Auto Meter
Test Equipment

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.

CONGRATULATIONS!

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

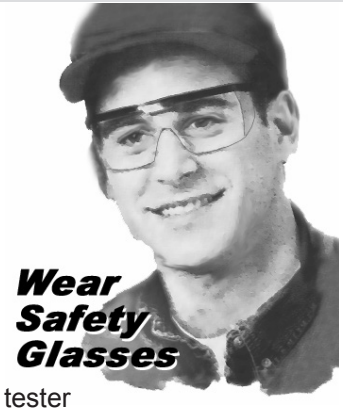
Load Test Capacity	40 Amp
Battery Sizes	4.0 – 50 Amp Hours
Digital Display	1" x 2.5" - 4 line x 16 character
Volt Ranges	Digital 0-30
Cooling	Heat Sink Ventilation
Leads	Load Amp-2 1/2 ft., 16 Gauge
Size	3 3/4" x 6 3/4" x 1"
Memory	stores the last 100 tests
Internal Battery	9 Volt Alkaline
Optional PR-12	Infrared printer
Optional AC-12	PC Interface adapter cord
Optional AC-24J	Carrying case only
Optional AC-32	Serial Port to USB adapter
Optional AC-62	AMP Link Data Download PC Software
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 battery load test on 6 & 12 volt batteries. The RC-300 automatically identifies the appropriate voltage & displays the menu selection & instructions needed for the battery being checked or tested.

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.

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 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.

CONTROLS AND FUNCTIONS

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 'Y' for menu 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 PR-12* 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 15 ft.).

PC Download Jack:
Adapter cord AC-12 can be inserted here.

1

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

```
   AUTO METER
     RC-300
 BATTERY TESTER
  'Y' FOR MENU
```

```
>ENTER BATTERY
 TEMP:      70F
 USE +/-
 'Y' TO CONTINUE
```

```
>BATTERY TEST
 REVIEW PRINT
 VOLTMETER
 DATABASE
```

Press 'Y" to open menu. Select Battery Test by pressing 'Y'

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

Note: Go to the setup to change temperature 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 CLAMPS
 TO BATTERY
 RED + BLACK-
 'N' TO CANCEL
```


2 BATTERY TEST

If the battery temperature is above 180°F the battery is too hot to test. The following screens will appear.

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

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

Pressing 'Y" or 'N' will return to the main menu. Let battery cool before testing.

```
 BATTERY RATING
 AH RATING
 USE +/-
 'Y' TO CONTINUE
```

If the battery has an AH rating and is not in the database select AH rating using the + and - keys and the 'Y' key to select.

```
 BATTERY RATING
 DATABASE
 USE +/-
 'Y' TO CONTINUE
```

If the battery has a database entry, select the database rating option by using the + and - keys and use the 'Y' key to select database.

```
 ENTER RATED AH
 25.00 USE +/-
 12.68V
 'Y' TO CONTINUE
```

Use the + and - keys to enter the rated AH. Press 'Y' to continue.

```
 ENTER DATABASE
 BATTERY #1
 CF=0.67 AH=27.0
 'Y' TO CONTINUE
```

Use the + and - keys to select the battery from the database. Press 'Y' to continue

BATTERY TEST (cont.)

SUMMARY SCREEN

```
BATTERY SUMMARY
TEMP:      70F.
 RATED AH 25.0
 'N' OR 'Y'
```

```
BATTERY SUMMARY
TEMP:      70F.
BATTERY  #1
 'N' OR 'Y'
```

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

If the reading is below 7.2 Volts you will get the following:

```
>IS THIS A 6V
 BATTERY?

'N' OR 'Y'
```

```
REMOVING SURFACE
CHARGE...
S#22010 T#32
```

Surface charge removed if detected.

```
TESTING BATTERY
PLEASE WAIT...
S#22010 T#32
```

Bar at the bottom of the screen will show the tests progress.

Wait for test results.

The RC-300 serial number and test number are displayed to help reference the test to the print out.

After the Digital Pulse Load Test is completed results similar to one of the following sample screens will appear.

```
T#32 12V BATT.
GOOD BATTERY!
12.84V CHG 100%
MEAS AH 40.0
```

Battery passes testing. Return to service.

```
T#33 12V BATT.
BAD BATTERY!
12.45V CHG 75%
MEAS AH 25.0
```

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

BATTERY TEST (cont.)


```
T#34 12V BATT.
GOOD NEEDS CHRG.
12.24V CHG 50%
MEAS AH 40.0
```

Charge battery and place into service.

```
T#35 12V BATT.
CHARGE & TEST
12.06V CHG 25%
'Y' TO CONTINUE
```

Battery did not have a sufficient charge for a Digital Pulse Load Test. Charge and retest battery.

```
T#36 12V BATT.
NEAR END OF LIFE
12.80V CHG 100%
MEAS AH 30.0
```

Battery passes testing and is near end of life. Consider replacing battery if adverse conditions are expected.

3 REVIEW TESTS

From the main menu select REVIEW/PRINT.

```
 BATTERY TEST
>REVIEW/PRINT
 VOLT METER
 DATABASE
```

Press (Y Enter).

The last test will be displayed.

```
T#35 12V BATTERY
CHARGE AND RETEST
12.06V CHG 25%
MEAS AH 30.0
```

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

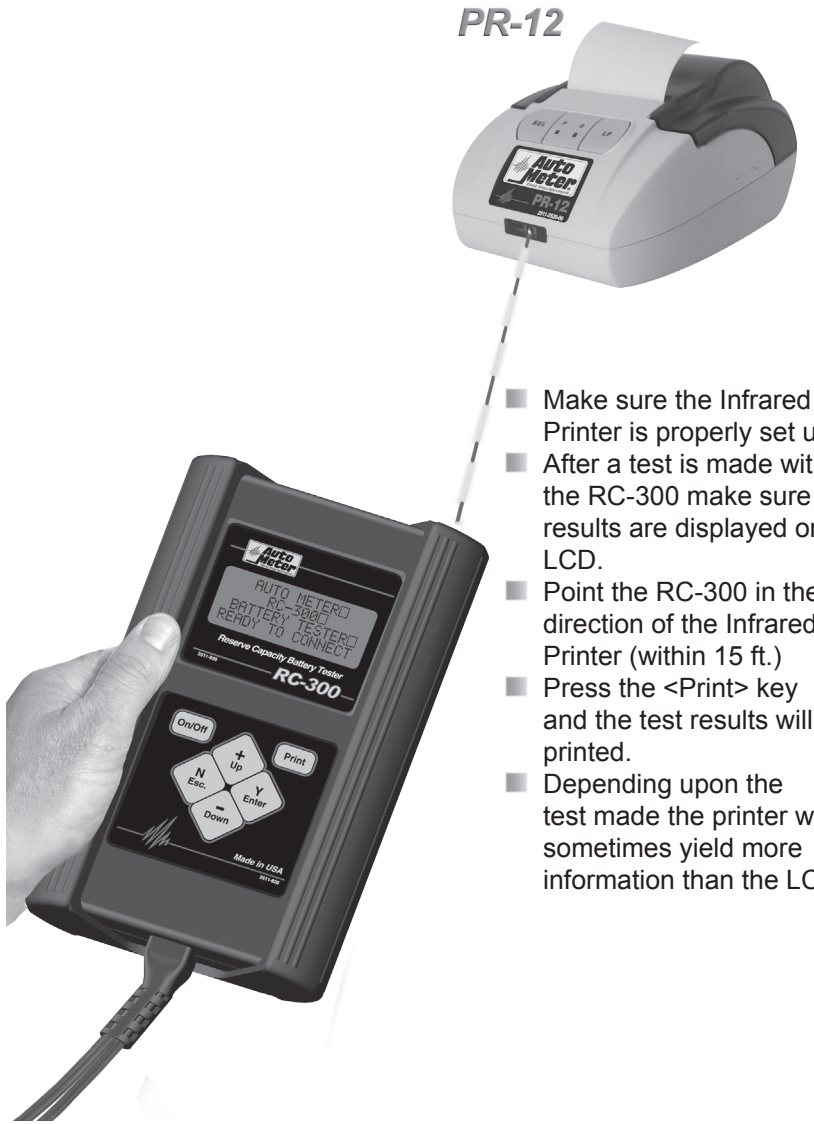
OPTIONAL INFRARED PRINTER

Optional PR-12 printer. An invisible infrared beam links the RC-300 to the PR-12 printer from up to 15 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 Adapter (included)

PRINTING TEST RESULTS

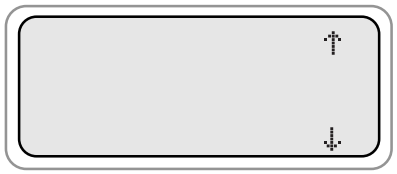
Point the RC-300 in the direction of the PR-12 printer with the printer's IR receiver pointed in the direction of the RC-300. Press (Print). You should be within 15 ft of the printer. Wait for the screen to clear before moving the RC-300. It takes a moment to send all the test data.



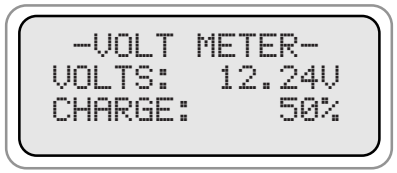
- Make sure the Infrared Printer is properly set up.
- After a test is made with the RC-300 make sure the results are displayed on the LCD.
- Point the RC-300 in the direction of the Infrared Printer (within 15 ft.)
- Press the <Print> key and the test results will be printed.
- Depending upon the test made the printer will sometimes yield more information than the LCD.

VOLT METER

Scroll Down to Volt Meter then select **Volt Meter** by pressing Y



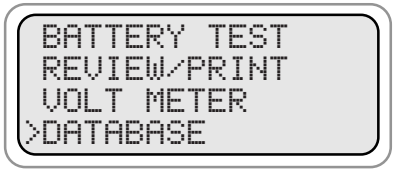
Press (Y Enter)



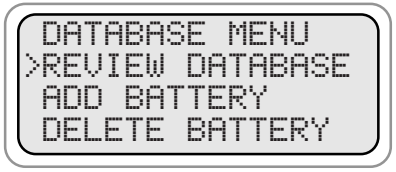
4 DATABASE

The database lets you use a known good battery as a reference to test other similar batteries against. There can be up to 40 batteries added to the database.

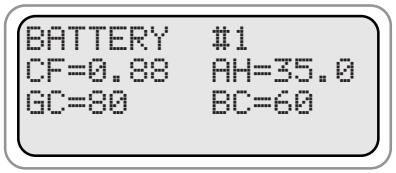
Database Menu



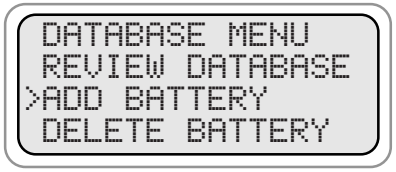
Select the database menu item.



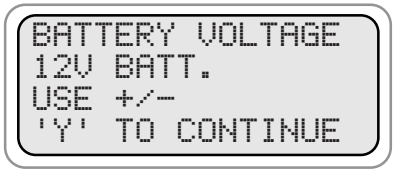
To review the batteries in the database select Review Database.



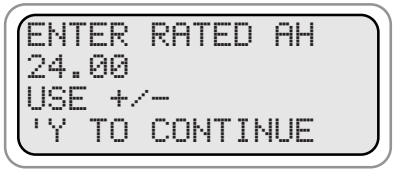
Use the + and - keys to view the battery's information.
CF = Correction Factor
AH = Battery Rating
GC = Good Cutoff Limit
BC = Bad Cutoff Limit



To add a battery to the database, connect the tester to the reference battery as described the the battery test section.



Enter the battery's rated voltage. Use the + and - keys to choose between 6V and 12V. Press 'Y' to continue.



Enter the battery's AH rating. Use the + and - keys to enter a value between 4.0 to 50 AH. Press 'Y' to continue.

Enter the Good Cutoff Limit. This is the percentage of measured AH divided by the rated AH. Any ratio above this limit is graded a Good Battery.

DATABASE (cont.)


```
ENTER BAD
CUTOFF  65%
USE +/-
'Y' TO CONTINUE
```

Enter the Bad Cutoff Limit. Any ratio below this limit is graded a Bad Battery.
NOTE: The Bad Cutoff MUST BE below the Good Cutoff.

Any battery whose ratio is in between the Good Cutoff and Bad Cutoff is graded as Near End of Life if that feature is active.

```
ENTER BATTERY
TEMP:      70F.
USE +/-
'Y' TO CONTINUE
```

Enter the reference battery's temperature.

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

The battery will be tested to determine the Correction Factor.

```
BATTERY ADDED
TO DATABASE AS
BATTERY #7
```

The battery's information is stored in the next open database index. If the database is full you will need to delete a battery to make room for a new battery.

```
DATABASE MENU
REVIEW DATABASE
ADD BATTERY
>DELETE BATTERY
```

To delete a battery from the database select Delete Battery.

```
ENTER DATABASE
BATTERY #1
USE +/-
'Y' TO CONTINUE
```

Use the + and - Keys to select the battery index to delete. Press 'Y' to delete the battery.

```
BATTERY DELETED
FROM  DATABASE
```


SETUP

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

```
VOLT METER      ↑
DOWNLOAD
>SETUP
ABOUT           ↓
```

```
>SET LANGUAGE:
ENGLISH
USE +/-
'Y' TO SELECT
```

Choose between English, Spanish, or French using the + and - keys to change the language. Press 'Y' to select.

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

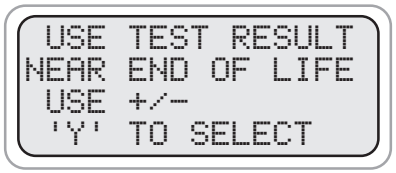
Select the temperature in Fahrenheit or Centigrade.

```
>SET DEFAULT AH
AS: 30.0
USE +/-
'Y' TO SELECT
```

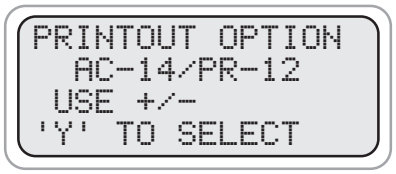
You can also select the default rating to be the last entered AH value or a particular amount such as 30.0 AH.

```
DO YOU WANT TO
DISPLAY MEASURED
BATTERY CAPACITY
   'N' OR 'Y'
```

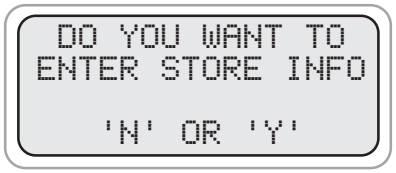
If 'Y' is chosen, the measured battery capacity will be displayed on the battery test result screen and print out. If 'N' is chosen no measured battery capacity will be displayed or printed.



To toggle battery test results between "GOOD" or "BAD" only and "NEAR END OF LIFE", use + or - to change setting then use 'Y' to select.



To print to an Auto Meter stand alone IR printer choose "AC-14/PR-12". To print to the Auto Meter high speed PR-16 printer using the Auto Meter XTC-160 charger/tester and IR-1 printer interface choose "XTC-160/PR-16. To print to a network printer using the POSI-160 choose "POSI-160".



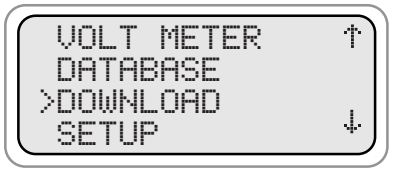
Press 'Y' to enter or change the store address for use on print outs or 'N' to continue.

Entry Hints

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

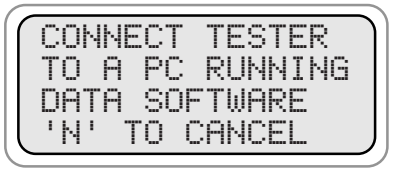
To change the text or number press the (+) or (-) keys. If you press 'N' at the beginning of the screen, no changes will be made. To make changes, use the (+) and (-) keys then press 'Y' to save the change. The cursor will then go to the next character or number. If you are done making changes but there is more text keep pressing 'Y' until the cursor is on a blank space at the end of the lines of text. Pressing 'N' moves back the cursor position back one character. Pressing Print saves the text up to the cursor position. Any text after is deleted.

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



Press (Y Enter)

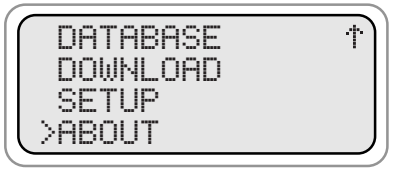
The following will be displayed.



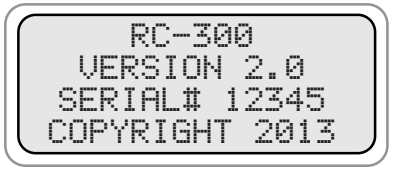
1. Using Auto Meter's optional adapter cord AC-12 insert the stereo plug into the jack on the RC-300 and then plug the serial adapter into a free serial port on the rear of your computer, or connect to AC-32 serial port to USB adapter. Follow the instructions of the AC-62 AMP Link Data Download software to retrieve data from the RC-300.

ABOUT

From the main menu scroll down to the last selection.



Scroll down to About.
Press (Y Enter) to select.



Press (Y Enter) and the version will be displayed.

MAINTENANCE

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 than 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.

BATTERY DATABASE

BATTERY #	DESCRIPTION	RATED AH
01		
02		
03		
04		
05		
06		
07		
08		
09		
10		
11		
12		
13		
14		
15		
16		
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