Installation Instructions

4 PIN COIL OVER PLUG

AEM EMS WITH CDI AND NO IGNITOR

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These instructions detail how to install a coil over plug (COP) setup on 1989-1999 Mitsubishi Eclipses, Eagle Talons, and Plymouth Lasers. An AEM EMS was used, so the factory ignitor/transistor unit was not needed. These instructions will show where to connect the factory ignitor if using a different engine management system.

**WARNING:** ATDSM, nor any person affiliated with ATDSM, holds responsibility for any bodily injury or damage to your vehicle that may be caused by following these instructions. If you are uncomfortable with this installation, please have a local certified automotive repair shop perform all of the following work.

**Components used in this example:**
- AEM EMS (30-1310)
- MSD DIS-2 Digital (6211)
- 300M Coils with 4G63 Coil Plate
- MSD 8-pin Deutsch Connector (8185)
- WeatherPack 4-pin Connector
- 14 Gauge Wire
Installation:

Wire the Coils:

1. Most COP setups available for the DSM come pre-wired with a 3-pin connector. Gains can be seen by rewiring the coils with a 4 pin connector to use both discharge channels of 2-channel capacitor discharge ignition (CDI) unit.

2. Pull the existing wiring from the coils, and save the plugs. Be sure to save the plug. You can use any coil you like, but the 300M coils are the most popular, followed by the 2.7L Intrepid coils, and the GSXR 750 coil sticks. Be sure the coils being used are installed on the plate being used before proceeding to the next step.

3. Label a wire “1+”, and wire it to (+) input of coil 1. This is the top pin on the 300M coil.

4. Route another wire from the (–) output (bottom pin) of coil 1 to the (+) input of coil 4.

5. Label a wire from the (–) output of coil 4 as wire “1-“.

6. Do the same thing for coils 2 and 3. Label the wire feeding coil 2 (+) as wire “2+“, and the wire returning from coil 3 as wire “2-“. Do not label the wire connecting coil 2 (–) to coil 3 (+).

7. Pin one side of the 4-pin WeatherPack connector with these wires. Be sure to keep the naming labels on each wire.

8. Wrap the wires with electrical tape and wire loom. Any unwanted electrical discharge will cause ignition break-up at high rpms and boost.
Wire CDI to vehicle:

1. It is easiest to make a harness for the ignition box on a workbench, and then install everything at once. We will start by just pinning the receiving harness if one isn’t provided. I decided to do my own anyways so I could use 14 gauge wire instead of the usual 16 or 18 gauge.

2. Wire coil trigger 1 of the ignition box to coil1 of the EMS (pin 54 on 1300 box, and pin 10 on the 1310 box.) If you are still using the stock ECU, or your EMS does not have transistors (see Setting up the EMS), you will need to wire it to the transistor unit. If this is the case, wire it to the wire labeled OC1 on the ignitor.

3. Wire coil trigger 2 of the ignition box to coil2 of the EMS (pin 55 on 1300 box, and pin 23 on the 1310 box.) If you are still using the stock ECU, or your EMS does not have transistors (see Setting up the EMS), you will need to wire it to the transistor unit. If this is the case, wire it to the wire labeled OC2 on the ignitor.

4. Wire coil 1 (+) of the CDI to the wire on your COP setup you labeled 1+. Wire coil 1 (–) of the CDI to the wire on the COP setup you labeled 1-.

5. Do the same for coil 2 (+) and coil 2 (–), with their respective wires on the COP assembly.

6. Install the power and ground wires, and wrap the harness with wire loom.
Setting up the EMS:

1. This information only pertains to running the AEM EMS. Even if you are still using the ignitor, you will still need to have the EMS drive the tach unless you are using a tach adapter. I recommend AEM driving it since it is easy, and free. Also, there will be no discrepancies with your tune, and you won’t get a dropped rpm signal everytime you hit the rev limiter / 2-step. If you are still using the stock ignitor, you will need to cut the white wire coming out of it. You don’t want conflicting signals.

2. Go to Setup -> <<Advanced Setup>> -> Tach/Speedo Control -> Options – Tach/Speedo. From there set up your options as shown in the pictures below. The tach is already wired to the EMS, so no additional wiring needs to be done. Also, set your coil dwell wizard to All CDI.

3. Next you need to move the jumpers in your EMS so it can properly fire your CDI without the stock ignitor / transistor unit. **NOTE: OPENING YOUR EMS WILL VOID THE WARRANTY. DO SO AT YOUR OWN RISK.**

4. The jumpers that need to be moved are JPC1 and JPC2, and are circled in red in the top picture on the next page. They are set in the 1-2 position (bottom and middle pins), and will need to be switched to the 2-3 position (middle and top pins.) Refer to the picture on the bottom of the next page to be sure your particular EMS has the transistors required to properly drive the CDI. If those are just empty spaces on your board, you MUST use the factory ignitor, WITHOUT MOVING THE JUMPERS.
Coil1 Jumper
Coil1 Transistor
Coil2 Jumper
Coil2 Transistor
Finishing up:

1. Button up the EMS, and solder the two CDI triggers to the harness.

2. Start with a spark plug gap of 0.028” and adjust accordingly as needed.

3. Put a small amount of dielectric grease around the ceramic of each spark plug. This is crucial for a COP setup, especially one with a CDI since the stronger current can arc easier.

4. Enjoy your new ignition setup proven to keep up on 1,000+ hp 4G63’s.