

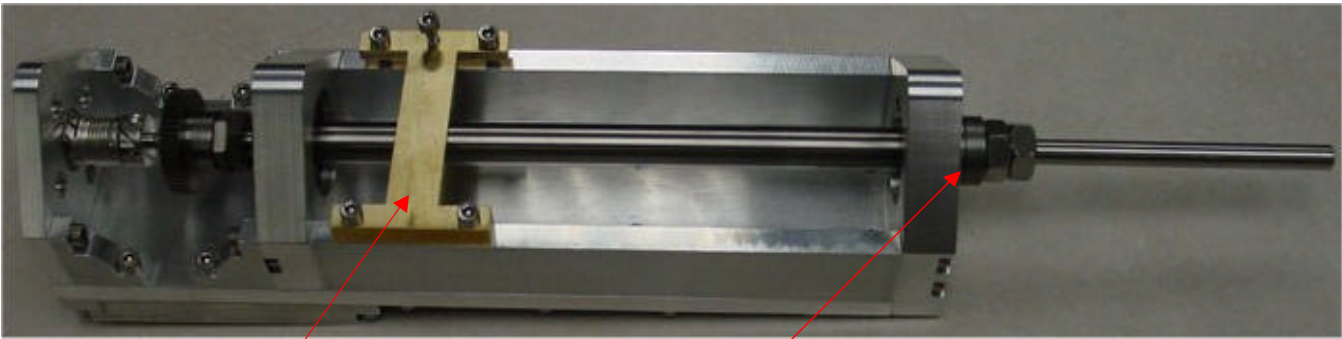
# **TCS-3 Lab System**

**D. Watanabe 3.22.04**

The following document contain photos and special instructions on assembling the Lab System for the TCS-3 project. Exploded sub assembly drawings should be referred to for correct parts and screw length hardware. The bearings used in this project are very expensive and special care must be taken in mounting them in the correct orientation. There is a marking on the side of the bearing case showing the angular contact surfaces. Note all hardware is in metric units.

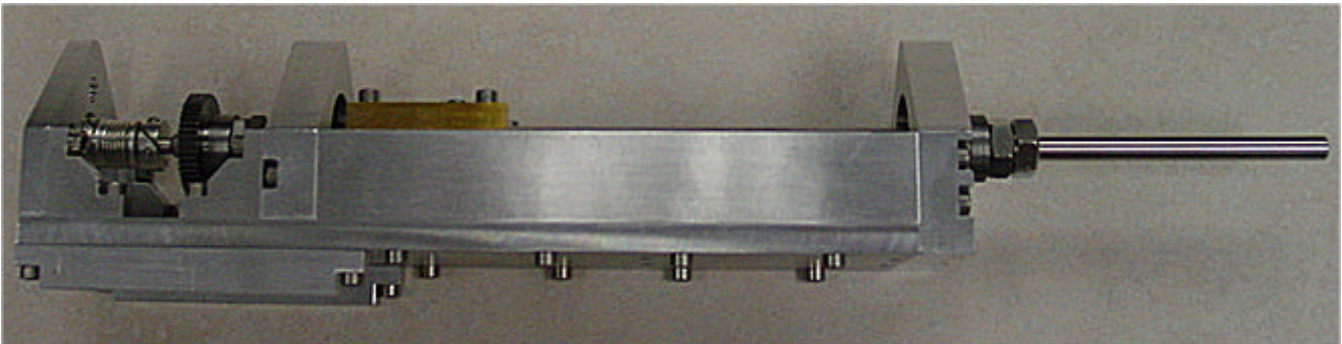
# TCS-3 Lab System Assembly Notes

Assemble the T-Axis subassembly to look like the photo.

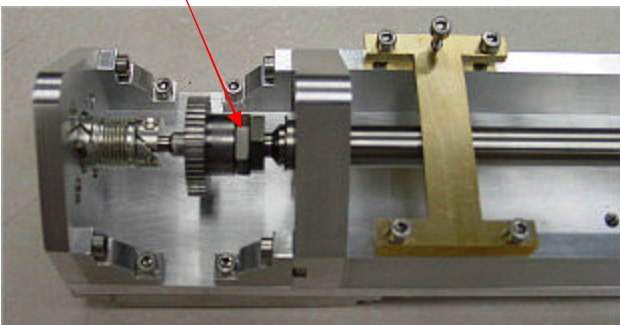


Do not tighten down brass brake piece at this time.

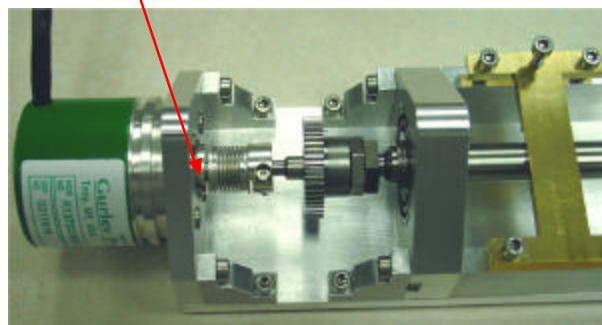
Note direction of precision bearing and handtighten 8mm nuts to preload.



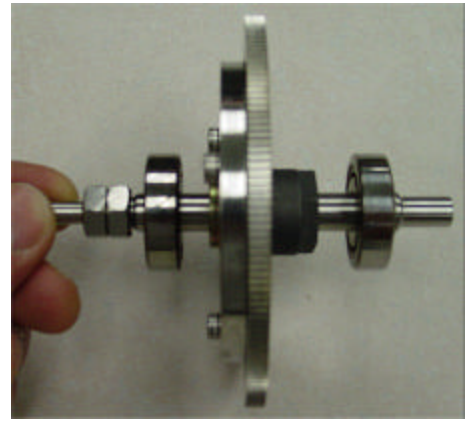
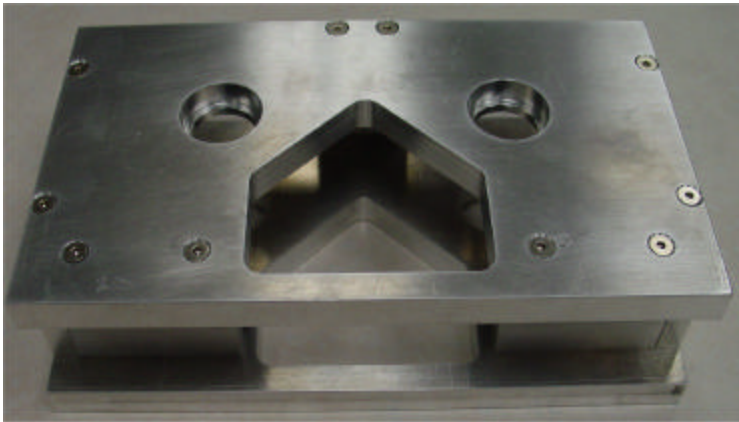
Tighten shaftloc sleeve to spur gear using thin profile wrenches.



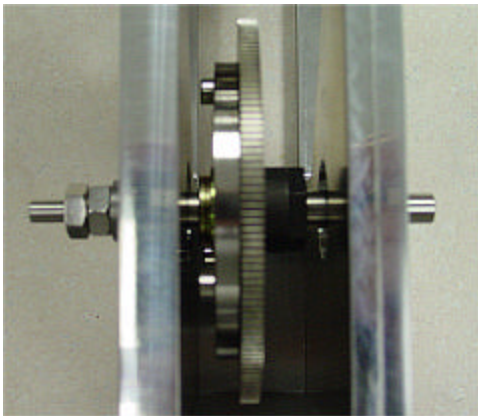
Attach 4mm bellows coupling to Gurley encoder first before connecting to shaft.



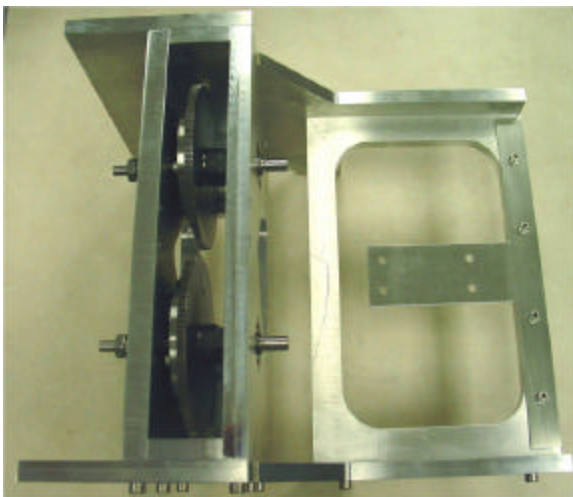
Assemble crankcase and motor spur gear subassemblies.



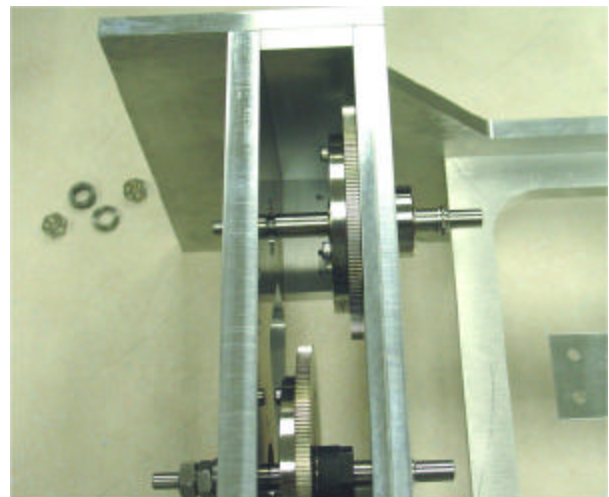
Fit test the spur gear assemblies into the crankcase with a light preload on the bearings.



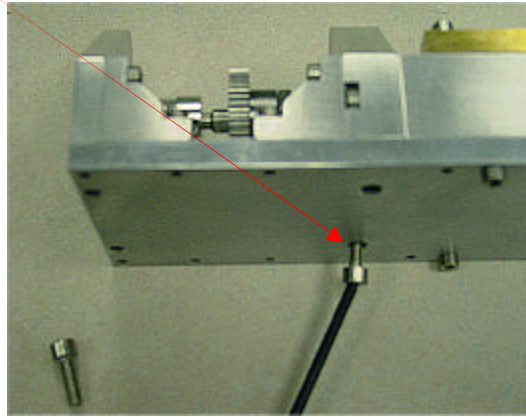
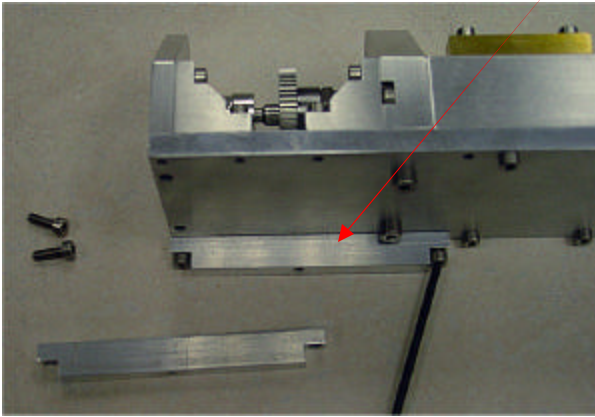
Mount crank case into inner body assembly with 'T' Flexure piece.



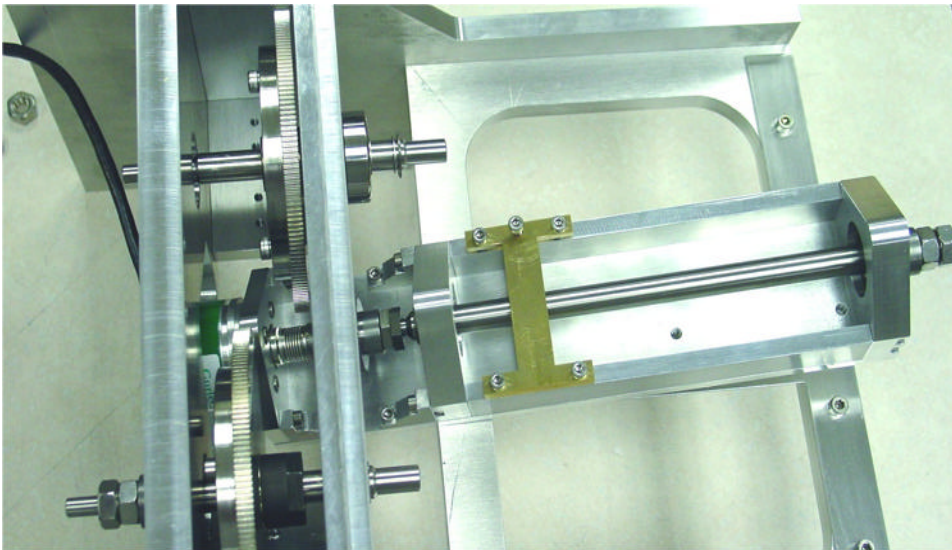
Remove the preload nuts on one of the gear assemblies and carefully slide forward.



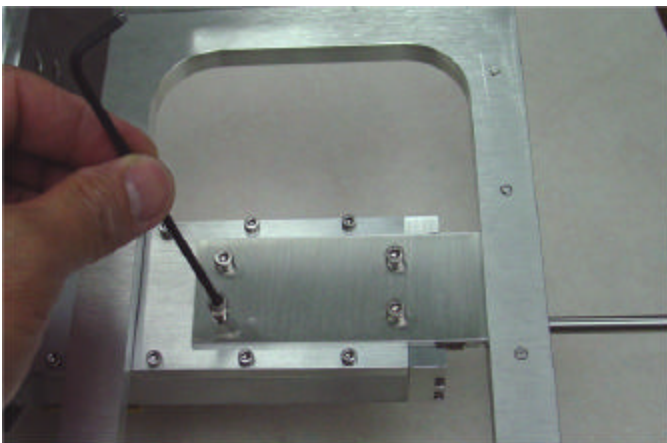
Temporarily remove the braces and mounting screws to allow for assembly into the crankcase assembly.



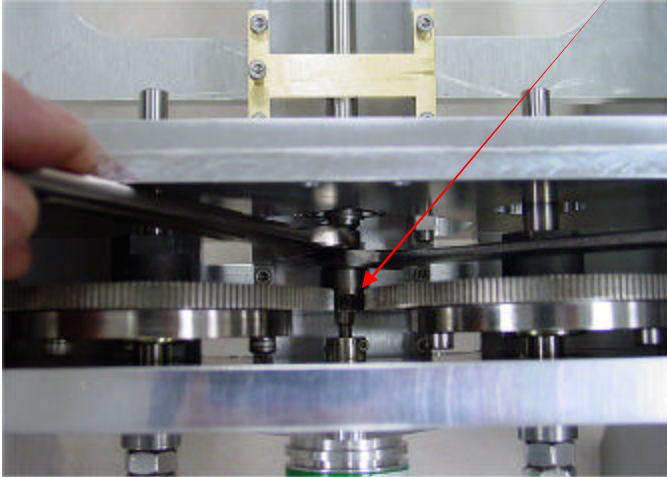
Carefully maneuver the T-Axis into the crankcase assembly.



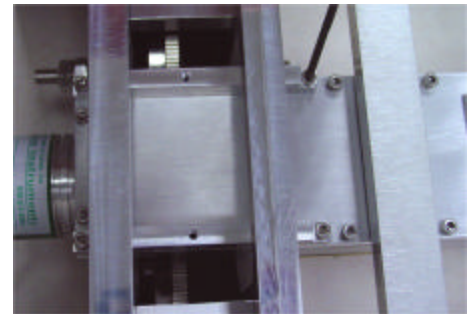
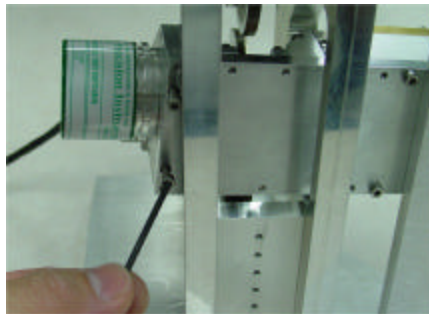
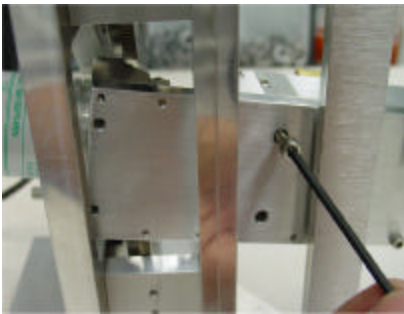
Attach T-Axis to T-Flexure plate.



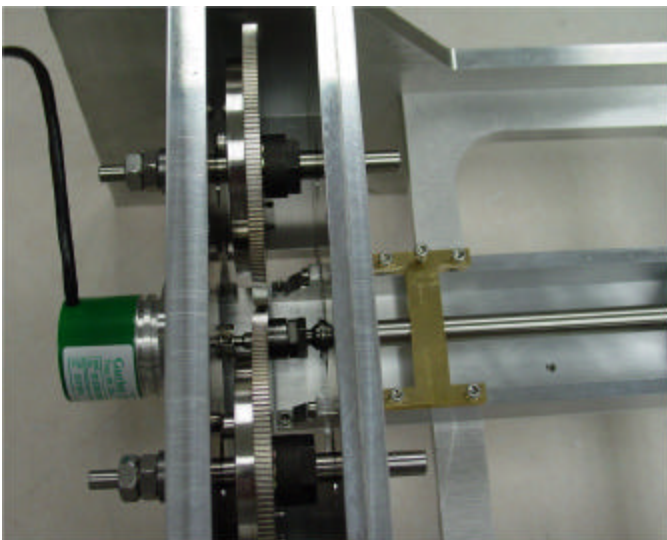
Center main shaft spur gear to motor gears and use thin 13mm wrench to tighten shaftloc.



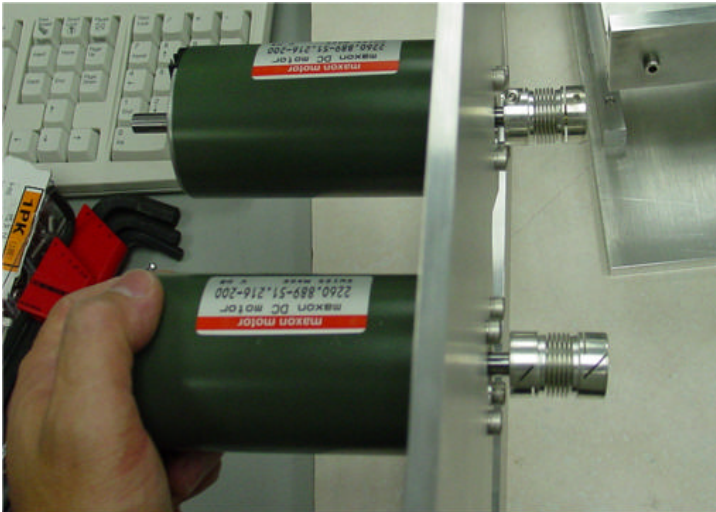
Reattach braces and mounting screws previously removed.



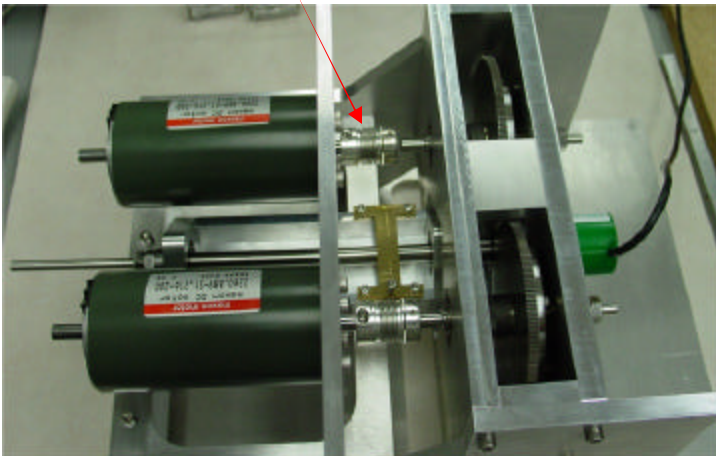
Assembly should be as shown thus far.



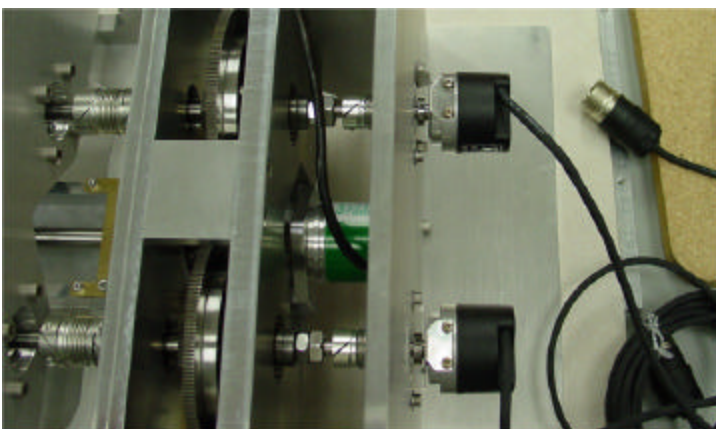
Mount motors to middle case shelf, note location of motor terminals to cutout in top case shelf.



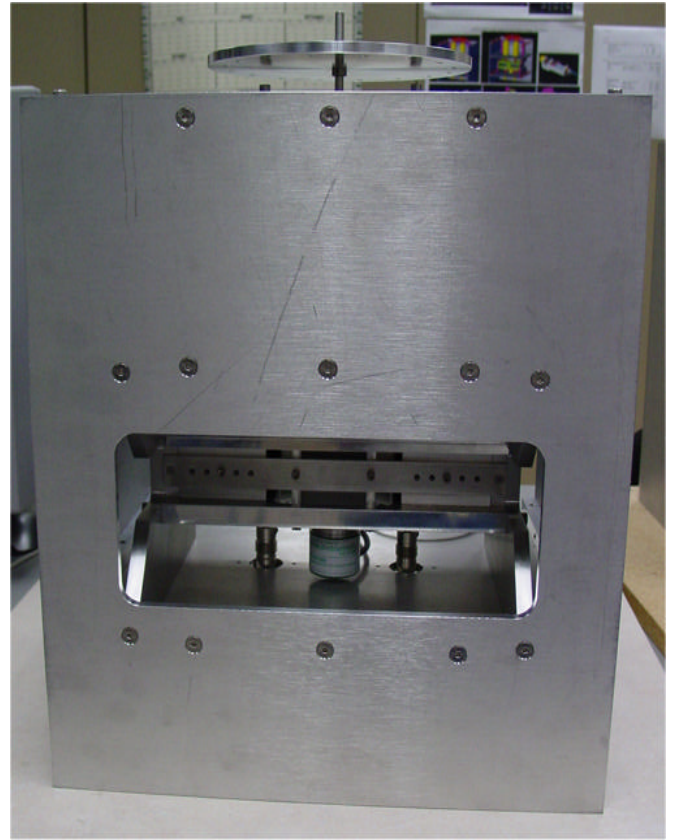
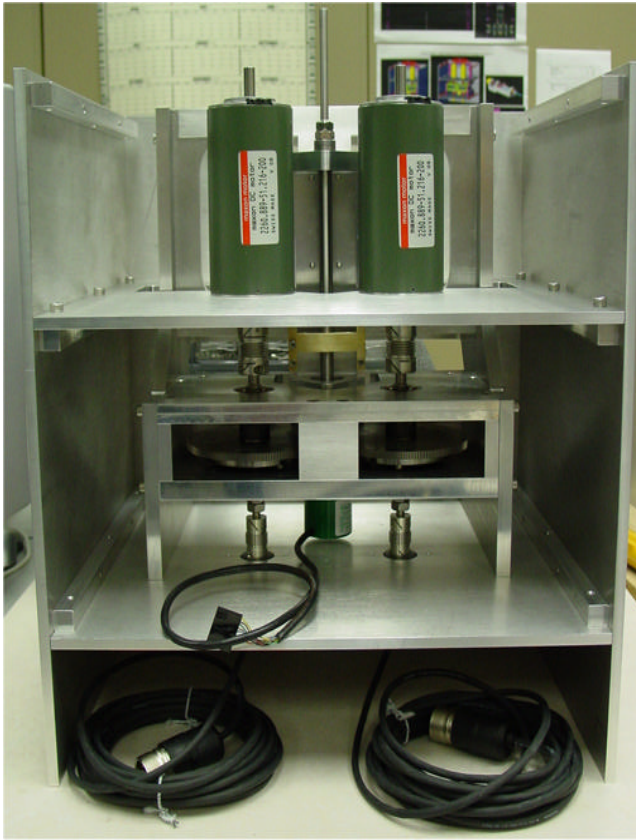
Connect motors to gear assembly with 8mm bellows couplings.



Attach the bottom case shelf and connect two Heidenhain encoders to the motor spur gear assembly



Assemble the back and side plates to the shelving plates.



Attach load plate to main shaft with a shaftloc coupling to complete assembly.

