

This REOPUS 3/4 Amplifier has been modified operate with a REOPUS H PICKUP.

Introduction:

This REOPUS 3/4 circuit board has been factory modified to operate with the REOPUS H pickup.

This amplifier must not be connected to a OPUS oscillator pickup.

The circuit board has been installed into the amplifier case supplied and is connected to the REOPUS Hall Effect pickup supplied. The REOPUS H pickup is installed into the distributor in the original mounting position, the original ferrite rod timing disc, ballast resistor, coil and existing wiring are used. The original OPUS coil or a (DB198) or a coil with a primary resistance of between 0.8 and 1 ohm can be used. In redesigning the REOPUS H amplifier and Pickup we have followed the original approach of the OPUS designers. This ensures compatibility with the rest of the vehicle electrical system and your car can still be maintained as per the manufacturer's instruction manual except the pickup tests.

The REOPUS H hall effect pickup and circuit provides improved timing accuracy, the improvement in engine smoothness should be noticed.

We have included 2 diagnostic LED's on the circuit board to indicate the power supply and pickup operation.

All REOPUS circuit boards have been designed and manufactured using industrial instrumentation practices and modern Hi-specification industrial components so that the REOPUS amplifier is repairable and can always be upgraded to the latest specs.

To Install the REOPUS H pickup into your distributor.

Remove Distributor Cap

Remove Distributor Arm

Remove Distributor Timing disc

Carefully remove 2 screws holding the original OPUS pickup.

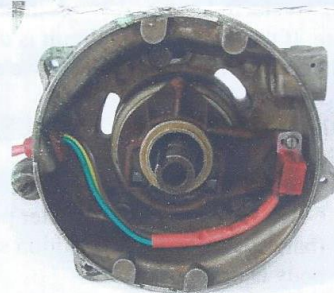
Remove the OPUS pickup from the distributor.

Install the REOPUS H pickup.

Make sure the pickup wiring is clear of the Timing disc.

Refit the timing disc and set the pickup gap to between 0.020 and 0.025in.

Clean the Distributor arm and the Distributor cap and refit.



Refit your REOPUS amplifier.

- Your amplifier board has been returned to you in the alloy case as supplied.
- Refit your Amplifier.
- Reconnect the pickup and the Ballast and coil connectors.

The REOPUS unit will not alter the existing ignition timing, however we recommend the ignition timing be checked using an ignition stroboscope as detailed in the service manual for ultimate performance and economy. If your car has a 7.8 to 1 compression engine the ignition timing requires more advance than the 9 to 1 engines. Please refer to your manual for the correct setting for 7.8 to 1 compression engines.

Following are fault finding tips.

Your car is now 30 yrs old and the wiring has possibly had little maintenance over the years or has possibly been altered by a previous owner.

If you do have problems we suggest you carry out the following tests with the REOPUS circuit board mounted in the Amplifier case with the connectors to the coil and the ballast resistor in place and the Amplifier case connected to the engine (negative). On the REOPUS circuit board are 2 LED's for diagnostic purposes. (Viewed after removal of amplifier base plate)

Note: The ignition should not be switched ON for long periods during the following tests as the coil may over heat.

If the engine will not start and the RED LED is on and the GREEN LED flashes when the engine is cranked over.

The following procedure tests the Ballast resistor and the coil circuit.

1. Turn OFF the ignition.

Before you continue with the following test we suggest that you remove the coil HT lead from the center of the distributor and push a spark plug into the end of the HT lead, then place the spark plug on the engine to create a circuit. This allows any coil High voltage to be dissipated across the spark plug gap.

2. Remove the negative connector from the coil.

3. Connect an amp meter (10 amp DC minimum) between the coil negative terminal and the engine.

4. With the ignition switched ON, you should have between 3 and 6 amps showing on the meter.

5. If you have low or no amps, unplug the pickup, if still no current, then proceed to 1 below.

Note: If the coil primary circuit is disconnected a high voltage from the coil primary discharging causes a high voltage for a few milliseconds, we advise switching off the ignition before removing your amp meter.

If the RED LED on the REOPUS circuit board is not illuminated when ignition is ON, proceed with the following tests.

1. Turn Ignition switch OFF Disconnect your amp meter from the coil negative terminal.

2. Carefully connect a voltmeter positive (20VDC range) on either of the center terminals of the Ballast resistor (battery positive from ignition switch) and the negative on the engine. (Caution the Ballast resistor Aluminum body is negative)

3. With the ignition switch **ON** the voltage should be about 12 volts. (subject to battery and wiring condition)

4. Now connect the coil negative terminal to the engine (i.e. coil is in circuit). You should now have a minimum of 8 to 12 volts on the center terminal of the ballast resistor with the ignition coil in circuit. If the voltage is less than 8V then:-

A. Check Battery voltage - should be about 12 volts.

B. Check for broken wires. Check resistance from Pad A of the amplifier circuit board to center terminal of ballast resistor (black/red wire) should be less than 1.0 Ohms. We suggest the crimped terminals are carefully soldered; old crimp connections are often faulty.

C. Check connector terminals are clean.

Note: bad connections are often a source of poor starting, especially if the starter relay is faulty.

D. Check Positive terminal connection stud is not loose and corroded.

E. Reconnect Coil negative wiring.

If the GREEN LED does not flash when the engine is cranked with both the ignition and the RED LED being ON.

- A. Check the voltage between Pad 1 (pickup negative) and pad 2 (pickup+5volts) Note pad 3 is the Pickup Trigger output.
- B. Clean and re tension the 3 pin connector terminals on the pick-up lead.
- C. Check pickup wiring for damage.
- D. Check pickup clearance .020 to .025thou.

Misfiring.

Check Pickup clearance to rotor. I have found 0.020 to be the best starting point. There is more information on www.reopusignition.com about adjusting pickup gap and Ignition duty cycle.

Check ignition timing and mechanical advance is OK.

Misfiring under light acceleration (when engine is up to operating temperature) this is often due to a lean mixture, check carburetor dash pots have the correct oil the Jaguar workshop manual E.165 states "Top up the carburetors with clean engine oil" this would be 20W/50. Experience has shown that thinner oil is OK.

Check carburetors are correctly balanced.

If car starts to accelerate then dies the problem is possibly fuel starvation or pickup gap too close.

- A. Check pickup gap with REOPUS H between .020 to .030
- B. Low fuel pressure
- C. Blocked fuel pipes.
- D. Check carburetor float levels.
- E. Check engine # do you have a low compression engine?

If your car has a 7.8 to 1 compression engine it may be necessary to advance the ignition timing more than the manual states for the 9 to 1 engines refer to your manual for the correct setting for low compression engines.

Fuel flow test.

Remove the fuel pipe at the carburetor, fit a suitable hose to this pipe, and ensure there are no leaks by using the correct size hose and clip. Put the end of the hose into a suitable container turn on the ignition switch you should have minimum of 1 pint (0.5 liter)/ minute flowing.

If the fuel flow is less then

Check both ends of the SU pumps are operating. Check flexible fuel hoses, these may deteriorate over time, it is advisable to replace the flexible suction pipe from the pump to the fuel tank.

Check fuel filter.

Check Pump pressure, you should have between 1.5 and 2.0 PSI fuel pressure.

If the misfiring happens after a short while, remove the petrol filler cap does it suck air? If it does the fuel tank breather is possibly blocked.

Faulty ignition leads will cause misfiring. Open the car bonnet after dark with the engine running you may observe sparks from the ignition leads, if so replace the leads. REOPUS gives approximately 4 times the spark energy compared with the old OPUS amplifier. I recommend NGK; BP6ES spark plugs for carburettor V12 engines.

Additional tips and checks

Make sure original wire connectors and terminals are clean and protected from corrosion. HT leads and spark plugs should also be in good condition. Distributor cap must be dry and clean inside and outside.

Whether your engine has carburetors or fuel injection, the fuel delivery system and the ignition system are interdependent. Many faults can be “either/or” scenarios, so ensure the fuelling system is also functioning at the correct pressure when the engine is running.

A known problem can be internal fracture of the amplifier connection leads just after entering the distributor. This is due to constant movement of the vacuum retard or advance unit.

A very common V12 problem is the centripetal advance weights in the base of the distributor being “stuck” with dried up grease even rust. This will drastically affect the advance of the ignition timing and they need to be cleaned, freed, and lubricated with a high temperature lubricant.

The vacuum advance or retard module (early Jaguar V12 carb engines have retard, fuel injection V12's have advance) is another weak point. The internal rubber diaphragm hardens with age and heat then splits or cracks. This adversely affects engine performance, temperature, and fuel economy.

REOPUS Warranty.

The manufacturer warrants, for a period of 5 years from the date of purchase, that the REOPUS circuit board is free from defects in material and workmanship.

The manufacturer's obligations under this warranty are limited to the REOPUS 3-4 H circuit board only when it is used as a replacement for the Lucas Opus Type AB3 ignition trigger amplifier together with a REOPUS H pickup and the original car manufacturer's ballast resistor and the correct coil.

All warranty claims will require examination at our manufacturing facility, transportation charges pre-paid, and if after examination, the unit is found to be defective we will either repair or replace it at our discretion.

The warranty shall not apply to any units which have been damaged by poor installation methods, repaired or altered except by the manufacturer, or which have been subjected to abuse/misuse.

REOPUS Engineering pride ourselves with our high level of technical support. If you have any problems with your REOPUS, please don't hesitate to contact us for assistance.

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