FLIGHT-TYPE
DISHWASHER

INSTALLATION

FT800 SERIES DISHWASHERS

LOADING
- *ML-33272 thru ML-33275*
- *ML-33780 thru ML-33783*
- *ML-38810 thru ML-38813*

CENTER
- *ML-33270 thru ML-33271*
- *ML-38554 thru ML-38555*
- *ML-38814 thru ML-38815*
- *ML-103793 thru ML-103794*
- *ML-103798 thru ML-103799*
- *ML-110001 thru ML-110004*
- *ML-110037 thru ML-110040*

UNLOADING
- *ML-33276 thru ML-33287*
- *ML-33827 thru ML-33830*

HOBART
CORPORATION
EXECUTIVE OFFICES
701 RIDGE AVENUE
TROY, OHIO 45374-0001

FORM 15420 Rev. E (8-96)

- THIS PAGE INTENTIONALLY LEFT BLANK -

Installation Instructions
FT800 SERIES DISHWASHERS

UNPACKING

Immediately after unpacking, check for possible shipping damage. If this dishwasher is found to be damaged, save the packaging material and contact the carrier within 15 days of delivery.

Prior to installation, check to assure that necessary electrical, plumbing, and exhaust accommodations are provided at the installation location. Take measurements of site's plumbing, electrical, and exhaust connections; then take corresponding measurements of the machine to assure correct mating of all connections.

Test the electrical service to make sure it agrees with the specifications on the machine data plate.

LOCATION

CAUTION: Do not use a forklift to move or unskid machine sections.

Place the machine sections as close to their final positions as possible.

Review all tags and labels but DO NOT remove any until installation is complete.

Open all inspection doors and remove all wrapped parts and boxes from inside each machine section.

Remove any packaging, tape, wire, and bracing from each section and cut the motor support straps.

To remove each section from its skid, first remove the cross members from the skid and then the lag bolts from the feet. Carefully raise one end of the section just enough to slide the skid rails from under it and repeat at the other end.

Thread the feet in as far as possible.

ASSEMBLY

With each section approximately in its final position, determine which section is at the high point on the floor. Machine assembly will begin with the center section so it must be leveled to a height that compensates for the floor height of the other sections. Once the center section is in its final operating position, it must be leveled. Level the section end-to-end by placing a level at various points along the tank supports (wireways) and threading the feet in or out as required. For front-to-back leveling, place the level at various points on top of the chamber, including each end. **NOTE**: Five- and seven-foot unload sections have adjustable feet on one end and shipping legs on the other end. If necessary, shims may be used under the shipping legs to temporarily level the section until assembly is completed, at which time the shipping legs must be removed.

Remove all chamber braces, chamber to frame braces, wire channel covers, and the flow back pipe brace. Loosen the section connector's mounting hardware (Fig. 1) on the load and unload units.

Remove the drain back pan from the loading unit by removing the hardware securing the drain back pan bracket to the track bracket. Remove the final rinse lower arm and the final rinse pan from the unloading unit.

Remove the baffles from the loading and unloading sections.

Cut strips of the vinyl foam tape to fit the right, left, and top chamber flanges (Fig. 1) of the center section. Apply one strip to each flange, overlapping the ends of each strip to assure a good seal. Cut three strips of Permagum of sufficient length and apply them to the tank (bottom chamber) flange (Fig. 1) of the leveled section.

Move the adjoining section to within several inches of the prepared end of the center section. Adjust this section's feet (or shipping legs), adjacent to the leveled section, so tank supports are the same height. Using the adjustable feet at the opposite end of this section, lower that end as far as possible.

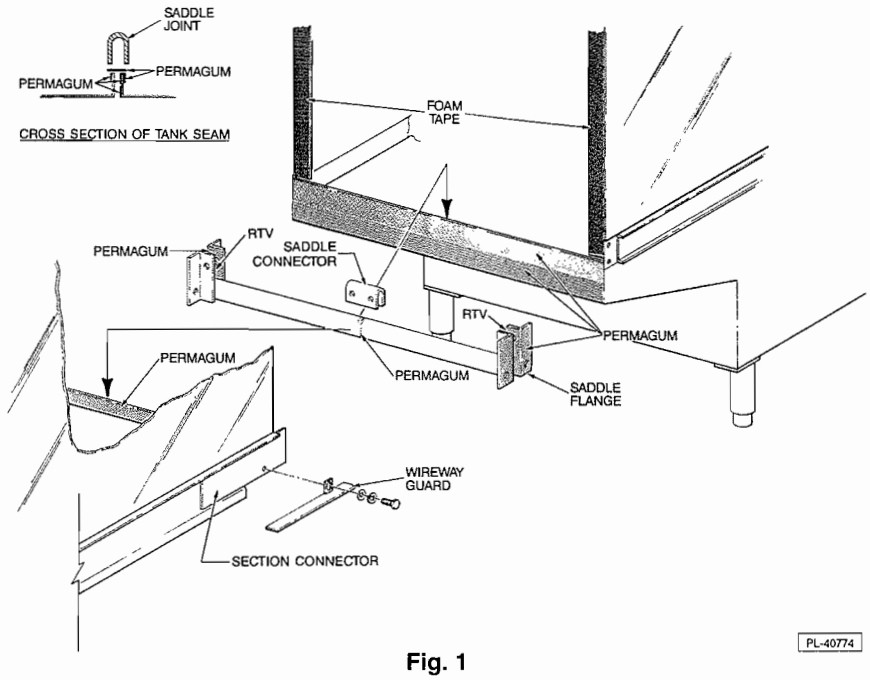


Fig. 1

NOTE: Prior to final positioning of the loading section, slide a flange and gasket onto the flow back pipe which protrudes from the center section.

Make sure that all adjoining components of the two sections are exactly in line with each other (dish guides must be on the proper "inward" side of the mounting brackets, etc). The top surfaces of adjoining tank supports must be flush. Peel the protective paper from the vinyl foam tape and move the second section to its final position; be very careful that mating components connect and fit together properly.

Using a drift pin, open and align all holes in the flanged faces of the mated sections, exercising care to avoid tearing the foam tape seal. Level the second section and then bolt the two sections together. **NOTE**: When bolting the center and unloading sections together, the final rinse pipe support must be reinstalled using one of the connecting bolts. Do not install connecting bolts in bottom holes of chamber flanges (this is also the upper hole of the saddle flanges — these 2 bolts are installed later).

When bolting the center and loading sections together, the baffle is always installed in the loading section with the curtain hooks toward the loading platform. When bolting the center and unloading section together, the baffle is always installed in the center section. Unloading units use a plain baffle without curtain hooks.

CAUTION: When installing a blower-dryer unloading section, do not stand, sit, or lie on air deflector pans; blower dryer performance could be adversely affected.

The tank seam between the two sections must now be sealed using a saddle joint. A saddle joint consists of two saddle halves and a connector. Remove the hardware, at the field joint, where the chamber is bolted through the tank support. Place the saddle halves and connector in position over the field joint tank seam to verify that components are in their correct location and that all bolt holes align. After verification, remove components.

Cut three strips of Permagum equal to the width of the tank seam. Place one of these strips on each side of the seam, even with the top edge of the tank (Fig. 1). Place the third strip on top of the seam so that it overlaps the side strips. Completely cover both saddle flanges (Fig. 1) with Permagum. Fill the space between the bottom edge of the chamber flange and the top of the tank seam with Permagum.

Individually position each saddle half over the tank seam such that the chamber flange joint fits in between the saddle flanges. Bolt the saddle flanges to the chamber wall with the same hardware removed. Fill the area between the saddle flanges with RTV and then bolt through the chamber flange joint (Fig. 1). The saddle flanges must be fastened to the chamber wall first.

Lay a strip of Permagum in the seam created by the two saddle halves so it is completely covered (Fig. 1). Place the saddle connector in position over the seam and bolt it in place.

Attach the wireway guards (Fig. 1) to cover the gap between sections at the wireway (front and back of machine). There are right-hand and left-hand guards. Select the appropriate wireway guard for each location and attach them using the existing hardware.

Tighten the remaining bolts (both front and rear) that retain the section connectors.

Repeat the ASSEMBLY procedure to attach the remaining dishwasher section.

Although each section is prewired, it must be electrically connected to its mating section in the wireway. All wires to be connected are furnished with mating connectors. Locate correct mates from each section and press connectors together.

Replace wire channel covers.

The flow back pipe must be sealed and secured in position.

Wrap a strip of Permagum around the flow back pipe where it enters the prewash tank.

Place a square-cut O-ring, gasket, and flange on the flow back pipe inside the prewash tank.

Bolt the flange and gasket (which were assembled on the flow back pipe earlier) to the flange, gasket, and O-ring inside the prewash tank by first wrapping the bolt heads with Permagum and attaching the lockwashers and nuts inside the prewash tank.

Install the drain pipe between the loading and center sections as follows:

Mark the drain pipe, three (3) inches from each end with a legible mark (bold marker, lead pencil, etc).

Lubricate the drain bushings and each end of the drain pipe using liquid dish soap. Do not use animal, vegetable, or petroleum-based products.

With a twisting motion, slide the pipe into one of the drain castings.

Lift the other end, align it with the drain bushing, and, with a twisting motion, slide the pipe until the legible marks are an equal distance from each casting face.

Install the drain pipe between the center and unloading sections as follows:

Use liquid dishwashing detergent to lubricate the drain bushing and the end of the drain pipe.

Seal the flange on the other end of the drain pipe by placing Permagum completely around the bolt holes and the outer edge of the flange.

With a twisting motion, slide the pipe into the center section drain.

Secure the flange to the bottom of the unloading section by first wrapping the bolt heads with Permagum. **NOTE**: Bolt heads should be inside the unloading section with lockwashers and nuts on the outside.

Bolt the dish guides (Fig. 2) and the conveyor tracks (Fig. 2) to their mounting brackets. If dishguides overlap, loosen mounting hardware and adjust, as required, to allow a flush joint. Attach the dish guide alignment brackets to the studs at each dish guide joint.

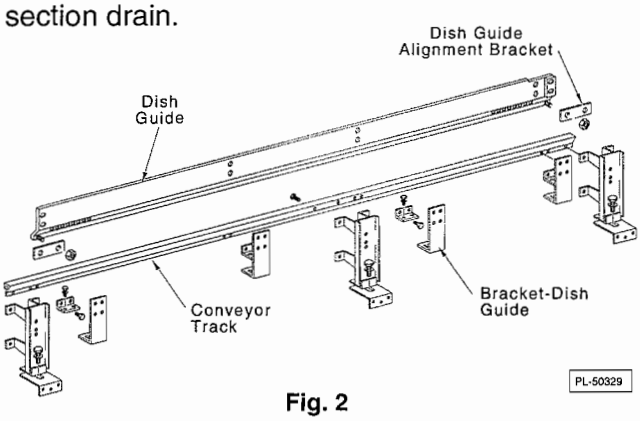


Fig. 2

Install the drain back pans (see machine diagrams, Fig. 9). If make up water is to be correct, the final rinse drain back pan must be properly positioned. The final rinse drain back pan must rest against the rod in the track support with the outlet positioned directly above the make up pipe collector. Butt the final rinse drain back pan against the rod and then bolt the drain back pan to the aligning hole in the conveyor track. Check to be sure that the make up pipe collector is vertical.

CONVEYOR ASSEMBLY

Each dishwasher is supplied with the correct amount of conveyor. The conveyor sections must be connected together. Some conveyors are numbered: ROLL 1, ROLL 2, etc. When so numbered, install them in numerical sequence. Install conveyor sections as follows.

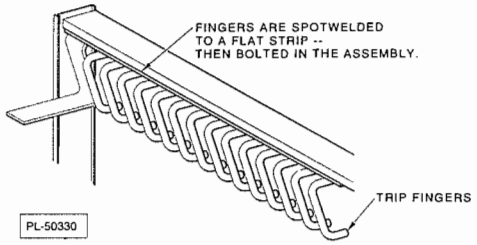


Fig. 3

Raise the unloading platform, place a curtain under the platform, lower the platform, and flip the curtain up over the platform. This is to protect the platform from being scratched during conveyor installation.

Remove the trip fingers (Fig. 3) from the trip arm assembly. Loosen the take-up units (Fig. 4) by threading the adjusting bolts as far out as possible.

Position the first section of conveyor in line with the machine at the unloading end. The flight links must point toward the loading end of the machine.

Tie a rope to the first conveyor rod and feed it through the machine, following the desired path of the conveyor.

Join the conveyor sections by removing the last conveyor rod from the first section, threading it back into the flight links of both sections, and assembling a cotter pin at each end. **NOTE**: Make sure that the flight links of both sections point the same direction (toward load end of machine).

Pull the conveyor into the machine, around the idler sprockets, on top of the lower track and back through the machine.

When the conveyor reaches the drive sprockets, work it tooth-by-tooth around the sprockets and join the two ends by threading a conveyor rod through the flight links and assembling a cotter pin at each end of it.

Reassemble the trip fingers to the trip arm assembly.

Take up the slack and align the conveyor by adjusting the take-up units (Fig. 4). Alignment can be gauged by equalizing the gap between the conveyor rods and the extension panels on each side of the conveyor (Fig. 4). When the conveyor is properly aligned, the side bars of the conveyor chain will not touch the sprocket. After running the conveyor for 10 minutes, check the tension. Proper tension is achieved when the conveyor rollers run on the bottom track freely and, by grasping a conveyor rod near the middle, the conveyor can be lifted 1" to 1½" vertically from the top track on the unload end.

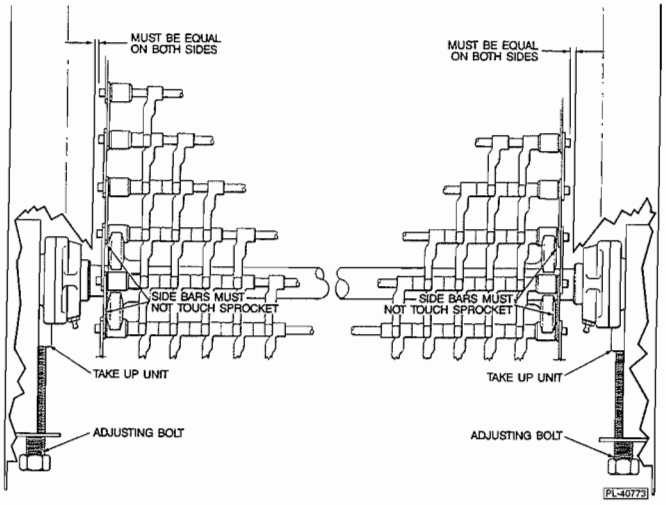


Fig. 4

To make an adjustment, turn the adjusting bolt (Fig. 4) at each take-up unit. With the take-up units properly adjusted, there is a possibility of the sprocket shaft not being square with the conveyor track. This will not adversely affect operation, provided the conveyor rollers are centered on the track. If, after 5 to 10 minutes of constant operation, the conveyor rollers are prevented from centering on the track by the side bar of the chain making contact with a sprocket: 1) Loosen the adjustment on each take-up unit. 2) Loosen the set screws (2 each) in each bearing collar. 3) Slide the sprocket/shaft assembly into alignment. 4) Retighten the set screws securely.

Check the set screws in the bearing collars (2 each) to make sure they did not loosen during shipment.

STEAM BLOWER DRYER ASSEMBLY (Fig. 5)

CAUTION: When installing blower dryer, do not stand, sit, or lean on air deflector pans as blower dryer performance could be adversely affected.

Mount the blower and motor assembly over the four rubber blower isolators and the rubber motor isolator. Install washers, lockwashers, and nuts on the blower isolators and ½" bolt, lockwasher, and washer in rubber motor isolator. DO NOT overtighten or put the rubber portion of the isolator mounts in a twist.

Mount the plenum by placing it in the dryer chamber with its stack through the chamber top and with the bottom centered over the conveyor tracks. Secure it to the blower with six #10-24 screws and lockwashers. The blower should be fitted inside the plenum stack. **NOTE**: The plenum must not be in contact with the hole in the chamber top. Adjust blower if required.

Remove the cover from the motor junction box. Secure the motor conduit. Make electrical connections to the motor per the connection diagram inside the cover. Replace the junction box cover.

Remove the shipping brace from the condensate pipe and disconnect the condensate pipe at the flanges. Thread the upper half into the condensate outlet of the steam coil. Bolt the steam coil to the chamber cross channel support with the condensate outlet flange in line with the condensate pipe flange. Loosen the condensate pipe locking nuts at the tank, place the gasket between the flanges and bolt the flanges together. Retighten the locking nuts.

Connect the steam trap assembly to the union located at the end of the condensate pipe beneath the tank.

Attach the coil side panels to the flanges on the unload side of the steam coil using a bolt, two washers, lockwasher, and nut at each fastener location.

Install the fan seal over the blower intake ring.

Position the intake chamber with the collar inside the fan seal and bolt it to the chamber top. The motor conduit must be placed in the notch at the chamber top. **NOTE**: The fan seal must be over both the blower and intake chamber rings.

Install the coil trim panels, placing the top edge on top of the intake chamber and the angle attached to the coil trim panel outside the intake chamber.

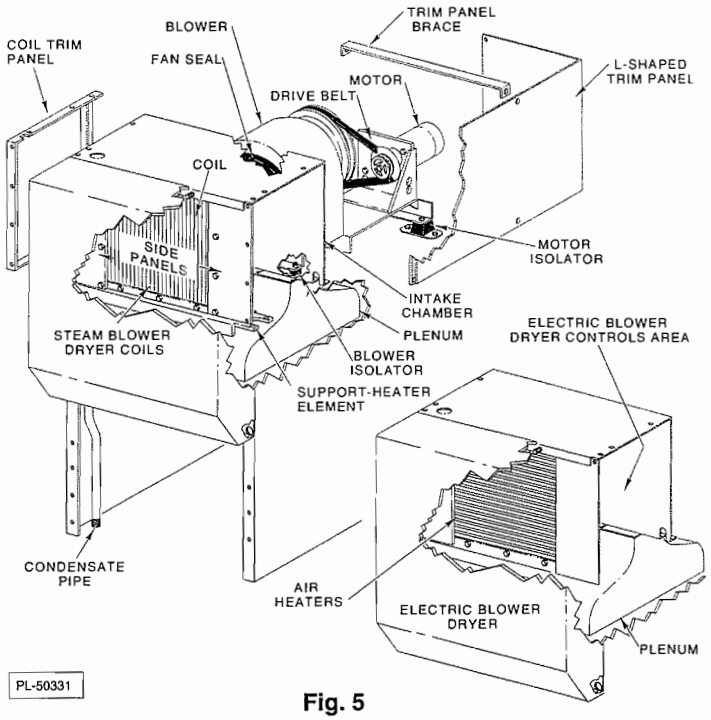


Fig. 5

Bolt the trim panels to the top and fan side of the intake chamber with flat washers, lockwashers, and bolts. The fan side of the intake chamber is bolted from the inside to the angles on the trim panels. Bolt the bottom trim panel flanges to the chamber side flanges.

Hang the vent hood from the studs on the intake chamber. Install flat washers, lockwashers, and nuts on studs. Install truss head screws (one each side) in bottom hole of vent hood and through chamber flange. Use flat washers and lockwashers on remaining slotted holes. **NOTE**: Align top and sides of vent hood with flat trim panels and chamber sides.

Install the L-shaped front and rear trim panels and the support between these panels. Raise the blower dryer doors to check for clearance between the L-shaped trim panels and the doors. Adjust the brackets retaining the L-shaped trim panels and the coil trim panels, if required.

After electrical service is supplied to the machine, observe that fan rotation is counterclockwise when viewed from the pulley end.

ELECTRIC BLOWER DRYER ASSEMBLY (Fig. 5)

CAUTION: When installing blower dryer, do not stand, sit, or lean on air deflector pans as blower dryer performance could be adversely affected.

Mount the blower and motor assembly over the four rubber blower isolators and rubber motor isolator. Install washers, lockwashers, and nuts on the rubber blower isolators and ½" bolt, lockwasher, and washer in rubber motor isolator. DO NOT overtighten or put the rubber portion of the isolator mount in a twist.

Mount the plenum by placing it in the dryer chamber, with its stack through the chamber top and the bottom centered over the conveyor tracks. Secure it to the blower with six #10-24 screws and lockwashers. The blower should be fitted inside the plenum stack. **NOTE**: The plenum must not be in contact with the hole in the chamber top; adjust if required.

Remove the cover from the motor junction box. Secure the motor conduit. Electrically connect the motor per the connection diagram inside the cover. Replace the junction box cover.

Install the fan seal over the blower intake ring.

Remove the two shipping bolts securing the chamber cross channel to the front chamber flange.

Position the intake chamber assembly with the collar inside the fan seal and bolt it to the chamber top. The motor conduit must be placed in the notch at the chamber top. **NOTE**: The fan seal must be over both the blower and intake chamber rings.

The thermostat support rod should be in the center of the intake chamber collar and the thermostat's coiled probe should be slipped over the end of the rod. Reposition if required.

Where the shipping bolts were removed, install two bolts, lockwashers, and washers through the chamber cross channel support, the front chamber flange, and into the header. Do not tighten.

Install two bolts, lockwashers, and washers through the chamber cross channel support and into the header. Do not tighten.

Install a bolt, lockwasher, and washer through the front chamber flange and into the header. Do not tighten.

Install the heater trim panel on the back side, placing the top edge on top of the intake chamber and the angle attached to the flat trim panel outside the intake chamber. Bolt the trim panel to the top and fan side of the intake chamber using washers, lockwashers, and bolts. The fan side of the intake chamber is bolted from the inside to the angles on the trim panels. Bolt the bottom trim panel flange to the chamber flange.

Remove the shipping bolt retaining the air vane support bracket. Hang the vent hood from the studs on the intake chamber. Install washers, lockwashers, and nuts on studs. Install truss head screws (one each side) in bottom hole of vent hood and through chamber flange. Bolt horizontal vane support bracket through the vent hood (fourth hole from bottom) and trim panel flange. Use flat washers and lockwashers on remaining slotted holes. **NOTE**: Align top and sides of vent hood with heater trim panel and chamber sides. Tighten all hardware.

Attach wires that protrude from the pulling ell inside the header assembly to the base-plate mounted controls as follows:

FT800

Attach the control wiring (wire identification markings "C") to the common terminal on the regulating thermostat (7TAS) and "C3" to the coil of contactor "8CON". (See wiring diagram for markings.)

FTM800

Attach the control wiring (wire identification markings "C") to the common terminal on the regulating thermostat (7TAS), and "C1" and "C3" to the coil of contactor "7CON". Attach wires marked "L1", "L2", and "L3" to the line side of the contactor "7CON". Attach wires marked "T1", "T2", and "T3" to the load side of contactor "7CON". (See wiring diagram for markings.)

Install front heater trim panel, placing the top edge on top of the intake chamber and the bottom edge between the header assembly and the chamber flange. Bolt the trim panel, at the top, with washer, lockwasher, and bolt. Tighten the bolts, sandwiching the trim panel between the chamber flange and the header. Install two truss head screws, securing trim panel to header.

Install the L-shaped front and rear trim panels and the support between these panels. Raise the blower dryer doors to check for clearance between the L-shaped trim panels and the doors. Adjust the brackets retaining the L-shaped trim panels and the flat trim panels, if required.

NOTE: A hole is provided in the intake chamber for blower dryer electrical service.

After electrical service is supplied to the machine, observe that fan rotation is counterclockwise when viewed from the pulley end.

PLUMBING

WARNING: PLUMBING CONNECTIONS MUST COMPLY WITH APPLICABLE SANITARY, SAFETY, AND PLUMBING CODES.

Drain

There is a single 2" connection for the drain line. If a grease trap is required by code, it should have a flow rate of 40 gallons per minute.

Fill

Proper operation requires the water pressure to be 20 psig (flowing) at the dishwasher. Machines with a steam or electric booster require a single 1" connection at the wash tank; units without booster heater require a ¾" connection. Water must be proper hardness. Recommended hardness range is 4 – 6 grains/gallon. (Lower hardness can promote corrosion, higher hardness may cause excessive formation of lime scale.)

Steam (Tank Heat and Booster)

The steam supply must be 15 – 25 psig flowing pressure at the dishwasher with a maximum of 50 psig static pressure. Machines with a steam booster require a 1½" connection at the steam booster and connection of thermostat to the steam booster from the 8 foot center section. Steam heat machines without a steam booster require a 1" connection at the discharge end of the center section.

Booster Connection to Final Rinse

Steam or electric booster requires connection of final rinse outlet piping assemblies to final rinse inlet on the center section. Units without booster heater require connection of piping assemblies to final rinse and to 180°F incoming water supply.

Steam (Blower Dryer)

Steam blower dryers require a 1½" connection at the steam coil (25 psig, flowing maximum).

ELECTRICAL CONNECTIONS

WARNING: ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.

WARNING: DISCONNECT ELECTRICAL POWER SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH INDICATING THAT YOU ARE WORKING ON THE CIRCUIT.

Make electrical connections per the electrical diagram in the machine control box.

The machine must be checked to verify correct motor rotation. With the electrical power supply turned on, momentarily run the conveyor. The conveyor must run from the entrance end to the discharge end. If rotation is incorrect, **DISCONNECT ELECTRICAL POWER SUPPLY** and interchange any two of the incoming power supply leads.

MISCELLANEOUS

Check all bolts and connectors to make sure they are tight.

Final Rinse

The nozzle angle of the final rinse arms is critical if make up water is to be correct. Install the lower final rinse arm with its nozzles pointing 5° – 10° (from vertical) toward the entrance end. The upper final rinse arm nozzles must point 10° – 15° (from vertical) toward the entrance end.

The rinse gate must swing freely and horizontally and must be ¼" above the flight link tips.

Vent Ducts

Fit overhead vent ducts (not supplied) inside machine vents and bolt them together.

Prewash, Wash, and Power Rinse Arms

The upper and lower prewash, wash, and power rinse arms must be installed in their correct locations. They are marked with labels identifying their function and location.

To install each of the upper arms, rest the manifold on the rear hanger bracket with the open end of the arm next to the wash pipe as shown in Fig. 6, and rotate the arm upward to hang it on the support brackets as shown in Fig. 7.

To install each of the lower arms, rest the wash arm manifold against the tie rod and slide the wash arm into the dishwasher until it stops. Rotate it away from the tie rod and then back so it rests on the support bracket as shown in Fig. 8.

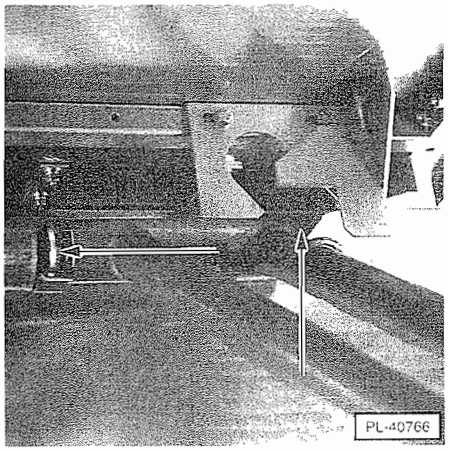


Fig. 6

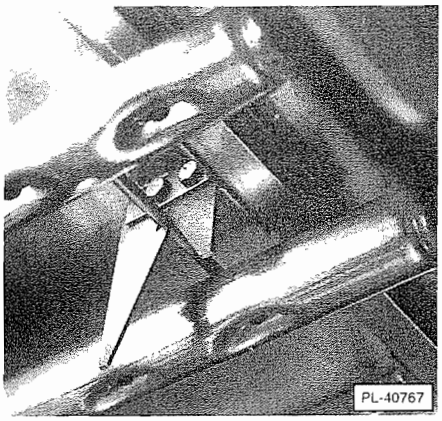


Fig. 7

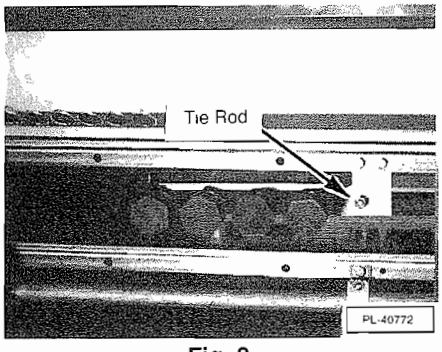
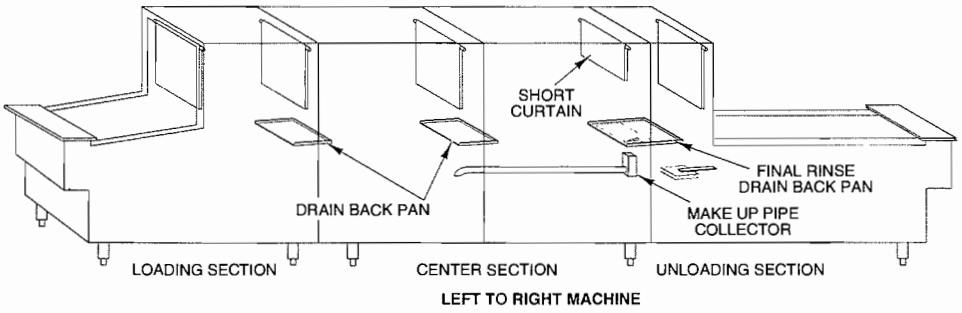


Fig. 8

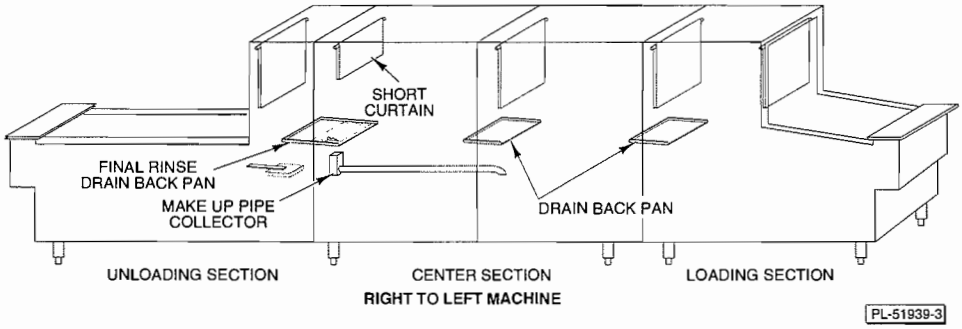
Curtains

Refer to the machine diagrams (Fig. 9) and install curtains on the hooks provided.

FT800 & FTM800



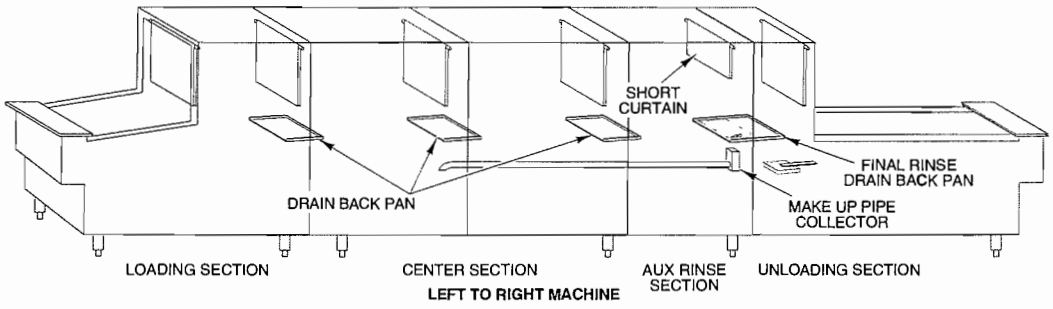
LEFT TO RIGHT MACHINE



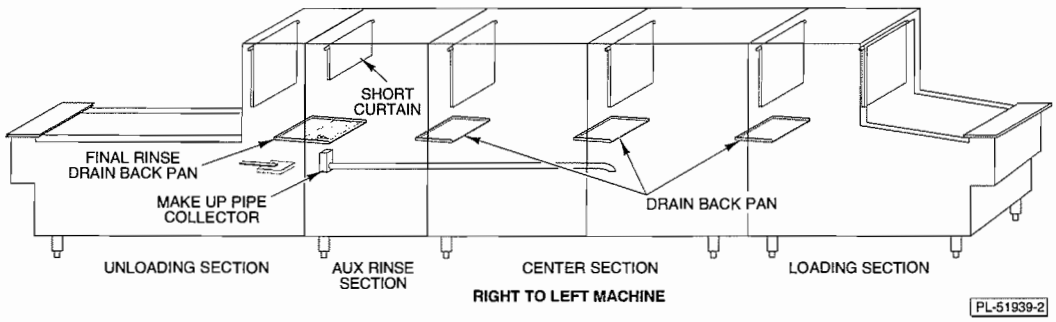
RIGHT TO LEFT MACHINE

PL-51939-3

FT800W & FTM800W



LEFT TO RIGHT MACHINE

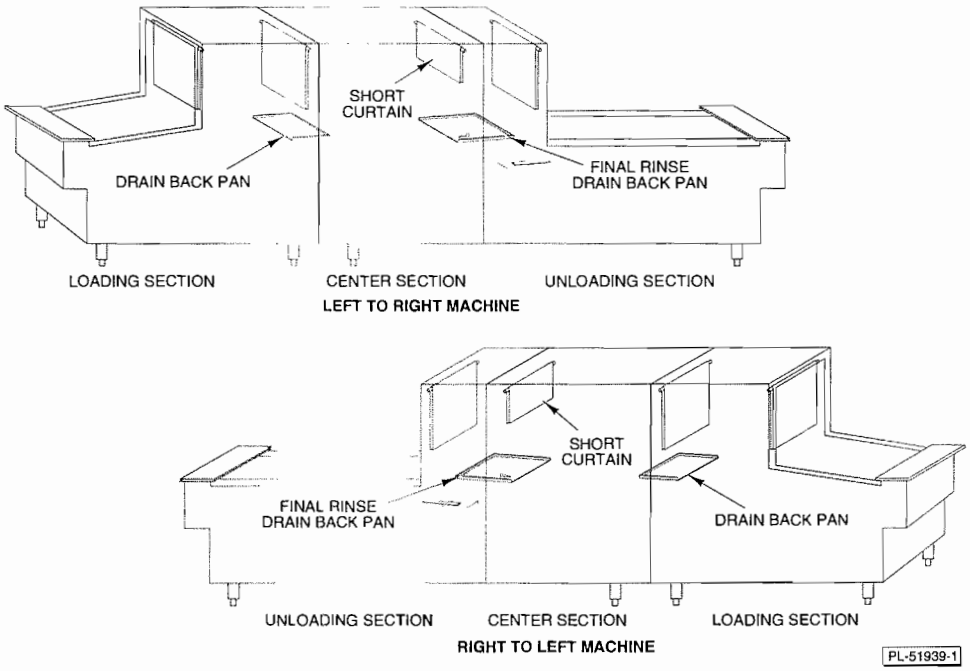


RIGHT TO LEFT MACHINE

PL-51939-2

Fig. 9

FT800S



Exhaust Vents

Turn the damper so only small puffs of vapor are released into the room. The damper locking nut must be tight enough to hold the adjustment; tighten if necessary. The locking nut for the loading end damper is inside the vent.

Speed Reducer

Identify the type of speed reducer used on your dishwasher from Figs. 10 or 11. Remove the gear case plug (Fig. 10 or 11). The oil level should be at the bottom of the plug hole. If your speed reducer is like the one in Fig. 10, use Mobilgear 634. If your speed reducer is like the one in Fig. 11, use Mobil SHC 629. Lubricants are available from your local Hobart Service Office.

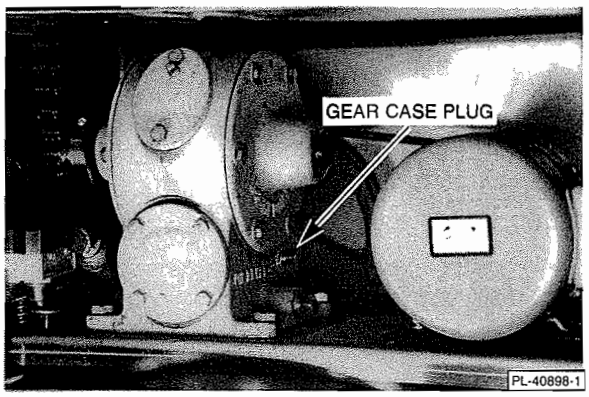


Fig. 10

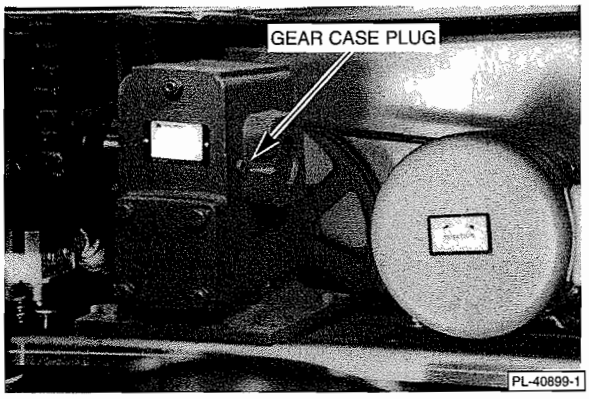


Fig. 11

Lower Trim Panels

When installing lower trim panels, butt each panel end-to-end and then adjust the end wrap panel so there is approximately 1/16" clearance between it and the adjacent panel. This clearance, spread over the entire length of the machine, will provide optimum appearance.