

Tech Tips

Lucas Archives - A.C. Charging Systems

RECOMMENDED TEST EQUIPMENT:

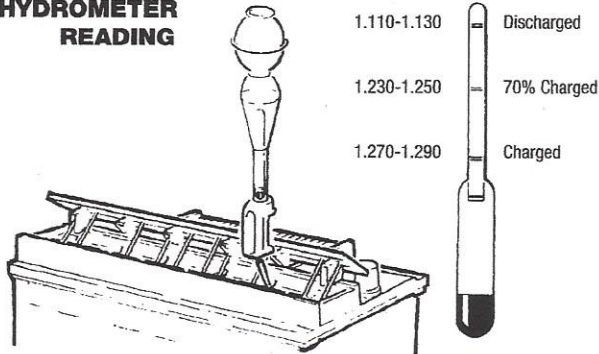
D.C. Moving Coil Voltmeter Scale 0-20V
D.C. Moving Coil Ammeter Scale 5-0-100A

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

TEST:

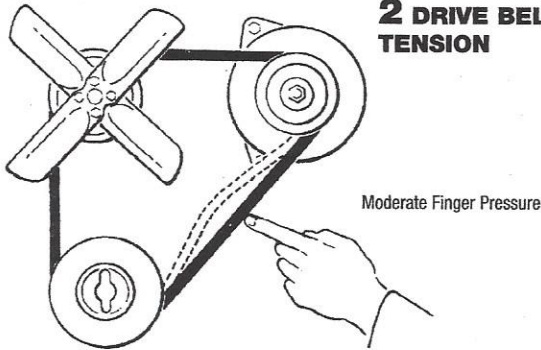
RESULT

1 HYDROMETER READING



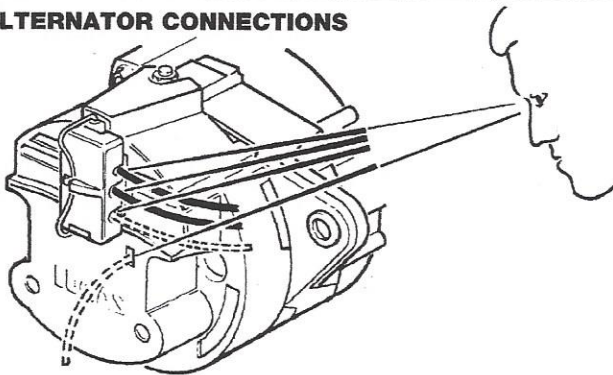
Below 1.230
Recharge and then test
→ Test 2
1.230-1.290
→ Test 2

2 DRIVE BELT TENSION



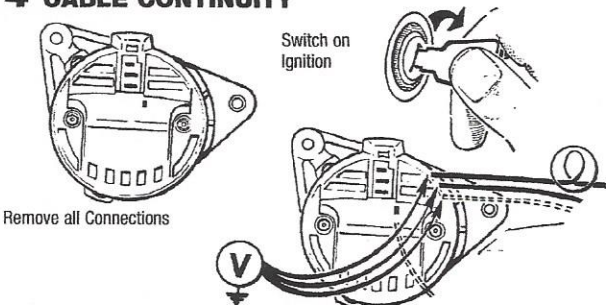
6mm (1/4")
→ Test 3
Loose and/or worn
Rectify
→ Test 3

3 ALTERNATOR CONNECTIONS



Clean and tight
→ Test 4
Loose and/or dirty
Rectify
→ Test 4

4 CABLE CONTINUITY



Battery Voltage
→ Test 5
No reading (If no reading for "Ind" lead, check warning light)
Rectify
→ Test 5

MOSS

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TOLL-FREE ORDERS

1-800-667-7872

Ammeter reading should exceed

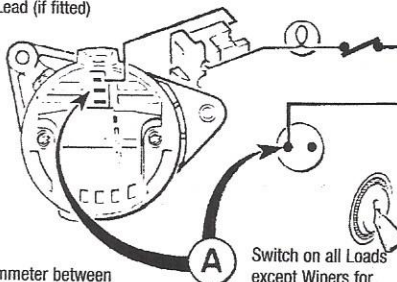
15 AC/ACR.....	25A
16 AC/ACR.....	30A
17 ACR.....	33A
17 ACR (Combine Harvester)....	24A
18 ACR.....	40A
20 ACR.....	60A
23 ACR.....	50A
25 ACR.....	60A

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

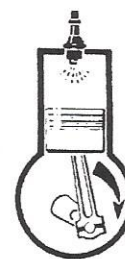
5 ALTERNATOR OUTPUT

Link 'S' Lead (if fitted)



Connect Ammeter between Starter Solenoid and Main Output Terminal

Switch on all Loads except Wipers for 1 Min.



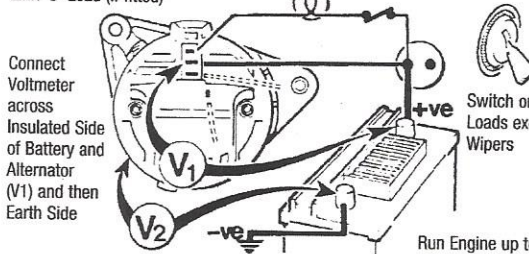
Run Engine up to 3000 Rev./Min.

V1 0.5V max.
V2 0V max.
→ Test 7

If greater than above Rectify → Test 7

6 CIRCUIT CHARGING VOLTAGE DROP

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

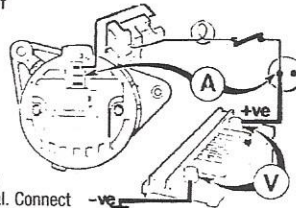
Run Engine up to 3000 Rev./Min/

Run until ammeter reads less than 10A.
Voltmeter should read 13.6 - 14.4V.

If reading incorrect, replace alternator control.

7 4TR, 8TR, 11TR, 14TR ALTERNATOR CONTROL

Link 'S' Lead (if fitted)



Connect Ammeter between Solenoid and Alternator Main Output Terminal. Connect Voltmeter across Battery.

Voltage Regulator Setting

Run Engine at 3000 Rev./Min. until Ammeter indicates less than 10A.

10/11 AC SYSTEMS

- Test 1 Hydrometer reading
See Test 1 ACR Systems
- Test 2 Drive Belt Tension
See Test 2 ACR Systems
- Test 3 Alternator Connections
See Test 3 ACR Systems

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

Ammeter should read

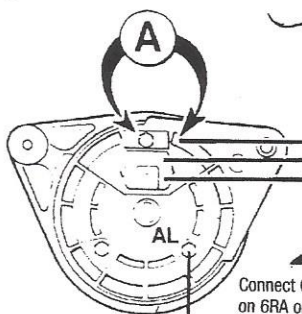
10AC	35A	
11AC 12V	45A	23567
11AC 12V	60A	23580
11AC 24V	23A	23633

→ Test 6

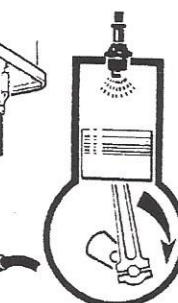
If less than above, remove alternator and rectify → Test 6

4 6RA, 16RA RELAY (CONDITION & CHARGE)

Connect Ammeter in Main Output Cable

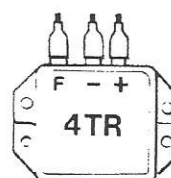
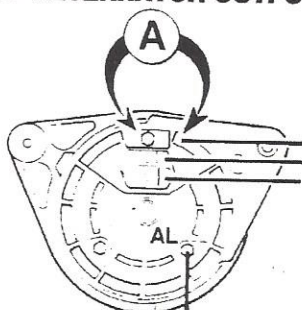


Connect C1 and C2 together on 6RA or 16RA

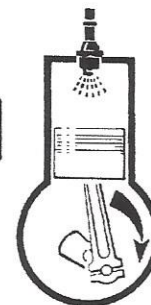


Run Engine at 3000 Rev./Min.

5 ALTERNATOR OUTPUT

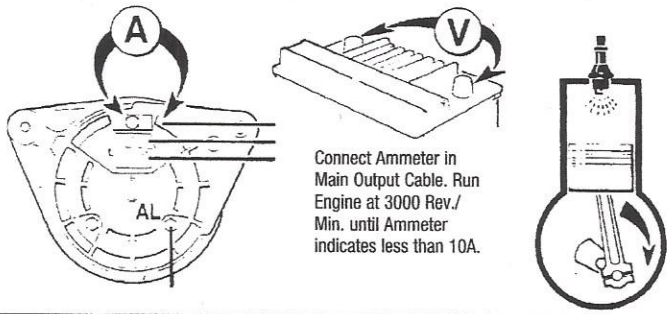


Short Together 'F' and '-' Terminals of 4TR



TEST:

6 4TR ALTERNATOR CONTROL

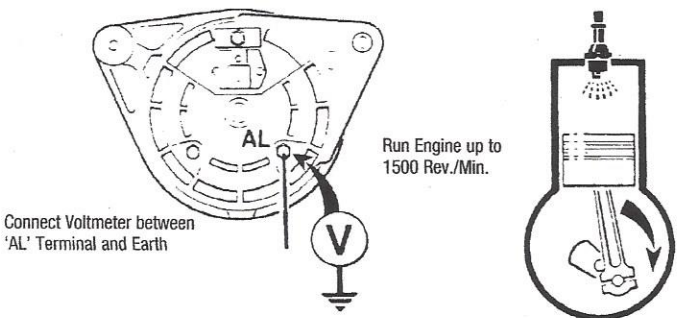


RESULT:

12V Systems 13.9 - 14.4V
24V Systems 27.9 - 28.3V
Voltmeter correct as above, or
Low or high reading, replace 4TR, or
Unstable reading, high resistance in control circuit
Rectify

→ Test 7

7 WARNING LIGHT CIRCUIT (3AW SYSTEMS ONLY)



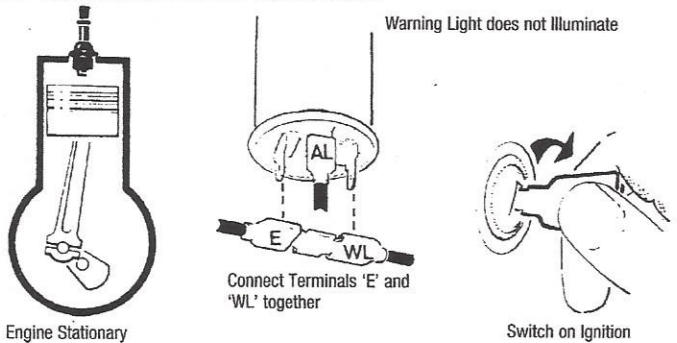
Voltmeter 6-8V,
(14-15V for 24 volt alternators)

→ Test 8

If incorrect reading, replace alternator

→ Test 8

8 WARNING LIGHT CONTROL



If warning light now illuminates, replace 3AW.
If warning light does not illuminate, check bulb and connections.