



LUCAS CONSTANT ENERGY IGNITION SYSTEM - V8i

Preliminary Checks

Inspect battery cables and connections to ensure they are clean and tight. Check electrical condition of battery.

Inspect all L.T. connections, ensure they are clean and tight. Check H.T. leads are correctly positioned and not shorting to ground against any engine components. Wiring harness and individual cables should be firmly fastened to prevent chaffing.

Pick-up air gap

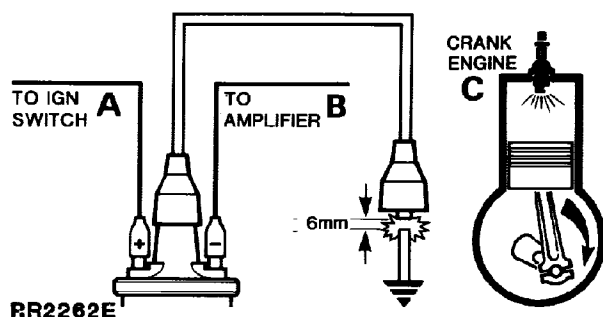
Check air gap between pick-up limb and reluctor teeth is 0.20 - 0.35 mm, using a non-ferrous gauge.



NOTE: Air gap is set initially at factory and will only require adjusting if tampered with or when pick-up module is replaced.

TEST 1:

H.T. Sparking

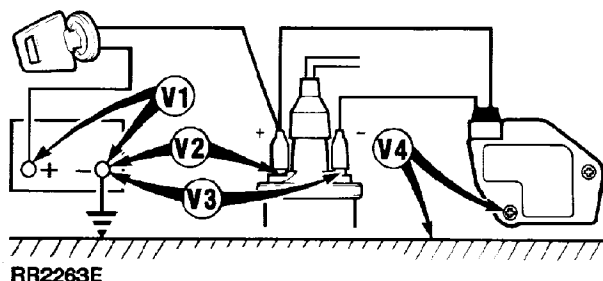


Remove coil/distributor H.T. lead from distributor cover and hold approximately 6mm from engine block, using suitable insulated pliers. Switch ignition 'On' and operate starter.

Regular sparking indicates fault in H.T. distribution, plugs, timing or fuelling, proceed to Test 6. If no spark or weak spark occurs proceed to Test 2.

TEST 2:

L.T. Voltage



Switch ignition 'On' - engine stationary.

- Connect voltmeter to points in circuit indicated by V1 to V4 and make a note of voltage readings.
- Compare voltages obtained with specified values listed below:

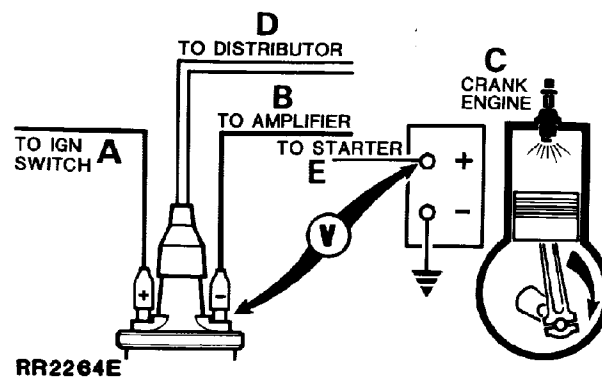
Expected readings

- | | |
|----|-----------------------------------|
| V1 | More than 12 volts. |
| V2 | 1 volt maximum below volts at V1. |
| V3 | 1 volt maximum below volts at V1. |
| V4 | 0 volt - 0.1 volt. |
- If all readings are correct proceed to Test 3.
 - Check incorrect reading(s) with chart to identify area of possible faults, i.e. faults listed under heading SUSPECT and rectify.
 - If coil and amplifier is suspected, disconnect L.T. lead at coil, repeat V3. If voltage is still incorrect, fit new coil. If voltage is now correct, check L.T. lead, if satisfactory fit new amplifier.
 - If engine will not start proceed to Test 3.

| 1 | 2 | 3 | 4 | SUSPECT |
|---|---|---|---|---------------------------|
| L | * | * | * | DISCHARGED BATTERY |
| * | L | L | * | IGN. SWITCH AND/OR WIRING |
| * | * | L | * | COIL OR AMPLIFIER |
| * | * | * | H | AMPLIFIER GROUND |

Key

- * Expected Voltage
- H Voltage higher than expected
- L Voltage lower than expected

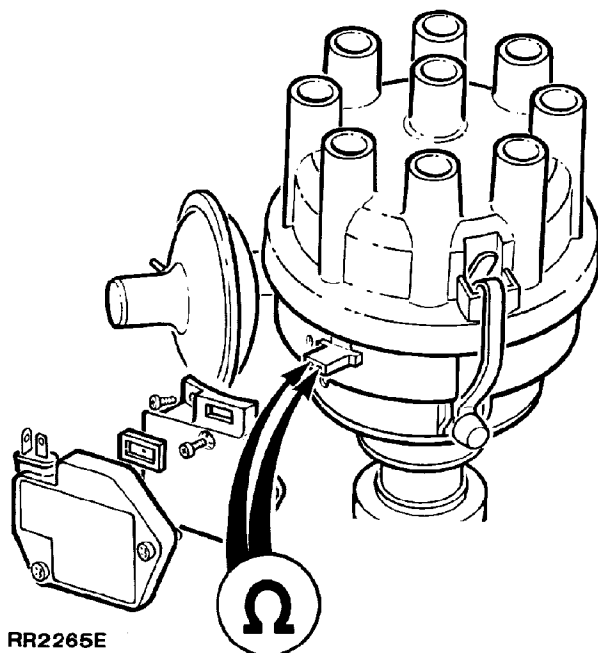
TEST 3:**Amplifier Switching**

Connect voltmeter between battery positive (+ve) terminal and H.T. coil negative (-ve) terminal. Voltmeter should register 0 volts.

Switch ignition 'On', voltmeter should still register 0 volts.

Crank engine, voltmeter reading should increase when cranking, in which case proceed to Test 5.

If no increase in voltage during cranking proceed to Test 4.

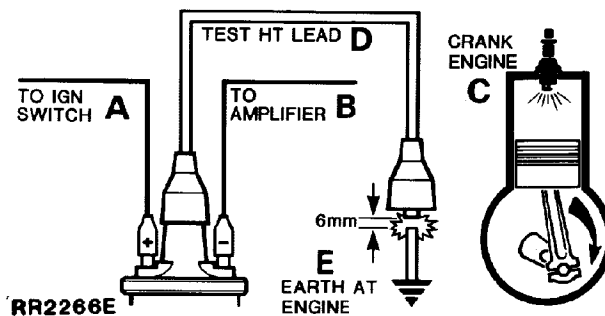
**TEST 4:****Pick-up Coil Resistance**

Remove amplifier.

Connect ohmmeter leads to two pick-up terminals in body of distributor.

The ohmmeter should register between 2k and 5k ohm if pick-up is satisfactory. If ohmmeter reading is correct, check all connections between pick-up and amplifier, if satisfactory, fit new amplifier. If engine still does not start carry out Test 5.

Change pick-up if ohmmeter reading is incorrect. If engine still does not start proceed to Test 5.

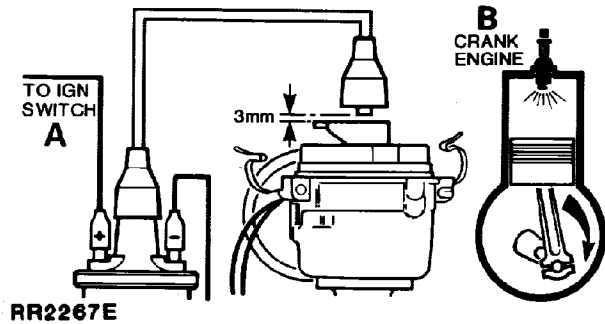
TEST 5:**Coil H.T. Sparking**

Remove existing coil/distributor H.T. lead and fit test H.T. lead to coil tower. Using suitable insulated pliers, hold free end about 6mm from engine block and crank engine. There should be good H.T. sparking.

If weak or no sparking, fit new coil, repeat test.

H.T. sparking good, repeat test with original H.T. lead. If sparking is good carry out Test 6.

If weak or no sparking, fit new H.T. lead, if engine will not start carry out Test 6.

TEST 6:**Rotor Arm**

Remove distributor cover. Disconnect coil H.T. lead from cover, using insulated pliers hold about 3mm (0.13 in) above rotor arm electrode and crank the engine.

There should be no H.T. sparking between rotor and H.T. lead. If satisfactory carry out Test 7.

If H.T. sparking occurs, an earth fault on rotor arm is indicated. Fit new rotor arm. If engine will not start carry out Test 7.

TEST 7:**Visual and H.T. Cable Checks****Examine:****Should be:**

- | | |
|--------------------------------|---|
| 1. Distributor Cover | Clean, dry, no tracking marks |
| 2. Coil Top | Clean, dry, no tracking marks. |
| 3. H.T. Cable Insulation | Must not be cracked, chafed or perished |
| 4. H.T. Cable Continuity | Must not be open circuit |
| 5. Sparking Plugs | Clean, dry, and set to correct gap |

NOTE:

- | | |
|-------------------------------------|---|
| 1. Reluctor | Must not foul pick-up or leads |
| 2. Rotor and Insulation Cover | Must not be cracked or show signs of tracking marks |



IGNITION TIMING

Service repair no - 86.35.15

Adjust

1. It is essential that following procedures are adhered to. Inaccurate timing can lead to serious engine damage and additionally create failure to comply with emission regulations. If timing is being checked in vehicle, air conditioning compressor must be disengaged.
2. On initial engine build, or if distributor has been disturbed for any reason, ignition timing must be set statically to the figure given:

If engine is 3.9 V8. **See ENGINE TUNING DATA, Information, ENGINE - 3.9 V8**

If engine is 4.2 V8. **See ENGINE TUNING DATA, Information, ENGINE - 4.2 V8**



NOTE: This approximate setting is made only to ensure that engine may be started.



CAUTION: On no account must engine be started before this operation is carried out.

Equipment required :-

Calibrated Tachometer
Stroboscopic lamp

3. Couple stroboscopic timing lamp and tachometer to engine following manufacturer's instructions.
4. Disconnect vacuum hose from distributor.
5. Start engine. With no load, and without exceeding 3,000 rev/min run engine until normal operating temperature is reached. (Thermostat open). Check that engine idles within tolerance.

If engine is 3.9 V8 check tolerance in. **See ENGINE TUNING DATA, Information, Engine - 3.9 V8**

If engine is 4.2 V8 check tolerance in. **See ENGINE TUNING DATA, Information, Engine - 4.2 V8**

6. Idle speed for timing purposes must not exceed 800 rev/min.
7. Run engine at idle speed and check timing using stroboscope light on timing marker and pointer.



WARNING: Keep hands and equipment away from drive belt.

8. If timing is not as specified, switch off engine. Loosen distributor clamp bolt and turn distributor to advance or retard ignition as necessary. Tighten clamp bolt, start engine and recheck timing.



WARNING: Personal injury may result if an attempt is made to adjust distributor whilst engine is running.

9. Upon completion, switch off engine and tighten distributor clamping bolt securely. Recheck timing, to ensure retightening has not disturbed distributor position.
10. Refit vacuum hose.
11. Disconnect stroboscopic timing lamp and tachometer from engine.