

U-04a: Set Up/Adjust Feedback Device (Farrand Scale)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- Although the machine is not powered up during the replacement and continuity check steps of the procedure, the machine is powered up during the alignment process. Remain clear of moving components and pinch points.
- Exercise caution when working in the control cabinet because high voltage is present.

EQUIPMENT

- open/box 7/16" wrench
- screwdriver
- analog Triplett meter
- DVM
- needle nose pliers
- scale alignment tool
- scale

RESOURCES

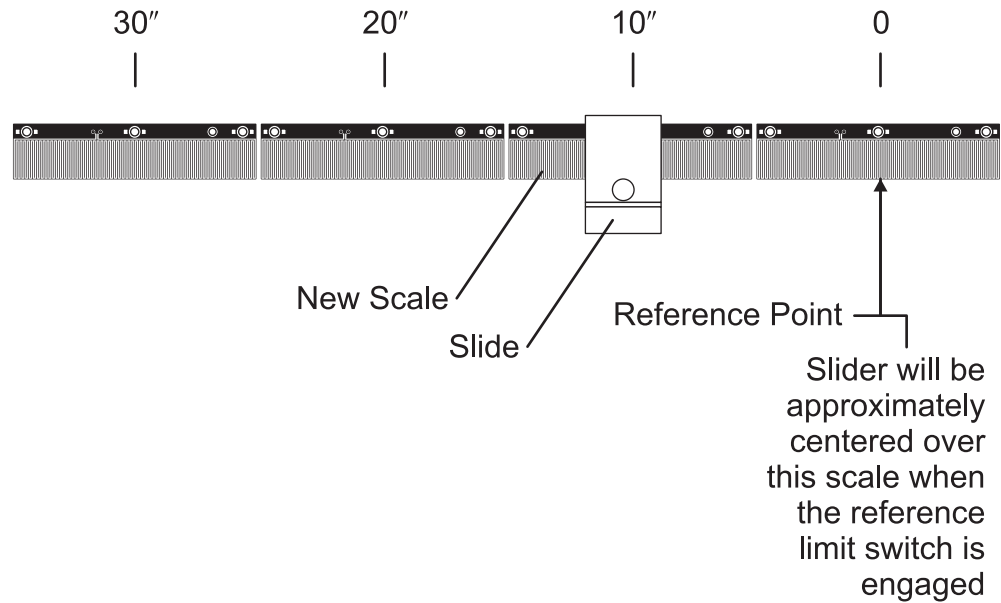
- electrical print

Set Up/Adjust Feedback Device (Farrand Scale)

1. Prepare for the alignment process.

- Inform the PMP Technician and the Machine Operator that you are ready for scale alignment. The PMP Technician will set up the required alignment equipment. The Machine Operator will assist by positioning the axis, as needed, during the alignment process.

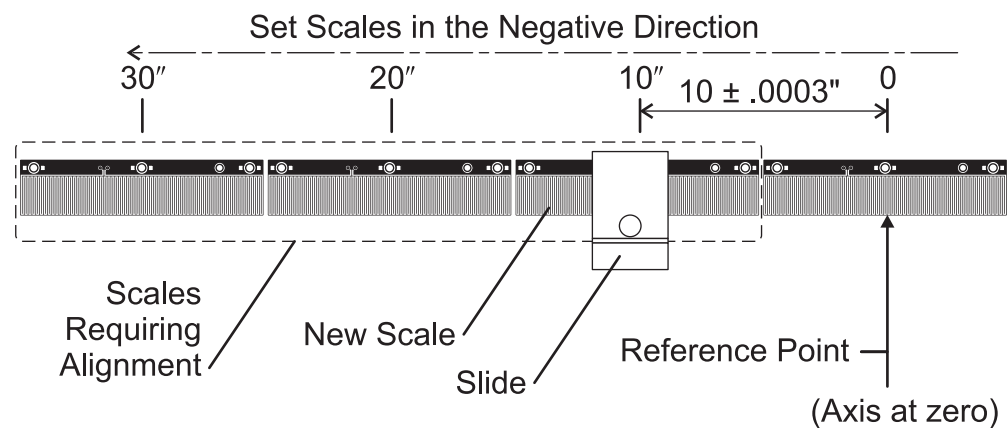
2. **Ask the Machine Operator to establish the machine reference point.**
- Ask the Machine Operator to reference the table.
 - Ask the PMP Technician to zero the laser readout when the table has the reference limit switch engaged.



Established Machine Reference Point

3. Align the scales.

- Ask the Machine Operator to position the machine 10" past the center of the new scale. For example: Ask the machine Operator to position the machine at 20". Refer to the example shown in the figure below.
- Ask the Machine Operator to position the machine at the center of the new scale. For example: Ask the Machine Operator to position the machine at 10". Refer to the example shown in the figure below.
- If the reading is below the allowable tolerance, insert the alignment tool into the adjustment hole and adjust the scale in the negative direction until the scale is within tolerance.
- If the laser readout is above the tolerance limit, insert the alignment tool into the adjustment hole and adjust the scale in the positive direction. Adjust until the laser readout is below the tolerance limit. Then, repeat the three previous steps.
- Set the scales in a negative direction, as shown in the figure below.



- The tolerance limit is $10 \pm .0003$ inches, as stated earlier. Ask the Machine Operator to move the table in 10" segments. Check every scale in the series and align all scales that require alignment.

4. Replace the linear scale cover.