



## STYLE 3531 OSCILLATING FLANGE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS



### INTENDED USE

The Oscillating Flange is designed to operate as an oscillating water device by mounting a fixed monitor to the outlet of the flange and is intended to provide efficient trouble-free operation. The oscillating flange is intended to be deployed for unmanned operation. The following instructions are provided to assist in obtaining the best possible performance from this unit. Read and understand these operating instructions before use.

All illustrations are shown with the Style 3528 Omega™XP monitor and Style 4461 Rampage™ Nozzle. The operation of the oscillating flange is not limited to this monitor and nozzle.

### PRODUCT RATINGS

Mass: 126.5 lb. (57.5 Kg)

Maximum Flow: 1250 gpm (4800 lpm) @ 250 psi (1725 Kpa, 17.2 bar),  
1500 gpm (5700 lpm) @ 180 psi (1240 Kpa, 12.4 bar)

Maximum Pressure: 250 psi (1725 Kpa, 17.2 bar)

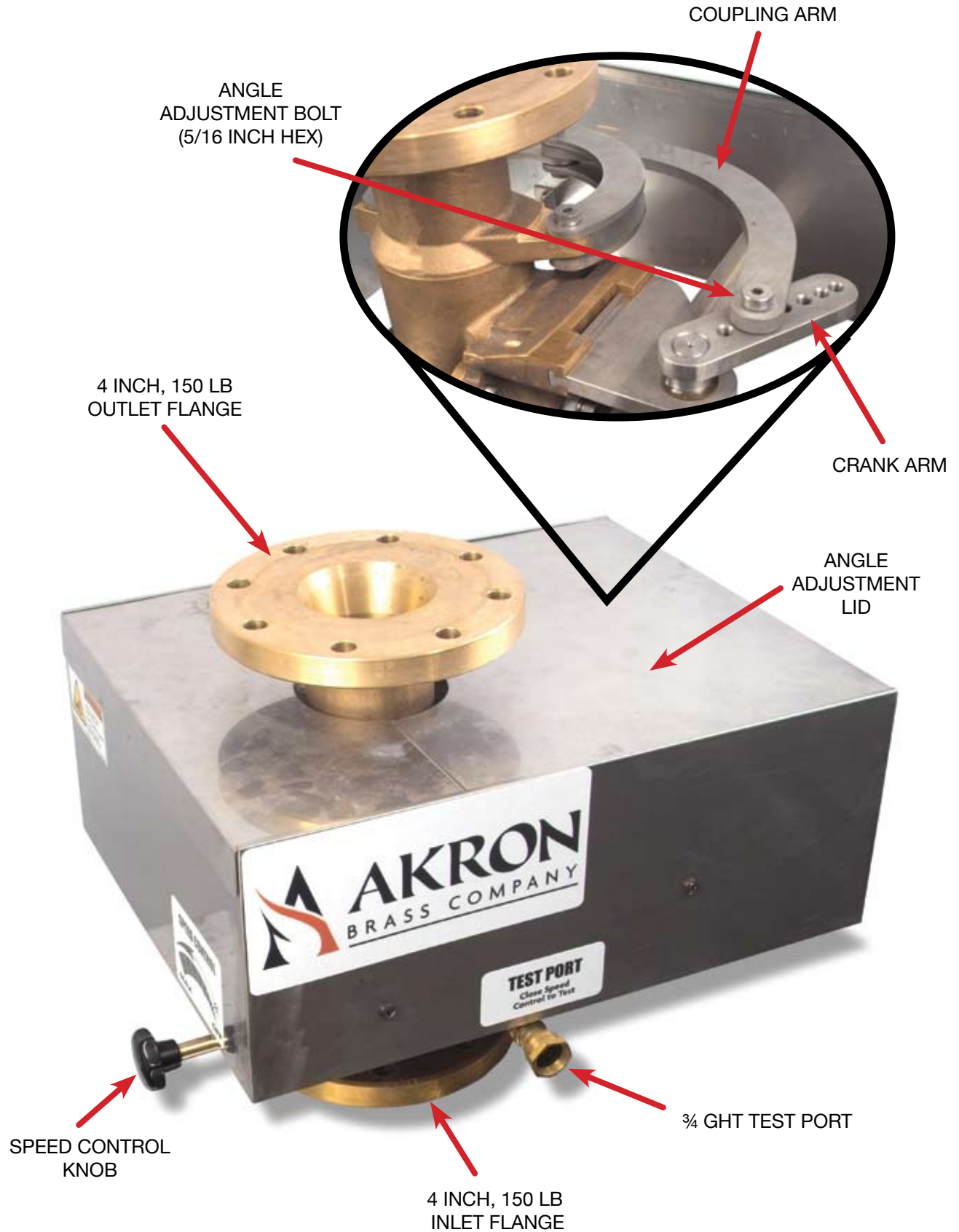
Minimum Pressure: 50 psi (345 Kpa, 3.4 bar)

Oscillation Speed: Up to 40° / second

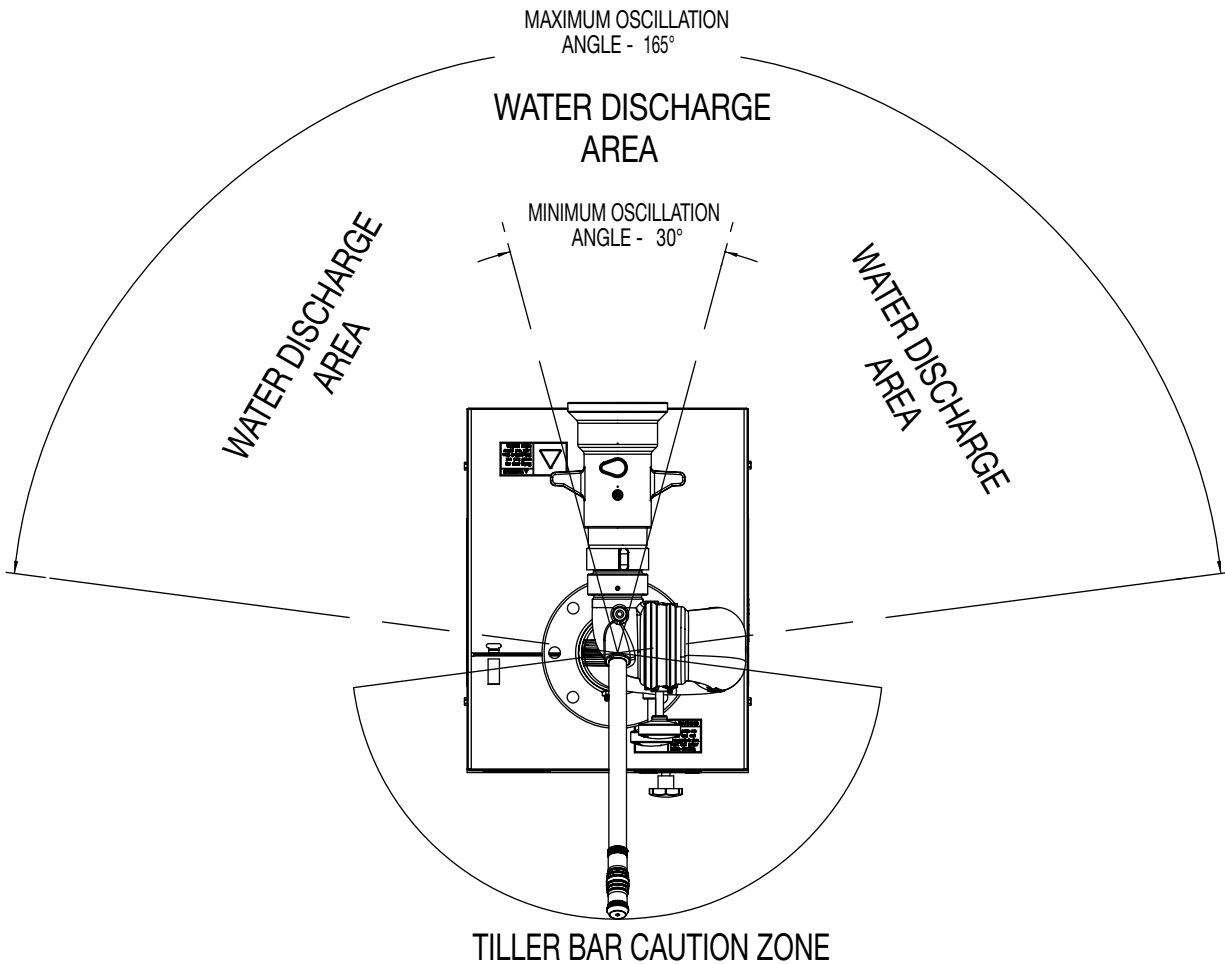
### PRODUCT WARNINGS

- ⚠ **WARNING:** Do not lift the oscillating flange by the stainless steel guard.
- ⚠ **WARNING:** Operating the oscillating flange at pressures higher than 180 psi with flows greater than 1250 gpm may damage the oscillation mechanism.
- ⚠ **WARNING:** Charge the unit slowly. Rapid charging may cause a pressure surge with the potential to cause injury or damage to the unit.
- ⚠ **WARNING:** Aim the unit in a safe direction before pumping water through it.
- ⚠ **WARNING:** Replace the identification tag and warning tag if they should become worn or damaged.
- ⚠ **WARNING:** Do not exceed the maximum pressure or flow ratings of the oscillating flange. Exceeding these ratings may lead to an injury or may cause damage to the oscillating flange.
- ⚠ **WARNING:** Drain the unit after use to prevent freeze damage.
- ⚠ **WARNING:** Keep all personnel out of the WATER DISCHARGE AREA (Figure 2), in front of the outlet of the monitor, when the water source is attached. Dangerous flow velocities can cause serious injury.

**Figure 1**



**Figure 2**



**OSCILLATING FLANGE INSTALLATION:**

The oscillating flange is to be mounted on the waterway with eight 5/8 inch bolts and nuts of grade five minimum and suitable washers. Make sure the mounting surface on the waterway and the mounting surface on the flange are free of debris. Use a 4 inch, 150 lb flange gasket between the riser and the oscillating flange. Orient the oscillating flange so that the speed control is positioned in a location that is outside of the WATER DISCHARGE AREA (Figure 2). The monitor can be adjusted later to center the stream on the target. **WARNING:** The oscillating flange weighs in excess of 120 lbs. Use mechanical lifting equipment when lifting onto the mounting flange.

**MONITOR INSTALLATION:**

A monitor with a 4 inch, 150 lb flange is to be mounted on top of the oscillating flange with eight 5/8 inch bolts and nuts of grade five minimum and suitable washers. Make sure the top mounting surface of the oscillating flange and the mounting surface on the monitor are free of debris. Use a 4 inch, 150 lb flange gasket between the oscillating flange and the monitor. Refer to the monitor operating instructions for specific details of the monitor requirements.

**CRANK ARM POSITION:**

If the monitor is not capable of rotating 360°, orient the monitor so that the monitor can be adjusted to align with the target. The position of the CRANK ARM must be considered when installing the monitor. The position of the CRANK ARM will indicate how far away from center to point the nozzle and in which direction to aim the nozzle. Remove the ANGLE ADJUSTMENT LID (Figure 1) from the guard. If the crank is located near either of the two positions shown in Figure 3, aim the nozzle directly at the target.

**Figure 3**

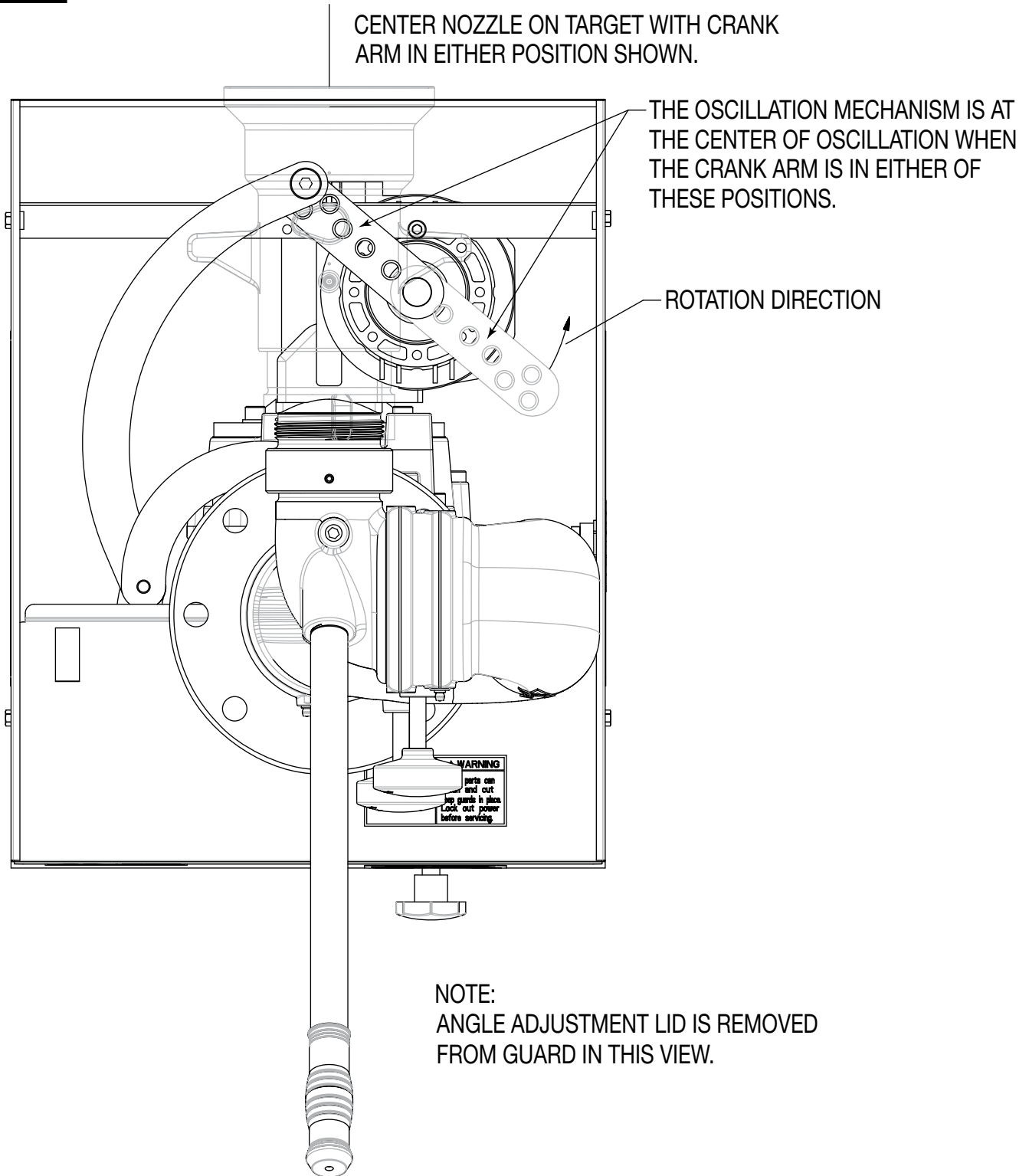
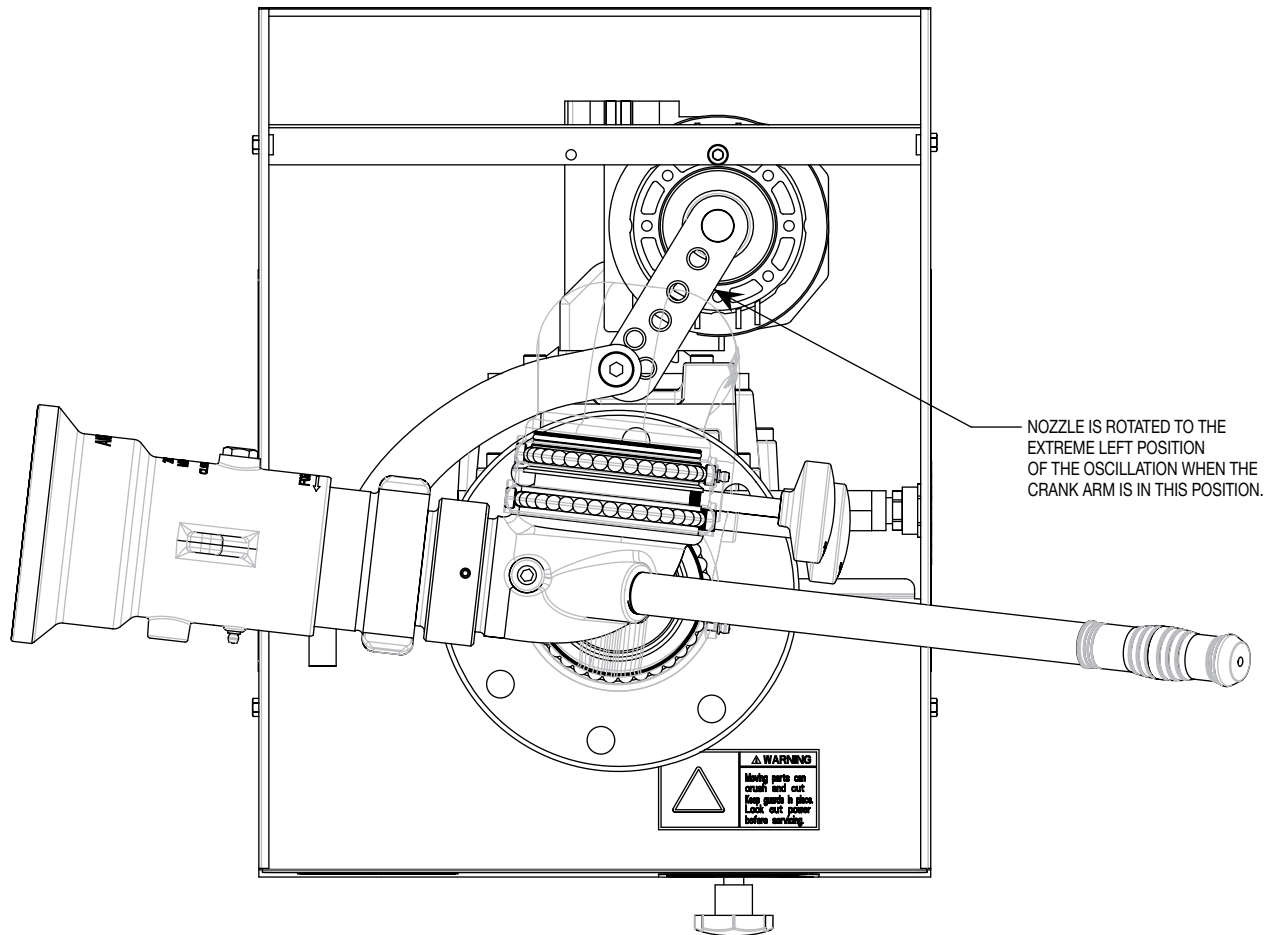


Figure 4 shows the crank arm position when the oscillation is in the extreme left position. If the crank arm is positioned as shown in figure 4, aim the nozzle to the left of the target.

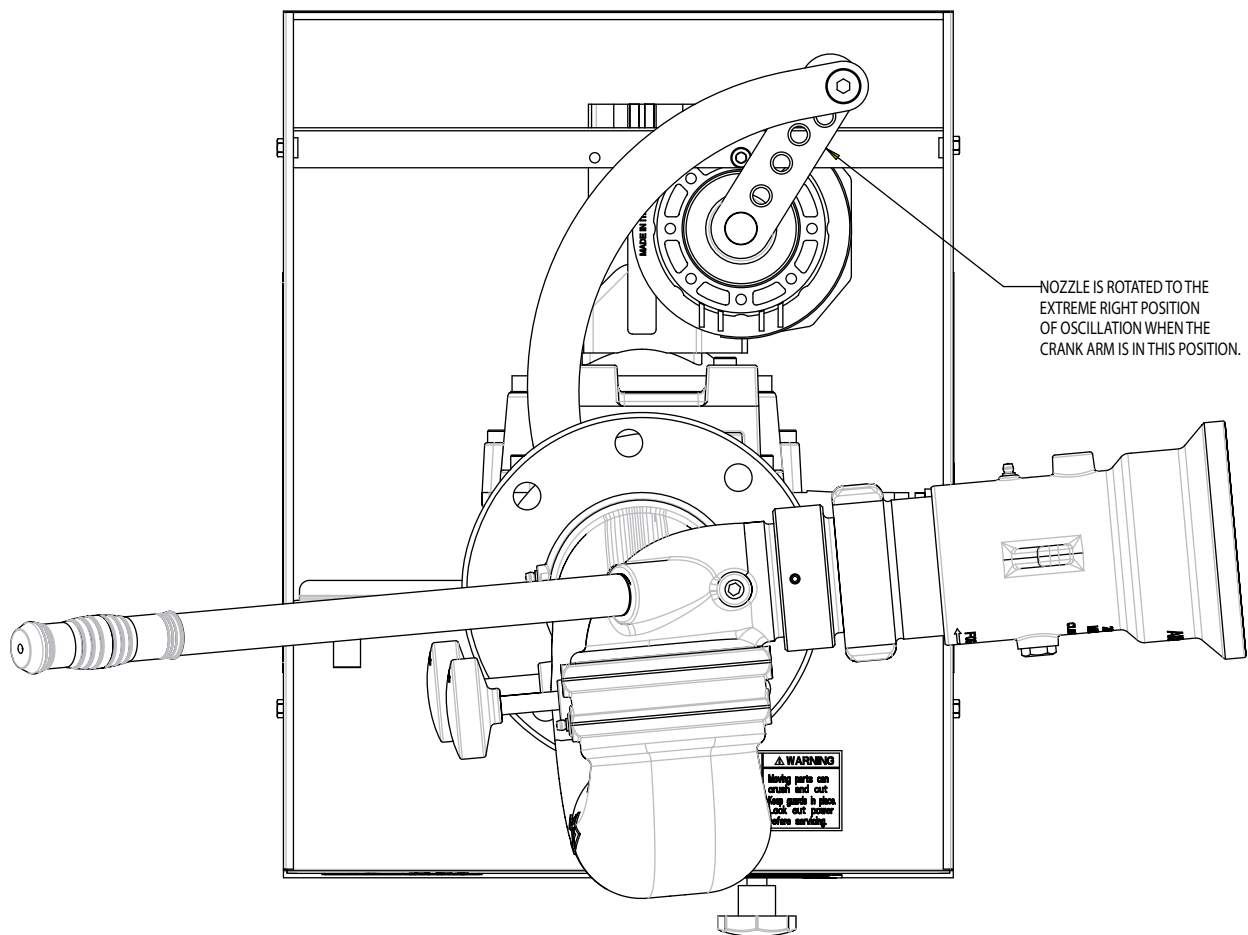
**Figure 4**



NOTE:  
ANGLE ADJUSTMENT LID IS REMOVED FROM GUARD IN THIS VIEW.

Figure 5 shows the crank arm position when the oscillation is in the extreme right position. If the crank arm is positioned as shown in figure 5, aim the nozzle to the right of the target.

**Figure 5**



NOTE:  
ANGLE ADJUSTMENT LID IS REMOVED FROM GUARD IN THIS VIEW.

## OSCILLATING FLANGE SET-UP INSTRUCTIONS:

### OVERVIEW:

The oscillating flange can be adjusted to oscillate at fixed angles between 30° and 165°. Use the angle adjustment on the oscillating flange to set the oscillation sweep width. The monitor can be adjusted to center the stream horizontally and vertically. Check the CRANK ARM position of the oscillating flange before setting up the system (see CRANK ARM POSITION in MONITOR INSTALLATION). Use the monitor controls to center the water flow at the desired target.

### ADJUSTING THE OSCILLATION RANGE:

The crank arm rotates in a continuous counter-clockwise rotation which drives a mechanism generating the oscillating motion. The oscillation range can be adjusted from 30° - 165° by moving the angle adjustment bolt.

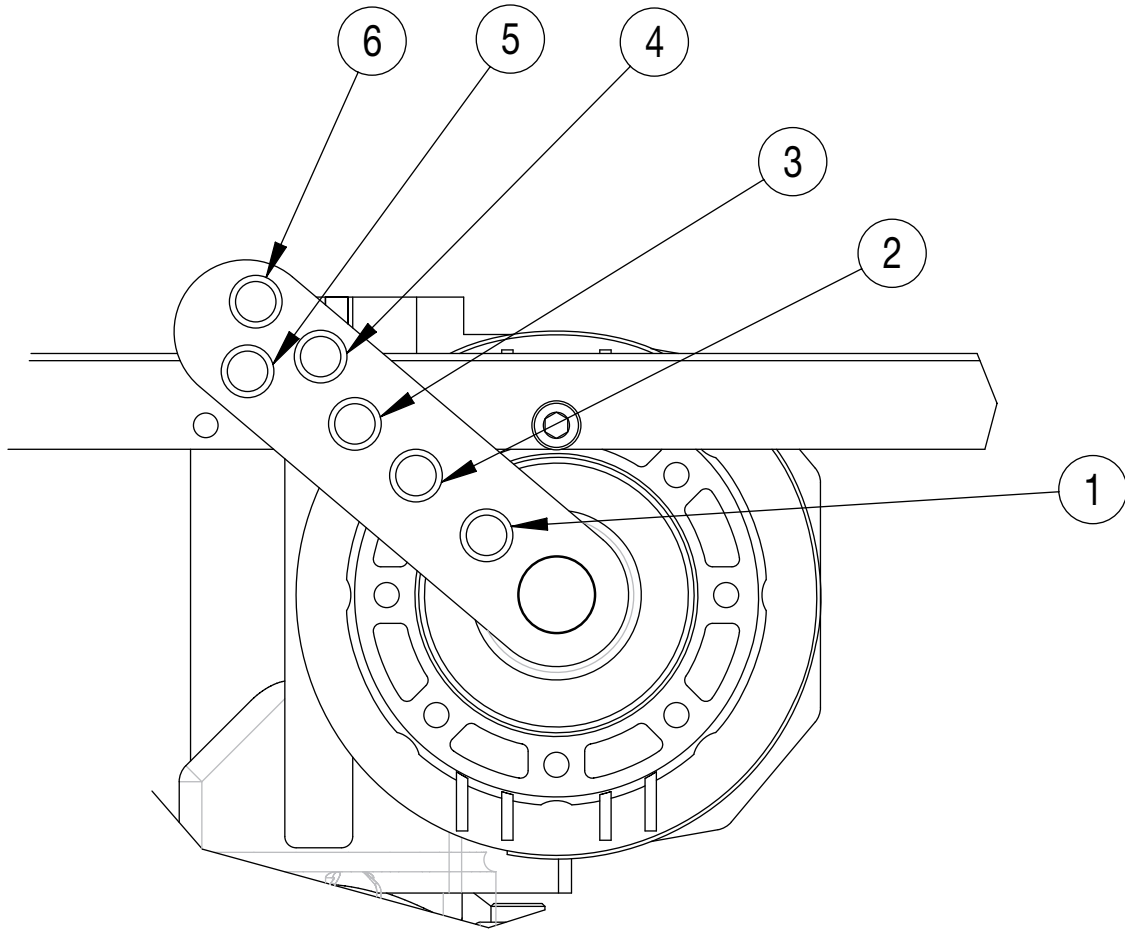
To adjust the angle of oscillation:

1. Shut off water supply.
2. Close the SPEED CONTROL knob.
3. Remove the angle adjustment lid from the guard (Figure 1).
4. Unscrew the angle adjustment bolt connecting the crank arm to the coupling arm (Figure 1).
5. Position the coupler in the correct bolt position based on the desired oscillation angle (Figure 6).
6. Thread the bolt back into the crank arm and tighten to 25 ft-lbs (300 in-lbs, 34 N-m). The bolt shoulder must pass through the bushing in the coupling arm.
7. Replace angle adjustment lid on the guard when the angle adjustment is complete.
8. Aim monitor to a safe area.
9. Turn water supply on and open SPEED CONTROL knob to verify that the oscillation range and monitor angle is adjusted as intended.
10. If monitor angle needs adjusted, close SPEED CONTROL knob and adjust monitor angle according to monitor instructions.
11. Open the SPEED CONTROL knob to the desired speed of oscillation. The speed of oscillation will increase or decrease with changes in pressure or flow. Additionally, the speed of oscillation will increase as the oscillation range setting increases.
12. If oscillation range needs further adjustment, repeat steps 1 through 10.

**⚠ WARNING:** The oscillating flange contains moving parts. Keep hands, fingers, and objects away from moving parts and never operate without guards.

**⚠ WARNING:** Keep all personnel out of the WATER DISCHARGE AREA (Figure 2), in front of the outlet of the monitor, when the water source is attached. Dangerous flow velocities can cause serious injury.

**Figure 6**



**NOTE:**  
CRANK ADJUSTMENT BOLT REQUIRES 5/16" HEX

Position	Angle of Oscillation
1	30°
2	60°
3	90°
4	120°
5	142°
6	165°



# OPERATING INSTRUCTIONS

## A. FLOWING WATER

Once the oscillating flange is centered on the desired target, it is ready for operation. A minimum operating pressure of 50 psi is required. The speed of oscillation is dependent on the pressure, flow through the nozzle, and the oscillation angle. The speed of oscillation can be adjusted with the SPEED CONTROL knob. The SPEED CONTROL knob will stop the oscillation if it is fully closed.

NOTE: The unit will discharge water from the water turbine housing during use.

## B. TESTING THE OSCILLATION RANGE

The oscillation angle can be tested using a hose supplied from an appropriate water source. The TEST PORT is a female 3/4" GHT (garden hose thread) swivel which can be connected to a hose.

1. The SPEED CONTROL knob must be fully closed.
2. Attach the garden hose to the TEST PORT.
3. Apply pressure to the garden hose.
4. If the oscillation needs to be stopped during the test, open the SPEED CONTROL knob or shut off the main water supply.

## C. COLD WEATHER

The water jet which drives the water motor has been designed to self-drain to withstand freezing temperatures as long as the water level in the main water way is below the bottom of the oscillating flange.

CAUTION: It is recommended that either an automatic drain valve is installed below the oscillating flange or the water is drained from all plumbing.

## CAUTIONS:

Your oscillating flange, monitor, and nozzle should be inspected prior to and after each use to ensure it is in good operating condition. Periodically, an unanticipated incident occurs where the unit is used in a manner that is inconsistent with standard operating practices. A partial list of potential misuses includes:

- Operating above maximum rated pressure or flow.
- Improper draining and allowing water to freeze in the unit.
- Prolonged exposure to temperatures above 140 degrees F, or below -40 degrees F.
- Operating in a corrosive environment.
- Other misuse that may be unique to your specific environment.

Also, there are many "tell tale" signs that indicate repair is in order, such as:

- Jerky or hesitant oscillation motion.
- Excessive wear.
- Poor discharge performance.
- Water leaks.

If any of the above situations are encountered, the oscillating flange should be taken out of service, inspected, repaired and tested by a qualified technician before placing it back in service.

## ROUTINE MAINTENANCE INSTRUCTIONS

The following maintenance procedures will extend the service life of this appliance.

**⚠ WARNING:** Maintenance should not be performed while flowing water. Disconnect from water supply prior to maintenance.

- A. Use the test port to operate the oscillating flange or flow water through the main waterway once every six months.
- B. The gearbox lubrication should not need changed during the lifetime of the device.
- C. The flange bearings are an engineered polymer that is self-lubricating and does not require maintenance.
- D. Check for leaks, excessive wear, looseness of the flange joint, loose bolts in the oscillation mechanism every six months or after each use whichever is shorter.

## TROUBLESHOOTING

If the unit fails to operate properly or stops:

- A. Check the SPEED CONTROL knob. Make sure SPEED CONTROL is open.
- B. Check operating pressure. Make certain an inlet pressure of at least 50 psi (345 kpa, 3.4 bar) is maintained.
- C. Check linkage arms to ensure that they are free of debris and that all bolts are in place and tight.
- D. Make sure that the water turbine exhaust water can freely exit the turbine housing.



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