

XTC-160 Operator's Manual

Xpress Testing - Fast Charging

The Xpress XTC-160 is the ultimate load tester and battery charger with fast and accurate automated testing and charging for the professional.



CARE AND MAINTENANCE

- Keep leads free of oil. Clean with warm, soapy water.
- Never insert an object into the fan vents. This can cause electrical and/or mechanical damage. Never cover the fan vents.
- Never attempt to open up or repair the tester. Repairs should only be done by an authorized repair center. Note: Doing so could void the warranty.
- Always be sure the tester is off and the smart clamps are removed before cleaning.



CONGRATULATIONS!



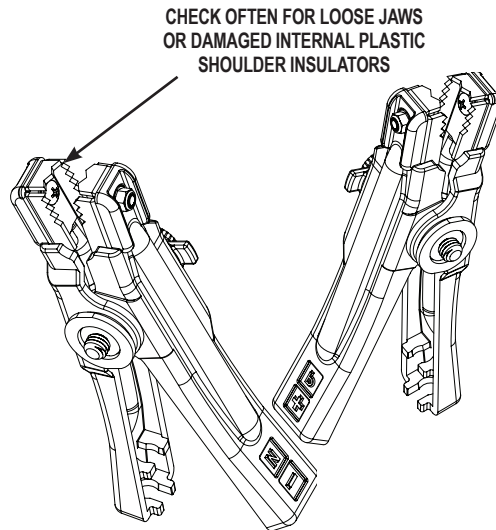
You have purchased Auto Meter's XTC-160 system designed to load test a battery and automatically provide a fast charge when needed. The system is fully automated with LCD readout for menu instructions, test results, and LED lights for unattended distance viewing. If you should have any questions about this equipment or the procedures, please see the back cover for contact information.

XTC-160

Tests	6 Volt and 12 Volt Battery Check and Load Test
Load Sequence	Automated 160 Amp resistive ribbon
Charge Sequence	5 to 30 min. (larger discharged batteries longer)
CCA Range.....	100 – 1600
LCD	Backlit 1" x 2.5" 4 line x 16 characters
Cooling	5" Internal Fan
Battery Temperature Measurement.....	Infrared (IR)
Temperature Probe Holder	Mounts to side of unit (screws included)
Temperature Probe Right Angle Connector.....	For use in tight area applications and when equipment cart is used
Leads.....	Load Amp/Volt – 8 ft., 6 Gauge/18 Gauge 2 conductor Smart Clamp
Power Cord.....	14 AWG 15 Ft.
Size	11.5" x 11" x 9 1/4"
Weight	43.5 lbs
Internal Printer.....	AC-14 (Optional)
Equipment Cart.....	ES-8, ES-11 (Optional)

SMART CLAMPS™

- Both jaws of each clamp must firmly engage the battery terminal. One copper jaw connects to the smaller gauge wire that reads the voltage and the other jaw connects to the larger conducting wire that draws the load in each test. Electrical isolation between jaws is necessary for accurate readings. For side terminal battery connection, the threaded stud connects to the smaller gauge wire that reads the voltage, and the load pad ring connects to the larger conducting wire that draws the load in each test. Damaged clamps or loose wires will affect the readings. Keep clamps clean and in good repair.
- Use the side terminal feature on the clamp to connect battery side terminals. When testing dual post batteries always check the post to which the system is attached.





Select ABOUT from the main menu. The following is displayed.

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Press 'N' to return to the main menu.

USB DRIVE

```
REVIEW PRINT
SETUP
>USE USB DRIVE
ABOUT
```

```
>SAVE TEST DATA
UPGRADE UNIT
```

```
'Y' TO CONTINUE
```

Saving test data

```
PLACE USB MEMORY
DEVICE INTO USB
SMART PORT
'Y' TO CONTINUE
```

Upgrading

```
PLACE USB MEMORY
DEVICE INTO USB
SMART PORT
'Y' TO CONTINUE
```

Select USB drive from the menu.

The following menu appears that lets you save the units stored data in a USB memory device or upgrade the units firmware via a USB memory device.

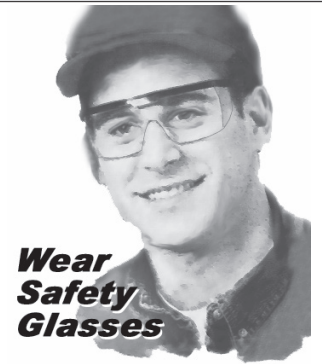
Plug USB memory device into the USB smart port. Wait a few seconds for the smart port to see the USB memory device and then press 'Y'. The XTC-160 will save the data in memory to the USB memory device's 'Root Directory' as XTC160.CVS. It will return to the USB menu when done. The file can then be opened by most spreadsheet or text editor programs.

Pressing 'Y' while the cursor is on Upgrading Unit will display the screen asking to place a USB memory device into the USB smart port. Press 'Y' to start the update. The unit will check that the update file is on the USB memory device and then start the update process. Be patient, this process can take up to 25 minutes. The unit will restart when the update is complete.



SAFETY

- Carefully read all operating instructions before using the XTC-160.
 - Wear eye protection when working around batteries.
 - The XTC-160 is equipped with a power cord. Never use an extension cord that is more than 50ft and it must not be smaller than 12 gauge. Make sure the extension cord and receptacle are properly grounded.
 - Be sure each test is completed before removing load clamps to prevent arcing and potential explosion from battery gases. Never remove load clamps while testing.
 - Keep sparks flames or cigarettes away from batteries.
 - Provide adequate ventilation to remove car exhaust.
 - In extremely cold temperatures, check for frozen electrolytic fluid before applying load. Do not attempt to Load Test or Charge a battery under 20°F. Allow the battery to warm to room temperature before testing or charging.
 - Never connect load clamps to more than one 6 volt or one 12 volt battery at a time. Connection to 24 volts will dangerously overload the circuitry.
 - Do not test multiple batteries or 24 volt systems using the XTC-160.
- Warning!** Never attach the XTC-160 to a battery that is connected to any other tester or charging unit. Damage may result.



WARNING!

TESTING OF HYBRID VEHICLES

DO NOT test the starter, alternator and/or 12 volt starting battery while it is in the vehicle.

DO NOT remove, service or test the hybrid battery pack under any circumstances.

Remove the 12 volt starting battery, starter or alternator from the vehicle prior to testing.

CAUSE OF BATTERY FAILURE

- **Incorrect Application:** Wrong size battery may have inadequate cold cranking Amp rating for original vehicle specifications.
- **Incorrect Installation:** Loose battery hold-downs cause excessive vibration, which can result in damage to the plates.
- **Improper Maintenance:** Low electrolytic fluid and corrosion on battery connections, can greatly reduce battery life and affect battery performance.
- **Age of Battery:** If the date code on the battery indicates it is fairly old, the failure may be due to natural causes.
- **Overcharging:** Overcharging caused by a high voltage regulator setting or incorrect battery charging can cause excessive gassing, heat and water loss.
- **Undercharging:** Undercharging caused by a faulty charging system or low voltage regulator setting can cause lead sulfate to gradually build up and crystallize on the plates greatly reducing the battery's capacity and ability to be recharge.

INSPECTION

- Valid automotive electrical system testing depends on all the components being in good operating condition. In addition, the battery MUST have sufficient charge for testing. Carefully perform the following before attempting any electrical diagnosis.



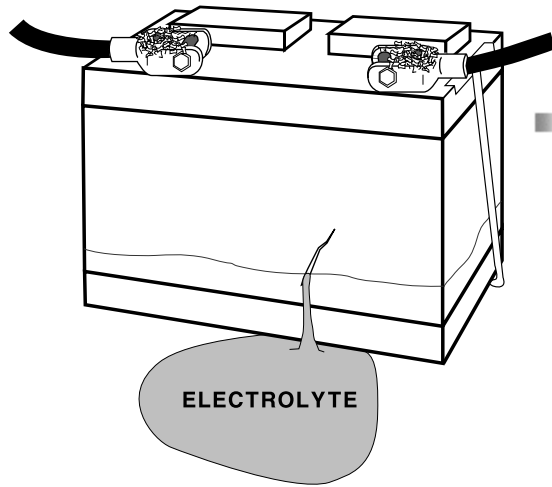
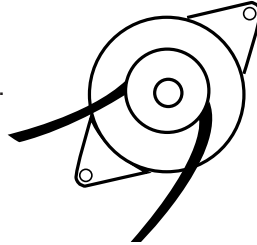
REVIEW / PRINT

From the menu select REVIEW/PRINT using the +/- keys.



VISUAL CHECK

- Inspect Belts** for cracks, glazed surface and fraying. Tighten loose belts



- Inspect Battery** for terminal corrosion, loose or broken posts, cracks in the case, loose hold-downs, low electrolyte level, moisture, and dirt around the terminals.

- Inspect Starting System;** Check starter, solenoid, and regulator for loose connections, loose mounts, and frayed or cracked wires.
- Important Note:** A damaged battery must be replaced before proceeding.

```
CHARGE & TEST
CHARGE ONLY
TEST ONLY
>REVIEW/PRINT
```

```
#290 12V BATTERY
GOOD BATTERY!
12.60V CHRG 100%
USE +/- NEXT ↓
```

Press the (+up) or (-down) key to select the desired test. To print results to the selected printer either press the Print Key on the Optional AC-14 Printer or press 'Y' to print on the optional PR-16 Printer or Print Center. Press 'N' to return to the main menu.



```
>USE TEST RESULT
NEAR END OF LIFE
USE +/-
'Y' TO SELECT
```

Battery test results default to "Good" or "Bad". To add "Near End of Life" only test results use + or - to change setting then use "y" to select this third test result option.

```
SELECT PRINTER
PR-16 PRINTER
USE -/+
'Y' TO SELECT
```

Chose which printer to use. The choices are AC-14 Printer, PR-16 Printer, and Print Center.

```
>DO YOU WANT TO
ENTER CO. NAME
'Y' OR 'N'
```

This allows you to enter & save the following company information which is included in printouts: Company name, address, city, state, zip code and phone number.

Entry Hints:

Note: Address and city have a max of 23 characters.

To change the text or number press the (+) or (-) keys. If you press N at the beginning of the screen, no changes will be made. To make changes, use the (+) and (-) keys then press Y to save the change. The cursor will then go to the next character or number. If you are done making changes but there is more text keep pressing Y until

the cursor is on a blank space at the end of the lines of text. Pressing N saves the text up to the cursor position. Any text after is deleted.



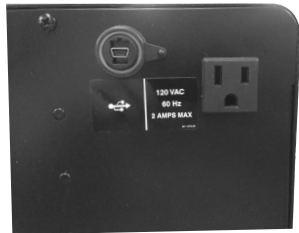
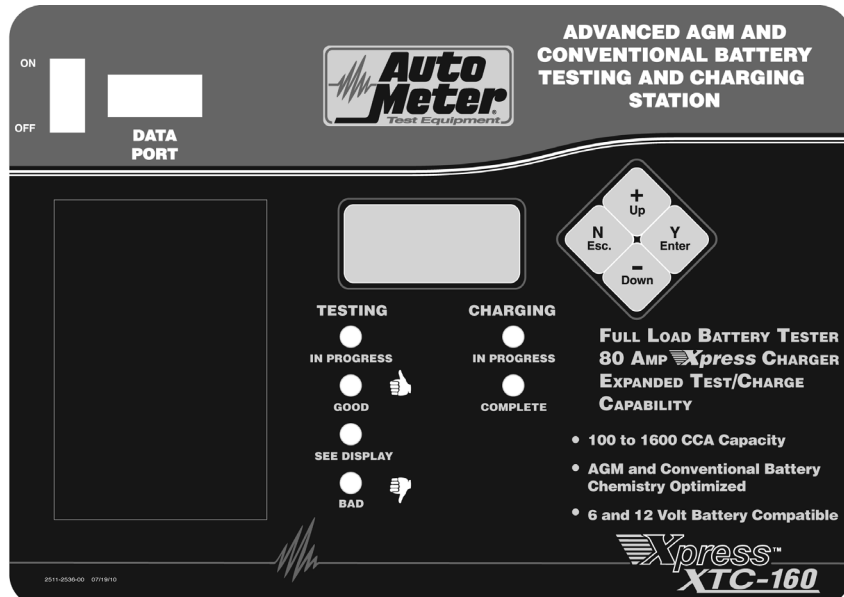
...from your XTC-160 Tester/Charger

The Test and Charge Sequence can indicate if a 6 or 12 Volt battery is 'Good' or 'Bad'. If the XTC-160 indicates that the battery needs charging it will automatically charge the battery and in some cases you will know the results within 5 minutes. Except in the case of deeply discharged batteries, 30 minutes will be sufficient to determine if the battery is 'Good', or 'Bad'. There is no need to spend needless charging time on a bad battery. During the charge sequence the XTC-160 will indicate the maximum time remaining to bring the battery to a full charge. The LCD screen makes it possible to view the XTC-160 testing and charging status – fully unattended.

The LCD provides easy menu instructions and test results for close-up operation

CONTROLS AND FUNCTIONS

1. **AC On/Off** Switch LCD turns on when AC switch is on.
2. **LCD:** Displays menus and test results



3. KEYS

When each key is pressed a beep sounds to assure contact has been made.

Y Enter Key:

This key selects the main or next menu. It also selects the cursor line item and answers yes to a test progression.

+Up Key:

This key moves the cursor up in order to select a menu line item. It also increments a value.

-Down Key:

This key moves the cursor down

in order to select a menu line. It also decrements a value.

N Esc Key:

This key cancels a test or progression. It also returns to the previous menu.

4. Battery Test Sequence

Indicating Testing, 'Good', or 'Bad'.

5. Battery Charge Sequence

Indicating Charging or Charged.

USB Type A - For data download to flash memory and USB printer connection.

USB Type B

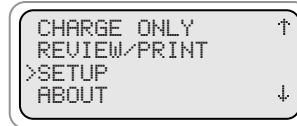
USB Mini B Connection - future expansion factory use.

6. Battery Temperature

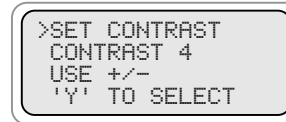
Aim temperature probe at battery and press button to input battery temperature.

SETUP

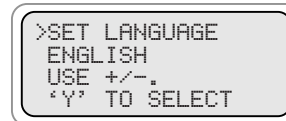
The tester/charger factory default settings are English, F (Temp), CCA, 600 CCA, (Good or Bad only). To change the settings, setup menu's below.



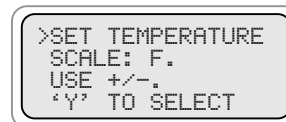
Scroll Down to Setup, Select setup by pressing 'Y'.



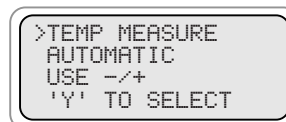
Set the LED display contrast. Settings are from 1 to 10. Press 'y' when contrast is at an acceptable level.



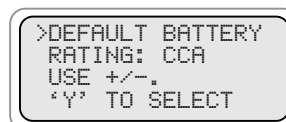
Choose between English, Spanish or French Language.



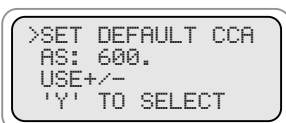
Select the temp in Fahrenheit or Centigrade.



Choose whether to have the temperature probe take the battery temperature automatically or wait until the probe button is pressed.



Select the rating from CCA, MCA, CA, AH.



You can also select the default rating to be the last entered CCA value or a particular amount such as 600 CCA.

RESULTS

After the Charge and Test Sequence or Test Only Sequence is complete one of the following result screens will be displayed.



```
#32 12V BATT.  
GOOD BATTERY.  
12.84V CHG 100%
```

Battery passes testing. Return to service.

```
#33 12V BATT.  
BAD BATTERY  
12.45V CHG 75%  
REPLACE NOW
```

Battery did not have sufficient remaining capacity to pass tests. Battery should be replaced immediately.

```
#34 12V BATT.  
GOOD NEEDS CHARG  
12.24V CHG 50%  
CK START-CHG SYS
```

Charge battery and place into service. (Test Only)

```
#35 12V BATT.  
CHARGE & TEST  
12.06V CHG 25%  
ADDL TEST REQ'D
```

Battery did not have a sufficient charge for a Digital Pulse Load Test. Charge required. (Test only)

```
#36 12V BATT.  
GOOD BATTERY!  
12.80V CHG 100%  
NEAR END OF LIFE
```

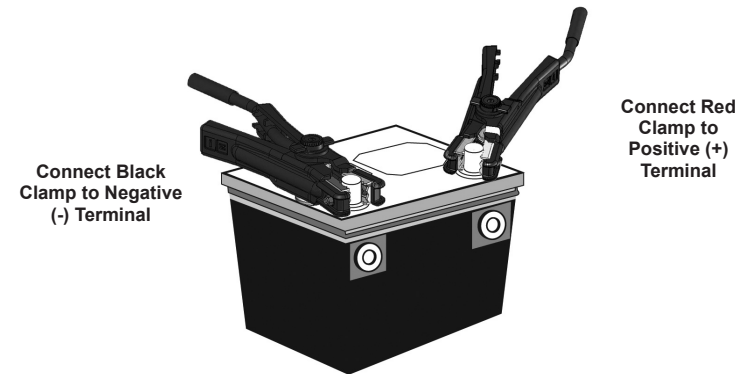
Battery passes testing and is "Near End of Life" Recommend retesting in three (3) months.

HOOK UP



1. Turn on the AC switch. The LCD will indicate "XTC-160" if the unit is properly plugged into an AC outlet. For your safety, make sure the AC receptacle is properly grounded.

Note: The XTC-160 is equipped with a power cord. Never use an extension cord smaller than 12 gauge or longer than 50ft. Make sure the extension cord and receptacle are properly grounded.



Use the side terminal feature on the clamp to connect battery side terminals. When testing dual post batteries always check the post to which the system is attached.

2. Connect to only one 6-volt or 12-volt battery at a time.
Note: Due to gases and usual corrosion around the positive terminal it is important to connect the positive (+) red clamp first. Make sure the connection is certain. Then connect the negative (-) black clamp.
3. If the XTC-160 displays one of the following messages check your connections.

```
REVERSED BATTERY  
CONNECTIONS!!
```

Red = (+) Positive and Black = (-) Negative

```
CHECK BATTERY  
CONNECTIONS
```

```
'Y' TO CONTINUE
```

Make sure the terminals are clean and the connection is sure then press 'Y' Enter. If the "Check Battery Connections" remains the connections are not secure. If you are sure of a solid connection replace the battery.

CHARGE and TEST SEQUENCE

From the menu select charge and test using the +/- keys.

```
>CHARGE & TEST
CHARGE ONLY
TEST ONLY
REVIEW/PRINT
```

Then press 'Y' to enter

If no temperature probe is connected use the +(Up) and -(Down) keys to enter the current battery temp. The (Up) & (Down) keys increment & decrement in units of 10. Press 'Y' to begin. If temperature probe is connected, point the temperature probe at the battery and press the button on the temperature probe to input battery temperature.

```
>ENTER BATTERY
TEMP. 70F
USE +/-
'Y' TO BEGIN
```

If the battery temperature is above 120°F the following message will appear.

```
THE BATTERY
IS TOO HOT TO
CHARGE SAFELY
'Y' TO CONTINUE
```

```
THE BATTERY
NEEDS TO COOL
BEFORE CHARGING
'Y' TO CONTINUE
```

The unit will go back to main menu.

If the battery temperature is below 10°F the following message will appear.

```
THE BATTERY
IS TOO COLD TO
CHARGE SAFELY
'Y' TO CONTINUE
```

```
THE BATTERY
NEEDS TO WARM
BEFORE CHARGING
'Y' TO CONTINUE
```

The unit will go back to main menu.

The rating displayed will be either the default rating or the last tested rating will be displayed (this setting can be changed in setup). Adjust the rating using the +/- keys.

```
ENTER RATED CCA
1350
USE +/-
'Y' TO BEGIN.
```



TEST ONLY SEQUENCE cont.

The rating displayed will be either the default rating or the last entered rating will be displayed (this setting can be changed in setup). Adjust the rating using the +/- keys



```
ENTER RATED CCA
1350
USE +/-
'Y' TO BEGIN.
```

Press 'Y' Enter to begin charging.

```
CHOOSE BATT TYPE
STARTING STANDRD
USE +/-
'Y' TO CONTINUE
```

Press the (+Up) or (-Down) key to cycle through the battery types. Press 'Y' when it matches the type of battery you are testing.

BATTERY TYPE OPTIONS:
STARTING STANDRD
STARTING AGM
DEEP CYCLE AGM
DEEP CYCLE STANDRD

Summary Screen

```
>STARTING STANDRD
BATTERY TEMP 70°
RATED CCA = 600
'N' OR 'Y'
```

Confirm that the inputs are correct. Press 'Y' if they are correct. The test will start. Press 'N' to re-enter temp, battery rating and battery type.

```
TESTING BATTERY
PLEASE WAIT...
S#22010 T#290
'N' TO STOP
```

The XTC-160 serial number and test number are displayed to help reference the test to the print out.

```
#290 12V BATTERY
GOOD BATTERY
12.60 CHRG 100%
'Y' TO PRINT - MORE
```

TEST ONLY SEQUENCE

From the menu select TEST ONLY using the +/- keys.

```
CHARGE & TEST
CHARGE ONLY
>TEST ONLY
REVIEW/PRINT
```

Then press 'Y' Enter to enter.



If no temperature probe is connected use the +(Up) and -(Down) keys to enter the current battery temp. The (Up) & (Down) keys increment & decrement in units of 10. Press 'Y' to begin. If temperature probe is connected, point the temperature probe at the battery and press the button on the temperature probe to input battery temperature.

```
>ENTER BATTERY
TEMP. 70F
USE +/-
'Y' TO BEGIN
```

```
THE BATTERY
IS TOO HOT TO
TEST SAFELY
'Y' TO CONTINUE
```

If the battery temperature is above 150°F the message to the left will appear.

```
THE BATTERY
NEEDS TO COOL
BEFORE TESTING
'Y' TO CONTINUE
```

The unit will go back to main menu.

CHARGE and TEST SEQUENCE cont.

Press the (+Up) or (-Down) key to cycle through the battery types. Press 'Y' when it matches the type of battery you are testing.

BATTERY TYPE OPTIONS:
STARTING STANDRD
STARTING AGM
DEEP CYCLE AGM
DEEP CYCLE STANDRD



```
CHOOSE BATT TYPE
STARTING STANDRD
USE +/-,
'Y' TO CONTINUE
```

Summary Screen

```
>STARTING STANDRD
BATTERY TEMP 70°
RATED CCA = 600
'N' OR 'Y'
```

Confirm that the inputs are correct. Press 'Y' if they are correct. The test will start. Press 'N' to re-enter temp, battery rating and battery type.

```
>IS THIS A 6V
BATTERY?
```

If the XTC-160 determines a low voltage it will ask if the battery is a 6 Volt. Press the "Yes" or "No" key.

If 'Y' is pressed the XTC-160 will charge the battery in 6 volt mode. If 'N' is pressed the XTC-160 will attempt to bring the battery up to a level where the normal 12V charge can be applied.

```
TESTING BATTERY
PLEASE WAIT...
'N' TO STOP
```

Wait for results. See Automated Conditions for status. Other Conditions: if the battery has a surface charge the LCD will display "REMOVING SURFACE CHARGE" and if the load clamps become disconnected or loose "CHECK BATTERY CONNECTIONS" will appear.

CHARGE and TEST SEQUENCE cont



AUTOMATED CONDITIONS

If the battery temperature goes over 140°F charging will stop.

If the battery needs charging the XTC-160 will automatically charge the battery and then run a Load Test. The LED indicators will show the status during a fully automated Test and Charge sequence. This makes it possible to view the status and final results at a distance.

- Red "TESTING" light indicates battery is being tested.
- Red "CHARGING" light indicates battery is being charged. .
- Green "GOOD" light indicates battery is good.
- Green "GOOD" with Red "CHARGING" light indicates battery is being charged. .
- Green "GOOD" with Green "CHARGED" light indicates battery is good and has been charged.
- Yellow See Display indicates that some condition occurred that did not let the battery charge or that the battery is Near End of Life. See the display for details.
- Red "BAD" indicates the battery is too bad to charge or is considered bad after a charge is attempted.



```
#290 12V BATTERY
GOOD BATTERY
MEAS. CCA 975
'Y' PRINT - MORE
```

LCD TEST RESULTS: Include "GOOD BATTERY" "GOOD", "NEAR END OF LIFE" and "BAD BATTERY".

Press 'Y' to print results on store printer.
Press - to see "WHAT NEXT" screen.
Press 'N' to go back to menu

CHARGE ONLY SEQUENCE



From the menu select CHARGE ONLY using the +/- keys.

```
CHARGE & TEST
>CHARGE ONLY
TEST ONLY
REVIEW/PRINT
```

Then press 'Y' Enter to enter.

If no temperature probe is connected use the +(Up) and -(Down) keys to enter the current battery temp. The (Up) & (Down) keys increment & decrement in units of 10. Press 'Y' to begin. If temperature probe is connected, point the temperature probe at the battery and press the button on the temperature probe to input battery temperature.

```
>ENTER BATTERY
TEMP. 70F
USE +/-
'Y' TO BEGIN
```

If the battery temperature is above 120° the following message will appear

```
THE BATTERY
IS TOO HOT TO
CHARGE SAFELY
'Y' TO CONTINUE
```

```
THE BATTERY
NEEDS TO COOL
BEFORE CHARGING
'Y' TO CONTINUE
```

The unit will go back to main menu.

The rating displayed will be either the default rating or the last entered rating will be displayed (this setting can be changed at setup). Adjust the rating using the +/- keys.

```
ENTER RATED CCA
1350
USE +/-,
'Y' TO BEGIN.
```

Press the (+Up) or (-Down) key to cycle through the battery types. Press 'Y' when it matches the type of battery you are testing.

```
CHOOSE BATT TYPE
STARTING STANDRD
USE +/-,
'Y' TO CONTINUE
```

BATTERY TYPE OPTIONS:
STARTING STANDRD
STARTING AGM
DEEP CYCLE AGM
DEEP CYCLE STANDRD

Summary Screen

```
>STARTING STANDRD
BATTERY TEMP 70°
RATED CCA = 600
'N' OR 'Y'
```

Confirm that the inputs are correct. Press 'Y' if they are correct. The charge will start. Press 'N' to re-enter temp, battery rating and battery type.

```
TESTING BATTERY
PLEASE WAIT...
'N' TO STOP
```

```
#290 12V BATTERY
CHARGED ONLY
12.60 CHRG 100%
'Y' TO PRINT - MORE
```