



Design Review 2

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Overview of Jig Concept Improvements

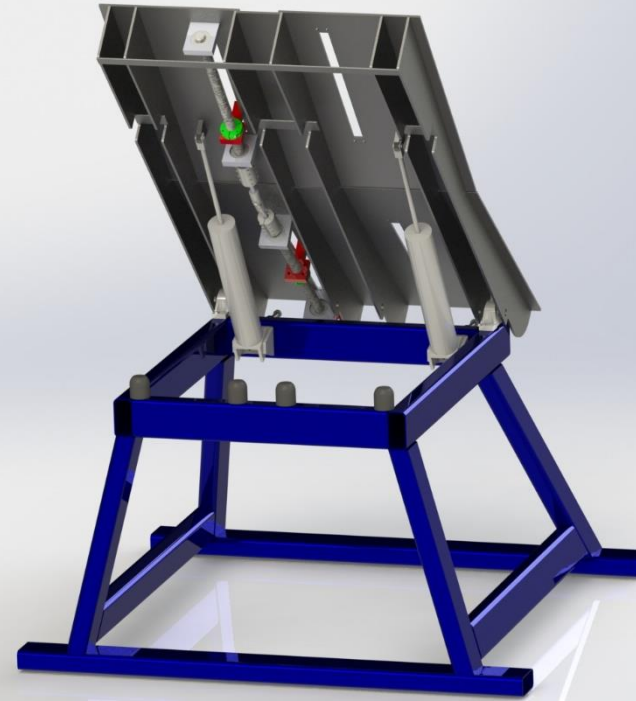
- Current base is still being used, redesign of table
- Able to keep pneumatics by simply adjusting the location
- Lead screw design keeps alignment symmetrical
- Rubber bump stops to keep jig from slamming abruptly on table
- Dampers placed on operator side to decelerate the jig rotation
- Magnetic clamps max capacity 400 lb. of holding force used with adjustable fixture to deviate any warping.

Base and Table

- Reuse Current Base
 - well designed
 - save time and money
- Will replace current pivot with a mounted bearing
- Table top is going to be redesigned to incorporate our alignment and clamping methods
- Table has been widened and lengthened by 6" and 4", respectively

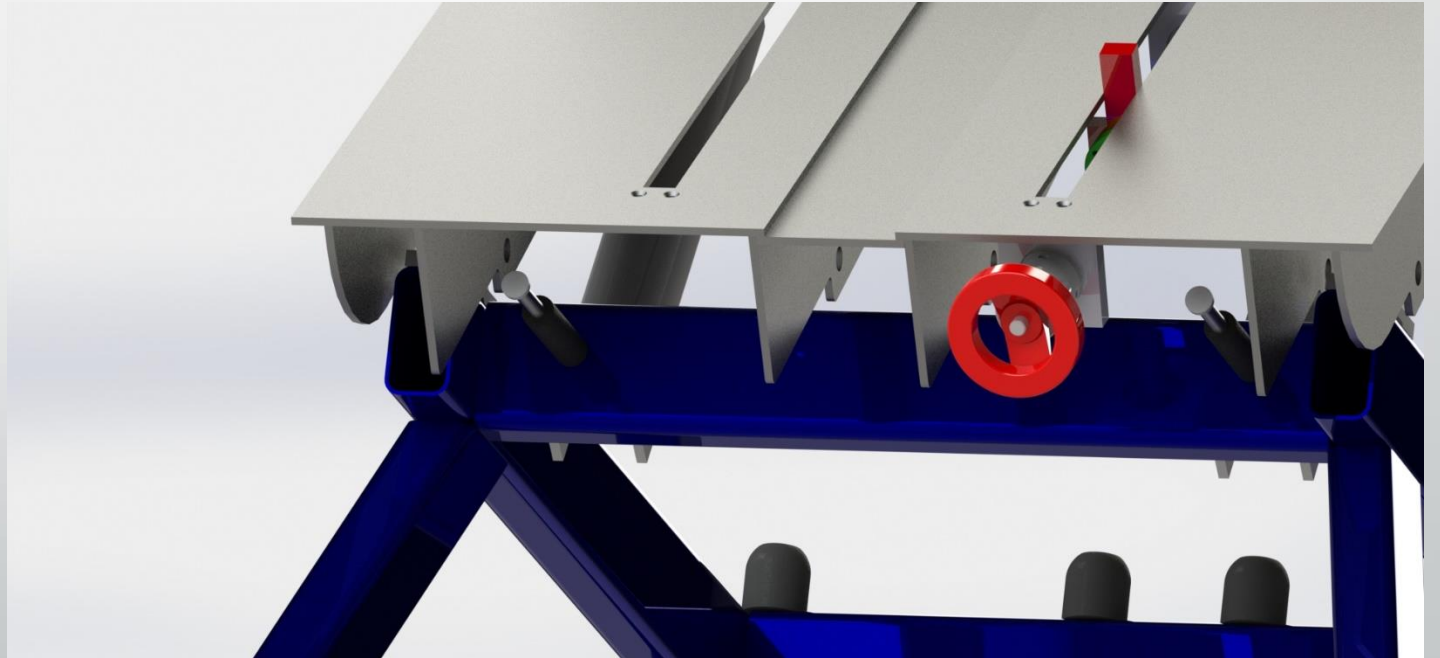
Pneumatics

- The current pneumatic rotation actuators will still be used
- They will be connected to the base how it currently is now (same linkage and location)
- Will be connected to approximately the same location underneath the new table



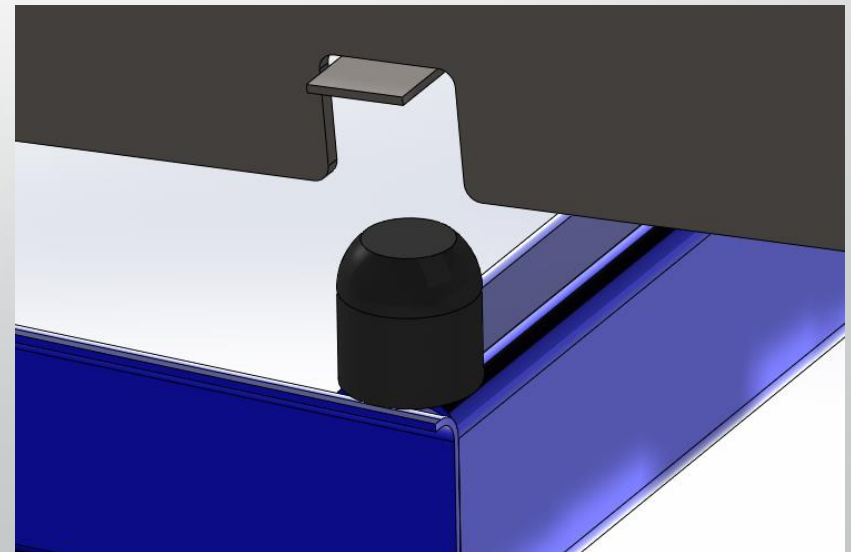
Dampers

- Two dampers will be used to decelerate the rotating table when it becomes nearly vertical
- Looking at options with 3"-4" stroke to catch the table right when it gets past the tipping point



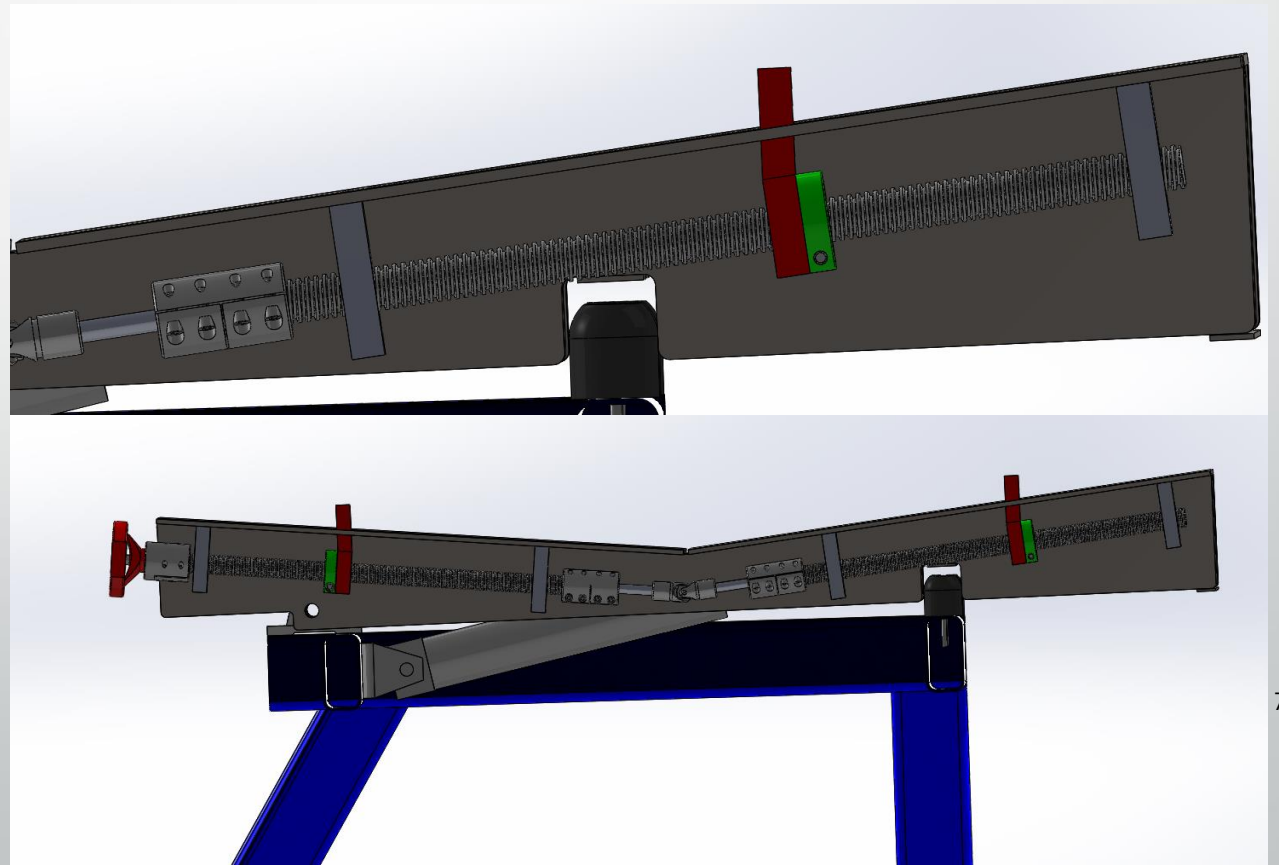
Rubber Bump Stops

- Four large rubber bump stops will be used to soften the landing of the table when it lowers to the horizontal position
- The bump stops come into contact with the table in a grooved out portion of the “ribs”
- Sheet metal spans the spots where the bump stops come into contact



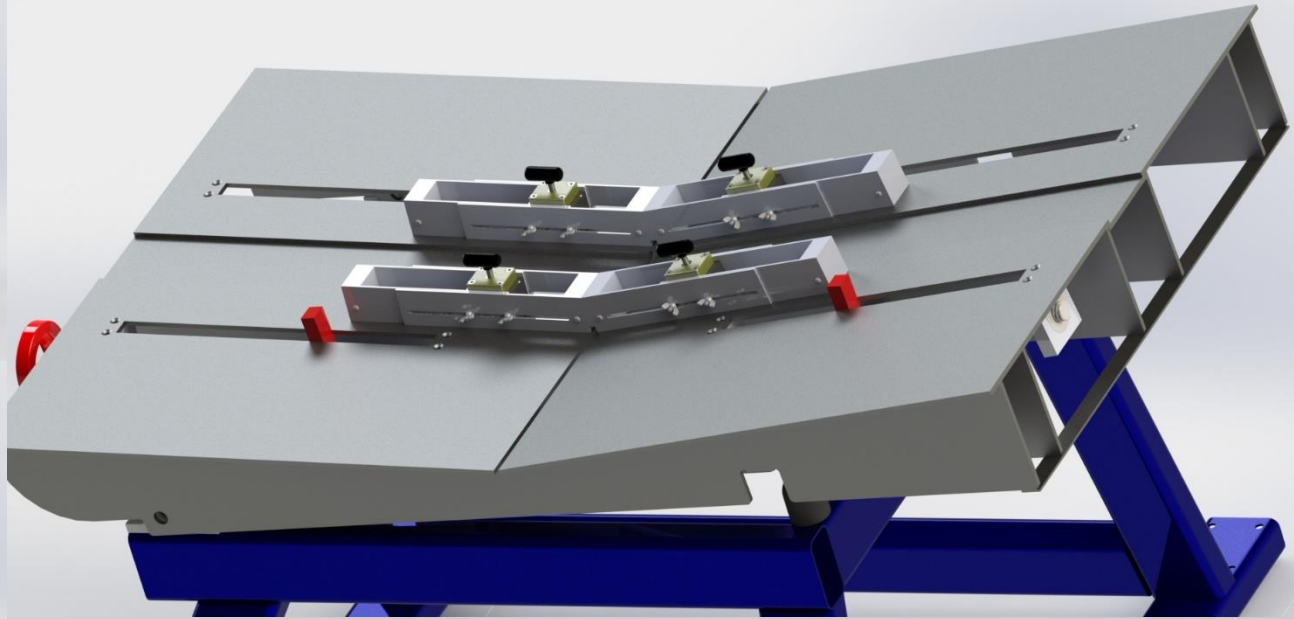
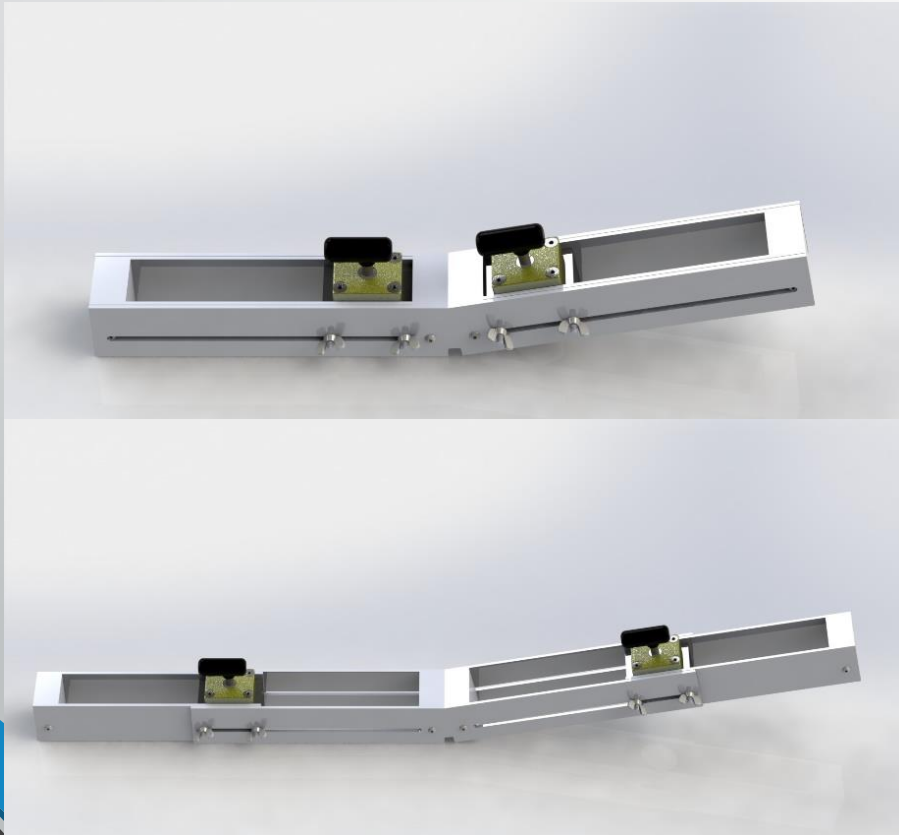
Lead Screw Alignment

- Highly adjustable to fit many pan sizes
- Easy to use handle
- Durable



Clamping Method

- Low Profile Design for ease of use
- Adjustable to reduce warping issues for many sizes of drain pans



Current Purchases

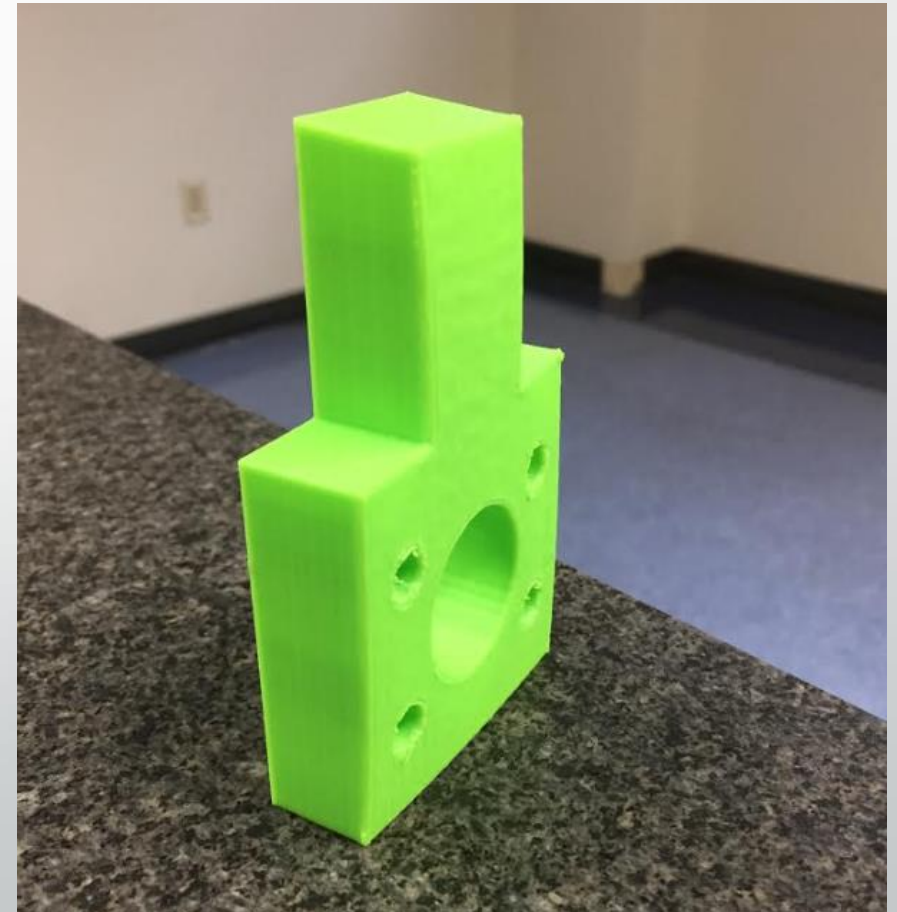
\$68.26 MagSwitch MagSquare 165 (magnet)

\$118.71 Force Meter

\$21.99 3D Printer Filament

\$208.96 spent

\$5791.04 remaining



Future Purchases

- Does not include
- Dampers (2): \$80-\$200
- Hardware: ~\$20 total
- Metal for new table design: ~\$300

PART NO.	DESCRIPTION	QUANTY	PRICE	TOTAL	Global Industry
1497K31	Keyed Rotary Shaft, 1045 Carbon Steel, 1/2" Diameter, 24" Long	1	29.37	29.37	ACDSUPPLY
6698K17	ACME Clamp-on Collar with 1"-5 Threaded-Bore	4	15.32	61.28	McMaster -Carr
8285K33	Steel Pin-and-Block Single U-Joint with Keyway, 1/2" Shaft Diameter, 1" Shaft Depth, 3-3/8" Overall Length	2	68.85	137.7	Energy Suspension Parts
9783T30	Step-Down Shaft Adapter for 1" x 3/4" Diameter Shaft	2	63.53	127.06	
60265K42	Spoked Powder-Coated Aluminum Dished Hand Wheel without Handle, 4" Wheel Diameter, 1/2" Hole Diameter	2	27	54	
60355K605	Ball Bearing, Double Shielded, for 1" Shaft Diameter, 2" OD	8	11.89	95.12	
60845K59	Two-Piece Clamp-on Rigid Shaft Coupling with Keyway for 1" x 1/2" Diameter Shaft, Steel	4	120.59	482.36	
99030A125	1018 Carbon Steel Precision ACME Threaded Rod, 1"-5 Size, 1/5" Travel Distance/Turn, 6' Long, Right-Hand Thread	1	60.26	60.26	
99030A525	1018 Carbon Steel Precision ACME Threaded Rod, 1"-5 Size, 1/5" Travel Distance/Turn, 6' Long, Left-Hand Thread	1	60.26	60.26	
8100238	Magswitch Magsquare 400	4	89.75	359	
T9FB235320	Mounted Ball Bearing, Pillow Block, 1-1/4" Bore Browning VPS-220	2	72.95	145.9	10
99101	Energy Suspension 9.9101 Bump Stops (2 quantity)	2	11.37	22.74	
				1635.05	

Schedule

- Finalize Clamping & Alignment Methods (with client input): Wednesday 2/22
- Start Jig Manufacturing: Monday 2/27
- Design Expo: Friday 4/28



Questions?