

# Stage part removal and reinstallation

## Reel housing door

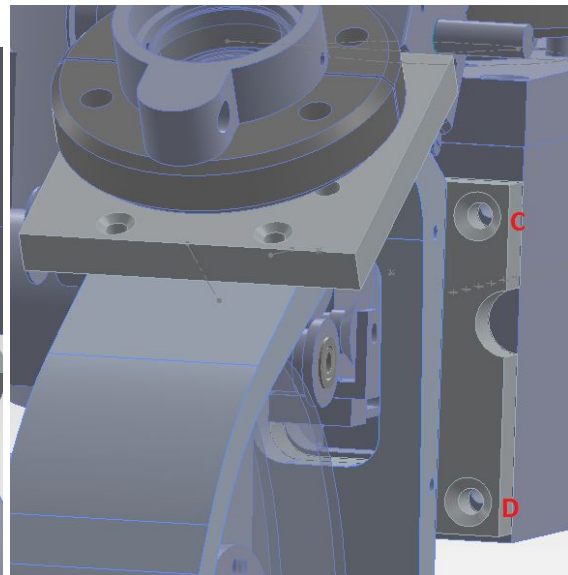
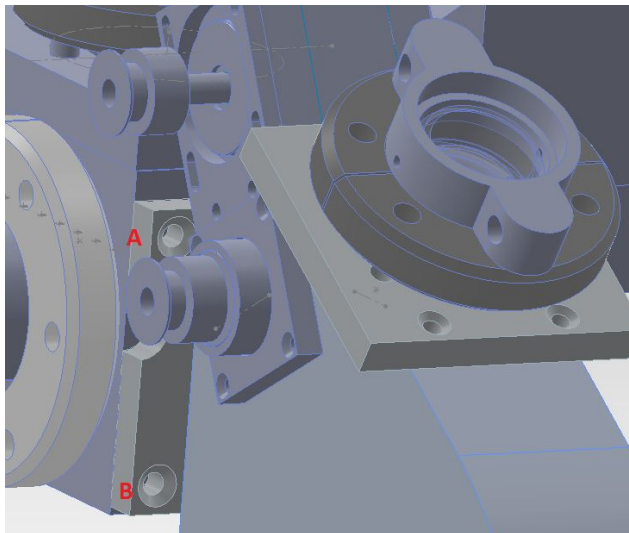
The reel housing door is affixed to the reel housing body by 10x #4-40 screws. To remove the door, first slightly loosen all screws (following a staggered or criss crossed pattern). Then, with care not to drop the door, remove the screws and be sure not to drop the door or sealing oring (dash 048).

Installation follows the steps in reverse. First be sure the oring is seated in the gland, carefully place the door against the housing making sure the oring stays seated. Insert and lightly screw in all screws, then tighten all screws (following a staggered pattern).

## Feed reel housing

Removal of the feed reel housing involves the following steps:

1. Remove the feed reel housing door to gain access to the #6-32 reel housing flange screws
2. While supporting the reel housing, remove the reel housing flange screws (A, B, C, D) below

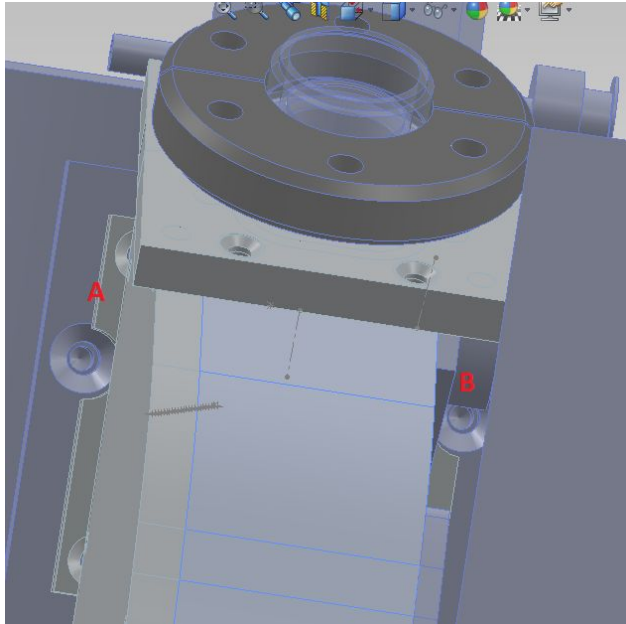


Installation follows the steps in reverse. Be sure to tighten screws in a staggered pattern.

## Pickup reel housing

Removal of the pickup reel housing involves the following steps.

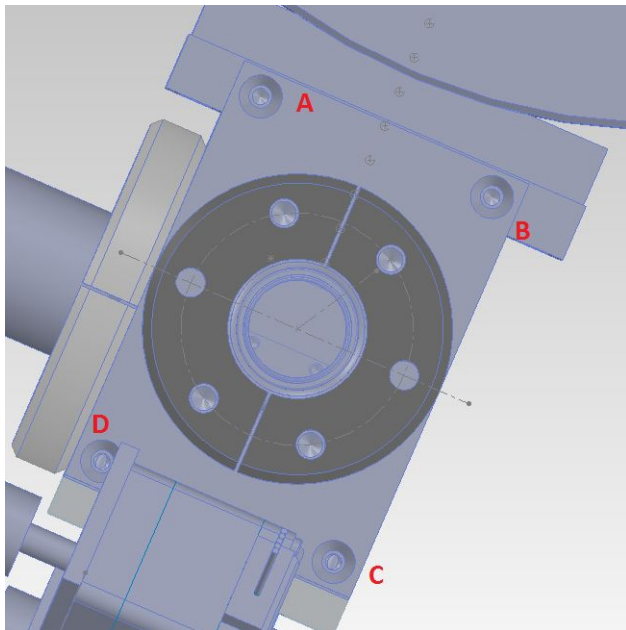
1. Remove the pickup reel housing door to gain easier access to the M4 pickup housing mounting screws, A and B below
2. Access to B requires a very long allen key that was included with the stage
3. Be sure the pickup reel housing is supported and loosen then remove both A and B



Installation follows the steps in reverse. It is often easier to start by starting to thread in screw B, then while continuing to support the reel housing, start screw A, then snug both screws, then tighten them (while tightening B it is normal for the allen key to twist given the extended length).

## Piezo chamber lid

To remove the piezo chamber lid, remove the #10-32 screws ABCD below.



Screw D can be unthreaded but cannot be removed until the piezo chamber lid is slid to the right.

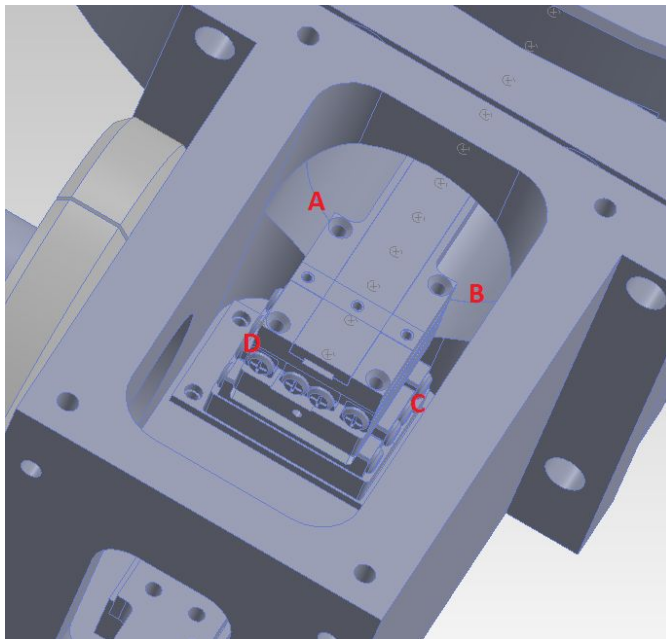
While sliding the chamber lid make sure that the oring (dash 036) does not fall out of the gland.

Installation follows the steps in reverse, First, insert screw D into the lid, then slide it into place from the right, then tighten all screws in a staggered order.

## Tape channel

Removal of the tape channel involves the following steps

1. Remove the feed reel housing
2. Remove the piezo chamber lid
3. Remove the #0-80 screws A-D below
4. Taking care that the channel slides along the piezo stack, and does not pitch significantly (which can result in the channel contacting the pole piece or other parts of the scope), slide the channel out of the piezo chamber through the hole where the feed reel housing was mounted (bottom of the image below).



To disassemble the channel, remove the pieces of copper tape affixing the channel clamp to the channel body. To reassemble the channel, take 2x pieces of 125  $\mu$ m 8 mm wide Kapton film (no adhesive). Sandwich both pieces between the channel clamp and body. Press down on the sandwich while reapplying fresh copper tape. Remove the 2x pieces of Kapton film and test that the channel has the appropriate clamping force. The clamping force can be tested by attaching a weight (for example 30 grams) to a single piece of 125  $\mu$ m Kapton film (no adhesive), feeding the film through the channel, holding the channel vertically, and checking that the tape does not slide until additional weight is added.

Installation of the channel involves the following steps.

1. Remove the pickup reel housing
2. Remove the feed reel housing
3. Remove the piezo chamber lid
4. Slide the channel through the opening in the piezo chamber where the feed reel housing is usually attached (see the removal step #4 above) into the microscope and verify that the end of the channel is lightly resting on the pickup rest (see the image below).
5. Affix the channel to the piezo stack (see removal step #3)
6. Verify the piezo stack can move the channel in both X and Y
7. Reattach the pickup reel housing
8. Reattach the feed reel housing
9. Reattach the piezo chamber lid

