Assembly & Installation Instructions
Elkhart Model 299-11 EL Free Standing Elevated Monitor
10', 15', and 20' Heights

This instruction sheet is to be used in conjunction with assembly drawing 299-11EL (10, 15, 20).

Assembly:

1. Remove and discard the thread protector from end of Waterway Weldment Sub-Assembly (Item 21).
2. Install Monitor Sub-Assembly (Item 15) onto upper end of Waterway Weldment Assembly (Item 21) by wrenching Monitor Base onto Waterway Weldment. Use a good grade of pipe joint compound on pipe threads.
3. Remove grease fitting from monitor base and set aside.
4. Slide upper end of drive sleeve (Item 20) over monitor base and align the two inline holes located directly above the 1" hex head bolts and washers (used to protect the threaded handle attachment bushings) with the two 3/4 - 16 tapped holes in the monitors swivel joint. Secure the drive sleeve to the monitors swivel joint using the two 3/4 - 16 x 5/8 bolts (Item 18) from the loose parts in the Ziploc bag. Apply Loctite #262 to bolts prior to assembly.
5. Reinstall grease fitting.
6. Remove and discard 1" bolts and washers used to protect the threaded control arm mounting bushings. Install the control arm & vertical lock assembly #81310001 as shown on drawing.
7. Attach the vertical control cables (Item 19) to monitor and control arm using the threaded links and turnbuckles as shown on drawing. Secure the threaded link threads with Loctite #242. Adjust cables so that handle is parallel to monitor discharge centerline.
8. Attach nozzle to monitor discharge and tighten securely. If adjustable fog nozzle is used, follow the nozzle installation instructions and attach pattern control cable to nozzle.
9. When raising the monitor assembly, **DO NOT** attach cable or sling the monitor section of the assembly. This portion of the assembly is not designed to support the weight of the long riser, and damage or failure could result.

Installation:

The supply pipe and flange configuration to which the 299-11 EL monitor is installed must be supported to withstand a bending moment of 16,000 FT/LBS applied to the flange face. A forged steel flange and steel pipe with adequate support are recommended. **DO NOT** use a cast iron flange or cast iron pipe.
4"-150# Flanges: Join monitor base flange to companion flange using 5/8-11 SAW Grade 8 bolts and nuts. Use a 1/16" thick ring gasket designed for use with steel flanges. Torque flange bolts to 150 FT/LBS (Dry).

6"-150# & 300# Flanges: Join monitor base flange to companion flange using 3/4-10 SAW Grade 8 bolts and nuts. Use a 1/16" thick ring gasket designed for use with steel flanges. Torque flange bolts to 260 FT/LBS (Dry).

***IMPORTANT***

**DO NOT** exceed the following maximum allowable flow rates at 100 PSI nozzle pressure:

<table>
<thead>
<tr>
<th>Monitor Heights</th>
<th>Max. Flow at 100 PSI NP</th>
<th>Maximum Pressure At Base Flange</th>
<th>Calculated Deflection of Nozzle at Maximum Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Ft.</td>
<td>750 GPM</td>
<td>127 PSI</td>
<td>1.05 inches</td>
</tr>
<tr>
<td>15 Ft.</td>
<td>750 GPM</td>
<td>134 PSI</td>
<td>4.34 inches</td>
</tr>
<tr>
<td>20 Ft.</td>
<td>750 GPM</td>
<td>143 PSI</td>
<td>11.33 inches</td>
</tr>
</tbody>
</table>

Pressure and flow characteristics of water supply must be determined prior to monitor installation, and a restricting device, such as an orifice plate, installed between flanges to limit flow and pressure to appropriate values as indicated above.

**Operation:**

Familiarize all personnel that will be using this equipment with the operation of all the monitor’s locks and controls before flowing water. The water supply to the monitor should be increased slowly to prevent whipping of the monitor due to nozzle reaction.

**Horizontal and Vertical locks:** The monitor should **always** be locked in position when it is to be left unmanned. The horizontal travel is locked and unlocked using a friction lock operated by hand wheel assembly (Item 14). Turn the hand wheel assembly clockwise to lock the monitors horizontal travel and counterclockwise to unlock it. The vertical travel can be locked in position using the friction lock on the right hand side of the control arm. To lock the monitors vertical travel turn the lock clockwise using the handle shaft with the knob on the end (Items 1 & 2). Turn the lock counterclockwise to unlock the vertical travel of the monitor. **Always make sure both locks are engaged before flowing water.**

**Controlling Horizontal and Vertical movement:** The monitor movement is controlled using the hand grip (Item 16) located on the end of the control arm assembly. Firmly grasp the hand grip with one hand and release the vertical and horizontal locks with the other. Only release the locks enough to allow movement in all directions. Pushing down on the hand grip will raise the discharge of the monitor and lifting will lower the discharge. Pushing the hand grip to the left will move the discharge of the monitor to the right and pushing the hand grip to the right will move the discharge of the monitor to the left. **Do not release the monitor controls without engaging both the horizontal and vertical locks first.**
**Maintenance:**

The monitor should be moved through its entire range of motion and inspected for proper function of all locks and controls monthly. The monitor should be greased through the two fittings located on the monitor assembly (Item 15) every three months. General purpose petroleum grease should be used. Maintain paint as dictated by the environment.