C44B PLUS DISHWASHERS

OPERATION AND INSTALLATION

MANUAL

MODEL L-R OPERATION R-L OPERATION



HOBART FOOD EQUIPMENT CO., LTD.

V1.0-1011

DO'S AND DON'TS FOR YOUR NEW HOBART DSIAHWASHER

DO assure proper water hardness.

DO pre-scrap dishes thoroughly.

DO use only detergents recommended by your chemical professional.

DO at the end of the day, thoroughly clean the machine, rinse and dry (leave door open).

DO use only products formulated to be safe on stainless steel.

DO NOT over soften water (recommended water hardness is 25-75 mg per liter).

DO NOT allow food soil to accumulate on the tank bottom.

DO NOT exceed chemical manufacturer's recommended concentrations for detergent, sanitizer, rinse aid or lime scale remover.

DO NOT use steel wool to clean ware or dishwasher surface.

DO NOT allow foreign objects to enter the unit, especially metallic

contaminants.

As continued product improvement is a policy of HOBART, specifications are subject to change without notice.

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C44B Plus Built-in Booster DISHWASHERS

SAVE THESE INSTRUCTIONS

GENERAL

Your new C44B Plus Built-in Booster Dishwasher is a fully automatic, rack-type machine. It has a stainless tank and chamber with welded stainless steel angle frame, stainless steel legs, and stainless steel adjustable feet. Front inspection doors provide ready access to the interior of the wash chambers. This machine has 36kw/18kw rinse booster, and is available with electric heat supply. The rinse system is only available with an electrically heated rinse booster.





TECHNICAL DATA

Model	C44B plus
Dimensions (I X w X h):	1105×768×1837
Maximum Capacity (racks / hour):	203
Door opening height (mm):	450
Tank heat (KW):	15
Booster (KW):	36
Total power supply (KW):	46
Water consumption/hour (L):	432
Water consumption/rack (L):	2.13

STANDARD EQUIPMENT Controls (Fig. 1) and Thermometer (Fig. 2)



Fig. 1

Fig. 2

The controls are mounted on the top of the chamber. There are three operational control switches housed in the control box: POWER (ON-OFF); MOTOR (ON-OFF); and TIMER (MANUAL- AUTO). A pilot circuit transformer is furnished for electrical power to supply a reduced voltage 120V to the machine controls.

Analogy thermometers for wash and final rinse are located on the faceplate. The temperature range for wash is 55-65 and for final rinse is 82-90

Motor and Pump Units

The wash pump and motor are centrifugal-type cast stainless steel with stainless steel impeller. The 2 HP motor is available in the following voltages:

Volts	Hz	Phase	Volts	Hz	Phase
220-240	50	3	380-415	50	3
220-240	60	3	380-415	60	3

The conveyor motor is a 0.2KW gear motor with the same voltage as the wash pump motor.

All motors have built-in thermal overloaded protection with manual reset.

Clutch/Rack Transport Protection (Fig. 3)

The conveyor motor transfers power to the rack transport system through the coupler When the machine is overloaded or the racks jam, the overload switch sends a signal to stop the conveyor motor, rack transport mechanism and motor to protect the machine.

Heater Protection

A float – activated switch located in the wash tank automatically turns off the heat supply if the water lever is too low. Once the water returns to a safe level, the heating circuit becomes operational if heat is demanded.

An over-temperature protector is also provided for electric heat. If overheating should occur, the heat supply will be turned off. Turn the POWER switch to OFF and contact your Hobart-authorized service office.

Booster Control

The booster water temperature is regulated by the solid state thermostat to keep the rinse water temperature on 82-90 . The thermostat is preset at the factory and no adjustment should be required. If rinse temperature is not on normal standard, turn the POWER switch to OFF and contact your Hobart-authorized service office.

Booster Overheat Protection

Overheat protection will automatically turn off the booster power switch if overheating occurs such as the booster operating without water. If overheating occurs, turn the POWER switch to OFF and contact your Hobart-authorized service office.

Booster Power Circuit Protection

Two circuit breakers (60A) located in the control box (Fig. 4) are provided in the power circuit to safely control the two boosters. Each booster is controlled by a separate breaker. If short circuit occurs, the breaker will automatically turn off the power.



Fig. 3



Fig. 4

WARNING: The breaker is preset to "OFF" at the factory. Do not close the breaker until the machine is installed and the machine tanks and boosters filled by powering the machine and activating the tank fill. Close the breaker after the machine is filled, otherwise, the booster will be damaged!

Booster Capacity

Booster capacity is 36 kW and inlet water temperature is not lower than 10° C. Booster with 18kW heater should be selected when inlet water temperature is higher than 50° C.

Wash/Auto-timer Actuator (Fig.5) and Rinse Actuator (Fig.6)



Fig. 5



Fig.6

Wash actuator, which is located at the entrance of the machine, works only when the timer is on AUTO. When the rack enters into the machine, wash begins.

The rinse actuator is located at the exit of the machine. Rack contact with the rinse actuator activates the final rinse.

Door Interlocks

Door interlock switches will prevent machine operation while an inspection door is open. If a door is opened while the machine is operating, the pumps and conveyor will automatically turn off. After the door is closed, the machine must be restarted by pushing the MOTOR switch to ON.

Wash/Rinse Arms

Wash and rinse arms are removable.

Auto Fill

Close door(s) and push the POWER switch to ON. The machine fills automatically. Some water is heated in booster, and then flows into wash tank. The other flows into wash tank directly. After the tank is filled, the solenoid valve is closed automatically.

Auto Timer

The Auto Timer switch is located on the front of the control box. Designed to save electrical power, it is adjusted to shut off pump and drive motors and optional exhaust vent fan control after the last rack exits the dishwasher. To restart, slide a rack into the machine or push MOTOR switch to ON. To change the time setting, contact your Hobart-authorized service office.

Front Panel

Stainless steel front panel conceals pumps and plumbing.

Common Water Connection

A single water connection for Fill and Final Rinse is standard.

OPTIONAL EQUIPMENT

Blower Dryer ------ Dishes are dried by forced heated air.

Conveyor belt pause------Conveyor belt pause switch which located control box can be selected .

Stretch cover------ As adjustment of vent, prevent wash trough outlet spattering.

Waste control------ Entrance end – 5.7 m³/min maximum; Discharge end – 11.3 m³/min maximum.

Input angle control---Easy to install the machine in the corner or limited space.

Vent Hood ------A dampered exhaust opening can control steam and water splash to work area. Exhaust requirements: Contact your Hobart office for details.

Fan control---Turn on the ventilation fan when the pump works, and close with delay function.

Table Limit Switch ------ Shuts the machine off when the unloading table is full of racks.

Output angle control---Easy to install the machine in the corner or limited space.

INSTALLATION

UNPACKING

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

Prior to installation, verify that the electrical service agrees with the specifications on the machine data plate, which is located on the right-hand side of the control box.

The electrical diagram is located on the inner surface of the control box cover.

After unpacking the dishwasher, remove the items shipped uninstalled (overflow tube, pump intake strainer, curtains, and chamber hole plug kit) and instructions from inside the dishwasher. Set the dishwasher in its proper location. Adjust the height and level by turning the adjustable feet. **NOTE**: The dishwasher must be positioned and levelled before making plumbing connections.

ASSEMBLY

Dish tables should be fitted into the dishwasher (Fig. 7). Use Mastic between table and lip of tank to prevent leakage. Rack track height should be from 6 mm to 8 mm (Fig. 7) above the tank lip. Dish tables should be sloped so that any water carried from the dishwasher will drain back into it.



Fig.7

Dish tables should be fitted into the dishwasher (Fig.7) .Use Mastic between table and lip of tank to prevent leakage. The track should be higher 6-8mm (Fig.7) than the tank lip. Tilt dish table a little so that the water can flow back.

Remove the strainer basket and strainer pans from the wash chamber (Fig. 8).

Place the pump intake strainer on the three hooks as shown in Fig.9.

Place the overflow tube in the retainer.(Fig. 10)



Fig. 8



Fig. 10

PLUMBING CONNECTIONS

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

The plumber who connects this machine is responsible for making certain that both water and steam lines are THOROUGHLY FLUSHED OUT BEFORE connecting to any manual valve or solenoid valve.

Manual valves or solenoid valves fouled by foreign matter, and any expenses resulting from this fouling, are NOT the responsibility of the manufacturer.

DRAIN CONNECTION

Connect the drain through a trap to the sewer using 51 mm pipe. The tank(s)' common drain requires only one connection to the floor drain,

If a grease trap is required by code, it should have a flow capacity of 117 litres per minute.

FILL/FINAL RINSE CONNECTION (Fig. 11)



Fig. 11

Use 19mm pipe for the connecting line. The decompression valve adjustment should be done in the location. The method is: Turn on the shutoff cock, adjust decompression valve from low pressure to high pressure by and by (rotate the adjustment screw clockwise). Keep the water flowing pressure in 0.1Mpa. Seal it by lacquer after adjustment. Water flows into booster and is heated, then into wash tank. After the tank is filled, the float-controlled high-water switch closes the solenoid valve. If during the operation water level in wash tank is lower than the proper water level, fill solenoid valve (Fig.11) will be opened. After the proper water level is returned, fill valve is closed.

WARNING: Do not operate the machine when flowing pressure is under 0.08Mpa. Low pressure may result in inadequate rinsing.

WARNING: The water fill connection must be 80° maximum and flow pressure should not exceed 1.5Mpa. Otherwise, the pressure regulator valve will be damaged. This regulator is preset at the factory and no adjustment should be required.

ELECTRICAL CONNECTIONS

Power Connection

Power connection is housed in the control box (Fig. 12). **NOTE**: Three power lines must connect to L1/L2/L3 of the junction line, and zero line connects to zero line terminal block.



Fig. 12

WARNING: MUST HAVE A CONTACT SEPARATION IN ALL POLES WITH ELECTRIC LEAKING PROTECTOR IN THE CIRCUIT PROVID FULL DISCONNECTION, FOR EXAMPLE, AIR SWITCH. THE SWITCH STYLE MUST COMPLY WITH THE CURRENT ON THE MACHINE DATA.

WARNING: PRIOR TO CONNECTION, VERIFY THAT THE ELECTRICAL SERVICE AGREES WITH THE SPECIFICATIONS ON THE MACHINE DATA PLATE, WHICH IS LOCATED ON THE RIGHT-HAND SIDE OF THE CONTROL BOX. IN ADDITON, POWER LINE MUST COMPLY WITH THE CURRENT ON THE MACHINE DATA.

WARNING: ELECTRICAL AND GROUNDING CONNECTION MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE ANSI/NFPA 70(LATEST EDITION) AND/OR OTHER LOCAL ELECTRICAL CODES.

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

WARNING: SOME MACHINES MAY BE HAVE MORE THAN ONE ELECTRICAL POWER SUPPLY. ALL SUPPLIES MUST BE DISCONNECTED.

WARNING: YZW AND YCW INSULATIVE JACKET WIRES ACCORDING WITH NATIONAL STANDARD MUT BE USED. SPECIFICATION SELECTION REFERS TO TABLE.1.

Туре	Power	Current	Minimum square
C44B plus	kW	Α	mm²
2253-18	28	73.5	25
2263-18	28	73.5	25
2253-36	46	121	35
2263-36	46	121	35
3853-18	28	42.6	16
3863-18	28	42.6	16
3853-36	46	70	25
3863-36	46	70	25

Table.1



Motor(s)

Connect a permanent electrical power supply to the terminal block in the control box. Threephase motor(s) rotate the impeller in the direction of the arrow found on the pump housing of the motor pump unit (Fig. 13), and the drive motor must rotate clockwise when viewed from the output shaft end. Before placing the machine into service, a check must be made to verify correct rotation. Only one motor needs to be checked as the machine is wired at the time of manufacture so that all motors will rotate the same direction.



Fig. 13

If the impeller does not rotate in the direction of the arrow, **DISCONNECT POWER SUPPLY(ES)** to the machine and interchange any two power supply leads at the control box terminal block.

Electric Heat

The tank water temperature and booster temperature are regulated by a solid-state thermostat that is preset at the factory and should not require adjustment (Fig. 14). If an adjustment is necessary, contact your Hobart-authorized service office. Use the machine thermometer for verification of proper water temperatures.





Fig. 15

Booster tank temperature is regulated by two-grade thermostat. In normal operating procedure a solid-state thermostat (Fig. 14) keeps 82-90 . To avoid dry operation of the heating elements, overheat protection, which is regulated by a mechanical thermostat (Hi-Limit protector) (Fig. 15) is built in also. The limit point of overheat protection is 110 . The installation location of the normal thermostat and the Hi-Limit thermostat is shown in Fig.16 & 17.

C44 B PLUS OPERATION INSTRUCTION







WARNING: Hi-Limit protector housed in booster is preset at the factory (Fig. 17) and no adjustment should be required. If an adjustment is necessary, contact your Hobart-authorized service office.

WARNING: Hi-Limit protector is disconnected before leaving factory to avoid dry operation of the booster elements. CONNECT THE HI-LIMIT CIRCUIT ONLY AFTER THE FOLLOWING PROCEDURE. Position and level the dishwasher; connect electrical power, water inlet and drain pipe. Turn on the power switch; solenoid valve is activated to fill the machine. When the tanks are full connect Hi-Limited protector. Failure to follow this procedure can result in machine manage.

OPERATION

PREPARATION

Put the dishwasher strainer pans and strainer basket (see Fig. 8) into position in each dishwasher tank. Put the final rinse screen over the final rinse catch pan. (See Fig. 18)



Fig. 18

Hang curtains on open hooks provided. Refer to the curtain diagram of Fig.24 that corresponds to your machine.

Move drain lever(s) (Fig. 10) to DOWN position to close drain, or close the door(s) (automatically pushes lever(s) down).

Turn POWER switch (see Fig. 1) ON. The pump should be left OFF until the machine has completely filled.

The tank water temperature is regulated by the solid-state thermostat. The thermostat is preset at the factory and no adjustment should be required. If an adjustment is necessary, contact your Hobart-authorized service office. Use thermometers for verification of proper water temperatures.

Minimum temperatures for all models are:

WASH

FINAL RINSE

55°C (140⁰F) Minimum

82[°]C (180⁰F) Minimum

If the tank is accidentally drained before turning off the power switch, the float-controlled low-water protector switch will automatically stop the tank heat. When the proper water level is re-turned, the tank heat will be automatically started. **DO NOT** use the low-water protection as a power **ON-OFF** switch. The heat **MUST** be turned **OFF** at the **POWER** switch when the machine is not in use.

Scatter the initial charge of detergent on the dishwasher strainer pans. Replenish as needed.

When an automatic detergent dispenser has been added (by private supplier), follow

supplier's instructions.

DISHWASHING

After machine has filled, start pumps by pushing MOTOR switch (see Fig. 1) to ON.

Stack dishes in the racks. Do not stack dishes one on top of another as water must have free access to both sides of every dish. Stand plates and dishes up edgewise as shown in Fig. 19. Cups, glasses, and bowls should be inverted in open-type or compartment-type rack as shown in Fig. 20. Silverware and other small pieces may be scattered loosely over the bottom of a flat-bottom rack.



Fig. 19



Fig. 20

When one rack has been loaded, slide it into the machine and start loading another. The operation of the dishwasher is automatic. Each rack moves through the wash, and rinse zones, then out onto the clean dish table. The rinse lever is actuated by the dish rack and automatically shuts off the final rinse water when no rack is in the rinse zone.

Allow dishes to drain and air-dry before removing from rack.

An overload mechanism is provided that will shut off the conveyor drive motor when the racks jam or the load becomes excessive. After the jam is cleared, push the MOTOR switch to ON to restart the dishwasher.

CLEANING

Suggestion: Clean the machine completely after each operation or at least twice one day.

Warning: Do not rinse the machine with water jet except tank and chamber.

- 1. Turn MOTOR and POWER switches OFF.
- 2. Open the door(s). Standard door interlock switches prevent machine operation with inspection door(s) open.
- 3. Open drain(s) by pulling drain lever(s) up (see Fig. 10).
- 4. Check the upper and lower final rinse nozzles, or auxiliary rinse nozzles (if so equipped) to make sure they are free of lime and solids.



Fig.21

If the nozzles are clogged serious, unscrew the nozzles and souk them in detergent for a few minutes, and then put them in place.

When the rack exits, open the machine door(s) and replace the end cap(s).

- 5. Remove wash arms(Fig.21). Thoroughly flush the wash arm in a sink and replace the wash arm end caps (a twisting action helps ensure proper seating).
- 6. Clean off any scraps from machine walls.
- 7. Clean dish tables into the dishwasher.
- 8. Remove all strainer pans and strainer basket(s). Empty contents into garbage can or disposer and thoroughly clean pans and basket(s).
- 9. Remove and clean pump intake strainer (see Fig.9).
- 10. Remove final rinse pan strainer. Clean out pan and drain opening in pan bottom. Clean off strainer.
- 11. Remove curtains. Thoroughly scrub, rinse, and allow to dry at the end of each day's operation. See appropriate curtain diagram (page 23) for proper curtain installation.
- 12. Thoroughly wash out the interior of the machine with a high-pressure hose.
- 13. Return all strainer pans, strainer basket(s), and pump intake strainer to original locations.
- 14. Install upper wash arms. Rest the manifold on the rear hanger bracket with the open end of the arm next to the wash pipe and rotate the arm upward to latch it.
- 15. Insert the lower wash arm at an angle between the conveyors and install the retainer over the pin. Rotate the arm toward the catch and engage the hook into the notch (Fig.22).



16. Leave door(s) open and curtains removed while machine is not in use. This will allow the interior to air out and dry.

17. Wash booster heater every two weeks or three weeks because too much dirty attached to heater surface. Disconnect electrical supply and place a tag at the disconnect switch to indicate that you are working on the heater before beginning any maintenance procedure. Heater connection refers to Fig.23. Connect 1THR/2THR/3THR with 1, 2, 3 terminals and connect 4THR/5THR/6THR with 4, 5, 6 terminals.

Warning: Forbid wrong connection of not following requirement.



Notice:

1. Door can be opened only after 30 seconds stop to avoid hot water assault.

2. Forbid operator pick up falling dishes or put hand into machine when machine is working.

3. Do not operate wash pump when machine is short of water.

4. Do not use machine when water pressure is lower than 0.08MPa and lower pressure may influence wash property. If so, advise to add pump (by private supplier).

MAINTENANCE

WARNING: DISCONNECT ELECTRICAL SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH TO INDICATE THAT YOU ARE WORKING ON THE CIRCUIT BEFORE BEGINNING ANY MAINTENANCE PROCEDURE.

Some machines may have more than one electrical power supply. All supplies MUST be disconnected.

See appropriate heater line diagram (Fig. 23) for proper heater installation. 1HTR/2HTR/3HTR use common power line and connect to 1, 2, 3 terminal blocks; 4HTR/ 5HTR/6HTR use common power line and connect to 4, 5, 6 terminal blocks.

WARNING: Disconnect Hi-Limit protector (Fig. 15) circuit when repairing booster. After service completed, connect Hi-Limit protector until the machine has completely filled. Failure to follow this procedure can result in damager to booster.

VENT

When cool, check the vent (if installed) of this dishwasher every six months for obstructions.

LUBRICATION

None required.

TROUBLESHOOTING

NOTE: If symptom persists after possible causes have been checked, contact your Hobartauthorized service office.

SYMPTOM	POSSIBLE CAUSE	
No Machine Operation	 Blow fuse or tripped circuit breaker at power supply. Conveyor may be jammed. If Auto Timer was used, the timer may have expired. If table limit switch is used, the switch may be tripped. Manual overload protector tripped on pump motors or conveyor motor. Make sure doors are closed. Door interlock switch may be damaged. Contactor for rack transport requires service. The clearance between clutch and sensor requires adjustment. The clearance should be 2-4mm) 	
Dishes Not Clean	 Insufficient wash water due to drain obstruction preventing proper drain closing. Worn or torn drain "o" ring allowing wash water to drain. Missing end plug from wash arm. Wash arm nozzle obstruction. Water leaking past manifold "o" ring. Loss of water pressure due to pump obstructions. Drain tank(s) and check for any obstruction at the pump intake. Incorrect water temperature. Check circuit breaker to electric heat supply, or main steam valve. Make certain valve is completely open. Incorrect detergent dispensing. Contact your detergent representative. Loss of water in the tank. Check the connection between overflow tube or steam valve. 	

SYMPTOM	POSSIBLE CAUSE
Leaking Valve (Except Solenoid Type) supplied by Others.	 Foreign material preventing proper valve operation. A critical period is soon after installation when pipe compound or metal shavings may lodge at the valve seat. Shut off supply line. Unscrew and lift bonnet from valve body. Clean valve and reassemble. If problem is with a solenoid valve please contact your local
	Hobart-authorized service office.
Inadequate Rinse	 Dirty line strainer causing reduced water flow. Turn off water supply, remove strainer cap, withdraw and clean screen. Reassemble. Low supply pipeline line pressure. Clogged rinse nozzle(s).
Spotting of Silverware, Glasses, and Dishes	 Improperly loaded racks. Incorrect final rinse water temperature 82□ (180⁰F) minimum. Loss of water pressure due to pump obstruction. DISCONNET ELECTRICAL POWER SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH TO INDICATE YOU ARE WORKING ON THE CIRCUIT. Drain tank(s) and check for any obstruction at the pump intake. Clogged wash arm nozzles. Excessively hard water. Incorrect detergent for water type. Clogged rinse nozzle(s). Misaligned rinse arms. Rinse arms should be positioned so that the spray pattern is slightly toward the center of the dishwasher. NOTE: All machines may have alignment studs on the rinse arms that correspond to studs on the rinse piping.
Continuous Rinse operation	 Rinse actuator (see Fig. 6) not moving freely. DISCONNET ELECTRICAL POWER SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH TO INDICATE YOU ARE WORKING ON THE CIRCUIT. Check actuator for movement. Check for foreign object in mechanism, i.e., silverware. Rinse valve failed or jammed open. Contact your local Hobart-authorized service office.
No Wash Tank Heat	 The machine is equipped with low water safety devices which shut off heat if water level drops. Check for proper water level. Circuit breaker to heat system tripped. Check heat float for debris and free movement. Overtemp protector tripped. Contact your local Hobart- authorized service office.
No or Slow Fill	 Dirty line strainer causing reduced water flow. Turn off water supply, remove strainer cap, withdraw and clean screen. Reassemble. Make sure doors are closed. Check interlock switch. Check both upper and lower fill floats for debris and free movement. Problem with solenoid valve.



SYMPTOM	POSSIBLE CAUSE
No Booster Heat or low water temperature	 Check the solid-state thermostat and probe. Check Hi-Limit Protector. Circuit breaker to heat system tripped. Is contactor closed or coil damaged? Heater failure Check the water pressure regulator and water pressure.
Overheat temperature in booster	 Low water pressure. Loss of water pressure due to pump filter in pump inlet pipe and output pipe. Clogged rinse nozzles. Check the solid-state thermostat and probe.

CURTAIN INSTALLATION



