

Installation, Operating, & Maintenance Instructions



Model 8297 2.0

Stinger 2.0®

Break-Apart Portable Monitor & Accessories

98272000 REV-F

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I. PRODUCT SAFETY



Important:

Before installing and operating this equipment, read & study this manual thoroughly. Proper installation is essential to safe operation. In addition, the following points should be adhered to in order to ensure the safety of equipment and personnel:

- All personnel who may be expected to use this equipment must be thoroughly trained in its safe and proper use.
- Before flowing water from this device, check that all personnel (fire service and civilian) are out of the stream path. Also, check to make sure stream direction will not cause avoidable property damage.
- Become thoroughly familiar with the hydraulic characteristics of this equipment, and the pumping system used to supply it. To produce effective fire streams operating personnel must be properly trained.
- Open water valve supplying this equipment slowly, so that piping and hose lines fill slowly, thus preventing possible water hammer occurrence.
- After each use, and on a scheduled basis, inspect equipment per instructions in section V.
- Always determine that latch pins are fully engaged (see Fig. 13 pg.11).
- Never exceed 1250 GPM flow in any mode.
- Never exceed 200 PSI inlet pressure in any mode.
- Never lower the discharge below the safety stop in portable mode.
- Always engage left/right lock when un-manned or not in use.
- Always secure the monitor with the safety strap in portable mode.
- Never attempt to move the monitor's portable base while flowing water.
- Always inspect the ground spikes for damage after each use.

Master streams are extremely powerful. Therefore, great care must be taken in directing such streams to avoid injury to personnel and unwanted damage to property.

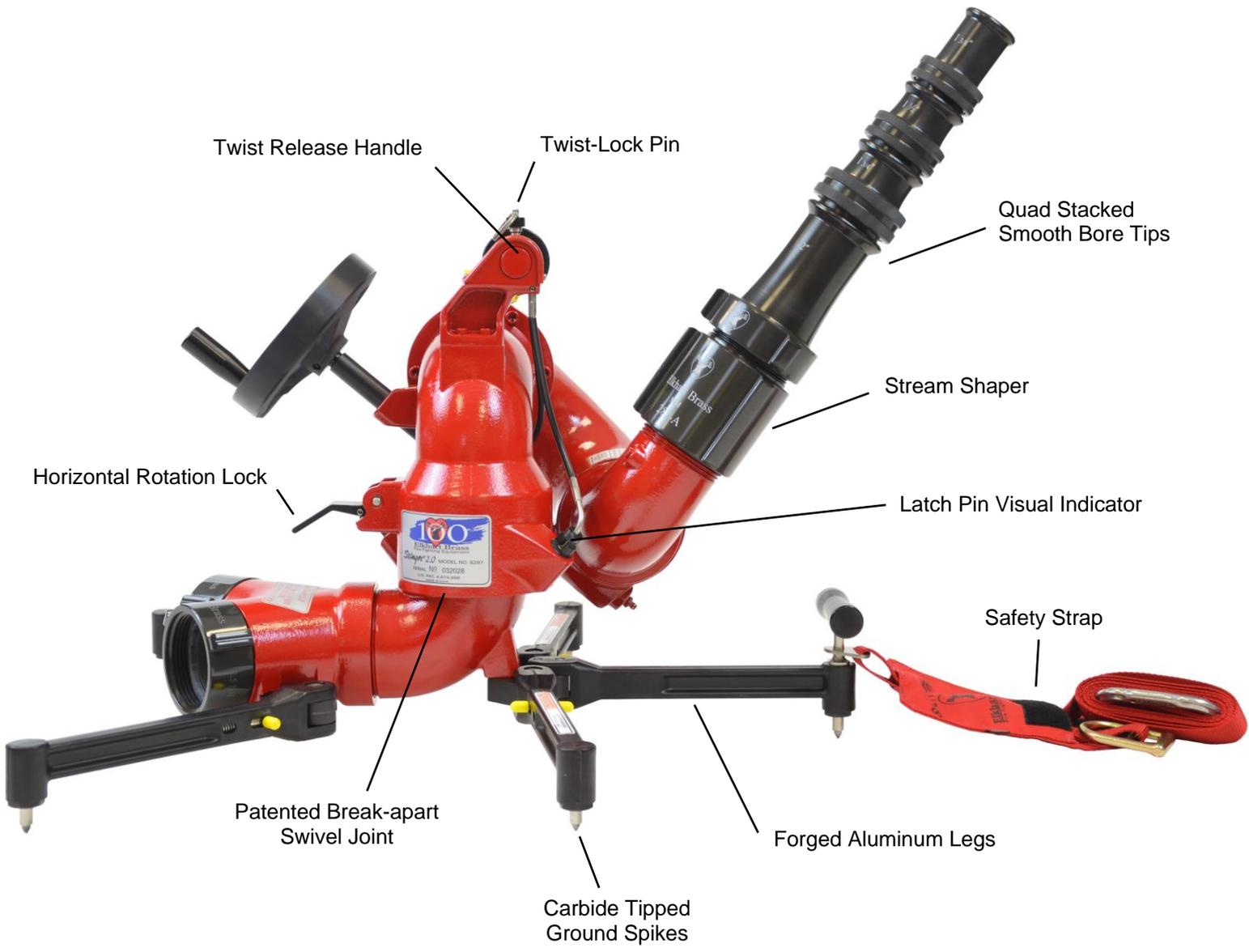


Fig. 1
Stinger 2.0® W/ 282-A Stream
Shaper & Quad Stacked Tips

II. PRODUCT DESCRIPTION

A. 8297 Stinger 2.0® Upper Monitor Assembly

The 8297 Stinger 2.0® Portable Monitor is a lightweight dual-purpose monitor. The highly efficient cast aluminum waterway contains a central vane to minimize large-scale turbulence and provide superior fire streams. The patented break-apart swivel joint allows one upper assembly to be used with either of two truck mount adapters or one of the many portable bases. The vertical stream direction is controlled by a handwheel driving a worm gear. The horizontal stream direction is controlled by disengaging the left-right lock and moving the return bend by hand. The maximum monitor flow capacity is 1250 gallons per minute with most base adapters (the clappered Siamese inlet is rated at 1000 GPM).

Stinger 2.0® monitors are normally supplied with the 282A and ST-194 Stacked Tip combination. The SM-1250  constant pressure (automatic) type master stream nozzle is also available for use with the Stinger 2.0®.

The following additional features are also provided in the Stinger 2.0® monitor:

Twist Release Handle and Lock Pin

The twist release handle makes a convenient carrying handle for both the Stinger 2.0® upper and the Stinger 2.0® with a portable base attached. It also provides for a quick conversion from the deck mode to portable base mode. The lock pin ensures that the user does not accidentally activate the twist release handle while carrying the Stinger 2.0® attached to the portable base.

Elevation Safety Stop Pin

The stop pin alerts the operator when the elevation has reached its lowest point before needing manual over-ride. The manual over-ride should only be used when the Stinger 2.0® monitor is attached to the 8298 2.0 or 8299 2.0 deck mount adapters. Using the over-ride while in portable mode can cause serious injury or death to nearby personnel.

Latch Pin Visual Indicator

The visual indicator is used to quickly determine when latch pins are engaged. When the latch pins are properly engaged, no part of the pins should be visible in the indicator cutout of the latch pin cap.

Left-Right Lock Lever

The left-right lock is designed to engage only when the upper monitor assembly is installed on a truck mount or portable base. The left-right lock lever visually indicates the status of the lock.

B. 8298 2.0 Deck Mount Adapters

The 8298 2.0 deck mount adapter allows use of the 8297 2.0 as a deck gun, and is designed for a pre-plumbed pipe directly from the pump. The 8298F 2.0 adapter consists of the 3" 150# flat faced ANSI flange, cast waterway, swivel ring, and anti-rotation pins for the 8298EX 2.0. The 8298P 2.0 adapter consists of the 3" NPT female thread, cast waterway, swivel ring, and anti-rotation pins for the 8298EX 2.0.



Fig. 2
8298F 2.0 Deck Mount Adapter

C. 81315001 3" Companion Flange Kit

Elkhart Brass offers a 3" companion flange kit to be used with the 8298F 2.0 deck mount adapter. The kit consists of an ANSI 3" 150# flange, four 5/8 – 16 bolts with nuts, and a 3" gasket.



Fig. 3
3" Companion Flange Kit

D. Portable Bases

There are six optional portable bases available:

1. Two 2.5" clappered female swivel inlets
2. One 3.5" swivel inlet
3. One 4.0" swivel inlet
4. One 4.5" swivel inlet
5. One 4.0" Storz inlet
6. One 5.0" Storz inlet

The portable base support legs can be folded for compact storage in an apparatus compartment or hose bed pre-connected to a supply hose line. The folding legs are designed to be easily rotated from the stored position to the extended and locked position and back again. The spring loaded carbide ground spikes are very hard and very sharp, important factors in the prevention of sliding under flow.



Fig. 4
5" Storz Base



Fig. 5
Dual 2.5" Siamese Base

E. 8297MB Storage Bracket

The 8297MB is an optional, lightweight bracket that is designed to hold the Stinger 2.0[®] securely in place while in storage. The 8297MB can be used to store the complete monitor or the portable base separate from the upper monitor. A single release lever allows for fast and efficient removal of the unit from the storage bracket. The bracket can be mounted either horizontally or vertically. (Not intended to be used while flowing water.)



Fig. 6
8297MB Storage Bracket

F. 8299 2.0 Deck Mount Adapter

The 8299 2.0 is a top mount adapter designed to be supplied with one or two short lengths of 2.5” or 3.0” hose from the discharge outlets. The clappered inlet consists of two 2.5” NHT swivels; special threads are available upon request. The 8299 2.0 assembly contains the adapter and hardware needed to mount it to the top of the apparatus.



Fig. 7
8299 2.0 Deck Mount Adapter

G. 8298EX 2.0 *The PIPE*

The Pipe[®] is an optional extension tube designed to allow the Stinger monitor to be quickly and easily installed in a higher position during deck gun deployment in order to clear apparatus obstructions such as flood lights, hose bed, hose reels or a raised roof cab. The 8298EX 2.0 utilizes the same patented break-apart swivel joint used in the Stinger 2.0[®] monitor. The 8298EX 2.0 can only be used in conjunction with the 8298 2.0 deck mount adapter. The 8298 2.0 adapter must be attached to supply piping that has been reinforced to withstand the nozzle reaction forces generated by the Stinger 2.0[®]. (Not intended for use with the portable bases.)



Fig. 8
8298EX2.0 *The PIPE*

H. 8298EX-MB *The PIPE* Mounting Bracket

The 8298EX-MB mounting bracket allows convenient and secure storage of the 8298EX 2.0.



Fig. 9
8298 *The PIPE* Mounting Bracket

I. 81460001 Anchor Kit

The anchor kit is used to safely secure the monitor in place with a steel stake. The Stinger 2.0[®] should always be anchored with the attached safety strap when it is in the portable mode. The kit also includes a Nupla[®] 4lb. hammer with safety grip fiberglass handle, and a nylon carrying bag.



Fig. 10
81460001 Anchor Kit

III. INSTALLATION

A. 8298F 2.0 Deck Mount Adapter

Attach the 8298F 2.0 flange to a 3" 150# ANSI flat faced steel companion flange on the water supply pipe (See kit #81315001 on Pg. 6). Seal the flange joint with a full-face gasket, or a suitable flange sealant. Fasten the flanges with four 5/8-11 UNC 2½" long grade 5 steel or stainless steel bolts and compatible nuts. Apply Loctite® #242 Thread Retainer to the bolt threads, then thread all nuts on hand tight, and torque them to 60-70 ft-lbs in a crisscross pattern in 20 ft-lb increments.

 **Caution:** When installing 8298F 2.0 adapter on a companion flange it is critical that the bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. If the monitor becomes cocked, (see Fig. 11) the 8298F 2.0 cast flange will fracture and fail when the bolts on the "high" side are tightened. Do not mount the 8298F 2.0 on a raised face companion flange. A flat-faced companion flange kit is available from Elkhart Brass (P/N 81315001).

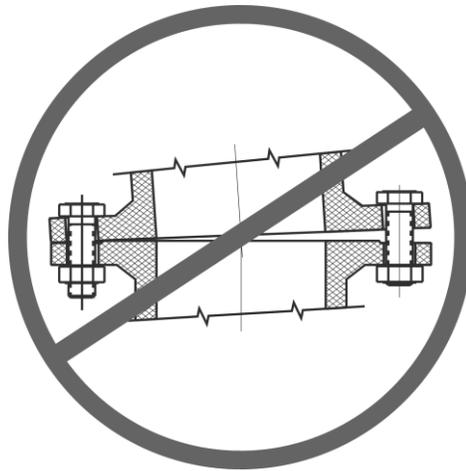


Fig. 11
Improper Flange Installation

B. 8298P 2.0 Deck Mount Adapter

Attach the 8298P 2.0 to the 3" NPT male thread on the water supply pipe. Seal the joint with a suitable pipe thread sealant. Tighten the 8298P 2.0 with a strap wrench or any other wrench that won't mar any of the 8298P 2.0's surfaces. Damage to any surfaces may interfere with installation of the upper monitor assembly and/or 8298EX 2.0. Do **not** use the alignment pins on the 8298P 2.0 as lugs to tighten the adapter, they may bend causing interference with installation of the 8298EX 2.0.

 **Warning:** The piping must be able to withstand a horizontal reaction force of at least 900 lbs at the height of the discharge elbow and from any angle of rotation that the monitor is capable of turning. Additional support is required if the 8297 Stinger 2.0® is going to be used with an 8298EX 2.0. Serious injury to personnel and damage to equipment can result from improper installation.

C. 8299 2.0 Deck Mount Adapter

The 8299 2.0 deck mount adapter (Fig. 7) is designed to be supplied water from two 2½” or 3” hose lines attached to the pump discharges. When planning the installation of the 8299 2.0 adapter, be sure to consider these two important factors:

- a) The location of the adapter should not result in kinking of supply hose lines
- b) The mounting platform must be capable of withstanding up to 900 lbs nozzle reaction force.

Drill four (4) mounting holes into the mounting platform according to the pattern shown in Fig. 12. Fasten the 8299 2.0 using the supplied 7/16-14 UNC socket cap screws and nuts. Apply Loctite® #242 Thread Retainer to the bolt threads.

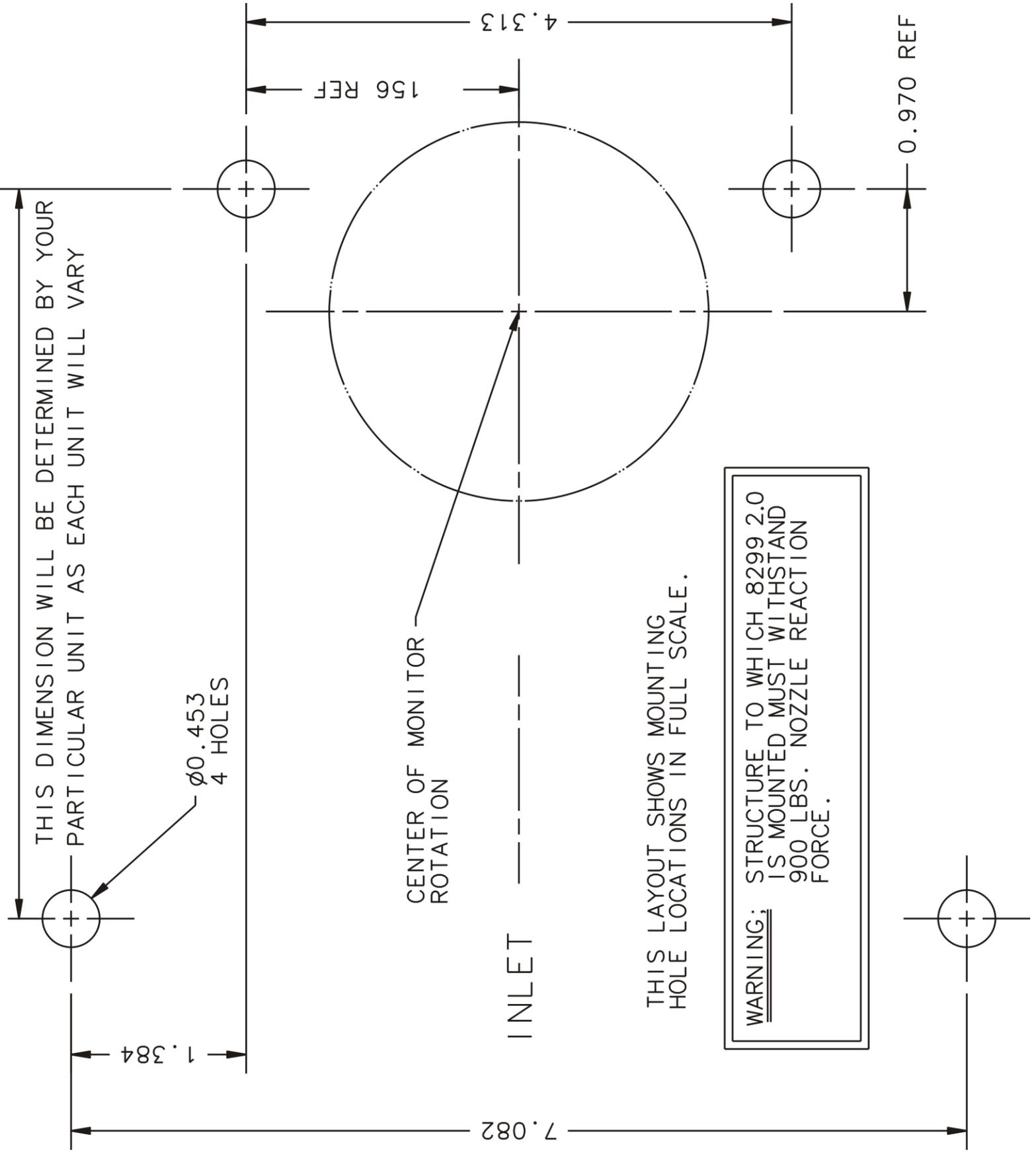


Fig. 12
8299 Mounting Template

IV. OPERATION

A. Deck Gun Mode (Max inlet pressure in any mode is 200 PSI)

1. Attachment and Operation

a) Install the monitor by supporting the nozzle and holding the twist handle on the upper monitor assembly. Align the inlet end of the monitor with the outlet of the 8298 2.0, 8299 2.0, or 8298EX 2.0.

b) Lower the monitor down onto deck mount outlet and push down evenly so that the latch pins pass over the swivel ring. (The monitor should now be resting on top of the swivel ring.)

c) Confirm correct latch pin positions by checking the visual indicators in the latch pin caps (Fig. 13).

d) With the left-right lock released, pull up on the carrying handle firmly. The upper monitor assembly should raise approximately 3/16" and at that point, the latch pins should contact the bottom of the swivel ring.

e) Aim the nozzle towards the target and engage the left-right lock (Fig. 14).

f) Charge the monitor. Increase the pressure until the desired flow is reached.

g) Release the left-right lock while holding monitor stationary. Vertically position the nozzle stream with the hand wheel and horizontally position the stream by pushing or pulling on the return bend of the monitor.

h) In order to lower the discharge below 35 degrees (with the Deck Mount only) pull the ring attached to the vertical safety stop plunger (Fig. 15), turn the handwheel clockwise past the normal stop position (35 degrees), and release the ring. As soon as the nozzle elevation is raised above 35 degrees the vertical safety stop will re-engage itself and need to be over-riden again to go below 35 degrees elevation.

i) Engage the left-right lock to hold the monitor in position. **Never leave the monitor unattended while the left-right lock is disengaged.**

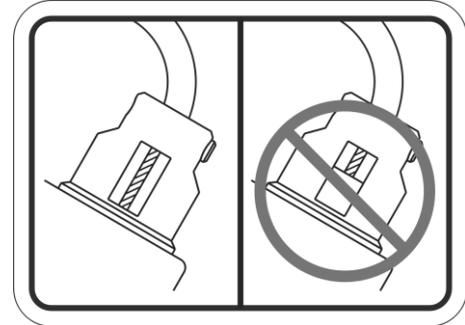
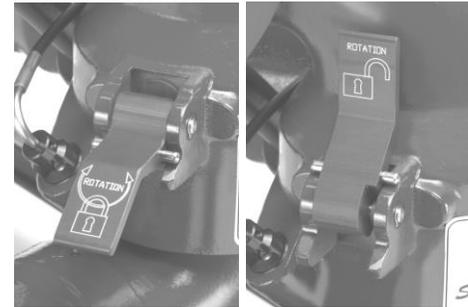


Fig. 13
Latch Pin Indicators



Engaged **Disengaged**
Fig. 14
Left-right Lock Indication



Fig. 15
Vertical Safety Stop Pin



Attention: Use of the Stinger 2.0[®] with older style base designs is not recommended. Left-right lock performance will be reduced. Also the use of older Stinger upper assemblies with Stinger 2.0[®] base adapters is not recommended. The older Stingers can damage the knurling on the base adapter.

2. Monitor Removal

- a) Shut down the water flow, and disengage the left-right lock.
- b) Pull the twist release lock pin up, and hold it. Twist the handle and hold it to keep the latch pins in the released position (see Fig. 16). The twist release lock pin should now be released.
- c) Support the nozzle and lift the unit straight up off the truck mount or 8298EX 2.0.
- d) Release the twist handle, allowing the latch pins and the twist release lock pin to return to their original position.



Fig. 16
Twist Handle and Lock Pin

When the monitor is stored on the top mount adapter or the deck mount fixture, the left-right lock should be engaged to prevent it from spinning on the swivel joint while the apparatus is in motion. It is also recommended that only the Elkhart Model 282A stream shaper be used with this monitor. The short length of the 282-A keeps the nozzle as low as possible.

When the 8297-2.0 monitor is installed on a fire apparatus used in cold climates, a drain valve should be provided in the riser pipe that supplies the monitor. The riser should be drained immediately after each use during cold weather to prevent freezing and possible damage to the monitor and piping. The discharge portion of the monitor can be drained by simply lowering the discharge elbow below horizontal and allowing the water to drain through the nozzle.

To reduce possibility of damage to the monitor by contact with overhead doors, branches, etc, the nozzle discharge should be kept at the lowest possible angle.

B. Portable Monitor Mode

Carrying the upper monitor assembly on the truck mount adapter allows for its use while the portable base and hose line(s) are being deployed. Determine the portable base location (keeping in mind the need for a substantial stationary object to which the safety strap can be attached that is in line with the intended stream direction). Remember that the nozzle reaction force can be as high as 900 lbs.

1. Prepare the portable base for use by simply rotating each of the four folding legs into its locked position, starting with the two rearmost legs. It is very important that the legs be in the locked position prior to initiating water flow.
2. Anchor the portable base with the safety strap. The safety strap should be attached to the portable base at the carrying handle support post on the front center leg and secured around a substantial stationary object. The stationary object, such as a stake, parking meter, fence post, etc., should be positioned between the Stinger 2.0[®] monitor and the intended target. The center leg of the portable base should point directly at the stationary object and the intended target. The monitor should never be used with any slack in the safety strap. If no suitable object is available, the Elkhart 81460001 anchor kit must be used.
3. Attach the hose(s) to the portable base. To minimize the possibility of the charged hose lines moving the monitor, the supply hose should be kept straight in line with its respective inlet port for a distance of at least ten feet.

4. Remove the upper monitor and nozzle assembly from the deck mount and attach it to the portable base. Attach the upper monitor assembly to the portable base using the same technique used to attach it to the deck mount adapter (see section IV.A.1).
5. Confirm the correct latch pin positions by checking visual indicator cut outs in latch pin caps (see figure 3).
6. Aim the monitor nozzle towards the intended target and engage the left-right lock. The monitor discharge should not be turned more than 45 degrees to either side of the front center leg.
7. Charge the hose lines slowly to prevent water hammer.
8. Operate the monitor as described in section IV.A.1, deck gun operation, with the exception of paragraph G. (See Warning below)



Warning:

Never lower the discharge elbow below the angle allowed by the vertical safety stop when using the Stinger 2.0[®] in portable mode. If the discharge is lowered below the safety stop, the nozzle reaction force will cause the monitor and hose lines to slide. If the discharge is lowered below horizontal, the nozzle reaction force will cause the monitor and hose lines to become airborne. Serious injury or death could occur if these warnings are not followed.



Attention:

Use of the Stinger 2.0[®] with older style base designs is not recommended. Left-right lock performance will be reduced. Also the use of older Stinger upper assemblies with Stinger 2.0[®] base adapters is not recommended. The older Stingers can damage the knurling on the base adapter.

D. 8298EX 2.0 *The PIPE* (Max inlet pressure is 200 PSI)

To place the 8298EX 2.0 into operation, first remove the Stinger 2.0[®] monitor from the 8298 2.0 deck mount, and set it aside. Align the inlet end of the 8298EX 2.0 with the 8298 2.0 adapter and push the 8298EX 2.0 down, being careful to align the slots in the 8298EX 2.0 with anti-rotation pins on the 8298 2.0 adapter. Push the 8298EX 2.0 down until the anti-rotation pins are fully engaged in the slots. You should hear the spring loaded latch pins snap into position as the 8298EX 2.0 is installed. Pull up on the 8298EX 2.0 to verify that the pins are properly engaged.

To install the Stinger 2.0[®] monitor on the discharge end of the 8298EX 2.0, use the same technique used to install the upper on the deck mount adapter. (See Section IV.A.1).



Warning:

Do not attempt to use the 8298EX 2.0 on a portable ground base. Serious injury or death could occur.

V. MAINTENANCE

A. Preventive Maintenance Procedures for *Stinger 2.0*® Upper Assembly

1. After Each Use:

Check for proper latch pin operation. To do this turn the upper unit upside down and push each latch pin up into its respective hole. It should move smoothly, easily, and far enough into its hole that no part of the pin is exposed in the large bore. Using the twist release mechanism, make sure that the latch pins retract fully into their holes and are not exposed in the large bore when the grip is twisted to its limit. Release the twist grip and check to be sure the latch pins both return to the fully latched position by checking the visual indication windows in the latch pin caps (See Fig. 13, Pg.11). With the twist release stop pin pulled, twist and release the grip several times. The grip should turn smoothly when released. Pull and release the twist release stop pin to make sure it is working freely. Pull the twist release stop pin and rotate the twist handle to the fully released position. Release the stop pin and then release the twist handle. The mechanism should quickly and smoothly return to the fully latched position and the twist release stop pin should reset to the locked position.

The twist handle has nylon bushings, the cable guides are plastic lined, and the latch pin caps and holes are Hardcoated and Teflon impregnated to provide years of smooth operation without lubrication. Lubrication will attract dirt and possibly cause the latch pin mechanism to hang up, creating a severe safety hazard.

2. It is very important to check that the left/right lock is working property. The lock plug is a wear item and will need to be replaced periodically (For replacement See Step 4)



Warning:

If any part of the latch pin mechanism hangs up or does not seem to work correctly, DO NOT use the monitor. DO NOT lubricate any part of the latch pin mechanism. Contact Elkhart Brass for further instructions.

3. As Needed:

Check that the interior of the monitor inlet is clean. Flush out any dirt with clean water. To assure ease of horizontal rotation, periodically apply a light coating of general purpose petroleum grease to the U-Cup seal (P/N 62153000) within the monitor inlet. Do not remove the seal for lubrication.

Grease the worm gear as needed or at least every 6 months with general-purpose petroleum grease. Rotate the handwheel to raise the discharge to its highest elevation, apply grease to the fitting located on the lower front of the unit. Fill it until grease appears at the discharge elbow joint. Lower the discharge to the safety stop limit and repeat the grease procedure. Pull the safety stop pin, lower the discharge to its lowest position, and repeat the grease procedure again. Raise the discharge until the safety stop is reset. Wipe off the excess grease. Clean the monitor

4. To replace the left-right lock plug remove the retaining ring from the pivot pin on the torsion spring end. Remove the pivot pin from the opposite side while holding the lock lever and torsion spring with your free hand. Remove the old lock plug and insert a new one. Clean the knurling on all bases. Reverse the steps to reassemble the lock.

5. Replace the labels if they become illegible, lost, painted over, or removed.

B. Maintenance Procedures for Stinger 2.0® Bases

1. After Each Use:

Clean any dirt from the unit with mild soap and fresh water. DO NOT use any type of solvent, thinner, or similar product with this unit. No lubricants should be used on the portable bases. The aluminum parts are Hardcoated and Teflon impregnated and need no lubrication.

Inspect the knurling, looking for damaged or dirty teeth. Clean the teeth if necessary.

Inspect the spring loaded ground spikes for damage and proper function. The spike assemblies parts should move in and out freely. Inspect the ground spikes. The carbide tips should come to a sharp point. Replace the ground spike assembly if the carbide tips are damaged. Replace the ground spike assembly (P/N 81125001) by removing the ground spike retainer (P/N 57022001) from the leg. Turn the retainer counter-clockwise with the correct size socket or wrench, and remove the spike assembly and coil spring. Clean the leg socket. Place a small amount of Loctite #242 on the male thread of the retainer before installation. Install the spring, new spike assembly, and retainer. Tighten the retainer firmly.

Inspect each of the folding legs for correct operation of the lock pins and smooth operation on their pivot screws. Check the leg lock pins by sliding them back and forth in their bores using the yellow-capped pins on both sides of the leg near the pivot point. The lock pins should slide smoothly in the leg bore and the cone-shaped end should fit snugly into the tapered hole in the leg bracket. Retract the lock pin and rotate the leg back and forth on the pivot screw. The leg should rotate freely. If needed, flush the leg assembly with water while cycling the lock pin and/or leg through its full range of motion until smooth operation is achieved.

Inspect the safety strap and snap hook. Make sure that the spring-loaded closure on the snap hooks pivots freely and returns to the locked position.

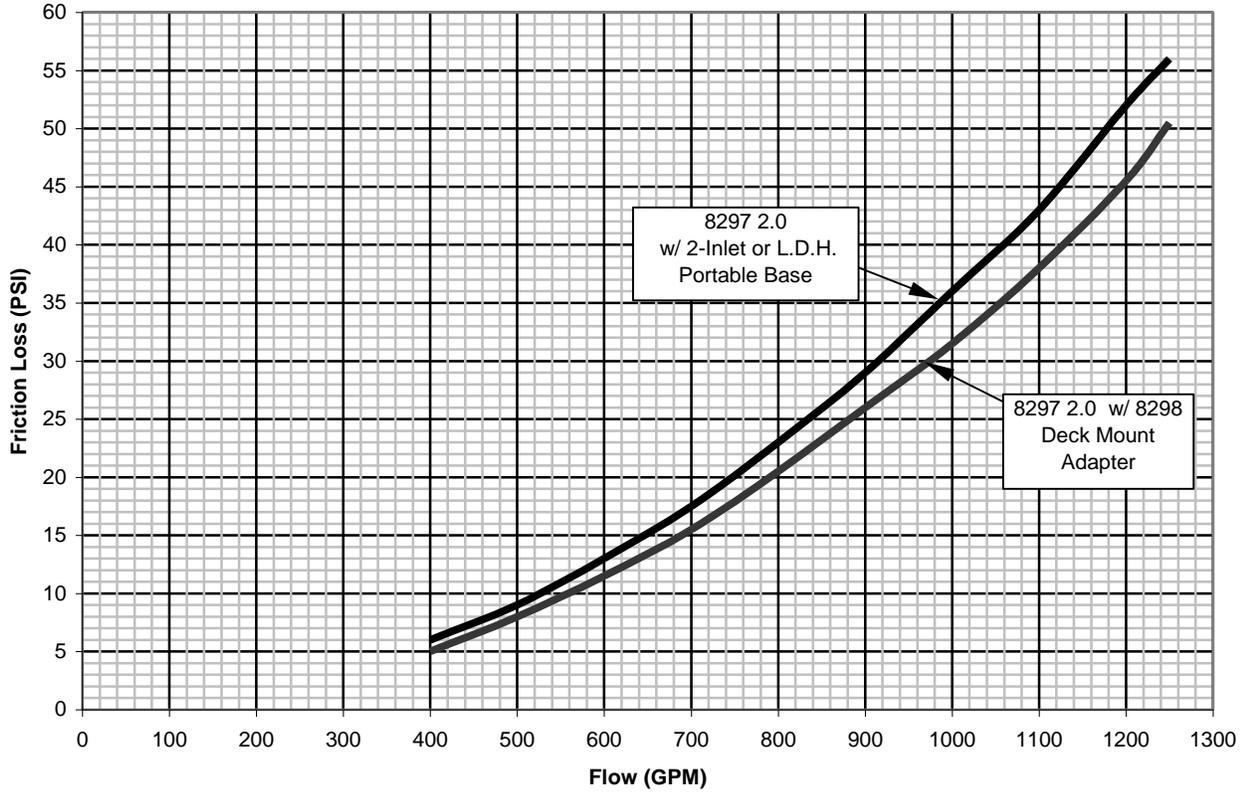
2. As Needed:

Replace any damaged parts including illegible labels. Part numbers can be found in the exploded parts drawings at the end of this manual. Parts can be ordered from any Elkhart Brass distributor, or directly from Elkhart Brass Mfg. Co. Inc. Please call 1-800-346-0250 with any questions about this or any other Elkhart Brass product.

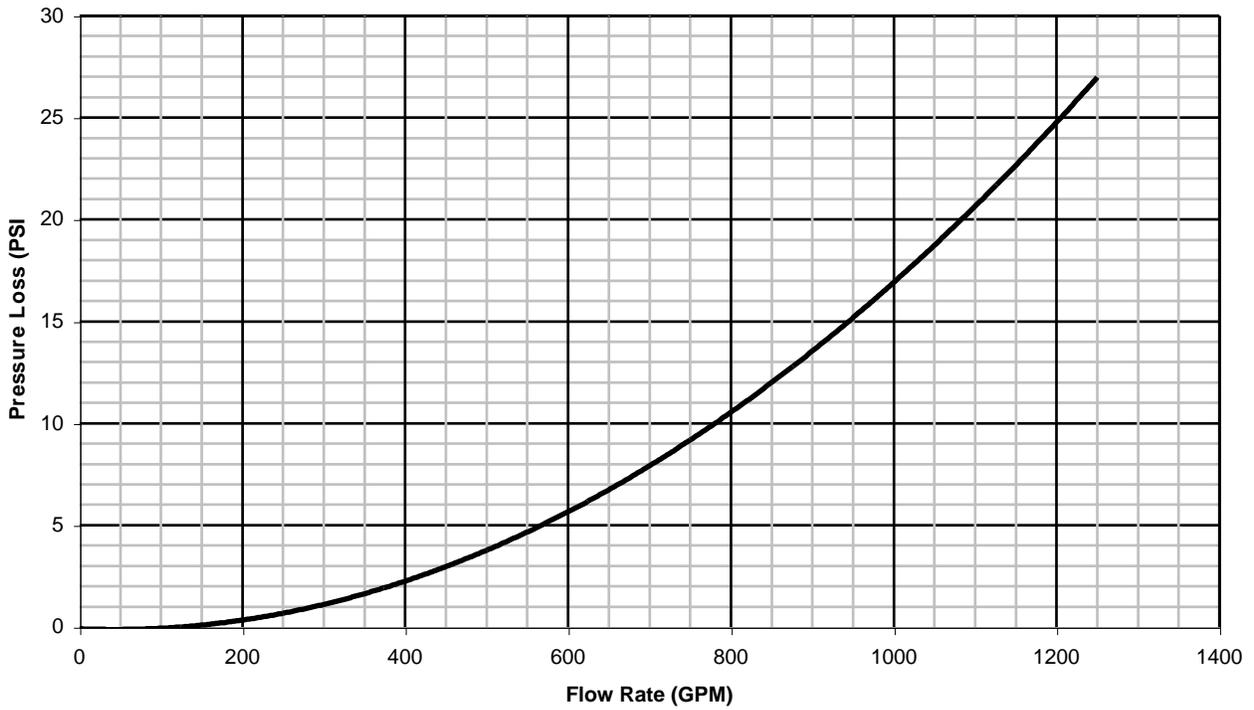
Notes:

VI. MONITOR & STREAM SHAPER HYDRAULIC DATA

8297 2.0 Stinger Monitor
Friction Loss Data



282-A, 282-B Stream Shaper Friction Loss



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