KS-48 Rack Washer

CINCINNATI

Version 1.08
May, 2025

CINCINNATI

This **ALVEY WASHING EQUIPMENT** machine was installed by

_____

(lead installer)

on the day of

_____

(month / day / year).

Serial #: _____

Customer PO #: _____

Manufacturer SO #: _____

For parts and services, call

ARMOR AFTERMARKET

at

1-800-725-9957

or email partsandservice@armoraftermarket.com

Version 1.09
June, 2025

4600 N. Mason Montgomery Road · Mason, OH 45040
800-677-0076 · Fax: 513-923-5694
www.CinInd.com · sales@CinInd.com
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Dear Valued Customer,

Thank you for your trust in, and relationship with Alvey Washing Equipment. We hope you have many years of uninterrupted service from our product.

If, however, you find you need service, our Spare Parts Department at **ARMOR AFTERMARKET** will be glad to serve you. Some advantages of contacting **ARMOR AFTERMARKET** to fill your replacement parts orders are:

- Being the original manufacturer of this equipment offers simplicity in order replacement.
- We are entitled to original equipment manufacturer discounts, which are passed on to our customers.
- Non-stock items are available for direct shipment.
- It is our primary responsibility to serve you in a timely and professional manner.

Sincerely,

THE ARMOR GROUP, INC

Documentation and Manual Team and The Parts and Service Department

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The following is an excerpt from the standard Cincinnati Industrial Machinery, Inc. Terms and Conditions.

ADDITIONAL MATERIAL AND LABOR - Any material added to, or labor performed on or in connection with the Equipment or installation thereof, shall be at Purchaser's own expense, unless otherwise agreed to in writing by Manufacturer.

SAFETY DEVICES - Manufacturer will supply such safety devices or fire protection equipment as is specified in writing in its proposals. If Purchaser desires or requests through local, State or Insurance Underwriter's Specifications or regulations, other additional safety devices or equipment, Manufacturer will undertake, without being obligated therefore, to furnish same at Purchaser's cost. Manufacturer assumes no liability for loss or damage to persons or property occasioned by any accident or casualty resulting from the use of fuel gas, fuel oil, oven or immersion tube atmosphere gas in connection with the Equipment.

USE OF SPECIFICATIONS AND DRAWINGS - The drawings, designs, specifications and data accompanying any proposal are Manufacturer's property and are subject to recall by Manufacturer at any time. Such drawings, designs, specifications and data, or any part of them, shall not be used by Purchaser for competitive bidding or similar purposes without Manufacturer's prior written approval.

CLAIMS / LIABILITY -

a) Manufacturer shall not be liable for loss, damage, detention, or delay resulting from causes beyond its control or by acts of God, including floods, and acts of foreign nations, or caused by fire, strike, civil or military authority insurrection or riot, embargoes, car shortages, wrecks or delay in transportation.

b) Manufacturer shall have no responsibility for loss or damage to the Equipment after delivery to the carrier.

c) Manufacturer's liability arising out of the supplying of the Equipment or its use shall not under any circumstances exceed a credit of the purchase price, F.O.B. Manufacturer's factory, of the Equipment.

d) IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR LIQUIDATED DAMAGES, OR INDIRECT, OR CONSEQUENTIAL DAMAGE OF ANY NATURE.

WARRANTIES -

a) Manufacturer warrants to Purchaser that the material and workmanship of the Equipment is of good quality and free of defects and the Equipment of its own manufacture and design delivered hereunder shall be of the kind and quality described in the specifications, and that it shall be suitable for performing the work therein described; provided, however, that the work for which it is intended shall have been fully and adequately presented, shown and described to Manufacturer. Unless otherwise agreed to in writing, our standard warranty period is twelve (12) months after shipment from our facility.

b) EXCEPT AS SPECIFICALLY PROVIDED IN (a) ABOVE, MANUFACTURER MAKES NO WARRANTY, EXPRESS OR IMPLIED, RELATING TO THE EQUIPMENT, ITS MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

c) Manufacture does not provide a separate warranty for parts or components not manufactured by Manufacturer. Equipment, parts and accessories made by other manufacturers are warranted only to the extent of the original manufacturer's warranty to Manufacturer, which if extendable, Manufacturer will extend to Purchaser.

d) In the event of Manufacturer's breach of its warranty as provided in (a) above, Manufacturer's total liability shall be to repair or replace the Equipment and in no event shall Manufacturer have any liability for any consequential, incidental or other special damages, including but not limited to damages or loss of profits resulting from failure of the Equipment or delay caused by its repair.

e) All transportation costs of returning defective goods shall be borne by Purchaser. All transportation costs of returning repaired or replaced products to Purchaser shall be borne by Purchaser.

f) This warranty shall not be in force and effect unless: Purchaser is current with all payments due to Manufacturer; Purchaser gives Manufacturer immediate notice of defective part or parts; Purchaser affords the Manufacturer the opportunity to inspect defective part or parts; material is still property of the original owner; material is still part of the original installation operating under normal usage (eight

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Warranty (Cont)

hours per day and five days per week constitutes normal usage); and material is properly maintained and lubricated per factory instructions.

g) THE ABOVE WARRANTY DOES NOT COVER PARTS WHICH UPON INSPECTION ARE DETERMINED BY MANUFACTURER TO HAVE BEEN SUBJECTED TO MISUSE, NEGLECT, ALTERATIONS, ACCIDENT, ABUSE, DAMAGE BY FIRE, FLOOD OR OTHER SIMILAR CASUALTY.

PATENTS - Manufacturer shall hold Purchaser harmless from any and all costs and damages which shall be recovered against Purchaser in any suit at law or in equity for any infringement of any Letters Patent by reason of the use by Purchaser of the Equipment.

herein specified; provided and upon the express condition that the Equipment is used in the manner directed and exclusively for the purpose for which it is sold without any changes and installed or used in compliance with Manufacturer's plans and instructions, and upon further express condition that Purchaser shall immediately after service of the writ in any such suit at law or in equity notify Manufacturer in writing of the commencement of such suit, giving the names of the parties and the title of the court, and shall permit Manufacturer to defend same by its own counsel and at its own expense and to have exclusive control and management of the defense, and that Purchaser shall give Manufacturer all needed information, assistance and authority to enable Manufacturer to defend such suit.

INDEMNIFICATION - Purchaser agrees to indemnify Manufacturer, and hold Manufacturer harmless from, all costs and expenses incurred by Manufacturer, including, without limitation, costs of investigation, attorneys' fees, and amounts paid in settlement or satisfaction of claims, proceedings, or judgments, in connection with all claims and proceedings against Manufacturer based upon claimed defects in design in any item or items manufactured for Purchaser by Manufacturer to Purchaser's design and/or specifications.

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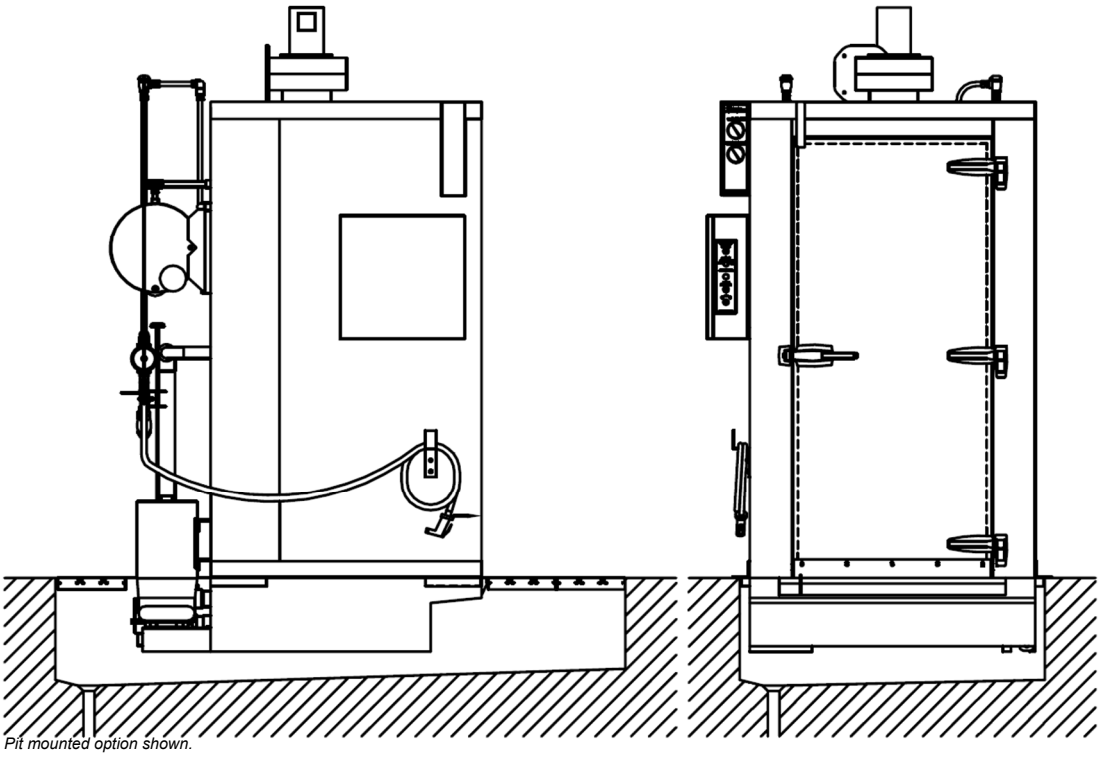

Pit mounted option shown.

Overview

The model KS-48 is a walk-in type compact stainless steel cabinet washer designed to clean racks, carts, and delivery cabinets. The washer is fully assembled and tested at the factory. The machine is designed for installation in a shallow pit. When constructing a pit is not desired, a floor-mounted option with load ramp or a side-mounted tank can be ordered.

The machine subjects work to a recirculating high-pressure spray wash through four rotating spray arms followed by a fresh water rinse. The wash tank is manually filled with cold or hot water which is heated by one of the optional systems: a steam injector, steam heated coils, or an electric immersion heaters. The wash water temperature is thermostatically controlled.

Available Options

- Rinse water booster heater - electric or steam
- Exhaust fan with controls - factory wired
- Insulated housing
- Automatic water fill
- Carts, racks, and baskets
- Floor-mounted tank and load ramp
- Spray-down hose
- Exhaust damper in place of fan

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Selecting a Location

Consider the following when selecting washer location.

- Access to required utilities - see the dimension sheet.
- Minimum distance from outside wall or roof to optimize ventilation.
- Alvey Washing Equipment recommends three (3) feet clearance on the back, left and right side of the washer and six (6) feet in front of the unit for maintenance and storage of cleaned and soiled work.
- Ample floor space for maintenance and for storage of cleaned and soiled work.

Receiving the Machine

Examine the equipment for agreement with the packing slip and dimension sheet. Notify the factory immediately concerning any shortages or shipping damage.

The exhaust fan with attached wiring harness is disconnected from the electrical enclosure with leads clearly marked. The leads are to be fed through and secured into the small diameter open hole, located on the back of the electrical enclosure, and attached to starter #2M.

Service Connections

The KS-48 Rack and Cart Washer is provided with a 1” NPT single point water connection point, located on the backside of the unit. This connection serves the fresh water rinse inlet as well.

Caution: For proper operation, it is imperative that the washer receives heated water at a minimum temperature of 120° F (53.3° C) and a pressure of 20 PSI (138 kPa.)

The connection point is provided with a factory set pressure-reducing valve. There should be no need to set this valve once the washer is installed if the proper water pressure is provided.

The washer is provided with a 1-1/2” NPT manual drain valve. The customer is to provide a minimum 2" NPT pit drain, located as to allow access when washer is in position. The tank overflow pipe is to be emptied directly into the pit.

An 8” diameter flanged exhaust fan opening is provided with the washer. When connecting with this exhaust fan opening, it is recommended that watertight duct, with inside lapping of joints in direction of flow, be used. The fan discharge is recommended to be toward the back of the washer. However, the discharge can be rotated and secured in any other direction.

An optional electrically operated exhaust damper can be mounted in place of the fan.

The main power line drop is brought to the back and secured through the provided large diameter hole on the back of the electrical enclosure. Connect the outside power line to L-1, L-2 and L-3 on the terminal block.

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Initial Startup

Check the wash tank and all chambers for debris prior to use.

Close the manual drain valve.

Turn on all manual steam and water valves.

Verify that the filter screens are in place.

Close the door.

Unlock and turn “ON” main disconnect switch (provided by others). Turn “ON” the washer’s power switch located on the front of the washer’s control panel. A “WHITE” indicator light will come on.

Push the “GREEN” start button and allow the washer to fill the wash tank and to complete one (1) cycle. Repeat this procedure for at least two (2) additional cycles. Please note that a cycle is complete when the “RED” cycle end light goes off.

The washer will automatically heat both the steam coil heated wash tank and the steam booster for the rinse, as well as maintain the proper water level in the wash tank.

Caution: Before initial startup, make sure installation is completed. Make sure main disconnect switch (provided by others) is off and properly locked out.

Daily Startup

Unlock and turn “ON” main disconnect switch (provided by others).

Close manual drain valve. Turn “ON” washer’s main power switch. A “WHITE” indicator light will come on. The water fill system will automatically allow the wash tank to be filled with water and shut off when the proper level is reached. The washer will automatically heat both the steam heated wash tank and the steam booster for the rinse.

Set the wash temperature controller, located on the front of the main control panel to 150°F (See temperature controller manual for setting instructions). When the temperature for the wash tank reaches the 150°F set point, the washer door can be opened and a rack can be loaded. At this time, adjust the wash cycle switch to the light, medium or heavy soil position depending soil conditions. The “GREEN” cycle start button can now be pushed. A “RED” in cycle light comes “ON”. The light stays “ON” until the cycle is complete. When the light goes “OFF”, the cycle is complete and the door to the washer can be opened and the rack removed.

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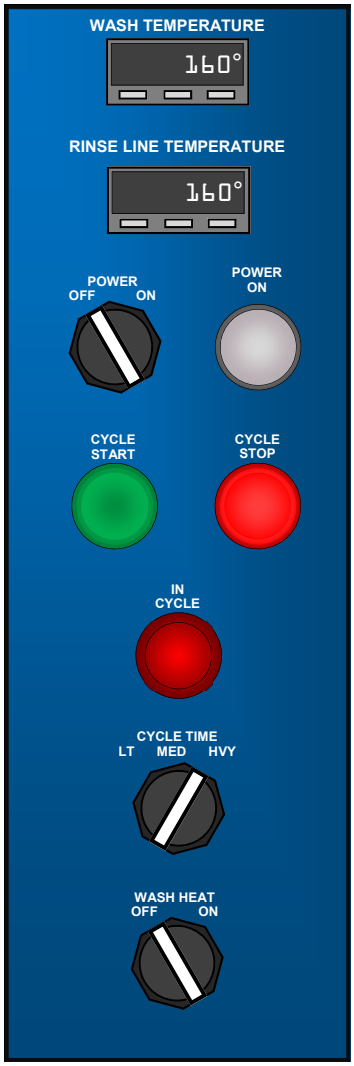
Daily Start-Up

1. Turn on power at customer-provided Disconnect Switch. Electric booster will be connected to a disconnect separate from washer
2. Turn on washer's Main Power Switch. The white "Power On" indicator will light.
3. Ensure that the drain valve is in the closed position.
4. Close door to begin automatically filling the tank. The unit will stop filling the tank when the proper level is reached.
5. Turn on the Wash Heat Switch to activate the steam heat coil in the wash tank.



Sequence of Operation

1. Set the wash temperature controller, located on the front of the main control panel, to 150°F (See temperature controller manual for setting instructions).
2. When the temperature for the wash tank reaches the 150°F set point, the washer door can be opened and the racks can be loaded.
3. Adjust the Cycle Time Switch to the light, medium or heavy soil position depending soil conditions.
4. Push the green Cycle Start Button to begin wash cycle. The red In Cycle Indicator will light, and stay lit until the cycle is complete.
5. Unload washer after In Cycle indicator goes off and wash cycle ends.

Note: When washer is connected to central exhaust system, means must be provided to prevent the exhaust of moist air during the operation of the washer.

Detergent

When the solution reaches operating temperature, add the proper amount of cleaning compound at the rate recommended by your chemical supplier. If the detergent is in a powder form, pour the powder in the filter baskets, then close the door and run the pump until all compounds have been dissolved. If the compound has been broken up or partially dissolved, this operation will go faster.

Notes: Use of an automatic detergent dispenser is recommended. To insure economical use of the compounds, be sure that the sensing probes are kept clean of any foreign matter. Consult your cleaning compound supplier for recommendations. To obtain satisfactory cleaning, we cannot stress enough the importance of the proper detergent. The temperature controller is located in the control panel.

Caution: The cleaning compound should be the non-foaming type and should not contain a chemical substance that will damage copper or aluminum.

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Daily Maintenance

- Open the drain valve to remove water from tank
- Turn off power to the washer
- Remove interior floor grating, all filter screens, and pump intake screen and clean thoroughly.
- Flush housing and tank thoroughly.
- Inspect interior of machine for:
  - Nozzle clogging - clean if necessary.
  - Spinning arms freedom of movement – remove and clean if necessary.
- Remove any debris from the heating surfaces, temperature and level probes.
- Replace pump intake screen, all filter screens and interior floor grating and leave door open so that interior will air dry.
- Wipe down exterior of machine.

Caution: Avoid entering the wash chamber when the tank solution is hot.

Weekly Maintenance

Remove end caps located at the end of each wash spray pipes.

Inspect wash nozzles for clogging. If clogged, use a small diameter wire such as a paper clip, to force any nozzle obstructions back into the pipes. When nozzles are removed, care must be taken to adjust them to their original position when replacing.

With end caps removed, close the door and start the pump. All debris will be blown out of the ends of the pipes.

Caution: Run pump for no more than ten seconds. Pump damage will occur if the pump is allowed to run longer than ten seconds.

After running, open door and replace the end caps.

Remove the spinning arm assemblies and flush the bearings with clean water until free movement is achieved.

Note: There is a small hole drilled in the side of one of the spinning spray pipes. Keep this hole clear of clogging. If this hole becomes clogged, the spray arms will not spin properly.

PUMP

Your Alvey Pan Washer is equipped with a vertical immersion pump without seals. Pump discharge pressure is 35 to 45 PSI / 241-310 kPa.

A small diameter tube that drains water from the seal area s provided. Make sure that this tube, which is located at the pump's flanged discharge, is not kinked or damaged. To help prevent further pump damage, periodically check the pump casing for any foreign matter. Grease pump motor every six months. Check direction of rotation after installation or any electrical maintenance.

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Service & Maintenance

Nozzle Cleaning and Adjustment

1. Poke debris clogging the nozzles back into the spray arm.
2. Remove nozzle at end of spray arm.
3. Close door and run pump for 5 seconds. Debris will be flushed out.
4. Replace nozzle.

Note: When nozzles are removed, care must be taken to adjust them to their original position when replacing. See Figure 1.

Cleaning of Hub Assemblies

Remove spray arm assembly and flush out bearing with clean water. Rotate by hand until hub moves freely.

Optional Exhaust Fan

The exhaust fan removes steam vapors from cabinet when door is open. Two types of fans can be furnished, a squirrel cage and a tube axial type. The squirrel cage fan is equipped with sealed bearings, which will not need grease. The tube axial fan bearings should be greased at regular intervals. If further information about the optional fan systems is required, contact Armor Aftermarket for assistance.

Optional Rinse Water Booster Heaters

The booster heater raises the water temperature to meet sanitation requirements for rinsing (180° - 195° F). See Sec. V for required services. Each booster has been designed and selected to operate on specific pressures, temperatures and volumes. Operating conditions must be known at time of order to assure a booster is selected that will give satisfactory performance.

Periodic Service and Maintenance

1. Check filter screens twice daily. Check filter more frequently with heavy cleaning load.
2. Check wash nozzles for clogging twice daily. This can be done at noon break and after shut down.
3. Check twice daily to see that spray hubs turn freely.
4. Drain solution from the tank and flush at least once daily. (See Sec. IV A).
5. Keep washer exterior free from an accumulation of items, which may block air circulation to pump. The exterior appearance may be maintained by wiping with a damp cloth. Stainless steel wax or polish may be applied if desired.

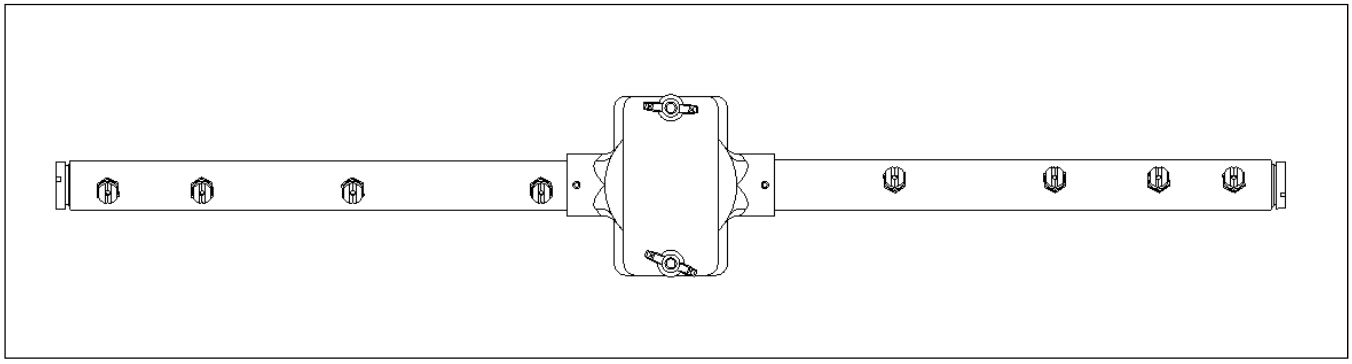

Figure 1: Positioning of Nozzles on Spray Arm

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Wash Pump

PROBLEM	DIAGNOSIS	CORRECTIVE ACTION
Low Pressure	Pump is running backwards.	Reverse motor leads.
	Nozzles missing.	Replace nozzles.
	Leak in discharge piping.	Repair leak.
	Faulty pressure gauge.	Replace gauges.
	Excessive soap suds.	Use non-foam soap.
	Pump suction clogged.	Remove obstruction.
High Pressure	Clogged nozzles or discharge piping.	Remove obstruction.
	Faulty pressure gauge.	Replace faulty gauge.
Pump Vibration	Worn impeller.	Replace impeller.
	Worn wear ring.	Replace wear ring.
	Bent shaft.	Replace shaft.
	Clogged impeller.	Remove obstruction.
	Low water level.	Add water to tank.

Wash Pump

PROBLEM	DIAGNOSIS	CORRECTIVE ACTION
Motor overheating.	Low voltage.	Check to ensure correct voltage.
High current draw.	Missing spray nozzles.	Replace nozzles.
	Faulty motor or motor cooling fan.	Replace motor.
	Motor running backwards.	Reverse motor leads.
Motor vibration.	Bent shaft.	Replace shaft.
	Worn bearings.	Replace bearings.
Motor will not start.	Blown fuse on transformer secondary.	Replace fuse.
	Overload has dropped out.	Reset overload.
	Faulty door switch—door not fully closed.	Replace motor coil.
	Faulty programmable relay.	Replace switch.
Motor won’t shut off.	Faulty wash timer.	Reprogram cycle timer.

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Door Limit Switch

PROBLEM	DIAGNOSIS	CORRECTIVE ACTION
Washer not operating.	Door not fully closed.	Close door.
	Faulty door switch.	Replace switch.

Spinning Arm Assembly

PROBLEM	DIAGNOSIS	CORRECTIVE ACTION
Arms will not turn.	Foreign materials in hub assembly.	Remove debris.
	Interference with guard rails.	Reinstall hub.
Excessive play in arm.	Worn bushing in hub assembly.	Replace hub assembly.

Steam Booster

PROBLEM	DIAGNOSIS
Booster not heating.	Faulty temperature readout on front of panel.
	Clogged heating coil unit.
	Low steam pressure or low water temperature.
	High water pressure.

Exhaust Fan / Motor

PROBLEM	DIAGNOSIS	CORRECTIVE ACTION
Fan/motor vibration.	Worn bearings.	Replace bearings.
	Wheel out of balance.	Balance wheel.
	Bent shaft.	Replace shaft.
Motor overheating.	Low voltage.	Check to ensure correct voltage.
	Bent shaft.	Replace shaft.
	Worn bearing.	Replace worn bearings.
	Running backwards.	Reverse motor leads.

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Steam Coil

PROBLEM	DIAGNOSIS	CORRECTIVE ACTION
Will not heat.	Clogged coil.	Remove and clean coil.
	Faulty temperature controller.	Replace controller.
	Temperature controller not adjusted.	Adjust controller.
	Faulty thermocouple.	Check thermocouple.
	Faulty low-level probe.	Probe not adjusted.
		Clean or replace probe.

Control Panel

A qualified electrician should be called in for trouble-shooting and repair of the washer controls.

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Front View
(Inside View, Door Open)

Rear View

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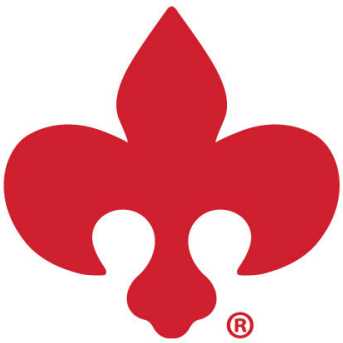

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