

PRECISION ONBOARD CHARGERS

MK106PC
MK212PC
MK230PC
MK330PC
MK440PC

MK110PC
MK220PC
MK318PC
MK345PC
MK460PC

USER MANUAL

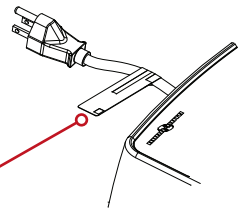
THANK YOU

Thank you for choosing Minn Kota. We believe that you should spend more time fishing and less time positioning your boat. That's why we build the smartest, toughest, most intuitive marine products on the water. Every aspect of a Minn Kota product is thought out and rethought until it's good enough to bear our name. Countless hours of research and testing provide you the advantages of a Minn Kota product that can truly take you "Anywhere. Anytime." We don't believe in shortcuts. We are Minn Kota. And we are never done helping you catch more fish.

LOCATING YOUR SERIAL NUMBER

Your Minn Kota 11-character serial number is very important. It helps to determine the specific model and year of manufacture. When contacting Consumer Service or registering your product, you will need to know your product's serial number. We recommend that you write the serial number down in the space provided below so that you have it available for future reference.

Serial number formats may include MKAD1234567 or J123MK12345



The serial number on your Precision Charger is located on the input cord and the bottom of the charger.

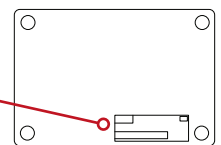
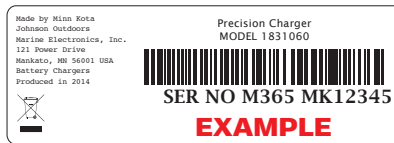


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THREE-YEAR REPLACEMENT WARRANTY

WARRANTY ON MINN KOTA BATTERY CHARGERS

Johnson Outdoors Marine Electronics, Inc. ("JOME") extends the following limited warranty to the original retail purchaser only. Warranty coverage is not transferable.

MINN KOTA LIMITED THREE-YEAR REPLACEMENT WARRANTY ON THE ENTIRE PRODUCT

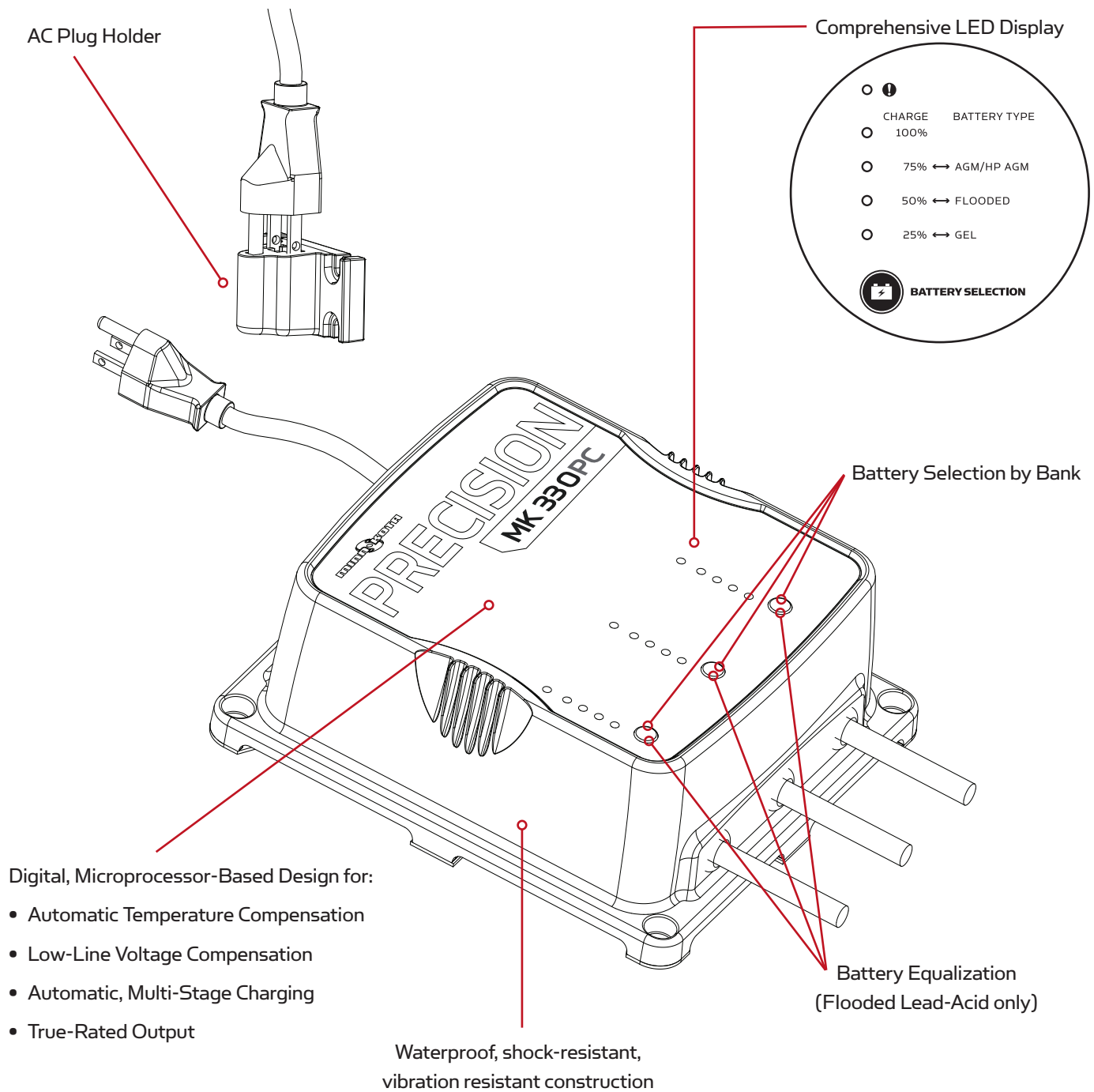
JOME warrants to the original retail purchaser only that the purchaser's new Minn Kota battery charger and battery maintainer will be materially free from defects in materials and workmanship appearing within three (3) years after the date of purchase. JOME will (at its option) replace, free of charge, any charger found by JOME to be defective during the term of this warranty. Such replacement shall be the sole and exclusive liability of JOME and the sole and exclusive remedy of the purchaser for breach of this warranty.

EXCLUSIONS & LIMITATIONS

This limited warranty does not apply to products that have been used commercially or for rental purposes. This limited warranty does not cover normal wear and tear, blemishes that do not affect the operation of the product, or damage caused by accidents, abuse, alteration, modification, shipping damages, acts of God, negligence of the user or misuse, improper or insufficient care or maintenance. **DAMAGE CAUSED BY THE USE OF OTHER REPLACEMENT PARTS NOT MEETING THE DESIGN SPECIFICATIONS OF THE ORIGINAL PARTS WILL NOT BE COVERED BY THIS LIMITED WARRANTY.**

The cost of normal maintenance or replacement parts which are not in breach of the limited warranty are the responsibility of the purchaser. Prior to using products, the purchaser shall determine the suitability of the products for the intended use and assumes all related risk and liability. Any assistance JOME provides to or procures for the purchaser outside the terms, limitations or exclusions of this limited warranty will not constitute a waiver of the terms, limitations or exclusions, nor will such assistance extend or revive the warranty. JOME will not reimburse the purchaser for any expenses incurred by the purchaser in repairing, correcting or replacing any defective products or parts, except those incurred with JOME's prior written permission. **JOME'S AGGREGATE LIABILITY WITH RESPECT TO COVERED PRODUCTS IS LIMITED TO AN AMOUNT EQUAL TO THE PURCHASER'S ORIGINAL PURCHASE PRICE PAID FOR SUCH PRODUCT.**

FEATURES



Specifications subject to change without notice.

*This diagram is for reference only and may differ from your actual charger.

SAFETY PRECAUTIONS

SAVE THESE INSTRUCTIONS!

This manual contains important safety and operating instructions applicable to the safe and efficient use of your Minn Kota battery charger.

WARNING: Risk of explosive gases - working in the vicinity of a lead acid battery is dangerous. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns. For this reason, it is of utmost importance that you follow the instructions each time you use the charger.

To reduce the risk of battery explosion, follow these instructions and those published by the battery manufacturer for any equipment you intend to use in the vicinity of the battery. Review cautionary markings on these products and on engine, motor or other equipment requiring battery usage.

WARNING: Do not attempt to repair or service the charger yourself. Opening the charger may expose you to high voltages, the risk of electric shock, and other hazards.

IMPORTANT SAFETY INSTRUCTIONS

- The Minn Kota battery charger is a powerful electrical device. If incorrectly installed, configured or operated, the battery charger can damage batteries and / or electrical equipment. Please thoroughly read the instructions and safety information contained in this manual before operating the battery charger.
- Use of an attachment not recommended or sold by Johnson Outdoors Inc. may result in risk of fire, electric shock, or injury to persons or property.
- The charger is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the charger.
- To reduce risk of damage to electric plug or cord, pull by the plug rather than the cord when disconnecting the battery charger. An AC extension cord should not be used unless absolutely necessary. Use of the improper AC extension cord could result in a risk of fire or electric shock. If an AC extension cord must be used, make sure:
 - That pins of plug of the extension cord are the same number, size and shape of those of the plug on the battery charger;
 - That extension cord is properly wired and in good electrical condition; and
 - That wire in extension cord is proper size according to the chart:
- Do not operate the battery charger with a damaged cord or plug.
- Do not operate the battery charger if it has received a sharp blow, been dropped or otherwise damaged in any way.
- Do not disassemble the charger. Incorrect reassembly may result in a risk of electric shock or fire.
- To reduce risk of electric shock, unplug the charger from outlet before attempting any maintenance or cleaning. Disconnecting the leads will not reduce this risk.
- To reduce risk of shock or spark, never touch the ring terminals together while the charger is plugged into an outlet or extension cord.
- External connections to the battery charger shall comply with the United States Coast Guard electrical regulations (33CFR183, Sub Part 1).

	25' AC Ext. Cord	50' AC Ext. Cord	100' AC Ext. Cord
MK106PC/MK110PC/MK212PC/MK106D/MK210D			
AWG Size	18	18	16
MK440PC/MK345PC/MK440D			
AWG Size	16	12	10
MK220PC/MK230PC/MK318PC/MK330PC/MK220D/MK315D/MK330D			
AWG Size	16	16	12
MK460PC			
AWG Size	14	12	10

PERSONAL PRECAUTIONS

- a. Consider having someone close enough nearby to come to your aid when you work near a lead acid battery.
- b. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.
- c. Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
- d. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flush eye with running cold water for at least 10 minutes and get medical attention immediately.
- e. Never smoke or allow a spark or flame in vicinity of battery, engine, motor or other flammable or explosive equipment.
- f. Be extra cautious to reduce risk of dropping a metal tool onto the battery or across the battery terminals. It might spark or short circuit the battery or other electrical component that may cause an explosion.
- g. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead acid battery. A lead acid battery can produce a short circuit current high enough to weld such items, causing severe burns.
- h. Use the Minn Kota battery charger for charging and maintaining FLOODED LEAD-ACID, MAINTENANCE FREE, GEL CELL, AND AGM / STARVED ELECTROLYTE batteries only. It is not intended to supply power to low voltage electrical systems other than for charging and maintaining batteries. Do not use the charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

DC CONNECTION PRECAUTIONS

- a. The Minn Kota charger will only charge 12 volt 6 cell lead acid batteries including flooded lead/acid, AGM, and GEL batteries. Do not connect the output of the charger to any other voltage or type of battery.
- b. The charger's DC output terminals are designed to be permanently mounted and connected to batteries.
- c. Connect and disconnect DC output terminals only after disconnecting the AC plug from the electric outlet.
- d. The charger output leads must be connected with the correct polarity for the charger to function. The RED lead must be connected to the POSITIVE terminal of the battery and the BLACK lead must be connected to the NEGATIVE terminal of the battery, as indicated in e(5), e(6) and f(2), f(3).
- e. Follow these steps when the battery charger is installed in a boat or vehicle. A spark near the battery may cause battery explosion. To reduce the risk of a spark near the battery:
 1. Position AC and DC cords to reduce risk of damage by hood, door, or moving engine parts.
 2. Stay clear of fan blades, belts, pulleys and other parts that can cause injury to persons.
 3. Check polarity of battery posts. POSITIVE (POS, P, +) battery post is usually larger in diameter than NEGATIVE (NEG, N, -) post.
 4. Determine which post of the battery is grounded (connected) to the chassis (if any). If negative post is grounded to the boat hull or chassis (as in most vehicles), see step 5 below. If positive post is grounded to the boat hull or chassis, see step 6 below. If neither is grounded, the order in which the output leads are connected does not matter.
 5. For negative-grounded boat or vehicle, connect POSITIVE (RED) output terminal to POSITIVE (POS, P, +) ungrounded post of battery first. Then connect NEGATIVE (BLACK) output to NEGATIVE (NEG, N, -) grounded post of battery.
 6. For positive-grounded boat or vehicle, connect NEGATIVE (BLACK) output to NEGATIVE (NEG, N, -) ungrounded post of battery first. Then, connect POSITIVE (RED) output terminal to POSITIVE (POS, P, +) grounded post of battery.
 7. When disconnecting charger, disconnect AC power cord from electric outlet first.
 8. See operating instructions for length of charge information.

SAFETY PRECAUTIONS

- f. Follow these steps when battery is outside boat or vehicle. A spark near battery may cause battery explosion. To reduce the risk of a spark near battery:
1. Check polarity of battery posts. POSITIVE (POS, P, +) battery post is usually larger in diameter than NEGATIVE (NEG, N, -) post.
 2. Connect POSITIVE (RED) output terminal to POSITIVE (POS, P, +) post of battery.
 3. Connect NEGATIVE (BLACK) output terminal to NEGATIVE (NEG, N, -) post of battery.
 4. Do not face battery when making final connection.
 5. When disconnecting charger, disconnect AC power cord from electric outlet first.
 6. When disconnecting output terminals from battery posts, always do so in reverse sequence of the connecting procedure.
 7. A marine (boat) battery does not need to be removed and charged on shore. However, instructions must be followed for location of charger when permanently mounted or used on board.

AC POWER CORD CONNECTION PRECAUTIONS

The Minn Kota battery charger should be grounded to reduce risk of electric shock. The charger is equipped with an electric AC power cord. The plug must be plugged into an outlet that is properly installed in accordance with all local codes and ordinances.

DANGER: Never alter AC cord or plug provided – if it will not fit outlet, have proper outlet installed by a qualified electrician. Improper connection can result in a risk of an electric shock.

CAUTION – To reduce risk of fire or electric shock, connect battery charger directly to grounding receptacle (three-prong). An adapter should not be used with battery charger.

CAUTION - Due to the higher charging current of the Minn Kota charger it is recommended that you check with the battery manufacturer's maximum recommended charger current before connecting multiple charger outputs to 1 battery.

INSTALLATION

INSTALLATION AND MOUNTING

LOCATING THE CHARGER

- a. Never place charger above battery being charged; gases from battery will corrode and damage charger.
- b. Never allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.
- c. Do not operate charger in a closed-in area or restrict ventilation in any way.
- d. Do not set a battery on top of charger.
- e. Do not mount the charger below the waterline of the boat or directly adjacent to fuel tanks.
- f. Each DC output cord is six feet long. Make sure that all DC output cords can reach the batteries and that the AC power cord can reach a power source. When using an extension cord, make the AC connection to the charger outside of the battery compartment as far away as practical to reduce the risk of a spark igniting gasses in the compartment.
- g. Do not shorten the DC output cords, as this can affect charger output.
- h. If the DC output cords are not long enough, they may be lengthened by splicing and soldering 12 AWG (minimum) wire. Each splice should be covered with dual wall adhesive lined heat shrink tubing to protect the joint from corroding. The splice should be made between the fork in the output cable and the fuse holder. The fuse holder should always remain within 7" of the battery terminals. The maximum extension length is 15 feet. You may contact the Minn Kota Service Department with any questions.
WARNING: Do not splice the AC power cord, as this voids the three year Limited Warranty.
- i. Even though the Minn Kota charger is capable of operating in a high ambient temperature environment, a minimum of six inches of unobstructed area should be allowed on all sides of the unit for proper air circulation and cooling. Proper cooling and circulation will allow the charger to operate at peak efficiency.

MOUNTING THE CHARGER

Due to the weight of the charger and the impact that boats routinely endure, take the time to securely mount the charger to prevent damage. Mounting with nuts, bolts and washers is preferable to mounting with screws.

1. Use the largest diameter bolts possible and use all four mounting holes.
2. After marking the locations, set the charger aside and drill the holes.
3. Apply a marine grade silicone sealant in each of the drilled holes to create a waterproof seal.
4. Then secure the charger in place using the mounting hardware.

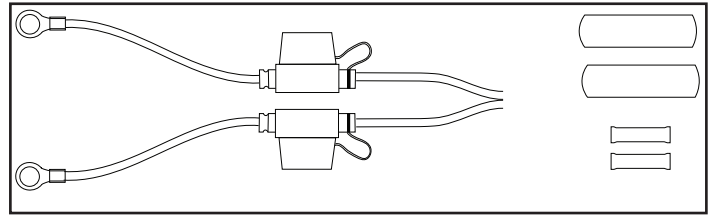
NOTE: Your battery charger is supplied with an AC plug holder designed to hold the power cord plug when not in use. Mount the AC plug holder with four screws in a convenient dry site to prevent corrosion to the AC plug and to prevent the AC plug from making contact with the battery posts.

WARNING: Make sure the charger is disconnected from ac power before connecting the batteries to the output cords.

CAUTION: Before making any connections to batteries in a confined space (such as a battery compartment of a boat), open the door or hatch of the compartment and allow it to air out for 15 minutes. This allows any gasses that have accumulated in the compartment to escape.

OPTIONAL INSTALLATION

Parts Included:	
Description	Qty.
15ft Extension Cable	1
Wire Splice	2
Adhesive Heat Shrink	2



(OPTIONAL ACCESSORY KIT #1820089 - NOT INCLUDED)

INSTALLING THE MK-EC EXTENSION CABLE ACCESSORY

The Minn Kota Battery Charger Output Extension Cables are ideal for extending charger output cables that do not reach bow, center or transom battery compartments. Featuring easy installation with waterproof adhesive heat shrink for use in saltwater environments. Each conductor is fused for protection against accidental short circuits.

TOOLS AND RESOURCES REQUIRED:

- Wire Cutters
- Crimpers
- Wire Strippers
- Heat Gun

1. Remove AC power from your charger and disconnect the charger from ALL batteries.
2. Open the door or hatch of the compartment and allow it to air out for 15 minutes. This allows any gasses that have accumulated in the compartment to escape.
3. Find the charger output cable you would like to extend and use the wire cutters to cut the red or white (positive) and black (negative) wires before the fuse holders.

NOTE: Some output cables will have a temperature sensor in the cable covered by heat shrink. You must cut above the temperature sensor to avoid damaging the sensor (see Figure 1).

4. Remove the loose pieces of insulation from the ends of the extension cable wires and crimp the black (negative) wire into the Wire Splice connector using the crimpers (see Figure 2).
5. Strip the charger output cable wires 3/8" if they are 12AWG. Strip the output wires 3/4" if they are 14AWG or 16AWG.
6. Place one of the Adhesive Heat Shrinks over the Wire Splice and onto the black extension cable wire.
7. For 12AWG wire, insert the black charger output cable into the Wire Splice and crimp using the crimpers. For 14AWG or 16AWG wire, fold the stripped black charger output wire in half before inserting and crimping the wire.
8. Center the Adhesive Heat Shrink over the Wire Splice. Using the heat gun, warm the Adhesive Heat Shrink until it seals the connection.
9. Repeat steps 4 through 8 for connecting the red or white (positive) wires to the Wire Splice.
10. Prepare each battery in advance by cleaning off dirt, oil, battery corrosion, etc. Use a water and baking soda solution for cleaning corrosion. Wipe using a dry cloth.
11. Route the output extension cable away from sharp objects. Do not remove the fuse holders, since fuses are located on both the positive and negative wires for protection in case of a short circuit.
12. Now connect the extension cable to the battery. Be sure to connect the black (negative -) ring terminal to the negative battery post and connect the red (positive +) ring terminal to the positive battery post.

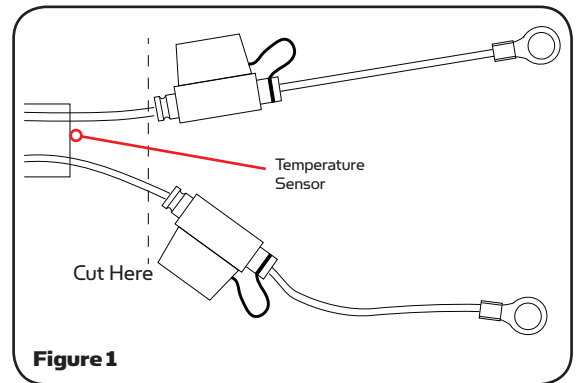


Figure 1

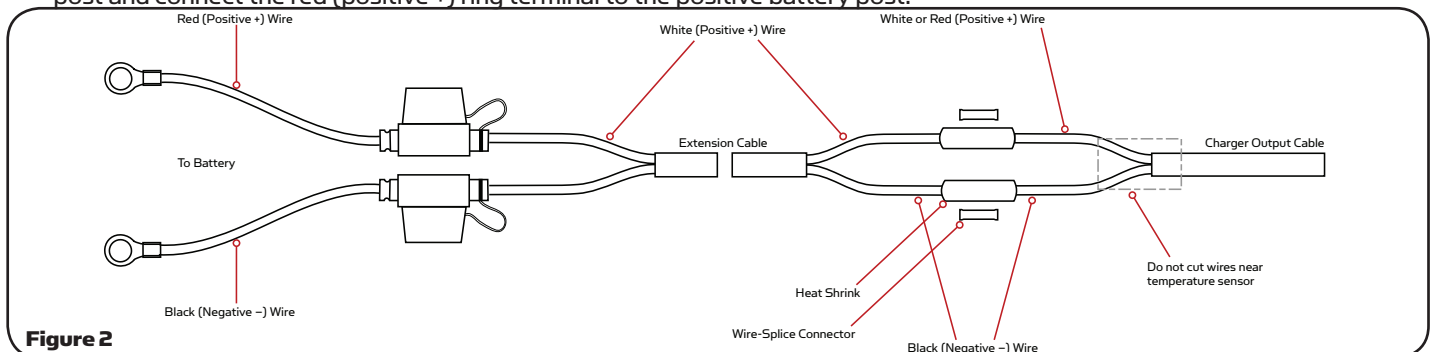


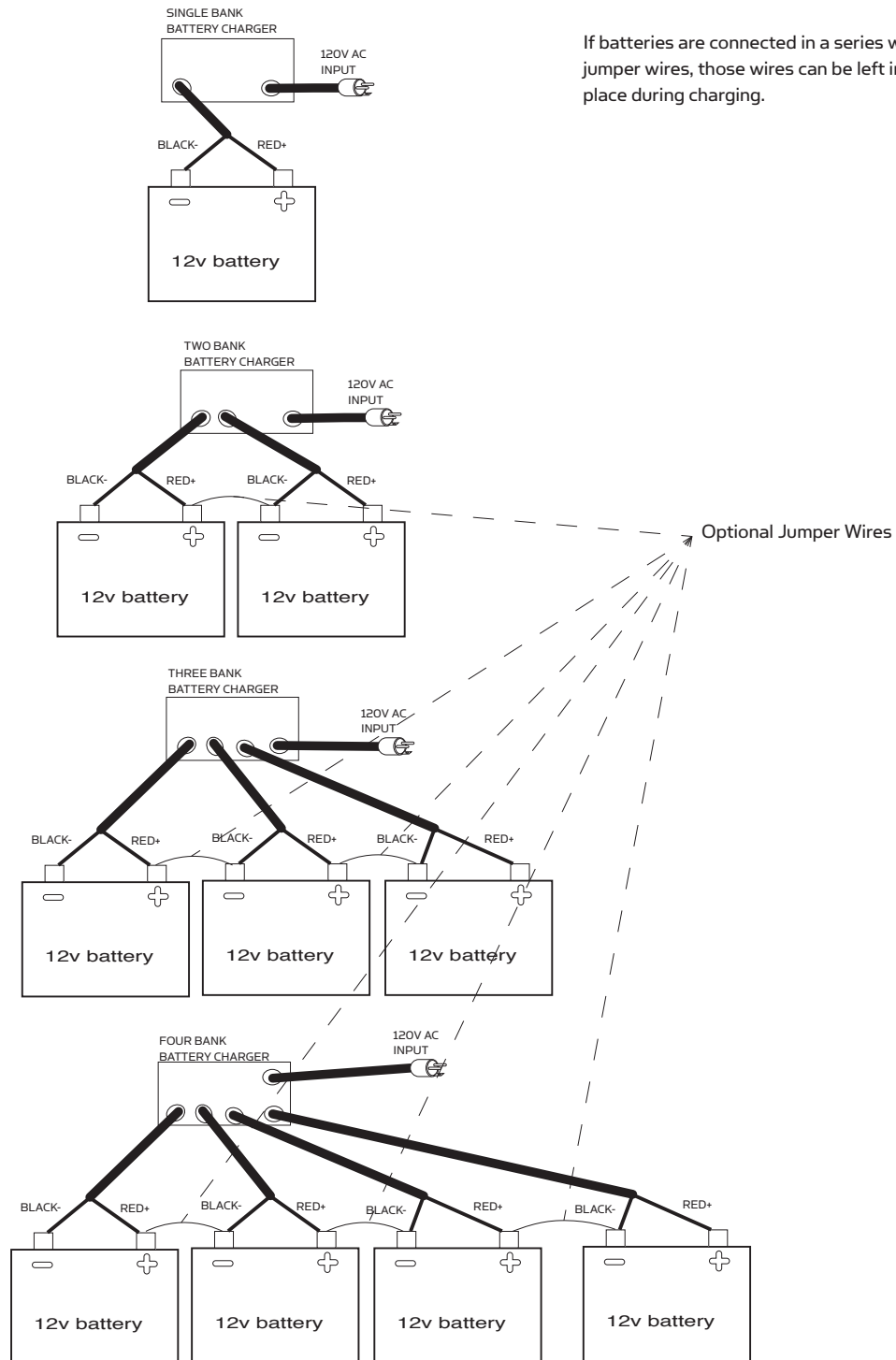
Figure 2

OPERATING THE CHARGER

OVERVIEW

This is a high performance battery charger that has the ability to properly and safely work with several different battery types. It is important to read and understand how to properly use the battery charger before charging batteries.

Each output bank is independent and isolated from one another and the AC input. The Minn Kota charger can charge independent batteries or combinations of batteries hooked in series or parallel without disconnecting the batteries from any switches or wires / straps joining the batteries.



If batteries are connected in a series with jumper wires, those wires can be left in place during charging.

OPERATING THE CHARGER

SELECTING THE BATTERY TYPE

The charger can be manually switched between 4 different modes; Gel Cell, Flooded Lead-Acid, AGM/High Performance AGM, and Equalize. In order to optimize the performance of your batteries or to prevent damage, you will need to properly set each charger bank for the correct battery type (each bank can be independently set). The factory default setting is Flooded Lead-Acid.

To set the battery type:

1. Plug the charger AC cord into an AC outlet.
2. During power up all LEDs will turn on, then 1 YELLOW LED will temporarily remain on. This YELLOW LED will indicate the current battery type.
3. To change battery type press and hold the Battery Selection button until the YELLOW LED indicates the desired battery type, then release the button. The battery type will be saved even if the AC cord or DC output cords are disconnected.

Flooded Lead-Acid batteries should be equalized per the battery manufacturers' recommendations. Only Flooded Lead-Acid batteries should be equalized. The charger will only allow selection of the Equalize Mode if the previous selection was Flooded Lead-Acid. To set Equalize Mode, press and hold the Battery Selection button until all 3 YELLOW LEDs are lit, then release the button. Once in Equalize Mode, the equalize process will only be performed one time. Once this cycle is completed or if the cycle is interrupted (by unplugging the AC or a DC cord) the charger will revert back to the Flooded Lead-Acid battery type

WARNING: Battery type is factory preset for Flooded Lead-Acid. If you are using alternate type batteries, select Gel or AGM/High Performance AGM. Failure to do so could result in damage to your battery and/or cause acid leaks.

GENERAL OPERATION

After the AC cord on the charger is plugged in and a battery is connected to the output cable correctly, the 25% charging LED will turn on. After 4 seconds the charger will begin charging the battery. The 4 second delay is added to allow the user to establish a good connection before the charger output is turned on. This will help prevent unwanted sparks during battery connections. The YELLOW LEDs will indicate how far the charger is in the charging process. Once the 100% GREEN LED is flashing, the charger is holding the battery in Maintenance Mode. The charger will stay in Maintenance Mode for 12 hours. After 12 hours in the Maintenance Mode, the charger output will turn off and the 100% GREEN LED will switch to steady GREEN.

CAUTION: We recommend that you not recharge your battery, (or batteries), with the watercraft or motor lower unit in the water during electrical storms. Severe damage to the motor or charging system may occur if lightning strikes nearby or if storm related high voltage conditions exist.

CAUTION: If using a generator to power the charger, it must have a clean output and be safe for use on electrical equipment. Generators with a sine wave output can be used to power this charger. See Table 1 for power requirements.

Table 1

Model	Input Power (120VAC, 60Hz)
MK106PC	100W
MK110PC	165W
MK212PC	200W
MK220PC	330W
MK318PC	300W
MK330PC	500W
MK440PC	660W
MK230PC	500W
MK345PC	700W
MK460PC	900W

WARNING: To reduce risk of electric shock, do not perform any servicing other than those contained in the operating instructions.

INDICATOR LEDs

Each bank has the following LEDs:

- **!** (RED): A solid **!** RED LED indicates there is an issue with the battery connection.
- A flashing **!** RED LED indicates an error. See Troubleshooting on page 15.
- 25%, 50%, 75% (YELLOW): These LEDs indicate the progress of charging.
- 100% (GREEN): Flashing GREEN LED indicates battery is fully charged in Maintenance Mode and ready to use.
- Solid GREEN LED indicates battery is fully charged in long term Maintenance Mode and ready to use.
- Flashing GREEN and 25% YELLOW LEDs indicates the battery is less than 10.5 volts and the charger is in low power safety mode. Full charging will begin once the battery reaches 10.5 volts. If the battery does not rise above 10.5 volts, then make sure all loads are disconnected from the battery and try again.

MULTI-STAGE CHARGING

Minn Kota's Multi-Stage Charging delivers a fast, precise charge profile by automatically controlling current and voltage without overcharging your batteries.

Bulk Mode: During this stage, the charger delivers full current until the battery reaches ~75% charge.

Absorption Mode: The charging current tapers down while the battery voltage is held constant (see Table 2 for voltages).

Mild Equalize Mode (Flooded Lead-Acid Only): The voltage is automatically increased with each charging cycle for a maximum of 1.5 hours to desulfate and mix fluids in each battery.

Equalize Mode (Flooded Lead-Acid Only): The equalize mode must be manually selected for each bank that is to be equalized. The voltage is increased for a maximum of 4 hours to desulfate and mix fluids in each battery.

Maintenance Mode: When the battery reaches full charge, the charger voltage is reduced (see Table 1 on page 14 for voltages). A flashing 100% GREEN LED is lit for each bank to indicate the battery is in Maintenance Mode and ready to use. After 12 hours, the charger automatically turns off and a steady 100% GREEN LED is lit for each bank to indicate the battery is in long term Maintenance Mode and ready to use. The charger will automatically resume charging when the battery voltage drops below 12.6V.

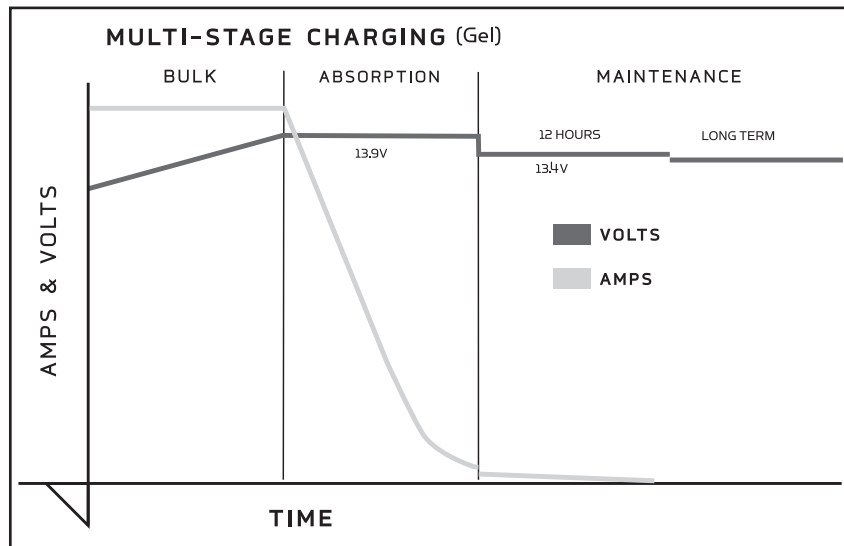
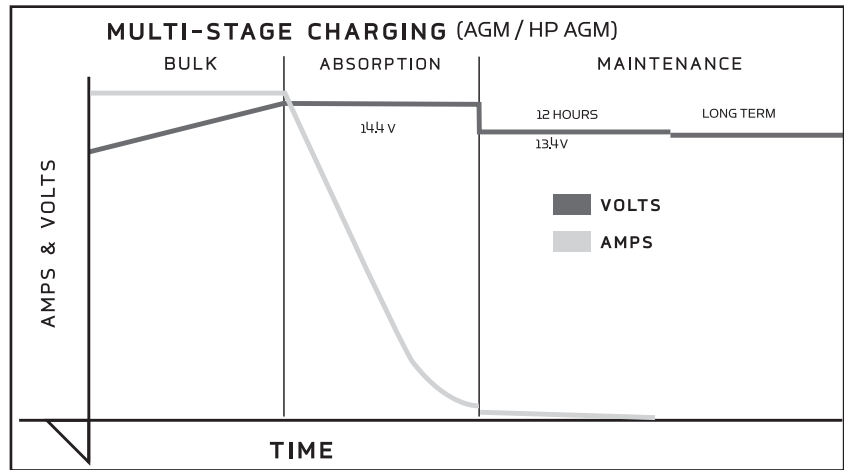
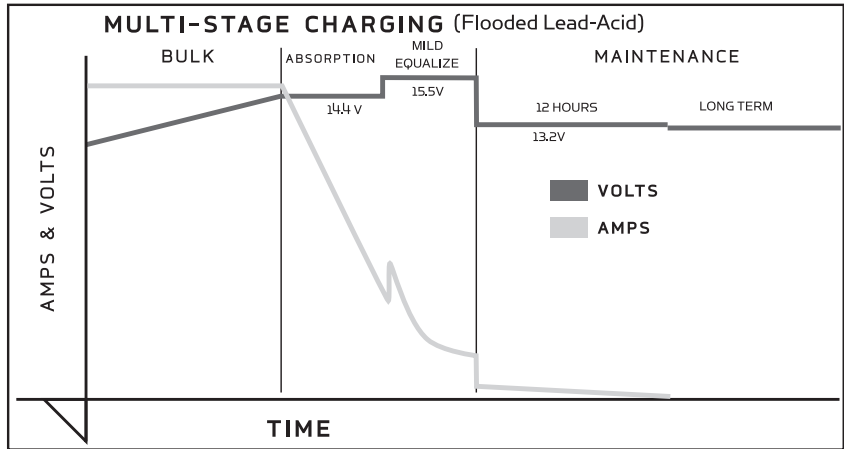
INLINE FUSE

Each output cord has inline fuses on the RED and BLACK leads located near the ring terminals. These fuses serve as protection from surges and short circuits caused by a damaged charger output cable. If a fuse blows, replace it with a 30 amp ATC 32V automotive fuse. Improper battery connections will normally not cause a fuse to blow since this is handled by the internal circuitry of the charger.

OPERATING THE CHARGER

Table 2

CHARGING PROFILE @ 25° C			
Battery Type	Absorption	Equalize	Float
Flooded Lead-Acid	14.4V	15.5V	13.2V
AGM/High Performance AGM (Absorbed Glass Mat)	14.4V	n/a	13.4V
Gel	13.9V	n/a	13.4V



TROUBLESHOOTING

TROUBLESHOOTING

ERROR CONDITION	SOLUTION
<p>ⓘ RED LED is lit Check connection.</p>	<ul style="list-style-type: none"> • Check polarity of leads to battery. • Check connections to battery and fuses in output cord. • Check voltage at battery. The bank will not charge a battery below 0.5 volts or above 16 volts.
<p>ⓘ RED LED is flashing with solid 25% YELLOW LED Low-voltage time expired.</p>	<ul style="list-style-type: none"> • Check to make sure there are no power loads on the battery. • Check the fluid in the battery and add fluid per battery manufacturer's specifications. • If the voltage of the battery does not increase above 10.5 volts, then the bank will shut down and will not charge. The battery should be tested.
<p>ⓘ RED LED is flashing with solid 50% YELLOW LED. Bulk time expired.</p>	<ul style="list-style-type: none"> • Check to make sure there are no heavy or large loads on the battery. • Check the fluid in the battery and add fluid per battery manufacturer's specifications. • If the voltage of the battery does not increase to the absorption voltage in 30 hours, then the bank will shut down and will not charge. The battery should be tested.
<p>ⓘ RED LED is flashing with solid 75% YELLOW LED. Temperature sensor error.</p>	<ul style="list-style-type: none"> • Reset the charger by unplugging the AC cord. Wait for all LEDs to turn off. • Plug in the AC cord.
<p>ⓘ RED LED is flashing with solid 25% and 75% YELLOW LEDs Charger is overheated.</p>	<ul style="list-style-type: none"> • Reset the charger by unplugging the AC cord. Wait for all LEDs to turn off and allow charger to cool. • Plug in the AC cord.
<p>Indicator lights will not illumine</p>	<ul style="list-style-type: none"> • Check the AC power at the outlet. • Make sure the GFCI (Ground Fault Circuit Interrupter) for the outlet has not tripped. • If an extension cord is being used, check the AC power at the end of the extension cord.
<p>Charger powers up and then turns off</p>	<ul style="list-style-type: none"> • If an extension cord is being used, check the AC power at the end of the extension cord. • Extension cord AWG is too small - refer to the chart on pg. 6 of the Safety Precautions. • Very low AC voltage is applied to the charger.

SPECIFICATIONS										INPUT VOLTAGE: 95-135VAC, 60Hz
Model	Part No.	System Volts	Banks	Output per Bank (amps)	Total Output (amps)	Input Cable	Output Cable	Size L x W x H	Weight (lbs)	Input Current (120VAC, 60Hz)
MK106PC	1831060	12	1	6	6	18AWG - 6'	16AWG - 6'	9-1/4" x 4" x 3-1/4"	4.5	1.5A
MK110PC	1831100	12	1	10	10	18AWG - 6'	16AWG - 6'	9-1/4" x 4" x 3-1/4"	4.5	2.4A
MK212PC	1832120	12 / 24	2	6	12	18AWG - 6'	16AWG - 6'	9-1/4" x 8-1/4" x 3-1/4"	8	3A
MK220PC	1832200	12 / 24	2	10	20	18AWG - 6'	16AWG - 6'	9-1/4" x 8-1/4" x 3-1/4"	8	4.8A
MK318PC	1833180	12 / 24 / 36	3	6	18	18AWG - 6'	16AWG - 6'	9-1/4" x 8-1/4" x 3-1/4"	11	4.5A
MK330PC	1833300	12 / 24 / 36	3	10	30	18AWG - 6'	16AWG - 6'	9-1/4" x 8-1/4" x 3-1/4"	11	7.2A
MK440PC	1834400	12 / 24 / 36 / 48	4	10	40	16AWG - 6'	16AWG - 6'	9-1/4" x 10-1/2" x 3-1/4"	14	9.6A
MK230PC	1832300	12 / 24	2	15	30	14AWG - 6'	12AWG - 6'	7-5/8 x 9-1/4 x 3	9.6	7A
MK345PC	1833450	12 / 24 / 36	3	15	45	14AWG - 6'	12AWG - 6'	11 x 9-1/4 x 3	13.7	10.5A
MK460PC	1834600	12 / 24 / 36 / 48	4	15	60	14AWG - 6'	12AWG - 6'	14-3/8 x 9-1/4 x 3	18	14A

FREQUENTLY ASKED QUESTIONS

Q Are Minn Kota On-Board Precision Chargers tested and approved for use with Odyssey batteries?

A All Minn Kota On-board Precision Chargers have been tested by Odyssey and found to properly charge all batteries rated from 7-114 Ah.

Q Are the Minn Kota battery chargers waterproof?

A Yes, the battery chargers are waterproof, however, they should not be operated while immersed.

Q Can I charge two batteries on one charger bank?

A Yes, but it is not recommended. It takes double the amount of time to charge two batteries and could result in an error being displayed if the batteries take too long to charge.

Q Can I connect two charger banks to one battery?

A Yes, this will charge the battery almost twice as fast. However, the water in the battery is more likely to evaporate with higher charging currents. Thus, the electrolyte level should be checked more often. The maximum safe charging current on most deep cycle batteries is 20 amps. Consult your battery manufacturer for recommendations.

Q Can I extend the Minn Kota battery charger output leads?

A Yes, please refer to Accessory Kit 1820089 - MK-EC-15 Wire Extension Kit (see Pg. 10).

Q Can the Minn Kota battery charger be mounted in any position?

A Yes, but it is highly recommended that the charger not be mounted below the waterline.

Q Do I need to disconnect the series or parallel battery connection(s) when using Minn Kota chargers?

A No, the battery jumper wire(s) can remain in place for both types of wiring.

Q Does losing AC power or unplugging the Precision charger from an AC outlet affect battery type selection?

A No, once a battery type is selected it will be stored until a new battery type is selected by the user.

Q Does losing AC power or unplugging the Precision charger from an AC outlet affect Deep Equalization mode?

A Yes, the Deep Equalization mode is cancelled and the charger will restart the charging cycle in normal Flooded Lead Acid battery mode.

Q How do I set Equalization mode on my Minn Kota Precision charger?

A Minn Kota Precision Chargers feature Automatic Equalization Technology that cleans and conditions batteries with each charge cycle (flooded Lead-Acid only). Precision Chargers also feature a user selectable by bank Deep Equalization Mode. Select Deep Equalization Mode (recommended every 30th charge cycle) – Deep Equalization should only be performed on Flooded Lead-Acid batteries. Before you can select Deep Equalization mode you must first make sure that the current battery selection is set to Flooded Lead Acid. Press and hold the “BATTERY SELECTION” button until you see three yellow LED’s illuminate, then release the “BATTERY SELECTION” button. If any of the yellow LED’s begin to flash you are in Deep Equalization Mode.

NOTE: The state of charge LED’s will continue to flash through the entire charge cycle including the 12-hour maintenance mode.

Q How often should I perform Deep Equalization?

A Deep Equalization is recommended every 30th charge cycle or once a year.

Q How do I determine what battery type is selected on my Minn Kota PC Charger?

A Press and release the “BATTERY SELECTION” button. The yellow LED located next to the corresponding battery type selected will illuminate for 2-5 seconds.

Q How warm do Minn Kota battery chargers get?

A The Minn Kota battery chargers can reach 150° F. They may get warm in an enclosed area. The maximum recommended room temperature for charging batteries is 122° F. If the charger seems to get “hot,” try opening a hatch to help cool the charger. When the charger is hot, the output current will drop to protect the charger and the battery.

Q What happens if AC power is lost during a charging cycle with the Minn Kota Precision battery charger?

A The PC charger will simply restart the charging cycle with the battery type that was originally selected. Losing power or unplugging the PC charger does not clear your battery type selection.

Q What size fuses are used on Minn Kota battery chargers?

A Chargers with a yellow fuse holder use a 30 amp AGX 32V automotive fuse. An AGC can be used but may not fit as well as the AGX. Chargers with a red fuse holder use a 30 amp ATC 32V automotive fuse.

Q What Batteries can be charged by a Minn Kota charger?

A Minn Kota Chargers can charge 12 volt 6 cell lead-acid batteries. Minn Kota D Series Chargers and Minn Kota Portable Chargers work well with Flooded Lead Acid and AGM battery types. Minn Kota PC series Chargers have optimized charging for Flooded Lead Acid, AGM and Gel battery types. You should verify with your Battery's Manufacturer the maximum Amp input for your Battery. The Amp Hour or AH rating for your battery should be in the range indicated below for the per bank amp output of the battery charger selected.

BATTERY CHARGER OUTPUT PER BANK	BATTERY AMP HOUR RATING
5 AMPS	20-125 AH
6 AMPS	24-125 AH
10 AMPS	40-125 AH
15 AMPS	60-180 AH

Q Why do the LED's on my Precision Charger stay illuminated for a period of time after unplugged from AC power?

A This is normal and does not affect your batteries. It is simply a function of the Precision charging ensuring the charger is disconnected prior to terminating the charge cycle. The PC charger takes many complex and detailed measurements of the battery during a charge cycle. The software in the charger processes this information to make the best possible decisions to give your battery the best charge on the market. In some cases the measurements and software algorithms make it difficult to detect when AC has been disconnected and therefore the charger may take a while to power down and turn off.

Q Will I damage my batteries if I leave the charger plugged in over long periods of non-use (like storage)?

A No. Minn Kota's on-board chargers float the battery voltage between 13.2V and 13.5V in the "maintenance" stage (3rd stage). This will allow you to keep your battery charger plugged in for long periods of time without "boiling the battery dry." Note: It is important to check the electrolyte level approximately every 30 days. Batteries should be filled after charging, and the electrolyte level should be even in all cells and below the fill well in each cell. If the battery plates are exposed before charging, add just enough water to cover the plates. If the battery is overfilled before charging, it may overflow during charging.

Q Can I charge Lithium batteries?

A Minn Kota has not worked directly with any Lithium battery suppliers to determine if our charger are compatible with their batteries. Most of the Lithium Battery manufactures post required charge stage information on their web sites.

Q Are any of the charger foot prints compatible with other chargers?

A Footprints are not compatible with different charger models and sizes. The only exception is the MK212PC, MK318PC, MK220PC and MK330PC have compatible footprints.

Q Are the chargers serviceable?

A There are no serviceable components inside the charger.

Q Can one bank be disconnected while charging batteries on other banks?

A Yes, The charger banks are fully independent chargers. Unused banks can be left disconnected from batteries. The output of the unused banks are not energized. It is always a good idea to cover or tape the loose end to prevent shorting of other electrical systems in the boat.

Q Can I use a portable generator to run my charger?

A Careful selection should be used when deciding on a portable generator for electronics. There are 2 important factors that must be considered:

- Output power: Generators are marketed in output wattage. This wattage must be higher than the power required by the battery charger. Please review power requirements stated in the user manual for your specific charger.
- Output type: MinnKota chargers require clean output power from the generator to prevent permanent damage. The generator must replicate the power from a standard AC outlet in your home (sine wave output).

SERVICE & MAINTENANCE

GENERAL MAINTENANCE

- Check battery charger for dirt, oil, battery corrosion, etc. Use a water and baking soda solution for cleaning corrosion. Wipe clean using a dry cloth.
- Check ring terminals for dirt, oil, and battery corrosion; then disconnect from battery posts and clean as necessary with water and baking soda solution and dry with a clean cloth.
- When the charger is not in use, coil the power cord to prevent damage.
- When storing the battery charger, store in a clean dry area.
- If power cord or plug becomes damaged, you may contact the Minn Kota Service Repair Department for service repair information. Otherwise, dispose of the battery charger in compliance with local law. Damaged cords and plugs can cause electric shock or electrocution.

COMPLIANCE STATEMENTS

ENVIRONMENTAL COMPLIANCE STATEMENT:

It is the intention of JOME to be a responsible corporate citizen, operating in compliance with known and applicable environmental regulations, and a good neighbor in the communities where we make or sell our products.

WEEE DIRECTIVE:

EU Directive 2002/96/EC “Waste of Electrical and Electronic Equipment Directive (WEEE)” impacts most distributors, sellers, and manufacturers of consumer electronics in the European Union. The WEEE Directive requires the producer of consumer electronics to take responsibility for the management of waste from their products to achieve environmentally responsible disposal during the product life cycle.

WEEE compliance may not be required in your location for electrical & electronic equipment (EEE), nor may it be required for EEE designed and intended as fixed or temporary installation in transportation vehicles such as automobiles, aircraft, and boats. In some European Union member states, these vehicles are considered outside of the scope of the Directive, and EEE for those applications can be considered excluded from the WEEE Directive requirement.

This symbol (WEEE wheelee bin) on product indicates the product must not be disposed of with other household refuse. It must be disposed of and collected for recycling and recovery of waste EEE. Johnson Outdoors Inc. will mark all EEE products in accordance with the WEEE Directive. It is our goal to comply in the collection, treatment, recovery, and environmentally sound disposal of those products; however, these requirement do vary within European Union member states. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.



DISPOSAL:

Minn Kota chargers are not subject to the disposal regulations EAG-VO (electric devices directive) that implements the WEEE directive. Nevertheless never dispose of your Minn Kota charger in a garbage bin but at the proper place of collection of your local town council.

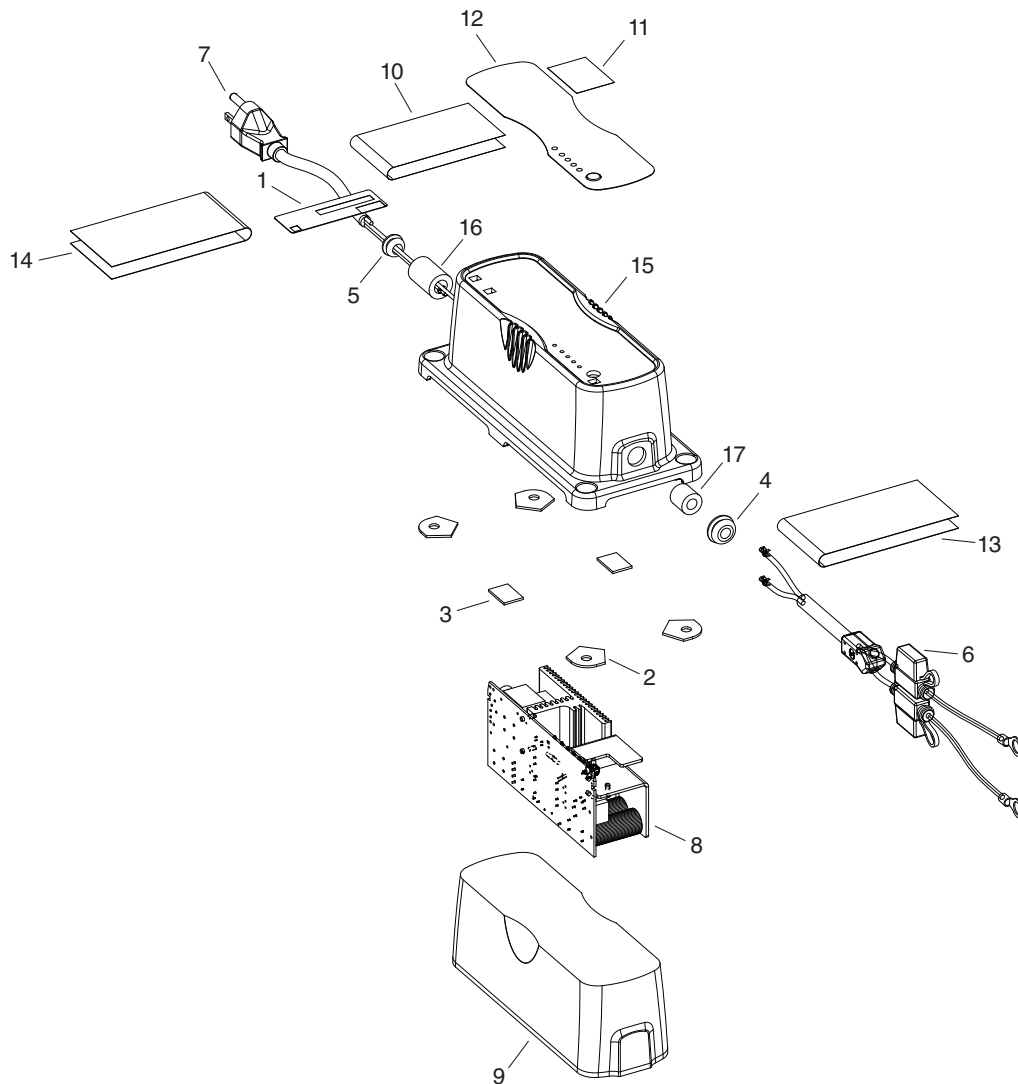
Never dispose of a battery in a garbage bin. Comply with the disposal directions of the manufacturer or his representative and dispose of them at the proper place of collection of your local town council.

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

PARTS DIAGRAM & LIST

MK106PC / MK110PC

This page provides Minn Kota® WEEE compliance instructions. Charger can not be disassembled, but the cords can be cut and removed. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.



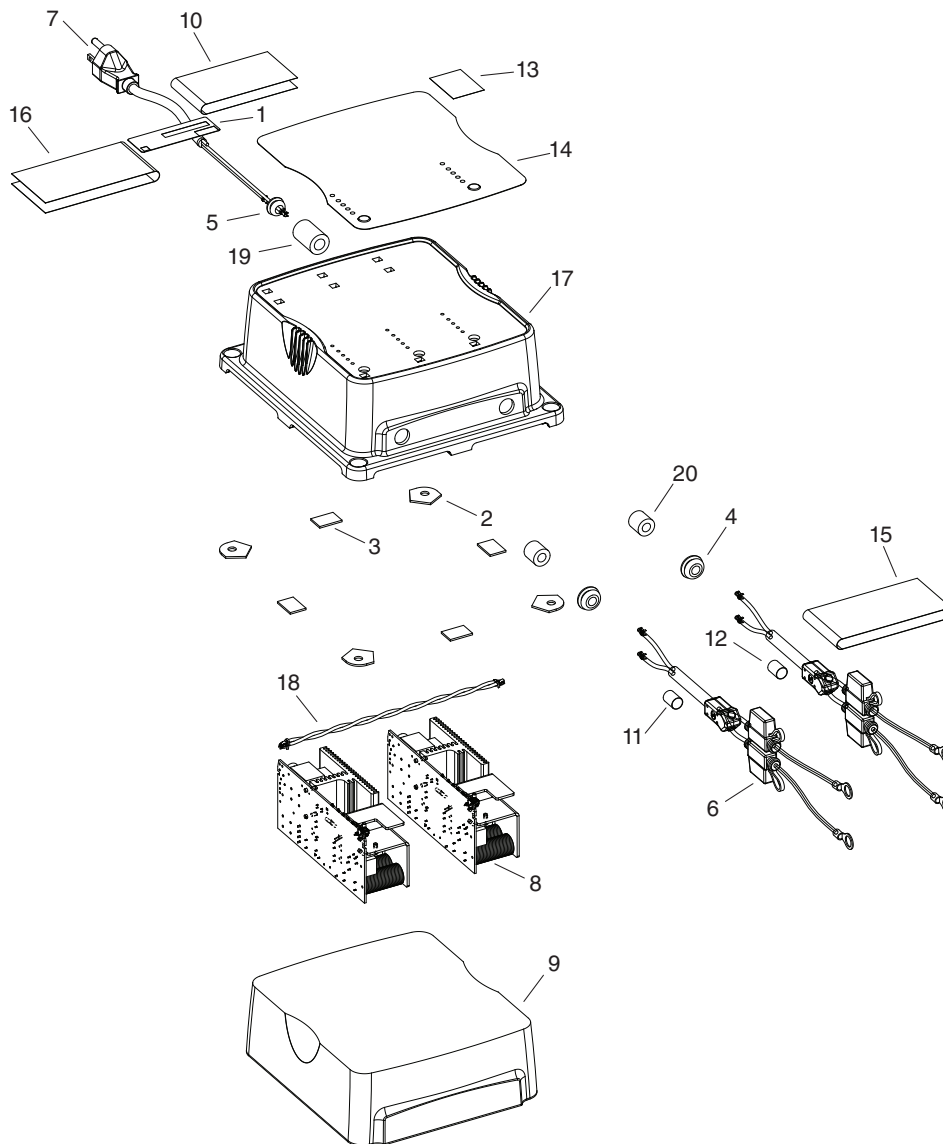
ITEM	QTY	DESCRIPTION
1	1	SERIAL NUMBER DECAL-CORD
2	4	RUBBER MOUNTIN PAD - ROUND
3	2	RUBBER MOUNTIN PAD - SQUARE
4	1	GROMMET
5	1	GROMMET
6	1	OUTPUT CORD TWO COND. 16AWG
7	1	INPUT CORD 18AWG
8	1	BOARD ASSEMBLY
9	1	BOARD POTTING

ITEM	QTY	DESCRIPTION
10	1	INPUT WARNING LABEL
11	1	BATTERY SELECTION OVERLAY
12	1	DECAL
13	1	ERROR CODE DECAL
14	1	WARNING DECAL
15	1	ONE BANK PC CHARGER COVER
16	1	FERRITE BEAD
17	1	FERRITE BEAD

PARTS DIAGRAM & LIST

MK212PC / MK220PC

This page provides Minn Kota® WEEE compliance instructions. Charger can not be disassembled, but the cords can be cut and removed. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.



ITEM	QTY	DESCRIPTION
1	1	SERIAL NUMBER DECAL-CORD
2	4	RUBBER MOUNTING PAD - ROUND
3	4	RUBBER MOUNTIN PAD - SQUARE
4	2	GROMMET
5	1	GROMMET
6	2	OUTPUT CORD TWO COND. 16AWG
7	1	INPUT CORD 18AWG
8	2	BOARD ASSEMBLY
9	1	BOARD POTTING
10	1	INPUT WARNING LABEL

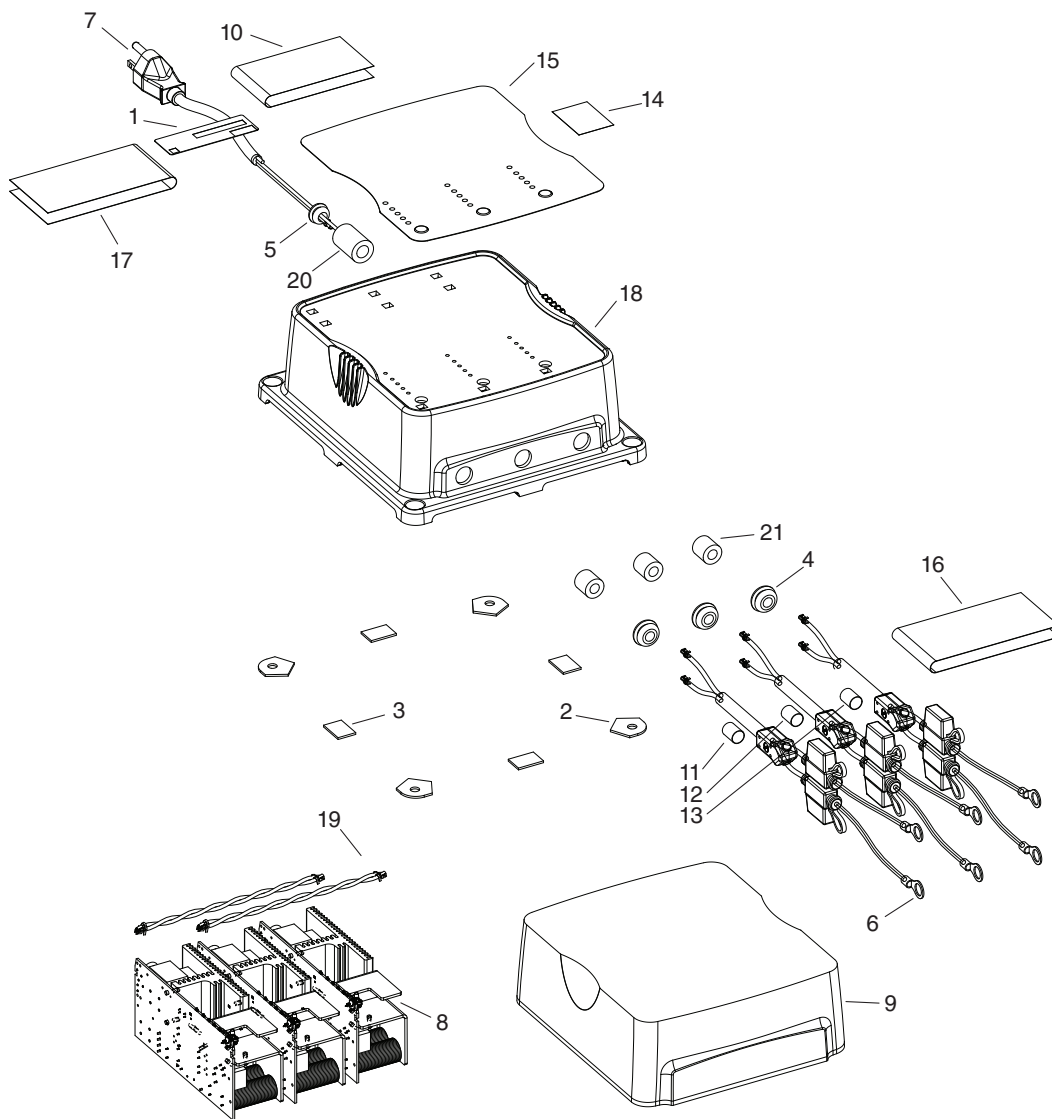
ITEM	QTY	DESCRIPTION
11	1	BANK 1 DECAL
12	1	BANK 2 DECAL
13	1	BATTERY SELECT OVERLAY
14	1	DECAL
15	1	ERROR CODE DECAL
16	1	WARNING DECAL
17	1	COVER PC. CHARGERS TWO BANK
18	1	AC BOARD CONNECTION 18AWG
19	1	FERRITE BEAD
20	2	FERRITE BEAD

PARTS DIAGRAM & LIST

MK318PC / MK330PC

This page provides Minn Kota® WEEE compliance instructions. Charger can not be disassembled, but the cords can be cut and removed. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.

Tools required, but not limited to: wire cutters.



ITEM	QTY	DESCRIPTION
1	1	SERIAL NUMBER DECAL-CORD
2	4	RUBBER MOUNTING PAD - ROUND
3	2	RUBBER MOUNTIN PAD - SQUARE
4	1	GROMMET
5	1	GROMMET
6	3	OUTPUT CORD TWO COND. 16AWG
7	1	INPUT CORD 18AWG
8	1	BOARD ASSEMBLY
9	1	BOARD POTTING
10	1	INPUT WARNING LABEL
11	1	BANK 1 DECAL

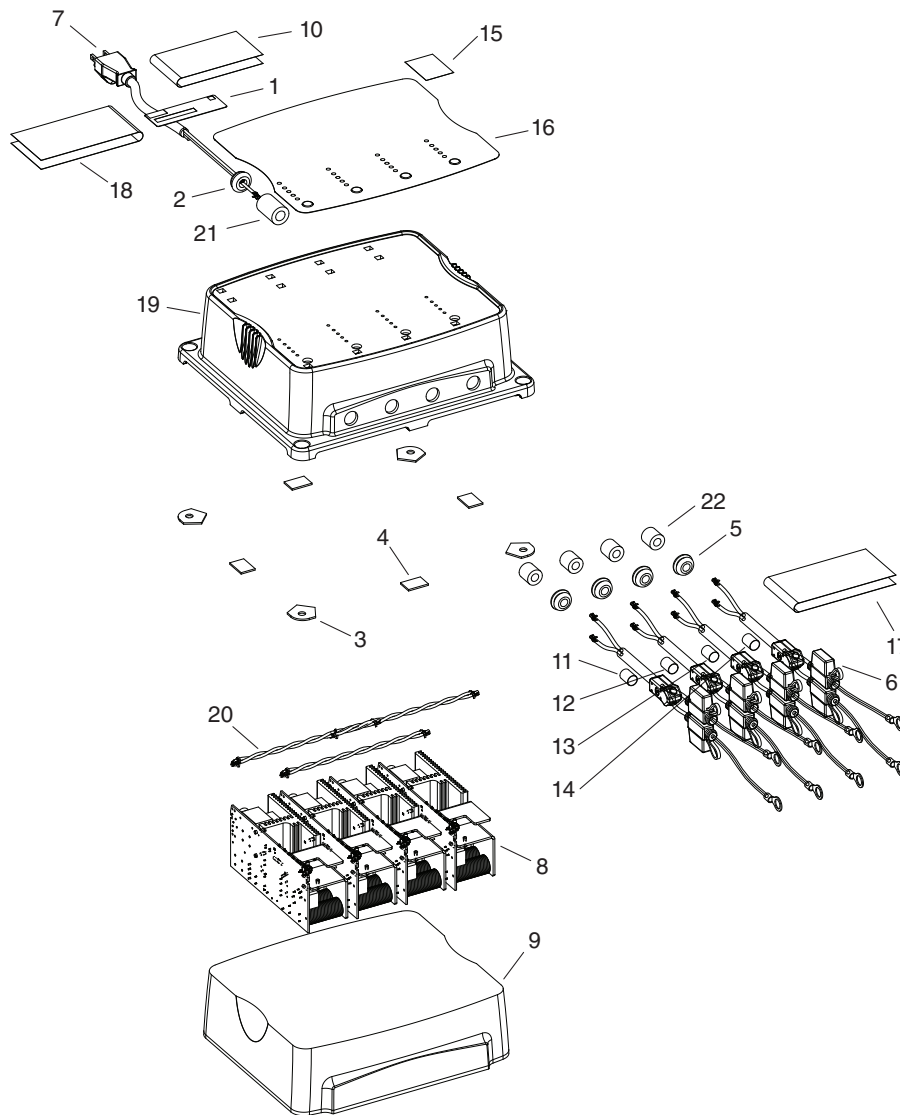
ITEM	QTY	DESCRIPTION
12	1	BANK 2 DECAL
13	1	BANK 3 DECAL
14	1	BATTERY SELECT OVERLAY
15	1	DECAL
16	1	ERROR CODE DECAL
17	1	WARNING DECAL
18	1	COVER PC. CHARGERS TWO BANK
19	2	AC BOARD CONNECTION
20	1	FERRITE BEAD
21	3	FERRITE BEAD

PARTS DIAGRAM & LIST

MK440PC

This page provides Minn Kota® WEEE compliance instructions. Charger can not be disassembled, but the cords can be cut and removed. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.

Tools required, but not limited to: wire cutters.



ITEM	QTY	DESCRIPTION
1	1	SERIAL NUMBER DECAL-CORD
2	1	GROMMET
3	4	RUBBER MOUNTING PAD - ROUND
4	4	RUBBER MOUNTIN PAD - SQUARE
5	4	GROMMET
6	4	OUTPUT CORD TWO COND. 16AWG
7	1	INPUT CORD 18AWG
8	1	BOARD ASSEMBLY
9	1	BOARD POTTING
10	1	INPUT WARNING LABEL
11	1	BANK 1 DECAL

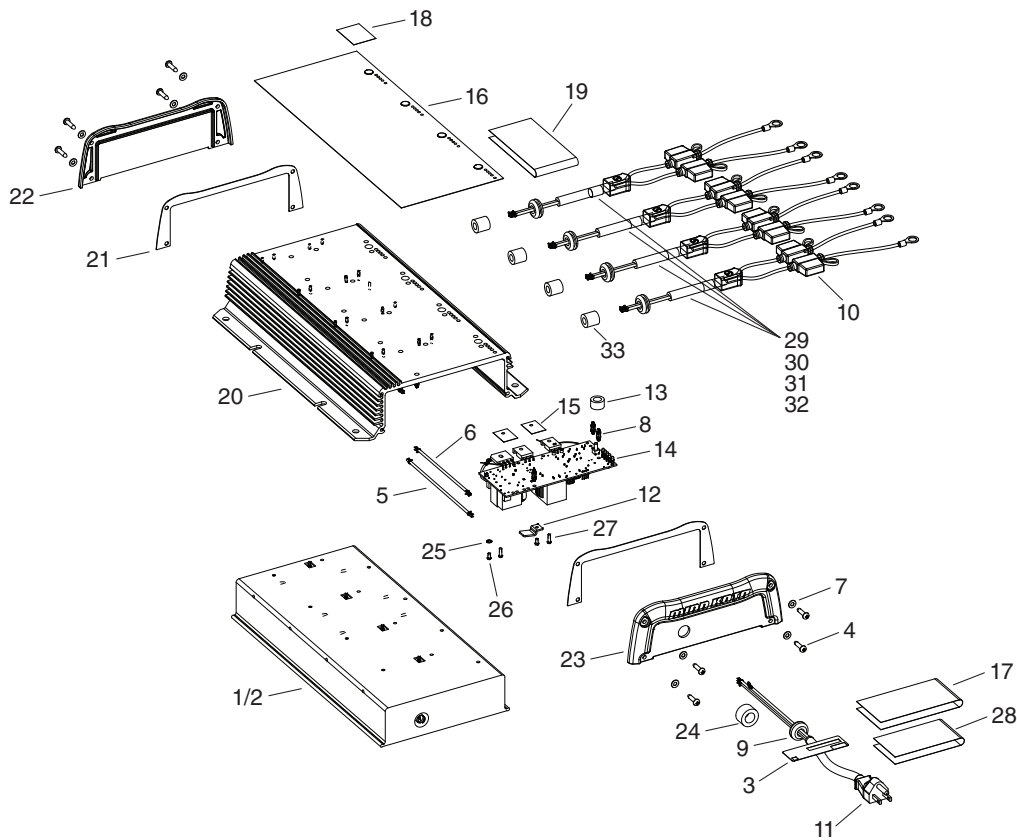
ITEM	QTY	DESCRIPTION
12	1	BANK 2 DECAL
13	1	BANK 3 DECAL
14	1	BANK 4 DECAL
15	1	BATTERY SELECT OVERLAY
16	1	DECAL
17	1	ERROR CODE DECAL
18	1	WARNING DECAL
19	1	COVER PC. CHARGERS TWO BANK
20	3	AC BOARD CONNECTION
21	1	FERRITE BEAD
22	4	FERRITE BEAD

PARTS DIAGRAM & LIST

MK230PC / MK345PC / MK460PC

This page provides Minn Kota® WEEE compliance instructions. Charger can not be disassembled, but the cords can be cut and removed. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.

Tools required, but not limited to: wire cutters.



ITEM	QTY	DESCRIPTION
1	1	POTTING PART A
2	1	POTTING PART B
3	1	SERIAL NUMBER DECAL-CORD
4	8	SCREW
5	3	AC BOARD CONNECTION 16AWG WHITE
6	3	AC BOARD CONNECTION 16AWG BLACK
7	8	WASHER
8	12	STAND OFF, 0.25"
9	5	GROMMET
10	4	OUTPUT CORD
11	1	INPUT CORD, 14 AWG
12	4	SPRING CLIP
13	4	GASKET
14	4	BOARD ASSEMBLY
15	8	INSULATING PAD
16	1	MK230PC DECAL
	1	MK345PC DECAL
	1	MK460PC DECAL
17	1	MK230PC WARNING DECAL
	1	MK345PC WARNING DECAL

ITEM	QTY	DESCRIPTION
	1	MK460PC WARNING DECAL
18	1	BATTERY TYPE OVERLAY LABEL
19	1	ERROR CODE DECAL - PC
20	1	EXTRUSION - MK230
	1	EXTRUSION - MK345
	1	EXTRUSION - MK460
21	2	GASKET
22	1	ENDCAP
23	1	ENDCAP, 1 OUTPUT
24	1	FERRITE BEAD
25	4	WASHER
26	8	SCREW
27	8	SCREW
28	1	INPUT WARNING LABEL
29	1	BANK 1 DECAL
30	1	BANK 2 DECAL
31	1	BANK 3 DECAL (345PC & 460PC ONLY)
32	1	BANK 4 DECAL (460PC ONLY)
33	4	FERRITE BEAD

RECOMMENDED ACCESSORIES

CHARGER OUTPUT EXTENSION CABLES (MK-EC-15)

Extension cables are ideal when standard charger cables will not reach bow, center or transom battery compartments. Features WAGO® Wall-Nut™ quick connectors (UL Listed). Fused (30 amp) positive and negative leads. Available in 15' length.



AC POWER PORT (FRESHWATER & SALTWATER)

Our convenient adapter allows quick thru-hull connection to an AC extension cord using the male AC plug from any of our chargers. No cutting or splicing required. The watertight cover and gasket prevent corrosion on the AC plug when it isn't in use.



MKR-21



MKR-23

TALON SHALLOW WATER ANCHOR

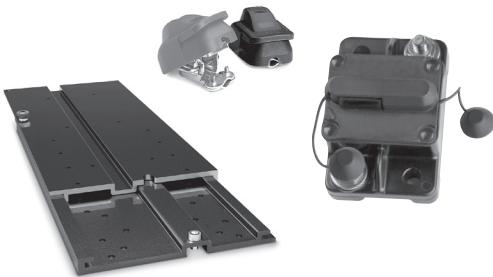
Talon deploys faster, holds stronger and runs quieter than any other shallow water anchor. Available in depths up to 12' and bold color options including camo, it boasts an arsenal of features and innovations that no other anchor can touch:



- Vertical, Multi-Stage Deployment
- User-Selectable Anchoring Modes
- 2x Anchoring Force
- Fast Deploy
- Auto Up/Down
- Triple Debris Shields
- Built-In Wave Absorption
- Noise Dissipation
- Versatile Adjustments

MINN KOTA ACCESSORIES

We offer a wide variety of trolling motor accessories, including:



- 60-Amp Circuit Breaker
- Mounting Brackets
- Stabilizer Kits
- Extension Handles
- Battery Connectors
- Battery Boxes
- Quick Connect Plugs



Part #2377164

Find out more about performance boat parts and hardware we have.