



## **ATD-5493**

# **Wireless Battery System Tester**

**For Testing 6V & 12V Vehicle Batteries individually & in Battery Packs. Also for testing 6V, 12V, 24V and 36V Charging & Starter Systems**

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## **User Manual**

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Remote



Battery Module



Wireless to IR  
to USB cable and  
Adapter

## INTRODUCTION

The ATD5493 Wireless Battery System Tester tests all 6V and 12V lead acid batteries individually or in parallel and series battery packs. The tester will display the battery or battery pack condition as % available capacity, rated capacity (i.e. CCA's), state of charge voltage and good, marginal or replace status. The ATD5493 also tests 12V, 24V and 36V starter and charging systems including starter draw, alternator output (loaded/unloaded), and diode ripple. The ATD 5493 features a Radio wireless printer output for remote printout of the test results. Test results can be sent to a USB Adapter (included). The test data for the last test performed is stored in the memory and can be reviewed either when connected to a battery, or when disconnected from the battery at a later time.

### Features:

- Patented conductance technology
- Displays % of capacity and CCA's.
- Tests all 12V lead acid batteries including AGM and Gel
- Includes Wireless Local Transmitter
- Radio printer interface for remote printing
- USB adapter for PC printing (included)
- No conversion tables needed
- Test batteries from 100 CCA to 3500 CCA (battery pack)
- Tests 6/12/36V Starting/Charging Systems
- Tests both series and parallel batteries
- Tests Alternator Ripple
- Bad cell is detected and displayed
- Displays Multiple International Units
- Tests 6V batteries
- Custom Header with Company Name, Date and Time
- Loose lead detection
- Temperature Compensation
- RoHS compliant brass post adapters included
- Multiple language (English, Spanish, French)
- Reverse polarity protection
- Auto shutoff feature
- Made in USA

## ATD5493 Controls



## Local Transmitter

Local Transmitter will power on and automatically begin transmitting data when connected to battery.



- Shows steady on when connecting to remote
- When blinking data is sending or receiving to/from remote
- Low Battery

## Battery Module

## UTILITY MENU OPTIONS

The utility menu allows the user to set up the **Language, Date & Time, Company Name, address, and phone #**. To enter the Utility Menu: press **MENU** and **HOLD DOWN** the **NEXT +** button.

### Setting up the Language:

The B600 will default to English. Press **NEXT +** to select the desired language and then press **ENTER**.

### Setting up the Date and Time:

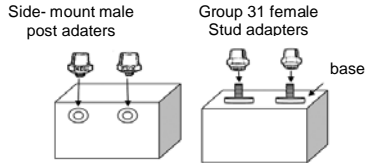
Press **NEXT +**. The display will show **Date Time Setup**. Press **ENTER**. The flashing cursor will blink over day month year format (dd/mm/yy). Scroll up or down to select the desired number.

### Setting up the Company Name, address & phone #:

Press **NEXT +** to set up the Company Name. Scroll the alphabet letters until the first letter of the company is displayed. Press **ENTER** and proceed until the complete name address & phone # is displayed. Note: "Space" and "Apostrophe" characters are shown at the beginning or end of the alphabet.

## PRIOR TO TESTING

**Important:** Use stud or post adapters (provided with the ATD5493) when connecting to side mount or Group 31 batteries outside of the vehicle. Or connect battery clips on the base of threaded stud when testing (see Fig. below). Make sure adapters are properly tightened. Connecting the tester directly to threaded studs or bolts will result in false readings. When connecting to batteries inside or outside of the vehicle, rock the clips back and forth to ensure a good connection. **CHECK CONNECTION** may show on the display if a poor connection is detected. Reset clips if necessary.



## Out of Vehicle Test BATTERY TEST:

1. Connect the B600 Local Transmitter to the battery to be tested. The green **Ready** LED and the yellow **Activity** LED will blink. **Note: make sure battery clips make contact with the lead battery post.**
2. Press the MENU ON/OFF button to turn on the remote. "**Techno Tools B600**" will appear momentarily on the display and then the display will show **WAITING TO CONNECT**. When connected, the green LED will stop blinking and display will show **IN VEHICLE TEST? PRESS NO (+)**.
3. The display will then prompt the user to **SELECT BATTERY VOLTAGE**. Press the **+ UP** or **- Down** buttons to select the battery or battery pack voltage i.e. 6V, 12V, 24V to be tested.  
**NOTE:** The maximum battery pack voltage for testing is 24V (2-12V batteries in series).
4. Press **ENTER ←**: The display will show the battery's State of Charge (SOC) and display **GOOD, LOW, BAD CELL REPLACE or SURFACE CHARGE\***.
5. Press **NEXT +**: The display will prompt the user **TEST BATTERY**.
6. Press **ENTER ←**: The display will prompt the user to select the units of the battery rating: **CCA/SAE, EN, DIN, EIC or JIS**. Press **+ UP** or **- DOWN** to select desired units.
7. Press **ENTER ←**: The display will prompt the user to select the rated battery size. Press the **+ UP** or **- DOWN** buttons to select the battery's numerical rating i.e. 550 CCA.
8. Press **ENTER ←**: The display will show **TESTING.....PLEASE WAIT** for a few seconds. The display will then show the % available capacity\*\* and the battery condition as **GOOD, MARGINAL\*\*\* REPLACE, RECHARGE & RETEST or BAD CELL-REPLACE**.

\*Removing the surface charge may improve the test accuracy when testing **MARGINAL** batteries. To remove surface charge, load the battery for several seconds until the **SOC** voltage drops to 12.8V or less.

\*\*If available capacity is 800 CCA's or greater the Tester will prompt the user if the battery is an AGM type battery.

\*\*\*For **MARGINAL** batteries the ATD5493 will prompt the user **"TEMPERATURE ABOVE 32°F?"**

## In Vehicle Tests

### BATTERY TEST:

Connect the ATD 5493 Local Transmitter to the battery to be tested. The green **Ready** LED and the yellow **Activity** LED will blink. Press the MENU ON/OFF button to turn on the remote. "ATD 5493" will appear momentarily on the display and then the display will show **WAITING TO CONNECT**. When connected the green LED will stop blinking and the display will show **IN VEHICLE TEST? PRESS YES** (←). The display will then prompt the user to **SELECT BATTERY/SYSTEM VOLTAGE**. Press the **+ UP** or **- Down** buttons to select the battery or battery pack voltage i.e. 6V, 12V, 24V, 36V to be tested.

**NOTE:** When testing the battery in the vehicle, make sure vehicle engine is **not** running and all accessory loads are **off**. If **SURFACE CHARGE (SOC)** is displayed, turn on accessory loads (lights, AC or heater) for 15 seconds with engine off.

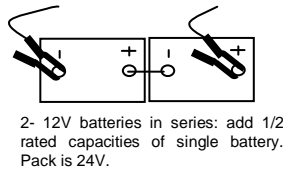
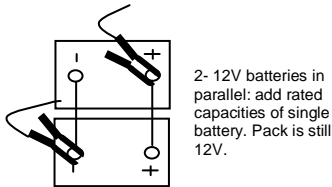
#### Testing Battery Packs:

The ATD5493 tests battery packs when they are connected to the vehicle as though it is testing a single battery. When testing a battery pack, enter the battery voltage and rating of the pack as a single battery.

**Batteries in parallel:** For batteries connected in parallel, add the rated capacity of each single battery to determine the rated capacity of the pack. For example two 500 CCA batteries in parallel would have a rating 1,000 CCA (see figure below). The voltage of the pack remains the same regardless of the number of batteries in the pack. The ATD 5493 can test batteries in parallel up to 3500 CCA.

**Batteries in series:** A pack consisting of 2 single 12V batteries in series would have 24V. The rated capacity of the two 12V batteries in series is  $\frac{1}{2}$  the rating of the single battery. For example two 500 CCA 12V batteries in series would have a rating of only 250 CCA. The ATD 5493 can test two 12V batteries in series

**IMPORTANT:** The ATD 5493 determines the condition of the pack as whole but does not determine the condition of the individual battery in the pack. If the condition of the parallel pack is determined to be bad, disconnect the batteries from the pack and check each battery individually.



### STARTER TEST:

Note: Before the starter can be properly tested, make sure the battery or battery-pack SOC (state of charge) and battery condition tests **GOOD** and the engine is **OFF**.

To test the Starter, scroll to the starter test pressing the **NEXT +** button. The display will prompt the user **TEST STARTER SYSTEM**. To test the starter: Press **ENTER** ←.

1. The display will prompt you to **START ENGINE (ACCESSORIES OFF)**.
2. Crank\* the engine and if it starts, turn engine off. The Tester will display one of the following messages:

**STARTING SYSTEM NORMAL:** The starter system is operating properly.

**CHECK STARTER:** The Starter is drawing excess current. Check starter and starter wires and connections for abnormally high resistance.

**RETEST BATTERY & RETEST STARTER:** The Micro LCD detected unusually low voltage at the battery during cranking indicating that the battery may need replacing. Retest the battery and retest starter.

\***NOTE 1:** The wireless Local Transmitter allows you to have the remote inside while cranking the engine.

**NOTE 2:** In Review mode the minimum starting voltage will be displayed.

## CHARGING SYSTEM TEST:

**IMPORTANT: Engine must be off before testing charging system.**

**Charging system can also be road tested while driving vehicle\*.**

After completing the starter test, press **NEXT +**. The display will prompt the user **TEST CHARGING SYSTEM**. (*Note: the maximum starter/charging voltage is 36V*). To test the charging system:

1. Press **ENTER**←: The user will be prompted to **START THE ENGINE (ACCESSORIES OFF)**. The tester will automatically detect that the engine has started and will display **ENGINE STARTED PLEASE WAIT**.
2. The display will prompt the user to Press **NEXT +** and **REV ENGINE FOR 15 SECONDS**. After revving, the user will be prompted to **TURN ON ACCESSORY LOADS** (lights & AC or heater) and press **NEXT +** again.
3. The user will be prompted to **REV ENGINE FOR 15 SECONDS again**. After revving the display will show one of the following the test results: (Note some versions will prompt the user to turn off accessory loads after revving and then press **NEXT +**.)

### CHARGING SYSTEM IS OK

**NO CHARGING:** The alternator is not supplying a charging voltage to the battery. Check also for loose, slipping or broken alternator belt.

**BAD DIODE REPLACE ALTERNATOR:** The tester detected **excess ripple** coming from the alternator indicating defective diode(s). If diodes are not replaceable, replace alternator.

**BAD DIODE AND/OR CHECK CONNECTIONS:** The tester detected low charging voltage that could be caused by a bad diode (although alternator ripple is within normal limits) or high resistance connections. If connections and diode are found to be good, check regulator and replace if necessary.

**REPLACE REGULATOR:** The tester detected abnormally high alternator output voltage caused by a defective regulator.

### \*ROAD TESTING THE CHARGING SYSTEM

Connect the local unit to the battery making sure it is properly secured. Turn on the Remote and wait for the connection to sync. Set the vehicle charging voltage and press Enter. The display will show the battery SOC (state of charge). Start engine and begin road testing at various speeds with and without accessory loads. The display will show the real time alternator output. Check manufacturer's specifications for proper charging voltage during road test.



**Warning! Risk of accident.**

**Two people should be in the vehicle when driving on the road, one to drive and the other to attend to the equipment. Accidents can occur when attention is not solely given to driving.**



**Road test: Extra precautions are required to keep the local unit away from hot or moving parts while a vehicle is driven on the road. It may be necessary to secure the local unit to frame or body parts with wire or nylon ties to insure that the local unit does not change position while the vehicle is being driven.**

## REVIEWING TEST RESULTS

The ATD5493 remote stores the last test results in memory for review while **connected** to the test battery **or** at a later time when **disconnected** from the battery. The review prompt will only display if data is stored in the memory and has not been erased.

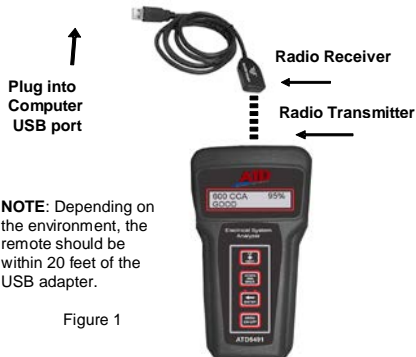
To review stored data, press and hold the **MENU/ON-OFF** button until the display reads **"WAITING TO CONNECT,"** then release the button. Wait approximately 15 seconds for the display to show **REVIEW**. Press enter to review test data stored in the tester.

Press **NEXT +** to review Starter Test data (if stored) and **NEXT +** to review Charging System Test.

## Using the USB Adapter

### Introduction

The USB adapter allows the user to download the stored test data in the ATD 5493 into your computer. Once the CD program is installed, the test data is stored in a Windows based program for immediate printing or saved in a file for future reference.



## Installing the USB CD

### System Requirements:

**Windows XP Service Pack 2 Minimum (Home or Pro), Vista (Home or Pro), Windows 7\* (Home or Pro) & 32 Bit System**

1. Insert the CD into your CD-Rom
2. Follow the simple onscreen instructions. The software will prompt you through each step of the installation.
3. If the software does not start automatically:
  - ❖ Click START on the Windows Taskbar
  - ❖ Chose RUN
  - ❖ Type D:\setup.exe (where D is your CD-ROM drive)
  - ❖ Click OK.

**Note: The software installation requires Microsoft Framework 3.5. This will be automatically installed if required. In this case installation may take about 10 to 12 minutes to install although older systems may take longer.**

4. When the installation finishes, connect the USB adapter to one of the USB ports on your computer. The computer will show the prompt "Found New Hardware". Follow the directions in the new hardware Wizard to complete the driver installation.
5. When the new hardware installation is complete, double click on the Snap-on Software program to open the USB Adapter program.

## Downloading Data Using the USB Adapter

**Note: Set for Wireless (Radio) in Utility Menu for radio transmission**

Click start>All Programs> USB Software to open the USB Adapter program.

1. The following screen will appear:



2. Turn on the ATD 5493 by pressing and holding the **MENU/ON-OFF** button until the display reads "**WAITING TO CONNECT**," then release the button. Wait approximately 15 seconds for the display to show **REVIEW**. Press **NEXT** until the display shows **PRINT**.
3. Press **ENTER** ←. The display will show the message **ALIGN PRINTER-IR ONLY** however no alignment is necessary when using the ATD 5493 with the USB adapter. **Note: The ATD5493 must be within approximately 5-20 feet from the USB adapter.**
4. Press the **ENTER** ← button. The last data stored in the memory will begin downloading to the computer.

## Using the USB Program

To set up shop name, address, and phone number on the print out, click on **Setup**. The following screen will appear:

A screenshot of the 'Shop Information' form. It has a title bar with 'Setup', 'Cancel', 'OK', and 'Exit' buttons. The form contains three input fields: 'Name', 'Address', and 'Phone number'. Below the 'Phone number' field is a 'Save' button.

This information will show at the top of the print out page each time the data is printed and only needs to be entered once.

When the data is recognized by the USB program, the following screen will appear:

A screenshot of the data entry screen. It has a title bar with 'Setup', 'Cancel', 'Print', and 'Exit' buttons. The screen displays a list of fields: 'Customer name', 'Car make', 'Car model', 'Car year', 'Car VIN #', and 'Car Message'. Each field has a corresponding input area. At the bottom, there is a 'Save' button.

Enter the customer, technician name, car make/model, etc. Click on OK.

The data will automatically display in the appropriate columns. Note: If it is not necessary to track the customer, technician, or other information on this screen, leave blank and click OK without entering their names. The data will appear as below:

To view all columns scroll to the right using arrow keys or mouse wheel.

To save the data, click on **Save As**. The data will be saved as a .btd file. To view the file at a later date, click on **Load** and select the file name desired. Note: to save and view all test data stored, keep all test data in the same file. Each new data downloaded will always be added to the next row. **Note:** To delete any row of data- Click mouse to highlight and press delete key on keyboard.

Otherwise, individual data can be saved as a separate file as long as no new data is added and saved to that file.

## Printing the Data on your PC Printer

To print the data using your PC printer, click on print button. The last entry will print. To print a different entry, click on the row to highlight. The data will print out on standard 81/2 x 11 size computer paper.

John's Garage 2851 West Erie Street Hawthorn, FL 32060 Phone: 786 235 1235	
Date:	3/31/2009 8:35:54 AM
Technician:	
Customer:	
Car Make:	
Car Model:	
Car Year:	
Car VIN:	
Car Mileage:	
Charge State:	12.6 V
Battery Size:	5500 CCA
Available capacity:	5812 CCA
Capacity:	100%
State of Health:	Good
Vicat Voltage:	12.6 V
Charging Voltage:	13.8 V
Starting Voltage:	Normal
Idle No Load:	14.4 V
Rev No Load:	14.6 V
Idle Load:	14.6 V
Rev Load:	14.6 V
Reggie P-P:	5580 mV
Charging System:	Normal

Header information is entered in Setup (see page 3)

Date and Technician (see page 4)

Car information entered (see page 4)

Data from battery tester

**NOTE:** To properly test the Electrical System (Full Test) the test sequence should be Battery Test, Starter Test, and then Charging System Test. The battery must be in good condition to properly test the Starter and Charging system. Therefore, the Starter Test Data and/or Charging Test Data may not show on the printout if either test is skipped.

## TRANSMITTING/ RECEIVING ERROR MESSAGES

- If remote is turned on when local transmitter is not connected the display will show:  
**"WAITING TO CONNECT"**
- If remote is temporarily out of range or signal is momentarily weak the display will show:  
**"SYNCING"**  
**"PLEASE WAIT"**
- If local transmitter becomes disconnected or remote cannot sync after several unsuccessful attempts and reconnection is not possible, the display will show:  
**"WAITING TIME OUT"**  
**"GOODBYE"**

## AUTO SHUTOFF

If the tester is left on while in a user select mode (other than SOC) the ATD5493 will automatically shutoff after 3 minutes from the last user entry. This will conserve battery life in case the tester is left on inadvertently.

## REPLACING THE INTERNAL 9V BATTERY

- The ATD5493 will alert the user when the voltage of the internal battery is low and needs to be replaced. When this occurs, the display shows **REPLACE INTERNAL BATTERY**. This message will also display if no battery is installed.
- To replace battery: Remove screw at back of tester and lift up the battery cover. Insert the 9V battery into the battery compartment noting the polarity label inside. (See figure below).



ATD5493  
Battery  
Compartment



## REPLACEMENT PARTS

PART#	PART DESCRIPTION
PRT5493-01	BRASS POST ADAPTER FEMALE SET
PRT5493-02	BRASS POST ADAPTER MALE SET
PRT5493-03	CARRYING CASE
PRT5493-04	LOCAL TRANSMITTER MODULE
PRT5493-05	WIRELESS TO IR TO USB MINI CABLE

## PRODUCT SPECIFICATIONS

Model #	ATD 5493
Name	Electrical System Analyzer
Battery Size Range	100 CCA to 3500 CCA
DC Voltage: Range/Accuracy	3.0V to 49.9V/ +/- 2% reading
LCD Display	2 line-16 character
mA Range (Parasitic drain test)	5 mA to 1,000 mA
Power Supply	9V (Internal Battery)
Cable Length (Local Transmitter)	2 Ft.
Wireless Signal	900MHz (Custom Protocol)
Weight, lbs	1.5 lbs
Warranty	2 years
Wireless Range	Approx. 50 Ft. (depending on the environment)
USB ADAPTER Specifications	
Normal dist. from Tester to Adapter:	18" to 20 ft (depending on environment)
USB Cable:	Mini USB
USB cable length:	36"
Operating Temperature:	32°F to 120°F
Weight:	.25 LBS

## RETURN FOR REPAIR POLICY

Every effort has been made to provide reliable, superior quality products. However, in the event your instrument requires repair, forward unit to Service Center freight prepaid to the address below with return address, phone number and/or email address.

TECHNO TOOLS TOOLS  
SERVICE CENTER  
2651 W 81st Street  
Hialeah, FL 33016

## WARRANTY POLICY

The ATD 5493 Battery System Tester is warranted to be free of defects in materials and workmanship for a period of two years from the date of purchase. This warranty applies to all repairable instruments that have not been tampered with or damaged through improper use including unauthorized opening of the unit. Please ship warranty units that require repair freight prepaid to Service Center along with proof of purchase, return address, phone number and/or email address.



### WARNING

- Batteries produce explosive gases and can explode.



- Wear safety goggles. (user and bystanders)



- Keep flames and sparks away from batteries.



- Read and follow instructions.

Battery explosion and ignited gases can cause injury.



### WARNING

- Battery acid can cause chemical burns.



- Wear protective clothing. (user and bystanders)

Chemical burns can cause injury.

CEC DECLARATION OF CONFORMITY 2007	
Application of Council Directive(s)	
EMC Directive 89/336/EEC as amended by 92/31/EEC, 93/28/EEC, 95/19/EEC	
<b>Manufacturer's Name:</b> Snap-on Tools Corporation 2801 Ron Street Kenosha WI 53141-1819	
<b>Equipment Type/Description:</b> Battery & Electrical System Analyzer	
<b>Model:</b> Snap-on Tools Model 9420B	
<b>Conformance to:</b> EN 61010-1:2001 (IEC), EN 61010-2:2001 (IEC) EN 61010-4:2001 (IEC)	
The Snap-on Tools Refrigerant Leak Detector was found to meet the requirements described with the specifications of EN 61010-5:1.	
The undersigned hereby declares that the equipment specified above conforms to the above Directive(s).	
Signature-Technical Specification	May 23, 2007
Date	
Signature-EMC Test Engineer	May 23, 2007
Date	
Signature - Manufacturer's Representative	May 23, 2007
Date	
Signature - Manufacturing Representative	May 23, 2007
Date	