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Care of the Sewing Machine
Michigan State University Extension Service
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EXTENSION BULLETIN 143

CARE OF THE SEWING MACHINE

By A. J. BELL



With proper care this machine should be useful for many years.

MICHIGAN STATE COLLEGE

COOPERATIVE EXTENSION SERVICE

EAST LANSING

Care of the Sewing Machine

By A. J. Bell

In order to turn out a good piece of sewing, the sewing machine must be in good running order. The average sewing machine does comparatively little sewing. With periodic cleaning and an occasional adjustment to compensate for wear, a sewing machine should last for from 50 to 60 years.

It should be kept in mind that oil which is not suitable for sewing machines causes much of the common troubles. A poor grade of oil deposits a gummy substance in the bearings which hardens and causes the machine to run hard. Only oil which is recommended by a sewing machine company should be used.

Gasoline may be used to cut this gummy substance but it is much safer to use kerosene. **Gasoline should never be used in a closed room or near an open flame.**

CLEANING THE MACHINE

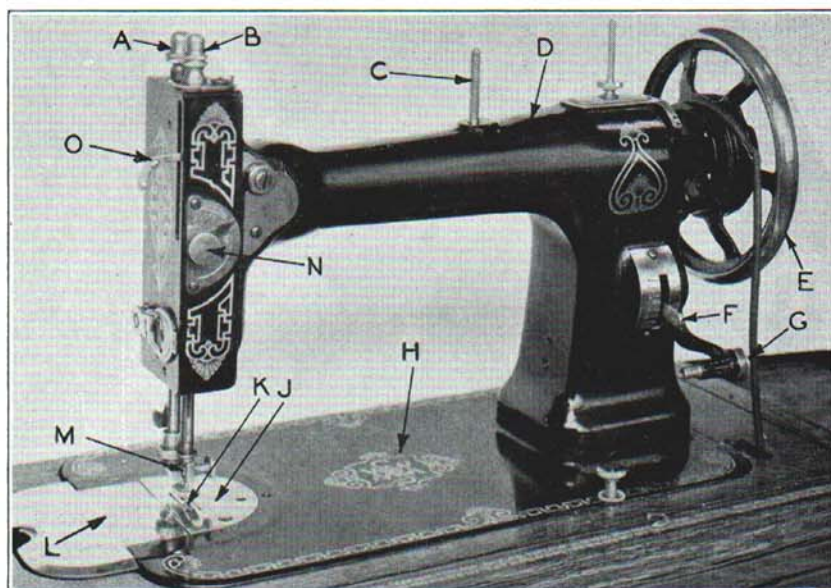
Directions

1. Remove the thread, needles, bobbin, and shuttle. Remove also the shuttle slide or bobbin case cover, and the throat and face plates.
2. With a toothpick, hairpin, or other small instrument, remove the lint and dust that has probably collected under and around the feed and shuttle mechanism.
3. With an oil can filled with kerosene, squirt a liberal amount into each oiling place and on each bearing or moving part, being sure that each bearing is well filled with the kerosene.
4. Run the machine a few seconds to work the kerosene into the bearings.
5. Squirt some more kerosene in and about each bearing.
6. On most machines it will be found advisable to remove the face plate in order to clean the needle bar bearings thoroughly.
7. Put some kerosene in a pie tin. With a small paint brush wet with kerosene, thoroughly clean all the parts in and about the needle

bar housing. It will usually be found convenient to remove the presser foot and place the pie tin under the needle bar housing while cleaning it. Next brush out well around the feed works. Then turn the head of the machine back. With the brush and kerosene, thoroughly clean all the parts under the machine.

8. Draw the head of the machine forward to its original position. If the machine is of the long bobbin type, wipe the shuttle race with a piece of cloth wet with kerosene.

On the long bobbin machines, be sure that the vertical groove in the shuttle race through which the needle travels is clean. Under the front shuttle slide near the front of the bed of the machine will usually be found a hole about $\frac{1}{4}$ inch in diameter, which is filled with wool or other oil-holding material. A hole about the size of a pin leads from this oil well to the shuttle race. Force a pin through this small hole to be sure it is open. Remove the wool, clean with kerosene, and replace.



- | | | | |
|---|-------------------|---|---------------|
| A | Pressure Foot Bar | G | Bobbin Winder |
| B | Needle Bar | H | Bed |
| C | Spool Pin | J | Throat Plate |
| D | Arm | K | Feed Dog |
| E | Hand Wheel | L | Bed Plate |
| F | Stitch Regulator | M | Presser Foot |
| O | Thread Take-up | | |

SEWING MACHINE			
PART	TROUBLE	CAUSE	REMEDY
TENSIONS	IMPERFECT STITCH	TENSION OUT OF ADJUSTMENT	ADJUST UPPER TENSION. IF BOTH ARE TOO TIGHT, LOOSEN BOTH. IF TOO LOOSE, TIGHTEN.
FEED	MATERIAL DOES NOT FEED THROUGH	1-DIRT AROUND FEED DOG 2-FEED DOG SET TOO HIGH OR TOO LOW 3-TOO MUCH TENSION ON PRESSER FOOT.	1- CLEAN 2-ADJUST FEED DOG SO BOTTOM OF TEETH ARE FLUSH WITH THROAT PLATE 3-LOOSEN SPRING TENSION ON TOP OF PRESSER FOOT BAR
	SEAM DOES NOT FEED THROUGH	USUALLY TOO MUCH PRESSURE ON PRESSER FOOT	LOOSEN SPRING TENSION ON TOP OF PRESSER FOOT BAR
STITCHES	STAGGERED STITCHES	1-TOO LITTLE PRESSURE ON PRESSER FOOT 2-INCORRECT ACTION OF THREAD TAKE UP SPRING	1-INCREASE TENSION BY SCREWING DOWN SCREW ON TOP OF PRESSER BAR. 2-ADJUST SPRING IF POSSIBLE OR REPLACE WITH NEW ONE
	LOOPED STITCHES ON BOTTOM OF CLOTH	1-MACHINE NOT THREADED CORRECTLY 2-UPPER TENSION MUCH TOO LOOSE 3-THREAD CATCHES ON ROUGH PLACES ON SHUTTLE OR BETWEEN SHUTTLE AND CARRIER	1-SEE INSTRUCTION BOOK FOR CORRECT THREADING 2-TIGHTEN UPPER TENSION 3-SMOOTH ROUGH PLACES WITH FINE EMERY PAPER
	LOOPED STITCHES ON TOP OF CLOTH	1-BOBBIN NOT CORRECTLY THREADED 2-LOWER TENSION MUCH TOO LOOSE	1-SEE INSTRUCTION BOOK FOR CORRECT THREADING 2-TIGHTEN LOWER TENSION
	SKIPPED STITCHES	1-CROOKED NEEDLE 2-NEEDLE TOO SMALL FOR THREAD 3-NEEDLE THREADED INCORRECTLY 4-NEEDLE SET WRONG SIDE OUT 5-NEEDLE SET TOO HIGH OR TOO LOW 6-EXCESSIVE OIL ON SHUTTLE OR SHUTTLE RACE	1-REPLACE WITH NEW NEEDLE 2-REPLACE WITH LARGER NEEDLE 3-SEE INSTRUCTION BOOK FOR CORRECT THREADING 4-SET NEEDLE SO THREAD LIES IN LONG GROOVE 5-SET NEEDLE SO THAT WHEN SHUTTLE POINT OR BOBBIN POINT CROSSES THE NEEDLE THE POINT OR HOOK IS 1/16 INCH ABOVE THE EYE OF THE NEEDLE 6-WIPE OFF EXCESSIVE OIL
MACHINE	RUNS HARD	1-LACK OF OIL 2-THREAD IN BAND WHEEL BEARING 3-GUMMED OIL IN BEARING	1-CLEAN AND OIL 2-DIG THREAD OUT WITH PIN 3-CLEAN AND OIL (SEE INSTRUCTIONS PAGE 1)
	SET-CANNOT TURN HAND WHEEL	1-GUMMED OR RUSTED BEARINGS 2-THREAD JAMMED IN NEEDLE BAR HOUSING 3-THREAD JAMMED IN SHUTTLE (ROTATING & OSCILLATING MACHINES)	1-CLEAN AND OIL (SEE INSTRUCTIONS PAGE 1) 2-TAP THE TOP OF NEEDLE BAR LIGHTLY WITH HAMMER AND MOVE HAND WHEEL 3-REMOVE THE JAMMED THREADS

TROUBLE CHART

PART	TROUBLE	CAUSE	REMEDY
THREAD	BREAKING UPPER THREAD	1-MACHINE THREADED INCORRECTLY 2-NEEDLE SET TOO HIGH OR TOO LOW 3-NEEDLE THREADED INCORRECTLY 4-BENT NEEDLE 5-NEEDLE RUBBING AGAINST THROAT PLATE, PRESSER FOOT OR ATTACHMENT 6-SHARP EDGES ON EYE OF NEEDLE 7-NEEDLE TOO FINE FOR THREAD 8-UPPER TENSION MUCH TOO TIGHT 9-ROUGH OR SHARP PLACES ON SHUTTLE 10-INSUFFICIENT CLEARANCE BETWEEN SHUTTLE AND CARRIER	1-SEE YOUR INSTRUCTION BOOK FOR CORRECT THREADING 2-SEE 5 UNDER SKIPPED STITCHES 3-SEE INSTRUCTION BOOK FOR CORRECT THREADING 4-REPLACE WITH NEW NEEDLE 5-(a)REPLACE NEEDLE IF BENT (b)ADJUST PRESSER FOOT SO ITS SLOT IS CENTRAL OVER HOLE IN THROAT PLATE (c)SOME MACHINES HAVE ADJUSTING SCREWS FOR ALIGNMENT OF NEEDLE 6-REPLACE WITH NEW NEEDLE 7-SEE YOUR INSTRUCTION BOOK FOR CORRECT SIZE OF NEEDLE AND THREAD 8-LOOSEN UPPER TENSION 9-SMOOTH OFF WITH FINE EMERY PAPER OR REPLACE WITH NEW SHUTTLE 10-ADJUST BY MEANS OF SCREW TO PROVIDE CLEARANCE
	BREAKING LOWER THREAD	1-LOWER TENSION MUCH TOO TIGHT 2-SHUTTLE INCORRECTLY THREADED 3-ROUGH HOLE IN THROAT PLATE 4-BOBBIN TOO FULL 5-BOBBIN WOUND UNEVENLY 6-SHARP PLACE ON SHUTTLE TENSION SPRING 7-SHARP EDGE ON SHOULDER OF BOBBIN 8-DIRT OR THREAD JAMMED IN BOBBIN OR SHUTTLE CARRIER	1-LOOSEN LOWER TENSION 2-SEE INSTRUCTION BOOK FOR CORRECT THREADING 3-USUALLY TAKES NEW PLATE 4-DO NOT WIND BOBBIN SO FULL 5-WIND BOBBIN EVENLY 6-REPLACE WITH NEW SPRING 7-REPLACE WITH NEW BOBBIN 8-CLEAN
MATERIAL	PUCKERED MATERIAL	1-ONE OR BOTH TENSION TIGHT 2-DULL NEEDLE 3-WRONG SIZE NEEDLE	1-ADJUST TENSION (SEE INSTRUCTIONS PAGE 7) 2-CHANGE NEEDLE OR SHARPEN OLD ONE 3-SEE INSTRUCTION BOOK FOR SIZE NEEDLE & THREAD
PREPARED BY A. J. BELL AGRIL. ENGR. DEPT. MICHIGAN STATE COLLEGE			

Some of the oscillating shuttle machines have a piece of red flannel in the shuttle case for oiling the race; in this case, the felt should be rinsed with kerosene.

9. With a dry cloth wipe the machine dry, then let it stand 24 hours to allow the kerosene to evaporate.

10. Oil the machine by placing a few drops of oil in each oil hole, making sure that all rubbing surfaces and bearings are well lubricated. Run the machine for a few moments and with a cloth wipe up the excess oil.

11. Replace all the parts removed and stitch on some waste material.

Kerosene is usually better than gasoline for cleaning a sewing machine. The machine should, however, be allowed to stand for 12 to 24 hours after cleaning to allow the kerosene to evaporate out of the bearings.

After 12 to 24 hours, squirt kerosene again in all of the oil holes and run the machine for several minutes. The kerosene will cut the gummy residue which has gathered in the bearings, and running the machine will work it out. After applying kerosene two or three times, the bearings should be oiled. The machine should be cleaned in this manner at least three times each year.

A very convenient way to clean a machine at home is to strip it of the parts mentioned; then place the head in a dishpan containing about two quarts of kerosene and clean thoroughly with a paint brush.

12. After cleaning and oiling the head as described, proceed to the driving mechanism in the stand. Five or six bearings will be found, one at each end of the pitman, and either one or two supporting the band wheel. Squirt plenty of kerosene into each of these and run the treadle. Remove all threads found around the band wheel bearings and then thoroughly oil each bearing.

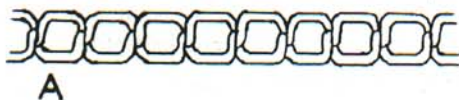
ADJUSTMENT OF THE TENSIONS

Reference — Manufacturer's Instruction Book

Directions

1. Procure a piece of factory cloth about five inches wide and six or eight inches long. Fold the long way, making a double piece of cloth $2\frac{1}{2}$ inches wide.

2. Stitch diagonally across the piece at an angle of about 45 degrees.



A

3. Inspect the stitch. Determine whether or not the machine is making a perfect stitch. A perfect stitch is one like Fig. 2a in the sketch, where the lock is in the center of the material being stitched.



B

4. If the stitch is not perfect, determine which tension is too tight or too loose, or



C

Fig. 2

whether both are too tight or too loose. If the top thread lays along the goods, the top tension is too tight or the bottom is too loose. Fig. 2b. If the bottom thread lays along the goods, the bottom tension is too tight or the top too loose. Fig. 2c. An aid to this determination is to pull the stitch and note which thread breaks. If the upper thread breaks, it has the tighter tension. If they both break or if neither breaks, the tensions are probably even. If both tensions are too tight, the cloth will tend to pucker. If both tensions are too loose, the stitch will be loose. If either tension is very loose, the thread will loop.

5. Having determined what is wrong with the stitch, make the necessary adjustments to correct it. Always adjust the upper tension first.

Example I

Suppose it is found that the lower tension is too tight, Fig. 2c, or that the upper tension is too loose. Go first to the upper tension; tighten it. This will either correct the trouble or make both tensions too tight. If the latter, then loosen both tensions.

Example II

Suppose it is found that the upper tension is too tight, Fig. 2b, or that the lower tension is too loose. First loosen the upper tension. This will either correct the trouble or make both tensions too loose. If the latter, tighten both tensions.

6. Repeat operations No. 2 through 5 until a perfect stitch is obtained.

Your instruction book will show how to loosen or tighten the tensions. If you have no instruction book, write to the manufacturer of your machine for one. Be sure to give the name, number and approximate age of your machine.

SEWING MACHINE TROUBLES

The chart in this bulletin is intended as a guide to assist in locating the cause of some of the more common sewing machine troubles. Directions for making most of them are given in the instruction book.

How to Use the Trouble Chart

1. Look in left hand column for the part which is giving trouble.
2. Then look in next column to the right for the particular trouble.
3. Third column gives the cause or causes for the trouble and the fourth column the remedy.

The material in this bulletin is an adaptation of Mimeo Bulletin No. 222, Title: Care and Adjustment of Sewing Machine, New York State College of Agriculture, Ithaca, New York, and of information given by the Singer Sewing Machine Company.

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