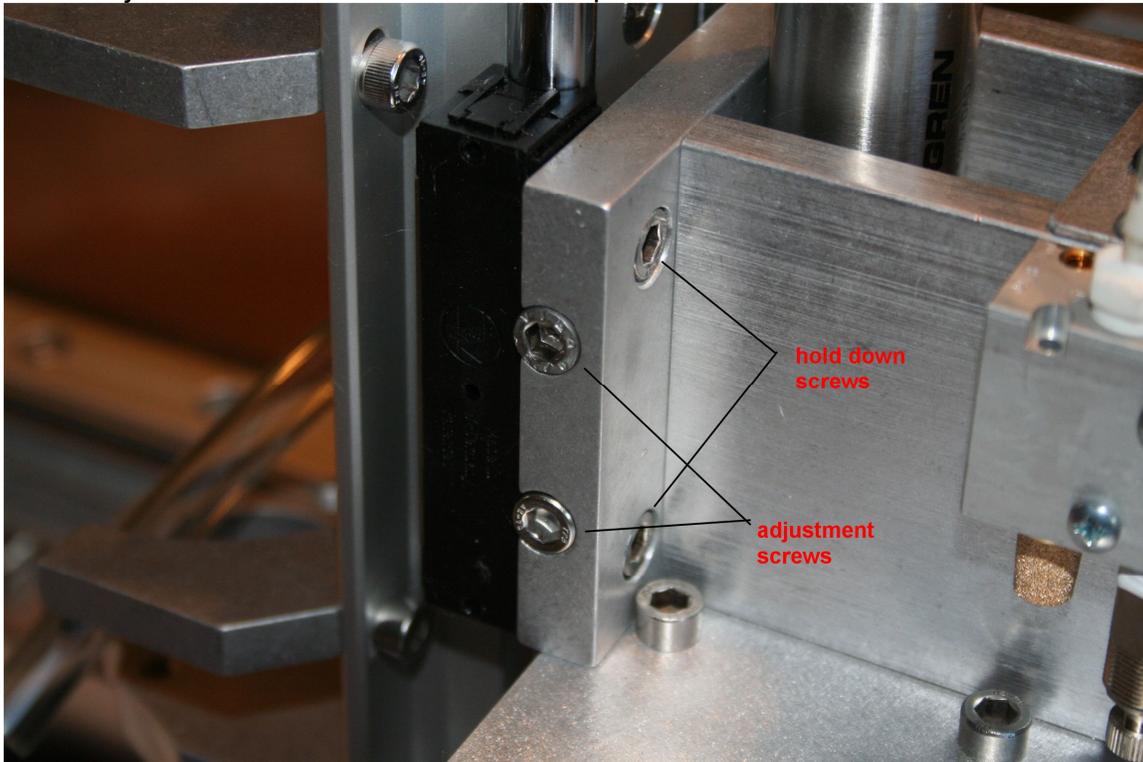


## Adjust the Z axis bearings.

If any lateral play is observed or felt when wiggling the z axis, the z axis bearings need to be adjusted.

When the Panel Pro is manufactured, the z axis bearings are adjusted, however the plastic bearing ball retainer may be thick enough that it interferes with the adjustment process. After some time in use, the plastic that is touching the bearing rail wears down and some play may be observed.

There are 2 z axis bearings. Both of them have a exposed metal edge near the mounting surface. On the far side of the z axis, the bearing rests up against a machined edge and is not adjustable. The near side has 2 hold down screws and 2 adjustment screws as shown in the picture.



When wiggling, it is permissible to have up and down play that is found in the air cylinder clevis. It is not permissible to have any play laterally front to back or side to side.

To adjust the Z axis bearing:

Loosen the two hold down screws, and then re-tighten till they are just snug.

VERY carefully turn the adjustment screws in. It will take just a fraction of a turn and they both must be turned the same amount. Continuously move the z axis up and down by hand and look for binding or roughness.

If it feels rough or notchy, then the bearings are not parallel, adjust so that the up and down movement is smooth, with a slight drag, and the play is gone. If you are starting from a very loose adjustment, adjust one screw till you feel a notchy feel, then adjust the other screw until it smoothes out.

Do not overtighten. It is possible to flat spot the bearing balls and at that point they are ruined and will need to be replaced.

If you have gone too far and there is excessive drag, loosen the hold down screws, back off the adjustment screws about a quarter turn and start over.

Normal drag is when with the spindle motor removed, the manual Z valve in manual, the z axis may drift down on its own or require just light finger pressure to move down.

It is also important to make your adjustments with the hold down screws fairly snug. If the hold down screws are loose, then they will tend to tighten the adjustment when they are torqued down, and may overtighten as above.

You may have to repeat this several times until you get the feel of the correctly adjusted bearings. Take it slow and make very fine adjustments. You can feel play in the bearings of just over .001" without any instrumentation.