



# Pilot Tube Expansion Sleeve A62122A

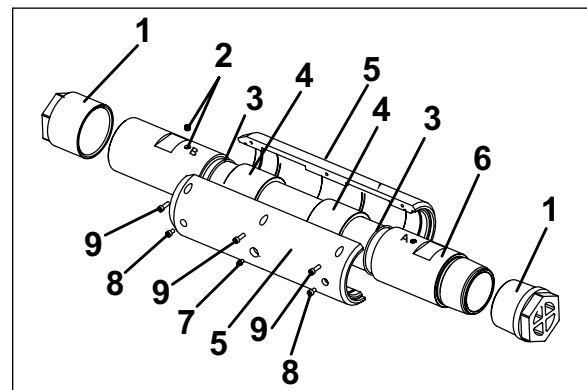
Instruction Part No. 050179A

The pilot tube expansion sleeve, A62122A is used to maintain a 5 in. (127 mm) bored hole in ground conditions with swelling or squeezing clay and high plasticity. The expansion sleeve tapered edge deflects swelling clay away from the pilot tubes. The split sleeve design encases the pilot tube, and features interior bushings that allow the pilot tube string to rotate. The design assists to reduce rotational torque and operating pressures and allows additional optional lubrication points along the pilot tube string.

The pilot tube expansion sleeve is typically installed after the first 20 ft (6 m) or approximately eight (8) pilot tubes and then every 40 ft (12 m) or approximately sixteen (16) pilot tubes thereafter.

## Pilot Tube Expansion Sleeve Terminology

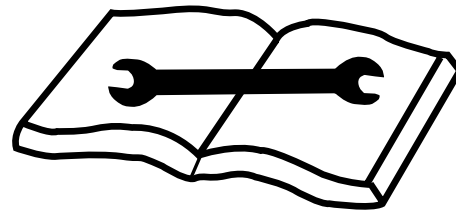
1. Thread Protector Cap and Plug
2. Expansion Sleeve Lubrication Port B with 1/8 in. NPT plug
3. O-Rings
4. Bushings
5. Expansion Sleeve Half with Threads
6. Outer Tube
7. Grease Fitting
8. (2) Screw, Socket Head Cap, 1/4 x 0.375
9. (6) Screw, Socket Head Cap, 1/4 x 0.75



## Pilot Tube Expansion Sleeve Installation

**⚠ WARNING** Do not operate this equipment until you read, study, and understand the Guided Boring Machine Operator's Manual. Failure to do so, could result in severe personal injury or death.

Before installation, refer to section 6, Operation, Installing Pilot Tubes in your Guided Boring Machine Operator's Manual.



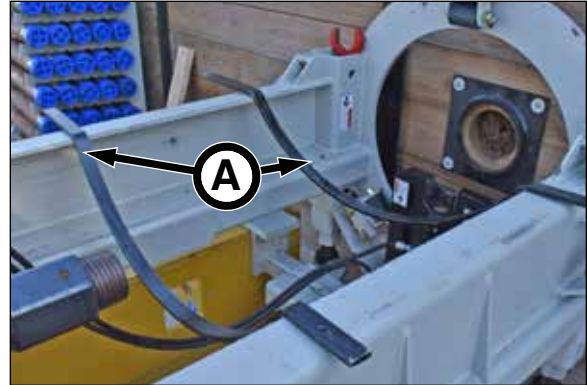
**NOTICE** The Expansion Sleeve Lubrication Ports allows additional optional lubrication points along the alignment. An unplugged port will result in a loss of lubrication flow at the steering head and other forward tooling. The contractor must gauge when it's necessary to port or plug the B port depending on the project ground conditions. The general recommendation is to plug the first expansion sleeve (approximately 20 ft) and the port the second (approximately 60 ft) and those installed thereafter.

**NOTICE** Installation may vary based upon ground conditions. The contractor may need to add more Pilot Tube Expansion Sleeves in swelling ground and reduce the distance between them or reduce the number of Pilot Tube Expansion Sleeves in less swelling ground with more distance between them.

**NOTICE** The Pilot Tube Expansion Sleeve Assembly include two lubrication ports, labeled A and B. This instruction refers to port B only. Operators should leave the A port plug in place.

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1. Position the pilot tube support bars (A) along the frame rails.



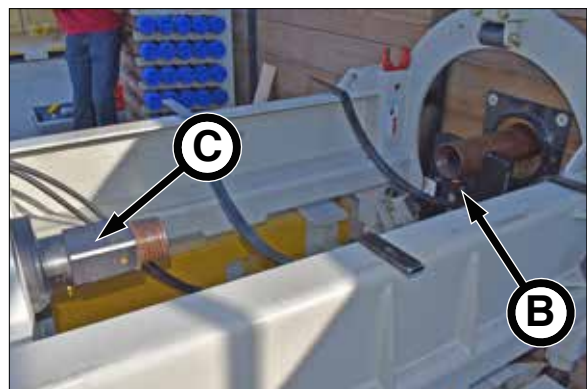
2. Install a minimum 5 in. diameter steering head; one of the 30°, 45°, or bullet steering heads.



3. After the steering head/steering head adapter are launched, install eight (8) pilot tubes for an approximate installation length of 20 ft (6 m).



4. Leave the pilot tube notches engaged in the make-up tool (B), disengage the drive swivel (C), and retract the thrust cylinders by pulling the Thrust Cylinder Control lever down to move the gear box assembly to the back of the GBM frame.



5. Position the pilot tube support bars along the frame rails.

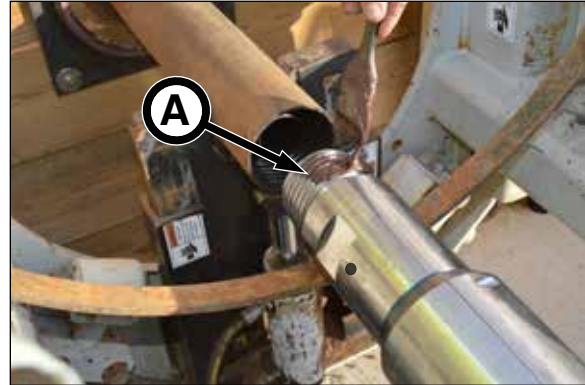
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**⚠ WARNING** Suspended loads may fall and cause severe personal injury or death. Do not enter area under or around a suspended load.

6. Lower the Pilot Tube Expansion Sleeve onto the pilot tube support bars. Be sure the 1/8 in. NPT plug is firmly in place.

**NOTICE** The general recommendation is to plug the first expansion sleeve (approximately 20 ft) because of adequate lubrication flow from the steering head port, but the contractor must gauge which to plug or port based on ground conditions.

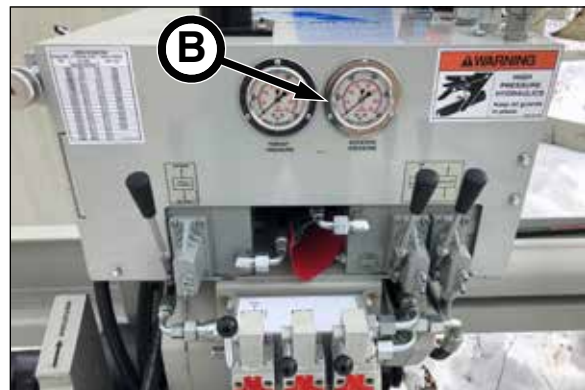
7. Use Copper Guard 4 lubricant (Akkerman Part No. P0310-778) to lubricate the joint threads (A) that connect the Pilot Tube Expansion Sleeve to the previously installed pilot tube and the drive swivel threads.



8. Lift up on the pilot tube support bars to position the Pilot Tube Expansion Sleeve in line with the pilot tube string for threading.

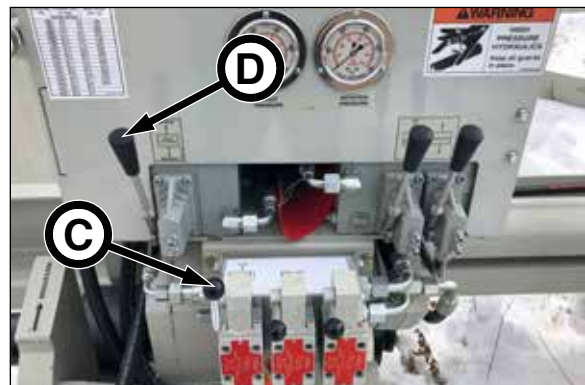


9. Advance the gear box assembly with the thrust cylinder control while rotating the drive CW (using the drive rotation control) to thread the Pilot Tube Expansion Sleeve onto the previously installed pilot tube and the drive swivel.



10. Tighten the connection to 1,000 psi (2,000 ft-lb) torque shown on the rotation pressure gauge (B) on the gear box.

11. Release the make-up tool to disengage tube support from the previously installed pilot tube by pulling DOWN on the Make-Up Tool lever (C).



12. Advance the Pilot Tube Expansion Sleeve by extending the thrust cylinder control lever (D) to the forward position.

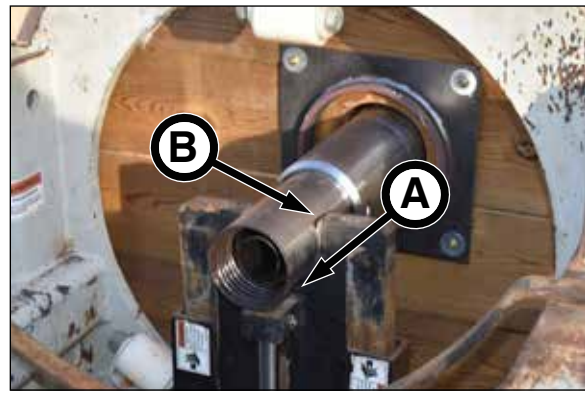
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13. Push the Pilot Tube Expansion Sleeve the full travel of the jacking frame until the notches line up with pilot tube support (A) in the Make-Up Tool.
14. Engage the Make-Up Tool support to the notches (B) on the Pilot Tube Expansion Sleeve by pushing the Make-Up Tool lever UP.
15. Disengage the drive adapter from the Pilot Tube Expansion Sleeve by rotating the drive CCW with the auger drive rotation control and using the Thrust Cylinder control to retract the thrust cylinders.
16. Move the gear box assembly (C) to the back of the GBM frame using the thrust cylinder control.
17. Use Copper Guard 4 lubricant (Akkerman Part No. P0310-778) to lubricate the back Pilot Tube Expansion Sleeve joint thread to the next installed pilot tube.
18. Continue to install standard pilot tubes 9 - 24.
19. Repeat steps 4 through 17 to install the second Pilot Tube Expansion Sleeve. Before installing, use a 3/16 allen wrench to remove the 1/8 in. NPT plug on port B and retain for later use.

**NOTICE**

The general recommendation is to plug the first expansion sleeve (approximately 20 ft) and port the second (approximately 60 ft) and those installed thereafter to alleviate ground swelling. The contractor must gauge which to plug or port based on ground conditions.

20. Continue to insert Pilot Tube Expansion Sleeves every 40 ft (12 m) or 16 pilot tubes thereafter along the alignment until pilot tube installation is complete. Before installing, use a 3/16 allen wrench to remove the 1/8 in. NPT plug on port B and retain for later.



## Pilot Tube Expansion Sleeve Reception Shaft Removal

The Pilot Tube Expansion Sleeves are a larger diameter than the opening on Breakout Tool Assembly. To remove the Pilot Tube Expansion Sleeves from the reception shaft, you must first remove the centering spacer.

### Remove Centering Spacer From Breakout Tool Assembly

1. Position the breakout tool on a solid, flat surface with the hydraulic cylinder up.
2. Using a needle nose pliers, remove the cotter pin from the hydraulic cylinder pivot pin (A).
3. Push the hydraulic cylinder pivot pin (B) down and out of the breakout tool arm, and retain for later.
4. Remove the four (4) grease fittings around the perimeter of the body using a 5/16 in. socket. Retain for later.
5. Remove the eight (8) retaining bolts and washers from the body using a 3/4 in. socket. Retain for later.
6. Pull the breakout tool arm upward and off. Place it to the side.



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7. Pull the spline half upward and place it to the side.



8. Separate and remove the two insert halves from the interior and place them to the side.



9. Remove the centering spacer (A), and retain to reinstall later.



10. Inspect o-rings (B) for damage or wear and replace if necessary and remove any debris.



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11. Reinstall the two the insert halves.



12. Reinstall the spline half.



13. Position the breakout tool arm over the other arm and breakout tool body and slide it into place.



14. Reinstall all bolts, washers and grease fittings around the breakout tool body. Return the hydraulic cylinder and pivot and cotter pins to the breakout tool assembly.



The Breakout Tool Assembly is now ready for use to remove the Pilot Tube Expansion Sleeves from the reception shaft.

## Maintenance and Storage

### Clean and Lubricate Pilot Tube Expansion Sleeves and Standard Pilot Tubes

1. Install the Air and Fluid Connector\* (A) to the female end of the Pilot Tube Expansion Sleeve or pilot tube.
2. Connect a clean water supply to the Air and Fluid Connector. Use a minimum water pressure of 10 gal @ 1,000 psi (37.9 L @ 27.6 mPa).
3. Flush the tube's annular space to prevent any contaminants from settling in the pilot tube.
4. Lubricate Pilot Tube Expansion Sleeve joints using Copper Guard 4 lubricant.
5. Repeat steps 1 through 4 for all pilot tube expansion sleeves and pilot tubes used.
6. Use a 3/16 allen wrench to remove the 1/8 in. NPT plug on port B (B) and retain for later use.
7. Use a wire or small wire brush to clean port B (B). Return 1/8 in. NPT plugs to port.
7. Once fully dry, replace all pilot tube and Pilot Tube Expansion Sleeve caps and plugs.
8. Return all pilot tubes to the storage rack and Pilot Tube Expansion Sleeves to rack mount.

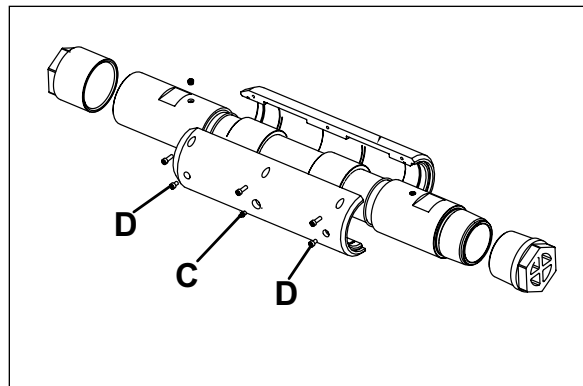
\* The Air and Fluid Connector (Akkerman Part No. A40250A) is part of the Steering Head Assembly.



### Purge and Lubricate Sleeve Cavity

**NOTICE** Lubricant may ease out of assembly surface while greasing.

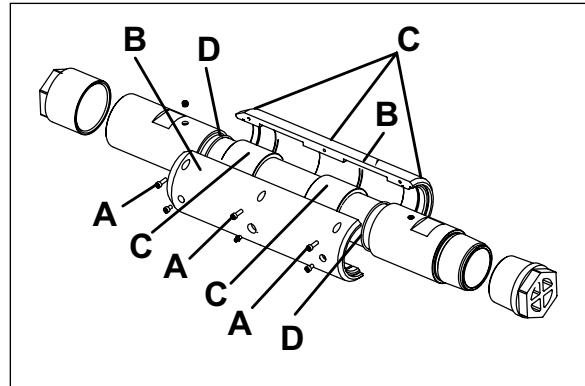
1. Remove grease fitting (C) from Expansion Sleeve Half and one socket head cap screw (D).
2. Using Mobilgrease XHP™ 222, purge old grease until clean grease is forced out of the open socket head cap screw port.
3. Remove the opposite socket head cap screw (D).
4. Using Mobilgrease XHP™ 222, purge old grease until clean grease is forced out of the open socket head cap screw port.
5. Reinstall grease fitting (C) in the Pilot Tube Expansion Sleeve Half.



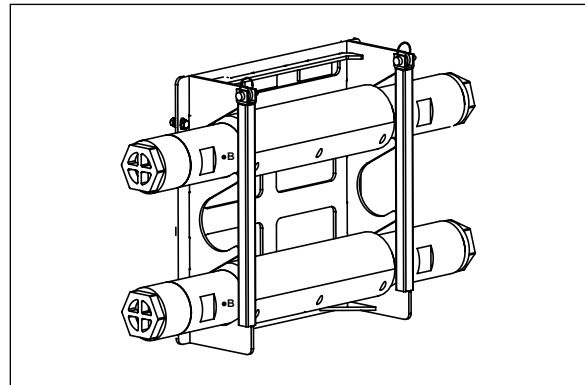
### Inspect and Clean Sleeve Cavity

**NOTICE** Lubricant may ease out of assembly surface while greasing.

1. Firmly grip the Pilot Tube Expansion Sleeve with one hand and the Pilot Tube body with the other. If the Pilot Tube will not move, independent of the sleeve, proceed to step 2.
2. With the Pilot Tube Expansion Sleeve positioned on a flat surface, remove six Socket Head Cap Screws, (A). Retain for later use.
3. Lay open the two Expansion Sleeve halves (B).
4. Clean inner tube to remove corrosion.
5. Remove and clean bushings (C) and replace.
6. Apply a light layer of silicone to the inner sleeve halves.
7. Visually inspect the o-rings (D) and replace if damaged.
8. Position sleeve halves around the pilot tube body and screw six Socket Head Cap Screws (A) into place.



**NOTICE** A Pilot Tube Expansion Sleeve Rack (Akkerman Part No. A63920A) is available to mount three Pilot Tube Expansion Sleeves to the back of the 100 ft Pilot Tube Rack (Akkerman Part No. FA48325F). Contact your Akkerman Sales or Aftermarket Support for more information.



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