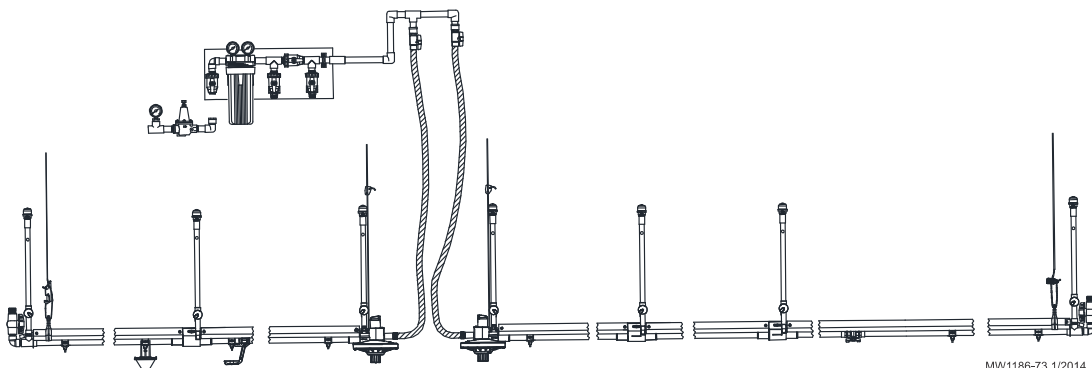


**STEADI-FLOW[®] RELIA-FLOW[®] and ADVANTI-FLOW[®]
Nipple Drinking System**



Installation and Operators Manual

Installation and Operators Manual

Contact your nearby Chore-Time distributor or representative for additional parts and information

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Introduction

Limited Warranty

CTB, Inc. (“Chore-Time”) warrants new CHORE-TIME STEADI-FLOW®, RELIA-FLOW®, and ADVANTI-FLOW® Nipple Drinker products manufactured by Chore-Time to be free from defects in material or workmanship under normal usage and conditions, for One (1) year from the date of installation by the original purchaser (“Warranty”). If such a defect is determined by Chore-Time to exist within the applicable period, Chore-Time will, at its option, (a) repair the Product or Component Part free of charge, F.O.B. the factory of manufacture or (b) replace the Product or Component Part free of charge, F.O.B. the factory of manufacture. This Warranty is not transferable, and applies only to the original purchaser of the Product.

CONDITIONS AND LIMITATIONS

THIS WARRANTY CONSTITUTES CHORE-TIME’S ENTIRE AND SOLE WARRANTY AND CHORE-TIME EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSES. CHORE-TIME shall not be liable for any direct, indirect, incidental, consequential or special damages which any purchaser may suffer or claim to suffer as a result of any defect in the Product. Consequential or Special Damages as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs, and operational inefficiencies. *Some jurisdictions prohibit limitations on implied warranties and/or the exclusion or limitation of such damages, so these limitations and exclusions may not apply to you. This warranty gives the original purchaser specific legal rights. You may also have other rights based upon your specific jurisdiction.*

Compliance with federal, state and local rules which apply to the location, installation and use of the Product are the responsibility of the original purchaser, and CHORE-TIME shall not be liable for any damages which may result from non-compliance with such rules.

The following circumstances shall render this Warranty void:

- Modifications made to the Product not specifically delineated in the Product manual.
- Product not installed and/or operated in accordance with the instructions published by the CHORE-TIME.
- All components of the Product are not original equipment supplied by CHORE-TIME.
- Product was not purchased from and/or installed by a CHORE-TIME authorized distributor or certified representative.
- Product experienced malfunction or failure resulting from misuse, abuse, mismanagement, negligence, alteration, accident, or lack of proper maintenance, or from lightning strikes, electrical power surges or interruption of electricity.
- Product experienced corrosion, material deterioration and/or equipment malfunction caused by or consistent with the application of chemicals, minerals, sediments or other foreign elements.
- Product was used for any purpose other than for the care of poultry and livestock.

The Warranty and Extended Warranty may only be modified in writing by an officer of CHORE-TIME. CHORE-TIME shall have no obligation or responsibility for any representations or warranties made by or on behalf of any distributor, dealer, agent or certified representative.

Effective: **April, 2014**

About this Manual

The intent of this manual is to help you in two ways. One is to follow step-by-step in the order of assembly of your product. The other way is for easy reference if you have questions in a particular area.

Important: Read ALL instructions carefully before starting construction.

Important: Pay particular attention to all SAFETY information.

- *Metric measurements are shown in millimeters and in brackets, unless otherwise specified. “” equals inches and “'” equals feet in English measurements.*

Examples:

1" [25.4]

4' [1 219]

- Optional equipment contains necessary instructions for assembly or operation.
- Very small numbers near an illustration (*i.e.*, 1257-48) are identification of the graphic, not a part number.

Note: The original, authoritative version of this manual is the English version produced by CTB, Inc. or any of its subsidiaries or divisions, (hereafter collectively referred to as "CTB"). Subsequent changes to any manual made by any third party have not been reviewed nor authenticated by CTB. Such changes may include, but are not limited to, translation into languages other than English, and additions to or deletions from the original content. CTB disclaims responsibility for any and all damages, injuries, warranty claims and/or any other claims associated with such changes, inasmuch as such changes result in content that is different from the authoritative CTB-published English version of the manual. For current product installation and operation information, please contact the customer service and/or technical service departments of the appropriate CTB subsidiary or division. Should you observe any questionable content in any manual, please notify CTB immediately in writing to: CTB Legal Department, P.O. Box 2000, Milford, IN 46542-2000 USA.

Safety Information

Caution, Warning and Danger Decals have been placed on the equipment to warn of potentially dangerous situations. Care should be taken to keep this information intact and easy to read at all times. Replace missing or damaged safety decals immediately.

Using the equipment for purposes other than specified in this manual may cause personal injury and/or damage to the equipment.

Safety–Alert Symbol



This is a safety–alert symbol. When you see this symbol on your equipment, be alert to the potential for personal injury. This equipment is designed to be installed and operated as safely as possible...however, hazards do exist.

Understanding Signal Words

Signal words are used in conjunction with the safety–alert symbol to identify the severity of the warning.



DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



CAUTION indicates a hazardous situation which, if not avoided, **MAY** result in minor or moderate injury.

Safety Instructions

Follow Safety Instructions

Carefully read all safety messages in this manual and on your equipment safety signs. Follow recommended precautions and safe operating practices.

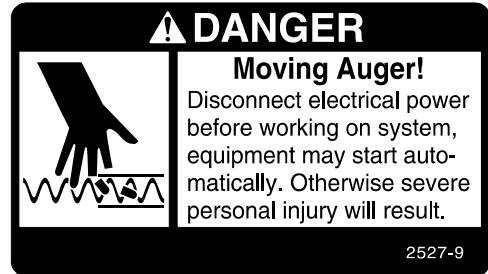
Keep safety signs in good condition. Replace missing or damaged safety signs.

Decal Descriptions

DANGER: Moving Auger

This decal is placed on the Panel Weldment.

Severe personal injury will result, if the electrical power is not disconnected, prior to servicing the equipment.



DANGER: Electrical Hazard

Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.

Ground all electrical equipment for safety.

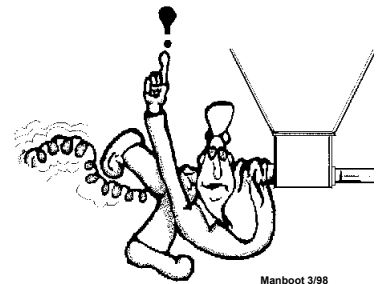
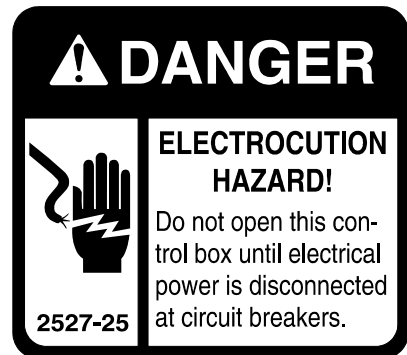
All electrical wiring must be done by a qualified electrician in accordance with local and national electric codes.

Ground all non-current carrying metal parts to guard against electrical shock.

With the exception of motor overload protection, electrical disconnects and over current protection are not supplied with the equipment.

CAUTION:

Use caution when working with the Auger—springing Auger may cause personal injury.



Manboot 3/98

Planning

Incoming Pressure

A good starting point for incoming pressure is 25 psi [172 kPa]. Optimal system life is achieved by finding the lowest pressure that provides adequate flow during flush. Do not expose equipment to above 35 psi.

CHORE-TIME recommends a minimum incoming water pressure of 3 psi [21 kPa] for gravity feed systems. This is achieved by placing the tank 8' [2.4m] above the Nipple Line. For every 28" [711 mm] of water column, water pressure increases one pound.

	Filter Control Panels		Volumatic Regulators
Part Number	36802-1	9275/36802-2	55476-X
Incoming Pressure	3-11 psi	11-35 psi*	3-35 psi*
	*For incoming pressure between 35 and 125 psi use the 35308 pressure step down assembly prior to the filter control panel.		

Incoming water supply should be at least a 1" [25 mm] diameter incoming line (preferably PVC) from a single well. Other factors such as: multiple wells, the distance from the well(s), and the needs of other equipment which requires water could demand larger lines. (A second incoming water supply should be used when 30,000 or more birds are present in the house).

Note: All pressure settings are to be made when no water is flowing.

Filtration

Good water quality maximizes performance of the equipment, minimizes maintenance and repair, and increases the life of the system.

CHORE-TIME recommends a water test by a reputable water treatment company in the area. Water treatment and/or extra filtration may be required, depending on the water test results.

A minimum of 1,140 mesh (105 microns) filter is recommended. For systems with high sand/silt levels a secondary, more aggressive 1250 mesh (10 micron) or 635 mesh (20 micron), filter should be placed down stream of the 140 mesh filter.

House Layouts

- Line length 500' [152 meters] max. Split line into two halves for longer barns.
- For gravity feed systems, lines should be 250' [76 m] max.
- For breeders, place the water line INSIDE The ULTRAFLO®, or Genesis® Breeder Feeder Loop.
- For a pan feeder system, place the water line within three feet [1m] of the feed line.
- For pullets, it is ideal to place water lines on either side of the feed lines within 3 ft. [1m].
- In areas where house temperature will reach 100°F (40°C) for sustained periods and no evaporative cooling or tunnel ventilation is used, an anti-roost system is needed.

RELIA-FLOW® and STEADI-FLOW®

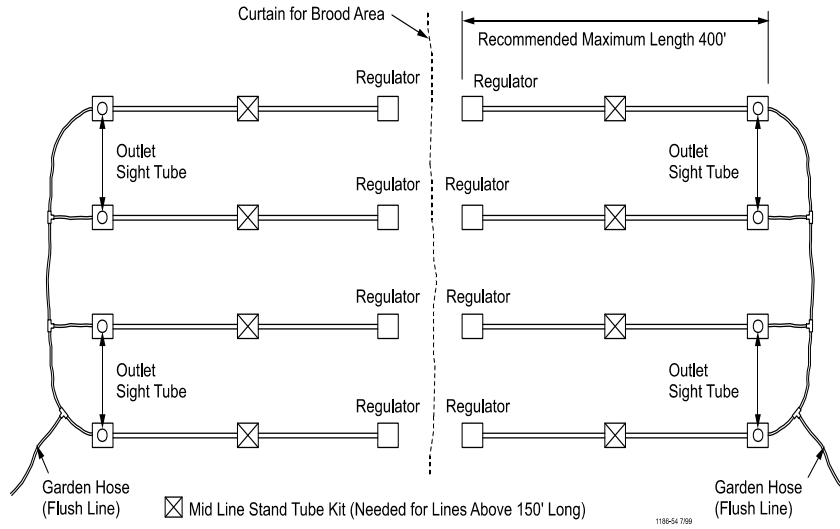


Figure 1. Preferred Layout for RELIA-FLOW® and STEADI-FLOW®

Alternate Layout #1

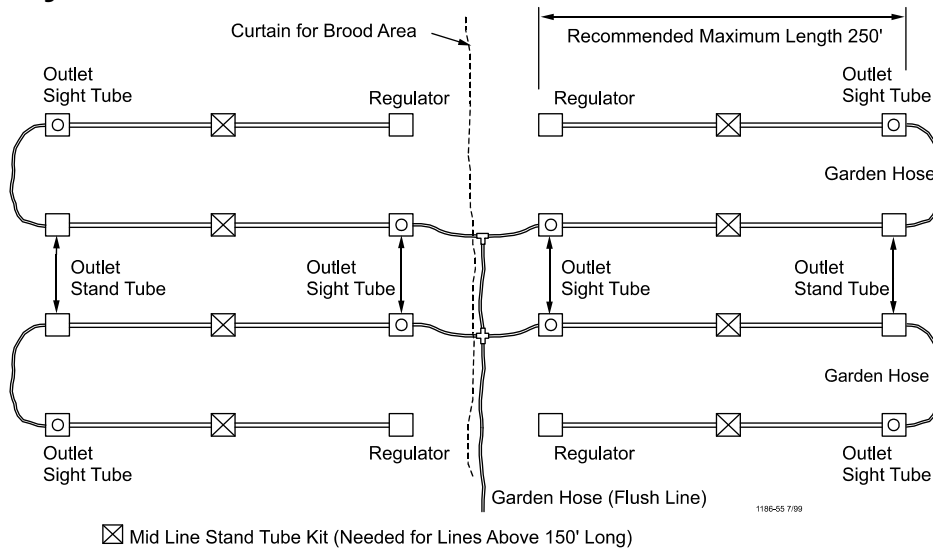
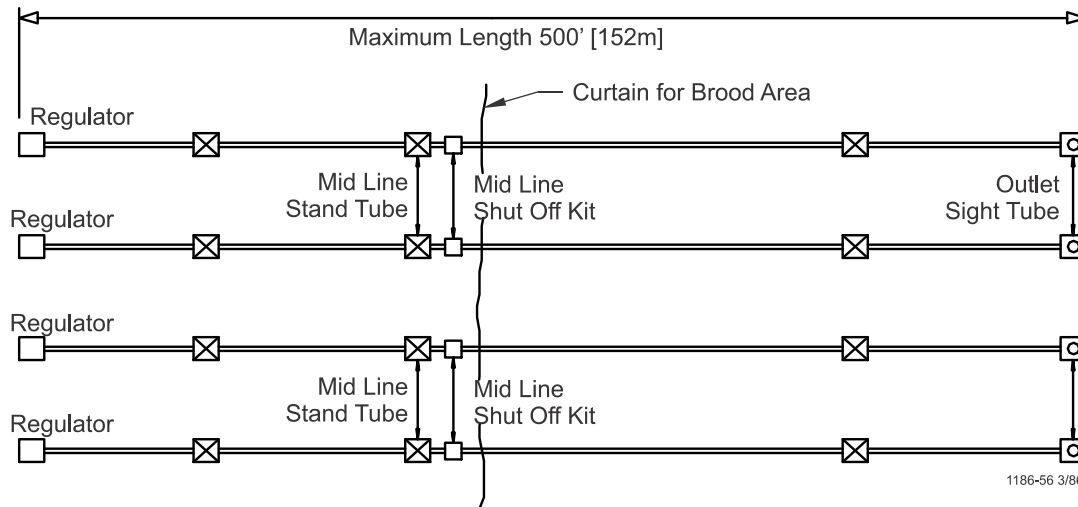


Figure 2. Alternate Layout for RELIA-FLOW® and STEADI-FLOW®

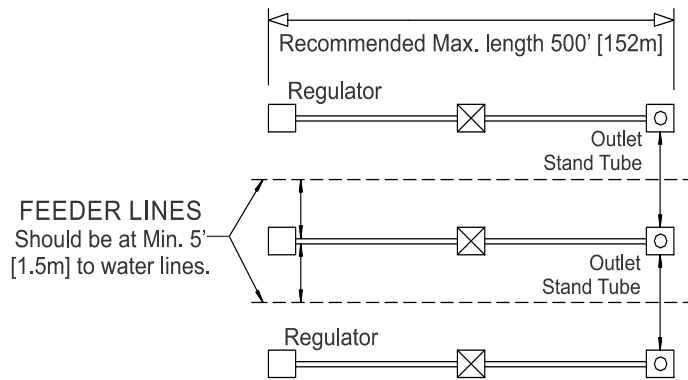
Alternate Layout #2



☒ Mid Line Stand Tube (Needed for Lines above 150' [152m] long)

Figure 3. Alternate Layout #2 for RELIA-FLOW® and STEADI-FLOW®

ADVANTI-FLOW® Preferred Layouts



☒ Mid Line Air Remover Kit (needed for lines above 150' [46m] long)

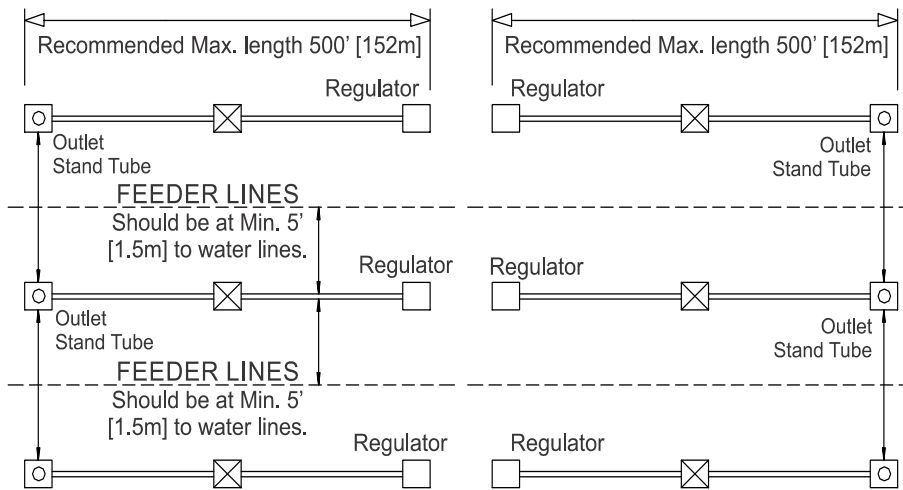
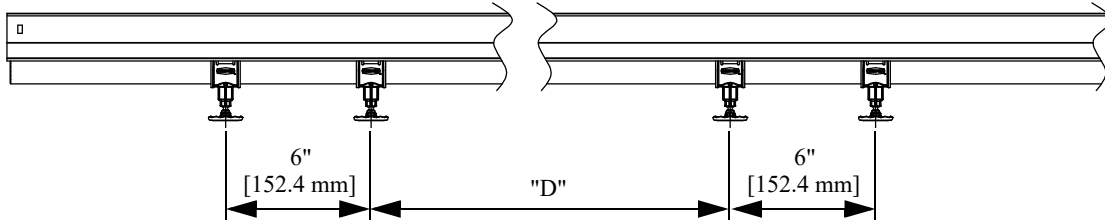


Figure 4. Preferred Layouts for ADVANTI-FLOW®

Nipple Drinker Configurations

The CHORE-TIME nipple drinker is available with nipples spaced 6" [150 mm], 8" [200 mm], 10" [250 mm], 12" [300 mm], 15" [380 mm], 20" [508 mm], or 24" [610 mm] on the 10' [3 m] pipe.



ADVANTI-FLOW		STEADI-FLOW & RELIA-FLOW	
Number of Nipples	Spacing "D"	Number of Nipples	Spacing "D"
6	34" [863.6 mm]	5	24" [610 mm]
8	24" [609.6 mm]	6	20" [508 mm]
10	18" [457.2 mm]	8	15" [381 mm]
12	14" [355.6 mm]	10	12" [305 mm]
--	--	12	10" [254 mm]
--	--	15	8" [203 mm]
--	--	20	6" [152 mm]

Figure 5.Nipple Spacing

The CHORE-TIME nipple drinker is available with the standard support channel for broiler applications and heavy support channel for pullets and breeders. See Figure 6. and Figure 7.

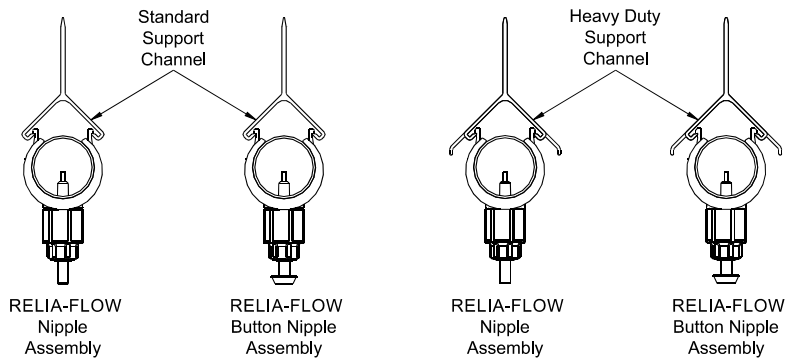
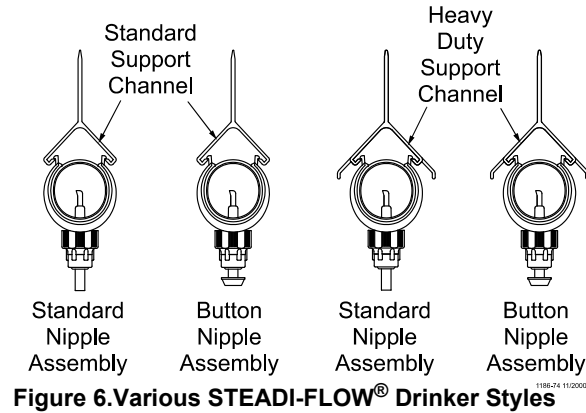


Figure 7.Variety RELIA-FLOW® Drinker Styles

Manufacturer's Recommendations: Birds per Nipple

Type	Recommended Number birds per Nipple	Product Line	Recommended Options
Broiler	30 for brooding 10-15 for grow-out	STEADI-FLOW® or RELIA-FLOW®	Standard channel-Standard Flow (Button options) or Standard channel-Hi Flow w/catch cup (Button options)
Breeder	8-10 for hot to warm climates 10-12 for warm to cool climates	STEADI-FLOW® or RELIA-FLOW®	Heavy Duty channel-standard-flow or Heavy Duty channel High Flow w/catch cup (Hot climates Only)
Pullets	16-24 for brooding 8-12 for grow out	STEADI-FLOW® or RELIA-FLOW®	Standard channel-Standard Flow
Poults	10-15 for brooding 10-15 for growout	ADVANTI-FLOW®	6 wks or less-Standard channel-Standard flow 7-9 wks-Heavy Duty channel (Hi Flow w/Buttons recommended)

Optional Slope Compensator

See “Optional Slope Compensator:” on page 23 for info on how to plan and install Slope Compensators.

Installation

Tools Needed

Regular Screwdriver	Bolt Cutters or Hack Saw
Locking Pliers	PVC Cleaning Solvent
File	Electrical Drill and Drill Bits
Saw to cut PVC Tubes	Another Person to help
Screw-Hook Driver	

Filter Control Panel Installation

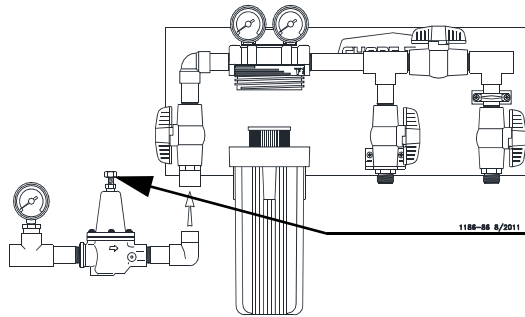
Pump the well for two days prior to hookup of the system to remove sand, mud, and debris.

The step down regulator and gauge assembly is used to reduce the water pressure supplying the Filter Control Panel. The Filter Control Panel and step down regulator should be installed in a convenient location where incoming and outgoing water supply lines can be easily run. The Control Panel must be out of the reach of birds.

The Filter Control Panel is shipped secured to a mounting board. The mounting board and Filter Control Panel should be secured to wall or post using lag bolts (not supplied).

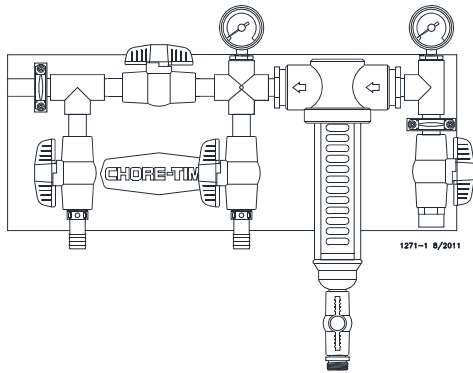
The step down regulator and gauge assembly is shipped un-assembled. Assemble the step down regulator and gauge assembly components as specified in the instruction (MW1052) shipped with the kit.

Connect the step down regulator and gauge assembly to the Filter Control Panel, as shown in **Figure 8**.

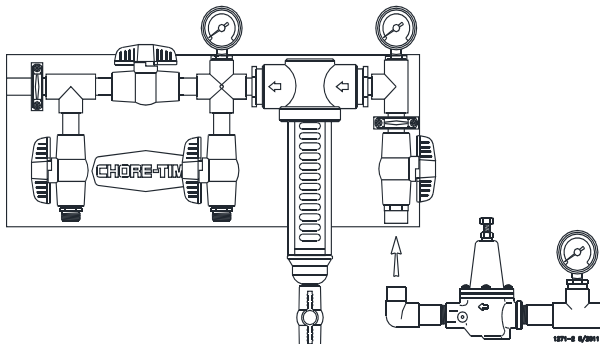


Standard Control Panel
Part Number 9275
(11+ p.s.i. [75.8+ kPa])

(35308) Step Down Regulator and Gauge Kit



Flushable Low Pressure Control Panel
Part Number 36802-1
(5-10 p.s.i. [34.5 - 69.0 kPa])



Flushable High Pressure Control Panel
Part Number 36802-2
(11+ p.s.i. [75.8+ kPa])

Figure 8. Optional Control Panels

Filter Selection

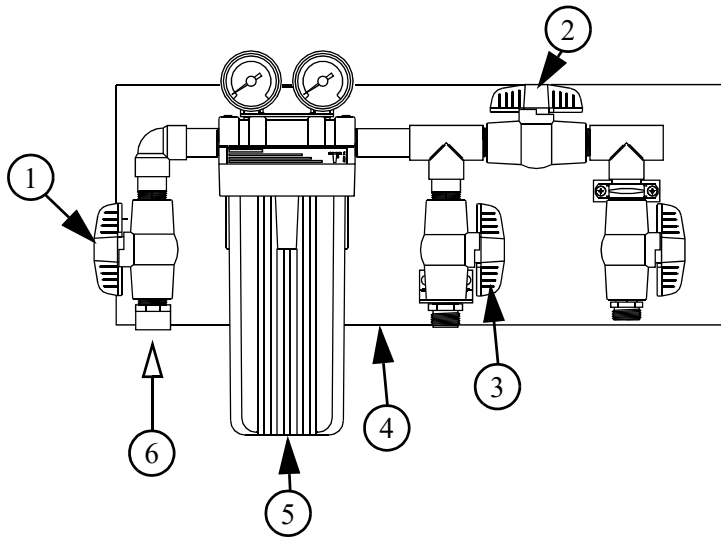
The Standard Filter Control Panel is supplied with a 20 micron size filter cartridge. The Flushable is supplied with a 105 micron cartridge. The the larger the micron size, the larger the particle size that can pass through the filter and possibly cause leaking valves. The smaller micron size filter cartridges will require more frequent cleaning or replacement.

DO NOT use cord wound, paper, or composite filter cartridges, they can break down and get into the water line, which can result in leaking valves.

Filter Change Procedure

When the outlet side (right) gauge shows a lower pressure than the inlet side (left) gauge, the filter cartridge is becoming dirty and is needing to be either cleaned or replaced. Back for filter cartridge access procedure.

1. Close valve 1 and 2, open valve 3 to relieve pressure.
2. Remove bowl to change or clean filter cartridge, replace bowl and close valve 3.
3. Open valve 1, slightly open valve 3 to remove air, close valve 3 and open valve 2.



Item	Description
1	Valve 1
2	Valve 2
3	Valve 3
4	Filter Control Panel
5	Bowl
6	Water Flow

Figure 9. Filter Change Procedure

Filter Cleaning/Flushable Filter

Follow the appropriate Filter Cleaning instructions for your system.

Standard Panel Systems:

1. To clean the filter, close the incoming valve on the Control Panel.
2. Unscrew the Filter Canister and remove the Filter Tube.
3. Rinse the Filter Tube with clean water to remove debris and/or build-up from the Screen.
4. Reassemble the Filter Tube and Canister on the Control Panel.
5. Open the incoming valve.

Flushable Systems

1. To clean the filter, close the outgoing valves and open the valve below the filter.
2. Allow the water to run at full pressure to clean the filter.
3. When finished, close the valve below the filter and open the appropriate medicator valves or outlet valve.

Water Meter Installation

Badger® Water Meter Installation Wiring

When connecting to the Chore-Tronics® control, proper polarity must be maintained. The Green lead is connected to the DI (digital input) of your choice, and the black lead is connected to the ground terminal of the chosen DI. The Red power connection will extend battery life of the Water Meter if used.

The distance from the Controller can be long, if using twisted pair wire (20 ga. Minimum). If interference causes high counts, then a filtration capacitor (54001) will be needed.

Chore-Tronics® Control
DI of your choice

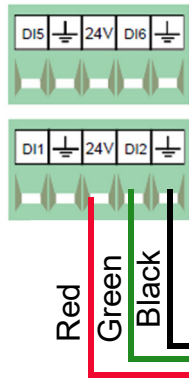
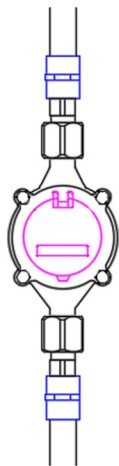


Figure 10. Water Meter Wiring

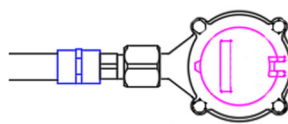
Mounting

The Badger® Water Meter will have longest life if installed horizontally with the head up. Refer to the Badger® installation manual for more information. If installed otherwise, wear will accelerate. If mounted vertically, water must flow up for an accurate reading. Install the Water Meter 1' [30.5 cm] downstream from filters.

Shorter Life!

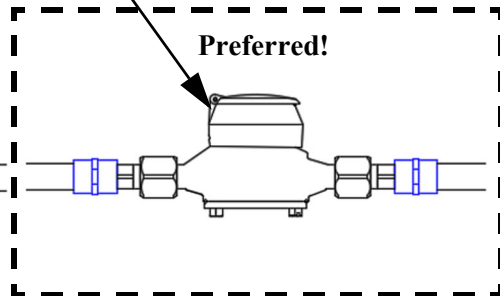


Shorter Life!



Water Meter Head

Preferred!



Ground

Figure 11. Water Meter Mounting

Water Meter Start Up

Attention! Air and debris in the supply line must be removed before pressurizing the meter.

Procedure

If the Water Meter is located close to the Filter Panel- Valves #1 and #2 can be opened to remove any air and debris from the upstream piping to the inlet point of the Meter. After flushing, valve #2 can be closed and the Meter can be installed. Once installed, valve #2 must be opened **very slowly** to fill the downstream line and pressurize the Meter without damaging it.

If the water meter is not located close to the Filter Panel- another optional valve can be installed close to the Meter. Follow the instructions above using Optional Valve and Valve #2.

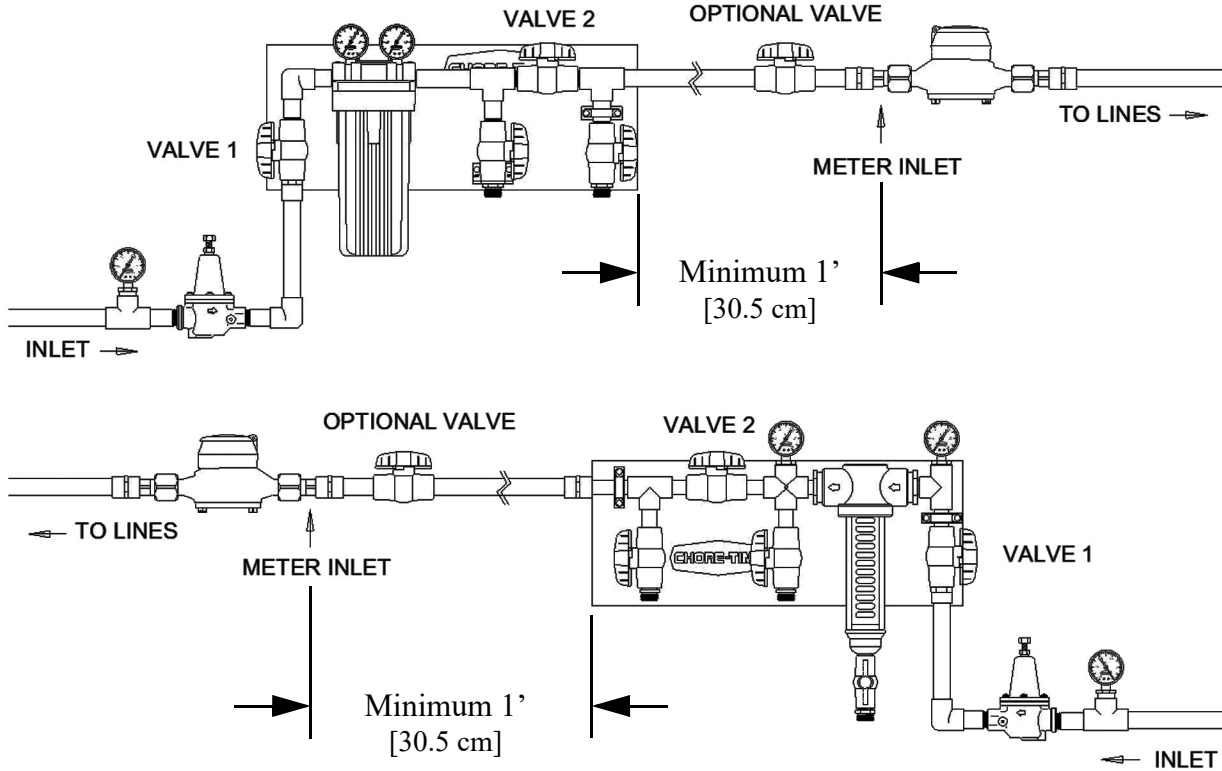


Figure 12. Water Meter Start Up

High Flow Alarm

See the Chore-Tronics® Manual (MT2398) for High Flow Rate Alarm information.

Low Pressure Alarm

See MT2398 manual for Low Pressure Switch (46597) information. Place the Low Pressure Switch in the Control Room, after the Step Down Regulator.

PDS Control Installation

The PDS™ (Pneumatic Distribution System) control provides a central place to flush watering lines and regulate the water column height.

Each station is capable of controlling up to 2 individual Chore-Time regulators. For example an 8 station control can regulate and flush up to 16 individual regulators.

For more information, refer to the PDS™ Control Manual (p/n MW2467)

Chore-Time offers two different PDS™ Controls.

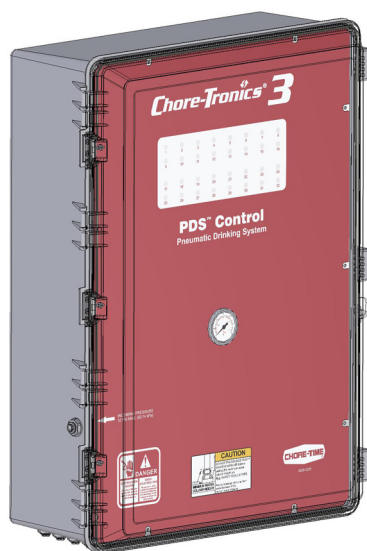
Standard PDS™ Control



1. Change pressure in all lines or flush all lines from one location
2. Automatically flush up to four times per day.
3. Manually flush from one location.

Part Number	Number of stations
52430-4	4
52430-8	8

Chore-Tronics® 3 PDS™ Control



1. Adjust pressure in all lines from Chore-Tronics 3 Control.
2. Automatically flush an infinite number of times per day.
3. Automatic water column compensation as birds drink.
4. Water Column will rise with age of birds.
5. Manually flush from Chore-Tronics 3 Control.

Part Number	Number of stations
56039-4	4
56039-8	8
56039-16	16
56039-32	32

Suspension System Installation

1. Determine where the water line is to be installed. Mark a straight line on the ceiling or rafters using string or chalk line, or winch cable temporarily attached with staples or nails.
2. For installations using wood trusses, the standard screw hook or the optional ceiling hook may be used to hold the pulley assemblies. For installations using steel trusses, the ceiling hooks are available to hold the pulley assemblies. Install hooks 8' [2.4 m] apart for heavy channel water lines and 10' [3 m] apart for standard channel.

Screw hook installations:

Screw the threads all the way in to prevent bending. The opening of the hooks **must** point away from the direction the cable pulls. See **Figure 13**

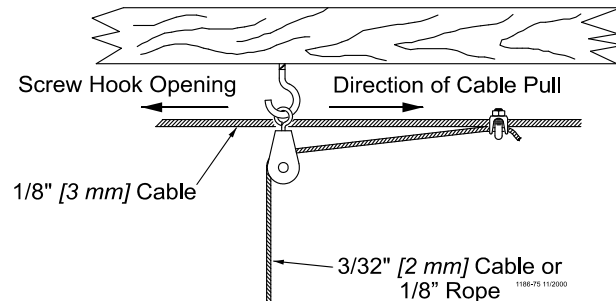


Figure 13. Screw Hook Installation

Ceiling hook installations:

Secure with bolts, self-tapping screws, or weld in place as shown in **Figure 14**. The ceiling hooks may be welded in place, if desired, instead of bolting. The opening of the hooks **must** point away from the direction of cable pulls.

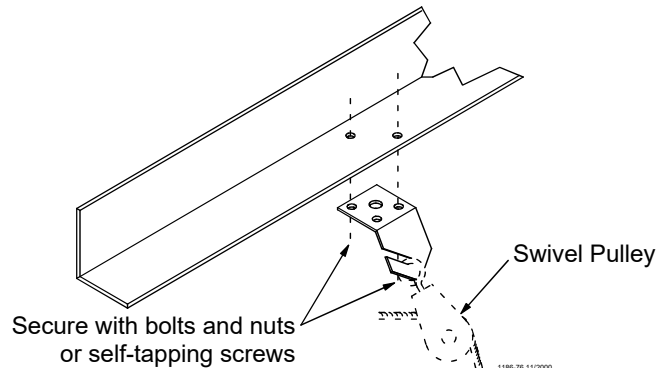


Figure 14. Ceiling Hook Installation

Note: The maximum distance the water line can be raised is equal to the distance of cable travel. (See **Figure 15**).

3. Install the pulley assemblies as shown in **Figure 15**.

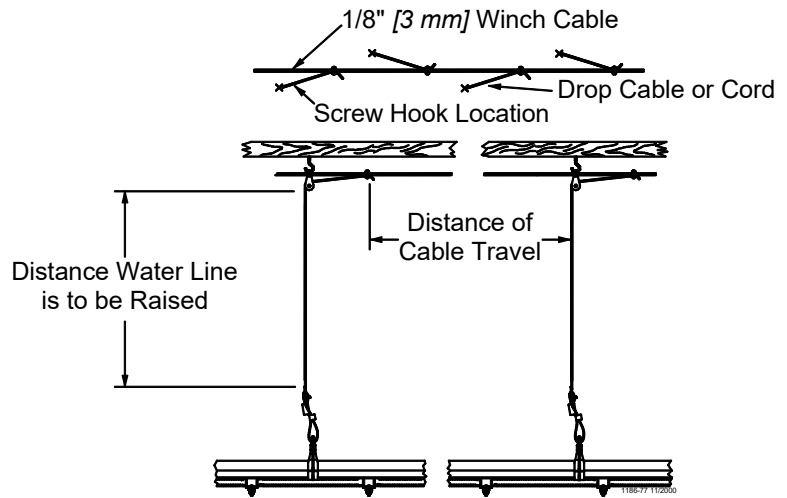


Figure 15. Offset the Screw/Ceiling Hooks

4. Mount the split drum winch as shown in **Figure 16**. Mount the winch to the ceiling or on a 2 x 8" [50 x 200 mm] board spanning at least two rafters for support. Use at least (4) 1/4" lag screws (not supplied) to secure winch to support. For systems less than 150' [46 m], the manual winch may be used in place of the split drum winch.
5. Bolt the winch to the bracket, as shown in **Figure 16**.

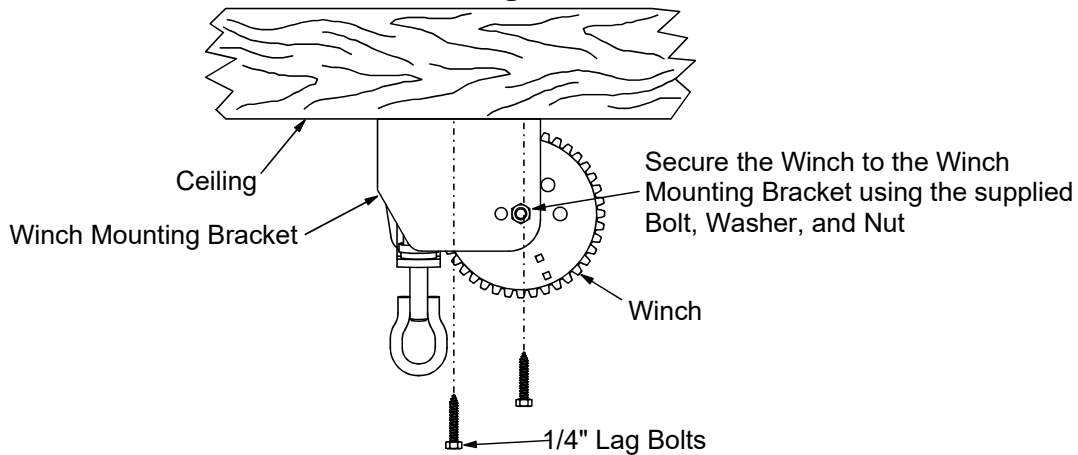


Figure 16. Winch Mounting

6. Attach one end of the 3/16" [4.8 mm] cable to the winch as shown in **Figure 17**. Unroll the cable along the length of the water line.

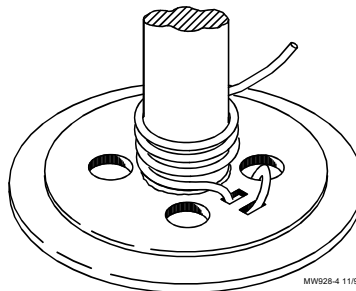


Figure 17. Cable Wrap on Drum

Install Water Line

1. Cut a section of the 3/32" [2.3 mm] cable or cord for each suspension drop. The cable or cord should be approximately three feet [91 cm] longer than the distance from the floor to the ceiling so that it can be attached at the top and bottom.
2. Route the cable or cord around the swivel pulley and attach to the main cable, using a clamp.
3. At the beginning and end of the system route the suspension cable through the top hole of the suspension hanger and around the Cable adjustment Hanger as shown in **Figure 18**. At all the other drops, use the Cord adjuster **as shown**.
4. Assemble the suspension hanger over the support channel at every suspension drop.

Helpful Hint: It may be necessary to fasten a weight to the end of the main cable to maintain tension while connecting the drop lines, etc.

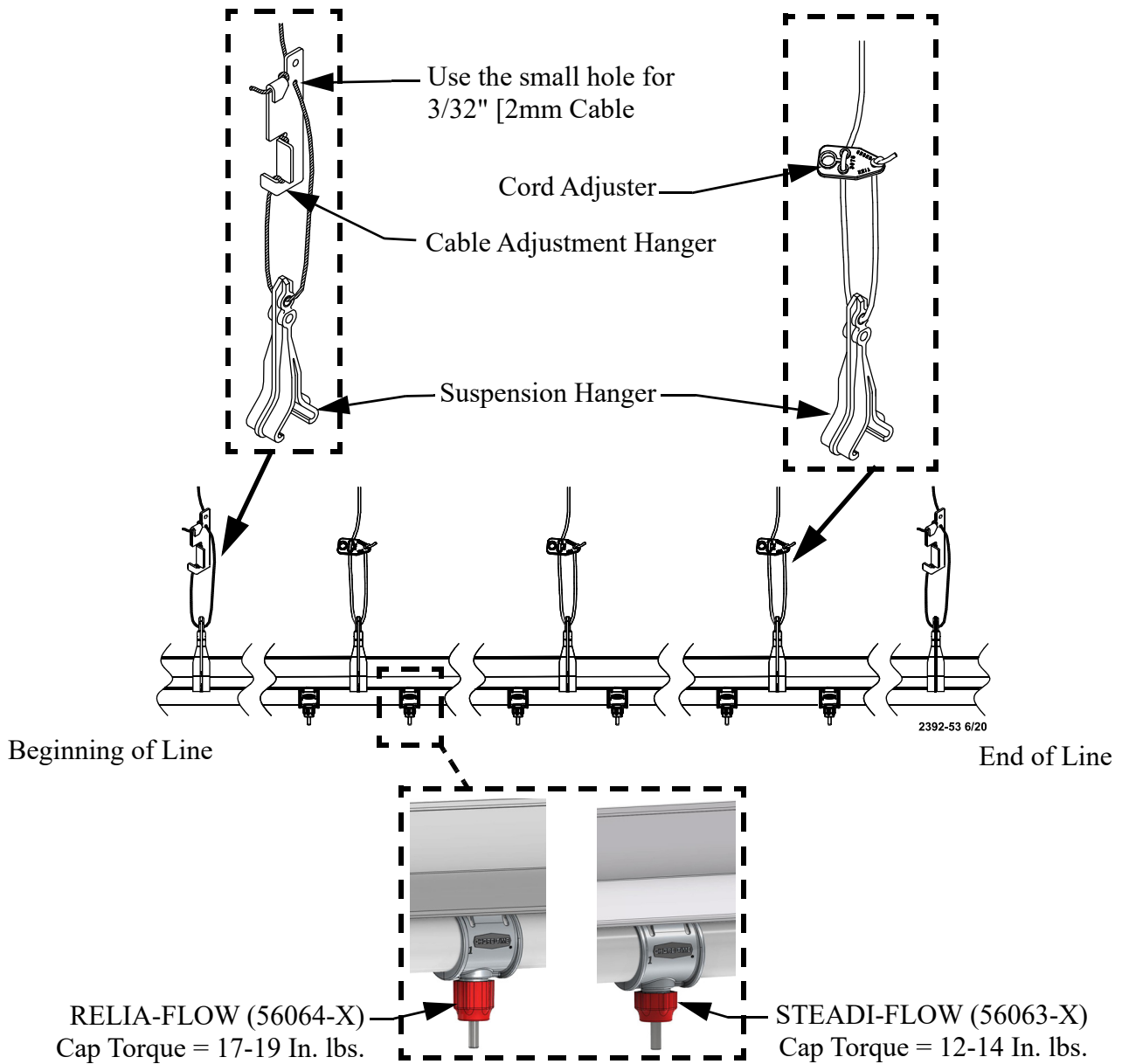


Figure 18. Suspend Water Lines

Lubrication for Stand Tubes, Couplings, Midline Air Removers, slope Compensators, and Regulators

Acceptable Lubrication:

- Plain water or light dish soap mixture.
- Silicone oil based Parker **Super O-Lube** (available through Chore-Time part number 45911).
Note: Very little (thin film) of this product is needed to provide necessary lubrication.

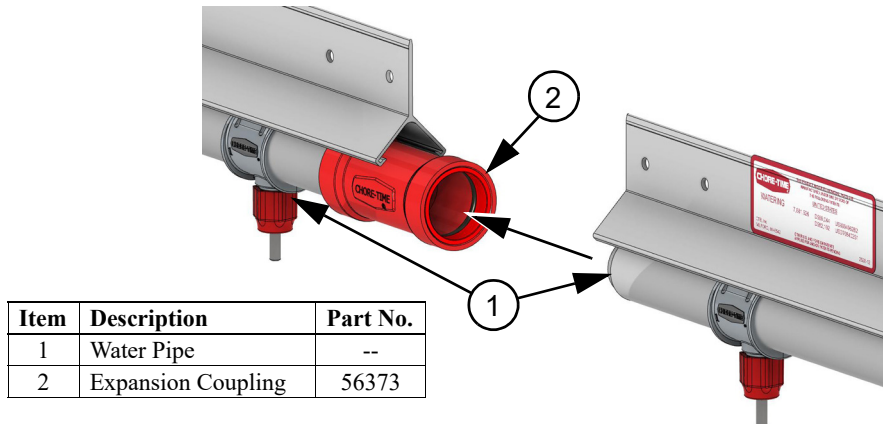
Unacceptable Lubrication:

- **DO NOT USE** petroleum based Parker O-Lube Product! Only the Parker Silicone oil based **Super O-Lube** is acceptable.
- **DO NOT USE** silicone spray! These may have petroleum based properties that may damage water line components.
- **DO NOT USE** any petroleum based product! This would include, but is not limited to, items such as Vaseline, WD 40, motor oil, etc.
- **DO NOT USE** vegetable or any other similar oil! This would include, but is not limited to, sunflower oil, peanut oil, coconut oil, linseed oil, corn oil, etc.

Important! Use of any lubricant during installation, other than those approved by Chore-Time, will void the manufactures warranty.

Expansion Coupling Assembly

1. Raise the suspension to a convenient working height.
2. Make sure the water pipe is lubricated (See above) and fully inserted into the Expansion Coupling. (See **Figure 19**).

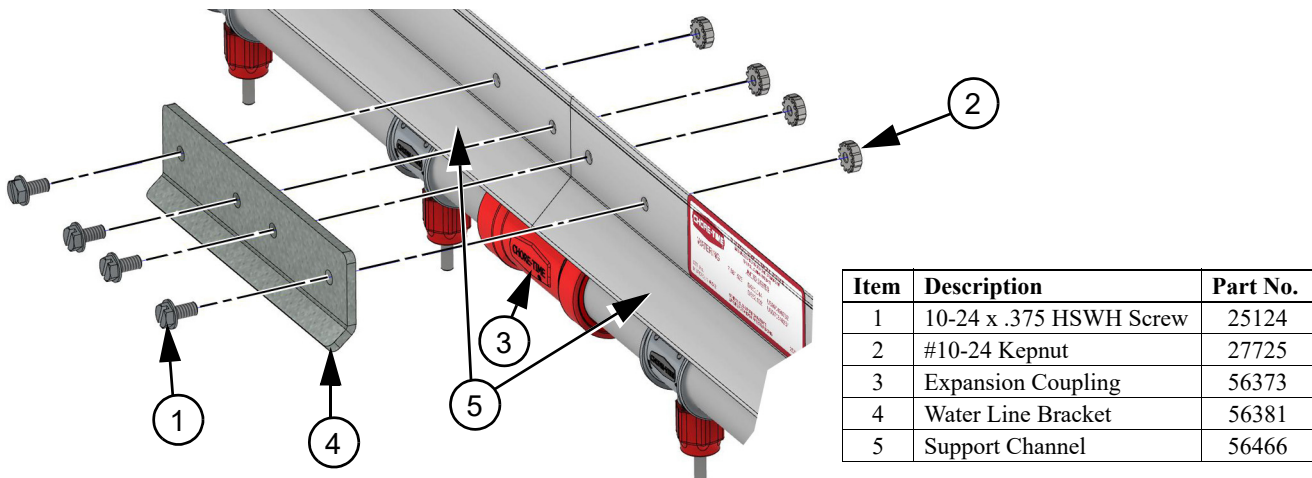


Item	Description	Part No.
1	Water Pipe	--
2	Expansion Coupling	56373

Figure 19. Coupling Liner Assembly Installation

3. Install a Water Line Bracket (**Item 4**) with #10 hardware to fasten the Support Channels together. (See **Figure 20**). Torque until tight. Do Not exceed 30 in.lbs.

Note: The Support Channels will be butted against each other when the Expansion Coupling is properly installed.



Item	Description	Part No.
1	10-24 x .375 HSWH Screw	25124
2	#10-24 Kepnut	27725
3	Expansion Coupling	56373
4	Water Line Bracket	56381
5	Support Channel	56466

Figure 20. Securing the Water Line together

ADVANTI-FLOW® Cup Installation

1. Install the locator to the cup as shown, (See Figure 21).

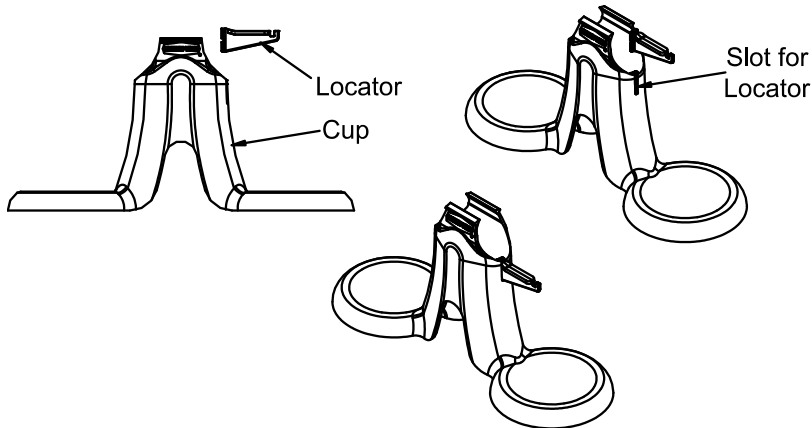


Figure 21. Advanti-Flow Cup Installation

2. Install cup and locator to the pipe assembly.
3. Turn pipe assembly over and install cup over the water pipe. The cup is to be located between a pair of saddle assemblies, (See Figure 22).

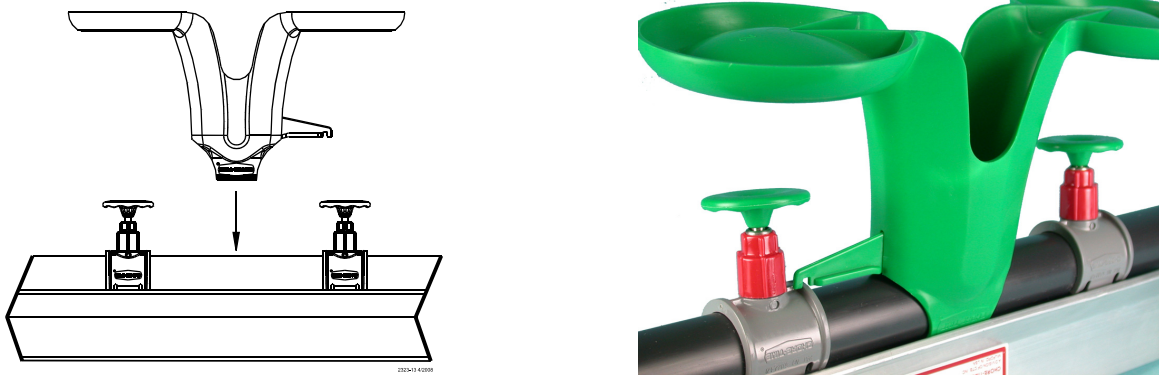
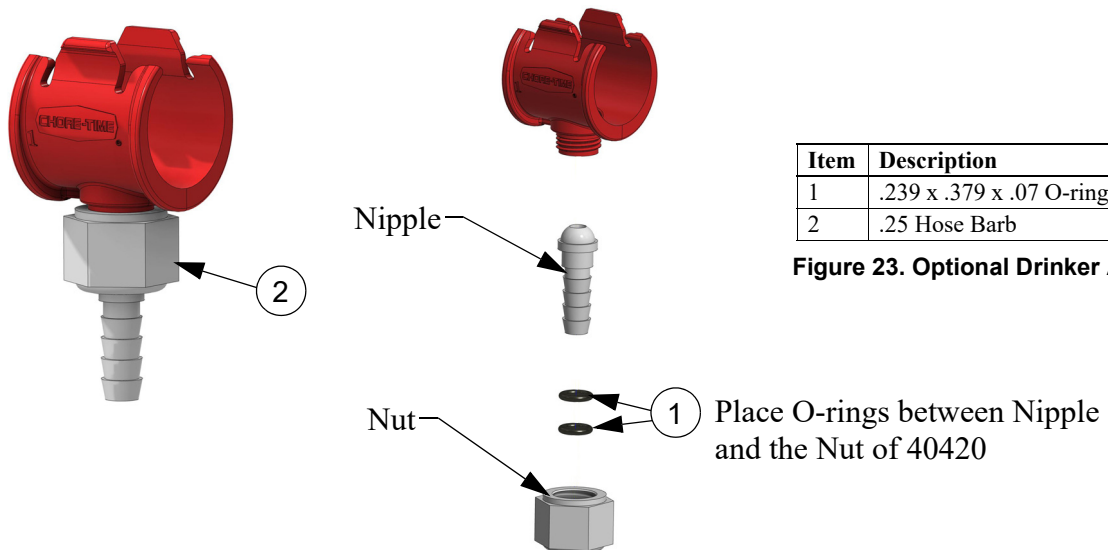


Figure 22. ADVANTI-FLOW Cup Installation

Optional Supplemental Drinker Attachment



Item	Description	Part No.
1	.239 x .379 x .07 O-ring	43898
2	.25 Hose Barb	40420

Figure 23. Optional Drinker Attachment

Mid-Line Stand Tube/Mid-line Shutoff w/ Stand Tube

One mid-line stand tube is required for every 150' [46 m] of nipple watering line, see **Figure 24**.

1. Insert the water pipe into the body.
2. The support channel will slide into the channels on the top of the body.
3. Secure the body to the support channel using the Mid-Line Bracket and the supplied 10-24 stainless steel screw and lock nut. Do not exceed 30 in.lbs.

Mid-Line Shutoff (No Stand Tube)

1. Install a mid line Stand Tube at the first joint before a mid line shut-off valve to insure proper air removal from the water line.
2. Use a flat screw driver to carefully pry 3 or 4 saddles away from the support channel. This will allow easy access to the water pipe for cutting.
3. Use PVC pipe cutters to cut a section out of the water pipe. See **Figure 25**. The shut-off valve may be used as a template to determine the required size of the cut.
4. Apply PVC cement to the couplers on the mid line shut-off valve assembly.
5. Install the mid line shut-off valve on the water line.
6. Reinstall the saddles previously loosened in the support channel.

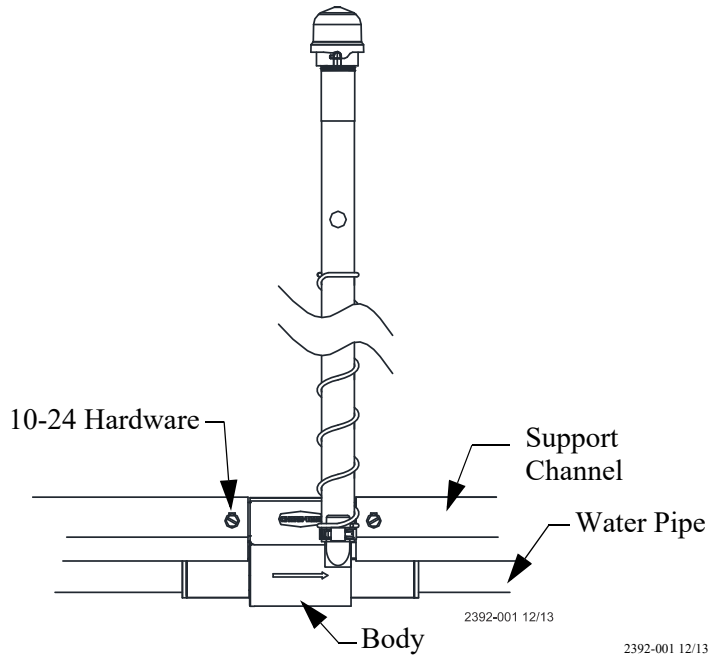


Figure 24. Mid Line Stand Tube Installation

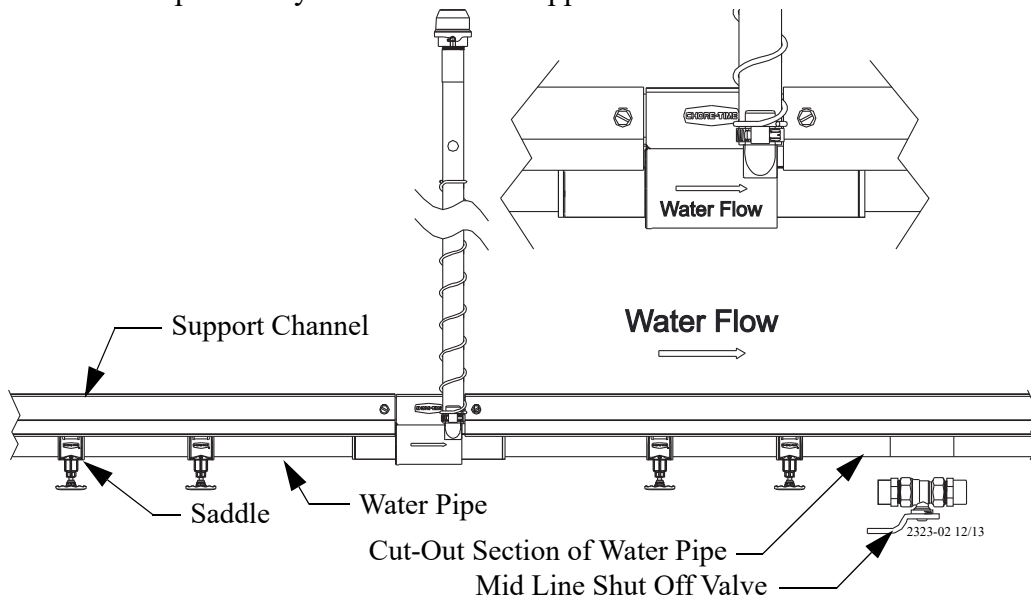


Figure 25. Mid Line Shut-Off Valve Installation

Optional Slope Compensator:

The slope compensator is a pressure compensator for houses that have a gradual slope over the length of the system.

- The inlet end of the slope compensator must be at the top of the slope. Arrow must point in direction of water flow. Do not attempt to push water uphill.
- The high differential Slope Compensator will absorb 7" [17.8 cm] of slope. The Low Differential (Low Dif.) Slope Compensator will absorb 4" [10.2 cm].
- The maximum number of Slope Compensator's used on any one water line is six.
- The maximum amount of slope over any water line is 28 inches [71 cm] of drop.

4" [10cm] Max. Slope (Low Diff. Slope Compensator)
 7" [17.8cm] Max. Slope (High Diff. Slope Compensator)

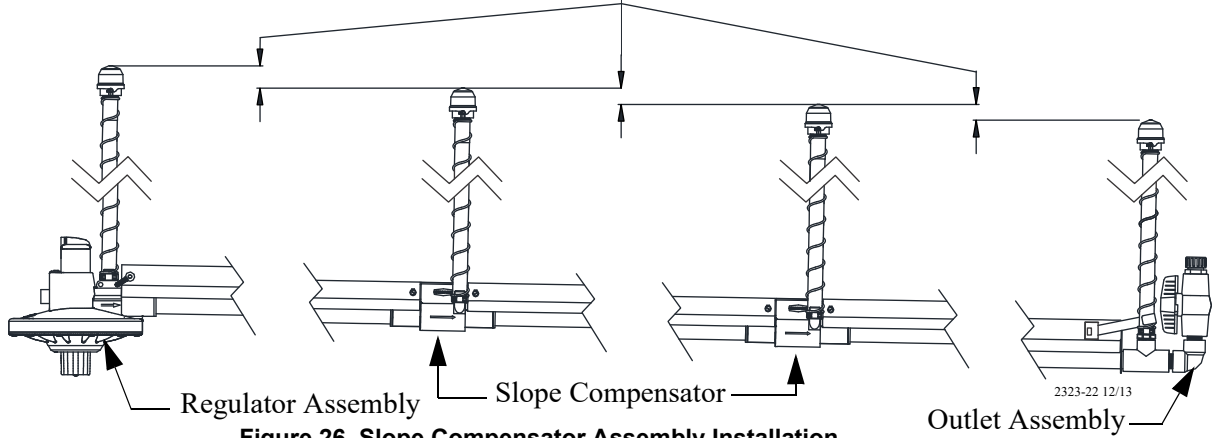


Figure 26. Slope Compensator Assembly Installation

Note: Slope Compensators may require higher Inlet pressures to maintain good flushing. Do Not exceed maximum Inlet pressure on page 7.

Outlet Assembly

The outlet end must be located within 6" [152 mm] of a suspension drop line. This may require adding an additional suspension drop line or cutting the last section of water line to stop within 6" [152 mm] of an existing drop line.

Install the outlet assembly, as shown in Figure 27.

1. Make sure the end of the water pipe is flush with the end of the support channel.
2. Make sure the hanger is properly oriented on the outlet assembly tee prior to securing the water line with PVC cement.
3. Secure the hanger to the support channel, as shown in Figure 27. If the water line was shortened to terminate under a suspension drop line, it may be necessary to drill a hole in the support channel for the 10-24 stainless truss head screw and lock nut. The Stand Tube Bracket may be used as a template to determine proper hole location.

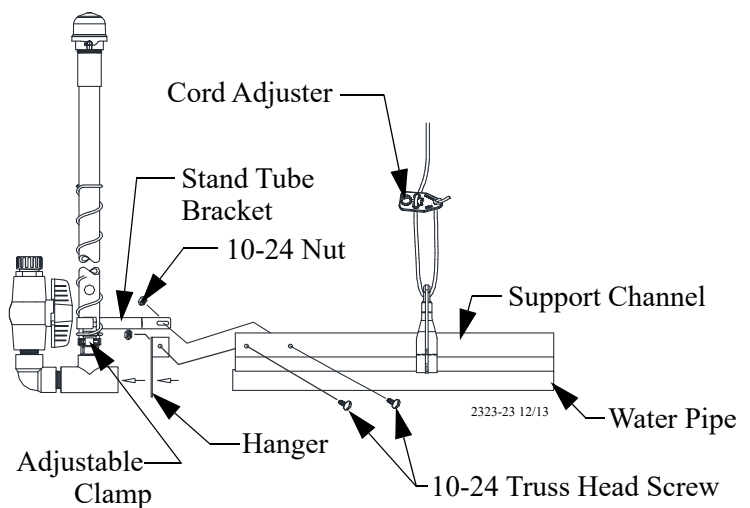


Figure 27. Outlet Assembly Installation

Notes: The Hanger prevents the water pipe from separating from the Channel.

The Stand Tube Bracket prevents the Water Line Pipe from sliding relative to the Channel.

Regulator Assembly - VOLUMATIC™

Assemble and install the regulator assembly, as shown in **Figure 28**.

1. Glue the included NH male adapter fitting or optional street ell and HN male adapter fitting to the inlet. **Be careful not to get glue inside the regulator.**
2. Slide the outlet end over the watering pipe and into the end of the channel. It helps to lubricate the watering pipe. See **“Acceptable Lubrication:”** on page 20.
3. Slide the regulator bracket into the hole provided in the regulator and fasten into the hole provided in the channel with the included #10-24 x 5/8" hex washer head screw and #10-24 hex nut.

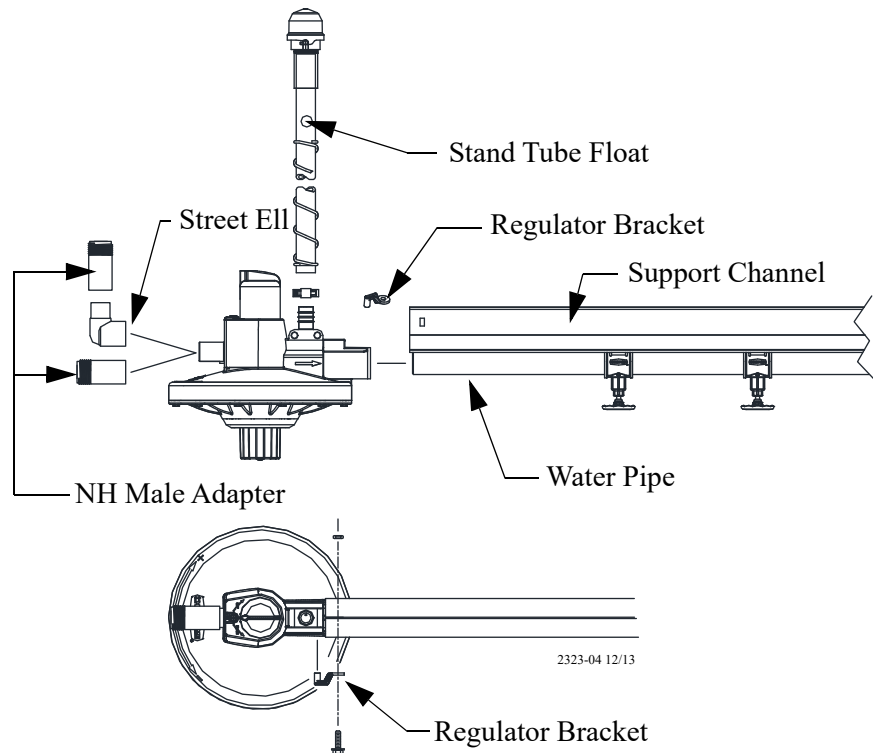


Figure 28. Regulator Assembly Components

VOLUMATIC™ Regulator Operation Guide

- Shut Off: Turn the selector knob clockwise until it stops.
- Turn On: Turn the selector knob until it points to the ON position.
- Flush: Turn the selector knob fully counter-clockwise until it stops. For Auto Flush see **Chore-Time PDS Control Manual MW2467**).
- When flushing, make sure the outlet line is clear of restrictions. Excessive back pressure can damage the regulator.
- The water column is set by turning the adjustment knob on the bottom of the regulator in the direction shown on the regulator. (For Auto Adjust see **Chore-Time PDS Control Manual MW2467**).
- Adjust the operating pressure as recommended in the Nipple Waterer Quick Reference Sheet. See page 32.
Standard Regulator Maximum adjustment is 30" [76.2 cm].
K Spring Regulator Maximum adjustment is 80" [203.2 cm].
- If flush pressure is excessive (>15 psi), the regulator will relieve pressure to prevent damage further down the system. See **“Troubleshooting”** on page 40. for more info.

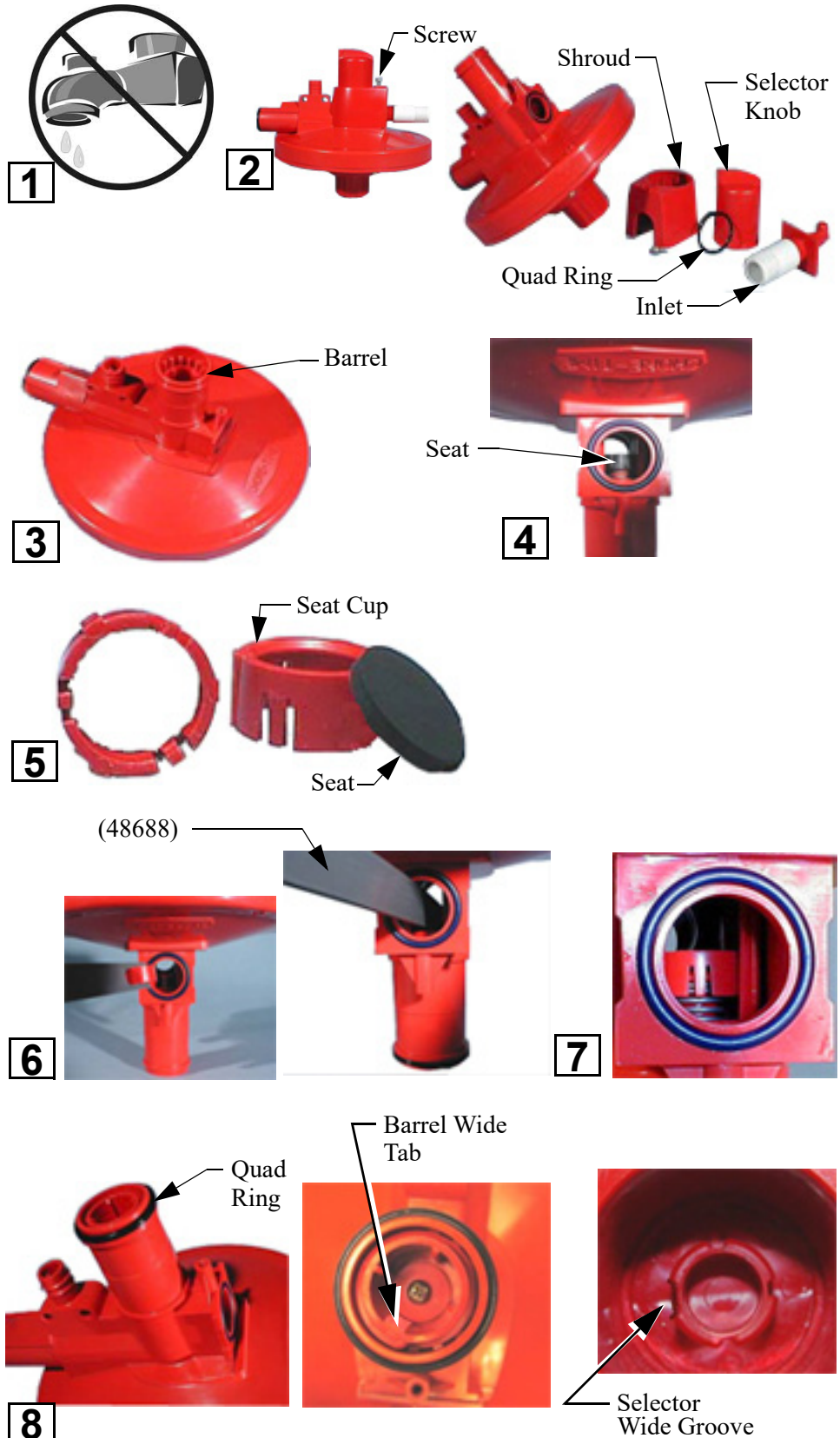
Note: The static control room pressure setting will always result in a lower flush pressure.

Important: When increasing the water column, as soon as resistance is noticed, stop turning the manual adjustment knob or damage will occur.

Regulator Seat Replacement

Follow the procedures below to replace the regulator seat.

1. Shut off water to the regulator, and remove it from the nipple line.
2. Remove the Shroud screw, shroud, selector knob, quad ring, and inlet orifice.
3. Screw barrel all the way down.
4. Pry off seat and seat cup then remove from the regulator body.
5. Assemble new seat into seat cup (42188). Seat face direction does not matter.
6. Use the seat installation tool (48688) to push the new seat assembly onto the end of the seat holder until it snaps in place. Push only on the seat cup.
7. Make sure the seat assembly is properly seated onto the seat holder.
8. Reassemble the regulator:
 - Assemble quad ring on the housing shoulder. Turn the barrel up until it is flush with the top of the housing. The barrel **must be flush** with the top before replacing the selector knob or the regulator will not function properly.
 - Replace the selector knob by lining up the wide tab in the barrel with the wide groove inside the selector knob.
 - Make sure the o-ring is in place and reinstall the inlet into the regulator housing.
 - Use Super o-lube (45911) to lube o-rings if needed.
 - Replace the shroud and shroud screw.
 - The regulator is now ready to be put back into service.



Stand Tube Installation/Operation

At Regulator Installation

Rigid/Folding Stand Tube

1. Place one (1) o-ring below the top barb and one (1) between the lower two (2) barbs.
2. Lubricate O-rings **See page 20**.
3. Push the Stand Tube assembly over the barbs until it hits the top of the Regulator. Make sure the O-rings are positioned properly.
4. Locate the Tube Clamp over both O-rings and tighten. **DO NOT** locate the Clamp below the O-rings! Make sure the Stand Tube is secure but do not over-tighten the Clamp.

Flexible Stand Tube

1. Slide the Nylon Clamp (54909) on to the Flexible Stand Tube and push it down until it hits the top of the Regulator **as shown**. Locate the Nylon Clamp at the bottom of the Stand Tube and Tighten down.

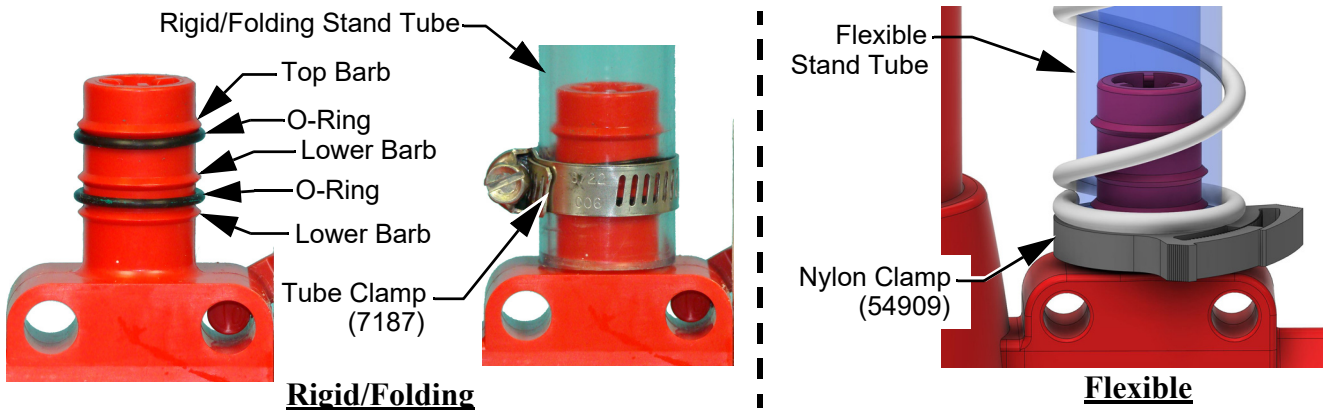


Figure 29. Stand Tube at Regulator

At Midline Installation

Rigid/Folding Stand Tube

1. Lubricate and Install an O-Ring on the Midline Vent Tube.
2. Slide a Tube Clamp (7187) onto a Stand Tube Assembly and Push it onto the Midline Air Remover or Slope Compensator vent tube.
3. Position the Tube Clamp over the O-Ring and tighten.

Flexible Stand Tube

1. Slide the Nylon Clamp (54909) on to the Flexible Stand Tube and push it down onto the Vent Tube until it hits the top of the Midline Air Mover or Slope Compensator **as shown**.
2. Locate the Nylon Clamp at the bottom of the Stand Tube and Tighten it down.

Note: O-Ring not required for Flexible Stand Tube.

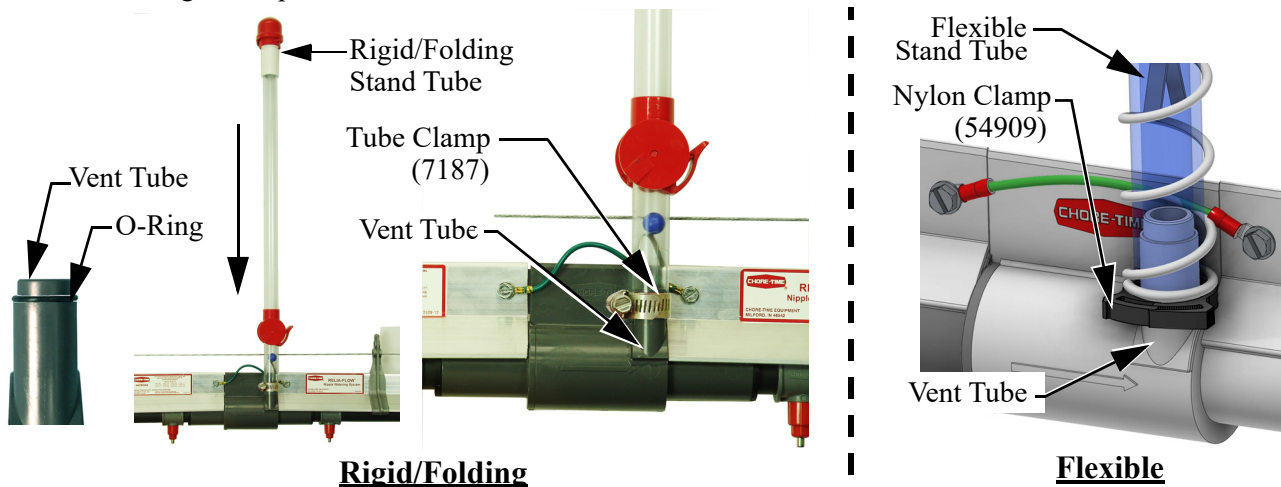


Figure 30. Stand Tube at Midline Installation

At Outlet End Installation

Rigid/Folding Stand Tube

1. Wrap the threads of the 1/2" male adapter with thread sealant tape or apply thread sealing compound approved for PVC.
2. Thread the Stand Tube assembly into outlet tee to the desired position but do not over-tighten.

Flexible Stand Tube

1. Slide a Nylon Clamp (54909) onto the Flexible Stand Tube.
2. Install the Flexible Stand Tube on the Barbed Fitting.
3. Locate the Nylon Clamp at the bottom of the Stand Tube and Tighten it down.

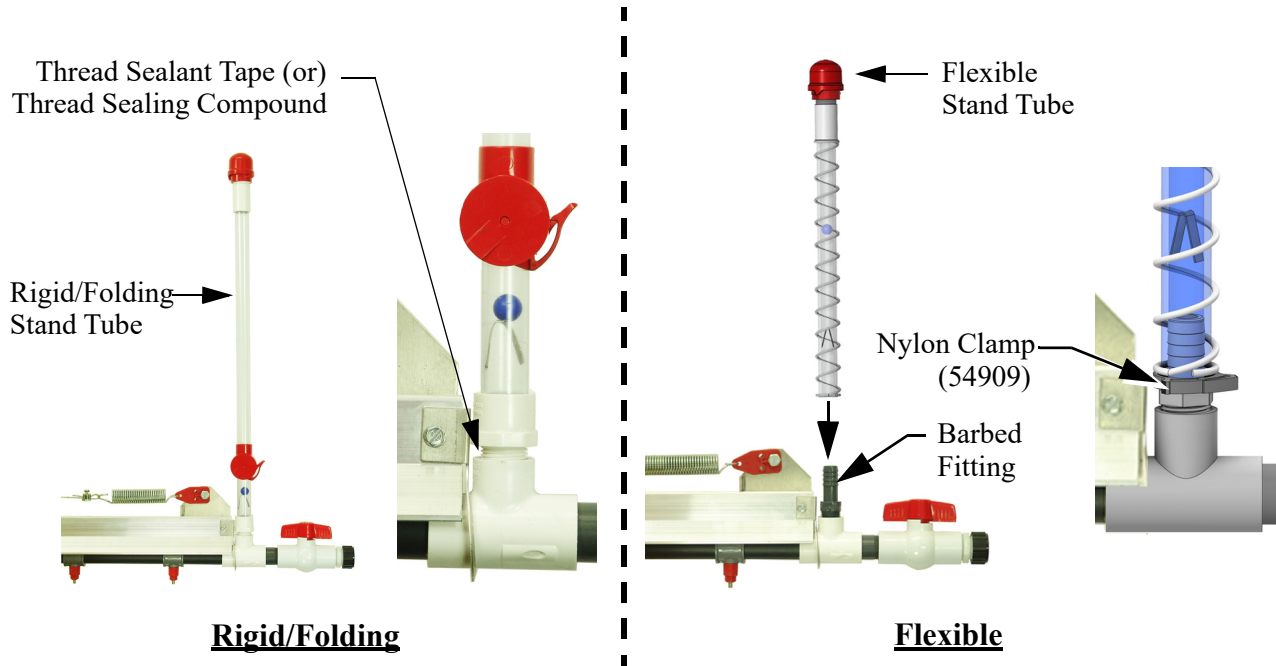


Figure 31. Stand Tube At Outlet End Installation

Folding Stand Tube Operation

1. To fold down the Stand Tube, pull the latch release lever, and fold the top section over until it stops.

CAUTION Failure to use the latch release lever could result in damage to the mechanism, voiding the warranty.

2. To return the Stand Tube to the operating position, lift up on the Stand Tube until it snaps back in place.

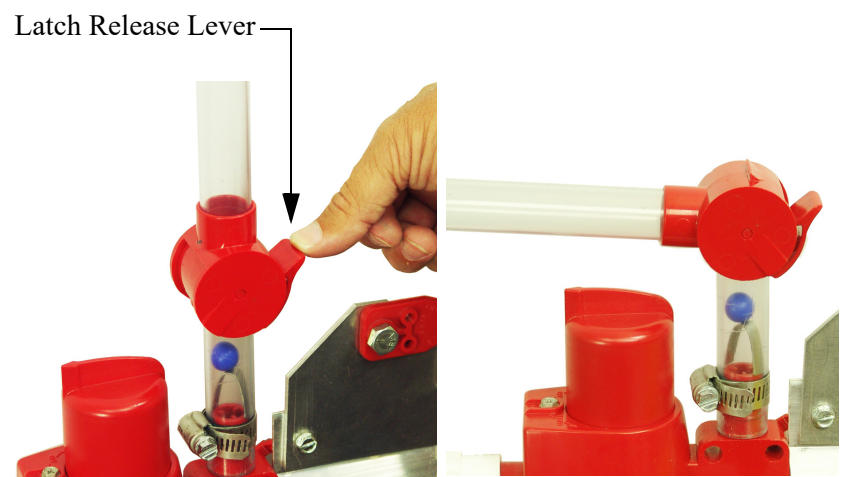


Figure 32. Stand Tube Operation

Note: Water in the Stand Tube will drain out of the folding mechanism when the Stand Tube is folded. This prevents potential damage from freezing. When in the fully folded position a seal in the mechanism prevents water from leaking out of the water line.

Stand Tube Cleaning

Clean the inside and outside of the Stand Tube at least once a week.

When in the normal operating position use a pipe brush to clean. Chore-Time part number 29465 Pipe Brush will pass through the folding mechanism in the normal operating position.



Figure 33. Stand Tube Cleaning

Anti-Roost Installation

The anti-roost system prevents the birds from setting on the water line. **Figure 34** shows an overview of the anti-roost system.

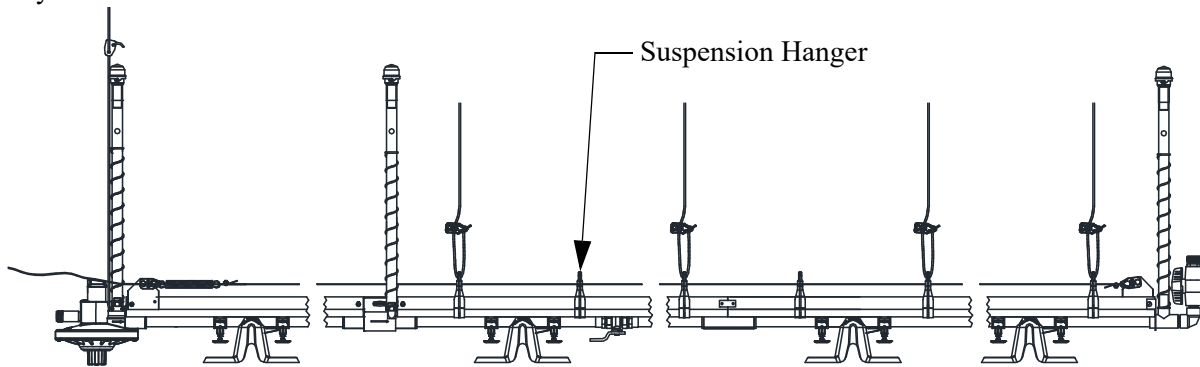


Figure 34. Anti-Roost System

1. Make certain that an anchor plate with adjustment leveler is installed at the beginning and end of each anti-roost line. See **Figure 35**.
2. Install a suspension hanger every 24" [610 mm]
3. Beginning at the first suspension hanger, thread the training cable the full length of the anti-roost line. Allow approximately 24" [610 mm] extra and cut the cable.
4. Create a small loop with the cable and a cable clamp.
5. Connect the cable loop to the adjustment leveler/anchor plate.
6. Install a spring on the adjustment leveler/anchor plate near the inlet assembly.
7. Pull the cable taut and create a small loop with the cable and a cable clamp.
8. Connect the cable to the spring.
9. The spring should be stretched to an overall length of approximately 8" [203 mm]. Adjust as required.
10. Repeat the above procedure on each of the anti-roost lines.

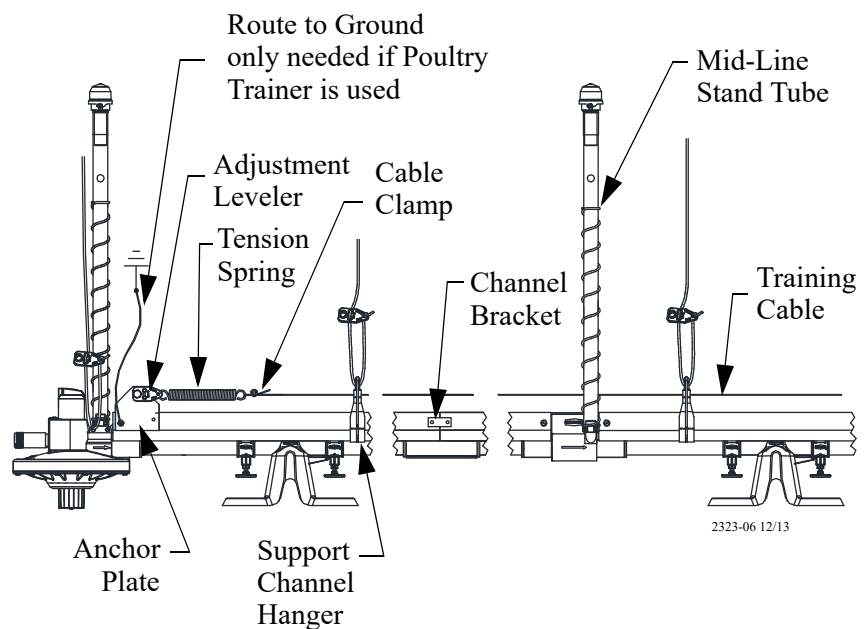


Figure 35. Anti-Roost Components

Optional Equipment:

- Secure the poultry trainer to a wall or post near the water line. See “**Anti-roost system Parts Package**” on **page 49** for options.
- Chore-Time recommends wiring the poultry trainer into separate electrical circuit that can be switched at the door.
- Refer to the instructions supplied with the poultry trainer for wiring information.
- Note: Make sure that the support channel is attached to a ground (to insure proper operation of the poultry trainer). It will be necessary to install a jumper wire at stand tube, inlet assemblies, etc., to insure the ground circuit. See **Figure 35**.

Incoming Water System

1. Install the Water shut-offs in the ceiling. Do not install the shut-offs at the Regulator. Installing the Shut-offs at the regulator adds to much weight at the regulator location. See **Figure 36** below.
2. Use some kind of Strain Relief on the hose connecting to the Regulator to prevent hose from being damaged.

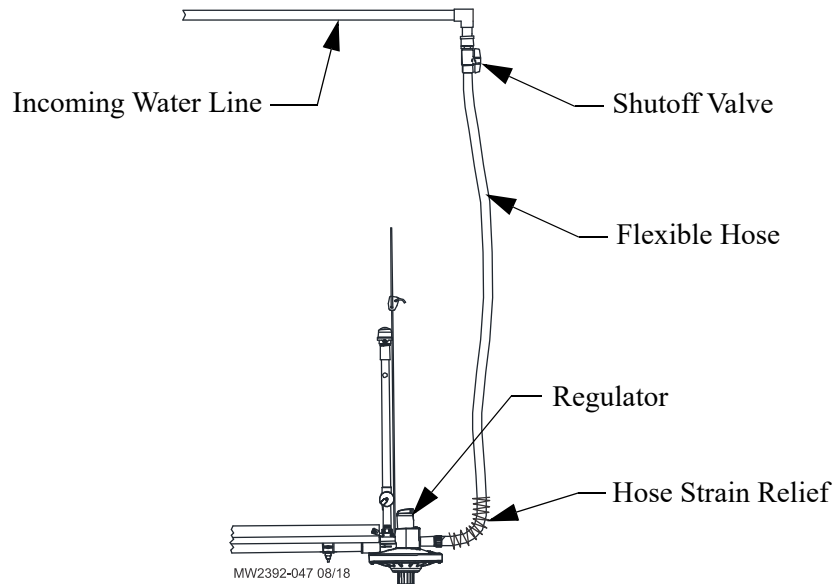


Figure 36. Incoming Water System

Installing the Flush System

The hose, PVC pipe and connections must be purchased locally. Install the flush components as shown in **Figure 37**.

1. Notice that the exit line must exit through the building wall at a minimum height of 72" [182.8 cm] above floor level.

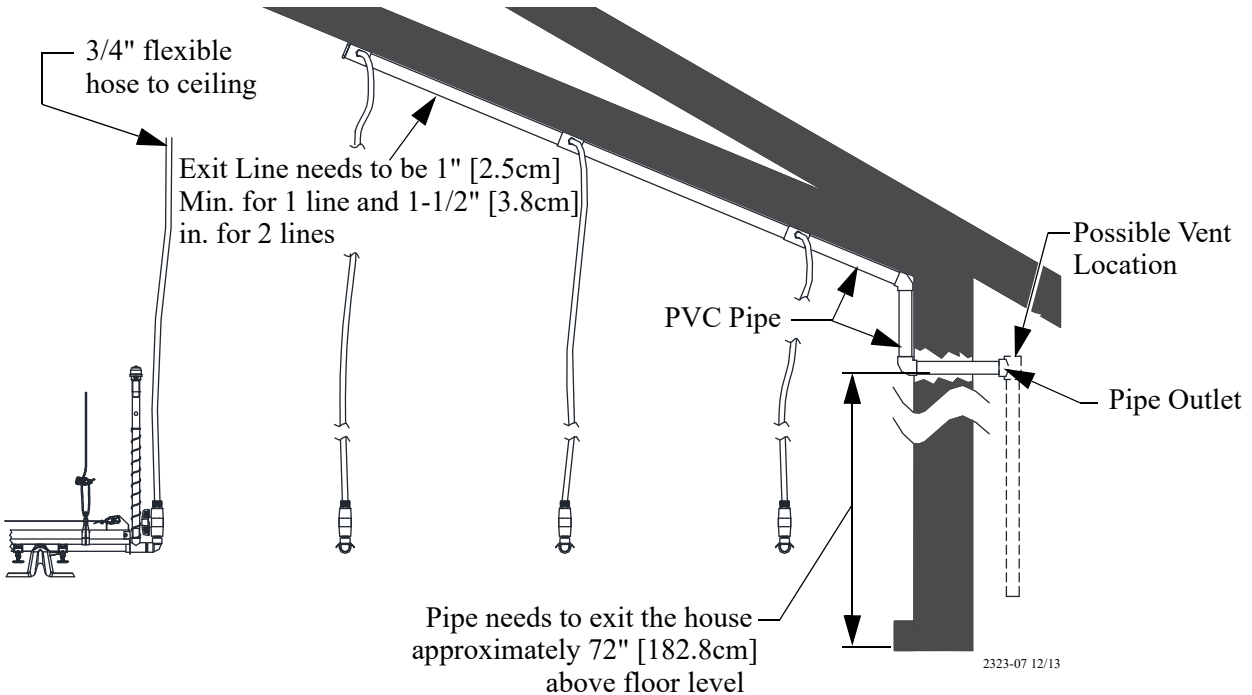


Figure 37. Flush System

2. The exit line needs to be 1" [2.5 cm] minimum for 1 flushing line. To connect multiple flushing lines together (as shown) the exit line needs to be 1 1/2" [3.8 cm] minimum for 2 flushing lines.
3. The exit line should be attached to the ceiling of the house and must exit out the side wall of the house. This line needs to be at an adequate height to allow clearance for any equipment used in the house. It may be necessary to route the exit line out both sides of the house to ensure water leaves the exit line.
4. Measure and cut the plumbing to the required lengths for your individual system.
5. The hose attached to the end of the watering line that extends up to the exit line is to be made of a flexible material.

Note: A siphon will be created during flush if the PVC pipe outlet is at or below the level of the top of the stand tube in the house at grow-out.

If it is not possible to have the pipe outlet above the top of the stand tube a vent must be installed. The vent must be above the top of the stand tube at all times during operation of the watering system.

Caution! When flushing, the nipple line outlets must be free of any restriction such as kinked hose, closed outlet valve, etc. Obstructions will result in excessive back pressure which can damage the regulators and other water line components.

Operation

Operational Guidelines

Operator judgment of actual on site conditions may require modification to this management guideline.

Initial Startup Procedure

1. Set incoming water pressure per **“Incoming Pressure” on page 7.**
2. Level the shavings under the water line to eliminate high/low spots.
3. Adjust the inlet regulator pressure at line height. See **“Waterline Height and Pressure Guide” on page 33.**
4. Thoroughly flush the water lines per the **“Flush Guide” on page 35.**
5. Check outlet assemblies and stand tubes to make sure water is passing throughout the system.

Bird Placement Procedure

1. Immediately before birds are housed, brush the nipples with a broom to form water droplets on the nipples.

Operation during bird grow-out

1. Floor conditions are a good indication of adequate or deficient water supply. If the floors are wet, the water column may be too high. If the floors are dry, the water column may be set to low.
2. If medication or other chemicals are added to the water, follow the **“Guide to Cleaning Water Lines” on page 37.**
3. Allow at least 24 hours before adding additional chemicals (such as iodine, citric acid, etc.) or vitamins to the water.
4. Clean Stand Tubes weekly with a Pipe Brush (Chore-Time part number 29465). See **“Stand Tube Cleaning” on page 28.**

Maintenance between Flocks

1. Clean each line, per **page 38.**
2. Check pressure drop across water filter - clean or replace if necessary. See **“Filter Cleaning/Flushable Filter” and “Filter Change Procedure” on page 13.**
3. Check regulator, shut-off valves, stand tube(s) **page 26,** and coupling liner assemblies for proper operation.
4. Adjust the cable levelers so that the water lines are level.
5. Maintain house temperature above freezing or drain the lines thoroughly. Drain inlet regulator(s).
6. Inspect water filters. Pressure drop across filter of 5 psi or less during heavy drinking is acceptable.

Litter Treatment for Insecticides or Ammonia

For Maximum service life do the following during application:

1. Ensure the lines are dry (No condensation due to flushing).
2. Raise lines.
3. Lower lines after treatment is complete.

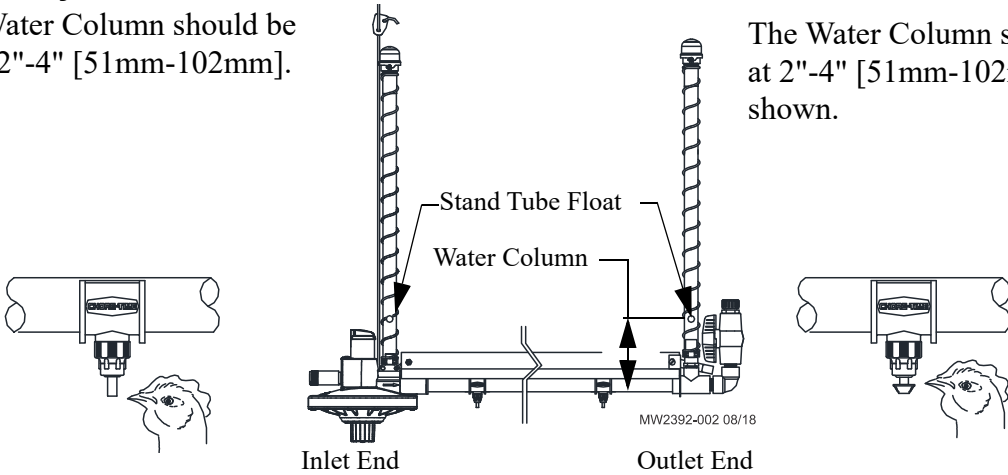
Waterline Height and Pressure Guide

- The floor conditions are a good indication of excess water supply. If the floors are wet, the water column may be too high.
- Be cautious adjusting the water column aggressively during the first week, this could increase mortality by making the nipples trigger harder.
- See “VOLUMATIC™ Regulator Operation Guide” on page 24 for Regulator operation instructions.
- Measure pressure from bottom of pipe.

Broilers and Breeders

1-3 days

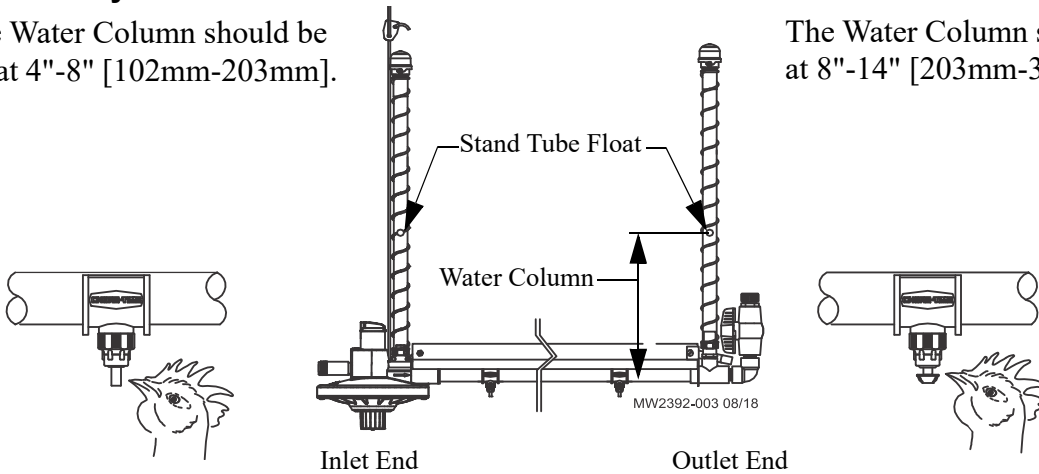
The Water Column should be set at 2"-4" [51mm-102mm].



The Water Column should be set at 2"-4" [51mm-102mm] as shown.

3-21 Days

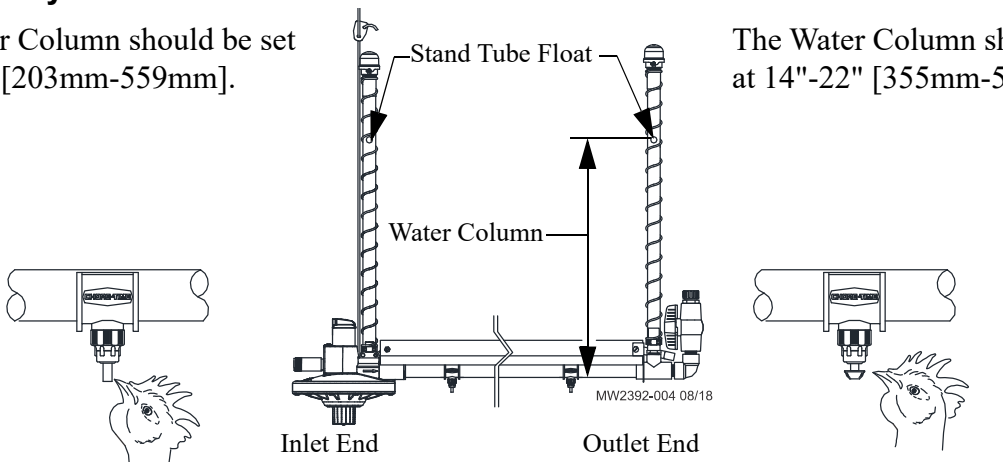
The Water Column should be set at 4"-8" [102mm-203mm].



The Water Column should be set at 8"-14" [203mm-355mm].

21 Days-Growout

The Water Column should be set at 8"-22" [203mm-559mm].



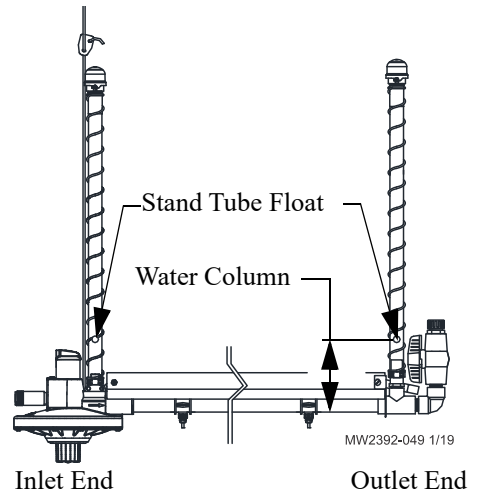
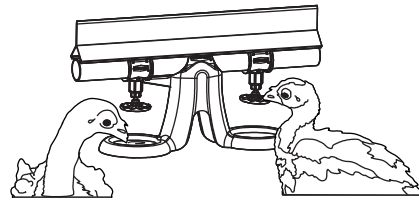
The Water Column should be set at 14"-22" [355mm-559mm].

Turkeys

- Water column height should be adjusted so water is present in the catch cups after one week, if the catch cups are empty the water column should be adjusted accordingly.
- Drinker height should be managed so the disc is below the beak **as shown below**. Birds should not have to bend over, or reach excessively to trigger the disc.

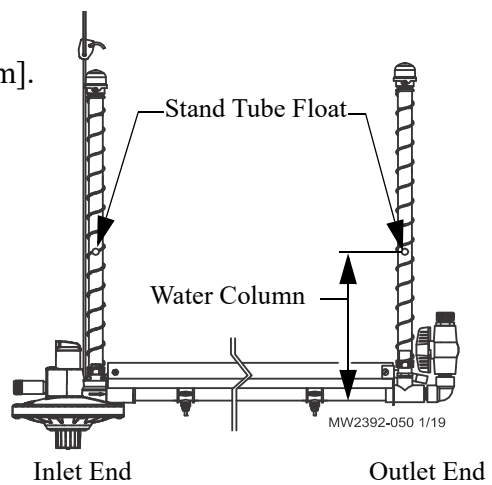
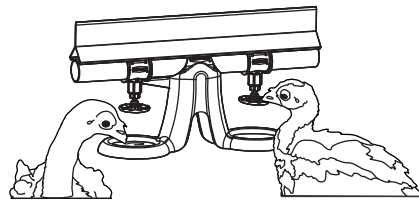
1-14 Days

The Water Column should be set at 3"-8" [7.6cm-20.3cm].



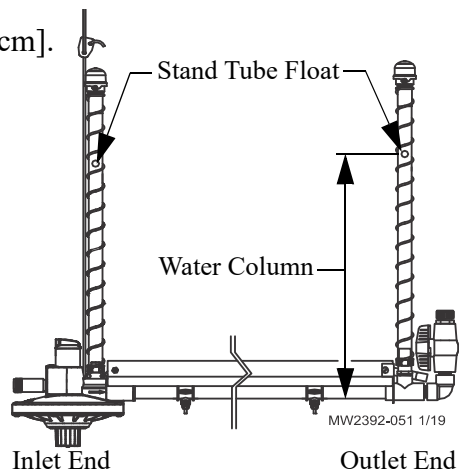
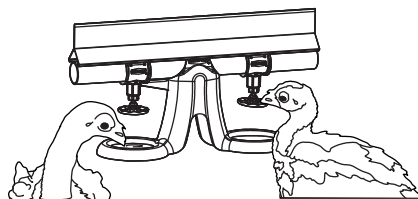
15-28 days

The Water Column should be set at 8"-12" [20.3cm-30.5cm].



29 Days-Growout

The Water Column should be set at 12"-20" [30.5cm-50.8cm].



Flush Guide

Water Line Length in Feet

	100'	200'	300'	400'	500'	600'	700'	800'	
Gallons per Minute Flow Rate	1	3.4	6.8	10.2	13.6	17.0	20.4	23.8	27.2
	2	1.7	3.4	5.1	6.8	8.5	10.2	11.9	13.6
	3	1.1	2.3	3.4	4.5	5.7	6.8	7.9	9.1
	4	0.9	1.7	2.6	3.4	4.3	5.1	6.0	6.8
	5	0.7	1.4	2.0	2.7	3.4	4.1	4.8	5.4
	6	0.6	1.1	1.7	2.3	2.8	3.4	4.0	4.5
	7	0.5	1.0	1.5	1.9	2.4	2.9	3.4	3.9
	8	0.4	0.9	1.3	1.7	2.1	2.6	3.0	3.4
Estimated Flush Time in Minutes									
Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	
3.4	6.8	10.2	13.6	17.0	20.4	23.8	27.2		
Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	

Gallons of water in one foot of 3/4" Chore-Time water pipe=.034

Water Line Length in Meters

	30m	60m	90m	120m	150m	180m	210m	240m	
Liters Per Minute Flow Rate	4	3.2	6.3	9.5	12.7	15.8	19.0	22.2	25.3
	6	2.1	4.2	6.3	8.4	10.6	12.7	14.8	16.9
	8	1.6	3.2	4.7	6.3	7.9	9.5	11.1	12.7
	10	1.3	2.5	3.8	5.1	6.3	7.6	8.9	10.1
	12	1.1	2.1	3.2	4.2	5.3	6.3	7.4	8.4
	14	0.9	1.8	2.7	3.6	4.5	5.4	6.3	7.2
	16	0.8	1.6	2.4	3.2	4.0	4.7	5.5	6.3
	18	0.7	1.4	2.1	2.8	3.5	4.2	4.9	5.6
	20	0.6	1.3	1.9	2.5	3.2	3.8	4.4	5.1
	22	0.6	1.2	1.7	2.3	2.9	3.5	4.0	4.6
	24	0.5	1.1	1.6	2.1	2.6	3.2	3.7	4.2
	26	0.5	1.0	1.5	1.9	2.4	2.9	3.4	3.9
	28	0.5	0.9	1.4	1.8	2.3	2.7	3.2	3.6
	30	0.4	0.8	1.3	1.7	2.1	2.5	3.0	3.4
	Estimated Flush Time in Minutes								
	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity	Total Line Capacity
12.7	25.3	38.0	50.6	63.3	76.0	88.6	101.3		
Liters	Liters	Liters	Liters	Liters	Liters	Liters	Liters	Liters	

Liters of water in one meter of 3/4" (1.90 cm) Chore-Time water pipe=.422

- Estimated flush times above are to completely exchange the water in the pipe.
- The water line length must include the length of the supply line from the water source to completely exchange the water.
- The flush time to stimulate bird drinking may be less.
- Chore-Time recommends flushing no more than 2 lines at a time, to prevent excess demand on the water supply.
- After flush, bleed off pressure by activating a Nipple on each line.
- See page 24 for flushing procedures.

Water Consumption Guide

**APPROXIMATE DAILY WATER CONSUMPTION GUIDE
IN GALLONS PER 1000 BIRDS**

Assuming outside temperature 70°F

AGE IN WEEKS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Broilers	18	35	50	64	76	84	91	97											
Broiler Breeders	10	18	22	28	31	34	35	36	40	43	44	45	46	49	50	51	53		
Layer Pullets	10	17	22	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	
Turkey* Poults	10	20	34	45	63	78	95	112	128	144	158	172	185	194	203	209	240	240	

20-40°F temperature 42-50 gallons	41-60°F temperature 50-58 gallons	61-80°F temperature 58-70 gallons	81-100°F temperature 70-116 gallons
---	---	---	---

*Large white turkeys

Guide to Cleaning Water Lines

Important: Chore-Time strongly recommends a regular cleaning program to eliminate water line contaminants.



Do not mix chemicals, cleaners, medication, or nutrients without a specific formula provided by a reputable company; Toxic gas, violent explosions, or bad bird health could result.

During Flock

The watering system should be cleaned once every two weeks during the production cycle using one of the following stock solutions. During this step, clean the Stand Tubes. See “**Stand Tube Cleaning**” on page 28.

1. Vinegar

- a) Stock Solution = 64 fl. oz. (1893 ml.) white household vinegar + 64 fl oz. (1893 ml.) water.
- b) Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

2. Citric Acid

- a) Stock Solution = 1 pack (205 gm) citric acid + 128 fl. oz. (3785 ml.) water.
- b) Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

Note: pH target during flock cleaning is between 6-8 pH.

Continually maintaining one of the two chemical concentrations below (Chlorine/Hydrogen Peroxide) will ensure sanitized water.

1. Chlorine (Maintain 3-5 ppm.)

- a) Stock Solution = 1 fl. oz. (30 ml) 5.25% Bleach with 1 gallon water.
- b) Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

2. Hydrogen Peroxide (Maintain 25-50 ppm)

- a) Stock Solution = 1 fl. oz. (30 ml) Hydrogen Peroxide with 1 gallon water.
- b) Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

After Administering Vitamins, Medication or other Chemicals

Chore-Time recommends flushing and sanitizing lines immediately after administering vitamins, medication or other chemicals. Failure to flush and sanitize can result in bacteria build-up which can reduce or prevent water flow.

Between Flocks

First: Acidify water to pH of 5 using one of the solutions below. (Maintain for 8-24 hrs)

1. Vinegar

- a) Stock Solution = White household vinegar (5% acetic acid).
- b) Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

2. Citric acid

- a) Stock Solution = 4 pack (205 gm) citric acid + 128 fl. oz. (3785 ml.) water.
- b) Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

Second: Sanitize the water using one of the two solutions below.

1. Chlorine (Maintain 40 ppm for 4 hrs. DO NOT exceed 4 hours of exposure.

- a) Stock Solution = 12 fl. oz. (30 ml.) 5-1/4% bleach (or similar source of 5-1/4% sodium hyper chlorite) + 128 fl. oz. (3785 ml.) water.
- b) Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

2. Hydrogen Peroxide (Maintain 3% Hydrogen Peroxide for 24 hours).

- a) Stock Solution = 3 gallons Hydrogen Peroxide to 97 gallons water.
- b) Directly inject stock (no proportioners).

Third: Flush lines after sanitation is complete.

Fourth: The watering system should be thoroughly drained in cold weather.

Tip: Use dye in stock solution to monitor when a treatment is fully in pipe and when it is fully flushed out.

Important! Do not exceed 5 PPM of Chlorine, 50ppm of Hydrogen Peroxide, or 40 ppm of vinegar (acetic acid) in the line for extended periods of time or damage may occur.

Water Quality

Hardness

Hardness is the calcium and magnesium content of a water supply. These minerals are responsible for scaling that forms in hot water heaters, plumbing lines, humidifiers, dishwashers and all other water using appliances. Water containing hardness minerals are generally classified as:

Soft Water	0 - 1.0 GPG
Slightly Hard Water	1.1 - 3.5 GPG
Moderately Hard Water	3.6 - 7.0 GPG
Hard Water	7.1 - 10.5 GPG
Very Hard Water	10.6 GPG or greater

Iron

Iron, when present in amounts of 0.3 ppm or higher, can cause a yellow or rusty appearance in water. It can also cause staining of clothing and water fixtures. Iron can be found in two forms, clear (dissolved) or red (oxidized) water iron. Water refiners are capable of removing both types of iron. Higher amounts of iron may require further treatment.

Iron Bacteria

Iron bacteria can be found in water supplies containing clear water iron. The bacteria use the clear water iron as a source of energy, and at the same time, convert the iron to the red water state. These bacteria are not considered a health hazard, but can plug plumbing lines, fixtures and appliances. These bacteria also promote localized corrosion and impart a taste and/or color to water. Effective treatment requires shock chlorination of all plumbing lines prior to the installation of any equipment. This is followed by the installation of a chemical feed pump feeding chlorine to eliminate the bacteria, and a clarifying filter to remove the residue.

Water PH

The water acidity is measured and reported in terms of H units. Acid water causes staining of plumbing fixtures and corrosion of plumbing systems, which may necessitate expensive repairs. Target pH for drinking is between 6-8. A pH higher than 8 leads to a bitter taste. Even while cleaning, never allow the pH to get below 5 or damage to equipment may occur. **Be careful when using PWT (Poultry Water Treatment). Poorly mixed solution will lead to extremely low PH, resulting in damage to stainless steel components!**

Aggressiveness/Corrosion

Aggressiveness of water is measured by the Ryznar stability index (A calculation from several factors in a water supply). A stability index of 7.5 or higher indicates the water may be corrosive tendencies. This type of corrosion may attack plumbing and fixtures causing rusty or blue/green stains. The use of a phosphate crystal cartridge will help to eliminate this problem.

Taste and Odor

Objectionable tastes and/or odors can be dissolved minerals, gases, organic contamination, or from chlorination. Treatment requires the installation of taste and odor tank filter for the whole house or a taste and odor cartridge filter for individual faucets.

Hydrogen Sulfide

Hydrogen sulfide is a dissolved gas common in some water supplies. It is detected by a rotten egg taste and/or odor of the water. Proper treatment requires the installation of a chemical feed pump system feeding household chlorine bleach, followed by a sediment filter to remove the precipitation.

Sand, Silt or Sediment

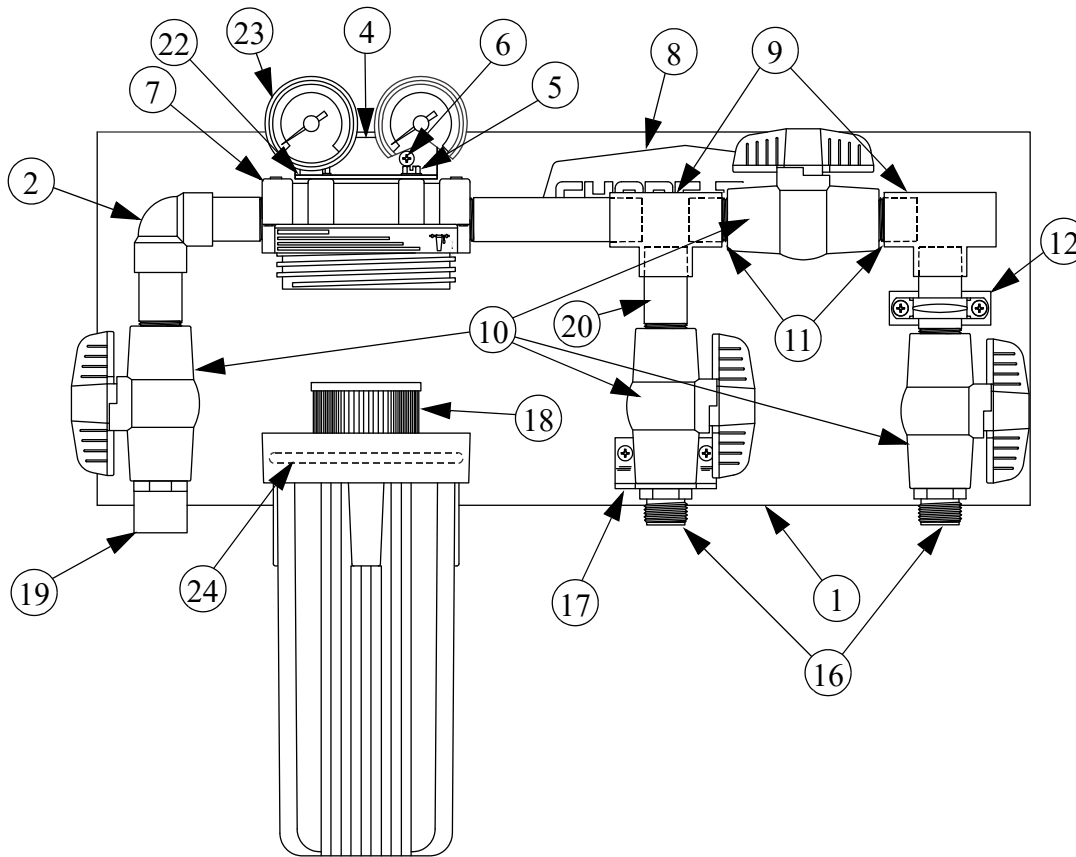
Sand, silt or sediments are found in many water supplies. It is usually detected by a cloudy or hazy appearance when the water is first drawn. Chore-Time recommends that all systems be installed with at least 1, 140 mesh Filter. In some cases a second more aggressive filter may be needed.

Troubleshooting

Problem	Cause	Solution
Nipples are leaking	Internal parts improperly assembled.	Disassemble and reassemble parts correctly.
	Foreign material preventing proper valve operation.	Trigger nipple a few times to see if leak stops. If leak persists, disassemble valve, clean, and reassemble. Replace valve components and saddle if leaks persist.
Leaking above cap assembly	Cap not properly tightened.	Tighten cap on saddle.
	Damaged saddle.	Replace saddle, nipple may not need to be replaced.
Leaking between saddle and PVC pipe	Damaged saddle.	Replace saddle, nipple may not need to be replaced.
Leaking at coupler liner assembly	Damaged (flexible) coupler liner or PVC coupler.	Replace coupler liner and/or PVC coupler.
Leaking or damaged inlet assembly	Damaged component or improperly glued component.	Replace damaged or defective component(s). It may be necessary to order a union to reconnect the Inlet components.
Catch Cups are Dry	Water Column is too low.	Increase water column height incrementally until desired water level is achieved.
	Nipples are obstructed or clogged due to build-up.	Clean with solution, See "Guide to Cleaning Water Lines" in manual MW2323.
Floors are wet under drinker line	Drinker line is too high or low.	Adjust drinker height to the recommended guidelines,
	Water column is too high.	Decrease water column height and increase ventilation and/or heat.
Poor Water Consumption	Drinker line is too high or low	Adjust drinker height to recommended management guidelines.
	Water column height too low	Increase water column height incrementally until desired water level is achieved.
	Nipples are obstructed or clogged due to build-up	Clean with solution, See "Guide to Cleaning Water Lines" in manual MW2323.
Feed accumulation in cup	Drinker lines too close to feeder lines	See planning the system for recommended distance.
	System height is too low	Raise the system to the recommended management guidelines.
Stand Tube not working properly	Depending on water quality and management techniques, the stand tube may require more frequent cleaning.	<ol style="list-style-type: none"> 1. Remove hose cap on top of stand tube. 2. Use a brush (available through Chore-Time) to thoroughly clean the stand tube. 3. Clean and reassemble the components and check for proper water level.
Regulator Leaking around diameter.	Excess flush pressure. Excess incoming pressure. Loose mounting screws.	Remove restriction or obstruction in the Nipple such as a kinked hose or closed valve at the end of the line. Ensure pressure to Regulator is below 35 psi. Tighten Mounting Screws.

Parts Listing

Filter Control Panel (9275, 9275-1)

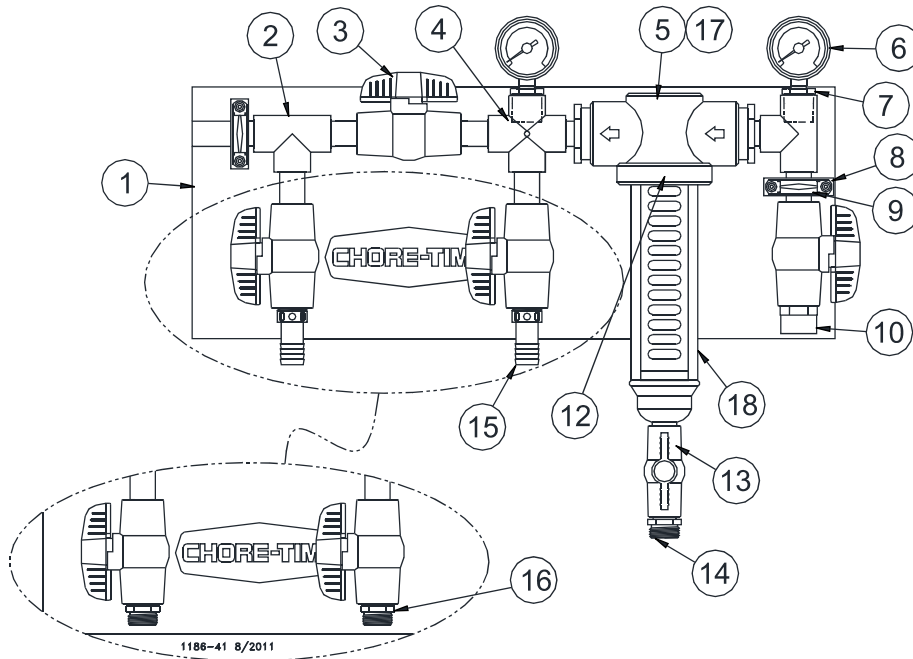


		9275 Opaque Filter Housing	9275-1 Clear Filter Housing
Item	Description	Part No.	
1	Mounting Board	35303	35303
2	3/4" PVC Ell	8141	8141
4	Filter Mounting Bracket	35302	35302
5	1/4-14 x 3/4 Sheet Metal Screw	35425	35425
6	#10-13 x 5/8 Phil Screw	35423	35423
7	Water Filter with Gauge Ports	35309	35309-1
8	Chore Time Decal	2525-4	2525-4
9	3/4" PVC Tee	7538	7538
10	3/4" Quarter Turn Valve	35781	35781
11	3/4 x 1.44 PVC Nipple	7531	7531
12	Standoff Block	35300	35300
14	Plastic Conduit Clamp	35301	35301
16	3/4" Nylon Adapter	7543	7543
17	Medicator Connector Brace	35307	35307
18	20 Micron Filter Cartridge (Standard)	7723	7723
	10 Micron Filter Cartridge (Optional)	13145	13145
19	3/4 PVC Adapter	9229	9229
20	3/4 x 2.50 PVC Nipple	7531-9	7531-9
21	3/4 x 5" PVC Nipple	7531-11	7531-11
22	3/4" Thrd. Adapter	7702	7702
23	High Press. Water Gauge	7191	7191
24	"O" Ring	9191	9191

Flushable Filter Control Panel

Low Pressure: 36802-1 (Less than 11 psi)

High Pressure: 36802-2 (Greater than 11 psi)



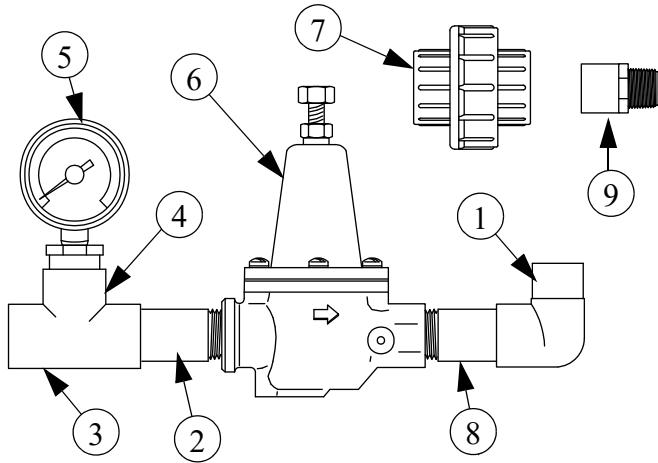
		36802-1	36802-2			36802-1	36802-2
Item	Description	Part No	Part No	Item	Description	Part No	Part No
1	Mounting Board	35303	35303	10	3/4" PVC Male Adapter	9229	9229
2	3/4" Tee	7538	7538	11	3/4" Threaded PVC Nipple	7531-1	---
3	3/4" Valve	35781	35781	12	O-Ring Kit	36807	36807
4	3/4" Cross	7536	7536	13*	1/2" Ball Valve	34961	34961
5	Filter Inlet Assembly	36810	36810	14*	Nylon Adapter	29141	29141
6	Pressure Gauge	27722	7191	15	3/4" Barb x 3/4" Pipe Adapter	27422	---
7	3/4" x 1/4" Reducer Bushing	7789	7789	16	3/4" Male Adapter (Nylon)	---	7543
8	Standoff Block	35300	35300	17	Flush able Filter	36806	36806
9	3/4" Plastic Conduit Clamp	35301	35301	18	Filter Cover	46993	46993

*Included with Item 5.

These parts may be ordered separately, if needed.

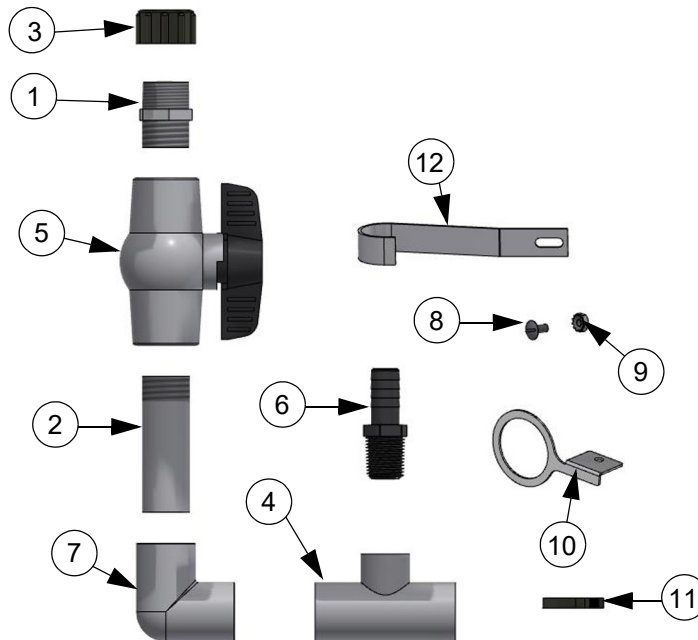
Description	Part No.
1/2 Pint PVC Cement	6303-3
Replacement 140 Mesh Filter	36809
Flush able Filter Assembly	36810

Step Regulator & Gauge Module Kit (35308)



Item	Description	Part No.
1	3/4" PVC Street Ell	30138
2	3/4" x 3" Threaded PVC Nipple	7531-1
3	3/4" PVC Tee	7538
4	3/4 x 1/4 Reducer Bushing	7789
5	High Press. Water Gauge	7191
6	Regulator	29951
7	3/4 PVC Union	8137
8	3/4" x 2.5" Threaded PVC Nipple	7531-9
9	Male PVC Adapter	34100

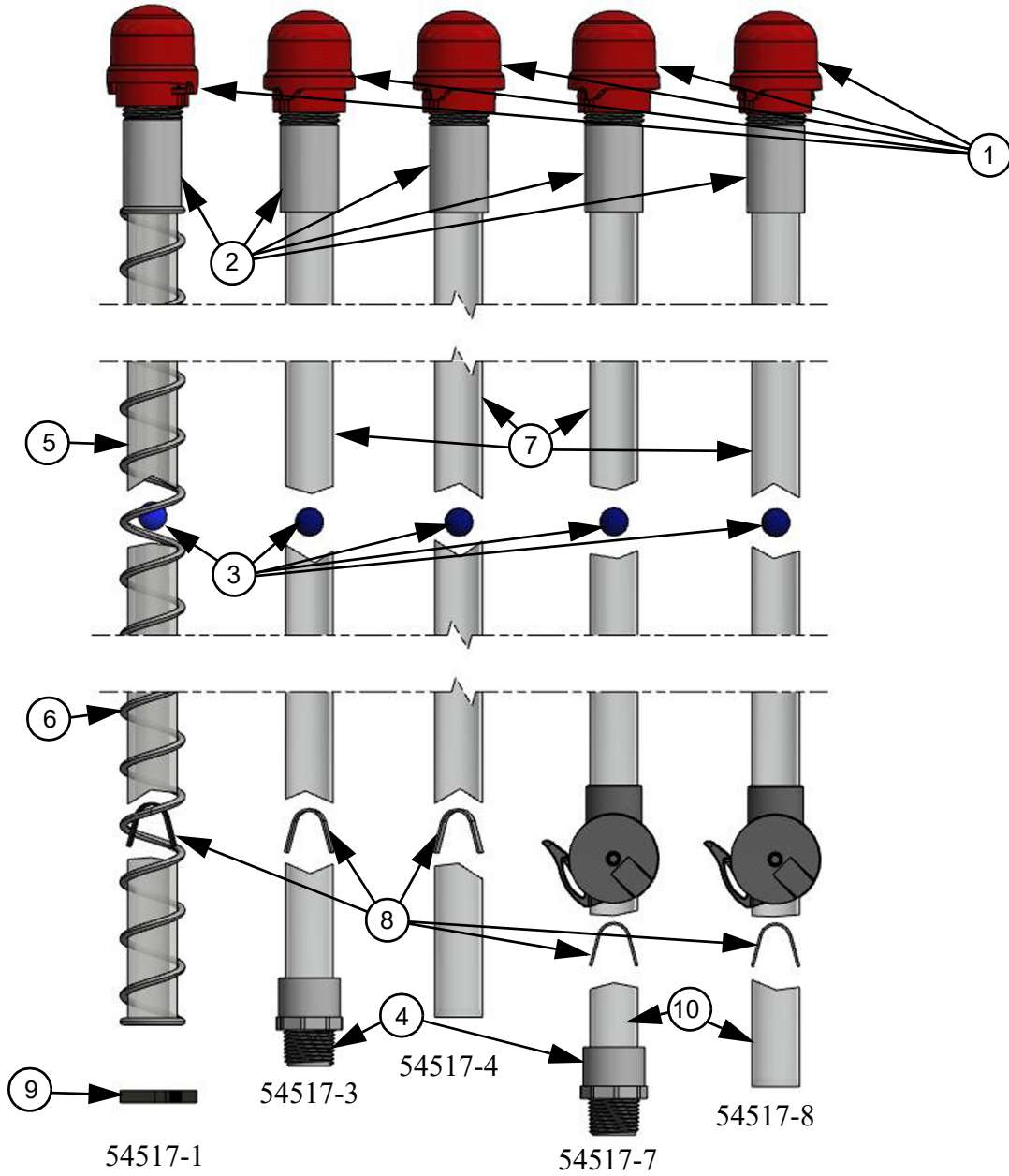
Stand Tube Outlet Assembly



Item	Description	52275-2	52275-3	52275-4	52275-5	52275-6	52275-7
		Part No	Part No	Part No	Part No	Part No	Part No
1	3/4" Nylon Adapter	7543	7543	7543	7543	7543	7543
2	3/4 x 2" Threaded PVC Pipe	7531-4	7531-4	7531-4	7531-4	7531-4	7531-4
3	Hose Cap (Washer Included)	9811	9811	9811	9811	9811	9811
4	Reducing Tee	34777	34777	34777	34777	34777	34777
5	3/4" Ball Valve	35781	35781	35781	35781	35781	35781
6	1/2 Insert Adapter	47881	47881	---	---	---	---
7	3/4" S x T Ell	7558	7558	7558	7558	7558	7558
8	10-24 x 3/8 Truss Head Screw	4422-2	4422-2	4422-2	4422-2	4422-2	4422-2
9	10-24 SS Kepnut	33926	33926	33926	33926	33926	33926
10	Hanger	35481	35481	35481	35481	35481	35481
11	Hose Clamp	54909	54909	---	---	---	---
12	Stand Tube Bracket	33900	33900	33900	33900	33900	33900
13*	Stand Tube Assembly	54517-1	54517-1	54517-7	54517-7	54517-3	54517-3

*See "Stand Tube Assembly (54517-X)" on page 44. for complete parts list.

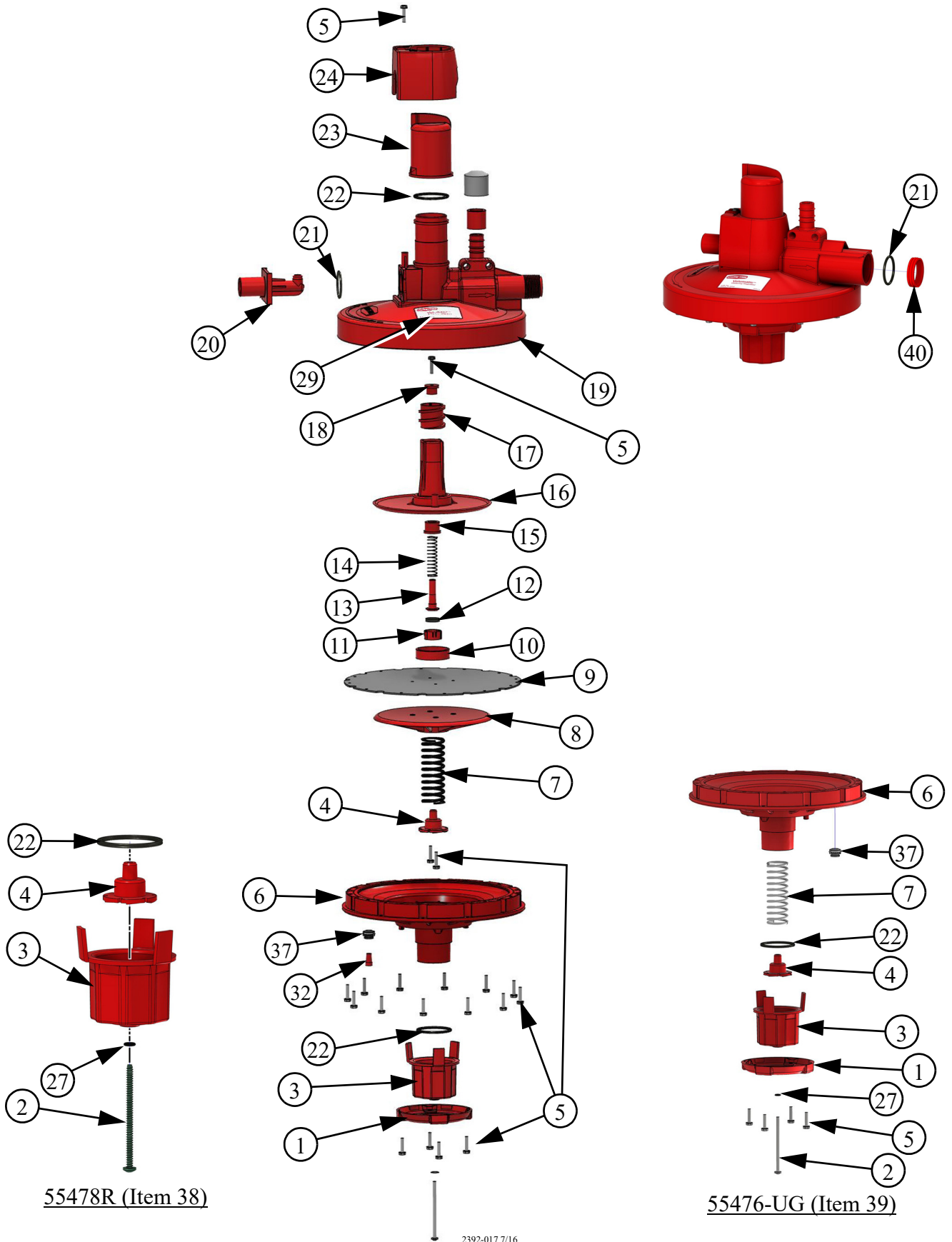
Stand Tube Assembly (54517-X)



Item	Description	54517-1	54517-3	54517-4	54517-7	54517-8
		Part No				
1	Breather Cap Assembly	54606	54606	54606	54606	54606
2	3/4" NH Fitting	25098	25098	25098	25098	25098
3	Stand Tube Float Ball	37142	37142	37142	37142	37142
4	.50 MTXS Male Adapter	---	9067	---	9067	--
5	Flexible Tubing	36840-1	---	---	---	--
6	Spring	36839-1	---	---	---	--
7	.5 x 19.88 Clear PVC Pipe	---	38250-1	38250-1	---	--
	.5 x 16.00 Clear PVC Pipe	---	---	---	38250-3	38250-3
8	Rigid Ball Stop	54817	54817	54817	54817	54817
9	Adjustable Clamp	54909	---	---	---	---
10	.5 x 4.0 Clear PVC Pipe	---	---	---	38250-2	38250-2

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VOLUMATIC™ Regulator Assembly (55476-X)



Part Numbers

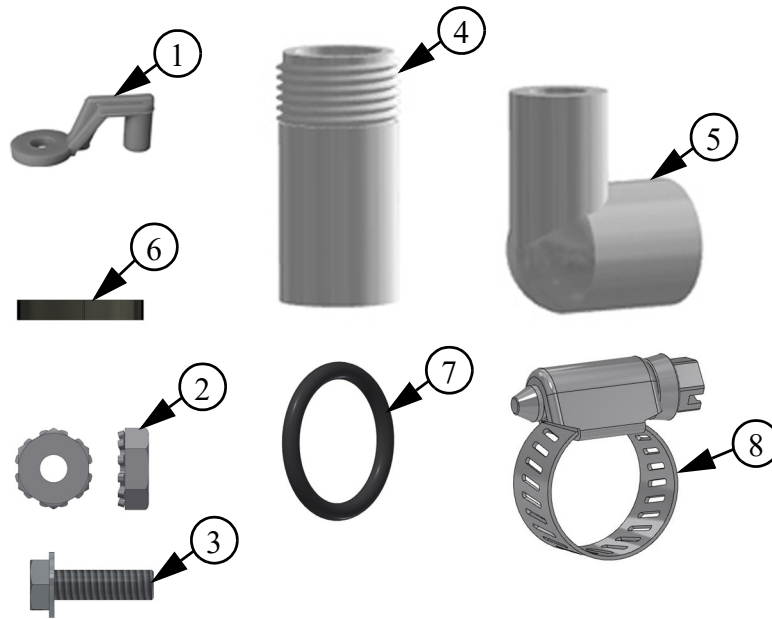
Item	Description	No Stand Tube 55476-1	W/ Folding Stand Tube 55476-2	W/ Flexible Stand Tube 55476-3	Kit with Poultry Trainer W/ Folding Stand Tube & Anti-Roost 55476-2T	Kit with Poultry Trainer Flexible Stand Tube & Anti-Roost 55476-3T
		Part No.	Part No.	Part No.	Part No.	Part No.
1	Knob Retainer	55477	55477	55477	55477	55477
2	#8-18 x 2-1/2" Screw	42387	42387	42387	42387	42387
3	Adjustment Knob	55478	55478	55478	55478	55478
4	Follower	42183	42183	42183	42183	42183
5	6-20x.625 Screw	44946	44946	44946	44946	44946
6	Bottom Regulator Half	55479-1	55479-1	55479-1	55479-1	55479-1
7	.78 x 2.8" Spring	42393	42393	42393	42393	42393
8	Diaphragm Plate	42182	42182	42182	42182	42182
9	Diaphragm	42181	42181	42181	42181	42181
10	Diaphragm Ctr Support	42186	42186	42186	42186	42186
11	Seat Cup	48199	48199	48199	48199	48199
12	Seat	48225	48225	48225	48225	48225
13	Seat Holder	42189	42189	42189	42189	42189
14	.780 x 2.8 Spring	42392	42392	42392	42392	42392
15	Seat Holder Sleeve	42187	42187	42187	42187	42187
16	Diaphragm Plate	42182	42182	42182	42182	42182
17	CTWR Barrel	42172	42172	42172	42172	42172
18	Seat Holder Cap	42176	42176	42176	42176	42176
19	Regular Top Half	57065	57065	57065	57065	57065
20	Inlet Orifice	42190	42190	42190	42190	42190
21	O-Ring	29118	29118	29118	29118	29118
22	1.362x.103 O-Ring	42389	42389	42389	42389	42389
23	Selector Knob	42178	42178	42178	42178	42178
24	Shroud	42390	42390	42390	42390	42390
26	Half Liner	36501	36501	36501	36501	36501
27	-007 O-Ring	56172	56172	56172	56172	56172
29	Decal	2529-813	2529-813	2529-813	2529-813	2529-813
32	Plug	57285	57285	57285	57285	57285
33**	Flexible St. Tube Assy.	---	---	54517-1	---	54517-1
34**	Folding St. Tube Assy.	---	54517-8	---	54517-8	---
35*	Volumatic Regulator Hardware	56233-1	56233-2	56233-1	56233-2	56233-1
36***	Poultry Trainer Kit	---	---	---	44943	44943
37	1/8-27 x 1/4 OD Tube Connector	50820-1	50820-1	50820-1	50820-1	50820-1
38	Replacement Knob Assembly	55478R	55478R	55478R	55478R	55478R
39	Volumatic Regulator Upgrade	55476-UG	55476-UG	55476-UG	55476-UG	55476-UG
40	Expansion Clip	56373C	56373C	56373C	---	---

*See "Volumatic Regulator Hardware Package (56233-X)" on page 48. for assembly break down.

**See "Stand Tube Assembly (54517-X)" on page 44. for assembly break down.

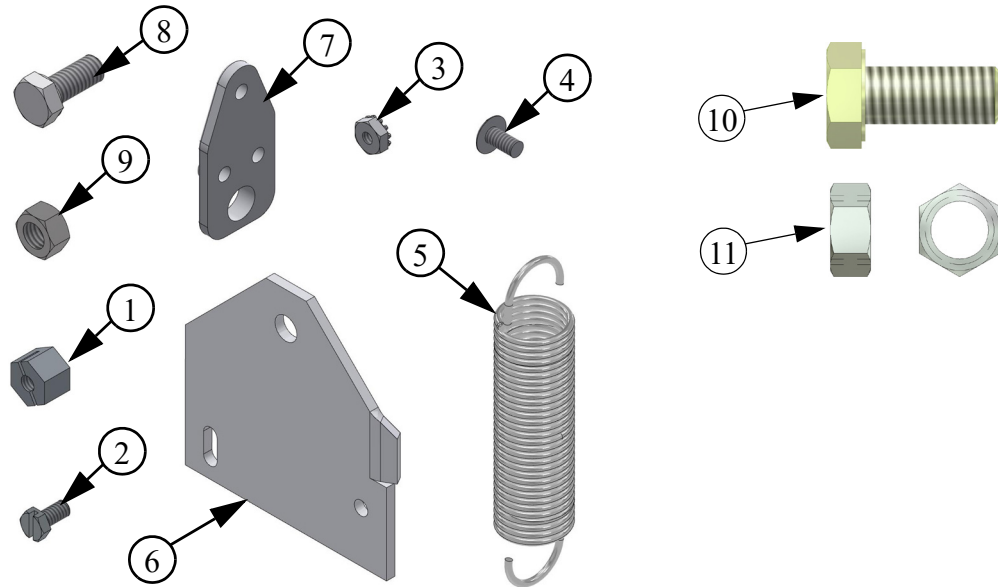
***See "Anti-roost system Parts Package" on page 49.

Volumatic Regulator Hardware Package (56233-X)



		56233-1	56233-2
Item	Description	Part No.	
1	Regulator Bracket	44866	44866
2	10-24 Stainless Kepnut	33926	33926
3	10-24 x .50 Screw	4416-12	4416-12
4	3/4 NH Fitting	25098	25098
5	1/2" Street Elbow	33895	33895
6	1-1/4 Nylon Clamp	54909	--
7	1/2 x 1/16 O-Ring	--	48325-1
8	Adjustable Clamp	--	7187

Anti-roost system Parts Package



Item	Description	34531-2	44943
		Part No.	
1	10-24 Slotted Nut	1840	1840
2	10-24 x .38 Screw	1951	1951
3	10-24 Nut	33926	--
4	10-24 x .5 Slotted Screw	4422-2	--
5	Spring	25353	--
6	Anchor Plate	42807	42807
7	Adjustment Leveler	3075	3075
8	5/16-18 Hex Nut	2145-1	2145-1
9	5-16-18 x .75 Bolt	4412-11	--
10	5/16-18 x .75 Bolt	--	2046
11	5/16-18 Hex Nut	--	2145

Anti-roost Wire

Description	Part No.
5000' [1524m] 1/16-1x7 Aircraft Cable	1922-5000

Poultry Trainers

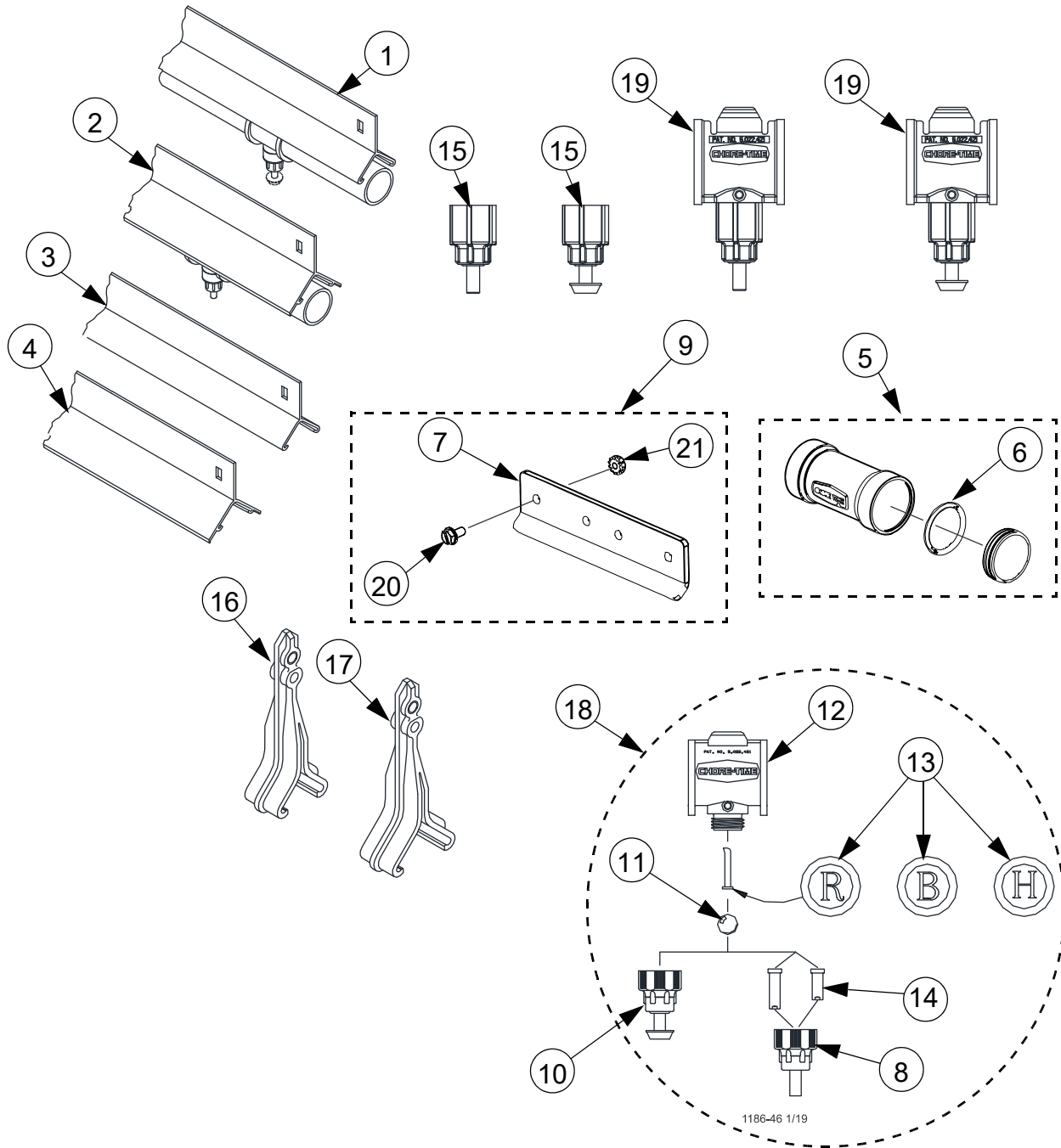
Line Chargers

Part No.	Description	Voltage
29317	Line Mount Charger Assembly	120 V, 60 Hz
29341	Line Mount Charger Assembly	220 V, 50/60 Hz
29333	Wall Mount Poultry Trainer	120 V, 60 Hz
29325	Wall Mount Poultry Trainer	220 V, 50/60 Hz

Poultry Trainer Wire

Part No.	Description
28994-330	16 Gauge High Voltage Wire (330' Spool)
28994-165	16 Gauge High Voltage Wire (165' Spool)

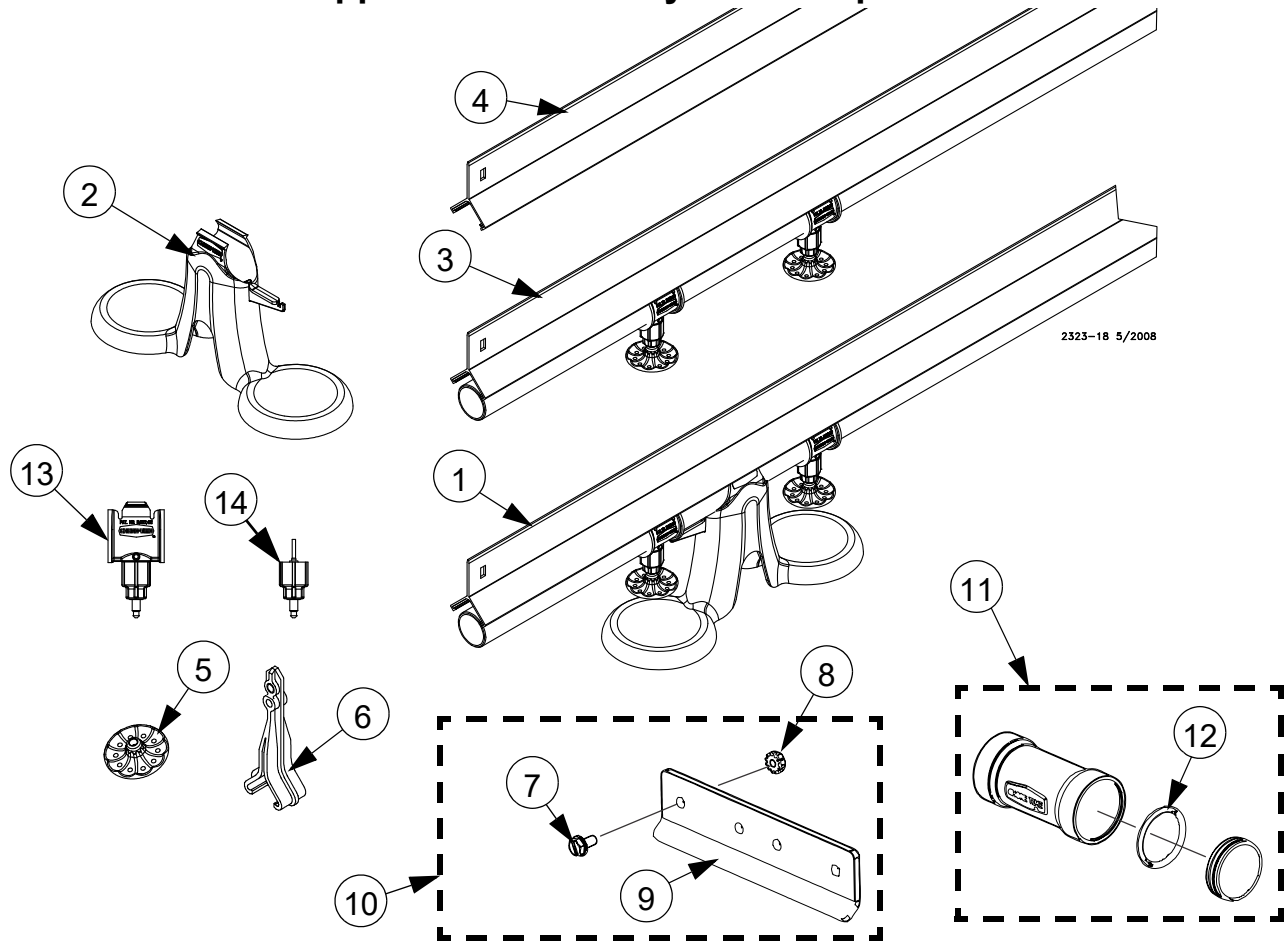
STEADI-FLOW® and RELIA-FLOW® Nipple Line Assembly and Components



Part Numbers

Item	Description	Standard Flow Pt #	High Flow Pt #	Regulated Flow Pt #	Lift Trigger Pt #	
1	Standard Channel STEADI-FLOW® Drinker Assembly					
	6" [152 mm] spacing (20 nipples)	56065-34	---	---	---	
	8" [203 mm] spacing (15 nipples)	56065-1	56065-14	56065-24	---	
	10" [254 mm] spacing (12 nipples)	56065-2	56065-15	56065-25	---	
	12" [305 mm] spacing (10 nipples)	56065-3	56065-16	---	---	
	15" [381 mm] spacing (8 nipples)	56065-4	56065-17	---	---	
	7" [178 mm] spacing (17 nipples)	56065-5	---	---	---	
	6" [152 mm] spacing (20 button nipples)	56065-6	56065-13B	---	---	
	8" [203 mm] spacing (15 button nipples)	56065-1B	56065-14B	---	---	
	10" [254 mm] spacing (12 button nipples)	56065-2B	56065-15B	---	---	
	12" [305 mm] spacing (10 button nipples)	56065-3B	---	---	---	
	15" [381 mm] spacing (8 button nipples)	56065-4B	---	---	---	
	Standard Channel RELIA-FLOW® Drinker Assembly					
	6" [152 mm] spacing (20 nipples)	56104-1	---	---	---	
	8" [203 mm] spacing (15 nipples)	56104-2	---	56104-15	---	
	10" [254 mm] spacing (12 nipples)	56104-3	56104-13	56104-16	---	
	12" [305 mm] spacing (10 nipples)	56104-4	---	---	---	
	15" [381 mm] spacing (8 nipples)	56104-5	---	---	---	
	24" [610 mm] spacing (5 nipples)	---	56104-14	---	---	
	6" [152 mm] spacing (20 button nipples)	56104-1B	---	---	---	
	2	Heavy Channel STEADI-FLOW® Drinker Assembly				
		6" [152 mm] spacing (20 nipples)	---	56065-18	---	---
		8" [203 mm] spacing (15 nipples)	56065-5	56065-19	---	56065-30
		10" [254 mm] spacing (12 nipples)	56065-6	56065-20	---	56065-31
		12" [305 mm] spacing (10 nipples)	56065-7	56065-21	---	56065-32
		15" [381 mm] spacing (8 nipples)	56065-8	56065-22	---	---
		20" [508 mm] spacing (6 nipples)	56065-9	56065-23	---	---
24" [610 mm] spacing (5 nipples)		56065-10	---	---	---	
10" [254 mm] spacing (12 button nipples)		---	---	---	---	
Heavy Channel RELIA-FLOW® Drinker Assembly						
6" [152 mm] spacing (20 nipples)		---	---	---	---	
8" [203 mm] spacing (15 nipples)		56104-6	---	---	56104-17	
10" [254 mm] spacing (12 nipples)		56104-7	---	---	56104-18	
12" [305 mm] spacing (10 nipples)		56104-8	---	---	---	
15" [381 mm] spacing (8 nipples)		---	---	---	---	
20" [508 mm] spacing (6 nipples)		56104-22	---	---	---	
3		Support Channel (Standard)	56466-10	56466-10	56466-10	56466-10
4	Support Channel (Heavy)	56466-20	56466-20	56466-20	56466-20	
5	Expansion Coupling Assembly	56373	56373	56373	56373	
6	O-Ring	29118	29118	29118	29118	
7	Channel Bracket	56381	56381	56381	56381	
8	Nipple Valve Assembly	56109-1	56109-1	56109-1	56109-1	
9	Channel Bracket Kit	56381-40	56381-40	56381-40	56381-40	
10	Trigger Button Cap Assembly	56109-1B	56109-1B	56109-1B	56109-1B	
11	Stainless Steel Ball	29117	29117	29117	29117	
12	Saddle Body	50804	50804	50804	50804	
13	Flow Control Pin	34799	34889	36860	34799	
14	Nipple Stem	29119	29119	29119	46470	
15	RELIA-FLOW Valve Assembly	56458-1 & -1B	56458-1 & -1B	56458-1 & -1B	56458-1 & -1B	
16	Support Channel Hanger (Standard)	33824-1	33824-1	33824-1	33824-1	
17	Support Channel Hanger (Heavy)	33824-2	33824-2	33824-2	33824-2	
18	STEADI-FLOW Saddle Assembly	56063-1 & -1B	56063-2 & -2B	56063-4 & -4B	50806-5	
19	RELIA-FLOW Saddle Assembly	56064-1 & -1B	56064-2 & -2B	56064-4 & -4B	56064-5	
20	#10-24 x 3/8" Hex Washer Head Screw	25124	25124	25124	25124	
21	#10-24 Kepnut	27725	27725	27725	27725	

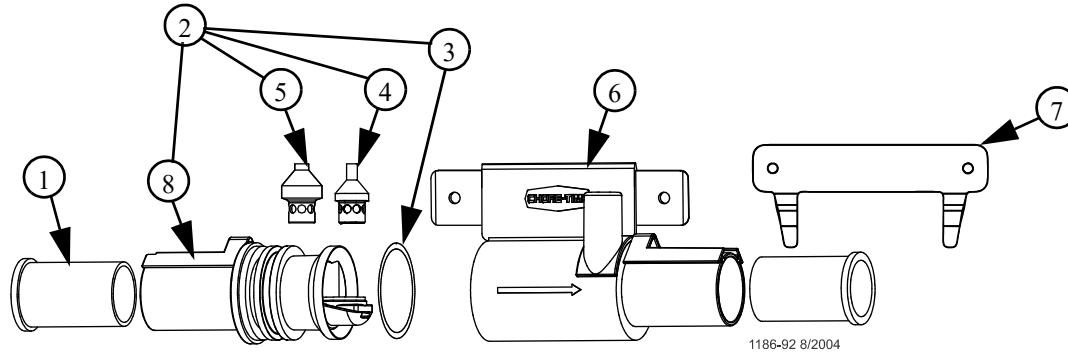
ADVANTI-FLOW® Nipple Line Assembly and Components



Item	Description	Part No.	Item	Description	Part No.	
1	ADVANTI-FLOW® Drinker Assy. w/Cups		4	Standard Support Channel	56466-10	
	Std. Flow Std. Chnl. 40" Spacing w/Cups	51327-3	5	ADVANTI-FLOW® Disk	51266	
	Std. Flow Std. Chnl 30" Spacing w/Cups	51327-4	6	Support Channel Hanger	33824-1	
	Std. Flow Std. Chnl 24" Spacing w/Cups	51327-5	7	#10-24 x 3/8" Hex Washer Head Screw	25124	
	Std. Flow Std. Chnl 20" Spacing w/Cups	51327-6	8	#10-24 Kepnut	27725	
	High Flow Std. Chnl 40" Spacing w/Cups	51328-3	9	Water Line Bracket	56381	
	High Flow Std. Chnl 30" Spacing w/Cups	51328-4	10	Water Line Bracket Kit	56381-40	
	High Flow Std. Chnl 24" Spacing w/Cups	51328-5	11	Expansion Coupling Assembly	56373	
	High Flow Std. Chnl 20" Spacing w/Cups	51328-6	12	1.255 x 1.049 x .103 O-Ring	29118	
2	ADVANTI-FLOW® Cup Package	51326	13	ADVANTI-FLOW® High Flow Saddle Assy.	56064-20	
3	ADVANTI-FLOW® Drinker Assembly				ADVANTI-FLOW® Std. Flow Saddle Assy.	56064-21
	Standard Flow Std. Channel 40" Spacing	56286-2	14	ADVANTI-FLOW® High Flow Valve Assy.	56458-20	
	Standard Flow Std. Channel 30" Spacing	56286-4			ADVANTI-FLOW® Standard Flow Valve Assy.	56458-21
	Standard Flow Std. Channel 24" Spacing	56286-6				
	Standard Flow Std. Channel 20" Spacing	56286-8				
	High Flow Std. Channel 40" Spacing	56286-1				
	High Flow Std. Channel 30" Spacing	56286-3				
	High Flow Std. Channel 24" Spacing	56286-5				
	High Flow Std. Channel 20" Spacing	56286-7				

Slope Compensator Assemblies and Repair Kits

MM/2392J



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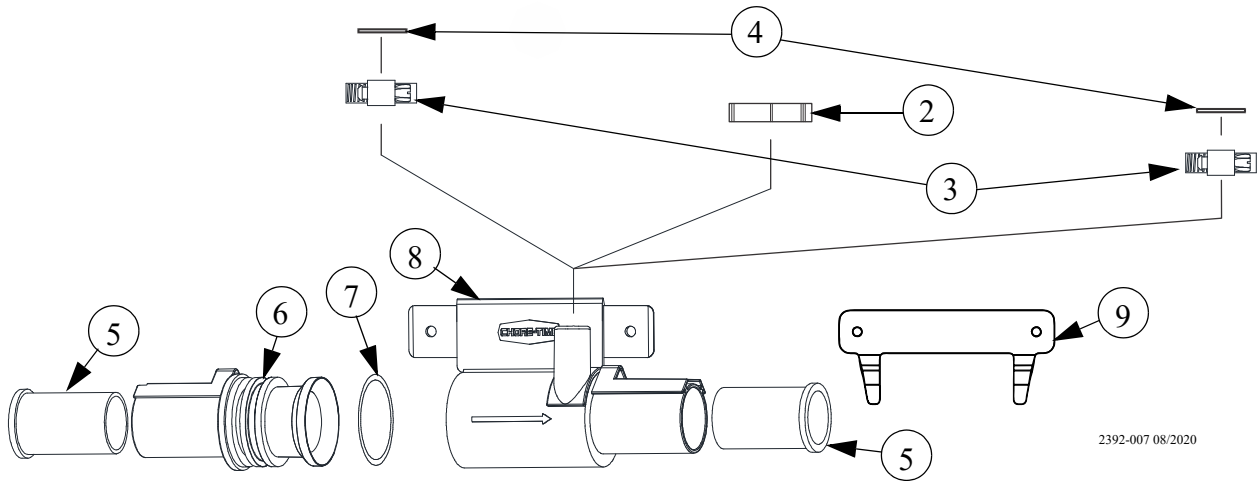
Slope Compensator Assembly							
		Low Dif 54035-4L	Hi Dif 54035-4H	Low Dif 54036-5L	Hi Dif 54036-5H	Low Dif 54036-6L	Hi Dif 54036-6H

Item	Description	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1	Half Liner	36501	36501	36501	36501	36501	36501
2*	Inlet Assembly	54037-L	54037-H	54037-L	54037-H	54037-L	54037-H
3	O-Ring	44015	44015	44015	44015	44015	44015
4	Low Differential Plunger	46450	--	46450	--	46450	--
5	High Differential Plunger	--	46451	--	46451	--	46451
6	Compensator Outlet	40902-1	40902-1	40902-1	40902-1	40902-1	40902-1
7	Mid-line Bracket	56381-1	56381-1	56381-1	56381-1	56381-1	56381-1
9	Slope Compensator Holder	53625	53625	53625	53625	53625	53625
--	Stand Tube Assembly	54517-8	54517-8	54517-4	54517-4	54517-1	54517-1
--	Adjustable Hose Clamp	7187	7187	7187	7187	54909	54909
--	7/16 x 1/16 O-Ring	48325-1	48325-1	48325-1	48325-1	--	--

Slope Compensator Repair Kits				
		No Plunger 54035-R	Hi Dif 54035-RH	Low Dif 54035-RL

Item	Description	Part No.	Part No.	Part No.
3	O-Ring	44015	44015	44015
4	Low Differential Plunger	--	--	46450
5	High Differential Plunger	--	46451	--
8	Compensator Inlet	46464	46464	46464
9	Slope Compensator Holder	53625	53625	53625

Mid Line Stand Tube Assembly (52273-X)

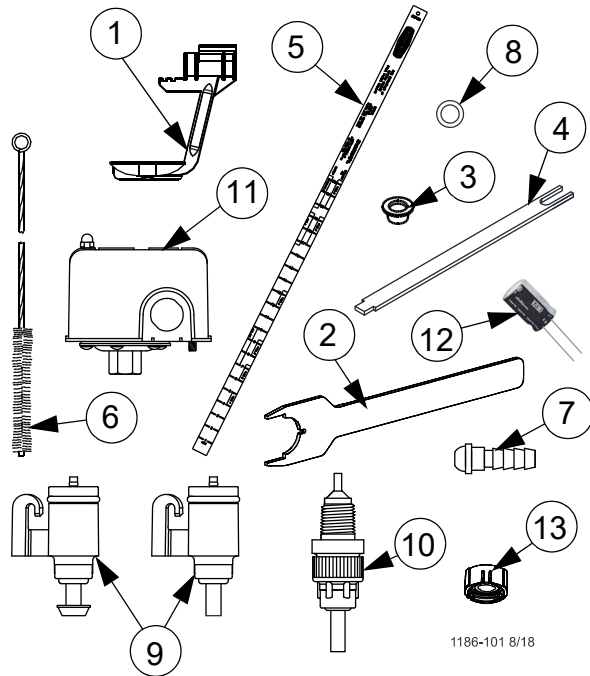


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Item	Description	52273-4 Part No.	52273-2 Part No.	52273-1 Part No.
1A*	Rigid Stand Tube Assy	---	54517-4	
1B*	Flexible Stand Tube Assy	54517-1	---	
1C*	Folding Stand Tube			54517-8
2	Nylon Clamp	54909	---	---
3	Adjustable Clamp	---	7187	7187
4	O-Ring	---	48325-1	48325-1
5	Half Liner	36501	36501	36501
6	Inlet Assembly	46464	46464	46464
7	O-Ring	44015	44015	44015
8	Compensator Outlet	40902-1	40902-1	40902-1
9	Mid-line Bracket	56381-1	56381-1	56381-1
--	Ground Wire	36500W	36500W	36500W

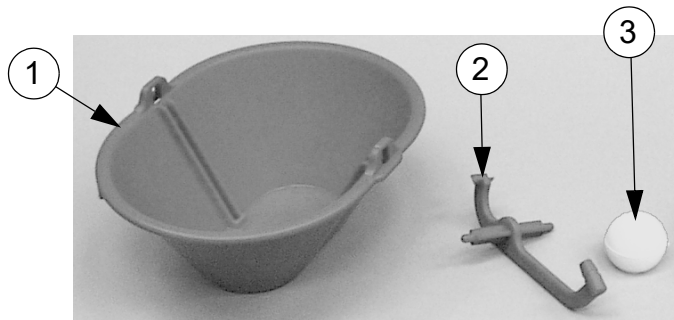
*See "Stand Tube Assembly (54517-X)" on page 44. for parts breakdown.

Miscellaneous Kits and Components



Item	Description	Part No.
1	Catch Cup	36591
2	Assembly Tool	57207
3	Cap Plug (qty of 100)	54319-100
4	Regulator Seat Installation Tool	48688
5	Broiler Management Stick	35750
6	Pipe Brush	29465
7	Barb Adapter	40420
8	.239 x .379 x .07 O-Ring	43898
9	J-Lock Replacement	49014-1
	J-Lock Replacement (Button Trigger)	49014-1B
10	1/8" NPT Nipple Valve (Replacement)	46487-1 46487-2
11	Water Pressure Switch	46597
12	10UF 25V Capacitor	54001
13	Regulator Seat and Cup Kit	42188
-	Super O-lube	45911
-	Center Mount Regulator Kit	48914

Nipple Waterer Mini Drinker: 35412



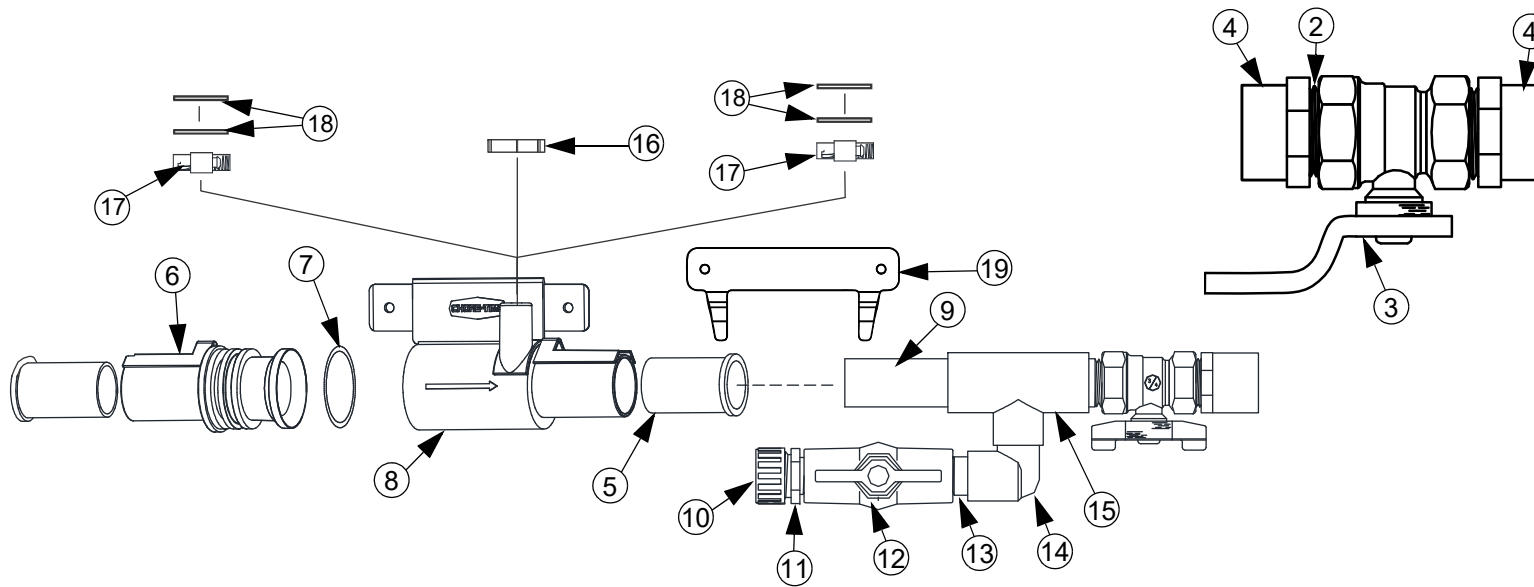
		35412
Item	Description	Part No.
1	Mini Drinker Bowl	34790
2	Pivot Arm	34791
3	Float Ball (small)	25026

Miscellaneous Hose Components

Description	Part No.
Female 3/4" Hose Coupling Kit	7812
3/4" NPT x 3/8" Hose Barb	37141
3/8" Nylon Hose Clamp	37144
3/4" Female Swivel Fitting	50401
Hose Clamp	7187
3/4" ID Rubber Hose	*47820-0

***47820-0 is available in lengths of 50', 100', 150' and 200'.**
The numbers following the dash represent the length of hose (47820-50 is 50' of hose).

Mid Line Shut-Off Kit with Flush



		52273-S1	52273-S2	52273-S3
Item	Description	Part No	Part No	Part No
1A*	Rigid Stand Tube Assy	---	54517-4	---
1B*	Flexible Stand Tube	54517-1	---	---
1C*	Folding Stand Tube	---	---	54517-8
2	3/4" Threaded PVC Pipe	7531-5	7531-5	7531-5
3	3/4" Ball Valve	29623	29623	29623
4	3/4" PVC Male Adapter	9229	9229	9229
5	Liner	36501	36501	36501
6	Inlet Assembly	46464	46464	46464
7	O-Ring	44015	44015	44015
8	Compensator Outlet	40902-1	40902-1	40902-1
9	3/4" x 3" PVC Pipe	9205-4	9205-4	9205-4
10	3/4" Hose Cap	9811	9811	9811
11	3/4" NH Nylon Adapter	29141	29141	29141
12	1/2" Ball Valve	34961	34961	34961
13	1/2" Threaded PVC Pipe	34960-1	34960-1	34960-1

		52273-S1	52273-S2	52273-S3
Item	Description	Part No	Part No	Part No
14	1/2" Street S x S PVC Ell	33895	33895	33895
15	3/4 x 3/4 x 1/2" PVC Tee	7534	7534	7534
16	Nylon Clamp	54909	--	--
17	Adjustable Clamp	--	7187	7187
18	O-Ring	--	48325-1	48325-1
19	Mid-line Bracket	56381-1	56381-1	56381-1
--	Ground Jumper Wire	36500W	36500W	36500W

*See "Stand Tube Assembly (54517-X)" on page 44. for parts breakdown.

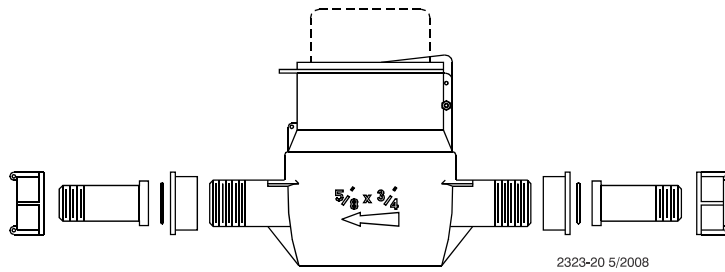
		52273-5
Item	Description	Part No
3	3/4" Quarter Turn Valve	29623
4	3/4" PVC Male Adapter	9229

Water Medicator

	41778-1 Chemilizer (1-100 Ratio)	40203 Dosmatic Adjustable Medicator
Description	Maintenance Part Numbers	
Replacement Pump	41827	--
Pump Rebuild	41829	--

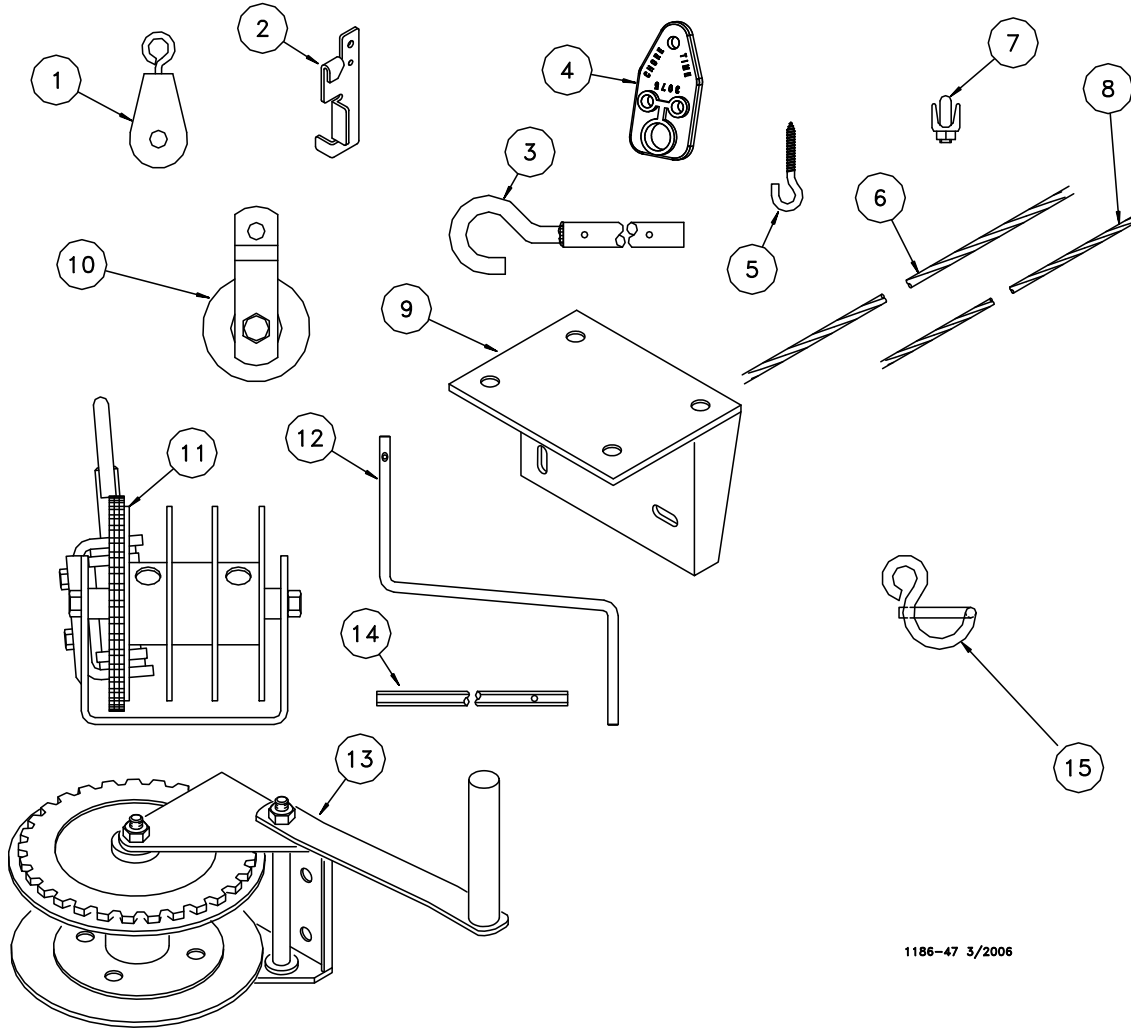
Water Meters

Important: Line must be flushed out before installing water meters. Bleed air out of the water line, running air through the water meter will damage it.



Description	Part No	Replacement Heads
3/4" Water Meter w/Pulse and Connectors (Gallon)	54579-GP	56425-GP
3/4" Water Meter w/Pulse (Liter)	54579-LP	56425-LP
3/4" Brass Water Meter (Liter)	E6900WM	56075

Suspension System Components:



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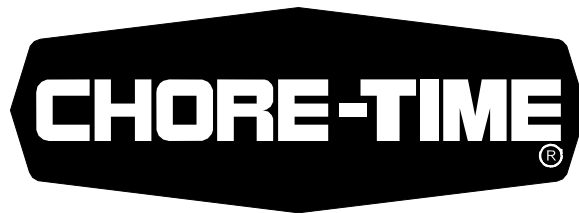
Item	Description	Part No.
1	Pulley with Swivel Hook	44577
2	Cable Adjustment Leveler	14337
3	Winch Drive Tube (4 ft.)	2884-1
	Winch Drive Tube (8 ft.)	2884-2
4	Rope Adjustment Leveler	3075
5	Screw Hook (Standard)	1214
	Screw Hook (Large)	2041
6	1/8" Cable	27975
7	1/8" Cable Clamp	14898
8	3/32" Drop Cable	4973
9*	Winch Bracket with Hardware	1193
10	Pulley	44596
11	Split Drum Winch	29428
12	Handle Shank	2885
13**	Hand Winch	1212
14	Drill Adapter Shaft	2886
15	Winch Handle Pin	3761
--	1/8" Rope	9247
*Winch bracket to be used with hand winch only.		
**Hand winch is recommended for systems up to 150 ft [46 m] only.		

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**Made to work.
Built to last.®**

Revisions to this Manual

Page No.	Description of Change	ECO
Various	Various updates. New Regulator, New Pipe Coupler, Added info from MW2337, MW2350, and MW2409, MW1273, MW1520	35151



**For additional parts and information, contact your nearest Chore-Time distributor or representative.
Find your nearest distributor at: www.choretime.com/contacts**

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