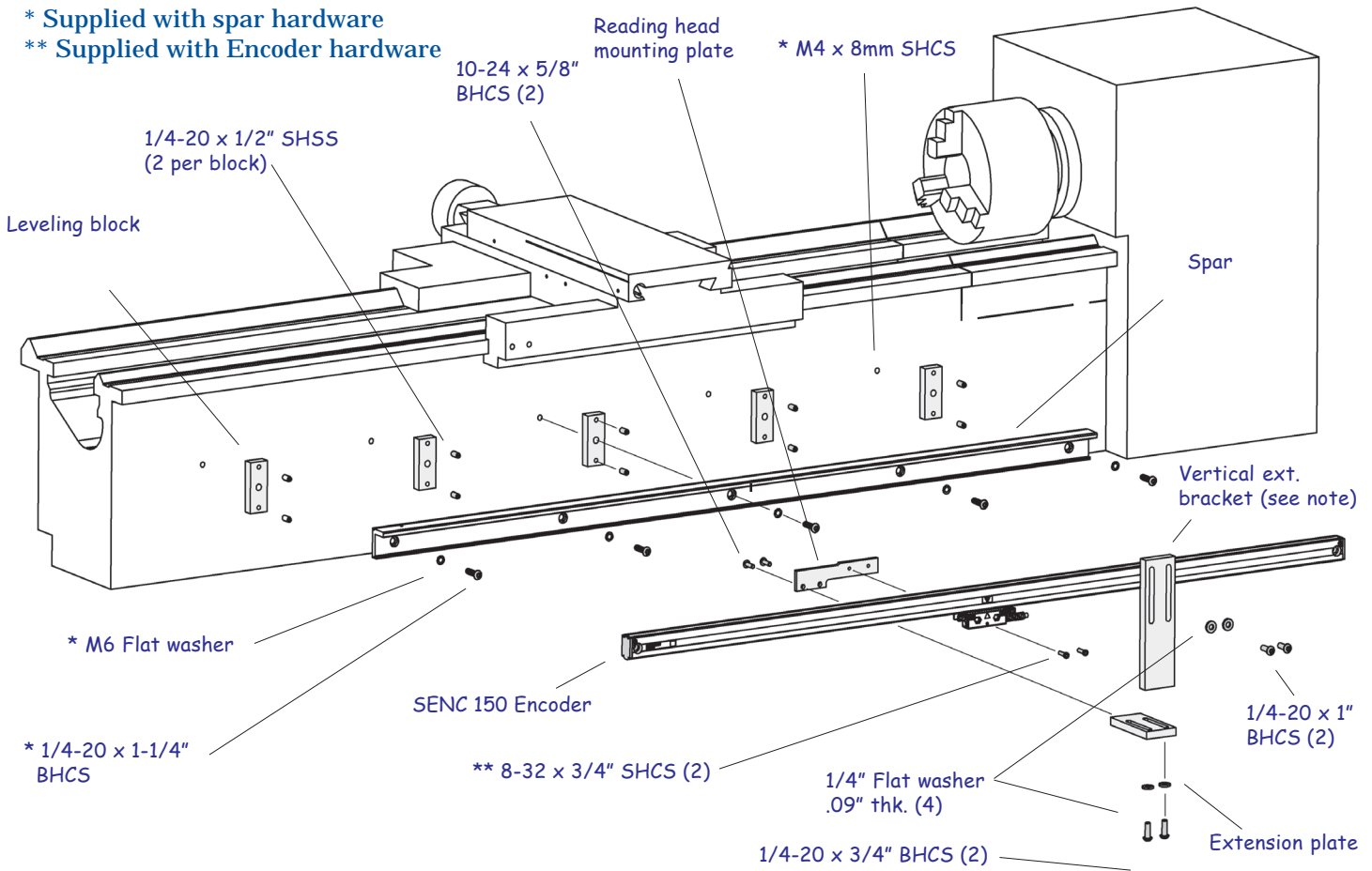


## Longitudinal Installation ...

- \* Supplied with spar hardware
- \*\* 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.

### 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 ...

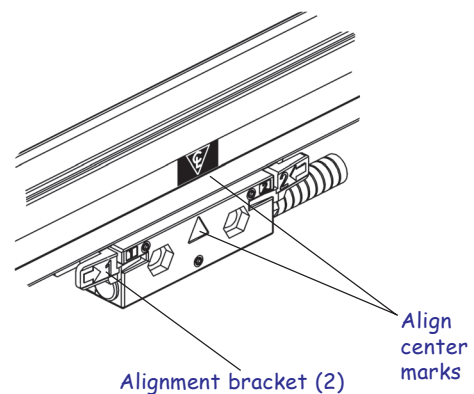
### Machine

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

### Encoder

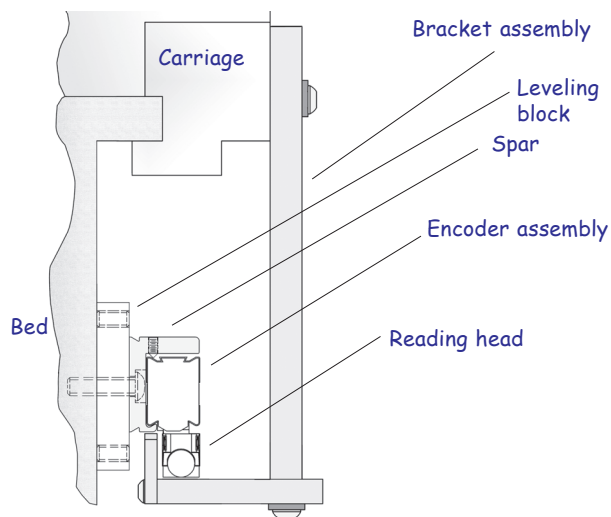
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

### Center reading head ...



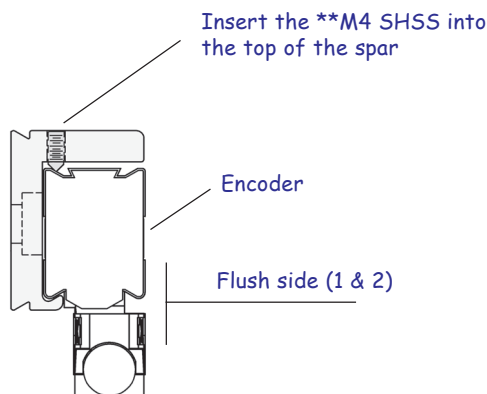
- Slide the reading head and brackets along the scale case until the center marks on the scale case and reading head are aligned.

## Encoder orientation ...



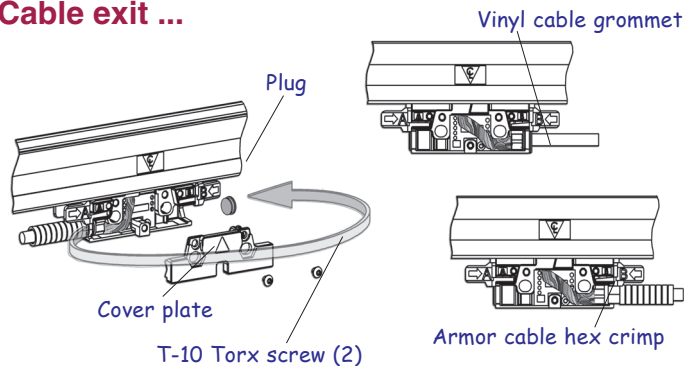
- These instructions will guide you through installing the encoder as shown in this view.

## Encoder/Spar assembly ...



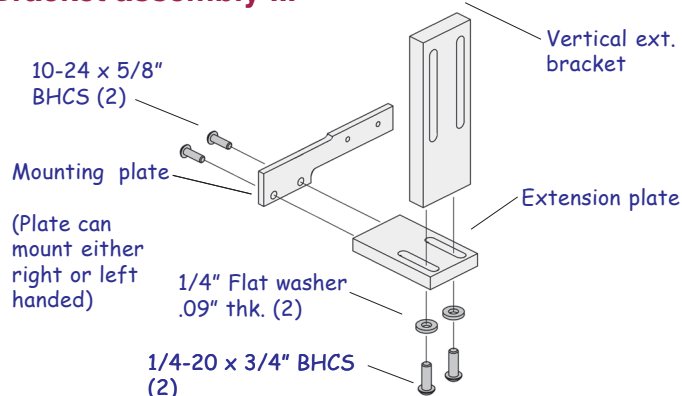
- Insert the encoder into the spar as shown, and center from end to end. Tighten the center set screw only.

## Cable exit ...



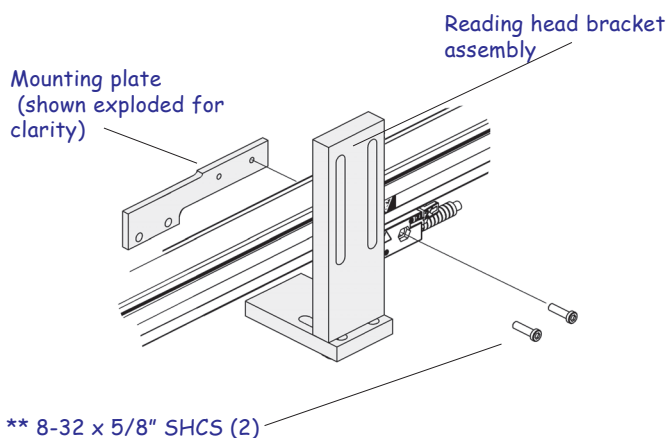
- Determine the cable exit direction before installing the encoder.
- To change the cable exit direction, remove the cover plate and rotate the cable 180°.

## Bracket assembly ...



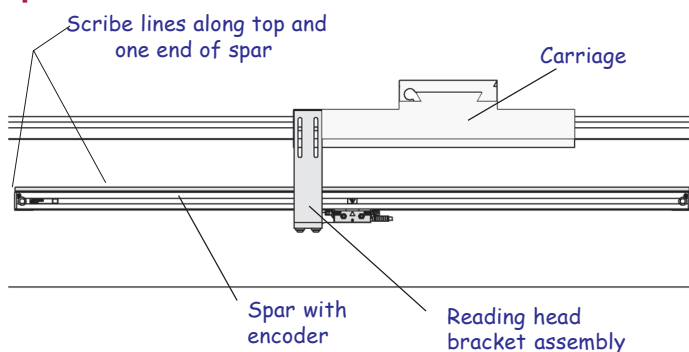
- Assemble the brackets, fully extending the extension plate.

## Bracket attachment ...



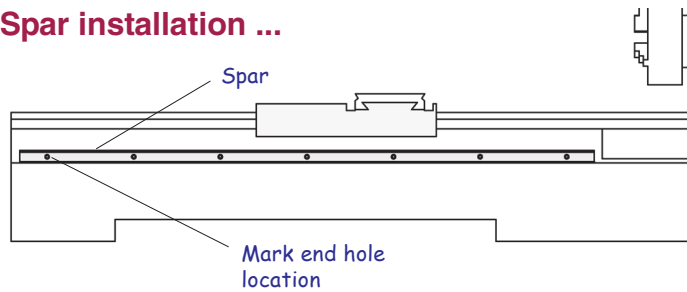
- Temporarily attach the bracket assembly to the reading head for locating purposes.

## Spar / encoder installation ...

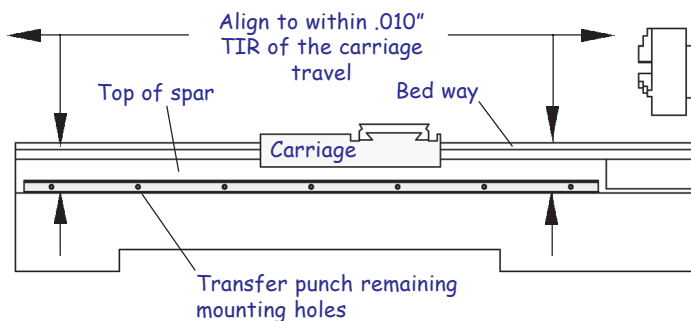


- With the carriage at its center of travel, position the spar to the side of the bed, and the bracket assembly to the carriage.
- Locate the assembly so that a suitable mounting position is provided for both the encoder to the bed, and the bracket assembly to the carriage.
- With the spar parallel to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

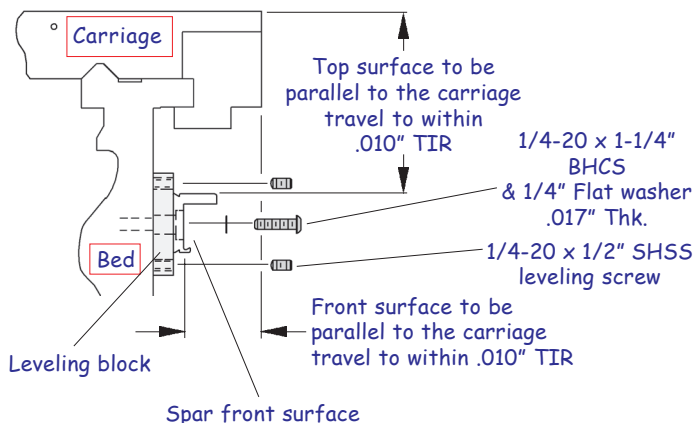
## Spar installation ...



- 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.

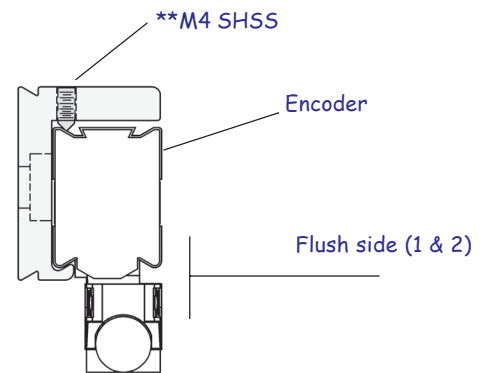


- Fasten the spar to the bed at one end.
- Align the top of the spar to the carriage travel to within .010" TIR.
- Transfer punch the remaining mounting hole(s).
- Remove spar, drill and tap locations for a 1/4-20 x 1/2" deep.



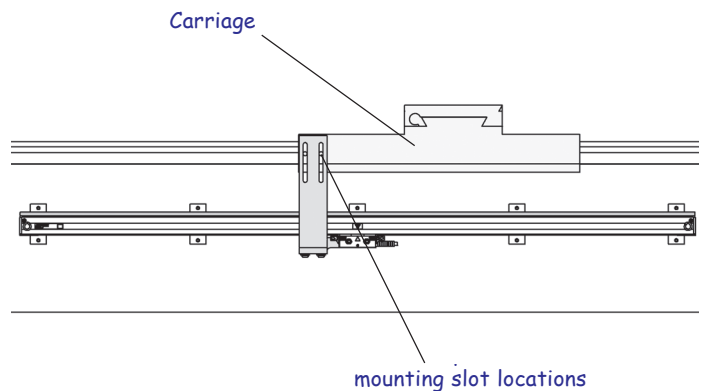
- Attach the spar with the leveling blocks (if used) to the bed. Insert leveling screws in blocks.
- Align the front surface of the spar to within .010" TIR of the carriage travel.
- Align the top surface to within .010" TIR of the carriage travel. Secure in place maintaining alignments.

## Encoder installation ...

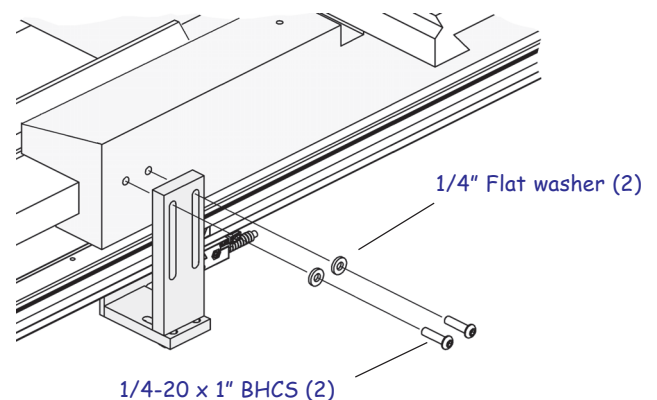


- Insert the encoder into the spar as done previously.
- Tighten the spar set screws starting from the center, working out towards the ends.

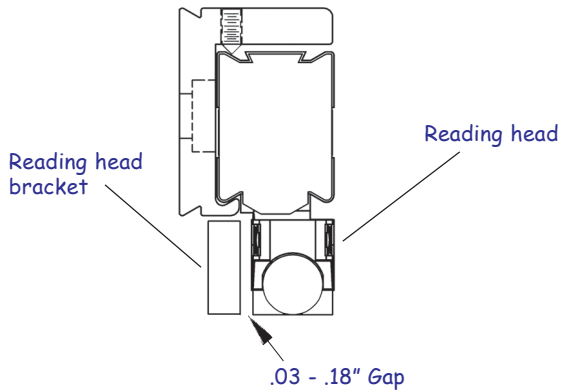
## Reading head and bracket installation ...



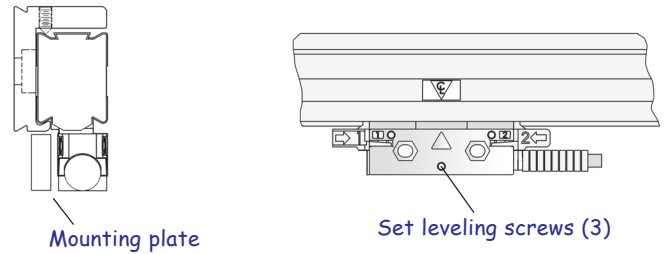
- Move the carriage to its center of travel. Attach the bracket assembly to the reading head.
- Position the assembly to the carriage, and transfer punch the two mounting slot locations.
- Remove the assembly, drill and tap the locations for 1/4-20 x 1/2" deep.



- Attach the bracket assembly to the carriage.

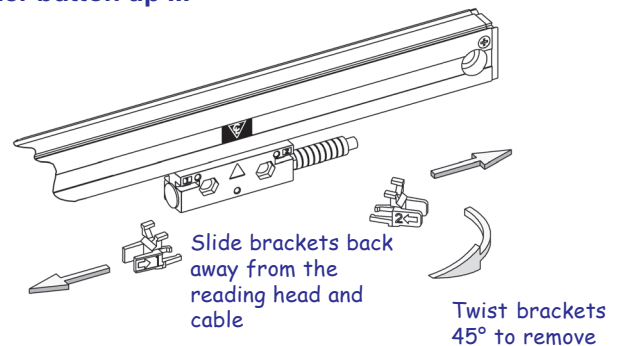


- Adjust the extension plate so that a .03" - .18" gap is between the reading head and bracket.
- Align the bracket and head mounting holes.
- Secure bracket assembly in place.



- 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 ...

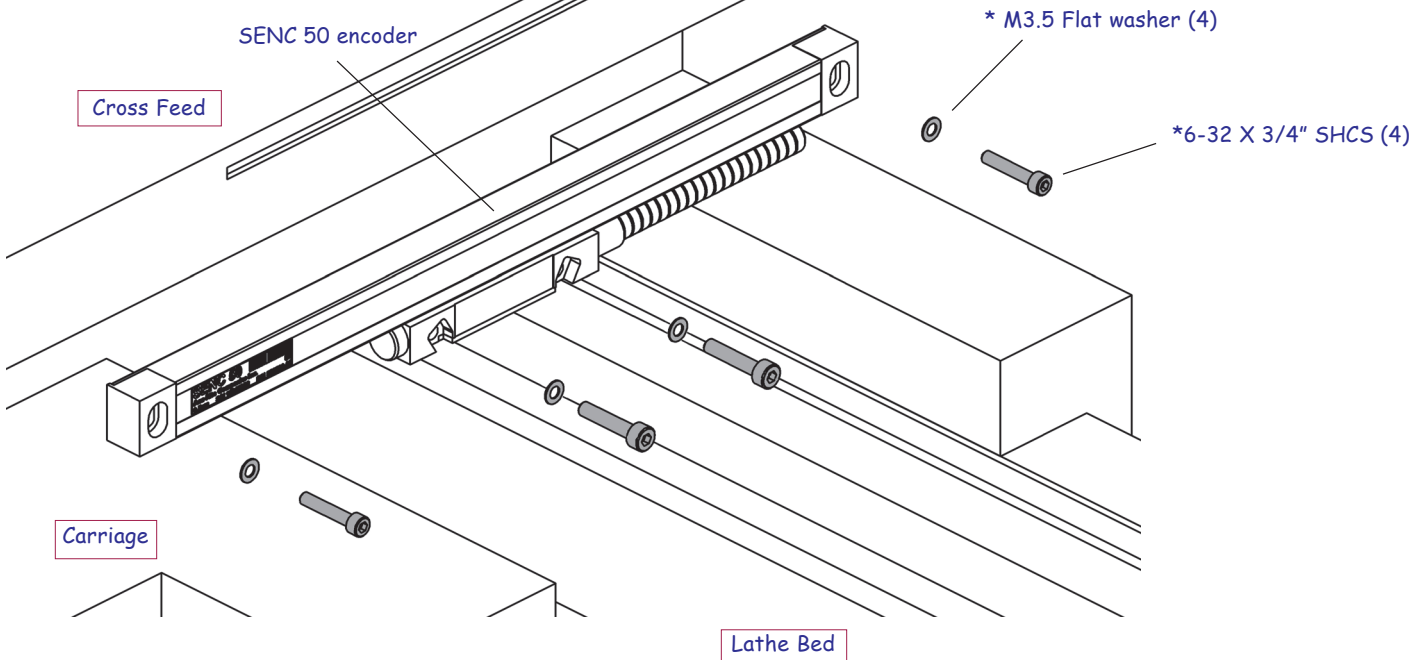


- Use allen wrench from set screw adjustment to slide alignment brackets away from the reading head.
- Remove the alignment brackets and save with the Encoder Reference Manual.
- Move the axis through its full travel. Confirm that the assembly does not interfere with the machine movement.

**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 ...

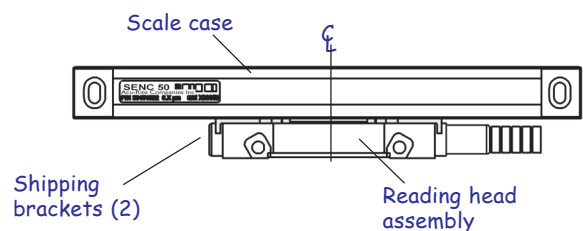
### Machine

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

### Encoder

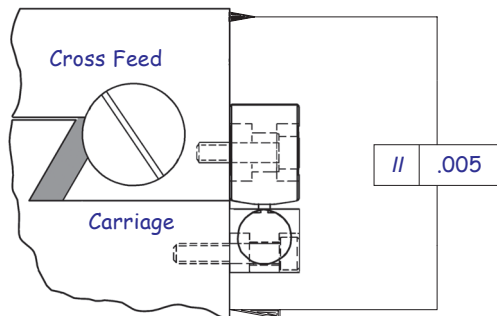
- ✓ Unpack encoder in a safe, convenient location.
- ✓ Do not remove the reading head alignment brackets until instructed.

## Center reading head ...



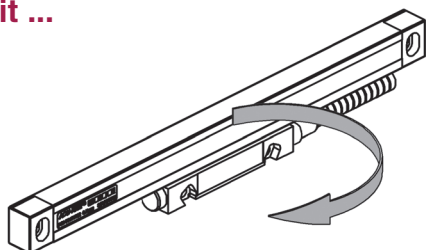
- Center the reading head on the scale case by sliding the reading head and brackets along the scale case to the center of the scale case.

## Encoder orientation ...



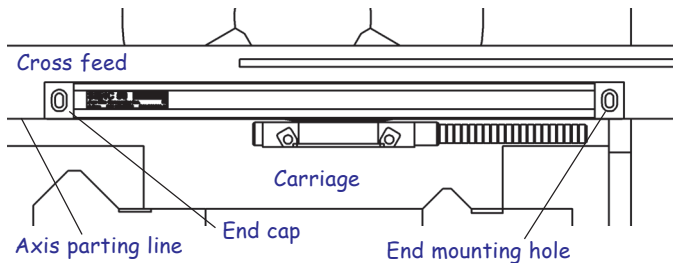
- Installation without a backup spar or reading head bracket requires mounting surfaces to be parallel to within .005"
- Installation mounting surfaces that are not parallel to within .005" will require shimming of the reading head or scale.
- Refer to the encoder reference manual for additional mounting information.

## Cable exit ...

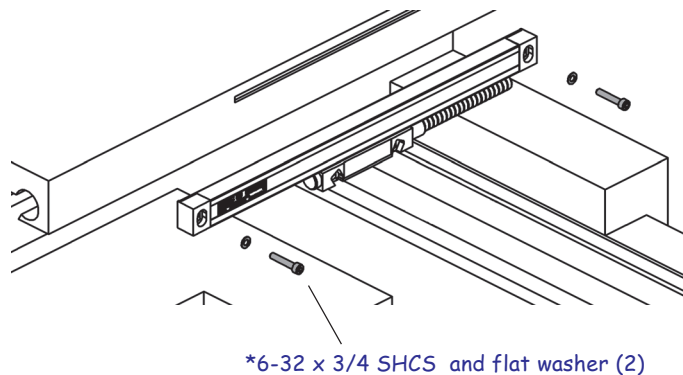


- The encoder is symmetric. Determine the best direction for the reading head cable to exit (to the rear of the lathe is typical).

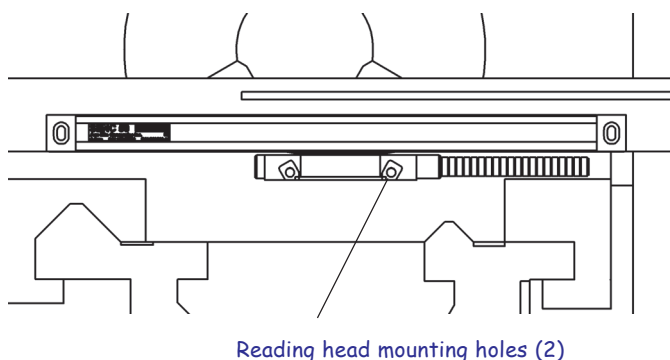
## Encoder Installation...



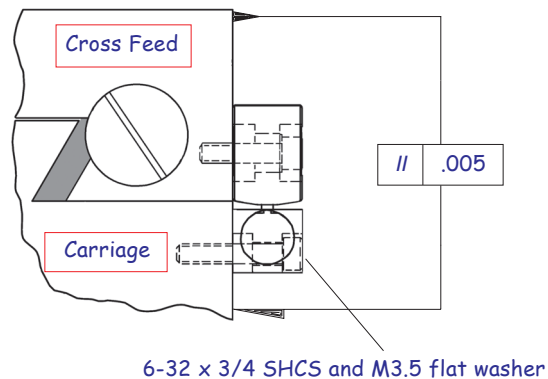
- Set the encoder against the cross feed and locate the underside of the end caps flush with the axis parting line.
- Mark one encoder end mounting hole location to the cross feed.
- Remove the encoder.
- Drill and tap location for a 6-32 x 1/2" deep.



- Attach the encoder to the cross feed.



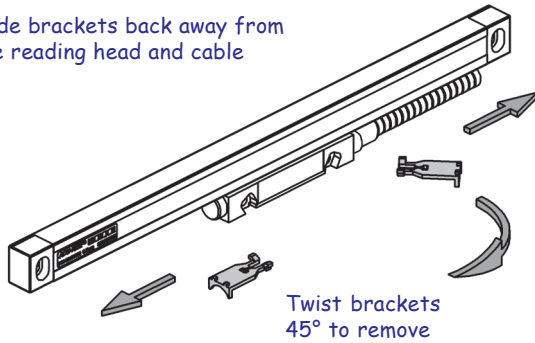
- Return the cross feed to the center of travel.
- Transfer punch reading head mounting hole locations to the carriage.
- Move the axis, drill and tap locations for 6-32 x 1/2" deep.



- Attach the reading head with two 6-32 x 3/4 SHCS and M3.5 flat washers.
- Align the reading head parallel to the scale case to within .005".

## Encoder button up ...

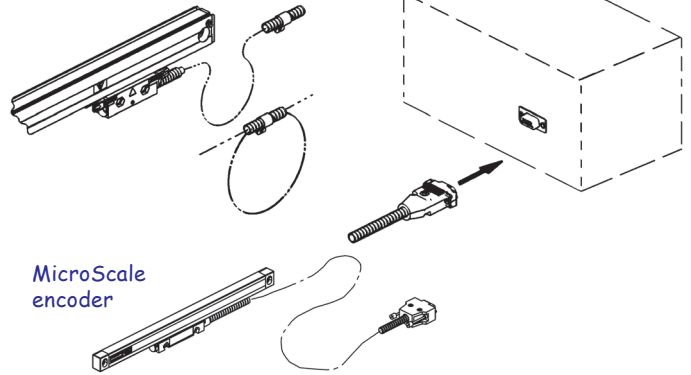
Slide brackets back away from the reading head and cable



Twist brackets  
45° to remove

- Support the reading head while sliding the shipping brackets away from the reading head. Gently twist to remove them from the scale case.
- Save the shipping brackets with the Encoder Reference Manual.

## ENC 150 encoder



MicroScale  
encoder

- 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 encoder connectors to the readout.
- Complete the installation by following the steps in “Checking Your Installation” section in the encoder “Reference Manual”.