



OPERATOR'S MANUAL

Installation, Operation and Maintenance Instructions

BLIZZARD® FLAVOR TREAT MACHINE Model BM4

184902 — 1/25

Operator's Manual for the BLIZZARD® Flavor Treat Machine Model BM4

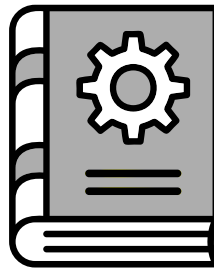


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Unless otherwise instructed, call or write Electro Freeze Service Department for parts, service assistance, and warranty claims on the machine at the following:

Service Department

**Electro Freeze
2116 8th Avenue
East Moline, IL 61244
800-755-4545, 309-755-4553
Fax: 309-755-9858
E-mail: service@hcduke.com**

A. BLIZZARD® Safety Alert



This safety alert symbol identifies important personal safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury. Do not attempt to continue until the safety precautions are read and thoroughly understood. See the next section, **Blizzard® Decal Locations**, and learn the locations of safety decals on the machine. Read and understand all warning decals before operating the machine.

It is important that you read and understand this manual before operating the mixer!

B. BLIZZARD® Safety Decal Locations



Please read and understand all warning decals. Note the location of all warning decals on the mixer (see next page). The decals are there to help maintain a safe working environment. All decals must remain legible for the life of the mixer. Check decals periodically to ensure that they are still in place and easy to read. Replace them if necessary. Know the part number of the decal, its type and location, before ordering.

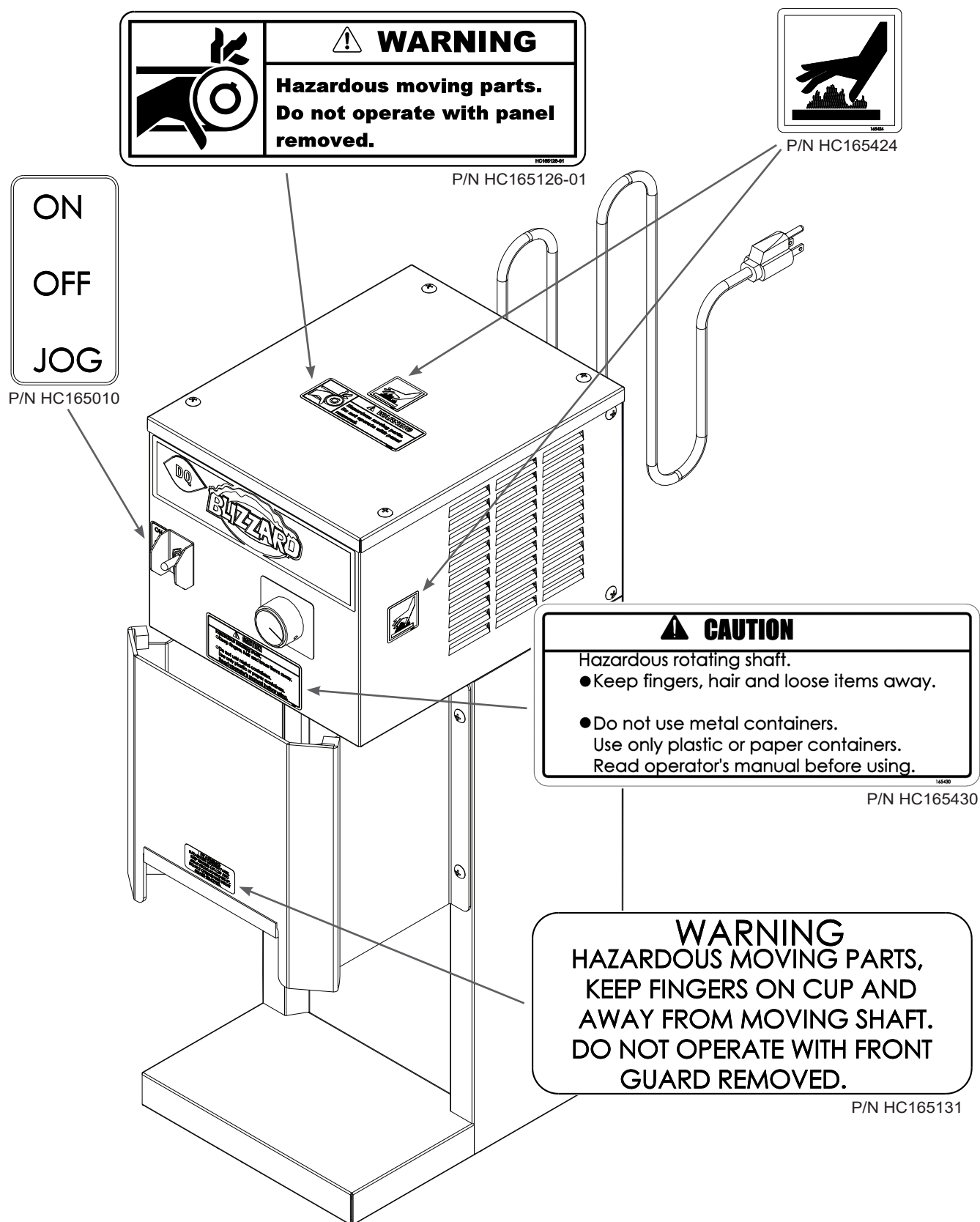
To order new decals, call or write to:

Service Department

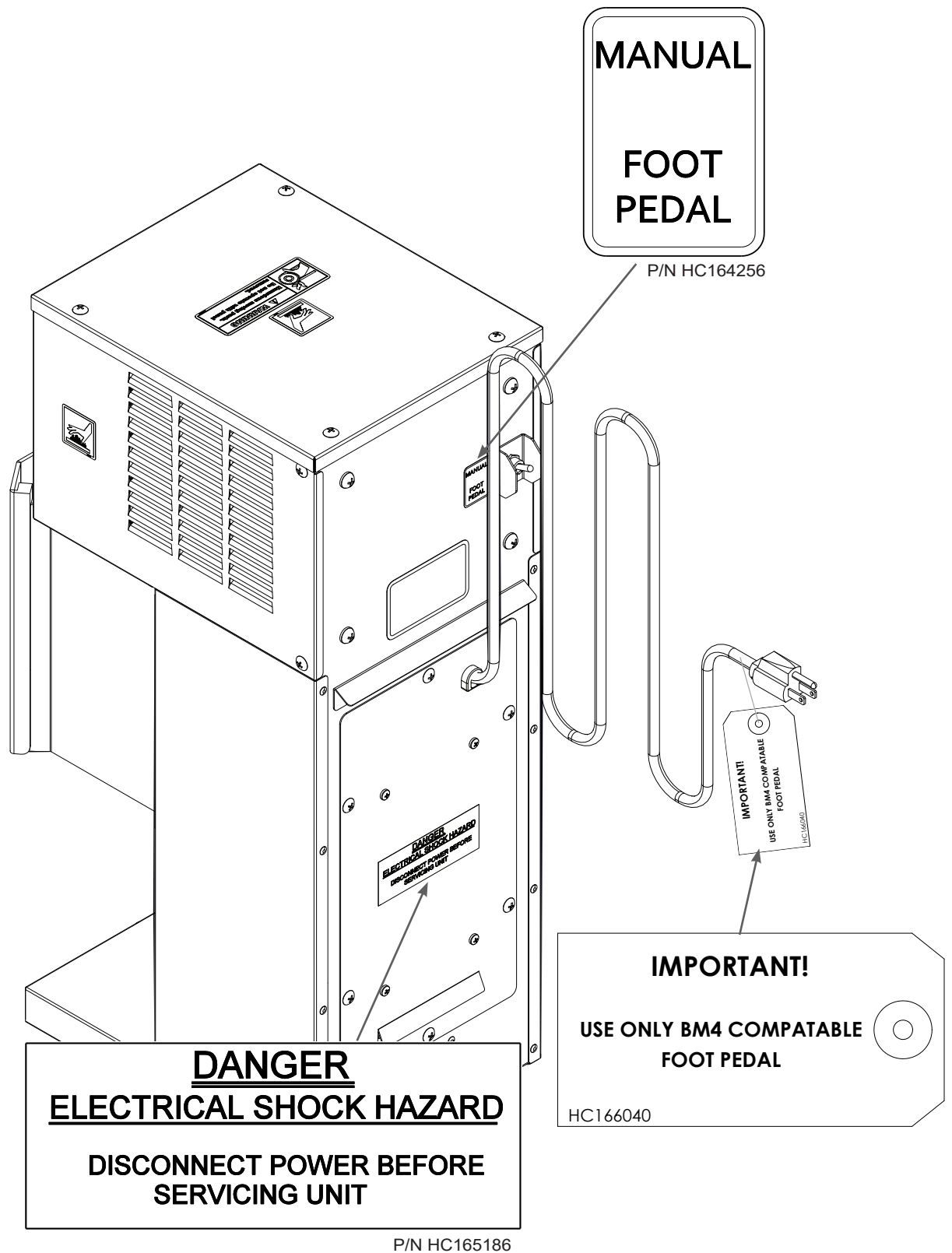
Electro Freeze
2116 8th Avenue
East Moline, IL 61244

800-755-4545, 309-755-4553
Fax: 309-755-9858
E-mail: service@hcduke.com

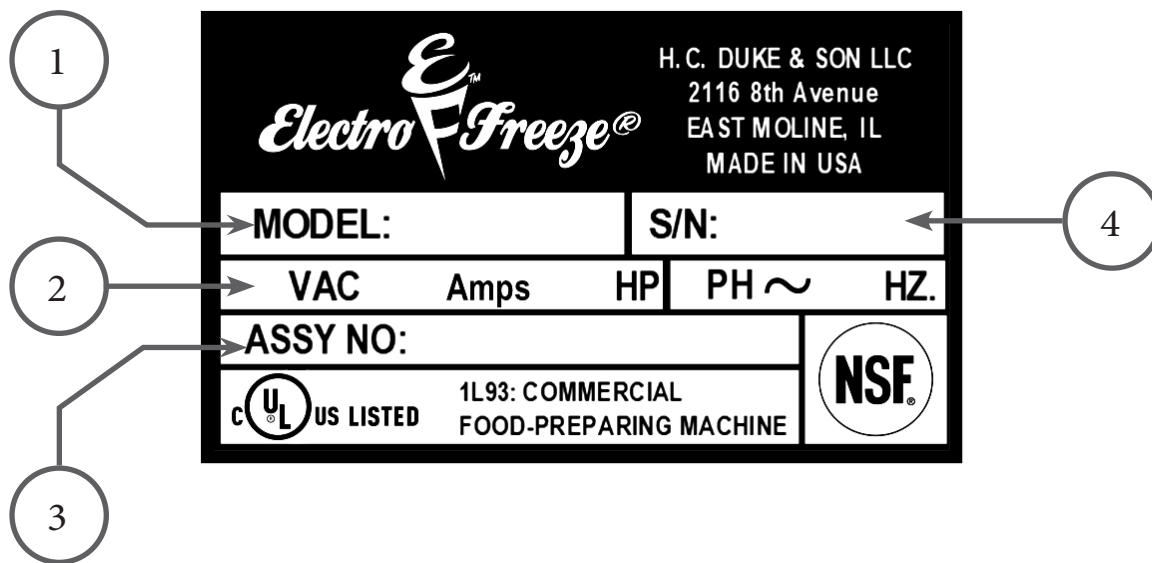
B. Blizzard® Safety Decal Locations – continued



B. Blizzard® Safety Decal Locations – continued



C. Data Plate



CAUTION



All materials and connections must conform to local requirements and be in compliance with the National Electric Code (NEC).

CAUTION



In order to prevent accidental electrical shock, a receptacle with a positive earth ground is required.

You will find two data plates on the rear panel of your Blizzard® Model BM4. The data plates provide important information that the operator should record and have available for parts ordering, warranty inquiries and service requests.

Always check and verify voltage and amperage on the data plate.

Dimensions

Width - in/cm	9-1/8 / 23.2
Height - in/cm	25-3/4 / 65.4
Depth - in/cm	14.0 / 35.56

Write in Reference Information HERE!



Fill in the following information as soon as you receive your Blizzard® Model BM4. (The item numbers — encircled, below — correspond with the callout numbers in the figure above.)

- ① Model Number: _____
- ② Electrical Spec: Voltage _____
 Current _____ HP _____
 Phase _____ Hertz _____
- ③ Assy No: _____
- ④ Serial Number: _____
 Installation Date _____

1 Installation Instructions

1.1 Application

The Blizzard® Machine BM4 is a heavy duty, 3/4 hp, variable speed mixer designed to blend properly prepared Dairy Queen® soft serve with a variety of approved flavor ingredients.

1.2 Inspection

Inspect the Blizzard® Machine shipping carton and its contents for shipping damage. Also inspect the internal components of the machine for damage.

If there is damage to the machine, it must be noted on the carrier's freight bill. Call

the local agent of the freight carrier and request an immediate inspection by their claims inspector. Keep the shipping carton until the machine has been inspected. Do not install the machine until all claims are resolved.

1.3 Handling

The carton may be moved on a two wheel dolly or carried in your arms. It must not be shaken, dropped or moved by "walking" the corners of the carton.

1.4 Removal from Shipping Carton

Open the top of the carton. Pull out the foam inserts and lift the machine out through the top of the carton. Save all shipping materials for future use.

1.5 Limited Warranty - Valid only in USA and Canada

Electro Freeze warrants to buyer that the Blizzard® Machine will be free from defects in material and workmanship at time of purchase. Electro Freeze obligation shall be limited to repair or replace, at its option, any part or parts which may prove defective within the warranty period. Warranty period is one year unless otherwise specified. The liability of Electro Freeze does not include or extend to any

transportation charges or expenses or labor costs. The warranties to repair or replace are the only warranties made with respect to the Blizzard® machine sold. No implied Warranty of Merchantability or Fitness for Purpose shall apply specifically, but without limiting the foregoing, Electro Freeze shall not be liable for any consequential damages.

1.6 Exclusions

Electro Freeze shall not be liable for any repairs or replacement when the equipment is installed, operated or maintained in a manner contrary to the instructions in the operator's manual.

1.7 Electrical Requirements

The Blizzard® machine motor will operate only on 120 volt, 60 Hz single-phase alternating current (AC) with ground. Make sure the electrical supply is 120 volts AC and that the voltage is within 10 percent of that specified. Your utility company will check the voltage if you so request.

1.8 Specifications

Specifications for the Blizzard® Machine are given in table 1, below.

1.9 Location of the Blizzard® Machine

The base of the machine is provided with four rubber feet. The machine should be mounted on a solid surface, such as a topping cabinet, dip stand table, or counter top. It should be located as close as

possible to the ingredients being used to make the finished Blizzard® product. The cord should be plugged into an outlet close to the machine.

Table 1. Specifications

HC8-122380 AC Blender	
Assy No.:	HC8-122380
Model:	BM4
Input Voltage:	120 VAC
Frequency:	60 Hz
Phase:	1
Motor Type:	230 VAC
Drive Motor:	3/4 hp
RPM:	10,000 (Maximum)
Amperage:	3.2 A
Shipping Weight:	50 LB

HC8-122390 DC Blender	
Assy No.:	HC8-122390
Model:	BM4
Input Voltage:	120 VAC
Frequency:	60 Hz
Phase:	1
Motor Type:	48 VDC
Drive Motor:	3/4 hp
RPM:	10,000 (Maximum)
Amperage:	2.5 A
Shipping Weight:	50 LB

2 Operation Instructions

2.1 Safety Alert



It is important that you read and understand the safety instructions before operating the mixer! If you have not already done so, turn to the front of this manual and read Sections A, B, and C before proceeding.

2.2 Preparation

Before use, the spindle shaft and machine parts should be washed, rinsed, sanitized and air dried. The external surfaces of the machine, including the splash shields and machine front, should be wiped clean and then wiped with a sanitizing solution. Follow the procedures in Cleaning and Sanitizing, Section 4.

2.3 Operation

CAUTION



DO NOT touch or get too close to moving parts. Clothing, jewelry, hair or other body parts may become caught in the machine and result in serious personal injury.

CAUTION



Only trained person should operate the BM4 Blender

CAUTION



Only use BM4 compatible foot pedal

1. The Blizzard® mixer should only be used for the blending of soft serve ice cream, or similar products, with liquid flavorings or pre-crushed solid ingredients. It is NEVER to be used to grind or crush the solid ingredients before or during blending.
2. The temperature of the ice cream product should be 18 to 20°F (-7.8 to -6.7°C).
3. The Blizzard mixer is designed to blend 80 to 100 (16oz) servings an hour with an average of 36 to 45 seconds of blending time.
4. To operate, set the desired speed for product preparation and move the toggle switch for either "ON" or "CONTINUOUS RUN" operation, as required. The normal position for mixing is 80 to 100 on the dial setting. Mark the desired setting for the product for repeated use (refer to Control Panel Identification and Operating Instructions, Section 3).

Important:

Do not use metallic mixing containers or collars for preparation of the frozen product or when sanitizing.

3 Control Panel Identification and Operating Instructions

3.1 Three Position Selector Switch

1. This three-position toggle switch has a center "OFF" position with top and bottom power positions. (See Figure 1 for location of controls.)
2. The top position, "ON", is continuous run. Power is provided to the drive motor continually and the spindle shaft will spin. Depending on the position of two position selector switch. Operator need to step on foot pedal if the two position selector switch is on pedal mode. DO NOT ALLOW MIXER TO OPERATE AT HIGH SPEED UNDER NO LOAD, OR AT LOW SPEED UNDER LOAD.
3. "OFF" is the center position. Power is provided to the switch only. The drive motor will not run. If any work is to be done within the cabinet, THE POWER CORD MUST BE DISCONNECTED FROM THE WALL OUTLET.
4. The bottom position, "JOG", is momentary run. Power is supplied to the drive motor and the spindle shaft will spin as long as the switch is held in this position. This is a spring-loaded position. "ON" is the machine's normal operating position.

3.2 Two Position Selector Switch

1. Two position "Manual" bypassas foot pedal if the selector switch ON/OFF/JOG is used for opration. (See Figure 2.)
2. The bottom position "Pedal" is used ot operate the blender with the foot pedal, the selector switch ON/OFF/ JOG must be in the "ON" or "JOG" position to oprate the blender with the pedal.

3.3 Speed Control

1. This control adjusts the speed of the drive motor and spindle shaft. The machine is normally operated at a specific setting for the desired product. A lower speed is normally used when washing or rinsing the shaft with water. (See Figure 1.)
2. The lower speed helps prevent the water from splashing out of the cup. As a reference point for spindle shaft speed, remember that when the control dial is at zero (0), the spindle shaft should be turning slowly.

3.4 2 Pin Female Bulkhead Connector

1. This socket/connector is to connect foot pedal. Adding a foot pedal is on optional feature. (See Figure 2.)
2. In order to run the blender with foot pedal, put the two position selector switch in "Pedal" mode.

Important:

When foot pedal cord is not connected, close the connector with the cap attached with the blender.

3 Control Panel Identification and Operating Instructions - continued

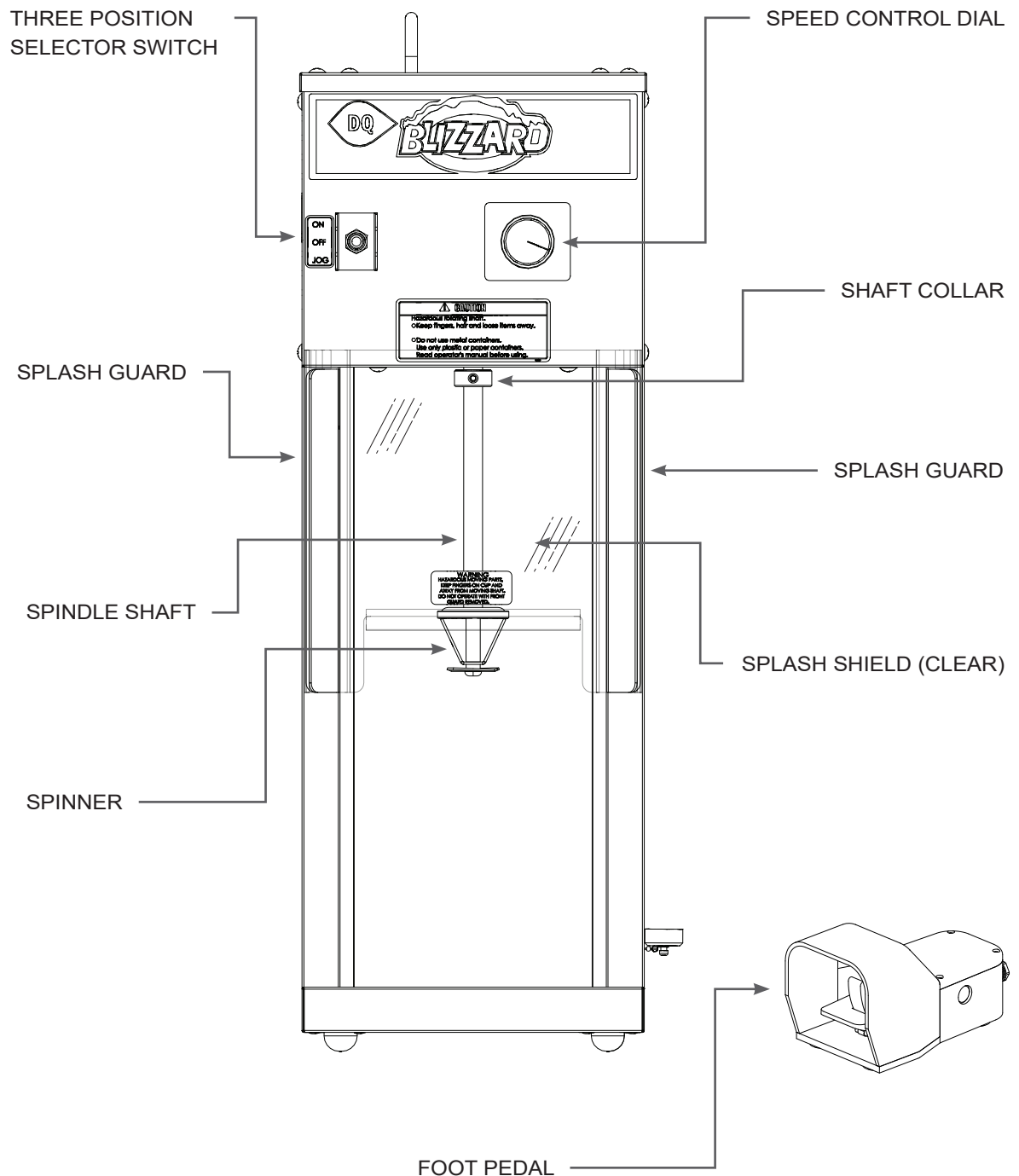


Figure 1. BLIZZARD® Machine Controls Front Side

3 Control Panel Identification and Operating Instructions - continued

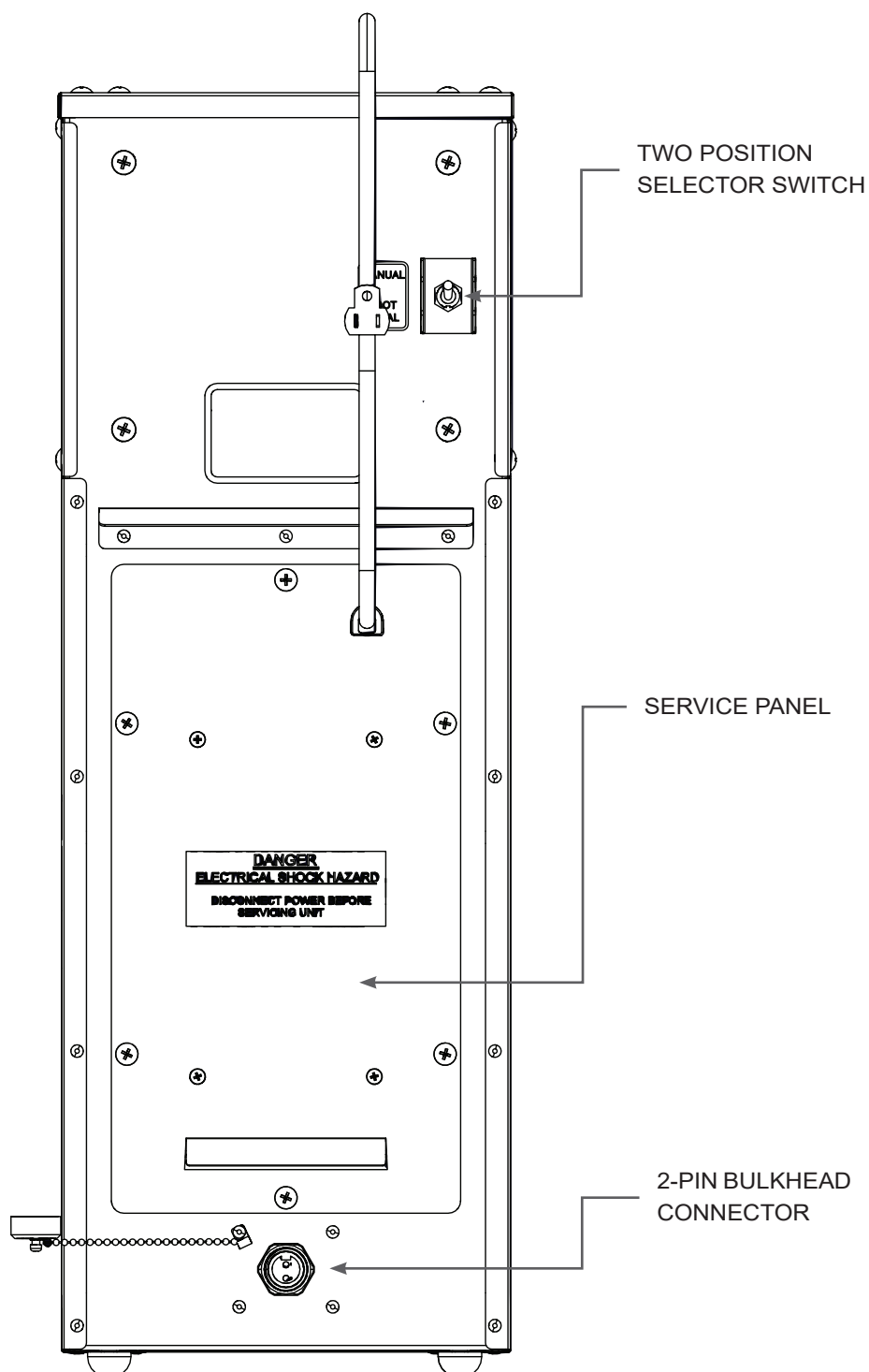


Figure 2. BLIZZARD® Machine Controls Back Side

4 Cleaning and Sanitizing

The spindle shaft, agitator (exposed turning portion) and splash guards must be washed, rinsed, sanitized, air dried, and prepared for use at the end of each day of operation. The operator should have clean hands and refrain from coughing or sneezing on parts to avoid contamination. Do not allow any of the Blizzard® machine parts to come into contact with objects that have not been sanitized. When cleaning or sanitizing the spindle shaft and agitator, use a lower speed setting than used for blending to prevent water or sanitizing solution from splashing out of the cup.

Important:

Never place a towel or any other material on the shaft to clean it when it is placed in the “ON” or “JOG” position. If the material becomes caught, it will damage the machine.

Important:

Do not allow water above the collar on the top portion of the Blizzard shaft. Water in this area may damage the machine.



CAUTION

To avoid injury, never place a towel or any other material on the rotating shaft to clean it. Unplug unit before cleaning.



CAUTION

Rotating metal shaft. To avoid injury, use only paper or plastic mixing containers. Contact between shaft and metal containers or malt collars can cause shaft to wear and break.

4.1 Daily Cleaning

1. Fill a paper Blizzard® cup or shake cup $\frac{3}{4}$ full with a solution of warm soapy water (100°F or 37.8°C) and hold it under the spindle.
2. To clean, operate the spindle at a setting of 20-30 on the speed control dial.
3. Stop the spindle operation and use a small brush to clean areas around the agitator.
4. Rinse with clean water.

4.2 Daily Sanitizing

1. In a clean container, prepare one quart (1 liter) of sanitizing solution. Solution should be Stera-Sheen, or an equivalent, with 100 parts per million (PPM) available chlorine and be mixed according to manufacturer's instructions. If you have questions about the advisability of using a specific sanitizer solution, contact IDQ's Equipment Service Department.
2. Fill a paper Blizzard® cup or shake cup 3/4 full of sanitizer and hold it under the spindle to sanitize.
3. Operate the spindle in this solution at a setting of between 20-30 on the speed control dial. This operation should be performed for at least one minute to allow the sanitizer to neutralize and destroy contaminants on the shaft and agitator.
4. The entire mixing shaft should be washed with sanitizer, but do not allow the sanitizer to get above the collar on the top portion of the Blizzard® machine shaft.

4.3 Recommendations

IDQ recommends that the external surfaces of the machine, including the shields, be wiped to remove splashes or spills. Follow the evening cleaning with a sanitizer wipe-down and allow to air dry.

5 Periodic Maintenance



CAUTION

To avoid electrical shock or contact with moving parts, make sure the selector switch is in the "OFF" position and the power cord is unplugged.

5.1 Safety Precautions

Take all safety precautions when performing maintenance work to protect against injury or death. Disconnect power cord except for the short period of time required to check proper operation. Do not leave shield or safety panels off when maintenance is completed or interrupted.

5.2 Pulley Alignment and Belt Tension

Inspect the belt tension and condition four times per year by performing the following:

1. Unplug the machine from power supply.
2. Remove top panel.
3. Depress belt with your finger at the midpoint between the pulleys (see Figure 3). When adjusted properly, the belts should depress $5/16"$ with approximately five pounds of pressure.
4. Adjust to the proper tension by resetting the four adjustment screws (see Figure 3) holding the motor housing in place.
5. Tighten the screws equally to avoid misalignment. **DO NOT OVERTIGHTEN THE BELT.** Overtightening will cause excessive belt wear and heat on both the spindle shaft and drive motor bearings. Check alignment by using a straight edge across the face of the pulleys. Make the necessary adjustments if out of alignment.

BELT
ADJUSTMENT
SCREWS

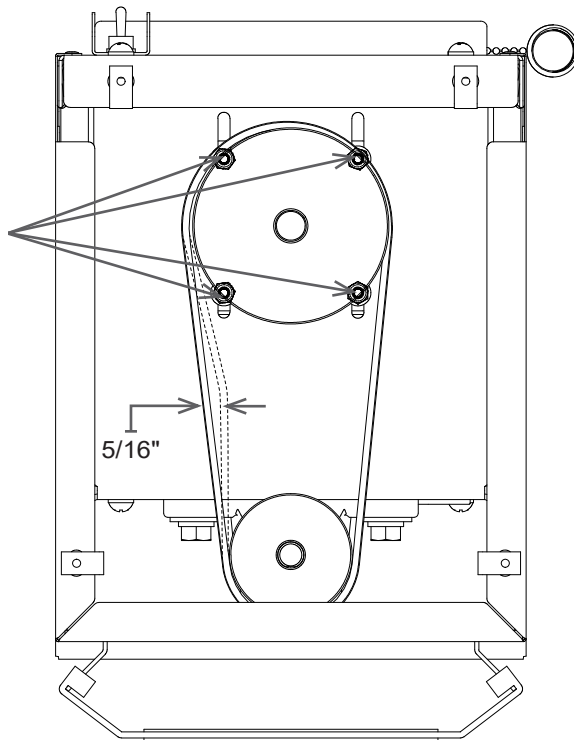


Figure 3. Location of Belt Adjustment Screws

5.3 Periodic Maintenance Schedule

In order to maintain the continued safety and performance built into this unit, it is important to follow the installation and maintenance instructions outlined in this manual. ALWAYS UNPLUG THE MACHINE BEFORE SERVICING OR CLEANING.



CAUTION

This machine has HOT surfaces. Place the unit in a well-ventilated location. Do not touch the cabinet top, rear or side surfaces during or just after operation.

5.3.1 Daily

Wash, rinse, sanitize and air dry all parts of the machine that come into contact with mix or product.

5.3.2 Weekly

Inspect all parts for wear, replacement or adjustment.

Carefully inspect the mixing shaft for signs of wear on a weekly basis. The following illustrations (Figure 4) depict the areas that require examination. **If the mixing shaft has any sign of wear, it should be taken out of service until a replacement part can be installed.**

Please remember that the Blizzard® mixer was designed to blend soft serve ice cream (or similar products) with liquid flavorings or precrushed solid ingredients. Do not use it to grind or crush the solid mixing ingredients!



CAUTION

Rotating metal shaft. To avoid injury, use only paper or plastic mixing containers. Contact between shaft and metal containers or malt collars can cause shaft to wear and break.

5.3.2 Weekly - continued

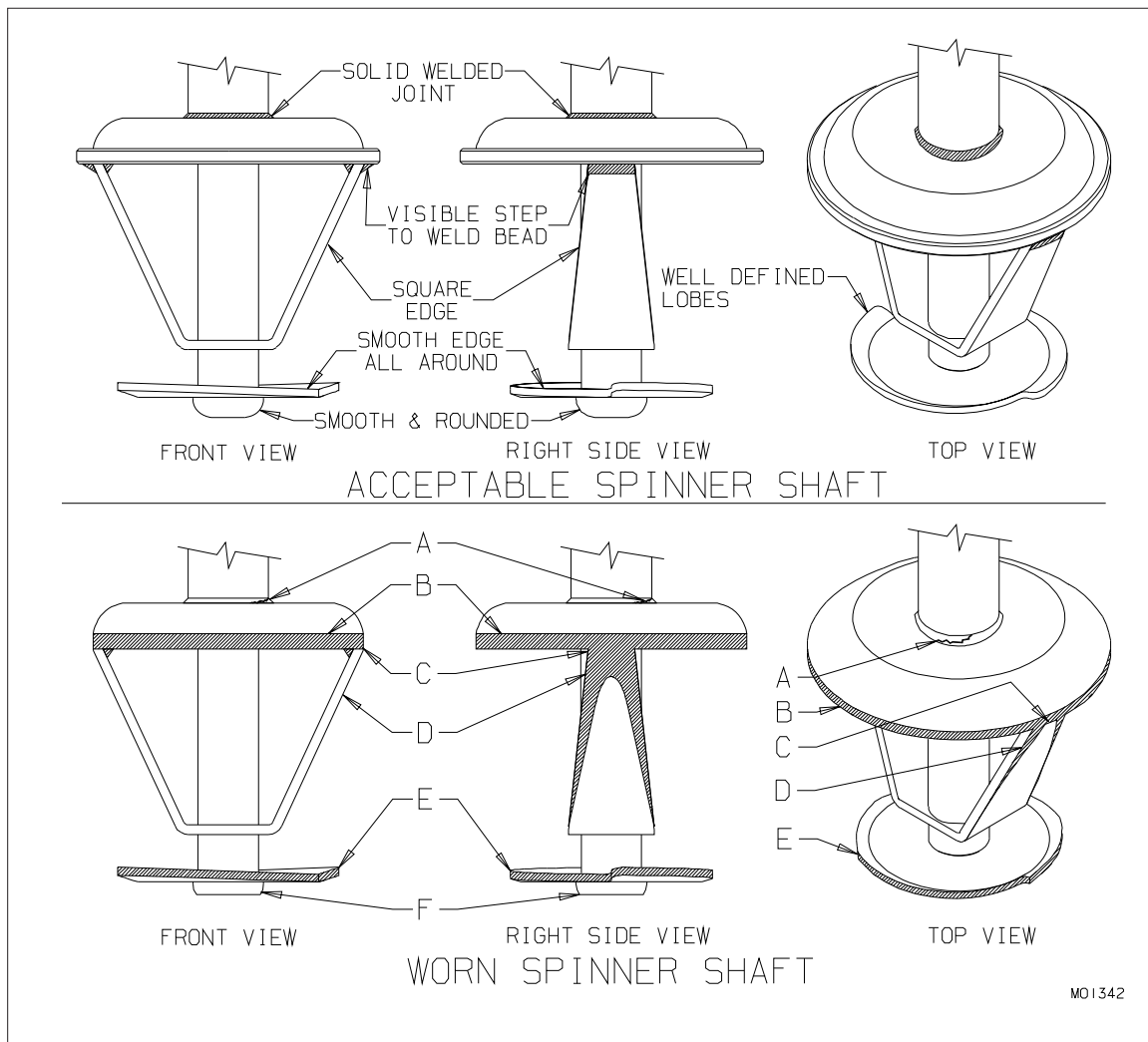


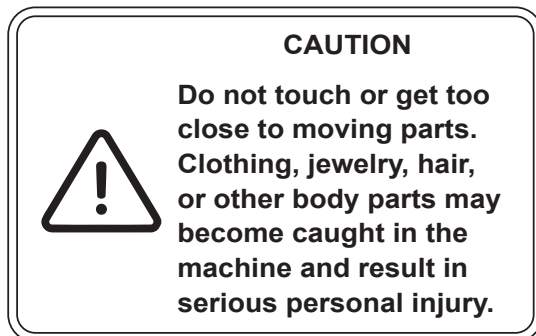
Figure 4. Inspection of Mixing Shaft

Point A	Inspect weld joint for signs of cracking. Cup should be solidly bonded to shaft with no sign of cracking or looseness.
Point B	Inspect edge for excessive wear. Edge should be smooth and have step to welded area for blade.
Point C	Inspect weld for signs of cracking or wear. Worn away step to welded blade indicates worn part. No part of the weld should have wear. There must be a step from weld to outside edge of cup.
Point D	Inspect edge for wear. A sharpened edge with a thinning of entire surface indicates excessive wear.
Point E	Inspect for tightness to shaft and edge for galling or roughness. Worn away lobes or a bent or loose disk should be replaced.
Point F	Inspect button for wear. A ground away flattened surface that appears to be near flush to bottom of disk is a sign of a worn part.

5.3.3 Monthly

1. Make sure power switch is "OFF".

2. UNPLUG THE MACHINE.



3. Remove the top panel and inspect for belt wear and tension, splattered mix, and any unusual condition.

4. With the top panel off, plug in and then start the machine with caution.

5. Listen for unusual rhythms, squeaks, overtones or sounds not common to normal operation. Smell for unusual odors that may indicate a problem, such as spoiled mix, hot motor, or electrical arcing.

6. Turn power switch to "OFF", unplug the machine and reinstall top panel.

5.3.4 Quarterly

1. Inspect drive motor brushes for wear and replacement.
2. Inspect drive belts and adjust or replace in accordance with paragraph 5-2.

6 Parts Replacement

NOTE: If any parts are replaced during the warranty period, it will be necessary to return the defective part to the supplier for possible credit.

NOTE: Identify assembly number on the data plate located on the backside of the blender, accordingly refer Figure 5 for HC8-122380 or HC8-122390 in section 8 for the illustration of parts and their corresponding item numbers included in parentheses in the following paragraphs.



CAUTION

To avoid electrical shock or contact with moving parts, make sure the selector switch is in the “OFF” position and the power cord is unplugged.

6.1 Spindle Shaft Replacement

1. Disconnect power cord (23) from the wall and remove splash shield (51).
2. Remove the four screws (35) holding top cover (2). Remove cover.
3. Loosen setscrews on slinger collar (31) and slide down spindle shaft (3).
4. Remove the four screws (35) holding the lower slot cover (17). Remove cover.
5. Remove the four screws (35) holding the motor cover assembly (1) in place. Slide the motor cover forward to access the wiring.
Note the wire routing — wires must not touch sharp edges or moving parts during reassembly.
Disconnect wire connector.
Remove cover.
6. Loosen the four screws (11) holding the drive motor (9) in place and remove belt (28).

NOTE: The drive and driven pulleys are assembled to their respective shafts using Loctite® Type RC/680 adhesive. Loctite adhesive is also used in the assembly of the spindle shaft to the upper and lower bearings. It will be necessary to apply heat to loosen the Loctite adhesive.

7. Loosen the two setscrews on the driven pulley (34) installed onto shaft (3). Apply heat to the hub and remove pulley.
8. Measure height of bottom of shaft to base and record dimension. Loosen the two set screws on each of the collars for the upper and lower bearings (8). Apply heat to the hub of the bearing. Using a rubber hammer, tap the shaft (3) down through the lower part of the base (4). After the shaft is out of the top bearing (8), tilt the shaft to clear the base and remove it from the lower bearing (8).

NOTE: Replace bearings if damaged by heat.

Important:

When heating parts to loosen Loctite adhesive, protect the bearings from heat. Excessive heat will destroy the bearings.

6.1 Spindle Shaft Replacement - continued

NOTE: You **MUST** reapply Loctite to the shaft, pulley, and bearings according to the manufacturer's recommendations when you reassemble these parts.

9. Slide the new shaft up through the lower bearing and the upper bearing. Center and align the shaft to height dimension. Tighten the bearing housing and install the pulley.
10. Reverse the above steps to reassemble. Make sure there is

proper belt tension of 5/16 inch (refer to paragraph 5-2).

11. Reconnect wire harness. Wires must not touch the louvers in the motor cover assembly (1).

NOTE: If you are experiencing difficulty aligning the mixer shaft, call Electro Freeze, Service Department for assistance.

6.2 Top Bearing Replacement

1. Repeat steps 1 through 8 of the Spindle Shaft Replacement, paragraph 6-1.
2. Replace the bottom bearing (8), by removing the two screws, washer and lock washer (59, 60, 61).
3. Reverse the above steps to reassemble. (You **MUST** clean parts thoroughly before reassembly and application of Loctite — You **MUST** reapply Loctite RC/680 adhesive to the shaft, pulley, and bearings according to the manufacturer's recommendations.)

6.3 Bottom Bearing Replacement

1. Repeat steps 1 through 8 of the Spindle Shaft Replacement, paragraph 6-1.
2. Replace the bottom bearing (8), by removing the two screws, washer and lock washer (59, 60, 61).
3. Reverse the above steps to reassemble. (You **MUST** reapply Loctite RC/680 adhesive to the shaft, pulley, and bearings according to the manufacturer's recommendations)

6.4 Belt Replacement

1. Repeat steps 1 through 6 of the Spindle Shaft Replacement, para. 6-1.
2. Remove old belt and install new belt (28).
3. Slide motor (9) to the rear and adjust proper belt tension of 5/16 inch. (See para. 5.2, Pulley Alignment and Belt Tension.)
4. Reverse the above steps to reassemble.

6.5 Motor Replacement

1. Repeat steps 1 through 6 of the Spindle Shaft Replacement, paragraph 6-1.
2. Loosen the two set screws holding the motor pulley (29) in place. Apply heat to the hub, remove the pulley and set aside.
3. Disconnect motor leads from the speed control. Note the terminal locations for reassembly of new motor.
4. Remove the four mounting screws (32) on the rear panel of the machine holding the motor weldment support assembly (7) and support legs (56) in place. Remove motor (9) and motor support (7, 56) as an assembly from the blender base assembly (4). Move the assembly to a work bench and remove the old motor.
5. Install the new motor (9) with the four mounting screws (11) washers and nuts (12*,13*,14*).
6. Reverse the above steps to reassemble. Refer to Wiring Diagram, Section 9, to connect wires. (You **MUST** reapply Loctite RC/680 adhesive to the shaft and pulley according to the manufacturer's recommendations.)
7. Check rotation of motor after fully assembled. Rotation is CCW (counterclockwise) when viewed from the top.

6.6 Speed Control Replacement (Electronic Circuit Board)

1. Remove six screws (35) on the back of the blender to open the service panel (19). Locate the speed control referring the Figure 5 for HC8-122380 or HC8-122390 in section 8.
2. Holding the new speed control (25) next to the old one, REMOVE ONE WIRE AT A TIME from the old control and connect to the new control. (If necessary, refer to Wiring Diagram, Section 9.)
3. Remove four screws (57/ 35*)
4. Install new control (25) and secure with four screws (57/35*).
5. Reverse the above steps to reassemble. Test unit for proper operation.

NOTE: It may be necessary to calibrate the new speed control to get the proper speed at the various speed dial settings.

For HC8-122390 only

Detach green colored board connector from old board and connect it to the new control board.

xx* = Item reference number applicable only for HC8-122390 DC Blender

6.7 Potentiometer Replacement (Part of Speed Control Unit)

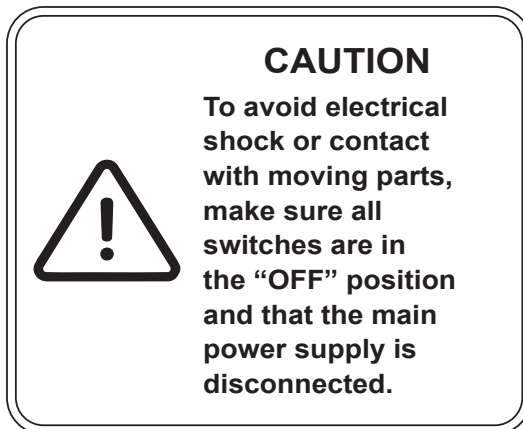
1. Repeat steps 1 through 5 of the Spindle Shaft Replacement, paragraph 6-1. the blender and secure with nut and two set screws.
2. Loosen the two set screws and nut holding the knob (39) and potentiometer (22) to the front of the blender and remove the knob and the old potentiometer (22).
3. Install the new potentiometer (22) and knob (39) into the front panel of
4. Identify the new wires for the toggle switch and connect to switch. Route wire in guides away from the moving shaft.
5. Reverse the above steps to reassemble. Test unit for proper operation.

6.8 Toggle Switch Replacement (Selector Switch)

1. Repeat steps 1 through 5 of the Spindle Shaft Replacement, paragraph 6-1.
2. Hold the new toggle switch (20 or 21) next to the old toggle switch. Disconnect the three wires from terminals of old switch and connect to the new switch in the same order. (Refer to Wiring Diagram, Section 9 of this manual.)
3. Remove nut on panel of blender that holds the toggle switch shaft. Remove switch shield (16) from front of blender and remove the old switch.
4. Install the new switch and switch shield in place and secure with the shaft nut.
5. Reverse the above steps to reassemble. Test unit for proper operation.

6.9 Fuse Replacement

For HC8-122380 Only



1. Disconnect blender from power source.
2. With blender in normal upright position, remove six phillips head screws on service panel (19).
3. Mounted on the service panel is the fuse block (52). Use a small straight blade screwdriver to pry out the closest end of the fuse (53) and remove the fuse by hand.
4. Test each fuse and replace if needed. Replace only with Slo-Blow Buss type MDA10. Replace with Electro Freeze original replacement parts only: HC151510 Fuse-Class CC 20A.
5. Reassemble making sure wires are routed away from sharp edges.
6. Test operation. If unit fails to operate or blows another fuse, discontinue use and seek a serviceman.

6.10 Power Supply Replacement

For HC8-122390 Only

1. Disconnect blender from power source.
2. With blender in normal upright position, remove six phillips head screws (35) securing the service panel (19).
3. Mounted on the service panel is the power supply box (26). Hold the new power supply box (26) next to the old box on the panel.
4. Disconnect the wires from the old box and connect them to the new box in the same order. (Refer wiring diagram, section 9 wiring diagram for HC8-122390).
5. Remove four M4 screws (37) that holds the power supply box. Remove the old box.
6. Install the new power supply box on the panel and secure with four M4 screws (37)
7. Mount the service panel on the blender with the help of six phillips head screws (35). Test the unit for proper operation.

7 Troubleshooting Tables

PROBLEM	PROBLEM CAUSE	REMEDY
---------	---------------	--------

Mixer will not operate.	1. Machine not plugged in.	1. Plug blender in wall socket.
	2. Wall circuit breaker off.	2. Reset circuit breaker.
	3. Switch "OFF".	3. Turn to "JOG" or "ON".
	4. Switch "Pedal"	4. Step gently on the foot pedal. If no footpedal connected, flip it to "manual".
	5. Speed control potentiometer defective	5. Contact your local service company.
	6. Speed control defective.	6. Contact your local service company.
	7. Drive belt loose or broken.	7. Contact your local service company.
	8. Drive motor defective.	8. Contact your local service company.
	9. Switch defective.	9. Contact your local service company.
	10. Loose or broken wire.	10. Contact your local service company.
	11. Spindle shaft bearings binding.	11. Contact your local service company.
	12. Foot switch defective.	12. Contact your local service company.
	13. Fuse blown.	13. Replace fuse. Refer section 6.9

Spindle shaft speeds are erratic.	1. Speed control defective.	1. Contact your local service company.
	2. Drive belt worn or loose.	2. Contact your local service company.
	3. Drive motor brushes worn.	3. Contact your local service company.
	4. Drive motor defective.	4. Contact your local service company.
	5. Loose pulleys.	5. Contact your local service company.
	6. Spindle shaft bearings binding.	6. Contact your local service company.
	7. Speed control potentiometer defective.	7. Contact your local service company.

Mixing time too long.	1. Speed set too low.	1. Turn speed to higher setting.
	2. Product too cold.	2. Check soft serve for 18°F temperature.
	3. Overrun too low.	3. Check soft serve overrun.
	4. Drive belt worn or loose.	4. Contact your local service company.

7 Troubleshooting Tables - continued

PROBLEM	PROBLEM CAUSE	REMEDY
Unit operates only in "ON" position or only in "JOG" position, but not in both.	1. Toggle switch is defective	1. Contact your local service company
Unit runs continuously in the "OFF" position.	1. Toggle switch is defective	1. Contact your local service company
Drive motor operates, but spindle shaft does not turn.	1. Loose or broken drive belt.	1. Contact your local service company
Rubber-like odor coming from cabinet.*	1. Drive belt worn or loose.	1. Contact your local service company.
	2. Soft serve product too cold putting extra strain on drive belt.	2. Check soft serve for 18°F temperature.
	3. Overrun too low putting extra strain on drive belt.	3. Check soft serve overrun.
*Because the motor runs hot, some odor is expected during the first few days of operation.		
Unit operates only in "Manual" and not in "Pedal" or vice-versa or works opposite	1. Toggle switch is defective or Foot pedal defective.	1. Contact your local service company

7 Troubleshooting Tables - continued

PROBLEM	PROBLEM CAUSE	REMEDY
---------	---------------	--------

Machine making loud noises.	1. Loose panels or sheet metal parts.	1. Locate and tighten screws.
	2. Pulleys rubbing against top cover.	2. Contact your local service company
	3. Spindle shaft hitting lower cover plate or cabinet parts.	3. Contact your local service company
	4. Motor bearings binding or worn.	4. Contact your local service company
	5. Spindle shaft bearings binding or worn.	5. Contact your local service company.
	6. Spindle shaft bent or out of alignment.	6. Contact your local service company.
	7. Drive belt worn or loose.	7. Contact your local service company.
	8. Set screws on pulleys or bearings loose.	8. Contact your local service company.

Machine runs at same speed with any speed setting.	1. Speed control is defective.	1. Contact your local service company.
	2. Potentiometer (speed dial) defective.	2. Contact your local service company.

Drive motor will not start, hums intermittently.	1. Defective motor.	1. Contact your local service company.
	2. Low line voltage.	2. Ask power company to increase voltage to not less than 10% below nameplate rating or install a transformer. Check for inadequate wire sizes.
	3. Speed control set too low.	3. Set to proper level.

8 Illustrated Parts List

Use the Blizzard® Machine illustration, Figure 5 below, in conjunction with the parts list given on the following two pages to identify the part you wish to order. The number enclosed in a circle in the illustration below corresponds to the part name and number on the parts list. You will also need to provide the serial number of your machine when ordering parts.

8.1 Exploded View of Part List for HC8-122380

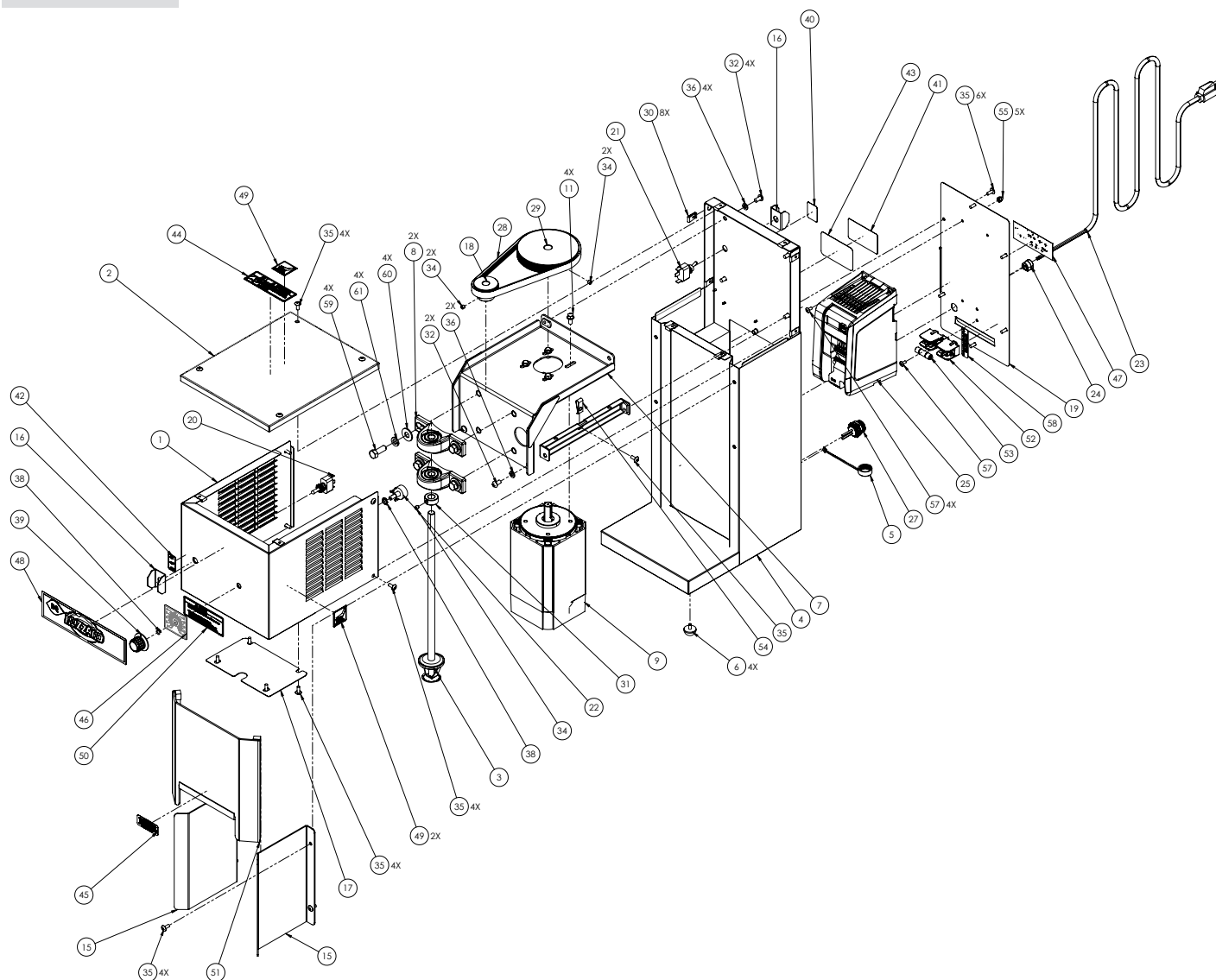


Figure 5. Blizzard® Machine Assembly (Sheet 1 of 5)

8 Illustrated Parts List - continued

8.2 Exploded View of Part List for HC8-122390

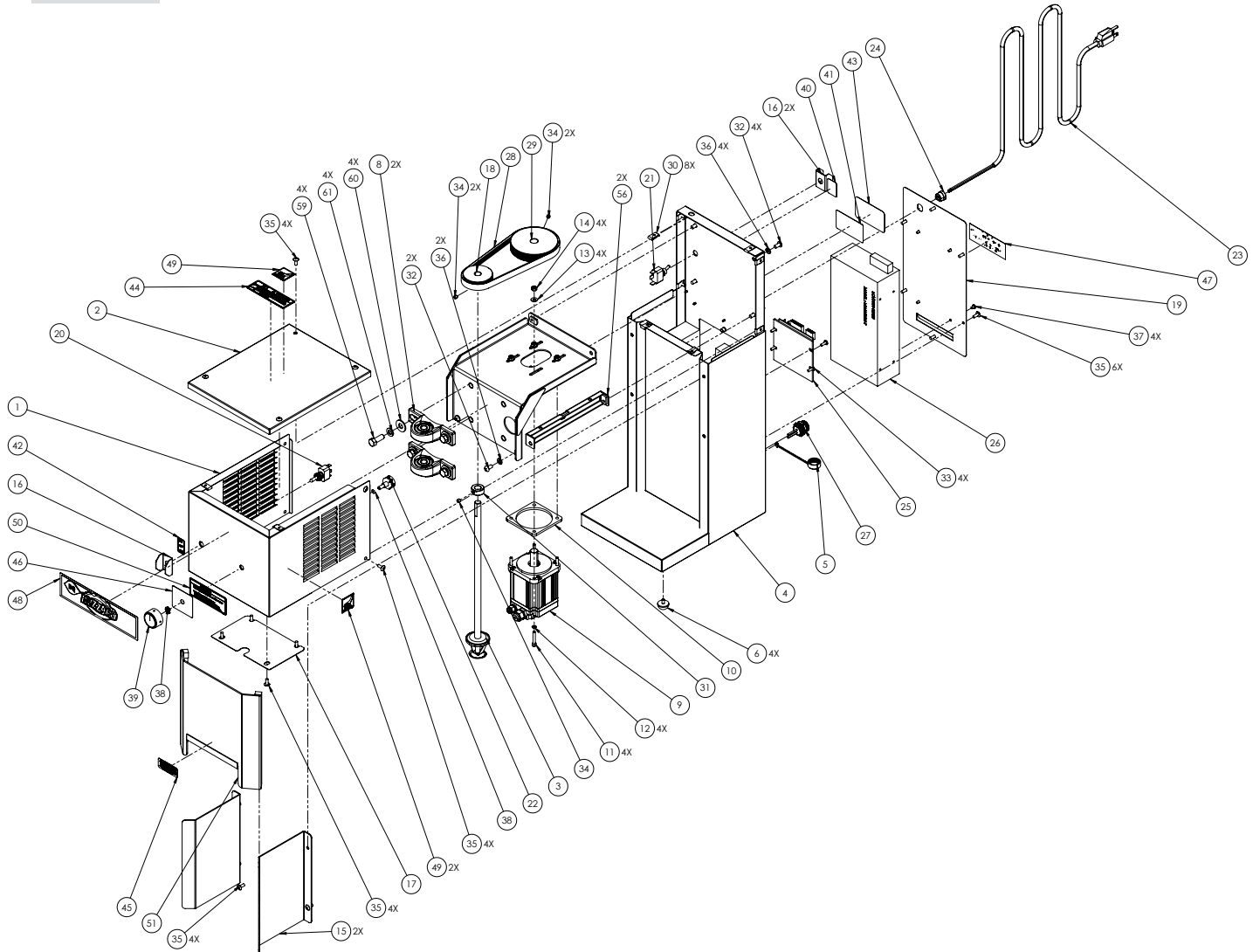


Figure 5. Blizzard® Machine Assembly (Sheet 2 of 5)

8 Illustrated Parts List - continued

Item Reference Number	Part Number	Description	Assy No.
1	HC116578	Cover-Assy Motor	
2	HC116583	Cover-Assy Top	
3	HC119306	Shaft-Assy Spindle	
4	HC122351-01	Base-Assy Blender	HC8-122380
4	HC122351-02	Base-Assy Blender	HC8-122390
5	HC151855	Cap-Bulkhead Connector 7/8-16	
6	HC199031	Bumper-Rubber W/10-32 Studs	
7	HC122354-01	SUPPORT-ASSY MOTOR & BEARING	HC8-122380
7	HC122354-02	SUPPORT-ASSY MOTOR & BEARING	HC8-122390
8	HC153019	BEARING PILLOW BLOCK 1/2"	
9	HC151187	MOTOR-AC 0.85HP 230/3/60	HC8-122380
9	HC151188	MOTOR-BLDC 0.77HP 48/3/60	HC8-122390
10	HC142747	PLATE-MOTOR FILLER	HC8-122390
11	HC159950	SCREW-HXSF 1/4-20 X 1/2 ZN	HC8-122380
11	HC159449	SCREW-SKHC #10-32 X 1-1/8 SST	HC8-122390
12	HC160140	WASHER-LOCK #10 ZN	HC8-122390
13	HC159962	WASHER-FLAT #10 SST	HC8-122390
14	HC159421	NUT-EL STOP #10-32	HC8-122390
15	HC136860	GUARD-SPLASH	
16	HC137896	SHIELD-SWITCH	
17	HC138572	COVER-SLOT	
18	HC153520	SHEAVE-1/2 BORE 1.8 OD J6 GROOVE	HC8-122380
18	HC138940	SHEAVE-6 GROOVE J SECTION	HC8-122390
19	HC142742	PANEL-SERVICE LOUVERED	HC8-122380
19	HC142742-02	PANEL-SERVICE LOUVERED	HC8-122390
20	HC150429	SWITCH-TOGGLE MOM/OFF/ON SPDT	
21	HC150466	SWITCH-TOGGLE SPDT	
22	HC150484	POTENTIOMETER-5K 115-1-60	
23	HC150583	CORD-W/PLUG 6FT	
24	HC150782	BUSHING-STRAIN RELIEF	

Figure 5. Blizzard® Machine Assembly (Sheet 3 of 5)

8 Illustrated Parts List - continued

Item Reference Number	Part Number	Description	Assy No.
25	HC198006	AC DRIVE-S100-03113_1P 3.2A 0.75HP	HC8-122380
25	HC151190	DCL 24-48VDC 15A	HC8-122390
26	HC151191	POWER SUPPLY 1500W 48VDC	HC8-122390
27	HC151858	CONNECTOR-BULKHEAD FEMALE 2 PIN 7/8-16	
28	HC153196	BELT-POLY V (230J6)	HC8-122380
28	HC153130	BELT-POLY V (220J6)	HC8-122390
29	HC153524	SHEAVE-9/16 BORE 4.5 OD J6 GROOVE	HC8-122380
29	HC153524	SHEAVE-.59 BORE 3.75 OD J6 GROOVE	HC8-122390
30	HC159132	NUT-SPEED #10-24 .025-.064 SST	
31	HC159363	COLLAR-SLINGER	
32	HC159950	SCREW-HXS F 1/4-20 X 1/2 ZN	
33	HC160049	SCREW-TRPM #8-32X1/2 SST	HC8-122390
34	HC160056	SCREW-SK SET 1/4-20X1/4 ZN	
35	HC160076	SCREW-TRPM #10-24X1/2 SST	
36			
37	HC160441	SCREW-PNHM M4X6 SST	HC8-122390
38	HC160458	NUT-FACE CHAMFER HEX 3/8-32 NEF	
39	HC162605	KNOB-RD DIAL	
40	HC164256	DECAL-MANUAL/FOOT PEDAL	
41	HC164447-07	DECAL-NAMEPLATE BLENDER UL & NSF	
42	HC165010	DECAL-SWITCH	
43	HC165084	DECAL-CLEAR OVERLAY 2X3-1/4	
44	HC165126-01	DECAL-PANEL REMOVAL BATCH	
45	HC165131	DECAL-FRONT GUARD WARNING	
46	HC165179	PLATE-0/100 DIAL	
47	HC165186	DECAL-ELECTRIC SHOCK	
48	HC165415	DECAL-BLIZZARD	
49	HC165424	DECAL-HOT SURFACE	

Figure 5. Blizzard® Machine Assembly (Sheet 4 of 5)

8 Illustrated Parts List - continued

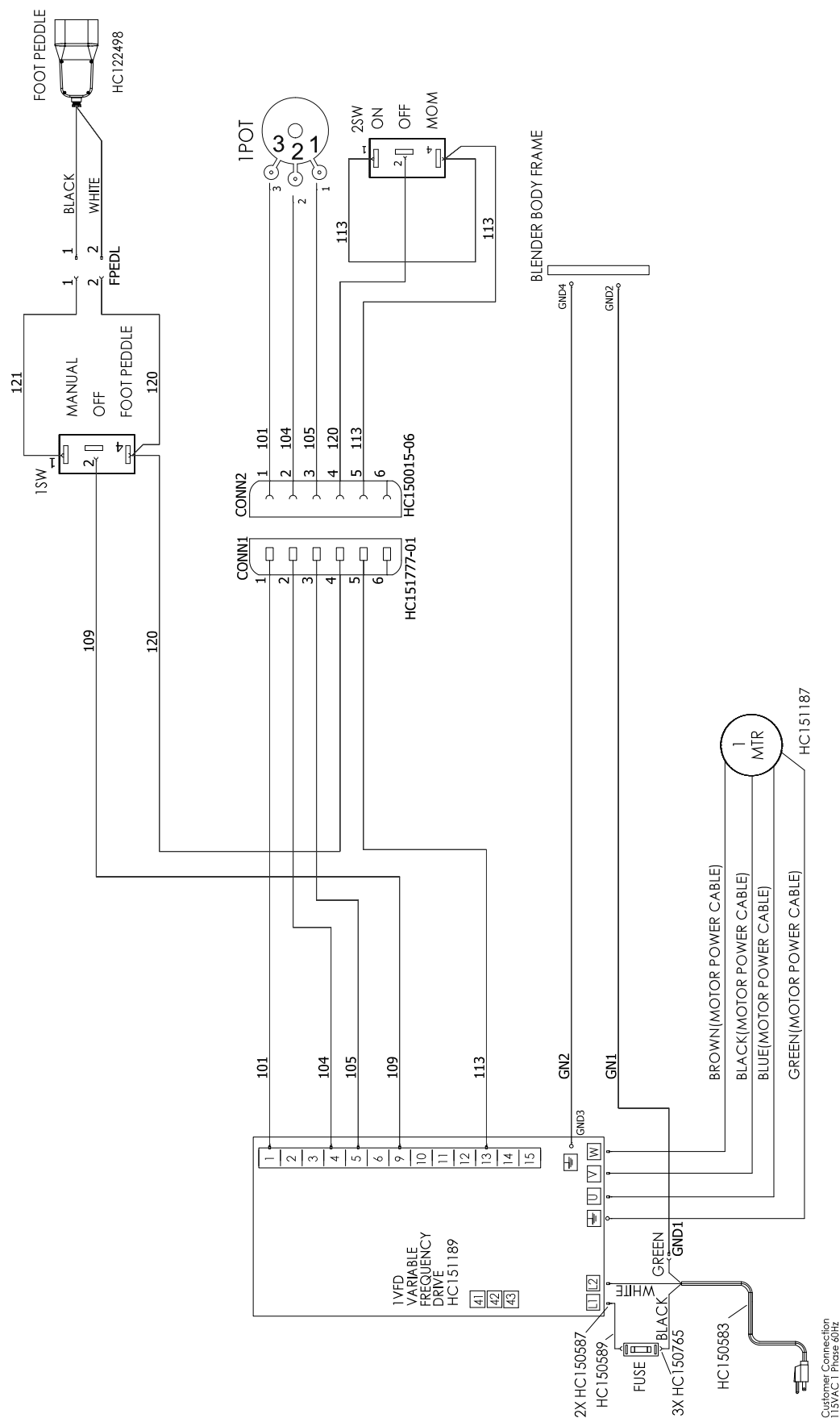
Item Reference Number	Part Number	Description	Assy No.
50	HC165430	DECAL-BLENDER SHAFT CAUTION	
51	HC196005-01	GUARD-SPLASH	
52	HC151508	BLOCK-FUSE CLASS CC 2 POLE	HC8-122380
53	HC151510	FUSE-CLASS CC 20A	HC8-122380
54	HC159133	NUT-SPEED #10-24.156-.187	HC8-122380
55	HC159937	NUT-CAP #8-32 SST	HC8-122380
56	HC122353	LEG-ASSY SUPPORT	
57	HC160025	SCREW-TRPM #8-32X3/8 SST	HC8-122380
58	HC164257	DECAL-FUSE SLO BLOW 20A	HC8-122380
59	HC160013	SCREW-HXHC 3/8-16X1 ZN	
60	HC160132	WASHER-FLAT 3/8 ZN	
61	HC160143	WASHER-LOCK 3/8 ZN	
Not Shown			
62	HC151862	HARNESS-WIRING MAIN	HC8-122380
62	HC151862-01	HARNESS-WIRING MAIN	HC8-122390
63	HC151863	HARNESS-WIRING TOP COVER	
64	HC178035-02	CARTON-14-1/2 X 12 X 29-1/2	
65	HC178320-01	CONTAINER-TWO PIECE SHIPPING	
66	HC178334	INSERT-RIGID FOAM	

Note: Part number HC178035-02, HC178320-1 & HC178334 are required for return shipment of the blender.

Figure 5. Blizzard® Machine Assembly (Sheet 5 of 5)

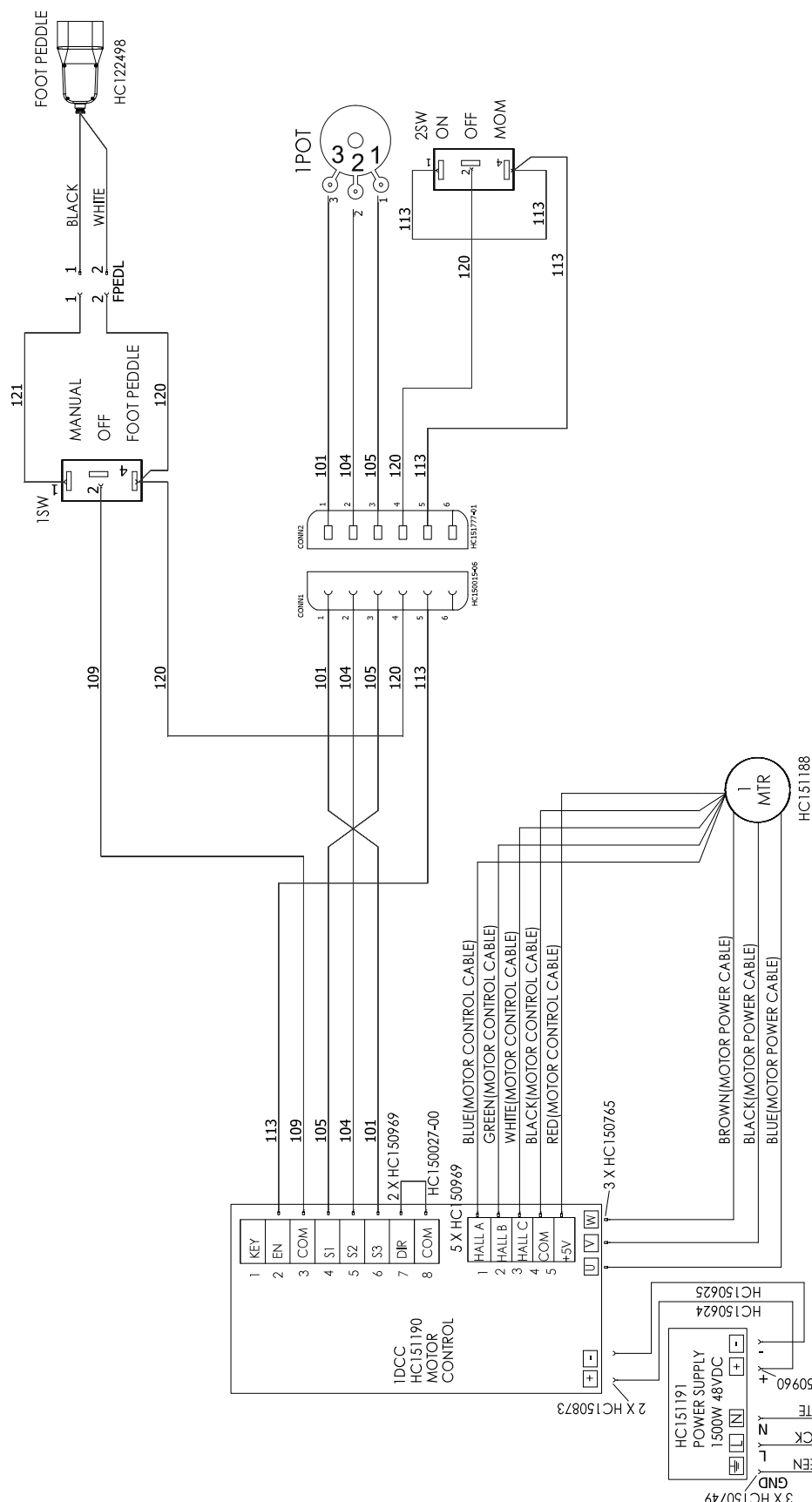
9 Wiring Diagram

9.1 Wiring diagram for HC8-122380



9 Wiring Diagram - continued

9.2 Wiring Diagram for HC8-122390



Customer Connection
115VAC 1 Phase 60Hz

10 Suggested Spare Parts Inventory

Item Reference Number	Part Number	Description	Quantity*	Model
1	HC150429	Switch-Toggle MOM/OFF/ON SPDT	1	
2	HC150466	Switch-Toggle SPDT	1	
3	HC199031	Bumper-Rubber W/10-32 Studs	4	
4	HC153196	Belt-Poly V (230J6)	1	HC8-122380
4	HC153130	Belt-Poly V (220J6)	1	HC8-122390
5	HC151510	Fuse-Class CC20A	2	HC8-122380

* Quantity recommended for each machine



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Electro Freeze

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Manual Part Number 184902