



# *Water-Reel® Irrigation*

## **OPERATOR'S MANUAL**

### **Models B110G & E110G**

Copyright © October 2010, Kifco Inc.

Kifco Inc.  
700 S Schrader Ave., P.O. Box 290, Havana, IL 62644  
Phone 309-543-4425 Fax 309-543-4945  
[www.kifco.com](http://www.kifco.com)

# **Table of Contents**

<b>Introduction.....</b>	<b>3</b>
Safety.....	4-6
Location of Safety Messages.....	7
B110G Bellows Components.....	8
E110G Electric Motor Drive Components.....	9
Gun Cart Components .....	10
Transport Options.....	10
Handling the Polyethylene Tube.....	11
<b>Water-Reel Start-up &amp; Operation.....</b>	<b>12-15</b>
B110G Bellows Drive Operation.....	16
E110G Electric Motor Drive Operation.....	17-18
Water Application Rate & Travel Speed Settings.....	19
B110G Application Charts.....	20
E110G Application Charts.....	21
<b>Maintenance and Repair</b>	
Tire Pressure.....	22
Lubrication.....	22
Polyethylene Tube Repair.....	23
Filter (on B110G only).....	24
Pawl Rod.....	25
Electrical Information & Diagram for E110G.....	25
<b>Winterizing and Storage</b>	
Machine Winterization.....	26
Machine Storage.....	27
<b>Machine Specifications</b>	
Machine Specifications.....	27
<b>Adjustments</b>	
Level-Wind Timing.....	28-29
Spool Brake.....	29
Drive Pinion Clearance E110G only.....	30
Level Wind Chain.....	30
<b>Warranty</b>	
Warranty.....	31
<b>Dealer Checklist.....</b>	<b>32</b>

**Parts Book Available at [www.kifco.com](http://www.kifco.com)**

# **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.

**The serial number** of your Water-Reel should be written in the space provided in the Dealer Checklist section (page 32) 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.

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

**The machine sides** are designated Water Inlet side and Level-Wind Chain side.

## **The warranty excludes:**

! Alterations or modifications not approved by Kifco Inc. Neither Kifco dealers nor representatives are authorized to make exceptions to warranty policy. Any deviations from standard warranty require written authorization from Kifco Inc. Irrigation tube that 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.

# **Safety**

## **Owner's 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. Abide by all safety and warning decals
5. Exercise good judgment relating to safe operation when others are present
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.

# **Safety**

## **Learn To Be A Safe Operator**

### **Read This Manual**

Know the controls on the Water-Reel and also how to shut off the primary water supply!

Do not allow children to operate the Water-Reel.

Do not allow anyone to operate the Water-Reel without proper instruction.

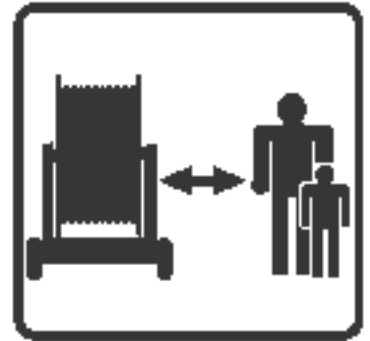


### **Protect Children**

Keep children clear of Water-Reel in operation.

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 protection, always use caution when working with, or around pressurized equipment. Pumps should be shut off or disengaged prior to working on any components. Including the pump, supply lines, machine or related equipment.

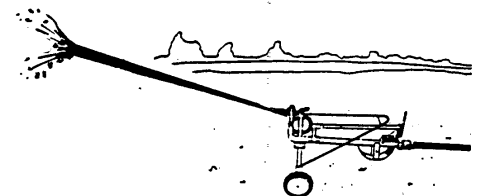
Be sure pressure is relieved from any supply line before it is disconnected.

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



# Safety

## **Use Caution When Towing**

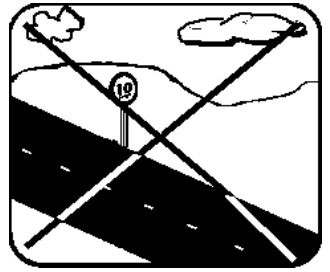
Your Water-Reel is not intended for highway towing.

### **Towing Speed:**

10 MPH maximum on smooth surfaces.

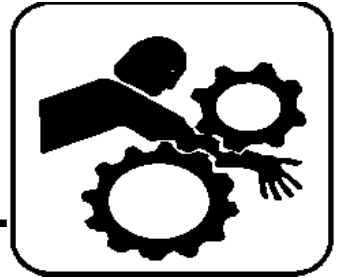
3 MPH maximum on rough surfaces.

**Never Tow the Water-Reel in excess of 10 MPH.**



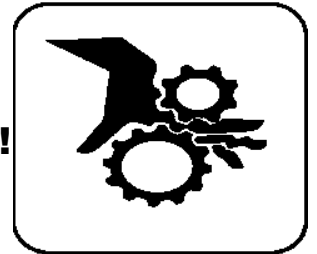
## **Keep Hands and Clothing Clear of Machine**

**Never 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 or adjustments.



## **Stay Clear of All Power Lines**

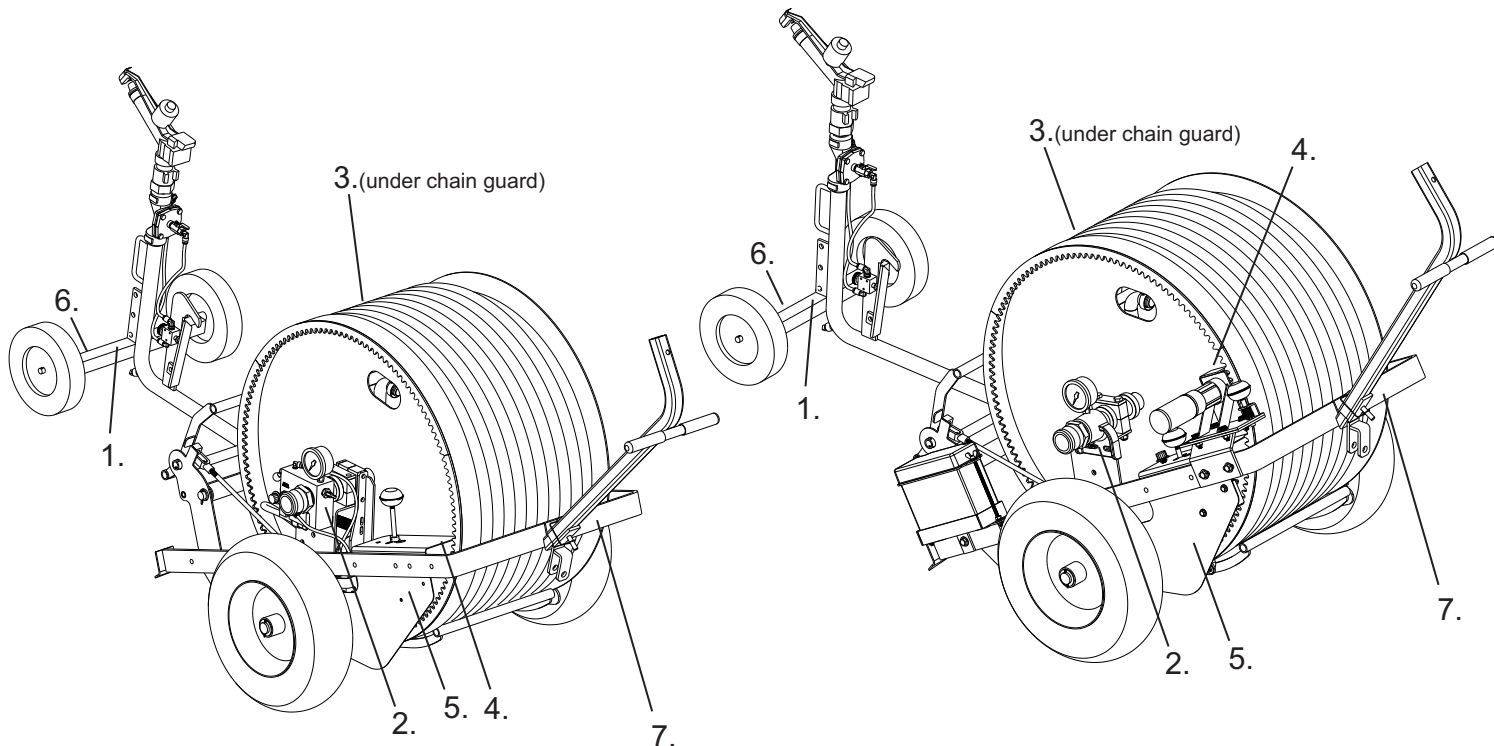
Avoid letting irrigation water contact power lines.

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



# Location of Safety Messages:

These safety messages are placed on your machine for the operator's safety. You **MUST** read and follow these precautions to prevent injury.



1. **CAUTION**  
BEFORE PULLING GUN CART OUT, TURN OFF  
WATER SUPPLY AND DISENGAGE PAWL ROD

2. **CAUTION**  
SLOWLY BLEED OFF PRESSURE BEFORE  
REMOVING SUPPLY HOSE

3. **WARNING**  
REPLACE SHIELD:  
IF YOU CAN READ THIS  
A SHIELD HAS BEEN  
REMOVED

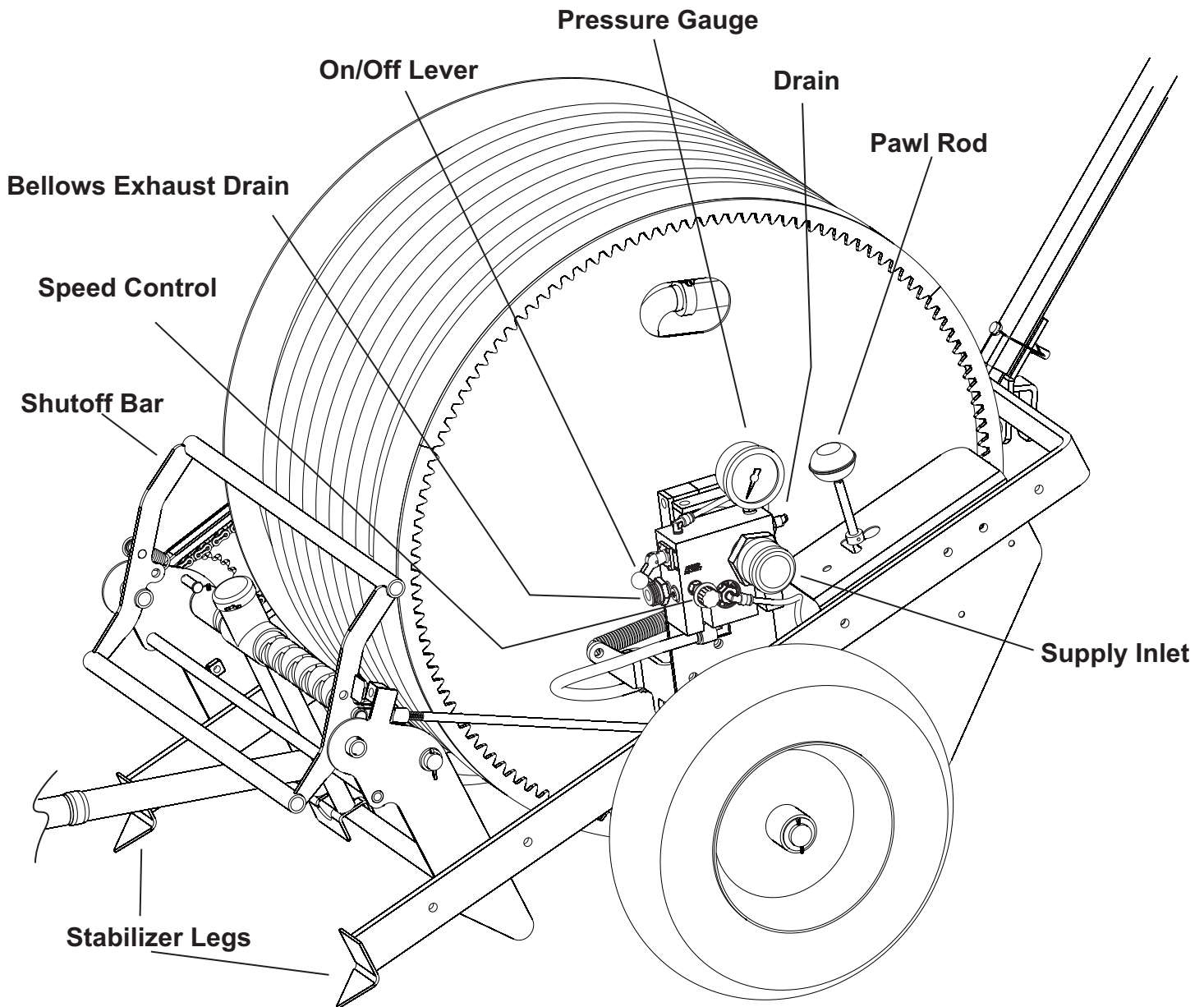
4. **WARNING**  
PINCH POINT  
KEEP HANDS CLEAR

5. **WARNING**  
DO NOT OPERATE THIS MACHINE UNTIL YOU HAVE READ AND UNDERSTAND THE OPERATOR'S MANUAL. IF YOU  
DO NOT HAVE A COPY OF THE OPERATOR'S MANUAL, CONTACT YOUR DEALER OR VISIT: [WWW.KIFCO.COM](http://WWW.KIFCO.COM)  
DO NOT OPERATE THIS MACHINE UNLESS ALL SAFETY SHIELDS ARE SECURELY IN PLACE.  
DO NOT CLEAN, LUBRICATE, ADJUST OR REPAIR MACHINE WHILE IN OPERATION.  
DO NOT RIDE OR CLIMB ON THIS MACHINE AT ANY TIME.  
DO NOT PLACE HANDS BEHIND SHIELDS WHILE THE MACHINE IS IN OPERATION.  
DO NOT ALLOW CHILDREN OR OTHERS NEAR THE SPRINKLER, GUN CART OR MACHINE DURING OPERATION.

6. **3 MPH**  
**WARNING**  
PULL OUT GUNCART  
NO FASTER THAN  
WALKING SPEED (3 MPH)

7. **10 MPH**  
**WARNING**  
NOT DESIGNED FOR  
HIGHWAY USE  
MAXIMUM SPEED 10 MPH

# **B110G Bellows Components**



**Stabilizer Legs-** Secures the machine in a stationary position for tube pull out and retraction

**Shutoff Bar-** Controls the bellows cycling shut off at the end of an irrigation run or in case of tube mis-wrap

**Speed Control-** Controls the retraction speed

**Bellows Exhaust Drain-** Sends the bellows exhaust water away from the machine

**On/Off Lever-** Turns the water supply to the water motor on and off

**Pressure Gauge-** Displays the inlet pressure

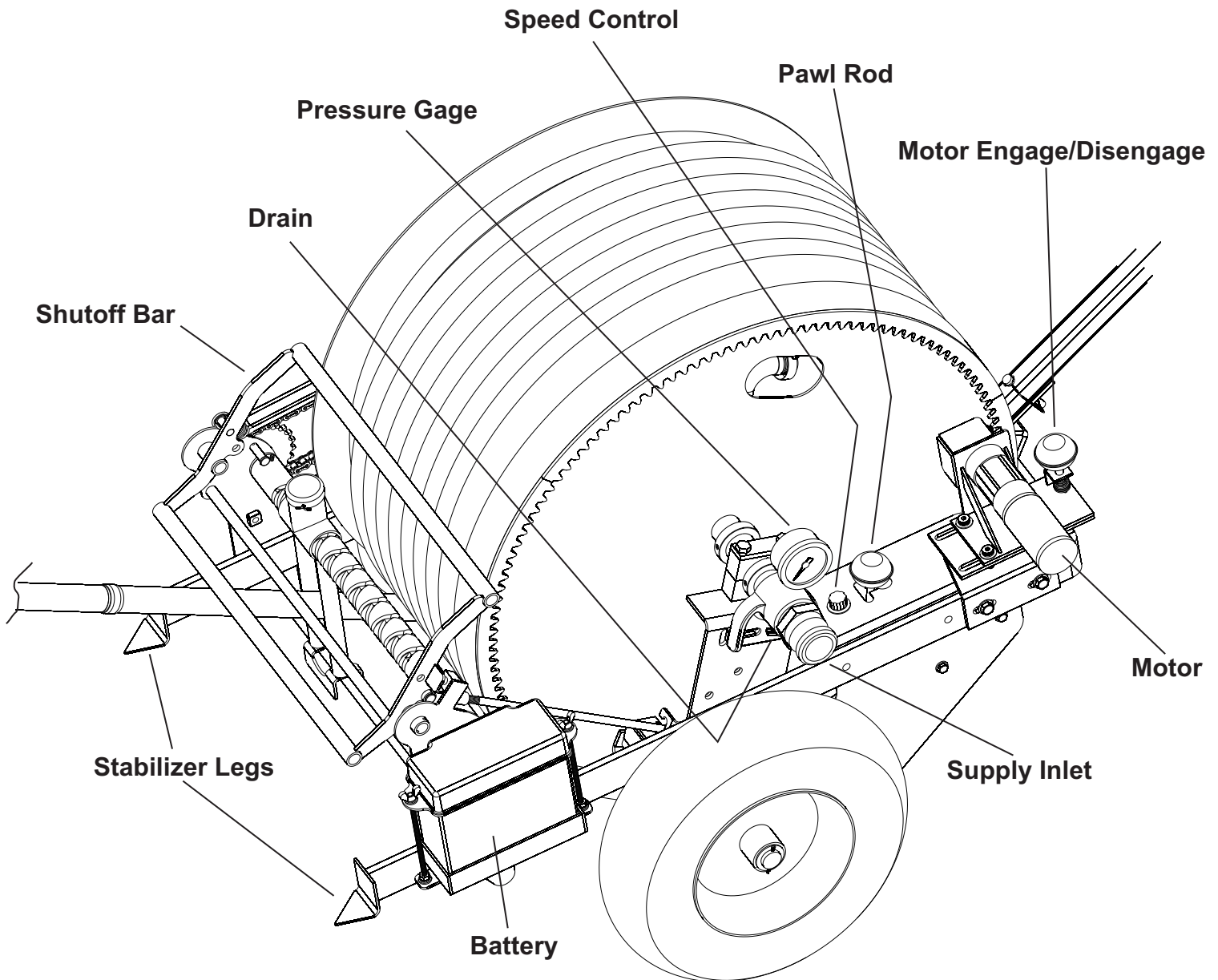
**Drain-** Used to relieve pressure from the supply hose and to winterize

**Pawl Rod-** Used to disengage both the drive and hold pawl for tube pull out

**Supply Inlet-** Used to attach the supply hose to the machine



# **E110G Electric Motor Drive Components**



**Stabilizer Legs-** Secures the machine in a stationary position for tube pull out and retraction

**Shutoff Bar-** Controls motor shut off at the end of an irrigation run or in case of tube mis-wrap

**Drain-** Used to relieve pressure from the supply hose and to winterize

**Pressure Gauge-** Displays the inlet pressure

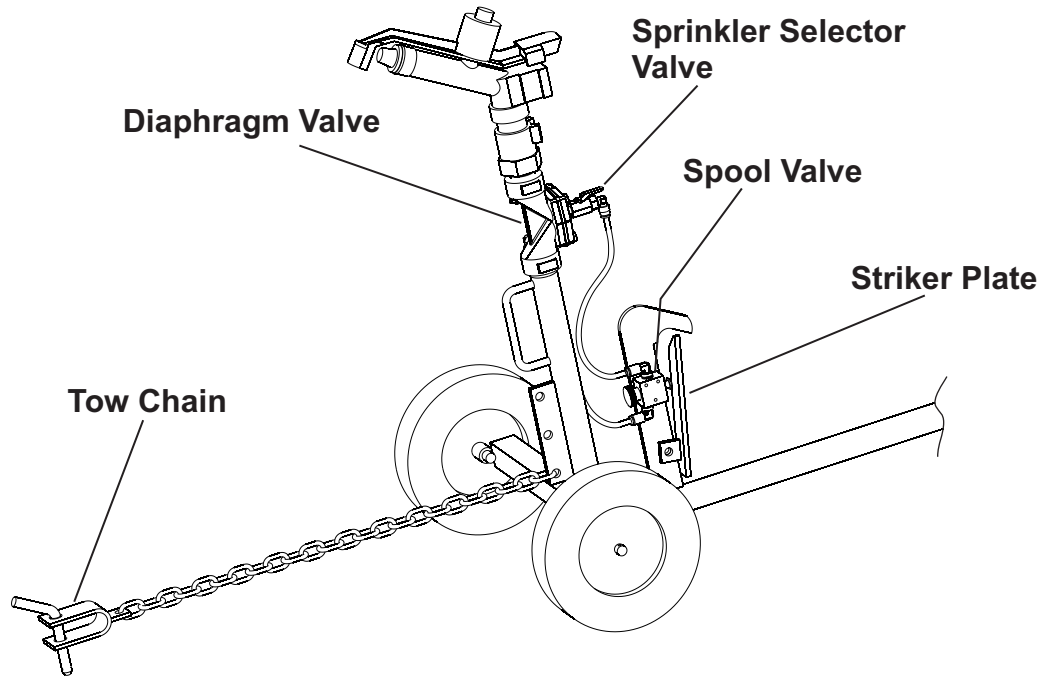
**Speed Control-** Controls the retraction speed

**Pawl Rod-** Used to disengage the hold pawl for tube pull out

**Motor Engage/Disengage-** Engages pinion gear into place to drive, and away from drive ring gear for pull out

**Supply Inlet-** Used to attach the supply hose to the machine

# **Gun Cart Components**



**Tow Chain-** Used for pulling out the gun cart for an irrigation run

**Diaphragm Valve\*\***- Controls water flow to the sprinkler

**Sprinkler Selector Valve\*\***- Controls the option of shutting the water off to the sprinkler after an irrigation run

**Spool Valve\*\***- Supplies water pressure to activate the diaphragm valve

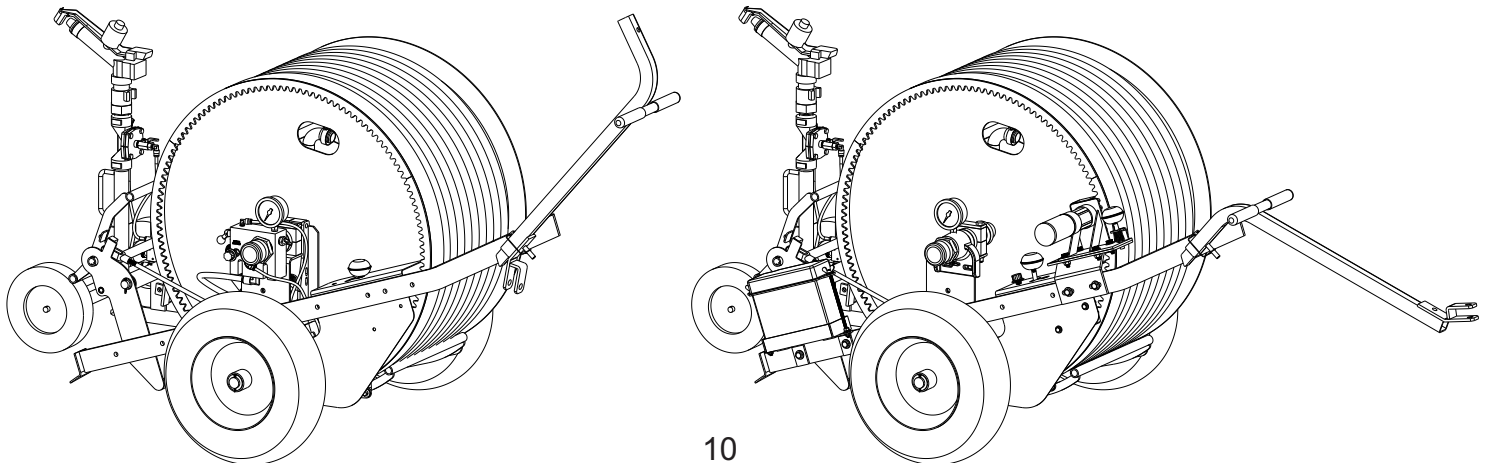
**Striker Plate\*\***- Activates actuator valve at the end of an irrigation run

**NOTE: \*\*Depicts items only on (optional) water shut off machines**

## **Transport Options**

Your Water-Reel can be configured for small implement towing or hand transport.

Remove the Pin connecting the Handle/Tounge to the machine frame and position as needed



# Handling The Polyethylene Tube

UV resistant, medium density, 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 Pawl Disengage Rod in the up position! The irrigation tube will become loose and tangled.**
2. 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 by rotating the spool by hand. If this is not possible, then pull all of the tube out before attempting to rewind the tube.
3. Never try to relocate the Water-Reel if the tube is not fully rewound onto the machine.
4. Never pull the tube off the machine other than by pulling on the sprinkler cart (straight out from the machine).
5. Never run over the tube with any kind of vehicle and avoid pinching or pulling the tube around objects. Never bend the tube sharper than 25 times the diameter of the tube (See Note on page 14).
6. Be careful when operating other equipment near tube to avoid gouging or puncturing tube.

**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.

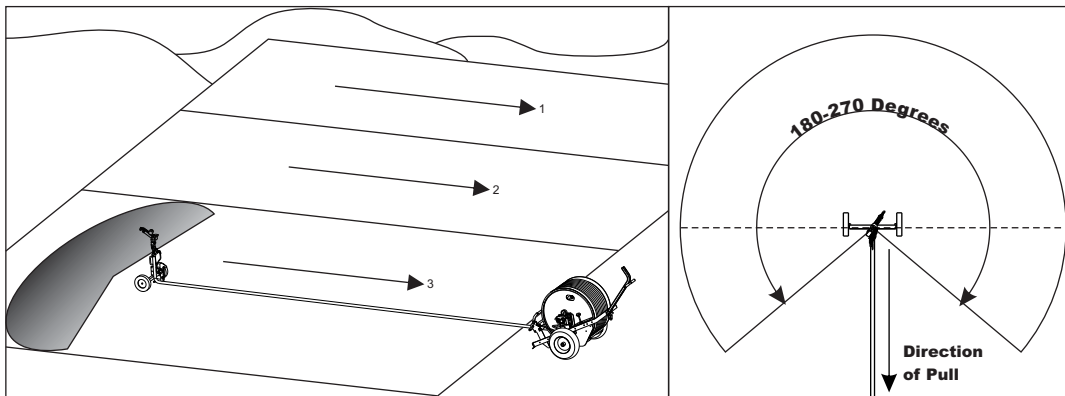
# Water-Reel Start-Up & Operation

The successes 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"!**

Decide on the proper nozzle size to be used for the irrigation run which thus will also determine the irrigation lane spacing that will be needed (see pages 20 & 21 for sprinkler performance).

Set the desired arc to be used on the sprinkler gun.

**NOTE:** Arc settings where the sprinkler never distributes water forward of the gun cart (towards pull), could create undesired tracking results. This is caused by the continuous thrust of the sprinkler, which pushes the tube towards the Water-Reel. **It is recommended that the arc be set to create some tension on the tube (greater than 180°).**

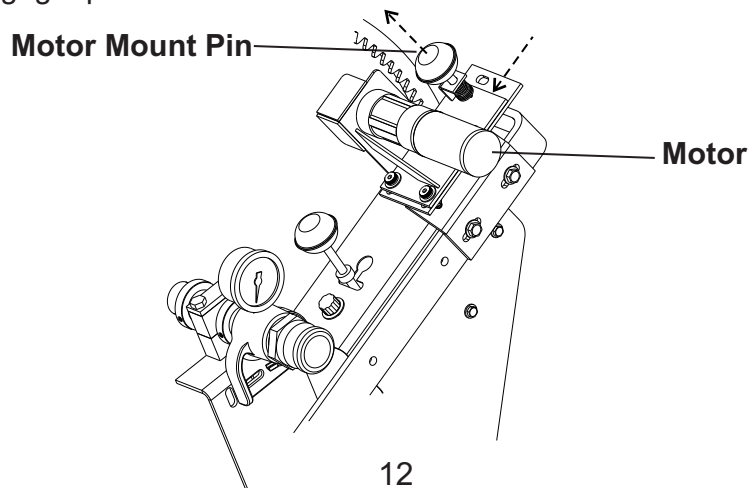


Ensure that the Pawl Disengage Rod is in the down position for transport. Pull the Water-Reel into position with the Gun Cart towards the run to be irrigated. Be especially careful to have the machine square and in good alignment with the irrigation path. Insert Stabilizer Legs and confirm they have made good ground contact. **Never** attempt to operate the Water-Reel without both legs inserted.

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.**

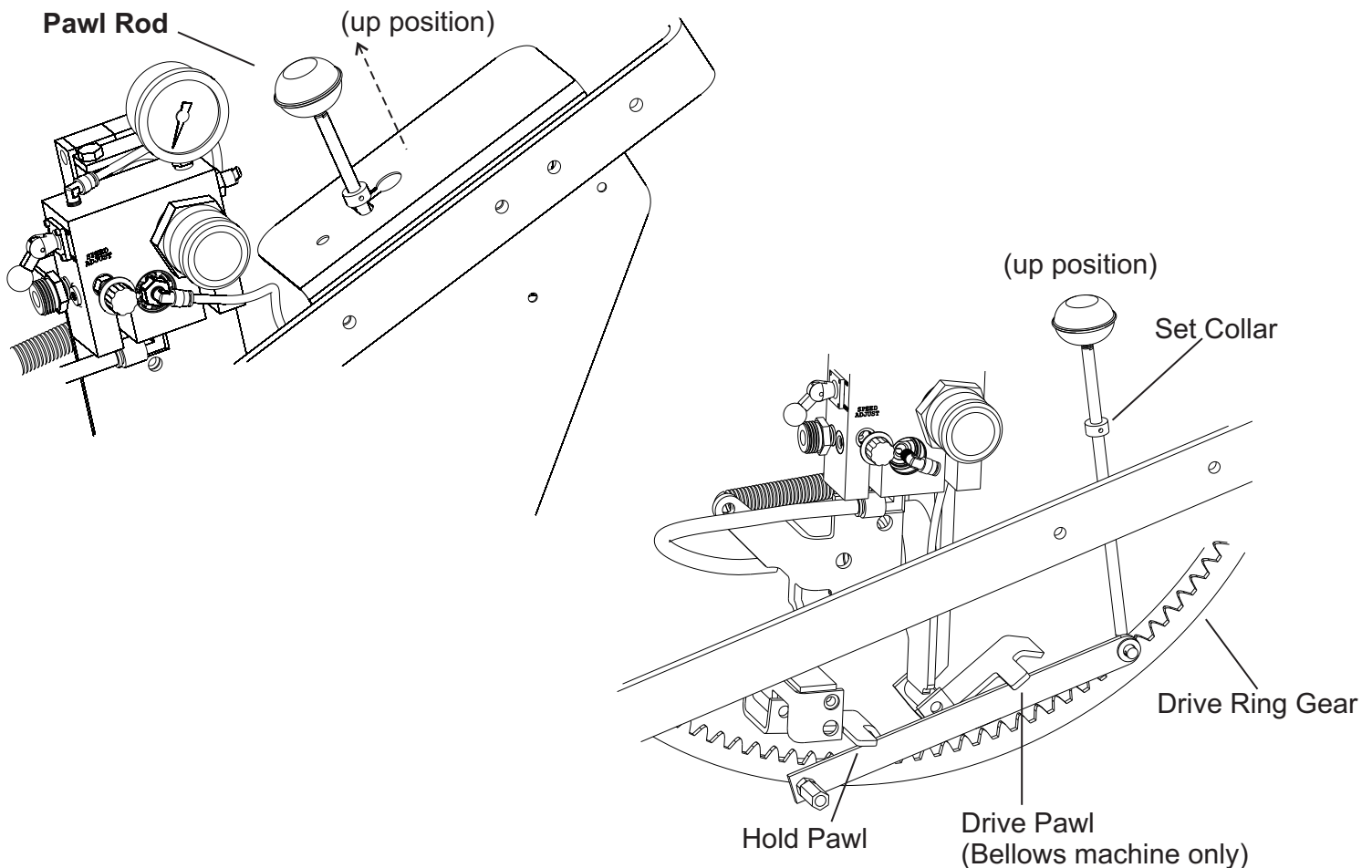
**B110G (bellows drive) Only** - Un-stow and attach the Bellows Exhaust Drain Hose to the Bellows Exhaust Discharge. Confirm that the Drain Hose is not kinked or blocked.

**E110G Electric Motor Drive Machines Only** - MUST have the Drive Pinion on the Motor disengaged prior to pull out. To disengage: pull the Motor Mount Pin and slide the Motor down and away from the Drive Ring Gear.



# Water-Reel Start-Up & Operation

Disengage the Pawl(s) by lifting the Pawl Rod into the up position. If the Pawls do not disengage the Drive Ring Gear readily; rotate the Spool forward (the way it runs) to relieve tension on the Drive Pawl(s). Ensure that the Set Collar on the Pawl Rod is in the up position. Both pawls (two on Bellows Drive & one on Electric Motor Drive) must clear the Drive Ring Gear on the Spool.



Lower the Gun Cart from its transport position.

Pull the Gun Cart out the desired distance. Pull the Tube out slowly (**do not exceed 3 mph**) and avoid sudden stops and erratic driving during pull out.

## **Warning!**

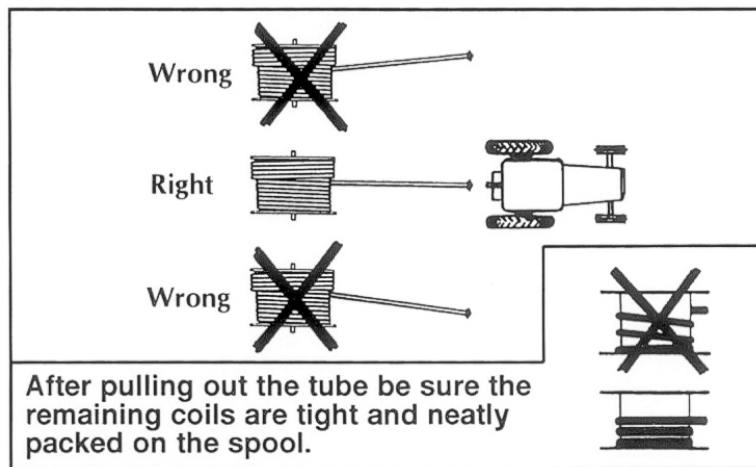
***Stand clear of the machine and the Gun Cart  
while the Tube is being pulled out.***

# Water-Reel Start-Up & Operation

**Note:** Your Kifco Water-Reel is equipped to irrigate on a gradual arc if necessary. Arced irrigation can only be performed after the first 25% of the tube is pulled out straight from the machine and then the gradual arc cannot exceed 90 degrees over the remaining 75%. Depending on the soil or vegetation the gun cart may or may not follow the arc back to the machine. Higher friction (furrows, tall grass) will greatly assist with the gun cart tracking the arc.

Failure to observe this limitation can also place an excessive side load on the Level-Wind mechanism which could result in equipment failure and/or tube damage.

**The gun/tube must be pulled straight for at least 25% of the tube length.**

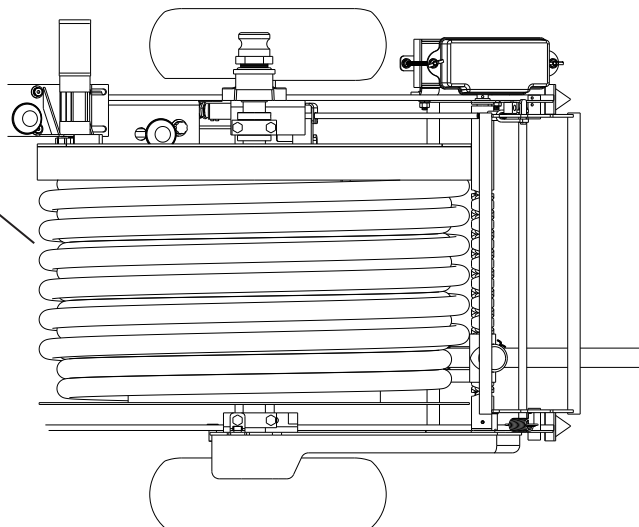


**IMPORTANT:** If the standard irrigation run does not require the use of 100% of the Tube on the Water-Reel; it will be necessary to occasionally pull the entire length of Tube off of the Water-Reel and retract the Tube under pressure to ensure the concentric shape of the hose.

During short runs of the Water-Reel, the remaining Tube on the Spool will tend to gradually loosen. Over time, gaps in the Tube on the Spool will create Level-Wind to Tube mis-alignment causing the machine to look out of time or the possibility of the Tube mis-wrapping causing damage to the Water-Reel and the Tube.

This can be corrected by making a full run (pull 100% of the tube out) occasionally.

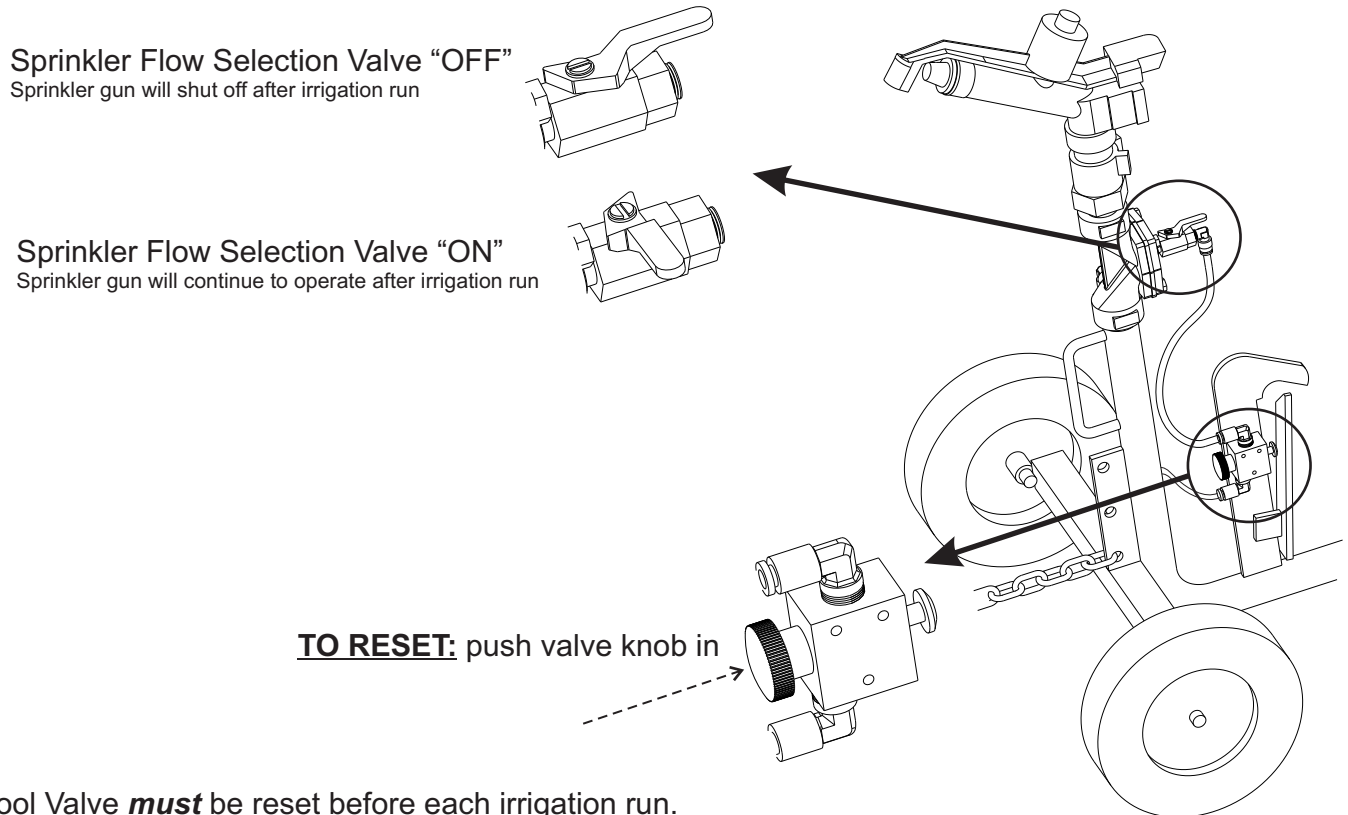
**Gaps in Tube caused by short irrigation runs**



# Water-Reel Start-Up & Operation

## ON OPTIONAL WATER SHUT OFF MACHINES ONLY

Machines equipped with the optional water shutoff can be set in either the On or Off position (see below diagram). The sprinkler control valve will only operate automatically if the Spool Valve has been reset (see below diagram).



**Note:** Spool Valve must be reset before each irrigation run.

**\*The Spool Valve** is a stem valve located on the Gun Cart of the Water-Reel. This must not be used as an ON/OFF valve for any purpose other than to automatically shut-off the sprinkler at the completion of an irrigation run.

### **Important**

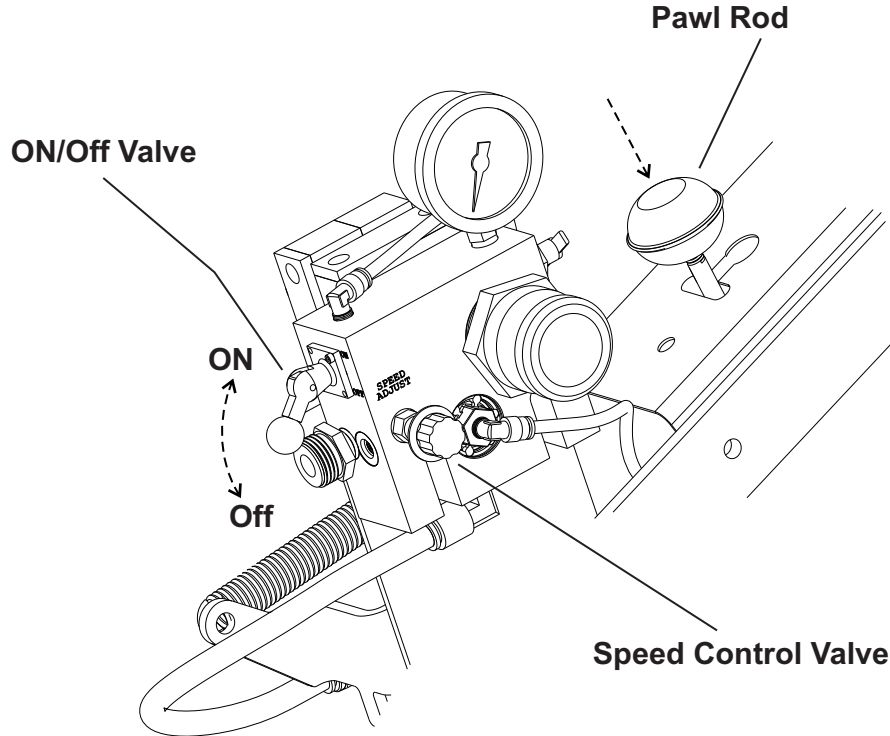
When using the automatic water shut-off feature, be sure the water can be shut-off automatically without damaging the water supply or the Water-Reel! Stopping the flow of water can damage a pump or water lines and excessive pressure can be created. A qualified person should confirm if you could safely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



# **B110G Bellows Drive Operation**

Be sure the ON/OFF valve is in the "OFF" position. Place the Drive Pawls in the "engaged" (down) position. Turn on the water. Confirm the sprinkler is operating as expected and in the desired arc. 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, located on the valve assembly, regulates the speed at which water can fill the Bellows.



**Note:** The Water- Reel requires 45 Pounds Per Square Inch (PSI) and adequate water flow capacity (GPM) to operate properly. Consult your Kifco dealer if you do not have an adequate water supply.

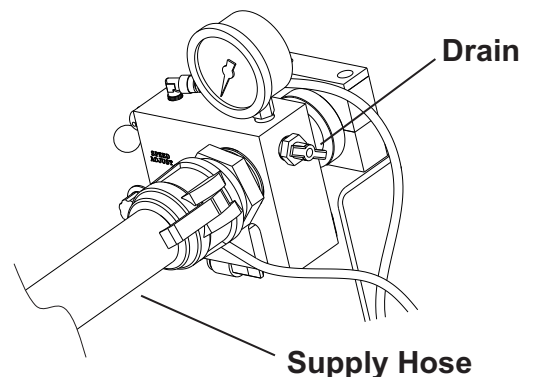
Observe water pressure, travel speed, and sprinkler performance to confirm desired performance. See pages 20 or 21 for performance charts.

When the sprinkler cart completes the irrigation run and has contacted the Shut Off Bar, the retraction of the Tube will stop.

With the irrigation run completed, turn off water supply, relieve pressure first, and disconnect. The Water-Reel is now ready to be moved and set up in a new location

## **Important**

***Open Drain to relieve pressure on Supply Hose after turning off water supply***



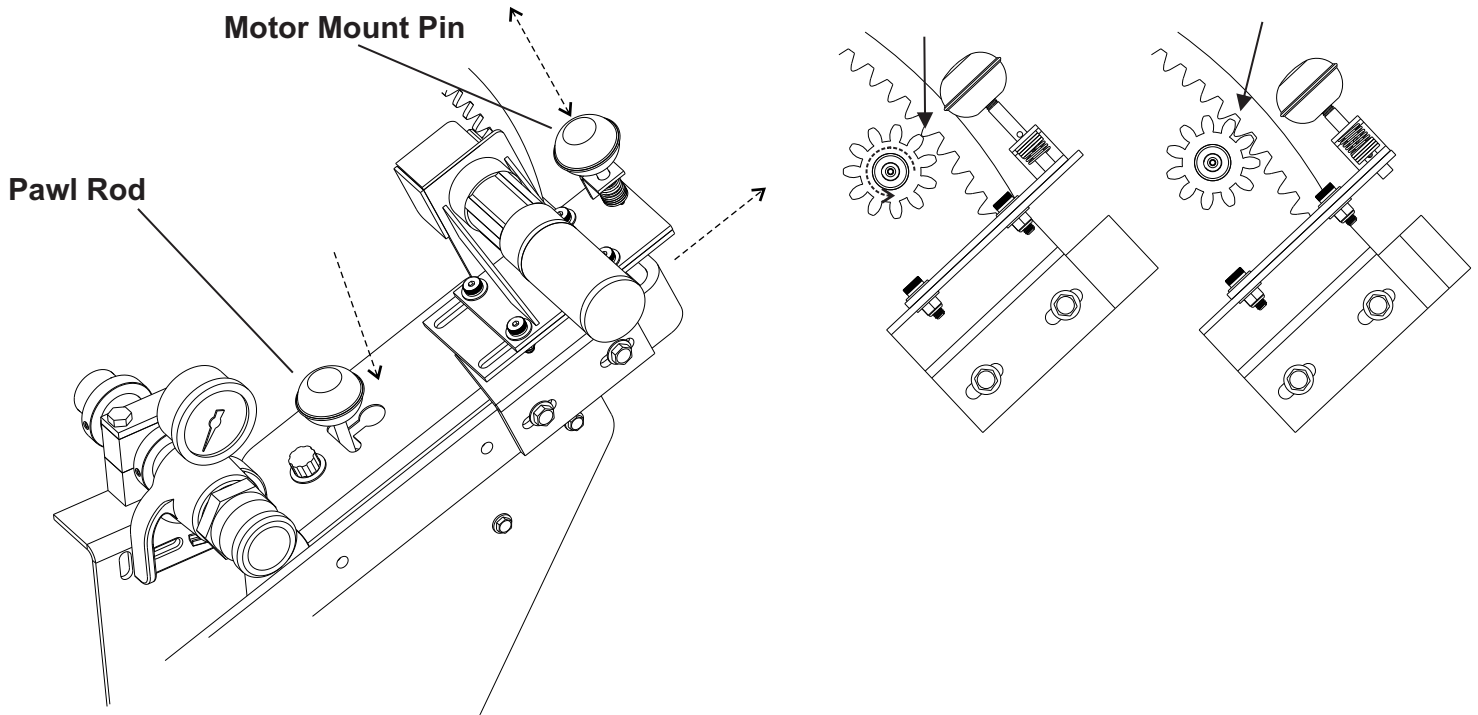
**Note:** Some municipalities prohibit the use of water mains intended for fire protection and there may also be requirements for back-flow prevention. Investigate and obey all local regulations regarding the use of water.



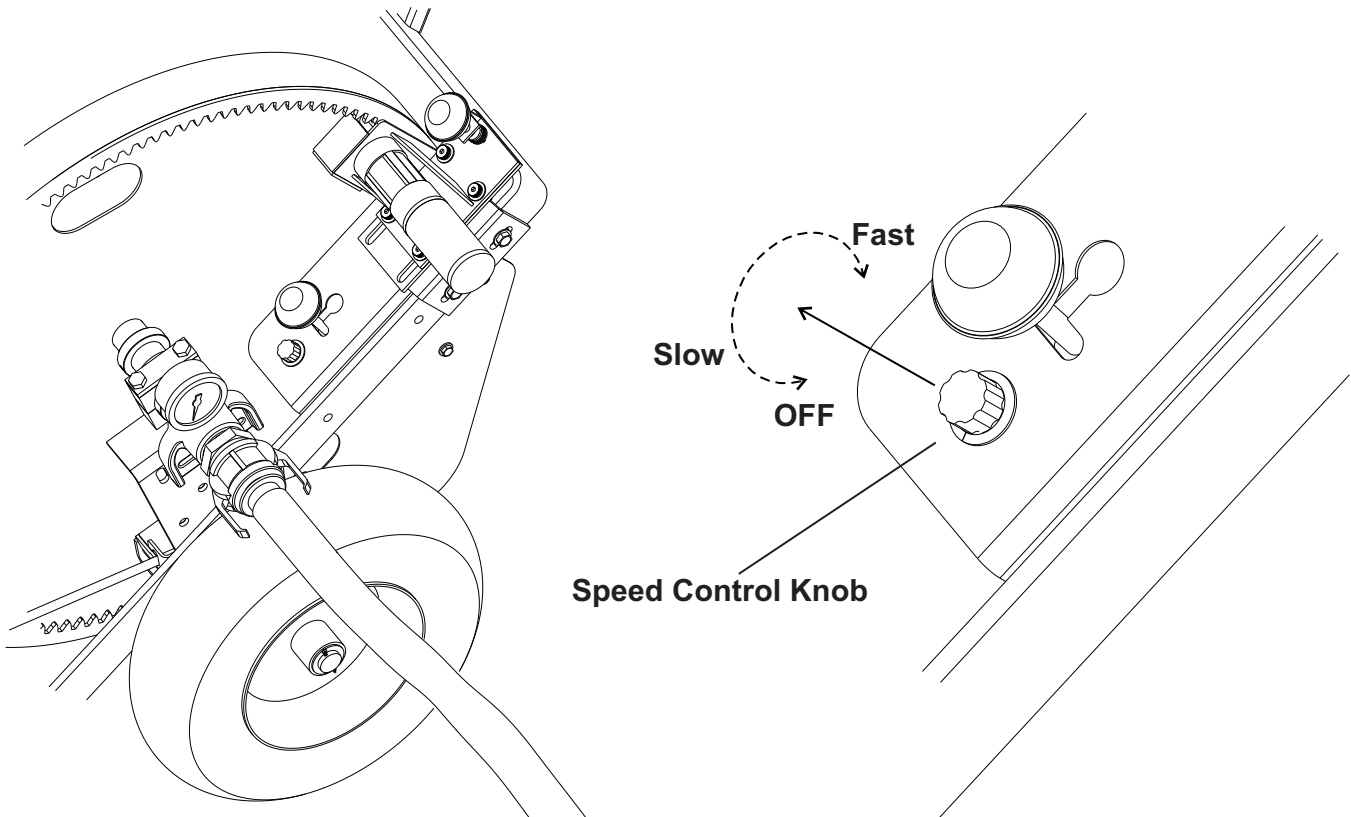
# **E110G Electric Motor Drive Operation**

With the water supply off; engage the Pawl Rod into its lower (down) position. Pull up on the Motor Mount Pin and engage the motor drive pinion into the Drive Ring Gear. Note: in some instances it will be necessary to turn the Motor on (briefly) in order for the Drive Pinion to mesh with the Drive Ring Gear.

**Briefly turn Motor on to fully engage Drive Pinion**



Turn on the water supply. Confirm the sprinkler is operating as expected and in the desired arc. Wait for all of the air to be purged from the system and for the sprinkler to operate smoothly. Set the Speed Control Knob to the desired retraction speed.

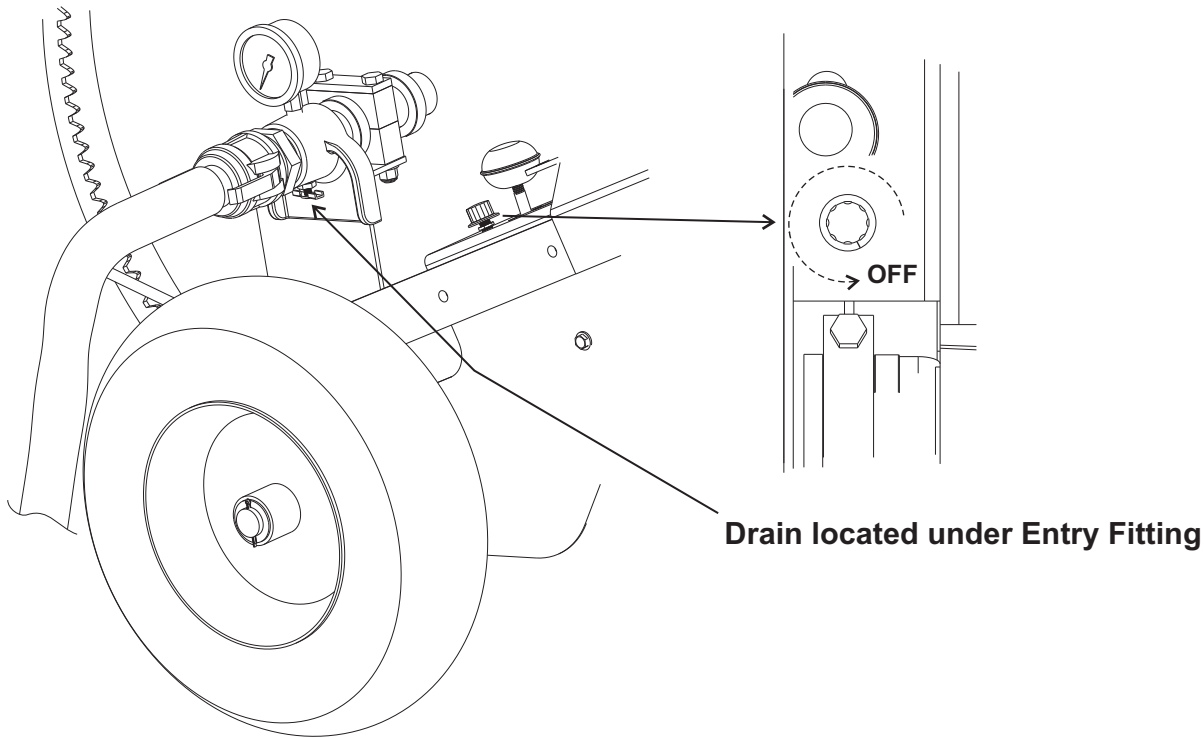


# **E110G Electric Motor Drive Operation**

When the Gun Cart completes the irrigation run and has contacted the Shut Off Bar, the retraction of the Tube will stop.

With the irrigation run complete, turn off water supply, relieve pressure and disconnect. Turn the Speed Control Knob all the way off (counterclockwise) The Water-Reel is now ready to be moved and set up in a new location.

**Note:** Refer to page 25 (Electrical Information) for charging frequency and instructions.



## **Important**

*Open drain to relieve pressure on supply hose  
after turning off water supply*

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

# Water Application Rate

## Depth Of Water Applied:

The depth of water applied by the Water-Reel is regulated by the retraction speed (speed the sprinkler is moving over the ground). It is also affected by the amount of water being discharged by the sprinkler head. The sprinkler nozzle size and the water pressure determine the amount of discharged water. 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 - Using the Performance Guide:

Example: With a SIME K1 sprinkler, determine the inlet pressure, speed settings and sprinkler nozzle size required to apply 0.20 inches of water. (See Illustration)

**Note:** The inlet 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. ( Inlet PSI is always read at the Water Reel )

As shown below, a variety of settings can accomplish 0.20" of water application.

- \* With a 6mm nozzle and an inlet PSI of 51; 0.20" can be applied at a rate of 60ft. per hour.
- \* With a 7mm nozzle and an inlet PSI of 50; 0.20" can be applied at a rate of 80ft. per hour. Example shown below
- \* With an 8mm nozzle and an inlet PSI of 53; 0.20" can be applied at a rate of 80ft. per hour.
- \* With a 9mm nozzle and an inlet PSI of 53; 0.20" can be applied at a rate of 100ft. per hour.

Variances with inlet pressures and nozzle sizes will give different application speed rates and irrigated areas.

MODEL B 110G X 280 PERFORMANCE														Part # 50900440	
MODEL B110 X 280' SIME K1	Nozzle size	SPRINKLER			Irrigated Width 80% Wetted Diameter			INLET	TRAVEL SPEED - FEET PER HOUR						
		PSI	GPM	DIA	WIDTH	LENGTH	PSI		20	40	60	80	100	120	
									INCHES DEPTH OF APPLICATION						
									6mm	44	10	98	78	X	319
Area covered may vary depending on wind conditions, field dimensions & use of different sprinklers. Specification	6mm	58	12	108	86	X	323	68	0.67	0.33	0.22	0.17	0.13	0.11	
	7mm	38	13	100	80	X	320	50	0.78	0.39	0.26	0.20	0.16	0.13	
	7mm	58	16	112	90	X	325	75	0.86	0.43	0.29	0.21	0.17	0.14	
	8mm	36	16	118	94	X	327	53	0.82	0.41	0.27	0.20	0.16	0.14	
	8mm	58	21	135	108	X	334	87	0.94	0.47	0.31	0.24	0.19	0.16	
	9mm	30	19	115	92	X	326	53	0.98	0.49	0.33	0.25	0.20	0.16	
	9mm	58	26	138	110	X	335	100	1.13	0.57	0.38	0.28	0.23	0.19	
	Hours for Full Run:								14.0	7.0	4.7	3.5	2.8	2.3	
Avg. Strokes Per Min:								3	7	10	13	17	20		

# B110G Application Charts

**MODEL B 110G X 280 PERFORMANCE** Part # 50900440

MODEL B110 X 280' SIME K1	Nozzle size	SPRINKLER			Irrigated Width 80% Wetted Diameter		INLET	TRAVEL SPEED - FEET PER HOUR						
								20	40	60	80	100	120	
		PSI	GPM	DIA	WIDTH	LENGTH		PSI	INCHES DEPTH OF APPLICATION					
Area covered may vary depending on wind conditions, field dimensions & use of different sprinklers. Specification	6mm	44	10	98	78	X	319	51	0.61	0.31	0.20	0.15	0.12	0.10
	6mm	58	12	108	86	X	323	68	0.67	0.33	0.22	0.17	0.13	0.11
	7mm	38	13	100	80	X	320	50	0.78	0.39	0.26	0.20	0.16	0.13
	7mm	58	16	112	90	X	325	75	0.86	0.43	0.29	0.21	0.17	0.14
	8mm	36	16	118	94	X	327	53	0.82	0.41	0.27	0.20	0.16	0.14
	8mm	58	21	135	108	X	334	87	0.94	0.47	0.31	0.24	0.19	0.16
	9mm	30	19	115	92	X	326	53	0.98	0.49	0.33	0.25	0.20	0.16
	9mm	58	26	138	110	X	335	100	1.13	0.57	0.38	0.28	0.23	0.19
					Hours for Full Run:				14.0	7.0	4.7	3.5	2.8	2.3
				Avg. Strokes Per Min:				3	7	10	13	17	20	

**MODEL B 110G X 280 PERFORMANCE** Part # 50900441

MODEL B110 X 280' SIME SILVER	Nozzle size	SPRINKLER			Irrigated Width 80% Wetted Diameter			INLET	TRAVEL SPEED - FEET PER HOUR					
									20	40	60	80	100	120
		PSI	GPM	DIA	WIDTH	LENGTH	PSI		INCHES DEPTH OF APPLICATION					
Area covered may vary depending on wind conditions, field dimensions & use of different sprinklers. Specifications are subject to change without notice.	4mm	44	4	85	68	X	314	45	0.28	0.14	0.09	0.07	0.06	0.05
	4mm	58	5	98	78	X	319	60	0.31	0.15	0.10	0.08	0.06	0.05
	5mm	44	7	92	74	X	317	48	0.46	0.23	0.15	0.11	0.09	0.08
	5mm	58	8	105	84	X	322	63	0.48	0.24	0.16	0.12	0.10	0.08
	6mm	44	10	98	78	X	319	52	0.64	0.32	0.21	0.16	0.13	0.11
	6mm	58	12	108	76	X	318	68	0.75	0.38	0.25	0.19	0.15	0.13
					Hours for Full Run:				14.0	7.0	4.7	3.5	2.8	2.3
					Avg. Strokes Per Min:				3	7	10	13	17	20

# E110G Application Charts

**MODEL E 110G X 280 PERFORMANCE** Part # 50900440

MODEL E110 X 280' SIME K1	Nozzle size	SPRINKLER			Irrigated Width 80% Wetted Diameter			INLET	TRAVEL SPEED - FEET PER HOUR						
									30	50	90	120	140	160	
		PSI	GPM	DIA	WIDTH	LENGTH	PSI		INCHES DEPTH OF APPLICATION						
Area covered may vary depending on wind conditions, field dimensions & use of different sprinklers. Specification s are subject	6mm	22	7	85	68	X	314	26	0.33	0.20	0.11	0.08	0.07	0.06	
	6mm	41	9	96	77	X	318	47	0.38	0.23	0.13	0.09	0.08	0.07	
	6mm	58	12	108	86	X	323	68	0.45	0.27	0.15	0.11	0.10	0.08	
	7mm	38	13	100	80	X	320	50	0.52	0.31	0.17	0.13	0.11	0.10	
	7mm	58	16	112	90	X	325	75	0.57	0.34	0.19	0.14	0.12	0.11	
	8mm	36	16	118	94	X	327	53	0.54	0.33	0.18	0.14	0.12	0.10	
	8mm	58	21	135	108	X	334	87	0.63	0.38	0.21	0.16	0.13	0.12	
	9mm	30	19	115	92	X	326	53	0.66	0.39	0.22	0.16	0.14	0.12	
	9mm	58	26	138	110	X	335	100	0.76	0.45	0.25	0.19	0.16	0.14	
				Hours for Full Run:				9.3	5.6	3.1	2.3	2.0	1.75		

**MODEL E 110G X 280 PERFORMANCE** Part # 50900441

MODEL E110 X 280' SIME SILVER	Nozzle size	SPRINKLER			Irrigated Width 80% Wetted Diameter			INLET	TRAVEL SPEED - FEET PER HOUR					
									30	50	80	110	140	160
		PSI	GPM	DIA	WIDTH	LENGTH	PSI		INCHES DEPTH OF APPLICATION					
Area covered may vary depending on wind conditions, field dimensions & use of different sprinklers. Specifications are subject to change without notice.	4mm	22	3	72	58	X	309	23	0.17	0.10	0.06	0.05	0.04	0.03
	4mm	44	4	85	68	X	314	45	0.19	0.11	0.07	0.05	0.04	0.04
	4mm	58	5	98	78	X	319	60	0.21	0.12	0.08	0.06	0.04	0.04
	5mm	44	7	92	74	X	317	48	0.30	0.18	0.11	0.08	0.07	0.06
	5mm	58	8	105	84	X	322	63	0.32	0.19	0.12	0.09	0.07	0.06
	6mm	44	10	98	78	X	319	52	0.42	0.25	0.16	0.12	0.09	0.08
	6mm	58	12	108	76	X	318	68	0.50	0.30	0.19	0.14	0.11	0.09
						Hours for Full Run:			9.3	5.6	3.5	2.5	2.0	1.75

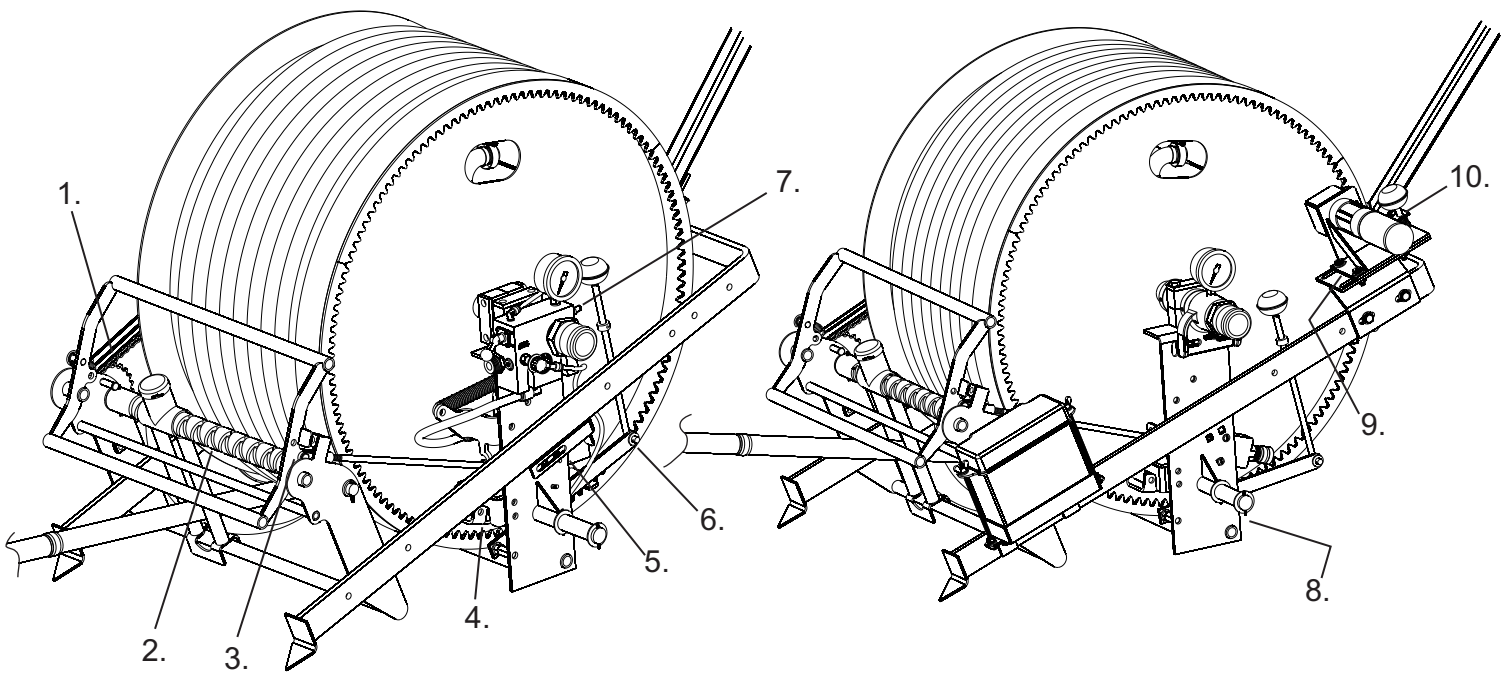
# Maintenance and Repair

**Maintenance Procedures:** Inspect and perform any maintenance procedure after 100 hours of use. Your Water-Reel machine is equipped with Delrin® Spool Bearings, Drive Arm Pivot Bearing, and Level-Wind Screw that do not need lubrication, but should be inspected periodically for any wear problems.

**Tire Pressure:** Inflate tires to 28 p.s.i.

**B110G**

**E110G**



1. **Level-Wind Chain-** Oil periodically
2. **Level-Wind Screw-** Check for excessive wear
3. **Shut Off Bar & Linkage-** Oil if necessary
4. **Hold Pawl & Drive Pawl-** Oil periodically
5. **Valve Actuator (on bellows arm)-** Lubricate with liquid soap (if needed)
6. **Pawl Disengage Linkage-** Oil if necessary
7. **Valve Filter-** Clean periodically
8. **Tube Rider-** Oil if necessary
9. **Motor Mount Plate-** Grease periodically (use multi-purpose grease)
10. **Motor Disengage Pin-** Oil if necessary

# Maintenance and Repair

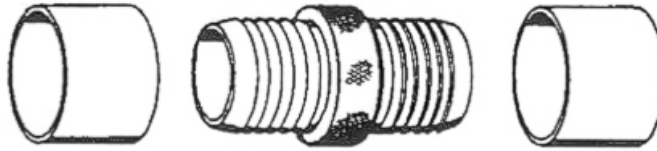
Tube menders can be purchased from your Kifco Dealer

**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 possesses a serious hazard to person and/or property. The tube must be restrained any time there is 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 shoulder. 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.



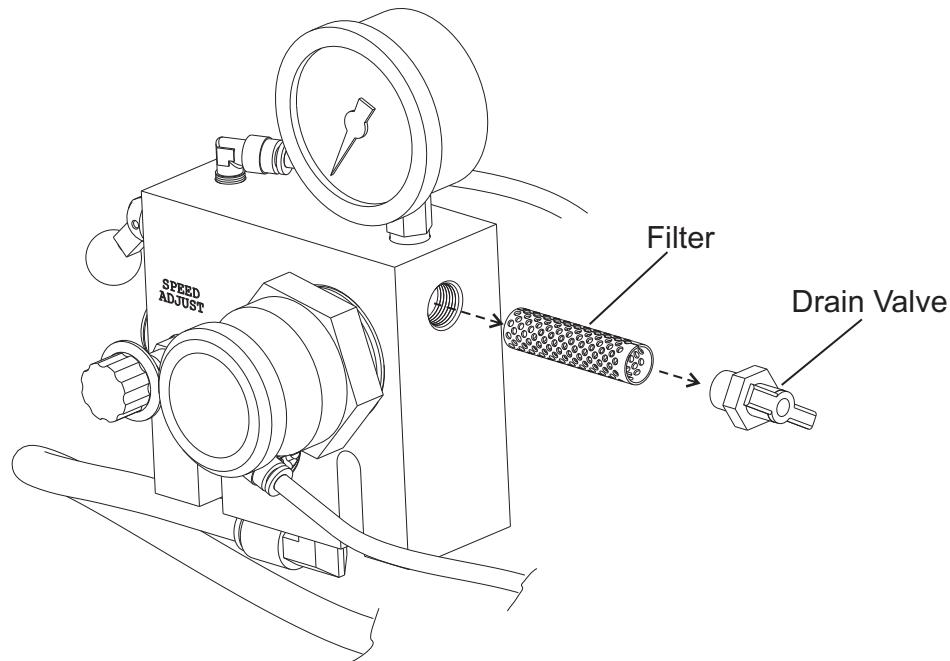
# Maintenance and Repair

## **Filter (on B110G only)**

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.

To clean Filter, remove Drain Valve on the Valve Assembly and pull screen out with fingertip. Clean and inspect the screen for damage or rupture. Reinstall Filter and Drain Valve.

**Never** attempt to clean the Filter while the machine is pressurized. Always turn off the water supply and relieve pressure before starting any form of maintenance.



### **Important**

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.

## **Tubing Removal (on B110G only)**

To remove the small tube 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.



# Maintenance and Repair

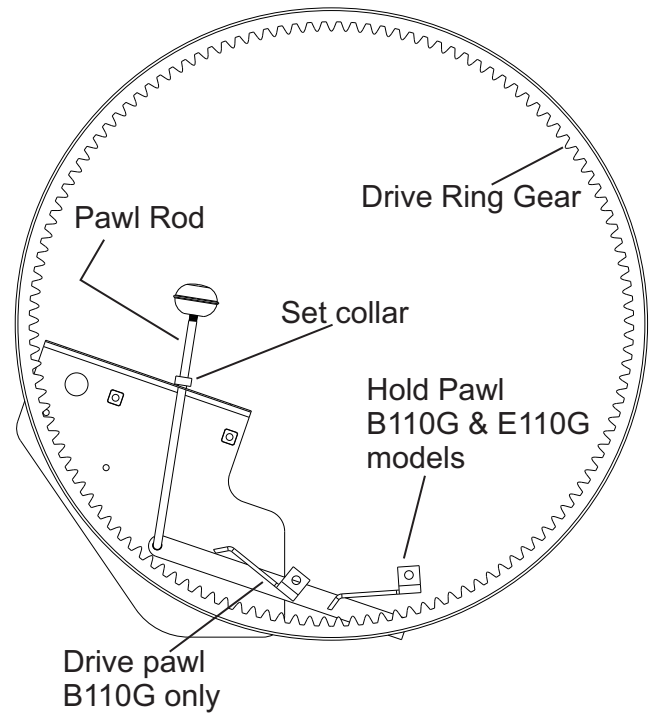
## **Pawl Rod (Hold Out) Rod**

When the Pawl Rod is in its upmost position (on tube pull out), the Pawls must completely clear the Drive Ring Gear.

The **B110G** has two pawls. One is the Drive Pawl located on the Bellows Arm. The other is the Hold Pawl located behind the Drive Pawl.

The **E110G** only has the Hold Pawl on the machine.

Adjust for clearance using the Set Collar on the Pawl Rod.



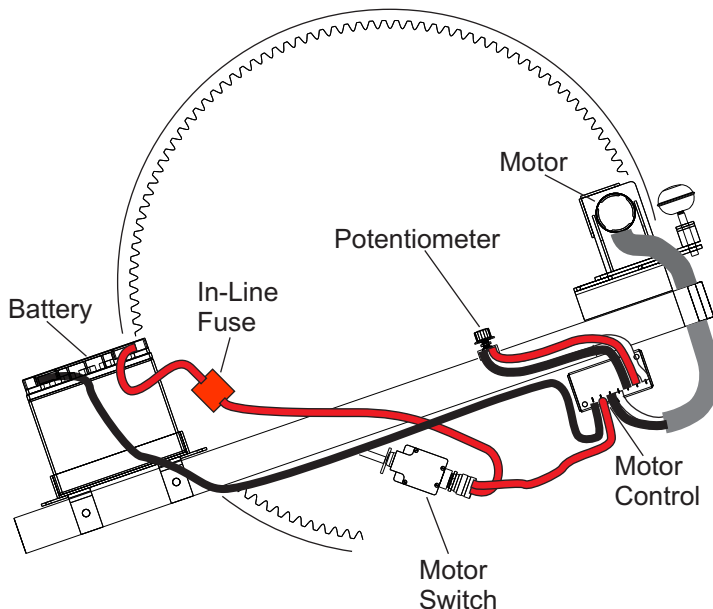
## **Electrical Information and Diagram for E110G**

**Battery** - The Battery is a sealed battery. DO NOT attempt to open.

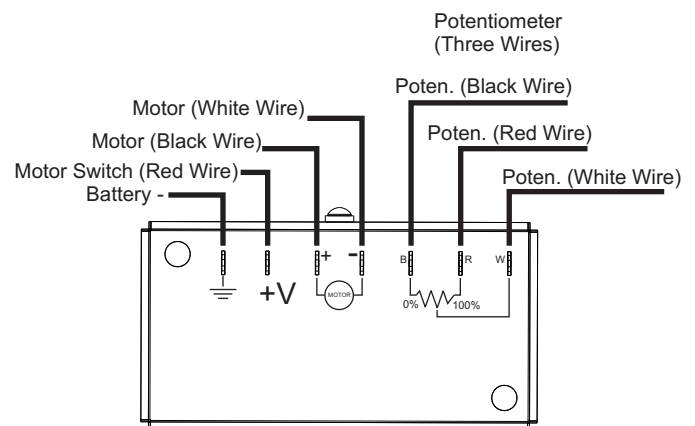
**IMPORTANT CHARGING NOTE:** Constant under or overcharging will damage any battery and shorten its life. Charge to at least 14.4 volts but no more than 15.0 volts at 68°F (20°C). **MAXIMUM CHARGE CURRENT FOR THE BATTERY IS 5.4 AMPS**

**In-Line Fuse** - The Fuse is an automotive style fuse. **5 Amp rated**

### Machine Wiring Layout



### Motor Control Wiring Diagram



# Machine Winterization

**Freezing will not damage the type of Polyethylene tube used on your Water-Reel.**

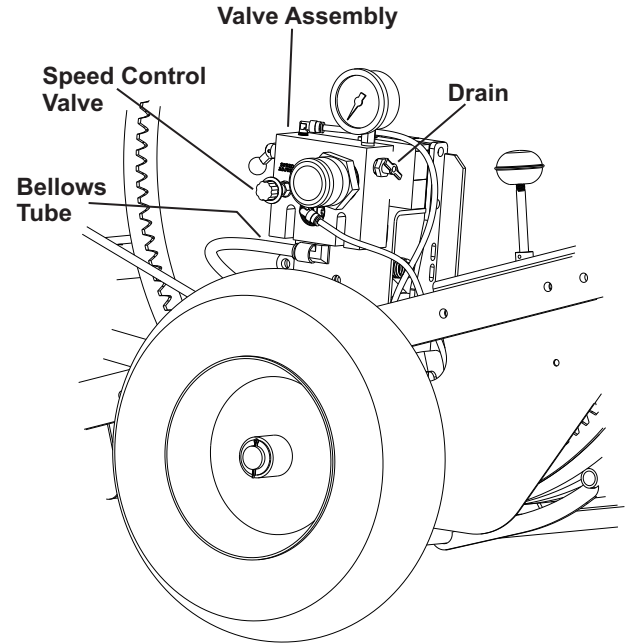
Even though the Tube does not need to be drained you must drain all metal parts.

Completely remove the Supply Hose from the Inlet fitting

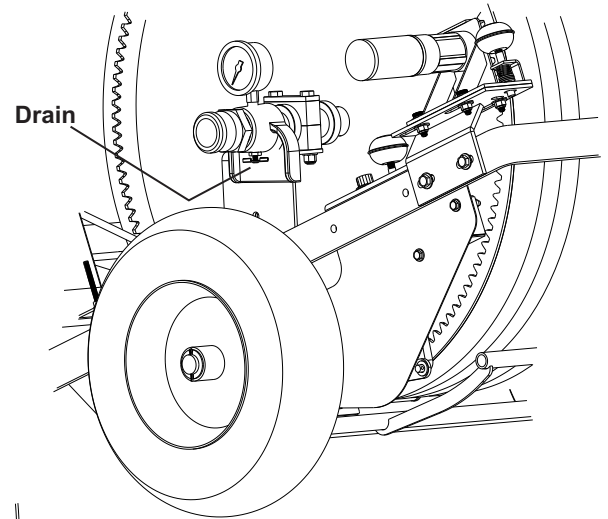
**B110G Model** - Open the Speed Control Valve to the full open position. The Discharge Hose must be removed to allow water to drain through the Discharge Hose Fitting.

Open the Drain on the side of the Valve Assembly.

Temporarily remove the Bellows Tube from the fitting below the Valve Assembly to empty the Bellows and Tube. (See Tubing Removal on page 24 for procedure). Reinstall the Bellows Tube.

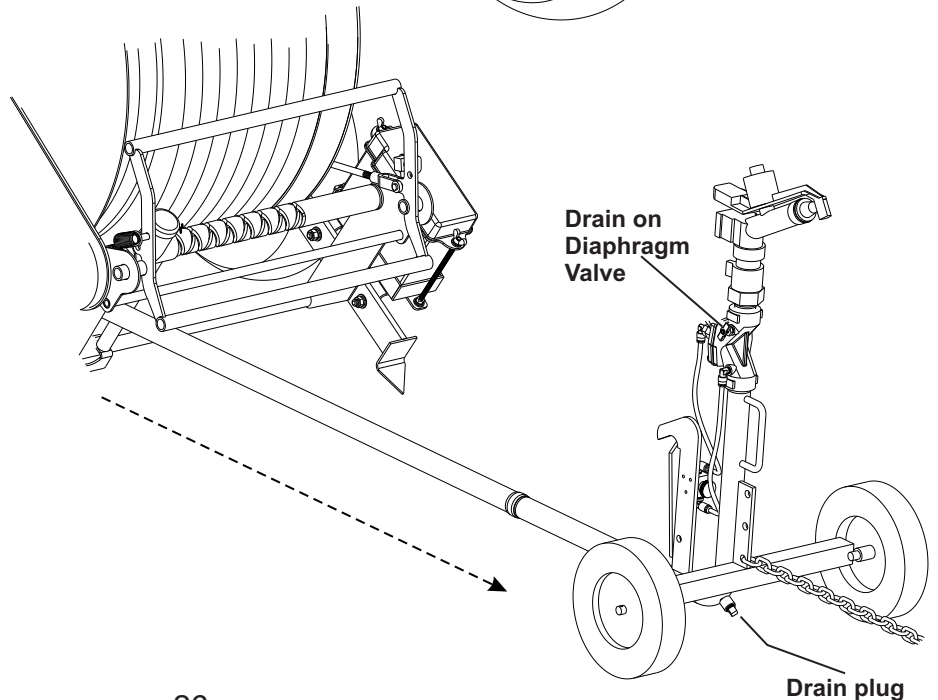


**E110G Model** - Open Drain under Entry Fitting



**Gun Cart - both models** - Pull around 3-4 coils of Tube off the Spool. Open the Drain Plug located under the Gun Cart. Rewind the Tube coils by hand.

**Gun Carts with the optional water shut down: open the Drain on the Diaphragm Valve.**

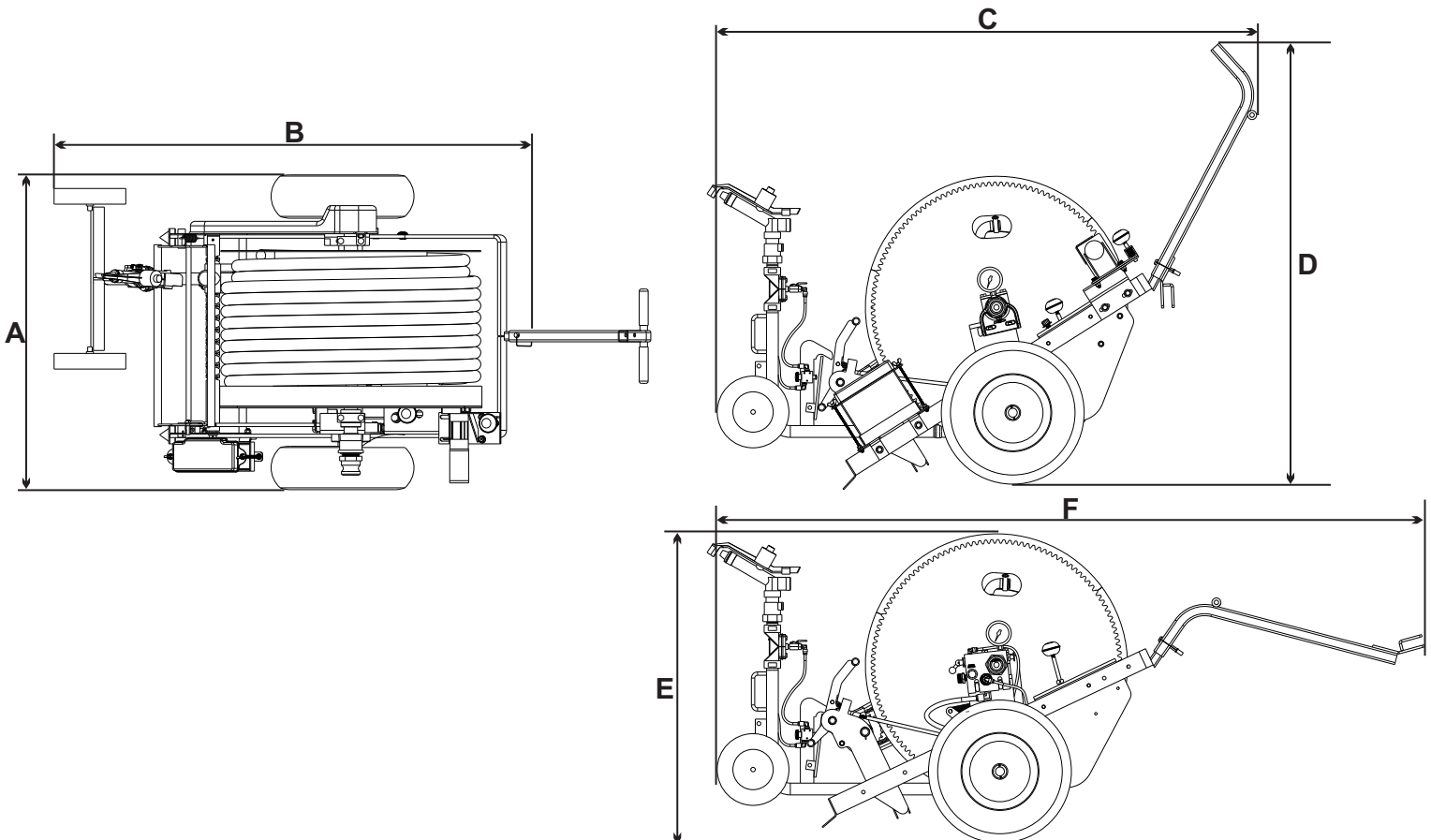


# Storage

1. Lubricate all points in the lubrication chart to prevent rust and corrosion from forming.
2. Check and clean Filter (B110G only).
3. Store the Water-Reel away from direct sunlight.
4. Make sure all openings such as the water Inlet are plugged so rodents and insects cannot 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 present that may plug filters, valves or sprinkler.

## Machine Specifications

	Model	B110G	E110G
	PE Tube Inside Diameter	1.10 in.	1.10 in
	PE Tube Length	280 ft.	280 ft.
	Machine Weight (no water)	276 lbs.	300 lbs.
	Machine Weight (with water)	345 lbs.	369 lbs.
A	Machine Width	39.00 in.	39.00 in.
B	Machine Length (no handle)	50.50 in.	50.50 in.
C	Machine Length (with handle)	60.25 in.	60.25 in.
D	Machine Height (with handle)	47.00 in	47.00 in
E	Machine Height (without handle)	34.50 in	34.50 in
F	Machine Length (towing position)	76.50 in.	76.50 in.



# Adjustments

## Level-Wind Timing:

Proper timing of the Level-Wind mechanism is essential to the successful operation of the Water-Reel. Improper Level-Wind 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!** Confirm that the timing is at fault before attempting to change the timing. Your Water-Reel was shipped from the factory with the Tubing wound on it. The Level-Wind timing was set at the factory prior to installing the Tube. **If there has been no disassembly of the Level-Wind mechanism, or the Tubing removed & reinstalled, it is very unlikely that the timing is wrong.** If the Tubing is loose on the Spool the Level-Wind system will appear to be out of time. **(See page 29 for the brake adjustment).**

**Note:** Review loose Tube troubleshooting on page 14.

To re-time the Level-Wind, these steps **must** be followed:

1. Pull all the irrigation Tube out from the Water-Reel. You may wish to stop slightly before the Elbow is exactly on the angle and turn the Spool the last few degrees by hand. The barb to which the Tube is fastened must be 45° to the ground as shown (See Figure 1).
2. Observe the position of the Tube Follower on the horizontal Level-Wind Screw. The Tube Follower must be in its most extreme position (all the way to the end of the Level-Wind Screw thread) and on the same side of the Water-Reel as the Spool Elbow (See Figure 2). Align the Timing Mark with the Timing Mark Decal arrow (See Figure 3).

Figure 1

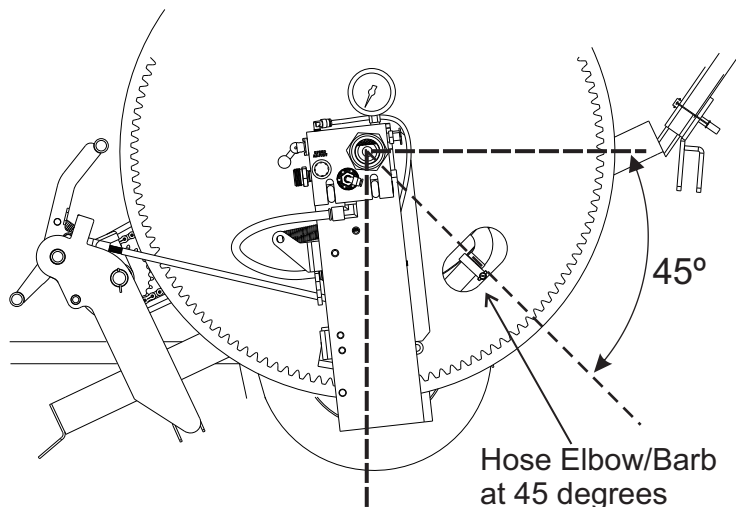
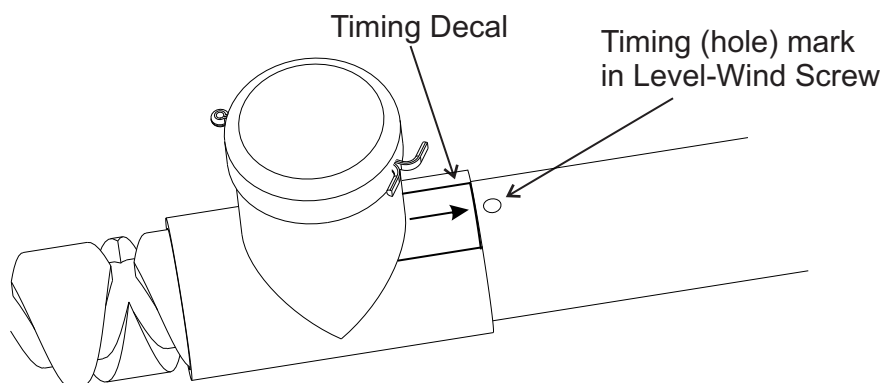
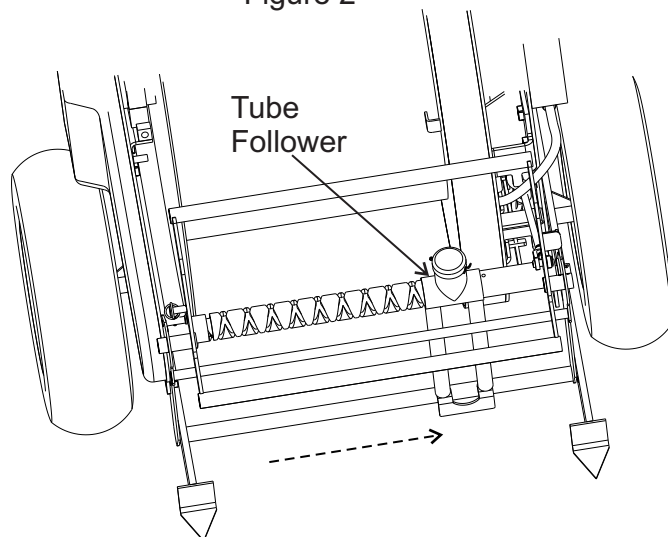


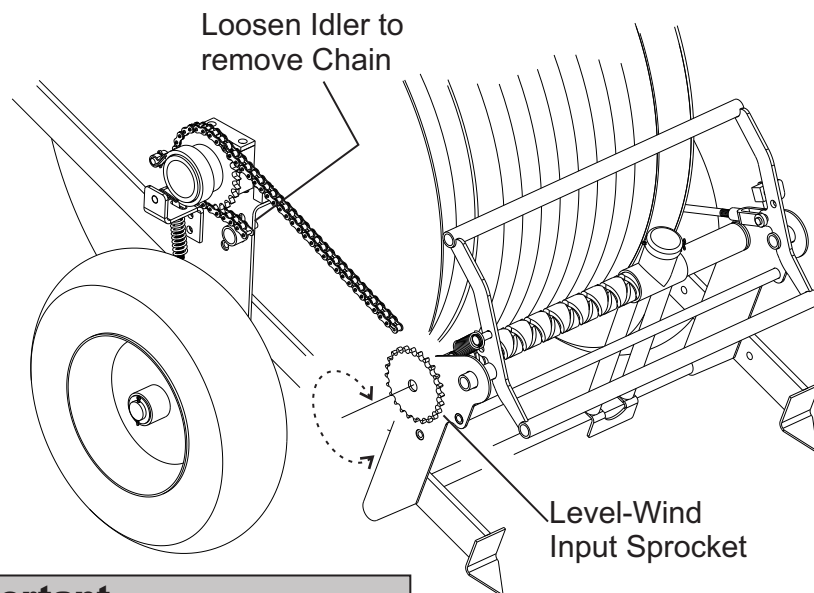
Figure 2



# Adjustments

3. To change the timing, remove the Shield and disconnect the Level-Wind Drive Chain from the right hand side of the Water-Reel. Rotate the Level-Wind Input Sprocket until the Tube Follower is positioned as described in step #2. Reinstall the Level-Wind Drive Chain and Shield.

The Level-Wind will now be in proper timing.



## **Important**

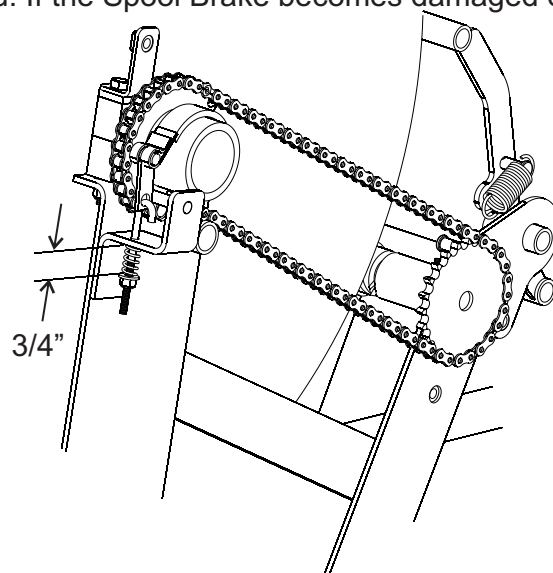
Never attempt to re-time the Water-Reel without first pulling all the Tube out. Changing the timing with some of the Tube still on the Spool may result in damage to the irrigation Tube and/or the Water-Reel.

## **Adjusting The Spool Brake**

The purpose of the Spool Brake on the Water-Reel 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. There is no other purpose for the Spool Brake except to prevent the Spool from coasting during pull out. The Spool Brake does not perform any useful function while the Tube is being retracted. The Spool Brake is the self-energized type that adds resistance in only one direction.

The Spool Brake Band must be in good working order and maintained at the proper tension. The Spool Brake should offer substantial resistance to turning the Spool by hand. If the Spool Brake becomes damaged or broken, it must be replaced.

Adjustments are made to the Spool Brake by tightening or loosening the Brake Adjustment Nut located under the Level-Wind Chain Guard behind the Wheel. Note: it is not necessary to remove the Level-Wind Chain Guard to adjust the Spool Brake. Original factory settings should have the spring length adjustment around 3/4" (bottom of bracket to top of washer). This length will vary depending on the wear of the Spool Brake Band.



## **Important**

When the Tube becomes loose on the Spool, it may appear that the Level-Wind 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.

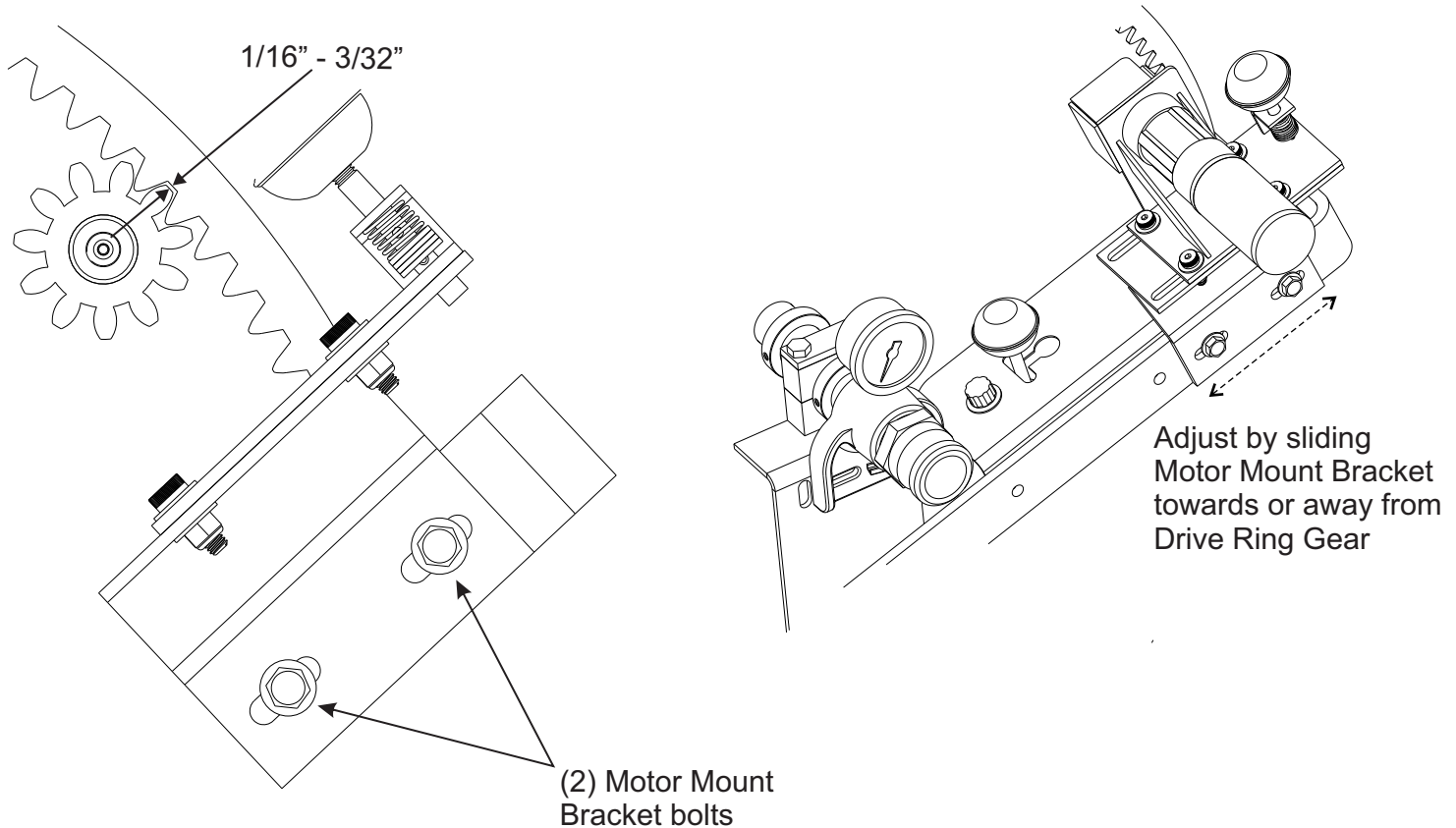
# Adjustments

## Drive Pinion Clearance

With the Motor Mount Pin engaged, the Drive Pinion to Drive Ring Gear clearance should be  $1/16''$  to  $3/32''$  (.063" - .094").

Adjust the Drive Pinion clearance by loosening the two Motor Mount Bracket bolts on the side of the frame and sliding the Motor Mount Bracket in towards or away from the Drive Ring Gear.

Once the correct clearance distance is acquired, re-tighten the two bolts.

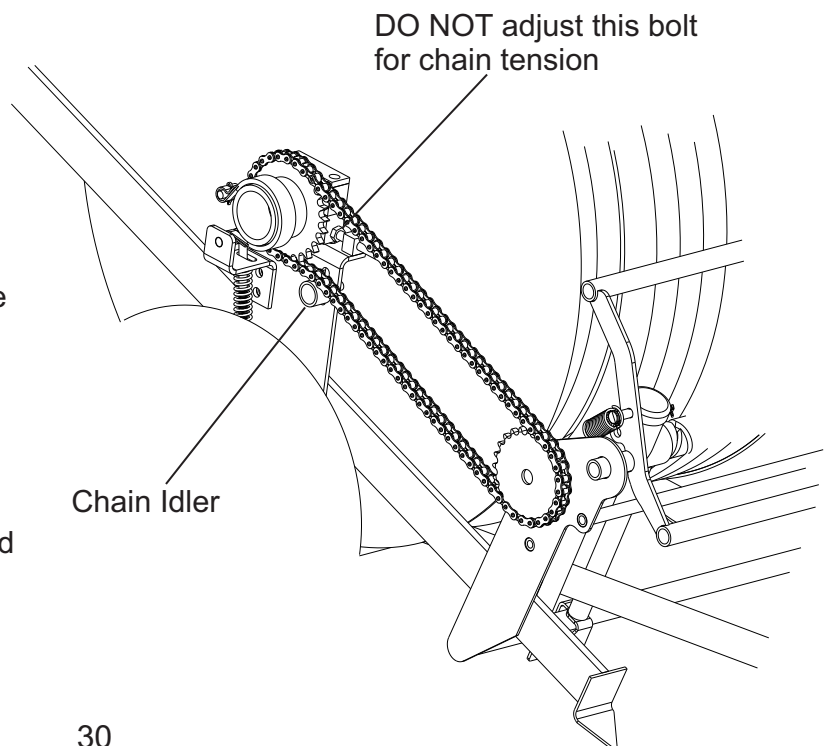


## Level-Wind Chain

The Level-Wind chain tension is adjusted with the Chain Idler located under the Level-Wind Chain Guard.

To adjust, loosen the nut behind the frame and move the idler either up or down.

**NOTE: DO NOT** attempt to adjust the Level-Wind Chain tension with the Spool Bearing Bolt.





# **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. The original manufacturer warrants such component parts 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.**

**700 SOUTH SCHRADER AVE.**

**HAVANA, ILLINOIS 62644**

# **Dealer Checklist**

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 | _____ 6. Sprinkler Nozzles      |
| _____ 2. Decals in place and legible | _____ 7. Clutch Disengage       |
| _____ 3. Tire pressure               | _____ 8. Supply Hose Fittings   |
| _____ 4. Lubrication (Page 13)       | _____ 9. Touch up paint & clean |
| _____ 5. Spool Brake adjustment      |                                 |

## **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 your 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 \_\_\_\_\_