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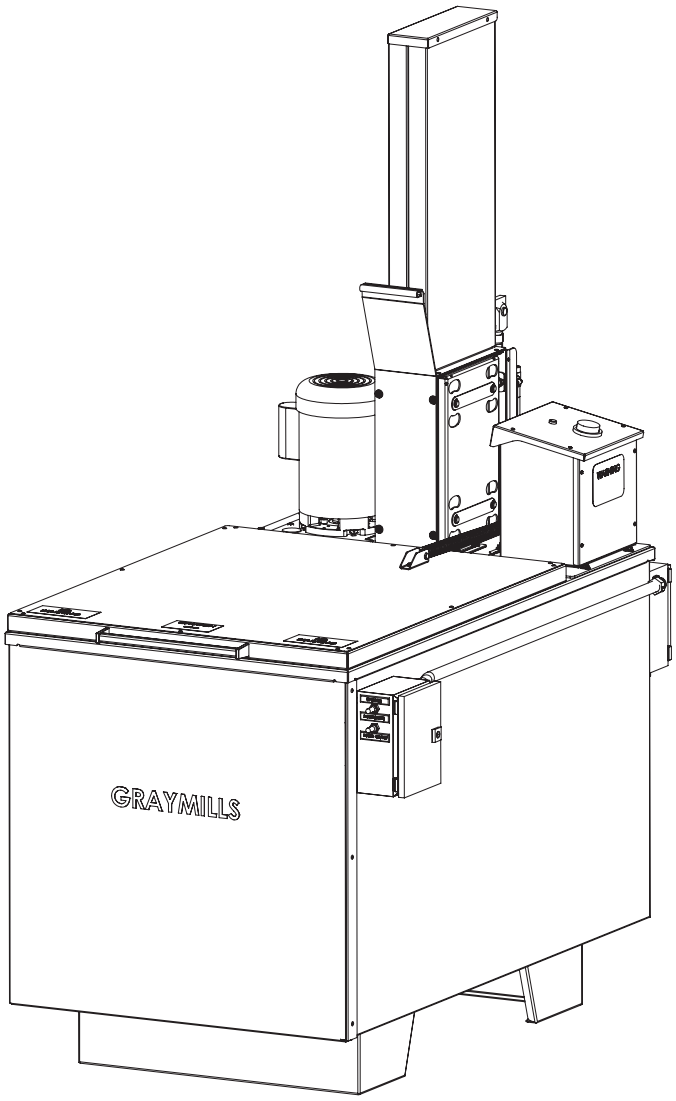
Graymills
PARTS WASHERS



Operation and Maintenance Instructions

TR-SERIES LIFTKLEEN® PARTS WASHER— HEATED/AQUEOUS

For units manufactured after January 2011

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.

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.

SITE PREPARATION/INSTALLATION

Before installing the TR-Series, careful consideration should be given to the place of operation. Place unit on a smooth, level surface.

The work area should be well ventilated.

Provide adequate lighting in the work area to allow observation of the cleaning process and the floor area around the machine.

Be sure to allow adequate room to bring work to and from the machine. Provide sufficient clearance around the machine for fluid changeovers and servicing.

Tank has a 2" outlet at the bottom for attachment of a filtration system or drain valve for emptying of tank. If you intend to use this for fluid changeovers, you should take off the supplied plug and prepare the outlet at this time. A bung wrench is required for mild steel tanks; a wrench will be needed for stainless steel tanks.

We recommend that you move this equipment with a forklift or similar equipment. Lift only at the points indicated by the Forklift Labels positioned on the unit.

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, 1E). Reattach the screws. Tighten 4 lock washers, flat washers and screws using a 7/16 wrench.

GENERAL WARNINGS

NOTE: The instructions provided in this Operation Manual are for a typical usage of aqueous fluids in an heated parts washer. If your cleaning application differs from this norm, please contact the factory (773-248-6825) for compatibility and other recommendations.

HEATED MACHINES — AQUEOUS SOLUTIONS ONLY

- **USE ONLY NONFLAMMABLE, NON-COMBUSTIBLE, WATER-BASED ALKALINE CLEANING COMPOUNDS.**
- **If you have any questions regarding the correct fluids to use in this unit, call Graymills at (773) 248-6825 and ask for Customer Service. Graymills recommends our Aquatene® line of cleaning fluid. See page 9 for complete list.**
- **Do NOT contaminate cleaning compounds with any flammable materials (materials with less than 104°F flash point), such as gasoline, alcohol, etc. Drain parts to be cleaned of any flammable material before placing inside cleaning tank. Even small quantities can create a dangerous fire hazard.**
- **Follow all directions, Warnings, Cautions and Dangers for the cleaning fluid being used.**
- **Maximum operating temperature is 180°F. Higher temperatures will cause increased risk of personal injury and damage the unit. Remember, any temperature above 115°F can cause severe burns. Equipment itself will be hot. USE CAUTION.**

Stainless steel units are equipped with standard fiberglass platform. Consult your fluid's MSDS for chemical compatibility. Alternate lift platform materials are available; contact Customer Service for more information. Other units are equipped with a mild expanded steel platform.

If you have purchased a heated unit with a carbon steel tank, observe the following before using: Water-based cleaning materials will generate steam and water vapors. Surfaces above the liquid level will be subject to rusting (this condition exists with any carbon steel unit). This is primarily surface rust and does not appreciably affect the serviceability of the unit. However, if your cleaning requirements cannot tolerate any rust or contamination, please contact the factory for information on stainless steel models before putting the unit into service. Use of a cleaning solution containing rust inhibitor will help prevent rusting. (Check with your cleaning fluid supplier.) The Graymills warranty does not cover rusting of carbon steel units used with water-based material.

GENERAL SAFETY INSTRUCTIONS

⚠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 (MSDS) and a physician for appropriate actions to take.

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

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

If you have any questions regarding the recommended fluids to use in this unit, call Graymills at (773) 248-6825 and ask for Customer Service.

⚠WARNING

Never use an extension cord.

Unit must be properly grounded to prevent electric shock hazard.

For single phase units, connect only to three prong grounded outlet. Since operator safety at all times is a priority, we strongly recommend that—whether or not required by local code— this equipment be connected only into a power supply equipped with a "Ground Fault Interrupter" (GFI).

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/replaaced immediately by a qualified electrician.

⚠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. (See the OPERATION section.)

⚠WARNING

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

⚠CAUTION

Inspect all electrical cords, plugs, and fusible link each time unit is cleaned. If unit is so equipped, check pump and heater for wear or corrosion. Do NOT use if any wear or damage is noticed until impaired components are repaired or replaced.

Fill tank to recommended operating capacity range before connecting electricity. (See the SPECIFICATIONS section.)

SAFETY PROCEDURES

⚠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, 1E) fully in place.

See Safety Procedure for CONNECTING AIR SUPPLY (page 4).

GETTING STARTED

Have the required electrical service installed by a qualified electrician in compliance with all electrical codes. Consult the name plates on the machine and the SPECIFICATIONS Section of this manual for the electrical service requirements.

Provide the required compressed air supply to the installation site. Although the TR-Series 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 lift mechanism requires an air supply pressure of 80 psig minimum and 100 psig maximum for proper operation (do NOT exceed 100 psig).

⚠WARNING

Unit must be properly grounded to prevent electric shock hazard. Never use an extension cord.

For single phase units, connect only to three prong grounded outlet. Since operator safety at all times is a priority, we strongly recommend that—whether or not required by local code— this equipment be connected only into a power supply equipped with a "Ground Fault Interrupter" (GFI).

For three phase units, no external wiring is supplied. Electrical connections need to be made by a qualified electrician.

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.

In units equipped with optional pump:

1. Check voltage of pump motor (page 7, Figure 1, 1A). This information can be found on the metal plate affixed to the motor housing. Be sure it is the same cycle (hertz), phase and voltage as your electric power source before connecting the Turbo pump to the voltage source.

NOTE: 230V, single phase heated models have an auxiliary outlet on the heater module for connecting the pump electrical cord.

2. Turn on the pump switch and observe the fluid action in the cleaning tank. Uniform fluid agitation should be seen in all portions of the cleaning tank. If necessary, the pipe elbow on the pump discharge can be adjusted to direct the fluid flow as desired (but never in an upward direction that could cause splashing).

CONNECTING AIR SUPPLY

To insure smooth operation of the pneumatic lift, a filter-regulator is included in the air supply line. The TR-Series lift mechanism requires an air supply pressure of 80 psig minimum and 100 psig maximum for proper operation (do NOT exceed 100 psig).

⚠CAUTION

While connecting the air supply (page 7, 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. After the air supply is connected, slowly slide the blue sleeve valve up toward the machine to turn on the air supply. (Follow Safety Procedure by keeping clear of lid and operating mechanisms.)
2. Turn on the Lift Control switch (lower switch, Figure 1,1D).
3. With the air connected and electrical power on, depress and hold the toggle switch down (1C). The lift platform should remain in the lowered position.
4. Momentarily raise and release the toggle switch (1C). The platform should begin oscillating up and down with an approximately 3" stroke.
5. Raise and hold the toggle switch. The platform should rise and remain in the raised position.

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%.

ADJUSTING PLATFORM SPEED

⚠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 height:
Two sensors are located on the cylinder body. Leaving the lower sensor in place, adjust the upper sensor 1" to 3" above it, depending on the size of your parts. Placing the upper sensor more than 3" above will result in the lid arm contacting lid when agitating.

To adjust the lift 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 under the gray junction box on the rear of the lift column (page 7, Figure 2, 2A). 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 slamming upon opening, adjust control muffler screws (2A) down to an appropriate speed.
2. First loosen the jam nut (2B) 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.

FILLING, STARTING

⚠DANGER

Only non-flammable, water-based cleaning compounds can be used in heated tanks. Do NOT use any flammable, combustible solvents, or petroleum-based products.

Do NOT contaminate cleaning compounds with any flammable materials (materials with less than 104°F flash point), such as gasoline, alcohol, etc. Drain parts to be cleaned of any flammable material before placing inside cleaning tank. Even small quantities can create a dangerous fire hazard.

CAUTION

Turn heater off, by turning thermostat to "30" (page 7, Figure 1, 1B) when unit is to be idle for extended periods (overnight or weekends). **Liquid could evaporate enough to damage heater coil.**

CAUTION

For units equipped with pump option:
Pump intake is above heater coil. If solution does not circulate, liquid level is too low. Turn heater and pump off immediately. Failure to keep coil immersed can cause heater to burn out.

1. The tank should be filled to approximately 6" below the rim. Follow all label directions for cleaning solution. Watch for splashing.
2. Turn the temperature control knob on the heater control panel (Figure 1, 1B) slowly clockwise to desired setting. A click will be heard and the signal light should come on indicating that the heating element is active.

   Complete heat-up times vary with fluid amount and operating temperature required. For consistent fluid temperature throughout tank, oscillate platform while heating.

⚠WARNING

NEVER ATTEMPT TO ADJUST THERMOSTAT HIGHER THAN FACTORY SET MAXIMUM (180°F), AS A DANGEROUS SITUATION WILL BE CREATED.

3. Follow instructions under OPERATION.

OPERATION

HEATED MACHINES

⚠ DANGER

A flammable or combustible solvent must never be used in a heated parts cleaner. Use only water-based cleaners. Drain parts which may have flammable or unsafe fluids in them.

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

1. Turn temperature control knob on the heater control panel (page 7, Figure 1, 1B) to desired operating temperature. The signal light will remain lit until liquid reaches set temperature.

⚠ CAUTION

2. **Keep clear during operation.** Turn on lift control power (1D). Press and hold toggle switch (1C) up to raise the lift platform to the uppermost position and open the lid.
3. Load the parts to be cleaned in a parts basket and place the basket on the lift platform. **Do NOT exceed weight limit (TR24: 150lb, TR36: 200lb). Make sure that parts do not extend beyond height of curved lift bar.** Larger parts may be loaded directly on the lift platform. Use appropriate techniques for loading or lifting heavy parts.
4. Press the toggle switch (1C) down and release. Keep clear. The lift platform will lower into the tank, lid will close, and the platform will begin agitating up and down with an approximately 3" stroke. For presoaking of parts, lift platform may be held stationary at lower position by pressing and holding the toggle switch (1C) down until lift platform has completely descended and stopped moving.
5. (Optional) Turn on the Turbo pump option initiating fluid turbulence.

⚠ CAUTION

Keep clear of lift platform. To prevent injury, be sure that everyone is away from lid and platform before starting.

6. After the required cleaning period, press toggle switch (1C) up and hold. The lid will open and lift platform will rise to the load/unload position.
7. Allow the workload to drain back into the tank before removing from the platform.

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

MAINTENANCE

⚠ WARNING

Follow all Lock Out procedures before performing any service or maintenance.

Lock Out Procedures

1. When performing any maintenance tasks on the Liftkleen, be sure that the master on/off air line valve is in the "OFF" position.
2. Disconnect the main air supply to the rack and/or lid cylinders to remove residual air pressure.
3. Turn electric power to machine "OFF" at main disconnect.
4. Unplug and/or disconnect all power to the machine.

⚠ WARNING

Before performing any repairs or internal maintenance on this machine, disconnect the electrical power supply and the compressed air supply going to the unit. Review "Connecting Air Supply." Follow all lock-out procedures (see instructions at left). Be sure liquid is cool.

NOTE: Refer all electrical service to a qualified electrician.

Daily Checks

1. Check the fluid level in the tank. Maintain the fluid level at about 6" below the tank rim.
2. Listen for any air leaks. Loosing air from system may cause unit to operate at less than optimal levels.
3. Check around the machine for fluid leaks. Repair any fluid leaks immediately.
4. Inspect all electrical cords and plugs. Replace worn or frayed cables or damaged plugs immediately.
5. Remove any floating oil from the cleaning fluid daily. See page 8 for Graymills recommended products.

Weekly Checks

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, page 7.
3. After ensuring that heaters are cool, lift out heater module and inspect heating element. Any foreign materials should be removed by gentle scrubbing with a wire bristle brush or equivalent.

CAUTION

Neglecting the cleaning of the heating element will cause premature failure.

Do NOT allow oil or sludge to bake onto the heater element, as premature heater burnout will result. Warranty is voided if this occurs.

As Necessary

1. To prevent damage to painted surfaces, wipe up any cleaning fluid spills immediately.
2. When the cleaning action of the detergent solution diminishes, drain the tank and recharge with fresh fluid.
3. Each time you remove the lift platform for cleaning, inspect the lift arm. Contact Graymills if wear is evident.

FLUID CHANGEOVER

⚠ CAUTION

Always dispose of used cleaning fluid properly. Refer to the cleaning chemical manufacturer's package label for instructions. Follow all local codes and regulations.

1. Drain cleaning fluid from tank. Dispose of responsibly, according to local environmental regulations.
2. Remove platform from unit. There are 4 screws holding platform in place on lifting mechanism. Remove all screws and store for reuse.
3. Remove debris from bottom of tank.
4. Refill with new cleaning fluid. The tank should be filled to approximately 6" below the rim. Follow all label directions. Watch for splashing.

LUBRICATION

Lubricate the roller wheels against the vertical shaft with #10 machine oil or a silicone spray lubricant at approximate one-month intervals. It will be necessary to temporarily remove the lift cylinder safety shroud (Fig.1E) to gain access to the roller wheels. Call Customer Service if you have questions.

The pump motor (page 7, Figure 1, 1A) is equipped with sealed ball bearings and requires no additional lubrication.

⚠CAUTION

Always follow lock-out procedures during maintenance and replace safety shroud before operation.

V-Groove Roller Maintenance (page 7, Figure 4)

1. Remove clips (4D) from one side of housing on all four shafts.
2. Remove the "Factory Set Plates". These plates are required to be reinstalled to assist in keeping the proper tension against the vertical shaft and rollers.
3. Release pressure on back rollers (4A) by loosening 3/8-16 jam nuts (4F) locking 3/8-16 bolts (4E) pushing against back roller shafts.
4. Once nuts are loose, back out the 3/8-16 bolts about 1/4 to 1/2" to relieve pressure off rollers.
5. Remove the Roller Cover by removing 4 screws.
6. Push shaft out through housing and roller spacers (4B) and V-groove rollers (4A).
7. Inspect roller bearing, grease rollers at this time, damaged bearings or rollers should be replaced.
8. Inspect vertical shaft for wear; damaged vertical shaft should be replaced.

TIMER INSTRUCTIONS (Factory Installed Option)

Set timer to desired cleaning 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.

Standing clear of the lid, turn on lift control power switch (1D). If the lift platform and lid are down, they will automatically rise to the load/unload position.

Load the parts to be cleaned in a parts basket and place the basket on the lift platform. Larger parts may be loaded directly on the lift platform.

⚠WARNING

Do NOT exceed weight limit of platform. Use appropriate lifting techniques for heavy parts.

Press down and release the lift platform toggle switch (1C). Keep clear. The timer will start, the lift platform will lower into the tank, lid will close, and the platform will begin agitating up and down with an approximately 3" stroke. For a time-controlled soak, lift platform may be held stationary at lower position by pressing and holding the toggle switch (1C) down for several seconds.

While the timer is in operation the LED on the control unit will illuminate; 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.

⚠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.

To Override Automatic Cycle

The automatic cycle can be manually overridden by pressing and holding the toggle switch (1C) up 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 timer ends while the lift platform is up, no change will result. However, sending the lift platform down to resume cleaning will not establish a new timer cycle if the previous one is still in effect. The lid will open and lift platform will rise as prescribed by the original timer cycle.

To establish a new timer cycle, send the lift platform up to the load/unload position and turn the lift control power switch (1D) off and back on. Upon pressing the toggle switch (1C) down, a new timer cycle will start.

Adjusting Timer Units

⚠WARNING

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

The duration units displayed in the upper window of Timer Control can be adjusted to any one of six intervals: 1 or 10 seconds, 1 or 10 minutes, 1 or 10 hours. This unit adjustment allows you to set the timer for long or short operational ranges.

To make adjustment, open the junction box with the controls, take off the relay that is attached to it, release the bracket holding the timer in place. Slide out timer, adjust the duration using the adjustment screw on the top of the timer control unit. Using a Phillips screwdriver, turn the adjustment screw until the desired measure is displayed in the window of the control unit.

Reverse the process to reassemble the timer.

Restore power to unit.

Powering Down a Timer-Equipped Unit

When the unit is not in use, it is recommended that the lift platform be sent to the lower position and lid closed (this will reduce heater power consumption on heated units and reduce solvent loss on solvent-based units). In order to maintain this position indefinitely, press and hold the toggle switch (page 7, Figure 1,1C) down until the platform is at its lowermost position. Turn off the lift control power (1D) to disable the timer and lift controls.

Figure 1

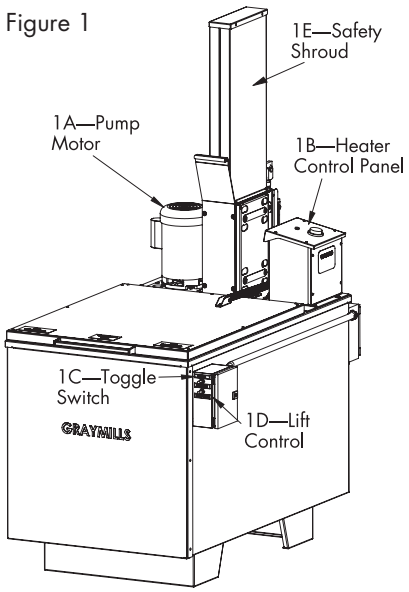


Figure 2—Adjusting Platform Speed

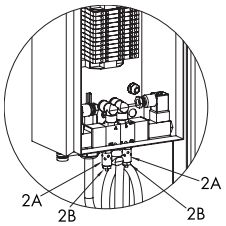


Figure 3—Connecting Air Supply

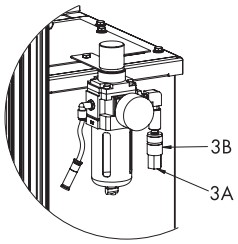
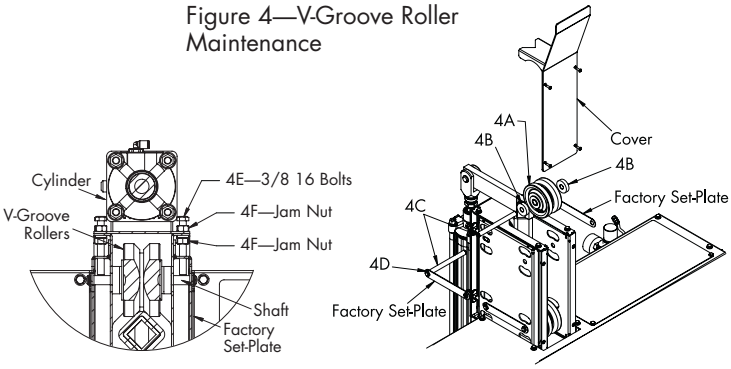


Figure 4—V-Groove Roller Maintenance



TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSES	REMEDY
Lift platform does not oscillate	Air valve assembly improperly adjusted	Check sensors in back on cylinder: sensors have indicators; verify light illuminates when platform passes.
		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. Adjust as necessary.
	Sensor may have loosened and is at the bottom of the cylinder	Check position of lower limit switch. Reattach sensor if necessary.
"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. **Adjust muffler by half turns. Even small adjustments can make a big difference. See instructions on page 4.** 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.
	Part weight exceeds speed control muffler setting	Reset setting for appropriate weight. See ADJUSTING PLATFORM SPEED, page 4
	Fusible Link damaged (unheated units only)	Replace with new Fusible Link Assembly. Contact Graymills
	Diminished air pressure	Check and adjust air pressure and muffler
Heated units do not reach desired fluid temperature	Heating element dirty	Clean element
	Heater element burned out	Replace heater element
	Thermostat defective	Replace thermostat
Lift platform bangs at full top or bottom position	Air cylinder cushion screws require adjustment	Screw in air cylinder cushion screws to reduce banging
Rollers are squeaking	Bearings need grease.	Grease rollers
	Rust on wheels and/or vertical bar	Spray lubricant on wheels and/or vertical bar
Lid won't open, rack not lifting	Air pressure may be too low to lift load and lid	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		

REPLACEMENT PARTS LIST

LIFTER KIT ASSEMBLY

TR2420	TR3626	
Part Number	*Part Number*	*Description*
746-92612	746-92515	Air Cylinder
729-90678	729-90678	1/4" Polyethylene Tubing
746-06374	746-06374	Speed Control/Muffler
738-92279	738-92279	Solenoid Valve, 5- Port
770-92282	770-92282	3-way Toggle Switch
770-09192	770-09192	2-way Toggle Switch
770-92280	770-92280	Cylinder Sensors

V-ROLLER PARTS

Part Number	*Description*
761-92495	V-Groove Roller (4A)
573-41187-41	Spacer (4B)
569-41175-88	Shaft (4C)
756-06286-88	Clip (4D)

HEATED UNITS

230/60/1Ph	230/60/3 Ph	460/60/3 Ph	
Part Number	*Part Number*	*Part Number*	*Description*
772-92475	772-92475	772-92475	Indicator Light
776-07847	NA	NA	Cord
778-07877	NA	NA	Plug
780-08642	780-08642	780-08642	Thermostat
780-08300	780-08300	780-07928	Heater
778-04821	NA	NA	Receptacle
782-92183	782-91230	782-91230	Contactor
NA	NA	780-91240	Transformer

PUMP AND MOTOR

Consult factory. Have pump model number on hand.

AVAILABLE OPTIONS AND ACCESSORIES

TLK-OSK Graymills offers an optional oil skimmer feature which can be added at time of purchase or as a field retrofit and is ideal for floating oil removal.

OAP-25 To extend life of heated fluids, order Graymills Oil Absorbent Pads (Part No. OAP-25) which are ideal for surface oil removal.

OSEP-5 Graymills Oil Separator may be used to perform continuous oil separation during operation.

OSEP-5S Graymills Oil Separator may be used to perform continuous oil separation during operation, wetted parts stainless steel.

TBF-24 Graymills Turbo Boost Filtration System sweeps the bottom of the parts cleaner tank at a rate fast enough to remove contaminants on a continuous basis while increasing agitation. For TR24 models.

TBF-36 Turbo Boost Filtration System for TR36 models

TRHF Graymills Low Liquid Protection Device operates by using a stainless steel float switch to disable heaters and prevent damage to machine when liquid level falls below an acceptable level. Once the float is tripped, all heater functionality will cease until the liquid level is increased and the TRHF is reset.

CLEANING FLUIDS

GM330C5 Aquatene™ 330 5 gal pail

GM330C55 Aquatene™ 330 55 gal drum

GM360C5 Super Aquatene™ 360, 5 gal pail

GM360C55 Super Aquatene™ 360, 55 gal drum

GM571-25 Aquatene™ 571, 25 lb box

GM571-100 Aquatene™ 571, 100 lb box

SPECIFICATIONS	**24" Tank Model**	**36" Tank Model**
Inside Tank Dimensions	24"L x 20 1/2"W x 18"D	34" x 25 1/2"W x 24"D
Liquid Immersion Depth	12"	18"
Overall Dimensions	38"L x 25"W x 66"H	55"L x 30"W x 75"H
Liquid Capacity	47 gals.	118 gals.
Drain	2" NPT	2" NPT
Lift Platform Dimensions	22" x 19"	32" x 24"
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
Heater	6.75 kW	6.75 kW
Thermostat Range	60° - 180°F	60° - 180°F
Heat-up Time	11 min per 10° change*	28 min per 10° change*

* Time is based on full tank. Fluid levels and chemistry will affect heating time. Your results may vary.

OPTIONS

Pump Agitation		
HP	1/2	1/2
Gallons per hour	3,000	3,000
Voltage, Hz., Ph.	230/60/1, 230/60/3, 460/60/3	230/60/1, 230/60/3, 460/60/3
Power Cord (230/60/1 **only**)	8-ft. with 30A, 230V AC plug (Requires 30 amp. receptacle)	8-ft. with 30A, 230V AC plug (Requires 30 amp. receptacle)
Amperage, Maximum	See chart on page 9	See chart on page 9

NOTE All 3Ph units require direct wiring by user in compliance with all electrical codes. Separate fused disconnect switch is recommended on all models.

TR-SERIES FEATURES AND AMPERAGE INFORMATION

Features	230/50-60/1	230/50-60/3	460/50-60/3
Agitating Platform	YES	YES	YES
Cycle Timer	YES	YES	YES
Oil Skimmer	YES	YES	YES
Agitation Pump	YES	YES	YES
Filtration	YES	YES	YES
Heated Fluid	YES	YES	YES
Control Amperage	0.5	0.28	0.14
Cycle Timer Amperage	0.05	0.03	0.01
Oil Skimmer Amperage	0.5	0.28	0.14
Pump Amperage	4	1.5	0.75
Filtration Amperage	N/A	N/A	N/A
Heater Amperage	28.1	16.2	8.1
Maximum Amperage	33.15	18.29	9.14

Note: All electrical components are common across both TR24 and TR36 units.

WARRANTY

Graymills Corporation warrants that the equipment manufactured and delivered hereunder when properly installed and maintained shall be free from defects in workmanship. 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:

1. Replacing or repairing pumps, motors, tanks and structural parts within one year from the date of installation or 13 months from the date of shipment, whichever occurs first. The decision to replace rather than repair shall be made by **Graymills Corporation**;
2. Replacing or repairing components supplied by but not manufactured by **Graymills**, to the extent such components are warranted by the original manufacturer's warranty and provided that Buyer gives **Graymills** prompt written notice within ninety days of any defect or failure and satisfactory proof thereof.

Before **Graymills** can repair or replace a defective part under warranty, call **Graymills** for a Return Merchandise Authorization number (RMA number must appear on outside of package or it will be refused and returned). Upon prepaid return to **Graymills**' factory, **Graymills**' examination must disclose such part to be defective.

This warranty does not apply to expendable parts needing replacement periodically due to normal wear. 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. **Graymills** warrants that the equipment will function mechanically as quoted in the published specification. **Graymills** does not warrant process performance nor does **Graymills** assume any liability for equipment selection, adaptation, or installation.

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 to title) are solely and exclusively stated herein. In no case will **Graymills** be liable for consequential damages, loss of production or any other loss incurred due to interruption of service.

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