

Shifter and Linkage for a ZF 5DS25-1 Transaxle

Photos and Design Information

The following photos and drawings show the final design and installation of a shifter and linkage to engage a ZF5DS25-1 transaxle. This configuration works well.

The only anomalies are occasional missed gates – ie. 4th instead of 2nd or 5th instead of 3rd. This is a common drawback and was experienced in the original GT40s that used ZFs.

Two designs and three implementations were made over a 30 year period.

The first design & implementation used a length of thick wall tubing going underneath the car to connect the shifter to the transaxle shaft. Less sophisticated than rebar with U joints but it worked.

The geometry of the second design is shown in the attached drawings. Two implementations were derived from this design. The difference in implementations were the materials used for the shifter linkage and quality of the U joints.

The first version used 5/8" dia. solid steel links and low quality U joints. After little usage the inertia of the steel linkage beat the U joints to death.

To overcome this difficulty the links were replaced with 6061 solid aluminum and Mil Spec U joints (MS20271B12) were employed. Shifting force is much lighter.

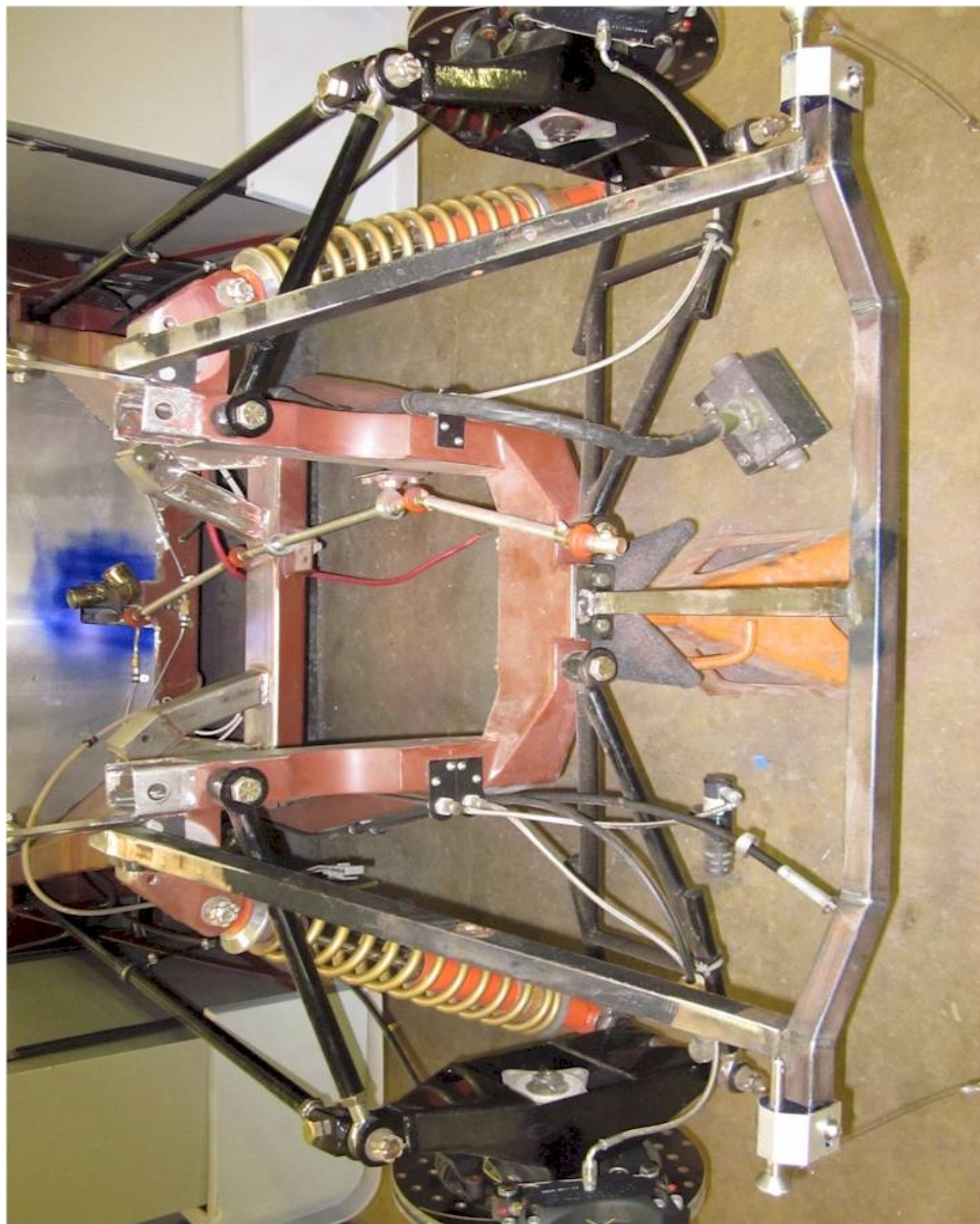
The tightest installation of these U joints is to weld them to links made of steel tube. Since my links were aluminum they could not be welded. The next best mechanical connection is Hi-Lok pins with small profile nuts (MS21042). To minimize slop in the shifter linkage the holes in the links and U joints were matched and precisely reamed for close tolerance fits. This was done on six of eight holes. The other two holes used roll pins due to space constraints.

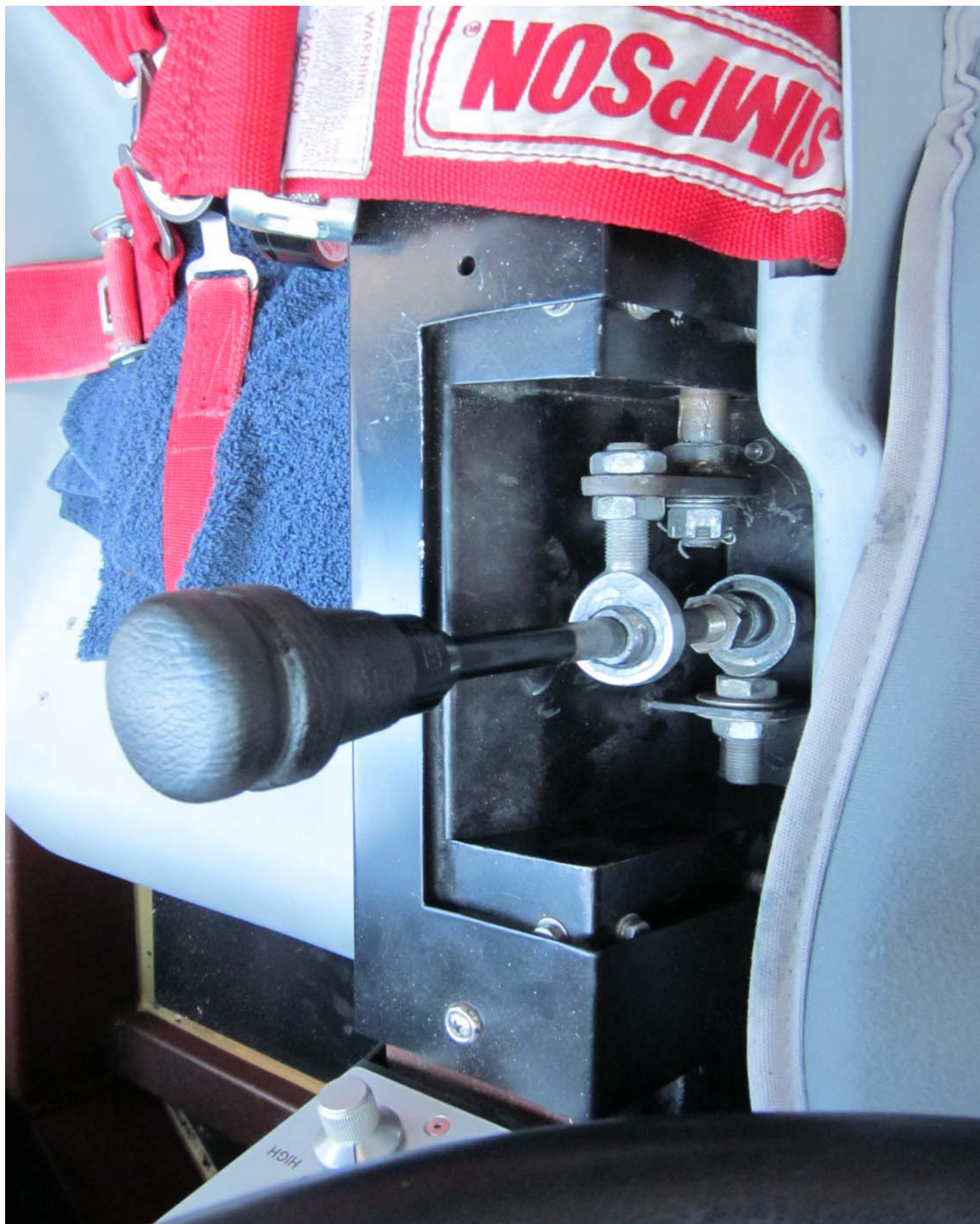
Parts run about \$500 and machine shop costs depend on individual capabilities and local shop rates.

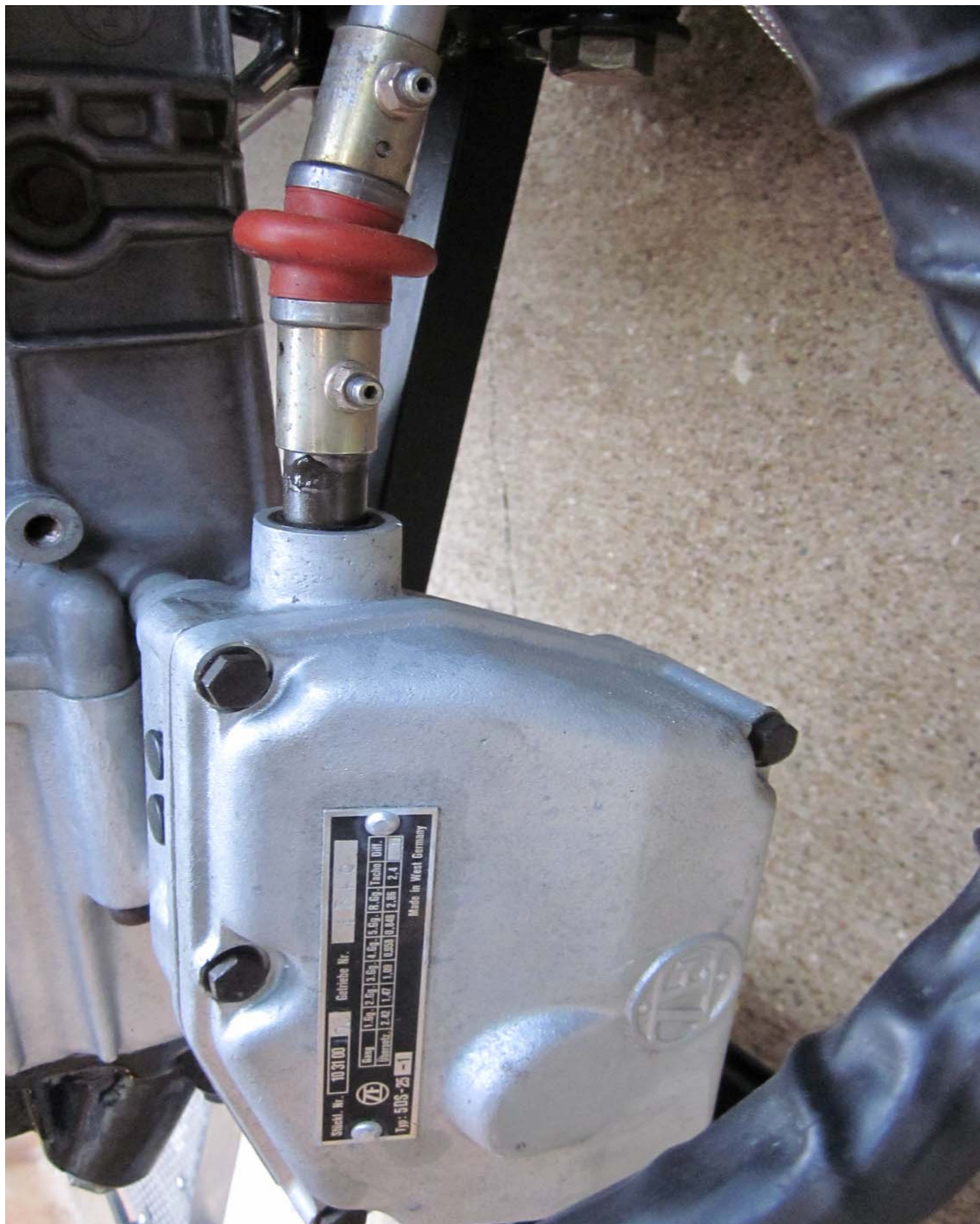
I hope this information can be of benefit.

Dr. Mike

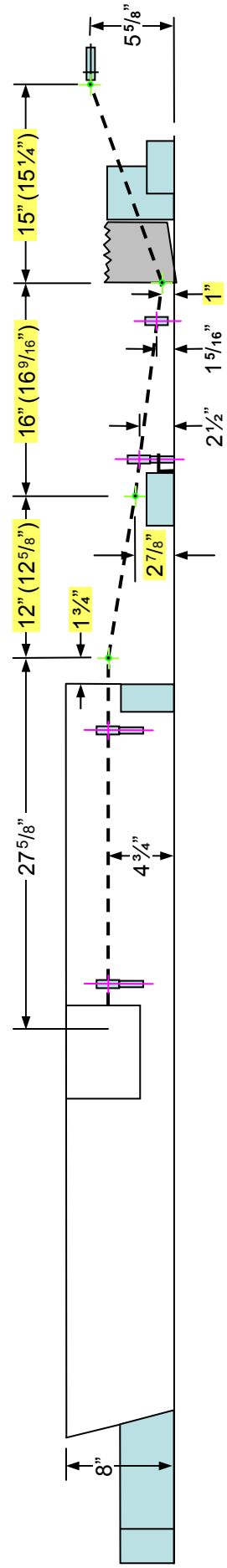
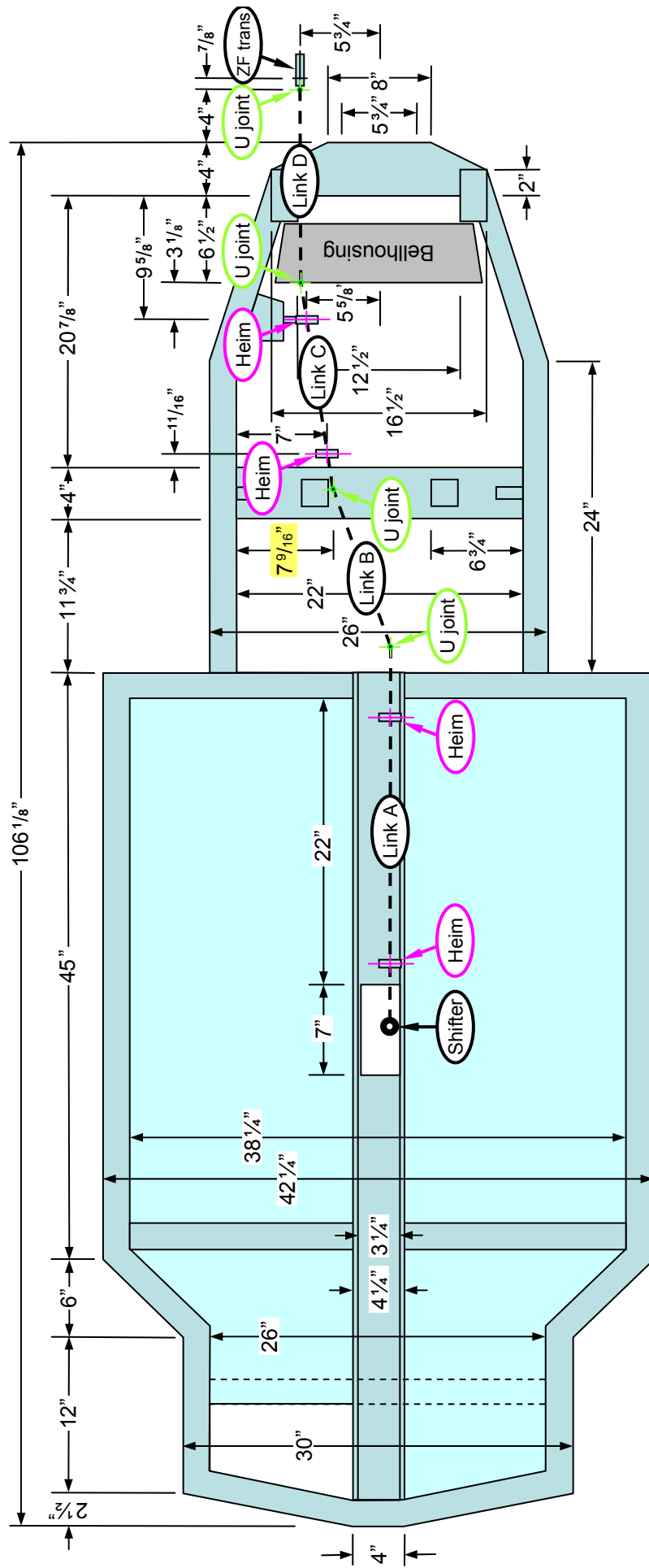




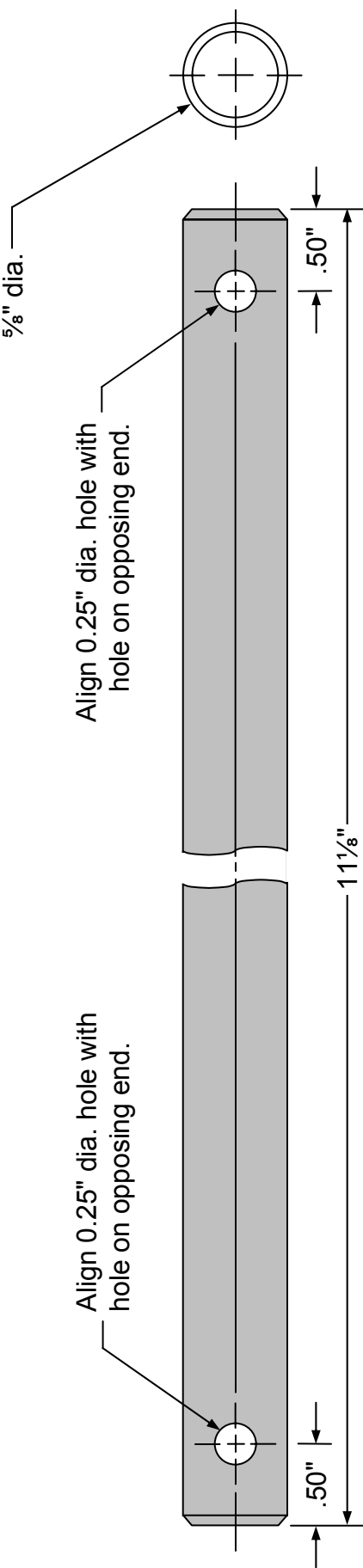




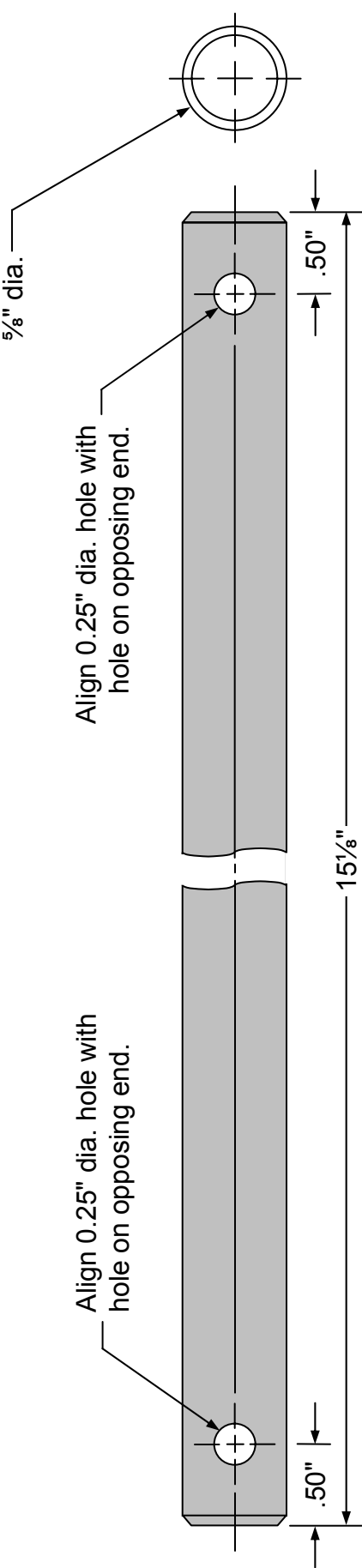




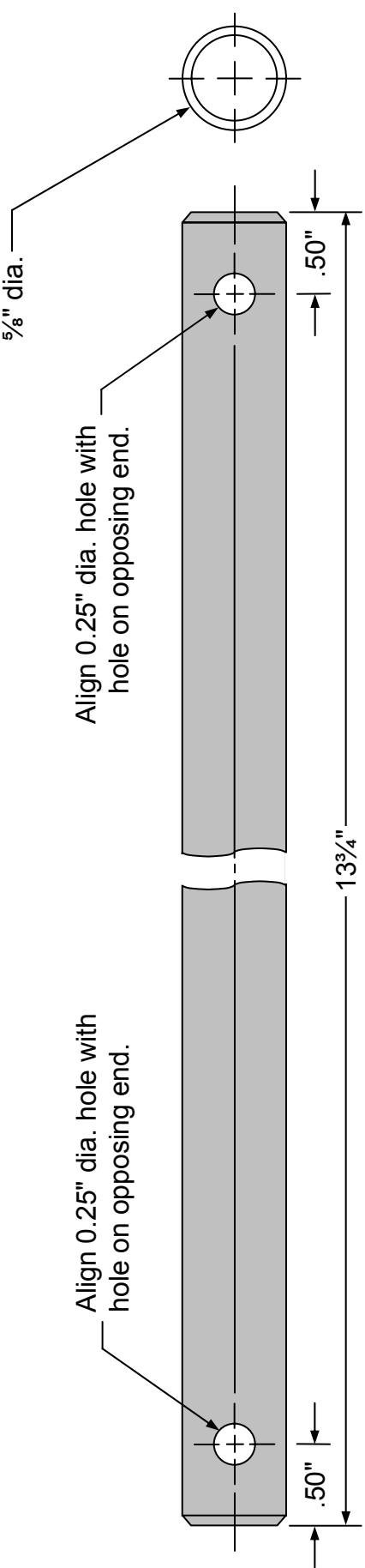
Shifter Linkage – B
6061 Aluminum



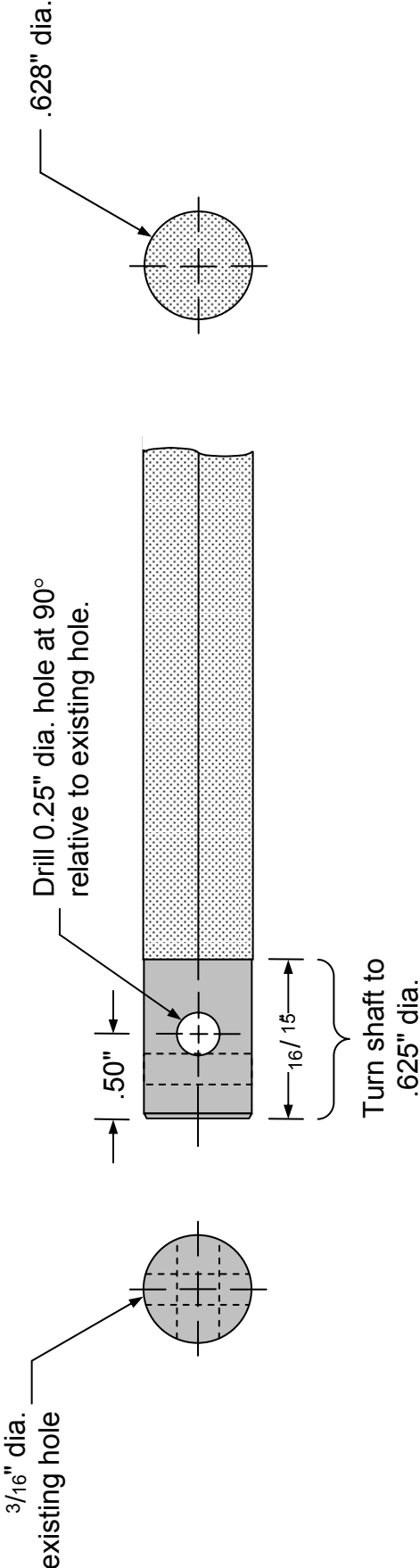
Shifter Linkage – C
6061 Aluminum



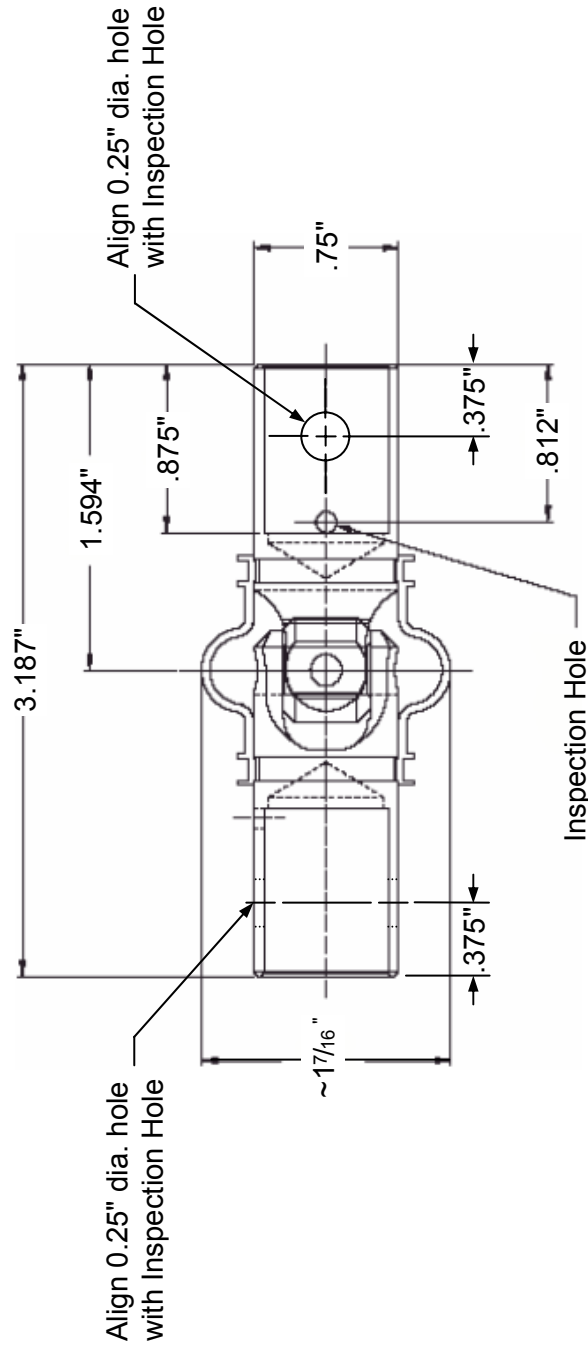
Shifter Linkage – D
6061 Aluminum



ZF Shifter Shaft Steel

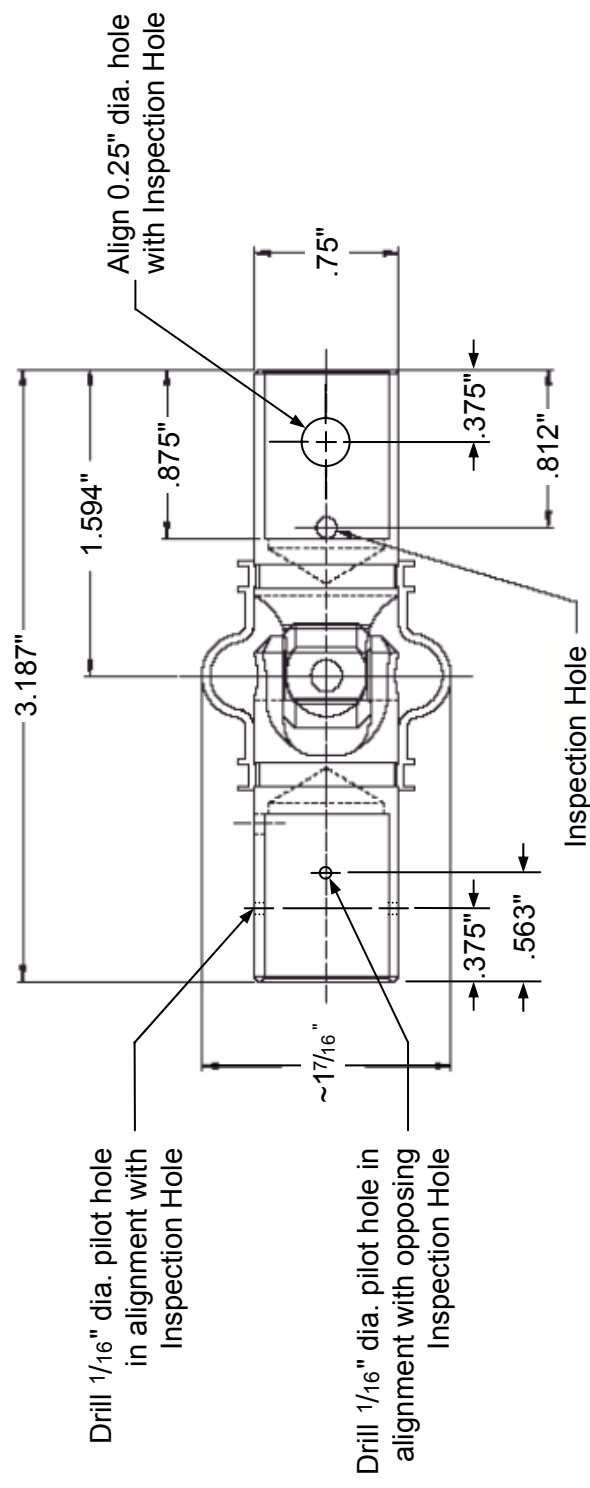


Military Standard Joint – Heavy Duty Series
MS20271B12 – $\frac{5}{8}$ " Shaft

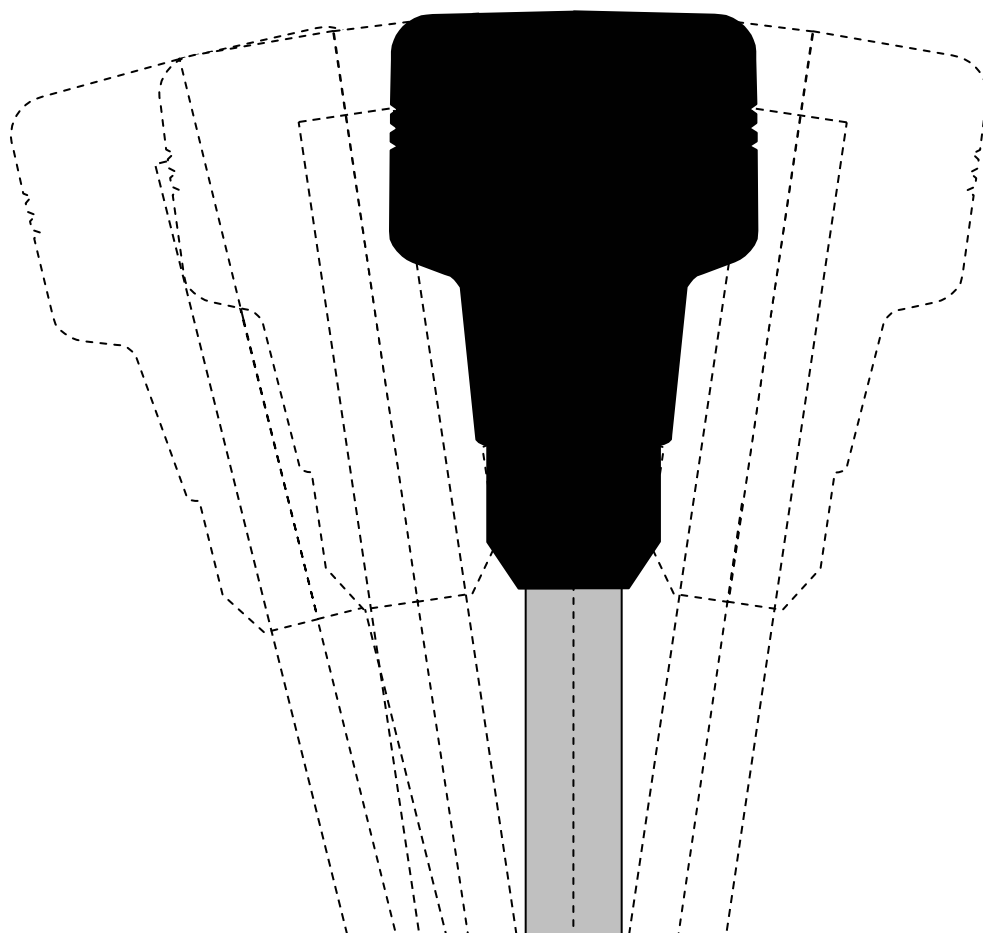
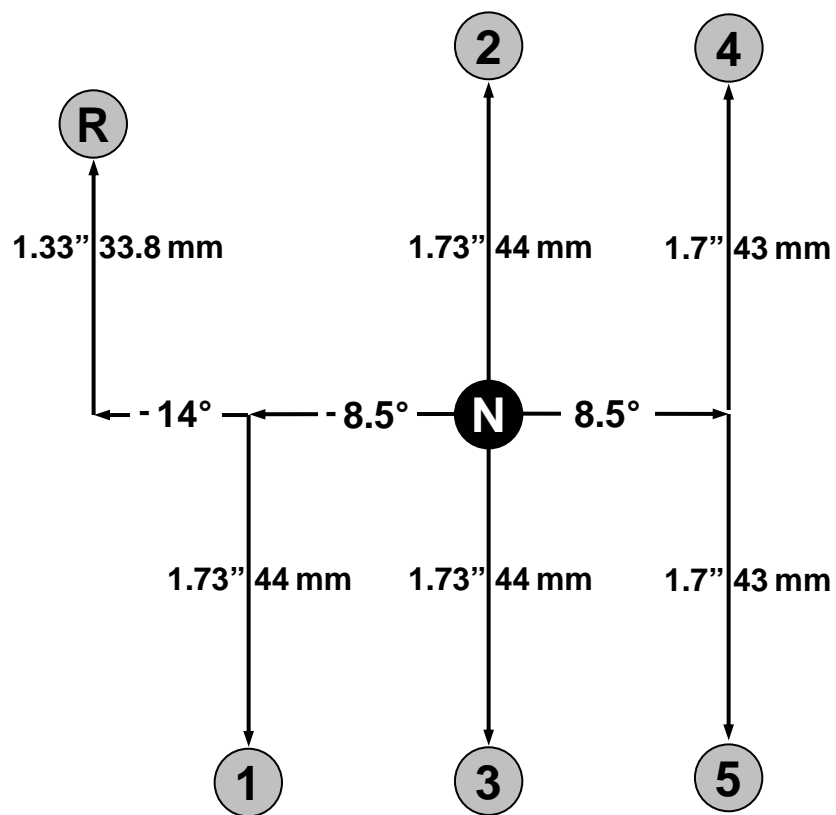


Drill 3 U-Joints according to this drawing.

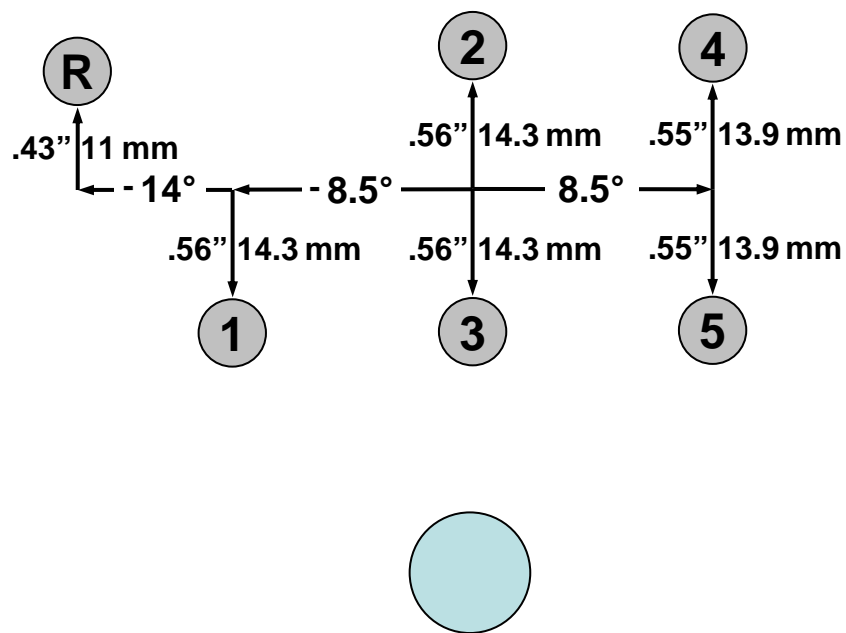
Military Standard Joint – Heavy Duty Series MS20271B12 – 5/8" Shaft

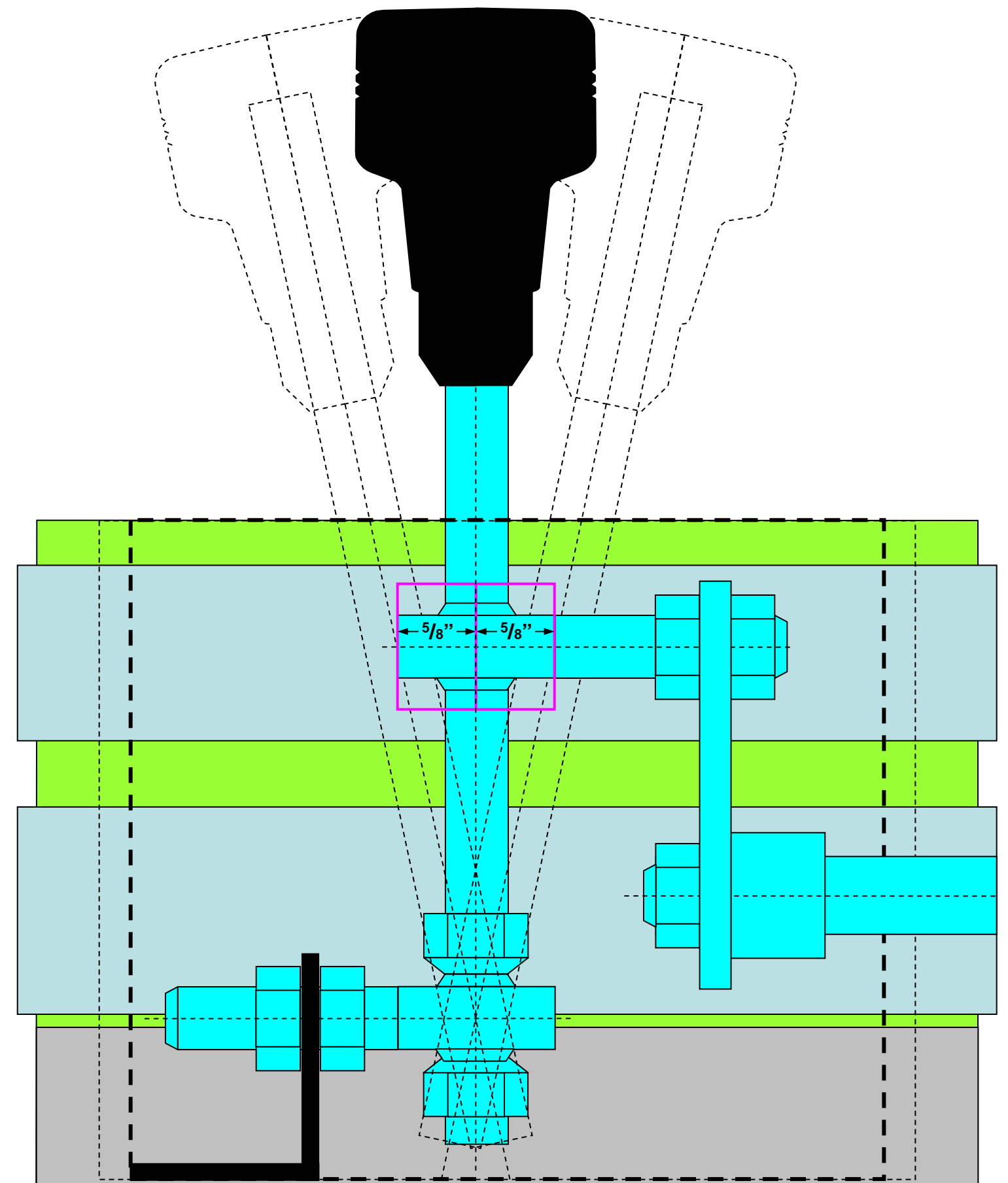


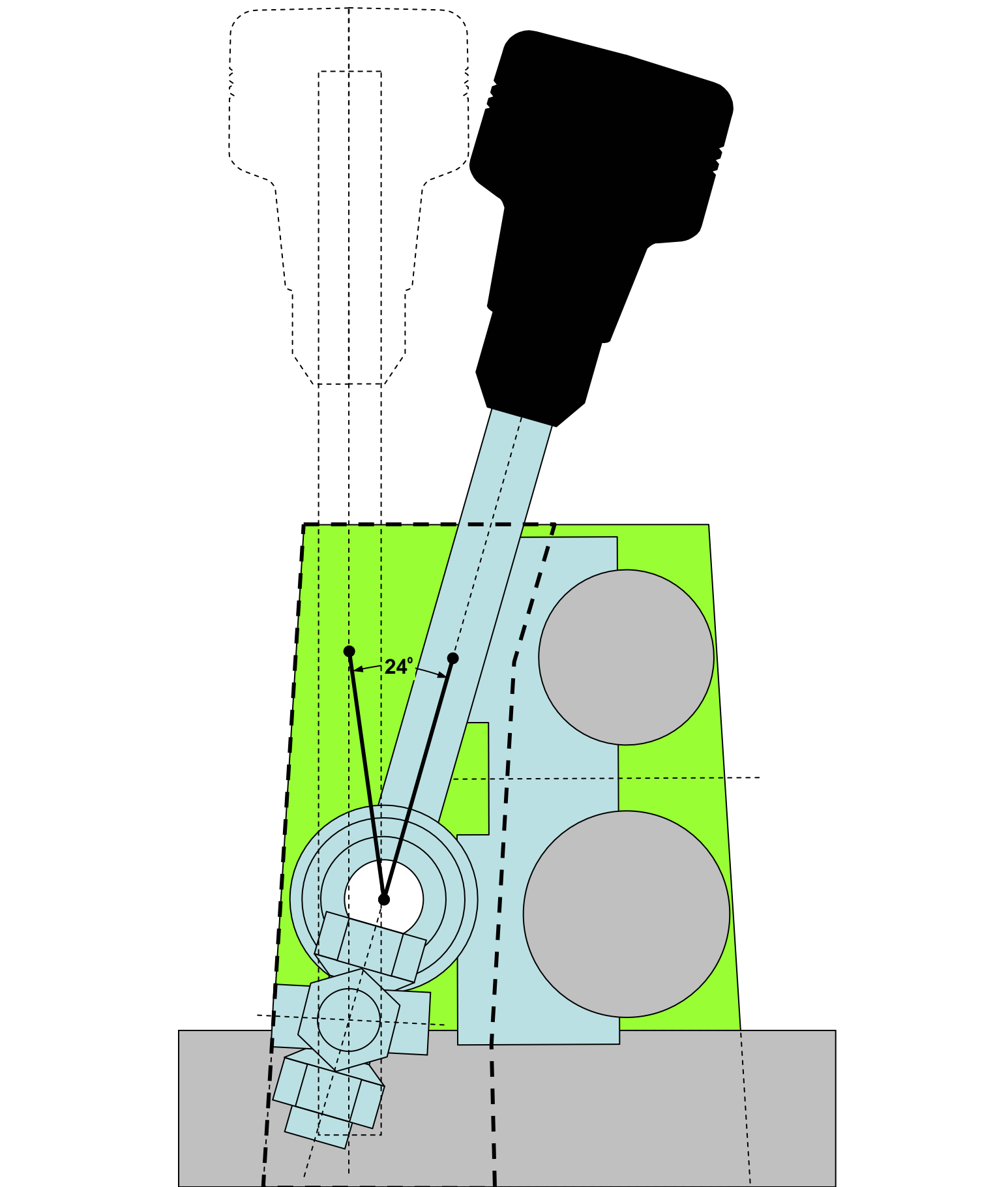
Drill 1 U-Joint according to this drawing.

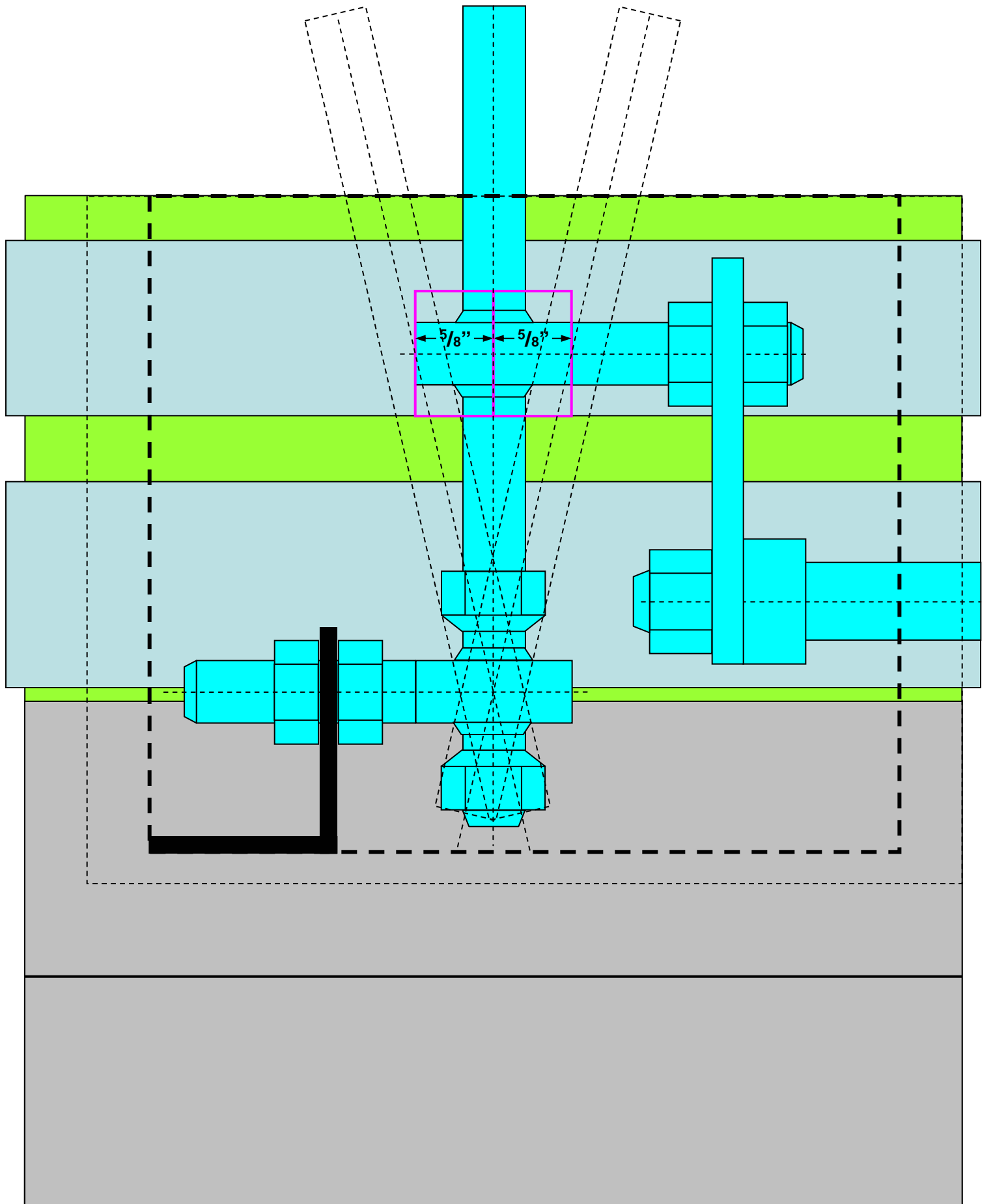


ZF 5DS25-1
Shifter Pattern



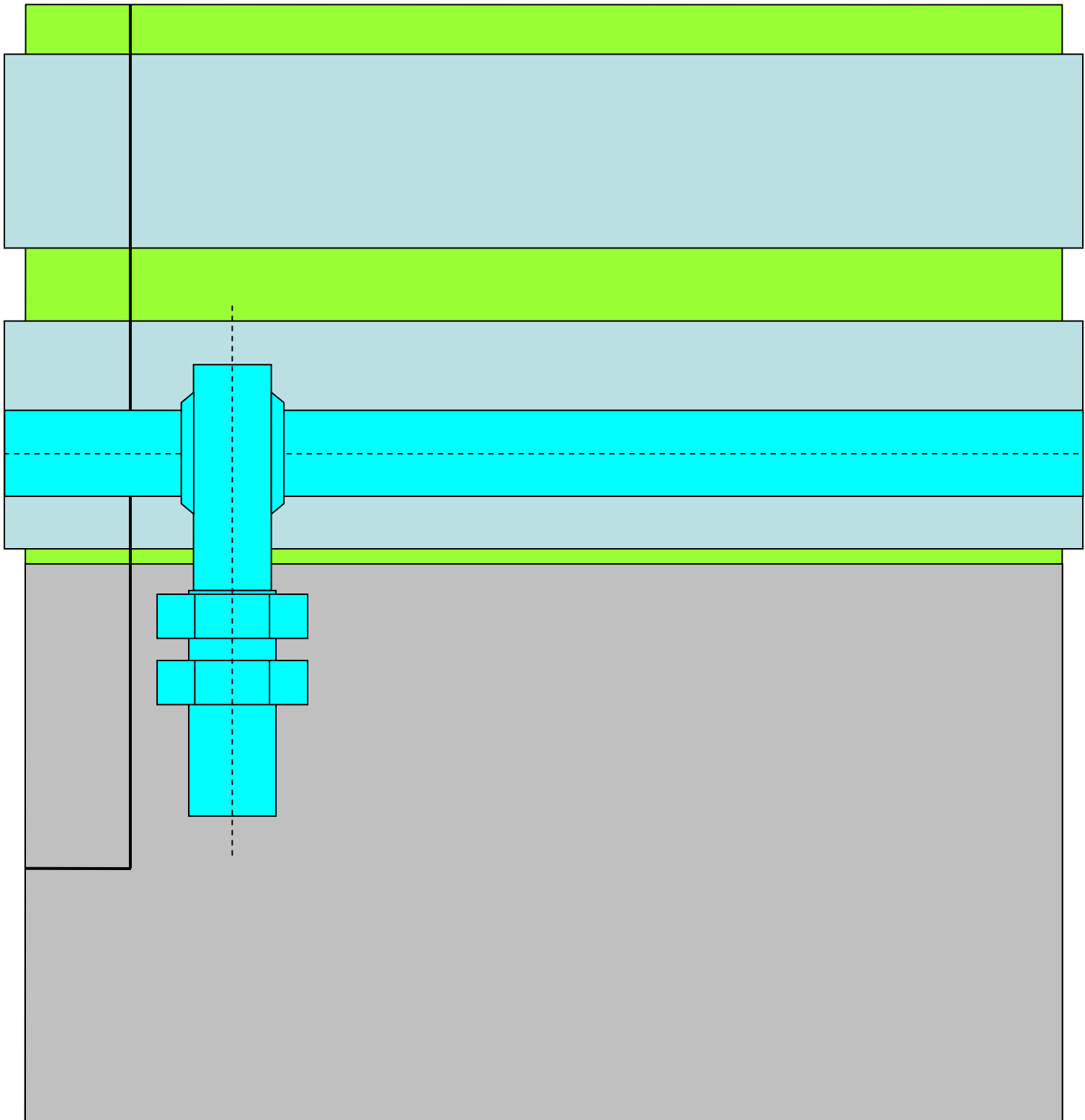


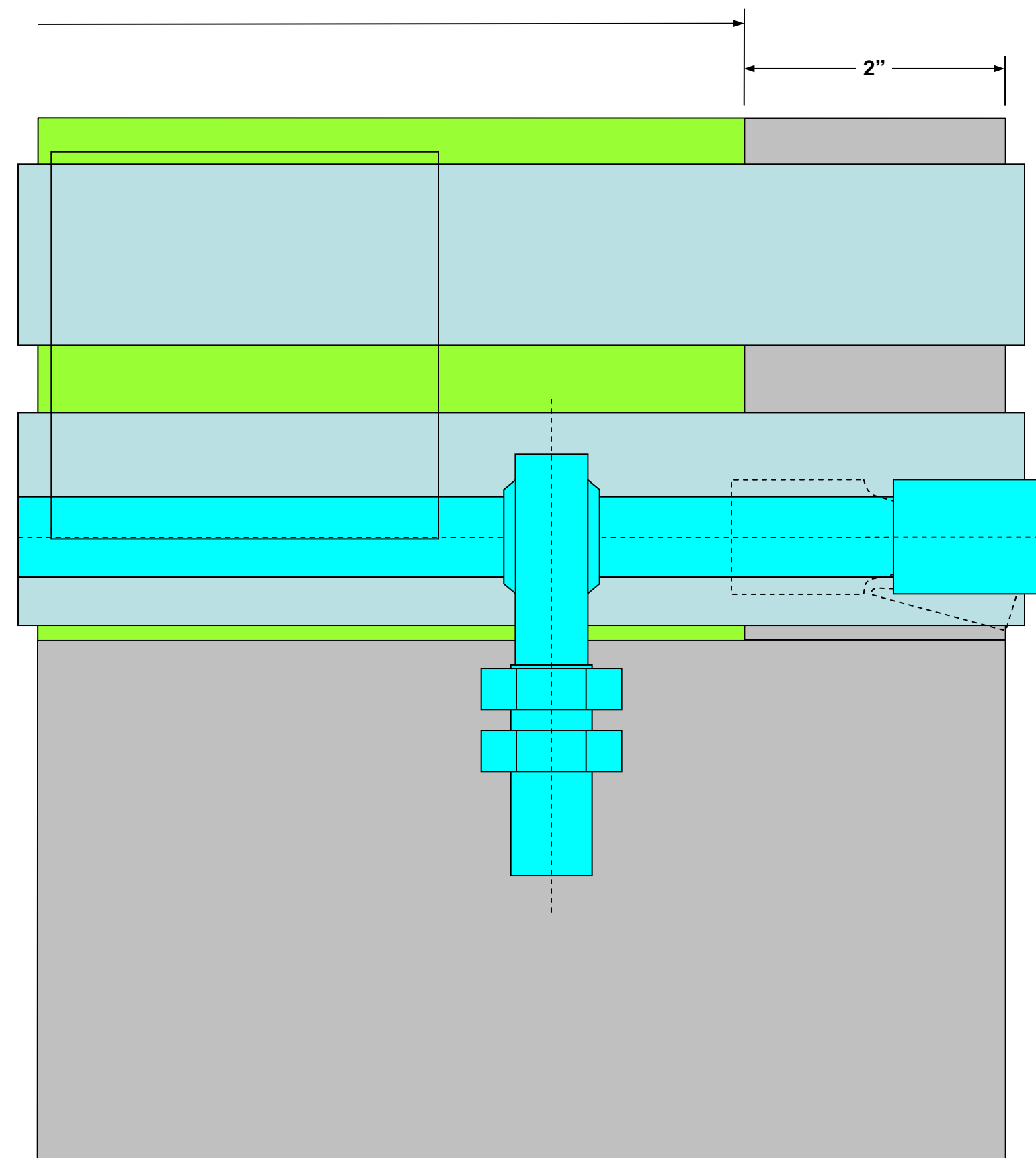




22"

1 1/2"





6⁷/₈"

Flywheel

5³/₄"

