



Table Tennis Robot

AMICUS 1000 PLUS



AMICUS 1000Plus

Operation Manual

Important: Please read these operating instructions carefully before operation!

The chapter Control Panel (Summary Description) explains the basic preparations for the operation of the Amicus 1000Plus. Detailed instructions follow in the chapter Operation. The necessary preparations and steps of operation are explained in these parts. It is recommended to have the assembled robot at hand (at first, without balls) while reading the operation manual. It is then possible to try out the different operational devices in order to get familiar with them, until you can make the most of all functions.

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Table Tennis Robot Amicus 1000

From novice to professional, from defender to aggressor, suitable for every type of player and every game level.

- Ball shooting wheels made of rigid foam with special coating for long life
- Solid, functional workmanship
- Well thought-out and easy to use control panel
- Placement of the balls with chosen rotation and speed on different spots
- Random functions
- Computer-controlled adaptation of ball placement in length (throws of equal length into the corners and the center of the table)
- Torsion bar allows recycling of the balls without interruptions
- Remote control
- Large collection net with side catch for optimal ball recycling
- Height adjustable ball tube
- Side Mount for Control Unit

You are now the owner The Amicus 1000 Plus. We take every effort to offer products of the highest quality and to deliver them complete and free from defects. If it should

occur that some parts are missing or defective, please contact Butterfly.

The manufacturer offers a 2 year full warranty, starting with the date of purchase.

Please keep your receipt.

Please note:

- Please read this operation manual carefully before putting the machine into service!
- The ball machine may only be connected to an earthed mains with 110 V voltage!
- The ball shooting wheels rotate at high speed. For that reason, avoid contact with these wheels during operation!
- The Amicus 1000 Plus should only be used in closed and dry rooms!

If you take this advice into account, your "Amicus 1000 Plus" will always be a great training partner and a friend (Amicus, Latin for „Friend“).



OPERATION MANUAL

1. Assembly (supplied parts)

The following parts must be assembled:



Ball Container



Ball Transport Tube



Amicus Base



Ball Collection Net



Robot Head



Side Mount & Control Panel



Net Mount



Accessories
Allen key, 2 extra fuses,
extra rubber band for
the collection net



Extra Cords & Wheel

ATTENTION:

Make sure that the electric plug is not plugged in before assembling the parts.



1. Using a Phillips screw driver, attach the ball bucket to the base unit. Make sure that the screws can-not fall into the ball transport opening.



2. Slide the ball transport tube onto the connecting tube piece at the robot base and tighten, using the supplied Al-len key. Make sure the tube is all the way down as far as it can go!



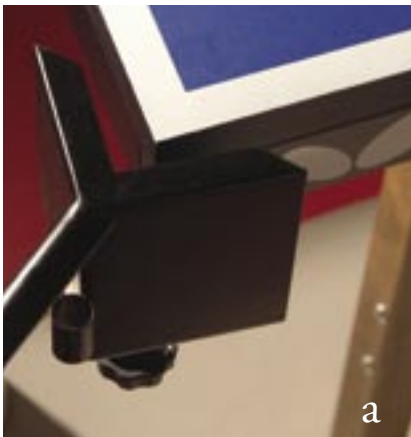
3. Push the cord that connects to the control unit snugly into the slot on the ball guide tube.



4. Slip the robot head onto the guide tube as shown. Make sure that the head goes down as far as it can go. Tighten the lower screw with the supplied tool. Do NOT touch or adjust the upper screw. It is factory set.

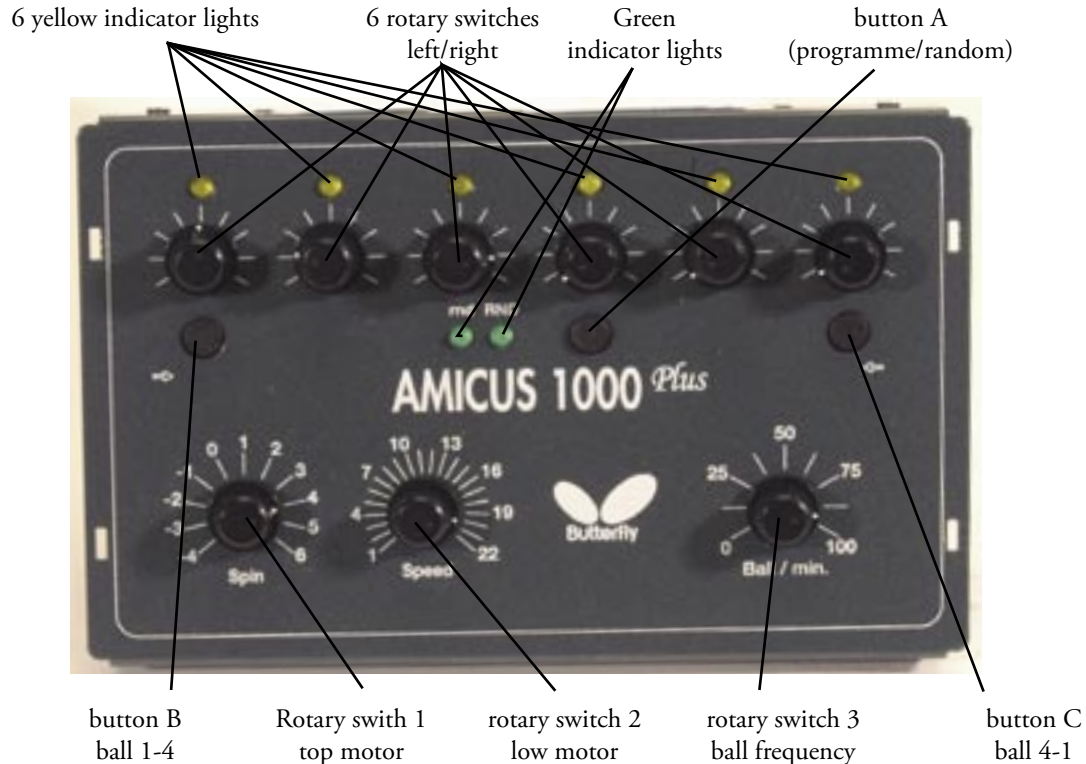


5. If attaching the control unit to the robot head, slide over the two notches. If attaching the control unit to the side mount see picture. Once this is done, plug in the two cables.



6. Attach the net brackets on the corners of the table(a) and slip the tension tubes on the tube pieces(b). Slip the 6 sown-on stoppers into the respective end of the extension tubes and in the tube pieces of the corner profiles(c). Make sure to place the part of the net cut out for the robot head approximately 20 cm. above the table with the Butterfly logo being easily visible by the player. Then pull the ends of the ball collection net over the net holder and attach the rubber bands at the fastening screws of the table tennis net(d). If you do not fasten the net as described, the balls cannot roll off correctly, especially in the side parts.

2. Control Panel (Summary Description)



With the help of the rotary switches and the buttons, it is possible to program six different hitting points, for example Ball 1 * left, Ball 2 * right, Ball 3 * centre, Ball 4 * right...

Button A: Switching from normal function to random function

Button B: Optional activation of up to six balls (maximally)

Button C: Resetting from six balls (maximally) to one ball (minimally)

Rotary switch 1: Control of the top motor (spin and speed)

Rotary switch 2: Control of the low motor (spin and speed)

Rotary switch 3: Regulation of the ball frequency (ball throws per minute)

The six yellow indicator lights show how many balls are activated at a given time. The flash-ing light indicates the ball that will be thrown out next. The green light will only glow if the random function is activated (at least two different balls must be activated!).

3. Operation

Turning the Machine On

Place the machine under the ball catching net so that the ball container is situated under the cut out part of the net. Fill the container with a sufficient quantity of balls (at least 50-60 balls) and turn the robot on at the robot base.

When turning the machine on, have the remote control at hand in order to be able to stop the ball transportation, if necessary, or set the ball frequency ('Ball/min') at 0 balls per minute. This assures that no ball is thrown out uncontrolled because of a wrong setting of the robot.

After being turned on, the robot executes a brief self test (approximately 3 seconds). Then the control unit automatically switches to the basic setting. The first yellow indicator light is flashing. The ball throwing machine is now ready.

Attention: If there are no balls in the machine, it can take up to approximately 30 seconds (depending on the chosen ball frequency) until the first ball can be thrown out!

For a better understanding and to guarantee the correct operation of the machine, the basic functions offered by "Amicus 1000Plus" will be described in detail in the following.

Be careful: Do not get too near to the ball throw discs with your eyes or your hair. Risk of injury! Do not let children use the robot without supervision.



Adjustments

The Amicus can throw out the balls according to the following main characteristics:

- a.) Spin
 - b.) Speed
 - c.) Height (Trajectory)
- } Ball Type
- d.) Left – Right Placement } Ball Placement

The ball placement on the table corners facing the table centre is adapted automatically by a patented invention. This means that it is not necessary to adapt the trajectory of the balls manually if the placement of the balls is programmed with the same distance at different spots. By computer control, the ball in the centre of the table will have the same length as the balls to the side so that no ball will hit behind the table.

Speed and Spin

If you observe the following instructions, it is very easy to set the speed and the spin of the balls:

- Speed: The higher the sum of the values set at the two rotary switches 1 and 2, the higher is the speed of the thrown out balls.
- Spin: The bigger is the difference between the top motor (rotary switch 1) and the low motor (rotary switch 2), the stronger is the spin of the balls. If the value of the top motor rotary switch is set higher than that of the lower motor, the balls are thrown out with topspin. If the top motor is set at a smaller value than the low motor, the balls are thrown out with backspin. If both rotary switches are set at the same value, the balls are thrown out without spin.

Please note: If one of the rotary switches of the motors is set at position “0”, the other motor must be set at least at position “3”, because otherwise the force would not be sufficient to throw out the balls. The balls will get stuck between the throw discs and the control unit will turn off the robot.

In this case, turn off the main switch, remove the ball from the throw discs, change the setting of the rotary switches and switch the main switch on again.

Examples:

Setting of top motor (rotary switch 1)	Setting of low motor (rotary switch 2)	Ball throw-out
4	2	little topspin, medium speed
7	2	more topspin, high speed
2	5	more backspin
5	5	no spin, medium speed shot

A reasonable setting of the trajectory is absolutely necessary in order to allow the balls to reach the other half of the table!

Trajectory and Distance

The trajectory is determined with the help of the knurled screw on top of the robot head. Turn the screw until you get the desired trajectory

- Turn the screw clockwise – the trajectory will become lower
- Turn the screw anticlockwise – the trajectory will become higher

In order to set the throw length correctly, turn the knurled screw until the balls approximately hit the desired point. Fine tuning can then be executed by careful use of the rotary switch 2 (“Low Motor”) on the control unit.

Ball Placement

1. Programming your first ball

After turning the robot on, the control unit has automatically switched to the basic setting. The first yellow indicator light is flashing. You are now ready to program the first ball. Try programming a top spin shot down the middle of the table for starters. Set the rotary but-tons, as explained above, and have some fun.

2. Programmed ball throw onto various points of the table

With button B “==>”, at least two balls, yellow indicator lights must be activated. Then the various hit points of the balls can be chosen with the corresponding left/right rotary switches. The flashlight indicates which ball will be thrown out next. With button C “⌘”, single balls can be cancelled.

Example according to the setting of the control panel on page 5, if all six balls are activated (all six lamps are glowing):

First ball onto the centre of the table, second ball onto the left half of the table, third and fourth ball onto the right half of the table, fifth and six ball to the table centre.

3. Random ball throw onto various points of the table

With button B “==>”, again, at least two yellow indicator lights must be activated. In order to activate the random function, button A (Pr/rnd/Rnd) must be switched on. The green lamp will be glowing. If two balls have not been chosen, the green lamp cannot be switched on, even if button A was activated, because the random function would make no sense with only one ball.

Then again, the various hit points of the balls are chosen with the corresponding left/right rotary switches. The balls are now served at random.

Here, too, the flashlight shows which ball will be thrown out next. With button C “⌘”, single balls can be cancelled.

INFO: The ball placement onto the table corners is adapted automatically with regard to the centre of the table by our patented invention. This means that the ball length needs not to be adapted manually, if the balls are intended to be placed with the same length onto different spots. Because of the computer control, the ball in the middle will have the same length as the ball to the sides so that no ball will come down behind the table.

Sidespin

For the adjustment of the sidespin, loosen the small wheel on the left side of the robot. The ball throw head can now be turned in both directions approximately 45°.

Take the metal braces so that the robot head can be easily turned with the hand and set it at the desired angle. Then tighten the wheel again.



Ball Frequency (Balls per Minute)

With rotary switch “3”, the ball frequency can be chosen continuously. An adjustment of 0 to 100 balls per minute is possible. The higher the value is set, the more faster the balls are thrown out one after the other.

Remote Control

With the remote control, the ball transportation and consequently the ball supply can be switched on and off.

The player can thus take his position and switch the ball transportation of the ball throwing machine on and off with the remote control after having executed all necessary adjustments of the control panel.

Please note: With the remote control, you can only switch on and off the ball transportation. The shooting wheels will continue to turn!

Turning the Amicus 1000Plus off and Putting out of Service

If you want to turn off the ball machine, turn off the red main switch on the robot base and unplug from the wall socket. Please remove the two cable plugs on the control panel only after turning off the robot. Store the Amicus 1000Plus in a dust-free, frost-free and dry place.

Transport

On the bottom of the robot, there are two small wheels for the transportation of the robot. Tip the ball machine slightly and roll it to its place.

4. Maintenance and Repair

Important: Before executing maintenance and repair works, always unplug the power cord from the wall!

•During the operation, make sure that no small parts (for example, hairs, indented balls, etc.) get into the collection container and thus into the machine, because they can lead to ball jams.

•The Shooting wheels are very durable (at least 500 hours). Nevertheless, these wheels will finally wear after intense use. One sign for worn off wheels is that the machine throws out the balls with irregular lengths at high speed. This means that the surface of the wheels does not get enough hold of the balls. For that reason, the distance of the wheels has to be adjusted.

Remove the plastic wheel/motor. Loosen the adjustment screws and set the right distance by slightly turning the holders (Figure 11). The correct distance between the two wheels is 36 - 39 mm.



•When the distance cannot be adjusted any more, the wheels will need to be replaced. For this purpose, the threaded pin of the disc holder is removed and the plastic disc is pulled off the motor shaft. Take out the shaft of the wheel and insert it into the new disc (the fastening set can be disassembled). Slide the new wheel onto the shaft and tighten the threaded pin. Make sure that the discs are centred exactly to each other and do not scrape against the holder.

•If a **ball jam** should occur, the machine tries automatically to remove the jam by turning the motor and the wheels forwards and backwards (7-8 times). If this should not work, you have no other possibility than to disassemble the robot exactly in the reverse order as de-scribed on pages 4 and 5 and to remove the foreign body from the transport tube.



•Once every 4-6 months, the stop pin (Figure 8), which is needed to adjust the ball throw length, needs 1-2 drops of oil. The pin is easily accessible in the throw head. The rest of the machine needs no maintenance. However, it is recommended to remove dirt and dust from the surface of the robot with a moist cloth and a mild cleansing agent from time to time.



•If it should be impossible to turn on the machine, a fuse may be defective. The fuse can be replaced easily: First take the control panel out of its console and carefully lay the robot on its side. On the bottom of the robot base, there are two fuse jacks. Screw out the fuse jacks with a screwdriver, replace the defect fuses and screw the fuse jacks in again (two replacement fuses are part of the delivered machine).

5. Error Management

Attention: if you are not able to solve the problems with the help of this checklist, a specialist must be consulted!

Problem	Solution
No power to the machine. Machine does not turn On.	a) Bad wall socket? b) Fuse defect ==> replace fuse (see page 10)
On/off switch glows, but the ball wheels do not turn; yellow indicator light on the control panel does not flash	Check to make sure the cables connecting to the control unit are securely fastened.
On/off switch glows, yellow indicator light glows; no ball transport	a) Remote control switched off? b) Rotary switch 3 for ball frequency set on "zero"?
Ball throw-out with irregular lengths	a) Check distance of ball throw discs, discs worn off (see page 10)? b) Wrong assembly of the robot: Have the ball transport tube, the sheath tube or the ro-bot head been slid on as far as it will go? c) Stop pin for throw-out length regulation gets "caught" ==> oil slightly
Ball jam; control unit switches off	a) Be sure no small objects (other than the balls) enter the small opening at the bottom of ball bin. b) Amicus automatically tries to correct the situation by turning the drive, and shoot wheels backward and forward for 3-4 seconds. If problem persists, disassemble the robot in reverse order, and remove the foreign object that caused the jam. Turn robot gently on the side, use a sturdy thin object and push jammed balls along, through opening underneath the machine
Random function on the control panel cannot be activated, green indicator light cannot be switched on	At least two balls must be activated, at least two yellow indicator lights must glow (see page 8)
Ball gets stuck between ball throw discs, control unit switches off	Switch off main switch, remove ball from in between the throw discs, change setting of rotary switches 1 and 2 (see page 7), switch the robot on again

Please contact your specialist supplier or the Butterfly service address.

Always consult a specialist, if the power cable is defective or if the fuses immediately blow again after having been replaced! Otherwise you will lose any warranty claim during the two year guarantee period.

6. List of Replacement Parts

List of Replacement Parts

1000-100	Control unit	1000-102	Ball speed motor
1000-104	Loading motor	1000-106	Oscillating head motor
1000-108	Ball wheels	1000-110	Shaft for ball throw disc
1000-112	Ball placement mechanism	1000-114	Remote control
1000-116	Fuse	1000-118	Transformer
1000-120	Casing for robot base	1000-122	Sheath tube
1000-124	Motor casing (2 pieces)	1000-126	Ball container
1000-128	Ball collection net	1000-130	Net framework
1000-132	Extension cable for remote control	1000-134	Holder for control unit
		1000-136	Motor for height adjustment

Further replacement parts on demand!

7. Technical Data

Supply current: 110 V, 50 Hz alternating current, approximately 50 W

Class of touch protection (Germany): I.

The ball machine can be operated in a temperature range of 0 - 40 °C.

Fuses: 2 pieces T 400 mA

Weight: 10 kg (without net)

Overall dimensions (without net): Height 1.20 m; Width 0.35 m; Depth 0.68 m

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