HYDRA-STOP®

SOLUTIONS FOR CONTROL

Hydra-Stopper LD4120 Line Stopping Machine

4”–12” Operating Instructions — Revised April 2021

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SECTION 1.0.0 — General Safety Warnings

These instructions depict the use of the most up-to-date Hydra-Stop line stop fittings, tapping equipment, and accessories. Please be certain you are following the instructions for your equipment.

General Safety Precautions — Read and Follow Instructions

Carefully read and understand all safety messages in this manual before using the equipment. The manuals provided with the equalization pump must also be read for safety. The maintenance procedures are to be followed to keep the equipment in good working condition.

Personal Protection

Hydra-Stop recommends that installers wear required personal protective equipment including but not limited to:

- Hard Hat
- Safety Shoes
- Safety Glasses
- Ear Protection
- Gloves

Avoid wearing jewelry, such as rings, wristwatches, necklaces, or bracelets. If working near traffic, select ear protection that allows you to hear the traffic for safety.

Keep Spectators Away from Installation Area

Keep all spectators and other workers away from machines and work area(s) while in operation.

Clear Work Area

Clear the work area of all objects that might interfere with the proper operation of any tools. Avoid placing tools or other objects where they can fall into the pit.

Do Not Work in an Unsupported Trench

Do not work in trench with unstable sides, which could cave in. Specific requirements for shoring or sloping trench walls are available from several sources including federal and state offices. Be sure to contact suitable authorities for these requirements before working in the trench. A minimum 5'x 5' excavation is recommended.

Locate the existing pipe joints or fittings in the area and use the appropriate restraint methods if necessary.

Check Laws and Regulations

Know and obey all Federal, State, and local laws and regulations that apply to your work situation.

Handling the Equipment

To avoid back injury, use proper lifting techniques. Follow all equipment instructions when lifting heavy loads.

Check Hardware and Equipment

Make sure that all air or hydraulic line couplings are tightened and secured to eliminate the chance of accidental uncoupling. Use hose connection retaining devices such as locking rings, clips, pins, chains, or cables. Identify all equipment and tools necessary for the size of HSF 250 you intend to install. Inspect equipment to verify it is in good working condition and free of wear and damage prior to use. Never start an operation if the equipment is not in proper working order. Contact Hydra-Stop if equipment is not in working order.

Do Not Exceed Load Rating on Any Lifting Equipment

This includes but is not limited to lifting magnets, eye bolts and straps. Lifting magnets provided with Hydra-Stop equipment are labeled with a load rating. 12" knife gate lifting assists and 3/4" eye bolts should ONLY be used for lifting 12" and 8" temporary gate valves respectively.

WARNING: Failure to follow any of the above safety instructions or those that follow in this manual, could result in serious injury. Any operation involving work on pipe containing liquids or gases under pressure is potentially hazardous. It is necessary, therefore, that correct procedures be followed in the use and maintenance of this equipment to maintain a safe working environment.

No person should use this equipment who is not fully trained in the procedures stated in this manual, and who is not fully aware of the potential hazards connected with work on pipe containing liquids or gases under pressure.

The purchaser of this equipment is responsible for the manner in which this equipment is used, maintained and the training, competence and safety of the operators.

Should any difficulty arise at any time in the use of this equipment, please contact HYDRA-STOP at 708-389-5111 immediately.

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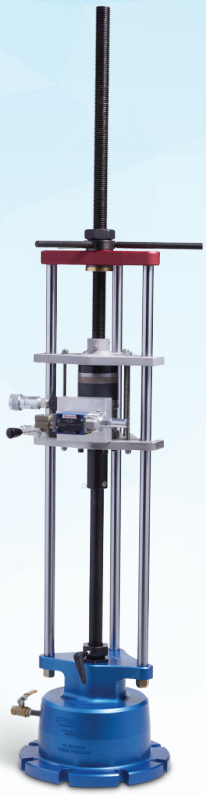
Hydra-Stopper LD4120 Line Stopping Machine

Tapping Procedure for 4”–12” HSF Line Stop Installation



Section 2 — Tapping for 4”–8” HSF 250 Line Stop Fitting

2.1.0 Mount and Pressure Test Fitting Body on Pipe

2.1.1) Select the proper HSF 250 for installation. Identify the type of pipe the HSF 250 will be installed on. Accurately measure the outside diameter of the pipe.

2.1.2) Refer to Appendix C (page 19) to review the HSF 250 Line Stop Fitting Body Installation Instructions.

2.2.0 Installing the Temporary Gate Valve

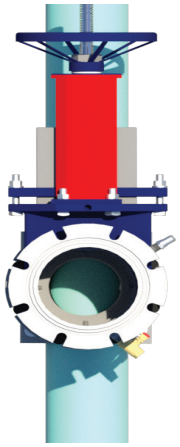


Figure 1A

2.2.1) Install the temporary gate valve. Use the 8” temporary gate valve on 4”, 6”, and 8” HSF 250s. If using aluminum stopping heads, position the temporary gate valve at the true 3, 6, 9, or 12 o’clock position (see Figure 1A). This will assist in the alignment of an aluminum stopping head in the line stopping procedure.

If using rubber stopping heads, you can position the temporary gate valve as shown in Figure 1B.

NOTE: Temporary gate valves are single direction valves and must be positioned top up. The 8” gate temporary valve must be installed with the O-ring groove facing up.

Figure 1B

2.2.2) Bolt the temporary gate valve to the top of the HSF 250 flange using the bolts, nuts, and washers provided with the installation equipment. We recommend using a cross-tightening pattern.

2.2.3) Install the O-ring in the groove of the 8” temporary gate valve (see Figure 1B).

2.2.4) Fully open the temporary gate valve.

NOTE: If you own an aluminum temporary gate valve, fully close the temporary gate valve and count the number of turns to open. This is important to know in order to check clearance issues later.

2.3.0 Setting up the Hydra-Tapper

2.3.1) Select proper size saw mandrel. Tapping of the 4”-8” HSF 250 requires the 27” long saw mandrel.

2.3.2) Select proper size shell cutter. Hydra-Stop shell cutters are shipped painted black. If you repaint shell cutters in the future, Hydra-Stop recommends painting them black.

- Installation of 4” HSF 250 requires 3.8” cutter.
- Installation of 6” HSF 250 requires 5.8” cutter.
- Installation of 8” HSF 250 requires 7.9” cutter.

NOTE: Do not use red painted shell cutters to install the HSF 250. Hydra-Stop side tap shell cutters are shipped painted red. Red painted side tap shell cutters are 1/2” undersized for side tapping.

2.3.3) Select proper size pilot drill.

- Installation of the 4” and the 6” HSF 250 fittings require the 1/2” X 6” long pilot drill.
- Installation of the 8” HSF 250 fitting requires the 1/2” X 7-1/4” length pilot drill.

NOTE: Tapping PVC or steel pipe will require a twist-style pilot drill.

NOTE: Failure to use the proper sized or type of pilot drill will result in a failed installation.

2.3.4) Loosen and remove the Allen-head pilot drill retaining set screw located on the side of the saw mandrel flange base.

2.3.5) Visually locate the tapered relief on the base of the pilot drill. Notice the stop or ledge at the base of the taper (see Figure 2).

Figure 2

2.3.6) Mark the flat of the taper with a visible marking agent (see Figure 3).

Figure 3

2.3.7) Align the pilot drill flat with the Allen-head set screw and insert the pilot drill through the center of the saw mandrel stud (see Figure 4).

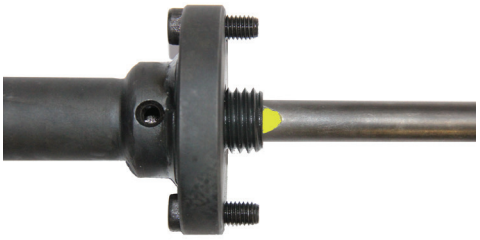


Figure 4

2.3.8) Confirm you have completely inserted the pilot drill and engaged the tapered flat. Look into set screw hole for the marking on the pilot drill. Adjust the pilot drill until you can see the marking (see Figure 5 on next page).

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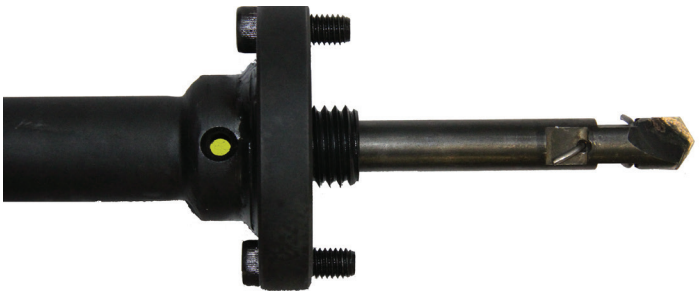

Figure 5

2.3.9) Once aligned, insert and tighten the set screw. Test pull the pilot drill to ensure the set screw is properly locked in place against the pilot drill ledge. Check the coupon retaining clips so they move freely (see Figure 6).

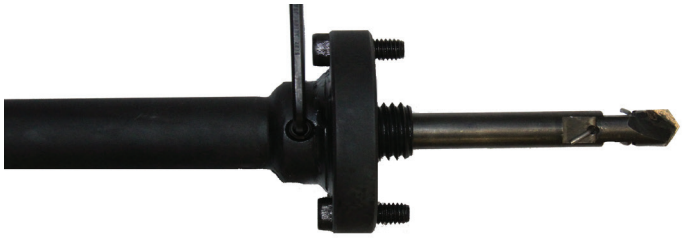

Figure 6

NOTE: Wear gloves when pulling on the pilot drill. Edges may be sharp.

2.3.10) Loosen and back out the 2 Allen-head cap screws on the flange of the saw mandrel until flush with the face of the flange.

2.3.11) Thread the appropriate shell cutter all the way onto the threaded stud of the saw mandrel's flanged end.

2.3.12) Back off to align the holes in the base of the shell cutter with the Allen-head cap screws and thread them through the holes. Tighten Allen-head cap screws.

2.3.13) Make sure the saw mandrel is clean and free of rust or grime (steel wool can be used to clean and smooth the surface).

2.3.14) Lubricate the end of the saw mandrel with a dab of the food-grade lubricant provided with the equipment to help it slide freely through the packing nut assembly.

2.3.15) Slide the assembled shell cutter and saw mandrel into the Hydra-Tapper until the saw mandrel flange bottoms out in the Hydra-Tapper.

2.3.17) Hand tighten the clamp lever on the packing nut assembly to keep the assembled shell cutter and saw mandrel in place.

NOTE: Do not use tools to tighten the clamp lever.

2.4.0 Installing the Hydra-Tapper

2.4.1) Using a strap or sling install the assembled Hydra-Tapper onto the 8" temporary gate valve and align the bolt slots.

NOTE: Use extreme caution not to damage the shell cutter or pilot drill as the unit is raised and positioned on to the temporary valve. **Note the position of the fully retracted cutting assembly.**

2.4.2) Install and cross tighten the bolts, nuts, and washers to secure the assembly. Thread the 1/4" nipple and ball valve into the tap housing and wrench tighten. **Teflon tape or thread sealant can be used.**

2.4.3) Hold and control the exposed saw mandrel, loosen the packing nut assembly clamp lever, and slowly lower the saw mandrel down until the pilot drill is resting on the center top of the pipe. Ensure the shell cutter spins freely in a clockwise direction.

2.4.4) Slide the stop collar over the saw mandrel.

2.4.5) Set the cutting depth by measuring from the top of the packing nut assembly to the lower side of the stop collar.

- 4" pipe = 3" cutting depth
- 6" pipe = 4" cutting depth
- 8" pipe = 5" cutting depth

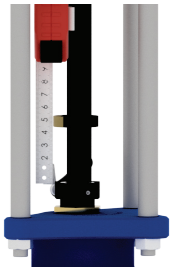

Figure 7 (Measurement shown for reference only)

2.4.6) Tighten the stop collar to the correct measurement (see Figure 7).

2.4.7) Install the drive unit by lifting it above the saw mandrel and slide it into the three guide bars.

2.4.8) Lower the drive unit onto the machined hex of the saw mandrel. Confirm the drive unit is fully seated onto the machined hex of the saw mandrel (see Figure 8).

Figure 8

2.4.9) Install feed screw by threading it through the top plate of the Hydra-Tapper until the opening covers the spindle on the drive unit.

NOTE: Do not apply downward force as it can damage the pilot drill.

2.4.10) When the feed screw makes contact with the top of the drive unit, back off one full turn.

2.4.11) If using a non-OS&Y tapping machine, assemble the handle assembly and install over the flats at the top of the feed screw and tighten the handles.

2.5.0 Performing the Line Tap

2.5.1) Ensure ball valve on the Hydra-Tapper P2 housing is open.

2.5.2) Connect the drive unit power source to the drive unit. The air drive unit requires 90 CFM at 90 PSI. The hydraulic drive unit

requires 9 GPM at 1800 PSI.

2.5.3) Ensure the drive unit lever control is in the neutral position. Always run the power unit in the clockwise direction.

NOTE: Avoid reversing as this will damage the carbide on the pilot drill and carbide teeth on the shell cutter.

2.5.4) Engage the drive unit and confirm the saw mandrel is rotating in the clockwise direction. Slowly turn the feed screw handle assembly in a clockwise direction keeping slight, constant pressure until the tap is complete.

2.5.5) Close the ball valve on the P2 housing of the Hydra-Tapper as water fills the housing and flows from the valve.

2.5.6) The tap is complete when the bottom of the stop collar makes contact with the top of the packing nut assembly.

NOTE: Do not overfeed the tap. Overfeeding the tap will cause the shell cutter to jam.

2.5.7) Return the drive unit lever control to the neutral position.

2.5.8) Loosen stop collar and continue to advance the feed screw an additional two complete revolutions to ensure the cut is complete. The shell cutter should spin freely. If it does, disconnect the drive unit power source from the drive unit. If the shell cutter does not spin freely, pull the drive unit lever control down and confirm the saw mandrel is rotating in a clockwise direction. Slowly turn the handle assembly in a clockwise direction an additional two complete revolutions. Repeat steps 2.5.6 and 2.5.7

2.5.9) Slowly turn the handle assembly in a counterclockwise direction until the stop collar has reached the starting measurement.

- **4” pipe = 3” cutting depth**
- **6” pipe = 4” cutting depth**
- **8” pipe = 5” cutting depth**

2.5.10) Tighten the packing nut assembly clamp lever to lock the saw mandrel in place. Remove feed screw. Remove drive unit.

Figure 9

2.5.11) Place a box end wrench over the hex on the saw mandrel and use the wrench as a lever brake to hold in place (see Figure 9).

2.5.12) Loosen the packing nut assembly clamp lever and allow the pressure to slowly raise the cutter assembly fully into the tapping housing.

2.5.13) Confirm the shell cutter and saw mandrel assembly is fully retracted and lock the saw mandrel in place by tightening the packing nut assembly clamp lever.

2.5.14) Close the temporary gate valve. If using an aluminum gate valve, make sure you get the same number of turns to close as you counted in step 2.2.4.

2.6.0 Removing the Hydra-Tapper

2.6.1) Relieve the pressure from the Hydra-Tapper by opening the ball valve and discharging the pressure.

2.6.2) Connect the slings or straps to the Hydra-Tapper. Unbolt and remove the Hydra-Tapper from the temporary gate valve. Place the Hydra-Tapper in a dry and safe work area.

2.6.3) Remove stop collar.

2.6.4) Remove cutter and saw mandrel assembly.

2.6.5) Remove the coupon by loosening the Allen-head pilot drill retaining set screw. Remove the pilot drill from the saw mandrel stud.

2.6.6) Flip the pilot drill and insert it point end through the hole in the coupon past the retaining clips and use it to pull the coupon out of the cutter.

NOTE: Wear gloves when removing the coupon. Coupon edges may be sharp.

2.6.7) Inspect the coupon for pipe thickness and condition.

2.6.8) Remove cutter from saw mandrel.

Section 3 — Tapping for 10”-12” HSF 250 Line Stop Fitting

3.1.0 Mount and Pressure Test Valve Body on Pipe

3.1.1) Select the proper HSF 250 for installation. Identify the type of pipe the HSF 250 will be installed on. Accurately measure the outside diameter of the pipe.

3.1.2) Refer to Appendix D (page 21) to review the HSF 250 Line Stop Fitting Body Installation Instructions.

3.2.0 Installing the Temporary Gate Valve

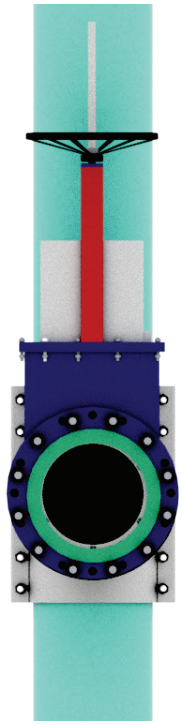

Figure 10A

3.2.1) Install the temporary gate valve. Use the 12” temporary gate valve for 10” and 12” HSF 250s. If using aluminum stopping heads, position the temporary gate valve at the true 3, 6, 9, or 12 o’clock position (see Figure 10A). This will assist in the alignment of an aluminum stopping head in the line stopping procedure.

If using rubber stopping heads, you can position the temporary gate valve as shown in Figure 10B.

NOTE: Temporary gate valves are single direction valves and must be positioned top up. The 12” gate temporary valve must be installed with the red bar facing up (see Figure 10A or 10B).

3.2.2) Install the flange O-ring in the O-ring channel on the HSF 250. Carefully lower the 12” temporary gate valve into position. Ensure the temporary gate valve is centered on the valve flange.

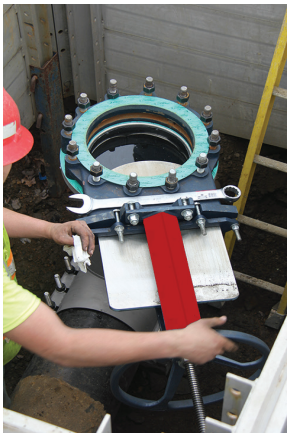

Figure 10B

NOTE: Failure to center temporary valve could cause mis-alignment resulting in a failed installation.

3.2.3) Bolt the temporary gate valve to the top of the HSF 250 flange using the nuts and washers provided with the installation equipment.

3.2.4) Install green fiber gasket (without holes) on the top side of temporary gate valve (see Figure 10B).

3.2.5) Fully open the temporary valve and re-check that temporary valve is centered.

3.3.0 Setting up the Hydra-Tapper

3.3.1) Bolt Hydra-Tapper to the P-20 component using the bolts and nuts included with Hydra-Tapper equipment (see Figure 11).

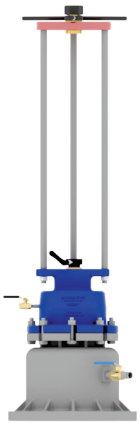

Figure 11

3.3.2) Select proper size saw mandrel. Tapping of 10” and 12” HSF 250s requires the 40” long saw mandrel.

3.3.3) Select proper size shell cutter. Hydra-Stop shell cutters are shipped painted black. If you repaint shell cutters in the future, Hydra-Stop recommends painting them black.

- Installation of 10” HSF 250 requires a 9.8” cutter.
- Installation of 12” HSF 250 requires 11.8” cutter.

NOTE: Do not use red painted shell cutters to install HSF 250. Hydra-Stop side tap shell cutters are shipped painted red. Red painted side tap shell cutters are 1/2” undersized for side tapping.

3.3.4) Select proper size pilot drill. Installation of 10” and 12” HSF 250s requires the 3/4” X 10 5/16” long pilot drill.

NOTE: Tapping PVC or steel pipe will require a twist-style pilot drill.

NOTE: Failure to use the proper sized or type of pilot drill will result in a failed installation.

3.3.5) Loosen and remove the Allen-head pilot drill retaining set screw located on the side of the saw mandrel flange base.

3.3.6) Visually locate the tapered relief on the base of the pilot drill. Notice the stop or ledge at the base of the taper (see Figure 12).

Figure 12

3.3.7) Mark the flat of the taper with a visible marking agent (see Figure 13).

Figure 13

3.3.8) Align the pilot drill flat with the Allen-head set screw and insert the pilot drill through the center of saw mandrel stud (see Figure 14).

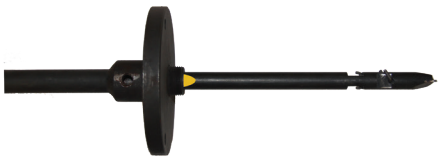

Figure 14

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3.3.9) Confirm you have completely inserted the pilot drill and engaged the tapered flat. Look into set screw hole for the marking on the pilot bit. Adjust the pilot drill until you can see the marking (see Figure 15).

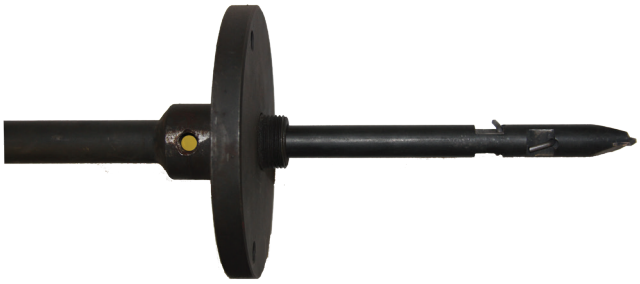


Figure 15

3.3.10) Once aligned, insert and tighten the set screw. Test pull the pilot drill to ensure the set screw is properly locked in place against the pilot drill ledge. Check the coupon retaining clips so they move freely (see Figure 16).

Figure 16

NOTE: Wear gloves when pulling on the pilot bit. Edges may be sharp.

3.3.11) Thread the appropriate shell cutter all the way onto the threaded stud of the saw mandrel flanged end.

Figure 17

3.3.12) Back off cutter to align the holes in the base of the shell cutter with the Allen-head cap screw holes in the saw mandrel. Thread screws from inside the shell cutters and then into the saw mandrel holes (see Figure 17).

Figure 18

3.3.13) Thread nylon lock nuts onto Allen-head cap screws and tighten (see Figure 18).

3.3.14) Make sure the saw mandrel is clean and free of rust or grime (steel wool can be used to clean and smooth the surface).

3.3.15) Lubricate the end of the saw mandrel with a dab of the food-grade lubricant provided with the equipment to help it slide freely through the packing nut assembly.

3.3.16) Slide the assembled shell cutter and saw mandrel into the Hydra-Tapper until the saw mandrel flange bottoms out in the P-20 component.

3.3.17) Hand tighten the clamp lever on the packing nut assembly to keep the assembled shell cutter and saw mandrel in place.

NOTE: Do not use tools to tighten the clamp lever.

3.4.0 Installing the Hydra-Tapper

3.4.1) Using a strap or sling install the assembled Hydra-Tapper on to the 12” temporary gate valve and align the bolt slots.

NOTE: Use extreme caution not to damage the shell cutter or pilot drill as the unit is raised and positioned on to the temporary valve. Note the position of the fully retracted cutting assembly.

3.4.2) Cross tighten the bolts, nuts and washers to secure the assembly. Thread the 1/4” nipple and ball valve into the tap housing and wrench tighten. **Teflon tape or thread sealant can be used.**

3.4.3) Hold and control the exposed saw mandrel, loosen the clamp lever, and slowly lower the saw mandrel until the pilot drill is resting on the top of the pipe. Ensure the shell cutter spins freely in a clockwise direction.

3.4.4) Slide the stop collar over the saw mandrel.

3.4.5) Set the cutting depth by measuring from the top of the packing nut assembly to the lower side of the stop collar.

Figure 19
(Measurement shown for reference only)

3.4.6) Tighten the stop collar to the correct measurement (see Figure 19).

- **10” pipe = 6” cutting depth**
- **12” pipe = 7” cutting depth**

3.4.7) Install the drive unit by lifting it above the saw mandrel and slide it into the three guide bars.

3.4.8) Lower the drive unit onto the machined hex of the saw mandrel. Confirm the drive unit is fully seated onto the machined hex of the saw mandrel (see Figure 20).

3.4.9) Install feed screw by threading it through the top plate of the Hydra-Tapper until the opening covers the spindle on the drive unit.

Figure 20

NOTE: Do not apply downward force as it can damage the pilot drill.

3.4.10) When the feed screw makes contact with the top of the drive unit, back off one full turn.

3.4.11) Assemble the handle assembly and install over the flats at the top of the feed screw and tighten the handles.

3.5.0 Performing the Line Tap

3.5.1) Ensure ball valves on the Hydra-Tapper P2 housing and the P20 housing are open.

3.5.2) Connect the drive unit power source to the drive unit. The air drive unit requires 90 CFM at 90 PSI. The hydraulic drive unit requires 9 GPM at 1800 PSI.

3.5.3) Ensure the drive unit lever control is in the neutral position. Always run the power unit in the clockwise direction.

NOTE: Avoid reversing as this will damage the carbide on the pilot drill and carbide teeth on the shell cutter.

3.5.4) Engage the drive unit and confirm the saw mandrel is rotating in the clockwise direction. Slowly turn the handle assembly in a clockwise direction keeping slight, constant pressure until the tap is complete.

3.5.5) Close the ball valves on the P20 housing and the P2 housing of the Hydra-Tapper as water fills the housings and flows from the valves.

3.5.6) The tap is complete when the bottom of the stop collar makes contact with the top of the packing nut assembly.

NOTE: Do not overfeed the tap. Overfeeding the tap will cause the shell cutter to jam.

3.5.7) Return the drive unit lever control to the neutral position.

3.5.8) Loosen the stop collar and continue to advance the feed screw an additional two complete revolutions to ensure the cut is complete. The shell cutter should spin freely. If it does, disconnect the drive unit power source from the drive unit. If the shell cutter does not spin freely, engage the drive unit and confirm the saw mandrel is rotating in a clockwise direction. Slowly turn the handle assembly in a clockwise direction an additional two complete revolutions. Repeat steps 3.5.6 and 3.5.7.

3.5.9) Slowly turn the handle assembly in a counter-clockwise direction until the stop collar has reached the starting measurement.

- **10” pipe = 6” cutting depth**
- **12” pipe = 7” cutting depth**

3.5.10) Tighten the packing nut assembly clamp lever to lock the saw mandrel in place. Remove feed screw. Remove drive unit.

Figure 21

3.5.11) Place a box end wrench over the hex on the saw mandrel and use the wrench as a lever brake to hold in place.

3.5.12) Loosen the packing nut assembly clamp lever and allow the pressure to slowly raise the cutter assembly fully into the tapping housing (see Figure 21).

3.5.13) Confirm the shell cutter and saw mandrel is fully retracted and lock the saw mandrel in place by tightening the packing nut assembly clamp lever.

3.5.14) Close the temporary gate valve.

3.6.0 Removing the Hydra-Tapper

3.6.1) Relieve the pressure from the Hydra-Tapper by opening the ball valve and discharging the pressure.

3.6.2) Connect the slings or straps to the Hydra-Tapper. Unbolt and remove the Hydra-Tapper / P-20 assembly from the temporary gate valve. Place the assembly in a dry and safe work area.

3.6.3) Remove stop collar.

3.6.4) Remove cutter and saw mandrel assembly.

3.6.5) Remove the coupon by loosening the Allen-head pilot drill retaining set screw. Remove the pilot drill from the saw mandrel stud.

3.6.6) Flip the pilot drill and insert it point end through the hole in the coupon past the retaining clips and use it to pull the coupon out of the cutter.

NOTE: Wear gloves when removing the coupon. Coupon edges may be sharp.

3.6.7) Inspect the coupon for pipe thickness and condition.

3.6.8) Remove cutter from saw mandrel.

HYDRA-STOP®

SOLUTIONS FOR CONTROL

Hydra-Stopper LD4120 Line Stopping Machine

Line Stopping with the Hydra-Stopper

Section 4 — Line Stopping with the Hydra-Stopper

NOTE: Rubber stopping heads are rated to 100 PSI. Aluminum stopping heads are rated to 250 PSI. Make sure your tapping machine is also rated to 250 PSI. Tapping machines with the gray P-2 housing are only rated to 150 PSI. Contact Hydra-Stop if you have any questions.

4.1.0 Setting up the Hydra-Stopper for Line Stopping

4.1.1) Select the proper Stop Housing for your application. Stop housings come in 4”–8” and 10”–12” sizes.

4.1.2) Mount the pump and ram assembly to the stop housing (see Section 4.6.4 for changing the stop housing instructions). Use the eight 1/2” x 1” cap screws to mount the pump and ram assembly to the stop housing. Ensure green fiber gasket is placed between stop housing and pump and ram assembly.

4.1.3) Attach a strap or sling to the Hydra-Stopper unit.

4.1.4) Raise the Hydra-Stopper so it can be pivoted to a horizontal orientation.

4.1.5) Lower the Hydra-Stopper so it is on the ground. Block as needed to ensure the top of the pump is higher than the bottom of the pump and to prevent rolling (see Figure 22).

Figure 22

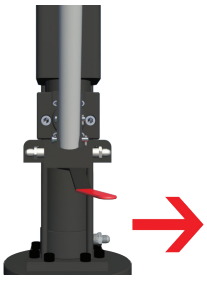


Figure 23

4.1.6) Move the Hydra-Stopper unit actuator switch to the RIGHT — down arrow (see Figure 23).

4.1.7) Engage the Hydra-Stopper handle and pump. This action will pump the ram out of the Hydra-Stopper pump and ram unit. Continue pumping until the ram clears the stop housing and you can remove the shoulder bolts.

4.1.8) Ram is completely pumped out of the unit when mechanical stop is reached.

4.1.9) For rubber stopping heads, attach the rubber stopping head to the ram using the shoulder bolts. Skip to step 4.1.15.

4.1.10) For aluminum stopping heads, attach the aluminum stopping head to the ram using the shoulder bolts.

4.1.11) Loosen the 4 set screws, this will allow the aluminum stopping head to rotate.

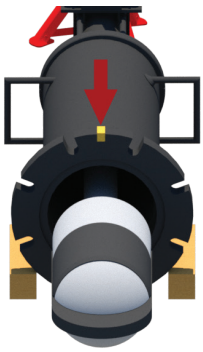


Figure 24

4.1.12) Rotate the aluminum stopping head so the rubber paddle at the bottom of the stopping head is parallel to the ground and is level to the housing.

4.1.13) Tighten the 4 set screws to secure the stopping head in place.

4.1.14) Make an alignment mark on the stop housing between the two holes on the flange directly right and left of the 12 o’clock position. This mark will align with the centerline of the pipe and will ensure the rubber paddle is at a 90 degree angle to the pipe when the Hydra-Stopper is placed on the temporary gate valve (see Figure 24).

4.1.15) Apply a liberal amount of food-grade grease to the stopping head. Use Primo Lube (available from Hydra-Stop) or food-grade grease. Never use petroleum-based grease.

Rubber stopping heads should be greased 360 degrees around from top to bottom. Do not grease the bottom of the stopping head. Aluminum stopping heads should be greased in the same manner, apply grease to all the rubber components except the bottom of the paddle.

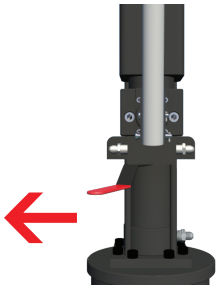


Figure 25

NOTE: FAILURE TO GREASE THE HYDRA-STOP RUBBER WILL GREATLY REDUCE THE PERFORMANCE OF YOUR STOP.

4.1.16) Depending on the model of your Hydra-Stopper unit, open the bleeder screw / petcock on the top of the ram assembly.

4.1.17) Switch the actuator to the left (see Figure 25).

4.1.18) Engage the Hydra-Stopper pump handle and pump the ram all the way back into the housing. This will bleed the air out of the system.

4.2.0 Installing the Hydra-Stopper

4.2.1) Using a strap or sling install the assembled Hydra-Stopper on to the temporary gate valve and align the bolt slots. No special alignment is required for rubber stopping heads. Aluminum stopping heads must be 2-holed to the valve and the main.

4.2.2) Locate eight 5/8” x 3” Hydra-Stop square-head nut, bolt, and washer assemblies. Using the square headed nuts and bolts, install and then tighten the bolts, nuts, and washers in a cross-tightening pattern to secure the Hydra-Stopper to the temporary gate valve.

HYDRA-STOP® SOLUTIONS FOR CONTROL

4.3.0 Performing the Line Stop

4.3.1) Open the temporary gate valve.

4.3.2) Turn hydraulic actuator switch to the RIGHT (down arrow) and pump the handle until the pump automatically switches to second stage, which indicates the stopping head has reached the bottom of the pipe. Continue pumping until the gauge reaches the desired pressure for that size of stop (see reference chart below). Close the petcock on top of the reservoir and check the quality of the stop before beginning the repairs.

NOTE: You cannot verify the quality of the stop by just making a saw cut into the top of the pipe. It only takes a small amount of water flowing past the stop to keep the saw cut spraying water.

4.3.3) The chart below shows approximate pressure readings for line stopping. Pressure readings apply to all types of pipe.

Pipe Size	Gauge Reading Rubber Stopping Head (approximate)	Recommended Rubber Stopping Head MAX pressure	Gauge reading Aluminum Stopping Head (approximate)	Recommendated Aluminum Stopping Head MAX pressure
4”	1,600 PSI	2,100 PSI	800 PSI	1,300 PSI
6”	2,400 PSI	2,900 PSI	1,200 PSI	1,700 PSI
8”	3,200 PSI	3,700 PSI	1,600 PSI	2,100 PSI
10”	4,200 PSI	4,700 PSI	2,000 PSI	2,500 PSI
12”	5,000 PSI	5,500 PSI	2,400 PSI	2,900 PSI

NOTE: Do not exceed the recommended MAX pressure exerted on the stopping head — damage to equipment or the pipe could occur.

4.3.4) Verify that you have a workable shut down via a blow off tap, branch connection, or a hydrant before cutting the pipe — a 2” blow off valve is recommended.

4.3.5) Perform the intended work in the isolated section of pipe. For safety, work on the pipe should be performed in a separate excavation from the line stop. Proper restraints or site preparation is recommended before the pipe is cut.

4.4.0 Removing the Hydra-Stopper

4.4.1) Slowly move the hydraulic actuator lever to the middle position (neutral) and wait 10–15 minutes to allow the stopping head to regain its original shape and allow for the pipe to re-pressurize and equalize. Line pressure must be equalized before the stopping head can be removed. See Appendix G — *Line Stopping and the Importance of Equalization* for additional information.

4.4.2) Open the petcock on top of the hydraulic reservoir. Move the control lever to the up position. Begin pumping the handle — it should be hard to pump. If the Hydra-Stopper switches into second stage, move the control lever back to the neutral position and then back into the up position.

The pump must stay in the first stage to remove the stopping head. If it does not, then you are not equalized and pumping in the second stage will damage the equipment.

The handle will stop in mid-stroke when the stopping head is fully retracted. To verify the stopping head is fully retracted, put the control lever in the down position and pump it 6 times. If it starts building pressure, then the stop is still in the pipe and has not fully equalized — repeat steps 4.4.1 through 4.4.2. If it does not build pressure, return the control lever to the up position and pump the stop up those 6 times.

NOTE: Retracting the stopping head in second stage will damage the stopping head and it is possible that the stopping head could be left in the pipe.

4.4.3) Close the temporary gate valve. Open the ball valve on the line stop housing and the tapping machine, and bleed off the pressure.

NOTE: When removing 12” temporary valve, place both sets of nuts onto the top set of studs.

NOTE: Ensure the rubber or aluminum stopping head is completely retracted in the Hydra-Stopper unit prior to closing the temporary gate valve. If the temporary gate valve does not fully close, the stopping head is insufficiently retracted.

4.4.4) Attach a strap or sling to the Hydra-Stopper unit. Take up slack in the strap or sling before removing the nuts and bolts securing the Hydra-Stopper to the temporary gate valve.

4.4.5) Remove the nuts and bolts securing the Hydra-Stopper to the temporary gate valve.

4.4.6) Remove the Hydra-Stop unit.

4.5.0 Completing the Line Stop Procedure

4.5.1) For 4”–8” completion instructions, consult Appendix E — 4”–8” HSF 250 Push and Pin Completion Plug Installation Instructions. For 10”–12” completion instructions, consult Appendix F — 10”–12” HSF 250™ Push and Pin Completion Plug Installation Instructions.

4.6.0 Maintenance and Storage

The following sections provide information on the recommended maintenance and storage of your Hydra-Stopper machine.

4.6.1 Temporary Valves

1. Close, wipe clean, and sanitize.

2. When removing valve, place both sets of nuts onto the top set of studs.

4.6.2 Hydra-Tapper

1. Remove saw mandrel from Hydra-Tapper housing.

2. Remove cutter and pilot drill from saw mandrel, remove set screws from saw mandrel, then clean out and lubricate threads.

3. Remove feed screw and lubricate.

4. Check condition of cutters.

Note: Cutters can be re-tipped. Contact Hydra-Stop for details.

5. Check condition on of the pilot drill. Replace coupon retention wire as needed (they must be straight and move freely to retain the coupon).

4.6.3 Hydra-Stopper Machine

1. Remove stopping head from Hydra-Stop unit, wipe off excess grease, and wash with warm soap and water.

3. Pump the ram all the way out and all the way in to bleed out any air.

4. If the unit was used on a contaminated line, wash and rinse, then swab with chlorine bleach.

5. With ram in up position, remove the petcock at the top of the hydraulic reservoir. The hydraulic oil level should be 1-1/2”–2” below the top of the reservoir.

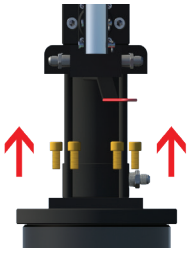


Figure 15

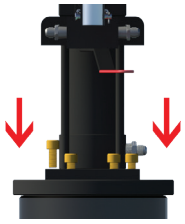


Figure 16

4.6.4 Changing the Stop Housing

1. Remove attached stopping head. Pump ram all the way in.

2. Remove eight (8) 1/2” socket-head cap screws from the base of the ram at the top of the Hydra-Stop housing (see Figure 15).

3. Remove pump and ram from housing.

4. Place the green fiber gasket on the stop housing. Align the holes in the gasket with the bolt hole pattern on the stop housing.

5. Attach the ram to the stop housing using the eight (8) 1/2” socket head cap screws (see Figure 16).

6. Tighten to 75-foot pounds torque.

4.6.5 General Maintenance

1. Apply a thin coat of lubricant to all external parts.

2. Aluminum stopping heads retain water after use, if the 3/4” Allen-head bolt (that holds the paddle in) is not removed to allow the water to drain out, the water will freeze in cold weather and could break the aluminum stopping head.

4.6.6 Cutter Care

Hydra-Stop carbide-tipped cutters can be used on a wide range of pipe materials, including: iron (cast and ductile), carbon steel, asbestos cement, and PVC. Hydra-Stop cutters can easily be re-sharpened. The high-quality carbide inserts are replaceable, allowing for complete rebuilding of the cutter. Contact Hydra-Stop for more information on the re-sharpening or rebuilding of your cutter.

Please observe the following care and use instructions to achieve the longest life out of your Hydra-Stop cutter:

- Be sure to thread the cutter onto the saw mandrel and back off until the first set of drive holes line up. Thread the screws into the drive holes in the cutter and tighten. The screws do not hold the cutter in place. The screws keep the cutter from spinning and over tightening on the saw mandrel.
- Apply adequate, steady, and equal pressure when advancing the drive unit through the tap. Allowing the cutter points to contact the work without applying adequate pressure or by applying too much pressure may cause the cutter points to dull earlier than normal.
- Always wear safety glasses and use ear protection while making a tap. Keep fingers and hands away from the saw mandrel and drive unit chuck while it is in operation. Do not wear loose clothing while operating the tap machine.
- Always clean and dry cutters after use. Store cutters in a humidity free environment to ensure against premature rusting. Never lay cutter down on the carbide tips as this can damage the teeth. When transporting, make sure cutter is secure and stable.

HYDRA-STOP®

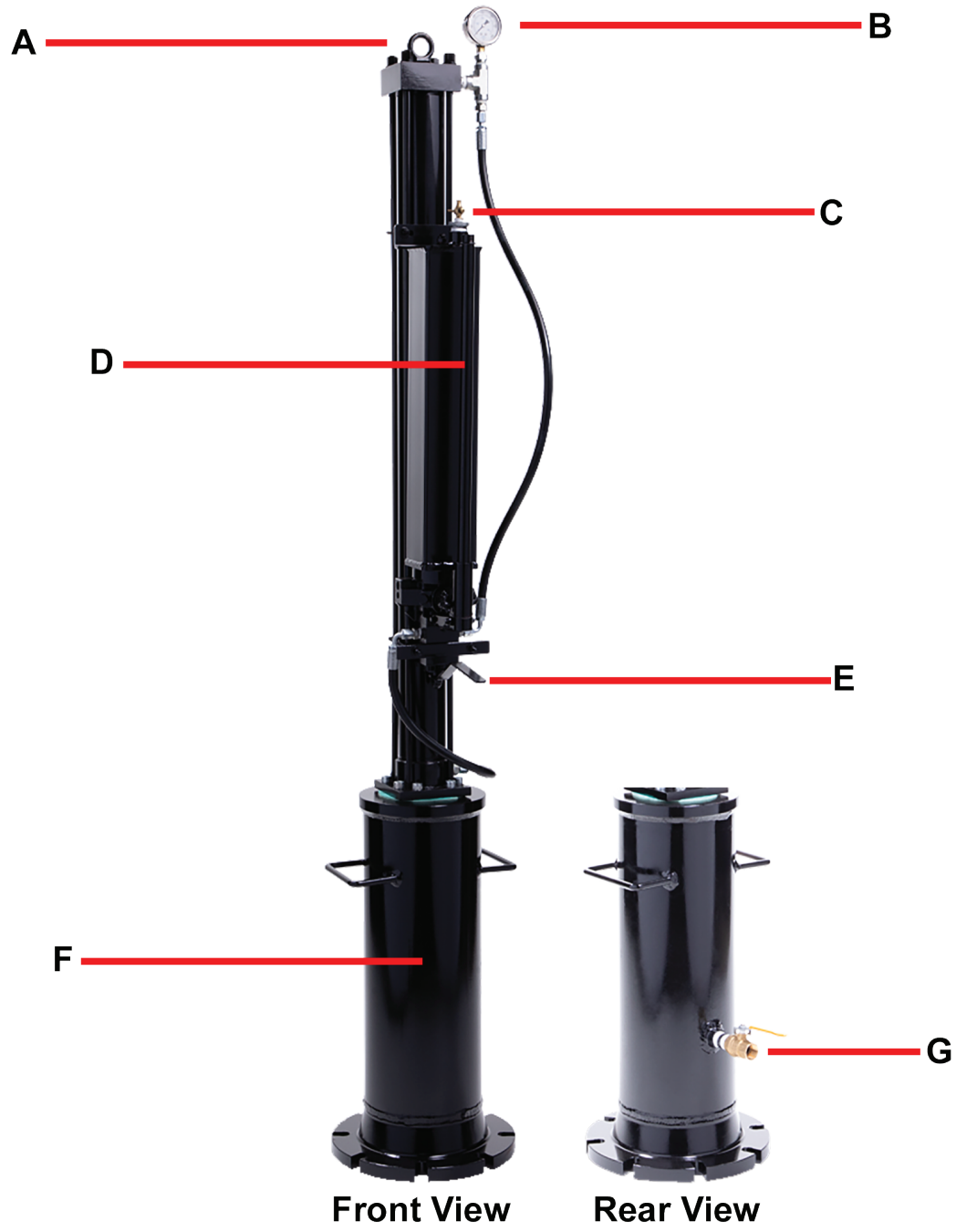
SOLUTIONS FOR CONTROL

Hydra-Stopper LD4120 Line Stopping Machine

Appendices

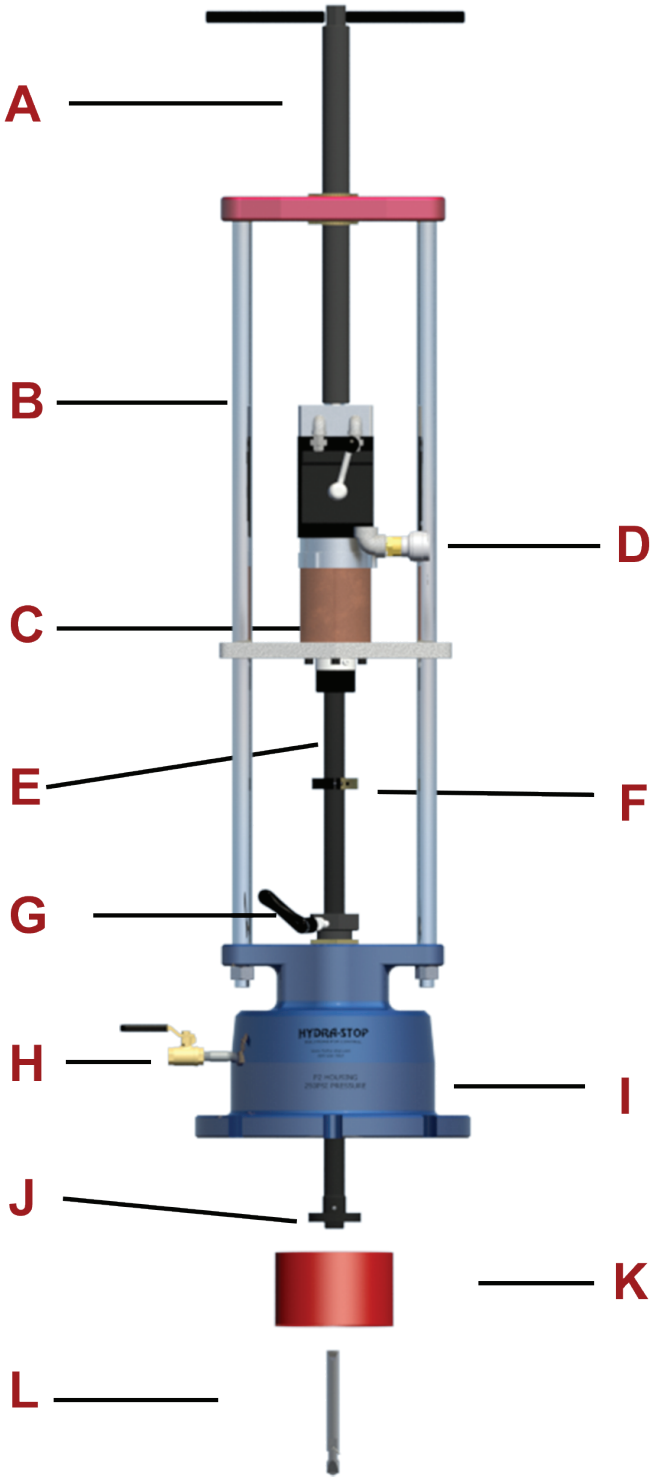
Appendix A — Hydra-Stopper Parts Identification Chart

A	Lifting Ring
B	Pressure Gauge
C	Petcock
D	Operating Handle
E	Actuator Switch
F	Stop Housing
G	Stop Housing Ball Valve



Appendix B1 — Hydra-Tapper Parts Identification Chart Without OS&Y Rising Stem

A	Feed Screw
B	Guide Bars (3)
C	Standard Air or Hydraulic Drive
D	Air Inlet Fitting
E	Saw Mandrel
F	Adjustable Stop Collar
G	Packing Nut & Mandrel Locking Screw
H	1/4” Ball Valve
I	Machined Tap Housing
J	Cutter Mounting Flange
K	Shell Cutter
L	Pilot Drill



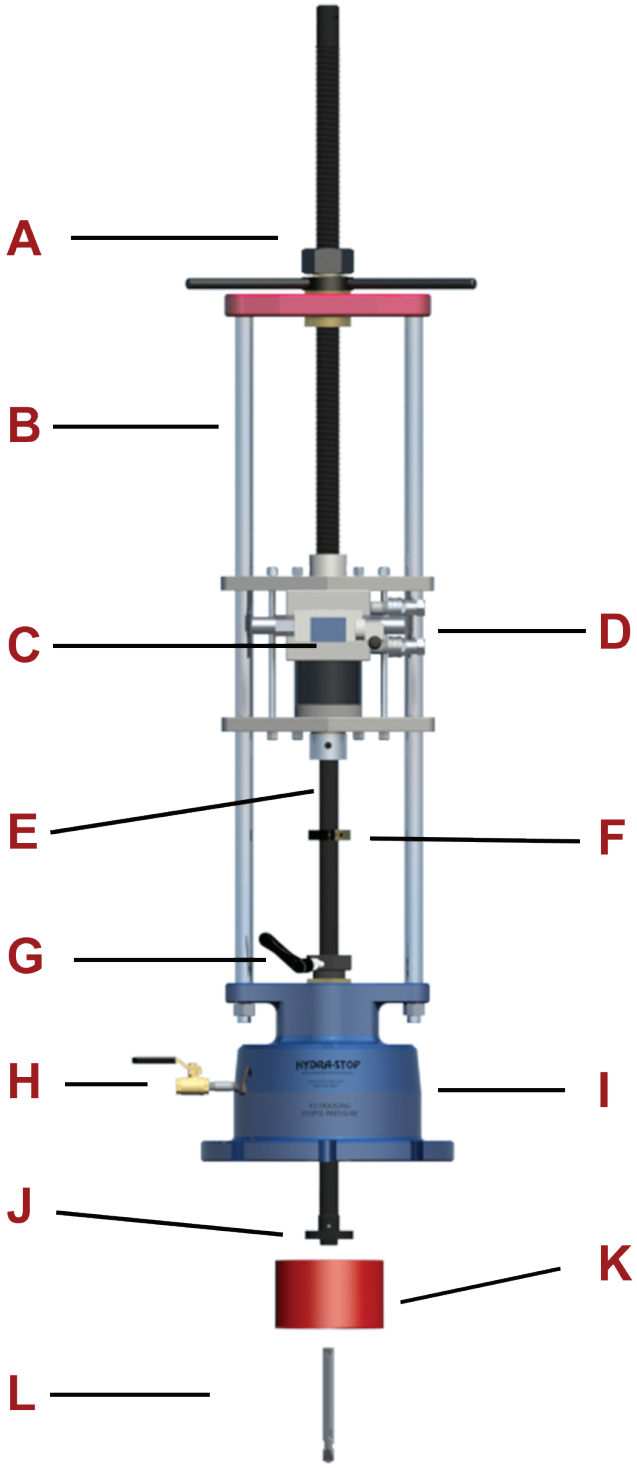
* Hydra-Stop has a full range of tapping adapters: M.J., ANSI 150, NP16, Korean, Australian. All inch dimensions referred to are nominal pipe diameters per industry standards.

Regardless of what type of Hydra-Stop equipment you currently own, you can easily convert to Hydra-Stopper™, Insta-Valve 250, or Hydra-Tapper equipment.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix B2 — Hydra-Tapper Parts Identification Chart With OS&Y Rising Stem

A	OS&Y Rising Stem Assembly
B	Guide Bars (3)
C	Standard Air or Hydraulic Drive
D	Hydraulic Quick Connectors
E	Saw Mandrel
F	Adjustable Stop Collar
G	Packing Nut & Mandrel Locking Screw
H	1/4” Ball Valve
I	Machined Tap Housing
J	Cutter Mounting Flange
K	Shell Cutter
L	Pilot Drill



* Hydra-Stop has a full range of tapping adapters: M.J., ANSI 150, NP16, Korean, Australian. All inch dimensions referred to are nominal pipe diameters per industry standards.

Regardless of what type of Hydra-Stop equipment you currently own, you can easily convert to Hydra-Stopper™, Insta-Valve 250, or Hydra-Tapper equipment.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix C — 4”–8” HSF 250 Line Stop Fitting Installation Instructions

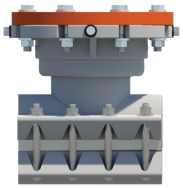


Figure 1

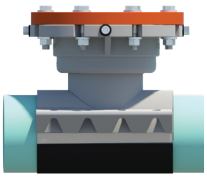


Figure 2

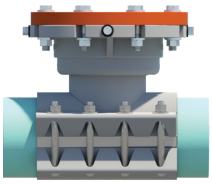


Figure 3

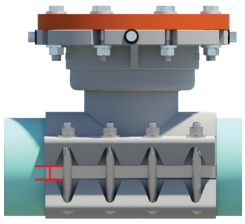


Figure 4

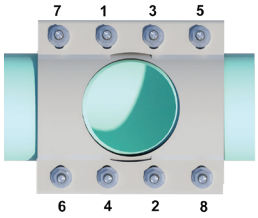


Figure 5

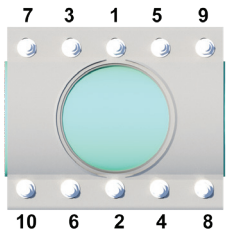


Figure 6

IMPORTANT: Read installation instructions COMPLETELY before installing the HSF 250 line stop fitting. Failure to follow installation instructions will void product warranty. Follow local safety regulations and use personal protection equipment (PPE) as required by national, state, and local regulations.

INSTALLATION INSTRUCTION STEPS

C.1) Confirm bore of temporary gate valve is 8.5”. If the bore of your temporary gate valves is smaller than 8.5” immediately call Hydra-Stop technical support (708-389-5111).

C.2) Inspect the line stop fitting to ensure no damage has occurred during shipment or storage (see Figure 1). Locate and remove completion plug and box containing stainless steel mounting hardware. Store in a clean, safe location.

C.3) Measure pipe outside diameter where the line stop fitting is being installed to ensure the correct line stop fitting is being used.

C.4) Thoroughly clean the pipe surface where the line stop fitting will be installed and inspect for flaws (ex. gouges, protrusions, excessive corrosion, etc.). Irregular surfaces should be avoided to assure maximum gasket sealing.

C.5) Lubricate top and bottom of pipe and mat and branch gaskets with a soap/water solution. Ensure branch gasket is adequately lubricated. Do not use grease or pipe lubricant.

C.6) Mount the top half of the line stop fitting on the pipe in the position required for permanent installation (see Figure 2). Use a level to ensure the flange is level. Do not rotate the top half of the line stop fitting after it is positioned on the pipe.

C.7) Install the bottom half of the line stop fitting over the tapered ends of the mat gasket ensuring they are flat and smooth against the pipe surface. Visually inspect gasket to ensure tapered ends are not folded or rolled under themselves. Install stainless steel bolts, washers, and nuts (see Figure 3). Finger tighten, ensuring gaps between top half and bottom half of the line stop fitting are the same front-to-back and side-to-side — within 1/8” (see Figure 4). **NOTE:** It is acceptable to invert the middle two bolts on each side of the 4” line stop fitting to utilize a socket wrench for installation.

C.8) Using a torque wrench, tighten nuts in proper pattern. Tightening patterns are shown in Figure 5 and Figure 6. Repeat tightening pattern in no more than 25 ft. lb. increments until recommended torque is reached. **NOTE:** 8” fitting has 10 total bolts (see Figure 6 for 8” bolt torque sequence).

C.9) Wait 10 minutes to allow the gasket to fully seat then re-tighten bolts to recommended torque three additional times following the tightening pattern.

Recommended Torques:

CI / DI Pipe: 115 ft-lbs. PVC Pipe: 55 ft-lbs. AC Pipe: 75 ft-lbs.

C.10) Check inside of fitting body outlet to ensure gasket is properly seated. Ensure completion plug set pins are flush with I.D. of the flange (see Figure 7).

Installation instructions and best practices continued on next page.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix C — 4”–8” HSF 250 Line Stop Fitting Installation Instructions

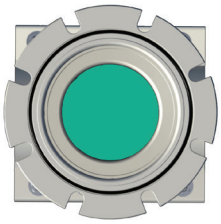


Figure 7

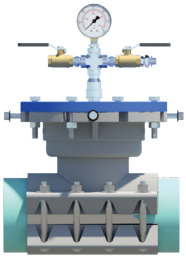
C.11) Fill fitting body with water. Install test flange. Perform pressure test to ensure a complete seal between the fitting body and pipe (do not use a compressible medium such as air). Pressure test fitting with a Hydra-Stop Quick Test Plug kit or a standard test flange. Contact Hydra-Stop for additional information.

Minimum Test Pressure: 1.5 times the system working pressure
Maximum Test Pressure: 375 psi

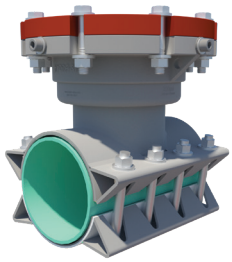
C.12) Remove the test flange.

C.13) Following the tightening pattern, re-torque carriage bolts to recommended torque before continuing.

C.14) Properly block (support) HSF 250 fitting body and ensure pipe joints are properly restrained. Proceed with line stopping operation.



Pressure testing with the Hydra-Stop Quick Test Plug.



Completed installation of the HSF 250 line stop fitting.

HYDRA-STOP FITTINGS — INSTALLATION BEST PRACTICES

- Keep nuts and bolts clean and free of debris.
- Adequately lubricate pipe and HSF 250 gaskets with soap/water solution paying special attention to AC pipe. Ensure branch gasket is adequately lubricated. Do not use grease or pipe lubricant.
- Avoid rotating top half of HSF 250 fitting once placed on pipe.
- Do not use a powered wrench to tighten nuts. You will gall the bolts and damage the fitting.
- Block / support the pipe before installing the tapping machine.
- Ensure all pipe joints are restrained prior to proceeding to valve insertion operation.
- Label fitting body with a paint pen or permanent marker with the tightening pattern as a visual reminder of the tightening pattern.

Call Hydra-Stop for technical support at 708.389.5111
and visit us on the web at www.hydra-stop.com.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix D — 10”–12” HSF 250 Line Stop Fitting Installation Instructions

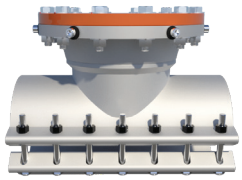


Figure 1

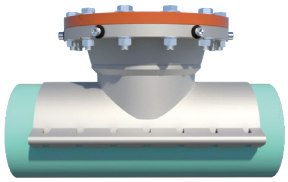


Figure 2

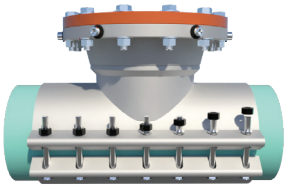


Figure 3

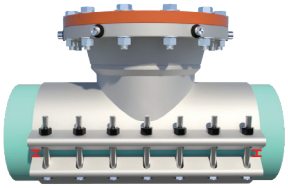


Figure 4

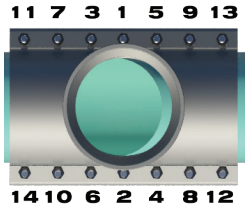


Figure 5

IMPORTANT: Read installation instructions COMPLETELY before installing Hydra-Stop line stop fittings. Failure to follow installation instructions will void product warranty. Follow local safety regulations and use personal protection equipment (PPE) as required by national, state, and local regulations.

INSTALLATION INSTRUCTION STEPS

D.1) Confirm bore of temporary gate valve is 12.5”. If the bore of your temporary gate valves is smaller than 12.5” immediately call Hydra-Stop technical support (708-389-5111).

D.2) Inspect the line stop fitting to ensure no damage has occurred during shipment or storage (see Figure 1). Locate and remove completion plug and box containing stainless steel mounting hardware. Store in a clean, safe location.

D.3) Measure pipe outside diameter where the line stop fitting is being installed to ensure the correct line stop fitting is being used.

D.4) Thoroughly clean the pipe surface where the line stop fitting will be installed and inspect for flaws (ex. gouges, protrusions, excessive corrosion, etc.). Irregular surfaces should be avoided to assure maximum gasket sealing.

D.5) Lubricate top and bottom of pipe and mat and branch gaskets with a soap/water solution. Ensure branch gasket is adequately lubricated. Do not use grease or pipe lubricant.

D.6) Mount the top half of the line stop fitting on the pipe in the position required for permanent installation (see Figure 2). Use a level to ensure the flange is level. Do not rotate the top half of the line stop fitting after it is positioned on the pipe.

D.7) Install the bottom half of the line stop fitting over the tapered ends of the mat gasket ensuring they are flat and smooth against the pipe surface. Visually inspect gasket to ensure tapered ends are not folded or rolled under themselves. Install stainless steel bolts, washers, and nuts (see Figure 3). Finger tighten, ensuring gaps between top half and bottom half of the line stop fitting are the same front-to-back and side-to-side — within 1/8” (see Figure 4).

D.8) Using a torque wrench, tighten nuts in proper pattern. Tightening pattern is shown in Figure 5. Repeat tightening pattern in no more than 25 ft. lb. increments until recommended torque is reached.

D.9) Wait 10 minutes to allow the gasket to fully seat then re-tighten bolts to recommended torque three additional times following the tightening pattern.

Recommended Torque:

CI / DI Pipe: 65 ft-lbs. PVC Pipe: 55 ft-lbs. AC Pipe: 60 ft-lbs.

Installation instructions and best practices continued on next page.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix D — 10”–12” HSF 250 Line Stop Fitting Installation Instructions

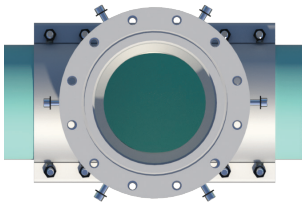
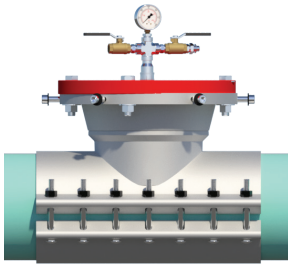


Figure 6

D.10) Check inside of fitting body outlet to ensure gasket is properly seated. Ensure completion plug set pins are flush with I.D. of the flange (see Figure 6).

D.11) Fill fitting body with water. Install test flange. Perform pressure test to ensure a complete seal between the fitting body and pipe (do not use a compressible medium such as air). Pressure test fitting with a Hydra-Stop Quick Test Plug kit or a standard test flange. Contact Hydra-Stop for additional information.

Minimum Test Pressure: 1.5 times the system working pressure
Maximum Test Pressure: 375 psi

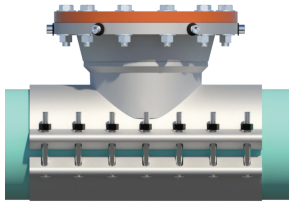


Pressure testing with the Hydra-Stop Quick Test Plug.

D.12) Remove the test flange.

D.13) Following the tightening pattern, re-torque carriage bolts to recommended torque before continuing.

D.14) Properly block (support) HSF 250 fitting body and ensure pipe joints are properly restrained. Proceed with line stopping operation.



Completed installation of the HSF 250 line stop fitting.

HYDRA-STOP FITTINGS — INSTALLATION BEST PRACTICES

- Keep nuts and bolts clean and free of debris.
- Adequately lubricate pipe and HSF 250 gaskets with soap/water solution paying special attention to AC pipe. Ensure branch gasket is adequately lubricated. Do not use grease or pipe lubricant.
- Avoid rotating top half of HSF 250 fitting once placed on pipe.
- Do not use a powered wrench to tighten nuts. You will gall the bolts and damage the fitting.
- Block / support the pipe before installing the tapping machine.
- Ensure all pipe joints are restrained prior to proceeding to valve insertion operation.
- Label fitting body with a paint pen or permanent marker with the tightening pattern as a visual reminder of the tightening pattern.

Call Hydra-Stop for technical support at 708-389-5111
and visit us on the web at www.hydra-stop.com.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix E — 4”–8” Completion Plug Installation Instructions

E.1) Confirm bore of 8” temporary gate valve is 8.5”. If the bore of your 8” temporary gate valves is smaller than 8.5” immediately call Hydra-Stop technical support (708.389.5111).

E.2) Remove cutter from saw mandrel.

E.3) Install completion plug onto saw mandrel. Grease O-ring with Primo Lube.

E.4) Install saw mandrel into the tapping machine housing. Align the bottom of completion plug so that it is flush with the bottom of the tap machine housing (see Figure 1). **NOTE:** If completion plug is not aligned flush with the bottom of tap machine housing the completion process as outlined in this document will not be successful.

Figure 1

E.5) Lock the saw mandrel in place using the packing nut assembly thumb screw (see Figure 2).

Figure 2

E.6) Set completion plug depth. Choose one of the following methods:

A) Install stop collar onto the saw mandrel. Set the bottom of the stop collar to 9.5” from the top of the packing nut assembly (see Figure 3). Tighten stop collar.

B) Fit silver 9.5” completion gauge included with your Hydra-Stopper line stopping equipment over the saw mandrel (see Figure 4). Bottom of gauge should be resting on packing nut assembly. Lower stop collar until it rests on the top of the insertion gauge. Tighten stop collar. Remove insertion gauge.

E.7) Mount the tapping machine on the gate valve. Use all eight nuts and bolts provided with Hydra-Stopper equipment.

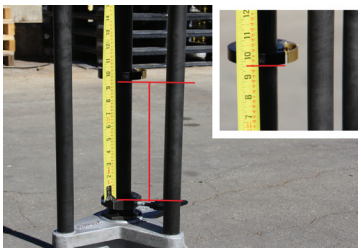


Figure 3

E.8) Install the drive unit, or the optional completion spacer bar between the feed screw and saw mandrel. Feed down the feed screw until drive unit or completion spacer is locked in place. If using the air drive use the 19” feed screw, for hydraulic drive use the 30” feed screw.

E.9) Slowly open gate valve. Equalize pressure on the top side of the completion plug by using the ball valve on the tapping machine housing. Use a hydrostatic method of equalization to set the completion plug. Do not use air.

E.10) Loosen the packing nut assembly thumb screw and advance the feed screw until the stop collar reaches the top of the packing nut assembly. **NOTE:** It will become tighter when the completion plug O-ring starts to compress. Equalization may be required to fully seat the completion plug.

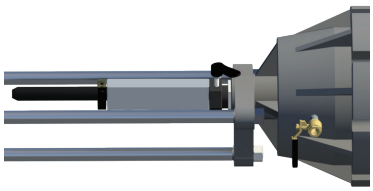


Figure 4

E.11) Once the completion plug is fully seated, lock the saw mandrel in place using the packing nut assembly thumb screw. Remove the pin plugs from the fitting flange and store them in a clean, safe location.

Completion plug installation instructions continued on next page.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix E — 4”–8” Completion Plug Installation Instructions

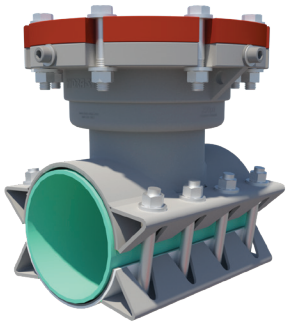
Figure 5

E.12) Tighten the set pins in the fitting flange to lock the completion plug in place by turning them clockwise 8–10 turns (see Figure 5). Back off each of the set pins a half a turn. Install the pin plugs back into the flange.

E.12) Verify completion plug seal by opening the blow off valve on the tapping housing.

E.14) Turn the feed screw counterclockwise to remove the drive unit or completion spacer bar. Loosen the packing nut assembly thumb screw.

E.15) Disengage the saw mandrel from the completion plug by turning counterclockwise. Pull the saw mandrel into the tap machine housing. Tighten the packing nut thumb screw to secure the mandrel.



Completed installation of the HSF 250 line stop fitting.

E.16) Close the gate valve.

E.17) Remove the tapping machine from the gate valve.

E.18) Remove the gate valve from the fitting top flange.

E.19) Install the blind flange on the fitting top flange.

E.20) Clean and inspect installation equipment prior to storage.

E.21) Order replacement parts, if necessary, to replace lost, damaged, or worn components.

Call Hydra-Stop for technical support at 708.389.5111 and visit us on the web at www.hydra-stop.com.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix F — 10”–12” Completion Plug Installation Instructions

F.1) Confirm bore of 12” temporary gate valve is 12.5”. If the bore of your 12” temporary gate valves is smaller than 12.5” immediately call Hydra-Stop technical support (708.389.5111).

F.2) Remove cutter from saw mandrel.

F.3) Install completion plug onto saw mandrel. Grease O-ring with Primo Lube.

F.4) Install saw mandrel into the P-20 housing and through the tapping machine housing. Align the bottom of completion plug so that it is flush with the bottom of the P-20 housing (see Figure 1). **NOTE:** If completion plug is not aligned flush with the bottom of P-20 housing the completion process as outlined in this document will not be successful.

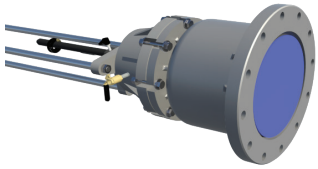


Figure 1

F.5) Lock the saw mandrel in place using the packing nut assembly thumb screw (see Figure 2).

F.6) Set completion plug depth. Choose one of the following methods:

Figure 2

A) Install stop collar onto the saw mandrel. Set the bottom of the stop collar to 6.25” from the top of the packing nut assembly (see Figure 3). Tighten stop collar.

B) Fit black 6.25” completion gauge included with your Hydra-Stopper line stopping equipment over the saw mandrel (see Figure 4). Bottom of gauge should be resting on packing nut assembly. Lower stop collar until it rests on the top of the insertion gauge. Tighten stop collar. Remove insertion gauge.

F.7) Mount the tapping machine / P-20 housing assembly on the temporary gate valve. Use all twelve nuts and bolts provided with equipment.

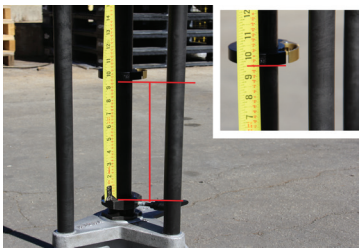


Figure 3

F.8) Install the drive unit, or the optional completion spacer bar between the feed screw and saw mandrel. Feed down the feed screw until drive unit or completion spacer is locked in place. If using the air drive use the 19” feed screw, for hydraulic drive use the 30” feed screw.

F.9) Slowly open gate valve. Equalize pressure on the top side of the completion plug by using the ball valve on the tapping machine housing. Use a hydrostatic method of equalization to set the completion plug. Do not use air.

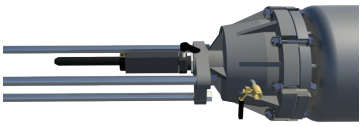


Figure 4

F.10) Loosen the packing nut assembly thumb screw and advance the feed screw until the stop collar reaches the top of the packing nut assembly. **NOTE:** It will become tighter when the completion plug O-ring starts to compress. Equalization may be required to fully seat the completion plug.

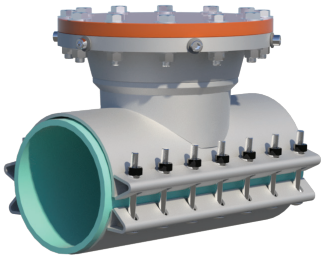
F.11) Once the completion plug is fully seated, lock the saw mandrel in place using the packing nut assembly thumb screw. Remove the pin plugs from the fitting flange and store them in a clean, safe location.

Completion plug installation instructions continued on next page.

HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix F — 10”–12” Completion Plug Installation Instructions

Figure 5



Completed installation of the HSF 250 line stop fitting.

F.12) Tighten the set pins in the fitting flange to lock the completion plug in place by turning them clockwise 10–11 turns (see Figure 5). Back off each of the set pins a half a turn. Install the pin plugs back into the flange.

F.13) Verify completion plug seal by opening the blow off valve on the tapping housing.

F.14) Turn the feed screw counterclockwise to remove the drive unit or completion spacer bar. Loosen the packing nut assembly thumb screw.

F.15) Disengage the saw mandrel from the completion plug by turning counterclockwise. Pull the saw mandrel into the P-20 housing. Tighten the packing nut thumb screw to secure the mandrel.

F.16) Close the gate valve.

F.17) Remove the tapping machine from the gate valve.

F.18) Remove the gate valve from the fitting top flange.

F.19) Install the blind flange on the fitting top flange.

F.20) Clean and inspect installation equipment prior to storage.

F.21) Order replacement parts, if necessary, to replace lost, damaged, or worn components.

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HYDRA-STOP® SOLUTIONS FOR CONTROL

Appendix G — Line Stopping and the Importance of Equalization

The line stop(s) have been deployed and the repairs have been completed. Now the stops need to be removed from the main.

- The section of pipe that was de-watered needs to be refilled and pressurized to system pressure.
- Move the control lever into the up position on the line stop machine and wait 15 minutes for the stopping head to relax.
- Start pumping in the up position, it should stay in stage 1, if not, return the lever to neutral and then into the up position and try again. The pump must stay in the first stage to remove the stopping head, if it does not, then you are not equalized and pumping in the 2nd stage will only damage the equipment.
- If an existing valve was closed to perform to the repair, check to make sure that the valve has been reopened. Release any air where possible and try again to remove the stop.
- The stopping head is fully retracted when the pump stops in mid-stroke. If you are not sure if the stopping head is fully retracted, pump the handle about 6–8 pumps to see if it builds pressure on the gauge. If it builds pressure, the stopping head is still engaged to the cut and is not equalized. If pressure does not build, move the lever into the up position and pump until it stops again in mid-stroke.

Appendix H — Line Stop Trouble Shooting Guide

This guide is intended to support to our equipment owners who may experience some minor issues while performing Line Stops.

Question: How much pressure do I pump it up to?

The general rule for rubber stopping heads is 400 X the nominal pipe diameter. Example: 8" pipe x 400 = 3,200 psi on the gauge.

Aluminum stopping heads are 200 x the nominal pipe size. Example: 8" pipe x 200 = 1,600 psi on the gauge.

Question: Do I need support under the line stop sleeve?

Yes, block up under the sleeve after pressure testing the sleeve. Paving stones, 4"x 4" wood post and 2"x 4" studs are suitable materials to use.

Question: What is the test port on the side of the line stop used for?

It provides a source of water for equalizing on top and bottom of the completion plug. Remove the pipe plug and thread in a permanent nipple and valve.

Question: Do I need to restrain the joint behind the line stop?

It is always good safety practice to know where the joints are by measuring what pipe is exposed. When in doubt, restrain the pipe. A line stop needs to be completed in a separate excavation from the repair site. If there is an exposed joint in the excavation site, you will need to restrain the pipe joints. If line stops cannot be performed in separate excavations the line stop sleeves will need thrust blocking and exposed joints will need to be restrained in the excavation site.

NOTE: DO NOT cut the stopped pipe without proper restraints. Every project is different. Proper restraint types will depend on soil conditions, type of pipe, flow rates, PSI, depth of bury, and pipe size. Consult the Civil Engineer for the recommendation for the proper restraint type for the project.

Question: What type of restraints are available?

a. Friction clamps
b. Mega-lugs and threaded rod
c. Concrete

Question: How do I know if the line stop is working?

Open a hydrant, branch connection, or tapping saddle to judge the quality of the stop.

A 1" tap on 4"–8" pipe or a 2" tap on 10"–12" pipe is required to verify the stop.

Question: Why does my line stop machine pump hard?

The pump is a two-stage pump. The first stage is normal for all uses while setting up the equipment. It will go into second stage when the stopping head gets to the bottom of the pipe as you build pressure to set the stop.

After the stop reaches the prescribed pressure for the size pipe you are working on, lock the pump handle in place and open the verification point to check the quality of the stop. If you think you need to bring the pressure up, first close the verification point before pumping. Then bring the pressure up a small amount and re-check the quality of the stop.

NOTE: Make sure the pump stays in first stage while retracting the stop.

Question: What is the petcock used for that's on top of the reservoir?

It is used to bleed the air out of the system. It should be in the open position when setting the stop and when retracting the stop.

Question: Why is the pump going into the second stage while trying to retract the stop?

The pipe downstream of the line stop must be full and pressurized to create equal pressure on both sides of the stop to remove the stop. Wait at least 15 minutes after releasing the stop before pumping in the up position.

It must stay in the first stage while retracting the line stop. If the line stopping machine goes into second stage, move the control lever into the neutral position and return it to the up position, then verify that the pipe is equalized before continuing.

Question: Do I apply grease to the bottom of the stopping head?

No, grease 360 degrees around the line stop head but do not grease the bottom of the stopping head.

Question: What type of oil does the line stop machine use?

Hydraulic oil grade 32

Question: What is the rated pressure for rubber stopping heads?

Rubber stopping heads are rated to 100 psi.

Question: What is the rated pressure for aluminum stopping heads?

Aluminum stopping heads are rated to 250 psi.