

# The Lil' Dipper

## Star Roller

### V2

#### **Required Tools:**

1. Hex Keys – 5/32” , 3/32” , 5MM , 5/64”
2. Sockets / Wrench – 7/16” , M7 or 1/4”
3. Drill Bit - 5/16”

**Note:** When tightening all hardware, do not rotate the included serrated flange nuts. Tighten all hardware with the head of each fastener only immobilizing the nut from rotation or significant scratching may occur.

#### **Assembly instructions:**

Step 1 – Unpack each bag from the box and inspect for shipping damage. Keep each bags content separate for ease of installation.

Step 2 – Install the left and right side arms to the base plate. Use the included bag of hardware labeled “Base & Side Hardware“. The 4 Bolts and Serrated Flange nuts should be installed facing down. Nuts on the bottom. Be sure to face the side supports feet inwards towards each other. See diagram for more details. Be sure to insert the included 4 rubber feet into the base holes at this time to protect the finish.

Step 3 – Locate the Bucket support arm and bucket roller arm. Locate the included hardware within the bag. Assemble the rollers as shown in the diagrams spacer washers between the bearing and bracket remembering to snug the lock nut, do not tighten overly tight or they will not roll. Secure the assembled roller bracket to the support arm with the included 1/4” square neck bolts, lock washers and wing nuts. Orientation is preferred bottom to top, but can be inverted if desired. Do not place the lock washer under the head of the bolt. The square neck must engage the slot for true and guided travel. You will be left with 2 additional square neck bolts and serrated flange nuts. ( These may be included as a “substitute parts” bag). Discard the remaining 2 wing nuts if included.

Step 4 – Take the remaining 2 additional square neck bolts and serrated flange nuts and couple the bucket support arm to the main bucket gantry. The support bracket should be placed as to slide between the bucket gantry plate and electronics box. Bolts should be installed facing the electronics box and secured with the 2 serrated flange nuts. In this case for ease of installation, use a 7/16 socket with extension or wrench to tighten the nuts after adjusting the height of the support arm.

Step 5 – Take the now assembled bucket support arm, and the main bucket gantry. With the remaining hardware from the “Base & Side” hardware bag locate the 2 bolts, 2 delrin washers, and serrated flange nuts. Face the bucket gantry forward and slide over the side arms, insert one bolt into each of the two top round holes. Be sure to insert the Delrin washer between the side arm and bucket gantry wing as indicated in the diagrams. This acts as a spacer and friction lock between the 2 surfaces. \*Do not place the Delrin washer under the head of the bolt, nor before the nut.

Step 6 – Locate the hardware bag “Adjustment Knob Hardware”. You can now install the adjustment knobs between the side supports and main bucket gantry in the lower square holes. Insert the square neck bolts inside to out adding a Delrin washer between the head of the square neck bolt. Now add the steel washer between the knob and wing of the main bucket gantry. See diagram for more details. Do not forget to place the Delrin washer under the head of the square bolt.

Step 6 – Locate the Drill Guide Bushing and your 2-gallon bucket. Place the drill bushing in the center of the mold knock out on the bucket. See diagram for example. Drill through the guide at a straight angle through the bucket. I recommend the Argee RG502 from the Home Depot, but any 2 gallon bucket that has a mold knock out the size of the coupler ( 1.5” ) or larger will work.

Step 7 – You can now mount the bucket to the hub attached to the main bucket gantry. Before removing the included bolt in the face of the hub, locate the set screw on the side of the hub and loosen it. This set screw prevents backing out of the bolt during reversing of the bucket under load and should be re-tightened upon completion of bucket installation. Place the bucket on the bucket support arm and insert the retaining bolt back into the hub. Tighten firmly and tighten the set screw snug. Forgetting to tighten the set screw can lead to bucket ejection upon reverse or loosening over time. It is recommended to only rotate the bucket in the counter clockwise direction to prevent back out unless needed.

Step 7 – Adjust the Guide rollers left to right, and for the location front to back on your bucket to get the best grip. You can loosen the Support arm on the back of the Gantry plate to raise and lower contact throughout the depth adjustment of the rollers if needed. Adjustability is open to the end user based upon the bucket chosen.

### **Operation:**

Step 1 – Locate the power adaptor and plug it into the bottom right side at the base of the electronics box. Gently twist clockwise as you insert until seated. A small amount of stick out is present when fully seated.

Step 2 – Locate the speed adjustment knob, and direction selection switch on the front of the electronics box. To start rotation, select the direction you desire and rotate the speed knob clockwise slowly. You will feel a click when the unit turns on. Rotate the knob to the desired speed and begin to roll. To change the direction of rotation, turn the speed control knob all the way counter clockwise to the click and off position. This turns the unit off. You can then toggle

the direction control switch then repeat your speed selection. To turn off the unit without losing your speed setting, toggle the direction control switch to the middle location. This will disengage the power to the motor and preserve your chosen speed for the next session. \* Note – The direction control switch does not deenergize the motor controller, only the motor. If using this switch to turn off the unit, unplug the power adaptor before leaving the unit unattended. This saves power, and reduces heat stress to the controller when not being used.

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