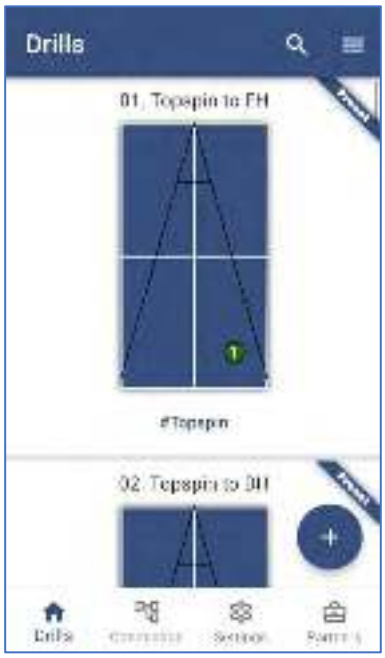
Power Pong Omega

User Manual





For the Power Pong Omega Table Tennis Robot with the Android/iOS Application

John Schmidt

Revision 1.01 – September 2023

Caution:

- Please read this User Manual carefully before operating the Omega robot.
- Only utilize 110/220 VAC power based on the ordered product and configuration.
- The Ball Throwing Wheels rotate at high speed. Avoid touching during operation.

IMPORTANT: This User Manual has been developed exclusively for the Power Pong Omega table tennis robot. Copying this manual or any portion of it, without explicit permission in writing from Power Pong, is strictly prohibited.

Table of Contents

Section 1: Introduction to the Power Pong Omega Robot and Application

1.1 Omega Robot / Application Features 1
1.2 Terminology Used in this Manual 2
1.3 Parts Included with the Omega Robot 3
1.4 Power Pong Service / Support 4

Section 2: Setup of the Omega Robot and Application

2.1 Omega Robot Setup 5
2.1.1 Unfolding the Robot Collection Net 5
2.1.2 Positioning the Support Legs 5
2.1.3 Rotating / Raising the Throwing Head into Play Position 6
2.1.4 Connecting the Throwing Head Communication Cable 8
2.1.5 Fully Opening the Collection Net 9
2.1.6 Mounting the Robot on the Table 9
2.1.7 Adjusting the Support Legs (Rubber Tips) 10
2.1.8 Securing the Side Nets 10
2.1.9 Connecting the Robot to a Power Source 11
2.1.10 Loading the Robot with Table Tennis Balls 12
2.1.11 Congratulations - Robot Setup is Complete 12
2.2 Omega Application Download / Installation 12
2.2.1 Android Devices 12
2.2.2 iOS Devices 13
2.2.3 Connecting the Omega Application to the Robot 14
2.2.4 Omega Application Main Screens 16

Section 3: Using the Omega Application with the Omega Robot

3.1 Tips for Best Operation and Longevity of the Omega Robot 19
3.2 Initial Robot and Application Setup 19
3.2.1 Checking Ball Placement (Depth) 20
3.2.2 Checking and Adjusting Right/Left Ball Placement 22
3.2.3 Check / Verify Serve Placement 23
3.3 Omega Application Settings Screen 24
3.3.1 Slider Adjustments 24
3.3.2 Omega Robot Calibration 26
3.3.3 Replay Tutorial 26
3.3.4 Restore Presets 26
3.3.5 Factory Reset 26
3.4 Working with Omega Application Drills 26
3.4.1 Preloaded Drills 26
3.4.2 Viewing Available Drills 28
3.4.3 Searching for Drills 28
3.4.4 Adding Tags to Drills 29
3.4.5 Starting / Stopping Drills 31
3.4.6 Creating a New Drill 31
3.4.7 Cloning an Existing Drill 32

3.4.8 Changing the Name of a Drill 33
3.4.9 Adding Balls to a Drill 34
3.4.10 Deleting a Drill 36
3.4.11 Drill Duration and Break 36
3.4.12 Random Modes 37
3.4.13 Drill Balls Per Minute (BPM) 38
3.4.14 Changing Ball Order in a Drill 39
3.4.15 Sharing Drills with Power Pong Omega Users 40
3.5 Editing Ball Attributes in Drills 41
3.5.1 Ball Placement 41
3.5.2 Ball Trajectory 42
3.5.3 Speed 43
3.5.4 Spin 43
3.5.5 Sidespin 43
3.5.6 Delay 43
3.5.7 Designating Balls as a Serve 44
3.5.8 Sample Button 44
3.5.9 Copying a Ball 45
3.5.10 Removing a Ball from a Drill 45
3.6 Omega Application Groups 46
3.6.1 Creating a New Group 47
3.6.2 Adding / Removing Drills from Groups 47
3.6.3 Renaming Groups 48
3.6.4 Removing a Group 48
3.6.5 Playing Groups 48
3.6.6 Searching for Groups 48
3.6.7 Using Random Features with Groups 49
3.6.8 Editing Drills from Within a Group 49
3.6.9 Removing Drills from Within a Group 50
3.6.10 Using Duration and Breaks in Groups 50
3.6.11 Cloning Groups 50
3.6.12 Sharing Groups with other Power Pong Omega Users 50
3.7 Using the Remote-Control FOB 51

Section 4: Maintenance and Troubleshooting

4.1 Omega Robot Calibration 52
4.2 Pairing a New Remote 54
4.3 General Cleaning of the Omega Robot 55
4.4 Deflector Assembly / Deflector Strip Cleaning and Replacement 56
4.4.1 Deflector Assembly / Deflector Strip Cleaning 56
4.4.2 Deflector Strip Replacement 57
4.5 Throwing Wheel Maintenance 59
4.5.1 Checking Throwing Wheel Clearance 59
4.5.2 Adjusting Throwing Wheel Clearance 59
4.5.3 Lower Wheel Removal / Replacement 60
4.5.4 Upper Wheels Removal / Replacement 61
4.6 Robot Base Assembly / Lower Ball Feed Path Cleaning 62

4.7 Replacing the Battery in the Remote Control FOB 64
4.8 Replacing the Robot Main Circuit Board 66
4.9 Typical Replacement Parts 68
4.10 General Troubleshooting 68

Section 1 - Introduction to the Power Pong Omega Robot and Application

Congratulations on your purchase of the Power Pong Omega Robot. The Power Pong Omega can be used in two different configurations. The first is configured with a Bluetooth circuit board in the base of the robot and is designed to be used with a software application that runs on your Android or iOS device. The second comes with a hardware controller, which is connected to the robot using a cable (Photo 1-1).



Figure 1-1 Application



Photo 1-1 Hardware Controller

<u>Note: This User Manual covers the Omega Robot and the iOS/Android Application for the Omega</u>. For information related to the hardware controller, please see the User Manual for the Omega Robot with the Hardware Controller.

1.1 Omega Robot / Android/iOS Application Features

Below are some of the features of the Omega Robot and Android/iOS Application:

- Compact, solid, functional constructed robot with integrated ball collection net – allows continuous practice without having to stop to collect balls
- Lightweight and easily transportable. The robot with included accessories weighs less than 20 lbs.
- State-of-the-art 3-wheel ball delivery technology utilizing rigid sponge wheels designed for long durability
- Ball delivery options include a variety of spin types, trajectory, and placement – all adjustable through the Android/iOS Application
- Adjustable height of ball delivery to simulate anything from low serves to high lobs
- Application comes with 45 pre-configured Drills with different spin, speed, trajectory, and placement and an additional 55 memory locations for your own customized Drills
- Group feature allowing for up to 32 Drills to be grouped and played together

- Random features include natural scattering of shots with random placement and random sequencing of Ball types. Available in both Drills and Groups.
- Configurable option for more natural timing of thrown balls during Drills, on a ball-by-ball basis
- Ability to easily share drills and groups with other Omega application users
- Remote-Control FOB included allows starting/stopping and changing the throwing rate.
- Includes Power Pong carry bag
- Serve functionality - Identifying a ball as a Serve provides an added delay before the ball is thrown.
- Duration and Break – Control how long a Drill will repeat and how much time between repetitions

The Power Pong Omega tennis table robot is covered by a full 3-year Manufacturer's warranty and a 5-year guarantee of parts and service availability. See full warranty information at the end of this User Manual

1.2 Terminology Used in this Manual

Following is a list of terms that are used throughout this User Manual along with brief definitions.

Ball Attributes – also known as Ball Parameters, the individual settings applied to a ball such as spin, speed, etc.

Ball Edit Mode – clicking on a Ball Selector, while editing a Drill will place you in Ball Edit Mode – where you can change the Attributes of a Ball

Ball Feed Tube – provides the path from the base of the robot to the Throwing Head Assembly

Ball Selector – In a Drill, each Ball that is part of the Drill can be selected by touching the rectangular box, with the ball number in it. This is the Ball Selector.

Ball Throw – the action of the Omega robot throwing a ball to a location on the table.

Drill - a configurable sequence of up to 8 Balls of varying attributes, that upon starting, repeats until stopped.

Drill Edit Screen – Choosing / Selecting a Drill from the list of available Drills (on the Drills Main Screen) takes you to the Drill Edit screen for that Drill.

Drills Main Screen – The entry screen into Drills. On this screen, you can scroll through all of the available Drills.

Elevation Rings — Rings painted onto the Ball Feed Tube, which are used to adjust the Ball throwing height.

Group – sequence of Drills that can be played together, in sequence.

Placement - the location on the table where a Ball lands.

Preset Drill – a Drill that comes already configured in the Omega Android/iOS application.

Throwing Head Assembly – the portion of the robot that contains the 3 motors/wheels for throwing the Balls.

1.3 Parts Included with the Omega Robot

Robot with Net Assembly	
Power Supply (Input: 100-240V, Output: 24V DC, 3A) with cable	
Power Pong Carry Bag	
100 Power Pong Table Tennis balls (Supplied balls may be either white or orange based on availability)	

Remote-Control FOB	
Adjustment Gauge/Tool	

Other miscellaneous parts:

2mm and 4mm Hex wrenches

Velcro strips

Flexible white replacement deflector strip

Non-Flexible, rigid white replacement deflector strip

Spare rubber bands (2)

1.4 Power Pong Service / Support

For assistance with the Omega Application, please email Power Pong support at support@powerpong.org

Please provide the following information:

1. Your full name.
2. Your phone number
3. The Model of your table tennis robot (i.e., Alpha, Beta, Delta, Omega)
4. A full description of the issue you're having with the robot.

You may also call Power Pong Support at: **714-280-6821**. We look forward to helping you! A Power Pong service representative will respond to you promptly.

Section 2 - Setup of the Omega Robot and Application

2.1 Omega Robot Setup

2.1.1 Unfolding the Robot Collection Net

1. Place the robot on top of your table tennis table. (Photo 2-1)
2. Carefully fold apart both sides of the net at the same time until the first stop. The net bars will be horizontal at this point as shown. (Photo 2-2).



Photo 2-1

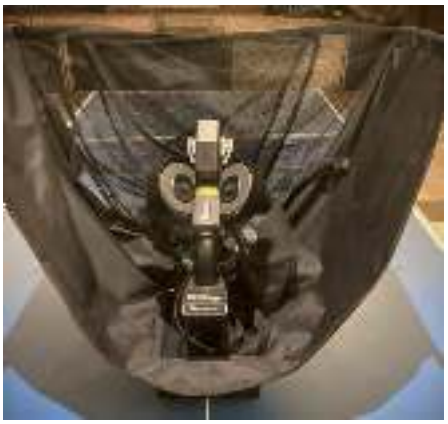


Photo 2-2

2.1.2 Positioning the Support Legs

1. Swing the curved tubular Support Legs **outward** toward the front of the robot into position (Photo 2-3), approximately 6-8 inches apart.

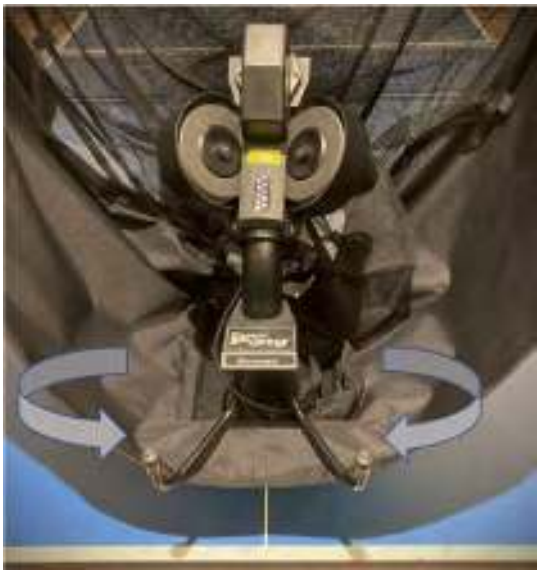


Photo 2-3

2.1.3 Rotating / Raising the Throwing Head into Play Position

The flexibility of being able to adjust the throwing height of the Omega robot allows for a very realistic match experience. By adjusting the height (from one of four different positions) together with the ball trajectory settings, you can have the robot throw you any type of ball from a low fast serve to a high lob.

Note: If you are unpacking the unit for the first time, remove the rubber bands used on the throwing head which protect the Deflector Plates during shipment.

When adjusting throwing head height, always be sure that one of the 4 painted rings is slightly above the Ball Feed Tube Locking Assembly. Failure to adjust the height properly can lead to throwing malfunctions, including throwing two balls simultaneously.

1. Loosen the Throwing Height Adjustment Knob found on the rear of the Ball Feed Tube Locking Assembly typically one-half to one turn. (Photo 2-4)



Photo 2-4

2. Grasp the curved Ball Feed Tube and rotate approximately 180° so that the ball head / exit route is pointing toward you and/or the front of the robot. You may have to pull up slightly on the Ball Feed Tube to rotate. See Photo 2-5 (before) and Photo 2-6 (after).



Photo 2-5



Photo 2-6

3. Pull the head upwards on the Ball Feed Tube until the second ring on the tube is just visible (Photo 2-7). **SLIGHTLY** tighten the Throwing Height Adjustment Knob to hold the throwing head in place - just enough to prevent it from dropping.

Caution: Overtightening can damage the Ball Tube!

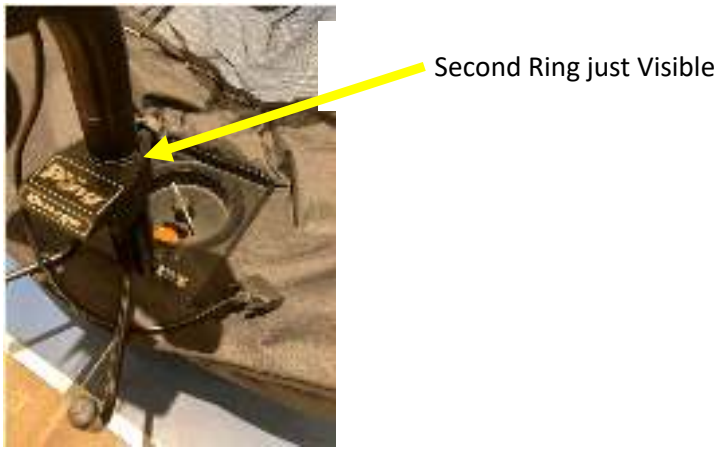


Photo 2-7

The height of the throwing head can be adjusted to one of four possible heights as shown in photos 2-8 thru 2-11. Before tightening the Throwing Height Adjustment Knob, it is important that one of the Ball Feed Tube rings be located just above the Ball Feed Tube Locking Assembly.

Never operate the robot with the height beyond the 4th ring (red).



Photo 2-8



Photo 2-9



3 Rings Exposed

Photo 2-10



4 Rings Exposed (Maximum Height)

Photo 2-11

2.1.4 Connecting the Throwing Head Communication Cable

1. Connect the Communication Cable coming from the Throwing Head Assembly to the 15-pin connector found on top of the robot base (Photos 2-12, 2-13 and 2-14).



Photo 2-12



Photo 2-13



Photo 2-14

2. Tighten (snug) the two thumb screws on the cable connector. **Note:** This cable **MUST** be disconnected anytime you swing the table support legs back into their transport position to prevent damage to the cable.

2.1.5 Fully Opening the Collection Net

1. Standing behind the robot, grip the top points of the net and completely fold the net down on both sides until the net fully opens (Photo 2-15).



Photo 2-15

2.1.6 Mounting the Robot on the Table

1. From behind, grasp the robot with both hands on the bottom of the base. Pick up the robot, angle the Support Legs downward, and slip them under the end of your table. (Photo 2-16)
2. Gently push the robot onto the end of the table with the Power Pong logo aligned with the center line of the table. (Photo 2-17)
3. Carefully let go of the robot base and it will hang securely by its own weight.
4. Lower the Corner Brackets of the net around the corners of your table.
5. With a newer robot, the corners of the net may not stay completely down at this point – this is okay and as the material loosens up the corners will stay in place.

Note: If the table to which you are attaching the robot to is the table that you will always use, you can secure the mounting by using the included longest Velcro strip to secure the robot to the end of the table. You may also use supplied Velcro on the corners of the table.



Photo 2-16



Photo 2-17

2.1.7 Adjusting the Support Legs (Rubber Tips)

The Omega robot is designed with adjustable Support Legs allowing it to fit onto tables with a variety of thicknesses, up to 1 inch. There are adjustable rubber tips on the end of the Support Legs that can be turned clockwise or counterclockwise, as needed for your table, **so that the Throwing Head Assembly is positioned straight up and NOT tilting either forward or backward**. Failure to adjust the legs properly will cause ball placement to be inaccurate.

1. Turn the **adjustable rubber tips** on the ends of the Support Legs as needed so that the Ball Feed Tube is straight up, not tilting forward/backward. (Photo 2-18, Figures 2-1, 2-2)

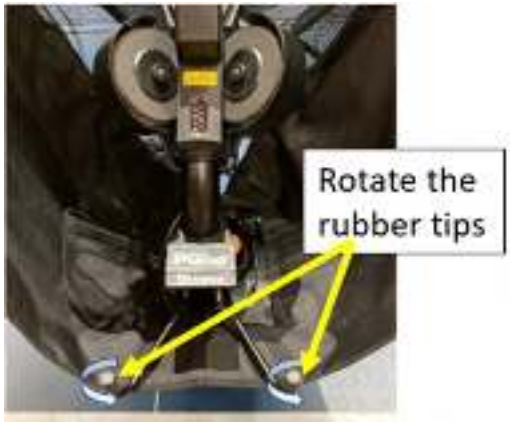


Photo 2-18

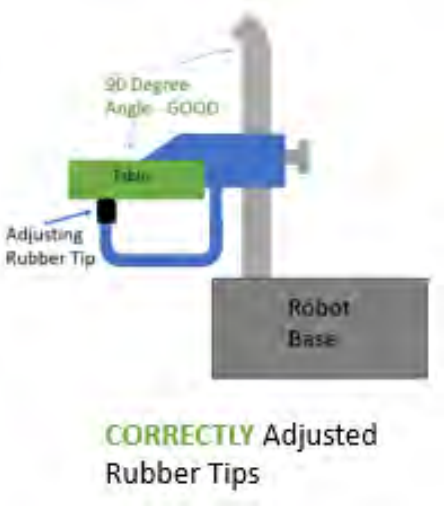


Figure 2-1

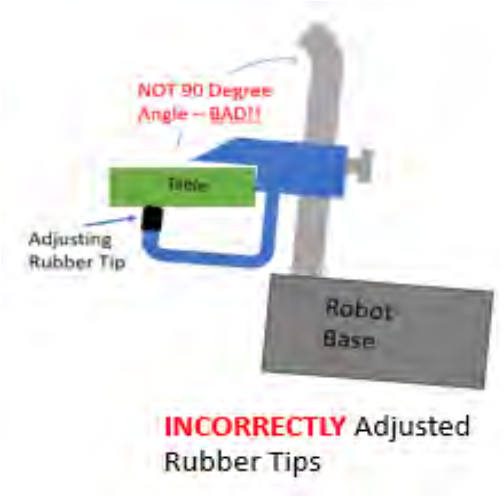


Figure 2-2

2.1.8 Securing the Side Nets

1. Pull one of the Side Nets along the side of the table and secure to the net post hardware (Photos 2-19 and 2-20), by looping the rubber band **over the top** of the net support and then down around the clamp screw that holds the net support onto the table.
2. Repeat with the other Side Net.

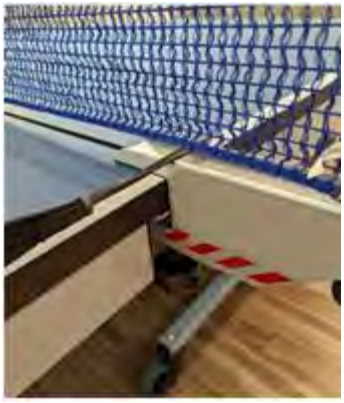


Photo 2-19



Photo 2-20

2.1.9 Connecting the Omega Robot to a Power Source

1. Insert the power connector from the power adapter into the power jack on the side of the Robot Base Assembly. (Photo 2-26)



Photo 2-26

Note: The Control Panel Connector is NOT used with the Android/iOS Application

2. Plug the power adapter into the wall power (110VAC) as shown in Photo 2-27. When you do this, you will hear the Omega robot begin its startup process consisting of several clicking noises followed by the ball throw motors spinning for 1-2 seconds.



Photo 2-27

2.1.10 Loading the Omega Robot with Table Tennis Balls

1. Fill the collection net assembly with the supplied table tennis balls. (Photo 2-28)



Photo 2-28

2.1.11 Congratulations – Robot Setup is Complete

The setup of your Omega robot is complete. Next we will install and setup the Android/iOS application.

2.2 Omega Application Download / Installation

2.2.1 Android Devices

1. Visit the Android Play Store by starting the Play Store application on your android device. (Figure 2-1)
2. In the Play Store application, search for the application by typing “Power Pong” in the Search apps box. (Figure 2-2)



Figure 2-1



Figure 2-2

3. Choose the Power Pong Robot application and press the Install button (Figure 2-3). You will be shown a progress circle indicating that the application is being installed (Figure 2-4).



Figure 2-3



Figure 2-4

4. Upon successful completion of the installation process, you will be presented with an Open button. Congratulations. Proceed to Section 2.X to start the Application and to connect to the Omega robot.



Figure 2-5

2.2.2 iOS Devices

1. Visit the Apple App Store, by pressing the App Store icon on your iOS device (Figure 2-6).
2. Press the Search icon (bottom right of screen) to bring up the Search page in the App Store (Figure 2-7).



Figure 2-6



Figure 2-7

3. Type “Power Pong robot” in the search field at the top of the screen and press the Search button (Figure 2-8).



Figure 2-8



Figure 2-9

4. If necessary, scroll until you see the Power Pong Robot application. Press the download button to Download and install the app onto your iOS device (Figure 2-9).
5. When you see the word OPEN show up (Figure 2-10) you have successfully downloaded / installed the Power Pong Robot application.
6. Press the OPEN button to start the Power Pong Robot application. You can also exit the Apple Store application and find/press the Power Pong Robot icon on your device, to start after the installation is complete.



Figure 2-10

2.2.3 Connecting the Omega Application to the Robot

1. Setup the Power Pong Omega robot and plug the robot into an appropriate power source. Complete setup instructions are available in the full Power Pong Omega User Manual.

2. Find the Power Pong Application/icon installed on your Android/iOS device and press it to start.

Note: Communication between your Android/iOS device and the robot will require the use of Bluetooth on your Android/iOS device. If you don't have Bluetooth enabled, you may get a message like the one shown in Figure 2-11. If you see this, go into Settings on your device to enable Bluetooth.



Figure 2-10



Figure 2-11



Figure 2-12

3. Scroll through 6 introduction screens by pressing the right arrow button on the bottom of the screen.
4. After pressing the Skip button, you will be presented with the Drills screen (Figure 2-12). Before using a Drill, we must connect our Android/iOS device to the robot. Press the Connection button on the bottom of the Android/iOS Power Pong Robot application (Figure 2-13).
5. Press the Scan button, so that the Power Pong Robot Application can "search" for the robot. It should find the robot called Power Pong robot (Figure 2-13).

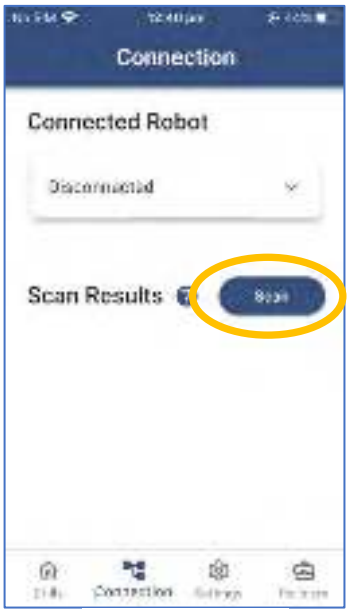


Figure 2-13



Figure 2-14

6. Connect the application to the robot by pressing "Power Pong robot" (Figure 2-14). You will then see a screen confirming Connection as shown in Figure 2-15. Once connected, you can touch the down arrow to the right of the robot name, to see the version of the Power Pong application. (Figure 2-16)

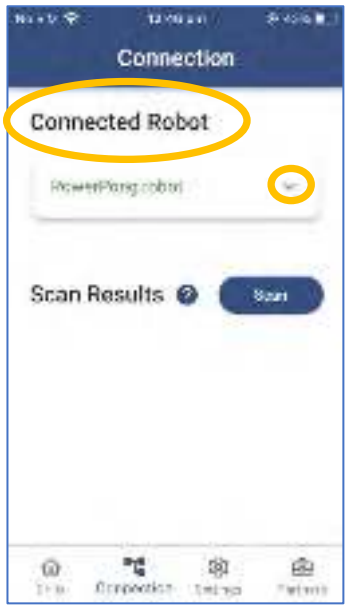


Figure 2-15

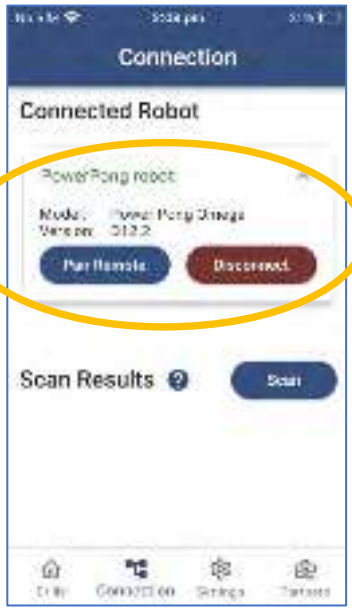


Figure 2-16

2.2.4 Omega Application Main Screens

The Omega Application has 4 Main Screens which are described below. In-depth usage of these screens is covered in Chapter 3 of this User Manual.

Drills Main Screen (Figure 2-17)
This is where Drills are viewed and selected for play. The system comes pre-loaded with 45 Drills which you have access to. You can also add/delete/modify drills, and share drills with other users. Refer to Chapter 3 for further details.

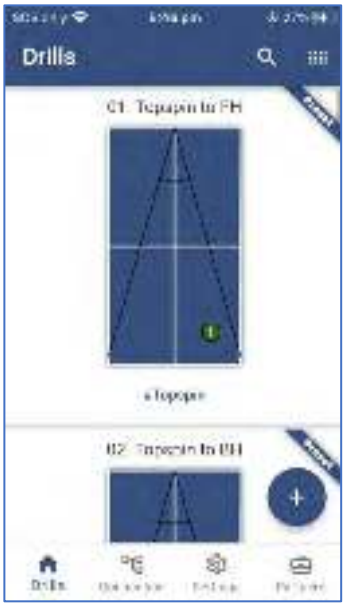


Figure 2-17

Connection Screen (Figure 2-18)
This screen is used to manage the connection between the Omega Application on the Android/iOS device and the Omega Robot.



Figure 2-18

Settings Screen (Figure 2-19)
Many settings for operations of the Omega Application/Robot are controlled through this screen, in addition to robot Calibration. These functions are covered in full, in Section 3.



Figure 2-19

Partners Screen (Figure 2-20)
This screen contains links to distributors of Power Pong robots and accessories.



Figure 2-20

Section 3 - Using the Omega Application with the Omega Robot

This section of this User Manual provides an introduction to the Omega software application which is used to control the robot. The application provides a user-friendly interface allowing you to tailor how specifically balls are thrown/delivered to you. This includes:

- placement of the ball on the table
- speed, spin, and trajectory of the balls
- starting/stopping and the rate of ball delivery
- programming Drills and Groups
- the use of random placement/ball type features

3.1 Tips for Best Operation and Longevity of the Omega Robot

For best operation and longevity, follow the guidelines below.

- The Omega robot works best when using the supplied Power Pong table tennis balls. Additional balls may be ordered from www.powerpong.org when needed.
- New balls should be washed and dried, to remove residual manufacturing dust before being used in the Omega robot.
- Keep all balls, new or old, that you use in the robot clean. When the balls contact the floor in your playing area, they may pick up dirt and various debris. This dirt/debris can be transferred into the robot, onto the robot ball throwing wheels, reducing the performance of the robot.
- The Omega robot is designed for use in dry, indoor rooms. Do not use it outdoors or in any wet or damp environment.
- Avoid leaving your robot where it is exposed to heat such as a hot car or trunk.
- Do not allow objects including dented balls, hair, string, etc. to fall into the collection net where they can work their way into the robot. These objects can cause ball jams, interfere with correct operation and/or damage the robot.

3.2 Initial Robot and Application Setup

The Omega robot is set up and calibrated before it leaves the factory. Before using it however, it's useful to verify proper operation.

1. Refer to the full Omega Robot User Manual. Perform the steps covered in Chapter 2 to physically set up the Omega robot.
2. For the Initial Robot Setup, the height of the throwing head assembly must be at the 2nd ring. If necessary, loosen the Throwing Head Assembly adjustment bolt and set the height to the second ring (Photo 3-1 and 3-2). **DO NOT OVERTIGHTEN THE THROWING HEAD.**



Photo 3-1



Photo 3-2

3.2.1 Checking Ball Placement (Depth)

1. Select the Drills Screen by pressing the Drills button on the bottom of the App (Figure 3-1). You will then be able to see the Drills screen as shown in Figure 3-2. (Drills will be covered in greater detail, later in this section of the User Manual.)

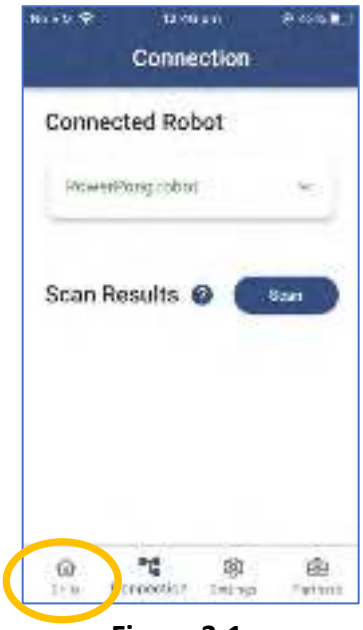


Figure 3-1

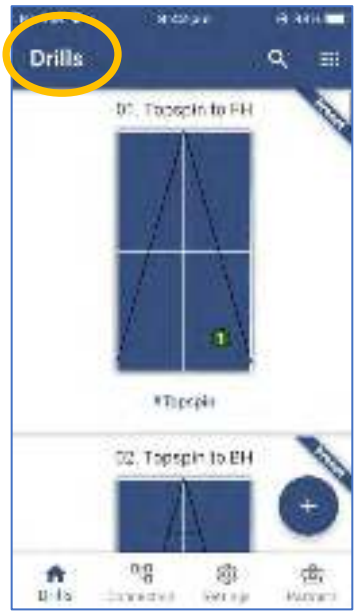


Figure 3-2

2. Scroll nearly to the end of the list of Drills and select **Test Drill 1** by pressing **Test Drill 1** (Figure 3-3). You will then be presented with the details of **Test Drill 1** (Figure 3-4).

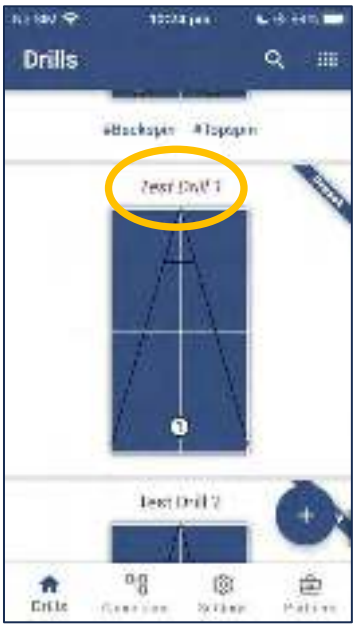


Figure 3-3

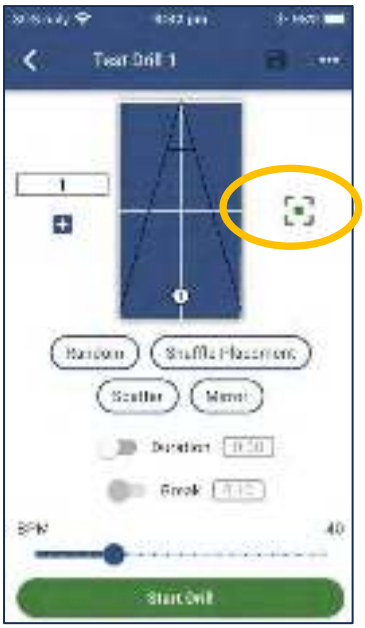


Figure 3-4

3. Move the Balls per Minute (BPM) slider to 20 (Figure 3-5).



Figure 3-5

4. Press the Start Drill button. This will trigger the robot to deliver balls down the centerline. For this step, we are not concerned about right/left placement, but we are concerned about the distance from where the ball lands to the end of the table. This distance should be **approximately** 16".

Tip: To help determine if the ball is landing at the correct depth, cut out a 1" square piece of paper and lay it on the table, 16" from the edge. Watch where the balls land. Again, don't be concerned about left/right placement – we're just checking throwing distance.

5. Measure the distance. If the distance is > 18” or < 14”, calibration is suggested. Complete Section 3.2.2 and then perform the Calibration procedure found later in Section 3.

3.2.2 Checking and Adjusting Right / Left Ball Placement

1. Return to the list of Drills, by pressing the Back button on the top left of the **Test Drill 1** screen (Figure 3-5).
2. From the list of Drills, select **Test Drill 2** (Figures 3-6 and 3-7). This Drill will deliver balls alternately from the forehand side to the backhand side. We must measure the approximate distance from where the ball lands on both sides of the table, to the corresponding side edge, and verify that those measurements are approximately equal.



Figure 3-6

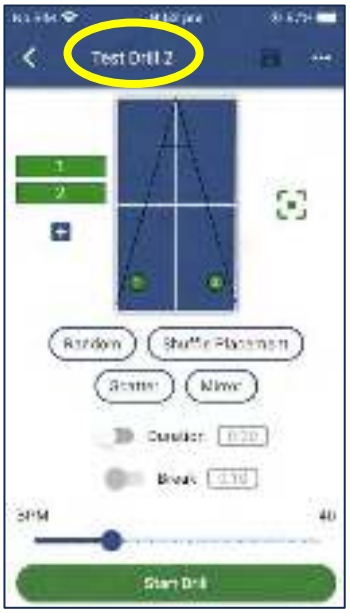
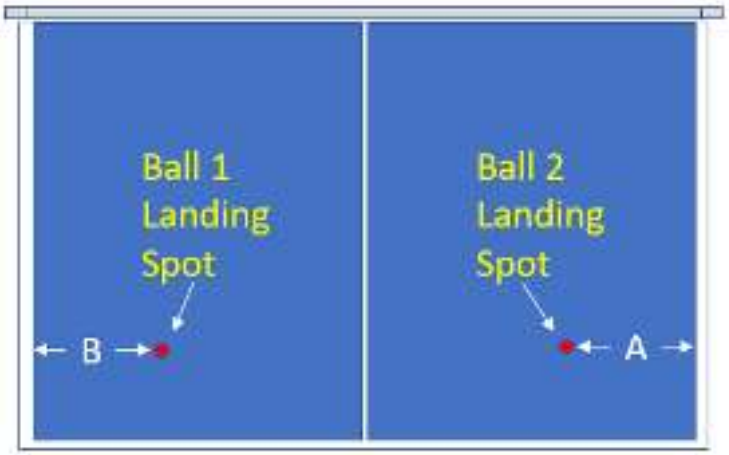


Figure 3-7



The difference between Measurement A and Measurement B must be 2 inches or less.

Figure 3-8

3. Move the BPM slider to set the balls per minute to 20 as done previously.
4. Press the Start Drill button and observe/measure the distance from the balls thrown on the right side of the table to right edge of the table and the same for the left. (Figure 3-8)
5. If the distances are not similar, adjust the throwing head assembly by carefully loosening the Throwing Head Assembly Adjustment knob and rotating the assembly appropriately until the distance from where the ball lands to the edge of the table is **near** equal – for both sides (Photo 3-3).



Photo 3-3

3.2.3 Check / Verify Serve Placement

1. Return to the list of Drills, by pressing the left arrow (Back) button on the top left of the **Test Drill 2** screen.
2. From the list of Drills, select **Test Drill 3** (Figure 3-9).

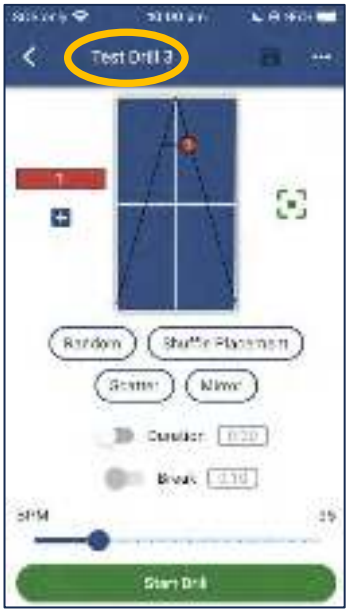


Figure 3-9

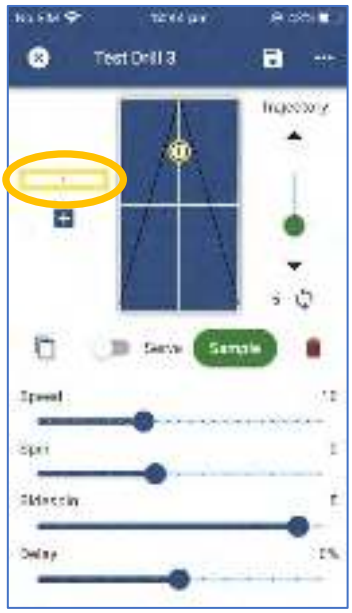


Figure 3-10

3. Press the 1 on the **Test Drill 3** screen to edit/verify the settings for the Ball 1 in the Drill (Figure 3-10).
4. Verify and/or if necessary, change the Ball 1 settings so that the Speed=10, Spin=0, and Sidespin=5 (Figure 3-10).
5. Press Start Drill and verify that the serve balls clear the net and lands midway between the near and back of the table. The ball will have spin on it causing it to curve onto the right side of the table.

This concludes the Initial Setup of the Omega Robot with the Omega Application.

3.3 Omega Application Settings Screen

The Settings screen allows you to make changes to the operation of the Omega robot. These changes include appearance and functionality changes. Additionally, robot Calibration, Preset Restore, and Factory Reset operations are performed from the Settings screen.

3.3.1 Slider Adjustments

The slider settings affect how the screens appear when editing a Drill. See Figures 3-11 through 3-16.

Theme – By default, the application will use a "Light" Theme (Figure 3-11) which means the backgrounds of screens will be light in color, with darker text. By turning on the Dark Theme (Figure 3-12), backgrounds will be dark, and text will be light.

Show Ball Paths – Moving this slider to the right will result in the expected paths being visible with dashed lines when editing a Drill.

Show Boundary Line – Turning this option ON will show the outer boundaries of where the balls can be delivered, when editing a Drill.

Large Ball Size – Turning this option ON will increase the size of the balls shown when editing a Drill.

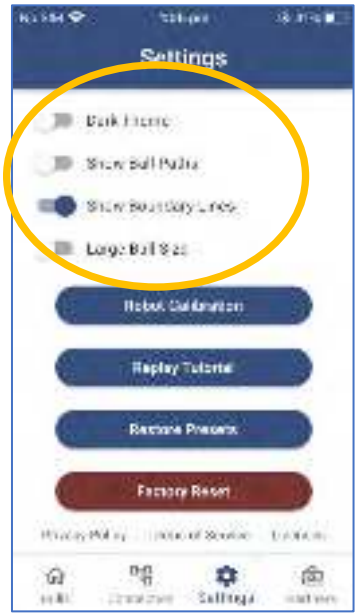


Figure 3-11



Figure 3-12

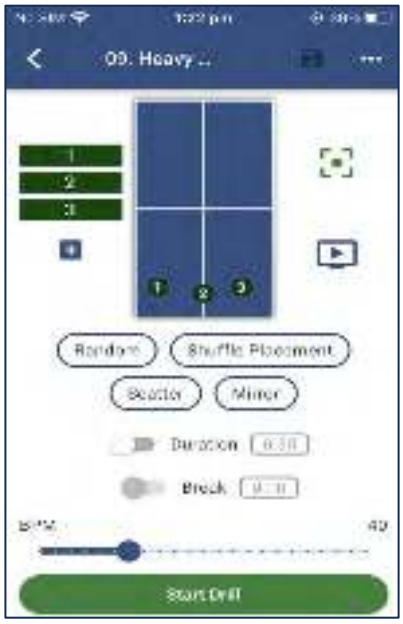


Figure 3-13
No Ball Paths, No Boundaries

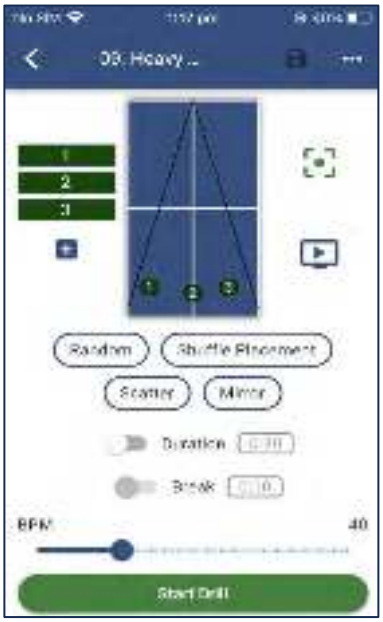


Figure 3-14
Show Boundaries

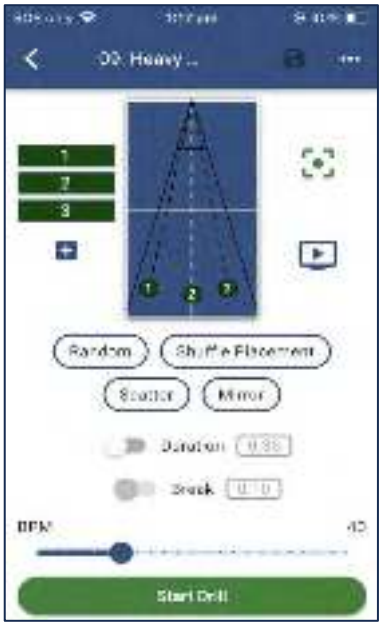


Figure 3-15
Show Ball Paths and Boundaries

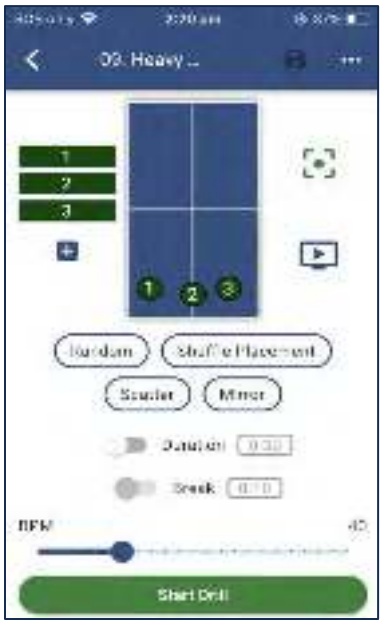


Figure 3-16
Large Ball Size with No Boundaries and No Ball Paths

3.3.2 Omega Robot Calibration

The Omega Robot is calibrated before it ships. Under certain suggestions you may need to perform a calibration – usually after talking with Power Pong support. See Section 4 for the Calibration procedure.

3.3.3 Replay Tutorial (Figure 3-20)

Pressing the Replay Tutorial button will take you back to the original Power Pong Welcome screen that you saw when you first installed the Omega Application, showing you some basic elements of the application.



Figure 3-20

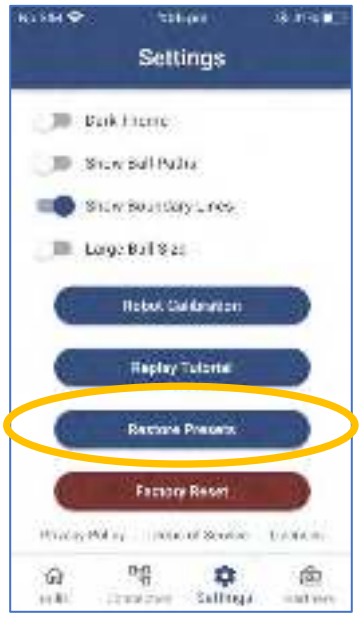


Figure 3-21

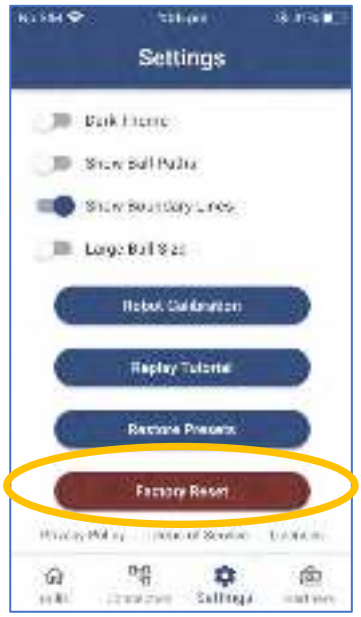


Figure 3-22

3.3.4 Restore Presets (Figure 3-21)

Pressing this button will restore the pre-loaded drills that came from the factory. This will remove any modifications that you may have made to the pre-loaded drills.

3.3.5 Factory Reset (Figure 3-22)

This button will return the application to the original state as if you just loaded it onto your device. Any new drills or changes to pre-loaded drills will be erased, and all of the settings for the application will be returned to their original/default configuration.

3.4 Working with Omega Application Drills

Drills are predefined sequences of one or more balls (up to 8), thrown to different locations as desired, with different spins and speed (as desired), that can be repeated, allowing you to create an endless number of training exercises. Once a Drill is designed and setup, it can be saved in the application for future use. You can design and add your own drills, modify existing drills, store them in the application and even share your drills with other Power Pong Omega users.

3.4.1 Preloaded Drills

The Omega application comes from the factory with 45 preconfigured drills labeled Drill 1 through Drill 45 along with 3 Test Drills used for calibration.

The Drills are designed to be used with the throwing head at the 2nd ring/height however adjustments

may be utilized as you see fit. Table 3-1 contains a listing/description of the factory supplied Drills. Note that the terms “forehand” and “backhand” are based on a right-handed player.

NOTE: During Drills, if the balls are either landing short (into the net) or long (over the edge of the table) perform the Checking Ball Placement found earlier in Section 3.

Table 3-1

Drill #	Drill Description
1	Topspin to FH
2	Topspin to BH
3	Topspin to FH/BH
4	Topspin to FH, Topspin to MID
5	2 Topspins to BH, 1 Topspin to FH
6	2 Topspins to BH, 2 Topspins to FH
7	Topspins to BH, Mid, BH, FH
8	Heavy Topspin to BH
9	Heavy Topspin to BH, Mid, FH
10	Topspin Random
11	Backspin to BH
12	Backspin to FH
13	Backspin to BH, Mid, FH
14	Backspin Random
15	Heavy Backspin to Mid
16	Heavy Backspin to Random
17	Backspin to FH, Heavy Backspin to FH
18	No Spin to FH
19	Smash to BH
20	Smash to FH, BH
21	Smash Random
22	Topspin Lob to FH
23	Topspin Lob to FH, BH
24	Backspin Lob to BH
25	Backspin Serve to BH
26	Backspin Lobs Random
27	Right Sidespin Serve to BH
28	Left Sidespin Serve to BH
29	Deep Nospin Serve
30	Nospin Serve to BH, Topspin to FH, Topspin to Mid

31	Nospin Serve to FH, Topspin to BH, Lob to Mid
32	Backspin Serve to FH, Topspin to FH
33	Backspin Serve to BH, Topspin to FH, Mid, BH
34	Right Sidespin Serve to BH, 2 Topspins to FH, 1 Lob to Mid
35	Left Sidespin Serve to FH, 3 Topspins to BH, 1 Topspin to FH
36	Topspin to FH, Smash to FH
37	Topspin to BH, Smash to BH
38	Backspin Serve to FH, Backspin to FH, Topspin to FH, Lob to FH, Smash to FH
39	Backspin Serve to BH, Lob to Mid, Smash to FH
40	Backspin Serve to FH, Lob to Mid, Smash to BH, Lob to FH
41	Backspin / No-Spin Variety
42	Backspin Floater
43	Backspin-Topspin Transition Balls
44	High Backspin / High Topspin
45	Two Ball Combination

3.4.2 Viewing Available Drills

From the Drills screen, you can simply scroll up/down to see the various drills that are available (Figure 3-23). The 45 drills that come pre-loaded on the Omega robot will say Preset in the top/right corner.

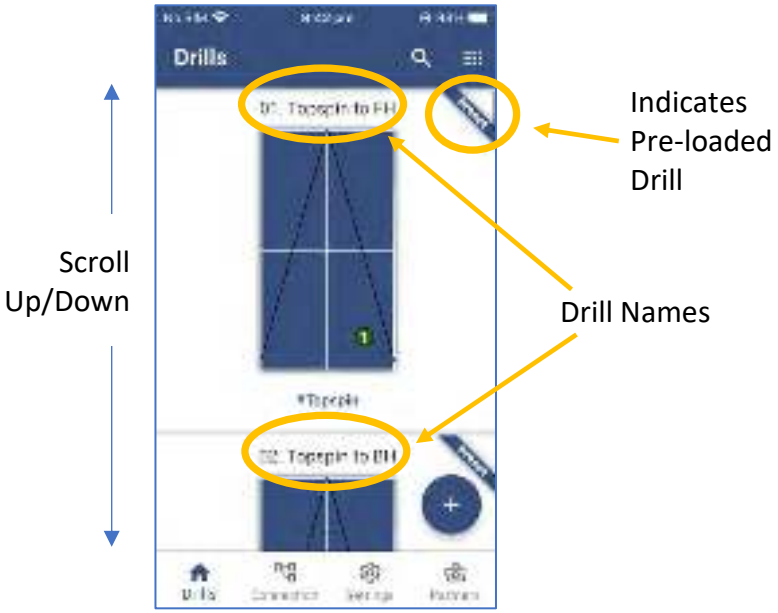


Figure 3-23

3.4.3 Searching for Drills

As your list of Drills gets larger and larger, it will become more challenging to find a particular Drill just by scrolling. The Power Pong Application provides a search feature. To search, perform the following.

1. From the Drills main screen, press the Drill Search icon. A new window will appear for you to enter a Search string of characters. (Figure 3-24)

2. In the Search field, you can enter any collection of characters that will become your search string. For example, type the word “smash” and then press the search button on your device. (Figure 3-25)



Figure 3-24



Figure 3-25

3. A list of Drills that have your search phrase as part of the Drill name **or as part of a Drill Tag** - which is covered Section 3.4.4 will be presented to you in a scrollable fashion. (Figure 3-26)
4. Select the Drill you’re looking for, by touching it.

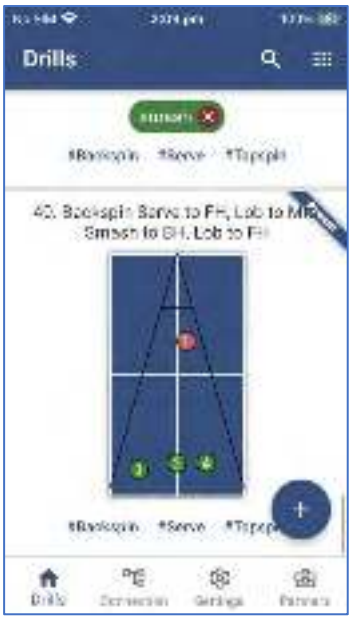


Figure 3-26

3.4.4 Adding Tags to a Drill

Drills can be defined (and Searched for) not only by the name of the Drill, but also by Tags which are simply descriptor words, that you can assign to a Drill to help describe it.

To add a Tag to a Drill, perform the following steps.

1. Go to the Drills main screen.
2. Choose the Drill that you want to add a Tag to.
3. Touch the "…" menu in the top right corner. (See Figure 3-27)
4. Choose Tags. (See Figure 3-28)



Figure 3-27

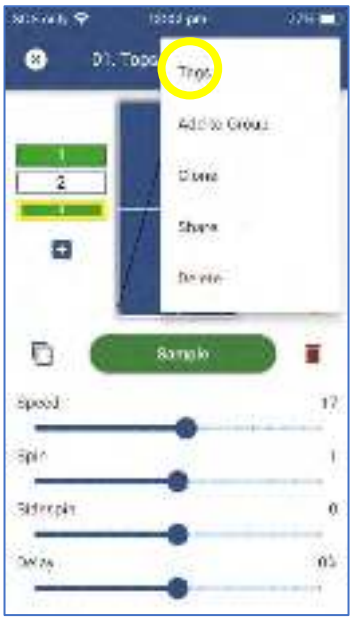


Figure 3-28

5. Type in the Tag word of your choice. You can add over 50 tag words as you like to describe a Drill. (Figure 3-29)
6. To Remove tags, touch the Remove Tag button. (Figure 3-29)

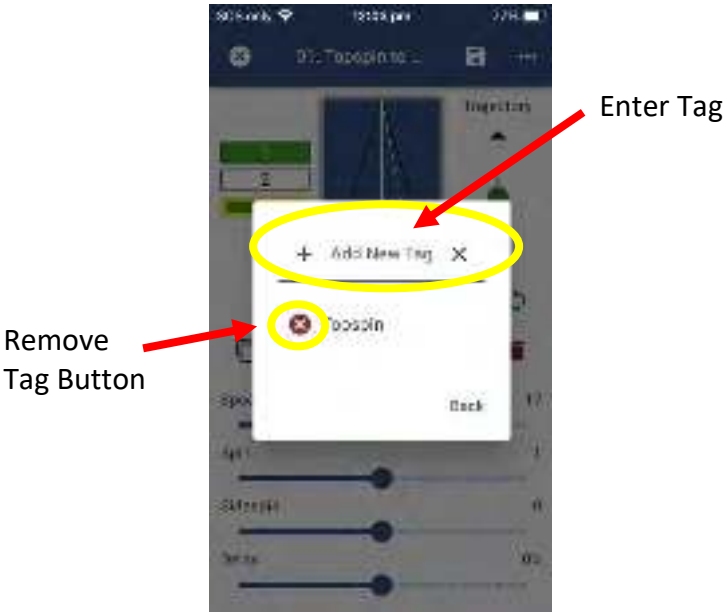


Figure 3-29

3.4.5 Starting / Stopping Drills

Note: When using Drills, YOU MUST WORK WITH SPIN, SPEED AND TRAJECTORY TO GET THE DESIRED RESULTS.

To start a Drill, we must choose the Drill from the Drill screen by touching the Drill Name or the drill table/diagram. This will take you to the Drill Edit screen – which is where you can edit the Drill and/or Start the Drill. Perform the following steps to start the Drill named 03. Topspin to FH/BH.

1. Enter the Drill screen by pressing the Drills button on the bottom left of the Application.
2. Scroll down until you see the Drill named 03. Topspin to FH/BH.
3. Touch either the name of the Drill or the ping pong table diagram for the Drill. This will take you to the Drill Edit screen (Figure 3-30).

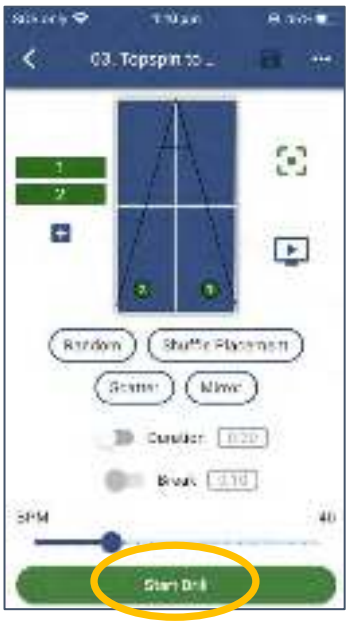


Figure 3-30

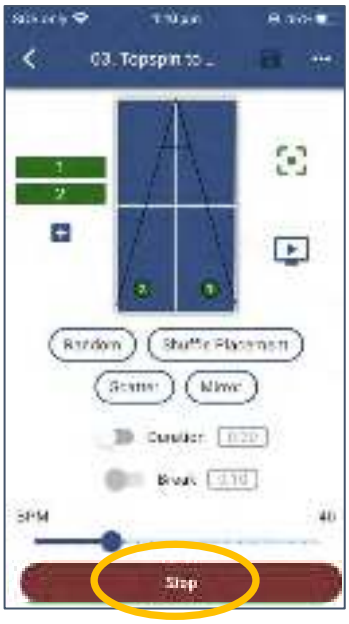


Figure 3-31

4. Push the Start Drill button on the bottom of the screen to start the Drill. Once the Drill has started, the Start Drill button will change to a Stop Drill button (Figure 3-31).
5. Press the Stop Drill button to stop the drill. Note that you can also use the remote FOB to stop the drill.

3.4.6 Creating a New Drill

One of the powerful features of the Omega robot, is the ability to create your own drills. Before programming the Omega robot, you may find it useful to design your Drill ahead of time, on paper or at least in your head. Think about the number of balls that you want in your Drill as well as the ball attributes including ball placement, ball speed, ball height, spin, etc., for each ball. When you are ready to enter the Drill, perform the following steps.

Perform the following steps to create a new Drill.

1. Go to the main Drill Screen. The main Drill screen displays “Drills” in the upper left corner.

2. Push the "+" icon (bottom right). A new Drill will be created. If this is the first new Drill you are creating, it will be assigned the name Drill 49. (Figure 3-32) This is because the Application comes with 45 preset Drills plus 3 Test Drills (45+3=48), so the app will simply use the next highest number, for the next Drill name.

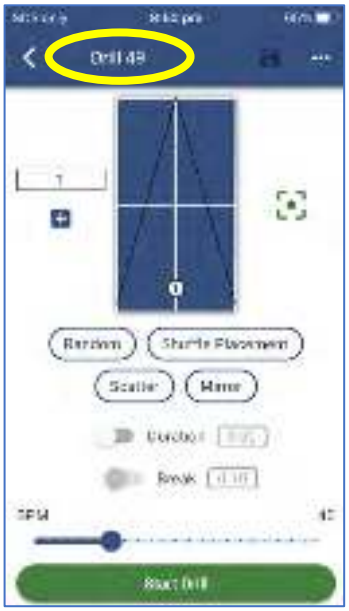


Figure 3-32

3. Press the "<" Back button to go back to the main Drill screen.
4. You will now see your new Drill listed at the top (or beginning) of the list of available Drills. We will cover editing an existing drill in the next section of this User Manual.

3.4.7 Cloning an Existing Drill

A second way to create a new Drill, is by Cloning **an existing Drill**. You would do this, for example if you had a Drill that you enjoy using, but wanted a copy of that Drill so you could make changes to it without modifying the original. In the following example, we will clone Drill 1.

Perform the following to Clone a Drill.

1. From the main Drill screen, scroll until you see the Drill named "01. Topspin to FH". (Figure 3-33)
2. Touch the name or the table/diagram to select the Drill and open the Drill Edit screen.
3. In the upper right corner of the Drill Edit screen, you will find a menu that is accessed by touching the "⋯" button. Touch that button (Figure 3-34)
4. Touch/press that icon. A drop-down menu will be displayed with 5 choices, one of them being Clone. (Figure 3-35)
5. Press/touch the word Clone. On the bottom of the screen, you will see a message "Drill Cloned" along with an Open button. That message will fade after a few seconds.
6. Press the back arrow button to get back to the main Drills screen.
7. Scroll to the top of the list, and you will see a new Drill called "01. Topspin to FH 2". This drill will be an exact clone of Drill named "01. Topspin to FH".

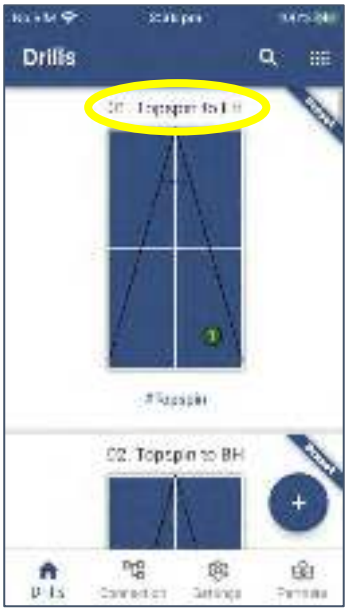


Figure 3-33

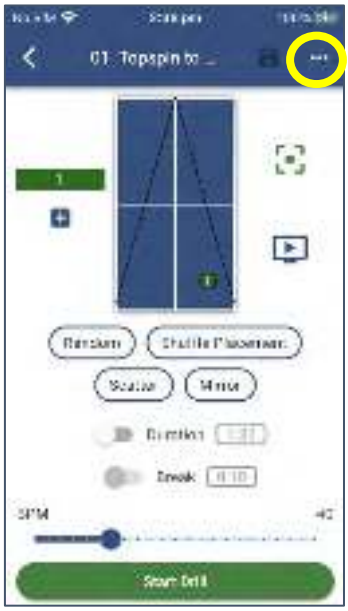


Figure 3-34



Figure 3-35

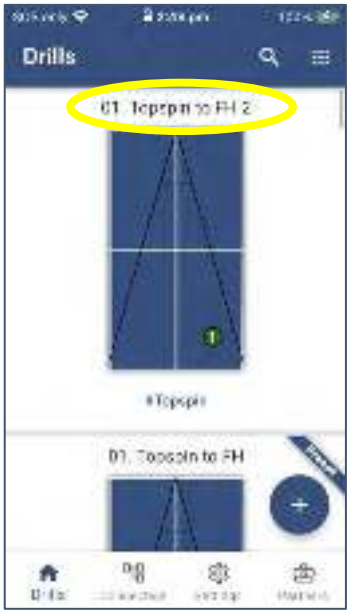


Figure 3-36

3.4.8 Changing the Name of a Drill

Drill names can be easily changed to better reflect the Drill content and/or design. Changing the name is usually required after adding Balls, changing Ball placement, etc. Perform the following to rename a Drill.

1. Choose a Drill from the main Drills screen (Example: Drill 49) that you'd like to change the name of. (Figure 3-37)
2. From the Drill Edit screen, touch the name of the Drill. (Figure 3-38) This will open a new window where you can enter a new Drill Name. (Figure 3-39)

3. Enter a new Drill Name (Example: My New Drill) and press the Confirm button. (Figure 3-39)

The Drill Edit screen will now display the new Drill Name! (Figure 3-40)

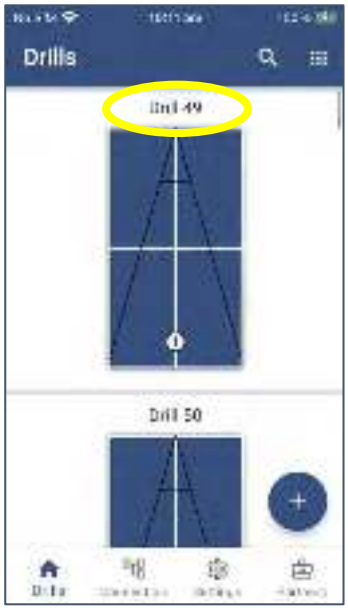
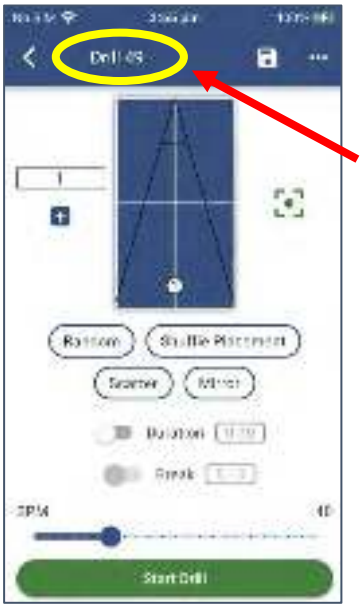


Figure 3-37



Press Name to Change

Figure 3-38



Figure 3-39

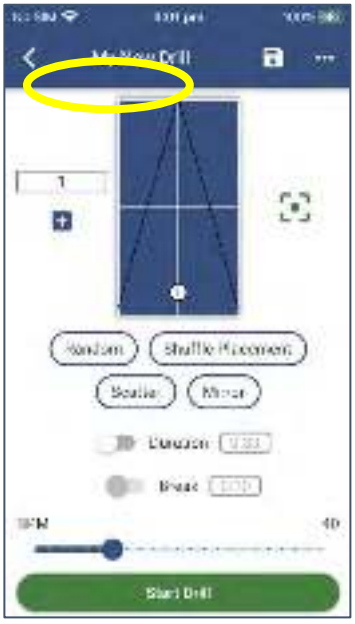


Figure 3-40

3.4.9 Adding Balls to a Drill

A Drill can have up to 8 Balls. To add a ball to a Drill, perform the following steps.

Note: Changing the parameters/attributes of the individual Balls in a Drill is covered in Section 3.5 in detail.

1. From the main Drill screen, select the Drill called “01. Topspin to FH 2”. by touching/pressing the drill name or table icon below the name. (Figure 3-41)

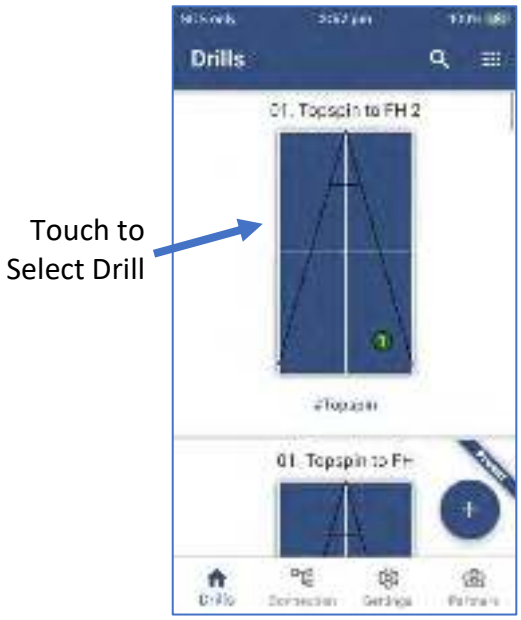


Figure 3-41

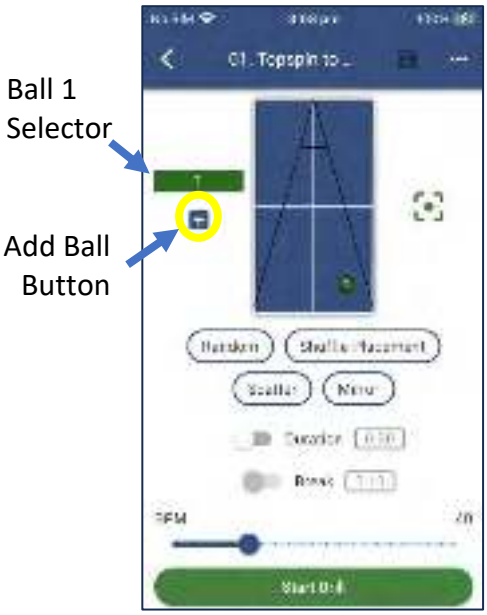


Figure 3-42

On the left side of the screen, there is a rectangular box with the number "1" in it. That box is called the Ball 1 Selector, and represents the first ball in the drill. If the Drill includes 7 balls, there would be 7 rectangular boxes.

2. Press the Add Ball button "+" (Figure 3-42) below the Ball 1 Selector, to add an additional ball to this Drill. You will now see two balls in the Drill. (Figure 3-43) and you will be in Drill Edit mode.

Note: When balls are added to a drill, they will have default parameters (Speed=12, Spin=0, Sidespin=0, Delay=0%), and the placement will be **near the end of the table, along the center line.**



Figure 3-43

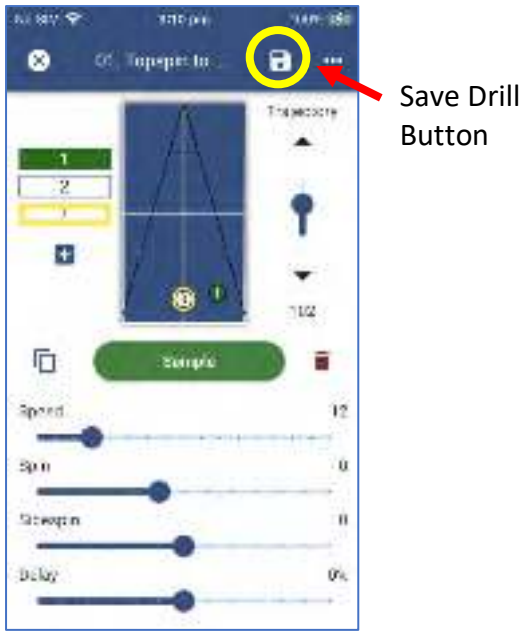


Figure 3-44

3. Press the + icon again, to add a third ball. Your screen should now show that the drill has 3 balls. (Figure 3-44). Ball 3 has now been added and is positioned right on top of Ball 2.

You will note that the Drill Save button is enabled, anytime you edit a Drill. (Figure 3-44) If you wish to Save the changes that you have made – in this case adding to Balls to the Drill, Press the Save button.

Note: Editing Ball Parameters, removing Balls and more is covered in Section 3.5 of this manual.

4. Press the Exit Drill Editing icon to return to the main Drills screen (Figure 3-43).

3.4.10 Deleting a Drill (Figure 3-31)

To delete a Drill, perform the following steps.

1. From the Drills main screen, select the Drill that you want to Delete by pressing/touching it.
2. From the Drill edit screen, press the drop-down Menu button "…" from the top-right corner. (Figure 3-45)
3. Choose "Delete". (Figure 3-46)
4. Confirm that you want to Delete the Drill by pressing/touching "Delete". (Figure 3-47)

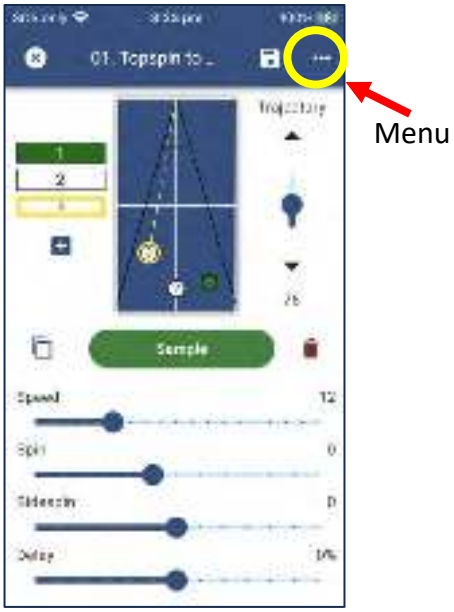


Figure 3-45

Menu

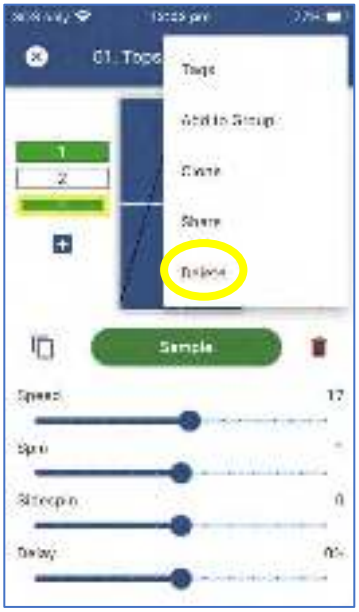


Figure 3-46



Figure 3-47

3.4.11 Drill Duration and Break

Drill Duration and Drill Break are options that you may utilize while using Drills. The Drill Duration value refers to the length of time that a drill will run, while the Drill Break value refers to the amount of time that the robot will pause between iterations of the drill.

Note: Drill **Break** is not available unless you have turned ON Drill **Duration**.

To use Drill Break / Duration, perform the following steps.

1. Choose a Drill from the Drill Main Screen.
2. From the Drill Edit screen, press the Duration Toggle Switch to move it to the ON position. (Figure 3-

48)

3. Touch the Duration time box to adjust the length of time you would like the Drill to run. (Figure 3-49)

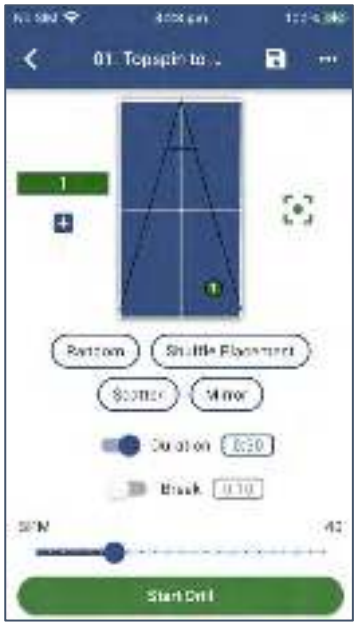


Figure 3-48

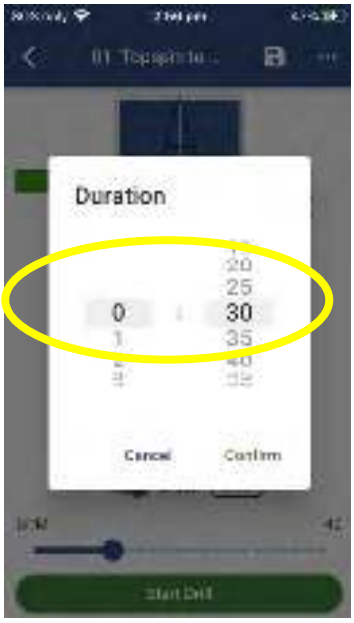


Figure 3-49



Figure 3-50

4. Press the Break Toggle Switch to move it to the ON position. (Figure 3-50)
5. Touch the Break time box to adjust the length of time you would like between each iteration of the Drill.
6. Press Start Drill to use the Drill with the Duration/Break parameters you've chosen.
7. Save the Drill as desired by pressing the Save button. (Figure 3-50)

To disable the Drill Duration/Break feature, simply toggle the Switch(es) to the OFF position.

3.4.12 Random Modes

There are three Random Modes that you can utilize with Drills. They are listed below.

- **Random** - Plays the balls of a Drill, in a random order. When Random is selected, the Ball Selector numbers turn into question marks. (Figure 3-51)
- **Shuffle** Placement - The robot will treat the Ball settings (Speed, Spin, Sidespin, etc.) separately from the Ball Placement settings. When the Drill is started the Ball settings for Ball 1 will be used along with a randomly selected placement (from Balls in the Drill). Next, the Ball settings for Ball 2 will be used, with another randomly selected placement, and on and on. This feature creates many different variations within an 8-ball Drill. Random Sequence mode requires at least two Balls to be active and/or in a Drill. (Figure 3-52)
- **Scatter** - Adds more variability to the trajectory and placement. This mode is similar to the less precise shots that a human might deliver. The ball will be delivered within a 20cm diameter around the placement chosen on the screen – which is displayed on screen. (Figure 3-53)



Figure 3-51

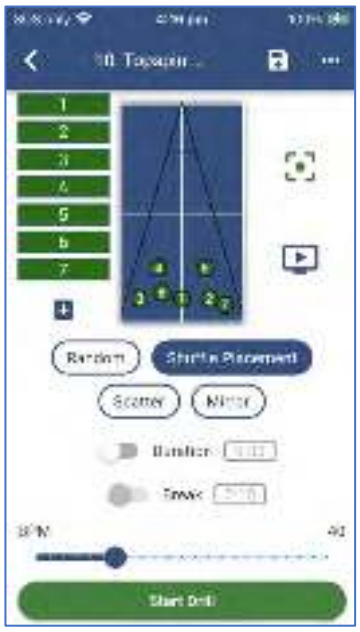


Figure 3-52

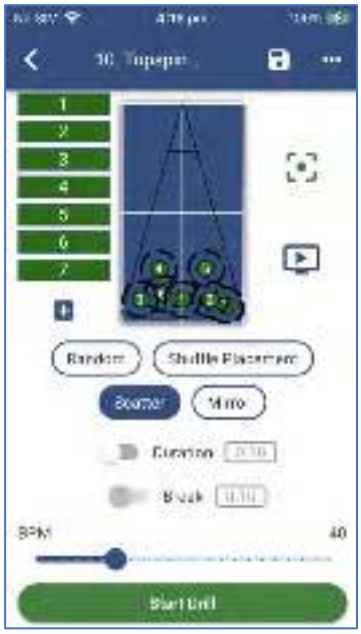


Figure 3-53

Note: When using the Scatter mode, it is best not to choose ball placements that are close to the side of the table, end line of the table, or near the table net. Doing so will result in some balls to be placed over the side, over the end of the table or into the net because of the increased area/randomness of the placement for the balls.

3.4.13 Drill Balls Per Minute (BPM)

The BPM slider increases or decreases the rate, or frequency of thrown balls. This control affects all balls thrown for the current Drill and this value is Saved as part of the Drill, when a Drill is Saved. A range of 10 to 120 balls per minute is possible. The set BPM is shown above the right side of the BPM slider. (Figure 3-54)

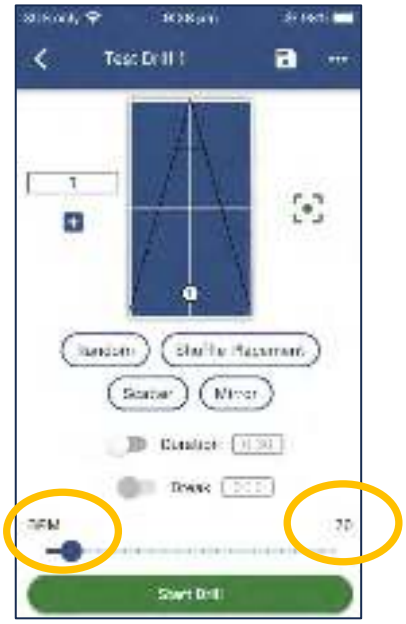


Figure 3-54

3.4.14 Changing Ball Order in a Drill

With any of the Drills in the Omega Application, you can change the order of Balls. This is done from the Drill Edit screen as follows.

1. From the main Drills screen choose the Drill you wish to work with**. For this example, let's use Drill 05. 2 Topspins to BH, 1 Topspin to FH.** (Figure 3-55 and 3-56) Note that Ball 2 is hidden under Ball 1.



Figure 3-55

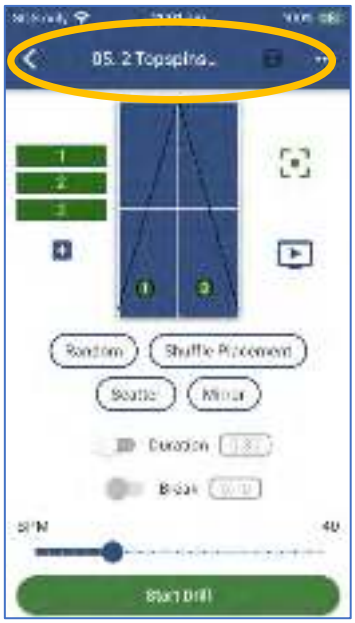


Figure 3-56

2. First, let's set the Placement for Ball 1 a little closer to the net. Do this by dragging Ball 1 so that it looks like Figure 3-57.



Figure 3-57

3. Now, let's change the order of Ball 1 and Ball 2 by dragging the **Ball Selector** for Ball 2 to the top of the list of Ball Selectors. Your screen should now look like what's shown in Figure 3-58, and you have successfully changed the order of Balls in a Drill.

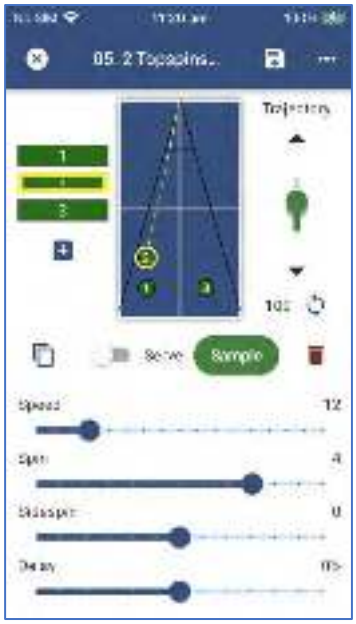


Figure 3-58

3.4.15 Sharing Drills with Power Pong Omega Users

To Share a Drill with another Power Pong Omega Application user, perform the following.

1. Select/Choose the Drill that you would like to share from the main Drill screen.
2. Touch the "…" menu in the upper right corner of the Drill Edit screen. (Figure 3-59)



Figure 3-59

3. From the menu provided, choose Share. (Figure 3-60)

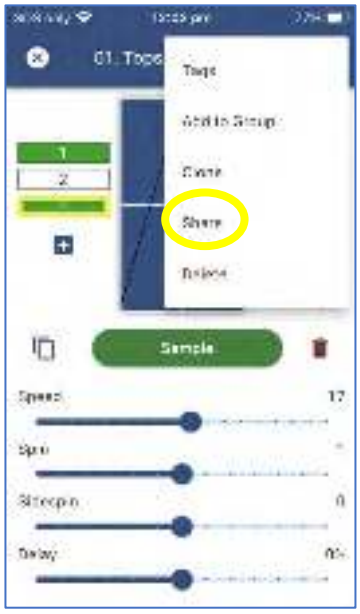


Figure 3-60

4. Your Android or iOS device will prompt you to choose a mechanism/method that your device provides (email, text, etc.) to share it! Choose your preferred method.
5. Enter the appropriate credentials of the user that you plan to share with, and Share!

3.5 Editing Ball Attributes in a Drill

3.5.1 Ball Placement

To change the placement of a Ball, we can simply "drag" the Ball to a different location on the table. Perform the following steps to change (as an example), the placement of a Ball in Drill 13.

1. From the Main Drills screen, scroll as necessary, and choose the Drill named "13. Backspin to BH, Mid, FH", by touching the Ping Pong table under the Drill name. (Figure 3-61)
2. Select Ball 1 by touching the Ball One selector. (Figure 3-62)
3. Using a finger, touch Ball 1 and drag it to a position closer to the center of the table. (Figure 3-63)

   That's all that's required to change Ball placement. As you add Balls to a Drill, you can position them anywhere you'd like, on the table.

Note: Significant placement changes may result in the Speed and Trajectory values changing automatically as the robot attempts to utilize the best settings for the placement you have chosen.



Figure 3-61



Figure 3-62



Figure 3-63

3.5.2 Ball Trajectory

The Trajectory setting raises or lowers the Ball (throw angle). There are two ways to change the trajectory of a Ball. The first is to press either the Trajectory Up Arrow or Trajectory Down Arrow. The second is to drag the Trajectory slider either up or down. Small adjustments to Trajectory are accomplished most easily using the up/down arrows. (Figure 3-64)



Figure 3-64

When you change the placement of a Ball, the trajectory MAY automatically adjust to an estimated value, in order to direct the ball as close as possible to the desired area. **This value is "estimated", so you may need to manually fine tune the trajectory, after Ball Placement changes.**
If you move the slider away from the estimated value, it turns green and leaves a "shadow" behind to show where it was estimated to be. The Trajectory Refresh icon will reset the trajectory back to the original value when clicked.

3.5.3 Speed (Figure 3-64)

The Speed slider, when adjusted, will increase, or decrease the speed of the ball. Adjustments made to Ball speed may require adjustments made to the trajectory in order to achieve the desired placement.

3.5.4 Spin (Figure 3-64)

The Spin slider will increase or decrease the amount of spin on the Ball – either Top-spin or Back-spin. A setting of 0 indicates no spin. Settings to the right of 0 (1 to 7) indicate stronger and stronger amounts of Top-spin. Settings to the left of 0 (-1 to -5) indicate stronger and stronger amounts of Back-spin.

3.5.5 Sidespin (Figure 3-64)

The Sidespin slider will increase or decrease the amount of sidespin on the Ball – either left or right spin. A setting of 0 indicates no Sidespin will be on the Ball. Settings to the right of 0 indicate stronger and stronger right spin. Settings to the left of 0 indicate stronger and stronger left spin.

3.5.6 Delay (Figure 3-64)

The Delay feature is used to increase/decrease the time interval between balls being delivered. The Delay setting allows you to adjust this time (on a ball-by-ball basis). If you feel that the timing between two balls is too short, you can move the slider to the left, to set a negative value, which in effect, reduces the set Ball/min setting (for this ball). This results in a longer delay before the next ball. If you feel that the timing between two balls is too long, you can move the slider to the right, to set a positive value, which in effect, increases the Ball/min setting (for this ball). This results in a shorter delay before the next ball. This can be used as an example, in a drill where you may have a fast serve perhaps followed by a slow lob. When the Delay value is set to 0, there is no change to the delay for the selected Ball.

3.5.7 Designating Balls as a Serve

Ball 1 AND Ball 2 of a Drill have additional functionality and can be designated as a Serve. The Omega robot will automatically "insert" a 2-3 second pause before a Serve ball is delivered, to simulate playing a game with an opponent.

To make Ball 1 a Serve ball, perform the following. (Figure 3-65)

1. Select/Edit the desired Drill.
2. Select Ball 1 of the Drill by touching the Ball 1 Selector.
3. Press the Serve toggle/slider switch so that it is in the ON position. (Figure 3-66)
4. Save the Drill by pressing the Save Drill button.



Figure 3-65

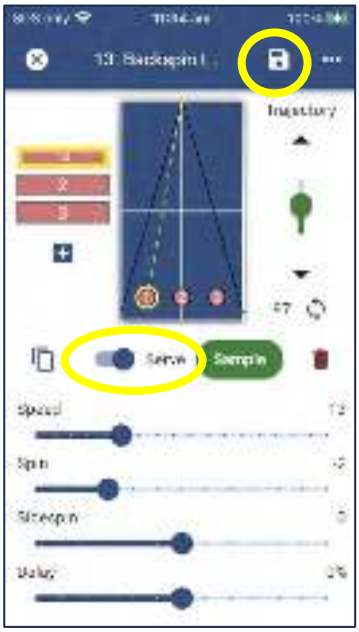


Figure 3-66

If you would also like Ball 2 to be a Serve, Select Ball 2 and press the Serve toggle/slider so that it is in the ON position.

Note: Ball 2 CANNOT be a Serve Ball if Ball 1 is not a Serve Ball.
Note: When saving the Drill, the SERVE designation ON/OFF is saved for Ball 1 and Ball 2.

To turn the SERVE designation OFF, perform the following.

1. From the Drills main screen, select the desired Drill.
2. Select the Ball in the Drill that you wish to remove Serve from.
3. Press the Serve toggle/slider switch so that it is in the OFF position.

3.5.8 Sample Button (Figure 3-67)

Pressing the sample button will cause the selected ball to be delivered once. The Sample button is useful when you are modifying a Drill, perhaps adding a Ball. You can set the Placement and appropriate parameters for the Bal, and then press the Sample button. If you don't like where the ball landed, you

can change the settings for the Ball, and hit the Sample button again. This allows you to tailor each ball to your liking, before running the Drill itself.



Figure 3-67

3.5.9 Copying a Ball

If you have a Ball set up with desired parameters, to save time, you can copy the Ball and move it to another Placement. To copy a Ball, perform the following steps.

1. Select/Edit the Drill of your choice.
2. Choose the Ball that you'd like to duplicate by touching the corresponding Ball Selector. (Figure 3-58)
3. Press the Ball Copy button. (Figure 3-67) A new ball will be added to your Drill with the same parameters as the previously selected Ball.
4. Position the ball as desired.
5. Save the Drill by pressing the Save Drill button.

3.5.10 Removing a ball from a Drill

To remove a ball from a Drill, perform the following steps.

1. Select/Edit the Drill.
2. Select the Ball in the Drill that you wish to remove, by touching the appropriate Ball Selector. (Figure 3-68)
3. Press the Remove Ball Button Icon (Figure 3-68).
4. Save the Drill by pressing the Save Drill button.

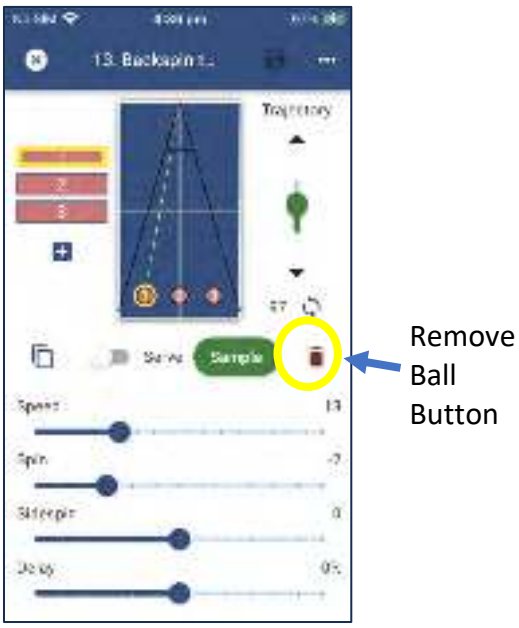


Figure 3-68

3.6 Omega Application Groups

The Power Pong Omega provides an advanced feature called Groups. A Group is a sequence of Drills saved in the Omega application, as one continuous playable exercise. The Omega robot will save up to 10 Groups with up to 32 Drills per Group. This is another extremely powerful feature that clearly sets the Power Pong Omega apart from its competition.

The Applications comes with 2 pre-loaded Groups, one is called **Preset Drills**, and the other is called **Test Drills**. (Figure 3-69)

When a Group is played, one repetition of each Drill stored in the Group is played, and this process repeats in a loop. For example, if Drills 1, 2, and 3 are saved into a Group, one repetition of Drill 1 is played, followed by one repetition of Drill 2, and finally one repetition of Drill 3. The repetition continues looping until the robot is stopped.

Note: Any changes that are made to any Drills that are part of a Group, will be observed when playing the Group or the individual Drill.

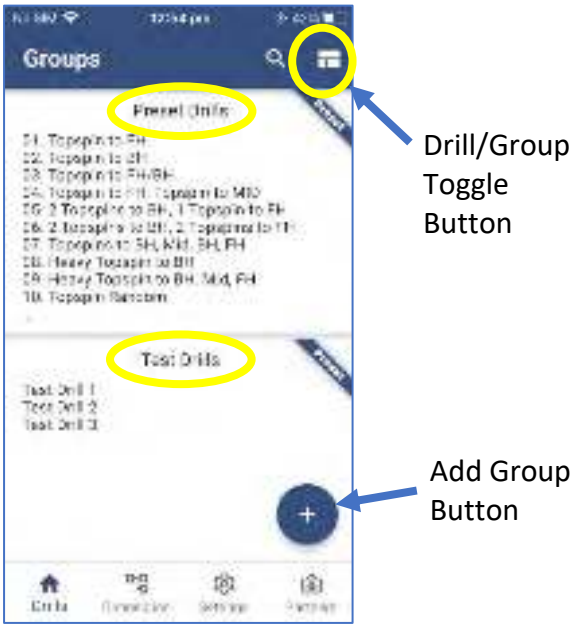


Figure 3-69



Figure 3-70

3.6.1 Creating a New Group

Create a new Group as follows:

1. From the main Drills screen, push the Drill/Group toggle button at the top right corner of the display to switch to the main Groups screen. (Figure 3-69)
2. On the main Groups screen, push the "+", New Group button. You will be presented with a blank slate on which you will build your group.
3. Push the "+" , add Drill button at the top of the screen. You will now see a scrollable list of all available Drills. (Figure 3-70)
4. Choose the Drills that you would like to have in this Group by Pressing the slider switch to enable the Drill.
5. When you've added all of the Drills you intend to have in the Group, push the Confirm button near the bottom of the Add Drill screen. (Figure 3-70)
6. You now have created a Group and can Save it by pressing the Save button at the top of the Group screen.

3.6.2 Adding / Removing Drills to/from Groups

1. Push the Drill/Group Toggle button from the Drills main screen to get to the Group screen. (Figure 3-69)
2. Choose the Group that you would like to modify.
3. To add a Drill to the Group, push the "+" Add Drill button on the top of the screen. You will now see a scrollable list of all available Drills. (Figure 3-71)



Figure 3-71

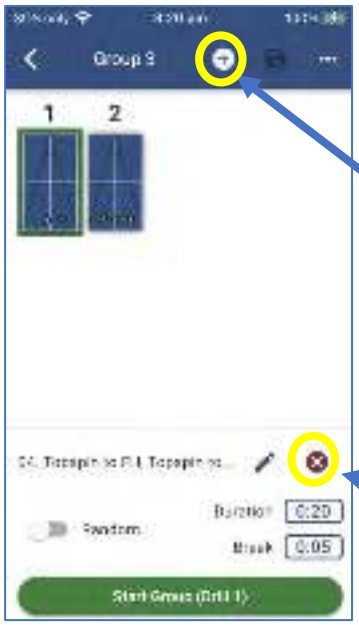


Figure 3-72

4. Press the slider switch for the Drills you wish to have in this Group.
5. Press the confirm button on the bottom of the screen.
6. To remove any Drills from the group, select the Drill and press the Drill remove button. (Figure 3-71)
7. Save the Group by pressing the Save button.

3.6.3 Renaming Groups

1. Touch/press the current Name at the top of the Group Edit screen.
2. Enter a name for your new Group and press Confirm.
3. Push the Save button at the top.

3.6.4 Removing a Group

1. From the Drills main screen, enter Group mode by pressing the Drill/Group toggle button.
2. Select the Group that you want to Remove.
3. Press the "…" menu on the top right corner of the screen.
4. Choose Delete.
5. Press Delete on the pop-up window to confirm.

3.6.5 Playing Groups

1. From the Group screen, select the Group that you want to play by pressing/touching it.
2. Press the Start Group button near the bottom of the screen.

3.6.6 Searching for Groups

1. From the Groups main screen, select the Search button near the top of the screen.
2. Enter your search criteria, as an example – the word Smash.

3. A list of Groups that have a name with the word smash or contain a Drill with a name incorporating the word “smash” or a corresponding tag, will appear.
4. Choose the Group that you wish to play.

3.6.7 Using Random Features with Groups

Random settings that are used in Groups will be available when the Drills become part of a Group as well. If you turn on the Random feature while using Groups, the robot will throw the first ball in a Drill that is part of a Group (which you may configure as a Serve), and the remainder of the balls will be delivered randomly.

Note: As covered previously, designating a ball as a Serve ball, will cause a 1-2 second delay before the ball is thrown, very similar to match play. This function will be utilized in Groups in the same way.

3.6.8 Editing Drills from Within a Group

While playing a Group, if you wish to modify one of Drills that is part of the Group, you can do this without leaving the Group. Perform the following steps:

1. From within the current Group, stop play using the Stop Group button on the Application. (Figure 3-70)
2. Select the Drill that you’d like to edit by clicking on the Drill icon on the Group edit screen. The name of the Drill will be displayed on the lower half of the Group Edit screen.
3. Press the Edit button to the right of the Drill name.

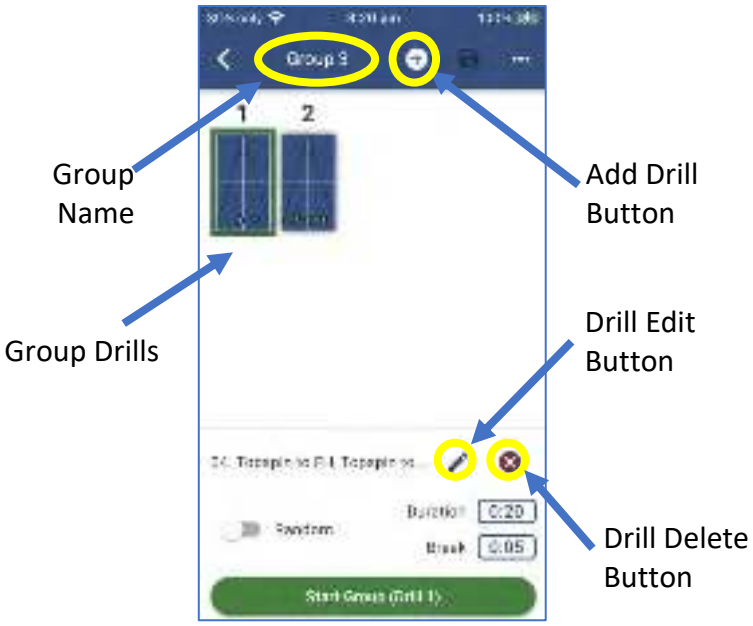


Figure 3-73

4. Make your desired changes to the Drill.
5. Press the Save button at the top of the Drill edit screen and confirm the Save.
6. Press the Back button at the top of the Drill edit screen.

There is no need to Save the Group because we’ve only modified a Drill, not the Group itself.

3.6.9 Removing Drills from Within a Group

While playing a Group, if you wish to modify one of Drills, you can do this without leaving the Group. Perform the following steps:

1. From within the current Group, stop play using the Stop Group button on the Application.
2. Select the Drill that you'd like to edit by clicking on the Drill icon on the Group edit screen. The name of the Drill will be displayed on the lower half of the Group Edit screen.
3. Press the Drill Delete button to the far right of the Drill name.
4. Make your desired changes to the Drill.
5. Press the Save button at the top of the Group screen and Confirm the Save.

3.6.10 Using Duration and Break in Groups

Groups have the Duration and Break features, just like Drills. Each Drill in a Group however contains a unique/separate Duration and Break time values that will be Saved as part of the Group – but those unique/separate values will NOT be passed on and Saved to the Drill itself. When the Group is played, as a result, the Duration and Break values specified on the group page (for each Drill) are used, rather than the Duration and Break values specified and Saved in each Drill.

The Group Duration and Break values are shown in the bottom right of the Group screen. The Duration value will define the length of time the Drill will play, and the Break value will define that amount of time that the Robot pauses before moving on to the next Drill.
When playing Drills through a Group, if the Drill being played takes 60 seconds to complete, but the Group Duration for that Drill is set to 20 seconds, the Robot will only run the first 20 seconds of the Drill, pause for the Group Break time (for that Drill), and then move on to the next Drill. If the next Drill takes 40 seconds to complete, but the Group Duration for that Drill is 10 seconds, the Drill will run for 10 seconds, pause for the Group break time (for that Drill), and then move on to the next Drill. This process is repeated for all Drills in the Group.

3.6.11 Cloning Groups

Just like Drills, you can Clone an entire Group. Perform the following to Clone a Group:

1. Open the Group Edit screen for the Group that you would like to Clone.
2. Press/Touch the "…" menu on the top-right corner of the Group Edit screen.
3. Choose "Clone" from the Menu.
4. Press/Touch the Back Button. In the list of Groups, you will now see a new Group that is a clone of the original.

3.6.12 Sharing Groups with Other Power Pong Users

Just like Drills, you can share an entire Group with other Power Pong Omega users as follows:

1. Open the Group Edit screen for the Group that you would like to Share.
2. Press/Touch the "…" menu on the top-right corner of the Group Edit screen.
3. Choose "Share" from the Menu. Your Android or iOS device will prompt you to choose a mechanism/method that your device provides (email, text, etc.) to share it! Choose that method.
4. Enter the appropriate credentials of the user that you plan to share with, and Share!

3.7 Using the Remote Control FOB

The Omega robot comes with a small wireless Remote-Control FOB (Photo 3-5) which has a range of 4-5 meters (13-16 feet) giving you the ability to start and stop the robot throwing balls without having to press the Start - Stop button on the Application.

The (+) and (–) keys can be used to increase/decrease the Ball/min setting.

You may wish to keep the remote in your pocket to ease the start/stop of balls during Drills.

Note: Drills and Groups when used with the Omega application can only be started on the Android/iOS device. They can be stopped however using the FOB.



Photo 3-5

Section 4 - Maintenance and Troubleshooting

Caution: Before performing any maintenance or repairs, unplug your robot from the wall power source.

Caution: If you observe any exposed wires on the Power Adapter cord/cabling, disconnect from power immediately and replace. Failure to do so could result in serious harm.

4.1 Omega Robot Calibration

The robot is calibrated before it ships from the factory. During shipping or sometimes from continued/normal use, the calibration may need to be redone. If you feel that ball placement is off, first perform a Throwing Head Reset by pushing the button that is on every Drill screen (Figure 4-1). If the reset doesn't help, then calibration may be required. The calibration is performed using **Test Drill 1**. Perform the following steps to Calibrate the Omega Robot.

1. Verify that the Throwing Head Assembly height is at the second ring. (Photo 4-1)

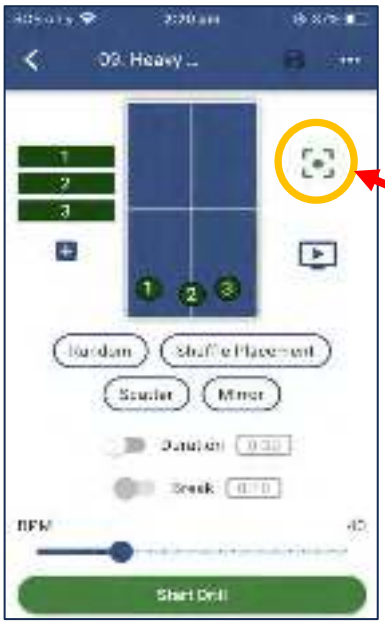


Figure 4-1

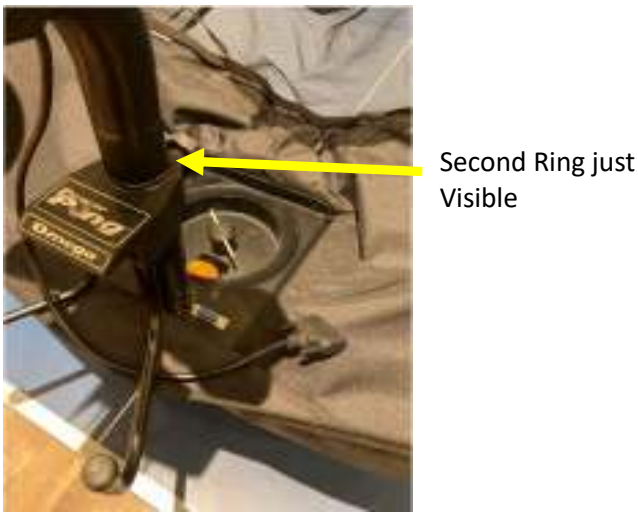


Photo 4-1

2. Select the Drills Screen by pressing the Drills button on the bottom of the Application Main Screen.
3. Scroll nearly to the end of the list of Drills and select Test Drill 1.
4. Move the BPM slider to set the balls per minute to 20 (Figure 4-2).



Figure 4-2

5. Press the Start Drill button. This will trigger the robot to deliver balls down the centerline. The balls should land **approximately** 16" from the end of the table.

Tip: To help determine if the ball is landing at the correct depth, cut out a 1" square piece of paper and lay it on the table 16" from the edge. Do not be concerned about left/right placement – we're just checking throwing distance.

6. Measure the distance. If the distance is > 17" or < 15", continue with the procedure. If the distance is acceptable, no calibration is required.
7. Press the Back button (Figure 4-2) to return to the Main Screen AND press Settings to open the Setting screen.
8. Press Robot Calibration on the Settings Screen and you will be shown the Robot Calibration Screen (Figure 3-19). Note that the setting on your screen may be different than what's shown in the Figure.



Figure 4-3

9. The depth of the ball will be affected by both the Speed and the Trajectory. Adjust one or both of those controls until the ball is landing approximately 16” from the end of the table.
10. When you are satisfied with the ball depth, press the Save Calibration button.
11. Press the Back button to return to the Settings screen.

This completes the Robot Calibration procedure.

4.2 Pairing a New Remote FOB

If you must replace your Remote-Control FOB, it will have to be paired with the Omega robot before it will function. To pair the new Remote-Control FOB with the Omega robot, perform the following procedure.

1. Navigate to the Connections screen.
2. Press the down arrow key for the Connected Robot.
3. Press the Pair Remote button to begin the pairing process.
4. Follow the instructions on the screen to complete.

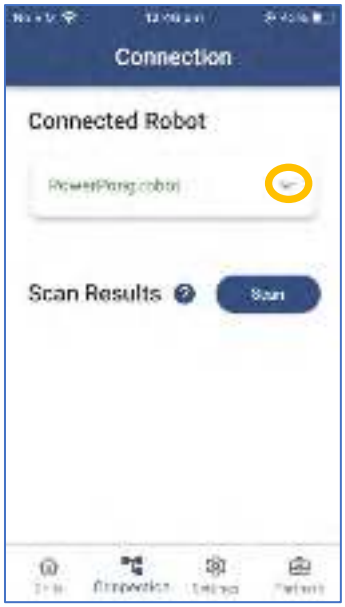


Figure 4-4

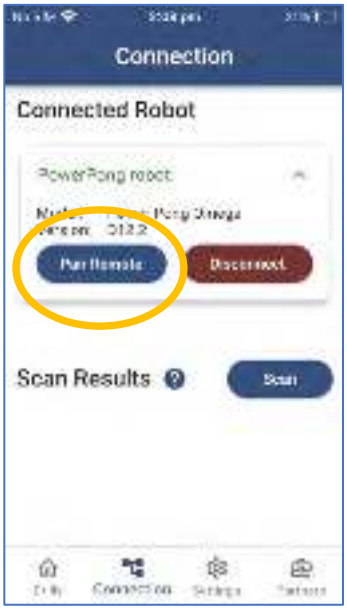


Figure 4-5



Figure 4-6

4.3 General Cleaning of the Omega Robot

For best performance from the Omega robot and for best longevity, the robot must be kept clean. The surface of the Omega Robot may be cleaned with a moist cloth and a mild, water-based cleanser as necessary. Do not expose the Omega robot to excessive amounts of liquid. Do not submerse any part of the robot in liquid.

Note: The Ball Throw wheels have a special coating that prolongs their lifetime. Do not attempt to clean the wheels with any chemical, as chemicals can harm the coating/wheel.

4.4 Deflector Assembly / Deflector Strip Cleaning and Replacement

When the Omega robot throws balls, the balls contact the Deflector Assembly left/right surfaces and the Deflector Strip (Photo 4-2). Over time, dust/debris will build up in these areas and if not cleaned, will reduce accuracy and consistency of the thrown balls. During extended use of the Omega robot, the factory installed white Deflector Strip can develop an indentation or even a hole where the balls repeatedly strike it. At that point the Deflector Strip must be serviced. Perform the following procedures to both clean and service/replace the Deflector Strip.

Photo 4-2



> **Caution:** When cleaning and/or servicing the Deflector Assembly or Deflector Strip, to prevent damaging the Throwing Head assembly, it is critical that the Deflector Assembly is not manually pushed/forced upwards. Always use the robot functionality to move the deflector assembly upwards with the Control Panel Trajectory UP buttons as follows.

4.4.1 Deflector Assembly / Deflector Strip Cleaning

1. Turn the Omega robot ON.
2. Press/hold the Trajectory UP button on the Control Panel, to move the Deflector Assembly to the maximum UP position.
3. Turn the Omega robot OFF.
4. Disconnect the Throwing Head cable that plugs into the Robot Base Assembly.
5. Remove the Throwing Head assembly and lay flat on a work surface.
6. While holding the deflector assembly firmly to minimize movement, clean the Deflector Strip and the Deflector Assembly Left/Right surfaces with a soft cloth. If any dust/debris has hardened, it may be necessary to use isopropyl alcohol to clean along with a plastic scraper.

4.4.2 Deflector Strip Service/Replacement

When the factory installed Deflector Strip becomes worn to the point where there is an indentation or a hole, you can cover the worn Deflector Strip with one of the replacement Deflector Strips that shipped with your robot. There are two types of Deflector Strips provided as spares. The first is a thin, non-sponge-backed strip - which we will use in this procedure. The second, is a thicker, sponge-backed strip identical to what's installed from the factory.

The factory installed sponge-backed Deflector Strip can be covered ONE TIME with the thin non-sponge-backed replacement Deflector Strip. This is a very easy/quick procedure and will provide you with many additional hours of robot usage.

Applying the Thin Deflector Strip

To apply the thin replacement Deflector Strip (Photo 5-2) over the sponge-backed Deflector Strip, perform the following:

1. Turn the Omega robot ON.
2. Press/hold the Trajectory UP button on the Control Panel, to move the Deflector Assembly to the maximum UP position.
3. Turn the Omega robot OFF.
4. Disconnect the Throwing Head cable that plugs into the Robot Base Assembly.
5. Remove the Throwing Head Assembly and lay flat on a work surface.
6. While holding the Deflector Assembly firmly to minimize any movement, clean any dust/debris from the installed Deflector Strip
7. Peel the orange-colored paper backing off the thin replacement Deflector Strip (Photo 4-3).
8. Apply the adhesive side of the thin Deflector Strip directly over the factory installed Deflector Strip (Photo 4-4).



Photo 4-3



Photo 4-4

Photo 4-5



Replacing the Sponge-Backed Deflector Strip

When the thin Deflector Strip that was applied over the sponge-backed/factory installed Deflector Strip becomes worn (indentation or hole), you must remove BOTH strips and apply the replacement sponge-backed Deflector Strip. Perform the following:

1. Turn the Omega robot ON.
2. Press/hold the Trajectory UP button on the Control Panel, to move the Deflector Assembly to the maximum UP position.
3. Turn the Omega robot OFF.
4. Disconnect the Throwing Head cable that plugs into the Robot Base Assembly.
5. Remove the Throwing Head assembly and lay flat on a work surface.
6. While holding the deflector assembly firmly to minimize any movement, remove both Deflector Strips from the Deflector Assembly. The original strip will have to be lifted off the Deflector Assembly carefully. If necessary, use a plastic scraper tool to avoid scratching the metal.
7. Peel the orange-colored paper backing off the sponge-backed replacement Deflector Strip.
8. Press firmly/apply as shown in Photo 5-5, as close as possible to where the old strip was removed.

Photo 4-6



4.5 Throwing Wheel Maintenance

The Omega robot throwing wheels are very durable and typically last for 500-1000 hours. During normal use these wheels will wear. As the wheels wear, the space between the 3 wheels increases, preventing the wheels from properly gripping the ball as it is thrown. An indication that the throwing wheel clearance has increased is when the robot throws balls inconsistently, particularly when throwing at high speed. Use the following procedures to first check the clearance, and then, if necessary, adjust wheel clearance.

When the wheels have worn to the point where they can't be adjusted properly any longer, the wheels must be replaced. All three wheels must be replaced at the same time. Note that the procedure is slightly different for the lower wheel compared to the upper wheels. Perform the procedures as follows.

4.5.1 Checking Throwing Wheel Clearance

1. Using a Power Pong supplied table tennis ball, insert into the space between the 3 wheels (Photo 5-6) and move it in and out. The ball should move in and out of this area with slight contact of the 3 throwing wheels. If there is NO contact with the wheels and/or the ball simply falls into the Ball Feed Tube, wheel clearance adjustment is required.

Note: New robots will have a tight fit. No adjustment is required in that case.



Photo 4-7

4.5.2 Adjusting Throwing Wheel Clearance

Perform the following procedure for wheel adjustment.

1. Use the supplied 4 mm hex wrench, slightly loosen the adjustment screw for each of the 3 motors so that the motors can be moved by hand, but not loose enough so they move without your assistance. See Photos 4-8 through 4-10.



Photo 4-8



Photo 4-9



Photo 4-10

2. Using a table tennis ball, adjust/slide the 3 motors consistently to decrease the gap between the wheels. The ball should pass through the opening while touching the surface of the 3 wheels and requiring a small amount of pressure to pass through the wheels and drop down into the Ball Feed Tube.
3. Tighten the 4 mm adjustment screw for all 3 motors. Retest and re-adjust if necessary.

4.5.3 Lower Wheel Removal / Replacement

1. Using the 2 mm hex wrench, loosen but do not remove, the small setscrew that holds the wheel onto the shaft of the motor (Photo 4-11).



Photo 4-11

2. Note how far the wheel was previously slid onto the motor shaft, and then slide the wheel off the motor shaft.
3. Slide the new replacement wheel onto the motor shaft positioned similarly to the wheel that was previously removed and slightly tighten the setscrew.

4. Manually spin the wheel and ensure that it's not rubbing on any surface. If it is rubbing, loosen the setscrew and slightly move the wheel's position on the shaft. Slightly tighten the setscrew and test again to be sure that the wheel no longer rubs on any surface.
5. When the wheel spins without any rubbing, tighten the screw securely.

4.5.4 Upper Wheels Removal / Replacement

The upper wheels are removed and replaced in a slightly different fashion, due to the proximity of the Head Panel and the Oscillation & Trajectory Motor Cover. Follow the procedure below for both upper wheels, however, do one wheel at a time.

1. Remove the throwing head assembly and carefully lay on a work surface.
2. Remove the two Phillips screws that hold the **upper left** motor cover in place and remove motor cover. (Photo 4-12)

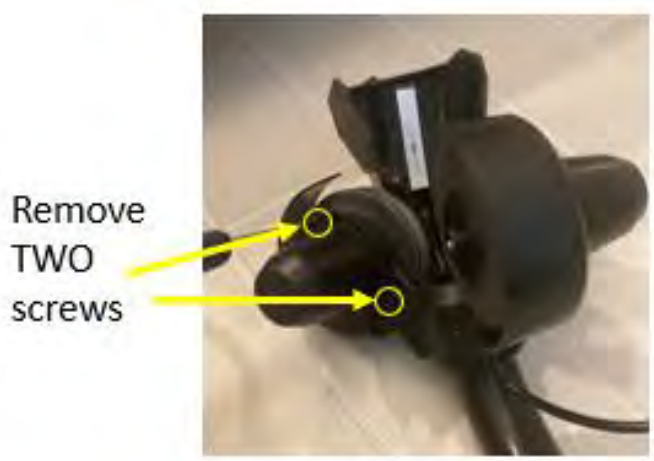


Photo 4-12

3. Remove the Phillips screw and the hex bolt to remove the motor from its mounting location. (Photos 5-12 and 5-13). Note the position of the rubber band securing the motor signal wires. Be careful not to stretch/stress the cable between the motor and the throwing head.



Photo 4-13



Photo 4-14

4. Using the 2 mm hex wrench, loosen but do not remove, the small setscrew that holds the wheel onto the shaft of the motor (Photo 5-10)
5. Note how far the wheel was slid onto the motor shaft, and then slide the wheel off the motor shaft.
6. Slide the new replacement wheel onto the motor shaft positioned similarly to the wheel that was previously removed and slightly tighten the setscrew.
7. Manually spin the wheel and ensure that it's not rubbing on any surface. If it is rubbing, loosen the setscrew and slightly move the wheel's position on the shaft. Slightly tighten the setscrew and test again to be sure that the wheel no longer rubs on any surface.
8. Remount the wheel assembly onto the throwing head assembly.
9. Replace the motor cover on the motor assembly.

4.6 Robot Base Assembly / Lower Ball Feed Path Cleaning

If dirt, debris, hair, etc. has dropped down into the Lower Ball Feed Path, it will have to be opened and cleaned. Perform the following steps.

1. Remove the robot main circuit board (Section 4-8).
2. Set the robot up on the base.
3. Remove the Throwing Head Assembly from the Robot Base Assembly and set securely on the work surface.
4. Separate the Velcro net from the Robo t Base Assembly and secure the Velcro out of the way so that you have access to the top of the robot base. (See Photos 4-15 and 4-16)



Photo 4-15



Photo 4-16

5. Remove **16** screws from the top of the robot base as shown in Photos 4-17 through 4-20.

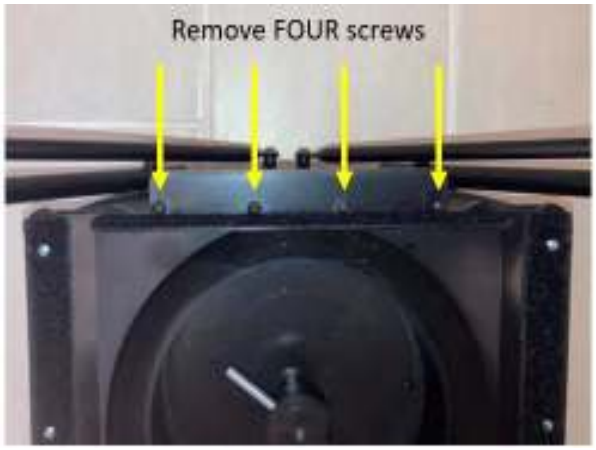


Photo 4-16

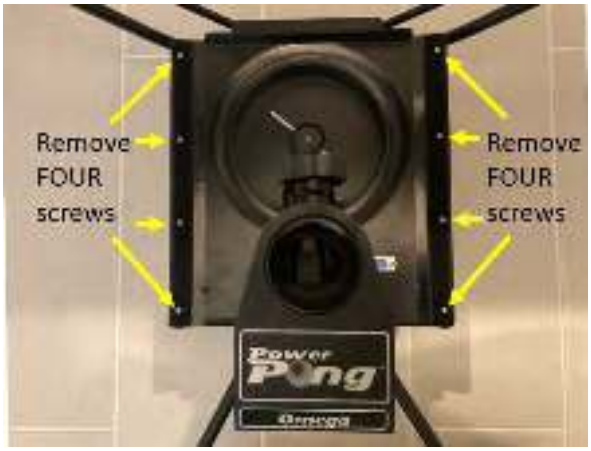
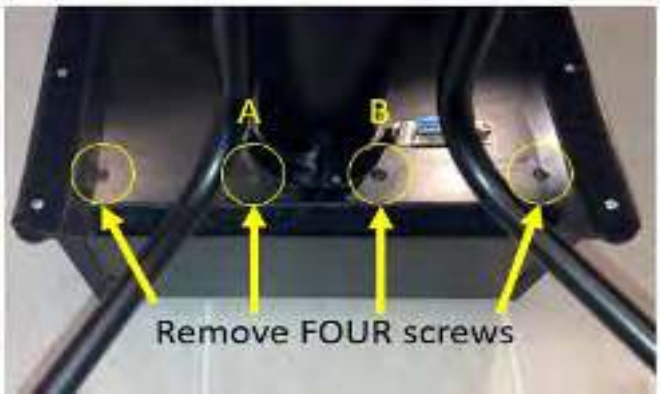


Photo 4-17



Note: For the two inner screws (A and B), use a short screwdriver to avoid stripping the screw heads.

Photo 4-19

6. After removing all 16 screws, gently lift to separate the upper portion of the robot base with the throw arm mounting assembly from the lower robot base. (Photos 4-20 and 4-21)



Phot

Photo 4-20



Photo 4-21

7. Remove any balls in the lower portion of the robot base.
8. Inspect/clean the lower portion of the robot base of any debris, dust, foreign objects, etc. as needed.
9. Examine the feed motor assembly and the gear assembly. Clear/remove any debris, dust, dirt, foreign objects, etc. (See photo 5-20)
10. When all assemblies are cleaned appropriately, re-assemble in reverse order.

> **Caution:** Do NOT use a powered screwdriver as you re-insert the screws. The screws are inserted into plastic which can be damaged if screws are overtightened. To avoid stripping the plastic, only use hand screwdrivers.

4.7 Replacing the Battery in the Remote-Control FOB

The Remote-Control FOB is powered by two 3V CR2016 button cell batteries. If the Remote-Control FOB stops working, it's likely that the batteries will need to be replaced. Perform the following steps:

1. Open the remote by inserting a coin or flat blade screwdriver in the slot located on the wide end of the Remote and twisting to open. Separate the halves of the remote. See Photo 5-21 and 5-22.



Photo 4-22



Photo 4-23

2. Remove the circuit board containing the batteries from the rubber button pad.
3. Carefully slide the battery holder with the batteries away from the circuit board.
4. Remove the two old batteries from the battery holder and discard the batteries. KEEP THE BLACK BATTERY HOLDER. See Photo 4-24.



Photo 4-24

5. Insert two new batteries with the positive side (+) of both batteries facing up into the battery holder as shown in Photo 4-25.
6. Reinsert the battery holder into the circuit board. Orient as shown in Photo 4-26.
7. Reinsert the circuit board into the rubber button pad. (Photo 5-26)
8. Reinsert the rubber button pad with circuit board and batteries into the top housing of the remote control with the battery side up. (Photo 5-27)



Photo 4-25

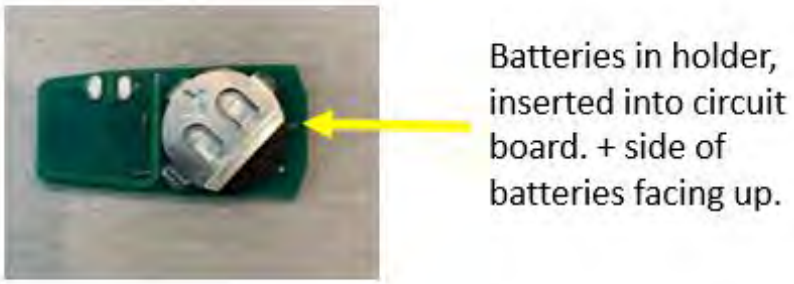


Photo 4-26



Circuit board with new batteries (in holder) inserted into rubber button pad.

Photo 4-27



Rubber button pad with circuit board and batteries inserted into FOB base.

Photo 4-28

9. Position U-shaped handle as shown in Photo 4-28.
10. Place the other half of the plastic fob housing on top and press the top and bottom housings together, starting at the narrow end and working your way to the wide end until the housings snap in place.

4.8 Replacing the Robot Main Circuit Board

If the robot does not function and all other possible causes (See Troubleshooting) have been eliminated, the main circuit board in the robot may have to be replaced. Perform the following steps.

1. Access the front panel of the robot. You can identify the front panel by the 4 Phillips screws and the orientation to the robot legs and Ball Feed Tube.
2. Remove the four Phillips screws (Photo 4-29).
3. The circuit board is held in place with one Phillips screw. Remove that screw (Photo 4-30).



Photo 4-29

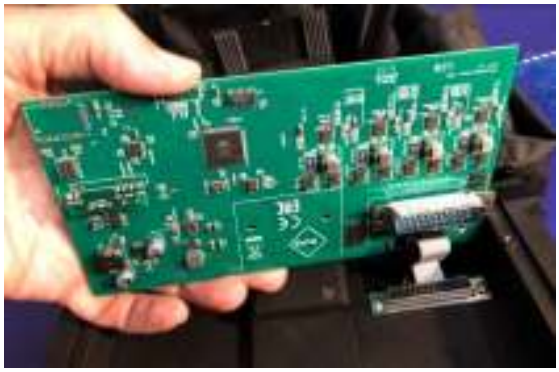


Photo 4-30

> **Caution:** To avoid static electricity damage to the circuit board, avoid touching any components or circuit runs on the circuit board. Only touch the outside edge of the circuit board.

4. Gently raise the circuit board from its mounting. This step will disconnect the 25 pin D-Connector shown in Photo 4-31. Grasp the circuit board by the edges only to avoid static damage to components.

Photo 4-31



5. Unplug the flat ribbon cable from the circuit board as shown in Photo 4-32 and 4-33.



Photo 4-32



Photo 4-33

6. Install the replacement circuit board by first reconnecting the flat cable to the connector on the circuit board. See Photo 4-32.
7. Set the circuit board into place by lining up the 25 pin D-Connector and gently pressing into position.
8. Install the screw (removed previously) that holds the circuit board in place. (See Photo 4-30)
9. Reinstall the panel (removed previously) and secure with 4 previously removed screws (Photo 4-29).

4.9 Typical Replacement Parts

Visit www.powerpong.org for an online listing of parts that can be ordered. Contact Power Pong support to order and/or for any parts that are not listed. Below are common replacement parts.

1. Power Adapter
2. Throwing Disks/Wheels
3. White Deflector strips (both Sponge-backed and non-Sponge-backed)
4. Black replacement rubber bands for attaching collection net sides to table net supports.
5. Throwing Height Adjustment Knob

4.10 General Troubleshooting

PROBLEMS	POSSIBLE SOLUTIONS
Ball Throwing Head or Support Legs point towards back of robot.	Loosen the Throwing Height Adjustment Knob on the rear of the Ball Feed Tube Locking Assembly, then rotate head 180° so head points away from net. Grasp Support Legs and rotate them away from net (See Section 2 of Omega User Manual).
Application starts but no balls are thrown.	Press the Start Drill button to start ball delivery.

Balls thrown to wrong location.	Are there rubber bands around the Deflector? If yes, remove the bands so Deflector Plate can move freely. Those parts are used only during transport. Verify deflector plates are clean and there is no build-up (side or top). See Omega User Manual, Section 5. <u>Verify that all connecting cables are plugged in securely/completely</u>. • Disconnect AC power source. • Disconnect the Throwing head cable. Verify sure that 15 pins are present and that no pins are bent/damaged. Reconnect and securely by tightening thumbscrews. • Reconnect AC power.
Balls thrown at irregular depths.	Check throwing wheel clearance. (Omega User Manual, Section) • If throwing wheels are worn, replace all 3 wheels. (Omega User Manual, Section 5) • Clean White Strip on Deflector Plate with isopropyl alcohol. Replace if worn. (Omega User Manual, Section 5)
Double throws or missed throws.	Head height improperly adjusted. Must be locked in place with ring just above lock point. (Omega User Manual, Section 2)
Random functions on the Application do not activate.	Random modes other than Scatter require 2 or more Balls in the Drill.
Balls get stuck between the ball throw discs.	Turn off power and remove the ball(s). If balls continuously become stuck, there may be a bad Ball Throw Motor.
Balls are thrown with slight left/right spin, with controller set to no spin.	Perform Calibration procedure.

Note: If you are not able to solve a problem with the help of this Troubleshooting guide, please contact Power Pong support for additional assistance. Refer to Section 1.4.