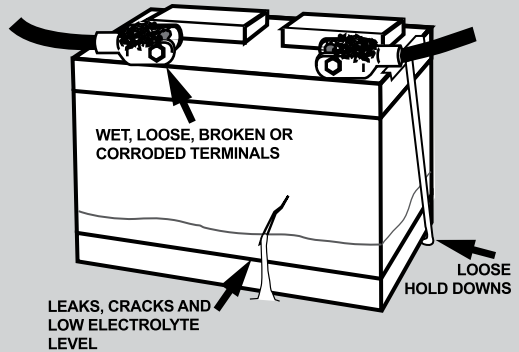
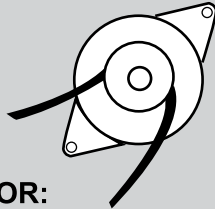


# INSPECTION



## 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.



Minimum  
**1.225**

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

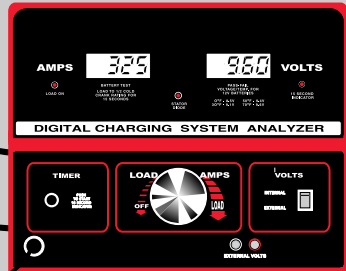
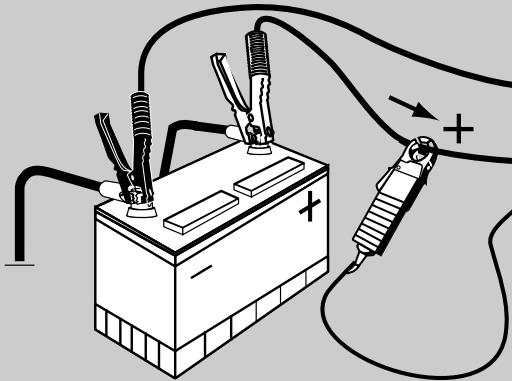
### SEALED BATTERIES (MAINTENANCE FREE)

- 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

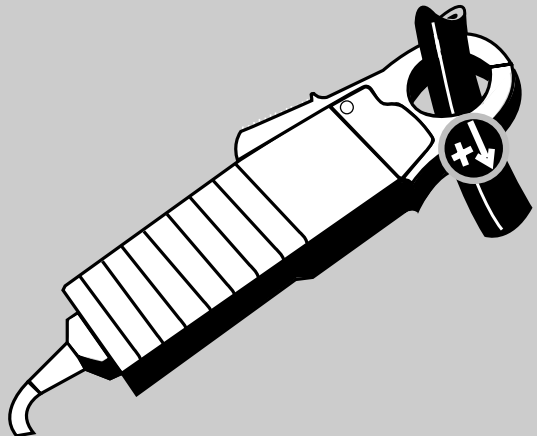
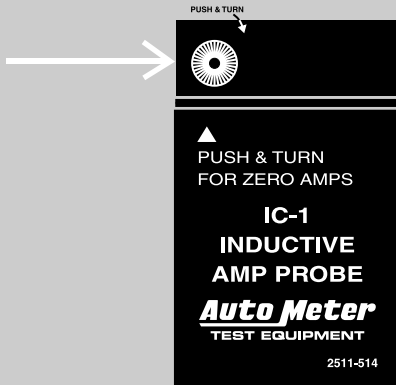


- Clamp red to positive.
- Clamp black to negative.
- Set volt switch to internal to read battery voltage.

*Multiple batteries must be disconnected & tested individually*

## 2 ZERO INDUCTIVE AMP PROBE

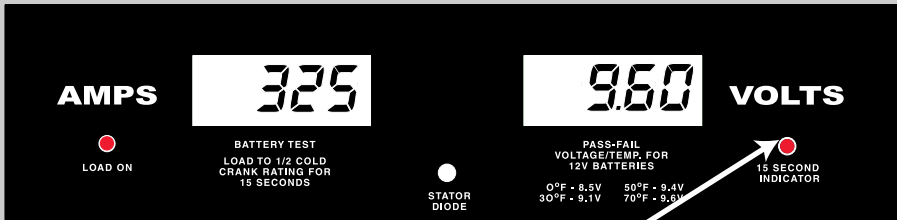
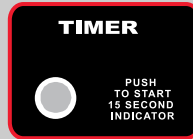
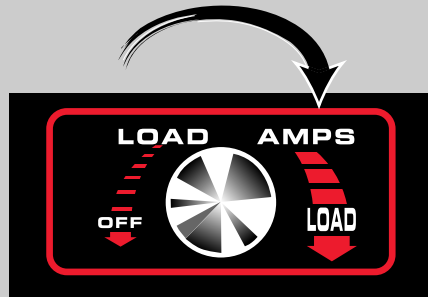
- Turn zero adjust knob on probe to zero amps on display before clamping around wire.
- Clamp the probe on the (+) positive tester cable with arrow pointing toward tester.



# BATTERY LOAD TEST

## 3 LOAD BATTERY

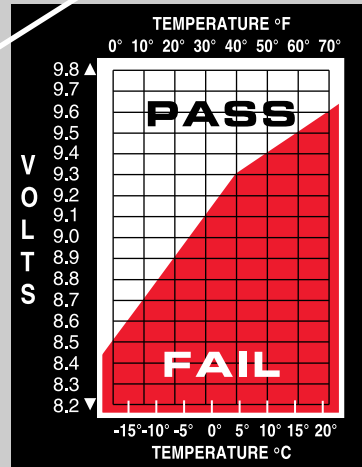
- Apply a load to the battery equal to  $\frac{1}{2}$  the cold crank rating of the battery or 3 times the amp hour rating.
- When amp reading on display reaches determined value hold amps and press timer button.



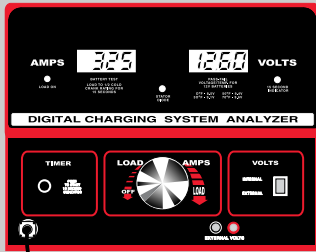
## 4 READ VOLTAGE

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

*Let unit cool 15 seconds between tests.*

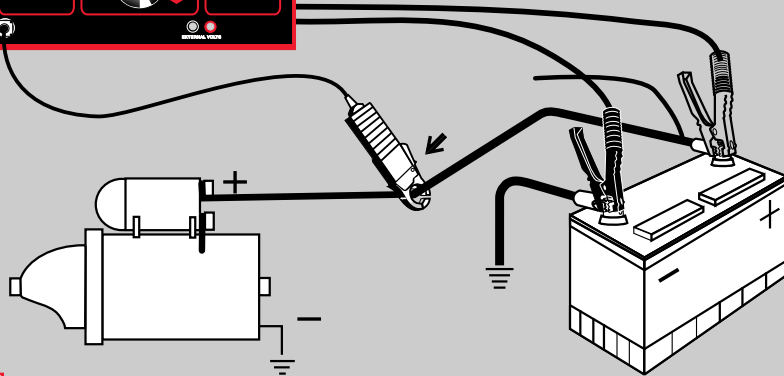


# STARTER TEST SETUP



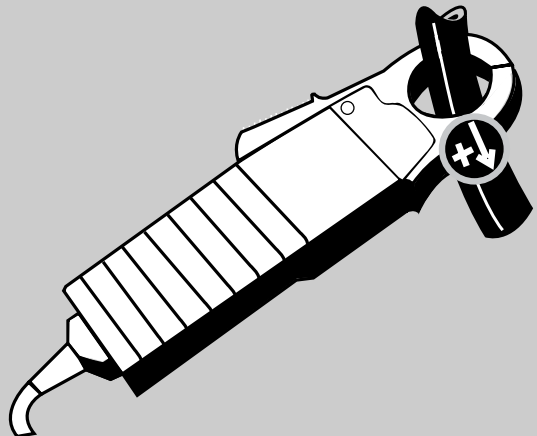
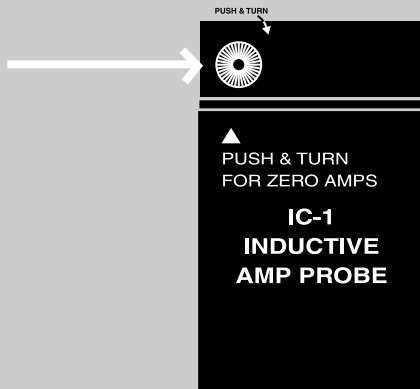
## 1 HOOKUP

- 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.

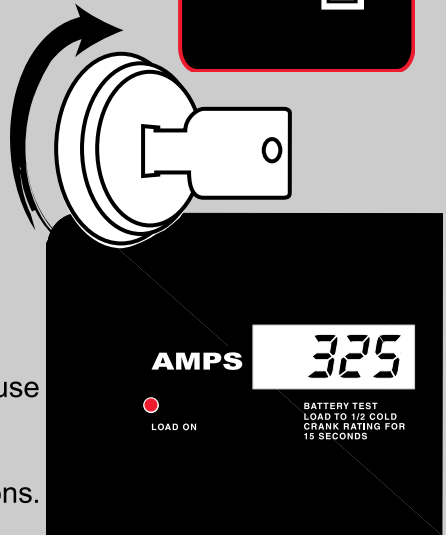
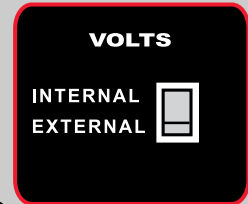
## 3 CRANK ENGINE

- 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

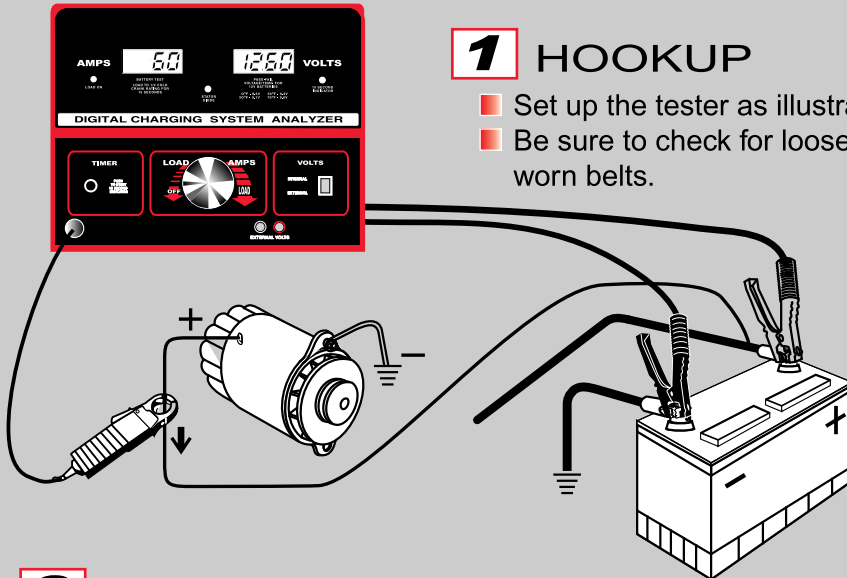


- On multiple battery systems where more than one cable connects to starter, Amp readings must be added together.

# ALTERNATOR TEST SETUP

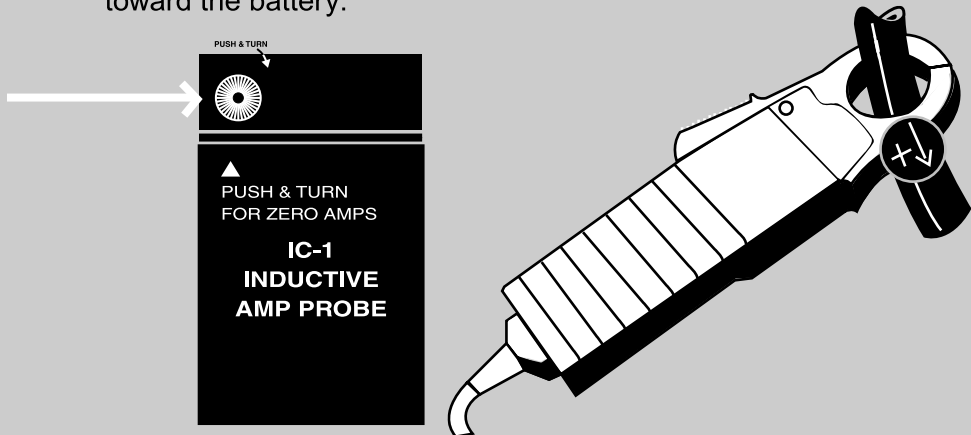
## 1 HOOKUP

- 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

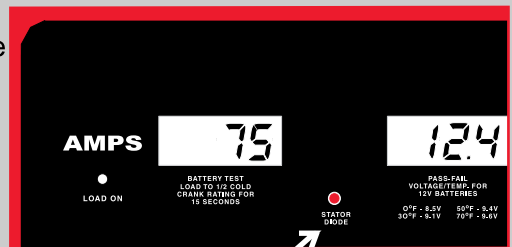
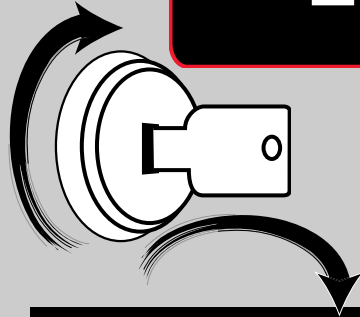
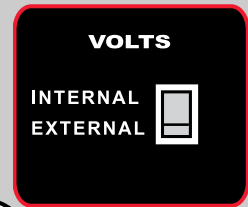
- Increase load until voltage reaches 12.4 Volts for maximum alternator output.

## 6 READ MAXIMUM AMP OUTPUT

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

## 7 CHECK DIODE

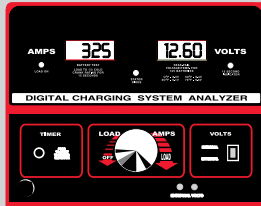
- If LED glows steady red, diode or stator is bad replace alternator.
- Note: LED may flash during loading.



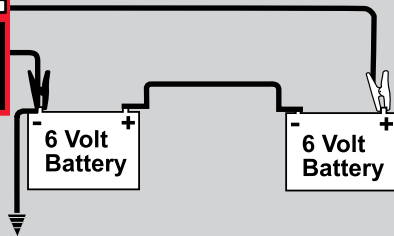
Stator Diode LED

*Double check belts and correct pully size*

# MULTIPLE BATTERY SETUP

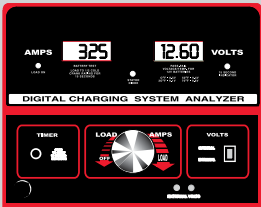


## 12 VOLT SYSTEM WITH 6 VOLT BATTERIES

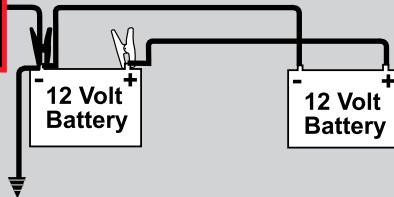


**AMP PROBE:**  
Inductive Amp Probe should be positioned as indicated on the respective alternator and starter test.

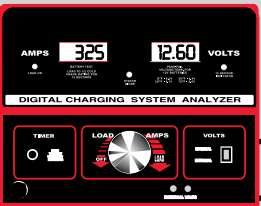
**LOAD TESTS:**  
Disconnect each battery individually to do a load test.



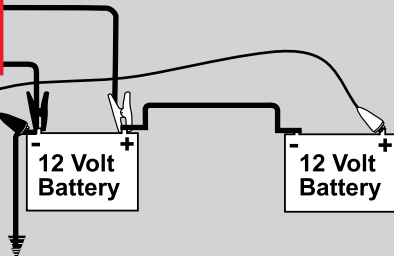
## 12 VOLT SYSTEM WITH 12 VOLT BATTERIES



**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.