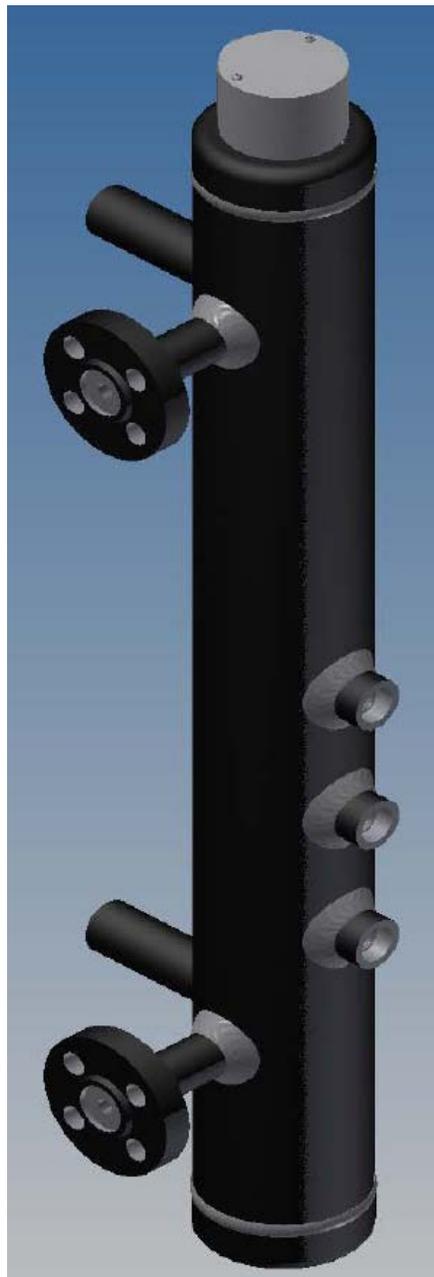


# Steel Water Columns for Pressures Above 250 PSIG



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**Caution:** Before proceeding, follow any and all plant lock-out/tag-out procedures required. Any trips/alarms should be bypassed to prevent any false trips/alarms when servicing the equipment. Verify that all power is turned off to any applicable equipment. If under pressure, the equipment should be isolated, or the boiler should be shut down before proceeding with the installation. Open drain valve to eliminate any trapped pressure. All inspection and installation steps should be performed by a qualified technician and should be executed in accordance with all applicable national and local codes and plant procedures.

Only use a properly calibrated torque wrench to guarantee that the specified torque values are achieved. Make sure all bolting is clean and lubricated per the applicable Reliance IOM.

### **Unpacking and inspection**

Upon receipt of the Boiler Drum Level instruments, examine the contents of the container(s) for damage. Report any faulty conditions as soon as possible to your carrier to avoid acceptance of damaged goods. Clark-Reliance will not be responsible for goods damaged in shipping or storage, or subsequent loss or damage due to improper storage or exposure as a result of damage to shipping containers. Submit a digital photo of any damaged equipment and container to Clark-Reliance, if possible.

Verify that all materials are present as recorded on the Packing List provided with each shipment. Report any discrepancies to Clark-Reliance immediately. Have the Clark-Reliance order number and shipping waybill available at the time of your call.

### **Handling**

Your Clark-Reliance shipment has been carefully packed. However, the shipment may include spare parts, temporary water gages for “Boil-out” purposes, maintenance instructions, and engineering drawings.

Upon receipt of the order, the equipment and above items should be identified and verified against the packing list. Any documentation that has been provided should be directed to the appropriate personnel.

Care should be exercised as the items are uncrated. The shipment may contain fragile glass components. If any equipment appears to have been damaged from shipment, please contact your local Clark-Reliance representative or the factory immediately.



## Storage

Clark-Reliance Boiler Trim products should be stored in a dry and sheltered area prior to installation. The equipment provided may consist of electrical items that are intended for either indoor or outdoor use. As a matter of good practice, dry storage will eliminate the potential for water damage. The temperature of the storage area should not exceed 150 degrees F. (65.5 degrees C) or drop below 32 degrees F (0 degrees C).

## ASME Section I PG-60 Boiler Code Requirements Summary

Boilers operated at pressures of 400 PSIG and below shall be provided with one direct reading gage glass which must be kept in continuous service. Boilers operated at pressures of 400 PSIG and above shall be provided with two water gage glasses on the same horizontal lines. **Note:** When the gage glasses are not continuously visible to the operator, two Remote (Indirect) Reading Gages must be used to meet Section I requirements, along with one Direct Reading Gage Glass which may be valved-off [only when operating above 400 PSI (3 MPa)] but must be maintained in serviceable condition. The two Remote Level Indicators must operate independently and be continuously displayed. If operating below 400 PSI, 2 remote indicators are required when the gage glass (which must always be in service) is not continuously visible by the operator.

When shutoff valves are used in piping to a water column, they should be of a type to meet all national and local code requirements and must be locked open. The steam connection pipe should either be horizontal or slope from the drum down to the water column. The water connection pipe should be horizontal or slope from the column down to the drum. Provide for cleaning the piping by installing crosses with plugs, or blind flanges at all right angle turns.

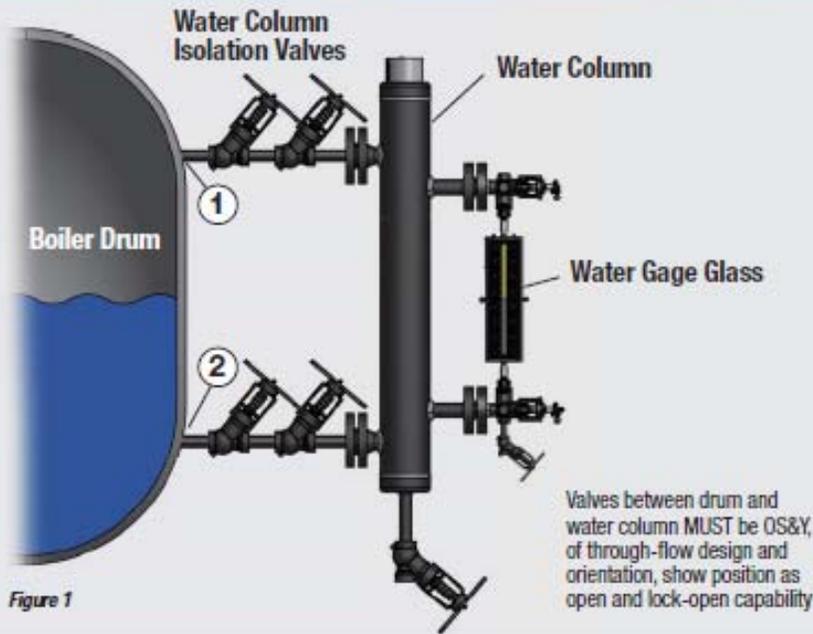
Water columns shall be fitted with a drain valve (3/4" pipe size minimum), with a suitable connection to a safe independent point of discharge. The gage glass shall be fitted with a drain valve, with a suitable connection to a safe independent point of discharge.

In PG-60.1, Section 1 of the ASME Boiler Code requires the lowest visible water level in a gage glass or Remote Level Indicator on water tube type boilers shall be at least 2" – 3" above the lowest permissible boiler water level, as determined by the boiler Manufacturer. Also, the visible range of the gage glass shall cover the full operating range of the boiler. PG-60.1.2 requires that a mechanism (pull chains) will be installed when either the lower or upper valve is more than 7 feet above the operating floor.

Note that Water Columns are considered to be a Standard Pressure Part as defined in PG-11 of the ASME Boiler Code. A Code stamp or outside inspector for manufacturing is not required.



# ASME Section I Water Gage Requirements



Boilers rated up to  
**400** PSI (3 MPa)  
 MAWP (Maximum Allowable Working Pressure)



At Least One Direct Reading Gage Required  
 (Gage Must be Kept in Continuous Service)

Boilers rated over  
**400** PSI (3 MPa)  
 MAWP (Maximum Allowable Working Pressure)



Two Remote (Indirect) Level Indicators on Continuous Display for the Operator + One Direct Reading Gage are Required

or

Two Direct Reading Gages in Service and Continuously Visible to the Operator

or

One Gage Glass in Continuous Service with a Camera System and an Indirect Remote Level Indicator

Note: When the gage glass is not continuously visible to the operator, two Remote (Indirect) Reading Gages are used to meet Section I requirements, the Direct Reading Gage Glass may be valved-off [only when operating above 400 PSI (3 MPa)], but must be maintained in serviceable condition. The two Remote Level Indicators must operate independently and be continuously displayed. If operating below 400 PSI, 2 remote indicators are required when the gage glass (which must always be in service) is not continuously visible by the operator.

Please refer to Section I for all requirements. Contact your State Inspector and/or Insurance Inspector for further local and state requirements.

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## Installing the Water Column

If welding the Water Column in place with Socket Weld or Butt Weld connections, use

- ASME Section I and II Code acceptable materials of construction
- Welding processes recognized by the applicable Code sections
- Also, visually inspect all water column welds and it should be hydrostatically tested at 1-1/2 times the design pressure.

When using flange connections, use ASME Code acceptable bolting, the proper gaskets rated for the flange size and class, and the correct torque value for the flange size and class. Make sure the bolting is lubricated with Nickel based high temperature lubricant.

Refer to the proper IOM when installing any water gage valves and gage glasses.

## Boil-out Gage Practice and Policy

On new boiler installations, it is common procedure to initially operate the boiler at a reduced pressure for a short time to 'cook out' foreign materials (pipe joint compound, grease, oil, flux, etc.) that remain in the drum or other pressurized parts of the system after the boiler has been constructed. During this boil-out period, most of the suspended or dissolved debris is flushed out with blow-down discharges. However, a small amount of residue is unavoidably deposited as a film on all internal wetted surfaces... including those of the water gage glass. This type of scum layer is nearly impossible to remove by blowing down the gage glass, particularly if the gage glasses are protected by mica shields, as they must be, in high pressure installations. As a practical matter, it is more expedient to employ an inexpensive temporary level gage, which can be discarded or returned after the boil-out procedure, rather than to use then rebuild the gage glass intended for regular service. For boil-out purposes on new boiler applications with a water column and gage glasses, Clark-Reliance provides a temporary level gage at no charge, under one of the following conditions:

- 1) When a Prismatic, Flat Glass, or Simpliport gage having  $\frac{3}{4}$ " O.D. end nipples is supplied as part of a water column, and the boil-out pressure will not exceed 200 PSIG, Clark-Reliance automatically will furnish for temporary boil-out service the following parts at no charge:
  - 1 pc. –  $\frac{3}{4}$ " O.D. tubular glass gage cut to the proper length
  - 2 pcs. – Rubber packing rings (\*)
  - 1 pc. – Low visibility shield (so that low vision in the tubular glass gage is the same as in the gage glass that will be used for regular service).

At the conclusion of the boil-out procedure, all of the above parts should be discarded. When the gage having stainless steel nipples is installed, it is essential that the appropriate (non-rubber) packing rings are used, to assure durable sealing of the stainless steel nipples.

- 2) When a gage glass having flanged connections is supplied as part of a water column, and the boil-out pressure will not exceed 200 PSIG, Clark-Reliance will furnish the following parts at no charge:

- 1 set – VB991 gage valves with  $\frac{1}{2}$ " MNPT connections
- 1 pc. 5/8" O.D. tubular glass gage cut to the proper length



1 pc. – Low visibility shield.

The boil-out gage valves should be temporarily installed in the ½” FNPT “Test” connections in the flanges of the regular water gage shut-off valves, which are on the water column. This equipment may be discarded after the boil-out has been completed.

3) On installations like the above, but where the boil-out pressure will exceed 200 PSIG, consult Clark-Reliance to discuss options for an appropriate temporary use gage.

\* Bronze valves are supplied with Neoprene packing rings. These are to be used for the boil-out procedure. Steel valves are supplied with packing cartridges and separate rubber packing rings (to be used for boil-out).

## **Blowdown Procedure**

The importance of proper cleaning and maintenance of the water column and the water gage glass, or sight glass, cannot be stressed enough. The water column must be kept clean to ensure the water level in the gage glass accurately represents the water level in the boiler. Note that the frequency and method of blow-down may affect service life and performance of the water column and gage glass.

The water gage glass on a boiler enables the operator to visually observe and verify the actual water level in the boiler. However, if not properly cleaned and maintained, a gage glass can seem to show that there is sufficient water, when the boiler is actually operating in a low or low water condition. A stain or coating can develop on the inside of the glass where it is in contact with boiling water. After a time, this stain gives the appearance of water in the boiler, especially when the glass is completely full or empty of water.

Users must consider proper blowdown procedures, in order to keep the water piping clean, even if the probes remain clean for extended operational periods. By simply opening the drain valve to conduct a blowdown, this does not ensure flow thru the water piping between the drum and the Water Column, even when the water in the column is pushed out the drain connection with steam. The risk of blockage in the steam piping is low. The risk for sediment build-up in the water piping is greater. Therefore, periodic blowdowns are suggested on a quarterly to monthly basis. The frequency can be determined by the user and plant rules. The user may also consider their water quality as an influencing factor to determine the blowdown frequency. After performing the blow-down procedure, if the water level does not return to normal promptly, the connecting piping may be partially clogged and have to be cleaned.

### Clark-Reliance suggests the following blow-down procedure:

1. Close both the steam and water valves between the boiler drum and the water column or water gage glass.
2. Open the drain valve fully on the bottom of the water column or water gage glass.
3. To clean the water piping, slowly open the water valve (lower valve) to allow a flow of water to pass through the line and out the drain. This will flush the water line and help keep sediment from collecting and causing a blockage in the line.
4. Allow the water to flow through the line for 20 seconds.
5. Close the water (lower) valve.



6. Crack open the steam valve (upper shutoff valve) and allow a gentle rush of steam to pass through the probe column or water gage. The steam should not pass through for longer than 20 seconds.
7. Close the steam valve.
8. Inspect the water gage to ensure that all foreign matter is flushed from the glass or mica. If the gage is not visually clean, repeat steps 6 and 7. If the gage glass is visually clean, close the steam valve.
9. Close the blow-down valve and open the steam and water valves, slowly bringing the equipment back to a normal operating level.
10. Water should enter the gage glass quickly when the blow-down valve is closed. This will indicate that the line flows freely.

**Note:**

1. Any trip or alarm circuits that are actuated by the equipment being blown-down must be bypassed to prevent false alarms during the blow-down process. Remove the bypass when the procedure is complete.
2. Blow-down should be conducted on a weekly basis, or as necessary, based on water quality.

Refer to IOM R500.E156D for further details or see the video at <http://www.relianceboilertrim.com/blowdown-procedure/>

## **Recommended Maintenance and Annual Inspections**

Regarding any recommended maintenance procedures or annual inspections, we suggest any device containing probes should be inspected on an annual basis for contaminated probes and wire secure terminations.

**Caution:** Before proceeding, follow any and all plant lock out - tag out procedures required. Verify that all power is turned off to the probes. If under pressure, the equipment should be isolated, or the boiler should be shut down *before* proceeding with the installation. Open drain valve to eliminate any trapped pressure. All inspection and installation steps should be performed by a qualified technician and should be executed in accordance with all applicable national and local codes.

With no pressure or elevated temperature, beyond ambient conditions, at least one probe should be removed for inspection. Ideally, for devices containing multiple probes, we suggest removing one probe from an upper indication location (normally in steam area) and one probe from a lower indication location (normally in water area) for inspection. If any probes display signs of contamination, they can be cleaned with a mild detergent and re-installed using a new sealing gasket, if applicable. Refer to the IOM # E189-A for additional details. If a probe exhibits and contamination across the length of the insulator, which cannot be easily cleaned, the probe should be replaced.



## Probe Type Water Column Maintenance

Clark-Reliance probe type water columns require very little maintenance. We suggest weekly blow downs of the water columns to prevent the build-up of contamination on the probes. A bypass switch can be installed on fuel cutout circuits. This switch will prevent a false trip during blow-down when properly utilized. The blow-down procedure is conducted thoroughly by closing the water valve and opening the drain valve slightly for about 20 seconds.

If blowing-down of the column does not clean the probes sufficiently, use a stainless steel wire brush or fine emery cloth to clean the stainless steel rod portion of the probe. To clean the insulator, use a soft cloth and a mild detergent.

If probes are removed at any time for replacement or inspection, the sealing gasket must be replaced. Probe replacement kits are furnished with two spare gaskets. The gasket part numbers are as follows:

| <u>Probe Type</u> | <u>Gasket Part Number</u> |
|-------------------|---------------------------|
| T                 | WCM-13                    |
| V                 | X175500                   |
| ZG                | E10-10S                   |
| FG                | E10-10S                   |



Replacing the probes:

**(Note:** Verify that the power to the probe circuit is off before starting)

1. Close both steam and water valves and drain the column before starting probe maintenance.
2. Remove probe to be inspected or replaced.
3. When replacing the probes, coat threads lightly and uniformly with a high temperature anti-seize type lubricant such as 'Never-Seize', 'MolyCote G' or equal
4. Torque the probes as follows:
  - Type T, V, or ZG probes to 40 Ft-Lb. (54 Newton-Meters)
  - Type FG probes to 90 Ft-Lb. (122 Newton-Meters)

Hot torqueing is suggested for all probes. However, the column *must* be isolated from service with the drain valve open *before* re-torqueing the probes. The hot torque procedure will extend probe sealing gasket life and should be performed as follows:

1. Partially open *steam* valve to warm up the column with the drain valve slightly open.
2. Close steam (and water) valves to isolate the column.
3. Open the drain valve completely.
4. Re-torque as instructed above.

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5. Return to service by closing the drain valve and opening the steam and water valves.

## Interwiring

The wires attached to the probes must be of high temperature type in order to withstand the heat. We

suggest the following types of wire:

| <u>Maximum Application Pressure (PSI)</u> | <u>Wire Specification</u>  |
|---|--|
| 1000                                      | 18 Ga. Stranded conductors, Teflon insulation rated at 300 VAC and 200°C (Belden #83029, Alpha #5857, or equal)  |
| 1001 to 3000                              | 18 Ga. Stranded conductors, Teflon treated glass braided insulation rated at 300 VAC and 400°C, Nickel coated copper conductor U.L. #5182 (Radix #MGT-4502 or equal) |

**Note:** When installing the high temperature wire to the probe, use an open end wrench to prevent the Probe assembly from turning while tightening the wire terminal nut. Use a ¼” wrench for both the compression nut and the terminal nuts on T and V type probes. ZG, ZB, FG, and FB type probes require a ½”wrench for the compression nut and a 3/8” wrench for the terminal nut.



The high temperature wires attached to the probes can be routed to a local junction box or directly to the control unit. If a junction box is used, a low cost 18 Ga. Multi-conductor cable may be used to carry the signal to the control unit. We suggest Belden #8467 or equal.

*Note:* When installing the high temperature wire to the probe, use an open end wrench to prevent the Probe assembly from turning while tightening the wire terminal nut. Use a ¼” wrench for both the compression nut and the terminal nuts on T and V type probes. ZG, ZB, FG, and FB type probes require a ½” wrench for the compression nut and a 3/8” wrench for the terminal nut.

## Troubleshooting

Troubleshooting is only necessary in the event that a control relay fails to energize or de-energize.

If the relay fails to *de-energize* during blow-down, the cause is a failed (short circuited) probe. The probe should be replaced.

If a relay fails to *energize*, the following steps should be taken:

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1. Verify probe wiring to the appropriate probes from each relay.
2. Verify water level in the column.
3. Exchange relays to verify function. If the problem moves with the relay, then replace the relay.

## Hot Torque Procedure

When a new piece of equipment, whether a Gage Glass or a Probe type device is installed, the hot torque procedure must be performed when specified. This ensures that all bolting and components are properly seated for optimum performance. This procedure must also be performed after any maintenance is done to the equipment. Only the affected components, such as the installation of a new probe or glass kit, need to be hot torqued. Note that P4000/P4100 Series Simpliports and FSB type probes do not require a hot torque.

All work must be done by a qualified technician. All plant rules and procedures must be followed, including any lock out / tag out requirements. Verify that all alarms and trips have been by-passed on probe columns before any maintenance is performed, to prevent any false alarms or wiring hazards.

The hot torque procedure should be performed as follows:

- 1) Isolate the gage glass or probe device from any pressure.
- 2) Fully open the drain valve to evacuate any built up pressures and to allow the contained steam and water to escape during equipment warm up.
- 3) Slowly open the steam valve to allow a gentle rush of steam to flow through the equipment. Inspect the equipment to make sure there are no obvious leaks. Close the steam valve and the drain valve. Then open both the This should take approximately 5 – 10 minutes. The observer should see the High Temperature lubricant “sizzling” and smoke emanating from the gage of column. This is an indication that the equipment has reached operating temperatures.
- 4) When the equipment has been properly heated, close the steam valve. The drain valve must remain open to allow any residual steam or pressure to escape.
- 5) Immediately re-torque the equipment to the correct values stated in the applicable instruction manual. There should be movement of 1/8th of a turn or more.
- 6) If there is no movement of the bolting or probes, the equipment was not heated properly. Repeat the procedure.
- 7) Once the hot torque procedure is completed, close the drain valve, and the equipment can be put back into service. Carefully check for any leaks in the equipment and verify proper operation of all illumination, relay controls and wiring, or other accessories.

*Note that Model FSB Compression Type Probes and Model P4000/P4100 Series Simpliport Gages do not require hot torquing.*



## Standard ECID-23R Relay Specifications

**Design:** Solid State components enclosed in a clear Lexan plug-in style housing

**Contact Design:** DPDT (2 form C): two normally open (N.O.) and two normally closed (N.C.)

**Contact Ratings:** 5A @ 120, 240 VAC, 5A @ 30 VDC, and 1A @ 120 VDC

**Contact Life:** Mechanical – 5 million operations, Electrical – 100,000 operations min. at full load

**Supply Voltage:** Standard units are designed for 120 VAC supply. Some custom units are fabricated for 220 VAC (Refer to appropriate wiring diagram for details)

**Supply Current:** 4.4 VA

**Probe Circuit:** 1.5mA @ 12 VAC per probe

**Sensitivity:** ECID-22R 26,000 Ohms (50 and greater mho water conductivity)

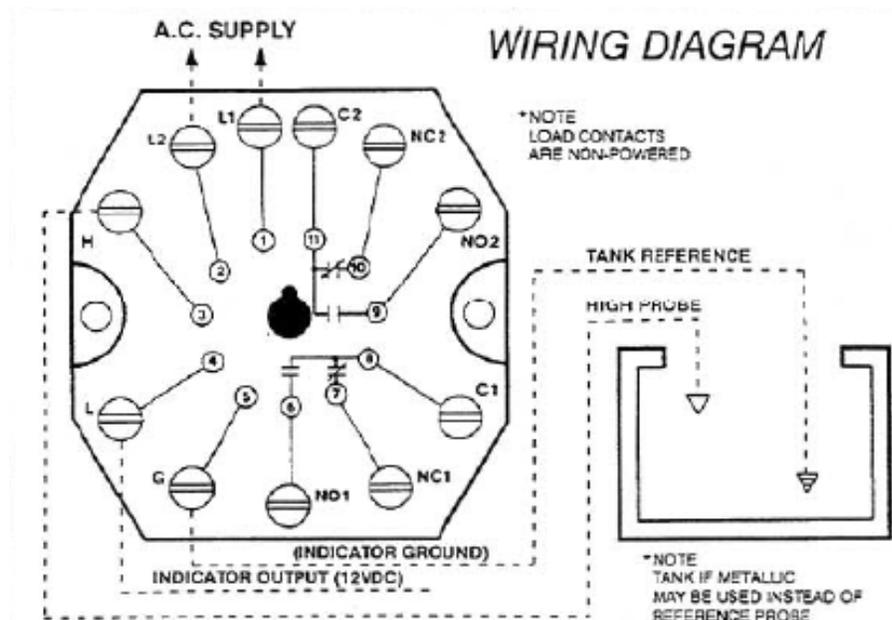
ECID-23R 50,000 Ohms (10 – 50 mho water conductivity)

ECID-24R 100,000 Ohms (.1 – 10 mho water conductivity)

**Temperature Rating:** -40 to +150 degrees F.

**Listing:** FM Global #0T8A3.AF, CSA #LR14001, and U.L. listed

**Direct Mode Operation:** When the water level rises in the column to the probe, the control energizes (LED will be lit). The control remains energized until the water level in the column falls below the probe. The relay will then de-energize (LED will not be lit)



Typical single relay module circuit for Direct Mode operation

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## Float Type Water Column Maintenance (for pressures under 900 PSIG)

**Note:** Always verify that the water column is not under pressure prior to making repairs

### WARNING

Do not attempt to unscrew the whistle valve — as turning it without first disconnecting the float rods will damage the working parts. Do not lift the column by inserting a rod in any of the openings as it may damage the levers, rods or floats.

FOR COLUMN NO. W0900 — Follow procedure described on this page *except* that whistle valve is removed by unbolting flange which holds valve unit to column. Replacement parts available are complete valve and gasket as shown in Figure 5.



Figure 5

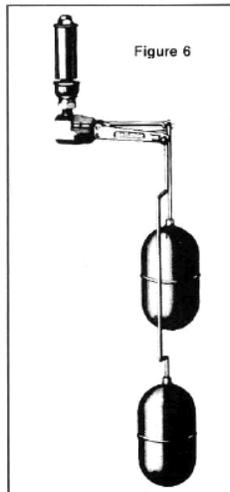


Figure 6

### FIRST — To remove parts for replacement.

1. Unscrew whistle carefully, with open-end wrench.
2. Take off cap by removing 6 bolts.
3. Remove cotter pins from float rods — and release valve levers.
4. Unscrew valve with monkey or open-end wrench, holding levers with hand as shown in Figures 7 and 8, so they will not catch on sides of column and bend.
5. Then lift out float rods and floats.



Figure 7



Figure 8

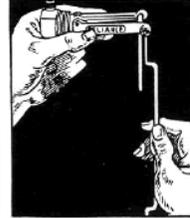


Figure 9

### SECOND — To reassemble column.

1. Screw float rods into floats firmly, taking care not to change the shape of the rods.
2. Check up on float rods by holding valve in one hand and hooking rods into levers, from inside out. (See Figure 9).
3. Remove rods from levers after above check-up, hold rods with floats together in position and lower into column.
4. Screw in whistle valve — make sure whistle connection points straight up. Hold levers inside column as in Figures 7 and 8.
5. Hook float rods into levers from the inside out, so that the cotter pins will be on the outside of the levers. (See Figure 11). Make sure low alarm rod is in low alarm lever (See Figure 10) and insert new style cotter pins which require no spreading.
6. Replace cap on column — be sure to use new gasket. Tighten bolts firmly.

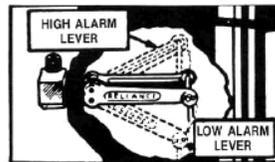


Figure 10

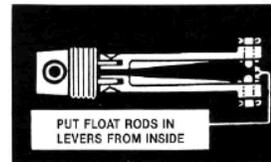


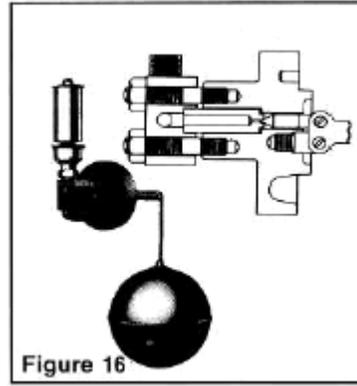
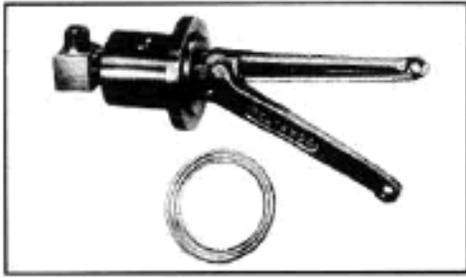
Figure 11

## Float Type Water Column Maintenance (for 900 PSIG rated columns)

To remove parts from Model W0900 for replacement:

1. Unscrew the whistle from the Alarm valve.
2. Remove the 4 nuts holding the valve to the column with a  $\frac{3}{4}$ " wrench.
3. Carefully draw the valve away from the column until the float rod emerges. Fasten a piece of wire to the rod, then fasten the wire to a stud on the column to hold it temporarily.
4. Take the cotter pin from the float rod to release the valve lever.
5. The valve can be disassembled for cleaning or repair.
6. To re-assemble the valve on the column, reverse the above procedure, using a new gasket (Part No. VM900-4) between the valve flange and the column.

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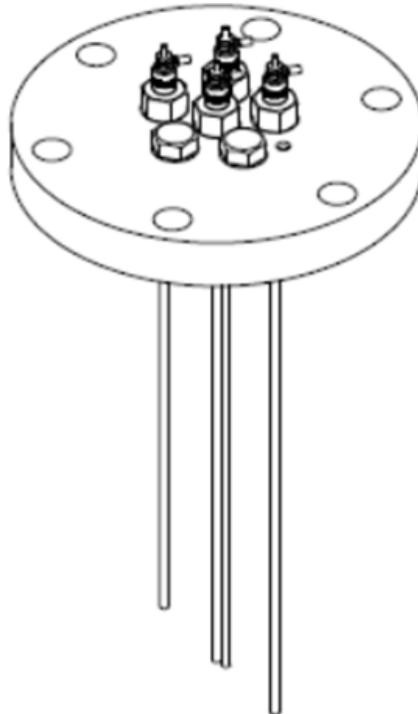


### RetroPak PC Water Column Conversion Kit

The RetroPak PC conversion kit replaces water column alarm floats with electronic controls for alarms, cutouts, pumps, and other equipment. The kit will easily replace the high/low alarm floats with reliable on/off electric controls that will activate local or remote alarms and equipment.

The system is comprised of the RetroPak Cap which contains the number of probes required, and the applicable Relay Control Unit.

Please refer to Form R500.E526 for installation and maintenance of the RetroPak Conversion Kit.



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## RECOMMENDED SPARE PARTS

| Product: Water Columns (Cast Iron)              |                            |                      | Product: W0250 - FA Float Columns (Cast Iron) |                 |                      | Product: W0250 - EA Probe Columns (Cast Iron)            |                |                      |
|---|----------------------------|----------------------|---|-----------------|----------------------|--|----------------|----------------------|
| PART NO.  | DESCRIPTION                | RECOMMENDED QUANTITY | PART NO.                                      | DESCRIPTION     | RECOMMENDED QUANTITY | PART NO.   | DESCRIPTION    | RECOMMENDED QUANTITY |
| CI-3  | Cap Gasket                 | 2                    | CS-3  | Cap Gasket      | 2                    | CS-3   | Cap Gasket     | 2                    |
| CI-4  | Upper Float Rod            | 1                    | CSR-4   | Upper Float Rod | 1                    | T***RK   | Probe          | 4                    |
| CI-5  | Lower Float Rod            | 1                    | CSR-5   | Lower Float Rod | 1                    | ECID-23R   | Relay (120VAC) | 1                    |
| F1M   | Float                      | 1                    | F5M   | Float           | 1                    | ECID-56R   | Relay (240VAC) | 1                    |
| V5  | Alarm Valve                | 1                    | V5  | Alarm Valve     | 1                    | *** indicate probe designator length in inches & eighths |                |                      |
| Product: All Steel Float Columns W0600 & Under* |                            |                      | Product: All W0900 Float Columns* (Steel)     |                 |                      |  |                |                      |
| PART NO.  | DESCRIPTION                | RECOMMENDED QUANTITY | PART NO.                                      | DESCRIPTION     | RECOMMENDED QUANTITY |  |                |                      |
| F7M   | Float                      | 1                    | F7M   | Float           | 1                    |  |                |                      |
| V53   | Alarm Valve                | 1                    | VM900   | Alarm Valve     | 1                    |  |                |                      |
| V53DW   | Double Whistle Alarm Valve | 1                    | VM900DW                                       | Alarm Valve     | 1                    |  |                |                      |
| WC53-12   | Cap Gasket                 | 2                    | WC53-12                                       | Cap Gasket      | 2                    |  |                |                      |
|   | *see float rods            |                      |   | *see float rods |                      |  |                |                      |

### FLOAT RODS

| Product: W0350-FA8 thru W0600-FA8 |                 |                      | Product: W0350-FA10 thru W0600-FA10 |                 |                      | Product: W0350-FA12 thru W0600-FA12 |                 |                      |
|-----------------------------------|-----------------|----------------------|-------------------------------------|-----------------|----------------------|-------------------------------------|-----------------|----------------------|
| PART NO.                          | DESCRIPTION     | RECOMMENDED QUANTITY | PART NO.                            | DESCRIPTION     | RECOMMENDED QUANTITY | PART NO.                            | DESCRIPTION     | RECOMMENDED QUANTITY |
| WC53-13                           | Upper Float Rod | 1                    | WCC10-13                            | Upper Float Rod | 1                    | WC73-13                             | Upper Float Rod | 1                    |
| WC53-14                           | Upper Float Rod | 1                    | WCC10-14                            | Lower Float Rod | 1                    | WC73-14                             | Lower Float Rod | 1                    |
| Product: W0900-FA8                |                 |                      | Product: W0900-FA10                 |                 |                      | Product: W0900-FA12                 |                 |                      |
| PART NO.                          | DESCRIPTION     | RECOMMENDED QUANTITY | PART NO.                            | DESCRIPTION     | RECOMMENDED QUANTITY | PART NO.                            | DESCRIPTION     | RECOMMENDED QUANTITY |
| WCM900-13-C8-1/2                  | Upper Float Rod | 1                    | FH-15-4                             | Upper Float Rod | 1                    | WCM900-13-C12                       | Upper Float Rod | 1                    |
| WCM900-13-C8-1/2                  | Lower Float Rod | 1                    | WCM900-14-C10                       | Lower Float Rod | 1                    | WCM900-14-C12                       | Lower Float Rod | 1                    |

### STEEL PROBE TYPE COLUMNS

\*\*\*Indicates length of probe in inches & eighths.

| Product: Model W0350-0450 |   |                      | Product: Model W0600-W0900 |   |                      | Product: Model W1000-W1800   |   |                      |
|---------------------------|---|----------------------|----------------------------|---|----------------------|--|---|----------------------|
| PART NO.                  | DESCRIPTION                             | RECOMMENDED QUANTITY | PART NO.                   | DESCRIPTION                             | RECOMMENDED QUANTITY | PART NO.   | DESCRIPTION                             | RECOMMENDED QUANTITY |
| T***RK                    | Each Probe Includes (2) WCM-13 Gaskets  | 4                    | V***RK                     | Each Probe Includes (2) X175500 Gaskets | 4                    | ZG***RK  | Each Probe Includes (2) E10-10S Gaskets | 4                    |
| Product: Model W3000      |   |                      | Product: All Models        |   |                      | <b>NOTE:</b> Add \$21.00 to any Probe length greater than 48". Also, T & V Probes are not available beyond 48", use ZG Type.<br>*** indicate probe designator length in inches & eighths |   |                      |
| PART NO.                  | DESCRIPTION                             | RECOMMENDED QUANTITY | PART NO.                   | DESCRIPTION                             | RECOMMENDED QUANTITY |  |   |                      |
| FG***RK                   | Each Probe Includes (2) E10-10S Gaskets | 3                    | ECID-23R                   | Relay (120VAC)                          | 1                    |  |   |                      |
|                           |   |                      | ECID-56R                   | Relay (240VAC)                          | 1                    |  |   |                      |

### REPLACEMENT PARTS WARNING

THE USE OF NON-ORIGINAL EQUIPMENT MANUFACTURER PARTS (SUCH AS GLASS, GASKETS, PROBES, MODULES, ETC.) WILL VOID THE AGENCY APPROVAL (FM, UL, CAS, CRN, ABS, ETC.) PRESSURE/TEMPERATURE RATING, AND WARRANTY OF THE EQUIPMENT. CLARK-RELIANCE REQUIRES THE USE OF OEM PARTS FOR ALL REPAIRS IN ON THIS PRODUCT IN ORDER TO MAINTAIN PLANT AND PERSONNEL SAFETY, AND RELIABLE OPERATION.

Consult the factory or your local Clark-Reliance Representative with any questions. Please have the model numbers and/or reference drawing numbers available when calling. You can also contact us at our website [www.relianceboilertrim.com](http://www.relianceboilertrim.com) or [RelianceAppEng@clark-reliance.com](mailto:RelianceAppEng@clark-reliance.com).







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