Installation Guide for 5 cylinder Coil Repair Harness
For 1999-2011 Volvo Turbo and non-turbo.

Repair Harness located here:
https://www.prancingmoose.com/volvoharnesses.html

NOTES:

Wire colors for this harness will match MOST 2001-2007 models directly without any changes or special instructions.

If you own a 2004-2007 'R' model, see page 9 for details on a difference in the COIL PLUG and instructions for modifying the plug in this harness to fit the 2004-07 'R' model coil.

MIS-MATCHED WIRE COLORS: If you have a 1999-2000 model or 2008-2011 (some models), your original wire colors may be DIFFERENT from this coil harness kit. The harness will still fit all 5 cylinder engines from these years. You'll just need to carefully match up the wire colors in the proper order. I have included some guides beginning on page 6 for your specific year/model.
If you find a model with any conflicting wire colors, please email.

Disconnecting your battery during this installation is strongly recommended.

Be aware that some of these Volvo models have an **"Immobilizer" ECU.** This becomes relevant when performing maintenance that involves unplugging electrical connectors. If the ECU has power, the immobilizer function may be activated, rendering a **"no start"** condition. Disconnecting the battery before and until this installation is complete should prevent this from happening, however, if a **"no start"** occurs, the following procedure should fix things. Disconnect the **NEGATIVE** battery terminal for 30 minutes. This function performs a "reset" of the ECU without harming any electrical components.

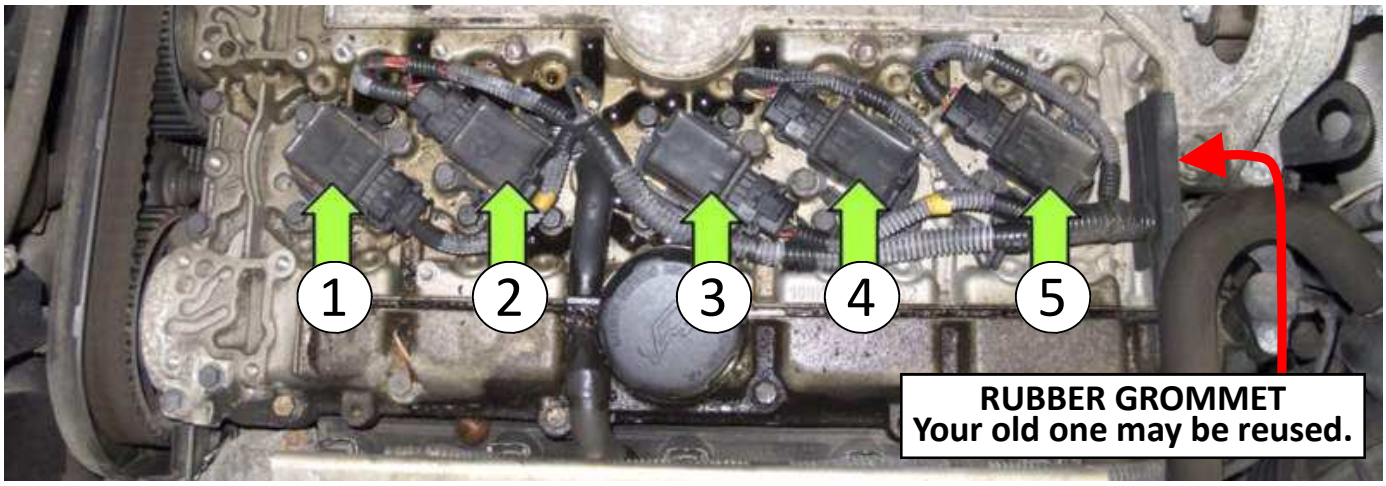
Crimping versus soldering your wire splices.

The most common installation involves splicing wires using insulated butt-crimps and then covering with heat-shrink tubing for extra protection. Some people prefer to solder their wire splices. This is an acceptable option. If you prefer to solder, be sure to insulate each individual solder splice as you go. Keep in mind that **engine vibration can crack a solder joint over time**. A stronger solder joint is possible by using a **non-insulated butt-crimp and then soldering.** This **crimping plus soldering** method will help prevent the possibility of a cracked solder joint later.

If you find any errors, or omissions in this guide or if you find your car has any wiring that's different from what is shown here, please email. Your comments are always welcome.

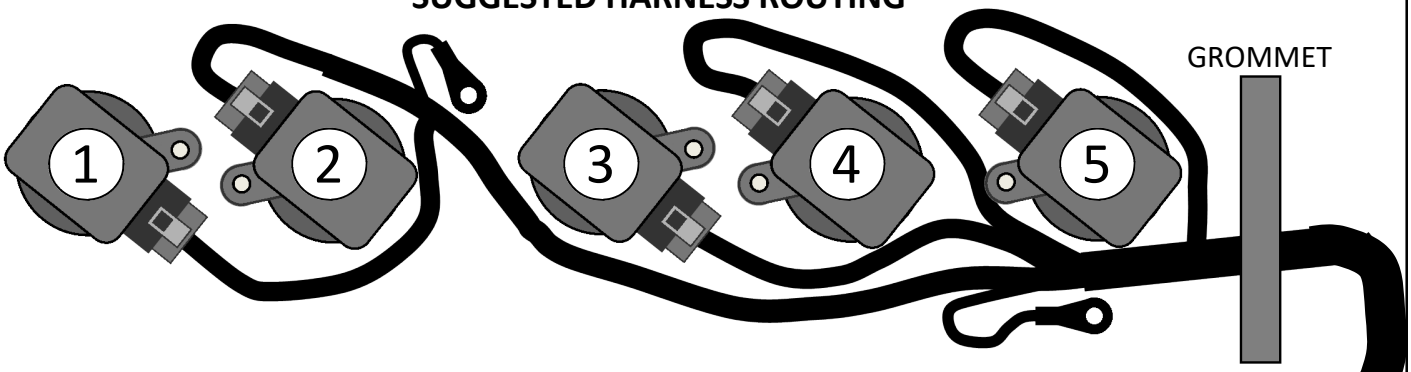
IMPORTANT: PLEASE READ ALL DIRECTIONS BEFORE BEGINNING.

The below photo will offer a view of an original Volvo 5 cylinder coil harness section. The cylinders are shown in numerical order with **Cylinder 1 being nearest the timing belt.** The specific **ROUTING** of this harness to each coil is important to create a good fit with **as little wire strain as possible**. This new coil repair harness uses the same routing as this original image below. More detail is shown in the drawing below.



There is a rectangular RUBBER GROMMET on the right side that seals the top cover. You should reused your original grommet. It should be secured to the new harness using a plastic zip tie, just like it was done originally. The proper placement for the grommet needs only to be made for a good fit between the head and top cover. A fluid-tight or air-tight seal is not necessary. No sealant should be used.

SUGGESTED HARNESS ROUTING



NEW COIL HARNESS WIRE COLORS — CONNECTIONS TO MAIN HARNESS WIRES

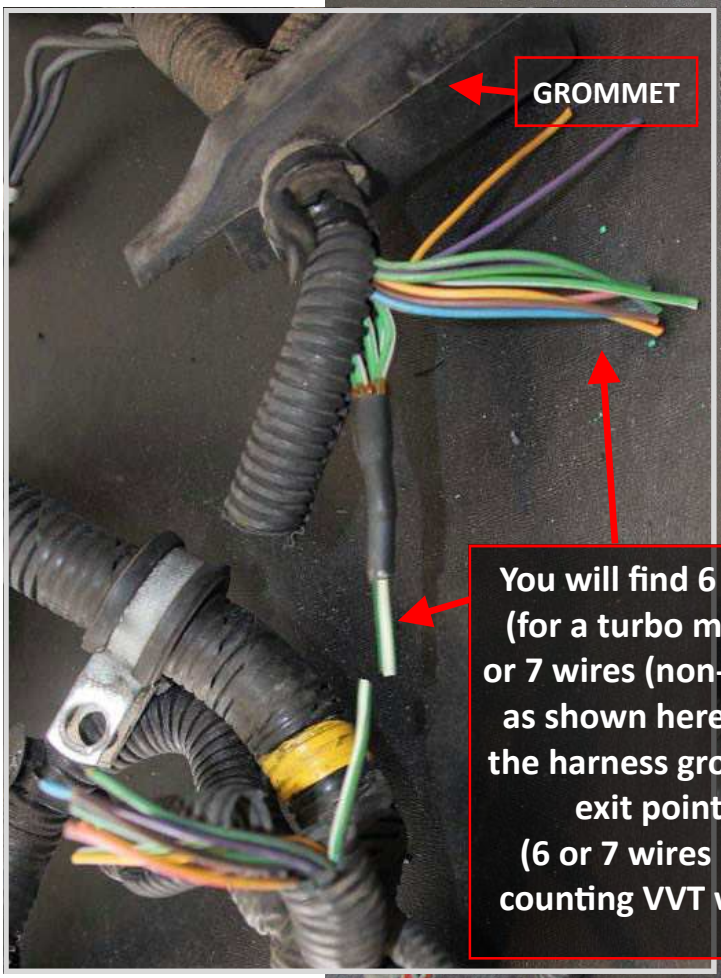
BLUE	Coil 1, Pin 1
BROWN	Coil 2, Pin 1
YELLOW	Coil 3, Pin 1
PINK	Coil 4, Pin 1
VIOLET	Coil 5, Pin1
RED/WHITE	All Coils, Pin 2 (Non-turbo only. Not used for Turbo cars)
GREEN/WHITE	All Coils, Pin 4

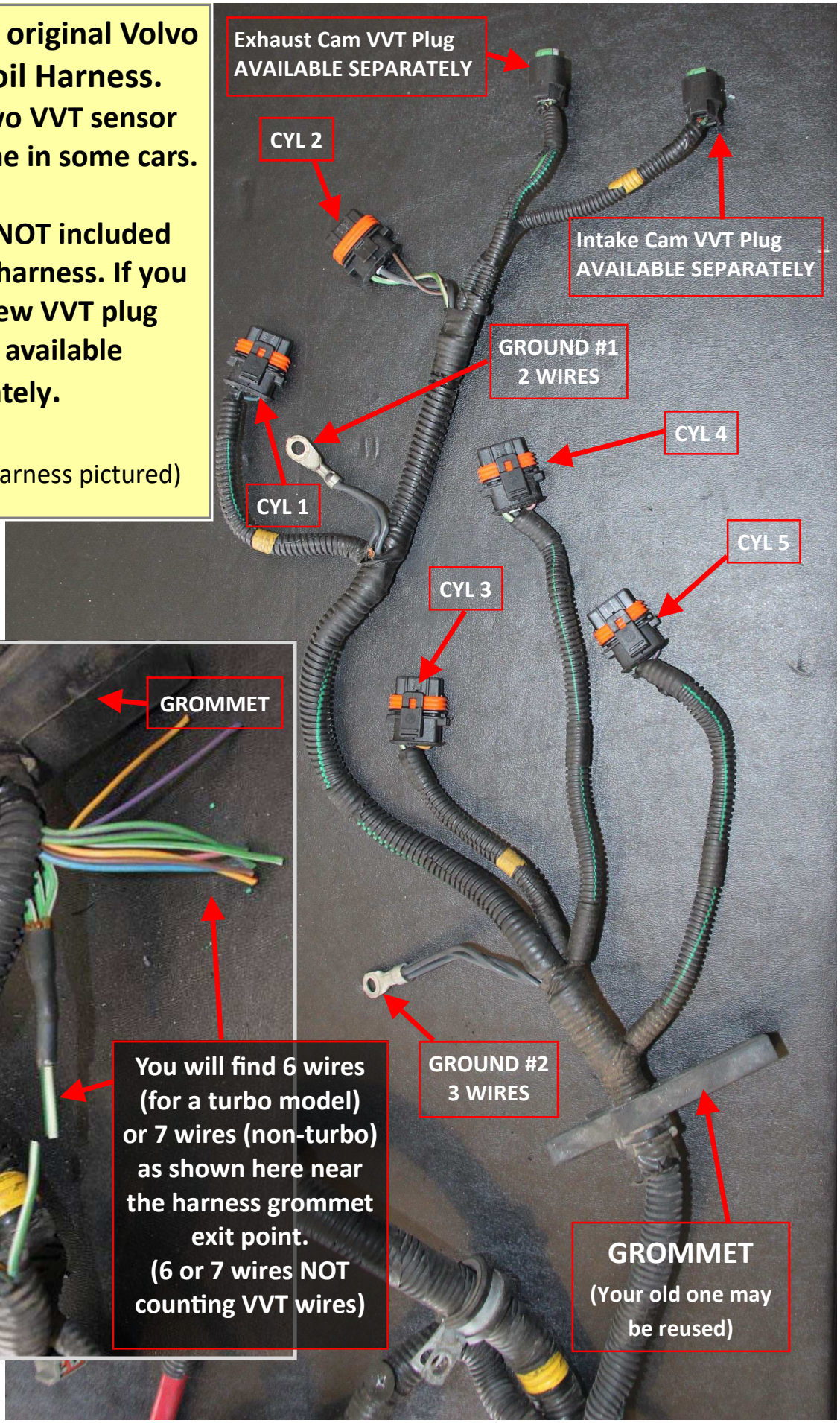
VVT WIRES ARE NOT SHOWN IN THIS PART OF THE DIAGRAM

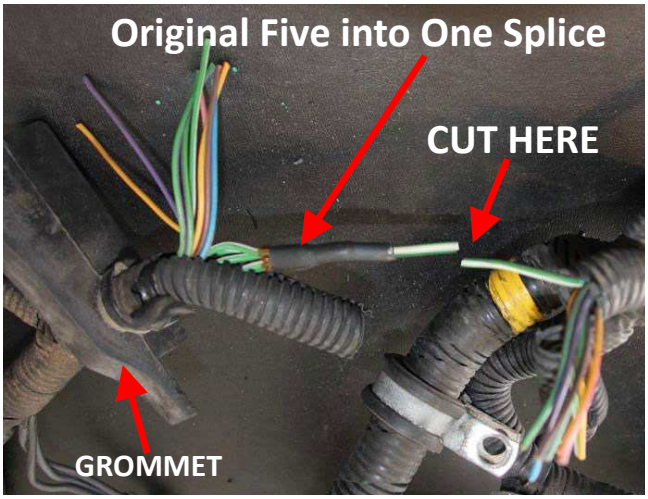
Here is a typical original Volvo 5 Cylinder Coil Harness.
This one has two VVT sensor plugs, which came in some cars.

VVT plugs are NOT included with a new coil harness. If you need them, new VVT plug pigtails are available separately.

(2004 S60 Turbo harness pictured)







When preparing to cut your original harness, you must first locate the factory splice(s), normally where FIVE coil wires are joined into ONE wire. Most **TURBO models** will have **ONE such splice (usually with GREEN/WHITE wires) as shown here**.

NON-TURBO models will have **TWO factory splices (normally one with GREEN/WHITE wires one with RED/WHITE wires).** Each splice will normally have **FIVE wires into ONE.** These splices will usually be in the harness bundle **a few inches to the OUTSIDE** of the rubber grommet.

Your cut should be on the **ONE wire** before the 5-wire splice. **It is preferred to NOT cut the FIVE wire bundle unless there is no other good option.**

The other cuts for all of the other **single wires** can be in the same general area or in any convenient place. The original coil harness bundle will have **SIX coil related wires (for Turbo models) or SEVEN wires (for non-turbo models), NOT INCLUDING any VVT or CVVT plug wires if your model has them. If your car has VVT, separate those wires so you can work on COIL related wires separately and without confusion.**

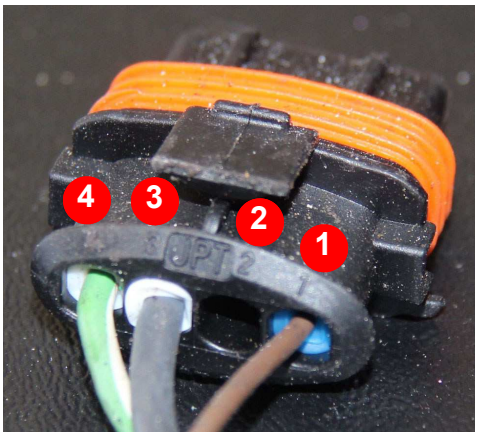
As mentioned above, most cars will have this original <u>5 into 1 splice</u> only a few inches from the grommet, HOWEVER, some cars have been found with that splice FURTHER AWAY from the engine (up to 6 or more inches). If your original splice is so far that it requires a great deal more work to reach it, an acceptable alternative will be to cut the 5 wires in a place that's more convenient. Then you can splice the new harness wire to ONE of those 5 wires. Any one wire will do, because all of these wire come together further away from the engine. Terminating or insulating the other 4 cut ends that remain would be a good idea also.

GROUND WIRE NOTE: There are some **BLACK ground wires** in the coil harness that go from each coil plug to two different ground ring terminals near the coils. **These BLACK wires do not exit through the grommet**, so you will NOT need to deal with them when splicing. If you see an extra **BLACK (or BLACK/WHITE)** wire attached to one of the ground rings, there is more information about that described in **Page 10.**

VVT or CVVT NOTE: If your car is equipped with plugs for **Variable Valve Timing**, there will be TWO additional wires for each VVT plug. **Some cars equipped with VVT will have one VVT plug, some will have two.** These plugs and wires are NOT included in the coil harness repair kit, however new VVT plugs/pigtails ones are available separately if needed. If you want, you may certainly reuse your old VVT or CVVT plugs and wires.

More detail on VVT plugs is shown beginning on Page 11.

HEAT SHIRNK TUBING: After cutting wires, **but before beginning the re-splice operation,** be sure to **FIRST place a piece of heat-shrink tubing** over the harness wires, so that it can later be slid into place over your splices. Then you may begin to match up wires by their colors and spice them using the supplied crimp terminals. The next page will show the wire colors of each coil connector plug in detail.



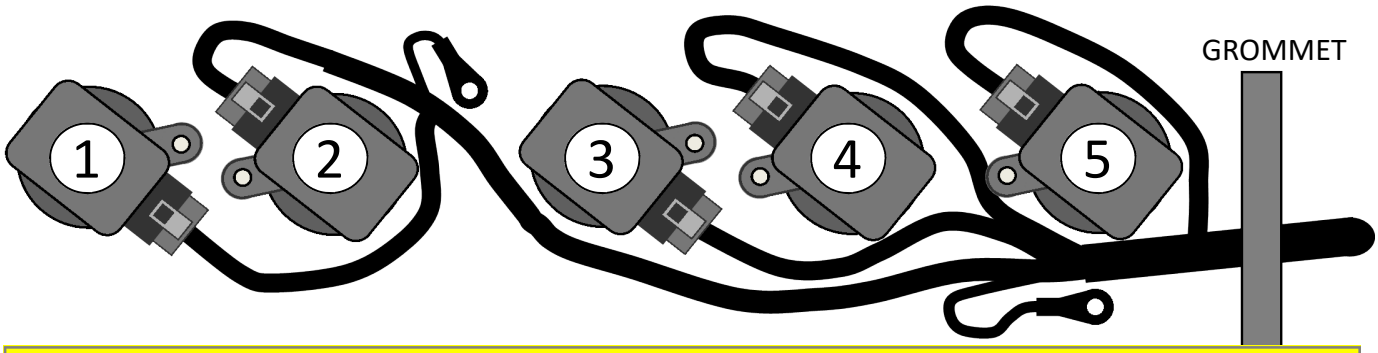
Here is a typical coil connector plug.

Each of the coil plugs has **FOUR pins**.

Non-turbo models will have **FOUR wires**.

Turbo models will only have **THREE wires, since pin #2 will be empty (photo at left shows a turbo style plug).**

The **wire color/order** is shown below for each coil plug.



COIL PLUGS on most 2001-2007 models, R models, and 2009-10 XC90 Turbo.

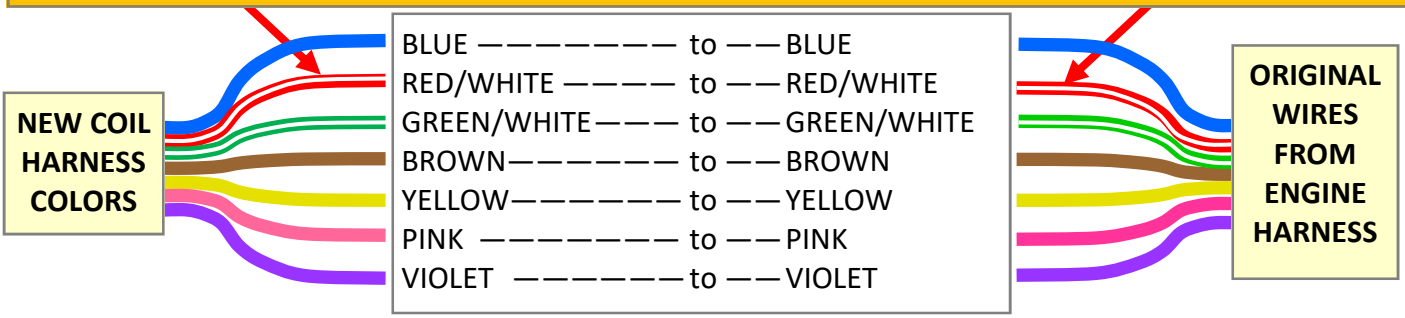
CYL 1	CYL 2	CYL 3	CYL 4	CYL 5
1. BLUE	1. BROWN	1. YELLOW	1. PINK	1. VIOLET
2. RED/WHT	2. RED/WHT	2. RED/WHT	2. RED/WHT	2. RED/WHT
3. BLACK	3. BLACK	3. BLACK	3. BLACK	3. BLACK
4. GRN/WHT	4. GRN/WHT	4. GRN/WHT	4. GRN/WHT	4. GRN/WHT

NOTE: For **ALL TURBO models**, **Pin 2 RED/WHITE** will be **EMPTY** from the factory.
The RED/WHITE wire in the new harness may then be IGNORED if you have a TURBO model.

MOST 2001-2007 models, including all R models (and 2009-10 XC90 Turbo) will follow this wire color splice operation shown below. If you have a **different year** or if you see **different wire colors** than shown here, your installation may need to follow different directions. Some other wires color combos are covered in the following pages.

STANDARD COLORS: SPLICE GUIDE Most 2001-07 models plus 2009-10 XC90 Turbo

NOTE: **Turbo** models will **NOT** originally have this Red/White wire. IGNORE the Red/White wire if you have a Turbo.

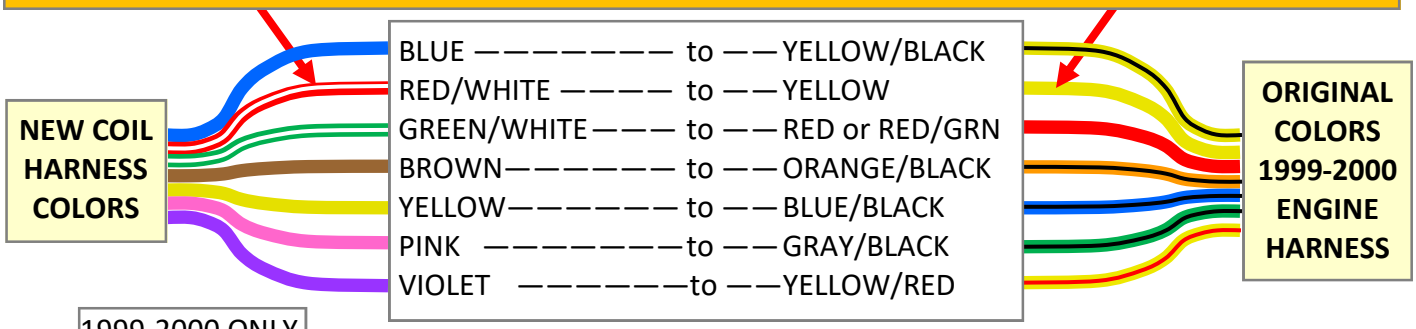


Special Information for 1999-2000 models only.

If you are installing this harness in a 1999-2000 model, special care is needed to match wire colors. The below guide will help you to match the proper colors between your engine and the new repair harness.

SPLICE GUIDE 1999-2000 models only.

NOTE: **Turbo** models will **NOT** originally have this Yellow wire. IGNORE the Red/White wire it if you have a Turbo.



1999-2000 ONLY

CYL 1	CYL 2	CYL 3	CYL 4	CYL 5
1. YEL/BLK	1. ORG/BLK	1. BLU/BLK	1. GRY/BLK	1. YEL/RED
2. YELLOW	2. YELLOW	2. YELLOW	2. YELLOW	2. YELLOW
3. BLACK	3. BLACK	3. BLACK	3. BLACK	3. BLACK
4. RED or RED/GRN	4. RED or RED/GRN	4. RED or RED/GRN	4. RED or RED/GRN	4. RED or RED/GRN

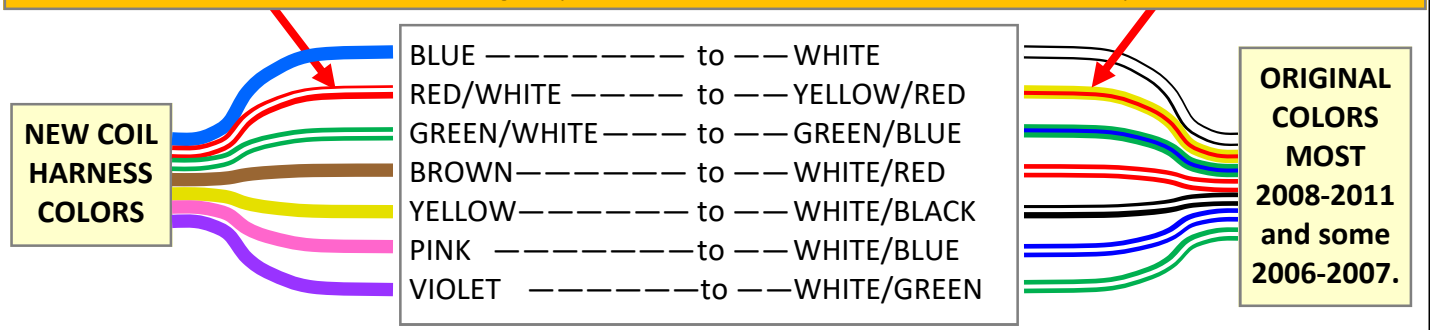
Special Information for most 2008 and later models (and some 2006-2007)

If you are installing this harness in a 2008-2011 model, the below guide will help you to match up the proper wire colors between your engine and the new repair harness. I have found that some 2006-2007 models (**2006-07 C70 T5 to be specific**) will likely also have the colors below.

If you find any other color differences not yet noted in this guide, please let me know.

SPLICE GUIDE most 2008 and later. Plus some 2006-07 (C70).

NOTE: **TURBO** models will **NOT** originally have the **YELLOW/RED** wire. IGNORE this wire if you have a Turbo.



Most 2008-2011, some 2006-2007 (C70)

CYL 1	CYL 2	CYL 3	CYL 4	CYL 5
1. WHITE	1. WHT/RED	1. WHT/BLK	1. WHT/BLU	1. WHT/GRN
2. YEL/RED	2. YEL/RED	2. YEL/RED	2. YEL/RED	2. YEL/RED
3. BLACK	3. BLACK	3. BLACK	3. BLACK	3. BLACK
4. GRN/BLU	4. GRN/BLU	4. GRN/BLU	4. GRN/BLU	4. GRN/BLU

Special Information for some 2007 S80 (5 cyl Turbo), 2008-10 V70 Turbo (5 cyl Turbo) and 2008 XC70 Turbo (5 cyl Turbo).

SPLICE GUIDE some 2007 S80 Turbo, 2009-10 V70 Turbo and 2008 XC70 Turbo.

NOTE: **TURBO** models will **NOT** originally have a wire here. IGNORE the **RED/WHITE** wire if you have a TURBO.

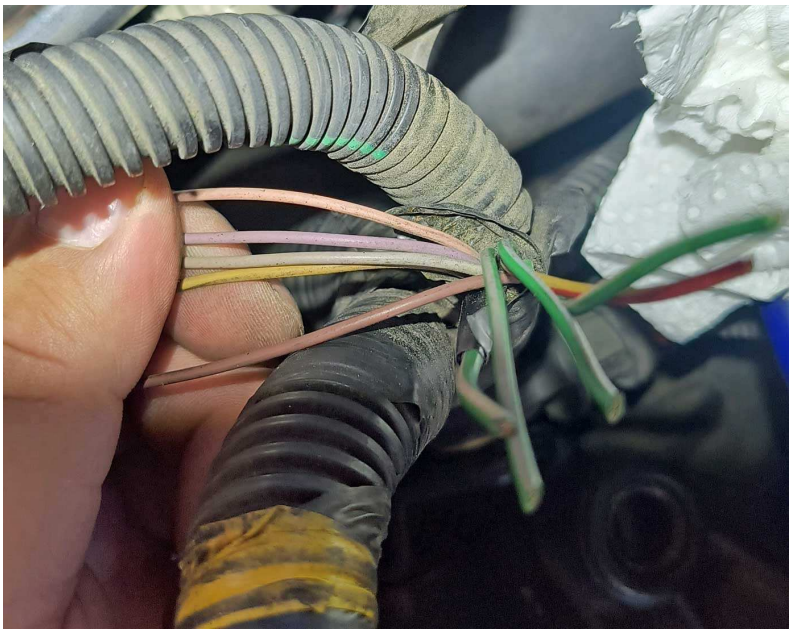
NEW COIL HARNESS COLORS

BLUE	to	VIOLET/BLACK
RED/WHITE	to	empty
GREEN/WHITE	to	RED
BROWN	to	YELLOW/BLUE
YELLOW	to	GREEN/VIOLET
PINK	to	GRAY/BLACK
VIOLET	to	BLUE/ORANGE

ORIGINAL 2008-10 ENGINE HARNESS

Some 2008-10 S80 Turbo, V70 Turbo, XC70 Turbo

CYL 1	CYL 2	CYL 3	CYL 4	CYL 5
1. VIO/BLK	1. YEL/BLU	1. GRN/VIO	1. GRAY/BLK	1. BLU/ORG
2. empty	2. empty	2. empty	2. empty	2. empty
3. BLK/ORG	3. BLK/ORG	3. BLK/RED	3. BLK/RED	3. BLK/RED
4. RED	4. RED	4. RED	4. RED	4. RED



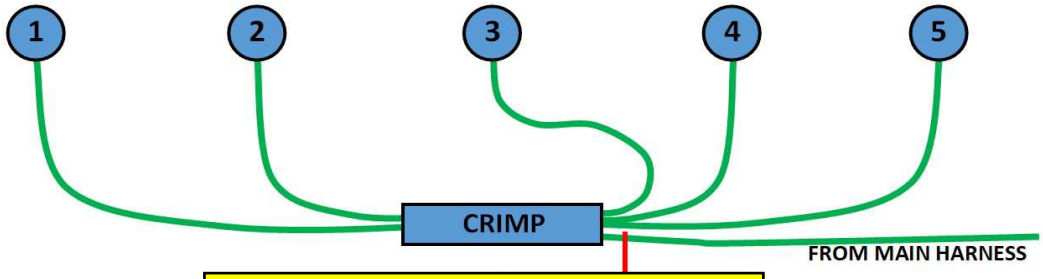
Faded Original Wire Colors.

There's a good chance you'll find some original wires with faded colors. In some cases it may be hard to tell what colors they originally were. The example wires pictured here were found in an S60R, which should be **Blue, Brown, Yellow, Pink, Violet, and Green/White** for the coils. Plus we find **Green/Gray, Green/White and Red/Yellow** for the VVT sensors. First of all, yes, **Green/White** is there twice, so work carefully. **The BLUE wire is invisible**, because it has faded to **GRAY** in this image.

If you're unsure about a wire color you're seeing, you can go to the old coil connectors and check those wires to see what colors they have faded to.

Special Information for some 2006-07 models.

This is specific to the **5-into-1** crimp junction used on the Green/White wire that goes to all five coil plugs. Two cars so far **(2006 C70 Turbo and 2007 V50 T5)** have been found customers to have a different original crimp junction (illustrated below). This 5 into 1 crimp was found in the **center** of the original coil harness instead of at the end, outside of the grommet, where most are found. **Also this wire may be GREEN instead of Green/White. All other coil wire colors in this car were different as well, shown below.** If you encounter something like this below , the solution will be to cut the wire below (coming from the main harness) as it's shown here and then crimp it to the Green/White wire in the new harness.

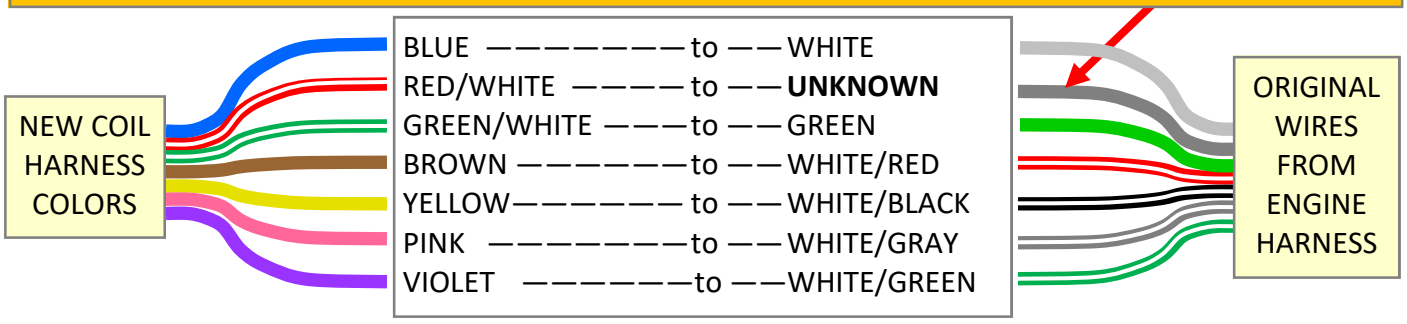


Cut HERE and then crimp to Green/White wire in new harness.

Here is the guide below for joining these harness crimps if you find these rare wire colors in your car.
One wire color below is UNKNOWN (if you have one). If you can help identity that color, please email.

SPLICE GUIDE for some rare 2006-07 models.

NOTE: A **Turbo** model will **NOT** originally have this (unknown color) wire. You may ignore this wire if you have a Turbo.



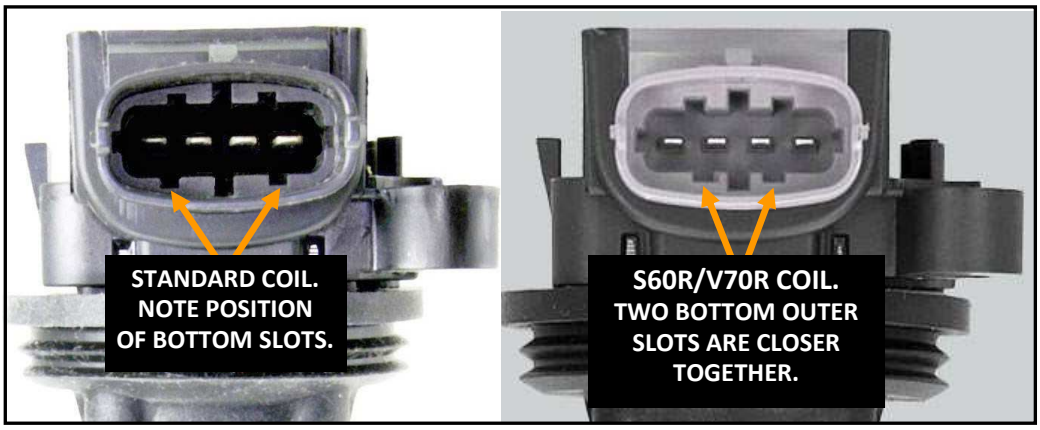
COIL PLUG WIRE COLOR DETAIL

CYL 1	CYL 2	CYL 3	CYL 4	CYL 5
1. WHITE	1. WHT/RED	1. WHT/BLK	1. WHT/GRAY	1. WHT/GRN
2. UNKNOWN	2. UNKNOWN	2. UNKNOWN	2. UNKNOWN	2. UNKNOWN
3. BLACK	3. BLACK	3. BLACK	3. BLACK	3. BLACK
4. GREEN	4. GREEN	4. GREEN	4. GREEN	4. GREEN

Special Information for 2004-2007 S60R and V70R Coils

AND POSSIBLY A FEW OTHER MODELS IN THIS YEAR RANGE

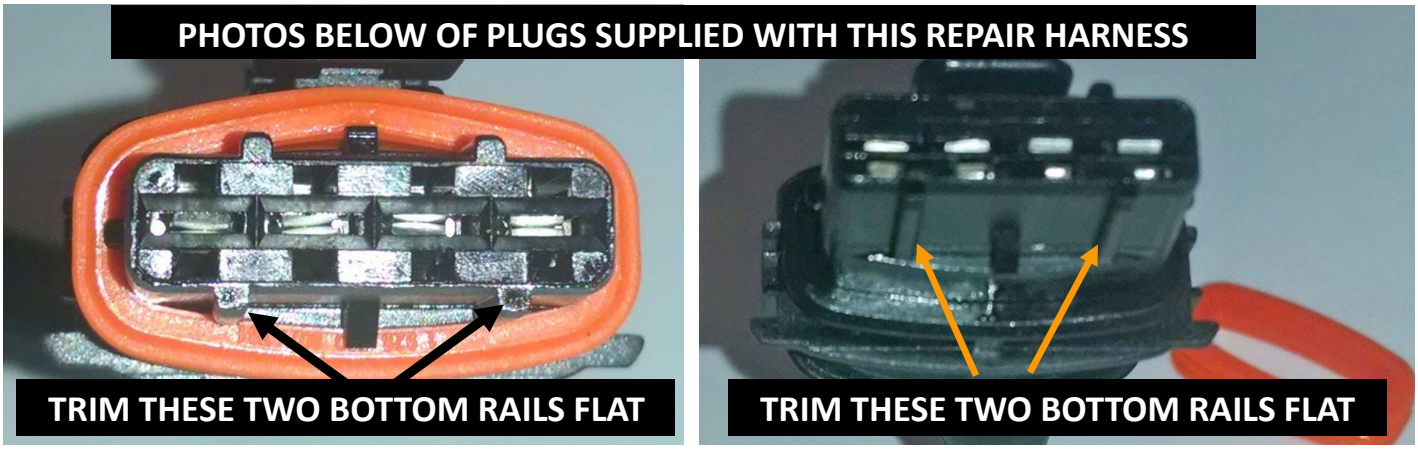
These repair harness plugs directly fit all coils in this guide, **except for the 2004-07 'R' models (and possibly a few others in these years.** These models used a slightly different coil and a slightly different coil plug, however this repair harness can be made to fit easily with a simple small fix to the plugs supplied with this harness.



The small difference in the two coils is illustrated here. There are two slots on the bottom that are in a different position **(slightly closer together on the 'R' coils).**

SIMPLE FIX HERE:

PHOTOS BELOW OF PLUGS SUPPLIED WITH THIS REPAIR HARNESS



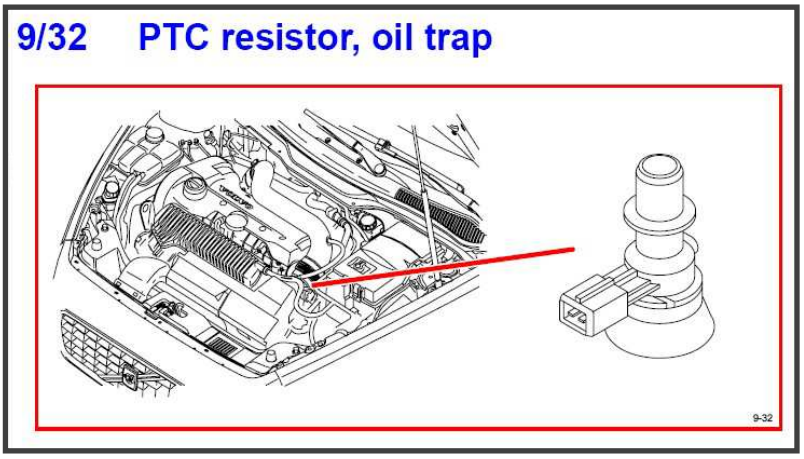
First **remove the orange seal so it doesn't get damaged.**
Using a sharp hobby knife or sharp box cutter, **carefully trim the two raised rails shown above until they are flat** (they are on the **BOTTOM** of plug). Work slowly and be careful to avoid cutting yourself. When done, replace the orange seal.
This is all that's needed to make these fit perfectly.

Special Information for some models with an extra BLACK/WHITE or BLACK ground wire.

So far only found on a 1999 S70 Turbo, a 2006 C70 T5, a 2007 V50 T5, and a 2008 C30 T5.

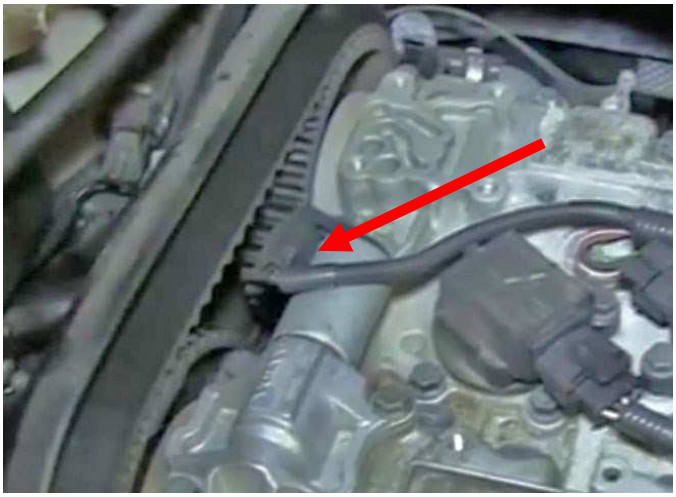
On some models, it has been found that there is an extra ground wire crimped to the ground ring bolted near Coil #2. This extra wire has been found to be BLACK or sometimes BLACK/WHITE in color and it extends through the grommet along with the other wires coming from the main engine harness. This is rare. **So far it has only been found on a 1999 S70 Turbo, a 2006 C70 T5, a 2007 V50 T5, and a 2008 C30 T5.** This is believed to be a ground for the "PTC Resistor, Oil Trap," which is located on the engine (illustration below).

If you encounter this extra wire, you can cut and crimp it into a black ground wire in the new harness. Or if you have an extra crimp ground ring, you can extend the wire and bolt the new ring to one of the ground location bolts.



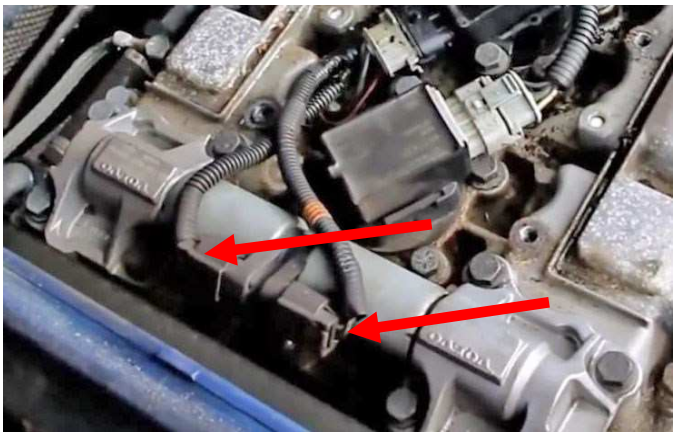
This section will show the camshaft VVT or CVVT connectors related to the Variable Valve Timing system. VVT was not installed on all cars and these connectors are not included in the basic Coil Repair Harness Kit.
New single or dual VVT plug pigtails are available separately if needed.

WARNING ABOUT DUPLICATE WIRE COLORS:
If you're installing VVT connectors, be aware that there might be a wire color going to the coils which might be confused with a wire color to a VVT connector. Finding a Green/White wire to both places is an example. When this happens, take extra care to identify original wires before cutting them.



These plugs are located near the timing belt end on the engine. Some (early) cars do not have these at all.

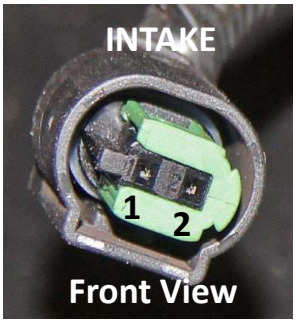
<<< Some cars will have ONE connector, however there are two different types of single connectors that may appear. More info on the next page.



<<< Some will have TWO connectors (one for the Intake Cam and one for Exhaust Cam). More info below.

WARNING ABOUT DUPLICATE WIRE COLORS:

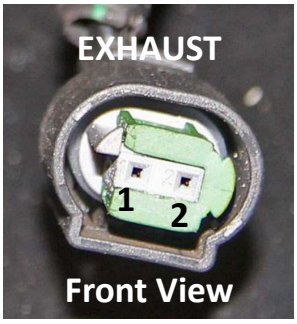
If you're installing VVT connectors, be aware that there might be a wire color going to the coils which might be confused with a wire color to a VVT connector. Finding a **GREEN/WHITE** wire to both places is a common example. When this happens, take extra care to identify original wires before cutting them.



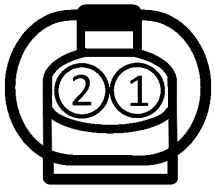
Here are the styles of plugs for all cars with **DUAL VVT connectors**. Note that the FRONT of each intake and exhaust connector plug is "keyed" slightly different so they cannot be mixed up on the two sensors.

Wire Colors
INTAKE PLUG
1. GREEN/GRAY
2. RED/YELLOW

REAR VIEW (Cable End)



Wire Colors
EXHAUST PLUG
1. GREEN/GRAY
2. GREEN/WHITE



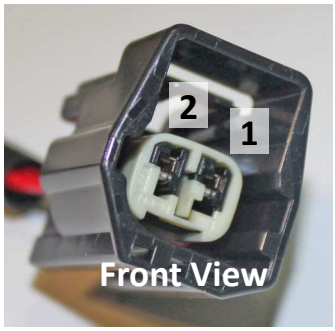
REAR VIEW (Cable End)

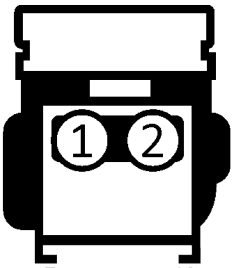
Pin 1 Green/Gray wire is power input and both Green/Gray wires may be combined (joined) if needed when splicing.

Pin 2 wire for each connector will always be the control signal from the ECU and must be spiced to the correct matching wire color.

NOTE: Some cars may be found with slightly different wire colors for the original VVT connectors.

Here is the information for cars with a SINGLE VVT connector. There are TWO different types of SINGLE VVT PLUGS.

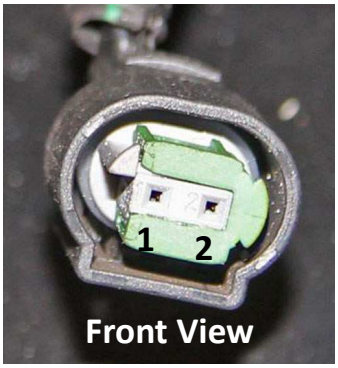




REAR VIEW (Cable End)

SINGLE VVT PLUG Type 1 (large)
This plug is square and larger than other plugs. Information suggests this plug came on the following Volvos.
V70: up to chassis number 171000.
V70XC: up to chassis number 48000.
S60: up to chassis number 92352.

WIRE COLORS
1. GREEN/GRAY
2. RED/YELLOW

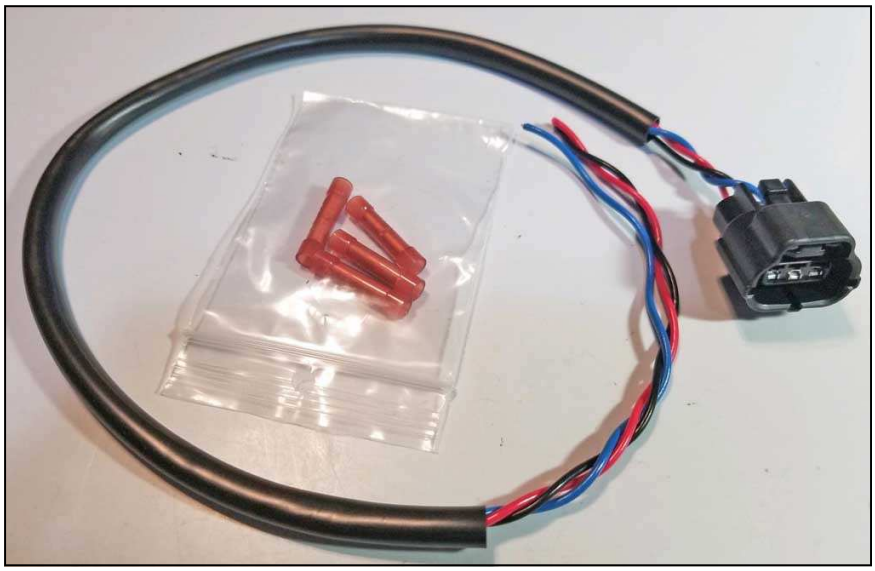


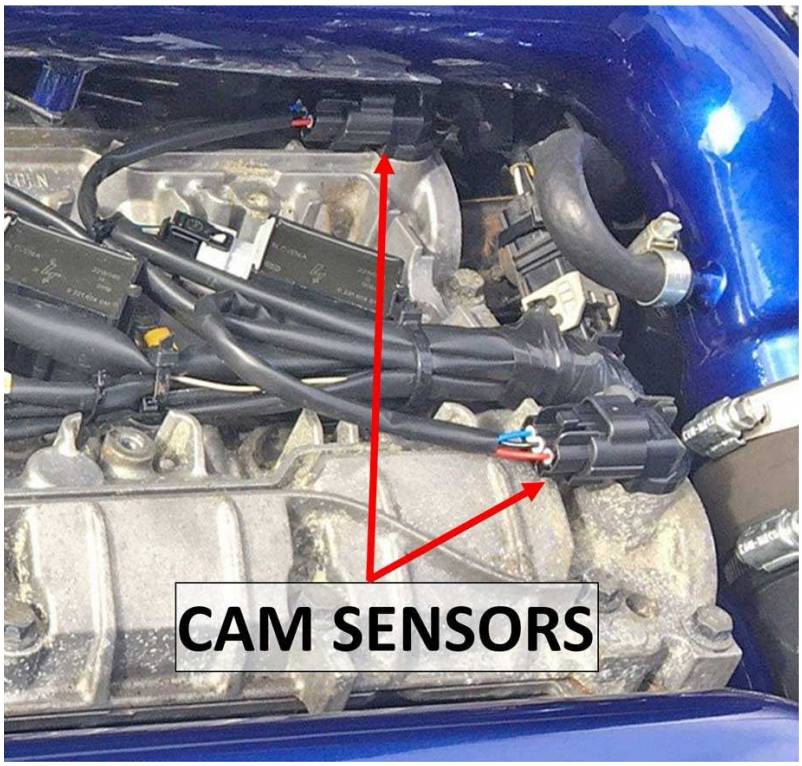
REAR VIEW (Cable End)

SINGLE VVT PLUG Type 2 (small)
This is a smaller round plug. It should be found on cars built **AFTER** the above chassis numbers.

WIRE COLORS
1. GREEN/GRAY
2. RED/YELLOW

Optional CAM SENSOR PLUG pigtails are also available (two per car if equipped).



The need to replace these 3-pole connectors is less common.

If your engine is equipped with cam sensors, they will be on the end of the engine opposite of the cam timing belt sprocket.