



OWNER'S/PARTS MANUAL

DC WEEDROLLER

REGULATIONS FOR WEED REMOVAL VARY FROM STATE TO STATE. CONSULT AND ADHERE TO YOUR STATE AND LOCAL WEED REMOVAL REGULATIONS. REFER TO ACCOMPANYING GUIDELINE MANUAL FOR ADDITIONAL INFORMATION.

RECORD SERIAL NUMBER HERE

Dear WeedRoller Customer,

Thank you for purchasing a Crary WeedRoller. The WeedRoller is designed, tested, and manufactured to give years of dependable performance. To keep your WeedRoller operating at peak efficiency, it is necessary to correctly adjust and make regular inspections. The following pages will assist you in the installation, operation, and maintenance of your machine. Please read and understand this manual before operating the WeedRoller.

If you have any questions or comments about this manual, please call us toll-free at 1-800-247-7335.

If you have any questions or problems with your WeedRoller, please call or write your local factory-authorized WeedRoller dealer.

Please Send Us Your Warranty Card

A warranty card is included in this manual. Please take the time to fill in the information requested on the card. When you send your completed card to us, we will register your WeedRoller and start your coverage under our limited warranty.

How to Contact Crary Co.

ADDRESS

Crary Company

237 NW 12th Street
PO Box 849
West Fargo, ND 58078

PHONE

800-247-7335

701-282-5520

HOURS

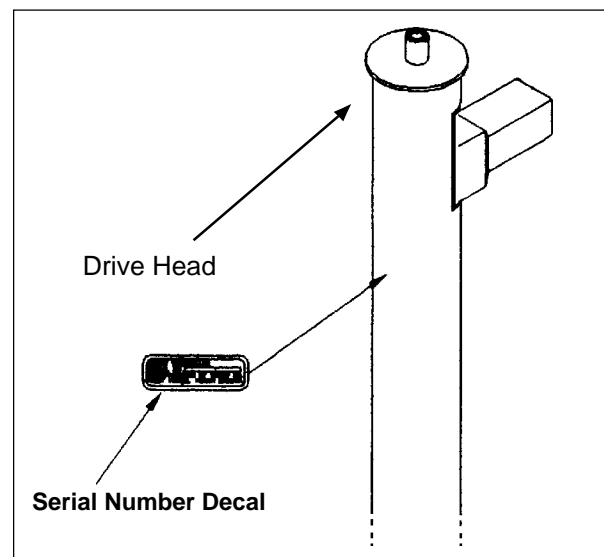
M-F, 8 a.m. to 5 p.m.
Central Time

Please take a moment to record the serial number of your new WeedRoller. If you need to call for assistance, please be ready to provide your serial number.

Serial Number

(Sample serial number: WR 9999)

Serial Number Decal Location



This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

Be alert! Your Safety is Involved.

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Safety Instructions



This WeedRoller is designed and tested to offer safe service. However, failure to operate it in accordance with the following safety instructions **MAY RESULT IN PERSONAL INJURY!**

Before Operating

1. Become familiar with the owner's manual before attempting to operate this equipment.
2. Use a 110 volt ground fault interrupter circuit.
3. Never allow people in water while the WeedRoller is operating.
4. Be sure reversing switch is adjusted to proper angle.
5. Do not allow children to operate this equipment.
6. Do not allow hands, clothing, or any part of body near any moving part.

Preparation

1. Operate the WeedRoller on a fairly smooth surface. Each bushing and coupler assembly will allow a 10 degree flex.
2. Before starting the machine, visually check that all screws, nuts, bolts, and other fasteners are properly secured. Once every 50 hours of operation, all screws, nuts, bolts, and other fasteners should be checked for proper tightness to insure everything is in proper working condition.

Operation

1. Before running the WeedRoller—and occasionally during the year—check for pieces of metal, rock, bottles, cans, or other foreign objects that may be exposed. Removing the objects will allow the WeedRoller to do a better job and make the area safer for swimming and water use.
2. Clear visible obstructions from surface area where the WeedRoller will be running.
3. Before inspecting or servicing any part of the machine, disconnect power source and make sure all moving parts have come to a complete stop.
4. If the WeedRoller strikes any foreign object or if the machine starts making an unusual noise or vibration, immediately disconnect power source and allow machine to stop. After stopping the WeedRoller:
 - a) Inspect for damage.
 - b) Replace or repair any damaged parts.
 - c) Check for and tighten any loose parts.

5. Keep the rollers clean of debris and other accumulations of weeds.
6. Do not allow large amounts of material to build up on the rollers, this may cause the machine to stall or cause damage to drive system.
7. If the machine becomes stalled or blocked, disconnect the power source.
8. Do not allow hands or any other part of the body or clothing near any moving part.
9. Do not move the WeedRoller while it is operating.
10. Always disconnect the 110 volt power cord and be sure all moving parts have come to a complete stop before allowing people in water or when adjusting or servicing the WeedRoller. The WeedRoller can be parked under or along side a dock, or behind or along side of boat lifts.
11. Never allow people in the water while the WeedRoller is operating.
12. Never allow water activity above or along side of the WeedRoller to keep people from contacting the roller tube and accidentally injuring themselves.
13. Never allow people to stand or dive from drive head or electric motor.

Additional Rules for Electric Units

1. To prevent shock hazard, use the machine only with extension cords suitable for outdoor use. Suitable extension cords are extremely important for the operator's personal safety. Use minimum 14 gauge wire size, not longer than 100 feet.
2. Never use an indoor type of extension cord; these cords are designed for use with lamps or small appliances and are inadequate for high powered machines.
3. Make sure the power cord is in good condition. A cord with cracked or broken insulation is hazardous, particularly in the presence of moisture or combustible material. It is also important that the connectors be of rugged construction, in good condition, and securely attached to the outer jacket.
4. If the power cord is damaged in any manner while operating the machine, immediately remove the extension cord from the wall receptacle.
5. Use only an electric circuit having adequate capacity.
6. Blowing a fuse or tripping a circuit breaker is a warning that you are overloading your machine, or have too many devices taking power from that circuit, or both. Determine the cause and correct it. Do not install a higher capacity fuse.
7. Do not abuse the power cord. Never pull a machine by the cord to disconnect it from the receptacle. Keep the power cord away from excessive heat, oil, and sharp edges. Keep power cord out of the water.
8. Disconnect the machine when not in use, before servicing, and when changing attachments.

Assembly and Mounting

Your WeedRoller is Packaged in Two Boxes

Box One Contains:

Drive Head Assembly
Mount Brackets and Clamps
Power Source Box and Cord
Assorted Hardware
Operator's Manual

Box Two Contains:

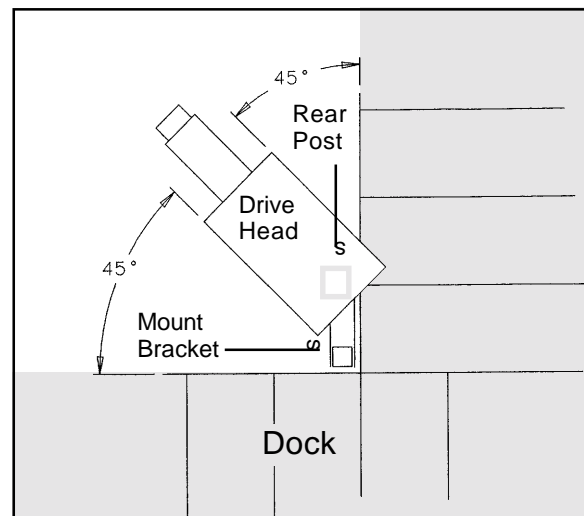
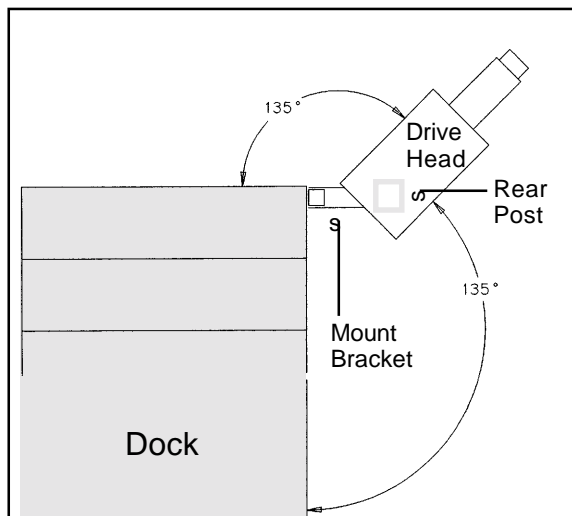
Three Roller Tubes with Couplers

2.1 Drive Head Positioning

The rear drive head assembly post is positioned at a 45 degree angle relative to the drive head assembly base. When the drive head is installed correctly, this configuration will allow the WeedRoller to achieve its maximum arc of 270 degrees.

If you have square dock posts and will be using the WeedRoller on an outside corner of your dock, mount the drive head at a 135 degree angle from the dock sides as shown in figure 2.1. This will prevent the motor from hitting the rear drive head assembly post during operation. If you will be using an inside corner of your dock, mount the drive head at a 45 degree angle (see figure 2.2).

If you have round dock posts, make sure to attach the dock mount brackets in a position that will allow you to mount the drive head assembly as shown below.



2.2 Attach the Dock Mount Brackets

1. Decide where you want your WeedRoller to mount on your dock. See examples of different dock mountings on pages 9 and 10 of this manual.

NOTE: The mount brackets should be spaced at least 18 inches apart (vertically) to give a stable and secure mount for the drive head.

2. Position the bottom bracket **as low as possible** on your dock post. In typical installations, one bracket will be above water and one bracket will be underwater. If one bracket is underwater, use the adjustment knob shown on page 7 on the top bracket only.
3. Two U-bolts are provided for use on docks with square posts and two V-bolts are provided for use on docks with round posts. Insert a V-bolt or U-bolt through the dock mount bracket holes as shown in figure 2.3 or 2.4. Secure the bolt with 3/8" nuts.
4. Position the top bracket at least 18" above the bottom bracket, insert the V- or U-bolt, and secure with nuts.

Torque Chart

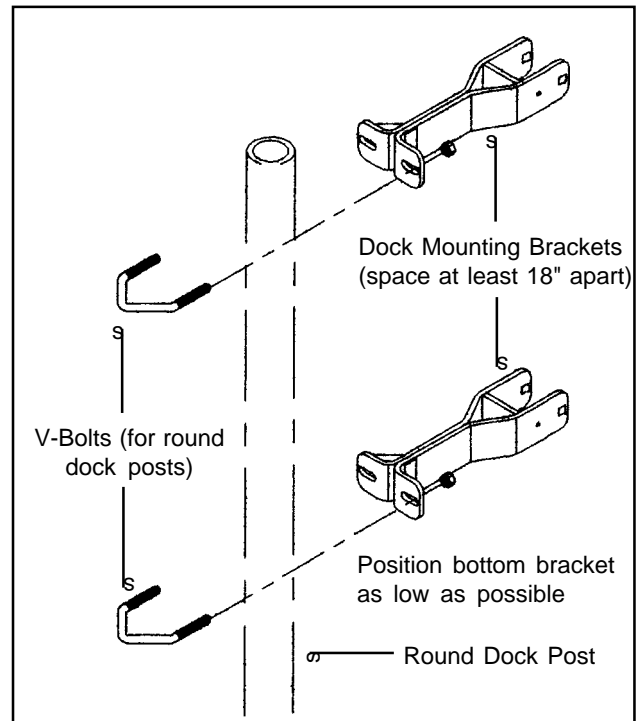
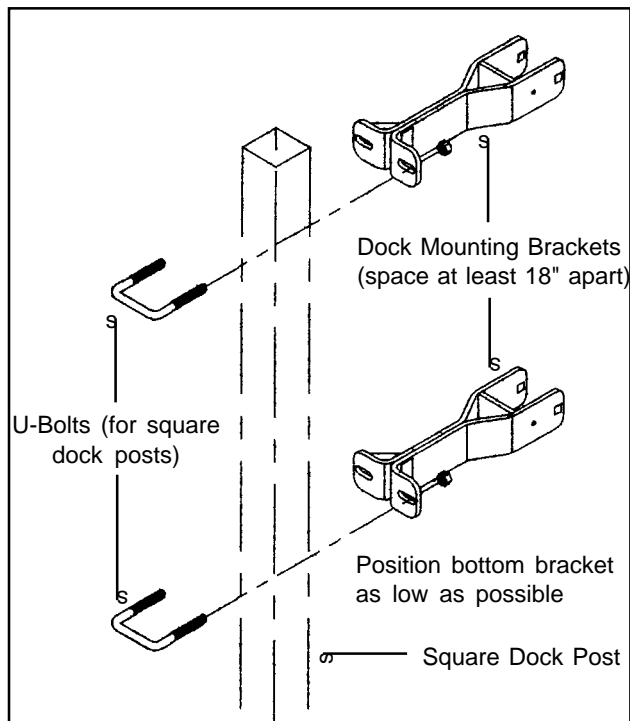
Standard minimum tightening torque for normal assembly applications.

Bolts (SAE GR5)

Size	Ft. Lbs.
5/16"	20
3/8"	31
1/2"	75
U- or V-bolts	31

Screws

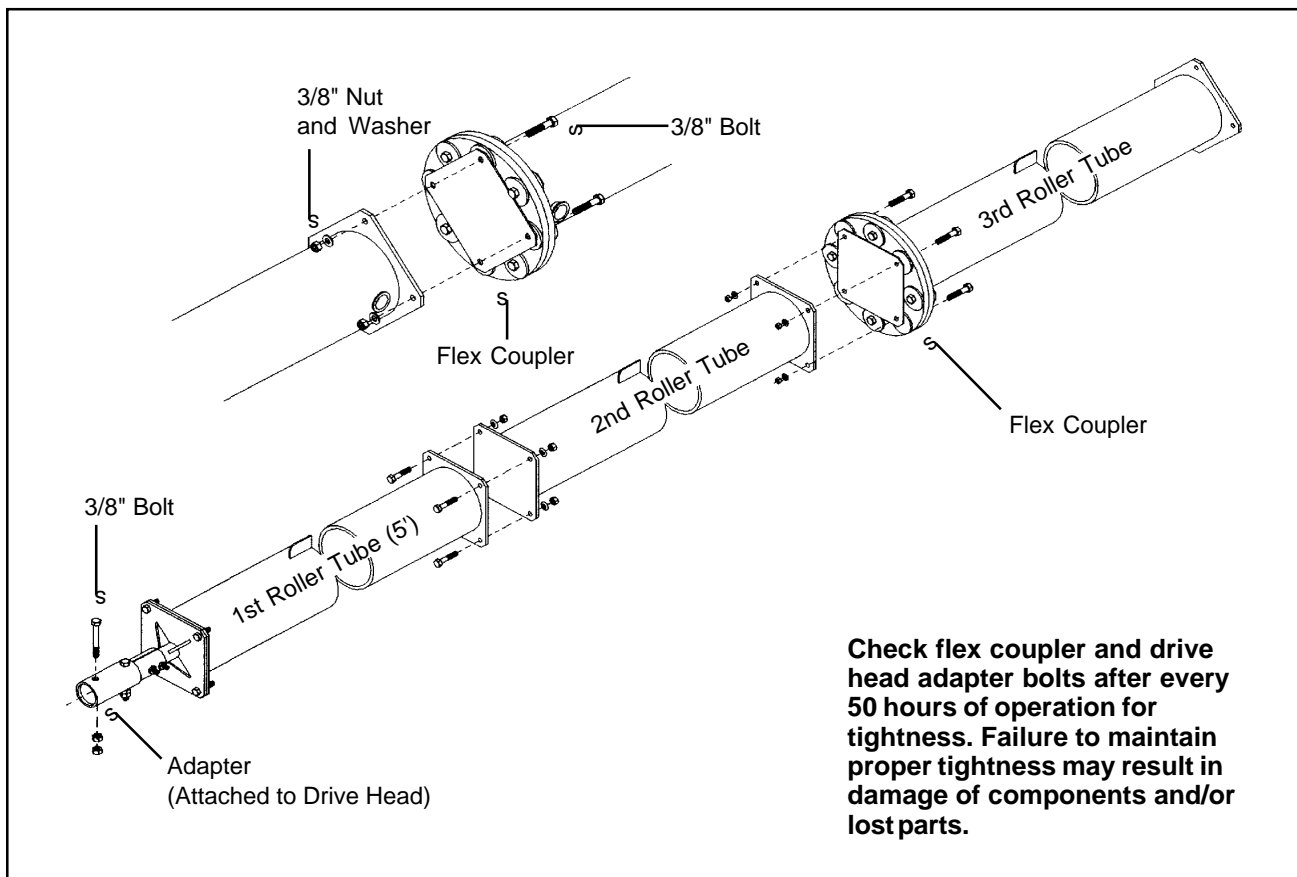
Size	Ft. Lbs.
10-24	3
1/4" Set	5
1/2" Set	15



2.3 Connect Roller Tubes

1. Connect the 5' roller tube assembly to the drive head assembly (see figure 2.5). Remove the 3/8" nuts and washers from the roller tube end. Align the bolt ends with the bolt holes in the drive head roller tube adapter. Replace the washers and nuts. Torque to specs (see torque chart on page 5).
2. Connect the 10' roller tube (without the flex coupler) to the 5' roller tube assembly as shown in figure 2.5. Remove the 3/8" nuts and washers from the roller tube end. Align the bolt ends with the bolt holes in the 5' roller tube. Secure with 3/8" nuts and washers and torque to specs.
3. Connect the 10' roller tube (with the flex coupler) to the tube installed in step 2. Remove the 3/8" nuts and washers from the roller tube end. Align the bolt ends with the bolt holes in the other roller tube. Secure with 3/8" nuts and washers and torque to specs.

NOTE: Additional rollers can be added. Maximum number of rollers varies with conditions. WeedRoller warranty is not valid when exceeding 35 feet of roller.

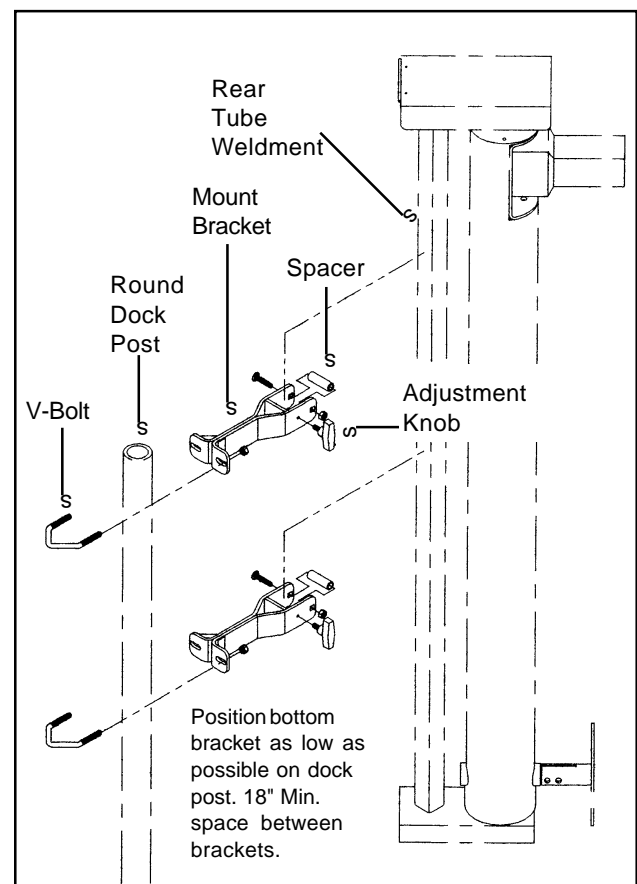
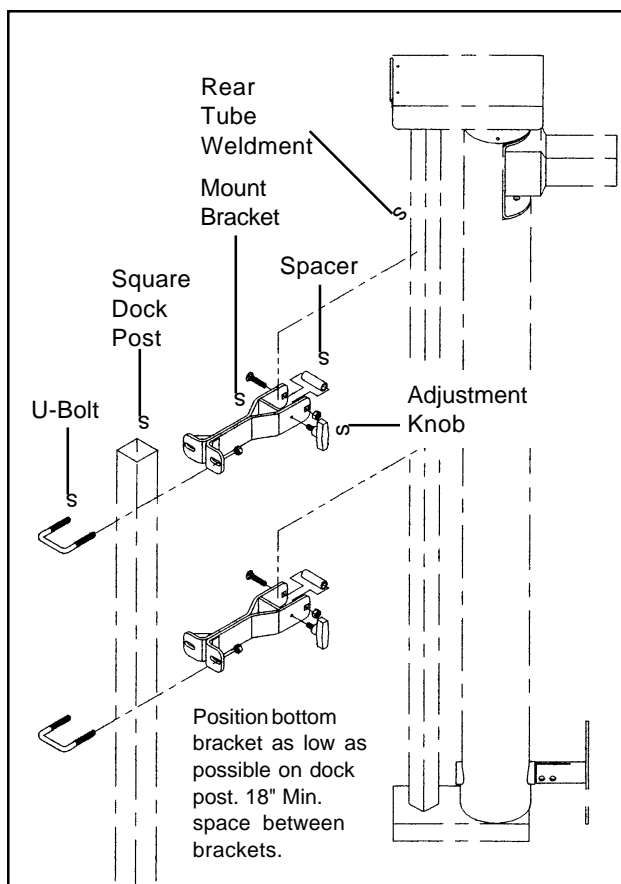
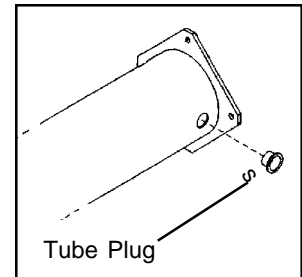


2.4 Attach the Drive Head Assembly to the Dock Mount Brackets

1. When all three rollers are connected to the drive head, drag the WeedRoller into the water while holding onto the drive head. The rollers will float until filled with water.
2. Place the rear post weldment into the dock mounting brackets as shown in figure 2.6 (for square dock posts) or figure 2.7 (for round dock posts). Place a spacer between the spacer holes in one of the brackets. Insert a 3/8" x 3" carriage bolt through the bolt holes and spacer. Tighten the bolt securely. Repeat this step for the remaining bracket.
3. Insert the two adjustment knobs into the holes as shown below.
4. Remove the plugs from the roller tube ends and allow the tubes to fill with water. Replace the plugs.

CAUTION: Read the caution decal on the drive head assembly. Do not operate the WeedRoller with water level above this point. Standard operating level is five feet.

5. Let the WeedRoller sink to the lake bottom before using.



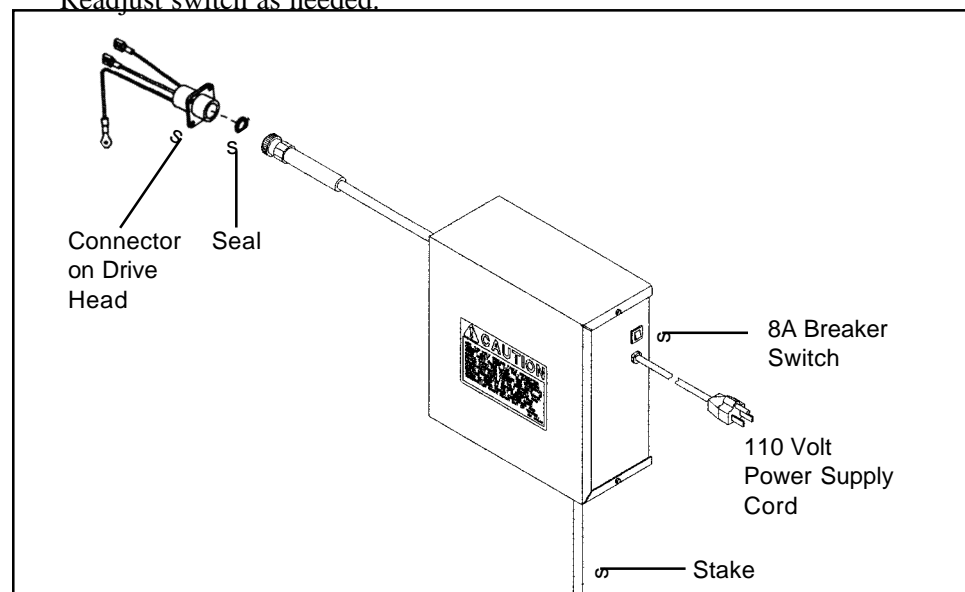
2.5 Connect the Power Supply to the Drive Head Assembly (See Figure 2.8)

The power source is sold only as a complete unit. You can buy electric wiring service parts (wire ends, connectors, switches, and five amp circuit breaker) individually if the power source needs repair or replacement parts. See figure 4.4 for WeedRoller electrical schematic.

Warning: Use extreme caution when working around water and electricity. Be sure to read and understand all warning decals and instructions.

1. Insert the power supply stake into dry land (either your beach or yard). Attach the 70 feet long power supply cord to the connector on the power supply. Route this along your dock frame or fasten it underneath (so it is not being stepped on) and connect it to the WeedRoller drive head. **KEEP THIS 24 VOLT POWER SUPPLY CORD OUT OF THE WATER. There are 25', 50', and 75' optional power supply extension cords available for use on longer docks. See page 23 for part numbers if needed.**
2. A seal is secured with masking tape to the male connector on the drive head box. Remove the masking tape but be careful not to lose the seal. Connect the female end of the power supply cord to the male connector on the drive head box with the seal as shown in figure 2.8. No other wiring is needed for the drive head assembly.
3. Connect a 110 volt outdoor extension cord (at least 14 gauge) to the power supply converter. Make sure to keep this 110 volt extension cord away from the water.
4. When you have made all the connections for the power supply, your WeedRoller will be ready to run. Make sure your rollers are clear from obstructions so that they can turn freely. If they are close to your dock and turning towards it, lift the cover on top of the drive head and reverse the toggle switch. This will reverse the direction that the rollers will travel. Readjust switch as needed.

CAUTION: Use 110 volt ground fault interrupter circuit only. Keep 110 volt extension cord away from water. Use extension cords rated for outdoor use only. If power converter circuit breaker trips, disconnect from 110 volt supply and check WeedRoller before resetting breaker. Keep 24 volt power cord out of water.



Operation

3.1 Roller Tube Arcs

Your WeedRoller is capable of many different mountings and degrees of roller arcs. The factors that produce different configurations are:

- The mount bracket positioning on your dock.
- The adjustment of the electronic switch or two spring switches. The switches can be easily adjusted and set change the direction and arc of the rollers. See page 11 or 12 (depending on your switch type) for more information.

See examples of different dock mounting locations and roller arcs below and on the following page.

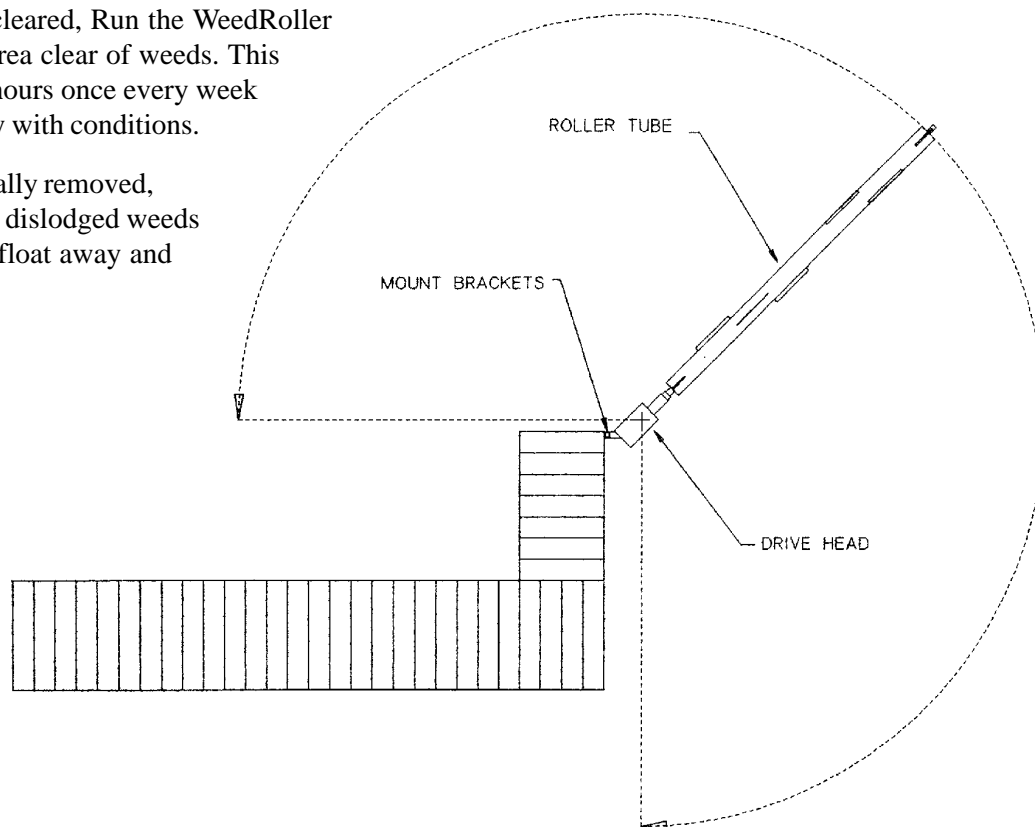
When using the WeedRoller for the first time, or anytime you move it to a new location, you may need to check it frequently to make sure that it is not blocked by debris (branches, rocks, or stumps). Check it often until it can move freely over the lake bottom.

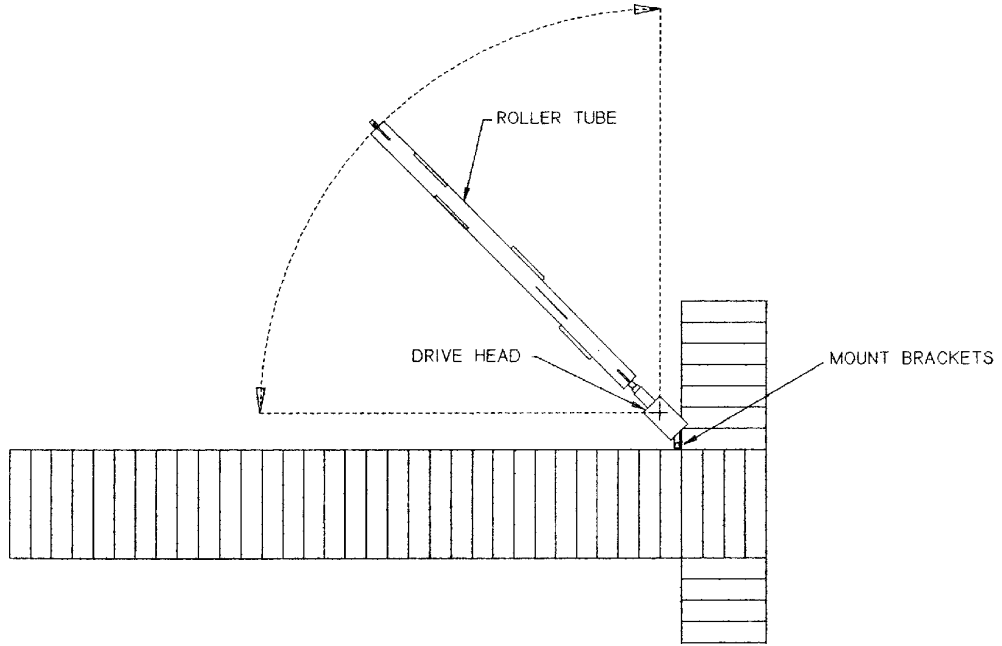
For initial clearing, you will operate your WeedRoller continuously (when waterfront is not otherwise in use) until area has been cleared. This may amount to one day to one week.

After area has been cleared, Run the WeedRoller enough to keep the area clear of weeds. This may typically be 10 hours once every week or two. This may vary with conditions.

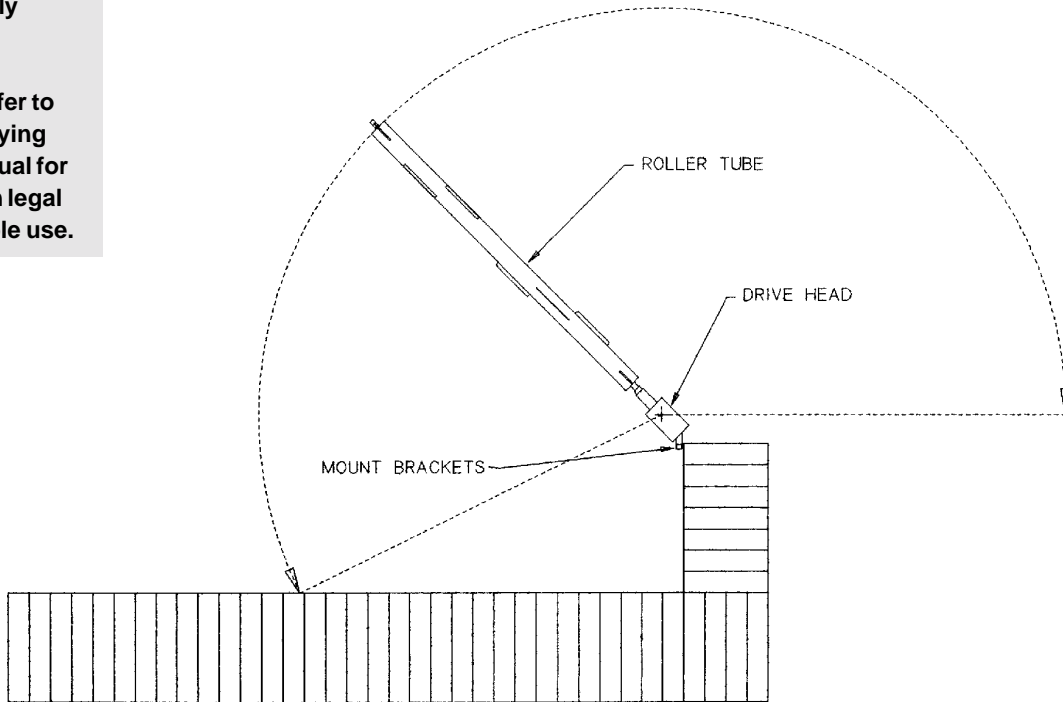
When weeds are initially removed, gather and dispose of dislodged weeds properly. Weeds can float away and spread.

Note: Typical owner installations will need 400-500 operating hours per season. Excessive use will cause unnecessary wear at shaft and coupler components. Cray Co. warranty covers one season or 1000 operating hours, whichever comes first.





Note: When properly used, the WeedRoller is environmentally friendly and welcome by neighbors. Refer to the accompanying guideline manual for information on legal and responsible use.



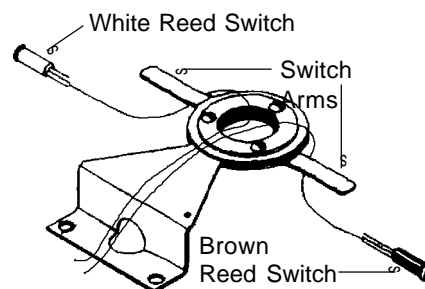
(Depending on dock type.)

3.2 Adjusting the Electronic Switch

During operation, the WeedRoller motor will turn the magnet mounted on the hub in the direction of one of the two switch arms. The reed switch mounted on the arm will detect the magnet and reverse the direction of the motor. The motor will turn until the other reed switch detects the magnet; then the motor will reverse again.

The amount of roller tube arc depends on the amount of arc between the reed switches mounted on the adjustable switch arms. Adjust the electronic controller switch arms for desired WeedRoller arc. Position the magnet between the switch arms. Increase the arc between the switch arms for more roller tube arc. Decrease the amount of arc between the switch arms for less roller tube arc.

The roller tubes have a maximum arc of 270 degrees. If the switch is set for more than 270 degrees, the motor may hit the rear post weldment during operation. Also, make sure to position the magnet mounted on the hub between the desired arc set by the switch arms. The motor may hit the rear tube weldment if the magnet is set outside the arc. See pages 9 & 10 for more information on roller tube arcs.



Note: Some model electronic controllers have a variable overload control knob instead of the on/off toggle and reversing switches used on other model controllers.

Protection Circuitry Operation

The light on the electronic controller will stay lit when the WeedRoller is operating normally. If the protection circuitry activates, the light will flash.

The electronic controller has a protection circuit that monitors the WeedRoller motor current draw. During normal operation, the motor will draw about 2.5 amps. If the motor draws more amps than selected by the variable control for more for more than 4 seconds, the switch will reverse the motor before the roller tubes complete the arc set by the switch arms.

If the motor continues to draw at least 5.5 amps (caused by excessively muddy conditions or obstructions), the motor will continue to reverse.

The electronic controller will count the number of times it reverses the motor before the tubes complete the arc set by the switch arms. If the motor reverses 6 times before completing the arc, the light on the electronic controller will flash, indicating the protection circuitry has activated and has shut off the motor.

If the roller tubes complete the arc set by the switch arms before the counter gets to 6, the counter resets automatically.

Resetting the Electronic Controller

Check for stuck roller tubes or obstructions before resetting the electronic controller. See *Preventing Problems Caused by Muddy Conditions* on page 13 for more information on operating the WeedRoller in these conditions. **To reset the protection circuitry, unplug the power cord from the AC outlet, wait at least 5 seconds, and plug it in again.**

To manually reverse the direction of the roller tubes, set the variable control to the "1" position, wait 5 seconds, and turn it back to the original setting.

3.3 Adjusting Spring Switches

1. Loosen the thumb screw and lift the top cover on the drive head assembly.
2. The toggle switch on the drive head assembly controls the direction of roller movement. Settings of the spring switches determine the position and degree of roller arc. The correct adjustment should be $1/16$ " between the barrel of the toggle switch and the end of the spring (see figure 3.2). You may easily make this adjustment by moving the toggle switch mounting bracket forward or backward. The switch mount bracket is slotted and held with two bolts. Make sure that the mount bracket is square and the toggle switch is straight.
3. Adjust the spring switches so they contact the toggle switch when the rollers are at least one foot from the dock. This will prevent the rollers from hitting the dock (or obstruction) before the toggle switch can move to the opposite direction.
4. When adjusting, make sure that the spring switches make full contact with the toggle switch. If the spring is adjusted too far from the toggle switch, the spring may slip by and not move the toggle in the other direction. If the spring is adjusted too close to the toggle switch it may catch on the barrel (the threaded portion of the toggle switch) and not be able to move the toggle in the other direction.
5. Once you have set the spring switches to their proper position, tighten the thumb screws to secure them in place.
6. Test unit and readjust if needed.
7. On some dock mountings, the drive motor may strike the rear tube weldment before the rollers come to the desired location. See figure 2.1 and 2.2 for adjustments.

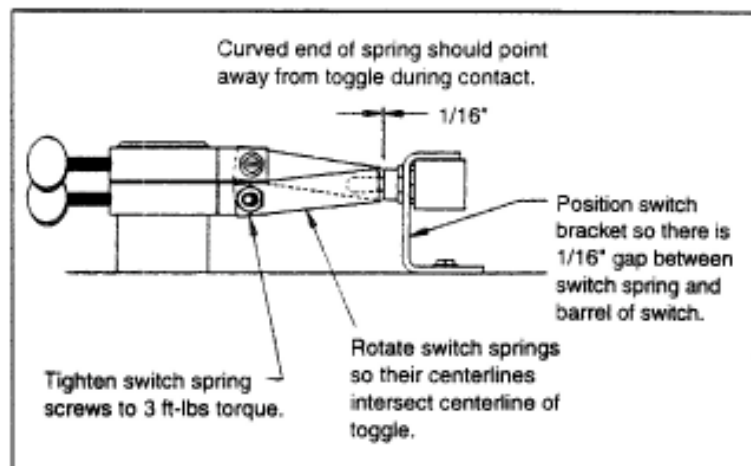
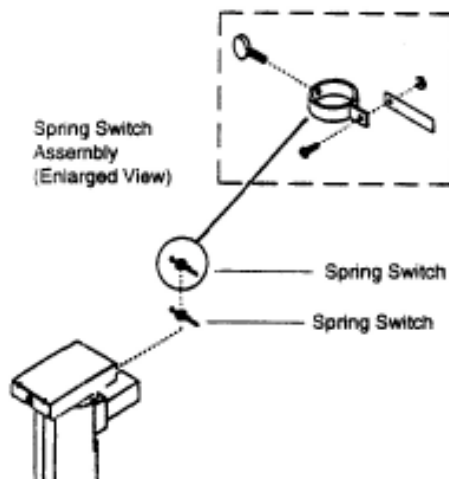


Figure 3.1: Spring Switch

Figure 3.2: Spring Switch Adjustment Diagram

3.4 Preventing Problems Caused by Muddy Conditions

In extremely muddy or weedy conditions the WeedRoller may become stuck. The following is a list of procedures that will help under these conditions. Try one, or a combination of as many are needed, until the WeedRoller can complete its arc without becoming stuck.

1. Decrease roller arc to 50 degrees. When rollers begin to move freely, extend arc in 50 degree increments.
2. Remove two roller tubes and operate unit until remaining tube moves freely through the complete arc. Replace one tube at a time as mud clears. For moderately muddy conditions, remove one tube only.
3. Remove yellow roller tube caps. Drain water as necessary from roller tubes to increase flotation. Replace caps.
4. Install a Crary Mud Kit. Order the Wood Buoy Mud Kit (part #51128) for moderately muddy conditions. Order the Plastic Pipe Mud Kit (part #51134) for extremely muddy conditions. See following page for illustrations.

3.5 Adjusting the Dock Mounting Brackets for Muddy or Uneven Lake Bottoms

The adjustable dock mounting brackets allow you to position the WeedRoller in a variety of different ways. For very weedy or mucky conditions, adjust the drive head assembly so its base is a few inches from the lake bottom, then tighten the adjustment knobs. This will raise the roller tubes slightly and make it easier for them to clear the weeds and muck.

If the lake bottom is uneven, or covered with small rocks or branches, you can leave the adjustment knobs off. This will allow the drive head to slide up and down freely on the rear post weldment and allow the roller tubes to conform to slight variances in the lake bottom. Make sure to clear as many rocks and branches as possible from the lake bottom before using the WeedRoller.

3.6 Off-Season Storage

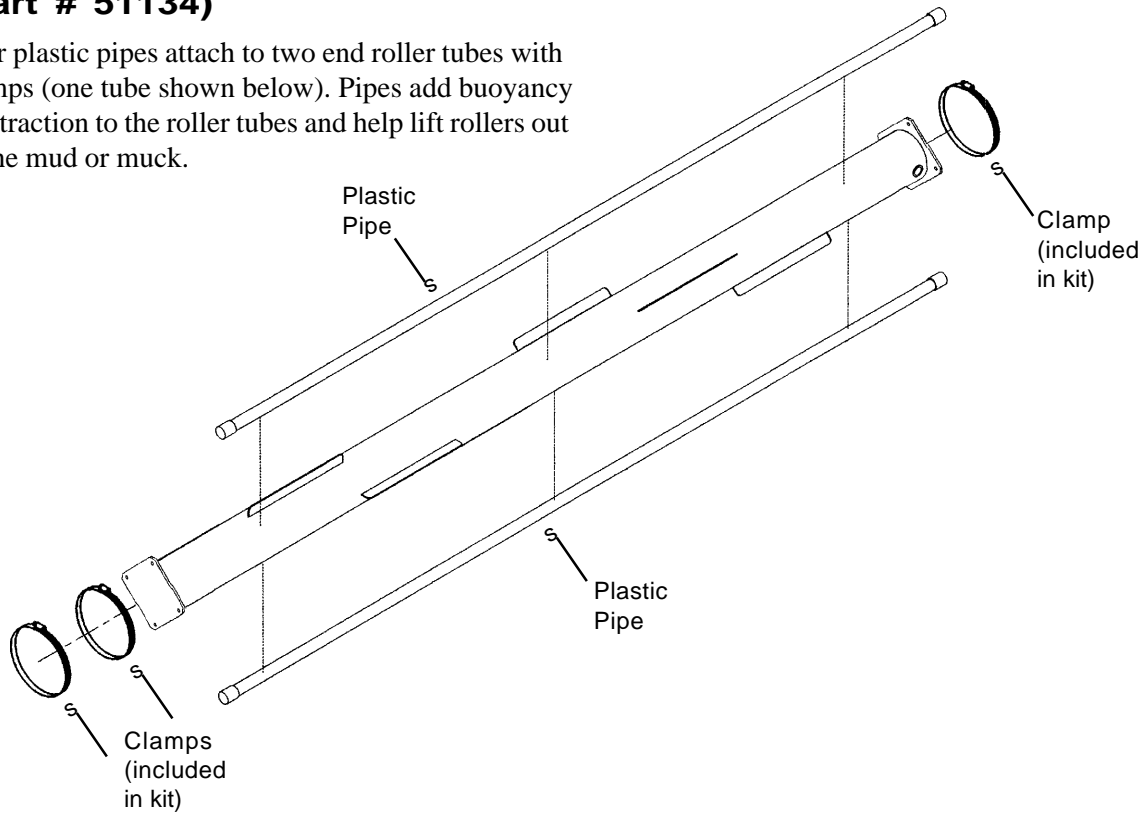
1. The WeedRoller may be left in the lake year around if the lake does not freeze over. If you are on a lake that freezes over, remove the WeedRoller and store it for the winter.
2. The complete unit may be attached to your roll away dock and stored with it. Raise your dock to lift the drive head off the ground and fasten each roller assembly to your dock for easy storage. If stored outside, cover the drive head and box area with a plastic bag or cover to avoid harsh weather conditions.
3. The unit can be disassembled into four separate sections: the drive head assembly, and three individual rollers which may be stored indoors. Be sure to drain water from rollers and drive head (remove two end cap bolts to allow water to drain faster) before storage.

For special mounting situations, the "Universal Mounting Hardware" (#51082) offers telescoping brackets for more demanding situations.

It is normal for the drive head to fill with water. When bringing the drive head into shore, let the water slowly drain through the bottom shaft seal (this may take several hours). Tipping the unit to drain from the top end will unnecessarily expose the motor and electrical components to water.

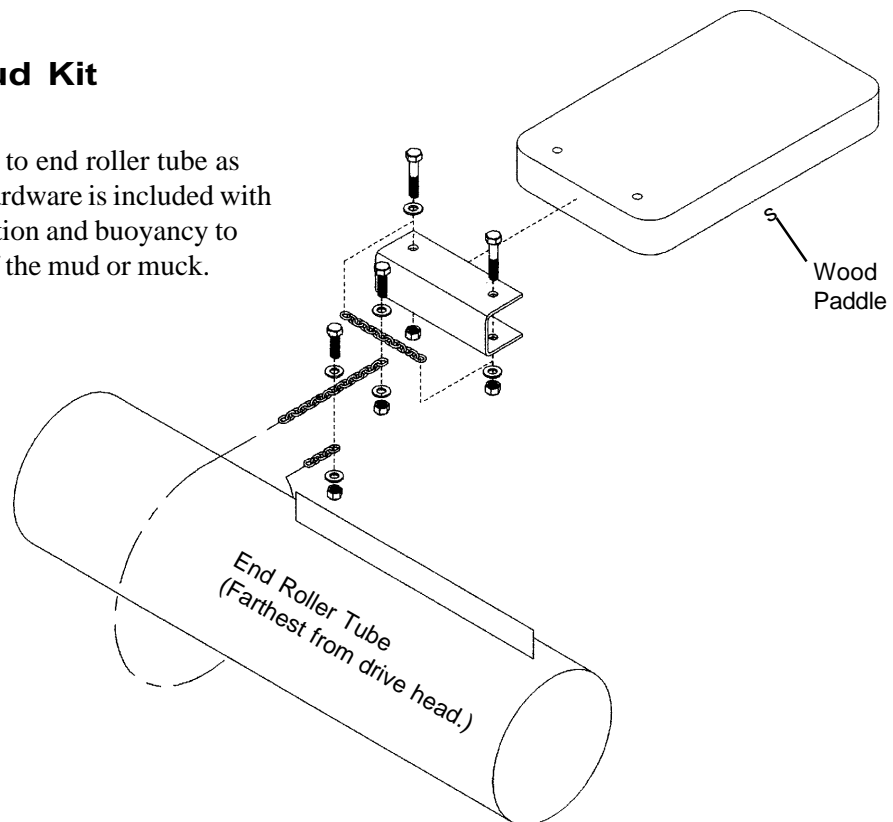
3.7 Plastic Pipe Mud Kit (Part # 51134)

Four plastic pipes attach to two end roller tubes with clamps (one tube shown below). Pipes add buoyancy and traction to the roller tubes and help lift rollers out of the mud or muck.



3.8 Wood Paddle Mud Kit (Part # 51128)

Wood paddle system attaches to end roller tube as shown below (all mounting hardware is included with kit). The paddle provides traction and buoyancy to help lift the roller tubes out of the mud or muck.



Contact your local WeedRoller dealer to order mud kits.

Service and Maintenance



WARNING: Before inspecting or servicing any part of the machine, unplug the power source and make sure all moving parts have come to a complete stop. Remove complete unit from the water before starting repair.

4.1 Servicing Motor Assembly

The electric motor assembly is only serviceable as a complete unit. To service motor:

1. Disconnect plug-in on drive head and remove the two mounting plates with the toggle switch and plug-in intact. Remove the four screws holding the end cap and lift the end cap off. You can now access the motor attaching strips (see figure 4.1).
2. To remove the motor:
 - a. Loosen the chain tightener bolt.
 - b. Loosen the four bolts for motor attaching strips. Slide motor downward.
 - c. Remove the drive chain and tie it up so that it cannot fall into the tube.
 - d. Remove the four motor attaching strip bolts and two motor attaching strips. Loosen the fixed drive sprocket set screw before removing from the motor shaft.
 - e. Remove sprocket and repair or replace motor.

When installing the drive motor, set the chain deflection adjustment to 1/2 inch with the tightener bolt under the motor.

Check flex coupler, roller tube, mounting bracket, and drive head adapter bolts every 50 hours of operation for tightness and wear. Failure to maintain proper tightness may result in damage or excessive wear of components and/or lost parts.

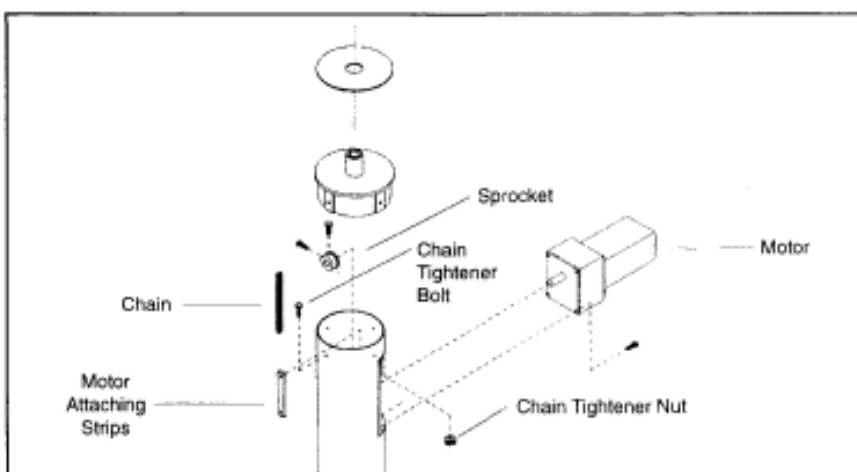


Figure 4.1

4.2 To Replace or Repair Drive Chain

1. Remove drive motor (see step 2 on previous page), drive head base (with rear tube weldment intact), and bottom end cap.
2. Disconnect shaft from tube assembly. Be careful not to lose any of the parts on the bottom drive assembly. The chain can now be reattached or replaced.

4.3 To Reassemble Drive Head Base

1. Install all the parts in correct order for the drive shaft (See figure 4.2). Slide the shaft into the tube from the front, and install the parts onto the shaft from the bottom of tube. Make sure the drive chain runs between the two plastic chain guides and arms.
3. Install a 1/2 inch bolt to hold shaft in place.
4. Replace the bottom end cap, washer, bushing, and base plate (attached to the rear tube weldment).
5. Use the chain tightener on the motor to tighten the chain to 1/2 inch deflection.

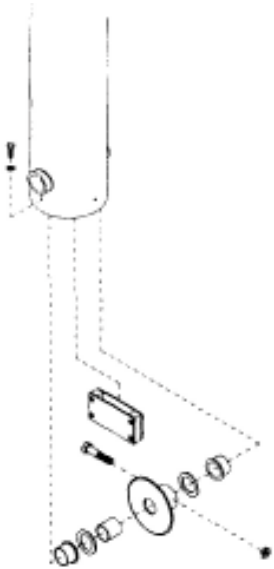


Figure 4.2

4.4 Replacing Roller Flex Coupler

1. Obtain a replacement coupler kit (#51192) from your WeedRoller dealer.
2. Remove the 3/8 inch nuts that secure the roller tubes and coupler. Separate tubes and remove existing coupler (see figure 4.3).
3. Push the new bushings into holes on one side of both new flex coupler beltings. Align the bolt holes on the two flex coupler beltings.
4. Insert one bolt through both holes in flex coupler beltings; skip a hole, and insert another bolt.
5. Repeat step 4 until you have inserted four bolts in one side. Insert the remaining bolts through the four open holes on the opposite side on the flex coupler belting.
6. Place a new wear plate over the bolt ends on one side of the flex coupler belting. Insert the bolt ends into the bolt holes on one roller tube and secure with 3/8 inch washers and nuts. Repeat to attach opposite coupler side to remaining tube end.

Check flex coupler drive head adapter bolts every 50 hours of operation for tightness. Failure to maintain proper tightness may result in damage of components and/or lost parts.

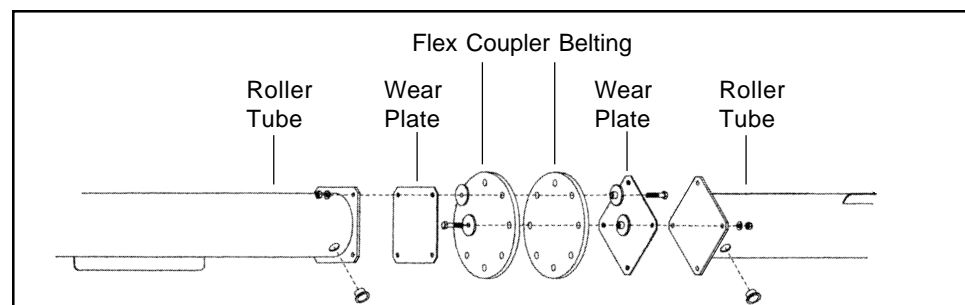


Figure 4.3: Replacing Flex Coupler

4.5 Adjusting Spring Switch Stops

1. Loosen thumb screw.
2. Rotate collar on shaft to desired location. Make sure both spring switches are adjusted to contact the toggle switches before the rollers contact an obstruction. See page 12 for more information.
3. Tighten thumb screw.

4.6 Checking or Replacing Toggle Switch

1. Disconnect wire connections and plug-ins. The plug inside the plug receptacle is replaceable. If the toggle switch is bad, disconnect the wires and unplug the harness.
2. Remove and replace with a new switch.
3. To ensure toggle switch action, adjust the toggle switch bracket so it is square with the housing.

4.7 Tripped Circuit Breaker

The power converter has one 8 amp circuit breaker on the 24 volt DC side (see figure 4.4). If it trips, disconnect it from the 110 volt supply and check it before resetting the breaker. Weeds may have to be cleared from the rollers and/or obstruction removed before it will function.

NOTE: Blowing a fuse or tripping the circuit breaker is a warning that you have overloaded the circuit. Determine the cause and correct it.

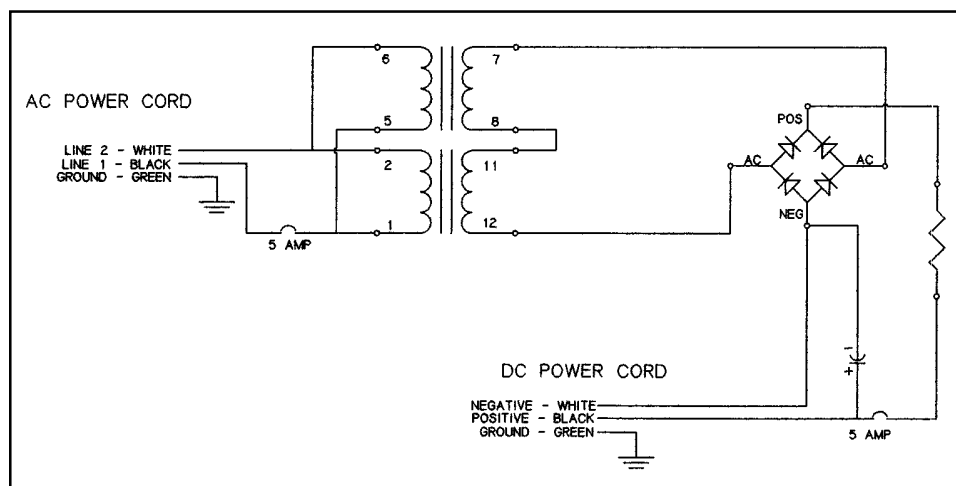


Figure 4.4: Electric Wiring Schematic

4.8 Installing or Replacing the Electronic Controller

See Assembly/Parts Diagram on page 20 for identification of parts. **Make sure WeedRoller is disconnected from AC power source before installing controller.**

Remove the Switch Mount Bracket (For models without factory installed electronic switch only.)

1. Open drive head cover. Disconnect the four wires from the toggle switch and remove the spring switches.
2. Remove the two 5/16" x 1-1/4" bolts that secure the original switch mount bracket and remove the bracket.

Install the New Magnet Mount and Switch Mount Assemblies

1. Remove the magnet from the assembly to prevent it from slipping out. Slip the motor leads through the center of the assembly and place it over the drive hub. Align the magnet mount assembly with the motor or output shaft and tighten (See figure 1). Replace the magnet.
2. Insert two 5/16" x 1-1/2" bolts through the drive head switch mount holes. Place the switch mount assembly over the bolt ends as shown in figure 2. Secure the switch mount assembly with two 5/16" nuts.
3. Connect the black and white controller box wires to the black and white power source wires on the drive head. Connect the black and red controller box wires to the black and red motor leads on the drive head. The green wire is not used.

Note: Some model electronic controllers have a variable overload control knob instead of the on/off toggle and reversing switches used on other model controllers.

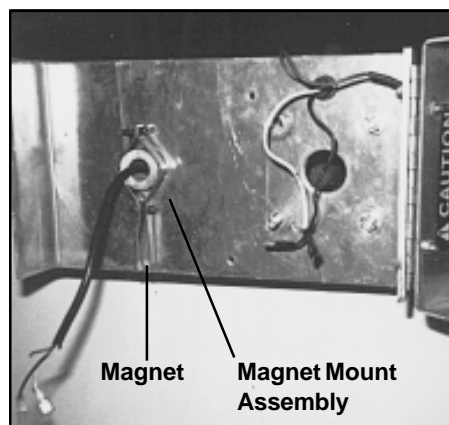


Figure 1

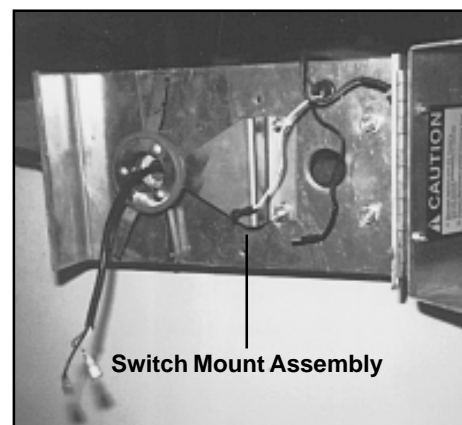


Figure 2

Install the Electronic Controller

1. Gently pull the reed switches and attached wires over to the switch mount assembly.
2. Place the electronic controller over the mount bolts as shown in figure 3. Put two more 5/16" nuts over the bolt ends and secure.

Attach the Reed Switches

1. Place the reed switch around the open side of the switch mount assembly—not the bracket side. Place the reed switches underneath the switch arms and secure the reed switches to the arms with two cable ties per arm.
2. Tie-wrap wires together at large hole in switch mount assembly. Thread a tie-wrap through the small hole in the switch mount assembly and tie-wrap wires to the hole. Trim excess plastic from tie-wraps

For instructions on operating the electronic controller, see page 11.

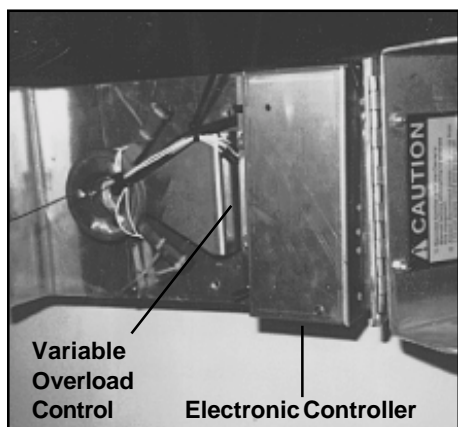


Figure 3

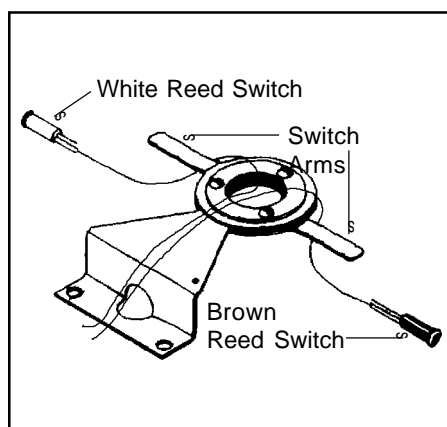
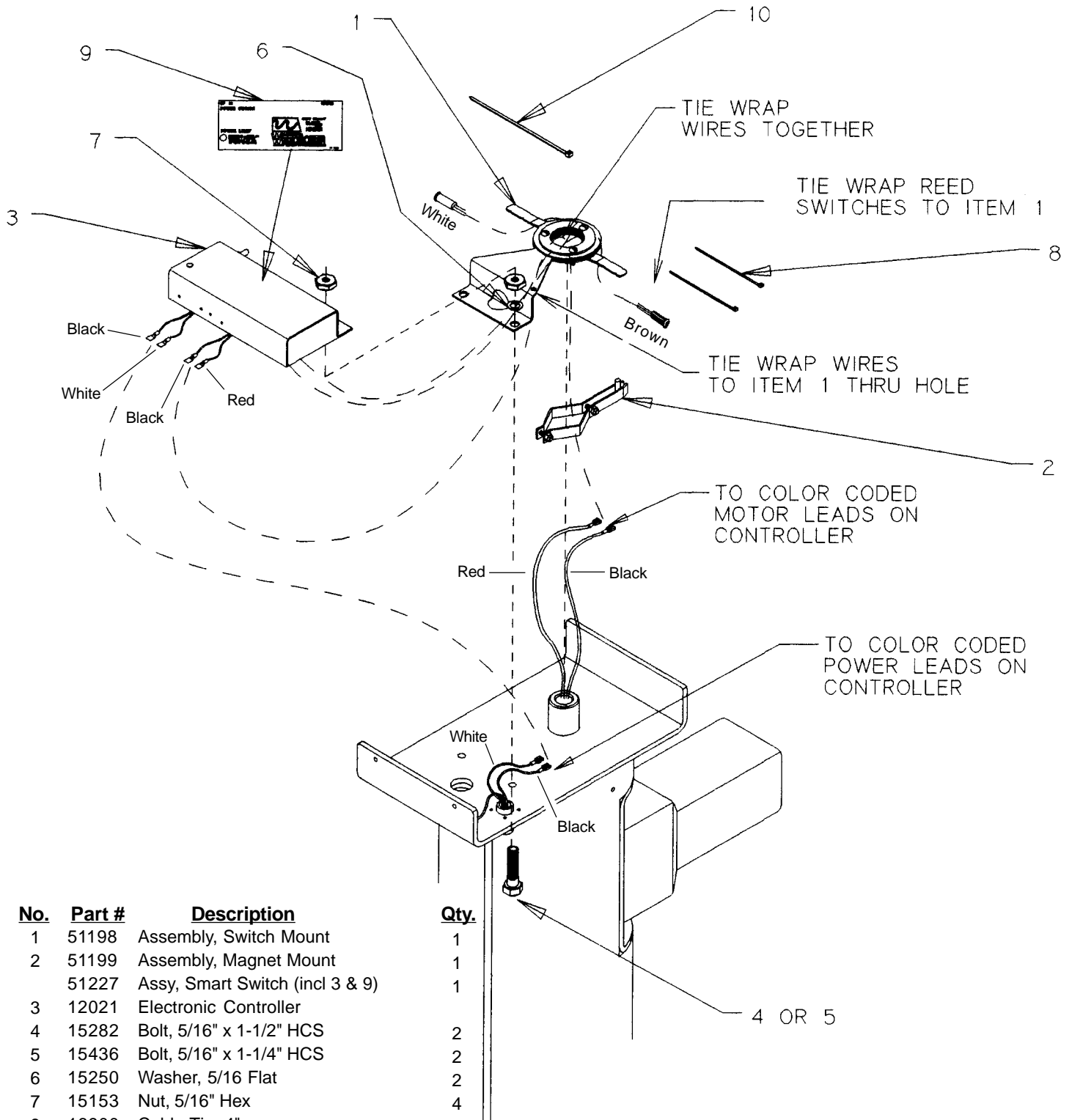


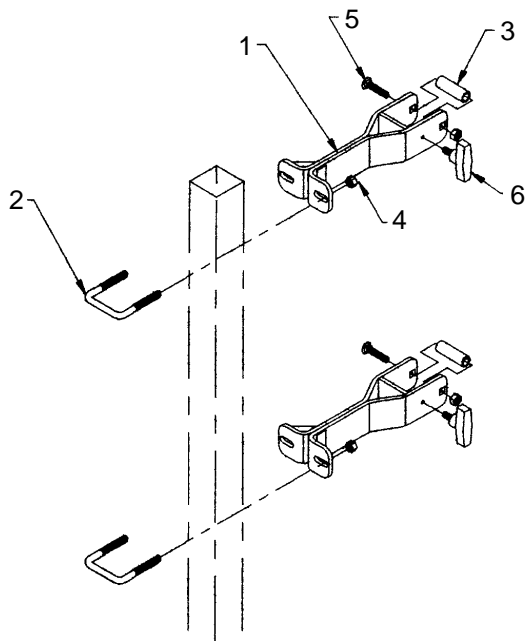
Figure 4

5.1 Electronic Controller Assembly/ Parts Diagram



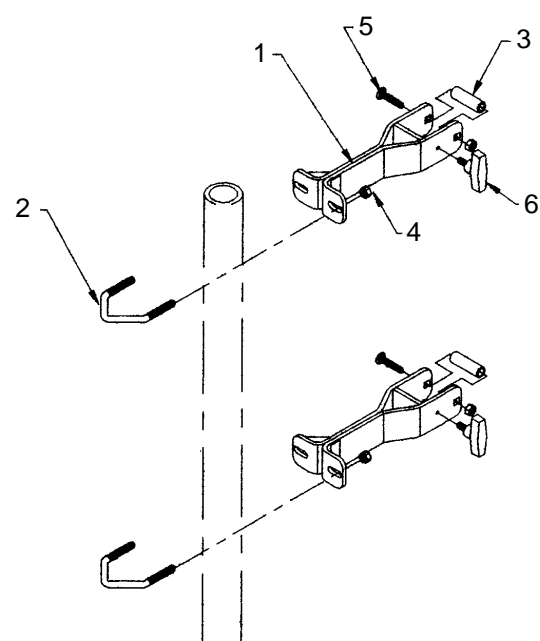
No.	Part #	Description	Qty.
1	51198	Assembly, Switch Mount	1
2	51199	Assembly, Magnet Mount	1
	51227	Assy, Smart Switch (incl 3 & 9)	1
3	12021	Electronic Controller	
4	15282	Bolt, 5/16" x 1-1/2" HCS	2
5	15436	Bolt, 5/16" x 1-1/4" HCS	2
6	15250	Washer, 5/16 Flat	2
7	15153	Nut, 5/16" Hex	4
8	16900	Cable Tie, 4"	4
9	12021	Decal, Elec. Controller	
10	17320	Nylon Cable Tie	2
	16762	8 Amp Circuit Breaker	1

5.2 Dock Mount Kit Diagrams and Parts Lists



Parts List for Square Dock Posts

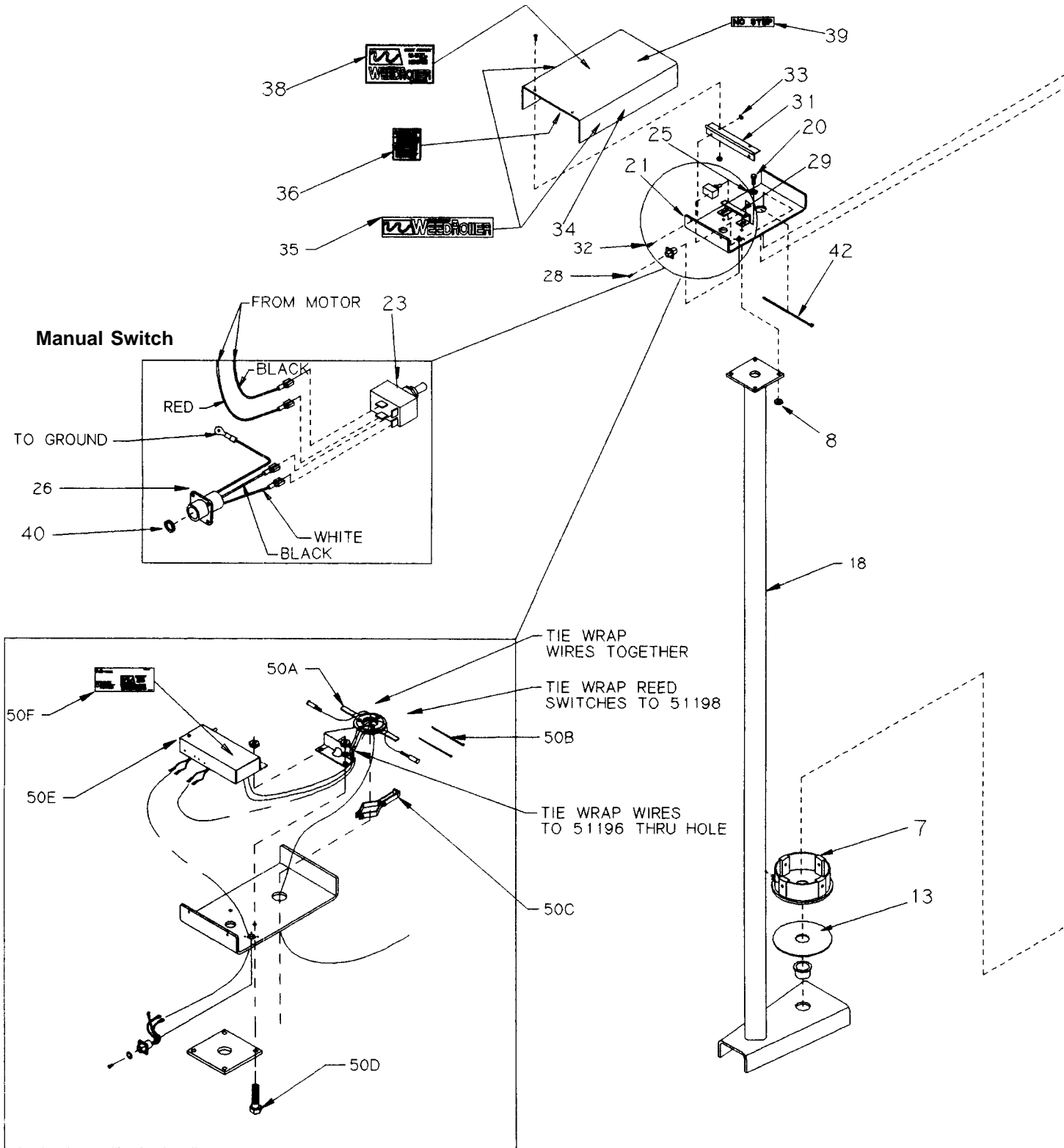
<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty.</u>
1.	51191	Weldment, Dock Mount	2
2.	51175	U-bolt, 2-3/8" x 3" Rect ZP	2
3.	51174	Spacer, Dock Mount	2
4.	15042	Nut, 3/8" Hex Nut NC ZP	6
5.	15100	Bolt, Carr 3/8" x 3" GR5 NC ZP	2
6.	15524	Knob, 3/8" x 3/4" Stud	2
	15260	Washer, 3/8" SAE Flat	6



Parts List for Round Dock Posts

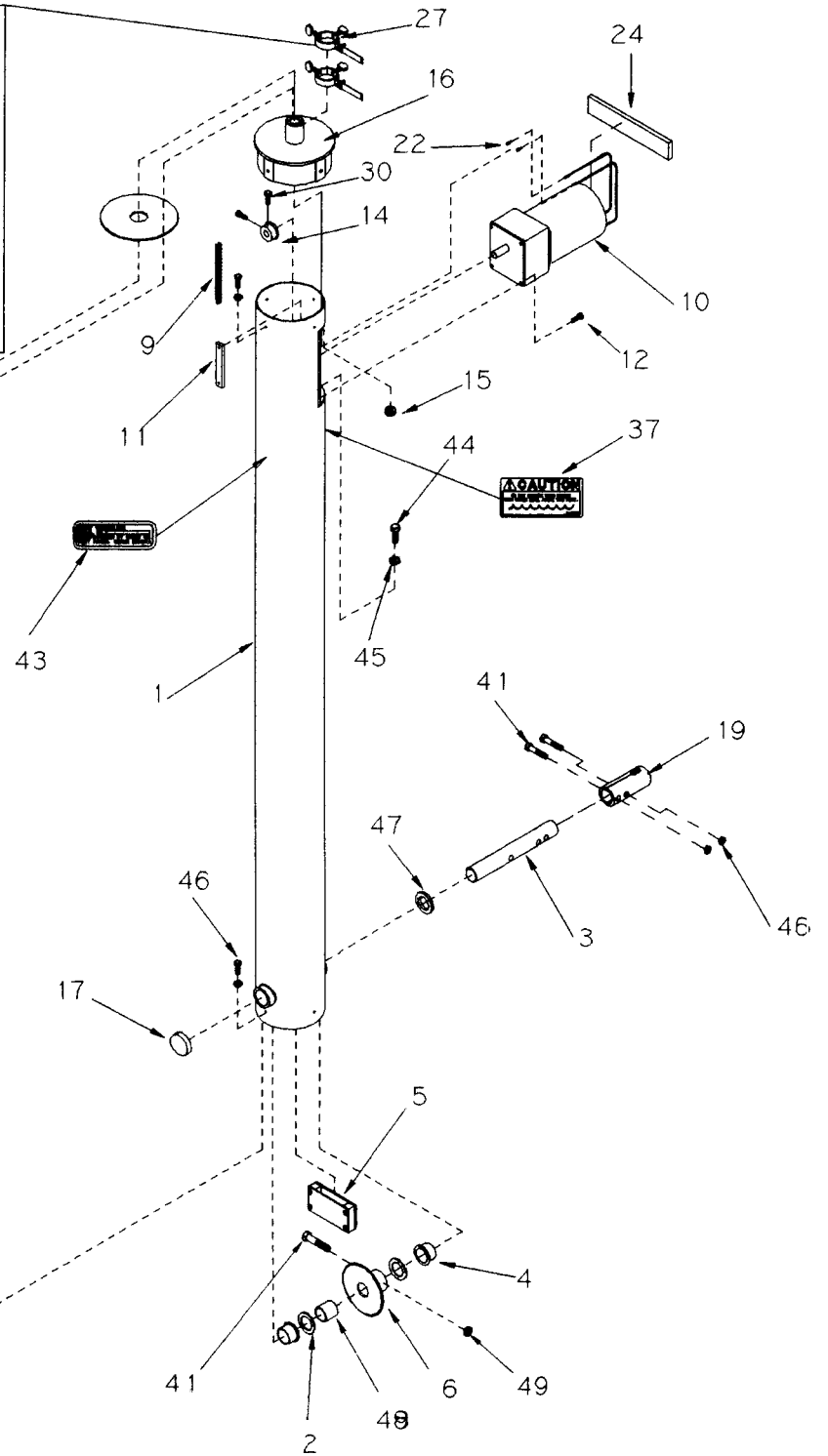
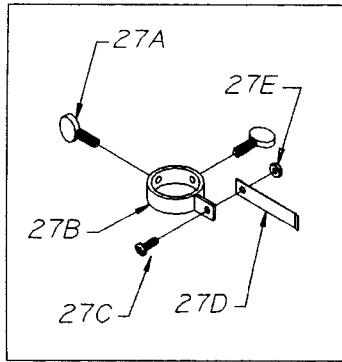
<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty.</u>
1.	51191	Weldment, Dock Mount	2
2.	51180	V-bolt, Dock Mount ZP	2
3.	51174	Spacer, Dock Mount	2
4.	15042	Nut, 3/8" Hex Nut NC ZP	6
5.	15100	Bolt, Carr 3/8" x 3" GR5 NC ZP	2
6.	15524	Knob, 3/8" x 3/4" Stud	2
	15260	Washer, 3/8" SAE Flat	6

5.3 Drive Head Assembly Diagram



Electronic Switching Kit (50)

Spring Switch Assembly

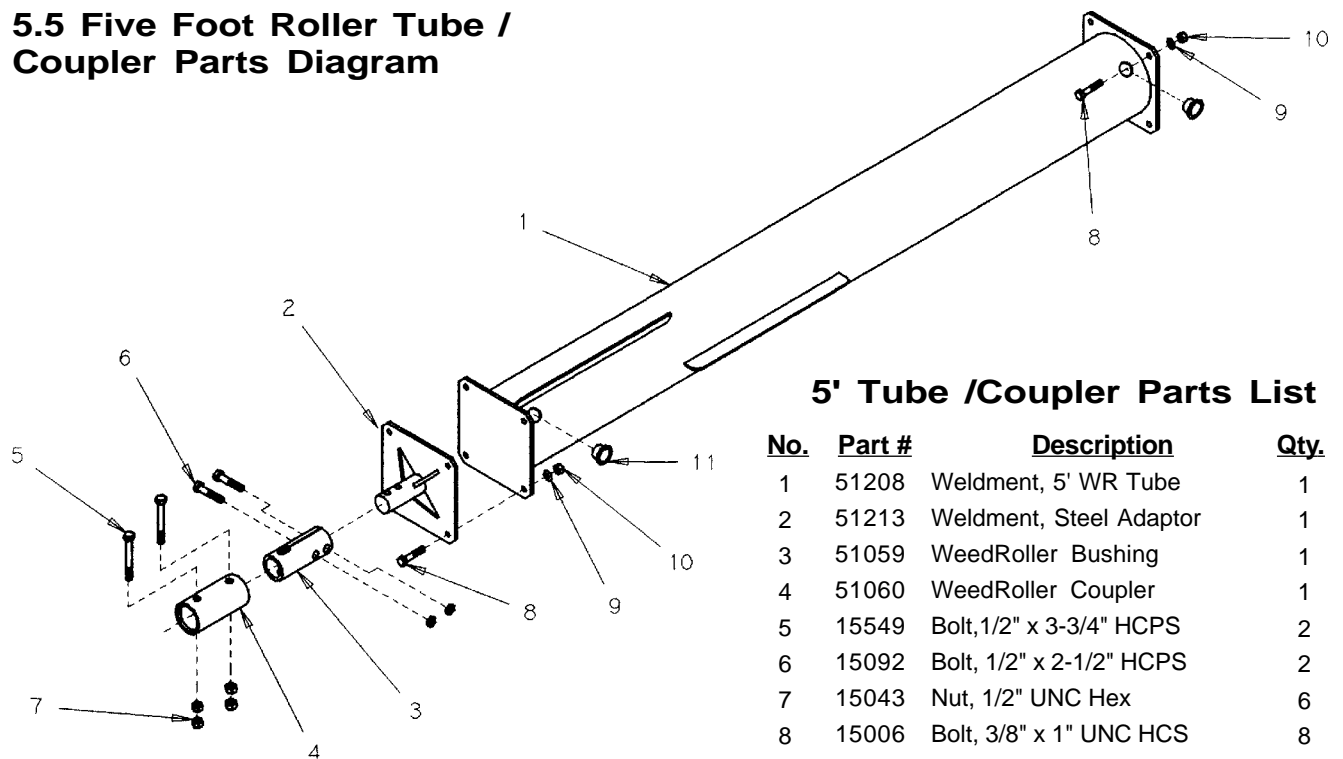


See Parts List on Following Page

5.4 Drive Head Assembly Parts List

<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty.</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty.</u>
1	51113	Drive Head Weldment	1	27B	51034	Spring Collar Weldment	1
1a	51117	Drive Head Weldment 10 ft.	-	27C	15423	Screw, Machine 10/24 x 1/2"	1
2	15468	Thrustwasher 1-3/8"	2	27D	51033	Switch Spring	1
3	51064	Shaft, Drive Head	1	27E	15134	Nut, 10/24 Hex Machine	1
4	16358	Bushing, WeedRoller	3	28	15471	Screw, No. 4 x 3/8"	4
5	51099	Chain Guide Assembly	1	29	51083	Switch Mount	1
6	51127	Sprocket Weldment	1	30	15114	Set Screw, 1/4" X 1/2"	2
7	51126	End Cap Weldment	1	31	16465	Hinge	1
8	15153	Nut, 5/16"	4	32	15423	Screw, 10/24 X 1/2" Mach.	4
9	16578	Chain, WeedRoller	1	33	15134	Nut, 10/24 Hex Mach.	4
9a	16579	Chain, Tall WeedRoller 10 ft.	-	34	51086	Cover, WeedRoller	1
10	12121	Motor, WeedRoller	1	35	16349	Decal, WeedRoller	2
10a	16520	Reconditioned Motor	-	36	16342	Decal, Instructions	1
11	51118	Strip, Motor Attaching	2	37	16345	Decal, Caution Water	1
12	15242	1/4" x 1" Soc HD Cap Screw	4	38	16348	Decal, Cray WeedRoller	1
13	51120	Washer, End Cap	2	39	16357	Decal, No Step	1
14	16576	Sprocket, 9 Tooth	1	40	16373	CPC, Peripheral Seal	1
15	16376	Grommet, 9/32 x 1/4"	1	41	15092	Bolt, 1/2" x 2-1/2"	3
16	51125	End Cap Weldment	1	42	17320	Nylon Cable Tie	1
17	16575	Cap, Plastic 2"	1	43	16384	Serial Number Decal	1
18	51090	Rear Post Weldment	1	44	15285	Set Screw, 1/2 x 3"	1
18a	51097	Rear Post Weldment 10ft		45	15043	Nut, 1/2" Hex	3
19	51059	WeedRoller Bushing	1	46	15324	Screw, 5/16 x 3/4" THD Cut	8
20	15219	Bolt, 5/16" x 1" HCPS	2	47	16574	Seal, 2" OD 1-5/16" ID	1
21	51087	Top, WeedRoller	1	48	51121	Bushing Spacer	1
22	15123	Elec. Female Disconnect	2	49	15049	Nut, 1/2" Centerlock	1
23	16350	Switch, WeedRoller	1	50	12021	Electronic Switching Kit	1
24	16411	Foam, WeedRoller	1	50a	51198	Assembly, Switch Mount	1
25	15250	Washer, 5/16" Flat	10	50b	16900	Cable Tie, 4"	6
26	16447	WR Drive Head Harness	1	50c	51199	Assembly, Magnet Mount	1
27	51058	Switch, Spring Assy.	2	50d	15282	Bolt, 5/16" x 1-1/2"	2
27A	15513	Screw, Thumb 1/4-20 x 1/2"	2	50e	16839	Electronic Controller	1
				50f	16902	Decal, Electronic Controller	1

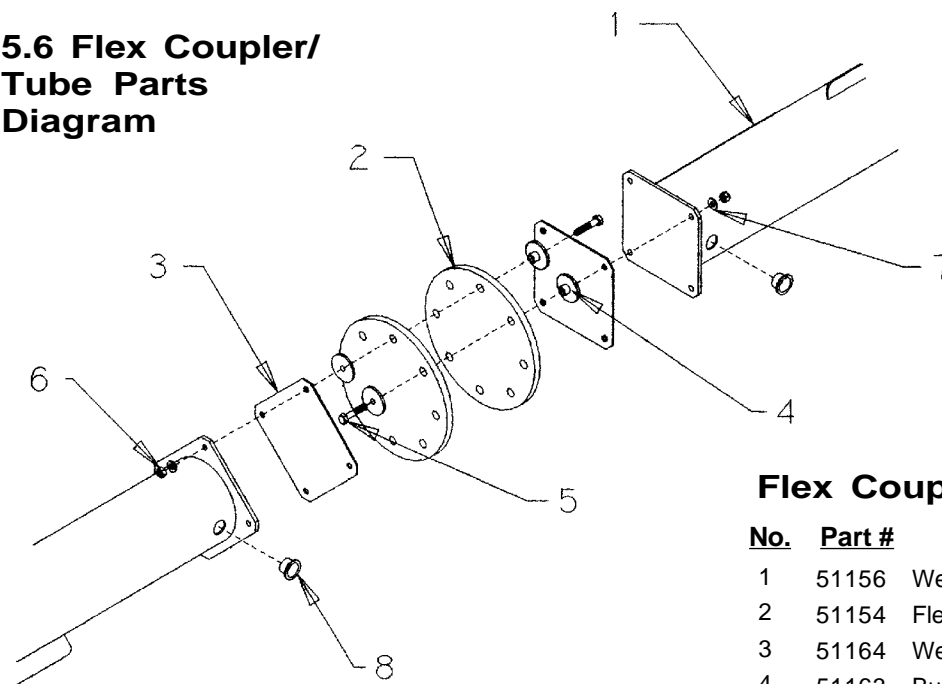
5.5 Five Foot Roller Tube / Coupler Parts Diagram



5' Tube /Coupler Parts List

No.	Part #	Description	Qty.
1	51208	Weldment, 5' WR Tube	1
2	51213	Weldment, Steel Adaptor	1
3	51059	WeedRoller Bushing	1
4	51060	WeedRoller Coupler	1
5	15549	Bolt, 1/2" x 3-3/4" HCPS	2
6	15092	Bolt, 1/2" x 2-1/2" HCPS	2
7	15043	Nut, 1/2" UNC Hex	6
8	15006	Bolt, 3/8" x 1" UNC HCS	8
9	15031	Washer, 3/8" Flat	8
10	15051	Nut, 3/8" Serr Flng	8
11	16580	Plug, 1" Tube	2

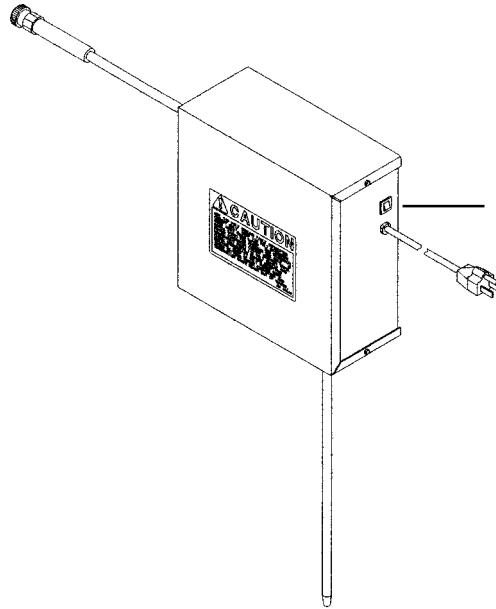
5.6 Flex Coupler/ Tube Parts Diagram



Flex Coupler/Tube Parts List

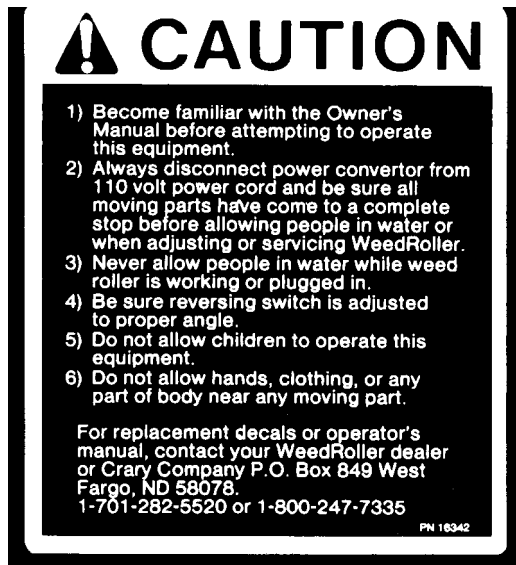
No.	Part #	Description	Qty.
1	51156	Weldment, WR Tube	3
2	51154	Flex Coupler	6
3	51164	Wear Plate, Flex Coupler	6
4	51163	Bushing, Flex Coupler	48
5	15116	Bolt, 3/8" x 2-1/2" UNC HCS	24
6	15051	Nut, 3/8" Serr Flng	24
7	15031	Washer, 3/8" Flat	24
8	16580	Plug, 1" Tube	6

5.7 Power Supply



5.8 Safety Decals

Replace any decal that is damaged or unreadable.



PART NO. 16342

NO STEP

PART NO. 16357



PART NO. 16340



PART NO. 16345

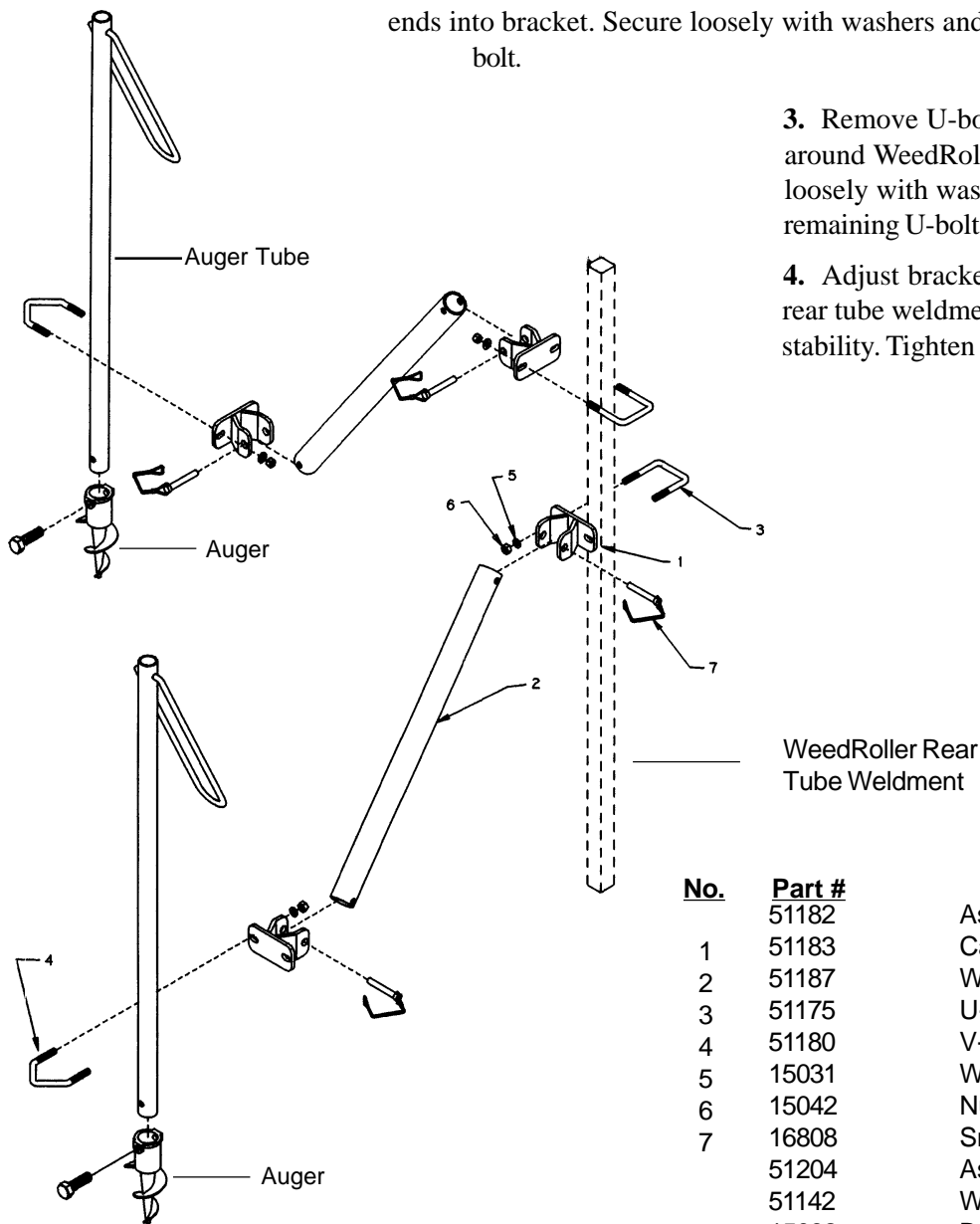
5.9 Optional Tripod Assembly Instructions

1. Attach augers to auger tubes with 1/2" x 2-1/2" bolts. Turn auger tubes into lake bottom until secure. For maximum stability, place the auger tubes between 3 to 5 feet apart.

2. Remove V-bolt from bracket. Place V-bolt around auger tube and reinsert ends into bracket. Secure loosely with washers and nuts. Repeat for remaining V-bolt.

3. Remove U-bolt from bracket. Place U-bolt around WeedRoller rear tube weldment. Secure loosely with washers and nuts. Repeat for remaining U-bolt.

4. Adjust brackets attached to auger tubes and rear tube weldment for maximum WeedRoller stability. Tighten nuts securely.



No.	Part #	Description	Qty.
	51182	Assy, WR Tripod (1-7)	
1	51183	Casting, Tripod Bracket	2
2	51187	Weldment, Tripod Leg	1
3	51175	U-Bolt, 2-3/8 x 3" Rect	1
4	51180	V-Bolt, Dock Mount ZP	1
5	15031	Washer, 3/8" Flat ZP	4
6	15042	Nut, 3/8" Hex NC ZP	4
7	16808	Snapper Pin, 3/8 x 2-3/4"	2
	51204	Assy, Tripod Post	
	51142	Weldment, Auger Tube	1
	15092	Bolt, 1/2 x 2-1/2" GR5	1
	51230	Auger Casting w/ Holes	1

Troubleshooting

Problem	Probable Cause	Suggested Remedies	Refer to:
1. WeedRoller will not run	a) No electrical current	a) Check all connections	Service and Maintenance
	b) 8 amp breaker kicked out	b) Check for obstructions of rollers or electrical problems Reset breaker	
	c) Reversing switch bad	c) Check connections Check spring switch adjustment Replace switch	Service and Maintenance
	d) Electric motor problems	d) Check connections Check wiring Repair or replace electric motor	Service and Maintenance
	e) Power supply	e) Repair or replace	Service and Maintenance
2. Rollers will not turn	a) Drive coupler problems	a) Check all drive coupler connection and components Repair or replace	Service and Maintenance
	b) Obstructions stopping roller movement	b) Clear all obstructions from lake bed area	Service and Maintenance
	c) Weeds wrapped around rollers	c) Clear weeds from rollers	
	d) Drive chain broken or off sprockets	d) Repair or replace	Service and Maintenance
	e) Electric motor not working	e) Repair or replace	
	f) Rollers stuck in mud, muck, or silt	f) Free stuck rollers	See page 12
3. Rollers will not switch directions	a) Reversing switch not working	a) Check all connections Repair or replace switch	Service and Maintenance
	b) Spring switches not moving toggle	b) Adjust for correct switch contact Adjust for desired roller arc	
	c) Spring switch broken	c) Repair or replace	See page 11
	d) Drive coupler problems	d) Check all connections and components Repair if needed	Service and Maintenance
4. Rollers running at wrong arc	a) Spring switch stops set wrong	a) Adjust spring switch stops for correct toggle switch contact	See page 11
	b) Drive motor at wrong mounting angle	b) Change drive motor angle	See pages 4 and 5
	c) Drive motor contacts tube weldment before desired roller arc is completed	c) Change drive motor angle	

Options

- #51190 Solid State Smart Switch**
This kit replaces the toggle type reversing switch with solid state electronics to magnetically switch the direction of the WeedRoller. All electronic components are encased in weatherproof epoxy. Electronic switching kit carries an extended three year warranty.
- #51188 Dock Mounting Hardware Kit**
This kit is standard in the complete WeedRoller. Use additional dock mounting hardware to easily move the WeedRoller from one location to another.
- #51165 Additional Ten Foot Roller**
Comes complete with the necessary hardware to attach to existing tubes. Note: added tubes may require a special permit for use. Please consult and adhere to your state and local regulations.
- #16464 70 Foot DC Extension Cord**
For longer docks that require more than 70 feet of cord between the 110 volt converter on land, and the DC power head in the water.
- #16747 50 Foot DC Extension Cord**
For longer docks that require more than 70 feet of cord between the 110 volt converter on land, and the DC power head in the water.
- #16748 25 Foot DC Extension Cord**
For longer docks that require more than 70 feet of cord between the 110 volt converter on land, and the DC power head in the water.
- #51134 Plastic Pipe Mud Kit**
For extreme mud and muck conditions. Air filled plastic pipes attached to middle and outer rollers add buoyancy to rollers to keep from "digging in." Pipes are removed after WeedRoller has worked down to a firmer bottom.
- #51128 Wood Buoy Mud Kit**
For extreme mud and muck conditions. Wooden buoy acts as a large "paddle" on end roller to lift and provide traction through mud. Buoy is removed after WeedRoller has worked down to a firmer bottom.
- #51143 Tripod Mounting Kit**
For mounting WeedRoller on shore without a dock or other structure. Drive head serves as the first anchor point. Two sand screw anchors form the other two points.
- #51192 Coupler Replacement Kit**
For replacing one damaged or worn coupler between roller tubes. Kit contains replacement flex coupler belting, wear plates, bushings, hardware, and two tube plugs. Used only in 1995 and newer model WeedRollers.

WeedRoller Limited Warranty

Crary Co. warrants to the original purchaser each item of new CRARY WeedRoller equipment to be free from defects in material and workmanship under normal use and service if such equipment is found to be defective within 12 months from date of purchase. This warranty applies only to WeedRollers used for 1000 hours or less during the warranty period. Under this warranty, Crary Co. is limited to repairing or replacing as Crary Co. will elect, any equipment or parts that prove to be defective in material or workmanship. Crary Co. will also reimburse labor expense occurred by the repairing dealer at a fixed rate per hour. Repair times will be reviewed by Crary Co. Service Manager and may be adjusted according to average repair times.

Smart Switches have a prorated three year warranty. Crary Co. will allow full Smart Switch coverage within 12 months from date of purchase, 2/3 coverage between 12 months and 24 months from date of purchase, and 1/3 coverage between 24 and 36 months from date of purchase.

All equipment or parts claimed to be defective must be submitted on a completed warranty claim within 30 days of repair. This repairing dealer must also make available for inspection all parts claimed at their place of business, or upon request by Crary Co., shipped freight prepaid, to the factory in West Fargo, ND. If the warranty claim is accepted, Crary Co. will cover freight charges on repair parts back to the repairing dealer. Covered freight charges will be UPS, parcel post, or truck only. Freight charges for air freight must be covered by the dealer or the customer.

This warranty does not cover depreciation or damage caused by: normal wear, accident, improper assembly, improper adjustment, improper maintenance, additional roller length (above 35 feet total), rental or commercial operation, or improper use. Crary Co. shall have NO LIABILITY if the equipment has been altered or reworked without the written authorization of CRARY. Crary Co. does not warrant replacement components not manufactured or sold by us.

IN NO EVENT SHALL CRARY CO. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR INJURIES.

CRARY CO. makes no warranties, representations, or promises, expressed or implied, as to the quality or performance of this Crary Co. WeedRoller other than those set forth in this warranty. Neither the dealer nor any other person has any authority to make any representations, warranties, or promises on behalf of Crary Co., or to modify the terms or limitations of this warranty in any way.

Crary Co. parts which are furnished under this warranty and properly installed shall be warranted to the same extent as the original parts under this warranty, if—and only if—such parts are found to be defective within the original warranty period covering the original equipment.

Crary Co. reserves the right to make design changes, improve design, or change specifications at any time without any contingent obligation to purchasers of machines and parts previously sold.

