

SPINBALL

Three Wheel Pitching Machine



Owner's Manual

CAUTIONS

- This machine is not a toy! Use under adult supervision only.
- Machine will throw balls and strikes- batters must stay alert and always wear a helmet.
- Use only regulation sports balls, or balls specifically designed for machine use.
- Use a grounded (3 prong) outlet only. Use a GFCI outlet when machine is operated outdoors. Do not use the machine in wet conditions.
- Do not store the machine with the urethane wheel tread compressed against the ground. Flat spots will develop.
- Machine operator (person feeding balls into machine) should stay behind a protective screen.

FAST, FREE, FRIENDLY HELP

For assistance assembling or using your machine, please view our videos online at www.spinballsports.com, call us at 618-244-4587, or email us at info@spinballsports.com.

ASSEMBLY & SETUP

REMOVE MACHINE FROM BOX Lift the machine out of the box and place it flat on the ground or floor with the control panel facing up. The machine is heavy and we recommend using two or more people.

LEGS Legs are shipped in a separate box. Slide the three legs into the sockets on the tripod base until the spring loaded buttons pop up. Lift the machine up by pivoting it on the front two feet. Again, this is much easier with two or more people. NOTE: Earlier models had one leg forward and two back.

BALL FEED RAMP(S) Single sport machines include one ramp, which is shipped pre-installed. Combination machines include one ramp for baseball (pre-installed) and one ramp for softball. To exchange ramps, remove the two nuts and washers that hold the ramp to the wheel guard, then replace the ramp and re-install the nuts and washers. See Figure 1.



Figure 1: Ball feed ramp installation. Ramp shown in blue for clarity.

MOTOR / WHEEL POSITION The gap between wheels is a critical adjustment to maximize pitch speed and accuracy. The optimal distance between wheels depends on the size and compressibility of the ball being used. Softer, more compressible balls require a smaller gap than harder balls do. And of course, softballs require a much larger gap than baseballs do. Too small of a gap will slow the wheels noticeably when pitches are thrown, producing a loud “thunk”. Too large of a gap will not generate enough squeezing force on the ball, and pitches will be too slow, without enough spin.

Each motor & wheel assembly has two profiled blocks that interlock with profiled pockets in the frame. There are 11 possible locations. By counting the number of empty notches on either side of the blocks, you can quickly and precisely locate each of the wheels. See Figures 5 and 6 for the typical positioning for real baseballs and softballs. For baseball, the blocks are one notch in from the center position, with 4 empty

notches on the inside and 6 on the outside of the block. For softball, the blocks are located at the outermost position, with all 10 empty notches on the inside. Each wheel and motor assembly should be moved one step inward from these locations when using soft dimpled balls, creating a tighter grip on the compressible ball.

The wheels are moved by loosening or removing the hex nut that holds each motor sled to the frame. Be sure to support the motor / wheel assembly when removing the nuts – do not let the motor fall or hang by its cord. Reposition the motor & wheel assembly as desired, then re-tighten the nut.

The positions shown in Figures 3 & 4 are just starting points and may require adjustment for optimal performance. Each motor does not need to be set at the same distance from center, but they should not be more than one setting apart.

Feel free to experiment and deviate from these suggestions to determine the optimal wheel gap for your situation. For example, cold weather will cause both the balls and wheels to harden, requiring a larger wheel gap than when the same machine is used in hot weather. Also, if the wheels begin to wear, they will need to be moved closer together to compensate.

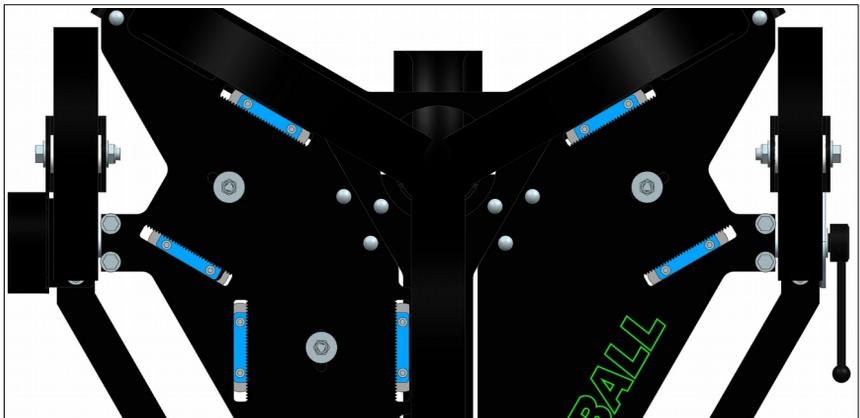


Figure 3: Typical motor / wheel positioning for real baseballs - motors are located one notch in from the center position



Figure 4: Typical motor / wheel positioning for real softballs - motors are located at outermost position

OPERATION

PITCH SELECTION Pitches are selected by directly setting the pitch speed, spin direction, and spin amount on the control panel. The machine uses these inputs to automatically adjust the individual wheel speeds required to generate the selected pitch speed and ball spin. You will still need to aim the machine using the two hand wheels.



Figure 5: Control panel

PITCH SPEED DIAL Set the knob to the actual speed of the pitch you want to throw. The speed dial is designed to show speeds for real baseballs. Because softballs are heavier than baseballs, they are thrown at speeds about 10% slower than shown on the dial. Lightweight balls may be thrown slightly faster than shown.

SPIN DIRECTION DIAL Point the knob in the direction you want the ball to spin and curve. Thrown balls curve in the same direction as they spin, and the greater the spin, the greater the amount of curve. By adjusting the direction and amount of spin, you also adjust the direction and amount of curve. See Figures 6 and 7 for the spin directions of various pitches.

The ball doesn't curve in exactly the same direction as its spin because gravity always causes the ball to drop. For example, an overhand fastball with pure backspin (spin direction: up) won't actually curve upward, but it will drop less than it would have without spin. A ball with horizontal spin will both curve sideways from the spin and drop from gravity, resulting in a diagonal break.

Pitches with no spin are knuckleballs and move randomly, but usually have some sort of drop. When the machine is set for no spin, the spin direction setting has no effect.

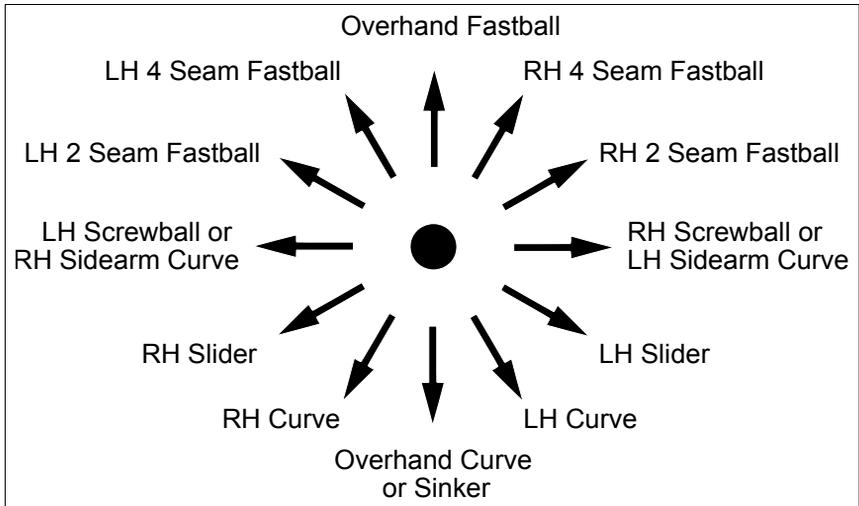


Figure 6: Spin direction for various baseball pitches

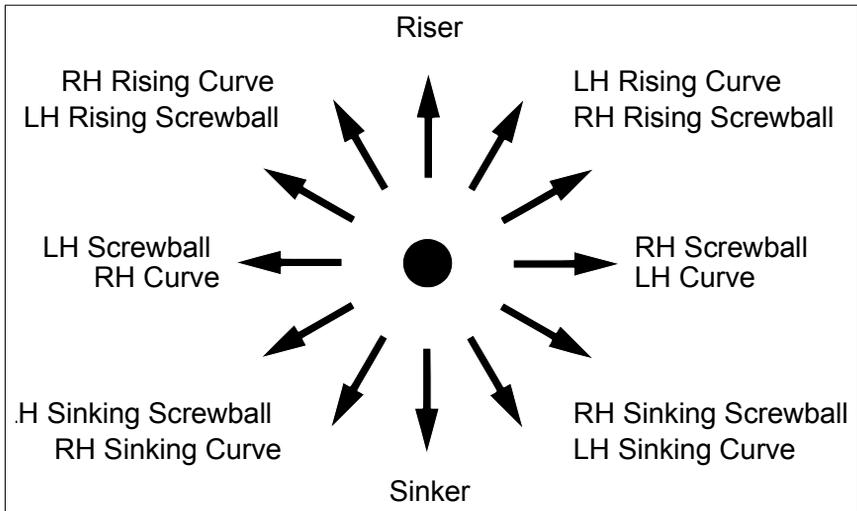


Figure 7: Spin direction for various softball pitches

SPIN AMOUNT DIAL Spin amount is set as ball spin rate in RPM. 0 is no spin, resulting in a knuckleball. 1200-1800 RPM is a low spin rate, and creates a small amount of break. 1800-2200 RPM is a medium spin, and is equivalent to a typical high school level pitcher. 2400+ RPM creates a professional level pitch with a high amount of break. These values are just general guidelines, which vary by type of pitch.

SPIN EFFICIENCY AND PITCH MODELING Spin efficiency is a measure of how much of a pitch’s spin is useful in generating break. Only spin that is perpendicular to the ball’s path causes the ball to curve. In other words, gyro spin (also known as rifle spin or football spiral spin) does nothing, but topspin, backspin, and side spin do. Pitching machines always throw with 100% spin efficiency, so if you want to accurately simulate a pitch with a low spin efficiency, you must reduce the spin rate setting as shown in the equation below.

$$\text{machine setting} = (\text{actual spin rate}) \times (\text{spin efficiency})$$

For example, if you want to throw a slider that has an actual spin rate of 2200 RPM and a spin efficiency of 75%, set the machine to a spin rate of

$$2200 \text{ RPM} \times 75\% = 1650 \text{ RPM}.$$

This value is also known as the effective spin rate. If you are setting the machine to mimic a specific pitch, be sure to check whether your data is true spin or effective spin.

DELAY AFTER ADJUSTMENTS The wheels have no brakes. If you change the pitch setting and one or more wheels has to slow down to reach the new setting, it will take time for the wheel to coast down to the new set speed on its own. The coasting time is usually less than a minute and can be reduced by throwing a few pitches to slow the wheel down.

AIM Pitch aiming is a trial and error process. Whenever you change a pitch parameter (speed, spin direction, or spin amount) you must adjust the machine's aim.

The machine has two precision gearboxes to rotate the machine both horizontally and vertically. Each axis also has a locking clamp. To adjust the machine's aim, loosen the clamp and turn the gearbox knob, then lock the clamp down again.

For defensive drills, you may want to pivot the machine around freely by the handle. To do this, simply loosen the horizontal and vertical locking clamps and move the machine as desired. The gearboxes will not be damaged.

ACCURACY The primary factor behind pitch accuracy is the consistency of the balls. While you can use many types of balls (real or dimpled, high or low seam, compressible or hard) you can not mix them in one setup and get consistent results. They must be dry and in good condition. Dimpled machine balls will be more accurate than leather baseballs and will also be easier on the wheels. Softer balls tend to be more accurate than harder balls because the wheels grip them better. Lower seams are better than high seams and cause less wear. The more consistent the balls are, the more consistent the pitches will be.

Brand new baseballs tend to be pretty slick. As they are fed through the machine a dozen or so times, the sheen is removed and both accuracy and speed will improve. Unfortunately, this process can also leave a residue on the wheels. This residue is slick and prevents the wheel from grabbing the ball sufficiently. The wheels can easily be cleaned with lacquer thinner and a Scotch Brite pad.

Synthetic leather baseballs wear quickly and leave excessive residue, so we strongly recommend against their use. This includes the Wilson A1010S. (Apparently the "S" stands for synthetic.)

Jugs Pearl® baseballs will not give good results in our machines. They are much slicker than standard baseballs which hurts pitch accuracy.

Another key factor in optimal accuracy is the size of the gap between the

wheels - see Motor / Wheel Position earlier in this manual for a full discussion.

SPEED DISPLAY ACCURACY The analog speed indicator is very close to actual pitch speed, but it is not exact. There is no economical way to compensate for the different types, weights, and conditions of the variety of balls that might be used. The speed setting is, however, very consistent and repeatable, so that once a machine is set, it will deliver consistent speed and accuracy. As a general guide, softballs are thrown approximately 10% slower than indicated.

MISCELLANEOUS

MAINTENANCE If stored outdoors, keep the machine covered to protect it from rain. Tarps are available at any local hardware store, but even a large trash bag will work. Do not leave the machine outside during storms. High winds can blow the machine over and damage the wheels and/or motor shafts. This is not normal use, and is therefore not covered by warranty. Residue may be cleaned from the wheel tread with lacquer thinner and a Scotch Brite pad.

WARRANTY If your machine doesn't perform like you expect, please contact Spinball and we will attempt to diagnose the problem for you. If a part fails during the warranty period and you feel confident you can install it yourself, we will send the replacement part for free. If something goes wrong during the first 30 days you have the machine, you can also choose to return it for a refund, subject to a restocking fee. If you need to return the machine for repairs, you will have to pay for shipping. We will repair the machine and return the machine back to you at our expense.

All components of your machine are covered for non-commercial use for five years from the date of purchase. The warranty does not cover cosmetic issues, normal wear, or misuse of the product, including modification of the machine or use of accessories not made by Spinball. For commercial use, the warranty period is one year. Warranties are not transferable.

THANK YOU!

Thank you for buying from Spinball Sports. We hope you will enjoy your new pitching machine for many years to come. If you have any questions or comments please email us at info@spinballsports.com or call us at 618-244-4587. And thanks again!