



## Electronic Service Manuals

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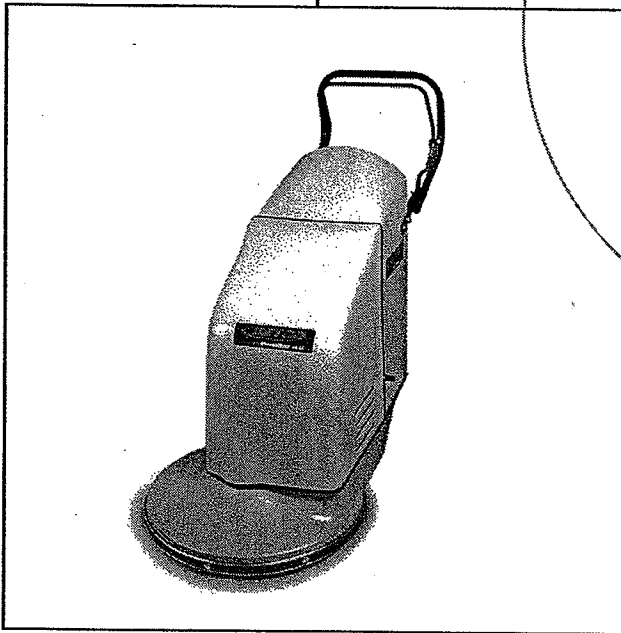
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**POWERBUFF®**

**XT II™ 21 – 21" Battery Burnisher**

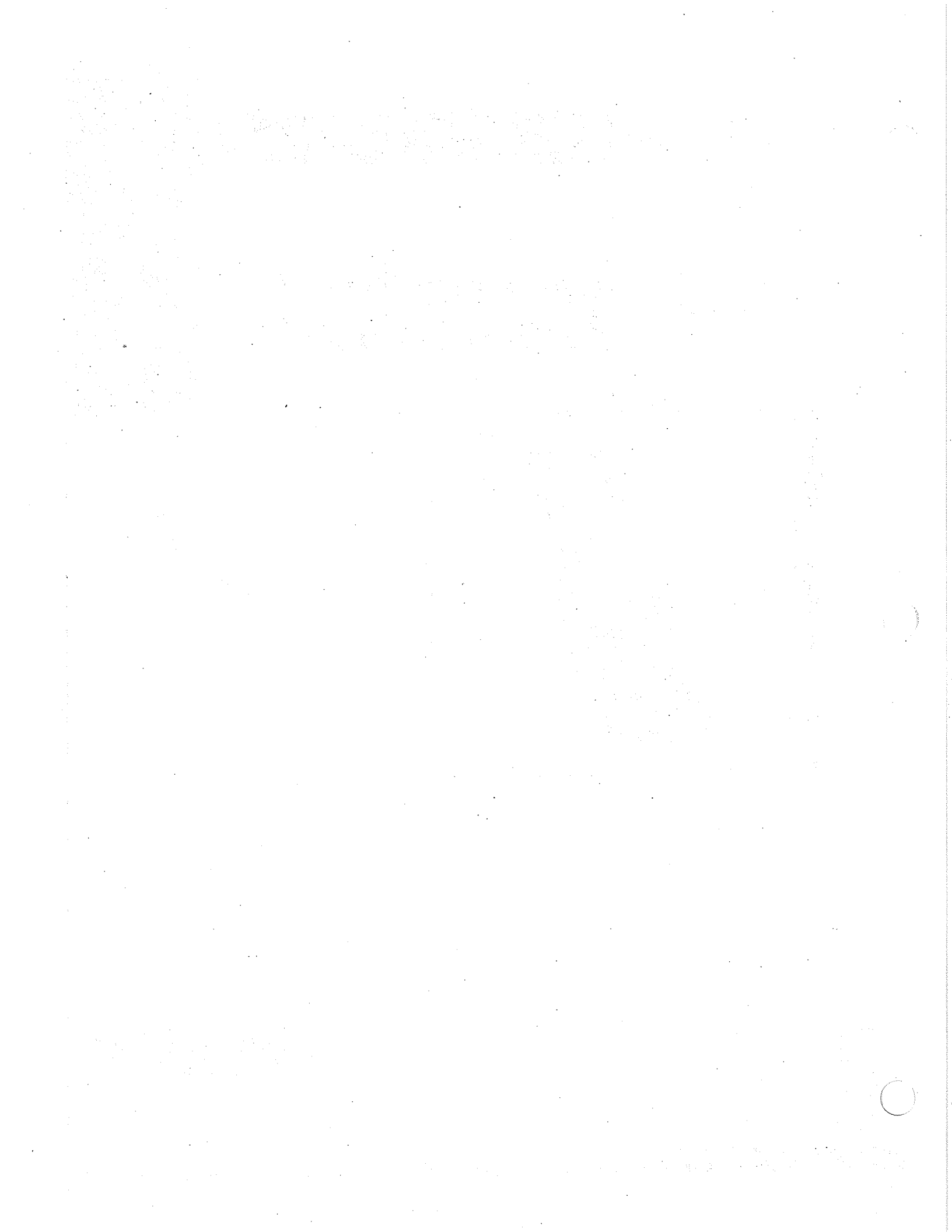
Item #E12346-00

**Operator's Manual  
Parts Schematic**



*Chemicals  
Equipment  
Programs  
Process*

**BETCO®**



# **POWERBUFF®**

## **XT-21**

### **THREE YEAR LIMITED WARRANTY**

PowerBuff, Inc. warrants new machines to be free from defects in material and workmanship under normal use and service to the original purchaser. This warranty period is subject to the conditions stated below.

#### **BATTERY AND BATTERY CHARGER WARRANTIES**

Battery warranty is for one year on a pro rated basis. Battery warranty is void if the batteries are not maintained at the proper level. Battery charger is warranted for one year.

#### **EXCLUSIONS**

This warranty does not cover normal wear and maintenance items including, but not limited to: belts; gaskets, wheels, casters, and routine adjustments. This warranty does not cover damage or failure which is the result of misuse, negligent operation, handling or repair, or which is the result of modification or repair by any person other than an authorized PowerBuff, Inc. service representative.

#### **LIMITATIONS**

STATED WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. PowerBuff's liability under this warranty is limited to repair of the product and/or replacement parts and is given to purchaser in lieu of all other remedies, including incidental and consequential damages.

#### **WARRANTY DETAIL AND CLAIM PROCEDURES**

PowerBuff, Inc. warrants to buyer that for the applicable shipment, such material will be free from defects in material and workmanship or failure to meet specifications, (a defect) appears in the material; then seller will, at its option, either repair or replace the defective goods without charge or credit or refund the purchase price of the defective material, provided that:

- 1) The defect appears within the applicable warranty period.
- 2) Buyer notifies seller in writing of the claimed defect promptly after buyer knows or reasonable should know of the claimed defect.
- 3) Seller's examination of the material discloses that the claimed defect actually exists.

Buyer shall follow seller's instruction regarding return of defective material, and no material will be accepted for repair, replacement, credit, or refund without the written authorization of and in accordance with seller's instructions. In the case of any such return, buyer shall bear the risk of in-transit loss or damage; and shall prepay all transportation charges to seller. Repaired or replacement material will be shipped prepaid by seller, and buyer shall bear the risk of in-transit loss or damage. The replaced material shall become the seller's property.







**PowerBuff, Inc. \* Phone 800-523-2833 \* Stoneville, NC**

# **XT-21 GENERATION II**

## **Specifications**

<b>ITEM</b>	<b>Description / information</b>
Power Supply.....	36 Volt (3 - 12Volt Batteries)
Charger.....	36 Volt - 20 Amp
Motor.....	High Horsepower, - maintenance free
Controller.....	Computer controlled
Run Time.....	2 - 2.5 Hours at constant speed & torque
Productivity.....	24,000 Square feet/hour
Wheels.....	Colson 6" Wheels - non marking
Caster.....	Duel 3" casters
Smart Watering System	Quick-fill, On-board Watering System
Pad Driver.....	Powerbuff Exclusive "Flex Loc" 21"
Pad speed.....	7,074 FPM Constant
Weight.....	330 lbs
Dimensions.....	54" Length 22" Width 42" Height
Warranty.....	Three Year Limited

# SAFETY INSTRUCTIONS

<u>Hazard Level</u>	<u>Explanation or Description of Hazard Level</u>
	Failure to follow safety instructions labeled  could result in severe injury or death to the machine operator or others.
	Failure to follow safety instructions labeled  could result in injury to the machine operator or others. Also, machine or property damage could occur.
	Failure to follow safety instructions labeled  could result in damage to the machine or damage to other property.



*This manual contains important information about your machine. Read and understand all instructions before operating the machine. Failure to read and follow the instructions could result in injury to the person operating the machine or injury to others. Damage to the machine or other property could occur if instructions are not followed.*



Do not operate this machine around any solvents, thinners, or other flammable liquids or materials. Electrical sparks can cause a fire or even an explosion.



Do not smoke around the machine. Also, keep all sparks and flames away from the batteries. The batteries generate gases that can cause an explosion.



Special care needs to be used when working on or near the batteries. Wear eye protection. Do not lay tools on batteries, as they may short out battery terminals. Do not wear metal jewelry, as it may short out battery terminals.



Charging batteries can be dangerous. Be aware that the battery charger may have a relatively low voltage output, but the current output is very high and therefore dangerous. Do not operate the charger if any parts of the charger or charger cords are damaged. Do not stand on a wet floor when connecting or disconnecting charger to the power outlet or to the machine.

*Safety Instructions are continued on the next page* 

## SAFETY INSTRUCTIONS (continued from previous page)



Battery acid is dangerous. Wear eye and face protection, hand protection, and body protection when working on and around batteries. If you get acid on your skin, wash off immediately. If you get acid on your clothing, remove clothing and wash any skin that was in contact with the clothing. Baking soda mixed with water will help to neutralize the acid on your skin.



The machine is very heavy, so be very careful when loading, transporting, and unloading the machine.



Keep all body parts, clothing, and objects away from moving parts.



Operate machine from the rear, not from the side.



Disconnect a wire to the batteries before working on the machine.



Do not operate machine with charger plugged in.



Do not operate machine with any parts damaged or missing.



Do not operate close to stairs, loading docks, or other drop-offs. Do not park machine in such a manner that it could roll, forward or backward, off a drop-off.



Authorized personnel must perform maintenance and repairs. Do not alter or modify the machine, unless authorized by the manufacturer.



Do not expose the electrical components to water or excessive moisture.



Always put caution signs around the areas that are being cleaned.



Do not use machine as a "ladder". Do not use machine as a "forklift" to push stuff around. Do not ride or let anyone ride on the machine.



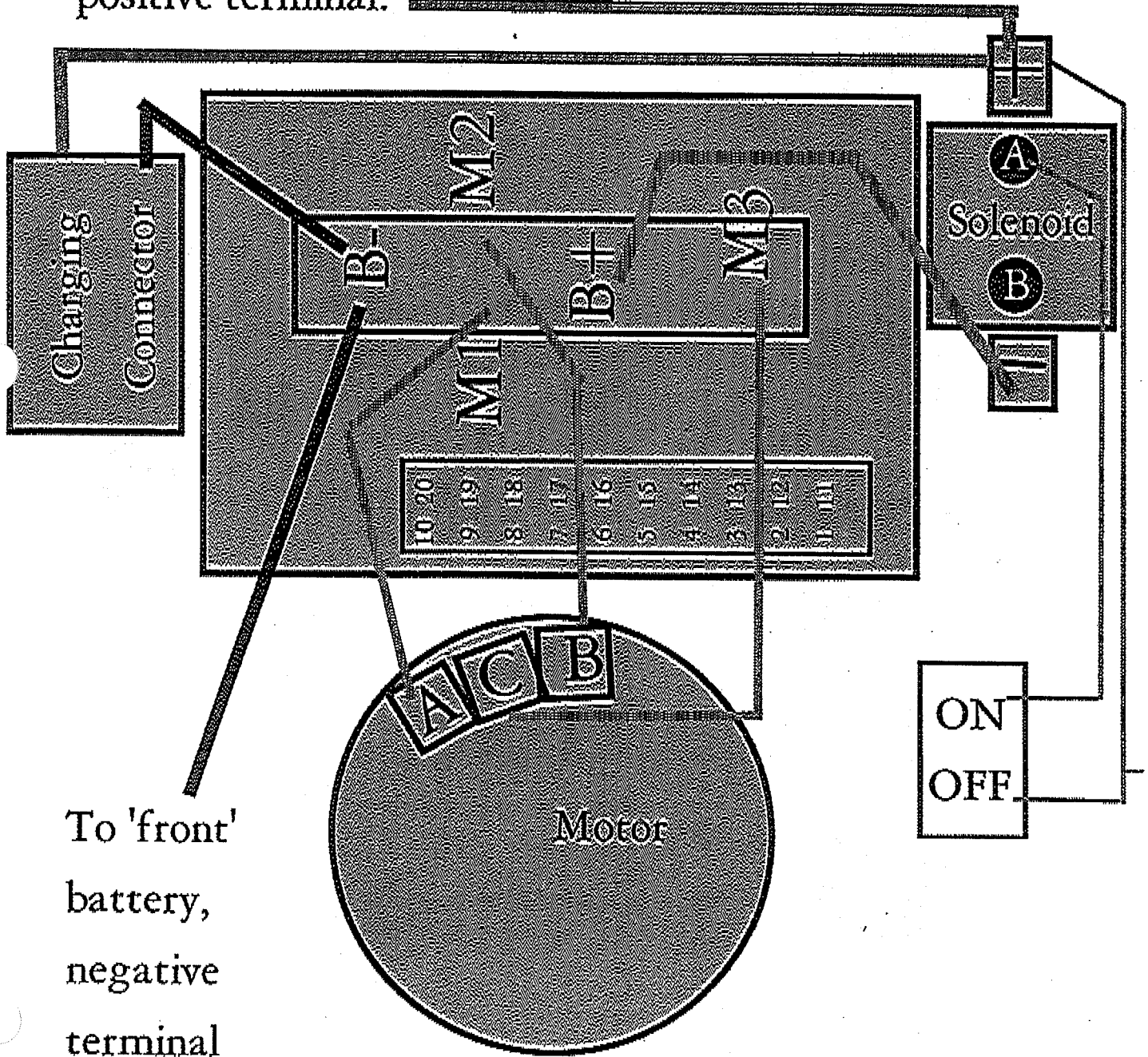
Your machine warranty may be voided if parts other than PowerBuff parts are used.

XT21 GENERATION II

- 1: to solenoid A (+): Blue
- 3: to safety switch: Green
- 8: to solenoid B (-): Yellow

- MOTOR  
Hall Sensor Cable
- 12: (+) Red
  - 17: white
  - 18: green
  - 19: blue
  - 20: (-) Brown

To: 'middle' battery,  
positive terminal.



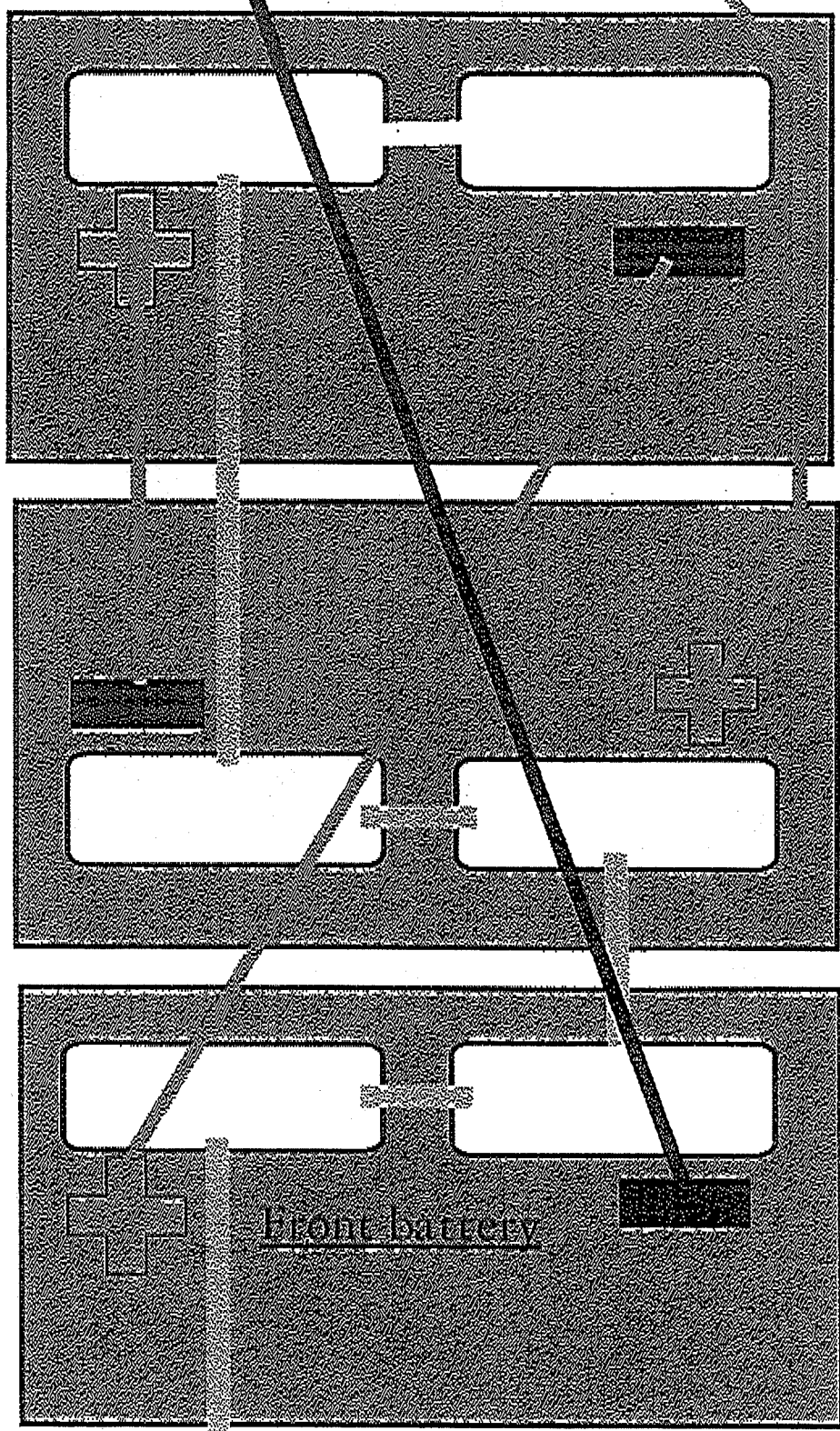
To 'front'  
battery,  
negative  
terminal

From B (-) on  
Controller

From Solenoid Positive

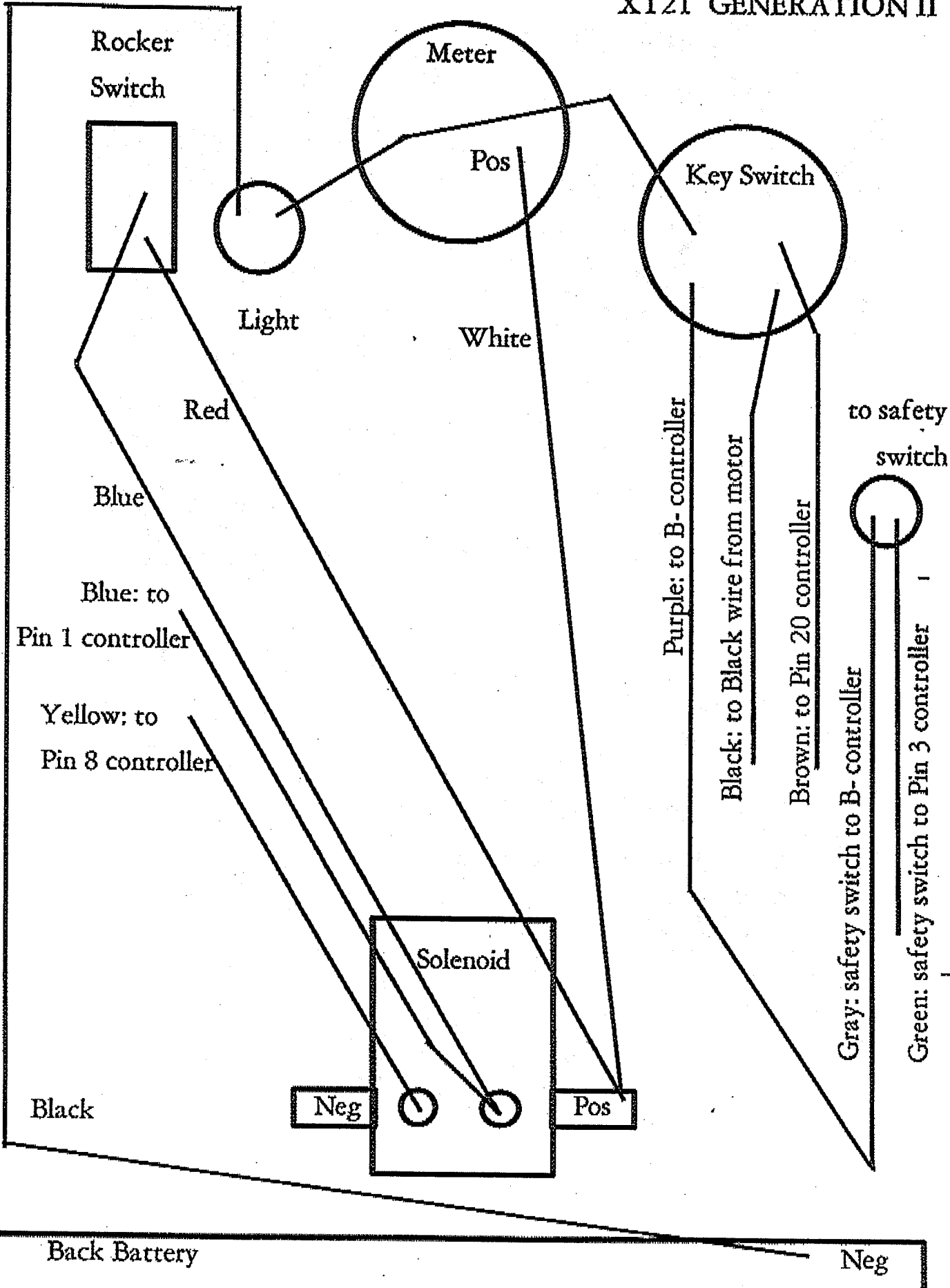
Negative  
Electrical  
Positive

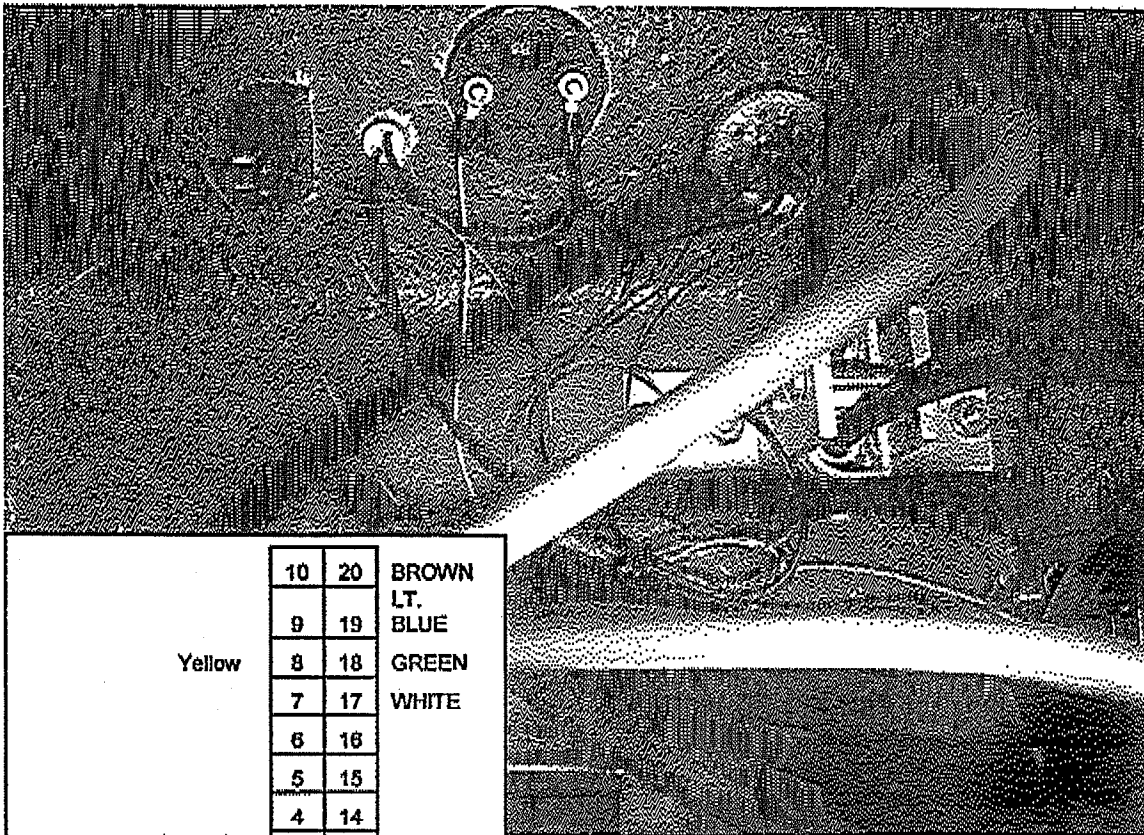
Valve manifold  
On-board watering system  
Water line



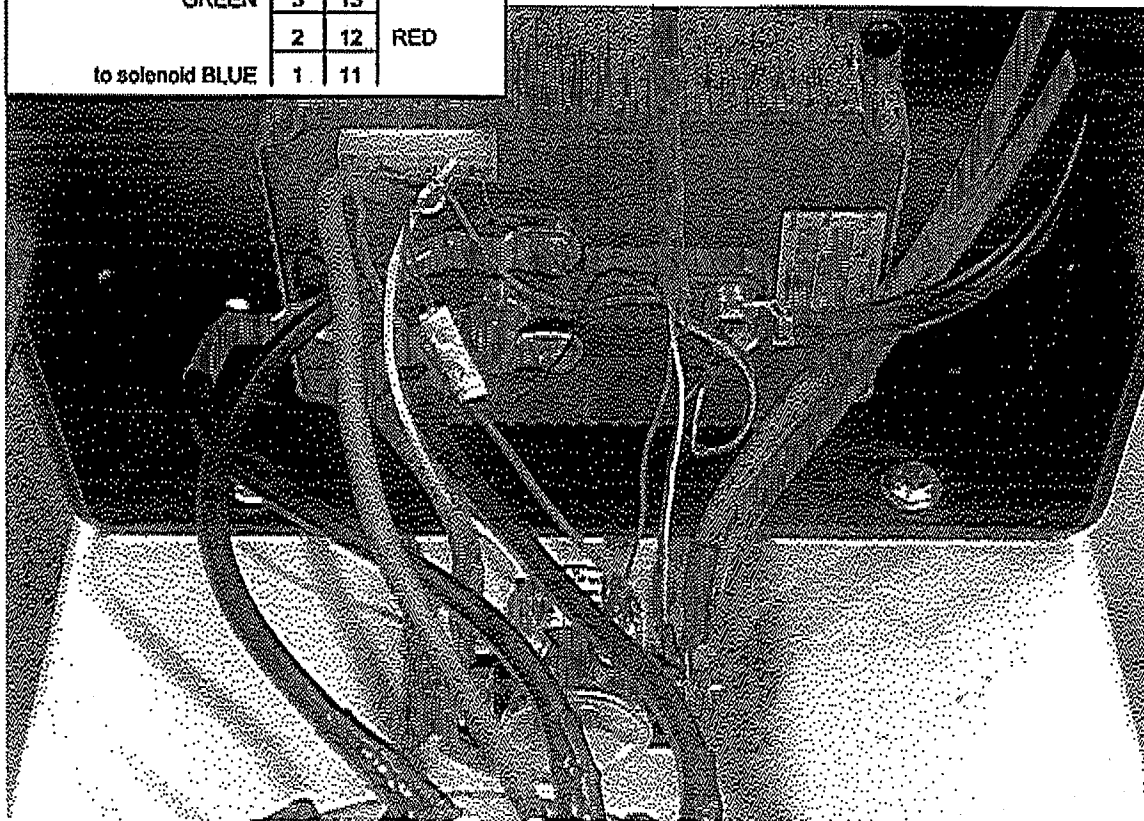
Water connector

XT21 GENERATION II





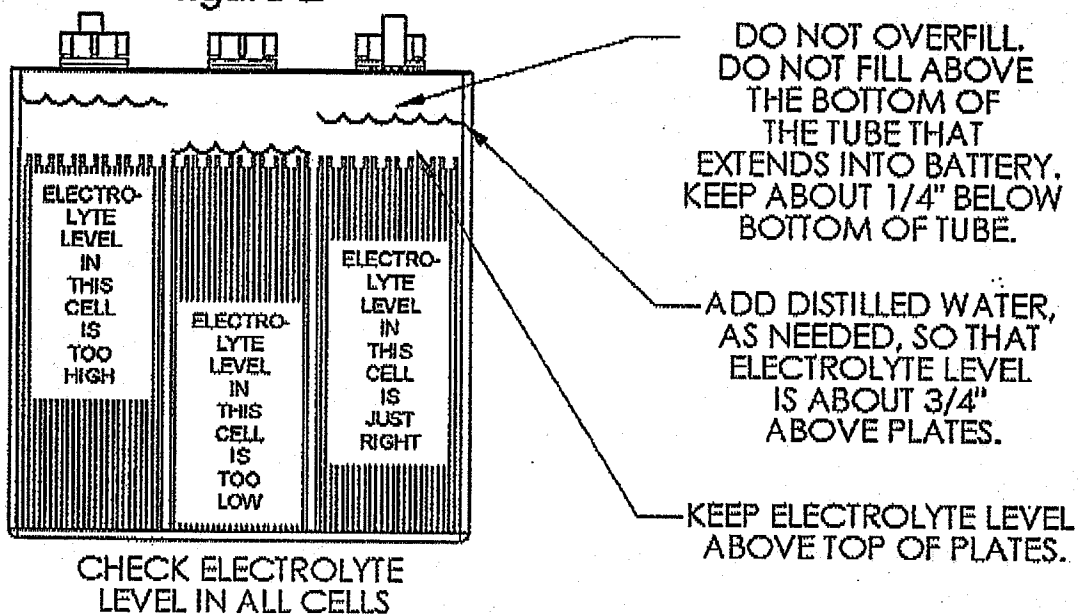
	10	20	BROWN
	9	19	LT. BLUE
Yellow	8	18	GREEN
	7	17	WHITE
	6	16	
	5	15	
	4	14	
to safety switch	3	13	
GREEN	2	12	RED
to solenoid	1	11	BLUE



# BATTERY MAINTENANCE

- To receive the longest life from the batteries, charge them when they have between 25% and 50% of a full charge.
- Do not allow batteries to remain in a discharged state for very long, as this shortens the total battery life.
- Be aware that a discharged battery will freeze easily.
- Check the electrolyte level weekly. Top off with distilled water as shown in figure 2. Do not overfill. Make sure that all plugs are tight.
- Make sure battery connections are tight and free from corrosion. A baking soda and water solution and a wire brush are helpful when cleaning battery connections. Keep caps on when cleaning batteries, so that electrolyte is not contaminated.

figure 2



**!!! BATTERIES ARE DANGEROUS !!!**  
READ THE SAFETY INSTRUCTIONS  
IN THE FRONT OF THIS MANUAL  
FOR SPECIFIC WARNINGS

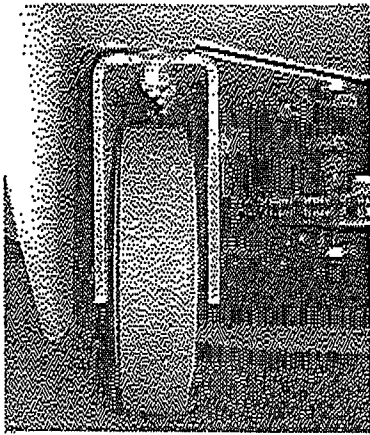
## IF YOU WOULD LIKE TO LEARN MORE ABOUT BATTERIES

THERE IS A VERY INFORMATIVE PUBLICATION AVAILABLE. IT COVERS SUBJECTS SUCH AS BATTERY TERMS AND HOW A BATTERY WORKS TO SPECIFIC GRAVITY TESTING WITH A HYDROMETER AND DIAGNOSIS OF BATTERY PROBLEMS.  
YOU CAN OBTAIN A COPY OF THE "BATTERY SERVICE MANUAL" FROM

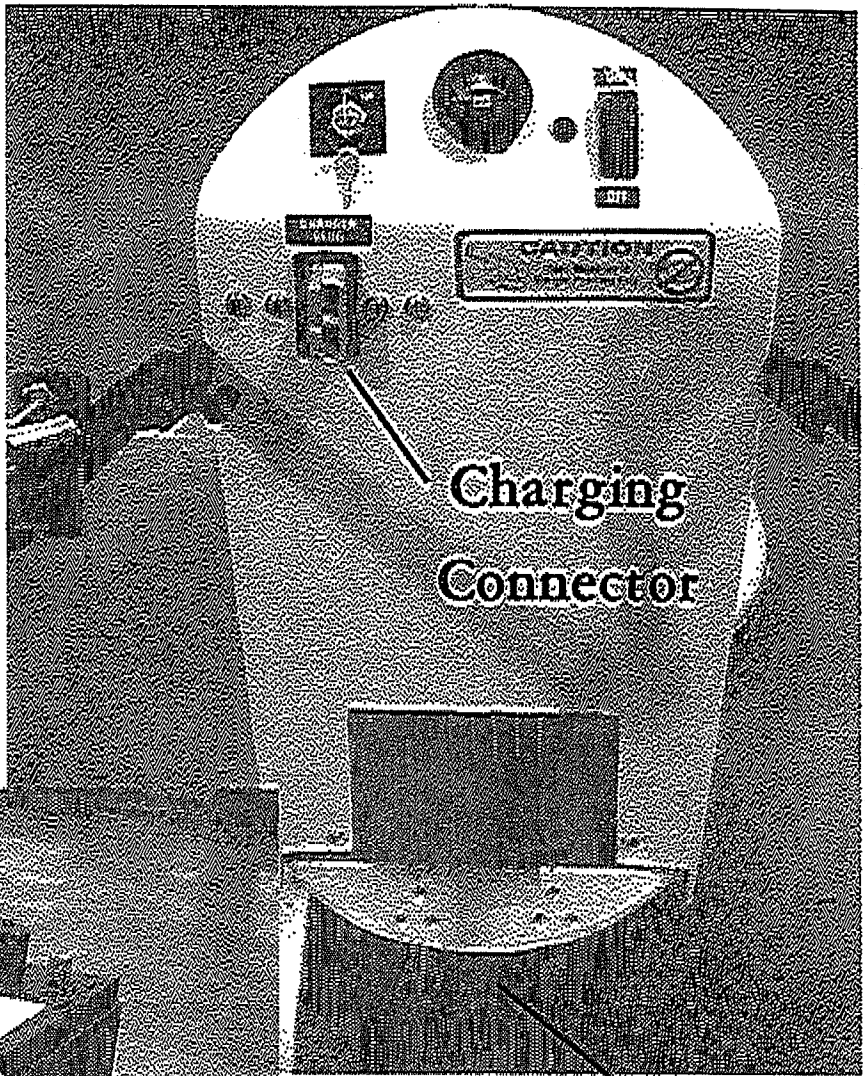
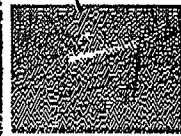
BATTERY COUNCIL INTERNATIONAL  
401 N. MICHIGAN AVENUE  
CHICAGO, IL 60611  
PHONE 312-644-6610

# XT21

## GENERATION II



Spacers  
(4 req'd)



Charging  
Connector

Gen II - 2 wheels

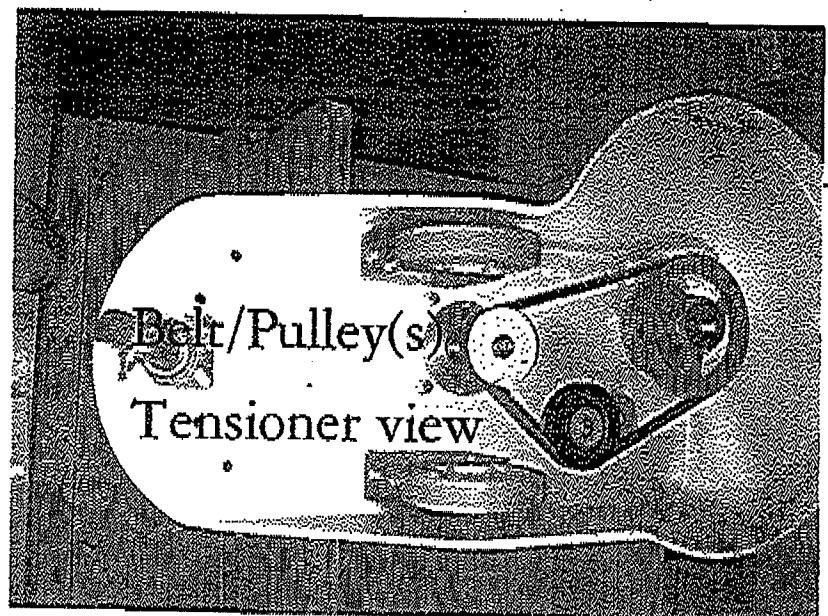
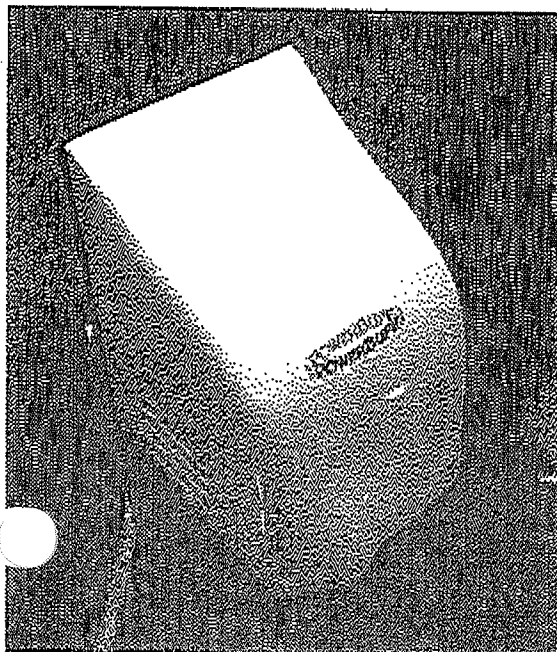
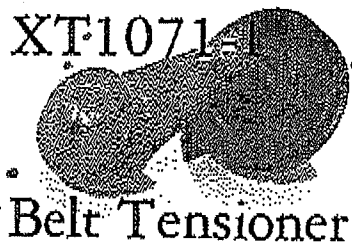
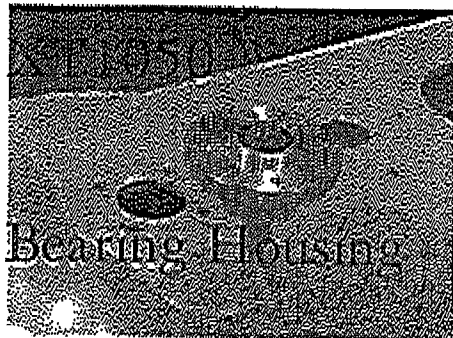
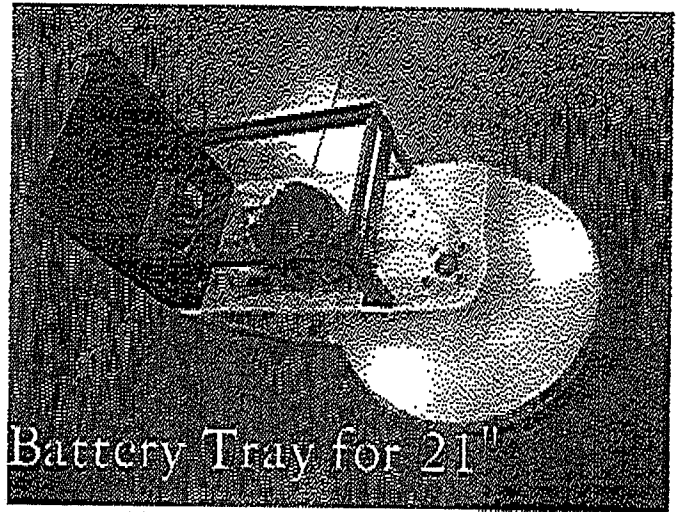
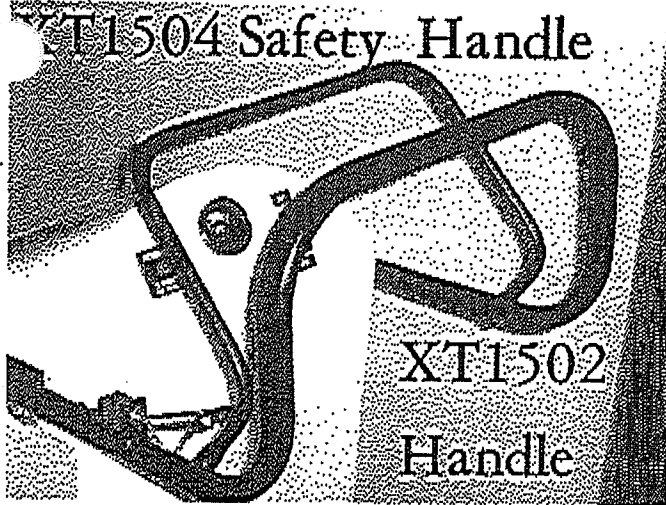
12V Batteries  
(3 req'd)

Watering hand-pump (bulb)

Bearing Housing

21" Deck

# Additional Information / views



# Drive Pulley & Flex-Lok Assembly

XT1050  
Bearing Housing

XT1105-BX  
BX-40 Belt

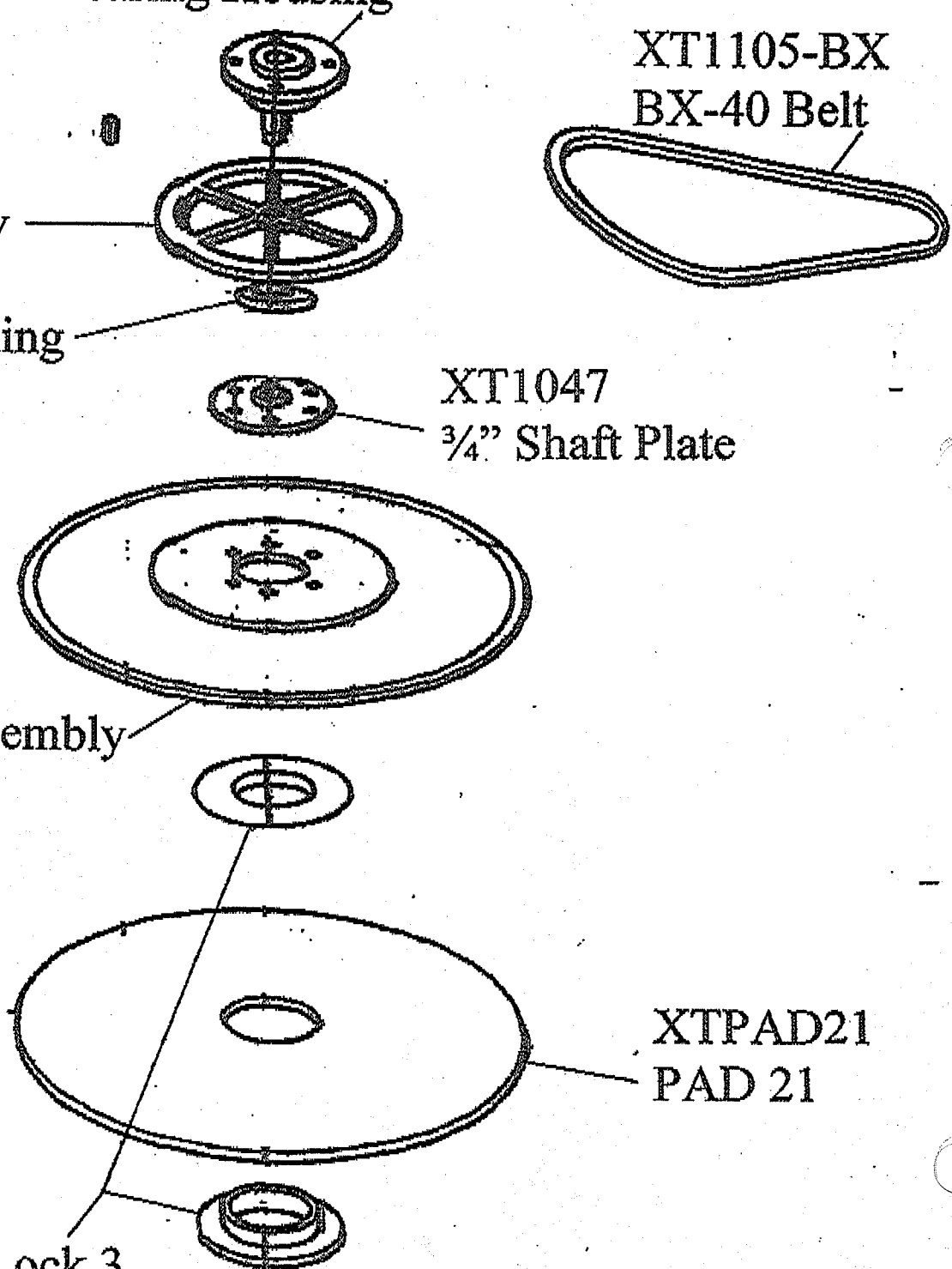
XT1020  
BG 7.5 Pulley  
XT1017  
D25mm Bushing

XT1047  
3/4" Shaft Plate

KT2400  
1" Flex Lok Assembly

XTPAD21  
PAD 21

KT1066-1  
#792460 Center Lock 3



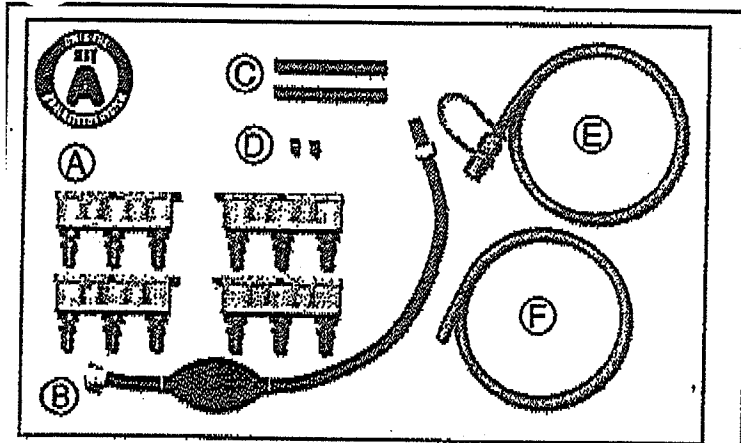
## XT-21 II HI-PERFORMANCE BATTERY BURNISHER

Part #	Description	Component Quantity
E011281	21" DURACOAT DECK	1
E012217	7/16 ZINC LOCK WASHER	4
E012218	7/16 SAE G8 FLAT WASHER	5
E010459	SM. BELT TENSIONER/FS0111	1
E011051	3/8-16X1.25 BOLT - HH	9
E011504	3/8 LOCK WASHER	5
E012401	BG 7.5 D PULLEY	1
E012295	BC 35 1 PULLEY	1
E010107	BX40 BELT	1
E012365	ADJUSTABLE WHEEL BRACKET	2
E012247	5/16-18 x 1 1/4 BOLT	8
E011498	5/16 FLAT WASHER	16
E012285	6" WHEEL w/BUSHING	2
E012224	5/16 JAM NUTS	4
E012225	5/16-18 X 2 1/2 UNC GR 8 ALLOY	2
E012197	AXIAL AIR GAP BRUSHLESS MOTOR	1
E011136	3/8 SAE FLAT WASHER	8
E012248	1/4-20x1 BOLT	2
E012193	BATTERY TRAY w/HEAT SINK	1
E011050	3/8-16X1.00 BOLT-HH	4
E012250	18 GA. GREEN WIRE	2
E012251	18 GA. YELLOW WIRE	3
E012210	MOLEX PIN (#35CS062)	2
E012204	EDGE TRIM (#75001309)	11
E012199	CONTROLLER	1
E012219	1/4 20x1 UNC GR 5 HHCS	4
E012209	MOLEX (20) PIN CONNECTOR	1
E012210	MOLEX PIN (#35CS062)	7
E011230	SOLENOID (36VOLT)	1
E011651	16-14GA TERMINAL	4
E010878	SB175A CONN.#4 GRAY DISCONNECT	1
E012254	FEMALE QUICK SLIDE #5068	12
E012255	FEMALE QUICK SLIDE #5067	10
E011767	BATTERY, 12 VOLT, 140AH(C20)	3
E012220	NYLON CABLE TIE,AF523	1
E012194	HANDLE	1
E011497	3/8 USS FLAT WASHER	6
E012196	SAFETY SHUT-OFF HANDLE	1
E011298	PB PALLETS W/ SUPPORT BLOCK	1
E012212	CHARGER PLUG LABEL	1
E012239	ON LABELS	1
E012240	OFF LABELS	1
E012205	21" MACHINE SHROUD (SET)	1
E011240	36 volt charger for AS3200, XT	1
E012189	REVERSE BUTTON	1
E012215	RED KILL SWITCH (#091130-02)	1
E011529	ROCKER SWITCH	1
E010865	36 VOLT SYSTEM GAUGE	1

E010462	3" SWIVAL CASTER	1
E012235	REVERSE & REMOVE PAD DRIV. LAB	1
E012284	HOUSING COMPLETE / OLD STYLE	1
E011565	HANDLE RETURN SPRING	1
E011294	SHIPPING BOX	1
E010250	21" FLEX LOK ASSEMBLY	1
E012221	1/6 ALUM OVAL SLEEVE	1
E012202	36 V QUIKFILL WATERING SYST (I	1
E012236	CAP (BLACK) #CCF-1-10-14	2
E011886	PLASTIC POLY HINGE(1 1/2" BLK)	1
E011837	6 GA. x 7 LUG TO LUG	1
E011139	6 GA. x 15" "LUG TO LUG"	3
E011553	3/64 x 6" LANYARD 7 x 7 GAL AC	1
E010705	BUMPER GUARD (RED)	5
E012243	3/8-16 SPINLOCK NUT	4
E011090	5/16-18 SS HEX NUT	2
E010130	RIVET, AAP68	4
E011192	1/4-20X1.00 PHMS PHIP SCREW	2
E012242	1/4-20 UNC SPINLOCK NUT	6
E012214	300V MULTICONDUCTOR CABLE	3
E012260	RED RIGHT TERMINAL COVER	3
E012261	BLACK RIGHT TERMINAL COVER	3
E012486	1/4 - 20 x 1" Stud, black plas	2
E010269	1/4-20 UNC ELASTIC LOCKNUT	2
E011627	3/8" CONVOLUTED LOOM	12
LOLABE	Labor Rate for Equipment	3.5
O00OHE	OH Rate for Equipment	3.5
E012400	D25MM BUSHING / QT25MM	1
E012290	KEY	1
E012291	SWITCH	1
E010550	LABEL,ON/OFF	1
E011889	BRACKET FOR ANDERSON PLUG	2
E012512	RECTANGULAR GROMMET	1
E012513	POWER (RED) LIGHT	1
E012514	STAGIC STRIP (1"x 9")	1
E012517	CENTER LOK II (R) RH SET BLACK	1
E012518	16 ga. BATTERY PLATFORM FOR XT	1
E011192	1/4-20X1.00 PHMS PHIP SCREW	4
E010355	21" AQUA BURNISHING PADS(5/CS)	1

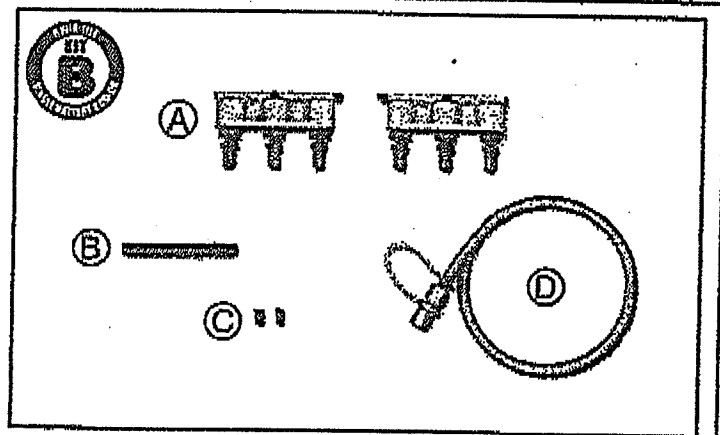


## Page Contents



**Kit A includes:**

- A. 4 valve manifolds.
- B. 1 squeeze bulb filler assembly.
- C. 2 sets of manifold jumpers.
- D. 2 red end caps (1 extra).
- E. 6' water supply line with dust cap.
- F. 8' battery-to-battery tubing.

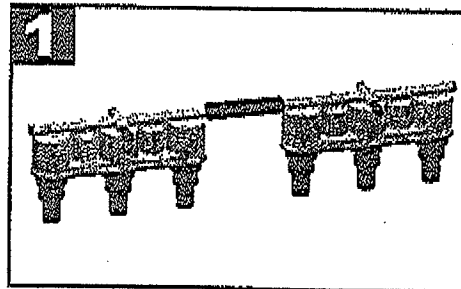


**Kit B includes:**

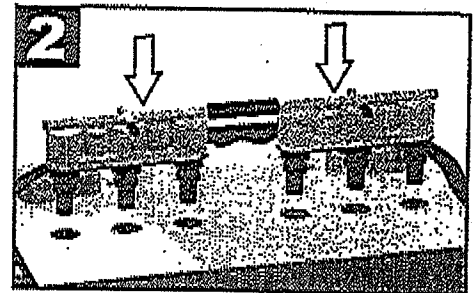
- A. 2 valve manifolds.
- B. 1 set of manifold jumpers.
- C. 2 red end caps (1 extra).
- D. 8' water supply line with dust cap.

## Installation

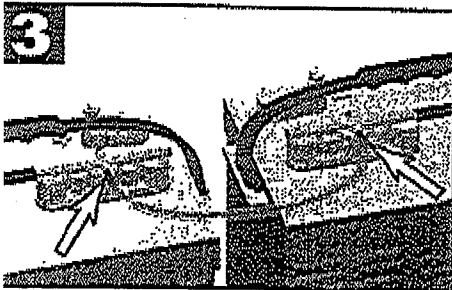
**Important:** Prior to initial installation, note the existing battery water level. If the batteries have been neglected and the level is extremely low, manually fill each cell so all plates are covered, but only fill to the bottom of each well. Then charge the batteries, before installing and using Qwik-Fill to top off. Topping off a battery that has been neglected and then recharging can cause the water level to expand during the charging process resulting in the loss of electrolyte. Once Qwik-Fill is installed, monthly topping off after charging will prevent an extremely low water level to occur.



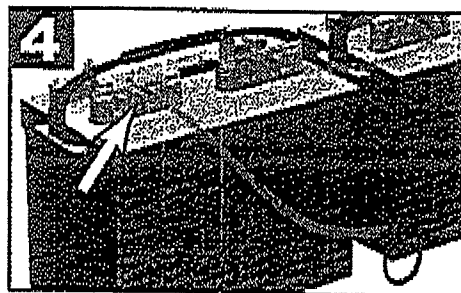
Join two manifolds together as shown using the appropriate size manifold jumper for your battery group size. The manifold jumpers are marked and can be easily cut with a utility knife or a pair of scissors.



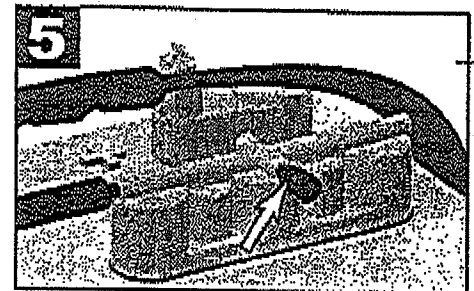
Carefully remove your battery's existing caps and insert a manifold assembly into each battery. Press each assembly firmly in place so that it fits flush with the battery top.



Link multiple batteries together using the clear battery-to-battery tubing. If the batteries are separated by several feet, allow the tubing to sag between batteries.



Connect the water supply line to one end of the battery "chain". The 6' of tubing supplied may be cut to the desired length or if a longer length is required 20' of 1/4" ID flexible tubing is available in the Qwik-Fill accessory pack. (sold separately)

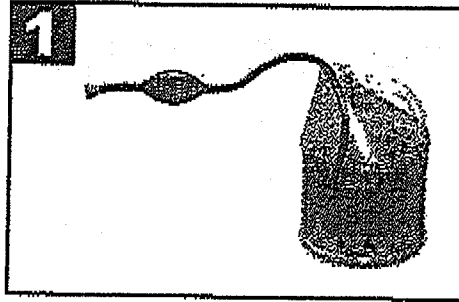


Cover the remaining barb with a red end cap and installation is complete.

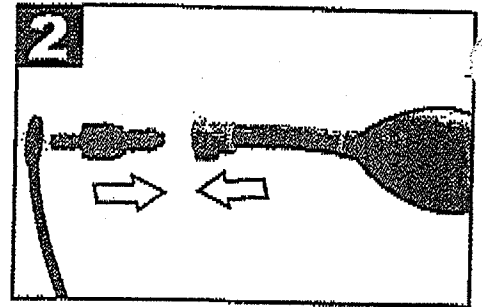
# Operation

**Important:** Batteries should only be filled *after* charging.

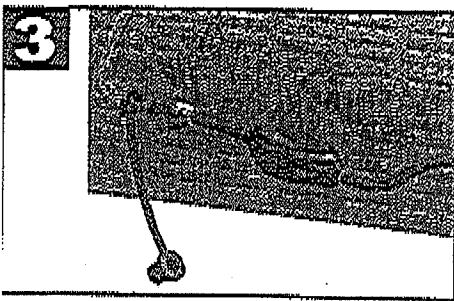
⚠ DANGER / POISON		
<p><b>SHIELD EYES</b> EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY</p>	<p><b>NO</b> - SPARKS - FLAMES - SMOKING</p>	<p><b>SULFURIC ACID</b> CAN CAUSE BLINDNESS OR SEVERE BURNS</p>



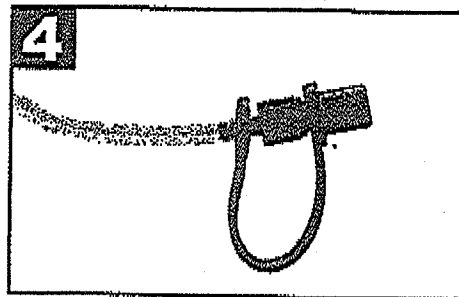
Insert the squeeze bulb filler assembly into a jug of distilled water.



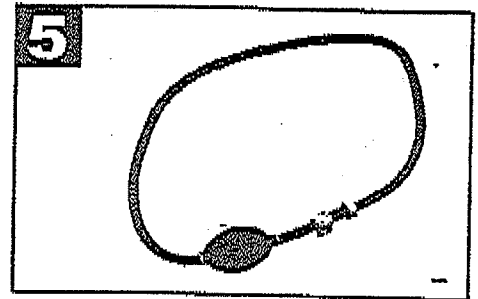
Remove the dust cap from the water supply line and connect it to the squeeze bulb filler assembly by snapping the quick couplers together.



Squeeze the bulb with *firm pressure* to begin pumping water into the battery cells. When the bulb becomes firm, all cells are full.



**Immediately** disconnect the squeeze bulb filler assembly from the water supply line and replace the dust cap.



Any water remaining in the squeeze bulb filler assembly may be pumped back into the distilled water jug. One end of the squeeze bulb filler assembly may be inserted into the other to keep the line clean and to provide a convenient way to hang the filler in a safe place between uses.

**Note:**

To remove the clear tubing (if needed, or for winterizing your battery), pinch the tubing next to fitting, twist and pull straight off.

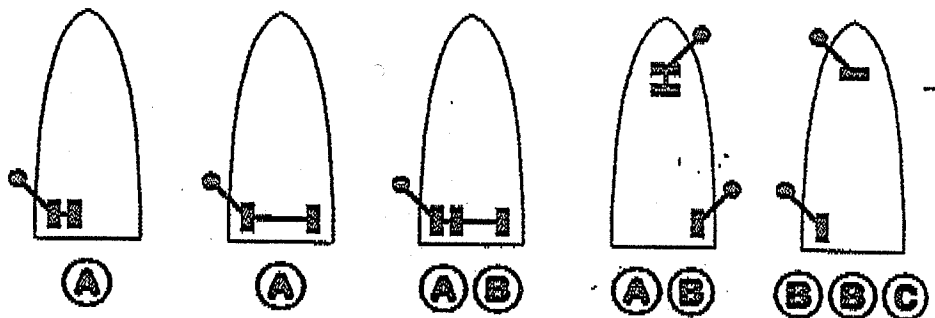
## Typical Installation Configurations

The diagrams below show typical battery arrangements and how they might be plumbed with Qwik-Fill. The letters below each diagram indicate which Qwik-Fill Kits would be required for that configuration.

**Note:** Although the tubing between batteries can be up to a distance of 20', it may be more desirable to have separate fill points in the front and rear of the boat.

**Qwik-Fill Kits**

- (A)** Dual Battery On-board Watering System
- (B)** Single Battery On-board Watering Add-on
- (C)** Squeeze Bulb Filling Kit

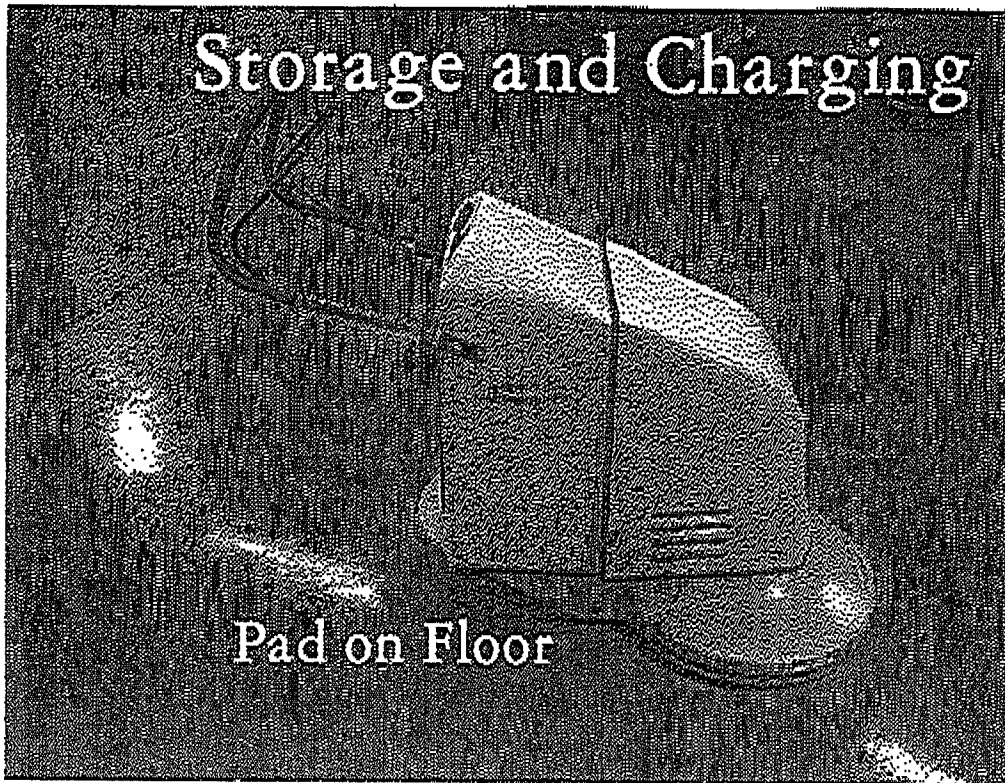


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