

Important Notice to Owners, Operators, Attendants  
and Service Personnel of this Baseball Pitching Machine

## CAUTION! KNOW THE DANGERS

This pitching machine is made and sold to be used as a training device to be operated only under the direct supervision of a responsible person who is familiar with its adjustment and operation, and fully aware of the dangers of careless operation. Keep this machine away from children and other persons not thoroughly familiar with its operation and the hazards of carelessness around it. To prevent unauthorized or unsupervised use, the safety cover provided and the service access door must be padlocked in place when the machine is stored or left unattended.

Whenever the pitching machine is in use, batters and onlookers must be warned to expect a pitch anytime that they are in front of the machine with its safety cover opened. Never stop or store the machine with arm near the ball pickup point. **(The arm could be cocked and could fire even with the power off.)** The pitching machine should be turned off immediately after the pitch so that the Arm is facing toward the batter (the safest position). [If the machine has controls that automatically stop the Arm in the safest position, these controls should be repaired immediately if the Arm does not automatically stop in the safest position.] In case of manual, accidental, or emergency stops, be extremely cautious of unexpected firing of pitching machine.

Batters must be instructed of the possibility of stopping the pitching arm in an unsafe position.

Never allow this pitching machine to be operated without a guard or adequate fence to keep the unwary from walking or stumbling into the arm, or getting into the exposed mechanism.

Do not use the area in front of the machine for other activities (such as throwing practice, tee ball practice, or human pitcher practice), and do not pick up balls directly in front of machine, without first locking safety cover on machine.

## SERVICING

Operators of this machine must assume responsibility for maintenance and adjustments on it, the selection and care of balls used in its operation, and for the overall safety of its operation.

### DISCONNECT STEEL POWER CABLE

A service access door allows servicing and adjustment of the pitching mechanism. Always disconnect electric power and the steel power cable when servicing machine.

### SHUT OFF MACHINE'S POWER

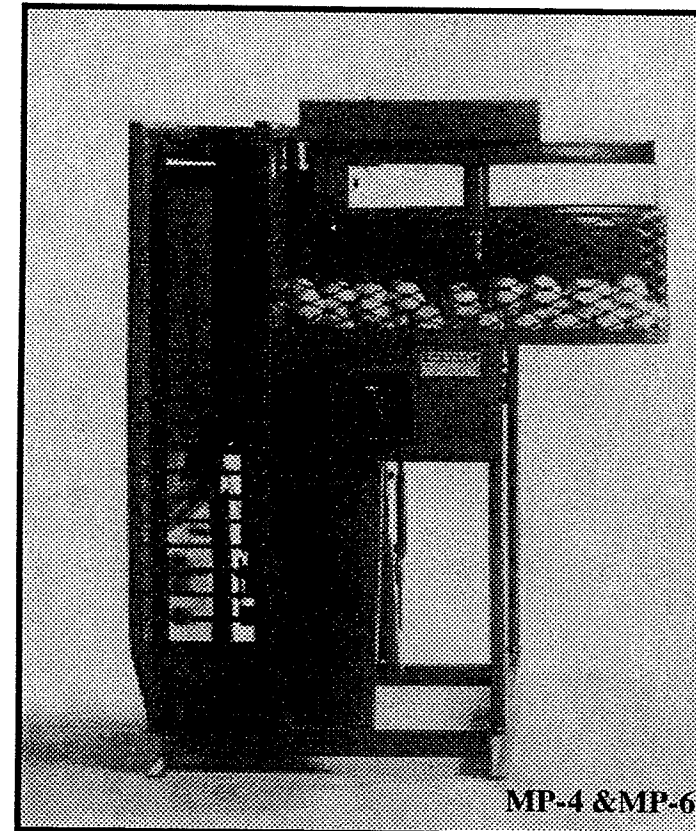
When making repairs or adjustments that involve being near the belt or chain drives, or the pitching arm, be sure that the machine power is disconnected.

### KEEP CLEAR OF THE ARM'S PATHWAY

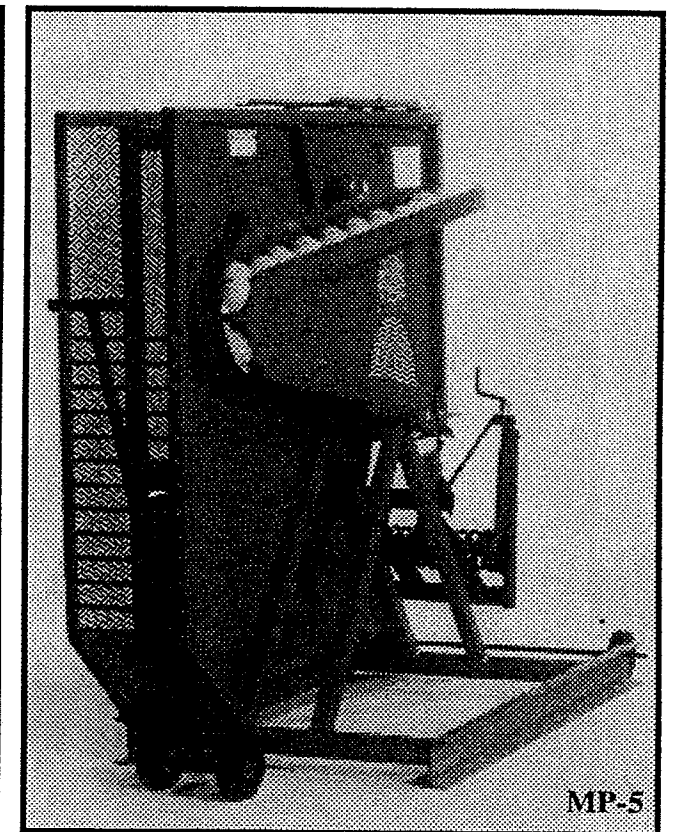
If it is necessary to rotate the machine by hand, do not allow fingers to stick out into path of pitching hand and arm. At all times, avoid getting into the path of the arm. When working inside the arm compartment, always remove the steel power cable.

**BE CAREFUL!**

# OPERATING AND MAINTENANCE INSTRUCTIONS



MP-4 & MP-6



MP-5

## Models MP-4, MP-5, and MP-6

# Baseball & Softball Pitching Machine

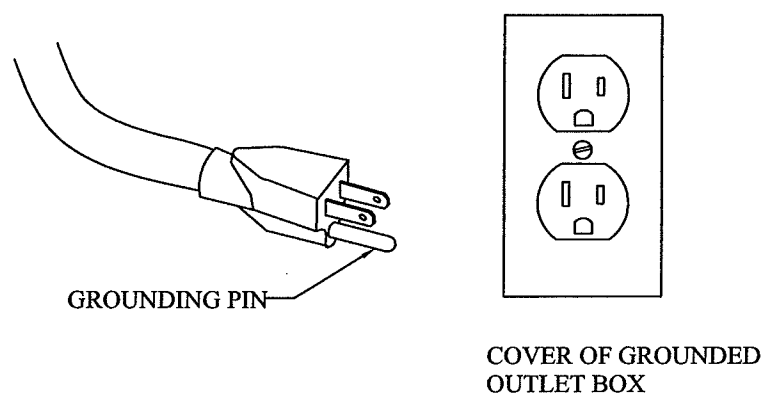
**Master Pitching  Machine**

4200 NE Birmingham Road • Kansas City, MO 64117 • (816) 452-0228 • FAX (816) 452-7581

## GROUNDING INSTRUCTIONS

This appliance must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

**DANGER** - Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the appliance is properly grounded. Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.



Use only cords with ground pins. Do Not use outlet adapters with this machine.

## INSTRUCTIONS FOR USE OF EXTENSION CORDS

Extension cords are available and may be used if care is exercised in their use.

If an extension cord is used:

The marked electrical rating of the extension cord should be at least as great as the electrical rating of the pitching machine.

The extension cord is to be a grounding-type 3-wire cord.

The extension cord should be arranged so that it will not drape where it can be tripped over, snagged, or pulled on unintentionally (especially by children).

An outdoor-use extension cord should be used with an outdoor-use appliance. An outdoor-use extension cord is marked with suffix letter "W" and with a tag stating "Suitable for use with Outdoor Appliances."

All extension cord connections should be kept dry and off the ground.

Store and Keep the pitching machine out of the reach of children.

Do not clean with a water spray or the like.

**CAUTION** - To avoid motor burn out, you must use the proper extension cord. Use the following chart as a guideline.

Length of cord	25'	40'	65'	100'
Gauge of Cord	#14	#12	#10	#8

## INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

### IMPORTANT SAFETY INSTRUCTIONS

**WARNING** - When using this pitching machine, basic precautions should always be followed, including the following:

- Read all the instructions before using the pitching machine.
- To reduce the risk of injury, close supervision is necessary when the pitching machine is used near children.
- Do not contact moving parts.
- Only use attachments recommended or sold by Master Pitching Machine.
- To disconnect, turn the Power Disconnect Switch to the **OFF** ("O") position. Disconnect when not in use and before servicing or cleaning or changing fuses. Do not operate the pitching machine after the machine malfunctions or is damaged in any manner. Contact the factory at [www.MasterPitch.com](http://www.MasterPitch.com) if you have any questions on the operation, safety or repair of this machine.
- Connect to an individual branch circuit. Ground properly. See grounding instructions.
- When the machine is in use, batters and onlookers must be alerted to expect a pitch any time they face the machine with the safety cover removed even with the electrical power turned off.
- The machine must never be operated without the arm guard installed. Make all adjustments inside the guard only with the power cable (the wire rope cable that attaches to the arm and spring) removed and the machine is disconnect from electrical power. Do not operate the machine without guards and covers in-place.
- The Safety cover (on training machines) and the service access door must be padlocked in place when the machine is stored or left unattended. All machines must be locked to prevent access by children or other persons not thoroughly familiar with its operations and the hazards of carelessness around it.
- Never stop or store the machine with the arm near the ball pickup point. The machine could throw the ball even without electrical power. Stop and store the machine with arm pointed towards the batter.
- Operators of these machines must assume responsibility for maintenance and adjustments on them, the selection and care of balls used in their operation and the overall safety of their operation and use.

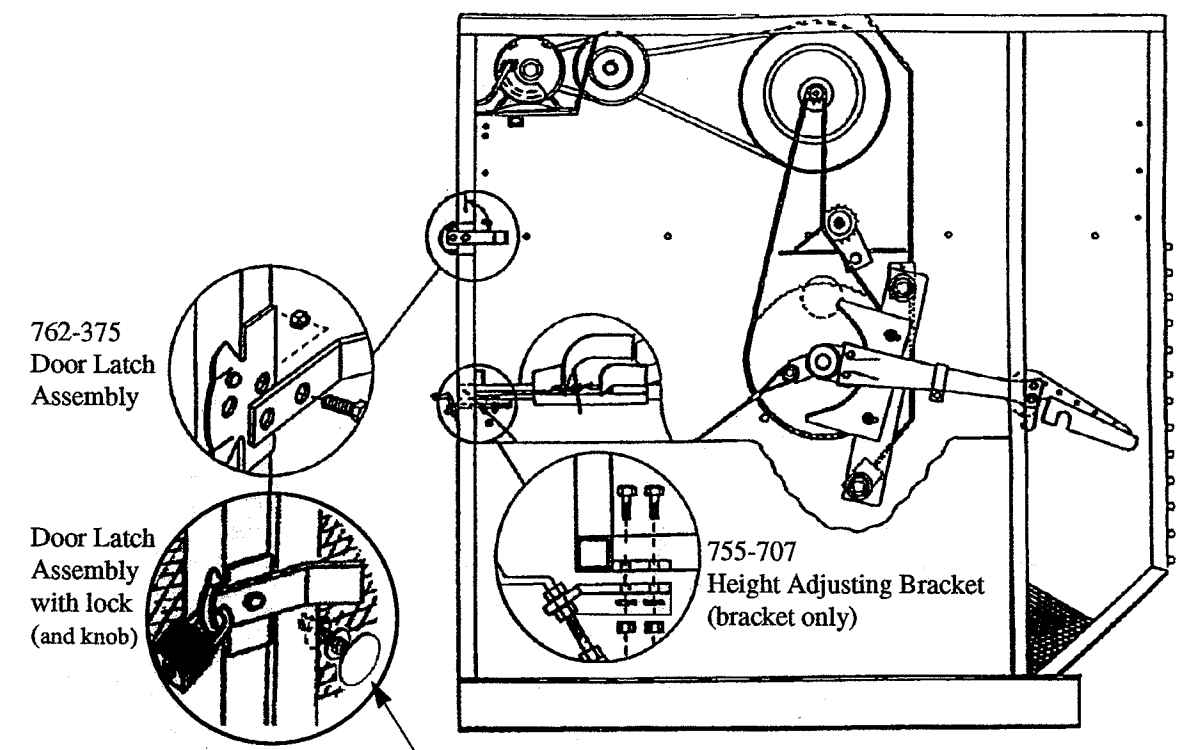
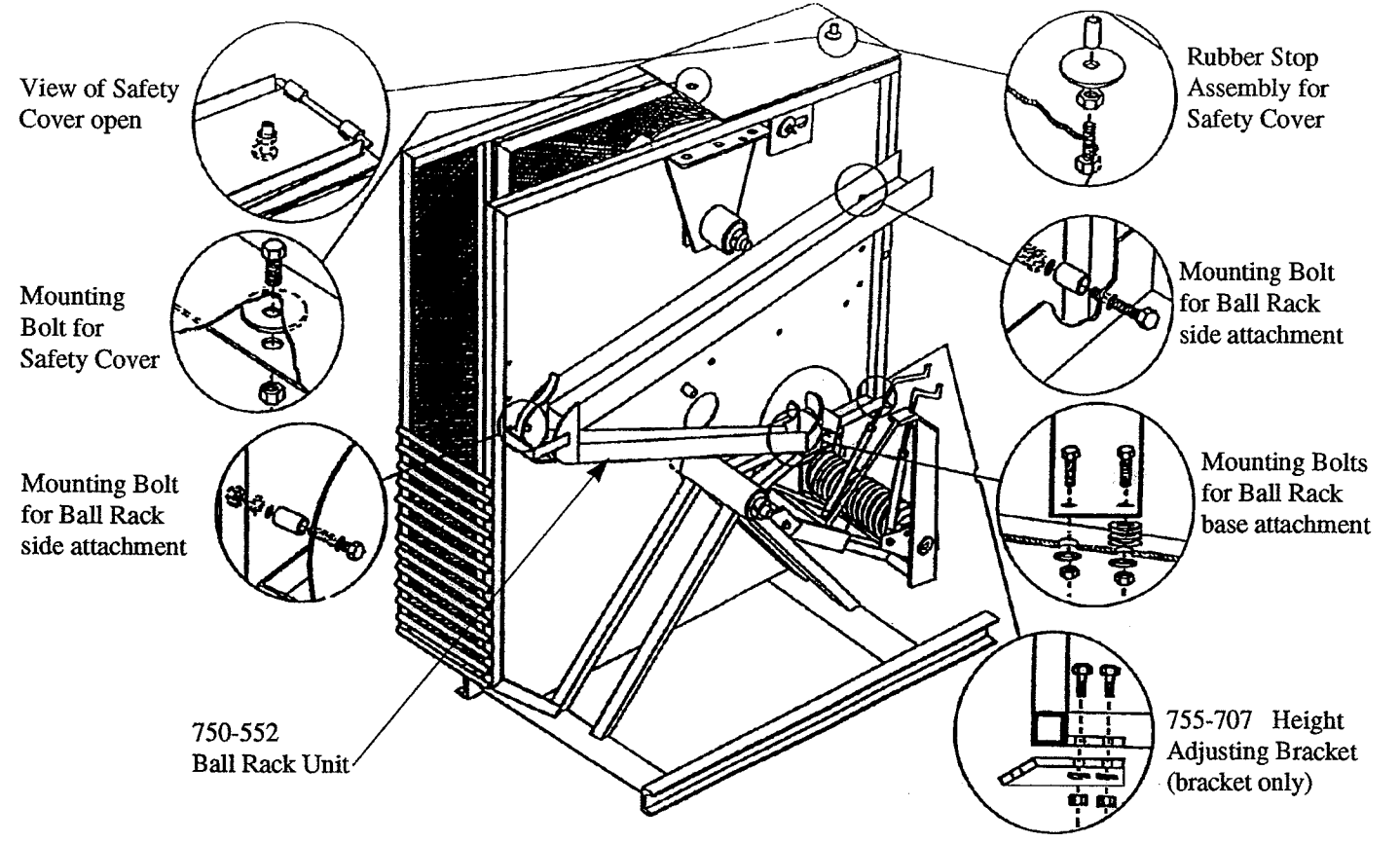
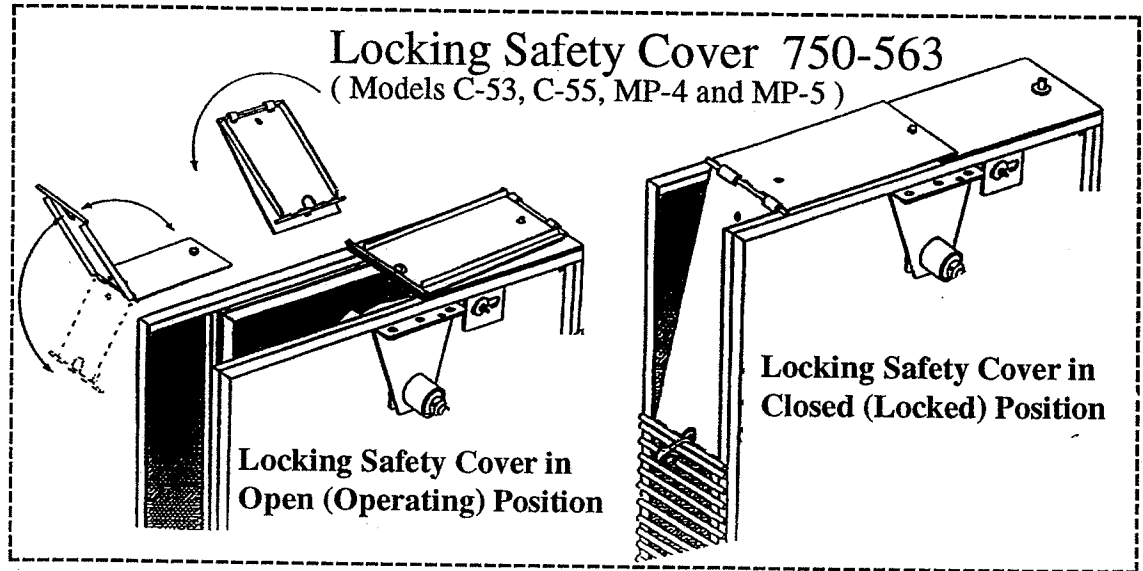
### SAVE THESE INSTRUCTIONS

# Installation of Various Components

Pitching Machines are generally shipped fully assembled except:

- 1) Be sure to bolt on the height adjusting bracket to the frame of the machine, if it is shipped unattached, prior to turning on the machine. (See illustrations on this page.) Failure to bolt on the bracket can result in damage to the machine.
- 2) Be sure to **remove machine from wooden pallet** prior to turning on machine. Failure to remove machine from wooden pallet can result in damage to the machine.
- 3) After first two hours of operation and daily thereafter, check the tightness of all arm and hub bolts.

Illustrations on this page illustrate some various machine component installations.



Install door knob close to the door frame for rigidity and close to the door latch (but not so close to the latch that fingers become pinched!). (The knob mounts inside the "expanded metal" between the two washers and nuts provided.)

# Transporting the C-53 or MP-5

## Installing the Wheels:

The Model C-53 or MP-5 pitching machine is shipped with the wheel and axle assembly unattached. This wheel assembly is attached as shown in Figures #2 and #3 with the two bolts (3/8"-24 by 1") that are packed on the assembly with lock nuts attached.

Install the bolts through the holes drilled in the frame at the rear of the machine. Tighten up both bolts most of the way, **but leave them loose enough that the assembly will swing freely.**

## Moving the Machine:

To move the machine, first take the moving dolly to the rear of the machine as shown in Figure #1. Place the tip of the dolly in the special socket provided *at the rear of the machine* and raise this end of the frame by pressing down on the handle. Flip the wheel assembly under the machine and lower the rear of the machine on to the wheels.

Now, place the tip of the dolly into the tab provided *at the front of the machine*. Hold the handle of the dolly down to raise the front of the frame. Move the machine to the desired location and lower the front, and then the rear, of the machine to the surface for operation. (To lower the rear of the machine, again use the dolly placed in the special socket to hold up the rear of the machine so that the wheel assembly can be flipped out from under the machine.)

## !!! CAUTION !!!

It is best to have two adults move the unit, especially on inclines or rough surfaces.

Because much of the weight of the machine is concentrated on the pitching arm side of the machine, be sure to guard against overturning the machine while it is being moved on inclines.

Figure 1

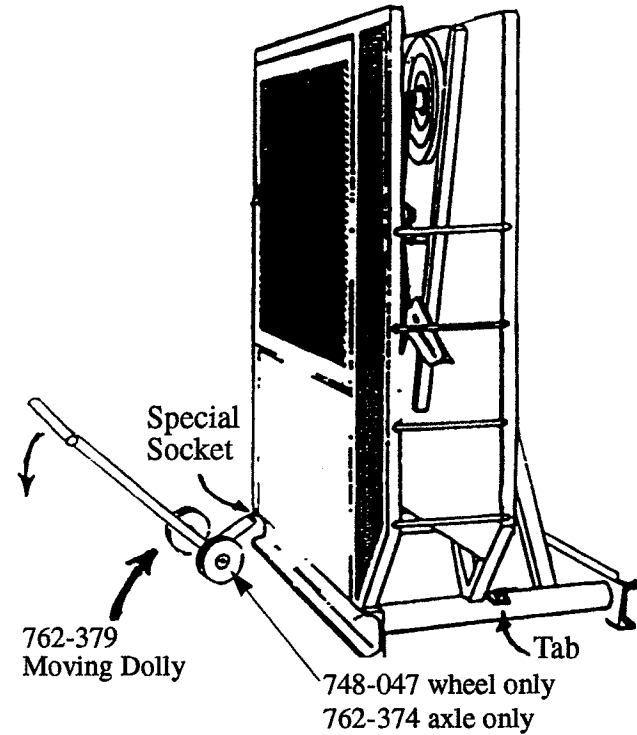
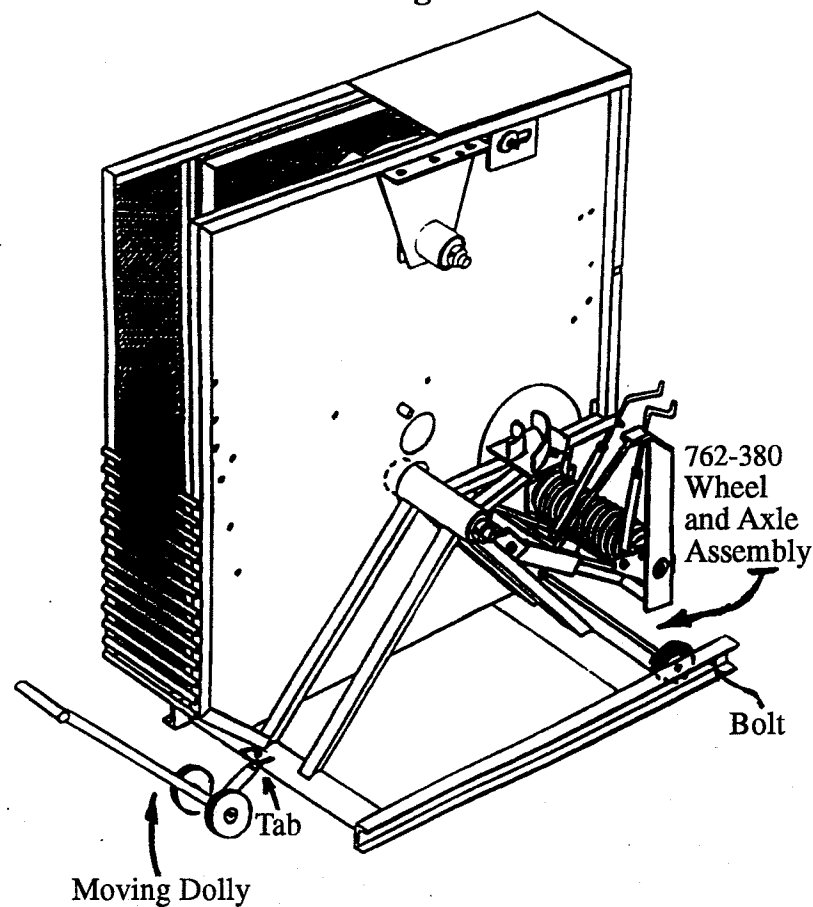


Figure 2



MP-4, MP-5 & MP-6 can use the Hold-downs (760051, and 760052) for securing to wood or concrete.

## Staking Down the Machine: On the MP-5

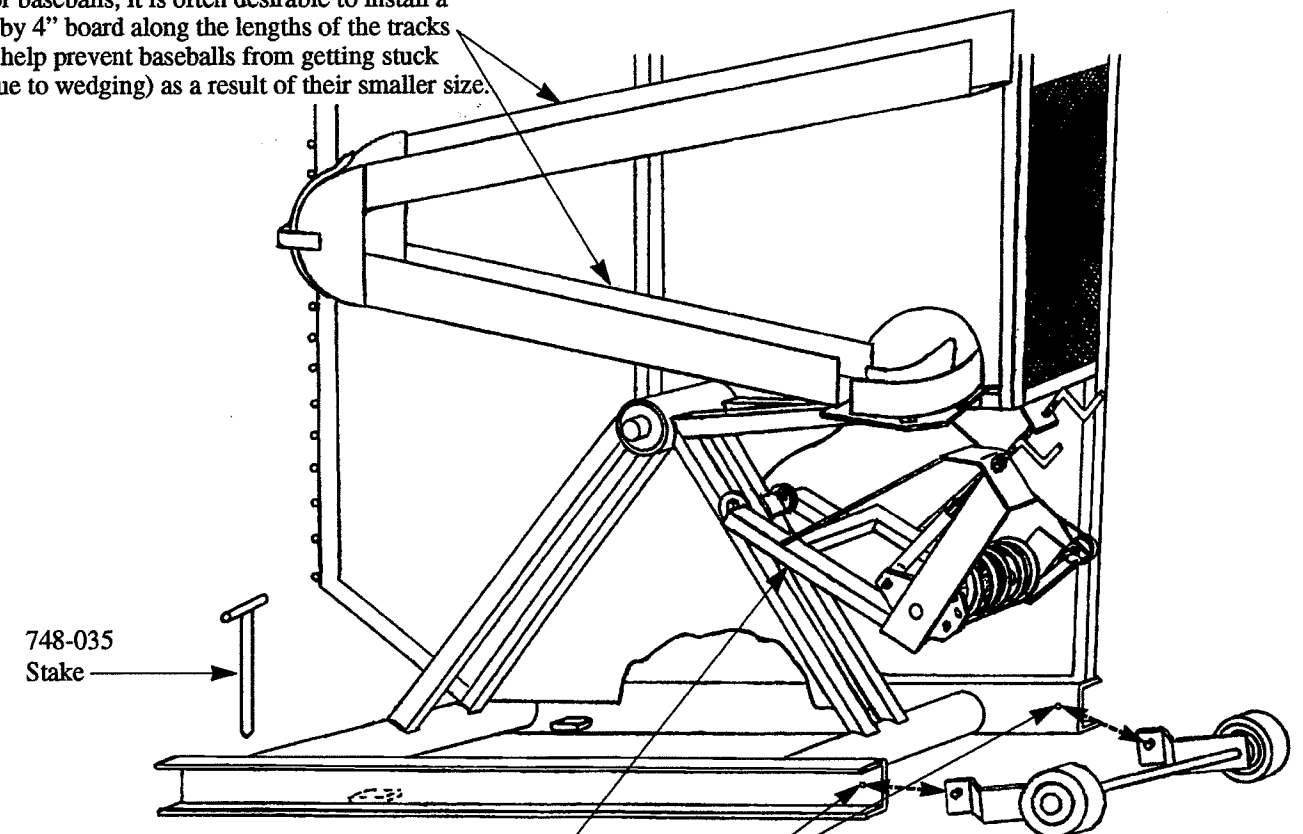
Stakes (see Figure #3) are provided for staking down the machine on dirt surfaces. Stakes are shipped taped to the boom.

## Adjusting the Ball Rack:

To prevent baseballs from jamming, it is sometimes desirable to install a "spacer" board along the ball tracks as shown in Figure #3.

Figure 3

For baseballs, it is often desirable to install a "1 by 4" board along the lengths of the tracks to help prevent baseballs from getting stuck (due to wedging) as a result of their smaller size.



Spring Wrench, along with four stakes for staking the machine down in dirt, are normally attached with black electrical tape to the boom during shipping.

Attach rear wheels using 3/8"-24 by 1" long bolts with lock nuts, but **do not overtighten**. The wheel assembly must be able to pivot.

# Proper Pitching

(MA4, MA5, MP4 MP5 & MP6)

The Ball Guides and Ball Stop are to be adjusted so that the ball can be held in position for pickup by the pitching hand. With the proper adjustments, the ball is picked up smoothly with a minimum amount of rocking in the hand. The rocking in the hand is caused when the "to-be-pitched" ball is sitting too low and lifts the "on-deck" (the second) ball when it is pitched.

## Arm Clearance:

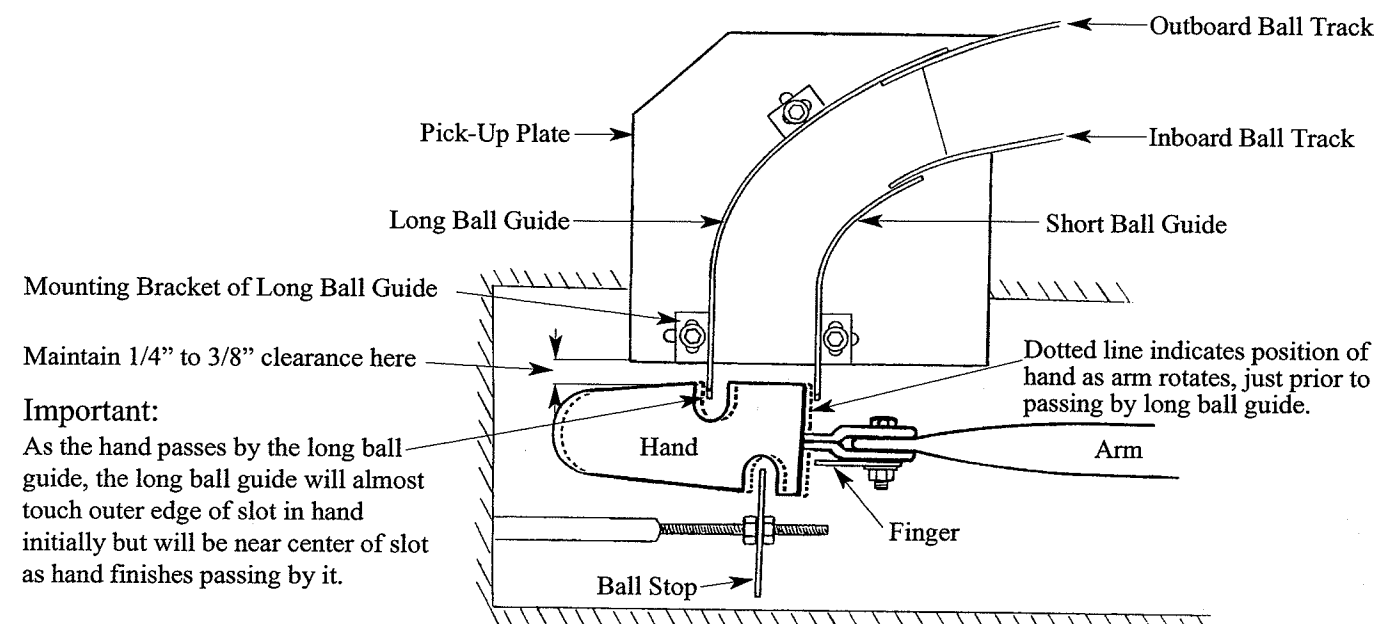
**NOTE:** Before any major adjustments to the machine are to be made, shut off the power to the machine and remove the power cable.

**NOTE:** When the machine is to be adjusted for fast speeds and the spring tension plate is in the third or fourth position, the flexing on the main shaft and arm caused by the cable will pull the arm toward the pickup plate side of the machine as much as 1/8" to 3/16".

Therefore, when setting up, especially for the faster speeds, allow 1/4" to 3/8" hand clearance with the power cable off to compensate for the flexing (pull over) when the power cable is reinstalled. This adjustment is done on the arm by loosening the arm brace bolts (see "Pitch-Height Major Adjustment and Arm Clearance Adjustment" illustration) and moving the arm to the desired position and then securely retightening the arm brace bolts. Be sure that all four bolts at the base of the arm are tight at all times. The arm needs to be moved only when necessary to correct the clearance between the hand and the ball pickup plate. The slower speeds (first and second positions of tension plate) do not pull the arm over as much and therefore do not require as much clearance.

## Ball Guides Adjustment:

First, with the power cable and all balls removed from the machine track, position the hand and arm assembly so that it is at the pickup point. Check and, if needed, adjust the arm clearance. Next, adjust the *long ball guide* so that it passes through the hand without touching it. Position the mounting bracket so that it is even with the edge of the pickup plate. Do not extend the mounting bracket beyond this point because interference with the hand would result in damage to the hand.



**Ball Guides and Arm Clearance Adjustments**

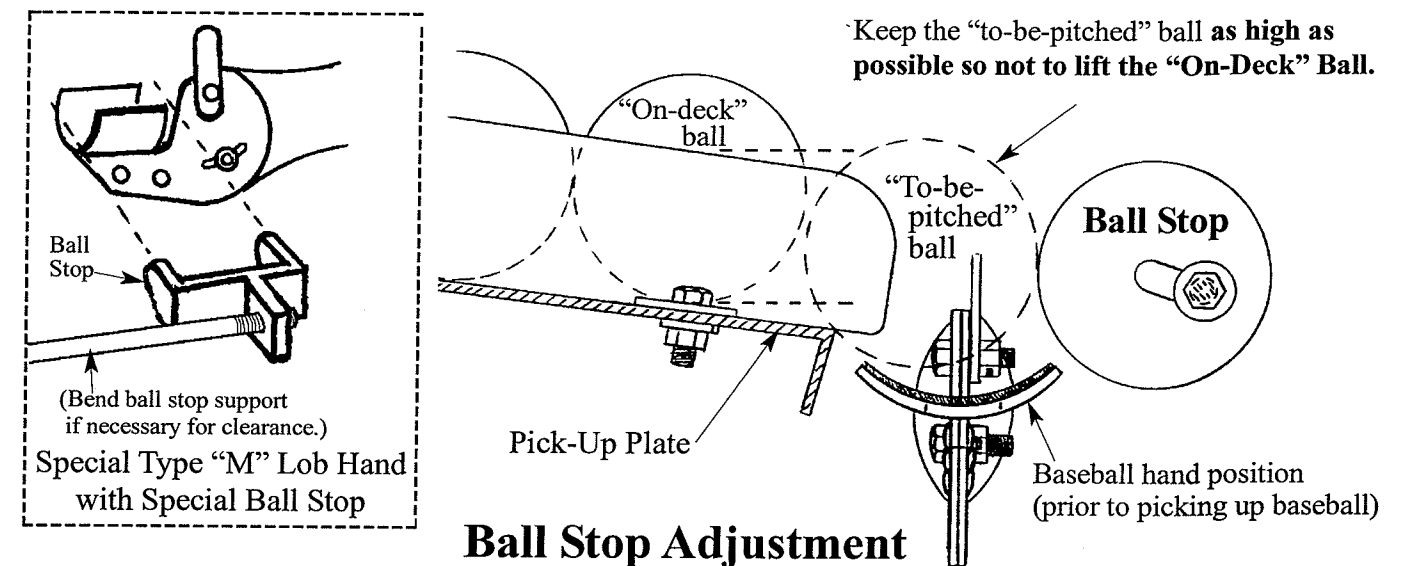
Now, adjust the *outboard (outer) ball track* so as to form a smooth curve into the long ball guide.

Next, the *inboard ball track* should be set to have **not** more than 1/8" on each side of the ball. (In some cases it may be necessary to reshape the ends of the ball tracks and ball guides.)

Finally, position the *short ball guide* so as to maintain 1/16" clearance on each side of the ball at the point of pickup. (Note that ball clearances should be determined with the largest ball, if size varies slightly.) It is best to extend the short ball guide out as far as possible in order to obtain better ball control. Check the clearance of the hand with the ball guides and maintain a minimum 1/8" clearance.

## Ball Stop:

Position the *ball stop* so that it is centered in the slot of the hand and in a position that will hold the ball to be pitched as high as possible. (If the ball sits too deep in the pickup position, the "on-deck" ball will be lifted up during the pitch cycle and will jostle the "to-be-pitched" ball, possibly creating a wild pitch; a small amount of lift is acceptable.) The ball stop should have 1/8" clearance with the hand when the power cable is on. (In some cases, as with faster speeds, the ball stop will be in light contact with the bottom of the slot in the hand **when the cable is off** and may interfere with motion of the hand through the pickup point during adjustment; keep in mind the power cable will pull the arm over.) Once these adjustments have been made, cycle the arm up and down (with slight inward pressure to simulate cable torque) through the pickup point to insure that there is no interference with the ball guides or ball stop at any point along the path of the hand.

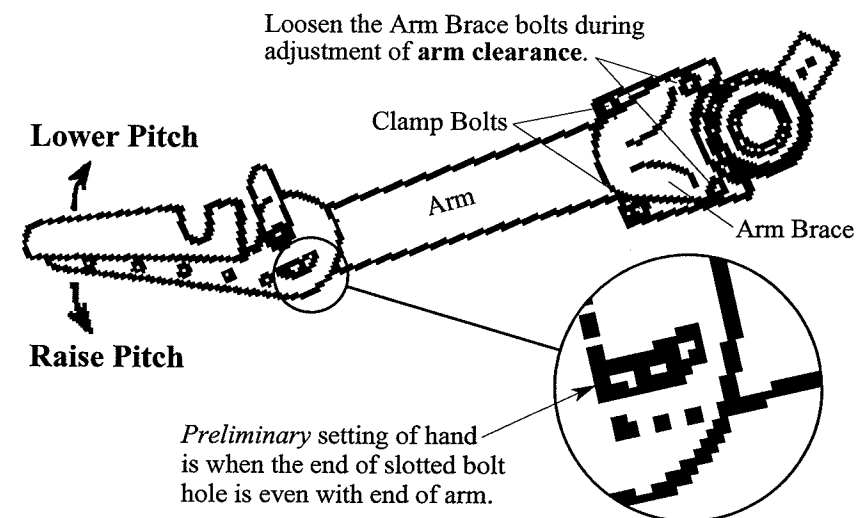


# Pitch-Height Adjustment

(MA4, MA5, MP4 & MP5)

## Hand Adjustment:

The pitching hand is the major pitch-height adjustment of the machine. To adjust the hand, loosen the bolts connecting the hand to the arm until the tip of the hand is capable of being moved up and down yet will stay in place without holding it. The bottom hole of the hand is slotted on a radius to allow rotation around the upper bolt hole. As a good starting point, position the arm and hand assembly just above the pickup point (with power cable off) and start with the end of the slotted bolt hole just even with the edge of the arm. (See illustration.) Note that when setting the hand adjustment for the machine, the height adjusting handle should be approximately in the *center* of its range.



## Pitch-Height Major Adjustment and Arm Clearance Adjustment

**NOTE:** Special hands are used for throwing softballs on those machines that are to be used for softballs. *Slow-pitch* softball uses a short “Lob” hand and forked ball stop whereas *fast-pitch* softball uses a hand similar to that of the baseball hand in appearance but with a slightly wider ball guide slot and a larger hand curvature (cup).

To lower the pitch, raise the tip of the hand; and to raise the pitch, lower the tip of the hand. (Note that a small amount of movement of the hand will make a major difference in height at home plate; i.e.--- 1/8” of change will vary the height across home plate from 3’ to 4’.) Be sure to tighten the hand bolts after the adjustment and make sure the hand still clears the ball guides before replacing the power cable and cycling the machine to locate the ball flight path. Depending on the speed and type of pitch, the hand adjustment may have to be carried out several times, repeating this process, and in some cases the ball guides may need readjusting. The hand is fairly well adjusted when the pitch is travelling somewhere between the head and toes of the batter. At this point, the height adjustment handle can be used to fine tune the pitch height into the final strike zone.

**NOTE:** Whenever changing the hand adjustments, height adjustment handle, speed adjustment handle, or spring tension plate setting, the hole in the netting may or may not be effected. Check to insure that the hole itself is not interfering with the pitched ball and causing erratic pitches.

**NOTE:** For baseball and fast pitch softball, change speed setting before changing height

Normally the ball flight should vary from 6” to 8” up and down, and no more than the width of home plate. If not, check hand, finger, and ball stop adjustments, and also check the hand for twist.

For instance, if the ball height varies high and low, check the finger position. The finger should be in a position so that as the ball is picked up, the finger matches the ball, and the ball settles into the hand (does not roll up or down in the hand). If the pitch varies from inside to outside, check the ball stop positioning. When the ball sits too deep, the “on deck” ball causes it to rock across the hand as it clears the “on deck” ball. This can be seen as the ball is being picked up (It will lift the “on deck” ball up and drop it.) If the machine pitches fairly consistent with a random pitch outside the normal strike zone every sixth or seventh pitch, check the hand for twist or the ball feed into the machine (for machines without hoppers only).

To determine if the hand is twisted, look down the keel of the hand to determine if the curvature is 90° to the keel and wrist along the length of the hand. If not, the curvature of the hand can be reshaped to achieve this position. If the keel of the hand is twisted or the tip of the hand is bent and cannot be reshaped, it is best to replace the hand with a new hand. A slightly twisted hand can cause random pitches outside of the normal strike zone.

For “hopperless” machines, if the incoming ball feed is too steep, it is possible to over-pressurize the “on deck” ball, causing the pitched ball to rock across the hand or be pushed off. (This can be seen as the ball is being pitched; The “on deck” ball will be lifted or pushed out of the pickup point.)

**NOTE:** If a “wild pitch” does occur, recheck machine adjustments and correct immediately! Pitches considered as “balls” (outside the strike zone) that would be inside, outside, high, low, or a combination of two, and of a random occurrence, are a sign that adjustments are required.

## Height Adjusting Handle:

Rotating the height adjusting handle raises or lowers the spring boom so that the height of pitch is changed by altering the firing point of the arm. (This is a minor adjustment for the pitch elevation that can be made while the machine is in operation.) Turning the height adjusting handle clockwise lowers the pitch (by raising the boom); while turning the height adjusting handle counterclockwise raises the pitch (by lowering the boom).

The height adjusting handle should **not** be used to make all pitching height adjustments. The major adjustment for elevation should be made with the pitching hand by changing the angle of the hand with that of the pitching arm. (Note that when setting the *hand adjustment* for the machine, the height adjusting handle should be approximately in the *center* of its range.)

During operation, if the height adjusting handle tends to “walk” (not stay in the same position), then the locknuts underneath the height adjusting bracket can be “locked” against the bracket itself, but be sure to “unlock” the lock nuts before making further adjustments and then retighten afterwards.

**IMPORTANT** Do not *over adjust* the height adjusting handle. If the power cable is cutting into the ball stop, then readjust the hand angle and lower the spring boom height.



# Pitching Speed

(MA4, MA5, MP4 MP5 & MP6)

The speed of the pitch depends on the amount of tension applied to the torsion spring (coil). This spring is located at the back of the machine on the spring boom. There are three ways to change the speed of the pitch.

The first way is the speed adjustment handle. Rotating the speed adjustment handle clockwise will increase the speed of the pitch and rotating counterclockwise will decrease the speed. This is the minor adjustment and the only one that can be done while the machine is in operation.

Next is the spring tension plate. It is located on the left end of the spring as viewed from behind the machine. This plate is provided with four holes for bolting the end assembly of the spring. Depending on the hole choice, major changes in speed can be made. The holes closest to the ground or to the outside are the fastest. This adjustment requires the removal of the power cable.

Another major change in speed can be made by where the cable attachment unit is attached on the pitching arm hub. There are two holes, a low-speed range and high-speed range. They allow slight changes in the cable tension, thereby changes in speed.

**CAUTION:** When adjusting for a slow pitch, do not allow the power cable to fall to a relaxed position for this will allow the power cable to hang too loose on the cable attachment bushings between pitches, and possibly be thrown off or damaged.

## Power Cable Removal and Attachment

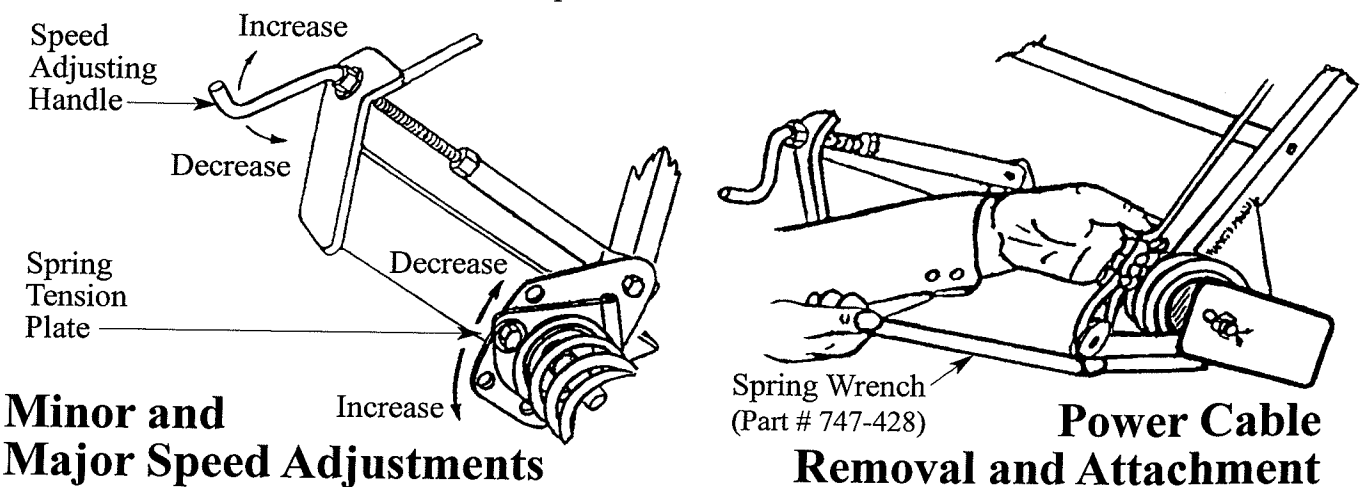
To make major changes in the speed, first stop the machine and remove the wire rope power cable from the spring boom (see "Power Cable Removal and Attachment" illustration). A "spring wrench" is used to relieve the spring tension so that the power cable can be safely removed to service the machine. The spring wrench is shipped taped to the spring boom's upper carriage located just in front of the speed adjustment handle. It is advisable to remove a wrench from one machine only in multiple cages and use one wrench to adjust all the machines in order not to lose the other wrenches. To remove the power cable, insert the finger end of the spring wrench into the tube on the cable end bell assembly and lift up on the spring. This will relax the tension on the cable, and allowing the loop of the cable to be removed from the bushing. Then slowly let the spring down to a resting position and remove the wrench.

**NOTE:** For machines set at fast speeds, it is best to relax the spring as much as possible with the speed adjustment handle first. Slow the speed down before using the spring wrench, thereby reducing the amount or force required to remove the cable.

**CAUTION:** For safety reasons, never leave the spring wrench inserted into the cable end bell assembly while the machine is in operation, because the wrench will be ejected from the machine.

Once the power cable has been removed, the spring tension plate can easily be unbolted and moved to a new position. The speed decreases as the plate is bolted closer to the point of attachment of the speed adjustment rod; and the speed increases as the plate is bolted farther away (see "Minor and Major Speed Adjustments" illustration). Whenever making changes with the spring tension plate, always recheck the hand clearance.

**NOTE:** When the machine is to be adjusted for fast speeds, the high tension on the power cable will cause the main shaft to flex. This will pull the arm toward the pickup plate side of the machine as much as 1/8" to 3/16". Therefore, when setting up, especially for the faster speeds, allow 1/4" to 3/8" clearance with the power cable off to compensate for the flexing (pull over) when the power cable is reinstalled. This adjustment is done on the arm by loosening the arm brace bolts (see "Ball Guides and Arm Clearance Adjustment" illustration), moving the arm to the desired position, and then securely retightening the arm brace bolts. Be sure that all four bolts at the base of the arm are tight at all times. The arm needs to be moved only when necessary to correct the clearance between the hand and the ball pickup plate. The slower speeds (first and second positions of tension plate) do not pull the arm over as much and therefore do not require as much clearance.



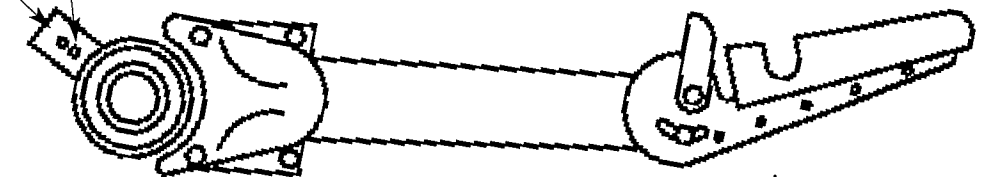
## Minor and Major Speed Adjustments

A **minor** change in speed is accomplished by rotating the Speed Adjusting Handle.

A **major** change in speed is accomplished by altering the position of the Spring Tension Plate, *after* relieving spring tension and removing the power cable with the aid of the spring wrench. **Another major** change in speed is accomplished by changing the hole position of the Cable Attaching Unit.

## Cable Attaching Holes:

Low Speed Range  
High Speed Range



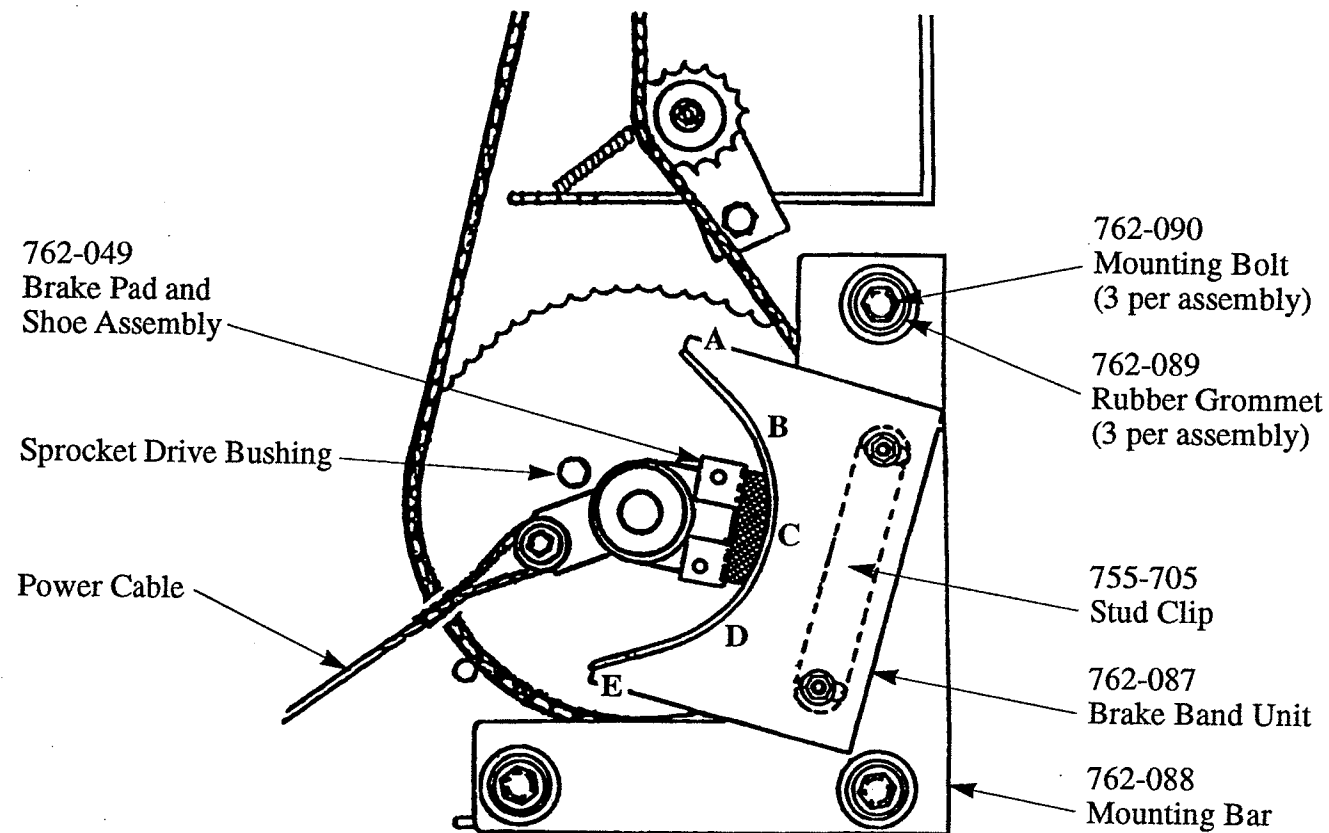
## Cable Attaching Holes at Hub

With the power cable is off, the cable attachment unit can be unbolted and moved if desired. There are two ranges, a low-speed hole located closest to the center of the pitching arm hub, and a high-speed hole located furthest away from the center of the hub. Normally the machine is set in the high-speed range hole for *fast* baseball and fast-pitch softball, and set in the low-speed range hole for *slow* baseball and slow-pitch softball.

# Adjusting the Stationary Arm Brake Assembly

(MA4, MA5, MP4 & MP5)

The purpose of the arm brake is to prevent wear on the machine components by slowing down and stopping the arm motion after each pitch **before** the arm and hub assembly is picked up by the sprocket drive bushing on the next windup.



## MA-4, MA-5, MP-4, MP-5 Arm Brake Assembly

To adjust the arm brake system, start by operating the machine from the maintenance start switch for one cycle, stopping the machine immediately after the throw. This should leave the sprocket drive bushing (hub stop bolt) in the 10 to 11 o'clock position. At this point, disconnect the power and remove the power cable. There are two types of adjustments that may be performed on the brake system. The first type is the simplest and deals with the tension of the brake band against the brake pad. The second type deals with the repositioning of the brake band unit in relation to the brake pad. To determine which type of adjustment needs to be made, one needs to take the arm and rotate it through the full range of the brake band unit. This can be done by grabbing the arm near the arm brace and manually moving the arm up and down through the brake band unit. With the cable off, the arm should rotate freely on the main drive shaft with resistance coming from the brake system only. This resistance should be light and even, occurring in the middle two thirds of the brake band unit with slightly more resistance at the exit side of the brake band. If the resistance is heavy or uneven, then simply readjusting the tension is all that is required; but if one cannot move the arm, or if the brake pad interferes with the ends of the brake band unit, or if the brake pad does not contact the brake band, then the system requires repositioning.

**To reposition the brake band**, first disconnect the electrical power and then remove the power cable from the machine. Rotate the arm so that the brake pad is lined up in the center of the brake band (position "C"). Loosen the clamp nuts and move the brake band unit against the brake pad. Position the unit so that as the arm is rotated, the pad will clear the band by about 1/16 inch at the beginning of the band (position "A"), makes light contact with the band in the middle two thirds (between positions "B" through "D"), and then clears the band as it exits the end (position "E") by a little less than 1/16 inch. Tighten both clamp nuts slightly to hold the unit in position and then rotate the arm back against the hub stop bolt and out of contact with the brake band. Using a pencil or soft pen, trace a line on the mounting bar around the entire edge of the brake band unit to mark the starting position for a reference for the final adjustment. Now, move the brake band unit to the left or toward the main shaft of the machine approximately 1/32 inch, and then tighten the clamp nuts and test the brake unit by rotating the arm by hand through the full range of the brake system. If the brake needs to be adjusted more, loosen the clamp nuts and move the brake band unit in small increments, tightening the clamp nuts and testing each time.

**To adjust the tension**, one starts by slightly loosening the clamp nut on the side of the brake band with the most resistance (in cases where there is too much resistance). **Important**, only loosen one of the two clamping nuts at a time or else the entire brake band unit will drop out of position *and then* require repositioning. With a rubber or wooden mallet tap the end of the brake band so that the brake band moves away from the point of contact with the brake pad, and then retighten the clamping nut. (Keep in mind that the movement of the band needs only to be a small amount, and that moving the band outward from the point of contact on one side of the centerline of the band will bring the opposite side into more contact with the pad.) Again, rotate the arm through the full range of the band, checking the resistance. One may have to alternate back and forth between the two clamping nuts a couple of times to get the proper tension. In the case of resistance being too light, simply follow the same procedures but tap the brake band so that it moves towards the point of contact. The proper tension is reached when one can rotate the arm through the band with light resistance.

Now replace the power cable and power up the machine. If the brake system is too tight, the arm will stop in one to two cycles of the arm through the brake band unit. (This could cause the brake shoe and pad to be sheared off over time.) If the brake system is too loose, then the arm will cycle through the brake band many times, not coming to rest before the hub stop bolt comes around to drive the arm assembly, resulting in a violent, banging pickup. (This will eventually shear the hub stop bolt off.) The brake system is properly adjusted when the arm cycles through the brake system 3 to 5 times and then comes to rest before the hub stop bolt begins to drive the arm for the next cycle. At no time should the brake system lock up the arm.

# Master Pitching Machine

4200 NE Birmingham Road • Kansas City, MO 64117 • (816) 452-0228 • FAX (816) 452-7581



# Ball Track Insert

(Part # 762-399)

## Description:

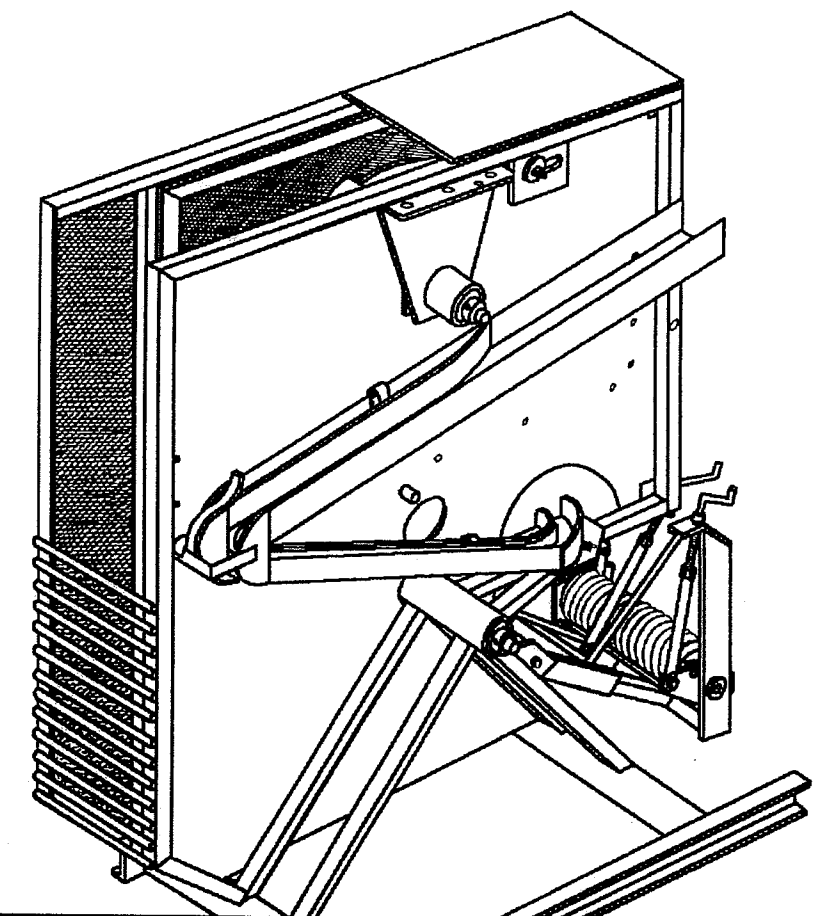
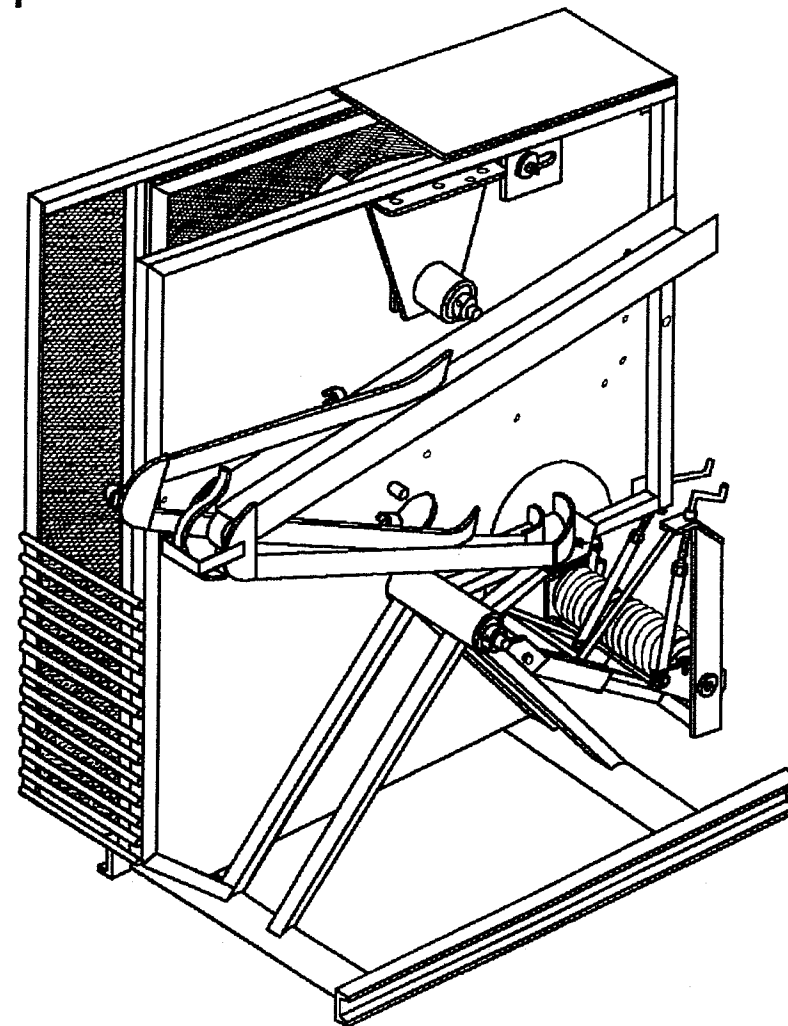
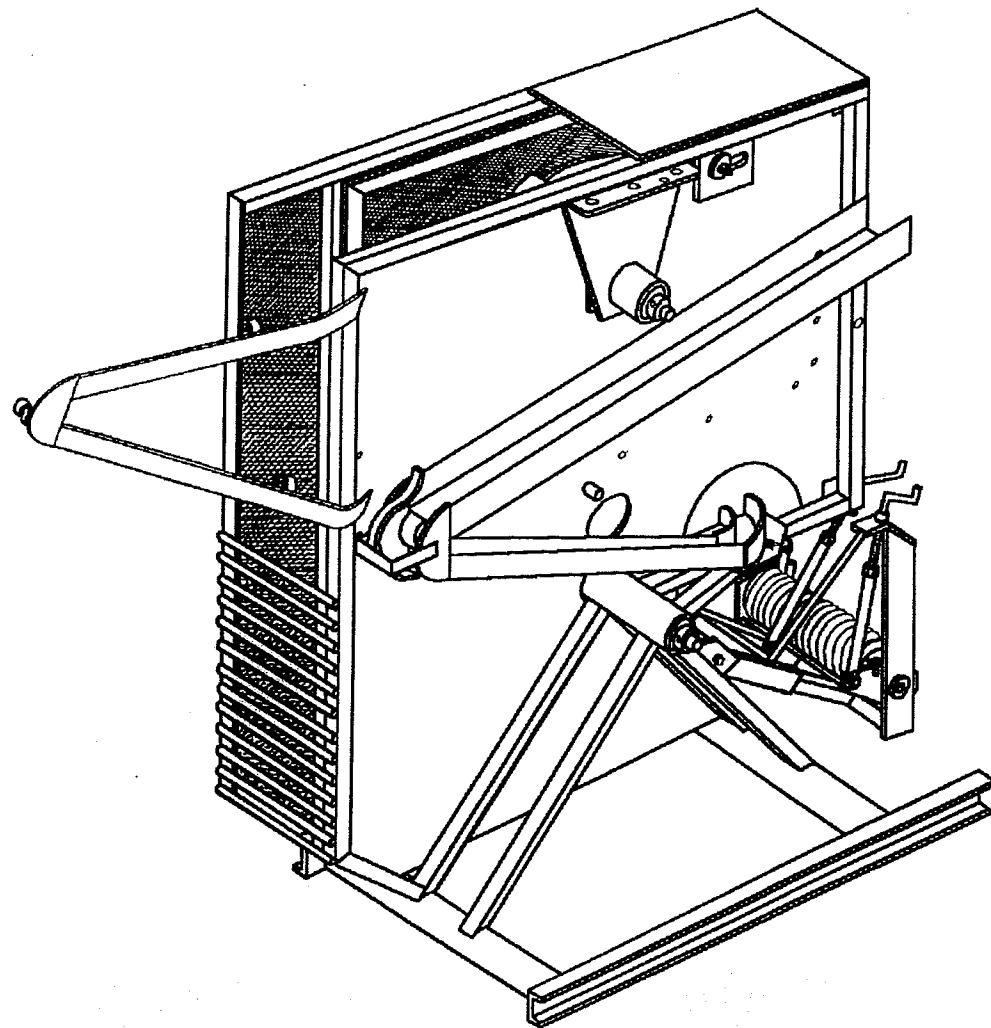
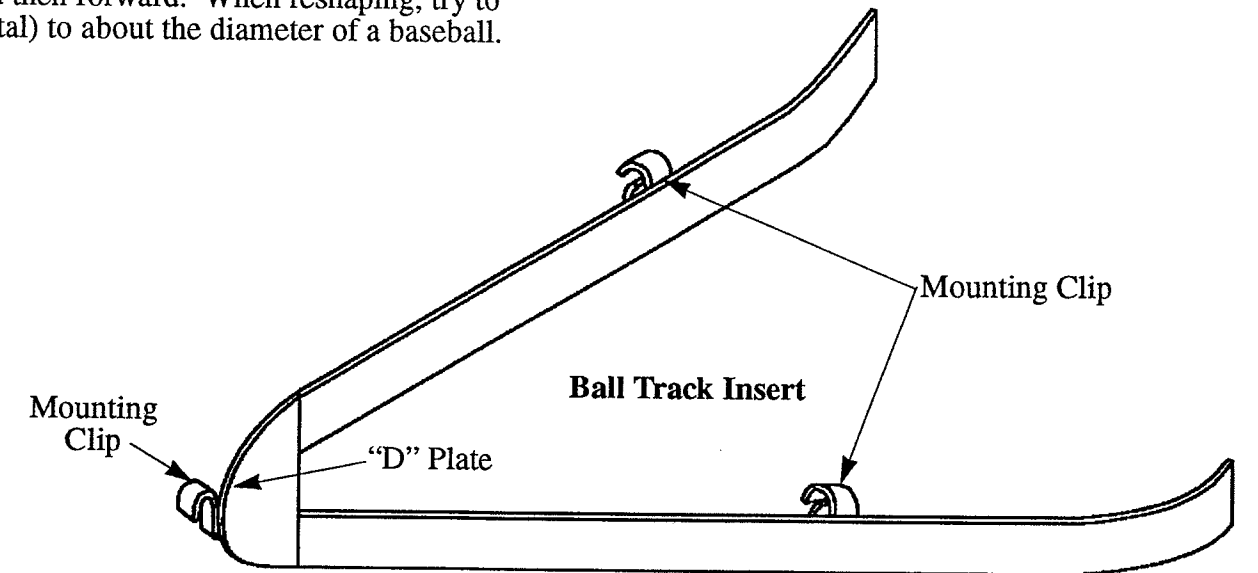
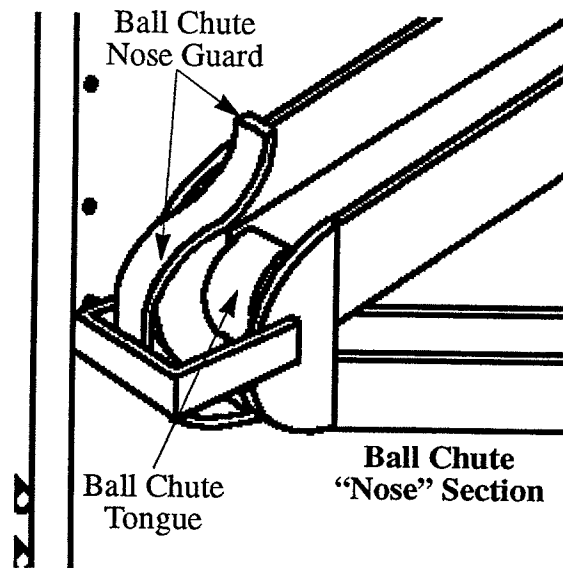
This insert has been designed to fit inside the ball chute of a Model C-53, C-52, MP-5, or MP pitching machine when it is being used with baseballs. Its purpose is to narrow the chute down from the width of a softball to the width of a baseball. If this track is not used, baseballs can become wedged in the chute and not flow properly.

## Installation:

Insert the long end of the Insert through the "nose" section of the ball chute along the bottom section of the chute, as illustrated in the figures below. Hang the insert from the sides of the ball chute using the mounting clips welded to the side of the Insert.

It may be necessary to reshape the Insert once inside the ball chute in order for the balls to flow freely through the chute. It will also be desirable to bend out the "ball chute tongue" located in the "nose" section of the ball chute to limit the amount of the clearance in the bend. Adjustment of the ball chute tongue and nose guard will be needed to prevent baseballs from jamming in the nose of the ball chute.

**Note:** It will be necessary to reshape the nose guard and tongue when using baseballs. This is done in order to prevent jamming of the baseballs or stacking due to the added space needed for the softballs. Normally the nose guard is bent down and in and then reshaped. The tongue is bent out or opened and then forward. When reshaping, try to narrow the ball chute width (vertical & horizontal) to about the diameter of a baseball.

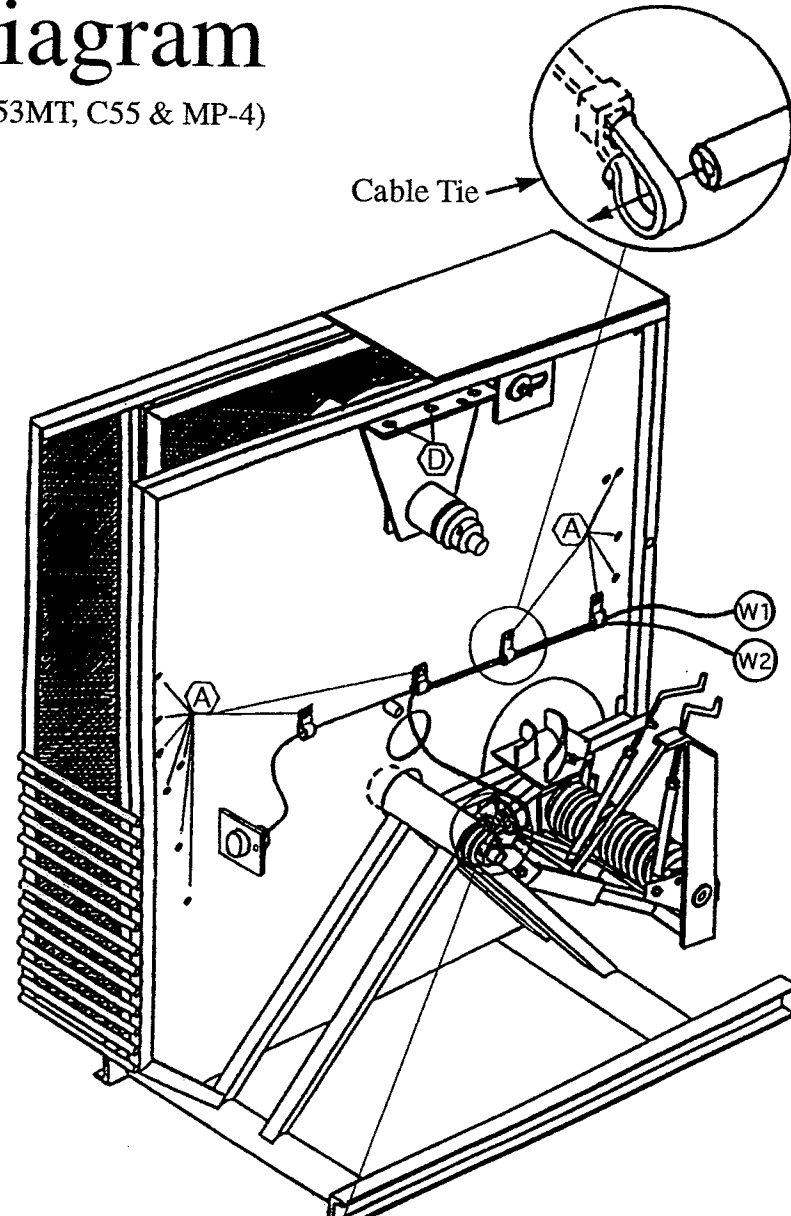
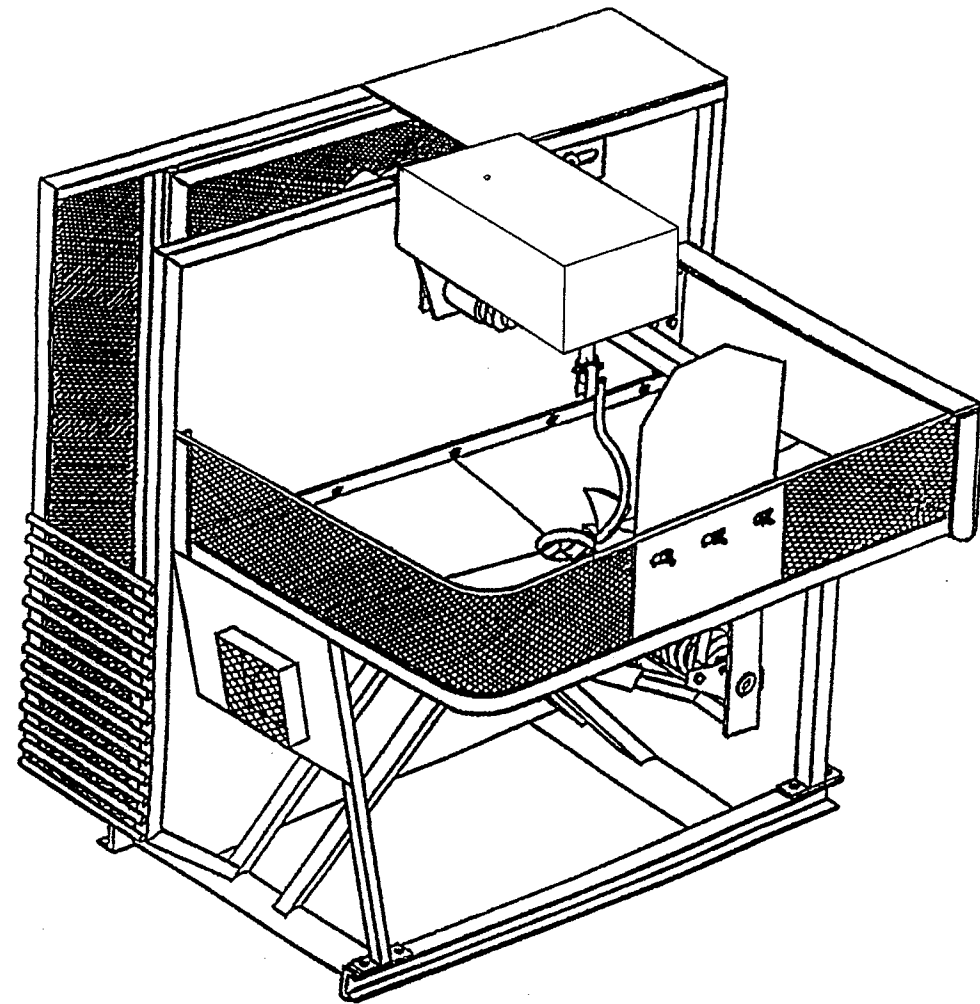


**Master Pitching Machine**

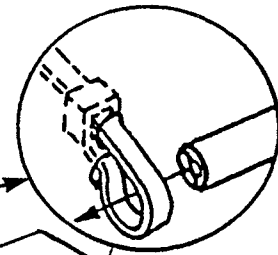
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# Hopper Parts Assembly Diagram

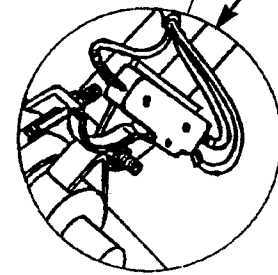
(Models A55, MA4, 53MT, C55 & MP-4)



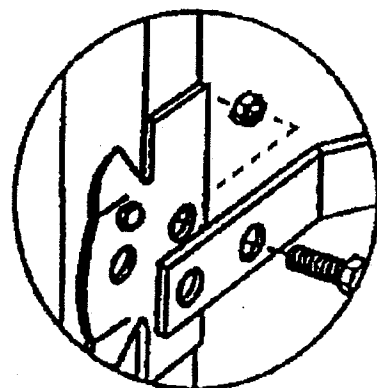
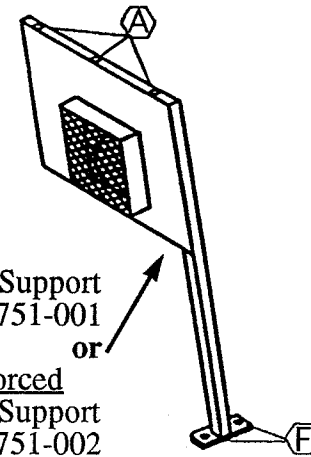
Cable Tie



Pitch Count Switch



Front Support  
751-001  
or  
Reinforced  
Front Support  
751-002

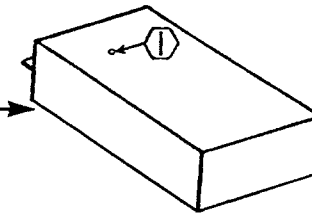


Door Latch Assembly 762-375

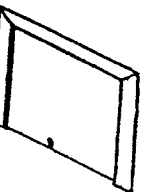
## Bolt Configurations:

Code	Quantity	Bolt Configuration (Per "bolt" Location)
A	27	1/4"-20 x 5/8" bolt with 1 Lock Nut
B	4	1/4"-28 x 1" bolt with 2 Flat Washers & 2 Lock Nut
C	1	1/4"-20 x 1" bolt with 6 Flat Washers & 1 Lock Nut
D	2	5/16"-18 x 3/4" bolt with 1 Lock Washer & 1 Lock Nut
E	3	5/16"-18 x 3/4" bolt with 2 Flat Washers, 1 Lock Washer & 1 Lock Nut
F	4	5/16"-18 x 3/4" bolt with 1 Lock Nut
G	1	5/16"-18 x 2" bolt with 1 Flat Washer & 1 Lock Nut
H	2	5/16"-18 nut with 2 Flat Washers & 2 Lock Washers
I	1	3/8"-16 x 6 3/4" threaded rod with 2 Flat Washers, 1 Lock Washer & 4 Nuts

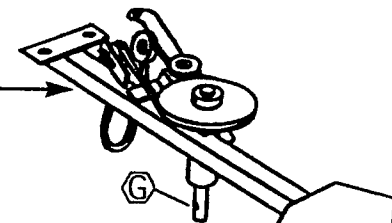
Agitator Drive Cover  
751-007



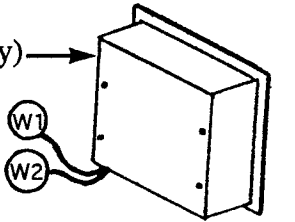
Control Box Cover  
765-044



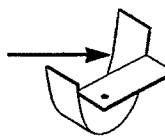
Agitator Drive Assembly  
751-005



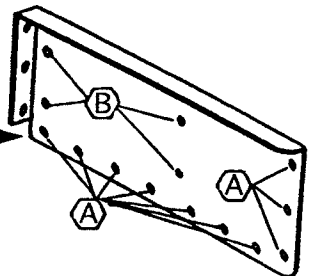
Control Box (empty)  
751-013



Agitator Belt Guard  
751-012



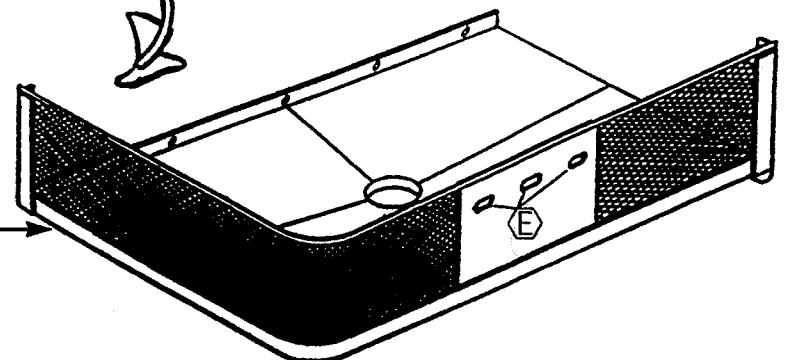
Hopper Basket Control Box Mounting Plate  
751-004



Adjustable Agitator  
762-168



Ball Hopper  
751-003  
or  
Reinforced Ball Hopper  
751-011

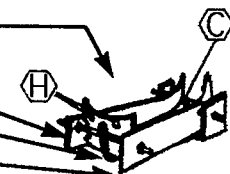


Rear Support  
751-008



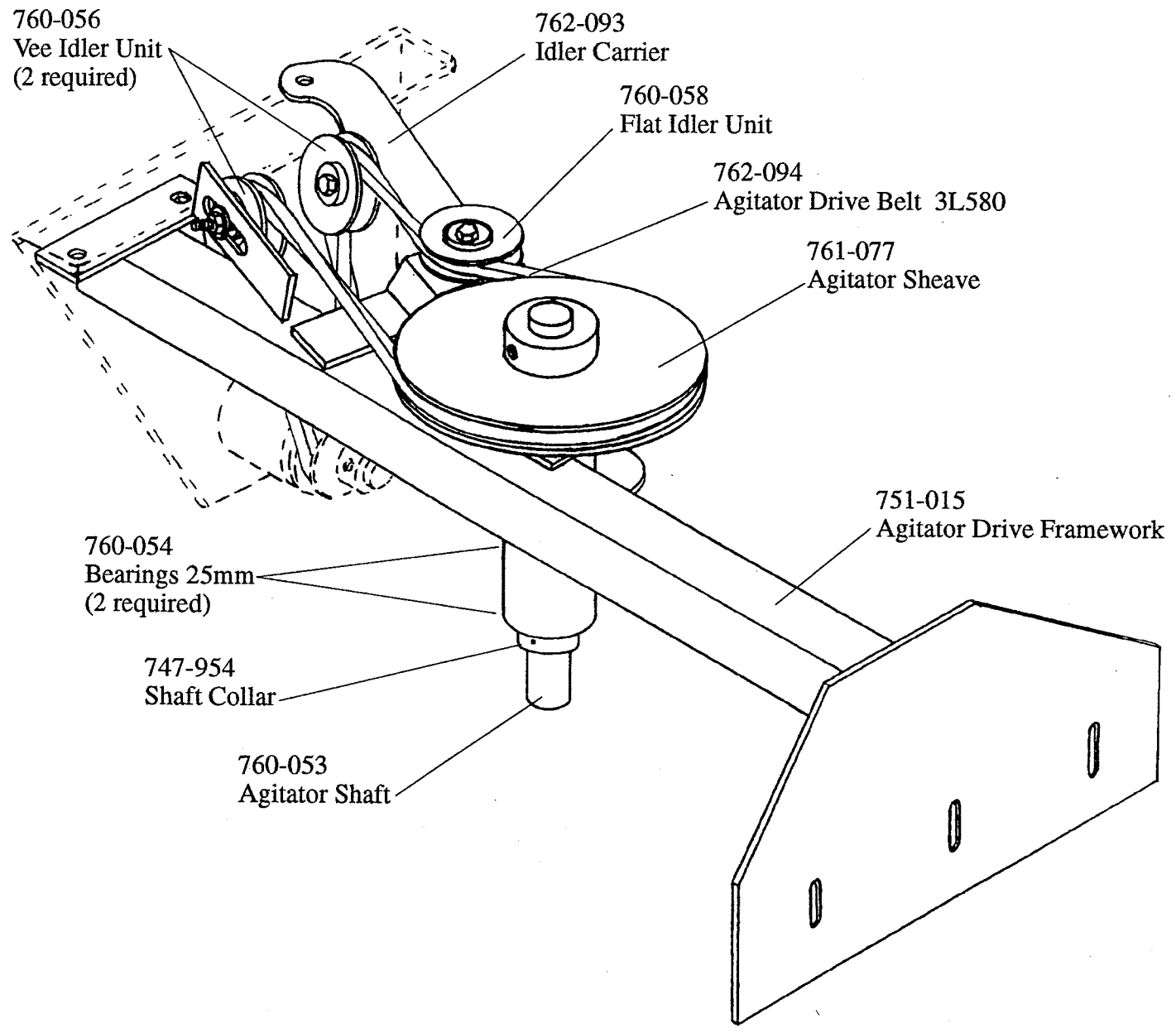
Ball Chute Assembly 751-009  
(Individual Components:)

Inboard Ball Track 760-070  
Ball Chute Base 751-010  
Outboard Ball Track 760-069



# Agitator Drive Assembly (Part Number 751-005)

(Models A-55, MA-4, 53MT, C-55, & MP-4)



**Agitator Drive Assembly**

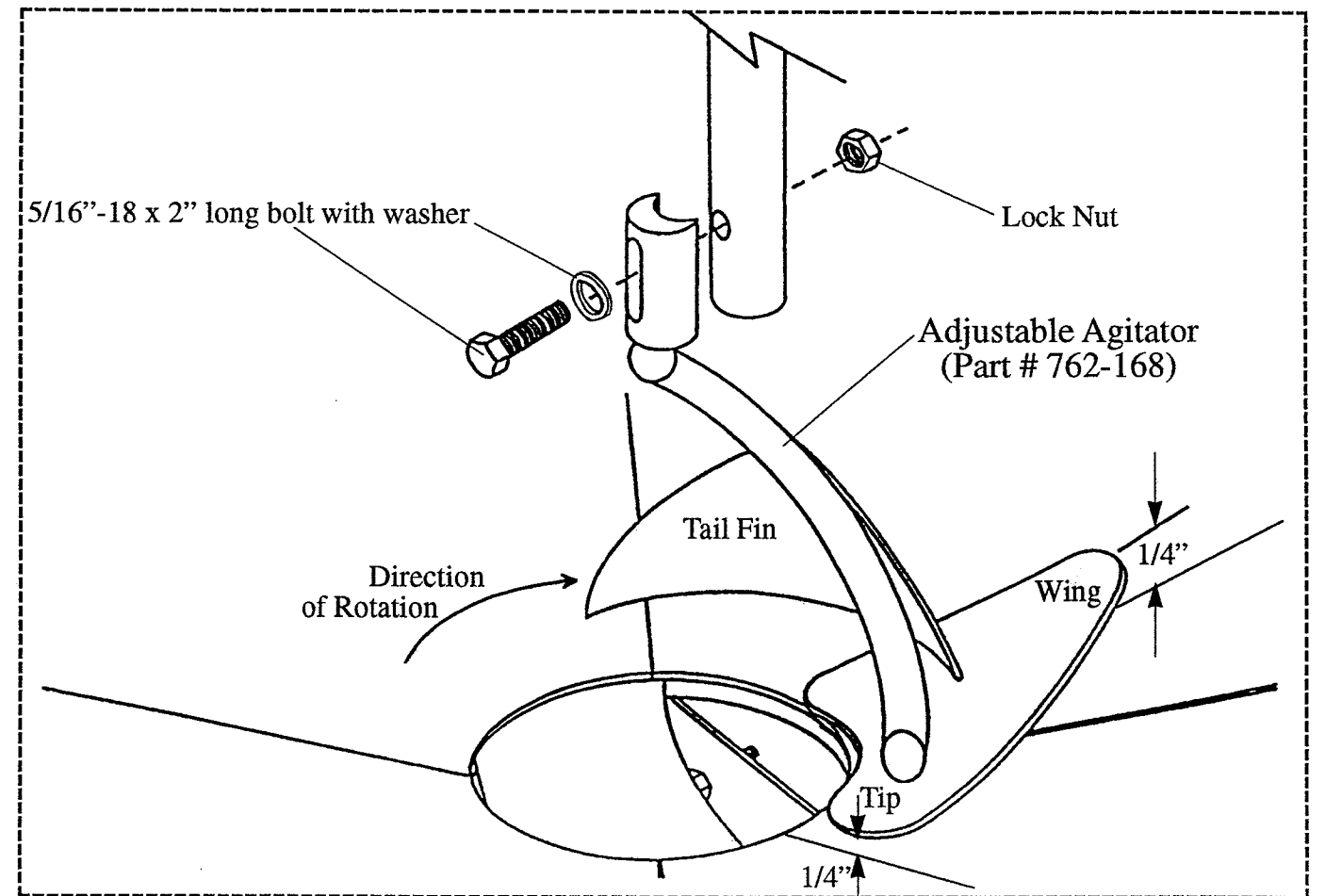
# Adjustable Agitator (Part Number 762-168)

This agitator has been slotted for adjustment in the vertical direction which allows the service personnel to adjust the clearance between the agitator and the hopper bottom. The tip should not be more than 1/4" above the surface of the hopper bottom (at its highest points) as it travels around the ball chute entrance hole. The inner edge should run outside of the hole with about 1/4" clearance. After the agitator has been adjusted for proper clearance, tighten the clamp bolt securely.

The wing on the agitator keeps the balls loosened up around the agitator, and allows the agitator to keep the balls flowing, instead of just drilling a hole in the center of the balls. The wing tip should also be no more than 1/4" above the hopper surface at the highest point. The agitator is also equipped with a tail fin to help stop the balls from being pinched when the agitator runs backwards.

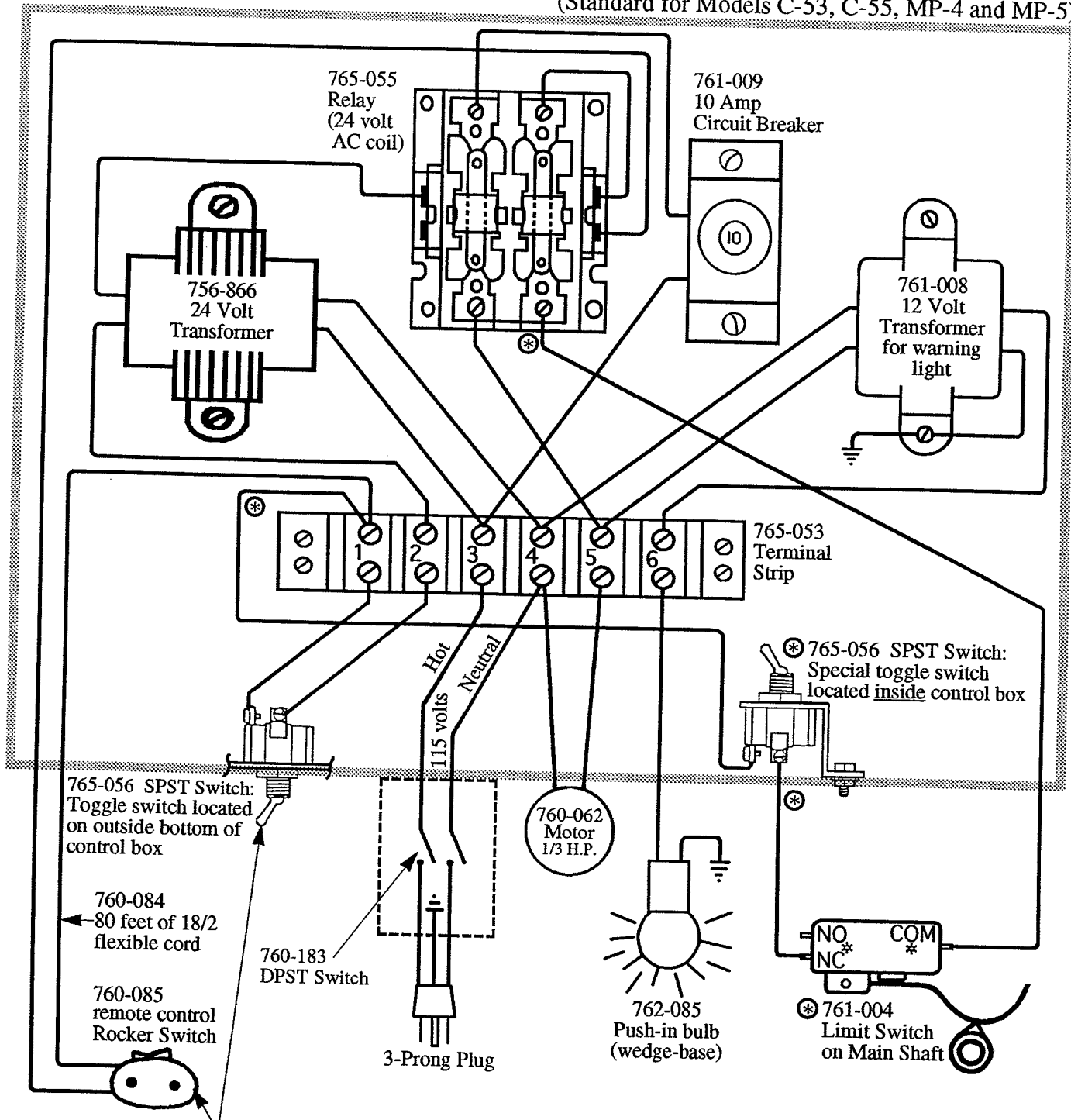
The agitator is intended to work by getting under the balls to lift and loosen them as it rotates. If the tip and wing are kept close to the surface of the ball hopper, the force required to rotate the agitator is minimized because the agitator is able to get under the balls at the bottom of the hopper and lift them easily as it rotates. If the agitator is set too high, the tip and wing must be forced broadside into the balls instead of slipping under them easily. This jam can cause slipping of the drive belt or even bending of the agitator itself.

If the agitator has become bent in service or if slight reshaping is required upon initial installation, remove the agitator, make the required bend off the machine, and then check the fit on the machine by holding it in place. When shape is proper, reinstall the agitator, properly adjust the clearance, and tighten the clamp bolt.



# Panel-Mounted Remote Control Wiring Diagram

(Standard for Models C-53, C-55, MP-4 and MP-5)

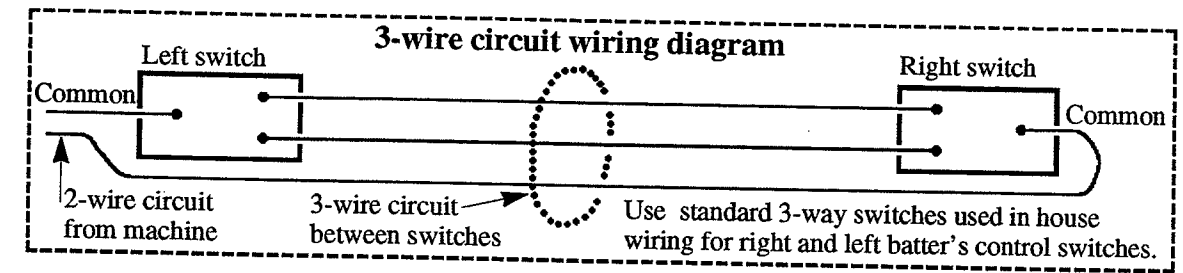
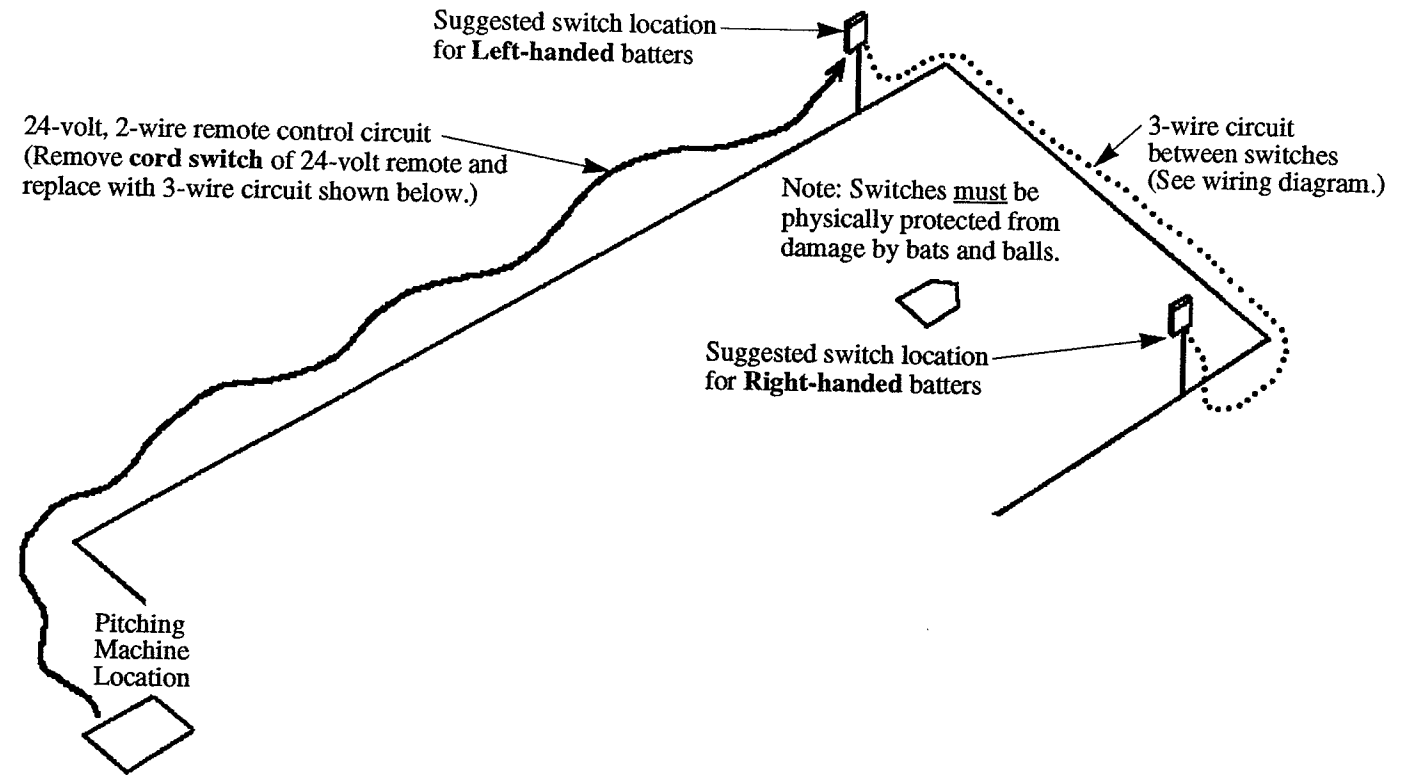


**Note:** Both of these switches must be "on" for the machine to operate. The switch at the control box may be used as an emergency stop or for inactivating machine during service.

⊗ **Note:** This machine is equipped with a special circuit which will keep the machine "on" until it has completed the next pitch. This circuit, when operating properly, will cause the machine to stop in the position least likely to deliver a surprise pitch. If this mode of operation is desired, leave the special toggle switch in the "on" position. **Observe all warnings on machine and in instructions.**

# Suggested Switch Arrangement for Permanent Batting Cage

For permanent batting cages, it is recommended that switches be installed on each side of the batting cage so that right and left handed batters do not have to cross home plate to switch the machine on or off.



# Master Pitching Machine

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## Electrical Trouble Shooting Guide for trainer machines

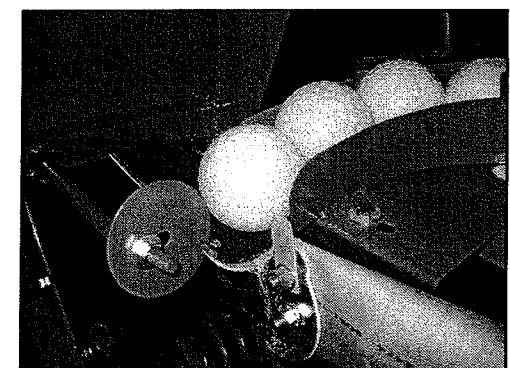
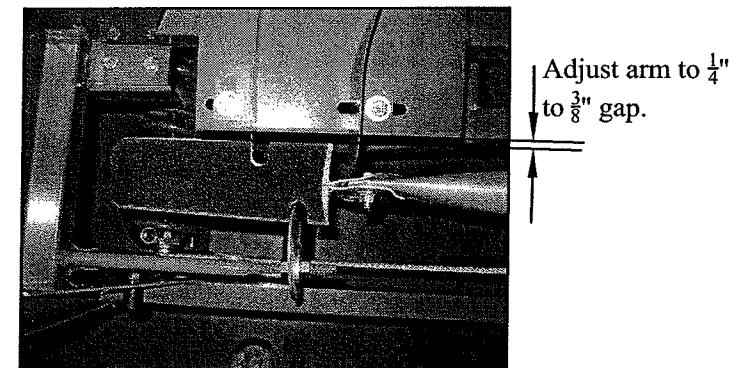
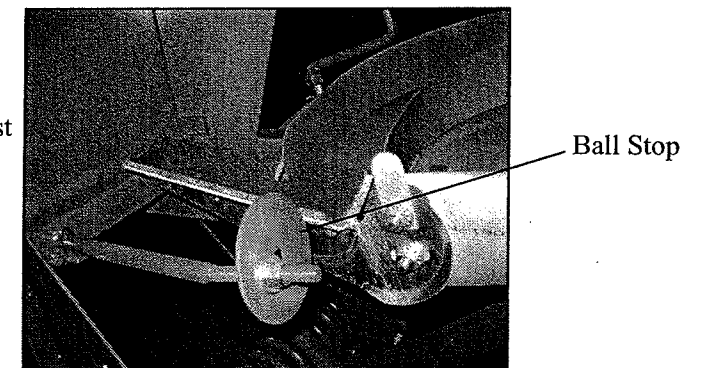
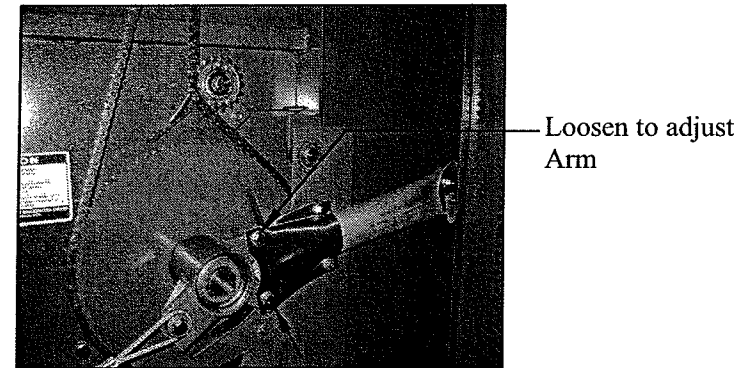
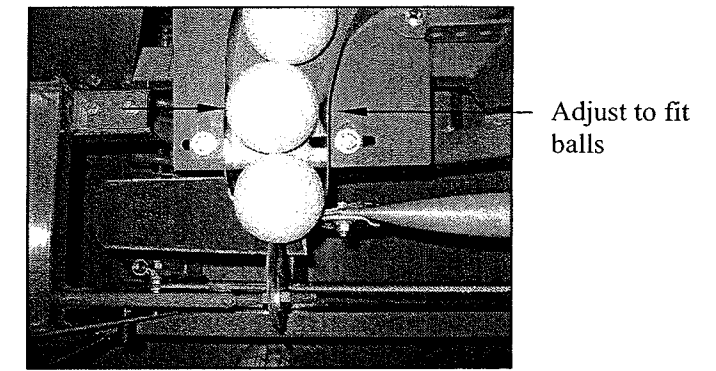
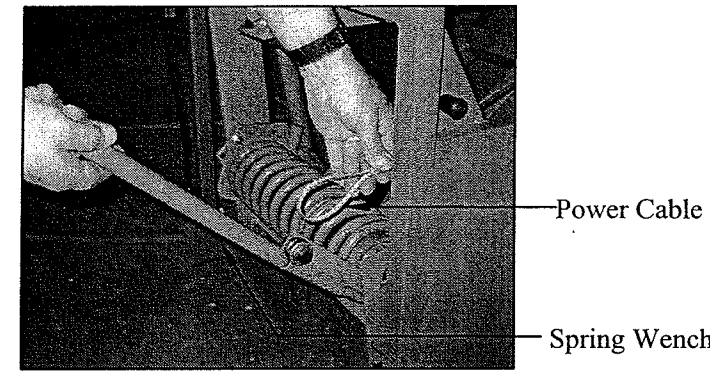
**Warning:** Before servicing machine, always disconnect electrical power to machine and remove Power Cable from the arm. **Do not** leave or service the machine with the pitching arm in the cocked or ready-to-throw position. Always stand clear of the machine when starting and running. This Trouble Shooting Guide is intended as a reference for qualified service personal familiar with all the safety precautions needed to service the machines.

Problem	Possible Cause	Solution
Machine does not start Main power relay does not pull in.	Loss of electrical power  Toggle Switch under the electrical control box is in the OFF position. Rocker Switch or remote cable broken Bad Relay, the 24 Volt transformer or the wiring	<ul style="list-style-type: none"> <li>• Voltage should be 110 Volt or above particularly when starting. Loose wiring or low voltage will burn out motor.</li> <li>• Turn switch on.</li> <li>• Replace remote switch or cable if broken</li> <li>• Check with meter or swap</li> </ul>
Won't start but Main Relay pulls in	10 Amp circuit breaker tripped Motor over heated  Contacts on relay worn Bad Wiring Belts slipping or loose pulley Motor only "Hums" or runs backwards	<ul style="list-style-type: none"> <li>• Bad motor, low voltage, or machine is in a bind.</li> <li>• Hot motor may trip off from internal thermal sensor. After motor cools it will restart. Indicates low voltage, machine is in a bind, or motor going bad.</li> <li>• Replace relay</li> <li>• Check with meter or swap</li> <li>• Tighten belts or pulley</li> <li>• Start winding in motor is bad, replace motor</li> </ul>
Machines runs continuously	Relay contacts stuck Ball count limit switch broken or needs adjustment	<ul style="list-style-type: none"> <li>• Replace relay</li> <li>• Adjust or replace switch</li> </ul>
Relay "chatters"	Low voltage	<ul style="list-style-type: none"> <li>• Replace extension cord with larger cord. See table in "Grounding Instruction"</li> </ul>

### Notes

New replacement motors may run backward when received. Switching the internal (normally red and black) wires will change the direction. Also, motors need a good strong supply of electricity to run properly. If you have motor problems be sure to check the supply.

## Quick Steps for Successful Pitching



1. Disconnect electrical power to the machine
2. Unhook the Power Cable from the pitching arm and spring. Use Spring Boom Wrench inserted in spring end bell to lift up spring end.
3. Replace hand or hand liner if worn or bent.
4. Loosen bolts at the base of the arm and arm brace to adjust hand within 1/4" to 3/8" of ball ramp.
5. Adjust guide if needed to fit the hand and balls. Adjust the outboard guide to just clear the outboard edge of the slot in hand, then the inboard guide to just clear the width of the of the balls.
6. Adjust Ball Stop to hold the ball as high as possible. This will give the smoothest pickup without lifting the second ball.
7. Adjust Finger to contact the ball right after pick up to help steady the ball. A smooth pick up and a steady ball will give consistent pitches.
8. Check clearances, tighten all bolts, then replace cable.

Note: For detail explanations and warnings see the proper section in the manual

## Mechanical Trouble Shooting Guide

For Models A50, A53, A55, C53, C55, MA4, MA5, MP4, MP5, MP6

**Warning: Before servicing machine, always disconnect electrical power to machine and the Power Cable from the arm. Do not leave or service the machine with the pitching arm in the cocked or ready-to-throw position. Always stand clear of the machine when starting and running. This Trouble Shooting Guide is intended as a reference for qualified service personal familiar with all the safety precautions needed to service the machines.**

Problem	Cause	Solution
Can not get enough height or speed from the cranks.	Not using the major adjustments	Major adjustments to the speed and height are covered in the machine manuals
Hand or arm breaks  <b>Note:</b> Always inspect the arm after a hand breaks. Cracks and buckling in arm and arm supports can lead to more broken hands and inaccurate pitches.	Power cable traveling up side of ball stop and hitting hand  Ball hit into machine Hand clearance not set Balls set too low at ball pick up spot  Balls on floor under arm	If height handle is turned all the way to lower the pitch, the power cable will hit the ball stop. The power cable will either rub a groove in ball stop or travel to inside to be in the path of the arm. Slightly adjust the hand forward (see manual) to lower the power cable  Use Machine Guards nets See manual. Hand will try to pick up two balls. Always set ball stop to have the ball as high as possible.
Motor runs but one or both belts are not moving (arm may partially cycle)	Belts need tightening  Pulley slipping on shaft	It is common for new belts to stretch. If both belts are not moving, remove the motor cover, loosen the motor mounting bolts, pull the motor to the back of the machine and retighten mounting bolts, replace cover. If only one belt is moving, move the step pulley (the pulley with two belts) to the back (see manual). This will tighten the intermediate belt but it will loosen motor belt so now follow the above procedure above for the motor belt.  Tighten setscrews on pulley. Some shafts have pockets for setscrews.

Inaccurate pitches	Balls are not picked up smoothly Damaged or worn hand Damaged balls Different weights of balls  Balls hitting net when leaving machine Balls with stitches  Height handle not secured (spring boom moves up and down during pitch) Positive feed is not timed to pull away when balls are picked up.	See manual for ball pick up  Replace hands or foam pads Remove ball balls Different types of ball will have different weights and throw different heights Install Net hole rings (see manual)  Stitched balls will roll of the hand slightly differently each time  Adjust nut on height handle threads so that spring boom does not travel  Adjust collar on shaft to change timing of motion
Ball sticking in ball track	Ball track too wide  Ball track turn too sharp  Balls with stitches	Adjust track to 1/4" wider than balls, no wider. Track guides can be bent to give smoother turn Install Positive Feed Unit or Ball Feed Enhancer
Chain keeps coming off	Chain tightener sprocket not in line with chain and other sprockets Chain tightener spring stretched Worn sprockets Bad bearings	Adjust sprocket to be in line with other sprockets and chain. May require bending supports. Replace spring  Replace sprockets Replace bearings
Arm keeps waving after pitching and hits hub stop on big sprocket	Break pad worn or missing	Replace break pads and adjust break band (see manual).
Power Cable breaks	Cable attachment bushing may be worn Cable not in groove of bushing	Replace and keep oiled daily If cable is not in the bushing's groove, it will rub on bolt and break.

## Lubrication and Maintenance

**Daily:** Check to be certain that all hand and arm bolts are tight, and particularly that the cable attaching bolt at end of the power cable at hub is tight. Also, if after tightening the arm clamp and it does not grip (hold) the arm securely, shims should be added so that it can be held securely in its proper position.

**Oil:**

- (1) the cable attaching bushings at both ends of the power cable;
  - (2) the bronze bushing in the spring end bell assembly at the spring shaft; and
  - (3) the bronze bushing in the step pulley (located between the motor and the drive chain)
- (Note that "MA", "MP" and MDL-2 series machines do not have bronze bushings at step-pulley.)

Use lubricants such as "Lubriplate #3" machine oil, or other film-forming oils which contain wear-resistive materials such as Molybdenum Disulfide which are absolutely necessary for maximum life of bearing surfaces. S.A.E. 90 gear oil is generally sufficient. **Note: Do Not Use WD40 for lubrication on the pitching machine.**

**Biweekly:** Under normal running conditions, using a general-purpose oil (but not a cutting oil which can cause deterioration of the bearing seals), oil lightly to clean all visible bearings on the ends of shafts to help remove dirt or grime. Wipe away any excess oil.

**Monthly:** Oil the drive chain using any standard chain lubricant.

**Yearly:** Add one teaspoon of S.A.E. #20 oil to the motor bearings after each 2000 hours of operation or at the beginning of each season. **Do not over-oil motor.** Apply a light coat of grease to the speed adjusting handle and the height adjusting handle seasonally and a very thin coat along the inside of the brake band (Do not over-grease).

**Winterizing:** At the close of season, remove circuit board from coin-operated machines and store inside. (This helps to prevent damage caused by lightning strikes and voltage surges.) Take provisions to prevent winter-dwelling animals from taking up residence in control boxes, motors and other machine components. Cover the motor and loosen or remove all belts on the drive systems. Remove the power cable to relieve all tension on the arm, main shaft, and torsion spring. Give all rotating parts a good coat of oil.

**SAFETY NOTICE:** The drive belts and pulleys are guarded for *your* safety. Covers should be left in place at all times. The only time there will be an exception is when servicing the machine. The machine should have the power shut off when the covers are removed or the guard door is opened. Be sure that the arm is in a safe position or that the power cable has been removed when servicing drive components located inside the pitching arm compartment.

## Models MA4, MA5, MP4, MP5, and MP6 Parts List

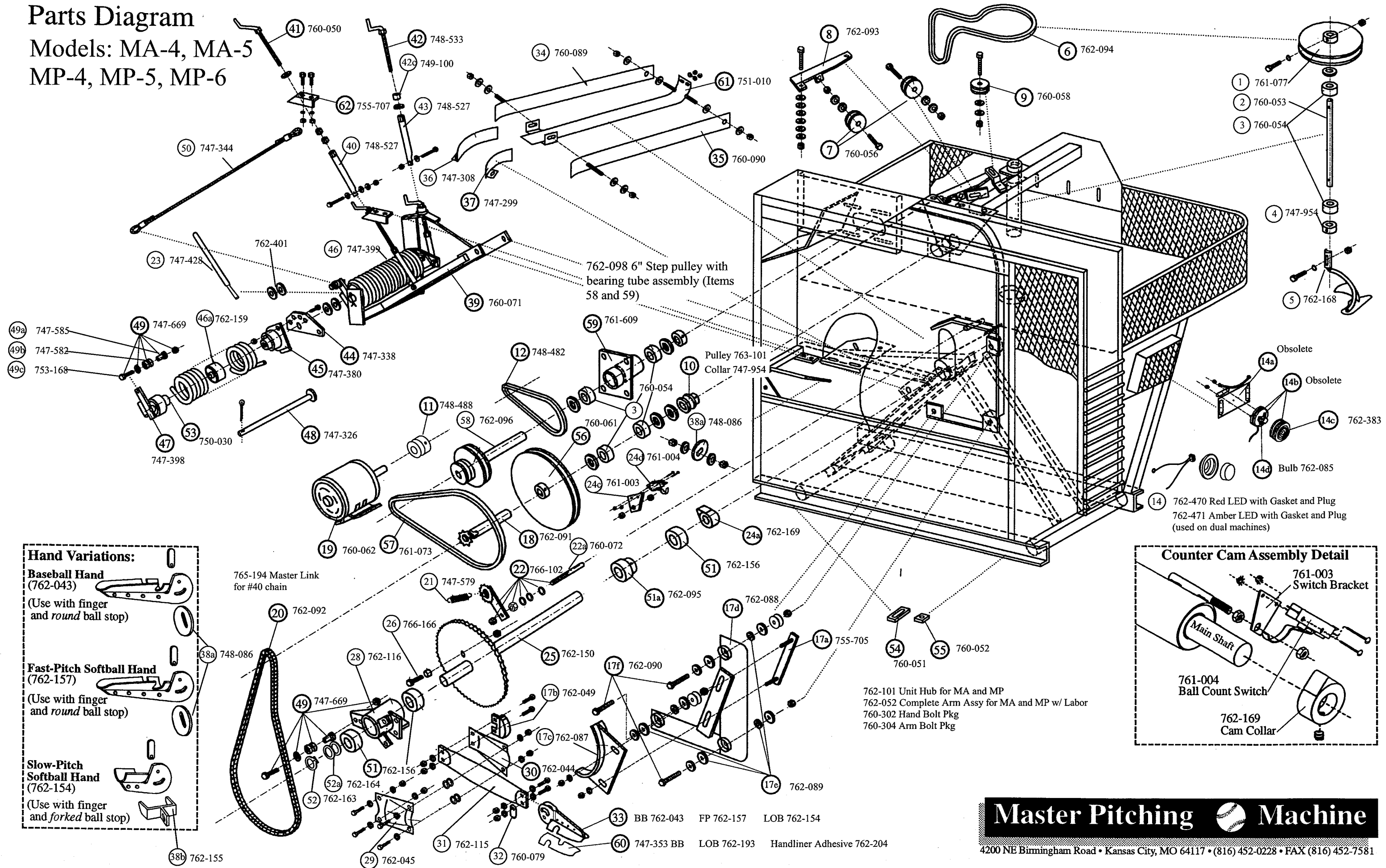
Note that Models MA4, MP4 and MP6 have hoppers with agitators whereas Models MA5 and MP5 do not. Also the Models MA4 and MA5 have coin operated controls where the Models MP4, MP5 and MP6 do not.

<u>(Item)/Part #</u>	<u>Part Description</u>	<u>(Item)/Part #</u>	<u>Part Description</u>
* (1) 761 077	Agitator Sheave	(31) 762 115	Pitching Arm
* (2) 760 053	Agitator Shaft	(32) 760 079	Finger (universal)
* (3) 760 054	Bearings 25mm I.D.	(33a) 762 043	Baseball Hand
* (4) 747 954	Shaft Collar	(33b) 762 157	Fast-Pitch Softball Hand
* (5) 762 168	Adjustable Agitator	(33d) 762 154	"Stubby" Lob Softball Hand
* (6) 762 094	Agitator Drive Belt 3L580	* (34) 760 089	Outboard Ball Track
* (7) 760 056	Vee Idler Unit	* (35) 760 090	Inboard Ball Track
* (8) 762 093	Idler Carrier	(36) 747 308	Long Ball Guide
* (9) 760 058	Flat Idler Unit	(37) 747 299	Short Ball Guide
* (10a) 763 101	Agitator Drive Sheave	(38a) 748 086	Ball Stop for B.B. or F.P.S.B.
# (10b) 747 954	Shaft Collar	(38d) 762 155	Ball Stop for Lob Hand
(11) 748 488	Motor Pulley	(39) 760 071	Spring Boom Frame
(12) 748 482	Motor Belt 3L280	(39z) 762 400	Spring Boom Assembly
(14) 762 470	Red LED light with gasket complete	(40) 748 527	Height Adjusting Rod
(14a) 762 086	Obsolete	(41) 760 050	Height Adjusting Handle
(14b) 762 382	Obsolete	(42) 748 533	Speed Adjusting Handle
(14c) 762 383	2 3/4" Red Lens only	(42c) 749 100	Bronze Bushing for Speed Handle
(14d) 762 085	Push-In Bulb, wedge base GE193	(43) 748 527	Speed Adjusting Rod
(17)	<u>Arm Brake System</u>	(44) 747 338	Spring Tension Plate
(17a) 755 705	Stud Clip	(45) 747 380	Fixed-End Bell Assembly
(17b) 762 049	Brake Shoe With Pad	(46) 747 399	Torsion Spring
(17c) 762 087	Brake Band Unit	(46a) 762 159	Spring Pilot
(17d) 762 088	Mounting Bar	(47) 747 398	Cable End Bell Assembly
(17e) 762 089	Rubber Grommets	(48) 747 326	Spring Shaft
(17f) 762 090	Mounting Bolt	(49) 747 669	Cable Attaching Unit
(18) 762 091	Upper Sprocket-Shaft (Sprocket is welded to Shaft.)	(49a) 747 585	Steel Bushing
(19) 760 062	Motor (1/3 horsepower 110 volt)	(49b) 747 582	Bronze Bushing
(20) 762 092	Drive Chain	(49c) 753 168	Special Bolt (3/8" by 1 1/2")
(21) 747 579	Chain Tightener Spring	(50) 747 344	Power Cable
(22) 766 102	Chain Tightener Unit	(51) 762 156	Standard Bearing (35 mm)
(22a) 760 072	Shaft for Chain Tightener Unit	(51a) 762 095	Extended Race Bearing (35 mm) (used on sprocket end of main sprocket unit)
(23) 747 428	Boom wrench	(52) 762 163	Snap Ring
(24)	<u>Counter Cam Assembly</u>	(52a) 762 164	Spacer Set of 3 for hub
(24a) 762 169	Cam Collar	(53) 750 030	Bronze Bushing for End Bell Assy.
(24c) 761 003	Switch Bracket	(54) 760 051	Slotted Machine Hold-Down
(24d) 761 004	Ball Count Switch	(55) 760 052	Unslotted Machine Hold-Down
(25) 762 150	Main Sprocket-Shaft (Sprocket is welded to Shaft.)	(56) 760 061	Large Sheave 25mm bore
(26) 766 166	Hub Stop Bolt Unit	(57) 761 073	Belt A50
(26a) 762 151	Sprocket Drive Bushing	(58) 762 096	Step Pulley Shaft Assembly
(26b) 760 025	Hub Stop Bolt	(59) 761 609	Bearing Tube Unit for step pulley
(28) 762 116	Pitching Arm Hub	(60a) 747 353	Hand Liner, baseball & "fast-pitch"
(29) 762 045	Arm Brace	(60d) 762 193	Hand Liner, "lob-pitch"
(30) 762 044	Arm Doubler	* (61) 751 010	Ball Chute Base
		(62) 755 707	Height Adjusting Bracket

\* Signifies hopper parts; # Signifies hopperless part.

# Parts Diagram

Models: MA-4, MA-5  
MP-4, MP-5, MP-6



**Hand Variations:**

**Baseball Hand (762-043)**  
(Use with finger and round ball stop)

**Fast-Pitch Softball Hand (762-157)**  
(Use with finger and round ball stop)

**Slow-Pitch Softball Hand (762-154)**  
(Use with finger and forked ball stop)

**Counter Cam Assembly Detail**

761-003 Switch Bracket

Main Shaft

761-004 Ball Count Switch

762-169 Cam Collar