



**A Proven Name  
in Accuracy**



## **RC-300** **Operator's Manual** **Proven Accuracy in a Reserve Capacity Tester**

The RC-300 is a hand-held tester that is the answer to portability in a professionally accurate reserve capacity battery load tester.



**Auto Meter Products Inc.**

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2650-1010-10  
Rev. B

You have purchased one of Auto Meter's hand-held reserve capacity battery load testers. It is designed to test batteries from 4.0 to 50 Amp Hours with ease, speed, and accuracy. If you should have any questions about your tester, testing procedures, or service see back cover for contact information.

**RC 300**

Load Test Capacity.....	40 Amp
Battery Sizes .....	4.0 – 50 Amp Hours
Digital Display .....	1" x 2.5" - 4 line x 16 character
Volt Ranges.....	Digital 0-30
Cooling .....	Heat Sink Ventilation
Leads .....	Load Amp-2 1/2 ft., 16 Gauge
Size .....	3 3/4" x 6 3/4" x 1"
Memory .....	stores the last 50 tests
Internal Battery.....	9 Volt Alkaline
<i>Optional AC-15</i> .....	Infrared printer
<i>Optional AC-24J</i> .....	Carrying case only
<i>Optional AC-12</i> .....	PC Interface adapter cord
Weight.....	1.34 lbs.

**What to Expect from the RC-300:**

***Immediately determine Amp Hours remaining in each battery.*** The RC-300 is a portable, full-featured, menu-driven battery tester that provides quick and professional load results using Auto Meter's proven Load Testing Technology. The RC-300 is user friendly. It tells you what to do. It is professionally accurate. Detailed test results are shown on the LCD display after each test and can be reviewed and/or printed from memory.

The RC-300 performs a preliminary check on 6 and 12 volt batteries, it also load tests 6 volt and 12 volt batteries. The RC-300 automatically identifies the appropriate voltage and displays the menu selection and instructions needed for the battery being checked or tested.

**12 MONTHS FROM DATE OF PURCHASE-  
CABLES 90 DAYS**

The manufacturer warrants to the consumer that this product will be free from defects in material or workmanship for a period of twelve (12) months from the date of original purchase.

Products that fail within this 12 month warranty period will be repaired or replaced at the manufacturer's option to the consumer, when determined by the manufacturer that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of parts and the necessary labor by the manufacturer to effect the repair or replacement of the product. In no event shall the manufacturer be responsible for special, incidental or consequential damages or costs incurred due to the failure of this product.

Improper use, accident, water damage, abuse, unauthorized repairs or alterations voids this warranty. The manufacturer disclaims any liability or consequential damages due to breach of any written or implied warranty on its test equipment.

**WARRANTY AND SERVICE INFORMATION**

Warranty claims to the manufacturer's service department must be transportation prepaid and accompanied by a dated proof of purchase. This warranty applies only to the original purchaser and is non-transferable. Freight damage incurred during return shipments is not covered under this warranty. It is the responsibility of the shipper (the customer returning the Test Equipment) to package the tester properly to prevent any damage during return shipment. Repair costs for such damages will be charged back to shipper (customer returning the Test Equipment). Protect the product by shipping in original carton or add plenty of over-pack cushioning such as crumpled up newspaper.

**CLAMP MAINTENANCE:**

CHECK OFTEN FOR LOOSE JAWS  
OR DAMAGED INTERNAL INSULATOR

- Both jaws of each clamp must firmly engage the battery terminal. The wire soldered to the copper insert jaw must be insulated from the other wire soldered to the opposite handle. This insulation is required so that one can read the Amps and the other can read the Volts. Damaged clamps or loose wires will affect readings. Make sure the copper jaw insert is properly insulated from the clamp and the clamps are clean and in good repair.

Over time the battery clamps will need to be replaced if any of the following are indicated:

- Amp Hour values seem extreme.
- If there is continuity between the copper insert and the clamps.
- If there is excessive damage or corrosion to the cables or clamps.

**CLAMP AND BATTERY REPLACEMENT**

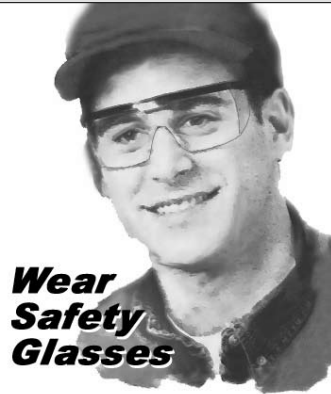
- Remove the screws from the back cover.
- Separate top and bottom cover and open like a book leaving the ribbon in contact with the PC board that will remain with the back cover.
- **CLAMPS:** Remove the cables and strain relief. With the new load clamp leads pointing down; insert the new strain relief into the back cover. Make sure the red clamp wires are attached to the left two screws of the green screw terminal (labeled POS) and the black clamp wires are connected to the right two screws (labeled NEG). It does not matter if either of the two red clamp wires is switched. The same applies to the two black clamp wires. Just make sure the red clamp wires are to the left (POS) and the black clamp wires are to the right. (NEG)
- **BATTERY:** Remove the battery and replace with a 9 Volt battery. Match the (+) on the new battery with the (+) on the PC board.
- Reverse the procedure to assemble the unit.

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## SAFETY

- Carefully read all operating instructions before using the RC-300
- Wear proper protection when working around batteries.
- Be sure each test is complete before removing load clamps to prevent arcing and potential explosion from battery gases. Keep sparks flames, or cigarettes away from batteries.
- Keep hair, hands, and clothing as well as tester leads and cords away from moving parts.
- 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.
- **Warning! NEVER** attach the RC-300 to a battery that is connected to any other tester or charging unit. Damage may result.



## CAUSE OF BATTERY FAILURE

- **Incorrect Application:** Wrong size battery may have inadequate Amp Hour rating for original product specifications.
- **Improper Maintenance:** Neglected charging and corrosion on battery connections can greatly reduce battery life and affect battery performance.
- **Overcharging:** Overcharging caused by a high voltage regulator setting or incorrect battery charging can cause battery damage and shorter life.
- **Undercharging:** Undercharging or neglect of charging will reduce the life of the battery.

## CAPTURING TEXT

### 4. Using Microsoft Excel

**Note:** For other software applications consult your software manual.

- Make sure menu is displayed as shown in illustration #3 on page 20.
- Select "Capture Text" in the Transfer Menu.
- Type in **c:\my documents\download.txt** and then select Start.
- Press "1" to download. When finished select "Capture Text" again from the Transfer Menu then select "Stop".
- Launch Microsoft Excel and select "Open File".
- Under "Files of Type" at the bottom of the open file window select All Files (\*.\*)).
- Highlight your **download.txt** file then select "Open".
- Select "Delimited" and start at row 1 then "Next"
- Select "Comma" then "Next"

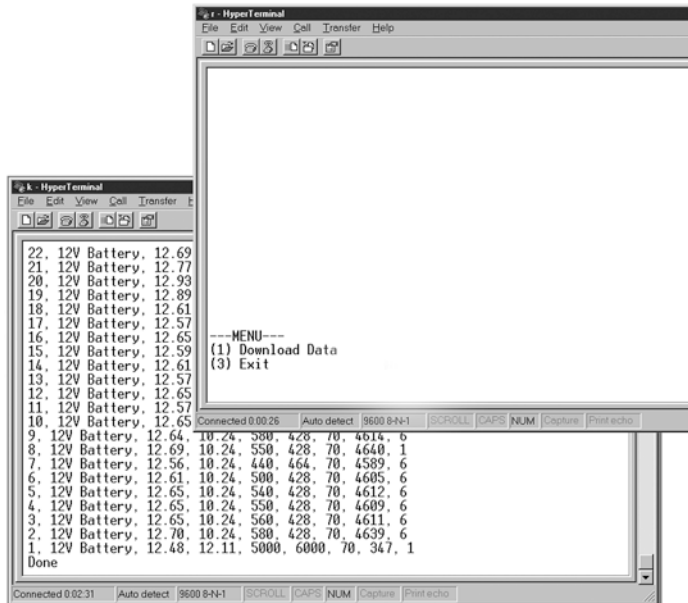
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
53	Download Data --															
54	12V Battery 0															
55	12V Battery 2F															
56	24V Battery 0															
57	Pretest 0															
58	27 12V Batte	12.69	0	0	3670	70	663	5								
59	26 12V Batte	12.7	11.76	2000	2036	70	1022	1								
60	25 12V Batte	12.69	0	0	2036	70	1021	5								
61	24 12V Batte	12.72	0	0	2036	70	1014	5								
62	23 12V Batte	12.65	10.00	720	392	70	5041	0								
63	22 12V Batte	12.69	0	0	392	70	5101	5								
64	21 12V Batte	12.77	0	0	3964	70	529	5								
65	20 12V Batte	12.93	0	0	428	70	4980	5								
66	19 12V Batte	12.89	0	0	3096	70	637	5								
67	18 12V Batte	12.81	11.16	1200	1036	70	2651	1								
68	17 12V Batte	12.57	10.06	720	392	70	5075	0								
69	16 12V Batte	12.65	10.23	660	426	70	4673	6								
70	15 12V Batte	12.59	10.23	660	426	70	4644	0								
71	14 12V Batte	12.61	10.24	660	426	70	4647	1								
72	13 12V Batte	12.57	10.24	660	464	70	4629	1								
73	12 12V Batte	12.65	10.24	660	426	70	4640	0								
74	11 12V Batte	12.57	10.24	660	464	70	4699	6								
75	10 12V Batte	12.65	10.24	660	426	70	4619	0								
76	9 12V Batte	12.64	10.24	500	426	70	4614	6								
77	8 12V Batte	12.69	10.24	500	426	70	4640	1								
78	7 12V Batte	12.56	10.24	440	464	70	4609	6								
79	6 12V Batte	12.61	10.24	600	426	70	4624	0								

- Under Column Date Format select "General" then "Finish"
- After the file is loaded you can delete unwanted rows and format columns as desired. The following are labels for identifying the 8 columns of information.

Rated CCA	Final Est. AH	TEMP	Condition: 0 = BAD 1 = GOOD	3 = GOOD NEEDS CHARGE 4 = CHARGE AND RETEST 5 = CONTINUE TESTING 6 = MARGINAL
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**3. PC Screen Menu**

- If the RC-300 is properly connected to your PC and the LCD shows "CONNECT ANALYZER TO A PC" the menu should automatically be displayed in Hyper Terminal.
- Press 1 to download the last 50 tests.  
To save the information displayed see "Capture text into Microsoft Excel." See RC-300 test labels below for identification.
- Press Enter to return to Menu.
- Press Enter to return to Menu.
- Press 3 to Exit.



HyperTerminal Windows

RC-300 Battery	Test #	Test Type	Beginning Voltage	Loaded Voltage

**LCD:**  
Displays menus and test results.

**KEYS:**  
When each key is pressed, a beep sounds to assure contact has been made.

**On/Off Key:**  
This is the manual on/off key. The display will show "READY TO CONNECT!" when the unit is turned on.

**Y Enter Key:**  
This key selects the next menu, 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 and increments certain displayed values.

**-Down Arrow Key:**  
This key moves the cursor down in order to select a menu line and decrements certain displayed values.

**N Esc Key:**  
This key cancels a test or progression. It also returns to the previous menu.

**Print Key:**  
Point the RC-300 infrared print light towards the *Optional AC-15* infrared printer receiver and press the print key. Test results will be printed.



**Infrared Print Light:**  
When the print button is pressed infrared data will be transmitted to the printer when pointed in the direction of the printer (up to 40 ft.).



**PC Download Jack:**  
By removing the boot the optional AC-12 adapter cord can be inserted.

# 1 HOOK UP

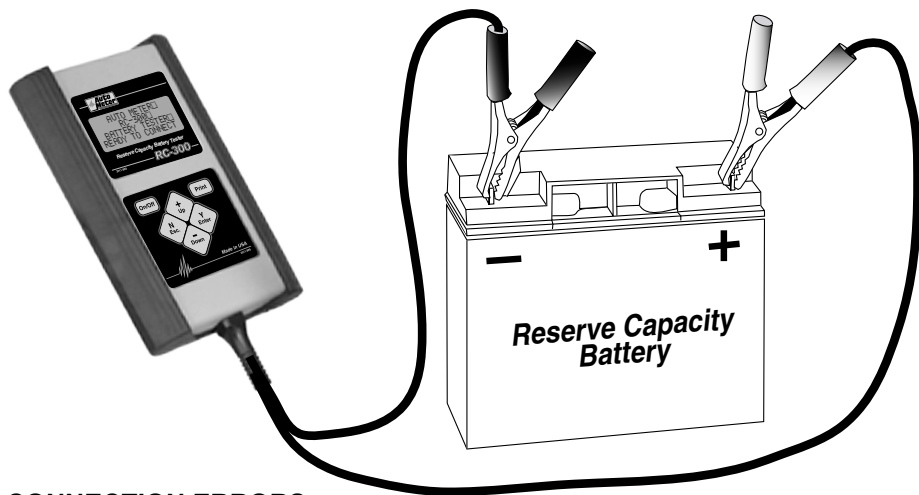
Press the On/Off button: Connect the clamps to the battery.

```
AUTO METER  
RC 300  
BATTERY TESTER  
READY TO CONNECT
```

```
>ENTER BATTERY  
TEMP 70F  
12.73V  
'Y' TO CONTINU
```

Enter the approximate battery temperature in degrees Fahrenheit or Celsius then press (Y Enter).

**Note:** Go to the setup to change temp scale to Celsius. The temperature request only appears once for each battery tested.



## CONNECTION ERRORS

- If the clamps are reversed the Reversed Connection screen will flash.
- If one or both of the clamps are not in complete contact CHECK CONNECTIONS! will flash.
- If no clamps or only one clamp is connected the following will be displayed:

```
>CONNECT LEADS  
TO BATTERY.  
'N' TO CANCEL
```

# USING WINDOWS 98/2000/NT/XP

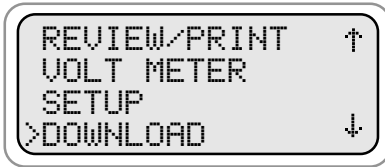
**Note:** The RC-300 will interface with any basic (ANSI) terminal emulation software. Most operating systems contain a program that will do this. Following are instructions for Windows 98. For other operating systems consult the Manual for that system.

## 2. Opening Windows HyperTerminal:

- Select Windows "Start"
- Then "Programs"
- Then "Accessories"
- Then "Communications"
- Then "Hyper Terminal"
- Double Click Hypetrm.exe Application
- Type in a name for your connection
- Select an icon for future identification
- Select OK
- Select the COM port number you have previously identified in step 1.
- Select OK and select the following from the pull down menus:
  - Bits per second 9600
  - Data bits 8
  - Parity None
  - Stop Bits 1
  - Flow Control Hardware
- Select OK

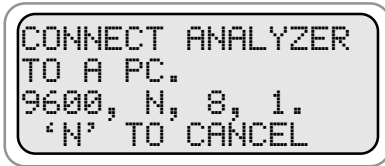


From the main menu scroll down to **DOWNLOAD**.



Press (Y Enter)

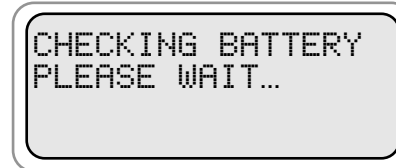
The following will be displayed.



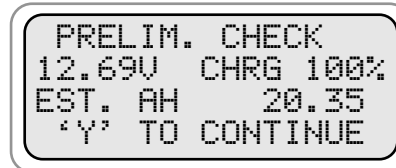
**1.** Using Auto Meter's optional adapter cord AC-12 insert the stereo plug into the jack on the RC-300 (see page 5) and then plug the serial adapter into a free serial port on the rear of your computer.

**Note:** Most computers are configured with at least one serial port (identified as COM 1), and some have a second serial port, usually identified as (COM 2). Check your computer manual to locate and identify a serial port connector. Even if you have a physical COM port you need to make sure it is working properly before you proceed. Consult your computer manual. If your computer serial port is configured for 25 pin you will need to obtain an adapter from your computer store. If your computer does not have an available serial port and you're planning on using *Windows HYPER Terminal* as illustrated on the next page, you will need to buy and install an adapter card with a serial port.

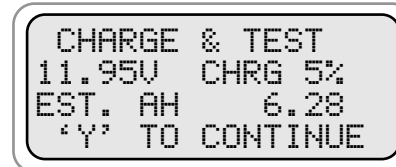
If connections are proper the following will be displayed:



After the battery check is complete, the results displayed will be similar to one of the following samples.

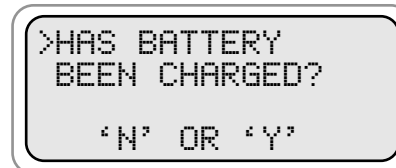


Press (Y Enter) and continue the load test.



The battery needs charging before a Load Test can be made.

If you continue to the Load Test on a battery under 11.0 Volts. You may be asked the following during the sequence:



# 3 BATTERY LOAD TEST

From the Preliminary Check the following will appear:

```
>ENTER RATED AH
20.0
12.72V
'Y' TO CONTINUE
```

Press the (+Up) or (-Down) key to increment or decrement to the rated Amp Hours of the battery.

For ease of adjustment, the estimated Amp Hour rating from the battery check will appear unless you have set a default Amp Hour rating in the SETUP menu. Press (Y Enter) to continue test.

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

Note: Enter the approximate battery temperature in degrees Fahrenheit or Celsius. This request will only appear if the load clamps have been disconnected since the preliminary check.

During the test the following will appear.

```
TESTING BATTERY
PLEASE WAIT...
```

Wait for test results.

You can also select **Battery Test** from the main menu and then press (Y Enter).

```
>BATTERY TEST
REVIEW/PRINT
VOLT METER
SETUP ↓
```

# SETUP

From the main menu select **SETUP**

```
BATTERY TEST
REVIEW/PRINT
VOLT METER
>SETUP ↓
```

```
>SET TEMPERATURE
SCALE: F.
USE +/-,
'Y' TO SELECT.
```

You can select F for Fahrenheit or C for Celsius.

```
>SET DEFAULT AH
AS EST. AH
USE +/-,
'Y' TO SELECT.
```

You can select the default battery rating as: EST Amp Hour or a particular Amp Hour rating from 4 to 50. Use the (+) UP or (-) Down key to adjust. Then pres (Y) Enter

```
>GOOD BATTERY
CUTOFF: 90%
USE +/-,
'Y' TO SELECT
```

You can also select the cutoff for a GOOD BATTERY. The default is 75%. If you choose a different percent, remember that GOOD BATTERY will be displayed on any percent above the amount you set.

```
>BAD BATTERY
CUTOFF: 64%
USE +/-,
'Y' TO SELECT.
```

You can also select the cutoff for a BAD BATTERY. The default is 65%. If you choose a different percent, remember that BAD BATTERY will be displayed for any percent below the amount you set. MARGINAL BATTERY will be displayed between the two above settings.

Note: The estimated Amp Hour displayed will be a % of the Rated Amp Hour selected.



## VOLT METER

Unusual problems with a battery and the need to localize loss of current can be determined with the manual volt reading.

From the Main Menu select **Volt Meter**.

```
BATTERY TEST
REVIEW/PRINT
>VOLT METER
SETUP          ↓
```

Press (Y Enter)

The following will be displayed.

```
--VOLT METER--
VOLTS:  12.70V
CHARGED: 100%
VOLTS.
```

If hooked up to a battery, the display will indicate the voltage of a battery and the percent charged

## CHECKING THE CHARGING VOLTAGE

```
--VOLT METER--
VOLTS:  14.2V
GOOD CHARGING
VOLTS
```

If the RC-300 is hooked up to a battery that is being charged, the output voltage of the charge will be displayed as GOOD, LOW or HIGH charging voltage.

After the Load Test is completed one of the following sample results will appear.

```
#32 12V BATTERY
GOOD BATTERY!
12.61V CHG 92%
EST AH    10.35
```

Ready for service.

```
#32 12V BATTERY
MARGINAL BATTERY
12.65V CHG 96%
EST AH    4.28
```

If the battery is marginal, consider replacing the battery if adverse driving conditions are expected.

```
#33 12V BATTERY
BAD BATTERY
12.65V CHG 87%
EST AH    3.92
```

Replace Battery

```
#34 12V BATTERY
GOOD NEEDS CHRG..
12.24V CHG 50%
EST AH    10.35
```

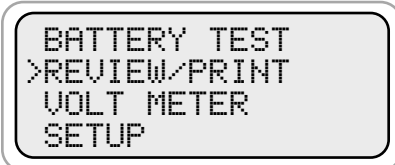
Charge and place into service.

```
#35 12V BATTERY
CHARGE & TEST
12.06V CHG 25%
EST AH    3.92
```

Battery did not have a sufficient charge for a complete Load Test. Charge and retest.

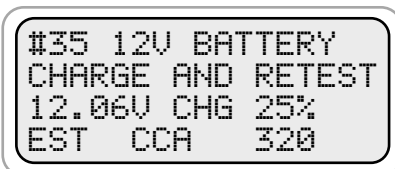
# 4 REVIEW TESTS

From the main menu select REVIEW/PRINT.



Press (Y Enter).

The last test will be displayed.



Press (+Up) or (-Down) key to select the desired test.

## OPTIONAL AC-15 INFRARED PRINTER

The optional AC-15 printer links the RC-300 to the AC-15 printer from up to 40 ft. away. No connection cords are needed. For more instructions on how to operate the printer consult the printer manual.

Printer Type ----- Thermal Printing  
Paper ----2.25 in x 80 ft. Roll Thermal Paper (included)  
Power -----AC and Cigarette Lighter adapters (included)

## PRINTING TEST RESULTS

Point the RC-300 in the direction of the AC-15 printer (in or out of the case) with the printer's IR receiver pointed in the direction of the RC-300. Press (Print). You should be within 40 ft of the printer. Wait for the screen to clear before moving the RC-300. It takes a moment to send all the test data.



- Make sure the Infrared Printer is properly set up.
- After a test is made with the RC-300 make sure the results are displayed on the LCD.
- Point the RC-300 in the direction of the Infrared Printer (within 40 ft.)
- Press the <Print> key and the test results will be printed.
- Depending upon the test made the printer will sometimes yield more information than the LCD.
- **Multiple Test Printing:** Pressing the print button repeatedly (up to six times) will automatically print the test in review and previous tests.