

# Safety Instructions

Machine Title LOCKSTITCH SOLE SEWING MACHINE

Model No DN 76 & SE 88

Serial No \_\_\_\_\_

Electric Supply :— 3 Phase \_\_\_\_\_ Volts. \_\_\_\_\_ Hz. \_\_\_\_\_

Single Phase. \_\_\_\_\_ Volts. \_\_\_\_\_ Hz. \_\_\_\_\_

Kw. \_\_\_\_\_ Amps. \_\_\_\_\_ R.p.m. \_\_\_\_\_

Air Supply :— Mains \_\_\_\_\_ Kg. per. sq. cm. \_\_\_\_\_ P.S.I.

Working \_\_\_\_\_ Kg. per. sq. cm. \_\_\_\_\_ P.S.I.

## Electric Supply

Connect machine to the mains supply indicated above.

Ensure that the earth connection is adequate.

Before leaving the machine unattended turn off the mains switch.

## Compressed Air

The mains air pressure supply to the machine and the working pressure must not exceed pressures indicated above.

Before removing any component from the air circuit or removing the filter plug from the air line lubricator, cut off the air supply and exhaust pressure from the circuit.

Before leaving the machine unattended turn off the air supply and exhaust pressure.

## Operating

Do not operate the machine if any of the Safety Devices or guards are removed, incorrectly adjusted or altered from their original design.

Do not touch any moving part or tool which is in motion.

Do not touch any heated part.

## Servicing

Isolate the machine electrically and/or pneumatically when servicing or adjusting the machine.

Do not leave the machine unattended with guards removed.

It is important to read these instructions carefully before using the Stitcher.

This Manual and Parts List includes both Models DN 76 and SE 88. Many of the parts are common to both models and where they differ the alternatives are shown.

### Ordering Spare Parts

The identification symbol for both Lockstitch Sewing Machines is DN. This prefix has been omitted on the catalogue plates in order to avoid congestion. When ordering, the prefix DN should be given in front of any part number which does not already show one in the illustrations.

### Machine Speed

Model SE 88 - Model SE 88 is supplied set to run at 120 stitches per minute and it is suggested that the operator should become fully conversant with the machine before the drive is adjusted to the higher speed of 180 stitches per minute. When sufficient experience has been gained the machine speed can be increased to 180 stitches per minute. This operation is carried out by changing belt DN 2050 onto larger 'V' on motor pulley DN 2145 and realigning motor pulley to ensure that belt is running vertical. Ref. Plate 2.

Model DN 76 - Model DN 76 is supplied set to run at 100 stitches per minute and it is suggested that the operator should become fully conversant with the machine before the drive is adjusted to the higher speed of 160 stitches per minute. When sufficient experience has been gained the machine speed can be increased to 160 stitches per minute. This operation is carried out by changing belt DN 2050 onto larger 'V' on motor pulley DN 1665 and realigning motor pulley to ensure that belt is running vertical. Ref. Plate 2.

### Stitching Trials

The machine waxpot DN 1068, Plate 1 and 1A must be filled with a solution to lubricate the thread, i.e. a soluble oil mixed with water. The thread feeding from the machine base must always be wet when stitching. The shuttle thread must be waxed. This may be pre-waxed thread or on electrically heated machines, the thread is wax coated by the operation when winding the bobbin. The machine is supplied with a stitched sample attached. This should be removed cutting the thread close to the workpiece. The horn thread should be drawn through at the same time rotating the thread feed roller DN 1266, Plate 1, until the lubricated thread is clear of the horn cap. Model SE 88 is fitted with a quick thread release mechanism (Plate 12) which operates by depressing lever 2095. Fix the thread under the spring 1050, Plate 1 and 1A and cut off the surplus thread. The shuttle thread should be left with approximately 8 - 10 cm loose thread. Scrap leather pieces should be used in order to gain experience in the working of the machine. To examine the stitching principle, the machine may be operated by hand rotating the handwheel in a clockwise direction, i.e. the top of the handwheel away from the operator when standing at the front of the machine. Correct conditioning of the leather to be stitched will reduce the wear on the needle and other functioning parts.

### Stitching

Attach the thread under the spring clip 1050, and position the bow of the horn to the left, as on Plate 1, rotate the handwheel until the presser foot is positioned close to the needle and using the foot treadle (LH) raise the presser foot to its upper position. Place the work between the horn cap and the presser foot and lower the presser foot to clamp the workpiece. The stitching can then proceed by operating the (RH) foot treadle and guiding the work as required. The stitch length may be varied by adjustment of the stitch length control knob, (SE 88) 2117, Plate 10 - (DN 76) 826, Plate 1. The presser foot tension should be adjusted when working with very soft materials, i.e. felt or rubber etc., or with extreme thicknesses of material. This is carried out by adjustment

of the nut 833, Plate 1. To stop stitching release the foot treadle and rotate the machine by hand until the needle is about to pierce the leather, turn the handwheel back one full turn and raise the presser foot. The shoe may then be removed from the machine at the same time assisting the thread passing through the horn by rotation of the thread feed roller 1266, or depressing lever 2095.

### Shuttle

To remove the shuttle rotate the machine by hand until the shuttle point, thread splitter, and needle point are coincidental, fig. 5. Loosen the retaining screw 919. Rotate the shuttle retaining ring 918, and pull downwards. The shuttle 920 may then be removed. Remove the bobbin 927 from the shuttle using the special key 1114 supplied with the machine, fig. 6.

### To Fit a New Bobbin into Shuttle (fig. 7)

- (a) Pass the free end thread through the wire loop of the threader 463 and draw it from inside to outside through hole 'A' in the shuttle wall.
- (b) Press the bobbin into the shuttle (the two holes in the bobbin wall to be outwards). It is advisable to place a few drops of machine oil in the housing before pressing in the bobbin. Check that thread pulls through freely.
- (c) Pass the threader through the hole 'B' and draw the thread end through the hole.
- (d) Position the thread behind the flat tension spring 930 and the thread may now be drawn through. The shuttle can now be replaced in the machine.
- (e) The shuttle thread tension can be varied by adjusting the screw 933.

### Threading the Horn and Machine Waxpot (fig. 9)

The thread path through the horn and machine waxpot is as shown. The machine must be set with the thread brake 993 open as indicated. This can be viewed through the opening in the side of the machine body.

### Needle Setting (Plate 7)

When a new needle is fitted, the shank end must locate up to the stop pin 1011 situated inside the needle bar 1005. The hook of the needle must be directed to the right when viewed from the front of the machine and pointing slightly into the body of the machine. Ensure that the clamp screw 1014 is secure. When the needle is in its lowest position the top of the needle barb must be just below the thread hole in the whirl 1048 or 123 (See fig. 12)

### Whirl and Pinion

Rotate the handwheel until the shuttle tip when travelling from left to right is in line with the needle, fig. 5. Rotate the horn so that the horn tip is facing the machine column. Remove the horn cap 1043, Plate 8. The hole in the whirl should be positioned as shown in fig. 11. It is important that if a new whirl or pinion is fitted the engagement of the teeth is correct, this is shown in fig. 12. Adjustment is made by removing the horn tip and pinion 1042 and 1047 and adjusting the small screw 1047a situated in the end of 15. Only small adjustments to this screw should be required. If the machine is fitted with vertical horn 2080, Plate 11, corresponding numbers will apply.

### Bobbin Winding Model SE 88

The bobbin winder (Plate 10) is situated below the handwheel, Plate 1A.

#### For Pre-Waxed Thread

The cop of pre-waxed thread is positioned on the left hand spool holder 2166. The free end of the thread is passed over the two thread rolls 1082, Plate 1A, up through the column and through the eye 1075, Plate 10, and once round the thread tensioning roll 1266, Plate 10. The bobbin is positioned on to the driving spindle so that the driving pin engages into one of the two holes situated in the bobbin flange. Pass the free end of the thread from inside to outside through the hole in the outer flange. Rotate the bobbin by hand 2 - 3 turns running\*anti-clockwise\* viewed from spindle end, to engage the thread on the bobbin

\* Note: Clockwise for SE 88 machine.

Engage the drive by pushing upwards the operating knob 2046, Plate 10. The thread will then be 'laid' during the winding process to ensure even take-off when stitching. When the bobbin is full release the knob to disengage the drive, remove the bobbin and trim off the thread. Note: The fixed end thread should be trimmed as close to the flange as possible.

### Bobbin Winding Model DN 76

The bobbin winder is situated inside the base of the machine and access to this is by removal of the front door, Plate 1.

#### For Pre-Waxed Thread

The cop of pre-waxed thread is positioned on the right hand spool holder 1530A. The bobbin is positioned on to the driving spindle so that the driving pin engages into one of the two holes situated in the bobbin flange. Pass the free end of the thread from inside to outside through the hole in the outer flange. Rotate the bobbin by hand 2 - 3 turns running anti-clockwise, viewed from spindle end, to engage the thread on the bobbin. Hold the thread loosely between the fingers of the right hand and engage the drive by pulling the operating knob 2046, Plate 1. The thread should be 'laid' during the winding process to ensure even take-off when stitching. When the bobbin is full push the knob to disengage the drive, remove the bobbin and trim off the thread. Note: The fixed end thread should be trimmed as close to the flange as possible.

### Machines Fitted with Heated Waxpot and Shuttle - Models SE 88 and DN 76

For the above machines an electrically heated waxpot is fitted, Plate 9. An electrical element is fitted to the rear of the shuttle housing. Controls for both these units are situated on the right hand side of the machine base. The left hand switch controls the waxpot and the right hand switch controls the shuttle element. Each switch has a neon indicator light. The simmerstat control the temperature to both units, Plate 1.

### Bobbin Winding for Unwaxed Thread - Models SE 88 and DN 76

The cop of unwaxed thread is positioned on the left hand holder and for Model DN 76 the free end thread is passed over the two thread rollers situated under the tool tray. For Models SE 88 the thread is passed over the thread rollers 1082, Plate 1A. Threading the waxpot is similar to main waxpot. Remove the top of the waxpot by releasing the screw 1737, Plate 9. Release the tension nut 1743 and pass the thread through the hole between the tension discs, through the hole in the top plate 2001 and with the tension discs on the left, pass the thread from left to right through the hole in 1734 and through the stripper 1735. Replace the top plate unit 2001. Fill the waxpot and replace the lid. Apply the required tension by adjusting nut 1743 and the spool winding may then proceed as before.

### Maintenance

- |                |  |
|----------------|--|
| <u>Daily</u>   | - Oil all working faces and oil holes.   |
| <u>Weekly</u>  | - Apply grease to all grease nipples with grease gun.                                |
| <u>Monthly</u> | - 1. Grease main countershaft, by means of grease nipple in right hand bearing block |
|                | - 2. Apply some oil to the leather washers on the waxpot tension shafts.             |

### Recommended Thread and Needle Sizes

The machine thread must be reverse (left) twist.

The machine thread should not be more than 2 sizes above the needle size i.e. No. 5 Needle 7 Cord thread.

The shuttle thread size is not controlled by the needle size.

### Motor Voltage

Switches are supplied to suit the motor. If the motor is changed to a different voltage the switches must also be changed.

## Machine Settings and Fault Finding

Before stitching by power a check should be made to ensure that the settings are correct to form the stitch. To do this the machine should be threaded up, fig. 9. Take the thread coming through the whirl and trap lightly with the thumb against the horn tip (the horn's bow should be to the left). Turn the handwheel by hand in the direction indicated to bring the needle down through the whirl which will rotate placing the thread in the needle barb. When the needle rises the thread is drawn through the horn, and when the loop so formed gets as high as the shuttle the thread splitter 928 will come across from the right and separate the threads just under the needle point. The needle will continue to rise and the shuttle will reverse so the shuttle point travelling from the left will go through the gap made by the thread splitter. Then the thread lifter 936 will move upwards taking the thread off the needle so that it passes around the shuttle and forms a loop around the shuttle thread. The thread lever 959 will then pull the machine thread down through the horn to form the 'lock'.

1. If the needle does not pick up the thread:- See whirl setting instructions. See needle setting instructions (the needle could be going down too far or not far enough, fig. 12).
2. If the thread splitter does not divide the thread:- Check that the point of the thread splitter passes exactly under the point of the needle. The thread splitter can be bent into the correct position.
3. If the thread lifter does not lift the thread from the needle:- Bend slightly up or down or move in or outwards by means of screw 937, fig. 5, adjusting the thread lifter so that in its highest position the point of the thread lifter is approximately 1 mm to the left of the needle. Check that there is sufficient gap between the needle and the thread lifter for the thread to pass.

Stitching by power can now take place. The 'lock' produced by the horn thread and the shuttle should pull into the middle of the material. This can be adjusted by balancing the tension of the horn thread by waxpot nut 1254 and shuttle thread by screw 933.

## Thread Breakage

If the thread frays or breaks, check that there are no sharp edges on the horn tip, the thread splitter, the thread lifter, the shuttle or needle. Although the thread may break in the horn it can be caused by rough edges on parts above the whirl. 90% of thread breakage is due to rough edges developing on working parts which fray the thread. This must be carefully checked before the cause of breakage is sought by altering machine settings. It is essential that the machine is allowed to feed the work and that the operator does not push. If the work is pushed while the needle is in the work the needle can bend and strike the horn cap, damaging the needle and/or the horn cap in such a way that the thread will fray. The thread will also fray if it is dry. Check lubricant in the container and if the machine has been standing, pull through and remove the dry portion of the thread.

1. If the thread breaks in the machine base:- Check that the machine is threaded up correctly and that the thread is not trapped, fig. 9.
2. If the machine misses stitches:- Check whirl settings. Check needle settings.
3. If material does not feed:- Check that pawl 809 at the back of presser foot bar, Plate 7, is engaging correctly in the teeth of the presser foot bar. To do this remove the front cover of the machine head. Do not run the machine under power when the front cover is removed as the needle bar is then unsupported.

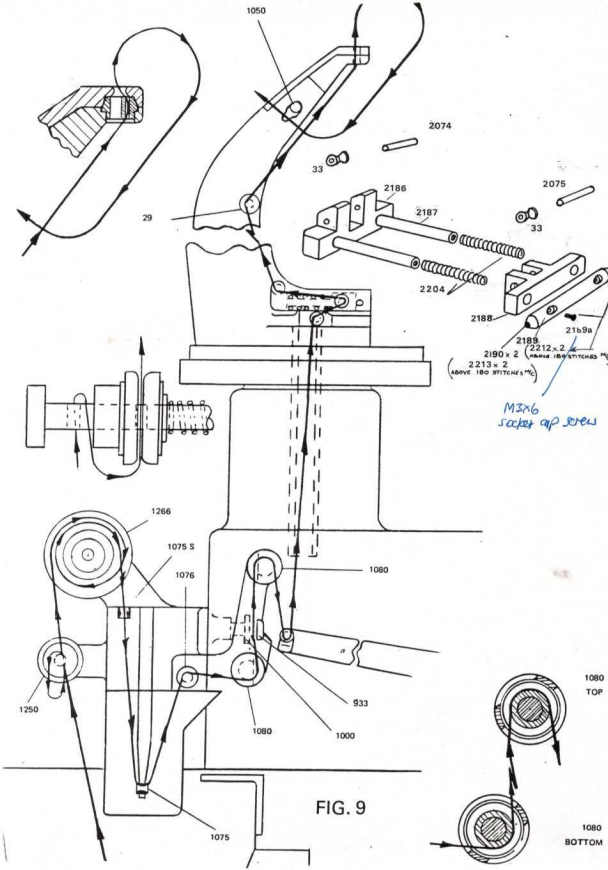
Machines are supplied with the following settings correct. These should be checked.

Shuttle - When the shuttle point and the thread splitter 928 are both at their farthest point left, the distance between the point of the thread splitter and the needle should be 13 - 15 mm.

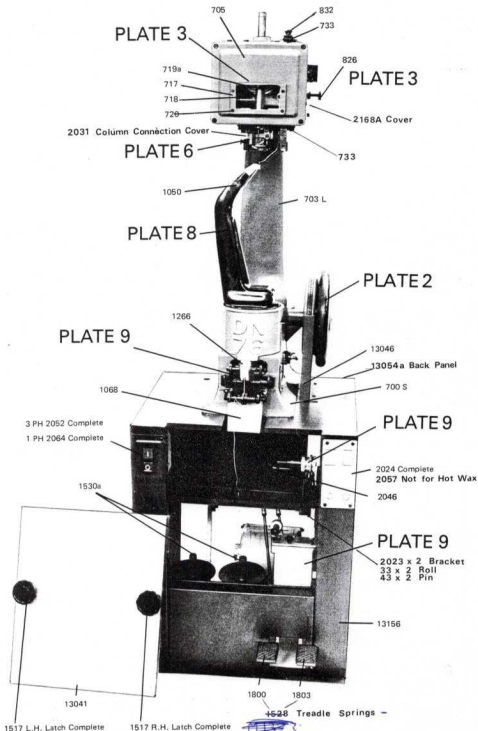
Thread Lever 959 - As the needle bar 1005 travels downwards and the groove on the top of the needle bar is level with the top of the bush 714 in the head casting, the thread lever 959 should have reached the bottom of its stroke.

Presser Foot - The presser foot is fitted with screws 817 and 820, Plate 7, which can be adjusted to give correct alignment. A single point presser foot should be in line with the needle. When using a double point presser foot one point should be each side of the needle. The presser foot must be set to clear and not touch the horn cap.

Horn, fig. 8 - The needle must pass through the centre of the horn cap. Should this be in error check that the needle is not bent, if it is straight it may be corrected by adjustment of the six screws 1025, situated under the horn base cover. Should the whirl/horn be out of square with the needle the horn may be tipped by one or more of the grub screws 1035 in the horn base. The four slotted screws 1034 must be slackened before adjusting the horn base. Important:- When removing horn only release screw 1026, Do not adjust the six screws 1025.

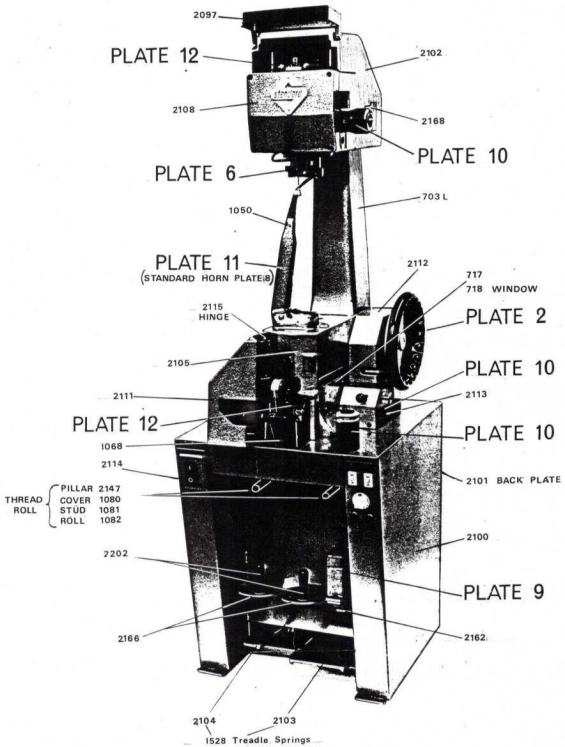


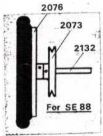
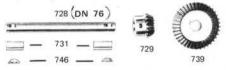
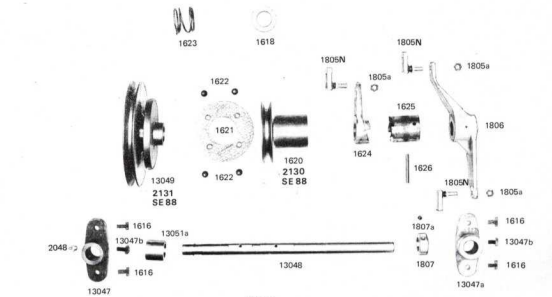
# DN 76



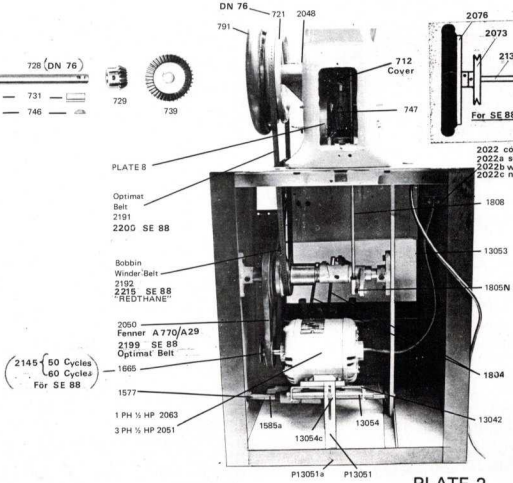


# SE 88



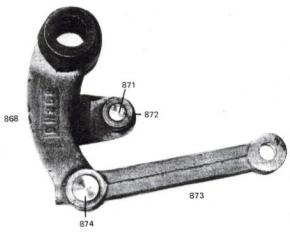
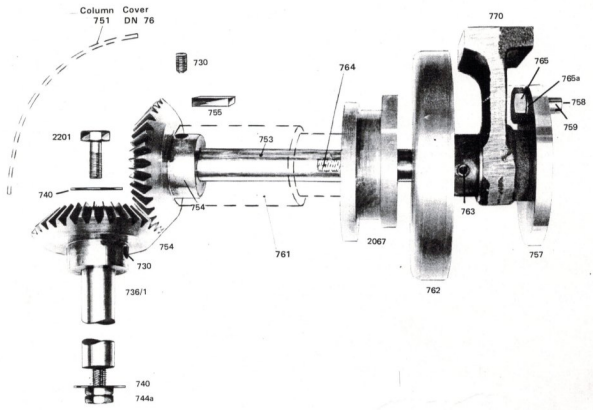


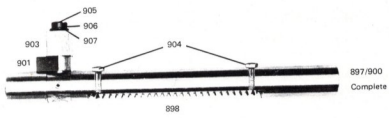
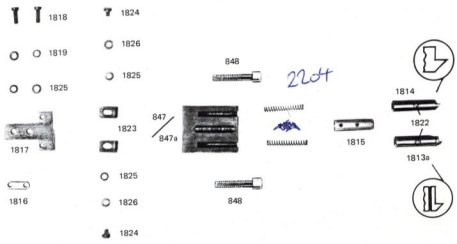
2022 cover  
2022a screws  
2022b washers  
2022c nuts

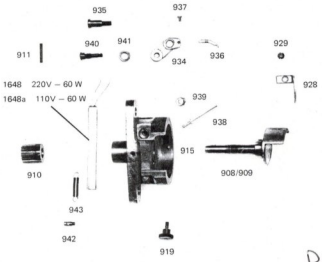
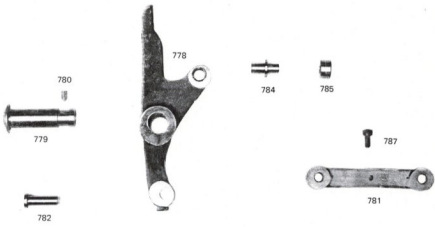


( 2145 { 50 Cycles  
60 Cycles }  
För SE 88 )

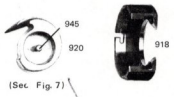






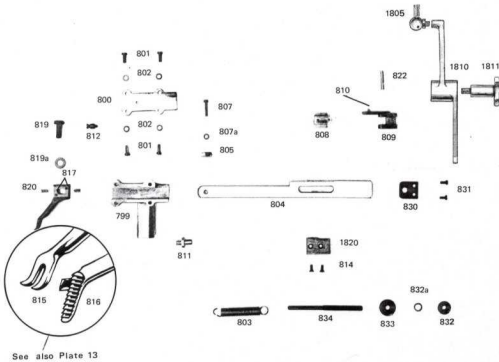


1648 220V - 60 W  
 1648a 110V - 60 W

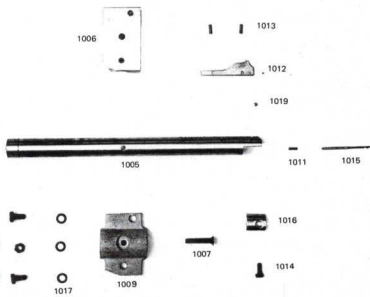


(Sec Fig. 7)

DN 930 - FLAT TENS.W SPRING  
 DN 933 - ADJUSTING SCREW.



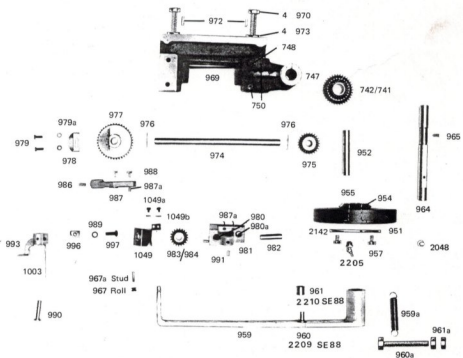
NEEDLE BAR  
ASSEMBLY



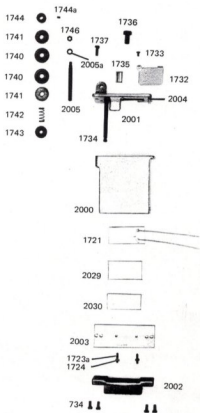
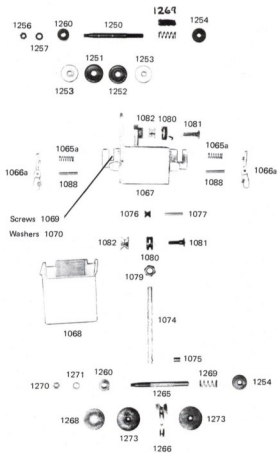
DN929 Flat head screw (28)  
 for horn tip + cap  
 AND  
 Rounded screw for horn  
 tip + cap  
 M4x6 B21 PAN HEAD



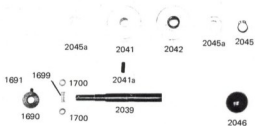
2214  
 2174 / 2173  
 RSME  
 RSM5  
 216  
 For SE 88



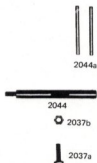


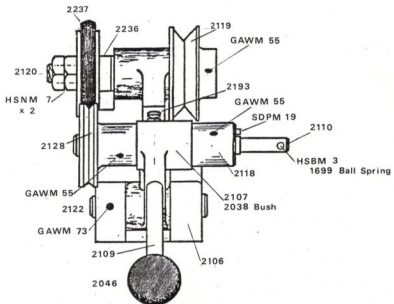
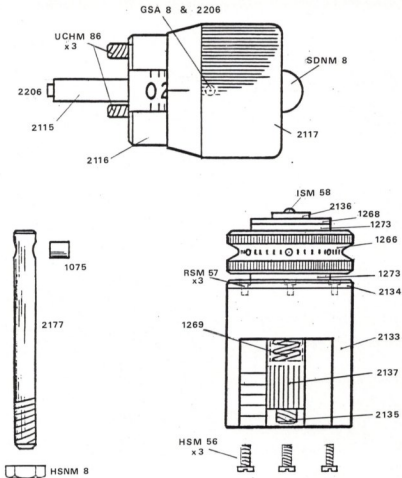


HOT WAX



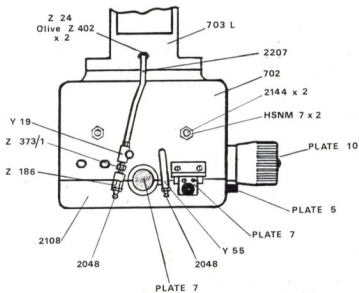
2037



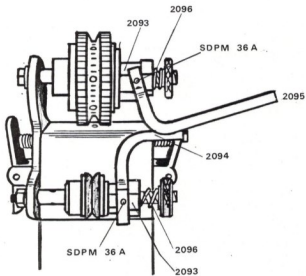




# SE 88



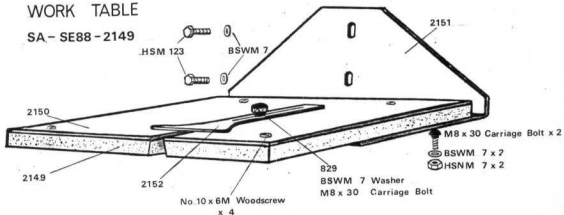
ALL OTHER PARTS  
ARE ON PLATE 9



# SE 88 EXTRA ATTACHMENTS

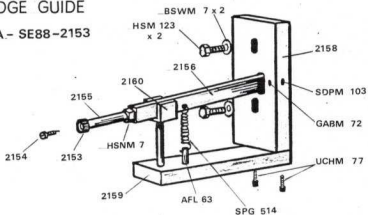
## WORK TABLE

SA - SE88-2149



## EDGE GUIDE

SA - SE88-2153



## PRESSER FEET



2139P



2140P



2060



2182P

# SHOE GUIDE

SA - SE88 - 2217

