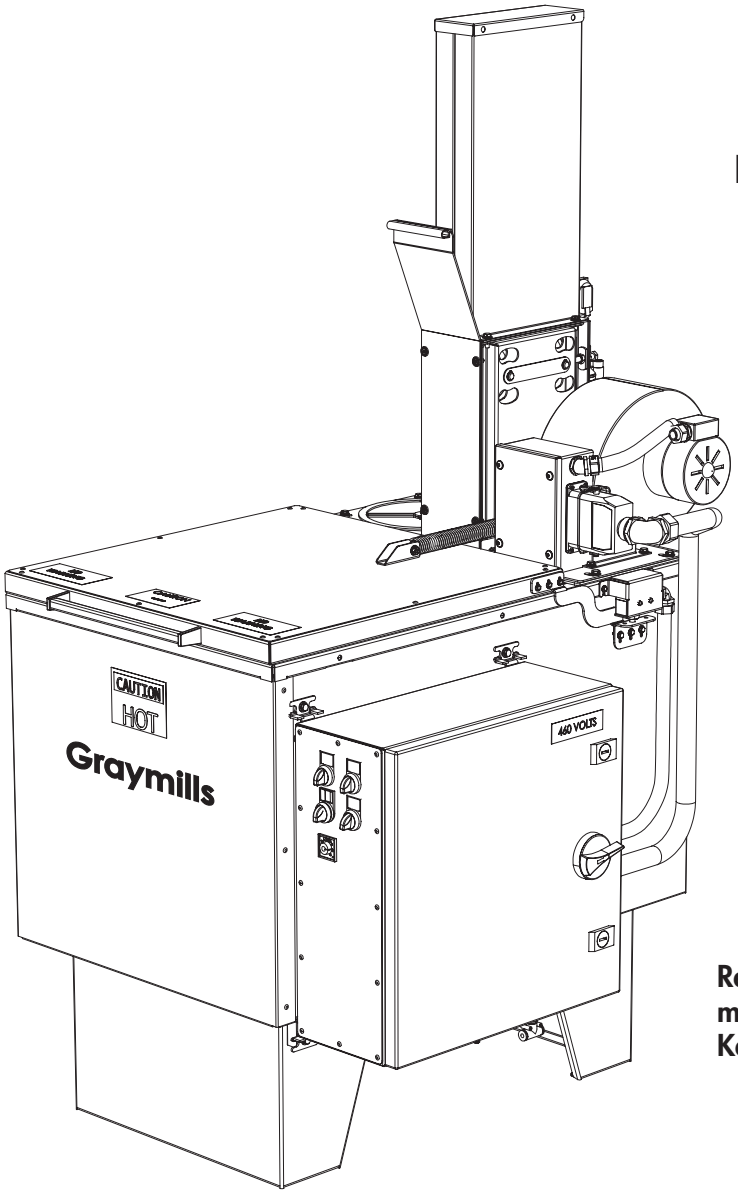
795-93057_0316

Graymills
PARTS WASHERS



Operation and Maintenance Instructions

For units manufactured after 11/01/15

TR-SERIES LIFTKLEEN® PARTS DRYER

Part #TRHSVDR24/36

Read all of the SAFETY INSTRUCTIONS in this manual BEFORE installing or using this equipment. Keep this manual handy for reference/training.

SAFETY WARNINGS

You will find various types of safety information on the following pages and on the labels attached to Graymills equipment. The following Safety Statements explain their meaning:

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

CAUTION, used without the safety alert symbol, is used to address practices not related to personal injury.

Follow these instructions at all times.

SITE PREPARATION

Before installing the TR-Series Dryer, careful consideration should be given to the place of operation.

CAUTION

The work area should be well ventilated.

Place unit on a smooth, level surface.

Provide adequate lighting in the work area.

Be sure to allow adequate room to bring work to and from the machine. Provide sufficient clearance around the machine for loading, unloading and servicing.

GENERAL WARNINGS

CAUTION

Never work with equipment you feel may be unsafe. Contact your Supervisor immediately if you feel a piece of equipment is in an unsafe condition.

WARNING

DO NOT DRY PARTS CLEANED WITH GASOLINE, ALCOHOL, CARBURETOR CLEANERS, METAL STRIPPERS OR CHLORINATED SOLVENTS. USE OF SUCH UNAUTHORIZED MATERIALS CAN CAUSE A HEALTH AND SAFETY HAZARD WHICH MIGHT RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

THIS DRYER UNIT USES HEATED AIR ALONG WITH AGITATION TO DRY PARTS AFTER CLEANING WITH AQUEOUS WATER-BASED CLEANERS. HIGH TEMPERATURES WILL CAUSE INCREASED RISK OF PERSONAL INJURY. REMEMBER, ANY TEMPERATURE ABOVE 115°F CAN CAUSE BURNS.

EQUIPMENT ITSELF WILL BE HOT. USE CAUTION.

BEFORE PERFORMING ANY MAINTENANCE ON THIS UNIT, BE SURE TO DISCONNECT ELECTRIC POWER.

WARNING

TO PREVENT ELECTRICAL SHOCK HAZARD, THIS EQUIPMENT MUST BE PROPERLY GROUNDED.

SAFETY INSTRUCTIONS

Chemical Hazards

WARNING

FOLLOW ALL DIRECTIONS, WARNINGS, CAUTIONS AND DANGERS FOR THE CLEANING MATERIAL USED.

If any cleaning solutions are splashed on clothing, remove wet clothing promptly. Do NOT permit saturated clothing to remain in contact with skin. Consult the solution manufacturer's Material Safety Data Sheet (SDS) and a physician for appropriate actions to take.

Cleaning solutions may irritate skin and eyes. Consult Material Safety Data Sheet (SDS) and a physician if splashed in eyes.

Always wear appropriate personal protective equipment such as gloves, apron, safety glasses or goggles.

Electrical Hazards

WARNING

Before performing any maintenance, be sure to disconnect all electrical power going to unit.

Unit must be properly grounded to prevent electric shock hazard. USE QUALIFIED ELECTRICIANS TO PERFORM THIS WORK.

All electrical connections should conform to national/local codes and be made by qualified personnel.

Should cord become cracked, frayed, or damaged in any way, it should be repaired/replaced immediately by a qualified electrician.

CAUTION

Inspect all electrical cords and plugs each time unit is cleaned. Do NOT use if any wear or damage is noticed until impaired components are repaired or replaced.

Personal Hazards

WARNING

DRYER HEATS PARTS TO ELEVATED TEMPERATURES. DRIED MATERIAL WILL BE VERY HOT. USE APPROPRIATE PERSONAL PROTECTION, INCLUDING PROTECTIVE GLOVES.

The internal surfaces of the dryer as well as the lift platform, parts and parts baskets may be EXTREMELY HOT. Be sure to use appropriate personal protective gear when unloading the machine. To prevent injury, keep hands and body clear of the lid, lift platform and lift mechanism at all times.

WARNING

If any cleaning solutions are splashed on clothing, remove wet clothing promptly. Do NOT permit saturated clothing to remain in contact with skin. Consult the solution manufacturer's Material Safety Data Sheet (SDS) and a physician for appropriate actions to take.

Cleaning solutions may irritate skin and eyes. Consult Material Safety Data Sheet (SDS) and a physician if splashed in eyes.

Always wear appropriate personal protective equipment such as gloves, apron, safety glasses or goggles.

⚠WARNING

This unit has moving parts, pinch-points and close tolerances. Always stand clear of lift platform and lid when operating as the lid could unexpectedly open or the lift platform could be activated. Keep hands and fingers away from tank when operating platform.

⚠WARNING

To prevent injury, keep hands and body clear of the lid, lift platform and lift mechanism at all times.

⚠CAUTION

Do not use lid for storing tools or supplies as you install the machine.

When turning air on, off, or operating the lift platform, stay clear of the lid, the lift platform and operating mechanism. The lid could unexpectedly open or the lift platform could begin to operate during set up and testing.

Never operate unit without safety shroud (page 7, Figure 1) fully in place.

See Safety Procedure for CONNECTING AIR SUPPLY, at right.

INSTALLATION

ASSEMBLE TOWER SHROUD

The tower shroud has been packed inside the unit tank for shipping safety. When your unit has been positioned in its operating location, unpack the shroud, taking off wrapping materials.

Unscrew the 4 screws that are loosely in place on the roller assembly. Position the shroud in its proper location (see page 7, Figure 1). Reattach the screws. Tighten 4 lock washers, flat washers and screws using a 7/16 wrench.

CONNECTING TO POWER SOURCE

⚠WARNING

Have the required electrical service installed by a qualified electrician in compliance with all electrical codes.

Consult the name plate on the machine for the electrical service requirements. Amp draw information is in "SPECIFICATIONS" on page 8.

⚠WARNING

Unit must be properly grounded to prevent electric shock hazard.

All electrical connections should conform to national/local codes and be made by qualified personnel.

No external wiring is supplied on TR Series dryer units. Electrical connections need to be made by a qualified electrician.

Should an electrical cord become cracked, frayed, or damaged in any way, it should be repaired/replaced immediately by a qualified electrician.

1. Turn Rotary Disconnect to "ON" position.
2. Turn on MAIN POWER.

CONNECTING AIR SUPPLY

See Figures on page 7.

Provide the required compressed air supply to the installation site. Although the TR-Series Dryer is equipped with a 1/4" air connection, it is recommended that a 3/8" to 1/2" supply be provided, depending upon the length of the supply line. **The TR-Series Dryer lift mechanism requires an air supply pressure of 80 psig minimum and 100 psig maximum for proper operation. Do NOT exceed 100 psig.**

To insure smooth operation of the pneumatic lift, a filter-regulator is included in the air supply line.

⚠CAUTION

While connecting the air supply (Figure 3) to the quick disconnect fitting (3A) on the rear of the lift column, make sure that the sleeve valve (3B) is pulled toward the quick disconnect fitting, thus disconnecting air from the lift mechanism. This will prevent sudden movement of the lift platform and sudden opening of the lid while the air is being connected.

1. Pull the sleeve valve (3B) toward the quick disconnect fitting, thus disconnecting air from the lift mechanism. (Follow Safety Procedure by keeping clear of lid and operating mechanisms.)

NOTE: Lift capacity is proportional to air supply pressure. Specified lift capacity is with 90 psig air inlet pressure. Example: Air inlet supply pressure of 70 psig will reduce lift capacity by 22%.

2. Connect the air supply to the quick-disconnect fitting.
3. After the air supply is connected, slide the sleeve valve fup to turn on the air supply.
4. Momentarily rotate the UP/DOWN selector switch to the UP position. The platform should begin oscillating up and down with approximately 3" of stroke.
5. Rotate the UP/DOWN selector switch to the UP position and hold. The platform will rise and remain in the raised position. Release switch.

ADJUSTING PLATFORM PERFORMANCE

See Figures on page 7.

⚠WARNING

To prevent injury, keep hands and body clear of the lid, lift platform and lift mechanism at all times.

Units are preset to run smoothly and at optimal speed for a parts load of 45 pounds. If your parts are of similar weight, no adjustment is necessary. If your parts vary from this (either significantly less or more), you will need to make adjustments.

To adjust the lift platform speed:
See Figure 5 "Adjusting Platform Speed"

⚠WARNING

This unit has moving parts, pinch-points and close tolerances. Always stand clear of lift platform and lid when operating as the lid could unexpectedly open or the lift platform operate. Keep hands and fingers away from tank when operating lift platform.

⚠CAUTION

Speed adjustments could make lid open and close rapidly. Make small adjustments, and be aware of potential sudden actions.

1. Find two independent speed control muffler screws (5A) under the gray control box (See Figure1). These are used to control the vertical speed of the lift platform. The "UP" and "DOWN" speeds of the platform should be equal when the platform holds the intended workload. To prevent the lid from opening rapidly, adjust control muffler screws (4A) down to an appropriate speed.
2. First loosen the jam nut (5B) on the "UP" or "DOWN" speed control, as applicable.
3. Adjust the speed control muffler screw in half-turn adjustments with a thin bladed screwdriver. Screw the control out to increase platform speed and in to reduce speed. Retighten the jam nut after speed control adjustment has been made.
4. Using the platform UP and DOWN selector switch, raise and lower the work platform.

CYCLE TIMER INSTRUCTIONS

1. Set TIMER to desired drying cycle duration by adjusting the front dial. The markings on the front of the TIMER control unit correspond to tenths of the duration displayed in the upper window: 10 is the full duration, 5 is half duration, 1 is 1/10th, and so on.

NOTE: The timer has been set to a maximum of 60 minutes.

⚠CAUTION

Never leave or store anything on top of the lid as it will automatically raise at the end of the time cycle causing anything left on top of the lid to spill or fall to the ground.

The lid will open automatically without user interaction. Keep clear of the lid while the automatic cleaning cycle is in progress.

2. The CYCLE TIMER's LED indicator provides cycle progress indication. Off before timing, the LED blinks at an increasing rate as the cycle progresses; once every 3.5 seconds during the first 10% of the cycle, twice during the second 10%, and so on. When cycle is nearly complete, the LED will flash continuously until the cycle is completed. When the timer duration has finished, the lid will open and lift platform will rise to the load/unload position.
3. When timer's cycle finishes, a 2-minute cool down cycle begins. The heater will shut off and the unit will continue to agitate and the blower will continue to operate. This stage is to cool parts and protect the heater. At the end of the cool down cycle the blower will stop, the platform will rise and the lid will open.

To Override Automatic Cycle

⚠WARNING

The internal surfaces of the dryer, the lift platform, parts and parts baskets may be EXTREMELY HOT. Be sure to use appropriate personal protective gear when unloading the machine.

The automatic cycle can be manually overridden by rotating the UP/DOWN selection switch to UP, and holding for several seconds. The lid will open and the lift platform will rise to the load/unload position. **This does not end the timer duration** (timer is still counting). If the cycle ends while the lift platform is up, no change will result.

Sending the lift platform down to resume process **will not establish a new timer cycle**. The lid will open and lift platform will rise as prescribed by the original setting.

To establish a new timer cycle, send the lift platform up to the load/unload position and turn the MAIN POWER switch OFF and back ON. Upon rotating the UP/DOWN switch to DOWN for a moment, a new timer cycle will start.

DRYER SETTINGS

This dryer operates by forcing a high volume of air across two banks of duct heaters before entering the dryer chamber. This dryer is equipped with two Heater Power modes: Low (6kW) and High (12kW). The illuminated switch on the front of the machine will allow for either mode.

Low Heat

Rotating the Heater Power switch to LOW is designed to provide air at approximately 50°F above ambient air temperature into the dryer tank by energizing only one bank of heaters. This temperature may be modulated slightly by manipulating the Air Vent Plate on the rear left of the machine (see Figure 7, page 7). Low mode is ideal for some plastics, softer metals and those materials that are sensitive to high temperatures.

High Heat

Rotating the Heater Power switch to HIGH is designed to provide air at approximately 100°F above ambient air temperature into the dryer tank by energizing both banks of heaters. This temperature may be modulated slightly by manipulating the Air Vent Plate (see Figure 7, page 7) on the rear left of the machine. High mode is ideal for some plastics, harder metals and those materials that are not sensitive to high temperatures.

NOTE: Ensure proper heat setting before operating unit. Damage to parts may occur if improper heat is applied.

OPERATION

Follow all Safety Procedures and Warnings/Cautions listed below and in previous sections.

NOTE: For best results, we recommend running a few empty heated drying cycles to get the unit primed for full operation with parts.

⚠CAUTION

1. **Keep clear during operation.** Turn on machine power by turning the ROTARY DISCONNECT on the side of machine to the "ON" position
2. Enable machine control by rotating the illuminated MAIN POWER selector switch.
3. Rotate the UP/DOWN selector switch to the UP position and hold. The platform will rise and remain in the raised position. Release switch.
4. Load the parts to be dried in a parts basket and place the basket on the lift platform. Do NOT exceed weight limit (150

pounds for the T24 Series, 200 pounds for the T36 Series). Larger parts may be loaded directly on the lift platform. Use appropriate lifting techniques for heavy parts.

NOTE: This unit is equipped with a Differential Pressure Switch (see Figure 6, Heater Assembly) to prevent the heaters from overheating and burning out.

5. Momentarily rotate the UP/DOWN selector switch to "DOWN." The lift platform will drop and lid will close.
6. Once the lid has closed, the blower will start as will the heater. The heater light will illuminate, indicating that the heater is in operation. If light does not illuminate or the blower does not activate, consult TROUBLESHOOTING section, page 6.
7. The platform will begin operation, and will agitate up and down until timer expires.

⚠CAUTION

Stay away from lid at all times when unit is operating.

8. When timer's cycle finishes, the heater will shut off, the light will go off. The unit will continue to agitate and the blower will continue to operate for a 2-minute cool down cycle. This stage is to cool parts and protect the heater. At the end of the cool down cycle the blower will stop, the platform will rise and the lid will open.

⚠WARNING

The internal surfaces of the dryer as well as the lift platform, parts and parts baskets may be EXTREMELY HOT. Be sure to use appropriate personal protective gear when unloading the machine.

NOTE: Because of the wide range of applications, the required drying time usually will be determined by experience under actual use conditions.

POWERING DOWN THE UNIT

When the unit is not in use, it is recommended that the lift platform be sent to the bottom position and lid closed. In order to maintain this position indefinitely, turn the MAIN POWER switch to the "OFF" position.

MAINTENANCE

⚠WARNING

FOLLOW ALL LOCK OUT PROCEDURES BEFORE PERFORMING ANY SERVICE OR MAINTENANCE.

LOCK OUT PROCEDURES

1. Lower platform until it completely descends.
2. Turn MAIN POWER illuminated selector switch to the "OFF" position.
3. Turn ROTARY DISCONNECT to "OFF" position.
4. Pull air sleeve (Figure 3, 3B) down and disconnect the main air supply to the rack and/or lid cylinders to remove residual air pressure.

⚠WARNING

BEFORE PERFORMING ANY REPAIRS OR INTERNAL MAINTENANCE ON THIS MACHINE, DISCONNECT THE ELECTRICAL POWER SUPPLY AND THE COMPRESSED AIR SUPPLY. REVIEW "CONNECTING AIR SUPPLY." FOLLOW ALL LOCK-OUT PROCEDURES (above). BE SURE THE UNIT IS COOL.

NOTE: Refer all electrical service to a qualified electrician.

Daily Maintenance

1. Check the air hose and connector for damage or wear. Replace damaged air hose or fitting immediately.
2. Check the lift mechanism for smooth operation. For problems with the lift mechanism, refer to the TROUBLESHOOTING Section.
3. To prevent damage to painted surfaces, wipe up any fluid spills immediately.

CLEANING TANK

⚠CAUTION

Be sure to disconnect power and allow the unit to cool before cleaning.

The tank should be cleaned periodically to remove the accumulated debris from the sides and bottom. This should be done at least weekly, or more often if soil accumulation is high.

1. Follow LOCK OUT PROCEDURES.
2. Drain any accummulated fluids from tank. Dispose of responsibly, according to local environmental regulations.
3. Using a stiff brush or sponge, wash out the tank interior using a mild detergent solution. Rinse thoroughly and repeat as needed.

V-GROOVE ROLLER MAINTENANCE

⚠WARNING

FOLLOW ALL LOCK OUT PROCEDURES BEFORE PERFORMING ANY SERVICE OR MAINTENANCE.

See Figure 2 "V-Groove Roller Greasing Locations" on page 7.

NOTE: These instructions are for greasing rollers only. If replacement of rollers is necessary, contact Customer Service for detailed instructions.

1. Line up zerk fittings within openings in cover plate. Grease roller bearings with a grease gun.

   Lithium grease is recommended for this application.

TROUBLESHOOTING GUIDE. FOLLOW ALL SAFETY PROCEDURES.

PROBLEM	PROBABLE CAUSES	REMEDY
Lift platform does not oscillate	Cylinder sensor issue	See Figure 4. Check sensors on back of cylinder: sensors have indicators; verify light illuminates when platform passes. Replace if necessary.
	Air valve assembly improperly adjusted	Remove 2 hoses from main valve. Ensure air is passing through from cylinder. Bad valves should be replaced.
Lift platform does not remain in down position	Part has fallen under platform, preventing it from reaching lowest position of travel	Remove four slotted screws and platform grid, permitting access to lift part from tank.
	Not enough air pressure: 80 psig min., 100 psig max.	Check air supply, hoses, and connectors and sensor at bottom.
	Bottom sensor slid to bottom of rail	Check sensor position. Raise sensor to 1" from bottom of rail (see Figure 4, 4B)
"UP" speed is different from "DOWN" speed	Speed control muffler is improperly adjusted.	Adjust the speed control muffler screws (Fig.2A) at the rear of the lift column. Tighten jam nuts (Fig.2B) when finished.
Lift platform does not come to "UP" position	Overloaded. Load exceeds recommended weight capacity	Open lid and use chain hoist to remove heavy part.
	Not enough air pressure: 80 psig min., 100 psig max.	Check air supply, hoses, and connectors and sensor at bottom.
Blower does not turn on	Air flow restricted	Remove any obstruction keeping air from flowing.
	Lid switch is not engaged	Adjust contact plate. Make sure screws are not loose.
Heater not on	Blower blocked, not operating	Check blower ~~filter~~, remove any obstruction
	Differential Pressure Switch opening is obstructed	Check opening. Make sure inlet is clear. Remove obstruction if necessary.
Lift platform bangs at full top or bottom position	Air cylinder cushion screws require adjustment (Figure 4)	Increase cushion by tightening screws (clockwise) to reduce banging
Rollers are squeaking	Bearings need grease.	Grease roller bearings. See Maintenance instructions.
Lid won't open/platform won't rise	Air pressure may be too low to lift load and lid	Adjust mufflers. Increase air pressure to 100 psig.
If your problem is not listed above or problems persist, please contact Graymills for further assistance.1-888-472-9645		

Figure 1—Unit Overview

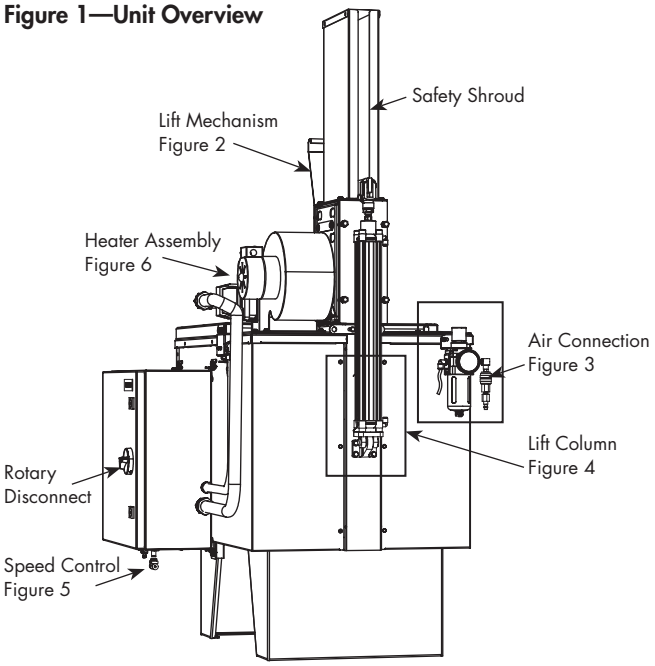


Figure 2—
V-Groove Roller
Greasing Locations

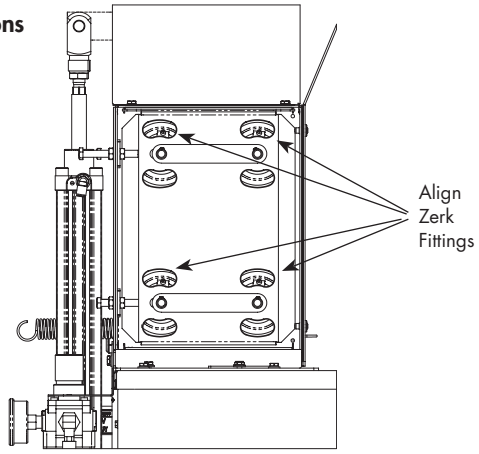


Figure 3—Connecting
Air Supply

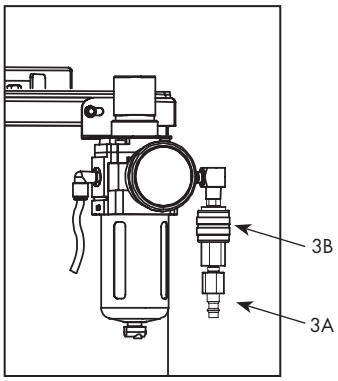


Figure 4—Lift Column
Adjusting Stroke Height

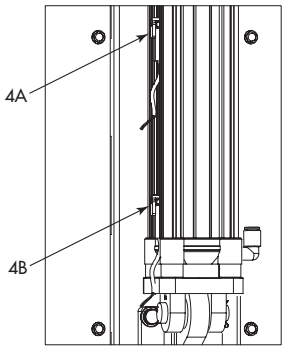


Figure 5—Speed Control
Adjusting Platform Speed

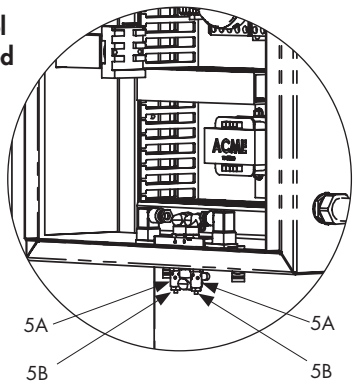


Figure 6—Heater Assembly

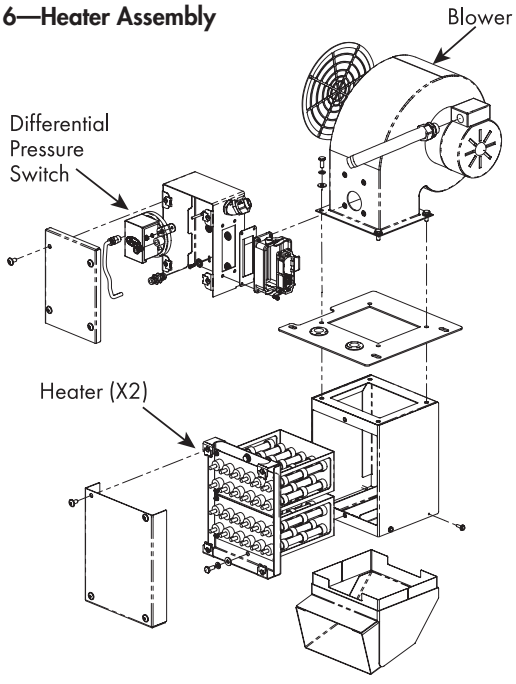
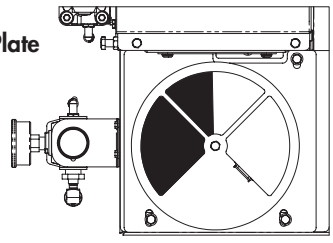


Figure 7—Air Vent Plate



SPECIFICATIONS

		24" Tank Model	36" Tank Model
Inside Tank Dimensions		35"L x 22"W x 18"D	47" x 26 3/4"W x 24"
Maximum Part Height		12"	18"
Overall Dimensions		42"L x 25"W x 69"H	55"L x 30"W x 75"H
Drain		2" NPT	2" NPT
Lift Platform Dimensions		26 1/2" x 19 1/2"	31 1/2" x 25"
Weight Capacity		150 lbs. @ 90 PSI	200 lbs. @ 90 PSI
Agitation Stroke Length		3"	3"
Strokes per minute		60 - 80	60 - 80
Air Inlet		1/4" NPT	1/4" NPT
Amp Draw	230VAC, 3 Phase	32 amps	32 amps
	460VAC, 3 Phase	16 amps	16 amps

NOTE: All units require direct wiring by user in compliance with all electrical codes. Separate fused disconnect switch is recommended on all models.

REPLACEMENT PARTS LIST

HEATER/BLOWER PARTS

See Figure 6 "Heater Assembly" on page 7

Number	*Description*
771-92987	(1) Heater, 6kW, 230V, 3Ph
771-92983	(1) Heater, 6kW, 460V, 3Ph
605-42744	550 CFM Blower
770-93027	Pressure Differential Switch

V-ROLLER PARTS

Call Customer Service for V-Roller service instructions

761-92495	V-Groove Wheel/Bearing Assembly
573-41187-41	Spacer
569-41175-88	Shaft
756-06286-88	Snap Ring

LIFTER KIT ASSEMBLY

TR2420 *Number*	TR3626 *Number*	*Description*
746-92612	746-92515	Air Cylinder
729-90678	729-90678	1/4" Polyethylene Tubing (sold by the inch)
746-06374	746-06374	Speed Control/Muffler
738-92867	738-92867	Solenoid Valve, 5- Port
770-93177	770-93177	Cylinder Position Sensor
746-92505	746-92505	Filter Regulator with Gauge

WARRANTY

Graymills Corporation warrants that the equipment manufactured and delivered hereunder, when properly installed and maintained, shall be free from defects in workmanship and will function as quoted in the published specification. **Graymills** does not warrant process performance nor does Graymills assume liability for equipment selection, adaption or installation.

This warranty does not apply to damages or defects caused by operator carelessness, misuse, abuse, improper application, or abnormal use; the use of add-on parts or equipment which damages or impairs the proper function of the unit and modifications made by Buyer.

Graymills' obligation under this Warranty shall be limited to:

- Replacing or repairing (at **Graymills'** sole discretion) any non-conforming or defective parts manufactured by **Graymills** within one year from the date of shipment to customer.
- Replacing or repairing (at **Graymills'** sole discretion) thermoplastic parts cleaner tanks or lids that have cracked or split under normal use within five (5) years from date of shipment.
- Replacing or repairing components supplied but not manufactured by **Graymills** to the extent of the warranty given by the original manufacturer.

Buyer must give **Graymills** prompt notice of any defect or failure and satisfactory proof thereof.

This warranty does not apply to expendable parts which need periodic replacement due to normal wear.

This warranty does not apply to rusting of mild steel components or tanks in product used with aqueous (water based) fluids.

A new warranty period shall not be established for repaired or replaced materials or products. Such items shall remain under warranty for only the remainder of the warranty period of the original materials or products.

If you believe you have a warranty claim, contact **Graymills** Customer Service at 773-248-6825 for a Return Merchandise Authorization number. Any returned material must have its RMA number on the outside of the package and be shipped prepaid or the shipment will be refused. **Graymills** will promptly examine the material and determine if it is defective and within the warranty period.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES WHETHER ORAL, WRITTEN, EXPRESSED, IMPLIED OR STATUTORY. IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY SHALL NOT APPLY. **Graymills'** warranty obligations and Buyer's remedies thereunder (except as to title) are solely and exclusively as stated herein. In no case will **Graymills** be liable for consequential damages, loss of production or any other loss incurred because of interruption of service.

Graymills
3705 N Lincoln Avenue Chicago, IL 60613
773-248-6825 fax 773-477-8673
info@graymills.com www.graymills.com