

T4



USER MANUAL

PN: 21-0028_REV04

Front Cover: T4 standard speed control edition on a Trim Saver stand.



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IMPORTANT SAFETY INFORMATION

This manual is for the Twister T4 Trimmer. In this manual, the T4 Trimmer will simply be referred to as the T4.

The T4 is a high-speed cutting machine requiring special safety precautions to be practiced during operation, cleaning, and maintenance to reduce the risk of personal injury. Read this manual, including all important safety information, danger, warning, and caution signs before using the T4.

Keirton is continually improving all its products. As a result, engineering changes are sometimes made.

If operation or appearances differ from this manual, please contact Keirton technical support for assistance (see **Contact Us** on page 76).

Do not allow anyone to use the T4 without this manual. A first time user of the T4 should obtain proper training or instruction from this manual.

General Safety Information

- Do not operate, clean, or conduct maintenance on the T4 while tired or under the influence of drugs, alcohol, or medications.
- Safety glasses, dust masks, and ear protection must be worn when operating the T4.
- Do not wear loose clothing or jewellery when operating, cleaning, or conducting maintenance on the T4.
- Confine long hair when operating, cleaning, or conducting maintenance on the T4.
- Do not move, disassemble, reassemble, clean, or conduct maintenance on the T4 while power is connected to the machine.
- Ensure all protective covers are installed and hands are clear of the machine before plugging in the T4.



DANGER

CARELESS USE OF THE T4 OR OPERATING IT WITHOUT READING THE INSTRUCTIONS AND ACCOMPANYING DANGER, WARNING, AND CAUTION NOTICES MAY RESULT IN SERIOUS OR FATAL INJURY.

IMPORTANT SAFETY INFORMATION

- Ensure the T4 is connected to a vacuum before connecting either to power.
- Do not reach inside the tumbler while the T4 is plugged in.
- Keep body parts away from the moving parts of the T4.
- Keep the T4 well ventilated to prevent overheating.
- Do not allow water to collect on the ground around the T4. This could cause a slipping hazard.
- The T4 is heavy. Always use proper lifting technique. If necessary, use two people to lift.
- Substituting factory parts with third-party parts may void warranty or result in bodily harm or damage to the T4.
- Do not remove safety labels from the machine. **Replace any safety labels if they become damaged or obscured.**
- Keep visitors and children a safe distance from the T4.

Connection and Electrical Safety Information

- The T4 standard edition with speed control requires a circuit breaker with the following specifications:
 - 15A, 120V, 60Hz (North America)
 - 10A, 230V, 50Hz (Europe)
- The T4 must be used in connection with a properly grounded receptacle. Refer to the specifications (starting on page 70) to determine the correct electrical requirements.
- Observe all applicable building and electrical codes.
- Do not overload outlets or extension cords as this can result in fire or electric shock.
- Do not use extension cords for the trimmer with a diameter narrower than 14AWG.
- Do not use extension cords for the trimmer longer than 50' (15M).
- To power down the T4, switch off the motors via the control panel before unplugging the machine.
- The control box is not water tight. Always remove the control box **before** cleaning to avoid water damage and electric shock.

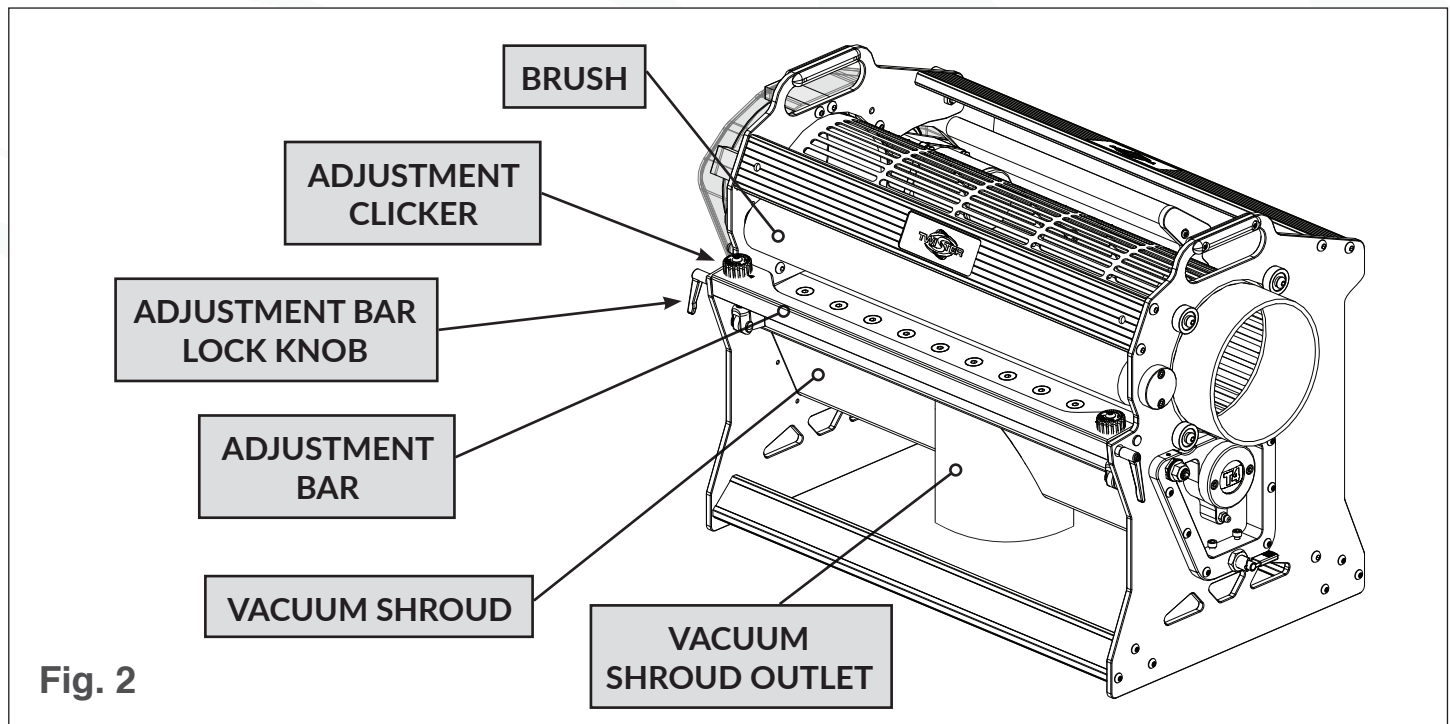
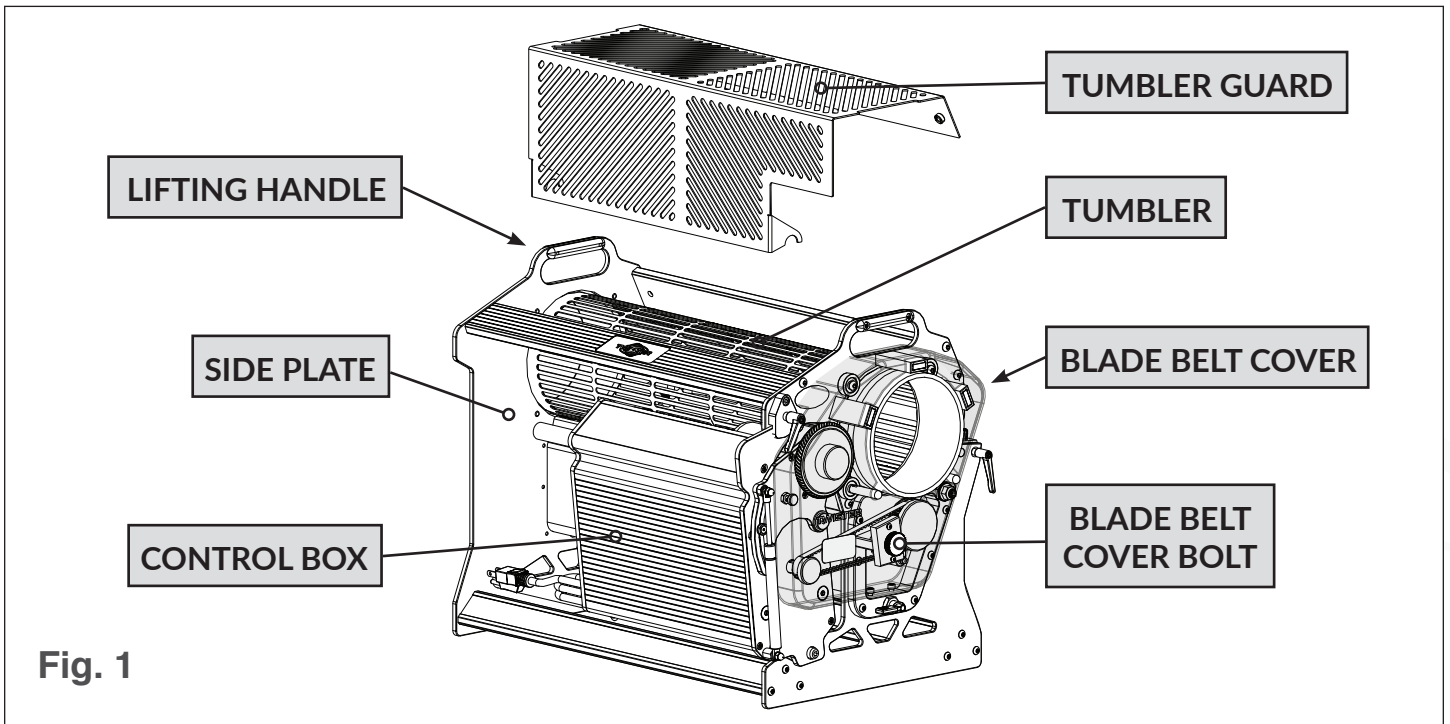
Operation Safety Information

- Ensure the T4 is fully assembled and all guards, covers, and shrouds are in place before operation.
- Conduct all pre-operation inspections listed under **Step 1: Inspect the T4** on page 20 before operating the T4.
- Never let the T4 run unattended.
- **Only place plant matter in the T4.** Do not put foreign objects in the T4. Doing so may cause bodily harm or damage to the machine.

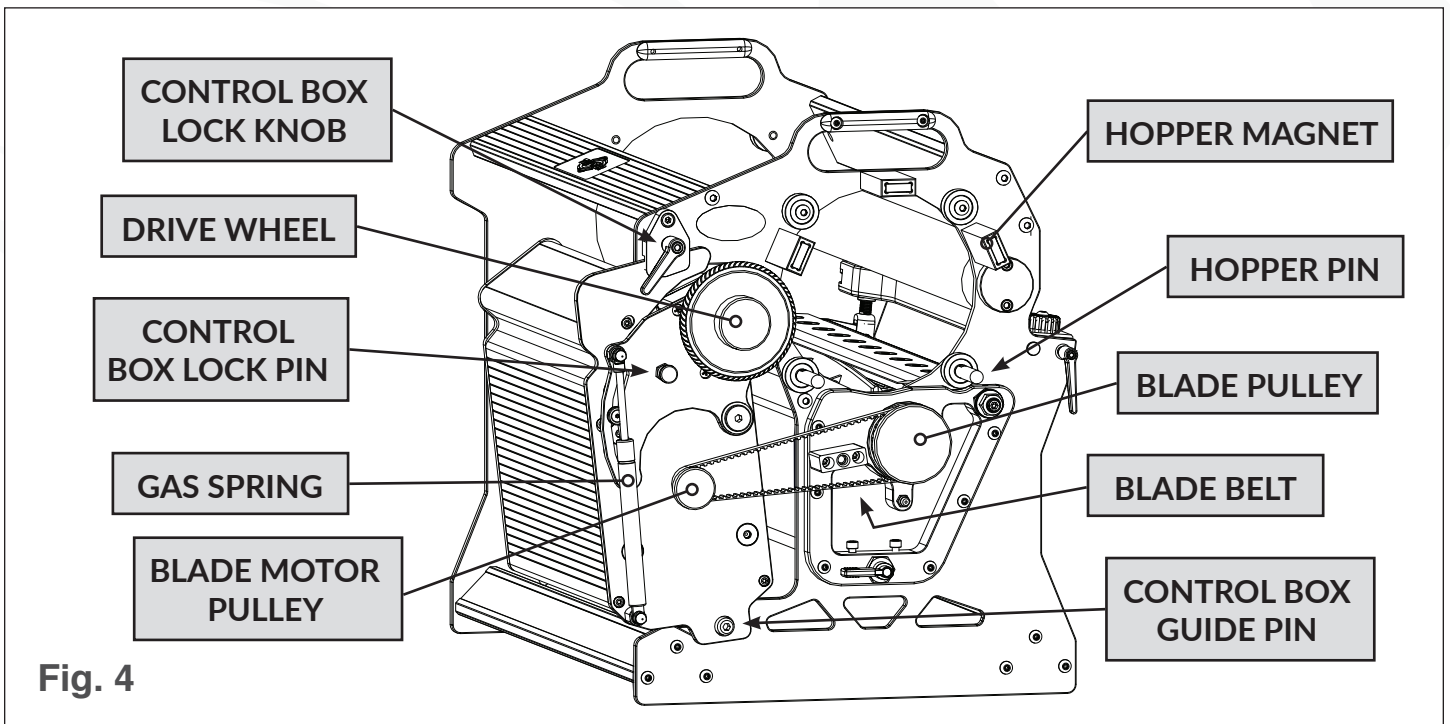
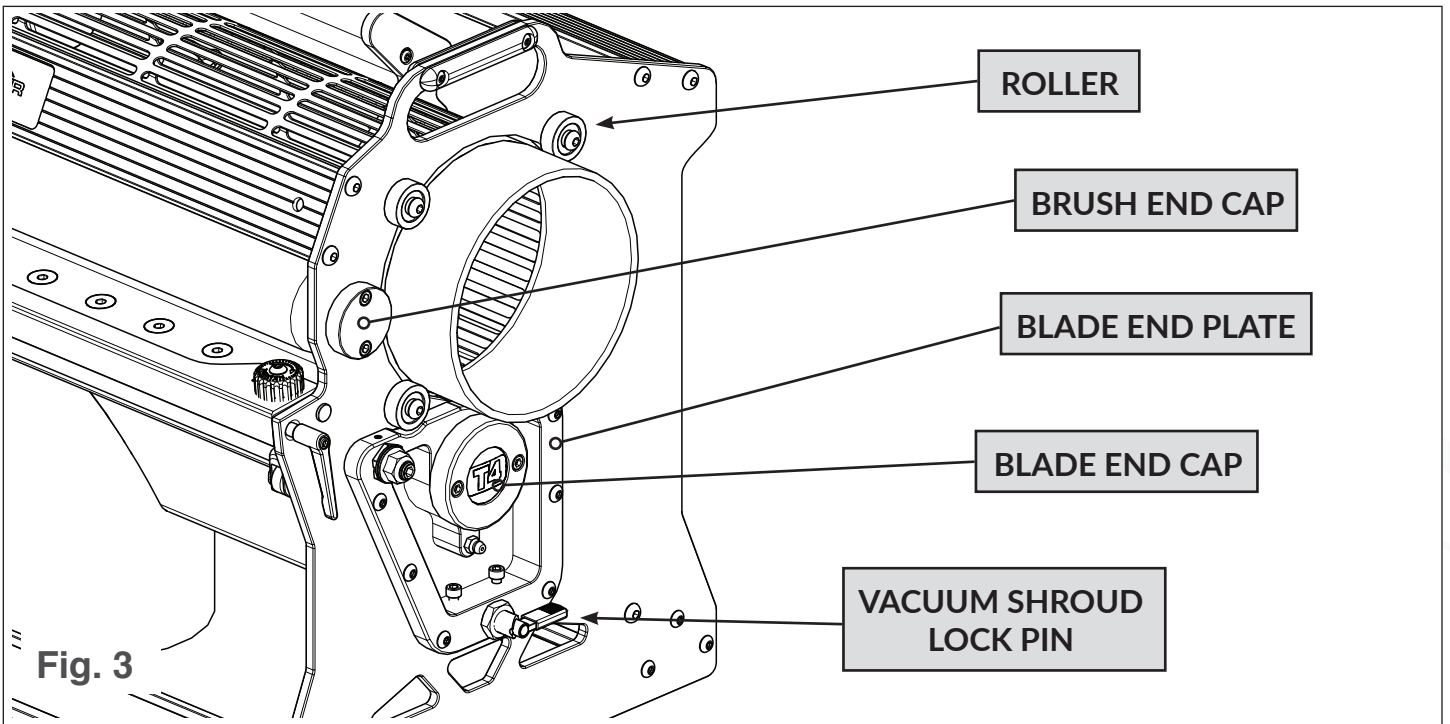
Maintenance Safety Information

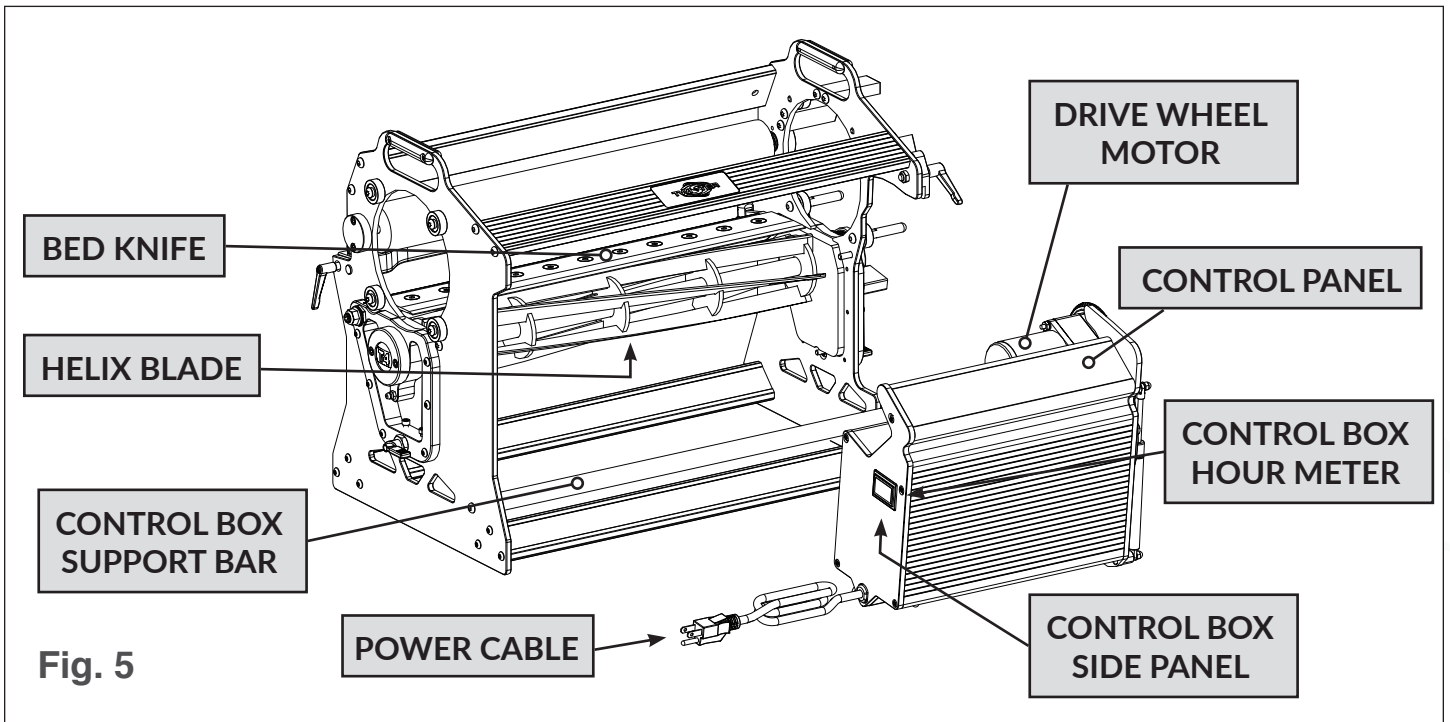
- Conduct regular maintenance on the T4.
- Do not attempt to service electrical components on the T4 yourself. **Opening or removing covers may expose you to dangerous voltage and possible fire or electric shock.**
- Do not attempt maintenance not covered in this manual unless directed by Keirton technical support.
- Some repair or damage will require a qualified service technician who is trained in machinery maintenance, service, and repair.
- Improper adjustments may result in damage to the machine.
- Replacement parts are specific to the T4 and must only be purchased from an authorized dealer. Failure to comply may void warranty, cause bodily harm, and/or damage to the machine.

MACHINE OVERVIEW

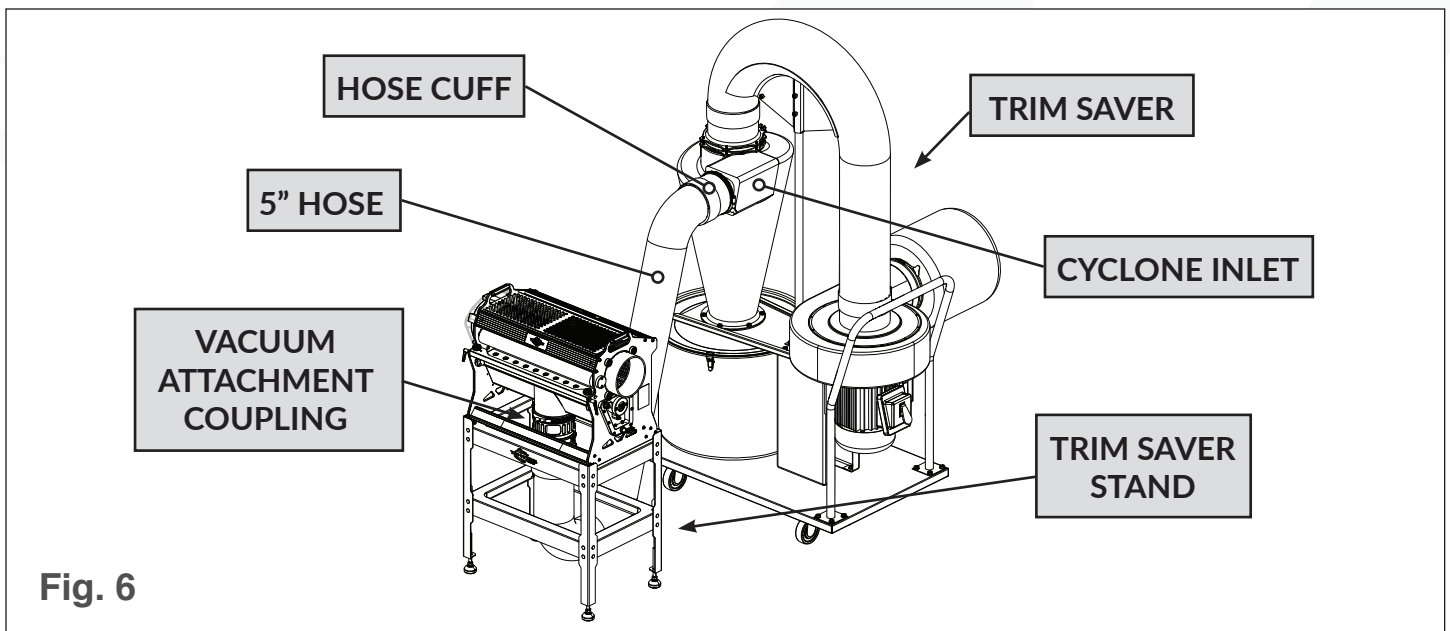


MACHINE OVERVIEW

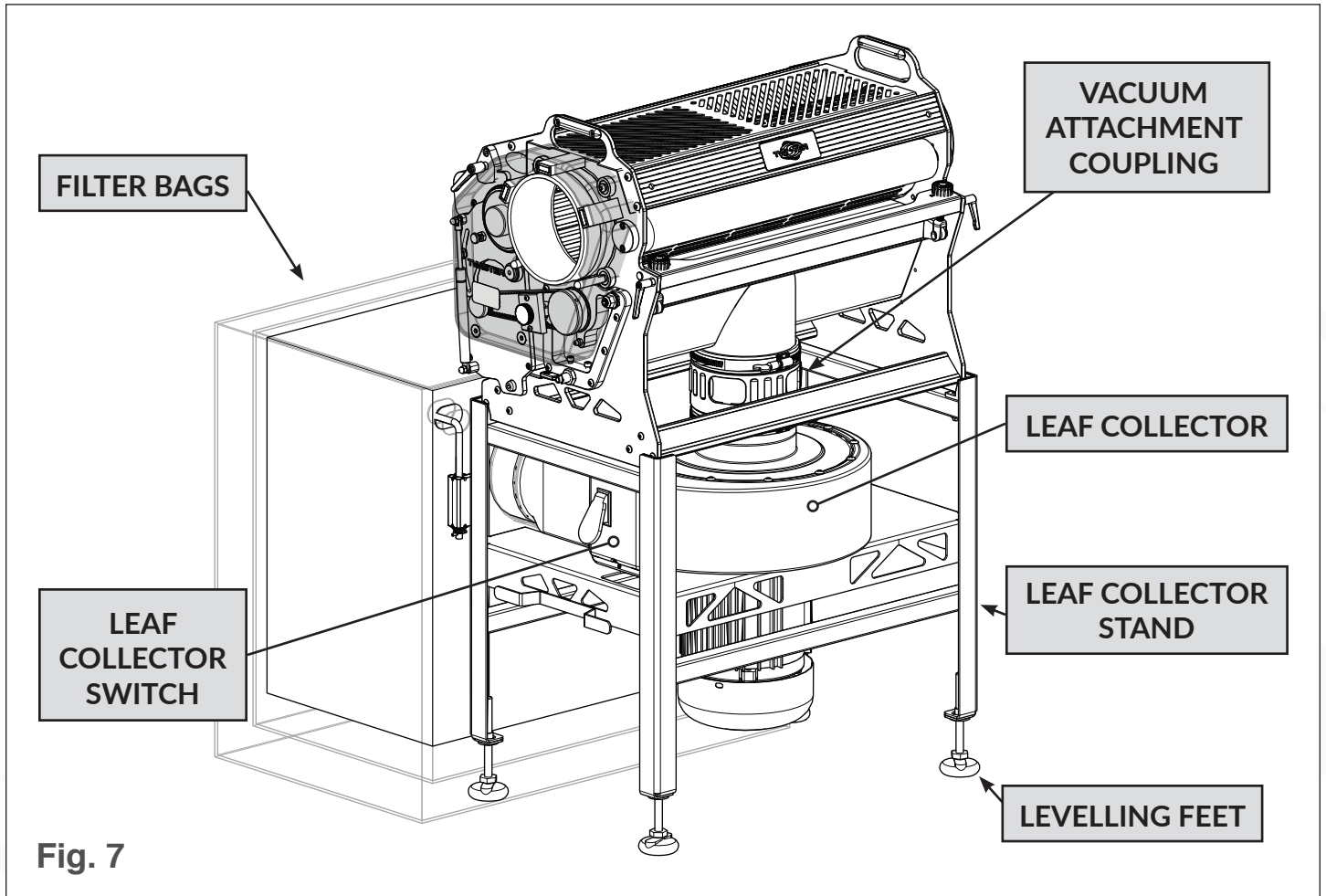




T4 with the Trim Saver




T4 with the Leaf Collector

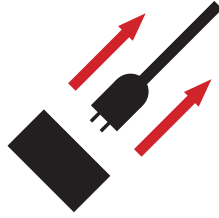


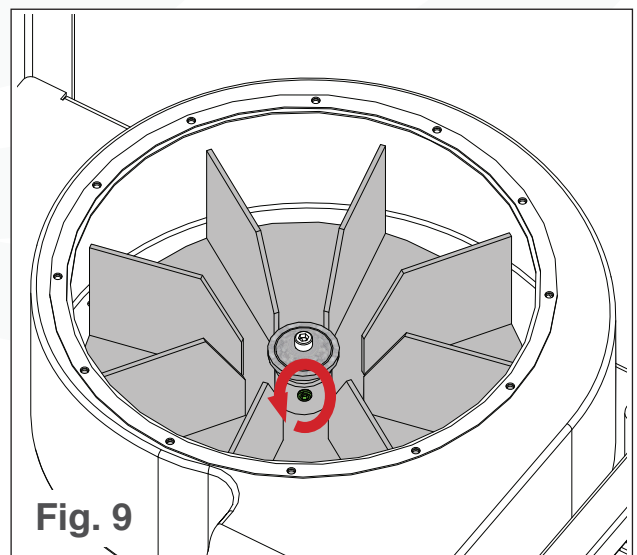
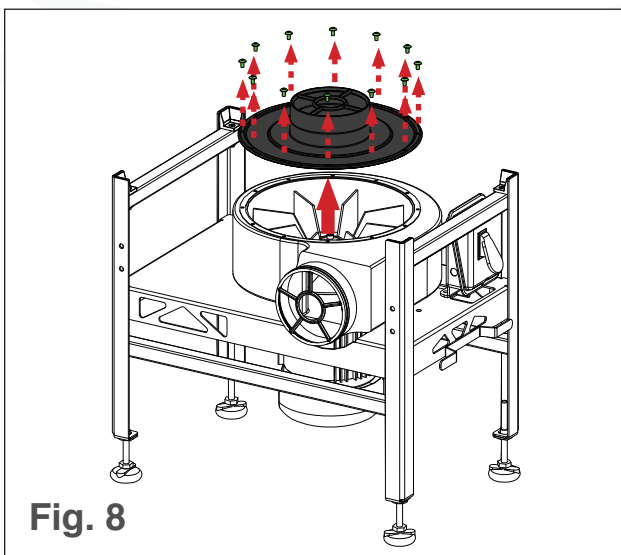
If upgrading from a Leaf Collector to a Trim Saver, the Leaf Collector stand must be converted into one that is compatible with the Trim Saver. To convert the Leaf Collector stand:

1. Ensure the T4 and Leaf Collector are unplugged and all motors have come to a complete stop.
2. Unattach the T4 and vacuum attachment coupling from the Leaf Collector (see **Step 1: Detach the Vacuum** on page 24).
3. Remove all 12 bolts from the top of the Leaf Collector (see Fig. 8).
4. Remove the top of the Leaf Collector (see Fig. 8).
5. Remove the impeller:
 - a. Loosen the impeller set screw (see Fig. 9).
 - b. Remove the impeller **reverse threaded** top bolt and washer (see Fig. 10).

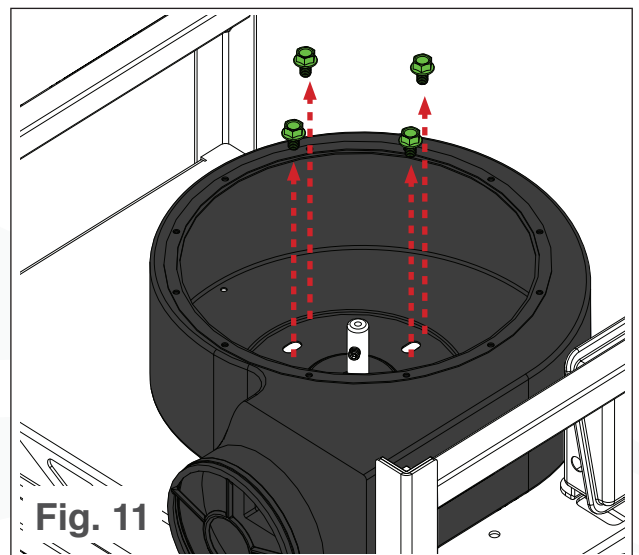
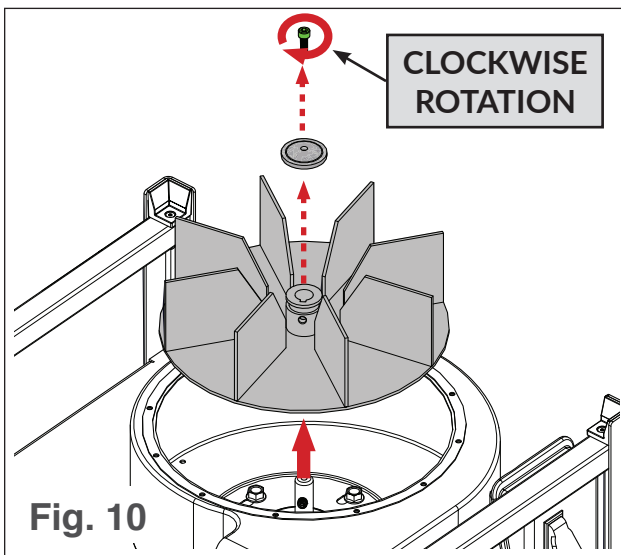
 **DANGER**

TURN OFF ALL MOTORS, THEN UNPLUG THE T4 AND VACUUM BEFORE CONVERTING THE STAND.



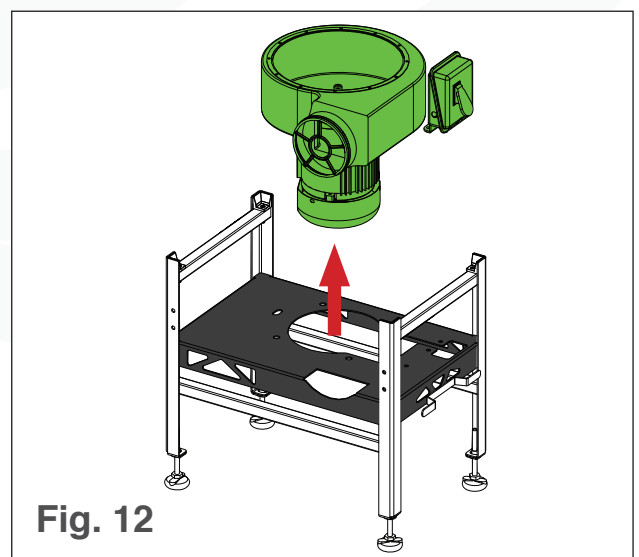


STAND CONVERSION



- c. Pull out the impeller* (see Fig. 10).
6. Remove the four bolts attaching the Leaf Collector to the stand (see Fig. 11).
7. Remove the two bolts attaching the Leaf Collector switch to the stand.
8. Lift the Leaf Collector and switch out of the stand (see Fig. 12).

If the impeller cannot be pulled out manually, use a pulley puller (see **Disassembly Tools on page 72).*



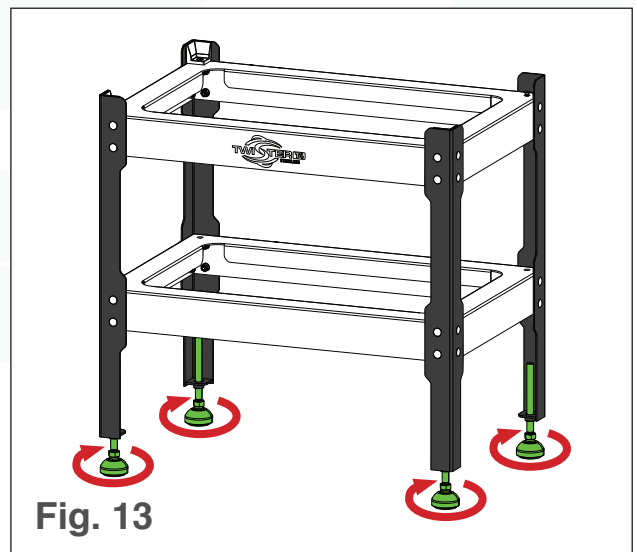
To safely operate the T4, it must be attached to one of two vacuums: the Trim Saver or Leaf Collector. Each vacuum requires a different procedure for initial setup. For a list of available vacuums, see **Vacuums and Bypass** on page 74.

Trim Saver Setup

Step 1: Secure the Stand Placement

If using multiple T4s in tandem, it is recommended they be placed on Twister Rails. For a list of available rails, see **Rails and Adapters** on page 73.

1. Set up the stand where it will operate:
 - If using a single T4, simply place the stand where the T4 will operate (see **Recommended Placement** on page 12).
 - If using T4s in tandem:
 - i. Assemble the rails (see the corresponding Twister Rails manual).
 - ii. Set up the rails where the T4s will operate (see **Recommended Placement** on page 12).
 - iii. Adjust the stands' levelling feet so the stands are at their minimum height (see Fig. 13).
 - iv. Place the stands side by side on the rails.



! **DANGER**

DO NOT CONNECT THE TRIMMER OR VACUUM TO POWER UNTIL ALL INITIAL SETUP STEPS HAVE BEEN COMPLETED.

RECOMMENDED PLACEMENT

For best and safest operation, place the T4 stand/rails:

- On level ground.
- Near an outlet.
- In a cool environment*
- With enough space to easily access the tumbler inlet and outlet.
- With enough space to set up the vacuum(s).

**It is highly recommended to operate the T4 in as cold of an environment as possible. Operating the T4 in colder environments will improve the machine's performance and significantly reduce build up on the machine.*

Step 2: Attach the Vacuum Attachment Coupling

1. Pull out and rotate the adjustment bar lock knobs so they are facing straight down* (see Fig. 14). This is to prevent them breaking when the T4 is rotated.
2. Carefully rotate the T4 onto its side so it rests on the adjustment bar (see Fig. 15).
3. Place a hose clamp over the top of the vacuum attachment coupling (see Fig. 16).

**The adjustment bar lock knobs, if pulled out, can rotate without loosening the knobs.*

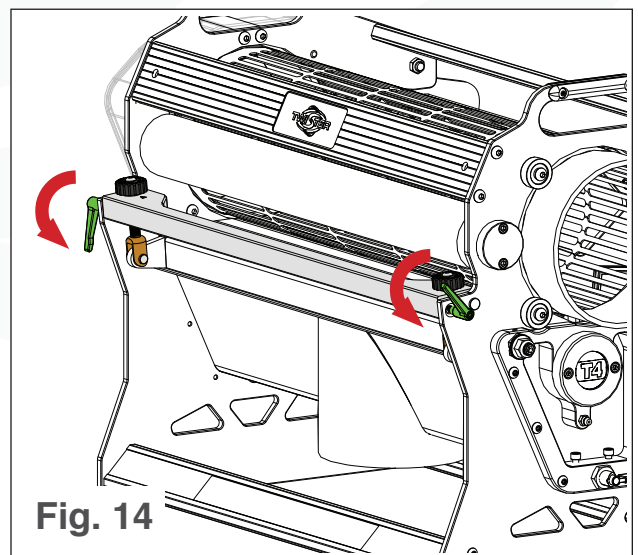


Fig. 14

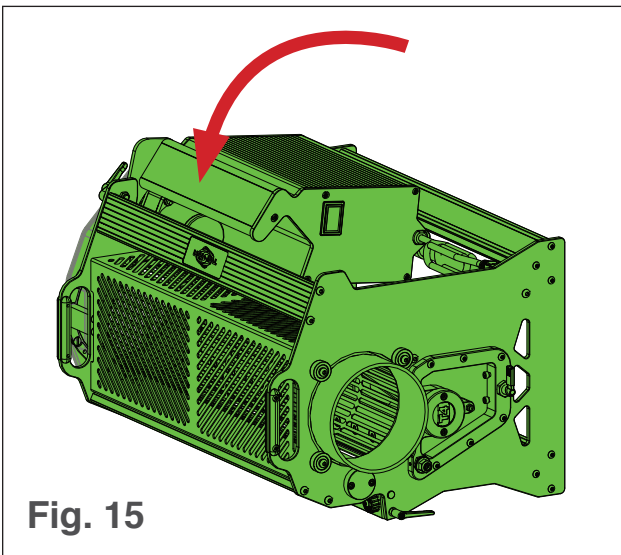


Fig. 15



WARNING

THE T4 IS HEAVY. IF NECESSARY,
USE TWO PEOPLE TO LIFT.



4. Slide the coupling over the vacuum shroud (see Fig. 16).
5. Tighten the hose clamp around the coupling and shroud.
6. Place another hose clamp over the free end of the coupling (see Fig. 17).
7. Slide the coupling adapter into the vacuum attachment coupling (see Fig. 17).
8. Tighten the hose clamp around the coupling and adapter.

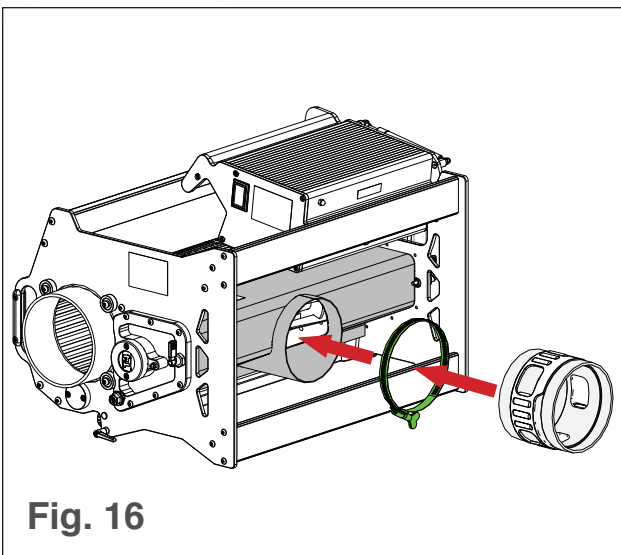


Fig. 16

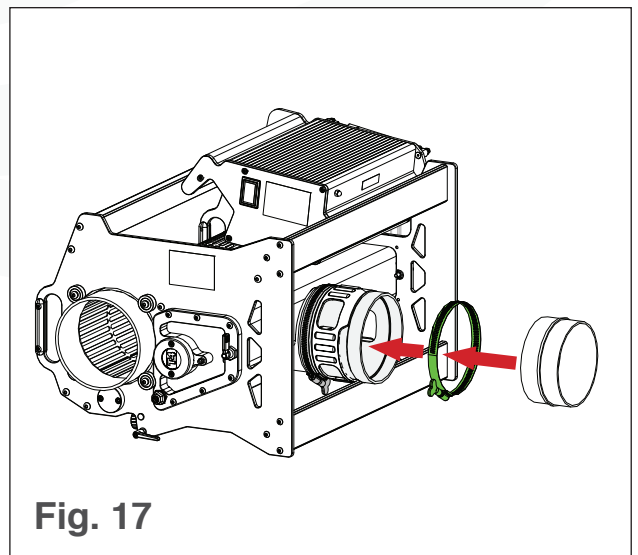


Fig. 17

INITIAL SETUP

Step 3: Place the T4 on the Stand

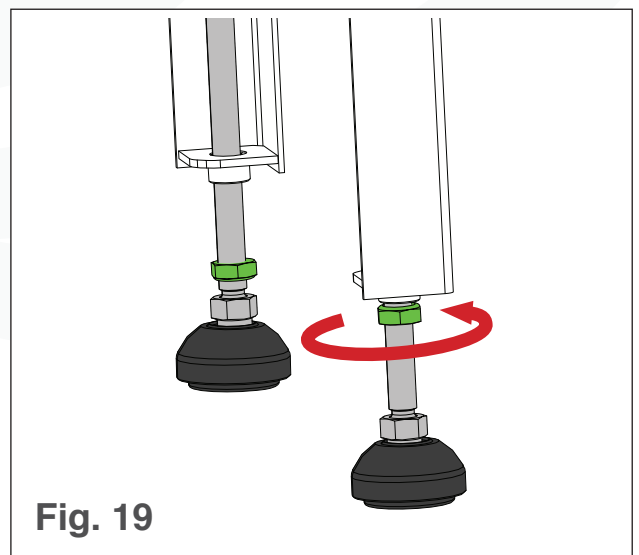
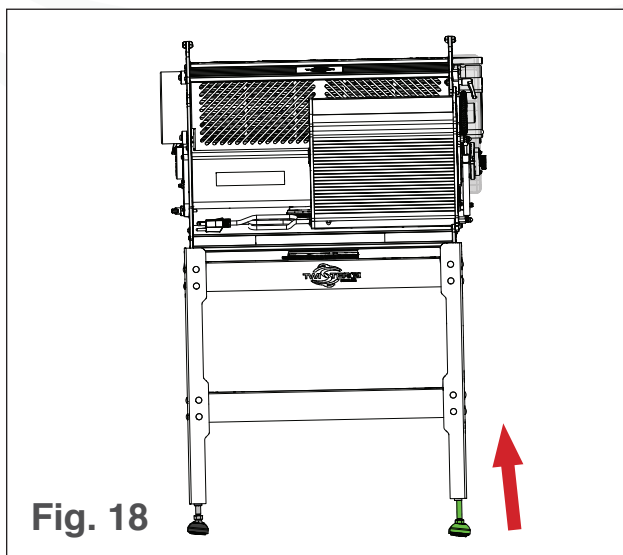
1. Using two people, lift the T4 and place it so it securely sits in the top of the stand.

Step 4: Adjust the Tilt

1. Review **Tilt Guidelines** on page 18.
2. Adjust the tilt of the stand or rails to best suit the product being trimmed:
 - If using a single T4, adjust the levelling feet to be higher on one side until the trimmer is at the desired angle (see Fig. 18). Then tighten the jam nuts (see Fig. 19).
 - If using T4s in tandem, see the corresponding Twister Rails manual for tilt instructions.

Step 5: Connect the Vacuum

1. Assemble the Trim Saver (see the *Twister T4 Trim Saver User Manual*).
2. Slide a hose clamp around the unattached hose cuff on the cyclone to trimmer hose (see Fig. 20).
3. Slide the cyclone-to-trimmer hose cuff over the vacuum coupling adapter (see Fig 20).
4. Tighten the hose clamp around the cuff and adapter.



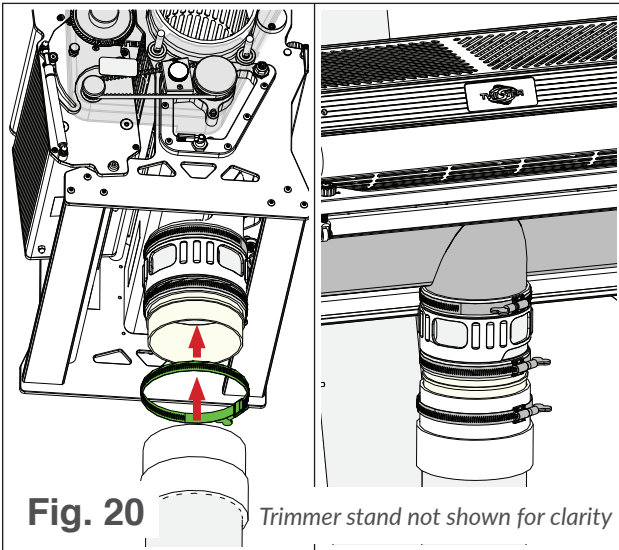


Fig. 20 *Trimmer stand not shown for clarity*

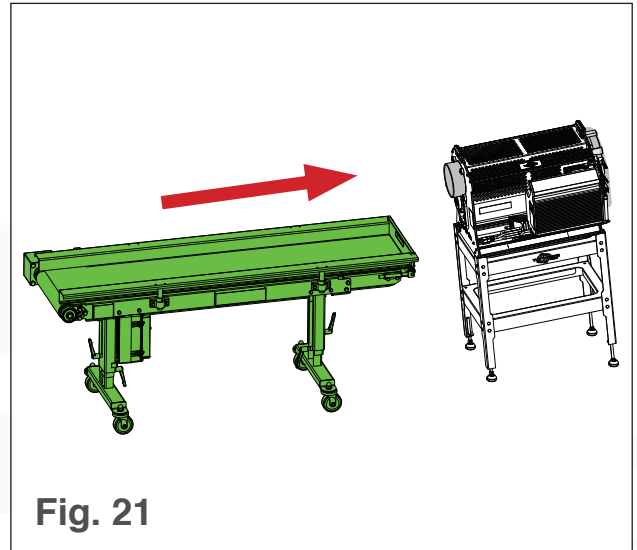


Fig. 21

Step 6: Align the Conveyors/Attach the Hopper

To safely feed product into the tumbler, Twister Conveyors or a T4 Hopper are required. For a list of available conveyors, see **Conveyors** on page 72. If using conveyors:

1. Assemble the conveyors (see the corresponding Twister Conveyor manual).
2. Adjust the heights of the conveyors to match the heights of the T4 tumbler(s) (see the corresponding Twister Conveyor manual).
3. Place the closed end of the QC Conveyor under the T4 outlet* (see Fig. 21).
4. Place the open end of the Feed Conveyor inside the T4 tumbler without the conveyor touching the tumbler** (see Fig. 22).

*If using T4s in tandem, place the end of the Feed Conveyor inside the first machine's tumbler.

**If using T4s in tandem, place the end of the QC Conveyor under the last machine's outlet.

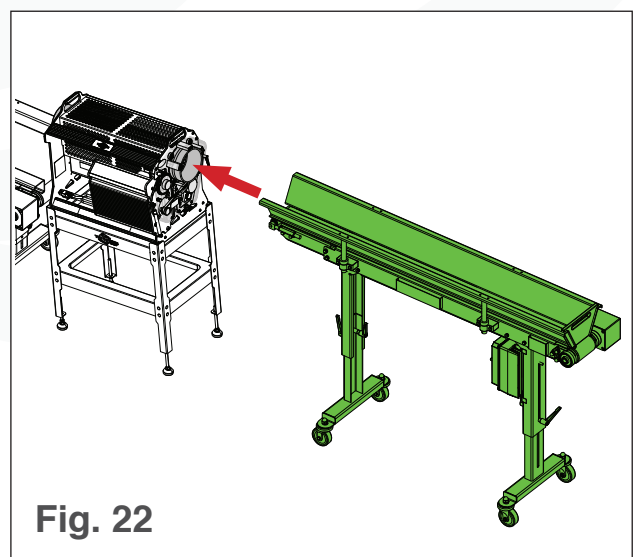
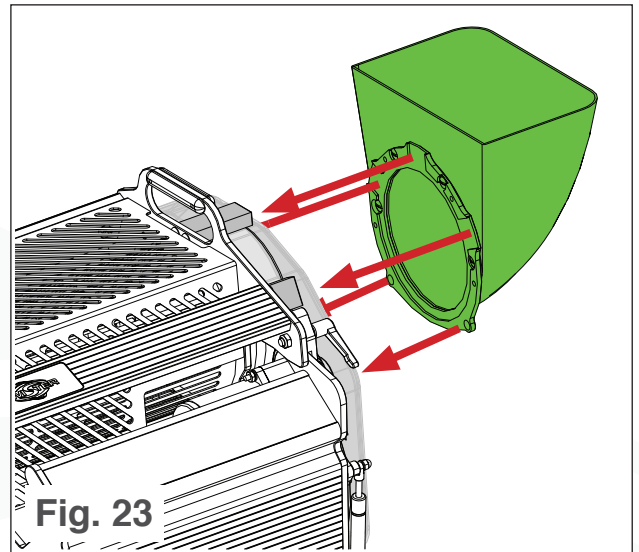


Fig. 22

INITIAL SETUP

If using the Hopper:

1. Align the circular indents under the hopper outlet with the hopper pins on the T4 (see Fig. 23).
2. Place the three rectangular indents at the top of the hopper outlet against the magnets on the T4 (see Fig. 23).



Leaf Collector Setup

Step 1: Assemble the Leaf Collector

1. Assemble the Leaf Collector (see the *Twister Leaf Collector Operating Manual and Parts List*).
2. Attach the filter bags by either following the steps below or scanning QR. 1 to watch an instructional video.
 - a. Loop the outer bag on the filter bag hooks. The finest thread bag is the outer bag.
 - b. Place the opening of the outer bag around the Leaf Collector outlet.
 - c. Unzip the top of the outer bag.
 - d. Loop the inner bag on the filter bag hooks.
 - e. Place the opening of the inner bag around the Leaf Collector outlet.
 - f. Tighten the inner bag draw string around the outlet.



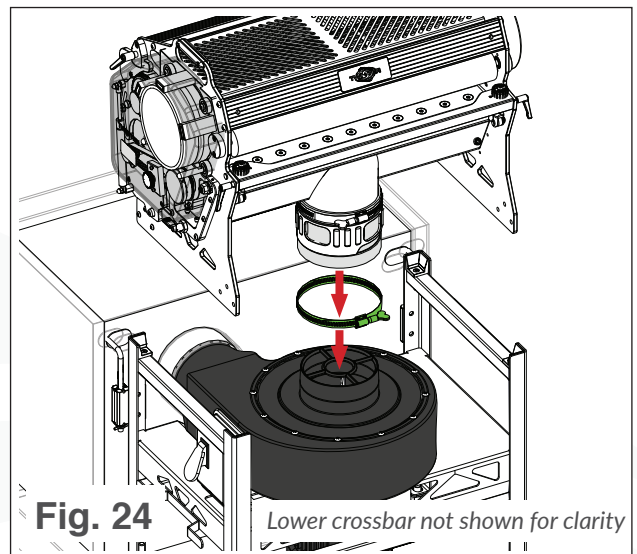
- g. Zip the top of both bags.

Step 2: Secure the Stand Placement

1. Follow the steps under **Step 1: Secure the Stand Placement** on page 11.

Step 3: Attach the Vacuum Attachment Coupling

1. Follow steps 1–4 under **Step 2: Attach the Vacuum Attachment Coupling** on page 12. **Only follow steps 1-4.**
To attach the T4 to the Leaf Collector, the coupling adapter is not needed.



Step 4: Connect the Vacuum

1. Place a hose clamp over the free end of the vacuum attachment coupling (see Fig. 24).
2. Lift and place the T4 on top of the Leaf Collector stand so the coupling slides over the Leaf Collector Inlet. The control box on the T4 should be on the same side as the Leaf Collector outlet (see Fig. 24).
3. Tighten the hose clamp around the coupling and Leaf Collector.

Step 5: Adjust the Tilt

1. Review **Tilt Guidelines** on page 18 and follow the steps under **Step 4: Adjust the Tilt** on page 14.

Step 6: Align the Conveyors/Attach the Hopper

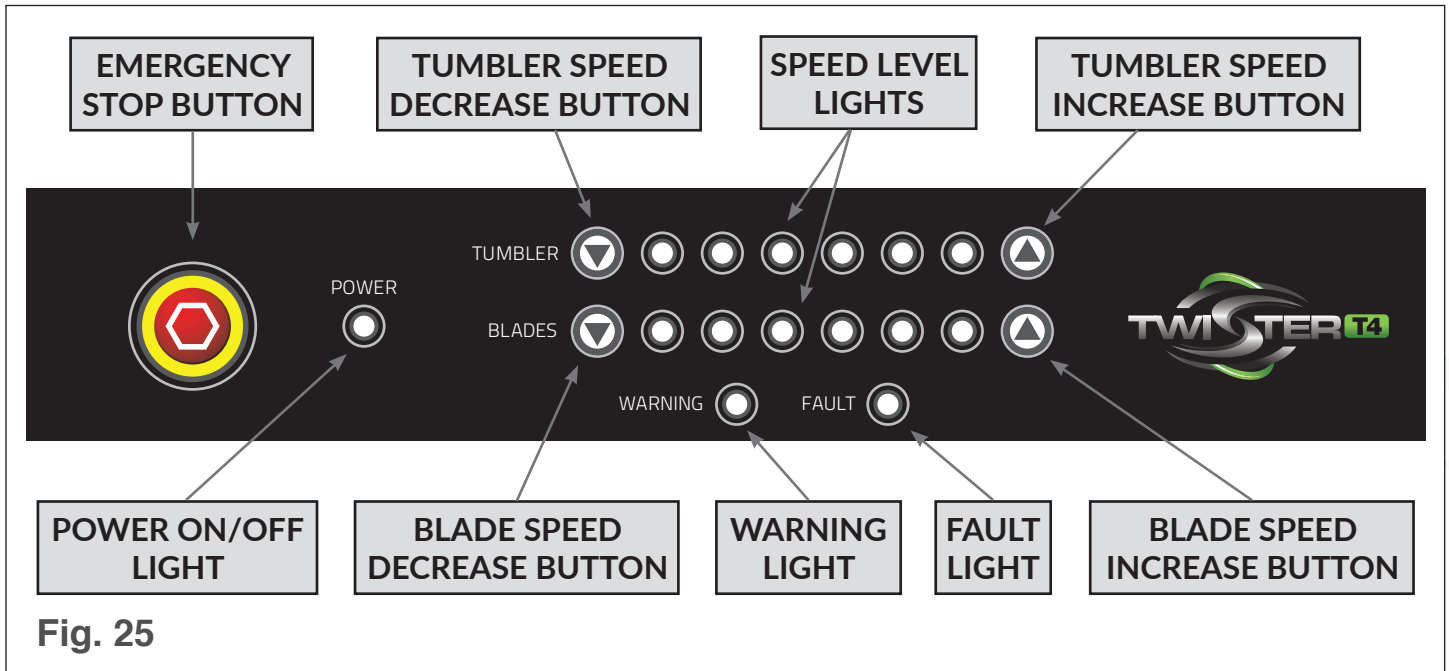
1. Follow the steps under **Step 6: Align the Conveyors/Attach the Hopper** on page 15.

TILT GUIDELINES

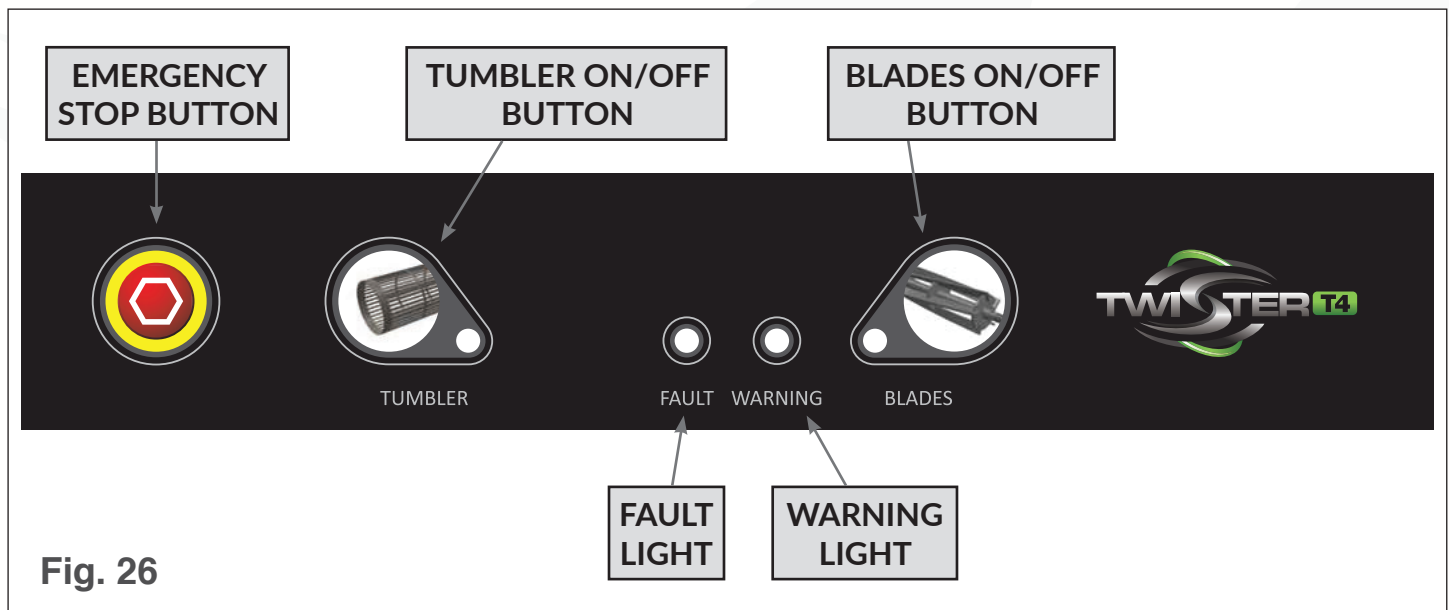
Increasing the incline of the T4 will decrease the fill level of the tumbler and increase throughput. For optimal performance, the T4 should be 1/3 full of product at all times during operation. When trimming a new product, it is normal to adjust the incline multiple times to optimize product throughput.

CONTROL PANEL OVERVIEW

T4 Speed Control Edition



Earlier T4 Edition (without speed control)



Step 1: Inspect the T4

The following inspections should be completed before each use of the T4. Before operating, ensure:

1. The following are installed:
 - Blade Belt Cover
 - Tumbler guard
 - Vacuum shroud
 - Vacuum attachment coupling
 - Filter bags (on vacuum).
2. The vacuum is attached and the hose clamps are tight.
3. If using conveyors, the conveyors are aligned and clear of the tumbler.
4. The tumbler spins freely and does not contact the blades.
5. The brush rotates when the tumbler rotates.

Step 2: Power the T4, Vacuum, and Conveyors

1. Connect the T4 to an extension cord (minimum diameter 14AWG. See **Specifications** starting on page 70).
2. Connect the vacuum to an extension cord (see the *T4 Trim Saver User Manual* for extension cord requirements. Minimum diameter of 14AWG for the Leaf Collector).
3. If using conveyors, connect the conveyors to extension cords.
4. Plug in the extension cords.



DANGER

DO NOT OPERATE THE T4 UNLESS THE MACHINE IS FULLY ASSEMBLED AND ALL PRE-OPERATION INSPECTIONS ARE MADE.



CAUTION

THE EXTENSION CORDS MUST MEET THE CORRECT SPECIFICATIONS. USING AN INAPPROPRIATE EXTENSION CORD WILL CAUSE LOSS OF POWER AND OVERHEATING.

Step 3: Start the Vacuum, Blades, and Tumbler

1. Turn on the vacuum.
2. Allow the vacuum to reach full speed.
3. Press the blade speed increase button* until the desired speed setting is set (see **Speed Control Guidelines**).
4. Allow the helix blade to reach the desired speed.
5. Press the tumbler speed increase button** until the desired speed setting is set (see **Speed Control Guidelines**).
6. Allow the tumbler to reach the desired speed.

*If using an earlier edition T4 without speed control, press the BLADES on/off button.

**If using an earlier edition T4 without speed control, press the TUMBLER on/off button.

SPEED CONTROL GUIDELINES

The T4 has variable speed control for the tumbler and helix blade rotations. When the T4 is switched on, both motors will be at ORPM. To increase the speed levels of each motor, press the tumbler and blade speed increase buttons. Each speed will be represented by the speed level lights on the control panel: one light representing the lowest speed and six lights representing the highest (**Speed Control Guidelines** continued on next page).

Tumbler Speed Adjustments

- When starting a new product, it is recommended to start with the tumbler at speed 4.
- Adjust the tumbler speed to achieve the smoothest rotation of product around the tumbler.

SPEED CONTROL GUIDELINES

Blade Speed Adjustments

- Use lower speeds to increase the size of each cut while decreasing the overall number of cuts.
- Use higher speeds to decrease the size of each cut while increasing the overall number of cuts.

Step 4: Feed the T4

1. Begin feeding product into the T4 using either the conveyors or T4 Hopper.
2. Monitor operation and adjust the settings to achieve optimal trimming (see **Speed Control Guidelines** on page 21 and **Running Guidelines**).



DANGER

**TURN OFF ALL MOTORS BEFORE
ADJUSTING THE TILT.**

Step 5: Power Off and Clean the T4

1. Press the tumbler speed decrease button until* all speed level lights are off.
2. Press the blades speed decrease button** until all speed level lights are off.
3. Turn off the vacuum.
4. Detach the vacuum from the vacuum attachment coupling (see **Disassembly**).
5. Remove the control box from the T4 (see **Disassembly**).
6. Clean the T4 (see **Cleaning** on page 42).

*If using an earlier edition T4 without speed control, press the **BLADES** on/off button.

If using an earlier edition T4 without speed control, press the **TUMBLER on/off button.

RUNNING GUIDELINES

- Have one-to-four quality control personnel observing product exiting the T4 outlet.
- Feed the machine consistently. Inconsistent feeding will result in inconsistent trimming:
 - If using the Hopper, feed the T4 with consistent handfuls at consistent intervals.
 - If using the conveyors, fill the Feed Conveyor to a consistent height.
- Adjust the feeding speed to have the same volume of product exiting and entering the machine simultaneously.
- Adjust the tilt of the machine so the tumbler is $\frac{1}{3}$ full at all times (see **Tilt Guidelines** on page 18). **Turn off all motors before adjusting the tilt.**
- If wet trimming, spray the brush every five minutes with cold distilled water to reduce buildup on the tumbler (if dry trimming, there is no need to spray the brush. Do not spray the drive wheel as this will cause it to slip on the tumbler.
- If dry trimming, use a Vacuum Bypass to reduce suction and prevent the T4 holding too much product (see **Vacuums and Bypass** on page 74).



WARNING

THE CONTROL BOX CAN BECOME HOT WHEN THE T4 IS USED FOR EXTENDED PERIODS OF TIME.



CAUTION

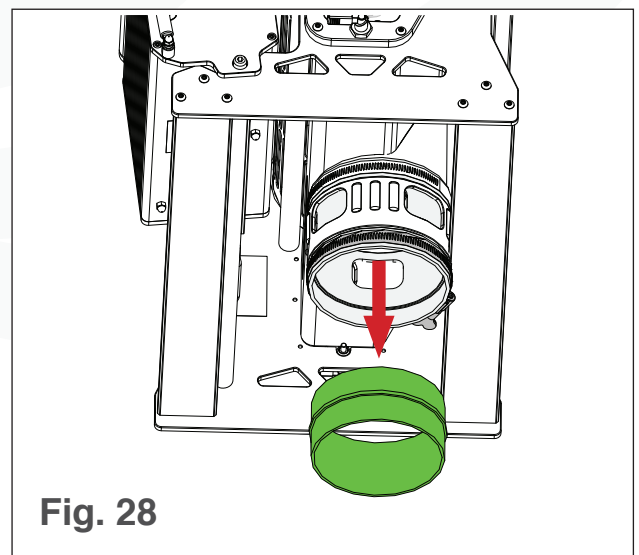
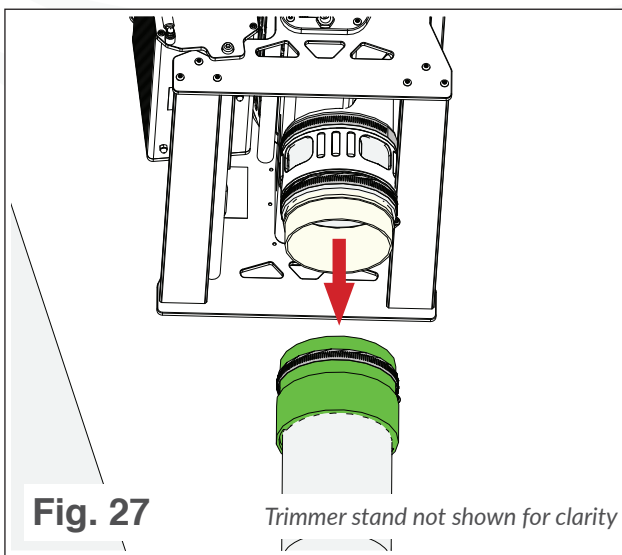
THE T4 MUST BE CLEANED AFTER EACH USE. IF NOT, RESIDUE WILL HARDEN, CAUSING REDUCED PERFORMANCE AND EXTREMELY DIFFICULT CLEANING.

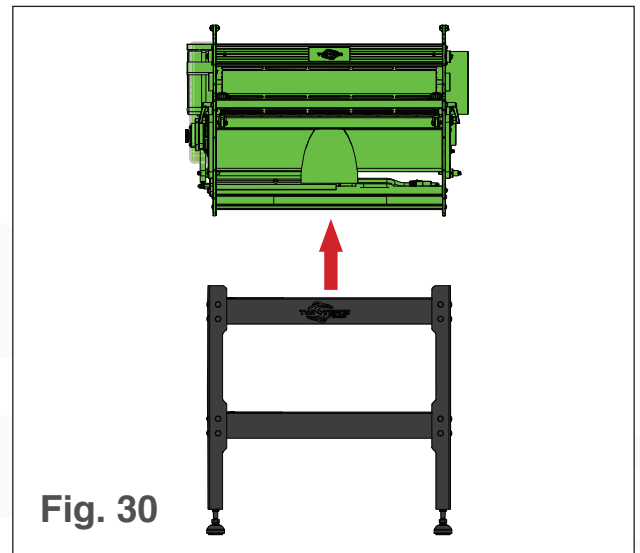
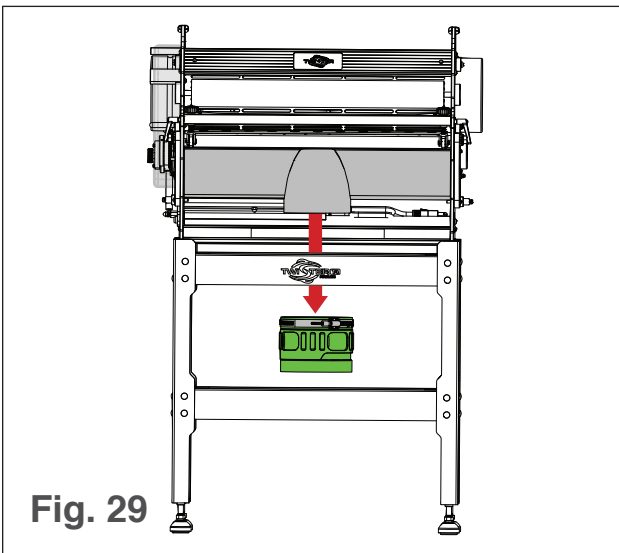
DISASSEMBLY

The T4 needs to be disassembled to conduct routine cleaning, maintenance, and any repairs. Conduct the following steps in order to disassemble the T4:

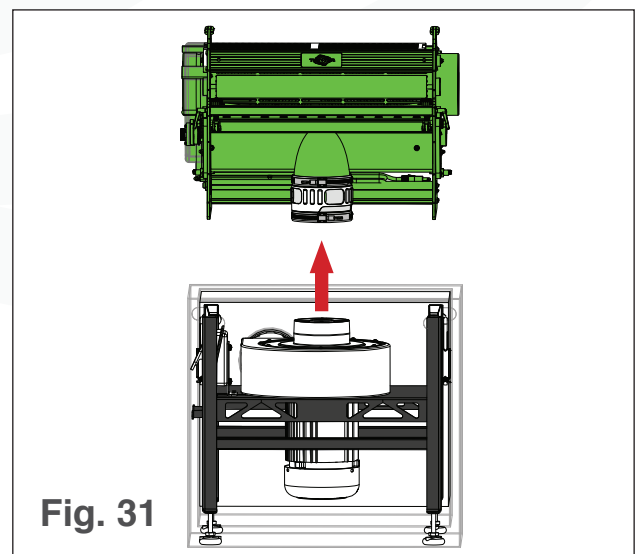
Step 1: Detach the Vacuum

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.
2. Unattach the vacuum from the trimmer:
 - If using a Trim Saver:
 - i. Loosen the hose clamp securing the cyclone-to-trimmer hose to the coupling adapter.
 - ii. Pull the hose cuff off the adapter (see Fig. 27).
 - iii. Loosen the hose clamp securing the adapter to the vacuum attachment coupling.
 - iv. Pull the adapter out of the coupling (see Fig. 28).

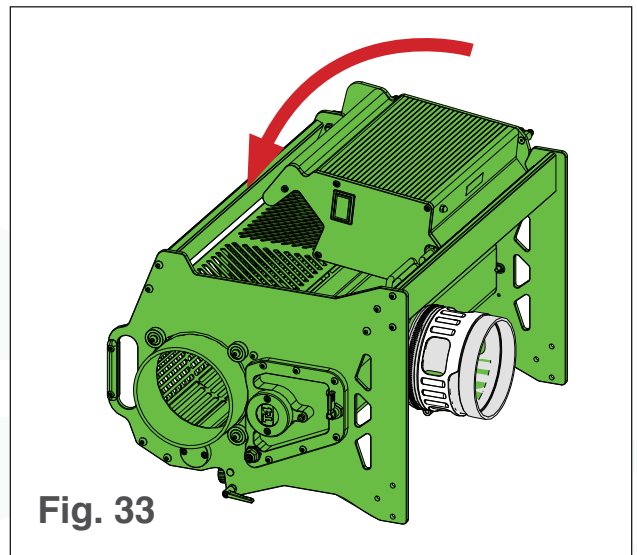
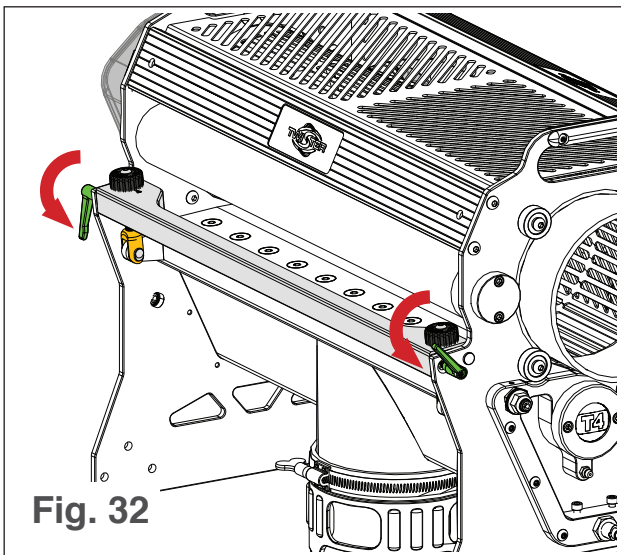




- v. Loosen the hose clamp securing the coupling to the vacuum shroud.
- vi. Pull the coupling off the vacuum shroud (see Fig. 29).
- vii. Take the T4 off the stand (see Fig. 30).
- If using a Leaf Collector:
 - i. Loosen the hose clamp securing the Leaf collector to the coupling adapter.
 - ii. Lift the T4 off of the Leaf Collector (see Fig. 31).
 - iii. Pull out and rotate the adjustment bar lock knobs so they are facing straight down (see Fig. 32). This is to prevent them breaking when the T4 is rotated.
 - iv. Carefully rotate the T4 onto its side so it rests on the adjustment bar (see Fig. 33).



DISASSEMBLY



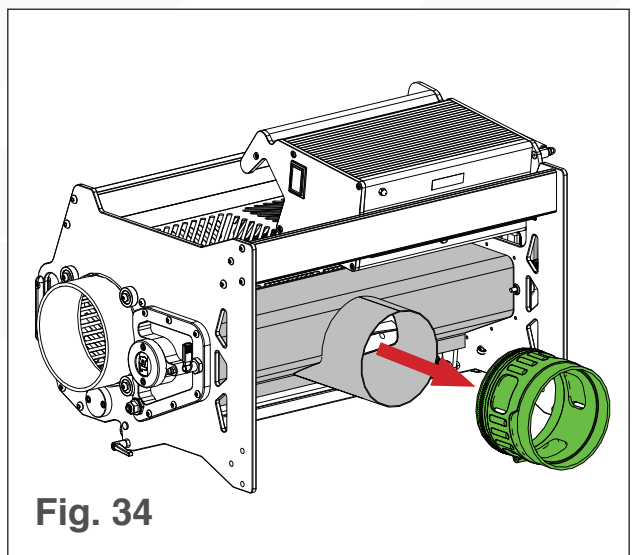
- v. Loosen the hose clamp securing the coupling to the vacuum shroud.
- vi. Pull the coupling off the vacuum shroud (see Fig. 34).
- vii. Rotate the T4 back upright.

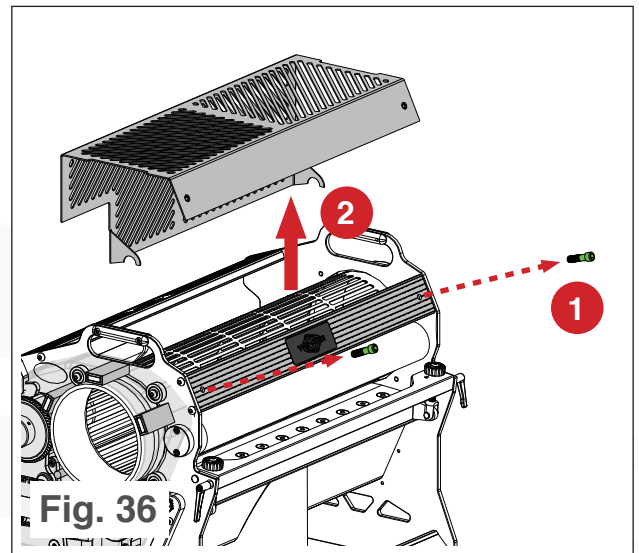
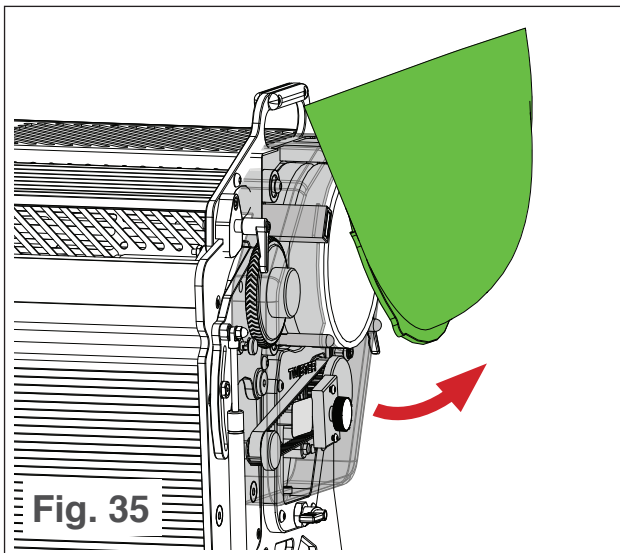
Step 2: Remove the Hopper and Tumbler Guard

1. If using a Hopper, pull it off the T4. Only pull from the bottom of the Hopper to avoid damaging it (see Fig. 35).
2. Remove the tumbler guard:

CAUTION

PULL THE HOPPER FROM ITS
BOTTOM TO AVOID SNAPPING
THE TOP.





- If using a standard edition T4:
 - a. Using a $\frac{5}{32}$ hex key, remove the tumbler guard bolts (see Fig. 36).
 - b. Push the guard from the bottom up, then pull it off the T4 (see Fig. 36).
- If using a stainless steel T4:
 - a. Using a $\frac{5}{32}$ hex key, loosen the tumbler guard knobs (see Fig. 37).
 - b. Open the tumbler guard locks (see Fig. 38).
 - c. Pull the tumbler guard off the T4.

Step 3: Remove the Blade Belt Cover

1. Loosen the blade belt cover bolt (see Fig. 39)

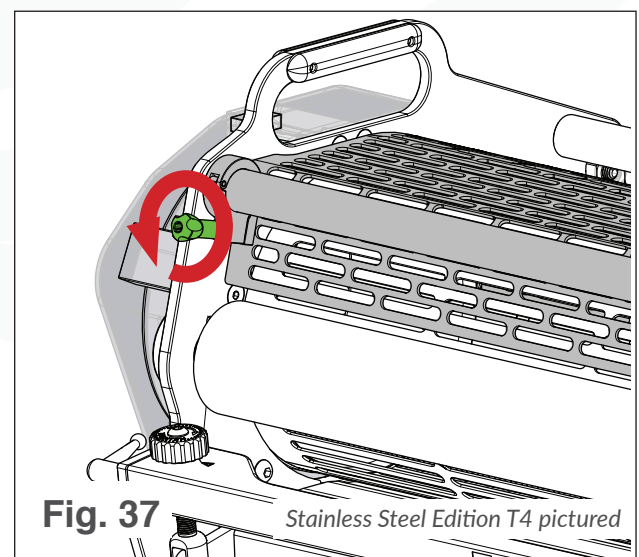
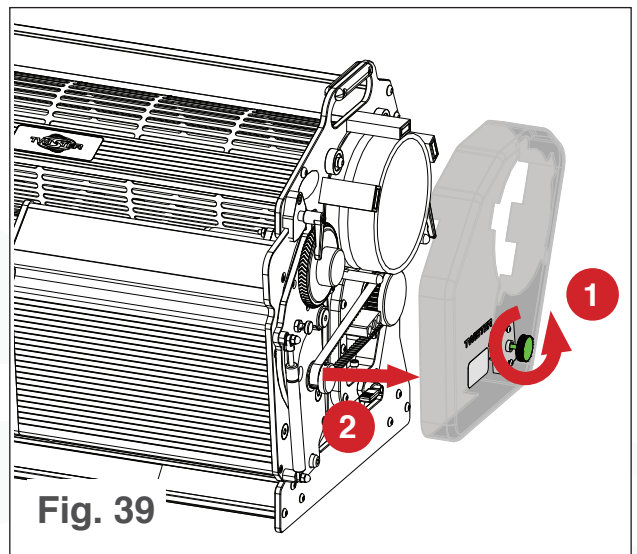
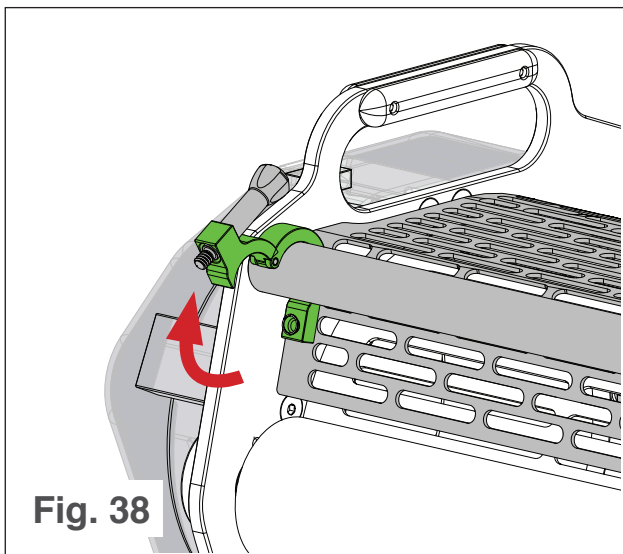


Fig. 37 *Stainless Steel Edition T4 pictured*



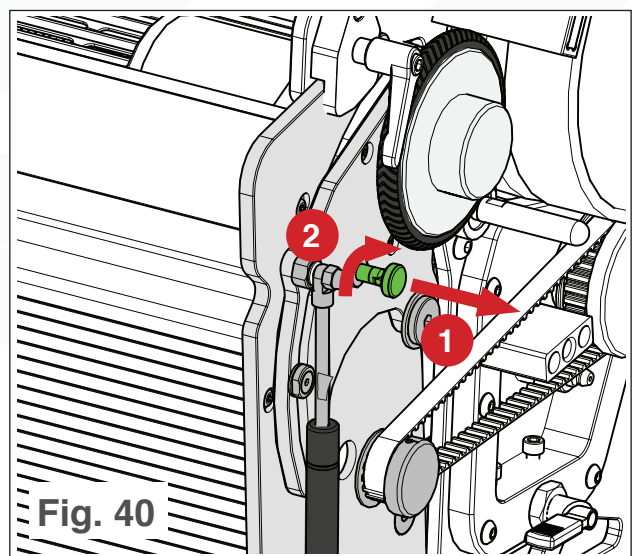
2. Pull the blade belt cover off the T4 (see Fig 39).

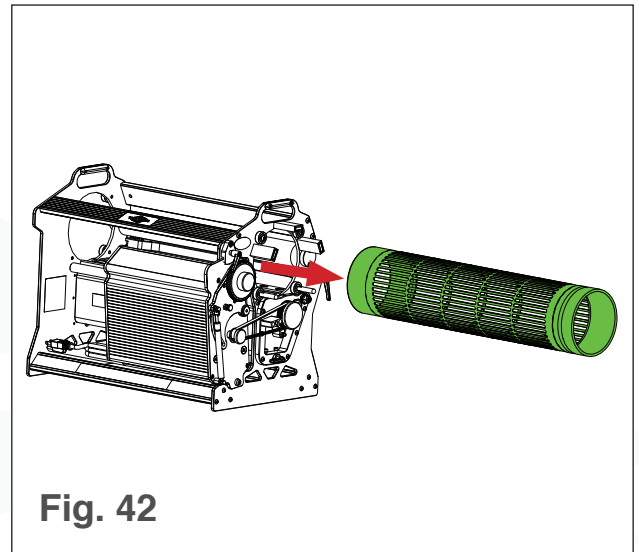
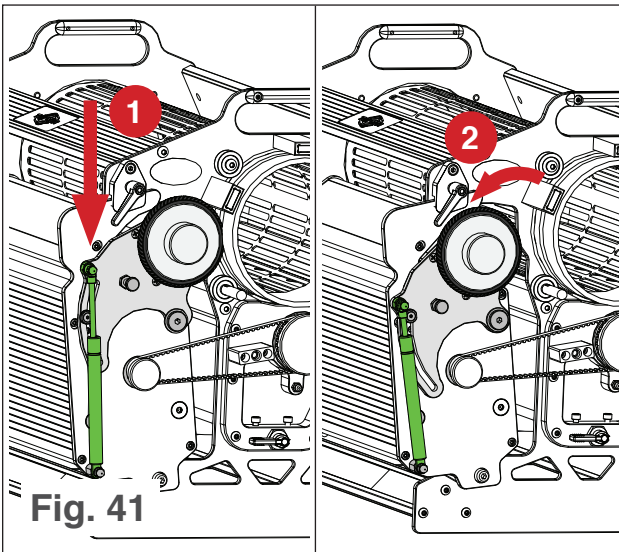
Step 4: Remove the Tumbler

1. Pull out the control box lock pin and rotate it 90° so it remains in the unlocked position (see Fig. 40).
2. Push and hold down the gas spring. Later edition T4s may have the gas spring in an opposite orientation. The drive wheel will rotate down (see Fig. 41).
3. Rotate the lock pin back 90° so it locks the drive wheel in the down position.
4. Carefully pull out the tumbler (see Fig. 42). Expect some resistance from the brush.

 **CAUTION**

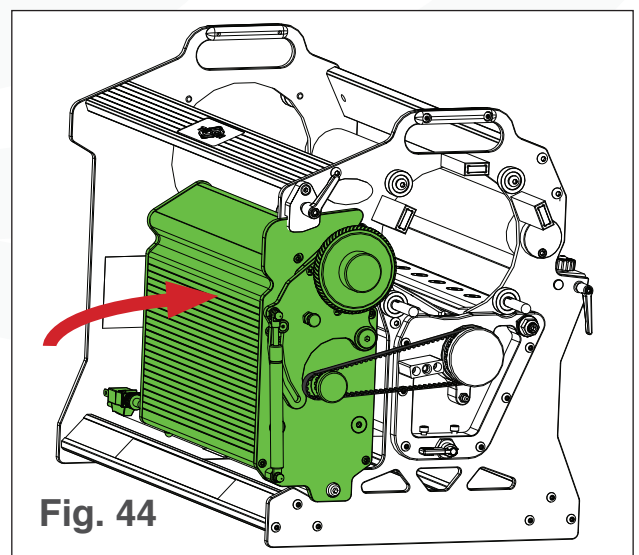
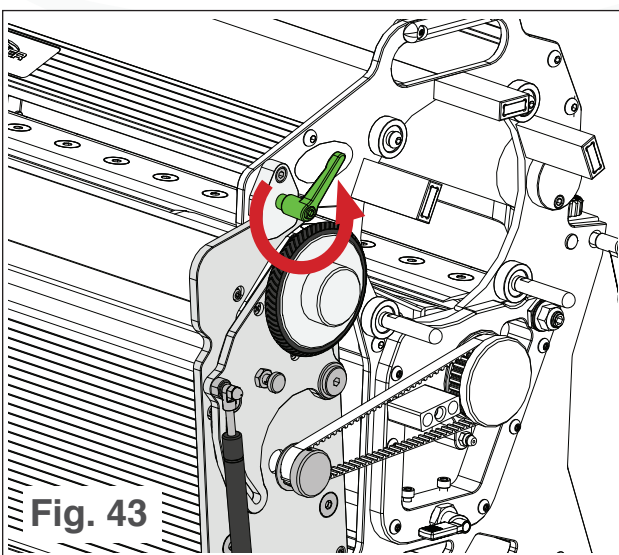
**THE TUMBLER IS FRAGILE.
HANDLE WITH CARE. A DAMAGED
TUMBLER SIGNIFICANTLY
REDUCES PERFORMANCE.**

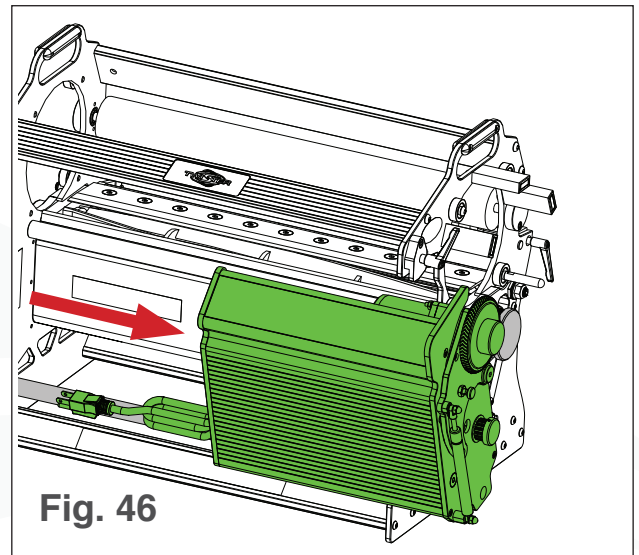
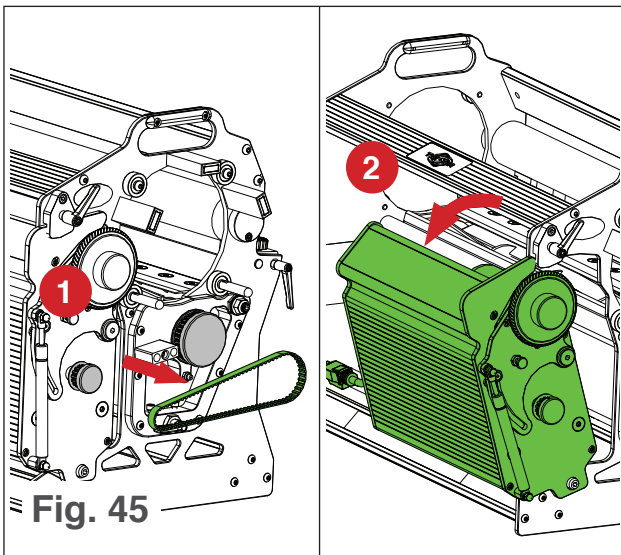




Step 5: Remove the Blade Belt

1. Loosen the control box lock knob (see Fig. 43).
2. Push the control box towards the tumbler to release the tension on the blade belt (see Fig. 44).
3. Remove the blade belt. The control box will rotate down. (see Fig. 45).



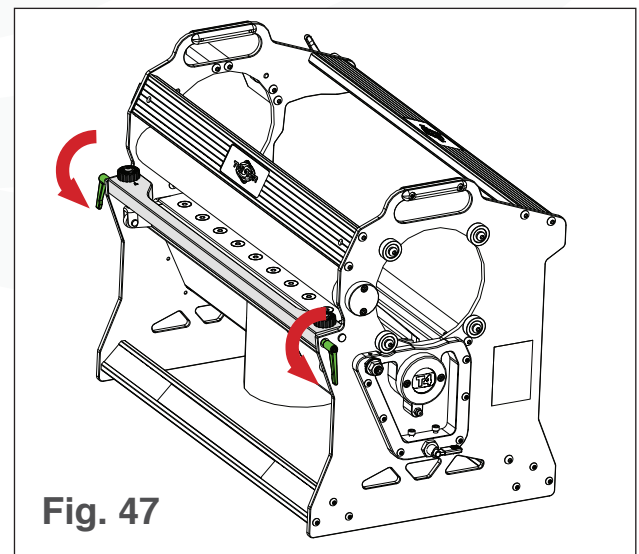


Step 6: Remove the Control Box

1. Carefully supporting the box, slide it to the right so it slides off the control box guide pin (see Fig. 46).
2. Pull the box off the T4.

Step 7: Remove the Vacuum Shroud

1. Pull out and rotate the adjustment bar lock knobs so they are facing straight down (see Fig. 47).
2. Carefully rotate the T4 onto its side so it rests on the adjustment bar.
3. Rotate both vacuum shroud locking pins 180° so the pins completely retract (see Fig. 48).
4. Push the shroud from the top down, then pull it off the T4 (see Fig. 49).



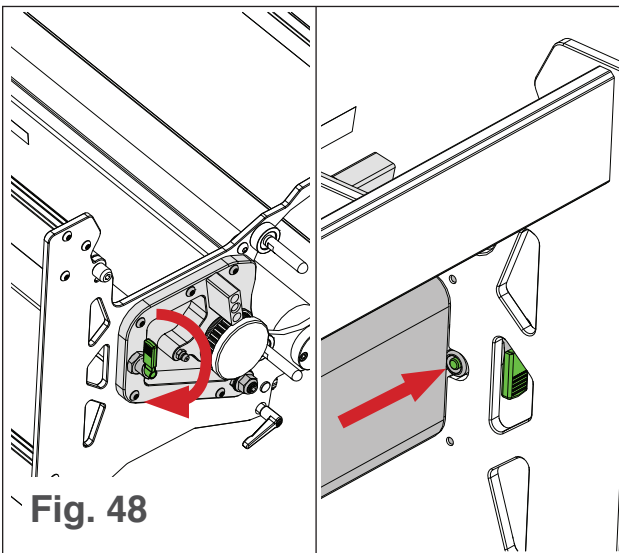


Fig. 48

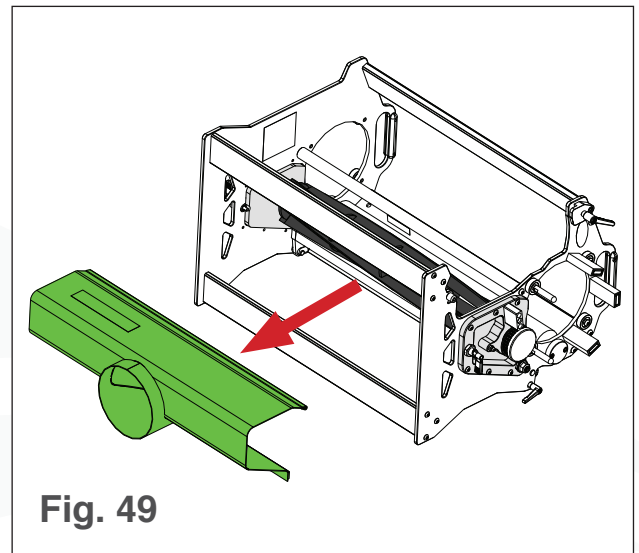


Fig. 49

Step 8: Rotate the Bed Knife Up

1. Carefully rotate the T4 back upright.
2. Remove one of the adjustment bar lock knobs (see Fig. 50).
3. Support the adjustment bar, then remove the other adjustment bar lock knob.
4. Rotate the adjustment bar down (see Fig. 51).

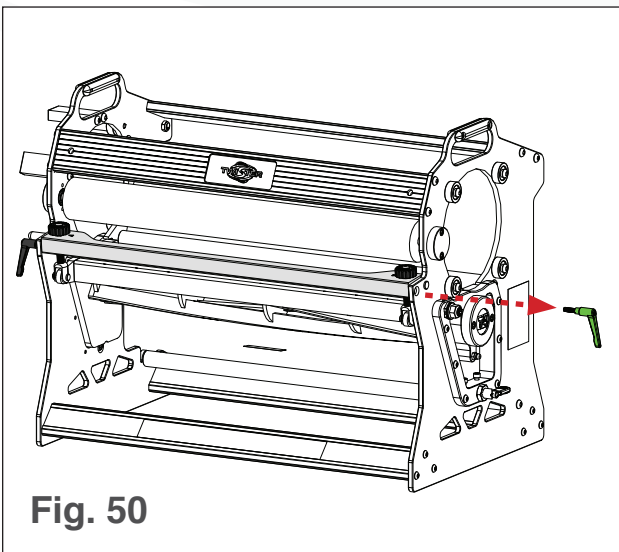


Fig. 50

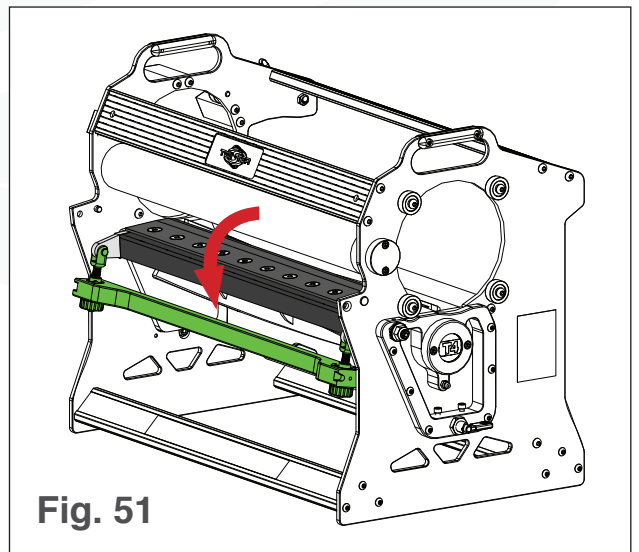
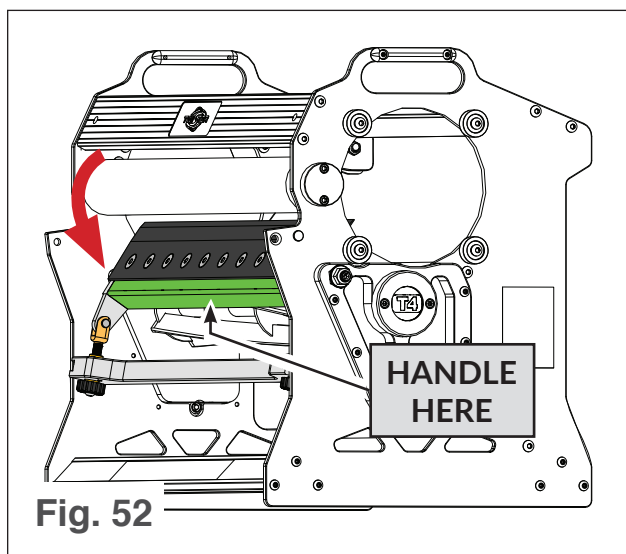


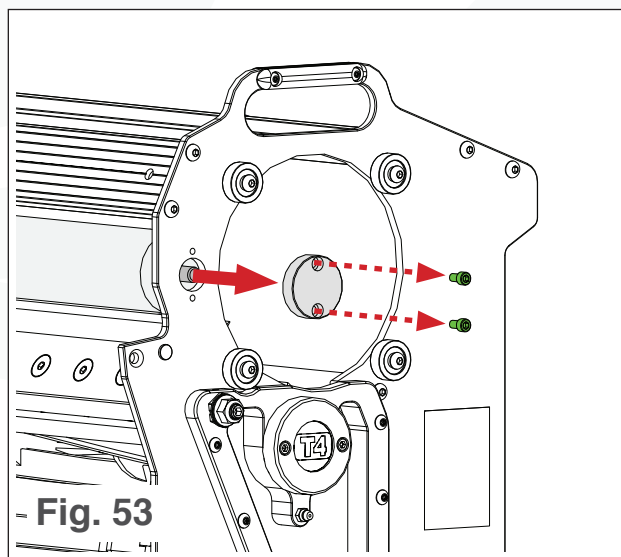
Fig. 51



5. Rotate the bed knife up by pushing the thick part of the bed bar down (see Fig. 52). Do not grab the sharp end of the bed knife.

Step 9: Remove the Brush

1. Remove the two brush bolts on one end of the brush (see Fig. 53).
2. Remove the brush end cap (see Fig. 53).
3. Pull the brush out of the T4.



WARNING

CUTTING HAZARD!
THE BLADES ARE SHARP.
BE CAREFUL WHEN WORKING
WITH OR NEAR THE BLADES.



Conduct the following steps in order to reassemble the T4. Do not plug in the T4 until it is fully reassembled.

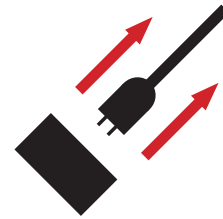
Step 1: Install the Brush

1. Ensure the T4 and vacuum are unplugged.
2. Insert the brush into the empty brush slot (see Fig. 54).
3. Slide the brush into the brush end cap in the other brush slot (see Fig. 55).
4. Place the removed brush end cap on the free side of the brush (see Fig. 56).
5. Insert and tighten two brush bolts into the brush end cap (see Fig. 56).



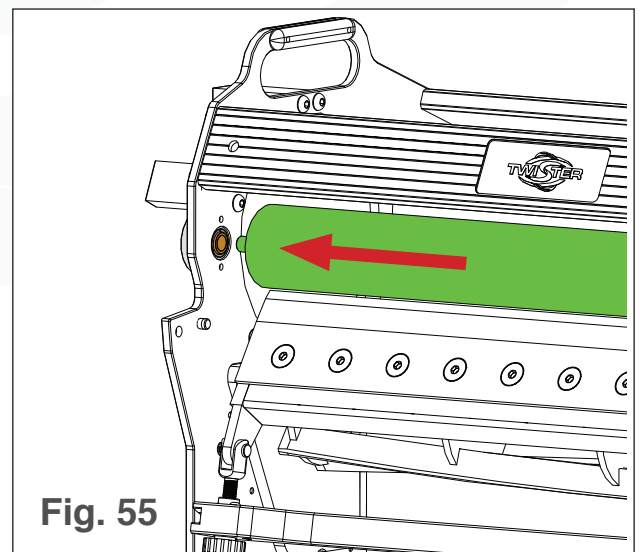
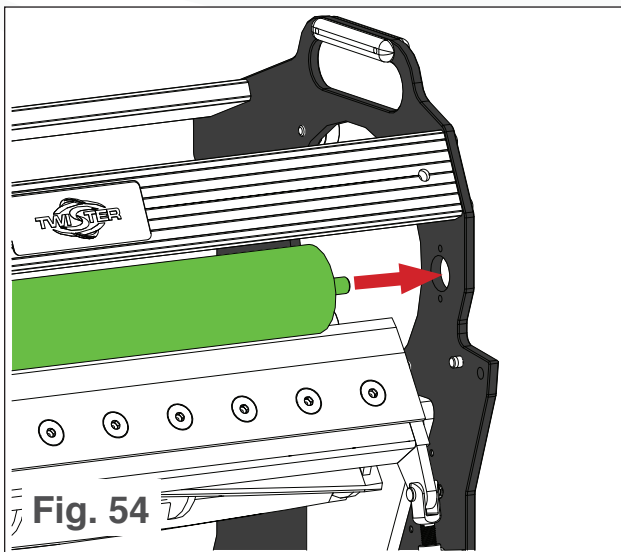
DANGER

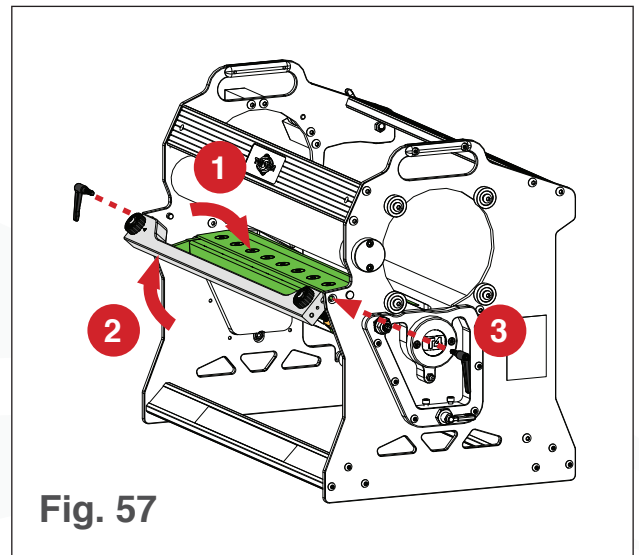
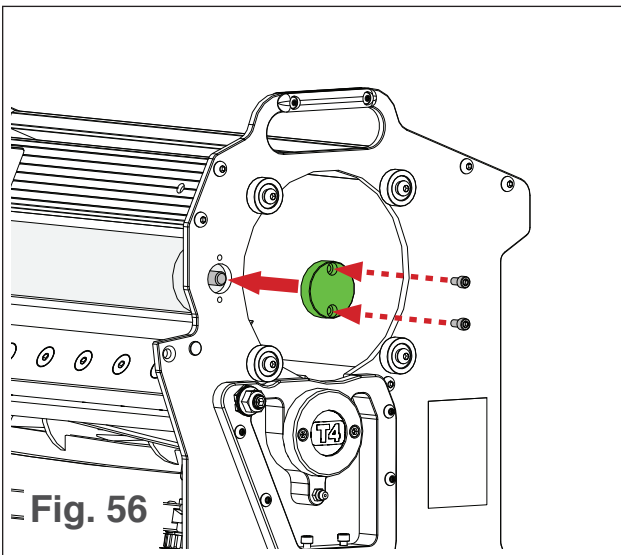
THE T4 MUST BE UNPLUGGED DURING REASSEMBLY.



Step 2: Rotate the Bed Knife Down

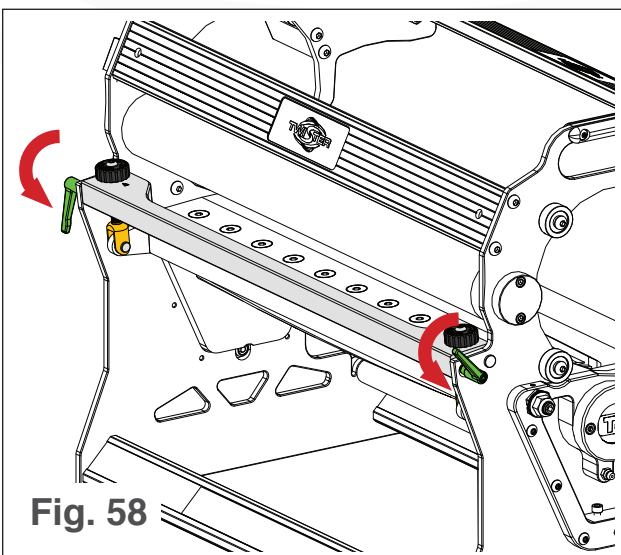
1. Carefully avoiding hands touching the blades, rotate the bed knife back down so it contacts the blades (see Fig. 57).
2. Rotate the adjustment bar back up (see Fig. 57).
3. Insert and tighten the adjustment bar lock knobs (see Fig. 57).





Step 3: Install the Vacuum Shroud

1. Pull out and rotate the adjustment bar lock knobs so they are facing straight down (see Fig. 58).
2. Carefully rotate the T4 onto its side so it rests on the adjustment bar.
3. If the vacuum shroud locking pins are not completely retracted, rotate them 90° so they retract.



WARNING

CUTTING HAZARD!
THE BLADES ARE SHARP.
BE CAREFUL WHEN WORKING
WITH OR NEAR THE BLADES.



4. Place the vacuum shroud under the blades and push until it is fully inserted (see Fig. 59).
5. Rotate the vacuum shroud locking pins so they pop out and support the vacuum shroud (see Fig. 59).

Step 4: Install the Control Box

1. Carefully rotate the T4 back upright.
2. Place the control box on the control box support bar (see Fig. 60).
3. Slide the box left so it slides onto the control box guide pin (see Fig. 60).

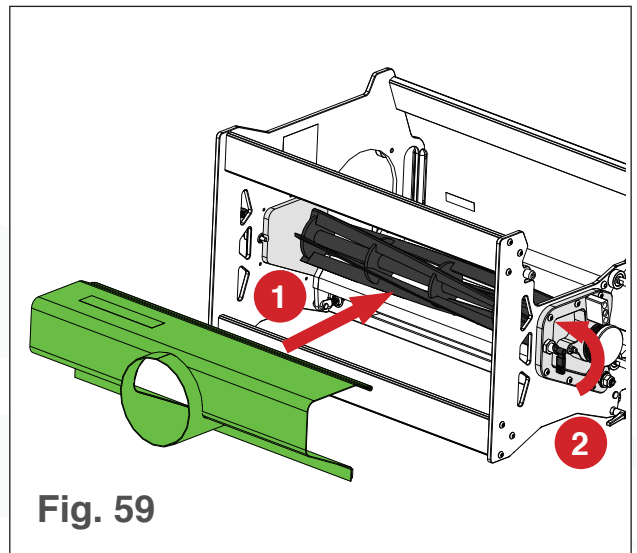


Fig. 59

Step 5: Install the Blade Belt

1. Rotate the control box up (see Fig. 61).
2. Place the blade belt around the blade motor pulley and the blade pulley (see Fig. 61).

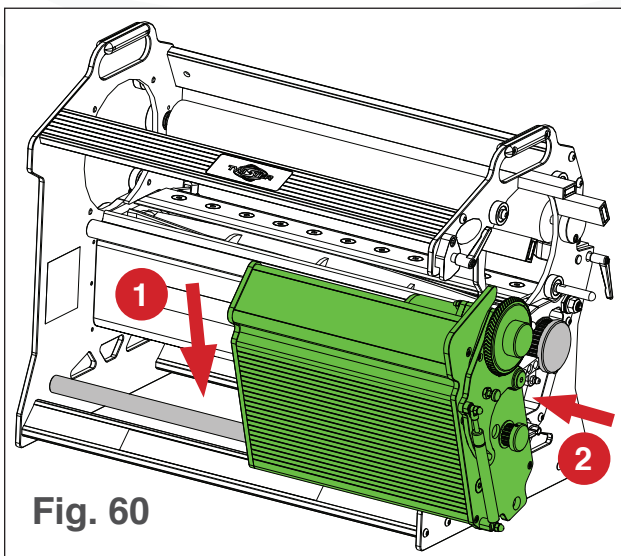


Fig. 60

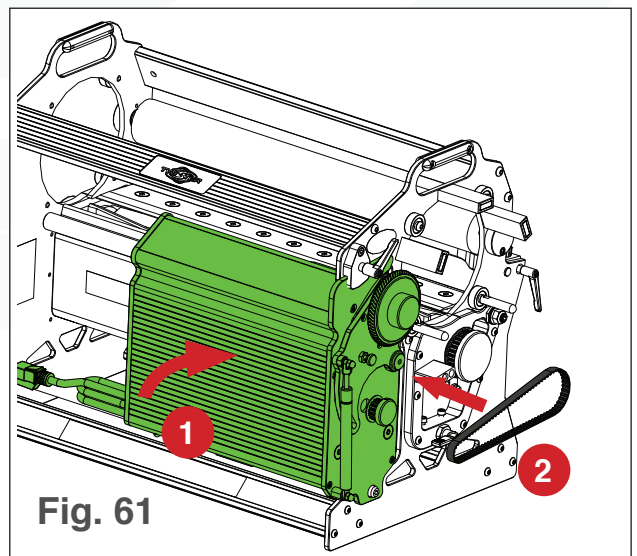
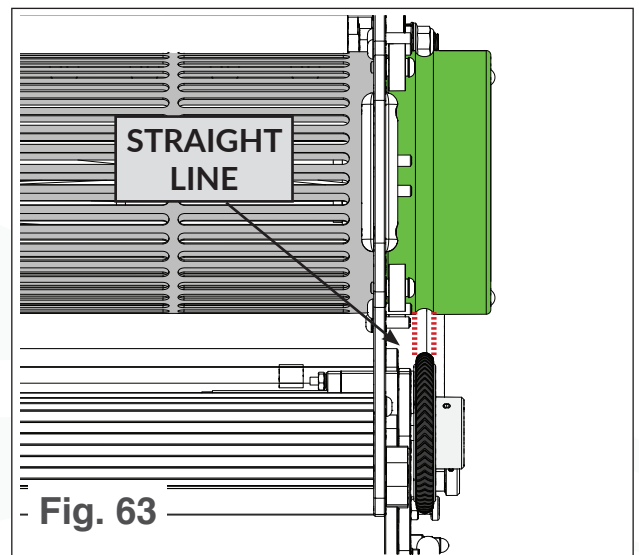
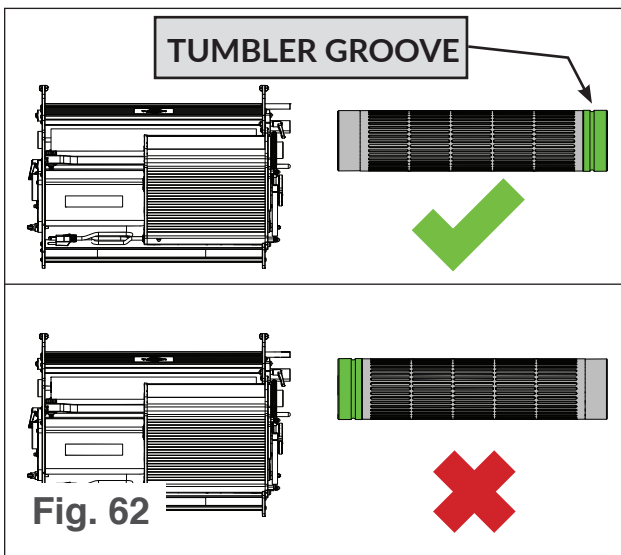


Fig. 61

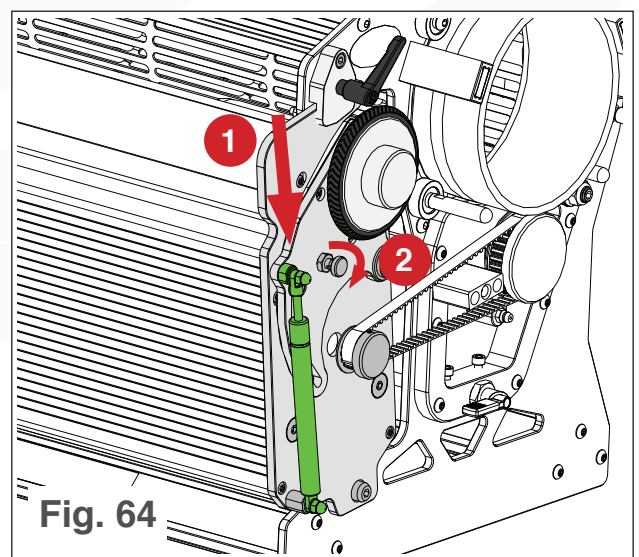


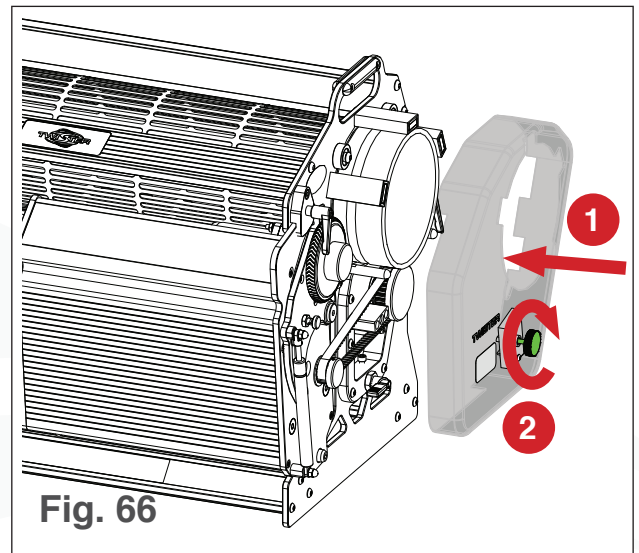
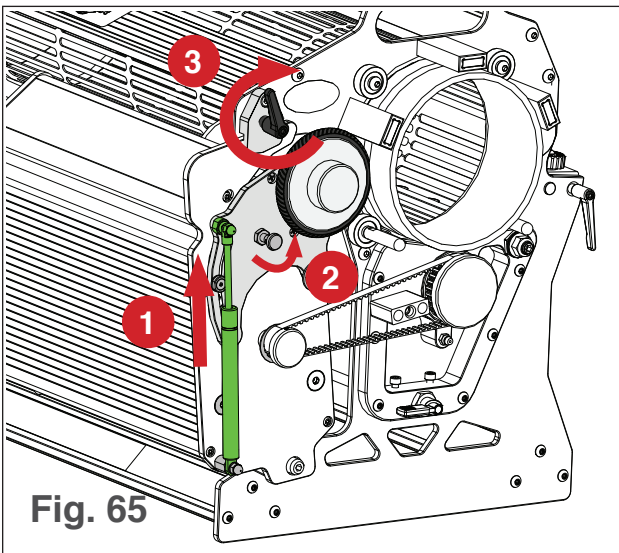
Step 6: Install the Tumbler

1. Insert the tumbler. Ensure the tumbler groove is on the same side as the control box (see Fig. 62).
2. Adjust the tumbler so the tumbler groove lines up with the drive wheel (see Fig. 63).

Step 7: Re-engage the Drive Wheel

1. Push and hold down the gas spring (see Fig. 64).
2. Pull out the control box lock pin and rotate it 90° (see Fig. 64).
3. Release the gas spring so the drive wheel rotates and makes contact with the tumbler groove (see Fig. 65).
4. Rotate the lock pin 90° so it locks the control box in position (see Fig. 65).





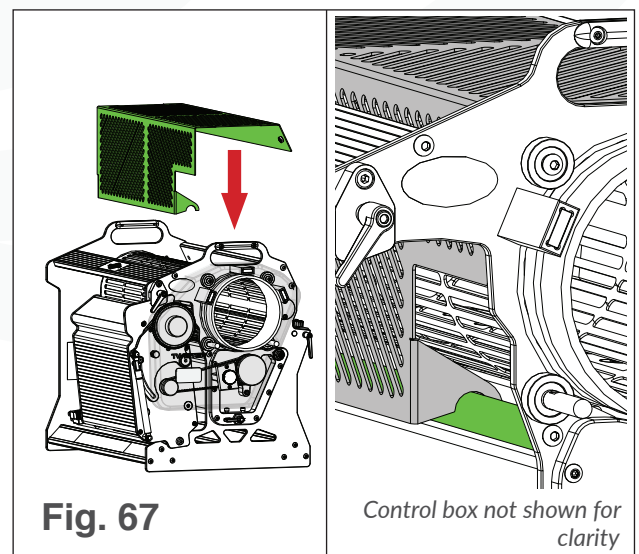
5. Tighten the control box lock knob (see Fig. 65).

Step 8: Install the Blade Belt Cover

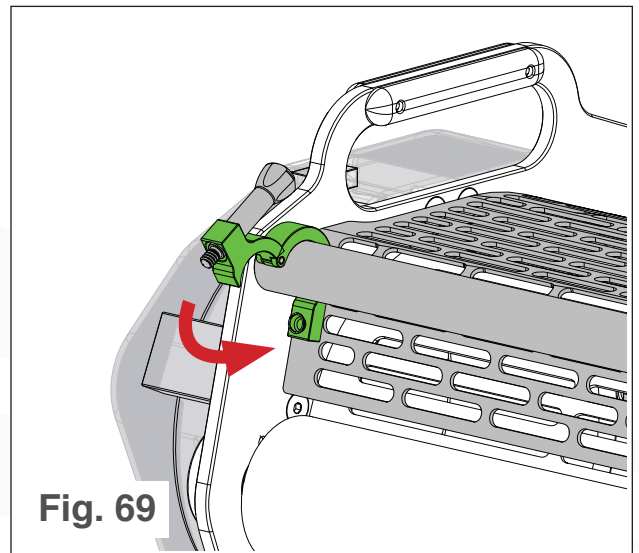
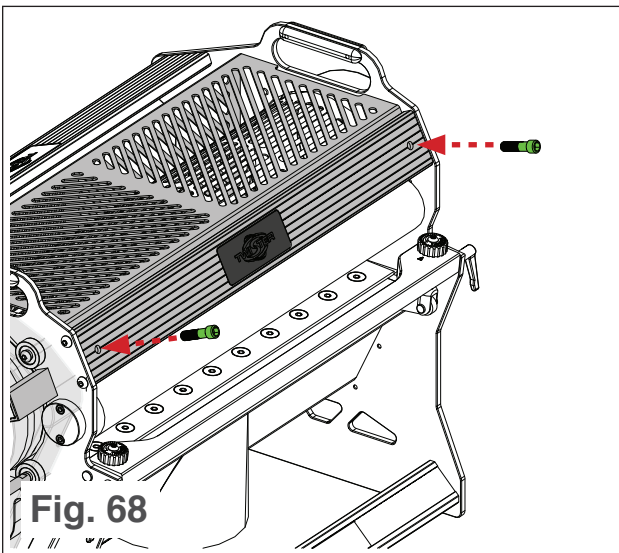
1. Place the blade belt cover over the blade belt and tumbler end (see Fig. 66).
2. Tighten the blade belt cover bolt (see Fig. 66).

Step 9: Install the Hopper and Tumbler Guard

1. Place the tumbler guard over the tumbler. Ensure the hooks at the bottom of the guard rest on the trimmer crossbar (see Fig. 67).



REASSEMBLY

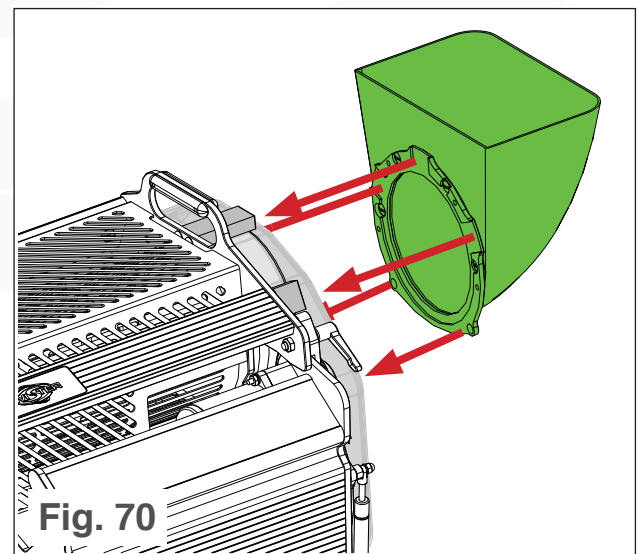


2. Secure the tumbler guard:

- If using a standard edition T4:
 - i. Insert and, using a $\frac{5}{32}$ hex key, tighten the tumbler guard bolts (see Fig. 68).
- If using a stainless steel T4.
 - i. Close the tumbler guard lock around the tumbler guard bar (see Fig. 69).
 - ii. Using a $\frac{5}{32}$ hex key, tighten the tumbler guard knobs.

3. If using a Hopper, align the circular indents under the hopper outlet with the hopper guide pins on the T4 (see Fig. 70).

4. Place the three rectangular indents at the top of the hopper outlet against the magnets on the T4 (see Fig. 70).



Step 10: Attach the Vacuum

- If using a Trim Saver, follow the steps under **Trim Saver Setup** on page 11.
- If using a Leaf Collector, follow the steps under **Leaf Collector Setup** on page 16.

INSPECTIONS

To ensure optimal performance of the T4, **ALL** of the following inspections should be made on a weekly basis. **Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop before conducting any inspections.**

Vacuum Shroud Inspections

1. Inspect the vacuum attachment coupling for any wear or damage.
2. Ensure the vacuum attachment coupling is tight on the vacuum shroud and vacuum.
3. Disassemble the T4 up until the point of removing the shroud (see **Disassembly** on page 24).
4. With the shroud installed, inspect it for any visible damage.
5. Inspect its edges to ensure there are no major gaps between the shroud and the blade cartridge.
6. Ensure the edge gaskets are seated properly.
7. Ensure the shroud fits tightly into the T4.

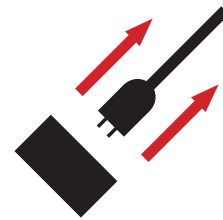
Brush Inspections

1. Ensure the brush and tumbler are installed.
2. Ensure the brush protrudes at least $\frac{1}{8}$ " through the tumbler slots.
3. Ensure the brush rotates when the tumbler rotates.
4. Ensure the bushings roll smoothly.



DANGER

**TURN OFF ALL MOTORS,
THEN UNPLUG THE T4 AND
VACUUM BEFORE CONDUCTING
INSPECTIONS.**

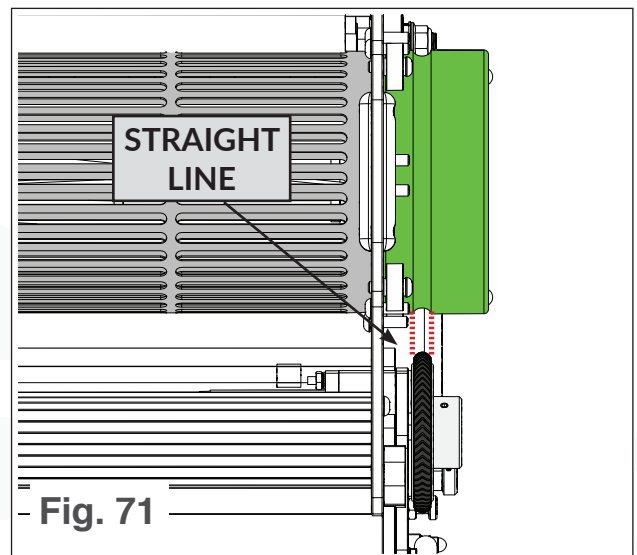


CAUTION

**ANY GAPS AROUND THE VACUUM
SHROUDS WILL DECREASE
VACUUM SUCTION.**

Tumbler Inspections

1. With the T4 fully assembled, rotate the tumbler by hand and listen for any contact with the blades. A “ting” sound means the tumbler is contacting the blades. If a “ting” sound is heard, the blades need adjusting further away from the tumbler (see **Helix Blade Adjustments** on page 48).
2. Remove the tumbler (see **Disassembly** on page 24).
3. Inspect the tumbler for any gouges, obvious scrapes, or other visible damage.



Drive Wheel Inspections

1. Inspect the drive wheel for any signs of wear or damage.
2. Ensure the drive wheel is tight on the motor.
3. Ensure the drive wheel is aligned with the tumbler groove (see Fig. 71).
4. Ensure the drive wheel rotates smoothly.
5. Ensure the tumbler rotates when the drive wheel rotates.

Helix Blade Inspections

1. Disassemble the T4 up until the point rotating the bed knife up (see **Disassembly** on page 24).



WARNING

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BE CAREFUL WHEN WORKING
WITH OR NEAR THE BLADES.



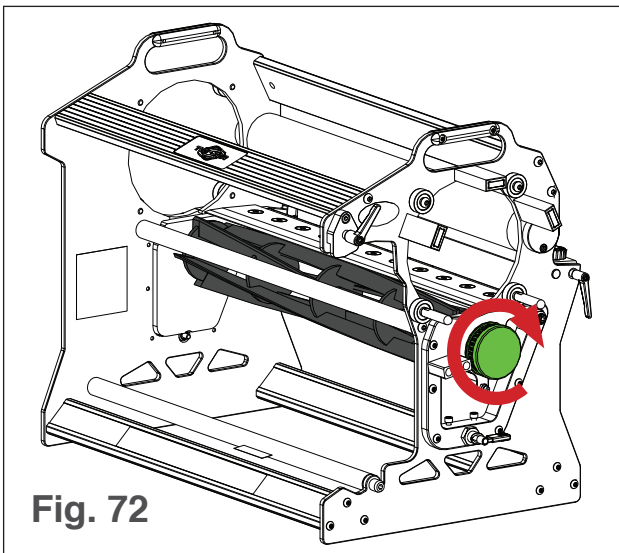


Fig. 72

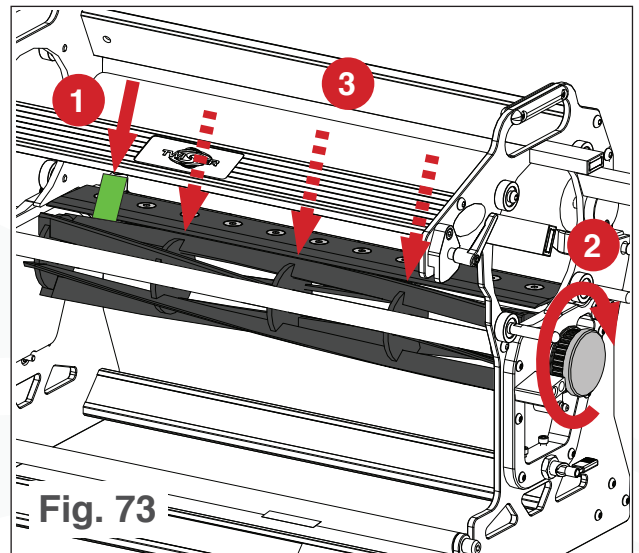


Fig. 73

2. Inspect the blade edges for any damage.
3. Manually spin the blade pulley (see Fig. 72) and ensure a smooth rotation of the helix blade.
4. Rotate the bed knife down (see **Reassembly** on page 33).
5. Perform the paper cut test*:
 - a. Insert a piece of paper between the helix blade and the bed knife, manually rotate the blade pulley to ensure the helix blade cuts the paper like a pair of scissors (see Fig. 73).
 - b. Repeat step a at several points along the length of the bed knife (see Fig. 73). If the helix blade does not cut the paper, the bed knife needs to be adjusted (see **Bed Knife Adjustments** on page 46).

*Only perform the paper cut test prior to the T4 being sanitized.

Blade Belt Inspections

1. Remove the blade belt cover (see **Disassembly** on page 24).
2. Inspect the belt tension. Ensure the helix blade spins when the belt is pulled.
3. Inspect the belt for any fraying, kinks, or any other damage.

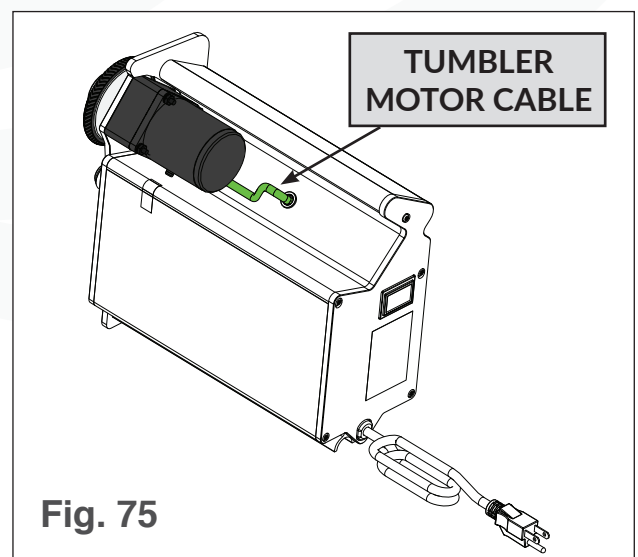
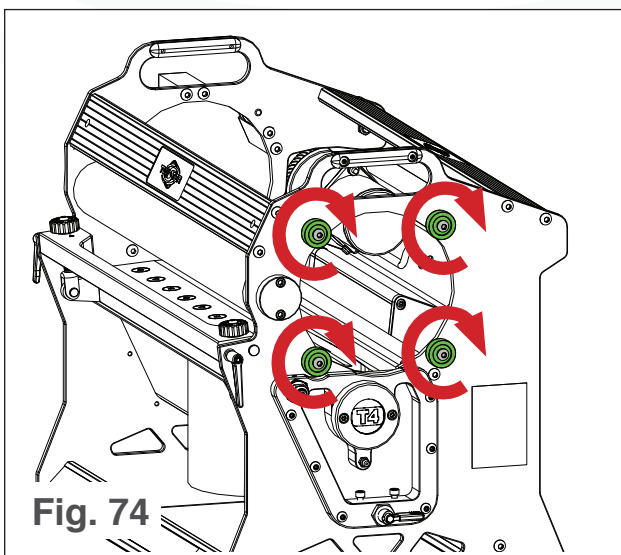
4. Ensure the set screws on both pulleys are tight
5. Ensure the bearings on both pulleys spin smoothly.

Tumbler Roller Inspections

1. Remove the blade belt cover and the tumbler (see **Disassembly** on page 24).
2. Inspect all roller contact surfaces for wear, cracks, or any other damage.
3. Manually rotate each roller (see Fig. 74). The roller bearings should spin smoothly without wobbling.
4. Ensure all the roller bolts are tight. If loose, torque the roller bolts to 6ft-lbs.

Control Box Inspections

1. Remove the control box (see **Disassembly** on page 24).
2. Ensure the bolts on the side panels are tight.
3. Ensure the drive wheel and blade motor pulley are tight on the motor.
4. Inspect the power cable and the tumbler motor cable for any fraying (see Fig. 75).
5. Ensure the cord grips on the power cable and tumbler motor cable are tight.



CLEANING

To ensure optimal performance of the T4, the machine should be cleaned between each use.

The T4 can be cleaned manually, or it can be left to clean in the Twister UltraClean ultrasonic cleaning system (see **Cleaning Equipment** on page 72).

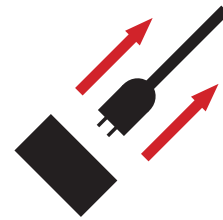
Manual Cleaning

1. Fully disassemble the T4 (see **Disassembly** on page 24).
2. Place the control box out of the way where it will not get wet. Do not clean the control box.
3. Place the blade belt aside so it does not get lost.
4. Clean the tumbler, vacuum connectors, and brush:
 - a. Soak the tumbler, vacuum connectors, and brush in hot water and mild detergent.
 - b. Use a brush or a scraper to remove any product.
 - c. Remove the components from the liquid and rinse them.
 - d. Dry the components with compressed air.
 - e. Spray the components with isopropyl alcohol or another sanitizer.
 - f. Allow the sanitizer to dry.



DANGER

TURN OFF ALL MOTORS, THEN UNPLUG THE T4 BEFORE CLEANING.



CAUTION

DO NOT USE A STEAM CLEANER ON THE T4. STEAM WILL MELT THE BRUSH BRISTLES.



DANGER

TO AVOID ELECTRIC SHOCK, DO NOT GET THE CONTROL BOX WET.



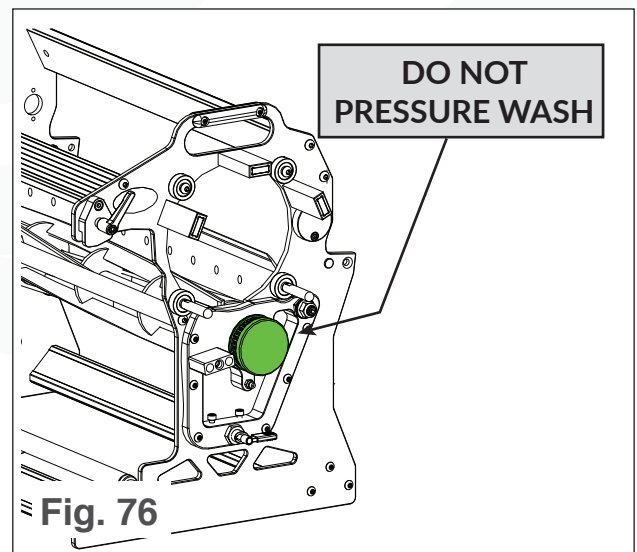
5. Clean the main body of the T4:
 - a. Remove any large, easy-to-remove pieces of product from the main body of the T4.
 - b. Spray the T4 with a foaming detergent*.
 - c. Allow the detergent to sit for five minutes.
 - d. Repeat steps **b** and **c** as necessary.
 - e. Pressure wash the T4** to remove residue.
 - f. Dry the the T4 with compressed air.
 - g. Spray the T4 with isopropyl alcohol or another sanitizer.
 - h. Allow the sanitizer to dry.

*It is recommended to use the Twister Foam Cannon to most easily spray detergents (see **Cleaning Equipment** on page 72)

**Except for the blade pulley and end cap (see Fig. 76). These parts can get wet but may damage if they are directly pressure washed.

UltraClean Cleaning


1. Disassemble the T4 up to the point of removing the brush..
2. Place the control box aside so it does not get wet. Do not clean the control box.
3. Place the blade belt aside so it does not get lost.
4. Place the T4, Hopper, tumbler guard, tumbler, blade belt cover, and vacuum shroud in the UltraClean.
5. Turn on the UltraClean for automatic cleaning (see the *UltraClean User Manual* for operation instructions).



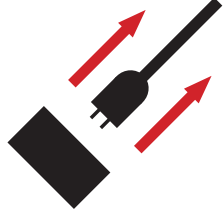
Bed Knife Adjustments

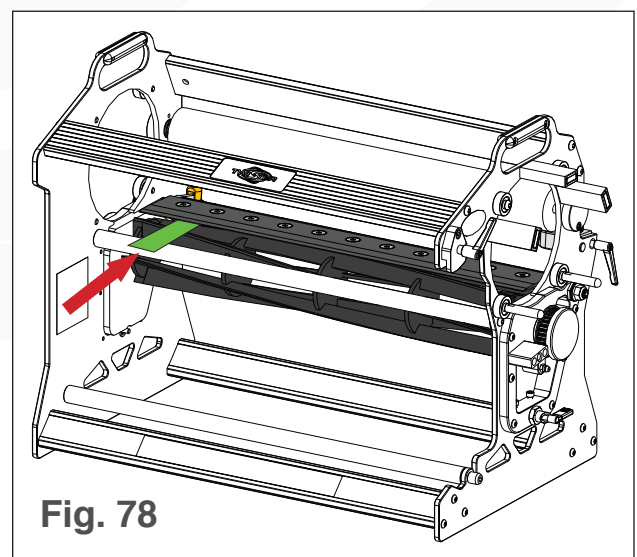
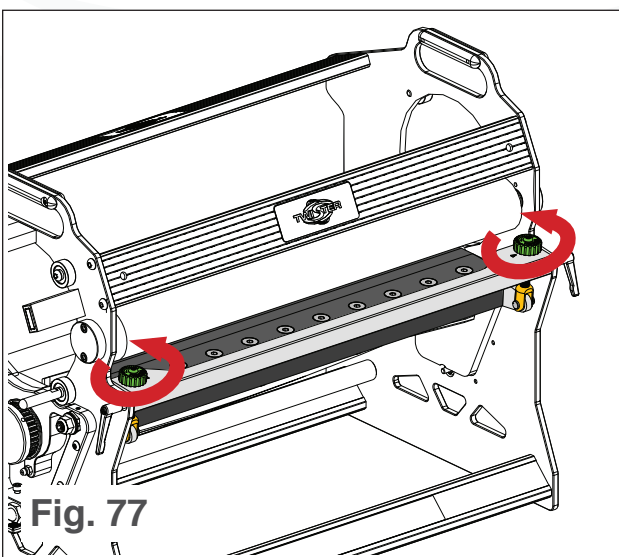
On a properly adjusted T4, the helix blade should have light contact with the bed knife in a self sharpening action, and a fast ticking sound should be present during operation. Periodic adjustment of the bed knife will be needed to ensure it still contacts the helix blade. To adjust the bed knife:

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.
2. Disassemble the T4 up to the point of flipping up the bed knife (see **Disassembly** on page 24).
3. Read **Bed Knife Adjustment Guidelines**.
4. Turn the adjustment clickers counter-clockwise so there is no contact between the helix blade and bed knife (see Fig. 77).
5. At one end of the blade, insert a piece of paper horizontally between the blade and bed knife (see Fig. 78).

 **DANGER**

**TURN OFF ALL MOTORS, THEN
UNPLUG THE T4 BEFORE
CONDUCTING ANY MAINTENANCE.**





BED KNIFE ADJUSTMENT GUIDELINES

- Adjustment clickers are located on the adjustment bar.
 - Adjustment clickers adjust the bed knife position against the helix blade.
 - Clockwise rotation of the adjustment clickers increases contact with the blades.
 - Counter-clockwise rotation of the adjustment clickers decreases contact with the blades.
 - Adjust clickers simultaneously when large adjustments are made.
6. Rotate the blade pulley so the paper is pinched between the blade and the bed knife.
 7. Slowly turn the adjustment clickers clockwise to tighten the blade distance until there is a paper-thick gap between the helix blade and bed knife. This will become apparent when there is slight friction holding the paper in place as you try to remove it.
 8. Repeat steps 5-7 at the other end of the blade to ensure the helix blade and bed knife are parallel.

CAUTION

FOR LARGE BED KNIFE ADJUSTMENTS, ADJUST THE CLICKERS SIMULTANEOUSLY TO PREVENT BENDING THE BED BAR.

WARNING

**CUTTING HAZARD!
THE BLADES ARE SHARP.
BE CAREFUL WHEN WORKING
WITH OR NEAR THE BLADES.**



9. Once the blade and bed knife are parallel with a paper-thick gap, rotate the blade pulley to spin the blade (see Fig. 79). There should be no resistance between the blade and the bed knife.
10. Slowly turn the adjustment clickers clockwise an additional 5-10 clicks. There should now be light contact between the blade and bed knife.
11. Rotate the blade pulley to spin the helix blade. There should now be resistance to rotate the helix blade caused by friction between the helix blade and bed knife. If the blade is difficult to rotate, there is too much contact. Decrease the contact. Too much contact will cause excessive noise, increased wear on the cutting surfaces, and increased load on the blade motor.
12. (Optional) Perform the paper cut test (see **Helix Blade Inspections** on page 41).

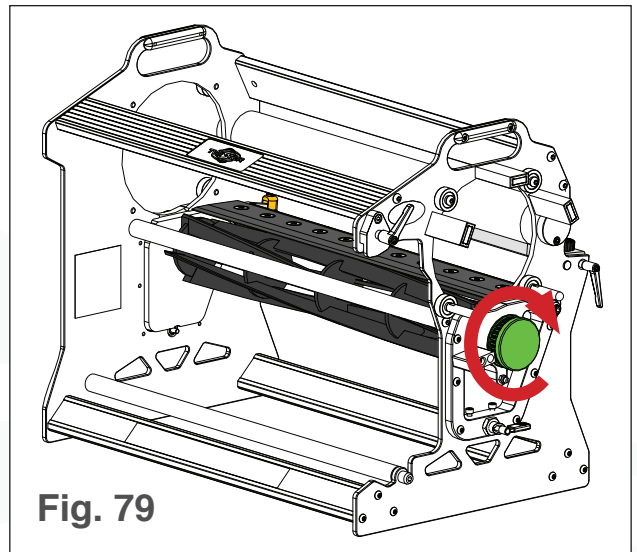


Fig. 79



CAUTION

DO NOT OVER TIGHTEN THE BED KNIFE.

Helix Blade Adjustments

If the tumbler becomes damaged, the helix blade can be adjusted to avoid contact with the damaged tumbler.

However, blade adjustments are a temporary measure until the tumbler can be replaced. While the following adjustments allow continued trimming, they will result in decreased trim quality. When the tumbler is

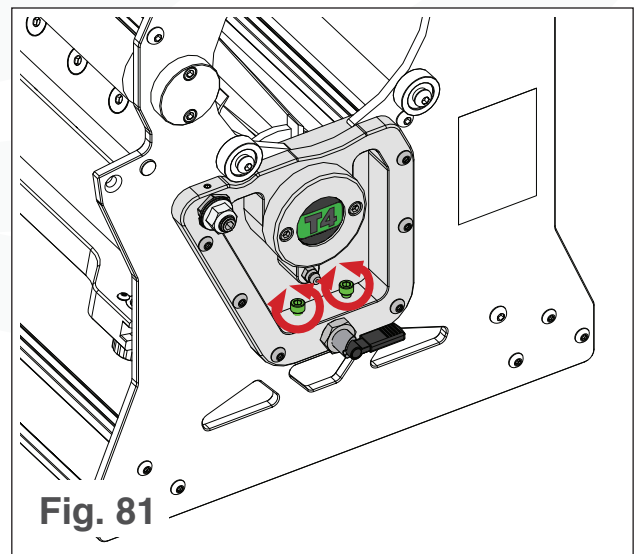
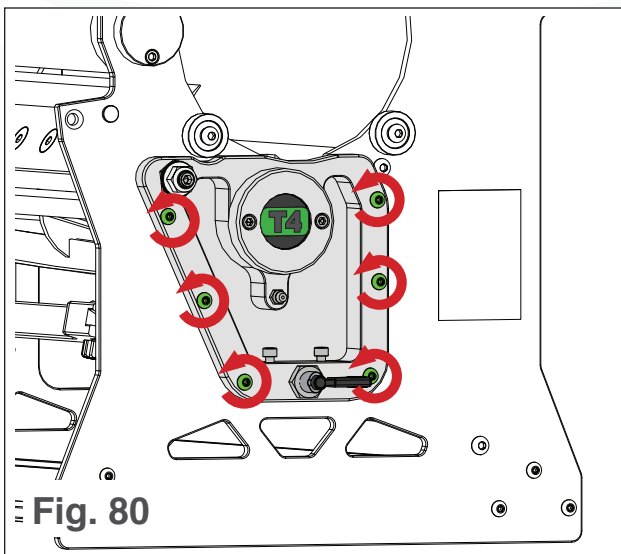


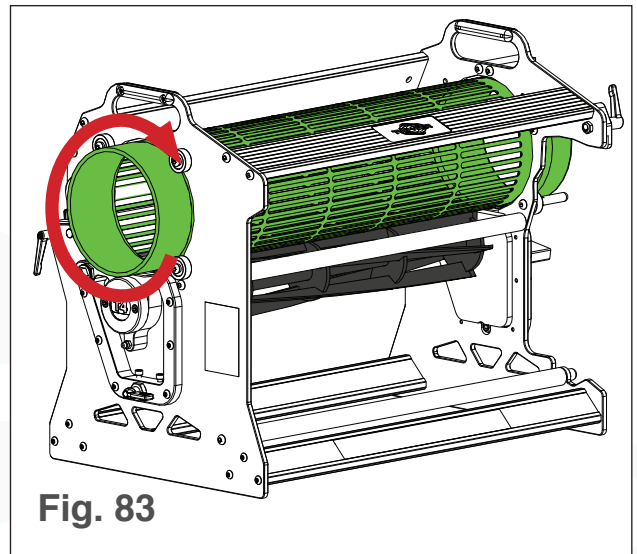
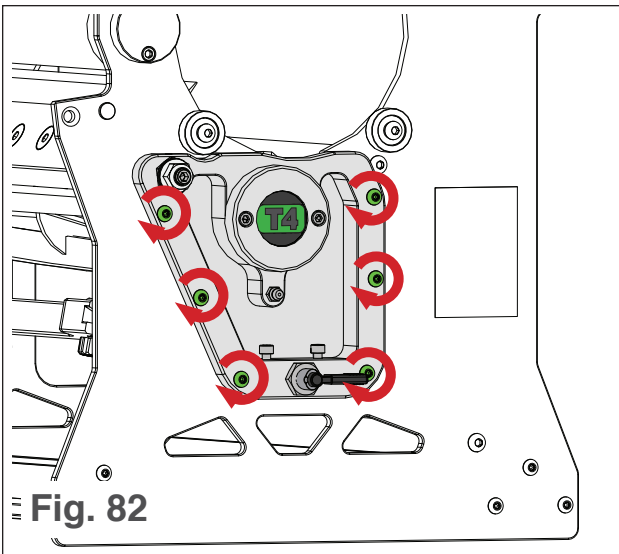
CAUTION

IF THE TUMBLER BECOMES DAMAGED, REPLACE WITH A NEW TUMBLER.

replaced, the blade will need adjusting back to its original position. To adjust the blade:

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.
2. Disassemble the T4 up to the point of removing the brush (see **Disassembly** on page 24).
3. Loosen the six outer bolts on both blade end plates (see Fig. 80). **Do not remove the bolts.**
4. Adjust the height of the end plate:
 - To raise the height of the end plate, tighten the vertical blade adjustment bolt(s) (see Fig. 81). Later edition T4s may only have one adjustment bolt. **Tighten the bolts by the same amount on both sides of the blade.**
 - To lower the height of the blade cartridge, loosen the vertical blade adjustment bolt(s) (see Fig. 81). Later edition T4s may only have one adjustment bolt. **Loosen the bolts by the same amount on both sides of the blade.**
5. Tighten the six outer bolts on both blade end plates (see Fig. 82).
6. Lower the bed knife and reattach the adjustment bar (see **Step 2: Rotate the Bed Knife Down** on page 33).
7. Readjust the bed knife for optimum contact with the blade (see **Bed Knife Adjustments** on page 46).





8. Insert the tumbler and manually rotate it to ensure the tumbler no longer contacts the blade (See Fig. 83). If there is still contact or there is too much space between the tumbler and blade, repeat steps **1-8** until the tumbler is as close to the blade as possible without touching.

Bed Knife Replacement

If the bed knife becomes damaged, the damaged part can be sanded down to resume trimming.

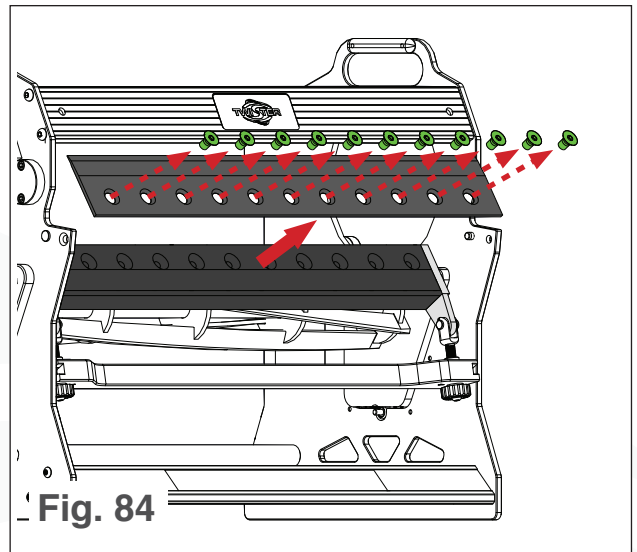
However, **the bed knife should be replaced as soon as possible** as a damaged bed knife will result in decreased trim quality. To replace the bed knife:

1. Ensure the T4 is unplugged and all motors have come to a complete stop.
2. Completely disassemble the T4 (see **Disassembly** on page 24).
3. Remove all 11 bolts from the top of the bed knife (see Fig. 84).

 **CAUTION**

IF THE BED KNIFE BECOMES DAMAGED, REPLACE WITH A NEW BED KNIFE.

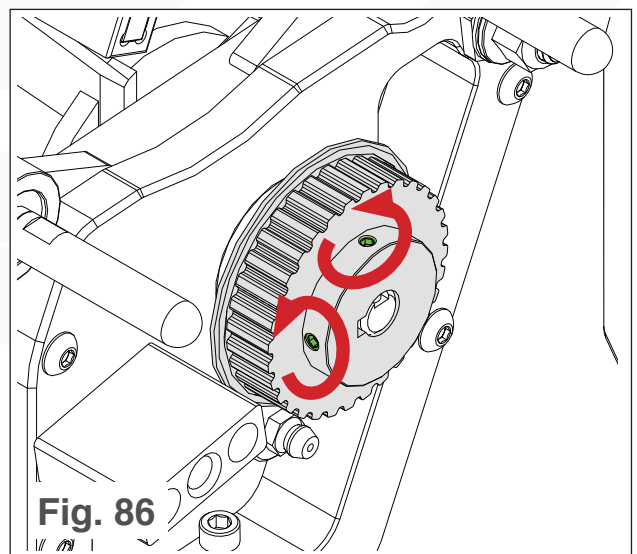
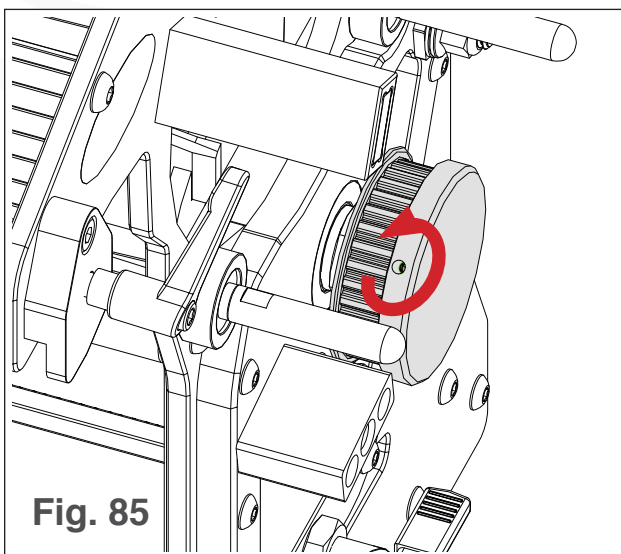
4. Remove the bed knife from the bed bar (see Fig. 84).
5. Place a new bed knife on the bed bar.
6. Insert all 11 bolts into the top of the bed knife. Starting with the middle bolt and working your way out, torque each bolt to 20ft-lbs.
7. Readjust the bed knife (see **Bed Knife Adjustments** on page 46).

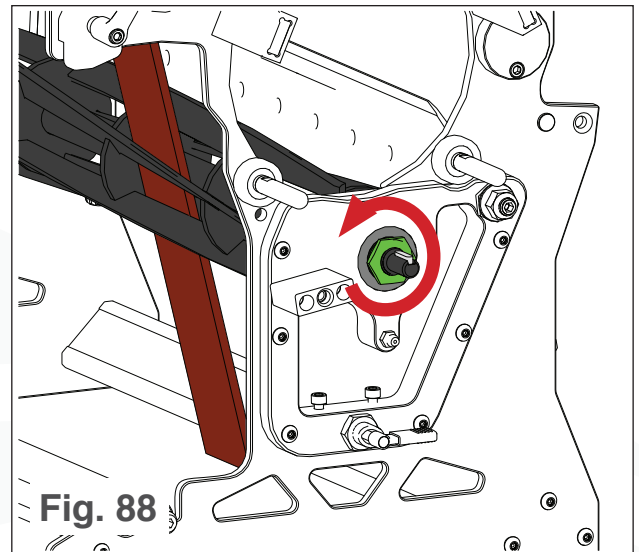
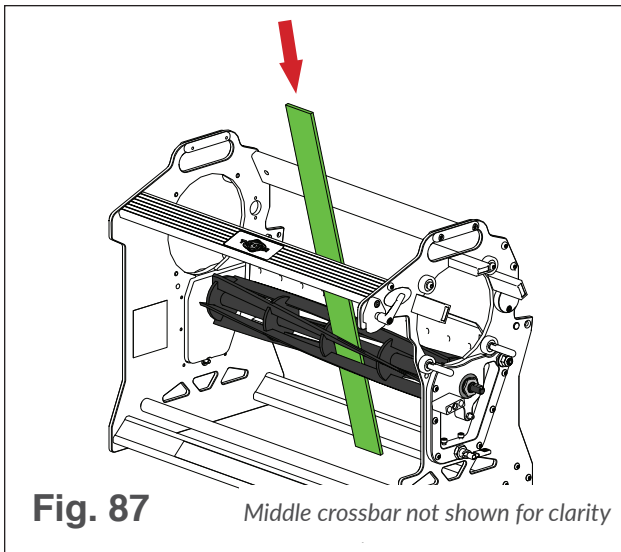


Helix Blade Replacement

Every 600 hours, the helix blade and bearings must be replaced. To replace the blade and bearings:

1. Ensure the T4 is unplugged and all motors have come to a complete stop.
2. Completely disassemble the T4 (see **Disassembly** on page 24).
3. Using a 2.5mm hex key, loosen the deeply set set screw in the blade pulley cap (see Fig. 85).
4. Remove the blade pulley cap.
5. Using a 2.5mm hex key, loosen the two set screws on the blade pulley wheel (see Fig. 86)



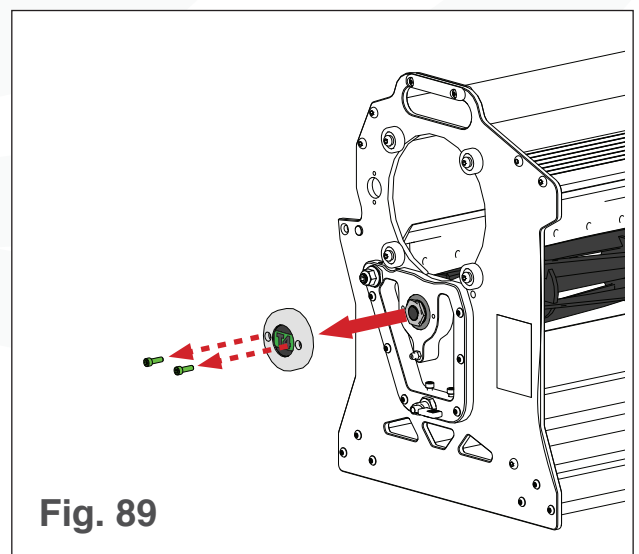


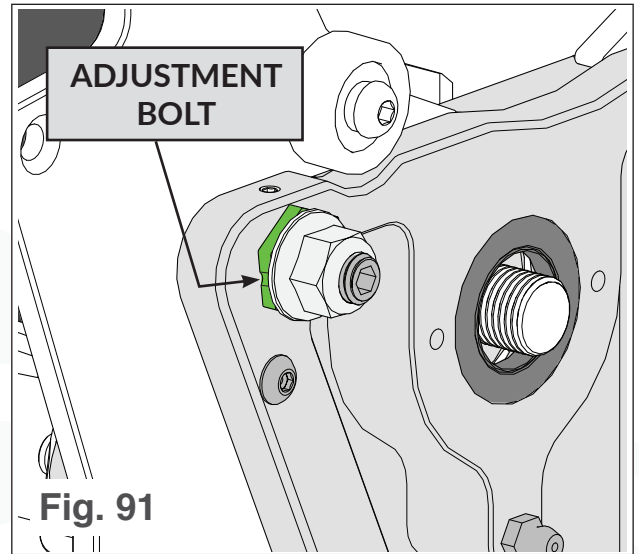
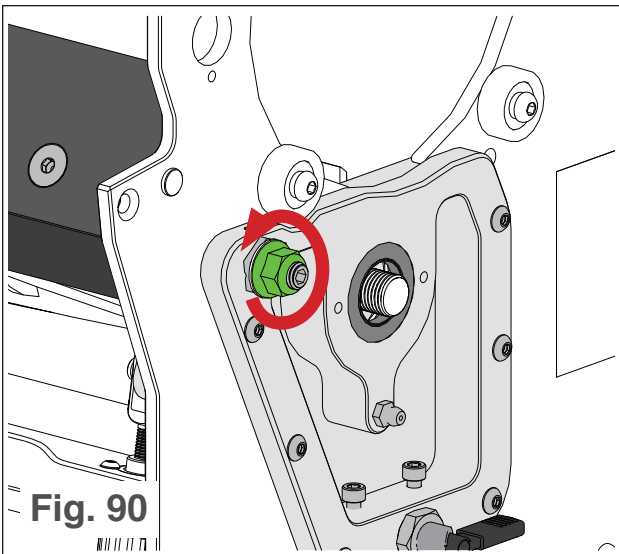
6. Remove the blade pulley wheel.
7. Remove the blade nut:
 - a. Place a non-metal bar between the blades so the blade does not spin when the nut is rotated (see Fig. 87). **Do not use a metal bar, this will damage the blades.**
 - b. While holding the blades in place with the non-metal bar, remove the blade nut with a 24mm wrench (see Fig. 88).
8. Remove the two bolts in the blade end cap on the other side of the blade (see Fig. 89).
9. Remove the blade end cap (see Fig. 89).
10. Remove the blade nut (see step 7).



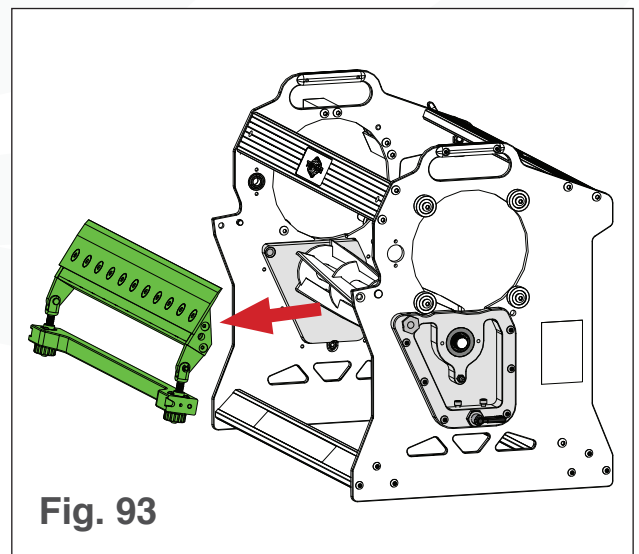
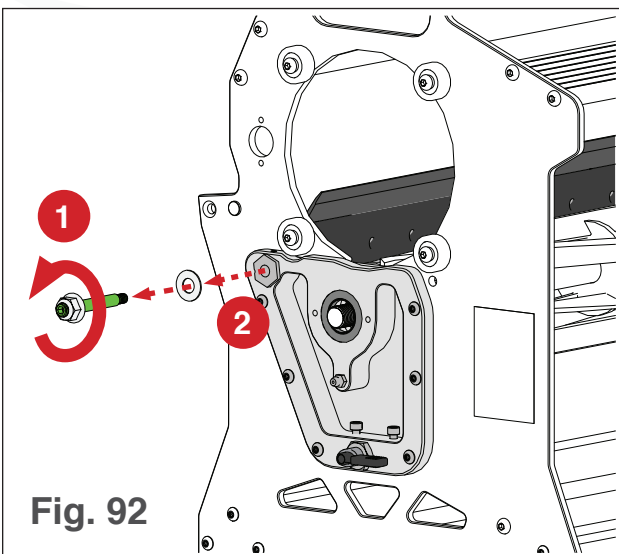
CAUTION

DO NOT USE A METAL BAR TO HOLD THE BLADES IN PLACE.





11. Loosen the bed knife nut (see Fig. 90). **Do not loosen the bed knife adjustment bolt** (see Fig. 91)
12. Remove the bed knife end pins and nuts on both sides of the T4 by loosening the end pins with a $\frac{3}{16}$ " hex key. Leave the adjustment bolts in the blade end plates (see Fig. 92).
13. Remove the bed knife and adjustment bar (see Fig. 93).



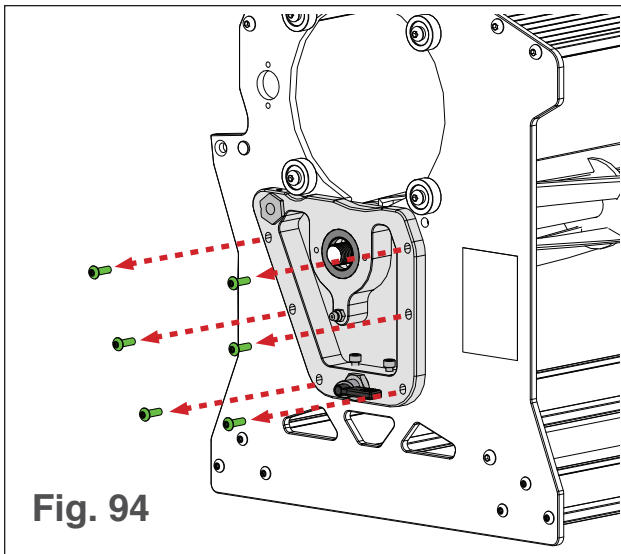


Fig. 94

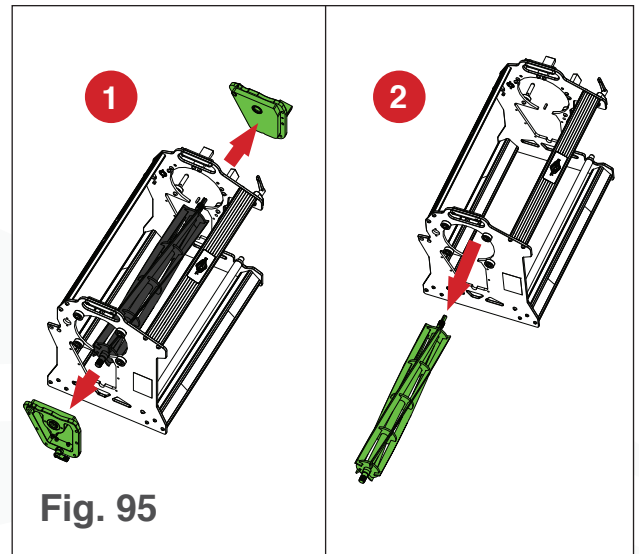


Fig. 95

14. Remove the six outer bolts on both blade end plates (see Fig. 94).
15. Pull both end plates out of the T4 and remove the blade (see Fig. 95).
16. Remove the bearing seals from both end plates (see Fig. 96).
17. Using snap ring pliers, remove the snap rings in both end plates (see Fig. 96).
18. Remove the bearings from both end plates (see Fig. 96).
19. Remove the wave washer from the blade pulley-side end plate (see Fig. 97).
20. Remove the O-ring from the other end plate (see Fig. 97).
21. **If using a newer edition T4 without grease nipples, move to step 23.** However, if using an earlier edition with grease nipples, using a pistol grip grease gun, pump two pumps of grade H1 grease into the grease nipples on both end plates (see Fig. 98). This is to ensure the grease channel is not blocked.

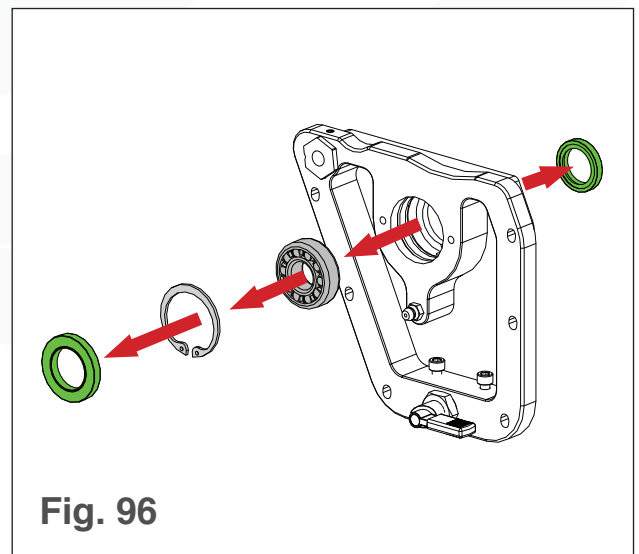
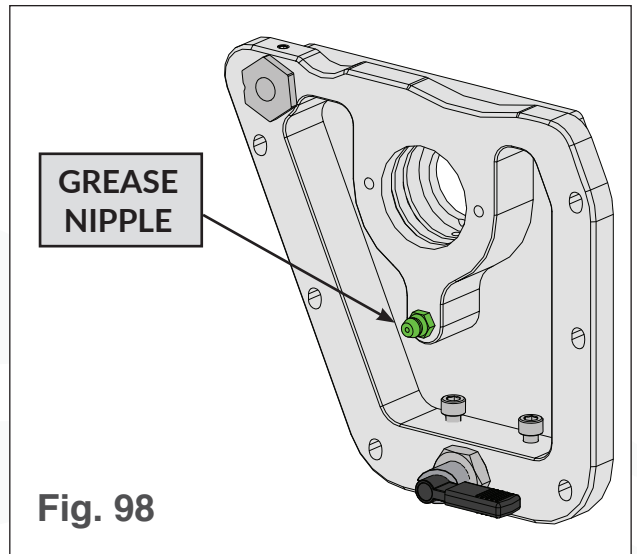
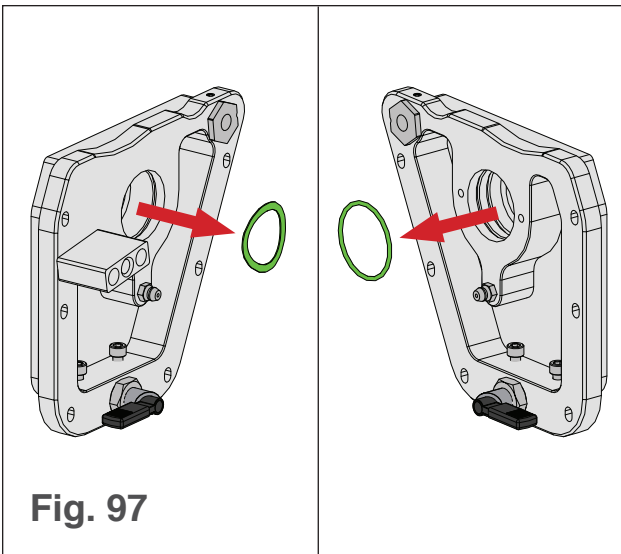
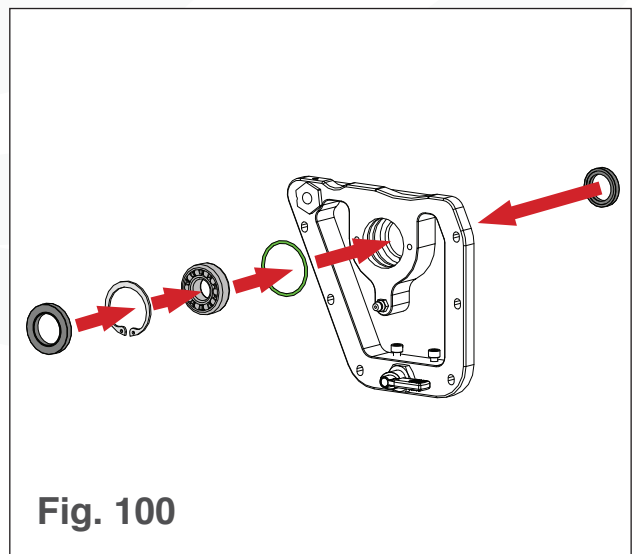
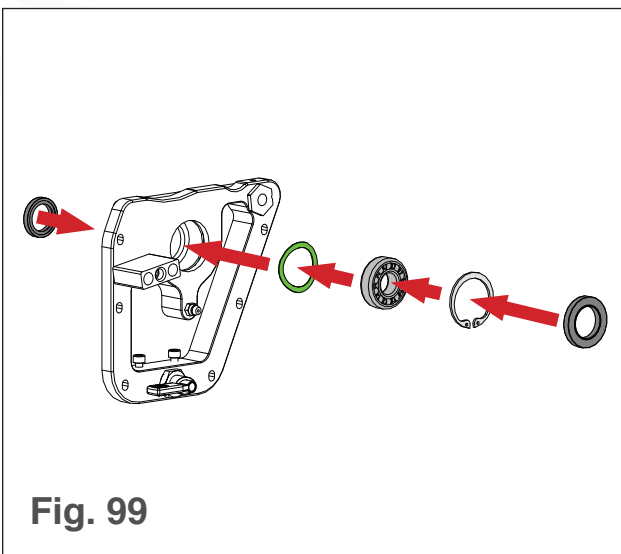


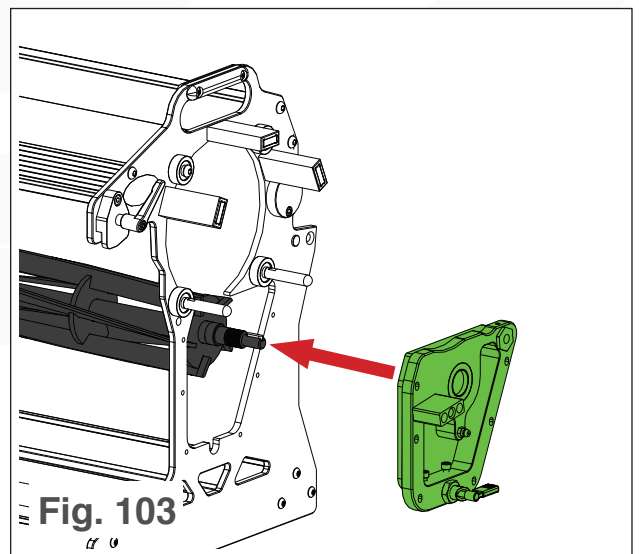
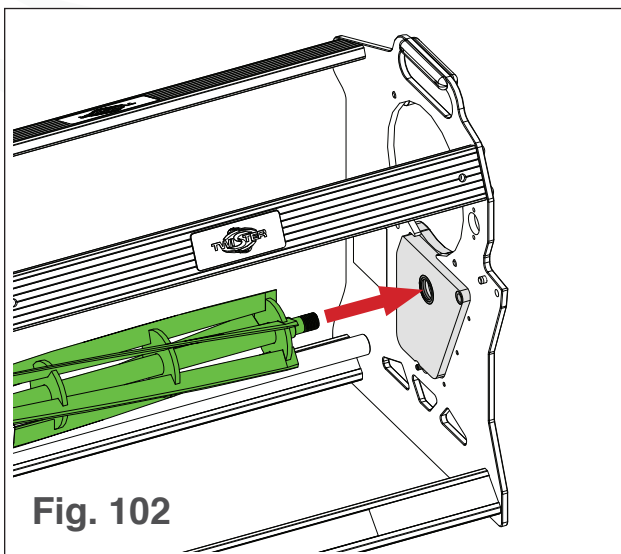
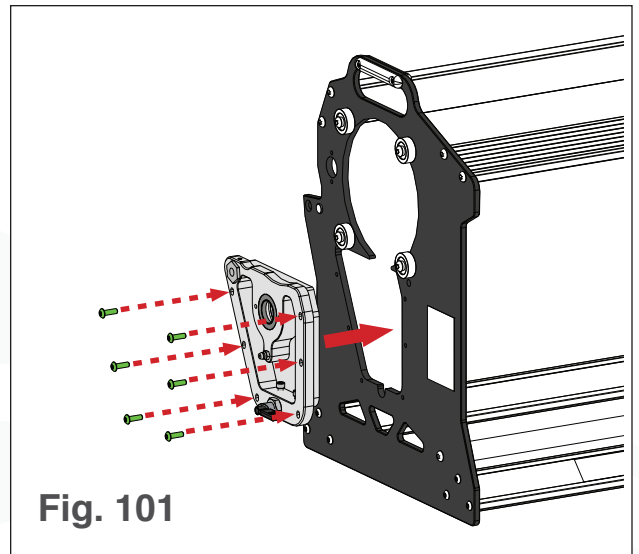
Fig. 96

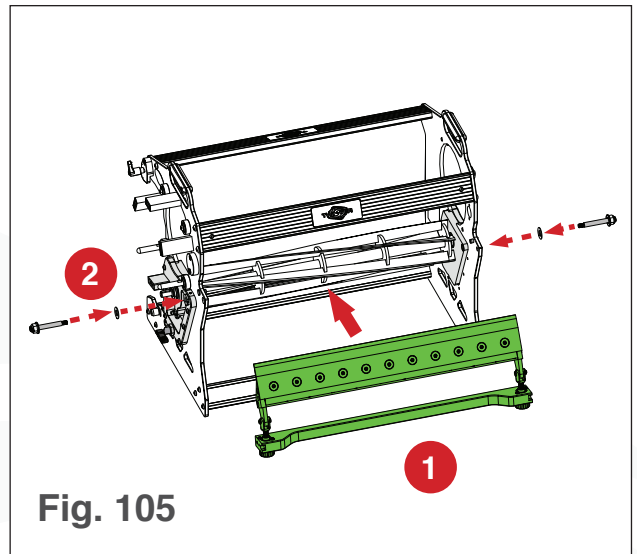
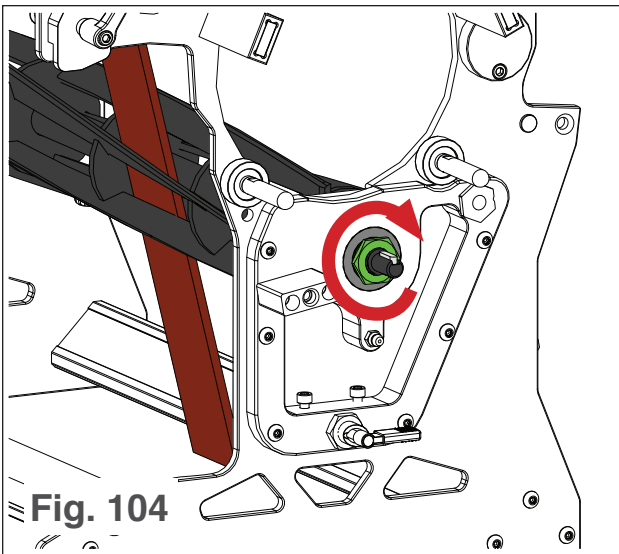


22. Wipe out the end plates with a cloth or towel.
23. Insert a new wave washer into the blade pulley-side end plate (see Fig. 99).
24. Insert a new O-ring into the other end plate (see Fig. 100).
25. Insert new bearings into the end plates (see Fig's 99 and 100).
26. Insert the snap rings into both end plates (see Fig's 99 and 100).

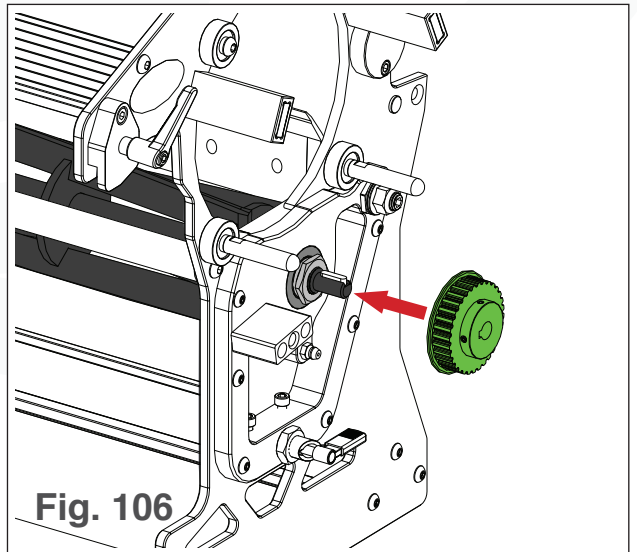


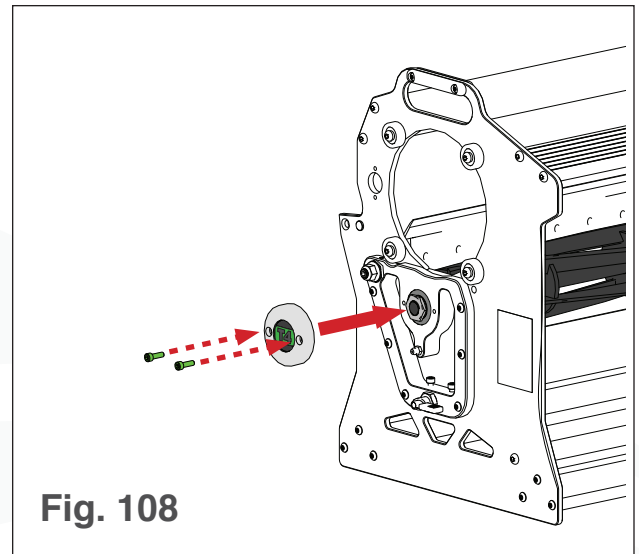
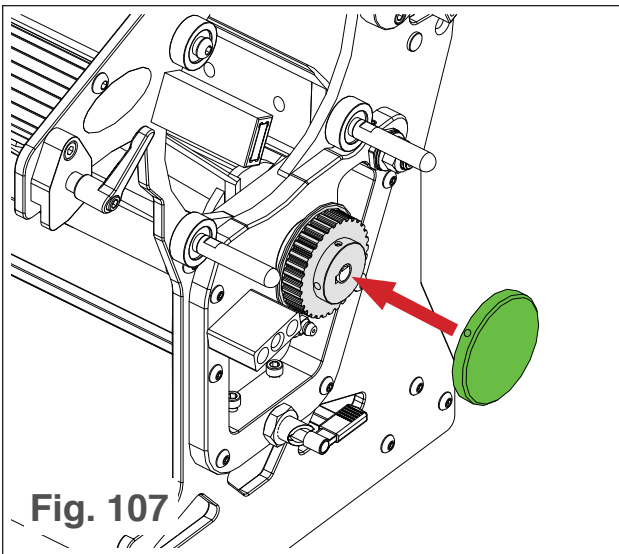
27. Insert the bearing seals into both end plates (see Fig's 99 and 100).
28. Insert one end plate into the T4 (see Fig. 101).
29. Place the six outer bolts in the end plate (see Fig. 101). **Do not tighten them yet.**
30. Insert the new blade into the end plate (see Fig. 102).
31. Insert the other end plate into the T4, slotting the blade into it (see Fig. 103).
32. Place the six outer bolts in the end plate.
33. Tighten the six outer bolts in both end plates.
34. Place and tighten the blade nuts on both ends of the blade:
 - a. Place a non-metal bar between the blades so the blade does not spin when the nut is rotated.
 - b. While holding the blades in place with the non-metal bar, place the blade nuts on





- the end of the blade and torque them with a 24mm wrench to 60ft-lbs (see Fig. 104).
35. Align the bed knife and adjustment bar with the adjustment bolts in the end plates (see Fig. 105).
 36. Place the bed knife pins through washers, then into the bed knife adjustment bolts (see Fig. 105).
 37. Tighten both pins with a hex key, then tighten both nuts. **Do not tighten the bed knife adjustment bolt.**
 38. Place the blade pulley wheel over the blade belt side of the blade (see Fig. 106).
 39. Tighten the two set screws on the blade pulley wheel.
 40. Place the blade pulley cap over the blade pulley wheel (see Fig. 107).
 41. Tighten the pulley cap set screw.
 42. Place the blade end cap over the other end of the blade (see Fig. 108).
 43. Place and tighten the two bolts into the end cap (see Fig. 108).





44. Grease the new blade bearings (see **Greasing**).
45. Adjust the blade height (see **Helix Blade Adjustments** on page 48).
46. Adjust the bed knife contact (see **Bed Knife Adjustments** on page 46).



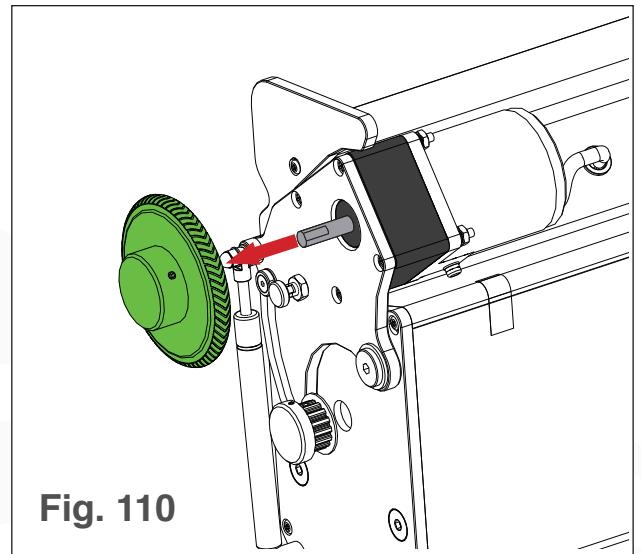
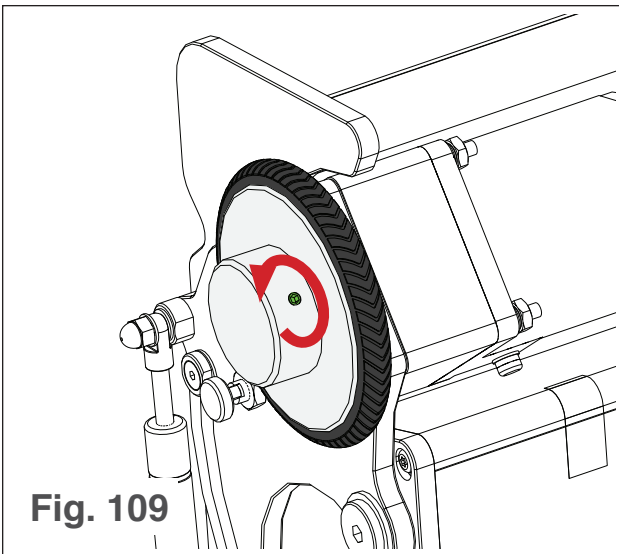
CAUTION

DO NOT OVER GREASE. OVER GREASING WILL PUSH OUT THE BEARING SEALS.

Greasing

Every 600 hours, the blades and bearings must be replaced. **If using a newer edition T4 without grease nipples, greasing is not required.** However, if using a T4 with grease nipples, when the blades are replaced, the bearings require greasing. Grade H1 grease is needed to grease the blade bearings:

1. Ensure the T4 is unplugged and all motors have come to a complete stop.
2. Remove the blade belt cover (see **Disassembly** on page 24).
3. Using a pistol grip grease gun, pump 5-7 pumps of grease into the grease nipples on both sides of the T4.



Drive Wheel Replacement

1. Ensure the T4 is unplugged and all motors have come to a complete stop.
2. Remove the control box from the T4 (see **Disassembly** on page 24).
3. Using a $\frac{3}{32}$ hex key, loosen the drive wheel set screw (see Fig. 109).
4. Pull the drive wheel off the control box (see Fig. 110).
5. Insert the new drive wheel into the control box.
6. Tighten the drive wheel set screw.

STORAGE

When not in use, the T4 should be stored using the following guidelines to ensure the longevity of the machine:

- Before storage, clean the T4 (see **Cleaning** on page 44).
- Before storage, ensure the machine is dry.
- Before storage, carefully apply an even coating of food grade oil to the bed knife and sharp edges of the helix blade.
- Store the machine in a dry space.
- Store the machine in a safe space where it will not be knocked or inadvertently interfered with.
- Keep the machine out of reach of children and other unauthorized persons.



WARNING

**CUTTING HAZARD!
THE BLADES ARE SHARP.
BE CAREFUL WHEN WORKING
WITH OR NEAR THE BLADES.**



CAUTION

**THE T4 MUST BE CLEANED
BEFORE STORAGE. IF NOT,
RESIDUE WILL HARDEN, CAUSING
REDUCED PERFORMANCE
AND EXTREMELY DIFFICULT
CLEANING.**

If any problems not listed in this section arise, or any troubleshooting solutions do not solve the problem, contact Keirton technical support for assistance (see **Contact Us** on page 76).

TROUBLESHOOTING PROBLEMS

- The Tumbler Makes a Grinding Sound.
- A High Pitch Squeal Comes from the Blades.
- There is Product Buildup on the Brush and Tumbler.
- Suction from the Vacuum Seems Weak.
- Product is Not Exiting the Tumbler.
- Product Comes Out of the T4 Unprocessed.
- The Warning Light is On.
- The Fault Light is On, and the Machine Has Stopped.
- The Tumbler Does Not Spin.

The Tumbler Makes a Grinding Sound

Possible Causes:

- The drive wheel is loose.
- The rollers are damaged.
- The tumbler is damaged.
- The bed knife is damaged.

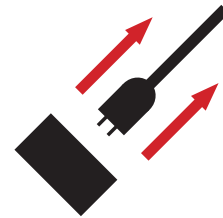
Solution:

1. Ensure the T4 is unplugged and all motors have come to a complete stop.
2. Inspect if the drive wheel is loose. If it is



DANGER

UNLESS OTHERWISE SPECIFIED, TURN OFF ALL MOTORS, THEN UNPLUG THE T4 BEFORE CONDUCTING ANY TROUBLESHOOTING.



- loose, tighten the set screw or replace if damaged.
3. If the drive wheel is tight, rotate the rollers to inspect if they spin freely. If they do not, replace them.
 4. If the rollers are not damaged, manually rotate the tumbler and listen for contact with the blades. If a “ting” sound is heard, the tumbler may be damaged. Inspect the tumbler for damage.
 5. If the tumbler is damaged, adjust the helix blade lower (see **Helix Blade Adjustments** on page 48) until the tumbler can be replaced.
 6. If the tumbler is not damaged, the bed knife maybe damaged. If the bed knife is damaged, sand down the bed knife until it can be replaced (see **Bed Knife Replacement** on page 50).

A High Pitch Squeal Comes from the Helix Blade

Possible Causes:

- The helix blade is dirty.
- The bearings are worn out.
- The helix and bed knife contact each other too much.

Solution:

1. Ensure the T4 is unplugged and all motors have come to a complete stop.
2. Completely disassemble the T4 (see **Disassembly** on page 24).
3. Inspect if the blades are dirty. If they are dirty, clean them (see **Cleaning** on page 44).
4. If the blades are not dirty, rotate the blade pulley. If the blade does not spin smoothly, adjust the bed knife for less contact (see **Bed Knife Adjustments** on page 46).
5. If adjusting the bed knife does not solve the problem, the bearings may be worn out. Replace the helix blade and bearings (see **Helix Blade Replacement** on page 51).

There is Product Buildup on the Brush and Tumbler

Possible Causes:

- The brush is not lubricated enough during wet trimming.
- The T4 is not cleaned frequently enough.
- The T4 is operating in too warm of an environment.

Solution:

1. Spray the brush with water more frequently during wet trimming.
2. If spraying the brush more frequently does not solve the problem, clean the T4 more frequently (see **Cleaning** on page 44).
3. If frequent cleaning does not solve the problem, operate the T4 in a colder environment.

Suction from the Vacuum Seems Weak

Possible Causes:

- The vacuum outlet is placed too close to a wall.
- The filter bags are dirty.
- The Vacuum Bypass is allowing too much airflow.
- If using a Trim Saver:
 - The hose is blocked.
 - The gasket connections have leaks.
 - There is buildup on the impeller.
- If using a Leaf Collector:
 - The inlet is blocked.
 - There is buildup on the impeller.

Solution:

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.
2. If the vacuum outlet is too close to a wall, relocate the vacuum at least 4ft from any wall.
3. If the outlet has plenty of space, inspect the filter bags. If they are dirty, clean them.
4. If the filter bags are clean and a Vacuum Bypass is being used, close it.
5. If solutions **1-4** do not solve the problem and a Trim Saver is being used:
 - a. Ensure nothing is blocking the hose.
 - b. Inspect the gaskets for leaks (see the corresponding Trim Saver manual for gasket locations).
 - c. If nothing is blocking the hose and there are no leaks, clean the impeller (see the *T4 Trim Saver User Manual*).
6. If solutions **1-4** do not solve the problem and a Leaf Collector is being used:
 - a. Disconnect the T4 from the Leaf Collector and ensure the inlet is not blocked.
 - b. If the inlet is not blocked, remove the impeller (see **Stand Conversion** on page 9) and clean it.

Product is Not Exiting the Tumbler

Possible Causes:

- The T4 is not inclined enough.
- The suction is too high.

Solution:

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.
2. If increasing the machine's tilt does not solve the problem, purchase a Vacuum Bypass to reduce suction (see **Vacuums and Bypass** on page 74).

Product Comes Out of the T4 Unprocessed

Possible Causes:

- The blades are not on.
- The tumbler is too full.
- Suction is too low.
- The bed knife is improperly adjusted.
- The blades are improperly adjusted.

Solution:

1. Ensure the blade motor is on.
2. If the blade motor is on, ensure the vacuum is on and suction is high (see **Suction from the Vacuum Seems Weak** on page 63).
3. If the suction is high, power down and unplug the T4, and wait for all motors to come to a complete stop.
4. Adjust the tilt so the tumbler will only be $\frac{1}{3}$ full during operation.
5. If the tumbler is $\frac{1}{3}$ full during operation, power down and unplug the T4, and wait for all motors to come to a complete stop. Then ensure the bed knife and blade have proper contact (see **Bed Knife Adjustments** on page 46).
6. If the bed knife has proper contact with the blades, ensure the blades are close enough to the tumbler (see **Helix Blade Adjustments** on page 48).

The Warning Light is On

Possible Causes:

- The blade motor is under high load.

Solution:

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.

2. Ensure the bed knife does not have too much contact with the helix blade (see **Bed Knife Adjustments** on page 46).
3. If the bed knife has proper contact with the blade, clean the blade.

The Fault Light is On, and the Machine Has Stopped

Possible Causes:

- The T4 is overloaded because the helix blade has become stuck.
- The T4 is overloaded because there is too much friction between the bed knife and helix blade.

Solution:

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.
Do not plug the T4 back in without inspecting for the cause of the overload.
2. Disassemble the T4 and ensure there is nothing stuck in the helix blade (see **Disassembly** on page 24).
3. If there is nothing stuck in the blade, ensure the bed knife does not have too much contact with the blade (see **Bed Knife Adjustments** on page 46).

The Tumbler Does Not Spin

Possible Causes:

- The drive wheel is not contacting the tumbler.
- The drive wheel is not seated in the center of the tumbler groove.
- The rubber on the drive wheel is placed incorrectly.
- There is oil or another lubricant on the drive wheel.
- There is too much buildup on the bed knife.

- The tumbler is obstructed.
- The brush is not spinning freely.

Solution:

1. Ensure the T4 and vacuum are unplugged and all motors have come to a complete stop.
2. Ensure the drive wheel is contacting the tumbler and seated in the center of the tumbler groove (see **Step 7: Re-engage the Drive Wheel** on page 36).
3. If the drive wheel is properly located, ensure the arrows on the wheel are pointing in a clockwise direction. If not, remove the rubber, flip it, and replace it.
4. If the arrows are pointing in the right direction, clean the drive wheel to ensure no lubricant is on it.
5. If the drive wheel is clean, ensure there is not excessive buildup on the bed knife. If there is, clean it (see **Cleaning** on page 44).
6. If the bed knife is clean, ensure there is nothing obstructing the tumbler.
7. If there is nothing obstructing the tumbler, remove the brush and clean out the end caps. If the brush still does not spin freely, replace the brush end caps.

WARRANTY INFORMATION

Keirton will repair or replace any parts proven defective in material or workmanship without charge for a period of three years.

The warranty period will begin on the date the machine is purchased by the initial purchaser. The T4 warranty defects can be remedied at any authorized service dealer or directly by Keirton. Any original parts deemed to be defective will be replaced free of charge. Keirton reserves the right to use any manufacturer approved replacement parts for warranty repair.

If warranty repair is required, please contact Keirton at **1-888-254-3204** or **support@keirton.com** and provide the following information:

- Model and serial number (located inside the sideplate opposite the control box)
- Proof of purchase date
- Copy of the original Warranty Registration Card (unless registration was completed online)
- Details of the defect or problem (including photos and/or video).

Pending approval from Keirton, the machine or defective part must then be returned to Keirton for analysis and replacement. **Do not return the machine to the place of purchase for repair or warranty claims unless you have been authorized by Keirton to do so.** The place of purchase can only sell replacement parts and will not repair warranty issues unless it is noted as an authorized repair dealer and has been authorized to work on your machine.

You may be denied warranty coverage if your machine has failed due to:

- Abuse
- Accidental damage
- Improper maintenance
- Improper electrical connection

WARRANTY INFORMATION

- Neglect
- Normal wear
- Unapproved modifications including the use of unapproved replacement parts.

Keirton assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the product. In no event will Keirton be liable for any special, incidental, or consequential damages (including loss of use, loss of profit, and claims of third parties) however caused, whether by negligence of the manufacturer or otherwise. If you have any questions regarding your warranty rights and responsibilities, please contact Keirton.

The T4 is intended for use on legal aromatic herbs and hops. Please check all municipal, provincial/ state, and federal laws and regulations before using the T4. Keirton does not promote or condone the use of the T4 in any way that may be deemed illegal.

Allow only persons who understand this manual to operate the T4. Keirton claims no liability for any damage or injury that results from the use of the T4 by persons who have not read and understood the cautions, warnings, and danger notices contained in this manual or through any misuse of the T4. You are responsible for your safety while operating this machine. **Please keep yourself safe!**

SPECIFICATIONS

North American Specifications (Speed Control Editions)

Product Number	North American Standard Edition	02-10023C
	North American Stainless Edition	02-10053B
Certifications	Certifications	CSA, UL, FCC
Dimensions	Machine Height	16.6"/420mm
	Machine Length	25"/635mm
	Machine Width	15"/381mm
	Tumbler Diameter	5"/101mm
	Tumbler Slots (standard tumbler)	40 x ¼"/6mm
	Cut Height	0.04"/1mm
Electrical Requirements	Input Voltage	115V, 60Hz
	Circuit Breaker Requirements	15A/120V
	Connector Plug	NEMA 5-15P (see Fig. 111)
	Current	2.5A
	Extension Cord Requirements	14AWG (minimum diameter) 50'/15m (maximum length)
Motors	Blade Motor	¼Hp
	Drive Wheel Motor	½ ₁₂₅ Hp
Speed	Blade Speed	980-1875RPM
	Tumbler Speed	47-96RPM
Weight	Standard Edition Weight	56lbs/25.4kg
	Standard Edition Shipping Weight	74lbs/33.6kg
	Stainless Edition Weight	90lbs/40.8kg
	Stainless Edition Shipping Weight	115lbs/52.1kg

**NEMA
5-15P**

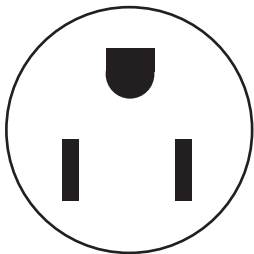


Fig. 111

European Specifications (Speed Control Editions)

Product Number	European Standard Edition	02-10022B
	European Stainless Edition	02-10059A
Certifications	Certifications	CE, RoHS
Dimensions	Machine Height	420mm/16.6"
	Machine Length	635mm/25"
	Machine Width	381mm/15"
	Tumbler Diameter	101mm/5"
	Tumbler Slots (standard tumbler)	40 x 6mm/ ¼"
	Cut Height	1mm/0.04"
Electrical Requirements	Input Voltage	230V, 50Hz
	Circuit Breaker Requirements	5A/230V
	Connector Plug	CEE 7/7 (see Fig. 112)
	Current	2A
	Extension Cord Requirements	14AWG (minimum diameter) 15m/50' (maximum length)
Motors	Blade Motor	200W
	Drive Wheel Motor	6W
Speed	Blade Speed	980-1875RPM
	Tumbler Speed	47-96RPM
Weight	Standard Edition Weight	25.4kg/56lbs
	Standard Edition Shipping Weight	33.6kg/74lbs
	Stainless Edition Weight	40.8kg/90lbs
	Stainless Edition Shipping Weight	52.1kg/115lbs

CEE
7/7

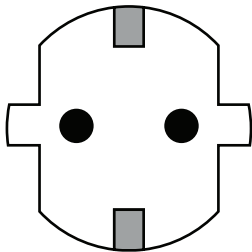


Fig. 112

Cleaning Equipment

Item	Product Number
Twister Foam Cannon	25-0024
Twister UltraClean - North American Three Phase Model	02-10019A
Twister UltraClean - North American One Phase Model	02-10030A
Twister UltraClean - European Model	02-10031A

Conveyors

For guidance on which conveyors are most suitable for your setup, see **Conveyor and Rails Guide** on page 75.

Item	Product Number
Standard Feed Conveyor	26-0001
Standard QC Conveyor	26-0002
Standard Conveyors Extension Kit	27-0006
Stainless Steel Feed Conveyor	26-10018A
Stainless Steel QC Conveyor	26-10019A
Extended Height Feed Conveyor	26-0102
Extended Height QC Conveyor	26-0106

Disassembly Tools

Item	Product Number
Pulley Puller	25-0009-00
T4 Roller Brush Quick Release Kit	27-0003-00

Rails and Adapters

Item	Product Number
T4 Tandem Adapter	24-0022
T4 Stainless Tandem Adapter	24-9032
Twister T4 Tandem Rails	24-0140-P
Twister T4 Triple Rails	24-0139-P

Spare Parts

Item	Product Number
T4 Bearing Overhaul Kit	27-0005
T4 Blade Belt	19-0004
T4 Blade Pulley	19-0013-02-P
T4 Brush	20-0300
T4 Drive Wheel Chevron	19-0007-01
T4 Drive Wheel Assembly	24-0015
T4 Helix Blade	11-0300A
T4 Hopper	24-0001-02
Leaf Collector 40 Micron Filter Bag	23-0101
Leaf Collector 70 Micron Filter Bag	23-0162
Leaf Collector 300 Micron Filter Bag	23-0100
Trim Saver 70 Micron Filter Bag	23-0217
Trim Saver 40 Micron Filter Bag	23-0247
T4 Tumbler - Standard ¼" Slots	24-0304-01-P
T4 Tumbler - Narrow ⅜" Slots	24-0143-00-P

Stand

Item	Product Number
T4 Trim Saver Stand	24-0139-P

Vacuums and Bypass

Item	Product Number
T4 Trim Saver Vacuum - North American Model	23-0201-01-P
T4 Trim Saver Vacuum - European Model	23-010025A
T4 Leaf Collector - North American Model	23-0170-03-P
T4 Leaf Collector - European Model	26-10018A
T4 Vacuum Bypass	23-0258-00-P
T4 Vacuum Bypass Kit	24-0320-00-P

CONVEYOR AND RAILS GUIDE

When multiple T4s are lined up on Twister rails, depending on the number of T4s, only certain Twister conveyors will be compatible. Below is a guide of which conveyors are best suited for each type of T4 setup:

	One-Three T4s Without Rails	Two T4s With Rails	Three T4s With Rails
Standard Feed Conveyor	✓	✗	✗
Standard QC Conveyor	✓	■	■
Stainless Steel Feed Conveyor	✓	✓	✓
Stainless Steel QC Conveyor	✓	✓	✓
Extended Height Feed Conveyor	✗	✓	✓
Extended Height QC Conveyor	✗	✓	✓



Correct Sizing



Compatible, but not ideal



Incompatible

CONTACT US

Keirton technical support is available between 7 a.m. and 7 p.m. Pacific Standard Time seven days a week at:

- **1-888-254-3204**
- **support@keirton.com**

