

The Parker P3 Water Level Control may be used to provide automatic feed water pump control and low water fuel cutoff on all sizes of Parker Steam Boilers for pressure up to 200 PSI.

The control consists of a P3 water column, a Warrick 3E3B probe fitting with three probes and a Warrick Series DFL Relay. The P3 column contains the necessary tapings for the probe fitting, equalizing piping, gage glass and try cocks. The lowest probe is for low water cutoff, the highest probe is for turning the pump off and the middle probe is for turning the pump back on. The probes are wired to the DFL relay, which is located inside the boiler control panel. The series DFL relay operates by sensing current flow in the water through the probe(s) and comparing it to the current flow through a fixed set point resistor.

A secondary low water cutoff is furnished wired in series with the first low water cutoff with an additional probe mounted at another location in the boiler.

ADVANTAGES AND FEATURES

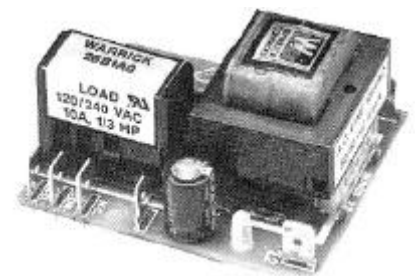
1. **RELIABLE:** The control is very dependable and requires a minimum of service as it is a floatless type with only the stainless sensor rod exposed to the water and no moving parts in the liquid. An isolation transformer in the control separates the low voltage, (12V) electrode circuit, from the supply line. The lighter weight of the water column makes this control less susceptible to leaks after shipment.
2. **LONG LIFE AND LOW MAINTENANCE COST:** There are no moving parts on the liquid side to require regular cleaning or replacement. The control is remote mounted in the boiler control panel as a cooler area to prevent conduction of heat which increases life of the electrical components. The unit provides exceptionally long life and unusually low maintenance and replacement cost.
3. **SIMPLICITY:** The control does not have complicated parts or require daily maintenance attention other than normal flushing with drain valve under the water level control. There are no critical adjustments and the level can be controlled to close limits by the length of the probe extension. The control does not utilize floats, stuffing boxes, bellows or mercury switches, which can cause nuisance shutdowns and costly repairs.
4. **POSITIVE LEVEL CONTROL:** There are no critical adjustments and the water level is controlled to close limits by the length of the probe extensions.
5. **HIGH TEMPERATURE CONTROL:** The control must always be furnished with high temperature (200°C) heat and moisture resistant probe wire for the connections between the probe fitting and control.
6. **UNDERWRITERS' LABORATORIES:** The control is Underwriters' Laboratories approved as a low water cutoff on boilers and conforms to all requirements of the ASME Boiler and Pressure Vessel code.



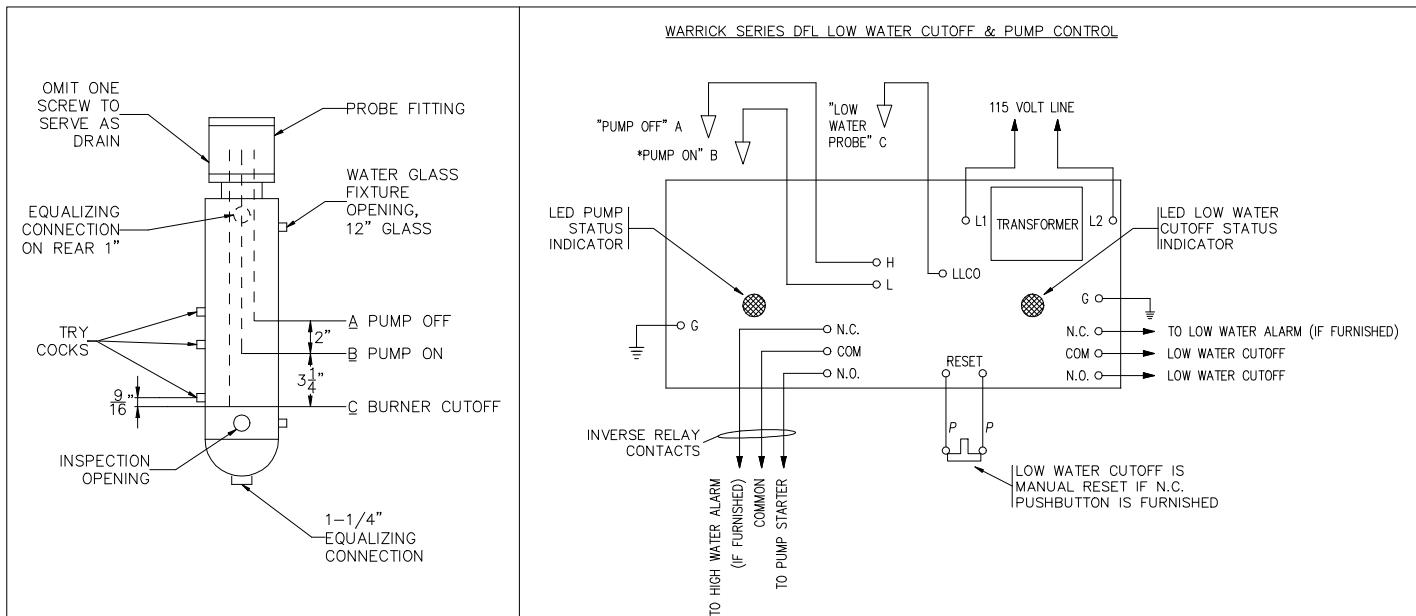
P3 WATER COLUMN



WARRICK 3E3B
PROBE WITH EXTENSIONS



WARRICK DFL RELAY



P3 DIMENSIONS

WIRING DIAGRAM

OPERATION: See Bulletin 143-B & 143 TS-2 for additional information.

1. **PRIMARY LOW WATER CUTOFF:** (Right side of DFL Relay)

115 Volts is applied to the primary side of the transformer (L1, L2). 12 Volts is induced to the secondary side of the transformer. One side of the control is grounded (G) and the other side (LLCO) is connected to Probe C. If water is in contact with Probe C, the circuit is completed through the water to the ground and the control energizes changing the state of the low water cutoff load contacts (right side, COM-N.O. will close). LED indicator (right side) will light showing safe water level. If the water level recedes below Probe C a 6-second time delay must take place before the control will de-energize (LED off) and the load contacts will return to their normal state. With load contacts in their normal (de-energized) state, a low water alarm, if furnished, will sound.

2. **PUMP CONTROL:** (Left side of DFL Relay)

On initial start, without water in boiler, energizing control (L1, L2) causes inverse pump load contacts to change state (COM-N.O. will close) energizing pump motor starting relay. Left LED indicator will light showing pump on. When water reaches top Probe A, a time delay is energized and 4 seconds later the pump load contacts return to their normal state (LED off) and pump motor starting relay is de-energized. The pump remains off until the water level drops below Probe B for more than 4 seconds, then turns on until water is pumped back up to Probe A. NOTE: Because of a 4 second time delay, pump (feed valve) always runs 4 seconds when power is turned on even if boiler is filled with water.

The load contacts are rated 10 amp, 1/3 HP and should be used with a pump motor starting relay.

3. **NOTE:** On U-Drum boiler a Parker P4 Water Column, Warrick 3E4B Probe fitting and an additional Probe "D" are furnished in place of the P3 Column and fittings. Probe "D" is wired to an additional Warrick Control mounted in the panel box and is used as the secondary low water cutoff. Probes A, B and C are wired the same as above.

PARTS:

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|-----------------------------------------------------------------------|------------------------------------|
| 1. DFL Dual Level Control 115V, 50/60 HZ, LWC-SPDT, Pump Inverse SPDT | One required. |
| 2. 3E3B Three Probe Fitting – 2" (Does Not Include Extensions) | One required. |
| 3. 3R-7-1/2 1/4 X 7-1/2" SS Probe A Extension | One required. |
| 4. 3R-9-1/2 1/4 X 9-1/2" SS Probe B Extension | One required. |
| 5. 3R-12-3/4 1/4 X 12-3/4" SS Probe C Extension | One required. |
| 6. SF2-18 Probe Wire 18 GA, 200°C Heat & Moisture Resistant | Specify length and color required. |

NOTE: To replace a float type water level control on existing boilers, a special Parker P3 Water Level Control Conversion Kit for Single Pump Installations is available.