

BC-8000

***BATTERY CAPACITY and DISCHARGE TESTER
BATTERY CHARGER and DC POWER SUPPLY***

INSTRUCTION MANUAL

COFKO ELECTRONICS LLC.

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UNPACKING

As you unpack your new BC-8000 battery charger and capacity tester, inspect the tester for signs of shipping damage. If shipping damage is present, stop and contact the shipping company for damage claims information. The box should contain the following items:

- One (1) each-Part no. 4168, BC-8000 Battery Capacity/Discharge Tester/Battery Charger/DC Power Supply
- One (1) each-Part no. 4161-10, AC Power Cord Assembly (IEC60320 C19 to C14) and Adapter (C13 to NEMA 5-15P) ¹
- One (1) each-Part no. 4168-20, BC-8000 Instruction Manual
- One (1) each-Part no. 4161-30, BC Report Application (Media Type -USB Flash Drive)
- One (1) each-Part no. 4161-40, USB Cable
- One (1) each-Part no. 4161-50, DC Output Cord
- One (1) each-Part no. 4161-60, Battery Adaptor Cable with 5/16 (7.9mm) Ring Terminal connectors
- One (1) each-Part no. 4161-70, Battery Adaptor Cable, Quick Disconnect Assembly ²

¹ Note: For adaptors to fit non-NEMA 5-15P configurations contact COFKO technical support.

² Note: 4161-70 Assembly consist of Part no. 4161-60 and MS3349-2 connector.

IMPORTANT: Save the shipping box and packaging material. They should be used to repack the tester if it needs to be shipped back for warranty or service.

INTRODUCTION

Congratulations on acquiring your new BC-8000 battery charger and capacity tester. The BC-8000 has been designed to provide the operator with accurate battery testing and charging with ease of operation.

BC-8000 Features:

- Universal AC power input 100~264 VAC 1PH (47 to 63Hz)
- 4 Line LCD display.
- Over temperature protection.
- Audio warning when capacity test is complete or malfunction of the unit.
- USB 2.0 port for PC connection.
- Windows™ XP or Higher compatible **BC Report** software for test data hardcopy print out.
- Real time internal clock with battery backup.
- 1-year warranty.
- CE Approval EN61326-1:2012 EN55011 Class A Group; IEC 61010-1/EN61010-1

BC-8000 Capacity Tester:

- 12 and 24-volt battery C1 capacity testing.
- Adjustable constant current load in 0.1 Ampere increments from 0.5 to 55 Amperes.
- Adjustable End Point Voltage (EPV).
- BC Report application will download, save, and print capacity test data from the BC-8000.

BC-8000 Discharge Tester:

- Adjustable constant current load in 0.1 Ampere increments from 0.5 to 55 Amperes.
- 10mv voltage resolution.
- Discharge down to 0.1V
- Discharge times from 1 minute to 999 hours.
- BC Report application will download, save, and print discharge test data from the BC-8000.

BC-8000 Charger:

- Adjustable output voltage from 3.0 to 36.0 volts DC.
- Adjustable output amperes from 0.05 to 25 amps DC.
- Constant voltage or constant current charge.
- Adjustable charge time from 1 to 999 minutes.
- Single or two step charge routine.
- 10mv voltage resolution.

BC-8000 DC Power Supply:

- Adjustable output voltage from 6.0 to 36.0 volts DC.
- Adjustable output amperage from 3.0 to 25 amps DC.

Before operating your new BC-8000, familiarize yourself with this instruction manual and the BC-8000.

For questions or product support:

Call: (909) 705-6267 Mon.-Fri.8:00 A.M. to 5:00 P.M. PST or Email support@cofko.com or cofkoinfo@gmail.com

Thank you,

COFKO

Table of Contents

UNPACKING.....	1
INTRODUCTION.....	1,2
REVISION HISTORY.....	4
SAFETY NOTES.....	5
BC REPORT AND REAL TIME CLOCK SETUP.....	6,7
BC-8000 OPERATION.....	7
BC-8000 CONFIGURATION.....	8
BATTERY CHARGING.....	9,10
DEEP DISCHARGE RECOVERY (DDR).....	11
DDR CHARGE DATA DOWNLOAD.....	11
DC POWER SUPPLY MODE.....	12,13
BATTERY DISCHARGE TEST.....	13
BATTERY CAPACITY TEST.....	14
BC-8000 REPORT PRINTING.....	15
BC-8000 CARE.....	16
BC-8000 CALIBRATION SERVICE.....	16
GENERAL SPECIFICATIONS.....	17
CAPACITY TESTER.....	17
DISCHARGE TESTER.....	17
BATTERY CHARGER.....	18
DC POWER SUPPLY.....	18
BC-8000 LIMITED WARRANTY.....	18,19
BC-8000 NOTES.....	20
CERTIFICATION OF FACTORY CALIBRATION.....	21
CE DECLARATION OF CONFORMITY.....	22
CE DELCARATION OF CONFORMITY.....	23
CERTIFICATE OF CONFORMANCE.....	24

SAFETY NOTES

Your new BC-8000 battery capacity tester/charger/power supply has been designed with operator safety as a function of its design, construction, and operation. Understanding how to safely operate the BC-8000 is important. Failure to follow the operation and safety guidelines when using the BC-8000 can result in **personal injury to the operator and damage to the BC-8000**. Always review the battery manufacturer's battery charging and capacity testing guidelines before charging or testing batteries.



Look for this symbol to identify Safety and Danger precautions. Be Alert- Your safety is involved! Personal injury or equipment damage can occur if guidelines are not followed.

PRECAUTIONS:

1. **CAUTION:** Aircraft batteries are certified to have a certain minimum capacity for emergency operations in the event of an electrical generator system failure. Never “jump start” an aircraft that has a discharged or “dead” battery.
2. **WARNING: ELECTRIC SHOCK HAZARD.** Do not touch un-insulated portions of the connector or the battery terminals. A possibility of serious electrical shock exists. Do not lay tools or other metal objects on the battery as arcing or explosion can occur. Remove conductive jewelry before working around battery, charger, or test equipment.
3. **CAUTION: ELECTRIC BURN HAZARD.** Do not wear conductive rings, belt buckles, or other jewelry when working with batteries, chargers, or test equipment. Do not lay tools or other metal objects on the battery as arcing and severe burns could occur.
4. **WARNING:** Batteries on charge or discharge produce hydrogen gas, which can explode if ignited. Do not smoke, use an open flame, or cause sparking near a battery. Charge, service or test a battery only in a well-ventilated area. The use of exhaust fans may reduce the risk of explosion.
5. **WARNING:** Batteries contain sulfuric acid which will cause burns. **DO NOT TOUCH EYES AFTER TOUCHING BATTERY.** Do not get acid in your eyes, or on your skin, or clothing. In the event of acid in the eyes, flush thoroughly with clean cool water for several minutes. Get professional medical attention. Refer to battery MSDS for additional information.
6. **WARNING:** Wear proper eye, face and hand protection at all times when working with batteries. Know the location and use of emergency eyewash and shower nearest the battery charging area.
7. **CAUTION:** To prevent damage to the connector, arc burns, or explosion, batteries should never be connected or disconnected while being charged or discharged. Batteries must be connected or disconnected only when the circuit is open. Insure the aircraft battery switch, external power source, or the charger/analyzer is in the “OFF” position before connecting or disconnecting the battery. Battery terminal protectors should be installed whenever the battery is not connected in the aircraft or to the test equipment.

8. **CAUTION:** Batteries contain hazardous materials. Know the location and proper use of emergency response materials. Refer to battery Material Safety Data Sheet (MSDS) for additional information.
9. **WARNING:** Before charging or capacity testing a battery always **REVIEW, UNDERSTAND, and FOLLOW all fire and safety codes for your location. Always REVIEW, UNDERSTAND, and FOLLOW the battery manufacturer's battery charging and testing guidelines. Always REVIEW, UNDERSTAND, and FOLLOW the equipment manufacturer's battery charging and testing guidelines.** If the battery is installed in equipment that is sensitive to over voltage conditions, (i.e. Aircraft) NEVER charge using a constant current (CI) method. Only charge using a constant voltage (CV) method. There can be a serious risk of injury and or damage to equipment (i.e. Aircraft) due to high voltage and generation of explosive gases when charging constant current (CI).
10. **DANGER:** Never connect or disconnect BC-8000 main dc power connector with dc current applied. Connecting or disconnecting the BC-8000 tester with charging or discharge current applied can cause a spark and possible battery explosion.
11. **DANGER:** Never charge or capacity test batteries without first inspecting all battery wires and connections for condition and tightness. Replace all defective wires and bad connections before charging or capacity testing batteries. Defective wiring and bad connections can cause overheating during charging or capacity testing batteries.
12. **DANGER:** never connect the BC-8000 to batteries with voltage or capacity currents outside the ratings of the tester. The BC-8000 is designed for 12 and 24 volt batteries. Connecting the BC-8000 to a battery or batteries with improper voltages can permanently damage the BC-8000 and endanger the operator. Any questions about a battery or the BC-8000 ratings, please call (909)705-6267 or E-mail support@cofko.com
13. **DANGER:** never obstruct the BC-8000 air intake or hot air exhaust openings. Obstructing either opening can cause the BC-8000 to overheat.

BC Report and Real Time Clock Setup



NOTE: The *BC Report* software **MUST be installed on the computer** used to connect to the BC-8000 first. **Do not** connect the USB cable (4161-40) to the BC-8000 until this is done.

1. Insert the USB flash drive (4161-30) containing the BC Report files into the computer USB port. BC Report will automatically start installing. (Manual installation can be done with commands: Start\Run\Flash drive letter:\setup.exe
2. Windows Application Security Warning dialog box may prompt you about installing the BC Report. To continue installing the BC Report, click on the *INSTALL* button. The installation may take some time as Windows™ installs all the necessary software.
3. When prompted to install the Silicon Labs CP210x USB to UART bridge driver, click the *INSTALL* button to install all needed drivers. (C:\Program Files\Silabs\MCU\CP210x\) Note: The CP210x drivers are on the *BC Report* USB

flash drive.

4. After the BC Report software installation is completed, remove the BC Report USB flash drive from the USB port. Now restart the PC.
5. The Windows™ desktop should now contain the BC Report program icon. Set the BC-8000 power switch to the ON position, and then plug the USB cable (4161-40) supplied with the BC-8000 into a working USB port on the PC. Now plug the remaining USB cable end into the USB port located on the right side rear of the BC-8000. The PC may respond with an audio sound confirming a device has been found.
6. To run the BC Report, place the mouse pointer on the desktop icon and press the left mouse button. This action will start the BC Report program and display the program window.
7. Before updating the BC-8000 internal date and clock, check the computer date and time for proper setting and adjust if needed. This is the date and time the BC-8000 will use. Located in the lower middle of the BC-8000 Report window is the Set Date & Time button. To set the BC-8000 Date & Time place the mouse pointer on the Set Date & Time button and click the left mouse button. The status bar located in the lower left corner will display a series of messages showing the communications activity between the BC-8000 and the PC. The first message displayed is **searching for BC-8000**. Second message is **Setting Date and Time**. And the final message will be **done**. With the date and time set, the BC-8000 is now ready to test batteries and print test result reports.
8. If any difficulties are experienced with communications between the BC-8000 and the PC, check cable connections and review BC Report installation. Lastly make sure the PC USB port drivers are installed and working. Review your Windows™ software help menu for guidelines in checking USB ports.

BC-8000 OPERATION



NOTE: Before capacity, discharging testing or charging a battery, *review all procedures in the battery manufacturer's Component Maintenance Manual (CMM).*



DANGER: Never attempt to connect the BC-8000 to a battery or device using anything but the proper connector. **Doing so can damage the BC-8000, or injure the operator.**



CAUTION: Always check with your local fire safety codes and restrictions before testing or charging batteries.

BC-8000 CONFIGURATION

1. Place the BC-8000 on a stable surface and connect the AC power cord (4161-10) C19 female connector into C20 power entry module receptacle located in the rear of the BC-8000.
2. Plug the male end of the AC power cord into the AC power source.
3. Set the POWER switch to the ON position. The BC-8000 LCD display will flash a message that contains the COFKO web site URL, machine model, and the firmware version. The final message is the MODE? and located below is the current mode selected.
4. Pressing the **UP** or **DOWN** button, change the current mode selected to the CONFIGURE mode.
5. Press the **NEXT** button
6. The BC-8000 display will now display a message End Beep? Y. This option allows the disabling of the continuous end of test beeping. To disable the beeper, press the **NEXT** button then press the **UP** or **DOWN** buttons to change the default Y to N. To accept the change, press the **NEXT** button.
7. Press the **UP** button to change the CONFIGURE selection to CAPACITY %. This selection allows the operator to change the minimum percentage of batteries C1 capacity that defines a capacity test failure.
8. Press the **NEXT** button to select the mode.
9. The default 85% is displayed. To change the percent value, push the **UP** or **DOWN** buttons to select a new value.
10. Press the **NEXT** button to enter in the new percent value (80%,85%, or 100%).
11. To exit the CONFIGURE mode, press the **UP** or **DOWN** button until the EXIT option is displayed.
12. Press the **NEXT** button to select the EXIT option.
13. The BC-8000 will beep twice signifying exit of the CONFIGURE mode.
14. Now press the **UP** or **DOWN** button to change the MODE? options.



NOTE The minimum percentage of battery capacity for the battery application is defined by the battery manufacturer or the application governing body. The BC-8000 offers three of the most common minimum percentage of battery capacity settings. The settings are 80%,85%, and 100%. If the battery capacity test results fall below the selected minimum percentage, the capacity test results will be defined as a failure.



CAUTION Always review the battery manufacturer's and the application's governing bodies specifications for minimum application battery capacity. These can be found in the battery manufacturer's component maintenance manual (CMM) or the governing bodies battery application specification's. Failure to follow these guidelines or rules can lead to temporary or catastrophic failure of battery or equipment powered by the battery.

BATTERY CHARGING



DANGER: The BC-8000 battery charger is a fully adjustable battery charger. The BC-8000 will follow the operator settings during the battery recharge cycle! Always consult the battery manufacturer's recharge guidelines before starting a recharge cycle. ***If the battery being recharged is subjected to improper settings, serious damage or injury can occur to the operator and the BC-8000.*** Critical settings such as maximum recharge voltage, recharge amperes, and recharge time must follow the battery manufacturer's guidelines. Always remove the battery from the equipment before starting a recharge cycle. SAFETY FIRST!



DANGER: The BC-8000 should not be used to recharge Lithium Batteries. Contact COFKO technical support for any further questions.

1. Set the BC-8000 on a stable surface. Connect the AC power cord (4161-10) to the power source. Connect the DC cord (4161-50) to the battery. Set the AC power switch to the ON position.
2. With MODE? CHARGE selected, press the **NEXT** button to advance the display menu.
3. Using the **UP** or **DOWN** buttons, select charge steps. The BC-8000 will charge the battery using a single step or two step charge mode. Single step charging is typically used to charge lead-acid batteries using constant potential charging. Two step charging is used in constant current charging of nickel cadmium batteries and conditioning charge procedures for lead acid AGM batteries. Press the **NEXT** button to advance the display menu.
 - a. If single step was selected above, enter the battery recharge time using the **UP** or **Down** buttons to increase or decrease charge time. Charge time is in minutes with 60 minutes equaling 1-hour charge time. Always consult your battery manufacturer's manual for proper charge time settings.

Tip: *Holding down the **UP** or **DOWN** buttons will rapid advance the number selection.* Press the **NEXT** button to advance the display menu.
 - b. The BC-8000 display will now ask for a CHARGE VOLTS? selection. Single step charging requires only one charge voltage selection. Recharge voltage can be adjusted from 3.0 to 36.0 volts. Use the **UP DOWN** buttons to set the charge voltage. This voltage is the maximum voltage the BC-8000 will output to the battery. Consult with the battery manufacturer for proper recharge voltage settings.

Note: *The charge voltage selection must always be greater than the battery voltage.*

Note: *When setting the BC-8000 for an AGM battery conditioning charge, the output voltage setting will be higher than a normal charge cycle. For example, conditioning charging a 24V AGM battery can require a charge output voltage setting as high as 36 volts. This high output voltage setting is to maintain the constant current requirement as the battery voltage increases.*

Press the **NEXT** button to advance the display menu.

- c. The BC-8000 will now ask for CHARGE AMPS? selection. The BC-8000 charge current can be adjusted from 0.05 to 25 amperes. Consult the battery manufacturer's recharge guidelines for proper settings. Press the **NEXT** button to advance the display menu.
- d. The BC-8000 will display the message START CHARGING? Press **NEXT**. Pressing the next button will start the battery charging cycle. With the charger running the BC-8000 display will show all the entered settings under the CHARGING heading on the left side of the display. The arrow displayed will point to the setting that is active at that moment of the charge cycle. On the right side of the display all the current charging readings are displayed under the ACTUAL heading. Upon completion of the charge cycle the audio buzzer will beep signaling the charge is done.

Note: *The charge cycle can be stopped at any time by pressing the **NEXT** button.*

4. Enter the first step charge time using the **UP** or **DOWN** buttons. The time can be adjusted from 1 minute to 999 minutes. Press the **NEXT** button to advance the display menu.
 - a. The BC-8000 will display CHARGE Step 1 Volts? Use the **UP** or **DOWN** button to adjust the value from 3.0 to 36.0 volts. Press the **NEXT** button to advance the display menu.
 - b. Now enter the first step charge current setting using the **UP** or **DOWN** button. The charge current can be adjusted from 0.05 to 25 amperes. Press the **NEXT** button to advance the display menu.
 - c. The BC-8000 will display CHARGE Step 2 Time? Use the **UP** or **DOWN** button to adjust the charge time value from 1 minute to 999 minutes. Press the **NEXT** button to advance the display menu.
 - d. The BC-8000 will display CHARGE Step 2 Voltage? Using the **UP** or **DOWN** buttons the step 2 voltage can be adjusted from 12.5 to 36.0 volts. Press the **NEXT** button to advance the display menu.
 - e. Now enter the second step charge current setting using the **UP** or **DOWN** button. The charge current can be adjusted from 0.05 to 25 amperes. Press the **NEXT** button to advance the display menu.
 - f. The BC-8000 will display the message START CHARGING? Press **NEXT**. Pressing the next button will start the battery charging cycle. With the charger running the BC-8000 display will show all the entered settings under the flashing CHARGING/Step 1 heading on the left side of the display. The arrow displayed will point to the setting that is active at that moment of the charge cycle. On the right side of the display all the current charging readings are displayed under the ACTUAL heading. Upon completion of the charge cycle the BC-8000 will turn off the charge and turn on the audio beeper to signal the charge cycle is done.

Note: *The charge cycle can be stopped at any time by pressing the **NEXT** button.*

DEEP DISCHARGE RECOVERY (DDR) MODE

Deep discharge recovery mode (DDR) is applied to sealed AGM lead acid batteries that have lost capacity due to sulfation. Severe sulfation can occur if the battery is accidentally discharged completely down. DDR mode provides the battery technician with a charge routine that attempts to reverse battery sulfation. Consult your battery manufacturer's component maintenance manual (CMM) before using the DDR mode.

The BC-8000 DDR will charge the battery using a set routine. The maximum battery charging voltage is set to 36V for a 24V battery or 18V for a 12V battery. The charge amperage applied to the battery will be 1/10th the C1 AMPS entered. If the battery C1 rating is 40Ahr, the battery will be charged at a constant current four amperage rate. The charge routine timer is set to a maximum 1440 minutes (24Hrs). The BC-8000 will begin monitoring the battery on charge voltage. When the on charge battery voltage reaches a defined voltage level (31 volts for a 24V battery or 15.5 volts for a 12V battery), the BC-8000 charge timer is reloaded with a final 240 minutes of charge time.

1. Set the BC-8000 on a stable surface. Connect the AC power cord (4161-10) to the AC power source. Connect the DC cord (4161-50) to the BC-8000 and the battery. Set the AC power switch to the ON position.
2. Press the **UP** or **DOWN** buttons to select the Mode? to DEEP DIS. RECOVER.
3. Press the **NEXT** button to select the DEEP DIS. RECOVER option.
4. Press the **UP** or **DOWN** buttons to select the battery voltage. 12 or 24 volts.
5. Press the **NEXT** button to enter the value.
6. Now select the C1 AMPS ? Use the **UP** or **DOWN** buttons to select the C1 Ahr battery rating. This value can be found in the battery manufacturer's model specifications.
7. Press the **NEXT** button to select the entered value.
8. Press the **NEXT** button to start the DEEP DIS. RECOVER mode.
9. To stop the DDR charge, routine press the **NEXT** button.
10. At the completion of the DDR charge, the BC-8000 LCD display will provide a summary of the charge results.

DDR CHARGE DATA DOWNLOAD

During the DDR charge mode, the BC-8000 records data of the charge secession. Battery voltage, charge current, and run time are recorded. Upon completion of the DDR charge cycle, you can create a CSV file of the DDR data using BC REPORT. This file can be imported into a spread sheet and the data used to generate reports or graphs of the data.

1. To access the DDR charge data, connect the USB cable (4161-40) to an open USB port on a PC that has BC REPORT installed. Set the BC-8000 AC power switch to the ON position.
2. Plug the USB cable into the BC-8000 USB port located in the rear of the machine.
3. Start BC REPORT by clicking on the program on the desktop icon.
4. Enter the battery serial number in the dialog box.
5. Using the mouse pointer click on the **CONNECT** dialog box.
6. Using the mouse pointer, activate the **Create DDR CSV file** by clicking on the small square box.
7. Click on the **LOAD DATA** dialog box.
8. Upon completion of the data down load from the BC-8000, the DDR CSV file can be found on the PC at location **Local disk (C:) > Concorde > BC-8000 > DDR**

9. To import DDR data into a spreadsheet, run the spreadsheet program and open the DDR CSV file.

DC POWER SUPPLY MODE



Danger: Never leave the BC-8000 unattended while operating in the power supply mode.

The BC-8000 Power Supply Mode can be used to supply DC power to batteries that have built in battery chargers and or isolation diodes. Consult the battery manufacturer for proper connections and voltage settings. Always use the correct mating connectors. For any questions on setup or operation of the BC-8000 Power Supply contact: support@cofko.com



When the BC-8000 is operating in the power supply mode, the BC-8000 DC output cord gray connector will have voltage on the output terminals regardless if connected to anything.

1. Place the BC-8000 on a stable surface and connect the AC power cord (4161-10) to AC power outlet. Connect the DC output cord (4161-50) to the BC-8000 and the equipment to be powered.



Warning: If an extension cord is used to connect the BC-8000 to the AC power source, make sure the cord is properly sized for the AC current draw. Long power cords of insufficient wire gauge size can cause excessive voltage drops in the cord. Always consult your local electric codes for guidance in proper sizing of the extension cord.



Danger: Never use an extension cord or power source that does not have a proper AC grounding connection. Review your local AC power codes for proper grounding configurations.

2. Set the BC-8000 AC power switch to the ON position.
3. Using the **UP** or **DOWN** button, set the display to the PWR SUPPLY option. Then press **NEXT**.
4. Using the **UP** or **DOWN** button, adjust the output DC voltage to the proper level for the equipment being powered. Then press **NEXT**.



Warning: Always review the equipment manufacturer's maximum input voltage level for safe operation. Never exceed these settings.

5. Using the **UP** or **DOWN** button, set the maximum DC output amperage value. This setting should meet the maximum

DC amperage requirements for the equipment being powered. Then press **NEXT**.

Note: If the maximum DC amperage value entered is exceeded, the BC-8000 will enter a current limiting mode and reduce the DC output voltage level to reduce the output current.

6. With the proper settings for DC output voltage and current entered, connect the BC-8000 DC output cord (4161-50) using an appropriate cable adaptor to the equipment being powered. Press the **NEXT** button. This will turn on the BC-8000 DC output.
7. To turn the BC-8000 DC output off, push the **NEXT** button.

BATTERY DISCHARGE TEST

1. Set the BC-8000 on a stable surface. Connect the AC power cord (4161-10) to the AC power source. Connect the DC cord (4161-50) to the battery. Set the AC power switch to the ON position.
2. With the BC-8000 displaying MODE? Press the **UP** or **DOWN** button to select DISCHARGE. Press the **NEXT** button to advance the display menu.
3. With the BC-8000 now displaying DISCHARGE Volts? Select the battery voltage 12 or 24 using the **UP** or **DOWN** buttons. Press the **NEXT** button to advance the display menu.
4. Now select the End Point Voltage (EPV) voltage. When the selected EPV voltage is reached, the BC-8000 will terminate the discharge test. Press the **NEXT** button to advance the display menu.
5. The BC-8000 will display DISCHARGE MAX. AMPS? Press the **UP** or **DOWN** button to set the discharge current. Press the **NEXT** button to advance the display menu.
6. Now enter the maximum discharge run time. Use the **UP** or **DOWN** buttons to select max discharge from 1 minute to 999 hours. The maximum run time value will be used to scale the time axis in the BC Report.
7. This is the time in hours the discharge test will run if the EPV voltage is not reached. Press the **NEXT** button to advance the display menu.
8. With the BC-8000 displaying PRESS NEXT TO START, press the **NEXT** button to start the discharge test.

Note: The discharge test can be stopped at any time by pressing the **NEXT** button.



NOTE: *If the cooling fan fails to start and no cooling air is felt at the rear of the tester, stop the discharge by repressing the **NEXT** button. The BC-8000 must be serviced before operating again.*



NOTE: If incorrect battery voltage is selected the BC-8000 display will inform the operator.

BATTERY CAPACITY TEST

1. Set the BC-8000 on a stable surface. Connect the AC power cord (4161-10) to the power source. Connect the DC cord (4161-50) to the battery. Set the AC power switch to the ON position.
2. Check the battery manufacturer's component maintenance manual (CMM) for the minimum percent capacity setting. The minimum percent battery capacity test settings are 80%,85%, and 100% in the BC-8000. The setting can be changed in the CONFIGURE menu. A capacity test that falls below the minimum percent selected will be identified as a failed capacity test.
3. With MODE? Displayed on the BC-8000 display, select CAPACITY ? by pressing the **UP** or **DOWN** button. Press the **NEXT** button to advance the display menu.
4. Now select the battery voltage 12 or 24 volts by pressing the UP or DOWN button. Press the **NEXT** button to advance the display menu.
5. Push the **NEXT** button. Select the End Point Voltage (EPV) cutoff. The default EPV is 20 volts for 24V battery and 10 volts for a 12V battery. The BC-8000 allows for EPV adjustment from the default values. For a 24V battery the EPV can be lowered to 18 volts. For 12 volt batteries the EPV can be lowered to 9 volts. Check with your battery manufacturer for specified EPV points. Press the **NEXT** button to advance the display menu.
6. With CAPACITY C1 AMPS? Displayed, select the battery manufacturer's C1 (one hour) battery discharge amperage rate by pressing the **UP** or **DOWN** buttons. Press the **NEXT** button to advance the display menu.
7. The BC-8000 will display CAPACITY START TEST? To start the test, press the **NEXT** button again. If you wish to stop the test before the End Point Voltage (EPV) is reached, press the **NEXT** button and the BC-8000 will stop testing. **If testing is stopped before EPV is reached the battery must be recharged following the battery manufacturer's recharge procedures** before retesting.
8. After pressing the **NEXT** button to start the test, the BC-8000 cooling fan motor will start and the LCD display will show the C1% reading, battery voltage, flash *Testing / EPV voltage setting*, and test amperage. *Note: While the BC-8000 is testing or at the conclusion of the test, pressing the UP button will display the test run time in minutes. The LCD will display TM: 60.2' (The symbol ' indicates minutes)*
9. Upon reaching the EPV the BC-8000 capacity test will stop. The cooling fan motor will stop and the audio beeper will beep if enabled. The display will show the C1 battery capacity percentage. Test amperage and Pass or Failed is displayed.



If the **BC-8000 COOLING FAN MOTOR FAILS TO START** press the **NEXT** button stopping the test. Place the **OFF/ON** switch to the **OFF** position and return the BC-8000 for service.

“Passing” is the battery manufacturer's minimum percentage of the batteries one-hour capacity rating.

“Failing” is a battery that falls below the manufacturer's minimum percentage of the one-hour capacity rating.

Before returning the battery to service follow the battery manufacturer's recharging procedure.

BC-8000 REPORT PRINTING

1. **Disconnect the BC-8000 from the test battery.** Place the BC-8000 power switch to the **ON** position. Start the PC with BC Report installed. Connect the USB cable (4161-40) from the PC to the BC-8000 USB port located in the rear of the tester. Run the BC Report application by double clicking on the desktop BC Report icon.
2. With the BC Report active on the desktop, type the battery serial number into the Battery Serial Number box. Make sure the data source selected is the BC-8000 by high lighting the indicator circle. Connect to the BC-8000 by clicking on the **CONNECT** button.
3. Place the mouse cursor on the **Load Data** button and press the left mouse button. The status bar in the lower left corner of the BC Report window will display program activity and status messages as data is transferred.
4. To print the report, place the mouse cursor on the Print Report button and press the left mouse button. The Windows™ print preview window will appear showing the report available to print. Place the mouse cursor on the printer icon and press the left mouse button.
5. To print a BC-8000 battery test report that has been already down loaded, use the **From Disc** function to print the report. The data file uses the file extension tdf. The file name is a combination of battery serial number, date, and time and can be found in the Concorde file located at C:\Concorde\BC-8000. Place the mouse cursor on the **Load** Data button and press the left mouse button. The Open test data file window will open on the desktop. Choose the data file that is to be printed by selecting the file with the left mouse button. Click **Open** at the bottom of the window. Place the mouse cursor on the **Print Report** button and press the left mouse button. The Print Preview window will become active on the disk top. To print report, left mouse click the printer icon.



TIP: A paperless report copy can be obtained by using a print driver that will create a PDF file. These drivers are available for sale or freeware and install in the Windows™ printer devices. This report format allows BC-8000 test reports to be sent by means of e-mail attachments.



TIP: At the completion of a capacity test or discharge test, BC REPORT generates a CSV file that is stored on the computers Local disk (C:) > Concorde > BC-8000. The CSV file can be imported into a spread sheet program for viewing or generating custom reports if needed.

BC-8000 CARE

Your BC-8000 battery charger and capacity tester should be treated as precision test equipment. Misuse will shorten its ability to perform accurate battery testing. Some simple guidelines of care will insure years of trouble free operation.

1. Do not drop the BC-8000 or expose it to rough handling.
2. Do not expose the BC-8000 to water or fluids of any kind.
3. Do not operate the BC-8000 in a closed up area.
4. Do not connect the BC-8000 to batteries of improper voltage ratings.
5. Do not operate the BC-8000 with the air intake or exhaust outlet blocked or restricted.
6. Do not carry the BC-8000 by the main power cable.
7. Do not operate the BC-8000 near flammable materials.
8. Do not expose the BC-8000 to direct sunlight during operation.
9. Do not expose the BC- 8000 to any other heat sources.
10. Always contact the technical support for questions on BC-8000 safety and operation. E-mail support@cofko.com

REMEMBER SAFETY FIRST!

BC-8000 CALIBRATION SERVICES

You may schedule calibration service by emailing us at support@cofko.com

With a CF-1 calibration adapter available from the distributor (Advanced Power Products or Concorde Battery) and a COFKO calibration procedure, you can calibrate the BC-8000 at your facility.

TECHNICAL DATA

BC-8000 SPECIFICATIONS:

GENERAL SPECIFICATIONS

AC Input Voltage	100~264V AC 1 Phase
AC Input Frequency	47-63 Hz
Case Length	12 in(30.5cm)
Case Width	9 in(22.9cm)
Case Height	16 in(40.6cm)
Weight	19 lbs.(8.62kg)

CAPACITY TESTER

Minimum Battery Input Voltage	9.0V DC
Maximum Battery Input Voltage	28.0V DC
Maximum Operating Altitude ¹	6500ft (1981.2m)
12V Battery End Point Voltage (EPV) ²	10V DC
24V Battery End Point Voltage (EPV) ²	20V DC
Constant Current Load	0.5A DC to 15A DC 0.1A steps (+ / - 1.5%) 15A DC to 55A DC 0.1A steps (+ / - 1%)
PC Communication Port	USB 2.0
BC REPORT Utility Software	Windows™ XP or Higher
Operation Temperature Range	-20 to 50 Deg. C

DISCHARGE TESTER

Battery End Point Voltage (EPV) ²	0.1V DC to 28VDC
Amperage	0.5ADC to 55ADC
Maximum Operating Altitude ¹	6500ft (1981.2m)
Constant Current Load	0.5A DC to 15ADC 0.1A steps (+ / - 1.5%) 15A DC to 55ADC 0.1A steps (+ / - 1%)

Discharge Time	1 minute to 999 hours
Battery Operational Temperature ³	59°F or higher
PC Communication Port	USB 2.0
BC REPORT Utility Software	Windows™ XP or Higher
Operation Temperature Range	-20 to 50 Deg. C

BATTERY CHARGER

DC Output Voltage Minimum	3.0VDC
DC Output Voltage Maximum	36VDC
DC Output Current Minimum	0.05ADC
DC Output Current Maximum	25ADC

DC POWER SUPPLY

Adjustable DC Output Voltage	6V-36V (0.1V steps)
Adjustable DC Output Amperage	3A-25A (0.1A steps)

1. Consult factory for testing above maximum altitude rating.
2. Consult battery manufacturer for End Point Voltage (EPV) settings.

BC-8000 LIMITED WARRANTY

STATEMENT OF WARRANTY

COFKO ELECTRONICS LLC warrants to the original purchaser (end user) of the BC-8000 that it will be free of defects in workmanship and materials. This warranty is void if COFKO ELECTRONICS LLC finds that the BC-8000 has been subjected to improper care, abnormal operation, or modification.

WARRANTY PERIOD:

The warranty period covers the original purchaser (end user) from the “Date of First Use”.

1 Year: Covers each BC-8000 for workmanship, material, and labor.

TO OBTAIN WARRANTY COVERAGE:

You are required to notify COFKO ELECTRONICS LLC, of any defects within the warranty period. Written notification is recommended.

WARRANTY REPAIRS:

If upon inspection COFKO ELECTRONICS LLC confirms the existence of a defect covered by this warranty, the defect will be corrected by repair or replacement at COFKO ELECTRONICS LLC option.

WARRANTY COST:

The purchaser must bear the cost of shipping the BC-8000 to COFKO ELECTRONICS LLC as well as the return shipping cost.

IMPORTANT WARRANTY LIMITATIONS:

1. COFKO ELECTRONICS LLC will not accept responsibility for repairs made without authorization.
2. COFKO ELECTRONICS LLC shall not be liable for consequential damages (such as lost business, etc.) caused by a defect or reasonable delay in correcting a defect to the BC-8000.
3. COFKO ELECTRONICS LLC liability under this warranty shall not exceed the cost of correcting the defective BC-8000.

This written warranty is the only expressed warranty covering the BC-8000. All warranties implied by law such as Warranty of Merchantability are limited to the duration of this limited warranty of the BC-8000. Check your local legal rights for further rights you may have.

BC-8000 NOTES

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

COFKO ELECTRONICS LLC.

5517 RIVERVIEW DR.
RIVERSIDE, CA. 92509
(909) 705-6267
Support@COFKO.com

CERTIFICATION OF FACTORY CALIBRATION

EQUIPMENT: BATTERY CAPACITY/ DISCHARGE TESTER / CHARGER / DC POWER SUPPLY
MODEL#: BC-8000
Application: Battery Capacity/ Discharger Tester and Charger for 12/24 Volt
Lead-Acid and Nickel Cadmium batteries with
C1 test ratings from 0.5 to 55 Ampere-Hours.
Adjustable DC Power Supply Output.

Specification:

- Universal AC Powered: 100~264vac (47 to 63Hz)
- Operation Voltage Range: 28VDC to 9VDC
- Operator Selected Battery Voltage: 24-12Vdc
- Operator Selected C1 amperage level: 0.5 - 55Adc
- Operator Selected Test Amperage Steps: 0.1Adc steps from (0.5A to 55Adc).
- (16X4) LCD Information Display.
- Displayed Voltage Resolution 10mv
- Cutoff Voltage 12V Battery 10.00Vdc (IEC 60952-1) +/-100mv
- Cutoff Voltage 24V Battery 20.00Vdc (IEC 60952-1) +/-100mv
- Displayed Battery Capacity (C1) Percent %
- Displayed Pass or Fail Battery Condition
- Windows™ Compatible Test Data Print Utility (BC Report Utility)
- Charger Output Voltage: 3.0 to 36VDC (+/- 0.05Vdc)
- Charger Output Current: 0.05 to 2.50ADC (+/- 0.005Adc)
- Charger Output Current: 2.6 to 25ADC (+/- 0.05Adc)
- Maximum Charge Time: 999 minutes
- Single or Two Step Charging
- Power supply Output Mode (Adjustable 6 to 36Vdc output; Adjustable 3 to 25Adc output)

Notes:	Calibrated with NIST traceable equipment.			
Test Equipment	Manufacturer:	Model:	Serial#	Control#
Volt Meter #1	HP	3456A	2015A01818	12617
Volt Meter #2	HP	3455A	1622A11888	12618
Frequency Counter	HP	5316A	2632A10545	12693
Shunt	Deltec	WB100mv/50A	NA.	137317MLQA5

Product: Battery Charger/ Power Supply/ Capacity Tester
Model: BC-8000
Calibration Due: Once a Year
Shipped Condition: Calibrated within Specified Tolerance _____ - Passed
Procedure: CF1_FINALCAL

COFKO ELECTRONICS LLC. CERTIFIES THAT THE ABOVE LISTED TEST EQUIPMENT MEETS OR EXCEEDS ALL SPECIFIED TOLERANCES. THE TESTER STATED ABOVE HAS BEEN CALIBRATED WITH NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) TRACEABLE EQUIPMENT LISTED ABOVE.

DATE MANUFACTURED: ____/____/____ S/N: _____¹
SIGNATURE: _____

Date of First Use: ____/____/____ Signature: _____

1. BC-8000 serial number location- **Rear of case.**

DECLARATION OF CONFORMITY

Application of Council Directive: 20141/35/EU

Standards to which conformity Is declared:	EN61010-1:2010
Manufacturer's Name:	COFKO Electronics LLC.
Manufacturer's Address:	5517 Riverview Dr. Riverside, Ca. 92509
Equipment Description:	Battery Tester/Charger
Equipment Class:	Class I
Model Number:	BC-8000

I the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Place: Riverside, California USA

Signature: _____

Full Name: Michael Coffman

Position: Owner/ Partner

DECLARATION OF CONFORMITY

Application of Council Directive: 2014/30/EU

***Standard(s) to which
Conformity is declared:*** ***EN61326-1: 2012
EN55011 Class A Group 1***

***EN61000-4-2
EN61000-4-3
EN61000-4-4
EN61000-4-5
EN61000-4-6
EN61000-4-8
EN61000-4-11***

Manufacturer's Name: ***COFKO Electronics LLC.***

Manufacturer's Address: ***5517 Riverview Drive
Riverside, Ca. 92509
909-705-6267***

Equipment Description: ***Battery Tester/Charger***

Equipment Class: ***Electrical Equipment Measurement,
Control & Laboratory Use-Industrial***

Model Number: ***BC-8000***

***I the undersigned, hereby declare that the equipment specified above, conforms to the above
Directive(s) and Standard(s).***

Place: **Riverside, California USA**

Signature: _____

Full Name: **Michael Coffman**

Position: **Owner/Partner**

CERTIFICATION of CONFORMANCE

Company Name: COFKO ELECTRONICS LLC.

Street Address: 5517 Riverview Dr.

City: Riverside State: California Zip Code: 92509

Purchase Order NO: _____ Part NO: A.P.P.# 4168
Concorde Battery #4168

Manufacturer's Part NO: BC-8000

Description: Battery Capacity Tester/ Charger Revision NO: _____

Quantity Shipped: _____ Serial NO: _____

Date of Manufacture: / / Date Shipped: / /

Specifications/Special Processes: CE Approved 12/24 Volt Battery Capacity/Discharge Tester/
Battery Charger/ DC Power Supply. C1 Capacity Test Time Format. EPV Points (Default) 10 Vdc ,
20Vdc. C1 Constant Current Amperage Range 0.5 to 55 Adc (0.1 Adc Steps). Discharge Test
Battery End Point Voltage (EPV) 0.1V DC to 28V DC. Discharge Amperage 0.5A DC to 55A DC.
Constant Voltage (CV) and Constant Current (CC) Battery Charging. Battery Charger Output
Voltage 3.0 to 36.0 Vdc. Battery Charger Amperage Output 0.050 to 25Adc. Single and Two Step
Charge Routines. Adjustable Charge Time. Power Supply Output Mode. Adjustable DC Output
Voltage from 6 to 36 Vdc (0.1Vdc Steps). Amperage Output Adjustment Range 3 to 25Adc
(0.1AdcSteps). Case Material (5052) Aluminum with Hard (LIOS Red) Anodize and Clear (Sulf)
Anodize. Universal and Power Factor Corrected AC Input. USB 2.0 Output Port. BC Report
Application for Capacity, Discharge Testing, Data Recording and Analysis.

THIS IS TO CERTIFY THAT THE PRODUCTS AND/ OR SERVICES CONTRACTED BY THE PURCHASE ORDER HAVE BEEN MANUFACTURED, PROCESSED, INSPECTED, AND TESTED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE PURCHASE ORDER AND SPECIFIED ON REFERENCED DOCUMENTS. FURTHERMORE, INSPECTION AND TEST RESULTS SIGNIFY THAT THE ITEMS DELIVERED ARE FULLY ACCEPTABLE AND IN COMPLETE CONFORMANCE TO ALL PURCHASE ORDER REQUIREMENTS. OTHER DATA NOT ENCLOSED WITH THIS SHIPMENT, ARE MAINTAINED ON FILE AND ARE AVAILABLE UPON REQUEST.

NAME REP. (PRINTED) Michael Coffman
SIGNATURE: _____
TITLE: Owner/ Partner

DATE: / /