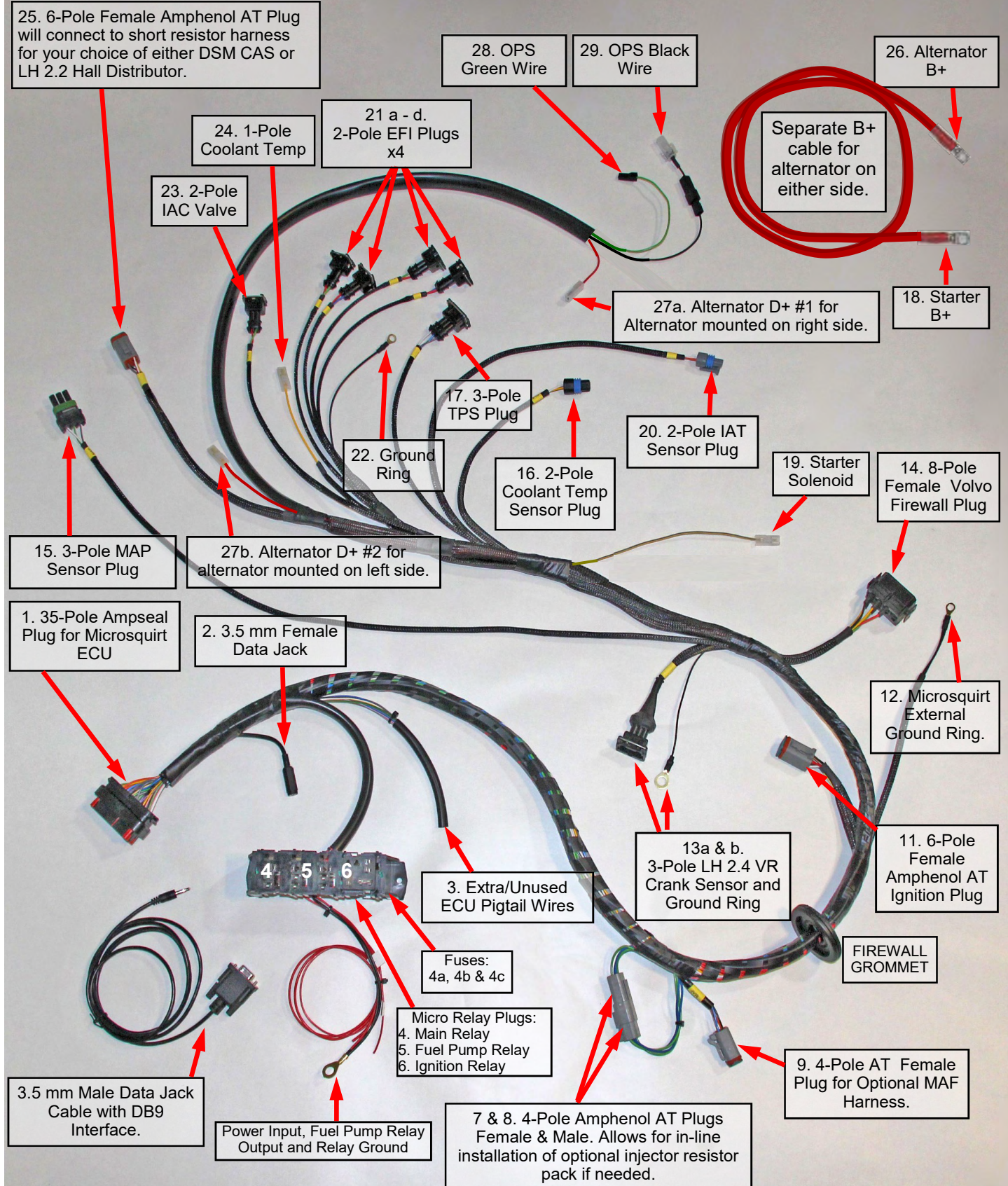
MicroSquirt controllers are not for sale or approved for use on emission controlled vehicles Check the laws that apply in your location to determine if using MicroSquirt is legal for your application.

MicroSquirt V3 for Volvo 4 Cylinder GENERAL WIRING DIAGRAM



MICROSQUIRT Engine Harness for Volvo 240

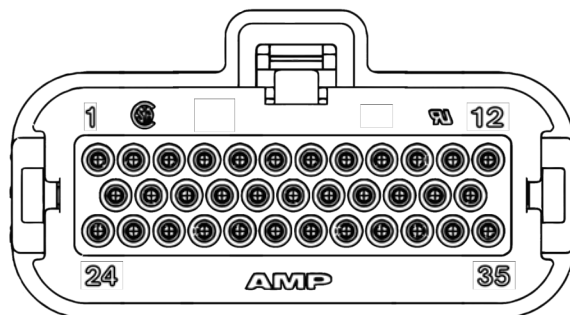
MAIN ENGINE WIRING HARNESS



MICROSQUIRT Engine Harness for 240

1

35-Pole Ampseal Connector for Microsquirt ECU



View of REAR of connector

1. Red
2. Blu/Yel
3. Blu/Red
4. Brn/Wht (shielded)
5. Blue
6. Purp/Wht
7. Green
8. Purple
9. Green (fat)
10. Blue (fat)
11. Red/Wht (fat) (shielded)
12. White (fat) (shielded)
13. Purple
14. Orange
15. Blk/Purp
16. Blk/Yel
17. Yel/Wht
18. empty
19. Green
20. Blk/Wht
21. Black (shielded)
22. Black (fat)
23. Black (fat)
24. Red/Grn
25. Yellow
26. Orange
27. Blue
28. Gray
29. Org/Grn
30. Red/Gry
31. Blk/Gry
32. Purple (shielded)
33. Yellow (shielded)
34. Pink
35. Grn/Yel

To 2A fuse and then to Conn. 4 (Main Relay plug), pin 87.

CAN High. Not used. 20 cm pigtail exits harness at Junction 2.

CAN Low. Not used. 20 cm pigtail exits harness at Junction 2.

VRIN2+. Not used. 20 cm pigtail exits harness at Junction 2.

To 4-Pole Female AT Conn. 9, pin 4 for MAF pigtail at Junction 3. **Spare Input 2.**

Flex Fuel. Not used. 20 cm pigtail exits harness at Junction 2.

To Conn. 23 pin 1, 2-Pole EVI plug. **Fiddle/IAC.**

To Conn. 5 pin 85, fuel pump relay socket. **Fuel Pump** Relay Output.

To Conn. 7, pins 1 and 3. 4-pole female Amphenol AT plug. **Injector Bank 1.**

To Conn. 7, pins 2 and 4. 4-pole female Amphenol AT plug. **Injector Bank 2.**

To Conn. 11, pin 3. 6-pole female Amphenol AT plug at Junction 4. **Ignition Output 2.**

To Conn. 11, pin 4. 6-pole female Amphenol AT plug at Junction 4. **Ignition Output 1.**

To Conn. 2, ring. Female 3.5 mm data jack.

To Conn. 2, tip. Female 3.5 mm data jack.

Wire pigtail. 20 cm from Junction 2. **Bootloader.**

Accel LED. Not used. 20 cm pigtail exits harness at Junction 2.

Warm Up LED. Not used. 20 cm pigtail exits harness at Junction 2.

Not used.

To Conn. 2, sleeve. Female 3.5 mm data jack.

Sensor Ground/Return. To Conn. 9, pin 1; Conn. 11, pins 2 & 5; Conn. 25, pin 1;

To Conn. 25, pin 4. 6-pole Amphenol AT plug. **VRIN2-.**

To Conn. 12, **external ground** ring for Microsquirt ECU.

(Same as above) To Conn. 12, **external ground** ring for Microsquirt ECU.

To Conn. 15, pin B, 3-pole **MAP sensor.**

To Conn. 16, pin A, 2-pole **CLT** (coolant temp) sensor.

To Conn. 9, pin 2, 4-pole female Amphenol AT plug at Junction 3 (optional **MAF**).

To Conn. 20, pin A, **IAT** (intake air temp) sensor.

To Conn. 17, pin 2, **TPS.**

To Conn. 15, pin C, 3-pole MAP sensor. **Vref.**

To Conn. 17, pin 1, TPS. **Vref.**

To Conn. 25, pin 5, 6-pole Amphenol AT plug. **Vref.**

Spare Input 1. Not used. 20 cm pigtail exits harness at Junction 2.

OPTOIN+. Not used. 20 cm pigtail exits harness at Junction 2.

OPTOIN-. Not used. 20 cm pigtail exits harness at Junction 2.

To Conn. 13, pin 2, Volvo VR Crank Position Sensor. **VRIN1+.**

To Conn. 13, pin 1, Volvo VR Crank Position Sensor. **VRIN1-.**

To Conn. 25, pin 3, 6-pole Amphenol AT plug. **VRIN1-.**

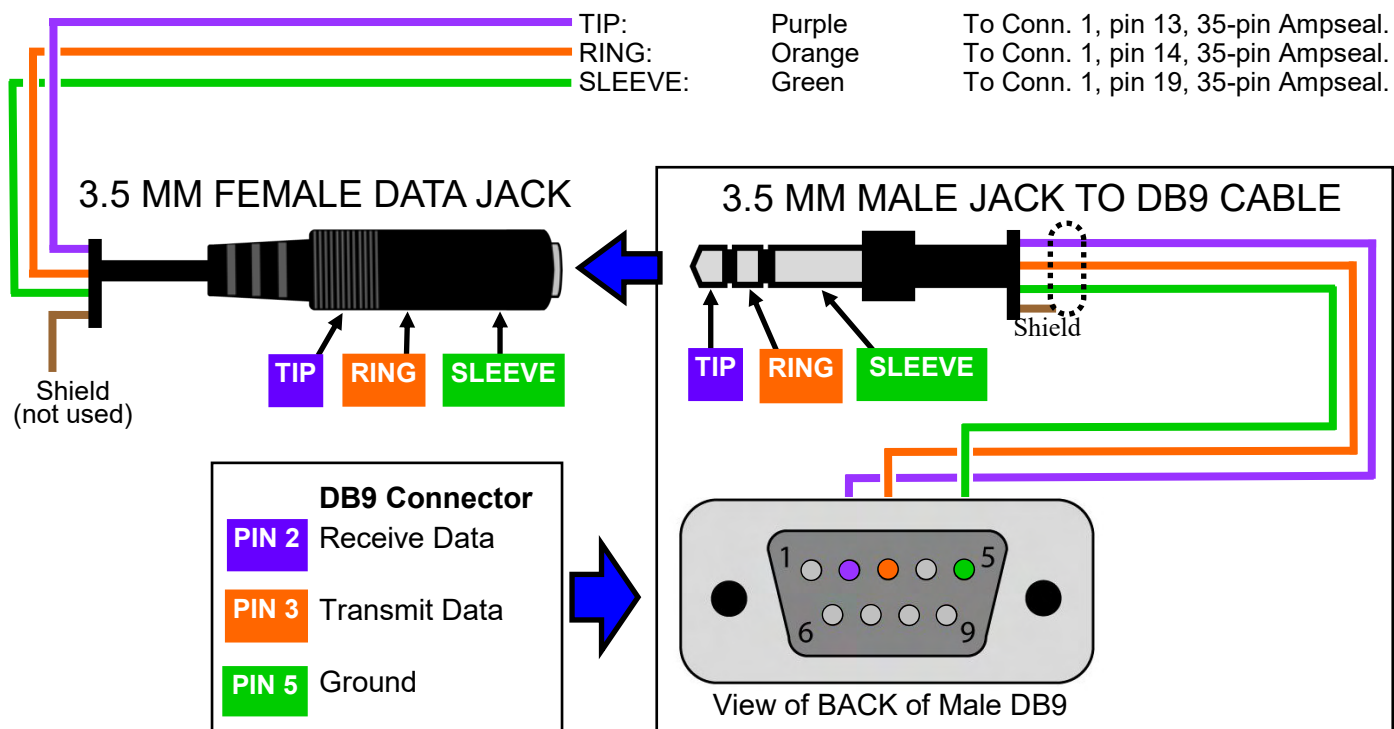
Wire pigtail. 20 cm from Junction 2. For **O2 Input** from wide band O2 module.

Wire pigtail. 20 cm from Junction 2. **Tach Output.**

MICROSQUIRT Engine Harness for 240

2

3.5 mm Female Data Jack and DB9 Interface Cable.



3

Unused and Extra Wire Pigtails Provided for additional or future hookups as needed.

2.	Blu/Yel	Unused CAN High	To Conn. 1, pin 2.
3.	Blu/Red	Unused CAN Low	To Conn. 1, pin 3.
4.	Brn/Wht	Unused VRIN2+	To Conn. 1, pin 4.
5.	Blue	Extra Spare Input 2	To Conn. 1, pin 5.
6.	Purp/Wht	Unused Flex Fuel	To Conn. 1, pin 6.
15.	Blk/Purp	Bootloader wire	To Conn. 1, pin 15.
16.	Blk/Yel	Unused Accel LED	To Conn. 1, pin 16.
17.	Yel/Wht	Unused Warm Up LED	To Conn. 1, pin 17.
20.	Blk/Wht	Extra Sensor Ground/Return	To Conn. 1, pin 20.
28.	Gray	Extra Vref 5v	To Conn. 1, pin 28.
29.	Org/Grn	Unused Spare Input 1	To Conn. 1, pin 29.
30.	Red/Gray	Unused OPTOIN+	To Conn. 1, pin 30.
31.	Blk/Gray	Unused OPTOIN-	To Conn. 1, pin 31.
34.	Pink	O2 Input from wide band	To Conn. 1, pin 34.
35.	Grn/Yel	Tach Output	To Conn. 1, pin 35.

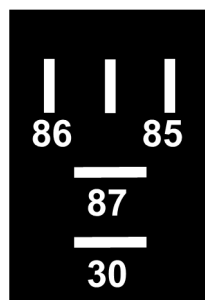
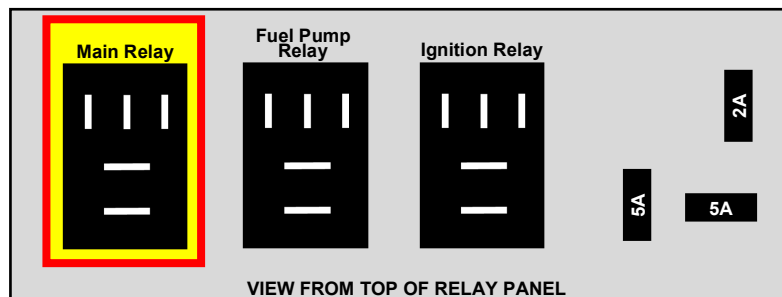
MICROSQUIRT Engine Harness for 240

RELAY AND FUSE BANK

4

Main Relay

12 volt Automotive Micro Relay with two 1/4 inch (6.3 mm) and three 3/16 inch (4.8 mm) pins. 15A or higher capacity recommended. The Main Relay provides power to the Microsquirt ECU. Terminal part numbers for this relay-fuse bank if needed: Littlefuse 913-053, 913-067 and 913-772.



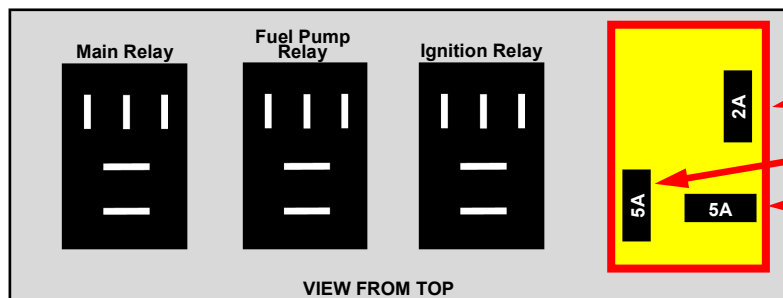
- | | | |
|---------------|--|--|
| 30. Red | To Conn. 5, 6, pin 30. | *To 12v battery. Main power wire is common with pin 30 on all three relays.
To chassis ground 6b.
To 12v switched power. This circuit should have power when the key is in the "run" and "start" positions. Wire is common to pin 86 on all three relay plugs. |
| 85. Black | To Conn. 6, pin 85. | |
| 86. Red | To Conn. 5, 6, pin 86. | |
| 87. Red | To Fuse 4a (2 amps) for system power to Microsquirt ECU (Conn. 1, pin 1).
To Fuse 4b (5 amps) for power to injectors 1 and 3 (to Conn. 21a, pin 2 and Conn. 21c, pin 2).
To Fuse 4c (5 amps) for power to injectors 2 and 4 (to Conn. 21b, pin 2 and Conn. 21d, pin 2).
To Conn. 23, pin 2 for PWM IAC Valve power. | |
| 87a. Not used | | |

***FUSE NOTE:** 12v battery positive wire: A **20A fuse** should be installed in this circuit between the battery and this relay bank.

4a 4b 4c

Fuses for Main Relay Output

Fuses for Main Relay output to ECU and Fuel Injectors.



- | | |
|---------------|--|
| 4a. Red | To Microsquirt ECU (Conn. 1, pin 1). |
| 4b. Red/White | To injectors 1 and 3 (Conn. 21a, pin 2 and Conn. 21c, pin 2). |
| 4c. Red/Black | To injectors 2 and 4 (to Conn. 21b, pin 2 and Conn. 21d, pin 2). |

- 4a. 2 Amps (ECU)
4b. 5 Amps (Inj. 1 & 3)
4c. 5 Amps (Inj. 2 & 4)

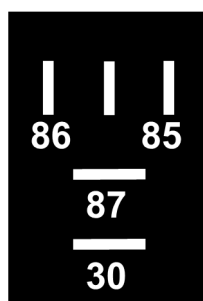
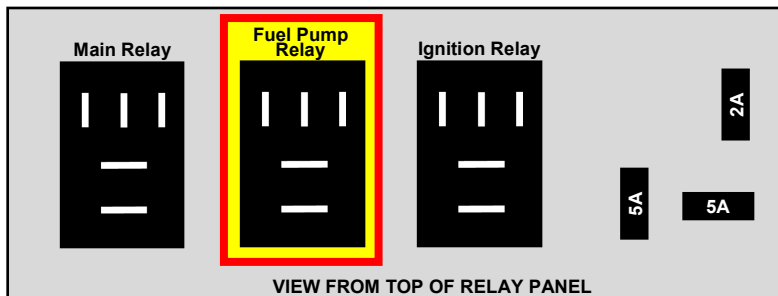
MICROSQUIRT Engine Harness for 240

RELAYS (Continued)

5

Fuel Pump Relay

12 volt Automotive Micro Relay with two 1/4 inch (6.3 mm) and three 3/16 inch (4.8 mm) pins. 15A or higher capacity. This relay provides power to the Fuel Pump.

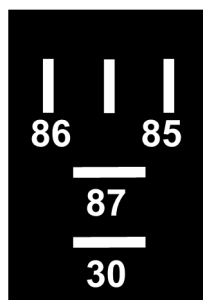
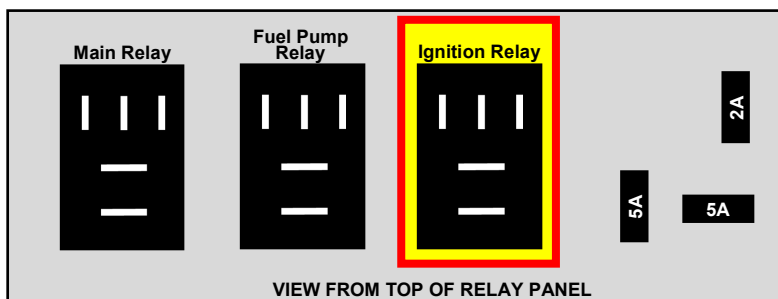


- | | | |
|---------------|---|--|
| 30. Red | To Conn. 4, 6, pin 30. | To battery positive 12v. Wire is common with pin 30 on all three relay plugs. |
| 85. Black | To Conn. 1, pin 8. | To fuel pump relay output GROUND at ECU pin 8. |
| 86. Red | To Conn. 4, 6, pin 86. | To 12v switched power. This circuit should have power when the key is in the "run" and "start" positions. Wire is common to pin 86 on all three relay plugs. |
| 87. Red | Wire pigtail 10 inches (254 mm). Used for 12v power to fuel pump or any other 12v device needing switched power. | |
| 87a. Not used | | |

6

Ignition Relay

12 volt Automotive Micro Relay with two 1/4 inch (6.3 mm) and three 3/16 inch (4.8 mm) pins. 15A or higher capacity. This relay provides power to Ignition Options.



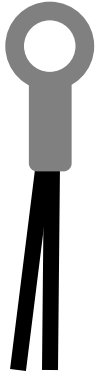
- | | | |
|---------------|------------------------|--|
| 30. Red | To Conn. 5, 6, pin 30. | To battery positive 12v. Wire is common with pin 30 on all three relay plugs. |
| 85. Black | To Conn. 6, pin 85. | To chassis ground 6b. |
| 86. Red | To Conn. 5, 6, pin 86. | To 12v switched power. This circuit should have power when the key is in the "run" and "start" positions. Wire is common to pin 86 on all three relay plugs. |
| 87. Red | To Conn. 25, pin 2. | 12v power for optional CAS. Not used for other options at Conn. 25. |
| | To Conn. 11, pin 6. | 12v power for coil options. |
| 87a. Not used | | |

RELAYS (Continued)

6b

Relay Ground Ring

8 mm ground ring with 2 wires (ground wires from Main Relay and Ignition Relay).
Intended for ground to chassis under dash near relay bank.



1. Black To Conn. 4, pin 85. Relay.
2. Black To Conn. 6, pin 85. Relay.

MICROSQUIRT Engine Harness for 240

FUEL INJECTORS

7

4-Pole Amphenol AT FEMALE Plug

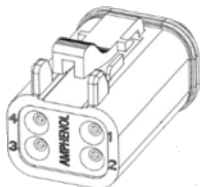
Fuel Injectors.

This plug may be disconnected and an optional fuel injector resistor pack may be installed.

Plug is located under dash near firewall grommet.



FEMALE

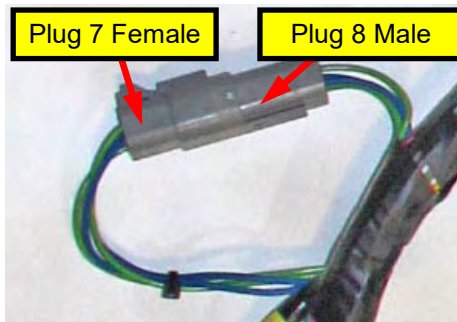


REAR VIEW

1. Green
2. Blue
3. Green
4. Blue

- To Conn. 1, pin 9
- To Conn. 1, pin 10
- To Conn. 1, pin 9
- To Conn. 1, pin 10

- 35-pole Ampseal.
- 35-pole Ampseal.
- 35-pole Ampseal.
- 35-pole Ampseal.



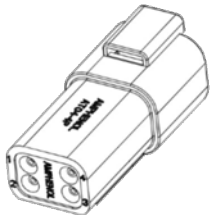
8

4-Pole Amphenol AT MALE Plug

Fuel Injectors



MALE



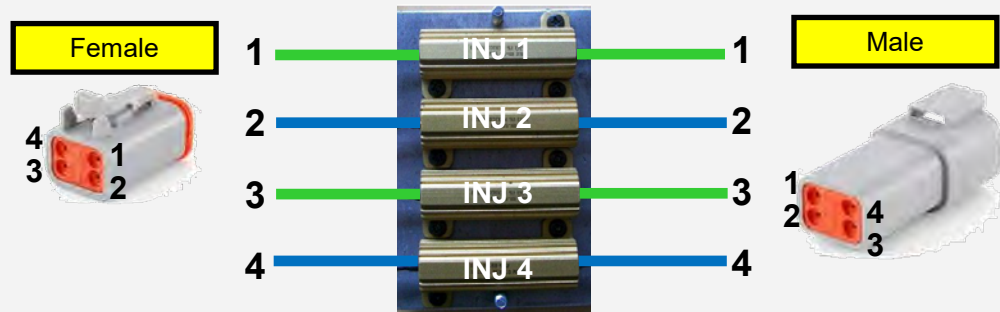
REAR VIEW

1. Green
2. Blue
3. Green
4. Blue

- To Conn. 21a, pin 1
- To Conn. 21b, pin 1
- To Conn. 21c, pin 1
- To Conn. 21d, pin 1

- Fuel Injector plug 21a, pin 1 (Cyl 1).
- Fuel Injector plug 21b, pin 1 (Cyl 2).
- Fuel Injector plug 21c, pin 1 (Cyl 3).
- Fuel Injector plug 21d, pin 1 (Cyl 4).

Construction of optional resistor pack harness **(not included)**.
Four resistors (20-25 watt) are needed wired in series for four injectors.
If needed, there is an app for calculating resistor Ohm value at:
<http://www.useasydocs.com/details/inject.htm>



MICROSQUIRT Engine Harness for 240

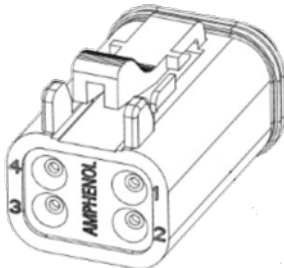
MAF

9

4-Pole Amphenol AT FEMALE Plug
Plug used for Optional MAF Sensor Harness below.



FEMALE



REAR VIEW

- | | | |
|-------------------|--------------------|--|
| 1. Blk/Wht | To Conn. 1, pin 20 | 35-pole Ampseal. Sensor Ground Return. |
| 2. Orange | To Conn. 1, pin 26 | 35-pole Ampseal. IAT input. |
| 3. Black (shield) | | |
| 4. Blue | To Conn 1, pin 5 | 35-pole Ampseal. Spare Input 2. |

10

OPTIONAL MAF HARNESS
4-Pole Amphenol AT MALE Plug with Pigtail.
For Optional MAF Sensor.

Wire lead pigtail: Approx. 64 inches (162 cm).



MALE



REAR VIEW

- | | | |
|-------------------|--------------------|-----------------------------|
| 1. Blk/Wht | To Conn. 1, pin 20 | Shielded pigtail 64 inches. |
| 2. Orange | To Conn. 1, pin 26 | Shielded pigtail 64 inches. |
| 3. Black (shield) | | |
| 4. Blue | To Conn 1, pin 5 | Shielded pigtail 64 inches. |

PHOTO NOT YET AVAILABLE

Optional MAF Sensors

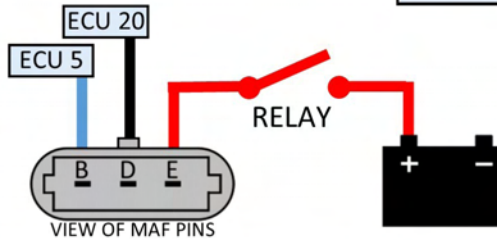
MAF Sensor signal wires should be shielded, but may be may be twisted if shielding is not possible. Shield should be grounded near MAF.

From ECU 26, IAT. Not used on a typical 3-Pin or 4-Pin MAF. Only used on a 6-Pin MAF using its own INTERNAL IAT sensor. In this case an EXTERNAL IAT Sensor would not be used.

From ECU 20, Sensor Ground.

From ECU 5, Spare Input 2.

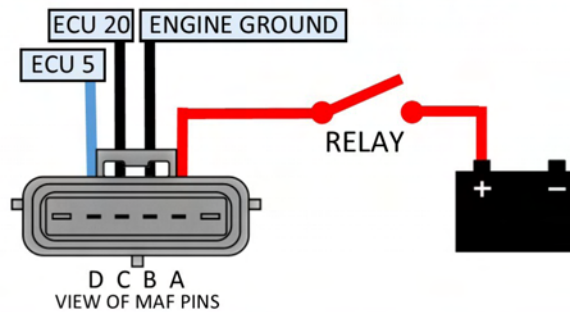
Example MAF #1: 3-Pin Infinity Q45 90 mm PN 22680-61U00



An adapter can be found for any of these MAFs so a hose can be attached to both ends.



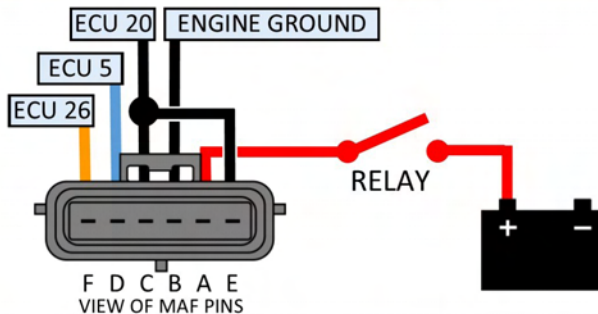
Example MAF #2: 4-Pin Ford Racing SVT/Lightning 90 mm PN M-12579-L54



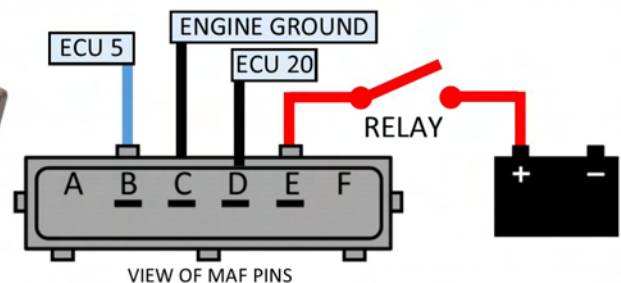
NOTE: Uses a 6-Pin Connector, but only uses 4 pins.



Example MAF #3: 6-Pin Ford, Internal IAT Sensor (unknown size)



Example MAF #4: Nissan N62 (Z32) 80 mm PN 22680-30P00



MICROSQUIRT Engine Harness for 240

COILS

11

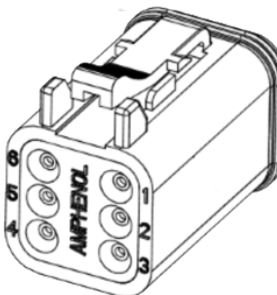
6-Pole Amphenol AT Plug FEMALE

Plug for Optional Coil Harness.

The Coil Harness is an optional item chosen and based on needed requirements.



FEMALE



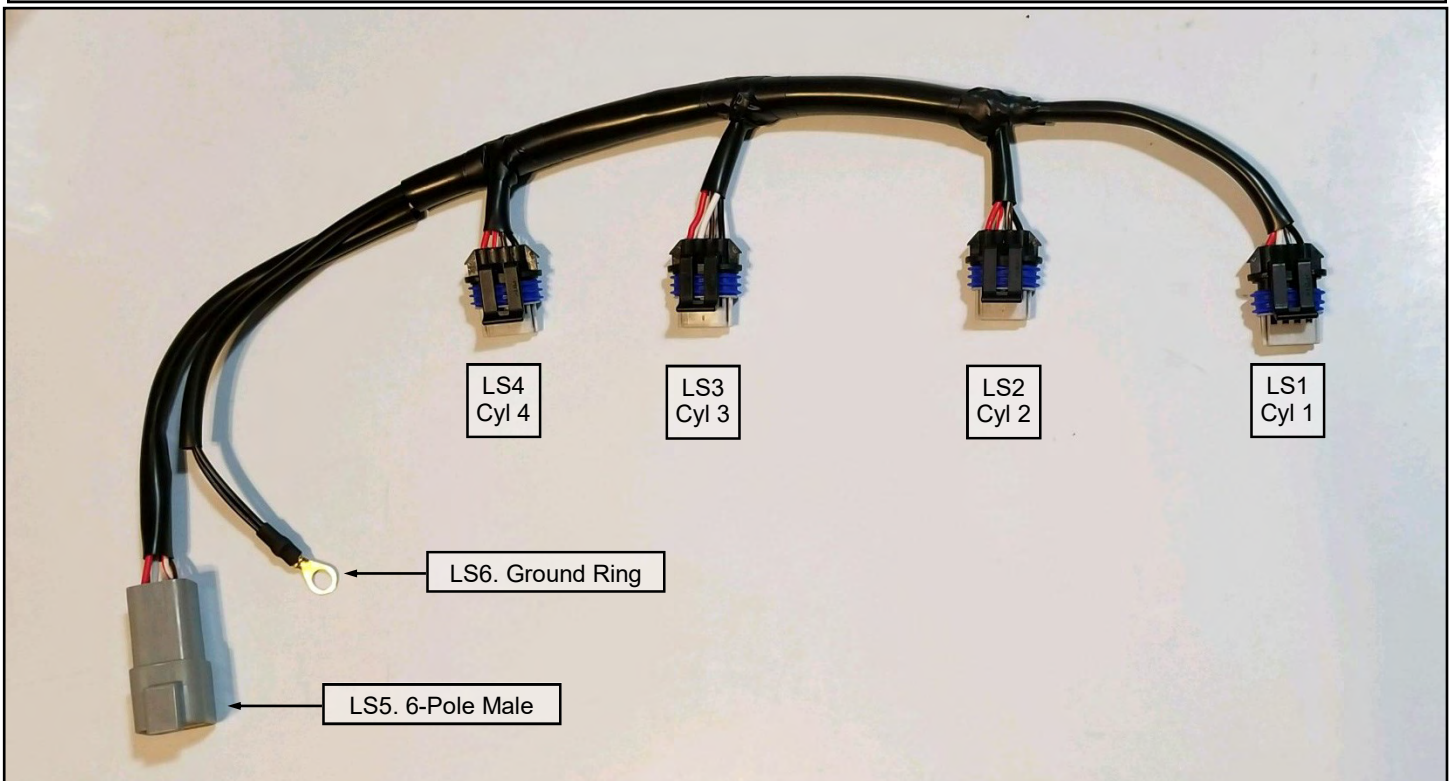
REAR VIEW

- | | | | |
|-------------------|--------------------|--|--|
| 1. Black (shield) | | | |
| 2. Blk/Wht | To Conn. 1, pin 20 | 35-pole Ampseal. Sensor Ground Return. | |
| 3. Red/Wht | To Conn. 1, pin 11 | 35-pole Ampseal. Ignition Output 2. | |
| 4. White | To Conn 1, pin 12 | 35-pole Ampseal. Ignition Output 1. | |
| 5. Blk/Wht | To Conn. 1, pin 20 | 35-pole Ampseal. Sensor Ground Return. | |
| 6. Red | To Conn. 6, pin 87 | Ignition Relay Plug. | |

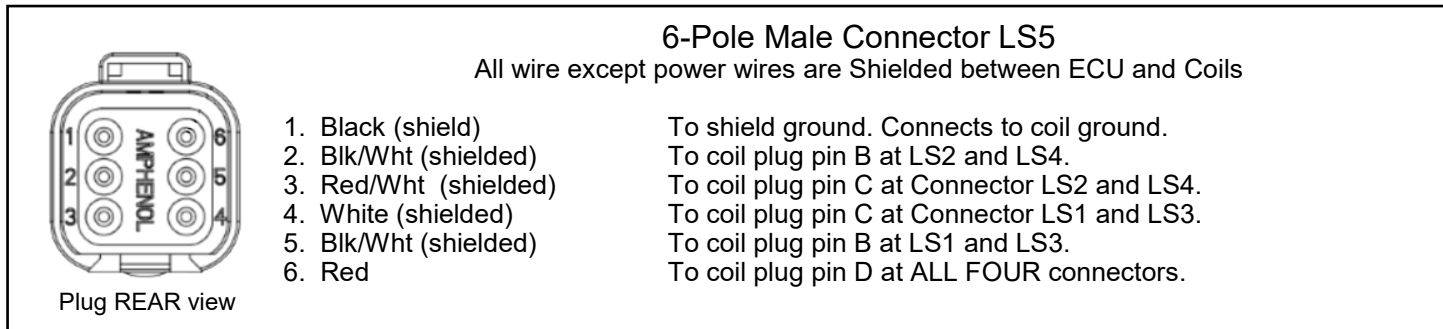
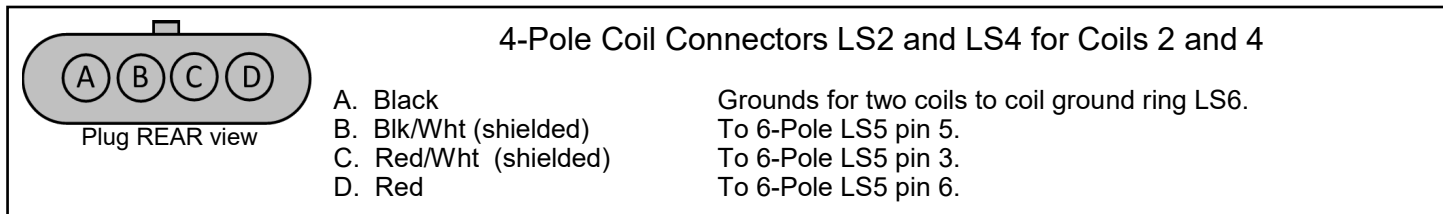
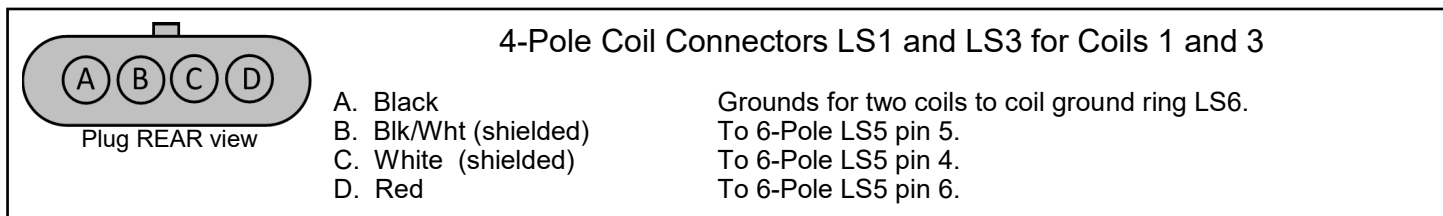
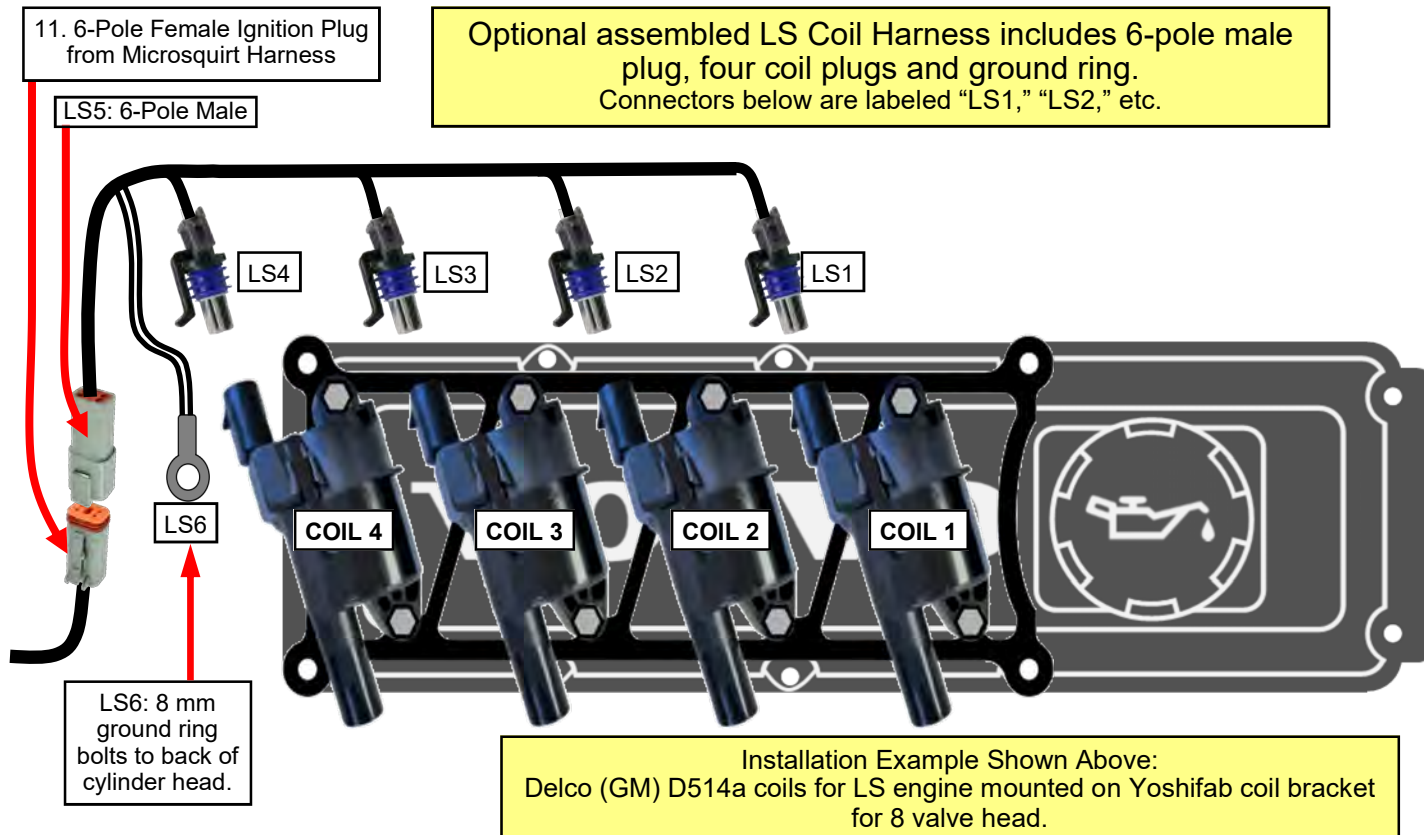
MICROSQUIRT Engine Harness for 240

Coil Harness Option 1

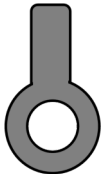
LS Coil Harness



MICROSQUIRT Engine Harness for 240 **Coil Harness Option 1 (Continued)** **LS Coil Harness**



MICROSQUIRT Engine Harness for 240
Coil Harness Option 1 (Continued)
LS Coil Harness



Two wires:
Black
Black

8 mm Ground Ring P7
Bolted to engine ground location at back of cylinder head.
Shields are connected to coil grounds.

To 4-Pole Coil Connectors LS1 and LS2, pin A.
To 4-Pole Coil Connectors LS3 and LS4, pin A.

MICROSQUIRT Engine Harness for 240

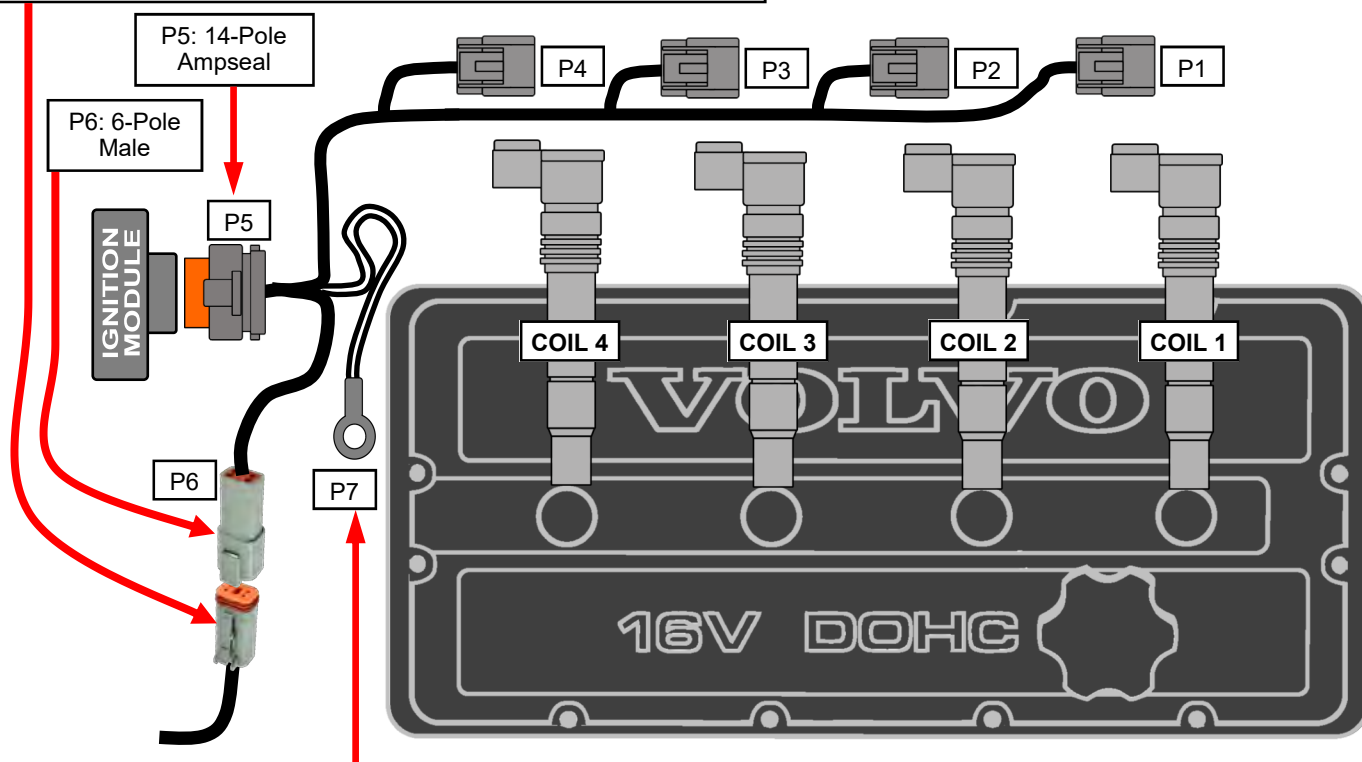
Coil Harness Option 2

Pencil Coils - Coil On Plug (COP) Harness Detail

Optional assembled COP Coil Harness includes 6-pole male plug, four coil plugs and ground ring.
Connectors below are labeled "P1," "P2," etc.

Intended for use with YOSHIFAB IGNITION MODULE,
which may be mounted on firewall.

11. 6-Pole Female Ignition Plug from Microsquirt Main Harness



P7: 8 mm ground ring is intended to bolt to back of cylinder head.

Installation Example Shown Above: Denso 12977 pencil coils for 16 valve head.



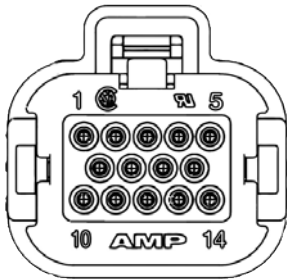
REAR VIEW OF CONNECTOR

2-Pole Coil Connectors P1, P2, P3 and P4 (No Shield on Coil Side of 14-pole Ampseal Plug)

- A. Red
- B. (P1) Black
- B. (P2) Black
- B. (P3) Black
- B. (P4) Black

(To ALL COIL PLUGS) 12v power from Connector P6, pin 6.
To 14-pole Ampseal, pin 2.
To 14-pole Ampseal, pin 11.
To 14-pole Ampseal, pin 4.
To 14-pole Ampseal, pin 13.

MICROSQUIRT Engine Harness for 240 **Coil Harness Option 2 (Continued)** **Pencil Coil - Coil On Plug (COP) Harness Detail**



REAR VIEW OF
CONNECTOR

14-Pole Ampseal Ignition Module Connector P5

1. White
2. Black
3. Black
4. Black
5. White
6. empty
7. empty
8. empty
9. empty
10. Red/Wht
11. Black
12. Black
13. Black
14. Red/Wht

To Firewall Connector P6, pin 4 (common with Ampseal 5).
 To Coil Connector P1, pin B.
 To Engine Ground Ring P7.
 To Coil Connector P3, pin B.
 To Firewall Connector P6, pin 4 (common with Ampseal 1).

To Firewall Connector P6, pin 3 (common with Ampseal 14).
 To Coil Connector P2, pin B.
 To Engine Ground Ring P7.
 To Coil Connector P4, pin B.
 To Firewall Connector P6, pin 3 (common with Ampseal 10).



REAR VIEW OF
CONNECTOR

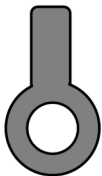
6-Pole MALE Firewall Connector P6

1. Black
2. empty
3. Red/Wht
4. White
5. empty
6. Red

Shield.

To 14-pole Ampseal pins 10 and 14.
 To 14-pole Ampseal pins 1 and 5.

12v power to Coil Connectors P1, P2, P3 and P4, pin A.



8 mm Ground Ring P7 **Bolted to engine ground location at back of cylinder head.**

Two wires:
 Black
 Black

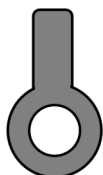
To 14-pole Ampseal pin 3.
 To 14-pole Ampseal pin 12.

MICROSQUIRT Engine Harness for 240

12

Microsquirt External Ground.
8 mm Ground Ring.

Bolted to preferred engine ground location at back of cylinder head.



Two wires:

Black
Black

To Conn. 1, pin 3, 35-pole Ampseal.

To Conn. 1, pin 12, 35-pole Ampseal.

13

3-Pole Female EFI (JT) Connector

Plug for Optional Crank Position Sensor (CPS) mounted to back of engine.

You may optionally use a Volvo crank position sensor to trigger Microsquirt. This requires you to have a flywheel or flexplate originally found in an LH 2.4 equipped Volvo. The Volvo sensor is a VR type triggered by a 60-2 flywheel (58 teeth with 2 teeth missing). This option would allow you to use an ignition distributor if needed. This can be a gutted distributor from an LH 2.2 240 or any distributor from an LH 2.4 240. This trigger configuration may also be used for a distributorless multi-coil ignition. This option is built into this 240 Microsquirt harness and is available for use without any modification to the harness.



1. Yellow (shielded)
2. Purple (shielded)
3. Black (shield)

13a 3-Pole Female Plug.

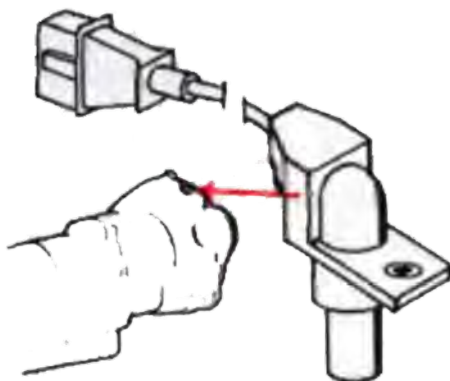
To Conn. 1, pin 33

35-pole Ampseal. VRIN1-.

To Conn. 1, pin 32

35-pole Ampseal. VRIN1+.

To 13b below



13b Ground Ring (8 mm hole).

Use of this ground ring is not needed if this sensor option is not used.

13b

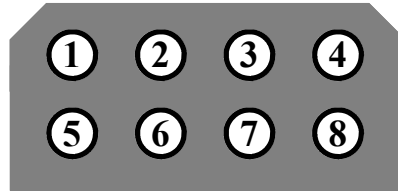
WIRE COLOR
Black (shield)

To Conn. 4a, pin 3

MICROSQUIRT Engine Harness for 240

14

8-Pole Female Volvo Firewall Connector.
LEFT side firewall.



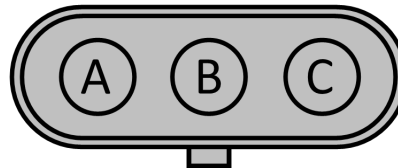
VIEW FROM REAR

1. Black	To Conn. 29	Oil pressure sender.
2. Yellow	To Conn. 24	1-pole coolant temp sender (for dash cluster gauge).
3. Red	To Conn. 27	Alternator D+ wire.
4. empty		
5. Blu/Yel	To Conn. 19	Starter solenoid.
6. Green	To Conn. 28	Oil pressure sender (for 52 mm gauge).
7. empty		
8. empty		

15

3-Pole MAP Sensor Connector.
For GM MAP Sensor

MAP Sensor AC Delco 12223861



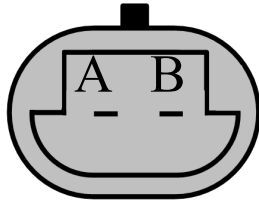
PLUG REAR VIEW

A. Blk/Wht	To Conn. 1, pin 20	35-pole Ampseal. Sensor Ground Return.
B. Red/Grn	To Conn 1, pin 24	35-pole Ampseal. MAP Output.
C. Gray	To Conn. 1, pin 28	35-pole Ampseal. Vref.

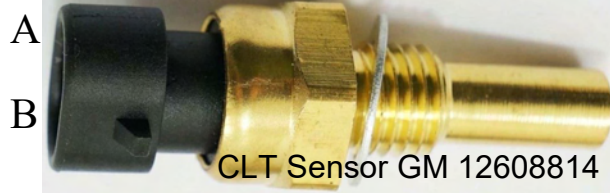
MICROSQUIRT Engine Harness for 240

16

2-Pole Coolant Temp (CLT) Sensor Connector.



PLUG REAR VIEW



- | | | |
|------------|--------------------|--|
| A. Yellow | To Conn. 1, pin 25 | 35-pole Ampseal. CLT. |
| B. Blk/Wht | To Conn 1, pin 20 | 35-pole Ampseal. Sensor Ground Return. |

17

3-Pole Throttle Position Sensor (TPS) Connector.



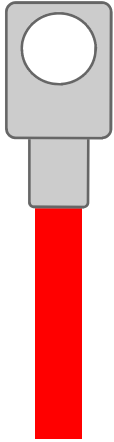
- | | | |
|------------|---------------------|--|
| 1. Gray | To Conn. 1, pin 28. | 35-pole Ampseal. Vref. |
| 2. Blue | To Conn. 1, pin 27 | 35-pole Ampseal. TPS. |
| 3. Blk/Wht | To Conn. 1, pin 20 | 35-pole Ampseal. Sensor Ground Return. |

MICROSQUIRT Engine Harness for 240

18

Starter B+ Battery Cable.

Cable size: 16 mm². Standard 8 mm ring for starter.

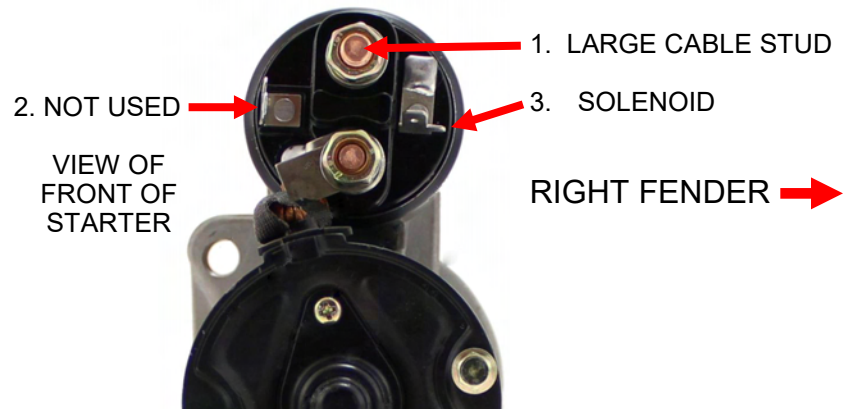


Red (fat cable)

To Conn. 26

Alternator B+

CABLE IS PROVIDED SEPARATELY, OUTSIDE OF MAIN HARNESS, SO THAT THE ALTERNATOR MAY OPTIONALLY BE MOUNTED ON THE LEFT SIDE.



19

Starter Solenoid Wire.

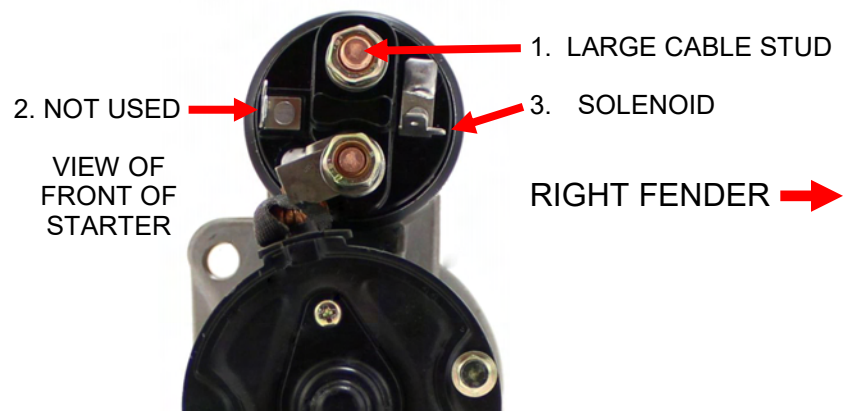
6.3 mm female terminal with insulator.



Blu/Yel

To Conn. 14, pin 5

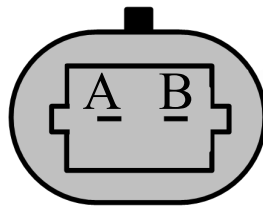
8-pole Volvo Firewall Connector



MICROSQUIRT Engine Harness for 240

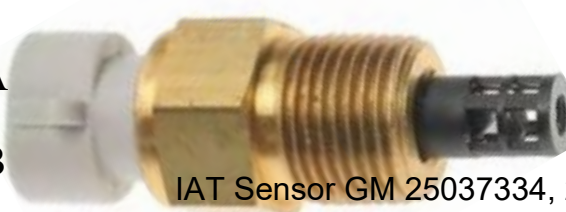
20

2-Pole Intake Air Temp (IAT) Sensor Connector.



PLUG REAR VIEW

A
B

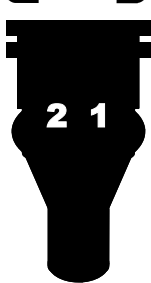


IAT Sensor GM 25037334, 25036751

A. Orange	To Conn. 1, pin 26	35-pole Ampseal. IAT.
B. Blk/Wht	To Conn 1, pin 20	35-pole Ampseal. Sensor Ground Return.

21

2-Pole EV-1 Style Fuel Injector Connectors. (FOUR Connectors).



21a (Injector 1)

1. Green	To Conn. 8, pin 1	4-pole MALE Amphenol AT plug.
2. Red/White	To Conn. 4b	5 amp fuse. Then to Conn. 4, pin 87.

21b (Injector 2)

1. Blue	To Conn. 8, pin 2	4-pole MALE Amphenol AT plug.
2. Red/Black	To Conn. 4c	5 amp fuse. Then to Conn. 4, pin 87.

21c (Injector 3)

1. Green	To Conn. 8, pin 3	4-pole MALE Amphenol AT plug.
2. Red/White	To Conn. 4b	5 amp fuse. Then to Conn. 4, pin 87.

21d (Injector 4)

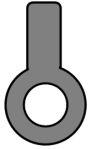
1. Blue	To Conn. 8, pin 4	4-pole MALE Amphenol AT plug.
2. Red/Black	To Conn. 4c	5 amp fuse. Then to Conn. 4, pin 87.

MICROSQUIRT Engine Harness for 240

22

6 mm Ground Ring

Ring grounded to engine. Typically at fuel rail attachment bolt to intake manifold.



Black.

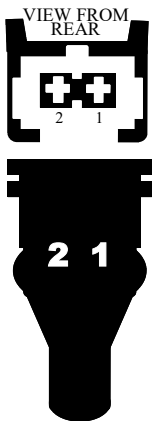
To Shield at Conn. 25.

Ground for shield.

23

2-Pole EV-1 Style Connector for 2-Pole Idle Air Control (IAC) Valve.

By default, this harness is configured for a Bosch style IAC valve using a diode as shown below. If a different style valve is used, you may need to remove or cut the below diode.



1. Green

To Conn. 1, pin 7

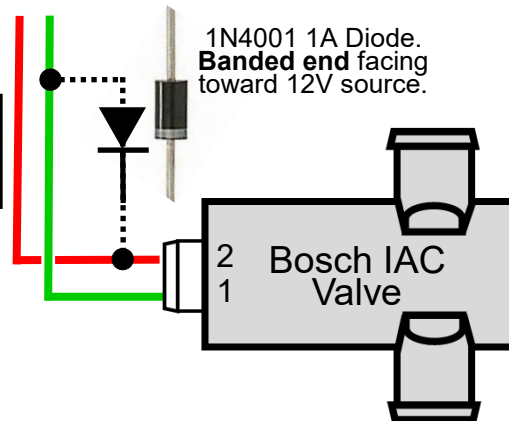
35-pole Ampseal. Fiddle/IAC.

2. Red

To Conn. 4, pin 87

Power from Main Relay.

This connector uses a diode as shown here.



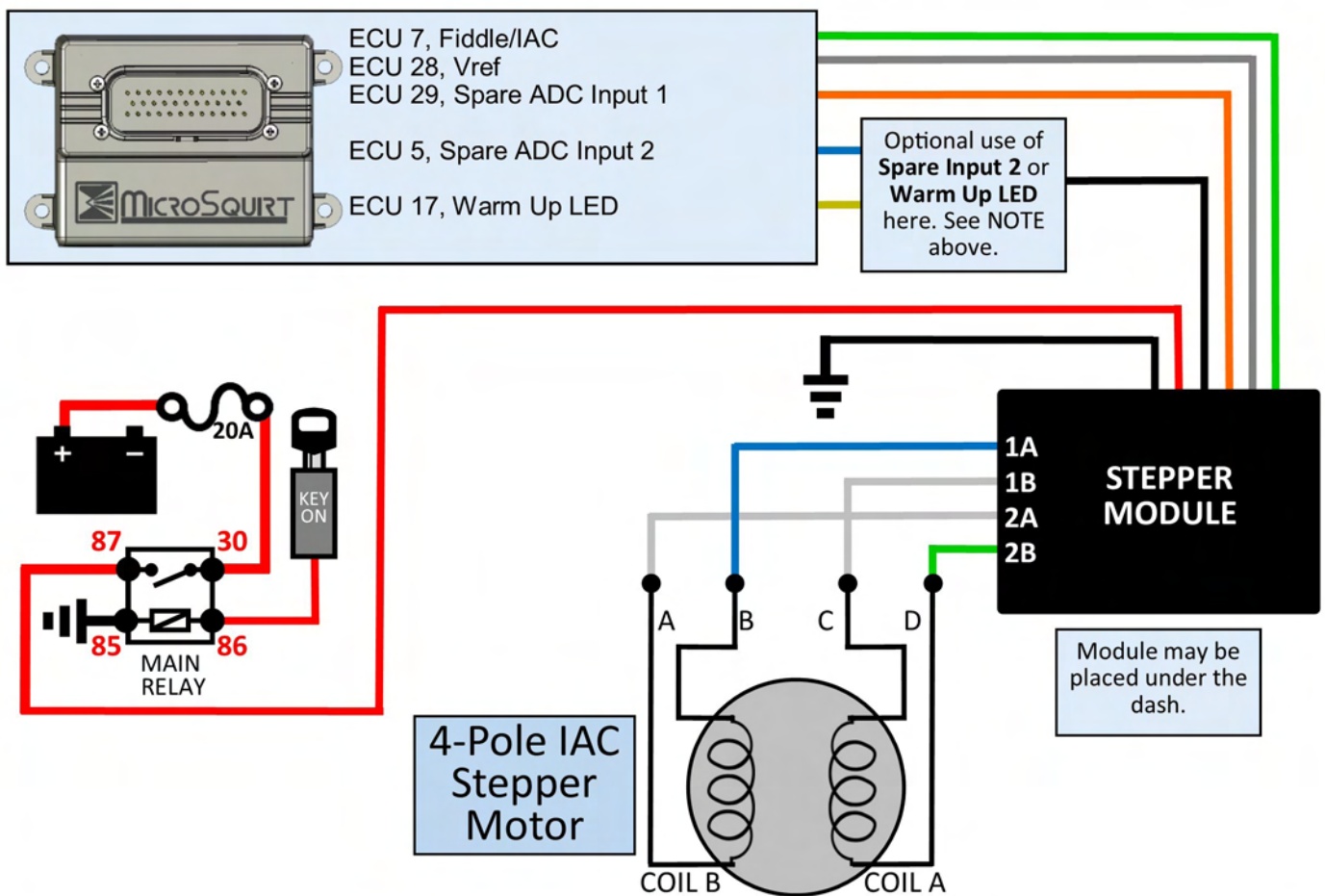
MICROSQUIRT Engine Harness for 240

Alternate Stepper Idle Control Valve WIRING DIAGRAM

A stepper motor idle valve is not supported by MicroSquirt 3 out of the box, however, If a stepper motor IAC is required (such as a GM 4-pole IAC), a MicroSquirt Stepper Adapter Module is available as an add on. A guide for this module is available at:

<https://www.efisource.com/docs/Microsquirt-stepper-adapter.pdf>

NOTE: You may choose between using Spare ADC Input 2 or Warm Up LED for this configuration. Be aware that if you are using Spare ADC Input 2 for a MAF sensor, you should use the alternate circuit, Warm Up LED, instead for this setup.

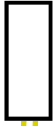


MICROSQUIRT Engine Harness for 240

24

1-Pole Coolant Temp Sender (for dash cluster gauge).
6.3 mm female terminal with insulator.

NOTE: A 2-pole 740 style sender is not supported by this harness. Use a 1-pole 240 style sender.



Yellow

To Conn. 14, pin 2

8-pole Female Volvo Firewall Connector.

MICROSQUIRT Engine Harness for 240

CAS/DISTRIBUTOR OPTION PLUG

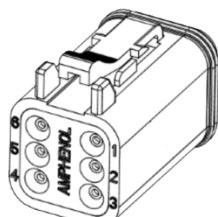
25

6-Pole Amphenol AT Plug FEMALE

This plug will connect to a short adapter harness for your choice of either a DSM Cam Angle Sensor (CAS) or LH 2.2 Hall Distributor.



FEMALE



REAR VIEW

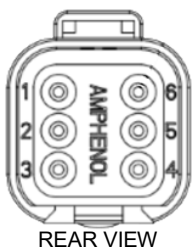
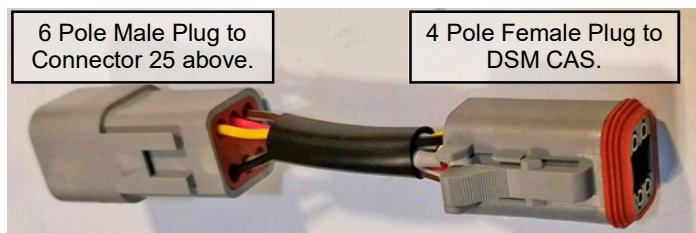
1. Blk/Wht
 2. Red (fat)
 3. Yellow
 4. Black
 5. Gray
 6. empty
- SHIELD: Black

- To Conn. 1, pin 20
To Conn. 6, pin 87
To Conn. 1, pin 33
To Conn. 1, pin 21
To Conn. 1, pin 28
To Conn. 22

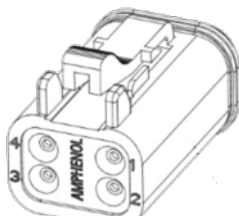
- 35-pole Ampseal. Sensor Ground Return.
Ignition Relay Plug.
35-pole Ampseal. VRIN1-.
35-pole Ampseal. VRIN2-.
35-pole Ampseal. Vref.
Ground Ring for engine shield ground.

CAS (Cam Angle Sensor) Optional Resistor Adapter Harness

This short harness connects between Connector 25 above and the Yoshifab DSM CAS.



REAR VIEW



REAR VIEW

MALE
1 2 3 4 5 6

WIRE COLORS

1. Blk/Wht
2. Red
3. Yellow
4. Black
5. Gray
6. empty

FEMALE
1 2 3 4

Yoshifab
DSM CAS

MALE
1 2 3 4

1. Black
2. Red
3. Yellow
4. White

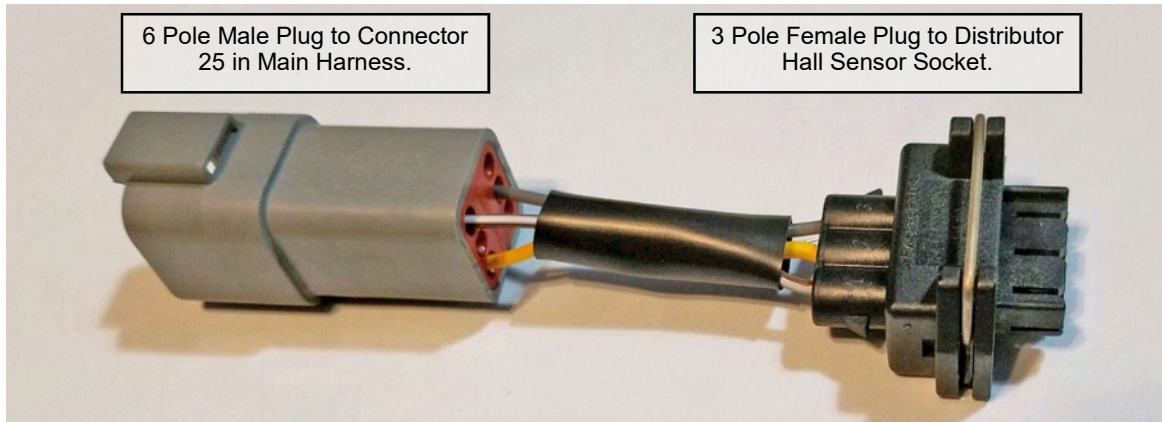
CAS

1 2 3 4

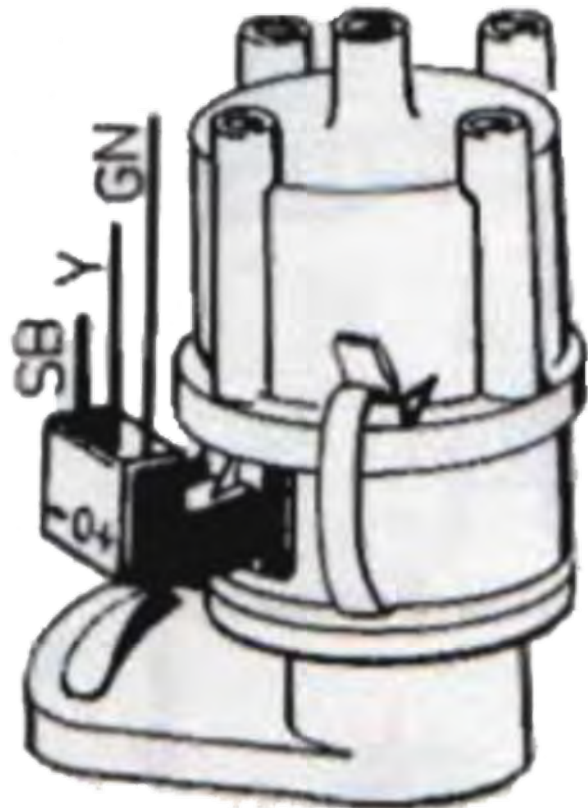
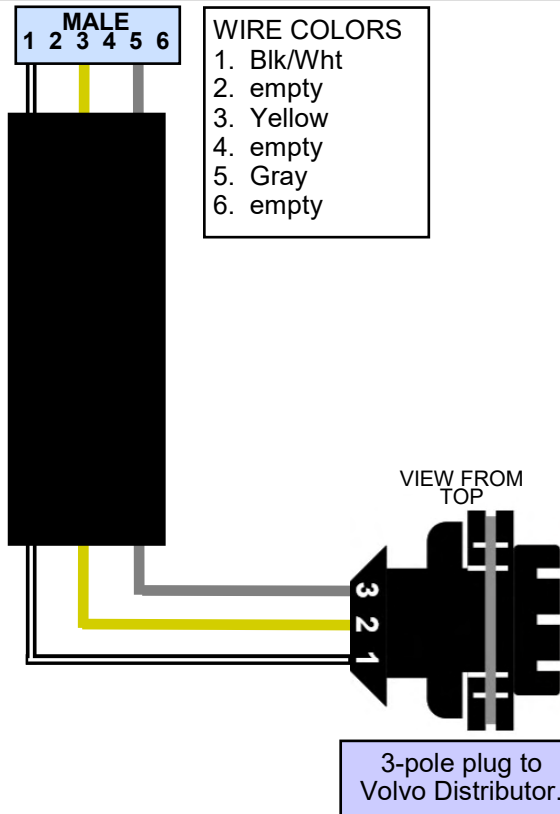
MICROSQUIRT Engine Harness for 240

HALL DISTRIBUTOR Optional Resistor Adapter Harness

This short harness connects between Connector 25 and a block-mounted Volvo LH 2.2 style Distributor.



6-pole Amphenol AT MALE connects to Connector 25.

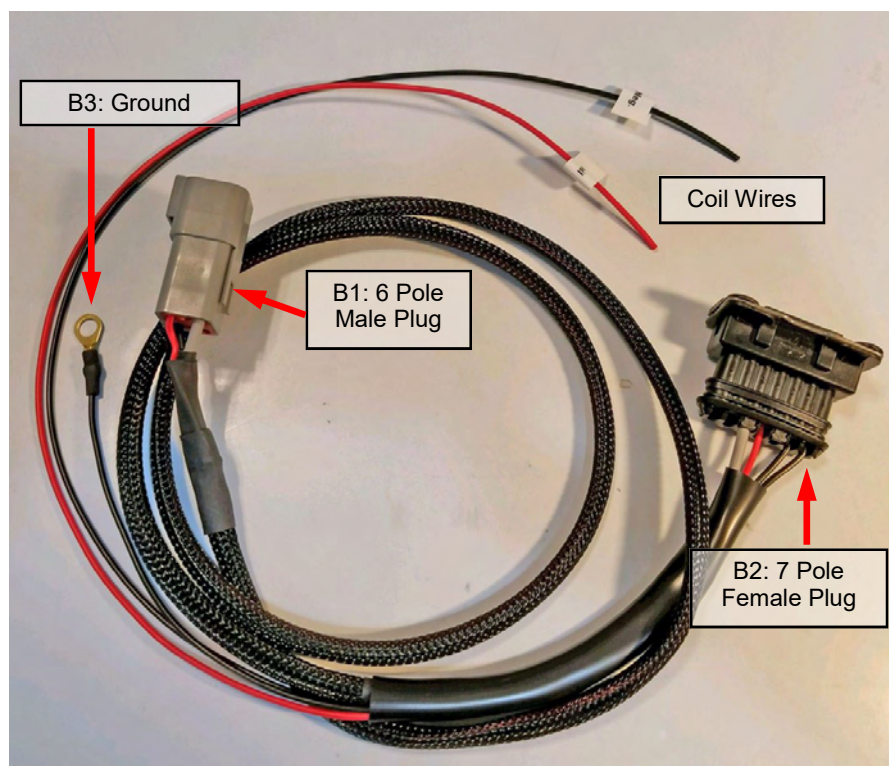
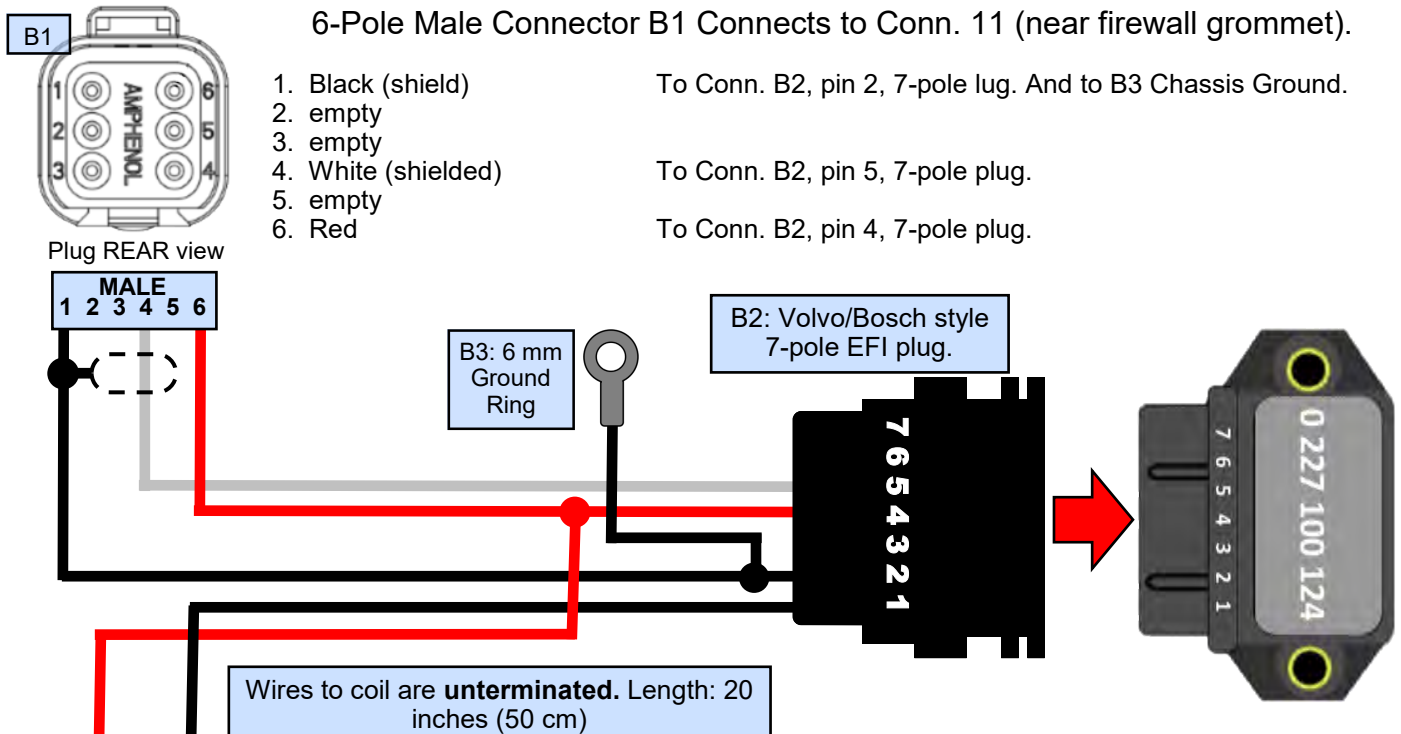


MICROSQUIRT Engine Harness for 240

Optional Bosch Ignition Module Harness

Bosch Ignition Module Harness

This harness can be used when a Volvo LH 2.2 style distributor is to be used. It connects the main engine harness (Conn. 11, 6-pole Female AT plug) to a Bosch single stage ignition module (PN 0 227 100 124) sourced from any Volvo 240 or 740 using EZK.

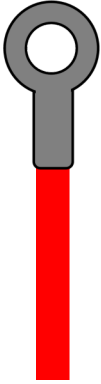


MICROSQUIRT Engine Harness for 240

26

Alternator B+ Cable.

Cable size: 16 mm². Standard 6 mm ring for alternator.



Red (fat cable)

To Conn. 18 Starter B+

CABLE IS PROVIDED SEPARATELY, OUTSIDE OF MAIN HARNESS, SO THAT THE ALTERNATOR MAY OPTIONALLY BE MOUNTED ON THE LEFT SIDE.

27

Alternator D+ Charge Wire.

1.0 mm² size wire. 6.3 mm female terminal with insulator.



TWO #27 connectors are provided on this harness (27a and 27b). Connector 27a is in the normal place for an alternator mounted on the RIGHT (exhaust side), however there is an EXTRA #27 (27b) connector on the LEFT (intake side) for the option of mounting the alternator on that side.

Red

To Conn. 14, pin 3

8-pole Female Volvo Firewall Connector.

28

Oil Pressure Sender (OPS) Green Wire 4.8 mm female terminal with insulator.

4.8 mm
FEMALE

Green

To Conn. 14, pin 6

8-pole Female Volvo Firewall Connector.

**Wire for optional 2-pole Oil Pressure Sender for 52 mm OP gauge.
If you're using a 1-pole Oil Pressure Sender, this wire will not be used.**

29

Oil Pressure Sender (OPS) Black Wire 6.3 mm female terminal with insulator.

6.3 mm
FEMALE

Black

To Conn. 14, pin 1

8-pole Female Volvo Firewall Connector.

If you're using an early style 1-pole Oil Pressure Sender with a spade type connection, or if you're using a 2-pole Oil Pressure Sender for 52 mm OP gauge, use this 6.3 mm Female plug shown at left.

If you're using a later style Oil Pressure Sender with a bullet type connection, use the included adapter (below).

