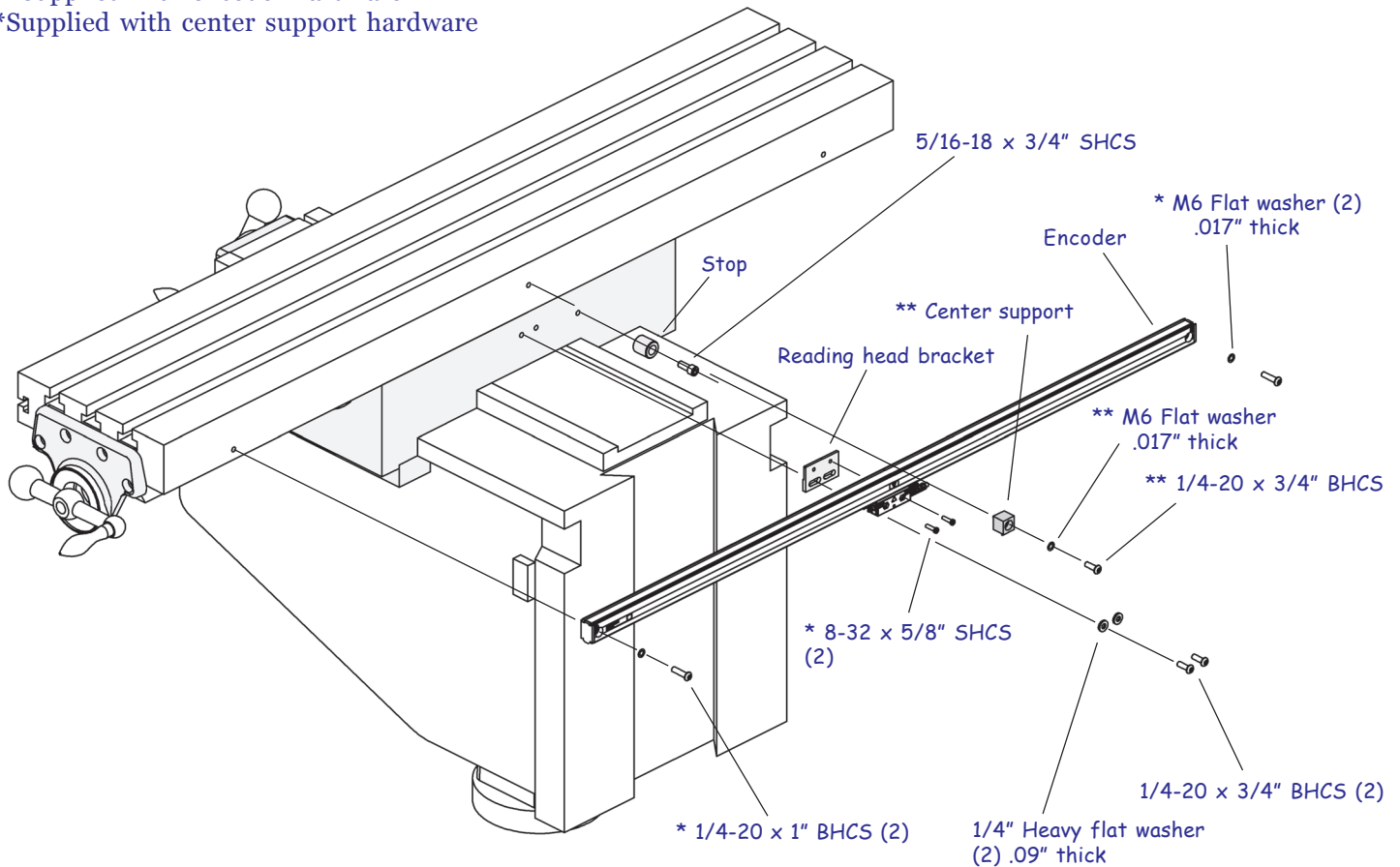


### Longitudinal Installation ...

- \* Supplied with encoder hardware
- \*\*Supplied with center support hardware



### Mounting Information...

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

#### Before proceeding:

- Please read the instructions completely.
- Mount X axis prior to installing the cross feed.
- Insure that the correct length encoder is being used for the total axis travel.
- 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 ...

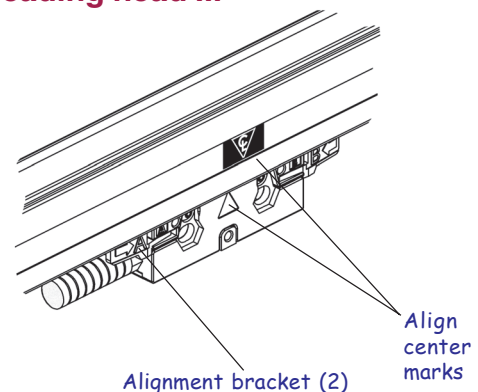
#### Machine

- ✓ Move the table to its center of travel.
- ✓ Mark the axis so that it can be re-centered easily.
- ✓ Move the saddle completely forward on the knee.

#### Encoder

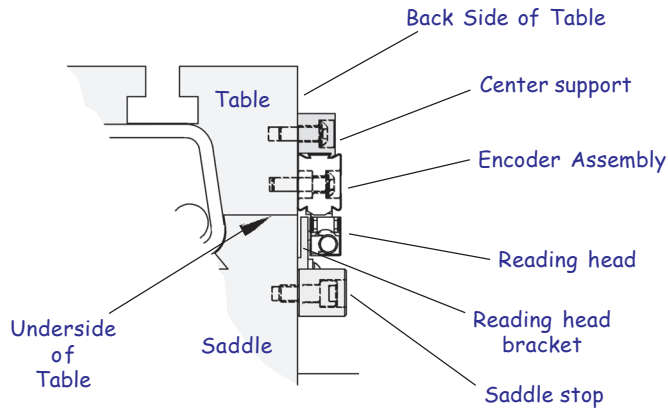
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

### Center reading head ...



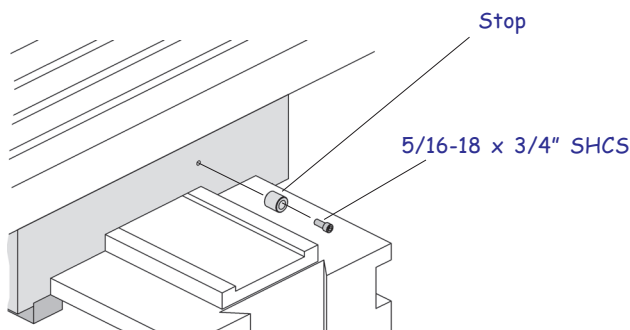
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

### Encoder orientation ...



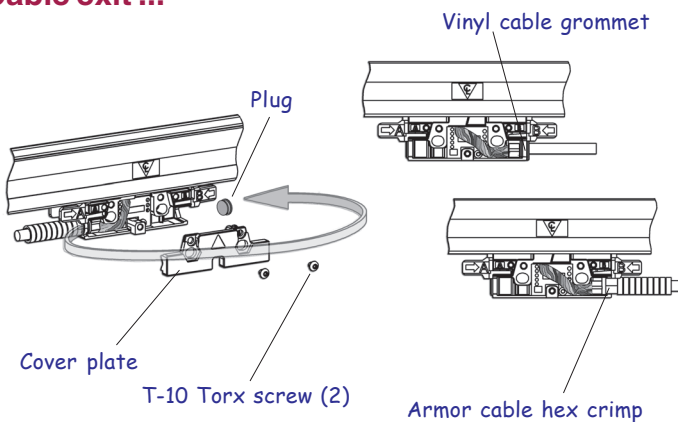
- These instructions will guide you through installing the encoder as shown in this view.

### Saddle stop ...



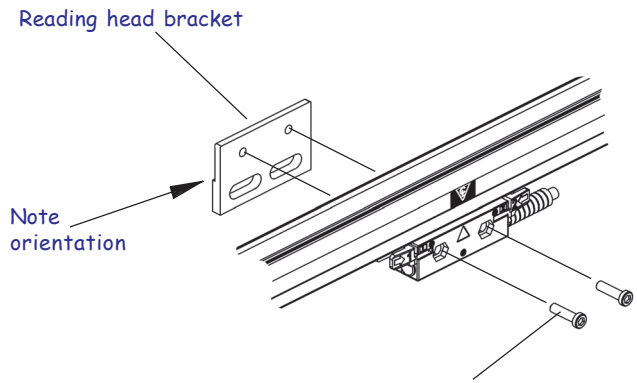
- Locate the stop approximately 1/2" down from the top edge of the saddle, in line with the column way.
- Drill and tap location for 5/16-18 x 1/2" deep.

### Cable exit ...



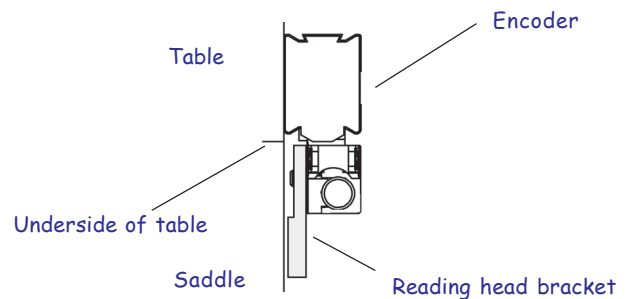
- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction; remove the cover plate and rotate the cable 180°.

### Encoder Installation ...



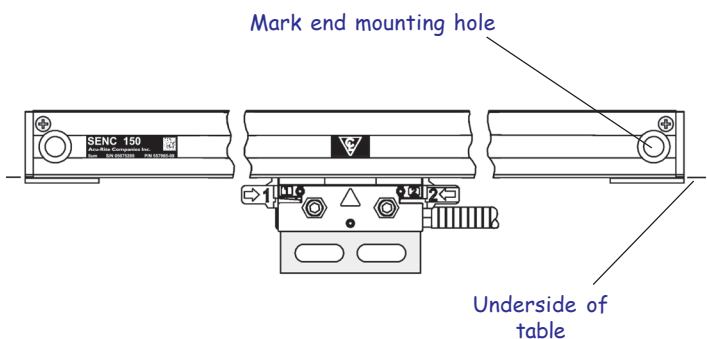
8-32 x 5/8" SHCS (2)

- Temporarily attach the bracket to the reading head.

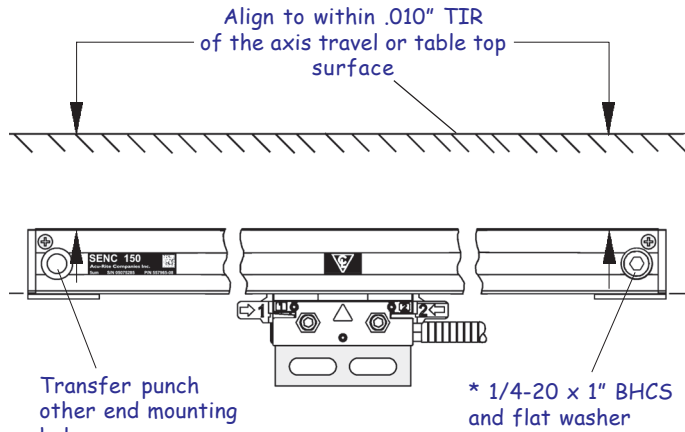


- With the table at its center of travel, set the encoder against the table and the reading head bracket against the saddle.

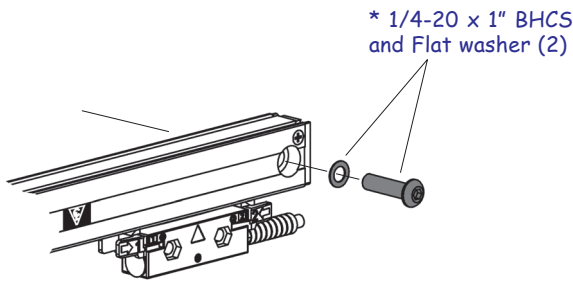
**Note:** Raise the assembly above the way cover plate if the bracket interferes with it. The step in the bracket can not be above the underside of the table



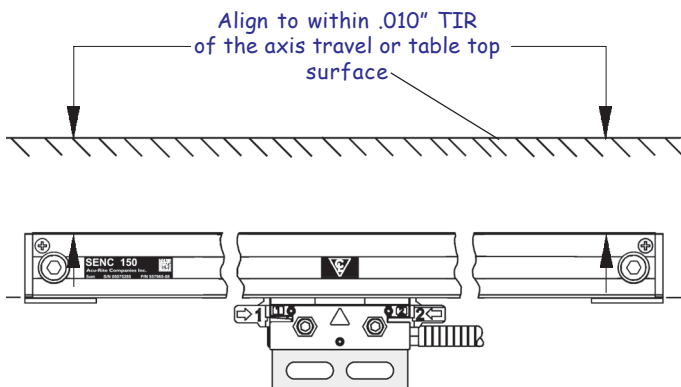
- Center the encoder on the back side of the table. Position the underside of the end caps flush with the underside of the table (see note above) or parallel with the table top.
- Mark one end mounting hole location to the back side of the table and remove the assembly.
- Drill and tap hole location for a 1/4-20 x 1/2" deep.



- Fasten the encoder assembly at one end.
- Align the top of the encoder to the axis travel or table top surface.
- Transfer punch the second end mounting hole, and remove the encoder.
- Drill and tap hole location for a 1/4-20 x 1/2" deep.

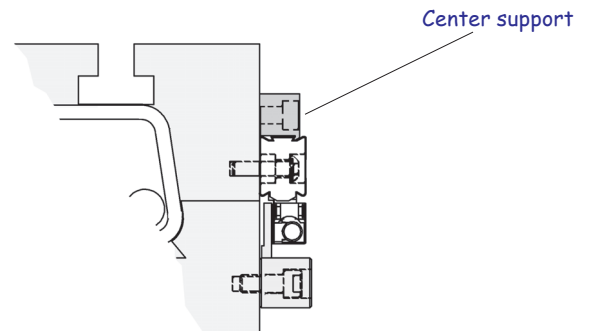


- Attach the encoder to the table.

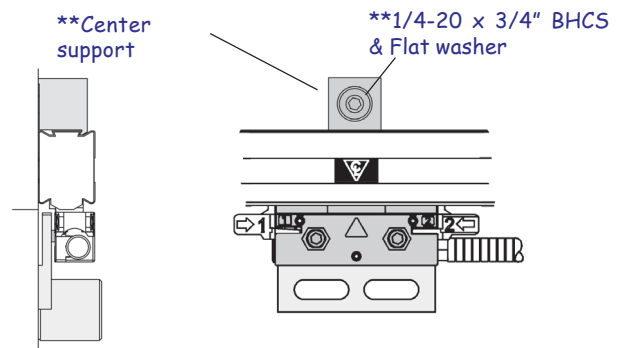


- Align the top of the encoder to within .010" TIR.
- Secure the encoder in place maintaining alignment.

### Center support installation ...

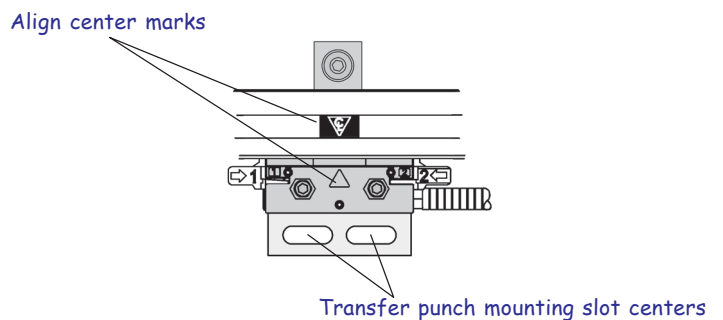


- Insert the center support to the top of the scale case above the center location tag.
- Ensure that the center support interlocks with the scale case.

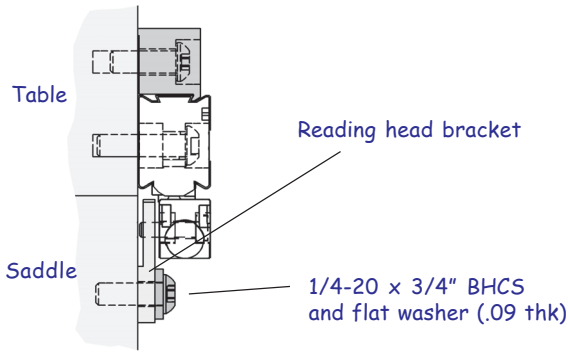


- Align the center of the scale case to within .010" to the ends, and transfer punch the support hole location.
- Remove the center support, drill and tap the hole location for an 8-32 x 1/2" deep.
- Attach the center support to the scale case and table. Align the center of the scale case with each end to within .010" and secure in place.

### Reading head installation ...

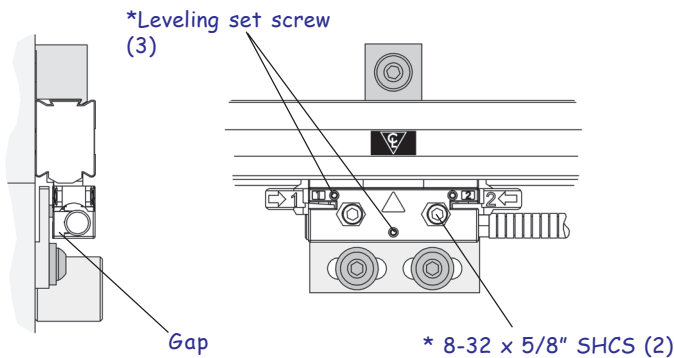


- Return the table to its center of travel.
- Transfer punch bracket mounting slot centers to the saddle.
- Remove the bracket from the reading head.
- Drill / tap hole locations for 1/4-20 x 1/2" deep.



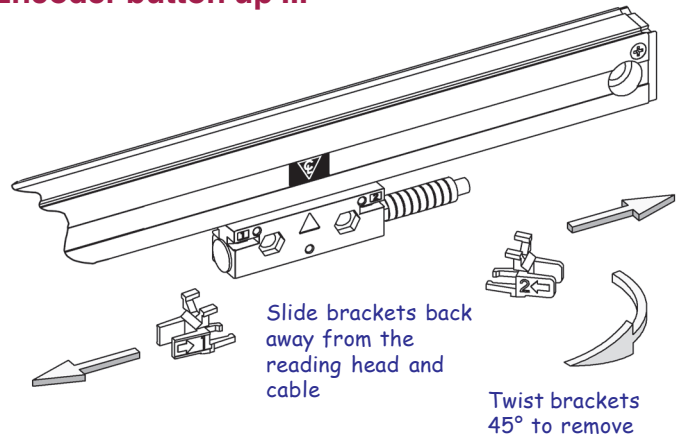
- Attach the reading head bracket to the saddle, and align the bracket tapped holes to the reading head mounting holes.
- Secure the bracket in place.

### Leveling screw adjustment ...



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

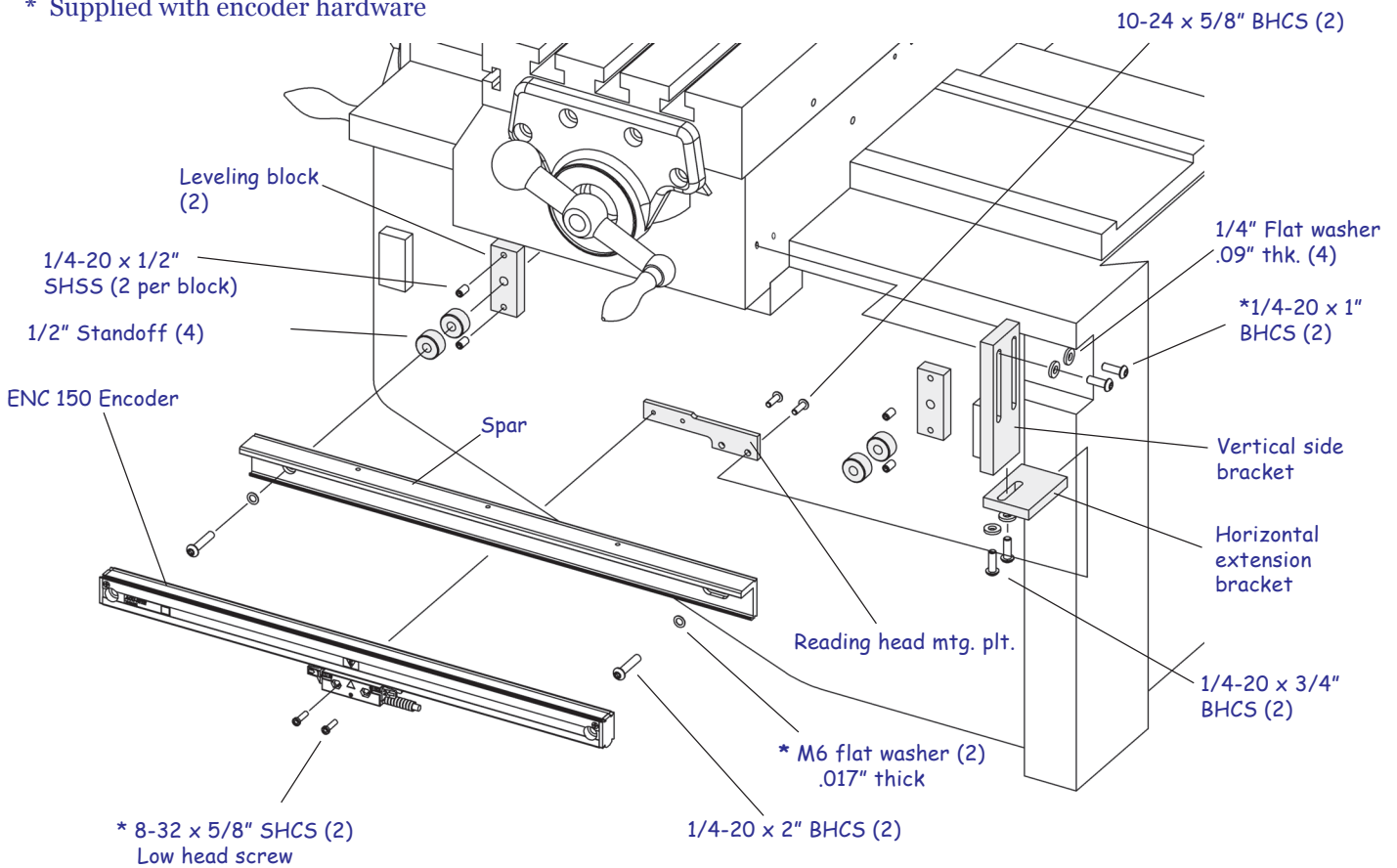


- Use allen wrench from set screw adjustment to slide alignment brackets away from the reading head.
- Remove alignment brackets and save.
- Move the axis through its full travel. Confirm that the assembly does not interfere with the machine movement.

**Proceed with the Cross Feed installation**

### Cross Feed Installation ...

\* Supplied with encoder hardware



### Mounting Information...

These instructions are for mounting the SENC 150 encoder to the cross feed on a vertical knee mill.

#### Before proceeding:

- Please read the Procedure completely.
- Mount X axis prior to installing the cross feed.
- Clean the mounting surfaces.
- Save the alignment brackets with the Encoder Reference Manual after installation is completed.

### First Steps ...

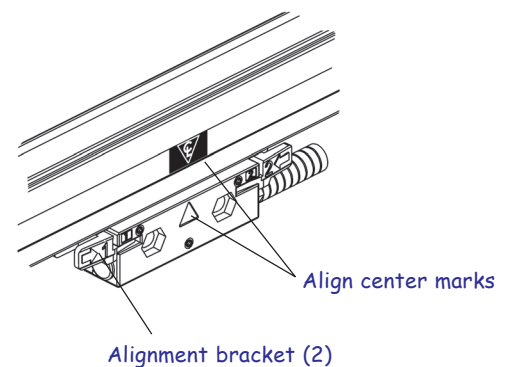
#### Machine

- ✓ Move the table to it's far left travel.
- ✓ Move the saddle to it's center of travel, include the longitudinal scale thickness.
- ✓ Mark the axis so that it can be re-centered easily.

#### Encoder

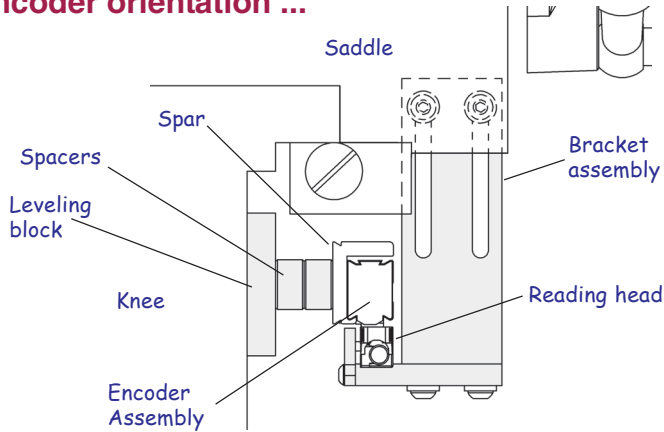
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

### Center reading head ...



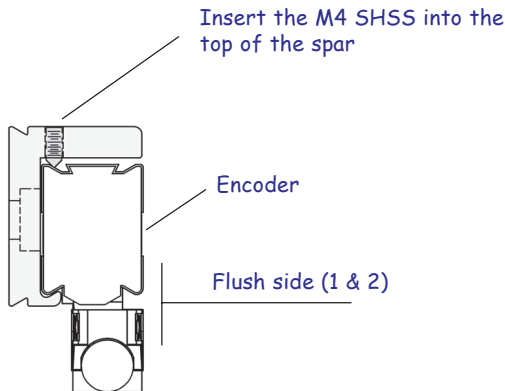
- Mark the center location on the scale case. Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

### Encoder orientation ...



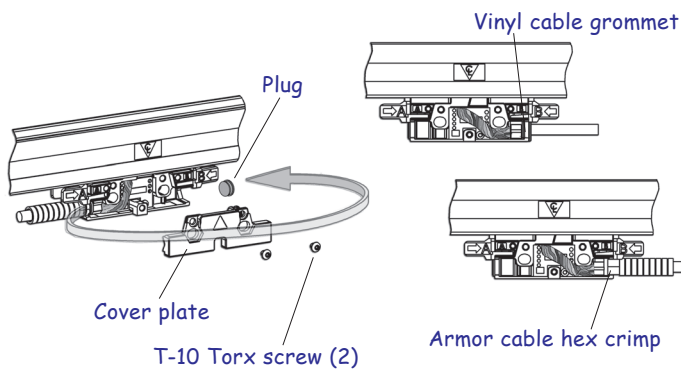
- These instructions will guide you through installing the encoder as shown in this view.

### Encoder/Spar assembly ...



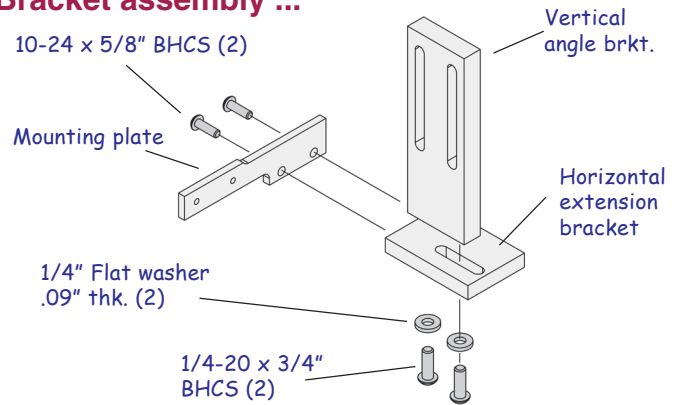
- Insert the encoder into the spar as shown, and center from end to end. Tighten the center set screw only.

### Cable exit ...

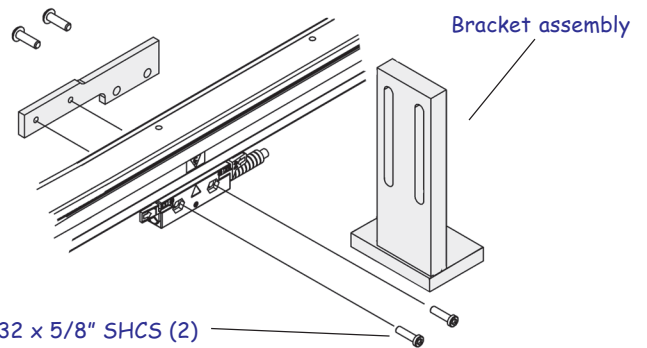


- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction, remove the cover plate and rotate the cable 180°.

### Bracket assembly ...

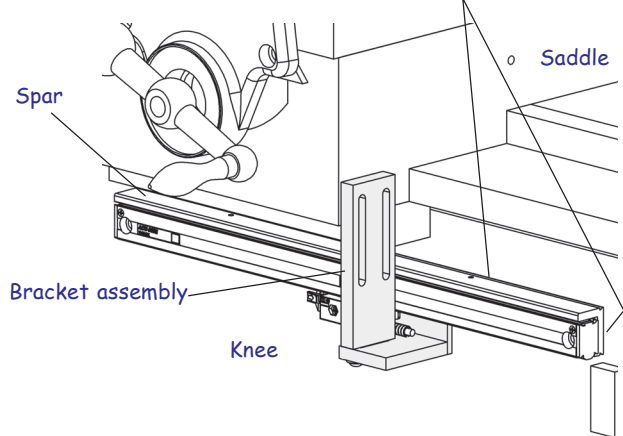


- Assemble the brackets, fully extending the horizontal extension plate.



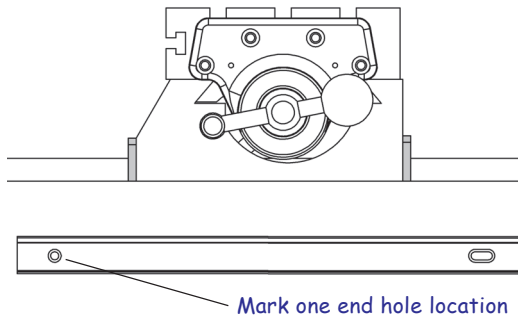
- Temporarily attach the bracket assembly to the reading head.

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

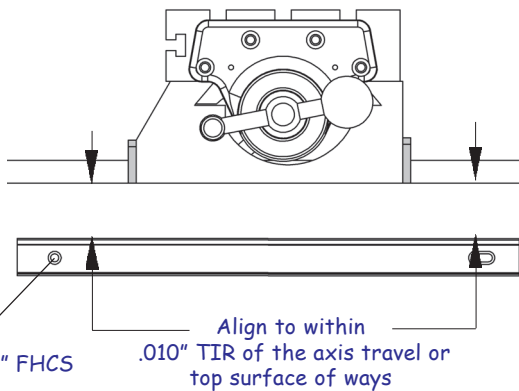


- With the saddle at its center of travel, position the spar on the knee, and the bracket assembly to the saddle.
- Locate the assembly so that a suitable mounting position is provided for both the encoder w/spar to the knee, and the bracket assembly to the saddle.
- With the spar parallel to the top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

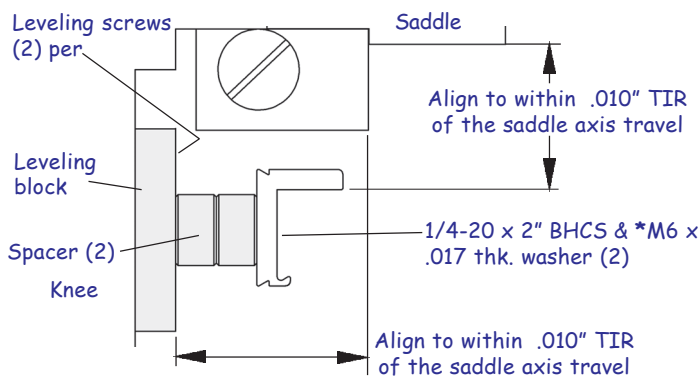
### Spar installation ...



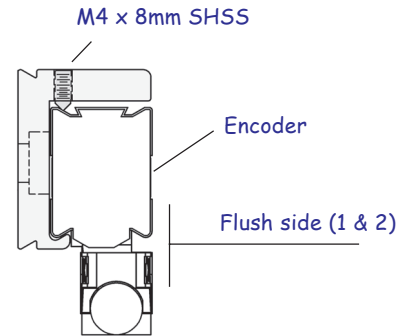
- Remove the bracket assembly from the reading head, and the encoder from the spar.
- Position the spar to the scribed lines and mark one end mounting hole location to the knee.
- Drill and tap location for a 1/4-20 x 1/2" deep.



- Temporarily fasten the spar to the knee at one end with a 1/4-20 x 5/8" FHCS provided.
- Align the top of the spar to the saddle travel.
- Transfer punch the second mounting hole.
- Remove the spar, drill and tap location for a 1/4-20 x 1/2" deep.

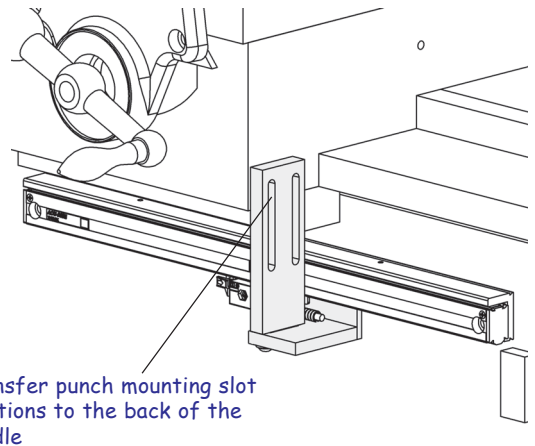


- Attach the spar with the leveling blocks and spacers to the knee.
- Align the front surface of the spar using the leveling screws to aid with front surface alignment.
- Align the top surface of the spar and secure in place.

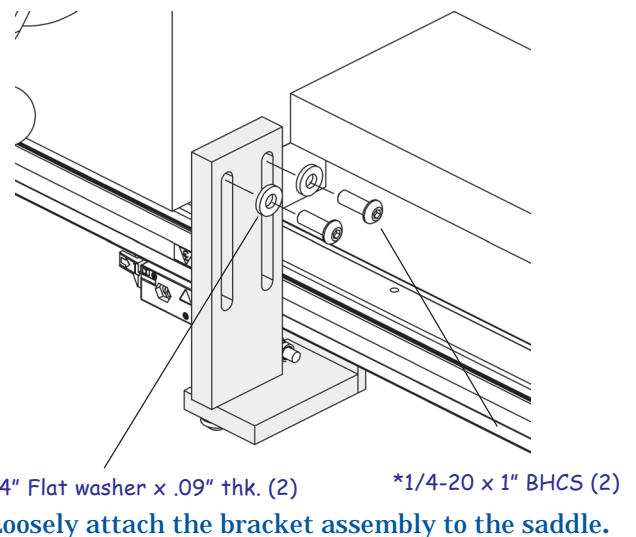


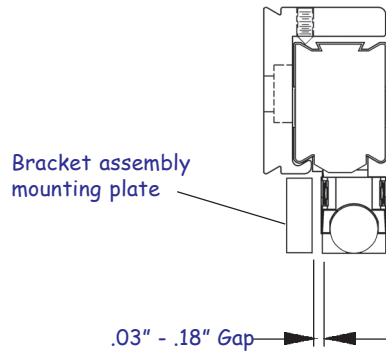
- Insert and center the encoder in the spar from end to end as done previously.
- Tighten set screws to secure in place.

### Reading head installation ...

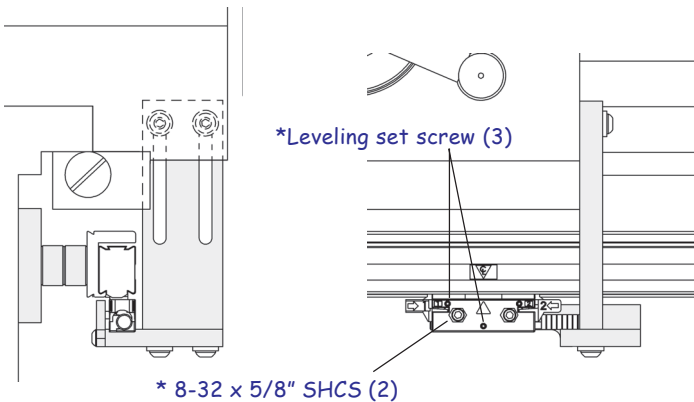


- With the axis at the center of travel, attach the bracket assembly to the reading head.
- Position the assembly to the saddle, and transfer punch the two mounting slot locations.
- Remove the assembly from the reading head, drill and tap the locations for 1/4-20 x 1/2" deep.



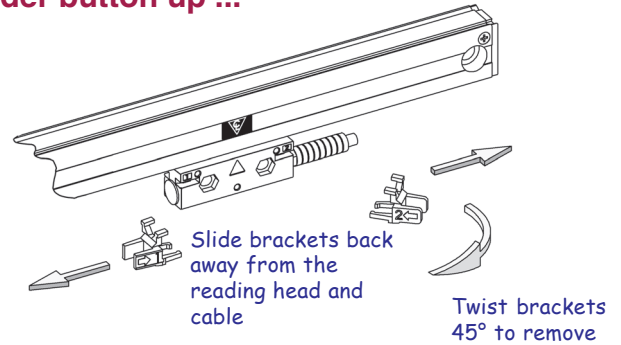


- Adjust the mounting plate clearance so that a gap of .03" - .18" exist.
- Align the reading head mounting holes with the mounting plate tapped holes.
- Secure the bracket assembly in place.

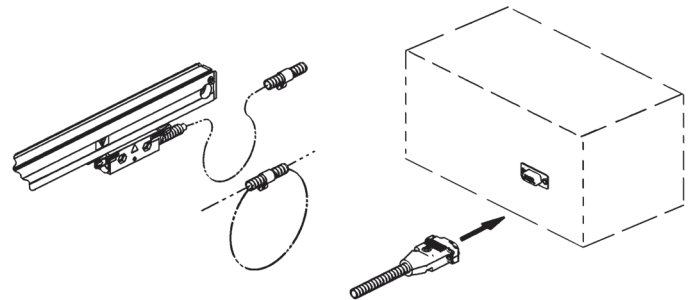


- Insert the two \*8-32 x 5/8" SHCS. Insure the bracket assembly is adjusted to provide proper screw head clearance. **Do Not Tighten Screws** at this time.
- Set each leveling set screw by placing a .001" - .003" feeler gage between the set screw and the bracket.
- Adjust each set screw until a slight 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 for possible future use.
- Move the axis through its full travel. Confirm that the assembly does not interfere with the machine movement.



- With the longitudinal axis installation 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".