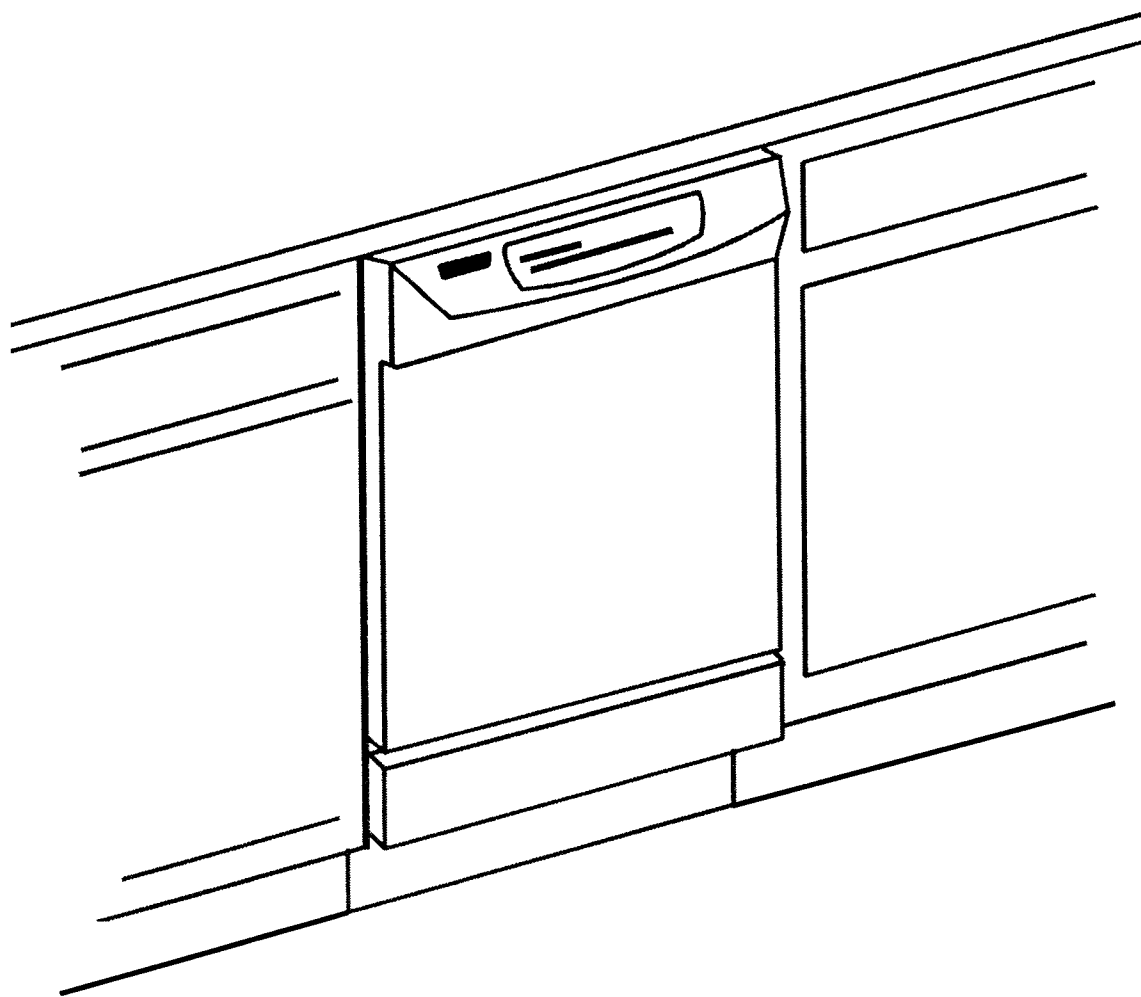


TECHNICAL EDUCATION



**KUD24
UNDERCOUNTER
DISHWASHER**

JOB AID 4317196

INTRODUCTION

This Job Aid, *KUD24 UNDERCOUNTER DISHWASHERS*, Part No. 4311796 and its companion video tape, Part No. 4311797, provides specific information on the operation, diagnosis and repair of the KitchenAid KUD24 series Undercounter Dishwasher.

KUD24 UNDERCOUNTER DISHWASHERS has been compiled to provide the most recent information on design, features, operation, troubleshooting, and repair procedures.

GOALS AND OBJECTIVES


The goal of this Job Aid is to provide detailed information that will enable the service technician to properly diagnose malfunctions and repair the KUD24 dishwasher.

The objectives of the Job Aid are:

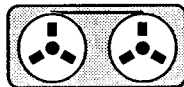
The service technician will -

- Understand proper safety precautions.
- Successfully troubleshoot and diagnose malfunctions.
- Successfully perform necessary repairs.
- Successfully return the dishwasher to proper operational status.

TO THE INSTRUCTOR/INDEPENDENT STUDENT

At the end of certain sections of this Job Aid you will find a "Confirmation of Learning Exercise." A symbol that looks like this () indicates that a pencil and two "Hi-Light" markers may be necessary to complete the exercise. Certain exercises may require that service procedures be performed if an appropriate appliance is available.

This Job Aid is designed to be used with the video tape, *KUD24 UNDERCOUNTER DISHWASHERS*, Part No. 4317197. As you use this Job Aid you will see a symbol that looks like this:



It instructs you to view certain section of the video tape. The section numbers will appear in the lower left corner of the screen.

KitchenAid

KITCHENAID CORPORATION ASSUMES NO RESPONSIBILITY
FOR ANY REPAIRS MADE ON OUR PRODUCTS BY ANYONE
OTHER THAN AUTHORIZED SERVICE TECHNICIANS.

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5 Key Benefits & Features

KitchenAid KUD24 Sculptura Series Dishwashers

ELEGANT STYLING AND DESIGN DETAILS	
<h1>1.</h1>	<ul style="list-style-type: none"> • Sculptura™ styling provides unique soft-faceted exterior design with rounded, smooth curves, hidden door latch and monochromatic styling to add seamless elegance to the kitchen. • Sleek, high-tech console matches 6" drawer height and is completely electronic, no dials or knobs. • Door and access panels can be customized to match cabinets with optional trimmed or trimless panel accessories. • Satin Finish™ Stainless Steel tub and inner door resist streaks, spots and stains while keeping that "new" appearance longer than other tub materials. • A Lifetime Full Warranty on the tub and door liner exemplifies the KitchenAid commitment to quality and performance • The exclusive Fully Balanced Door System remains open at any position.
EXCEPTIONAL WASH PERFORMANCE	
<h1>2.</h1>	<ul style="list-style-type: none"> • The 4-Way Hydro-Sweep™ stainless steel lower spray arm eliminates pre-rinsing. Dual spray arms double the washing action in the lower rack. • Direct internal water feed to the full-size upper spray arm provides high water pressure and better wash coverage in the upper rack. • Sure-Temp™ water heating system with direct sense thermostats, assures optimum washing temperature. • Heavy duty stainless steel food grinder and grater plate pulverizes even tough food soils like small bones. The Ultra Fine™ Filtration System then separates the food particles from the water, assuring only clean water re-enters the wash cycle. • Sani-Rinse™ option (some models) provides a final rinse at 160°F for 16 minutes to kill germs and bacteria and sanitize all dishes and glassware.
COMPLETE, EFFICIENT DRYING	
<h1>3.</h1>	<ul style="list-style-type: none"> • Superior drying performance so reliable, exceptional drying results occur with or without a rinse agent. That's because the stainless steel interior and heated final rinse provide excellent water sheeting for dishes that are 99% dry without streaks or spots. • A gentle 450-watt element cycles on and off for delicate, thorough drying. • The Accu-Vent articulated vent opens precisely when drying begins for completely spot free drying. • Load plastics anywhere in a KitchenAid dishwasher, plastic cups, bowls and plates are always safe from damage, even in the lower rack, because of the low-watt element, SureDry™ Convection drying system and state-of-the-art ventilation system.
QUIETEST OPERATION EVER	
<h1>4.</h1>	<ul style="list-style-type: none"> • The new Accu-Vent remains closed during the fill, wash, rinse and drain cycles trapping noise inside. The vent opens when drying begins and closes when drying is complete. • A 6-sided mastic blanket is baked-on to guarantee 100% adhesion and optimum noise control. • A unique, patented tuned absorber is attached directly to the motor to cancel motor noise and vibration before they start. • In the door, a 2-inch molded fiberglass insulation panel on top of the baked-on mastic dampens noise and vibration. • The water inlet has been relocated to the rear to provide a quieter water fill for every cycle. • KitchenAid has four quiet packages, a model could have: <ul style="list-style-type: none"> • up to 2" Deuxe fiberglass sound blanket on tub • up to 4" fiberglass insulation on the toe panel • up to 4" fiberglass insulation on the access panel
"LOAD-AS YOU LIKE" RACKS	
<h1>5.</h1>	<ul style="list-style-type: none"> • 100% Usable Space! No towers or obstructions means no loading pattern to follow. You can load the dishwasher however you want without adversely effecting wash performance. • FlexiBasket™ silverware basket splits in two for added flexibility and can be placed anywhere in the lower rack. • Sure-Hold Clips hold lightweight items safely in place. Plastic cups won't flip over and fill with water. • Customize the racks however your needs call for with Flexi-Split Fold-Down Tines and Flexi Fold-Down Tines to allow for any size pot, bowl or plate. • High side extension in the lower rack keeps large items securely in place. • Sure-Hold Cup Shelves provide twice the cup loading capacity in the same space. • Stemware Holders prevent damage to delicate glassware.



View Section 1 of the Video Tape

Section One **EQUIPMENT AND SAFETY**

WARNING



ELECTRIC SHOCK HAZARD

Electrically ground dishwasher.
Connect ground wire to green ground nut in terminal box.
Failure to do so can result in death or electrical shock.

WARNING



ELECTRIC SHOCK HAZARD

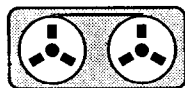
Disconnect electric supply from appliance before servicing.
Replace all panels before operating.
Failure to do so could result in death or electrical shock.

WARNING



TIP OVER HAZARD

Do not use dishwasher until completely installed.
Do not push down on open door
Doing so can result in serious injury or cuts.



View Section 2 of the Video Tape

Section Two

FEATURES AND DESIGN

The KitchenAid KUD24 Sculptura dishwasher series has been completely redesigned to incorporate a number of features found to be important by customers and service technicians.

Control Panel

The control panel of the KUD24 has been given a smooth sculptured look with contoured sides and a gentle slope to the control surface. This slope makes the function keys easy to read and operate.

(Fig. 1)

Customer operation has been simplified by remembering the previous wash options, eliminating the need to reset the washer at each use. If power is interrupted to the dishwasher the control system will default to "NORMAL" wash.

Dishwasher Door

Incorporated in the dishwasher door's control panel is a hidden latch handle just underneath the lower front rim.

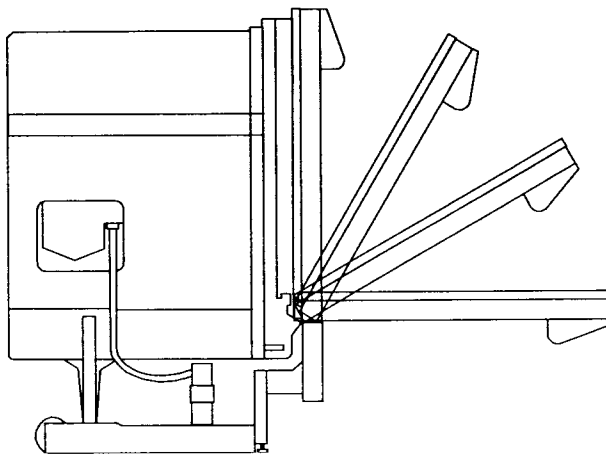


Fig. 2

The front panel of the door is removable and can be replaced with custom trim panels or color coordinated trim packages from KitchenAid.

The vent is articulated and remains closed during wash and rinse operation to reduce external noise and increase efficiency.

A flexible gasket has been added to the bottom of the door to reduce noise.

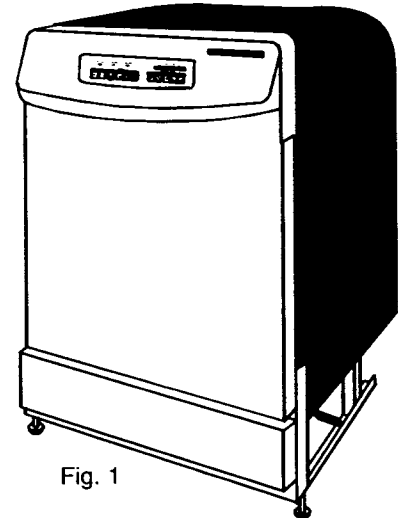


Fig. 1

The balanced door will now remain in any position when opened. (Fig. 2)

The inner panel of the door is Satin Finish™ Stainless Steel and has a single module for both detergent and rinse aid dispensers.

The detergent dispenser has a single door compartment for main-wash detergent and an open compartment for pre-wash detergent. There is no longer an initial pre-rinse in the wash cycle. (Fig. 3)

Under the cover of the rinse aid dispenser is an adjustment to match the amount of rinse aid dispensed with water hardness. An eye glass tells when the dispenser is full. "S & V" models also have an indicator on the control panel.

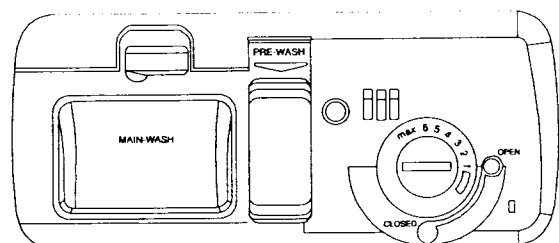


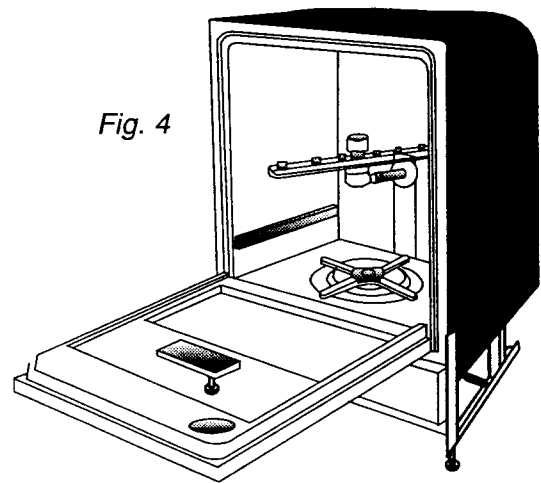
Fig. 3

Cabinet Interior

The inner liner is Satin Finish™ Stainless Steel. The finish is designed to improve drying by sheeting water off quickly and resist spotting, staining and streaking. The stainless steel will also retain heat more efficiently.

Water to the upper spray arm is now routed inside the cabinet. This also increases efficiency and reduces external noise. (Fig. 4)

Both the upper and lower dish racks have been redesigned. The upper rack is tiered to allow for more flexible loading configurations. The lower rack has a number of removable features to allow "Load As You Like" options.

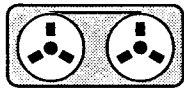


Cabinet Exterior

The outer cabinet is covered with a baked on mastic material and a fiberglass blanket to improve drying and reduce noise.

Serviceability

One (1) wiring harness, two (2) electronic control boards and five switch panels (user interface) are used throughout five models in the KUD24 series.



View Section 3 of the Video Tape

Section Three

THEORY OF OPERATION

The operation of the KUD24 series of dishwashers is quite similar to previous models. However, a number of new and improved operating features have been incorporated into the KUD24.

ELECTRONIC CONTROL BOARD AND SWITCH ASSEMBLY

The newly redesigned electronic control board performs all the major control functions of the dishwasher through a microprocessor. The microprocessor controls the various components of the dishwasher by triggering solid state switches called triacs which, in turn, direct 120VAC to the pump motor, detergent/rinse aid dispenser and water fill valve.

OPERATION

The microprocessor has been programmed to provide a sequence of pre-timed wash and rinse operations. The sequence of operations is determined by the WASH SELECTION and OPTIONS buttons on the control panel. **NOTE:** There is no longer a Pre-Rinse portion of the wash cycle. (Table 1)

CANCEL: Pressing the CANCEL button one (1) time initiates a drain cycle to insure the dishwasher is empty and then cancels all cycles and option selections and resets the electronic controls to allow for new cycle and option selections to be made. Pressing the CANCEL button a second time will turn the dishwasher off.

CYCLE	PREWASH	RINSE	MAIN WASH	FINAL RINSE	TIME
SOAK & SCRUB (POTS & PANS)	✓	✓	✓	✓	88
NORMAL	✓	✓	✓	✓	80
SHORT	✓		✓	✓	64
LIGHT	✓		✓	✓	60
QUICK GLASS	✓		✓	✓	55
RINSE	✓				7

Table 1

OPTIONS

HIGH TEMP WASH: If the incoming wash water is below normal operating temperature (135°-145°F), the operating thermostat will close. The electronic control will: 1) energize the heater and 2) prevent the wash cycle from advancing until the water is heated to approximately 135° - 145°F.

SANI RINSE: Raises final rinse water temperature to at least 154°F to ensure sanitization of dish load.

ENERGY SAVER DRY: De-energizes heater during the dry cycle.

CUSTOM: This option adds six (6) minutes to the water heating portion of the main wash cycle and six (6) minutes to the unheated portion of final rinse.

MODEL VARIATION

Throughout the entire KUD24 series of dishwashers, two control boards and five switch assemblies are required.

One control board will be required for the KUDI24 (Fig. 5), KUDM24 (Fig. 6), KUDR24 (Fig. 7), and KUDS24 (Fig. 8). Each of these models has a unique switch panel.

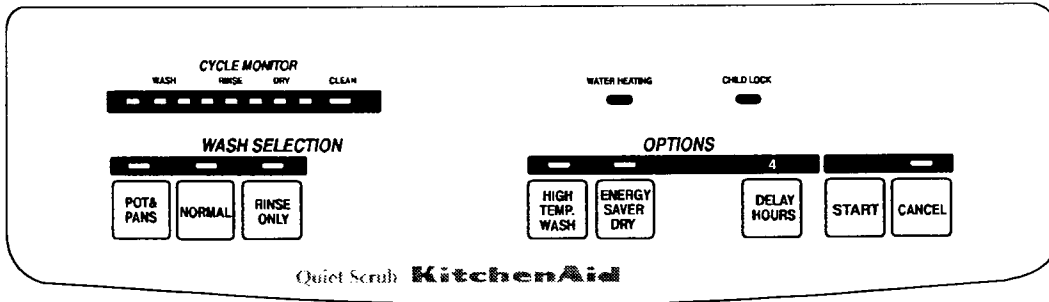


Fig. 5

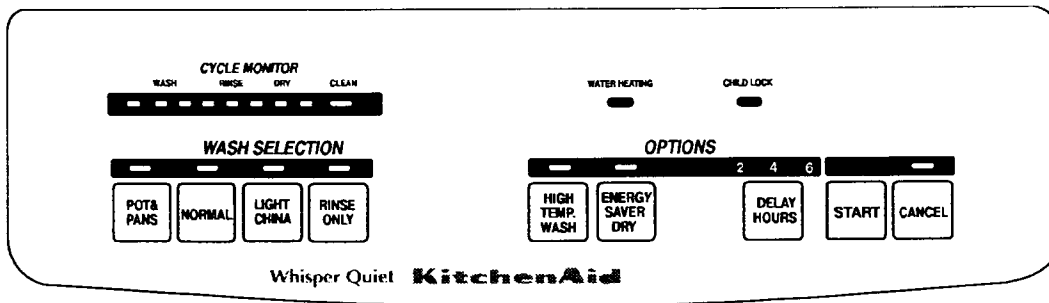


Fig. 6

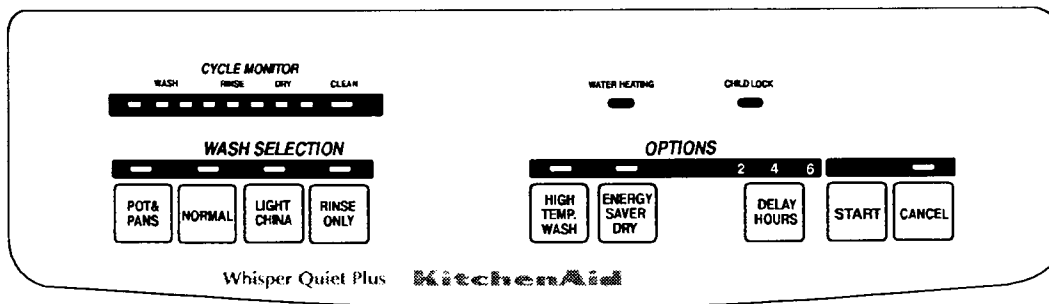


Fig. 7

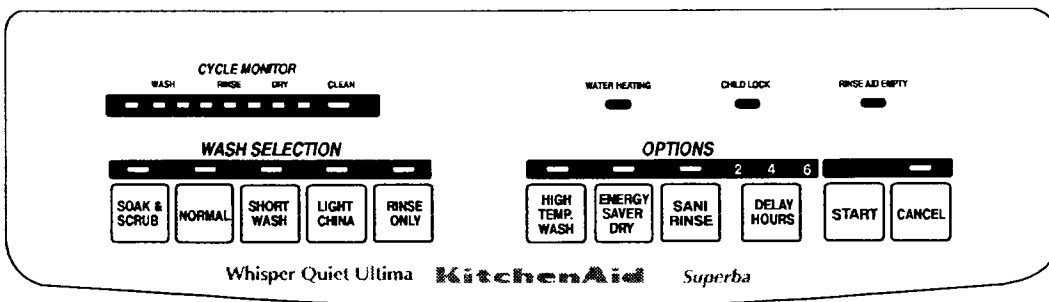


Fig. 8

A second control board and switch assembly incorporating VF Display is required for the KUDV24. (Fig. 9)

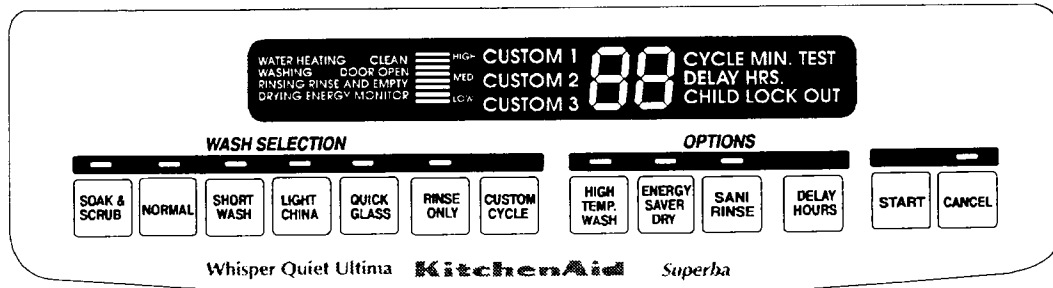


Fig. 9

DETERGENT/RINSE AID DISPENSER

The detergent and rinse aid dispensers are now incorporated into one assembly. This assembly is located in the center of the door.

There is a closed cup and an open bin in which detergent can be placed. Detergent placed in the open bin will be dispensed into the dishwasher when the door is closed and will be available for the PREWASH portion of the wash cycle. (Fig. 10)

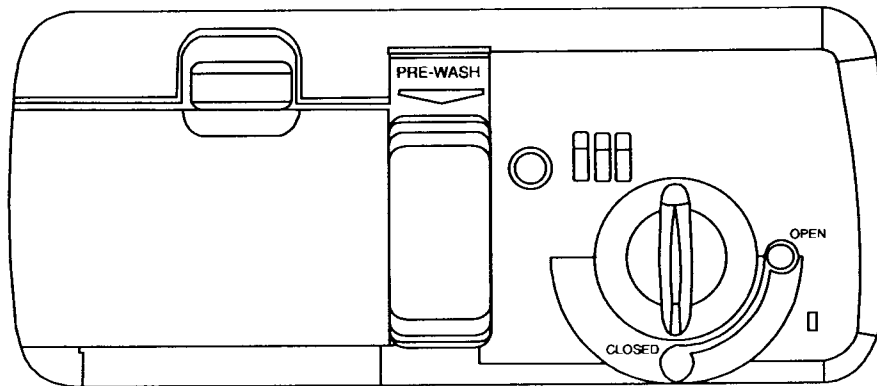


Fig. 10

Detergent placed in the closed cup will be dispensed at the beginning of the MAIN WASH portion of the wash cycle.

The rinse aid dispenser is now incorporated into the main dispensing unit and features an adjustment that will control the amount of wetting agent dispensed during the final rinse. This adjustment is controlled by the customer by turning the arrow inside the dispenser from 1 to 6 depending on the "hardness" of the water. Generally, the "harder" the water, the higher the number. (Fig. 11)

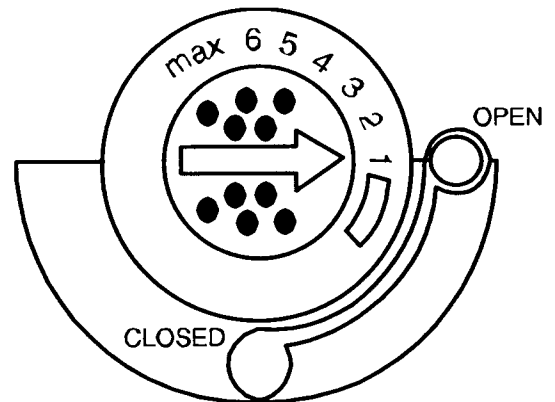


Fig. 11

ARTICULATED VENT

The KUD24 series of dishwashers is equipped with an articulated vent in the upper left corner of the door. The vent is powered by a wax motor which operates the vent flap. (Fig. 12)

During all wash and rinse portions of the wash cycle a spring holds the vent flap in the normally closed position. During the drying portion of the wash cycle the wax motor opens the vent flap to allow moisture to escape. (Fig. 13)

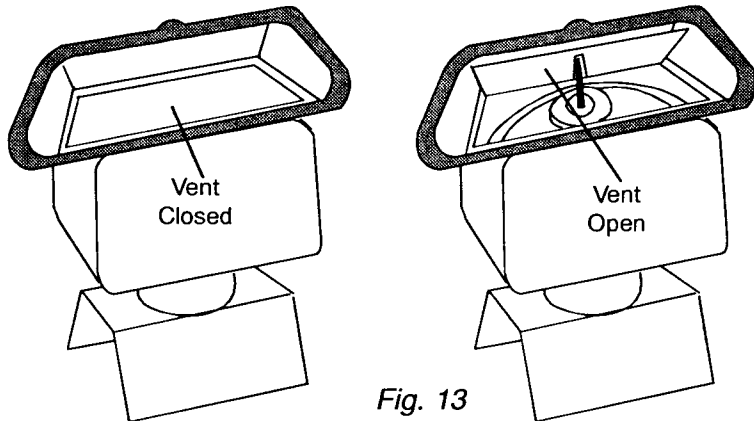


Fig. 13

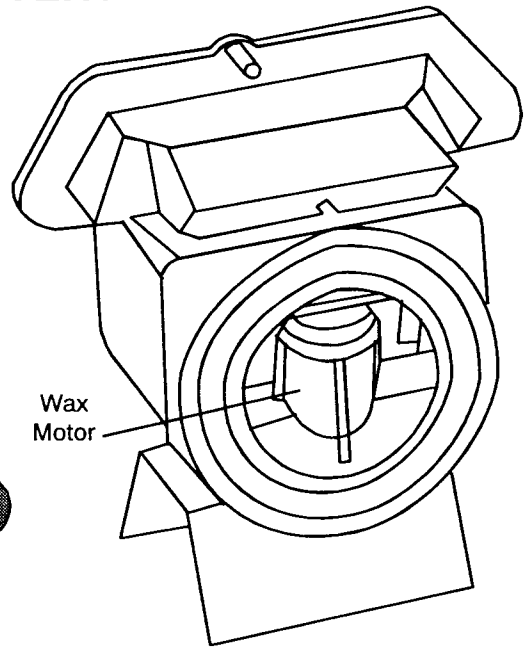


Fig. 12

WATER DISTRIBUTION

The KUD24 series of dishwashers incorporate a new method of moving water to the upper spray arm. Previous models routed water from the pump up the outside of the tub and into the spray arm from the top. The KUD24 series has water routed to the upper spray arm through a vertical plastic tube running from the pump and up the back inside the tub. (Fig. 14)

The upper spray arm and horizontal tube assembly mounted on the underside of the upper dish rack is designed with a flange at the rear that will fit over a nozzle in the vertical tube at the back of the tub. (Fig. 15)

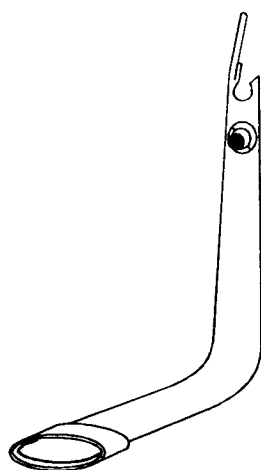


Fig. 14

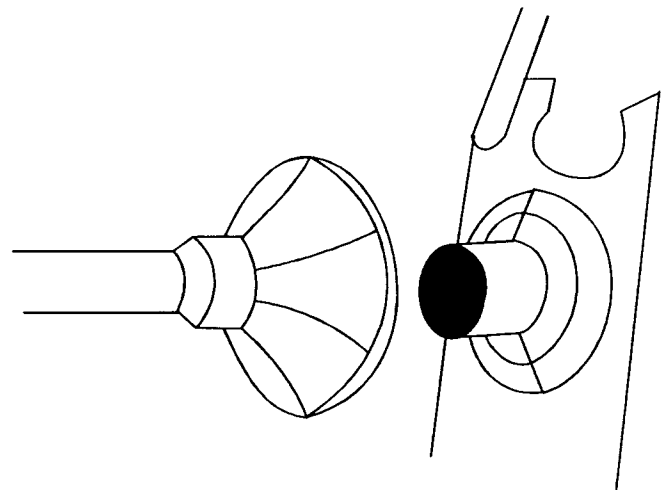
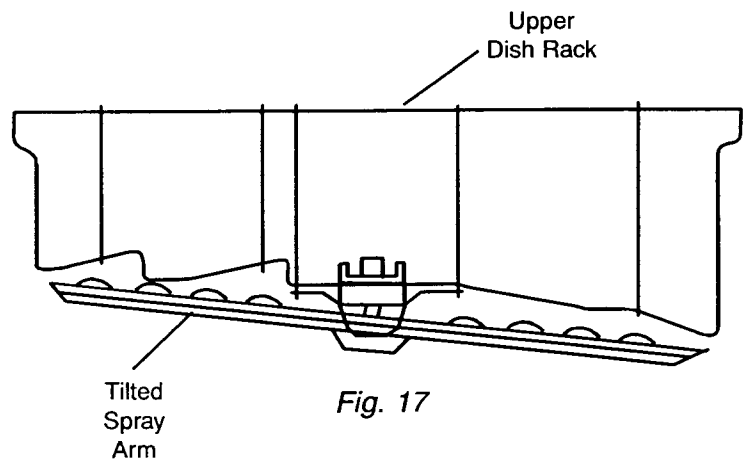
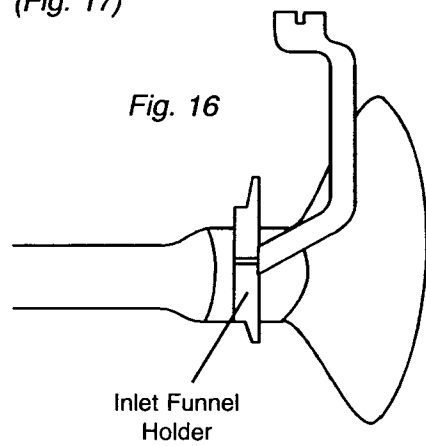


Fig. 15

The upper spray arm and horizontal tube assembly has been redesigned with the spray arm above the horizontal tube. (Fig. 16) A water inlet funnel holder suspends the upper spray arm assembly from the dish rack. The upper spray arm is tilted to match the profile of the tiered upper dish rack. (Fig. 17)



SECTION THREE

CONFIRMATION OF LEARNING EXERCISES

Place the letter of the answer that best completes the statement.

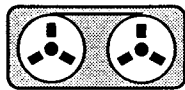
1. The major features of the KUD24 series of dishwashers that improve efficiency and reduce noise are _____:
 - a) A new insulation blanket on the tub and the articulated vent in the door
 - b) The articulated vent in the door and baked on mastic material on the tub
 - c) The stainless steel tub and inside delivery of water to the upper spray arm
 - d) All of the above

2. The difference(s) between the KUD24S and KUD24V models is _____:
 - a) The number of options
 - b) The KUD24V model has a visual function display
 - c) The number of wash cycles
 - d) All of the above

3. The articulated vent in the door _____:
 - a) Opens whenever the temperature inside the tub exceeds 165°F
 - b) Opens during the rinse and dry cycles
 - c) Opens during the wash and rinse cycles
 - d) Opens only during the dry cycle

4. The water supply tube to the upper spray arm is _____:
 - a) Located on the outside of the tube on the left side
 - b) Located on the outside of the tub on the right side
 - c) Located on the inside of the tube on the right side
 - d) Located on the inside of the tub at the rear

- 5) To control the amount of rinse aid that is dispensed _____:
 - a) Set the arrow to a low number if the water is "Hard"
 - b) Set the arrow to a high number if the water is "Hard"
 - c) Set the arrow to a high number and only fill the dispenser half full if the water is "Soft"
 - d) Do not change the factory setting of this control.



View Section 4 of the Video Tape

Section 4 COMPONENT ACCESS

WARNING



ELECTRIC SHOCK HAZARD

Disconnect electric supply from appliance before servicing.
Replace all panels before operating.
Failure to do so could result in death or electrical shock.

GENERAL INFORMATION

Access to components in the KUD24 series of dishwashers can be made in three basic locations:

- Inside the Door
- Inside the Dishwasher
- Underneath the Dishwasher

INSIDE THE DOOR

The following components can be accessed from inside the door:

1. Electronic Control Board (Fig. 18)
2. Switch Panel (Fig. 19)
3. Articulated Vent (Fig. 20)
4. Detergent/Rinse Aid Dispenser (Fig. 21)

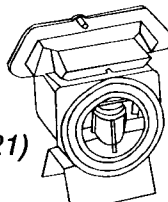


Fig. 20

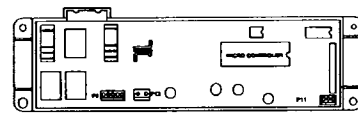


Fig. 18

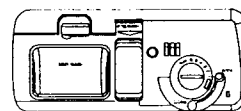


Fig. 21

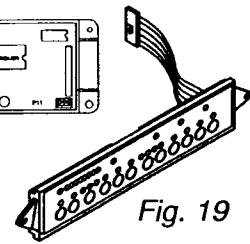


Fig. 19

Removing the Console

The electronic control board, switch assembly and articulated vent are located inside the console area at the top of the door.

1. Open the dishwasher door.
2. Remove the four (4) Torx-head screws at the top of the stainless steel inner door panel. (Fig. 22)
3. Close the door and pull the top of the console away from the door.
4. Disconnect the ribbon cable from the control board.
5. Disconnect the rinse aid sensor connector from the switch.
6. Lift the console up to disengage the bottom tabs from the door frame and set the console aside.

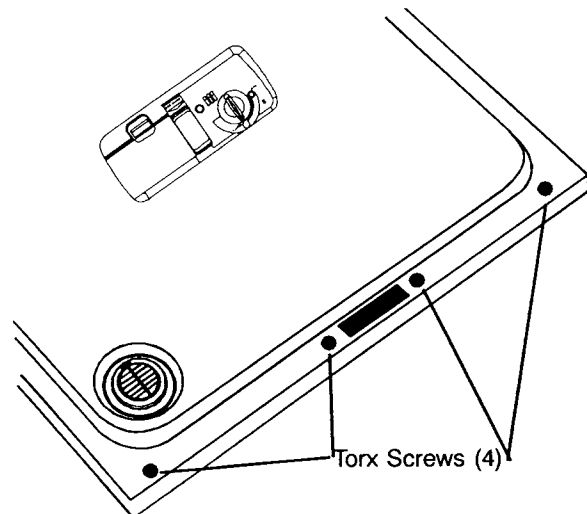


Fig. 22

Replacing the Console

NOTE: Be sure the black plastic moisture barrier is properly positioned over the control board before replacing the console.

1. Close the door, but do not latch it.
2. Engage the bottom tabs of the console in the door frame.
3. Connect the ribbon cable to the control board.
4. Connect the rinse aid sensor connector to the switch assembly.
5. Press the top of the console against the door. Be sure the latching level is properly positioned in the latch mechanism.
6. Open the door and replace the four (4) Torx-head screws at the top of the inner door panel.

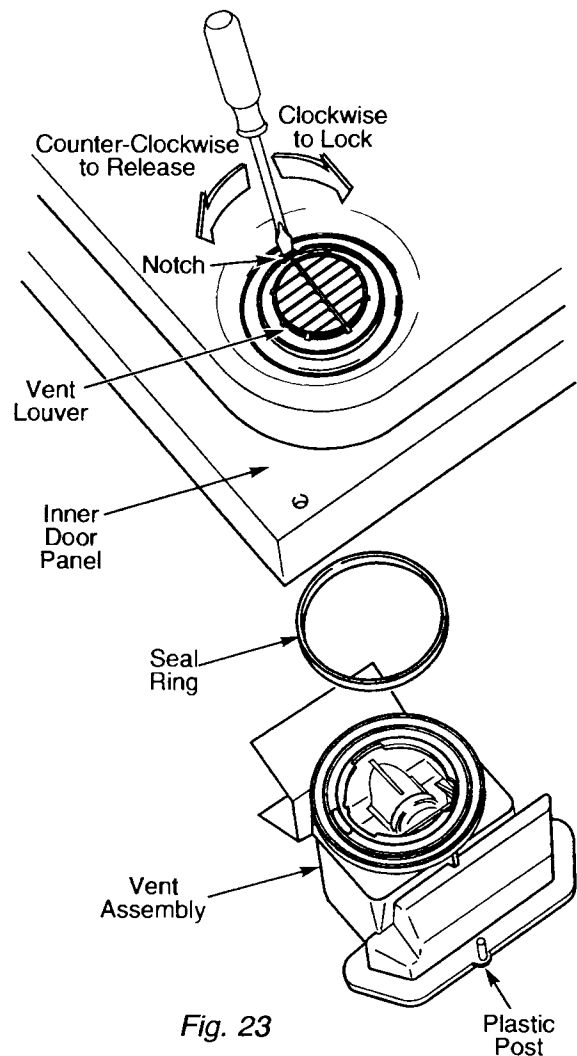
Removing the Articulated Vent Assembly

1. Remove the Console from the door.
2. Disconnect the wire connectors from the wax motor terminals.
3. Open the door and insert the end of a screw driver into the notch in the vent louver. Support the vent assembly with one hand and rotate the louver approximately 1/8 of a turn counter-clockwise. This will release the louver from the vent assembly. (Fig. 23)

NOTE: The louver rests on a seal ring. Retain both the louver and seal ring. They will be reinstalled on the replacement vent assembly.

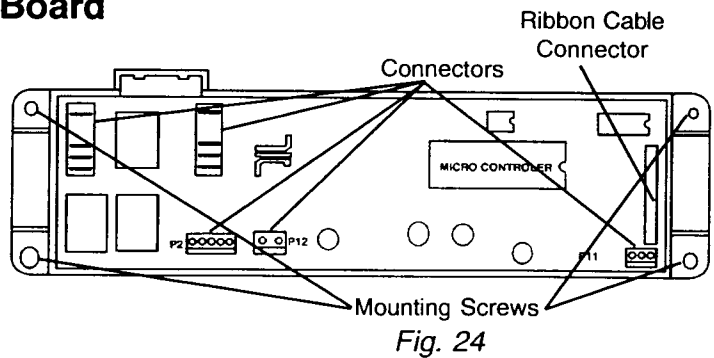
Installing the Articulated Vent Assembly

1. Place the seal ring in the replacement vent assembly.
2. Close the dishwasher door and align the plastic post at the top of the vent assembly with the notch in the door frame.
3. Move the vent assembly into position so the seal ring makes full contact with the stainless steel inner panel.
4. Open the door and place the vent louver over the vent assembly. Be sure the louver makes full contact with the seal ring.
5. Rotate the louver clockwise by hand to engage the vent assembly.
6. Insert the end of a screwdriver into the notch in the louver and rotate the louver clockwise approximately 1/8 of a turn to lock it in position.
7. Reinstall the console.



Removing the Electronic Control Board

1. Remove the console.
2. Disconnect the five (5) wiring harness connectors from the control board.
3. Remove the two (4) hex-head screws securing the control board assembly to the inner door. (Fig. 24)



Replacing the Electronic Control Board

1. Place the replacement control board assembly in position. Be sure the ribbon cable connector block is to the right.
2. Secure the control board assembly with two (4) hex-head screws.
3. Reconnect the five wiring holder connectors to the proper positions on the control board.

NOTE: Be sure the black plastic moisture barrier is properly positioned over the control board.

4. Reinstall the console.

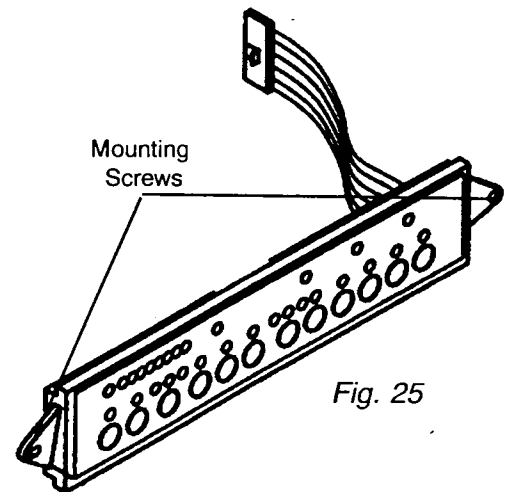
Removing the Switch Panel

1. Remove the console.
2. Remove the two (2) hex-head screws securing the switch panel to the console. (Fig. 25)

NOTE: Do not attempt to remove the Clean Touch Pads on the console. They are not a serviceable part. If the control panel surface is damaged the entire console must be replaced.

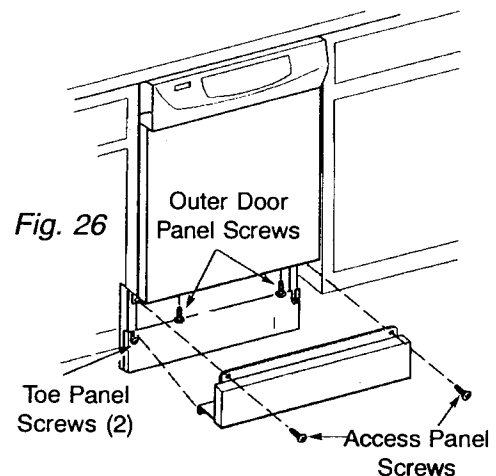
Replacing the Switch Panel

1. Place the switch panel in position. Be sure the ribbon cable is on the right.
2. Replace the two (2) hex-head screws to secure the switch panel to the console.
3. Replace the console.



Removing the Outer Door Panel

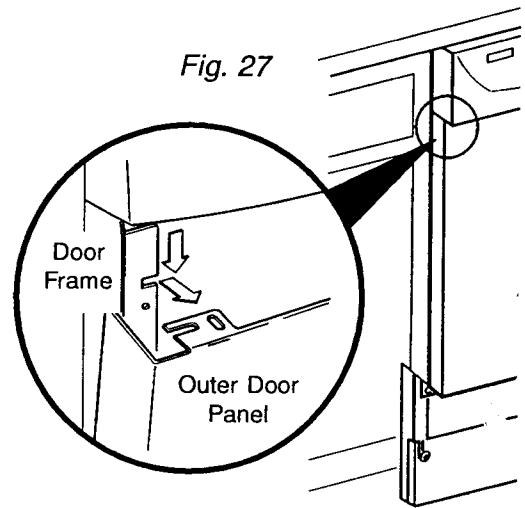
1. Loosen, but do not remove, the two (2) hex-head screws securing the toe panel to the dishwasher.
2. Remove the two (2) screws at the top of the access panel securing it to the dishwasher. Pull the top of the access panel away from the dishwasher, lift up and remove it.
3. Remove the two (2) screws at the bottom of the door securing the outer door panel. (Fig. 26)



- Slide the outer door panel down until the tabs in the panel align with the slots in the door frame. (Fig. 27) Pull the panel straight off the door.
- Remove the door insulation.

Replacing the Outer Door Panel

- Replace the door insulation.
- Align the tabs at the top of the outer door panel with the slots in the door frame and push the panel in and up.
- Install the two (2) screws at the bottom of the outer door panel.
- Slide the access panel screw slots over the toe panel screws.
- Press the top of the access panel against the dishwasher and install the two (2) screws to secure it in place.



Removing the Detergent Dispenser

- Remove the outer door panel.
- Disconnect the wire connectors from the terminals of the dispenser solenoid and rinse aid sensor switch (if present).
- Remove the two (2) Philips-head screws at the top of the dispenser unit securing it to the control mounting bracket.
- Remove the three (3) Philips-head screws from the lower dispenser retainer.
- Remove the center Philips-head screw from the upper dispenser retainer.

NOTE: The upper and lower dispenser retainer will be needed to reinstall the dispenser assembly.

- Open the dishwasher door and support the dispenser with one hand while pressing in on the tabs at each end of the dispenser to release it. Lift the dispenser up from the inner door panel to remove it. (Fig. 28)
- Remove the rinse aid cap and note the dial setting. Replace the cap. (Fig. 29)

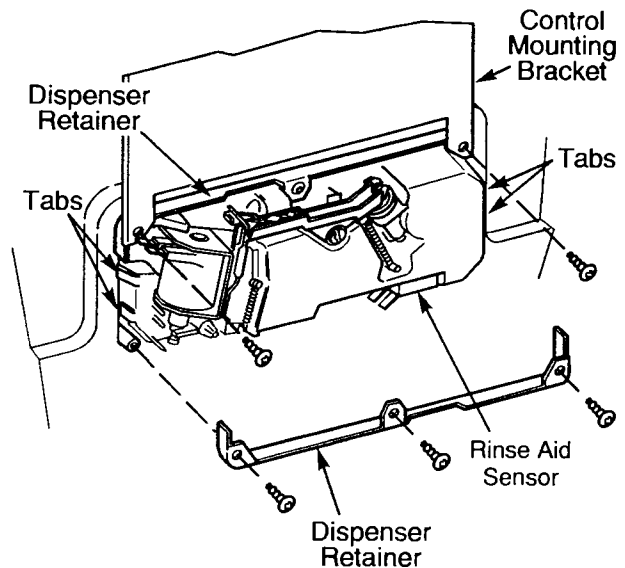
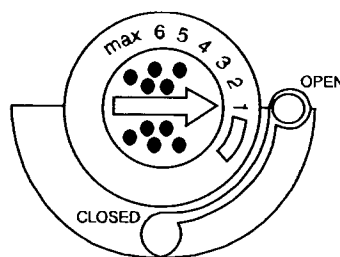


Fig. 28

Fig. 29



Replacing the Detergent Dispenser

1. Remove the rinse aid cap and set it to the previous setting.
2. Open the door of the dishwasher and snap the dispenser unit into place against the inner door panel.
3. Close the door and install the upper dispenser retainer with one (1) Philips-head screw in the center hole.
4. Install the lower dispenser retainer with three (3) Philips-head screws.
5. Place the control mounting bracket into position over the upper dispenser retainer and secure it with the remaining two (2) Philips-head screws.
6. Place the wire connectors on the solenoid terminals in any order. Connect the rinse aid sensor wire connectors.

NOTE: Be sure the mylar moisture cover is properly positioned over the dispenser assembly before proceeding.

7. Replace the door insulation.
8. Replace the outer door panel.

INSIDE THE CABINET

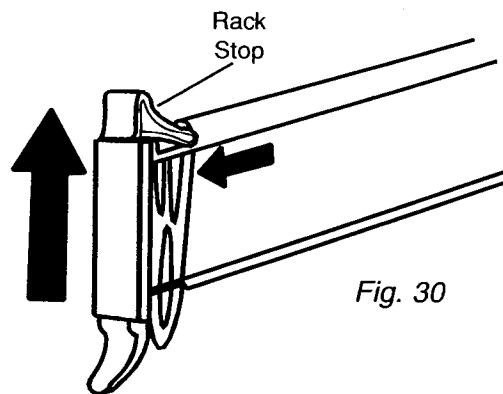
The following components can be accessed from inside the stainless steel tub:

1. Water Inlet and Vent Assembly
2. Upper and Lower Dish Racks
3. Upper and Lower Spray Arm Assemblies
4. Vertical Water Tube

NOTE: The coarse strainer cannot be removed separately. The pump and pump motor must be removed to replace the coarse strainer.

Removing the Upper Dish Rack

1. Pull the dish rack track partially out from the tub.
2. Remove the two (2) track stops by pressing in on the tab inside the rack track and then sliding the stop up and out of the rack track. (Fig. 30)
3. Pull the dish rack from the cabinet.



Replacing the Upper Dish Rack

1. Slide the upper dish rack into the track racks.
2. Slide the track stops down into the openings on the end of the track racks.
3. Slide the dish rack into the cabinet.

Removing the Vertical Water Tube

1. Remove the upper dish rack.
2. Dislodge the upper portion of the vertical water tube from the plastic knob on the back of the tube by pressing down on the nozzle. (Fig. 31)
3. Rotate the lower end of the tube either left or right off the pump nozzle. (Fig. 32)

NOTE: Do not pull the vertical water tube forward or up in an attempt to remove it from the pump nozzle. This will damage the o-ring seal in the tube opening.

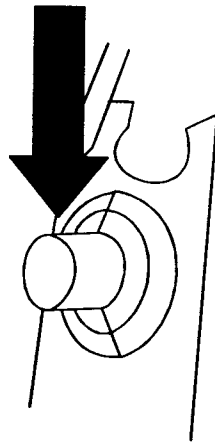


Fig. 31

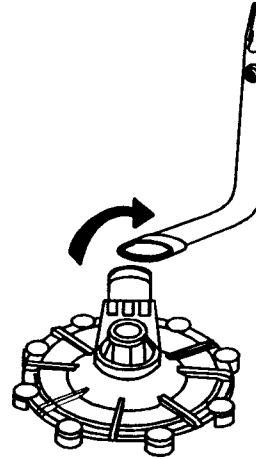


Fig. 32

Replacing the Vertical Water Tube

1. Be sure there is an o-ring seal in the open end of the tube.
2. Rotate the open end of the tube onto the pump nozzle from the left or right.

NOTE: Do not attempt to install the tube from the top or bottom. This will damage the o-ring seal.

3. Slide the upper end of the tube into position under the plastic knob on the back of the tub.
4. Replace the upper dish rack.

Removing the Upper Spray Arm Assembly

1. Pull the dish rack out from the tub.
2. Remove the holder at the rear of the spray arm assembly by unsnapping the holder tabs from the bottom rungs of the dish rack.
3. Remove the one (1) hex-head screw and washer in the center of the upper dish rack securing the spray arm assembly and remove the top upper spray arm mount.
4. Slide the lower tiered spray arm mount from the dish rack and remove the spray arm assembly.

Replacing the Upper Spray Arm Assembly

1. Remove the water inlet funnel from the upper spray arm assembly and slide the holder onto the assembly. Replace the funnel.

NOTE: Be sure to install the funnel tightly on the feed tube.

2. Insert the tiered spray arm mount into the spray arm manifold. The end of the mount has a key to align it properly with the spray arm manifold.
3. Hold the spray arm assembly in place and install the top upper spray arm mount.
4. Secure the spray arm assembly in place with one (1) hex-head screw and washer.
5. Snap the ends of the inlet funnel holder over the bottom rungs of the upper dish rack.
6. Slide the upper dish rack into the tub and check to make sure the funnel joins properly with the nozzle in the vertical water tube.

Removing the Inlet and Vent Assembly

1. Place the end of a screw driver in the slot in the vent bezel and rotate it 1/8 of a turn counterclockwise and remove the bezel. (Fig. 33)
2. Lift the insulating blanket out of the way on the left side of the unit.
3. Remove the water inlet hose from the assembly by squeezing the hose clamp with a pair of pliers.
4. Remove the assembly from the dishwasher.

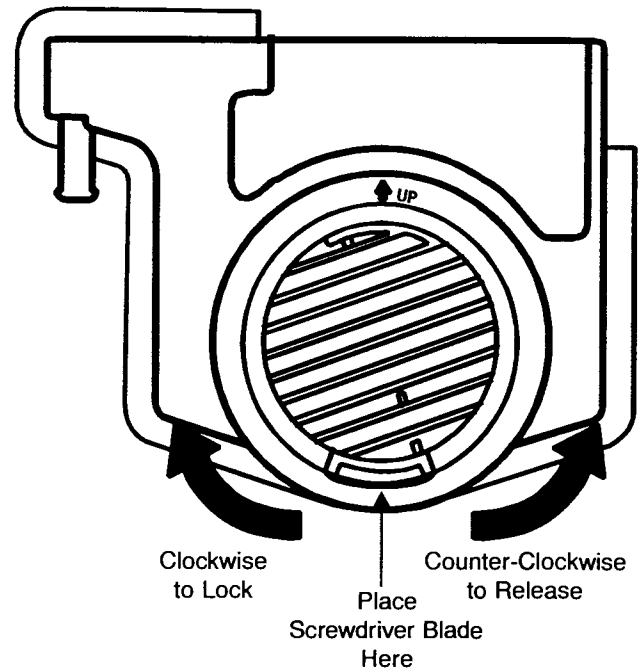


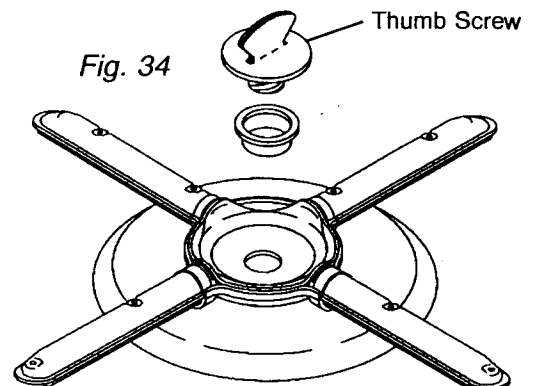
Fig. 33

Replacing the Inlet and Vent Assembly

1. Connect the water inlet hose to the assembly using a hose clamp.
2. Place the seal ring in the slot in the assembly.
3. Set the assembly in place in the left side of the tub. Make sure the seal ring makes full contact with the cabinet.
4. Set the vent bezel in place and rotate it

Removing and Replacing the Lower Spray Arm Assembly

1. Remove the lower dish rack.
2. Unscrew the plastic thump screw at the center of the lower spray arm and lift the spray arm assembly from the unit. (Fig. 34)
3. Replace the lower spray arm assembly by reversing the first two steps.

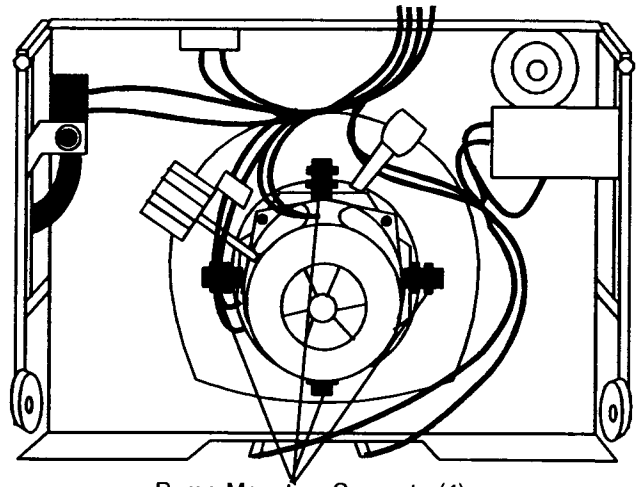


UNDERNEATH THE CABINET

Removing the Pump and Pump Motor

From underneath the cabinet:

1. Remove the front access panel. (See Removing the Outer Door Panel)
2. Disconnect the wiring harness connector from the pump motor.
3. Disconnect the two (2) wires from the operating thermostat mounted on the pump housing.
4. Disconnect the drain hose from the connector on the pump by squeezing the hose clamp with a pair of pliers.
5. Unscrew the tuned sound absorber shaft from the motor housing.
6. Turn the four pump mounting supports approximately 90°. (Fig. 35)



Pump Mounting Supports (4)

Fig. 35

From inside the cabinet:

7. Remove the lower dish rack and lift the pump and pump motor from the unit.

NOTE: The coarse strainer is attached to the pump housing by small retainer clips and can be easily removed by unsnapping the strainer from the clips.

Replacing the Pump and Pump Motor

From inside the cabinet:

1. Snap the coarse strainer into the retainer clips on the pump housing.
2. Carefully drop the pump and pump motor assembly into place from inside the cabinet.

From underneath the cabinet:

3. Turn the four pump mounting supports underneath the cabinet approximately 90° so they will hold the assembly in place.
4. Connect the drain hose to the drain connector on the pump using a hose clamp.
5. Reconnect the two (2) wires to the operating thermostat mounted on the pump housing.
6. Reconnect the wiring harness connector to the pump motor.
7. Screw the tuned sound absorber shaft into the motor housing.
8. Replace the front access panel. (See Replacing the Outer Door Panel)

Removing the Heater Element

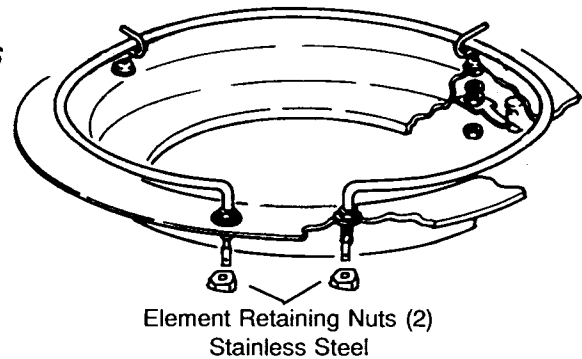
From beneath the cabinet:

1. Remove the front access panel. (See Removing the Outer Door Panel)
2. Unsnap the plastic protective covers on the heater element terminals.
3. Press in on the tabs on the spade connectors and slide them off the heater element terminals.
4. Unscrew the two (2) stainless steel nuts securing the heater element to the bottom of the tub. (Fig. 36)

From inside the tub:

5. Remove the lower dish rack.
6. Remove the lower spray arm.
7. Carefully lift the heater element from the unit.

Fig. 36



Replacing the Heater Element

From inside the tub:

1. Carefully place the terminal ends of the heater element through the two (2) holes at the bottom rear of the cabinet.
2. Replace the lower spray arm.
3. Replace the lower dish rack.

From underneath the cabinet:

4. Secure the heater element in place with two (2) stainless steel nuts. Be sure the element is seated firmly against the stainless steel tub.
5. Slide the spade connectors onto the heater element terminals.
6. Replace the plastic protective covers over the heater element terminals.
7. Replace the front access panel. (See Replacing the Outer Door Panel)

SECTION FOUR

CONFIRMATION OF LEARNING EXERCISES

Place the letter of the answer that best completes the statement.

1. The four components that can be found in the dishwasher door are _____:
 - a) Electronic Control Board, Switch Panel, Articulated Vent and Operating Thermostat
 - b) Electronic Control Board, Switch Panel, Articulated Vent and Hi-Limit Thermostat
 - c) Electronic Control Board, Switch Panel, Articulated Vent and Detergent/Rinse Aid Dispenser
 - d) Detergent/Rinse Aid Dispenser, Switch Panel, Articulated Vent and Hi-Limit Thermostat

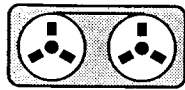
2. To remove the articulated vent _____:
 - a) The console must be removed
 - b) The console and outer door panel must be removed
 - c) The outer door panel must be removed
 - d) Open the door and remove it from the stainless steel inner door panel

3. The control board _____:
 - a) Has five wiring harness connector locations
 - b) Has four wiring harness connector locations
 - c) Has five wiring harness connector locations and a ribbon cable connector
 - d) Is hard-wired to the wiring harness

4. The water supply tube to the upper spray arm _____:
 - a) Must be rotated to the left or right off the pump nozzle
 - b) Is not removable
 - c) Can be pulled straight forward off the pump nozzle
 - d) Must only be removed when the pump and motor assembly is removed

- 5) When removing the pump and pump motor assembly _____:
 - a) The tuned sound absorber must be removed
 - b) The drain hose must be removed
 - c) The wiring to the operating thermostat and pump motor must be removed
 - d) All of the above

6. If a dishwasher is available, perform the following procedures:
 - a) Remove and replace the articulated vent
 - b) Remove and replace the detergent/rinse aid dispenser
 - c) Remove and replace the water inlet and vent assembly
 - d) Remove and replace the upper dish rack



View Section 5 of the Video Tape

Section Five

TROUBLESHOOTING AND DIAGNOSTICS

PRECAUTIONS TO BE OBSERVED WHILE TROUBLESHOOTING AND DIAGNOSING PROBLEMS

Always check wiring harness and connectors before initiating any test procedures.

Disconnect electric power from the dishwasher before touching the printed circuit boards or re-seating wire connectors.

Voltage checks should be made by inserting meter probes beside the wires in the connector blocks with the electric power source on and the connector block plugged in.

Resistance checks should be made on components with the electric power off and the connector blocks disconnected.

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSES	CORRECTION/TEST
Dishwasher does not run or stops during a cycle	<ol style="list-style-type: none"> 1. Door is not latching properly. 2. Child lock is "ON". 3. Wash Cycle not set properly. 4. Household fuse blown or circuit breaker tripped. 5. Washer is not wired into a circuit with proper voltage. 	<ol style="list-style-type: none"> 1. Check to make sure handle link is properly seated in door latch assembly. Check that the door switch is opening and closing properly. 2. Turn child lock "OFF" 3. Review setting Wash Cycles in the Use and Care Guide. 4. Have a qualified electrician check the circuit breaker or fuse. 5. Have customer call a qualified electrician.
Dishwasher will not fill	<ol style="list-style-type: none"> 1. Overflow protection float is stuck in "up" position. 2. Fill valve is inoperable. 3. Control board is inoperable. 	<ol style="list-style-type: none"> 1. Check that the overflow protection float is free to move "up" and "down". Check that the overflow switch in opening and closing properly. 2. Check for continuity between contacts on fill valve. 3. Check for 110VAC between P2-5 and P12-3.
Dishwasher will not drain	<ol style="list-style-type: none"> 1. Air gap (if installed) is clogged. 2. Pump motor is inoperable 3. Control board is inoperable. 	<ol style="list-style-type: none"> 1. Follow air gap manufacturer's direction for cleaning. 2. Disconnect pump motor from wiring harness and check for continuity between V & BU, V & GY and V & Y. 3. Check for 110VAC between P10 and P3, P10 and P5 and P10 and P4.
Dishwasher will not dry dishes	<ol style="list-style-type: none"> 1. Heater element burned out. 2. HI-limit thermostat inoperable. 3. Articulated vent motor inoperable. 	<ol style="list-style-type: none"> 1. Check for continuity between the terminals of the heater element. Check for 110VAC between P5 and P8. 2. Check for continuity between terminals of the hi-limit thermostat. 3. Check for continuity of between terminals of the wax motor. Check for 110VAC between P9 and P8.

DIAGNOSTICS

The KUD24 series of dishwashers provides a Factory Diagnostics Test and a Service Diagnostics Test to the technician. Both test modes perform identical function tests of the LED display, VFD display, if present, and component operation in 13 intervals. (Table 2) The Service Diagnostics Test performs certain intervals of the test sequence for longer periods of time than the Factory Diagnostics Test as noted in the DURATION OF INTERVAL portion of the table.

To initiate the Factory Diagnostics Test, enter the following key sequence on the control panel:

HIGH TEMP WASH - AIR DRY - HIGH TEMP WASH - AIR DRY
within (10) seconds.

To initiate the Service Diagnostics Test, enter the following key sequence on the control panel:

HIGH TEMP WASH - AIR DRY - HIGH TEMP WASH - AIR DRY - HIGH TEMP WASH
within ten (10) seconds.

INTERVAL	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	DURATION OF INTERVAL (In seconds)													
Factory Test	2	2	2	10	20	10	2	5	2	5	135	5	60	0
Service Test	2	2	2	60	120	60	2	5	2	5	135	5	60	0
CYCLE LED's														
POTS & PANS/ SOAK & SCRUB		█												
NORMAL WASH		█												
SHORT WASH		█												
LIGHT CHINA		█												
QUICK GLASS		█												
RINSE & HOLD		█												
CANCEL			█											
OPTIONS LED's														
CUSTOM		█												
HIGH TEMP WASH		█												
AIR DRY		█												
SANI RINSE		█												
DELAY (2,4 & 6)			█											
STATUS DISPLAY														
VFD BAR GRAPH														
W1/WASHING	█													
W2/WASHING		█												
W3/WASHING			█											
R1/RINSING				█										
R2/RINSING					█									
R3/RINSING						█								
D1/DRYING										█				
D2/DRYING											█			
LOCK OUT			█											
WATER HEATING				█										
RINSE AID EMPTY					█									
SANI COMPLETE						█								
CLEAN							█							
VENT														
MOTOR														
WASH														
DRAIN														
FILL VALVE														
DETERGENT DISP														
RINSE AID DISP														
HEATER														

During the test cycle only the input from the POTS & PANS or SOAK AND SCRUB (depending on model) keys are recognized. Pressing these keys will advance the test from one interval to the next.

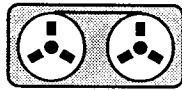
Pressing the CANCEL button once during the test cycle will initiate a two (2) minute drain, after which the test will terminate. Pressing the CANCEL button a second time during the test cycle will immediately terminate the test.

Table 2

NOTE 1:
 Model KUDV24: Main Cycle Drain Time and Test Cycle Drain Time at interval 9 is 1½ minutes.

All Other Models: Main Cycle Drain Time and Test Cycle Drain Time at interval 9 is 2 minutes.

NOTE 2:
 Model KUDV24: Interval 3 is 2¼ minutes.
 All Other Models: Interval 3 is 2 minutes.



View Section 6 of the Video Tape

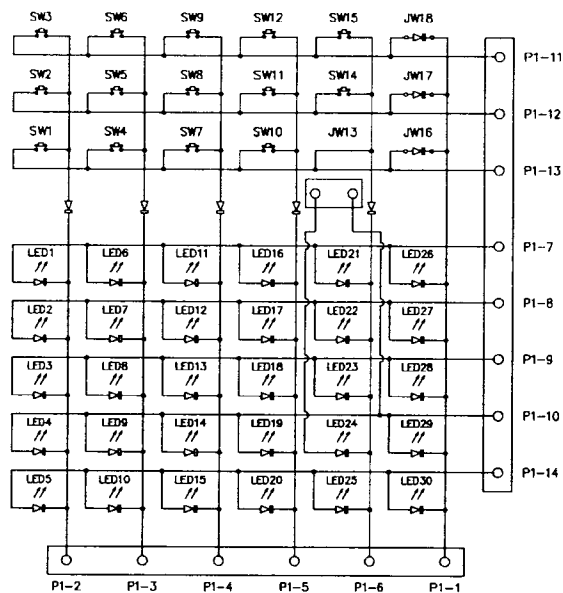
Section Six

TECH TIPS

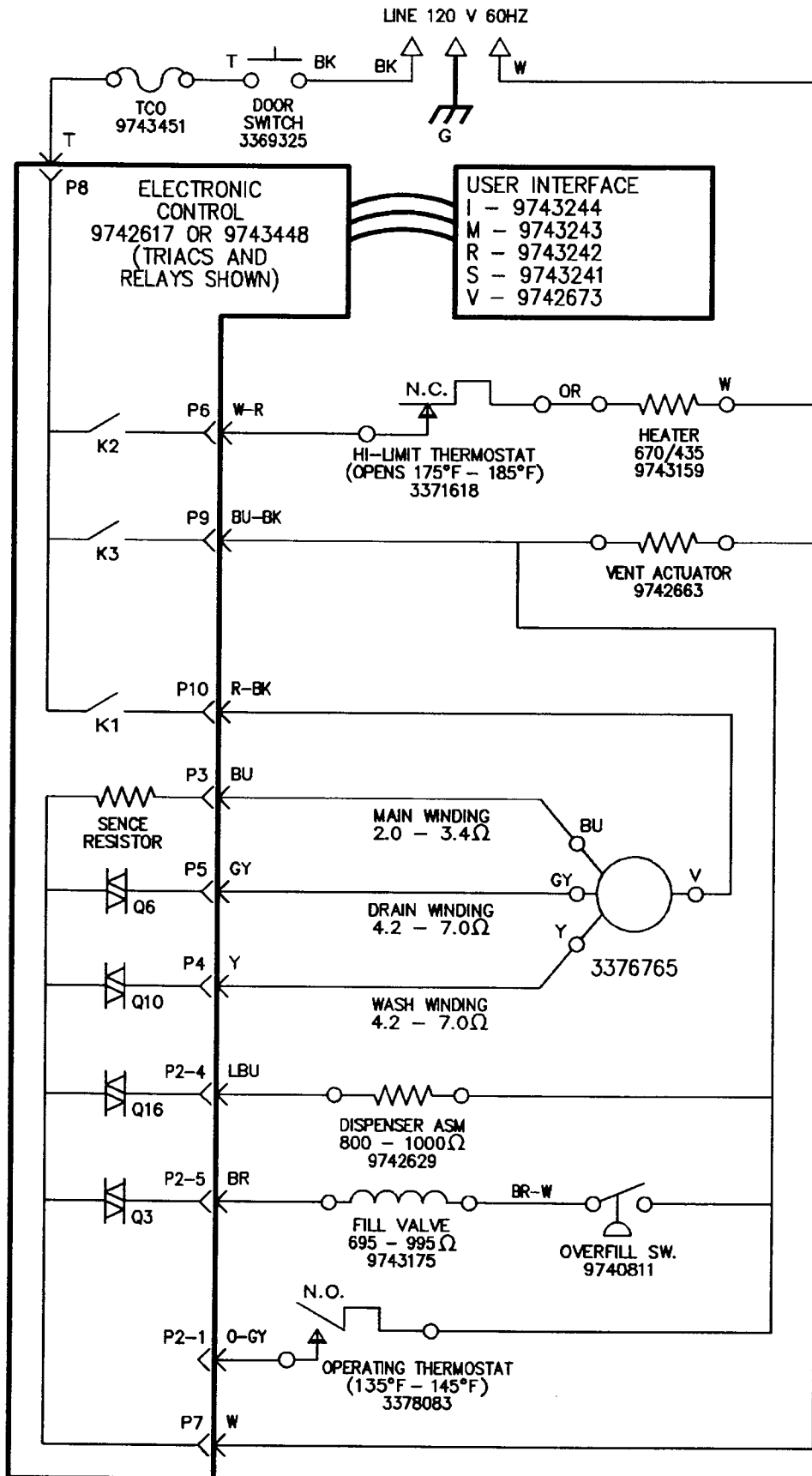
CONNECTOR PIN OUT		
PIN NO.	DESCRIPTION	WIRE COLOR
P2-1	Thermistor	O - GY
P2-2	Thermistor	GY - O
P2-3		O - BK
P2-4	Dispenser Solenoid	LBU
P2-5	Fill Valve	BR
P3	Motor Main	BU
P4	Wash Phase	Y
P5	Drain Phase	GY
P6	Heater	W - R
P7	Door Switch Neutral	W - V
P8	Door Switch AC	T
P9	Switch AC Line - Vent	BU - BK
P10	Switch AC Line - Motor	R - BK
P11-1	AC Neutral - Reference	W - V
P11-2	Receive	BU
P11-3	Transmit	R
P12-1	AC Hot	BK
P12-2		
P12-3	AC Neutral	W

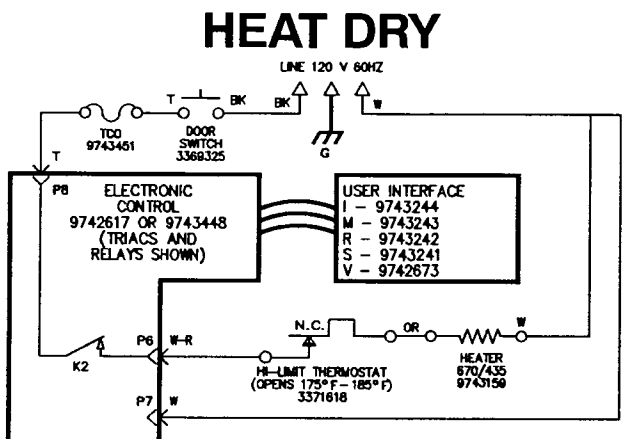
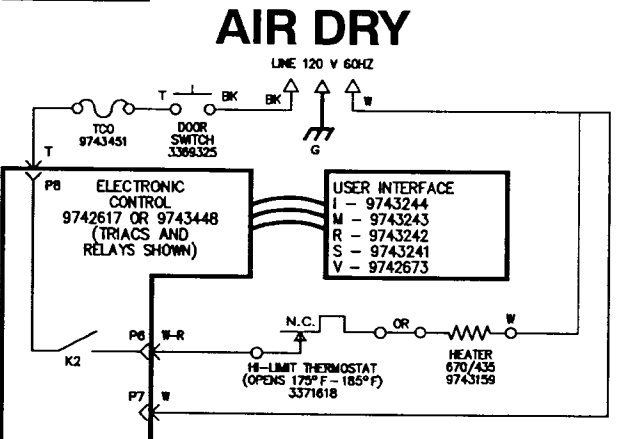
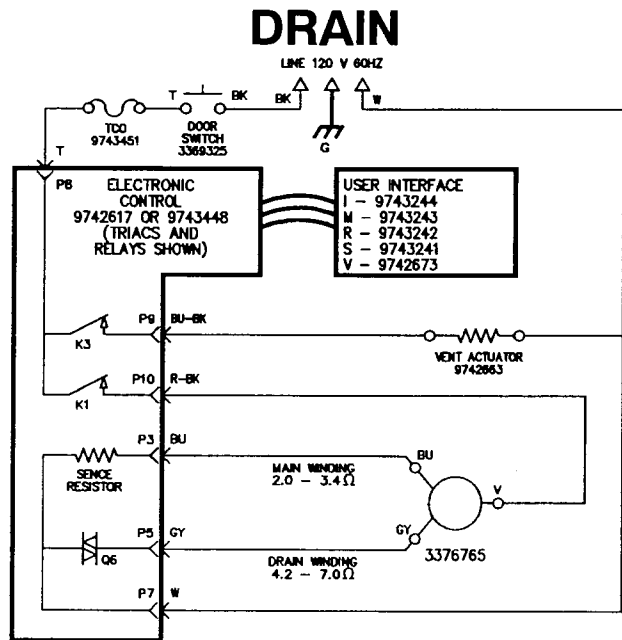
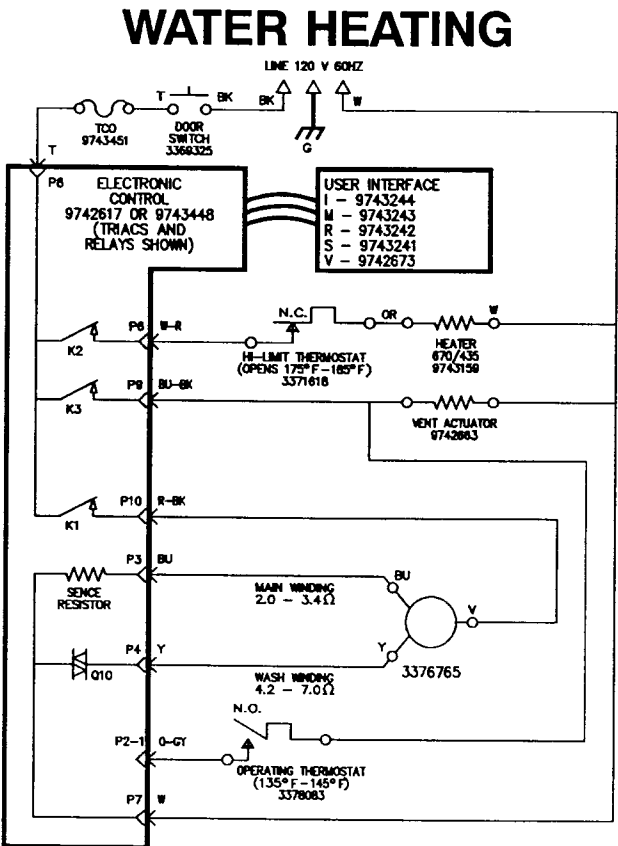
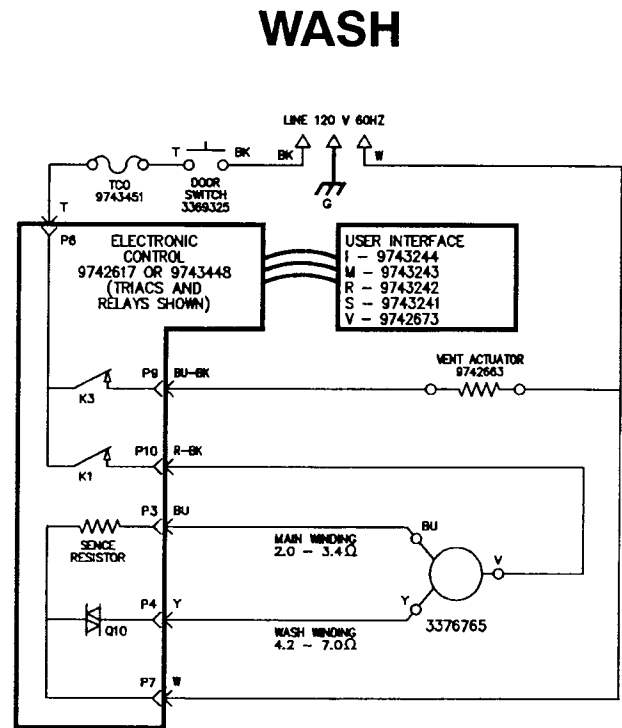
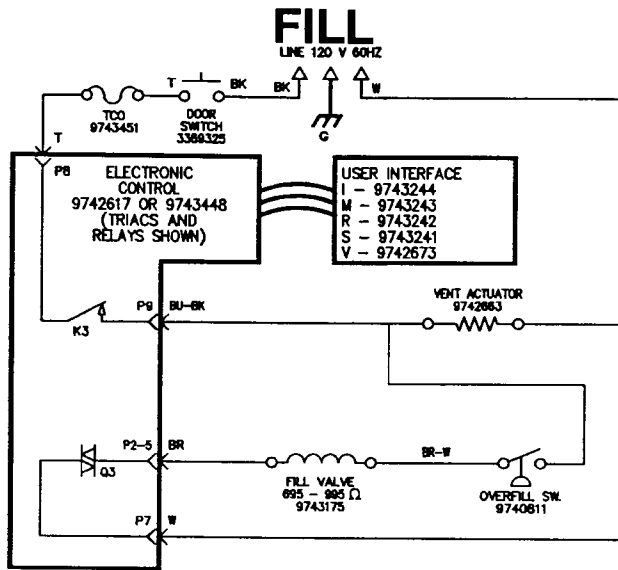
SWITCH PAD SCHEMATIC

MOLEX 70543-0048
OR EQUIVALENT



WIRING DIAGRAM





MODEL NUMBER

MARKETING CHANNEL (If Present)	K	UD	S	24	S	E	AL	0
K = KitchenAid Brand								
PRODUCT IDENTIFICATION UD = Undercounter Dishwasher								
MERCHANDISING SCHEME I = Feature Level M = Feature Level R = Feature Level S = Superba V = VF Display								
SERIES 24								
FEATURES S = Selectra (Electronic Controls)								
YEAR OF INTRODUCTION E = 1996								
COLOR WH = White BL = Black AL = Almond								
ENGINEERING CHANGE (Numeric)								

PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION SOURCES

FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:

FOR KITCHENAID PRODUCTS: 1-800-422-1230

FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:

THE TECHNICAL ASSISTANCE LINE: 1-800-253-2870

Have your store number ready to identify you as an Authorized Servicer

ANSWER SHEET

CONFIRMATION OF LEARNING EXERCISES

Section Three

1. d
2. d
3. d
4. d
5. b

Section Four

1. c
2. a
3. c
4. a
5. d