

Cascade Comfort  
Bathing Systems with Aqua-Aire™

*Parts Breakdown & Assemblies*



***PENNER PATIENT CARE INC.***  
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***Aurora, NE 68818***

**SPAS MODEL NUMBERS- 560010-X, 560010-XL  
(X REPRESENTS A COLOR NUMBER)**

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**1-866-PENNERS**

**1-866-736-6377**

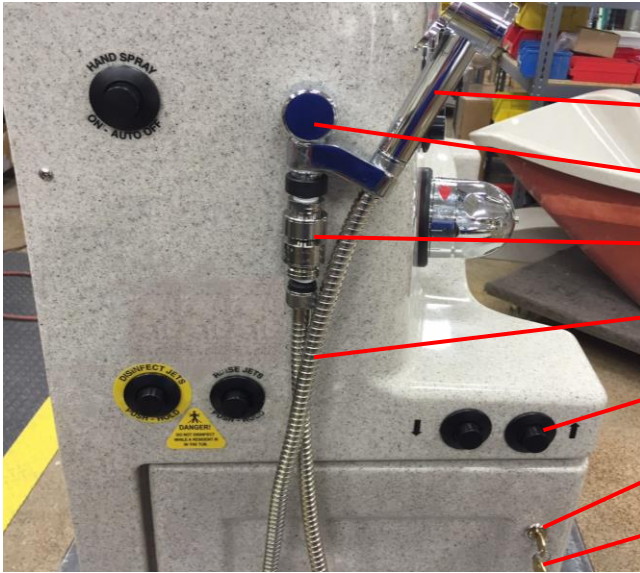
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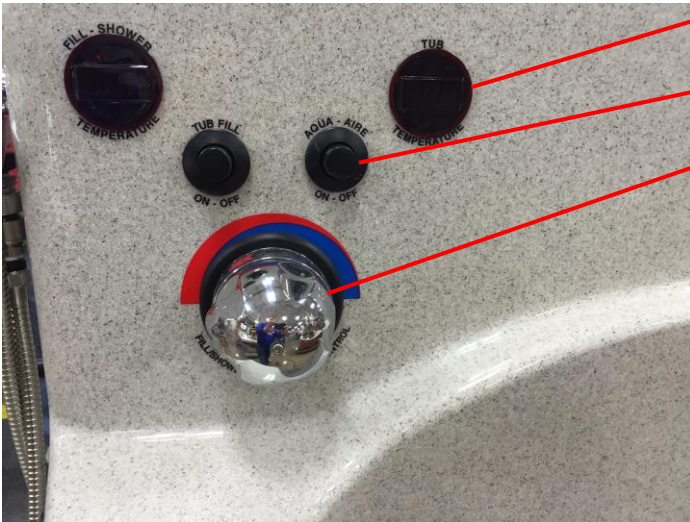
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## Deck Controls Front & Side

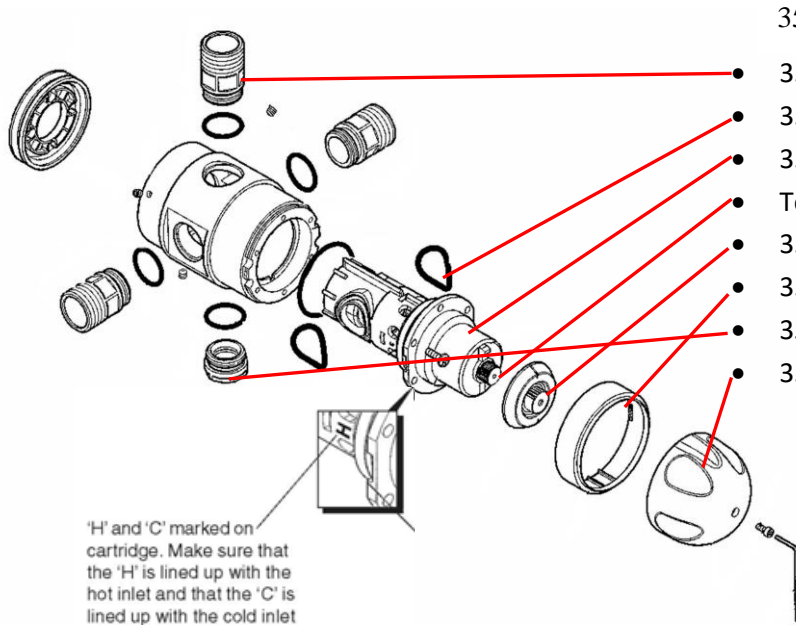


- 140106CHT -Hand Shower W/Positive Trigger
- 140104 - Swivel Chrome Elbow
- 1404785 -Shower Backflow Preventer
- 350192CH - Shower Hose 96"
- 350495- Air Transmitter - Black Raised
- 350890-Lock
- 350889- Key

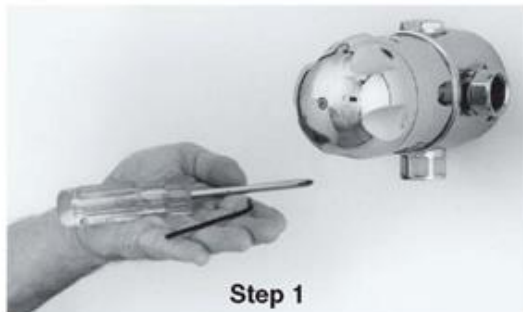


- 350535M-SER – Thermometer (2 each)
- 350495 - Air Transmitter – Black (7 Each)
- 350151 – Replacement Cartridge-(Not shown)
- See next page for valve parts breakdown.

# Rada 320 Mixing Valve Service Component Breakdown & Removal



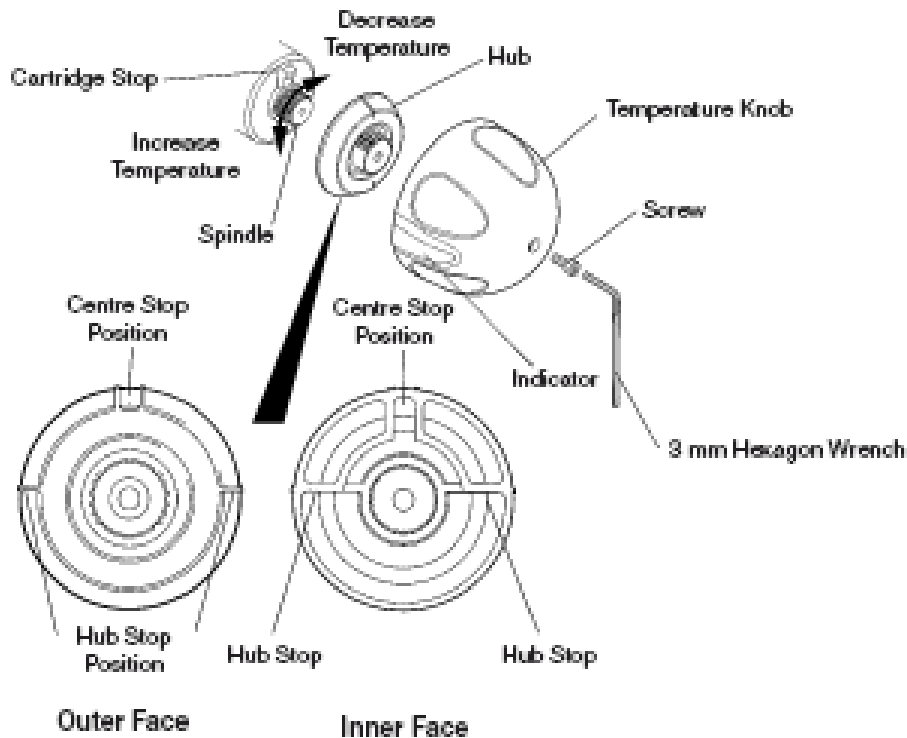
- 350150 – Complete Mixing Valve – Rada 320
- 350157 - Inlet/Outlet Adapter, 3/4 Female Three Ea.
- 350158 - Seal Pack (includes all O-rings)
- 350151 - Cartridge – with O-rings Rada 320
- Temperature Spindle
- 350154 - Hub
- 350152 - Temperature indicating ring
- 350163 - Cap (with O-ring)
- 350162 - Knob Pack (Knob, screw, and wrench)
- 350159 – Screw Pack (includes all screws)



The Rada 320 Mixing Unit features a single "sealed for life" disposable internal cartridge. With an allen key (3 mm) to remove the handle retaining screw and a phillips head screwdriver to remove the 6 cartridge retaining screws, the entire mixing unit can be serviced and/or replaced in approximately 10 minutes.

Note: All seals are pre-lubricated. If further lubrication is required, use only silicone based lubricants on this product. Do not use petroleum based lubricants.

## Rada 320 - Mixing Valve Adjustment

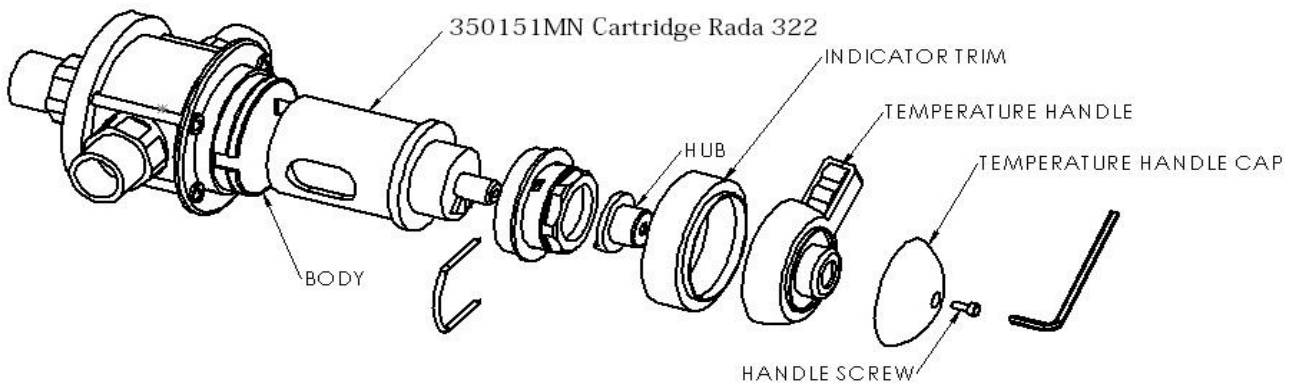


1. Remove the temperature knob screw using a 3 mm hexagonal wrench. Remove the temperature knob.
2. Pull off the black polymer hub assembly which may inadvertently remain attached to the inside of the temperature control handle. This is a “push fit” and can be “levered” out using a thin blade screwdriver or pliers.
3. Rotate the spindle until required maximum blend temperature is obtained at outlet point (clockwise = decrease temperature, counterclockwise = increase temperature).

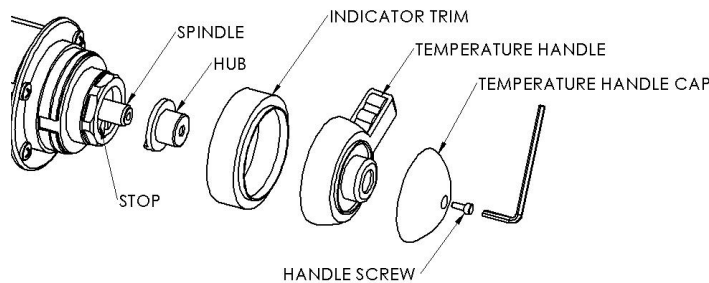
**When resistance is felt do not use force to turn any further, as this can damage the internal parts.**

4. Once the desired maximum blend temperature is achieved, re-fit the hub without disturbing the spindle: Position the hub so that the hub stop comes up against the cartridge stop preventing any further rotation in a counterclockwise direction. Check that blend temperature has not altered.
5. Refit the temperature knob. Make sure that the indicator points to 9 o’clock.

## Rada 222 - Mixing Valve Parts (Minnesota)



## Rada 222 Mixing Valve Adjustment (Minnesota)



1. Check that an adequate supply of hot water is available at the hot inlet of the mixing valve.
2. Temperatures should always be recorded using a thermometer with proven accuracy.
3. Remove the handle screw, temperature handle cap, temperature handle, and indicator trim using a 3 mm hexagonal key.
4. Pull off the hub.
5. Using the temperature hub, rotate the spindle until the required maximum blend temperature is obtained at the discharge point (rotate clockwise to decrease temperature).

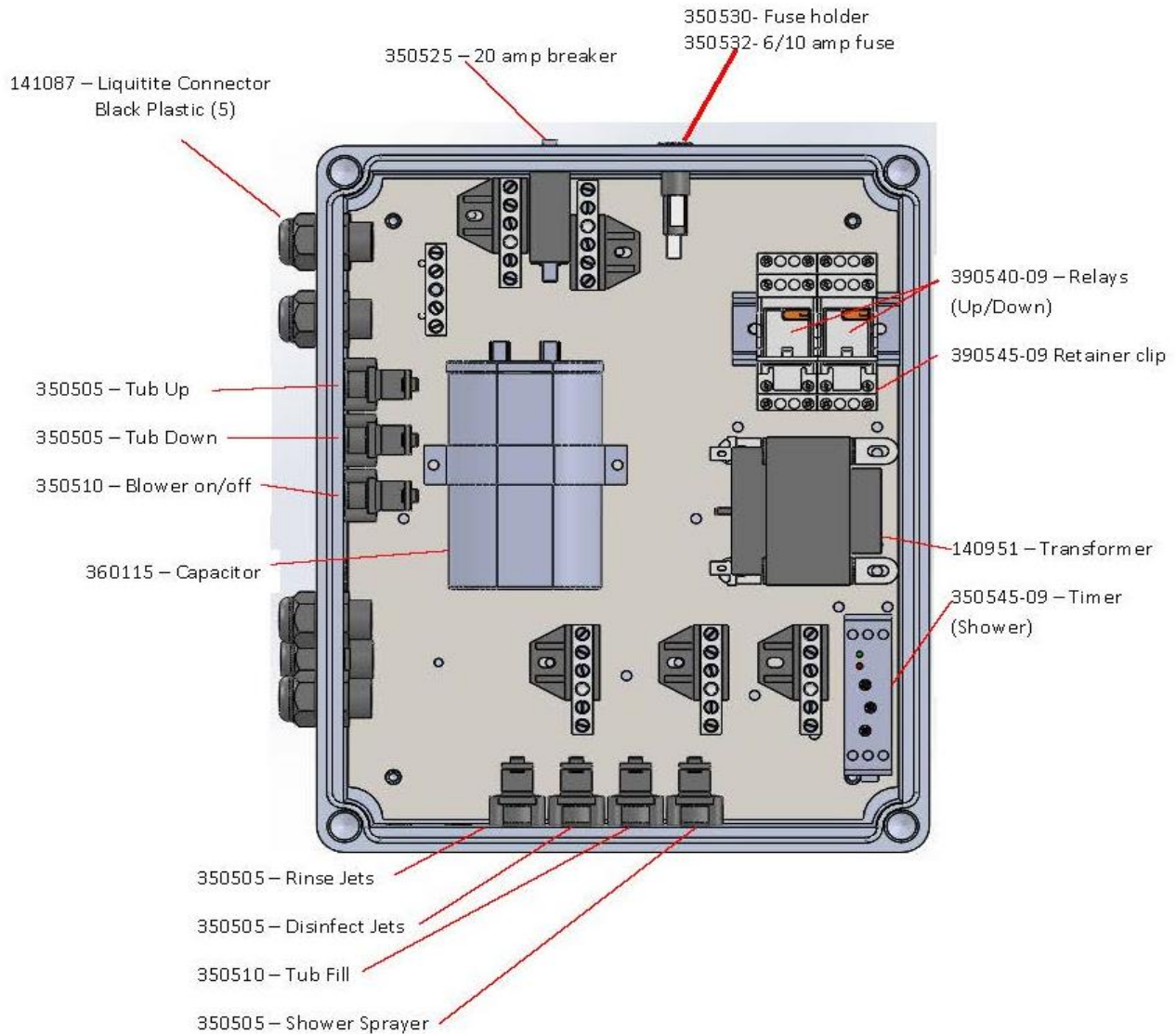
**If resistance is felt do not use force to turn any further, as this can damage the internal parts.**

6. Once the desired maximum blend temperature has been achieved, refit the hub so that the lug is against the side of the stop on the cartridge face, thus preventing counter clockwise rotation past the maximum temperature stop.
7. Check that blend temperature has not altered.
8. Refit the indicator trim, handle, and cap. Then secure with the handle screw using a 3 mm hexagonal key.



# Electrical Kit

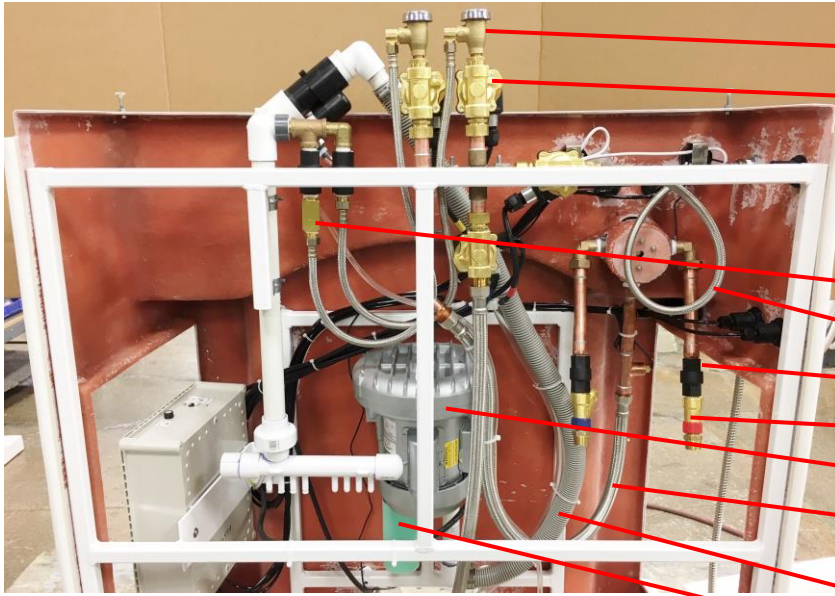
**NOTE: A spare fuse is taped inside the Lid in case it is needed.**



## Timer Adjustments Explanation

There is one Timer located in the lower right hand corner of the Electrical Kit (shown above). It is adjusted by setting the timer sector and value. An example is the **Time Sector** setting of 100S = 100 seconds and with the **Time Value** set at 5, the timer is now set for 50 seconds. Another example is the **Time Sector** setting of 1000S = 1000 seconds and with the **Time Value** set at 5, the timer is now set for 500 seconds.

## Plumbing Parts



- 144105 - Vacuum breaker (2 ea)
  - 140124 - Solenoid Valve (4 ea)
- See Color Chart below for function of the solenoid valves. The color references the tape wrapped around the electrical cord near the connector on each solenoid valve.
- 1404804 - Dema Injector
  - 360496 - Hose - 3/8"Comp x 1/2"FIP (3 ea)
  - 140474 - Check Valve (4 ea)
  - 350315 - Screen, 40 mesh 1/2" in line (2 ea)
  - 350602 - Blower
  - 350185 - Hose Assembly - 36" (2 ea) (2 more for supply hoses)
  - 390409 - Hose 1/4 ID
  - 350601 - Air Filter

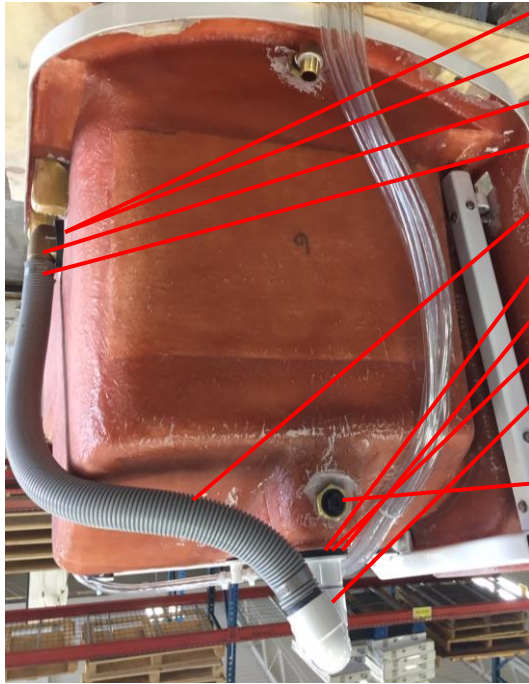
<b>TUB SHOWER RED</b>
<b>TUB FILL GREEN</b>
<b>TUB DISINFECT YELLOW</b>
<b>TUB RINSE BLUE</b>

Solenoids are color coded on the black pigtail.

Solenoid Rebuild kit is 1401308

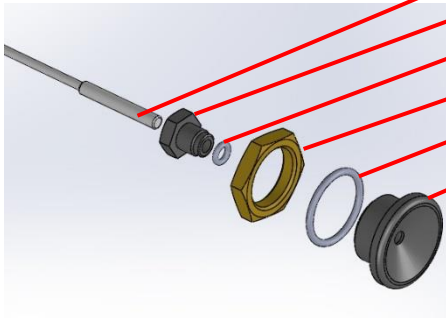


## Comfort Tub Drain Assembly



- 350172 - Escutcheon - Chrome (Includes Screws)
- 350173 - Beveled Washer (Rubber)
- 350174 - Overflow & Tube
- 590758 - Hose Clamp - #24
- 390410 - 1 ½" Gray Hose
- 1050401 - Base Shoe Basket
- 108550 - Drain Washer Rubber
- 350391 - Drain Screen
- 390176 - Kit, drain replacement - contains the glued pvc assembly, the base shoe basket, rubber washer, and a base shoe removal tool.
- See the next section on the Tub Temperature Probe Assembly.

## Tub Temperature Probe Assembly



- Temp Probe from Temperature Readout
- 360637 - Temp Probe Nut
- 360638 - O-Ring - #108
- 350255 - Nut 1 ¼- 16 Brass
- 360363 - O-Ring 1 1/4" ID X 1/8" #218
- 360630-14 - Adapter - Temp Probe 2014

## Water Door Seal

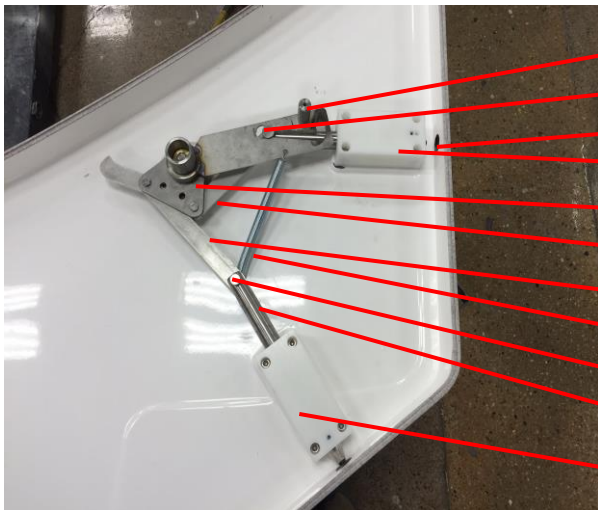


- 360125K - Door Seal Replacement Kit  
Includes everything needed to replace the door seal.

## Side Opening Water Door Internal Parts



- 360335 - Hinge Assembly (2 ea.)



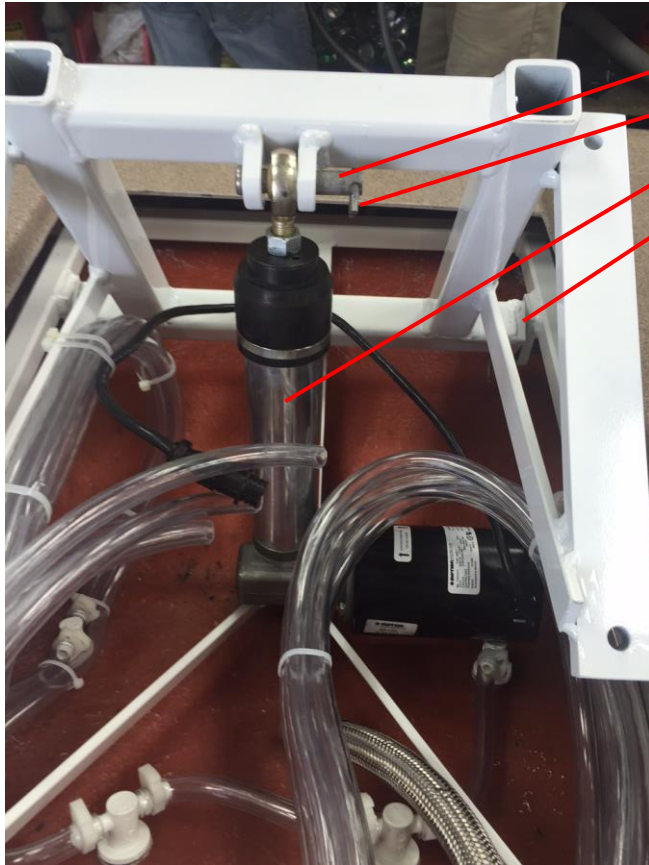
- 360315L - Secondary Lock Assembly
- 360310 - Pin - 2nd Lock
- 360302 - Door Lock Bolt Short
- 560102- Short bearing block
- 360320 - Hub Assembly
- 360326 - Linkage - Straight
- 360331 - Linkage - Off-Set
- 360435 - Spring
- 360430 - Clevis Pin - 1/2 X 1 1/4" SS
- 360300 - Door Lock Bolt Long
- 560101- Long bearing block

## Door Lock Handle



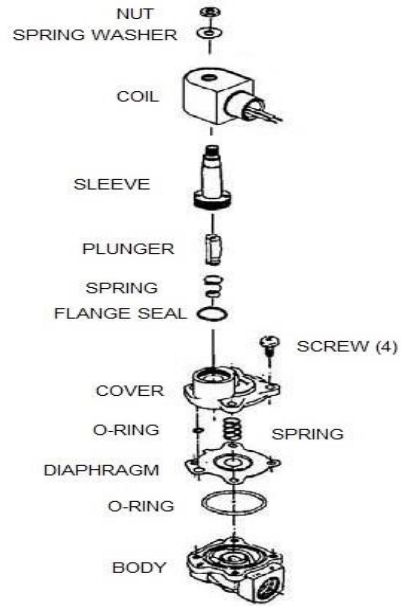
- 360720-12 - Label - Leave Door Open
- 360440 - Roll Pin - 1/4 X 1 3/4" SS
- 360297 - Handle Cast Complete
- 360309 - Secondary Lock Knob

## Tilting Actuator



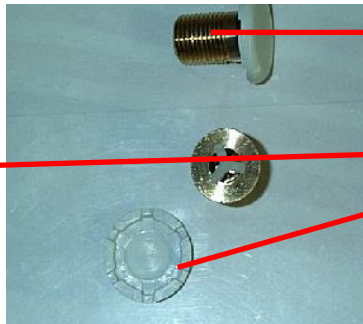
- 340572- 1/2 x 2 1/2 Clevis Pin SS
- 560142- Cotter Pin, Hairpin, 3/4"
- 561122- Actuator Comfort
- 560155- Pivot Bushing (not shown)

## Cascade Comfort Break Down Of Solenoid Valve with Coil

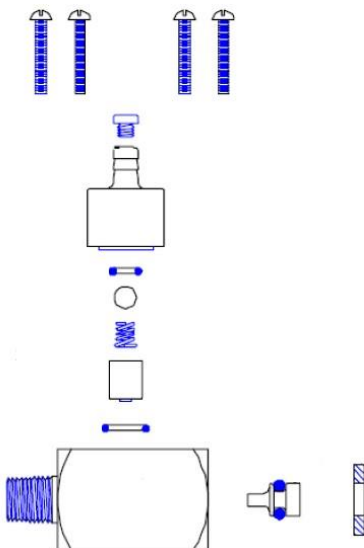


140124- Solenoid valve  
1401308- Kit, solenoid repair

## Orientation of Components in Jets and Injectors



- 350135 - Jet - Brass
- 360644 - Replacement Cap - Black (not shown)
- 350134 - Kit - Internal Jet Replacement
- 360646 - Replacement Cap - White



**DEMA INJECTOR  
1404804**



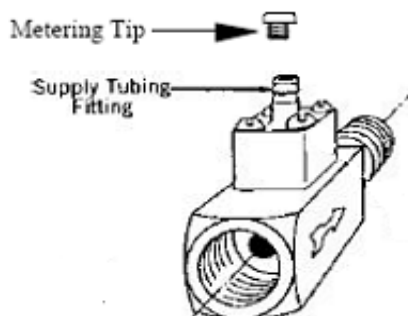


## Checking for the Correct Dilution of Disinfection

1. Check to see if a container of disinfectant has been installed. Assure that the disinfectant tube is inserted into the container and connected to the Injector with black metering tip. See the drawing of the square injector (204C) below for location of the metering tip.
2. Visually check if disinfectant is in the hose all the way to the injector. If not, the disinfectant can be brought to the injector pushing the disinfect button on the tub until disinfectant fills the hose all the way to the injector.
3. With the drain open, push the fill button on the tub to check the water temperature. Adjust the temperature control to read 60 degrees to 65 degrees (F). When the temperature remains in the above range, turn off the fill button.
4. Allow the water to drain from the tub.
5. Close the tub drain, push and hold the disinfect button long enough to bring the disinfectant mixture into the tub then release the disinfect button.
6. To test the solution in the foot-well of the tub with the Dilution Check Kit, order (140481). A dispenser of test paper (part number 219201) is included in this kit.
7. Tear off a strip of test paper from the dispenser and immerse in the solution for at least (10) seconds. Compare the color that the test paper turns with the chart on the dispenser. If the test paper matches the green in the range of 600-800, the disinfecting solution is the correct strength.
8. If the color of the test paper matches a color on the dispenser chart in the 800-1000 range, install the next smaller metering tip. See metering tip chart for color reference. The injector is furnished with a metering tip installed. The Metering tips listed below are included in the Dilution check kit, (Part number 140481).
9. If the color of the test paper matches a color on the dispenser chart in the 0-400 range, install a metering of the next larger size and re-test.

### METERING TIP CHART APPLICABLE TO THE AQUA-AIR JET DISINFECTATION INJECTOR

<u>Color</u>	<u>Part Number</u>	<u>Metering Tip Size</u>	<u>Solution Strength</u>
Black	1404824	Large	Preferred Strength
Blue	1404822	Medium	Less Strength



## Cascade Installation Kit & Doors



- 350185 - Hose Assembly-36"  
2 Ea (Fiber Washer Comes With Hose)
- 350650 - Label- Warranty Registration
- 560748 - Label- Manual Cascade Comfort Parts & Assembly
- 560745 - Cascade Comfort Installation Manual
- 560750 - Cascade Comfort Operation Manual
- 390301 - Nipple-3/4" Close Brass Modified
- 140625 - 5/16 X 2 Floor Anchor 2 ea (back)

## Drain Parts



- 350177 - Drain Plug & Cable Replacement Kit
- 350172- Escutcheon, chrome
- 360630 - Adapter - Temp Probe
- Base Shoe Basket





Your Penner Distributor and his personnel are trained to provide in-service instruction and maintenance information on your Cascade Bath System. If you have any questions about the operation or maintenance of your Cascade Bath System, please contact your Penner Distributor. For your nearest Penner distributor, contact:

**Penner Patient Care, Inc.**

1-866-736-6377 OR 1-800-732-0717

[www.pennerbathingspas.com](http://www.pennerbathingspas.com)