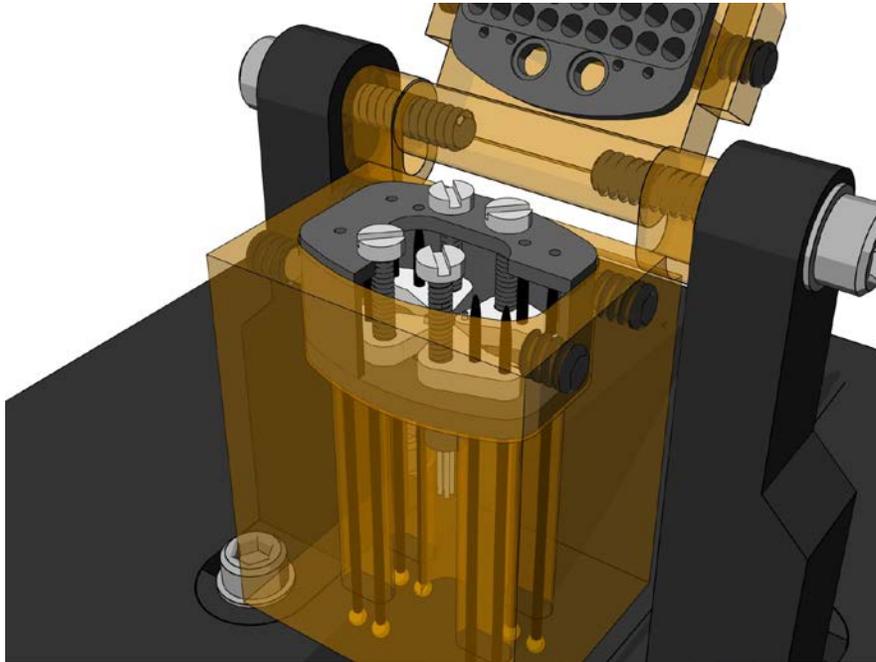




Neuralynx
High Density Electrophysiology Recording Systems



VersaDrive 4/8 Construction Jig Addendum

4 and 8 Tetrode VersaDrive

Revision 1.0
5/20/2013

1 Document History

3/27/2013

Rev 1.0

New document created

Addendum for the VersaDrive 4 and VersaDrive 8 manual for new receptacles, new shuttles, and the VersaDrive 4/8 Jig

Note: Although there are unique Construction Jigs for each version of the VersaDrive, all pictures and references in this manual will refer to the VersaDrive 4 Construction Jig and VersaDrive 4 users manual. Please contact Neuralynx support or Sales at sales@neuralynx.com for more information.

Intended Purpose: The Jig is designed to make loading tetrodes, insertion of wires into the cap, and insertion of receptacles easier. **Be sure to read this document entirely especially the “Notes” before using the Jig.**

Note: It is recommended that the Jig not be used starting until completing page 18 of the VersaDrive manual. However, the user could be delayed until completion of page 22 depending on the user’s preferences for drive screw insertion.

Note: The insect pins are both inserted from the bottom at the same time for each shuttles when using the Jig on Page 17 of the manual. The current VersaDrive manual has them being inserted one from the bottom and one from the top later in the instructions.

Note: Shuttles need to have excess material trimmed from them to fit as described in the manual. A scalpel, exacto knife, etc can be used to trim the excess material. Use the pictures of shuttles in the manual as a guide to how they should look after trimming.

Note: The black Delrin drive parts need to have the nubs at the corners trimmed and sanded so they will fit into the Jig properly. **Before any assembly of the VersaDrive, be sure to properly trim and sand these parts so they match the appearance shown in the manuals and this addendum (i.e. remove the nubs).**

Cap insertion. Insert the VersaDrive cap as shown in Figure A. Be sure that the set screws are loosened prior to insertion. Tighten the set screws after insertion of the cap to hold the cap in place.

Note: Please do not over tighten the set screws as the threads in the Jig can be stripped or the fixture can crack.

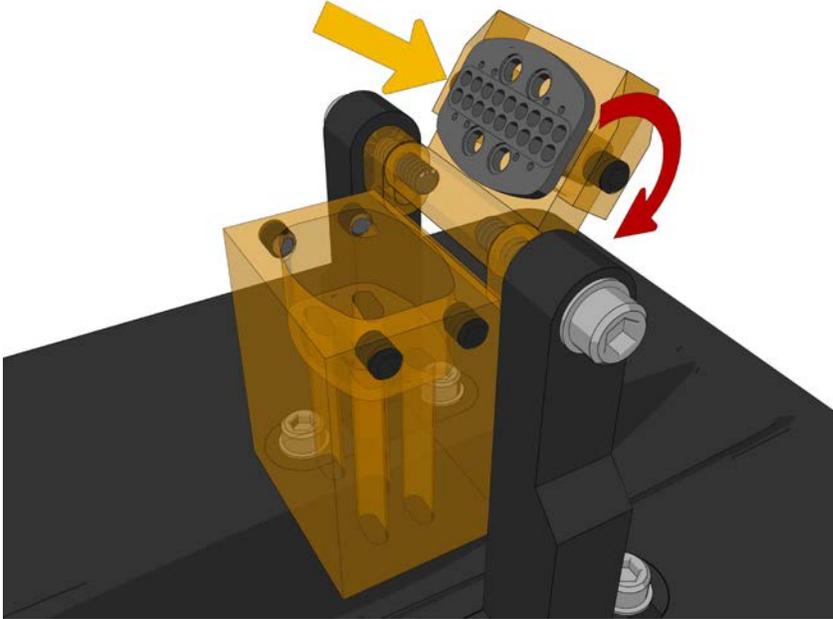


Figure A.

Base Insertion. Push the base down into the Jig Box as shown in Figure B. Be sure that the set screws are loosened prior to insertion. Tighten the set screws after insertion of the Jig Box to hold the Base + Housing in place. It is important that the Base + Housing be pushed as far as possible into the Jig Box.

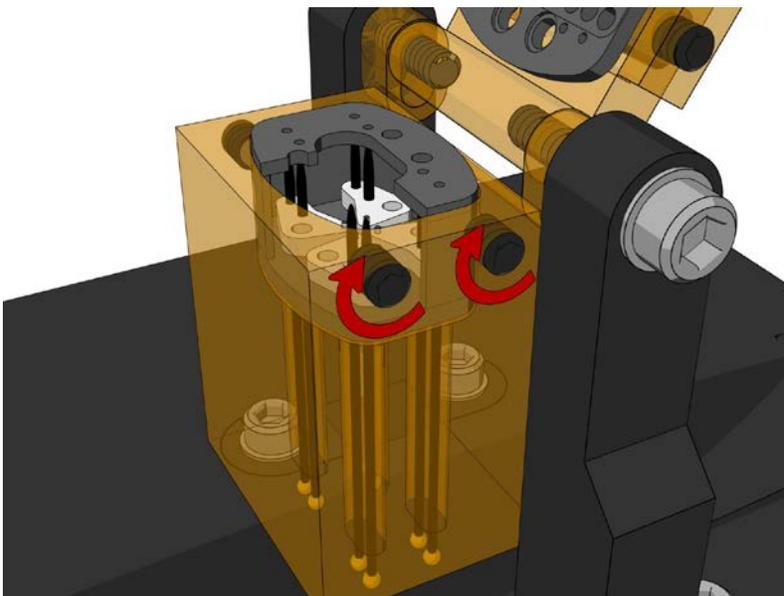


Figure B.

Insert the Drive Screws as in the standard Manual. See page 20.

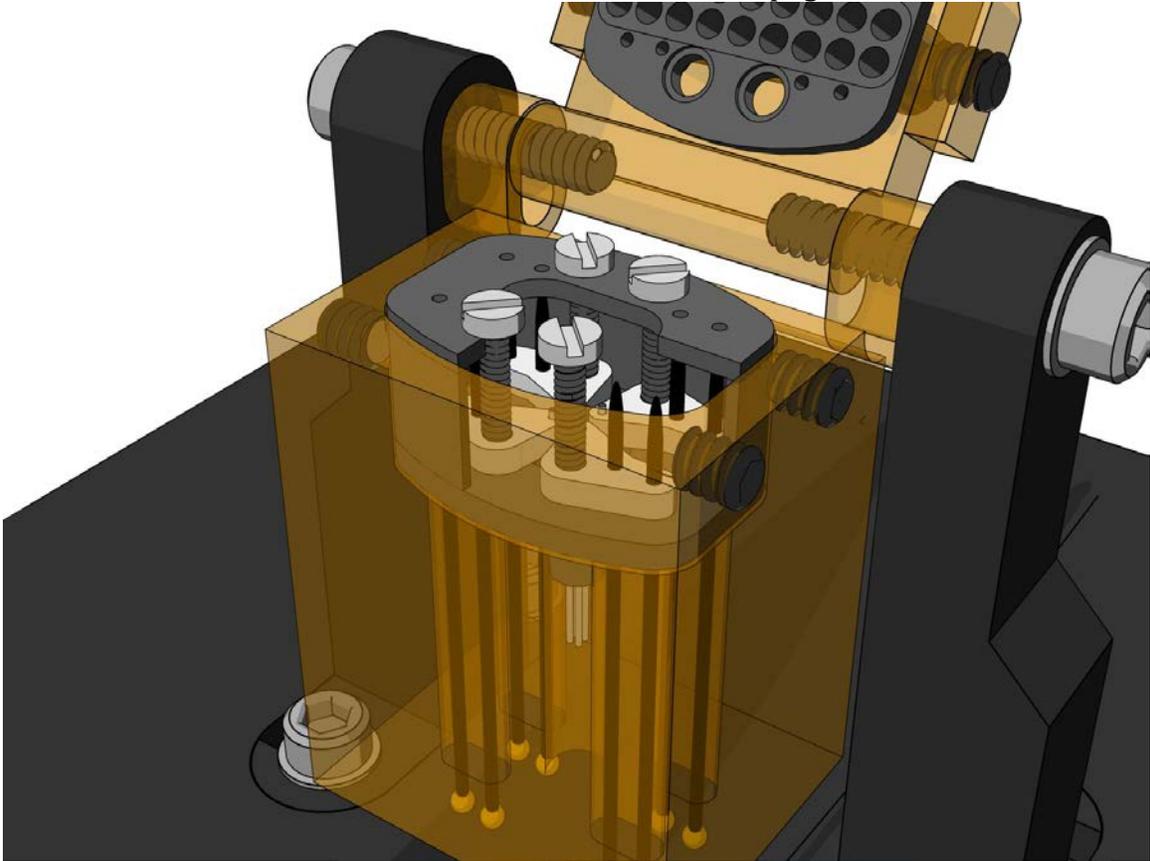


Figure C

Raise the shuttles. This is discussed in the current manual on page 21. The Drives are now ready to load tetrodes. This is discussed on page 23 of the manual. **We do have some highly recommended tips unique to the Jig that should simplify tetrode loading and wiring and save a lot of time. They will be discussed in the next paragraph.**

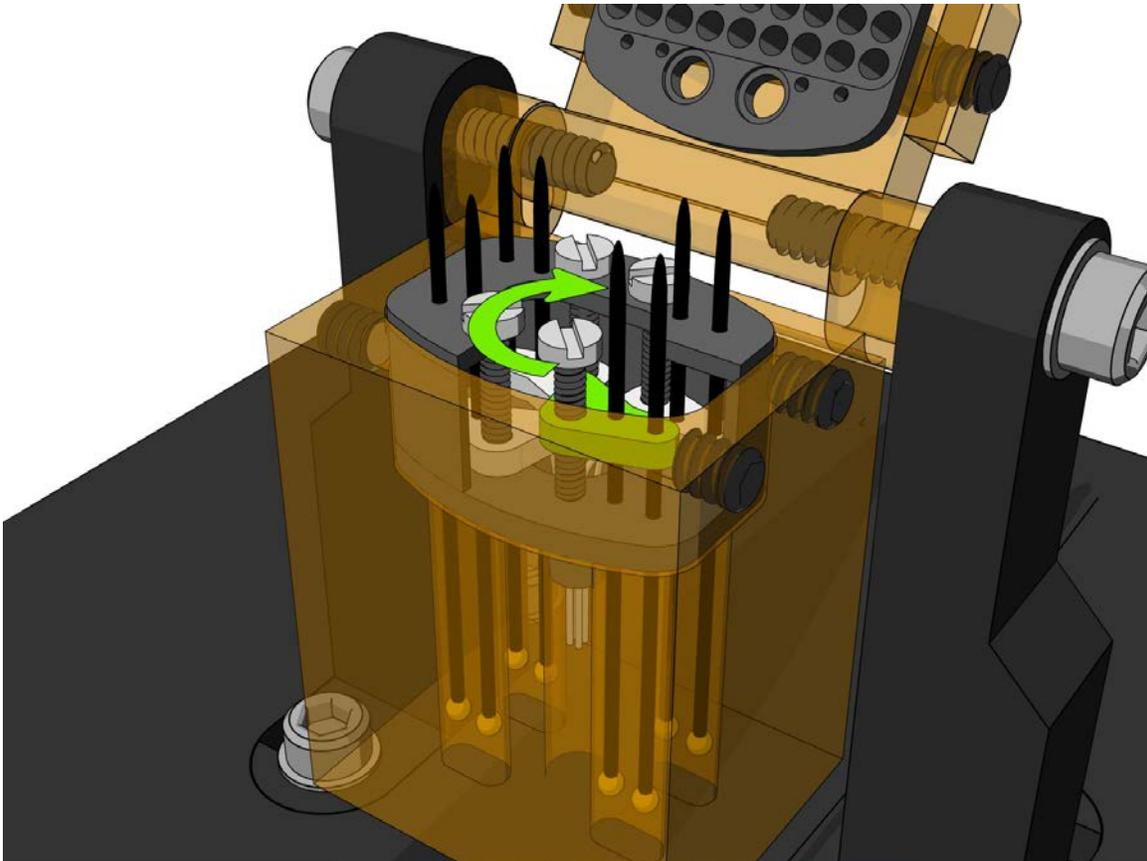


Figure D.

Tips for loading tetrodes using the Jig.

It is recommended to load and wire the tetrodes one at a time. Once each tetrode is loaded into the guide cannula and glued into place (as discussed in the manual), immediately pass the wires through the cap.

We have developed a method that eases the passing of the wires through the cap that keeps them solidly in place until receptacle insertion. For each tetrode follow these steps to speed up the wiring process.

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1. Cut up an insect pin into 4 short sections. The lengths should be roughly 6-8 mm. Be sure to cut off the gold pin head, this part is not useable.
2. The individual tetrode wires should be loose in space after being glued into the guide cannula.
3. Put a very small amount of regular superglue (don't use the gel or control variety of superglue) on the end of one of the insect pin sections. It's recommended to use needle nose pliers to hold the bit while doing this. Do not use a big glob of glue as the resulting insect pin section will need to pass through a receptacle hole on the VersaDrive cap.
4. Approach the tetrode wire so that the tetrode wire is parallel to the insect pin section with the superglue. Once the tetrode wire makes contact with the superglue the surface tension will "grab" the tetrode wire.
5. Let the superglue dry. This can take a few minutes. One option to speed up this process is to use a superglue accelerant such as Zipkicker. When the accelerant comes in contact with the glue, it dries immediately.
6. Now the tetrode wire is solidly attached to the insect pin section. Pass the insect pin section through the desired receptacle hole.
7. Let the weight of the insect pin section pull the rest of the wire through the receptacle hole. This will also prevent the tetrode wire from coming out of the receptacle hole as the weight of the insect pin section holds the wire firmly in place.
8. Don't cut the insect pins sections off until after the receptacles are inserted into the receptacle holes towards the end of this assembly. The insect pin sections make the tetrode wire a whole lot easier to manipulate!
9. Repeat this for each of the four tetrode wires and then load your next tetrode and repeat the process until there are no more tetrodes to load.

Close the Flap. This step and the tip below should be done prior to Page 30 in the VersaDrive 4 manual.

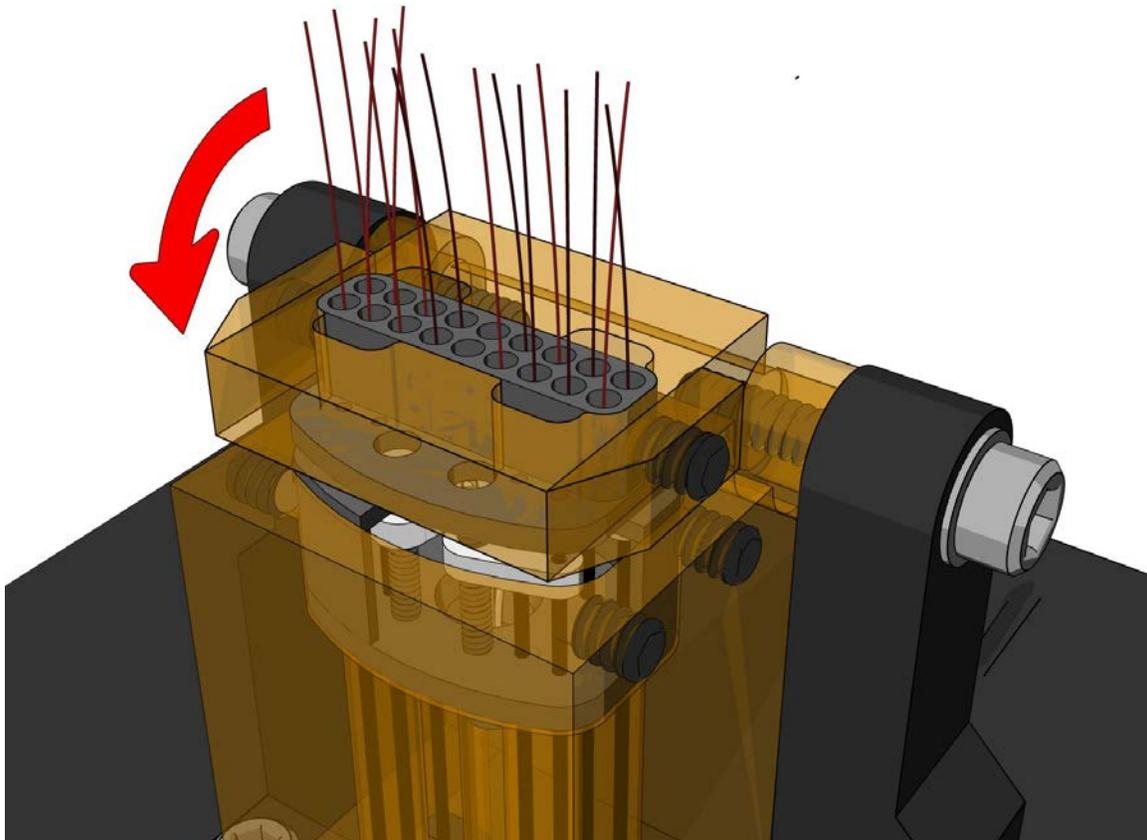


Figure E

Lower the Shuttles. – At this point the shuttles need to be lowered all the way in the drive to provide enough slack on the wires to insert the receptacles. This allows a full range of motion for the shuttles (they will need to be fully raised prior to use). To do this...

1. Push the all 8 of the insect pins upward until the tips are flush with the tops of the flap & cap.
2. Loosen the set screws for the flap.
3. Flip the flap back to expose the cap. The cap should stay attached to the drive.
4. Lower all four shuttles as on page 31 of the VersaDrive 4 manual.

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5. Flip the flap back onto the cap.
6. Tighten the set screws. (Putting the flap back on eases the insertion of the receptacles). The drive is now ready for receptacle insertion.

Receptacle insertion: We have designed new receptacles for use with the VersaDrive line. They are designed to help prevent clipping the wires during insertion. The only changes from the manual for insertion of the new receptacles is that they do not have a tail that needs to be clipped as shown on page 26 of the manual. However, we have found that if the receptacles are inserted with too much force too quickly the wires can be clipped. A constant force smooth insertion is recommended rather than an instantaneous fast insertion. Further documentation on receptacle insertion can be found on page 29-32 of the VersaDrive 4 manual.

Removing the drive from the Jig. At this point the drive should be ready to be removed from the Jig.

1. Loosen all of the set screws for the flap and Jig Box.
2. Carefully flip open the flap for the Jig insuring that the VersaDrive cap stays connected to the rest of the drive.
3. Remove the drive from the Jig Box.
4. Proceeded with the final instructions beginning on page 33 of the manual.

Note: If all insect pins were inserted from the bottom as described in the pictures in this addendum, be sure to bend and clip them properly similar to the instructions at the end of the VersaDrive 4 manual.