

### INTERESTING BATTERY FACTS

1. Battery problems are the No. 1 cause of road service calls.
2. Battery efficiency *decreases* with falling temperatures. Engine cranking power demands *increase* with falling temperatures.
3. A fast charge cannot fully re-charge a battery; follow up with a slow charge for 3 or 4 hours.
4. A common, frequently unrecognized, cause of battery failure is overcharging.
5. A hot battery charges (and also overcharges) faster than a cold one. A problem in hot weather during long trips.
6. All batteries have a normal self-discharge rate that increases with temperature. Maintenance-free types have a substantially lower self-discharge rate.
7. Store batteries in as cool a location as possible to minimize self-discharge.
8. An old battery myth: A battery on a concrete floor discharges very rapidly. Not true; it will run down just as fast on any other surface.
9. A heavy discharge will not damage the plates; overcharging, though, will.
10. A fully charged battery freezes at -85°F. (50% charge at -15°F and 25% at +5°F).
11. A battery left in a discharged state will "sulfate" and lose capacity.
12. THE ONLY GOOD BATTERY IS A FULLY CHARGED BATTERY.

# HOW TO BE A BATTERY WIZARD

### WARNING

Serious injury may result if face and other exposed areas are not properly shielded while using this device in connection with a lead-acid battery. Read and follow instruction manual and use this device only in a well-ventilated area. Avoid touching eyes while working with or near such a battery. Such batteries can generate explosive gases during normal operation which can be ignited by a spark. In case eyes accidentally come in contact with contents of battery, rinse eyes in clear water for at least 5 minutes and seek immediate medical attention.

**T**HE ANCIENT MYSTERIES OF  
BATTERY PROGNOSTICATION  
FULLY REVEALED **FOR MODEL 1260  
6 & 12-VOLT BATTERIES**



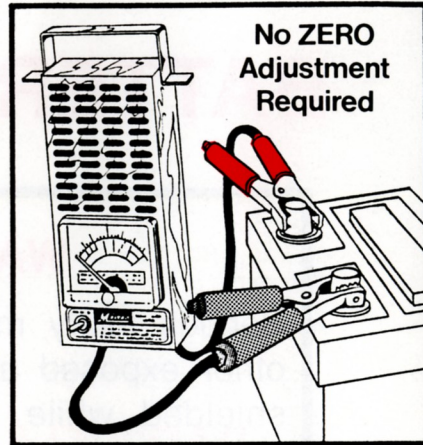
# BASIC BATTERY LOAD TEST

ALL CONVENTIONAL AND MAINTENANCE-FREE 6 and 12-VOLT BATTERIES  
SET TOGGLE SWITCH TO:

6-VOLTS for 6-VOLT Systems

12-VOLTS for 12-VOLT Systems

1. Connect test clips directly to battery posts or clamps. To assure good connections, make certain the clips bite into the posts or clamps. Be especially careful when connecting to side-mount batteries that *both* jaws of the test clips contact the terminals.
2. ENGINE AND ALL ELECTRICAL ACCESSORIES MUST BE OFF WHEN TESTING BATTERY.
3. Note the battery's capacity in Cold Cranking Amps. This determines the appropriate meter step to use between the OK-WEAK bands.
4. Hold the tester's LOAD switch on for 10 seconds.
5. At the end of 10 seconds, but with the LOAD switch still *on*, read the battery's condition (using the appropriate meter scale step). Refer to BATTERY ANALYSIS table. For greatest accuracy, maintain meter in horizontal position.



## MAC\* TEST

A QUICK CHECK FOR APPROXIMATE STATE-OF-CHARGE  
12-VOLT SYSTEMS ONLY

**NOTE:** If Load Test is unsatisfactory, refer to the Battery Analysis chart.

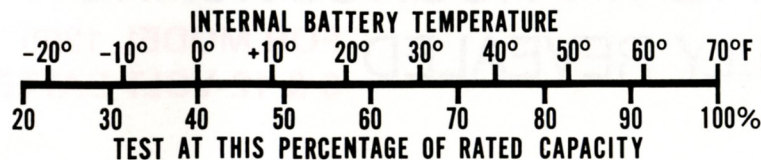
1. If Load Test is OK, leave tester connected and observe meter. If pointer moves to the right of the white MAC area in **LESS** than one minute\* after Load Test, it indicates a reasonable state-of-charge.
2. If meter reads within, or below, the MAC area **AFTER** one minute\*, battery has a low state-of-charge. Check with a hydrometer, if possible, and recharge as required. Check charging system (see page 4) to determine cause for low state-of-charge.

\*MAC= Minute After Checking (below 30°F., allow 2 minutes).

## LOW TEMPERATURE EFFECTS

Because of the battery's chemical nature, it will test lower when cold than when warm. For most accurate results, this effect should be compensated for when the battery's internal temperature is below 40°F. Assume internal battery temperature to be the day's high-low average. See chart below:

EXAMPLE: If rated capacity is 800 CCA and internal temperature is approximately 35°F., assume test capacity to be 560 CCA ( $560 = 800 \times .70$ ).



# BATTERY ANALYSIS

Meter reaction after 10 seconds of load

LOAD TEST	BATTERY CONDITION
<b>OK (GREEN BAND)</b>	Battery capacity is good. May or may not be fully charged. Determine state of charge by checking specific gravity. If gravity is less than full charge, check for possible charging system trouble (see page 4) or electrical drain. Recharge battery to full charge level.
<b>WEAK, BUT STEADY (meter reading steady after 10 seconds of load)</b>	Battery capacity is unsatisfactory. Battery may be either: (1) defective or (2) partly discharged. To determine which, check specific gravity. If gravity is <i>over</i> 1.225, battery is considered defective. If gravity is <i>under</i> 1.225, re-charge battery and re-test. If cell-to-cell gravity varies more than 0.025 (25 points), cell trouble may exist. If charging does not bring gravity to full charge level, battery either is sulfated or has lost active material.
<b>WEAK OR BAD, AND FALLING (meter continues to fall after 10 seconds of load)</b>	Battery may be defective (e.g., a bad cell). For a quick check, release load switch and note voltmeter reaction. If voltage recovers to 12.0 volts or more in a few seconds (6.0 VOLTS FOR 6-VOLT SYSTEMS), battery is probably defective. If voltage recovers slowly, battery may be only very run-down. For more accurate results, check gravity and follow above procedure.

## BAD CELL INDICATORS

1. Gravity varies more than 25 points (0.025 s.g.) from cell to cell. A sign of impending, but not immediate, failure.
2. Electrolyte fluid appears grey or cloudy or shows suspended particles. A sure indication of age or abuse and approaching end-of-life.
3. One or more cells are dry while remaining cells show normal electrolyte level. Not a healthy sign, even though battery may test normally.

## TESTING THE STARTER MOTOR

12-VOLT SYSTEMS ONLY

This instrument provides a fast and easy test for excessive starter current draw. Such a condition places an abnormally heavy load on the battery and leads to hard starting—especially during cold weather—and short battery life.

**ENGINE MUST BE AT NORMAL OPERATING TEMPERATURE**

1. Connect 1260 to the battery and perform the Basic Battery Load Test in the normal manner. In addition, note the exact *voltage* with the load switch on. If voltage continues to fall after 10 seconds, this test cannot be made.
2. Using the voltage obtained above, refer to the yellow Starter Test table on the dial for the *minimum* cranking voltage specification. Interpolate for in-between values. If the engine is over 300 CID (cubic inch displacement), use the next lower minimum cranking volts (e.g., if load voltage is 11.0, use 10.3 for minimum crank voltage).
3. Next, crank the engine without starting (disable the ignition system) and note the voltage reading during cranking.
4. If the measured cranking voltage of Step 3 is *below* the minimum cranking voltage determined in Step 2, the starter current draw is excessive. If starter cranks slowly, also check for high resistance and poor connections.

LOAD VOLTS	10.4	10.6	10.8	11.0	11.2	11.4	11.6	11.8
MIN. CRANK VOLTS	9.7	10.0	10.3	10.6	10.9	11.2	11.4	11.6
STARTER								
TEST								
OVER 300 CID (5.0L) USE				NEXT LOWER CRANK VOLTS				