

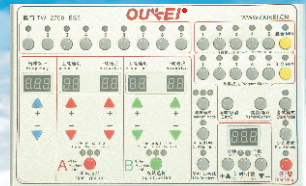


乒乓球发球机  
Serving Robot For Table Tennis  
使用手册  
Instruction Manual



**OUKEI®**

**TW-2700-ES9**



**HTTP://WWW.OUKEI.CN**  
**MADE IN CHINA**

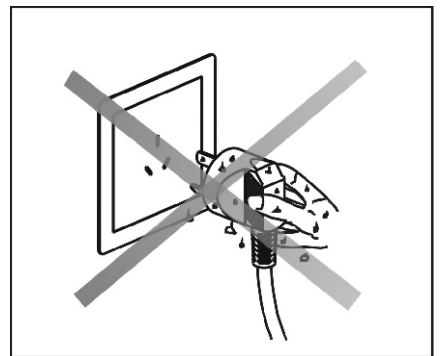
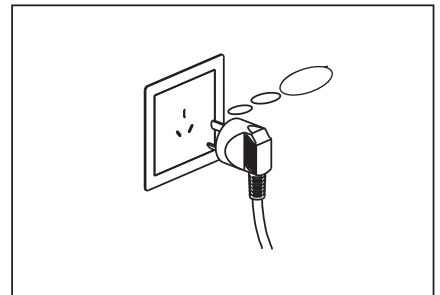
使用前请阅读此手册  
Please read this manual before operation

## Statement

1. Please read this manual carefully before you start operating the machine.
2. If you encounter problems, contact your supplier or our Product Support Department.
3. The company is not liable for any legal responsibility for any failure or damage due to improper use or handling of the machine.
4. The warranty does not cover any failure or damage due to improper operation, disassembling, or remodeling of the machine.
5. The manual cannot be copied and downloaded without our permission.
6. We reserve the rights to make any changes or modifications to the machine as well as the attachments without further notice.
7. Only 40 mm+ table tennis balls with international standard of one star or above should be used for the robot.

## Warnings

- ★ Make sure the local voltage is:  
AC100V~240V,50/60Hz .
- ★ Do not plug in with wet hands as device may short circuit.
- ★ The power plug should be properly grounded to ensure safe operation.
- ★ Please disconnect the power supply when machine is not in use or during unfavorable weather conditions.
- ★ If abnormal conditions occur, please disconnect power supply and unplug the power socket of the machine. Contact your supplier or our product support department to rectify the problem before the machine restarts.
- ★ Please keep away from the serving head when Start/Stop is pressed. Balls served will cause physical damage to your body if you are close to the serving head.



Reminder: Please read the manual carefully prior to any operation to ensure the machine is operated safely, accurately and efficiently.

## Basic Features And Functions of The Robot

The robot is made of dual serving heads with double spin technology. Dual serving heads allow players to choose top spin and under spin simultaneously. Double spin technology ensures different degrees of speed, curve and spin are served. The swivel serving head moves from left to right under digital control, which causes the serves to land on the table more accurately as desired. The user friendly control panel, along with the nine serving modes, helps to reveal that the robot is by far the most advanced and most powerful table tennis training machine.

### Nine serving modes:

#### 1. Fixed mode

Either Machine head A or B is selected. Various kinds of serves land continuously at one point to be chosen from 1-9 points across the table.

#### 2. Random mode

Either Machine head A or B is selected. Balls land randomly on 1-9 possible points across the table with a choice of landings:

- a. on the entire width of the table (landing points 1-9),
- b. only the left side (landing points 1-5),
- c. only the right side (landing points 5-9).

#### 3. A+B Random mode

Serves are delivered from Machine head A and B, and land randomly on:

- a. 18 possible landing points across the entire width of the table (landing points 1-9),
- b. 10 possible landing points on the left side only (landing points 1-5),
- c. 10 possible landing points on the right side only (landing points 5-9).

*Note: By adjustment of the spin types, curve and delivery sequence of serves for both Machine heads, balls served can be made in various kinds of spin form, landed on the left or right, and in short or long range.*

#### 4. Mix Random mode

When a) either Machine head A or B is selected or b) both Machine heads are selected, Top and/or under spin serves land randomly in a mixture of long range and short range serves across the table with a choice of landings on 1) the entire width of the table, 2) only the left side or 3) only the right side.

#### 5. Built-in combinations mode

Either one of the 5 combinations can be selected to play.

#### 6. Mix Built-in combinations mode

Two or more built-in combinations can be grouped together to make a new combination.

#### 7. Program mode

Either one of the 5 self-programmed combinations can be selected to play.

#### 8. Mix Programmed mode

Two or more self-programmed combinations can be grouped together to make a new combination.

#### 9. Examination mode

Combinations of serves are set in accordance with the 2-level requirements by the Examination Bureau.

### Seven functions

#### 1. Mixed sequence of topspin and under spin serves

Mixture of top spin and under spin serves can be set in a play by setting one of the Machine heads as top spin and the other head as underspin.

#### 2. Self-programmed combination:

A combination of top spin and under spin serves with various landings on the entire table can be programmed as desired by the player. The programmed combination can be restored for replay.

#### 3. Mixed sequence of long range and short range serves

By adjustment of the serving curve for Machine head A and B, mixture of long range and short range serves can be set in a play.

#### 4. Memory function

The most recent settings under both machine heads, along with the mode selected, are restored and can be replayed for repeat training or use.

#### 5. Timer and ball counter

Timer and ball counter allow players to set, by digital display, time or number of balls to be served.

#### 6. Auto-protection

When there are damaged balls or other items that may be blocking the ball running track, the robot will automatically stop to protect and prevent the electronic components from overheating.

#### 7. Factory reset

This function will restore all settings to the factory recommended parameters.

### Eighteen landing points

Machine head A can set 1-9 landing points. Machine Head B can set 1-9 landing points.

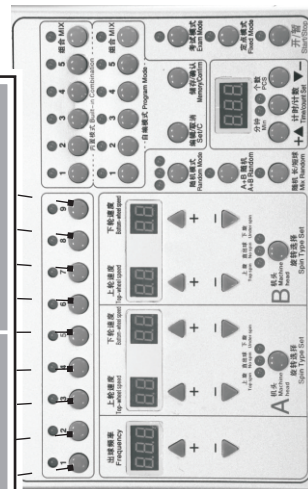
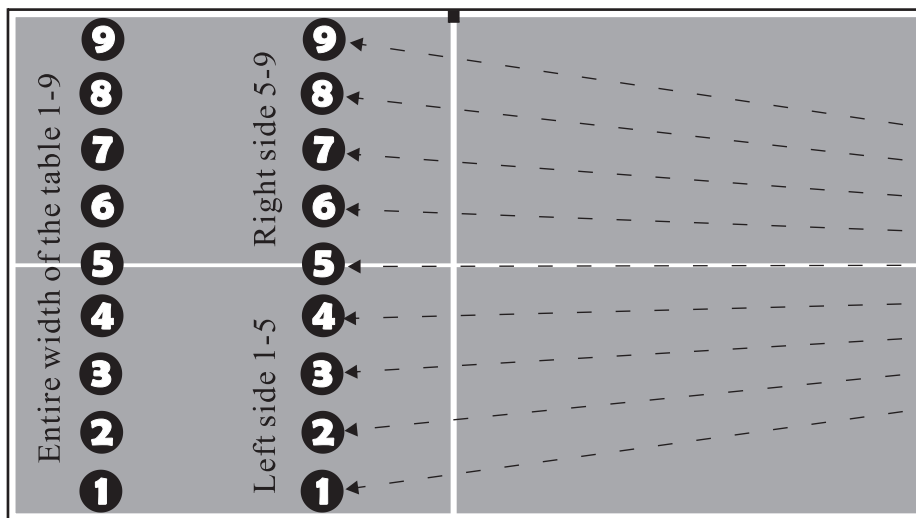
### Nine types of spin

Top spin, under spin, left-side spin, left-side topspin, left-side under spin, right-side spin, right-side top spin, right-side under spin and no spin.



Settings of Top Spin, Under Spin And Landing Points for Machine Heads A & B

1. Frequent changes of spin type settings for both Machine heads may cause inaccurate serving landings. It is recommended that the top spin be set under Machine head A and under spin be set under Machine head B.
2. By adjustment of the serving curve for both Machine heads, long range and short range serves can be achieved.



Control Panel

(Landing points) ← Machine Head A → ← Machine Head B → (Landing points)  
 Top spin Under spin Table tennis table

Factory Reset And Recommended Factory Parameters

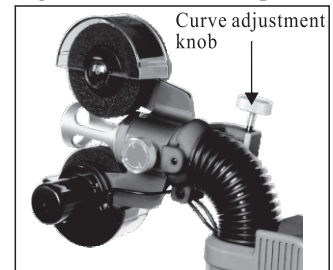
Spin Type	Machine Head A		Machine Head B		Serving Frequency	
	Top-wheel speed	Bottom-wheel speed	Top-wheel speed	Bottom-wheel speed		
Factory Reset	Top spin	3.5	1.0	3.5	1.0	50
	No spin	3.5	1.5	3.5	1.5	50
	Under spin	0.7	3.5	0.7	3.5	50
Recommended Parameters	Top spin	3.5~9	0.5~2.0	/	/	45~80
	Under spin	/	/	0.5~2.0	3.5~8.5	40~60
	Left-side top spin	3.5~9	0.5~2.0	/	/	45~80
	Right-side top spin	3.5~9	0.5~2.0	/	/	45~80
	Left-side under spin	/	/	0.5~2.0	3.5~8.5	40~60
	Right-side under spin	/	/	0.5~2.0	3.5~8.5	40~60

**Hints:** Please use the Factory Reset Parameters when using the robot for the first time. Press *Start/Stop* to confirm and operate. Players can adjust and set the parameters based on their level of technique.

## Serving Curve Adjustment

When the level of top-wheel speed or bottom-wheel speed is adjusted too high or too low, the serves may fall out of bounds or into the net. Adjustment of the serving curve is then required.

1. a) When serves fall into the net, turn the curve adjustment knob clockwise to get a higher curve.  
b) When serves fall out of bounds, turn the curve adjustment knob counter-clockwise to lower the curve.
2. The robot is of double spin technology on which different spin types and levels of serving speed and spin can be set. Players can adjust the serving curve to get the serve landings as desired.

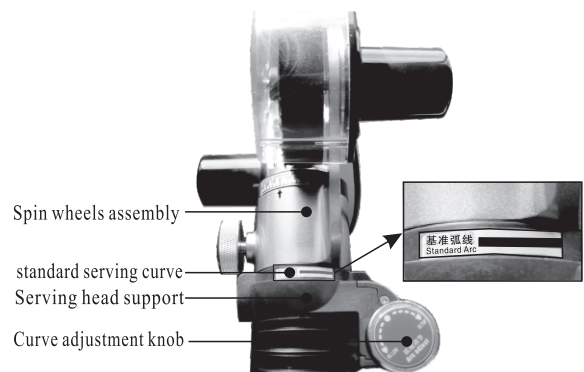


## Setting of The Standard Serving Curve

The standard serving curve refers to the setting under factory preset position of the curve adjustment knob.

When the standard serving curve is required under certain modes, there are 3 ways to set:

1. On top of the end of the spin wheels assembly, there is a label, on which the line for the standard serving curve is printed (see the picture on the right). Turning the curve adjustment knob will make the spin wheels assembly move slightly upward and downward. When the spin wheels assembly moves to the position where the line on the label is exactly under the rim of the serving head support, the standard serving curve is obtained.



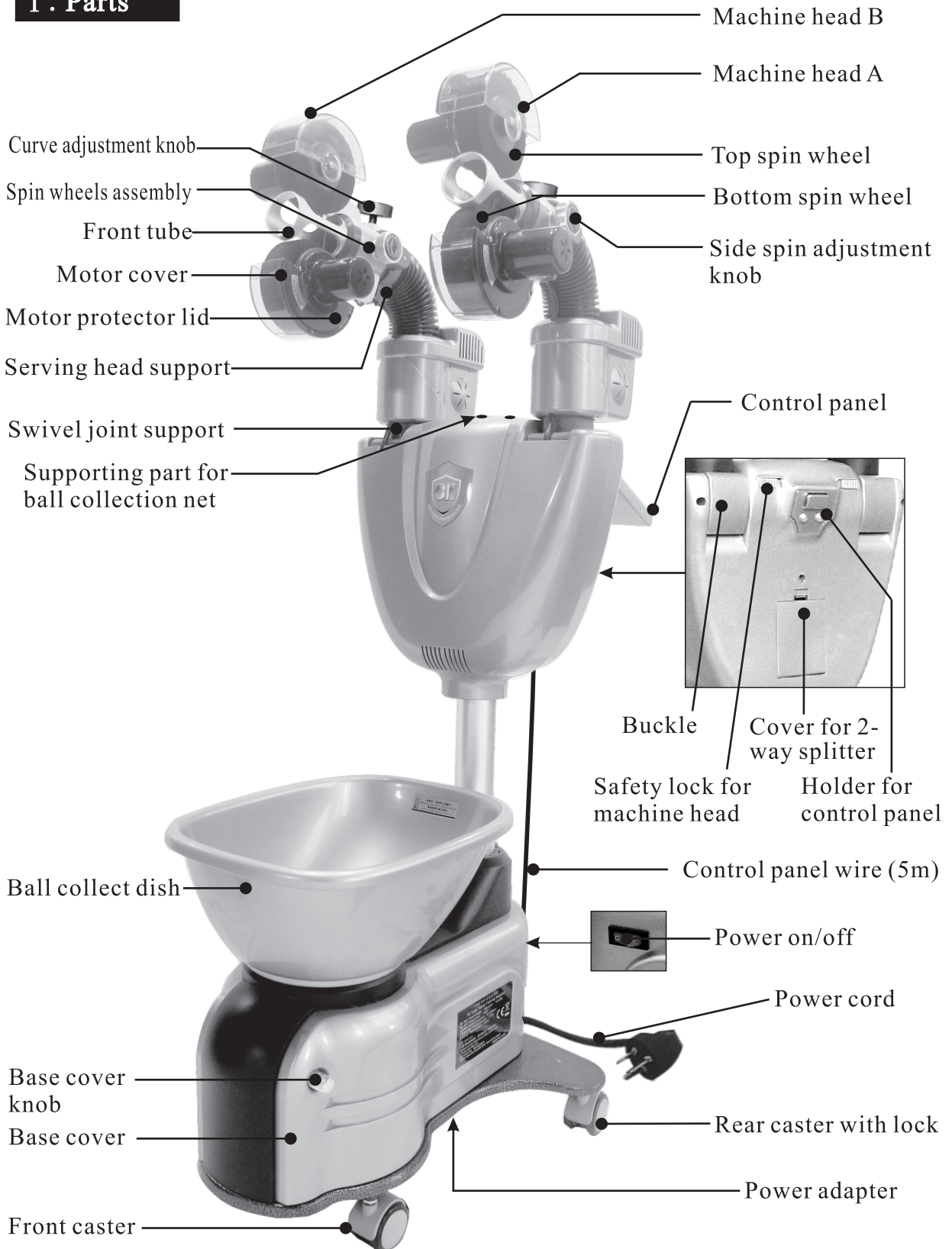
2. a) Press the button for **Fixed Mode**, the light for which will turn on.  
b) Select Machine head A or B and the corresponding light will turn on.  
c) Press the button for **Spin Type Set** until the light for 'No spin' turn on.  
d) Press the button for **Start/Stop** and the robot starts. While the balls are being served, turn the curve adjustment knob to adjust the landing of the serves reaching 1/3 of the shortest length from the end of the table at the player's side to the middle net. This is the setting for the standard serving curve.
3. a) Restore to the factory reset (see chapter for Factory Reset)  
b) Press the button for **Fixed Mode**, the light for which will turn on.  
c) Select Machine head A or B and the corresponding light will turn on.  
d) Press the button for **Spin Type Set** until the light for 'Top spin' or 'No spin' turn on.  
e) Press the button for **Start/Stop** and the robot starts. While the balls are being served, turn the curve adjustment knob to adjust the landing of the serves reaching 1/3 of the shortest length from the end of the table at the player's side to the middle net. This is the setting for the standard serving curve.

**Table of Contents**

---

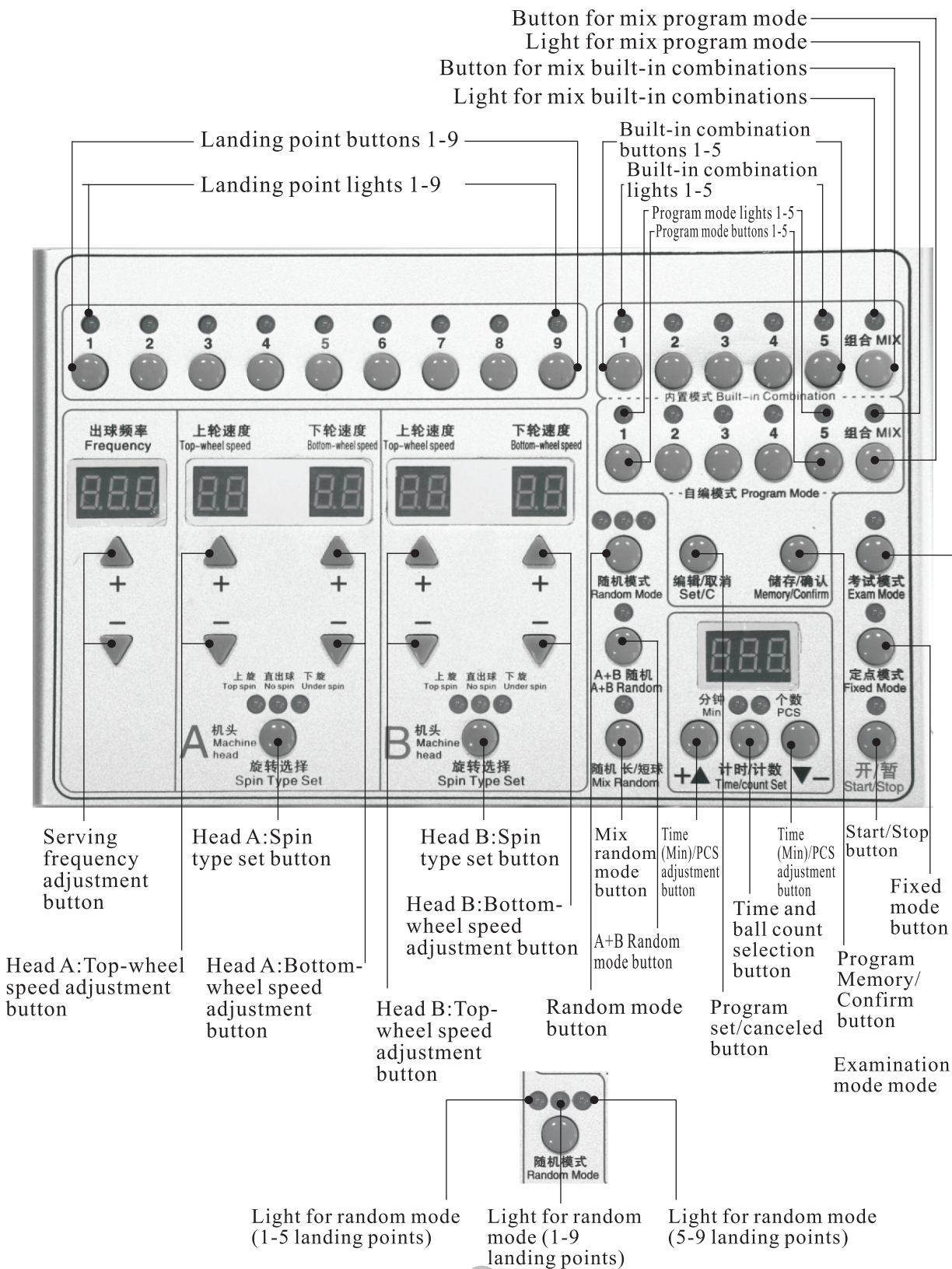
I . Parts .....	7
II. Functions of The Control Panel .....	8
III. Installation .....	9
IV. Installation of The Ball Collection Net .....	10
V. Start And Stop for The Robot .....	11
VI. Functions And Use of The Control Panel	
(1) Start And Stop .....	12
(2) Adjustment of Serving Frequency .....	12
(3) Selection of Spin Type and Adjustment of Spin Speed .....	12
(4) The Setting of Fixed Mode .....	13
(5) The Setting of Random Mode .....	14
(6) The Setting of A+B Random Mode .....	14
(7) The Setting of Mix Random Mode .....	15
(8) The Setting of Examination Mode .....	15
(9) The Setting of Built-in Combination Mode .....	16
(10) The setting of Mix Built-in Combination Mode .....	16
(11) The Setting of Program Mode .....	17
(12) The setting of Mix Program Mode .....	17
(13) The setting of Combination of Serves .....	18
(14) Timer And Ball Counter .....	19
(15) Factory Parameters Reset .....	19
VII. The Setting of Side spins .....	19
VIII. Capacity of Ball Collection Dish .....	19
IX. Adjustment And Replacement of Spin Wheel .....	20
X. Fuse Replacement .....	21
XI. Fixing A Jam .....	21
XII. Troubleshooting .....	22
XIII. Maintenance .....	22
XIV. Auto-correction of Serve Landings .....	22
XV. Features and Parameters .....	23

I . Parts

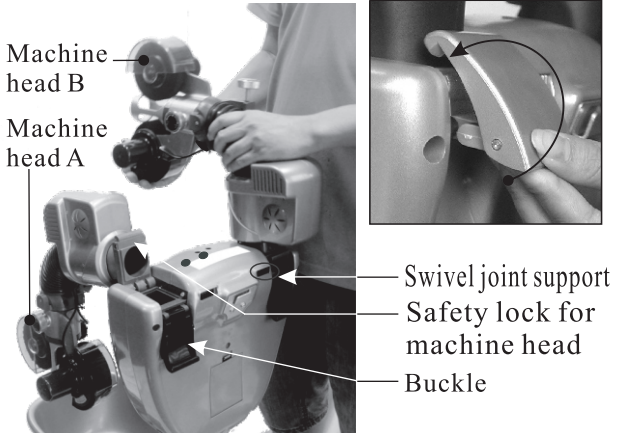
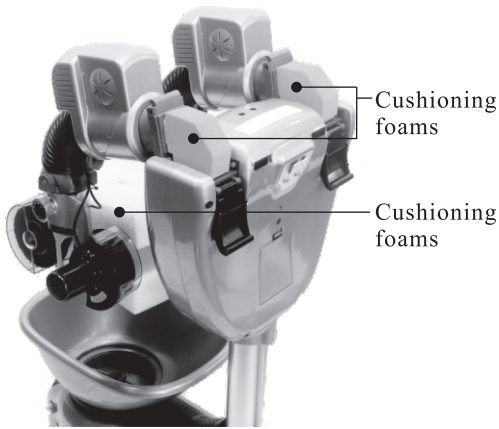




## II. Functions of The Control Panel

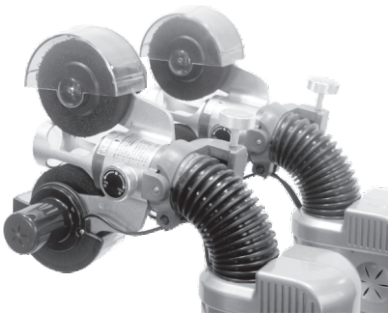


## III. Installation



1. Open the carton, remove the packaging foam and place the robot gently on the ground. Remove the transparent plastic bag and the cushioning foams for the machine heads and the swivel joint support.

2. Gently lift the machine head B all the way until it is automatically locked. The safety lock will make a click sound indicating the lock is switched to its locking position. While lifting the machine head a little bit further, flip and lift the buckle against the swivel joint support and press downward to have the machine head completely locked.



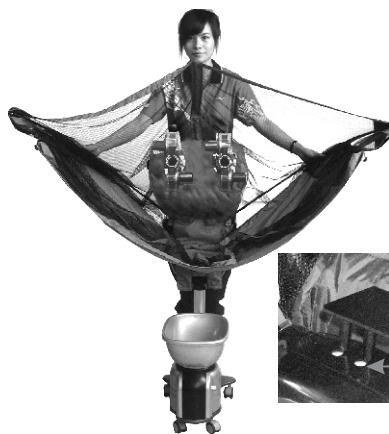
3. Repeat the above step 2 for Machine head A.



## IV. Installation of The Ball Collection Net

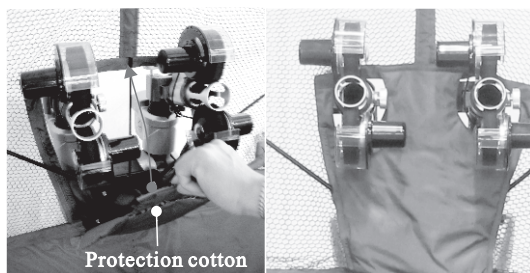


1. Unlock the buckle of the ball collection net.



2. Slightly unfold the ball collection net. Place the hole of the net onto the machine heads. Insert the ball connection net into the net supporting part, where the above small picture indicates.

Supporting part for ball collection net



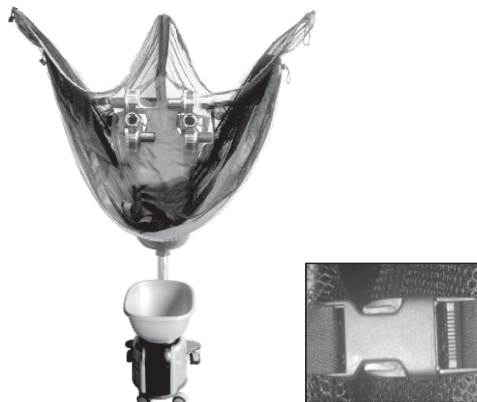
Before fastening

after fastening

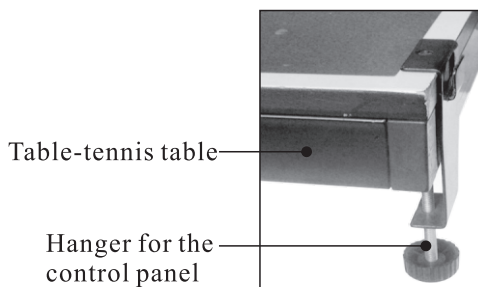
3. Lift the protection cotton of the ball collection net and fasten the Velcro of the cotton to the other side with the corresponding Velcro.



4. Move the robot close to the table and lock the casters. Fasten the Velcro of the ball collection net to the middle net of the table.



5. After use, reverse the previous steps to fold the ball collection net. Lock the buckle, release from the robot and store.



★ The hanger can be placed anywhere at the side of the table. It is more convenient for the players to get access to the control panel when it is attached to the hanger.

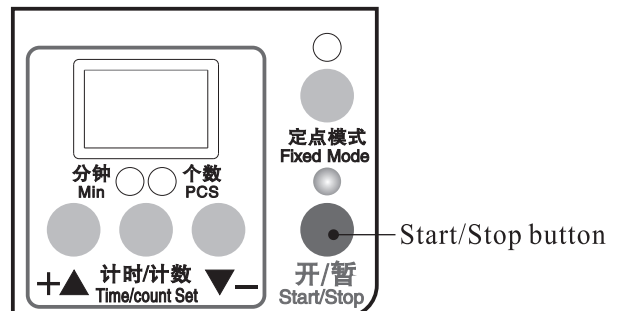
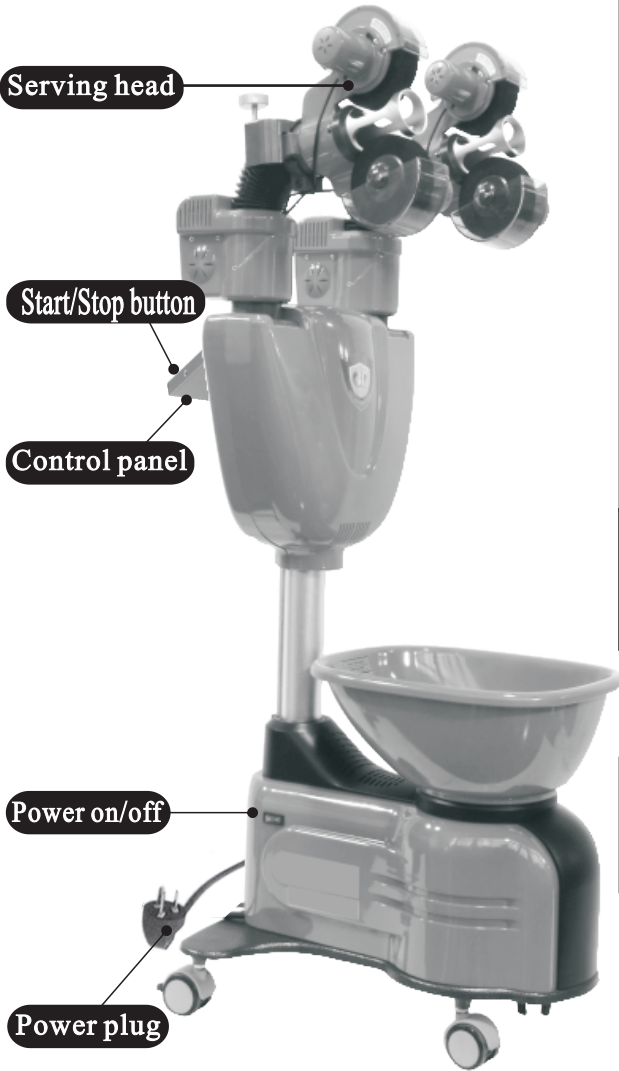
## V. Start And Stop for The Robot

**1** Insert the plug into the power supply. Switch on the robot.

**2** The light for the *Start/Stop* button on the control panel will turn red. One of the function mode lights and one of the landing point number lights will also illuminate. At this moment, set the spin level and serving frequency according to the factory reset and recommended parameters as shown below. Press the *Start/Stop* button. The light will turn green and the robot will start. Balls are served in accordance to the parameters set.

Factory Reset	Spin Type	Machine Head A		Machine Head B		Serving Frequency
		Top-wheel speed	Bottom-wheel speed	Top-wheel speed	Bottom-wheel speed	
	Top spin	3.5	1.0	3.5	1.0	50
	Under spin	0.7	3.5	0.7	3.5	50

**3** Press the *Start/Stop* button once again. The light for which will turn back to red and the robot will stop.

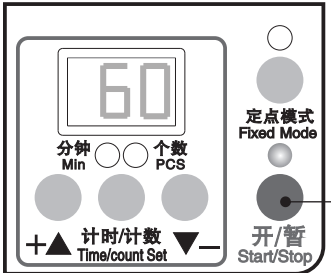


### Caution

1. Please keep away from the serving head when *Start/Stop* button is pressed. Balls served will cause physical damage to your body if you are close to the serving head.
2. Please disconnect the power supply when the robot is not in use.

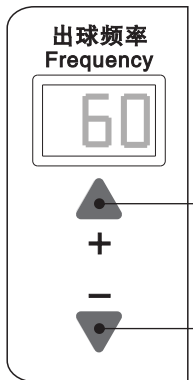
## VI. Functions And Use of The Control Panel

### (1) Start And Stop



- 1 Press the **Start/Stop** button once, the light for which will turn from red to green and the robot will start.
- 2 Press the **Start/Stop** button once again, the light for which will turn back to red and the robot will stop.

### (2) Adjustment of Serving Frequency

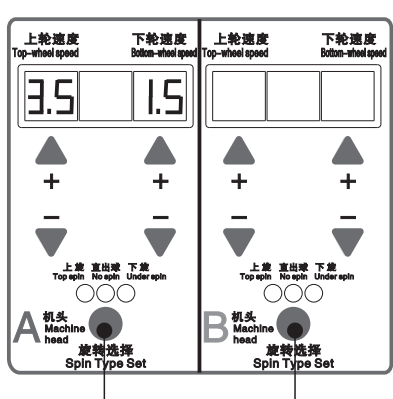


- 1 Press the  $\blacktriangle$  button once, the number on the digital display will be increased by one. One more serve is set per minute. Hold down the  $\blacktriangle$  button and the number on the digital display will quickly be increased until 99.
- 2 Press the  $\blacktriangledown$  button once, the number on the digital display will be decreased by one. One fewer serve is set per minute. Hold down the  $\blacktriangledown$  button and the number on the digital display will quickly be decreased until 30.

Hints: Adjustment of serving frequency can be made whenever the robot is in operation.

*Note: When both machine heads are set for a combination of serves, the frequency of under spin serves is slower than that of top spin serves.*

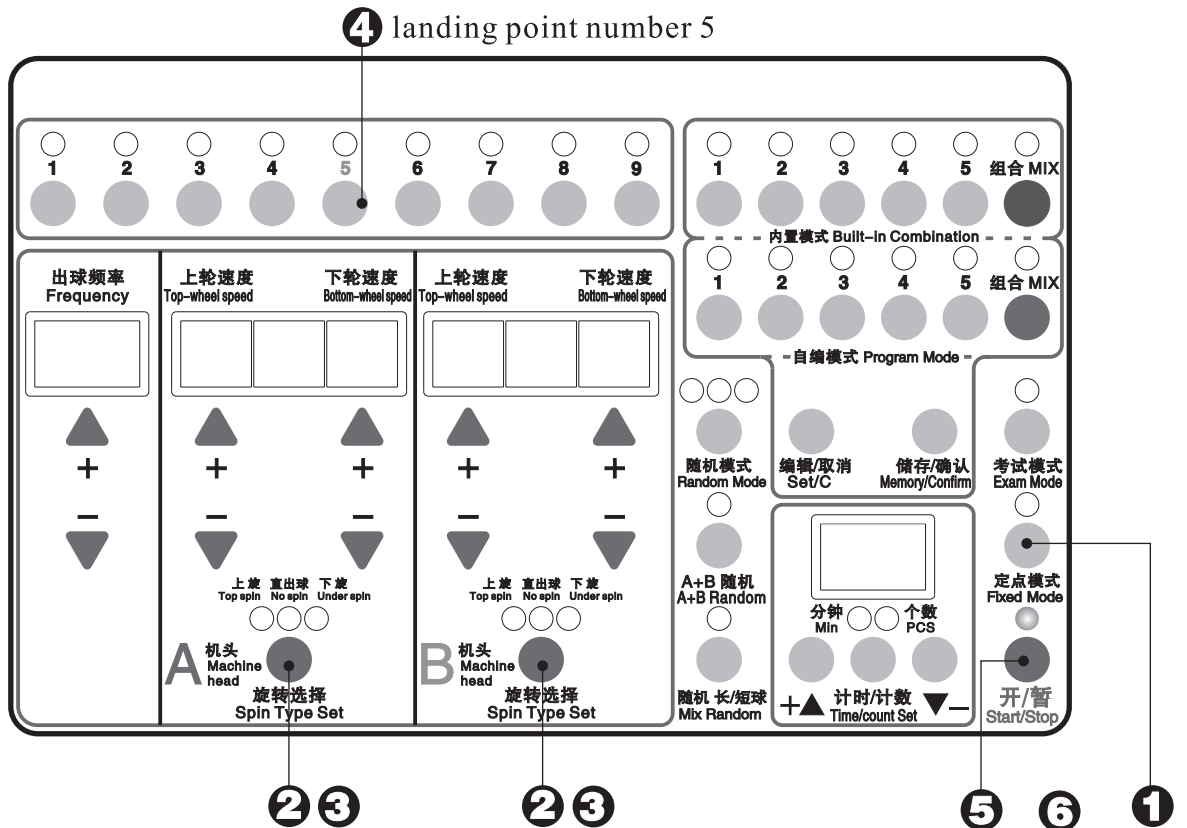
### (3) Selection of Spin Type and Adjustment of Spin Speed



- a) **Selection of the topspin, no spin and under spin**  
Under the Fixed mode or Random mode,
  - 1 Press the **Spin Type Set** button until the Top Spin indication light turns on. Topspin is set and the two numbers displayed denote the levels of top-wheel speed and bottom-wheel speed last set and used.
  - 2 Press again the **Spin Type Set** button once and the light for No Spin will turn on. No spin is set and the two numbers displayed denote the levels of top-wheel speed and bottom-wheel speed last set and used.
  - 3 Press again the **Spin Type Set** button once and the light for Under Spin will turn on. Under spin is set and the two numbers displayed denote the levels of top-wheel speed and bottom-wheel speed last set and used.
- b) **Adjustment of spin speed**  
Press the  $\blacktriangle$  buttons for the top-wheel and bottom-wheel speeds to adjust the levels of the topspin or under spin. The numbers displayed range from 0.5 to 9.9. Hold down the  $\blacktriangle$  or  $\blacktriangledown$  and the number displayed will quickly be increased or decreased respectively. The higher the number, the stronger is the spin speed.

Hints: The adjustment can be made when the robot is in operation or under the Stop mode.

## (4)The Setting of Fixed Mode



- ① Press the **Fixed Mode** button, the light for which will turn on.
- ② Press the **Spin Type Set** button for **Machine head A** or **B** and one of the corresponding lights for **Spin Type Set** will turn on.
- ③ Press again the **Spin Type Set** button to select top spin, no spin or under spin. The corresponding light for the spin type will turn on.
- ④ Press the button for landing point number 5, the light for which will turn on.
- ⑤ Press the **Start/Stop** button to start the robot. Balls will continuously land on the point you have selected.
- ⑥ Turn the corresponding curve adjustment knob to adjust the serves to land closer to the end of the table or closer to the net, as you desire. The Fixed Mode has now been set for the machine head selected. Repeat the above steps 1 to 6 to set the Fixed Mode for the other machine head.

**Hints:** 1. Frequent changes of spin type settings on the two Machine heads may cause inaccurate serving landings when shifting between function modes or programs is made during operation. It is recommended that the top spin be set under Machine head A and under spin be set under Machine head B.

2. Shift between the function modes can be made whenever the robot is in operation.

## (5) The Setting of Random Mode

Before the mode is run, settings of spin type, speed and serving curve must first be set under the Fixed Mode.

- 1 Press the **Random Mode** button once. The middle light for the mode will turn on. Balls reserved will land randomly on 1-9 points across the entire width of the table.
- 2 Press the **Random Mode** button once again, the left light for the mode will turn on. Balls reserved will land randomly on 1-5 points at the left side of the table only.
- 3 Press the **Random Mode** button once again, the right light for the mode will turn on. Balls reserved will land randomly on 5-9 points at the left side of the table only.

Lights for the Random Mode  
When the **Random Mode** button is pressed continuously, the corresponding light for the mode will be shifted in order as follows:  
 → Entire width → Left side only → Right side only →  
 (Middle light) (Left light) (Right light)

- 1 Press the **Random Mode** button to select the serve landings on the entire width of the table, the left side only or the right side only. The corresponding light will turn on.
- 2 Press **Spin Type Set** button for A or B. Machine head A or B is selected and the corresponding light will turn on.
- 3 Press the **Start/Stop** button and the random mode is activated in accordance with the above steps 1 and 2 selected.

## (6) The Setting of A+B Random Mode

Before the mode is run, settings of spin type, speed and serving curve for both machine heads must first be set under the Fixed Mode.

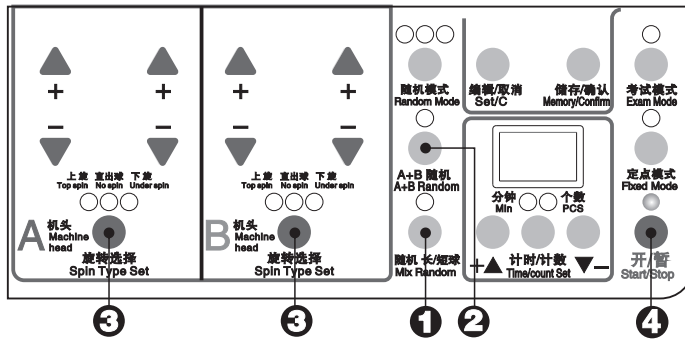
- 1 Press the **A+B Random** button, and the corresponding light and one of the lights for random mode will turn on. Repeat the steps under a) of section (5) to select the serve landings on the entire width of the table, the left side only or the right side only.
- 2 Press the **Start/Stop** button and the A+B Random mode is activated. Top and under spin serves will land randomly on the table in accordance with the serving curve set under individual machine head and the choice selected under the above step.

**Hints:** If the A+B Random button is pressed and the corresponding light for the mode turns off, the mode will automatically be shifted to Random mode.

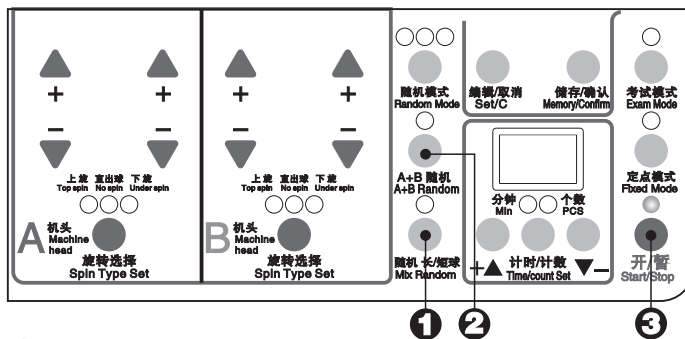


## (7) The Setting of Mix Random Mode

Before the mode is run, settings of spin type, speed and serving curve must first be set under Fixed Mode.



- a) Mix Random Mode for Machine head A or B
- 1 Press the *Mix Random* button. The corresponding light for the mode and one of the lights for the Random mode will turn on. Repeat the steps under a) of section (5) to select the serve landings on entire width of the table, the left side only or the right side only.
  - 2 If the light for *A+B Random* is also lit, press the *A+B Random* button once to turn it off.
  - 3 Press *A* or *B* to select the machine head to be used.
  - 4 Press *Start/Stop* button and the mode is activated. Top or under spin serves will land randomly on the table in long range and short range and in accordance with the choice selected under the above steps 1 and 3.

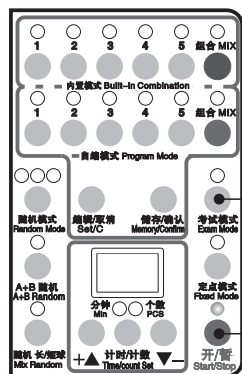


- b) Mix Random Mode for Machine head A & B
- 1 Press the *Mix Random* button. The corresponding light for the mode and one of the lights for the Random mode will turn on. Repeat the steps under a) of section (5) to select the serve landings on entire width of the table, the left side only or the right side only.
  - 2 If the light for A+B Random mode is not lit, Press the *A+B Random* button to turn it on.

- 3 Press *Start/Stop* button and the mode is activated. Top and under spin serves will land randomly on the table in long range and short range and in accordance with the choice selected under the above step 1.

Hints: If the *Mix Random* button is pressed and the corresponding light is not lit, the mode is automatically shifted to A+B Random mode. If the *A+B Random* button is pressed and the corresponding light is not lit, the mode is automatically shifted to Mix Random mode for machine head A or B.

## (8) The Setting of Examination Mode



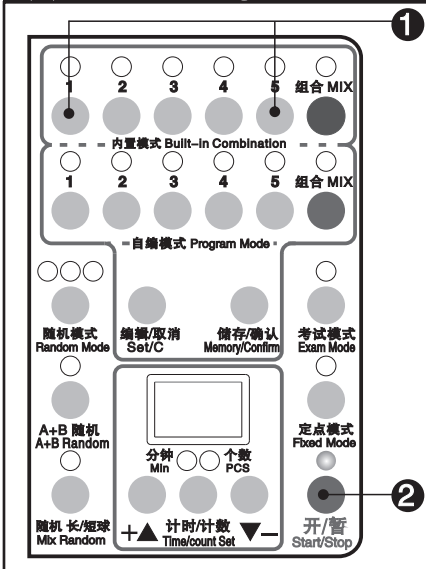
The settings of this mode are based on the contents and time of the course requirement by the Examination Bureau. Two course levels can be set. First level consists of Program 1 (referred to as P1) -10 serves and P1 -30 seconds. Second level consists of P2 -10 serves and P2 -30 seconds. The mode is run repeatedly in the order of P1 -10 serves → P1 -30 seconds → P2 -10 serves → P2 -30 seconds. The requirements of each level must first be set and saved in P1 or P2 under the Setting of Combinations of Serves as described in the Section (13).

- 1 When the robot stops, press the *Exam Set* button. The light for the mode turns on. Program light 1 blinks while Program light 2 is illuminating. The number 10 is shown on the digital display at the same time.
- 2 Press *Start/Stop* button to activate the mode. 10 balls will be served as programmed under P1. The robot will automatically stop when the displayed number counts down to 00. The digital display will then turn and show 30. The light for Min turns on and the light for P1 remains blinking.
- 3 Press the *Start/Stop* button and the robot starts again. Balls will be served as programmed under P1 for 30 seconds. The robot will automatically stop when the displayed number counts down to 00. The digital display will then turn and show 10. The lights for PCS turns on and the light for P2 turns to blink.
- 4 Press the *Start/Stop* button. 10 Balls will be served as programmed under P2. The robot will automatically stop when the displayed number counts down to 00. The digital display will then turn and show 30. The light for Min turns on and the light for P2 remains blinking.
- 5 Press the *Start/Stop* button. Balls will be served as programmed under P2 for 30 seconds. The robot will automatically stop when the displayed number counts down to 00. The settings will then be reversed to that of step 2 and the operation can be done repeatedly through the steps 2 to 5.

Hints: All the serving parameters cannot be adjusted during the operation of the mode. Adjustment of serving parameters should be done under the Program Mode before the Exam mode is set.



## (9) The Setting of Built-in Combination Mode



- ① Press one of the **Built-in Combination** buttons and the corresponding light will turn on.
- ② Press **Start/Stop** button. Balls are served in accordance with the settings of the built-in combination selected.

**Hints:** 1. For all the five built-in combinations, the preset serve landings are defined under the standard serving curve. When the mode is used, the standard serving curve must first be set (see the Setting of The Standard Serving Curve on page 5).

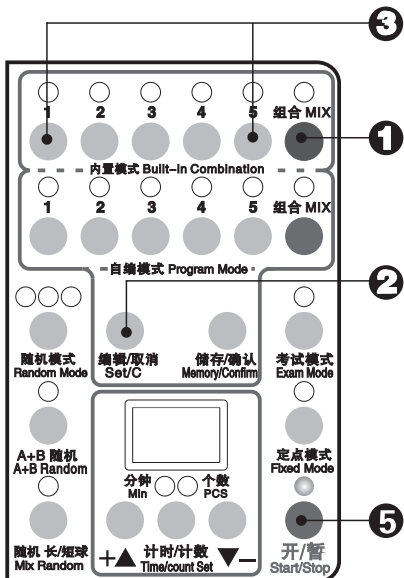
2. Shift between the built-in combinations can be made whenever the robot is in operation.

3. Spin speed and serving frequency can be adjusted when the robot starts or stops.

## (10) The setting of Mix Built-in Combination Mode

Two to five built-in combinations can be grouped together to make a new group of serve combination.

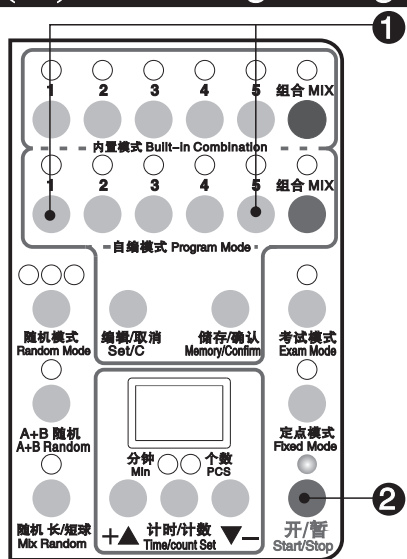
Press the **Mix Built-in Combination** button and the numbered lights of the combinations previously set and used for the restored group combination are lit. Press the **Start/Stop** button and the group combination is activated for replay. If a new group of built-in combinations is desired, stop the robot and follow the steps below to achieve:



- ① Press the **Mix Built-in combination** button, the light for which will turn on.
- ② Press **Set/C** button. The light for Mix Built-in Combination will blink and 1-5 numbered lights for the built-in combination will turn off.
- ③ Press one of the Built-in Combination button. The corresponding numbered light turns on and the 1<sup>st</sup> combination is selected.
- ④ Repeat the above step ③ to select the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> combination (Two to five combinations can be selected). The corresponding numbered lights turn on.
- ⑤ Press **Start/Stop** button to activate the Mix Built-in Combination mode. The current group has now overridden the previous one. The light for the Mix stops blinking but remains lit. The light for the 1<sup>st</sup> combination selected will blink indicating the combination is in operation. When the 1<sup>st</sup> combination runs to its end, the light for the combination will stop blinking but remain lit. The 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, etc. combinations will continue to run in the previous selection sequence until the last combination selected finishes serving.

**Hints:** If different spin speed and serving frequency in one of the built-in combinations are desired, the settings of the combination must first be set under the Built-in combination mode as described in the above section (9).

## (11) The Setting of Program Mode



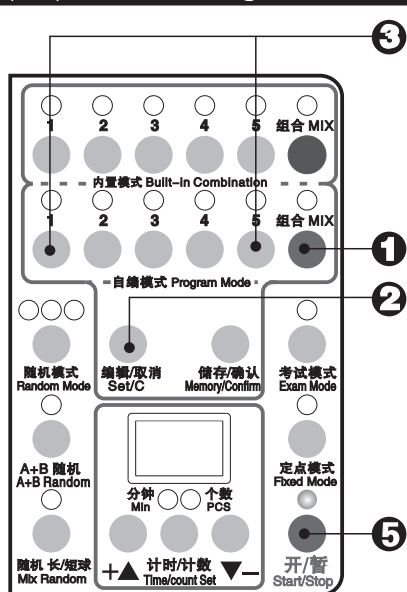
1 A combination of serves with various serve landings on the entire width of the table can be programmed and restored for replay. There are 5 programs provided for the player to set different level of difficulty as desired. Either one of the 5 programs can be selected for replay. Serves in a program are auto-reversed.

- 1 Press one of the five **Program Mode** buttons and the corresponding light turns on.
- 2 Press the **Start/Stop** button and the program selected is activated. Serves will land on the points as last programmed.

**Hints:** 1. Five combinations of serves are individually preset in 1-5 programs. The preset serve landings in the 5 programs are defined under the standard serving curve. When the program is used, the standard serving curve must first be set (see the Setting of The Standard Serving Curve on page 5).

2. Shift of the program can be made whenever the robot is in operation.
3. Spin speed and serving frequency can be adjusted when the robot starts or stops.

## (12) The setting of Mix Program Mode



Two to five programs can be grouped together to make a new group program.

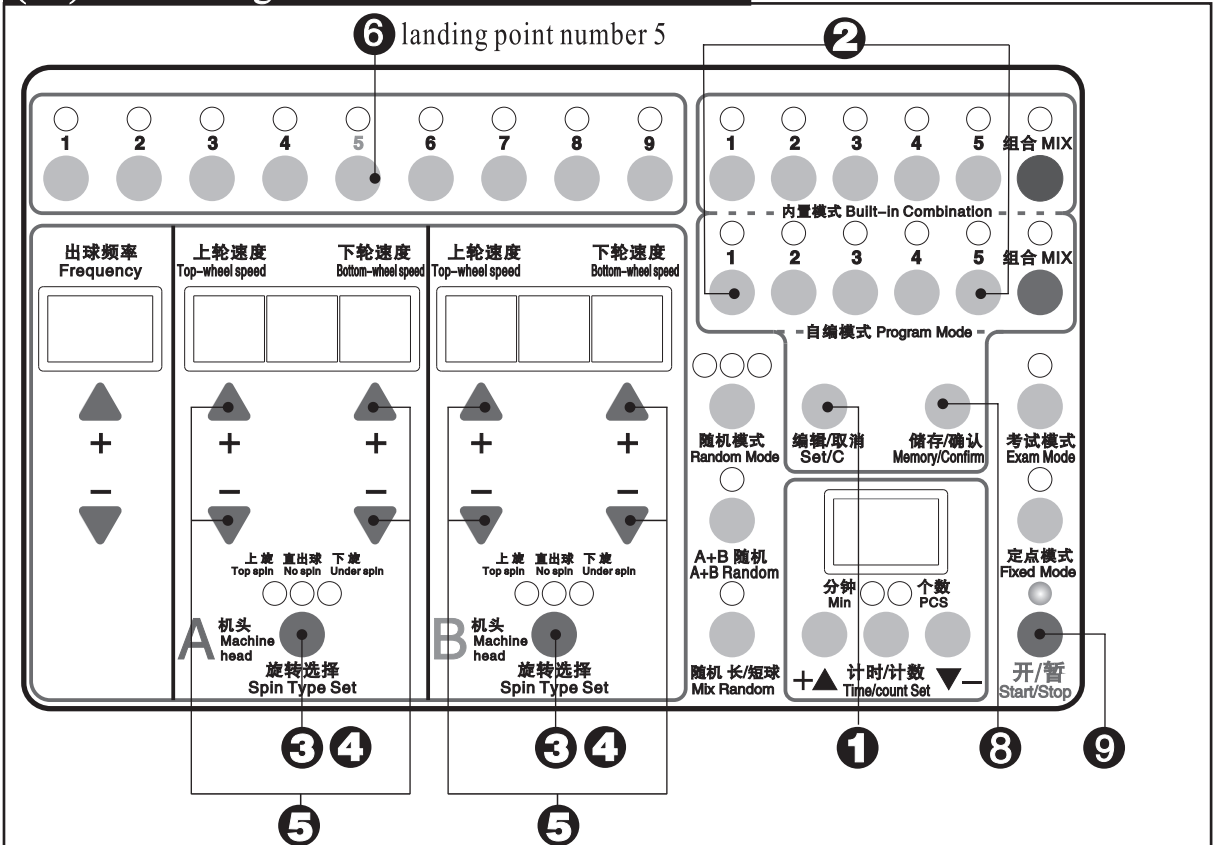
Press the **Mix Program Mode** button. The corresponding light for the **Mix Program Mode** and the numbered lights of the programs previously set and used for the restored group program are lit. Press the **Start/Stop** button and the group program is activated for replay. If a new group program is desired, stop the robot and follow the steps below to achieve:

- 1 Press the **Mix Program** button, the light for which will turn on.
- 2 Press **Set/C** button. The light for Mix Program Mode will blink and 1-5 numbered lights for the Program Mode will turn off.
- 3 Press one of the **Program Mode** buttons. The corresponding numbered light turns on and the 1<sup>st</sup> program is selected.

- 4 Repeat the above step 3 to select the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> program (Two to five programs can be selected). The corresponding numbered lights turn on.
- 5 Press **Start/Stop** button. The Mix Program mode is activated and the current program group has now overridden the previous one. The light for the Mix Program Mode stops blinking and remains lit. The light for the 1<sup>st</sup> program selected will blink indicating the program is in operation. When the 1<sup>st</sup> program runs to its end, the light for the combination will stop blinking and remain lit. The 2<sup>nd</sup>, 3<sup>rd</sup>... programs will continue to run in the previous selection sequence until the last program selected finishes serving.

**Hints:** If different spin speed and serving frequency in one of the programs are desired, the settings of the program must first be set under the Program mode as described in the above section (11).

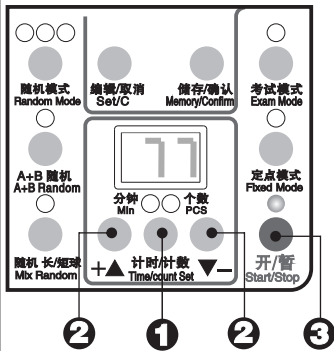
## (13) The setting of Combination of Serves



Before the combination is programmed, settings of spin type, speed and serving curve for both machine heads must first be set under the Fixed Mode. When the settings for the combination are completed, the combination can be saved in one of the five programs.

- ① Press the **Set/C** button (not under either Mix mode). One of the Program Mode lights and one of the landing point lights will blink. The indication light for Machine head A or B and the number on both digital displays for the corresponding Machine head also blink.
- ② Press one of the Program buttons to select the number of program you want to edit. The selected program light blinks.
- ③ Press one of the Machine head buttons to select the Machine head
- ④ Press the **Spin Type Set** button of Machine head A to select the spin type, the light for which turns on (skip this step if it has previously been set).
- ⑤ Set the spin speed as desired by adjusting the Top-wheel speed and/or Bottom-wheel speed (skip this step if it has previously been set).
- ⑥ Press one of the numbered buttons to select the landing point desired. The corresponding light for the landing point selected turns on. The first serve is set and saved. The spin type and speed are now fixed and cannot be adjusted for the following serves to be set for Machine head A. If next serves are still required to be set for Machine head A, follow the same procedures to set the 2<sup>nd</sup>, 3<sup>rd</sup>....serve.
- ⑦ Repeat the above steps 3 to 6 to set and save the next serves for Machine head B. Both Machine heads can be selected repeatedly for the serves to be set. Up to the maximum 32<sup>nd</sup> serve can be set and saved in a combination.
- ⑧ Press the **Memory/Confirm** button The numbered light for the program selected (described in step ②) stops blinking. The program is saved and the current setting will override the previous one.
- ⑨ Press the **Start/Stop** button and the program is activated.

### (14) Timer And Ball Counter



#### Setting of Timer And Ball Counter

##### Setting of Timer

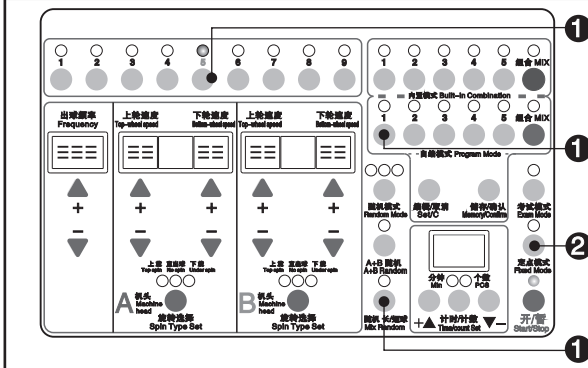
- ① Press the button for Time/Count until the light for Min turns on.
- ② a) Press the +▲ button once. The time will be set and increased by one minute as displayed. Hold down the +▲ button and the time in minute will quickly be increased. The maximum time is 120 minutes.  
b) Press the ▼- button. The time set will be decreased by one minute. Hold down the ▼- button and the time in minute will quickly be decreased until zero.

##### Setting of Ball Counter

- ① Press the button for Time/Count until The light for PCS turns on.
- ② a) Press the +▲ button once. The number of balls will be set and increased by 10 balls. Hold down the +▲ button and the number of balls set will quickly be increased. The maximum number of balls is 999.  
b) Press the ▼- button. The number of balls set will be decreased by 10 balls. Hold down the ▼- button. The number of balls set will quickly be decreased until zero.
- ③ Press the **Start/Stop** button and the robot will start serving. The time or the number of balls will count down from the setting. When the displayed number reaches zero, the robot will stop automatically.

**Hints:** When the time and ball counter have not been set (The corresponding lights are not lit), start the robot and the balls served will be counted from 001 nonstop as displayed.

### (15) Factory Parameters Reset

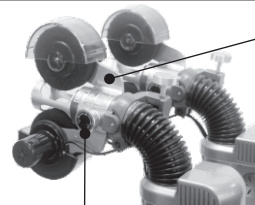


- ① Press and hold simultaneously for 3 seconds the buttons for **landing point #5, Program 1 and Mix Random**. The symbol of ≡≡≡ will blink and show on all digital displays except the one for Time/Count Set.
- ② Press the **Fixed Mode** button and the factory parameters are reset.

**Hints:** If the step 2 above is not done and a button other than the **Fixed Mode** button is pressed, the reset is canceled.

## VII. The Setting of Side spins

Side spins are obtained from the selection of top spin and under spin, and the adjustment of the angle of the spin wheels assembly (as the picture on the right shows).



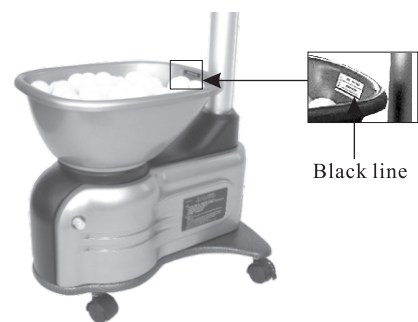
1. Turn to loosen the knob.

2. Turn the spin wheels assembly left and right to the desired angle in accordance with the level marked. Turn and lock the knob to get the side spins.

## VIII. Capacity of Ball Collection Dish

Capacity: 90 pcs of 40 mm+ ball. Balls put in the dish should not exceed the black line on the inside of the dish.

**Note:** Nothing other than table tennis balls should be placed in the dish. Otherwise, it may cause machine failure or damage to the parts.



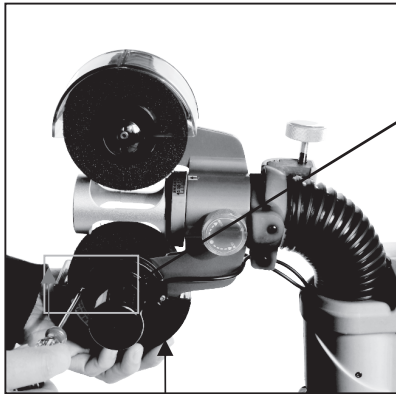
Black line



## IX. Adjustment And Replacement of Spin Wheel

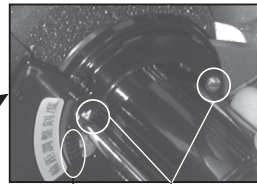
### (1). Adjustment of spin wheel

After a period of use, there will be wear and tear on the spin wheels causing slower serving speeds than usual. Adjust the distance between the two wheels to resume the effectiveness of the serves.

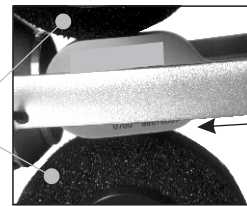


Bottom spin wheel assembly

**Picture1**

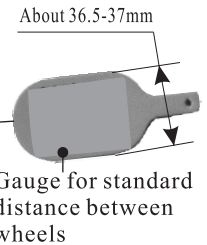


Scale mark for the distance between wheels  
Motor screw



Top and Bottom spin wheels

**Picture2**



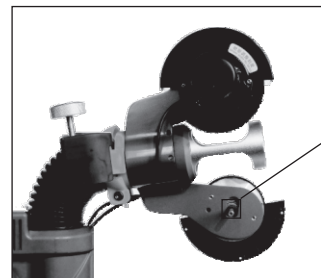
About 36.5-37mm  
Gauge for standard distance between wheels

Disconnect the power supply. Use the screwdriver to loosen the 2 motor screws a little (see picture 1). Lift the bottom wheel assembly up about 2-3 mm (one level of the scale mark), or lift until the gauge fits in perfectly (see picture 2). Tighten the screws and the robot is ready for operation.

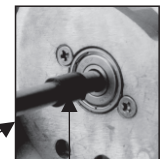
**Note:** The above adjustments will allow the robot to continue to serve properly, within a certain range of wear and tear. It is recommended that the wheel should be replaced when the diameter of the wheel reduces to 70mm due to wear and tear.

### (2). Replacement of spin wheels

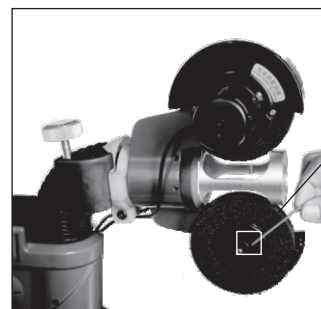
1. Disconnect the power supply. Remove the wheel cover of the bottom spin wheel by using the screwdriver which is enclosed with the package to unscrew the 3 screws of the cover.
2. Use the allen wrench to remove the bottom spin wheel. While removing the wheel, make sure the small blocking sleeve (see picture 1) that separates the wheel and the motor is still on the axis of the motor. Install the new wheel onto the axis of the motor. Use the allen wrench to tighten the screw of the wheel (see picture 2). Slightly loosen the 2 motor screws to adjust the distance between the 2 wheels to about 36.5 -37 mm in which the gauge for standard distance between wheels can perfectly fit. Tighten the screws.
3. Reinstall the wheel cover of the bottom spin wheel and the replacement is completed. Repeat the above 3 procedures if the top spin wheel needs to be replaced.



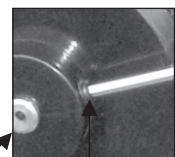
**Picture1**



Blocking sleeve



**Picture2**



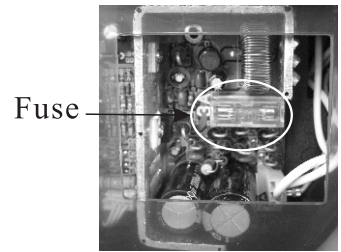
Allen wrench

### Notes

1. When the landing points and speed of serves do not meet the standard, adjust the distance between wheels to get the best result.
2. Please replace the spin wheel under the supervision of your local supplier.

## X. Fuse Replacement

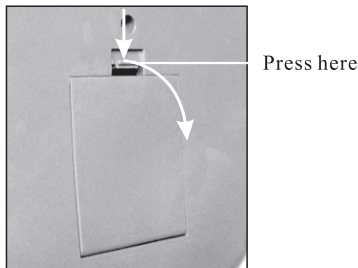
Disconnect the power supply before the fuse is replaced. Open the base cover. At the window of the transparent cover, pull out the fuse cover. Replace the bad fuse with a qualified one of the same standard (3.15A). Replace the fuse cover.



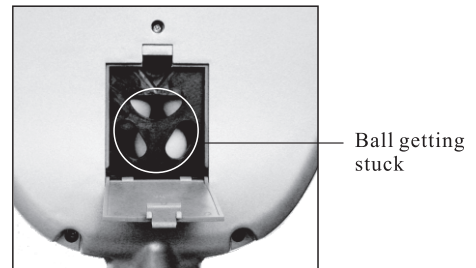
## XI. Fixing A Jam

A ball getting stuck is mainly attributable to damaged balls or other items that may be blocking the ball running track. If the robot suddenly stop with some of the lights on the control panel blinking, it may be a jam. Disconnect the power supply and follow the procedures as below to fix:

### (1) Inspection of the 2-way splitter

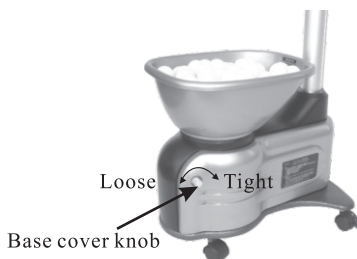


- 1 Press the lock to open the cover for 2-way splitter at the back of the robot as the above picture shows.

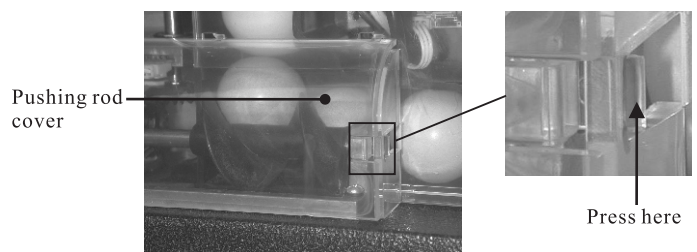


- 2 Use a screw driver to move the stuck ball at the top of the 2-way splitter from left to right. If there is a jam, try a little bit harder to move the ball into the left or right ball running track.

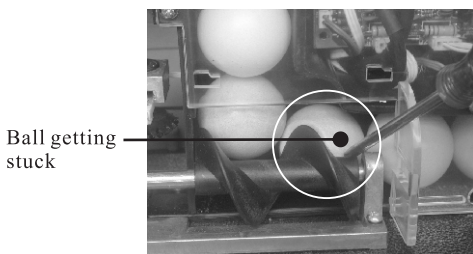
### (2) Inspection of the entrance of ball running track



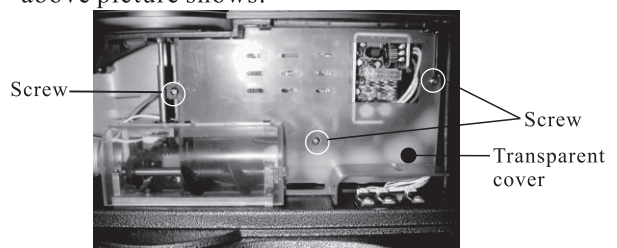
- 1 Turn and loosen the knob to open the base cover.



- 2 Press the lock for the pushing rod cover and release the cover by pushing it to the left as the above picture shows.



- 3 Use a screw driver to lift the stuck ball so that it won't cause a jam. Rotate and push forward the pushing rod a little to make sure it is movable. Replace the pushing rod cover and close the base cover. Restart the robot.



- ★ If the procedures above don't solve the problem, remove the transparent cover by loosening the 3 screws as the above picture shows. Take away the bad balls or other objects. Replace the transparent cover and restart the robot.



**XII. Troubleshooting**

<b>Problem</b>	<b>Characteristic</b>	<b>Solution</b>
The robot doesn't work	1. Lights on the control panel are not lit.	Check if the power plug is properly connected.
		Check if the power on/off is switched to 'On'. The light illuminates.
		Check if the plug of the control panel wire is completely connected to the control panel.
		Disconnect the power supply. Check if the fuse (3.15A) connected to the computer board is broken. See P.21
	2. Lights on the control panel are lit but all motors don't work.	Check if the Start/Stop button on the control panel is pressed to switch on (corresponding light is green) .
		Disconnect the power supply. Check if the fuse (3.15A) connected to the computer board is broken. See P.21
		Check if there is a jam for each button on the control panel.
	3. Lights for 3 function modes and On/Off on the control panel all blink.	Check if there is a ball jam. See P.21
		After use for 1 to 2 months, dust and dirt might gather in the ball running track. Remove all balls from the ball running track. Clean the track with a wet cloth and spray some car cleansing wax (spray type) in the track from the ball entrance and exit.
Control panel doesn't work	1. Lights on the control panel blink.	Disconnect the power supply. Restart the robot after 10 seconds.
	2. Start/Stop button is not responsive.	Disconnect the power supply. Check if the plug at the back of the control panel is loosened. Restart the robot.

**If the above can't solve the problems, please contact your supplier or our Product Support Department.**

**XIII.. Maintenance**

1. The robot and the control panel should be prevented from strong vibration and from getting wet. Failure to do so will cause short circuit or electricity leakage resulting in damage to the electrical and electronic components.
2. After a period of use, there will be wear and tear on the spin wheels, causing slower serving speeds than usual. Adjust the distance between the two wheels to resume the effectiveness of the serves. Please see chapter IX.
3. After use for 1 to 2 months, dust and dirt might gather in the ball running track. Remove all balls from the ball running track. Clean the track with a wet cloth and spray some car cleansing wax (spray type) in the track from the ball entrance and exit.
4. When the robot is not in use for a longer period of time, please disconnect the power supply and cover the robot with cloth or a plastic bag.

**XIV. Auto-correction of Serve Landings**

When there is unexpected contact to interrupt the normal movement of the machine heads causing irregular serve landings (such as machine heads coming in contact with hands), the robot will automatically correct the landings to their normal positions.

**XV. Features and Parameters**

Description		Features/Parameters		
Power Supply	Voltage (V)	100~240		
	Rated power (W)	50		
	Rated frequency (Hz)	50	60	
Functions	Serving spin	9 different types of spin		
	Serving frequency (balls/min)	30 ~ 100		
	Serving speed (m/s)	4 ~ 40		
	Landing point	18 landing points on the entire width of the table; 1-9 points for long range serves and 1-9 for short range serves.		
	Combination of serves	Combination of various serves can be programmed based on your desired level of difficulty. The programmed combination can be restored for replay.		
	Angle adjustment for side spin	The angle can be adjusted in the range of $\pm 30$ degrees.		
	Long and short serves	By adjusting the serving curve for both Machine heads, long range and short range serves can be achieved.		
	Memory	Can restore to the most recent settings for repeat training or use.		
	Timer and ball counter	Timer and ball counter allow players to set, by digital display, time or number of balls to be served.		
	Nine Serving Modes	Fixed mode	Either Machine head A or B is selected. Various kinds of serves land continuously at one point to be chosen from 1-9 points across the table.	
		Random mode	Either Machine head A/B is selected. Serves land randomly on a. the entire width of the table (landing points 1-9), b. only the left side (landing points 1-5), c. only the right side (landing points 5-9).	
		A+B Random mode	Serves are delivered from Machine head A and B and land randomly on: a. 18 possible landing points across the entire width of the table (landing points 1-9), b. 10 possible landing points on the left side only (landing points 1-5), c. 10 possible landing points on the right side only (landing points 5-9).	
		Mix Random mode	When a) either Machine head A or B is selected or b) both Machine heads are selected, top and/or under spin balls land randomly in a mixture of long range and short range serves across the table with a choice of landings on 1) the entire width of the table, 2) only the left side or 3) only the right side.	
		Examination mode	Combinations of serves are set in accordance with the 2-level requirements by the Examination Bureau.	
		Built-in combinations mode	Either one of the 5 combinations can be selected to play.	
Mix Built-in combinations mode		Two or more built-in combinations can be grouped together to make a new combination.		
Program mode		Either one of the 5 self-programmed combinations can be selected to play.		
Mix Programmed mode		Two or more self-programmed combinations can be grouped together to make a new combination.		
Package	Gross weight (kg)	24		
	Net weight (kg)	16		
	Dimensions (cm)	102X56.5X48		

Note: If the parameters of this table vary from what is marked on the robot, the parameters on the robot prevail.

***We reserve the right to alter or modify the robot and attachment without further notice.***