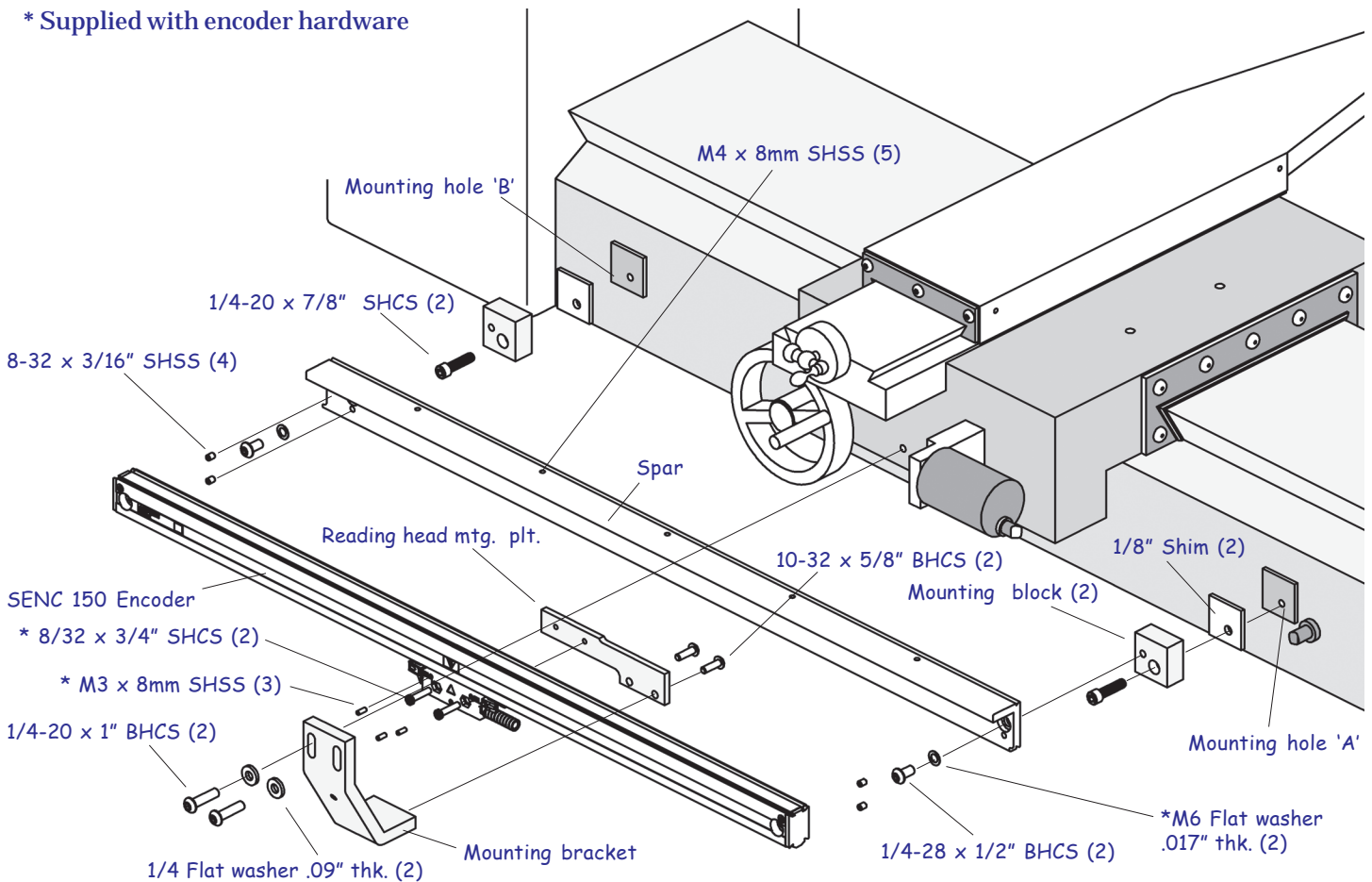


Longitudinal Installation ...

* Supplied with encoder hardware



Mounting Information...

These are application instructions for mounting the longitudinal "Z" axis SENC 150 encoder, and the Cross feed "X" axis SENC 50 encoder.

Since 1988, Hardinge lathes have been predrilled, and mounting pads added to the longitudinal installation.

Before proceeding:

- Please read the instructions completely.
- Mount Z axis prior to installing the cross feed.
- Remove set screws from factory drilled holes.
- Keep the reading head centered during installation.
- Clean the mounting surfaces.
- Save the alignment brackets with the Encoder Reference Manual after installation is completed.

First Steps ...

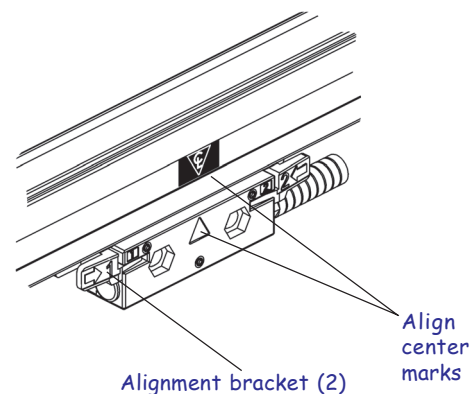
Machine

- ✓ Move the carriage to its center of travel.
- ✓ Mark the axis so that it can be re-centered easily.

Encoder

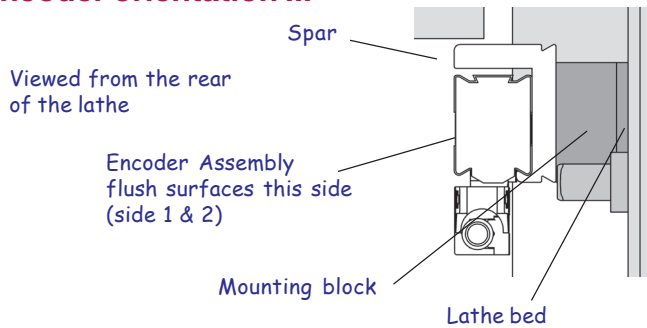
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

Center reading head ...



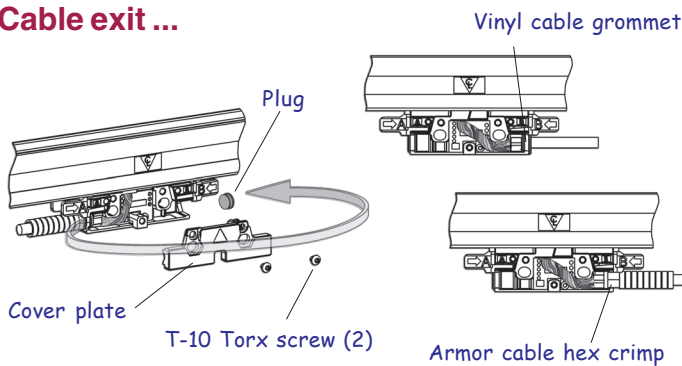
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

Encoder orientation ...



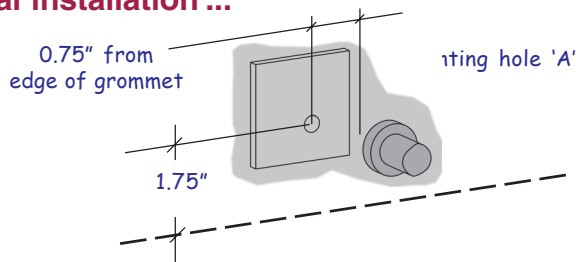
- These instructions will guide you through installing the encoder as shown in this view.

Cable exit ...



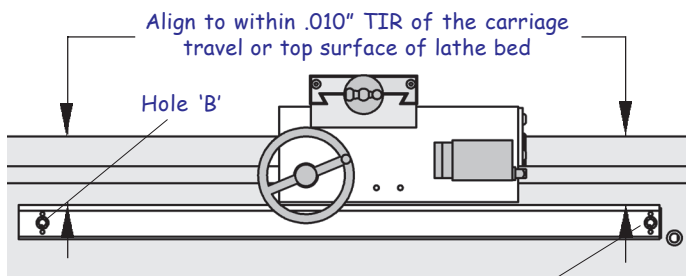
- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction, remove the cover plate and rotate the cable 180°.

Spar installation ...

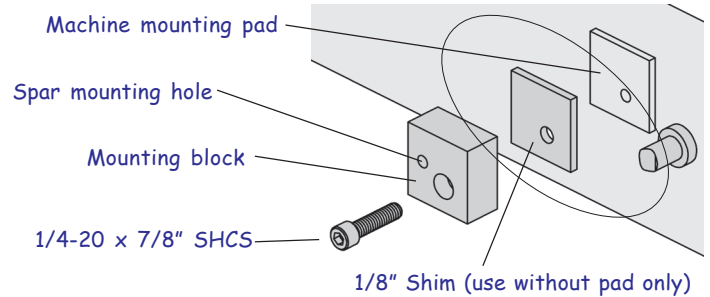


Lathes manufactured prior to 1988:

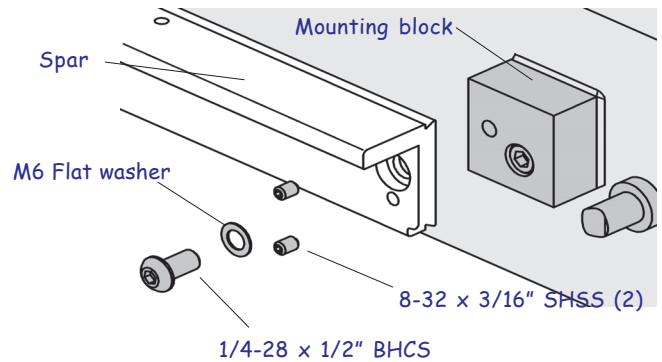
- These instructions assume factory drilled holes are present. If they are not, locate mounting hole "A", drill and tap for a 1/4-20 x 1/2" deep.



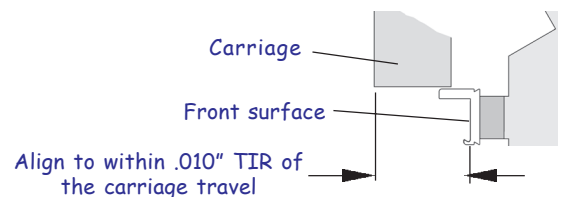
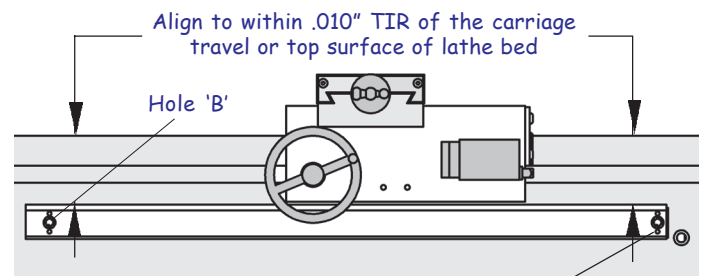
- Fasten the spar at Hole 'A' location and align the spar.
- **Pre 1988 lathes:** Transfer punch hole 'B', and drill and tap location for a 1/4-20 x 1/2" deep.



- Attach the spar mounting blocks as shown with the tapped hole to the left on the block.
- Align the top of the block parallel with the bed way. 1/8" shim is only required on pre 1988 lathes without mounting pads.

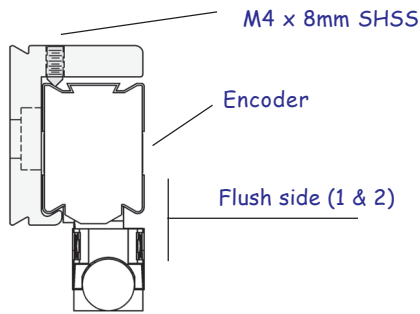


- Insert the two 8-32 x 3/16" SHSS into the spar at each end and attach the spar to the mounting blocks.



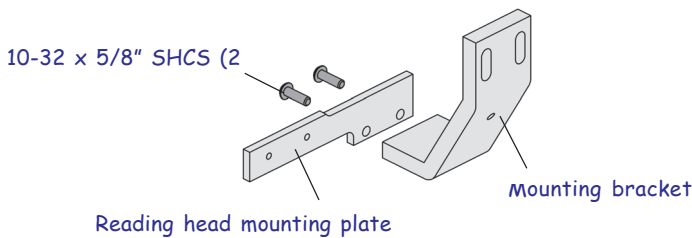
- Align the top and front surfaces of the spar.
- Secure spar in place maintaining alignment.

Encoder installation ...

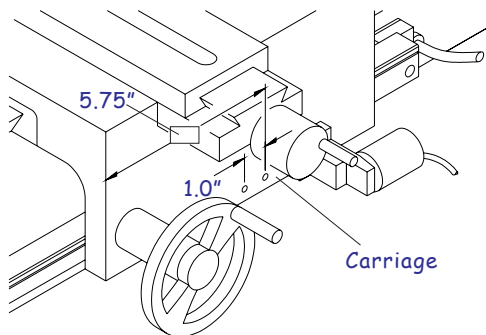


- Insert and center the encoder in the spar from end to end and tighten set screws to secure in place.

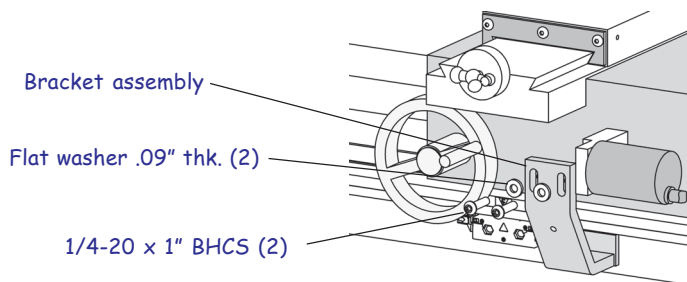
Reading head installation ...



- Assemble and square up the brackets. Fully tighten the fasteners.

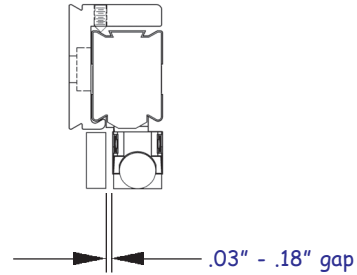


- **Pre 1988 lathes:** Drill and tap hole locations for a 1/4-20 x 1/2" deep. The height of the mounting holes are located by attaching the bracket assembly to the reading head and transfer punch using the bracket.

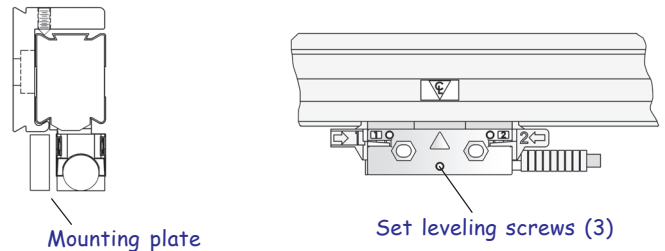


- With the carriage at its center of travel, attach the bracket assembly to the carriage.

- Position the assembly so that the reading head and bracket assembly mounting holes are aligned.
- Secure the assembly in place.

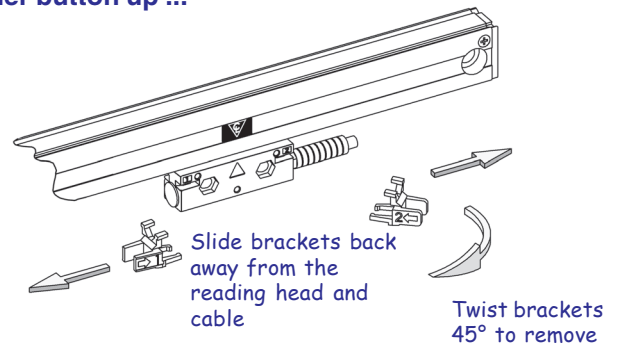


- There will be a gap of .03" - .018" between the bracket assembly and the reading head.



- Insert the two *8-32 x 5/8" SHCS. Insure the bracket is adjusted to provide proper screw head clearance. **Do Not Tighten Screws** at this time.
- Set each leveling set screw by placing a .001" - .003" feeler gage between the set screw and the bracket.
- Adjust each set screw until a slight drag is felt on the feeler gage.
- **Evenly tighten** the two 8-32 SHCS.

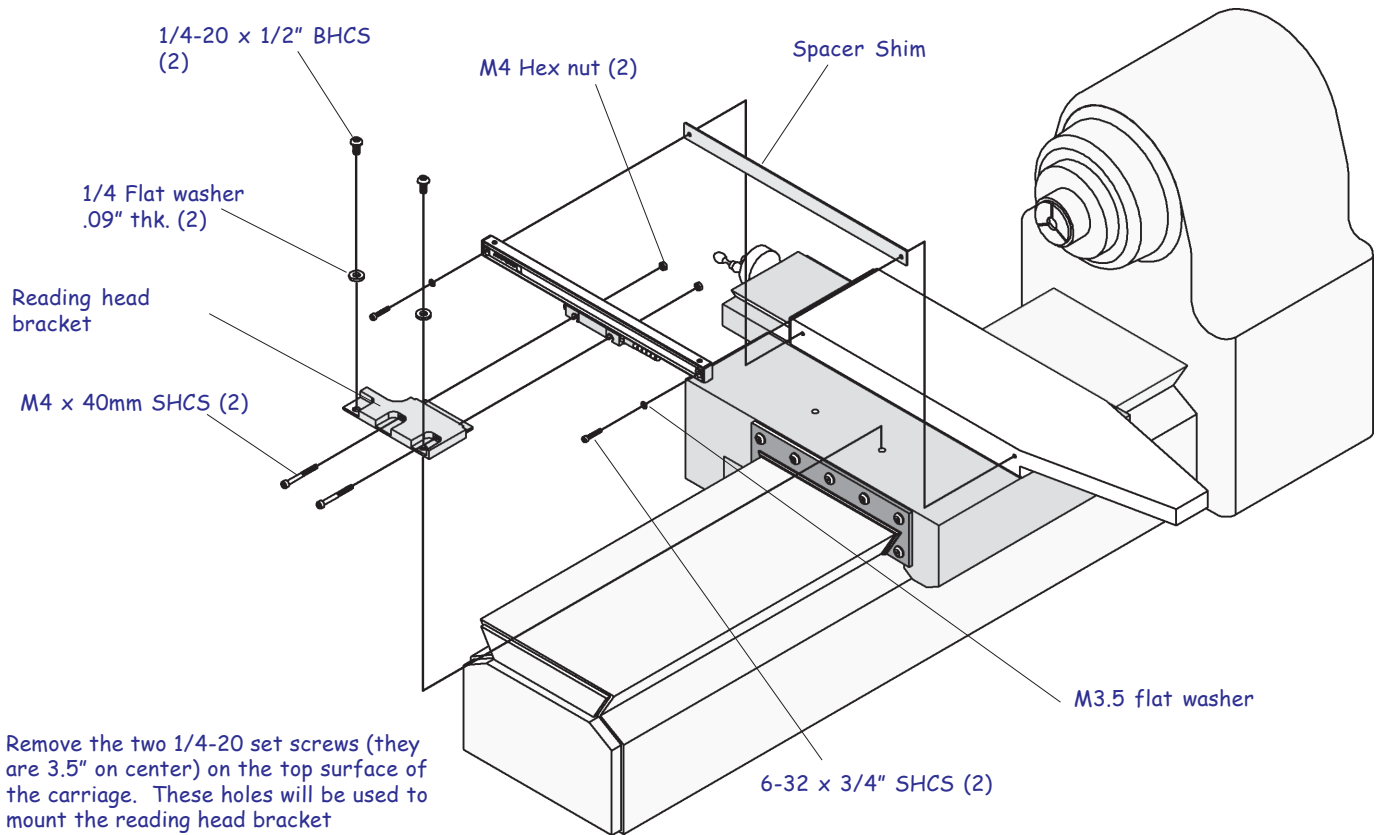
Encoder button up ...



- Use allen wrench from set screw adjustment to slide alignment brackets away from the reading head.
- Remove alignment brackets and save.
- Move the axis through its full travel. Confirm that the assembly does not interfere with the machine movement.

Proceed with the Cross Feed installation

Cross Feed Installation ...



Mounting Information...

These are application instructions for mounting the cross feed "X" axis SENC 50 7" encoder.

Before proceeding:

- Please read the Procedure completely.
- Mount Z axis prior to installing the cross feed.
- Remove set screws from factory drilled holes.
- Keep the reading head centered during installation.
- Clean the mounting surfaces.
- Save the alignment brackets with the Encoder Reference Manual after installation is completed.

First Steps ...

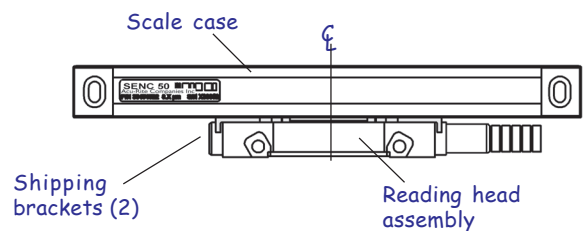
Machine

- ✓ Move the cross feed to its center of travel.
- ✓ Mark the axis so that it can be re-centered easily.

Encoder

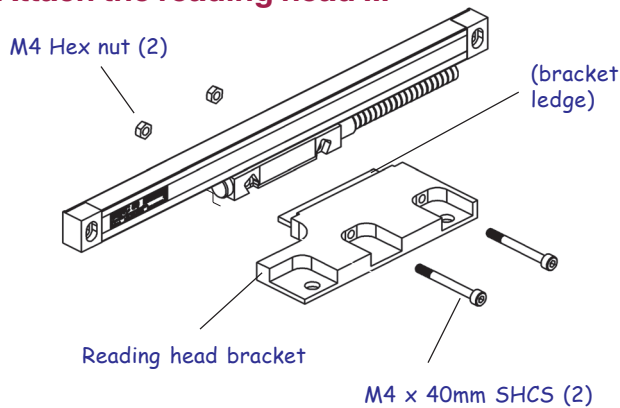
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

Center reading head ...



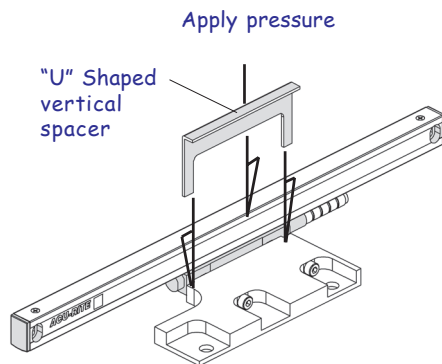
- Center the reading head on the scale case by sliding the reading head and brackets along the scale case to the center of the scale case.

Attach the reading head ...



- Place the reading head bracket on top of the carriage, position the encoder reading head on the bracket ledge mounting surface with cable exit to the rear of the lathe.
- Insert two M4 x 40mm SHCS through the bracket and reading head mounting holes.
- Insert two M4 hex nuts into the back side of the reading head (captured pockets).
- Attach the reading head to the bracket, but do not tighten fasteners.

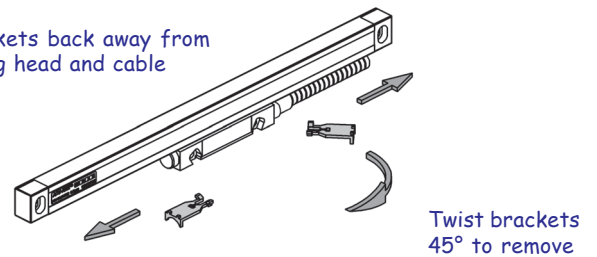
Insert vertical spacer tool ...



- Insert the vertical spacer (longer "U" shaped angle bracket) between the encoder and the bracket. Spacer legs fit into the notched out area of the bracket.
- With the shipping brackets in position, press down on the scale case over the center of the reading head and tighten the M4 fasteners.

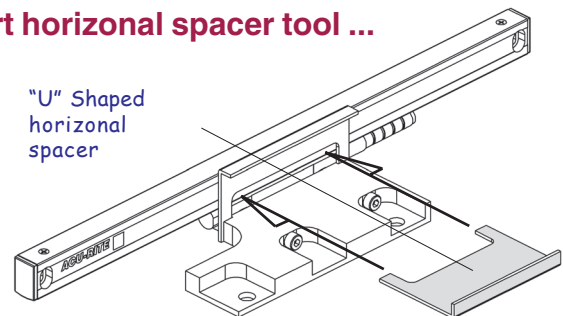
Shipping bracket removal ...

Slide brackets back away from the reading head and cable



- Slide the shipping brackets from the reading head and twist to remove them from the scale case. Save the shipping brackets with the Encoder Reference Manual.

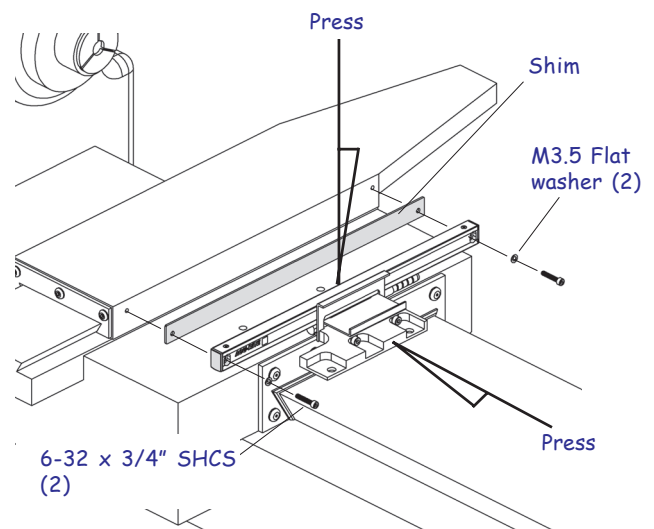
Insert horizontal spacer tool ...



- Slide the horizontal bracket (shorter "U" shaped bracket) through the vertical bracket and between the top of the reading head and underside of the scale case.

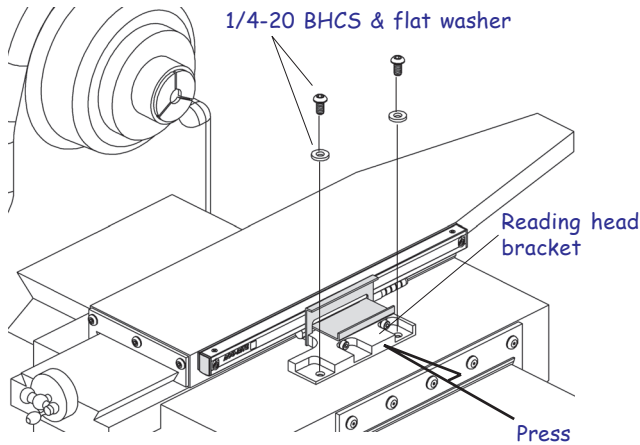
Scale attachment ...

Note: Install shim with holes offset to the lower edge



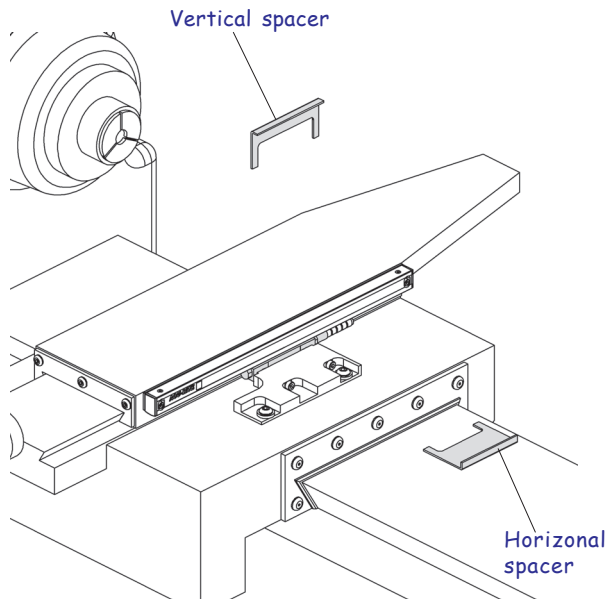
- Place the assembly to the side of the cross feed and attach with the long shim placed between the scale case and cross feed using two 6-32 x 3/4" SHCS and flat washers. **Do not** tighten fasteners.
- Apply pressure to the top of the scale case while holding the assembly against the cross feed. Secure the 6-32 fasteners.

Reading head attachment ...



- Align the bracket with the mounting holes in the carriage top, keeping shims in place.
- Attach the bracket to the carriage with two 1/4" x 1/4-20 BHCS and flat washers. Apply pressure to the assembly and secure the fasteners.

Encoder button up ...

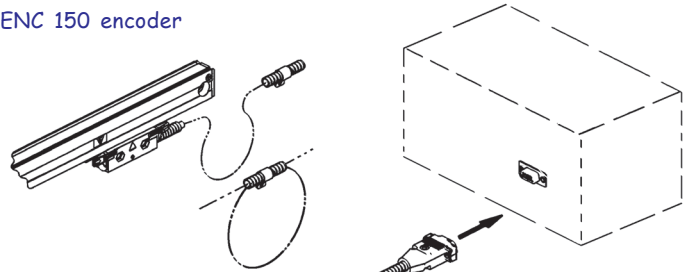


- Before removing spacers, check encoder alignment by taking a depth measurement from the top of the cross feed and over each end mounting hole. Measurements should be within .010" TIR. Adjust scale case as necessary.
- Remove the horizontal and vertical spacers, they may feel tight while removing.
- Encoder is now properly installed and aligned.

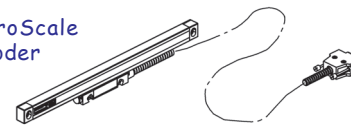
- Route the cable providing sufficient slack loops for machine movement to the readout.
- Secure cable by fastening with P-clip attached to back side of the carriage, bend clip 90° so that the cable will lay flat under the encoder.
- Attach the encoder connector to the readout.

Completing the installation ...

ENC 150 encoder



MicroScale encoder



- With both axis installations complete, route the cables providing sufficient slack loops for machine movement to the readout.
- Secure cables by fastening with clips or ties.
- Attach the linear encoder connectors to the readout.
- Complete the installation by following the steps in "Checking Your Installation" section in the encoder "Reference Manual".