PATHFINDER® II

INSTRUCTION

MANUAL

OHIO WILLOW WOOD

U.S. Patents 6,602,295; 6,063,125; 6,863,695
International Patents Pending

PN-1363-I 9 APR 2007

CONTENTS

Please read instructions thoroughly before assembling a prosthesis using the Pathfinder II.

Pathfinder II Design

The Pathfinder II is a prosthetic foot that uses an innovative design to provide maximum performance, stability, and comfort for its users. While most other prosthetic feet are of a cantilevered design with one main spring, the Pathfinder II profile has a closed shape with three main segments acting in unison to provide greater flexibility, energy storage, and energy return. By incorporating a closed-shape design in which two of the segments (toe springs and foot plate) are flexible, and one segment (pneumatic heel/shock spring) is compressible, the Pathfinder II exhibits a complex motion that users claim to be much like that of an anatomical ankle.

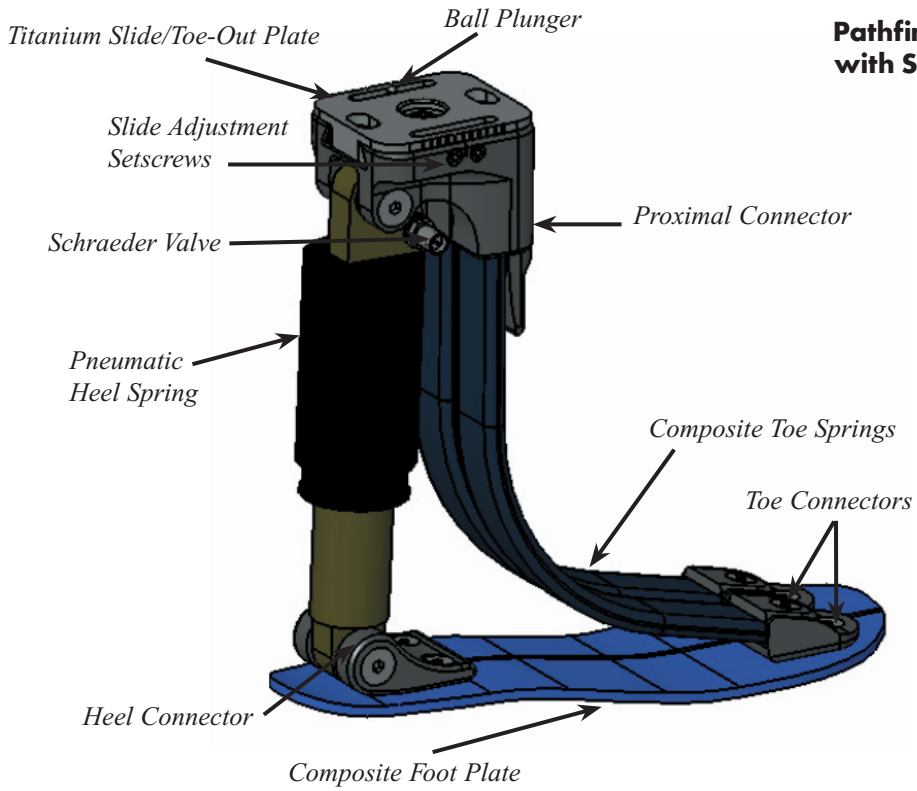
The following is an explanation of one cycle in the operation of the Pathfinder II: as the prosthetic heel of the Pathfinder II comes into contact with the ground, two important things begin to occur simultaneously. As force is applied to the walking surface through the heel, 1) the air/nitrogen-filled heel shock/spring begins to compress (and consequently to store energy as well as to absorb the shock or impact generated) and 2) a moment is applied to the composite toe springs, attempting to “open” or “straighten” them. Because of the inherent design of the device, the entire sole of the prosthetic foot comes into contact with the ground at a point much earlier in the gait cycle than with other prosthetic feet. Also due to the unique design, the stored energy is not released immediately, but is captured and a portion of it is released gradually as the amputee approaches mid-stance. At mid-stance the remaining energy is still contained in a partially compressed heel shock/spring and slightly deflected composite springs. As the amputee moves forward from mid-stance, the composite spring begins to close or bend (again storing energy), while the heel shock/spring becomes fully extended, having released all of its stored energy. Additionally, the bending of the toe springs causes the anterior section of the proximal connector to shift relative to the bottom of the foot, reducing socket loads and increasing comfort. The foot still largely remains flat on the walking surface, resulting in added stability over competitive products. At toe off, the composite springs return to their relaxed state and release the remaining energy stored in them. The Pathfinder II is now in its original position, ready for heel contact again.

Contraindications

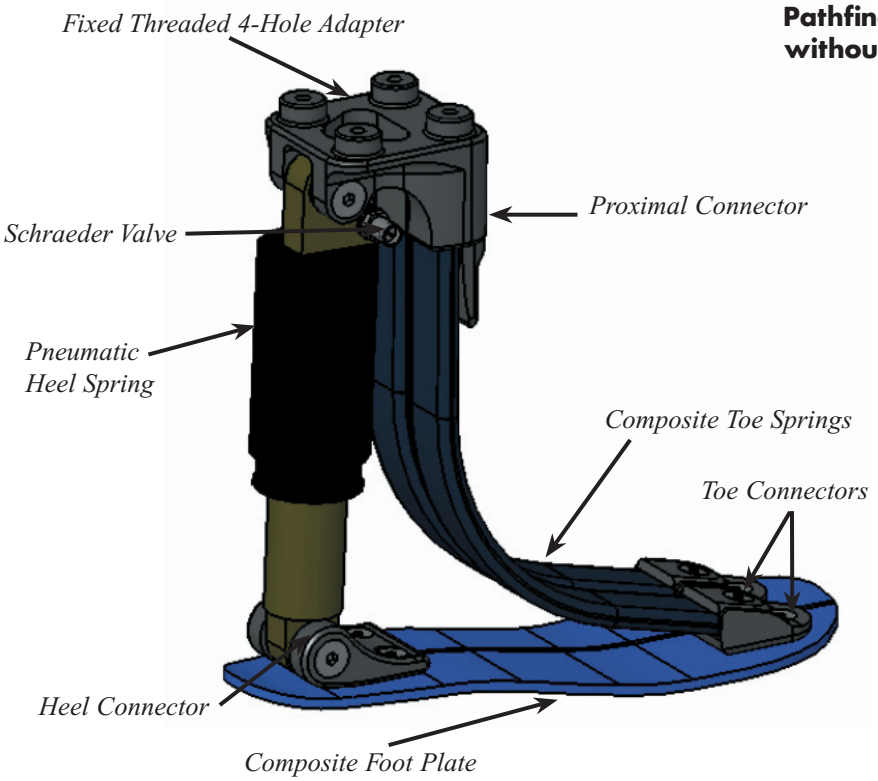
The Pathfinder II is **contraindicated** for anyone who:

- Weighs more than 350 lbs. (160 kg).
- Has a foot size outside the range of 23-31cm.
- Does not have at least 8" (20cm) of clearance from the bottom of the socket attachment device to the floor.

Pathfinder II with Slide Adjustment

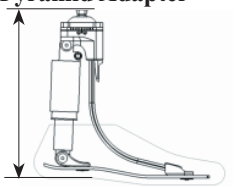
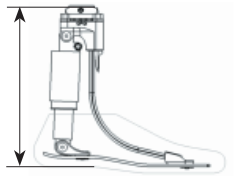
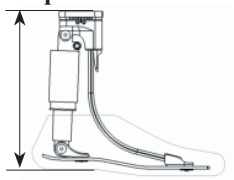
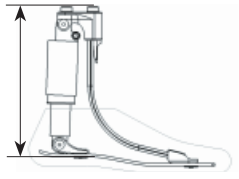


Pathfinder II without Slide Adjustment



Since M/L slide adjustment is often required, Ohio Willow Wood recommends installing a temporary alignment component that provides M/L slide adjustment onto the prosthesis.

When installing additional components onto the prosthesis, keep the following chart in mind so that sufficient space will remain under the components to install the Pathfinder II.

	3/4" Heel 18mm Standard Pathfinder II	**3/8" Heel 10mm Standard Pathfinder II**	**3/4" Heel 18mm Low-Profile Pathfinder II**	**3/8" Heel 10mm Low-Profile Pathfinder II**
Height of Pathfinder II, Foot Shell, and the **Pyramid Adapter** 	9.5" (24.1cm)	9.8" (24.9cm)	8.5" (21.6cm)	8.8" (22.4cm)
Height of Pathfinder II, Foot Shell, and the **Pyramid Receiver** 	9.1" (23.1cm)	9.5" (24.1cm)	8.1" (20.6cm)	8.5" (21.6cm)
Height of Pathfinder II, Foot Shell, and either the **Threaded 4-Hole Adapter** or the **Through 4-Hole Adapter with Valve** 	8.7"(22.1cm)	9.1" (23.1cm)	7.7" (19.6cm)	8.1" (20.6cm)
Height of Pathfinder II, Foot Shell, and the **Fixed Threaded 4-Hole Adapter** (no slide adjustment) 	8.3"(21.1cm)	8.7" (22.1cm)	7.3" (18.5cm)	7.7" (19.6cm)

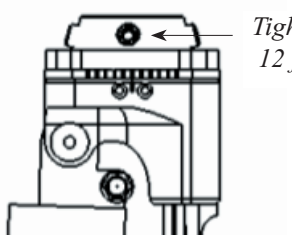
The Pathfinder II is shipped with a Proximal Adapter of your choice or with a Fixed Threaded 4-Hole Adapter. Follow the instructions for the particular Adapter being used:

Pyramid Adapter (Part No. PFD-0115)

Insert the pyramid into a pyramid receiver. Follow the torque specification provided by the manufacturer of the pyramid receiver.

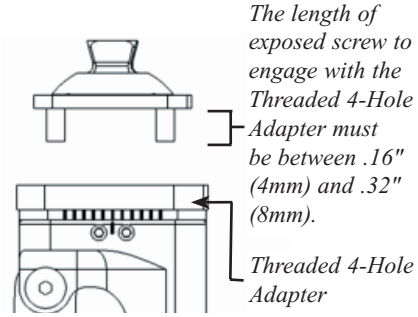
Pyramid Receiver (Part No. PFD-0116)

Insert a pyramid into the Pyramid Receiver. Tighten the four M8 setscrews to 12 ft-lbs (16.3 Nm).



Threaded 4-Hole Adapter (Part No. PFD-0113) and Fixed Threaded 4-Hole Adapter

Attach the desired Ohio Willow Wood 4-hole component onto the Threaded 4-Hole Adapter. Check to make sure that the length of exposed screw to engage with the Threaded 4-Hole Adapter is between .16" (4mm) and .32" (8mm). Apply Loctite 242 Removable Threadlocker (or equivalent) to the screws, and torque the screws to 9 ft-lbs (12Nm).

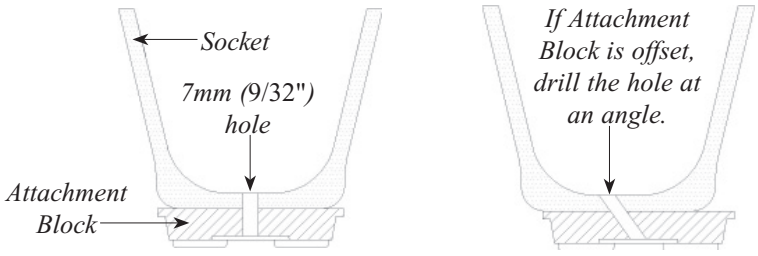


Through 4-Hole Adapter with Valve (OWW Part No. PFD-0114)

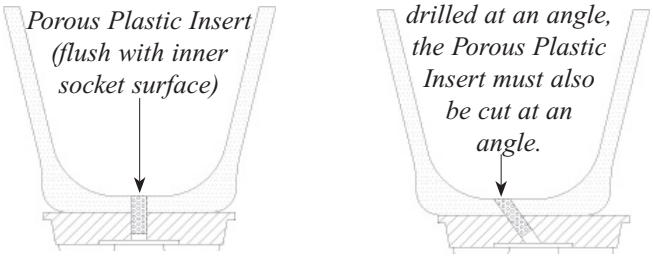
1. Fabricate a transtibial socket with a 4-hole attachment block at the distal end using an OWW Laminated Socket Attachment Block (OWW Part No. 700-250 or 700-200) or equivalent.

   Note: Make sure that the distal surface of the socket has a flat surface to provide a secure attachment for the adapter, and to provide a seal for the Suction Valve.

2. Drill a 7mm (9/32") diameter hole in the center of the distal end of the socket. If the 4-hole attachment block is offset with respect to the socket, drill the hole at an angle from the center of the Attachment Block to the center of the distal end of the socket.

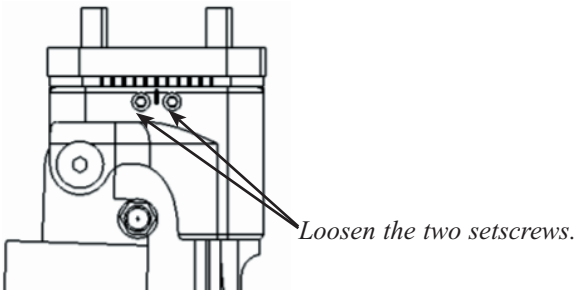


3. To prevent dirt and debris from clogging the airway, place the Porous Plastic Insert (included with the adapter) inside the 7mm (9/32") hole. Make sure the Porous Plastic Insert is flush with the inner surface of the socket. If the hole was drilled at an angle, cut or sand the Porous Plastic Insert at an angle as well.

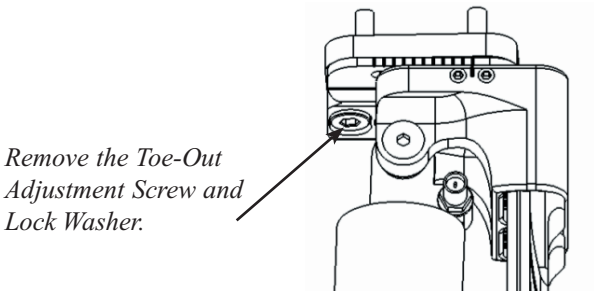


4. Remove the Through 4-Hole Adapter with Valve from the Pathfinder II as follows:

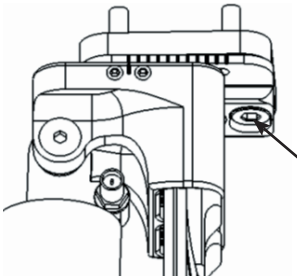
   a. Using a 3mm hex wrench, loosen the two Slide Adjustment Setscrews on the Proximal Connector.



   b. Slide the Titanium Slide/Toe-Out Plate **backward**. Using a 5mm hex wrench, remove the Toe-Out Adjustment Screw and Lock Washer located underneath the posterior section of the plate.



c. Slide the Titanium Slide/Toe-Out Plate **forward**. Using a 5mm hex wrench, remove the Toe-Out Adjustment Screw and Lock Washer located underneath the anterior section of the plate.



Remove the Toe-Out Adjustment Screw and Lock Washer.

d. Remove the Through 4-Hole Adapter with Valve and the four M6 x 20 screws.

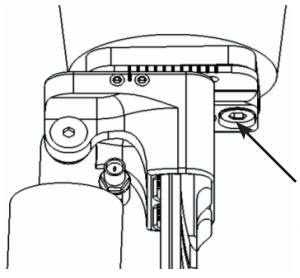
5. Using the four M6 x 20 screws, attach the Through 4-Hole Adapter to the Attachment Block on the socket. Use the torque settings specified by the manufacturer of the Attachment Block. (For Ohio Willow Wood's Laminated Socket Attachment Block, tighten the screws to 12 Nm or 9 ft-lbs.)

   Note: If screws other than the 4 metric screws included with the adapter are used, make sure that the screw heads are countersunk below the distal surface of the adapter. Screw heads that are not flush with the surface of the adapter will cause the adapter to rock back and forth, resulting in structural failure of the adapter.

6. Re-attach the Through 4-Hole Adapter with Valve to the Pathfinder II as follows:

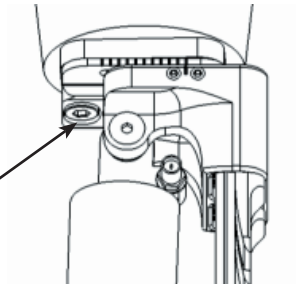
   Note: For the following procedure, a torque wrench of the appropriate length and size to access the Toe-Out Adjustment Screws is required. If you cannot access the Toe-Out Adjustment Screws with your torque wrench, do not follow this procedure. Instead, follow the "Alternate Procedure for Tightening Toe-Out Adjustment Screws" on page 19.

   a. Slide the Titanium Slide/Toe-Out Plate on the Pathfinder II forward. Using a 5mm hex wrench, install the Toe-Out Adjustment Screw and Lock Washer through the hole underneath the anterior portion of the Plate into the mating hole on the Through 4-Hole Adapter with Valve. Tighten to 18 ft-lbs (24Nm).



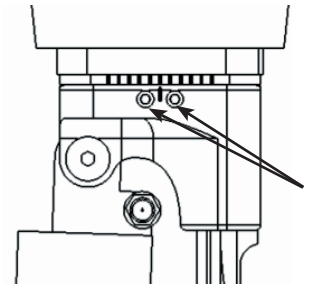
Install the Toe-Out Adjustment Screw and Lock Washer.

b. Slide the Titanium Slide/Toe-Out Plate on the Pathfinder II backward. Using a 5mm hex wrench, install the Toe-Out Adjustment Screw and Lock Washer through the hole underneath the posterior portion of the Plate into the mating hole on the Through 4-Hole Adapter with Valve. Tighten to 18 ft-lbs (24Nm).



Install the Toe-Out Adjustment Screw and Lock Washer.

c. Using a 3mm hex wrench, tighten the two Slide Adjustment Setscrews on the Proximal Connector as follows:



Tighten the two setscrews.

Tighten one setscrew to 68 in-lbs. (7.7 Nm).
Tighten the other setscrew to 68 in-lbs. (7.7 Nm).
Tighten the first setscrew to 68 in-lbs. (7.7 Nm) a second time.
Tighten the other setscrew to 68 in-lbs (7.7 Nm) a second time

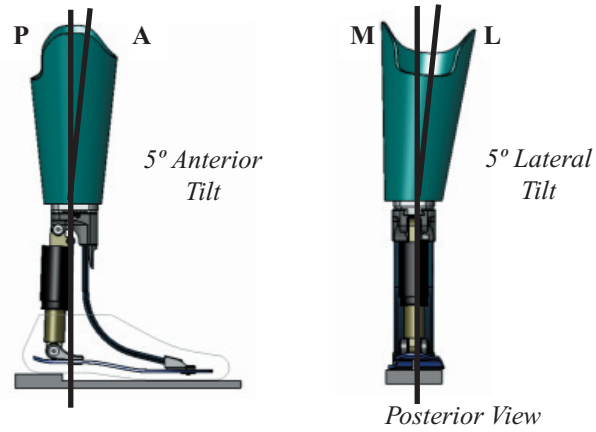
7. Have the amputee don the prosthesis. Air should be expelled as the limb enters the socket.
8. Seal the top of the socket by using an Alpha Suction Seal or equivalent. Follow the manufacturer's instructions for the seal.

In order for the amputee to obtain maximum performance from the Pathfinder II, certain alignment principals must be applied. **These principles differ somewhat from standard alignment theory.**

IMPORTANT: Before beginning the alignment process, address any issues with socket comfort. The amputee must be able to focus entirely on alignment issues without being distracted by socket discomfort.

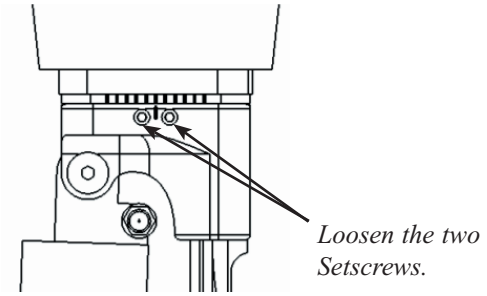
Static Alignment

1. Follow standard bench alignment procedures for flexion and for M/L placement, as shown in the diagrams below:

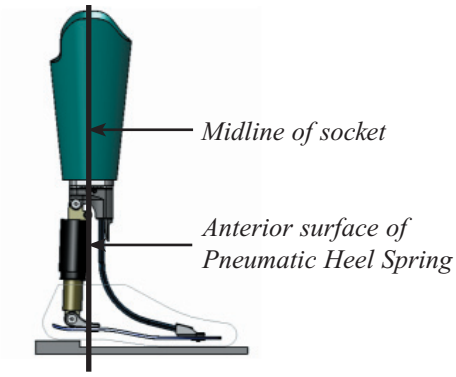


2. **Adjust the A/P placement** of the foot as follows:

   a. Using a 3mm hex wrench, loosen the two Slide Adjustment Setscrews on the Proximal Connector.

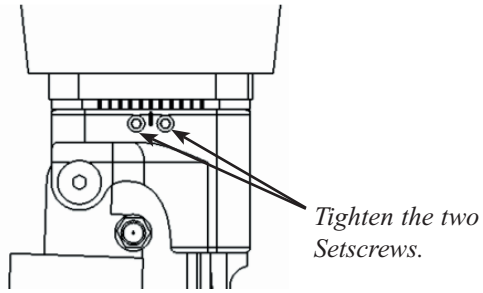


b. **Slide the foot so that the anterior surface of the Pneumatic Heel Spring lines up with the midline of the socket. This A/P placement of the foot is crucial to the performance of the Pathfinder II.**



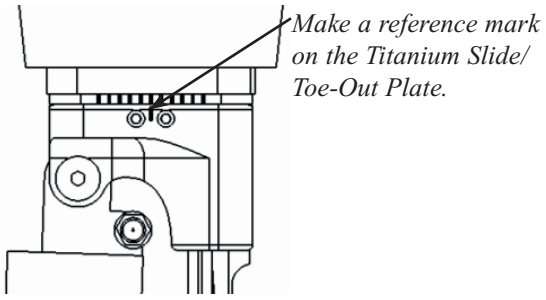
c. Hand-tighten the Slide Adjustment Setscrews as follows so that they are secure enough for dynamic alignment:

Tighten one setscrew.
Tighten the other setscrew.
Tighten the first setscrew a second time.
Tighten the other setscrew a second time.

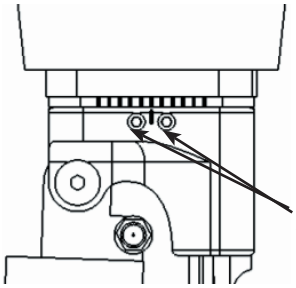


3. **Adjust Toe-Out** as follows:

a. Notice the reference line located between the two Slide Adjustment Setscrews on the Proximal Connector. Using a paint pen or other marking tool, draw a mark on the Titanium Slide/Toe-Out Plate to indicate the position of the reference line, then draw another mark to indicate the toe-out position of the Proximal Adapter.

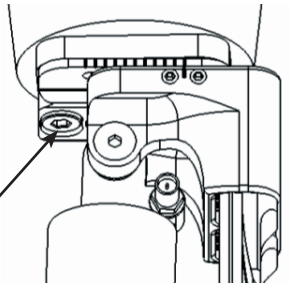


b. Using a 3mm hex wrench, loosen the two Slide Adjustment Setscrews on the side of the Proximal Connector.



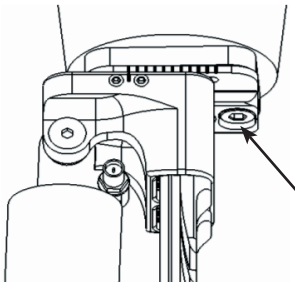
Loosen the two Setscrews.

c. Slide the Titanium Slide/Toe-Out Plate **backward**. Using a 5mm hex wrench, **loosen** (but don't remove) the Toe-Out Adjustment Screw located underneath the posterior section of the plate.



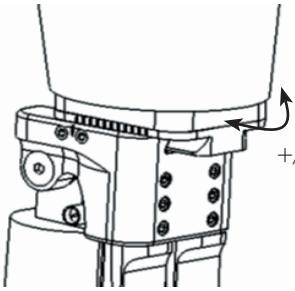
***Loosen** the Toe-Out Adjustment Screw.*

d. Slide the Titanium Slide/Toe-Out Plate **forward**. Using a 5mm hex wrench, **loosen** (but don't remove) the Toe-Out Adjustment Screw located underneath the anterior section of the plate.



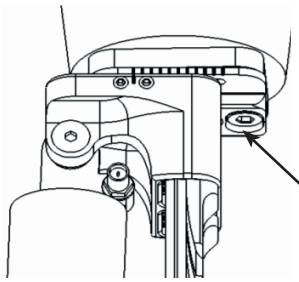
Loosen the Toe-Out Adjustment Screw.

e. Rotate the proximal adapter as desired. Use the toe-out reference mark that was made in Step 3a as a reference.



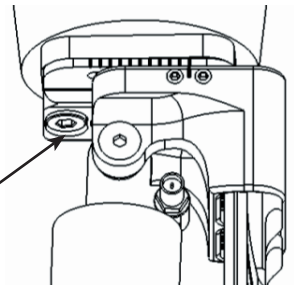
+/-10° Rotation

f. With the Titanium Slide/Toe-Out Plate in the **forward** position, use a 5mm hex wrench to **tighten** the Toe-Out Adjustment Screw located underneath the anterior section of the plate.



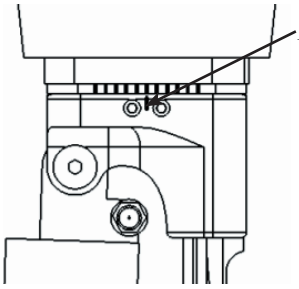
***Tighten** the Toe-Out Adjustment Screw.*

g. Slide the Titanium Slide/Toe-Out Plate **backward**. Using a 5mm hex wrench, **tighten** the Toe-Out Adjustment Screw located underneath the posterior section of the plate.



***Tighten** the Toe-Out Adjustment Screw.*

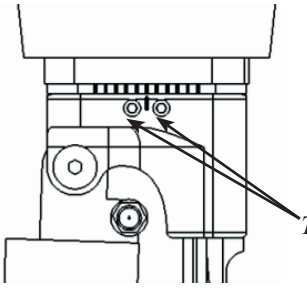
h. Position the Titanium Slide/Toe-Out Plate so that the reference mark you made lines up with the reference line on the Proximal Connector.



Line up reference marks.

i. Tighten the Slide Adjustment Setscrews securely for Dynamic Alignment.

Tighten one setscrew to 68 in-lbs. (7.7 Nm).
Tighten the other setscrew to 68 in-lbs. (7.7 Nm).
Tighten the first setscrew to 68 in-lbs. (7.7 Nm) a second time.
Tighten the other setscrew to 68 in-lbs (7.7 Nm) a second time.



Tighten the Setscrews.

4. Make angular adjustments to the socket to correct any medial or lateral lean of the Composite Toe Springs.

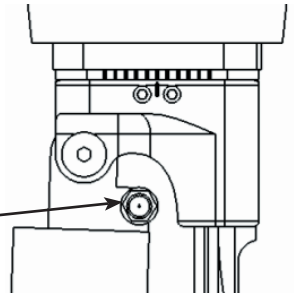
5. Adjust M/L slide using the alignment component installed on the prosthesis.

6. Have the amputee stand at mid-stance in the parallel bars, with even weight bearing on both feet. Examine the amount of compression in the Pneumatic Heel Spring. In order to provide optimum function, the Pneumatic Heel Spring should be mildly compressed at mid-stance. For most amputees, the Pathfinder II's initial pressure of 40 psi (2.8 bar) will be too low, resulting in over-compression of the Pneumatic Heel Spring.

Over-compressed Pneumatic Heel Spring causes heel to be loaded and knee to be forced backwards.

This over-compression may cause the amputee to express a feeling of "standing in a hole" or that the heel is "too low". If this is the case, increase the pressure in the Pneumatic Heel Spring as follows:

a. Remove the valve cap from the Schraeder Valve on the Pneumatic Heel Spring.



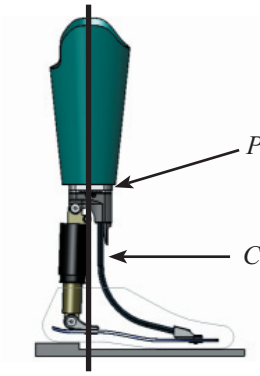
Remove the valve cap.

b. Attach the Hand Air Pump to the Schraeder Valve by threading the connector at the end of the Pump onto the Valve.

Attach Hand Air Pump.

c. Compress the handle of the pump to add pressure. At this point in the alignment procedure, Ohio Willow Wood recommends making adjustments of 10 psi (.7 bar) at a time. More precise adjustments may be made later in the process if necessary.

d. Continue adding 10-psi (.7 bar) increments until the Proximal Connector is approximately level and the Composite Toe Spring remains vertical on normal weight bearing.



Ideal amount of pressure

Note: The Pneumatic Heel Spring will lose 3-5 psi (.2-.35 bar) of pressure when it is disconnected from the pump. Adding an extra 3-5 psi (.2-.35 bar) prior to disconnection will offset this loss.

e. Record the amount of air pressure on the gauge of the Pump for future adjusting purposes during the trial fitting. An additional increase in pressure may be needed once the amputee begins to walk.

f. Unscrew the Pump from the Valve.

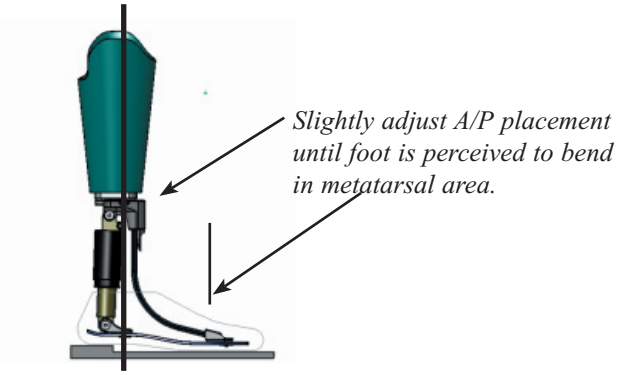
g. Replace the cap on the Schraeder Valve.

7. With the amputee still standing at mid-stance with even weight bearing on both feet, make sure the Pathfinder II is flat on the floor in both the A/P and M/L planes.

Dynamic Alignment

1. After checking to make sure that all adjustment screws are tight, allow the amputee to begin walking in the parallel bars.

2. Ask the amputee to describe, without looking down, where the Pathfinder II is bending. The goal is for the amputee to perceive that the Pathfinder II is bending in the area where the metatarsal joints are located on a natural foot. If this is not the case, **slightly** adjust the A/P placement of the foot as described in Step 2 of the "Alignment" section on pages 10 and 11 until the amputee perceives that the foot is bending in the metatarsal area.



3. Confirm that the correct stiffness of Composite Toe Spring has been selected:

   The Composite Toe Spring is the **correct stiffness** if the following statements are true:

   - A/P adjustments to achieve bending at the metatarsals are minimal.
   - The Composite Toe Spring is visibly bending during ambulation. An easy check for this is to watch for the space between the Pneumatic Heel Spring and the Composite Toe Spring decreasing at mid-stance.
   - The amputee reports a good, smooth transition from heel to toe, with energy return at toe-off.

The Composite Toe Spring is **too stiff** for the amputee if the following statements are true:

- The Pathfinder II must be moved significantly posterior (or the socket must be moved significantly anterior) in order to achieve rocking over the toe.
- There is no visible bending of the Composite Toe Spring during ambulation.

The Composite Toe Spring is **too soft** for the amputee if the following statements are true:

- The Pathfinder II must be moved significantly anterior (or the socket must be moved significantly posterior) in order to prevent falling across the toe.
- While standing at mid-stance, the amputee reports a feeling of falling forward.

If the Composite Toe Spring is either too stiff or too soft, please call an Ohio Willow Wood certified prosthetist at 877-699-2574 or 740-869-3377 for assistance in changing the spring.

6. The A/P placement changes made in Step 4 typically require some adjustment of the Pneumatic Heel Spring pressure:

   a. Remove the valve cap from the Schraeder Valve on the Pneumatic Heel Spring and attach the Hand Air Pump as shown on pages 15 and 16.

   b. Adjust the pressure accordingly:

      - If the Pathfinder II was moved in the anterior direction (or the socket was moved in the posterior direction), an **increase** in the pressure is usually required. Increase the pressure by compressing the handle of the pump.
      - If the Pathfinder II was moved in the posterior direction (or the socket was moved in the anterior direction), a **decrease** in the pressure is usually required. Reduce the pressure by pressing the Pressure Release Button below the gauge on the Hand Air Pump.

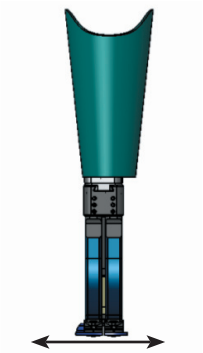
      Ohio Willow Wood recommends making initial adjustments of 10 psi (.7 bar) at a time, followed by more precise adjustments if necessary. Continue adjusting the air pressure, as shown in Step d on page 15, until the amputee feels that the heel compression is normal.

   d. Record the amount of air pressure on the gauge of the Pump.

   e. Unscrew the Pump from the Valve.

   f. Replace the cap on the Schraeder Valve.

7. View the Pathfinder II in the coronal plane to check for any remaining medial or lateral lean of the Composite Toe Spring as the amputee is walking. Adjust the M/L placement of the foot if necessary. Since the M/L slide component will not be included in the definitive prosthesis, proper M/L placement of the Pathfinder II must be determined at this time.



Adjust M/L placement if necessary to correct any apparent M/L thrusting of the socket during walking.

8. Check the amputee's balance in the parallel bars:

   a. Have the amputee reach overhead with both hands, then reach forward and to both sides. The amputee should be able to maintain good balance without having to reach for the parallel bars or moving his or her feet.

   b. Have the amputee walk backwards and make quick turns.

   If the amputee has difficulty with these motions, recheck the position of the Pathfinder II with respect to the socket.

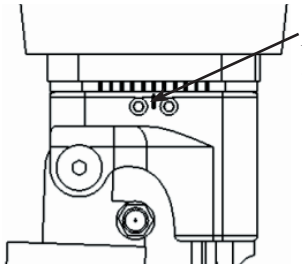
9. After dynamic alignment has been achieved, tighten all fasteners to the correct torque.

   Note: A torque wrench of the appropriate length to access the Toe-Out Adjustment Screws is required. If you cannot access the Toe-Out Adjustment Screws with your torque wrench, follow the "Alternate Procedure for Tightening Toe-Out Adjustment Screws" on page 19.

Alternate Procedure for Tightening Toe-Out Adjustment Screws

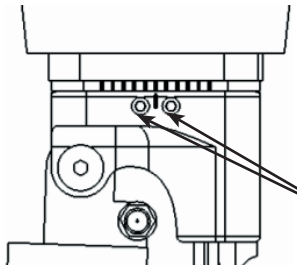
If you do not have a torque wrench of the appropriate length and size to access the Toe-Out Adjustment Screws when the Pathfinder II is fully assembled, it is necessary to remove the Titanium Slide/Toe-Out Plate and the Proximal Adapter from the Pathfinder II.

1. Notice the reference line located between the two Slide Adjustment Setscrews on the Proximal Connector. Using a paint pen or other marking tool, draw a mark on the Titanium Slide/Toe-Out Plate to indicate the position of the reference line, then draw another mark to indicate the toe-out position of the Proximal Adapter.



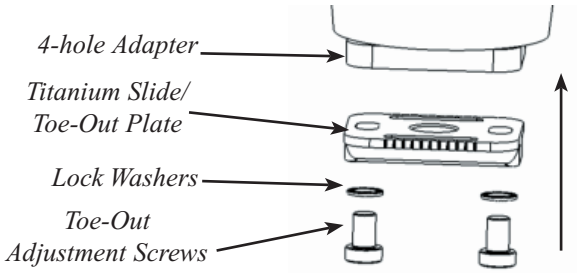
Make a reference mark on the Titanium Slide/ Toe-Out Plate.

2. Using a 3mm hex wrench, loosen the two Slide Adjustment Setscrews on the Proximal Connector.



Loosen the Setscrews.

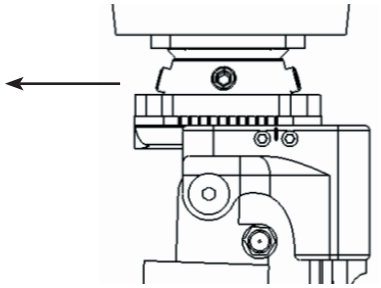
3. When using either of the 4-hole Adapters, remove the Toe-Out Adjustment Screws and Lock Washers completely from the assembly as shown on page 7. Remove the Proximal Adapter, then remove the Titanium Slide/Toe-Out Plate from the Proximal Connector by depressing the ball plunger and sliding the Titanium Slide/Toe-Out Plate out. Reattach the Proximal Adapter and the Titanium Slide/Toe-Out Plate by reinstalling the Toe-Out Adjustment Screws and Lock Washers, being careful to match up the toe-out reference marks.



After removing the 4-hole Adapter and the Titanium Slide/Toe-Out Plate, reattach the 4-hole adapter and Titanium Slide/Toe-Out Plate using the Toe-Out Adjustment Screws and Lock Washers.

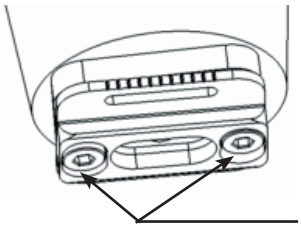
OR

When using either the Pyramid Adapter or the Pyramid Receiver, depress the ball plunger and remove the Titanium Slide/Toe-Out Plate.



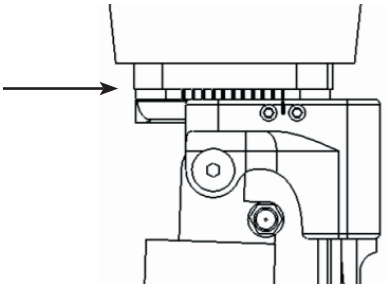
Remove Titanium Slide/ Toe-Out Plate and Proximal Adapter.

4. Apply Loctite Removable Threadlocker 242 (or equivalent) to the threads of the Toe-Out Adjustment Screws. Tighten the Toe-Out Adjustment Screws to 216 in-lbs. (24.4 Nm).



Tighten the Toe-Out Adjustment Screws.

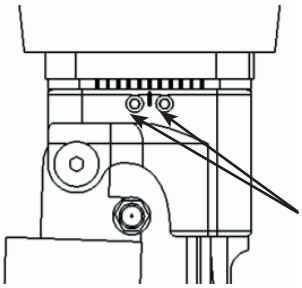
5. Slide the Titanium Slide/Toe-Out Plate back onto the Proximal Connector. When the Titanium Slide Toe-Out plate contacts the ball plunger, depress the ball plunger. Continue sliding the Plate along the Connector until the ball plunger engages in the slot in the Connector.



Slide the Titanium Slide/Toe-Out Plate and the Proximal Adapter onto the Proximal Connector.

6. Apply Loctite Removable Threadlocker 242 (or equivalent) to the threads of the Slide Adjustment Setscrews. Align the mark made on the Titanium Slide/Toe-Out Plate with the reference line on the Proximal Connector. Tighten the Slide Adjustment Setscrews as follows:

   Tighten one setscrew to 68 in-lbs. (7.7 Nm).
   Tighten the other setscrew to 68 in-lbs. (7.7 Nm).
   Tighten the first setscrew to 68 in-lbs. (7.7 Nm) a second time.
   Tighten the other setscrew to 68 in-lbs (7.7 Nm) a second time.



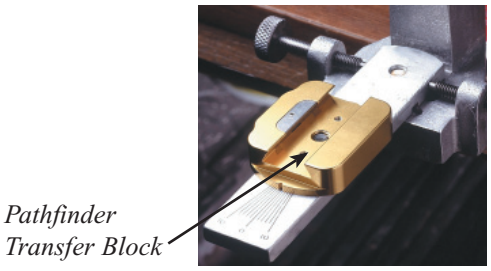
Tighten the Setscrews.

Note: Alternating the tightening of the setscrews ensures proper seating of the gib in the dovetail of the Titanium Slide/Toe-Out Plate. Failure to tighten the setscrews in this manner may cause noise and may allow the components to come apart.

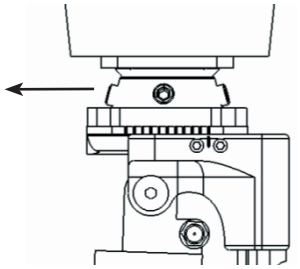
IMPORTANT: The screws attaching the Toe Connector, Heel Connector, and Proximal Connector to the Foot Plate and Composite Toe Springs are tightened at the factory. Do not attempt to adjust these screws.

All of the above fitting principles also apply to the use of the Pathfinder II on a transfemoral prosthesis. With a transfemoral prosthesis, however, it is even more important that the Proximal Connector be parallel to the floor during mild weight bearing at mid-stance. Any significant anterior leaning of the prosthesis at mid-stance will have a negative effect on knee stability. If the prosthesis is aligned properly, the Pathfinder II will increase the floor reaction force and complement the knee in maintaining knee extension. This works especially well with hydraulically controlled knees.

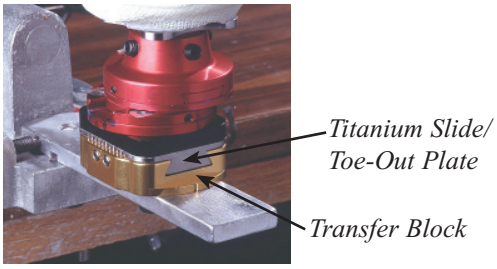
1. Install the Pathfinder II Transfer Block (Part No. PFD-9001) onto the vertical transfer fixture using the supplied 3/8" bolt. For AK applications, the Pathfinder II Transfer Block can be rotated while attached to the transfer fixture. For BK applications, use two 8-32 bolts to secure the position of the Block. (It will be necessary to drill two holes in the foot plate of the transfer fixture.)



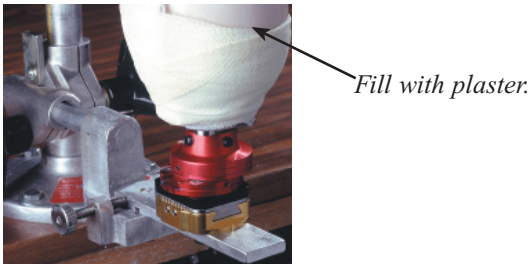
2. Remove the Pathfinder II from the aligned prosthesis by loosening the Slide Adjustment Setscrews and sliding the Titanium Slide/Toe-Out Plate out of the Pathfinder II. Be sure to note the slide offset direction, distance, and rotation.



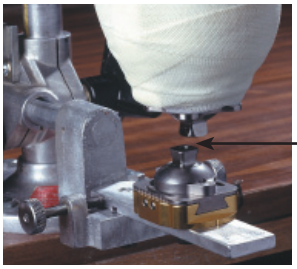
3. Slide the Titanium Slide/Toe-Out Plate into the Transfer Block, in the same orientation (offset direction, distance, and rotation) as it was while attached to the Pathfinder II.



4. Lock the vertical transfer fixture into place, fill the socket with plaster, and allow the plaster to harden.



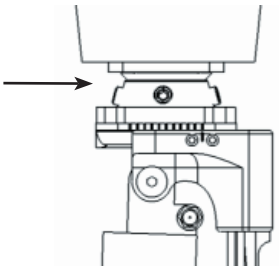
5. Remove all of the components that will not be used in the definitive prosthesis.



Remove non-definitive components

6. If necessary, slide the Titanium Slide/Toe-Out Plate to its neutral position or any other preferred position (for transtibial prostheses only).

7. Fabricate the socket as appropriate. Install the Proximal Adapter of choice onto the Titanium Slide/Toe-Out Plate, complete the transfer, and reassemble the prosthesis.



8. Apply Loctite Removable Threadlocker 242 (or equivalent) to the foot connection screws and tighten to the appropriate torque as shown in the chart below:

Attachment	Fastener Description	Hex Size	In. lbs.	Ft. lbs.	Nm
A/P Slide Adjustment	M6-1x12 SS Setscrew	3mm	68	5.7	7.7
Pyramid Receiver Adapter	M8-1.25x16 SS Setscrew	4mm	144	12	16.3
Toe-Out Adjustment	M8-1.25x16 SS Capscrew	5mm	216	18	24.4

9. Install the Spectra Sock and Foot Shell.

10. Proceed with cosmetic finishing if desired.

The cosmetic foam cover for the Pathfinder II is available in BK and AK versions. Both the BK and AK covers consist of two pieces: a Bottom Foam Cover, which has a figure-eight shaped hole to accommodate the Pathfinder II; and a Top Foam Cover, which has a single center hole.

1. Measure from the Slide Adjustment Setscrews on the Pathfinder II to the point on the socket where the Top Foam Cover will end. Add 1/2" (13mm) to account for compression.

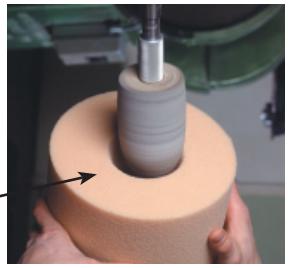
2. Cut the Top Foam Cover to the length determined in step 1.


Measure to the length determined in step 1.

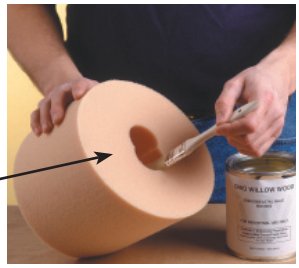

Cut to that length.

3. Disconnect the Pathfinder II from the socket, making note of all slide and angular adjustments.

4. For a BK prosthesis, hollow out the Top Foam Cover to fit snugly against the socket. For an AK prosthesis, hollow out the Top Foam Cover enough to allow it to slide over the knee and socket.



5. To strengthen the cover, coat the inside of both foam pieces with OWW Endoskeletal Glue (Part No. 600-0050) or equivalent. Allow glue to dry.

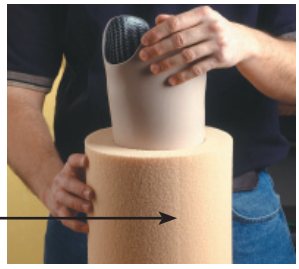


6. Coat the top edge of the Foot Shell with OWW Endoskeletal Glue (Part No. 600-0050) or equivalent. While the glue is still wet, carefully slide the Bottom Foam Cover over the top of the Pathfinder II so that the angled portion of the cover matches the angle of the Foot Shell.

Apply glue to top edge of foot shell.

Slide Bottom Foam cover on to Pathfinder.

7. For a BK prosthesis: slide the Top Foam Cover over the socket. For an AK prosthesis: slide the Top Foam Cover over the knee and the socket.

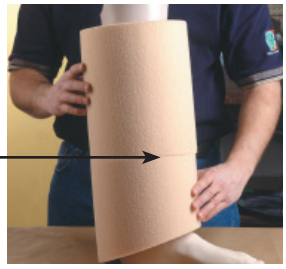


8. Reassemble the prosthesis. Apply Loctite Removable Threadlocker 242 (or equivalent) to the foot connection screws and tighten to the appropriate torque as shown in the chart below:

Attachment	Fastener Description	Hex Size	In. lbs.	Ft. lbs.	Nm
A/P Slide Adjustment	M6-1x12 SS Setscrew	3mm	68	5.7	7.7
Pyramid Receiver Adapter	M8-1.25x16 SS Setscrew	4mm	144	12	16.3
Toe-Out Adjustment	M8-1.25x16 SS Capscrew	5mm	216	18	24.4

9. Adhere the Top Foam Cover to the Bottom Foam Cover using a general-purpose spray adhesive such as 3M-77.

Adhere Top Foam Cover to Bottom Foam Cover.



10. Shape the foam cover using standard methods.

11. Press on the cover to locate the Schraeder Valve on the Pneumatic Heel Spring, and bore a hole in the cover to access the Valve. This hole allows for the removal of the Schraeder Valve Cap using the Rubber Removal Tool supplied with the Pathfinder II. Depending on the thickness of the foam cover, the Schraeder Valve Extension supplied with the Pathfinder II may need to be connected to the Hand Air Pump in order to reach the Valve. Do not leave the Schraeder Valve Extension attached to the Pathfinder II.

Note: Leaving the Schraeder Valve Extension attached to the Pathfinder II may result in damage to the Schraeder Valve.

Bore a hole to access the Schraeder Valve.

SECTION 8 MAINTENANCE

Clean the Pathfinder II periodically with body soap and water.

If you expose the Pathfinder II to sand or salt water:

- Remove the foot shell and Spectra Sock.
- Clean out the sand.
- Clean the Pathfinder II, the foot shell, and the Spectra Sock with body soap and water.
- Allow the foot shell and Spectra Sock to dry before reassembling.

Inspect the following items during an annual check-up:

1. Visually inspect the foot for structural integrity.
2. Confirm that the adjustment screws are tightened to the appropriate torque. Apply Loctite Removable Threadlocker 242 (or equivalent) if necessary.
3. Replace the Foot Shell and Spectra Sock if they are worn or damaged.
4. No lubrication is necessary.

SECTION 9 FUTURE ADJUSTMENTS

It is normal for an amputee's activity level to increase after receiving the Pathfinder II. If this happens:

- the foot may need to be outset.
- the amputee may ask for more toe resistance. In anticipation of this, be sure to leave some A/P slide capability after the initial fitting.
- angular changes in the coronal plane may be required to correct a varus thrust that commonly occurs after the amputee has worn the Pathfinder II for a while.

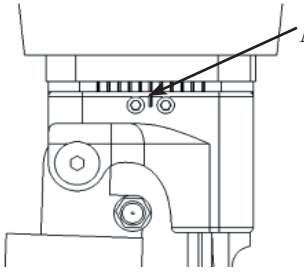
SECTION 10 REPLACEMENT OF THE PNEUMATIC HEEL SPRING

Perform the following procedure to replace a Pneumatic Heel Spring (PHS) that has developed a drop in performance, or to replace the PHS Thrust Bearings or Rubber O-Rings.

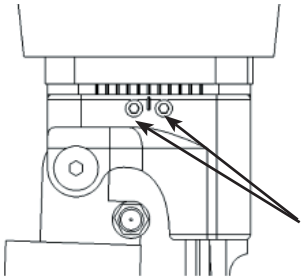
Note: two sizes of replacement Pneumatic Heel Springs are available. Order PFD-1101 for use in the standard Pathfinder, and PFD-1104 for use in the Low Profile Pathfinder.

Tools needed: One 4mm hex wrench
One 3mm hex wrench

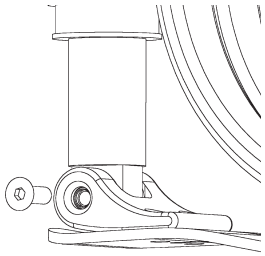
1. Notice the reference line located between the two Slide Adjustment Setscrews on the Proximal Connector. Using a paint pen or other marking tool, draw a mark on the Titanium Slide/Toe-Out Plate to indicate the position of the reference line, then draw another mark to indicate the toe-out position of the Proximal Adapter.

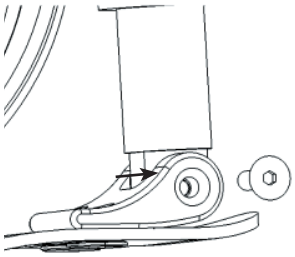


2. Using a 3mm hex wrench, loosen the two Slide Adjustment Setscrews on the Proximal Connector.



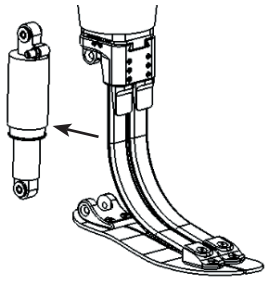
3. Using a 4mm hex wrench, remove the two screws at the distal end of the Pneumatic Heel Spring.



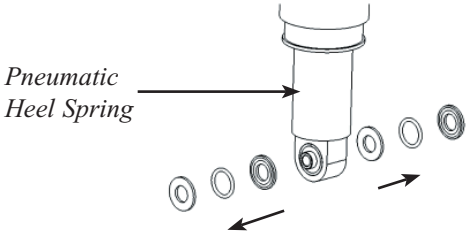


4. Repeat Step 3 for the two screws at the proximal end of the Pneumatic Heel Spring.

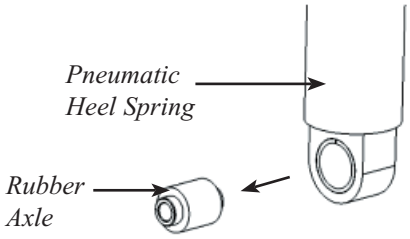
5. Remove the Pneumatic Heel Spring from the foot.



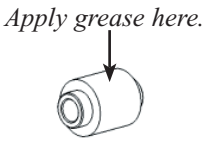
6. Remove the Thrust Washers and O-Rings from either side of the distal end of the Pneumatic Heel Spring.



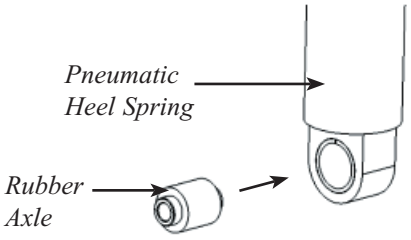
7. Press the Shock Pin with the Rubber Axle out of the distal end of the Pneumatic Heel Spring.



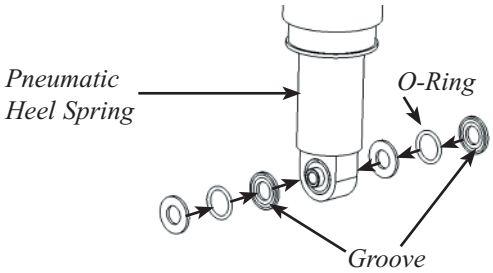
8. Repeat steps 6 and 7 for the proximal end of the Pneumatic Heel Spring.
9. Apply the grease that was included with the replacement kit to each of the Rubber Axles.



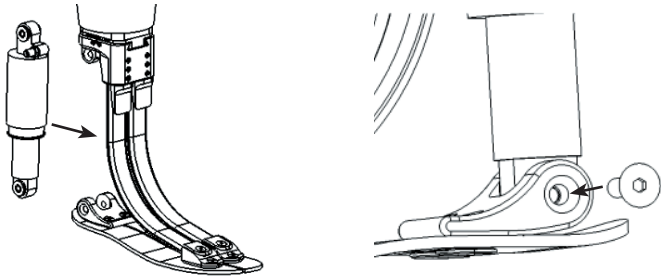
10. Press one Shock Pin with a Rubber Axle into the replacement Pneumatic Heel Spring at the distal end, and one at the proximal end.



11. Place the Thrust Washers and O-Rings onto the Pneumatic Heel Spring. Make sure the O-Ring fits into the groove on the inner surface of each Thrust Washer.



12. With the Schraeder Valve oriented toward the anterior side and insert the proximal end of the Pneumatic Heel Spring into the proximal connector. Apply Loctite Removable Threadlocker 242 (or equivalent) to the two screws, then reinstall the two screws at the proximal end. Repeat this process for the distal end. This will be a tight fit. Compression of the Pneumatic Heel Spring may be required.



13. Tighten each of the four screws to 110 in-lbs (12 Nm).

Ohio Willow Wood warrants each Pathfinder II from the date of Ohio Willow Wood's invoice for a period of 36 months against defects in materials and workmanship. A Pathfinder II returned during the warranty period will be evaluated and repaired or replaced at Ohio Willow Wood's discretion.

Use of the Pathfinder II for amputees whose adjusted body weight is more than 350 lbs. (160 kg) is against Ohio Willow Wood's recommendation and will void the 36-month warranty. Adjusted body weight is defined as the weight of the amputee plus any loads carried by the amputee.

The foot shell is warranted from the date of Ohio Willow Wood's invoice for a period of 9 months against defects in materials and workmanship.

The Spectra Sock and hand pump are warranted from the date of Ohio Willow Wood's invoice for a period of 6 months against defects in materials and workmanship.

Alteration of any of the Pathfinder II components, or replacement of any Pathfinder II components with components not supplied by Ohio Willow Wood, will void the warranty.

Warranty Disclaimer

Ohio Willow Wood warrants that each product manufactured will, at the time of delivery, be of workmanlike quality and substantially free of defects. **OHIO WILLOW WOOD MAKES NO OTHER WARRANTY, IMPLIED, OR EXPRESSED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** This warranty shall terminate immediately upon an action to combine our products with other materials or in any manner to change the nature of our products. The sole remedy is replacement of the products or credit for the products. Ohio Willow Wood's liability shall not exceed the purchase price of the product. **Ohio Willow Wood shall not be liable for any indirect, incidental, or consequential damage.**

Ohio Willow Wood Retention of Rights

Ohio Willow Wood retains all intellectual property rights reflected or incorporated in its physical products, regardless of the transfer of the physical products to another party or parties.

Ohio Willow Wood

free the body...free the spirit®

15441 Scioto Darby Road
P.O.Box 130
Mt. Sterling, Ohio 43143
Phone: (740) 869-3377
1-800-848-4930
Fax: (740) 869-4374
Web Site: www.owwco.com