

Technical Data Sheet – GB21 Revolution Shaver Blender

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Trouble Shooting Guide

- **Symptom:** Display reads, “Revolution sensor error or Ice Jam”.
- **Cause:** Shaving function of the machine is not detecting shaver motor rotation. Turn the main power switch to the “Off” position and unplug the machine. To ensure that the agitator is not binding due to an ice chunk, grasp the agitator in the inner hopper and manually rotate a couple of turns. Once complete replace the lid and power up the machine. If the error message persists the most probable cause is a broken sensor magnet on the shaver motor or a broken belt.

- **Symptom:** Display reads, “Speed Sensor Failure”.
- **Cause:** Blending function of the machine is not detecting blender motor rotation. Most probable cause is a broken sensor magnet on the blender motor or a broken belt.

- **Symptom:** Display reads, “Hopper lid not in place”.
- **Cause:** Check the inner rim of the lid. Check the lid sensor finger that is at the junction of the inner hopper and the diversion fin. If the problem persists the lid sensor switch assembly should be checked for proper operation. If the switch is functioning properly the problem is probably in the main PC board.

- **Symptom:** Display reads, “Inner hopper not in place”.
- **Cause:** Lift the inner hopper from the machine. Check the hopper finger inside the hopper foot hole at the 2:00 position. Replace the hopper and try it. If this doesn’t cure the problem follow the same steps as above for “Hopper lid not in place.”

- **Symptom:** Display reads, “Turn off main power switch and insert memory card”.
- **Cause:** The memory card is not fully inserted or needs to be reset. Turn off and unplug the machine, remove the memory card and re-insert it. If the problem persists replace the memory card.

- **Symptom:** Too much or too little ice in the mix.
- **Cause:** Adjust the amount of ice to dispense. Follow the programming instructions on the “Ice Volume & Blend Time Customization Sheet”. Also shown at the end of this document.

- **Symptom:** Blend time is not ideal.
- **Cause:** Adjust the blend time. Follow the programming instructions on the “Ice Volume & Blend Time Customization Sheet”. Also shown at the end of this document.

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- **Symptom:** Water is draining from the ice chute.
- **Cause:** The drain system is not functioning properly. Ensure that the hose is not angled upward at any point such as over the ledge of a countertop. Also ensure that the end of the hose is not submerged. If the problem persists you will need to inspect the drain pool for clogs or debris. Once this is complete you will need to pour warm water into the drain pool and if necessary use pressurized air to remove any clogs.

- **Symptom:** Shave function does not operate during normal cycle but unit will shave ice if you depress the shave button.
- **Cause:** Most probable cause is the memory card. Remove the memory card and re-insert it. If the problem persists replace the memory card.

- **Symptom:** Display reads, “xxxxx”.
- **Cause:** Control panel problem. Remove control panel. Unplug the connectors and re-connect. If the problem persists replace the control panel.

- **Symptom:** Unit is dead
- **Cause:** PCB Leadwires are stressed, wires pulled from connectors, connectors separated. See Repair Guide

Repair Guide

Shaver Blade, Shaving Pool and Accessing Drain

Pool Disassembly

- Turn the power switch to “off” position and unplug the machine.
- Remove lid.
- Remove inner ice hopper.
- Remove chute cover & splash shield (not applicable for HBS1200-CE); depress button in ice chute, slide off (see figure 1).
- Remove the agitator (see figure 3) and rubber “O” ring.
- Remove the three Philips head screws that hold the shaver pool in place.
- Remove shaver pool, inspect shaver blade.
- Inspect drain pool (see figure 4).

Re-assemble in reverse order with special attention to:

- Do not over tighten screws. Over tightening will result in threads stripping in plastic.
- Position the rubber “O” ring on the center shaft before installing the agitator.
- Position inner hopper with fin properly oriented to the 1:00 position (see figure 2).

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Figure 1. Bottom view chute cover; button reference to for removal in center of picture.



Figure 2. Fin orientation in the front of the machine.



Figure 3. Agitator

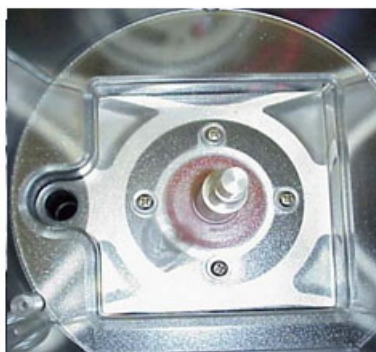


Figure 4. Clean Drain Pool

A Note About the Drain

It is recommended that daily you empty the ice hopper, fill the blender container with hot tap water and slowly pour the water into the ice hopper to clean the drain lines.

Changing the Control Panel

Disassembly

- Turn the power switch to the “off” position and unplug the machine.
- Reference figure 5.
- Remove the 2 screws at the bottom of the Control Panel, lift bottom of panel out and away from front of machine.
- Carefully remove wiring harnesses (see figure 6).

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Re-assemble in reverse order with special attention to:

- When plugging in wiring harnesses, make sure the connectors are fully seated and all individual wires are pushed in.
- Do not over tighten screws. Over tightening will result in threads stripping in plastic.



Figure 5. Control Panel



Figure 6. Wiring harnesses on rear of panel.
Hold down removed for clarity

NOTE: Beginning in 2024 and all production afterwards – all models will be built with an OLED type display. All production models built in 2023 (all Series) and before were built with a VFD type display. The OLED display and accompanying touchpad (display window is different size than VFD) as an assembly is retrofittable onto all VFD (older) models. The OLED (new) touchpad alone, IS NOT retrofittable onto VFD (old) control panels. (display window is different size than VFD) If a VFD control panel unit requires replacement of the touchpad – the original VFD touchpad **MUST be used, **OR** the entire VFD control panel assembly must be replaced with an OLED control panel assembly.**

Changing the Memory Card

(Series A-S a card is required to be in the machine to function)

(Series T and higher the memory card is not required to be in the machine to function)

- Turn the power switch to the “off” position and unplug the machine.
- Position machine so that you can access the bottom.
- Remove one of the cover screws and loosen the other (see figure 7).
- Swing the clear cover left or right.
- Grasp the memory card and remove paying attention to the orientation (see figure 8).
- Re-insert a memory card with the circuit components facing the center of the black box. (see figure 7).
- Secure screws. Do not over tighten screws. Over tightening will result in threads stripping in plastic.

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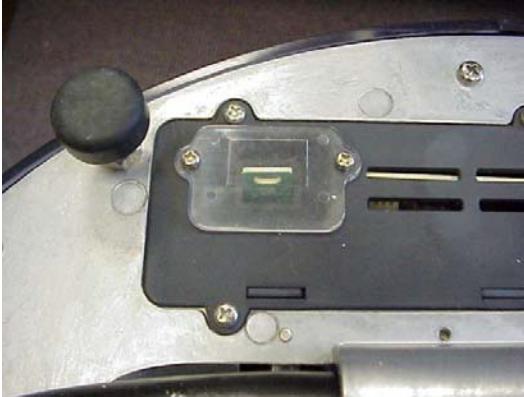


Figure 7. Memory card installed.



Figure 8. Memory card removed.

Blender Motor Drive Assembly

Removal, Installation and Adjustment

- Turn the power switch to the “off” position and unplug the machine.
- Remove bottom cover (see figure 10).
- Grasp drive pulley in one hand and blender drive in the other hand. Unscrew blender drive.

Note: If blender drive will not come off by hand you can use a large pair of pliers to hold the drive.



- Loosen the 3 screws holding the belt tension assembly.
- Note: Series A-T only (Series U and up does not use a tensioner)**
- Pull tension assembly to loosen belt and retighten one of the screws.
- Remove belt from pulleys by turning and walking the belt off.
- Remove 3 screws holding drive assembly in place and remove assembly (see figure 12) (**Series A-T only**).

Re-assemble in reverse order with special attention to:

- To adjust belt tension, reassemble drive assembly and roll/walk belt back on pulleys. Loosen screw that is holding tension assembly in place. Spin the belt and pulley to make sure all is running freely. Pull tension assembly back about 1/16th of an inch and retighten all three screws.

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Figure 9. Blender drive.



Figure 10. Cover over blender drive system.



Figure 11. Series A –T
Blender drive system with tensioner.



11B. Series U and up
Blender drive system (**no tensioner**)



Figure 12. Drive assembly.

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The blender motor drive belt tensioning assembly was removed starting with series U units. If the belt tensioning assembly or blender motor belt needs to be replaced on series A-T units, a simple rework is required.

Blender Motor Drive Train Update & Rework Procedure

- Remove Ice Hooper Cover and Inner Ice Hopper from unit. - Flip unit upside down. - Remove Belt Cover (7 screws).	
Remove the Drive Coupling from the Drive Assembly. Recommend using pliers.	 
- Loosen the 3 screws with large washers on the Belt Tension Assembly. This will allow the Blender Belt to lose tension. - Remove the Blender Belt.	
Remove Belt Tension Assembly, (3 screws with large washers).	 

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Blender Motor Drive Train Update & Rework Procedure (continued)

Install the new Belt part number 990028801 • This new belt is sized so that it does not need the Belt Tension Assembly • The belt will be very tight and difficult to install. The following steps are to provide some help installing the belt.	
• Start by engaging approx. 2 ribs of the belt around the smaller motor pulley. • Then pull the belt and start to engage it on one side of the large pulley.	 
• While engaging one side of the belt and applying downward pressure, flatten the other half of the belt that is not engaged.	
• While doing this, pull the belt with your other hand, keeping pressure on the Belt, as it wraps around the pulley. This will allow the belt to work its way onto the larger pulley.	

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Blender Motor Drive Train Update & Rework Procedure (continued)

Once the Belt is engaged on both pulleys continue to spin while forcing the belt downward so the Belt will properly engage onto the pulleys.	
- Reinstall Belt Cover - Rework Complete	

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Rear Cover

Removal

- Turn the power switch to the “off” position and unplug the machine.
- Remove the 8 screws securing the rear cover.
- Remove the 2 screws and the cover over the cord entry.
- Remove rear cover. Grasp it at the bottom or near the seam and lift it off.



Figure 13. Rear covers in place.

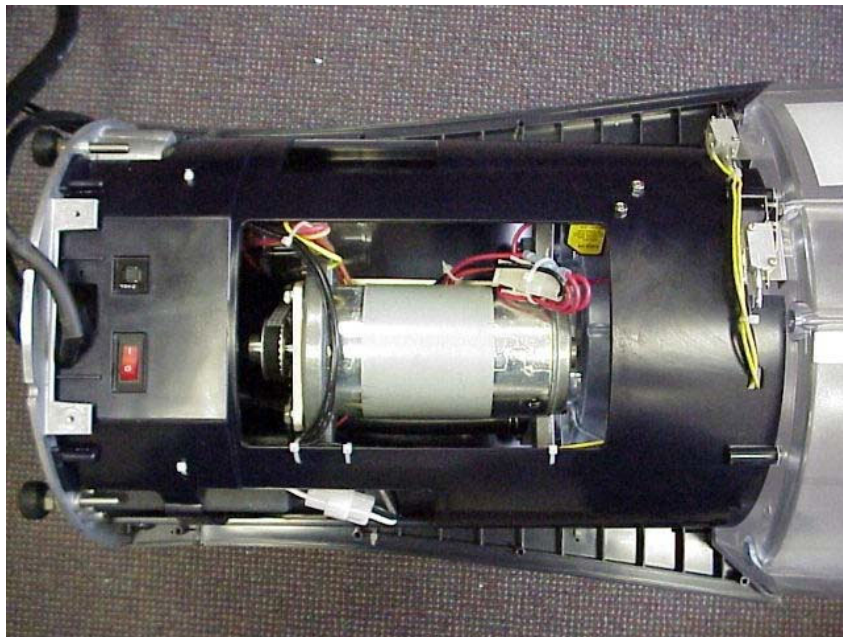


Figure 14. Rear covers removed.

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Shaver Motor Troubleshooting and Replacement

When a “rotation error” is displayed on the control panel or the ice shaver does not turn follow the steps below.

- Make sure the control panel is working in other functions.
- Remove the memory card and re-insert it.
- Try the shaver again, both in program cycles and by depressing the shave button.
- If the unit shaves when you activate the shave button but displays a “rotation error” when you try to run a cycle, check the sensor magnet on the motor for breakage.
- If the unit fails to shave when you press the shave button the rear cover will need to be removed before proceeding.
- Follow the instructions for removal of the rear cover.
- In the upper left corner of the large opening there is a 3amp fuse. Check the continuity on the fuse.
- At the bottom of the motor is a rotation sensor and magnet. Rotate the motor slowly and inspect for cracks in the magnet.
- Locate the leads coming out from the rear of the motor, follow to the first connector. Disconnect the connector. Using a multi-meter to test the motor, slowly turn the motor checking for open circuits or shorts.

Removing the Shaver Motor

- Loosen the 4 screws securing the motor.
- Remove the belt from the pulley.
- Loosen the Philips head screw securing pulley to motor.
- Remove snap ring from under pulley (90 degree snap ring pliers required).
- Remove pulley from motor.
- Cut wire ties that secure the Hall Effect cable (you will need the slack).
- Remove the ground screw holding the yellow wire.
- Remove the 4 screws holding the motor.
- Swing the motor up and out.
- Remove Hall Effect sensor screws.

Re-assemble in reverse order with special attention to:

- Re-install wire ties ensuring wires do not contact moving parts.

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Blender Motor Replacement

- Remove bottom cover, belt and belt tensioner assembly (series U and up does not utilize a tensioner) as described in “Removal, Installation and Adjustment of Drive Assembly”.
- If needed, remove the 2 screws holding the hall effect sensor.
- Remove ground screw.
- Remove the 4 screws that secure the motor. Remove the metal air flow shield held by the 2 inside screws. Be sure to reposition & re-secure. This important part is to balance the airflow to the motor.
- Cut wire ties as needed but only as needed.
- Disconnect power leads.
- Remove the PC board enough so you can detach the thermtrol connector.
- Remove the motor through the bottom of the machine. **CAUTION:** The thermistor will still be attached. Remove the two high temperature wires ties to free the Thermistor. Re-attach the Thermistor to the replacement motor by using the two high temperature wire ties provided with the replacement motor.
- **Re-assemble in reverse order with special attention to:**
- **Re-install wire ties ensuring wires do not contact moving parts.**

PC Board - Removal - (The Black Box)

- Remove the 4 screws holding the box in place.
- Gently pull the box from the bottom of the machine cutting wire ties and disconnecting wire connectors as needed (see figure 15).
- Remove the cover from the box (see figure 16).
- If installing a new box, remove the wires one at a time and transfer to the new box.
- **Re-assemble in reverse order with special attention to:**
- **Re-install wire ties ensuring wires do not contact moving parts.**



Figure 15. Box removed from bottom of machine. **Figure 16.** Box with cover removed.

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Shaver Bearing Assembly

Removal

- Remove shaver motor assembly – see previous instruction.
 - Remove the motor bracket (see figure 17), 4 screws and one wire tie holding the drain hose.
 - Remove the 4 screws holding the shaver bearing assembly (see figure 18).
 - **Alternative Method** - Remove the drain hose from the bottom of the outer hopper.
- Disconnect the wires to the inner hopper and lid sensors. Remove the 6 screws that are securing the outer hopper. Remove the outer hopper and shaver bearing assembly together.

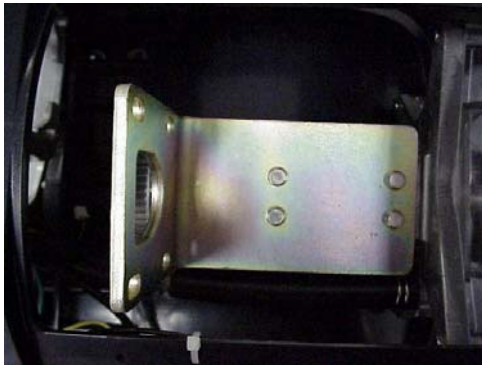


Figure 17. Shaver motor bracket.



Figure 18. Shaver bearing assembly.



Figure 19. Power switch and circuit breaker.



Figure 20. Drain sensor.

Re-assemble in reverse order with special attention to:

- Re-install wire ties ensuring wires do not contact moving parts.

Touch Pad Replacement:

- Turn off the machine and unplug it.
- Remove the two screws from the lower edge of the control panel.
- Pull the control panel away from the machine.

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- Remove the two screws that hold the connector bracket.
- Disconnect the two wire cables.
- Remove the screws that hold the RFI board in place.
- Remove the RFI board.
- Carefully use a knife to pry up the edge of the touch pad enough so you can get hold of the touch pad with your fingers. Pull the touch pad off the control panel housing.
- Clean all the left over glue from the control panel. Use “Goo Gone” or something like it to clean and prepare the control panel housing for the new touch pad.
- Thread the new ribbon cable through the slot in the housing.
- Remove the paper backing from the new touch pad and carefully press the new touch pad in place.
- Reassemble the RFI board and cables. Don’t forget the cable retention bracket.
- Put the control panel back on the machine, plug the machine in, turn on the power switch and test your new touch pad.



Fig. 21. Rear of Control Panel removed from unit.

Drain Repair – Lower Section

Note: Be absolutely certain that the leak is internal before proceeding with the following instructions

Removing base plate:

- Remove the rear cover as described above.
- Tip the machine up to sit on the top upside down.
- Remove the cover over the belt drive assembly.
- Remove the belt and belt tension assembly.
- Remove the container drive coupling.
- Remove all of the screws that hold the base plate to the housing including the 4 screws under the belt tension assembly.
- Remove the screws holding the pc board in place.

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- Gently pull the pc board out of the machine cutting wire ties as needed to loosen the wires.
- Remove one end of the drain line running to the bottom of the icehopper.
- Gently pull the base plate away from the housing. For this exercise you will only need a few inches of space to remove the plastic housing piece under the blender container rest.

Changing the elbow in the drain:

- Follow the directions above for “Removing base plate”.
- The elbow is connected to the piece of plastic housing under the blender rest and to the plastic T in the drain that houses the drain sensors.
- Remove the clamp securing the elbow to the plastic T.
- Remove the elbow.

Re-assemble in reverse order with special attention to:

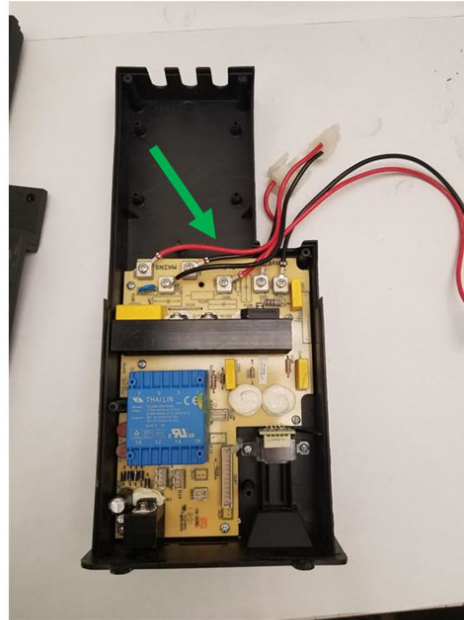
- Caution should be exercised in reassembly of the plastic housing piece with the new elbow so as to not kink the rubber or allow the elbow to fall off the plastic nipple the elbow attaches to.
- Ensure the hose clamp is reinstalled over the elbow over the plastic T. Ensure the hose and clamp are reinstalled on the hose leading to the icehopper.
- When reinstalling the pc board make sure to wire tie all wires so they cannot come in contact with moving parts.
- Don't force anything! When aligned properly everything will go together smoothly.

Dead Unit – Stressed PCB wiring

- The leadwires with connectors shall be routed through the openings in the lower portion of the PCB Enclosure to prevent stress on wires and connectors. See pictures below for reference.



Picture of INCORRECT WIRING



Picture of CORRECT WIRING

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Ice volume and blend time customization sheets are on the following two pages.

BLEND TIME CUSTOMIZATION

1. To change from the default Blend Time Programs, use the arrow keys (▲) or (▼) to scroll through the menu options until you reach the following menu item:

PRESS START
TO CHANGE
BLEND PROFILE

2. Press **START** to change blend time profile.

3. Select **Drink Size** and **QTY** to change (e.g. A-1). Once the cycle has been selected, press the **START** key to confirm the selection.

12oz 14oz 16oz 20oz
SELECT CYCLE
TO CHANGE
1DR 2DR 3DR 4DR

4. Use the (▲) or (▼) keys to scroll through the blend time programs. There are 32 blend profiles from which to select (R010 through R072). The total blend time increases incrementally as the profile number is increased. (Example: Program R010 is the minimum blend time and Program R072 is the maximum blend time.)

12oz 14oz 16oz 20oz
SELECT BLEND PROFILE
XXXX
1DR 2DR 3DR 4DR

5. Once the blend profile has been reached, press the **START** key to confirm the selection. Once you have confirmed the selection, the machine will prompt you to select an additional cycle to change. You may select an additional cycle to change or press the stop key to quit. The **STOP** key can be depressed at any time to quit.

Display Overview

Key programming information is shown in the display



Default Blend Time Programs:

QTY	DRINK SIZE			
	A 12 oz	B 14 oz	C 16 oz	D 20 oz
1 1DR	R022	R026	R030	R038
2 2DR	R028	R034	R038	R048
3 3DR	R036	R042	R046	R058
4 4DR	R042	R050	R056	N/A

If you need assistance with Customization contact our **TECHNICAL SERVICE DEPARTMENT** at 1-866-285-1087 or 910-693-4277. (For faster service please have model, series, and type numbers ready for operator to assist you.)



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Hamilton Beach 4421 Waterfront Drive Glen Allen, VA 23060	Revision	Added information regarding VFD and OLED control panel displays					Rev. Date:
	Description:						05-Sep-2024
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Technical Data Sheet – GB21 Revolution Shaver Blender

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ICE VOLUME & BLEND TIME CUSTOMIZATION SHEET

Drink mixes and recipes can vary significantly affecting product yield and drink profiles. Therefore, Hamilton Beach has provided the ability to select from pre-programmed blend profiles and ice programs to meet your specific needs.

ICE VOLUME CUSTOMIZATION

- To change from the Default Ice Volume Program settings, use the arrow keys  or  to scroll through the menu options until you reach the following menu item:

PRESS START
TO CHANGE
ICE PROGRAM

- Press **START** to change ice volume program.
- Select **Drink Size** and **QTY** to change (e.g. A-1). Once the cycle has been selected, press the **START** key to confirm the selection.

12oz 14oz 16oz 20oz
SELECT CYCLE
TO CHANGE
1DR 2DR 3DR 4DR

- Use the  or  keys to scroll through the ice programs. There are 128 ice programs from which to select (1000 through 1127). The amount of ice portioned increases incrementally as the program number is increased. (Example: Program 1000 is the minimum amount of ice and Program 1127 is the maximum amount of ice.)

12oz 14oz 16oz 20oz
SELECT ICE PROGRAM
XXXX
1DR 2DR 3DR 4DR

- Once the desired ice program has been reached, press the **START** key to confirm the selection. Once you have confirmed the selection, the machine will prompt you to select an additional cycle to change. You may select an additional cycle to change or press the stop key to quit. The **STOP** key can be depressed at any time to quit.

Display Overview

Key programming information is shown in the display



Default Ice Volume Programs:

QTY	DRINK SIZE			
	A 12 oz	B 14 oz	C 16 oz	D 20 oz
1 1DR	I015	I018	I021	I030
2 2DR	I030	I036	I042	I048
3 3DR	I045	I052	I052	I067
4 4DR	I056	I067	I069	N/A

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