# Q45 -> Z Wiring Conversion

**Revision 2.6**

Harness Cross Connects from ECM/ECCS, Body Harness, Main Harness
Connectors Located by ECM/ECCS Connector as well as Z32 Fuse/Relay box on Driver inner fender.

**Version History**

| | |
|---|---|
| Version 2.6 | Corrected wiring for ignition on/off not turning ECM&engine off, hard start due to missing cranking signal to ECM. Completely revalidated from start to finish - thanks Stephen. |
| Version 2.5 | Base publicly available document |

**Contributors**

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*I would like to thank the contributors for their fantastic feedback to improve this document*

***Legend***

| | |
|---|---|
| Wire not Used | |
| Unverified Wire | |
| Model Year Variation | |
| Variation Action Req | |
| Incorrect items in Version 2.5 | If you created a harness with the v2.5 document please reference the items in blue that need to be corrected. |

**Background/How to Read this document:**

This document assumes that:

A. You will be using the Z fuses/relays
B. You have removed you Z's EFI harness see other NICO FAQs
C. You have separated your Z32 EFI wiring loom for the F25 and F23 white and brown connectors going from the fuse/relay box in the Z32 to the ECM connector and M95 Connector. Make sure you cut the EFI harness side of the M95 connector where it joins the main EFI loom and cut the main loom as close to the ECM connector as possible. This will maximize the length of wires for you to create a sub-harness to supplement the VH45DE harness.
D. You will be using the M95 connector (You should have cut the other side of the connector in the previous steps - this way you do not need to hack up the Z32's main harness.

**Normally Aspirated Zs:**
The Z harness is from a 93 Twin Turbo so the fuel pump has variable fuel pressure. If you have an normally aspirated Z the electrical diagrams indicate your fuel pump setup is different. For non turbo applications it's better to just trigger the fuel pump relay and not worry about the variable pressure feature.

**How to Read the document:** The Q45 harness connectors are identified herein. The corresponding Z32 wires are listed in the destination. The ECM pin connector was more for my purposes than of actual use to you as the reader.

## Little White Connector (F55->B25)

| Jacket Color | Stripe | Spots | Description | Q45 Source | Z Destination | Z Jacket Color | Z Stripe | Comments |
|---|---|---|---|---|---|---|---|---|
| Pink | Light Blue | | Fuel Pump Control Unit | ECM19 | ECM104 | Black | Purple | F25 |
| Pink | Black | | Fuel Pump Relay Coil (-) | ECM18 | ECM18 | Black | Pink | M95 |
| White | | Gray | Consult DLC Pin 9 | ECM47 | ECM47 | Black | White | M95 |
| Green | Orange | | Fuel Pump Control Unit | ECM6 | ECM35 | Purple | | F25 |

## Brown Connector (F58->M111)

| Jacket Color | Stripe | | Description | Q45 Source | Z Destination | Z Jacket Color | Z Stripe | Comments |
|---|---|---|---|---|---|---|---|---|
| Black | | | Sensor Ground - Ground to Chassis | | Chassis Ground | | | |
| Green | | Gray | Condenser Sub-Fan Relay Coil (High Speed Motor Winding) | ECM4 | ECM6 | White | | F23 - If using pre-94 ECM connect to thermo-switch Green Wire |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Brown | Yellow | Gray | Condenser Fan Relay Coil (Low Speed Motor Winding) | ECM5 | ECM19 | Light Blue | | F23 - If using pre-94 ECM connect to thermo-switch Blue Wire |
| Red | | | TPS Fully Open - Automatic Transmission Control Unit - Not Used | | | | | |
| Light Blue | Red | Gray | To Automatic Transmission Control Unit - Not Used | ECM34 | | | | |
| Light Blue | | Gray | To Automatic Transmission Control Unit - Not Used | ECM35 | | | | |
| Red | Yellow | | To Automatic Transmission Control Unit - Not Used | ECM36 | | | | |
| Black | Yellow | | To Traction Control Module - Not Used | | | | | |
| Red | White | | To Traction Control Module - Not Used | | | | | |
| Red | Green | | To Traction Control Module - Not Used | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Big White Connector (F51->M93) | | | | | | | | |
| **Jacket Color** | **Stripe** | | **Description** | **Q45 Source** | **Z Destination** | **Z Jacket Color** | **Z Stripe** | **Comments** |
| Purple | | | Malfunction Indicator Lamp (MIL) | ECM32 | ECM32 | Yellow | Green | M95 |
| Black | Light Blue | | Consult DLC - Pin13 | ECM22 | ECM22 | White | | M95 |
| Brown | Yellow | | Consult DLC - Pin14 | ECM21 | ECM21 | Light Blue | | M95 |
| Brown | White | Gray | Consult DLC - Pin6 | ECM31 | ECM31 | Orange | | M95 |
| Black | Green | | Tachometer | ECM7 | ECM7 | Yellow | Red | M95 |
| Yellow | Green | | Speedometer | ECM53 | ECM53 | Yellow | Green | M95 |
| Light Blue | Black | | Instrument Cluster Temperature Gauge | | Cluster Temp Gauge | Light Blue | Black | M95 |
| Green | Orange | | A/C Compressor Relay Pin 1 through Dual Pressure Switch first | ECM9 | ECM9 | Orange | | F25 |
| Red | Black | | A/C Amp (Climate Control) | ECM46 | ECM46 | Sky Blue | | F25 |
| Yellow | White | | Oil Pressure Sensor for Gauges (Dummy light on Q45) - Not used | | Extend Z Harness | Yellow | White | RH Side on frame rail - Extend to LH side |
| Purple | White | | To Traction Control Module - Not Used | | | | | |
| | | | | | | | | |
| Big Light Blue Connector (F52->M94) | | | | | | | | |
| **Jacket Color** | **Stripe** | | **Description** | **Q45 Source** | **Z Destination** | **Z Jacket Color** | **Z Stripe** | **Comments** |
| Red | | Thin | Canister Control Solenoid Valve, VTC, O2 Sensors, etc. (+) | | M95 | Orange | | |
| Black | White | | ECM45 - Fuel Pump Coil (+) / Ignition switch On/Start | ECM45 | M95 | Black | Red | Ignition switch On/Start |
| Red | | Thick | To Engine Bay - F5->S51 - To Fuel Injectors (+) | | F23 | White | Black | Injector Power on Z provided by White/Black Cross connect this to ECM/Battery power |
| White | Red | | (Thicker Gauge) Main 12V Power for ECM from Battery | ECM58 | F23 | White | Black | Injector Power on Z provided by this wire as well; on Q45 separate wire/fuse - Cross connect this to injector power on Q45 Harness - May Require larger fuse |
| Black | | | Thinner Gauge-Engine Ground-CAM Pos Sensor,Sub CAM Pos Sensor / ECM60 Cross Connect to ECM50 | ECM60,ECM50 | Chassis Ground | | | |
| Green | Red | | To Engine Bay-Subharness3- P/S Oil Pressure Switch (F18->S31,F29->S32) | | ECM34 | Green | | F25 |
| Brown | Yellow | | To Engine Bay - Thicker Gauge - Ignition Coil Power (F1->S8 Engine Control SubHarness 5 Cross Connect to F13->S69 Engine Control SubHarness 4) | | Ignition Relay Coil Output (+) Pin 2 | Black | | Connect BR/Y with B on F23 |
| Gray | Red | | ECCS Relay & Ignition Relay Coils (-) | ECM16 | ECM16 | Orange | | |
| Green | Black | | Ignition Switch Start | ECM43 | ECM43 | Black | Yellow | |
| Black | White | | ECCS Relay Output (+) to ECM | ECM59,ECM49, ECM109 Crimped | ECM59,ECM49,ECM109 Crimped | White | | On F23 |
| Black | Yellow | | To Automatic Transmission Control Unit - Not Used | ECM30 | | | | |
| Red | White | | To Throttle Control Module - Not Used | ECM48 | | | | |
| Light Blue | Yellow | | Park/Neutral/Position Relay Pin 7 - Not Used | ECM44 | | | | |
| Black | | | Thicker Gauge - Traction Control Not Used | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Relay Harness from Z** | | | | | | | | |
| **Brown Plug in Engine Bay (F25)** | | | | | | | | |
| **Jacket Color** | **Stripe** | | **Description** | **Z Source** | **Q45 Destination** | **Q45 Jacket Color** | **Q45 Stripe** | **Comments** |
| Orange | | | Low Pressure A/C switch (on A/C Drier) | F25 | F51 | Green | Orange | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Green | | | Power Steering Pressure Switch on P/S Hardline | F25 | F52 | Green | Red | |
| Purple | | | Fuel Pump Controller Signaling | F25 | F55 | Green | Orange | |
| Yellow | Light Blue | | Neutral Switch - RPM adjustment between shifts on Z - Not used | F25 | | | | |
| Black | Purple | | Fuel Pump Controller Signaling | F25 | F55 | Pink | Light Blue | |
| Sky Blue | | | Air Conditioning ON signal | F25 | F51 | Red | Black | |
| Orange | | | Ignition Coil and ECCS Relay Coil | F25 | F52 | Gray | Red | |
| Black | Red | | Ignition ON Signal (10A Eng Control Fuse) Not Used | F25 | | | | |
| | | | | | | | | |
| **White/Gray Plug in Engine Bay (F23)** | | | | | | | | |
| **Jacket Color** | **Stripe** | | **Description** | **Z Source** | **Q45 Destination** | **Q45 Jacket Color** | **Q45 Stripe** | **Comments** |
| Light Blue | | | Radiator (Condenser) Fan Relay Coil (Low Speed) | F23 | F51 | Brown | Yellow | F23 - If using pre-94 ECM connect to thermo-switch Blue Wire |
| White | | | Radiator (Condenser) Sub-Fan Relay Coil (High Speed) -**Twin-Turbo Only** | F23 | F51 | Green | | F23 - If using pre-94 ECM connect to thermo-switch Green Wire |
| White | Black | | Battery | F23 | F52 | White | Red | |
| | | | | F23 | F52 | Red | | |
| White | | | ECCS Relay Output (+) | F23 | F52 | Black | White | ECM 49,59,109 Factory Crimped |
| Black | | | Ignition Coil Relay Output (+) | F23 | F52 | Brown | Yellow | Thicker Gauge |
| Green | | | Check Connector (Not Used) | F23 | | | | |
| | | | | | | | | |
| **Blue Plug in Footwell (M95)** | | | | | | | | |
| **Jacket Color** | **Stripe** | | **Description** | **Z Source** | **Q45 Destination** | **Q45 Jacket Color** | **Q45 Stripe** | **Comments** |
| Black | Pink | | Fuel Pump Relay Coil (-) | M95 | F55 | Pink | Black | |
| Black | White | | Consult DLC Pin 9 | M95 | F55 | White | | |
| Yellow | Green | | Malfunction Indicator Lamp (MIL) | M95 | F51 | Purple | | |
| White | | | Consult DLC - Pin13 | M95 | F51 | Black | Light Blue | |
| Light Blue | | | Consult DLC - Pin14 | M95 | F51 | Brown | Yellow | |
| Orange | | | Consult DLC - Pin6 | M95 | F51 | Brown | White | |
| Yellow | Red | | Tachometer | M95 | F51 | Black | Green | |
| Yellow | Green | | Speedometer | M95 | F51 | Yellow | Green | |
| Light Blue | Black | | Instrument Cluster Temperature Gauge | M95 | F51 | Light Blue | Black | |
| Orange | | | From Z fuel pump relay output (+) to Canister Control Solenoid Valve, VTC, O2 Sensors, etc. (+) | M95 | F52 | Red | | Thin Red Wire Branches into Multiple Reds |
| Black | Red | | ECM45 - Fuel Pump Coil (+) / Ignition switch On/Start | M95 | F52 | Black | White | ECM45 B/W not B/W for ECM 49,59,109 |
| Black | Yellow | | Cranking Signal | M95 | F52 | Green | Black | ECM43 |
| | | | | | | | | |
| | | | | | | | | |
| **Other** | | | | | | | | |
| **Jacket Color** | **Stripe** | | **Description** | **Z Source** | **Q45 Destination** | **Q45 Jacket Color** | **Q45 Stripe** | **Comments** |
| Yellow | Red | | Tachometer Signal to Resisor taped on harness | ECM7 Crimped | ECM7 Crimped | Yellow | Red | |
| | | | | | | | | |
| **Notes:** | | | | | | | | |

I'm hoping this can give us a good start as I haven't found such a document yet on the internet. This document is designed to provide not only what a wire is, but where it goes between a VH45DE and Z32. Though I have spent and incredible amount of hours looking over wiring diagrams,multimetering connections physically, and documenting hand-written notes, there is a possibility that there could be something that's incorrect. In that spirit I welcome your feedback for corrections, etc. so PM me if you see something that can be improved upon.

For the purposes of this document, any wires directly connected to the ECM are excluded as these have a 1-to-1 connection (e.g. MAF sensor is connected directly to the ECM). The Q45 harness is from a 94-95 with traction control, and has an additional "brown" plug and a slightly smaller "big white" plug than the 90-93 models. The wires in the "brown" plug can be found in the "big white" plug in the 90-93 models.

**Disclaimer:**

**The author of this document is releasing this document to NICO to assist similar minded car enthusiasts. When dealing with electrical systems you should exercise caution so you don't catch yourself, your car or your belongings on fire! This document is a guide so please use your judgement as the author will not be held responsible/liable for any discreptancies, ommissions or errors.**