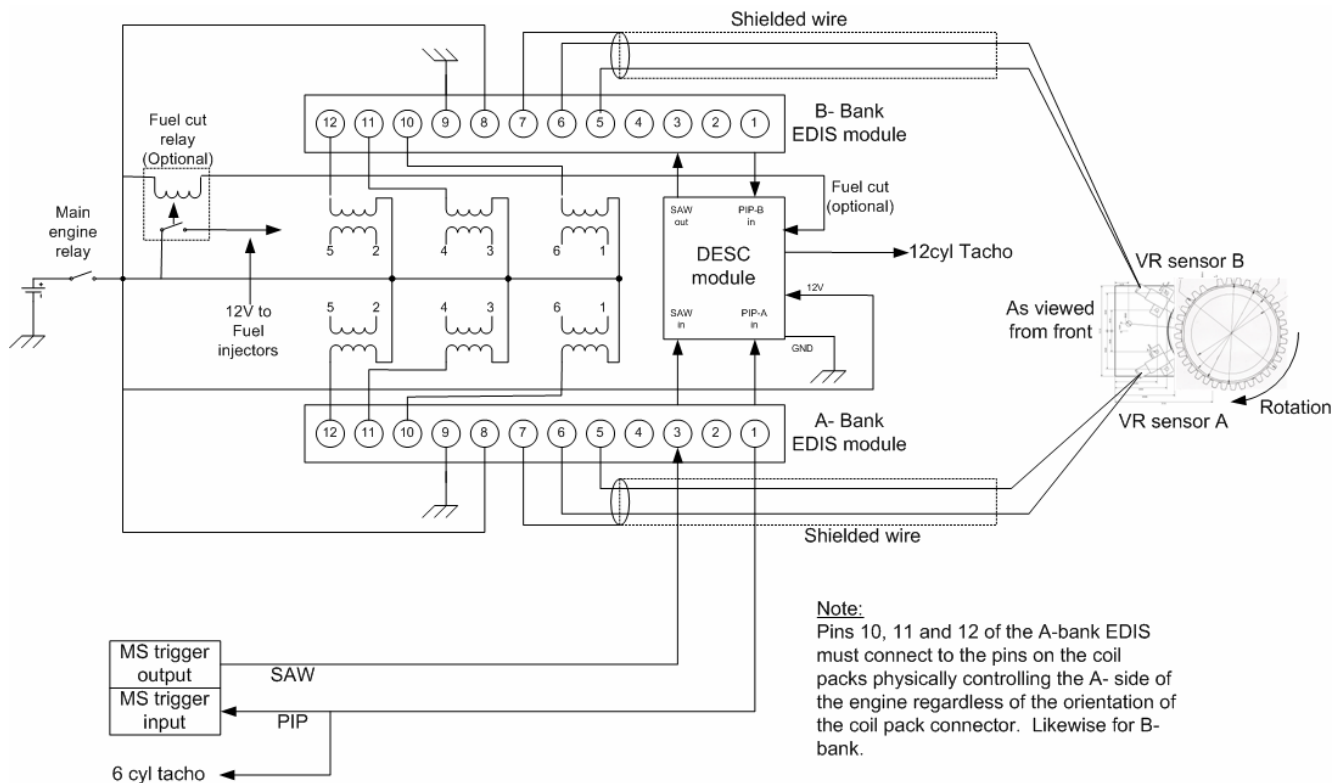


DESC module installation instructions on Jaguar V12 Ver4



Installation of the 36-1 trigger wheel and sensors:

The crank rotates clockwise as viewed from the front of the car. In order to mount the 36-1 trigger wheel and sensors correctly, mount the wheel and sensors as follows:

- 1) Crank at TDC (the TDC timing mark will then be at "6 o'clock")
- 2) The missing tooth centre now has to point to the VR sensor for the **B**-bank (Left Hand Side of car when sitting in the car)
- 3) The A- bank sensor must be mounted 60 degrees "earlier" (counter-clockwise)

Eg :

- 1) Crank is at TDC at 6 o'clock
- 2) B-sensor and centre of missing tooth is at 7 o'clock
- 3) A-sensor will then be at 5 o'clock

In other words, as long as the crank is at TDC, the 36-1 wheel can be mounted in ANY place as long as the missing tooth lines up with the B-sensor and the A-sensor is mounted 60 degrees earlier (counter-clockwise).

HINT: To easily verify proper operation of the B-bank EDIS module, it would be useful to add timing marks even if only 10°, 20° and 30° BTDC to the crank pulley 60 degs before (in a anti-clockwise direction) the current marks. This means that 10° for the B-bank will be at 70° BTDC of the A-bank, 20° will be at 80° BTDC of the A-bank, 30° will be at 90° BTDC of the A-bank.

Installation of the DESC module:

The process I recommend below is based on the following milestones;

- a. Verify the dual EDIS installation;
- b. Verify proper advance of the A-bank with SAW ;
- c. Verify proper advance of both banks with the DESC module;
- d. Verify proper operation of the fuel cut-relay.

1. **Use shielded cable for ALL PIP, SAW and VR wires. The shield must only be earthed at ONE point of the shield.**
2. Before installing the DESC module, **the engine must run - well!!** There is no point in continuing if the engine does not start and run **well** without the DESC module and with the SAW signal disconnected from both EDIS controllers.
3. If a 12V supply cut relay (to the fuel injectors) is to be used, bypass this relay for purposes of proving the dual EDIS installation;
4. With the **SAW** signal **disconnected**, check that **both** EDIS modules are firing at, or close to, 10°BTDC (on the B-bank, this will require an additional mark on the pulley) with the engine idling. Rev the engine a bit, this advance should remain constant at all rpm. It should even be possible to drive the car with SAW disconnected from both EDIS modules but it should be very reluctant to rev up not having any advance in this condition;
5. Program the EDIS controller (Megajolt or Megasquirt) such that it will advance **only** as a function of rpm (ie, no load based or “vacuum” based advance). “Disable” or zero all other factors that influence advance eg manifold pressure and coolant and inlet air temperature etc. A map giving say, 10°BTDC at 1000rpm going up linearly to say 20°BTDC at 3000 rpm. This way you should see 10°BTDC at 1000rpm, 15°BTDC @ 2000rpm and 20°BTDC at 3000rpm with your timing light connected to the A-bank #1 cyl and the SAW signal connected.
6. Now, **still without the DESC module**, connect the SAW signal to **BOTH** EDIS modules, again check for the expected advance on the A-bank with the strobe by revving the engine to 1000, 2000 and 3000 rpm. What you get with the light **MUST** match what you have on the EDIS controller timing map for a given rpm. If not, there are other problems which must be sorted first. The A-bank (possibly BOTH) should be advancing well as per the EDIS controller timing map although it is to be expected that the B-bank EDIS module will not be advancing correctly either all the time or from a certain rpm upwards and also not all the time either, ie intermittently (this is the very reason for having the DESC module). IF you should drive the car like this (and you can), this means the car should feel better than with no SAW connected and may even feel very good but only up to an rpm point from where you may experience occasional jerking due to the SAW signal going to the B-bank not being correctly timed.
7. Now is the time to install the DESC module. Connect **ONLY** 12V, GND, PIP-A, PIP-B, SAW_in (from controller to DESC module AND to A-bank EDIS) and SAW_out (from DESC to B-bank EDIS) but leave the 12V-cut relay bypassed for now.
8. Again check the A-bank for proper advance and then check the B-Bank for proper advance. **If the B-bank does not advance correctly it means that the either there are wiring problems or the DESC module is not working correctly. (On my E-type I found injector noise on the 12V supply to DESC was causing DESC to stop working)** If you now drive the car, both EDIS modules should receive valid SAW signals and both EDIS modules should advance properly on both banks. The engine should feel smooth and strong (provided you have a sensible timing map loaded).
9. Now install the 12V cut relay and connect it up to DESC. Start the engine. If it does not start, check that 12V is being supplied to the injectors from the relay. The relay should pull in as soon as cranking commences (ie both PIP A and PIP B are present)

10. Once the engine runs, first disconnect PIPin_A from the DESC module (**NOT** from the controller as this will cause the engine to die anyway) and check that the engine dies. Confirm that 12V supply is absent from the injectors. Re-connect PIPin_A, start engine again and disconnect PIPin_B and check that engine dies. Confirm that 12V is absent from supply to injectors.
11. Tacho connection

The dual EDIS-6 solution supports both 6-cyl and 12cyl tachos: There are 4 options (that I know of):

 - a. Connect up the tacho output from the DESC module. Verify that the Tacho is operational first. This is easily done by connecting the tach input to the PIP signal. IF you are using a 12-cyl tacho, it should read half the actual rpm but it confirms that the tacho is working. Now connect it to the DESC tacho output. Note: When the engine is running, this output is mostly 0V, with short 12V square wave pulses (same width as SAW pulses). The DESC tacho output will therefore not work on such tachos. **In case the tacho does not work or stops working (IF connected to the DESC tacho output), it may also mean that the DESC module is not working and therefore that the B-bank is not being timed correctly and must therefore be taken seriously.**
 - b. Connect the PIP output from one of the EDIS-6 modules to a tacho set for 6 cyl operation;
 - c. Very rarely, tachos can be made to work from the W output of an alternator (LR Discovery 1)
 - d. Some tacho's want to receive a high voltage spike as though it comes from a coil. Connect up the tacho as per the bottom of this page:
<http://www.megamanual.com/index.html>
12. You should now have good working engine, ready to be tuned for timing – which can only truly be done on braked dyno where the engine can be held at a constant load while the timing at that rpm/load point is being varied to find the most optimal timing value.

DESC connector wiring:

The DESC connector is wired as follows, looking at the “front” of the DESC connector with male flat terminals pointing towards your face:

12V	Relay	SAWinA	PIPinA
Gnd	Tacho	SAWoutB	PIPinB

If there are questions or issues, don't hesitate to contact me as given below.