

# CHORE-TIME<sup>®</sup>

## *Poultry Production Systems*

### **PDS<sup>™</sup> Control 4 and 8 Station Pneumatic Drinking System Installation and Operators Manual**



## Limited Warranty

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

### CONDITIONS AND LIMITATIONS

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

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

The following circumstances shall render this Warranty void:

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

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

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<b>Limited Warranty</b>	<b>2</b>
<b>About This Manual</b>	<b>4</b>
<b>Safety Information</b>	<b>4</b>
<b>Safety Instructions</b>	<b>5</b>
Follow Safety Instructions	5
Decal Descriptions	5
DANGER: Electrical Hazard	5
<b>General</b>	<b>5</b>
Support Information	5
Installation Information	5
<b>The System Layout</b>	<b>6</b>
Broiler System Layout	6
Multiple House Layout	6
<b>Installation</b>	<b>7</b>
Wiring	7
CHORE-TRONICS®	7
Tubing	9
Adjust Air supplied to the PDS Control	9
Air Pressure Gauge	9
Regulator Minimum Water Column Provision	9
<b>Start Up</b>	<b>10</b>
Step 1: Charging the Lines	10
Caution: DO NOT FLUSH DRINKER LINES WITH PDS™ CONTROL unless drinker lines are pressurized with wa-	
ter! Damage may occur if this caution is not followed.	10
Step 2: Connecting the compressed air supply	10
Step 3: Water Column Gauge Calibration	11
Step 4: Air Leak Test	11
<b>Operation</b>	<b>11</b>
<b>Flushing The System</b>	<b>12</b>
<b>Flushing Recommendations</b>	<b>14</b>
When to flush the system	14
Flushing for Sediment, Air Locks, and Cleaning	14
Flushing After Introduction of Water Treatment or Bird Health Products	14
Flush to Stimulate Birds to Drink	14
<b>Maintenance</b>	<b>14</b>
<b>Troubleshooting</b>	<b>15</b>
<b>Parts Listing</b>	<b>16</b>
4 Station PDS™ Control: 52430-4	16
8 Station PDS™ Control: 52430-8	16

## 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: Electrical Hazard**

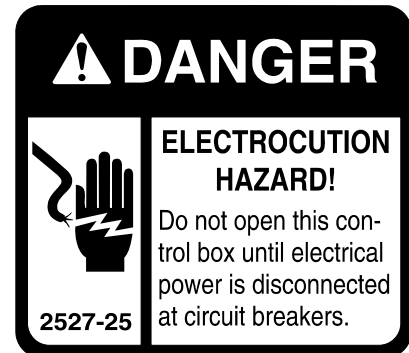
Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.

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 4 and 8 Station Pneumatic Drinking System (PDS™) Controls are 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.

### 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 equipment you have purchased.

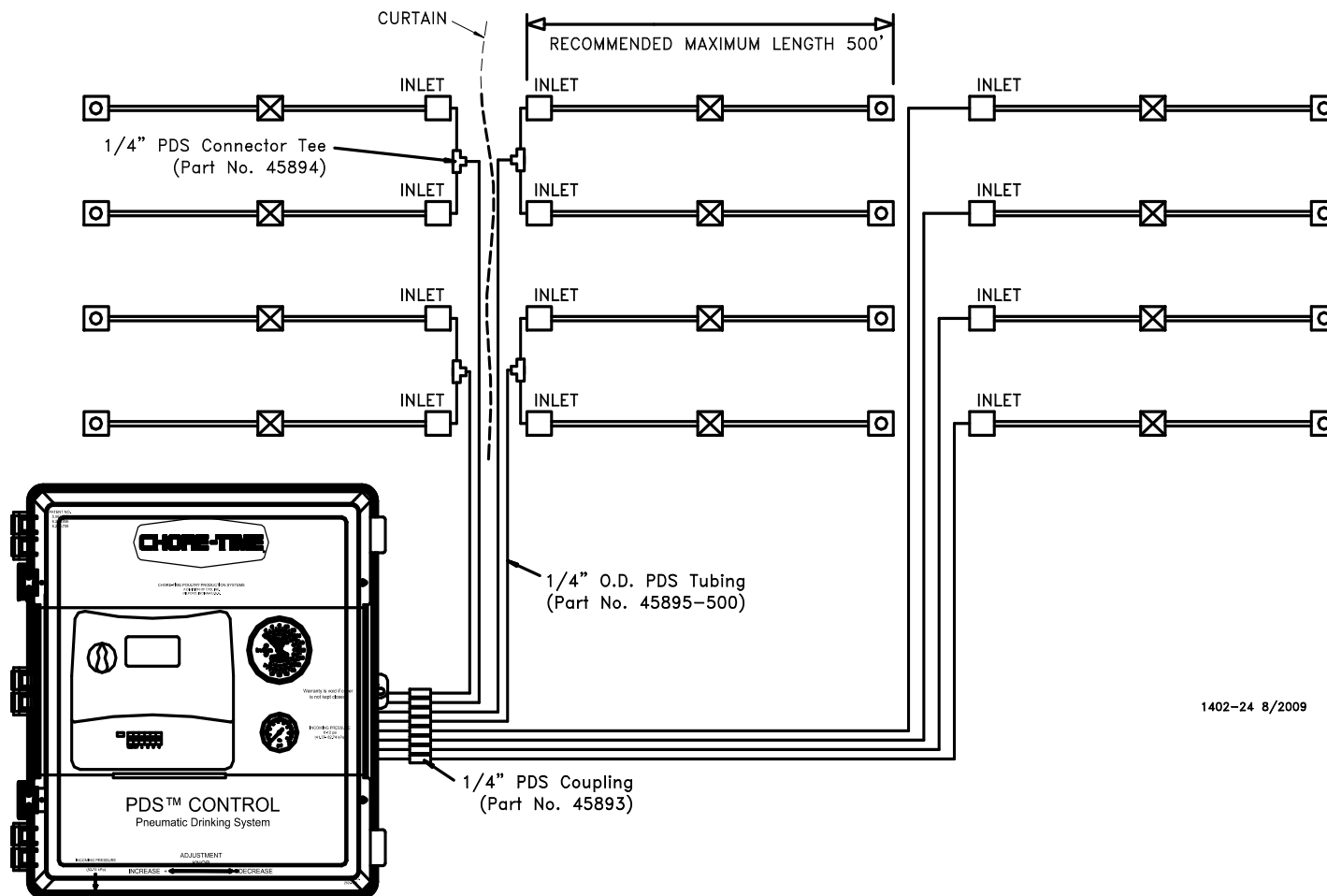
The 4 and 8 Station PDS™ Control is available in either a 4 or 8 station control. Each station is capable of controlling up to two (2) individual Chore-Time water regulators. For example a 4 station control can regulate and flush up to 8 individual water regulators.

Compressed air must be available and regulated between 6 and 12 psi [41.37 and 82.74 kPa]. Each PDS™ control consumes a low volume of air when in operation. Therefore, one centrally located air compressor with a holding tank can easily supply enough air for multiple PDS™ controls. See “Adjust Air supplied to the PDS Control” on page 9 of this manual for recommended air compressor specifications.

## 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 16** for item part numbers.

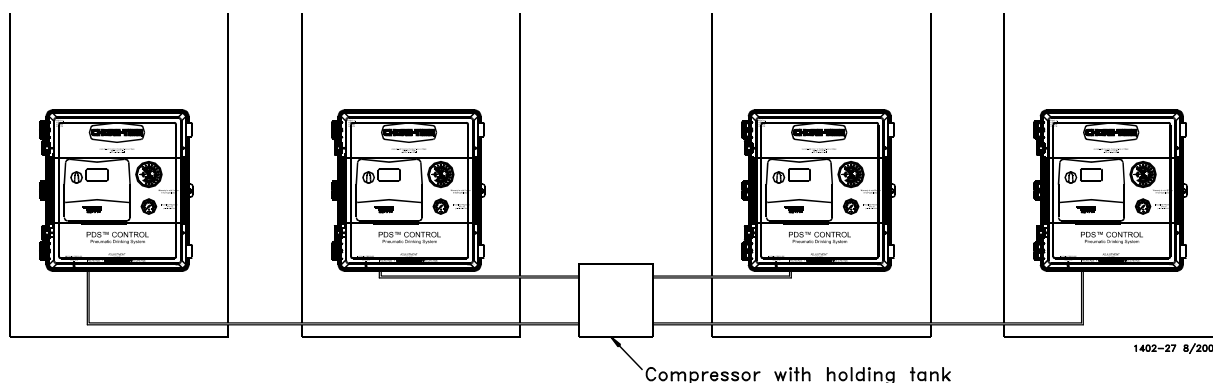
### Broiler System Layout



1402-24 8/2009

Figure 1. Broiler Layout

### Multiple House Layout



1402-27 8/2009

Figure 2. (4 House Layout)

Air can be run from a central location to supply multiple houses. Air lines can consist of Chore-Time tubing (Part number 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)

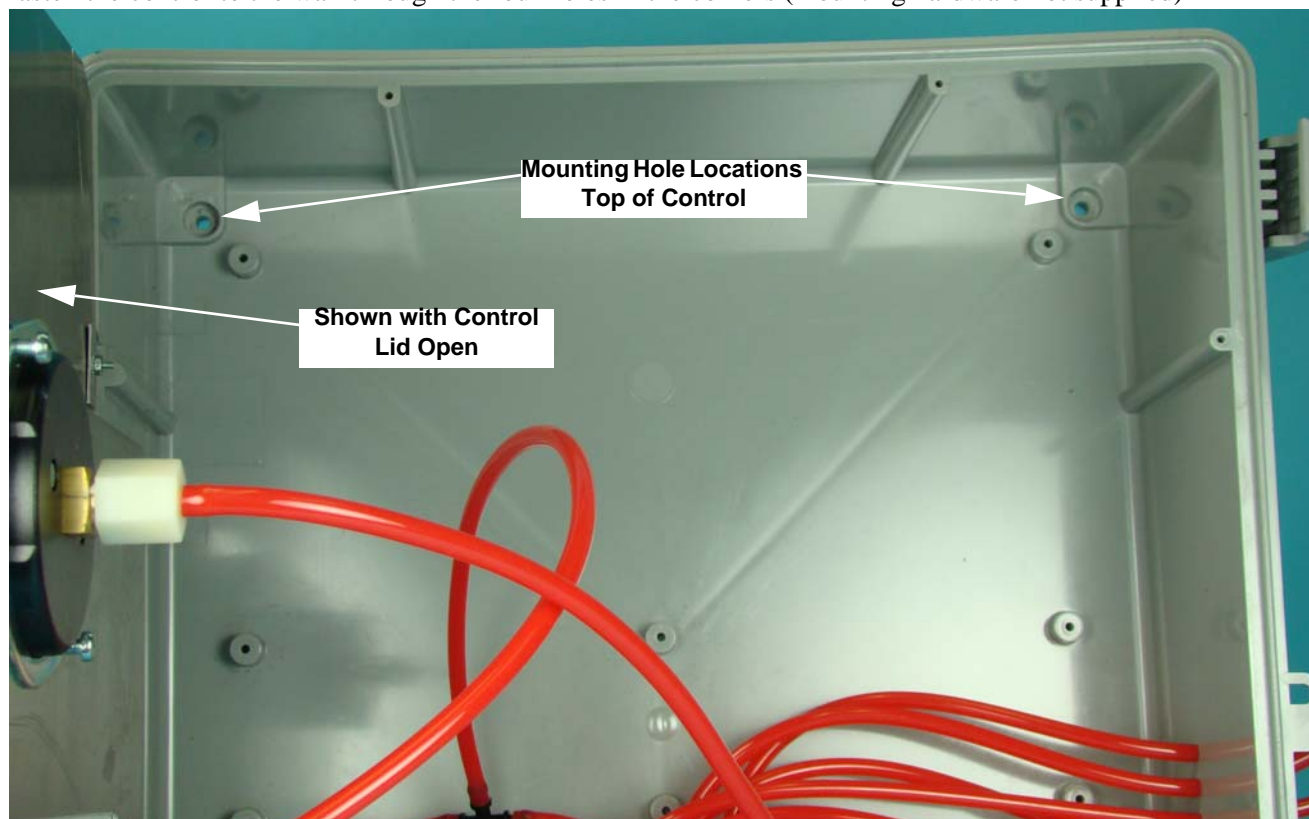


Figure 3. Mounting orientation

## Wiring



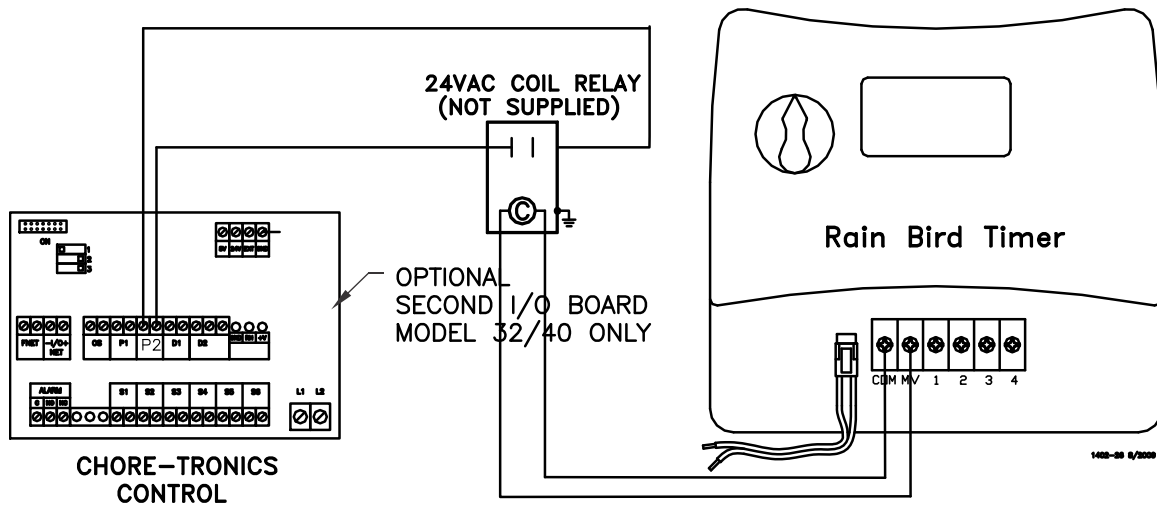
**Caution: Be sure power to the Control is still disconnected!**

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

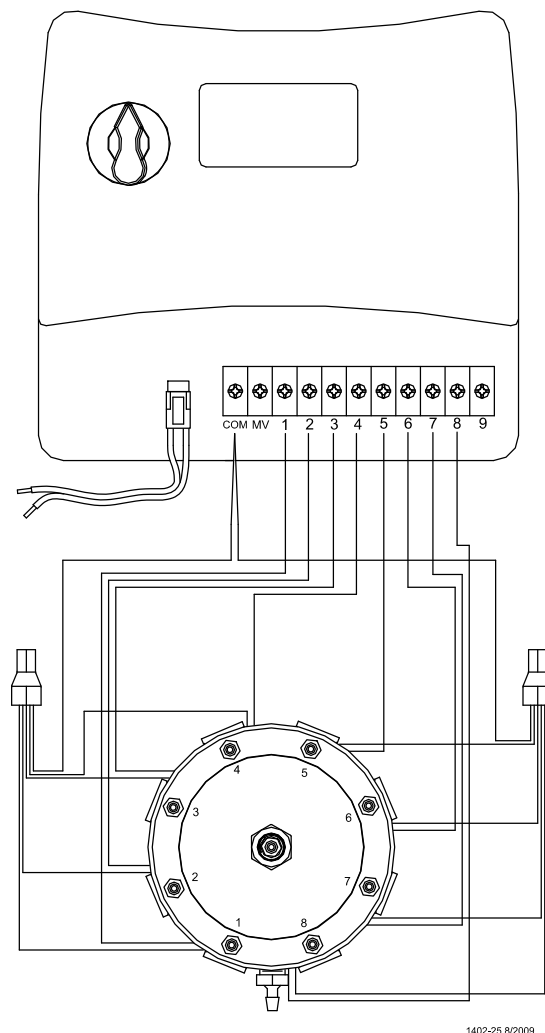
**Note:** No backup battery needed! All timer settings are stored indefinitely in memory.

### **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 MV both in the Rain Bird Timer. 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 4**.



### Figure 4. Rain Bird/Chore-Tronics Wiring



### Figure 5. 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 6**.

Connect the regulator tubing to the control tube leads using tube couplings. Warming the end of the tubing will aid in installation.

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

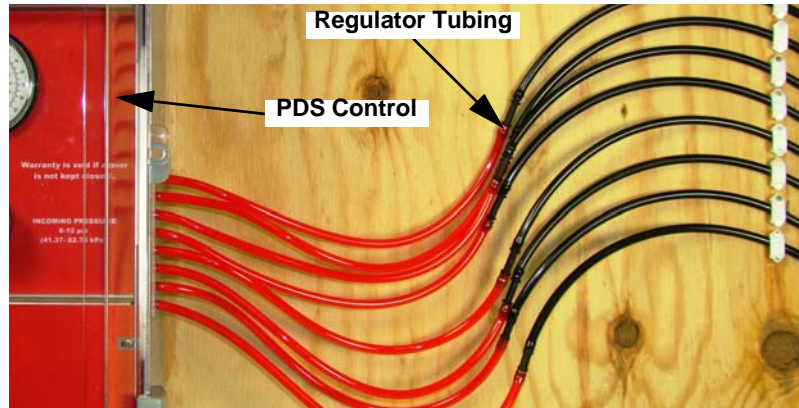


Figure 6. Regulator Tube Leads

## Adjust Air supplied to the PDS Control

**Caution: DO NOT FLUSH DRINKER LINES WITH PDS™ CONTROL unless drinker lines are pressurized with water! Damage may occur if this caution is not followed.**

**BEFORE** connecting the compressed air supply to the control, turn the red adjustment knob on the PDS control clockwise (decrease) until the knob stops turning, see **figure 7**.

**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 82.74 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 82.74 kPa], connect the air supply to the incoming pressure line on the PDS control, see **figure 7**.

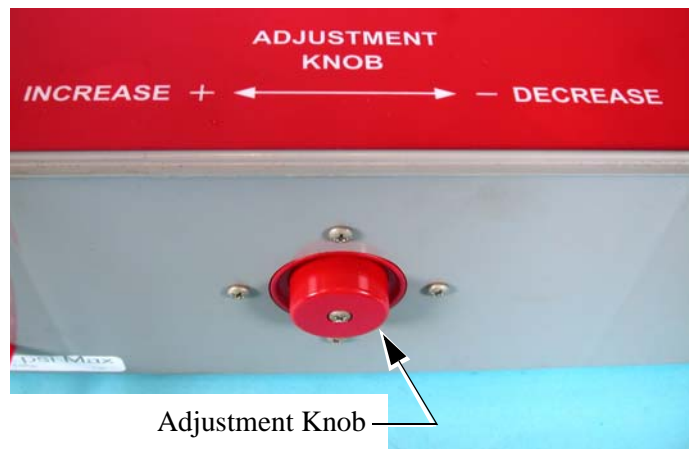


Figure 7. Adjusting the water column

## Air Pressure Gauge

The PDS Control has an Air Pressure Gauge (see **figure 8**.) to monitor the incoming air pressure. Under normal operating conditions, this gauge should show between 6 and 12 psi [41.37 and 82.74 kPa] of air pressure.



Figure 8. Air Pressure Gauge

## Regulator Minimum Water Column Provision

In the event of air pressure loss to the PDS Control an internal spring in the Regulator will maintain a minimum water column height until the air supply can be restored. This minimum water pressure will be in the 4" to 6" [10.2cm to 15.2cm] range and will vary with the incoming water supply pressure. The PDS Control cannot adjust the water column height below this minimum.

## Start Up

### Step 1: Charging the Lines

**Caution: DO NOT FLUSH DRINKER LINES WITH PDS™ CONTROL unless drinker lines are pressurized with water! Damage may occur if this caution is not followed.**

Lines may however, be flushed at any time using the manual flush feature built into the Regulator.

Once all the tubing has been ran from the Control and connected to the Regulators and before compressed air is connected to the PDS Control, the drinker lines should be charged with water. This can be done by turning the selector knob on each Regulator to the "ON" position. It is recommended to charge two lines at a time.

### Step 2: Connecting the compressed air supply

Air compressor (not supplied) guidelines to operate the system.

- All air compressors must have a minimum rating to run 4 times per hour for 5 minutes each run.
- One (1) PDS™ Control - 2 gallon minimum recommended air supply tank.
- Two (2) - four (4) PDS™ Controls - 5 gallon minimum recommended air supply tank.
- Five (5) - six (6) PDS™ Controls - 10 gallon minimum recommended air supply tank.
- Air regulator with 1/4" fitting.
- Approved air regulators:
  - Grainger Industrial Supply Part number 4ZMO8
  - Grainger Industrial Supply Part number 4ZMO6
  - NAPA Part number 90-725

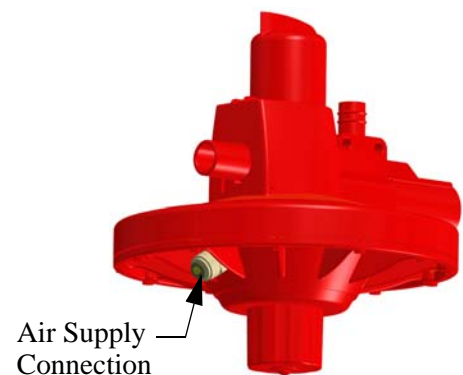
**Note: The PDS Control operates between 6 & 12 psi [41.37 kPa & 82.74 kPa]. Most air Regulators supplied with air compressors will not effectively regulate air pressure at this low pressure. Chore-Time recommends using one of the approved air regulators listed above.**

**Caution: DO NOT FLUSH DRINKER LINES WITH PDS™ CONTROL unless drinker lines are pressurized with water! Damage may occur if this caution is not followed.**

**Lines may be flushed at any time using the manual flush mode feature built into the Regulator**

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 to a 1/4" tee to split the line and then follow the Regulator water supply line down to the Regulator and attach it using the air supply connection. **see figure 9.**



**Figure 9. Air Supply to Regulator**

### Step 3: Water Column Gauge Calibration

Turn the red adjustment knob counter-clockwise (increase) until the water column gauge reads 14 inches [35.56 cm], see figure 10.

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 water regulators and confirm 14 inches of water column. If anything other than 14 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 10.) until the gauge reads the same water column height as the measurement. Replace the plastic cover on the gauge.



Figure 10. Water Column Gauge

### Step 4: Air Leak Test

Check each control and house for air leaks with the water column gauge at 8 inches [20.32 cm]. 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 15. Repeat this procedure for every PDS control.

## Operation

The PDS control will adjust the regulator water column height at all the regulators. To adjust the water column height, turn the red adjustment knob counter-clockwise to increase and clock-wise to decrease (see figure 11.) until the water column gauge reads the desired water column height.

**Note: Individual PDS 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 11. Adjusting the water column

## Flushing The System



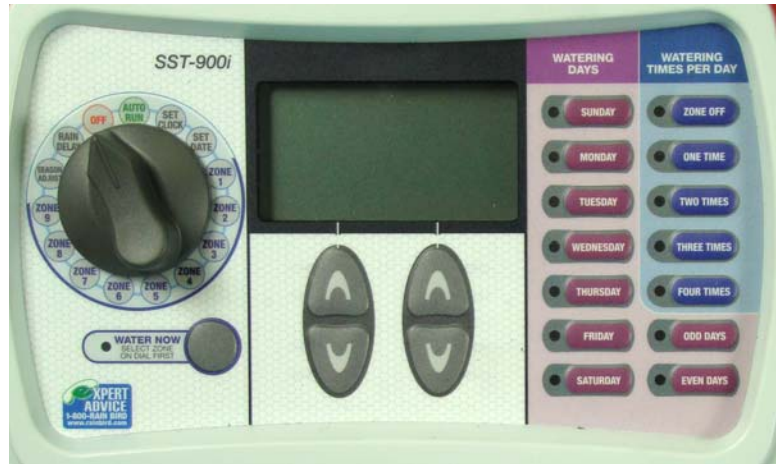
**Caution: DO NOT FLUSH DRINKER LINES WITH PDS™ CONTROL unless drinker lines are fully charged with water! Damage may occur if this caution is not followed.**

Refer to the Rain Bird Timer manual for specific programming details.

Single stations or multiple stations may be manually flushed at any time. Refer to **Operating the Sprinkler Timer** section in the Rain Bird manual.

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

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 13** to determine the estimated flush time in minutes for your specific line length.



**Figure 12. Operating the control**

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

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

$$\frac{5 \text{ Gallons}}{185/60} = \frac{5}{3.08} = 1.6 \text{ Gallons per Minute.}$$

## 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 3.4 Gallons	Total Line Capacity 6.8 Gallons	Total Line Capacity 10.2 Gallons	Total Line Capacity 13.6 Gallons	Total Line Capacity 17.0 Gallons	Total Line Capacity 20.4 Gallons	Total Line Capacity 23.8 Gallons	Total Line Capacity 27.2 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 12.7 Liters	Total Line Capacity 25.3 Liters	Total Line Capacity 38.0 Liters	Total Line Capacity 50.6 Liters	Total Line Capacity 63.3 Liters	Total Line Capacity 76.0 Liters	Total Line Capacity 88.6 Liters	Total Line Capacity 101.3 Liters

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

**Estimated flush times above are to completely exchange the water in the pipe. The water line length must include the length of the supply line from the water source to completely exchange the water. The flush time to stimulate bird drinking may be less, 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 **Operating the Sprinkler Timer** section in the Rain Bird Timer 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.

#### **Flushing After Introduction of Water Treatment or Bird Health Products**

After running any type of medication, disinfectant, electrolyte, vitamin, or vaccine the lines must be thoroughly flushed (see the chart on **page 13** 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.

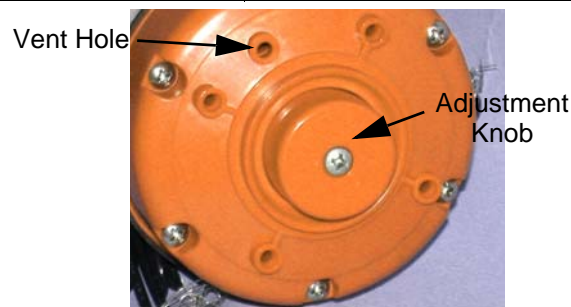
## Maintenance

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. Clean inside and outside of the water line stand tubes at least once a week.



# Troubleshooting

Problem	Correction
No water in Regulator Stand Tube.	<ol style="list-style-type: none"> <li>1. Water Off.</li> <li>2. Defective or plugged Regulator.</li> <li>3. Regulator plumbed backwards.</li> <li>4. Stand Tube Cap plugged (not venting).</li> </ol>
Water Column does not change on a Regulator.	<ol style="list-style-type: none"> <li>1. Stand Tube Cap plugged (not venting).</li> <li>2. Air line to Regulator pinched.</li> </ol>
Water Column to top of Stand Tube.	<ol style="list-style-type: none"> <li>1. Regulator seat worn or foreign object in seat area.</li> <li>2. Stand Tube Cap plugged (not venting).</li> <li>3. Air Loading Unit putting out too high pressure (defective solenoid).</li> </ol>
Compressor suddenly runs more often than normal.	<ol style="list-style-type: none"> <li>1. Shut off or pinch off all lines going to the individual controls to find which house is the problem.</li> <li>2. Open one line at a time until you find one that causes the compressor tank to lose air more quickly.</li> <li>3. See correction for house leak below.</li> </ol>
House seems to leak or lose compressed air too quickly.	<ol style="list-style-type: none"> <li>1. Shut off the incoming air 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.</li> <li>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.</li> <li>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.</li> <li>4. If the unit holds pressure, release one line at a time to isolate the cause of the leak.</li> <li>5. Test line connections and regulator for leaks.</li> </ol>
Control unit leaks compressed air.	<ol style="list-style-type: none"> <li>1. Check the vent hole in the red cover of the Air Loading Unit, <b>see figure 13</b>. Put soapy water over the hole. A small amount of air coming out is normal (bubble should grow slowly over several seconds).</li> <li>2. Put soapy water on all internal hose connections to find leak.</li> </ol>

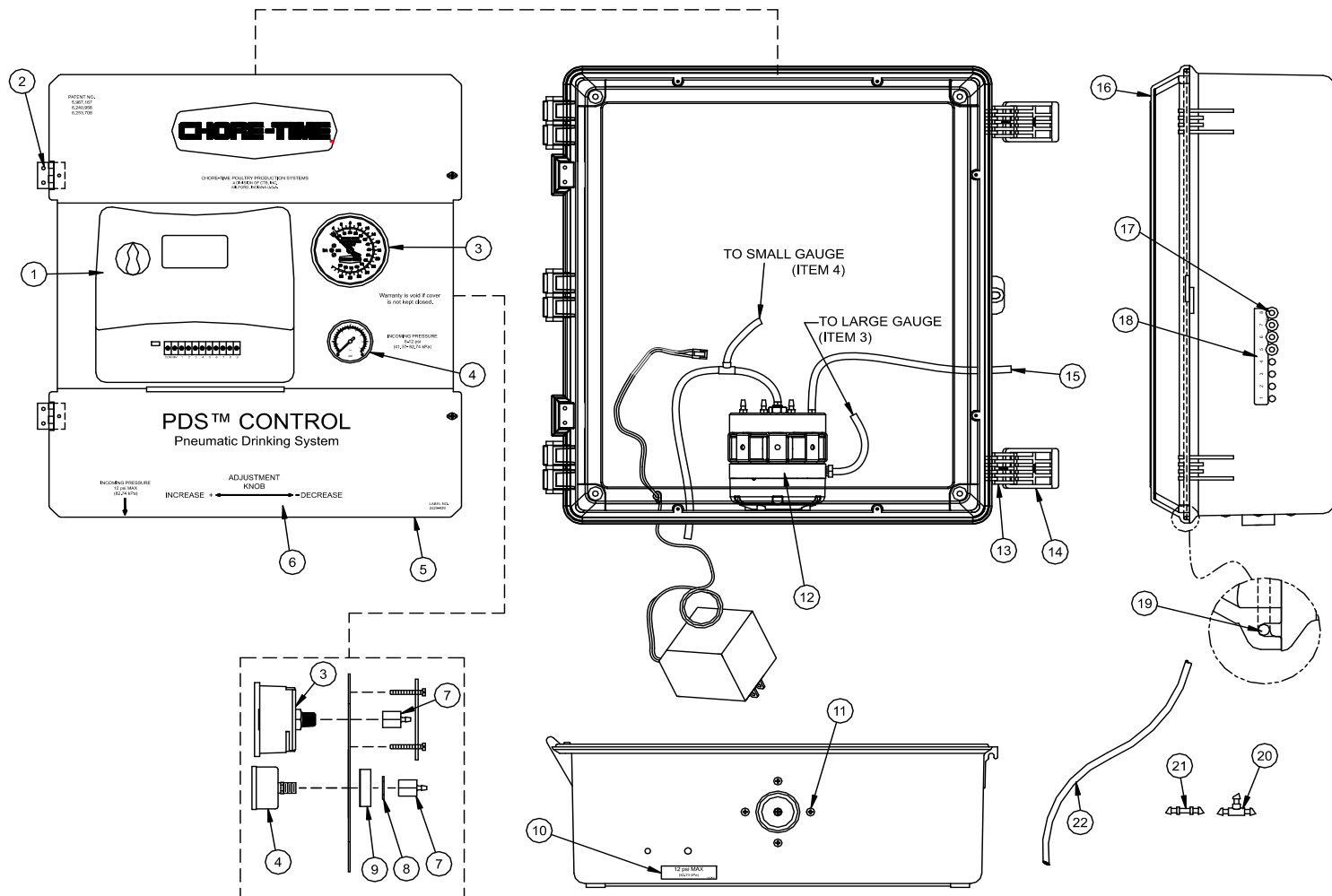


**Figure 13. Vent Hole**

# Parts Listing

## 4 Station PDS™ Control: 52430-4

## 8 Station PDS™ Control: 52430-8



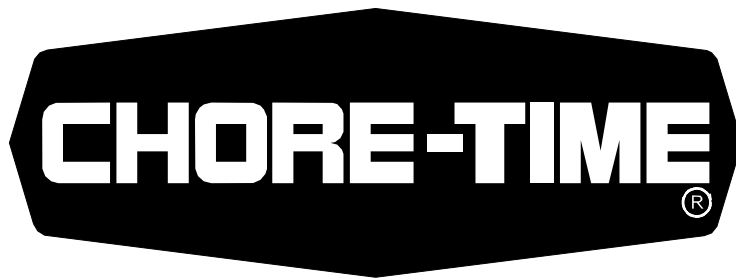
Item	Description	52430-4	52430-8
		Part No	Part No
1	120V Timer Control	52412-1	52412-2
2	Hinge	49482	49482
3	Water Column Gauge	44029	44029
4	Air Pressure Gauge	48585	48585
5	Control Plate	52411	52411
6	Control Decal	2529-939	2529-939
7	1/8" Female Pipe Adapter	48586	48586
8	1/2" Machine Washer	2499	2499
*9	Gasket	6968-1	6968-1
*10	Max Pressure Decal	2526-437	2526-437
11	#6-20 x 5/8" Pan Hd Screw	48577	48577
12	Airloader W/Adjustment Knob	48837	48584

Item	Description	52430-4	52430-8
		Part No	Part No
13	Control Box Latch Pivot	30863	30863
14	Control Box Latch	30862	30862
*15	1/4" O.D. Tubing	48574	48574
16	Control Box Lid	42683	42683
17	1/4" Plug	48588	48588
18	Station Number Decal	2526-430	2526-430
*19	1/8" Diameter Seal	34767	34767
20	1/4" Tube Coupling Tee	45894	45894
21	1/4" Tube Coupling	45893	45893
22	1/4" O.D. Tubing (500 Ft Roll)	45895-500	45895-500

\*Item sold in Feet.



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### **Revisions to this Manual**

<b>Page No.</b>	<b>Description of Change</b>
Various	Updated warranty, Updated Regulator graphics, Added "Steps", Some other updates

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

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