Range Ball Dispenser

(B-8 and B-21)

Figure 1 B-8 and B-21 Range Ball Dispensers

Parts List

Your ball dispenser comes almost completely assembled. Packaged separately in the crate, inside the bin, is a kit that includes a snake eye drive bit, token mech mounting plate with token mech installed, security allen wrench and 4 keys. Your ball bin comes with 200 tokens.

Tools

Other than the tools that come with the dispenser, you will need only a 5/16” socket wrench and ratchet, or a 5/16” nut driver.

Machine Capacity

The B-8 dispenser has a maximum capacity of 8000 balls. The B-21 dispenser has a maximum capacity of 21,000 balls.

Assembly

Step 1: Set up the Dispenser.

- Remove the dispenser from the skid(s) and place it on a level surface. Alternatively, level the skid.
- Do not plug the machine in yet.

Note: It is important that the dispenser be level. A machine that is not level will not dispense balls properly.

Note: Although the machine can withstand well most weather conditions, severe wet weather can affect the electrical operation. If possible, install the machine in a covered area.

Step 2: Remove the kit box from inside the machine.

Note: The tool kit for the B-21 machine may be on another skid.

Step 3: Locate the two-prong bit that is included in the token mechanism kit.

Step 4: Locate the token mechanism mounting plate in the kit box.

Step 5: Open the door and cut the plastic tie that holds the power cord to the control box.

Step 6: Expose the token mechanism.

- Using the two-prong bit and the 5/16” nut driver or 5/16” socket wrench and ratchet, remove the mounting screws from the front and side of the dispenser.

Step 7: Wire the token mechanism.

1. Locate the gray cable with black and red wires and slip-on connectors that is inside the token mechanism opening.
2. Locate the two brass switch terminals on the rear of the token mechanism (see Figure 2).
3. Carefully slip one connector into each switch terminal.

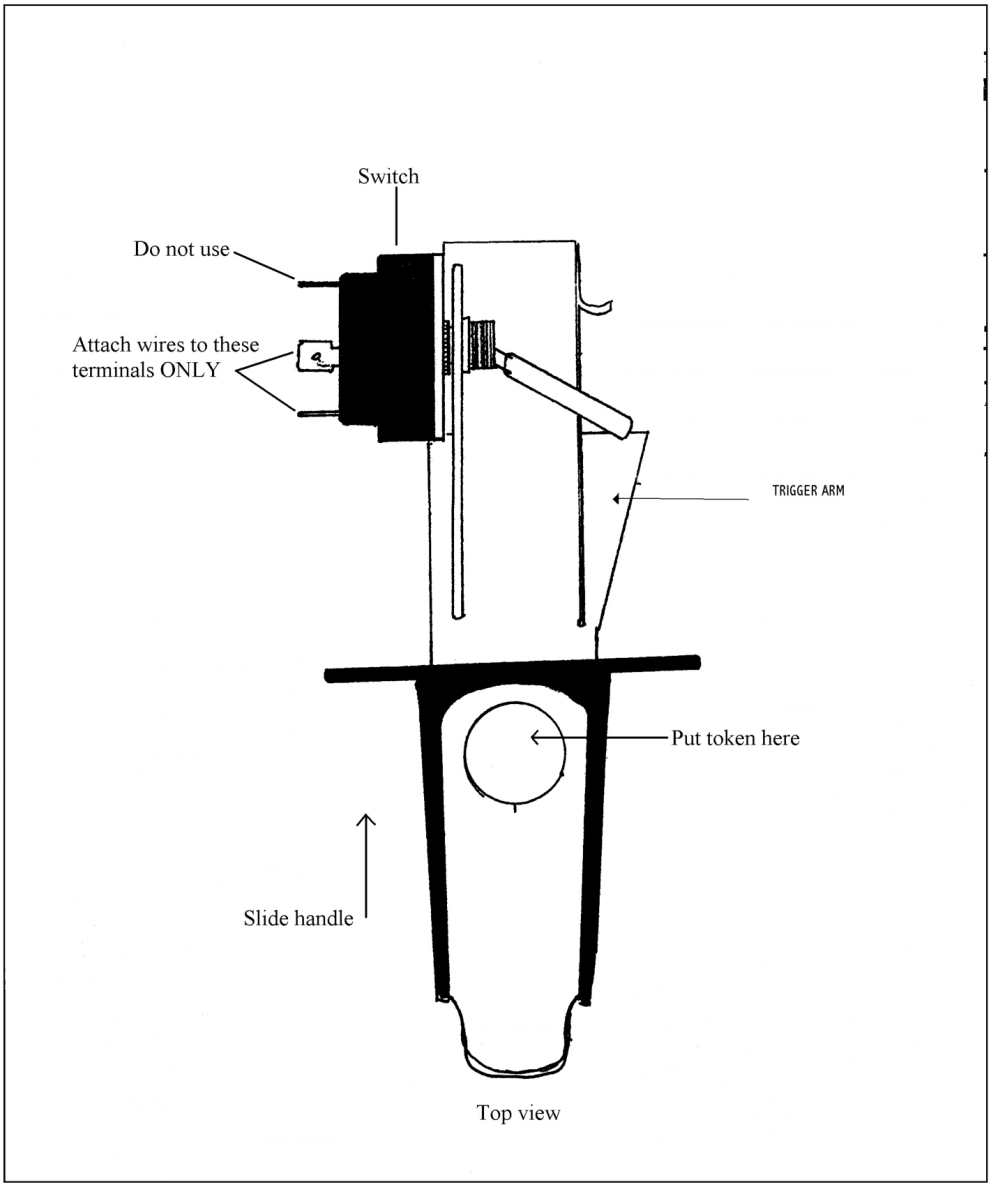


Figure 2 Token Mechanism

Step 8: Place the token mechanism mounting plate into its opening. Secure it with the four mounting screws.

NOTE: Make sure that the wires from the dollar bill acceptor are out of the way of the token mechanism when it moves back and forth.

Step 9: Check the boards: The first board (the board with holes) should be roughly flush with the front of the machine (see Figures 3 and 4).

Note to B-21 owners: First, observe the boards through the view hole in the side of the dispenser. If the boards seem out of alignment, climb into the machine. Brace your feet against the sides of the machine on the small ledge that is located about half way down the dispenser. Then, adjust the boards.

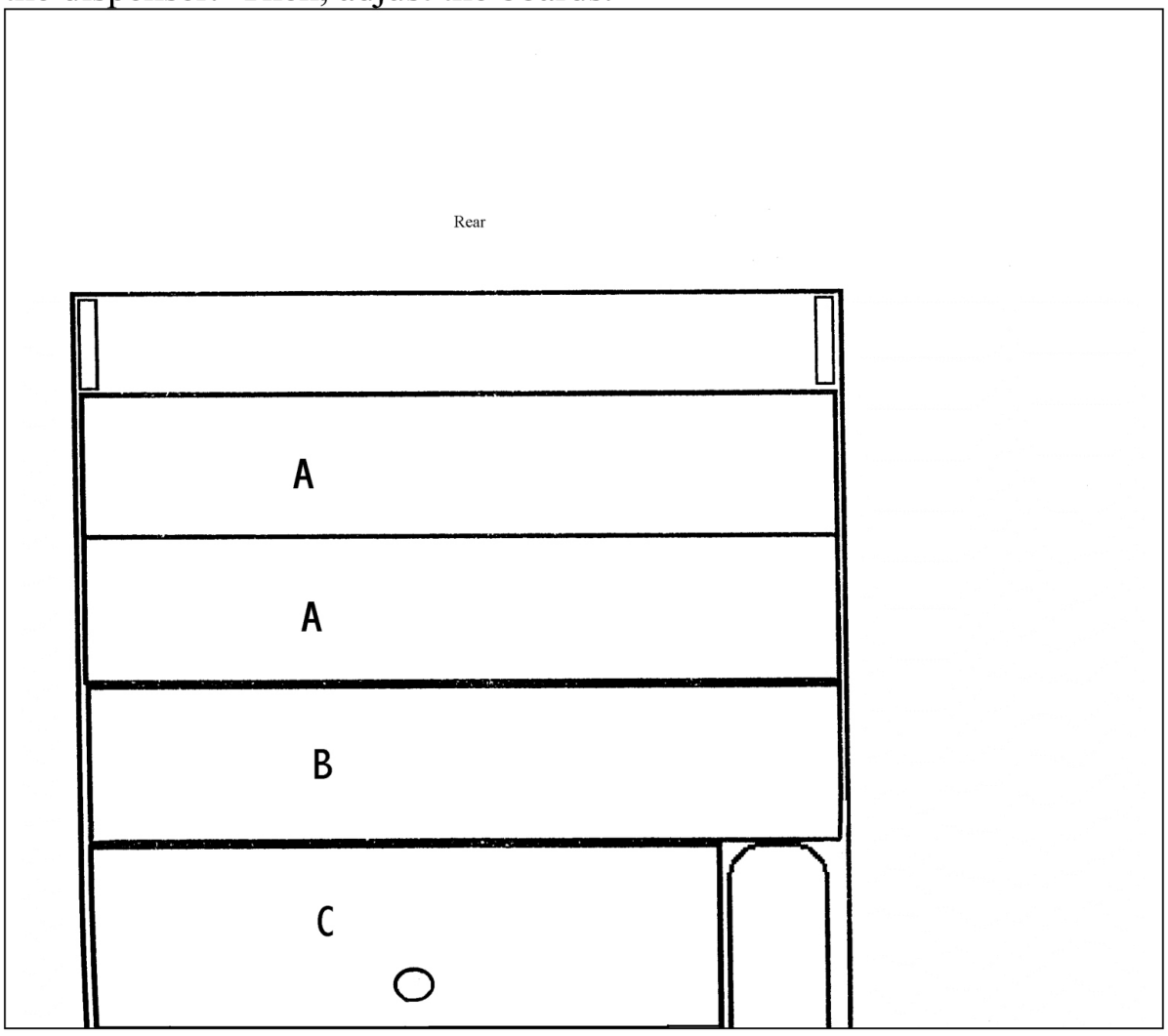


Figure 3: Lower board placement and alignment, top view (looking down into dispenser)

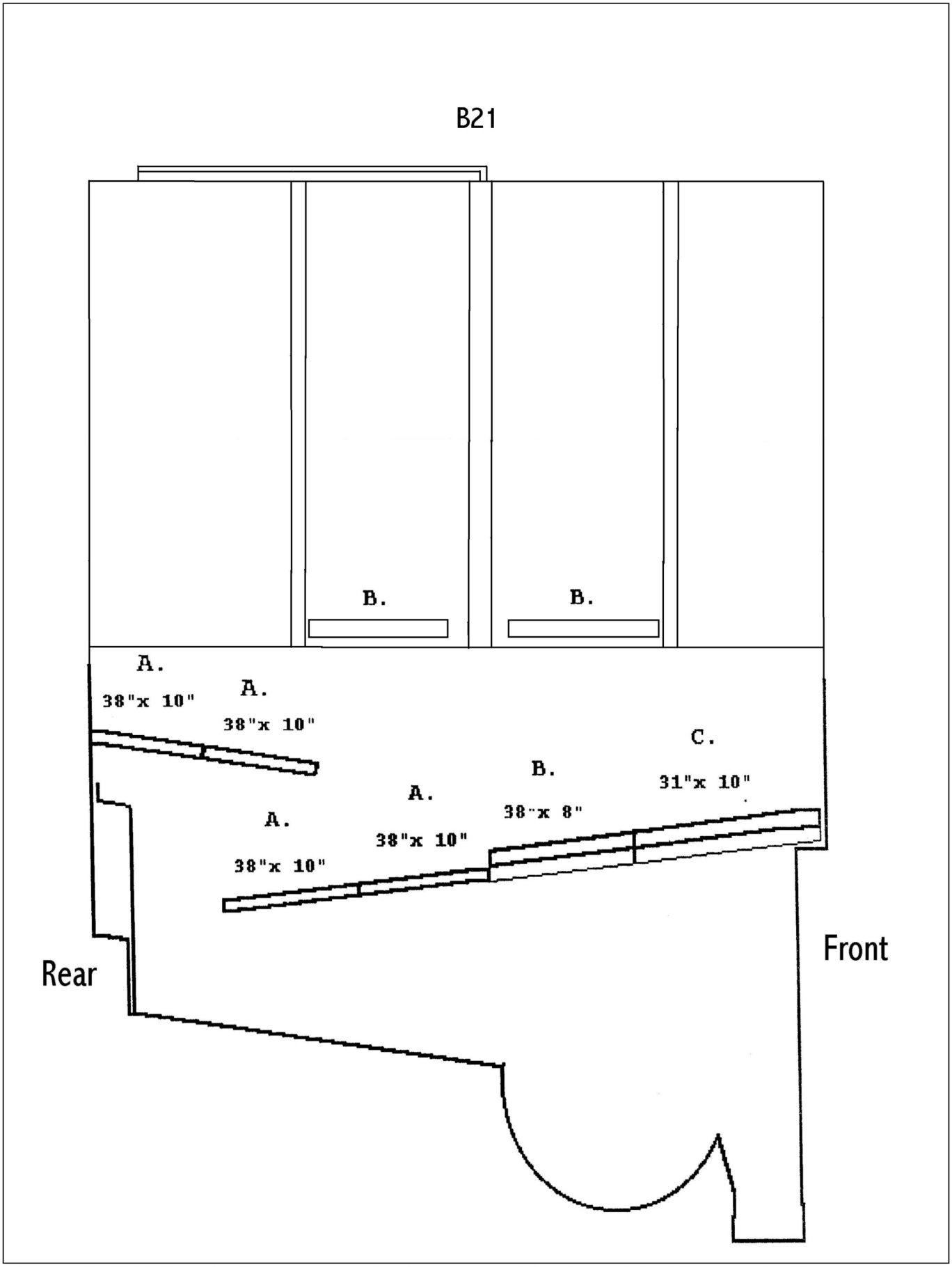


Figure 4: B21 board placement and alignment, side view of inside plastic dispenser tank

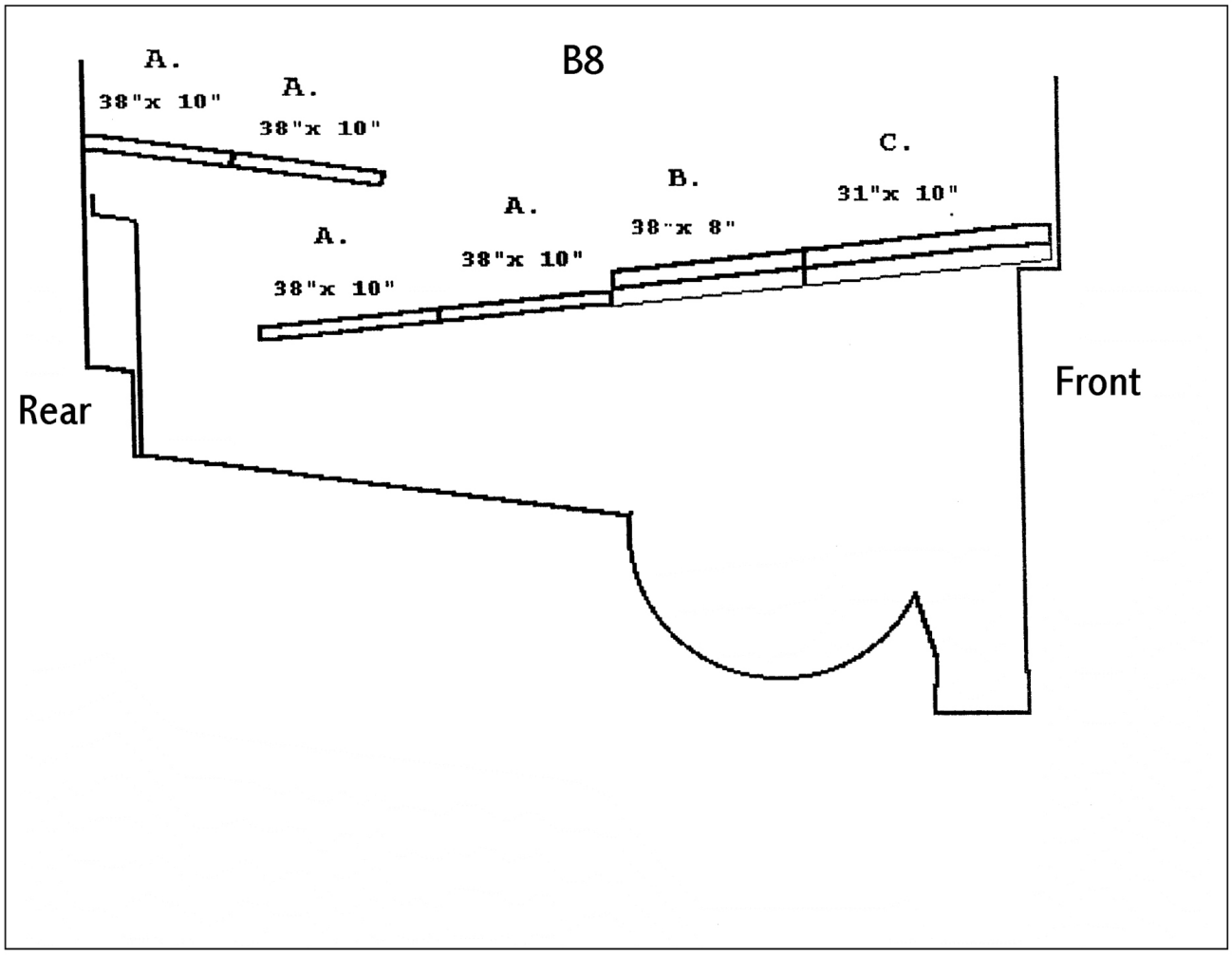


Figure 5: B8 board placement and alignment, side view of inside plastic dispenser tank

Step 10: Check for construction debris:

- Remove the first two boards and make sure that no debris is on the ball rails.
- If there is debris, remove it.

Note: Every effort is made to remove all construction debris before shipping. Occasionally, some may be present after shipping. Foreign debris on the rails can cause inconsistent ball counts.

Step 11: Plug in the machine.

Step 12: Make sure that the token box is in place.

- Insert a token to ensure that it falls into the box. If the token falls to the ground, adjust the box until a token stays in the box.

Step 13: Before loading the machine, check the machine operation.

1. Turn on the machine:
2. Insert a token.
3. Observe the machine operation, either by lifting a board or looking through the side door.
4. Make sure that the star wheels turn. If they do not turn, check the power source for the machine.

Step 14: Place a bucket under the ball exit to catch the first balls you load into the machine.

NOTE: The star wheels offer little resistance to the first balls loaded into the machine. As you load more balls into the machine, the star wheels will contain them. This will not happen again unless you run the machine completely empty.

Step 15: Load balls into the machine.

Step 16: Run a few buckets of balls through the machine.

- Check the flow of balls by observing the ball flow through the view holes located above the gray control box (use a flashlight).
- If you see uneven or slow flow, check for foreign debris on the rails.

Step 17: Install the lid/stopper box onto the top of the dispenser (B21 model only.)

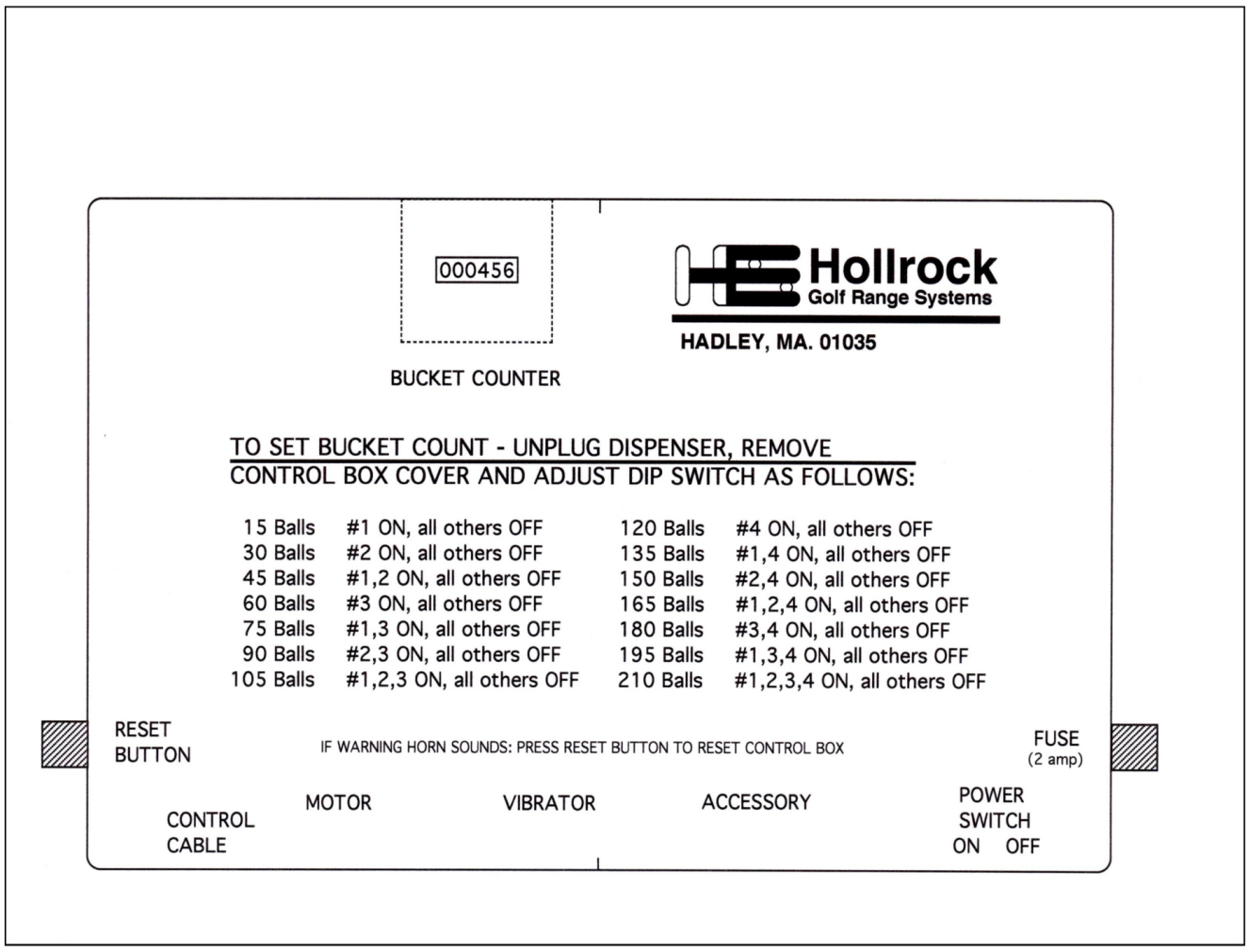
- Drop the lid into the opening of the top of the dispenser (it is held in place by gravity).

Adjusting the Ball Count

The range ball dispenser dispenses balls in multiples of 15.

TO SET BUCKET COUNT - UNPLUG DISPENSER, REMOVE CONTROL BOX COVER AND ADJUST DIP SWITCH AS FOLLOWS:

15 Balls	#1 ON, all others OFF	120 Balls	#4 ON, all others OFF
30 Balls	#2 ON, all others OFF	135 Balls	#1,4 ON, all others OFF
45 Balls	#1,2 ON, all others OFF	150 Balls	#2,4 ON, all others OFF
60 Balls	#3 ON, all others OFF	165 Balls	#1,2,4 ON, all others OFF
75 Balls	#1,3 ON, all others OFF	180 Balls	#3,4 ON, all others OFF
90 Balls	#2,3 ON, all others OFF	195 Balls	#1,3,4 ON, all others OFF
105 Balls	#1,2,3 ON, all others OFF	210 Balls	#1,2,3,4 ON, all others OFF



Routine Maintenance

Your ball dispenser is designed to rest on level ground in a relatively dry location. It is also intended to be used with relatively clean balls. With routine maintenance, your ball dispenser should operate efficiently for an extended machine life.

Perform routine maintenance according to the following schedule:

Frequency	Task
Daily	Check inside of bin; remove dirt, twigs and other foreign objects
Annually	Clean the tracks

You should also make sure that you are washing your balls regularly to eliminate foreign debris and to ensure smooth operation. Foreign debris can damage or destroy dispenser components.

Troubleshooting

Before you read about potential problems, it might be helpful for you to think about the internal operation of the machine. What follows is a description of the cycle of operation of the ball dispenser. Figure 6 shows a drawing of the star wheel in its proper setup.

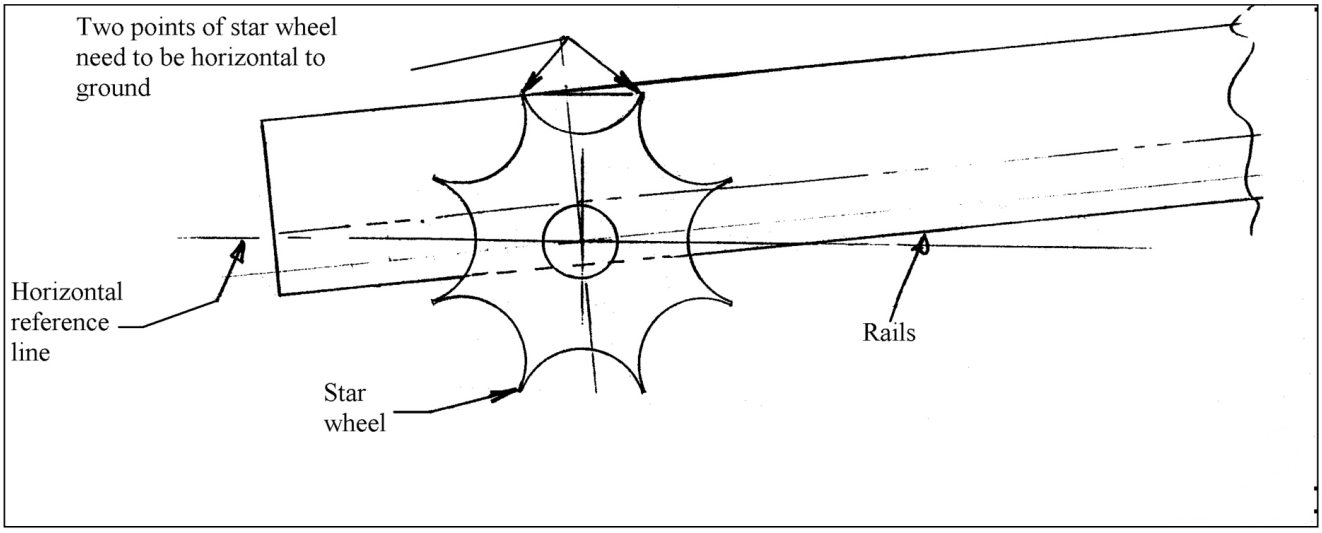


Figure 6: Star wheel and side rail setup

Cycle of Operation

When you put a token in the machine, you trigger a control box to activate the motor. The star wheels start turning. For each row of balls, a magnetic pulse is generated and transmitted to the control box, which counts the pulses until it reaches the predetermined number on the control box. When that number is reached, the control box shuts the machine off until the next token is inserted.

Your ball dispenser is equipped with a run limiting timer. If you have a malfunction and the machine continues to dispense after the token limit has been reached, the run limiting relay is set to shut the machine off in 12 seconds and sound an alarm.

Potential Problems

With routine maintenance, your ball dispenser should operate efficiently. Occasionally, though, you may encounter a problem. Listed below are some common problems and recommended solutions.

Problem	Reason	Solution
The motor will not run	• The machine has no power • The token mechanism switch is not making the proper connection	• Check the power supply • Check the connections; call the company if the problem persists

Problem	Reason	Solution
	• The power switch is malfunctioning	• Check the operation of the switch; call the company if this problem persists
	• Token mech trigger arm is bent and not making contact with switch toggle	• Realign trigger arm so it contacts switch toggle
The motor runs but gives an inconsistent number of balls in the bucket	• The boards are installed incorrectly	• Reinstall the boards
	• The boards are worn	• Replace the boards
	• The machine is not level	• Level the machine
	• Debris is blocking the balls	• Clean the debris from the machine
	• There are not enough balls in the machine	• Reload the machine
	• The star wheels are not set correctly	• Adjust the star wheels (see below)
	• The magnet switch is not set correctly	• Adjust the switch (see below)
The dispenser runs on its own or dispenses more balls than it should (the machine automatically stops after 12 seconds)	• The control box is malfunctioning due to weather or an electrical surge	• Push reset button, if problem persists, replace the control box
	• Magnetic switch counting error	• Push reset button, if problem persists, replace the control box
The machine is running but no balls are being dispensed	• The machine is not level	• Level the machine
	• There is debris on the tracks	• Clean the tracks
	• The boards are out of position	• Reinstall the boards to their correct position
	• The machine is out of balls	• Load the machine
	• The motor is malfunctioning	• Replace the motor
The token mechanism is stuck or will not return	• Someone has used a foreign token	• Remove the token
	• The token spring is broken	• Replace the spring

Problem	Reason	Solution
The machine accepts tokens but no balls come out	• The switch is broken • Control box fuse is blown • The wire fell off the token mechanism switch • The trigger bar is bent • There is no power to the machine	• Replace the switch • Replace the fuse • Replace the wire onto the terminal • Adjust the bar so that it triggers the switch • Check the power source

Adjusting the Star Wheels in Relation to the Rails

1. Determine if the star wheels are stopping too high or too low:

   Visually inspect the rotation of the star wheels through the front of the dispenser. Check to see that the points that extend above the rails are parallel to the ground (see Figure 6). If the points are parallel, the star wheels are stopping correctly.

2. Change the rotation of the magnet wheel:

   1. Locate the magnet wheel adjustment collar (see Figure 7, Appendix A).
   2. Loosen the set screw.
   3. Rotate the magnet wheel (see Figure 8, Appendix A). Rotate the magnet wheel to the left to cause the star wheels to stop higher. Rotate the magnet wheel to the right to cause the star wheels to stop lower.
   4. Tighten the set screw.

3. Visually inspect the rotation of the star wheels. Continue to adjust the rotation of the magnet wheel until the star wheels are parallel to the rails.

Contacts

If you have any questions about your ball dispenser, contact

Hollrock Engineering, Inc.
Phone: (413) 586-2256
info@hollrock.com

Mailing Address: P.O. Box 378
Hadley, MA 01035

Appendix A Motor Drawings

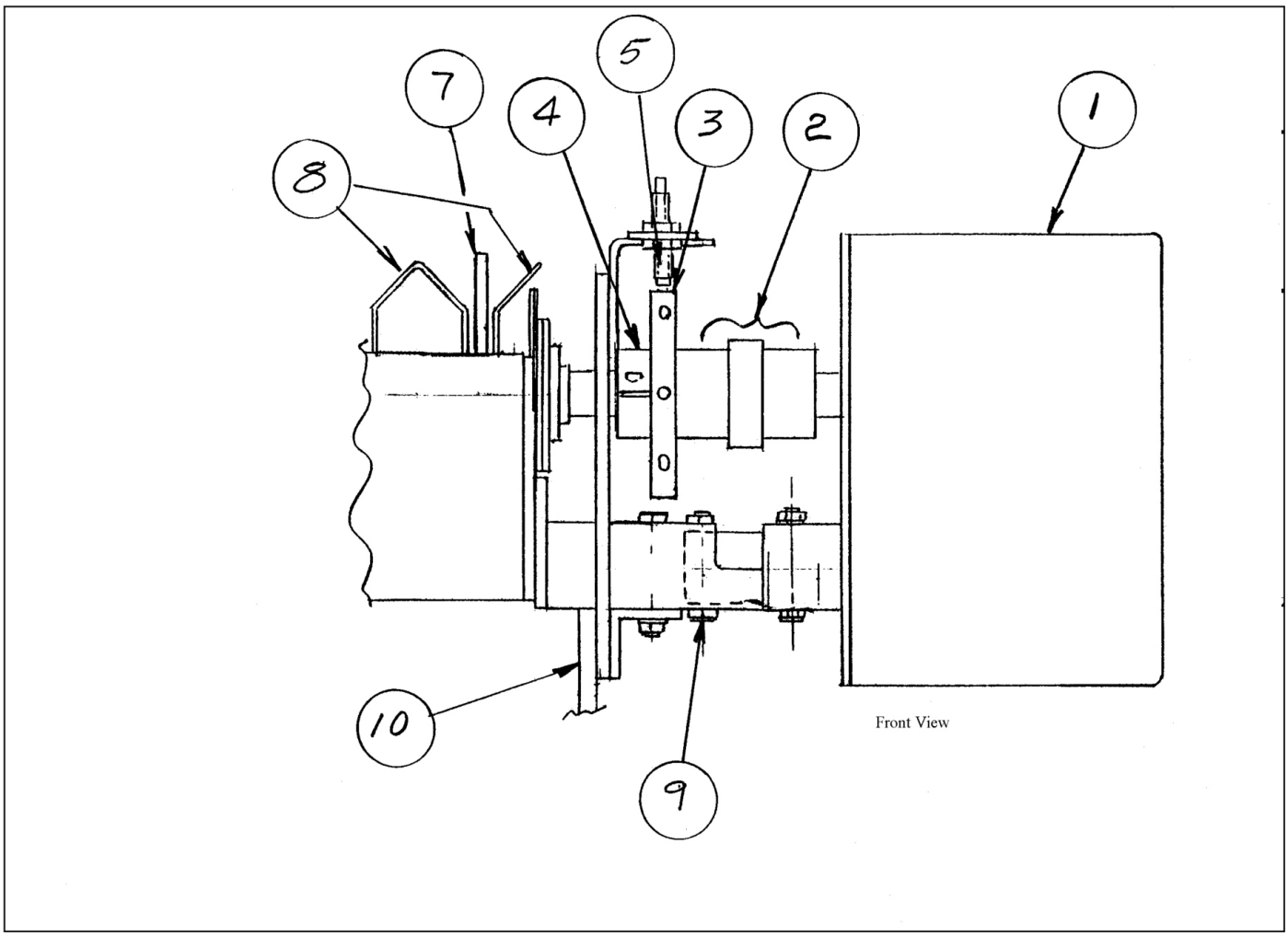


Figure 7: Motor, front view

Key to Drawing:

1. Motor
2. Coupler
3. Magnet wheel
4. Magnet wheel adjustment collar
5. Magnet switch
7. Star wheel
8. Rails
9. Motor removal bolt
10. Plastic tank

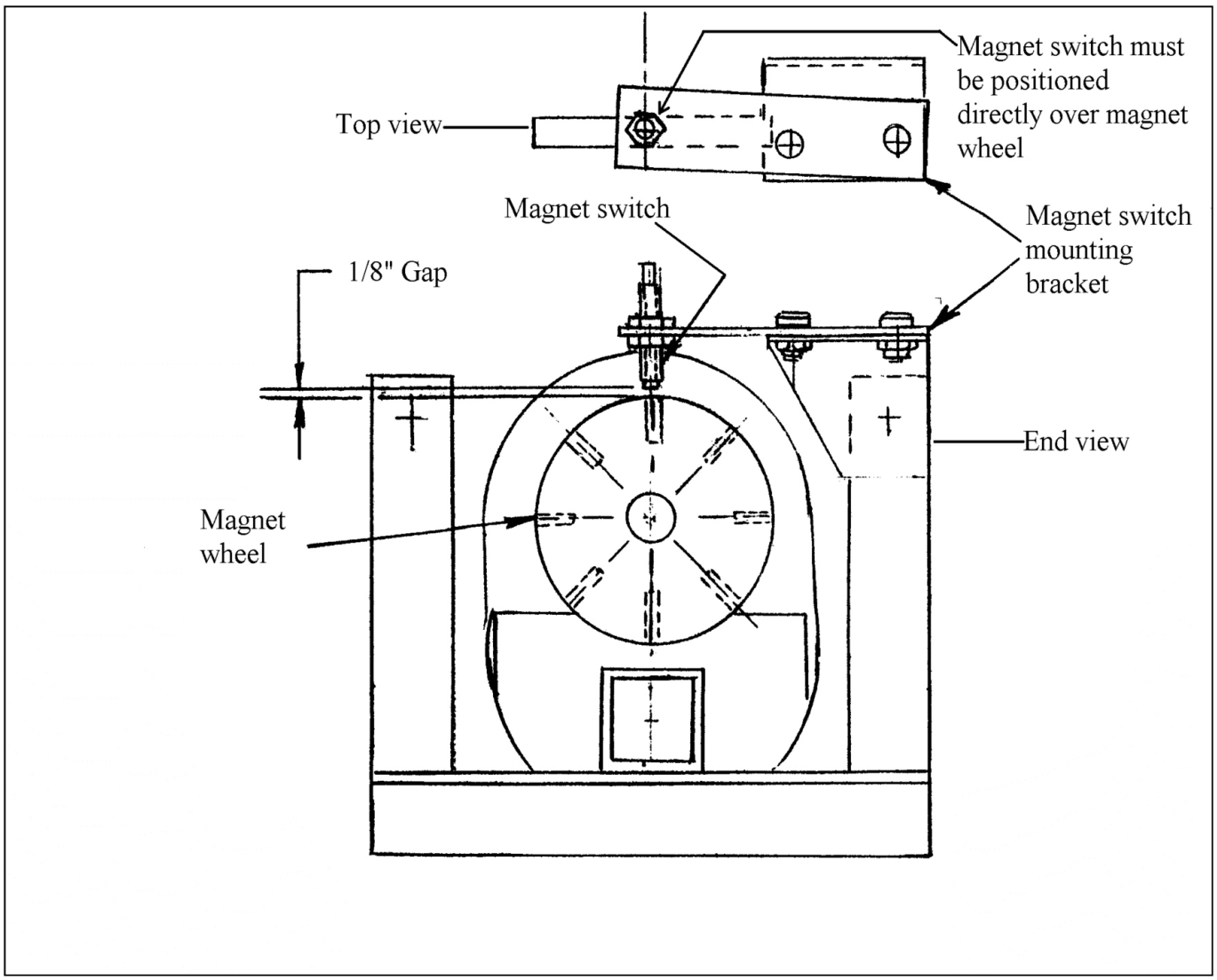
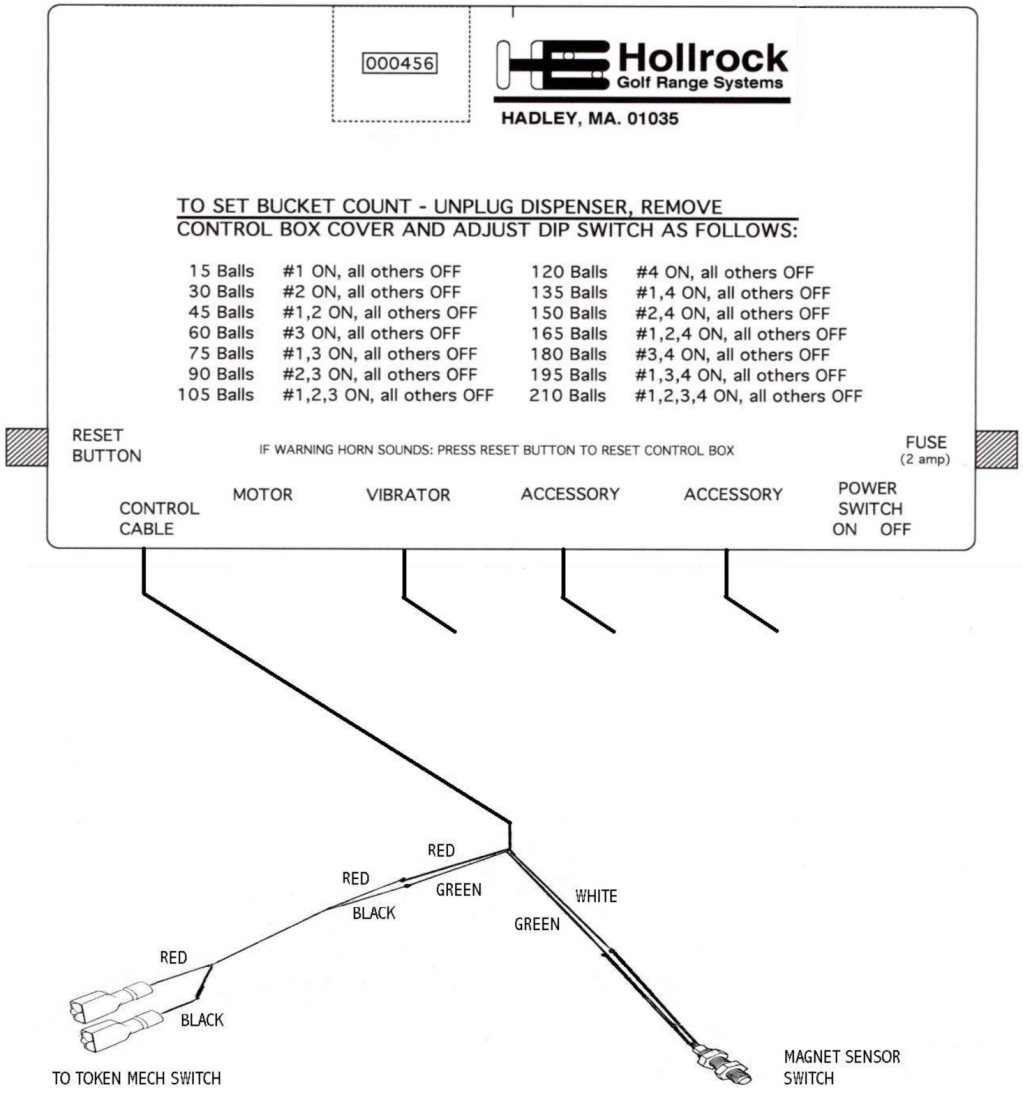


Figure 8: Motor, end view (with motor removed)

Appendix B Wiring schematics

B8 & B21 WIRING DIAGRAM



Appendix C EARLIER VERSION CONTROL BOXES

EARLIER VERSION METAL CONTROL BOX WITH HINGED DOOR

Adjusting the Ball Count

The range ball dispenser dispenses balls in multiples of 15. The relays are set at the factory to the following specifications:

one bucket = 60 balls (4 x 15)

You can adjust the ball count manually by changing the relays in the control box (see Figure 5), which is located behind the token mechanism face plate.

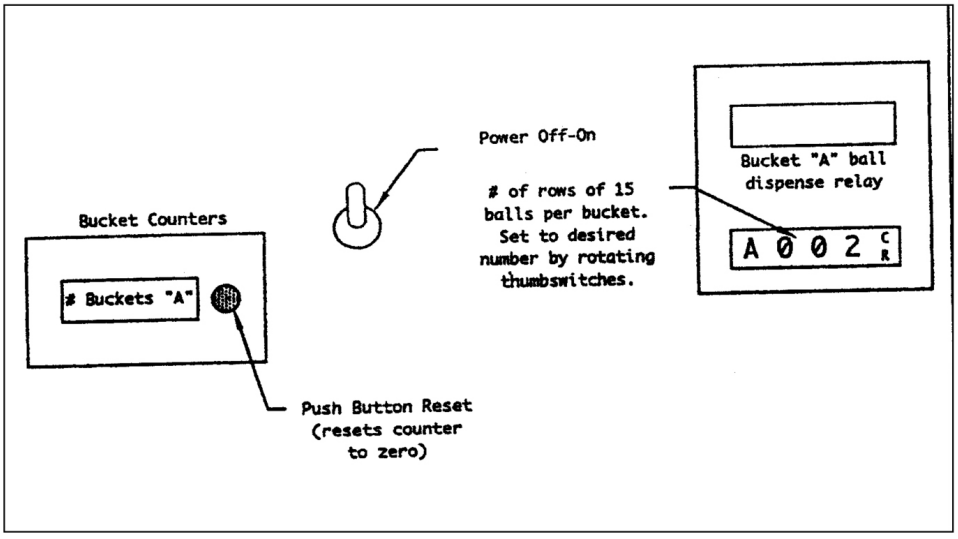


Figure 5: Ball count relay display

To adjust the relay:

1. Remove the token mechanism face plate.

2. Locate the gray control box. It is below the token mechanism.

3. Open the control box. The relay is exposed.

4. Note the number on the Control Box display. The number displays:

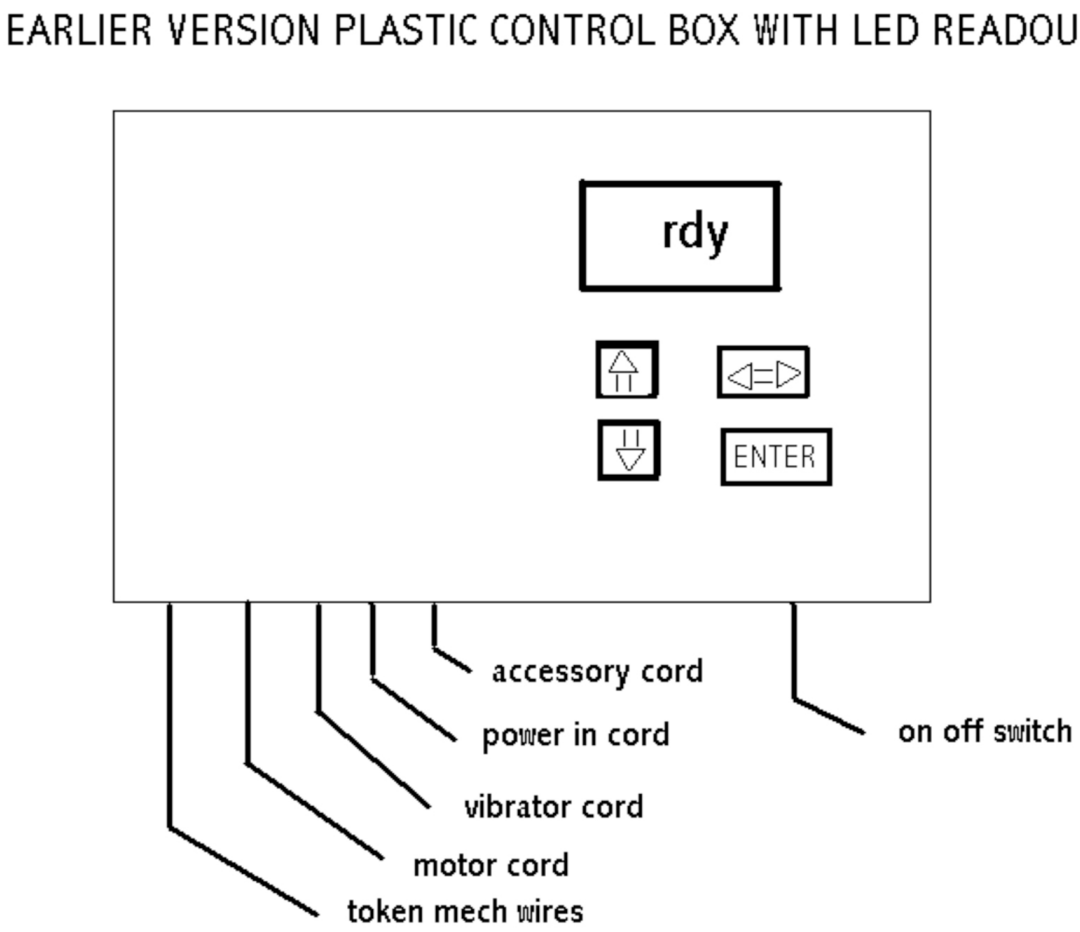
   A 0 0 ?

where the question mark stands for the number by which you multiply 15 to get the ball count per bucket. For example, to dispense 60 balls with one token, you would set the display to A 0 0 4 (4 x 15 = 60).

5. To change the number of balls, rotate the thumb switch of the number that indicates the multiple, and move it to the desired setting.

The dispenser also keeps a running count of buckets dispensed (see Figure 5). The counter increases by one (1) every time 15 balls are dispensed. The bucket counter can be reset to zero (0) when you push the Reset Button.

EARLIER VERSION PLASTIC CONTROL BOX WITH LED READOUT



The golf ball dispense unit is a microcontroller based system that accepts inputs from up to three coin mechanisms and a paper card reader, and then dispenses a predetermined

number of balls. The unit also features configurable dispense operations and a separate four digit counter for each input.

Two build options are available:

a) three coin mechanisms inputs and one card reader input , four counters.
b) One coin mechanism, one counter.

The user interface consists of a 4 digit 7 segment LED display with price line legends, and membrane style push buttons. A simple password protected menu system allows the configuration to be changed and the counters to be reset to zero.

Front Panel Controls

In normal operation the display shows ‘rdY’ indicating the system is ready to dispense. During operation this display changes to show system status.

The four push buttons are used to operate the unit.

Down/Up

These are used to scroll through the list of labels and associated values, and then to alter the values if required.

Sideways

This button is used to view parameters associated with their labels and to select digits when setting numeric parameters.

SET

The set button allows operational parameters to be altered and saved.

Set up Parameters and Labels.

The operational parameters are selected from a list by using the UP and DOWN buttons. Press SIDEWAYS to display the numeric value. To alter a displayed value press the set button; the right most digit will flash and it can be increased or decreased using the UP and DOWN buttons. If there are more digits you can select the next digit to flash by pressing the SIDEWAYS button. When you have set the value that you require press the SET button again to save it. If no buttons are pressed for 60 seconds then set mode is cancelled and the original value will be retained.

The Parameter List:

RdY

Indicates the system is ready to dispense. During the dispense operation the following characters are shown to indicate their active status:

S	dispense mechanism position sensor
d	dispense mechanism output drive
V	vibrate output drive
P	waiting for Price Line input to clear
S.Err	if the dispense mechanism position sensor is in error

nnnn

Numeric value(s) in list display the number of dispenses for the Price Line indicated by the Price Line legend(s)

rSEt

Enter the passcode to reset the Price Line counter(s). The factory set password is 1234, but this can be changed in the configuration menu.

ConF

Enter the passcode to enter configuration mode. This passcode is preset to 116 and can not be changed so if security is an issue it should not be disclosed. The configuration menu allows the following parameters to be set….

CodE

This is ‘reset counters’ passcode. It is preset to 1234 but is customer configurable.

PL.1d

Sets the number dispense operations for Price Line 1.
Range 1-200

PL.2d

Sets the number dispense operations for Price Line 2.
Range 1-200

PL.3d

Sets the number dispense operations for Price Line 3.
Range 1-200

Crd.d
Sets the number dispense operations for the paper card reader.
Range 1-200

System Connections

Input/output Connections
Connections are made via the flying cables from either side of the unit.

Power Input
This connection is made via a 3 core cable.
Power 110VAC 1 amp supply.

Control Outputs
These connections are made via 2 core cables labeled as follows.
Vibrator 110VAC to vibrator motor.
Dispense 110VAC to dispense unit.

Signal input/Output
These connections are made via the 12 way multi-core cable.

Wire Color	**Identity**
Black	Motor Sensor.
Brown	Motor Sensor.
Red	Coin mech 0V supply.
Orange	Coin mech 24V supply.
Yellow	Coin mech blocker signal.
Green	Price Line 1.
Blue	Price Line 2.
Violet	Price Line 3.
Grey	Card reader 12V supply.
White	Card reader 0V supply.
Pink	Card reader blocker signal.
Light Blue	Price Line Card Reader.

Price line and card reader signals accept switch or open collector type connections to 0V Typically 12V-18 DC open circuit and 9-14mA in operation.

Blocker signals are open collector transistors referred to 0V and rated at 30V DC, 30mA.

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(B-8 and B-21)

Figure 1 B-8 and B-21 Range Ball Dispensers

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