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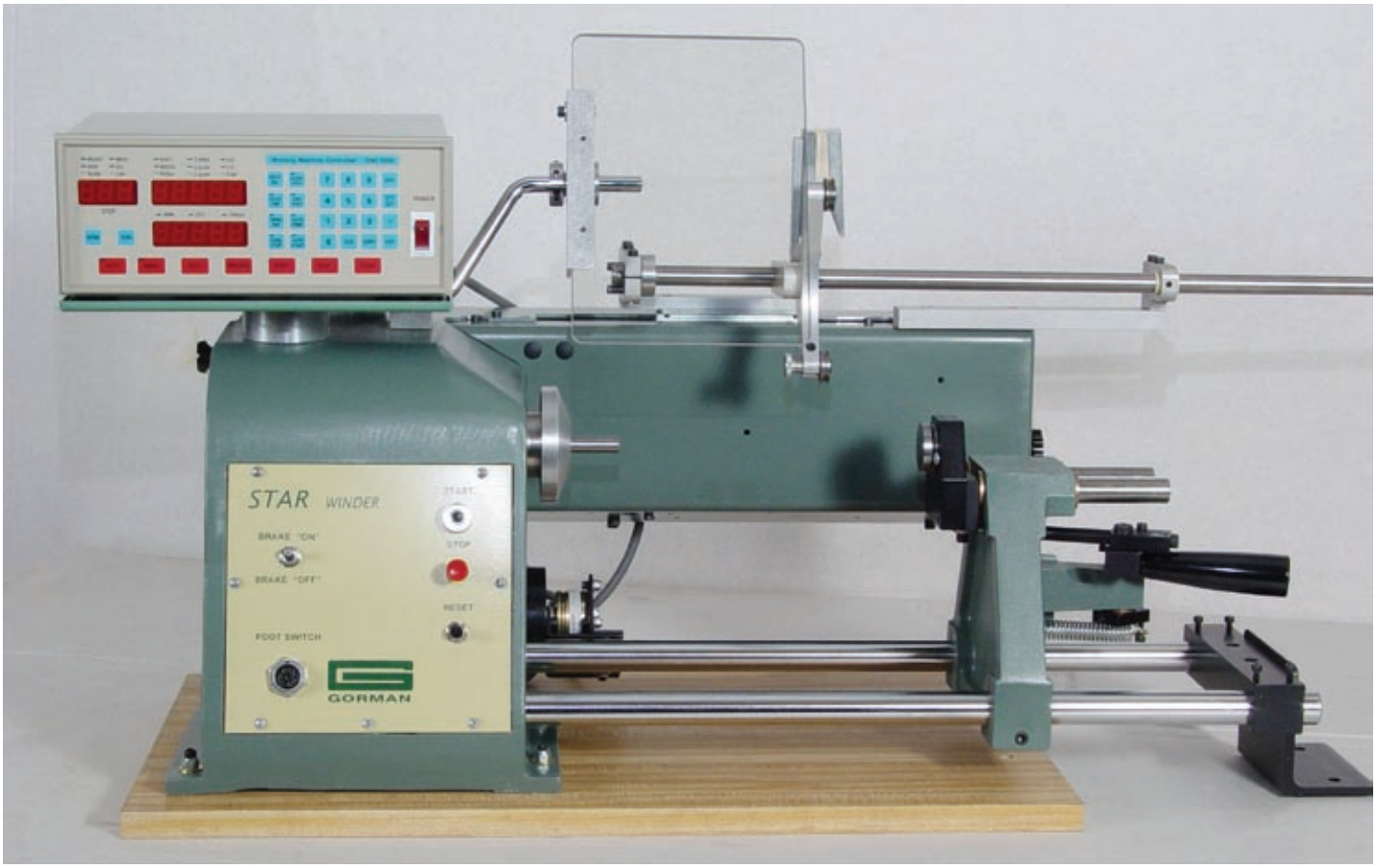
GORMAN STAR WINDING MACHINE OPERATOR'S MANUAL



GORMAN

STAR BOBBIN WINDER
OPERATOR'S MANUAL INDEX

Introduction

The **Star Bobbin Winder** is an unusually versatile machine with many standard features not found on many other machines at any price. The machine has been designed with ruggedness and serviceability in mind for many years of continuous service.

The **Star Bobbin Winder** is a single spindle bobbin winder with an infinitely variable traverse layer winding mechanism, which enables the machine to wind single, or multi bobbins on a mandrel. It has a **tail stock** with standard distance between ½" spindle shaft and closed **tail stock** of approx. 12". This distance can be extended to any length by substituting longer 1" diameter support bars.

The range of wire sizes, which can be accommodated with the two standard step pulleys, is from 12 to 50 AWG or 1.2mm to .025mm. Heavier wires can be accommodated by substituting a timing belt and pulley combination for the flat belt pulleys.

There is winding clearance around the spindle of for winding forms up to ten inches. The maximum traverse distance is 5 3/8". With standard **tail stock** bars, there is 12" between spindle end and closed **tail stock**. This can be extended with longer bars.

Machine Warranty

Gorman machines are covered by a six month warranty, the terms of which are stated below:

Warranty

The **Star Bobbin Winder** machine and components thereof, is warranteed to be free from defects in materials and workmanship for six months from the date of initial factory shipment. We will fully repair equipment of our manufacture covered by the warranty terms on a no-charge basis, to include parts and 90 days on labor if machine is shipped **prepaid** to and from the factory.

Misuse and abuse of the equipment, or unauthorized alteration will void this warranty and our obligation to provide no-charge services. **Gorman Machine Corporation** is not liable for consequential damages.

Setting up the Machine

When the machine arrives, it will be ready for operation if standard length **tail stock bars** (extending 23" from head casting) are ordered. All you need to do is remove it from the packing cast still attached to the Formica covered base board and set it on a bench.

If extra length **tail stock bars** are ordered with the machine, these will be shipped mounted on a separate board. As the motor is mounted and pivots on one end of the rear bar, a temporary short motor mount bar is substituted for the longer of the two ordered bars for shipping purposes only.

With the machine unplugged, open the left hinged access panel. Note carefully, the arrangement of motor, spacer and belt tension device, all mounted on the one-inch shaft at rear. Unplug the motor; remove the temporary bar by loosening the two clamping screws from the rear.

Slide the longer of the two chrome bars into the machine from the spindle end until the bar end is about ¼" from the other end of the main casting. Clamp again tightly and put the motor back on the shaft and plug it in.

Put on the flat drive belt between the motor and spindle. Replace the motor tension spring and adjust for proper tension (firm).

The shorter of the two chrome bars fits into the forward 1" hole. The clamping screws are accessible from the front after removing the front panel. Just slide the bar into the hole until the end is flush with the inner end of the right clamping mount. With these adjustments, the right end of the two bars should be about even.

If you are bolting the machine to a bench, there are two through holes in the board. Use flat washers to prevent marring. A piece of indoor-outdoor carpeting acts as a good pad to prevent resonance between the bench and the board. Set the **tail stock** outer mount for the bars so that there is no twisting or down-pulling on the bars so that the **tail stock** will slide easily on the bars after tightening in position.

Mount the **dereeler** at the rear of the machine as close as possible without touching and in about a central position. The **dereeler** can be moved left or right on its mount in 2" increments so it will be generally centered with the area covered by the wire guides when winding.

Controls and Operation

Operation of the **Star Bobbin Winder** is very simple. All the operator controls are on the front panel and are plainly labeled with the exception of the **power on-off switch**, which is on the right front of the controller. This switch disconnects all power to the machine and the controller. When this switch is turned off, nothing is left electrically live on the machine.

The front panel on the machine has four switches or push buttons. The start, stop and reset switch is duplicated on the controller. The remaining switch is labeled brake on and off. At the right end of the drive motor is an electric brake, which stops the motor rapidly to a stop each time at the end of the turns count, if the brake switch is turned on. This works fine but is unnecessary for most coils as braking each time from a top high speed causes extra brake wear and replacement.

We have added a brake off position which provides very good braking by using the speed of the motor to cause dynamic braking which is almost as quick. A few extra E-slow or end turns in the program will make the final count will come out right each time and eliminate brake wear.

If you wish spindle lock up at the end of the layer, just temporarily put the brake switch to the on position. Leave the red locking button on light "on" at all times.

Speed Ranges, Belts and Pulleys

There are four speed settings, which govern the torque delivered to the spindle. The highest spindle speed is approximately 10,000 RPM, which is double the motor speed. This is made by a power setting of 95. At this RPM of 10,000, the highest pitch should not be set at more than .2mm, which is the wire guide advance per spindle revolution. Speed settings and RPM for each of the four torque settings are shown at the end of this manual and also on the hinged left cover plate.

If a too high pitch setting is set for the spindle RPM being used there will be erratic back and forth movements of the wire guide at the winding finish and also the middle light in the second row of functions labeled O.S. for over speed will light up. If the speed is too great for the pitch setting, the computer in the controller cannot keep up with too high a speed or too large a pitch setting. There is a simple way to run the spindle for the selected pitch. Just multiply the pitch in mm times the RPM of the spindle and the number should not exceed the number 1500. This applies to all torque settings of the belt driven spindle. The operator will have to choose the proper belt torque settings.

The four commonly used belt settings are two to one for doubling the motor speed. The next lower setting is one to one, which gives a maximum speed of 6000 RPM. The next lower setting is one to two which reduces the spindle to one half motor speed or up to 3300 RPM, but at this belt setting you have about four times the power and torque as that of the highest setting. There is a fourth belt combination which gives an additional 50 percent more torque which consists of two timing belt pulleys: a ten tooth on the motor driving a 28 tooth pulley on the spindle connected by a 255L050 timing belt. This timing belt combination can handle a pitch of 2mm or .08" diameter magnet wire or number 12 AWG wire provided the coil diameter is not too large. To go from the highest to the lowest flat belt speed ranges, the operator will have to switch places of the two flat belt pulleys from motor to spindle. When switching pulleys make sure the outer face of the pulleys are flush with the ends of the shafts. Always have the same diameter one to one sides of the pulleys aligned with each other, preferably on the outside.

More about selecting the proper combinations of pitch and RPM, the number 1500 is constant. If you know the pitch in mm, just divide it into 1500 and you will know the maximum RPM for this pitch you can use. On the other hand, if you know the RPM divide it into 1500 and you will know the maximum pitch in mm for this RPM.

$$\text{RPM} = \frac{1500}{\text{MAX.PITCH}} \qquad \text{or} \qquad \text{PITCH} = \frac{1500}{\text{MAX.RPM}}$$

To put the formula into inches, at 25mm to the inch, change 1500 to 60 and put into inches:

$$\text{RPM} = \frac{60}{\text{MAX.PITCH"}} \qquad \text{or} \qquad \text{PITCH"} = \frac{60}{\text{MAX.RPM}}$$

This simple PITCH x RPM = 1500 formula will be on the conservative side by five to ten percent, which is a good safety factor. There is a speed pitch chart for the ranges of speeds at the end of this manual, which will help the operator, select the proper RPM and PITCH.

FORMULA
*USE ON RPM 250 & UP

Always keep the smaller 10-tooth pulley on the motor…….

Controller

See separate controller manual for operation.

The **Star Bobbin Winder** machine controller fits on top of an aluminum tray mounted on a square block attached by two screws through the **"S"** pair of holes in the tray. The square block has a ½" diameter steel rod attached to it. This rod with the attached tray fits into a ½" hole on the top of the casting with the cable outlet of the tray to the rear. There is a 24-pin connector between the controller and the machine. There is a tightening screw inside the left hinged panel, which tightens the rod for positioning.

Wire Guide and Traverse Mechanism

The basic **wire guide mechanism** of the **Star Bobbin Winder** is quite simple in construction and consists of a 5/8" diameter guide bar supported at both ends by two support mounts held with nylon bushings. The **wire guide rod** is moved left and right along its 5 3/8" travel limits and supported and guided firmly by a vertical steel plate traveling along two recirculating linear ball bearing guides.

Along the steel **wire guide bar** are mounted one or more adjustable wire guides with a V groove ball bearing at the end for precise guiding of the magnet wire onto the bobbin form mounted on the machine spindle for rotation at variable speeds of rotation. These **wire guides** are adjustable up or down over a large range for different diameter bobbins. The V groove bearing at the end has an adjustment left or right for final adjustment of position.

The **wire guide bar** is moved left or right between count limits at variable speeds depending on the wire being used. This motion is provided by a precision recirculating ball bearing worm and ball bearing nut which is rotated by a stepping motor at different speeds determined by the controller operating the stepper.

This worm and ball nut driving the traverse bar is mounted at both ends by two vertical support plates. Looking at the mechanism from the rear with the cover removed, the left vertical support also mounts the stepping motor, which drives the worm gear through a timing belt and two timing belt pulleys with an adjustment idler in between.

Thi**s** adjustment idler between the two pulleys adjusts the belt tension, which should not be tight. An **"in"** and **"out"** belt motion of a quarter inch is about the right adjustment pressure. The adjustment is easily made by a top coming adjustment of a projecting screw head and tightened in position by reaching the clamping screw head through an aligned hole in the sheet metal just outside it in the end plate of the housing.

There is a black knob projecting from the **Tail Stock** end of the chassis attached to the stepping motor shaft which can be turned to move the traverse mechanism only if the power is turned off on the controller panel switch. This adjustment knob is useful for finding the start and finish position of the winding layer. This feature is described in more detail in the controller manual provided.

The recirculating ball nut is enclosed in a rectangular block several inches long extending vertically down. At the lower end of this aluminum block is a screw passing through to the rear of the block, which fastens to a horizontal linkage bar, which is attached to the large vertical steel plate through a swiveling bearing. This wide vertical steel plate is what guides the whole traverse mechanism.

Another very important piece is attached to the right side of the aluminum mounting block. It is a short steel strip with a right angle bend at the lower end. This bend in the metal strip fits into a slot in an electronic sensor when moved all the way to the right of its motion. Part way into this slot determines the home position of the traverse motion, which is all-important to the **wire guide traverse** positioning. This metal strip is adjustable up or down by a screw which is accessible through an aligned hole in the middle of the right vertical ball screw supporting plate.

Wire Guide Adjustments

The wire guides are clamped individually onto the 5/8" traverse shaft. You will notice that the shaft, which the guides are clamped to, can rotate about 30 degrees up or down, limited by a roll pin at left end. This permits the **guides** to be moved out of the way vertically when doing operations on the bobbin before winding. They can be moved back down to their winding position again by pressing them downward. The amount of pressure to do this is regulated by the clamping screw at the front of the left end mount. Only light pressure should be required in normal operation. The lower "V" groove bearing guide is adjustable, left or right, for final adjustment.

Additional wire guides can be put on the shaft by removing the right shaft support and sliding the guides into position and clamped.

Foot pedal

There is an **On/Off** foot switch, which plugs into the front panel. It will start the machine with a press and stop the machine with the next press. If the foot pedal is unplugged, the machine will operate normally without it.

Eye Shield

The **eye shield** used in the **Star Bobbin Winder** is a simple uncomplicated type. It can be moved in an almost unlimited number of ways for the operator's safety and convenience.

It can be moved left or right either at its mounting block on the main casting, or at the shaft end to a limited degree.

Up motion is unlimited and down motion to its roll pin stop is set by the left clamping collar. The tightness of the motion is adjustable by the screw at the top rear through a nylon bushing.

Forward and rearward motion is permitted by loosening the clamping screw on the mounting block and moving the upper part of the bent shaft forwards or backwards. Access to this clamping screw is made by lifting the controller tray up and away from its position hole in the casting. Be sure the eye shield will not strike the wire guides at any point at their up and down or back and forth motion.

Wire Dereelers

The standard **Star Bobbin Winder Dereelers** are either **single** or **dual** type. Both are mounted on an adjustable base which has four pairs of holding holes so that the **Dereeler** can be moved in two inch steps, left or right, so that the magnet wire or wires are generally lined up with the area of the bobbin being wound.

A 4 spool **Dereeler** is optional and fits on the same base.

Mount the **Dereeler** in a generally central position behind the machine and as close as possible to the rear for convenience when changing spools. Make sure that the plastic cones do not strike part of the machine when lifted for access to the spools.

The felt wire clamp mounted at the top of the **Dereeler** should extend towards the operator and swung and tightened in such a position that the magnet wire will pass in a straight line from the top of the front nylon wire capstan, through to the upper roller on the **Traverse Mechanism**. The wire also passes through the felt clamp directly behind this roller, which serves as a holder for the wire after cutting it.

To Load the Wire

Place the wire spool in the **Dereeler** by lifting the plastic cone. Pass the magnet wire up through the top of the cone and through the steel wire pigtail and on up through the fixed clamp above it.

There are two nylon wire tension capstans above the felt clamp. The one furthest from the operator may have an "O" ring on it for additional gripping of the wire. This capstan also has a heavier spring inside it for greater wire tension for the heavier wires. The tension is increased or reduced by turning the knurled knob just outside the center spring. **Never** tighten either capstan so tight that it locks up while the wire is being wound, or the wire will cut into the capstan.

The front capstan is for lighter wires and has a lighter spring inside for fine adjustment.

Pass the magnet wire up between the two capstans and for wires from 21 AWG to 30 AWG, around the rear capstan with the "O" ring.

Make one complete turn around it and then up over the top of the front capstan, and then through the felt clamp and on to the wire guide. The wire can also be wrapped around the front capstan.

For finer wires from 31 AWG to 40 AWG, pass the wire up between the two capstans and then once or twice around the front capstan and through the clamp.

Sometimes for Fine Wire it is better to remove the front capstan completely so the wire goes directly from the eyelet to the front clamp. This way, the felt clamps are supplying all the tension. The tightness of the felt clamps can be reduced by screwing in the brass knurled nut at the end of each clamp.

A word of caution on the felt clamps when winding fine wires. Dirt and oil from the magnet wire collects on the felts of the clamps in the form of a black line where the wire rubs and as a bunch of "fuzz" at the point where the wire enters the felt. This has to be periodically flicked off, usually with a business card or tweezers. The dirt and debris can substantially increase the tension on the fine wire to where it starts breaking when it previously had been running without a problem.

For heavier wires from 21 AWG to 24 AWG, the front capstan should be equipped similar to the rear capstan with a heavier spring and an "O" ring with the wire passed around both.

For continuous use of heavy wires, a **Heavy Duty Dereeler** should be used.

Tail Stocks

The **Tail Stock Assembly** of the **Star Bobbin Winder** is an accessory, which can be fixed to the machine whether ordered with the machine or later, as all machines are bored to accept the two 1" steel bars.

There are two **Tail Stocks** available for the **Star Bobbin Winder**. The unit shown throughout the manual comes with a high speed bearing mounted in a vertical plate for backing up the bobbin flange. This bearing can hold a variety of shapes, which are held in position by a bolt and washer through the bearing. It can also be fitted with a "live" lathe-type center with a point, for holding some winding forms.

The assembly consists of the **Tail Stock** plus two steel bars projecting from the main casting, and an outer end mount, which is adjustable up and down for irregularities in the bench.

This standard **Tail Stock** available with the **Star Bobbin Winder,** which we will call the **Two Bar type construction,** is preferable for most applications. It is pictured throughout the manual. It has a choice of retraction of (2" or 3").

The **Two Bar Tail Stock** is mounted on the lower 1" bars just as the other type, and is slid into position with the **Tail Stock** slide fully extended until the bobbin support touches the bobbin lightly.

The **tail stock assembly** is clamped in position by two cap screws below the 1" mounting bars, front and rear.

There is a threaded rod attached below the bearing mount, which can be turned at its other end for forward or backward motion of the bearing mount.

The fine adjustment for the bobbin clamping pressure is made by turning the screw clockwise for loosening and counter-clockwise for increasing the pressure. After final adjustment, retighten this screw to prevent any changes in the adjustment.

You will notice there is an extra nylon lined hole in this block where the fine adjustment is made. This extra hole gives two positions for the **Tail Stock Slide**. The second position gives a 3" retraction.

The **Tail Stock** ball bearing is mounted in a semi-triangular block of aluminum at the front of the **Tail Stock**. Normally this bearing is aligned at the factory and will probably not need further adjustment unless it is disassembled or moved out of position.

The adjustment for alignment with the spindle is made by loosening the three cap screws to the rear of this plate. Move the bearing in its triangular holder to a new position and then retighten the three screws. Never touch the two recessed cap screws at the front, below the bearing, as these are for disassembling only.

The Alternate Single Bar Tailstock

This other type tailstock is slid onto the two one inch steel bars just like the other type.

The major adjustment of this **Tail Stock** unit is made by sliding the casting along the two bars to a position where the **Tail Stock** support disc is about touching the bobbin with the toggle mechanism in its down and locked position.

Clamp the casting in position by the two clamping screws next to the lower mounting bars, front and rear.

Loosen the gray clamping handle on top and make a final adjustment by sliding the whole upper mechanism forward or backwards until the right tension is applied to the bobbin (usually light).

Clamp again in position by turning the clamp handle. This clamp handle is adjustable for its final position. Just pull it up and drop it into another position, which is comfortable for the operator when tightening.

To retract the **Tail Stock**, lift up the black ball at the end to a near vertical position. Do not operate the toggle mechanism in a horizontal position because the weight of the ball and lever plus friction is what keeps it in a locked position.

If the toggle action becomes too loose with use, it can be retightened again by removing the hardened 3/8" pin at the end. Pull out the whole mechanism and squeeze the clevis ends together. Do not tighten it too much as it is a lot easier to squeeze it in a vise than to "unsqueeze" it, if too tight.

A drop of oil in the mechanism now and then is all the maintenance required.

Set Up Tips

When starting a new set-up for a brand new bobbin, a piece of tooling must be made which will attach to the spindle and hold the bobbin while being wound. Care should be taken to balance the tooling if it is to be wound at high speeds. The bobbin should be loose enough on the tooling so that it can be removed easily after it is wound.

The **Tail Stock** should be used to back up the outer bobbin flange if even a little flare is not desired. Just a light touch of the **Tail Stock**, enough to rotate the bearing, is all that is usually needed. Too much pressure can cause very high pressures to develop during winding.

Spindle Accessories

A 1/2" Jacobs Chuck can be set-screwed onto the ½" or optional 5/8" spindle shaft which is handy for holding any round tool holder. There is also a variety of 3 and 4 jaw chucks plus a 6-inch faceplate, which can be fitted to the spindle along with custom made tooling.

Tail Stock Accessories for Two Bar Type

The **Two Bar** type **Tail Stock** has a 15mm or .5906" inside diameter ball bearing. We make three standard inserts for this bearing. One is a flat disc of 1 ½" diameter. The second is a blank rod of 1" diameter projecting 1 ¼" from the bearing and is intended to be finished to shape by the customer to fit a particular form. The third is a 60 degree point on a ¾" diameter rod with a 1 1/8" O.A.L.

All these forms are held from the rear with a ¼" 20 screw and flat washer.

A ½" Jacobs Chuck can be held rigidly and rotated in the **Tail Stock** by inserting a second ball bearing behind the first, and this combination will rigidly support the chuck on a 15mm support rod through both bearings. This second **Tail Stock** bearing should fit flush against the front bearing within the housing. Do not use a **Snap Ring,** which would space it apart from the first bearing, because tightening the two together would overload the raceways of the bearings.

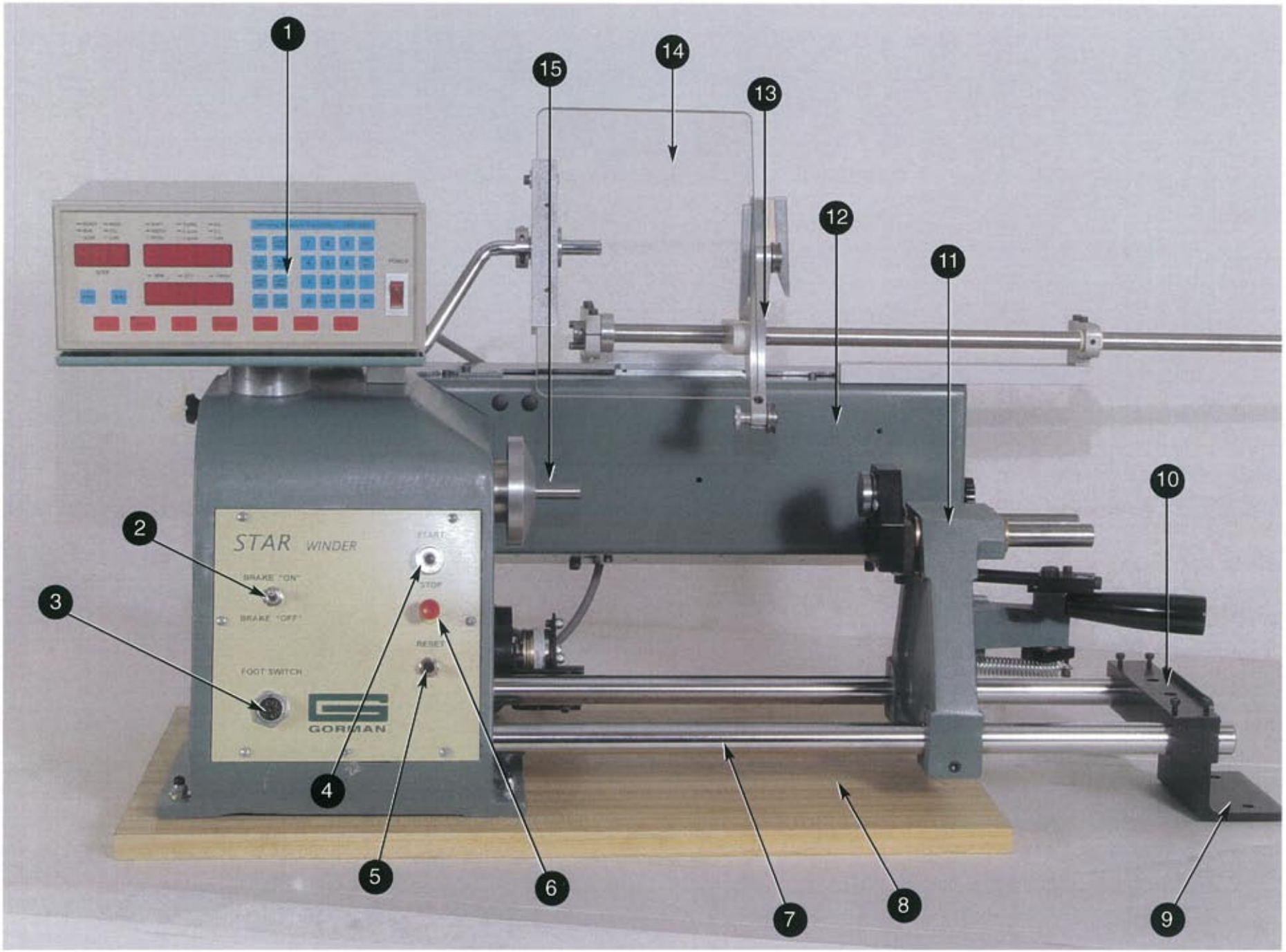
Maintenance

If it necessary to remove the **Spindle Assembly** from the machine, remove the front panel and you will see two casting bosses, which clamp and hold the spindle assembly in place.

In each boss, there are two holes. The left of each pair is tapped on the side facing the panel, and is for the purpose of spreading the boss open so that the spindle assembly can be inserted or removed from the left side. The right screw hole of each pair is for clamping the spindle in position when slid all the way through from the hinged plate and to its stop.

Position the thin plastic counting vane in the center of the slot in the pick-up so that it does not hit either side of the pick-up. This is very important, and is best done before installing the front panel for a better view.

With a minimum of maintenance, the **Star Bobbin Winder** will give you years of productive service.



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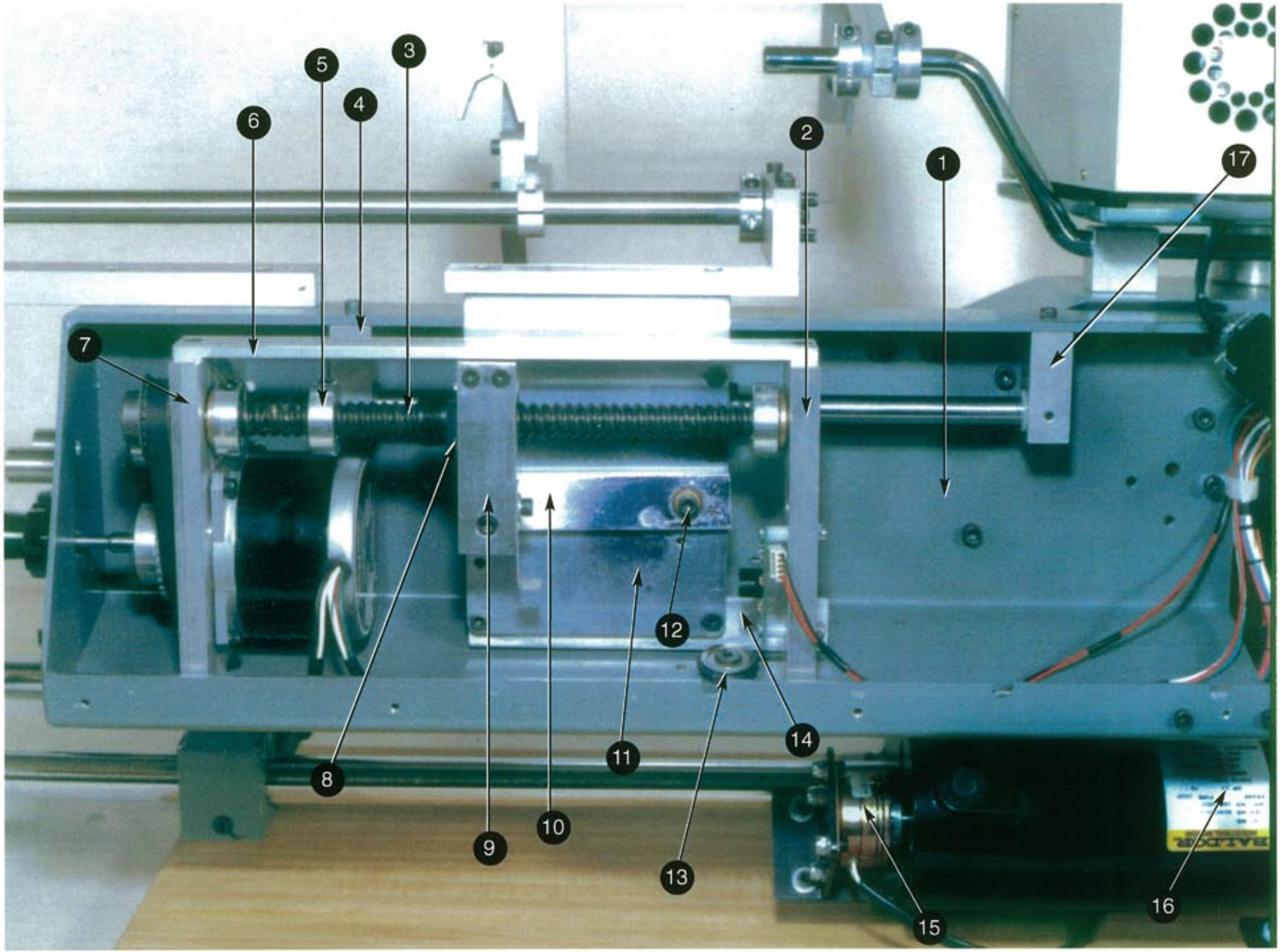

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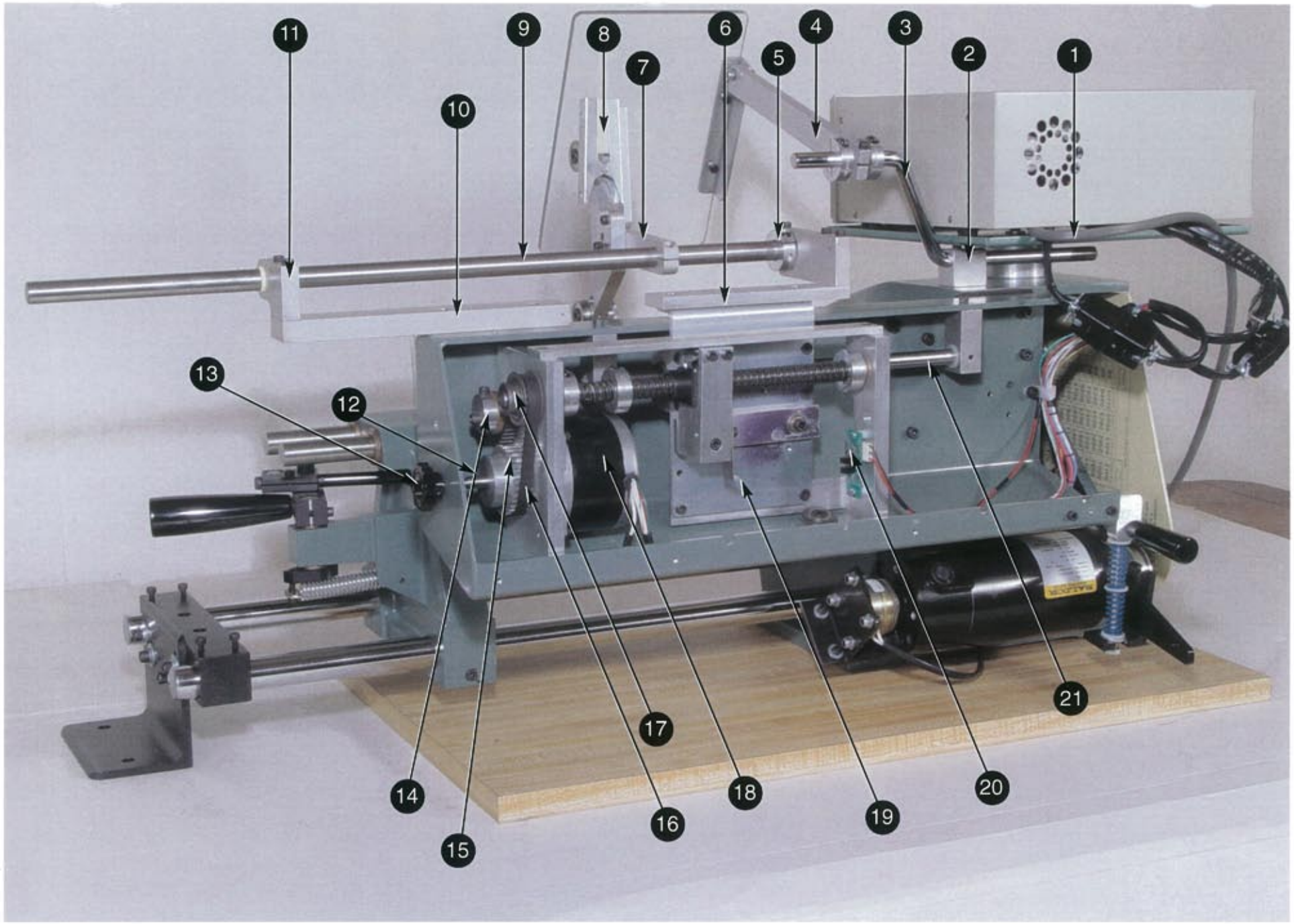

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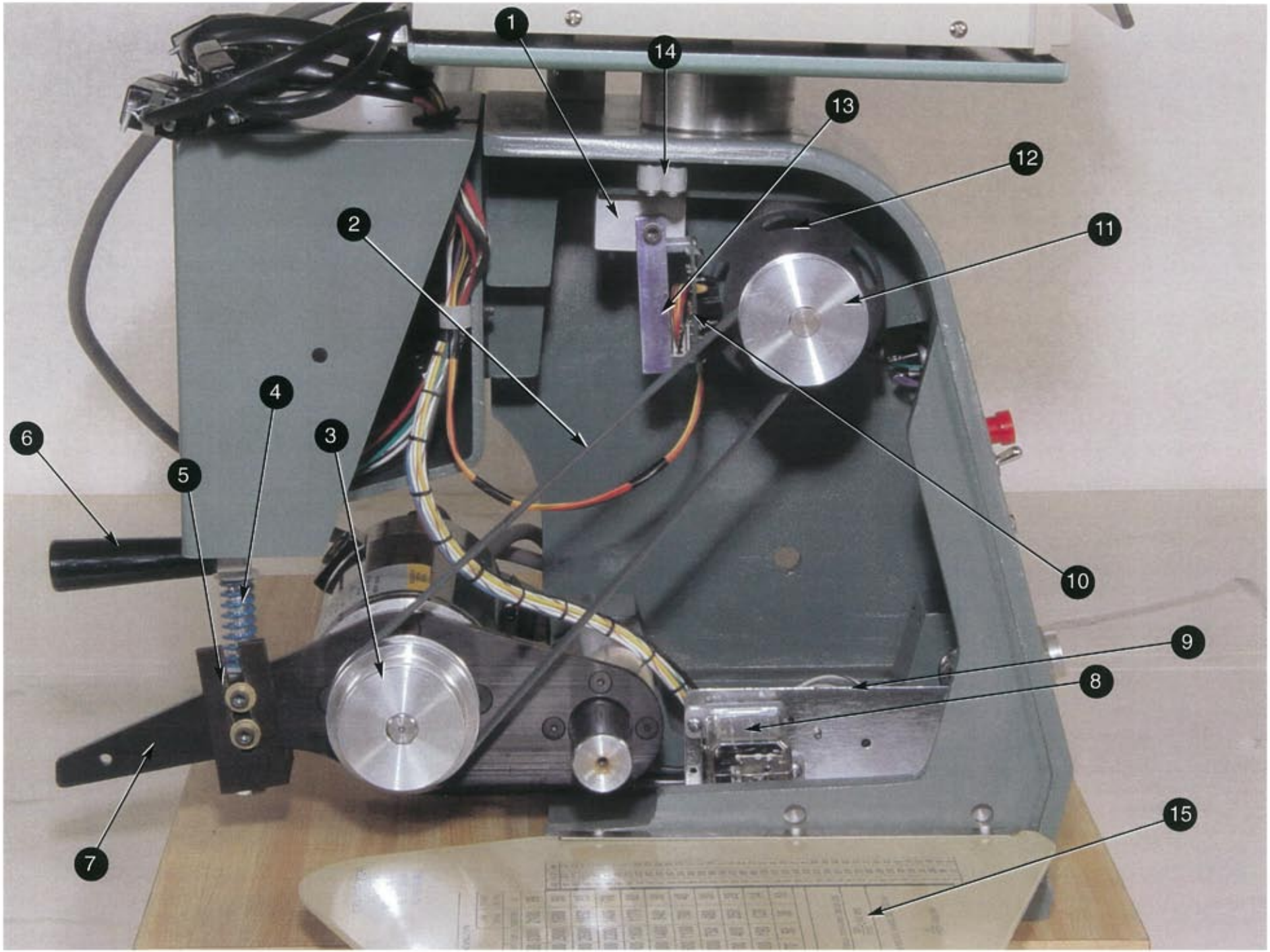

Photo D - Star Winder Side View

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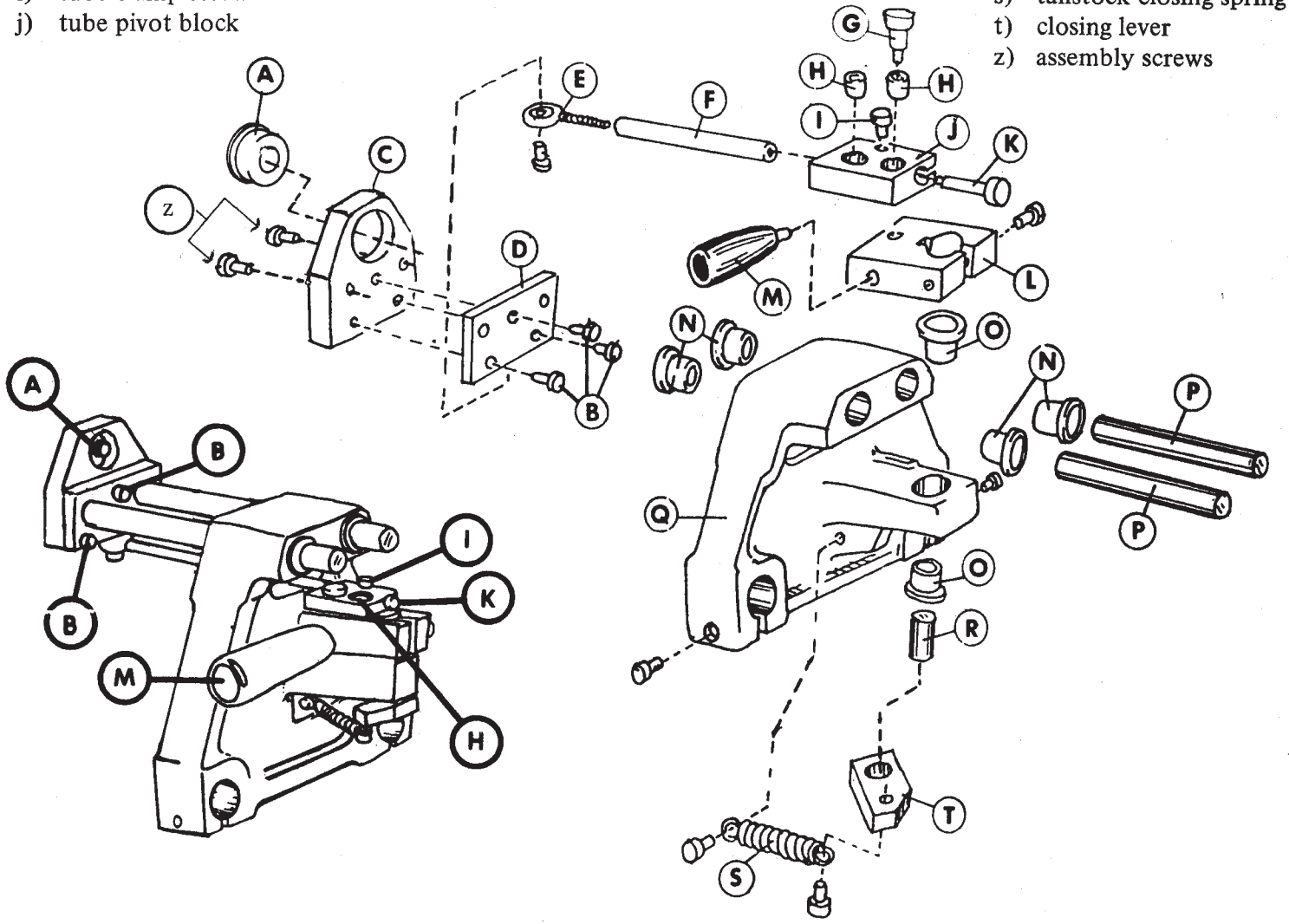
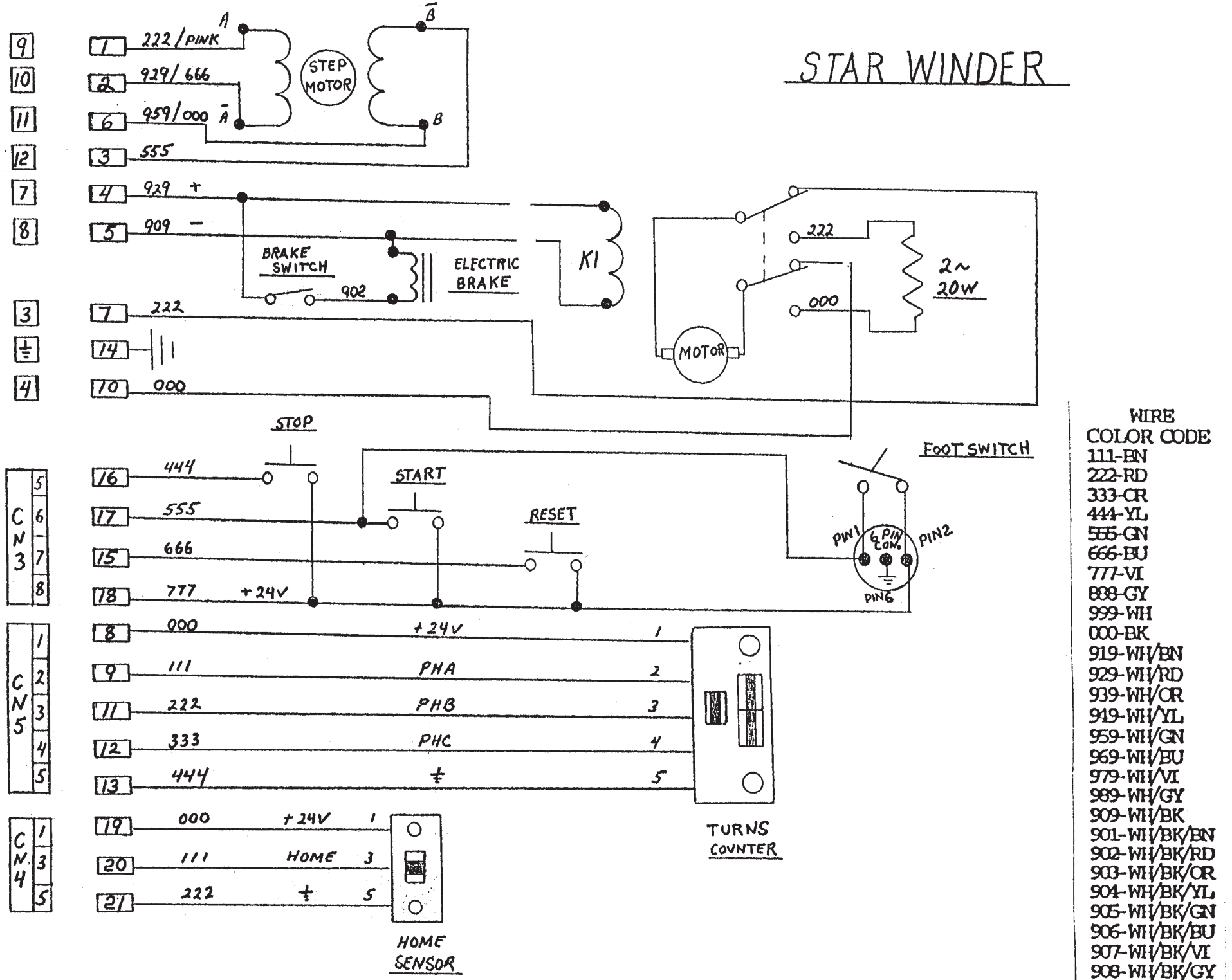
l) tailstock retracting pivot block
m) retraction handle
n) bronze ¾" bar bearing
o) retraction pivot shaft bearing
p) ¾" steel bars
q) main tailstock casting
r) retraction pivot shaft
s) tailstock closing spring
t) closing lever
z) assembly screws



STAR WINDER



WIRE COLOR CODE

111-BN
222-RD
333-OR
444-YL
555-GN
666-BU
777-VI
888-GY
999-WH
000-BK
919-WH/BN
929-WH/RD
939-WH/OR
949-WH/YL
959-WH/GN
969-WH/BU
979-WH/VI
989-WH/GY
909-WH/BK
901-WH/BK/BN
902-WH/BK/RD
903-WH/BK/OR
904-WH/BK/YL
905-WH/BK/GN
906-WH/BK/BU
907-WH/BK/VI
908-WH/BK/GY

GORMAN MACHINE
7 BURKE DRIVE
BROCKTON MA 02301
TEL: 508-588-2900
FAX: 508-588-9560

PARTS FOR THE STAR WINDER

DEREELERS:

Part #	Description	Ref#
AD430	Eyelet With Shank	EG430
AD705	Dereeler Cones	
AD706	Extension Arms	
AD707	Dereeler Assembly Top	
AD709	Felt ¼" Round	
AD710	Felt 1/8" Round	
AD711	Clamp With Felt	
AD712	Felt For Clamp (1/2' X 9/16" X 1-5/8")	
AD713	"O" Ring (Rubber-Heavy)	2-136
AD714	Spring – Heavy Tension	9A-11B
AD715	Spring – Light Tension	8A-11A
AD716	Pigtail	5A2 or 92-6
AD719	Pulley – Plastic Wire Tension	DWG9002
AD723	Knurled Lock Nuts	
AD726	Black Aluminum Washer Disk	
AD727	Bottom Plate	
RD720	Single Wire Dereeler on Adjustable Mount	
RD721	Double Wire Dereeler on Adjustable Mount	
RD722	Four Wire Dereeler on Adjustable Mount	

BEARINGS:

BB165	V-bearing on Traverse and Wire guide	FS270
BB166	Spindle Bearing (2)	203KDD, 62032RS
BB169	Traverse Linear Bearing	Super 8
BB916	Tailstock Bearing	202KDDG,6202Z
BB917	Oilite Bronze	FB1214
STW124	Ball Bearing & Nut Assembly	Thompson
STW128	Bushing Ball & Retainer Assembly	

BELTS:

B041R	Motor to Spindle (Flat)	GG041R
B110X	Step Motor Drive Belt	110XL037
B255L5	Motor to Spindle (Timing Belt)	255L050

CHUCKS:

RCH12	1/2" Jacobs Chuck for 1/2" Spindle
RCH58	1/2" Jacobs Chuck for 5/8" Spindle
RCH60	6" Clamping Face Plate with 60 Degree Center Point

COUNTERS

STW210S	CNC 210-S	210S

ELECTRICAL

Part #	Description	Ref #
AE326	Brake Resistor (2ohm 20w) ----------	B20J2RO
AE318	Foot Switch Receptacle ----------	91PC6F
TS703	Clipper Foot Switch ----------	632-S
AE315	Replacement Cable w/connector	
STW118	Home Sensor Board ----------	Home-SR
STW136	Turn Counter Board ----------	CNTB-03C
RE389	3 Pin Male Plug ----------	P-303-CTT
STW142	3 Pin Female Plug ----------	S-303-CTT
STW143	6 Pin Male Plug ----------	P-306-CCT
STW144	6 Pin Female Plug ----------	S-306-CCT
AE391	12 Pin Male Plug ----------	P-312-CCT
STW145	12 Pin Female Plug ----------	S-312-CCT
STW116	Home Sensor Clip	
XE405	Electric Brake	
STW132	Counter Board Main Block	
STW137	Pick Up Counter Disc----------	Gil Metal Fab

PULLEYS:

RP00	Spindle Pulley - Small (1.275” & 1.850” Dia.)	
RP01	Spindle Pulley – Large (1.850” & 2.375” Dia.)	
RP45	Timing Belt/Pulley Combination	
RP46	Flat Belt Double Pulley Combination	
RP57	Step Motor Pulley ----------	32AXL037
RP58	Pulley Traverse Ball Screw Assembly --------	20XLB037

MOTORS:

MB2	Motor Brushed (set) Medium ----------	24A181Z037 & Z057
STW115	Permanent Magnet DC Motor 115V ----------	24A181Z037
STW220	Permanent Magnet DC Motor 220V ----------	24A181Z057
STW117	Stepping Motor ----------	103H-0441

RELAYS:

NR409	K-I Dynamic Brake Relay ----------	KUP11D11-24

SWITCHES:

Part #	Description	Ref #
BS780	Start Switch (Front Panel) ----------	35-3 Black
AS751	Stop Switch (Front Panel) ----------	MPG106F Red
RS786	Rest Switch (Front Panel) ----------	MPG106F Black
RS787	Brake Switch (Front Panel) ----------	MTG106D

TRAVERSE

STW106	Bar Collar	
STW107	Wire Guide Traverse Plate	
STW108	Wire Guide Main Block	
STW109	Traverse Bar For Wire Guide	
STW110	Outer Bar Support Base	
STW111	Outer Traverse Bar Support Block	
STW112	Shaft For Manual Traverse Knob	
STW113	Manual Traverse Knob	
STW130	Traverse Shaft ----------	Lee Controls
STW101	Traverse Housing	
STW119	Right Main Support Block	
STW120	Left Support Block For Traverse Shaft	
STW121	Ball Screw Locking Collar	
STW122	Top Ball Screw Support Bar	
STW123	Left Main Support Block	
STW125	Support Block For Bearing & Nut Assembly	
STW126	Connection Bar To Ball Nut Assembly	
STW127	Traverse Main Bracket	
STW129	Guide Rail Plate	
STW131	Right Support Block For Traverse Shaft	

TAILSTOCK:

Part #	Descrpition	Ref #
RTS907	Extra Length Tailstock Bars	
RTS914	Tailstock Assembly with High-Speed Bearing	
RTS915	Inserts	
RTS917	Handle	
RTS918	Spring (Tension)	
RTS920	Unfinished Insert 1" Dia X 1-1/3" Long	
RTS921	Insert with 60 Degree Point	
RTS922	Insert (Flat 1-3/8")	
RTS923	Tailstock Outer Mount	
RTS924	Tailstock Bar Mount	

MISCELLANEOUS:

AMI594	Dust Cover	
RM120	Spindle Shaft 1/2:"	
RM121	Spindle Housing	
RM122	Spindle Housing Spring Washers (2)	
RM123	Spindle Housing Flat Washers	
RM128	"O" Ring for Traverse ----------	2-211
RM129	Motor Tension Spring Handle	
RM131	Plastic shield (Standard Equitment 6 ½ X 9" Long)	
RM132	Standard Type Wire Guide Assembly	
RM134	Felts for finger Type Wire Guide	
RM136	Spindle Shaft 5/8"	
RM138	Spindle Assembly Complete With ½" Shaft	
RM139	Front Panel	
RM140	Locking Collar Hand Wheel	
RM141	Spindle Assembly Complete with 5/8" Shaft	
STW100	Wood Platform Base	
STW102	Counter Tray	
STW103	Eye Shield Support Block	
STW104	Eye Shield Bar	
STW105	Eye Shield Bar	
STW114	Drive Belt Tension Block	
STW133	Tension Spring For Belt Motor	
STW134	Spring Tension Bracket	
STW135	Motor Mount Bracket	
STW138	Bracket For Count Board	
STW139	Door Hinge	
STW140	Side Door	

NO LOAD SPINDLE RPM					
POWER SETTING				10-28 255L050	POWER SETTING
HS	10,000 2-1	6,000 1-1	3,300 1-2	TIMING BELT	HS
99	10700	6000	3300	2100	99
90	9460	5300	2900	1900	90
80	8240	4600	2600	1650	80
70	7000	3900	2200	1400	70
60	5800	3300	1800	1170	60
50	4700	2600	1400	940	50
40	3500	1900	1100	700	40
30	2400	1300	750	480	30
20	1250	700	400	250	20
14	600	300	190	120	14
10	110	70	50	30	10

USE ABOVE WITH FORMULA- PITCH X RPM = 1500 OR LESS

1500 RPM	MAX. PITCH	1500 PITCH	MAX. RPM

NOTES

NOTES

GORMAN

GENERAL SPECIFICATIONS

WIRE SIZES (PITCH):	12 AWG (2MM) TO THE FINEST
BOBBIN DIAMETER, MAXIMUM:	CLEARANCE RADIUS OF UP TO 5” OR 125MM
MAXIMUM TRAVERSE LENGTH:	ZERO TO 5 3/8 (133MM)
SPINDLE END TO CLOSED TAIL STOCK:	12” WITH STANDARD 31” BARS, CAN BE EXTENDED
TAILSTOCK:	RUGGED BALL BEARING TAILSTOCK WITH CHANGEABLE OF 2 OR 3 INCHES CLOSING DISTANCE
WINDING SPEEDS:	4 DRIVING BELT COMBINATIONS WITH SPEEDS TO 10,000 RPM
MOTOR:	SCR CONTROLLED ¾ HP PERMANENT MAGNET DC MOTOR.
MOTOR START:	PUSH BUTTON ON PANEL, OR FOOT PEDAL START AND STOP
COUNTER:	CNC CONTROLLER WITH MULTI PRESET
BRAKING:	ELECTRIC OR DYNAMIC BRAKING FOR ACCURATE STOPPING
STOPPING ACCURACY:	REPEATABILITY OF 1/10TH OF ONE TURN
EMERGENCY STOP:	BUTTON ON PANEL, OR BY FOOT PEDAL RELEASE
SAFETY FEATURES:	ADJUSTABLE EYE SHIELD FOR OPERATOR SAFETY
TRAVERSE SPEED:	MOTION FROM .0004” TO .100” PER SPINDLE REVOLUTION
TRAVERSE MOTION:	PRECISION CIRCULATING BALL BEARING NUT AND SCREW DRIVE
POWER SUPPLY:	CHOICE OF 115 OR 230 VAC 50 OR 60 CYCLE
DIMENSIONS:	20” DEEP - 35” WIDE – 19” HIGH WITHOUT DEREELER
BENCH WEIGHT:	110 POUNDS
SHIPPING WEIGHT:	160 POUNDS

GORMAN