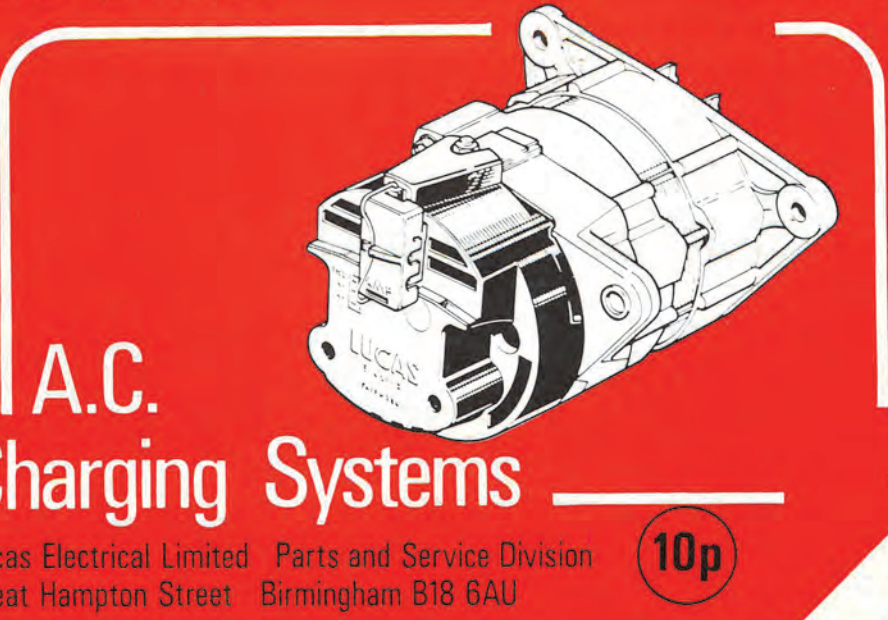


Lucas

TEST CARD 3



A.C. Charging Systems

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

10p

RECOMMENDED TEST EQUIPMENT

- D.C. Moving Coil Voltmeter Scale 0-20V
- D.C. Moving Coil Ammeter Scale 5-0-100A
- Hydrometer

15/16 AC, 15/16/17/18/20/23/25 ACR SYSTEMS

TEST:	RESULT:
1 HYDROMETER READING <p>1.110 - 1.130 DISCHARGED 1.230 - 1.250 70% CHARGED 1.270 - 1.290 CHARGED.</p>	Below 1.230 Recharge and then test TEST 2 1.230 - 1.290 TEST 2
2 DRIVE BELT TENSION <p>MODERATE FINGER PRESSURE.</p>	6 mm (1/4") TEST 3 Loose and/or worn Rectify. TEST 3
3 ALTERNATOR CONNECTIONS 	Clean and tight TEST 4 Loose and/or dirty Rectify TEST 4
4 CABLE CONTINUITY <p>REMOVE ALL CONNECTIONS SWITCH ON IGNITION CONNECT VOLTMETER BETWEEN EACH EARTH AND EACH LEAD IN TURN.</p>	Battery Voltage TEST 5 No reading (If no reading for 'Ind' lead, check warning light) Rectify TEST 5
5 ALTERNATOR OUTPUT <p>LINK 'S' LEAD (if fitted) CONNECT AMMETER BETWEEN STARTER SOLENOID AND MAIN OUTPUT TERMINAL SWITCH ON ALL LOADS EXCEPT WIPERS FOR 1 MIN. RUN ENGINE UP TO 3000 REV/MIN.</p>	AMMETER READING SHOULD EXCEED: 15 AC/ACR 25A 16 AC/ACR 30A 17 ACR 33A 17 ACR (Combine Harvester) 24A 18 ACR 40A 20 ACR 60A 23 ACR 50A 25 ACR 60A Reading correct. TEST 6 If less than above remove and rectify. (If 15/16 AC short 'F' and '-' on 4TR and repeat. If satisfactory replace 4TR) TEST 6
6 CIRCUIT CHARGING VOLTAGE DROP <p>LINK 'S' LEAD (if fitted) CONNECT VOLTMETER ACROSS INSULATED SIDE OF BATTERY AND ALTERNATOR (V1) AND THEN EARTH SIDE (V2) SWITCH ON ALL LOADS EXCEPT WIPERS. RUN ENGINE AT 3000 REV/MIN.</p>	V1 0.5V max. V2 0V max. TEST 7 If greater than above Rectify. TEST 7
7 4TR, 8TR, 11TR, 14TR ALTERNATOR CONTROL (VOLTAGE REGULATOR SETTING) <p>LINK 'S' LEAD (if fitted) CONNECT AMMETER BETWEEN SOLENOID AND ALTERNATOR MAIN OUTPUT TERMINAL CONNECT VOLTMETER ACROSS BATTERY RUN ENGINE AT 3000 REV/MIN UNTIL AMMETER INDICATES LESS THAN 10A.</p>	Run until ammeter reads less than 10A. Voltmeter should read 13.6 - 14.4V. If reading incorrect, replace alternator control.

RECOMMENDED TEST EQUIPMENT

- D.C. Moving Coil Voltmeter Scale 0-20V
- D.C. Moving Coil Ammeter Scale 5-0-100A
- Hydrometer

10/11 AC SYSTEMS

TEST:	RESULT:
1 HYDROMETER READING <p>1.110 - 1.130 DISCHARGED 1.230 - 1.250 70% CHARGED 1.270 - 1.290 CHARGED.</p>	Below 1.230 Recharge and then test TEST 2 1.230 - 1.290 TEST 2
2 DRIVE BELT TENSION <p>MODERATE FINGER PRESSURE.</p>	6 mm (1/4") TEST 3 Loose and/or worn Rectify. TEST 3
3 ALTERNATOR CONNECTIONS 	Clean and tight TEST 4 Loose and/or dirty Rectify TEST 4
4 6RA, 16RA RELAY (CONDITION NO CHARGE) <p>CONNECT AMMETER IN MAIN OUTPUT CABLE CONNECT C1 AND C2 TOGETHER ON 6RA OR 16RA. RUN ENGINE AT 3000 REV/MIN.</p>	If ammeter shows no charge check cables and connections to relay 'C' terminals. If satisfactory. TEST 5 If ammeter now shows charge, check cables and connections to 'W' terminals (6RA relay) or 'W' and 'R' terminals (16RA relay). 16RA only — measure voltage at alternator (see TEST 7) and if 6-8V, replace relay. If incorrect, replace alternator. TEST 5
5 ALTERNATOR OUTPUT <p>CONNECT AMMETER IN MAIN OUTPUT CABLE SHORT TOGETHER 'F' AND '-' TERMINALS OF 4TR. RUN ENGINE AT 3000 REV/MIN.</p>	Ammeter should read: 10 AC 35A 11 AC 12V 45A 11 AC 12V 60A (23567, 23580, 23633) 11 AC 24V 23A TEST 6 If less than above remove Alternator and rectify. TEST 6
6 4TR ALTERNATOR CONTROL <p>CONNECT AMMETER IN MAIN OUTPUT CABLE RUN ENGINE AT 3000 REV/MIN UNTIL AMMETER INDICATES LESS THAN 10A. CONNECT VOLTMETER ACROSS BATTERY.</p>	12V. SYSTEMS 13.9 - 14.4V. 24V. SYSTEMS 27.9 - 28.3V. Voltmeter reading correct as above. TEST 7 Low or high reading, replace 4TR TEST 7 Unstable reading, high resistance in control circuit Rectify. TEST 7
7 WARNING LIGHT CIRCUIT (3AW SYSTEMS ONLY) <p>CONNECT VOLTMETER BETWEEN 'AL' TERMINAL AND EARTH. RUN ENGINE AT 1500 REV/MIN.</p>	Voltmeter 6-8V. (14-15V for 24 volt alternators) TEST 8 If incorrect reading, replace Alternator. TEST 8
8 WARNING LIGHT CONTROL (WARNING LIGHT DOES NOT ILLUMINATE) <p>ENGINE STATIONARY. CONNECT TERMINALS 'E' AND 'WL' TOGETHER. SWITCH ON IGNITION.</p>	If warning light now illuminates replace 3AW. If warning light does not illuminate, check bulb and connections.