



**Renusol** **CS60**

## OVERVIEW

The Renusol CS60 product line is a one piece ballasted PV mounting system for flat roof applications available in 10° and 15° tilts. Most projects require minimal ballast and no roof penetration. Project design can be customized to meet roof pressure limits. Made from 100% recycled high molecular weight polyethylene (HMWPE), this system transports easily and sets up quickly. The Renusol CS60 product line is engineered to mount solar modules on roofs with less than a 5° pitch. The system accommodates all 60-cell aluminum framed modules. During installation, holes can be drilled in the Renusol CS60 base to fit a particular module. A Renusol CS60 drill jig can be purchased separately to make the drilling process quick and easy.

Please read this guide carefully before starting installation. This guide describes the installation steps for both 10° and 15° degree tilt systems. Always follow proper safety precautions. Be sure to check with local building codes to ensure compliance. Check for the latest version of the installation guide at [www.renusolamerica.com](http://www.renusolamerica.com).

## IMPORTANT INSTALLATION DETAILS

### Project Layout

- Always use the Project Layout provided by Renusol.
- Always contact Renusol if the Project Layout needs to be changed so a new one can be quickly developed.

### Site Conditions

- Always check the Coefficient of Friction and compare it to the value on the Project layout. If the actual value is lower than the value on the Project Layout, contact Renusol before installation begins.
- Always clear any ballast stone where the array will be placed and clean the roof surface. Never place array on top of ballast stone.
- Never install a system on windy days.

### Safety

- Always wear long sleeves when assembling the module to the base. The edges of the access holes can be sharp. Using fingerless gloves also helps.

### Assembly Sequence

- Always complete assembly steps 1 and 2 for an array within one day. Never leave the job without all of the ballast blocks placed in the bases, roof anchors and strut attached for a given array.
- Always follow the assembly steps in order.
- Always place all ballast blocks in a base before drilling the base.
- Always check that the drill fixture is still in proper alignment before drilling all holes in the base.

### Materials

- Always use the correct fasteners supplied by Renusol and never use fasteners purchased anywhere else. Contact Renusol if additional fasteners are needed.
- Never mix fasteners from “Bag A” and “Bag B”.
- Take a sampling of weight measurements as block weight vary by manufacturer and by lot.
- Always measure ballast blocks in the dry state.

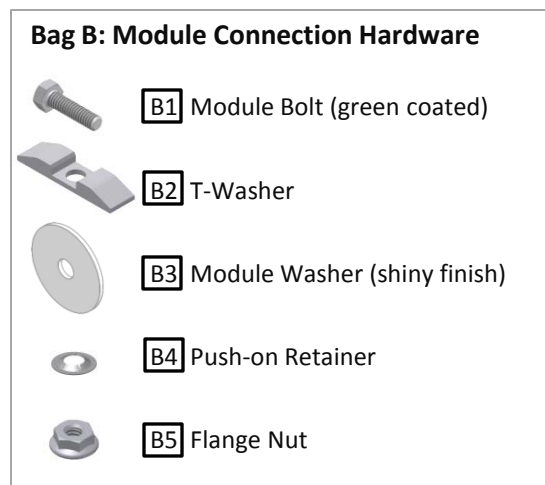
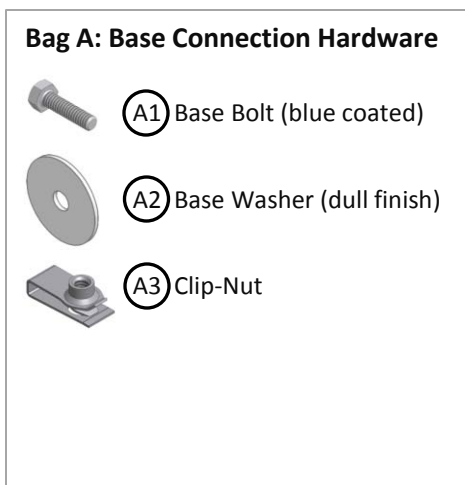
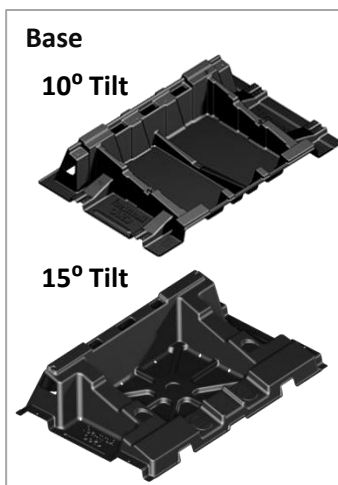
### Contact

- Contact Renusol America with any questions during installation.

**Renusol America Inc.**  
*Solar Mounting Systems*  
1292 Logan Circle  
Atlanta, GA 30318  
+1 (877) 847 8919  
[www.renusolamerica.com](http://www.renusolamerica.com)



## SYSTEM COMPONENTS (Included)



## ASSEMBLY TOOLS (Not Included)



Cordless drill



3/8" Split-point drill bit



1/4" Hex bit adapter



7/16" Socket driver



Flexible 11" shaft extension

Suggest Titan part # 16004 sold online (heavy duty – recommended)  
Ryobi part # A10FB11 (light duty) sold at Home Depot/Lowes



Right angled drive attachment

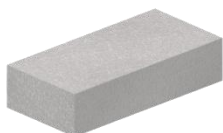
Suggest Milwaukee part # 48-32-2100 (heavy duty – recommended) sold at Home Depot/Lowes or Milwaukee # 49-22-8510 (light duty) sold online



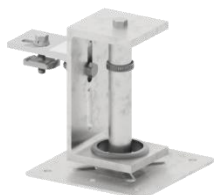
Renusol drill jig

Purchase separately from Renusol part # 500092.

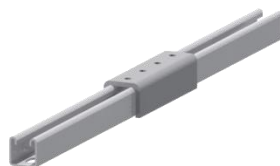
## ADDITIONAL REQUIREMENTS (Not Included)



Solid concrete blocks  
Suggest 4" x 8" x 16"



Roof anchors (if necessary)  
Suggest EcoFasten Solar ECO-44R with C bracket part # C-102-6  
Additional L-foot attachment required from Renusol.



Strut & U-shape fittings (if necessary)  
Use hot-dipped galvanized parts only.  
Unistrut slotted 12 gage 1 5/8 x 1 5/8 strut part # P1000T-HG  
Unistrut U-shaped splice fitting part # P1377-HG



EPDM slip sheet (if necessary)

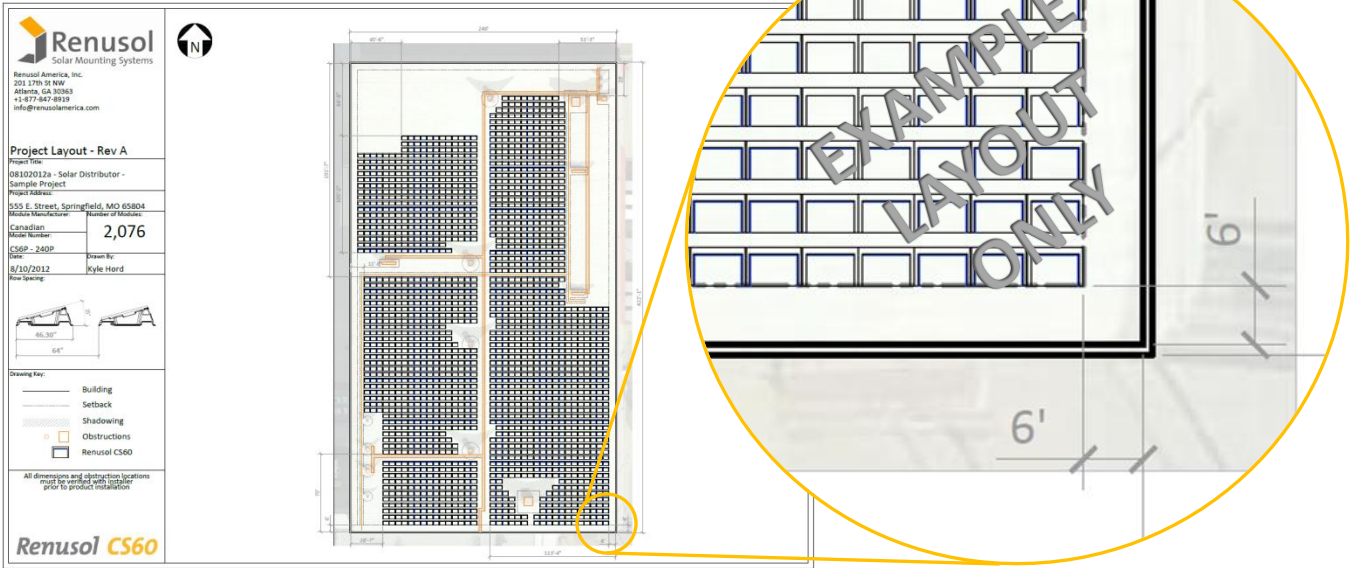


Module Grounding Clip  
Recommend TYCO Electronics 1954381 series.

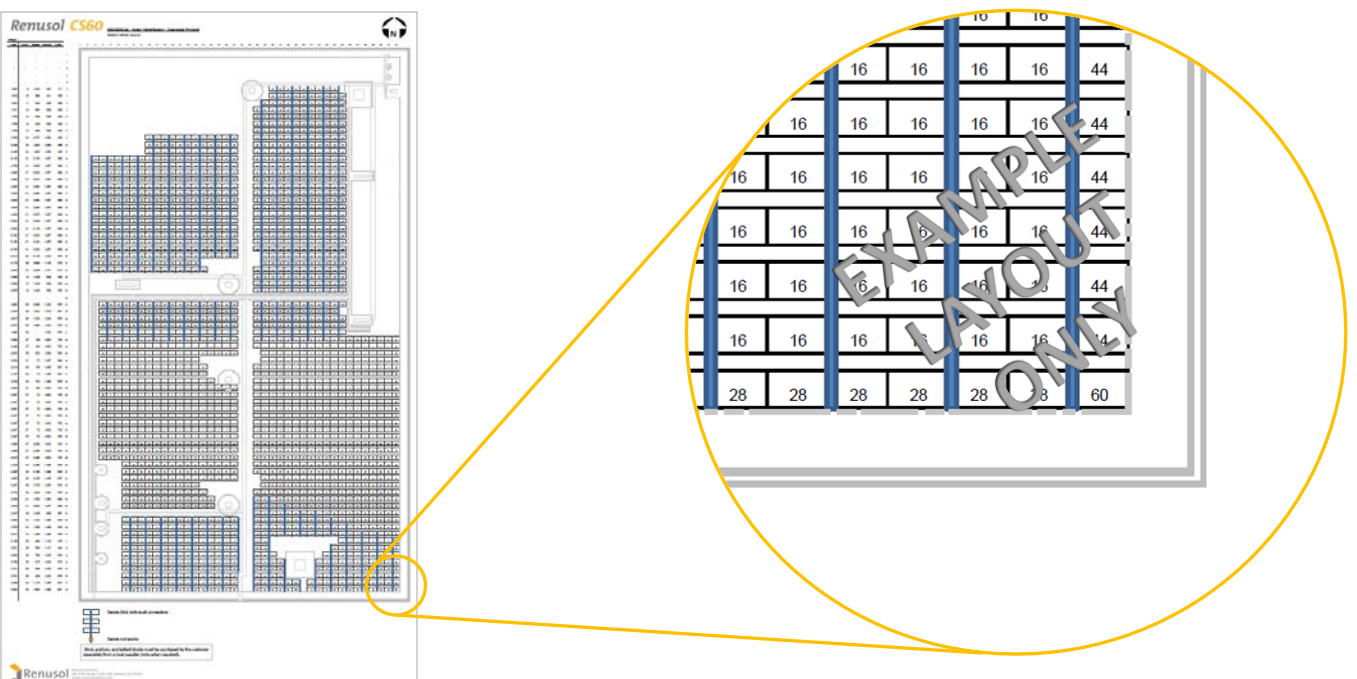
## EXAMPLE PROJECT LAYOUT

Refer to the Renusol CS60 Design Guide and the Project Layout developed by Renusol for your particular project. The layout will show locations of units on the roof, ballast weights per unit, and locations for attaching components on modules. Below are examples of the documentation that will be provided.

Example Roof Layout



Example Layout of Ballast Weight



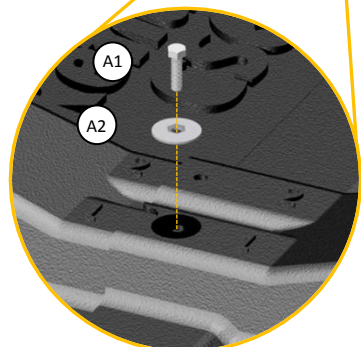
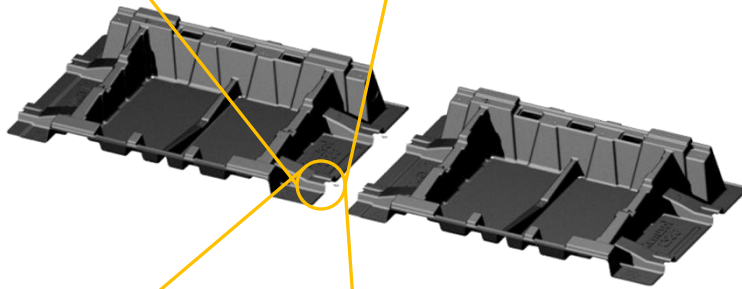
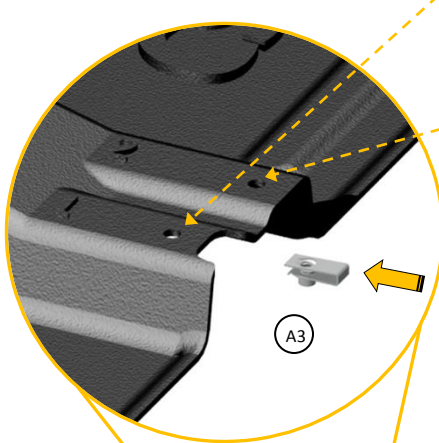
Optional Hole Spacing

(CS60-10° Tilt ONLY)

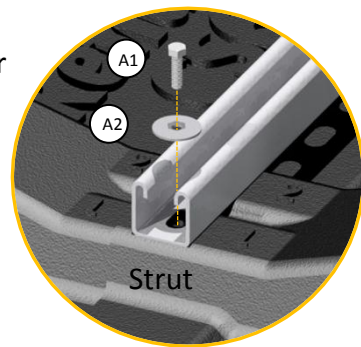
**Hole # 1**  
Designed for module lengths less than 1653mm

OR

**Hole # 2**  
Designed for module lengths greater than 1653mm



or



Array with sample east/west connection and sample strut connection

Step 1. Connect Bases

**Important:** Use Bag A hardware only for Step 1.

Roof surface must be cleared of any stone and cleaned. Place protective mats or slip sheets on the roof surface if needed.

Starting on the west side, place the first base on the roof. Slide (A3) Clip-Nuts over both holes on the east end of the base. For the 10° base, use #1 holes for modules less than 1653mm or #2 holes for larger modules.

**Important:** Threaded portion of (A3) Clip-Nuts must be on the underside of the base as shown.

Place the next adjacent base on the roof with the west end overlapping the east end of the first base and align the interconnection holes.

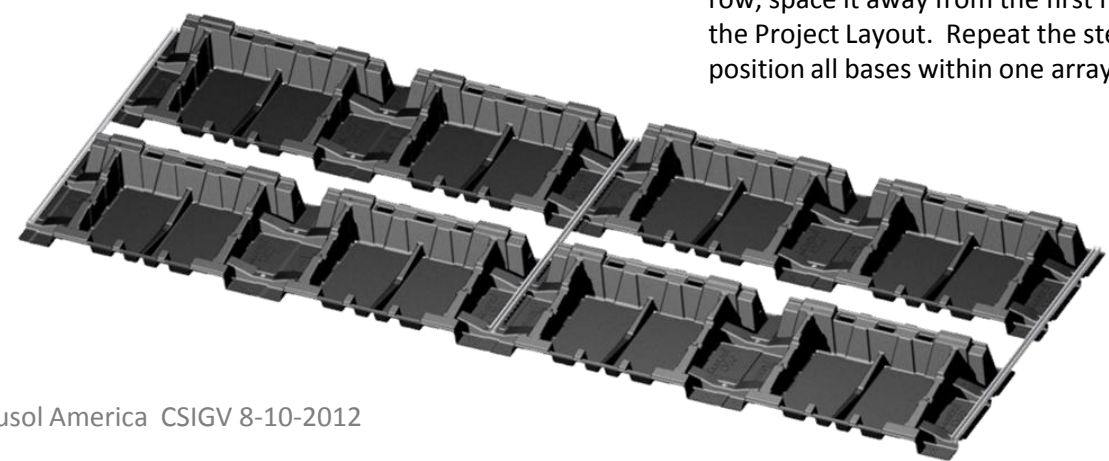
If strut is required per the Project Layout, align the strut slots over the interconnection holes.

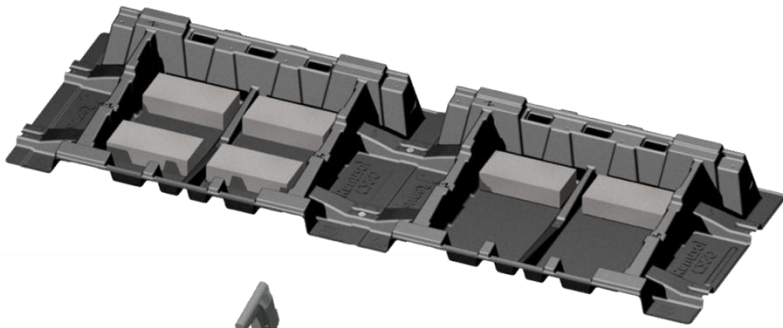
If a roof anchor needs to be installed, refer to the roof anchor manufacturer's installation instructions and install the anchor at this point.

Use the (A1) Base Bolts and (A2) Base Washers to fasten the components together. Tighten to 8 ft-lbs.

**Important:** If using strut, it must fasten to both the front and rear interconnection holes in the base. Use U-shape fittings to join strut lengths.

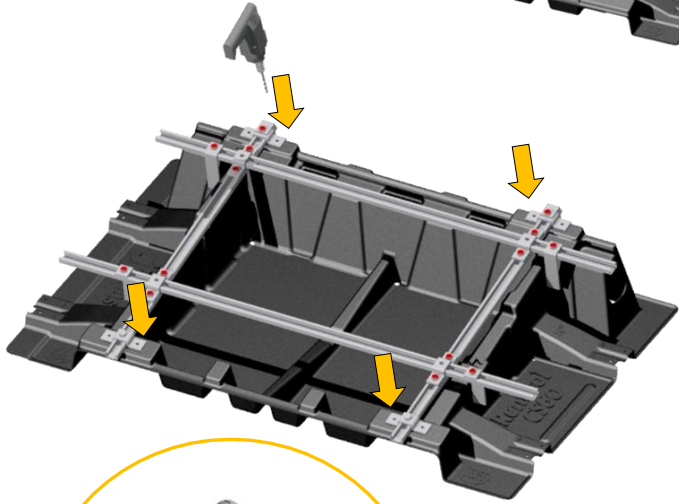
Repeat the steps for the entire row. For the next row, space it away from the first row as defined on the Project Layout. Repeat the steps above to position all bases within one array.





### Step 2. Load Ballast

Using the Project Layout as a guide, add ballast weight to each of the bases.



### Step 3. Drill Base

Place drill jig on base and drill four 3/8" holes in the base through the appropriate holes in the jig. Refer to Renusol Drill Jig Guide for setting jig.

**Important:** Never drill holes before all ballast blocks are added to the base.

### Step 4. Fasten Parts to Module

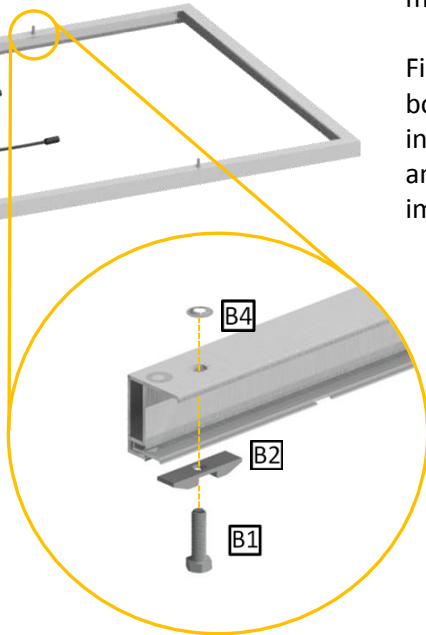
**Important:** Use **Bag B** hardware only for Steps 4 and 5.

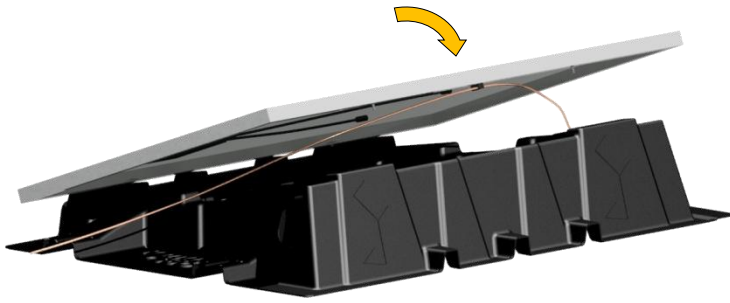
Flip module face side down. Attach a grounding lug to the module per the manufacturer's instructions.

Find the mounting holes or slots in the bottom of the modules. Using the fasteners in **Bag B**, install the **B1** Bolts, **B2** T-Washers, and **B4** Push-on Retainers as shown in the image.



Grounding Clip

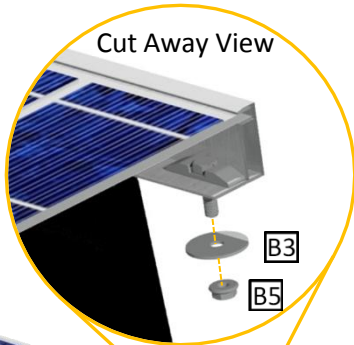




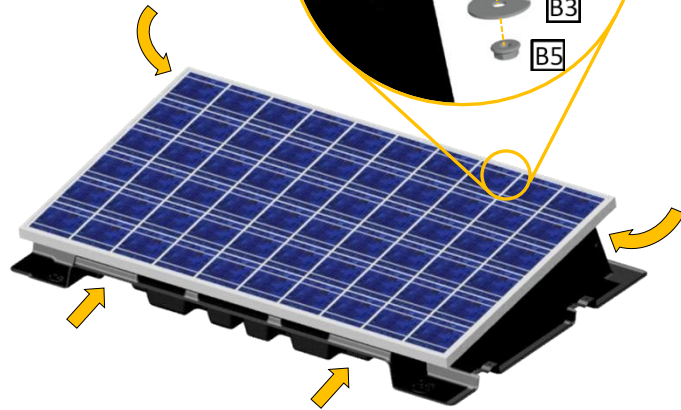
### Step 5. Fasten Module to Base

Set the module assembly onto the base with the four screw studs in line with the four holes in the base.

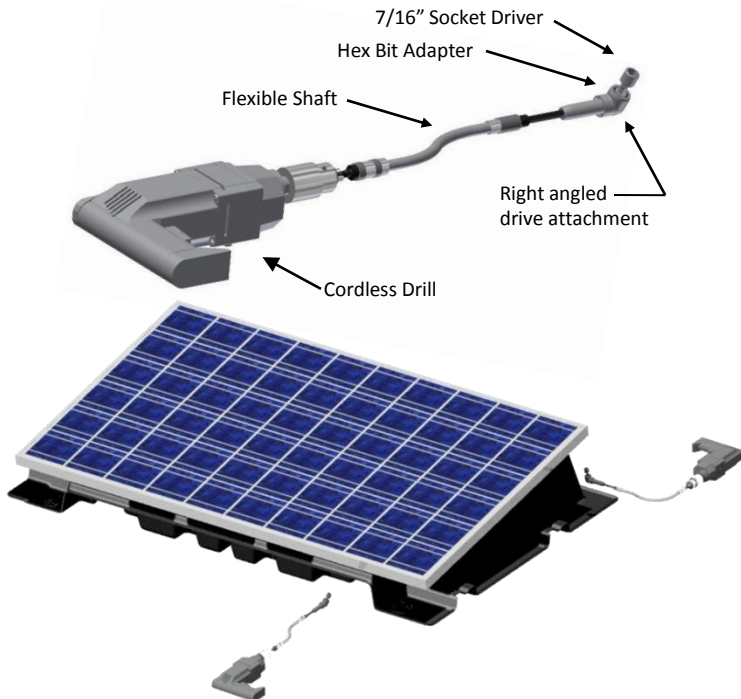
Lift the north end of the module slightly to fasten grounding wire to lug. Lay the module assembly back down.



Reaching through one of the access holes in the module base, slip a **B3** Module Washer onto the bolt and hand start the **B5** Flange Nuts. Repeat for the remaining three bolts.



**Safety:** Wear long sleeves when reaching into access holes since edges of base can be sharp.



Assemble the cordless drill, flexible shaft, right angle drive attachment, and hex driver as shown in the image.

Reaching through the four access holes, tighten all nuts to 8 ft-lbs.

Repeat steps above for all modules.

Installation is complete.