

# Flyin' Miata

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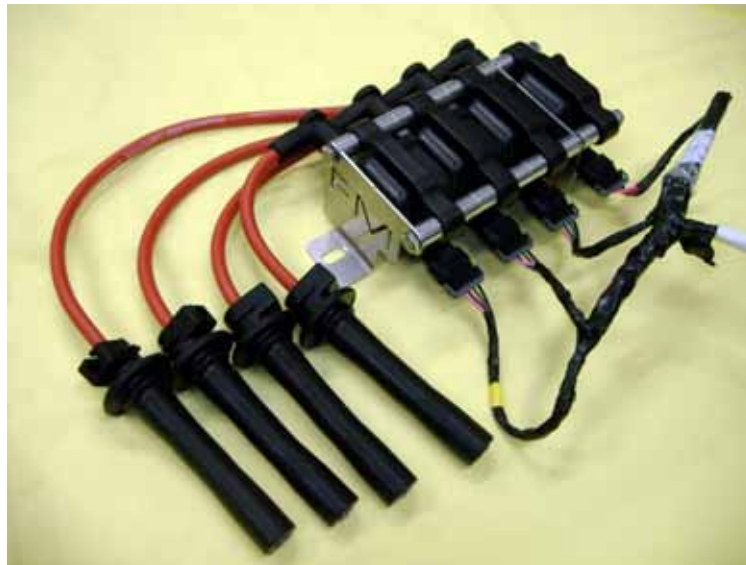
499 35 Rd  
Palisade, CO 81526

E-mail: [tech@flyinmiata.com](mailto:tech@flyinmiata.com)

970-464-5600  
(TECH & PRODUCT INQUIRIES)

800-FLY-MX5S (1-800-359-6957)  
(ORDERS ONLY)

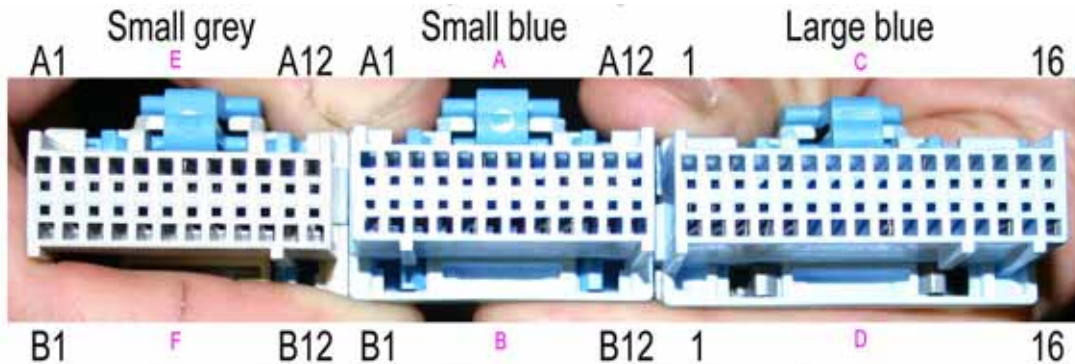
## FM Big Spark Kit installation (LS3 coils for Hydra equipped cars)



### **These steps will be performed on all 1994-05 Miatas:**

- Remove stock coils & wires.
- Remove EGR pipe & valve (1.8 only) & block it off. (The Hydra will not run EGR.)
- Remove the engine hoist bracket at the rear of the engine.
- On '94 – '97 cars that retain the stock CAS, replace the adjusting bolt with the included Allen head bolt. If you don't do this, you won't be able to access that bolt once the coils have been installed.
- On **01-05 VVT**-equipped engines remove the VVT pipes from the block to the VVT actuator. Cut the pipes off flush at the casting at either end. Drill each casting with a 23/64" bit and then tap with a high quality 1/8" NPT tap- this material is very hard! Install the supplied adaptors with Teflon paste on the NPT threads. (\*see photo on last page) Re-install castings & connect with the supplied 30" SS braided -4an hose.
- Install first 3 GM coils on bracket with supplied spacers.
- Remove the push-lock tabs that are taped to the GM harness. (They make it harder to maneuver.)
- Plug in the GM harness to the coils, work it into position, then zip tie to bracket to keep wiring clean. (Trigger wire colors for each coil listed below.)
- Cut off GM header plug. Strip the (7) wires & attach heat shrink butt connectors to them.
- Loosely install coils & bracket.
- Install last coil on bracket once it's in the car & plug in.

## Year-Specific wiring instructions



### **90-93 wiring (probably 1.8 engine swap)**

- Grab the plug that went to the stock coils. The Mazda blue wire is 12v, crimp it to the GM pink wire.
- The Mazda white wire is cyl 1, so crimp it to the GM red wire.
- The Mazda red wire is cyl 3, so crimp it to the GM blue wire.
- Run the GM green wire to D11 at the Hydra.
- Run the GM purple wire to D12 at the Hydra.
- Run the GM brown wire to F11 or F12 at the Hydra. T into one if neither are empty.
- Remove Mazda igniter & plug. We'll be re-appropriating its wires & discarding the igniter in the steps below.
- Clip the Mazda brown/yellow wire & the Mazda white wire. Crimp them together.
- Clip the Mazda brown wire and the Mazda red wire. Crimp them together.
- Clip the Mazda black/white wire & the Mazda yellow/blue wire. Crimp them together.
- Clip the Mazda black wire & crimp it to the black wire at the GM harness.
- Secure the leftover Mazda blue wire to prevent a short- it is 12V.

### **94-97 wiring**

- Grab the plugs that went to the stock coils. The Mazda blue wires are 12v, crimp them to the GM pink wire.
- The Mazda black wires are chassis ground, crimp one of them to the GM black wire.
- Run the GM brown wire to F11 or F12 at the Hydra. T into one if neither are empty.
- The Mazda brown/yellow wire is cyl 1, so crimp it to the GM red wire.
- The Mazda brown wire is cyl 3, so crimp it to the GM blue wire.
- Run the GM green wire to D11 at the Hydra.
- Run the GM purple wire to D12 at the Hydra.
- On 94-95 ½ cars there is a leftover black/white tach wire. Tape it up so it doesn't short out.

## 99-00 wiring

- Grab the plugs that went to the stock coils. The Mazda black/white wires are 12v, crimp them to the GM pink wire.
- The Mazda black wires are chassis ground, crimp one of them to the GM black wire.
- Run the GM brown wire to F11 or F12 at the Hydra. T into one if neither are empty.
- The Mazda brown/yellow wire is cyl 1, so crimp it to the GM red wire.
- The Mazda brown wire is cyl 3, so crimp it to the GM blue wire.
- Run the GM green wire to D11 at the Hydra.
- Run the GM purple wire to D12 at the Hydra.

## 01-05 wiring, incl. MSM

- Grab the plugs that went to the stock coils. The Mazda black/white wires are 12v, crimp them to the GM pink wire.
- The Mazda black wires are chassis ground, crimp one of them to the GM black wire.
- Run the GM brown wire to F11 or F12 at the Hydra. T into one if neither are empty.
- The Mazda brown/white wire is cyl 1, so crimp it to the GM red wire.
- The Mazda black/yellow wire is cyl 3, so crimp it to the GM blue wire.
- Run the GM green wire to D11 at the Hydra.
- Run the GM purple wire to D12 at the Hydra.

## Finishing Up

- Tighten bracket bolts.
- Standing in front of car, starting from passenger's side to driver's side, plug wires go 1-2-3-4 to the coils. Attach them.
- Assemble & install the ground strap from passenger side of the engine to the chassis. This augments the factory ground strap.
- Install the NGK spark plugs that come with this kit. Gap to ~.035".
- In the Hydra **(2.1 or 2.5)** software go to Select -> Settings -> Ignition, un-check the box that says Wasted Spark, and click OK. You are now running direct fire sequential instead of direct fire waste spark.
- In the Hydra **(2.6)** software go to Settings 1 -> Ignition and RPM Limits, un-check the box for Waste Spark Enable and click Enter. You are now running direct fire sequential instead of direct fire waste spark.
- In the Hydra **(2.7)** software go to Tuning Maps -> Base Ignition Table -> Setting, un-check the box that says Waste Spark Enable, and click OK. You are now running direct fire sequential instead of direct fire waste spark.
- Email [jeremy@flyinmiata.com](mailto:jeremy@flyinmiata.com) a current copy of your Hydra map with the request and we'll import the proper Dwell and Dwell Trim maps for these coils. They are derived from the factory settings in a 2008 Vette.

## Generic Wiring

- Pink = switched 12v power.
- Black = chassis ground.
- Brown = signal (ECU) ground. Hydra- F11 or F12, whichever is available.
- Red = Cylinder 1, Hydra- E8.
- Green = Cylinder 2, Hydra- D11.
- Blue = Cylinder 3, Hydra- E7.
- Purple = Cylinder 4, Hydra- D12.



VVT casting modification photo-



Installation on VVT engine-