1993 Mazda RX-7 – Speedhut/Broadfield Gauge – Wiring Instructions

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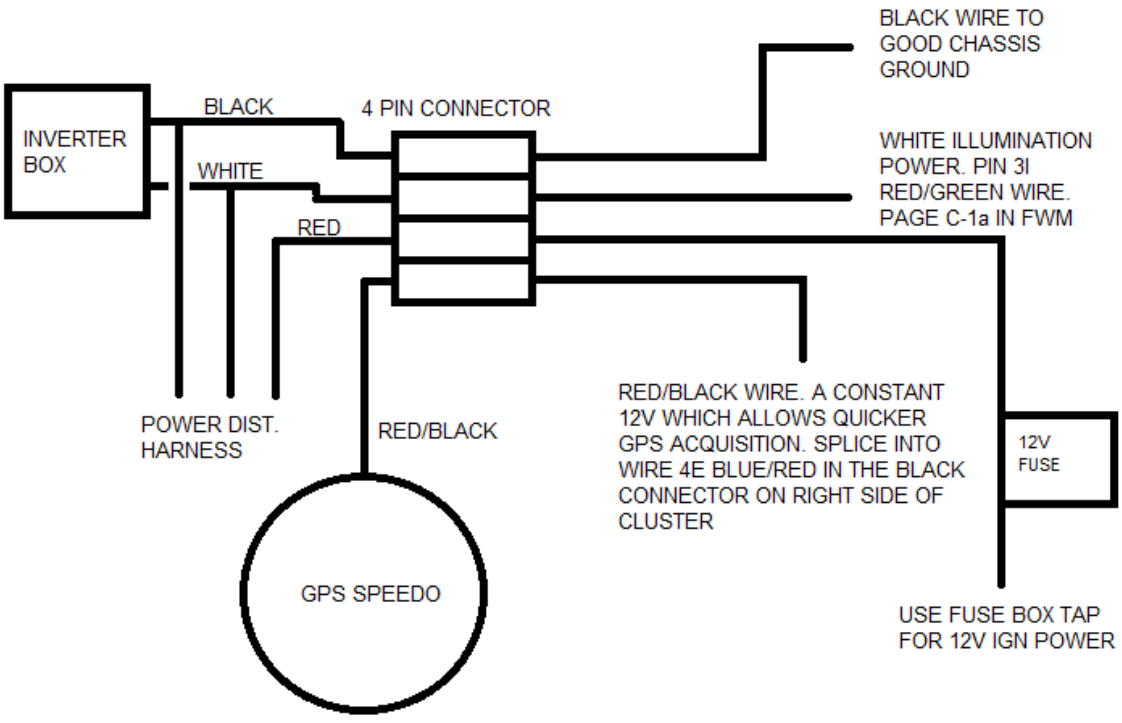
CLUSTER POWER WIRES

When you get your cluster, you will notice that nothing is connected up on the back of it. While this may look daunting, it is a pretty easy setup. There are going to be 3-pin (white, black, and red) and 2-pin connectors (all black) coming from the back of each gauge. Those will be hooked up to the daisy-chain connectors for the respective pin counts.

There should be four (4) loose wires with no connectors on them. These wires will need to be hooked up to your chassis.

Black	Chassis Ground	Preferred Chassis Ground
White	Illumination 12V	PIN 3I (Red/Green) on C1-01
Red	Power 12V Ignition	Use fuse tap in fuse box
Red/Black	Power 12V Constant	PIN 4E (Blue/Red) on C1-01

Use a 4-pin weatherpack connector to allow for easy disconnection should you ever have to remove the cluster for service.



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

12V Ignition Power & Ground (Red & Black wires)

In the driver side footwell there is a fuse box. Above the fuses there are a few empty slots you can fit a blade connector into. Connect a lead from your 3A/5A inline fuse to a ¼" blade connector. Connect the other end of the inline fuse to the 4pin connector in the pin slot that connects to the red wire from the power distribution harness. You can also connect a chassis ground to this area as well to organize the wires better.

12V Illumination Power (White wire)

The white wire coming from the inverter box will go to the 4-pin connector. From there it should be tapped into the red/green wire (3I) on connector C1-01 (below). Splice this in rather than reroute the power as this is used for the dimmer switch.

12V Constant Power (Red/Black wire)

For GPS Speedometers, there is a red/black wire coming out of the back. This wire is for a constant 12V signal. It carries a very small amperage draw so there should not be any issues with a normal sized battery. This red/black wire should go to your 4-pin connector. On the other side, it will need to be spliced into the blue/red wire (4E) on factor connector C1-01 (Black). You will want to splice rather than reroute the power as it is needed to power the warning lights.

C1-01 Instrument Cluster (2/2)

K	I	F	3	E	C	A
*	R/G	*		G/R	Y/R	Y/W
V/W	L	*		Y/L	BR/W	BR

L	J	H	F	D	B
*	Unused				
R/G	Panel Light Control Switch				
*	Unused				
G/R	Cruise Control from X-15				
Y/R	Speedo Signal from X-15				
Y/W	Speedo Reference? from X-15				
V/W	Cruise Control Light from X-17				
L	Oil Level Light from X-06				
*	Unused				
Y/L	Tachometer Signal from X-07				
BR/W	Coolant Level Sensor from X-06				
BR	CPU #2 from X-17				

K	I	G	4	E	C	A
B	W/B	R/W		L/R	L/Y	*
L/W	BR/Y	B		LG	R/G	R/B

L	J	H	F	D	B
B	High Beam Ground				
W/B	Charge Warning Light				
R/W	Combination Switch from X-06				
L/R	12V from 10A Room Fuse				
L/Y	To ECU				
*	Unused				
L/W	Starter Cut Relay				
BR/Y	Brake Warning Light from X-06				
B	Turn Signal Ground				
LG	Seat Belt Light from X-17				
R/G	Illumination				
R/B	Illumination				

GAUGE SIGNAL WIRES

Tachometer

To get the tachometer to function properly, you will need to solder in the provided resistor inline with the wire coming from the gauge. You will cut the yellow/blue wire (3F) in connector C1-01 (above). This receives the tach signal from the ECU. Once all of the gauges are wired up, you will need to program the tach to 4 cylinder mode. The default setting is 8 cylinder mode so you will need to follow the Speedhut directions for programming it.

Fuel Level Gauge

Connect the wire from the gauge to the white/green wire (2B) coming from connector C1-01 (below).

NOTE: For the Tachometer and Fuel Level gauges I recommend using two 1-pin connectors to allow for easy disconnect of the cluster from the dash for servicing.

C1-01 Instrument Cluster (1/2)

G	E	1	C	A
R/G	B/L		G/Y	R/Y
R/B	W/B		GY	G/O

I	G	E	2	C	A
Y	R/B	R/G		L	G/B
G/B	G/W	GY/R		B/Y	W/G

H	F	D	B	J	H	F	D	B
R/G	Illumination							
B/L	Ground From X-18							
G/Y	Air Bag Warning Light from X-18							
R/Y	Resisitor from X-18							
R/B	Illumination							
W/B	Overheat Exhaust System (Coolant/Oil Level Lights) from X-18							
GY	Coolant Temp Gauge from X-18							
G/O	ABS Warning Light from X-18							
Y	Rear Defog Light from X-18							
R/B	Illumination							
R/G	Illumination							
L	Fuel Low Light from X-18							
O/B	Check Engine Light							
G/B	Flasher Unit (LH) from X-18							
G/W	Flasher Unit (RH) from X-18							
GY/R	Oil Pressure Gauge from X-18							
B/Y	Overheat Exhaust System (Coolant Light) from X-18							
W/G	Fuel Gauge from X-18							

Programming the fuel gauge – The stock resistance values are 5.5 ohms empty and 81.2 ohms full. You can use the 90-0 or 0-90 setting (cant remember which one) but this means that your gauge will never full sweep to full or to empty. To properly setup your gauge, you will need to manually calibrate it. The

best option for this 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).

Oil Pressure Gauge

No additional wiring is needed for this. You will use the wire that is coming from the sender itself and plug into the back of the gauge. The power for the gauge and illumination will be connected into the chain provided with the cluster.

Water Temperature Gauge

Again, no additional wiring is needed. You will use the wire that is coming from the sender itself and plug into the back of the gauge. The power for the gauge and illumination will be connected into the chain provided with the cluster.

GPS Speedometer

Aside from the 12V constant power (see above), there is no additional wiring needed for the gauge to function properly. The power for the illumination will be connected into the chain provided with the cluster. The GPS antenna can be mounted to the bottom side of the gauge hood as close to the windshield side as possible. Multiple people have used this location without loss of signal.

NON-GPS Speedometer

For a non-GPS speedometer, you will need to connect to the yellow/red (3C) wire in connector C1-01 (above). For this, you will need to have a Dakota Digital box to get the proper signal. For setup and calibration for this, please refer to one of the numerous guides posted online specific to your box.

Special thanks to Jacob Erwin (RX7bruh.com) for the original write up that I used for a basis for this guide. About 80% is his original work

What you will need:

Fuse tap

1 x 4-pin connector (I recommend a Delphi 2x2 given the compact area)

2 x 1-pin connectors

16 gauge wire of at least 3 colors (black, white and red. Add red/black stripe for ease of identification)

Heat shrink for 16 gauge wire

Heat gun (recommended)

Soldering tool with solder for small wires

Wire cutter/stripping tool

Delphi style crimping tool

16 gauge wire taps (if you choose this method versus soldering for the two connections that need to be tapped)