

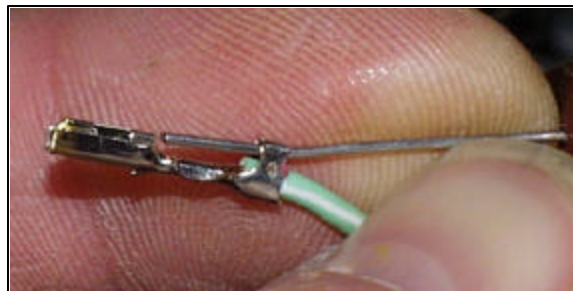
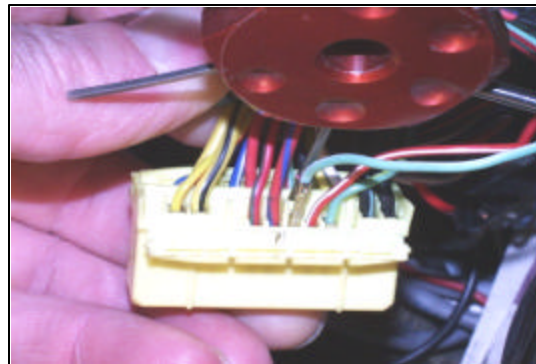
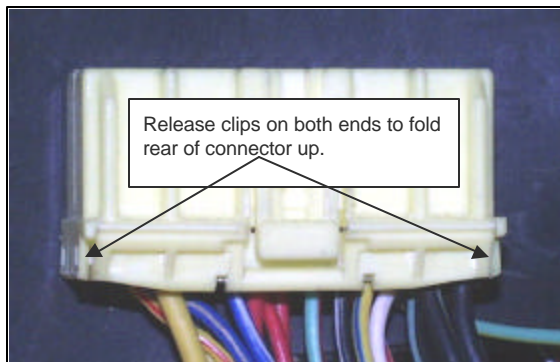
Re-wiring of factory ECU in '96 & '97 Miatas

In 1996 Mazda added OBD2 to the factory ECU. When doing this, the original 2 ECU plugs were replaced with 3 ECU plugs and the wires in those plugs were completely re-arranged. At this time we do not have an ECU that accepts the 3 ECU plugs of the OBD2 cars. Therefore, the ECU wire harness in '96 and '97 Miatas must be modified to a '95 Miata wire harness.

The first way to do this is to obtain an ECU wire harness from a junk yard. The plugs and about 12" of wire is plenty to splice onto the wires in the car. Follow the conversion table on the following page.

The other way to do this is to open the plastic connectors and remove the wire terminals and reload them into the new plastic connectors supplied with the ECU. If you look carefully at the back (side that the wires go in) of the connectors, you will see that there is a hinged flap on top and bottom of the connectors. You have to slip a knife or thumbnail under both edges of the flaps to release them. This exposes the individual terminals. You will need to slip a paper clip or a dental pick into the back of the metal connectors that you want to move, (see picture). You must slide the clip through the little loop of metal above the wire--this will release a plastic lock tab to let the connector pull out.

Shown below are the views of the stock '96-'97 ECU connectors, as viewed from the back (wire) side. ECUs for '97 cars will have two differences, there will be no violet wire in 1C and the wire in 4Z will not be used.



Factory plugs from a '96 or '97 OBDII car

This is the "#1" plug.

1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A
LG	*	G/B	B/LG	G/R	LG/B	LG/Y	L/B	Y/B	V	B/G
*	G/L	G	L/O	*	BR/W	R/W	R/B	*	W/B	L/W
1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B

This is the "#3" plug.

3O	3M	3K	3I	3G	3E	3C	3A
B/L	R/W	R/B	LG/W	L/W	*	R/G	*
L/Y	B/Y	R	LG/R	BR/B	R/B	R/L	R/W
3P	3N	3L	3J	3H	3F	3D	3B

This is the "#4" plug.

4Y	4W	4U	4S	4Q	4O	4M	4K	4I	4G	4E	4C	4A
L/W	G/W	Y	*	L/O	Y	*	*	L/R	Y/L	Y/B	B	B/LG
*	G	Y/B	Y/R	BR	Y/W	BR/Y	B/W	Y/G	Y/W	W	B	W/R
4Z	4X	4V	4T	4R	4P	4N	4L	4J	4H	4F	4D	4B

Factory plugs from a '95 car Please realize, this is not exactly what your modified plugs will look like after moving the wires from you OBDII plugs.

This is "#1" plug.

1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A
R/B	L/O	LG/B	G/B	G/R	B/LG	L/W	BR/Y	Y/B	V	L/R
BR/W	Y/R	Y	L/Y	R	B/G	L/B	BR	*	W/G	W/R
1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B

This is the "#2" plug.

2Y	2W	2U	2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A
G/W	L/O	Y	L/W	L/W	R/W	R/B	LG/W	B/W	Y/L	W	B/LG	B
G	Y/R	Y/B	LG	Y/G	R/B	R/L	L/R	LG/R	LG/Y	B/R	B/L	B
2Z	2X	2V	2T	2R	2P	2N	2L	2J	2H	2F	2D	2B

You will be removing all wires from your car's #3 plug, and will have to shuffle the majority of the wires in the #4 and #1 plugs. Charts showing what wires go where are on the next two pages.

Color chart

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

OBDII connector	Wire color	NEW ECU connector	Signal
4A	B/LG	2C	ECU ground
4B	W/R	1B	Switched +12volts
4C	B	2A(spliced to wire that came from 3M)	Fuel injector ground
4D	B	2B	Ground
4E	Y/B (poss G/Y)	NOT USED	
4F	W	2E	Cam pos. sensor, SGT signal
4G	Y/L	2G	Cam pos. sensor, SGC signal
4H	Y/W (poss G/B)	NOT USED	
4I	L/R	1A	Battery +12volts, constant
4J	Y/G	2R	PRC solenoid
4K	EMPTY		
4L	B/W	1F	Tachometer signal
4M	EMPTY		
4N	BR/Y	1G	#1, #4 ignition signal
4O	Y	1R	EGR valve, vent
4P	Y/W	1T	EGR valve, vacuum
4Q	L/O	2W	Idle Air Control (IAC) valve
4R	BR	1H	#2, #3 ignition signal
4S	EMPTY		
4T	Y/R	2X	Purge solenoid valve
4U	Y	2U	Fuel injector #1 control
4V	Y/B	2V	Fuel injector #2 control
4W	G/W	2Y	Fuel injector #3 control
4X	G	2Z	Fuel injector #4 control
4Y	L/W	NOT USED	
4Z	EMPTY		

OBDII connector	Wire color	NEW ECU connector	Signal
3A	EMPTY		
3B	R/W	2O	Mass airflow sensor
3C	R/G (poss R/L)	2N	O2 signal, front
3D	R/L	NOT USED	
3E	EMPTY		
3F	R/B	2M	Throttle position sensor
3G	L/W	2Q	Engine coolant temp.
3H	BR/B	NOT USED	
3I	LG/W	2K	Voltage reference
3J	LG/R	2J	EGR valve position
3K	R/B	2P	Intake air temp
3L	R	1N	Closed throttle position switch
3M	R/W	2A(spliced to wire that came from 4C)	Fuel injector ground
3N	B/Y	NOT USED	
3O	B/L	2D	Ground, input
3P	L/Y(poss L/LG)	1M	Intake air temp

OBDII connector	Wire color	NEW ECU connector	Signal
1A	B/G	1L	Coolant fan relay
1B	L/W	2S	AC fan relay
1C	V	1C	Ignition switch (not on '97 cars)
1D	W/B	NOT USED	
1E	Y/B	1E	Diagnostics connector (FEN)
1F	EMPTY		
1G	L/B	1J	A/C relay
1H	R/B	1U	Headlight switch
1I	LG/Y	2H	Diagnostics connector (TEN)
1J	R/W	NOT USED	
1K	LG/B	1Q	A/C switch
1L	BR/W	1V	Neutral switch
1M	G/R	NOT USED	Vehicle speed sensor
1N	EMPTY		
1O	B/LG	2F	Mass air flow sensor
1P	L/O	1S	Heater fan switch
1Q	G/B	1O	Brake switch
1R		NOT USED	
1S	EMPTY		
1T		NOT USED	
1U	LG	2T	Fuel pump relay
1V	EMPTY		

Any wires shown in the charts as "NOT USED" should be taped off individually to insulate the ends and carefully stored next to the ECU.

For the 1997 model year Mazda changed the shape of the box so the corners of the printed circuit board may need to be trimmed. Also, only one of the screw holes will match up with the board. Another hole can be drilled on the other side with out interfering with the solder traces. We would also recommend trimming a piece of thin cardboard to cover the entire back of the printed circuit, so that it is insulated from the rear cover of the ECU box.