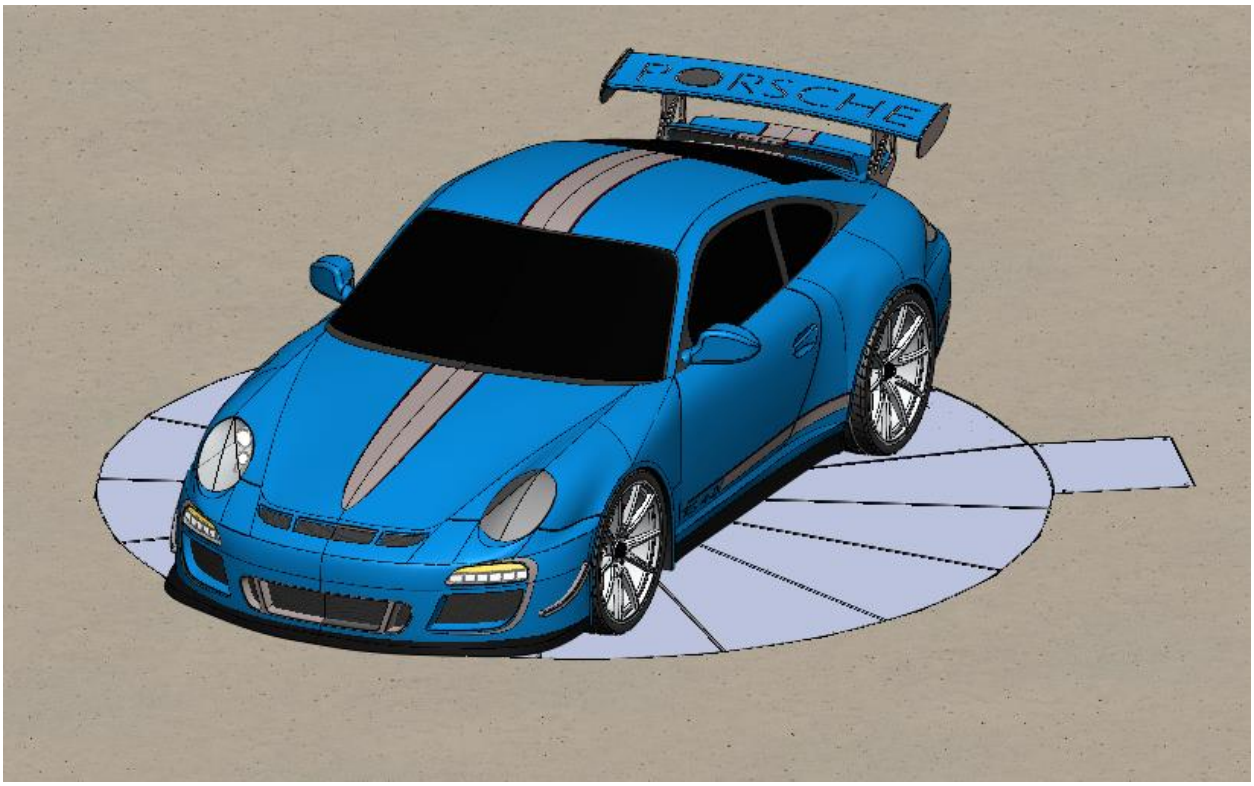
CarouselUSA



Model 40SSO In-Ground Turntable

Operation and Maintenance Manual

Revised 11/9/2022

MANUFACTURER'S LIMITED WARRANTY FOR CAROUSEL USA MODEL 40SSO

The limited warranty set forth below is given by Carousel USA with respect to new merchandise only.

"Carousel USA" warrants this product (excluding its *Normal Wear Parts* as described below) against defects in material and workmanship for a period of two (2) years commencing on the date of delivery to user and will, at its option, repair or replace, free of charge, any part found to be defective in materials or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water, or damage because of other peril or natural disaster. Damage resulting from the installation or use of any part, accessory or attachment not approved by Carousel USA for use with the product(s) covered by this manual will void your warranty as to any resulting damage.

Normal Wear Parts are warranted to be free from defects in material and workmanship for a period of (1) one year from the date of delivery to user. Normal wear parts include, but are not limited to items including: support wheels, and pinion gears. ***Finishes warranty:*** this applies to finishes only; turntable components and structures with powder coat finishes, painted finishes, and hot-dip galvanized finishes. Given our inability to dictate how the finish is cared for, the finishes are warrantied for; 5 years for hot-dip galvanized components; 6 months for painted or powder coated finishes.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE, through Carousel USA.

Carousel USA
15206 Ceres Avenue
Fontana, CA 92335
626-334-7190
www.carousel-usa.com

This limited warranty does not provide coverage in the following cases:

Routine maintenance items such as lubricants, drive adjustments, deck adjustments, running gear cleaning, and normal deterioration of the exterior finish due to use or exposure.

a. Service completed by someone other than an authorized service dealer.
b. Carousel USA does not extend any warranty for products sold or exported outside of the United States and/or Canada, and their respective possessions and territories, except those sold through Carousel USA's authorized channels of export distribution.
c. Replacement parts that are not genuine Carousel USA parts.
d. Transportation charges and service calls.

No implied warranty, including any implied warranty of merchantability or fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product, shall bind Carousel USA. During the period of the warranty, the exclusive remedy is repair or replacement of the product as set forth above.

The provisions as set forth in this warranty provide the sole and exclusive remedy arising from the sale. Carousel USA shall not be liable for incidental or consequential loss or damage including, without limitation, expenses incurred for substitute or replacement turntable services or for rental expenses to temporarily replace a warranted product.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. **Alteration of safety features of the product shall void this warranty.** You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser.

HOW STATE LAW RELATES TO THIS WARRANTY: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

IMPORTANT: Owner must present Original Proof of Purchase to obtain warranty coverage.

Table of Contents

1. Scope

This manual provides a technical description, installation, and instructions for the general safety and maintenance of the *40SSO Turntable.*

2. Introduction

This turntable is designed with special features to fulfill system operation requirements as follows:

- In-ground turntable for installations requiring a concrete pit
- Pin-gear drive system, providing accurate and consistent torque without slippage
- Tapered roller bearing; main center bearing
- Roller bearing support wheels manufactured by CUSA, and made from extruded Nylon 6/6 containing finely divided particles of MoS2 offering enhanced load bearing capabilities and increased wear and friction resistance.
- ¾ HP, commercial quality, Nord motor and helical-worm gearbox

3. Technical Description

A. Mechanical Operation

The rigid steel turntable is supported by and rotates on a heavy duty tapered roller bearing at the center axis and 30 support wheels on the outside of the turntable. The turntable is powered by a ¾ HP Nord gearmotor. The Gearbox output shaft is connected to a pinion gear. The pinion gear meshes with the grooves which span the perimeter of the turntable and rotates the turntable in either direction with reliable and consistent torque.

B. Table of Specifications

Turntable Diameter	157 ½'' [4000mm]
Turntable Height	3 ¼'' [83mm]
Load Capacity	6,000 LB operating capacity
Top Surface	3/16'' [4.8mm] Steel
Rotation Speed (CW &CCW)	0.3 to 1.2 RPM
Hardware	Grade 8.8 or equivalent

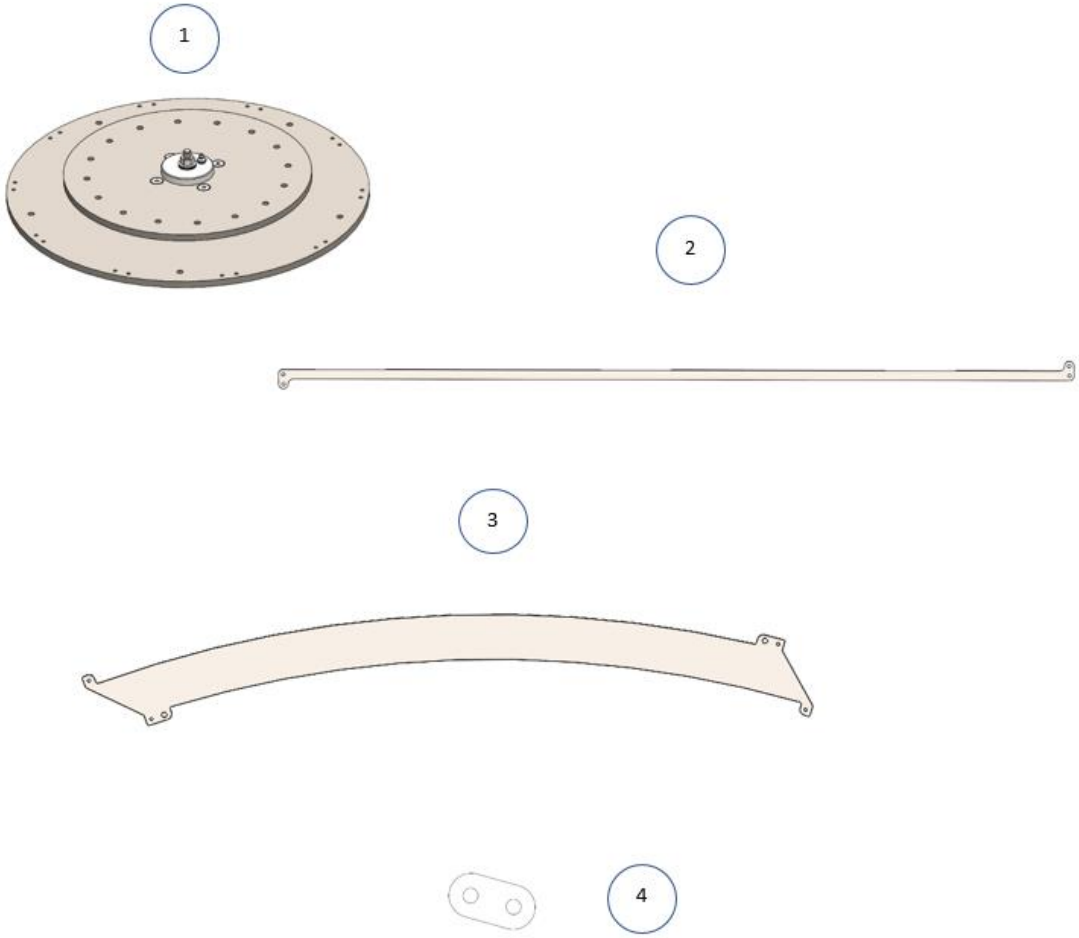
4. Installation

A. General

Unload the turntable components from the shipping crate. Make note of any damage that may have occurred during transit. Contact Carousel USA immediately if there is significant damage during transit.

B. General Turntable Installation

ITEM #	PART NAME	PART NUMBER	QTY PROVIDED
1	CENTER BEARING ASSEMBLY	CA-40SSV	1
2	TRACK LOCATOR	T2101-40SSV	10
3	REGULAR TRACK	T2100-40SSV	10
4	TRACK CONNECTOR	T2102-40SSV	10



ITEM #	PART NAME	PART NUMBER	QTY PROVIDED
5	PIE ASSEMBLY - MALE - FEMALE	PW-40SSV-MF	14
6	PIE ASSEMBLY – FEMALE (40SSO SPECIFIC)	PW-40SSV-F-IN GROUND	1
7	PIE ASSEMBLY - MALE	PW-40SSV-M	1
8	MOTOR ASSSEMBLY	MA-40SSV	1
9	HATCH ASSEMBLY	M7003	1
10	CENTER PANEL	T6400-40SSV	1

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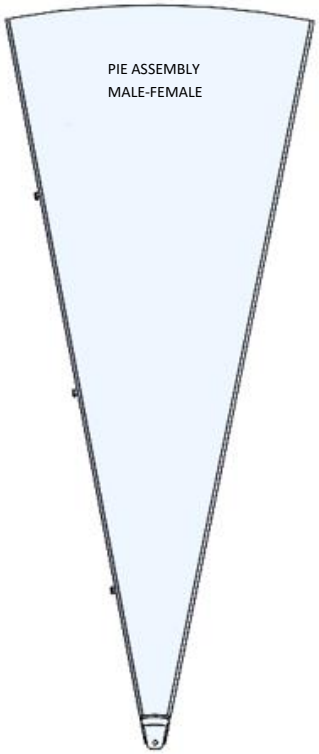

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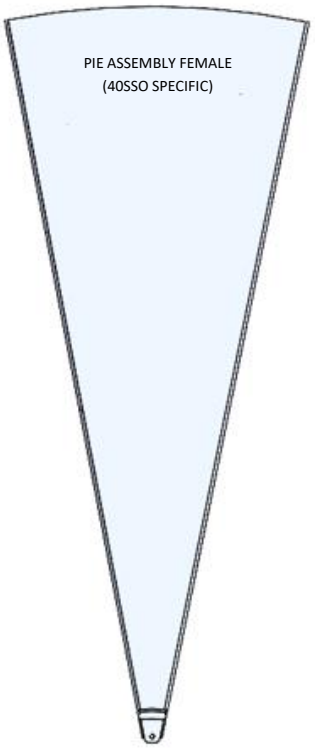

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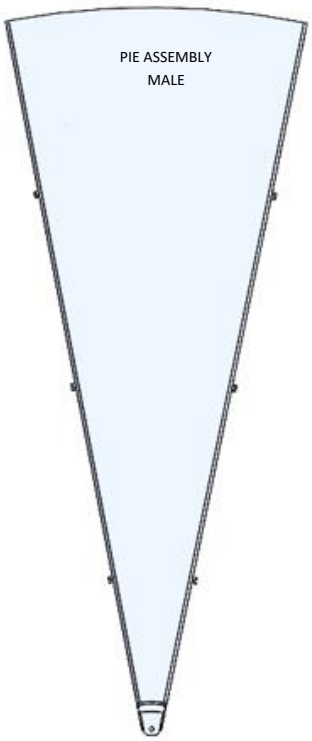

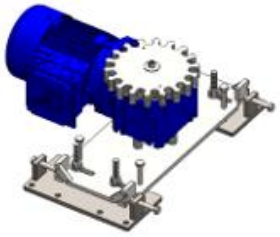

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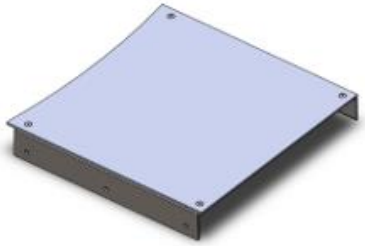

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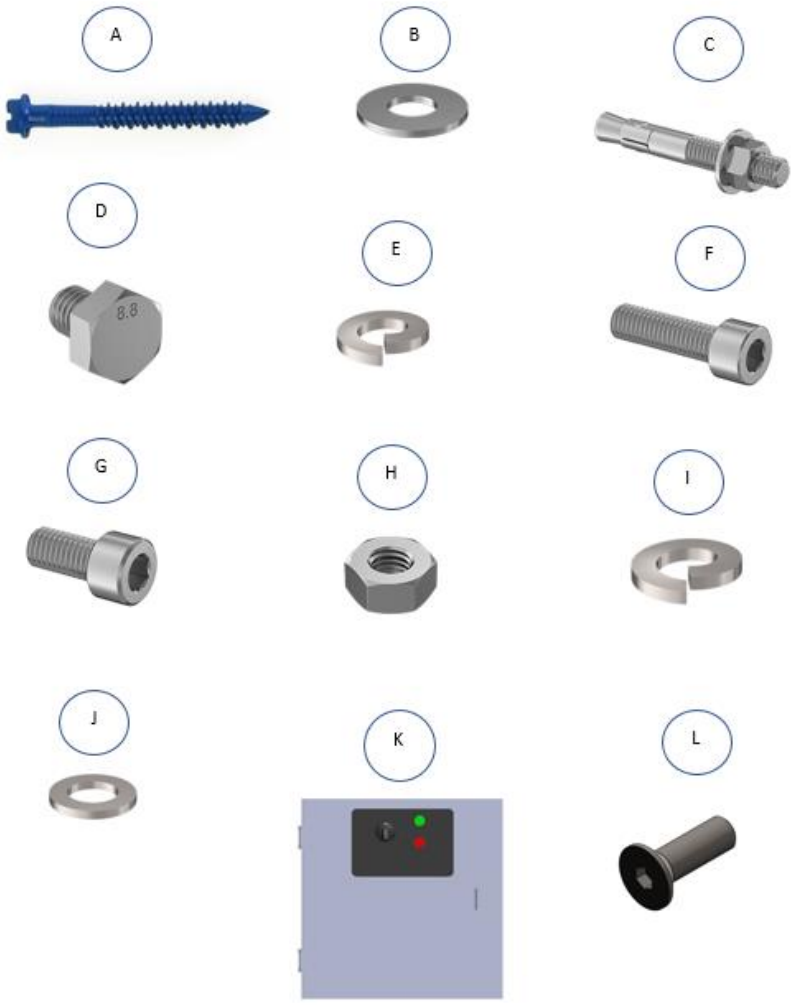
ITEM #	PART NAME	DESCRIPTION	QTY PROVIDED
A	ANCHOR14134	SELF TAPPING ANCHOR 5/16'' X 2-¾''	16
B	WA516	5/16'' FLAT WASHER	8
C	ANCHOR38334	3/8'' x 3 ¾'' CONCRETE STUD ANCHOR	10
D	HHCSM608	HEX HEAD CAP SCREW M6 X 8MM	64
E	SWAM6	SPLIT LOCK WASHER M6	64
F	SHCSM1035	SOCKET HEAD CAP SCREW M10 X 35MM	16
G	SHCSM1020	SOCKET HEAD CAP SCREW M10 X 20MM	16
H	HNUTM10	HEX NUT M10	32
I	SWAM10	SPLIT LOCK WASHER M0	40
J	WAM10	M10 FLAT WASHER	16
K	SCB-4M	ELECTRONIC CONTROL BOX 4M	1
L	FHCSM825	FLAT HEAD CAP SCREW M8 X 25	4

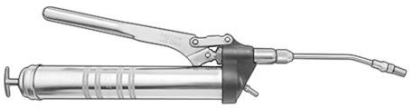


Control Panel

TOOLS REQURIED FOR INSTALLATION

HAMMER DRILL

SHOP VACUUM



GREASE GUN W/ LITHIUM COMPLEX TYPE II EP2 GREASE

3/8'' X 6'' MASONRY DRILL BIT

1/4'' X 6'' MASONRY DRILL BIT

METRIC SOCKETS 10, 17, 19MM

IMPACT DRIVER & DRILL

METRIC IMPACT BIT SOCKETS 8MM

METRIC TEE-HANDLE KEYS 8MM (OPTIONAL)

NUT DRIVER BIT 5/16''

MISC. METRIC SPANNER WRENCHES 10, 17, 19MM

M8 X 1.25 TAP

DEEP SOCKET (9/16'')

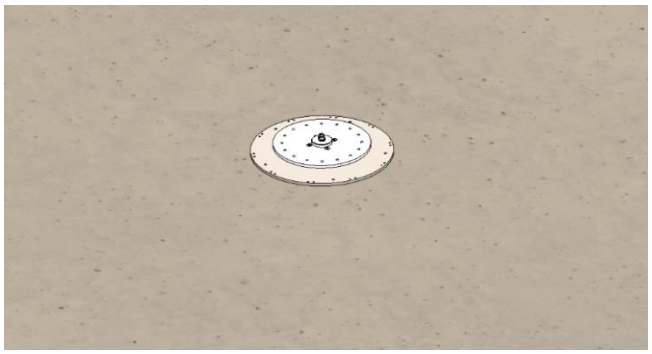
3/8'' DRIVE TORQUE WRENCH

6.8MM DRILL BIT

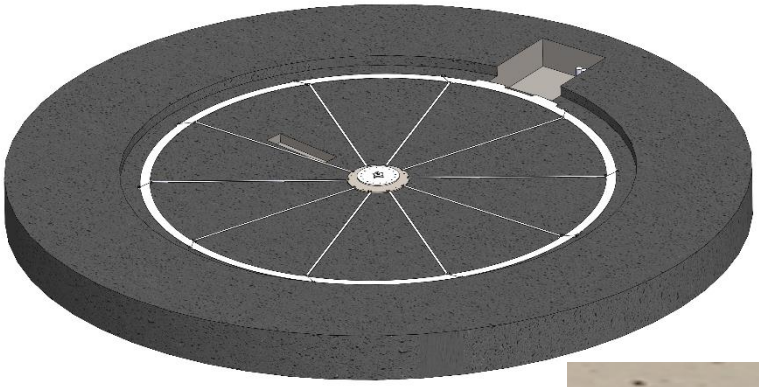
Step 1: Floor Preparation and Center Bearing Layout and Anchoring

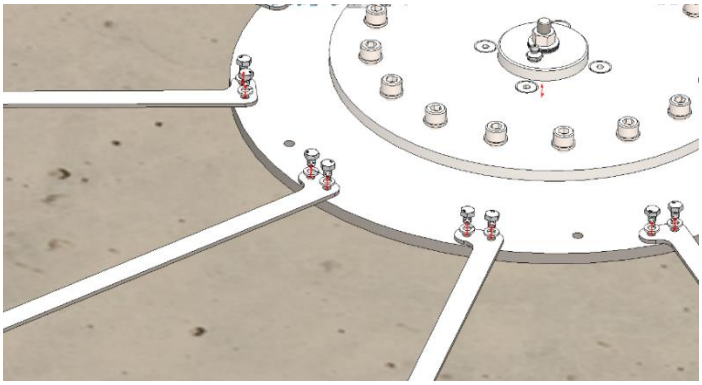
A. Prepare the installation site ensuring the surface is ***Smooth, Flat,*** and in **Good Condition** to support the loads that will be applied to floor. ***Floor Flatness height deviation shall be no more than 1/8''***. Smoothen any uneven cracks and surfaces where the center bearing and tracks will be placed with dry pack mortar, epoxy resin, etc. ***Un-even surfaces will result in installation difficulties, unwanted noise, and premature wear***. Recommended diameter of smooth and flat surface to be a minimum of 150".

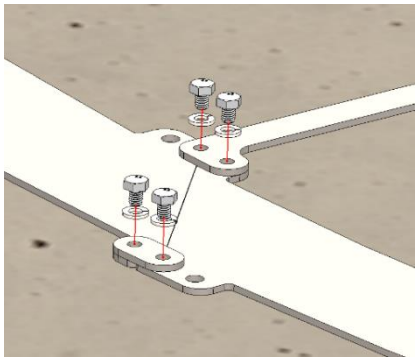
B. Place the center bearing/hub assembly in the exact center of turntable pit with 1/16" accuracy. Use the ¼'' masonry bit with a hammer drill and bore 5 holes into the floor at the given holes for the center bearing base plate. The holes should be ½'' deeper than the screw embedment (3.25" hole depth). Use a shop vac or compressed air to remove dust and floor particles while drilling. Insert the pointed end of the 5/16'' anchors (item A) into the holes to fasten down to the center bearing. Drive the screw *slowly,* allowing the threads to tap into the concrete. ***Ensure that all screw heads are screwed all the way down. If the screw heads protrude up too far, they will collide with the rotating turntable and cause damage to the equipment.***



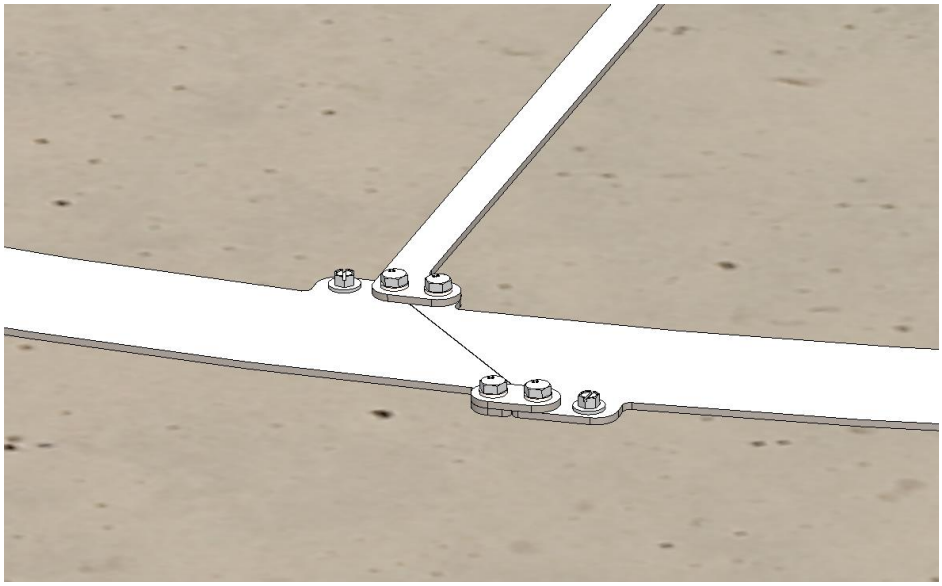
Step 2: Lay-out track parts and connectors. Lay out the Regular Tracks (item 3), Track locators (item 2), and track connectors (item 5) in the orientation as shown in the images below. After all components are set in place, fasten all parts with M6 x 8mm Hex Head Cap Screws and M6 lock washers (items D and E) Tighten all the M6 x 8mm screws to 5-6 ft-lb.





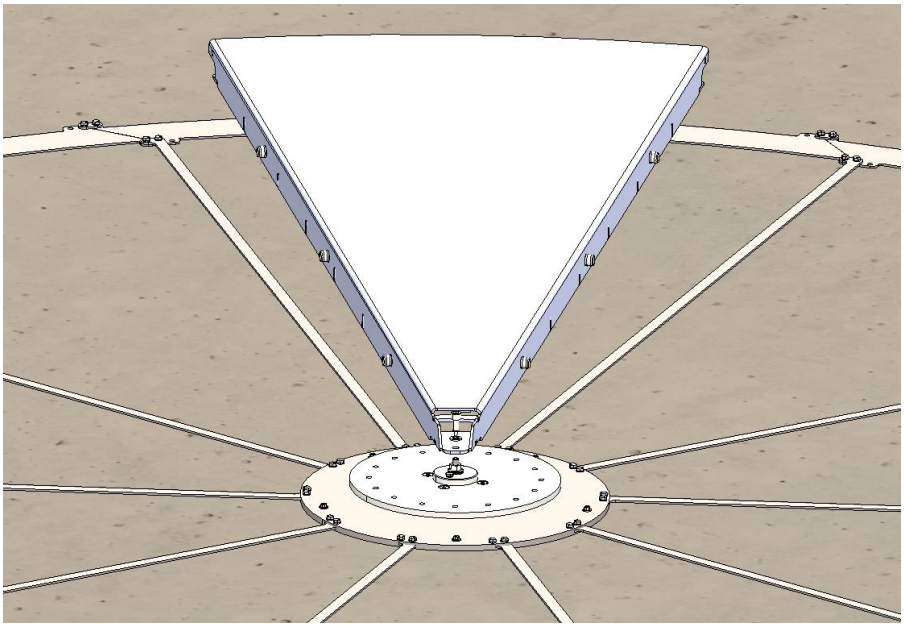


Step 3: Anchoring Tracks to the Floor- Use the ¼'' masonry bit with a hammer drill and bore holes into the floor at the given holes on the tracks (two holes per track segment). The holes should be ½'' deeper than the screw embedment (3.25" hole depth). Use a shop vac or compressed air to remove dust and floor particles while drilling. Insert the pointed end of the 5/16'' anchors (item A) into the holes to fasten down the tracks. Drive the screw *slowly,* allowing the threads to tap into the concrete. ***Ensure that all screws heads are screwed all the way down. If the screw heads protrude up too far, they will collide with the rotating turntable and cause damage to the equipment.***

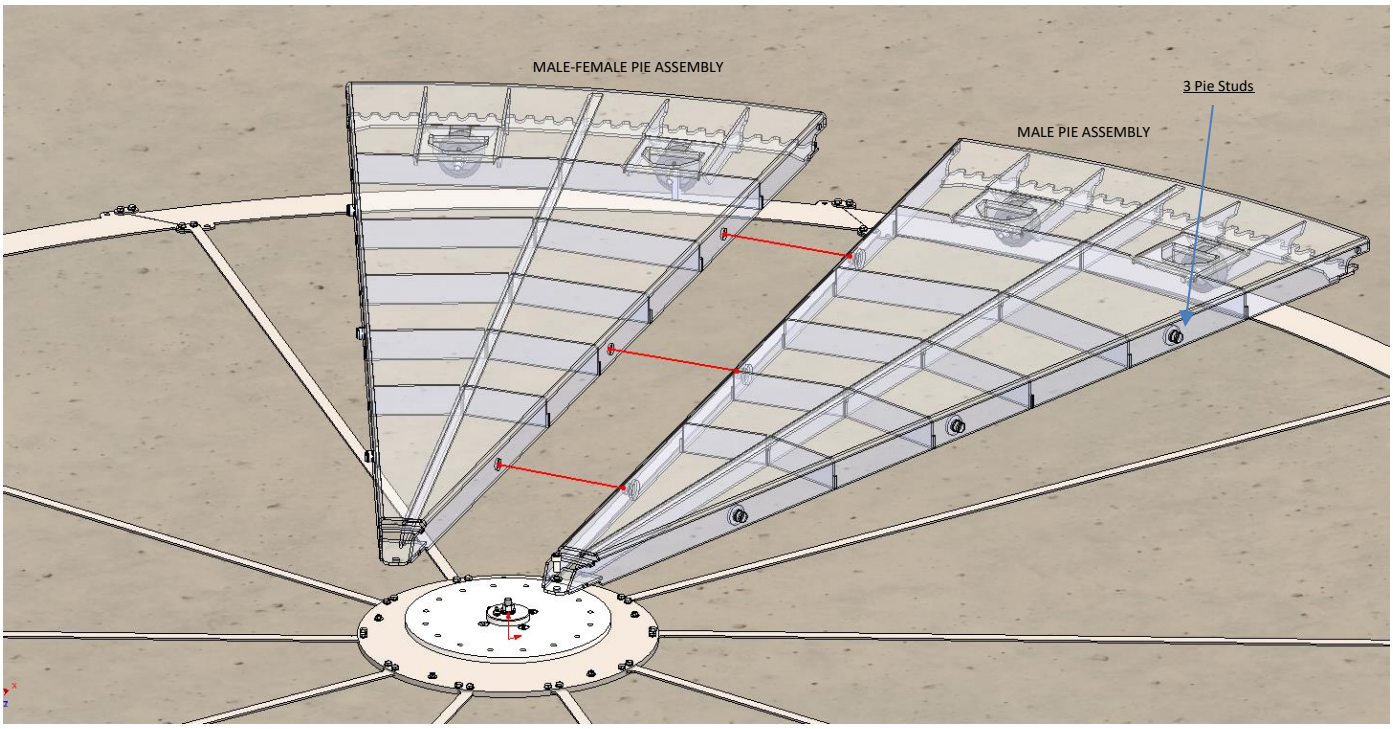


Step 4: Install Pie Assemblies

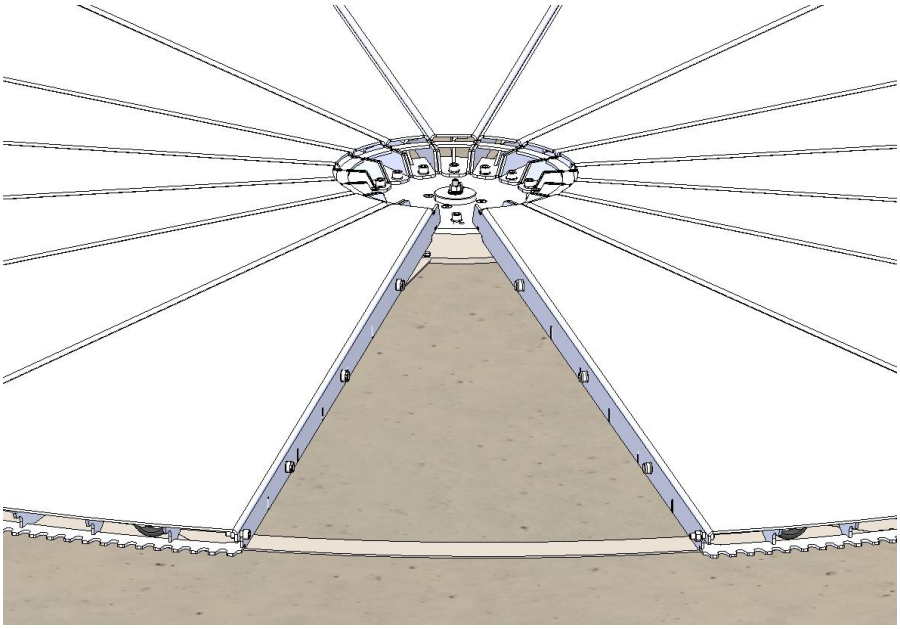
A. Start with the **male pie assembly** (item 7) by laying the pointed end atop the center bearing and support wheels along the curved track. Align a center bearing plate hole with the pie by rotating the circular disc, then use a M10 x 20mm socket head cap screw and M10 lock washer (items I & G) to *loosely fasten* the parts together. **Do Not Tighten ANY of the center bearing/pie connection screws until all the pies are in place.**



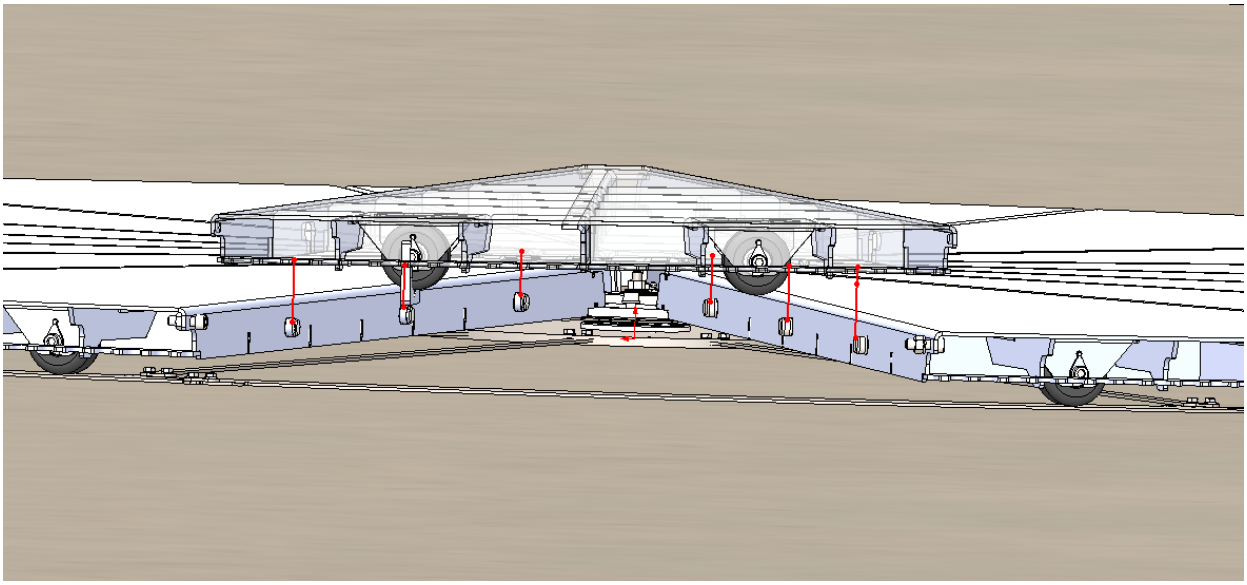
B. Proceed with the **male-female pie assembly** (item 5) on the left side of the first male pie. I.e., layout the pies in a counterclockwise fashion. Align the pies 3 studs with the corresponding holes on the adjacent pie, then by laying the pointed end atop the center bearing and support wheels along the curved track. Align the center bearing plate hole with the pie by rotating the circular disc, then use a M10 x 20mm socket head cap screw and M10 lock washer (items I &G) to *loosely fasten* the parts together. *Do not attempt to install the M10 screw before aligning the 3 pie studs.* **Do Not Tighten ANY of the center bearing/pie connection screws until all the pies are in place.**

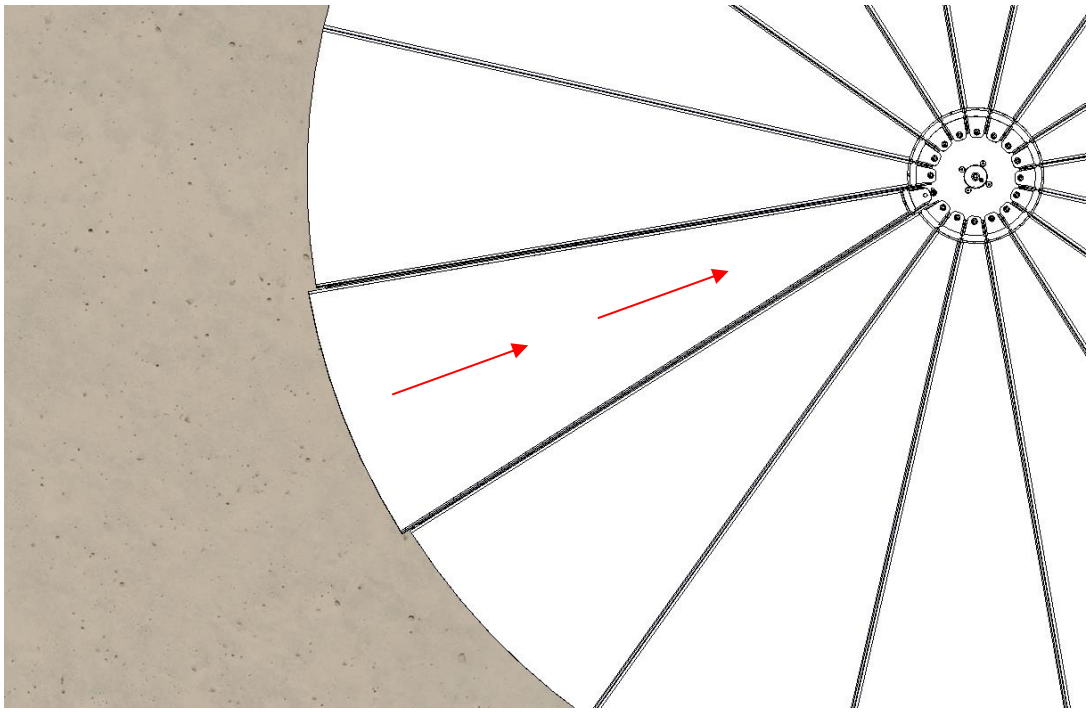


C. Repeat the previous step laying out the male-female pies in a counterclockwise fashion 13 times until only the female pie is left.

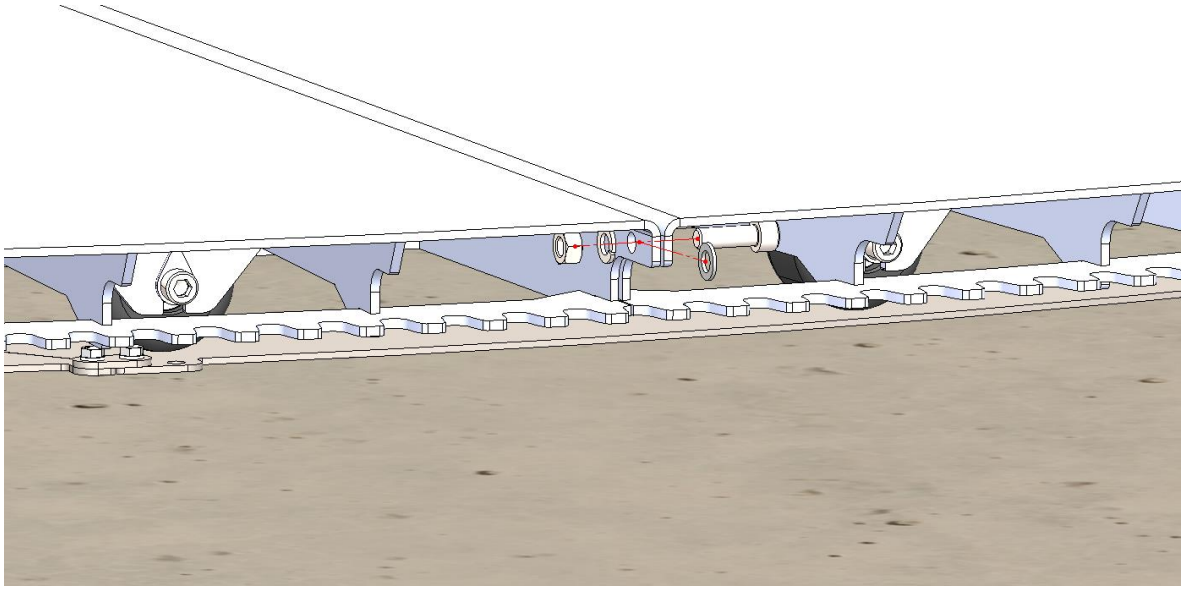


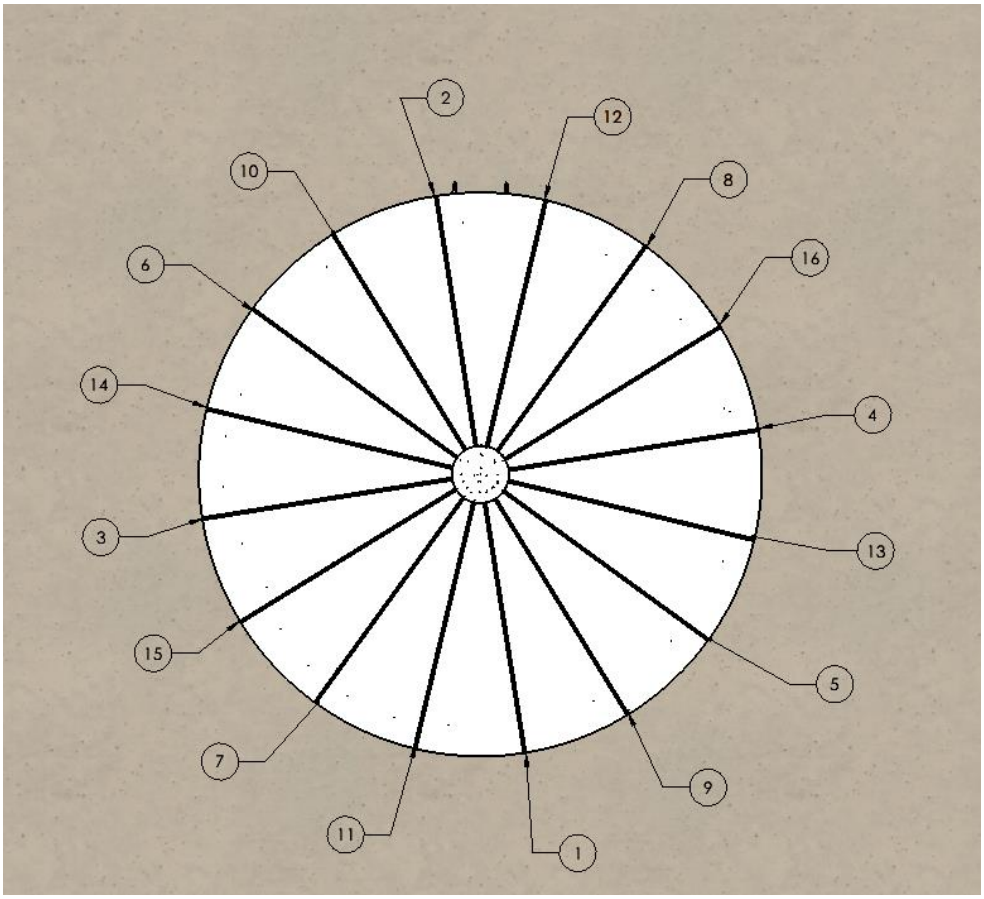
D. Finally, lay the **female pie** from above aligning the 6 grooves on the female pie with the 6 studs. Push the female pie downwards until it is level with the 2 adjacent pies, then push the female pie inwards until the outer radius is concentric. Align the center bearing plate hole with the pie then use a M10 x 20mm socket head cap screw and M10 lock washer (items I &G) to *Securely Fasten* the parts together. Tighten the remaining M10 screws and torque to 25-30 ft-lb.





Step 5: Install Pie Connecting Screws and Pie Alignment Spacing– Align the pie connection holes and install the M10 x 35mm socket head cap screw, M10 flat washer, M10 lock washer, and M10 Hex nut (items F, H, I, J) through 2 pies. Repeat and *loosely fasten* each joint until all 16 connections are made with the hardware. Tighten the hardware in a crisscross and even pattern across the turntable joints and torque the M10 bolts to 20 ft-lb. See images below.



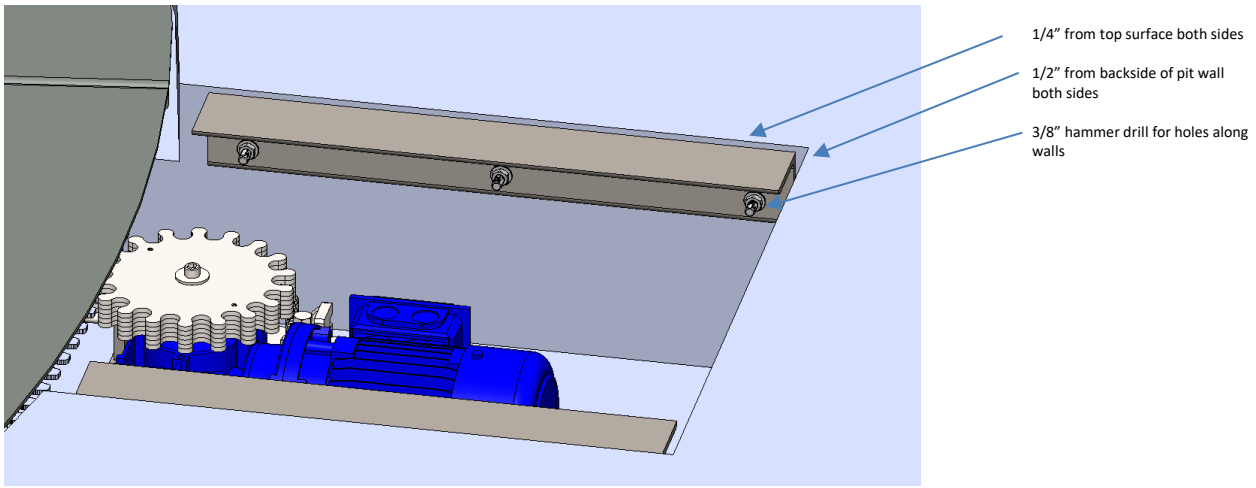


Step 6: Install Center Panel - Simply place the Center Panel (item 10) in the turntable center opening. No hardware is required.

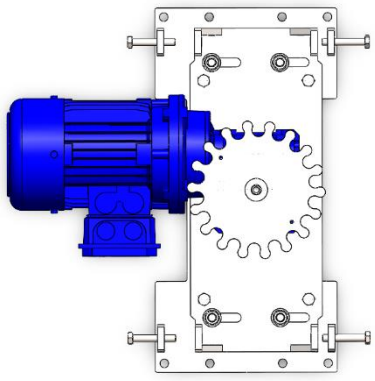
Step 7: Apply Grease to the Tracks - Grease must be applied to the circular track to reduce wheel wear, noise, and vibration. Use a grease gun and apply a generous bead of grease along the outer perimeter of the tracks. This is where the support wheels roll along as the turntable rotates. Use lithium type II grease.

Step 8: Install Motor and Hatch Assembly

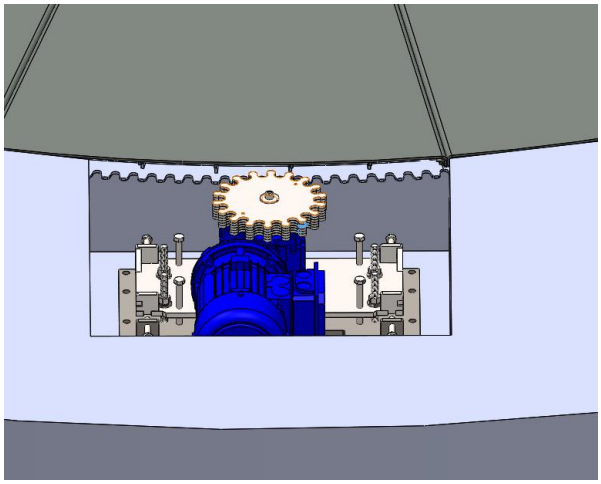
A. Attach the hatch angles to the side walls of the pit cutout for the motor. The top surface of the angles must be 1/4" below the top surface of the pit and 1/2" from the back side of the pit wall. Use a 3/8" hammer drill to create 3 holes on the sides of the hatch angles as shown below. Insert anchor and tighten nut to 40 ft-lb

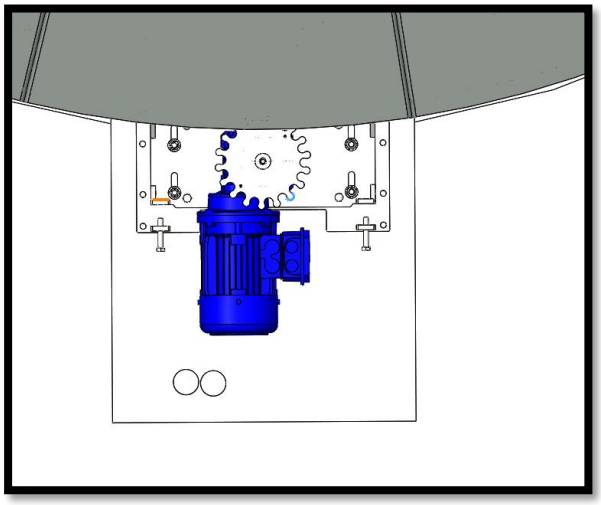


B. Loosen all screws and hex nuts on motor assembly. Adjust the top plate of the motor assembly so that it is pushed all the way forward.



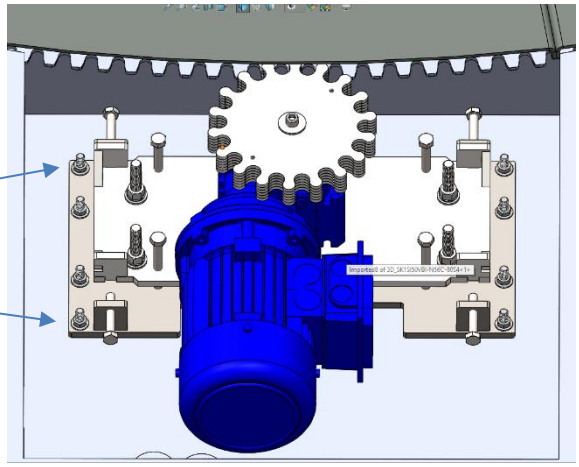
C. Place the motor assembly inside the pit cutout. Center the motor assembly within the pit, making sure to also keep the center of the pinon gear in line with the center of the turntable. Push the motor assembly all the way inwards until the pinion gear and turntable teeth meshes and bottoms out. It may be helpful to use a permanent marker to scribe a line on the back edge of the base plate to visually notice where the base plate is located. Once the pinion gear is centered and level use a 3/8" hammer drill and bore (4) holes and insert (4) 3/8'' concrete stud anchors on the corner outside holes of the bottom plate to fasten motor assembly in place. Tighten stud anchors to 40 FT-LB. After the motor assembly is anchored down, move the pinion gear back (out) 1/8" to give the pinion and turntable mesh backlash or clearance. Tighten all screws and hex nuts on the motor assembly to lock in the backlash adjustment. Torque M12 Nuts to 35-40 ft-lb.

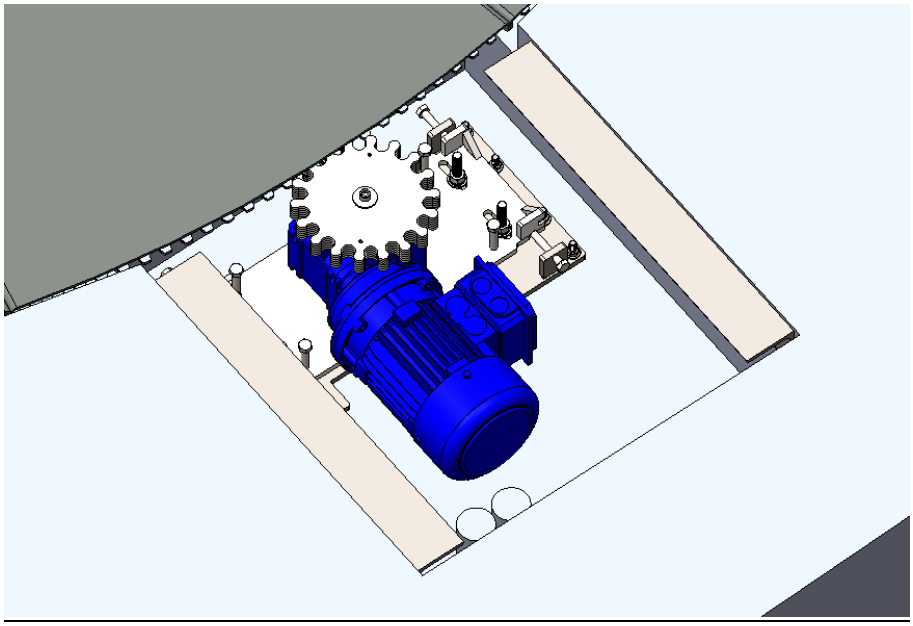




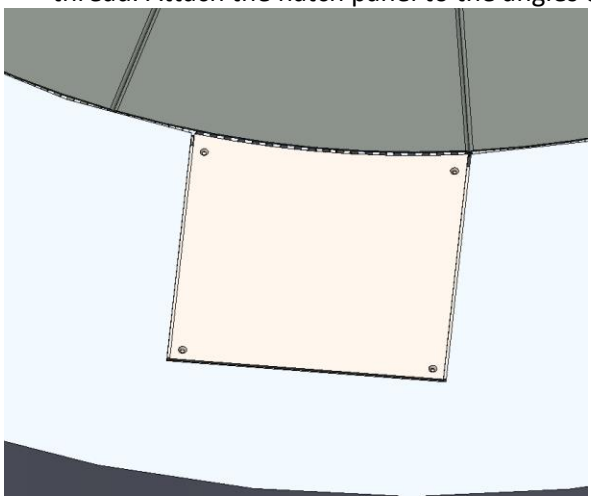
Note: Hatch angles were hidden to clearly show position of motor

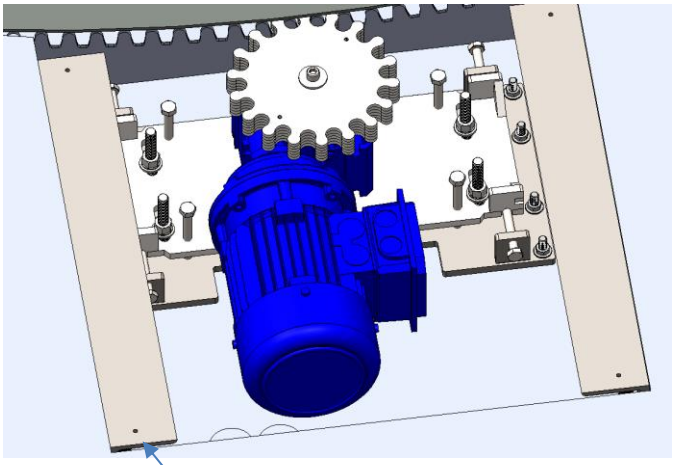
4x 3/8" hammer drill studs, both sides



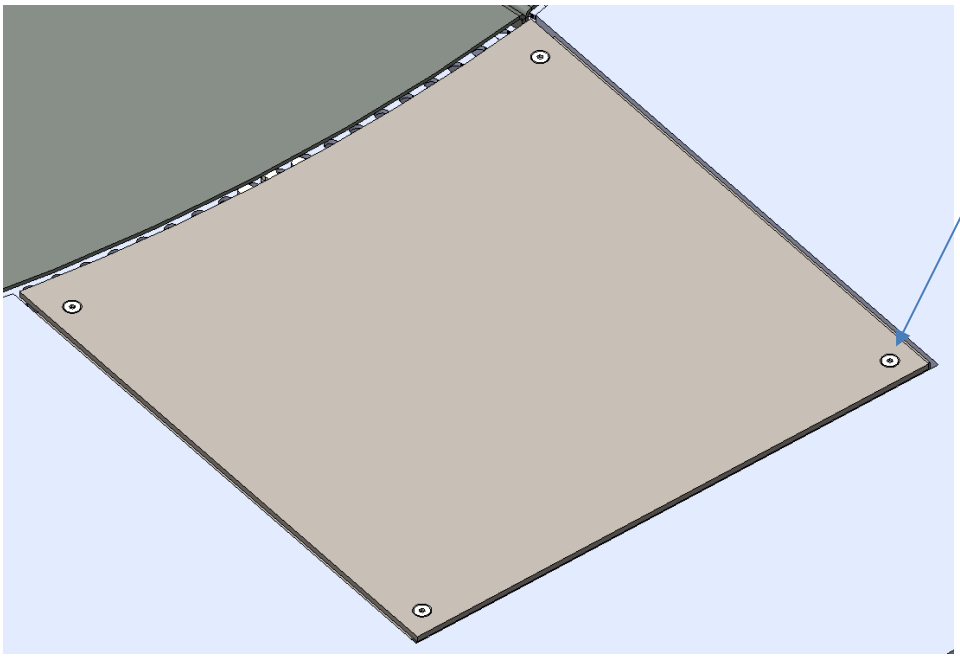


D. Place the hatch panel over the hatch angles and align its edges with the pit cutout. Use this panel as a template to drill holes on the top surfaces of the hatch angles. Once the panel is aligned. Use a 6.8mm drill bit to create (4) holes on the hatch angles. After creating these holes, use an M8x1.25 tap drill to create thread. Attach the hatch panel to the angles using M8x1.25x25mm flathead cap screws.





4X M8 screw clearance from 5mm diameter thru holes


4X M8x1.25x25mm
flathead cap screw

5. Maintenance

WARNING

TO PREVENT INJURY TO MAINTENANCE PERSONNEL OR DAMAGE TO EQUIPMENT, ALWAYS VERIFY THAT NO EXTERNAL VOLTAGE IS SUPPLIED TO THE TURNTABLE AND THAT THE SAFE/OPERATE SWITCH IS IN THE SAFE POSITION PRIOR TO PERFORMING ANY MAINTENANCE WORK.

IF POWER MUST BE APPLIED FOR TEST PURPOSES, TAKE ALL THE STEPS THAT ARE NECESSARY IN ORDER TO AVOID INJURIES AS A RESULT OF ELECTRICAL SHOCKS AND MOVEMENT OF MECHANICAL UNITS.

A. Summary of Maintenance Schedule

	Type of Maintenance	*Recommended Time Period*
B	Visual/Audible Inspection	Weekly
C	Cleaning Program	As required
D	Track Lubrication	100 operating hours
E	Center Bearing Lubrication	100 operating hours or every 12 months
F	Pin-Gear Lubrication	100 operating hours
G	Center Bearing Seals Inspection	12 months
H	Gearbox Replace oil	N/A

B. Visual/Audible Inspection

Inspect the motor, drive gear, electrical components, wiring and wire connections for signs of damage or wear. Continued monitoring of equipment appearance, noise, roughness, and vibration during operation can assist in early detection of poor or unsafe components, structural failure, or poor bearing performance. The operator should be very familiar with the typical operating conditions generated by the equipment. Investigate and resolve any noted changes.

C. Cleaning Program

The turntable should be cleaned as often as operating conditions require. All outside/exterior surfaces of the turntable require no maintenance, other than what is cosmetically necessary. Compressed air should not be used to clean out particulate matter that may become trapped as airborne particles will adhere to the lubricated teeth if blown toward the inside. Do not expose the center bearing and support wheel seal areas to pressurized cleaning.

D. Track Lubrication

CAUTION: Eye and lung protection is essential when using aerosol lubricants. Extreme caution must be exercised when working under and around rotating equipment. Do not place hands or feet inside or near the mechanical components of the turntable while the equipment is in motion. Disconnect the electrical power when working underneath the turntable's top surface.

The surface of the support wheels rides along flat plates of steel known as the track. Proper lubrication of this surface is important to reduce excessive wear on the wheel surfaces. Lubrication should occur at intervals of no more than 100 hours of turntable operation. A synthetic, non-petroleum-based product is recommended, such as ***Mobil 1 Synthetic Grease*** or similar.

E. Center Bearing Lubrication

Lubrication of the bearing is recommended every 100 operating hours for relatively slow rotating or oscillating applications. Idle equipment should not be neglected. Grease dries out and "breathing," due to temperature changes, can cause condensation within the bearing. Whether used or not, the bearing should have grease introduced every 12 months. The bearing should then be rotated a few times to coat all surfaces with fresh grease. The bearing is filled with Red Lithium Complex type EP2 grease. Do not attempt to disassemble the bearing or remove the ball retaining plug.

F. Pin-Gear Lubrication

The meshing action and usual position of the gear tends to purge the lubricant; thus, the gear should be greased frequently with a small amount of lubricant. A well-maintained gear will provide smooth, quiet, and long service.

G. Center Bearing Seals

Seals should be inspected during routine maintenance as recommended by the designer, but the interval should not exceed 12 months. Check for tears, breaks, or other signs of damage. Depending on the lubrication frequency and protection, it may be necessary to clean some areas to conduct this inspection. Carefully remove any buildup of debris around the seal and lubricate the bearing. For the main bearing seal, there should be a small bead of grease around the seal edge indicating the bearing is receiving sufficient lubrication.

H. Gearbox

The Nord gearbox attached to the drive motor is sealed for life and does NOT require oil changes.

6. Maintenance Log

Date	*Maintenance Description*	*Notes*	*Initials*