'90-05 Fuel and Timing Control Installation

Thank you for using our TDR Fuel and or Timing Controls (F/T). We have a new fuel and timing card. The main difference is the pressure sender is remote instead of internal. All wiring is identical. There are two options on how to wire the F/T controls. Our preferred method is to use our TDR Patch Harness as shown in Photo 1 and have the F/T controls prewired to the short 8" harness. The TDR setup will include a lengthened vacuum hose on the extended wiring on the older style. We can provide this service or provide the Patch harness separately.

Our preferred method is Plug and Play which simplifies the installation as well as helps in trouble shooting as you can simply unplug the system for testing purposes. We also wire both fans together on the 94-05 models for improved cooling. If you are using our TDR Plug and Play setup, you can skip the wiring instructions and proceed to the vacuum line installation.

When using the Fuel and Timing Controls combined, use the supplied Velcro and attach the two controls together as shown in Photo 4.

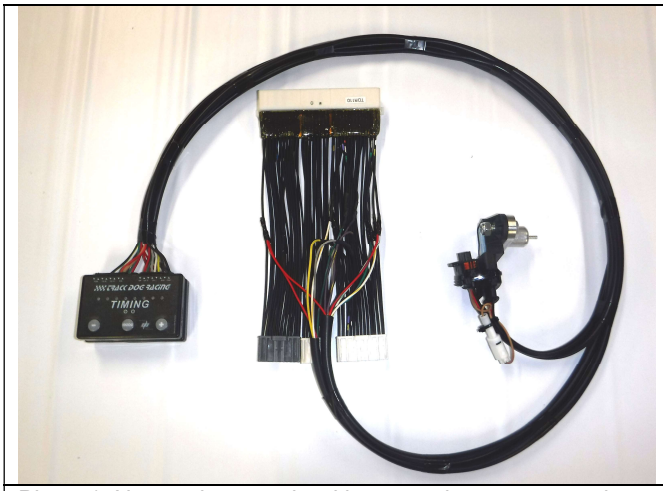


Photo 1: New style controls with external pressure sender

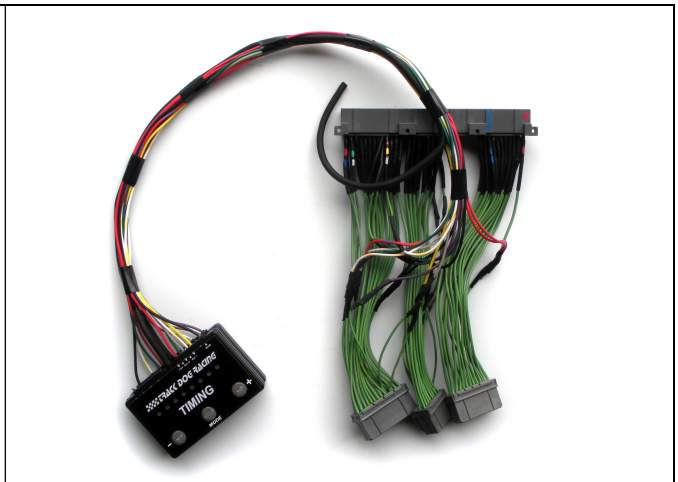


Photo 2: TDR Fuel and Timing Card wired to Patch Harness

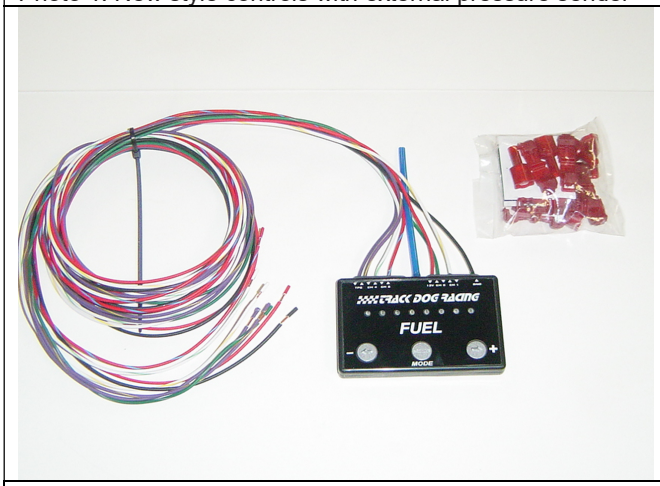


Photo 3: TDR Fuel Card with internal pressure sender

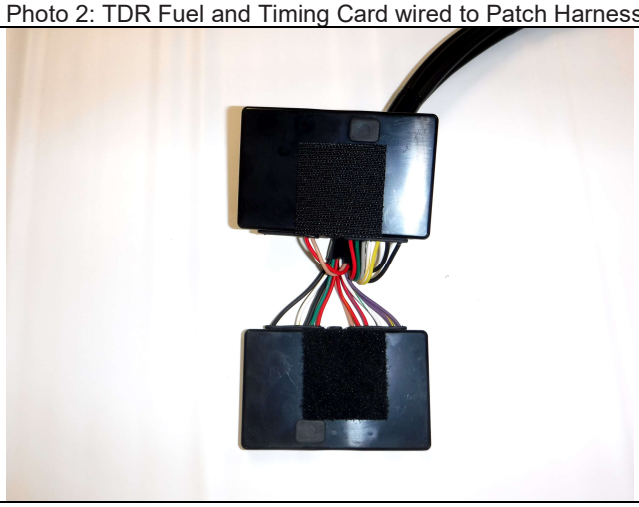


Photo 4: Fuel and timing card Velcro together

The other installation option is to use the supplied vampire and quick connect connectors as shown in Photo 4. This method requires cutting and splicing into the ECU harness. There are 8 connections on the Fuel Control (FC) and 6 connections on the Timing Control (TC). Installation is more difficult on the 99-05 model since the ECU is in the driver's side footwell area. The instructions to follow will discuss the hand method of wiring.

The Fuel Control (FC) is shown in Photo 5. The photo shows output wires for Channel 3 and 4, this is for 94-05 models. The 90-93 model fires the injectors two at a time so the FC will not use these two outputs.

The Timing Control (TC) is shown in Photo 6. The 94-05 models use a waste park coil arrangement. Wiring requires a signal in and a signal out. Notice on Channel 1 the Arrow In from the harness is Yellow and Arrow Out is White/Yellow wiring goes to the ECU.

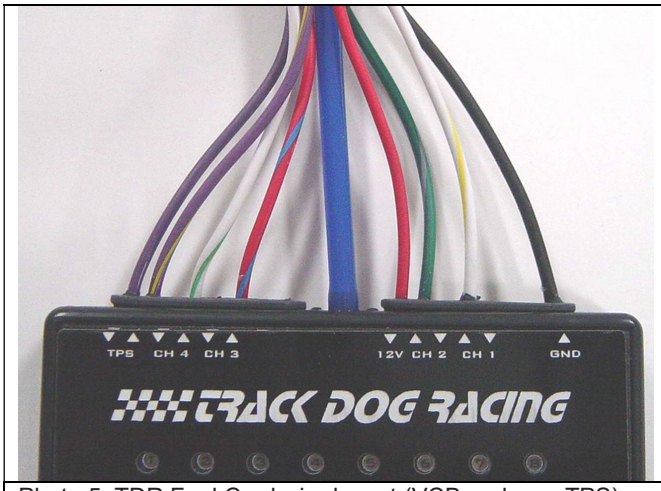


Photo 5: TDR Fuel Card wire layout (VCB replaces TPS)

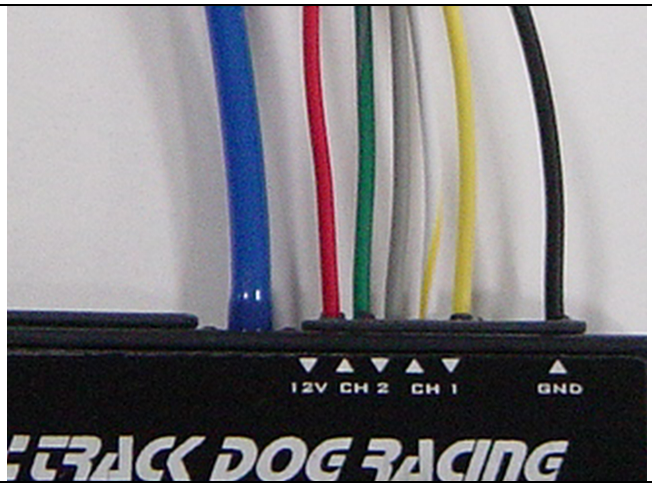


Photo 6: TDR Timing Card wire layout

SECTION 1: NEW FUEL AND TIMING CONTROL PRESSURE SENDER

The new Fuel and Timing Control comes with about 30 in. of lead wires. Only one pressure sender is need for this setup. For this reason we have a single wire plug for the signal wire on each harness where the sender plugs is located as shown in Photo 1-1.

- Remove the single wire plug ends as shown in Photo 1-1. Then plug the fuel and timing sender wire together as shown in Photo 1-2.
- Tie-Wrap the sender bundle together as shown in Photo 1-3 and 1-4.

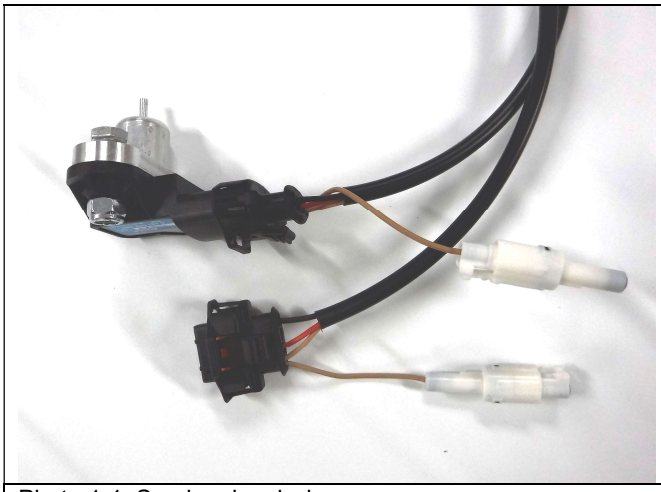


Photo 1-1: Sender signal wire

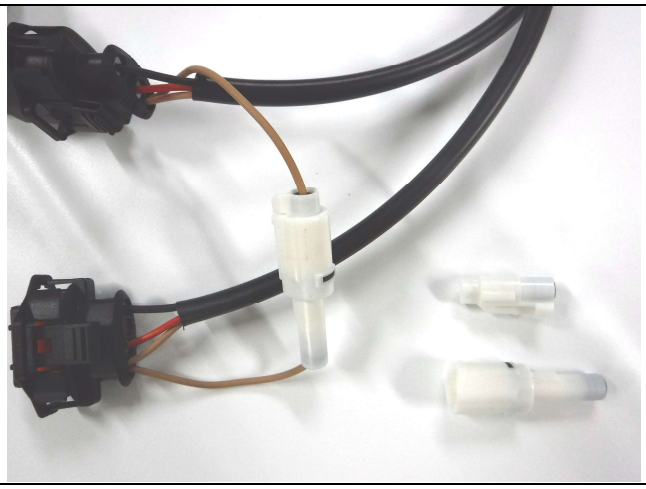


Photo 1-2: Sender signal wire connected

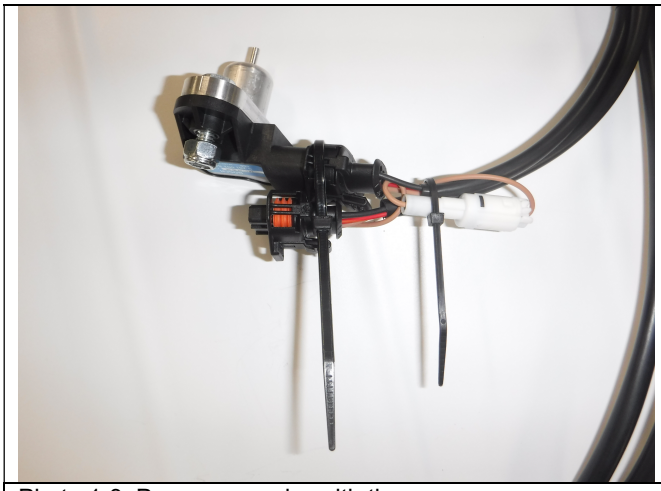


Photo 1-3: Pressure sender with tie-wraps

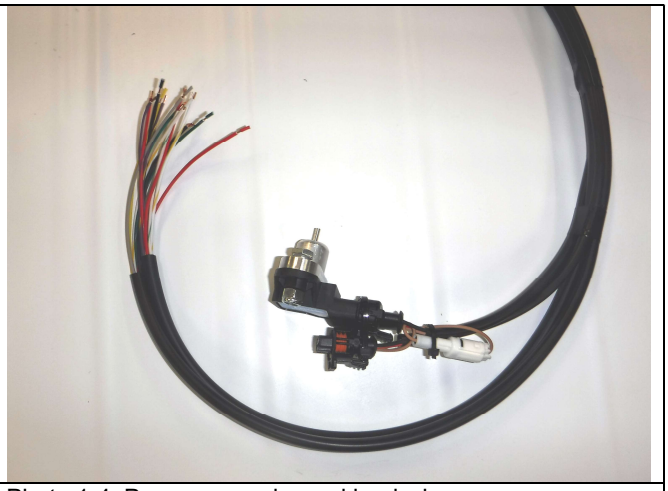


Photo 1-4: Pressure sender and lead wires

Wiring Color Codes

When there are two designated color codes such as R/B (Red/Black) then the first letter is the predominate color on the wire followed by a thin strip of the second color. White and yellow strips are sometimes hard to distinguish.

COLOR	CODE	COLOR	CODE
Black	B	Orange	O
Blue	L	Pink	P
Brown	BR	Red	R
Dark Blue	DL	Purple	PU
Dark Green	DG	Sky Blue	SB
Gray	GY	Tan	T
Green	G	Violet	V
Light Blue	LB	White	W
Light Green	LG	Yellow	Y
Natural	N		

SECTION 2: VACUUM LINE INSTALLATION

Route the vacuum source from the engine intake to the Fuel and Timing Controls. Begin in the engine bay running the vacuum line through the firewall. You can use a rubber hose all the way, but it can be difficult to push through the firewall area. The simplest way is to use a Nylon plastic vacuum line as it is simpler to push through the firewall grommet and less chance of pinching. TDR supplies a Nylon plastic tubing with our setup.

- You can run the vacuum line through the wiring grommet by the brake booster area, but it is simpler on left hand drive cars to run the rigid vacuum line through the A/C grommet as shown in Photo 2-1. Start with pushing the vacuum line through the grommet. Use a screwdriver to open the rubber grommet up works well to provide gap while pushing the hard line tube.

- The hard line will hit the back of the inside fan box when pushed through. Reach behind the fan box to retrieve the hard line as shown in Photo 2-2. It will probably take a few attempts to run the hard line, but once through pull the tubing into the footwell area.

- Locate a free vacuum port on the intake manifold, near the front produces cleaner air pulses. If there are no free ports, splice into an existing vacuum source and use the included Tee to connect as shown in Photo 2-3.

Photo 2-1: Vacuum line ran through A/C grommet

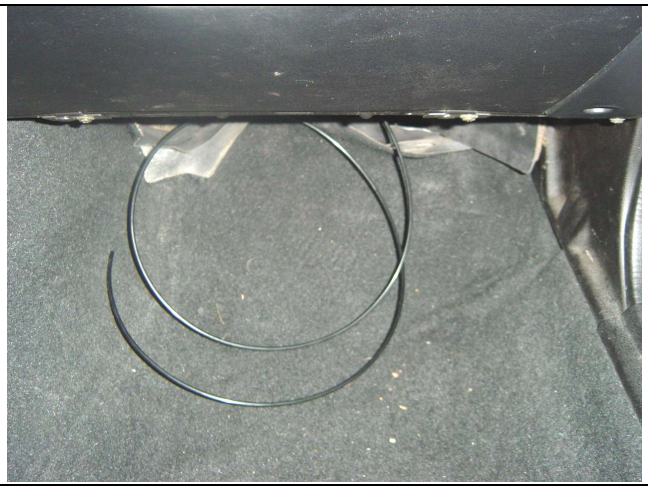


Photo 2-2: Vacuum line pulled through firewall

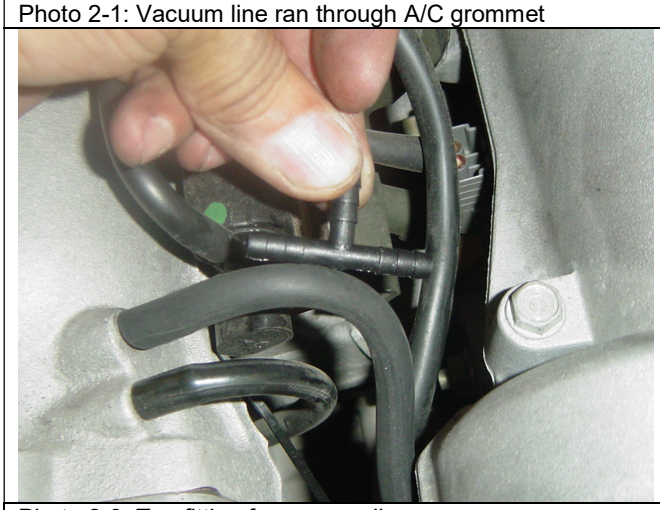


Photo 2-3: Tee fitting for vacuum line

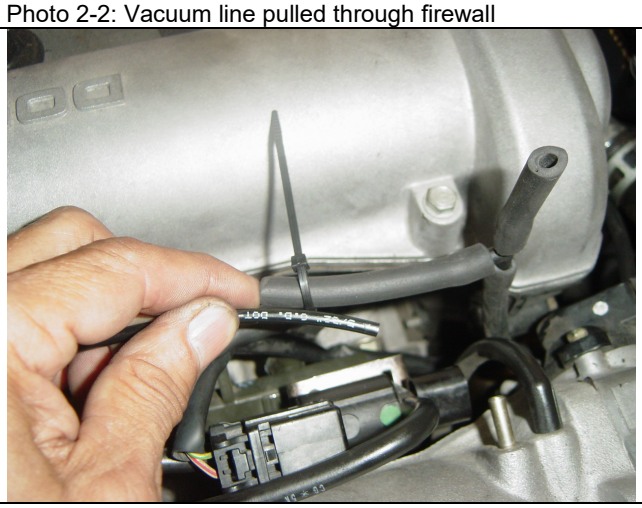


Photo 2-4 Tee fitting attached with hard line

- Attach the hard line using a small section of rubber vacuum hose supplied as shown in Photo 2-4. Use a tie-wrap to add clamping to the hard line as shown in Photo 2-5.

- Run the hard line down the door sill area on 94-97 models as shown in Photo 2-6. On 99-05 models, run the hard line under the dash area to reach the ECU area under the drivers foot well.

Photo 2-5: Hard line inserted into rubber vacuum line

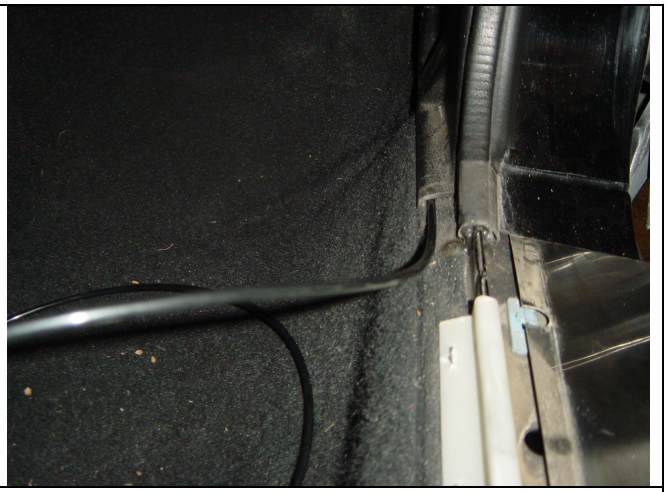
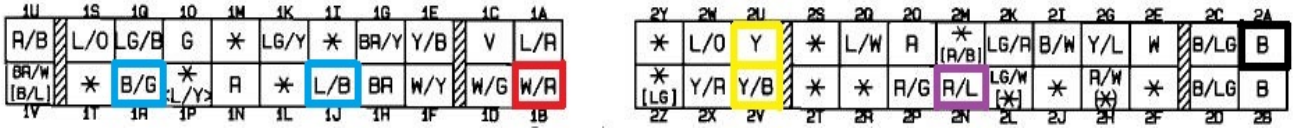


Photo 2-6: Hard line installed on 94-97 models

SECTION 3: 90-93 MODEL FUEL CARD WIRING

Description	ECU Terminal	TDR Fuel & Timing Card	Notes
12V Power	1B (W/R) White/Red	12V Red	Switched power
12V Ground	2A (B) Black	GND Black	Switched ground
Injector 1 & 3	2U (Y) Yellow	Channel 1 White/Yellow	Batch fired injector
Injector 2 & 4	2V (Y/B) Yellow/Black	Channel 2 Green/Gray	Batch fired injector
O2 Sensor In	2N (R/L) Red/Blue	VCB Purple to Harness	O2 Signal in
O2 Sensor Out	2N (R/L) Red/Blue	VCB Purple/Yellow to ECU	O2 Signal out
Main Fan	1R (B/G) Black/Green	Wire these two wires together for dual fan operation, but ONLY for NON A/C application. Track use.	
A/C Fan	1J (L/B) Blue/Black		



If you are using the Plug and Play harness setup you can skip the wiring instructions.

Locate the Fuel Control (FC). We have included enough wire to mount it on the center console or in the glove box (recommended) and still reach the passenger's side foot well where the ECU is located. Decide where you want to mount it, route the wires from that location to the console (or thru the glove box area) back behind the dashboard and down into the passenger's side foot well. We recommend around 30 inches (750 mm) in wiring length (older model FC) if you are going to install in the glove box.

Remove the floor mat and pull back the carpet to expose a large metal plate as shown in Photo 3-1. Remove the four M6 nuts and one M6 bolt that secure the plate to the car. Remove the M6 bolts using a 1O mm wrench. Remove the plate to gain access to the Electronic Control Unit (ECU).

Cut the extra wire to length or loop and wrap it and use tie-wrap to secure. Strip 1/4" of insulation off of each of the FC wires. Gather together one (1) female spade connector and five (5) male spade connectors. Crimp the Female spade connector onto the Purple wire and then crimp the Male spade connectors onto the rest of the wires.

- Locate the ECU's fuel injector wires. Use the pin-out at the end of the instructions to help you find the colored wires. Locate terminal 2U Yellow and terminal 2V Yellow/Black wire located in the connector nearest the driver's side of the car as shown in Photo 3-2. Use the included T-taps (vampire) connectors with multi-purpose pliers to tap into the wires.

Photo 3-1: ECU Cover on passenger foot well

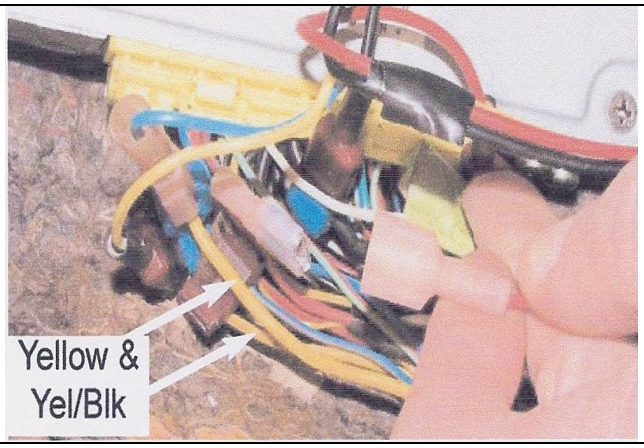


Photo 3-2: Injector wires Yellow and Yellow/Black

- Connect Channel 1 White/Yellow on the Fuel Control to the T-tap on the Yellow terminal 2U injector wire. Connect Channel 2 Green/Gray on the Fuel Control to the T-Tap on the Yellow/Black terminal 2V injector wires at the ECU.

- Locate terminal 2N Red/Blue wire in the same connector as the two injector wires as shown in Photo 2-3. This is the Exhaust Gas Oxygen (02) sensor wire. Cut this wire about 2" from the ECU connector. Strip 1/4" of insulation from both ends of the cut wire. Crimp a Male Spade connector onto the side of the cut wire that leads into the harness. Crimp a Female Spade connector onto the side of the cut wire that leads to the ECU connector.

- Connect the Female spade connector on the VCB Purple wire of the TDR Fuel Control to the Male spade connector on the Red/Blue wire leading into the harness. Connect the Male spade connector on the VCB Purple/Yellow wire of the TDR Fuel Control to the Female spade connector on the Red/Blue wire leading into the ECU connector.

- Locate terminal 2A Black wire in the opposite end of the harness. T-tap the Black wire, this is the system ground. Connect the Fuel Control's Black wire to the T-tap on the Black wire of the ECU.

- Locate terminal 1B White/Red wire. T-tap on the White/Red wire terminal 1B of the ECU, this is the system 12V power. Connect the Fuel Control's Red wire to the T-tap on the White/Red wire of the ECU as shown in Photo 3-4.

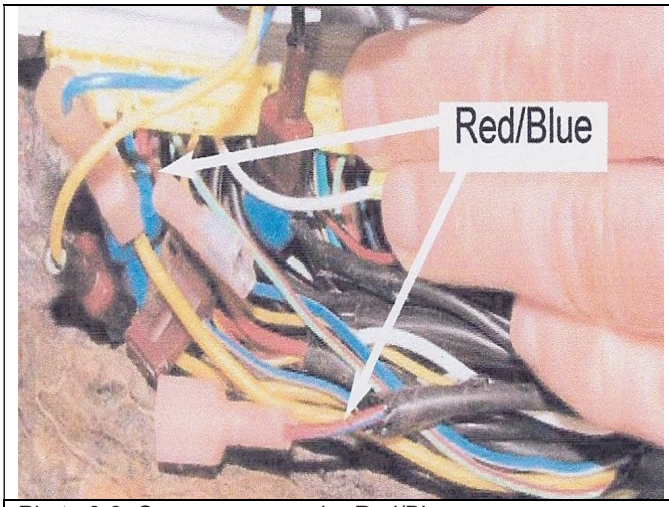


Photo 3-3: Oxygen sensor wire Red/Blue


Photo 3-4: Power wire White/Red

SECTION 4: 94-97 MODEL FUEL CONTROL WIRING

If you are using the Plug and Play harness setup you can skip the wiring instructions.

The Electronic Control Unit (ECU) is mounted behind the passenger seat. Pull the seat all the way forward and angled forward as well. Pull the fasteners that hold the carpet and then pull the carpet up and back to access the ECU as shown in Photo 4-1.

The 94-95 models are OBD1 and use only the two outside harness connections. The 96-97 models are OBD2 and have 3 harness connections. The connectors are sometimes difficult to pull out. Using a flat head screwdriver can help pry the connector out while squeezing the center section clip as shown in Photo 4-2. If you are using the TDR Plug and Play harness, plug the Patch harness between the ECU and the factory harness as shown in Photo 4-3. We make the wiring on the Plug and Play setup about 30 inches (600 mm) on the old style controls. Attach the vacuum line as shown in Photo 4-4. You can bypass the wiring steps if using the TDR Patch setup.

The diagram below shows which color of the ECU terminal mates up to the Fuel Control (FC) and Timing Control (TC). Be sure to use the proper year model diagram. Use the included T-taps (vampire) connectors with multi-purpose pliers to tap into the wires. We would recommend on the older model FC/TC cutting the wires about 24 to 30 inches (600-750 mm) and either tie-wrap or tape the wire bundle together as shown in Photo 4-4. You can also use a vacuum Tee to on the cards vacuum connection to provide one connection to the hard line.

Photo 4-1: Carpet pulled back with ECU shown

Photo 4-2: Harness removed from ECU

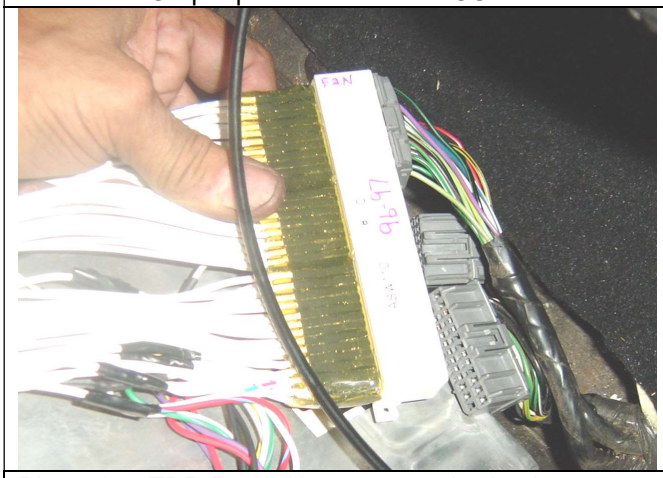


Photo 4-3: TDR Patch Harness attached to harness

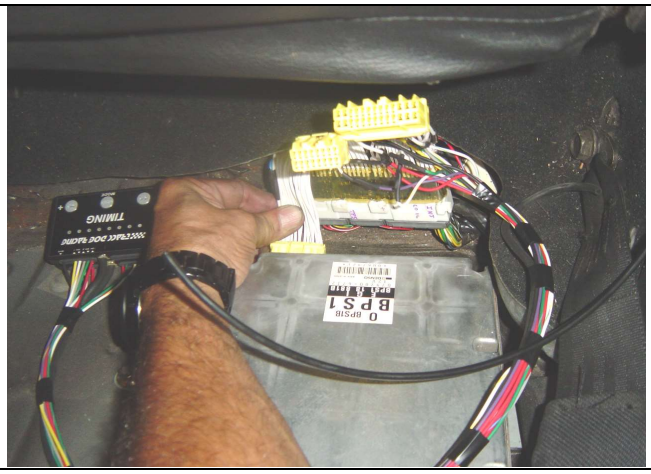
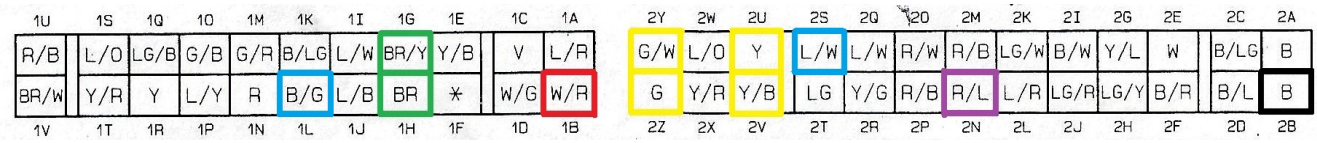


Photo 4-4: Patch Harness and vacuum line

94-95 Terminal Diagram

Description	ECU Terminal	TDR Fuel & Timing Card	Notes
12V Power	1B (W/R) White/Red	12V Red	Power Fuel and Timing
12V Ground	2B (B) Black	GND Black	Ground Fuel and Timing
Injector 1	2U (Y) Yellow	Channel 1 White/Yellow	Injector 1
Injector 2	2V (Y/B) Yellow/Black	Channel 2 Green/Gray	Injector 2
Injector 3	2Y (G/W) Green/White	Channel 3 Red/Blue	Injector 3
Injector 4	2Z (G) Green	Channel 4 White/Green	Injector 4
O2 Sensor In	2N (R/L) Red/Blue	VCB Purple to Harness	O2 Signal in
O2 Sensor Out	2N (R/L) Red/Blue	VCB Purple/Yellow to ECU	O2 Signal out
Coil 1 & 4 In	1G (BR/Y) Brown/Yellow	Channel 1 White/Yellow	In From Harness
Coil 1 & 4 Out	1G (BR/Y) Brown/Yellow	Channel 1 Yellow	Out to ECU
Coil 2 & 3 In	1H (BR) Brown	Channel 2 Green/Gray	In From Harness
Coil 2 & 3 Out	1H (BR) Brown	Channel 2 Gray	Out to ECU
Main Fan	1L (B/G) Black/Green	Recommended wiring these two wires together for dual fan operation for Street and Track use.	
A/C Fan	2S (L/B) Blue/White		



- Both the Fuel and Timing Control require power and ground. Locate the 12V Power and Ground ECU wiring and T-Tap (vampire) connectors on each of the wires about 2 inches (50 mm) from the harness connector. You have two options on wiring, you can either attach two T-Tap connectors on the power wire or install both the FC and the TC power into one Male Spade connector. Use multi-purpose pliers to tap the connector into the power wire.

- Locate the fuel injector wires using the terminal diagrams for you particular year model. Connect injector channels 1 to 4 per the year model terminal diagram. T-Tap (vampire) connectors on each of the injector wires about 2 inches (50 mm) from the harness connector. Use multi-purpose pliers to tap the connector into the injector wire.

- Strip about a 1/4 inch (3 mm) off the Fuel and Timing Control wires after you determine the length. Start with the Power wires and the Injector wires by crimping on a Male Spade connector.

- Press the Male Spade connector into the T-Tap based on the color code and location of the Power and Injector wire on your year model harness.

- The 94-97 Fuel Control uses the O2 sensor input and converts a 3 volt signal to override the Closed Loop system. The Closed Loop system tries to control the air fuel ratio close to 14.7 AFR (Stoic) even under full throttle. This is fine for cruising and idling, but not at full throttle. Our Fuel Control simulates a voltage signal to change to Open Loop and allows adjustability of the fuel map.

- Locate the Oxygen (O2) wire using the terminal diagrams for you particular year model. Cut the wire about 2 inches (50 mm) from the harness connector. Connect a Male Spade connector to the Harness end and a Female connector on the ECU end. If you need to remove the Fuel Card from the harness you can simply plug the two connectors together to complete the signal.

- On the Fuel Control (FC) connect the opposite connectors. The FC Purple wire goes to the harness end. Connect a Female connector to the wire. The FC Purple/Yellow wire goes to the ECU end. Connect a Male Spade connector to the wire. Connect the FC wires to the harness.

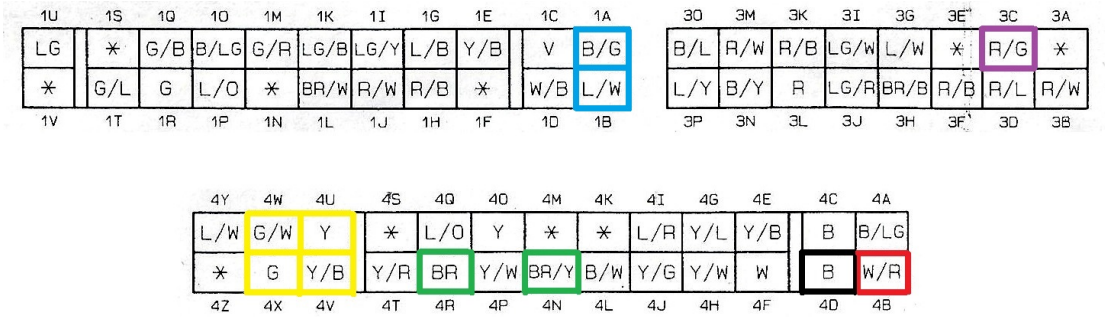
- The Timing Control breaks the Coil signal wire to control the voltage signal. Be sure to wire the Coil wiring properly. Locate the two Coil wires using the terminal diagrams for you particular year model. Cut the wire about 2 inches (50 mm) from the harness connector. Connect a Male Spade connector to the Harness end and a Female connector on the ECU end. If you need to remove the Timing Control from the harness you can simply plug the two connectors together to complete the signal.

- On the Timing Control (TC) connect the opposite connectors. For Coil 1, the Yellow wire goes to the harness end. Connect a Female connector to the wire. The Coil 1 White/Yellow wire goes to the ECU end. Connect a Male Spade connector to the wire. For Coil 2, the Gray wire goes to the harness end. Connect a Female connector to the wire. The Coil 2 Green/Gray wire goes to the ECU end. Connect a Male spade connector to the wire. Plug in the 4 connectors firmly.

- For additional cooling you can jump the main cooling fan and the air conditioning fan relay signal wire. Locate the two Fan wires using the terminal diagrams for you particular year model. Strip the wire and solder together or add a T-Tap to both wires. This can be a permanent connection.

96-97 Terminal Diagram

Description	ECU Terminal	TDR Fuel & Timing Card	Notes
12V Power	4B (W/R) White/Red	12V Red	Power Fuel and Timing
12V Ground	4D (B) Black	GND Black	Ground Fuel and Timing
Injector 1	4U (Y) Yellow	Channel 1 White/Yellow	Injector 1
Injector 2	4V (Y/B) Yellow/Black	Channel 2 Green/Gray	Injector 2
Injector 3	4W (G/W) Green/White	Channel 3 Red/Blue	Injector 3
Injector 4	4X (G) Green	Channel 4White/Green	Injector 4
O2 Sensor In	3C (R/G) Red/Green	VCB Purple to Harness	O2 Signal in
O2 Sensor Out	3C (R/G) Red/Green	VCB Purple/Yellow to ECU	O2 Signal out
Coil 1 & 4 In	4N (BR/Y) Brown/Yellow	Channel 1 White/Yellow	In From Harness
Coil 1 & 4 Out	4N (BR/Y) Brown/Yellow	Channel 1 Yellow	Out to ECU
Coil 2 & 3 In	4R (BR) Brown	Channel 2 Green/Gray	In From Harness
Coil 2 & 3 Out	4R(BR) Brown	Channel 2 Gray	Out to ECU
Main Fan	1A (B/G) Black/Green	Recommended wiring these two wires together for dual fan operation for Street and Track use.	
A/C Fan	1B (L/B) Blue/White		



SECTION 5: 99-05 MODEL FUEL CARD WIRING

If you are using the Plug and Play harness setup you can skip the wiring instructions.

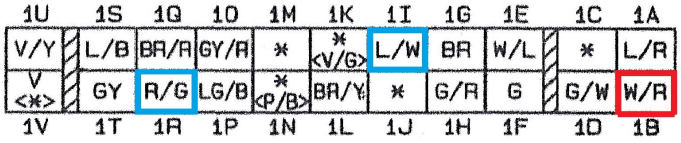
The Electronic Control Unit (ECU) is mounted in the driver's side foot well, to the left of the steering column. It works best if you will remove the driver's seat for easier access to the wiring harness. There are four M10 bolts that requires a 14 mm socket wrench to remove the seat bolts. The 99-00 models harness connectors are different from the 01-05 connectors. Wiring is similar, but the terminal layout are different. The connectors are sometimes difficult to pull out. Using a flat head screwdriver can help pry the connector out while squeezing the center section clip.

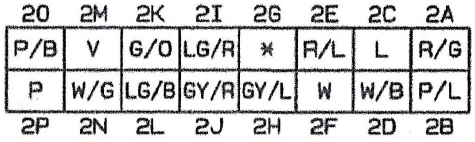
We strongly recommend using our TDR Plug and Play Patch harness between the ECU and the factory harness as wiring the 14 wires required are difficult and tedious to connect. The TDR Plug and Play setup uses 30 inch (760 mm) long wiring extension. When plugged in to the ECU you can extend the FC/TC under the dash where you can access for adjustment.

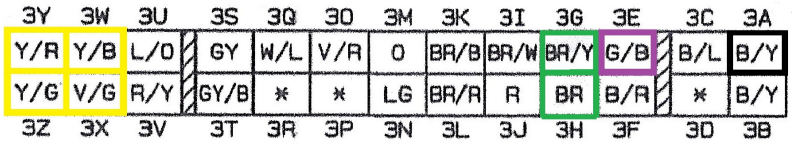
The diagram below shows which color of the ECU terminal mates up to the TDR Fuel Control (FC) and Timing Control (TC). Be sure to use the proper year model diagram. Use the included T-taps (vampire) connectors with multi-purpose pliers to tap into the wires. You can shorten the wires on the F/T controls or tie-wrap the wire bundle together as shown in Photo 4-4. You can also use a vacuum Tee to on the controls vacuum connection to provide one connection to the hard line.

99-00 Terminal Diagram

Description	ECU Terminal	TDR Fuel & Timing Card	Notes
12V Power	1B (W/R) White/Red	12V Red	Power Fuel and Timing
12V Ground	3A (B/Y) Black/Yellow	GND Black	Ground Fuel and Timing
Injector 1	3W (Y/B) Yellow/Black	Channel 1 White/Yellow	Injector 1
Injector 2	3X (V/G) Violet/Green	Channel 2 Green/Gray	Injector 2
Injector 3	3Y (Y/R) Yellow/Red	Channel 3 Red/Blue	Injector 3
Injector 4	3Z (Y/G) Yellow/Green	Channel 4 White/Green	Injector 4
TPS Sensor In	3E (G/B) Green/Black	VCB Purple to Harness	Throttle Position In
TPS Sensor Out	3E (G/B) Green/Black	VCB Purple/Yellow to ECU	Throttle Position Out
Coil 1 & 4 In	3G (BR/Y) Brown/Yellow	Channel 1 White/Yellow	In From Harness
Coil 1 & 4 Out	3G (BR/Y) Brown/Yellow	Channel 1 Yellow	Out to ECU
Coil 2 & 3 In	3H (BR) Brown	Channel 2 Green/Gray	In From Harness
Coil 2 & 3 Out	3H(BR) Brown	Channel 2 Gray	Out to ECU
Main Fan	1R (R/G) Red/Green	Recommended wiring these two wires together for dual fan operation for Street and Track use.	
A/C Fan	1I (L/B) Blue/White		







- Both the Fuel and Timing Control require power and ground. Locate the 12V Power and Ground ECU wiring and T-Tap (vampire) connectors on each of the wires about 2 inches (50 mm) from the harness connector. You have two options on wiring, you can either attach two T-Tap connectors on the power wire or install both the FC and the TC power into one Male Spade connector. Use multi-purpose pliers to tap the connector into the power wire.

- Locate the fuel injector wires using the terminal diagrams for you particular year model. Connect injector channels 1 to 4 per the year model terminal diagram. T-Tap (vampire) connectors on each of the injector wires about 2 inches (50 mm) from the harness connector. Use multi-purpose pliers to tap the connector into the injector wire.

- Strip about a 1/4 inch (3 mm) off the Fuel and Timing Control wires after you determine the length. Start with the Power wires and the Injector wires by crimping on a Male Spade connector.

- Press the Male Spade connector into the T-Tap based on the color code and location of the Power and Injector wire on your year model harness.

- Locate the Throttle Position Sensor (TPS) wire using the terminal diagrams for you particular year model. Cut the wire about 2 inches (50 mm) from the harness connector. Connect a Male Spade connector to the Harness end and a Female connector on the ECU end. If you need to remove the Fuel card from the harness you can simply plug the two connectors together to complete the signal.

- On the Fuel Control connect the opposite connectors. The FC Purple wire goes to the harness end. Connect a Female connector to the wire. The FC Purple/Yellow wire goes to the ECU end. Connect a Male Spade connector to the wire. Connect the FC wires to the harness.

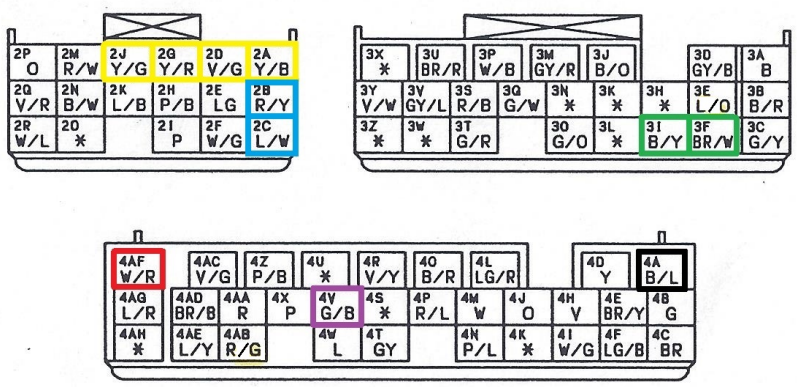
- The Timing Control breaks the Coil signal wire to control the voltage signal. Be sure to wire the Coil wiring properly. Locate the two Coil wires using the terminal diagrams for you particular year model. Cut the wire about 2 inches (50 mm) from the harness connector. Connect a Male Spade connector to the Harness end and a Female connector on the ECU end. If you need to remove the TC from the harness you can simply plug the two connectors together to complete the signal.

- On the Timing Control connect the opposite connectors. For Coil 1, the Yellow wire goes to the harness end. Connect a Female connector to the wire. The Coil 1 White/Yellow wire goes to the ECU end. Connect a Male Spade connector to the wire. For Coil 2, the Gray wire goes to the harness end. Connect a Female connector to the wire. The Coil 2 Green/Gray wire goes to the ECU end. Connect a Male spade connector to the wire. Plug in the 4 connectors firmly.

- For additional cooling you can jump the main cooling fan and the air conditioning fan relay signal wire. Locate the two Fan wires using the terminal diagrams for you particular year model. Strip the wire and solder together or add a T-Tap to both wires. This can be a permanent connection.

01-05 Terminal Diagram

Description	ECU Terminal	TDR Fuel & Timing Card	Notes
12V Power	4AF (W/R) White/Red	12V Red	Power Fuel and Timing
12V Ground	4A (B/L) Black/Blue	GND Black	Ground Fuel and Timing
Injector 1	2A (Y/B) Yellow/Black	Channel 1 White/Yellow	Injector 1
Injector 2	2D (V/G) Violet/Green	Channel 2 Green/Gray	Injector 2
Injector 3	2G (Y/R) Yellow/Red	Channel 3 Red/Blue	Injector 3
Injector 4	2J (Y/G) Yellow/Green	Channel 4White/Green	Injector 4
TPS Sensor In	4V (G/B) Green/Black	VCB Purple to Harness	Throttle Position In
TPS Sensor Out	4V (G/B) Green/Black	VCB Purple/Yellow to ECU	Throttle Position Out
Coil 1 & 4 In	3F (BR/W) Brown/White	Channel 1 White/Yellow	In From Harness
Coil 1 & 4 Out	3F (BR/W) Brown/White	Channel 1 Yellow	Out to ECU
Coil 2 & 3 In	3I (B/Y) Black/Yellow	Channel 2 Green/Gray	In From Harness
Coil 2 & 3 Out	3I (B/Y) Black/Yellow	Channel 2 Gray	Out to ECU
Main Fan	2B (R/Y) Red/Yellow	Recommended wiring these two wires together for dual fan operation for Street and Track use.	
A/C Fan	2C (L/W) Blue/White		



See TDR Fuel and Timing Programming for all of your programing instructions.

We hope you will be pleased with our product. If at any time you need assistance please contact us by phone or email us at support@trackdogracing.com.