

# DEMA BLEND SAFE

## MODELS: 662-GAPDB & 662-2GAPDB

### INSTALLATION INSTRUCTIONS

Blend Safe II Dispensing System is a modular, locking dispensing system that allows user to dispense chemicals safely, control dispenser inventory and has the flexibility in the field to meet changing requirements at different accounts.

#### 1. PARTS CHECKLIST

- |   |  |
|---|--|
| A. Blend Safe Assembly                            | B. 1/4" ID x 28" long Vinyl Supply Tubing & Foot Valve |
| C. Ceramic Weight                                 | D. Hinges  |
| E. 1/2"x 6' Long Vinyl Outlet Tubing (4 GPM Only) | F. Outlet Tubing Hanger                                |
| G. Drip Tray (1 GPM)                              | H. Screw & Anchor Kit                                  |
| K. Cabinet Lock Keys Set                          | I. Label Card  |
|   | J. Metering Tip Kit                                    |
|   | L. Blend Safe Mounting Template I-786-3                |

\*Quantity varies depending on the model of the Blend Safe.

#### 2. INSTALLATION Note: All installations must conform to local plumbing codes and use approved backflow preventers. Pressure indicating tee is to be installed with existing faucets according to local plumbing codes in the state of Wisconsin and any other state that requires the use of a pressure indicating tee. **WARNING: Water supply should not exceed 125 psi and water temperature must not exceed 150°F.**

##### A. MOUNTING AND WATER SUPPLY:

Use mounting template enclosed to locate the mounting screw positions. Drill all of the holes into the drywall using a 1/4" diameter bit for use with the included #10 screw and anchor set. (If mounting the Blend Safe to wood and you do not plan to use the included anchors, drill 1/8" diameter holes.) Insert the anchors into drilled holes and hammer them into the wall until they are flush with face of wall. Assemble all of the #10 screws with a Phillips screwdriver into the anchors so the screw heads are sticking out of the wall approximately 1/2". Mount the Blend Safe by inserting the screw heads through the keyhole slots in the base and tighten the screws. The water inlet is equipped with a female garden hose fitting (with strainer washer) for attaching a water supply hose. The water inlet may be removed to permit direct connection to a 3/8 in. NPT pipe. The unit is designed so water can be supplied to either side by interchanging the pipe plug with the water inlet. **Note: Apply pipe dope, hand-tighten, and then turn 1-1/2 times with a wrench.**

**DO NOT OVER TIGHTEN.** WARNING: Do not use Teflon® tape to seal internal plastic threads as the extra thickness of the tape may cause the plastic to crack. Use a non-welding liquid sealant instead. The push button valves in the top of each station are connected using a hose barb and reinforced tubing. The bottoms of each station are connected to each other using box clips. Additional single-station units can be attached using DEMA kit #66-129. Kit #66-130 is used for attaching dual-station units to each other.

##### B. PRESSURE INDICATING TEE INSTALLATION: Screw female quick disconnect to faucet and attach pressure indicating tee to female quick disconnect. Attach female end of reinforced hose to male threads of tee, then attach the male end to the female garden hose fitting at the water inlet of the Blend Safe (See Figure 3).

#### 3. CHEMICAL INJECTION ADJUSTMENT: Warning: use care when handling hazardous chemicals. Chemical feed rates are controlled by metering tips screwed into the proportioner barb. Select a tip using Table 1 or 2 as a guide.

1 cps (centipoise) is equal to the viscosity of water  
 75 cps is approximately equal to the viscosity of 10 weight motor oil  
 200 cps is approximately equal to the viscosity of most dishwashing detergents

**TABLE 1 - 1 GPM FLOW RATE PROPORTIONER, 1/4" I.D. TUBING**

| Metering Tip Color | Injection Rates For Viscosities Shown |       |        |       |         |       |
|--------------------|---------------------------------------|-------|--------|-------|---------|-------|
|                    | 1 cps                                 |       | 75 cps |       | 200 cps |       |
|                    | Oz/Gal                                | Ratio | Oz/Gal | Ratio | Oz/Gal  | Ratio |
| Tan                | 1.03                                  | 125-1 | 0.76   | 168-1 | 0.38    | 333-1 |
| Orange             | 1.24                                  | 103-1 | 0.98   | 130-1 | 0.53    | 241-1 |
| Turquoise          | 1.43                                  | 89-1  | 1.07   | 119-1 | 0.61    | 211-1 |
| Pink               | 2.47                                  | 52-1  | 1.58   | 81-1  | 0.92    | 139-1 |
| Light Blue*        | 3.05                                  | 42-1  | 2.1    | 61-1  | 1.06    | 121-1 |
| Brown              | 3.48                                  | 37-1  | 2.31   | 55-1  | 1.15    | 111-1 |
| Red                | 4.38                                  | 29-1  | 2.83   | 45-1  | 1.23    | 104-1 |
| White              | 5.33                                  | 24-1  | 3.1    | 42-1  | 1.37    | 93-1  |
| Green              | 6.38                                  | 20-1  | 3.63   | 35-1  | 1.4     | 91-1  |
| Blue               | 6.77                                  | 19-1  | 3.78   | 34-1  | 1.45    | 88-1  |
| Yellow             | 9.90                                  | 13-1  | 5.1    | 25-1  | 1.48    | 86-1  |
| Black              | 15.00                                 | 9-1   | 6.54   | 20-1  | 1.53    | 84-1  |
| Purple             | 24.94                                 | 5-1   | 7.28   | 18-1  | 1.57    | 82-1  |
| Gray               | 35.94                                 | 4-1   | 8.5    | 15-1  | 1.64    | 78-1  |
| No Tip             | 73.21                                 | 2-1   | 9.35   | 14-1  | 1.87    | 69-1  |

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**TABLE 2 - 4 GPM FLOW RATE PROPORTIONER, 1/4" I.D. TUBING**

| Metering Tip Color | Injection Rates For Viscosities Shown |       |        |       |         |        |
|--------------------|---------------------------------------|-------|--------|-------|---------|--------|
|                    | 1 cps                                 |       | 75 cps |       | 200 cps |        |
|                    | Oz/Gal                                | Ratio | Oz/Gal | Ratio | Oz/Gal  | Ratio  |
| Tan                | 0.33                                  | 387-1 | 0.26   | 500-1 | 0.12    | 1090-1 |
| Orange             | 0.42                                  | 307-1 | 0.32   | 430-1 | 0.17    | 735-1  |
| Turquoise          | 0.51                                  | 251-1 | 0.34   | 382-1 | 0.19    | 676-1  |
| Pink               | 0.78                                  | 165-1 | 0.56   | 230-1 | 0.3     | 422-1  |
| Light Blue*        | 0.87                                  | 147-1 | 0.67   | 192-1 | 0.33    | 391-1  |
| Brown              | 0.99                                  | 129-1 | 0.74   | 174-1 | 0.37    | 345-1  |
| Red                | 1.37                                  | 93-1  | 0.91   | 141-1 | 0.44    | 289-1  |
| White              | 1.52                                  | 84-1  | 1.04   | 123-1 | 0.48    | 264-1  |
| Green              | 1.72                                  | 74-1  | 1.22   | 105-1 | 0.52    | 244-1  |
| Blue               | 2.13                                  | 60-1  | 1.27   | 101-1 | 0.54    | 239-1  |
| Yellow             | 3.05                                  | 42-1  | 1.71   | 75-1  | 0.56    | 229-1  |
| Black              | 4.50                                  | 28-1  | 1.96   | 65-1  | 0.57    | 224-1  |
| Purple             | 7.75                                  | 17-1  | 2.4    | 53-1  | 0.59    | 217-1  |
| Gray               | 9.86                                  | 13-1  | 2.54   | 50-1  | 0.63    | 204-1  |
| No Tip             | 19.63                                 | 7-1   | 3.16   | 40-1  | 0.67    | 190-1  |

**NOTE: \*Metering tip color was formerly clear. All induction rates are base on a water pressure of 40 psi. Leaner dilutions can be achieved by ordering DEMA ultra lean tip kit 100-15KU or capillary tip 44-61P.**

- C. **CHEMICAL SUPPLY:** Remove Blend Safe cover. Place the chemical container inside the case. Slip a ceramic weight over the chemical supply tubing and insert the foot valve end of the tubing into the chemical container. Run the tubing up to the top of the Blend Safe through the holes in the back of the Blend Safe. Install the tubing by pushing tubing over the barb located on the proportioner (Refer to Figure 1). Peel-off gummed labels are provided for labeling chemicals.
- D. **DRIP TRAY:** Attach to door of unit by inserting notches in back of drip tray through slots in door. Push tray down into place. Two-sided tape or Velcro (not included) may be used to secure drip tray to door.
- E. **OUTLET TUBING:** Attach one end of the 1/2" ID tubing to the proportioner outlet barb and run the other end through the hole located at the bottom of the case. Attach tubing hanger to end of tubing, to hang up when not in use. **Do not force outlet tubing onto the larger barbs on the proportioner.**

**4. OPERATION**

The Blend Safe is now ready for use. Depressing a push button opens the valve allowing water to flow through the chemical proportioner that mixes a chemical water solution at the desired rate. The buttons are spring loaded to prevent accidental overflow if unattended, but may be converted to locking buttons by cutting off the tab at the notch (See Figure 2). Pushing the button and turning it a 1/4 turn clockwise at the end of its travel allows the valve to lock on. This makes it unnecessary for the attendant to hold the button while filling large containers. Turning the button in a counter-clockwise direction will release it, allowing the valve to shut off.

**5. SERVICING Caution: Turn off water supply before servicing.**

- A. **Proportioner fails to draw chemical:**
  1. Pinch outlet tube to create back pressure, which will cause unit to prime. Then the foot valve keeps the inlet tube primed.
  2. Insufficient water supply pressure. 20 PSI is the minimum allowable.
- B. **Proportioner stops drawing chemical:**
  1. Inspect foot valve for dried chemical or dirt. Soak in hot water to clean.
  2. Proportioner metering tip clogged with dried chemical. Remove tip and try injecting in hot water. If there is no suction, remove proportioner and soak in hot water to clear interior passages.
  3. Inspect proportioner to ensure that there are no mineral deposit build-ups on the nozzle. If so, soak proportioner body in deliming solution. (Remove all parts attached to proportioner before soaking in deliming solution.) **Note: Use care when handling hazardous chemicals.**
- C. **Proportioner continues to draw chemical after water valve closes:** Chemical supply is higher than bottom of discharge tube creating a natural siphon. Lower the supply vessel or hang up outlet tube after use.

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- D. Valve Malfunction:** Check that the button moves freely in & out and that a "click" can be heard when the button is pushed and released, indicating that the magnet is activating the plunger properly. Remove cover. To inspect internal parts, unscrew magnet housing and carefully pull off the enclosing tube so as not to drop the plunger, kick-off spring, and spacer. Check for dirt or damage impeding plunger and kick-off spring movement. Inspect the diaphragm, making sure the two small pin holes (bleed hole) in the diaphragm convolution are clear to allow the valve to close.

**Caution:** When servicing unit, be sure that replacement parts have been installed according to the drawing.

### Merchandise Returns

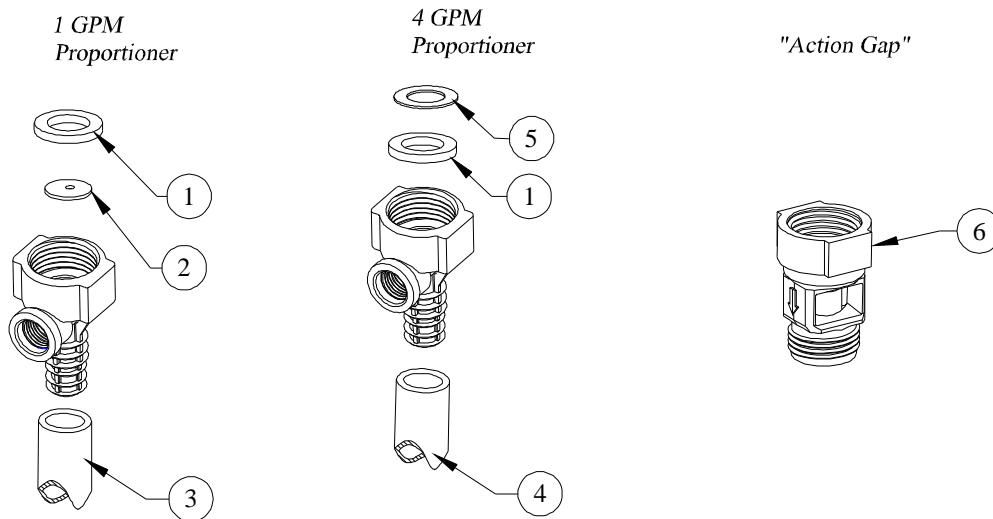
*No Merchandise will be Returned for Credit Without DEMA'S Written Permission. Returned Merchandise Authorization Number is Required in Advance of Return.*

### Product Warranty

DEMA products are warranted against defective material and workmanship under normal use and service for one year from the date of manufacture. This limited warranty does not apply to any products that have a normal life shorter than one year or failure and damage caused by chemicals, corrosion, physical abuse, or misapplication. Rubber and synthetic rubber parts such as "O"-rings, diaphragms, PVC tubing, and gaskets are considered expendable and are not covered under warranty. This warranty is extended only to the original buyer of DEMA products. If products are altered or repaired without prior approval of DEMA, this warranty is void.

Defective units or parts should be returned to the factory with transportation prepaid. If inspection shows them to be defective, they will be repaired or replaced without charge, F.O.B. factory. DEMA assumes no liability for damages. Return merchandise authorization number must be granted in advance of returned units for repair or replacement (See "Merchandise Returns" above).

### PROPORTIONER AND ACTION GAP BREAKDOWN

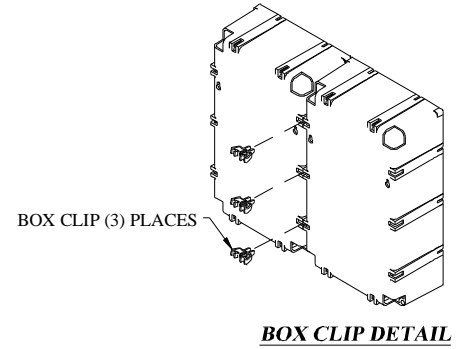
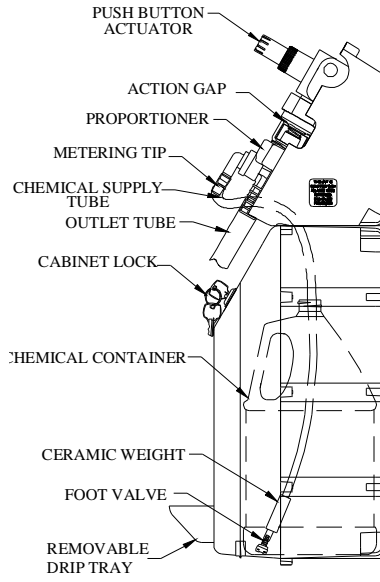
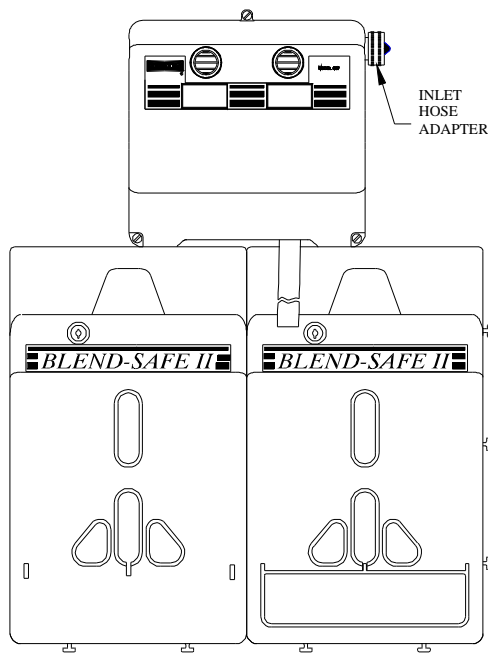


| NO. | PART NO. | DESCRIPTION                                       |
|-----|----------|---|
| 1   | 150-6    | Rubber Washer                                     |
| 2   | 61-36    | Flow Disk   |
| 3   | 16-3-6   | 1/2" I.D. x 6" Lg. Vinyl Outlet Tube (1 GPM Only) |
| 4   | 61-21    | 1/2" I.D. x 6" Lg. Vinyl Outlet Tube (4 GPM Only) |
| 5   | 63-89-1  | Rubber Washer (1/32" Thick)                       |
| 6   | 16-30    | Action Gap Assembly                               |

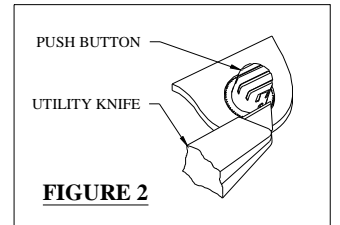
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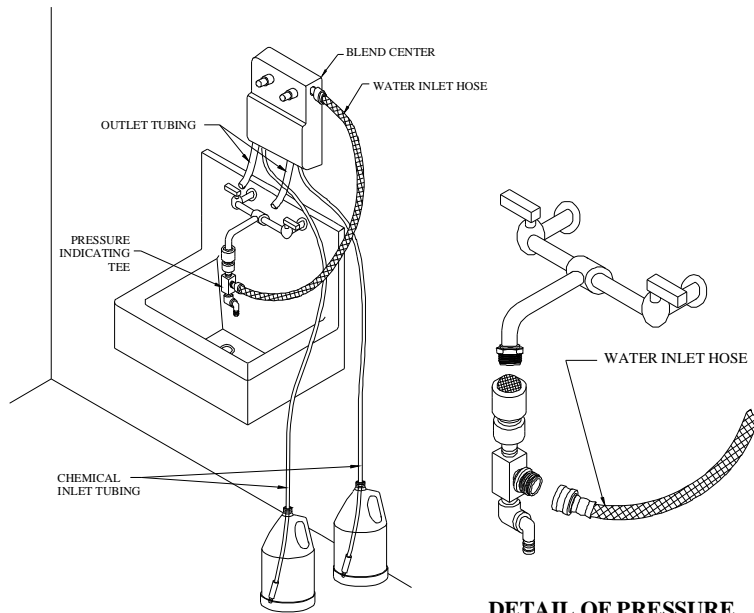
### INSTALLATION INSTRUCTIONS



**FIGURE 1**



### PRESSURE INDICATING TEE INSTALLATION



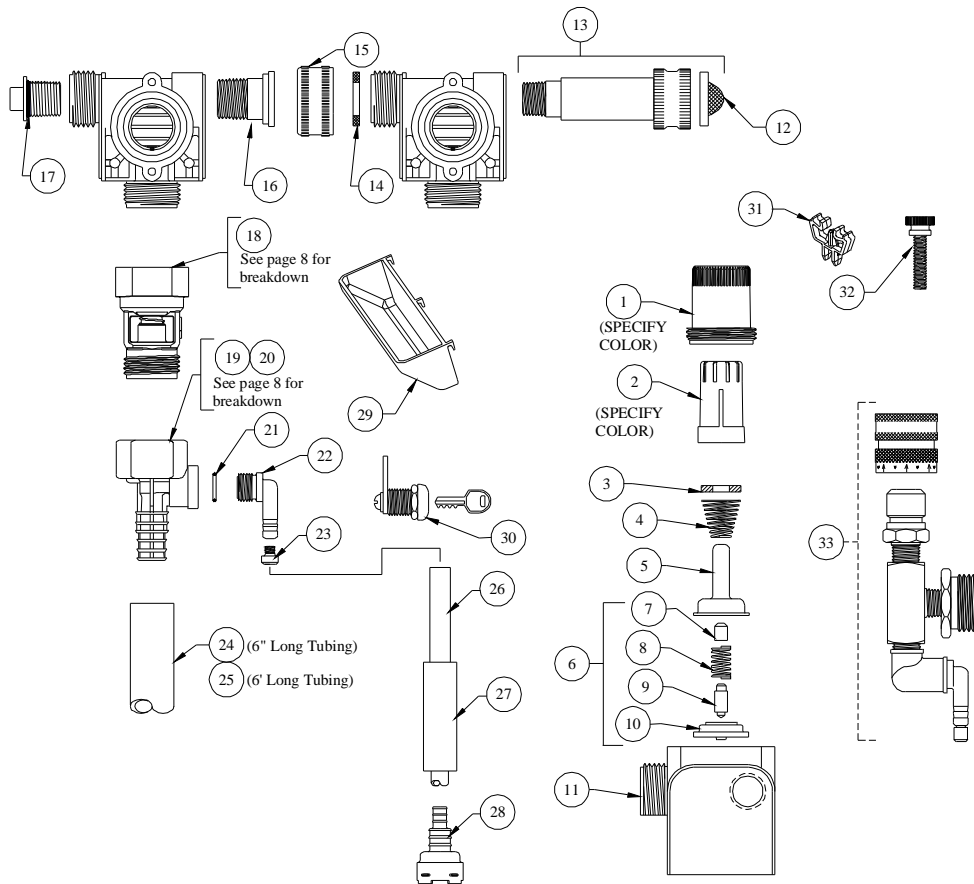
**FIGURE 3**

**DETAIL OF PRESSURE INDICATING TEE**

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| NO. | PART NO. | DESCRIPTION                    | NO.        | PART NO.        | DESCRIPTION                                     |
|-----|----------|--------------------------------|------------|-----------------|---|
| 1   | 66-139   | Magnet Housing (Specify Color) | 19         | 61-22GAP-2      | 4 GPM (1/4" ID Barb) Proportioner (Gray)        |
| 2   | 66-140   | Push Button (Specify Color)    | 20         | 61-99GAP-2      | 1 GPM (1/4" ID Barb) Proportioner (Green)       |
| 3   | 63-35    | Magnet                         | 21         | 63-78           | O-Ring  |
| 4   | 63-36    | Spring                         | 22         | 63-79           | Inlet Barb (1/4" ID Barb)                       |
| 5   | 41-7-25  | Enclosing Tube                 | 23         | 100-15K         | Metering Tip Kit (14 Sizes)                     |
| 6   | 63-87    | Valve Repair Kit               | 24         | 16-3-6          | 1/2" ID X 6" Lg. Vinyl Supply Tubing            |
| 7   | 63-37    | Spacer                         | 25         | 61-21           | 1/2" ID X 6' Lg. Vinyl Outlet Tube (4 GPM Only) |
| 8   | 41-1-8   | Kick-Off Spring                | 26         | 100-12-16       | 1/4" ID X 28" Lg. Vinyl Supply Tubing           |
| 9   | 63-38    | Plunger                        | 27         | 61-107-2        | Ceramic Weight                                  |
| 10  | 41-15-10 | Diaphragm                      | 28         | 100-16E         | Foot Valve                                      |
| 11  | 63-39    | Valve Body                     | 29         | 66-64           | Drip Tray                                       |
| 12  | 100-38   | Strainer Washer                | 30         | 66-21           | Cabinet Lock                                    |
| 13  | 63-32-2  | Water Inlet Assy.              | 31         | 67-4-1          | Box Clip  |
| 14  | 150-6    | Rubber Washer                  | 32         | 66-63           | Thumb screw                                     |
| 15  | 65-10    | Garden Hose Threaded Coupling  |            |                 |   |
| 16  | 99-7-1   | Hose Fitting Stem              |            |                 | <b>ACCESSORIES</b>                              |
| 17  | 66-153   | Pipe Plug & O-Ring Assy.       | <b>NO.</b> | <b>PART NO.</b> | <b>DESCRIPTION</b>                              |
| 18  | 16-30    | Action Gap Assembly            | 33         | 68-6-QD2        | Pressure Indicating Tee                         |