OPERATOR'S MANUAL

Model
B130 / B140

Water-Reel® Irrigation

First Edition March 1987, Second edition May 1986, Third edition August 1989, Fourth edition April 1993, Fifth edition April 1995, Sixth edition September 1997, Seventh edition February 2000

Kifco Inc.
707 S Schrader Ave., P.O. Box 290, Havana, IL 62644
Phone 309/543-4425 Fax 309/543-4945
Web Site www.kifco.com

P/n 193-0178-0

Introduction

Thank you for purchasing a Kifco Water-Reel.

Read this manual carefully to learn how to operate and service your Water-Reel properly. Failure to do so can result in personal injury and/or property damage.

This manual is a permanent part of your Water-Reel and should always be available for reference by the operator. This manual should remain with the Water-Reel when it is sold.

Measurements in this manual are in U.S. units unless otherwise stated.

Right-hand and left hand sides of the Water-Reel are determined by the side of the machine where the water enters. The water inlet side of the Water-Reel is considered the **right side**.

The serial number of your Water-Reel should be written in the space provided in the Dealer Checklist section (page 3) of this manual.

If you have a problem or if you do not understand some feature of your Water-Reel, contact your Kifco dealer.

Warranty is provided as part of the Kifco product support. Please see specific warranty statement in this manual.

The warranty excludes:

- **!** Alterations or modifications not approved by Kifco Inc. Neither Kifco dealers or representatives are authorized to make exceptions to warranty policy. Any deviations from standard warranty requires written authorization from Kifco Inc. Irrigation tube which is longer, larger in diameter, or made from non-approved materials will void the warranty on the entire machine.

- **!** Damage caused by normal wear, accident, lack of reasonable care and maintenance, neglect or abuse.

- **!** The replacement cost of normal service items such as filters, gaskets, brake bands, etc., unless these parts are known to be defective.

- **!** Transportation, mailing, service call, or diagnosis costs. Labor for repairs is also excluded unless unusual circumstances exist and then only if pre-approved.

Dealer Checklists

Owner's Name_____

Address _____

City_____ State_____zip_____

Model_____ Serial No._____ Date Sold_____

Pre-delivery Checklist: Check below before delivery to customer.

____ 1. Guards and shields in place.
____ 2. Decals in place and legible.
____ 3. Tire pressure.
____ 4. Lubrication (Page 11)
____ 5. Spool Brake adjustment.
___ 6. Sprinkler Nozzles.
___ 7. Clutch Disengage.
___ 8. Supply Hose Fittings
___ 9. Touch up paint & clean.

Delivery Checklist:

Review the operator manual with the user and explain the following:
____1. Kifco warranty policy and claims procedure.
____2. Safe operation and service.
____3. How to operate the Water-Reel.
____4. Transporting the Water-Reel on roads or highways.
____5. Speed adjustment and effect on depth of water.
____6. Effect of water pressure on Water-Reel performance.
____7. Winterization and storage procedures.
____8. Give the customer this manual and encourage the customer to read and study the information in the manual.

Date Delivered_____

Name of Dealer_____

Dealer Phone Number _____

Table of Contents

Safety

Owners Responsibilities

The owner is responsible for the safe operation of this product.

It is the owner's responsibility to:

1. Read and understand these instructions.
2. Operate the machine according to prescribed limitations.
3. Properly train others who may be permitted to operate the machine.
4. Heed rules of safety, including but not limited to those in these instructions.
5. Exercise good judgment relating to safe operation and safe conduct by operators and spectators whether invited or not.
6. Always bring the safety decals and placards on the machine to the attention of operators and spectators.
7. **Keep all shields and guards in place!**

Read and Heed the Special Messages!

This safety alert symbol is used to indicate messages related to safety. When you see this safety symbol, obey the safety message to avoid personal injury, property damage or both.

A **"Caution"** message in this manual or on a machine placard means that you could be injured and/or equipment or property may be damaged if you do not follow instructions.

A **"Warning"** message in this manual or on a machine placard means that a hazard exists that could result in severe personal injury or death.

A **"Danger"** message in this manual or on a machine placard means that a hazard exists that will result in severe personal injury or death.

Location of Safety Messages:

Safety

1

CAUTION
DO NOT OPERATE UNLESS ALL SAFETY SHIELDS ARE IN PLACE

2

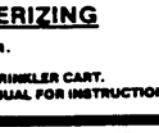
WINTERIZING
1. DRAIN WATER MOTOR.
2. DRAIN THE FILTER.
3. DISCONNECT THE SPRINKLER CART.
4. SEE OPERATORS MANUAL FOR INSTRUCTIONS.

3

CAUTION
PRESSURE RELEASE VALVE.
OPEN BEFORE DISCONNECTING SUPPLY HOSE OR CART.

4

WARNING
DRIVE DISENGAGE LEVER
NEVER DISENGAGE DRIVE DURING OPERATION

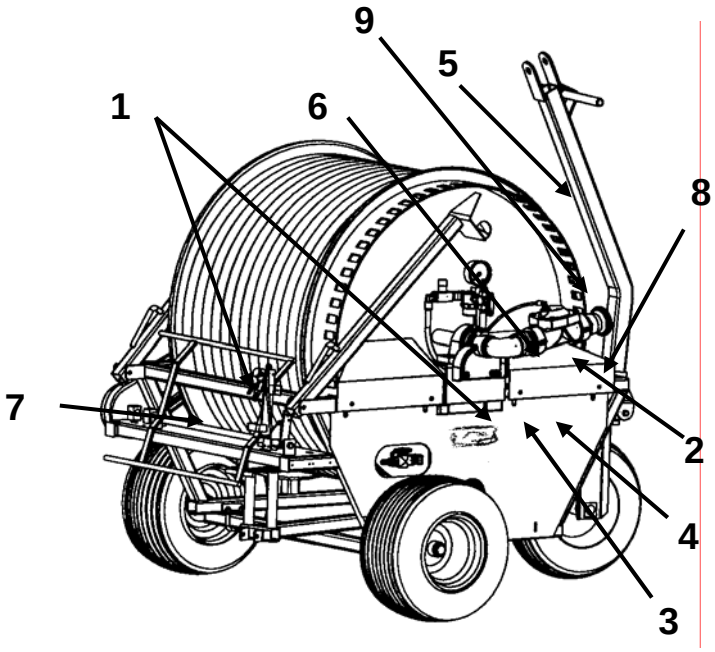


5

WARNING
NOT DESIGNED FOR HIGHWAY USE
MAXIMUM SPEED 10 MPH.

6

REMEMBER
SAFETY
READ OPERATORS MANUAL BEFORE STARTING



7

WARNING

DO NOT OPERATE THIS MACHINE UNTIL YOU HAVE READ AND UNDERSTAND THE OPERATORS MANUAL. IF YOU DO NOT HAVE A COPY OF THE OPERATORS MANUAL CONTACT YOUR DEALER OR OUR FACTORY IMMEDIATELY:

KIFCO INC. 600 S. SCHRADER AVE.,
HAVANA, IL. 62644 PHONE (309) 543-4425

DO NOT CLEAN, LUBRICATE, ADJUST OR REPAIR THIS MACHINE WHILE IN OPERATION.

DO NOT RIDE OR CLIMB ON THIS MACHINE AT ANY TIME.

DO NOT PLACE HANDS BEHIND SHIELDS WHILE THIS MACHINE IS IN OPERATION.

B130
B130X

8

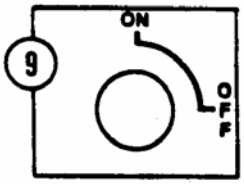
Minimum Operating Pressure
50 psi.

B160
B180S
B180
B200
B210

8

Minimum Operating Pressure
70 psi.

9



Learn To Be A Safe Operator

Read This Manual

Know the controls on the Water-Reel and also how to stop the water supply! Do not allow children to operate the Water-Reel.

Do not allow anyone to operate the Water-Reel with out proper instruction.

Protect Children

Keep children away when you operate the Water-Reel.

Do not allow children to operate the tractor that is positioning the Water-Reel.

Never allow children to climb or ride on the machine at any time.

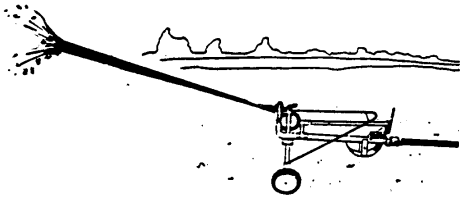
Use Caution Around Pressurized Lines

For your own protection, always take care when working with or around pressurized equipment. Shut off the pump before working with any components. Including the pump, supply lines, machine or related equipment.

Be sure pressure is relieved from any supply line before it is disconnected.

When the automatic sprinkler shut-off is used, pressurized water may be trapped in the system tube.

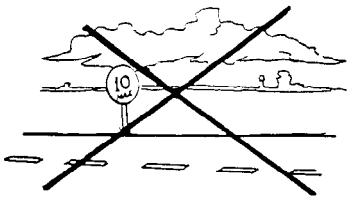
Stay Away From Operating Sprinklers



Stay away and keep others away from the sprinkler head
during operation. Pressurized water from a sprinkler can
inflict serious injury to bystanders.

Use Caution When Towing

Your Water-Reel is not intended for highway towing.

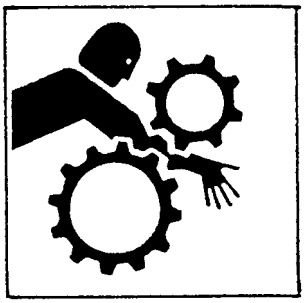


Towing Speed:
10 MPH maximum on smooth surfaces.
3 MPH maximum on rough surfaces.

Never tow the Water-Reel in excess of 10 MPH.

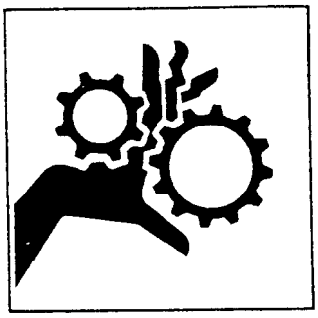
Keep Hands and Clothing Away

Do not under any circumstances reach into the Water-Reel while it is in operation.



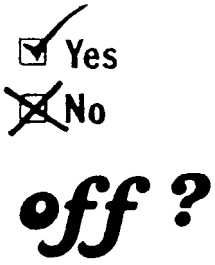
Keep All Guards and Shields in Place

Never operate this machine with safety guards removed!



Never Service or Make Adjustments While the Water-Reel is Pressurized

Shut the water off at the source before attempting to do any service, maintenance of adjustments.

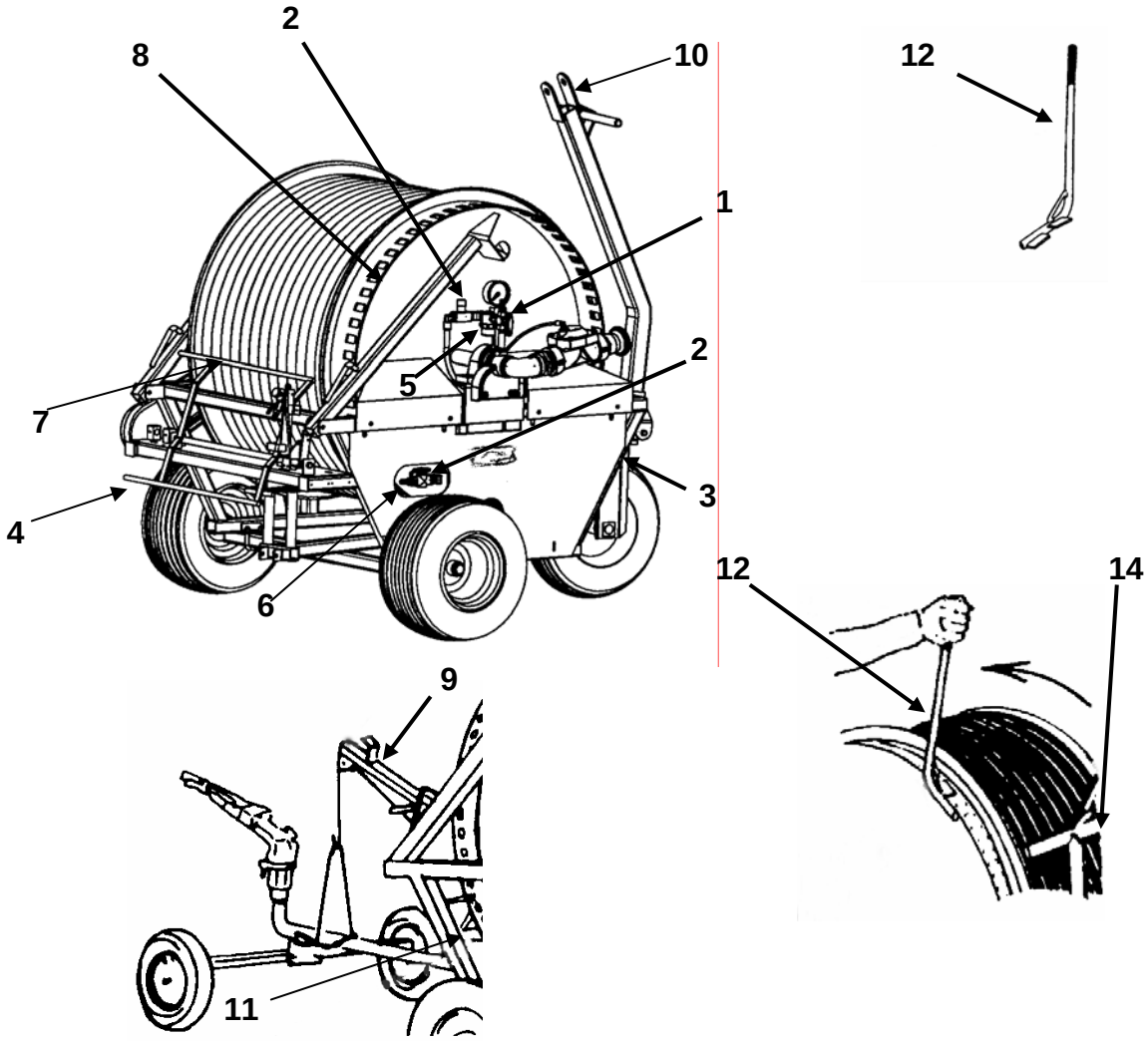


Stay Away From Power Lines

Avoid letting irrigation water contact power lines.

Be careful not to contact power lines with irrigation pipe or mechanical equipment.

Controls



1. On/Off Valve
2. *Speed Control Valve
3. Drive Disengage Lever
4. Auto Shut-Off Bar
5. Filter
6. Exhaust Water Line Connection
7. Mis-wrap Shut off Bar
8. Stabilizer Leg
9. Cart Transport Arm
10. Towing Hitch
11. Sprinkler Shut-Off
12. Rewind Handle
13. Brake Adjustment (see page 25)
14. Tube Rider (Prevents slack on last layer)

Handling The Polyethylene Tube

The polyethylene irrigation tube is a durable product that will operate reliably for many years if handled properly and given a reasonable amount of care.

Unlike rubber hose or hose with a woven jacket (lay flat hose), polyethylene is a semi-rigid product that retains its shape when it is not pressurized. This characteristic makes it feasible to pump water through it while it is rolled up on a reel.

A few simple precautions need to be observed to prevent damaging the tube when operating your Water-Reel.

When starting a new water-reel for the first time, it is important that the tube be pulled nearly all the way out in order to tighten the new tube on the spool.

1. **Never transport the Water-Reel with the drive and anti-reverse pawl disengaged! The irrigation tube will become loose and tangled.** Do not attempt to operate the Water-Reel if there are any coils of tube that are loose or misplaced. If loose coils of tube are noticed after pulling the tube out, they must be tightened up by rotating the spool by hand. If this is not possible then pull all of the tube out before attempting to rewind the tube.

2. Never try to relocate the Water-Reel if the tube is not fully rewound onto the machine.

3. Never pull the tube off the machine other than by pulling on the sprinkler cart (straight out from the machine).

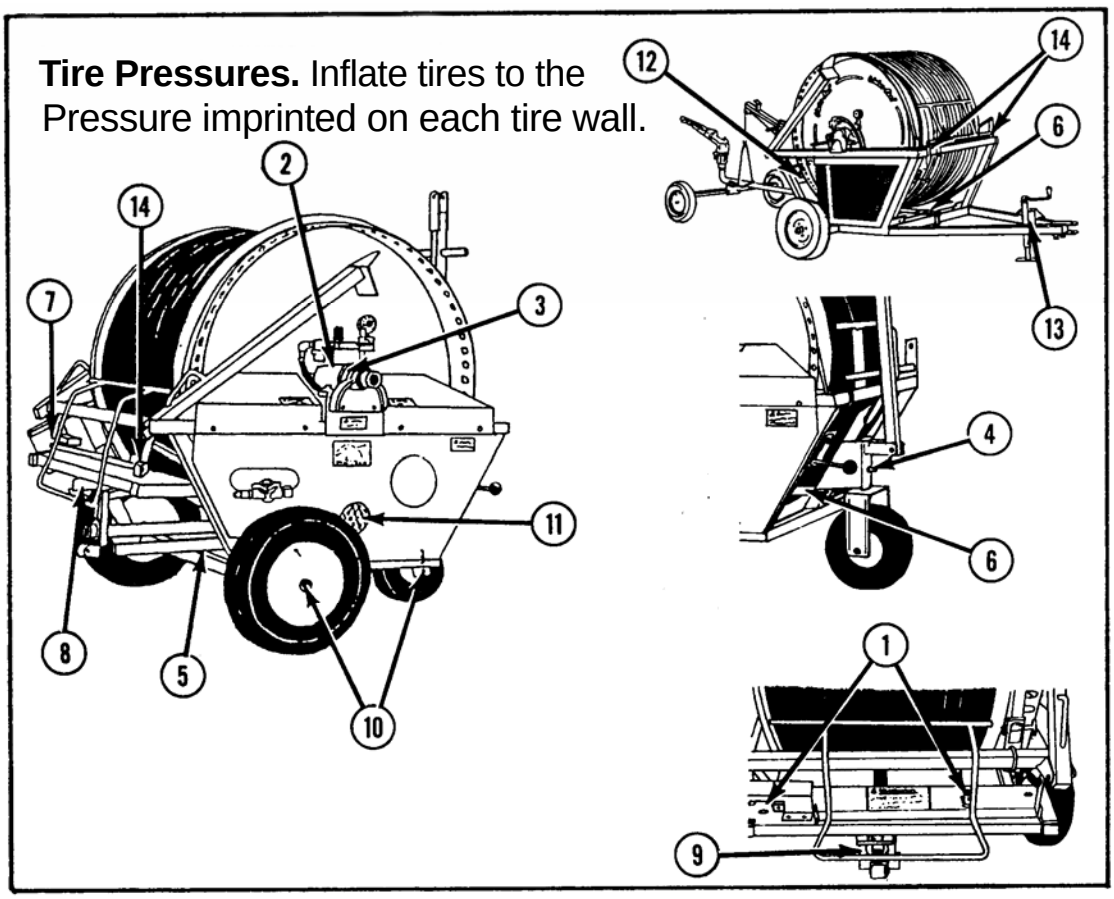
4. Never run over the tube with any kind of vehicle and avoid pinching or pulling the tube around objects. Make it a point to never bend the tube sharper than 25 times the diameter of the tube.

5. Be careful when operating other equipment near the tube so that it doesn't get gouged or punctured.

Remember, polyethylene tube is semi-ridged and subject to being kinked. These foregoing precautions will reduce the possibility of kinking or damaging your tube. Throughout the irrigation industry the words ’tube’ and ’hose’ are used interchangeably in connection with hard hose traveling machines.

Lubrication and Service

Tire Pressures. Inflate tires to the Pressure imprinted on each tire wall.



Lubricate each 100 hours of operation

1. Levelwind Gear Set (3 grease zerks and brush gears with grease)
2. Drive Arm Pivot
3. Spool Bearing
4. Front Wheel Pivot
5. Swing Arm Slide (axle)
6. Swing Arm Pivot (oil)
7. Level wind Drive Chain (oil)
8. Level Wind Wind Guide Chain
9. Level Wind Fork Slide
10. Wheel Bearing (grease zerk)
11. Ratchet Drive Pawls
12. Sprinkler Cart Shut-off
13. Tongue Jack (oil)
14. Safety & Tube Rider Bars (oil)

*NOTE: Small spool shaft bearings are sealed requiring no further lubrication

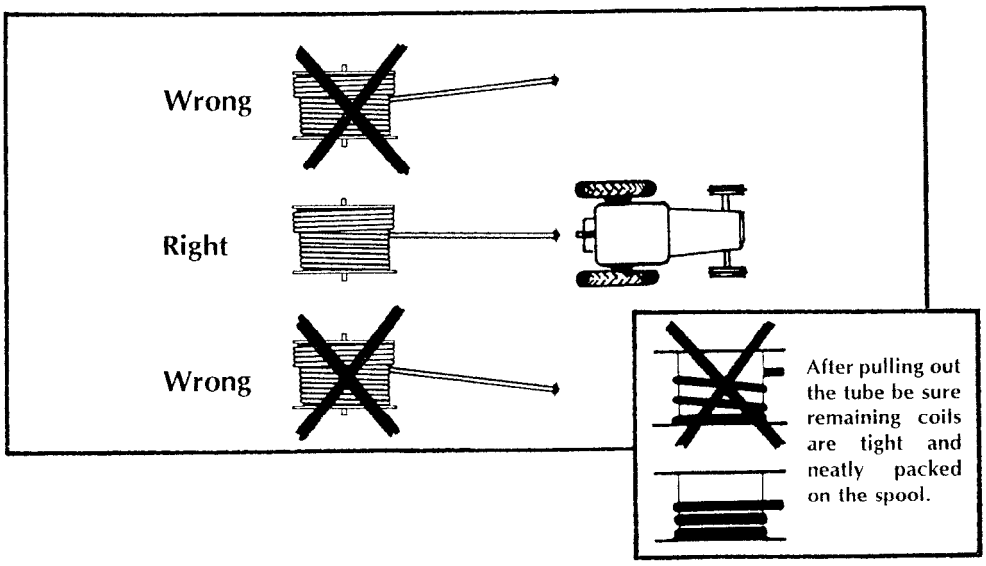
Water-Reel Start-Up & Operation

The success of the Water-Reel irrigation system depends a great deal on the operator's understanding of the proper pull out and start up procedure. **Do not attempt to operate this Water-Reel until you read and understand the preceding section titled "Handling the Polyethylene Tube"!**

The following steps are important.

1. Pull the Water-Reel into position with the sprinkler cart towards the run to be irrigated. Be especially careful to have the machine square and in good alignment with the irrigation path. It is allowable for the tube not to be pulled out in a straight line, however, it is important that **the first 20% of the tube be pulled straight away from the machine.** Failure to observe this limitation places excessive side load on the level wind mechanism and may result in equipment failure or tube damage.

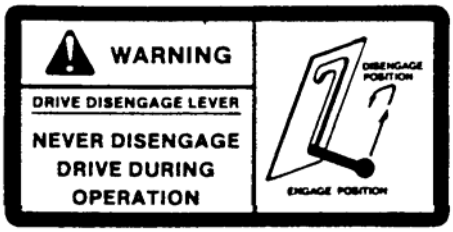
   When the tube is pulled out to follow a contour or to avoid an obstacle, the extent that it is pulled in a curve should be very gradual. Under no circumstances should the tube curve more than 90 degrees in it's entire length. How well the tube will follow it's laid out path back to the machine will depend mostly on the surface of the ground. For example, if there are contours or furrows to follow, the tube may track back very well. If the soil or vegetation is slick and no rows or furrows exist, the tube may cut across the laid out path and be recoiled back on the machine in the shortest distance. (a straight line)



2. Fold down the stabilizer legs and confirm they have made good ground contact. Make sure both legs swing freely at their hinges. **Never** attempt to operate the Water-Reel with only one leg down.

   When the Water-Reel begins to operate with the tube pulled out, the machine may raise up onto the stabilizer legs. The machine is then resting on the front wheel and the stabilizer legs with the two main wheels off the ground. This is normal. It is more likely to happen with models B180S and smaller. Do not attempt to interfere with this action. The Water-Reel has been designed to maximize it's capability to anchor itself. Also, front wheel must be straight **Do not turn crossways.**

3. Disengage the ratchet drive pawls. Lift the drive disengage lever into the up position. If the pawls do not disengage the drive ring readily, rotate the spool forward (the way it runs) to relieve tension on the drive pawls.



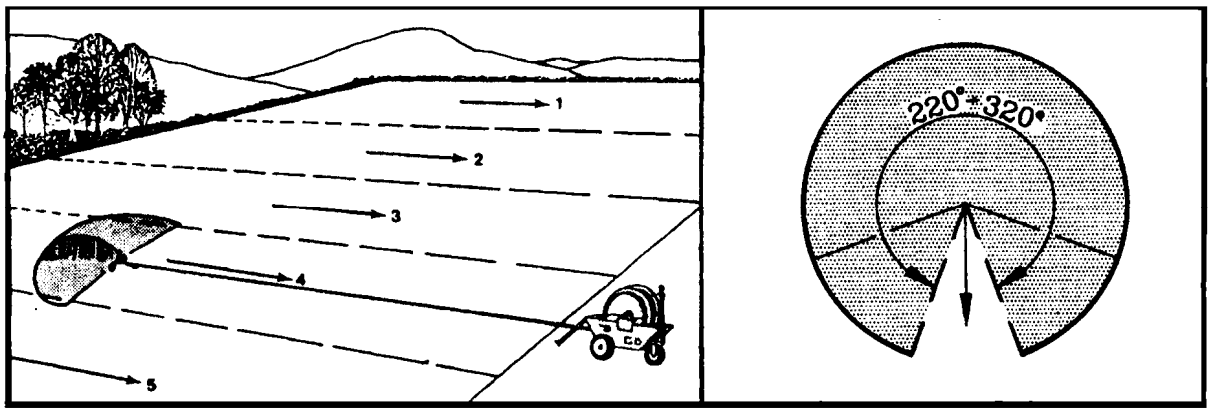
4. Check spool brake for proper tension. There should be noticeable resistance to unrolling. The purpose of the spool brake is to prevent coasting of the spool during tube pull out. **Coasting of the spool is the most frequent cause of malfunction!** This problem is most common when the Water-Reel is frequently used in short runs and the entire tube is seldom pulled all the way out. When the spool coasts, it will appear that the level wind mechanism is out of time with the incoming tube. **Make no attempt to re-time the machine until it is determined that the tube is not loose.** If the tube does become loose the only way to correct the problem is to pull the tube all the way out and allow the machine to operate a full length run. See the "adjustments" section of this manual for adjusting the spool brake.

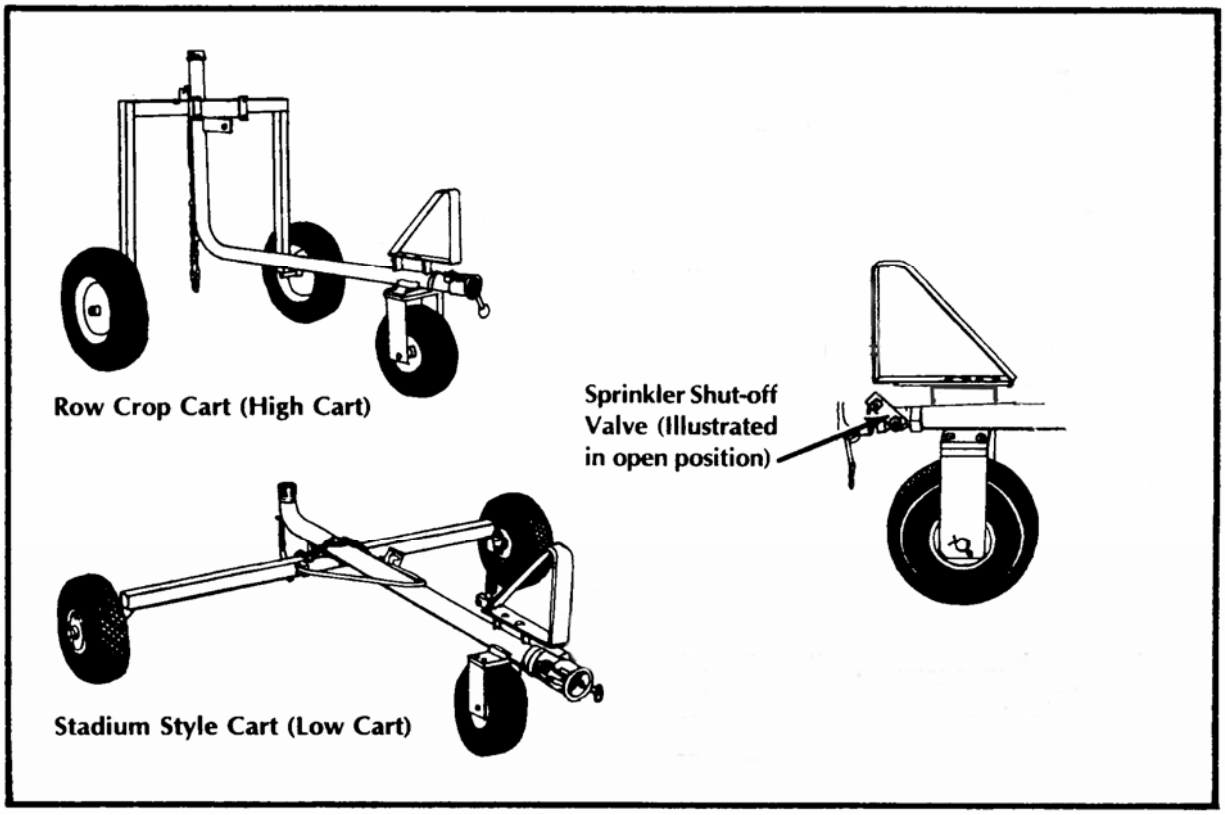
   NOTE: There is no other purpose for the spool brake except to prevent the spool from coasting during pull out. It does not perform any useful function while the tube is being retracted. The brake is the self-energized type which adds resistance in only one direction.

5. Attach the water supply line to the machine to confirm that all lines reach and the Water-Reel is set in the proper place. **Do not turn on the water.** Un-stow and lay out the drive water exhaust line so the discharge water is delivered away from the machine.

Start-Up & Operation

6. Lower the sprinkler cart from it's transport position. Determine if the sprinkler automatic shut off is to be used and Set the desired sprinkler arc. See Following Diagrams.

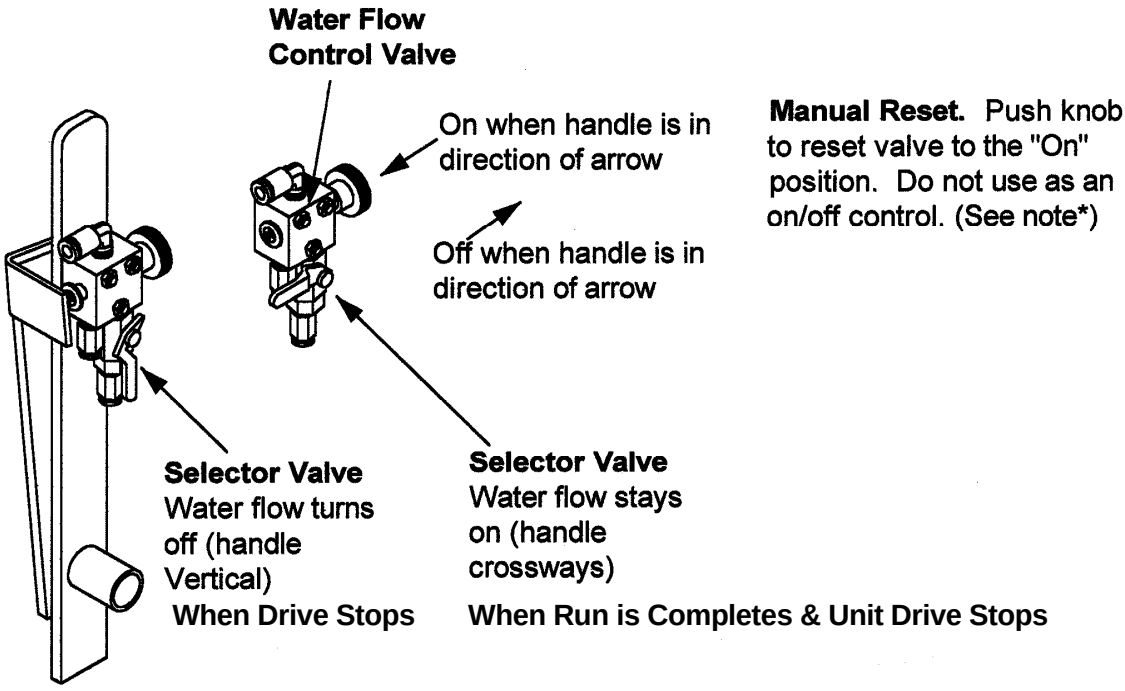




7 .Pull the sprinkler cart out the desired distance. Pull the tube out slowly and avoid sudden stops or any thing that will make the spool more likely to coast.

.

8. Determine if the automatic water shut-off is to be used and set the valve accordingly. Reset the Water Flow Control Valve.



***The Water Flow Control Valve** must not be used as an on/off valve for any purpose other than to shut-off the water at the completion of an irrigation run.

10. Be sure the on/off valve is in the “off” position. Place the drive pawls in the “engage” position. Turn on the water. Confirm the sprinkler is operating as expected and in the desired arc.

11. Turn on the water supply.

12. After all air is purged from the system and the sprinkler is operating smoothly, turn the on/off valve to the “on” position. Set the speed control valve to the desired retraction speed.

    The speed control valve is calibrated so that it can be adjusted to a known setting. A ‘Speed Setting Guide’ chart is located in the ‘Specifications’ section of this manual. Use this chart for estimating the sprinkler cart travel speed based on the number of strokes per minute of the water motor drive arm.

13. Observe water pressure, travel speed, and sprinkler performance to confirm desired performance. See performance guide supplied with the machine.

14. When the sprinkler cart completes the irrigation run and has contacted the shut-off bar, the retraction of the hose will stop.

Important

When using the automatic water shut-off feature, be sure the water can be shut-off automatically without damaging the water supply or the Water-Reel! Stopping the flow of water can damage a pump or water lines and excessive pressure can be created. A qualified person should confirm if you can safely utilize the automatic water shut-off.

Note: Some municipalities prohibit the use of water mains intended for fire and protection and there may also be requirements for back-flow prevention. Investigate and obey all local regulations regarding the use of water**.**

15. With the irrigation run completed, lift the sprinkler cart and stabilizer legs into transport position, and disconnect the water supply. The Water-Reel is now ready to be moved and set up in a new location. **Note:** On completion of first run only, adjust the transport arm so it is directly above the sprinkler cart body.

Depth Of Water Applied:

The depth of water applied by the Water-Reel is regulated by the speed the sprinkler is moving over the ground. It is also affected by the amount of water being discharged by the sprinkler head.

The amount of water discharged is determined by the sprinkler nozzle size and the water pressure. These two factors are determined by the available water and the capability of the water pump at the water supply. The selection of the sprinkler nozzle needs to be made based on the water supply and pump performance.

Travel Speed Settings:

Depth of Water Applied:

The depth of water applied by the Water-Reel® is regulated by the speed the sprinkler is moving over the ground and the amount of water being discharged by the sprinkler.

Travel Speed Settings- Using the Performance Guide:

Example: B140 with a Rain Bird 85 Sprinkler and 90 PSI at the machine inlet. Determine the speed settings and sprinkler nozzle size required to apply 0.5 inches of water. (See next Page for illustration)

Start-Up & Operation

MODEL B140 X 350 PERFORMANCE							INCHES DEPTH OF APPLICATION							
Rain Bird 85	SPRINKLER PERFORMANCE			**IRRIGATED AREA			SYSTEM INLET	Feet Per Hour						
NOZ.	PSI	GPM	DIA	WIDTH	X	LENGTH	PSI	30	40	50	60	70	80	90	100
3/8"	40	26	142	99	X	400	52	0.7	0.6	0.4	0.4	0.3	0.3	0.2	0.2
3/8"	50	29	150	105	X	403	65	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.2
3/8"	60	32	158	111	X	405	78	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.2
→ 3/8"	70	34	166	116	X	408	90	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.2
7/16"	40	34	152	106	X	403	60	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3
7/16"	50	39	162	113	X	407	76	1.0	0.7	0.6	0.5	0.4	0.4	0.3	0.3
→ 7/16"	60	43	172	120	X	410	91	1.0	0.8	0.6	0.5	0.4	0.4	0.3	0.3
7/16"	70	46	180	126	X	413	105	1.0	0.8	0.6	0.5	0.4	0.4	0.3	0.3
1/2"	40	45	164	115	X	407	74	1.1	0.8	0.7	0.6	0.5	0.4	0.4	0.3
→ 1/2"	50	50	172	120	X	410	91	1.2	0.9	0.7	0.6	0.5	0.4	0.4	0.3
1/2"	60	55	180	126	X	413	109	1.2	0.9	0.7	0.6	0.5	0.5	0.4	0.4
1/2"	70	60	188	132	X	416	128	1.3	1.0	0.8	0.6	0.5	0.5	0.4	0.4
Minumum Inlet Pressure				Hours for Full Run:				11.7	8.8	7.0	5.8	5.0	4.4	3.9	3.5
50 PSI				Ave. Strokes Per Min:				6	9	11	13	15	17	19	21

Area covered may vary depending on wind conditions, field dimensions, and use of unspecified sprinklers.
The "System Inlet Pressure" is the pressure required at the traveler inlet. It includes allowances for the traveler plumbing and drive, PE tube and sprinkler pressure. No allowance for field elevation or mainline loss is included.
Specifications are subject to change without notice.

Answer: There are three possible setting;

Nozzle Size	GPM	Irrigated Area	Feet Per Hour	Strokes	Hours for Full Run
3/8”	34	116’ x 408’	50	11	7.0
7/16”	43	120’ x 410’	60	13	5.8
1/2”	50	120’ x 410’	70	15	5.0

Note: The 90 PSI is the pressure reading while the machine is running and the sprinkler is operating. If the pressure drops while running, use the chart to determine the performance at the new inlet pressure. If the pressure drops below the lowest inlet pressure shown, consider using a smaller size nozzle.

Adjustments

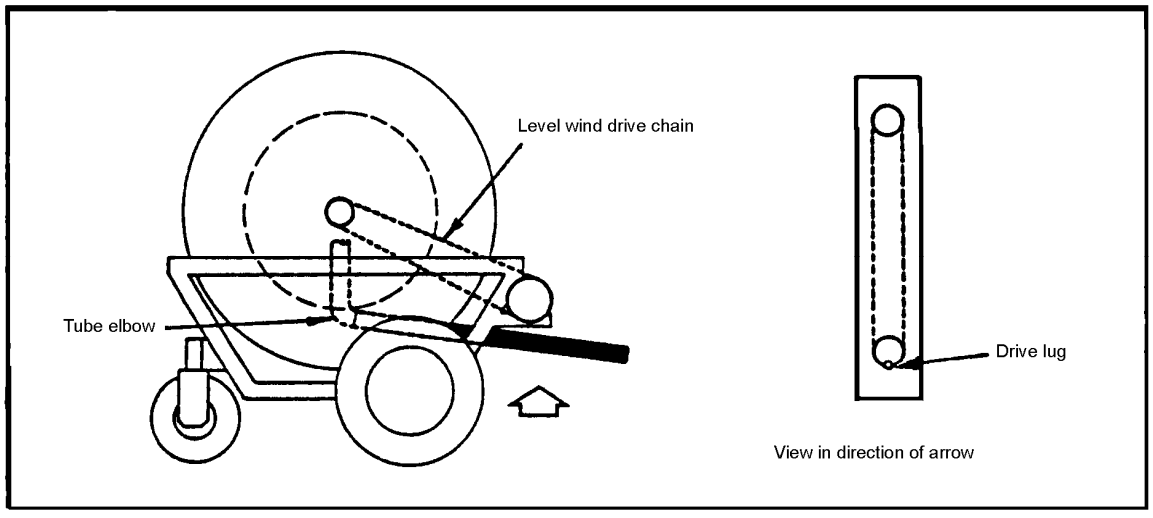
Levelwind Timing:

Proper timing of the levelwind mechanism is essential to the successful operation of the Water-Reel. Improper levelwind timing will result in mis-wrapped tube. Travel will be interrupted because the auto shutoff bar will stop the water motor in order to prevent damage to the irrigation tube. **Do not continue to operate if the tube is not winding properly!**

Important! Be positive that the timing is really at fault before attempting to change the timing. Your Water-Reel was shipped from the factory with the tubing wound on it. The levelwind timing was set at the factory prior to installing the tube. If there has been no disassembly of the levelwind mechanism, or the tubing removed & reinstalled, it is very unlikely that the timing is wrong. If the tubing is loose on the spool the levelwind system will appear to be out of time. *(See item #4 in the Water-Reel Start-up & Operation section of this manual and also brake adjustment section).*

To retime the levelwind, these steps **must** be followed:

1. Pull all the irrigation tube out from the Water-Reel. The elbow to which the tube is fastened must be on the bottom of the spool with the elbow outlet pointed toward the sprinkler cart. (See diagram). Be especially careful not to pull the tube off the elbow. You may wish to stop slightly before the elbow is exactly on the bottom and turn the spool the last few degrees by hand.
2. Observe the position of the levelwind carrier drive lug on the horizontal levelwind chain. (The chain that runs left to right just back of the auto shut-off bar). The drive lug must be in it's most extreme position (half way around the sprocket) and on the same side of the Water-Reel as the spool elbow. (See diagram).



3. To change the timing, remove the shield and levelwind drive chain from the right hand side of the Water-Reel. Rotate the level-wind input sprocket until the drive lug is positioned as described in step #2. Reinstall the levelwind drive chain and shield.

   The levelwind will now be in proper register.

Important

Never attempt to retime the Water-Reel without first pulling all the tube out. Changing the timing with some of the tube still on the spool may result in damage to the irrigation tube and/or the Water-Reel.

Ratchet Over-Bite:

The conversion of the back and forth motion of the bellows to the rotary motion of the hose spool is done by the ratchet mechanism. The basic mechanical components are a drive arm, a drive ring, and two ratchet pawls.

One of the ratchet pawls is attached to the end of the end of the drive arm and is called the “drive pawl”. The purpose of the drive pawl is to engage the drive ring and connect the force of the bellows to the hose spool.

To check for proper ratchet overbite adjustment, do the following.

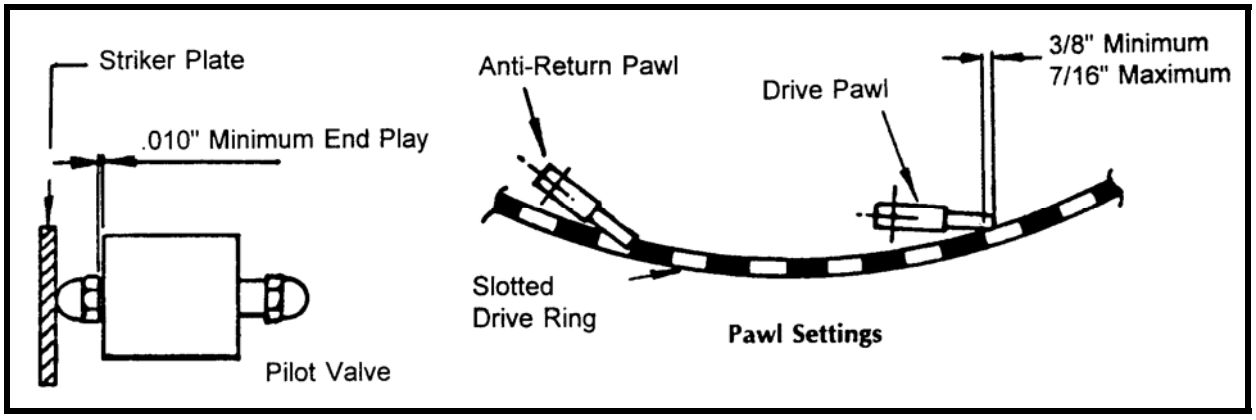
1- Turn off the water supply at it’s source.

2- Position the on/off valve on the Water-Reel to **off**.

3- Open the speed control valve to full fast.

4- Confirm that the bellows is fully collapsed and is not coming to rest against the stem of the pilot valve. (See pilot valve adjustment).

5- Observe the position of the ratchet pawls. The anti-return pawl must be located in a slot and be firmly in contact with the front edge of the slot. The drive pawl should then be positioned as in the following diagram.



! ! ! ! CAUTION ! ! ! !

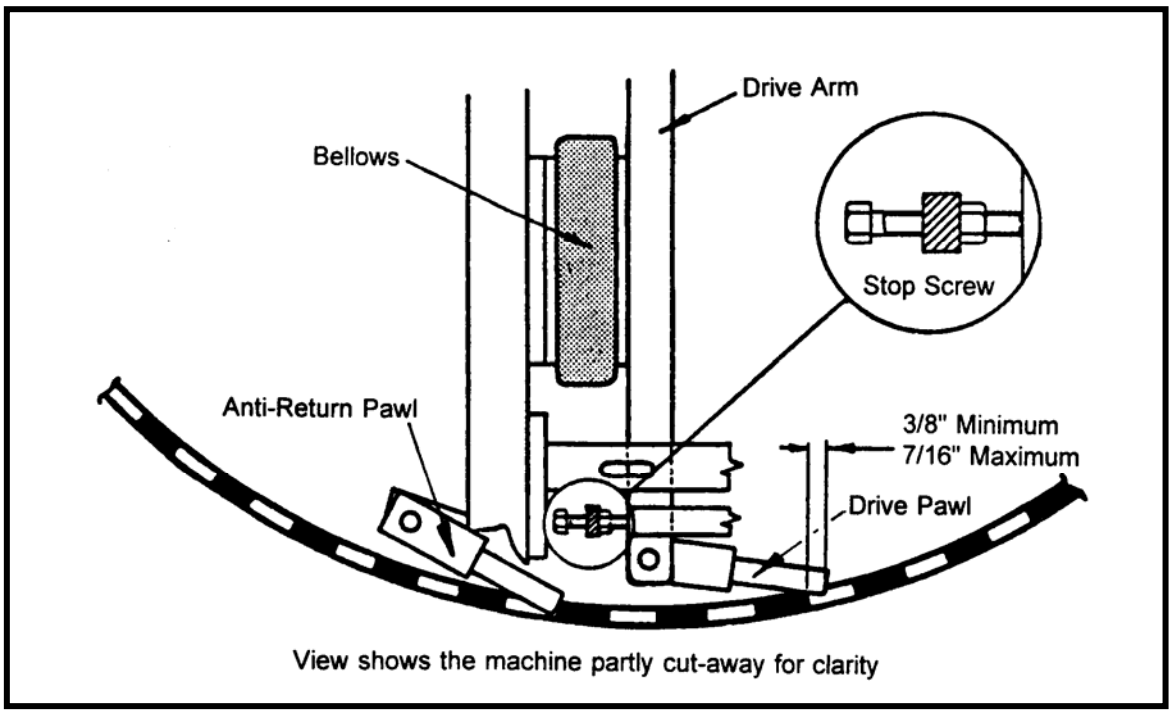
Do not attempt to adjust the ratchets if the tube is under tension!

The ratchet pawls are set at he factory and each unit is tested to confirm proper operation. normal operation will not cause the ratchet pawls to become mis-adjusted. The reason for the pawls to be out of adjustment will most likely be due to removal, replacement or adjustment of the right hand hose spool bearing.

It is strongly recommended that you contact your **Water-Reel dealer** if you believe the ratchet pawls require adjustment.

Pawl Adjustment

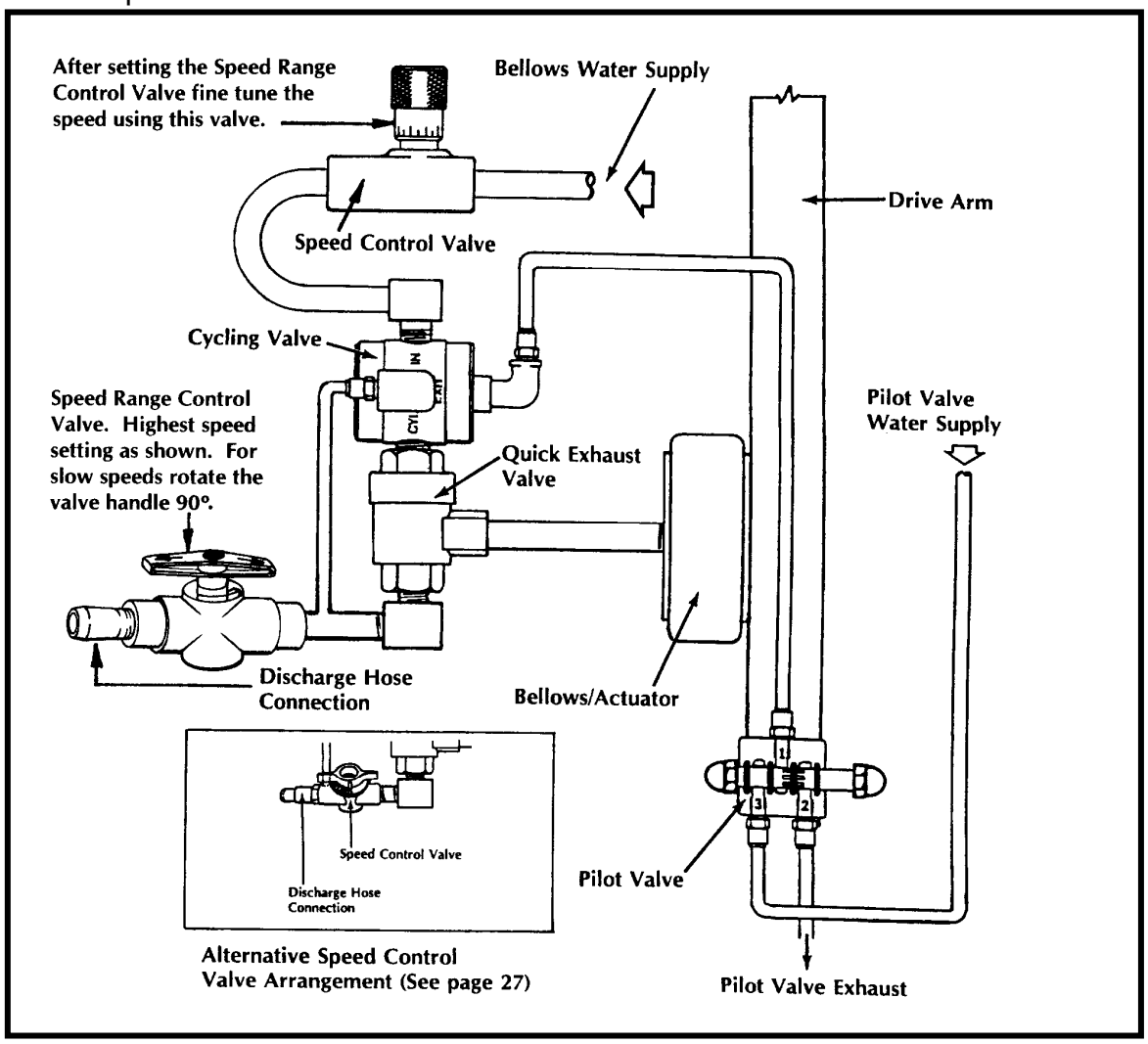
The pawls are adjusted by a stop screw located behind the drive arm. To adjust the overbite turn the stop screw in or out until the pawls are properly positioned as in the preceding diagram. The anti-return pawl is fixed in a non-adjustable mounting. See the following illustration.



Note: When the pawl adjustment is changed it will be necessary to adjust the pilot valve. See the following section.

Pilot Valve Adjustment

The purpose of the pilot valve is to control the stroke of the bellows. The striker plates contacting the pilot valve stem determines when and at what point the bellows expands or contacts. Before attempting to adjust the pilot valve, become familiar with the pluming diagram below and the function of the basic parts.



The **Cycling Valve** allows pressurized water enter the bellow so the bellows will expand and push on the drive arm. (Some earlier B108/B200 models used two cycling valves installed in parallel. These machines can be converted to the single valve.)

As the bellows expands to complete the drive stroke the **Pilot Valve** is tripped by contact with the striker plate. This action signals the **Cycling Valve** to stop the supply of water to the bellows. The **Quick Exhaust Valve** allows the water in the bellows to be expelled directly to the discharge hose.

To adjust the pilot valve, the irrigation tube must be pulled out at least enough so that the first layer of tube is off the spool.

Follow these steps:

1- Turn off the water supply at it's source.

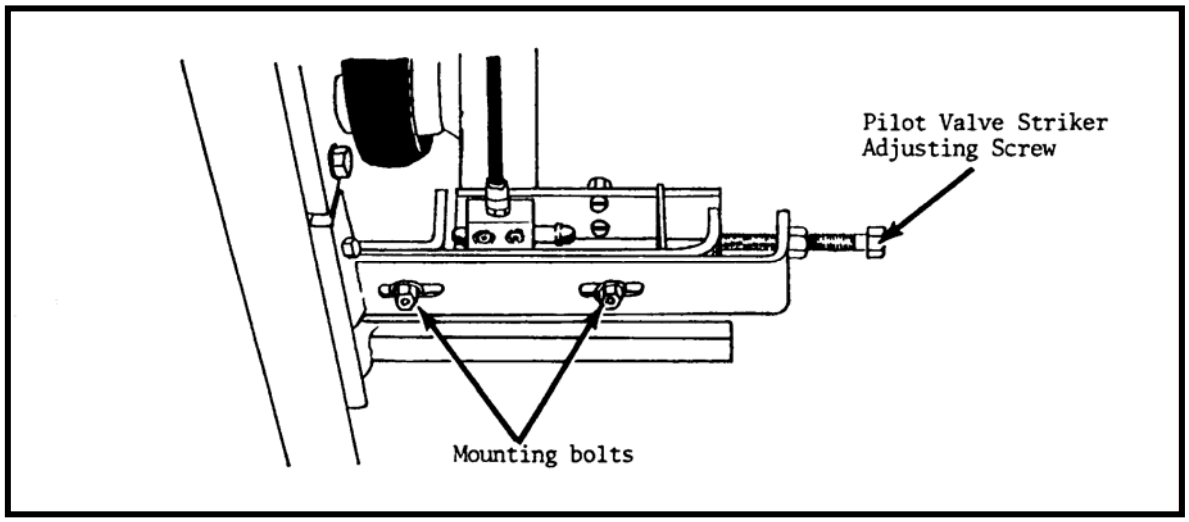
2- Turn the on/off valve to **off**.

3- Set the speed control valve to full fast.

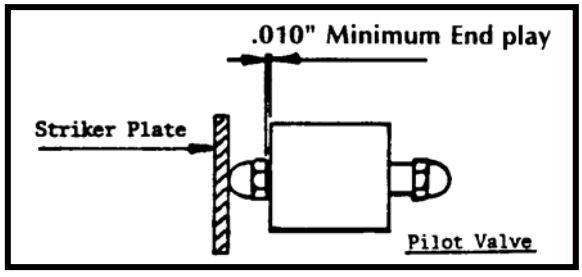
4- Confirm that the bellows is fully collapsed.

5- Be certain that the shut off bar is in the run position and not in contact with the irrigation tube or the sprinkler cart.

6- Loosen the locknut and the two striker mounting bolts. Adjust the pilot valve striker adjusting screw in or out as shown in the following illustration.



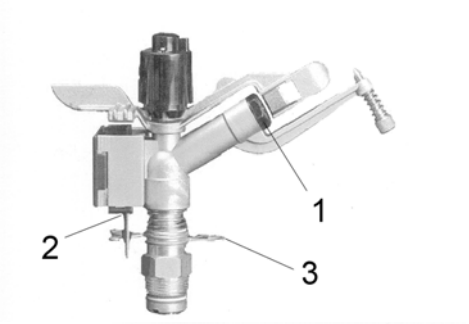
The proper adjustment of the pilot valve is as shown in the diagram:



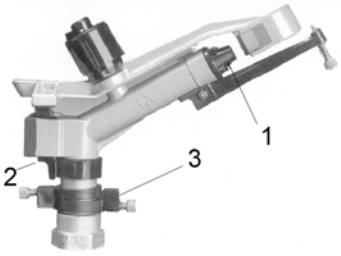
Note: The pilot valve must be adjusted any time the ratchet pawls are adjusted.

Adjustments

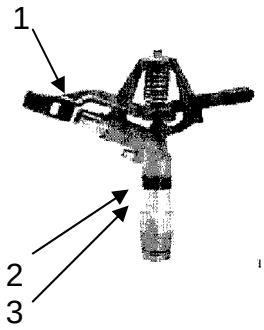
1) Nozzle 2) Part Circle Pin 3) Part Circle Stops



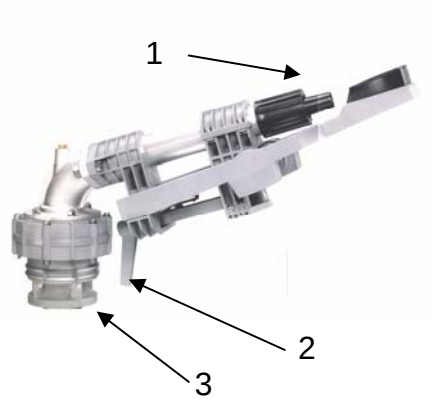
Sime Silver
The part circle stops are spring clips and they can be rotated to provide any desired arc of operation. No tools are required to change the arc. **Do not** attempt to remove the spring clips from the base of the sprinkler.



Sime K1
Part circle stops can be rotated to provide any desired arc of operation. To adjust the stop slacken the knurled nut, move the stop and re-tighten the nut. For full circle operation slacken the nut and slide both collars below the part circle pin.



Rain Bird 85
The part circle stops are spring clips and they can be rotated to provide any desired arc of operation. No tools are required to change the arc. **Do not** attempt to remove the spring clips from the base of the sprinkler.

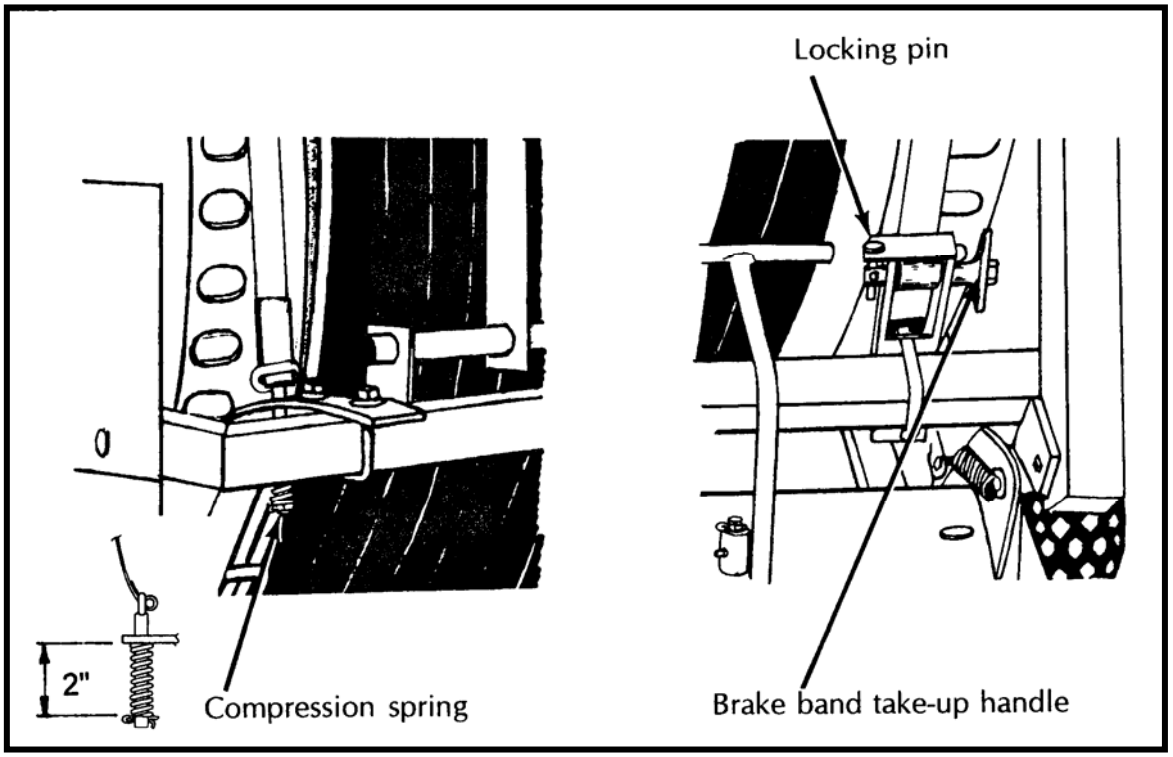


Komet Twin Max
Part circle stops can be rotated to provide any desired arc of operation. No tools are required to change the arc. **Do not** attempt to remove the spring clips from the base of the sprinkler.

Spool Brake Adjustment

The purpose of the brake on the irrigation hose is to prevent coasting of the spool when the tube is being pulled out. This function is important in order to keep the tube from becoming loose on the spool.

The brake band must be in good working order and maintained at the proper tension. The brake should offer substantial resistance to turning the spool by hand



To adjust the spool brake, turn the band take-up on the right-hand rear corner of the frame, clockwise, until the compression spring on the right-hand front corner of the frame is approx. 2 inches in length. (See Illustration)

Note: When the tube becomes loose on the spool, it may appear that the levelwind is not in time with the incoming tube. This occurs because the spool is coasting inside the coils of tube. The level-wind mechanism is moving but no tube is coming out.

This problem is more noticeable if the Water-Reel is being used on short runs where the entire tube is seldom pulled all the way out.

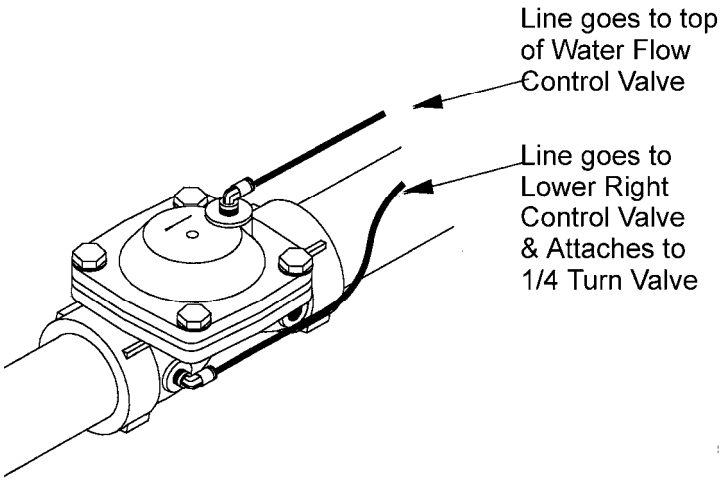
Adjustments

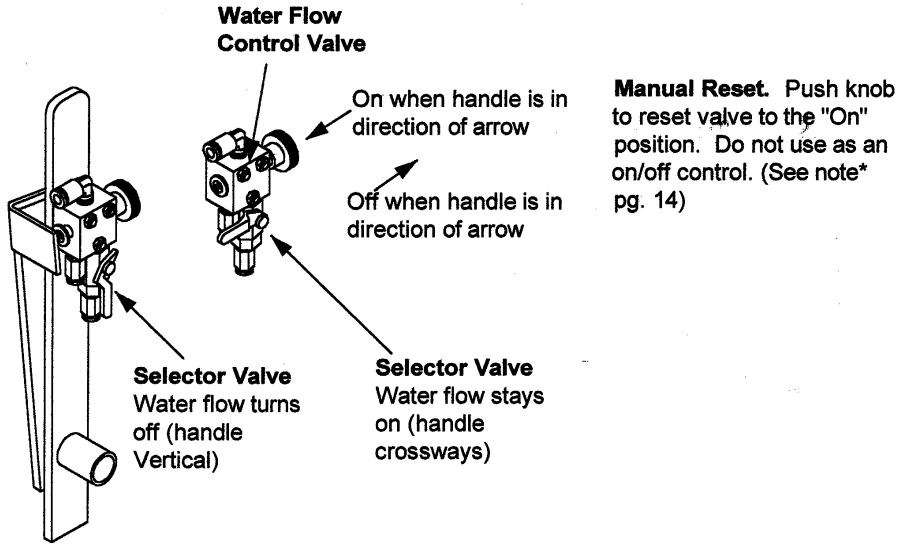
Automatic Water Shut Off

The water shut-off valve is a membrane valve located in inlet plumbing of the water reel. The only adjustment required is to assure positive and total shut-off of the valve-see shut off valve adjustment.

To use the water shut-off, turn the valve handle to the on (vertical) position. (See diagram below)

To disable the water shut off (sprinkler will continue to run after travel ceases). Turn the valve handle to the off (horizontal) position.





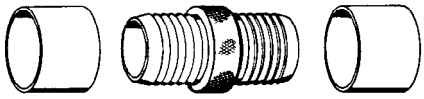
"Note" The Water Flow Control Valve is similar to the pilot valve on the Bellows Arm (Be careful not to confuse these when routing tubing).

Repair and Maintenance

Warning! Installing fittings or repairing polyethylene tube used on your Water-Reel is hazardous! The tube has a memory from being coiled on a reel and will try to coil back up if the tube is loosened from one end or cut in two. The condition posses a serious hazard to person and/or property. The tube must be restrained any time the tube has a loose end!

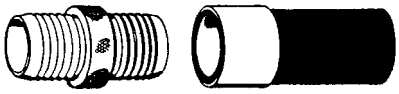
Polyethylene Tube Repair

Screw-in menders are an excellent alternative to Butt Fusion Welding for the repair of Polyethylene tube. The compact design allows a mender to be wound onto the spool without damaging itself or the adjacent coils of tube. They can be installed in the field and the tube can be put into service immediately after the repair is made. The menders are designed to be fitted at ambient temperature. **Never** try to apply heat to assist installation. Menders must be installed straight and concentric with the tube to prevent premature failure.

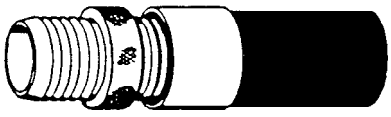


Installation Instructions

Cut the tube on either side of the damaged area. Make good straight cuts. Use a block of wood or soft hammer to tap the collar fully on to the end of the tube.



Chamfer the tube internally with a knife or coarse file so that the end of the screw-in mender will enter the tube.

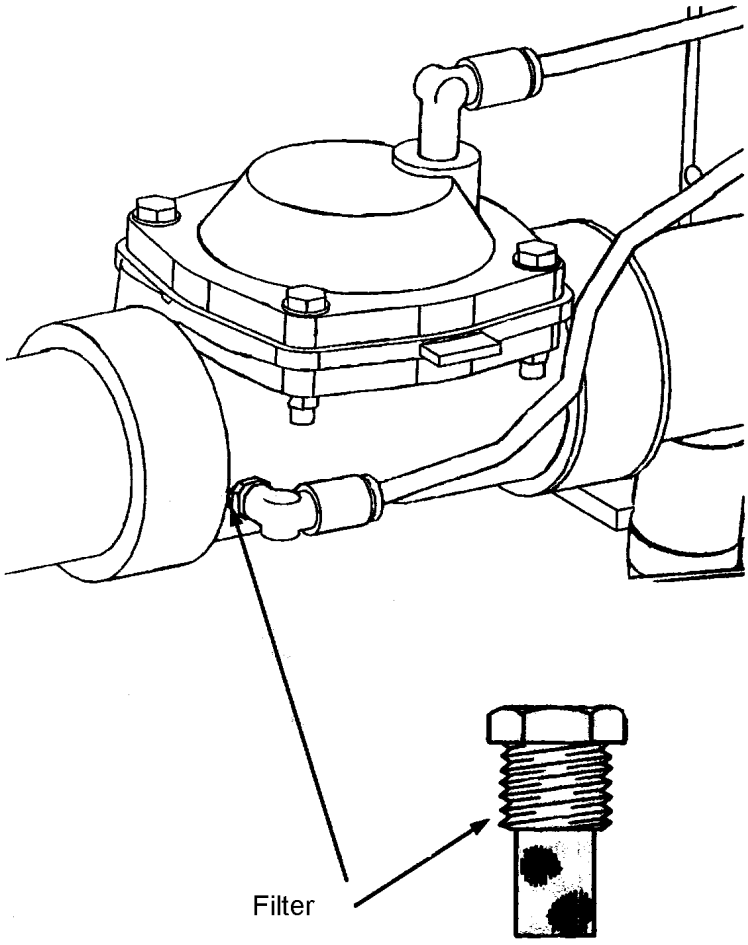


Important: Please note the mender threads are different on each end. One is left hand and one is right hand. Screw the mender about 2/3rds into the end of the tube using a wrench on the center knurled should
er. Then unscrew it.
Repeat the procedure for the other end. Watch for the left hand thread.

Now start the mender in both ends simultaneously.
As it screws in, it will draw both ends of the tube to the center. This time, screw it all the way to the shoulder. The tube should now be ready to go immediately back into service.

Filter

Your Water-Reel is equipped with a valve filter to protect the water flow control valve (from dirt and debris) which may be present in the irrigation water. The filter protects **only** the flow control valve. The water flowing out of the sprinkler is not filtered.

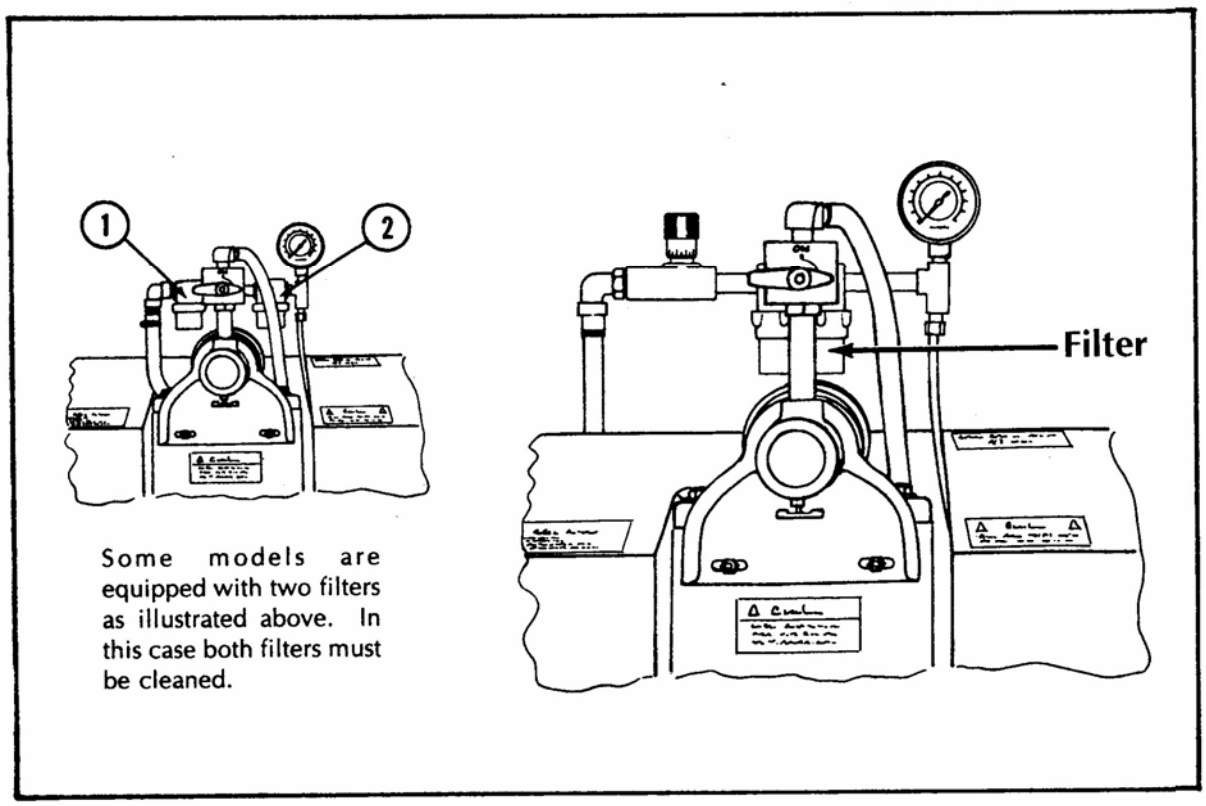


The filter should be cleaned at least once each season, even when operating with clean water. When pumping from ponds or streams, the filter must be cleaned more frequently. In very dirty water conditions it may be necessary to clean the filter each time the Water-Reel is used. **Never** attempt to clean the filter while the machine is pressurized. Always turn off the water supply before starting any form of maintenance.

When cleaning the filter, inspect the screen for damage or rupture.

Filter

Your Water-Reel is equipped with a filter to protect the water motor from dirt and debris which may be present in the irrigation water. The filter protects only the water motor. The water flowing out of the sprinkler is not filtered



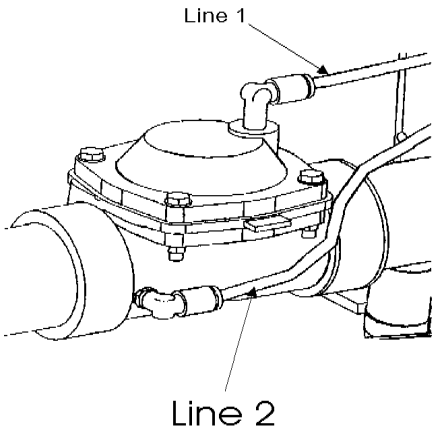
The filter should be cleaned at least once each season, ever when operation with clean water. When pumping from ponds or streams, the filter must be cleaned more frequently. In very dirty water conditions it may be necessary to clean the filter each time the Water-Real is used. **Never** attempt to clean the filter while the machine is pressurized. Always turn off water supply before starting any form of maintenance.

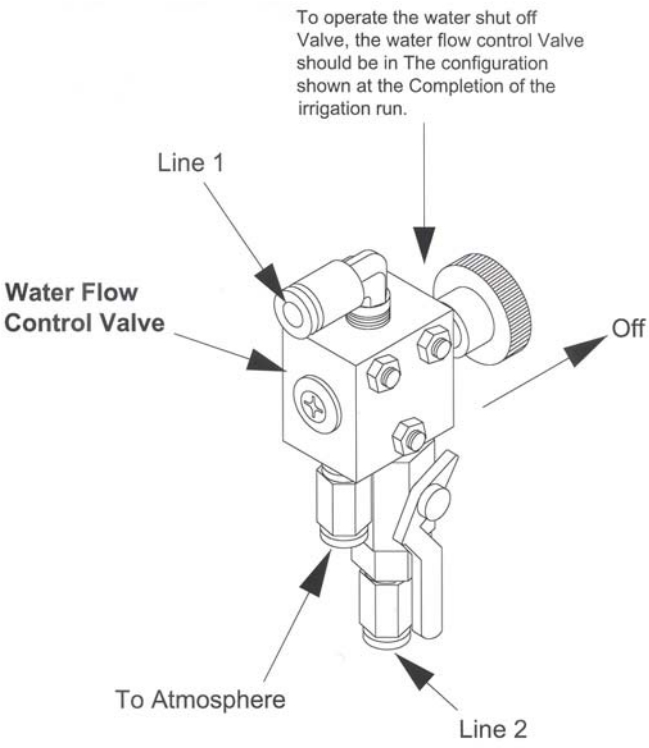
When cleaning the filter, inspect the screen for damage or rupture.

Valve Plumbing

The Water Flow Control Valve signals the water shut off valve by supplying pressurized water to the diaphragm of the water shut off valve at the completion of the irrigation run.

Note: To remove the small lines from their fittings, depress the ring at the top of the fitting and pull tube out. To reinstall the tubing insert into fitting and push firmly until it seats.





To disconnect, push in release with thumb and index finger pull the tube free.

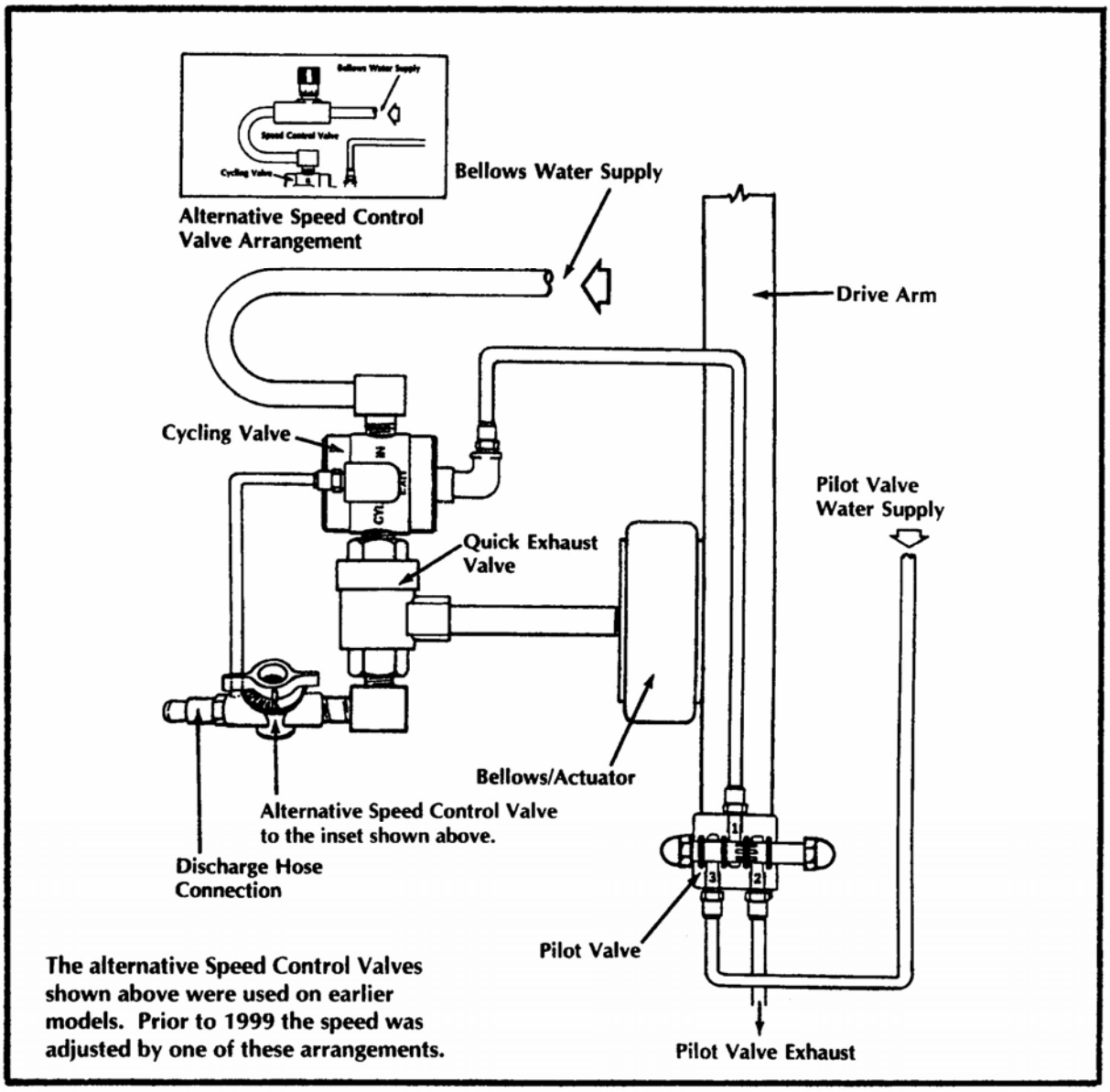
To connect, push tubing in until it bottoms.

Note: In applications where the water has a high mineral content, buildup of minerals in the water flow control valve can cause the valve to be difficult to shift.

To free the valve apply liquid detergent to the exposed ends of the valve stem, or in the top fitting (after removing tube) and work the stem back and forth by hand.

Repair and Maintenance

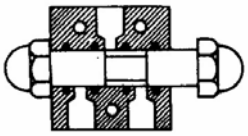
Become familiar with the following plumbing diagram before attempting to replace any of the water motor valves.



Do not try to repair any worn or malfunctioning valves. The valves should be replaced. Remove and replace so the new valve fits exactly as the original. Be especially careful that the water lines are replaced exactly as the were originally connected.

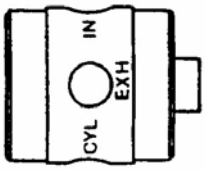
Repair and Maintenance

The following information describes the function of the valves in the water motor.



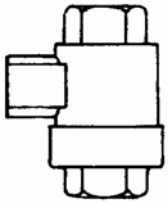
Pilot Valve

The pilot valve controls the cycling valve by pressurizing the pilot chamber in the cycling valve at the completion of each stroke of the bellows. A very small amount of water will be exhausted from the exhaust line of the pilot valve at the end of the bellows return stroke. (Note the Water Flow Control Valve shown on page 30 is similar to this valve, but has a different valve stem)



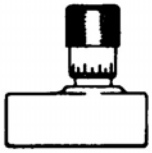
Cycling Valve

The cycling valve directs the water into the bellows when the bellows expands. This is a diaphragm type valve and is used in a “normally open” configuration. Look closely at the diagram to the left and be sure any replacement valve has all it’s inlets and outlets exactly as in the diagram.

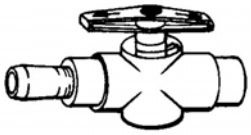


Quick Exhaust Valve

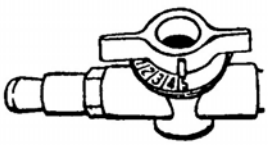
The quick exhaust valve allows the water to escape from the bellows rapidly which allows the Water-Reel to travel at higher speed.



Speed Control Valve



Speed Range Control Valve



Speed Control Valves

The speed control valves regulates the rate at which the water can pass through the water motor. The speed is regulated by adjusting two valves. The Speed Range Control Valve has two positions “High” or “Low”. Select a speed range then adjust the speed with the Speed Control Valve.

Earlier machines were fitted with a single Speed Control Valve. Depending on the model the speed control valve will be one of the types shown.

Note: To remove the small lines from their fittings, depress the ring at the top of the fitting and pull tube out. To reinstall the tubing insert into fitting and push firmly until it seats.

To disconnect, push in release collar with thumb and index finger, pull the tube free.

To connect, push tubing in until it Bottoms on the tube stop.

Winterizing and Storage

For winter and/or off 'season' storage do the following:

Winterizing

1. Disconnect sprinkler cart from the end of the irrigation tube. **Open the sprinkler cart shut-off valve.** Place the sprinkler cart in a position so that all water in the cart runs out. **Do not close the sprinkler cart shut-off valve. Do not reconnect the cart to the water-reel.** Store the cart with the water inlet end down so any remaining water runs out.

2. Be certain the water inlet to the Water-Reel is open and the water supply hose removed. Pull 3 or 4 coils of tube off the hose spool. Rewind the coils of tube by hand. **Polyethylene tube of the type used on your Water-Reel Will not be damaged by freezing.** Even though the tube does not need to be drained you must take care to drain all metal parts.

3. Open the speed control valve to the full open position. (This applies regardless of the type or location of the valve.) The discharge hose must be removed to allow water to drain through the discharge hose fitting.

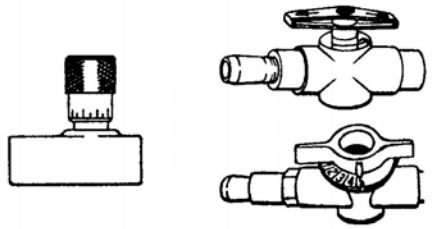
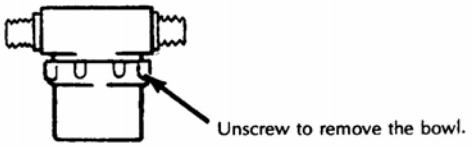
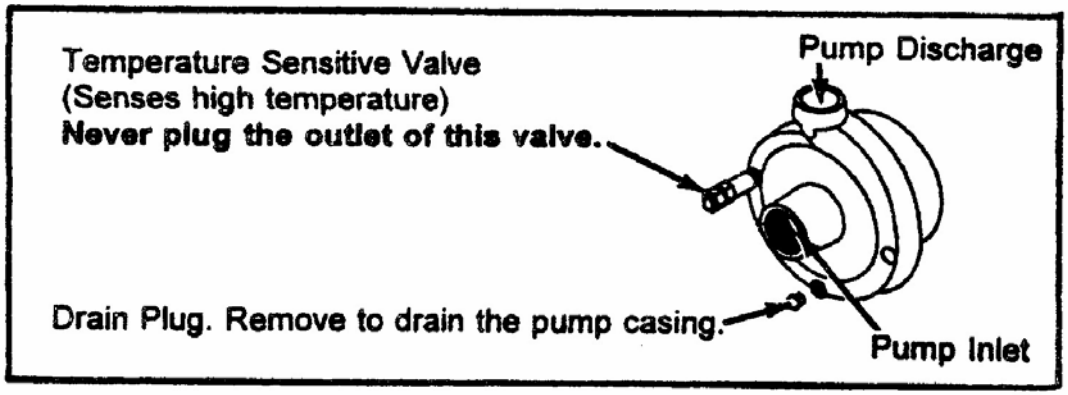


Illustration of various Speed Control Valves.

4. Remove the screen on the filter, (both filters if two are fitted), and empty the water from the filter bowl. (see illustration).



5. If the machine is fitted with a **Booster Pump** the pump must be drained.



Storage

1. Lubricate all points in the lubrication chart to prevent rust and corrosion from forming.

2. Check and Clean filter.

3. Store the Water-Reel away from the direct rays of the sun.

4. Make sure all openings such as the water inlet are plugged so rodents and insects can not bring foreign material into the Water-Reel.

5. When taking the Water-Reel out of storage, be sure there are no rodent or insect nests that may plug filters, valves or sprinkler.

6. If a Booster Pump is installed it is recommended to service the engine in preparation for the next season.

Assembly

Water-Reels are shipped with all primary assembly complete. The only items to assemble at the destination are:

1. The sprinkler cart.

2. Sprinkler installation on the cart.

3. The installation of the proper sprinkler nozzle.

4. The installation of the sprinkler cart transport arm.

Final adjustment of the transport arm should be made upon completion of the first irrigation run.

The transport arm should be located directly above the sprinkler cart body when the sprinkler cart is completely drawn up to the shut-off bar. This exact location is not possible before the Water-Reel has been operated because The irrigation hose may be loose on new units, particularly if they have been shipped a long distance. (See "Handling the Polyethylene Tube" section).

Tire Pressures

Floatation tires 15-20 psi
Tires 14” or less 20-30
Tires above 14” 40-50
Check tire wall for actual pressure rating.

Specifications

Dimensions, Weights, Etc.

*Cart suspended from the transport attachment.

Model	T130	T140
PE Tube ID	1.3	1.43
PE Tube Length	390	350
Dry Weight (lbs)	500	650
Weight w/water (lbs)	750	1000
Dimensions (ft-in)		
Machine Length	5-4	5-4
Length w/cart*	7-4	7-4
Width	4-0	4-0
Height	4-0	4-8

Machine/Sprinkler Performance

Consult the decal located on the Water-Reel.
Information is also available from your dealer or Kifco Inc.

Booster Pump Operating Instructions

The Booster Pumps fitted to Kifco Water-Reels are for the sole purpose of adding pressure to an incoming water supply. These pumps should **never** be allowed to run dry. The pump seals will be damaged if the pump body is not full of water when the pump is running.

The Booster Pump engine is supplied with fuel from an auxiliary fuel tank mounted beside the engine. **Never refuel while the engine is running** .

Starting The Engine/Pump

Before attempting to start the engine check fuel and oil levels. The oil level is very important. Also check that the water flow control valve at the rear of the machine is in the on position. **Water must be running through the pump.**

Start-up Procedure

1. Turn the ignition switch to `On'
2. The fuel line valve below the tank and valve on the engine must be `On'
3. If the existing water supply produces water pressure that is too low the **Pressure Switch Gauge** will prevent the engine from starting. To by-pass the Pressure Switch depress the button mounted beside the gauge and hold down until the engine has started and the pressure gauge needle has moved off the low pressure setting.
4. With the booster pump running a pressure increase should be observed on the machine pressure gauge. Use the engine throttle to control the water pressure. If there is no apparent increase in the water pressure , stop the engine and check the water supply.

Note: A pump inlet pressure gauge is installed to read the incoming line pressure. If this gauge shows little or no line pressure it is an indication that there is something wrong with the water supply. e.g. The supply line is too small or there is a restriction in the line.

Important - Please be sure to read and understand the following note.

Engine Choke

The choke lever on the booster pump engine may have a mid-position that can be used for engine warm-up. **It is imperative that the choke lever is in the full open position when the engine is in normal operation.**

The booster pump operation is such that the engine must accept full load as soon as it starts, therefore the engine may require a partial choke setting for a few seconds after starting. If the choke is left partially on, it will damage the engine. The oil will become contaminated with gasoline and/or a heavy carbon buildup will form inside the engine which will make the engine seize.

Booster Pump Operating Instructions

Automatic Shutdown

At the completion of an irrigation run the engine will shutdown automatically if the selector valve has been set to shut off the water supply. (See Page 15)Otherwise the engine will run until it is manually stopped.

Important Safety Message

If the automatic shutdown feature is in use or if the nozzle becomes plugged and the pressure switch fails to stop the engine, the water inside the pump will become scalding hot. The booster pump is equipped with a high temperature valve which discharges a small quantity of water to prevent the water in the pump from becoming too hot. The valve is located on the pump volute as indicated in the drawing below. It can also be installed in place of the drain plug. Do not operate this pump if this valve is not in place or is damaged. **Do not attempt to plug the discharge port of the high temperature valve!**

Maintenance (Note. New engines are shipped **without** oil)

Regularly check the engine oil level. Make periodic oil and air cleaner changes. Read the engine manufacturer's manual for instructions and maintenance procedures.

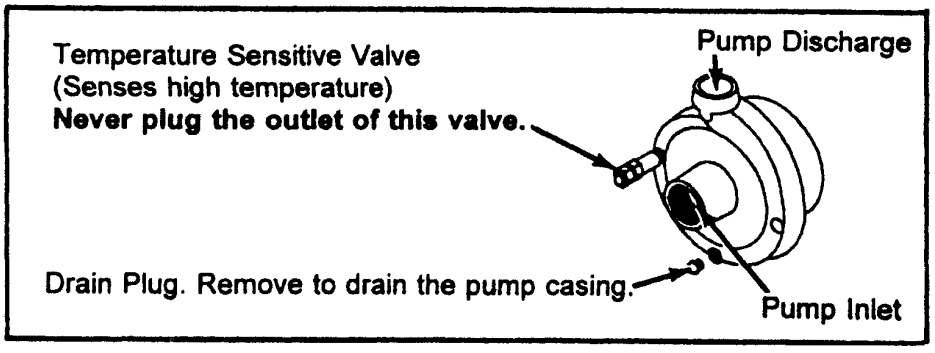
Oil Alert - Please note the following:

The Honda, Robin or Briggs & Stratton Vanguard engines used on the booster pumps are equipped with a low oil level switch. If the engine becomes low on oil, it will stop. To avoid unwanted shutdown of the pump, it is important that the engine oil level be kept full.

Note: The dipsticks on the Honda engines are designed to indicate the proper oil level when the checking plug is unscrewed. Remove the dipstick, wipe it clean and check the oil level without screwing it back into the engine. Be sure to follow the engine manufacturers recommendations when checking the oil level. Just removing the plug and checking the level may give a false reading that is higher than actual oil level.

Winterizing

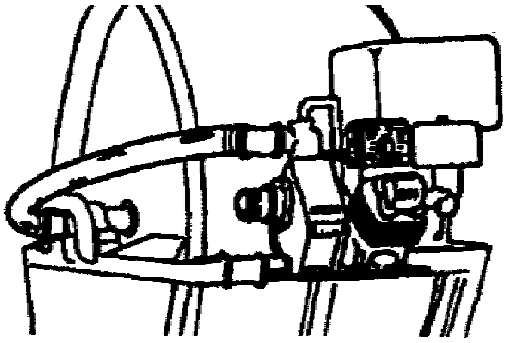
The pump must be drained of water. To drain the pump, remove the plug from the bottom of the pump body. Service the engine in preparation for the next season.

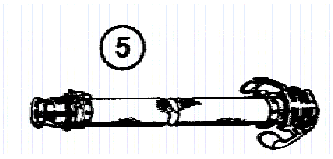


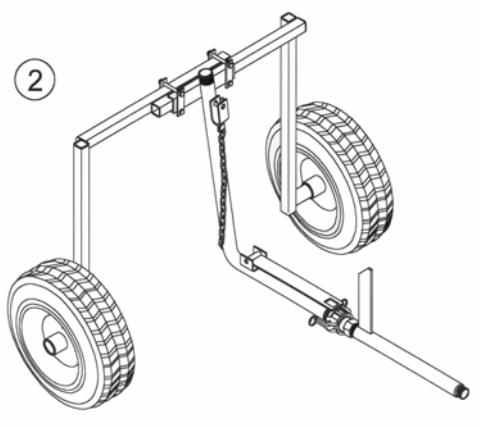
Optional Equipment

1. **Booster Pump Kit - 5HP or 9HP kits**
2. **Row Crop Sprinkler Cart – Available for T130B or T140B**
4. **Substitute Sprinklers – Refer to your dealer or Kifco.**
5. **2 Inch Feeder Hose and Fittings – See "Accessories Price List"**

1







Kifco® Water Reel®
WARRANTY

KIFCO products are warranted to the original user for a period of one year from the date of his purchase invoice, that the equipment will be free from defects in material and workmanship subject to the following conditions:

Satisfaction of this warranty will be limited to the replacement or repair or modification of the equipment involved at the manufacturer's option. The manufacturer's obligation under this warranty shall be limited to a credit to the dealer or customer in the amount of the current list price of the parts or materials required for replacement, repair, or modification of the equipment.

Freight costs shall be paid by the dealer/customer.

This warranty extends only to the original user of KIFCO equipment purchased from an authorized KIFCO dealership.

This warranty does not apply to certain component parts used on KIFCO equipment. Such component parts are warranted by the original manufacturer and KIFCO'S responsibility is limited to communicating the need for warranty service to each manufacturer. Such component parts include, but are not limited to tires and tubes, batteries, gearboxes, transmissions, pumps and sprinklers.

This warranty shall be available only if:

A) KIFCO has received a properly executed delivery record and

B) KIFCO is notified in writing within 30 days upon discovery of an alleged defect and

C) KIFCO'S examination of the equipment discloses, to its satisfaction, that such alleged defect has not been caused by misuse; neglect; improper installation; improper operations; improper maintenance; repair or alteration; accident; or unusual or extraordinary use demands.

THE FOREGOING WARRANTY SUPERSEDES AND IS IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESSED, IMPLIED OR STATUTORY, AND ALL OTHER LIABILITIES OR OBLIGATIONS ON THE PART OF KIFCO INC.

A) KIFCO MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO THE EQUIPMENT.

B) KIFCO MAKES NO WARRANTY THAT THE EQUIPMENT IS FIT FOR ANY PARTICULAR PURPOSE.

LIMITATION OF LIABILITY

KIFCO SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO, DAMAGES FOR INJURY TO THE PERSON OR PROPERTY OR LOST PROFITS) OR ANY INCIDENTAL OR SPECIAL DAMAGES AND/OR EXPENSES, OR CLAIMS FOR INDEMNIFICATION, BY REASON OF ANY DEFECT IN THE EQUIPMENT OR ITS MANUFACTURE, DESIGN OR FUNCTIONING, OR ANY INSTRUCTIONS CONCERNING THE EQUIPMENT.

No agent or representative of KIFCO or any of its dealerships has authority to waive, alter or add to the printed provisions of this warranty and limitations of liability.

KIFCO INC.
707 SOUTH SCHRADER AVE.
HAVANA, ILLINOIS 62644 **5/97**