

Poultry Production Systems

12 - 32 Station PDS™ Control Installation and Operators Manual

Installation and Operators Manual

Installation and Operators Manual



Chore-Time Warranty

Chore-Time Equipment (“Chore-Time”) warrants each new Chore-Time product manufactured by it to be free from defects in material or workmanship for one year from and after the date of initial installation by or for the original purchaser. If such a defect is found by the Manufacturer to exist within the one-year period, the Manufacturer will, at its option, (a) repair or replace such product free of charge, F.O.B. the factory of manufacture, or (b) refund to the original purchaser the original purchase price, in lieu of such repair or replacement. Labor costs associated with the replacement or repair of the product are not covered by the Manufacturer.

Conditions and Limitations

1. The product must be installed by and operated in accordance with the instructions published by the **Manufacturer or Warranty will be void.**
2. Warranty is void if **all components** of the system are not original equipment supplied by the **Manufacturer.**
3. This product must be purchased from and installed by an authorized distributor or certified representative thereof or the Warranty will be void.
4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under the Warranty.
5. This Warranty applies only to systems for the care of poultry and livestock. Other applications in industry or commerce are not covered by this Warranty.

The **Manufacturer** shall not be liable for any **Consequential or Special Damage** 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.**

THIS WARRANTY CONSTITUTES THE MANUFACTURER’S ENTIRE AND SOLE WARRANTY AND THIS MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD AND DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

Chore-Time Distributors are not authorized to modify or extend the terms and conditions of this Warranty in any manner or to offer or grant any other warranties for Chore-Time products in addition to those terms expressly stated above. An officer of CTB, Inc. must authorize any exceptions to this Warranty in writing. The Manufacturer reserves the right to change models and specifications at any time without notice or obligation to improve previous models.

Effective: **March 2004**

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Thank You

The employees of Chore-Time Equipment would like to thank your for your recent Chore-Time purchase. If a problem should arise, your Chore-Time distributor can supply the necessary information to help you.

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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.

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: Electrical Hazard

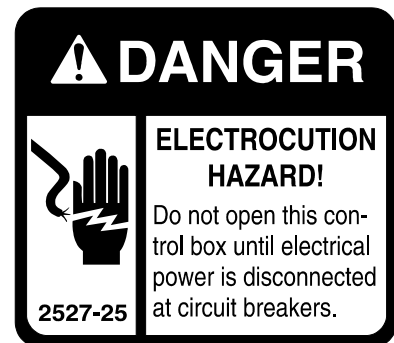
Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.

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.



General

Support Information

The Chore-Time 12-32 Station Pneumatic Drinking System (PDS™) Control is designed to control water line regulators in a Chore-Time Nipple Watering System. 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.

General Installation Information

Please read the installation instructions in this manual prior to beginning the installation. This manual provides the necessary information on the installation, operation and maintenance of the Chore-Time watering equipment you have purchased.

The 12-32 Station PDS™ Control is available in station increments of 4 (ie. 12, 16, 20...). Each station is capable of controlling up to 2 individual Volumatic™ regulators. For example a 12 station control can regulate and flush up to 24 individual regulators.

Compressed air must be available and regulated between 6 and 12 psi [41.37 and 68.95 kPa]. Each PDS™ control consumes a low volume of air. Therefore, one centrally located compressor with a holding tank can easily supply enough air for multiple PDS™ controls.

The System Layout

Below are examples of the Chore-Time Nipple Watering system layouts. These are to be used to show different methods for installing the PDS™ system. Refer to Parts List Section, **page 15** for item part numbers.

Cage System Layout Under 600'

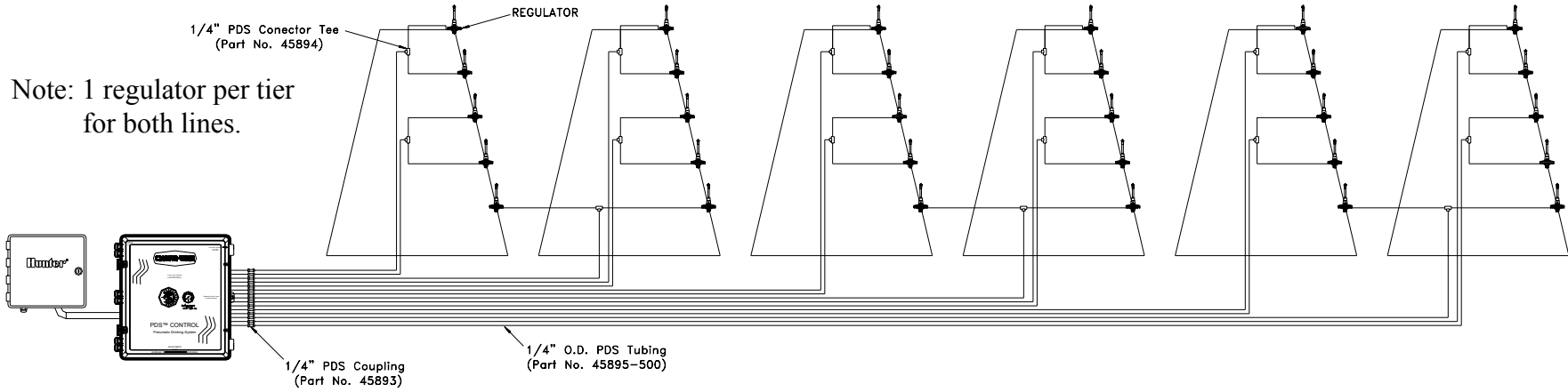


Figure 1. (6 Row 5 High Cages)

Cage System Layout Over 600'

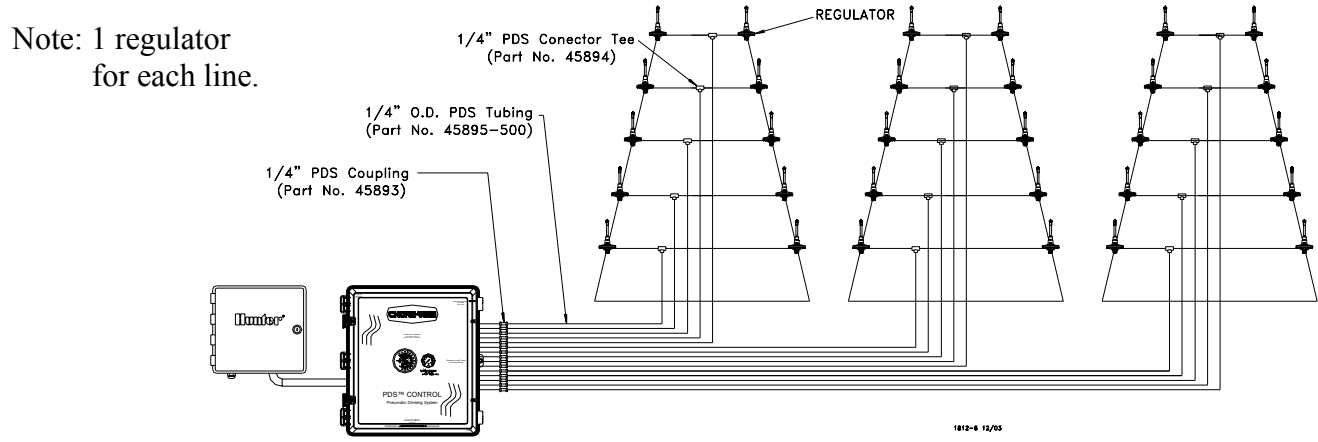


Figure 2. (3 Row 5 High Cages)

Broiler System Layout

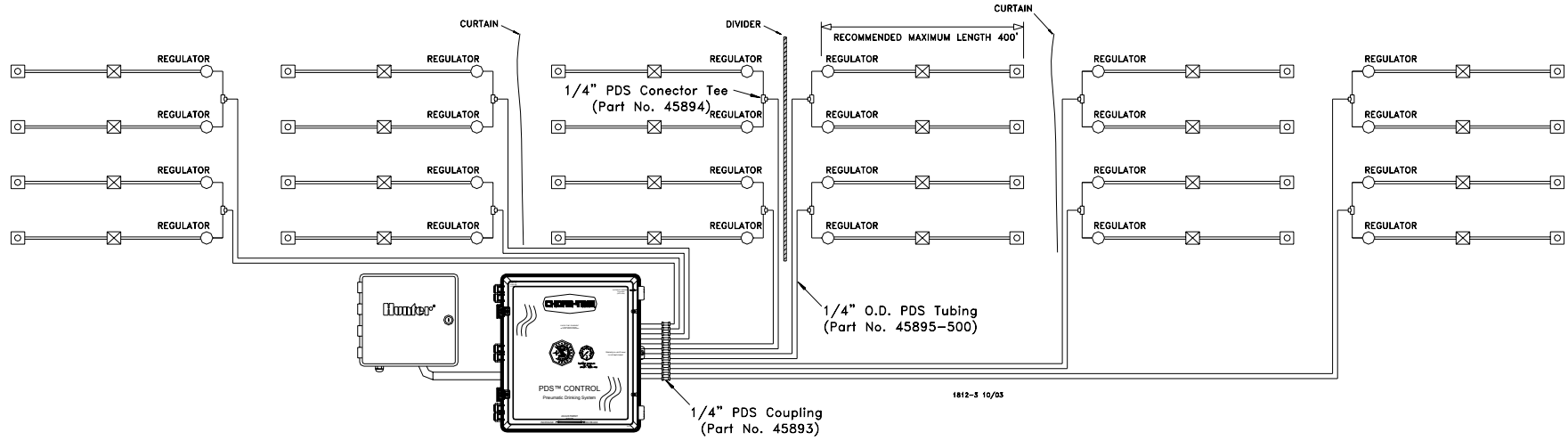


Figure 3. Broiler Layout

Multiple House Layout

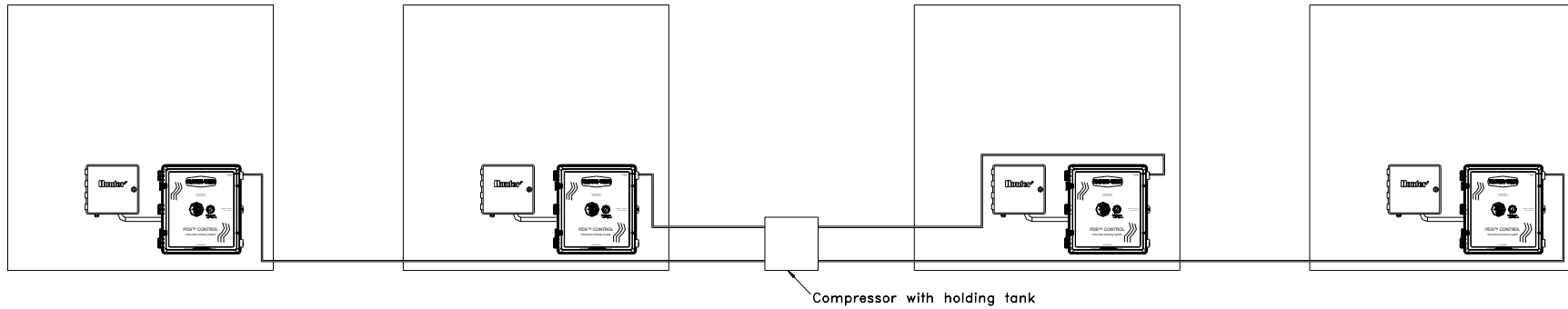


Figure 4. (4 House Layout)

Air can be run from a central location to supply multiple houses. Air lines can consist of Chore-Time Red tubing (Part No. 45895-500), which will supply a sufficient air supply, or PVC plumbing.

Installation

Locate the control in a convenient location where it can easily be seen and adjusted.

Fasten the control to the wall through the four holes in the corners (mounting hardware not supplied). It is recommended to use #10 flat head wood screws as mounting hardware.

Connect the PDS control and the Hunter control together with liquid tight connectors and conduit (not supplied), to allow wires to be run between the controls.



Figure 5. Mounting orientation

Hunter® Control



Caution: Be sure power to the control is still disconnected and no backup battery is installed!

Install the modules to the Hunter® Control according to the Hunter installation manual.

Wiring

Wire from the circuit breaker to the Hunter control for 120V

- Ground to green wire
- Neutral to blue wire
- 120V to black wire
- Brown wire to be capped

Wire from circuit breaker to Hunter control for 240V

- Ground to green wire
- Neutral to blue wire
- 240V to blue and brown wires
- Black wire to be capped

With power off to the control connect with 18AWG minimum. Start wiring from any C (common) on Hunter control then run wires through the conduit to C (common) on the PDS control. Run wire from 1 on Hunter control to 1 on the PDS control. Continue running wires so the numbered connection in the Hunter control matches the numbered connection in the PDS control, **see figure 6.**

Chore-Tronics™

When using Chore-Tronics™ to monitor water consumption, flush water can be automatically subtracted from the water usage through the meter. To do this connect one wire to common and one wire to P/MV both in the Hunter control. Run these two wires to a 24VAC Coil Relay (not supplied), from the relay run the two wires to the Chore-Tronics control, **see figure 7.**

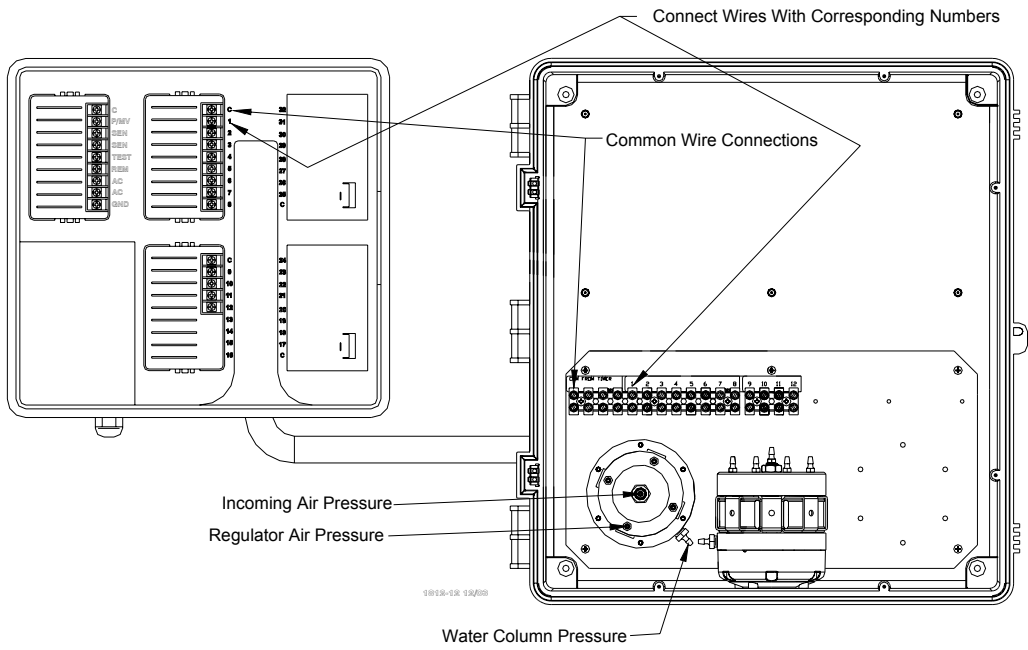


Figure 6. Hunter/PDS Wiring

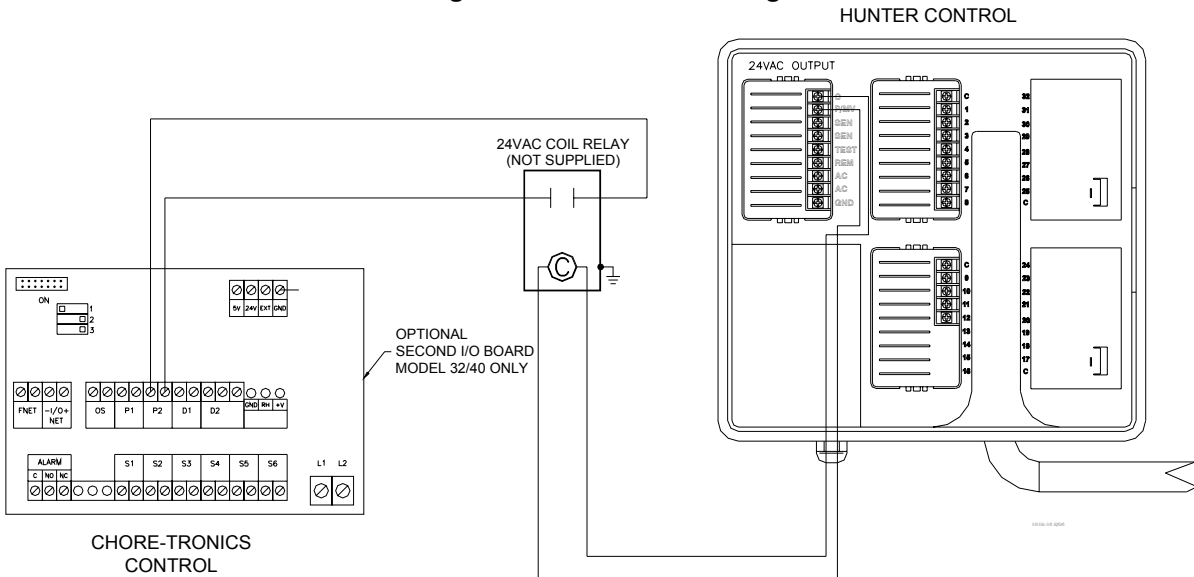


Figure 7. Hunter/Chore-Tronics Wiring

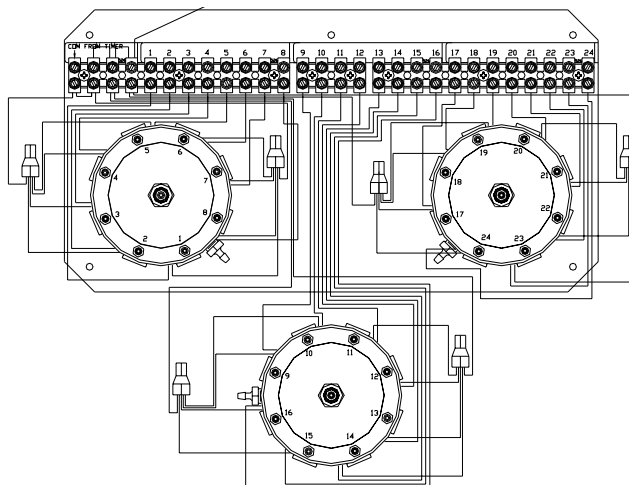


Figure 8. Internal Wiring

Tubing

Route the regulator tubing so any condensation in the air lines will not run into the control. Allow slack in the regulator tube leads so that they can be pinched for maintenance and diagnostic purposes, see **figure 9**.

Each regulator tubing lead may be used to supply air to two nipple line regulator inlets. This will assure enough flush water volume per line to move air and sediment down the nipple lines and out. Run each air supply tube across the ceiling and down the water supply hose to each of the regulators, attaching it to the provided hose barb on the bottom of each regulator, see **figure 10**. Warming the end of the tubing will aid in installation.

⚠ Caution: Over-Heating of tube end can cause distortion and leaking.

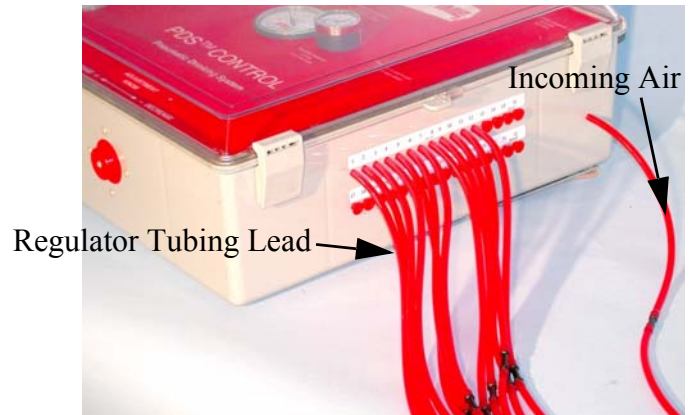


Figure 9. Regulator Tube Leads

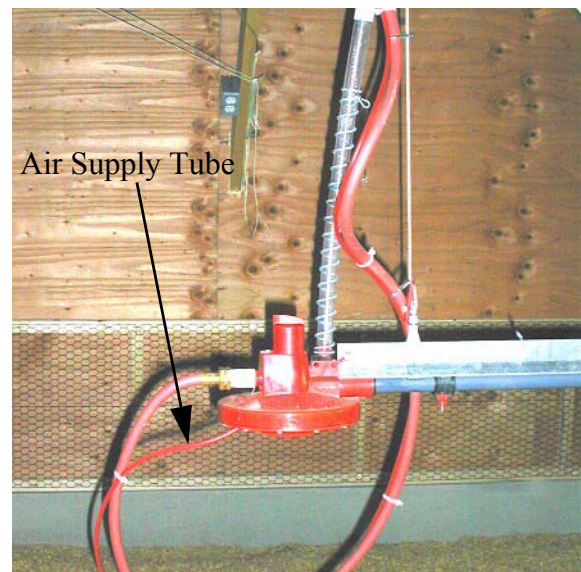


Figure 10. Air Supply Routing

Compressed Air Supply

Turn the red adjustment knob clockwise (Decrease) until the knob stops turning, see **figure 13**.

BEFORE connecting the compressed air supply to the control, **the compressed air supplied to the PDS™ control, must be regulated between 6 and 12 psi [41.37 and 68.95 kPa]. Failure to do this will result in damage to the gauges and possibly other components.** After the air supplied from the compressor is confirmed to be between 6 and 12 psi [41.37 and 68.95 kPa], connect the air supply to the incoming pressure line on the PDS control, see **figure 9**.

The PDS Control has an air pressure gauge to monitor the incoming air pressure. Under normal operating conditions, this gauge should show between 6 and 12 psi [41.37 and 68.95 kPa] of air pressure.



Figure 11. Air Pressure

Water Column Gauge Calibration

Turn the red adjustment knob counter-clockwise (increase) until the water column gauge reads 8 inches, **see figure 13.**

After installation of the PDS regulators make sure all the water lines are flushed and charged. Then measure the water column at one of the Volumatic™ regulators and confirm 8 inches of water column. If anything other than 8 inches is measured at the stand tube, the water column gage will need to be re-calibrated to that measurement.

To re-calibrate the water column gauge remove the plastic cover with a small screwdriver. Then turn the calibration screw (**see figure 12.**) until the gauge reads the correct water column height. Replace the plastic cover on the gauge.

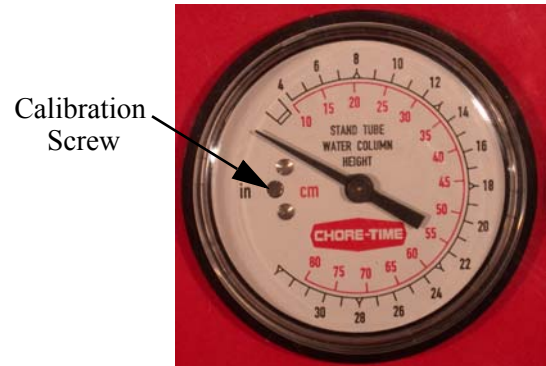


Figure 12. Water Column

Air Leak Test

Check each control and house for air leaks with the water column gauge at 8". To check for air leaks in the control or the house pinch the incoming air supply tube to shut off the incoming air pressure. Watch the air pressure gauge on the control, the gauge should not drop any more than 2 psi [13.79 kPa] in 1 minute. If the air pressure does drop faster than 2 psi [13.79 kPa] in 1 minute, refer to the trouble shooting section on **page 14.** Repeat this procedure for every PDS control.

Operation

Adjusting the water column height in the individual stand tubes. To adjust the water column height turn the red adjustment knob counter-clockwise to increase and clock-wise to decrease (see figure 13.) until the water column gauge reads the desired water column height.

Note: Individual PDS Volumatic regulators provide a minimum water column height in case air pressure is lost. The regulators CAN NOT be adjusted below this height regardless of the water column gauge reading.

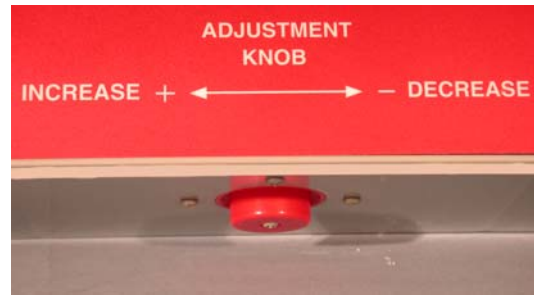


Figure 13. Adjusting the water column

Flushing The System

Refer to the Hunter Control manual for specific programming details.

The Hunter control has the capacity to have four individual programs: "A", "B", "C" and "D". Only programs "A", "B" or "C" should be used to control the PDS unit. Once a station is programmed to run on program "A", "B" or "C" it can't be assigned to run in program "D".

Single stations or all stations may be manually flushed at any time. Refer to **Programming the Controller** section in the Hunter control manual.

When birds go out it is a good idea to turn the Hunter control to the off position and turn the adjustment knob on the PDS control to the minimum setting.

Each program can have up to eight daily start times. As long as there are start times entered for stations in a particular program that program will run. To maintain multiple programs in the control without all of them running, all the start times in the undesired programs must be set to off. The unused programs (except the start times) are retained but will not run until the start times are re-entered. This allows you to program one, two or three separate flushing sequences. For example, one for summer and one for winter or one for brooding and one for finishing.

Each station can be set to run from a minimum of 1 minute to a maximum of 2 hours in 1 minute intervals. The actual amount of time it takes to completely change the water in a 3/4" drinker line is dependent on the flow rate through the line. This flow rate can easily be estimated by putting the regulator into flush and timing how long it takes to fill a container of known volume at the drain end of the line. Once this time is determined use the formula below to calculate the flow rate in gallons or liters per minute and then refer to the charts on page 12 to determine the estimated flush time in minutes for your specific line length.

$$\frac{\text{Volume of Container (Gallons or Liters)}}{\text{Seconds to Fill Container Divided by 60}} = \text{Flow Rate in Gallons or Liters per Minute}$$

For example, if it takes 185 seconds to fill a 5 gallon container the resulting flow rate would be 1.6 GMP.

$$\frac{5 \text{ Gallons}}{185/60} = \frac{5}{308} = 1.6 \text{ Gallons per Minute.}$$

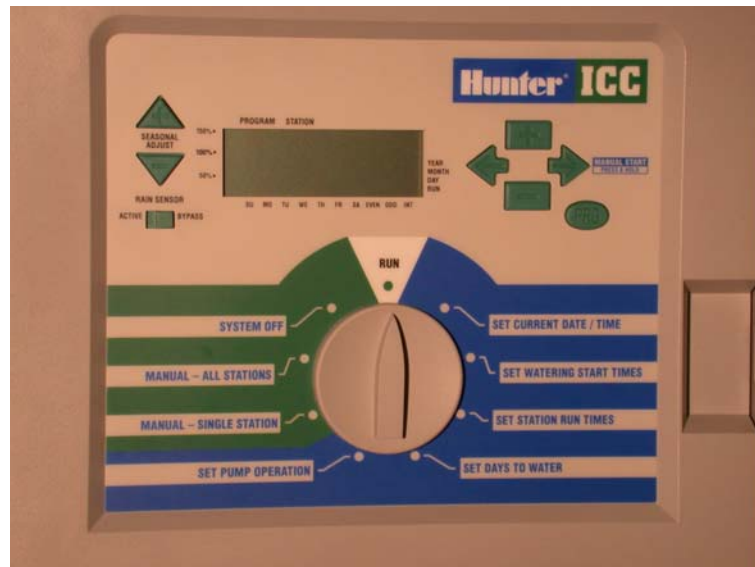


Figure 14. Operating the control

Minutes to Flush and Total Line Capacity for Chore-Time Nipple Systems

Water Line Length in Feet

Gallons per Minute Flow Rate		100'	200'	300'	400'	500'	600'	700'	800'
	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

Liters Per Minute Flow Rate		30m	60m	90m	120m	150m	180m	210m	240m	
	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 flush time to stimulate bird drinking may be less, depending on the frequency of flushes.

Flushing Recommendations

Multiple House Application:

Well capacity typically limits the number of water lines that can be flushed at one time. Flushing should be staggered so 2 lines per well supply are flushed at the same time.

When to flush the system

Single stations or all stations may be manually flushed at any time. Refer to **Programming the Controller** section in the Hunter Control manual.

Flushing for Sediment, Air Locks, and Cleaning

Start by flushing several times per flock. Watch the water coming out of the ends of the water lines. If the water is clean with little or no air you can flush less often. If the water is discolored and has sediment or large amounts of air you may want to flush more often until these problems disappear. The sediments could react with medications, vaccines, and electrolytes. They will also hamper the effects of disinfectants and cleaners (chlorine and acids).

Flushing After Introduction of Water Treatment or Bird Health Products

After running any type of medication, disinfectant, electrolyte, vitamin, or vaccine, see the chart on **page 12** for estimated flush times. Some products or treatments may require longer flushing time to be completely removed from the water lines.

Flush to Stimulate Birds to Drink

1. In periods of hot weather flushing will provide cool, fresh water.
2. As birds mature, additional flushing can stimulate the birds to drink more water.

Maintenance

Keep the control box lid closed. The control is not capable of operating in a dusty environment. The loading regulator vents into the control box. When the control box is sealed the positive internal air pressure keeps dust out

Troubleshooting

Problem	Correction
No water in Regulator Stand Tube.	<ol style="list-style-type: none"> 1. Water Off. 2. Defective or plugged Regulator. 3. Regulator plumbed backwards.
Water Column does not change on a Regulator.	<ol style="list-style-type: none"> 1. Stand Tube Cap plugged (not venting). 2. Air line to Regulator pinched.
Water Column to top of Stand Tube.	<ol style="list-style-type: none"> 1. Regulator seat worn. 2. Stand Tube Cap plugged. 3. Air Loading Unit putting out too high pressure (defective solenoid).
Compressor suddenly runs more often than normal.	<ol style="list-style-type: none"> 1. Shut off or pinch off all lines going to the individual controls to find which house is the problem. 2. Open one line at a time until you find one that causes the compressor tank to lose air more quickly. 3. See correction for house leak below.
House seems to leak or lose compressed air too quickly.	<ol style="list-style-type: none"> 1. Shut off the incoming line to the control and watch the small INCOMING PRESSURE GAUGE. If the control holds pressure, the leak is between the air source and that house. 2. With the incoming air off and the gauge indicates that there is a 2 PSI drop or more within 1 minute, the problem is in the control, lines, or regulators. 3. Shut off or pinch off all lines going out to the regulators and the incoming line. If the control loses pressure, the problem is inside the control. See control unit leak below. 4. If the unit holds pressure, release one line at a time to isolate the cause of the leak. 5. Test line connections and regulator for leaks.
Control unit leaks compressed air.	<ol style="list-style-type: none"> 1. Check the vent hole in the red cover of the Air Loading Unit, see figure 15. Put soapy water over the hole. A small amount of air coming out is normal (bubble should grow slowly over several seconds). 2. Put soapy water on all internal hose connections to find leak.
Regulators do not adjust to the same level.	Water in some of the air lines. Drain hose and check for defective Regulator Diaphragm. This is done by pinching the hose off at the nipple line regulator and if there is no leak the water column will remain constant, if the regulator has a leak the water column will decrease.

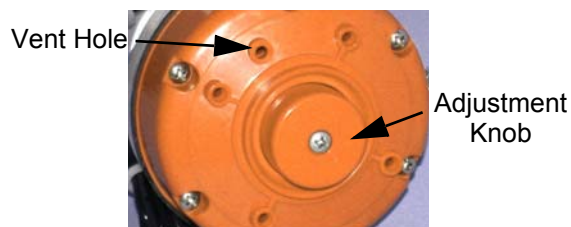
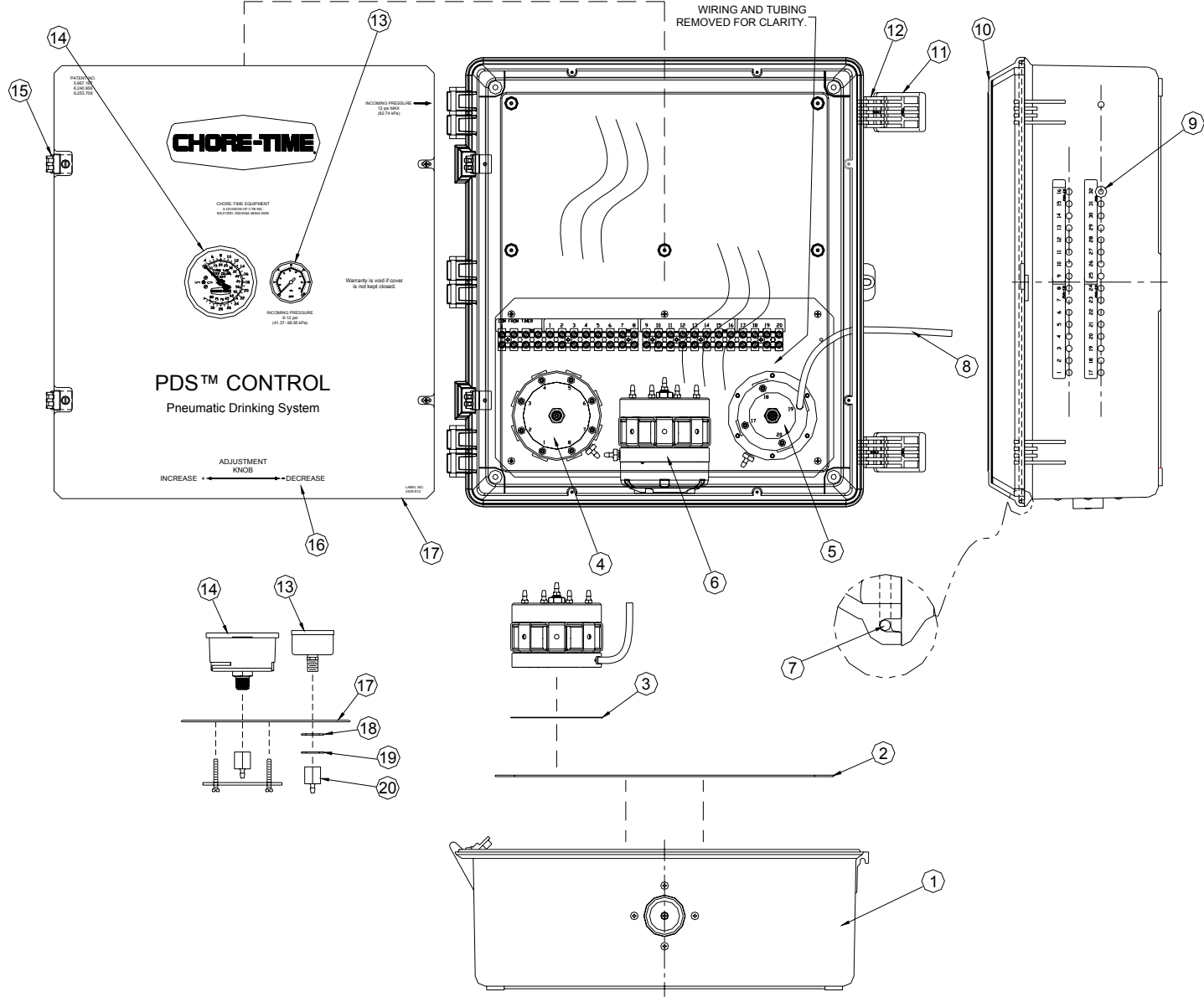
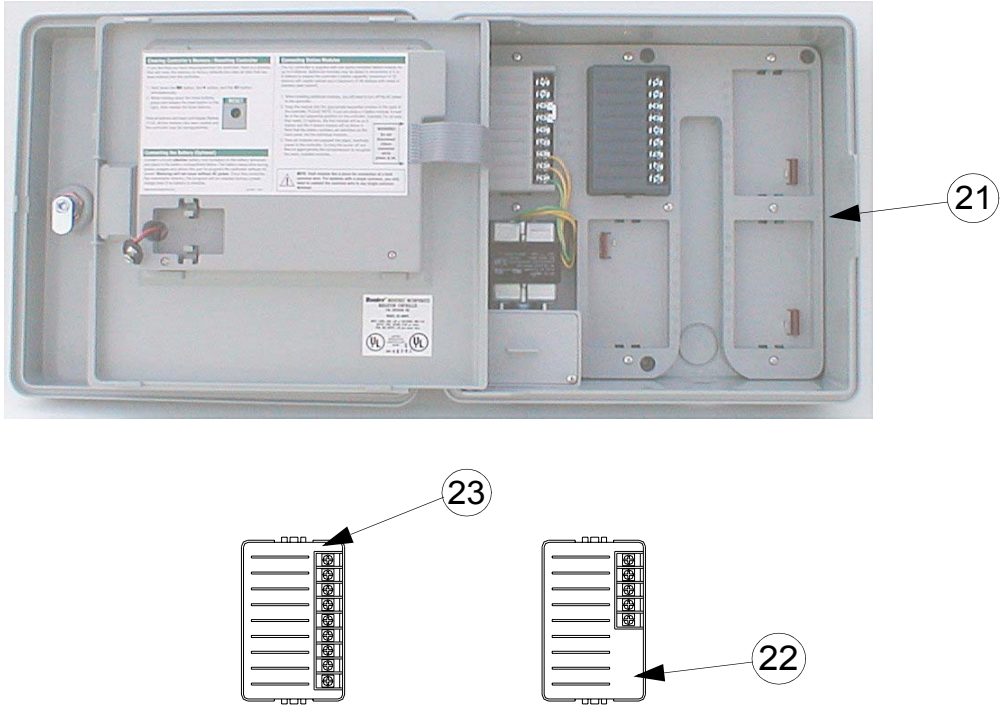


Figure 15. Vent Hole

Parts Listing

PDS™ Control (part no.'s: 46772-12, 46772-16, 46772-20, 46772-24, 46772-28, 46772-32)

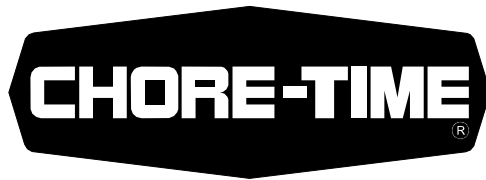




Item	Description	Part No.
1	Control Box	48583
2	Lower PDS Plate	46333-1
3	Diaphragm	35891
4	8 Station Airloader	44452
5	4 Station Airloader	44451
6	8 Station Airloader W/Knob	48584
7	Seal	34767
8	Flexible Hose	48574
9	Caplug	48588
10	Control Box Lid	42683
11	Control Box Latch	30862
12	Control Box Latch Pivot	30863
13	PSI Gauge	48585
14	Water Column Gauge	44029
15	Panel Hinge	41016
16	PDS Control Decal	2529-812
17	Front Plate	46334-1
18	Neoprene Washer	2955-59
19	Washer	2499
20	Hose Adapter	48586
**21	8 Station Hunter Control	46771-8
**22	4 Station Module	46773-4
**23	8 Station Module	46773-8

****These components are individually boxed.**

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



Made to work.

Built to last.

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

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