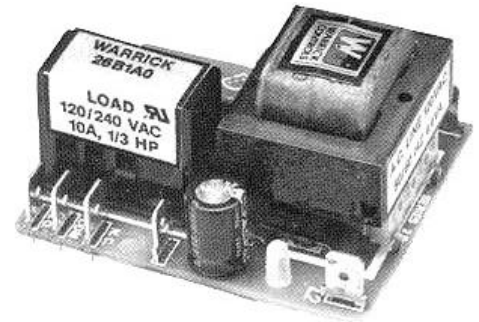


PARKER BOILER CO.
WARRICK SERIES DFL & 26B TYPE BOILER WATER LEVEL CONTROL

The Warrick Series DFL & 26B controls are very dependable, solid state, floatless, probe type boiler water level controls. The system consists of a control and a separate electrode probe fitting with a sensor rod that extends into the boiler water. An insulated probe wire connects the control to the sensor rod. The control is reliably designed to operate by sensing current flow in the water through the probe(s) and comparing it to the current flow through a fixed set point resistor. Considered to be exceptionally dependable since there are no moving parts exposed to water.

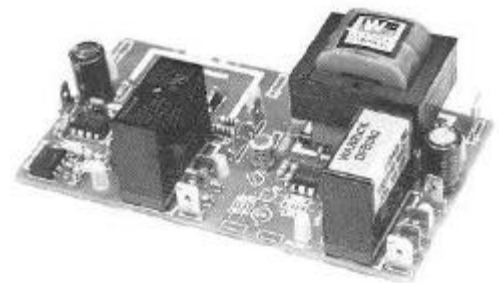


WARRICK 26B LOW
WATER CUTOFF CONTROL

The Warrick Series 26B and right side of the DFL control are recommended to be used as a low water cutoff on steam boilers and hot water boiler systems. The left side of the DFL control is used as a pump control on steam boilers and as a high water alarm when required. It may also be used as an electric water feed valve control.

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.
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 in a cooler area to prevent conduction of heat which increases life of the electrical components.
3. **SIMPLICITY:** The control does not have complicated parts or require daily maintenance attention (other than normal blowdown on steam boiler). 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. **UNDERWRITERS' LABORATORIES:** Underwriters' Laboratories lists the 26B and right side of the DFL as "Limit Controls". The left side of the DFL control is listed as a "Motor Controller".
5. **QUALITY CONSTRUCTION:** Solid state circuitry with LED status indicators (level safe and pump on). Low water cutoffs feature time delays for surge protection and automatic recycle on power interruption even when equipped with manual reset. Pump controls feature time delays for pump start and stop to prevent short cycling of pump.



WARRICK DFL LOW WATER
CUTOFF & PUMP CONTROL



WARRICK 3E1B
PROBE WITH EXTENSION

I. RECOMMENDED APPLICATIONS:

1. Furnished as a low water cutoff and pump control on standard steam boilers with the probes installed in the water column.
2. Furnished as a secondary low water cutoff on standard steam boilers. On all boilers except U-Drum models, the probe is mounted in vertical position on upper fitting of the water column connection to the steam drum with the sensor rod extending inside the drum to within 1" from the bottom.
3. Furnished as a low water cutoff on all standard Direct Fired Hot Water Boilers with the probe installed in a vertical position in the boiler header or at the system water level.
4. Furnished as a low water cutoff on all sizes of standard Indirect Water Heaters. The probe is mounted in a vertical position in the upper header.
5. Recommended as a high water alarm only when required by Code with the probe installed in a vertical position in the upper water column connection.

II. COMPONENTS:

1. CONTROLS:

The controls are open circuit boards with encapsulated SPDT relay contacts rated 10 AMP, 1/3 HP. An isolation transformer supplies 12 Volts to the relay coil and probe circuit. The Series 26B are low liquid level cutoffs furnished with a 6 second time delay. When equipped with a normally closed push button switch they are manual reset. The Series DFL relays contain all the functions of the Series 26B plus a differential level control with inverse contacts and time delays for pump (feed valve) on and off.

2. ELECTRONIC PROBE:

Consists of a sturdy, brass casting with a 1" screwed mount, Teflon insulated sleeve and stainless steel sensor rod, suitable for pressure up to 250 PSI and temperatures to 500°F. Always use high temperature (200°C) heat and moisture resistant probe wire for the connection between the probe fitting and control.

III. OPERATION:

1. Low Water Cutoff: 26B and right side contacts and right LED of DFL.

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), or connected to a second probe. The other side (LLCO) is connected to the Low Water Probe. If water is in contact with the probe, the reference circuit is completed through the water to the ground (or second probe), the control energizes changing the state of the load contacts. The LED indicator will be lit indicating water level safe. If the water level recedes below the probe, a 6 second time delay takes place before the control will de-energize (LED OFF) and load contacts will return to normal state. Use load contacts (located on lower right side of control) C – NO for low water cutoff and C - NC for low water alarm, if furnished. One Manual Reset Low Water Cutoff is furnished with a standard, normally closed push button wired across the "RESET" terminals. With the water level below the probe for more than 6 seconds the control de-energizes and will not re-energize until the water level returns to probe and the push button is depressed. Power interruption protection is furnished as a standard item. Loss of power will cause the control to de-energize but will automatically re-energize upon return of power providing water is at a safe level.

2. DFL Level Control (Left side and left LED indicator on control)

The left side of the DFL control is used for single or differential level control but not Low Water Cutoff. It uses the same transformer (Line Service L1, L2) and secondary ground (G) as the right side. For differential level service two probes are used, high (H) and low (L). For single level service only the (H) terminal is used. The DFL Level Control features Inverse Load Contacts and 4 second time delays on rising water level (high probe H) and falling water level (low probe L). Energizing control causes load contacts to change to change state and left LED indicator to light indicating pump or feed valve energized. Four seconds after rising water level reaches the probe wired to H, the contacts return to their normal state and the LED Indicator turns off. Water level falling below the (H) probe causes the load contacts to change state immediately unless a second probe is wired to (L). With (L) wired, the water level must fall below it for more than four seconds before the load contacts will change state and the LED will light. Use load contacts C - N.O. for pump starters and feed valves. Use contacts C - N.C. on separate DFL for high water alarm. When used as a High Water Alarm, a lighted left LED indicates a safe high water condition (below probe). If two DFL relays are used for starting two pumps, the (H) terminals are jumpered together.

NOTE: BECAUSE OF 4 SECOND TIME DELAY, PUMP (FEED VALVE) ALWAYS RUNS 4 SECONDS WHEN POWER IS TURNED ON EVEN IF BOILER IS FILLED WITH WATER.

CAUTION: LOW WATER CUTOFFS SHOULD BE CHECKED ON A DAILY BASIS.

STEAM BOILERS: At the beginning of each shift, open the water column drain valve carefully and slowly until water drains to the low level in glass and main burner shuts off. Then close valve.

HOT WATER BOILERS: Press "LOW WATER TEST" pushbutton and hold eight seconds. Release pushbutton after Main Burner shuts off. Press manual reset pushbutton to resume operation.

IF ANY LOW WATER CUTOFF FAILS TO TURN OFF OR OPERATE PROPERLY, OPERATOR SHOULD SHUTDOWN BOILER AND TAKE BOILER OUT OF SERVICE UNTIL COMPETENT SERVICE PERSONNEL REPAIR CONTROL.

NOTE: DFL-X ELECTRIC WATER FILL VALVES DO NOT HAVE 4 SECOND TIME DELAY.

IV. PARTS:

1. DFL Dual Level Control 115V, 50/60 HZ, LWC-SPDT, Pump Inverse SPDT.
2. 26B Low Level Cutoff, 115V 50/60 HZ, SPDT.
3. PBS-NC Normally Closed Push Button for Manual Reset.
4. FIQC-250 Fully Insulated Quick Connect, 1/4".
5. FIQC-187 Fully Insulated Quick Connect, 3/16".
6. 3E1B Single Probe Fitting – 1" (does not include extension).
7. 3R-XX 1/4" by XX" Stainless Steel Probe Extension (XX specify length).
8. SF2-18 Probe Wire 18 GA, 200°C Heat & Moisture Resistant.
9. 3B3A 5/8" Electrode fitting for 3E1B Probe Fitting.
10. 3PO13 Hex CPL for 3B3A.
11. 3PO16 Gasket for 3B3A.