BDI

MANUAL

BRAWN and BRAINS

Blendtec®

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Section 1: Important Safeguards

READ ALL INSTRUCTIONS CAREFULLY BEFORE USING YOUR BDI

1.1 Safety Certification
BDI models 501and 503 are certified by ETL to comply with UL/ANSI standard 763-2000, 3rd Edition, November 30, 2000 and to comply with CSA standard C22.2 No. 195-M1987.
BDI models 502 and 504 are 240VAC versions are certified to CE standards.

1.2 Health Certification
All BDI models are certified by NSF International to comply with Standard 8.

1.3 Precautions:
- Avoid contact with moving parts.
- Keep fingers, hair, hands, and clothing away from all moving parts.
- Keep utensils away from drive socket, ice augers, and blender blades during operation. Metal utensils will damage blades and augers.
- **NEVER** place a jar into the drive socket if the blender motor is operating.
- **DO NOT** rock the blender jar while it is operating. Keep the blender jar straight up until the operation is complete.

These precautions will prevent personal injury and/or damage to the blender dispenser.

1.4 Power Cord Precautions
- **DO NOT** operate with a damaged power cord or outlet.
- If the power cord or outlet is damaged they must be replaced by the manufacturer or its authorized service agent in order to prevent any hazard.
- **DO NOT** let the power cord hang over the edge of the work surface.
- **NEVER** use an extension cord with the unit.
- Unplug the unit when changing location, servicing, or cleaning.

1.5 DO NOT attempt to perform repairs. NEVER remove the covers or panels on the unit. The unit does not contain adjustable or customer serviceable parts. The manufacturer or their authorized agent must perform all interior service and adjustments. Removing covers or panels, or attempting to effect repairs, will void the warranty. Please call Blendtec Technical Support at 800 748-5400 ext. 494 or 248 for guidance on warranty and service options.

1.6 ALWAYS turn the unit off when not in use.

1.7 NEVER operate the unit if it appears to be damaged. If the unit malfunctions, call the manufacturer first. If it is dropped or damaged in any way, call Blendtec Technical Support for service to evaluate the extent of damage and the possibility of either repair or replacement.

1.8 NEVER operate in liquid. **DO NOT** allow the unit to sit in a pool of liquid or use the unit outdoors where it will be subject to precipitation. This will void the warranty.

1.9 NEVER put items such as metal, rocks, or other hard materials into the blender jar or the ice hopper. Metal utensils and other hard objects can damage the blender jar or ice hopper and will void the warranty.

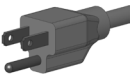
1.10 NEVER operate the unit with attachments not sold or authorized by Blendtec. The use of unauthorized attachments may cause fire, electric shock, unit malfunction or injury. Damage incurred by the use of such attachments will not be covered by warranty.

1.11 ALWAYS operate the blender with the clear door closed.

1.12 ALWAYS secure the blender jar lid before starting the machine.
Even with the blending chamber it is important to put a lid on the blender jar before initiating a blend cycle.

1.13 The blender jar blades are sharp – handle carefully.

1.14 Power Requirements

Model **BDI-501, BDI-503**	POWER CORD	
120V, 1800W, 15A, 50-60 Hz. It is recommended that a dedicated 20A receptical be used.	NEMA 5-15P	

Model **BDI-502, BDI-504**	POWER CORD
240V, 1800W, 7.5A, 50-60 Hz. It is recommended that a dedicated 10A receptical be used.	Varies by Country

1.15 DO NOT use any other electrical equipment on the same circuit as the unit or you risk overloading the circuit and either burning the fuse or possibly the electronics inside the unit. This will void the warranty. ALWAYS use a surge protector device.

1.16 NEVER use a water jet to clean the unit. Use of a water jet to clean the unit can result in the malfunction or damage to the unit. This type of damage/ malfunction will not be covered under warranty.

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

IMPORTANT

We took care to ensure your machine was clean when it was shipped from the factory, but since we do not have any control over shipping conditions we strongly recommend that you sanitize the machine before you prepare any drinks. (see Section 5.4).

Section 2: Introduction to the Blender with Ice Dispenser

WELCOME TO AN EXCITING NEW WAY OF BLENDING

Blendtec® Blender Dispenser with Ice!

(BDI)

The Blendtec Blender Dispenser with Ice (BDI) combines some of the best ideas in blending into one easy-to-operate machine. The result is a machine that provides:

- Fast delivery to large crowds.
- Controlled labor and finished product costs.
- Portability and easy set-up.
- Maximum revenue generated per square foot.
- Multiple drink combinations from one machine.

The Blender Dispenser with Ice is a microprocessor-controlled machine designed to quickly make precise blended drinks from concentrates or other liquids including alcohol, ice, and water. It has three main sections, the blend station, the ice hopper, and the control board. The following pages will introduce you to one of the most advanced blending systems available today.

2.1 Blend Station:
This contains a powerful blender motor that is controlled by the microprocessor on the control board. You can select the speed and duration of each blend cycle for each drink size.

2.2 Ice Hopper:
This is a double auger system for consistent ice delivery to ensure that your drinks are the same every time. The ice hopper holds six gallons (22.71 liters) of ice. The hopper is insulated to minimize temperature loss. The hopper also integrates an interlock safety feature to prevent personal injury – the removal of the lid will stop the movement of the augers.

2.3 Control Board:
This is the microprocessor that controls all of the functions of the unit. The control board is utilized to make and program drinks.

2.4 Water Input Line:
Allows cold water to be added to drinks to help reconstitute concentrated purees or to help increase volume.

2.5 Drain Line:
Provides for the removal of ice melt water as well as minor spillage in the blend station. The drain line is located on the back of the unit.

2.6 BDI models
Voltage:

Models **BDI-501, BDI-503**
120VAC

Models **BDI-502, BDI-504**
240VAC

Size:

Narrow Versions Models **BDI-503, BDI-504**		
Height: 32”	Width: 12.75”	Length (depth): 21”

Wide Versions Models **BDI-501, BDI-502**		
Height: 32”	Width: 19.25”	Length (depth): 14.5”

Limitations:

Volume Limited - Models **BDI-501** Through **BDI-504**

Products other than those dispensed by the unit (concentrates, ice cream, yogurt, etc.) are added to the blending jar before dispensing. The total blending capacity is limited to 32 ounces.

Section 3: Installation

Read all instructions, cautions, notes, and warnings before attempting to set up and operate this machine. **WARRANTIES WILL BE VOIDED** if this machine is improperly installed. (See Pre-Installation sheet at the end of this manual.)

3.1 Counter Placement:
Ensure there are at least 4 inches on each side and at least 6 inches in back (room for plumbing – product lines and drain). Be sure there is sufficient room above the BDI to remove the ice hopper lid and put ice into the ice hopper during regular use. Counter location should be near water, ice, and product bags.

3.2 Electrical Connections:
See power requirements in section **1.14.**

3.3 Water Connection:
A ⅜” compression fitting is located behind the lower panel in the upper right-hand corner (from the rear of the machine). You must use a reinforced water line with this unit. Incoming water must have a pressure rating of at least 30PSI (2.1097 kg/cm) and be no greater than 120PSI (8.4388 kg/cm) to operate correctly. You must add an inline water filter with a flow rate of at least 1 gallon (3.78 liters) per minute. Adequate backflow protection might be needed to comply with applicable federal, state, or local codes.

3.4 Drain Connection:
A ¾" hose bib fitting is located on the lower left-hand corner (from the rear of the machine). It is recommended that you use Teflon tape on the threads to help prevent leaks. Only a rigid reinforced hose with at least a ¾" ID can be used to prevent kinking and backflow into the blender chamber. Adequate backflow protection might be needed to comply with applicable federal, state, or local codes.

3.5 Product Lines and Connections:
The inlets for the product lines are located on the back of the unit. There are labels next to each inlet with numbers that correspond to the pump numbers in programming. These fittings are ⅜" outer diameter and are barbed to help retain the hose. Use a hose clamp to retain the hose on the inlet fitting.

Section 4: Basic Operations

4.1 Loading Ice:
Remove the black ice hopper lid from atop the unit (removing the lid will disable the functions of the unit). Carefully pour up to 6 gallons (22.71 liters) of ice into the ice hopper. Ensure that the ice covers both augers to provide for the most consistent ice dispense. Place the lid back on the top of the unit to re-enable the unit to function. If you are filling an empty ice hopper you should prime the system by putting a blender jar in the blend station and press the ICE button on the control panel (see 4.4).

4.2 Making Drinks:
Place an empty blender jar in the blend station with the blender lid in place. After programming drinks into the microprocessor (see section 6.0), you simply press the drink number (1-64), select the size (S, M, or L), and then press GO. The unit will automatically dispense ice, product, and water, and then blend. All parameters for drink production can be manipulated to suit your needs (see Section 6.0).

4.3 Dispense Product Only:
You can dispense only product by pressing the number of the pump (1-8) and then pressing and holding the JUICE button. The unit will dispense the product selected until you release the JUICE button. The maximum time that the JUICE button will dispense is 25 seconds. This feature allows you to prime your product lines easily with little waste.

4.4 Dispense Ice Only:
This feature will allow you to dispense ice only. Place an empty jar in the blend station and press and hold the ICE button to dispense the desired amount of ice. The ice will dispense as long as the ICE button is held down or up to 25 seconds. Use this feature when you're filling an empty ice hopper to prime the system.

4.5 Dispense Water Only:
By pressing and holding the WATER button you can dispense cold water only as desired. The maximum amount of time the feature will run is 25 seconds.

4.6 Run Blender Motor Only:
This feature can be used in two ways: as a ramp pulse (gradually increasing speed) or to run a constant speed. To use as a ramp pulse, press and hold the BLEND button until the drink is completed, the motor will stop when the BLEND button is released. To run at a constant speed, select the speed (1-9) and then press and hold the BLEND button. The unit will run until the BLEND button is released or for 25 seconds.

Section 5: Cleaning and Sanitizing

5.1 After Each Use:
After every use of the unit, the operator should ensure that the blender jar has been rinsed, the blend station has been wiped out if there is spillage, and that the blender door is wiped down if there is spillage. **Always keep an empty jar on the blender motor when the unit is not in use.** This helps any melt water that is not captured by the ice hopper drain from splashing onto the blender motor itself.

5.2 Jar Care:
SHORT TERM – As needed, wash the jars with a mild detergent solution. Do not immerse the jars for longer than necessary in any type of liquid. Wash quickly with a smooth cloth or sponge, rinse, and sanitize with appropriate solution. Some sanitizer manufacturers require their sanitizer to remain in contact with the sanitized object for a specific amount of time before rinsing or removing. Refer to your manufacturer's instructions before rinsing. Hold the jar by the handle and give three or more sharp downward shakes to remove all water from around the shaft area. Then place the jar upside down on a rack to dry.

LONG TERM – As needed, fill the jar with hot water and a tablespoon of chlorine bleach or other sanitizer, per manufacturer's instructions. Stir and let stand for 5 minutes, then empty. Hold the jar by the handle and give three or more sharp downward shakes to remove all water from around the shaft area. Then place the jar upside down on a rack to dry

5.3 Unit Care:
SHORT TERM – Daily or weekly, wipe down the exterior of the unit and the interior of the blend station with a damp rag. Carefully tilt the machine either backward or forward (two person operation) and wipe underneath the unit with a damp rag. Disconnect the drain tube from the back of the unit and run hot sanitizer solution through the tube to help keep the tube clear.

LONG TERM – Monthly, sanitize the ice hopper and blend station utilizing the steps below. The best time to perform this cleaning is either before or after

work hours when you have plenty of time. Mix up 2-5 gallons of sanitizer solution per the manufacturer's directions.

ICE HOPPER:

- Turn off the power. Remove all ice from the ice hopper. Using caution, manually take the ice out from around the augers. Once you have removed as much ice as you can, replace the ice hopper lid and place an empty blender jar in the blend station. Turn the power on. Press and hold the ICE button to dump the remaining ice pieces. Empty the jar and replace in the blend station.

  Cleaning: Spray or wipe the interior surface of the ice hopper with a mild soapy solution. A handheld spray bottle will work best. Allow this solution to remain in contact with the ice hopper surfaces as required by the manufacturer's specifications.

  Rinsing: Spray clean, hot water over the surfaces of the ice hopper to rinse the soapy solution away. A handheld spray bottle will work best. The rinse water will mostly run down the drain of the unit but some will go into the empty blender jar. Watch so that it does not overflow. Empty as needed.

  Sanitizing: Spray the sanitizing solution over the surfaces of the ice hopper. A handheld spray bottle will work best. Remember that some sanitizer manufacturers require their sanitizer to remain in contact with the sanitized object for a specific amount of time before rinsing or removing. Refer to your manufacturer's instructions before rinsing.

BLEND STATION:

- Remove the blender jar from the blender station (empty if needed).
- Using a mild soapy solution, wipe down all surfaces of the blend station. Excess water will drain through the drain opening located at the back of the unit.
- Use clear, hot water to rinse the surfaces of the blend station. A handheld spray bottle will work best. **Avoid getting excess water on the motor**.
- To sanitize the surfaces of the blend station either spray or wipe the surfaces of the blend station with the sanitizing solution.
- Remove the blend station door by opening the door and gently lifting it off the hinges (do not lose the small plastic washers). Wash the door in the sink and allow to air dry.
- Dry any water off the blender motor area and replace the blender door.

DRAIN HOSE:

- After sanitizing the ice hopper and blend station, the internal drain tube should be fairly well cleaned so it is not necessary to run sanitizer down the internal tube again.
- Remove the drain hose from the back of the machine.
- Slowly pour sanitizer solution down the tube. It is not necessary to rinse the

drain hose.

PRODUCT TUBES:

There are two options to sanitize product lines. The first is to use the sanitizing cycle built into the machine; the second is a simpler method using the JUICE button. You may use either one depending on preference; the beginning steps are the same.

- Disconnect all product bags from the product lines.
- Place an empty blender jar in the blend station.
- Empty each product line by pressing the number of the pump (1-8) and then holding the juice button down. This will remove the bulk of the remaining product from the machine. Be sure that the blender jar does not overflow.
- Disconnect all product bag connectors from the product lines. You will want to have a bucket or empty blender jar to capture any product that leaks back out of the tubes.
- Place the product bag connectors in the sink to soak in a sanitizing solution.
- Mix up a solution of hot soapy water.
- Place the ends of the product tubes into the soapy solution.

Method 1 Sanitizing Cycle:

- To clean the tubes, run the soapy solution by pressing 9-8-0-GO. This cycle will clean two product tubes at a time. The beginning screen will read "CLEAN 1 2 READY". Press GO to activate the cycle. Pumps 1 and 2 will run approximately 12 seconds, each dispensing the soapy water into the empty blender jar. Ensure that the jar does not overfill!
- Once the wash cycle is done, the screen will read "CLEAN 3 4 READY". Make sure the blender jar is empty and press GO. Pumps 3 and 4 will run. Repeat for all 8 product tubes.
- Retrieve a container (bucket) of clear rinse water.
- Place all eight ends of the product tubes into the bucket of water.
- To run the cycle to rinse, press 9-8-0-GO. This cycle will rinse two product tubes at a time. The beginning screen will read "CLEAN 1 2 READY". Press GO to activate the cycle. Pumps 1 and 2 will run approximately 12 seconds, each dispensing the rinse water into the empty blender jar. Ensure that the jar does not overfill!
- Once the rinse cycle is done, the screen will read "CLEAN 3 4 READY". Make sure the blender jar is empty and press GO. Pumps 3 and 4 will run.
- Repeat to rinse the remaining product tubes.
- Mix up a solution of sanitizer per manufacturer's instructions.
- Place all eight tubes, with connectors attached, into the sanitizer solution.
- To run the sanitizing cycle – press 9-8-0-GO. This cycle will sanitize two product tubes at a time. The beginning screen will read "CLEAN 1 2 READY". Press GO to activate the cycle. Pumps 1 and 2 will run approximately 12 seconds, each dispensing the sanitizer into the empty blender jar. Ensure that the jar does not overfill!
- Once the sanitizing cycle is done, the screen will read "CLEAN 3 4 READY". Make sure the blender jar is empty and press GO. Pumps 3 and 4 will run.
- Repeat to sanitize the remaining lines.
- Remove the hose and connectors from the container of sanitizer.
- Run each pump individually to clear the remaining sanitizing solution from

the product tubes.
- Reconnect the product tubes to the product bags, prime each line.

Method 2 Sanitizing Cycle:
- Using the JUICE button, follow the steps above EXCEPT do not use 9-8-0-GO; instead, press the button of the product pump (1-8) and then press and hold the JUICE button.
- Once the product has stopped dispensing from the unit, release the JUICE button.
- Repeat for all eight pumps.
- Follow the instructions for wash, rinse, and sanitize above.
- Regardless of the method used, refill the product lines by pressing the pump number (1-8) and the JUICE button until the product dispenses, then release the JUICE button.

Section 6: Blending 101 & Basic Programming

Blending 101:
Making the ideal smoothie with the BDI is just a matter of simple physics. The input variables include the temperature and thickness of the ingredients, the output variable is the desired texture achieved at 29°F (-1.667°C). A smoothie much warmer than this (above 32°F, 0°C) will be runny, a smoothie much colder (below 25°F, -3.889°C) will cavitate (develop an air pocket above the blade) and not blend. So let's make a perfect smoothie, simply.

1. Determine the concentration ratio of your flavor ingredients to ice and water. In other words, what's your ideal recipe? What does your product supplier recommend will be the proper amount of juice concentrate or puree, and how much will be ice and water for a given drink size? For example, in a 12 ounce drink, some recipes call for 5, others 4, 3, or even just 2 ounces of flavored product. These concentration values would be 1.4, 2, 3, and 5 to 1, respectively, where the 1 is the product, and the 5, 3, 2 and 1.4 values represent the relative amounts of ice/water needed to make the desired 12 ounce drink. So if the recipe called for 2 ounces of product, you need to put in 10 ounces of ice/water (5 to 1 ratio). If the recipe called for 3 ounces of product, you would need to put in 9 ounces of ice/water (3 to 1 ratio) to make a 12 ounce drink.

2. Determine the water to ice ratio necessary to bring the final drink to 29°F (-1.667°C). If I have a 3 to 1 flavor concentrate, then I will need to put in 9 ounces of some combination of ice and water into my 12 ounce drink. If I put in all ice I run the risk of freezing the drink and failing to blend (aka cavitation). If I put in all water, I am guaranteed to lose a customer. So the ice/water ratio is like a teeter-totter. I have to put in 9 ounces total, the only question is how much of this will be ice, and how much will be water? It is recommended that you begin with approximately a 4 to 1 ratio of ice to water. In the present case, try 7 ounces of ice to 2 ounces of water. If the drink is a little too runny, go to 8 ounces ice and 1 ounce water. If it is initially too thick, go to 6 ounces ice and 3 ounces water. You get the idea. The two values have to add up to 9 ounces, so adjust according to preference. And with the BDI, you do not need to experiment with only whole numbers of ounces as the computer allows dispensing in

tenths of seconds!

3. Determine the desired texture of the finished drink. The same ingredients (raspberry concentrate, water, and ice) can be blended slowly to achieve a nice, crunchy Italian ice, while a more aggressive blend will turn them into a velvet smooth granita. It's your choice.

4. Now for a little fine print.
First, different ingredients have inherent thickness differences within and between flavors. For instance, think of the difference in thickness there is between strawberry juice, strawberry concentrate, and a strawberry puree with lots of pulp and seeds. The first two will be on the thinner side, the puree on the thicker side. Now play the same game with fruits having more fiber such as pineapple or mango. You can see that different types of products (juice, syrup, puree) and different flavors (e.g., apple, mango) have different levels of thickness and fiber. The thicker the ingredients, the tougher the blend.
Second, be aware of the brix factor. Sweeter liquids have higher dissolved sugar ratios (solids in water). A 100 gram liquid with a brix level of 10 degrees has 10 grams of sugar combined with 90 grams of water. A 100 gram liquid with a brix level of 25 degrees has 25 grams of sugar combined with 75 grams of water. The higher the solids to water ratio, the more difficult to blend.
Third, what is the temperature of your ingredients, all of them? The warmer the flavor product, water, or ice, the thinner the resulting drink. Conversely, the colder the ingredients, any of them, the thicker the drink.
Fourth, what is an alternative spelling for alcohol? Antifreeze. If you are adding alcohol to a drink, its effect on drink consistency is greater than water, so plan accordingly. In terms of the ice/water in #2 above, more ice is needed relative to the amount of alcohol added to maintain the same consistency between virgin (non-alcoholic) and alcoholic beverages.
Finally, all ice values above are by **weight**. If you do not have a scale and are instead measuring ice by volume, the melt ratio of ice to water is 2 to 1. That is, two cups of ice by **volume** melt to one cup of water by weight and 16 ounces of ice by volume melt to 8 ounces of water by weight (the same ratios apply to any metric measurements). If your drink calls for 10 ounces of ice by weight, be sure that you are putting 20 ounces of ice by volume into your blending jar!

The rest of this section will help you with the basics of programming and allows for the programming of drinks to your requirements. This feature will give you the opportunity to view, and if necessary, change your data set parameters (see **Figure 1** for the data set sequence).

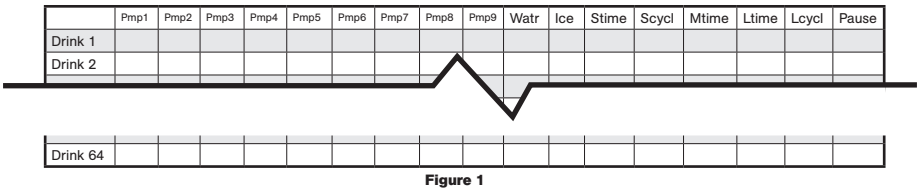


Figure 1

6.1 Program Mode:

This is the mode that you will utilize to change settings for pumps, water, ice, blend cycles, blend times, and pause. To enter this mode you press 7-8-9-GO in sequence. The display will change from “Enter Drink #” to “Drink 1 Pmp 1 00”.

- Navigating in the program is done with the S, M, L, and GO buttons on the control panel.
- The S and M buttons move you up and down in drinks: 1-64 on M and 64-1 on S.
- The L and GO button will move you up and down in the data sets; GO moves forward (pump 1-8) and L moves backward (pump 8-1).
- You must enter the programming mode before any changes can be made.
- To exit the programming mode at any time, press the STOP button twice.
- It is possible to access a specific drink number in the Drink Settings Menu (7-8-9-GO) by pressing 1, then the drink number (1 to 64), and then GO.

6.2 Adjusting Product:

- Product values can be added, removed, or adjusted as you see fit; however, when you find a drink setting that works for you it is recommended that you do not change it unless absolutely necessary.
- To adjust product settings, scroll to the drink number (S or M buttons) you wish to change.
- Now use the GO button to move to the pump number that needs to be changed.
- Pump values are recorded in tenths of a second. In other words, 22 on the display represents 2.2 seconds of dispense time.
- The dispense rate will vary slightly depending on the type of product you are using. A 4 to 1 concentrate will be thicker and will therefore need more time to dispense. (See Section 7.1 for calibration help.)
- Enter the value you want by pressing the correct numbers on the control panel and then the GO button.
- The value will be stored and then move onto the next pump or data set.
- To zero out a value, scroll to the appropriate pump, enter 0 on the keypad and press GO.

6.3 Adjusting Water:

- Scroll to the Water data set by pressing either the L or GO buttons.
- Water is also entered in tenths of a second. The water dispense rate should not vary unless your water pressure coming into the unit is less than 30PSI (2.1097 kg/cm).
- Enter the value required by pressing the numbers on the control pad and then pressing the GO button.
- To zero out the water value, enter 0 on the keypad and press GO.

6.4 Adjusting Ice:

- Scroll to the Ice data set by pressing either the L or GO buttons.
- Ice is also entered in tenths of a second.
- Enter the value required by pressing the numbers on the control pad and then pressing the GO button.

- To zero out the ice value, enter 0 on the keypad and press GO.
- Ice dispense rate may vary depending on the type and shape of ice cube that you utilize. (See Section 7.1 for calibration instructions.)

6.5 Adjusting Blend Times:

- Scroll to the first blend time data set (Small) by pressing either the L or GO buttons.
- Blend times are in whole seconds. 21 in the blend cycle set represents 21 seconds of blend time. The blender motor will run for the programmed time and then stop.
- The blender motor will run in the pattern as described by the Cycle in the next data set.
- To zero out the blend time value, enter 0 on the keypad and press GO.
- To move to the next blend time for Medium or Large press the GO button to reach them. (Cycle settings are between each.)

6.6 Adjusting Blend Cycles:

- Scroll to the first blend cycle data set (Small) by pressing either the L or GO buttons.
- There are 6 pre-programmed cycles already stored in the unit. **See Figure 2**
- Select the cycle you want by pressing the appropriate number (1-6) and press GO.

	SpeedA	TimeA	SpeedB	TimeB	SpeedC	TimeC	SpeedD	TimeD	SpeedE	TimeE	SpeedF	TimeF	SpeedG	TimeG	SpeedH	TimeH
Cycle 1	5	15														
Cycle 2	6	15														
Cycle 3	7	15														
Cycle 4	3	1	4	1	1	2	3	1	4	2	5	2	6	2	7	3
Cycle 5	3	1	5	1	1	2	3	2	5	2	3	3	6	6	8	6
Cycle 6	3	2	1	3	3	3	5	3	6	4	7	15	8	6		

Figure 2. Standard Blend Cycle Profiles

- Regardless of the time listed above (Figure 2), the blender motor will run for the amount of time that you have programmed into the Cycle time data set. However, the cycle will start over at the beginning of its programmed time. In other words, looking at Cycle 5 above, you can see that it is set for a total time of 24 seconds. If your cycle time is greater than 24 seconds, the cycle will start over at the lower speed and repeat until the time is up.
- You must have a cycle programmed into the data set even if you have no cycle time.
- Press the GO button to move to the Mcycl and Lcycl data sets and change or set as needed.

6.7 Adjusting Pause:

- Scroll to the pause data set (Small) by pressing either the L or GO buttons.
- Pause is the amount of time the blender motor will wait until it begins to blend.
- The use of Pause is to allow your ingredients to dispense into the blender jar without being thrown back out.
- Pause is again, in whole seconds. Enter the value with the number keys on the control panel and press GO.

6.8 Changing the Drink Size Ratio:

- You can set the drink sizes for the S, M, and L buttons on the keypad.
- To access the menu press 7-8-8-GO on the control pad (from the Enter Drink # screen).
- The display will now read “Size Small XX”. Enter the size, in ounces, of the small drink you want to make and press GO.
- The data set will automatically move to the Size Medium data set; enter the ounces size of your medium drink and press GO.
- The data set will automatically move to the Size Large data set; enter the ounces size of your large drink and press GO.
- It is not necessary to have all three sizes, but you must have a “small” drink. The “small” drink size correlates directly with the data set programmed into the 7-8-9-GO menu. This is very important! If you set your 7-8-9-GO menu, ice and water values to make a 12 ounce drink and your small size to 14 you will only make 12 ounce drinks and the M and L drinks will not turn out correct. The microprocessor uses the small drink size and the settings in the 7-8-9-GO menu to automatically generate your M and L drinks. Ensure that the size of drink and the programmed data sets match directly.
- Press the STOP button twice to exit the drink size menu.

Section 7: Advanced Programming

This section is intended for anyone who needs more detail in order to be able to do more than just the basic programming operations. There is additional information about controls and reports the unit can supply. Pressing 7-8-9-GO on the control panel, unless otherwise noted, accesses all functions.

7.1 Calibration:

There are two ways to optimize the drinks made in the BDI. You can use the trial and error method, which involves making small changes to a drink and testing each change as you go until you get it the way you want it. Or, you can calibrate the BDI and make drinks according to a formula. Because fittings, tubing, temperature, and product can all cause the pumps to dispense at different rates, each drink you wish to make from a formula will require a calibrated pump. This section will tell you how to isolate and calibrate each dispensing function.

- Press 7-8-9-GO to access the program mode. (If you have not read Section 6, do so now.)
- Press 0 then GO. This will zero out the pump run time for Pmp 1 in Drink 1. The display will now read “Drink 1 Pmp 0.”
- Press 0 and GO until all eight pumps are at 0. Continue to zero out water, ice, and the blend times (you cannot zero out the cycles).
- Select the concentration ratio for the product you use in pump 1 from the table below. We are assuming that the pumps deliver about 1 oz. per second. Divide your recipe’s product amount (our 12 oz. drink) by 1.0 to get the suggested pump time. For example, If you use 2 to 1 product, divide 4 oz. by 1.0 oz per second. 4/1 = 4.0 seconds. With the display showing “Drink 1 Pmp 1 0” enter the suggested run time, remembering that what you enter is in tenths of a second. In this example, enter “40” to get 4.0 seconds, then

press GO. This is a starting point only. The viscosity of the liquid you are pumping will require you to do some experimentation and adjust accordingly. For example, if you have a product which is thicker and only pumps at ½ oz per second, to get 4 oz of product you would need to pump for 8 seconds.

Suggested Drink Formulae – Figure 3

Concentration Ratio	Small 12 oz. Drink	Medium 18 oz. Drink[1]	Large 24 oz. Drink[2]
1.4 to 1	Pmp **5 oz**. Water **0 oz.** Ice* **14 oz.**	Pmp **7.5 oz.** Water **0 oz.** Ice* **21 oz.**	Pmp **10 oz.** Water **0 oz.** Ice* **28 oz.**
2 to 1	Pmp **4 oz.** Water **2 oz.** Ice* **12 oz**.	Pmp **6 oz.** Water **3 oz.** Ice* **18 oz.**	Pmp **8 oz.** Water **4 oz.** Ice* **24 oz.**
3 to 1	Pmp **3 oz.** Water **3 oz**. Ice* **12 oz.**	Pmp **4.5 oz.** Water **4.5 oz.** Ice* **18 oz.**	Pmp **6 oz.** Water **6 oz.** Ice* **24 oz.**
4 to 1	Pmp **2 oz.** Water **4 oz.** Ice* **12 oz.**	Pmp **3 oz.** Water **6 oz.** Ice* **18 oz.**	Pmp **4 oz.** Water **8 oz.** Ice* **24 oz.**

*The amount of ice shown is volume, not weight. When blended, the weight is only ½ of what is shown.
1) The product coming from the pump and the water for these drinks are automatically proportioned to 1.5 times the "S" drinks unless the proportions have been changed as in Section 8.1.
2) The product coming from the pump and the water for these drinks are automatically proportioned to 2 times the "S" drinks unless the proportions have been changed as in Section 8.1.

- Place a jar in the blend station, press STOP twice to exit the program mode, then press S to select a small drink. Press 1 to activate Drink (pump) 1 then press GO.
- When the pump has stopped delivering product to the blender jar, you may measure the product and get an actual dispense rate of the product from pump number 1. For instance, if the volume of product in the jar is 4.4 ounces, 4.4 oz. / 4 seconds = 1.1 oz per second. Calculate the actual pump time by dividing the required ounces by the actual pump rate. E.g. 4.0 /1.1 = 3.6 seconds. Record this number; it will be entered later. Re-enter the programming mode (7-8-9-GO) and zero out Drink 1 Pmp 1.
- Repeat the earlier steps for each pump port. You may use a different concentration ratio in each pump and your formula may call for different quantities of product than the suggested formula. Keep a record of the measured pump flow rates in the chart below or one similar.

Pump Number	Flow Rate
Pump Port 1 Flavor	oz /sec
Pump Port 2 Flavor	oz/sec
Pump Port 3 Flavor	oz/sec
Pump Port 4 Flavor	oz/sec
Pump Port 5 Flavor	oz/sec
Pump Port 6 Flavor	oz/sec
Pump Port 7 Flavor	oz/sec
Pump Port 8 Flavor	oz/sec

7.2 Water Flow Rate:

Calibrate water flow (it is done much the same way as calibrating pumps):

- Press 7-8-9-GO to enter the drink program mode
- With all data sets of Drink 1 at “0”, press the GO or L pad until the display reads: “Drink 1 Watr 0”
- Press 5-0-GO to enter and store 5 seconds of water dispense time for drink 1
- Press STOP twice to exit the program mode
- Make sure a jar is in the blend station and press S-1-GO to start dispensing water into the jar. Water will dispense for 5 seconds.
- Measure the water in the jar and divide by 5 to calculate the water flow rate. For example, with 2.5 oz. of water in the jar, 2.5/5 = 0.5 oz per second. Record this number. Because the water comes from the same valve for all drinks, the water flow rate will be the same for every drink.

7.3 Ice Dispense Rate:

Calculating the ice dispense rate is done in a similar fashion as the water flow rate.

- Press 7-8-9-GO to enter the drink program mode
- With all of the data sets of Drink 1 at “0”, press the GO or L pad until the display reads: “Drink 1 Ice 0”
- Press 5-0-GO to enter and store 5 seconds of ice dispense time
- Press STOP twice to exit the program mode
- Using any water source fill a jar with 10 ounces of water and place the jar in the blend station
- Press S-1-GO to start dispensing ice into the jar. Ice will dispense for 5 seconds
- Measure the ice in the jar by reading the water level and subtracting 10 from the result. This will give you the volume of ice that was dispensed. Divide the new result by 5 to calculate the ice dispense rate. Record this number.
- Example: After the ice dispense is complete the volume of water/ice is 16 oz. Calculate the ice dispense rate by subtracting out the water portion: 16 – 10 = 6; then divide by 5 to obtain the dispense rate: 6/5 = 1.2 ounces per second.

7.4 Ice Level Sensor:

- The Ice Level Sensor notifies the user when the ice hopper is close to being empty.
- The sensor can be disabled or enabled by pressing 3-5-8-GO. The display will either read, “Ice Sensor On” or “Ice Sensor Off”. Pressing S or M will make a selection. Once the mode of operation is selected press STOP twice to exit the menu.

7.5 Ice Buster:

The ice buster’s purpose is to run the ice auger for a period of time every so often to keep the ice ready to be dispensed. This feature allows the Ice buster to be enabled or disabled. The duration of the ice buster and the interval between ice busting can also be set from this menu.

- Access this menu by pressing 3-5-7-GO.
- The screen will read, “Ice Buster On” or “Ice Buster Off”. Make a selection by pressing the S or M button.
- Press the GO button to advance the menu to the Interval between bust cycles. The screen should read, “Interval (min)___”. Enter the desired interval in minutes and press GO to store the value and also to advance to the duration of the bust cycle.
- The screen will now read, “Duration (sec)___”. Enter the desired duration in seconds and press GO to store the value.
- Press STOP to exit the menu.

7.6 Small Drink Default:

Use this feature to select the mode for the default drink size. There are 3 options. The first is for the SMALL to be the default drink size. The second is that the drink size will remain the same after a drink has been made. The third option is that no drink size will be selected after a drink is made. This requires that the user select a drink size each time a drink is made.

- To make a selection for the mode of operation press 3-5-6-GO.
- The screen will show one of the three following options: “Revert To Small”, “Revert To Same”, and “Revert To None”.
- Press the S or M button to scroll through the three options.
- Once you have selected the option you want, press GO. The setting you selected will be stored. Press STOP twice to exit the menu.

7.7 Restore Defaults:

There are three types of restore defaults: Drink Settings, Blend Cycles, and Misc Settings. These three will revert key settings back to the factory default. If you do not have a profile that is installed at the factory then the default settings will revert to “0”.

- **Restore Drink Settings:** This feature will restore the Drink Settings to their factory defaults. Press 4-4-4-GO and the screen reads, “Reset Drinks?”. Press GO again to confirm that the drink settings should be reset to the defaults. The screen will say “Storing Drinks” and a count will show the

progress.

- **Restore Blend Cycles:** This feature will restore the Blend Cycles to their factory defaults. Press 4-4-5-GO and the screen reads, “Reset Cycles?”. Press GO again to confirm that the Blend Cycles should be reset to the defaults. The screen will say “Storing Cycles” and a count will show the progress.
- **Restore Misc Settings:** This feature will restore various settings to their factory defaults. Press 4-4-6-GO and the screen reads, “Reset Settings?”. Press GO again to confirm that the settings should be reset to the defaults. The settings that will be reset to factory defaults are: The Ice Sensor will be set to ON, the Size Default will be set to Revert to Small, the ice buster will be set to ON, the Ice Buster Interval will be set to 30 minutes, and the Ice Buster Duration will be set to 6 seconds.

7.8 Locking the Machine:

This feature allows the manager/owner to lock the machine out of use by other employees without the use of a code. The manager/owner can decide and change the lockout code at will.

- **Change or set machine lock out code:** Enter 7-7-8-GO on the keypad. The screen will then read, “Enter Code:”. Enter the current code (the factory default is 0) and press GO. The screen now reads, “New Code:”. Enter the new one to four digit code that is desired and press GO. The screen then reads “Re-Enter:” Re-enter the desired code and press GO.
- **Lock Machine:** To lock the machine press 7-7-7-GO. This will disable all functions except for the ice buster. The screen will say, “Enter Code:”. The machine will not work until the correct security code is entered and the GO button is pressed.
- Write your code down and hide it in case you forget. If you do forget your code and cannot find where you have it written down, call Blendtec Technical Support for assistance at 1-800-748-5400, ext. 494 or 248.
- **Alcohol Pumps:** If your machine was set up to include alcohol pumps you can lock them specifically. This feature allows pumps 6, 7, and 8 to be locked so that product cannot be dispensed by using the JUICE button. The factory default is such that Pump 6, 7, and 8 are all unlocked. You can also change the code that locks/unlocks the pumps.
- They can be locked or unlocked individually by entering 3-5-3-GO on the keypad.
- Enter the Alcohol Pump lockout code; and press GO. The screen will read “Pump 6 Unlocked” or “Pump 6 Locked”. It can then be changed to the other by either pressing the S or the M button, then press GO.
- The screen will now read “Pump 7 Unlocked” or “Pump 7 Locked”. Make a selection by using the S or M button and then press GO again to make a selection.
- The screen will now read “Pump 8 Unlocked” or “Pump 8 Locked”. Make a selection by using the S or M button and then press GO again to make a selection.
- Once the pumps have been configured, the menu can be exited by pressing the STOP button twice.
- To change the alcohol pump lockout code enter 3-5-2-GO on the keypad.

- The screen will then read “Enter Acode:”. Enter the current code (the factory default is 0) and press GO.
- The screen now reads “New Acode:”. Enter new code (up to four digits) and press GO.
- The screen then reads “Re-Enter:” Re-enter the desired code and press GO.
- Press the STOP button twice to exit the menu.

7.9 Drink Counts:
The following options allow the user to maintain counts of the individual drinks made by day and total for lifespan.

- **Total Machine Count:** To access the machine count, press 8-0-0-GO. The machine count will be displayed. (If the number of cycles has exceeded 65,535 cycles then there will be a multiplying counter that is displayed also. The multiplying counter will increment each time the machine count reaches 65,535 and resets to 0.) To exit the machine count screen press STOP twice. This count cannot be reset.
- **Individual Drink Counts:** Each time a Drink Cycle is run a respective count will be incremented. This count can be viewed by pressing 8-0-1-GO. The screen will read “Drink # 1____”. Use the M button to increment the Drink number and use the S button to decrement the Drink number. Using the 8-0-3-GO feature can clear these counts.
- **Total Drink Count:** A total of all of the individual drinks can be viewed by pressing 8-0-2-GO. This total count is reset to zero when the 8-0-3-GO feature is executed.
- **Clear Drink Count:** By pressing 8-0-3-GO, all of the individual drink counts are cleared as well as the Total Drink Count. After pressing 8-0-3-GO, the screen reads “Clear Counts?” Press GO to confirm that the Counts will be cleared.

Section 8: Troubleshooting

We hope you will never have to use this section but if you do, we have tried to make the answers in this section very simple, so please don’t take offense. These are the most common problems we have encountered.

8.1 Machine won’t run: Check the power cord to be sure it is plugged into a live, grounded 20 Amp, 120V (or 240V for International models) circuit. Check that the switch on the back of the machine is on. Check in the rear of the machine to see if the circuit breaker button has tripped (little white button). If it has, press the breaker button back in to reset it (the BDI utilizes a 13 AMP circuit breaker).

8.2 Blender stopped working: If the unit does not blend, check in the rear of the machine to see if the circuit breaker button has tripped. If it has, press the breaker button back in to reset it (the BDI utilizes a 13 AMP circuit breaker).

8.3 Ice stopped dispensing or ice auger not turning: Ensure there is ice in the hopper. Check for obstructions (foreign objects) and blockage in the ice hopper and its chute. Replace the ice hopper lid or make sure it is firmly in place to activate the lid sensor switch and try again.

8.4 Ice dispenses when not in use: If the machine dispenses ice by itself for about two seconds every hour or so, this is just our timed “ice buster” being automatically activated. Your machine is programmed with an “ice buster” cycle that will activate the ice auger every 30 minutes and dispense ice for six seconds when the machine is on, but not in use. This helps keep the ice cubes from possibly freezing into one big block of ice over time. The timer resets after the last drink made, meaning if the machine does not make a drink within 30 minutes after the last drink was made, the ice auger will turn for six seconds. Therefore, it is important to always have a jar in the blender station to catch any ice that may be dispensed during that six second turning of the ice auger.

8.5 Drinks too runny: See Section 6 to reprogram your ingredients if necessary. Ensure the ice hopper is full. Make sure the ice hopper lid is firmly in place to activate the ice auger.

8.6 Drinks too thick or cavitation in blender:
Ensure that product bags are not empty, the water supply is on and unblocked, and the water, product, and ice amounts are programmed correctly. See Section 6 above to reprogram your ingredients. Cavitation is caused when the liquid and ice mixture in the blender jar is too thick and an air pocket (or bubble) is created around the spinning blender blade. This leaves your drink stuck to the sides of the jar and full of large ice particles. Be sure to put in enough products to produce a good flavor then adjust the water to ice ratio until the blender does not cavitate when you make the drink. If your drink is too watery, you can add more ice or less water until you get a drink that will form a smooth peak when you pour it into a cup.

8.7 Little or no flavor in drinks:
Ensure that product bags are not empty. Check that the product hoses are not kinked. Check that the pump time is not zero (0) in the program. Call us if the pumps do not turn.

8.8 Too much flavor in drinks:
Check the programming to see if more than one pump turns at a time, if a pump turns that was not requested, or if a single pump turns as long as the ice is dispensing. If any of these conditions is present, call us.

8.9 Ice chunks in drinks:
Check the blend time in the program for the drink with the chunks. Watch for cavitation; you may need to reprogram quantities. Make sure the blender aggressiveness is appropriate for your drink, and the pause is not too long.

8.10 Water won’t dispense:
Check that the water is on and that there are no kinks in the hose to the machine. If those problems don’t exist, call Blendtec Technical Support.

8.11 Product bag is leaking:
Replace the bag. Call your product distributor.

8.12 Lid light is on:
Replace Ice Hopper Lid on unit. If replacing the lid does not clear the light, contact Blendtec Technical Support for further help.

8.13 Low ice indicator:
Add ice to the ice hopper to a level above the photo-electric eyes which are located inside the ice hopper on each side. If the light does not go off then contact Blendtec Technical Support for further help.

Section 9: Warranty Information including Service

Blendtec warrants the BDI unit for one year. The jars, including all moving parts, are covered against leaking or breakage for 180 days. The BDI housing, controller, and ice auger are warranted for one year. Should you experience any difficulty in using your BDI, please proceed as follows:

9.1 For Warranty Service: Call Blendtec Technical Support at 800 748-5400 ext. 494 or 248. We will discuss the problem with you and decide on the best way to fix it. We may send a service technician to your facility and ship parts for the repair or we may ship a replacement machine to you.

9.2 Blender Jars: If you experience trouble with your jars, call Blendtec Customer Service and we can walk through some simple troubleshooting over the phone. If necessary, we will ship you replacement jars at no charge.

9.3 For Non-Warranty Service: Call Blendtec Technical Support at 800 748-5400 ext. 494 or 248. We will discuss the problem with you and decide on the best way to fix it. We may send a service technician and parts to your facility or ship a replacement machine to your facility. You will be billed for the cost of repair and any shipping. All costs related to parts and replacement will be discussed before hand. Service cost will vary with provider.

Section 10: Blank Drink Template

	pump1	pump2	pump3	pump4	pump5	pump6	pump7	pump8	Watr	Ice	Stime	Scycl	Mtime	Mcycl	Ltime	Lcycl	Pause
Drink 1																	
Drink 2																	
Drink 3																	
Drink 4																	
Drink 5																	
Drink 6																	
Drink 7																	
Drink 8																	
Drink 9																	
Drink 10																	
Drink 11																	
Drink 12																	
Drink 13																	
Drink 14																	
Drink 15																	
Drink 16																	
Drink 17																	
Drink 18																	
Drink 19																	
Drink 20																	
Drink 21																	
Drink 22																	
Drink 23																	
Drink 24																	
Drink 25																	

Section 11: BDI Pre-Installation Checklist

Store Number and Location:

Completed By : Date :

	CHECK LIST		COMMENTS
1	☐	Do you know exactly where the unit is going to be installed? The unit is designed to be placed on top of a counter. See **section 2.6** for equipment dimensions. The closer to the product bags the better. Product lines that run more than 10' (3 meters) are not recommended. Counter location should be near water, ice, and storage area for product bags. ******Recommend placing product directly next to (on the side of) or directly underneath the unit. If placing on the side, allow for an additional 12" (30.48 centimeters) of clearance.**	
2	☐	Counter placement: Ensure there are at least 4 inches (10.16 centimeters) on each side and at least 6 inches (15.24 centimeters) in back (room for plumbing, product lines and drain). There must be enough overhead clearance to remove the ice hopper lid and add ice during normal operation.	
3	☐	Is the unit being installed in close proximity to sink/drain? (This is needed for water and drain connections.)	

4	☐ Are you connecting water to the unit? (If yes, go to number 5, if no, skip to number 6 and put NA in the comments.)	
5	Have the following requirements been met for water connection to the unit?	
	☐ 1) Water source needs to be set up per local code and terminated at the unit with a flexible reinforced water line. (Water line needs to be at least ½" diameter and terminate at the unit with a ⅜" female compression connector.)	
	☐ 2) Water pressure needs to be at least 30PSI (2.1097 kg/cm) and no greater than 120PSI (8.4388 kg/cm).	
	☐ 3) Adequate backflow prevention installed to comply with local plumbing codes (may require a licensed plumber).	
	☐ 4) Shut-off valve installed between the water supply and the unit.	
	☐ 5) You must use an in-line water filter with at least a one GPM (3.78 liters per minute) rating.	
	******Recommend putting a "T" in the ½" waterline with a ball valve and a ¾" BIB hose connector, then use a flexible water line with ¾" BIB hose connector on one end and a ⅜" compression end on the other. (For International recommendation consult with local dealer.)**	
6	Have the following requirements been met for providing power to the unit?	
	☐ 1) Power Requirements have been met (section **1.14**).	
	☐ 2) Do not use any other electrical equipment on the same circuit as the unit or you risk overloading the circuit and either burning the fuse or possibly the electronics inside the unit.	
	☐ 3) You must use a surge suppressor or a GFI protected outlet.	
	******Receptacle needs to be within 4 feet (1.2 meters) of the unit**	

7	❑	Is the drain for the unit in compliance with local code and is it ready for the connection of the unit's drain hose? The BDI uses a 20' (6 meter) drain hose which may or may not be supplied with the unit, and the drain needs to accommodate the outside dimensions of the drain hose, at least 1 ¼" (3.175 centimeters) and no more then 1½" (3.81 centimeters). It is strongly recommended that a floor drain or a wall drain be used.	
8	❑	Ice machine needs to be installed and operational.	
9	❑	Product needs to be ordered and on site, for hook up and final testing.	

I have personally verified that the items on this checklist are completed and the space is ready for installation of the Blendtec dispensing equipment. I understand that if the prep work identified on this installation checklist is not complete, my store may be liable for a portion or all of the cost of any service call where a technician is not able to do the install due to incomplete prep work.

Signature:_____ Date:_____

NOTE: If this Blendtec dispensing equipment is not installed in accordance with the pre-installation checklist, we cannot guarantee the proper operation of the equipment and your warranty will be void.

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OWN-CE-003 BDI Owners Manual BDI. v5 Jan 10

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