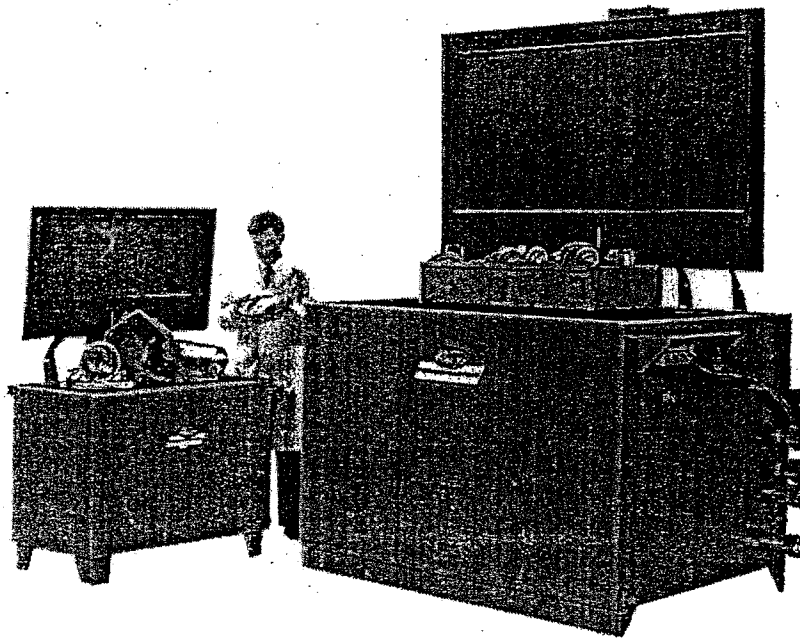




## **Powermaster® Parts Cleaning Machines**



Installation and Operator's Manual

Model Numbers: PW200, PW350, PW500, PW1000, PW2000

**KLEENTEC / KLEER-FLO**

**FOR PARTS AND SERVICE CALL:**

**C.T. & ASSOCIATES LLC**

**1623 BEACON HILL CT**

**ROCK HILL SC 29730**

**(248) 496-7375 EMAIL: [ctassociates@msn.com](mailto:ctassociates@msn.com)**

**Website: [ct-assocs.com](http://ct-assocs.com)**

## **Unpacking and Start-up**

Unloading and removal of the crating material should be done with care. Proper tools and skills should be used so as not to drop the machine or mar the exterior epoxy finish. A second instruction manual is attached to the cover.

After uncrating, inspect for any shipping damage. Damage should be reported to the delivering carrier immediately.

## **Installation**

The area selected for the equipment or multi-stage system should have ample room for all around access for servicing of the machine. As an example, to replace electric heating elements, 3 ft. of clear working space is necessary for element removal. After the machine is set and level, accessory items such as feed and discharge conveyors or roller conveyors connecting the multi-stage cabinets can be bolted in place on the cabinets. Filter systems and permanent plumbing connections can now be made to respective feed water sources, drains and overflow discharge.

## **Mast Attachment (Models PW1000 & PW2000)**

The Models PW1000 & PW2000 parts cleaning machines are shipped with the carrier support mast disassembled from the machine. For transporting purposes, the height of the mast would present too tall of a machine for an enclosed truck to transport.

## **CAUTION! Do Not Attach Any Compressed Air**

These machines are blocked to give firm holding support of the carrier platforms for shipping when the mast is not attached. Do not remove this block until after the assembly of the mast is complete.

- 1 The carrier head is secured to the rear of the tank with an angle iron bracket. Do not remove this bracket until the upright mast is securely in position.
- 2 Remove the snap ring from one end of the roller bearing axle assembly. This allows that one roller bearing to be removed from the axle and be pushed out completely. This allows the air cylinder to be moved back against the belt guard so as to permit the installation of the support mast.

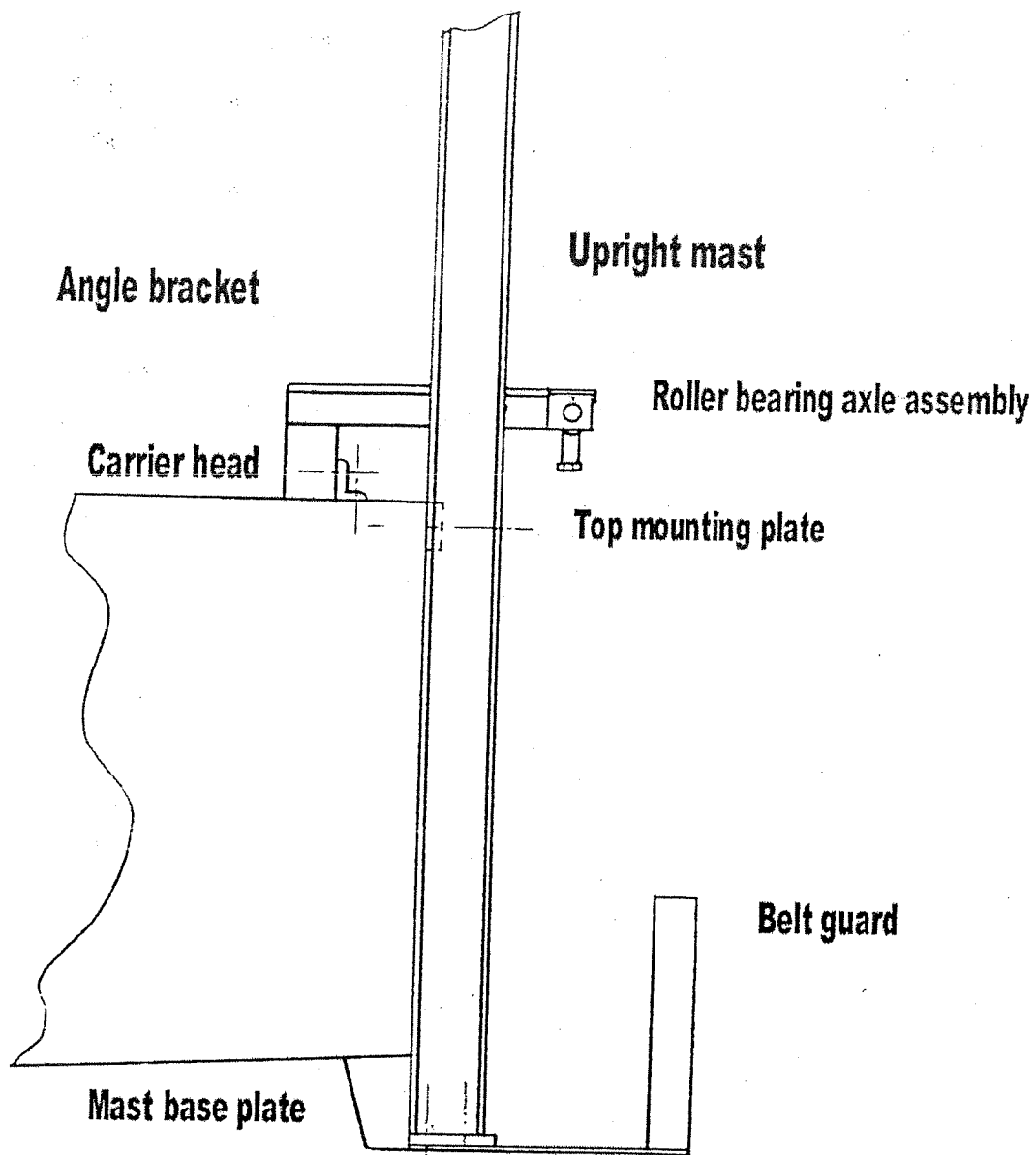
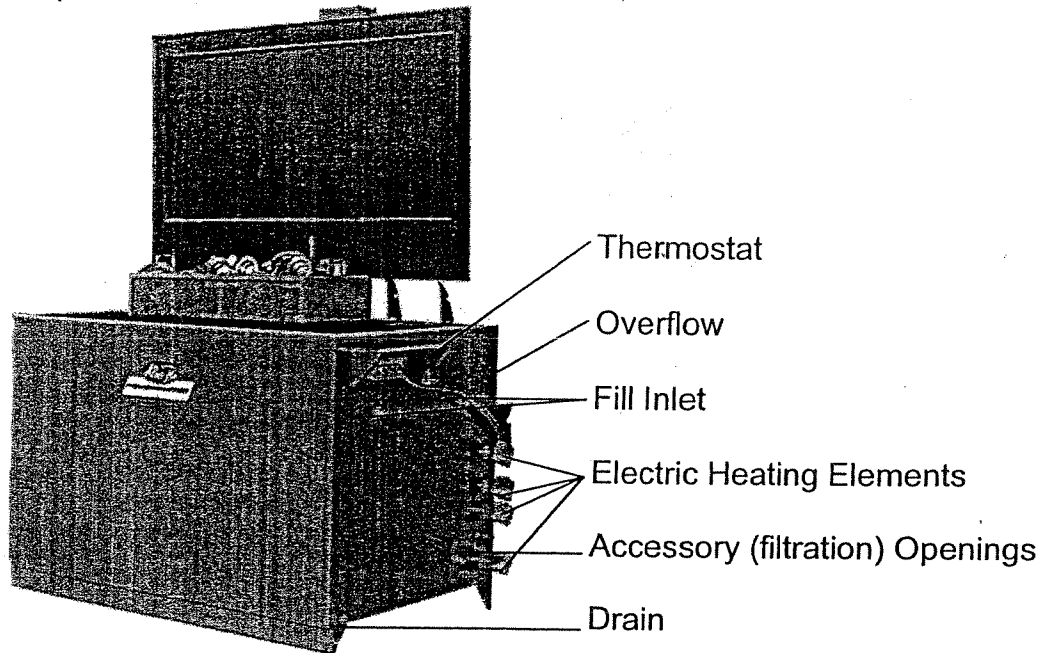


Figure 2

- 3 Several assemblers or an overhead hoist can lift the cabinet mast and place in position on the back of the cabinet so that the mast base plate lines up with the 4 tapped holes for the lower bolt attachment. Be sure the top mounting plate attaching bar, which has two holes for bolting to the cabinet, faces flush up against the washer cabinet. (figure 2)
- 4 Align the mast base holes with the threaded holes of the cabinet base plate and start the bolts for tightening. Do not tighten until the two top mount bolts have been inserted in the cabinet and brought to finger tightness. When all six bolts are snug, finish tightening with a hex or allen wrench.
- 5 After mast is tightened at all six grade 8 attaching bolt locations, move air cylinder into position for reattaching to carrier support.
- 6 Slide the dual roller bearing axle back through the carrier head, and attach the snap ring to lock the roller bearing and shaft in place.
- 7 Remove the angle iron bracket that secures the carrier to the cabinet.

- 8 The machine(s) are now ready for operation and air pressure may now be applied. If the parts washer is a heated cabinet, the liquid level in the tank must be above and covering the heating units. Damage will result if heating units are not covered by liquid.



### Electrical Heating

Electrical heat is controlled by an off-on switch on the control panel usually mounted on the side of the parts washer cabinet. The thermostat temperature control is also mounted on the cabinet side and has dial selector for temperature setting.

### Gas Heating

After the gas line and flue vent are installed (see page 5), the gas burner may be lit. Before lighting pilot light, turn heater switch off for five minutes to allow gas fumes to dissipate. Push pilotstat button on and light pilot. After pilot flame is established, release pilotstat. Switch heater power on and the main burner will ignite. To adjust burner flame, refer to Eclipse Burner Data Sheet at the back of this manual

Operating temperature should be set at the desired level on the dial thermostat.

### Attention

Exhaust flue must be equipped with a draft diverter at seven feet above centerline of the top burner tube.

Proper gas pressure for maximum efficiency:

PW200	2"	W.C.
PW350	5"	W.C.
PW500	5"	W.C.
PW1000	5"	W.C.
PW2000	4 1/2"	W.C.

The exhaust gas flue pipe should be connected for proper venting of the exhaust. This vent pipe requires a 5" diameter pipe for PW2000AMG and 4" diameter pipe for all other models. A 90° elbow and a minimum seven-foot vertical stack are necessary for adequate ventilation. A draft diverter should also be used. Flue pipe should never be installed in a horizontal position if venting to side of building. See your heating contractor for exhaust vent installation requirements for your municipality.

Do not install gas heated Powermaster® parts washer in an area where there are excessive drafts (near outside door etc.). If it is unavoidable place a wind barrier near the machine to avoid excessive drafts.

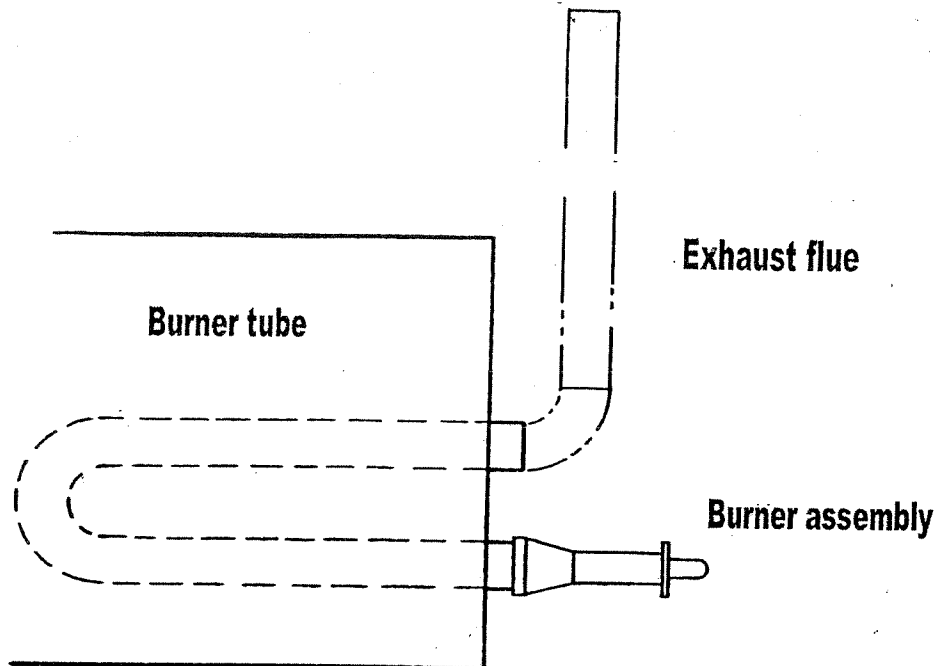


Figure 4

### **Steam Heating**

Steam lines are connected directly to the steam coil pipe thread connections on the outside of the cabinet. The larger pipe connection is always the inlet steam, and the smaller pipe is the condensate or discharge line. Steam pressure regulators and temperature controls are not furnished by Kleer-Flo Industries, Inc. but are supplied by the steam-engineering contractor.

### **Operation Procedure**

Any motor driven accessory items such as filtration systems, blowers and pumps should be checked for power and wiring requirements.

Control voltage and line voltage is needed for each device on the units (except units equipped with NEMA 12 options) see enclosed wiring schematic.

Permanent wiring from the main disconnect should be made to the motor starter on the Powermaster® cabinet. In multi-stage systems, the control panel must be wired to the terminal boxes on each cabinet.

All Powermaster® machines operate on air pressure to raise and lower the work load platform and the cover. The air pressure are required varies with the size and weight capacity of each machine.

Model Number	Load Capacity	Air Pressure Requirements
PW200	200 lbs.	90 PSI
PW350	350 lbs.	100 PSI
PW500	500 lbs.	90 PSI
PW1000	1000 lbs.	85 PSI
PW2000	2000 lbs.	120 PSI

Each machine will have an air hose quick disconnect fitting. After attaching plant air hose lines to the quick disconnect coupling, the raise and lower function can be tested for smooth movement. This has been adjusted at the factory but may need further adjustment after shipping, break-in period or normal wear. To adjust the air cylinder rate of movement, a pet-cock knurled flow control knob valve meters the cylinder discharge air and there by gives smooth movement. These valves are located on the top of the air cylinder for regulating the rise rate and at the bottom of the air cylinder for the lower rate.

If the agitation does not begin when the platform is lowered and the agitation switch is on, the limit switch activator may not be making contact. **Disconnect electrical power** and then visually inspect the switch activator and adjust if necessary.

These very seldom need any further adjustments once set.

It should be noted that a safety switch, part of the electrical circuit, prevents the agitating action from starting whenever the loading carrier is not in the lowered position. Check the safety limit switch on the top of the air cylinder if agitation does not begin when the platform is lowered and the power switch is on. The metal tab bolt that closes the limit switch may need adjustment. (figure 5)

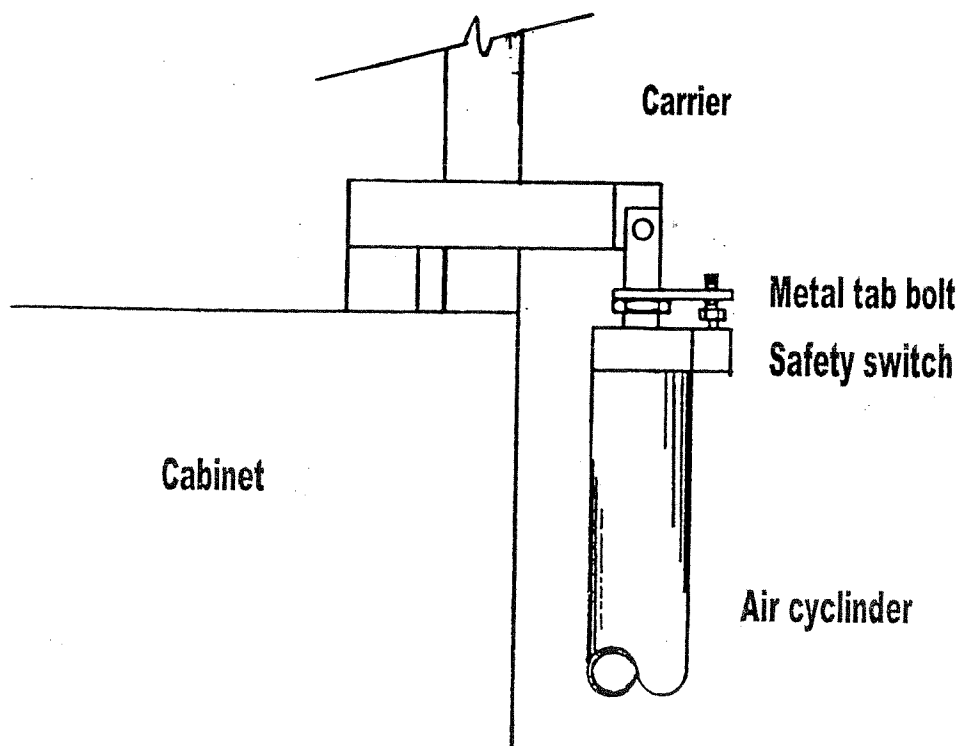


Figure 5

### CAUTION!

**Note:** Do not turn on any heating elements until liquid is added o the tank, completely covering the thermostat control and heating elements.

## Start Up

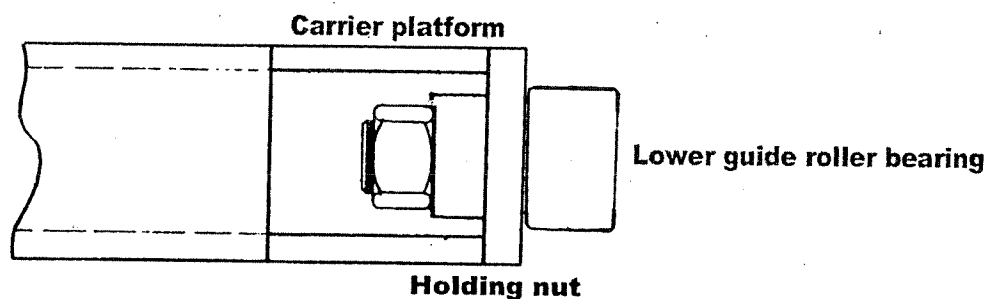
The machine can be filled with a hose or by permanent piping to the fill inlet connection of 1 1/4 NPT thread pipefitting. This inlet connection is located on the side of the cabinet about 10" down from the top. The overflow location is at the rear on PW200, PW350, PW500 and on the side and toward back on PW1000 and PW2000. If water-soluble chemical compounds are used for the cleaning solution, they can be added as the fill water is added. For mixing chemicals, follow instructions on cleaning compound data sheet. Many alkaline cleaning compounds react violently when added to hot water.

**Before mixing, read chemical instructions completely.**

## Maintenance

The amount of maintenance required for the Powermaster® series of parts washers is very minimum for the work and life these machines will give to their new owners.

The inside cabinet lower carrier guide roller bearings are subject to heavy wear and require replacing on a work load basis. Check frequently for excessive wear or seizure.



Rear view of carrier platform when raised to the service position.

Figure 6

As in the use of an automobile, brakes and tires are normal wear items, so are the carrier guide rollers on the Powermaster® parts cleaners. These rollers give frictionless travel supporting the back corners of the carrier during its up and down motion. Because they support almost the full weight of the parts cleaning load, regular checks and inspection should be done to watch their wear rate.

The inspection should make sure the roller bearing has not seized or frozen. To check the rollers, place the carrier platform in the raised position, move the carrier forward, away from the back of the cabinet so the rollers are not resting against the rim of the cabinet, then manually spin the bearing and the condition will be noticed if the roller bearing or bearing race needs replacements.

If these bearings need replacement the following procedure should be used:

**CAUTION! Be sure electrical power is shut off.**

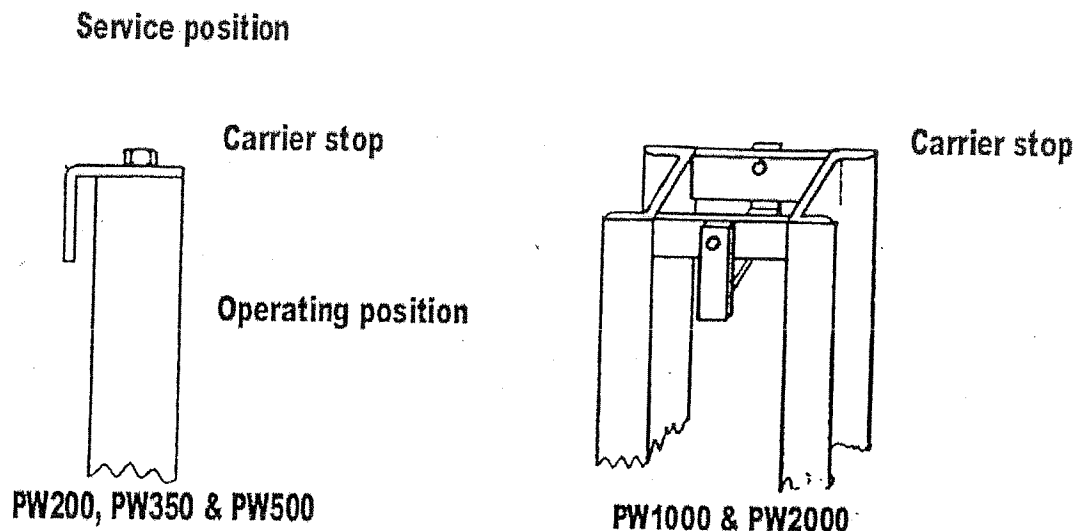


Figure 7

- 1 Remove the carrier stop at the top of the mast by removing the bolts, which hold the carrier stop plate in place.
- 2 On the Model PW200, PW350, and PW500, replace the stop plate in the upside down position and reattach the holding bolts. This allows the full raising of the carrier platform and the carrier roller bearing will clear the back cabinet roller track for easy unbolting of the holding nut (figure 6, page 7). Replace with the following bearings:

Models	Part Number
PW200, PW350, PW500	421610 1 1/2" cam follower (02-3)
PW1000	421614 2" cam follower (02-3A)
PW2000	421612 3" cam follower (2002-3)



## Lubrication

Minimum lubrication is required for the Powermaster® series. The eccentric bearing is the most important grease fitting located at the bottom attachment of the air cylinder. This should be done **weekly**. (figure 8)

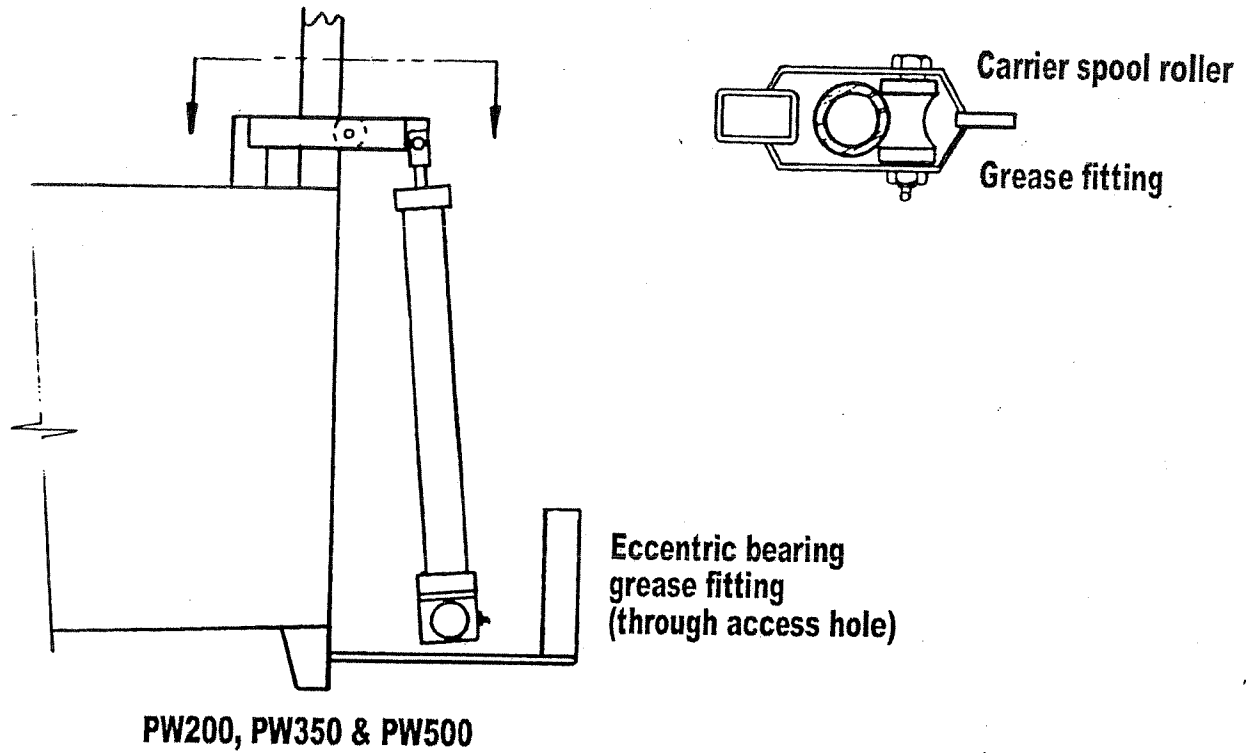
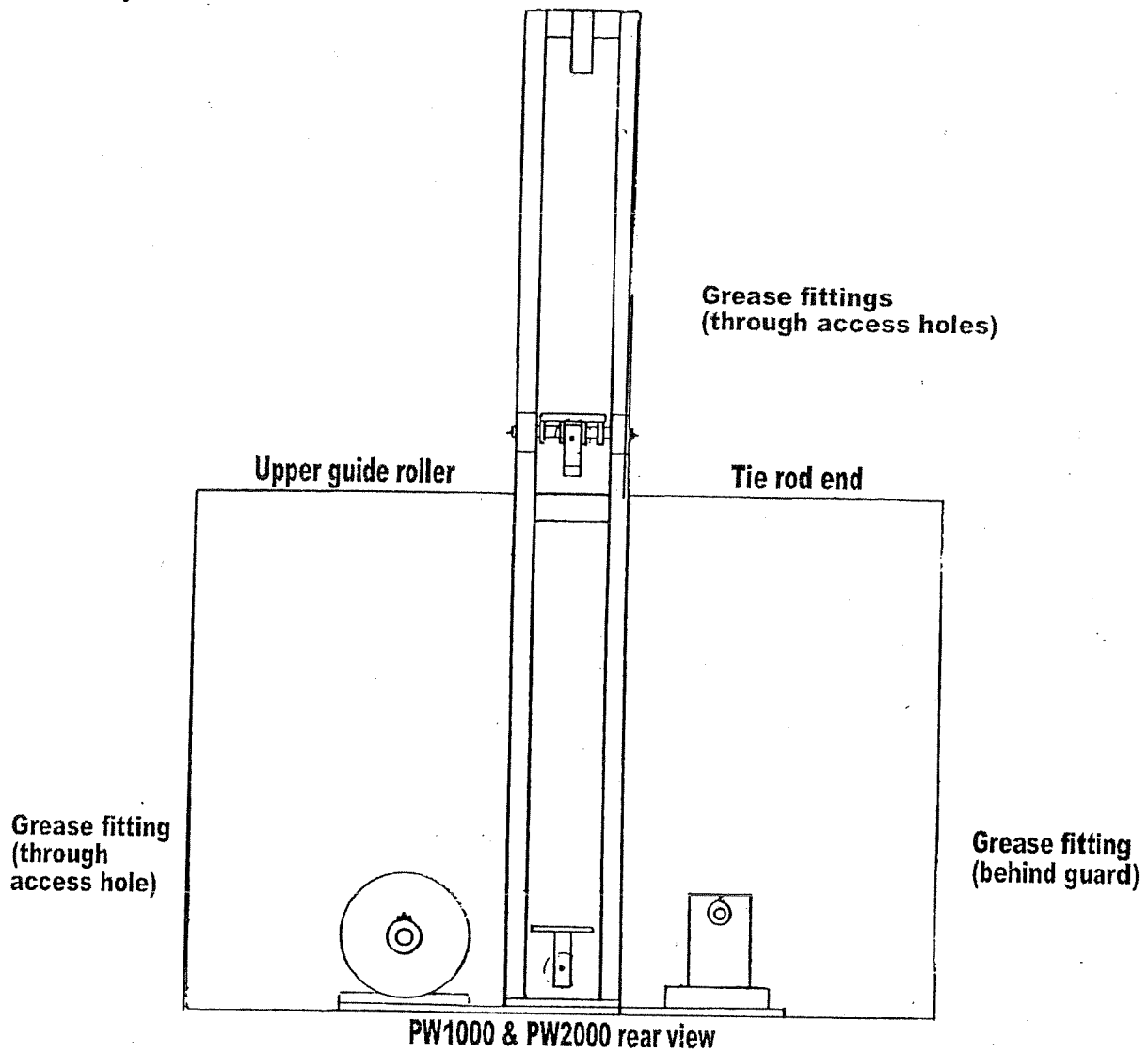


Figure 8

The eccentric bearing has a zerk fitting for easy lubricating. This requires weekly greasing. Also, the mast carrier support rollers should be greased for adequate lubrication. The carrier mast spool bearing should be greased at least once a month depending on the workload of the parts washer. The Model PW1000 and PW2000 also require greasing of the tie rod bushing (figure 9). Check gear reducer box for proper oil level every three months.



PW1000 & PW2000 rear view  
 Figure 9  
 Indicates guard enclosures

Because of the load carrying capacities of the Model PW1000 and Pw2000 several more grease locations will need service. On a monthly schedule grease the eccentric bearing, the outboard pillow block bearing of the eccentric, the tie rod bearing on the top of the air cylinder and the upper guide roller bearings. The upper guide roller bearings are provided with grease fittings on each end of the axle assembly (figure 8 on page 9).

The gear reducer should be checked for adequate oil every three months.

The oil is checked by removing the hex head fill level plug and visually checking for the oil to be just at the fill position. For oil specification and proper level refer to the gear reducer data enclosed with this manual.

Electric heating elements and the immersed gas heat tube should be flushed off every 60 days or each time cabinet tank is drained and flushed.

**CAUTION!** Always turn off electrical power and compressed air when performing maintenance work on the parts cleaning machines.

### **Cleaning Procedure**

After turning off all electrical, air and heat supplies, open drain. If the work carrier platform has a grate shelf, remove for better internal flushing room. The drain for the Powermaster® cabinet is located in the lower front side of the machine. This is a 2" drain and a valve should be installed to facilitate easy draining. Flush with a hose and allow collecting water to drain out. After rinsing is complete, wipe off outside epoxy finish. Replace grate, shut off cabinet drain and machine is ready for refilling for parts cleaning.

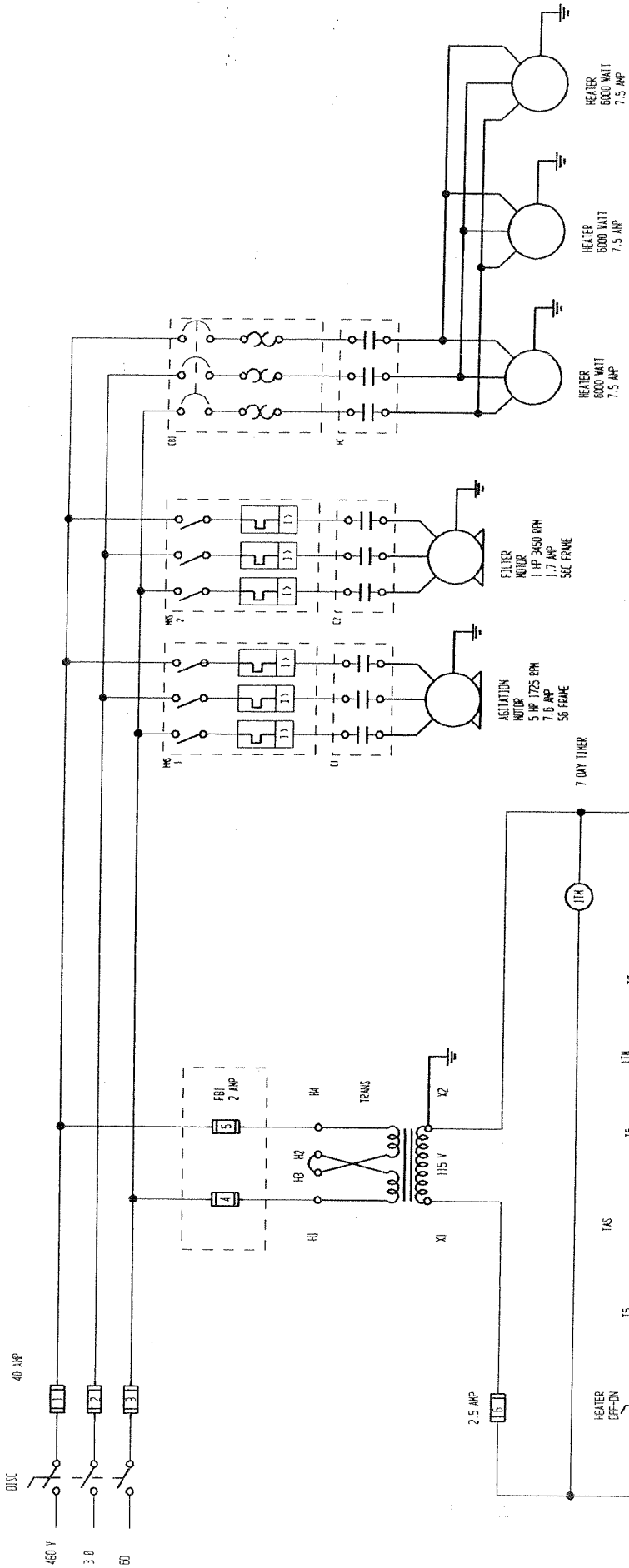
Although the alkaline cleaning compounds are in many cases biodegradable, it is the responsibility of the user to consult with their Wastewater Control Commission prior to discharge into any sewer lines. Remember the cleaning solutions becomes the holder of the oils and contaminants of the cleaning process. It is these accumulations that are objectionable to sewage disposal. A sample solution may be required or an inspector called for open drainage.

**Note:** Kleer-Flo Industries, Inc. does not advise or imply that our alkaline solvents may be discharged into the sewage system. We recommend disposal of such solvents in the recommended pollution control method and by licensed waster chemical disposal agencies.

Kleer-Flo Industries, Inc. does recommend to always use Kleer-Flo Industries, Inc. Greasoff™ chemical compounds for best results in Powermaster® parts cleaning machines.

This will insure best results and will not damage the machine for which they have been developed to work. For reliable operation order your chemical supplies from either your Kleer-Flo Industries, Inc. distributor or direct from the factory.

Conveyor rollers are easily removed by depressing the spring-loaded shaft. Refill by adding cold water and in gradual amounts the correct chemical amount. Check the tank liquid capacity in gallons for adding the correct amount of chemical compound. Be sure not to apply heat to the cabinet without the liquid level being above the heating elements.



1	INDEX	TURKEY B15-618-A2X-60PM	446644
3	HEATING ELEMENT	HE66-600V	443412
1	SOLE	PH 651185-5C	434244
1	TAS	J.C. A194AC-4E	447210
5	JAMPER	AGS PL45442	447029
2	END BLOCK	AGS PL45799.06	447027
2	END COVER	AGS PL45551.02	447026
27	TERM	AGS PL6	447025
1	2MS	AGS MS-25-H-0	446024
1	1MS	AGS MS-25-H-0	446024
1	2K	AGS 5007-A-0	440719
1	1K	5P4000	
1	1K	AGS SP23-A-0	440721
3	1S5-3S3	AB 600EP-2X10	446658
3	1S5-3S3	AB 600EP 3P2	446634
1	21H	ATC 408A 500 FX	447415/447417/447412
1	11H	7 DAY TIMER DAVTON 2430	447430
1	6FU	FM 7.5	443540
2	40U-5FU	GOLD RUP-2	443321
3	1FU-3FU	GOLD AJT-40	443219
1	6U	ABB 50B-820	443504
1	1RAN-1FB	KITRON B25071380	447614
1	DISC	ABB 05001120MELB-D0P0150	
1	6BC	HAMMERT EST 24262C	
DTY	DESCRIPTION	PART NUMBER	KLEB-FLO P/N
			BILL OF MATERIALS

KLEENTEC \ KLEB-FLO

CASCADE CORP.

PT1000ANE

480 V 3Ø 60 HZ