

TOOL USE INSTRUCTION

RIVIAN

TOOL NUMBER TSN01190-300-A

TITLE BATTERY TESTER, CPX-900

REV - DATE REV B - 12/10/2024

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TOOL FUNCTION

To determine the 12V battery health in vehicle and/or on the workbench. This will help technicians and the service centers determine if the 12V battery can be re-charged and saved or must be replaced to prevent future problems.



OVERVIEW

SPECIFICATIONS

Weight: 5.0 LBS

Power Source:

- External: 110V docking station
- Internal: x6 AA batteries

LABOR CODES

780099012 Low Voltage Electrical General Diagnostic

OTHER TOOLS REQUIRED

N/A



COMPONENT GUIDE

ITEM	QTY	DESCRIPTION
1	1	Provided 110V Charger
2	1	Charging Dock
3	1	Midtronics CPX-900
4	1	Positive and Negative Clamps for 12V battery terminals





WARNING

Do not perform procedure if tool is damaged or missing parts. Consult the Rivian Service Tool Catalog for replacement components.

Failure to follow guidelines outlined in this document could result in injury and/or property damage.

SAFETY GUIDELINES

1	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	
2	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 and/or other reproductive harm.	
3	CAUTION The Midtronics CPX-900 can only test one 12V battery at a time	



INITIAL SETUP

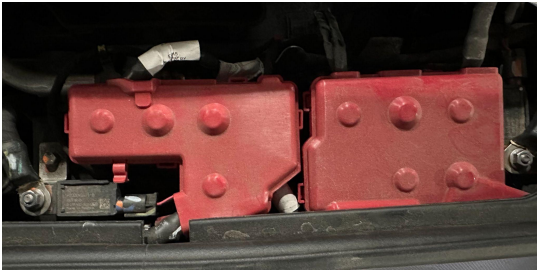
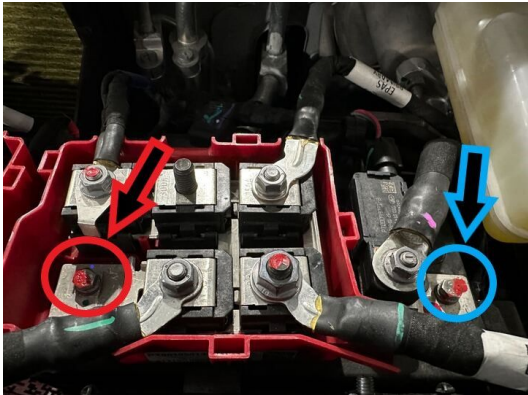
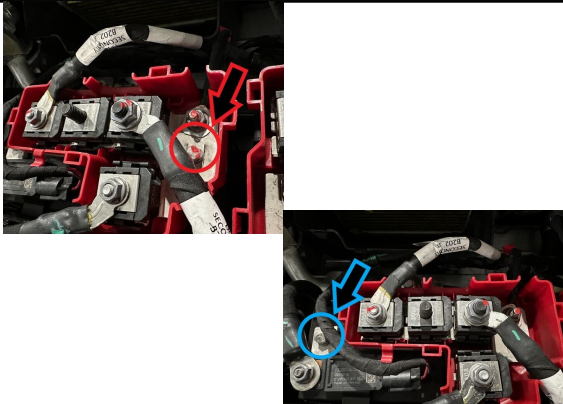
1	Note: The Midtronics CPX-900 cannot be used on EDV and R1 (MY 2025 +) unless Driver seat assembly (EDV) or Passenger seat (R1) is removed and clear access to the Positive and Negative terminals on top of the 12V battery is possible. The Midtronics CPX-900 can only test one 12V battery at a time	
2	Refer to CPX-900 Knowledge base for general knowledge and basic “how to’s”	CPX 900 - Knowledge Base
3	You will need to setup the Wi-Fi connection prior to using the tool. For a new Tool, the MAC ID will need to be provided to Service Tooling prior to using the tool and connecting to WiFi.	Wifi in Rivian service center: Network: RAI_Guest or RivianGuest Password: RivGuest Mac ID Input for Device Access
4	Example of properly connected device WIFI signal: Showing connectivity Cloud data: Has arrow showing access to sending data to cloud (if arrow is not shown and a RED X is over the cloud, you DO NOT have proper Wifi access and will have to register the MAC ID to your network to gain proper access)	



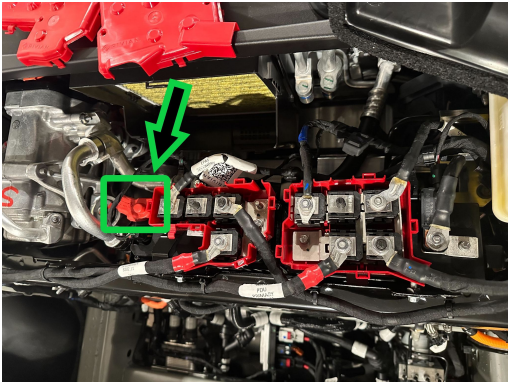
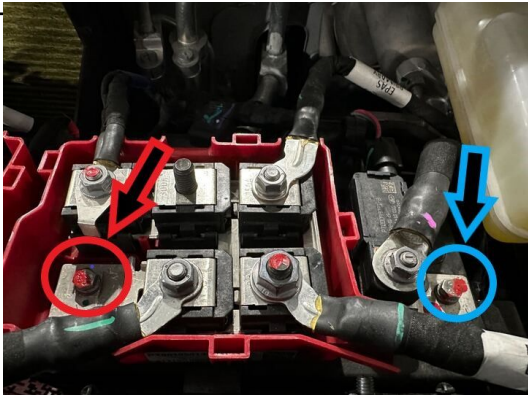
INITIAL SETUP

5	On initial set-up, the CPX-900 will require a 4 digit “Dealer Code” which can be found for your service center on the provided link	Midtronics - Dealer Codes
6	Always make sure that Midtronics CPX-900 is on the charging dock to allow it to receive OTA updates (updated during night hours). Ensure that it is up to date prior to use. (Check version level of your device)	
7	The CPX runs on 6x AA Batteries, when not on the dock. <u>The Dock does not charge the AA Batteries, it only extends their life, by powering the unit when it is on the dock and during OTA's</u>	
8	Having fresh batteries in the CPX-900 will ensure there is sufficient charge to perform the “Vin Scan” and switch to the Secondary battery. To access the AA batteries. Remove the panel on the back of the device. (held with a screw)	

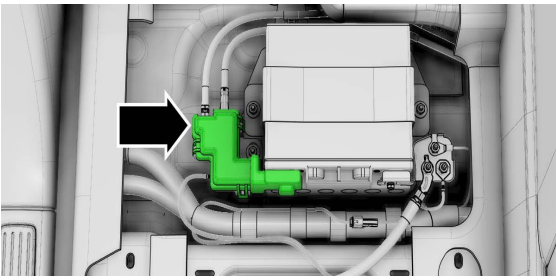
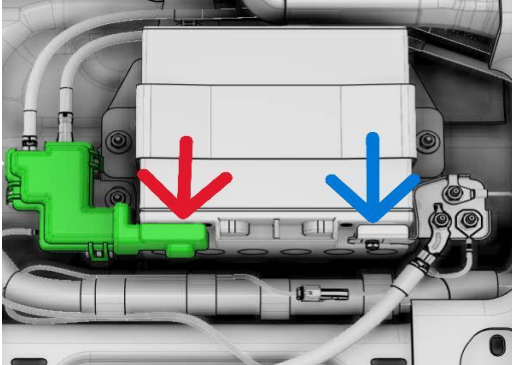


1	R1 Model Year 2022-2024 (Dual 12V Battery configuration) Note: This Vehicle Set-up section details how to connect to different vehicle configurations	
2	NOTE: Midtronics CPX-900 can only be hooked up to one 12V battery at a time! Disable the 12V Battery and isolate it from the vehicle.	Disable 12V Power Labor Code: 780010017
3	Primary Pre-fuse Box: 1) Remove Primary Pre-fuse cover above the primary 12V battery 2) Connect Positive clamp on Midtronics to Positive terminal (circled in RED) and Negative clamp on the Midtronics to the Negative terminal (circled in BLUE)	
4	Secondary Pre-fuse Box: 1) To hook up the secondary 12V Battery you must gain access to the secondary pre-fuse box. Remove secondary pre-fuse cover over the secondary 12V battery 2) Connect Positive clamp on Midtronics to Positive terminal (circled in RED) and Negative clamp on the Midtronics to the Negative terminal (circled in BLUE)	

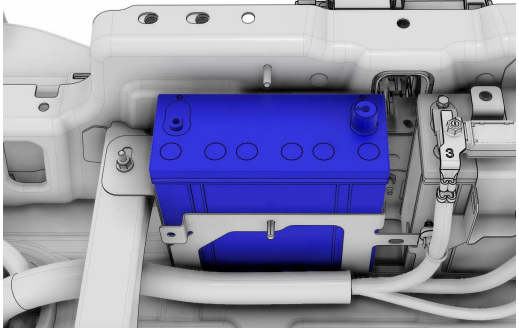
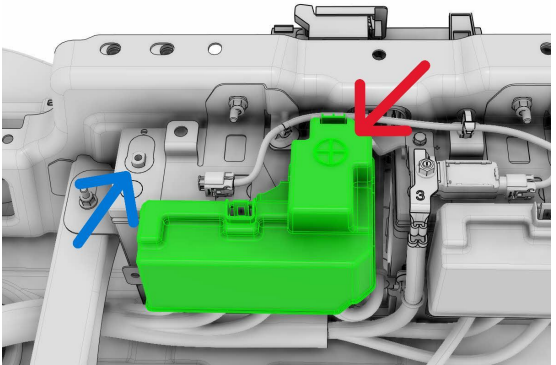


1	R1 Model Year 2023-2024 (Single 12V configuration) If your vehicle has the RED cover for the BiB (GREEN), this is a single 12V configuration. No need to test under the secondary pre-fuse. Note: This Vehicle Set-up section details how to connect to different vehicle configurations	
2	Disable the 12V Battery and isolate it from the vehicle:	Disable 12V Power Labor Code: 780010017
3	Primary Pre-fuse Box: 1) Remove Primary Pre-fuse cover above the primary 12V battery 2) Connect Positive clamp on Midtronics to Positive terminal (circled in RED) and Negative clamp on the Midtronics to the Negative terminal (circled in BLUE)	

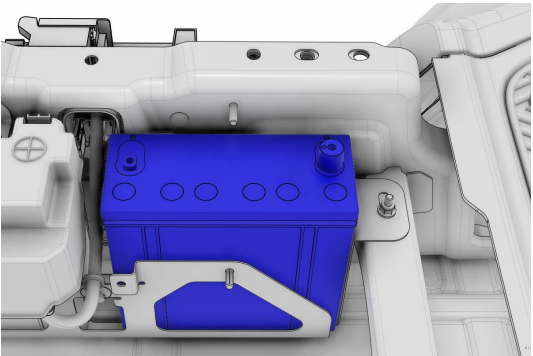
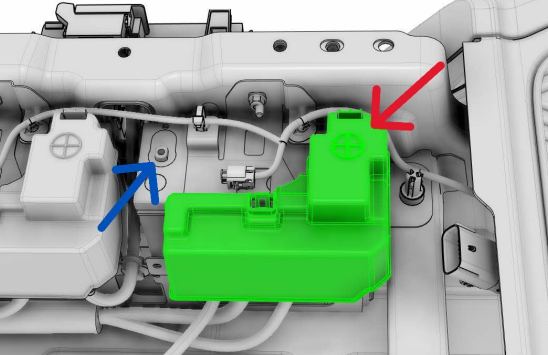


1	R1 Model Year 2025+ (Single 12V battery) Note: This Vehicle Set-up section details how to connect to different vehicle configurations	
2	Disable the 12V Battery and isolate it from the vehicle:	Disable 12V Power Labor Code: 780010017
3	You will need to gain access to the 12V battery under the Passenger seat (refer to Primary 12V battery replace to gain access to the connection points for the Midtronics CPX-900)	Battery, 12V, Primary (Remove and Replace) Labor Code: 780010017
4	1) Remove battery cover above the primary 12V battery 2) Connect Positive clamp on Midtronics to Positive terminal (in RED) and Negative clamp on the Midtronics to the Negative terminal (in BLUE)	

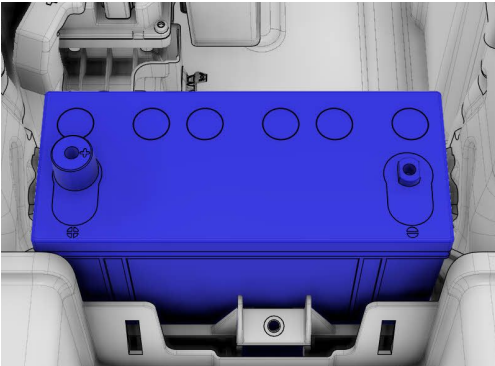
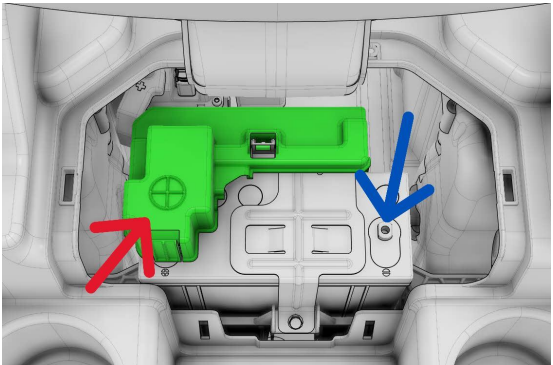


1	EDV Model Year 2023 and Earlier (Dual and Single 12V battery) Primary Battery Note: This Vehicle Set-up section details how to connect to different vehicle configurations	
2	NOTE: Midtronics CPX-900 can only be hooked up to one 12V battery at a time! Disable the 12V Battery and isolate it from the vehicle.	<u>Disable 12V Power Labor Code: 780010017</u>
3	You will need to remove the Driver seat and Pedestal to gain access to the 12V battery.	Driver seat: <u>Seat Assembly, 1st Row, Driver (Remove and Replace) Labor Code: 681010010</u> Driver seat Pedestal: <u>Cover, 1st Row Driver Seat Pedestal (Remove and Replace) Labor Code: 681719010</u>
4	You will need to remove the IBS sensor: <u>Sensor, 12V Battery, Intelligent, Primary (Remove and Replace) Labor Code: 786615010</u> Connect Positive clamp on Midtronics to Positive terminal (in RED) under the cover. and Negative clamp on the Midtronics to the Negative terminal (in BLUE)	



1	EDV Model Year 2023 and Earlier Secondary Battery (if applicable) Note: This Vehicle Set-up section details how to connect to different vehicle configurations	
2	NOTE: Midtronics CPX-900 can only be hooked up to one 12V battery at a time! Disable the 12V Battery and isolate it from the vehicle:	<u>Disable 12V Power Labor Code: 780010017</u>
3	You will need to remove the Driver seat and Pedestal to gain access to the 12V battery	Driver seat: <u>Seat Assembly, 1st Row, Driver (Remove and Replace) Labor Code: 681010010</u> Driver seat Pedestal: <u>Cover, 1st Row Driver Seat Pedestal (Remove and Replace) Labor Code: 681719010</u>
4	You will need to remove the IBS sensor: <u>Sensor, 12V Battery, Intelligent, Secondary (Remove and Replace) Labor Code: 786615510</u> Connect Positive clamp on Midtronics to Positive terminal (in RED) under the cover. and Negative clamp on the Midtronics to the Negative terminal (in BLUE)	

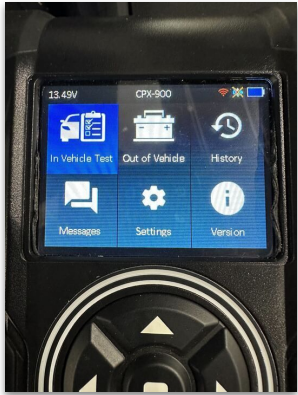
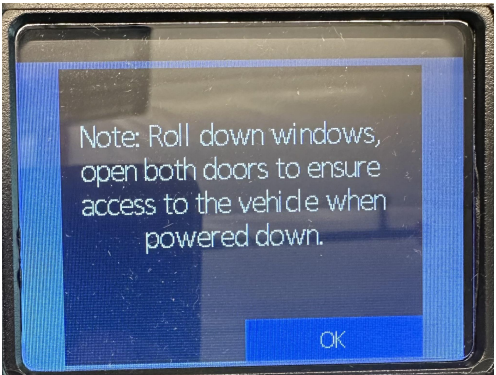
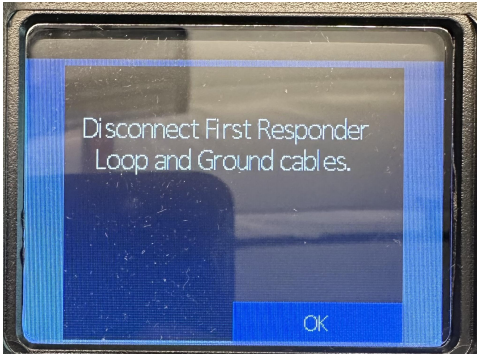
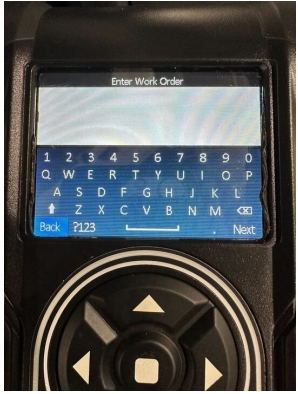


1	EDV Model Year 2024 and Later Single 12V Note: This Vehicle Set-up section details how to connect to different vehicle configurations	
2	NOTE: Midtronics CPX-900 can only be hooked up to one 12V battery at a time! Disable the 12V Battery and isolate it from the vehicle:	<u>Disable 12V Power Labor Code: 780010017</u>
3	You will need to remove the IBS sensor from the 12V battery	<u>Battery, 12V, Primary (Remove and Replace) Labor Code: 786410010</u>
4	Connect Positive clamp on Midtronics to Positive terminal (in RED) under the cover. and Negative clamp on the Midtronics to the Negative terminal (in BLUE)	

1	Out of Vehicle Testing Note: This section details how to connect to a battery for a benchtop test	
2	Before testing any 12V battery out of vehicle, remove all screws,caps and washers. Expose just the top positive and negative terminal stubs on the 12V battery. Attaching the Midtronics CPX 900 directly to the top of the 12V battery stubs will provide the best and most consistent/reliable 12V battery health readings.	
3	Attach the Midtronics clamps to the top of the Positive and Negative terminal stubs on the the 12V battery. They do grab but also have a tendency to slip off when moved around.	
4	*Optional: You can order Aluminum Male-Female Threaded Hex Standoff (x2) to aide with clamping onto the top of the battery terminals: Aluminum Male-Female Threaded Hex Standoff, 8mm Hex, 10mm Long, M5 x 0.80 mm Thread McMaster-Carr	

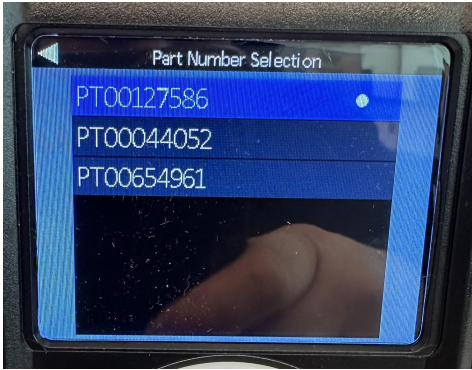
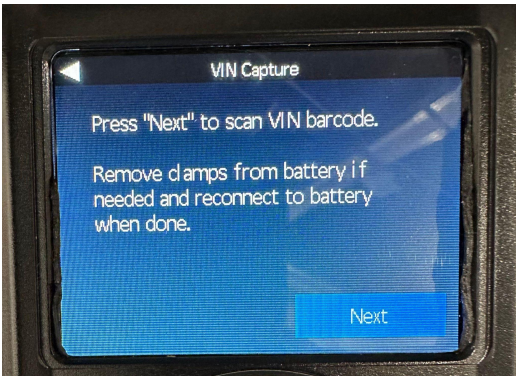
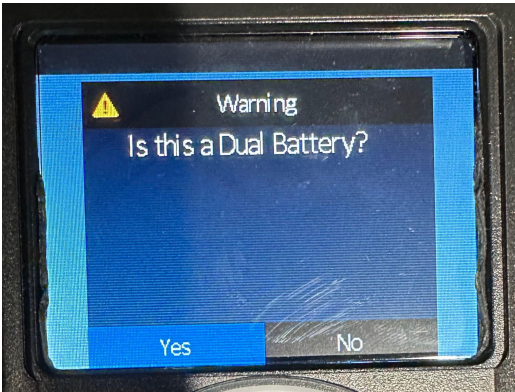


TOOL USE INSTRUCTION

1	If Voltage is present in the 12V Battery, the Midtronics CPX-900 will power up. If no display comes up, then the 12V battery voltage is too low and will require replacement of the 12V Battery. Once the Midtronics CPX-900 powers up, Go to initial screen and choose the IN VEHICLE TEST or OUT OF VEHICLE.	
2	You will get a notification to ensure access to the vehicle when it is powered down (For IN VEHICLE TEST only)	
3	You will then get a notice to Disable 12V on the vehicle (For IN VEHICLE TEST only)	
4	Input the work order that is associated with the repair. If you are performing a requested/non-documented test, enter any 4-digit number which you can use to reference back after the test.	

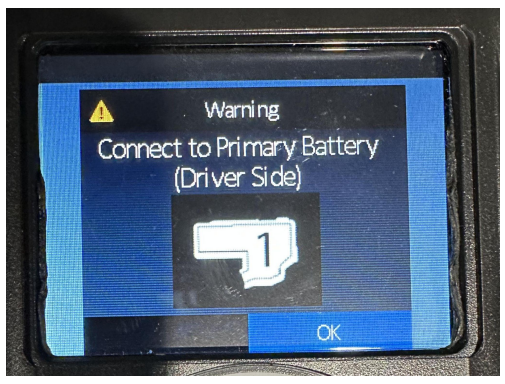


TOOL USE INSTRUCTION

5	You will get a notice for Testing a Rivian Battery and will have to choose YES to move to the next screen which will give you a choice of batteries to test (Based on PT number) (For OUT OF VEHICLE TEST only)	
6	You will need to perform a Vin Capture (either a vin scan or a manual entry) (For IN VEHICLE TEST only)	
7	When performing the VIN scan: be sure to disconnect the clamps from the 12V battery after clicking "Next" and scan the vehicle VIN sticker on the B-pillar. Failure to do so may power off the Midtronics CPX-900 and you will have to start again.	
8	There will be a question if the vehicle is a Dual Battery configuration. Choose the configuration you have on the vehicle. This will determine the test plan to be used. (For IN VEHICLE TEST only)	

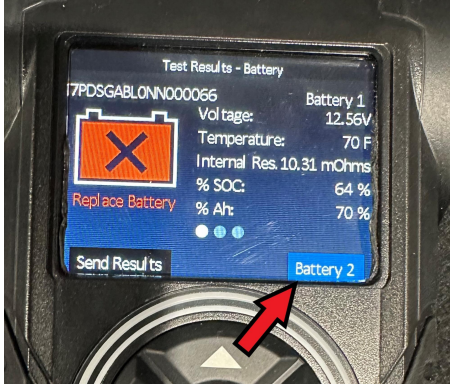


TOOL USE INSTRUCTION

9	There will be a warning to be sure to test both batteries prior to reconnecting battery grounds (For IN VEHICLE TEST only)	
10	You will get a prompt to Connect to the Primary Battery (driver side), which you will already be connected to, to begin the test. (For IN VEHICLE TEST only)	
11	You will next need to get the temperature of the 12V battery. Hold the Midtronics CPX-900 to the 12V battery and get reading to record/confirm.	
12	If surface charge is present, the Midtronics CPX-900 will remove it prior to performing the Test. (For IN VEHICLE TEST only)	

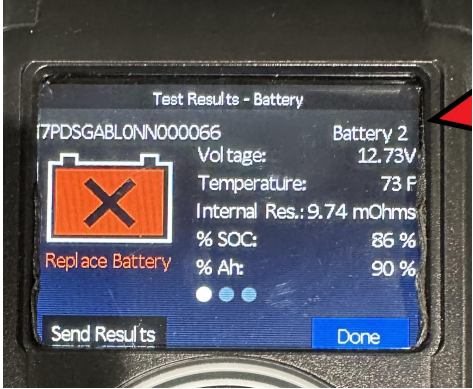


TOOL USE INSTRUCTION

13	Once surface charge is successfully removed from the 12V Battery, then the TEST will begin and show status in % until it reaches 100%.	
14	Results of the Test will be shown. You can click on the Right Arrow > to view the results for each criteria. > Second window step will show you Internal Resistance > Third Window step will show you Reserve Health	
15	Once the testing for the Primary Battery is complete (Battery 1) the results will be shown and the Battery 2 will be shown at the bottom. Click on Battery 2 to move to the next test. (For IN VEHICLE TESTING only)	
16	You will get a notification if you want to test Battery 2. Click on YES if you want to test the Secondary battery IMPORTANT: Do not disconnect the Midtronics battery tester prior to the warning prompt or it will power down. (For IN VEHICLE TESTING only)	



TOOL USE INSTRUCTION

17	The next notification will give you a warning so that you can connect to the secondary 12V battery. This is when you will need to switch the clamps from the primary to the secondary 12V battery (the Midtronics CPX-900 will stay powered on for a limited time to allow you to connect to the secondary battery).	
18	Once connected click on "OK" and the testing on the secondary 12V battery will be performed. (For IN VEHICLE TEST only)	
19	The test results for the secondary 12V battery will be displayed (Battery 2 displayed on top of test results) (For IN VEHICLE TEST only)	
20	Once Test is complete and you have received the results, you will hit DONE on the Test result screen and disconnect the Midtronics tester from the 12V battery.	



TOOL USE INSTRUCTION

21	You can also hit SEND RESULTS and the test results will be sent to any email address you want Note: Must have a strong Wi-Fi signal	
22	Make sure to return the Midtronics CPX-900 to the storage dock to be charged and able to receive OTA updates	 A black Midtronics CPX-900 diagnostic tool is shown standing upright in its black storage dock. The tool has a color screen at the top displaying the Midtronics logo and some text. Below the screen is a circular navigation pad with a power button in the center. The storage dock has a label that reads 'MIDTRONICS CPX-900'.
23	Be sure to re-connect any components and re-assemble the vehicle back to prior condition before the testing was performed	



BASIC MAINTENANCE GUIDE

TASK	FREQUENCY
Replace Internal Batteries (x6 AA batteries)	When receiving low internal battery warning or once a year
Update device software. Check to ensure you are on the latest Software revision	Whenever prompted to do so
Inspect clamps for damage	Each Use, prior to using device
Put CPX-900 back in charging dock	After Each Use



SERVICE & REPLACEMENT COMPONENTS

FOR OTHER ITEMS NOT SHOWN, CONTACT RIVIAN SERVICE TOOL ENGINEERING

ITEM	DESCRIPTION	SUPPLIER + PART NUMBER
1	110V outlet plug for docking station	
2	Docking station	Midtronics CPX-901
3	CPX-900	
4	4 ft cables	Midtronics A684



PROBLEM	SOLUTION
Device not connecting to WiFi	Choose a strong network
No cloud data is being transferred	Register the Mac ID of the device to network security to complete WiFi connection to device. Contact Service Tooling for support Mac ID Input for Device Access
Device will not accept Dealer Code	1) Ensure dealer code on the list is your service center Midtronics - Dealer Codes 2) Device is not fully connected to Wifi
Device will not power ON when connected to 12V battery	1)The 12V battery does not have sufficient voltage to even power up the CPX-900 (< 1 V). Replace the 12V battery immediately
Warning for Internal Batteries being low despite just coming off the docking station	Replace the Internal batteries on the device (x6 AA batteries)





DANGER

Risk of electrocution or electric shock



WARNING

Risk of minor injury



DANGER

Risk of major injury such as

- fire
- chemical or poison
- crushing / maiming
- death



CAUTION

Risk of

- damage to vehicle or property
- data disruption
- voiding warranty

IMPORTANT

Instructions to successfully complete a task

NOTE

Useful information

REVISION LOG

REV	DATE	CHANGE DESCRIPTION
A	11/30/2023	Initial release
B	12/10/2024	Changes TUI format and adds Vehicle Setup instructions for R1 Model Year 2025+

