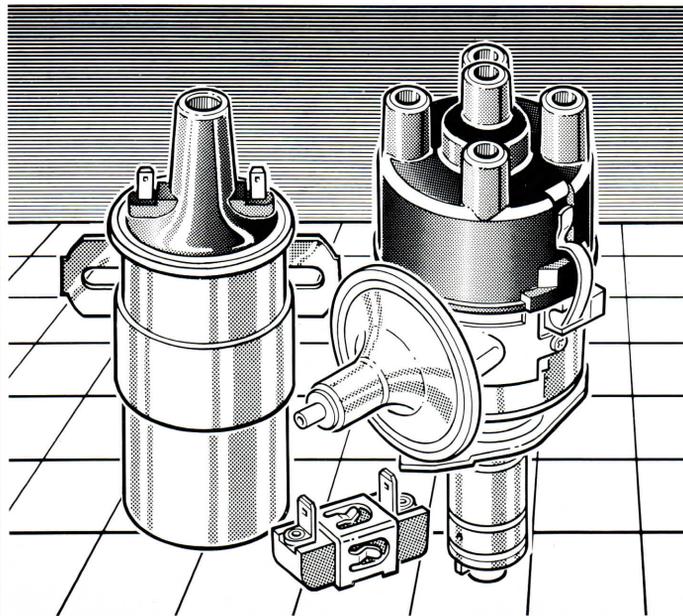


Contact Breaker Ignition Systems



TEST CARD

Publication Number
XRB202

Lucas



Lucas Electrical Limited, Parts and Service Division, Great Hampton Street, Birmingham B18 6AU

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10M/486/DL

RECOMMENDED TEST EQUIPMENT AND TOOLS

D.C. Moving Coil Voltmeter Scale 0-20 V
High Tension (HT) Test Lead
Low Tension (LT) Jumper Cable
Test Capacitor (0.18 - 0.20 μ F)
Heavily Insulated Pliers
Feeler gauges
Suitable Screwdrivers

Note

- 1 All meter connections are given for negative earth systems
- 2 The ignition must be switched 'ON' for all tests
- 3 A, B and C are preliminary checks

WARNING

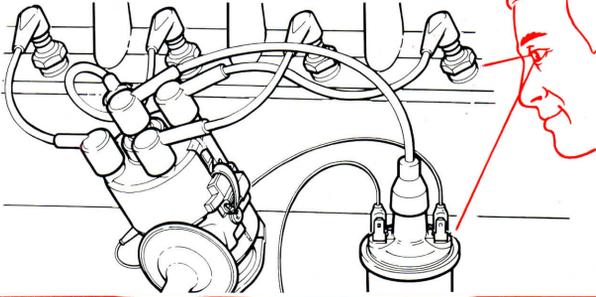
Ignition systems produce high voltages. Besides the risk from electrical shock, danger can arise through sudden uncontrolled body movement causing contact with rotating fans, pulleys, etc.

Even with a stationary engine a thermostatically controlled radiator fan may be rotating or suddenly commence to rotate

**TAKE GREAT CARE TO AVOID
THE RISK OF INJURY**

PRELIMINARY CHECKS

A CONNECTIONS/CABLES



RESULT

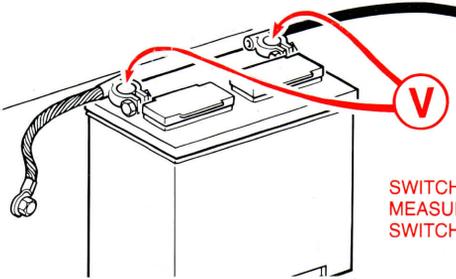
Ensure
Tight, clean and dry
Correct firing order

CHECK B

Loose, dirty, wet or incorrect
firing order
Rectify
If engine will not start

CHECK B

B BATTERY STATE OF CHARGE



SWITCH ON HEADLAMPS
MEASURE VOLTAGE
SWITCH OFF HEADLAMPS

Should be above 12 V
Correct

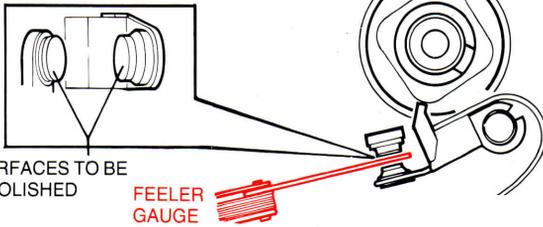
CHECK C

Below 12 V
Recharge or renew battery

CHECK C

If charging system is suspect,
refer to appropriate test card

C CONTACT CONDITION AND GAP



CONTACT SURFACES TO BE
CLEAN AND POLISHED

FEELER
GAUGE

LUCAS DISTRIBUTORS
0.35mm – 0.40mm
(0.014" – 0.016")

OTHER DISTRIBUTORS
REFER TO MANUFACTURER'S
HANDBOOK

Contacts pitted and piled
Remove – clean or renew – reset
If engine will not start

TEST 1

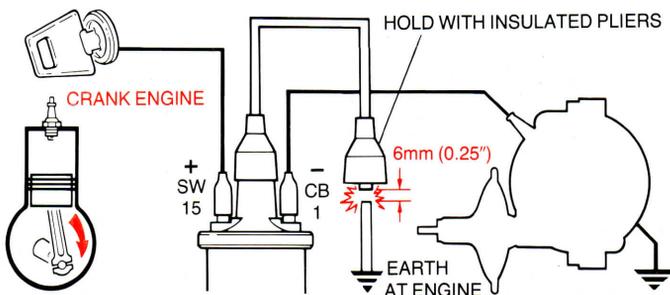
Incorrect gap
Rectify

If engine will not start

TEST 1

TEST

1 HT SPARKING



RESULT

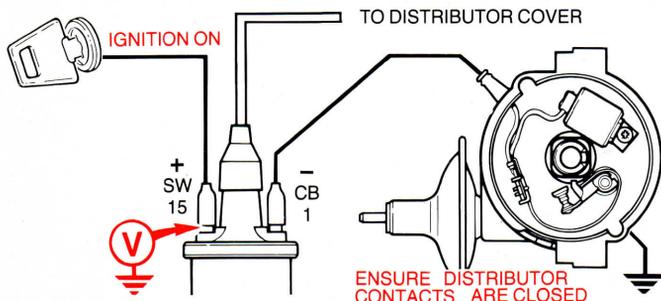
Regular sparking – suggests fault
other than coil, ie HT distribution,
plugs, fuelling, timing etc.

TEST 8

Weak sparking or
no sparking

TEST 2

2 VOLTAGE AT COIL '+' TERMINAL



Should be above 12 V (or approx 6-8 V for Ballasted Ignition)

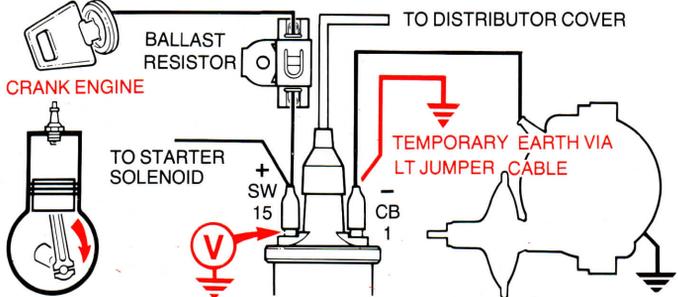
Correct
Non-Ballasted Ignition **TEST 4**
Ballasted Ignition **TEST 3**

Zero voltage – check feed to and from ignition switch, ballast resistor (if fitted) and connections
Rectify

If engine will not start
Non-Ballasted Ignition **TEST 4**
Ballasted Ignition **TEST 3**

3 'START' VOLTAGE AT COIL '+' TERMINAL

(BALLASTED IGNITION ONLY)



Voltage should increase while cranking

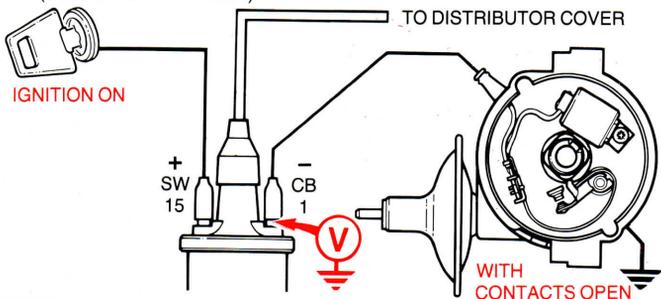
Correct
TEST 4

If no increase, check supply at starter solenoid terminal 'IGN/15a' while cranking
Rectify, disconnect LT jumper cable

If engine will not start
TEST 4

4 VOLTAGE AT COIL '-' TERMINAL

(COIL OR EARTH FAULT)



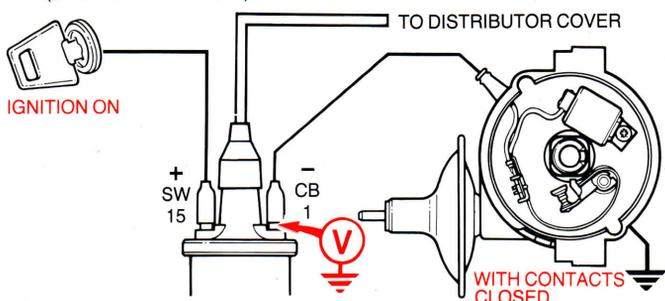
Should be battery voltage
Correct

TEST 5
Zero voltage – disconnect LT lead at coil '-' Recheck voltage
Zero voltage now – indicates faulty coil. Renew ignition coil
Battery voltage now – indicates 'earth' fault. Check LT lead, distributor internal LT leads and contact assembly
Rectify

If engine will not start
TEST 5

5 VOLTAGE AT COIL '-' TERMINAL

(OPEN CIRCUIT FAULT)



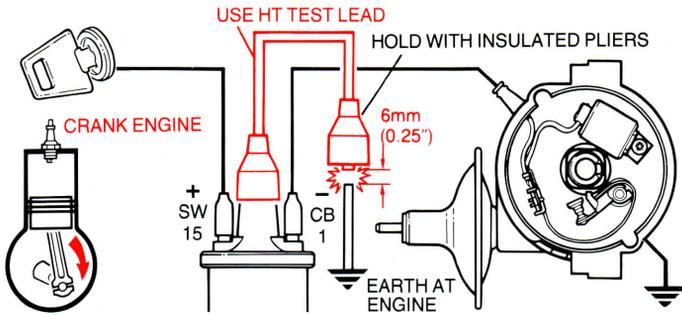
Should be zero voltage
Correct

TEST 6

Above zero indicates open circuit fault Check LT lead, distributor internal LT leads, contact assembly and any earth links
Rectify, recheck

If engine will not start
TEST 6

6 COIL HT SPARKING



Should be good HT sparking
Weak or no sparking

TEST 7

Good sparking
Refit original HT lead
Repeat test
Good sparking

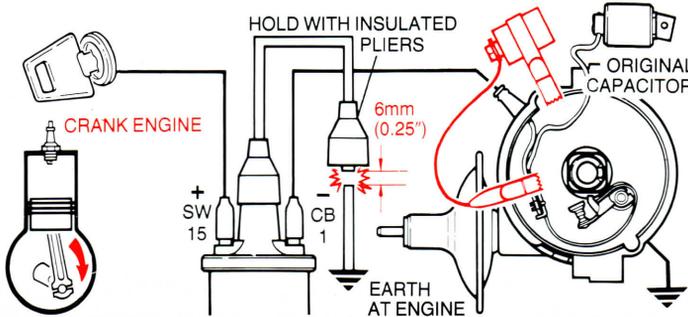
TEST 8

Weak or no sparking
Renew HT lead from coil
If engine will not start

TEST 7

7 CAPACITOR

CONNECT TEST CAPACITOR BETWEEN EARTH AND MOVING CONTACT CONNECTION



Should be improved HT sparking,
if so fit new capacitor
If engine will not start

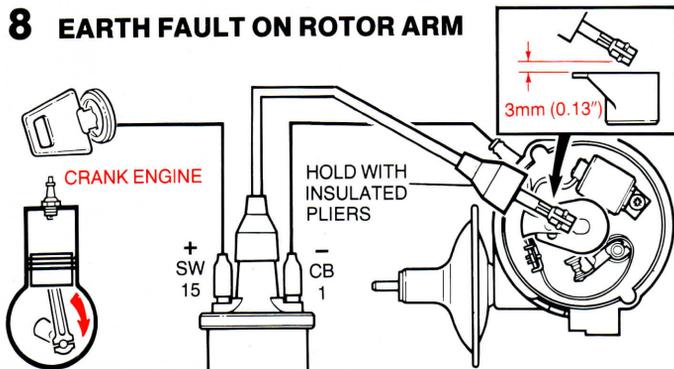
TEST 8

Weak or no sparking
Reconnect original capacitor
Renew coil

If engine will not start

TEST 8

8 EARTH FAULT ON ROTOR ARM



Should be no HT sparking
Correct

TEST 9

Good HT sparking
Renew rotor arm
If engine will not start

TEST 9

9 VISUAL AND HT CABLE CHECKS

EXAMINE

- 1 DISTRIBUTOR COVER
- 2 IGNITION COIL TOP
- 3 HT CABLE INSULATION
- 4 HT CABLE CONTINUITY
- 5 SPARKING PLUGS

Should be

- 1 Clean, dry, no tracking marks
- 2 Clean, dry, no tracking marks
- 3 Not cracked, chafed or perished
- 4 Not open circuit
- 5 Clean, dry, correct gap