Rada Z358-20
Installation and Maintenance

Water Temperature Controls
Emergency Fixtures
Thermostatic

This Rada Z358-20 Valve has been supplied for this application based upon information provided to Armstrong at the time the order was placed.

This Rada Z358-20 Valve is configured for use in a “dead-leg” piping configuration as indicated in the drawing on Page 6.

This Rada Z358-20 Valve has **not** been configured for use in a central pumped re-circulation system.

For further information, please call our technical department Toll Free at 1-888-HOT-HOSE.

Model No. **Rada Z358-20**

Serial No. _____

Ship Date _____

Water Temperature Control - Emergency Fixtures

Thermostatic

Rada Z358 series has been designed specifically to provide temperature controlled water to emergency fixtures as detailed in ANSI Z358.1-2009.

Tepid Water (Sections 4.5.6, 5.4.6, 6.4.6, 7.4.5, 8.1.1.2, 8.2.3.4)

Tepid flushing fluid is considered necessary in all types of emergency equipment applications. Tepid is defined in the standard, as “A flushing fluid temperature conducive to promoting a minimum 15-minute irrigation period. A suitable range is 60-100°F (16-38°C)” (Definitions p. 8). Generally, temperatures higher than 100°F may cause chemical interactions with the skin and result in further damage. At 60°F and below hypothermia becomes a concern. Consulting a safety/health advisor will be a helpful aid in the determination of the best temperature parameters. Not two hazards are exactly the same and each should be evaluated on a case-by-case basis.

Point of Use

Rada Z358-20 and Z358-40 Thermostatic Mixing Valves are suitable for installation at or near a point of use for direct tepid water supply to an emergency fixture or grouping of fixtures. Groups of fixtures must meet the valve’s flow capacity requirements if there is a potential for simultaneous operation.

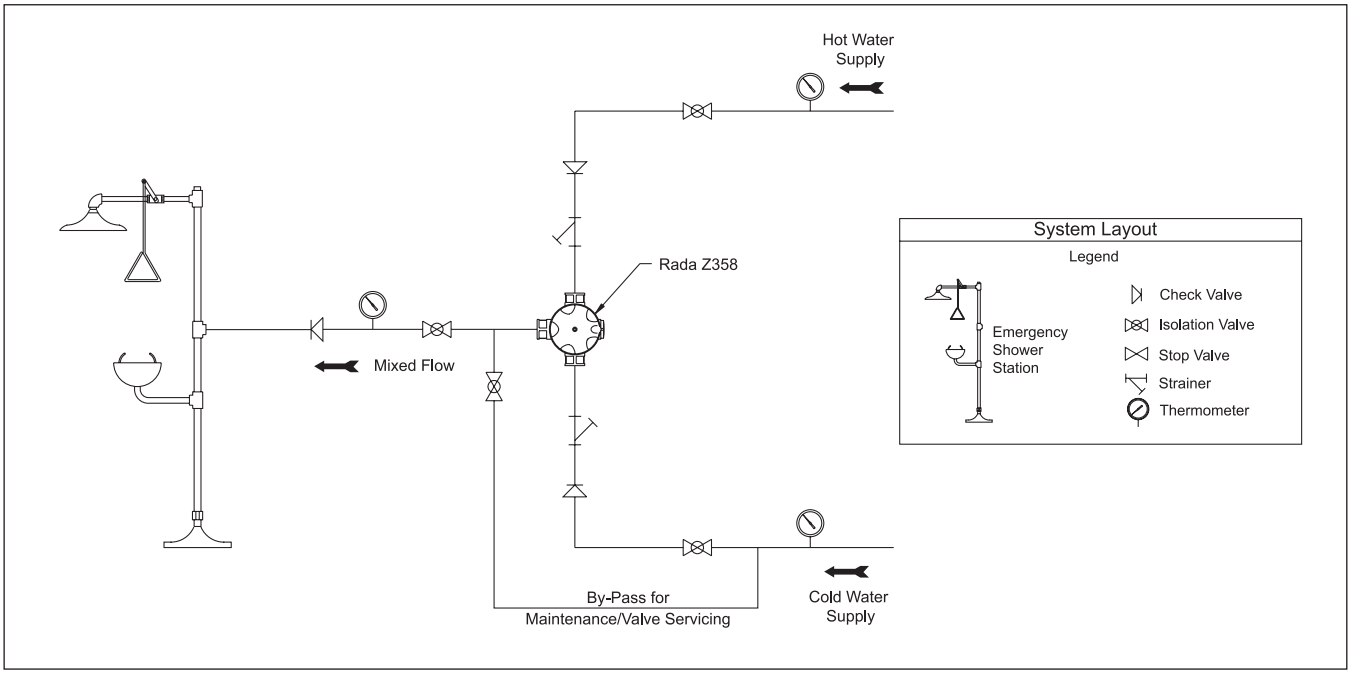
Central Recirculation System Control

Recirculated, tepid loops serving emergency fixtures are fundamentally different in application from standard institutional hot water recirculating systems. The limited system draw-off requirement of the emergency fixture circuit portends limited system audit capability and a subsequent underlying system management concern.

In other words, institutional loops with frequent draw-offs at diverse flow rates for hand washing, showering and bathing communicate with building management on a regular basis (the lavatory is too hot, the shower is too cold, etc.). The capacity exists to make adjustments and corrections.

Closed loops for emergency fixtures, on the other hand, require infrequent but often a large and sudden volume of water that must be in the correct temperature range every time. Without some level of manual or automated system monitoring and correction, along with an aggressive system maintenance protocol, tepid loops present a challenge.

For recirculated tepid loops serving emergency fixtures, Armstrong suggests that ONLY Digital Recirculating Valves should be considered. Please consult your Armstrong representative or Armstrong directly.



Thermostatic

Rada Z358-20

Rada Z358-20 has been designed specifically to provide temperature controlled water to emergency fixtures as detailed in ANSI Z358.1-2009.

Z358-20 is a Thermostatic Mixing Valve of “sealed for life” disposable cartridge construction. Compact design and top or bottom blended water outlet make Z358-20 ideal for OEM, new construction and upgrade/retrofit installations.

For Emergency Drench Showers. Rada Z358-20 will pass ANSI specified minimum of 20 gpm/76 lpm (actual 23 gpm/87 lpm) and will flow a minimum of 10 gpm (38 lpm) from direct cold water supply in hot failure mode at 40 psi (2.7 bar) maintained equal inlet supply pressure.

For Emergency Eye Wash Stations. For single or multiple fixture installation, Rada Z358-20 will control accurately at flow rates from 20 gpm (76 lpm) to below 1 gpm (3.8 lpm).

In flow applications between 20 gpm (76 lpm) and 10 gpm (38 lpm), Z358-20 will pass approximately 50% of original flow setting in hot failure mode.

In flow applications between 10 gpm (38 lpm) and 5 gpm (19 lpm), Z358-20 will pass approximately 80% of original flow setting in hot failure mode.

In flow applications below 5 gpm (19 lpm), Z358-20 will pass approximately 95% of original flow setting in hot failure mode.

Operational Specifications

1. Site Adjustable—Mechanical maximum-temperature limit stop and single-temperature locking features as a function of the temperature control handle design.
2. Thermal shutdown feature is designed to protect user from unsafe water temperatures or hot water/chemical reaction should cold supply be interrupted during use.
3. Unique constant cold water flow design ensures that in the event of a hot supply failure the Rada Z358-20 will allow cold water to flow to fixture.
4. Unique constant cold water flow feature allows the inlet hot water supply to be set within a prescribed range, thus limiting the potential outlet temperature to a safe maximum in the event of misadjustment, unauthorized tampering or thermostat failure. This feature presumes that the correct initial commissioning was performed and that the cold water supply has not been interrupted.

Technical Specifications

- 1” (25 mm) NPT inlets and 3/4” (20 mm) NPT outlet(s)
- Chrome-plated DZR brass/polymer construction with bright
- “Safety Yellow” control handle.
- Operating pressures must be nominally equal
  Maximum: 100 psi (6.9 bar)*
  Minimum: 40 psi (2.7 bar) drench showers
  20 psi (1.4 bar) eye wash
- Integral thermometer
- Integral replaceable cartridge-type inlet check valves
- Dual thermostatic elements
- Integral replaceable inlet strainers
- 10 gpm (38 lpm) constant cold water flow in hot failure mode to open outlet at 40 psi (2.7 bar) pressure drop
- Shipping weight 10 lb (4.5 kg)

*High water pressures may deliver a volume and spray force that are injurious to the user. Check with fixture manufacturer or regulate water pressures within acceptable range.

Table 1.
Safe Maximum Inlet Hot Water Supply Temperature
Refer to this table to correlate inlet hot water supply temperature with anticipated seasonal ground water temperatures (use best case/warmest scenario).
For details, reference Safety Bullet #4 at left.

Table 1

Inlet Hot Water Temp. °F	Cold Water Temperature °F				
	33	40	50	60	70
120	80	84	88	93	97
130	86	89	94	98	103
140	91	95	99	104	108
150	96	100	105	109	114
160	102	106	110	115	119
175	110	114	118	123	127
185	116	119	124	128	133

NOTE: Shaded area indicates potential user risk.

Table 2.
Minimum Inlet Hot Water Supply Temperature
Rada Z358-20 will require a minimum inlet hot water supply temperature, which must be correlated with the anticipated seasonal inlet cold water supply temperature (use worst case/coldest scenario) as per Table 2 below.

Table 2

Blend Temp °F	Cold Water Temperature °F				
	33	40	50	60	70
80	120	113	105	97	88
85	129	122	114	106	97
90	138	132	123	115	107
95	147	141	132	124	116

NOTE: Shaded area represents Armstrong’s interpretation of “tepid” water. Expanded chart shown on Page 12 of this manual.

For expanded versions of Tables 1 and 2, consult factory or product installation and maintenance manual.

Safety Warnings

The function of a Thermostatic Mixing Valve is to deliver water consistently at a pre-designated temperature.

Rada Thermostatic Mixing Valves are precision engineered to give continued superior and safe performance provided:

1. They are installed, commissioned, operated and maintained in accordance with the recommendations provided and accepted plumbing practices.

2. Periodic attention is given, as necessary, to maintain the product, the accessory fittings and the plumbing system in good functional order.

In keeping with every other mechanical product, Rada Mixing Valves should not be considered as functionally infallible and, as such will never totally replace the vigilance and attention of maintenance, supervisory and safety staff.

Provided that they are installed, commissioned, operated and maintained, the risk of product failure and its associated consequences, if not eliminated, are reduced to the minimum achievable.

Rada Z358-20 Operating Specifications

Maximum Recommended Hot Water Supply Temperature	130°F (54°C)
Minimum Cold Water Supply Temperature	33°F (1°C)
Optimum Inlet to Outlet Temperature Differential	Refer to Table 2
Minimum Flow Rate	1 gpm (3.8 lpm)
Maximum Inlet Supply Pressure (supplies must be nominally equal)	100 psi (6.9 bar)*
Minimum Inlet Supply Pressure	40 psi (2.7 bar) Drench Shower 20 psi (1.4 bar) Eye Wash

*****High water pressures may deliver a volume and spray force which is injurious to the user. Check with fixture manufacturer or regulate water pressures within acceptable range.

Danger: Correct on site commissioning of Rada Z358-20 is critical. If you have any questions call us Toll Free at 1-888-HOT-HOSE.

Warning: The constant cold water flow design ensures that in the event of a hot water supply failure the Rada Z358-20 will allow cold water to flow to the fixture.

In addition, Z358-20 is designed to shutdown the hot water supply in the event of a cold water supply failure.

These features will only function if:

1. There is a minimum of 20°F differential between the Hot Supply and the Blend set point (85°F (29°C) suggested).

2. The Z358-20 has been pre-set or commissioned **On-Site** correctly. It is critical to note that under certain inlet temperature supply conditions, the constant cold water supply feature **may give the false impression** that a blend set point has been correctly established. However, the blend temperature may just be a function of the combination of inlet hot water temperature and the constant cold water flow. The valve may actually be inadvertently set to deliver temperatures well in excess of the set point but it is unable to do so due to the constant cold water flow. **In this situation the cold water failure safety shutdown has been compromised.**

Refer to Page 7 “Commissioning the Rada Z358-20” or call Armstrong toll free at 1-888-HOT-HOSE for details or assistance in correctly setting the Rada Z358-20 on site.

Rada Z358-20 Installation Tips

The Rada Z358-20 Thermostatic Mixing Valve must be installed as per the piping schematic provided on Page 6. Failure to follow this directive will compromise valve/system performance, void all warranties and may create a user comfort issue and safety concern.

Armstrong has technical support personnel available from 8:00 a.m. to 5:00 p.m. EST. Call Toll Free 1-888-HOT HOSE.

Notes:

1. Rada Z358-20 should be installed in a horizontal position.

2. Rada Z358-20 must be installed in a standard **HOT-LEFT/COLD-RIGHT** inlet supply configuration. There are red(hot) and blue(cold) markings on each valve. Rada Z358-20 is provided as standard with a piped bottom outlet with thermostat and tee and a plugged top outlet. This configuration can be reversed by simply switching the outlet plug and fittings. The inlet supplies must always match the corresponding inlet ports on the valve.

3. Be sure to thoroughly flush the pipework before fitting the Rada Z358-20.

4. Be sure to “make up” all “sweat” or “soldered” fittings ahead of time. Do not expose Rada Z358-20 or any of its fittings to extreme temperatures (such as an acetylene or propane torch).

5. Rada Z358-20 is serviced from the front of the valve as you face it. A minimum 18” clearance in front of the Temperature Control Handle is suggested for internal parts access.

6. Rada Z358-20 is pre-set at the factory to a “full cold” outlet temperature. As such:

   RADA Z358-20 MUST BE RE-SET ON SITE BY QUALIFIED PERSONNEL.
   Rada Z358-20 set up (**Commissioning the Rada Z358-20)** protocol is included on Page 7.

7. Rada Z358-20 is designed to control a single drench shower or combination drench shower/eye wash station.

8. Rada Z358-20 is designed to control a single eye wash station. Multiple eye wash stations can be controlled by a single Rada Z358-20 as long as the potential multiple simultaneous demand does not exceed valve capacity. Refer to flow chart on page 3 and maintain a “residual pressure” of at least 20 psi to operate fixtures at a satisfactory flow rate.

9. Ensure that the inlet supply pressures are nominally equal.

Commissioning the Rada Z358-20

Commissioning must be carried out in accordance with these instructions, and must be conducted by designated, qualified and competent personnel.

Temperature Setting
The blend temperature obtainable through the mixing valve should be limited to prevent selection of a flushing temperature that is too hot.

Rada Z358-20 is fully performance tested and then pre-set at the factory to a “full cold” outlet temperature. As such **Rada Z358-20 must be re-set on site by qualified personnel.** During the temperature re-setting process, a manual maximum temperature selection limit stop or single temperature locked position should be established.

Maximum Temperature Setting
Check that an adequate supply of **hot** water is available at the hot inlet of the mixing valve.

For optimum performance the minimum temperature of the hot water must be at least 20°F (12°C) above the desired blend, however during resetting this should be close to the typical supply maximum to reduce the possibility of any blend shift due to fluctuating supply temperatures.

Temperatures should always be recorded using a thermometer with proven accuracy.

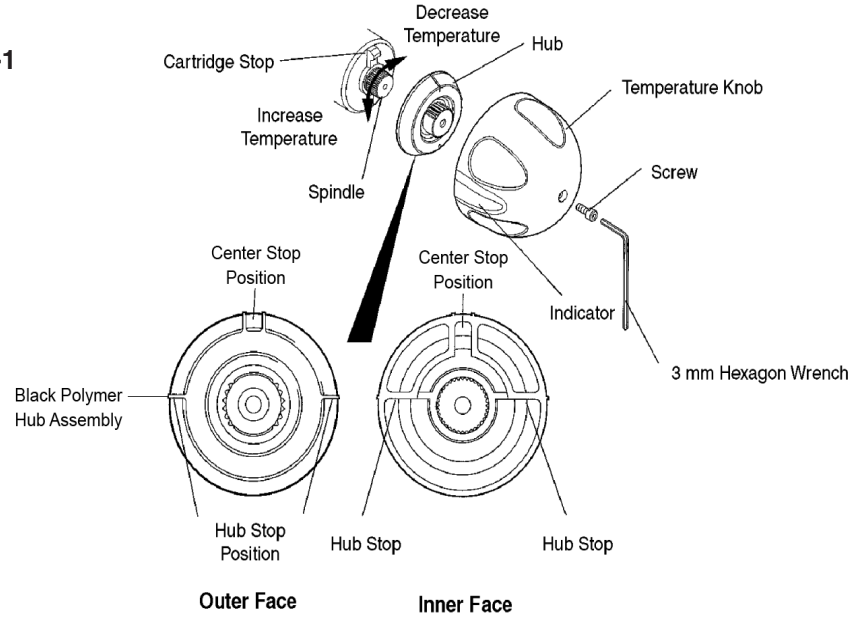
1. Remove the temperature knob using a 3 mm hexagonal wrench (supplied).

2. Refer to Figure 7-1 and 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. Ensure that the spindle is rotated fully clockwise so that you deliver the coldest supply temperature water available from the Rada Z358-20. Lightly re-fitting the black hub assembly so that it clears the hub stop on the cartridge may assist this effort.

4. Gradually rotate the spindle counter-clockwise until the temperature begins to rise. Continue rotation until the Armstrong recommended 85°F (29°C) or your desired temperature is achieved. Allow water temperature to stabilize. Rotate the spindle further counter-clockwise and allow the temperature to rise an additional 5°F. Allow water temperature to stabilize. Rotate the spindle back (clockwise) to initial set point and proceed to step 5.

Figure 7-1



Commissioning the Rada Z358-20

Warning: It is critical to note that under certain inlet temperature supply conditions, the constant cold water supply feature **may give the false impression** that a blend set point has been correctly established. However, the blend temperature may just be a function of the combination of inlet hot water temperature and the constant cold water flow. The valve may actually be inadvertently set to deliver temperatures well in excess of the set point but it is unable to do so due to the constant cold water flow. **In this situation the cold water failure safety shutdown has been compromised. As such correct adjustment as detailed in points 3 and 4 is extremely important.**

5. Once the desired maximum blend temperature is achieved, re-fit the hub without disturbing the spindle, positioning it so that:

   A. the hub stop comes up against the cartridge to prevent any further counter clockwise rotation for a **Maximum Temperature Limit Stop**. Figure 7-1.
   B. so that the center stop slot in the hub fits over the top of the cartridge stop preventing rotation in either direction for a **Single Temperature Lock**. Figure 7-1.

   Check that the blend temperature has not changed and re-fit the yellow temperature knob.

   If option “A”, **Maximum Temperature Limit Stop,** is selected, fit the yellow control knob so that the indicator points to 9 o’clock.

   If option “B”, **Single Temperature Lock**, is selected, fit the yellow control knob so that the indicator points to 6 o’clock.

Validate The Commissioning

After completing items 1-5 in the previous section “Commissioning the Rada Z358-20” it is important that the commissioning is validated.

Proceed as follows:

1. Operate the fixture(s) at full flow and take a temperature reading. Water temperature should not fluctuate more than 4°F. If water temperature control is unsatisfactory, refer to Page 13 item 4 “Fault Diagnosis” or call Armstrong Toll Free at 1-888-HOT-HOSE.

2. Operate the fixture(s) at full flow and intentionally “fail” the hot water supply to the Rada Z358-20. Cold water should continue at a reduced flow rate. Confirm that the cold water flow rates meet the specifications detailed on page 2. If cold water does not flow, refer to Page 13 item 8 “Fault Diagnosis” or call Armstrong Toll Free at 1-888-HOT-HOSE.

3. Operate the fixture(s) at full flow and intentionally “fail” the cold water supply to the Rada Z358-20. All flow through the fixture should shut off completely within 2 seconds. If flow does not shut off to specification, repeat steps 1-5 under “Commissioning the Rada Z358-20” and repeat test. If the results do not improve to specification refer to Page 13 “Fault Diagnosis” item 9 or call Armstrong Toll Free at 1-888-HOT-HOSE.

For optimum performance and safety repeat steps 1-3 as a part of a regularly scheduled test and validation program. Record and report any variations to Plant Management, Plant Safety Officer and Armstrong.

Rada Z358-20 Servicing and Maintenance (Refer to Figures 10-1 and 10-2

Rada Z358-20 Thermostatic Mixing Valves should be inspected and tested on a regular schedule. Acknowledged site conditions such as high mineral content water may dictate an increased frequency.

It is highly recommended that as a function of the annual inspection that the two “racetrack” shaped o-seals within the valve are replaced (D33387 seal pack).

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 Z358-20 Thermostatic Mixing Valve is of non-serviceable single “cartridge construction”. The cartridge can be removed from the valve for inspection or replacement by first removing the “safety yellow” temperature control handle using a 3 mm hex wrench. The black polymer hub assembly 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.

Warning: Rada Z358-20 has a specially designed replacement cartridge. Ensure that the marking Z358-20 appears across the top of the brass bonnet on the cartridge assembly.

Important: Do not install a replacement cartridge which does not have the Z358-20 identifier. Call us immediately Toll Free 1-888-HOT-HOSE.

The chromed polymer Temperature Indicator Ring, which fits beneath the temperature control handle can be “levered” off using a thin edged tool such as a razor blade knife.

Before proceeding further be sure to isolate the valve by turning off each inlet supply.

The complete cartridge assembly is accessed by first removing the 6 Phillips head-retaining screws and then smoothly drawing the cartridge out. Do not twist or apply “side load” leverage when extracting the cartridge.

When installing a new or reinstalling an existing cartridge note the raised “H” on the hot inlet of the cartridge and align to hot supply accordingly.

Important: After re-installing a replacement cartridge, the Z358-20 must be re-commissioned and validated. Refer to Pages 7 and 8 or call Armstrong Toll Free 1-888-HOT-HOSE.

Warning: The Rada Z358-20 Cartridge Assembly is **non-serviceable**. Do not attempt to dis-assemble the cartridge **or** tamper with the factory settings beyond those detailed in this product manual. Failure to follow this directive voids all warranties and frees Armstrong from all liabilities.

Figure 10-1
Cartridge Assembly Removal

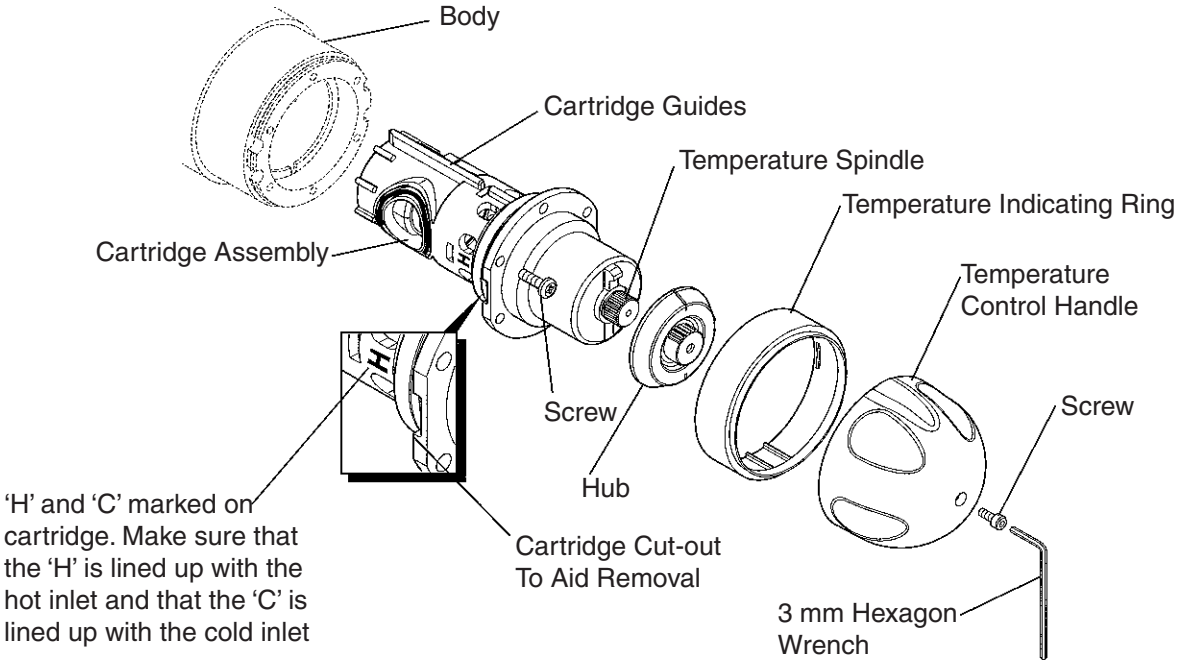
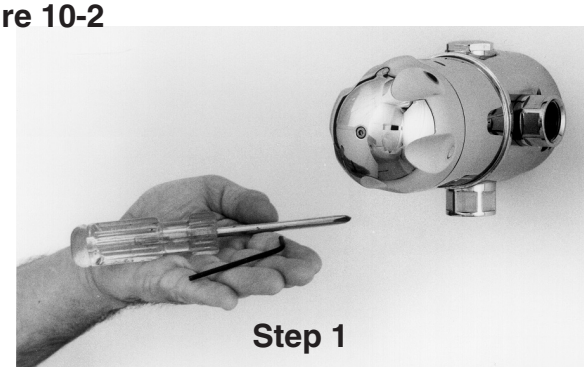
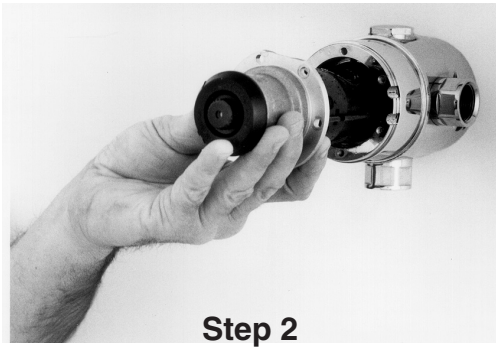
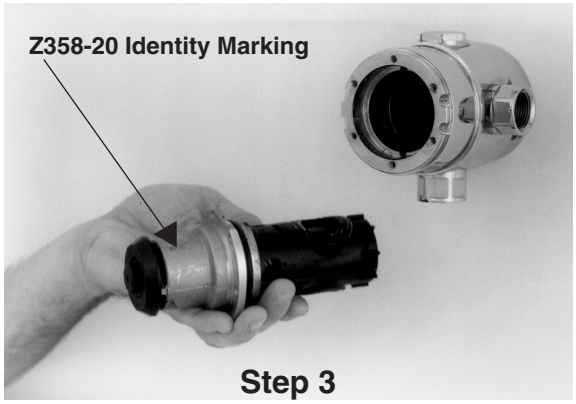


Figure 10-2





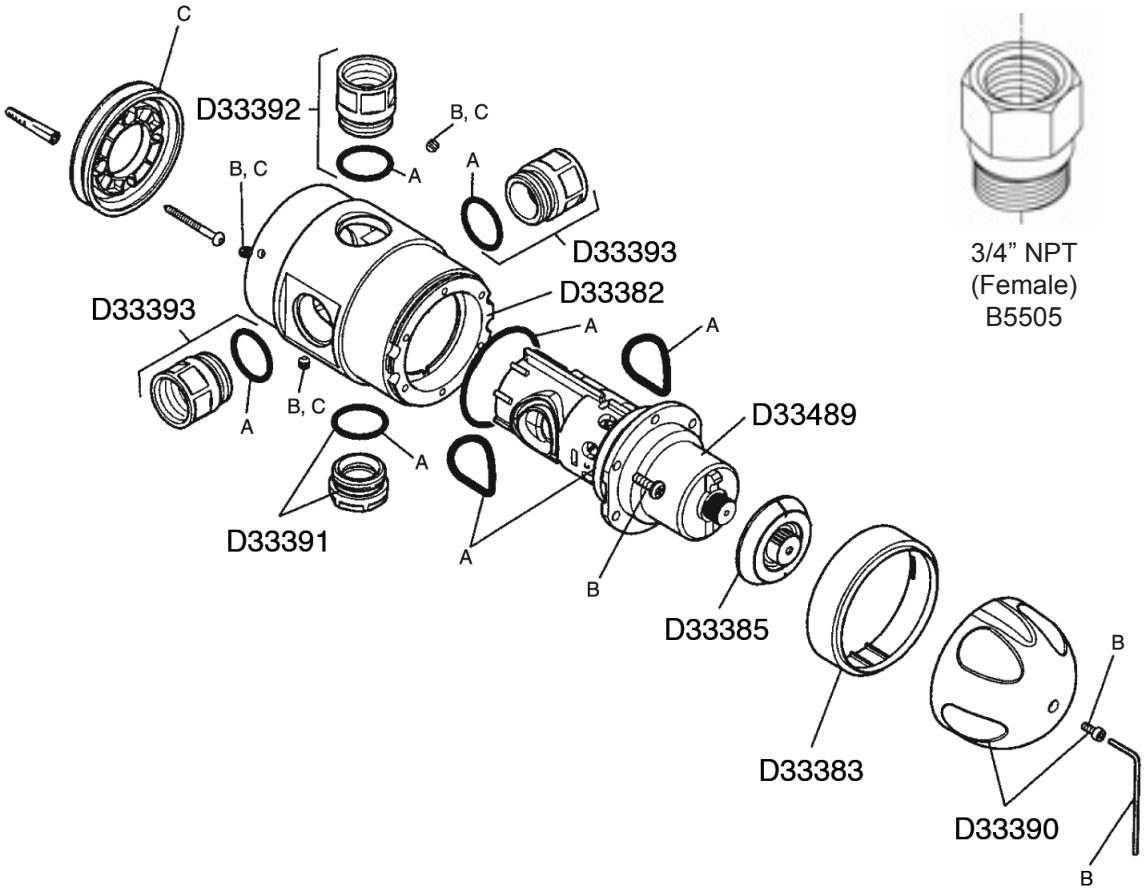


Warning: Rada Z358-20 has a specially designed replacement cartridge. Ensure that the marking Z358-20 appears across the top of the brass bonnet on the cartridge assembly.

Important: Do not install a replacement cartridge which does not have the Z358-20 identifier. Call us immediately Toll Free 1-888-HOT-HOSE.

Rada Z358-20 Spare Parts

Part No.	Description
D33382	Body, Model 320 (less connector)
D33383	Temperature Indicating Ring
D33489	Cartridge Assembly
D33385	Hub Pack
B5505	Outlet Adapter, 3/4” Female Adapter, Port Assy 320 3/4” NPT
D33387	Seal Pack - Includes “A” Components
D33388	Screw Pack - Includes “B” Components
D33389	Backplate Kit - Includes “C” Components
D33490	Knob Pack 320/425
D33391	Blanking Cap
D33393	Inlet Adapter with Check Valve, 1” Male
D33392	Adapter 320 Outlet Male 1”



3/4” NPT
(Female)
B5505

1” NPT
(Male)
with Integral
Strainer and
Check Valve
D33393

Warning: Model Z358-20 has a specially designed replacement cartridge.
Ensure that the marking Z358-20 appears across the top of the brass bonnet on the cartridge assembly.

Important: Do not install a replacement cartridge which does not have the Z358-20 identifier.
Call us immediately Toll Free 1-888-HOT-HOSE.

Minimum Inlet Hot Water Supply Temperature

Rada Z358-20 will require a minimum inlet hot water supply temperature, which must be correlated with the anticipated seasonal inlet cold water supply temperature (use worst case/coldest scenario) as per Table 3 below.

Check Table 2 shown on Page 3 for reference when specifying inlet hot water supply temperatures.

Be sure to acknowledge the bacterial growth issues associated with low temperature hot water storage.

Table 3. All figures based upon nominally equal supply pressures.

Blend Temp. °F	Cold Water Temperature °F				
	33	**40**	**50**	**60**	**70**
65	92	86	77	69	-
66	94	88	79	71	-
67	96	89	81	73	-
68	98	91	83	75	-
69	100	93	85	76	68
70	102	95	87	78	70
71	103	97	88	80	72
72	105	99	90	82	74
73	107	100	92	84	75
74	109	102	94	86	77
75	111	104	96	87	79
76	113	106	98	89	81
77	114	108	99	91	83
78	116	110	101	93	85
79	118	111	103	95	86
80	120	113	105	97	88
81	122	115	107	98	90
82	124	117	109	100	92
83	125	119	110	102	94
84	127	121	112	104	96
85	129	122	114	106	97
86	131	124	116	108	99
87	133	126	118	109	101
88	134	128	120	111	103
89	136	130	121	113	105
90	138	132	123	115	107
91	140	133	125	117	108
92	142	135	127	119	110
93	144	137	129	120	112
94	145	139	131	122	114
95	147	141	132	124	116

Fault Diagnosis

Symptom	Cause/Action
1. **Only hot or cold water from outlet.**	a. Inlet supplies reversed (i.e. hot supply to cold inlet). Reversed inlet supplies can be diagnosed by isolating the inlet supplies and removing the valve cartridge (036-414-51) as detailed on Page 8. With cartridge removed, turn the water on at each supply individually and at a very low flow rate (water will run out of the front of the valve body). Identify which inlet is the hot supply and which is the cold supply. Re-install the cartridge matching the raised H and C on the cartridge body to the inlets as identified.
	b. No hot water reaching mixing valve. Check.
	c. Check strainers and inlet fittings for blockage.
	d. Refer to **symptom 5 below.**
	e. Installation conditions continuously outside operating parameters.
	f. Normal function of mixing valve: indicates hot water inlet supply failure/interruption.
2. **Fluctuating or reduced flow rate.**	Normal function of mixing valve when operating conditions are unsatisfactory.
	a. Check strainers and inlet/outlet fittings for flow restriction.
	b. Ensure that minimum flow rate is sufficient for supply conditions.
	c. Ensure that dynamic inlet pressures are nominally balanced.
	d. Ensure that inlet temperature differentials are sufficient.
	e. (Subject to rectification of supply conditions). Check the thermostatic performance; renew cartridge assembly if necessary.
	f. Normal function of mixing valve: indicates hot water inlet supply failure/interruption.

Fault Diagnosis

Symptom	Cause/Action
3. **No flow from mixing valve outlet.**	Check that inlet flow controls are fully open.
	a. Check strainers and inlet/outlet fittings for blockage.
	b. Cold supply failure; thermostat holding correct shutdown function: rectify, and return to **2e above.**
4. **Blend temperature drift.**	Indicates operating conditions changed.
	a. Refer to symptom **2 above.**
	b. Hot supply temperature fluctuation (rectify and refer to **Commissioning** Page 7).
	c. Supply pressure fluctuation (rectify and refer to **Installation** Page 5).
5. **Hot water in cold supply or vice-versa.**	Indicates check valves require maintenance (refer to **Maintenance** Page 9).
6. **Maximum blend temperature setting too hot or too cold.**	a. Indicates incorrect **temperature setting** (refer to **Commissioning** Page 7).
	b. As **symptom 4 above.**
	c. As **symptom 5 above.**
7. **Water leaking from valve body.**	Seal (s) worn or damaged.
	a. Obtain Seal Pack, and renew all seals.
	b. (If leak persists from around temperature spindle). Renew cartridge assembly.
8. **Cold water does not flow after hot supply failure.**	a. Incorrect valve model installed. Check and rectify.
	b. Incorrect internal cartridge installed. Check identification code detailed on Page 11 and rectify.
	c. Check strainers and inlet/outlet fittings for blockage.
	d. Cold supply failure.
9. **Hot water continues to flow after cold supply failure.**	a. Incorrect Valve commissioning. Validate the Commissioning as detailed on Page 8.
	b. Less than 5°F outlet temperature rise. Normal function of Mixing Valve.

Limited Warranty and Remedy

Armstrong Hot Water Group, Inc. (“Armstrong”) warrants to the original user of those products supplied by it and used in the service and in the manner for which they are intended, that such products shall be free from defects in material and workmanship for a period of one (1) year from the date of installation, but not longer than 15 months from the date of shipment from the factory [unless a Special Warranty Period applies, as listed below]. This warranty does not extend to any product that has been subject to misuse, neglect, or alteration after shipment from the Armstrong factory. Except as may be expressly provided in a written agreement between Armstrong and the user, which is signed by both parties, Armstrong **DOES NOT MAKE ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE**. The sole and exclusive remedy with respect to the above limited warranty or with respect to any other claim relating to the products or to defects or any condition or use of the products supplied by Armstrong, however caused, and whether such claim is based upon warranty, contract, negligence, strict liability, or any other basis or theory, is limited to Armstrong’s repair or replacement of the part or product, excluding any labor or any other cost to remove or install said part or product, or, at Armstrong’s option, to repayment of the purchase price. As a condition of enforcing any rights or remedies relating to Armstrong products, notice of any warranty or other claim relating to the products must be given in writing to Armstrong: (i) within 30 days of last day of the applicable warranty period, or (ii) within 30 days of the date of the manifestation of the condition or occurrence giving rise to the claim, whichever is earlier. **IN NO EVENT SHALL ARMSTRONG BE LIABLE FOR SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF USE OR PROFITS OR INTERRUPTION OF BUSINESS.** The Limited Warranty and Remedy terms herein apply notwithstanding any contrary terms in any purchase order or form submitted or issued by any user, purchaser, or third party and all such contrary terms shall be deemed rejected by Armstrong.

Designs, materials, weights and performance ratings are approximate and subject to change without notice.
*Visit **armstrong**international.com for up-to-date information.*

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