BUTTERFLY

AMICUS EXPERT

Table Tennis Robot

Owner's Manual

AMICUS EXPERT TABLE TENNIS ROBOT

- State of the art 3-wheel ball delivery technology provides all types of spin.
- Rigid sponge wheels with a special coating for longer durability.
- Compact, solid, functional construction with integral in encompassing ball collection net.
- Lightweight and easily transportable. Weighs only approximately 6 kg (13 lbs.).
- User-friendly Control Panel permits quick overall view with easy-to-understand adjustments.
- Random features include natural scattering of shots, random placement, or both!
- Programmed or random delivery of balls with different spin, speed, direction, and trajectory.
- Start Exercise with serve, which inserts natural pause before each repetition.
- 99 memory places, including 21 pre-programmed Exercises from Butterfly coach Richard Prause.
- Can be found on memory places 79-99
- AFC (Automatic Ball Frequency) function for more natural timing of balls in an Exercise.
- Alternate play and break periods (interval training) with the Cycle function.
- Adjust height of ball delivery to simulate anything from low serves to high lobs.
- Regulate all functions with the Control Panel located on the player's end of the table.

Covered by a full 2-year Manufacturer's + 1-Year Distributor's Warranty (North & South America only) and 5-year guarantee of parts and service availability. See full warranty information on page 26.

CAUTIONS

- Please read this Owner's Manual carefully before using the machine!
- This machine may only be connected to 100-230V current!
- The ball throw wheels rotate at high speed. Avoid touching the wheels during operation!
- Use this product only in enclosed and dry rooms!

Used properly, your AMICUS EXPERT will always be a great training partner and a friend (AMICUS is Latin for Friend).

IMPORTANT: Please read instructions carefully prior to use!

The Control Panel chapter describes basic adjustments of the AMICUS EXPERT table tennis robot. More detailed instructions can be found in the Operation chapter.

CONTENTS

1. SETUP

a. Robot and Net Assembly
b. Power Supply (Input: 100-240V, Output: 24V DC, 3A)
c. Control Panel
d. Control Panel Cable
e. Control Panel Bracket

Other parts: Hex wrenches (2 and 4 mm) for wheels, Wheel Adjustment Gauge (black tube with fins), spare rub-ber bands for the Side Nets, Velcro strips. White, steel strips to repair of the deflector plate.

1. Place the robot on top of your table tennis table. Fold apart both sides of the net at the same time until the first stop (Photo 1A). Rotate towards you the curved tubular Support Legs into the position as seen in Photo 1b (about 15–20 cm, or 6-8 in., apart).

2. Rotate the entire robot 180° with the Support Legs facing away from you. From behind, grasp the robot with both hands on the bottom of the Base. Pick up the robot, angle the Support Legs downward, slip them under the end of your table tennis table, and push the robot onto the end of the table. Gently let go of the base and the robot will hang by its own weight as seen in Photo 2.

Please note that AMICUS robots are designed to fit onto 25 mm (1 in.) thick tops. If your top is less than 25 mm thick, you will need to adjust the Support Legs using the height adjusting screws. Turn the screws inward until the thickness difference between 25 mm and your particular table surface is sufficiently equalized.

CAUTION: Please use the included longest Velcro strip to help secure the robot to the end of the table. This is especially important if children play around the table. The Velcro strip helps stabilize the robot to prevent it being knocked off the table.

3. Loosen the large Black Knob found on the rear of the Ball Tube. Rotate the head 180° and then pull the head upwards until the 3rd coloured ring on the tube is just visible (Photo 3A), then tighten the Black Knob to hold it in place (but not too tightly). Lastly, fasten the Head Cable coming from the head to the serial connector found on top of the Base (Photo 3B).

PHOTO 1A

PHOTO 1B

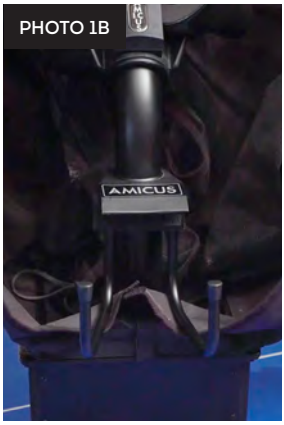


PHOTO 2

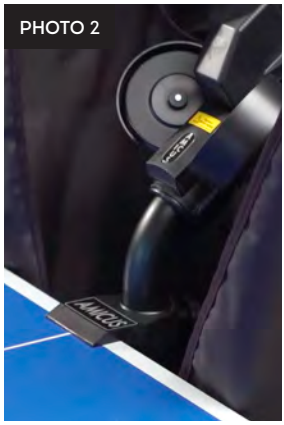


PHOTO 3A

PHOTO 3B

4. Standing behind the robot, grip the top points of the net and fold the net down on both sides until the net fully opens (as seen in Photo 4A). Fit the plastic Corner Brackets of the net around the corners of your table as seen in Photo 4B.

PHOTO 4A

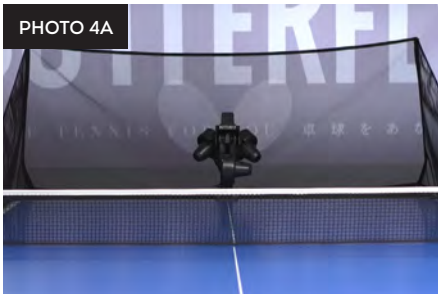
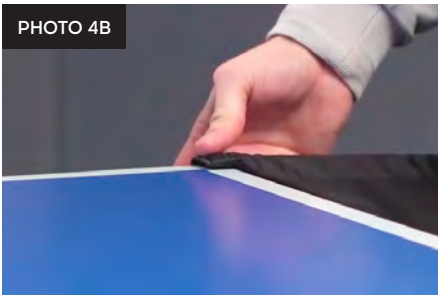


PHOTO 4B



NOTE: You may attach the two shortest Velcro strips to the corners of your table underneath the **Corner Brackets** to help the brackets stay down and stabilize the entire net.

5. Pull a Side Net along the side line of the table and pass its thick rubber band over the top of the table's net standard (see Photo 5A). Then loop the rubber band around the Clamp Screw that holds the net onto the table. Attach the Side Net's Velcro tab to its matching piece located on the Corner Bracket as seen in Photo 5B.

PHOTO 5A

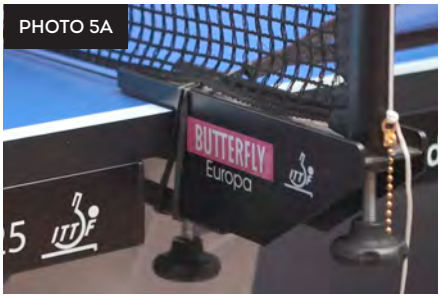
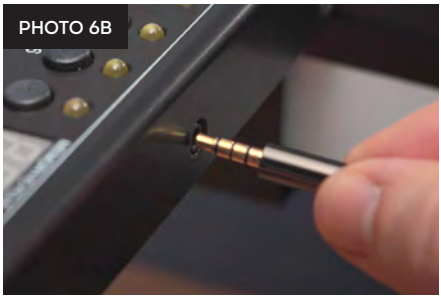


PHOTO 5B

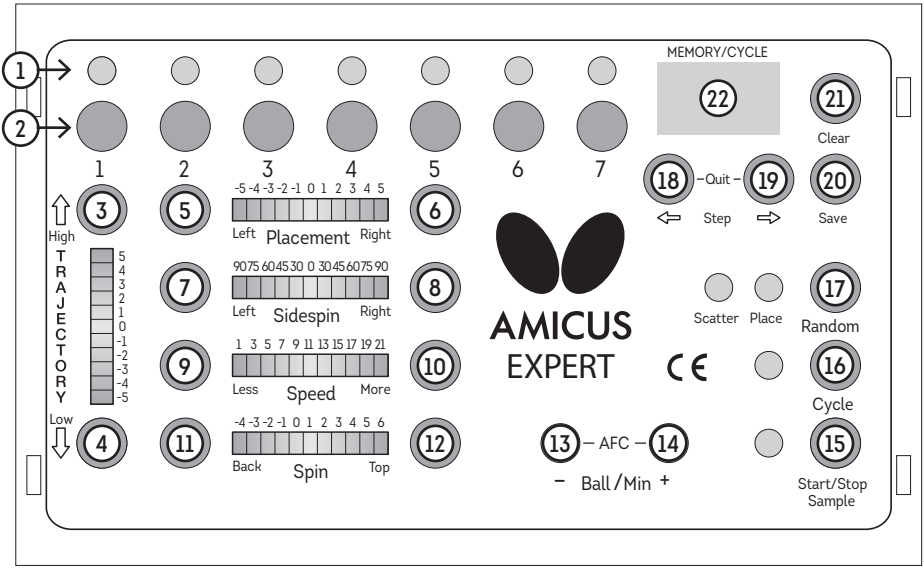
6. Plug your Power Supply into a power outlet and then into the power jack on the side of the Base. Connect the Control Panel Cable into the jack plug (looks like a headphone jack) on the side of the Base (see Photo 6A). Pull the Control Panel Cable to the opposite side of the table and connect it to the Control Panel (see Photo 6B). Next attach the Control Panel Bracket on the side of the table and then hang the Control Panel on the bracket. You may use a Velcro strip to help secure the bracket onto the side of the table. Before beginning to play on your robot, remove the rubber bands and blue foam pad used on the head to help protect the Deflector Plate during shipment.

PHOTO 6A

PHOTO 6B



2. CONTROL PANEL



1 **Ball LEDs (1–7)** – When lit and solid, indicates a Ball is programmed for that spot. A flashing light Current Ball. Only selected balls can be changed. Number of lit LEDs indicates the number of balls in your Exercise.

2 **Ball Buttons (1–7)** – When pressed, selects that ball. Once selected, all settings shown on panel apply only to the selected ball. Up to 7 balls may be added to an exercise. To delete a ball, press and hold the desired Ball Button until light goes out. To delete all balls at once, press and hold the 1 and 7 buttons until lights go out (except #1).

3 + 4 **Trajectory Buttons** – Raise or lower the trajectory of the Current Ball. Pushing at the same time, the robot enters calibration mode.

5 + 6 **Placement Buttons** – Shift the Current Ball placement to the left or right. Pushing at the same time, the deflector plate position resets.

7 + 8 **Sidespin Buttons** – Shift the orientation of the sidespin to the left or right.

9 + 10 **Speed Buttons** – Decrease or increase the speed of the Current Ball.

11 + 12 **Spin Buttons** – Decrease or increase the amount of backspin or topspin.

13 + 14 **Ball/Min Buttons** – Decrease or increase ball frequency (Ball/Min). Frequency rate is shown on the Display (22) from 1 to 100. Press briefly to change numbers one by one, or hold down to change numbers quickly. Pressing both buttons at the same time activates AFC (Automatic Frequency Control) and AFC is shown on the display.

15 **Start/Stop & Sample Button** – Press briefly to start or stop ball delivery. Hold down to throw samples of Current Ball until released.

16 **Cycle Button** – Press briefly to activate the Cycle function. Press for 2 seconds to program the Cycle function. See page 15 for more details.

17 **Random Button** – Press once to select Random Scatter, press a second time to select Random Place, and press a third time to select Random Scatter + Place. Press a 4th time to exit.

18 + 19 **Step Buttons** – Use to enter Memory Mode and select the Memory Position (E01–99). Pressing both at the same time exits Memory Mode. Also used for programming the Cycle function (see page 15).

20 **Save Button** – Saves an Exercise into memory in the position shown on the Display (22). An empty memory position (indicated by a flashing E_ _) must be selected using buttons 18 & 19. Hold down the Save button until E_ _ stops flashing.

21 **Clear Button** – Clears a Memory Position. A saved Exercise must be shown on the display (solid E_ _). Hold down the Clear button until the display starts flashing.

22 **Display** – Shows various information (see 9, 10, 12, 13, 15, 16, 17, 21).
Also shows error codes (Er_).

3. OPERATION

NOMENCLATURE

To assist in clearly communicating the various features of your robot, it is necessary to define how we refer to certain elements. Here are various terms used throughout this manual:

Ball Type – 4 controls affect Ball Type: Spin, Speed, Sidespin, and Trajectory.

Ball Placement – the left/right location where a ball lands, determined by the Placement control.

Basic Ball – the ball that is thrown when the Control Panel is first powered on and no adjustments have been made. This ball will have no spin with medium speed and height. All Ball Type and Placement indicators on the Control Panel should be green (Trajectory will be green & red).

Current Ball – the ball that is currently selected as indicated by its flashing Ball LED.

Ball 1–7 – refers to the Ball Buttons and corresponding Ball LEDs.

Exercise – a sequence of between 1 and 7 shots. Also called drill, program, or rally.

1–4 Rings – how the head height adjustment is described. E.g., 3 Rings would mean the head height is adjusted so 3 rings (painted on the Ball Tube) are visible (see Photo 7).

ADJUSTMENT OF HEAD HEIGHT

On most table tennis robots, the height of the head cannot be adjusted. In contrast, AMICUS EXPERT offers 4 different heights to better simulate realistic play. It is quite easy to adjust the head height. From be hind the net, push the top of the net down to reach over it. Grab the curved ball tube with one hand and loosen the large Black Knob with the other hand (see Photo 7). You can then pull the tube up or push it down to adjust head height. Lock it in place by tightening the Black Knob. (Be careful not to tighten the knob too much.)

PHOTO 7

IMPORTANT: Before tightening the Black Knob, be sure one of the coloured rings painted on the ball tube is right at the top of the lower tube (see Photo 7). Be careful not to tighten the Black Knob too tightly–you can dent the tube if tightened too much. Failure to adjust the head height correctly can result in ball jams, double throws, missed throws, and other feed issues.

STARTING YOUR ROBOT

After completing Step 6 on page 6, place about 50 or more 40 or 40+ balls into the net trays. The Ball 1 LED should be flashing yellow and the Start/Stop LED should be solid red on your Control Panel.

Press Start (you will hear the wheels start spinning) and balls will begin loading into the machine. After a few seconds, the first ball will reach the top of the Ball Tube. Press Stop to halt ball feed.

Grab your racket and prepare to return balls from your robot. The first balls that are thrown will be Basic Balls and should be delivered along the centerline. Press Start and observe where the balls land in relation to the centerline. If balls are delivered either left or right of the centerline, then stop ball delivery. At the robot, loosen the large Black Knob on the rear of the Ball Tube (see Photo 7) and rotate the head in the direction necessary for balls to land closer to the centerline. Repeat until all balls are landing close to the centerline, then press Stop.

ONE BALL TYPE THROWN TO ONE PLACEMENT

The easiest way to learn the various controls is to start with a single ball type delivered to one location. Please remember that only the Current Ball (indicated by a flashing Ball LED) can be changed. Upon powering on the Control Panel, only the Ball 1 LED should be lit and it should be flashing. If any other Ball LED is lit, hold down its corresponding Ball Button until its LED becomes unlit.

TO ADJUST BALL TYPE:

- **The Trajectory buttons raise (3) or lower (4) the ball trajectory (throw angle).** A short push changes 1 unit (about 0.5°) of the throw angle (fine adjustment). Each Trajectory LED represents 7 units of adjustment if a single LED is lit and 9 units if 2 LEDs are lit. The exceptions are the 5 and -5 LEDs, which represent 16 and 8 units respectively. Altogether there are 154 units of Trajectory adjustment. If you hold down a Trajectory Button, the stepping action is accelerated and you rapidly change the setting.

- **The Sidespin buttons (7 & 8) change the orientation of the sidespin on the ball.** The zero setting means there is no sidespin on the ball. Each button press from zero represents a 15° change in orientation, except for the first press, which is 30°. Settings to the right of zero are degrees of right sidespin and settings to the left are degrees of left sidespin.

- **The Speed buttons reduce (9) or increase (10) the speed of the ball.** There are 21 increments of speed adjustment.

- **The Spin buttons reduce (11) or increase (12) the amount of spin on the ball.** A setting of zero indicates no spin (dead ball). Settings to the right of zero (1 to 6) indicate stronger and stronger amounts of topspin. Settings to the left of zero (-1 to -4) indicate stronger and stronger amounts of backspin.

TO ADJUST BALL PLACEMENT (ALSO CALLED PLACE OR LOCATION):

- **The Placement buttons (5 & 6) determine the left to right landing spot of the ball.** The zero position corresponds with the centerline of the table. The 1 to 9 settings correspond with balls progressively landing closer and closer to the right corner of the table. The -1 to -9 settings correspond to balls landing progressively closer and closer to the left corner.

TO ADJUST BALL FREQUENCY:

- **The Ball/Min buttons decrease (13) or increase (14) the rate, or frequency, of shots.** When either button is pressed, the frequency, in balls per minute, is shown on the display. You can select settings from 1 to 100 balls/min.

Once you have adjusted the above settings to your liking, press the Start button to have the robot deliver your chosen ball type to your chosen location at your desired frequency. If it is not what you want, press Stop and change the settings until you get the type of shot you want. Then try again. Although you may find it easiest to stop play to make changes to the settings, when throwing only 1 ball, you can also change settings on the fly, without stopping play.

ONE BALL TYPE THROWN TO 2 OR MORE PLACEMENTS

Once you have the ball type selected as described in the preceding section, it is a simple matter to have that same shot delivered to more than one place. To add additional Placements to your Exercise, press the Ball 2 button. Ball 2 LED will begin flashing, which indicates it is now the Current Ball (and Ball 1 LED will stop flashing to indicate it is no longer the Current Ball). Please notice that AMICUS has copied over all settings from the current Ball to Ball 2. To select a different landing spot for Ball 2, all you have to do is change the Placement setting.

You can continue this same procedure to add up to 7 Balls to your Exercise. With each added Ball, you will notice that the corresponding LED will light up. By looking at the number of Ball LEDs that are lit, you can quickly tell the number of shots in an Exercise.

To play your Exercise, press Start, and AMICUS will throw the balls in order from 1 through however many Balls have lit LEDs. E.g., if you have 3 Balls with lit LEDs, AMICUS will throw Ball 1, followed by Ball 2, and followed by Ball 3. Then it will start over with Ball 1. It will continue this order until you hit Stop.

If you need to test an individual Ball in an Exercise, without the other Balls being thrown, you will use the Sample function. To enable sampling, press and hold down the Start Button. It will begin throwing the Current Ball (whichever one is flashing). Let go of the Start Button when you are finished sampling.

THROWING DIFFERENT BALL TYPES IN AN EXERCISE

With AMICUS EXPERT, you can change the Ball Type, not just the Ball Placement, for each Ball in an Exercise. For instance, you can design an Exercise that starts with a short backspin serve to the center, followed by a slow, medium high, heavy spin loop to the backhand, then a fast, powerful loop to the forehand, and ending with a high no-spin pop-up in the center.

To design such an Exercise, just change the Spin (including Sidespin), Speed, and/or Trajectory for each ball in the Exercise. Be sure the Ball LED is flashing (indicating Current Ball) before changing any parameters of that Ball. And use the Sample button to test each Ball after you have changed any of the parameters.

Best practices: Before starting to play such an Exercise, choose each Ball and look at all the Ball Type and Ball Placement settings to get an idea of what type of shots will be delivered, to which locations, and in what order. Then check what the Ball Frequency is by pressing one of the Ball/Min Buttons and observing the frequency rate on the display. For an Exercise like the one described above, with several changes of spin and speed, it is advisable to turn on AFC (explained next).

If you want a certain Ball more than once in an Exercise, set that Ball first, as its settings will be copied over to the new Ball that you select. You can even copy Balls out of order. For instance, If Ball 2 will also be used as Ball 4, after setting Ball 2, and with Ball 2 LED flashing, press the Ball 4 Button and the settings for Ball 2 will be copied over to Ball 4 (and Ball 4 LED will begin flashing).

When using Random Place in an Exercise, the Placement will be randomly selected of the places which have been set in the exercises, but the Ball Type will remain in the same order as programmed.

CHANGING BALL SETTINGS IN AN EXERCISE

If, while playing an Exercise, you want to change the settings for a particular Ball, you can stop the Exercise by either pressing the button for the Ball you want to change or press the Stop Button. If you press the Ball button, then that Ball will immediately become the Current Ball and you can begin changing the settings immediately. If you use the Stop Button, you will likely need to press the Ball Button for the Ball you want to change before altering the settings. Use Sample to test your new settings. After you are satisfied with your changes, begin play again by pressing Start. At restart, the Exercise will always resume at Ball 1.

With AMICUS EXPERT, you can also change some settings while balls are being thrown. The advantage to doing this is that all balls in an Exercise will be changed simultaneously. The settings that can be changed are Trajectory and Speed. You can also change Spin if all balls in the Exercise have the same spin. Changes during play are restricted to small increments in either direction (accelerated changes are not supported during play).

As an example, let's say you have 3 balls in an Exercise. Ball 1 is set at Speed 11 and Spin 1, Ball 2 at Speed 12 and Spin 2, and Ball 3 at Speed 13 and Spin 3.

During play, you decrease Speed downward by 1 increment and you increase Spin by one increment. What happens is that Ball 1 changes to Speed 10, Spin 2; Ball 2 to Speed 11, Spin 3; and Ball 3 to Speed 12, spin 4.

You can also change Ball/Min during play without restriction (including acceleration).

RANDOM CONTROLS

AMICUS EXPERT offers 3 types of randomization–Random Scatter, Random Place, and Random Scatter + Place. To activate, press the Random button. The first press selects Random Scatter (the Scatter LED will light up). Press Random a second time and the Place LED will light up (and Scatter LED will darken). Press Random a third time and both Scatter and Place LEDs will light up. Press a fourth time to turn Random off (and both Scatter and Place LEDs will darken).

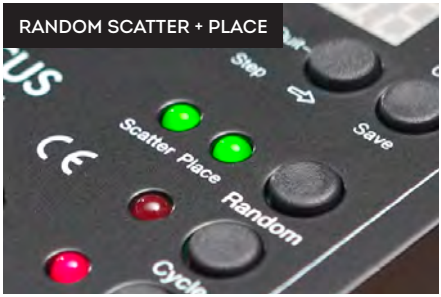
RANDOM SCATTER

Random Scatter is similar to the less precise shots that a human might deliver. Without Random Scatter, the robot typically delivers shots within an area approximately 13cm (5 in.) in diameter. But with Random Scatter, balls are delivered in an enlarged area of approximately 40cm (16 in.) in diameter.

Random Place requires at least 2 Balls in an Exercise. If there is only a single Ball, the Place LED will not light up. The robot will then randomly select one of the Place ments programmed for the Exercise and throw the ball there in an unpredictable order. E.g., let's say an Exercise uses Placements of -4, 0, & 4. Without Random Place activated, the order of throws will always be -4, 0, 4, -4, 0, 4. But with Random Place on, the order could be something like 0, 4, 4, -4, 0, 4,0, -4.

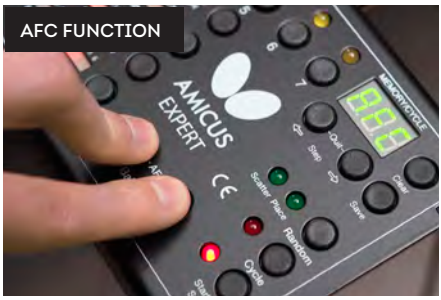
Random Scatter + Place combines the above two random functions. Landing spots for every Ball are enlarged and Placements are randomized.

Best practices: Do not program landing spots that are close to the side line, end line, or table net when using Random Scatter. If you do, many balls are likely to be shot off the side or end of the table or into the net because of the increased area of the landing spots with Random Scatter. When using Random Place, if you want throws delivered to one spot more often than other spots, program more Balls with the desired placement. E.g., if an Exercise has 4 Balls with one of them using Placement 5 and three using Placement 0, then there is a 1 in 4 chance a Ball will be delivered to 5, but a 3 in 4 chance a Ball will be delivered to 0. Lastly, while Random Place must have at least 2 Balls in the Exercise, Random Scatter can be used with single ball Exercises.



AFC FUNCTION (AUTOMATIC FREQUENCY CONTROL)

If you press and hold down both Ball/Min buttons at the same time for a couple of seconds, you activate the AFC (Automatic Frequency Control) function. AFC will be shown on the display. AFC is useful when you have changes in speed within an Exercise. For example, when you start with a slow, short backspin serve followed by a fast topspin shot. Or you have several fast topspins followed by a slow, high pop-up. AFC can sense this change in speeds and automatically adjust the frequency so the timing between shots is more similar to the timing of those shots in a real game. Turn on AFC whenever you feel you don't have enough time, or too much time, for one or two shots within an Exercise, but the rest of the shots seem OK. Deactivate AFC by once again pressing, and holding down for 2 seconds, both Ball/Min buttons at the same time (AFC will disappear from the display).



MEMORY MODE

The Memory Controls (buttons 18–21) are used to save Exercises into memory, clear Exercises from memory, and select Memory Positions of saved Exercises. After designing an Exercise, you will want to save it in memory because as soon as you turn off power, your Exercise will be deleted unless it is saved. Also with 99 Memory Positions, you can design, and save, lots of different Exercises for different purposes, and have them readily available for easy recall.

Once an Exercise is saved, each ball in that Exercise can be adjusted or deleted. And if an Exercise is no longer needed, the entire Exercise can be deleted to open that Memory Position for a new Exercise.

To enter Memory Mode, press one of the Step Buttons (← or →). If done during play, play stops. E01 appears on the display to indicate you are in Memory Mode. The E stands for mEmory and the 01 is the number of the Memory Position. A flashing display indicates that Memory Position is open. Whatever Exercise was showing before entering Memory Mode will now be showing in Memory Mode (provided display is flashing). This allows you to now save that Exercise in that Memory Position.

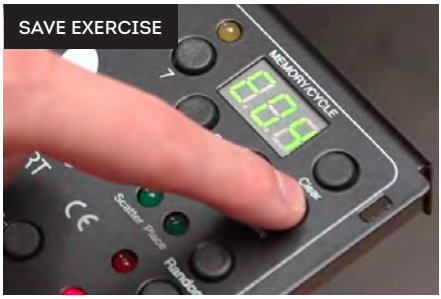
A solid (not flashing) display indicates an Exercise is saved in that position. In which case, lit Ball LEDs indicate each Ball of that Exercise. You can see the parameters of each ball by pressing on each Ball Button and the settings for that Ball will be shown on the Control Panel.

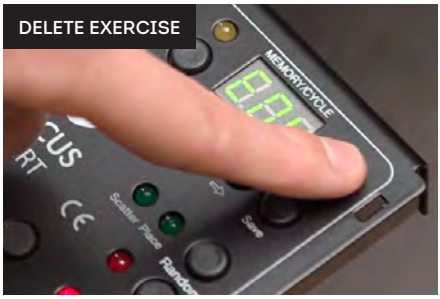
To exit Memory Mode, press both Step Buttons at the same time. Display will go blank to acknowledge you have left Memory Mode.

SAVING AN EXERCISE AND CLEARING A MEMORY POSITION

To save an Exercise, locate an open Memory Position (flashing E_ _ on the display) using the Step buttons. Then hold down the Save button (20) for 2 seconds. The display will stop flashing and become solid to indicate the Exercise is saved into memory. Only settings for Ball Placement and Ball Type are saved when the Exercise is saved. Settings for Ball/Min, Cycle, Random, and AFC are not saved.

You cannot save an Exercise into an occupied Memory Position (solid E_ _ on the display). An occupied Memory Position must first be cleared before it can be used to store a new Exercise. Before clearing a position, please be positive that you no longer need that Exercise. To clear a position, hold down the Clear button (21) for 2 seconds. The display will start flashing to indicate the Exercise was deleted and that Memory Position is now open. Once open, that position is available for a new Exercise to be saved there.





SELECTING, PLAYING, CHANGING AND MOVING SAVED EXERCISES

To select a saved Exercise, use the Step buttons (18 & 19) to find the Memory Position in where your desired Exercise is stored. Verify the Exercise is the one you want by looking at the parameters for each Ball. Remember the sequence of shots so you can respond properly to each shot as it is delivered. Then press Start to begin playing that Exercise. During play, you can use the Random, Cycle, and/or AFC functions, or change the Ball/Min.

If you want to change the parameters of any ball in the Exercise, you may do so by following the instructions given in Changing Ball Settings In An Exercise (p. 9). If you want to make those changes permanent, hold down the Save Button for 2 seconds. Doing so will overwrite the previous settings. If you do not save your changed settings, then the next time that Memory Position is selected, the Exercise will revert to its previously saved settings.

Alternatively, you can save your changed Exercise into a different Memory Position (if it is open). To do so, simply select the different Memory Position (display must be flashing) and hold down the Save button for 2 seconds. You cannot; however, save it into an occupied Memory Position (with solid display).

In a similar manner, you can move the Memory Position of a saved Exercise. First, go to the Exercise you wish to move. Press both Step Buttons at the same time to temporarily quit Memory Mode. Please notice that the Exercise you want to move is displayed on the Control Panel and the display is blank. Now, use the Step Buttons to find a suitable open Memory Position (with flashing display). Press and hold the Save Button to save your exercise to its new position. Then navigate to the previous position for that exercise and use the Clear Button to open that position for a new Exercise (unless you want that Exercise in two different positions).

Tip: It is possible to switch Exercises saved in different memory positions during play. To do so, push one of the Step Buttons to go from one Memory Position to another. Your new Exercise should begin playing. This way, you can play different Exercises one after the other without stopping. To facilitate this type of playing, it is recommended that you store the Exercises you want to play in Memory Positions that are in the same order as the Exercises you want to play.

PRE-SAVED EXERCISES

21 effective Exercises, selected by Butterflycoach Richard Prause, are already stored in memory slots 79 through 99. These can easily be selected using the steps provided above.

Tip: Video demonstrations of all exercises with additional useful information about the Butterfly AMICUS series can be found either on en.butterfly.tt/amicus or on our YouTube Channel „TamasuButterfly"

Exercise 79 1 topspin to BH, 1 topspin to FH

Exercise 80 1 topspin to FH, 1 topspin to MID

Exercise 81 1 topspin to BH, 1 topspin to MID

Exercise 82 "FALKENBERG": 2 topspins to BH, 1 topspin to FH

Exercise 83 2 topspins to FH, 2 topspins to BH

Exercise 84 1 topspin to FH, 1 topspin to MID, 1 topspin to FH, 1 topspin to BH

Exercise 85 1 topspin to BH, 1 topspin to MID, 1 topspin to BH, 1 topspin to FH

Exercise 86 3 topspins to FH, 1 topspin to BH

Exercise 87 1 topspin to FH, 1 topspin to MID, 1 topspin to BH, 1 topspin to MID

Exercise 88 1 backspin to FH, 1 backspin to MID, 1 backspin to BH, 1 backspin to MID

Exercise 89 1 backspin to FH, 1 topspin to BH, 1 topspin to MID

Exercise 90 1 backspin to BH, 1 topspin to MID, 1 topspin to FH

Exercise 91 1 halflong to MID, 1 topspin to MID

Exercise 92 1 halflong to BH, 1 topspin to FH

Exercise 93 1 halflong to FH, 1 topspin to BH

Exercise 94 1 halflong to FH, 1 halflong to MID, 1 halflong to BH

Exercise 95 1 serve to BH, 1 topspin to FH

Exercise 96 1 serve to FH, 1 topspin to BH

Exercise 97 1 serve to FH, 1 backspin to FH

Exercise 98 1 serve to BH, 1 backspin to BH

Exercise 99 1 serve to FH, 1 serve to MID, 1 serve to BH

Note: These exercises can be changed provisionally, but turn back to their original settings after turning off the robot.

CYCLE FUNCTION

The Cycle function facilitates interval training on your robot. Interval training is widely regarded as one of the best ways to maximize the effectivenessof your table tennis training. Interval training alternates intense, all-out periods of exercising with shorter periods of rest. This is the same type of rhythm that occurs naturally in a game–you serve, followed by several quick shots in the rally, and then the rally ends and you wait a few seconds until the next serve begins the cycle again.

To use the Cycle function, press the Cycle button and hold down for 2 seconds. The Cycle LED will light up (solid) and you will see P_ _ on the display, with _ _ representing the number of seconds for the Play period. Use the Step buttons to set the Play period from 10 to 90 seconds. Press the Save button. The display will now show b_ _. Use the Step Buttons to choose how long you want your Break period to be - from 10 to 50 seconds. Then press the Save button again. The display will become blank, and the Cycle LED will go off. Your Cycle settings have now been saved into memory and are preserved when turning power off.

To begin Cycle play, press the Cycle button briefly and the Cycle LED will light up and begin flashing (display will be blank). Cycle function can be played while in either Memory Mode or Normal Mode. Whatever Exercise is showing on the Control Panel will be played during the Play period. Press Start to begin playing your Exercise with Cycle activated. 5 seconds before the end of the Break period, the motors will start spinning to signal you to get ready for the next Play period.

The Cycle LED flashes during both Play and Break periods of the cycle. To exit Cycle, briefly push the Cycle button and the Cycle LED goes off.

CALIBRATION

All robots differ to some degree as all motors can vary from the manufacturer, but even more so as they age. In addition, wheels wear differently depending upon use. Calibration harmonizes the mechanics (the Head and Base) with the electronics (the Control Panel). This is especially important if the Control Panel or Head are replaced.

To check Calibration, first hold both Ball 1 and Ball 7 Buttons down at the same time (alternatively, you can also power off/on the robot). This will revert all settings to Basic Ball settings. Only Ball 1 LED should be lit. Press Start and observe where the balls are landing. If necessary, rotate the head left or right to make balls land close to the centerline. If balls are not landing along the centerline about 46–69 cm (18–27 inches) from the endline (a little past the mid-point from table net to endline), the ball's flight path bends to the left or right because of sidespin, the robot adds topspin or backspin to the balls, or balls travel very low or quite high over the net, then please calibrate the robot as follows:

1. Activate Calibration by holding down both Trajectory buttons (3 & 4) at the same time. CA will show on the display to indicate Calibration has been activated.

2. If speed is too weak, use the right Speed button (12); or if too strong, use the left Speed button (11).

3. If the throwing height is too low, increase the height by using the upper Trajectory Up button (3); or if too high, decrease the height by using the Trajectory Down button (4).

4. Remove any sidespin by using one of the Sidespin buttons (7 or 8).

5. Remove backspin by using the right Spin button (10)

6. Remove topspin by using the left Spin button (9).

IMPORTANT: These adjustments only work when the Calibration function is activated (CA shows on the display). All Calibration settings are saved in memory, so settings from the previous Calibration are shown when you activate Calibration the next time. Calibration depends upon the head working cor-

rectly, especially the wheels spinning. Check for proper head function by powering off and on the robot, and carefully observing the head during the initial orientation procedure where the Deflector Plate moves left, then right, and then down, followed by all wheels spinning forward for about 2 seconds. If the Deflector Plate does not move accordingly, or all wheels don't spin, then it is unlikely that Calibration can resolve any issues and further troubleshooting to identify the cause of the issues is called for.

To exit Calibration function, press Stop.

THE REMOTE SWITCH

The small wireless remote (looks similar to an automobile key fob) has a range of 4–5 m (13–16 feet) and has the following functions:

1. If Ball/Min is set to 00, pushing the top button (Start) of the remote throws 1 ball of the Exercise shown on the Control Panel (similar to Sampling a ball as discussed on page 7).

2. If Ball/Min on the Control Panel is not set to 00, pushing the top button (A) of the remote will cause the Exercise shown on the Control Panel to start playing at whatever frequency the Ball/Min set for (same as pressing Start on the Control Panel).

3. The 2 buttons in the middle increase (+) or decrease (–) Ball/Min by 1 increment for each press. Or hold these buttons down for rapid acceleration of Ball/Min.

4. Press the bottom red button (Stop) to end play (same as Stop on the Control Panel).

LINKING THE REMOTE TO THE CONTROL PANEL

Each remote is linked to an individual Robot body. This linkage is done at the factory and each Robot and Remote pair is kept together throughout the manufacturing pro cess. In case you buy more Remotes or a new one, you need to link each Remote to your Robot. Here are the steps to perform the Linking procedure:

1. Press Stop on your Control Panel if play is not already stopped. If in Memory Mode (E_ _ is showing on the display), press both Step buttons (18 & 19) to quit Memory Mode.

2. Hold down the Save button until L_ _ appears on the display. The number after the L provides a countdown of the time remaining (in seconds) for the Linking procedure.

3. While this Linking procedure is counting down, press at least 1 button of the 4 of the remote on. Additional remotes (4 maximum) can be linked to the same Robot by pressing a different button on the different remote switches during this step.

4. When the countdown has finished, the Linking process ends and the display goes blank.

5. Test your remote by pressing the A button to see if your robot begins throwing balls.

CHANGING THE BATTERY IN YOUR REMOTE

The Remote is powered by two 3V, CR2016 button cell batteries. After long use, the batteries run down and need to be replaced. After purchasing replacement batteries, open your remote by inserting a coin or flathead screwdriver in the slot located on the wide end of the Remote and twisting to pop it open.

Remove the circuit board containing the battery. With your thumbnail, pull the battery holder away from the circuit board. Pop the two depleted batteries out of the battery holder and replace with fresh batteries. When inserting into the battery holder, be sure the positive side (+) of both batteries face up. Re-insert the battery holder into the circuit board.

Reassemble the circuit board into the top housing (battery side up). Position the U-shaped metal piece around the outside of the top housing. Then place the bottom 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.

TAKE DOWN, STORAGE, & TRANSPORT

Upon finishing your training session, please power off your robot by unplugging from power; or alternatively, plug your robot into a power strip and use the switch on the strip to turn the power off.

If you're ready to remove your robot from the table temporarily, please follow these steps:

1. Unplug the Power Supply from the outlet and the base. Unplug the Control Panel Cable from the base and the Control Panel. Roll these cables up and place them temporarily on your table.

2. Disconnect the Side Net Rubber Bands. Place the Side Nets in the Ball Collection Tray.

3. Fold up the Net until the first stop of the folding mechanism. Unhook your robot from your table and set it on your table with the open end facing you.

4. Place your rolled-up cables, Control Panel, and Control Panel Bracket in the center area of the net on top of the balls (you do not need to remove the balls).

5. Stand your robot upright on the floor off to the side of your table or in a nearby closet. When you're ready to train again, it's a quick, easy matter to set your robot back up on your table.

If you're removing the robot for transport or long-term storage, we recommend placing your robot into the included Carrying Case with these additional steps:

6. Remove the cables, Control Panel, bracket, and balls from the center area and place those items in the storage pockets of the Carrying Case. The Carrying Case is also a handy place to store this manual, spare parts, tools, and other items that came with your robot.

7. Loosen the Black Knob on the rear of the Ball Tube, turn the head around 180° so it faces into the net, and lower the head to 1 ring. Then retighten the knob. Also rotate the 2 curved tubular Support Legs backward so they point back into the net.

8. Finish folding up the net until the two Net Corner Brackets touch and their mating Velcro pieces adhere to one another. You may need to help the Net Uprights fold down. You can also stuff parts of the net that are sticking out into the central part of the net.

9. Lay the robot net side down into the Carrying Case and secure in place with its 2 straps.

4. MAINTENANCE & REPAIR

CAUTIONS

1. Before performing any maintenance or repairs, unplug your robot from power.

2. Be sure no objects like dented balls, hair, string, etc. fall into the net and then work their way into the machine where they can cause ball jams or interfere with correct operation.

3. Table tennis robots work best with clean, worn balls. When adding new balls, please wash the gritty manufacturing powder off them first with warm, soapy water, then rinse and dry before using. (Butterfly brand balls are pre-washed at the factory so this step is unnecessary with new Butterfly balls.) Keep your playing area clean to prevent balls that have rolled on the floor from picking up dirt and introducing that dirt into the machine.

4. The wheels have a special coating that prolongs their lifetime. Do not attempt to clean the wheels with any chemical, as the chemical can be detrimental to the coating.

5. AMICUS robots are designed for use in clean, dry, indoor rooms. Do not use outdoors or in any wet or damp environment. Avoid leaving your robot in a hot car or trunk.

6. Use only 40 or 40+ balls in your robot. The better ball you use (ITTF-approved 3-star are best), the more consistent your robot can throw that ball.

CHECKING & ADJUSTING WHEEL CLEARANCE

AMICUS wheels are very durable (at least 1000 hours). But eventually, these wheels will wear down after long or intense use. As the wheels wear down, the space among the 3 wheels enlarges, causing the wheels to lose their grip on the ball. Dropping the robot or other similar trauma during transport or use can also cause this. One sign that the space among the wheels needs to be adjusted is that the machine releases the balls at irregular lengths at high speed. When the length of the ball throws becomes irregular, the space among the 3 wheels needs to be adjusted.

To check the space among the wheels, place the Wheel Adjustment Gauge (black tube with 3 fins) in the space among the 3 wheels, fins end first, and so the fins do not touch any wheel (see Photo 8A). Now move it in and out. If the distance is correct, the gauge can be moved in and out easily and with the wheels just barely touching the outer surface of the gauge (wheels may turn slightly as the gauge is moved). If the wheels do not grip the gauge at all, or conversely, they tightly grip the gauge, then wheel adjustment is called for.

To adjust the wheels, push the gauge into the end of the Ball Tube where the ball comes out so it is held rigidly in place. Then use the 4 mm hex wrench found in the accessories to loosen the hex screw near the cover of the motor (see Photo 8B). Now move the motor (gripping its cover) either towards or away from the gauge until the wheel barely touches it (see Photo 8C). Lastly, tighten the 4 mm hex screw to hold the wheel in place. Do this with all 3 motors.

PHOTO 8A

Please note: The diameter of the adjusting tube is 35 mm, which is the ideal amount of space among the 3 wheels. The robot functions correctly up to a diameter of 37-38 mm.

PHOTO 8B

REPLACING THE WHEELS

When the wheels can't be adjusted anymore, or the special coating on the wheels has worn off, the wheels should be replaced. To do so, start with the lower wheel. Using the smaller 2 mm hex wrench, loosen the small setscrew that holds the wheel onto the shaft of the motor (see Photo 9A) Before taking it off, check and memorize the exact position of the wheel on the shaft of the motor. Pull the wheel off the motor shaft and remove the three #1 Phillips screws that hold the foam wheel onto the hard plastic hub. Remove the wheel from the hub and replace with a new wheel. Then refasten the hub to the wheel. Slip the wheel assembly onto the motor shaft until the position of the original wheel is reached.. Tighten the setscrew.

PHOTO 8C

Now manually spin the wheel to be sure it is not rubbing on any surface. If so, loosen the setscrew and slightly move the wheel's position on the shaft and try again until the wheel no longer rubs on any surface. Lastly, tighten the setscrew securely.

For the upper motors, the procedure is a little bit different. Begin by removing the 4 mm hex adjustment screw (see Photo 9B). Grab a hold of the motor cover, and pivot the entire motor mechanism away from the Ball Tube (see Photos 9C & 9D). Now you can remove the old wheel and push the new wheel on the motor shaft, and then refasten the wheel onto the motor shaft using the same procedures as described above for the lower wheel, then replace and tighten the 4 mm hex screw.

These upper wheels may not be as easy to remove from the shaft, or put back on the shaft, due to the close proximity of the Head Panel and the Oscillation & Trajectory Motor Cover. But because the wheels are foam, the wheel can be removed and replaced with a little force to bend the foam out of place. If removing the wheel is too difficult, you can remove the Oscillation & Trajectory Motor Cover to provide more room for wheel removal and replacement.

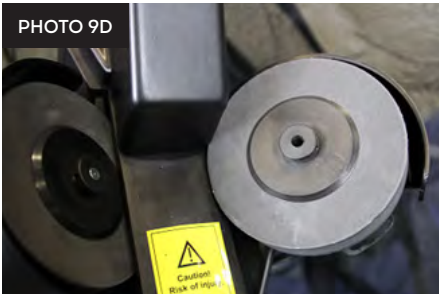
Even if only one of the upper wheels has been damaged, we recommend replacing all upper wheels at once, to ensure the robot does not become inaccurate After replacing wheels, adjust the wheel spacing as described in the previous section, Checking and Adjusting Wheel Clearance.

PHOTO 9A

PHOTO 9B

PHOTO 9C

PHOTO 9D



BALL JAMS

Your robot is equipped with a special system to detect and react to problems in the ball channel. When the system detects a problem, it will attempt to automatically clear the ball jam by turning the Ball Feed Motor and the wheels forward and backward 7-8 times.

If the error can't be resolved so, all motors stop and the system shows an error code on the display (Er1 or Er2). Er1 indicates a problem in the base of the robot, and Er2 indicates a problem in the head of the robot (see Troubleshooting, p. 22).

To begin troubleshooting, first disconnect power. For an Er2 code, check that a ball is not stuck among the 3 wheels (commonly occurs after moving the head height down). If so, simply remove those balls by hand and resume normal operations.

For an Er1 code, remove the head by disconnecting the Head Cable, loosening the large Black Knob on the rear of the Ball Tube, and pulling up on the head. Then tilt the entire net system forward to expose the access slot on the Base Bottom, (see Photo 10). Take a long rod-like tool (screwdriver, dowel, etc.) that is about 30cm (12 inches) long, insert it into the access slot, and push balls out the top of the lower Ball Tube.

Once clear of balls, with the help of a flashlight, inspect inside the ball channel and clear out any foreign objects or dirt. With the ball channel empty, test ball feed to see if the ball stirring mechanism rotates when Ball/Min is turned up. Without any balls in the machine, the ball stirring mechanism should rotate approximately 11-12 times before it stops automatically. If so, place balls back in machine and resume normal operations. If not, it is indicative of problems with the Ball Feed Motor and/or the Ball Feed Mechanism and you should contact your an AMICUS Service Center for further assistance.

PHOTO 10

OTHER MAINTENANCE

After a lot of use, the White Strip found on the inside upper surface of the Deflector Plate can wear out and the machine becomes inaccurate. In such a case, without removing the Deflector plate, clean the White Strip with isopropyl alcohol to remove all dirt. After long use, the White Strip can develop an indentation where the balls repeatedly strike it. Once this indentation appears, it is time to replace the White Strip (ball trajectory will become less consistent). Contact your AMICUS Service Center for a replacement White Strip and replacement instructions.

The rest of the machine needs no maintenance. However, you can remove dirt and dust from the surface of the robot with a moist cloth and a mild, water-based cleaner as necessary.

5. TROUBLESHOOTING

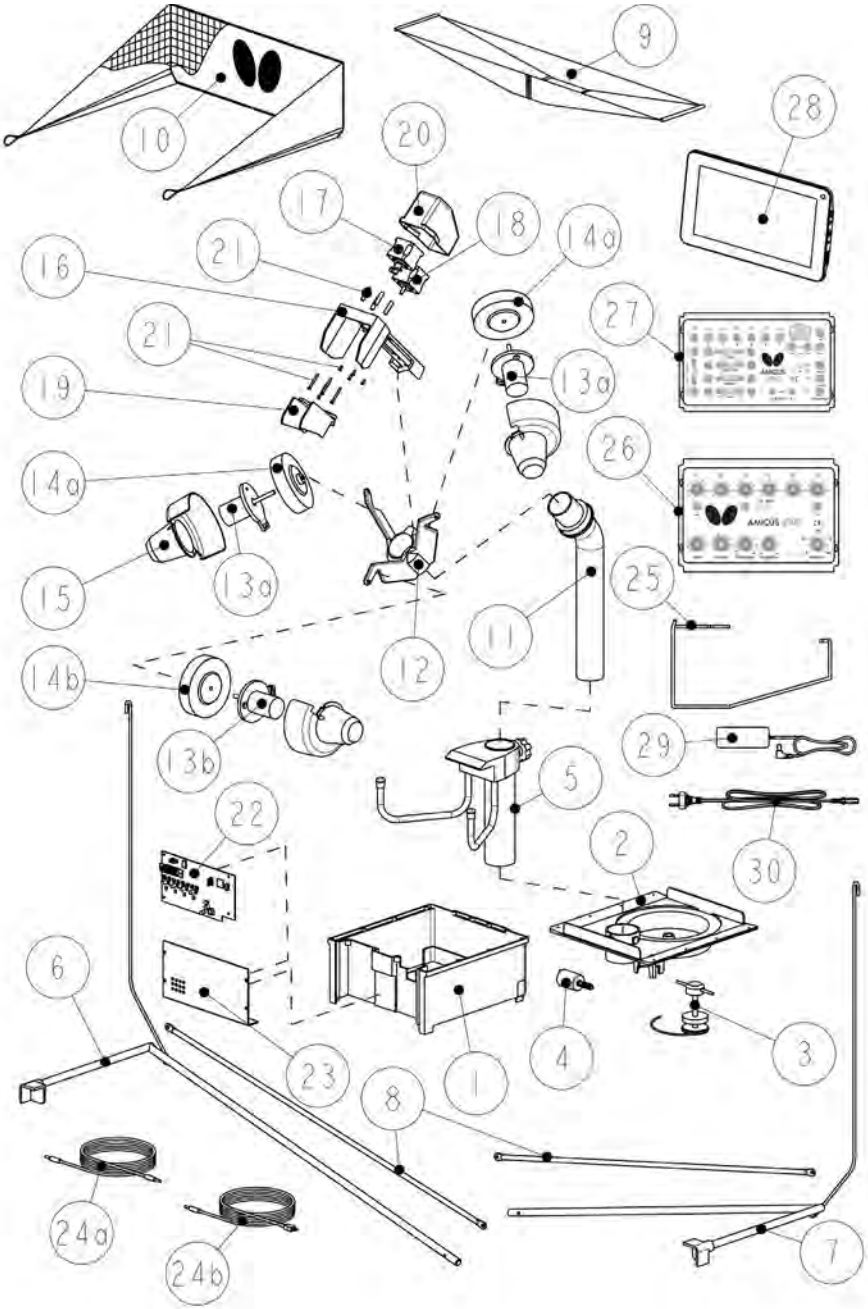
PROBLEMS	SOLUTIONS
1. Head or Support Legs point towards net.	**A.** Loosen the large Black Knob on the rear of the Ball Tube, then rotate head 180° so head points away from net. Grasp Support Legs and rotate them away from net (p. 4).
2. The robot does not function. No lights, no sound, no movement.	**A.** Control Panel Cable loose. Check connection. **B.** Plug Power Supply into power outlet and connect other end to power jack on the Base (see Photo 6A, p. 6). **C.** Is green LED on Power Supply lit? If not, check outlet for power. If power is present, replace Power Supply.
3. Control Panel LEDs light up, but no balls are thrown.	**A.** Set the Ball/Min knob higher than zero. **B.** Press Start/Stop to start ball delivery.

4. Balls thrown to wrong places.	**A.** Are there rubber bands around the Deflector Plate and/or is there a blue foam pad above it? If yes, remove those parts so Deflector Plate can move freely. Those parts are used only during transport. **B.** Is Random on? If so, turn off (p. 11). **C.** Unplug all 3 cable connections and then re-plug. Connect cable to Control Panel last. **D.** Check pins of Head Cable to be sure none are bent or missing. There should be 15 pins. **E.** If robot throws balls further to one side than the other, Deflector Plate may need to be adjusted or replaced. Call your AMICUS Service Center.
5. Balls thrown at irregular depths.	**A.** Check wheel clearance (p. 19). **B.** Wheels worn. Replace all 3 wheels (p. 20). **C.** Clean White Strip on Deflector Plate with isopropyl alcohol. Replace if worn (p. 22).
6. Double throws or missed throws.	**A.** Head height improperly adjusted (p. 8).
7. Random Place LED won't turn on (p. 11).	**A.** Exercise needs at least 2 Balls. If only 1 Ball LED is lit, add a second Ball (p. 11).
8. Er1 shown on display. Ball LEDs flashing.	**A.** Defective or oversized ball or foreign object jamming the lower ball channel. Clear channel and test ball feed (p. 21). **B.** Dirty or unwashed new balls are being used. Clear ball channel of balls, then wash the balls to remove grit, rinse, and dry before placing back into robot. **C.** Is a foreign object or ball preventing the Ball Stirring Springs from moving? If so, remove that foreign object or ball. **D.** Was Black Knob tightened too much, denting the upper Ball Tube? Disconnect the head, and roll a ball up and down the Ball Tube to check if it is obstructed. If so, call your AMICUS Service Center. **E.** Bad Ball Feed Motor, broken gears or motor support. Call your Amicus Service Center.
9. Er2 shown on display. Ball LEDs flashing.	**A.** Is ball stuck among the 3 wheels? If so, turn off power, and then remove that ball. **B.** Bad Ball Throw Motor. Replace.
10. Er3 shown on the display.	**A.** Overheated electronics. Switch off power and wait several minutes. If Er3 disappears, resume operations. If Er3 remains, call your Amicus Service Center.

Attention: If you are unable to solve problems with the help of this Troubleshooting chart, please consult an AMICUS service center. If you see any exposed wires on the Power Supply, disconnect from power immediately and replace the Power Supply. Failure to do so can result in serious harm.

6. LIST OF REPLACEMENT PARTS

1	Robot body bottom part	**16**	Ball placing head
2	Robot body upper part	**17**	Placing motor right-left
3	Feeding shaft	**18**	Placing motor high -low
4	Feeding motor	**19**	Deflector
5	Hanging mechanism	**20**	Placing motor cover
6–7	Net streching tubes (Left-right)	**21**	Spacer tubes and screws
8	Mover tubes	**22**	Power electronic
9	Ball collecting net	**23**	Power electronic cover plate
10	Ball catching net	**24**	Extension cord - Start,Expert
11	Ball feeding tube	**25**	Control box hanger
12	Ball throwing head	**26**	AMICUS Start controlbox
13L	Left top shooting motors	**27**	AMICUS Expert controlbox
13B	Right top shooting motors	**28**	7 inch tablet (Prime)
13LO	Lower shooting motor	**29**	24V 3A adapter
14	Throwing wheels	**30**	AC cable for adapter
15	Throwing motor cover	**31**	Charger cable (Prime)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12
14b
29
13b
5
22
2
30
6
4
3
23
1
8
24a
24b
7

7. TECHNICAL DATA

Electrical Specifications: 100-230V, 50-60Hz AC, approximately 60W Can be operated in a temperature range of 0–40°C (32–104°F).
Weight: 6 kg with net (13.2 lbs.), Overall dimensions (folded, with net): Height 0.75m, Width 0.28m, Depth 0.25m (2.5 x 0.9 x 0.8 feet).

An examination was done for the Power Supply:
Conformity with Low Voltage Directive 73/23/EEC, as last amended by EEC Directive 93/68/EEC–Registration #: AN 50091861 0001, Report #: 17004848 001. Also Test Reports # NTEK-2010NT1115351E and NTEK-2010NT1115353SS.
The AMICUS EXPERT table tennis robot is permitted to bear the CE trademark. Manufacturer: Tamasu Butterfly GmbH, Kommunikationsstr. 8, 47807 Krefeld

8. WARRANTY INFORMATION

FULL 2-YEAR MANUFACTURER'S + 1-YEAR DISTRIBUTOR'S WARRANTY

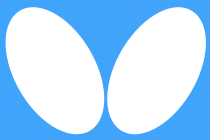
Manufacturer warrants to the original retail purchaser this product to be free from defects in material and workmanship for a period of 2 years from date of purchase. Bowmar Sports, distributor of Butterfly products in North and South America, adds another 1 year to the warranty period for a total of 3 years.

Should this product become defective due to material or workmanship during the warranty period, contact an Amicus Service Center describing the problem. Always provide your serial number. We will provide you with return authorization and shipping instructions, or provide a replacement part and instructions for replacement. If you are asked to return the product, pack it securely.

If defective as provided by the terms of this warranty, we will, at our option, repair or replace the product and return it prepaid (areas outside a service center's territory will carry a shipping charge).

This warranty is not transferable and does not cover normal wear and tear, or damage caused by improper handling, installation, or use. This warranty is void if the product is in any way abused, damaged, or modified from its original state.

This warranty gives you specific legal rights, and you may have other rights that may vary from state to state, or country to country.



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