



# **5800 EIs**

## **STRINGING MACHINE**

### **2 POINT MOUNTING**



## **OWNER'S MANUAL**

Issue 1 - June 2006

# OWNER'S MANUAL

# 5800 Els

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## LIMITED WARRANTY

GAMMA SPORTS warrants to the original purchaser that the 5800 Els stringing machine ("EQUIPMENT") purchased is free from defects in materials and workmanship for a period of five (5) years from the date of original purchase for mechanical parts (excluding electrical parts and string clamps), and for a period of one (1) year from the date of purchase for all electrical parts and string clamps. Should any defects develop under normal use within the specified time periods, GAMMA will at its option, repair or replace the defective EQUIPMENT provided it is returned to GAMMA prepaid at the purchaser's expense. This warranty does not apply to any damage or defect caused by negligence, abuse, misuse, unauthorized alteration, shipping, handling, or part wear and tear as a result of normal use.

Routine maintenance, adjustment, and cleaning required to ensure proper operation are the responsibility of the purchaser and are not covered under the terms of this warranty. These include, but are not limited to: String Clamp adjustment, as described on page 18, Quick Action Clamp Base adjustment, as described on page 18, and the cleaning procedures listed on page 19.

GAMMA's obligation under this warranty is limited to repair or replacement of defective EQUIPMENT, and no one is authorized to promise any other liability. GAMMA shall in no event be liable for any incidental or consequential damages.

To return defective EQUIPMENT, a return authorization (RA#) must be obtained from a GAMMA customer service representative. The RA# must be marked on the outside of the shipping carton being returned. All returns must be shipped prepaid by the customer to GAMMA. Please retain the original shipping carton and packing materials for any future shipments. GAMMA will not be responsible for machines which are not sent in the original undamaged packaging.

# GAMMA 5800 EIS FEATURES



## MACHINE FEATURES

- ❖ Electric Constant Pull Tensioner w/ 11 lb. to 89 lb. Tension Range
- ❖ Digital Tension Setting Display
- ❖ Professional Two Point “Self-Centering” Racquet Mounting System - Accommodates All Racquets Without Adapters
- ❖ Parallel Jaw Linear Gripper w/ Diamond Dust Coated Gripping Surfaces
- ❖ Professional Dual Action, Rotating, Diamond Dust Coated, Fixed String Clamps
- ❖ High Strength Extruded Aluminum Frame with Durable Anodized Finish and 2-Convenient Padded Tool Trays
- ❖ Unique Internal Drawer System for Storing Tools and Adapters.
- ❖ Convenient Foot Actuated Tensioner Switch



# 5800 EIs

## Unpacking Instructions & Contents

### Instructions for Unpacking and Preparing for Assembly

The stringing machine is shipped in three cartons, a large carton for the stringing machine and accessories, a medium carton for the turntable and mounting system and a smaller carton for the post and base legs. **Please save the cartons and packing materials for possible shipments in the future.** Gamma Sports cannot be responsible for machines that are not returned, shipped in their original, undamaged packaging. The tools you will need to assemble the machine are provided with the machine. Due to the weight of the tensioner unit, you may need the assistance of someone to help lift the tensioner unit out of the carton.

Once the cartons are opened, remove all inner cartons and check to be sure that all parts are present and accounted for.

#### Contents of Base & Leg Carton

- (1) Lower Post
- (1) Upper Post with Flange Plate
- (4) Legs
- (1) Locking Knob Screw
- (4) M8 x 25 Flat Head Screws
- (4) M8 x 30 Cap Screws
- (1) M8 x 25 Cap Screws for Height Adjustment
- (1) String Reel Holder (M8 Threaded Pin), (1) Knob, (10) Spacers, & (2) M8 Washers

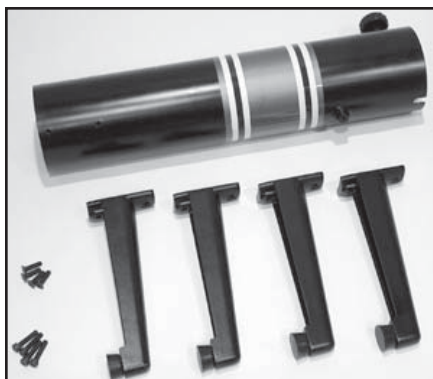
#### Contents of Mounting System Carton

- (1) Turntable
- (2) Mounting Stands w/ Frame Hold Down
- (2) String Clamp Heads

#### Contents of Large Master Carton (including accessory cartons packed inside)

- (1) Stringer Assembly Unit w/ Tensioner Module
- (1) Power Cord
- (1) Foot Pedal Tensioner Switch
- (1) Tool Kit (contains side cutter, bent nose pliers, needle nose pliers)
- (1) Straight Stringers Awl & (1) Pathfinder Specialty Awl
- (1) Tools for assembly and maintenance

# ASSEMBLY INSTRUCTIONS



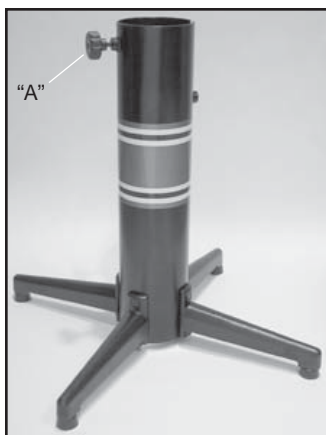
## Base Leg Assembly

The stringing machine uses a four leg base design. The legs must be assembled to the support post before use. Remove the lower column support, the upper column support, four (4) legs, four (4) socket head cap screws and four (4) flat head cap screws from the small shipping carton.



## Base Leg Assembly (Cont.)

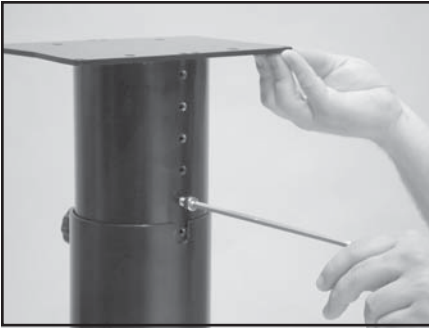
Align the holes in the leg flange with the matching holes in the lower column support post. Secure the leg with one FLAT HEAD cap screw through the upper hole, and one SOCKET HEAD cap screw through the bottom hole. Repeat this procedure for the three remaining legs.



## Base Leg Assembly (Cont.)

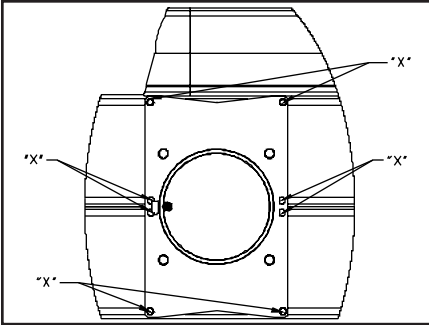
To complete the base stand, screw the height adjustment locking knob ("A") into the side of the support column. The locking knob should not protrude beyond the inside of the support column at this time.

# ASSEMBLY INSTRUCTIONS



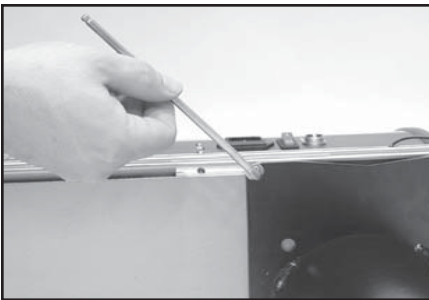
## Height Adjustment

The height of the machine is adjustable from 39" to 46". To change the height, remove the socket head cap screw from its current position and place it in the appropriate hole to set the desired height of the machine.



## Stand Upper Post Installation

With the height adjustment cap screw on the upper post facing the brake lever & string length meter, align the 6 holes marked "X" in the upper post flange with the holes in the slide brackets of the machine base.

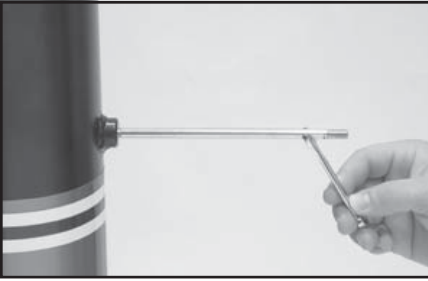


## Stand Upper Post Installation (cont.)

Secure the flange to the base with the six cap screws or the rubber feet.

**USE CAUTION WHEN SECURING SCREWS TO SLIDING BRACKETS, THEY WILL STRIP.**

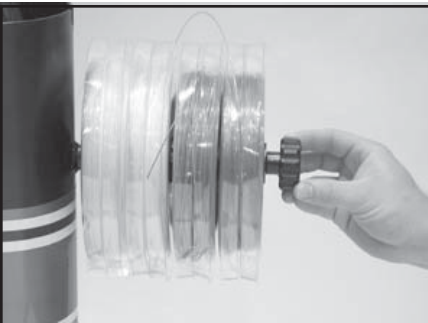
# STRING REEL HOLDER INSTALLATION



The string reel holder pin is an 8 mm rod with threads on both ends, and flat surfaces machined on one end. Thread the end of the pin without the flat surfaces into the threaded boss on the right side of the lower column support. Using the M6 open end wrench positioned on the flat surfaces, securely tighten the pin to the lower column support.

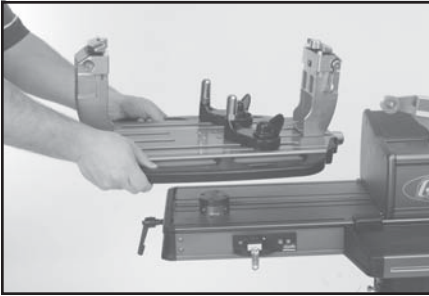


The string reel holder can hold up to 5 reels of string (depending on the size of the string reel). Before placing the first reel on the pin, slide two M8 washers over the pin and slide them to the boss on the lower column support. After the first reel is placed onto the pin, place two spacers between each reel to provide enough space between reels and allow them to turn freely without rubbing against one another. (To provide a smooth feed to the String Length Meter, place the reels on the pin so the string spools off the reel from the underside of the reel.)



After the last reel is installed, place the remaining spacer(s) on the pin and attach the threaded knob to the end of the pin.

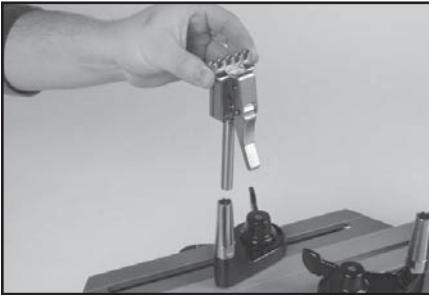
# ASSEMBLY INSTRUCTIONS



## Turntable and Mounting System Installation

To install the turntable remove the four nuts underneath holding the mounting bolts in place. Align the bolts with the holes in the turntable pin. Secure them with the included allen wrench.

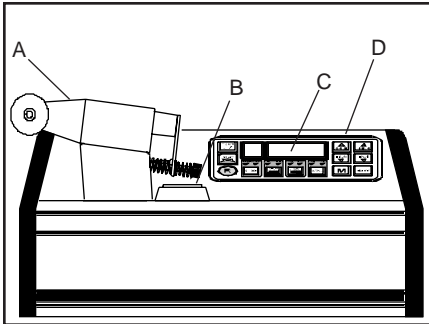
NOTE: Apply the turntable brake and it will be easier to align the bolts and holes.



## String Clamp Installation

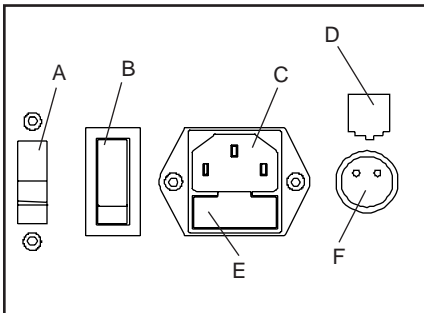
The post of the string clamp and tube of the string clamp base are treated with grease to provide protection against corrosion during shipping. Remove any excessive grease with a clean cloth prior to use. The post and tube may also be cleaned with isopropyl alcohol. After this type of thorough cleaning, the post and tube should be treated with a light coating of machine oil to protect the surfaces against corrosion and to ensure smooth operation.

# POWER CONNECTION & CONTROLS



## Front Panel Features

- A - String Gripper
- B - Tension Button
- C - L.E.D. Tension Display
- D - Control Panel



## Back Panel Features

- A - 115 / 230 Volt Switch
- B - Lighted Power Switch
- C - A/C Power Cord Socket
- D - String Length Meter Receptacle
- E - 2 Amp Fuse Holder (w/ spare fuse)
- F - 2 Pin Foot Pedal Switch Receptacle

## Instructions for Power Connection and Controls

**CAUTION !** Before connecting to the power supply, check the voltage source that the machine is being connected to. The acceptable range of input voltages for this machine is between 100 V and 110 V @ 50 to 60 Hz. If you have any questions regarding the input voltage supply for your area, please ask your electric utility company.

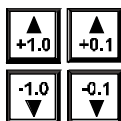
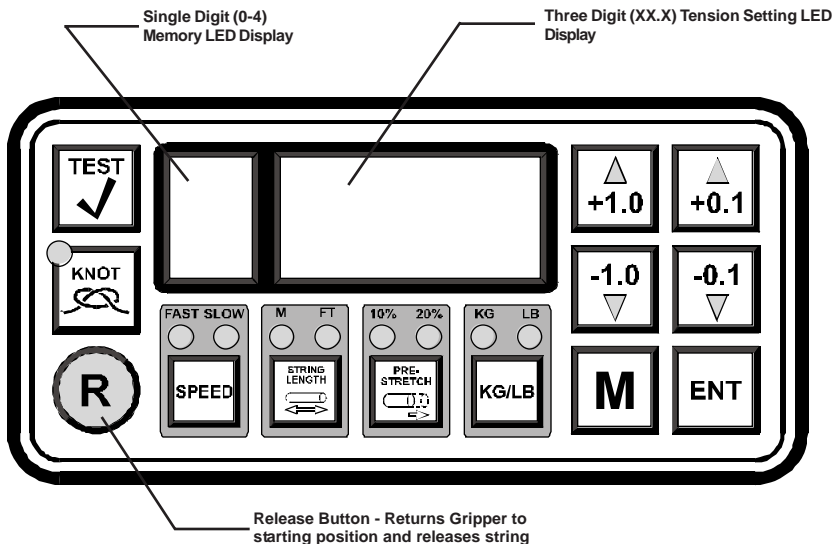
To install the power cord, insert the female end of the power cord into the Power Cord Socket located on the back panel and plug the male end into a grounded power outlet.

When using extension cords, use grounded heavy duty extension cords rated for 15 AMP service. To connect the foot pedal switch, insert the 2 pin female connector located at the end of the foot pedal switch cord, into the two pin receptacle located in the back panel. Tighten the connector with the sleeve nut located on the foot pedal switch connector.

After checking to be certain that the machine is connected to the correct input voltage, switch on the machine by pressing the Lighted On-Off Power Switch on the side panel. At start-up, the LED will display a countdown from "9.0" to "0.0" while the machine performs a self diagnostics check at start-up.

**WARNING! FOR INDOOR USE ONLY. TO BE USED BY ADULTS OR UNDERADULT SUPERVISION ONLY. NEVER OPEN UNIT WITH POWER CONNECTED**

# CONTROL PANEL FUNCTIONS AND FEATURES



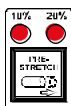
**Tension Index Buttons** - Changes tension setting in +/- 1.0 or 0.1 Lb or Kg increments. Holding the button down will scroll the tension setting values up or down.



**Calibration Button** - Press and hold at start-up to enter calibration mode.



**Lbs/Kgs Button** - Changes tension display from Lbs to Kgs. Each press of the button toggles back and forth between Lbs and Kgs



**Pre-Stretch Function** - Pulls string 10% or 20% over the tension setting (up to 90 lbs / 40.8 kgs), releases the string, and repulls to the tension setting. Each press of the button toggles between 10%, 20% or no pre-stretch.



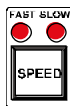
**Test Function** - Performs internal calibration check. Press and hold for 5 seconds until the winder reverses and performs an internal diagnostic check, such as the one performed at start-up.



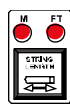
**Memory Button** - Indexes from 4 preset tension settings that can be stored in memory. Settings are retained even if machine is turned off. Each press of the button indexes to the next memory setting. Memory settings 1-4 must be entered using the Tension Index Buttons followed by pressing the "M" button.



**Knot Function** - Increases pulling tension by 20% over the setting value (max 90 lbs / 40.8 kgs) for one pull. During the pull the Memory LED flashes to indicate that the Knot function is enabled.

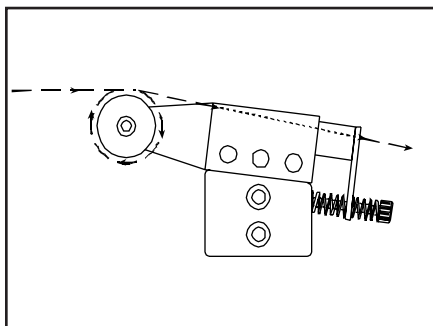


**Speed Button** - Changes pulling speed of winder from Fast to Slow. Slow speed is recommended for low stretch strings, such as Kevlar. Each press of the button toggles back and forth between Fast and Slow speed.



**String Length Meter Button** - Enables string length meter function. Each press of the button toggles back and forth between Meters and Feet measurement. To switch back to tensioning function, press the "Lbs/Kgs" button.

# STRING GRIPPER OPERATION

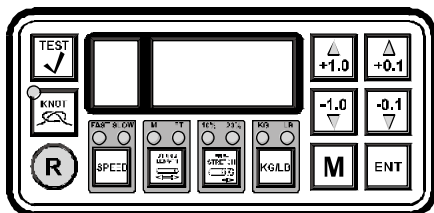


## String Gripper Operation

To insert a string into the linear string gripper, wrap the free end of the string clockwise around the roller guide and insert the string between the diamond dust coated string gripper plates. Excessive slack in the string should be removed before applying tension. Pull the string perpendicular to the gripper plates and begin tensioning. As tension is applied, the grippers will engage to hold the string. For adjustment of the parallel plates, see "Setting the Gripper Plate Spacing" on page 18.

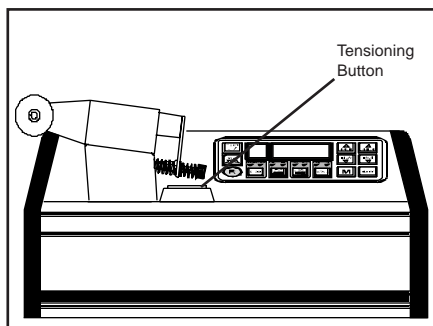
**CAUTION ! CHILDREN SHOULD NEVER BE PERMITTED TO OPERATE THIS MACHINE WITHOUT ADULT SUPERVISION.**

# TENSIONER OPERATION



## Setting the String Tension

String tensions may be entered and stored into one of four memory storage settings (See section on Control panel Functions and features) by using the tension index buttons. While tension setting is entered, the value displayed will be temporary until the "M" button is pressed to store it in one of the four permanent memory settings.

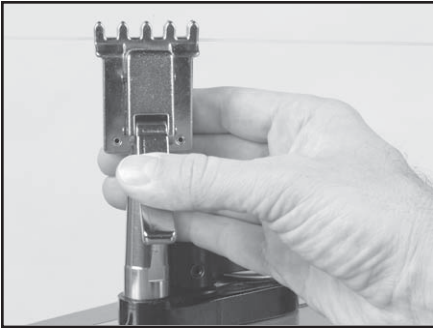


## Tensioning a String

After wrapping the string around the gripper jaws, press the tensioning button switch on the front panel of the machine, or press the foot pedal switch to activate the tensioner. Using the fast pulling speed (see section on Control Panel Functions and features) the tensioner will start pulling at full speed and then slow down as the tension in the string approaches the tension setting. When the tension in the string reaches the tension setting, the LED display will begin to flash, and the string will be ready to clamp off. In the event that one

of the keys on the control panel are accidentally pressed while tensioning a string, the tensioner will automatically reverse and release the string being tensioned.

# STRING CLAMPS

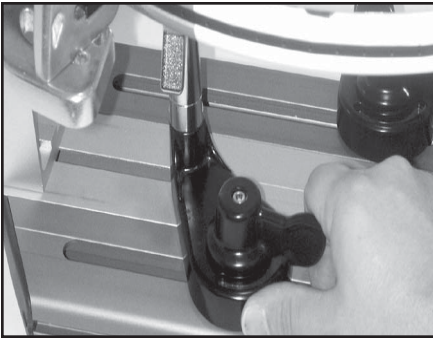


## String Clamp Operation

The string clamps are a dual action design where the string clamp and clamp base operate independently of one another.

To clamp a string, lift the clamp head and place the string between the jaws and depress the string clamp lever to secure the string. The clamping pressure applied to the string should be adjusted to provide sufficient pressure to secure the string when subjected to the desired pulling tension. The diamond coated gripper plates provide for increased friction between the clamps and

the string to allow for reduced clamping pressure while securing and holding the string under tension.



## Clamp Base Operation

To lock the string clamp base to the turntable, rotate the clamp base locking lever clockwise. To release the string clamp base from the turntable, rotate the clamp base locking lever counter-clockwise.

The Locking Lever should be tightened enough to prevent clamp base slippage on the turntable, when the desired tension is placed on the string. To go from the loose position to the clamped position and back, generally requires the rotation permitted by the slot in the clamp base.

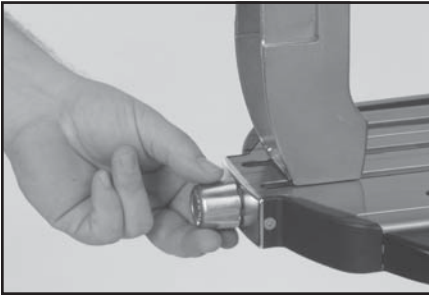
# MOUNTING THE FRAME



## Adjusting the Inner Racquet Supports

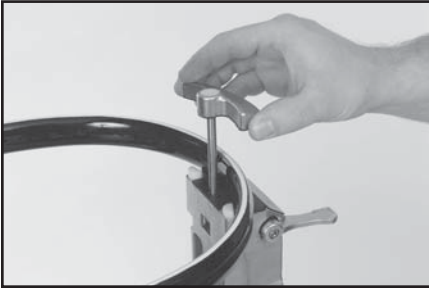
The white racquet supports are adjustable to accommodate all racquets and provide maximum support to the racquet frame. Screw the the pads up or down so they contact the frame at a maximum height without blocking the grommet holes.

# MOUNTING THE FRAME



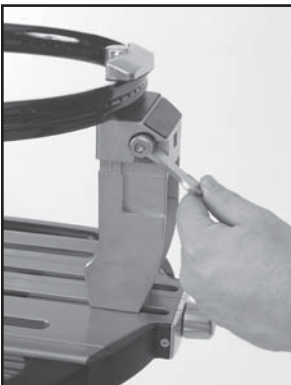
## Mounting Post Adjustment

Place the racquet frame over the white racquet supports. Screw the the post outward until the racquet supports are positioned on the inside surface of the racquet frame.



## Installing the Racquet Hold Down

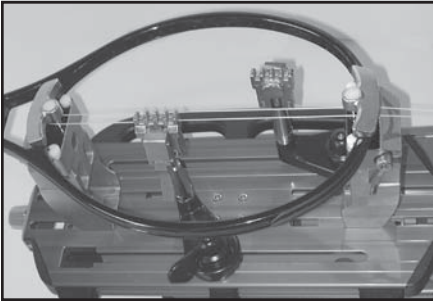
With the lever in the up position, insert the racquet hold down into the hole in the center of the mounting post.



## Securing the Racquet Hold Down

Depress the racquet hold down lever to secure the racquet frame.

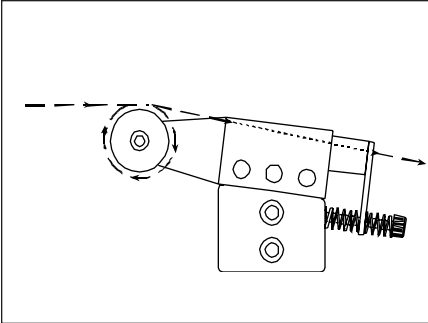
# STRINGING THE FRAME



## Getting Started

To begin stringing the main strings, thread the two ends of the string through the two center holes at the appropriate end of the frame and continue through the opposite center holes. Thread one end of the string through the adjacent grommet hole and pull excess by hand.

Secure one of the strings using a string clamp.



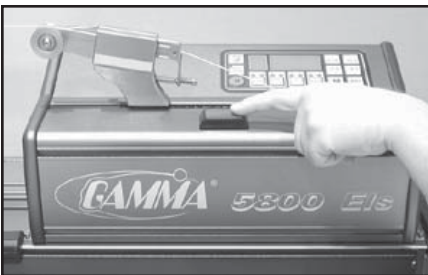
## Pulling Tension

To pull tension, wrap the free string clockwise around the roller guide and position the string between the gripper jaws.

The string must pass over the roller guide before being placed between the gripper jaws.

Gently pull the string until all slack is removed.

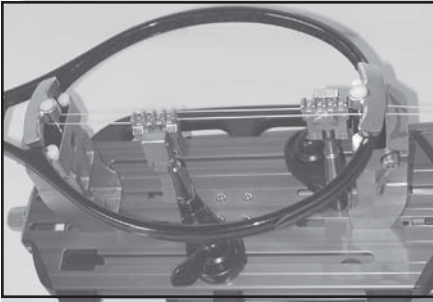
**WARNING: KEEP FINGERS AWAY FROM ROLLER GUIDE WHILE TENSIONING STRING. PUSH GRIPPER REVERSING SWITCH IN CASE OF EMERGENCY.**



To tension a string, push the tension button or the foot pedal. The string gripper will move away from the racquet and slowly apply tension to the string. When the set tension has been attained, the gripper will stop moving. As the tensioned string stretches, the gripper may move intermittently, maintaining the set tension.

To release the string after clamping, push the tension button or foot pedal. If the string gripper does not release the string, pull the grippers back away from the racquet to help release the string.

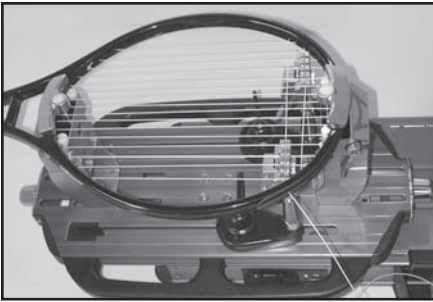
# STRINGING THE FRAME



## Clamping the First Main String

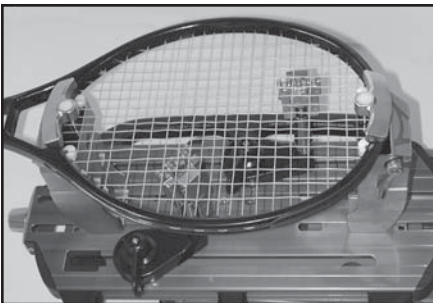
Secure the tensioned main string using the remaining fixed clamp. Repeat the procedure for all of the remaining main strings and tie off following the racquet manufacturers recommendations.

Follow the manufacturer's recommended stringing pattern for one or two piece stringing. This will determine the starting point for the cross strings. If applicable, tie the first cross string using an appropriate starting knot.



## Weaving the Cross Strings

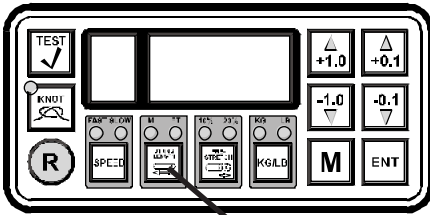
Weave the cross strings over and under the main strings being careful to alternate the weave direction of each consecutive cross string so as to be opposite of the previously installed cross string.



## Completing the String Job

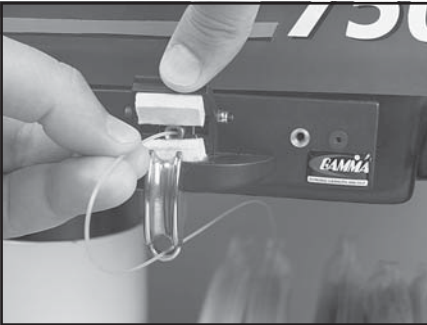
Once the final cross string is tensioned and clamped, tie off at the appropriate hole specified by the racquet manufacturer. Remove the frame from the mounting system by loosening the shoulder supports and frame supports.

# STRING LENGTH METER OPERATION



SLM button

To enable the String Length Meter (SLM) function, press the String Length function key on the keypad. When the String Length button is pressed, one of the Red LED indicators above "M" or "FT" will light up to indicate that the SLM function is enabled. Pressing the String Length button will toggle between "M" and "FT" to set the measurement units for either Meters ("M") or Feet ("FT"). Measurements are displayed in 0.1 increments.



To measure out a length of string from a reel (sets can also be measured) insert one end of the string through the string guide grommet (from the backside). While lifting the clamp pad, insert the string through the entrance hole of the face plate until it appears at the exit hole and release the clamp pad. (The clamp pads will prevent debris from entering the SLM.)

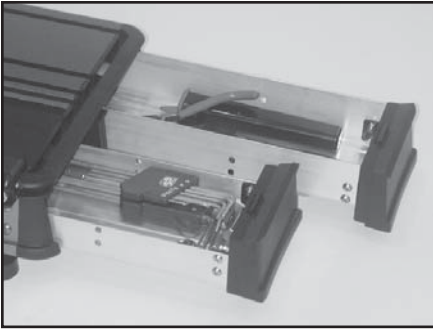


When the end of the string appears out of the exit hole, press the "C" button on the keypad to "Zero" the SLM, and the length of string measured will be measured from the point on the string located at the edge of the exit hole. Pull the end of the string in a slow steady fashion and the SLM will begin measuring the length of string pulled and indicate the measurement on the LED display. When the desired length of string is measured, cut the string at the exit hole.

**NOTE : When reaching the end of a length of string, pull the string through very**

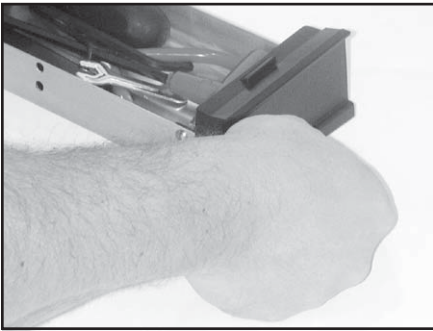
**slowly to avoid inaccurate string measurement.** The string length meter was designed to measure strings between 1.10 mm (18 ga) and 1.45 mm (15 ga) at an accuracy of +/- 0.3% of the indicated value and +/- 2 inches (50 mm) absolute. When measuring strings smaller than 1.10 mm (such as badminton strings) the error will be -2.5% of the indicated value (up to 6" short in 40 ft) and +/- 2 inches (50 mm) absolute.

# ADDITIONAL FEATURES



## Storage Drawers

There are two storage drawers located in the base of the machine. The drawers open from the right end of the base and lock into the end cap with a spring loaded latch.

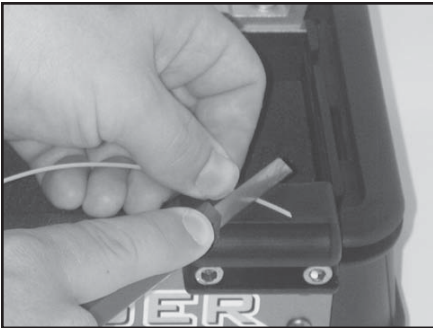


To open the drawers, reach under the right side end caps to find the the spring loaded latch handle. Pull the latch handle toward the outside of the end cap to release latch from



the end cap and slide the drawer out. To close the drawer simply slide the drawer back inside the base and the latch with automatically lock into place.

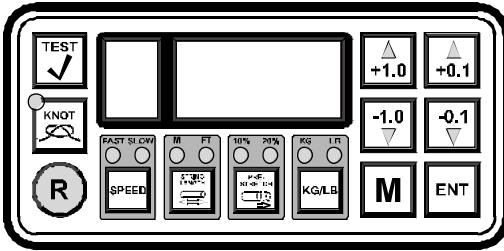
*View from underside of end cap showing latch handle.*



## Cutting Block

A cutting block is provided to provide a surface for cutting a point on the strings using a razor blade cutter.

# MAINTENANCE and ADJUSTMENTS



## Tension Calibration Procedure

Each stringing machine has been checked and calibrated at the factory using accurate load sensing devices to ensure that the machine pulls at the correct tension. The tension is then controlled by the pre-set factory settings of the electronics. However, if you suspect that your machine is not pulling at the correct

tension, or if you would like to check the pulling tension using a tension calibration device, you may do so.

Most tension calibrators (such as a Gamma Tension Calibrator) function by inserting a string from the end of the calibrator into a string clamp, and pulling on the string located on the opposite end of the calibrator. The tension measured by the calibration device will then display the tension being applied to the calibrator by the machine.

After checking the calibration you can change the calibration curve or the offset. If the tension is off by different amounts at low and high tensions, then adjust the calibration curve (call GAMMA for this procedure). If the tension is off by the same amount at the low and high tensions adjust the offset (it can only be adjusted a maximum of 5 lbs up or down.)

## Offset Instructions

While the calibrator is attached to the machine pull tension and release it. Immediately after the string is released hold the "ENT" button for 5 seconds. The memory position (1-4) on the display will change to a 9. Adjust the reading on the LED display to match the reading of the calibrator using the tension index buttons. Press the "M" button to confirm the offset.

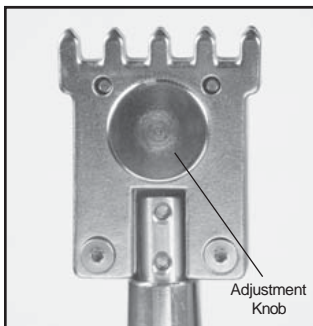
To restore the offset back to factory settings turn the machine off. While pressing the "ENT" & "R" button, turn the machine on and hold the buttons until the count down is complete.

## Switching the Buzzer Off and On



The buzzer on the machine has a pre-set volume and is preset at the factory in the "On" mode. In case you prefer to switch the buzzer "Off" turn off the machine and then at start-up, press and hold the "C" and "M" buttons while the machine is turned on until the display completes its count down from 9 to 0. The buzzer will then be turned "Off". To turn the buzzer "On" once again, repeat the same procedure at start-up.

# MAINTENANCE and ADJUSTMENTS



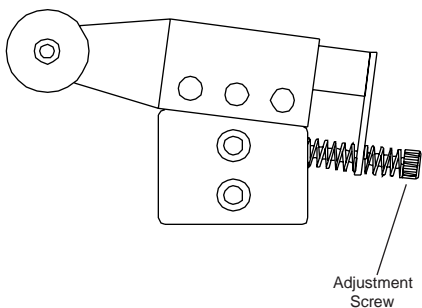
## Adjusting the String Clamp Jaw Spacing

The string clamps will need minor adjustments according to what string type, construction, and gauge you are using.

To adjust the gap (clamping pressure) between the clamp jaws, insert the string through the racquet as if you were beginning the main strings. Clamp the strings and pull tension. If the string slips through the jaws of the clamp, tighten the clamp by compressing the clamp jaws together by hand while turning the Adjustment Knob, in the clockwise direction. If the clamp leaves impressions or damages the string, it may be excessively tight and should be adjusted by turning the Adjustment Knob counter clock-

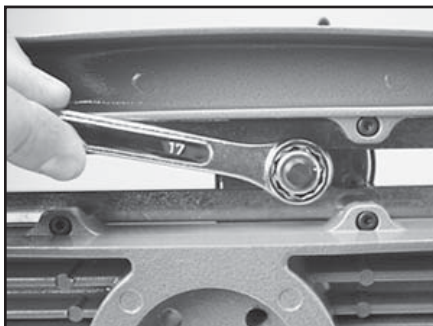
wise to open the gap between the jaws. The clamp jaws should be cleaned periodically to be free from dirt, oil, and any string coating for them to grip properly. Knife sharpening stones are excellent for removing build-up on the diamond coated surfaces and are available.

**Note:** The string clamps supplied with your stringing machine can accommodate tight string patterns such as badminton. Depending on the string pattern, the clamp may spread the strings slightly which will not compromise the quality of the string job. String clamps designed specifically for badminton racquets are available.



## Gripper Plate Spacing Adjustment

The parallel plates of the string gripper are adjustable to accommodate varying string gauges and types of string. If the string slips through the gripper plates while pulling tension, rotate the gripper adjustment screw counter-clockwise. If the string is damaged while pulling tension, rotate the gripper adjustment screw clockwise. The gripper is properly adjusted when there is enough pressure to securely hold the string without causing damage to the string.



## Adjusting the Clamp Base Locking Nut

In the event the Locking Lever rotation is insufficient to ensure smooth operation of the clamp base, very minor adjustments to the Clamp Base Locking Nut can be made with a 17mm socket. Tighten or loosen the locking nut in very small increments to provide more clamping pressure or running clearance as needed.

# TROUBLESHOOTING TIPS

<b>PROBLEM</b>	<b>SOLUTION</b>
String slips in clamps.	<ul style="list-style-type: none"><li>- Adjust gap between jaws.</li><li>- Clean clamp jaws.</li></ul>
String slips in gripper.	<ul style="list-style-type: none"><li>- Clean gripper jaws.</li><li>- Make sure string is wrapped over top jaw of gripper prior to inserting between gripper jaws.</li></ul>
String clamp base slips on turntable.	<ul style="list-style-type: none"><li>- Adjust Clamp Base Locking Nut.</li></ul>
Electrical system does not function.	<ul style="list-style-type: none"><li>- Check power source.</li><li>- Check power cord connection.</li><li>- Check stringing machine fuse.</li></ul>
String tension too tight or too loose.	<ul style="list-style-type: none"><li>- Check tension using a tension calibrator and adjust machine calibration if necessary</li></ul>

## FUSE REPLACEMENT

To change the fuse, remove the power cord and pull the fuse holder straight out. Remove the old fuse from the holder and replace it with the supplied spare. Replace the fuse holder into the machine and check for proper operation.

## CARE and CLEANING

With time and use, the clamping surfaces of your machine may become oily or dirty and result in string or clamp slippage while stringing. Periodic cleaning of the String Clamps, String Clamp Base, and String Gripper is recommended using a cleaning solvent such as isopropyl alcohol and a mild abrasive tool such as a toothbrush.

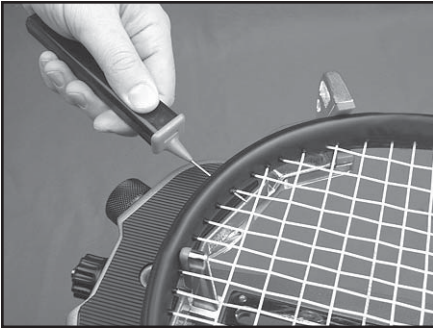
## SELF DIAGNOSTICS

The electronics of the machine are designed to provide self diagnostic trouble shooting information, if parts of the machine do not function normally. When this occurs, error codes will appear on the display. When an error code appears, contact customer service for advice. Descriptions of several error codes follows:

### Code      Corrective Action

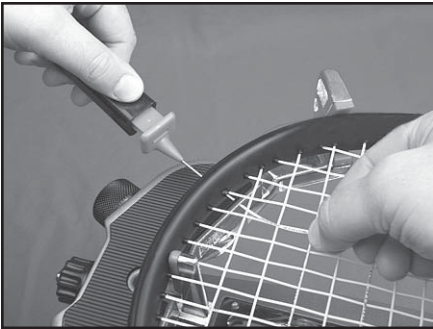
C01	<ul style="list-style-type: none"><li>• Check wiring to &amp; from the return microswitch</li></ul>
C03	<ul style="list-style-type: none"><li>• Check wiring &amp; microswitches at end and return</li></ul>
C04	<ul style="list-style-type: none"><li>• Check wiring &amp; microswitch at end of pull</li></ul>

# PATHFINDER AWL



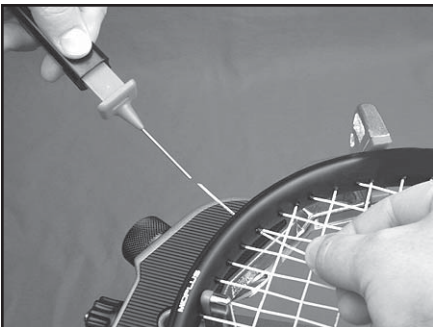
The machine includes the Pathfinder stringing awl which creates a pathway between or around strings to make inserting a string through tight grommets easier and quicker.

Insert the awl through the grommet hole in the same manner as for traditional awls. The Pathfinder awl must be in the closed position before insertion.



Once the awl is inserted, pull the handle of the awl outward while holding the tip section in place, leaving the outer sheath in the grommet hole.

Insert the end of the string into the center of the sheath.



While holding pressure on the string, slowly pull the sheath out of the grommet hole to leave the end of the string exposed.



# PARTS SUMMARY

