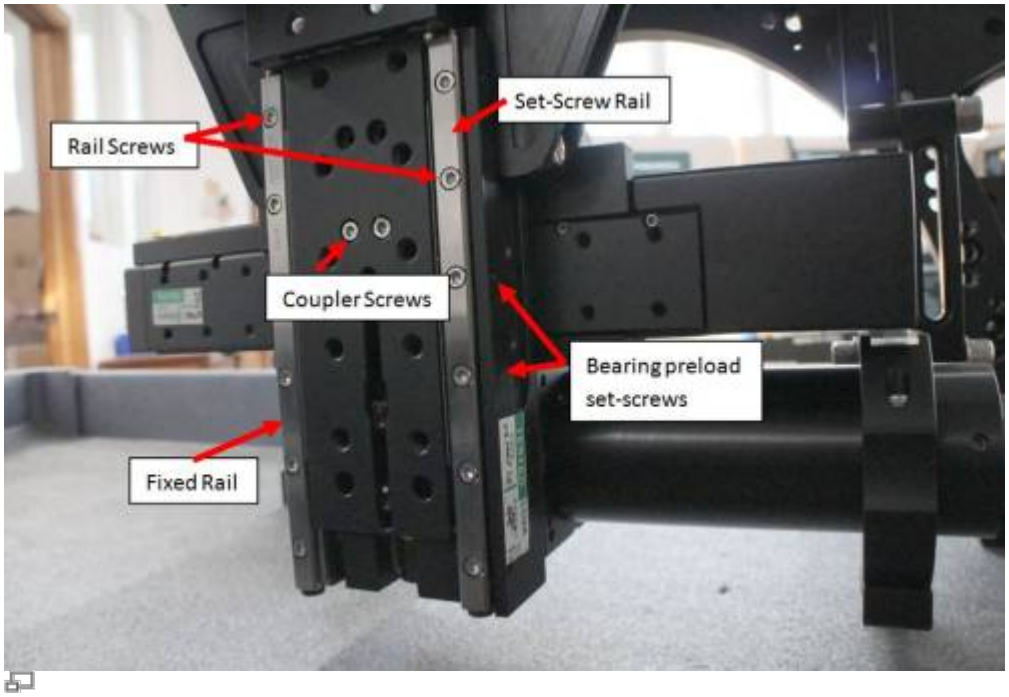
Adjusting LS50 Crossed Roller Rail Bearing Preload

Linear crossed roller bearings may need to be re-tensioned if the stage plates are disassembled or become loose for any reason. The procedure is the same for any stage. The instructions will refer to the parts on the LS-50 stage shown below. The principles apply to all crossed roller stages.



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1. Leave the Fixed Rail alone. Do **NOT** loosen the fixed rail screws.
2. Remove the Coupler Screws (**2.5mm Allen – M3-0.5**)
3. Break loose all of the Set-Screw Rail hold down Rail Screws.
4. Slide the stage plate to each end of travel to force alignment of crossed roller strips.
5. Snug set screws firmly finger tight systematically.
    1. Move stage plate to one end of travel and snug all of the set screws that are supported by the stage plate and bearings.
    2. Move stage plate to the other end of travel and snug the remaining set screws that are now supported by the bearings and stage plate.
6. Ensure that the stage plate has smooth motion when moved by hand.
7. Tighten Set-Screw Rail hold down Rail Screws systematically.
    1. Move stage plate to one end of travel and tighten Rail Screws that are supported by stage plate and bearings. Tighten firmly but not to full torque spec.
    2. Move stage plate to other end of travel and tighten remaining Rails Screws that are now supported by the bearings and stage plate. Tighten firmly but not to full torque spec.
    3. Move stage plate back again and tighten supported Rail Screws to torque of **1.8 N-m.**
    4. Move stage plate to other end and tighten remaining rails screws to torque of **1.8 N-m.**
8. Verify that stage plate still has smooth motion when moved by hand.
9. Line up stage plate with coupler and re-install the M3-0.5 Allen Head Coupler Screws.

This completes the stage bearing preload procedure.

Maximum torque rating for the Screws used on the LS50 is 1.8 N-m or 17in/lbs. Excessive torque will lead to stripped the screws and irreversible damage to the unit. Suggest using a Torque wrench/screw driver like the one shown below.

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