HR 2 BREAKDOWN

TEAM: 19F15 - SunTrac

Due Date: Friday, March 6, 2020 at 11:59pm

Current state of completed CAD Model:

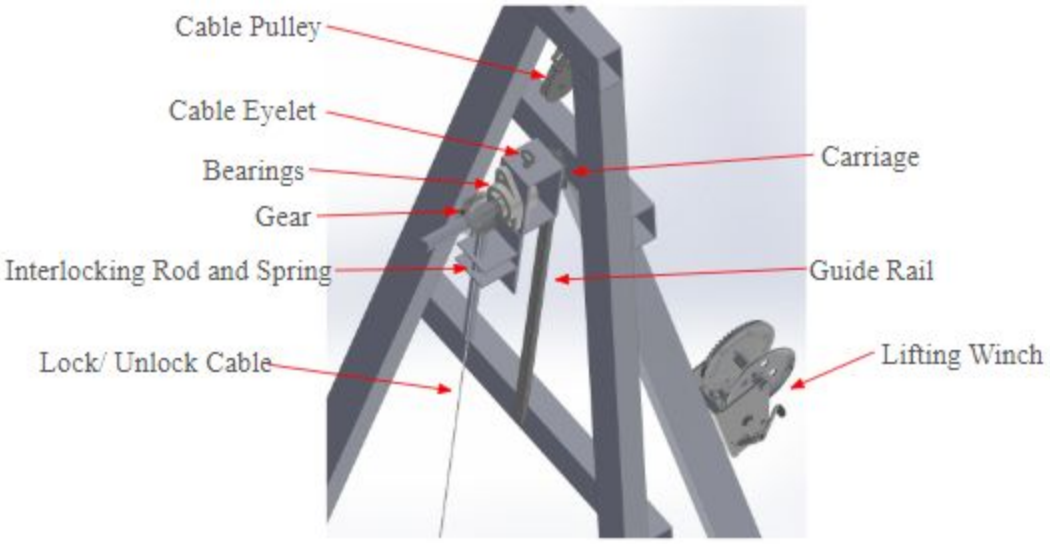


Figure 1. Locking and Vertical Actuation

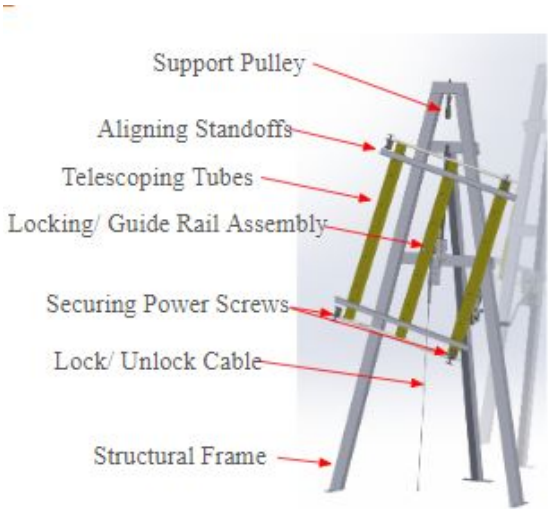


Figure 2. Current CAD Model

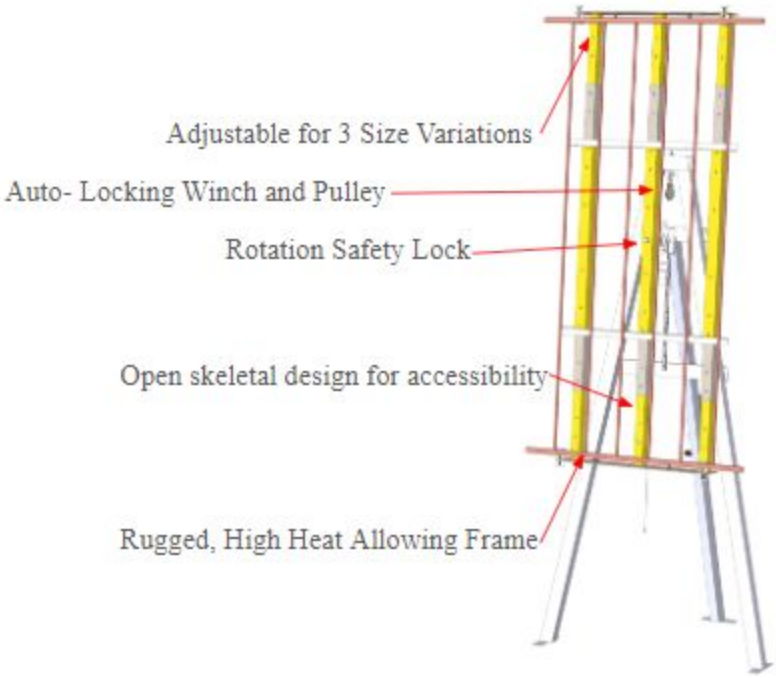


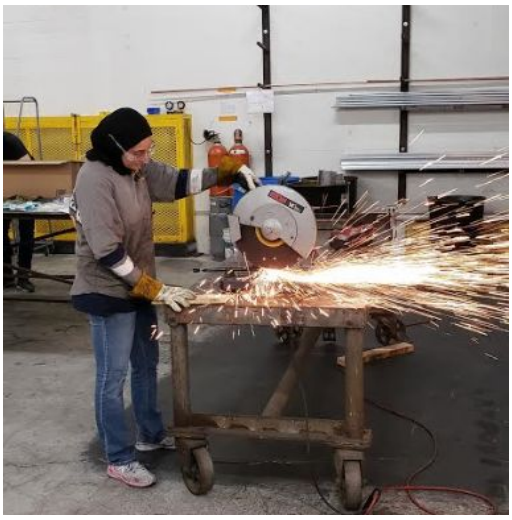
Figure 3. Design Features

Figure 4. Current state of Manufacturing

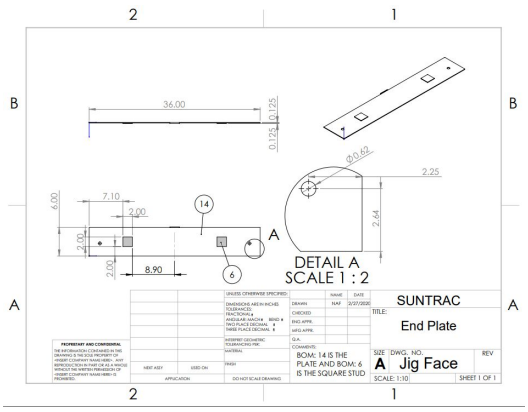
The following are the Action Items each person completed between Hardware Review 1 and Hardware Review 2:

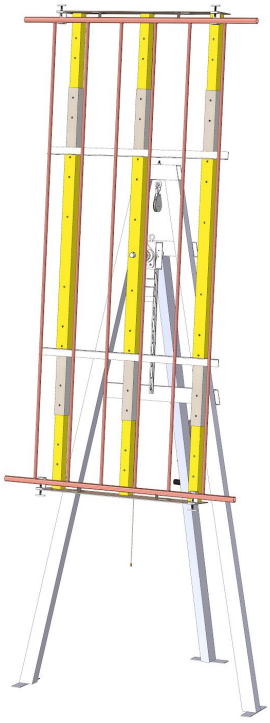
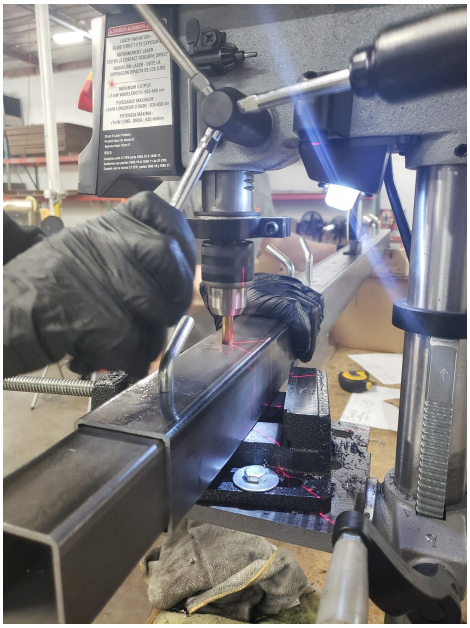
Team Member: Kadeja Alhossaini

Action Item	Date Completed	Result/Proof of Completion
Update Website	2/17/2020	https://www.ceias.nau.edu/capstone/projects/ME/2019/19F15_SunTracBrazingJig/
Help measure and cut jig pieces	2/28/2020 2/29/2020	

Cutting the angles on the jig frame, 12°, 19°	2/28/2020 2/29/2020	

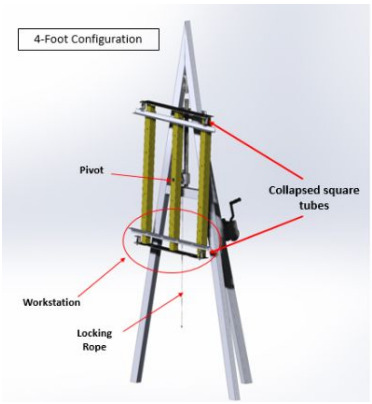
Team Member: Nathan Firor

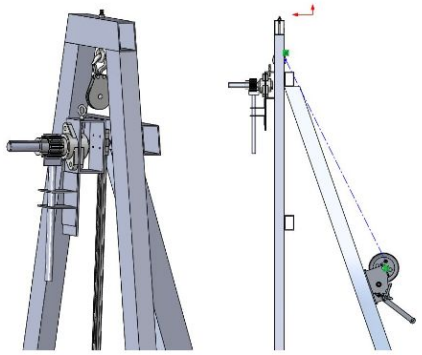
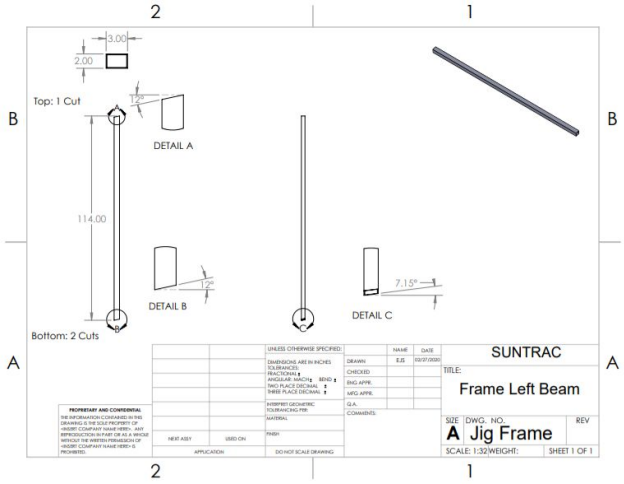
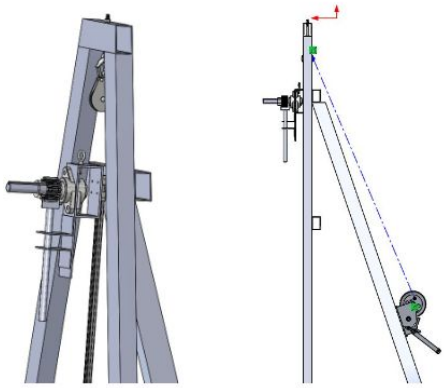
Action Item	**Date Completed**	**Result/Proof of Completion**
Redesign Endplate CAD	02/18/2020.	

Jig CAD Assembly Completion and Analytical Verification	02/26/2020	
Manufacture Telescoping Tube assembly	02/29/2020	

Cutting raw metal to length, grinding and drilling holes for first prototype	03/06/2020	

Team Member: Edwin Smith

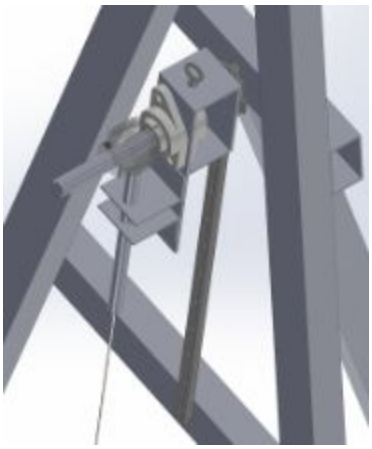
Action Item	Date Completed	Result/Proof of Completion
First Jig Frame redesign	02/20/2020	 

Second Jig Frame redesign	02/25/2020	  
Produce CAD drawings of relevant Jig Frame components for client	02/27/2020	

Cut and grind down Jig Frame 2x3 lengths	02/28/2020 02/29/2020	
Cut the double plane angles (12° ⊥ 7°)	02/29/2020	We don't have a picture of this process, although it required a portable bandsaw, grinder, vice, and beam support frame

Team Member: Ethan Vieane

Action Item	**Date Completed**	**Result/Proof of Completion**
Redesign Locking Mechanism Sub-Assembly	02/22/2020	See picture below

Complete CAD file of Locking Mechanism Sub-Assembly	02/23/2020	
Redesign Endplate	02/18/2020.	The endplate was redesigned in order that less cuts would need to be performed during manufacturing days. The initial idea and rough sketched were completed by Ethan Vieane while the CAD file was completed by Nathan Firor.
Purchase all parts from McMaster-Carr	02/24/2020	22 products ship Monday morning, 3 products ship Monday morning via freigh 1 Weld-Together Rail Steel, 2-1/2" Square, 12 Feet Long 4931T146 2 Weld-Together Rail Steel, 2-1/4" Square, 12 Feet Long 4931T145 3 Weld-Together Rail Steel, 2" Square, 12 Feet Long 4931T144 4 Low-Carbon Steel 90 Degree Angle 1/8" Wall Thickness, 1-1/2" x 1-1/2" Outside Size, 6 Feet Long 9017K484 All parts were purchased and a receipt was emailed to the team. A small portion of the receipt is seen above.

Drill holes in Telescoping Tubes	02/28/2020 02/29/2020	

The following are the Action Items for each team member between HR 2 and the Final Product presentation:

Team Member	Action Items	Date Due
Kadeja Alhossaini	1. Assist in making sure the jig frame is constructed and cut to shape. 2. Assist with assembling any sub assemblies that have yet to be constructed. 3. Complete Individual Analysis	1. 03/06/2020 2. 03/07/2020 3. 03/13/2020 4. 03/13/2020

	4. Assist in Poster Draft 5. Second Website check 6. Complete testing procedures (All Team members)	5. 03/13/2020 6. 04/01/2020
Nathan Firor	1. Manufactured Telescoping Tubes, cutting lengths and drilling holes 2. Assembly of larger jig components, aid in various tasks and subassemblies 3. Assembly of the Jig Frame, further parts manufacturing, headed cutting operation 4. Complete Individual Analysis 5. Assist in Poster Draft 6. Complete Testing Procedures (All team members needed)	1. 03/06/2020 2. 03/07/2020 3. 03/13/2020 4. 03/13/2020 5. 03/13/2020 6. 04/01/2020
Edwin Smith	1. Ensure all Jig Frame components are cut to length and angled, as well as grinded down 2. Facilitate the assembly of the guide rail, winch, and pulley onto the Jig frame 3. Assist in the assembling of the jig face and jig frame sub-assemblies 4. Complete Individual Analysis 5. Assist in Poster Draft 6. Complete Testing Procedures (All team members needed)	1. 03/06/2020 2. 03/07/2020 3. 03/13/2020 4. 03/13/2020 5. 03/13/2020 6. 04/01/2020
Ethan Vieane	1. Ensure all telescoping tubes are cut and fit smoothly together	1. 03/06/2020

	2. Assembly Locking Mechanism Subassembly 3. Assist in the assembling of the jig face and jig frame sub-assemblies 4. Complete Individual Analysis 5. Assist in Poster Draft 6. Complete Testing Procedures (All team members needed)	2. 03/07/2020 3. 03/13/2020 4. 03/13/2020 5. 03/13/2020 6. 04/01/2020