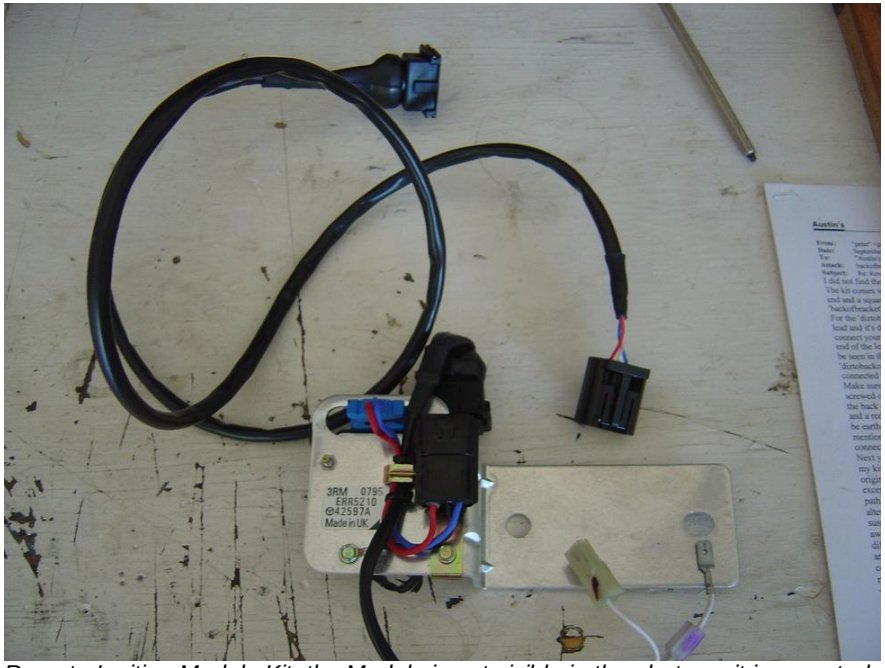
RV8 Remote Ignition Module Kit STC 1856 Installation



Remote Ignition Module Kit: the Module is not visible in the photo as it is mounted under the bracket below the plug shown on left side of bracket. (Photo: Simon Austin)

Simon Austin offers this modification saying "you're not likely to find any reference to the remote ignition module kit in any RV8 manuals as the kit is actually intended for use on Land Rover vehicles. Since the RV8 uses the same ignition system as the mid-90s Land Rovers, this remote kit can be added to an RV8. The main reason for the kit is to extend the life of the ignition module by getting it away from heat. Since the original module is attached to the distributor, heat transference through the metal is a concern. As we all know, heat is an electronic component's worst enemy."

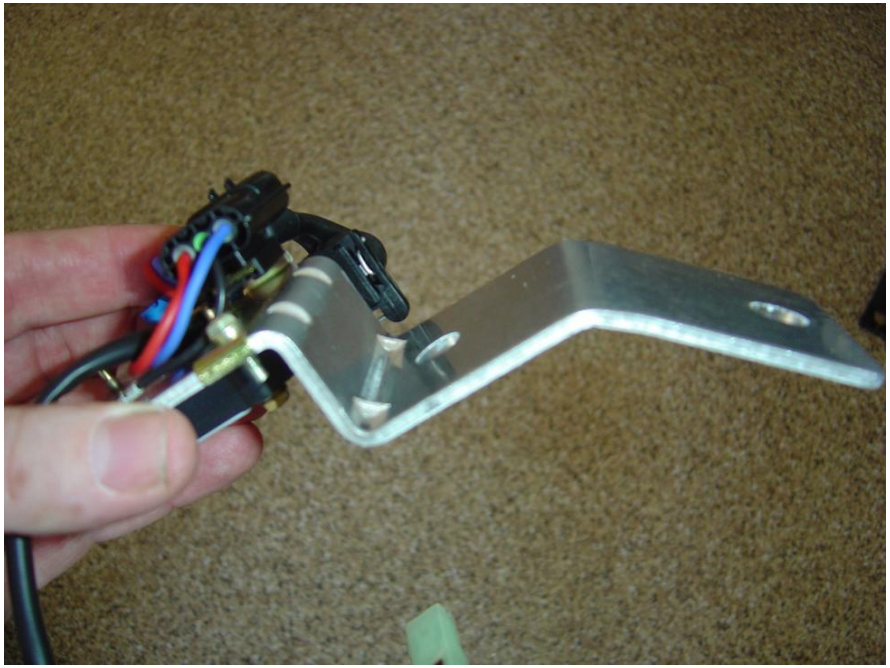
Why install this kit?

The RV8 ignition system utilizes the same components used on Land Rover vehicles of that time period. Incorporated into this system is an external Ignition Amplifier Module mounted directly to the distributor. This module is wired into the ignition circuit between the coil and the distributor. As we all know, heat is an electronic component's enemy. In order to prolong the life of the module, a kit is available to "remotely" mount the module away from the distributor, usually onto the nearside inner wing.

The installation of this kit is not a requirement for an RV8. The stock system was designed by engineers who (I hope) can be trusted. Your car should provide years of enjoyment without this kit. With that in mind and after chatting with my local Land Rover specialist, I decided that anything I could do to extend the module's life by placing it away from heat seemed like a good idea. For what it's worth, the module that came off my car was the original with a build date of 04/94 so it certainly didn't owe me anything. For an electronic component to go this long was impressive. Unfortunately, the original module also contributed to rough idle issues with my car so it was time for it to go.

Does it work?

Only time will tell. One would have to have two cars (one original and another with the remote kit) in identical condition and driven in the same way for a number of years to see how long their respective ignition modules might last. However during my tuning issues with my RV8 (NNN 0590) after importing the car from Japan, I replaced the original module manufactured in June 1994 and that made the biggest difference to the rough idle issue the car had at that time. So the modules will last a long time . . . hopefully. My local Land Rover specialist in Canada www.rovalution.ca helped me sort out the issues and while talking to the owner about these kits, he said Land Rover actually moved the module on later vehicles. He agreed that anything that could be done to extend the module's life was a good idea – getting the module away from heat helps. But I should add that moving the module won't make the car run any better, just potentially add life to the component. All this will be in my workshop note. I'm not saying all RV8 owners



The module is shown under my thumb. The bend in the bracket will be explained shortly.

(GB) FITTING INSTRUCTIONS
REMOTE IGNITION MODULE
SERVICE KIT STC 1856

1) Remove the distributor assembly from the timing chain cover.
2) Remove failed module from the distributor.
3) Fit dummy module (red in colour & supplied in kit) onto the side of the distributor using the original screws. Apply 1.2Nm torque to screws.

   Care must be taken not to over torque screws.
4) Refit distributor onto the timing chain cover.

   Ensure the engine is set to T.D.C and that the oil pump drive and rotor arm are in the correct orientation.
5) With the distributor correctly fitted, place the heatsink bracket assembly on the wing near the ignition coil. Connect the Econoseal connector of the service pick-up lead to the Econoseal connector attached to the heatsink bracket. Fig 1.
6) Feed the 3-pin mini-timer connector end of the lead under the front of the air cleaner housing and connect to the dummy module on the distributor. Fig 1.
7) Cable-clip/tie-wrap original engine harness connector (redundant) back onto the harness.See fig 2.
8) Disconnect the connections onto the coil as follows :-

   Range Rover EFi — Pre-vehicle VIN 624781
   Discovery V8i — Pre-vehicle VIN 034611.

   Disconnect the white/black wire from the coil negative terminal, leaving the black PVC sleeved white/black wire attached to the coil. Tie-wrap the disconnected wire out of the way as it is now redundant.

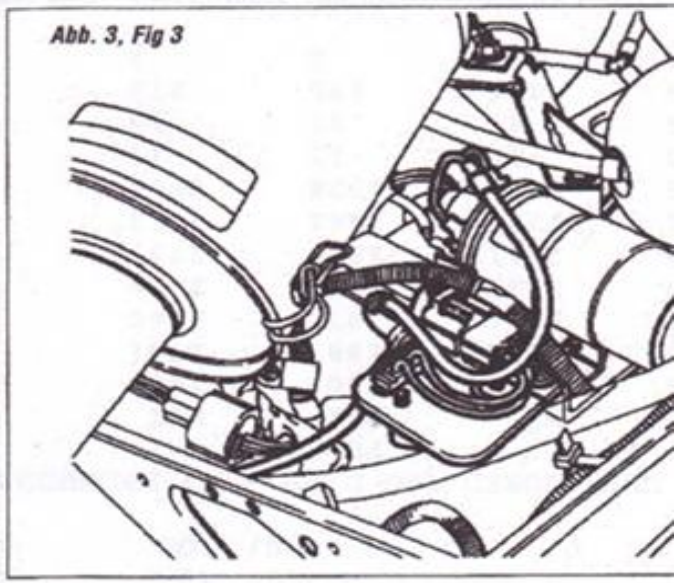
   On vehicles post these VIN numbers.
   Disconnect the red & blue wires from the coil terminals.
   (tie-wrap out of the way as these are now redundant).

   \+ W
   − W/B
9) Remove ignition coil.

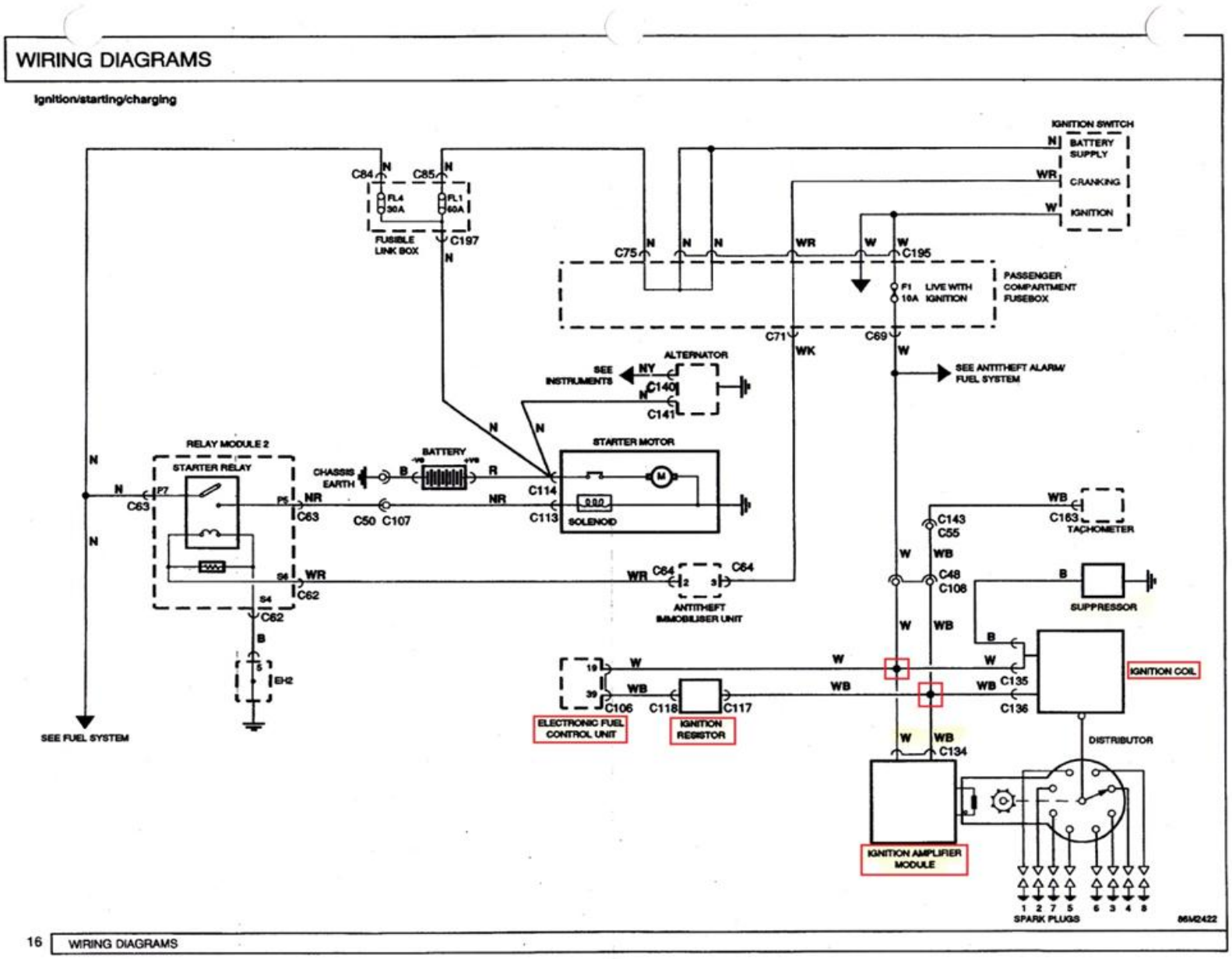
   Ensure mounting nuts are kept safe for use later.
10) **Only applicable to Range Rover prior to LH 647645 and Discovery prior to LJ 081991.**

    Disconnect the suppression capacitor lead (black) and the posit (white) from the twin blade lucar connector on the coil positive Remove the twin blade connector from the coil. Take the triple b connector provided and fit to the coil positive terminal (torque to 3Nm) Re-connect the suppression capacitor feed wire and th wire to the new connector.
11) Fit heatsink bracket beneath ignition coil.
    Re-mount coil and heatsink bracket to the inner wing.
    Connect the two connectors of the flying lead to the ignition coi
12) Cable-clip/tie-wrap the service pick-up lead to the engine harnes
13) **Check all wiring installation for clearance away from drive be**
14) Start engine and re-set ignition timing as workshop manual inst

Abb. 3, Fig 3



I have included the instruction sheet that comes with the kit so you will see it only talks about installing it in a Land Rover. However, with John Cumming's help, I managed to overcome some slight wiring issues and got my kit to work. It took a couple of tries and some time with the RV8 wiring schematic (which I'll include in these notes as well).


WIRING DIAGRAMS
Ignition/starting/charging
IGNITION SWITCH
BATTERY SUPPLY
CRANKING
IGNITION
FUSIBLE LINK BOX
FL4 30A
FL1 60A
C84
C85
C197
C75
C195
F1 10A LIVE WITH IGNITION
PASSENGER COMPARTMENT FUSEBOX
C71
C69
SEE ANTITHEFT ALARM/ FUEL SYSTEM
ALTERNATOR
SEE INSTRUMENTS
C140
C141
RELAY MODULE 2
STARTER RELAY
BATTERY
CHASSIS EARTH
STARTER MOTOR
C114
C113
SOLENOID
C63
C50 C107
C62
C64
ANTITHEFT IMMOBILISER UNIT
SEE FUEL SYSTEM
C143 C55
C48 C108
C163
TACHOMETER
SUPPRESSOR
IGNITION COIL
C135
C136
C106
C118
C117
ELECTRONIC FUEL CONTROL UNIT
IGNITION RESISTOR
C134
DISTRIBUTOR
IGNITION AMPLIFIER MODULE
SPARK PLUGS
1 2 7 5 6 3 4 8
86M2422
16 WIRING DIAGRAMS

(continued from page 1)
need to install this kit. I'm just passing on my experience with it. I would be interested to hear what the specialists in the UK have to say about the kit if anyone wants to contact them about it.

How do you install the kit?
Since the kit is designed for use in a Land Rover truck, the instructions explain how to mount it in such a vehicle – see page 2 above. I attempted to install this kit some time ago but could not get it to work. I wired the kit as shown in the instructions including disconnecting the existing coil wires (white and white/black). I installed the kit with the bracket hanging loose. I wanted to test the system prior to drilling holes. When I turned the key to start, the engine turned over fine but no sign of ignition. Pondering this, I then realized the bracket must be grounded to the car to complete the circuit. I added some ground wires (battery jumper cables work well in this case) and then tried to start again . . . . . .nothing. So I reinstalled the original wires and drove the car in stock form for a few more months.

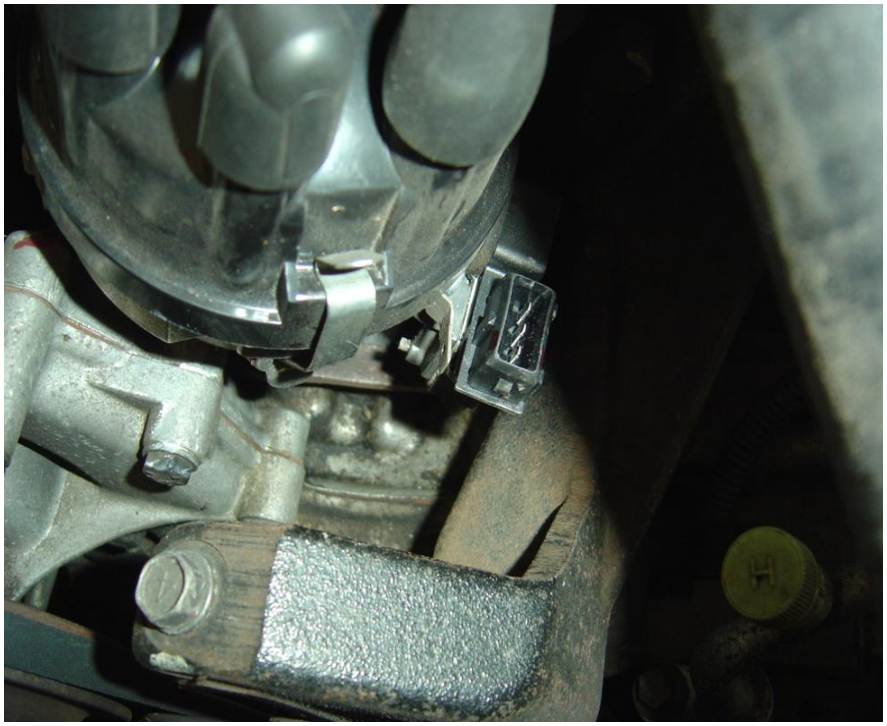
This summer, I decided to have a go at it again and did some more research into the installation. Angus Munro provided me with John Cumming's contact information as an owner who had the kit installed on his car. During emails, John pointed out an item that is left out of the Land Rover instructions shown on page 3. I hope he doesn't mind but rather than type it all out again, here's what he told me in his first email:

I had a little problem sorting out the wiring for the new remote amplifier when I fitted mine. I have just checked my wiring and it is as follows:
The long white terminal, marked 1, from the remote kit goes to the Coil + (positive) terminal.
The white wire from the car loom also goes to the Coil + (Positive) terminal, was connected to the coil with the old system.
The smaller terminal from the remote kit goes to the coil - (negative) terminal.
The white with black tracer wire also goes to the Coil (negative) terminal.
It doesn't tell you to fit the original wires from the car loom in the instruction with the kit.

I added the "bold" to the last sentence to emphasize this fact. As I mentioned earlier, I had removed the original wires from the coil and not connected them to anything. It wasn't until I researched the wiring that I discovered that the coil white and white/black wires don't just connect the coil to the distributor but also connect the coil to the Ignition Resistor and the Electronic Fuel Control Unit.
By disconnecting the two original wires off the coil and leaving them hanging, I'd disabled the Fuel ECU!

The service manual wiring diagram showing the connections between the coil, module, resistor and ECU is on page 3.

Removing the existing module
Removal of this module requires patience, some dexterity and a 7/32" spanner. Two screws hold it in place. Once the screws are removed, pry off the module being careful not to bend the two tiny connections that remain on the distributor. Because the module is mounted to an aluminium plate (heat-sink), you'll likely find remnants of "thermal grease" on the plate. This is commonly used in computers to



Original ignition module attached to distributor. (Photo: Simon Austin)

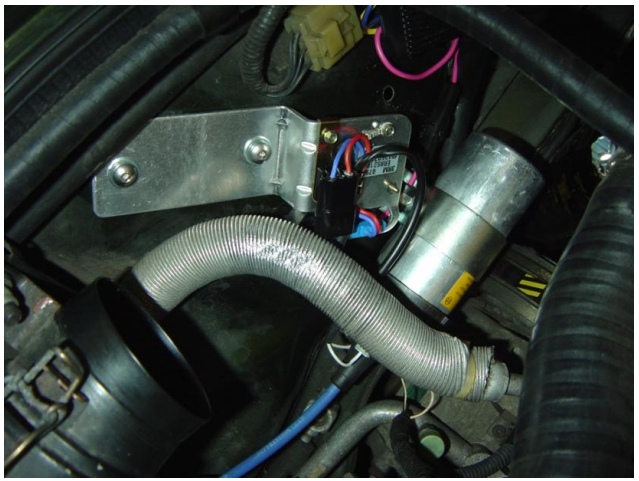
aid a component's thermal dissipation. I don't know if it's required but I had some thermal paste available so I applied some to the dummy module. I cleaned off the distributor's heat-sink plate and installed the dummy module. Again, patience and dexterity are required to get the tiny screws in place. This is about the most difficult job for this project.

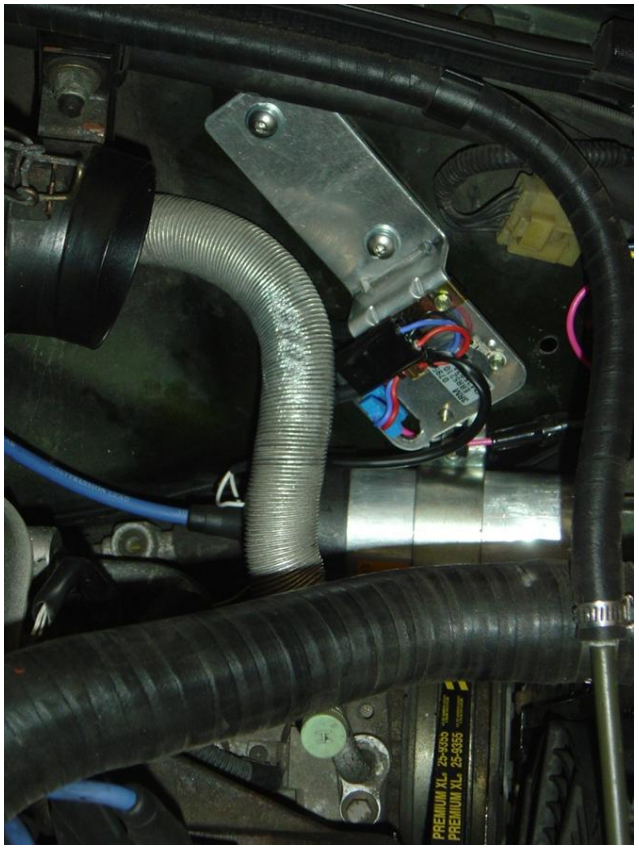
The next order of business is to find a suitable mounting location for the kit's bracket. In the LR instructions, it states to use the coil's mounting holes. Well, an RV8 is shaped a little differently on the inner fenders (inner wings).

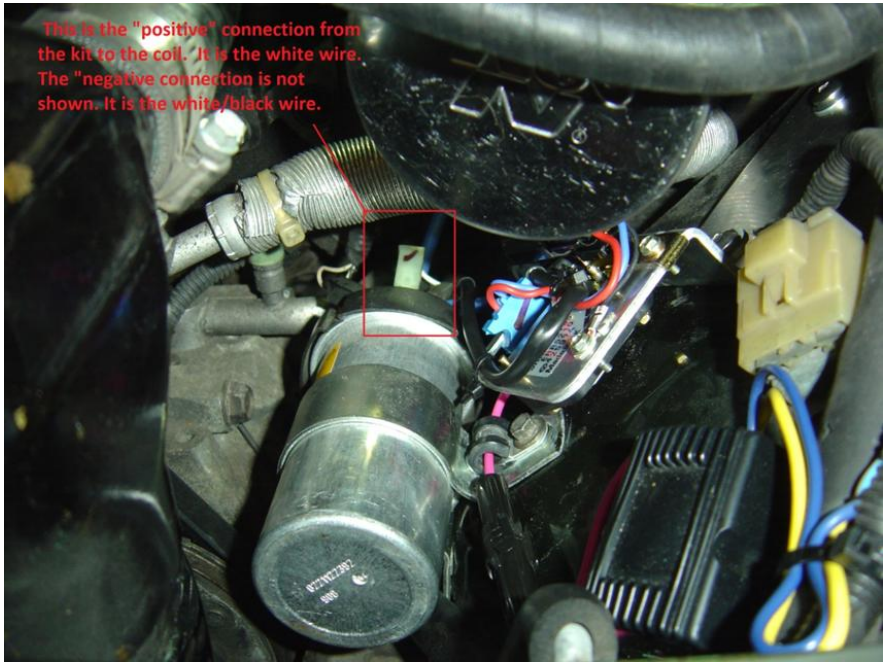
The second photo shown above shows the bracket after being modified to fit the inner fender. Unfortunately, after placing the kit in its new home attaching the coil, there was a conflict between the kit's plugs and the coil. Two things cannot occupy the same place at the same time.

So back to the drawing board. A more suitable location was found just above the coil and below the fender line. In these two photos, disregard the pink wire at the top. That's for another component and not related to this project. The finned pipe shown is part of the Air Conditioning system and connects to the compressor shown just below the coil.

The location selected to mount the kit. It is the two coil mounting holes with the paint removed to provide a good ground connection.







This is the positive connection from the kit to the coil. It's the white wire. The "negative connection is not shown. It is the white/black wire.

Another view of the kit in relation to the coil showing wires connections. Photo #1 shows this connector along with the "negative" connector. The black module lower right is not related to this kit. It's a "Daytime Running Light" module required by Canadian Law to be installed on our vehicles. The pink wire shown in the two preceding photos is connected to this module.

Since I had to find a new location to mount the kit, I had to drill out holes in the inner fender and then remove the paint around the holes to provide a good ground. It can be a bit unnerving to drill holes on one's car but once the first hole is drilled, you're committed and the nervousness goes away. I hope John doesn't mind again but here's a photo of his kit mounting location. Similar to mine but a lot straighter.

The actual wire connections are as follows:

Coil: original white and white/black wires from stock harness
White wire (labelled 1 in photos) from kit to + terminal
White/Black wire from kit to – terminal

Kit: long harness (~18". Shown in Photo #1) connects dummy module mounted on distributor to the black oval plug shown in John's photo just above (with blue and red wires showing).

The stock rectangular plug that was connected to the original distributor-mounted module is no longer required but not to be removed. It is best tied off so as to prevent getting caught in any moving parts. This is a photo from John showing this

I hope the information and photos are clear enough and provide enough insight into installing this kit.

Is the kit worth the cost and time to install? As mentioned in the beginning, I felt that anything I could do to prolong the life of an electronic component was worth it. Land Rover themselves moved the module on later vehicles so that must mean something. The other benefit to this kit is it uses a Rover ignition module, not an aftermarket unit. I had a brand-new aftermarket unit fail after less than 400 miles. I did install a Lucas module after this failure and although it's worked well-enough over the miles, the Rover module just seems to start the car a bit better. I'll keep the Lucas as a spare.

The kit I purchased came from **JSF 4x4** in the UK. Angus Munro was kind enough to accept delivery of the package and forward it to me in Canada. I did find out later I can get the same kit from my local supplier but at higher cost.

My thanks go out to John Cumming for his technical advice and to Angus Munro for being a great parts distributor.