



CPX-930

Battery & System Analyzer



***For testing 6 and 12-volt automotive batteries and
12- and 24-volt charging systems***

User Manual

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1 – Introduction

Personal Precautions

⚠ DANGER



Risk of explosive gases. Never smoke or allow a spark or flame in the vicinity of a battery.

Batteries can produce a highly explosive mix of hydrogen gas and oxygen, even when the battery is not in operation. Always work in a well-ventilated area.

⚠ WARNING

Wash hands after handling.

REQUIRED BY CALIFORNIA PROP. 65: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

Inspect the battery for damage and check the electrolyte level. If the electrolyte level is too low, replenish it and fully charge the battery. Always use the necessary safety precautions when working with batteries to prevent severe injury or death. Follow all manufacturers' instructions and BCI (Battery Council International) safety recommendations, which include the following precautions:

- ✓ Battery acid is highly corrosive. If acid enters your eyes, immediately flush them thoroughly with cold running water for at least 15 minutes and seek medical attention. If battery acid gets on your skin or clothing, wash immediately with a mixture of water and baking soda.
- ✓ Always wear proper safety glasses or face shield when working with or around batteries.
- ✓ Keep hair, hands, and clothing as well as the analyzer cords and cables away from moving engine parts.
- ✓ Remove any jewelry or watches before you start servicing the battery.
- ✓ Use caution when working with metallic tools to prevent sparks or short circuits.
- ✓ Never lean over a battery when testing, charging, or jump starting.

Symbols Conventions

Symbol	Description
	The safety symbol indicates instructions for avoiding hazardous conditions and personal injury.
	The safety symbol with the words CAUTION , WARNING , or DANGER indicates instructions for avoiding hazardous conditions and personal injury.
	The wrench symbol indicates procedural notes and helpful information.

Description

The analyzer uses function-specific applications accessed through a series of menus and icons to guide users through the battery testing process for consistent testing implementation and accuracy. These are accessed using the tester's touch screen display. Test results can be displayed on the full-color screen, printed, or wirelessly emailed.

Consent to Collection and Use of Data:

You agree that Midtronics, Inc. may collect, store, transmit, and use technical data and related information, including but not limited to technical information about this device, system and application software, and accessories, that is gathered periodically to facilitate the provision of product support, product improvements, product development, and other services related to use of this device. If electing to collect personal data (such as e-mail addresses) the user is solely responsible for obtaining any necessary permissions, and agrees to indemnify and hold harmless Midtronics, Inc. its subsidiaries, officers, employees and agents from any liability associated with collecting, storing, and transmitting such personal data.

Controls & Connections



- ① Display Screen
- ② Cooling Vent
- ③ Arrow Keys & Power Button
- ④ Mini-USB Port
- ⑤ Thermal Printer
- ⑥ Temperature Sensor
- ⑦ VIN Barcode Scanner
- ⑧ Clamp Tabs



Initial Power Up

The tester will take a few moments when powered up for the first time.

WiFi Settings

Set up the tool's WiFi connection. See "Network" in Chapter 6: Setup

<u>Automatic</u>	The tester searches for any detectable WiFi networks. Select a displayed network is then displayed on the tester screen.
<u>Manual</u>	Manually enter Security, SSID, and Password.

User Credentials

Enter the Username and Password.

Use ▲▼◀▶ to highlight the characters on the displayed keyboard and press ■ to select.

Dealer Code

Use ▲▼◀▶ to highlight the characters on the displayed keyboard and press ■ to select.

Shop Info

Use to enter information about the shop in which the tester will be used.

Shop Name	Country
Shop Address	Phone Number
Shop Address 2	Email Address
City	Website
State	(Blank)
Zipcode	(Blank)
Country	

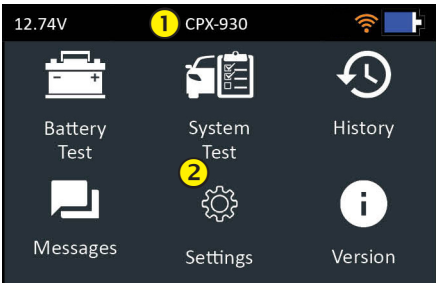
- 1. Delete the placeholder text.
- 2. With the displayed alphanumeric keypad, use ▲▼◀▶ to highlight the desired alphanumeric character. Select ⬆ to access the lower case and symbol character maps.
- 3. Once all of the alphanumeric characters have been entered, select **Save** or **Esc** to exit without saving.

Data Collection Consent

Select **Accept** to Consent to Collection and Use of Test Data.

The Main Menu is displayed.

Main Menu



1 Menu Bar

12.74V	Battery Voltage (if connected to a battery)		Controller internal battery status
	WiFi signal strength		

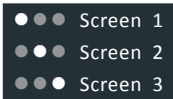
2 Main Menu Selection Area



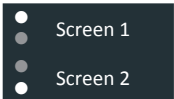
When displayed, the Screen Arrows show which **ARROW** key on the keypad to press to display other icons or screens. When displayed under a list of options, the Screen Arrows show which keypad arrow to press to highlight a character or item in a list.

Additional Screens

The dots at the bottom or side of a menu or results screen indicate additional screens are available,



Press ◀ or ▶



Press ▲ or ▼

Main Menu Icons

Icon	Description
 Battery Test	For standalone battery testing (battery not connected or removed from a vehicle).
 System Test	For testing batteries that are connected to and installed in a vehicle. A System Test includes a Battery Test and a Starter and Charging Test.
 History	Access archived test histories or search test history by technician.
 Messages	Displays alerts and notifications for upcoming tool software updates.
 Settings	Setup/adjust: WiFi, printer setup, email settings, user information, default language, display, and shop information.
 Version	Access to tester software version information.

Test Preparation

Inspecting the Battery

Before starting the test visually inspect the battery for:

- Cracked, buckled, or leaking case. If you see any of these defects, replace the battery.
- Corroded, loose, or damaged cables and connections. Repair or replace them as needed.
- Corrosion on the battery terminals, and dirt or acid on the case top. Clean the case and terminals using a wire brush and a mixture of water and baking soda.
- Low electrolyte level. If the electrolyte level is too low, add distilled water to fill up to the proper level and fully charge the battery. Do not overfill.
- Corroded or loose battery tray and hold-down fixture. Tighten or replace as needed.

Testing In-Vehicle

The preferred test position is at the battery posts. If you must test at a remote-post location, it should have both a positive and negative post. Otherwise, you must remove the battery and perform an out-of-vehicle test.

At the start of the test, make sure all vehicle accessory loads are off, the key is not in the ignition, and the doors are closed.

Testing Out-of-Vehicle

The preferred battery test location is In-Vehicle. However, for testing Out-Of-Vehicle:

- Always disconnect the negative cable from the battery first and reconnect it last.
- Always use a carry tool or strap to lift and transport the battery.

WARNING

Failure to properly install lead terminal adapters, or using adapters that are dirty or worn, may cause false test results.

When testing side-post or Group 31 batteries, always use lead terminal adapters provided with the tester—do not test at the battery's steel bolts. To avoid damage, never use a wrench to tighten the adapters more than ¼ turn.

Connecting To A Battery

CAUTION

Do not connect the tester to a voltage source greater than 30 Vdc.

Connect the clamps to the tester: the red clamp to the positive (+) terminal and the black clamp to the negative (–) terminal. If the clamps are reversed when connected, the tester displays CLAMPS REVERSED! Reconnect the clamps.

Make sure both sides of the clamps are gripping the terminals by rocking each clamp back and forth. A poor connection will prevent testing, and the tester will display a CHECK CONNECTION message. If the message reappears after reconnecting, clean the terminals and reconnect.

Setting User Preferences

Customize the analyzer by setting preferences in the Settings () Menu, described in Chapter 6.

2 – Battery Test



Battery Test

Use Battery Test for testing in-vehicle and out-of-vehicle batteries using test parameters determined by the vehicle VIN and/or battery manufacturer.

Battery Test provides a battery decision along with additional detailed information on battery cranking, reserve capacity, and a warranty code. Press ▲◀▶▼ to return to the previous screen, select options and when necessary, ■ to enter or continue to the next step.

1. Connect the tester clamps to the battery terminals.

Auto Test - If enabled, the tool immediately begins testing the battery. (See Chapter 6 - Settings)

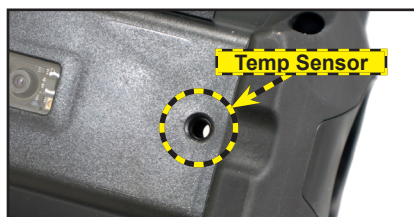


NOTE: The testing process uses Conductance Profiling™ technology to determine battery cranking capability and Reserve Capacity. This additional analysis can take up to 60 seconds to complete.



IMPORTANT: To expedite the testing procedure, Auto Test is enabled. (See Chapter 6 - Settings) The testing process begins as soon as the clamps are connected.

2. At the Main Menu select **Battery Test**.
3. Battery Location - Select **In Vehicle** or **Out Of Vehicle**
4. Enter Work Order - If enabled, use the displayed keyboard template to Enter Work Order information. (See Chapter 6 - Settings)
5. Temperature - Hold the tester temperature sensor 6 to 12 inches over the top of the battery being tested.



Select **Capture** to lock in the live temperature reading.

6. VIN Capture - scan the VIN bar code, usually located in the right corner of the vehicle's front windshield or on the driver's side door frame. Refer to the Appendix for additional scanning tips.

Manual Entry - Use the on-screen keypad to manually type the 17-digit VIN and select **Next**.

1	2	3	4	5	6	7	8	9	0
W	E	R	T	Y	U	P			
A	S	D	F	G	H	J	K	L	
Z	X	C	V	B	N	M			ⓧ
ESC							Save		

The displayed digit counter will count up the alphanumeric characters as they are entered.

7. Vehicle Info - The vehicle information for the associated VIN is displayed. Select **Next**.
8. Select Battery Brand - If the VIN entered is a Mitsubishi vehicle, select the Battery Brand and press ■.

9. Battery Test Setup - Edit the displayed battery information.

Application	Automotive, 4D/8D, Group 31
Battery Post	Top Post, Side Post
Battery Type	Flooded, AGM, AGM Spiral, Gel, EFB
Battery Units	CCA, CA, DIN, SAE, IEC, EN, MCA, EN2
Battery Rating	Hold down ▲ or ▼ to increase scrolling speed.

Rating	Description	Range
CCA	C old C ranking A mps (specified by SAE): The amount of current a battery can provide at 0 °F (–17.8 °C).	100 to 3000
CA	C ranking A mps: The amount of current a battery can provide at 32°F (0 °C).	100 to 3000
DIN	D eutsche I ndustrie- N orm	100 to 1000
SAE	S ociety of A utomotive E ngineers - European labeling of CCA	100 to 3000
IEC	I nternational E lectrotechnical C ommission	100 to 1000
EN	E uropa- N orm	100 to 1700
MCA	M arine C ranking A mps: The amount of current a battery can provide at 32°F (0 °C).	100 to 3000
EN2	E uropa- N orm	100 to 1700

10. Select **Next** to transmit test data to BMIS and display the test results.

Test Results

**IMPORTANT:** Test data is transitted to BMIS before the results are displayed on the tool screen. An error message is displayed if the CPX-930 is unable to transmit the data.

Icons are color-coded to indicate status.



Battery Test



Starter Test



Alternator Test

Green:

All test parameters were completed and have passed.

Red:

The battery has failed the test.

Yellow:

Some test parameters may require further testing.

Gray:

Insufficient data to perform the test.

Test Results - Battery

JA4T5AAXKZ002797



Good Battery

Rated

575 CCA

Voltage

12.72 V

Measured

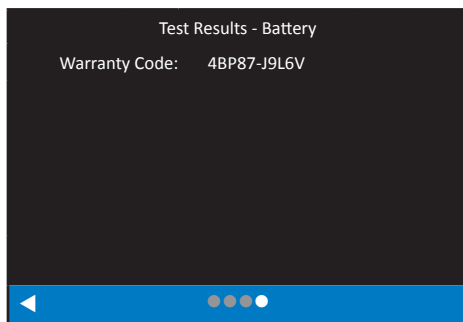
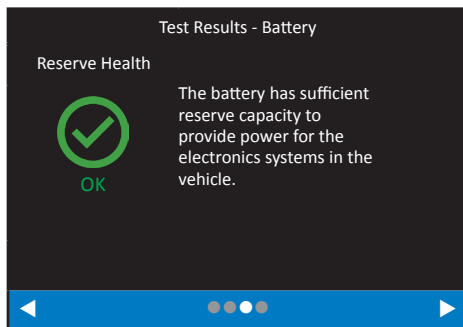
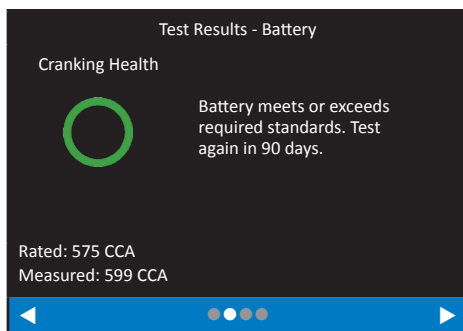
599 CCA

Temperature:

97° F

Send Results

Done



Test Results - Battery Test



NOTE: See the Appendix at the back of this manual for complete parameter descriptions.

Select **Send Results** displayed at the bottom of the tester screen to send the test results to the built-in printer or via email. Select **Done** to return to the Main Menu.



Email



Printer

3 – System Test



System Test

Use System Test on in-vehicle batteries using test parameters determined by the vehicle VIN. A System Test for Starter and Charging system testing is also available.

The tester renders a battery decision along with additional detailed information on battery cranking and reserve capacity. Press ▲◀▶▼ to return to the previous screen, select options and when necessary, ■ to enter or continue to the next step.

1. Connect the tester clamps to the battery terminals.

Auto Test - If enabled, the tool immediately begins testing the battery. (See Chapter 6 - Settings)

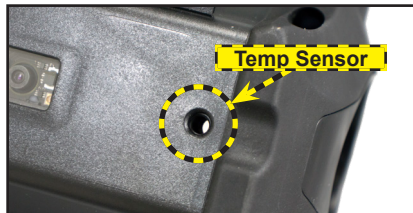


NOTE: The testing process uses Conductance Profiling™ technology to determine battery cranking capability and Reserve Capacity. This additional analysis can take up to 60 seconds to complete.



IMPORTANT: To expedite the testing procedure, Auto Test is enabled. (See Chapter 6 - Settings) The testing process begins as soon as the clamps are connected.

2. At the Main Menu select **Battery Test**.
3. **Enter Work Order** - If enabled, use the displayed keyboard template to Enter Work Order information. (See Chapter 6 - Settings)
4. **Temperature** - Hold the tester temperature sensor 6 to 12 inches over the top of the battery being tested.



Select **Capture** to lock in the live temperature reading.

5. **VIN Capture** - scan the VIN bar code, usually located in the right corner of the vehicle's front windshield or on the driver's side door frame. Refer to the Appendix for additional scanning tips.

Manual Entry - Use the on-screen keypad to manually type the 17-digit VIN and select **Next**.

1	2	3	4	5	6	7	8	9	0
W	E	R	T	Y	U	P			
A	S	D	F	G	H	J	K	L	
Z	X	C	V	B	N	M			ⓧ
ESC									Save

The displayed digit counter will count up the alphanumeric characters as they are entered.

6. Vehicle Info - The vehicle information for the associated VIN is displayed. Select **Next**.
7. Select Battery Brand - If the VIN entered is a Mitsubishi vehicle, select the Battery Brand and press **■**.
8. Battery Test Setup - Edit the displayed battery information.

Application	Automotive, 4D/8D, Group 31
Battery Post	Top Post, Side Post
Battery Type	Flooded, AGM, AGM Spiral, Gel, EFB
Battery Units	CCA, CA, DIN, SAE, IEC, EN, MCA, EN2
Battery Rating	Hold down ▲ or ▼ to increase scrolling speed.

Rating	Description	Range
CCA	C old C ranking A mps (specified by SAE): The amount of current a battery can provide at 0 °F (–17.8 °C).	100 to 3000
CA	C ranking A mps: The amount of current a battery can provide at 32°F (0 °C).	100 to 3000
DIN	D eutsche I ndustrie- N orm	100 to 1000
SAE	S ociety of A utomotive E ngineers - European labeling of CCA	100 to 3000
IEC	I nternational E lectrotechnical C ommission	100 to 1000
EN	E uropa- N orm	100 to 1700
MCA	M arine C ranking A mps: The amount of current a battery can provide at 32°F (0 °C).	100 to 3000
EN2	E uropa- N orm	100 to 1700

9. Select **Next** to continue with the System Test.
10. Start the vehicle's engine and let it idle.
11. Ensure all accessories (High Beam headlights/ventilation blower etc.) are off and select **Next**.
The alternator output is tested.
12. When prompted, rev and hold the engine to between 2000 to 3000 rpm.
The alternator output is tested.
13. When prompted idle the engine and and select **Next**.
14. Turn on the high beam headlights and ventilation blower and select **Next**.
The alternator output is tested.
15. When prompted, rev and hold the engine to between 2000 to 3000 rpm.
The alternator output is tested.
16. When prompted, turn off all loads and Idle the engine.
17. Select **Next** to display the test results.

System Test Results



IMPORTANT: Do not disconnect tester clamps from the battery until test data has been transitted to BMIS and results displayed on the tool screen. An error message is displayed if the CPX-930 is unable to transmit the data.

Icons are color-coded to indicate status.



Battery Test



Starter Test



Alternator Test

Green:

All test parameters were completed and have passed.

Red:

The battery has failed the test.

Yellow:

Some test parameters may require further testing.

Gray:

Insufficient data to perform the test.

The Test Results - Summary screen is displayed following a System Test. Select the Battery, Cranking, or Charging Test to view detailed test results for each part of the test.



NOTE: See the Appendix at the back of this manual for complete parameter descriptions.

Test Results - Summary

VIN: JA4T5AAXKZ002797



Good Battery



Cranking Normal



Charging Normal

Send Results

Done

Select **Send Results** displayed at the bottom of the tester screen to send the test results to the built-in printer or via email. Select **Done** to return to the Main Menu.



Email



Printer

Test Results - Battery

Test Results - Battery

JA4T5AAXKZ002797



Good Battery

Rated	575 CCA
Voltage	12.72 V
Measured	599 CCA
Temperature:	43° F

▶

Done

Test Results - Battery

Cranking Health



Battery meets or exceeds required standards. Test again in 90 days.

Rated: 575 CCA
Measured: 599 CCA

◀

▶

Test Results - Battery

Reserve Health



OK

The battery has sufficient reserve capacity to provide power for the electronics systems in the vehicle.

◀

▶

Test Results - Battery

Warranty Code: 4BP87-J9L6V

◀

▶

Test Results - Battery Test

Test Results - Cranking

Test Results - Cranking

JA4T5AAXKZ002797



Cranking Voltage: 11.58V
Starting Time: 2.480s

Cranking Normal

Done

Test Results - Charging

Test Results - Charging

JA4T5AAXKZ002797



No Load Voltage: 14.69V
Starting Time: 14.37V

No Problem

Done

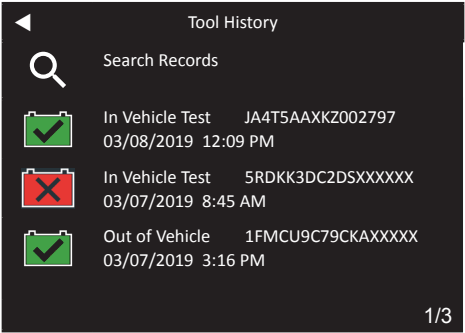
4 – History



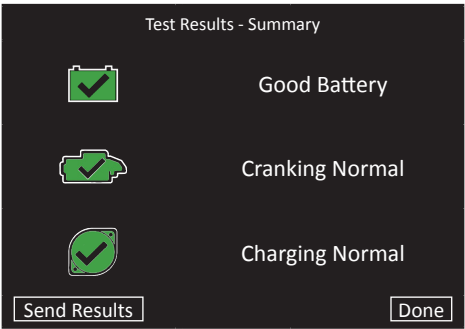
Use History to access the tool usage history. The search function can also be used to find test records for specific vehicles.

Press ▲◀▶▼ to return to the previous screen, select options and when necessary, ■ to enter or continue to the next step.

1. At the Main Menu, select **History**. The Tool History screen is displayed.



2. Scroll to select a vehicle record to view the test results or select Search Records to find records by manually entering a VIN, scanning a VIN, or by test result decision.
3. For In Vehicle tests results, the Summary screen is displayed.



Test Results - Summary

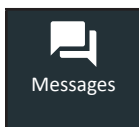
4. Select the Battery, Cranking, or Alternator Test to view detailed test results for each part of the test.



NOTE: See the Appendix at the back of this manual for complete parameter descriptions.

5. To send the test results to a configured printer or via email select **Send Results**. To return to the Home Screen, select **Done** to the Main Menu.

5 – Messages



The Messages function displays alerts and notifications for upcoming tool software updates when the tester is connected to a WiFi network and BMIS.

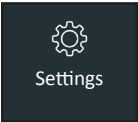
Select ◀ to return to the previous screen or 🏠 to return to the Main Menu.

Accessing Messages



A number is displayed next to the Messages icon when the analyzer has received any critical messages.

6 – Settings



Use Setup to setup and adjust the tester display and time, shop and administrative settings, and network connectivity.

Press ▲◀▶▼ to return to the previous screen, select options and when necessary, ■ to enter or continue to the next step.

Tool

Display

Use ◀ to return to the Display menu.

<u>Language</u>	Select the analyzer default standard language.
<u>Temperature Units</u>	Select the default temperature units (Fahrenheit/Celsius) used when measuring battery temperature.
<u>Number Separator</u>	Select the default number display using commas or periods separators.

Date & Time

Use ◀ to return to the Display menu.

<u>Date Format</u>	Select Month/Day/Year (MM/DD/YYYY), or Day/Month/Year DD/MM/YYYY.
<u>Date</u>	Use ▲ or ▼ to advance the month, day, and year. Use ◀ or ▶ to advance left or right and move to Cancel or Next. Select Next to save the date or Cancel to exit without saving. ▲▲▲ June182018 ▼▼▼ CancelNext
<u>Time Format</u>	Select 12 or 24 Hour Format.
<u>Time</u>	Use ▲ or ▼ to advance the hours, minutes, and AM/PM setting. Use ◀ or ▶ to advance left or right and move to Cancel or Next. Select Next to save the time or Cancel to exit without saving. ▲▲▲ 1046AM ▼▼▼ CancelNext

Print Format

Set the default to include Shop Info and State Of Health (SoH) information on test result printouts. Use  to return to the Display menu.

<u>Include Shop Info</u>	Press  to check and uncheck the box. A checked box indicates the shop information will be included on printed test results.
<u>Include SoH Graph</u>	Press  to check and uncheck the box. A checked box indicates the State Of Health screen will be included on printed test results.

Work Order

<u>Work Order</u>	Press  to check/uncheck the box to enable/disable the function.
<u>Customize Enable</u>	Press  to check/uncheck the box to enable/disable the ability to customize Work Order Text.
<u>Work Order Text</u>	Use     to highlight characters on the displayed keyboard and press  to select. Limit=13 characters. Select Esc to return to the Work Order Settings screen.

Auto Test

Press  to check and uncheck the box. A checked box indicates the tester will immediately begin testing a battery as soon as it is connected. Use  to return to the Tool menu.

 **NOTE:** To expedite the testing procedure, enable the Auto Test function.

Version

Use to confirm technical information for internal tester software and hardware.

Config:	Build Number:
Firmware:	Serial Number:
Flash:	MAC ID:
EEPROM:	FCC ID:
Build Date:	

Shop Settings

Admin

<u>Admin Enable</u>	Press  to check and uncheck the box. A checked box indicates the Admin function is enabled.
<u>Admin Pin</u>	Use     to select a four (4) digit Admin PIN. Select OK to save the PIN or Cancel to exit without saving. Use  to return to the Shop Settings menu.

Shop Info

Enter the shop information where the tester will be used.

Shop Name	Phone Number
Shop Address	Email Address
Shop Address 2	Website
City	(Blank)
State	(Blank)
Zipcode	(Blank)
Country	

1. Use  to delete the placeholder text.
2. With the displayed alphanumeric keypad, use  to highlight the desired alphanumeric character.
3. Select  to access the lower case and symbol character maps.
4. Once all of the alphanumeric characters have been entered, select **Save** or **Esc** to exit without saving.

Users

The Users function is for enabling, adding, and editing IDs for tester users. It also allows you to delete a USER ID and its associated test total.

<u>Enable Users</u>	Press  to check and uncheck the box. A checked box indicates the Enable Users function is enabled.
<u>Add User</u>	(Limit 10) With the displayed alphanumeric keyboard, use  to highlight the desired alphanumeric character. Press  to select that character. • Select  to access the lower case and symbol character maps. • Select ?123 to access alternative characters. Once all of the alphanumeric characters have been entered, select Save or Esc to exit without saving.
<u>Edit User</u>	Use  to select a user to edit (1 of 10). Use  to highlight the desired alphanumeric character. Press  to select that character. • Select  to access the lower case and symbol character maps. • Select ?123 to access alternative characters. Once all of the alphanumeric characters have been entered, select Save or Esc to exit without saving.
<u>Delete User</u>	Use   to select a user to delete (1 of 10). Press  . A tone sounds and a confirmation screen is displayed. Select Delete to delete the user or Cancel to exit and go back one screen.

Use to enter information about the shop in which the tester will be used.

Network

WiFi

<u>Automatic</u>	The tester searches for any detectable WiFi networks. A list of detected WiFi networks is then displayed on the tester screen. Highlight a displayed network and press  to connect. Press  to return to the WiFi Settings screen.
<u>Manual</u>	Manually enter Security, SSID, and Password. Select Connect .

BMIS Settings

Use the BMIS Settings function to manage administrator User Credentials and edit the Dealer Code number.

Users Credentials

<u>Username</u>	Administrator's Username
<u>Password</u>	Administrator's Password. Press  to edit.

Dealer Code

Press  to edit.

7 – Maintenance & Troubleshooting

Tester Cables

The test cables that come with your analyzer are consumable items. Cables are like tires in that the more you use them and the harder you drive them, the shorter their useful life. Here are a few things you can do to protect your test cables from damage and premature wear:

Cleaning Clamps

- The grease, dirt, and sulfation that build up on battery terminals are highly corrosive and can damage the clamps over time. Before connecting the clamps, ensure accurate test readings and protect the clamps by cleaning the battery case and terminals using a wire brush and a mixture of water and baking soda.
- Periodically clean the clamps using a mixture of baking soda and water, or a mild hand-soap, and a small bristle brush.
- To protect the clamps from oil and dirt, clip them to the Clamp Tab on the back of the analyzer.



Handling Test Cables

- Always connect and disconnect the clamps to the battery by opening and closing the clamps. Never pull on the test cables to remove the battery clamps. Pulling can damage the Y-junction, the cables, and the clamps to the extent that the analyzer may produce lower-than-expected conductance readings or fail completely.
- Never carry the analyzer by the cables. Carrying the analyzer or swinging it by the cables puts unnecessary strain on the cables and can result in premature failure. Handle the analyzer with care to get the maximum use from the product.

Storing Test Cables

- Never wrap the cables around the analyzer; this puts unnecessary strain on the test cables.

Because the test cables are the “tires” of the analyzer, they have a certain life expectancy and will wear out eventually. However, the abuse examples cited above are not covered under warranty. To ensure the best performance and longest life of the test cables, attach and remove them with care, and carry the analyzer and cables together.

If an inspection or a change in test results indicate that the test cables need to be replaced, call Midtronics Customer Service at 1-800-776-1995.

Printer Paper

The internal printer is shipped with a roll of 2¼" wide by 17⁄8" in diameter thermal printing paper installed. Replacement rolls are available through Midtronics (Part # A401 for a 10 pack), or online office supply websites.

Online Store	Item #
www.possupply.com	T214-020
www.paperrolls-n-more.com	AT21416
www.thermalroll.com	PRT57016NOCORE-100



NOTE: Due to production variances some paper roll diameters may be too large. Please remove paper from roll to recommended 17⁄8" diameter. DO NOT force cover to close if roll is too large.



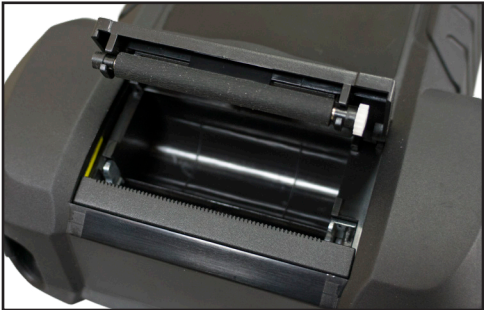
NOTE: The analyzer uses only thermal printing paper.

Replacing The Paper Roll

1. Unlock the printer door by gently lifting up on the release.



2. Lift the printer door and remove the spent roll.



3. Place a new roll of paper in the compartment. The paper feeds from the bottom of the roll.
4. Pull the paper forward so that it extends past the serrated edge of the paper slot.
5. Close the door and make sure the lever locks securely. For a clean tear, pull the paper along the serrated edge. **Do not pull the paper straight out of the printer.**

Replacing The Internal Batteries

1. Turn the analyzer face down.
2. Use a Phillips screwdriver to remove the screw securing the door to the battery compartment.



3. Lift the door at the tab and place it aside.



4. Remove the discharged batteries.
5. Insert new batteries as shown. Make sure the positive and negative terminals are positioned correctly.
6. Reposition the door on the battery compartment.
7. Reinsert and tighten the screw.

Appendix

Battery Test Results

Decision	Cranking Health	Reserve Capacity	Description
 Good Battery	Good Battery	Good Battery	Battery meets or exceeds required standards.
	Good Battery	Unknown Reserve	Battery meets or exceeds required standards.
 Good Recharge	Good Recharge	Good Battery	Battery is good, but low on charge. Fully charge the battery for optimal performance and life. Check for causes of low charge.
		Unknown Reserve	
 Charge & Retest	Charge & Retest	Unknown Reserve	Battery requires charge to determine condition.
		Charge & Retest	
 Replace Battery	Badcell Replace Short	Replace Battery	Battery fails to meet industry accepted standards.
	Charge & Retest	Replace Battery	Battery is low in charge and shows low reserve capacity. Low reserve capacity will compromise the battery's ability to provide system current and hold a charge.
	Good Battery	Replace Battery	Battery is good for cranking purpose but shows low reserve capacity. Low reserve capacity will compromise the battery's ability to provide system current and hold a charge.
	Good Recharge	Replace Battery	
	Replace Battery	Good Battery	
	Replace Battery	Replace Battery	
	Replace Battery	Unknown Reserve	
 Badcell Short Replace	Badcell Replace Short	Good Battery	Battery fails to meet industry accepted standards
	Badcell Replace Short	Unknown Reserve	

Starter Test Results

Decision	Action
 Cranking Normal	The starter voltage is normal and the battery is fully charged.
 Low Voltage	The starter voltage is low and the battery is fully charged.
 Charge Battery	The starter voltage is low and the battery is discharged. Fully charge the battery and repeat the starter system test.
 Replace Battery	If the battery test result was REPLACE, the battery must be replaced before testing the starter.
 Low Current	The starter voltage is high but the cranking amps are low.
 No Start	The engine didn't start and the test was aborted or the vehicle's starting profile was not detected and the Starter Test was skipped.

Alternator Test Results

Decision	Action
 Charging Normal	The output from the alternator is normal.
 No Output	No output detected. Check belts to ensure alternator is rotating when engine is running. ✓ Check all alternator connections including to the battery. Clean or replace if necessary and retest. ✓ If the belts and connections are in good working condition, replace alternator or external voltage regulator.
 Low Output	Alternator not providing enough current to power electrical loads and charge the battery. ✓ Check belts to ensure the alternator is rotating with the engine running. ✓ Check alternator connections to and from the battery. If loose or heavily corroded, clean or replace the cable and retest.
 High Output	Alternator voltage to the battery exceeds normal limits of a functioning regulator. ✓ Check for loose and normal ground connections. If no connection problems are found, replace the regulator. The normal high limit of a typical automotive regulator is 14.5 volts ± 0.5 . Refer to the manufacturer specifications for the correct limit, which may vary by vehicle type.

Recommended Scanning Procedure

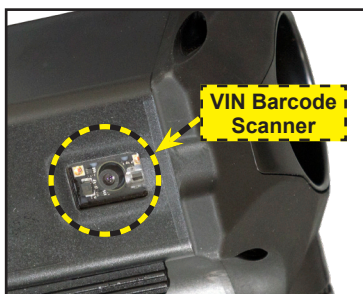
The CPX-930 uses a 1D/2D barcode scanner built into the back of the tester to scan the VIN of the vehicle being tested. This number is then cross referenced with original equipment manufacturer's battery specifications in the tester's database and displayed on the tester screen.



NOTE: Barcode types supported by the CPX-930 include **A:** 1D: Code 39, Code 128, UPC, Codabar, GS1-Limited; **2D:** PDF417, QR Code; Model 2, and Data Matrix.

Scanning Tips

- **Barcode Scanner:** Located in the upper left portion on the back of the tester.



Drivers Door Frame

- **Hold Steady:** Hold the tester steady when scanning the VIN barcode. This allows the user to clearly see the barcode and allows the scanner to focus on it.
- **Clean Barcode/Windshield:** Surface dirt can interfere with the scanning process. If necessary wipe the VIN barcode with a cloth or your finger remove any surface dirt.
- **Lighting/Glare:** If sunlight is shining directly onto the VIN barcode, try pivoting the scanner up or down slightly to reduce any glare.

PATENTS

This product is made by Midtronics, Inc., and is protected by one or more U.S. and foreign patents. For specific patent information, contact Midtronics, Inc. at +1 630 323-2800.

LIMITED WARRANTY

Midtronics products are warranted to be free of defects in materials and workmanship for a period of one (1) year from date of purchase. Midtronics will, at our option, repair or replace the unit with a re-manufactured unit. This limited warranty applies only to Midtronics products, and does not cover any other equipment, static damage, water damage, overvoltage damage, dropping the unit, or damage resulting from extraneous causes including owner misuse. Midtronics is not liable for any incidental or consequential damages for breach of this warranty. The warranty is void if owner attempts to disassemble the unit or to modify the cable assembly.

SERVICE

To obtain service, contact Midtronics at 866-592-8052. Have your model and serial numbers ready. This first step is critical as we will trouble-shoot the problem(s) over the phone, and many problems are resolved during this step. If the problem cannot be resolved, then the Customer Service Agent will issue you a Return Material Authorization (RMA). This number becomes your tracking number. The final step is to return the unit to Midtronics freight prepaid (you pay), to the attention of the RMA number obtained.

In USA:

Midtronics, Inc.

Attn: RMA # xxxxx (this is the RMA number that you must obtain from Midtronics)

7000 Monroe St.

Willowbrook, IL 60527

In Canada:

Midtronics c/o FTN (FTN is Fed-ex Trade Networks –this is NOT a Midtronics facility)

Attn: RMA # xxxxx (this is the RMA number that you must obtain from Midtronics)

7075 Ordan Drive

Mississauga, ON L5T1K6

Midtronics will service and return the unit using the same type of service as received. If Midtronics determines that the failure was caused by misuse, alteration, accident, or abnormal condition of operation or handling, purchaser will be billed for the repaired product and it will be returned freight prepaid with shipping & handling charges added to the invoice. Midtronics products beyond the warranty period are subject to the repair charges in place at that time. Optional re-manufacturing service is available to return our products to like-new condition. Out-of-warranty repairs carry a 3-month warranty. Re-manufactured units purchased from Midtronics are covered by a 6-month warranty.



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