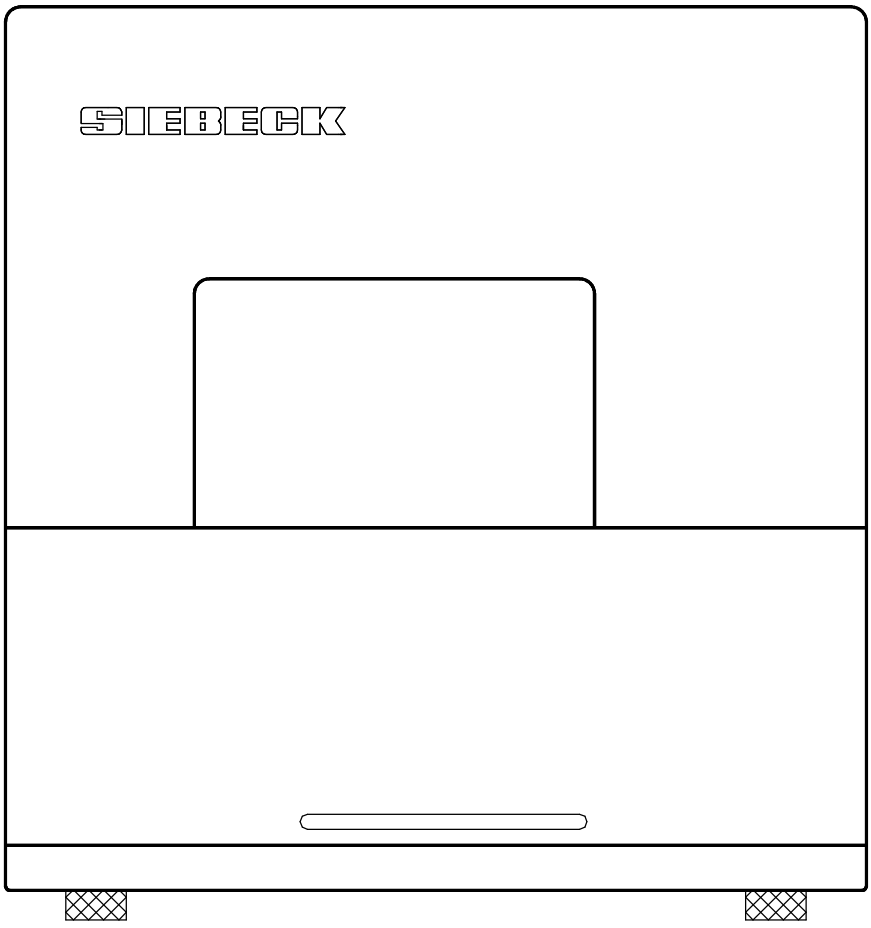
Maintenance Manual

FRS -bed- 0206

SIEBECK

Tying Machine

JET 2000 Model FRS mini tyer



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Important !

Please make sure that everybody operating this machine reads and understands this manual thoroughly !

Introduction

This machine is built in compliance with regulations in force for Safety, Mechanical Machine Construction and Electrical Equipment. Proper operation guaranties no harm for operator or a third party.

Everybody installing, operating and servicing this machine must read and understand this manual.

Any modifications on the operating and safety sequence of this machine will result in the loss of warranty and are at the risk of the user.

Is this machine sold or relocated this manual must be handed out to the new owner and / or operator.

Additional copies can be ordered - order No. FRS -bed- 0206 .

Please contact

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or your local dealer

Warranty

All machines manufactured in our workshops have a warranty of 12 months from date of installation, or 18 months from date of delivery and covers material and workmanship.

Excluded are parts of normal wear and parts regularly replaced while servicing the machine as well as labour and follow-up costs.

Breakdowns caused by unsuitable, not recommended string are excluded from this warranty.

All claims must be made in writing. Please indicate the cause, parts and machine number. Defective parts must be send back to our workshops.

This warranty is in force only if original

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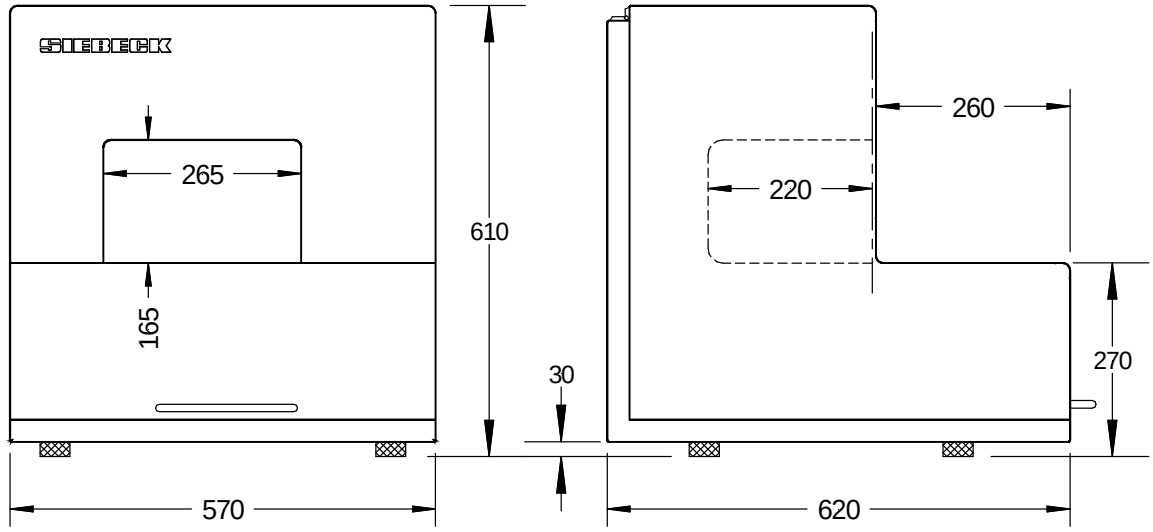
spare parts without any modifications are used.

Technical Details and Specifications

All mesurements in mm / specifications are subjec10t to change without notice



Tying speed	:	up to 37 cycles p. min.
Tying options	:	single, double, triple and cross tying
Range of application	:	tying of Meat, Fish, Poultry and Vegetables
Net Weight	:	80 kg
Sound pressure level	:	72 dB (A) +/- 1
Electrical supply	:	230 Volt, 1 Phase, 50/60 Hz, 0,3 KW

Safety

1) The European Standard EN 60204-1 provides that a plug connection is used to connect the power supply. Do not connect the wiring to the power supply.

2) The safety switch 4S1 prevents starting the machine with opened hood. Before operating machine check correct working of this safety device.

Procedure: Start up machine (see last paragraph on this page), lift up hood, do not reach into machine (!), press foot pedal. Machine will not operate.

3) Disconnect power supply for maintenance and cleaning purposes.

4) Changing spools and rethreading: allways disconnect power supply.

5) Make sure knotting unit is cleaned thoroughly. Meat juice, brine and proteins may block the knotting unit if not properly washed down.

To avoid damaging the mechanism, the unit will do an idle stroke; i.e. one cycle without product and string.

This " Idle Stroke " is a precondition to operate the machine.

START – UP

Connect power supply and press green push-button on Control Box (see page 8, figure 2). The knotting unit will do one cycle. The machine is now ready for operation.

Installation and Start-up

Mechanics:

Bring machine to place of installation.
Make sure that machine stands on even base.

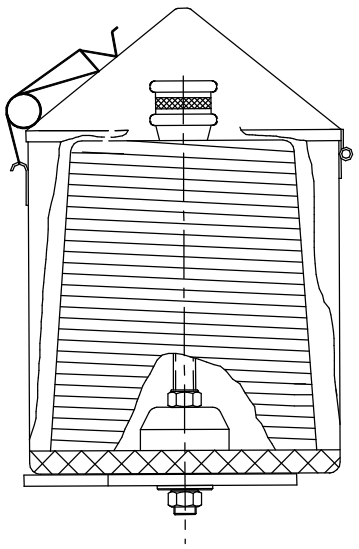
Open hood and check for easy motion.

Check joints of gas strut and ball ends. Locking wires must be securely fitted (see Fig. 3).

Make sure lid of twine bine is closed and secured (see Fig. 1).

Verify correct position of safety device on frame and counterpart on hood (see Fig. 2).

1



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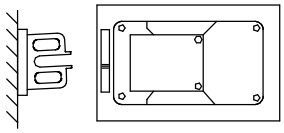
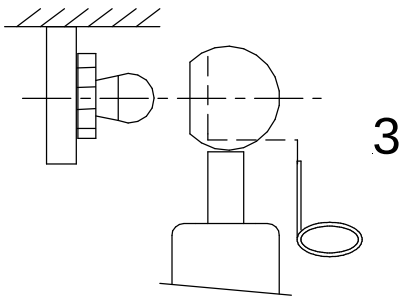




3

Electrics:

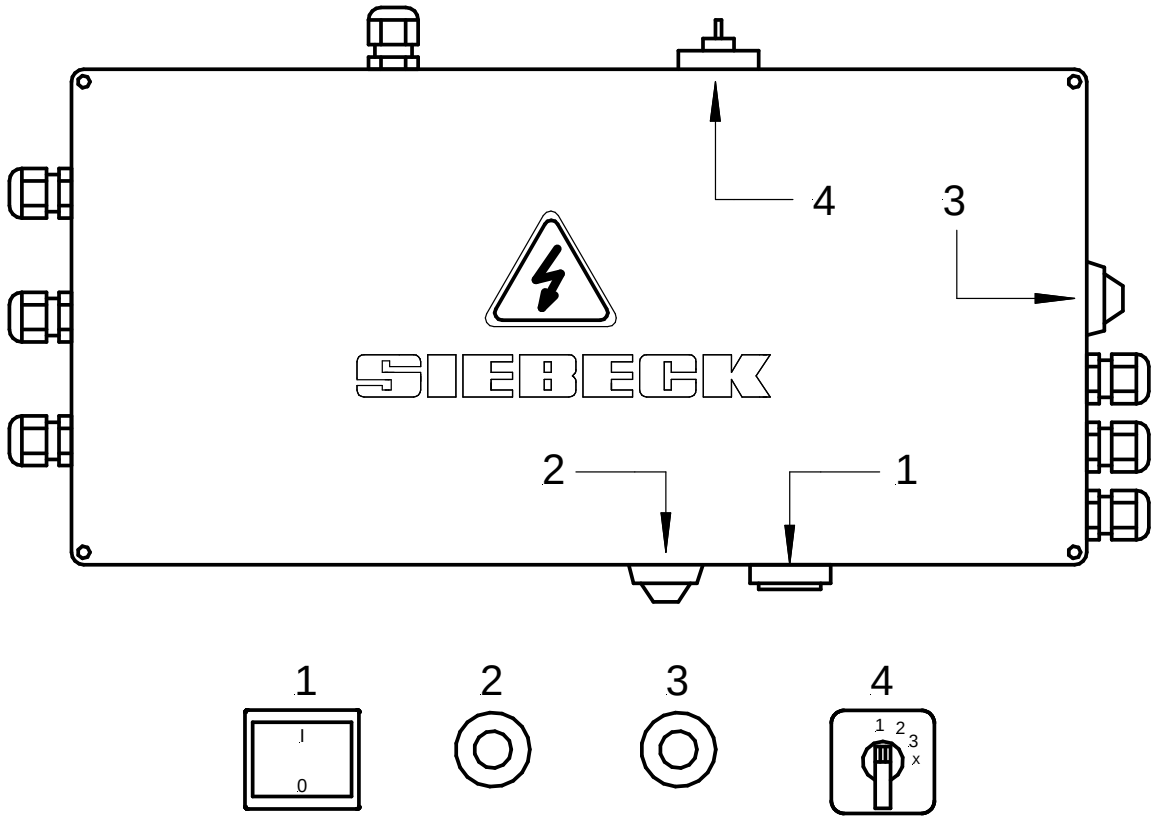
If not otherwise indicated the machine is delivered for electrical tension 230 Volts, 1-phase, 50/60 cycles. Compare tension with data on machine name-plate. Check appropriate grounding. Compare with local power supply and regulations in force. Maximum fuse for power supply connection 16Amp..

Important!

Disconnect power supply for maintenance and cleaning purposes!

Operating modes

On the control cabinet you will find operating elements as below:



ON / OFF (Fig.1) connects/disconnects power supply
Integrated control lamp will signal voltage

Push-button (Fig.2) to activate “idle stroke”, see page 6

Push-button (Fig.3) for inching of the knotting unit

Selector switch (Fig.4)

Position		Tying option		Application
1	=	1 wrap	=	standard tying
2	=	2 wraps	=	tighter tying
3	=	3 wraps	=	even tighter tying according to product and twine
X	=	Cross tying	=	criss-cross tie, crossed with knot

Threading

When leaving our workshops the machine is threaded up correctly. Study this carefully, it will help you to follow the instructions.

Compare with the picture on next page when threading the machine as specified below:

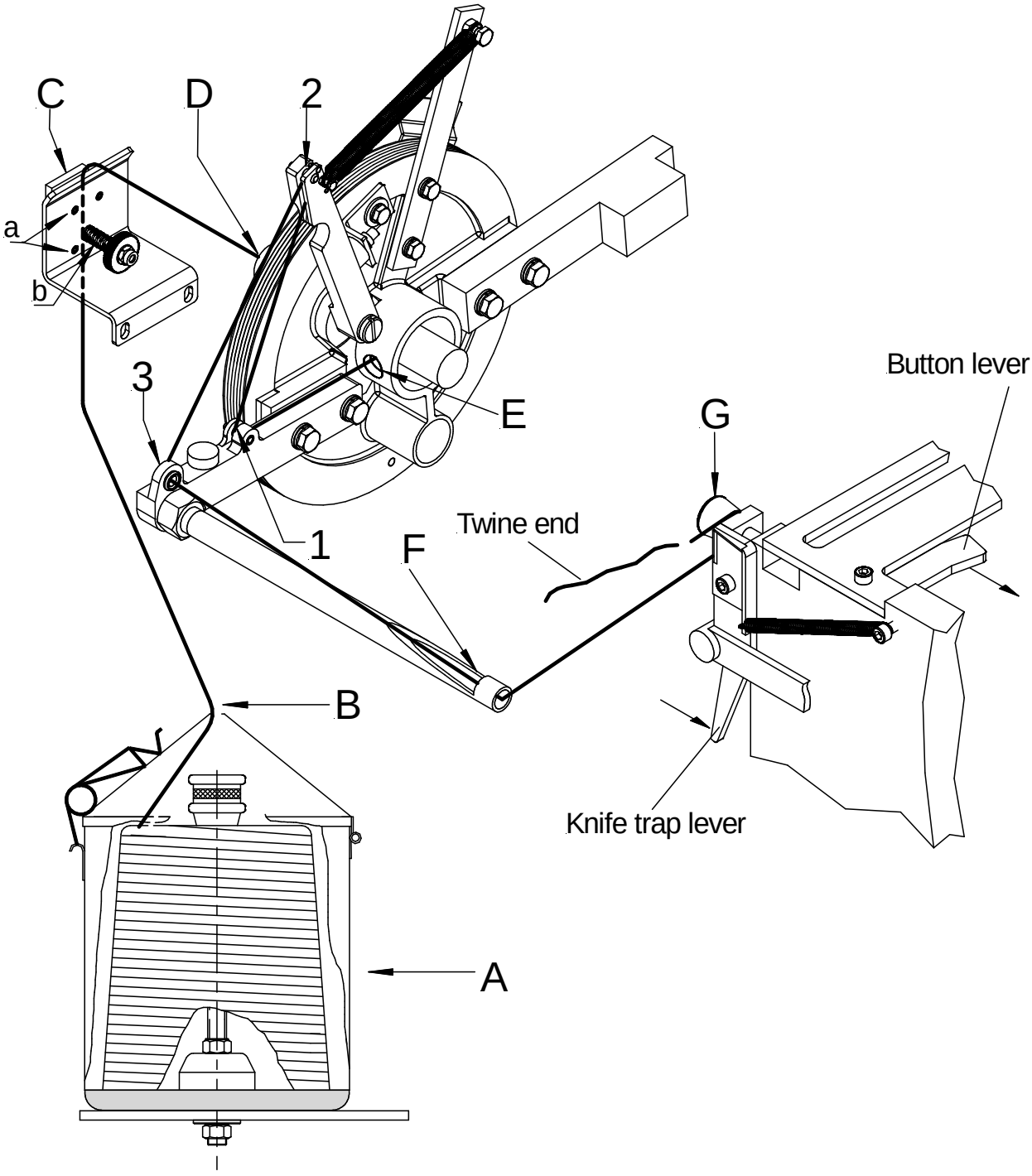
- Disconnect power supply, open hood
- Unlock catch on twine bin (A) and open lid
- Remove tapered locking nut for spool
- Fit cone into bin. Press cone firmly on adapter and foam pad Screw on locking nut making sure that cone is securely fitted in twine bin and does not move.
- Pass twine through opening (B) in lid. Close lid and secure with catch.
- Pass twine through twine brake (C). Take care that twine is fitted between pins (a) and shaft (b) - pay attention to drawing on opposite page.
- The thread next runs through the twine arm axle (D) wich is formed as a hollow shaft, and through it as far as the notch (E). The twine can be pulled out this aperture by means of tweezers (included in tool bag supplied).
- The next guides are rollers and numbered. The cord passes over the rollers in numerical order.
- The twine is passed from the twine arm through the inset (F) to the twine holder button (G). Hold twine with left hand and pass twine around the twine holder button from below. Pull button lever with right hand in direction or arrow.
- Pulling the twine to the diagonally upwards to the left it will catch between housing and twine button. Then release lever. Push knife trap lever and twine will cut off.

NOTE ! When threading machine check easy running of guide rollers and take up lever. If necessary oil with food approved oil. (see chapter "Maintenance")

IMPORTANT !

Disconnect power supply or unplug for threading

Threading diagram



Cleaning and Maintenance

This machine is used for food resp. meat products. Organic residues may lead to contamination.

For this reason it is an imperative requirement to thoroughly wash down the machine each shift and do the necessary servicing.

Cleaning personnel must wear appropriate protective clothing. In case of injuries call for medical aid. Keep machine free from contamination at all times.

Cleaning

Warning ! Disconnect electrical power supply !

Wash down machine frame and assemblies with hose. Do not use high pressure cleaners and compressed air.

Warning ! Never use Trichloroethylen, Benzine, Kerosene or similar products. This may lead to explosive and poisonous fumes.

For best performance lubrication is indispensable.

Note ! Lubricants may come in contact with product !

Only use food approved lubricants

OKS 470
OPTIMOL long time balance
or similar

Maintenance

Warning ! Disconnect electrical power supply !

Open hood. The machine is now easily accessible from all sides. The following procedure is recommended.

Check Ring Assembly if all parts are well fitted on ring. Control tension of V-Belt and Roller Chain. V-Belt, profile of V-Belt, Pulley and Ring must be kept free of oil and grease. If necessary grease Roller Chain. Lubricate knotting unit. Point of lubrication is marked red. Knotter gears, toothed lever, cam and cam rollers, knotter clamp, knotter lock lever, knife trap lever and bar, tip up lever, hinge rod, stripper pivot pin and knotter drive shaft have to be lubricated sufficiently.

Check all compression and tension springs, replace if necessary. Knife blade must be sharp to achieve a clean cut. Clean string holder button, watch for surface damages. To disassemble string holder button, loosen locking-screw on adjusting nut and pull button lever (see chapter "Threading"); twine button holder will move away from housing. Pulling the lever, push twine button with your left hand against housing. Twine button adjusting nut will come free and can be screwed off. Twine button is now dismanteled.

Even smallest surface damages can cause string abrasion which accumulates in the clearence, leading to faulty knots. If necessary polish twine holder button and housing. Do not use tools or sharp edged objects. To reassemble follow steps in reverse order.

Verify stripper alignment as described on page 16.

Remove all possible residues from moving parts.

Continuation Chapter Maintenance

Finishing the previous actions close hood, connect power supply.

Press foot pedal - the machine should not operate. Start-up machine. Open hood (**do not reach into machine**), press foot pedal again, machine should not operate.

Press push button on side of electric box (see page 8 Fig.3), for knotter unit inching operation. You can now easily follow knotter unit movements. Keeping push- button pressed the unit will do one cycle and remain in zero position. Also useful to check proper lubrication.

Note ! In case of stopping inching operation before knotter unit is in zero position verify that proximity switch light is off (not activated). When closing hood knotter will go in zero position automatically.

Open hood again. Press foot pedal - the machine should not operate.

Note ! Keep V-belt, profiles and ring guide rollers free of fat and grease.

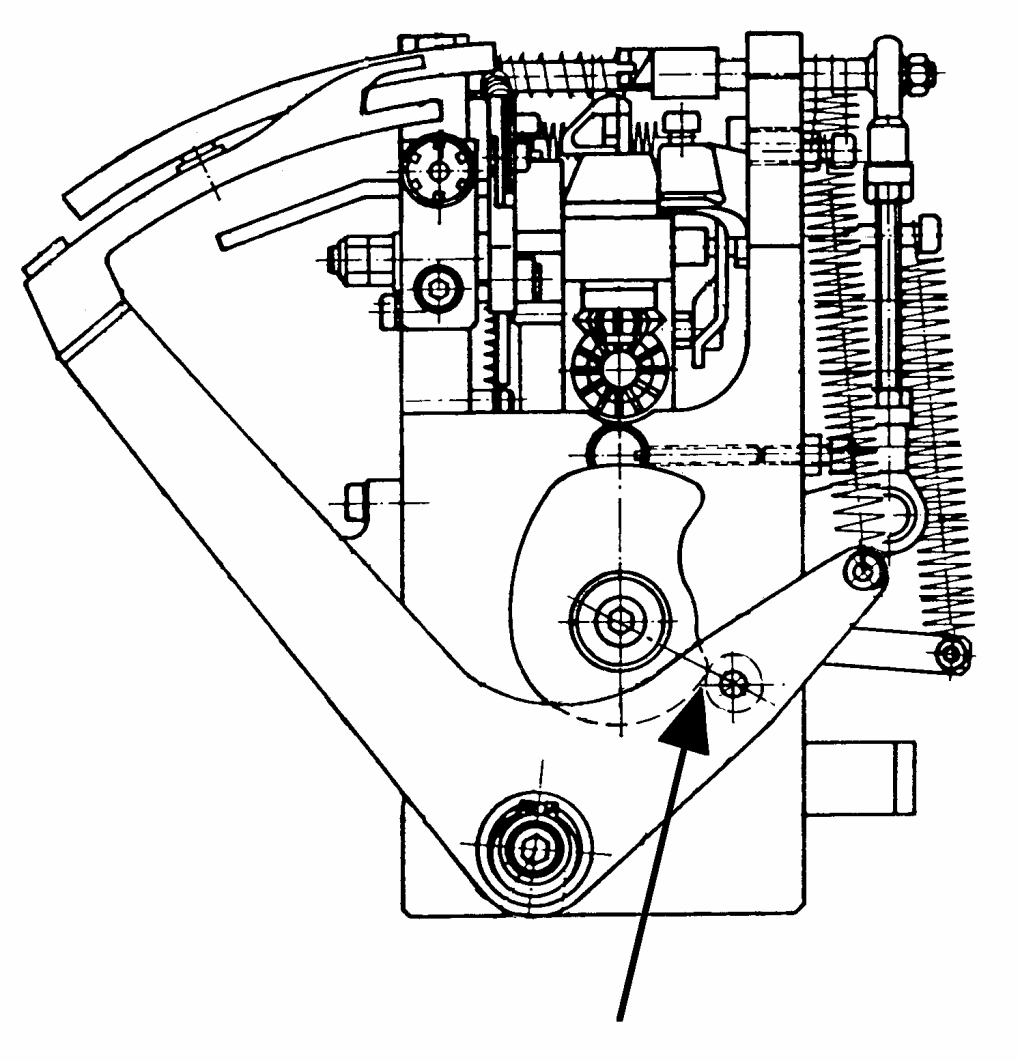
Twine arm must be in about 7 o' clock position.

Rethread machine checking function of take up lever and easy running of guide rolls. Lubricate if necessary (see chapter " Maintenance ").

Insert twine in knotting unit (see chapter " Threading "). Close hood.

Do some test ties to verify that machine is tying properly and check knots (see chapter " The Knot Tells The Story ").

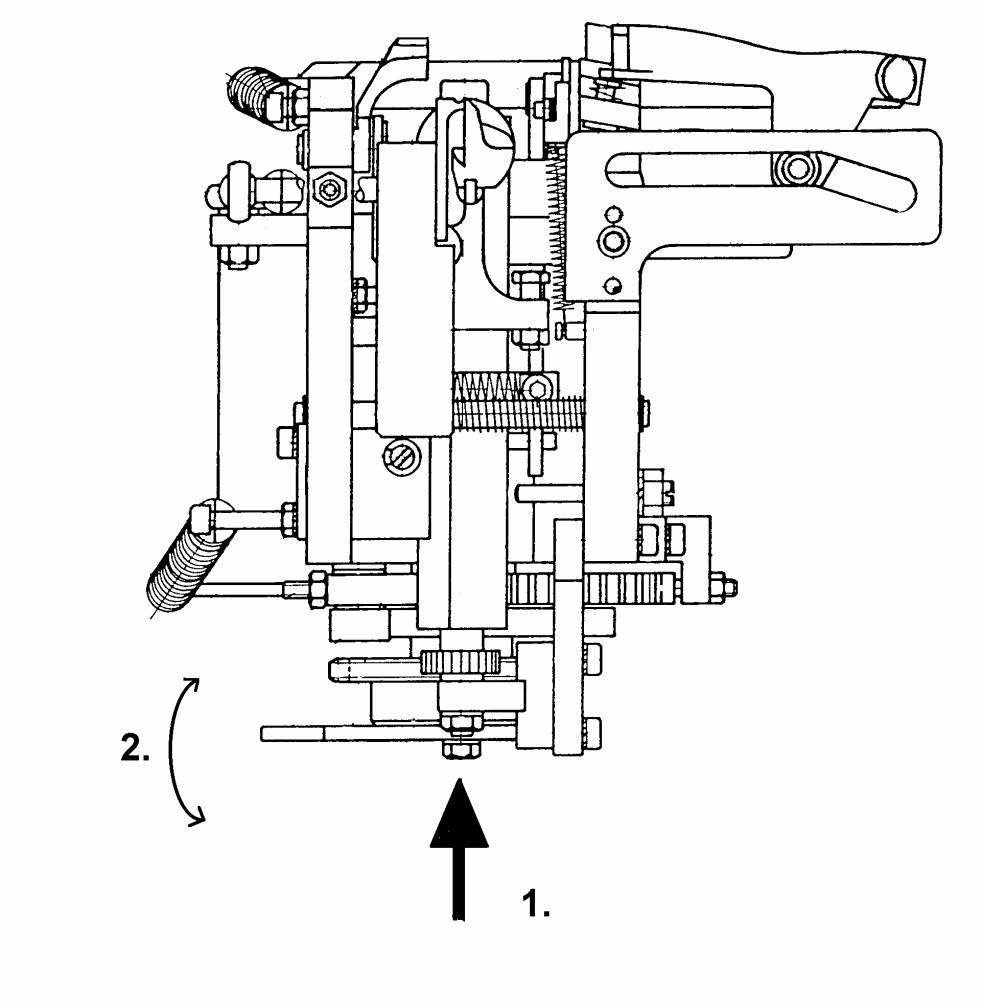
Alignment of zero position on JET - Knotting - Unit



Knotting unit is set to zero when cam roller on drawslide lever comes to a stillstand approx. 2-4 millimeters before falling down in curve of cam (see arrow on drawing).

The next page demonstrates how to adjust zero position.

Alignment of zero position on JET - Knotting - Unit



1. Loosen marked screw.

2. Adjust lever which activates limit switch

- turn clockwise to stop later
- turn anticlockwise to stop unit earlier

Fasten screw, press push button for inching operation, finish one cycle. Check zero position, readjust if necessary.

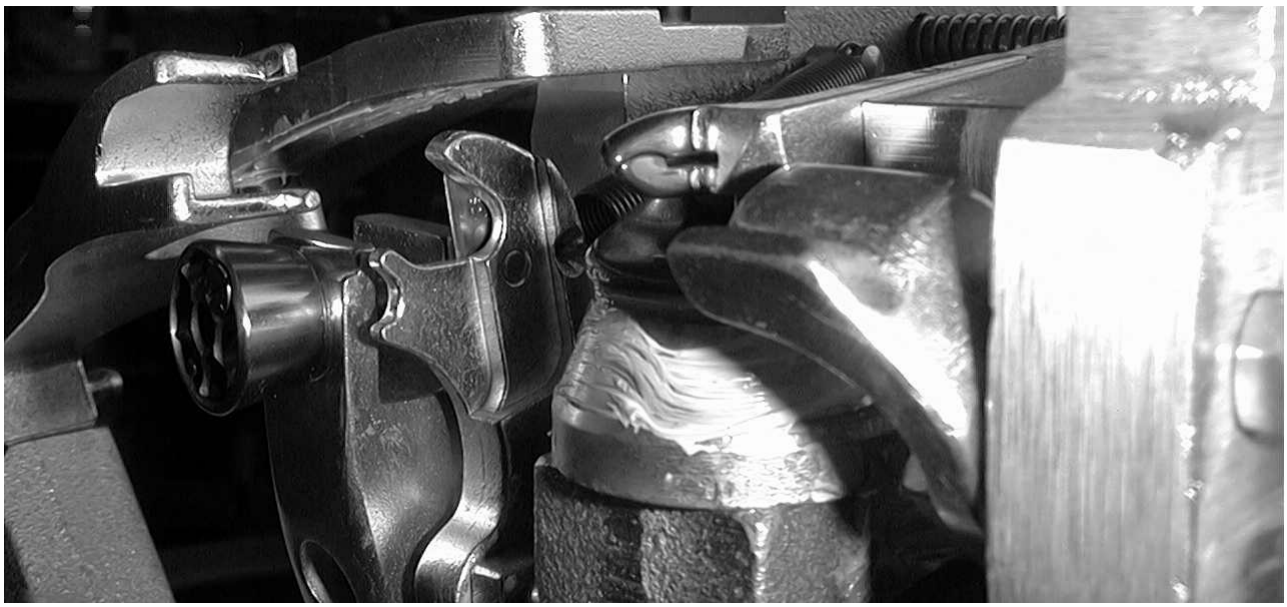
Alignment of stripper

Screw No. 9 (Assembly M4) for lateral alignment of stripper.

On backward motion of knotter the stripper should press firmly on knotter beak.

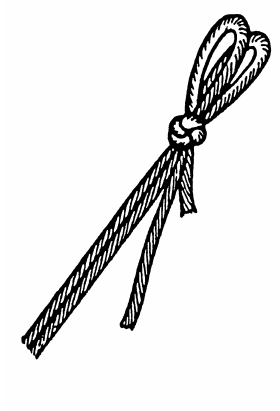
Guide link No. 2 (Assembly M4) for vertical alignment of stripper.

The correct position of stripper slot and Knotter beak is shown below.

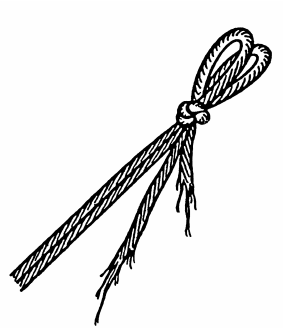


The knot tells the story

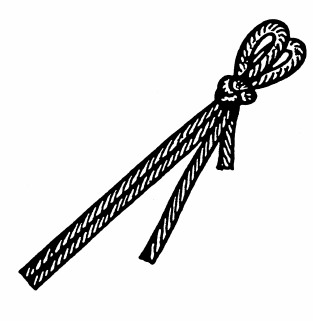
This is a perfect Knot
A perfekt knot, like the illustration, has two long and even loops extending out one side of the knot with one short end and one long end, the body of the knot is tight



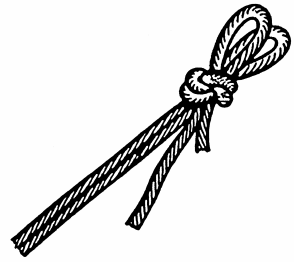
Ragged ends
Frayed or ragged ends of twine at the knot indicate a dull knife. Use other side of blade or replace if blade has been turned already.



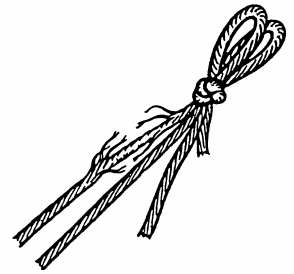
Short loops
Knotter jaws open too early. Adjust Part No. 26 (Ass. M0) by moving this part backwards (to front of machine) in slotted hole.
Stripper does not press against knotter. Twine gauge may be too small.



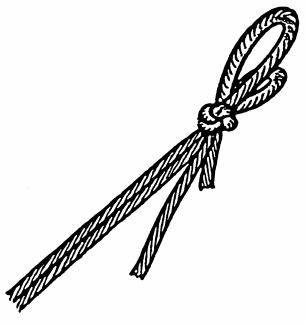
Loose knot
When the body of the knot is loose and the loops slightly shorter than normal this indicates that the twine gauge is too small or knotter jaws open too early. Slot in stripper may be too big.



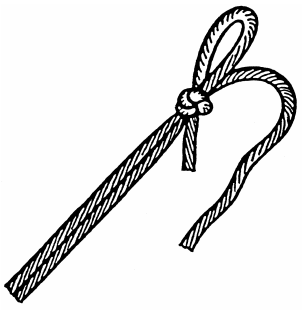
Break in twine in front of knot
If there are any broken plys in the twine, this is usually caused by either friction against the mechanism or is due to too much tension. All edges except the stripper points must be kept smooth.



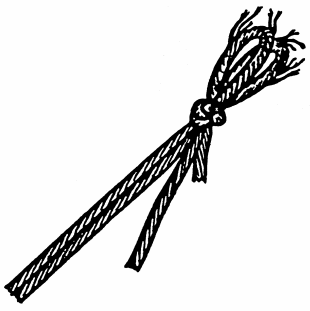
Long and short loops
One long and one short loop, whilst not serious, is usually caused by wrong gauge of twine or weak tension spring (Part 24, Ass.M2) or stripper alignment is incorrect (see Chap. Stripper Alignment).



Single loop
A knot with a single loop will not hold, as only one end is tied into the knot. Increase tension on twine button by turning twine button adjusting nut one notch at a time and/or decrease tension on twine brake.



Cut loop ends
One or more cut plys of twine in the loop of the knot are caused by the stripper points shearing against the side of knotter jaws when stripping. Check knotter jaws for sharp edged damage.



How to avoid Problems

CAUTION: Never file the face of the stringholder casting! It was filed by a trained workman, and the groove was put there for a purpose, and is not caused by wear. Necessary adjustments can be made by regulating the string tension.

1. **Threading:** Be sure your machine is threaded properly. This is the major cause of machines not working properly (see threading instructions).

2. **Twine:** Your machine is adjusted for a definite size twine. For best results this should be used at all times.

    a. Weak twine will cause trouble, as it will break at the stringholder button instead of pulling out smoothly.
    b. If the twine is too thick it will not be released by the knotter jaws.
    c. If the twine is too thin it will cause a loose knot.

3. **Stringholder Button:** If you are using the proper size and a good grade of twine, and it breaks frequently, leaving short pieces behind the stringholder button, this is usually caused by too much spring pressure on the button. This can be remedied by loosening the stringholder button.

4. **Twine Running Tension:** A smooth, easy running tension is always the best. Neither too tight nor too loose. This can be tested by pulling a quantity out from end of twine arm. If the tension is too tight this should be loosened approximately one turn at a time, until the proper tension is made. If the tension is too loose it should be tightened one turn at a time until the tension is correct.

Cleaning

The machine must be carefully cleaned after **every** use.

When using detergents and disinfectants (max. pH value 8) ensure that these agents are rinsed off with clean water.

WARNING ! **Do not use chlorinated detergents !**

When using high-pressure cleaners care must be taken that :

- maximum pressure 60 bar
- only use flat jet, not concentrated jet
- do not point jet directly at

  knotting unit
  drive motors
  closure joints on switch cabinet
  operating table
  exposed ball bearings and seals.

Procedure

1. Shut off power supply to the machine.

2. Clean machine initialy from the outside.

3. Internal cleaning

a) Open hood
b) Clean and rinse knotting unit, preferably with a brush and hot water
c) For further internal cleaning the knotting unit and the cleaned spool cage should be covered with suitable protective foil
d) Clean the remaining inner surfaces of the machine
e) Close hood and clean outer surfaces again if necessary