User Guide
Ted's Tumbler
Model 2

CAUTION:
READ ALL INSTRUCTIONS BEFORE USING TUMBLER.

Changes from Version 1: Version 2 is essentially identical to version 1 except for the addition of belt guards and a cage guard which reduces the possibility of something/someone being wedged between the lower frame and cage. Also, the large pulley rim on the end of the cage is an improved design. There are also various, but less significant improvements throughout.

www.gtyurkon.com/tumbler or www.galcialridgefarm.com/tumbler

WARNING/WARRANTY/NOTE

WARNING:

While every attempt has been made to ensure that this product is safe and reliable, it is the owner's responsibility to ensure that all persons, especially children, and animals remain a safe distance from the tumbler when running. The tumbler drive belts have been covered to the extent practicable, however, it is impractical to cover the large rotating hexagon cage. Therefore, **never leave the tumbler operating unattended** unless access is restricted to responsible adults. Children should not be allowed to operate the tumbler without the direct supervision of an adult. Further, the operating area should be kept clear of animals which may be injured by contact with the tumbler.

The tumbler is not deigned for operation in wet environments. The tumbler should only be plugged into an energy source in a dry location.

It is the owner's responsibility to use the product as described herein, and only for the intended purpose of tumbling animal fleeces.

It is not possible to predict and describe every danger associated with this product. It is the owner's responsibility to exercise care and common sense, and to observe all practicable safety precautions when using this product.

NO WARRANTY:

While the manufacturer takes pride in the quality of this product, the product is sold without warranty. However, the manufacturer will, at his discretion, for at least the first year, make a good-will attempt to resolve any problems or defects with the product, to the satisfaction of the customer. But no guarantee is made in this regard.

NOTE:

The manufacturer reserves the right to make changes and improvements to the fiber tumbler described herein on an ongoing basis. The photographs contained herein are accurate representations of the fiber tumbler at the time of publication, however, future tumblers may vary in some details.

Basic Operating Instructions

Selecting Panels

Panel selection will primarily be based on experience. The 1” grid size seems to be best for most fleeces, however, some fleeces such as silky smooth Suri alpaca fleeces will experience too much loss, and the 1/2” grid size may be best for those.

Inserting/Removing Panels

To insert a panel, retract the latch on the panel and rotate the handle until the locking pin catches in the base slot as shown in the photo to the right.

To insert the panel, hold the panel by the handle at one end with one hand, and by the latch at the other end with the remaining hand. While holding the latch end of the panel just above the cage, set the handle-end of the panel on the corner supports and slide the panel under the retaining brackets as shown in the photos below.

Then the latch end may be lowered onto the respective corner supports. It may be necessary to push the panel towards the handle end to compress the anti-vibration foam pads slightly. Rotate the handle slightly to release the locking pin, and allow the latch to engage the catch on the cage as shown in the photo on the right above. It may be necessary to press the panel inward slightly to compress anti-vibration pads on the latch end. **Caution:** Make sure the latch pin fully engages the catch so that the locking pin is against the latch frame with no gap.

To remove the panel, retract the panel latch pin, and lift the latch end slightly while sliding the panel out from under the retaining brackets at the handle end of the panel.

Tumbling the Fleece

After loading the fleece into the tumbler, and inserting the last panel, make sure all panels are firmly latched. Select a direction for rotation with the direction toggle switch, and press START. See control panel in the photo to the right. Optimum tumbling times will vary based on the quality and cleanliness of the individual fleece. Typical tumbling times are usually from 15 to 30 minutes total. Press STOP to finish the tumbling.

Changing Direction

If you wish to tumble the fleece for some time in the opposite direction, first stop the tumbler by pressing STOP. The direction toggle can then be changed, and the tumbler can be restarted.

Suggestion

To further enhance debris removal, it can be helpful to place a low fan near the tumbler so that it is blowing diagonally upward toward the rotating cage. However, take care to place the fan a safe distance from the cage to avoid inadvertent contact. You can experiment and decide from the results the best location for the fan.

Removing the Tumbled Fleece

After stopping the tumbler, before removing a panel, it may help to manually rotate the tumbler so that the fleece is on the side of the tumbler where you are standing. Otherwise, when you remove a panel, the weight of the fleece may rotate the cage slightly, placing the opening in an inconvenient position.

It may also be convenient to rotate the cage until the wire fingers are at the base of the panel you plan to remove. The fingers make convenient prongs to attach a plastic bag to while unloading as shown in the photo to the right.

Long Belt Replacement

Step 1: **Turn off and unplug the tumbler.** To facilitate access to the lower drive pulley, remove the black plastic belt guard mounted on the yellow guard frame. Next, release the belt from the large upper pulley. This is easily accomplished by pulling the free portion of the belt toward the guard frame with one hand while slightly rotating the tumbler counterclockwise with the other hand as shown in the first two photos to the right.

Step 2: The now-relaxed belt can be removed from the lower drive pulley and tension arm idler pulleys (the blue pulleys in the photo). The belt should be released toward the plywood end of the tumbler cage. It may be necessary, or make the task easier, to reach under the frame and push or pull the lower end of either tension arm to provide clearance between the idler pulleys when removing the belt.

Step 3: Using a 3/4 inch open-end wrench (a 19 mm will also suffice), remove the nuts and washers from the two pillow block bearing carriage bolts as shown.

Step 4: **Caution:** Because the tumbler cage is very heavy, it would be advisable to remove all 6 panels from the cage to reduce weight. The tumbler must be placed on a level surface so the pillow-block bearing does not slide off the frame after the carriage bolts are removed.

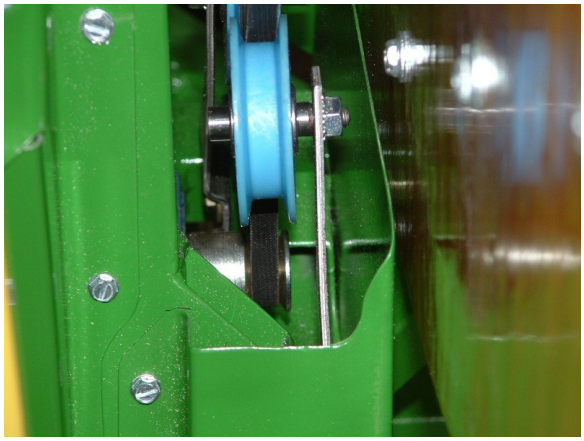
After making note of the caution above, the carriage bolts may then be lifted out of the pillow-block bearing.

Step 5: **Caution again:** You must make sure the pillow-block bearing remains directly above the frame surface when lifting it so that it will fall onto the frame if it slips from your grasp. It is advisable to have a second person remove the belt while the first person raises the pillow-block bearing slightly.

After observing the caution above, raise the pillow-block bearing no more than necessary (approximately 1/2”), and slip the belt out. Lower the pillow-block bearing.

Caution: If it will be a while before the new belt is installed, replace the carriage bolts so the tumbler cage cannot be knocked or slide off the frame.

Step 6: Installation of the new belt essentially comprises following steps 1-5 in reverse order. Be sure to install the belt with the ribbed side **facing** both the drive pulley and the large pulley. The back side of the belt should be facing the idler pulleys. And, be sure that the belt correctly engages the ribs in the lower drive pulley. Also, double check to make sure there are no twists in the belt. When finished, the belt should be arranged as shown in the photo to the right. The visible portion of the belt in the photo is the back, flat side of the belt.



Step 7: After arranging the belt around the drive pulley and the idler pulleys as shown above, partially loop the belt around the large pulley as shown. It is not necessary to stretch the belt tightly; just remove all slack from the belt.

Step 8: Next, grip the lage pulley and belt just above where the belt diverges from the pulley. Rotate the tumbler slowly clockwise while guiding the belt onto the large pulley until fully engaged. The belt guard may now be reinstalled and the tumbler can be plugged into a power source and tested

Drive Belt or V-Belt Pulley Replacement

Some comments: The tumbler motor is equipped with a 3” diameter V-belt pulley (5/8” bore), and the intermediate shaft is equipped with a 5” V-belt pulley (1/2” bore). This combination produces a tumbler rotation speed of approximately 30 RPM. The large tumbler cage pulley is approximately a 24.75” diameter, and the ribbed drive pulley on the intermediate shaft is approximately .72” diameter, with the motor being a 1725 RPM motor. The V-belt pulleys can be changed to produce other RPMs as desired. The belt provided is a 30” belt. However, if a pulley is changed, the belt size may have to be increased or decreased accordingly. The new belt size can be computed as follows. The change in length is simply 1.57 times the change in diameter. For example, if the 3” pulley is replaced with a 3.5” pulley, the new belt size is 30”+(1.57*.5)=30.785. Belts generally come in 1” increments, so the closest belt size is 31”, although the original 30” belt may still work, provided there is enough adjustment available at the motor mounts. The cage RPM can be calculated as follows: $RPM=50.2*D_M/D_I$, where D_M is the motor pulley diameter, and D_I is the intermediate shaft pulley diameter.

Step 1: **Turn off and unplug the tumbler.** Remove the motor cover by removing 2 screws on the top of the main cover panel, 1 screw on each side where it overlaps the side panel, 4screws on the vertical portion of the panel, and 4 screws under the bottommost portion of the panel. The panel can then be lifted about 3/4” at the front and then pulled back and removed.

Caution: When reinstalling these screws, do not use excessive force or over tighten the screws. They strip very easily. It is only necessary that they be snug.

Step 2: While not absolutely necessary, it is best to perform Step 1 under **Long Drive Belt Replacement** to eliminate tension forces on the intermediate shaft. Steps 7 and 8 show reengaging the long drive belt which is done after replacing the V-belt

Step 3: Loosen the four bolts holding the motor in place enough that the motor can be slid closer to the intermediate shaft.

Step 4: Remove the two carriage bolts (3/4” wrench) holding the rearmost pillow-block bearing in place. Retain the spacer washers mounted under the pillow-block bearing.

Step 5: The V-belt can now be slipped off the pulleys and removed. Because the pillow block bearings are self aligning, the rear pillow block bearing can be raised if necessary

Step 6: If the motor pulley is being changed, replace it at this time. It may be necessary to completely remove the motor mounting bolts to make clearance for removing the pulley.

Step 7: If the intermediate shaft V-belt pulley is being replaced, loosen the two set screws (1/8” Allen wrench) on the pillow-block bearing, and remove the pillow-block bearing. The V-belt pulley can now be replaced.

Step 8: Reassembly can be accomplished by performing Steps 1-6 in reverse order. In step 2, push the motor to the left while tightening the motor mounting bolts to provide enough V-belt tension. Finally, make sure the motor pulley and the intermediate shaft pulley are in line with each other so the belt is not distorted.

Direct Sources for Replaceable Parts

While I can provide replacement parts, it may be more convenient and economical to obtain some commodity parts directly. Some sources are listed below, but a search for more economical sources is advised because prices are always changing.

Motor:
Leeson Model C4C17DH7, Catalog No. 100006.00, 1/3 HP, 1725 RPM, CW or CCW rotation
Further details may be obtained at www.leeson.com

Large Drive Belt:
Maytag Dryer Belt, length 91-5/8", width 5/16", 5 ridges, flat , manufacturer part no. 33002535
RepairClinic item number 791135, www.repairclinic.com

V-Belt:
1/2" X 30", Kevlar, Tractor Supply SKU 4460707 at www.tractorsupply.com

Ribbed Drive Pulley:
Whirlpool Dryer Motor Pulley, Appliance Parts Pros Part No. AP2996680, SKU 685011
www.appliancepartspros.com/Appliance-Parts/WHIRLPOOL-Pulley-motor-item-number-AP2996680.aspx

Motor V-Belt Pulley:
5/8" x 3", for 1/2" belt, Tractor Supply SKU 3240120 at www.tractorsupply.com

Intermediate Shaft V-Belt Pulley:
1/2" x 5", for 1/2" belt, Tractor Supply SKU 3240201 at www.tractorsupply.com

Tension Arm with Idler Pulley:
Electrolux/Frigidaire dryer idler arm and pulley, manufacturer part no. 131863100
RepairClinic item number 823099 at www.repairclinic.com
Note: Pulley shaft may need to be removed and reinstalled on opposite side of arm.

Tension Arm Spring:
Home Depot Bar Code 0 30699 16089 1, SKU 685447, 5/8" x 3-1/4" x .072" at www.homedpeot.com

Start/Stop Switch:
Grizzly H8238, 110/220V On/Off Switch , 35A @ 110V, lockable
www.grizzly.com/products/110-220V-On-Off-Switch/H8238

Direction Toggle Switch:
20A, 120V, DPDT on-on (DPDT on-off-on SHOULD NOT be used), 7/16" hole size, screw terminals

Wheels:
No-Flat or Never-Flat, 8" diameter, 5/8" Bore at www.tractorsupply.com

Maintenance

Very little maintenance is needed. Before each use, however, make a thorough visual inspection to make sure no nuts, bolts or screws are loosening. Tighten as necessary.

The only lubrication points on the tumbler are grease fittings on the pillow-block bearings. There are 2 pillow-block bearings supporting the tumbler cage, and 2 pillow-block bearings supporting the intermediate shaft in the motor housing. These bearings can be greased lightly on an annual basis. See Step 1 under Drive Belt or V-Belt Pulley Replacement for instructions on removing the motor housing cover.

Specifications

Overall dimensions (approximate): length 70”, width 42”, height 55”.

Approximate weight: 250 lbs with panels installed, 200 lbs without panels.

Cage dimensions (not including plywood ends): Hexagonal cage, each face 47” long by 19-7/8” wide, with a maximum width of 39-3/4”, and a minimum width of 34.42”.

Panels: 6 panels with 1/2” grid size (optional), and 6 panels with 1” grid size (optional).

Panel dimensions: 45-1/4” x 18-3/8” x 1/2” (excluding latch and handle).

Tumbler Fingers/Pins: 3 sets of 5 pins each, music wire, 7-1/4” length, 0.122” dia., removable.

Wheels: 8”, no-flat wheels.

Motor: 1/3 HP, 1725 RPM, reversible.

Wiring Diagram