



**FORDIA**<sup>®</sup>

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# ***INSTRUCTIONS MANUAL***

*PRISM DIRECTIONAL WEDGE*



# INSTRUCTIONS MANUAL

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This document presents the standard operation and maintenance of the Fordia Prism Directional Wedge. It should be used as a guide and reference on the field.

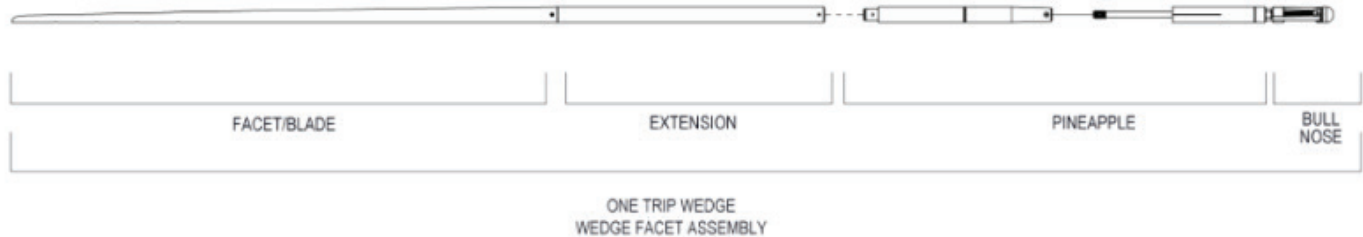
## Prism Directional Wedge - Overview

Fordia's Prism directional wedge can quickly and easily deflect a drill hole into a specific, predetermined direction, after the hole has been surveyed. Wedges can generally achieve between 1.5 to 2 degrees of deflection, depending on ground conditions.

## **RECOMMENDED PREPARATION:**

1. Inspect the core in the surrounding area and at the exact depth where you wish to install the wedge. The wedge should be installed in an area with competent rock. Wedges should never be set in badly fractured or problematic ground.  
In the example above case, the wedge was set at a depth of 2271 feet.
2. Verify that the borehole is free of obstructions, and has uniform gage and dimensions.
3. The use of a polymer or cutting oil, or both, is strongly recommended.
4. Determine the exact location of the end of the wedge by calculating the number of drill rods and by precisely measuring the adaptors and the wedge itself.





## ***WEDGE ASSEMBLY***

1. Assemble all sections of the facet assembly:
  - a) Screw the pineapple into the cone.
  - b) Screw the cone into the extension.
  - c) Screw the extension into the wedge blade (facet).
2. Lock the assembly together by inserting the spring pins into the holes at each end of the extension. Spring pins are included in the Fordia packaging crate.
3. Install the copper pin at the pineapple joint. Use only a Fordia 3/8" copper rod for the most reliable installation. The pin should be riveted flush to the cone.



4. Install the dropper into the wedge facet ensuring that the key way on the dropper fits properly into the key slot on the wedge facet.
5. Use a 3/8" bolt and nut to temporarily secure the wedge and the dropper, bringing both faces of metal together tightly. **IMPORTANT: This bolt must be removed before final lowering of wedge.**



6. Install copper rivets, to hold the dropper to the wedge facet while hoisting into the borehole, using two solid 3/8" copper pins. Use only a Fordia 3/8" copper rod for the most reliable installation. Pins should be riveted flush on both sides.



## ***WEDGE ORIENTATION***

1. Install and tighten the adaptor to fit the W rod box thread on the back of the wedge.
2. Install the mule shoe sleeve and tighten securely.
3. With the entire assembly lying flat on the deck, use a spirit level to zero the wedge by placing it across the wedge facet as shown.





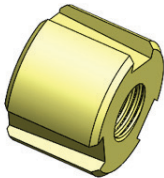
## ASSEMBLY VERIFICATION

The entire wedge is now assembled. Inspect tool for damage and verify the following points:

1. Verify that the finger assembly can rotate freely and that the fingers can open easily.

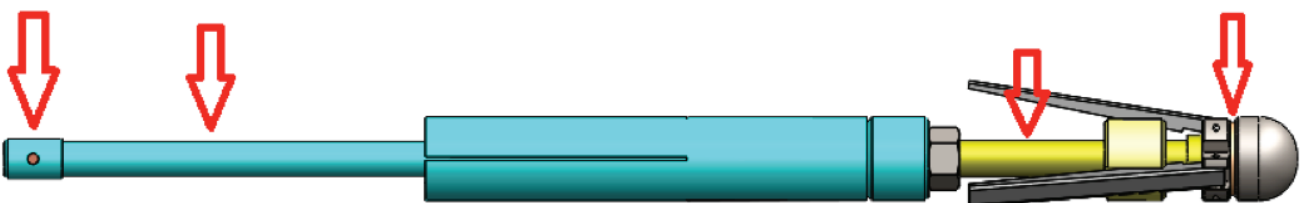


2. Verify that the tapered bushing can go up and down the threaded rod easily.



3. Verify that grease is applied at the following locations to ensure smooth installation.

- a. Along the threaded rod.
- b. In the grooves of the finger assembly (to prevent dirt accumulation that will prohibit rotation).
- c. On the W thread and machine rod of the pineapple.





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## ***LOWERING THE WEDGE***

Lower the tips of the bull nose in the hole and remove any tape holding the fingers, move the fingers to make sure they are not 'stuck' to the tapered bushing. If this has not been done before, rotate the finger assembly until the tip of the fingers barely start to touch the inner walls of the casing.



Remove the temporary bolt holding dropper and wedge together, before lowering the wedge into borehole.

The wedge will now be held by the 2 copper rivets. Use caution while lowering the wedge to the correct depth.



Verify that all 3 set screws holding the keyway onto the wedge dropper are in place and tight.

The wedge assembly can now be slowly lowered to the desired depth. The wedge can be set at any point within the borehole.



## ***SETTING THE WEDGE***

1. Setting the bull nose:
  - a. Rotate the wedge at a low speed and low torque while watching for a spike in torque. The rotation will cause the tapered bushing to move down the threaded rod of the bullnose locking device and force the finger assembly to open. When the fingers catch on the wall, a spike in torque will be read.
  - b. Continue turning slowly for 4-5 turns. This will firmly set the bull nose and break the copper pin.



2. Freeing the cone:

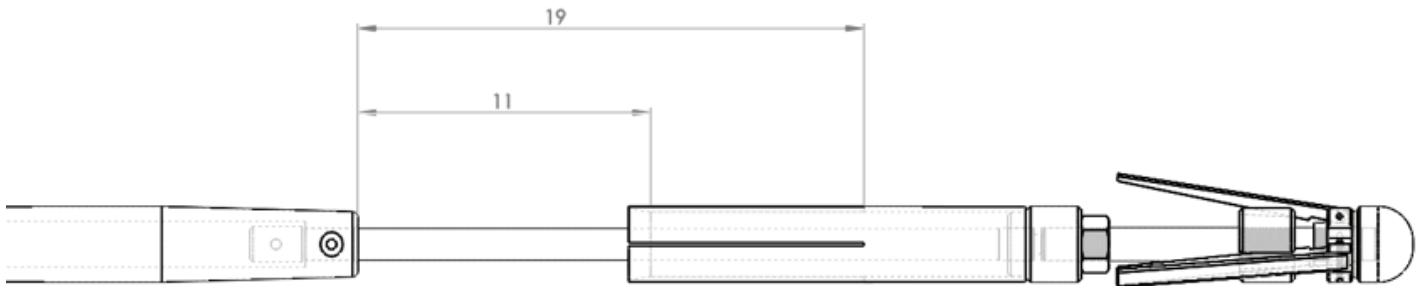
- a. Slowly rotate the rods while descending the bore hole. Aim for a rate of 3-4 rotations for 1 inch of descent. If the drill is equipped with a free float, it is not necessary to descend with the rotation.
- b. A bang may be felt when the cone is fully released from the thread.
- c. Record a position of reference between the chuck and the mast.



**NOTE:** When the pin on pineapple breaks, the driller rotates a min. of 5 turns to disengage from the threads. This will allow the solid rod to telescope up into the pineapple, travelling approximately 8-10 inches.

3. Relieving torsional stress in the drill string:

- a. Move the rods up and down within the 8" of travel space a few times to release any tension in the rods.



Setting the azimuth:

- a. Use an orientation tool to position the wedge face towards the desired direction.
- b. Once the direction has been confirmed, push the rods down to force the cone into the pineapple and to prevent any turning of the wedge facet. The assembly should be lowered between 11-19 inches from the reference point. **Apply up to 15,000 lbs. of pressure on the assembly.** This pressure will sever the copper pins of the dropper.

5. Withdraw the dropper.
6. Drill past the wedge using a Fordia wedge bit or a bullnose.

For any questions or for additional guidance, do not hesitate to contact our technical support team at <http://www.fordia.com/things-you-need/team-support/>

## ***PRISM DIRECTIONAL WEDGE PART NUMBERS***

| <b>NW</b>   | <b>Part Number</b> | <b>Usage</b>  |
|---|--------------------|---------------|
| Facet assembly NW for Prism Directional Wedge       | 9469707035         | Single use    |
| Dropper assembly NW for Prism Directional Wedge     | 9469707036         | Can be reused |
| Copper rod NW for Prism Directional Wedge 3/8 X 36" | 9469707038         | Single use    |

| <b>HW</b>   | <b>Part Number</b> | <b>Usage</b>  |
|---|--------------------|---------------|
| Facet assembly HW for Prism Directional Wedge       | 9469707004         | Single use    |
| Dropper assembly HW for Prism Directional Wedge     | 9469707005         | Can be reused |
| Copper rod HW for Prism Directional Wedge 1/2 X 36" | 9469707007         | Single use    |



