

Speedhut wiring install RX-7 FD3S by Jacob aka @rx7bruh

First off, I want to say my car is mostly stock and I am using a stock ECU. Also, I am not responsible for any bad wiring or damage to your car as a result of you attempting to install these gauges. If you are not good at wiring diagrams, soldering, heat shrink, or in general are a moron... do not attempt this.



This is my setup that gauges were installed by Broadfield Customs, the cost of a setup like this is about \$1100. You can customize as much or as little as you like, but the cost will change!

E-Mail Toby@broadfieldcustoms.com if you want a quote

The Center gauge pod is available LHD/RHD and can accommodate up to 4 gauges from DRAKES www.draklore.com

Ok let's get to it.

TOOLS Required:

Soldering gun/pen and rosin core solder

Heat Gun

Wire Strippers

Diagonal cutters

Drill

1/8 NPT Drill and Tap Kit (https://www.amazon.com/GlowShift-NPT-Drill-Tap-Kit/dp/B00CA91AIK/ref=sr_1_2?s=automotive&ie=UTF8&qid=1537927774&sr=1-2&keywords=1%2F8+NPT+Tap) Doesn't have to be this one, but here it is anyways.

SUPPLIES:

GlowShift 1/8 NPT Female to 1/8 BSPT Male Gauge Sensor Sender Thread Adapter Reducer
https://www.amazon.com/gp/product/B00NWZ3TUI/ref=oh_aui_search_detailpage?ie=UTF8&psc=1

Heat shrink tubing, multiple sizes. https://www.amazon.com/532pcs-Shrink-Tubing-Black-innhom/dp/B075WR9FVL/ref=sr_1_4?ie=UTF8&qid=1537927249&sr=8-4&keywords=heat+shrink+tubing

Electrical Tape

Some sort of 4 Pin Connector or (2) Two pin Connector (I used what I had already but this would work fine <https://www.amazon.com/MUYI-Waterproof-Electrical-Connectors->

[Weatherpack/dp/B01A6M8CD8/ref=sr_1_3?ie=UTF8&qid=1537927646&sr=8-3&keywords=4+pin+connector](https://www.amazon.com/Weatherpack/dp/B01A6M8CD8/ref=sr_1_3?ie=UTF8&qid=1537927646&sr=8-3&keywords=4+pin+connector))

1/4" Blade connectors, male insulated https://www.amazon.com/Premium-Grade-Male-Female-Solderless-Disconnect-Connectors/dp/B009TB09XY/ref=sr_1_2?ie=UTF8&qid=1537927582&sr=8-2&keywords=1%2F4+inch+blade+terminal

****DISCONNECT YOUR BATTERY BEFORE WORKING ON YOUR CAR****

Installing gauge senders

Oil Pressure Sender

This sender installs in the stock location with the use of the handy glow shift thread adapter (1/8NPT to 1/8BSPT)

Remove the stock sender, located right under the Oil Filter on 93-95, later cars will just have a blank plug in this spot as they got rid of the oil pressure gauge at some point.

Install the adapter onto the Speedhut sender, use some Teflon tape, make sure it's nice and tight so it doesn't leak

Install sender with adapter into stock location as pictured below



Water Temp Sender

There are different places you can install this, I chose the Thermostat housing. Only con of this location is that the temp doesn't read until the Thermostat begins to open... around 160 degrees F. Not really a big deal, you're going to replace your thermostat while you have the coolant drained right? Yes, it's cheap insurance to protect your motor. (Also a good time to install an FC fan thermostswitch or a Banzai thermostswitch)

You need to drain enough coolant out of your car to empty the Thermostat housing, it's the highest point on the car so it's not that much. I did this install while putting a new motor in so I skipped this step. Then remove your thermostat housing.



You can see the speedhut sensor installed here. This is where you need to drill and tap a hole. You can also use the flat spot to the right of this closer to the thermostat I believe.

WIRING

Ok now that the Oil and Water gauge senders are installed you need to plug them in and route the wires to the Left side of the car to this point here. It will be under the cruise control if you still have it and is just below the igniter.





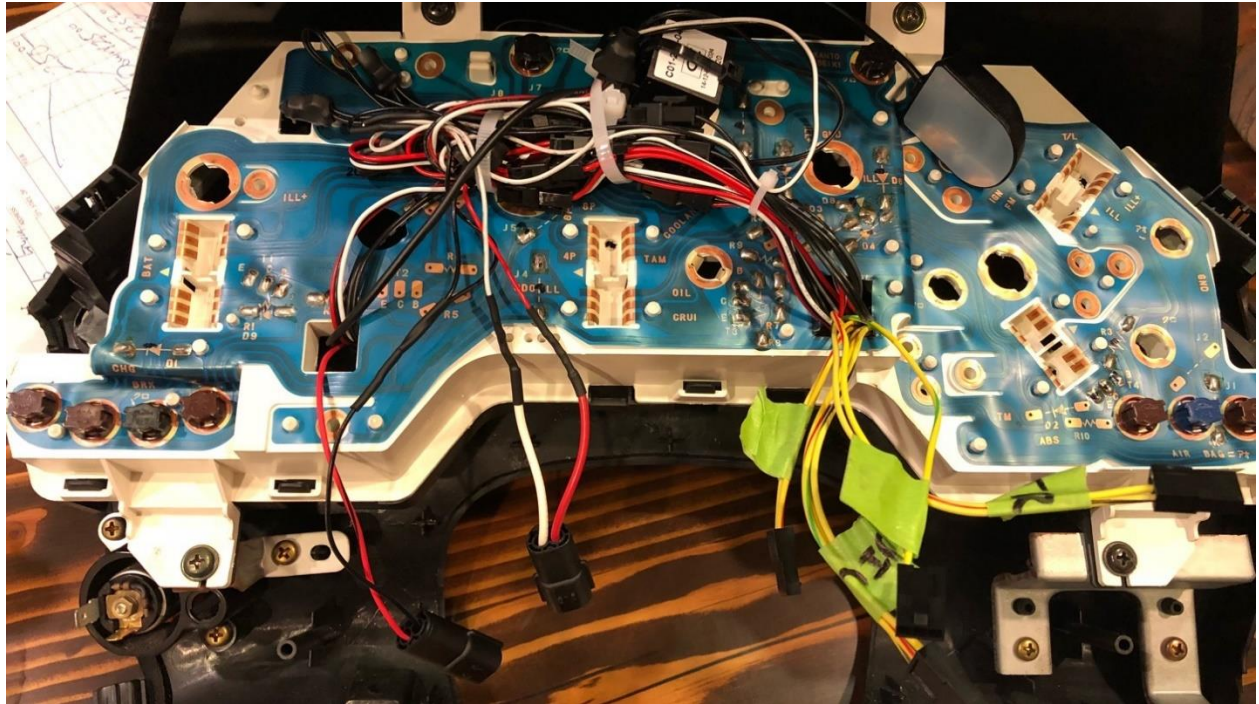
You now need to remove the left front wheel and the inner fender liner.

You will then be able to see this grommet in the firewall, as you can see my boost gauge line is already running through it. You need to feed your gauge sender wiring through this grommet and fish for it on the other side of the firewall inside the car. It will feed in to the left of the dead pedal. I suggest using a coat hanger or something else to push them through. Flashlight will also help.



Route your wiring up under the dash and secure it so that it comes out of the middle hole behind the cluster.

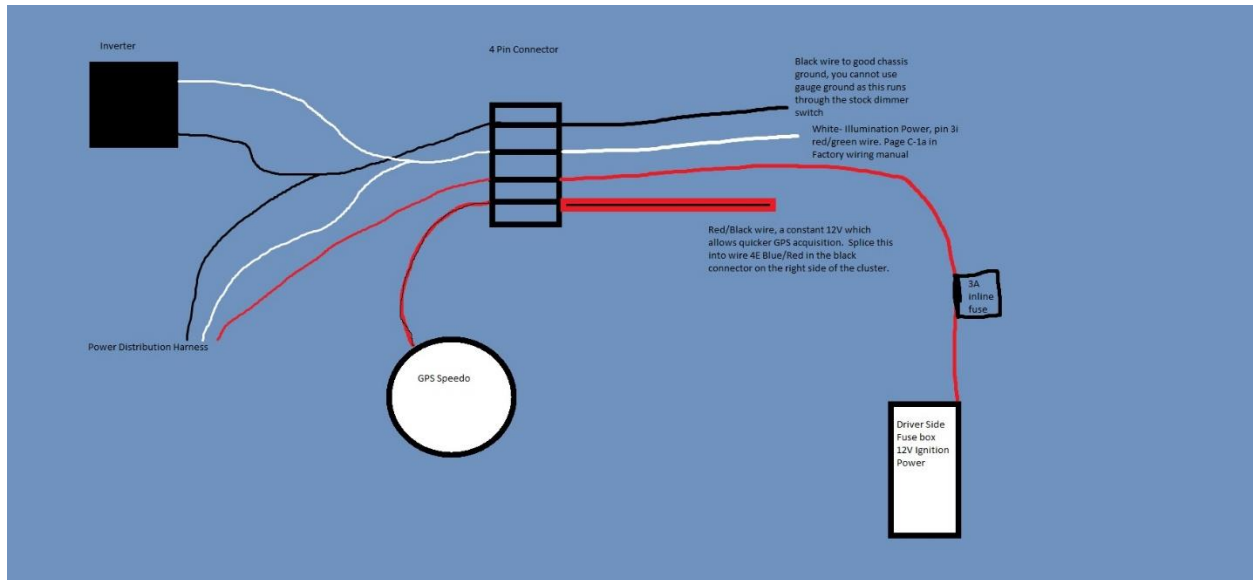
At the back of your speedhut cluster you have 3 mandatory wires, and 1 optional wire (for GPS speedometer) You need Red 12V Ignition Power, Black- Ground, white Illumination power. So you have an inverter box, the black box pictured. You connect that to your lighting distribution harness, has many plugs all black wires. This lights up your gauge needles. Plug all the black plugs from your gauges into this harness. Next you have a Power distribution harness



As you can see I used 2 two pin connectors instead of a single 4 pin, a single 4 pin is easier to connect/disconnect

The power distribution harness has the black, red, and white wires. Plug all your gauges into this. If you have extra plugs at the end of either distribution harness you can cut them off, I left a couple extras and clipped the rest and then heat shrink tubed over the open ends.

Now, Connect the white and black wires from the inverter to the black and white wires from the power distribution harness. Connect those and red and (optional) red/black wire to one side of your connector.



The above wiring diagram shows you what you need to connect the other side of your connector to.

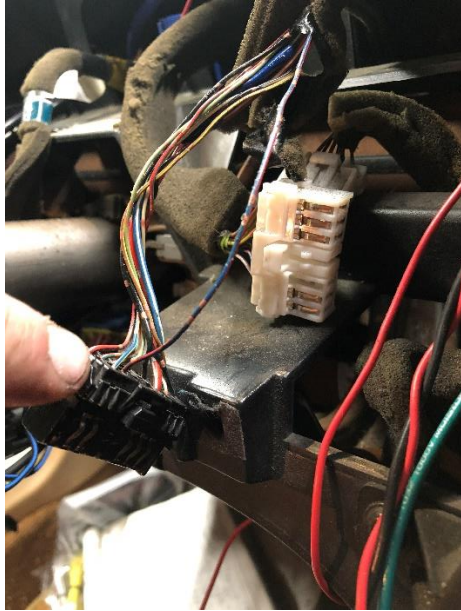
In the driver side foot well there is a fuse box, above the fuses there are a few empty spots you can fit a blade connector into. Connect a lead from your 3A or 5A inline fuse to a ¼" blade connector. Connect the other end of the inline fuse to the 4 pin connector in the pin slot that connects to the red wire from the power distribution harness.



Behind the kick panel in the driver side footwell is also a good place to get your chassis ground. You can run both wires up to the connector with your sender wires from your coolant and oil senders behind your cluster together to keep things organized.

(OPTIONAL) If you have a GPS speed there is a red/black wire coming out of it. This wire is for a constant 12V signal, meaning it always has power. It is a very small amperage draw, I have noticed no issues in draining the battery. I also have a normal Stock sized battery. If you have a small battery, it may be an issue, but probably not. This black/red wire will go to your four pin connector. On the dash side of the connector this wire needs to splice into the wire leading to pin 4E a blue/red wire. From the factory connector you'll need to remove a little bit of the foam shielding stuff to get a few inches of wire lead coming out of the connector. Cut the wire and then solder the lead from the dash harness and your 4pin connector to the wire going into the factory connector like so.

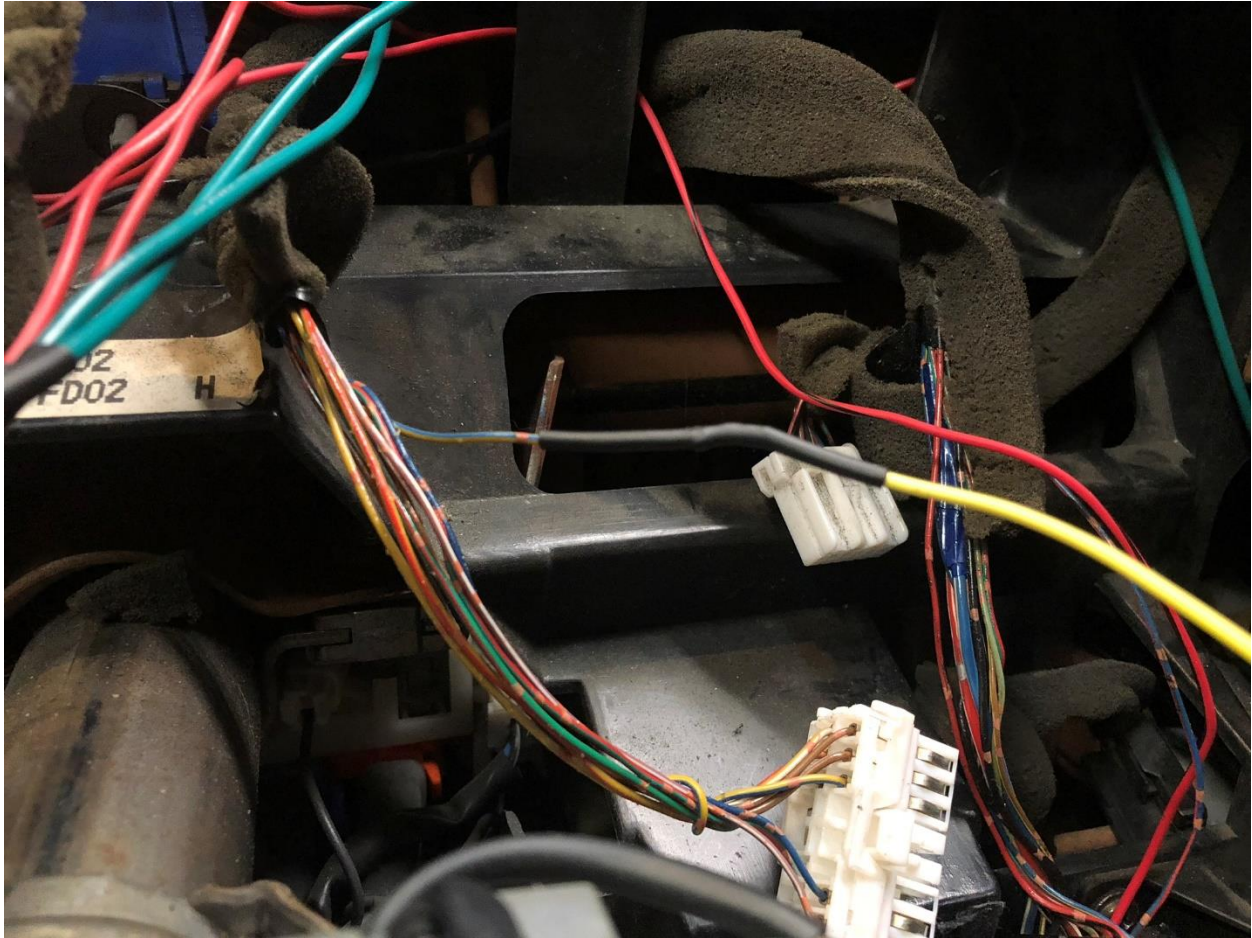




Gauge Signal Wires

Tachometer

You need to solder the provided resistor inline in the wire provided with the tach. Then cut the Yellow/Blue wire pin 3F at the large white 12 pin OEM connector that plugs into the middle of the cluster. This receives the tach signal from the ECU, once all your gauges are wired up you need to program the tach to 4 cyl mode. The default setting is 8 cyl mode, so you will need to follow the Speedhut directions for programming it. It's really easy.



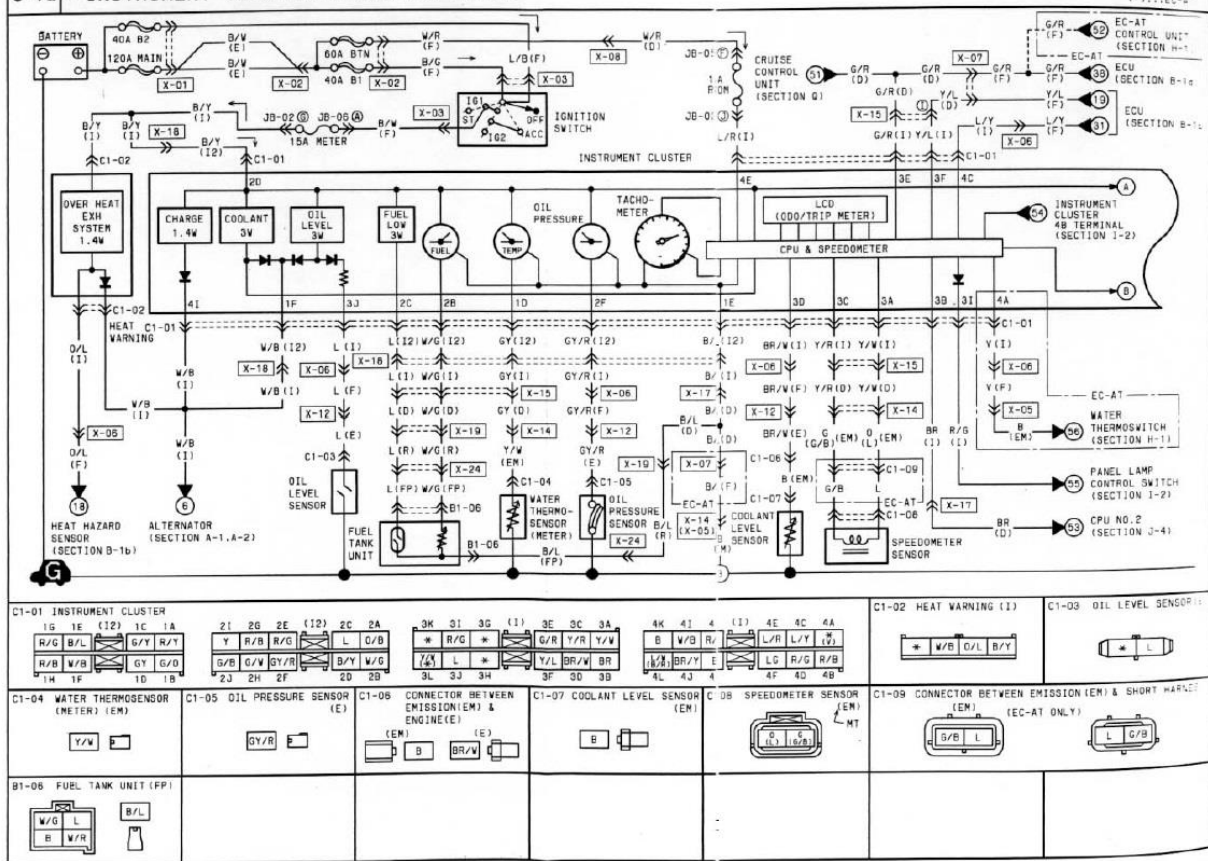
Tachometer wire connected

Fuel level Gauge

Connect to wire at pin 2B white/green from the ten pin connector. Sorry forgot to take a picture of this one. Not hard to find. There's four connectors that plug into the stock cluster it's the only one with ten pins and there's only white/green wire in that connector.

Z WIRING DIAGRAM

C-1a ■ INSTRUMENT CLUSTER & WARNING LAMPS



Z-44

NOTE on programming the fuel gauge. The Stock resistance values are 5.5 ohms Empty - 81.2 ohms Full

You can use the 90-0 or 0-90 setting (can't remember which one) but this means your gauge will never full sweep to full or to empty. You can manually calibrate the gauge however two different ways. You can fill the gas tank all the way up, calibrate the full setting. Then drive until it runs out of gas and calibrate the empty setting. Other option is to open the top of your gas tank and lift the sending unit out of the tank and move the float all the way up (calibrate full setting) and all the way down (calibrate low setting). Which is probably easier than running out of gas.

Oil Pressure and Water Temp

Just plug them in to the gauges, no wiring needed here.

GPS Speedometer

If you got a GPS speedometer there is no wiring necessary you just need to mount the GPS antenna to the bottom side of the gauge hood as far forward as you can. It has worked fine for me with no loss of signal.

If you are using a stock ECU (I'm sure I'm the only one on the planet still doing this) you will need a Dakota Digital speedometer conversion. If you do not install this you will get a check engine light. The stock speedometer converts the AC sine wave signal from the Vehicle speed sensor into a digital square wave and sends it to the ECU. Since you have just eliminated the stock speedometer the ECU now has no idea what speed the car is traveling. So we use the Dakota digital to convert the signal to send to the ECU. On the Dakota digital you will need to connect the 12v ignition power and ground to the same wires that power your gauges (red and black) Connect wire at pin 3C Yellow/Red to sensor input on Dakota, Connect wire at pin 3A to sensor ground on Dakota, and connect the OUT2 to wire at pin 3E Green/Red.



This is the final product and I couldn't be happier.