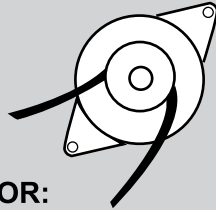


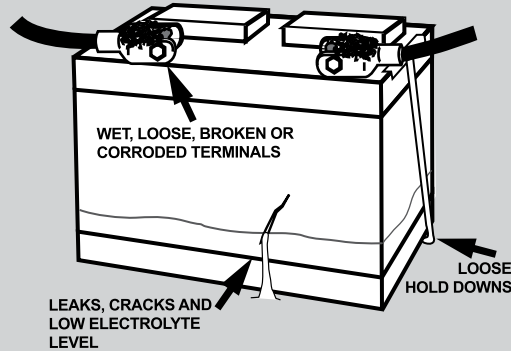
## INSPECTION

### 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%

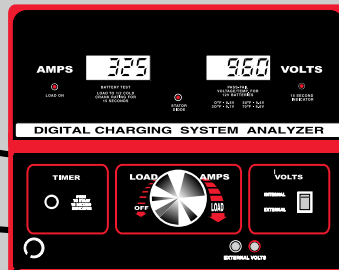
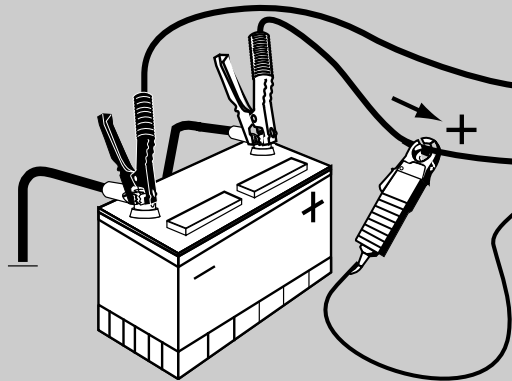
#### SEALED BATTERIES (MAINTENANCE FREE)

- 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

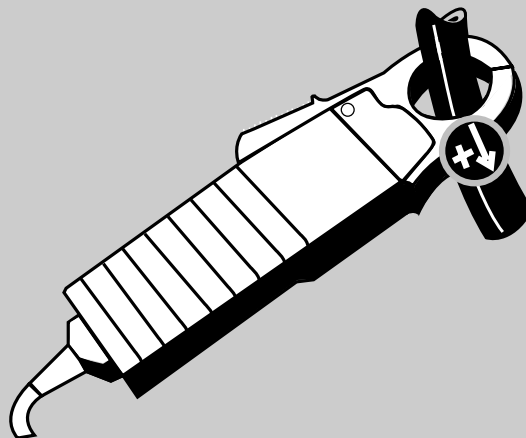
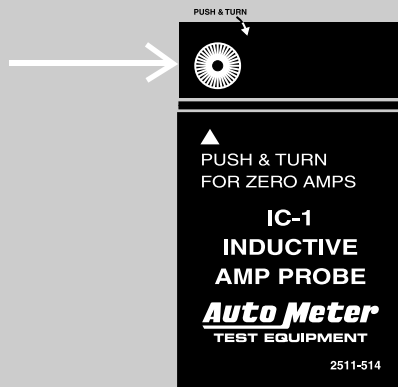


- Clamp red to positive.
- Clamp black to negative.
- Set volt switch to internal to read battery voltage.

*Multiple batteries must be disconnected & tested individually*

### 2 ZERO INDUCTIVE AMP PROBE

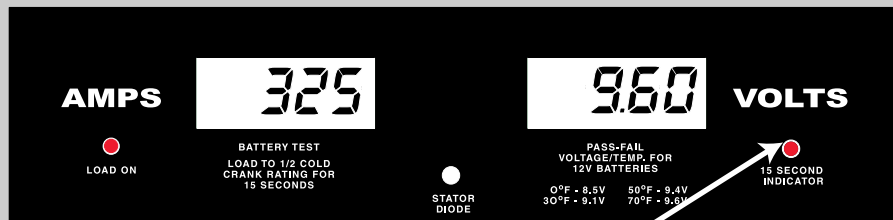
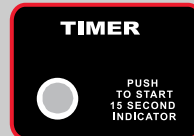
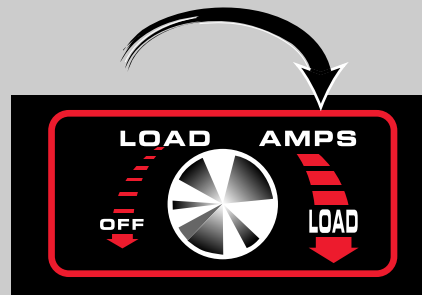
- Turn zero adjust knob on probe to zero amps on display before clamping around wire.
- Clamp the probe on the (+) positive tester cable with arrow pointing toward tester.



## 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.

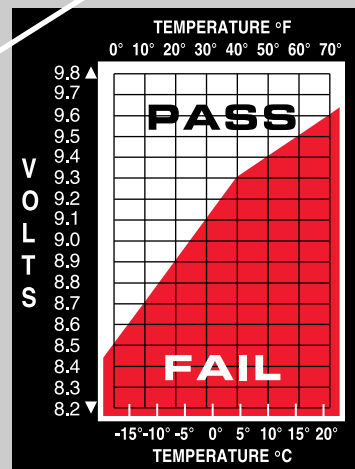


### 4 READ VOLTAGE

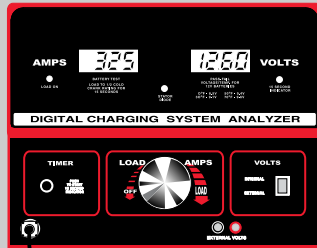
- Timer light will turn from red to green after 15 seconds.
- Observe voltage.
- Release load knob.
- Refer to Pass/Fail chart to determine Pass/Fail.

15 Second  
Timer Light

*Let unit cool 15 seconds  
between tests.*

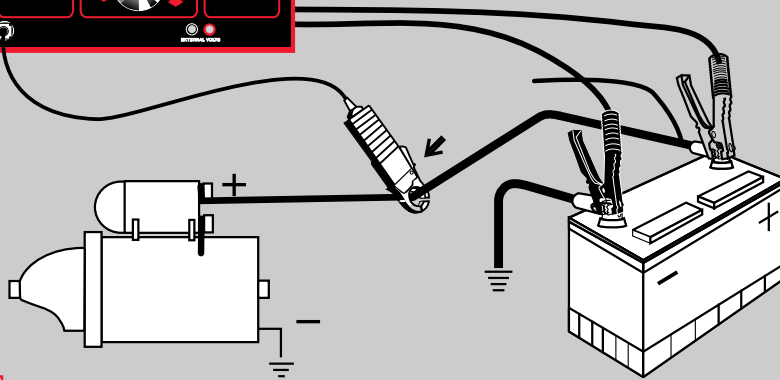


## STARTER TEST SETUP



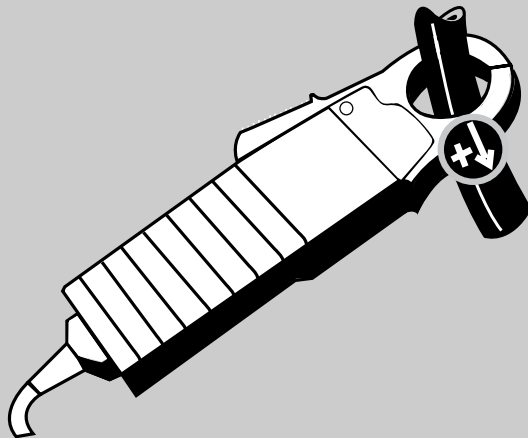
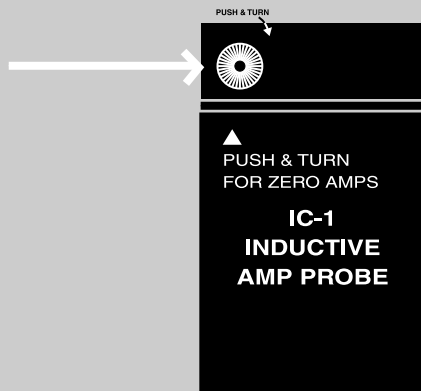
### 1 HOOKUP

- 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.

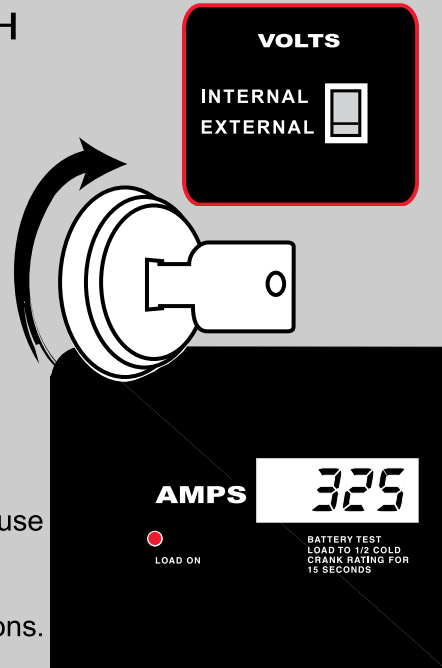
### 3 CRANK ENGINE

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

### 4 READING AMPS

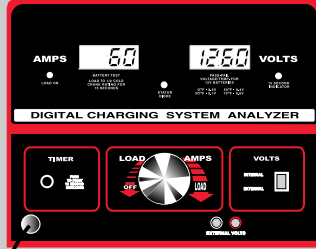
- Compare the Amp reading to manufactures specifications or use the chart below.
- If out of specs:
  1. Check cables and connections.
  2. High amps replace starter.
  3. Low amps replace starter.

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



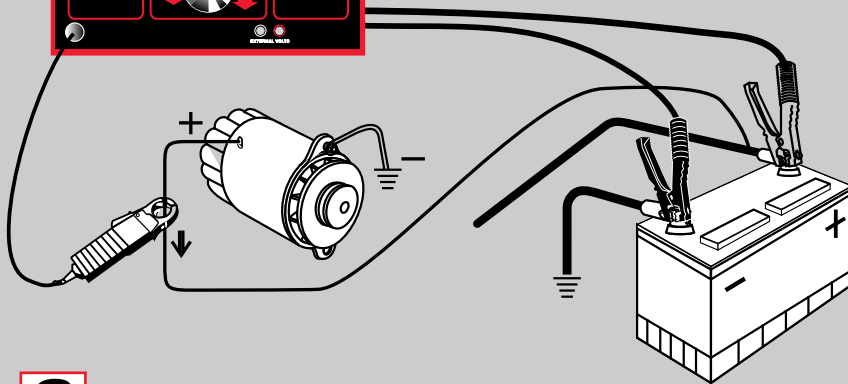
- On multiple battery systems where more than one cable connects to starter, Amp readings must be added together.

## ALTERNATOR TEST SETUP



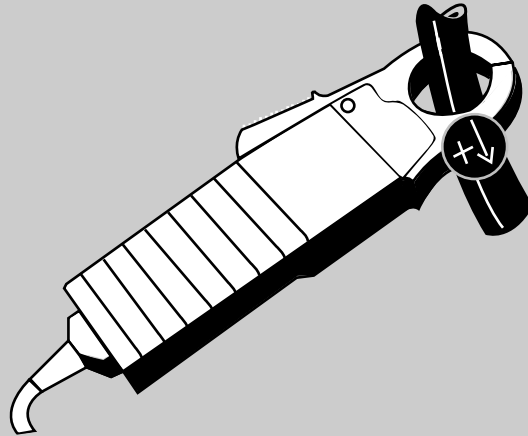
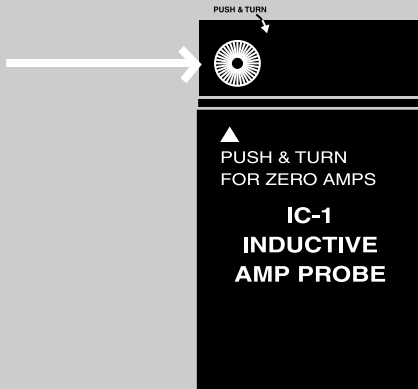
### 1 HOOKUP

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



### 2 ZERO INDUCTIVE AMP PROBE

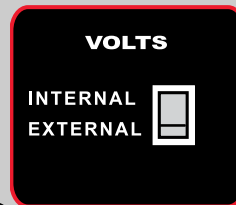
- Turn zero adjust knob on probe to zero amps on display before clamping around wire.
- Clamp probe on (+) positive alternator cable with arrow pointing toward the battery.



## ALTERNATOR OUTPUT TEST

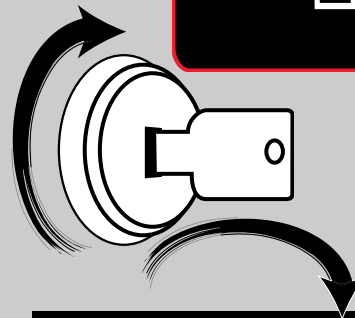
### 3 SET VOLT SWITCH

- Set Volt switch to INTERNAL.



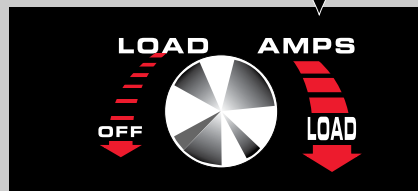
### 4 START ENGINE

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



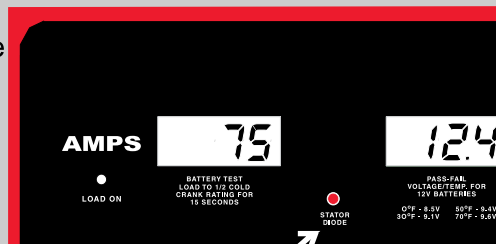
### 5 APPLY LOAD

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



### 6 READ MAXIMUM AMP OUTPUT

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



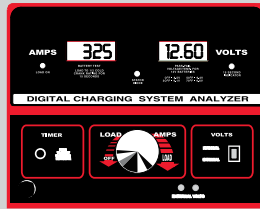
### 7 CHECK DIODE

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

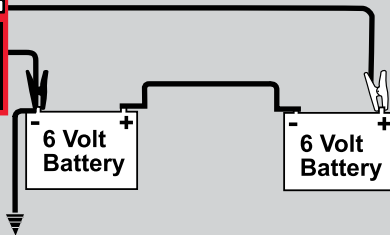
Stator Diode LED

*Double check belts and correct pulley size*

## MULTIPLE BATTERY SETUP

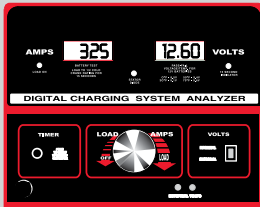


### 12 VOLT SYSTEM WITH 6 VOLT BATTERIES

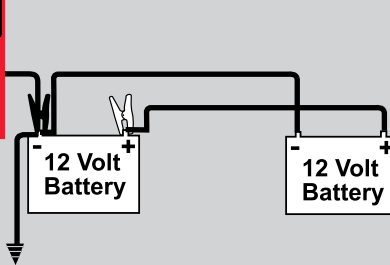


■ **AMP PROBE:**  
Inductive Amp Probe should be positioned as indicated on the respective alternator and starter test.

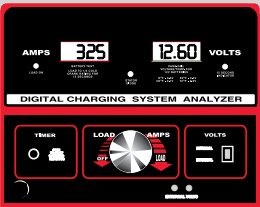
■ **LOAD TESTS:**  
Disconnect each battery individually to do a load test.



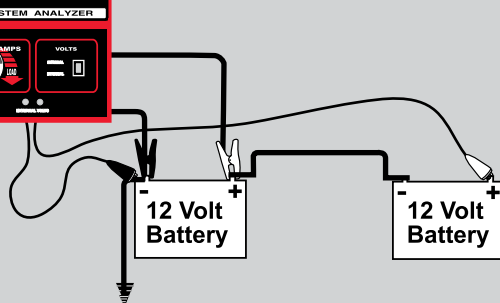
### 12 VOLT SYSTEM WITH 12 VOLT BATTERIES



■ **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.