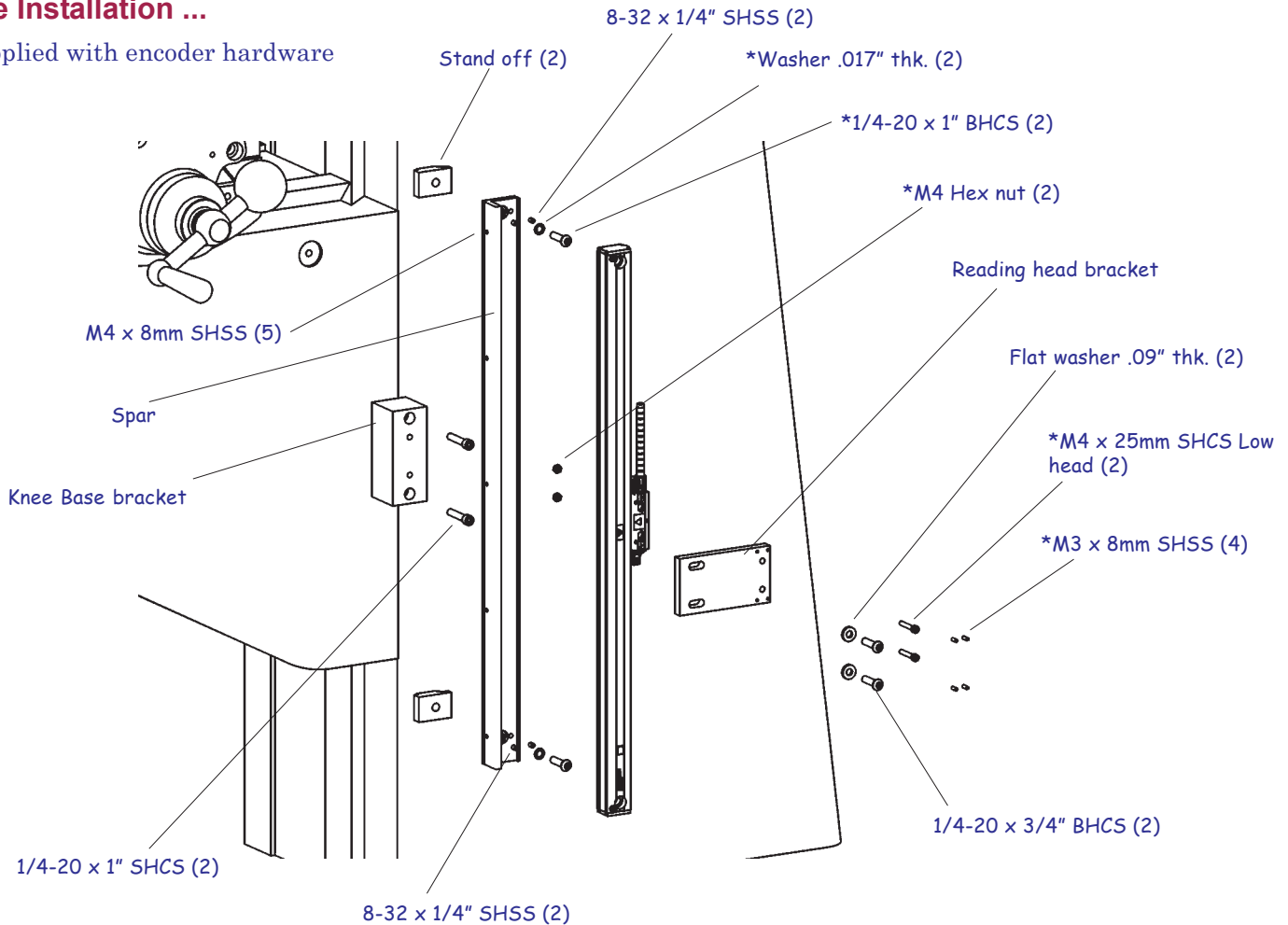


## Knee Installation ...

\* Supplied with encoder hardware



## Mounting Information...

These are application instructions for mounting the knee "Z" axis SENC 150 encoder.

### Before proceeding:

- Please read the instructions completely.
- The 16" encoder is used for this application and a special spar is provided for the encoder.
- 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 ...

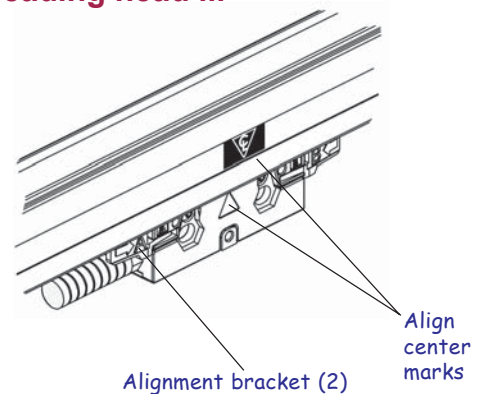
### Machine

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

## Encoder

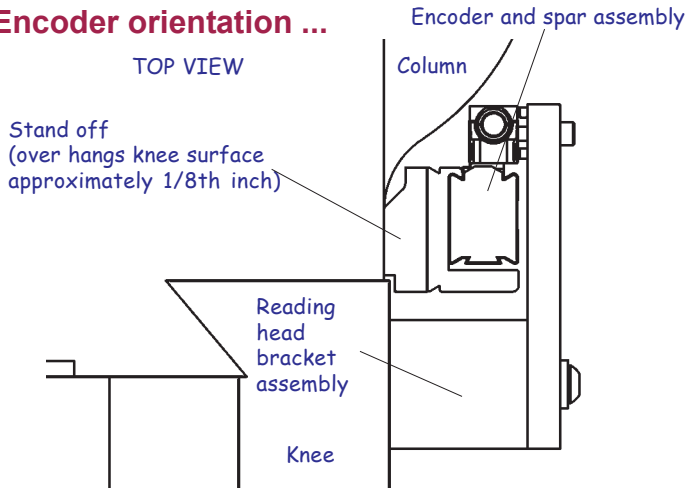
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

## Center reading head ...



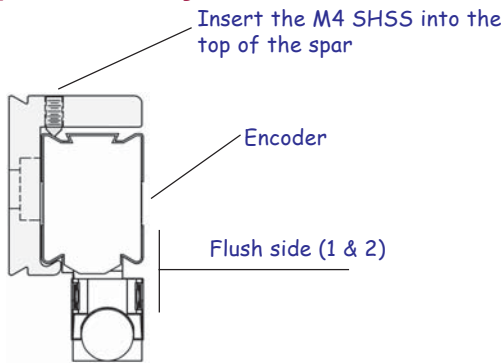
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

### Encoder orientation ...



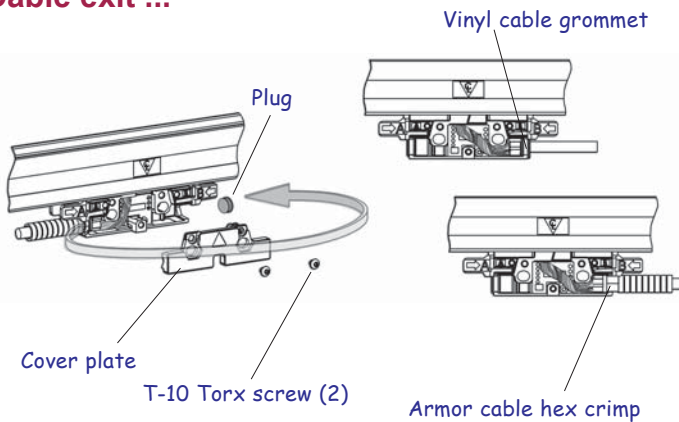
- These instructions will guide you through installing the encoder as shown in this view.

### Encoder/Spar assembly ...



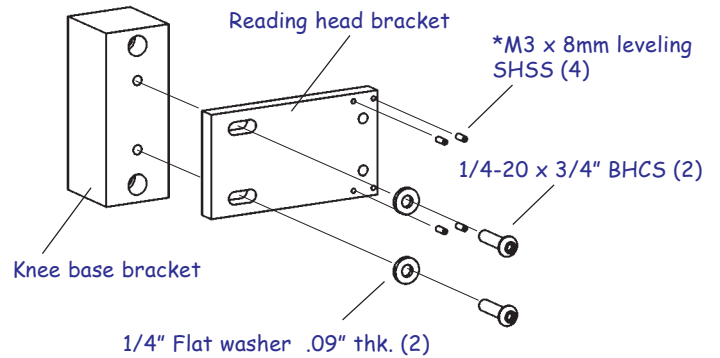
- Insert the encoder into the spar as shown, and center from end to end. Tighten the center set screw only.

### Cable exit ...

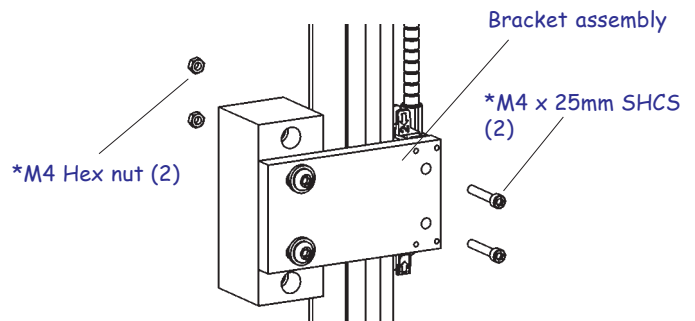


- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction, remove the cover plate and rotate the cable 180°.

### Bracket Assembly ...

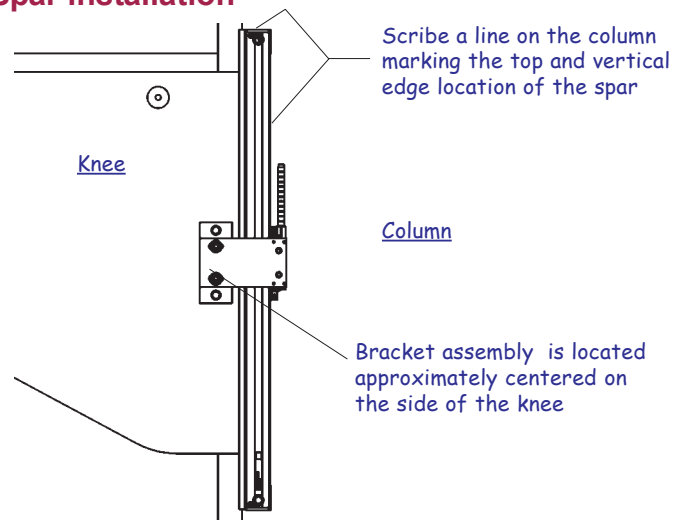


- Assemble the brackets loosely for future adjustment. Insert the leveling screws flush with the bracket surface.

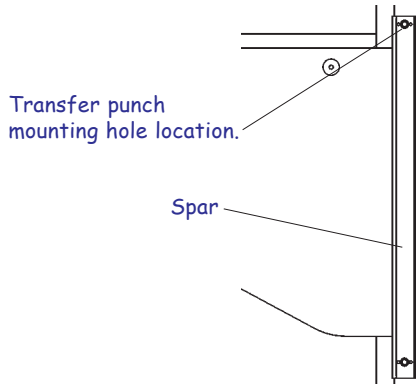


- Attach the reading head bracket assembly to the reading head.

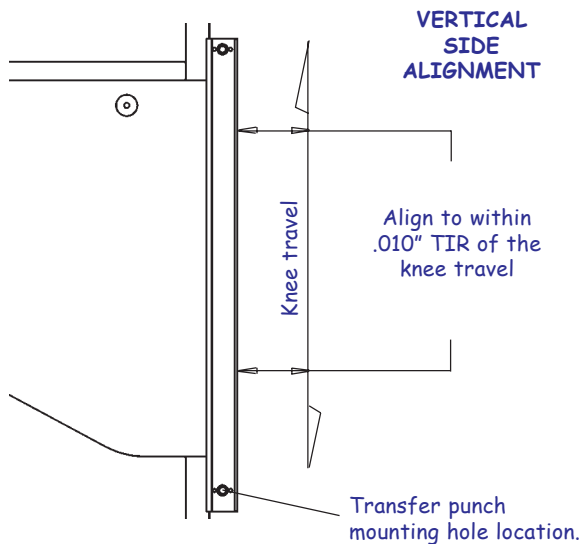
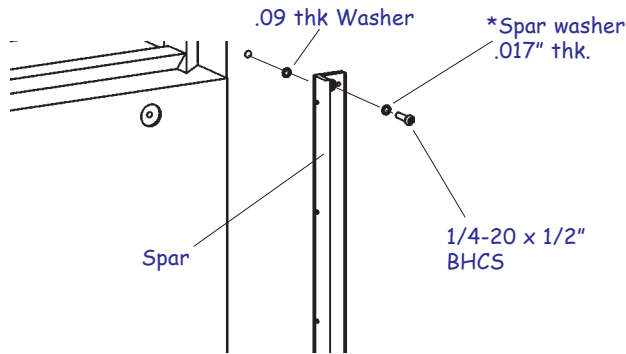
### Spar installation



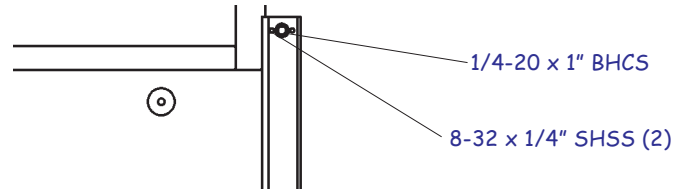
- With the knee at its center of travel, set the assembly to the side of the column.
- Position the bracket assembly on the knee. Use the stand off to position the spar. Ensure that the stand off remains on the flat surface of the column (see Encoder Orientation figure).
- Scribe lines on the column marking the top and one vertical edge of the spar.



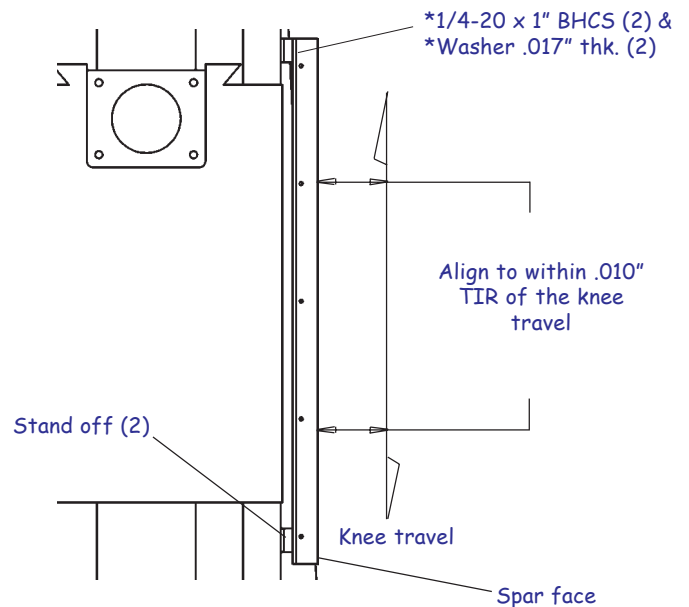
- Remove the bracket assembly from the reading head, and the encoder from the spar.
- Position the spar to the scribed lines and mark one end mounting hole location to the knee.
- Drill and tap location for a 1/4-20 x 1/2" deep.



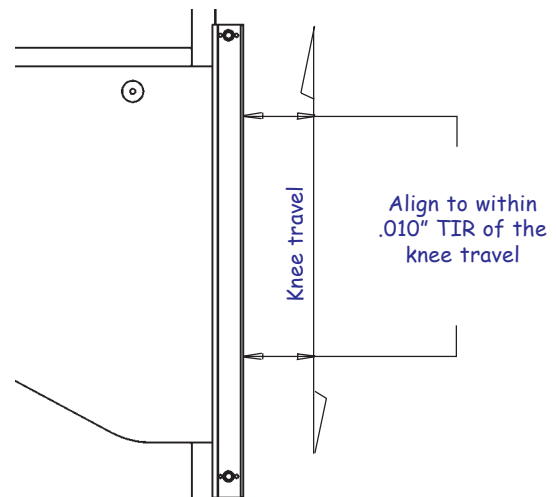
- Temporarily fasten the spar to the knee at one end.
- Align the spar to the knee travel.
- Transfer punch the second mounting hole.
- Remove the spar, drill and tap location for a 1/4-20 x 1/2" deep.



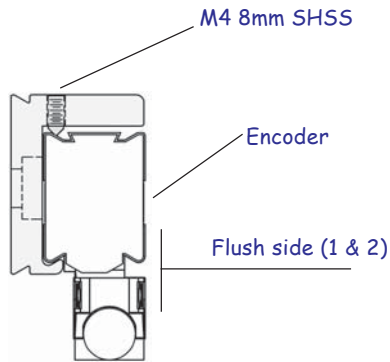
- Insert the 8-32 leveling set screws into each end of the spar.
- Attach the spar to the column with the stand offs, but do not tighten.



- Align the spar face to the knee travel.
- Use the 8-32 SHSS leveling screws to aid with this alignment.

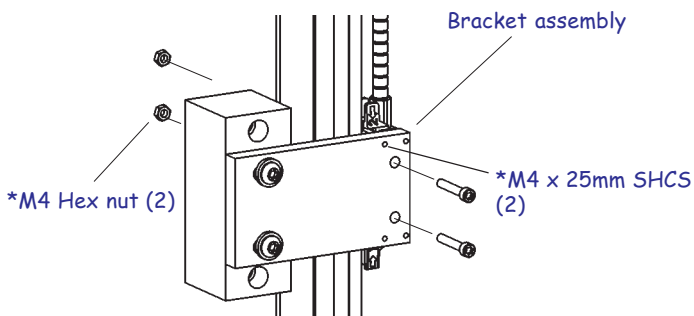


- Align the lower edge of the spar to the knee travel and secure the spar in place maintaining both alignments.

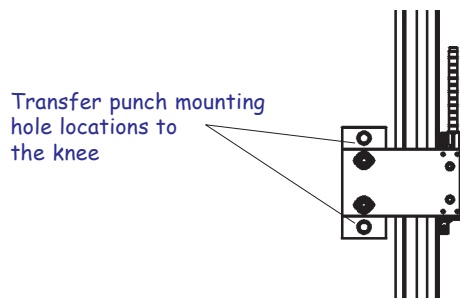


- Insert and center the encoder into the spar from end to end as done previously.
- Tighten set screws to secure in place.

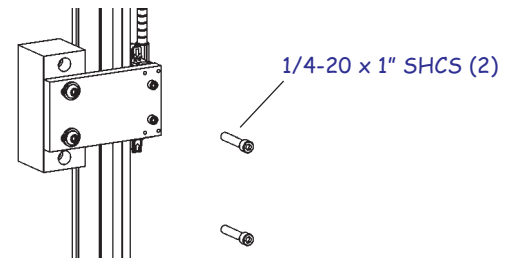
### Bracket installation ...



- Return the knee to its center of travel.
- With the reading head at the center of the scale case, attach the reading head bracket assembly to the reading head.

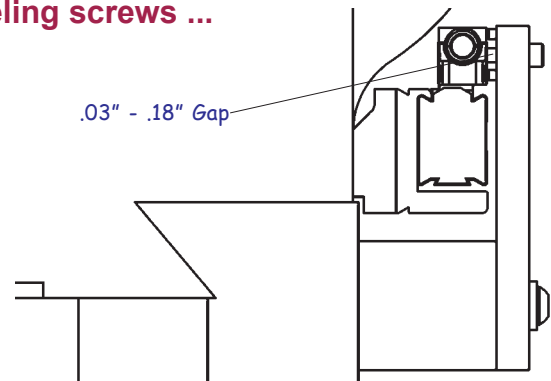


- Adjust the bracket assembly to the side of the knee.
- Transfer punch the mounting hole locations to the knee. Remove the bracket from the reading head.
- Drill and tap bracket mounting hole locations for 1/4-20 x 1/2" deep.

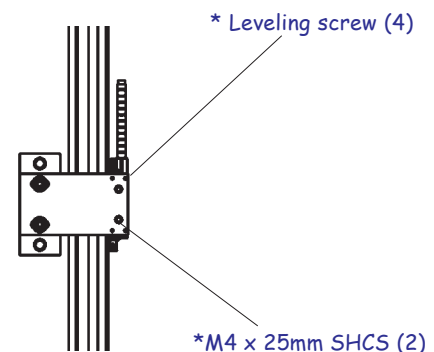


- Attach the bracket assembly to the knee and align the bracket and reading head mounting holes. Secure the bracket in place.

### Leveling screws ...

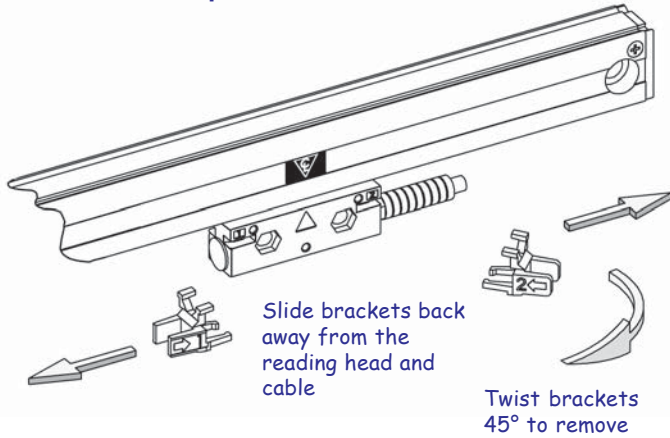


- A gap of .03-.18" will exist between the reading head and the bracket assembly. If the gap is greater, mill the base bracket down to meet the .03-.18" requirement.
- Align the reading head mounting holes with the bracket mounting holes, and secure the assembly in place.
- Attach the reading head with the M4 x 25mm SHCS and M4 hex nut, **but do not tighten**.

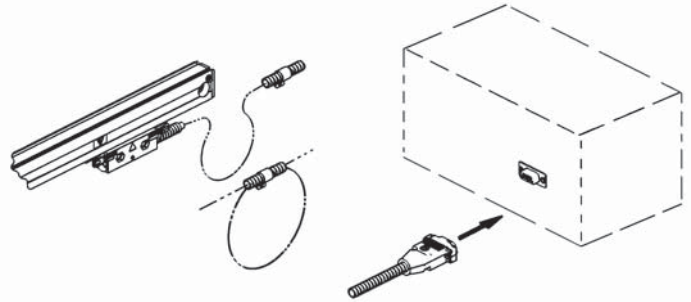


- Set each leveling set screw by placing a .001"-.003" feeler gage between the set screw and the bracket.
- Adjust each set screw until a slight drag is felt on the feeler gage.
- **Evenly tighten** the two M4 x 25mm SHCS.

### 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.



- 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”.