Work Completed

This week the group finished up small adjustments on the table. This included reinstalling the metal bars under the sides of the table. These bars give more stability to the center region of the table, since it is less likely for the table to torque with the bars. This is necessary in situations where large loads, such as a person sitting on the table, are situated in the center of the table. Without the metal bars, the tabletop deformed a small amount and was not stable. The table still raises perfectly with little to no sticking in the adjustment legs. Also, the table raises very level and the tabletop does not torque during adjustments.

During the past week, Rick worked on the problem with the unibearing legs. They would constantly slide against each other and create a lot of friction as to inhibit successful raising of the table. Rick then ended up just taking out the screw in one of the sliding legs and attaching a corner bracket underneath the upper sliding leg. This setup can be seen in Figure 1. This bracket served as a stopper as well as a provider of easier movement of the tabletop upwards. For the other unibearing leg, Rick left the screw in place, but he took out the nut which was in between the two sliding legs. This nut was causing a great amount of friction when the table was being raised up. In order to keep the screw in place, Rick placed a single square bracket on the outside of the upper extrusion which ended up covering almost half of the screw head. The other end of the screw was screwed flush with a t-nut inside the lower sliding leg. This setup can be seen in Figure 2. This setup enabled the two sliding legs to constantly stay apart during the whole lifting process without a nut in between them.
The group also worked on the operation manual this week. Kristen wrote some of the instruction section. This section went over the exact steps necessary for both the lowering and raising of the table. She also wrote the troubleshooting section. In this section she outlined all of the problems we have encountered during testing the table and listed the possible ways to fix it. This section will help to keep the table in working order and ensure that the people at Passion Works will be able to make the minor adjustments needed to fix the different problems. The table created for the troubleshooting section can be seen below.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table legs squeak when adjusting</td>
<td>Apply a small amount of grease or WD-40 to the area between the metal legs.</td>
</tr>
<tr>
<td>Table won’t raise on its own</td>
<td>Gently apply pressure at corners (where you would be to lower the table) and help lift the table. This will often happen if the table is overloaded.</td>
</tr>
<tr>
<td>Table legs stick or catch when raising</td>
<td>The legs may be slightly out of alignment. Gently tapping or lifting the corner over the affected leg will often fix this.</td>
</tr>
<tr>
<td>Table is crooked</td>
<td>If the problem is because the corners over the metal legs are lower than the corners over the gas springs, lift the corners up to make the table level before locking the legs. If the two ends of the table are uneven (the gas springs raised unevenly), press the release button and hold one end down while lifting or lowering the other</td>
</tr>
</tbody>
</table>
end until the table is level.

<table>
<thead>
<tr>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas springs continue to rise after button is released.</td>
</tr>
<tr>
<td>Gas springs do not rise when button is pressed.</td>
</tr>
<tr>
<td>Table stops raising before maximum height of 42”</td>
</tr>
<tr>
<td>The gas springs lose some of their strength at their maximum extended length. Sometimes it might be required to help the gas springs on the last one or two inches of extension.</td>
</tr>
</tbody>
</table>

Table 1: Troubleshooting

Bruce was responsible for writing the introduction, in order to introduce the table to the people at Passion Works Studio. Additionally, Bruce made the drawings which supplemented the remainder of the operations manual. The following figure shows how to raise the table.

Figure 3: How to raise the table.

To adjust the height of the table, it is necessary that the unibearings be unlocked. In order to do this, one would follow the instructions in the following diagrams.
Figure 4: How to lock or unlock the unibearing.

Figure 5: How to lock/unlock the unibearing.
As with every mechanical device out there today, a regular maintenance would assure that it is kept functioning properly. The maintenance with this table is relatively simple. The proper maintenance for this table goes hand in hand with its ease in using it. If maintained properly, the table should last a lifetime.

**Routine Maintenance**

- Apply a thin coating of generic grease or WD-40 to the sliding leg which attaches at the base as often as necessary. Make sure the table is fully extended when this is performed.

- Wash the tabletop completely with a generic cleaning solution when necessary to ensure the integrity of the tabletop does not decrease over time. This will also ensure that the tabletop stays flat and smooth since previously spilt liquids may induce flaws inside the surface over time.

- Dust and brush away small particles outside the sliding legs as well as the gas springs once a month. This will ensure that no excessive buildup of dust or small particles will occur in between the sliding legs as well as on the gas spring’s sliding pistons. If the debris inside the lubricating fluid of the gas springs is kept to a minimum, the gas springs will always function at an optimal level.

- Check for any loose connections once every couple months. This includes any connection underneath the tabletop as well as between the gas springs and sliding legs with the base. If a connection is loose, you will need either a flat head screw driver or a 5/32” allen wrench. These tools will tighten any loose screws that come about with the table. This checkup will ensure the table’s stability and proper lifting when in use.

**Replacement of Parts**

If failure of the brakes occurs (part # 6850):

Contact

Air Inc 1 800 341 2800 sales@airinc.net

If failure of the single side long unibearing occurs (part # 6762):

Contact

Air Inc 1 800 341 2800 sales@airinc.net

If failure of simple components occurs:
Ex: screws, nuts, brackets
You can obtain similar sized parts at your local hardware stores

Home Depot Lowes

The group also started working on the final report. We chose to take a bottom-up approach to writing the report, where all the components have a separate section. The sections were divided up amongst the team members.
**Future Work**
Next week we will be working on the final report. Since all of the individual parts are already divided up, we will just need to put them all together and then smooth everything out. Also a student from the Center for Students with Disabilities will come in and test the table with us. This will be done on Tuesday. After the final report is completed, we will then work on the power point presentation.

**Project Review**
The project is complete, all we need to work on are the final reports. We also just want to test the table out with a student who uses a wheelchair just to make sure everything works OK. We expect to be done with everything by the end of this week. After the final report, we need to work on the poster and the power point, and then present everything at the engineering senior design presentation day.

**Hours Worked**
Bruce: 8 hours
Kristen: 8 hours
Rick: 8 hours