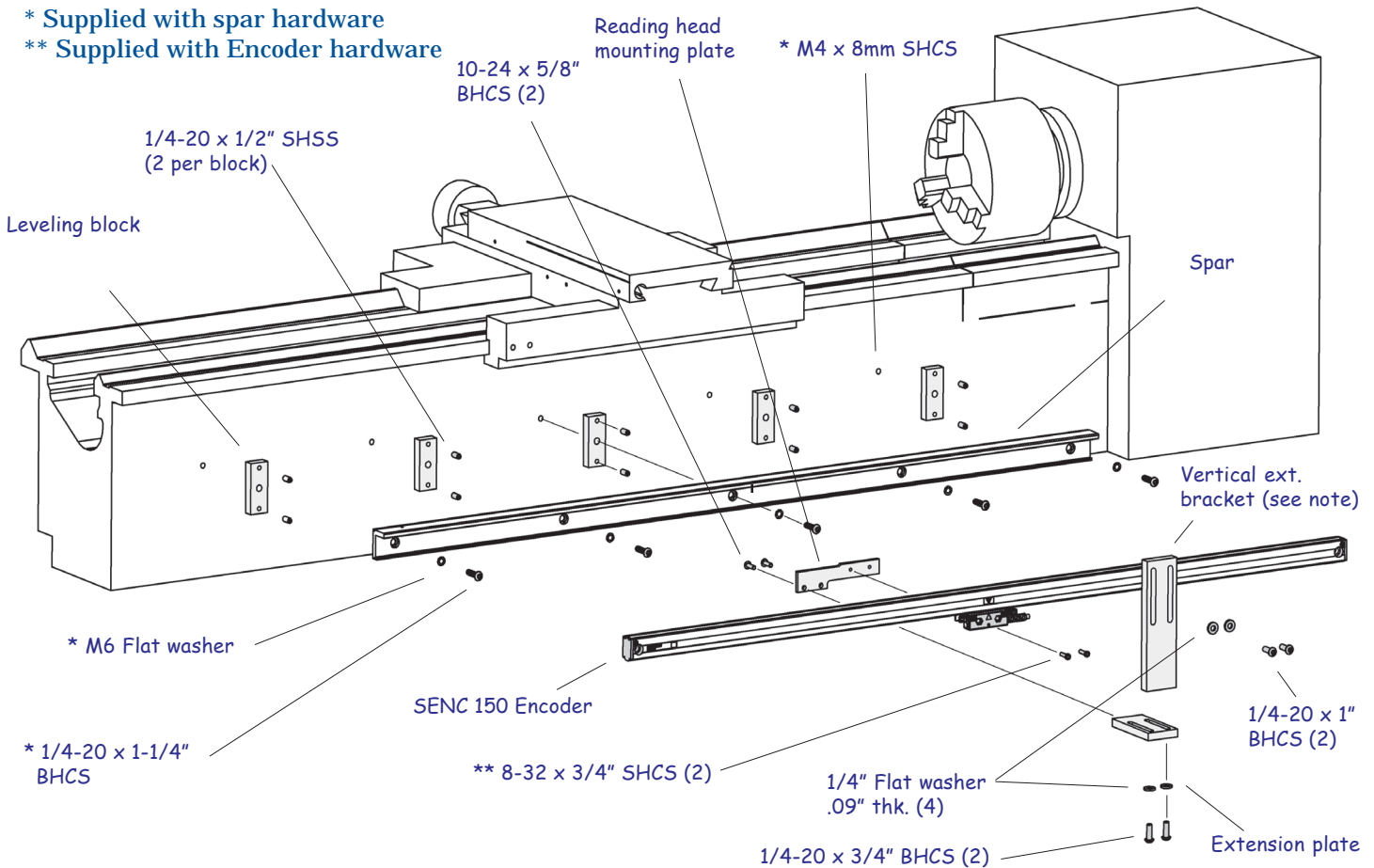


Longitudinal Installation ...

- * Supplied with spar hardware
- ** Supplied with Encoder hardware



Mounting Information...

These are application instructions for mounting the longitudinal "Z" & "X" axis SENC 150 encoder.

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 ...

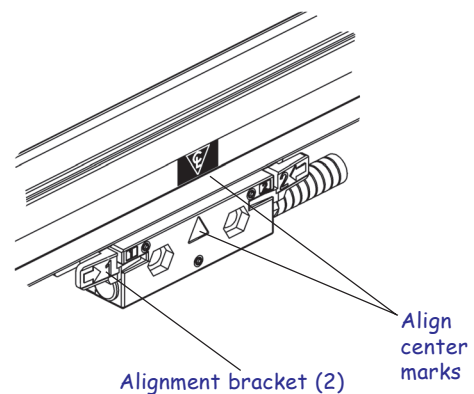
Machine

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

Encoder

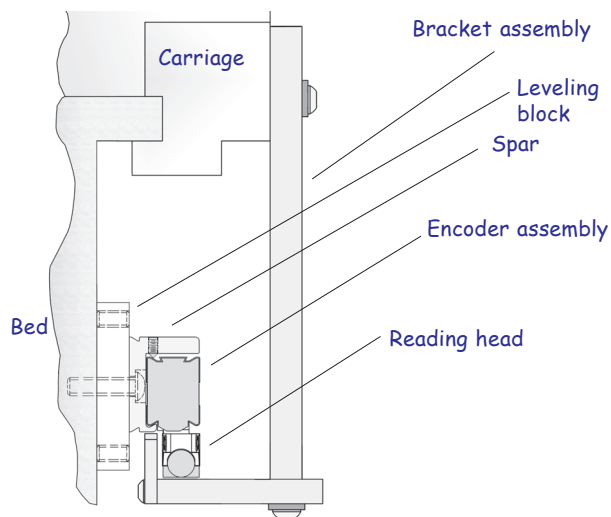
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

Center reading head ...



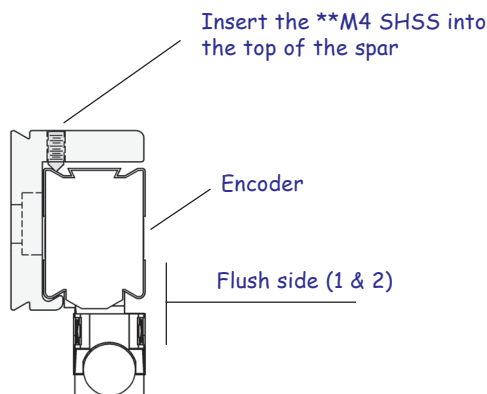
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

Encoder orientation ...



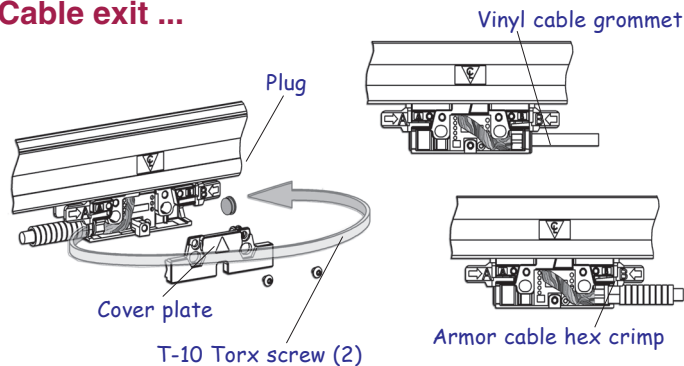
- These instructions will guide you through installing the encoder as shown in this view.

Encoder/Spar assembly ...



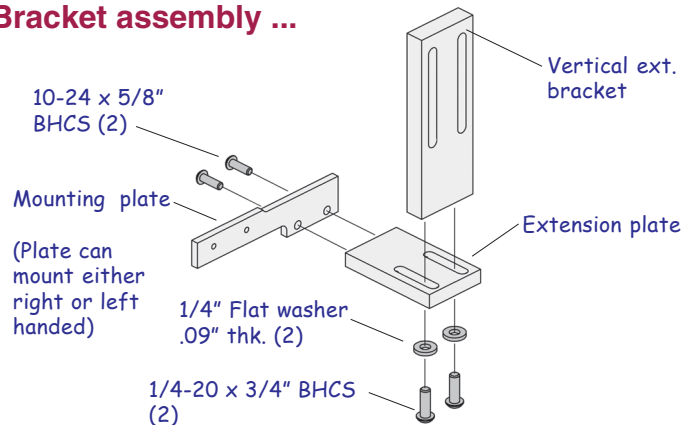
- Insert the encoder into the spar as shown, and center from end to end. Tighten the center set screw only.

Cable exit ...



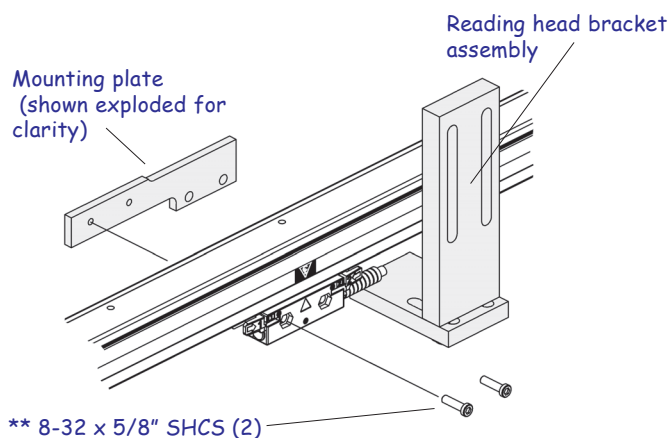
- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction, remove the cover plate and rotate the cable 180°.

Bracket assembly ...



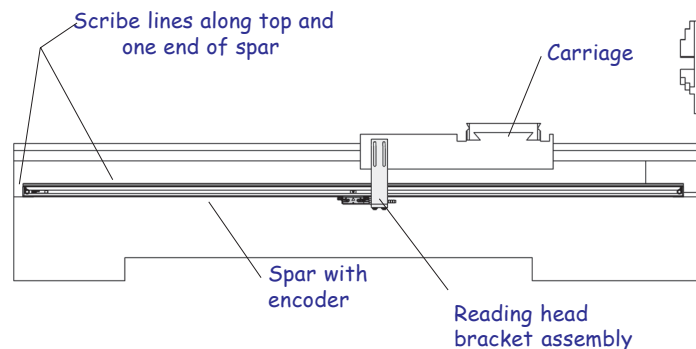
- Assemble the brackets, fully extending the extension plate.

Bracket attachment ...



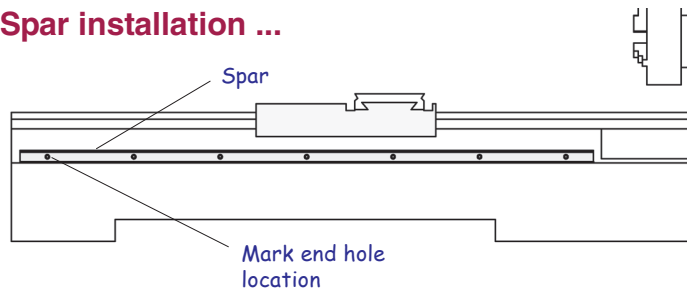
- Temporarily attach the bracket assembly to the reading head for locating purposes.

Spar / encoder installation ...

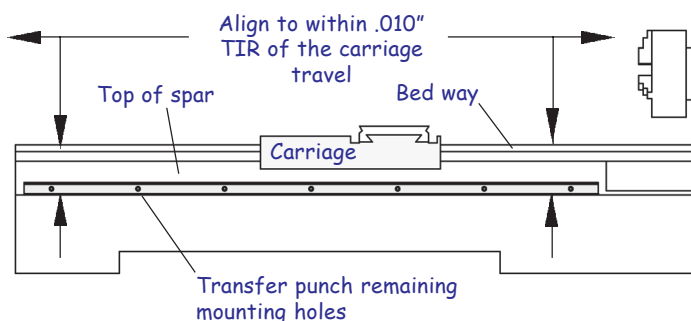


- With the carriage at its center of travel, position the spar to the side of the bed, and the bracket assembly to the carriage.
- Locate the assembly so that a suitable mounting position is provided for both the encoder to the bed, and the bracket assembly to the carriage.
- With the spar parallel to the bed ways, scribe location reference lines on the bed. Remove the assembly.

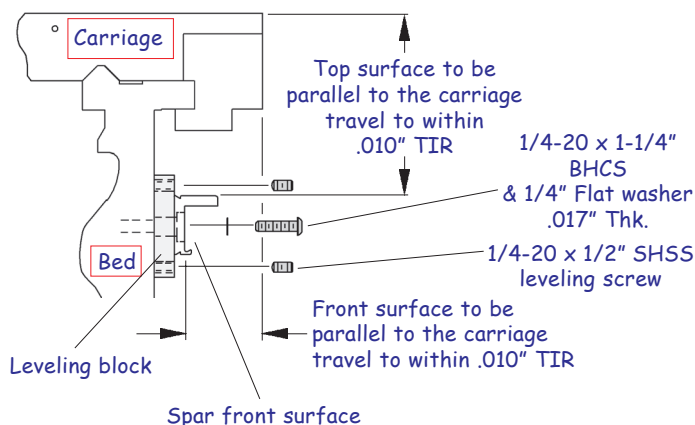
Spar installation ...



- Remove the bracket assembly from the reading head, and the encoder from the spar.
- Position the spar to the scribed lines and mark one end mounting hole location to the bed.
- Drill and tap location for a 1/4-20 x 1/2" deep.

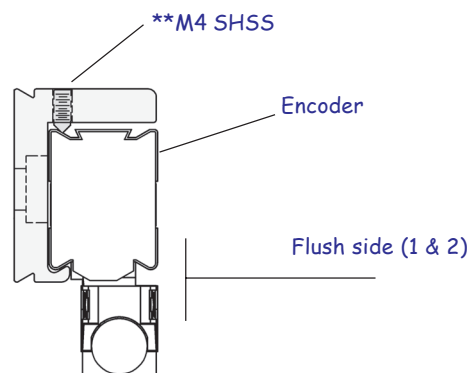


- Fasten the spar to the bed at one end.
- Align the top of the spar to the carriage travel to within .010" TIR.
- Transfer punch the remaining mounting hole(s).
- Remove spar, drill and tap locations for a 1/4-20 x 1/2" deep.



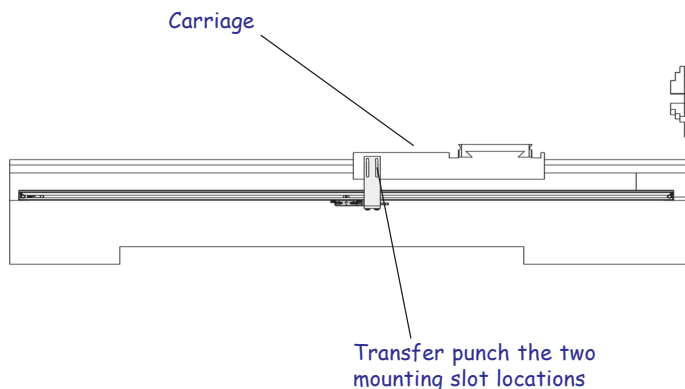
- Attach the spar with the leveling blocks (if used) to the bed. Insert leveling screws in blocks.
- Align the front surface of the spar to within .010" TIR of the carriage travel.
- Align the top surface to within .010" TIR of the carriage travel. Secure in place maintaining alignments.

Encoder installation ...

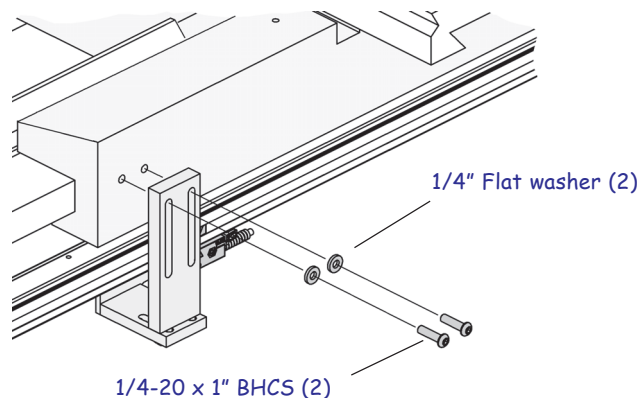


- Insert the encoder into the spar as done previously.
- Tighten the spar set screws starting from the center, working out towards the ends.

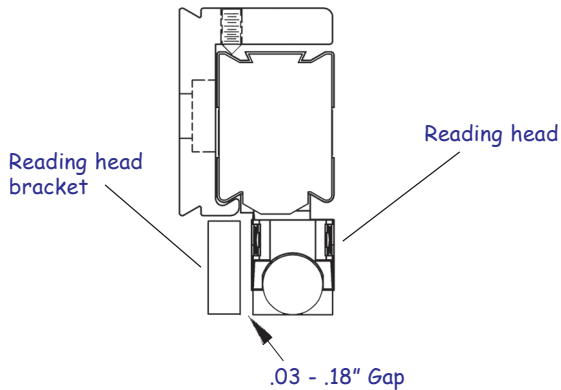
Reading head and bracket installation ...



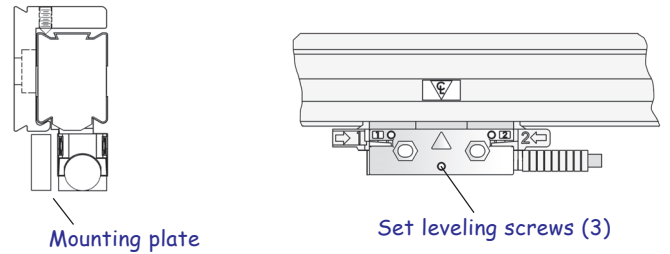
- Move the carriage to its center of travel. Attach the bracket assembly to the reading head.
- Position the assembly to the carriage, and transfer punch the two mounting slot locations.
- Remove the assembly, drill and tap the locations for 1/4-20 x 1/2" deep.



- Attach the bracket assembly to the carriage.

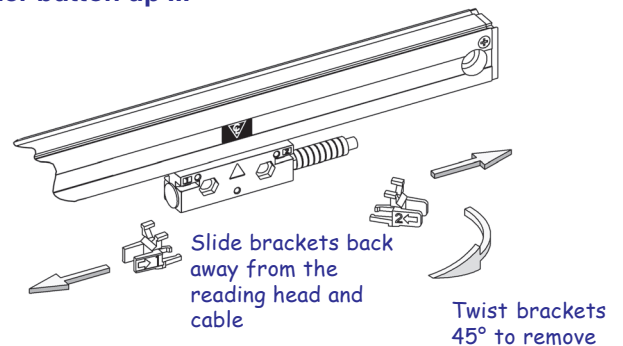


- Adjust the extension plate so that a .03" - .18" gap is between the reading head and bracket.
- Align the bracket and head mounting holes.
- Secure bracket assembly in place.



- 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 ...

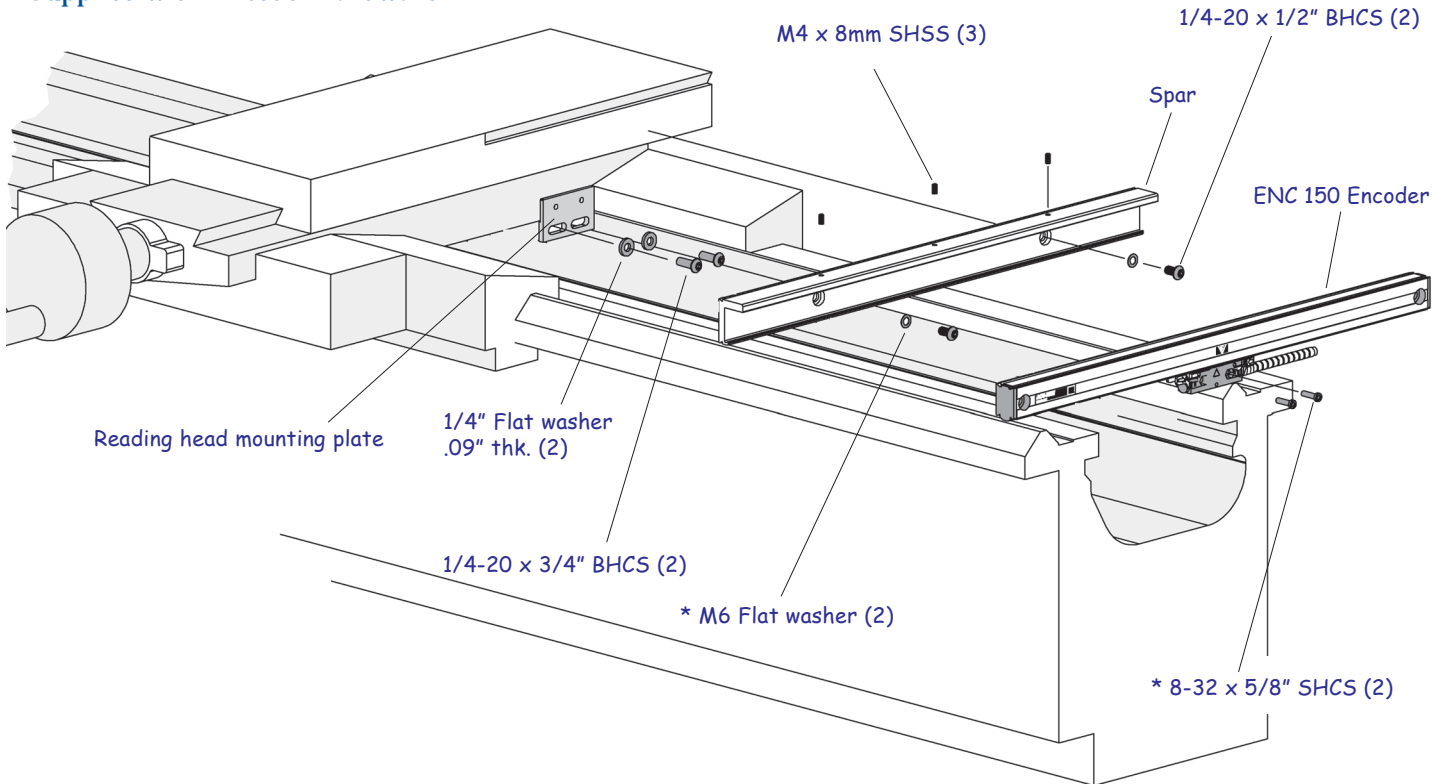


- Use allen wrench from set screw adjustment to slide alignment brackets away from the reading head.
- Remove alignment brackets and save.
- Move the axis through its full travel. Confirm that the assembly does not interfere with the machine movement.

Proceed with the Cross Feed installation

Cross Feed Installation ...

* Supplied with Encoder hardware



Mounting Information...

These are application instructions for mounting the Cross Feed "X" axis SENC 150 encoder.

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 ...

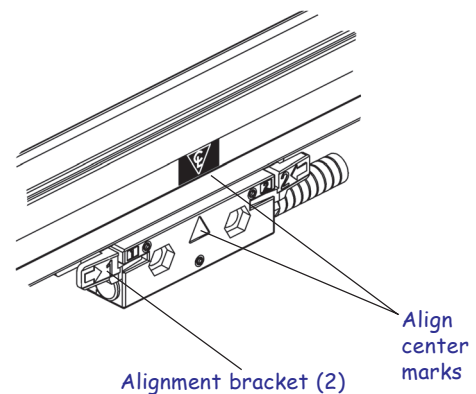
Machine

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

Encoder

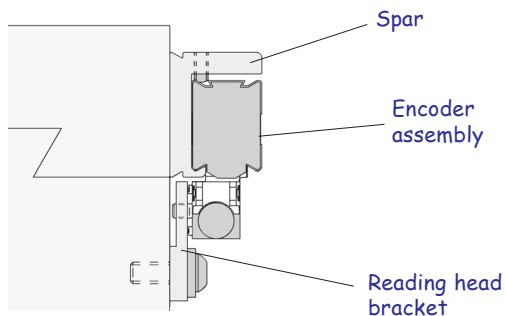
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

Center reading head ...



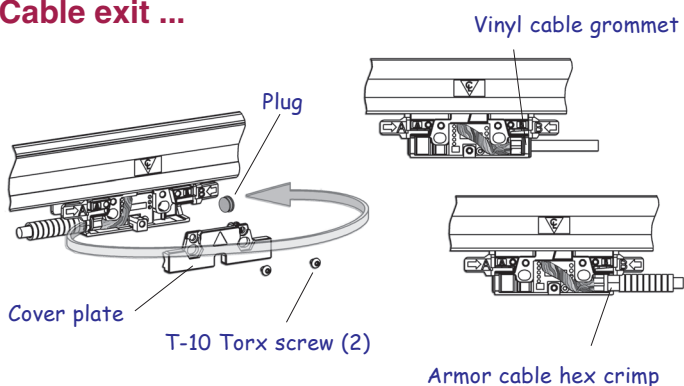
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

Encoder orientation ...



- These instructions will position the encoder assembly to the carriage and bed as shown.

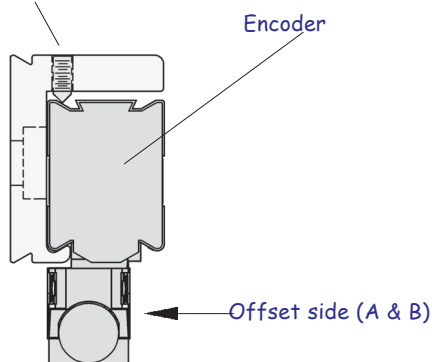
Cable exit ...



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

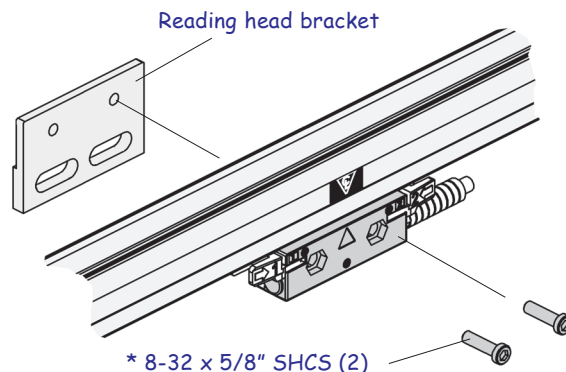
Encoder installation ...

Insert the *M4 SHSS into the top of the spar

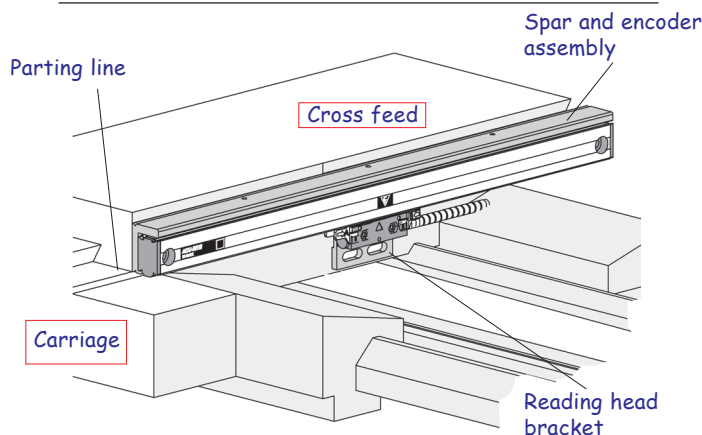


- Insert the encoder into the spar as shown, and center from end to end. Tighten the center set screw only.

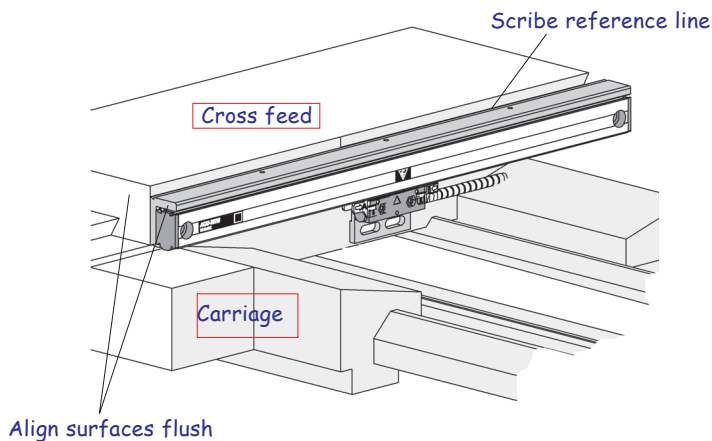
Bracket Attachment ...



- Temporarily attach the reading head bracket to the reading head.

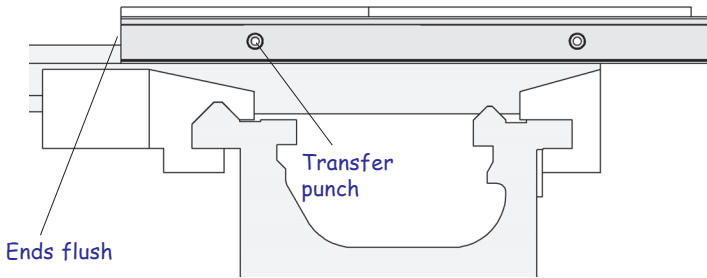


- Set the assembly against the cross feed.
- The spar attaches to cross feed, and the reading head bracket to the carriage. The axis parting line must be between the spar and the bracket.

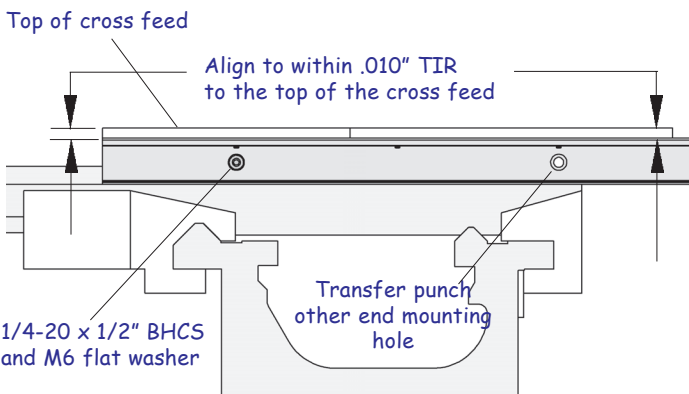


- Align the top of the spar parallel with the top surface of the cross feed.
- Scribe a reference line marking the top spar edge.
- Remove the encoder spar assembly from the machine, and remove the encoder from the spar.

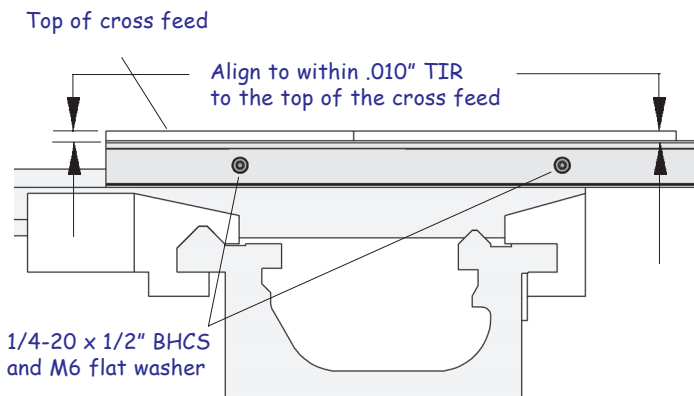
Spar installation ...



- Position the spar to the scribed line and flush with the front edge, aligned parallel with the top of the cross feed.
- Transfer punch one end hole location to the cross feed, and remove the spar.
- Drill and tap hole location for a 1/4-20 x 1/2" deep.

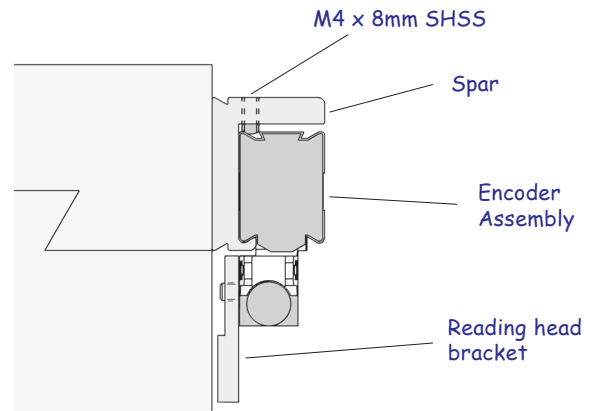


- Fasten the spar to the cross feed with 1/4-20 x 1/2" BHCS and M6 flat washer (.017" thk.).
- Align the top of the spar to the top of the cross feed.
- Transfer punch second end hole location.
- Remove the spar, drill and tap location for a 1/4-20 x 1/2" deep.



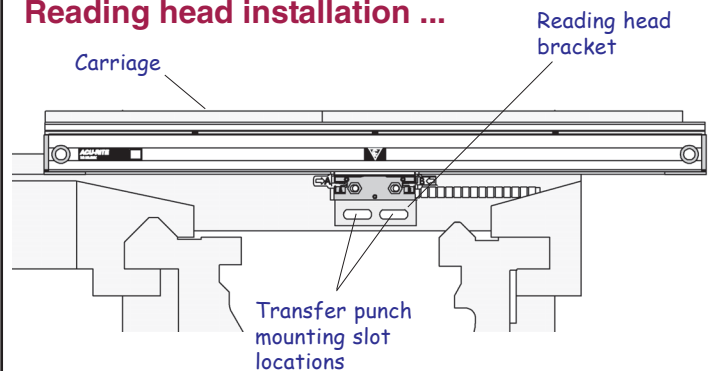
- Fasten the spar to the cross feed.
- Align the top of the spar to the top of the cross feed to within .010" TIR.
- Secure spar in place maintaining alignment.

Encoder installation ...

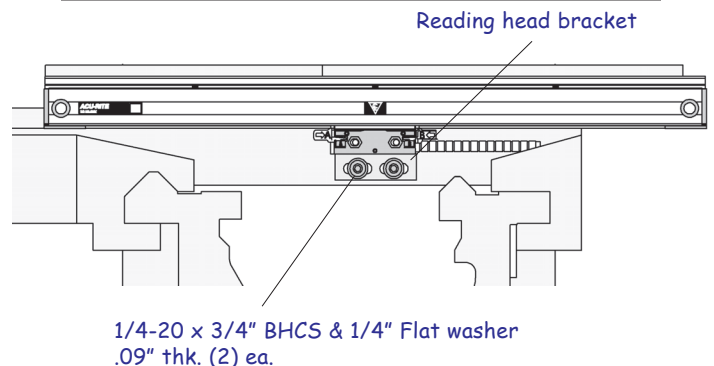


- Insert the encoder into the spar as shown with the reading head bracket attached. Center the encoder in spar with ends flush.
- Lock in place by tightening the three spar set screws.

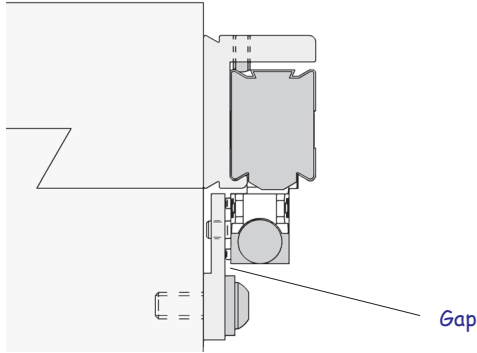
Reading head installation ...



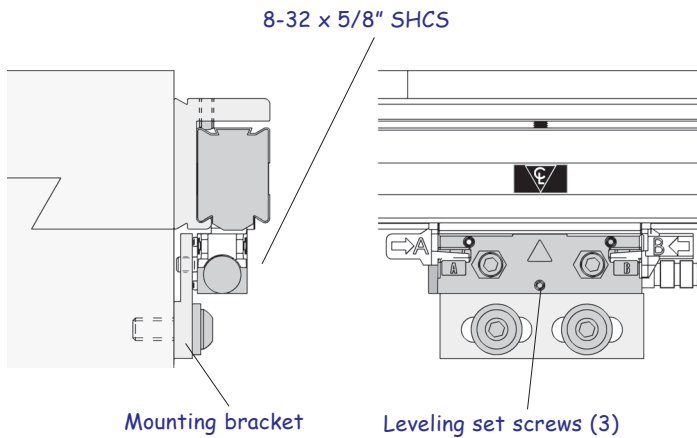
- With the reading head at the center of the scale, transfer punch the reading head bracket mounting slots to the carriage.
- Remove the bracket, drill and tap hole locations for 1/4-20 x 1/2" deep.



- Attach the reading head bracket to the carriage.
- Align the bracket mounting holes with the reading head mounting holes.
- Secure the bracket in place to the carriage.

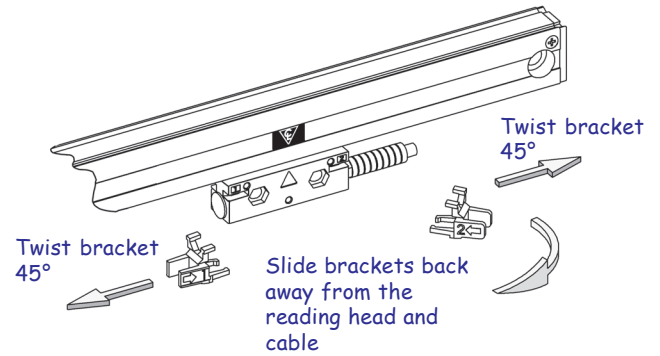


- A gap will exist between the reading head and bracket.

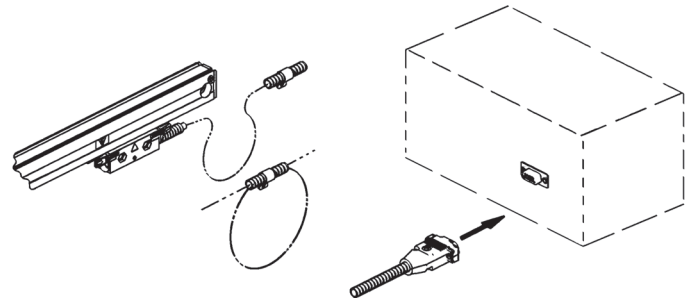


- A gap will exist between the reading head and bracket, and the leveling screws must be used.
- Set each leveling screw by placing a .001" - .003" feeler gage between the set screw and the bracket. Adjust each screw until a slight drag is felt on the feeler gage.
- **Evenly tighten the two *8-32 SHCS to secure the reading head in place.**

Encoder button up ...



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



- 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".