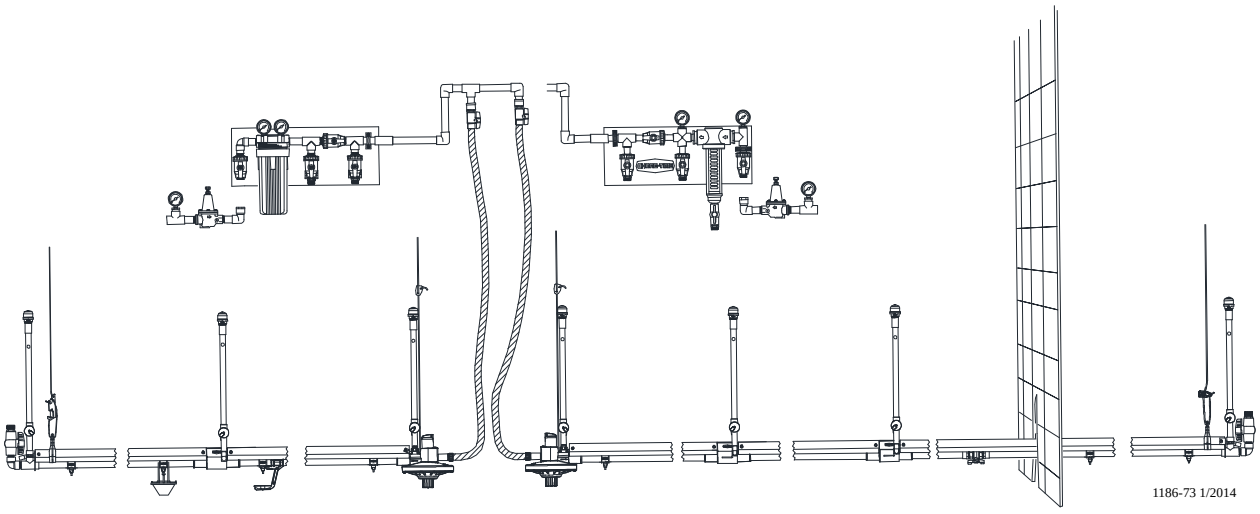
CHORE-TIME®

Poultry Production Systems

STEADI-FLOW® & RELIA-FLOW®
Nipple Drinking System
Installation and Operators Manual



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Installation and Operators Manual

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July 2014

MW2392C

Warranty

Chore-Time Group, a division of CTB, Inc. ("Chore-Time") warrants new CHORE-TIME STEDI-FLOW® and RELIA-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"). Chore-Time provides for an extension of the aforementioned Warranty period ("Extended Warranty Period") with respect to certain Product parts ("Component Part") as set forth in the table below. 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, WIHTOUT 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**

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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.

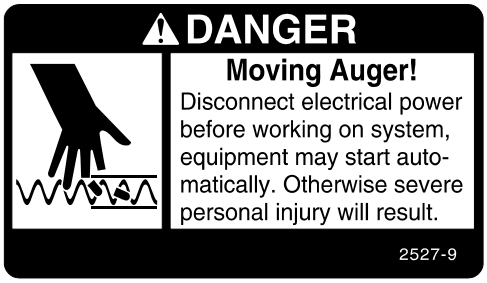
Keep safety signs in good condition. Replace missing or damaged safety signs.

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

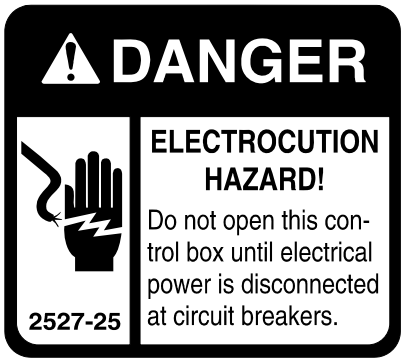
Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.

Ground all electrical equipment for safety.

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

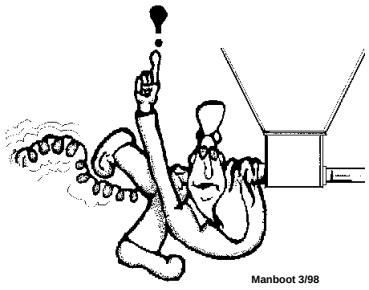
Ground all non-current carrying metal parts to guard against electrical shock.

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.



General

Support Information

The Chore-Time Nipple Watering Systems are designed to provide water to poultry types. Using this equipment for any other purpose or in a way not within the operating recommendations specified in this manual will void the warranty and may cause personal injury.

This manual is designed to provide comprehensive planning and installation information. The Table of Contents provides a convenient overview of the information in this manual

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Topic Page

Tools for Installation

1 Regular Screwdriver
2 Locking Pliers
3 File
4 Saw to cut PVC Tubes
5 Screw-Hook Driver
6 Bolt Cutters or Hack Saw
7 PVC Cleaning Solvent
8 Electrical Drill and Drill Bits
9 Another Person to help

General Information

It is extremely important to maintain good water quality. Good water quality maximizes performance of the equipment, minimizes maintenance and repair, and increases the life of the system. The water should be free of foreign particles.

Pump the well prior to hookup of the system to clear sand, mud, or debris. 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.

Filter Control Panels		Regulators
36802-1	9275/36802-2	All
3-11 psi	11-35 psi*	3-35 psi
For incoming pressure between 35 and 125 psi use the 35308 pressure step down assembly with the filter control panel.		

CHORE-TIME recommends a minimum incoming water pressure of 3 psi *[21 kPa]* for gravity feed systems. To obtain this minimum pressure the water level in the water tank should be maintained 8’ *[2.4 m]* above the nipple line. CHORE-TIME recommends a Maximum line length of 250’ *[76 m]* for a gravity feed system.

For every 28" *[711 mm]* drop in height, water pressure increases one pound. Measure the operating pressure at the water line height.

Incoming water supply should be at least a 1" *[25 mm]* diameter incoming line (preferably PVC) from a single well. If there are two or more supply wells, the supply line should be larger. Other factors such as, the distance from the well(s) to the filter control panel and other equipment which requires water could demand larger lines.

Water lines up to 500’ *[152 m]* may be supplied using (1) regulator assembly. Water lines over 500’ *[152 m]* must be split in the center of the house and supplied with (2) regulator assemblies. However the management of the lines over 250’ *[76 m]* becomes more critical. They must be kept very level, flushed, and cleaned several times per flock.

The suspension system must be correctly installed to insure proper operation of the system. This manual includes the suspension installation information.

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.

The CHORE-TIME nipple drinker is available with the standard support channel for broiler applications. The Chore-Time nipple drinker is also available with the heavy support channel for pullets and breeders. **Figure 1** shows the difference between the standard and heavy support channel with the standard and button nipple assemblies in the STEADI-FLOW® drinkers. **Figure 2** shows the difference between the standard and heavy support channel and button nipple assemblies in the RELIA-FLOW® drinkers.

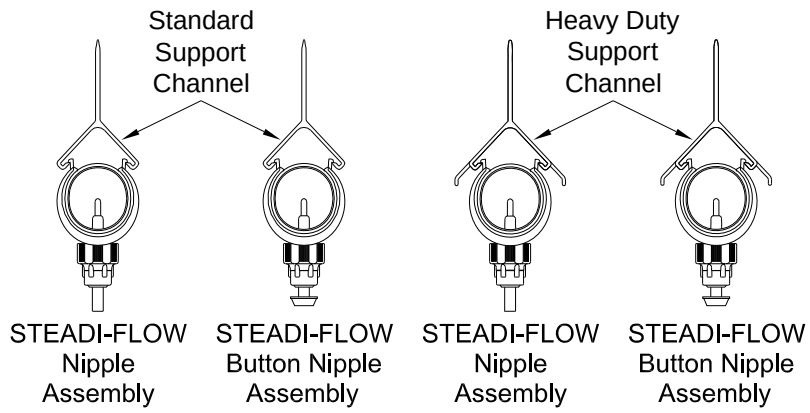


Figure 1. Various STEADI-FLOW® Drinker Styles

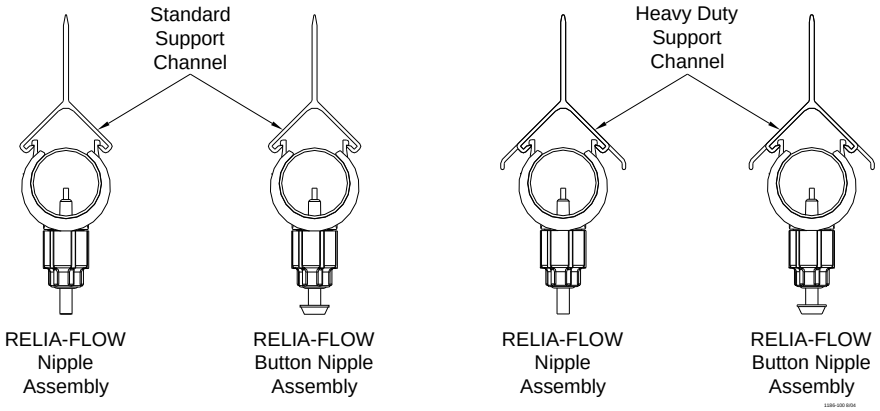


Figure 2. Various RELIA-FLOW® Drinker Styles

Manufacturer's Recommendations: Birds per Nipple

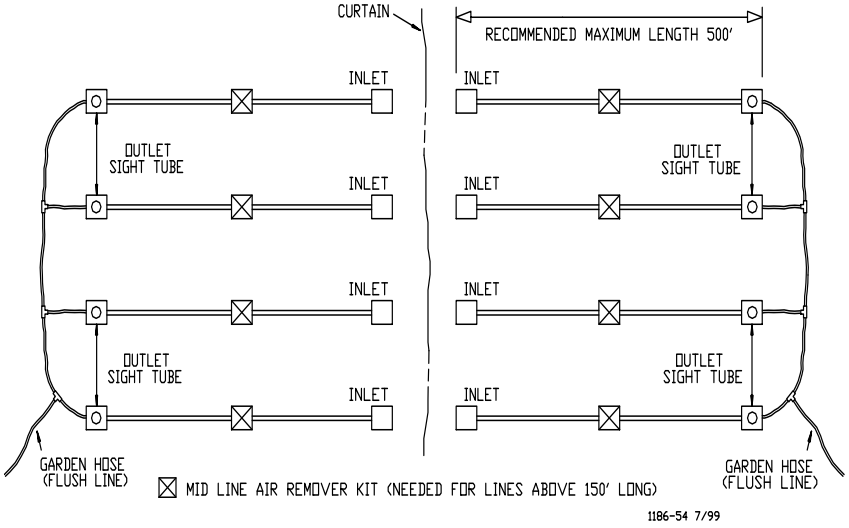
Type	Recommended Number birds per Nipple	Recommended Options
Broiler	30 for day old chicks 10-15 for grow-out	Standard channel-Standard Flow (Button options) or Standard channel-Hi Flow w/catch cup (Button options)
Breeder	8-10 for hot to warm climates 10-12 for warm to cool climates	Heavy Duty channel-standard-flow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

For breeders, place the water line INSIDE The ULTRAFLO® 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.
Recommended incoming pressure of 25 to 35 psi *[172 to 241 kPa]*.

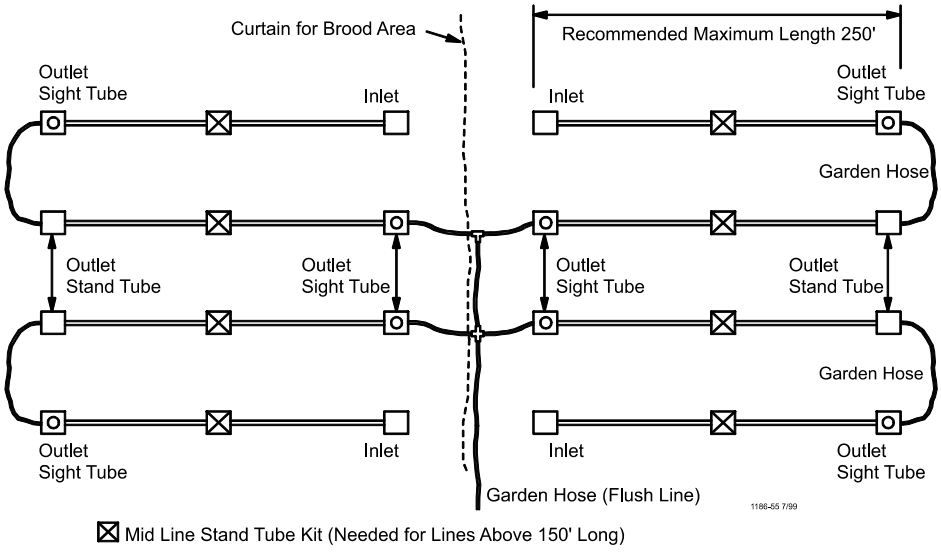
Planning the System layout

The diagrams below reflect approved system layouts. Use these diagrams as guidelines. Your system layout may be different.

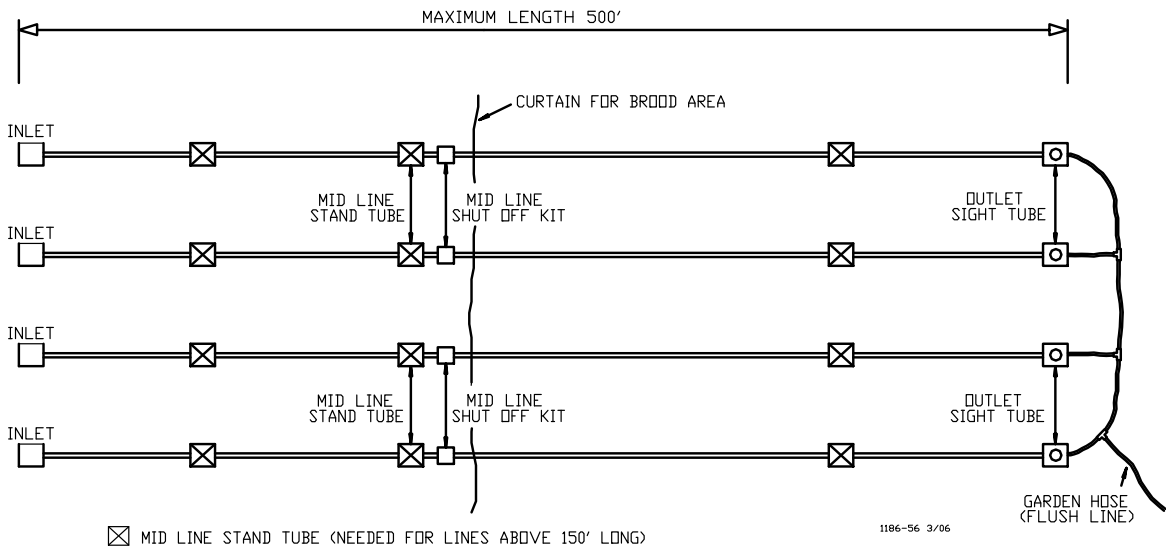
Preferred Layout



Alternate Layout #1



Alternate Layout #2



Suspension System Installation

The following installation instructions are for standard installations. For partial house brooding, the sections can be winched separately or together. Install each section as a separate section.

1. Determine where the water line is to be installed. Mark a straight line on the ceiling or rafters at this point 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.

   Screw hook installations: Install screw hooks along the line at 8' *[2.4 m]* or 10' *[3 m]* intervals.
   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 3**

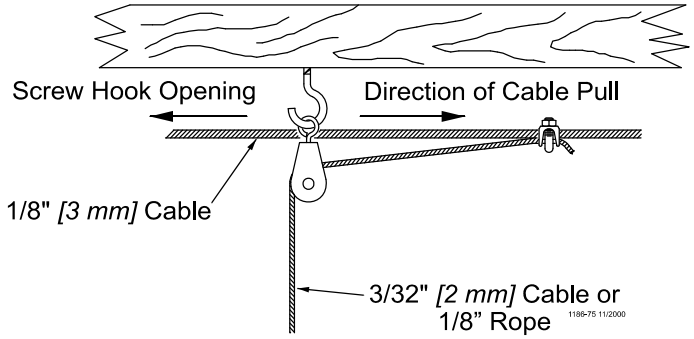


Figure 3. Screw Hook Installation

   Ceiling hook installations: Install ceiling hooks along the line at 8' *[2.4 m]* or 10' *[3 m]* intervals. If the ceiling hook is to be secured with bolts or self-tapping screws, install as shown in **Figure 4**. The ceiling hooks may be welded in place, if desired, instead of bolting.

Note: **If the distance the water line is to be raised is greater than the distance between the pulleys, offset the pulleys from each other approximately 3" *[75 mm]*.**

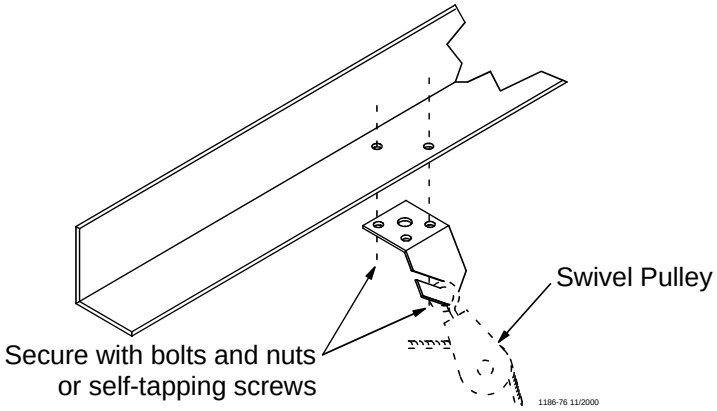


Figure 4. Ceiling Hook Installation

3. After the screw hooks or ceiling hooks have been secured to the trusses install the pulley assemblies as shown in **Figures 3 & 4**. Make sure the screw hooks or ceiling hooks are pointing in the proper direction (opposite the winch).
4. Mount the split drum winch as shown in **Figure 6**. 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.

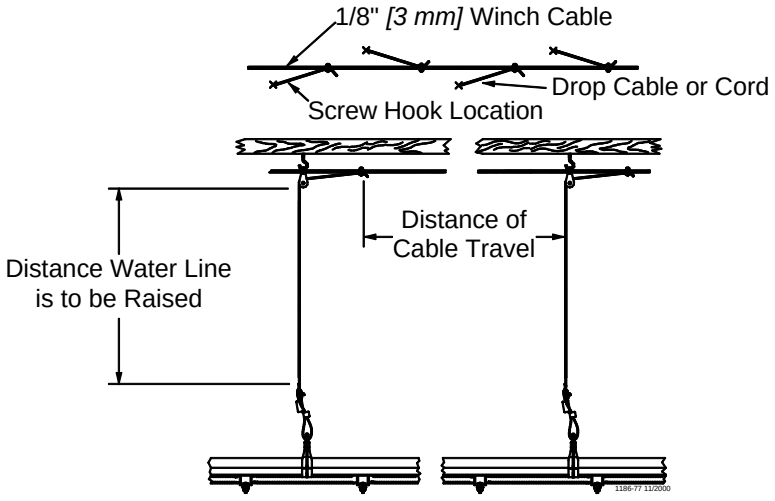


Figure 5. Offset the Screw/Ceiling Hooks

5. Bolt the winch to the bracket, as shown in **Figure 6**.

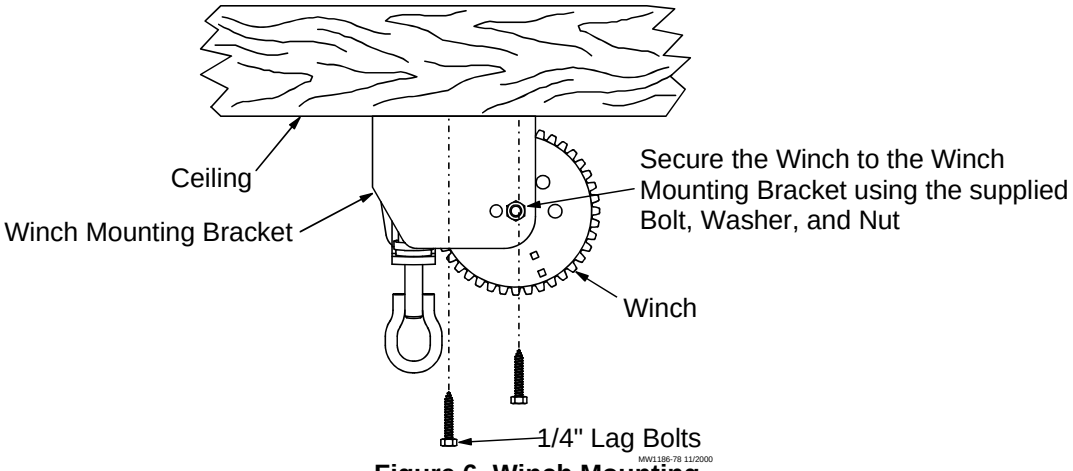


Figure 6. Winch Mounting

6. Attach one end of the 3/16" *[4.8 mm]* cable to the winch as shown in **Figure 7**. Unroll the cable along the length of the water line.

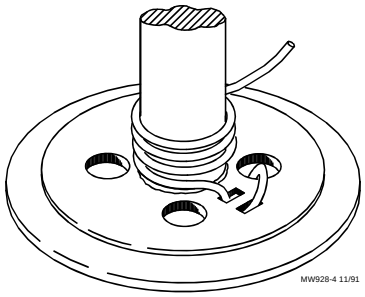


Figure 7. Cable Wrap on Drum

7. 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.
   Route the cable or cord around the swivel pulley and attach to the main cable, using a clamp.
8. Cable drop installations: Install an adjustment leveler on each drop line. See **Figure 8.**
   Cord drop installations: Install a cord adjuster on each drop line. See **Figure 8.**

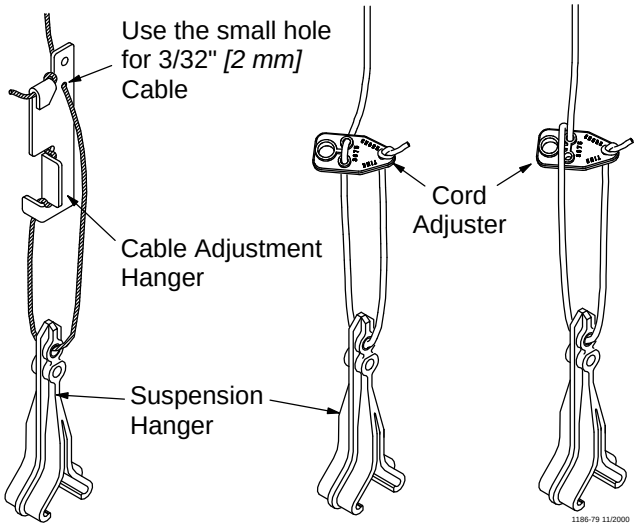


Figure 8. Cable Drop Installation

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.

Assembling and Hanging the Water Line

Raise the suspension to a convenient working height.

A nail apron may be used to carry hangers, connectors, expansion joints, keys, adjustment levelers, or cord adjusters.

Figure 9 identifies several of the primary components used with the nipple watering line.

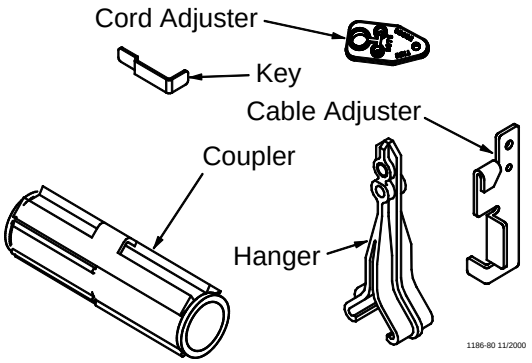


Figure 9. Nipple Waterer Components

Suspend Water Lines

Suspend the watering line every 8’ or 10’ *[2.4 or 3 m]* at the suspension drops.

1. Route the suspension cable through the top hole of the suspension hanger and around the cable adjuster as shown in “**Figure 8.” on page 12**.
2. Assemble the suspension hanger over the support channel at every suspension drop.

Install Coupling Assembly

Install coupling liner assembly on the end of the water pipe, as shown in **Figure 10**. Insert the pipe until it contacts the stop rib inside the coupling liner assembly.

Note: It may be necessary to lubricate the inside of the coupling with soapy water to allow for easy installation.

Insert the next pipe into the other end of the coupling liner assembly until the support channels meet.

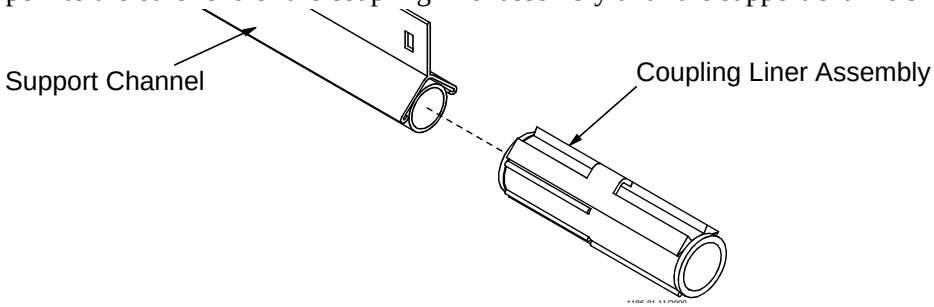


Figure 10. Coupling Liner Assembly Installation

Make sure the water pipes are fully inserted into the coupling assembly.

Note: The support channels will be butted against each other when the coupling is properly installed.

Insert the key into the first support channel, as shown in **Figure 11**. Insert the tab of the key through the hole in the second support channel. Once installed, bend the tab to secure it in place. This will prevent the water lines from separating at the joints.

Note: When an anti-roost system is to be installed it is recommended to use the channel bracket in place of the key.

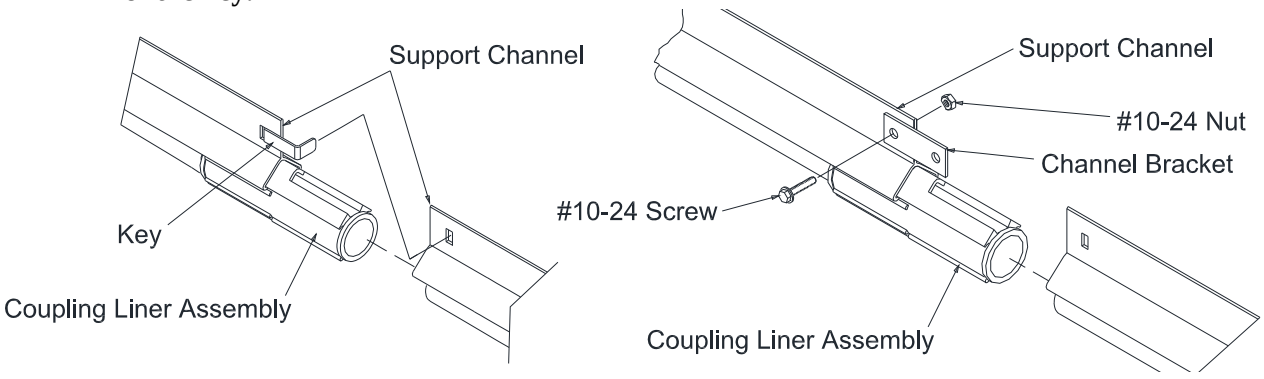


Figure 11. Securing the Water Line together

Mid-Line Stand Tube

One mid-line stand tube is required for every 150' *[46 m]* of nipple watering line, see **Figure 12**.

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 supplied 10-24 stainless steel screw and lock nut.
4. **Flexible Stand Tube**-Push the stand tube assembly on the mid line air remover or slope compensator vent tube and install the adjustable clamp.
   Folding Stand Tube-Apply PVC cement to Stand Tube and air remover or slope compensator vent tube and assemble with folding knuckle in the proper orientation.

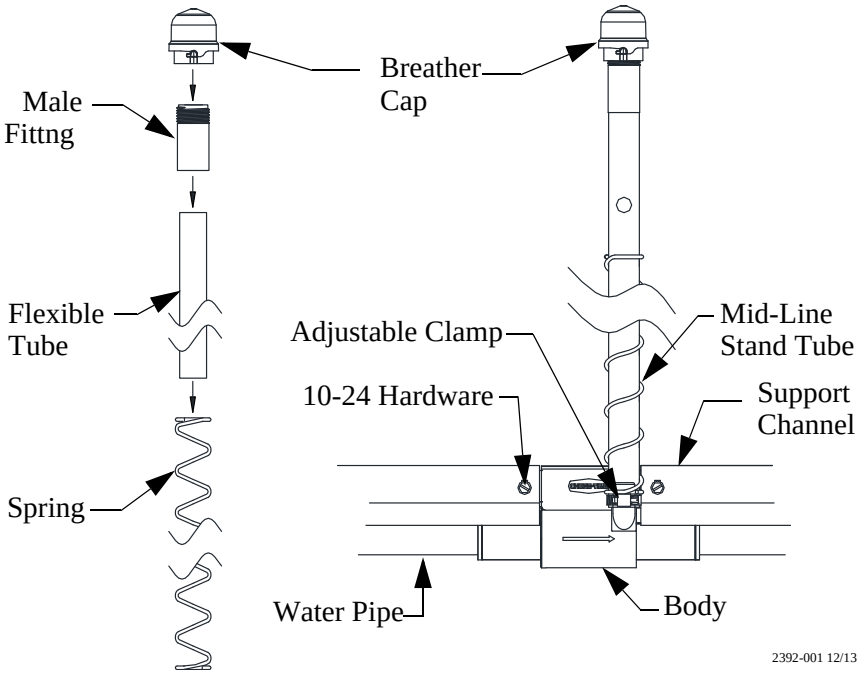


Figure 12. Mid Line Stand Tube Installation

Optional Mid Line Shut-Off Valve:

The mid line shut-off valve may be located at any convenient location along the water line, except next to a joint.

1. Determine the desired location for the mid line shut-off valve.
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 13**. 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.

Note: Chore-Time recommends installing 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.

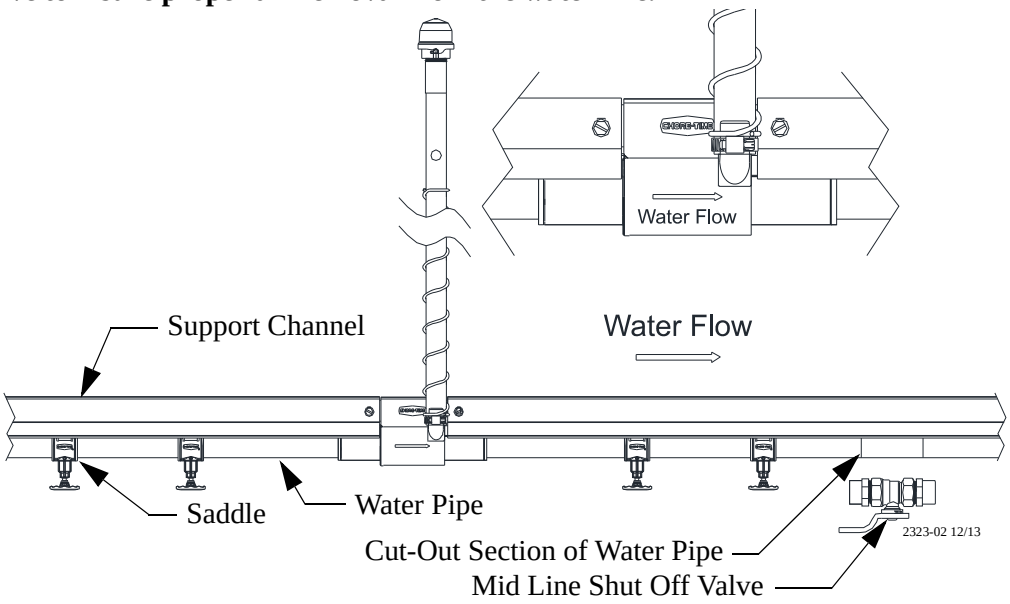


Figure 13. Mid Line Shut-Off Valve Installation

Optional Slope Compensator:

The slope compensator is used in houses that have a gradual slope over the length of the system. The slope compensator allows the water pressure to be re-adjusted along the line.

- 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 maximum amount of drop between the inlet assembly and the slope compensator, or between two slope compensators, or between the slope compensator and the outlet assembly is 4 inches *[100 mm]*. See **Figure 14**.
- The maximum number of slope compensators used on any one water line is six.
- The maximum amount of slope over any water line is 28 inches *[71 cm]* of drop.

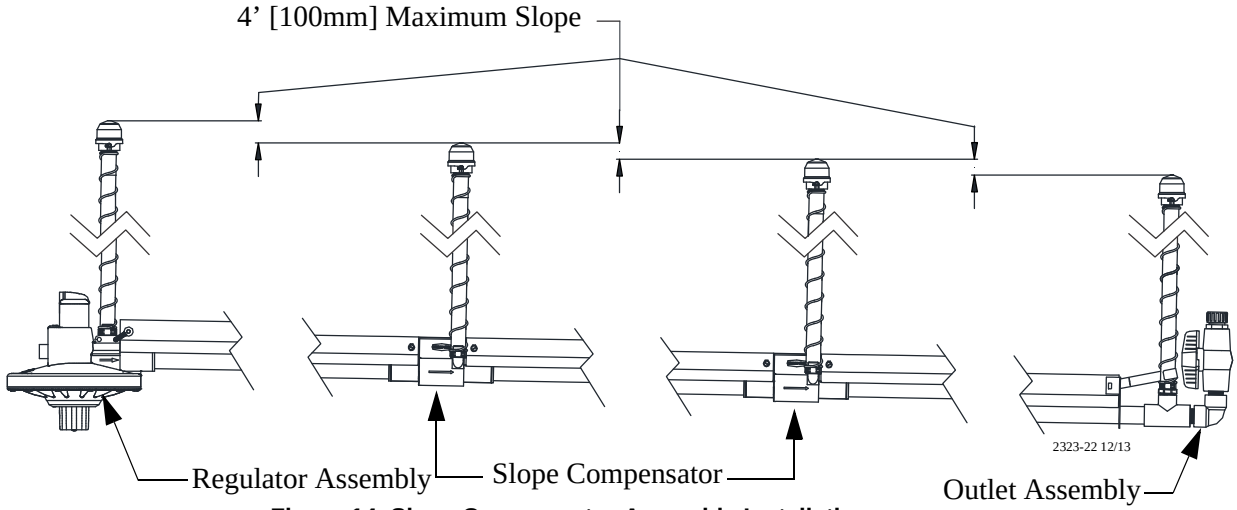


Figure 14. Slope Compensator Assembly Installation

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 15**.

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 15**. 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 hanger may be used as a template to determine proper hole location.
4. **Flexible Stand Tube-** Slide the Stand Tube onto the 1/2" Male Adapter and secure with an adjustable clamp. Wrap the threads of the 1/2" male adapter with sealant tape.
   Folding Stand Tube- Wrap threads of 1/2" male adapter on the stand tube assembly with sealant tape.
5. Thread the stand tube assembly into the outlet tee.

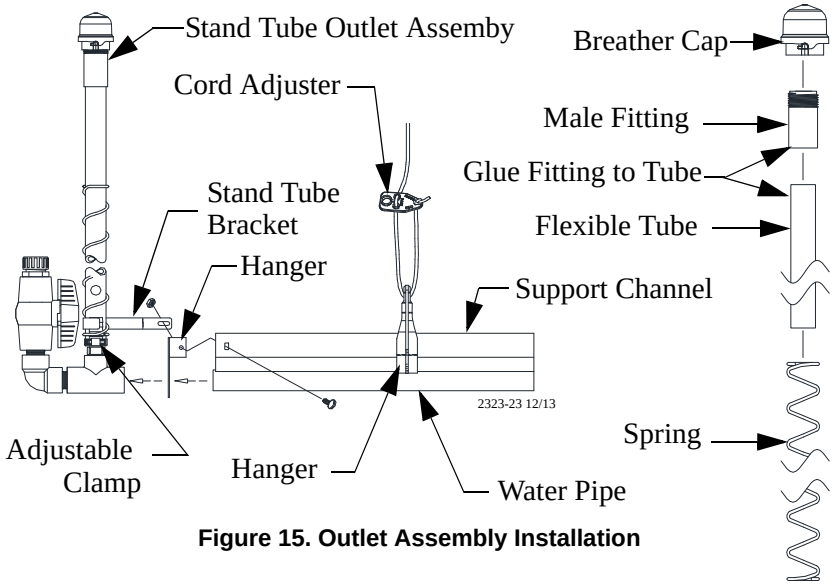


Figure 15. Outlet Assembly Installation

Regulator Assembly - VOLUMATIC™

Assemble and install the regulator assembly, as shown in **Figure 16**.

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 (**it helps to wet the black outlet liner**) and into the end of the channel.
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.
4. Assemble the stand tube and clamp to the regulator by sliding the tube over the barbs and tightening the adjustable clamp.

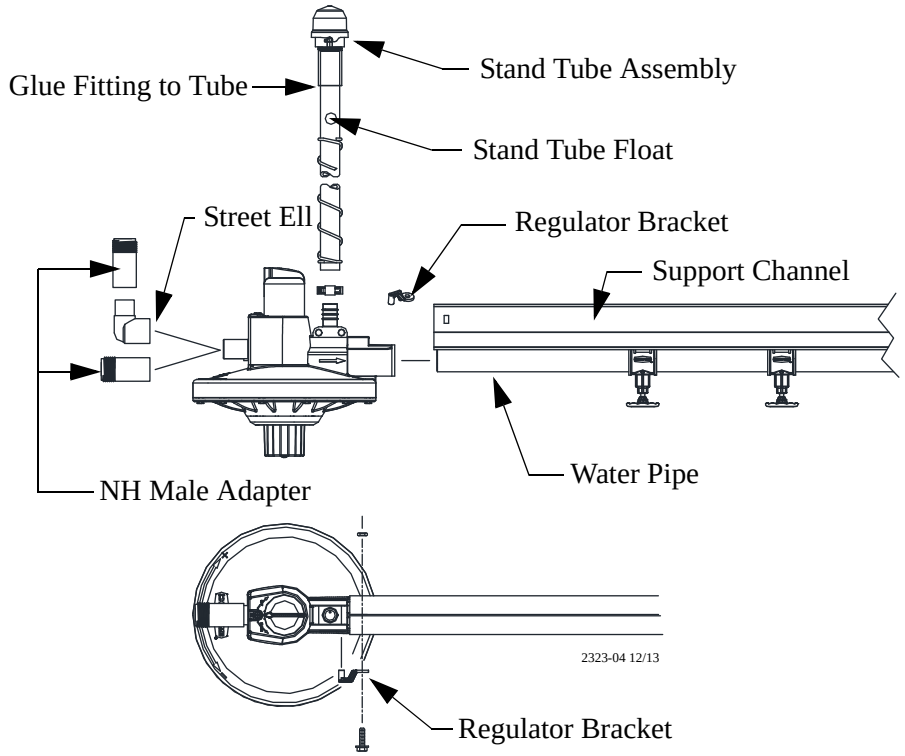


Figure 16. Regulator Assembly Components

Regulator Operation Modes

The VOLUMATIC™ Water Regulator can be shut off by turning the selector knob clockwise until it stops. To turn on the regulator, turn the selector knob until it points to the ON position indicated on the regulator. To activate the flush mode turn the selector knob fully counter-clockwise until it stops.

Regulator Guidelines

- **Optimum incoming static pressure is 25 to 35 psi *[172 to 241 kPa]***.
- When flushing, make sure the outlet line is clear of restrictions. Excessive back pressure can damage the regulator.
- When using the manual adjustment version of the regulator, the water column is set by turning the manual adjustment knob on the bottom of the regulator in the direction shown on the regulator.
- Adjust the operating pressure as recommended in the Nipple Waterer Quick Reference Sheet. **See page 38**.

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

Filter Control Panel Installation

The filter control panel is used to remove foreign material from the incoming water, and, if necessary, add medication to the water.

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** 17.

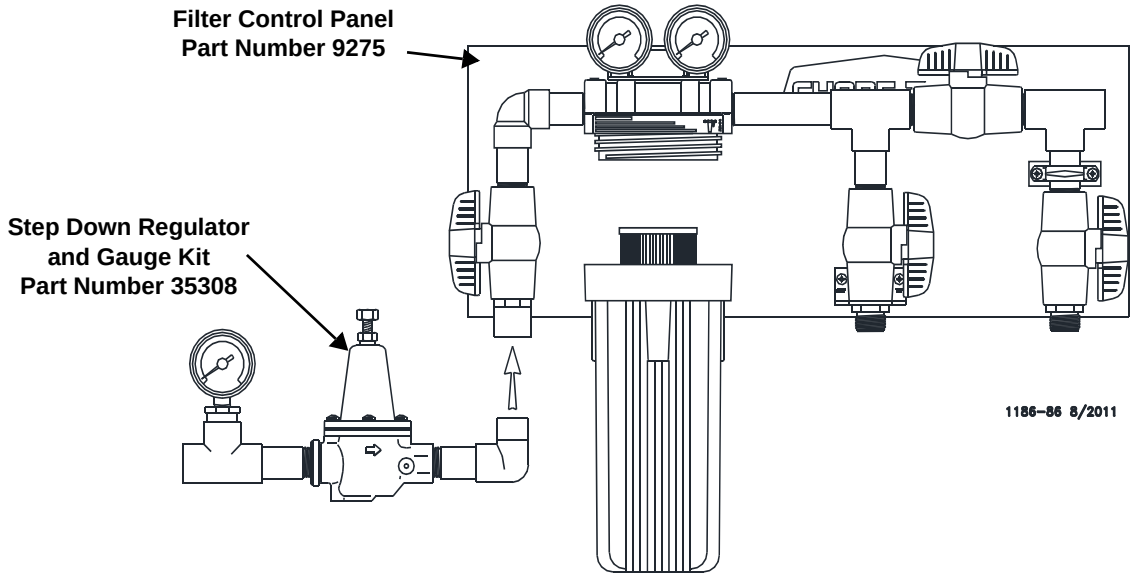


Figure 17. 9275 Control Panel

Flushable Filter Control Panel Installation

(Optional alternative to the standard filter control panel)

The flushable filter control panel is used to remove foreign material from the incoming water, and, if necessary, add medication to the water. This control panel features a filter that may be flushed, removed, cleaned, then reinstalled.

Two versions of the filter control panel are available.

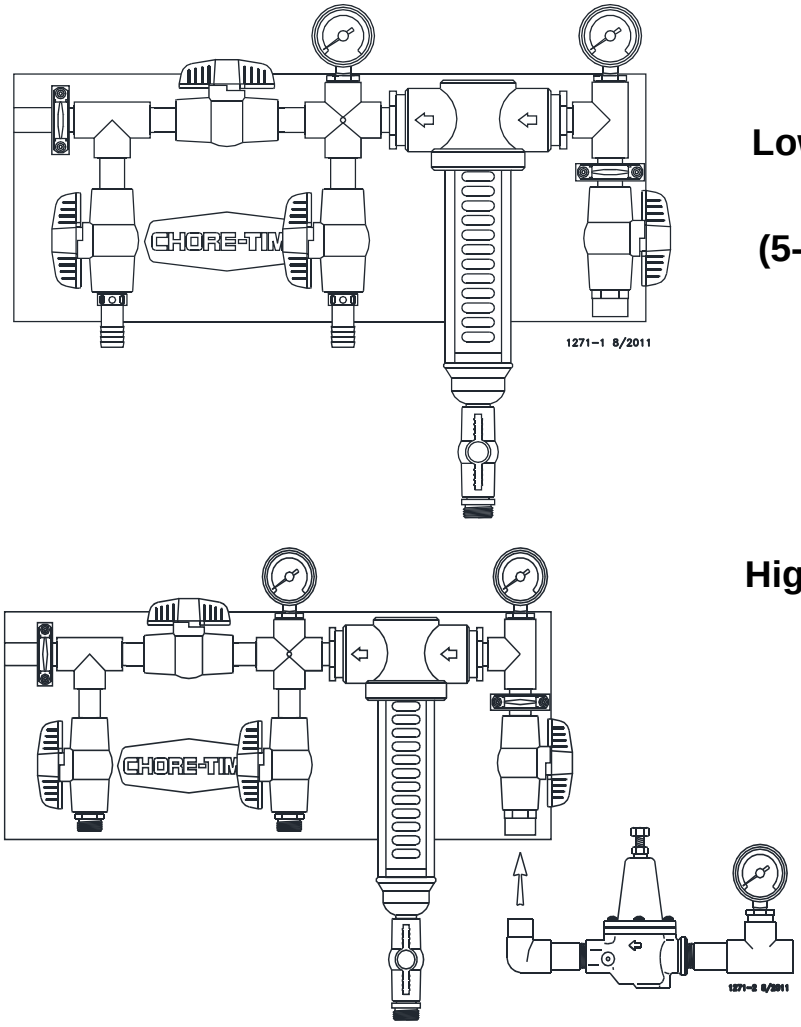
The low pressure version is designed to accommodate gravity flow systems with 5 - 10 p.s.i *[34.5 - 69.0 kPa]*. Do not exceed 15 p.s.i. *[103.4 kPa]* with this control panel, or damage will occur to the gauges.

Systems with 11+ p.s.i. *[75.8+ kPa]* should use the high pressure control panel. For systems above 35 psi, order a step down regulator.

The filter control panel 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 gauge assembly is shipped un-assembled. Assemble the gauge assembly components as specified in the instruction (MW1052) shipped with the kit.



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

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

Figure 18. Optional Control Panels

Anti-Roost Installation

The anti-roost system prevents the birds from setting on the water line. **Figure 19** shows an overview of the anti-roost system.

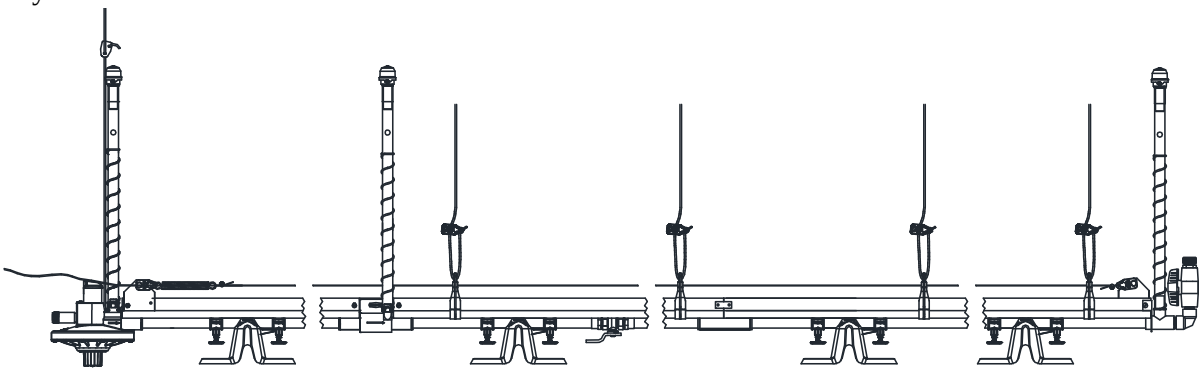


Figure 1. Regulator End Components

2323-05 12/13

1. Make certain that an anchor plate with adjustment leveler is installed at the beginning and end of each anti-roost line. See **Figure 20**.
2. When an anti-roost system is to be installed the channel bracket must be used in place of the key to connect the channels together.
3. Install a suspension hanger every 24" *[610 mm]*
4. 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.
5. Create a small loop with the cable and a cable clamp.
6. Connect the cable loop to the adjustment leveler/anchor plate.
7. Install a spring on the adjustment leveler/anchor plate near the inlet assembly.
8. Pull the cable taught and create a small loop with the cable and a cable clamp.
9. Connect the cable to the spring.
10. The spring should be stretched to an overall length of approximately 8" *[203 mm]*. Adjust as required.
11. Repeat the above procedure on each of the anti-roost lines.

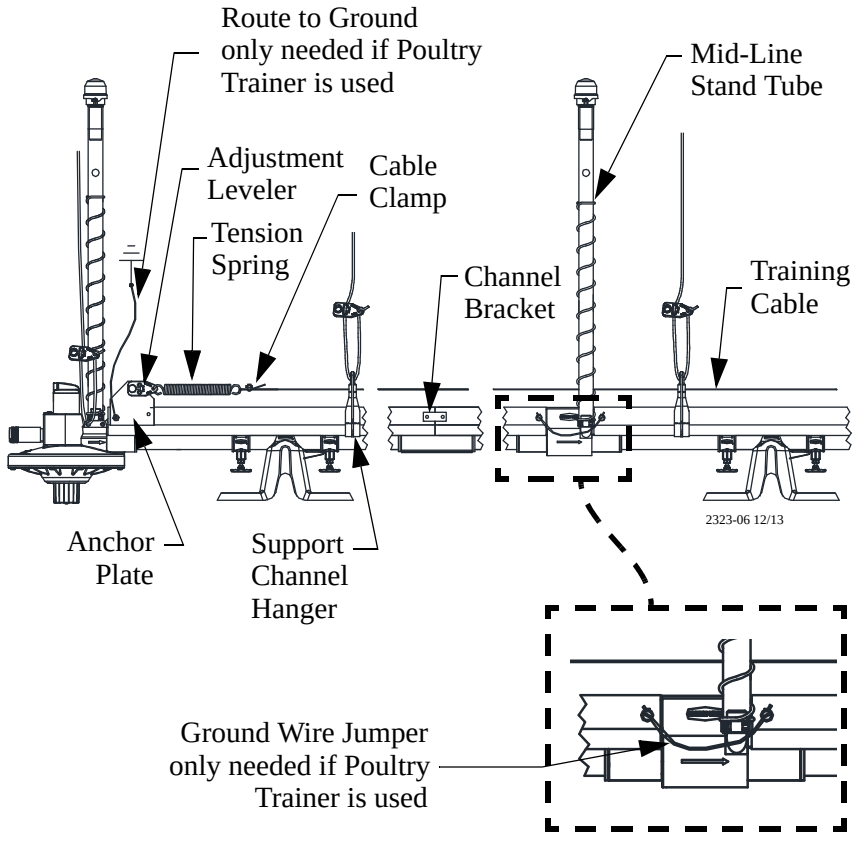


Figure 2. Anti-Roost Components

12. **Optional Equipment:** Secure the poultry trainer to a wall or post near the water line.

- 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 Figure **Figure 20**.

Installing the Flush System

The flush system provides convenient one-man system purging.

Chore-Time recommends flushing one line at a time to maximize the cleaning in each line.

The hose, PVC pipe and connections must be purchased locally.

Install the flush components as shown in **Figure 21**.

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

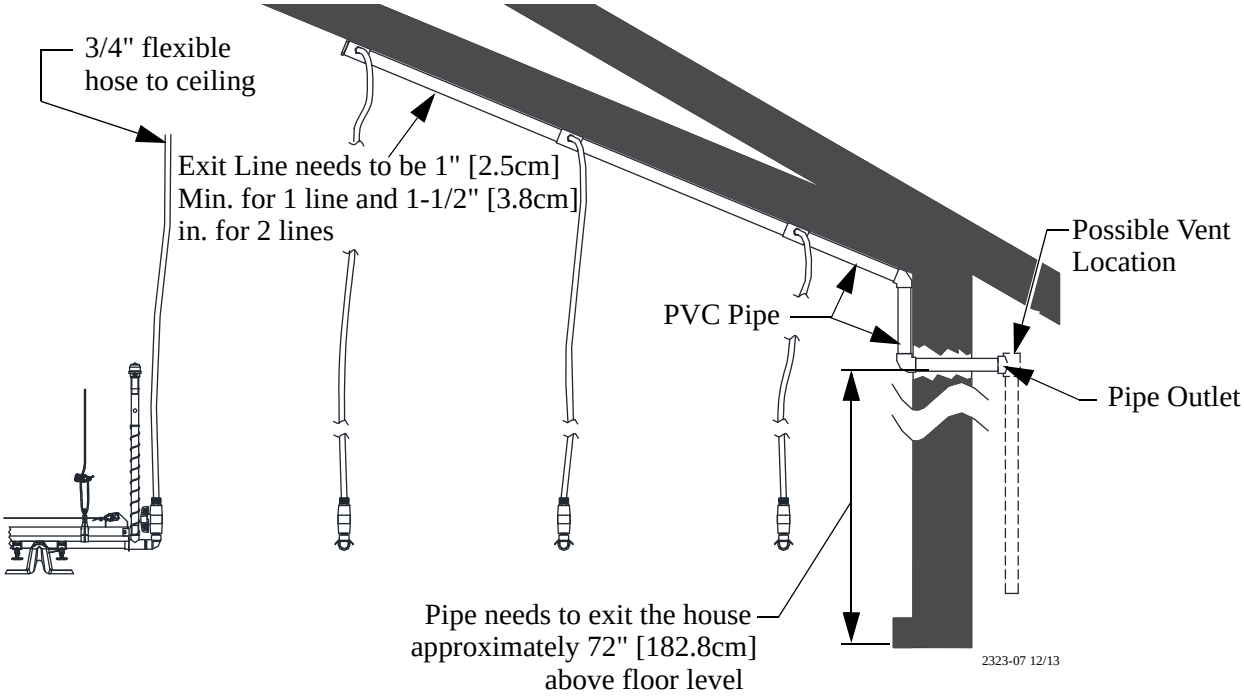


Figure 1. Anti-Roost Components

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.

PDS™ Flush Control

Optional PDS™ (Pneumatic Drinking System) controls can be used with Chore-Time regulators as a option to the standard manual flush regulators.

PDS controls are programmable controls which can provide automatic flushing cycles. These controls also provide a central place to flush watering lines along with pressure adjustment which regulates the water column height.

4-8 station PDS control

12-40 station PDS control

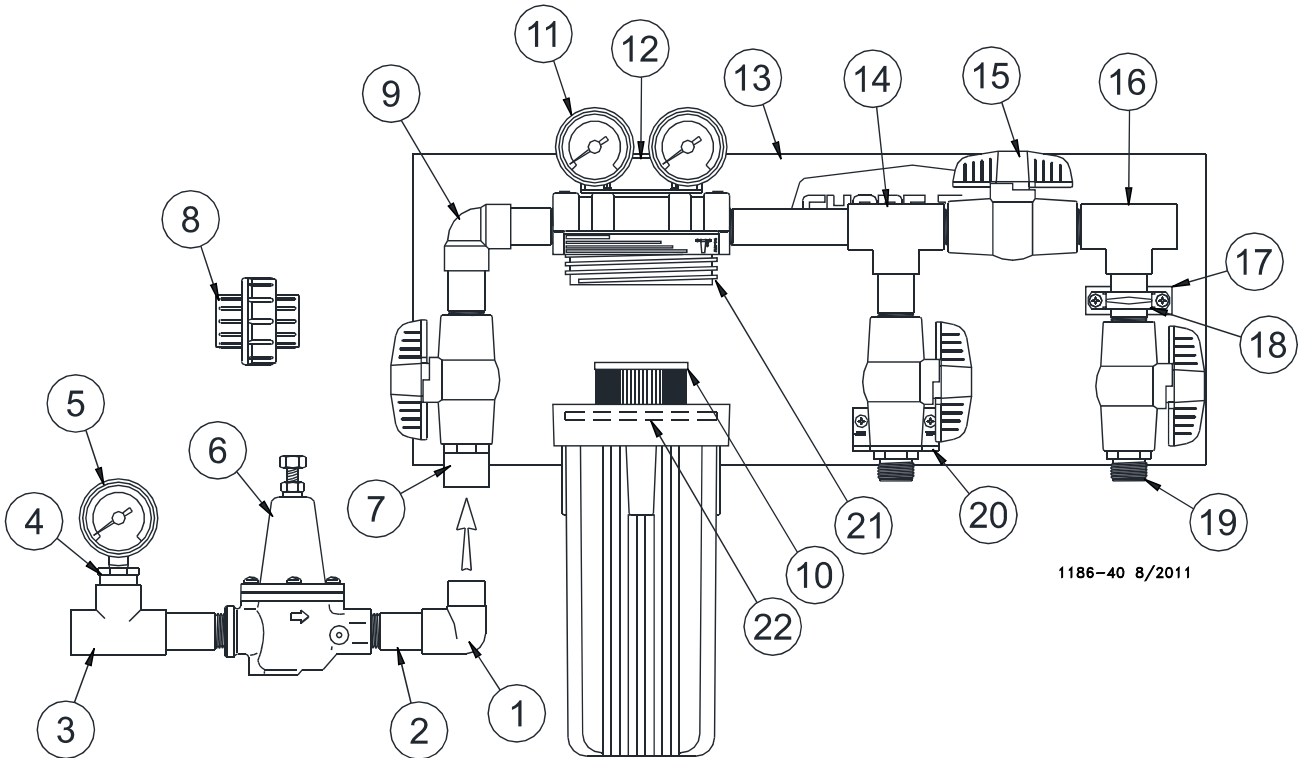
The PDS control is available in station increments of 4(ie. 12, 16, 20...). Each station is capable of controlling up to 2 individual Chore-Time regulators. For example a 12 station control can regulate and flush up to 24 individual regulators.

Available control part numbers:

Part Number	Number of stations
52430-4	4
52430-8	8
52430-12	12
52430-16	16
52430-20	20
52430-24	24
52430-28	28
52430-32	32
52430-36	36
52430-40	40

Parts Listing

Filter Control Panel with Step Regulator



Item	Description	Part No.
1*	3/4" PVC Street Ell	30138
2*	3/4" 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 Male Adapter	34100
8*	Union	8137
9**	3/4" PVC Ell	8141
10**	10 Micron Filter Cartridge (Optional)	13145
	20 Micron Filter Cartridge (Standard)	7723
11**	High Press. Water Gauge	7191
12**	Filter Mounting Bracket	35302
13**	Mounting Board	35303
14**	Filter Outlet Assembly	35304
15**	3/4" Quarter Turn Valve	35781
16**	Medicator Outlet Assembly	35305
17**	Standoff Block	35300
18**	Plastic Conduit Clamp	35301
19**	3/4" Nylon Adapter	7543
20**	Medicator Connector Brace	35307
21**	Water Filter	35309
22	O-Ring	9191

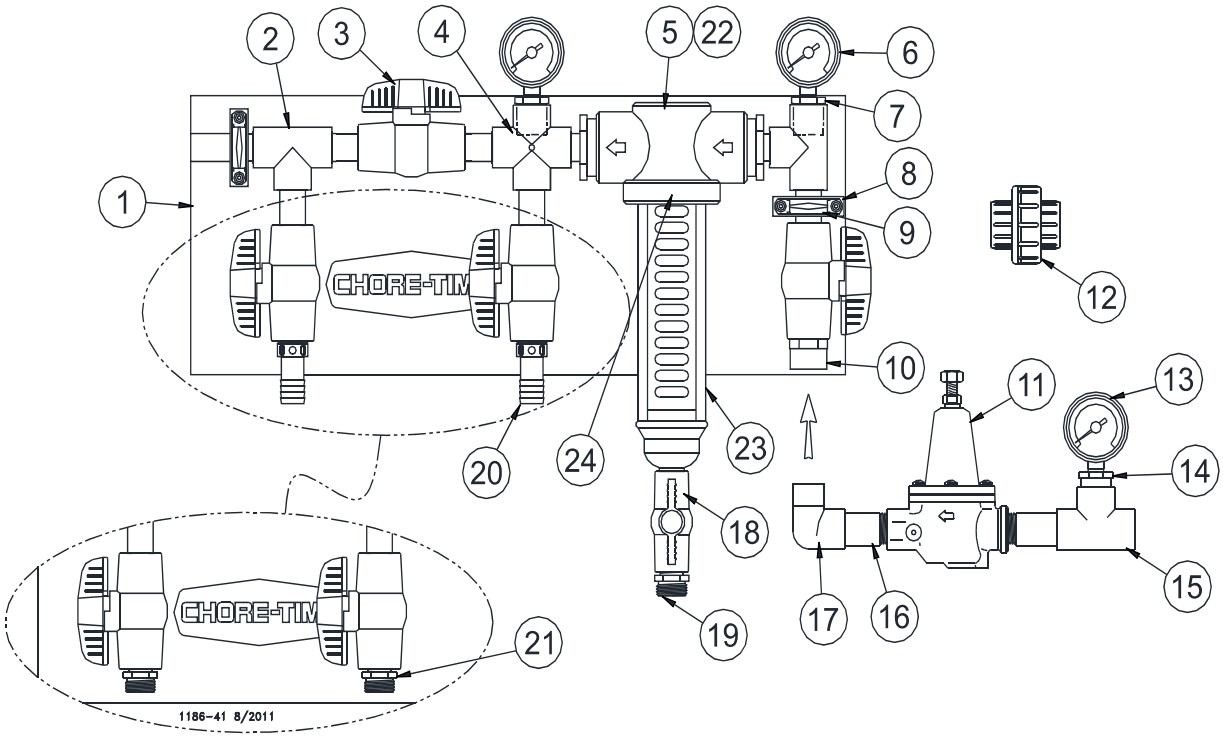
***These components may be ordered as an assembly under Part No. 35308.**

****These components may be ordered as an assembly under Part No. 9275.**

Flushable Filter Control Panel

Low Pressure: 36802-1

High Pressure: 36802-2



		36802-1	36802-2
Item	Description	Part No	Part No
1	Mounting Board	35303	35303
2	Meditator Outlet Assembly	36805	36805
3	3/4" Valve	35781	35781
4	3/4" Cross	7536	7536
5	Filter Inlet Assembly	36810	36810
6	Pressure Gauge	27722	7191
7	3/4" x 1/4" Reducer Bushing	7789	7789
8	Standoff Block	35300	35300
9	3/4" Plastic Conduit Clamp	35301	35301
10	3/4" PVC Male Adapter	9229	9229
11*	Step Regulator	29951	---
12*	Union	8137	---

		36802-1	36802-2
Item	Description	Part No	Part No
13*	High Pressure Gauge	7191	---
14*	3/4" x 1/4" Reducer Bushing	7789	---
15*	3/4" PVC Tee (S x S x S)	7538	---
16	3/4" Threaded PVC Nipple	7531-1	---
17	3/4" PVC Street Ell	30138	---
18**	1/2" Ball Valve	34961	34961
19**	Nylon Adapter	29141	29141
20	3/4" Barb x 3/4" Pipe Adapter	27422	---
21	3/4" Male Adapter (Nylon)	---	7543
22	Flush able Filter	36806	36806
23**	Filter Cover	46993	46993
24	O-Ring Kit	36807	36807

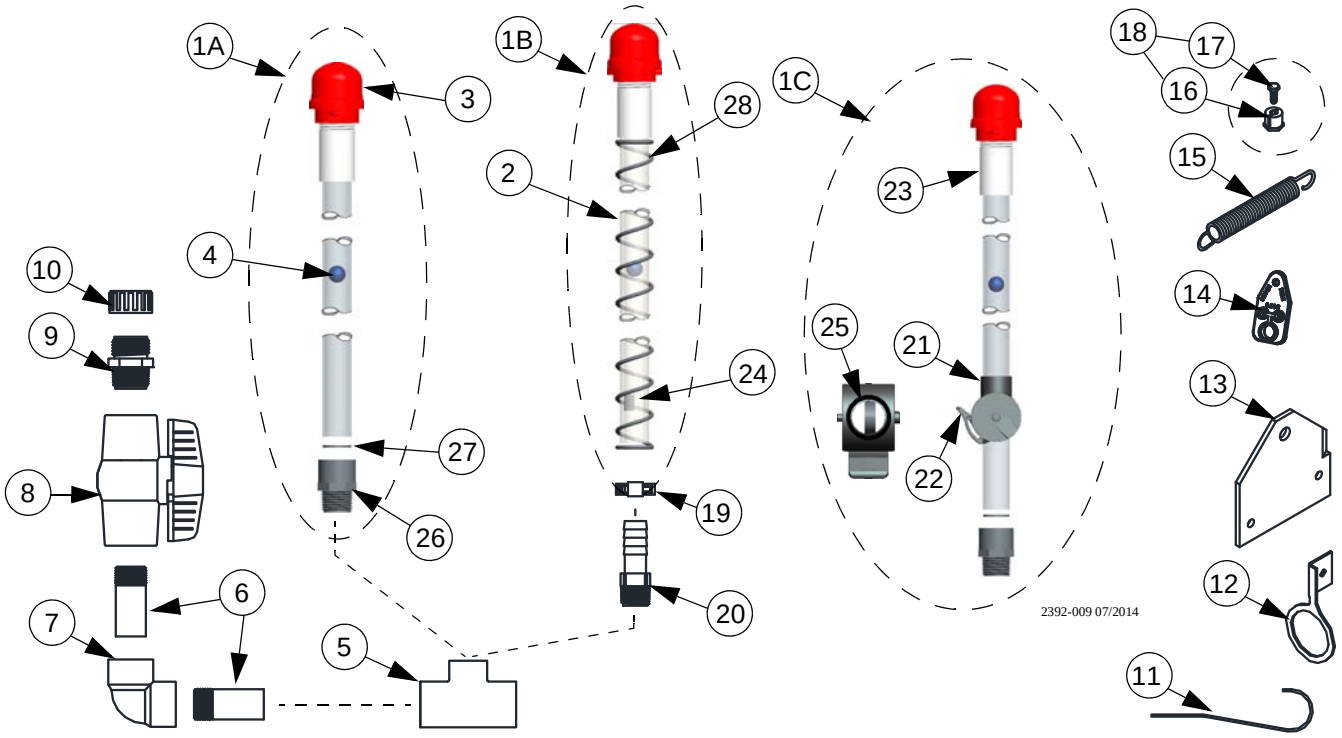
These parts may be ordered separately, if needed.

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

***Items not included with the flush able filter control panel. They may be ordered separately as a assembly, Part No. 35308.**

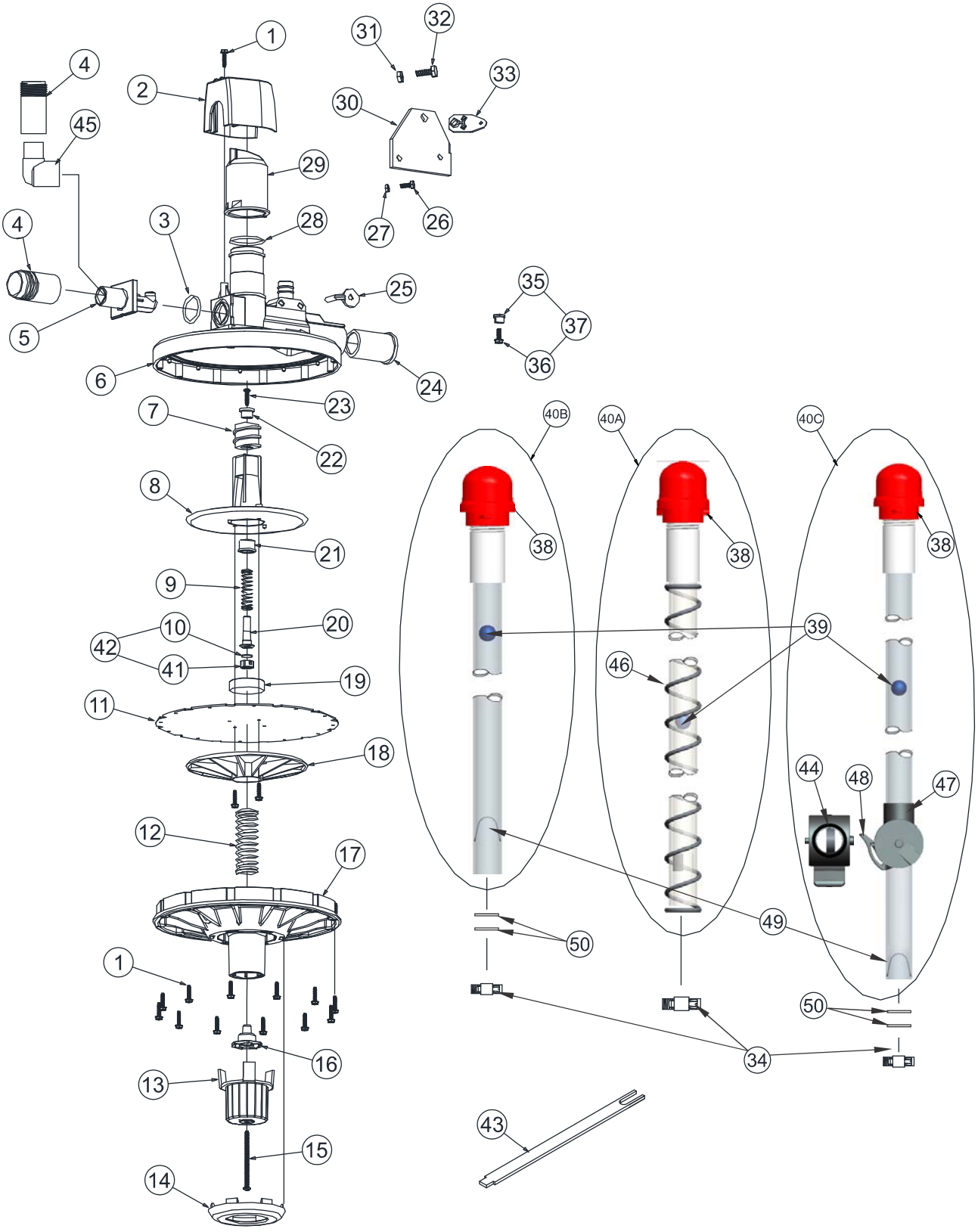
****Included with Item 5.**

Stand Tube Outlet Assembly



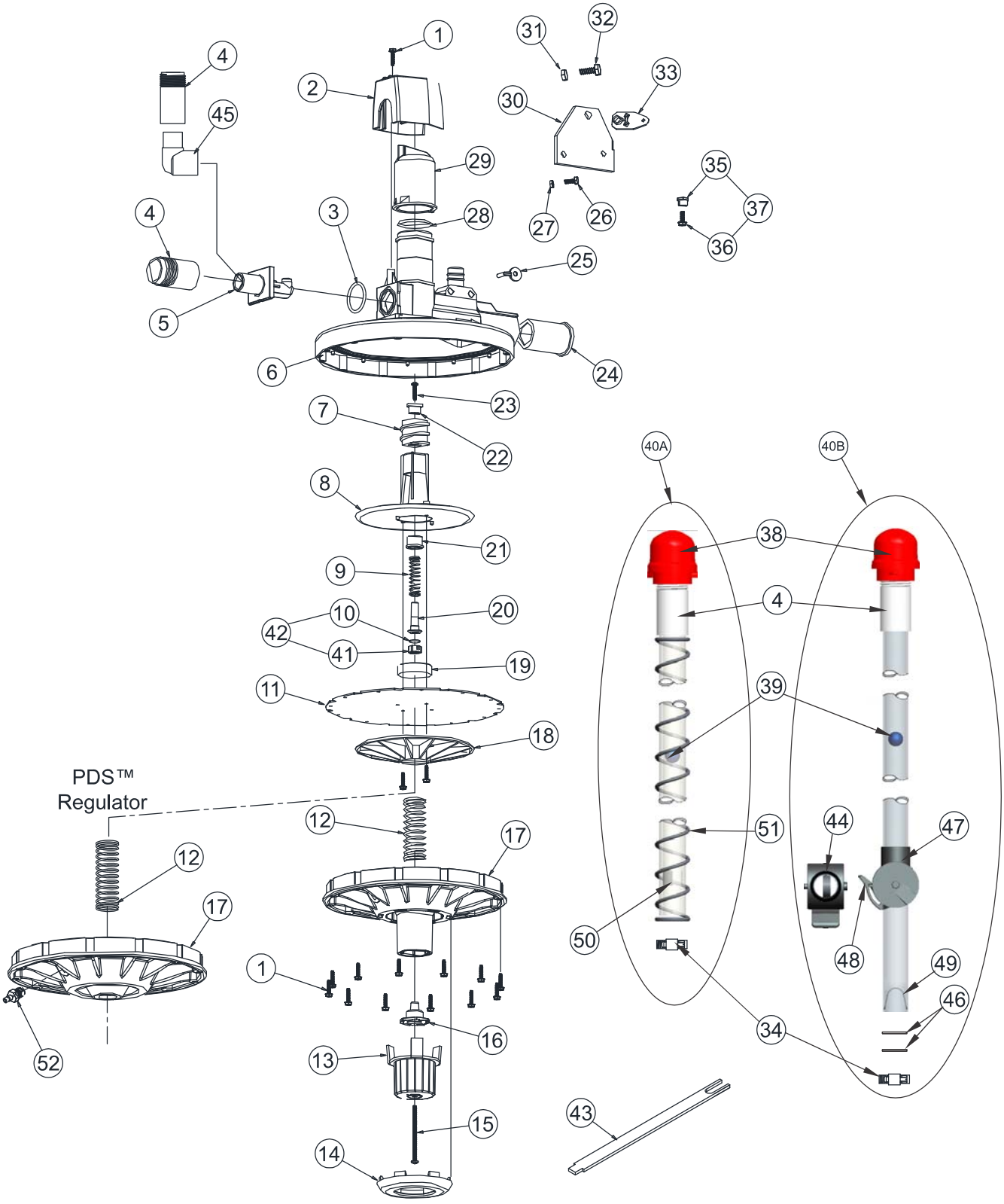
		52275-2	52275-3	52275-4	52275-5	52275-6	52275-7
Item	**Description**	**Part No**	**Part No**	**Part No**	**Part No**	**Part No**	**Part No**
1A	Rigid Stand Tube Assembly	---	---	---	---	54517-3	54517-3
1B*	Flexible Stand Tube Assembly	54517-1	54517-1	---	---	---	---
1C	Adjustable Stand Tube Assembly	---	---	54517-7	54517-7	---	---
2**	Flexible Tubing	36840-1	36840-1	---	---	---	---
3**	Breather Cap Assembly	54606	54606	54606	54606	54606	54606
4**	Stand Tube Float Ball	37142	37142	37142	37142	37142	37142
5	Reducing Tee	34777	34777	34777	34777	34777	34777
6	3/4 x 2” Threaded PVC Pipe	7531-4	7531-4	7531-4	7531-4	7531-4	7531-4
7	3/4” S x T Ell	7558	7558	7558	7558	7558	7558
8	3/4” Ball Valve	35781	35781	35781	35781	35781	35781
9	3/4” Nylon Adapter	7543	7543	7543	7543	7543	7543
10	Hose Cap (Washer Included)	9811	9811	9811	9811	9811	9811
11	Stand Tube Bracket	33900	33900	33900	33900	33900	33900
12	Hanger	35481	35481	35481	35481	35481	35481
13*	Anchor Plate	---	42807	---	42807	---	42807
14*	Adjustment Leveler	---	3075	---	3075	---	3075
15*	Extension Spring	---	25353	---	25353	---	25353
16*	#10-24 Slotted Nut	---	1840	---	1840	---	1840
17*	#10-24 x 3/8” Machine Screw	---	1951	---	1951	---	1951
18	Cable Clamp	---	1826	---	1826	---	1826
19	Adjustable Clamp	49529	49529	---	---	---	---
20	1/2" Male Adapter	47881	47881	---	---	---	---
21**	Outer Stand Tube Body	---	---	54561	54561	---	---
22**	Inner Stand Tube Body	---	---	54560	54560	---	---
23**	3/4” NH Fitting	25098	25098	25098	25098	25098	25098
24**	Flexible Ball Stop	54590-1	54590-1	---	---	---	---
25**	O-Ring	---	---	52137	52137	---	---

Manual Adjustment VOLUMATIC™ Regulator Assembly Part No.'s



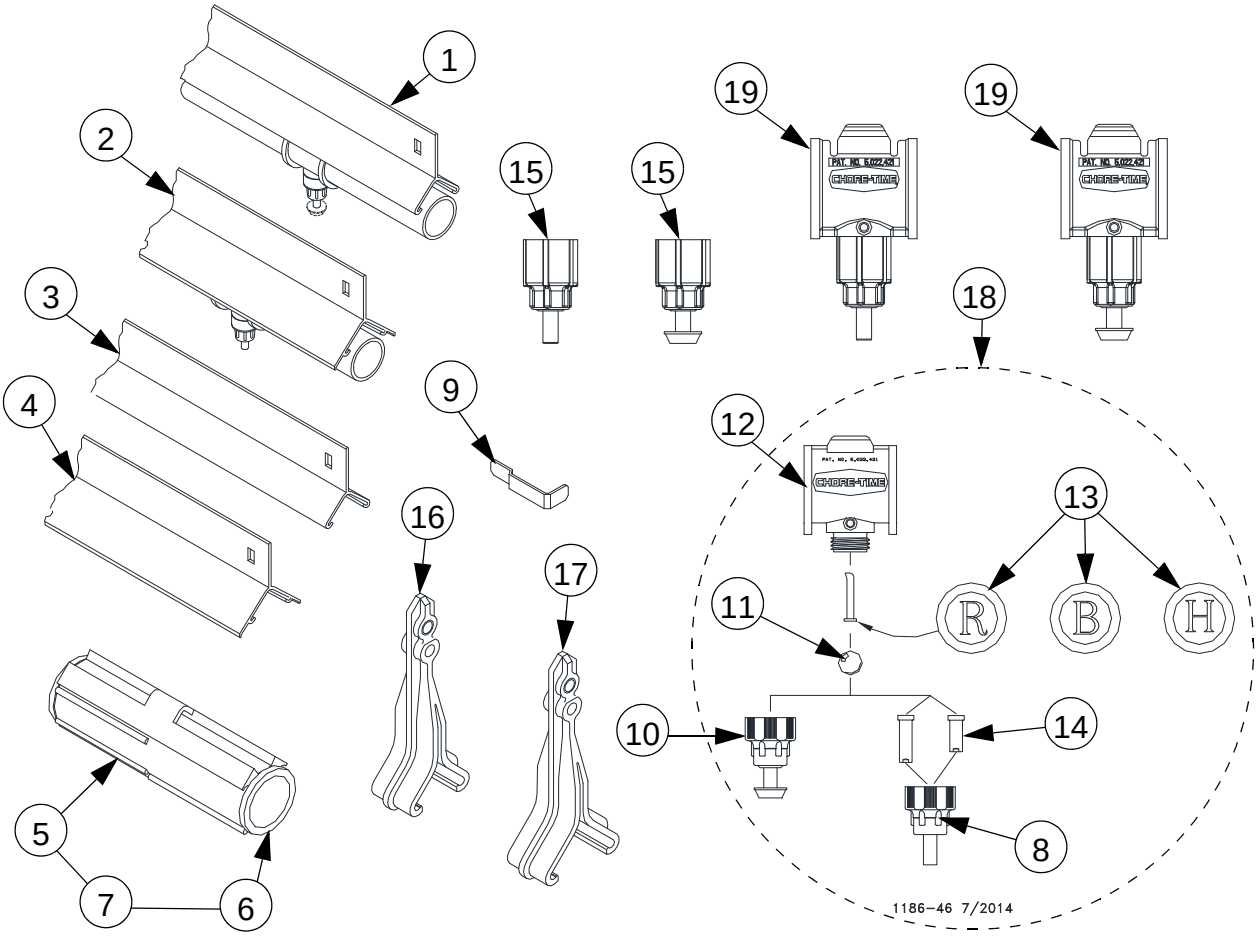
Item	Description	Manual Adj. Flexible Stand Tube 42400-1 Part No.	Manual Adj. Flexible Stand Tube w/Anti-Roost 42400-21 Part No.	Manual Adj. Rigid Stand Tube 52280-9 Part No.	Manual Adj. Rigid Stand Tube w/ Anti-Roost 52280-23 Part No.	Manual Adj. without Stand Tube 52280-5 Part No.	Manual Adj. Folding Stand Tube 52280-1 Part No.	Manual Adj. Folding Stand Tube w/ Anti-Roost 52280-21 Part No.
1	#6 x 5/8" Screw	44946	44946	44946	44946	44946	44946	44946
2	Shroud	42390	42390	42390	42390	42390	42390	42390
3	O-Ring	29118	29118	29118	29118	29118	29118	29118
4*	NH Male Adapter Fitting	25098	25098	25098	25098	25098	25098	25098
5	Inlet Orifice	42190	42190	42190	42190	42190	42190	42190
6	Top Half Regulator	42174	42174	42174	42174	42174	42174	42174
7	Barrel	42172	42172	42172	42172	42172	42172	42172
8	Top Diaphragm Plate	42182	42182	42182	42182	42182	42182	42182
9	.375 ID x 1.75" Spring	42392	42392	42392	42392	42392	42392	42392
10	Seat	48225	48225	48225	48225	48225	48225	48225
11	Diaphragm	42181	42181	42181	42181	42181	42181	42181
12	.78 x 2.8" Spring	42393	42393	42393	42393	42393	42393	42393
13	Adjustment Knob	42184	42184	42184	42184	42184	42184	42184
14	Knob Retainer	42173	42173	42173	42173	42173	42173	42173
15	#8-18 x 2-1/2" Screw	42387	42387	42387	42387	42387	42387	42387
16	Follower	42183	42183	42183	42183	42183	42183	42183
17	Bottom Regulator Half	42180	42180	42180	42180	42180	42180	42180
18	Diaphragm Plate	42177	42177	42177	42177	42177	42177	42177
19	Diaphragm Center Support	42186	42186	42186	42186	42186	42186	42186
20	Seat Holder	42189	42189	42189	42189	42189	42189	42189
21	Seat Holder Sleeve	42187	42187	42187	42187	42187	42187	42187
22	Seat Holder Cap	42176	42176	42176	42176	42176	42176	42176
23	#6 x .625 Screw	52025	52025	52025	52025	52025	52025	52025
24	Half Liner	36501	36501	36501	36501	36501	36501	36501
25	Regulator Bracket	44866	44866	44866	44866	44866	44866	44866
26	#10-24 x 5/8" Screw	1876	1876	1876	1876	1876	1876	1876
27	#10-24 Nut	313	313	313	313	313	313	313
28	O-Ring	42389	42389	42389	42389	42389	42389	42389
29	Selector Knob	42178	42178	42178	42178	42178	42178	42178
30**	Anchor Plate	---	42807	---	42807	---	---	42807
31**	5/16-18 Nut	---	2145	---	2145	---	---	2145
32**	5/16-18 x 3/4" Bolt	---	2046	---	2046	---	---	2046
33**	Adjustment Leveler	---	3075	---	3075	---	---	3075
34	Hose Clamp	49529	49529	7187	7187	---	7187	7187
35**	#10-24 Slotted Nut	---	1840	---	1840	---	---	1840
36**	#10-24 Hex Head Screw	---	1951	---	1951	---	---	1951
37	Cable Clamp	---	1826	---	1826	---	---	1826
38*	Breather Cap Assembly	54606	54606	54606	54606	---	54606	54606
39*	Blue Ball	37142	37142	37142	37142	---	37142	37142
40A	Flexible Stand Tube Assy.	54517-1	54517-1	---	---	---	---	---
40B	Rigid Stand Tube Assy.	---	---	54517-4	54517-4	---	---	---
40C	Folding Stand Tube Assy.	---	---	---	---	---	54517-8	54517-8
41	Seat Cup	48199	48199	48199	48199	48199	48199	48199
42	Seat Cup and Seat	42188	42188	42188	42188	42188	42188	42188
43	Seat Installation Tool	48688	48688	48688	48688	48688	48688	48688
44*	O-Ring	---	---	---	---	---	52137	52137
45	1/2" Street Elbow	33895	33895	33895	33895	---	33895	33895
46*	Spring	36839-1	36839-1	---	---	---	---	---
47*	Outer Stand Tube Body	---	---	---	---	---	54561	54561
48*	Inner Stand Tube Body	---	---	---	---	---	54560	54560
49*	Rigid Ball Stop	---	---	54817	54817	---	54817	54817
50	O-Ring	---	---	48325	48325	---	48325	48325
*Included in 54517-X Assembly, **Included in 34531-X								

PDS™ Controlled Regulator Assembly Part No.'s



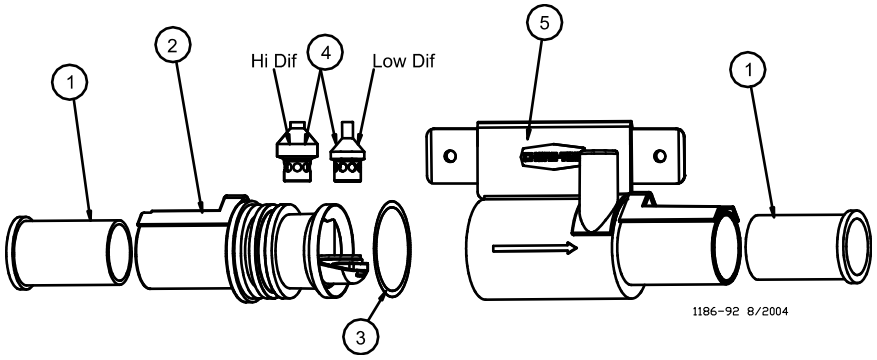
Item	Description	PDS Controlled Flexible Stand Tube 42400-2 Part No.	PDS Controlled Flexible Stand Tube w/Anti-Roost 42400-22 Part No.	PDS Controlled Folding Stand Tube 52280-2 Part No.	PDS Controlled Folding Stand Tube w/ Anti-Roost 52280-22 Part No.
1	#6 x 5/8" Screw	44946	44946	44946	44946
2	Shroud	42390	42390	42390	42390
3	O-Ring	29118	29118	29118	29118
4*	NH Male Adapter Fitting	25098	25098	25098	25098
5	Inlet Orifice	42190	42190	42190	42190
6	Top Half Regulator	42174	42174	42174	42174
7	Barrel	42172	42172	42172	42172
8	Top Diaphragm Plate	42182	42182	42182	42182
9	.375 ID x 1.75" Spring	42392	42392	42392	42392
10	Seat	48225	48225	48225	48225
11	Diaphragm	42181	42181	42181	42181
12	.78 x 2.8" Spring	42393	42393	42393	42393
13	Adjustment Knob	---	42184	---	42184
14	Knob Retainer	---	42173	---	42173
15	#8-18 x 2-1/2" Screw	---	42387	---	42387
16	Follower	---	42183	---	42183
17	Bottom Regulator Half	42179	42179	42179	42179
18	Diaphragm Plate	42177	42177	42177	42177
19	Diaphragm Center Support	42186	42186	42186	42186
20	Seat Holder	42189	42189	42189	42189
21	Seat Holder Sleeve	42187	42187	42187	42187
22	Seat Holder Cap	42176	42176	42176	42176
23	#6 x .625 Screw	52025	52025	52025	52025
24	Half Liner	36501	36501	36501	36501
25	Regulator Bracket	44866	44866	44866	44866
26	#10-24 x 5/8" Screw	1876	1876	1876	1876
27	#10-24 Nut	313	313	313	313
28	O-Ring	42389	42389	42389	42389
29	Selector Knob	42178	42178	42178	42178
30**	Anchor Plate	---	42807	---	42807
31**	5/16-18 Nut	---	2145	---	2145
32**	5/16-18 x 3/4" Bolt	---	2046	---	2046
33**	Adjustment Leveler	---	3075	---	3075
34	Hose Clamp	49529	49529	7187	7187
35**	#10-24 Slotted Nut	---	1840	---	1840
36**	#10-24 Hex Head Screw	---	1951	---	1951
37	Cable Clamp	---	1826	---	1826
38*	Breather Cap Assembly	54606	54606	54606	54606
39*	Blue Ball	37142	37142	37142	37142
40A	Flexible Stand Tube Assy.	54517-1	54517-1	---	---
40B	Folding Stand Tube Assy.	---	---	54517-8	54517-8
41	Seat Cup	48199	48199	48199	48199
42	Seat Cup and Seat	42188	42188	42188	42188
43	Seat Installation Tool	48688	48688	48688	48688
44*	O-Ring	---	---	52137	52137
45	1/2" Street Elbow	33895	33895	33895	33895
46*	O-Ring	---	---	48325	48325
47*	Outer Stand Tube Body	---	---	54561	54561
48*	Inner Stand Tube Body	---	---	54560	54560
49*	Rigid Ball Stop	---	---	54817	54817
50*	Flexible Ball Stop	54590-1	54590-1	---	---
51*	Spring	36839-1	36839-1	---	---
52	1/8-27 NPT x 1/4 OD Tube Connector	50820	50820	50820	50820
*Included in 54517-X Assembly, **Included in 34531-X					

Nipple Line Assembly and Components



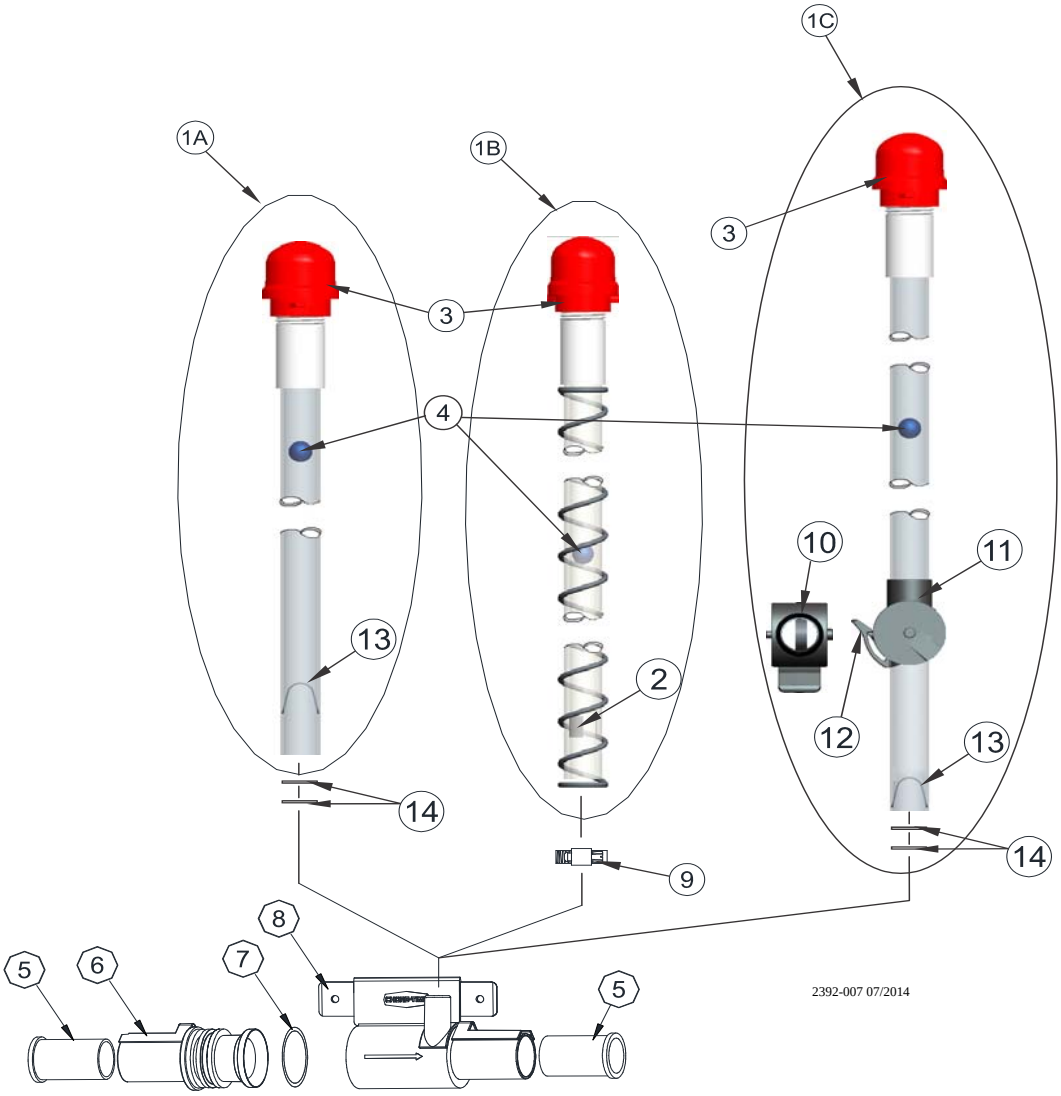
Item	Description	Standard Flow Pt #	High Flow Pt #	Regulated Flow Pt #	Lift Trigger Pt #
1	**Standard Channel STEADI-FLOW® Drinker Assembly**				
	6" *[152 mm]* spacing (20 nipples)	50917-1	---	---	---
	8" *[203 mm]* spacing (15 nipples)	50917-2	50919-2	50921-2	---
	10" *[254 mm]* spacing (12 nipples)	50917-3	50919-3	50921-3	---
	12" *[305 mm]* spacing (10 nipples)	50917-4	50919-4	50921-4	---
	15" *[381 mm]* spacing (8 nipples)	50917-5	50919-5	---	---
	7" *[178 mm]* spacing (17 nipples)	50917-8	---	---	---
	6" *[152 mm]* spacing (20 button nipples)	50917-1B	50919-1B	---	---
	8" *[203 mm]* spacing (15 button nipples)	50917-2B	50919-2B	50921-2B	---
	10" *[254 mm]* spacing (12 button nipples)	50917-3B	50919-3B	50921-3B	---
	12" *[305 mm]* spacing (10 button nipples)	50917-4B	---	---	---
	15" *[381 mm]* spacing (8 button nipples)	50917-5B	50919-5B	---	---
1	**Standard Channel RELIA-FLOW® Drinker Assembly**				
	6" *[152 mm]* spacing (20 nipples)	50928-1	---	---	---
	8" *[203 mm]* spacing (15 nipples)	50928-2	---	50932-2	50933-2
	10" *[254 mm]* spacing (12 nipples)	50928-3	50931-3	50932-3	50933-3
	12" *[305 mm]* spacing (10 nipples)	50928-4	---	---	---
	15" *[381 mm]* spacing (8 nipples)	50928-5	---	---	---
	24" *[610 mm]* spacing (5 nipples)	---	50931-7	---	50933-7
	6" *[152 mm]* spacing (20 button nipples)	50928-1B	---	---	---
Item	**Description**	**Standard Flow Pt #**	**High Flow Pt #**	**Regulated FlowPt #**	**Lift Trigger Pt #**
2	**Heavy Channel STEADI-FLOW® Drinker Assembly**				
	6" *[152 mm]* spacing (20 nipples)	50918-1	50920-1	---	---
	8" *[203 mm]* spacing (15 nipples)	50918-2	50920-2	---	50923-2
	10" *[254 mm]* spacing (12 nipples)	50918-3	50920-3	---	50923-3
	12" *[305 mm]* spacing (10 nipples)	50918-4	50920-4	---	50923-4
	15" *[381 mm]* spacing (8 nipples)	50918-5	50920-5	---	50923-5
	20" *[508 mm]* spacing (6 nipples)	50918-6	50920-6	---	---
	24" *[610 mm]* spacing (5 nipples)	50918-7	50920-7	---	50923-7
	8" *[203 mm]* spacing (15 button nipples)	50917-2B	---	---	---
	10" *[254 mm]* spacing (12 button nipples)	50917-3B	---	---	---
2	**Heavy Channel RELIA-FLOW® Drinker Assembly**				
	6" *[152 mm]* spacing (20 nipples)	50929-1	---	---	---
	8" *[203 mm]* spacing (15 nipples)	50929-2	---	---	50933-2
	10" *[254 mm]* spacing (12 nipples)	50929-3	---	---	50933-3
	12" *[305 mm]* spacing (10 nipples)	50929-4	---	---	---
	15" *[381 mm]* spacing (8 nipples)	50929-5	---	---	---
	20" *[508 mm]* spacing (6 nipples)	50929-6	---	---	---
3	Support Channel (Standard)	35482-1	35482-1	35482-1	35482-1
4	Support Channel (Heavy)	35483-1	35483-1	35483-1	35483-1
5	PVC Coupling	34318	34318	34318	34318
6	Liner	34319	34319	34319	34319
7	Coupling Liner Assembly	35763	35763	35763	35763
8	Nipple Valve Assembly	29463	29463	29463	45746
9	Support Channel Key	35480	35480	35480	35480
10	Trigger Button Cap Assembly	33623	33623	33623	33623
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	49547-1 & -1B	49547-2 & -2B	49547-4 & -4B	49547-5
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	50806-1 & -1B	50806-2 & -2B	50806-4 & -4B	50806-5
19	RELIA-FLOW Saddle Assembly	50805-1 & -1B	50805-2 & -2B	50805-4 & -4B	50805-5

Slope Compensator Assembly 54036-XX



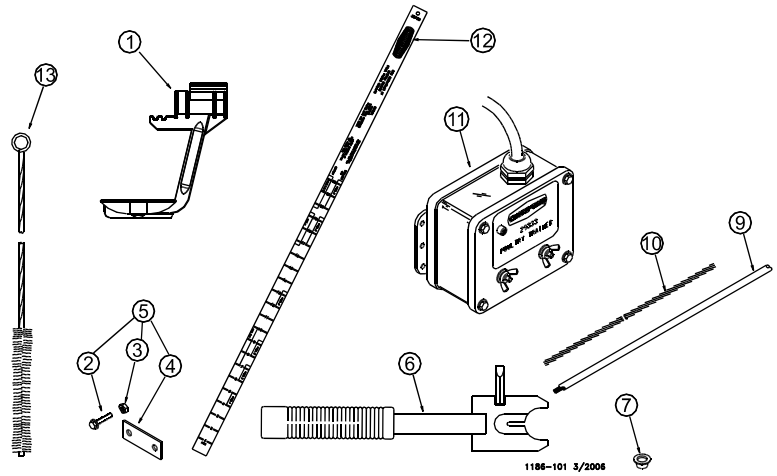
		Low Dif 54036-1L	Hi Dif 54036-1H	Low Dif 54036-2L	Hi Dif 54036-2H	Low Dif 54036-4L	Hi Dif 54036-4H
Item	**Description**	**Part No.**	**Part No.**	**Part No.**	**Part No.**	**Part No.**	**Part No.**
1	Half Liner	36501	36501	36501	36501	36501	36501
2	Inlet Assembly	54037-L	54037-H	54037-L	54037-H	54037-L	54037-H
3	O-Ring	44015	44015	44015	44015	44015	44015
4	Plunger	46450	46451	46450	46451	46450	46451
5	Compensator Outlet	40902-1	40902-1	40902-1	40902-1	40902-1	40902-1
--	Stand Tube Assembly	54517-8	54517-8	54517-4	54517-4	54517-1	54517-1

Mid Line Stand Tube Assembly (52273-X)



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*	Flexible Ball Stop	54590-1	---	---
3*	Breather Cap Assembly	54606	54606	54606
4*	Blue Ball	37142	37142	37142
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	Adjustable Clamp	49529	---	---
10*	O-Ring	---	---	52137
11*	Outer Stand Tube Body	---	---	54561
12*	Inner Stand Tube Body	---	---	54560
13*	Rigid Ball Stop	---	54817	54817
14	O-Ring	48325	---	48325
--	Ground Wire	36500W	36500W	36500W
*Included in 54517-X Assembly				

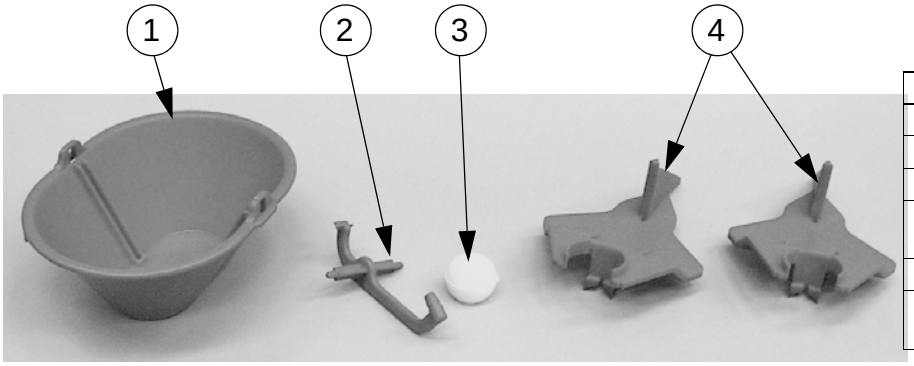
Miscellaneous Kits and Components



Item 7 is used to cap off saddle assemblies

Item	Description	Part No.
1	Catch Cup	36591
2	#10-24 x 3/8" Screw	25124
3	#10-24 Nut	27725
4	Channel Bracket	46208
5	Channel Bracket Kit (40/kit)	46209-40
6	Assembly Tool	41247
7	Cap Plug (qty of 100)	42679-100
8	---	---
9	Training Wire (165 FT)	28994-165
	Training Wire (330 FT)	28994-330
10	1/16 Inch Training Cable (1 FT)	1922
	1/16 Inch Training Cable (5000 FT)	1922-5000
11	Poultry Trainer	29333
12	Broiler Management Stick	35750
13	Pipe Brush	29465

Nipple Waterer Mini Drinker: 35412



Item	Description	Part No.
1	Mini Drinker Bowl	34790
2	Pivot Arm	34791
3	Float Ball (small)	25026
4	Mounting Bracket (2 req'd)	34792
3	Float Ball (small)	25026
4	Mounting Bracket (2 req'd)	34792

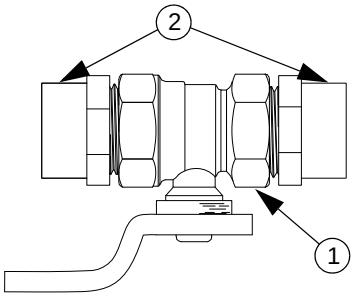
Miscellaneous Hose Components

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

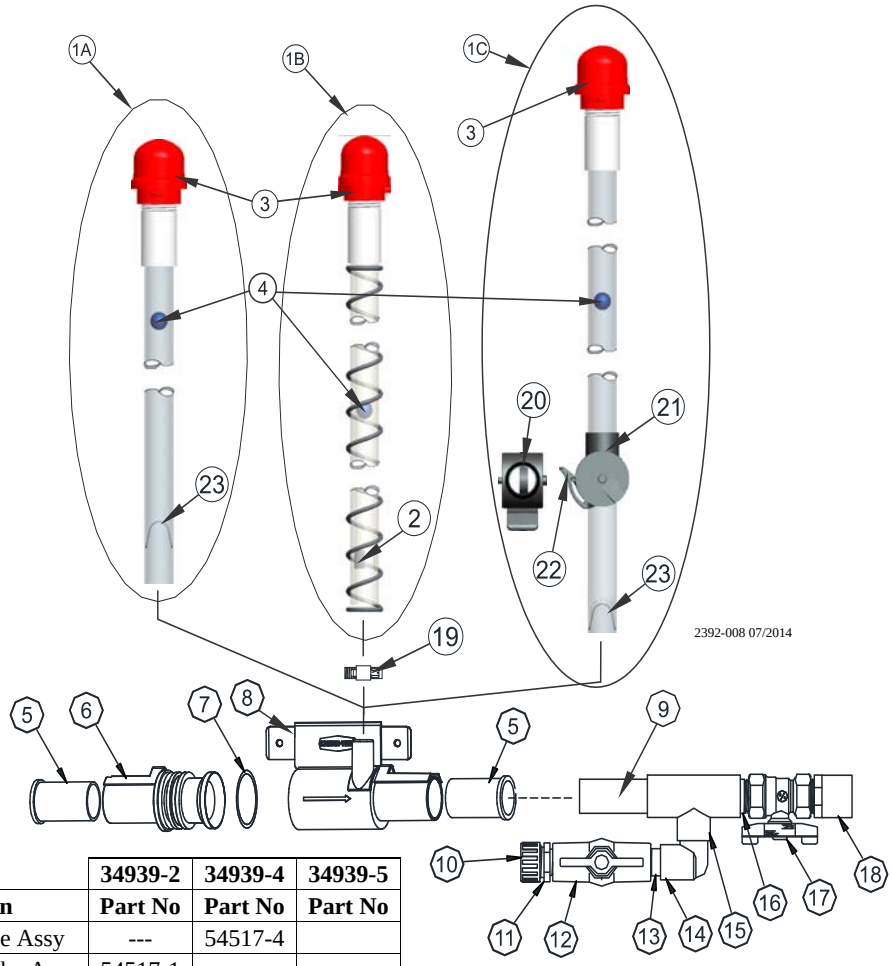
***47820-0 is available in lengths of 50', 100', 150' and 200'.**
The numbers following the dash represent the length of hose (47820-50 is 50' of hose).

Mid Line Shut-Off Kit: 29658

Item	Description	Part No
1	3/4" Quarter Turn Valve	29623
2	3/4" PVC Male Adapter	9229



Mid Line Shut-Off Kit with Flush



		34939-2	34939-4	34939-5
Item	**Description**	**Part No**	**Part No**	**Part No**
1A	Rigid Stand Tube Assy	---	54517-4	
1B	Flexible Stand Tube Assy	54517-1	---	
1C	Folding Stand Tube			54517-8
2*	Flexible Ball Stop	54590-1	---	---
3*	Breather Cap Assembly	54606	54606	54606
4*	Blue Ball	37142	37142	37142
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
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	3/4" Threaded PVC Pipe	7531-5	7531-5	7531-5
17	3/4" Ball Valve	29623	29623	29623
18	3/4" PVC Male Adapter	9229	9229	9229
19	Adjustable Clamp	49529	---	---
20	O-Ring	---	---	52137
21	Outer Stand Tube Body	---	---	54561
22	Inner Stand Tube Body	---	---	54560
23	Rigid Ball Stop	---	54817	54817
--	Ground Jumper Wire	36500W	36500W	36500W

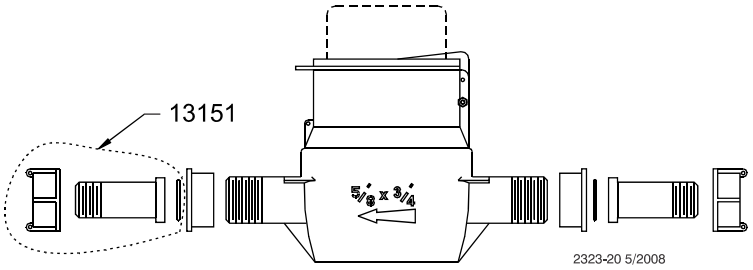
*Included in 54517-X Assembly

Water Medicator

Description	Part No.
Chemilizer (1-100 Ratio)	41778-1

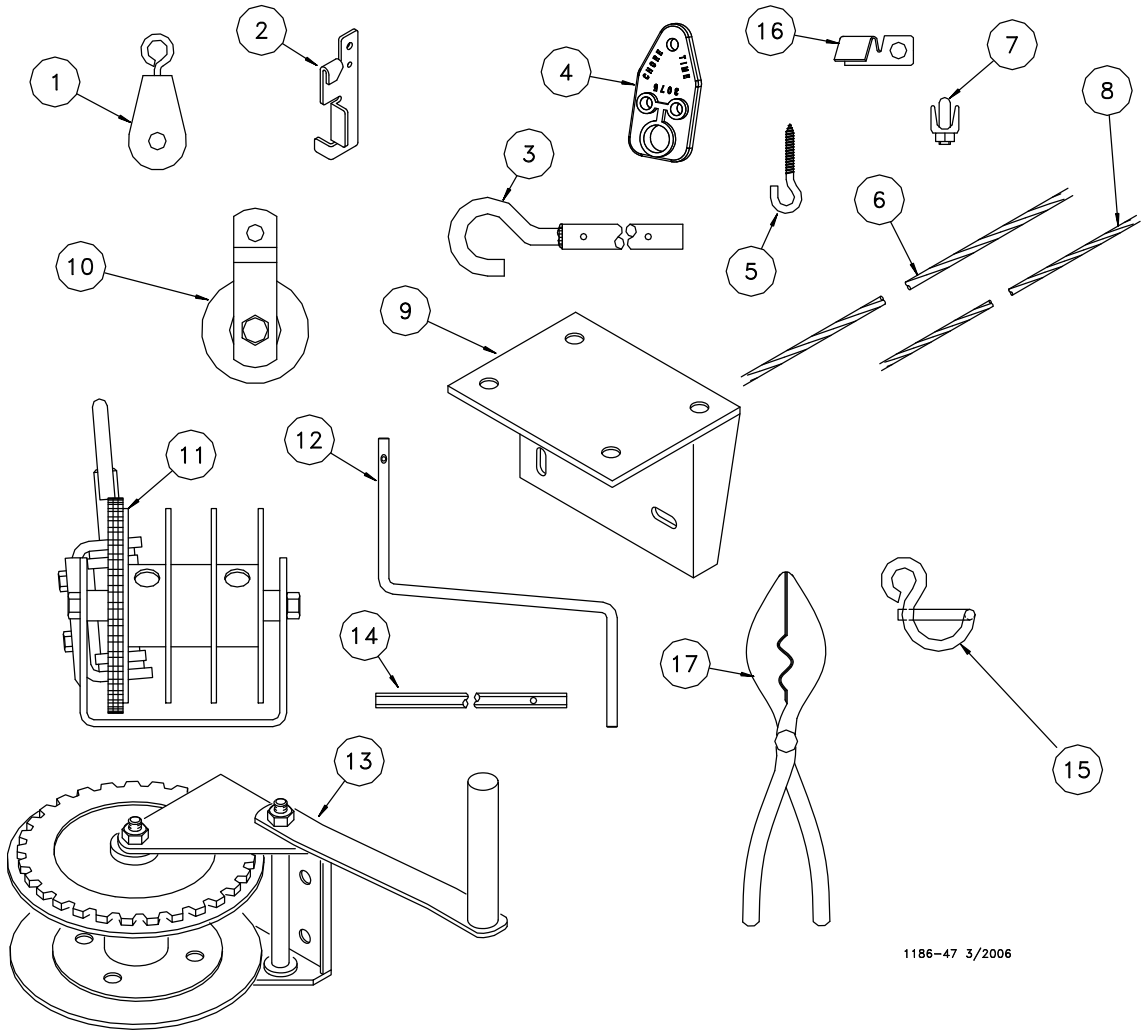
Water Meters

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 Head
3/4" Water Meter with Connectors (Liter)	13228-L	47634-L
3/4" Water Meter with Connectors (Gallon)	13228-G	47634-G
3/4" Water Meter with Pulsar and Connectors (Liter)	13228-LP	47634-LP
3/4" Water Meter with Pulsar and Connectors (Gallon)	13228-GP	47634-GP
Water Meter Connectors	13151	

Suspension System Components:



Item	Description	Part No.
1	Pulley with Swivel Hook	44577
2	Cable Lock	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
16***	Open 1/8" Cable Eyelet (Package of 100 pcs)	44598-100
17	Crimping Tool	44599
--	1/8" Rope	9247

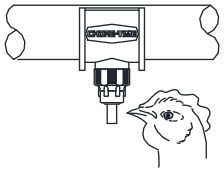
***Winch bracket to be used with hand winch only.**
****Hand winch is recommended for systems up to 150 ft *[46 m]* only.**

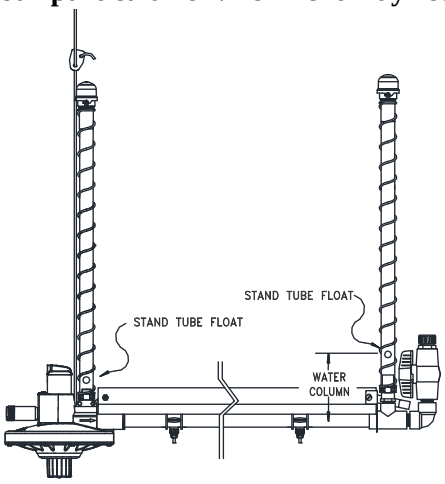
CHORE-TIME Nipple Watering Quick Reference Sheet

Note: The floor conditions are a good indication of adequate or deficient water supply. If the floors are wet the water column may be to high, if the floors are dry the water column may be to low. These are general guidelines, your particular environment may require different adjustments.

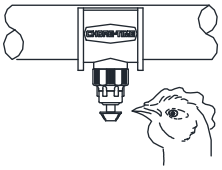
1 - 3 Days

At 1 - 3 Days,set the Nipple Height as shown below, The Water Column should be set at 2" - 4" (51mm - 102mm) as shown at the right.



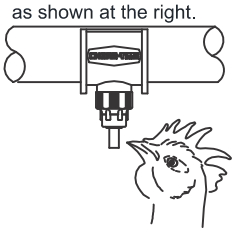


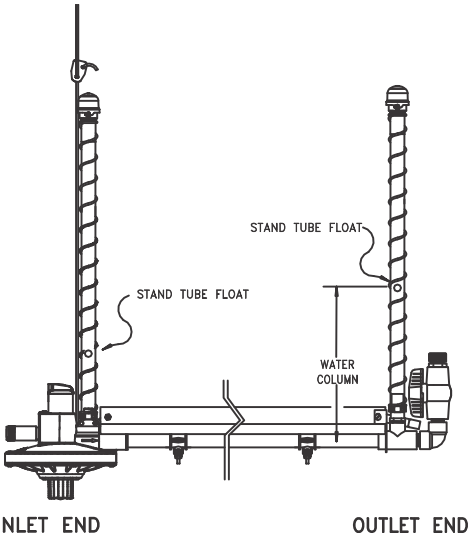
At 1 - 3 Days, set the Nipple Height as shown below, The Water Column should be set at 4" - 6" (102mm - 152mm) as shown at the left.



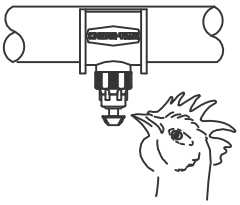
3 - 21 Days

At 3 - 21Days, set the Nipple Height as shown below, The Water Column should be set at 4" - 8" (102mm - 203mm) as shown at the right.



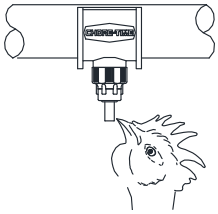


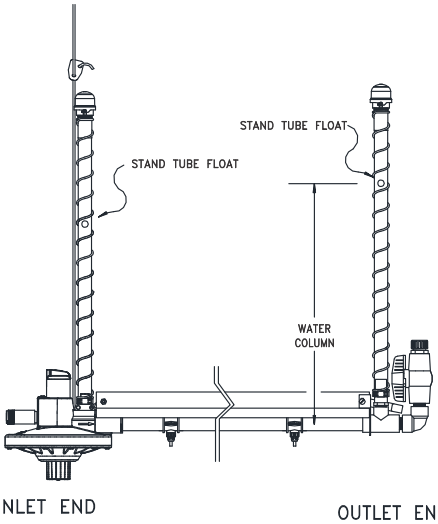
At 3 - 21 Days, set the Nipple Height as shown below, The Water Column should be set at 8" - 14" (203mm - 355mm) as shown at the left.



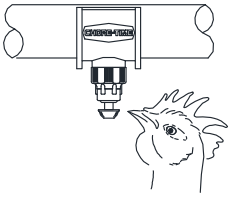
21 Days - Grow-Out

At 21 Days to Grow-Out set the Nipple Height as shown below, The Water Column should be set at 8" - 22" (203mm - 559mm) as shown at the right.





At 21 Days to Grow-Out set the Nipple Height as shown below, The Water Column should be set at 14" - 22" (355mm - 559mm) as shown at the left.



Operational Guidelines

Topic	Recommendations
Initial start-up procedure	1. Thoroughly flush the water lines. 2. Set incoming water pressure to 25 p.s.i. *[172 kPa]* at the step regulator on the filter control panel. 3. Level the shavings under the water line to eliminate high/low spots. 4. Adjust the inlet regulators on the lines so the stand tube float corresponds to the drawing on page 38. Make sure there is water at the outlet sight tube and air is bled from the line. Indicator ball should be visible during operation. 5. Check outlet assemblies and stand tubes to make sure water is passing throughout the system.
Bird placement procedure	Immediately before birds are housed, brush the nipples with a broom to form water droplets on the nipples
Operation during bird grow out	If wet floors begin to develop under the drinker lines, increase ventilation and add additional heat to dry the litter. the 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.
Maintenance between batches	Flush each line at full pressure for 5 minutes to remove deposits and sediments. Check pressure drop across water filter - clean or replace if necessary. Check regulator, shut-off valves, stand tube(s), and coupling liner assemblies for proper operation. Adjust the cable levelers so that the water lines are level. Maintain house temperature above freezing or drain the lines thoroughly. Drain inlet regulator(s).
Precautions	Do not over chlorinate. The maximum concentration is 2.5 ppm (parts per million) for extended periods and 5 ppm for flushing only. If medication or other chemicals are added to the water, flush the lines immediately after use, then chlorinate, as specified. Allow at least 24 hours before adding additional chemicals (such as iodine, citric acid, etc.) or vitamins to the water. See “Guide to Cleaning Water Lines” on page 40.

Troubleshooting Guidelines

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.
Stand tube not working properly	Depending on water quality and management techniques, the stand tube may require more frequent cleaning.	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	A restriction or obstruction in the Nipple such as a kinked hose or closed valve at the end of the line.	Remove the restriction or obstruction

Guide to Cleaning Water Lines

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

WARNING: Mixing of incompatible chemicals can result in violent explosions or create combustible and toxic gases. Such chemicals pose a definite threat to personal health and safety.

Chore-Time does not recommend mixing chemicals without a specific formula provided by a reputable company.

Standard Cleaning Procedure

1. Mix the cleaning solution as indicated below.
2. Fill watering system with solution.
3. Allow solution to remain in lines 1 to 3 hours.
4. Flush system 1 minute per 100'*[30.5 m]* with clean water using high pressure.
5. Check filters, valve, and nipples for clogging from debris.
6. Adjust regulator pressure to normal operating pressure.

Regular Maintenance

The watering system should be cleaned one day every two weeks during the production cycle using a proportioner and **ONE of the following** stock solutions. Set the proportioner at 1 oz. (30 ml.) stock solution to 128 oz. (3785 ml.) of water.

- Vinegar stock solution = 64 fl. oz. (1893 ml.) white household vinegar + 64 fl oz. (1893 ml.) water
- Citric Acid stock solution = 1 pack (205 gm) citric acid + 128 fl. oz. (3785 ml.) water.

End of Grow Out Cleaning

A chlorine solution should run through the watering system, using a proportioner, at 1 fl. oz. (30 ml.) stock solution to 128 fl. oz. (3785 ml.) water. The solution should be administered during one of the last 3 days of the grow out. This cleans the whole system including the nipple drinkers and sterilizers the entire system for the next grow out cycle.

1. Chlorine stock solution = 1 fl. oz. (30 ml.) 5-1/4% bleach (or similar source of 5-1/4% sodium hyper chlorite) + 128 fl. oz. (3785 ml.) water. This solution will yield about 2 PPM (parts per million) chlorine in the drinkers with average water. **Do not** exceed this level for an extended period of time (otherwise, damage to the system may occur). Also **do not** exceed 5 PPM for flushing watering system.

After Administering Vitamins, Medication or other Chemicals

Chore-Time recommends flushing and chlorinating lines immediately after administering vitamins, medication or other chemicals. Failure to flush and chlorinate can result in bacteria build-up which can reduce or prevent water flow. **Do not** exceed 5 PPM of Chlorine stock solution when flushing watering system.

Between Flocks

The watering system should thoroughly cleaned between flocks. A stronger cleaning solutions may be used since birds will not be drinking the water. It is important to thoroughly flush the system (after 1 to 3 hours) with clean water to prevent storing high concentrates of cleaning solution in the watering system until the next flock is placed.

Use **ONE of the following** stock solutions for cleaning the system between flocks. Set the proportioner at 1 oz. of stock solution to 128 oz. (3785 ml.) water.

- Vinegar stock solution = 128 fl. oz. (3785 ml.) white household vinegar.
- Citric acid stock solution = 4 pack (205 gm) citric acid + 128 fl. oz. (3785 ml.) water.

The watering system should also be thoroughly drained in cold weather.

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.

Acid Water

The acid content of a water supply is measured and reported in terms of pH units. Acid water causes staining of plumbing fixtures and corrosion of plumbing systems, which may necessitate expensive repairs. Water with a pH of less than 6.8 is considered acidic. A pH of 6.0 to 6.7 indicates a moderately acidic supply and should be treated with a neutralizing filter. A pH of 4.0 to 5.9 is considered extremely acidic and should be treated with a chemical feed pump feeding neutralizing compound.

Aggressive/Corrosive Water

Aggressiveness of water is measured by the 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. Treatment requires the installation of a sediment filter to remove the particles.

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Built to last.

Revisions to this Manual

Page No.	Description of Change
various	Changed to new Breather Cap, Added Folding Stand Tube and Rainbird info. Added regulator info to troubleshooting guidelines.

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

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