

INSTRUCTIONS:No. 75 OUTSOLE STITCHING MACHINE (FOR NO. 2 VICTOR, SEE NEXT PAGE)

Catalogue reference: 9/0/1

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M&B MACHINES are designed to operate with the accessories supplied as initial equipment.

The Company can accept no responsibility for malfunction if unapproved accessories or spares are used.

Our policy being one of continuing development and improvement, we reserve the right to alter specifications without notice.

NO. 2 VICTOR OUTSOLE STITCHING MACHINE

This book refers to the current model 75 Outsole Stitching Machine.

The only differences between this and the No. 2 Victor, apart from the shape of the column are:

The electrical control box (see Plate 1): This is a different type which does not have an ON/OFF switch and uses a different Indicator Lamp.

The motor starter is positioned on the left hand side of the column instead of the front.

The head cover: This consists of three hinged sections of cast aluminium instead of the one-piece plastic cover shown in the book. The centre section opens by simply swinging it up and back. The side sections must be lifted slightly (with a hand at back and front simultaneously) and then swung aside.

The sight-feed lubricator on the head. This has an adjustable flow-valve, controlled by a small brass lever on the top. With the lever vertical, the oil flows; turn it down to the horizontal position to stop. Immediately below the lever is a knurled sleeve, with a knurled locknut below it, which controls the rate of flow. To adjust, slacken the locknut away from the sleeve and screw the sleeve down. Turn the lever up to the "on" position, then slowly screw the sleeve up until it contacts the end of the lever and starts to lift it.

Watch through the window in the stem of the lubricator and adjust the sleeve so that a drip falls every fifteen seconds or so. Lock the adjustment by holding the sleeve still and tightening the locknut up to it. The lubricator should be kept between a quarter and three-quarters full of oil.

TECHNICAL DATA

Height: 56 ins. 1422 mm
Width: 27 ins. 686 mm
Depth: 27 ins. 686 mm
Weight: 500 lb. 227 kg.

Shuttle Heat Element, loading:

Max pot Heat Element, loading:

Motor output:

0.75 h.p.

0.55 kw.

Motor Full Load Speed (50Hz.):

1420 r.p.m.

Motor rotation:

Clockwise, viewed from pulley end.

Stitching Speed:

Infinitely variable, up to 300 stitches/minute.

Stitch length:

Infinitely variable, from 4 to 10 per inch (6.3 mm to 2.5 mm)

Maximum work thickness:

5/8 in. (15.8 mm)

Thread:

Use only Left (Z) Twist Linen Thread.

Needle, Awl and Thread sizes:

	Needle,	size	43	45	47
	Awl,	size	43	45	47
	Shuttle Thread,	cord	7	6	6
	Welt Thread,	cord	8	7	7

Max (welt thread):

Bostik Liquid Stitching Wax.

" (shuttle thread):

BH Stitching & Sewing Wax (Golden or Brown as preferred).

INSTALLATION

The machine must stand firmly and level, using packing under the corners if necessary.

Electrical connection to the Motor Starter should be made through an isolator and fuse of not less than 15 amps. capacity (1 ph.) or 10 amps. (3 ph.), positioned on or near the machine. The machine must be earthed.

The heating circuit connection should be made through a normal earthed switch/plug outlet, preferably fused, of not less than 5 amps. capacity.

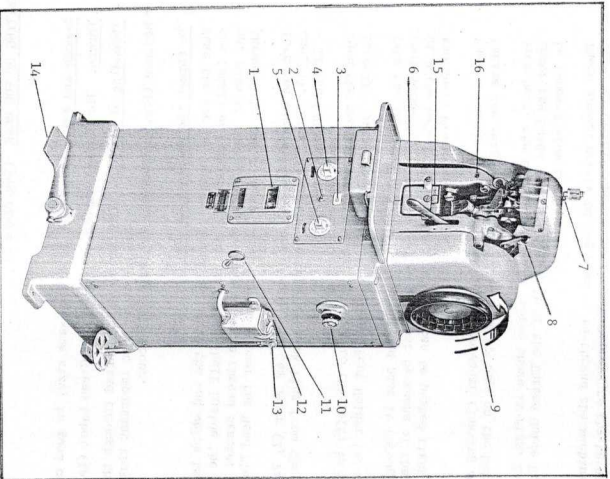
Wiring colour code:

Earth Green/Yellow
Live Brown
Neutral (1 ph) Blue

ELECTRICAL CONNECTIONS MUST BE MADE ONLY BY A QUALIFIED ELECTRICIAN.

Direction of rotation:

The motor runs in a clockwise direction, viewed from the pulley end.



THE CONTROLS

1. Motor ON/OFF Switch.
2. Shuttle & Wax Pot Heaters ON/OFF Switch.
3. " " " Indicator Lamp.
4. Shuttle heat Simmerstat.
5. Max Pot Heat Simmerstat.
6. Switch Length Lever; Infinitely variable; Up for short stitch; Down for long stitch.
7. Edge Gauge Lever; Infinitely variable; moves in opposite direction to Gauge.
8. Presser Foot Raising Handle - Push back to raise Presser Foot.
9. Handwheel - turns anti-clockwise.
10. Bobbin Winder - turns anti-clockwise.
11. Bobbin Winder operating Rod - Push in to start; Pull out to stop.
12. Max Stripper, hard wax pot.
13. Dry thread tension.
14. Clutch Treadle. Increase pressure to increase speed.
15. Wax Stripper, liquid wax pot.
16. Thread Holder.

Needle and Awl. These must be of the same size, in good condition, and fully home in their clamps.

Thread. The correct thread to use is MHB Green Label (left twist). See table, Sec.1, "Technical Data".

Threading of Machine. The course of the thread through the machine must be as shown in the diagram, Figs. 1, 2 and 3. It is most important that the thread passes correctly through the Thread Measure (Fig.1) otherwise breakage will occur.

To thread the machine for the first time.

Take the cop of shuttle thread and untie the end which is tied round the outside of the cop. Stand the cop (small end uppermost) on the Thread Shelf inside the Column, at the back, bring the end of the thread up, pass it through the lower hole in the thread Bracket on top of the Column, (from the inside), then back through the top hole in the Bracket and over the Head Tie Rod (1, Fig.1).

Turn the machine so that the Thread Lock Cam Lever (2, Fig.1) is down, separating the Thread Lock Pins (3) and (4). Pass the thread between the Lock Pins from the back, under the lower Pin, and draw up a good length - 12 ins (300mm) or more.

Turn the machine until the Awl is fully to the left; in this position the thread hole (5, Fig.1) is aligned laterally with the holes in the Presser Foot Holder (6) and the Thread Lock Cam Lever (2) is up.

Take the threader supplied in the Kit and pass it through the thread hole (5) until it touches the Presser Foot Holder (6). Raise the Presser Foot by means of the Raising Handle to align the holes (6) vertically with the hole (5), when the threader can be pushed right through, to pass under the Hook (7) and between the two Guide Pins (8).

Engage the thread in the hook of the threader (leaving sufficient slack to pass through the machine) and, taking the weight of the Presser Foot Springs on the Raising Handle, draw the thread out through the hole (5).

From here, the thread takes the course shown in Figs. 2 and 3. It will be found easiest to engage the thread under the Guide Screws (9, Fig.2) if the Thread Guide Bracket (10), which is retained by the Binding Screw (11), is removed from the wax pot.

There should rarely be any need to re-thread the machine subsequently, as the end of the thread is tied to the stout cardboard core of the cop, which prevents the thread from being run right out. The beginning of the fresh cop is simply tied securely to the end of the old one and pulled through.

NOTE: It is most important that the thread passes correctly through the holes in the Presser Foot Holder (6) and under the Hook (7), as this is the thread measure which regulates the amount drawn out according to the thickness of the work.



FIG. 1



FIG. 2



FIG. 3

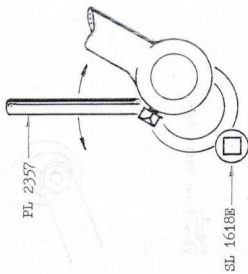


FIG. 4

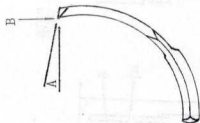


FIG. 5

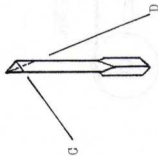


FIG. 6

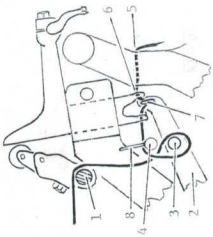


Fig. 1.
View from left side.



Fig. 5.
View from right.

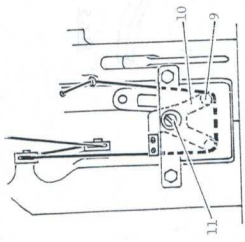


Fig. 2.
View from front.



Fig. 3.
View from right.

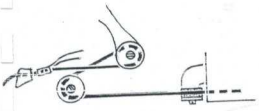


Fig. 4

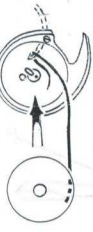


Fig. 4a



Fig. 7.
View from front.



Fig. 10.
View from front.

Fig. 6.
View from right.

Thread must clear barb



Fig. 9.

Small clearance



Fig. 8.
View from right.

Removal and Replacement of Bobbin (Fig.4)

Turn the machine to the starting position (see "Operating", Section 5).

Pull forward the Shuttle Bearing Lock Lever (VSM 141, Pl.5) and lift open the Shuttle Bearing Cap (VSM 13W, Pl.5). The Shuttle (VSM 80+, Pl.12) can now be lifted out.

CAUTION: If the machine is at working temperature, the Shuttle will be very hot. Be careful not to drop it, as this would probably break the hardened point.

Take a spare needle and, with its butt end, press in the spring-loaded Bobbin Latch (VSM 21E, Pl.12) from the back of the Shuttle, so that the hook of the Latch is lifted out of the small recess in the end of the Bobbin Post in which it lies. (Do not attempt to do this by lifting the hook with a knife or screwdriver, as this could damage the hook). Rotate the Latch so that the hook lies across the end of the Bobbin Post and release it. The Bobbin can now be tipped out of the Shuttle. If it does not come out readily it can be pushed out, again using the butt of a needle, through the hole provided in the back of the Shuttle for this purpose.

Place the Shuttle on the Work Tray, with its point towards the right, and apply a few drops of oil to its interior.

The Bobbin must be the correct way round in the Shuttle, i.e., the thread must run off it in the same direction as the Shuttle point.

The thread then passes under the spring-loaded Tension Ball, across the back of the Shuttle to the small hole in the centre and through this to emerge from the Bobbin Post on the other side, (see Fig.4). To do this, first push the point of a needle through the Shuttle under the Tension Ball and use its barb to draw the thread through (Fig.4a), then insert the Bobbin in the Shuttle. Pull out a little of the thread to ensure that it is not trapped under the Bobbin, then turn the Latch until it drops into its recess. Pass the thread through the centre hole, leaving a loose end approximately 3" (76mm) in length.

Replace the Shuttle and close the Bearing Cap, pulling the Lock Lever (VSM 141) forward to do this and ensuring that the Lever returns to its backward position. If it does not, this indicates that the Shuttle is not properly in position. The trailing end of thread protrudes from the front, between the Shuttle and the Shuttle Driver.

Max. Use only **BOSTIK LIQUID STITCHING MAX** on the welt thread and **B.U. STITCHING & SEWING MAX** (colour as preferred) on the Bobbin Thread. Liquid wax must be stirred thoroughly every time before pouring into the wax pot. Shaking is not sufficient. Do not over-fill the liquid wax pot - use just sufficient to cover the thread guide screws.

Bobbin Winding, (Plate 1).

It is easiest to thread the Hard Wax Pot before filling it with wax. Switch on the heater switch (2) and turn the Simmerstat (5) to "Full".

1. Lift off the Wax Pot Cover, pull out the Pin (VSM 260, Pl.7) and lift out the Thread Guide, (VSM 201, Pl.7).
2. Place the cop of thread on the Thread Shelf, small end uppermost, untie the thread from round the cop and pass it through the eye on the side of the Wax Pot and over the Dry Thread Tension (13) between the two washers. Hold the thread across the top of the Wax Pot and push it down with the Thread Guide, so that it lies in the groove under the lower end of the Guide, and replace the Pin (VSM 260). Pull the thread into the end of the Stripper, between the two rubbers.

3. Break up some wax into small pieces and place them in the Wax Pot. Do not put very much in at first, otherwise it may boil over. Wait until the first few pieces have melted, then add a little more and so on until the Pot is about half full. Do not over-fill. Replace the Cover.

4. Switch on the motor.

5. Unscrew the Clamp Nut (VSM 63, Pl.4), place the empty bobbin on the spindle and replace the Clamp Nut.

6. Pull the thread up behind the bobbin and over it, taking three or four turns round the bobbin centre and cutting the loose end off close to the centre.

7. Start the Winder by pushing in the Operating Rod (11). Stop after a little thread has been wound on (by pulling out the Operating Rod) and check the amount of wax on the thread. There should be sufficient to cover the thread well but not so much that it is squeezed out between the turns of thread. Regulate by tightening or slackening the two screws in the Stripper Plate.

8. Continue winding and stop just before the bobbin is full. (An over-filled bobbin will not enter into the Shuttle).

9. It may be necessary to guide the thread whilst winding with a screwdriver blade or similar to prevent it piling up at one side.

Shuttle heat. The Shuttle heat must be regulated by the Simmerstat so that the thread runs freely. This usually means setting on "Full" all the time whilst actually operating. The Bobbin and Shuttle must be kept well oiled.

Wax Thread. This must run freely through the machine when pulled by hand. If it does not, check that the threading is correct, and that the Thread Rolls revolve freely. These tend to become clogged with wax and must be cleaned periodically. It helps to oil them liberally at the end of the day's work, to prevent wax from hardening on them overnight.

Removal and Replacement of the Needle.

Switch off the machine.

Turn the Handwheel to the position where the needle is descending but the looper is still to the left. With the square socket wrench supplied in the Kit, slacken the Needle Clamp Binding Screw (SL 1606E, Pl.15) about half a turn, taking care that the stem of the wrench does not bear against the Spreader Point and displace it. The needle can now be withdrawn from the Clamp and Needle Guide.

With the machine still in the same position, take the new needle and pass the point down through the Table so that the butt end can be passed up through the Needle Guide into the Clamp until it contacts the stop. There is no adjustment for the position of the Needle, which must always be fully home to the stop. Keep one finger under the point of the needle to press it against the stop whilst tightening the Clamp Binding Screw securely. Oil the needle at the Needle Guide before resuming work.

Removal and Replacement of the Awl.

Switch off the machine.

Remove the Shield (VSM 518, Pl. 14).

Turn the machine to bring the Awl up so that the Awl Clamp Binding Screw (SL 2901E, Pl.15) is under the recess in the casting above it, where the square socket wrench can be fitted on to it.

Slacken the Binding Screw and turn the machine to take the Awl down clear of the Table, when it can be withdrawn from the Clamp.

Leave the machine in this position to replace the Awl, which must be pushed fully home to its stop. Turn the machine to bring the Awl up and hold it against the stop whilst tightening the Binding Screw securely.

Adjustments.

Setting of Spreader Point, (VSM 117, Pl.9). This is very important and is the first thing to check if thread

breakage or missing of stitches occurs.

There is an eccentric adjustment at the rear end of the Spreader Lever Connecting Link, (VSM 44C, Pl.9). This is normally set as in Fig.5 when viewed from the right side of the machine.

To obtain the correct setting of the Spreader Point, first turn the machine so that the front edge of the Needle Guide Lever (VSM 97B, Pl.15) is vertical (Fig.6). With the machine in this position, the Spreader

Point should be almost touching the point of the Needle, very slightly to the left of it (Fig.7).

At this setting, the Spreader Point should separate the loop of thread drawn up by the Needle, so that the point of the Shuttle passes cleanly through it. If set too far to the left, it will probably split the thread, which will break leaving a frayed piece about $\frac{3}{4}$ " (19mm) in length standing up from the sole. If set too far to the right, it may miss the loop altogether so that the shuttle will not pick up the thread and the stitch will be missed, but usually without breaking the thread. NOTE: The same effect can be the result of bad handling by the operator, by moving the work as the needle draws the thread up from it, thus pulling the thread out of line with the Spreader Point. The work must only be allowed to move along as the Awl feeds it.

The setting of the Spreader Point is very critical and only a very slight adjustment can make a great difference. It should, however, rarely need adjustment once the correct setting has been made.

Table, (VSM 57, Pl.14) Set the Table so that the Awl just clears the back of the throat (Fig.8). The Table is held by a taper cotter, (SDL 283E, Pl.14) and nut (NL 339E, Pl.14). Slacken the nut a turn or so, and give it a sharp blow with a wooden mallet or similar to free the cotter. The table can then be moved in or out. Re-tighten the nut firmly after making the adjustment, but do not over-tighten.

Presser Foot (VSM 90, Pl.16). The Foot must be fully home (to the right) in the Holder and set approximately $1/16$ " (1.5mm) behind the needle. There must be a clearance of approximately $3/64$ " (1mm) between the Release Link Cam Roll, (RL 14B, Pl.16) and the back face of the Presser Foot Holder when the machine is in the starting position. To adjust, slacken the nut (NL 230E, Pl.16), move the Presser Foot Release Lever to the desired position and re-tighten the nut.

Setting of Loooper, (VSM 91, Pl.13) and Loooper Hook, (VSM 07B, Pl.13). The Loooper must be set high enough to place the thread cleanly on to the needle without fouling the barb (Fig.9). If set too high, its point may foul the underside of the Table (when fully to the left), or the Loooper Hook when moving under it. When the Loooper is fully to the left, it should be possible to pass a piece of paper between it and the underside of the Table. When fully to the right, and forward, its point should lie close to the left hand side of the needle, but not touching it (Fig.10).

The Loooper Hook should be set so that it descends to the right of the thread held between the Table and the Loooper and must come low enough to hold the thread securely when the Loooper passes behind it, but not so low that it fouls the Loooper.

The settings given above are for normal use, but may require slight modification to suit local conditions, as they are to some extent affected by the type of work, materials, and the handling of the operator, and can, therefore, only be determined by experience.

Depth of Lock, (Plate 3)

The importance of the correct setting for the depth of the lock cannot be over-emphasised. The term "Lock"

means the point where the two threads cross, forming a "knot" which can be likened to the head of a rivet in its function of holding the sole to the welt. As shown in the diagrams, the incorrect setting of the lock will result in the sole coming away from the welt after only a short period of wear.

In Fig.1, the lock is too shallow; when the sole wears down to the level (A), the lock will be worn off, allowing the sole to spring away.

In Fig.2, the lock is too deep, and the sole is held on simply by the single strand of thread between the stitches. As soon as wear reaches (A) this thread will be worn through, and the sole will again spring away.

Fig.3 shows the ideal position for the lock, firmly embedded in the substance of the sole. Wear must reach (A) before the seam will part, by which time, (since this is at the edge of the sole), the centre of the sole will undoubtedly be worn through.

To adjust depth of lock.

First ensure that all related factors are correct, i.e., both liquid and solid waxes are fresh and in good condition; bobbin freshly wound, with the correct amount of wax on the thread; shuttle and thread tension clean and well oiled; welt thread running freely through the waxpot and thread rolls; shuttle temperature correct.

Stitch together two pieces of leather, which ideally should be a strip of wetting and a piece of the soiling material in use. Cut through this test piece vertically with a sharp knife so as to expose the stitching as in Figs. 1, 2, or 3.

If this shows the lock to be incorrect, it may be adjusted by means of the small lever, (PL 2357, Pl.11), on the right-hand side of the machine head (see Fig.4). First slacken the Binding Screw, (SL 1618E, Pl.11), and, if the lock has been too shallow (Fig.1) move the lever forward towards the Operator, or if too deep (Fig.2), backwards away from the Operator. Only a very small amount of movement is required.

RETIGHTEN the Binding Screw, repeat the test and inspect, until the correct position is found.

Once set, the lock will be automatically adjusted to suit the thickness of the work, and no further attention should be required for a considerable period.

Awl Sharpening.

Hold the Awl securely, preferably in a proper Awl Filing Clamp, and rest it on the edge of a bench or the tray of the machine so that it is firm and cannot twist. Cut the bevels with a dead smooth file (WAZ 206) taking care to leave the corners quite sharp. The bevels should be quite flat from corner to corner, clean and smooth. They may be carefully finished on an oilstone, but an emery stick should not be used, as it leaves the bevels rounded.

When viewed from the side (Fig.5), the inside corner (B) should be higher, so that it "leads" with this point. This angle (A) should not be overdone or the work will tend to be pushed off the machine.

It is important that the two bevels are as shown in the front view (Fig.6). The outside bevel (C) must be

Fairly short and steep and the inside bevel (D) long and shallow. This ensures that as the Awl penetrates the work the tendency for it to "spring" to the left is counteracted and full feed is obtained. This is particularly noticeable on a worn machine.

Awls as supplied are generally of the correct shape and only require to be brought to a sharp edge.

General.

Use only freshly wound bobbins. If left standing for several days the wax will dry out and the thread become brittle.

Do not allow the hot waxpot to boil fiercely, or the wax will be spoilt.

Adjust the strippers on the waxpots (by tightening or slackening the two screws in the stripper plate) so that the thread is not too heavily waxed, as surplus wax caked round the shuttle etc. will interfere with the smooth running of the thread and cause breakage.

Keep the Needle Guide well oiled so that the spring can pull it easily down the needle, particularly on rubber work which tends to make the needle sticky.

Keep the machine clean and well oiled at all times.

OPERATING.

Direction of Rotation:

The Handwheel rotates in an anti-clockwise direction, viewed from the right hand side of the machine, i.e., the top of the Handwheel moves towards the operator.

Preparation of work:

The sole may be attached to the shoe either by temporary nailing or by cementing. Cementing is recommended where the welts and/or insoles are very light and flaxlike. Any nails used must be well in from the edge of the sole, so as to be clear of the Presser Foot. Stitching may be in a channel, groove, slit or aloft. Very hard leather should be mellowed, i.e., thoroughly soaked in water and allowed to dry out partially, until no free water remains. Rubber and synthetic materials will stitch more easily if the surface is wetted, although this is not essential. The sole should be trimmed squarely and evenly with the welt, but not closer than $\frac{3}{64}$ " (1mm) from the edge of the welt. Trimming too closely makes stitching more difficult due to lack of material for the Presser Foot to hold.

Operating:

Switch on the Heater Switch (2)/(Pl.1). The Indicator Lamp (3) will glow to show that the current is on. Turn the Shuttle Simmerstat (4) to "Full". Check the amount of thread on the bobbin and, if this is not sufficient for the amount of work to be done, place a spare full bobbin on the Bobbin Holder over the Shuttle. A full bobbin normally holds sufficient for 8 pairs of mens' half soles. The Wax Pot Simmerstat (5) should remain at "Off" unless it is anticipated that bobbins will be required to be wound. Unnecessary heating not only wastes electricity but spoils the wax. It will normally take approximately 20 minutes for the machine to reach working temperature, during which period it can be oiled (see Section 6) and a check made that the Thread Rolls are free to rotate. The shuttle is hot enough when the thread can be pulled easily from it by hand.

Switch on the motor.

In order to commence stitching, the machine must be in the Starting Position, i.e., with the needle about $\frac{1}{2}$ " (13mm) above the Table, and rising. Note that it will also appear to be in this position half a revolution earlier or later when the needle is descending. Since the first action of the machine must be for theawl to rise and pierce the work in readiness for the passage of the needle on its downward stroke, it will be appreciated that to attempt to start in the wrong position will result in the needle breaking, as it will have no hole through which to pass. Check that the starting position is correct by pulling the top of the Handheel forward slightly, when the needle should start to move upward. If it moves downward, continue turning the Handheel until the correct position is reached and disengage the thread which will have been plucked up by the barb of the needle.

The length of welt thread which runs from the Liquid Wax Pot through the Take-up etc. will have dried out and must be disposed of by pulling out until it is felt to be wet again.

This can only be done when the thread lock is released, that is, when the machine is in the starting position. If for any reason, it is required to pull the thread through with the machine in any other position, the lock may be released by pulling forward the spring-loaded Thread Lock Hand Release Lever (VSM 193, Pl.11).

Pull out sufficient thread from the Shuttle so that both Shuttle thread and Welt thread can be held together under the spring clip of the Thread Holder (16, P.11).

Raise the Presser Foot by pushing back the Presser Foot Raising Handle (8, P.11) and place the work on the machine, sole upward, toe to the right, with the welt resting on the top of the Table. Pull the Presser Foot down on to the work, firmly but not too heavily.

The Edge Gauge (VSM 50, P.14) should be adjusted according to the width of the welt, so that the edge of the welt can be pressed firmly against it and the stitches will lie in the centre of the welt and not drop down into the welt seam. The Edge Gauge is adjusted by means of the Edge Gauge Lever (7, P.11), which moves in the opposite direction to the Edge Gauge. The Lever is deliberately made stiff to move, to prevent accidental movement of the Gauge by pressure of the work against it. If it should become too loose, this can be corrected by tightening the Binding Screw (SL 1624E, P.14).

In order to have full control over the machine and the work, it is important to adopt the proper operating position. Do not stand centrally in front of the machine, but somewhat to the right-hand side, more in front of the Handwheel. The right foot should be well back, 24 - 30 inches (600 - 760 mm) from the machine. The left foot has the heel on the floor and the ball of the foot on the Clutch Treadle, the left knee slightly bent and the weight evenly distributed on both feet. It is a mistake to stand too closely to the machine, as this will not allow room to swing the shoe round when stitching round the toe; the heel will come against the operator's chest, making him lean backwards just at the moment when it is most necessary to hold the work firmly on to the table and guide it round.

There is a brief moment in the operating cycle, after theawl leaves the work and before the needle enters it, when the work is held only by the Presser Foot and the operator's hands. It is most important that the work is not moved during this time, as this would disalign the hole which the awl has just made and the needle would be broken. Therefore, let the machine feed the work along in its own way; do not try to help it along, or hold it back, or twist it. The function of the operator's hands is to hold the work into and down upon the Table, with the sole as nearly level as possible.

When approaching the wrist on the finishing side, hold the heel down and well in to the machine; this will avoid running the looser part of the upper over the Table and accidentally stitching it.

The finishing position is the same as the starting position, i.e., with the needle rising. The needle will be drawing a loop of thread up through the work; stop just before the Spreader Point comes down and divides the loop. If the Handwheel is then moved very slightly backwards, the needle will come down a little, releasing the tension on the loop and making it easy to disengage it. Raise the Presser Foot and pull the work away from the machine, cutting off the thread close to the work.

Note: It will generally be found easier to stitch rubber and similar materials if one Presser-Foot Spring (SPEC. 721E, P.16) is removed.

LUBRICATION

The Motor must be switched off whilst lubricating.

Use W&B Machine Oil for all the points listed below:

Countershaft: During the first week's running, check the three oil cups daily, before starting up. Top up if less than half full. Subsequently, check weekly.

Access to the Countershaft is gained by removing the left-hand side panel. Turn the two fasteners at the top of the panel a quarter turn in either direction. Pull the panel away from the machine and up to remove it. To replace, first engage the two lugs at the lower end of the panel over the bar in the Column; turn the two fasteners back to their original position and enter them into the holes in the Column. Press each fastener (not the panel) without turning it, until a click denotes that it is engaged.

Head: The Lubricator (VSM 473, Pl. 7) provides a constant drip-feed to the Shuttle and should be kept between a quarter and three quarters full. To stop the flow open hinged part of cover.

The sliding faces of the square part of the Presser Foot Holder (VSM 25, Pl. 16) must NOT be oiled, otherwise the Foot will jump when theawl strikes the work. If it becomes oily, it should be cleaned with paraffin.

Oil the needle frequently, particularly when stitching rubber or synthetic materials, which tend to make the needle sticky.

All other moving parts should be oiled daily. Most have oil holes plainly visible; otherwise, apply oil to the working surfaces (e.g., cam rolls and gear segment teeth). Certain oil holes are fitted with felt plugs; these, when saturated with oil, act as wicks to maintain a controlled supply to the bearings and also keep out grit and dust.

Do not overlook the oil hole for the Needle & Awl Segment, which is revealed by raising the Presser Foot.

Motor: Although fitted with grease nipples, these should not be lubricated, except by a qualified engineer, as overlubrication or use of the wrong lubricant will seriously damage the motor. The bearings are packed with special grease by the manufacturers and this normally lasts the life of the motor.

MAINTENANCE

THE MACHINE MUST BE ISOLATED FROM THE MAINS ELECTRICITY SUPPLY BEFORE CARRYING OUT ANY MAINTENANCE WORK.

Belt Adjustment:

There will usually be some initial stretch with new belts, which will cause them to slip, indicated by the machine only running slowly despite full pressure on the Clutch Treadle. To determine whether it is the motor belt or the machine head belt which is slipping, remove the left side panel from the Column, hold the Handwheel firmly to prevent it rotating and, with the motor running, apply pressure to the Clutch Treadle whilst watching the Countershaft pulley. If the pulley does not rotate, it is the motor belt which is slipping; if it does, then the machine head belt is slipping.

Adjustment is effected by removing one or more links from the belt.

Slipping belts should be attended to promptly, otherwise the heat generated by the friction can melt out the lubricant from the countershaft bearings, ruin the belt and overheat the motor.

Belt slip on an older machine is probably due to the belt having become saturated with oil, for which the only cure is to fit a new belt.

Wax Pots: Both liquid and hard wax pots should be cleaned out once a month, to remove sediment, which otherwise interferes with the free running and waxing of the thread.

Before refilling the wax pots, check the condition of the rubber strippers, VSM 700, and replace if necessary. Check also the two thread Guide Screws, VSM 76F (Pl.5) and replace these if the thread has worn a groove in the underside of them.

Presser Foot: After prolonged use, it may be found that the Presser Foot is inclined to jump when the awl strikes the work. Assuming that the Presser Foot Holder (VSM 25, Pl.16) is free from oil (see "Lubrication", Section 6), this is due to wear on the face of the Presser Foot Holder, which can be adjusted as follows:

Slacken the nut, NU 741E (Pl.16).

Turn the screw, SL 1616E (Pl.16) very slightly in an anti-clockwise direction (viewed from the nut end).

Keep the screwdriver in the slot in the screw to prevent it from rotating and tighten nut.

Test by raising the Presser Foot; it should move smoothly and with only sufficient freedom for the springs to pull it down. Check the setting of the Release Link Cam Roll.

Needle Guide: This must be replaced as soon as wear becomes apparent, otherwise a high rate of needle breakage will occur.

To replace the Needle Guide, first remove the needle, then the Needle Guide Binning Screw, SL 797 (Pl.15). The Needle Guide can then be carefully pulled off the two dowel pins in the Needle Guide Lever, VSM 97B (Pl.15). When fitting the new Guide, ensure that the face of the Lever is clean and that the Guide fits flush against it when the Binning Screw is tightened.

Note: When ordering a replacement Needle Guide, the size of the needle must always be quoted after the part number, e.g., "VSM 60B-45" (for a size 45 needle), or "VSM 60E-43" etc.

General: The machine should be kept clean and properly lubricated at all times. Do not allow wax to build up on such parts as thread rolls, looper etc. and, in particular, the shuttle, as this will interfere with the free running of the thread, causing irregular stitching and frequent breakage.

Inspect the machine regularly for worn parts and do not delay their replacement. Running the machine with some excessively worn parts will rapidly damage other parts and lead to costly breakdowns.

No.	Description of defect	Cause	Remedy	Prevention
1	Irregular stitching	Worn thread rolls, looper, shuttle, etc.	Replace worn parts	Inspect machine regularly
2	Frequent thread breakage	Wax build-up on thread rolls, looper, etc.	Remove wax and clean parts	Keep machine clean and properly lubricated
3	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
4	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
5	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
6	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
7	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
8	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
9	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
10	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
11	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
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13	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
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16	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
17	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
18	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
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48	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
49	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly
50	Irregular thread tension	Worn thread rolls, looper, etc.	Replace worn parts	Inspect machine regularly

certain items in the "Remedy" column have been marked with an asterisk (*), which indicates that this work is best entrusted to a Service Engineer.

Whilst not claiming to be exhaustive, the list covers most of the faults which have been met with over many years experience with a great number of machines. Hopefully, you will not come up against more than two or three of them; certainly, they can be kept to a minimum by careful operating and thorough maintenance.

Indication	Possible causes	Remedy	Indication	Possible causes	Remedy
Velt thread breaks, leaving a frayed end above the work.	(a) Spreader Point set too far left, splitting the thread. (b) Needle worn or bent. (c) Loooper wrongly set. (d) Excessive wear in thread eye of Loooper.	Re-set. Fit new needle. Re-set. Fit new Loooper. Fit new parts.*	Lock not pulling down	Insufficient shuttle heat. Lack of oil in shuttle. Lock incorrectly set.	Increase Simmerstat setting or allow more time for heating. Lubricate. Increase setting.
Below the work, with fraying under the Loooper	(b) Excessive wear in Loooper Cam Rolls. (c) Excessive wear in Needle Guide, Loooper (d) Excessive wear in Needle & Awl Segment carrier Bush.	Fit new Guide. Fit new Guide.* Fit new parts.*	Repeated needle breakage (needle descending)	Worn needle guide. Needle guide sticking up on needle. Misplaced Table (too far back). Excessive wear in Needle & Awl Segment Carrier Bush. Edge Gauge set too far back (needle runs into welt seam).	Fit new guide. Lubricate frequently; check Needle Guide - Spring and replace if stretched or broken. Re-set. Fit new parts.*
Below the work, without fraying.	(b) Insufficient wax on thread. (c) Take-up Thread Rolls seized. (d) Groove worn in underside of Thread Guide Screws in Liquid Wax Pot.	Check contents of wax pot; adjust stripper. Dismantle and clean. Fit new screws.	Barb repeatedly broken off needle (needle rising).	Edge Gauge bent or worn (work held at angle to Table). Awl bent (hole out of line with needle) Worn awl (marking hole too small) Misplaced Table (too far forward) Misplaced Presser Foot (too far forward).	Re-adjust. Tighten screw on clamp if Gauge can be pushed back. Fit new Edge Gauge. Fit new awl. Fit new awl. Fit new awl. Fit new awl. Re-set. Re-set.
Stitches missed.	Spreader Point set too far right. Spreader Point worn. Excessive wear in Needle & Awl Segment Carrier Bush. Worn or misplaced Loooper Hook.	Re-set. Fit new Spreader Point. Fit new parts.* Check and re-adjust or replace. Fit new needle.	Presser Foot jumping	Oil on faces of Presser Foot Holder. Presser Foot Holder worn. Release Link wrongly set (can roll too close to Holder).	Clean with paraffin Adjust. Re-set. Re-set.
Shuttle thread breaks.	Barb broken off needle. Wax dried out through being left too long at full shuttle heat between operating periods.	Replace bobbin with freshly wound one. (Strip off and scrap spoiled thread). Remove bobbin from shuttle, or turn heat down, when machine is idle. Empty waxpot and refill with fresh wax. Heat only when required for winding. Strip off and discard thread; rewind evenly.	Loss of feed action Loss of speed. Soles springing away in wear.	Awl wrongly sharpened. Excessive wear in Feed parts. Belt slip. Obstruction (e.g., leather cutting) on floor under treadle. Lock incorrect (probably too deep).	Re-sharpen. Fit new parts.* Tighten belt(s) Rake clear Check shuttle heat and free running of threads. If in order, check and re-adjust lock.
Badly wound bobbin allowing thread to become tangled.	Wax in hard pot spoiled by excessive or prolonged heating.				