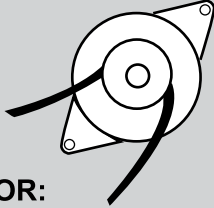


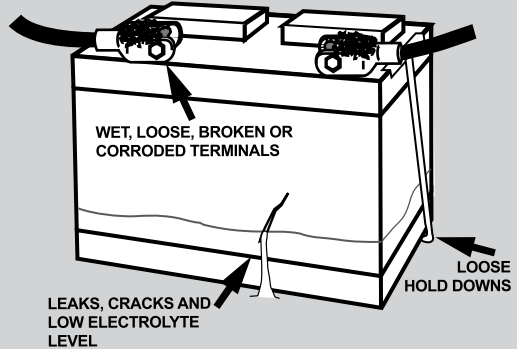
INSPECTION

1 VISUAL CHECK



INSPECT FOR:

- Frayed, glazed, cracked or loose belts.
- Low electrolyte or damaged battery.



Correct or Replace Battery as Needed Before Testing

2 STATE OF CHARGE

OPEN CELL BATTERIES

- Specific gravity must be 1.225 or above. If low, charge battery.
- There should not be more than 50 points (.050) spread between cells - if more than 50 points, replace battery.



Reading:	Percent Charged:
1.265	100%
1.225	75%
1.190	50%
1.155	25%

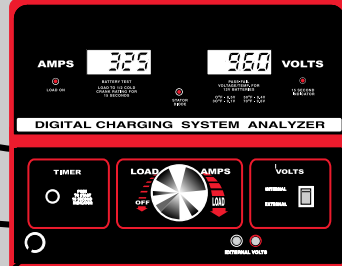
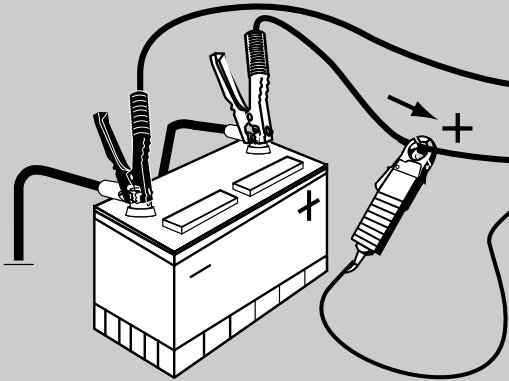
SEALED BATTERIES (MAINTENANCE FREE)

- A 12 Volt battery must be above 12.4 Volts. If low, charge battery.
- A 6 Volt battery must be above 6.2 Volts.

After charging low batteries remove surface charge by loading to 1/2 cold cranking amps for 5 seconds

BATTERY LOAD TEST SETUP

1 CONNECT CLAMPS

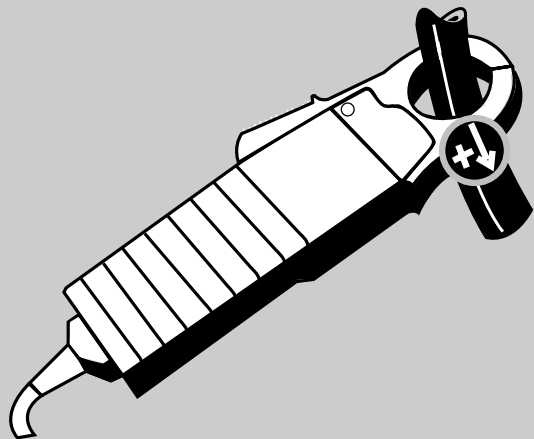
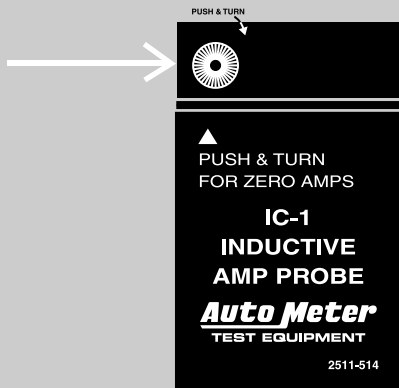


- Clamp red to positive.
- Clamp black to negative.
- Set volt switch to internal to read battery voltage.

Multiple batteries must be disconnected & tested individually

2 ZERO INDUCTIVE AMP PROBE

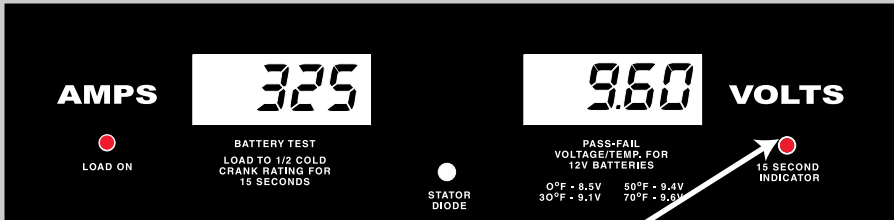
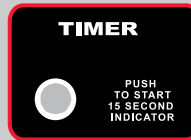
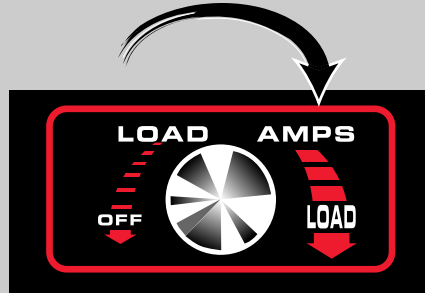
- Turn zero adjust knob on probe to zero amps on display before clamping around wire.
- Clamp the probe on the (+) positive tester cable with arrow pointing toward tester.



BATTERY LOAD TEST

3 LOAD BATTERY

- Apply a load to the battery equal to $\frac{1}{2}$ the cold crank rating of the battery or 3 times the amp hour rating.
- When amp reading on display reaches determined value hold amps and press timer button.

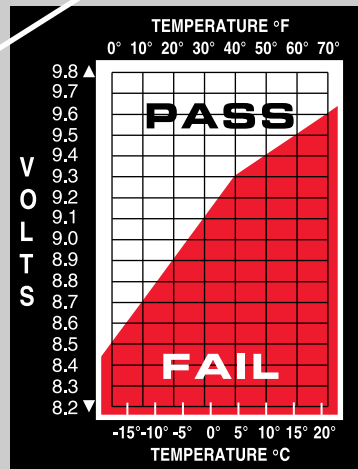


4 READ VOLTAGE

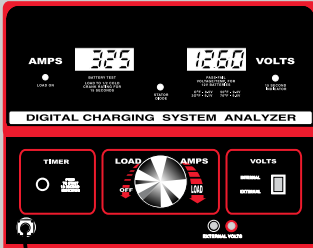
- Timer light will turn from red to green after 15 seconds.
- Observe voltage.
- Release load knob.
- Refer to Pass/Fail chart to determine Pass/Fail.

15 Second
Timer Light

Let unit cool 15 seconds between tests.

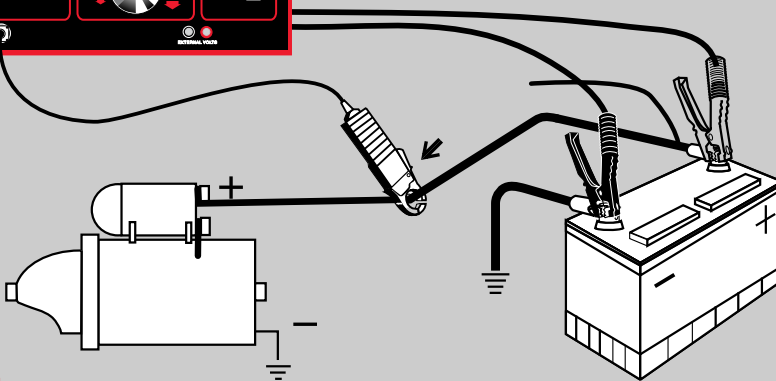


STARTER TEST SETUP



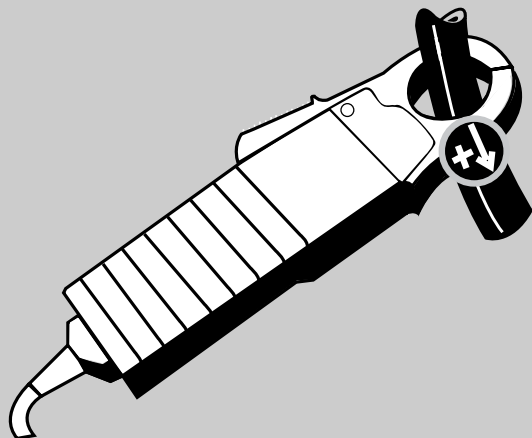
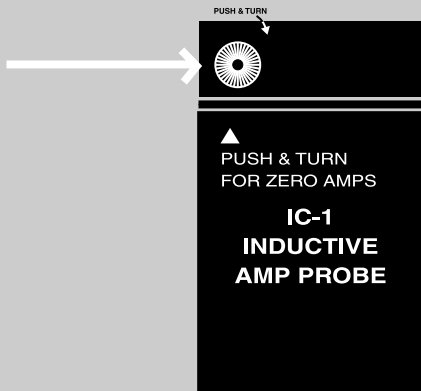
1 HOOKUP

- Set up the tester as illustrated.
- Be sure to check for loose connections.



2 ZERO INDUCTIVE AMP PROBE

- Turn zero adjust knob on probe to zero amps on display before clamping around wire.
- Clamp probe on (+) positive starter cable with arrow pointing toward the starter.



STARTER DRAW TEST

1 DISABLE IGNITION

- DIESEL: Disconnect fuel shut-off solenoid.
- STANDARD and ELECTRONIC IGNITIONS: Check with manufactures specifications or proper ignition disabling.

2 SET VOLT SWITCH

- Set Volt switch to INTERNAL.

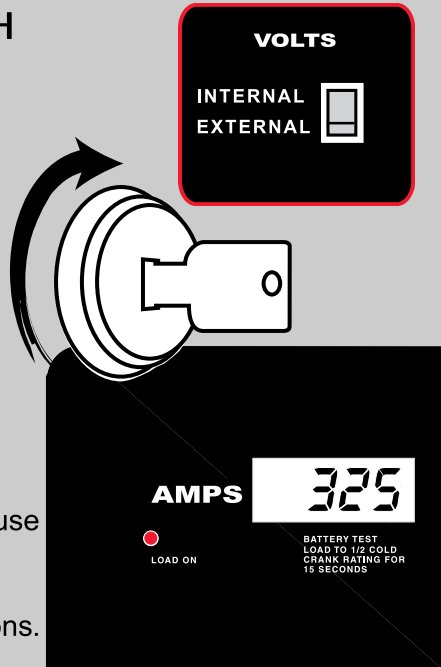
3 CRANK ENGINE

- Crank engine for about three seconds.
- Observe amp reading while cranking.

4 READING AMPS

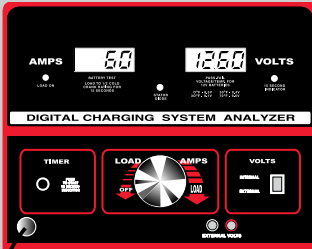
- Compare the Amp reading to manufactures specifications or use the chart below.
- If out of specs:
 1. Check cables and connections.
 2. High amps replace starter.
 3. Low amps replace starter.

4 Cyl Gas 120-250A	4 Cyl Dsl Up to 350A	6 Cyl Gas Up to 250A
6 Cyl Dsl Up to 450A	8 Cyl Gas Up to 250A	8 Cyl Dsl Up to 650A



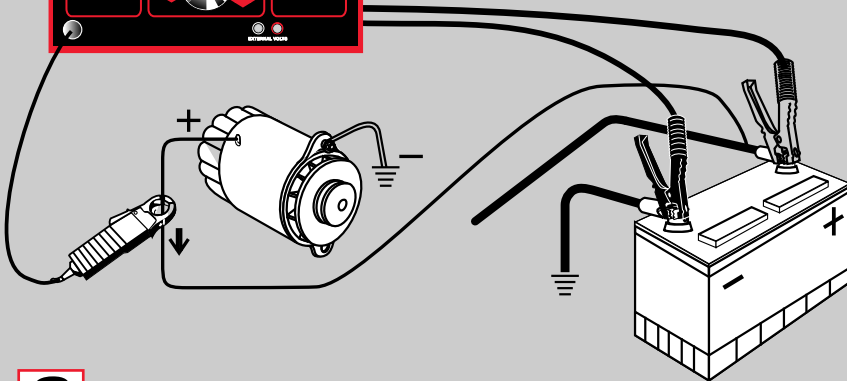
- On multiple battery systems where more than one cable connects to starter, Amp readings must be added together.

ALTERNATOR TEST SETUP



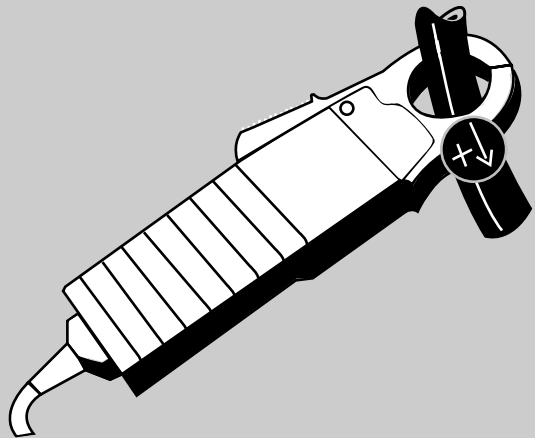
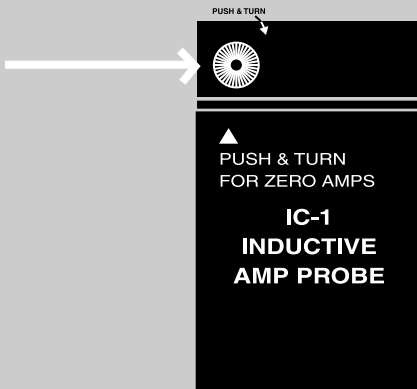
1 HOOKUP

- Set up the tester as illustrated.
- Be sure to check for loose or worn belts.



2 ZERO INDUCTIVE AMP PROBE

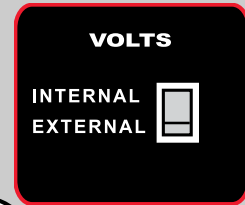
- Turn zero adjust knob on probe to zero amps on display before clamping around wire.
- Clamp probe on (+) positive alternator cable with arrow pointing toward the battery.



ALTERNATOR OUTPUT TEST

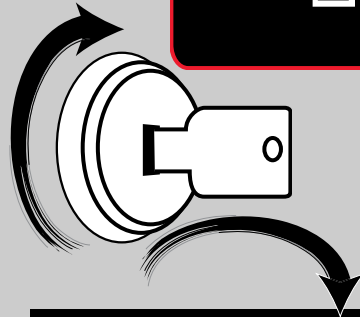
3 SET VOLT SWITCH

- Set Volt switch to INTERNAL.



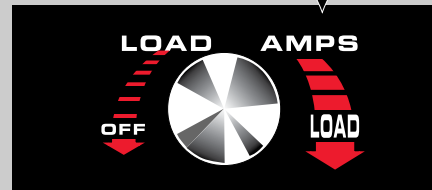
4 START ENGINE

- Idle engine at approximately 2000 rpm or to manufactures specification.



5 APPLY LOAD

- Increase load until voltage reaches 12.4 Volts for maximum alternator output.

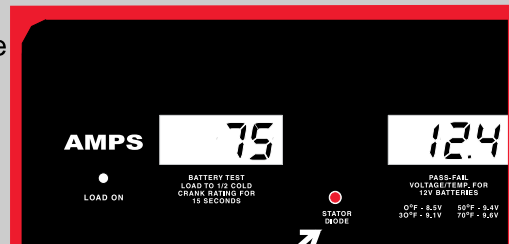


6 READ MAXIMUM AMP OUTPUT

- Release load.
- IF OUTPUT LOW: Replace alternator.

7 CHECK DIODE

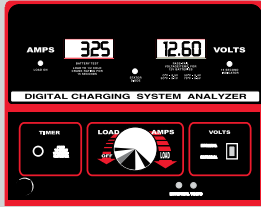
- If LED glows steady red, diode or stator is bad replace alternator.
- Note: LED may flash during loading.



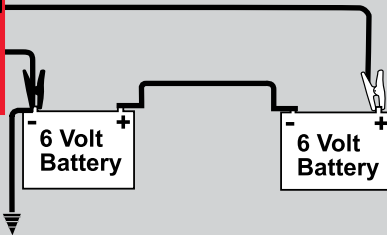
Stator Diode LED

Double check belts and correct pulley size

MULTIPLE BATTERY SETUP

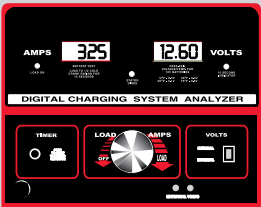


12 VOLT SYSTEM WITH 6 VOLT BATTERIES

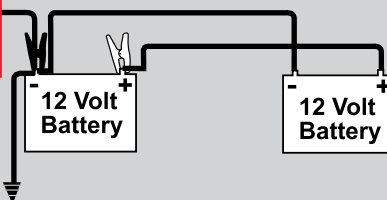


AMP PROBE:
Inductive Amp Probe should be positioned as indicated on the respective alternator and starter test.

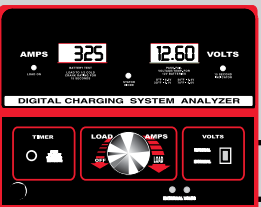
LOAD TESTS:
Disconnect each battery individually to do a load test.



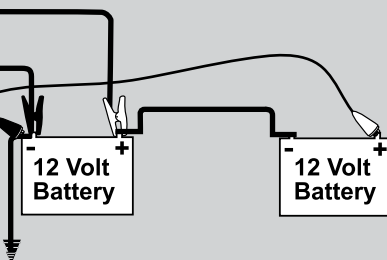
12 VOLT SYSTEM WITH 12 VOLT BATTERIES



VOLTAGE SWITCH SELECTION
12 VOLT SYSTEM
Set volt switch to internal.
24 VOLT ALTERNATOR
Set volt switch to external.



24 VOLT SYSTEM WITH 12 VOLT BATTERIES



WARNING

Do not use carbon pile tester to load 24 Volt batteries.