

### The Redball® Spray Monitor

The Redball® Spray Monitor is an effective flow indicator for an operator applying liquid chemicals and fertilizer. Once the monitor is set up, the operator observes the location of the balls. If there is no change in the ball location, then the flow rate has not changed. The amount of change needed for a ball to change can be found in the flow chart. See Figure #2.

### Installation Instructions

Mounting: Assemble and mount the monitor on your equipment in a position easily visible to the operator .

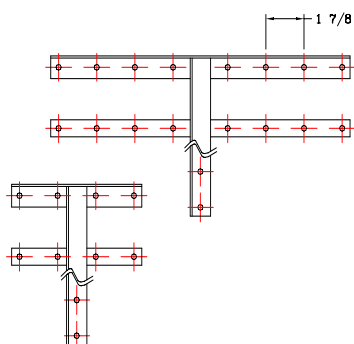


FIGURE #1

1. Fabricate a mounting bracket similar to the one in Figure #1. An example of typical material would be 3/4" x 1/8" steel strips and a 1" x 1" angle iron. Drill holes as shown and as needed to mount the bracket to the implement.
2. Check the Flow Tables (Figure #2) for your desired flow rate. For best results, select a ball that operates at Monitor Flow Level 3 or 4.
3. To change to a different set of balls, remove the u-pin, the hose barb/float stop, o-ring and balls and install the proper balls. See Figure #4.
4. Assemble monitors into a manifold as shown in Figures 3 and 4. Flow (LPM) to each monitor manifold determines how many monitors to connect together. Make certain the total input flow ( LPM) to each monitor manifold does not exceed 12.9 LPM.
5. Bolt the monitor manifold to the bracket with 1/4" diameter bolts.

| FLOW TABLE FOR WATER |               |               |             |           |        | FLOW TABLE FOR LIQUID FERTILIZER |             |           |       |
|----------------------|---------------|---------------|-------------|-----------|--------|----------------------------------|-------------|-----------|-------|
|                      | Green Plastic | Black Plastic | Red Plastic | Red Glass | Steel  |                                  | Red Plastic | Red Glass | Steel |
|                      | Balls         | Balls         | Balls       | Balls     | BallsL |                                  | Balls       | Balls     | Balls |
|                      | LPM           | LPM           | LPM         | LPM       | LPM    |                                  | LPM         | LPM       | LPM   |
| Level 7              | 1.29          | 1.78          | 1.93        | 3.44      | 12.60  | Level 7                          | 0.72        | 3.18      | 8.22  |
| Level 6              | 0.90          | 1.32          | 1.48        | 2.69      | 9.39   | Level 6                          | 0.53        | 2.31      | 6.44  |
| Level 5              | 0.68          | 1.02          | 1.06        | 2.12      | 6.36   | Level 5                          | 0.46        | 1.71      | 4.77  |
| Level 4              | 0.49          | 0.76          | 0.79        | 1.48      | 4.13   | Level 4                          | 0.26        | 1.21      | 3.11  |
| Level 3              | 0.30          | 0.49          | 0.52        | 1.02      | 2.27   | Level 3                          | 0.15        | 0.72      | 2.20  |
| Level 2              | 0.15          | 0.30          | 0.30        | 0.72      | 1.70   | Level 2                          | 0.76        | 0.42      | 1.21  |
| Level 1              | 0.08          | 0.11          | 0.11        | 0.42      | 1.14   | Level 1                          | 0.00        | 0.19      | 0.95  |

FIGURE #2

6. Connect the hoses (not included) as shown in Figure #3. Tighten hose connections.
7. Connect multiple monitor manifolds together in parallel by directing solution into each manifold fluid input. DO NOT direct fluid into a manifold from another manifold.

### Operating Instructions

1. Turn on liquid to the desired pressure, all the balls should be at the same level. If so, proceed to step #5.
2. If all the balls are not at equal levels, check for leaks and obstructions in the lines.
3. If one of the balls remains at a different level, clean the nozzle and screen on the line that has the improper output.
4. If all of the balls cannot be made to come up to the same level, check the flow in the lines to see if the flow is equal in all lines. The Redball® Spray Tip Tester may be purchased separately to evaluate this problem. This spray tip tester will also indicate if the tips are operating correctly .

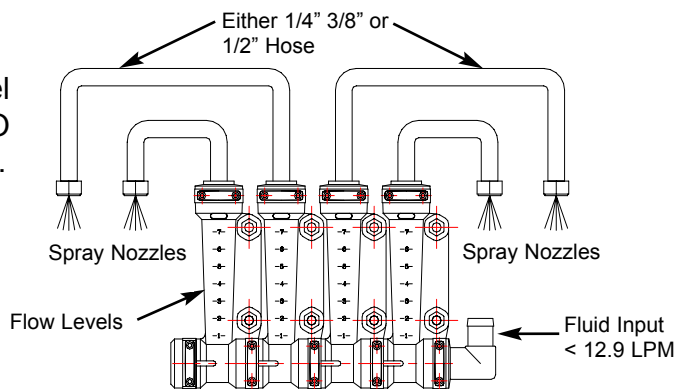


FIGURE #3

5. When the balls are at the same level, then all the lines are putting out approximately equal amounts of liquid.
6. To calibrate your sprayer, first check the nozzle on the sprayer and the nozzle manufacturer's information sheet. Establish the correct pressure, flow, and speed to make sure that the desired gallons per acre to be applied.



**IMPORTANT:** When using different balls in fertilizer and water, it is important to use the correct ball, so as not to let it rotate at the very top of the monitor. The ball could restrict flow in that position. See Figure 2.



**IMPORTANT:** Use red glass or stainless steel balls with acid fertilizer.

**NOTES:**

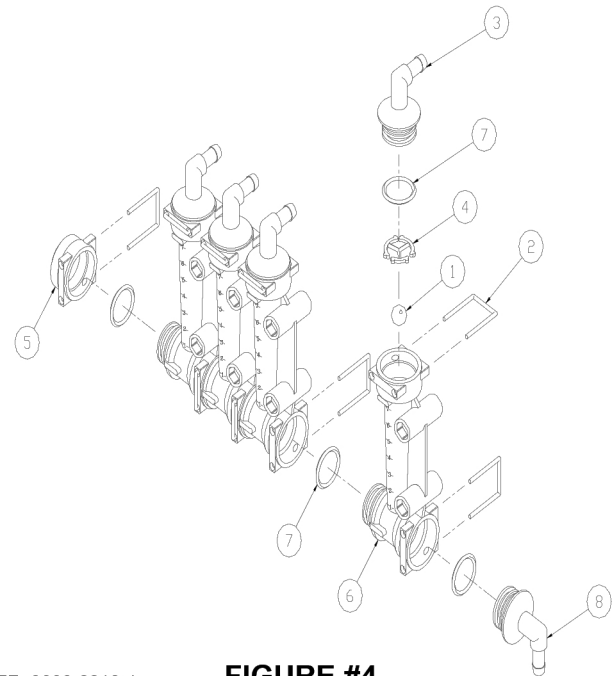
- Each fluid used will vary in flow rate due to the different density and viscosity of each chemical and fertilizer used. This necessitates that the user checks for an accurate flow rate.
- The system should operate at a minimum of **.7bar** for equal distribution.
- Redball® Spray Monitors are flow indicators, not flow regulators.

**Cleaning**

It is important that spraying equipment is cleaned and flushed before discontinuing use for an extended period of time. To facilitate cleaning, remove the u-pin and cap plug and allow the liquid to drain out. Always collect and dispose of chemical solutions properly. Flush with clean water.

**Storage**

To lengthen the service life of the monitor, store the monitor out of direct sunlight or cover with a sun protective material.



| Item No. | QTY | Part No.  | Description             |
|----------|-----|-----------|-------------------------|
| 1        | 4   | 8165101   | Green Plastic Ball      |
|          | 4   | 8165100   | Red Plastic Ball        |
|          | 4   | 8165102   | Black Plastic Ball      |
|          | 4   | 8165105   | Red Glass Ball          |
|          | 4   | SS316-200 | Stainless Steel Ball    |
| 2        | 9   | 002037-SS | Pin, U-Shaped           |
| 3+       | 4   | 002133    | Monitor Hose Barb, 1/4" |
|          | 4   | 002134    | Monitor Hose Barb, 3/8" |
|          | 4   | 002135    | Monitor Hose Barb, 1/2" |
| 4        | 4   | 002137    | Float Stop              |
| 5        | 1   | 002138    | Cap, Plug               |
| 6        | 4   | 002139    | Single Column Monitor   |
| 7        | 9   | 002140    | O-Ring                  |
| 8        | 1   | 002136    | Monitor Hose Barb, 3/4" |

+ = Hose barbs included in different size complete assembly kits.  
P/N 3999-0001 - 1/4" Complete 4-Column Assembly  
P/N 3999-0002 - 3/8" Complete 4-Column Assembly  
P/N 3999-0008 - 1/2" Complete 4-Column Assembly

**FIGURE #4**