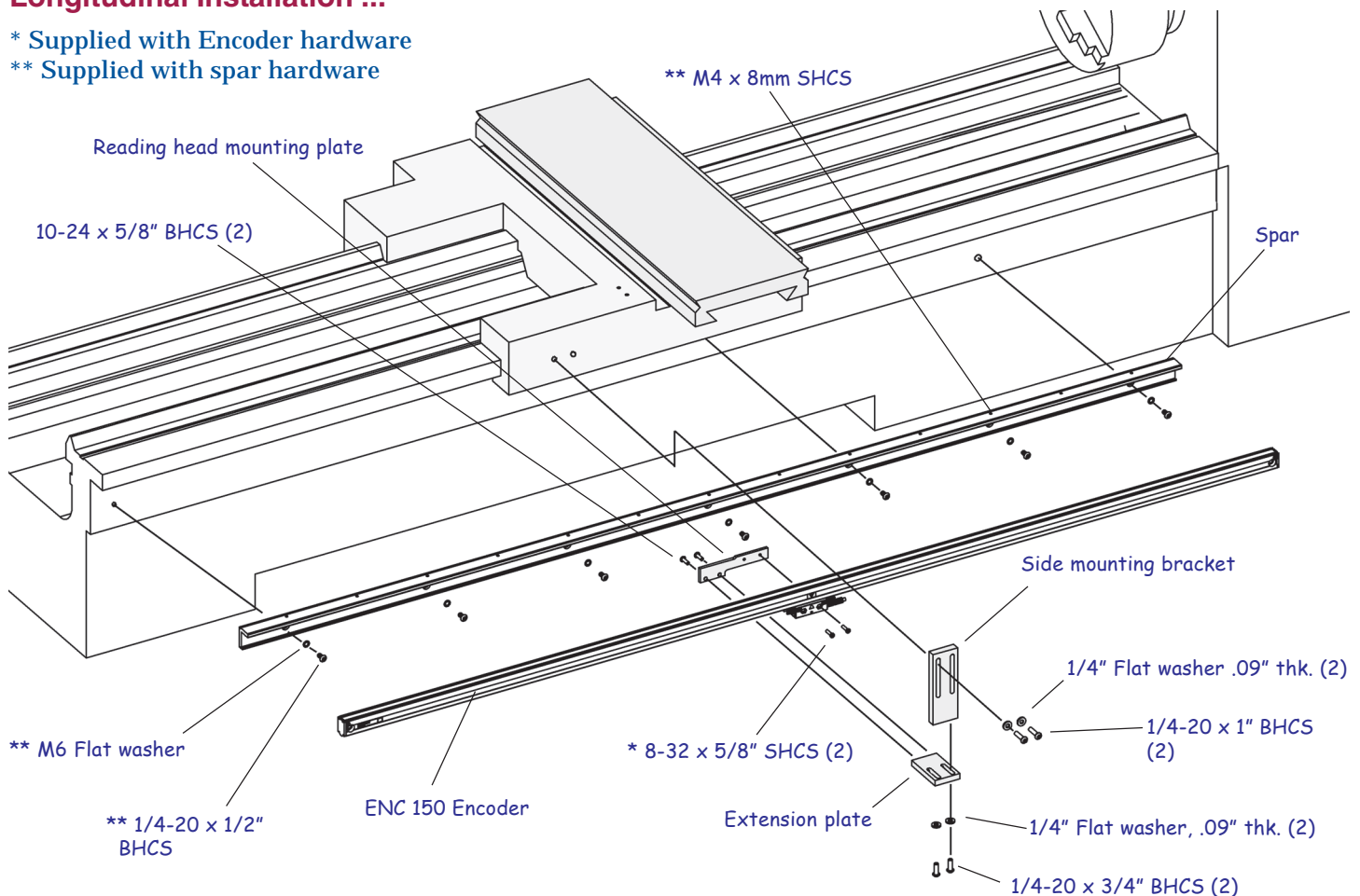


Longitudinal Installation ...

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

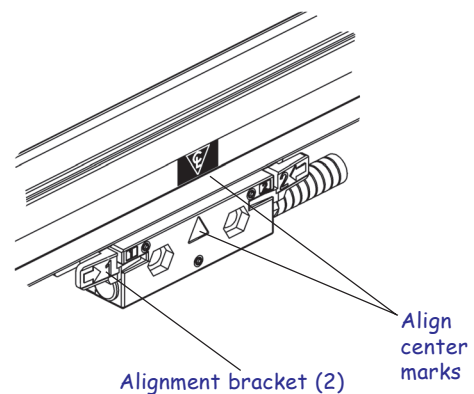
Machine

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

Encoder

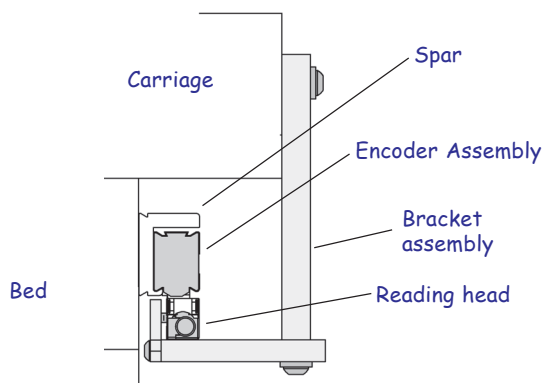
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

Center reading head ...



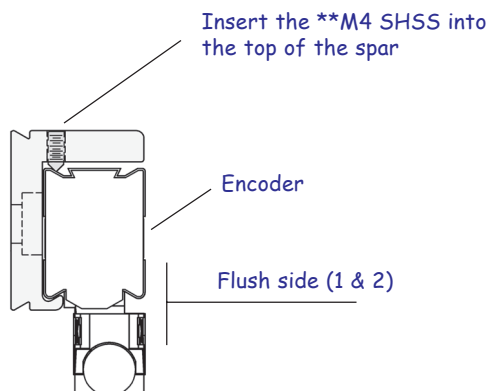
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

Encoder orientation ...



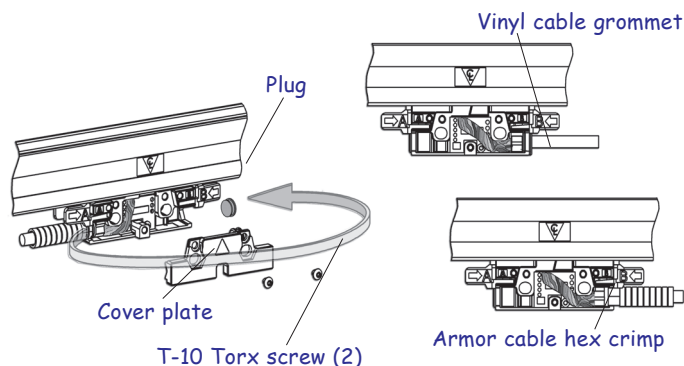
- These instructions will guide you through installing the encoder as shown in this view.

Encoder/Spar assembly ...



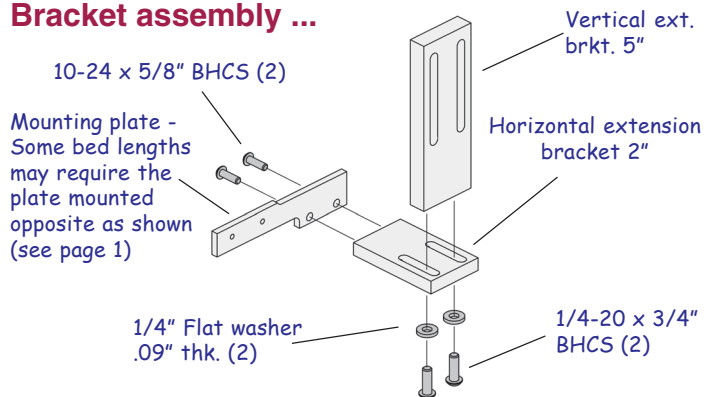
- Insert the encoder into the spar as shown, and center from end to end. Tighten the center set screw only.

Cable exit ...

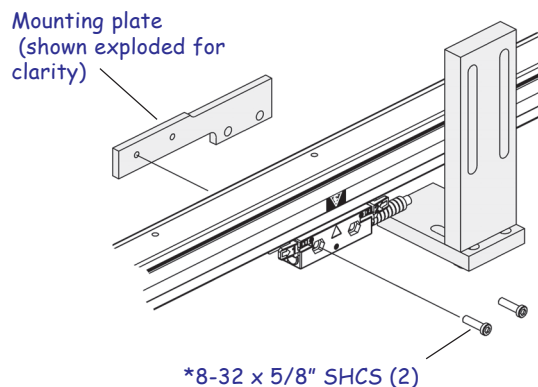


- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction, remove the cover plate and rotate the cable 180°.

Bracket assembly ...

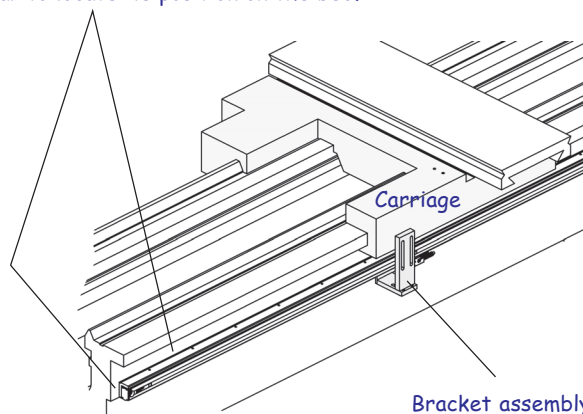


- Assemble the brackets; fully extend the horizontal extension plate.



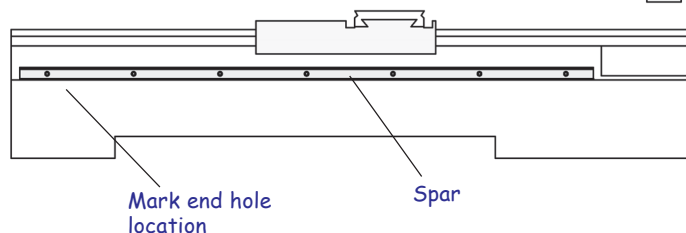
- Temporarily attach the bracket assembly to the reading head.

Scribe lines along the top and one end of the spar to locate its position on the bed.

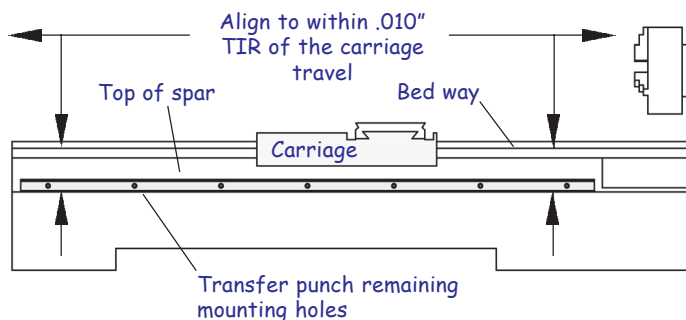


- With the carriage at its center of travel, position the spar to the bed, and the bracket assembly to the carriage.
- Locate the assembly so that a suitable mounting position is provided for both the encoder w/spar to the bed, and the bracket assembly to the carriage.
- With the spar parallel to the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

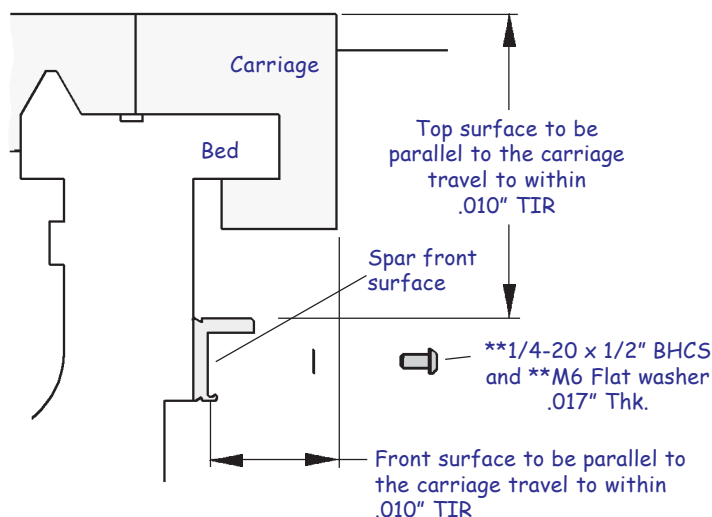
Spar installation ...



- 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.

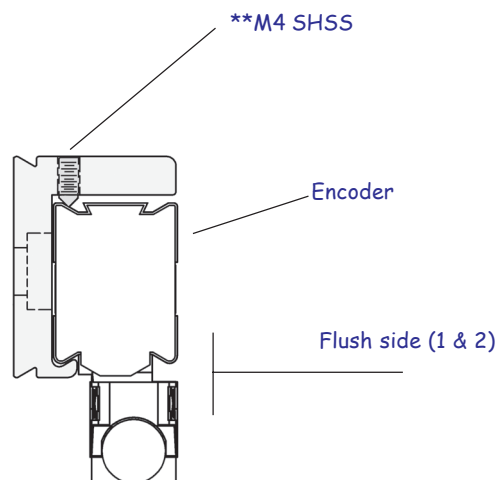


- Fasten the spar to the bed at one end.
- Align the top of the spar to the carriage travel to within .010" TIR.
- Transfer punch the remaining mounting holes.
- Remove spar, drill and tap locations for a 1/4-20 x 1/2" deep.



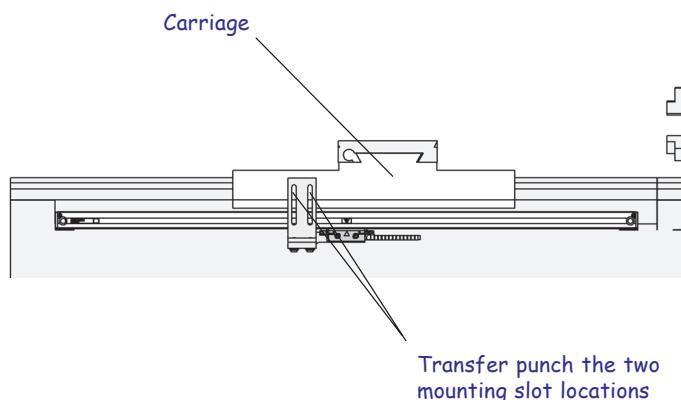
- Attach the spar to the bed.

- Align the front surface of the spar to within .010" TIR of the axis travel (use shim stock if necessary).
- Align the top surface of the spar to within .010" TIR of the carriage travel and secure in place maintaining both alignments.

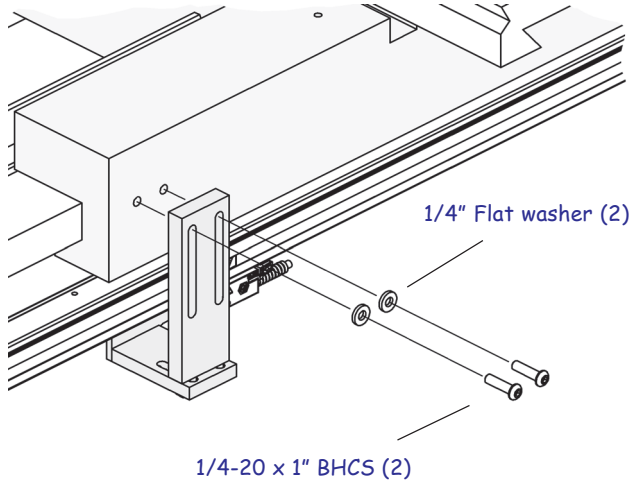


- Insert the encoder into the spar as done previously.
- Tighten the spar set screws starting from the center, working out towards the ends.

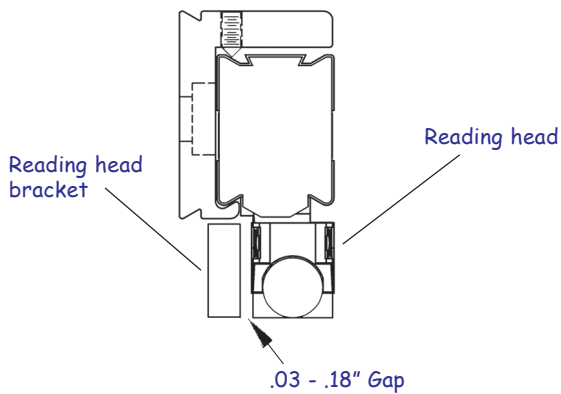
Reading head and bracket installation ...



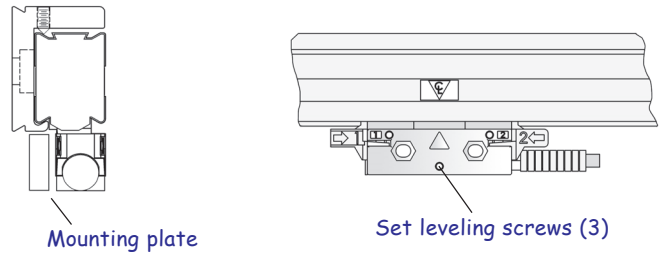
- Move the carriage to its center of travel. Attach the bracket assembly to the reading head.
- Position the assembly to the carriage, and transfer punch the two mounting slot locations.
- Remove the assembly, drill and tap the locations for 1/4-20 x 1/2" deep.



- Attach the bracket assembly to the carriage.

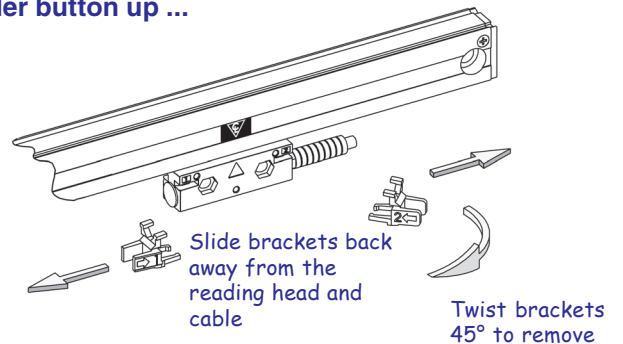


- Adjust the extension plate so that a .03" - .18" gap is between the reading head and bracket.
- Align the bracket and head mounting holes.
- Secure bracket assembly in place.



- 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 ...

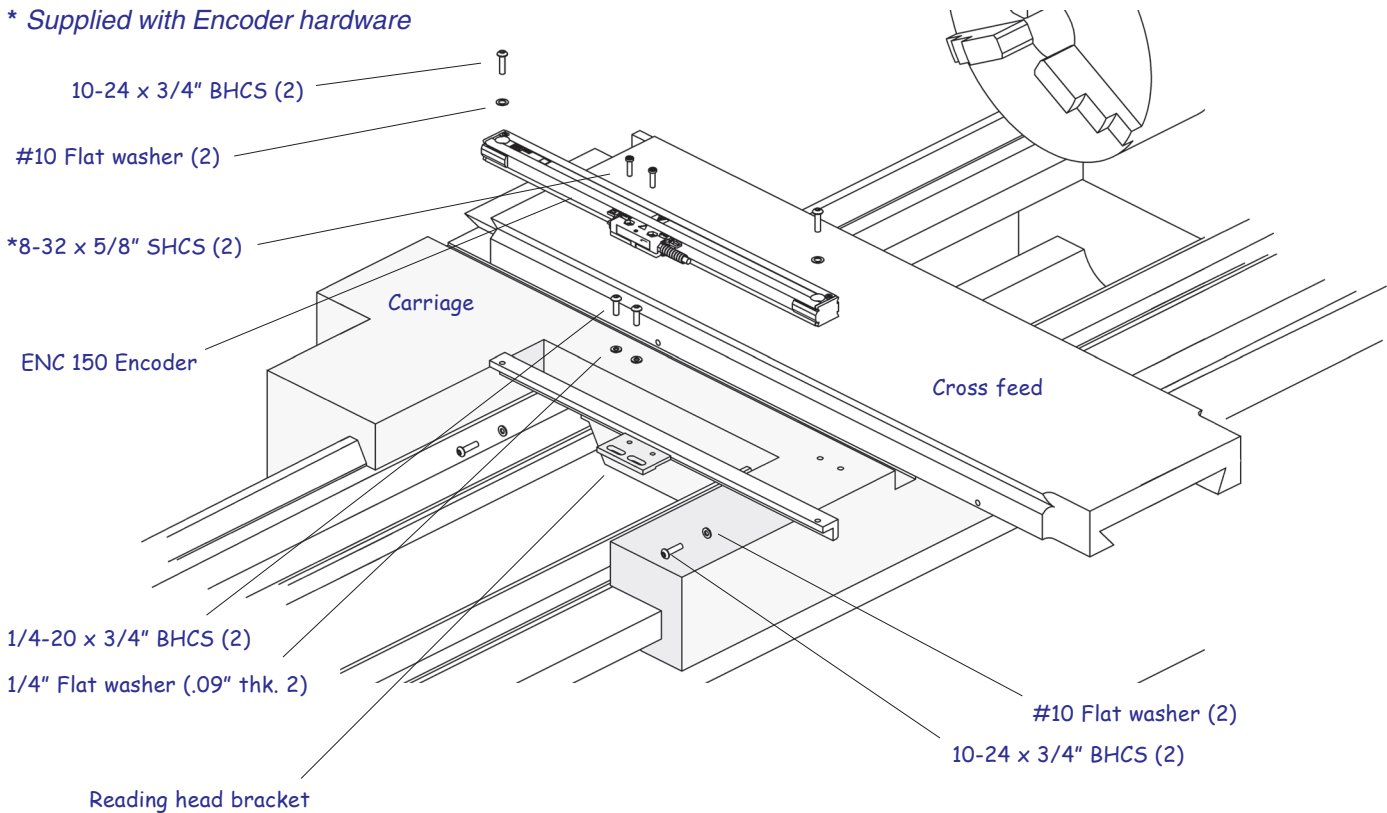


- Use allen wrench from set screw adjustment to slide alignment brackets away from the reading head.
- Remove alignment brackets and save.
- Move the axis through its full travel. Confirm that the assembly does not interfere with the machine movement.

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 ...

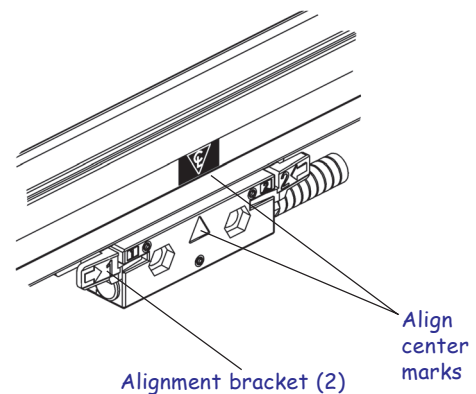
Machine

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

Encoder

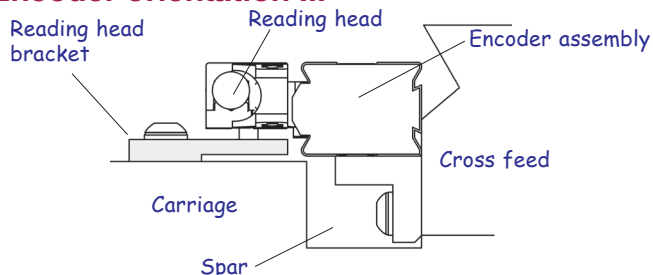
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

Center reading head ...



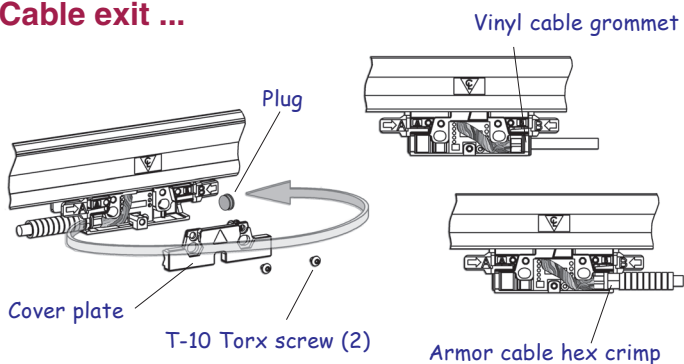
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

Encoder orientation ...



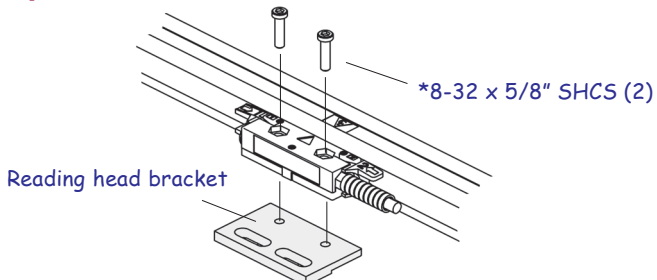
- These instructions will position the encoder assembly to the carriage and bed as shown.

Cable exit ...

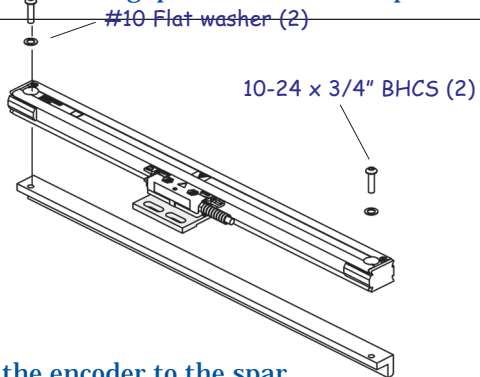


- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction, remove the cover plate and rotate the cable 180°.

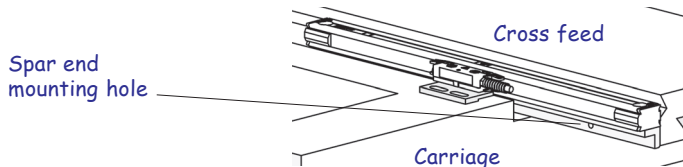
Spar installation ...



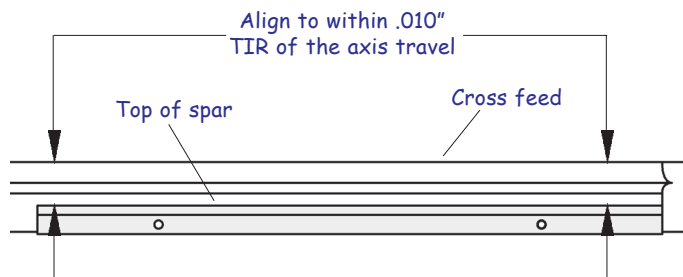
- Attach the reading head bracket to the reading head.
- Place a shim between the reading head and the bracket so that a gap of .030" - .060" is provided.



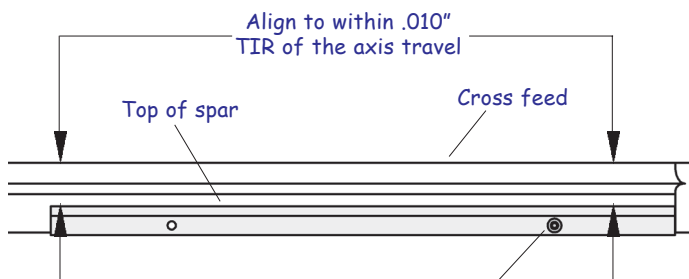
- Attach the encoder to the spar.



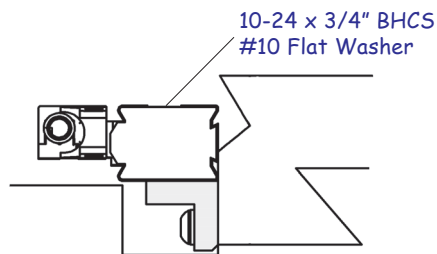
- Place the spar against the cross feed, and the reading head bracket to the carriage surface.
- Mark spar end mounting hole location to the cross feed.
- Remove the assembly from the cross feed.



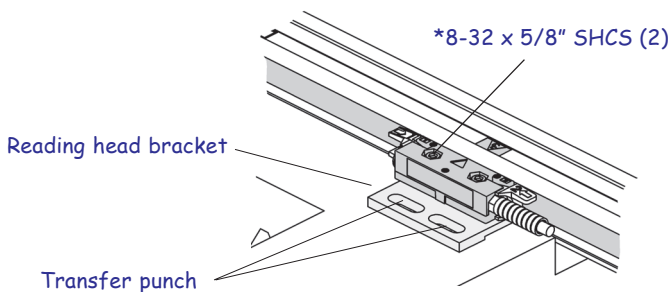
- Remove the spar and bracket from the encoder.
- Drill and tap hole location for a 10-24 x 1/2" deep, and fasten the spar at one end.
- Align the top surface of the spar to the axis travel or cross feed top surface.
- Transfer punch the second end mounting hole, and remove the spar.
- Drill and tap location for a 10-24 x 1/2" deep.



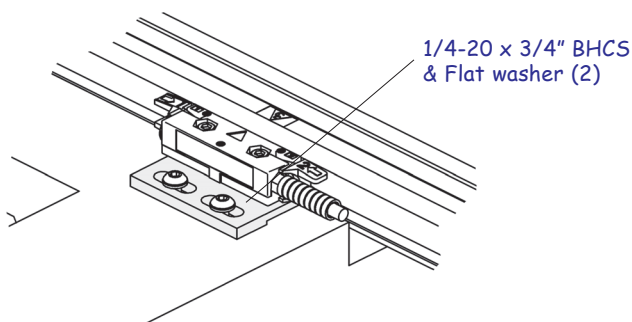
- Align the top of the spar to the axis travel.
- Secure the spar in place maintaining alignment.



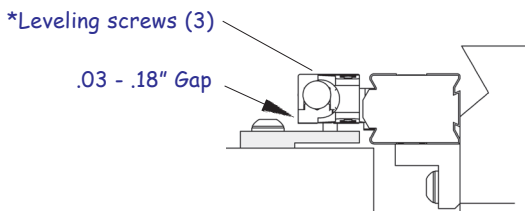
- Attach the encoder to the spar and set the encoder against the cross feed flush.
- Secure encoder in place maintaining alignment.



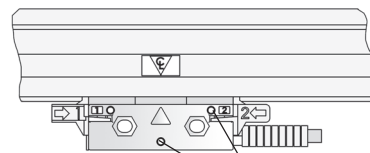
- Return the cross feed to its center of travel, and attach the bracket to the reading head.
- With the bracket positioned to the carriage, transfer punch the center of the mounting slots to the carriage.
- Remove the bracket from the reading head.
- Drill and tap the two bracket mounting hole locations for 1/4-20 x 1/2" deep.



- Attach the reading head bracket to the carriage, and align the bracket with the reading head casting mounting holes.
- Secure the bracket in place.
- Insert the two *8-32 x 5/8" SHCS, but do not tighten.



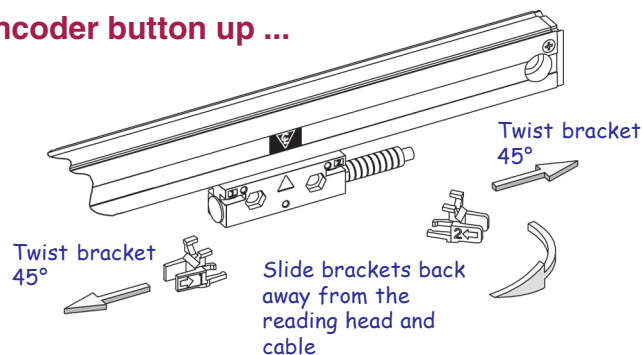
- A gap will exist between the reading head and bracket, and the leveling screws must be used.
- Set each leveling screw by placing a .001" - .003" feeler gage between the set screw and the bracket. Adjust each screw until a slight drag is felt on the feeler gage.
- **Evenly tighten the two *8-32 SHCS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



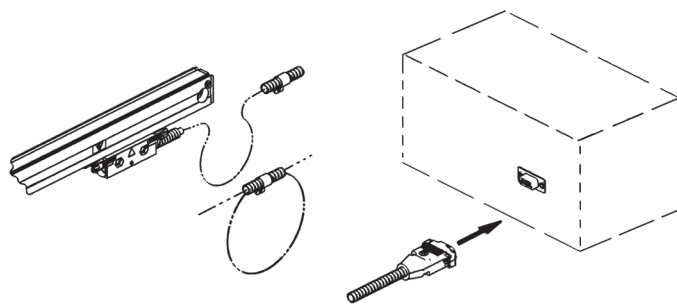
*Leveling set screws (3)

- Set each leveling screw by placing a .001 - .003" feeler gage between the screw and reading head mounting plate.
- Adjust each screw until a slight drag is felt on the feeler gage.
- **Evenly tighten 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".