



**PLEASE NOTE:** The needle image above is without a finger guard for demonstration purposes

## Lesson 2.6

### Lockstitch: Machine Maintenance

The aim of this section is to develop your knowledge, skills and understanding in relation to maintaining your workstation and machine.

Apart from when an expert needs to be brought in for advanced machine repairs and inspections, the general maintenance of the machine is the responsibility of the person using it.

To keep your machine running to the best of its capacity, general maintenance must be carried out regularly, and you need to know your limits of responsibility as stated within your company procedure

Generally, you must keep the machine in a good, clean, well-maintained condition, this in turn will:

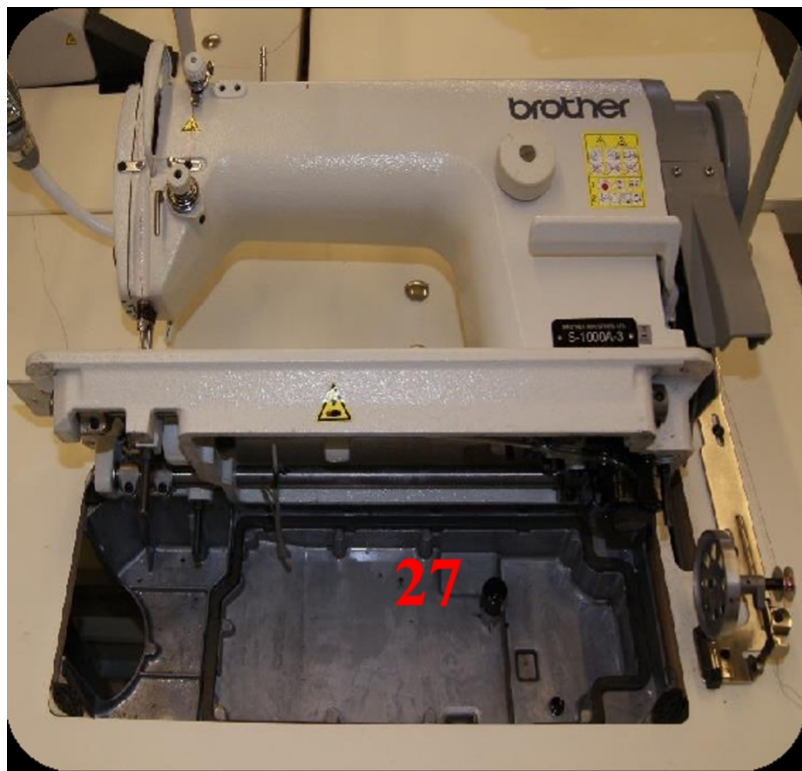
- Reduce time
- Reduce loss of earnings
- Help meet production targets Reduce health and safety risks Reduce fabric damage
- Ensure quality stitching

As stated above your company will inform you of your responsibilities in relation to machine maintenance but in general sewing machinists are expected to:

- Clean their machine
- Oil their machine
- Make minor adjustments where appropriate
- Carry out minor repairs
- Change needles
- Test sew after maintenance

## Oiling/Lubrication

Most lockstitch sewing machines have an oil pan (oil reservoir) located underneath the machine, which needs to be kept filled.



The oil pump is at the back of the pan; the oil is sucked up and distributed around the sewing machine, you will need to check the reservoir and remove thread waste, dust etc which will if left clog the oil and stop the lubrication process

To oil the machine, follow the procedure below:

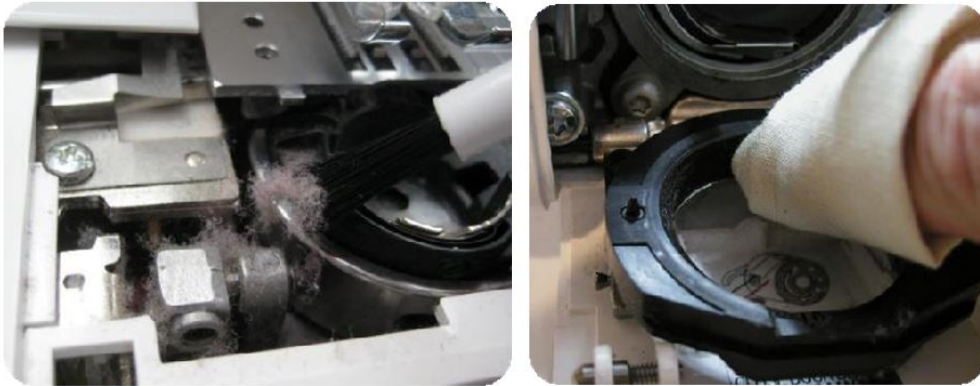
- With both hands gently push the machine backward and tilt until it rests on the support bar. (See image above)
- This reveals the oil pan below, which is marked HIGH and LOW. Fill the oil pan with oil up to the HIGH mark. (Do not use the machine if the oil level is below the LOW mark)
- After filling, gently return the machine arm to the home position.

**Note:** When the oil becomes old, it will deteriorate affecting the durability of the sewing machine. It is recommended to drain the old oil by removing the drain screw in the oil pan once a year at least, and to replace the old oil with the new. You may have a chart on your machine to show when this was last carried out.

To prevent the wearing away of the mechanism or stitch failure caused by thread breakage keep the moving parts lubricated.

Generally, when using thick thread, increase the amount of oil in the hook (the hook is located in the spool case housing, directly underneath the needle plate) and when using thin thread (especially synthetic), decrease the amount of oil in the hook, via the oil amount adjustment screw mounted on the hook driving shaft. Turn the adjustment screw in to “+” direction (right) to increase the amount of oil in the hook and turn the direction ‘-’ (left) to decrease it.

## Keep your machine in good working condition



To clean your machine and keep it maintained follow the procedures below:

1. In the machine draw, keep screwdrivers, a brush, cloth for test sewing and a cloth to clean the sewing machine table etc.
2. Using the appropriate screwdriver, remove the needle from the needle bar (tighten the needle clamp screw, so that the screw does not drop and get lost) and dispose of the old/damaged needle following company procedure
3. Remove the presser foot with the appropriate screwdriver
4. Remove the throat plate and clean off dust clogged in the groove of the feed dog and the back of the throat plate with a brush.
5. Tilt the machine backward and clean the inner workings and the periphery of the hook with the brush.
6. Check the amount of oil (add if appropriate) and remove thread waste, rubbish, or dust.
7. Return the machine arm to the home position and install the throat plate and presser foot.

8. Insert new needle in the correct position.
9. Remove thread waste clogged around the motor, belt, and balance wheel.
10. Check and adjust the needle entry point and the presser foot.
11. Perform test sewing and correctly adjust the thread tension etc. as required
12. Wipe the whole sewing machine and machine table
13. Keep the drawer in order and keep implements and tools in good working order
14. Clean the floor and surfaces around the workstation
15. If using compressed air, ensure to follow health and safety procedures

## Identify and report machine faults



When using the machine or carrying out machine maintenance, you may find faults that are outside of your responsibility. You must report these issues to your line manager, they may include:

- A defective cord or socket
- Ineffective bobbin thread winder
- Squeaky or rattling parts
- Incorrect angle/ ineffective knee lift
- Worn out, scratched or broken hook
- Oil not properly lubricating the machine Excess oil is staining products

- Missing or broken screws, springs, components
- Bent, or broken thread stands.
- Ineffective Needle clamp
- Burning smell (defective motor)

## Problem solving

Your sewing machine may suddenly stop working properly or slow down. If this happens, before calling your line manager or maintenance personnel, inspect the machine yourself. If you can't solve the problem within the limits of your responsibility, then report it to the appropriate person. The table below is checklist of basic problems and possible causes:

Problem	What to check
<b>The motor does not run</b>	Is there an electric failure? Has a fuse blown? Has the cord broken? Has the plug come out the socket? Has the switch broken?
<b>Sewing Machine won't sew</b>	Are any components damaged? Is the tension of the belt sufficient? Is there thread waste in the hook?
<b>Needle thread breaks while sewing</b>	Is the position of hook defective? Is the needle bent? Is the thread tension too tight? Is the needle position correct? Is the needle hole in the throat plate normal? Is the thickness of thread uneven? Has thread become entangled on the way to the needle?
<b>Reverse stitching cannot be performed</b>	Does the machine have a back tack switch? Is it turned ON? Is the stitch regulator on 0?
<b>Bobbin thread breaks</b>	Is the bobbin thread tension excessive? Is the thread path of bobbin case scratched or bent? Is the bobbin too full of thread? Does the bobbin turn? Is the thread defective (snaps easily?)

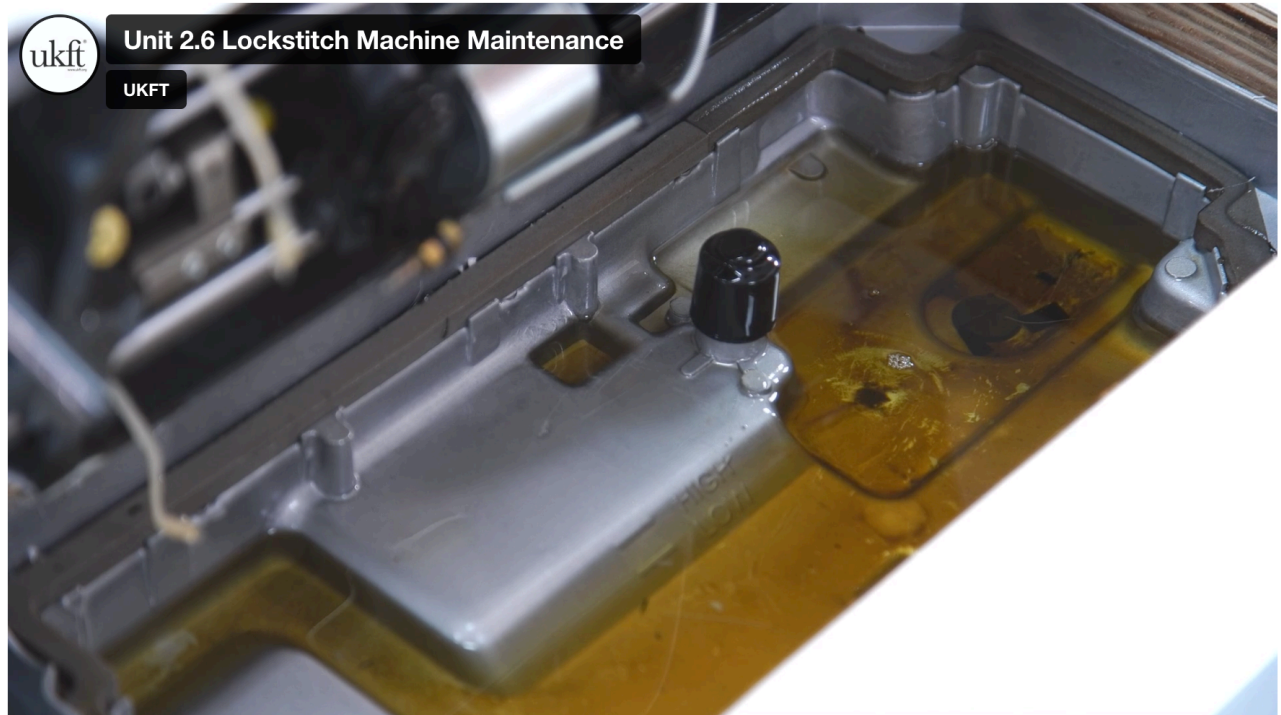
<b>Needle breakage</b>	<p>Is the throat plate correctly set?</p> <p>Is the hook-to-needle relation, correct?</p> <p>Is the timing of feed dog, correct?</p> <p>Is the needle bar straight?</p> <p>Is the position of the presser foot correct?</p>
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<b>Cloth is not fed through easily</b>	<p>Is the feed dog protruding sufficiently? Is the feed dog worn out?</p> <p>Is the presser foot pressure correct?</p>
<b>Cloth does not advance quickly or straight</b>	<p>Is the pressure of the presser foot, correct?</p> <p>Is the level of feed dog, correct?</p>
<b>Noise of the sewing machine suddenly increased</b>	<p>Is the floor stable?</p> <p>Is the oil insufficient?</p> <p>Has dust clogged moving components? Are there any screws or parts loose?</p>

**Remember, the more information you can give to the machine mechanic about the problem the quicker the issue will be resolved, work can be resumed, and less time will be wasted.**



Watch the video below for further information and demonstrations of machine maintenance.



## Knowledge Challenge 2.14

If your machine stops working properly, you may not be able to solve the problem yourself, but there are a few things you can check before reporting the issue. See the list of problems below and draw a line match them to a check point.

Problem	What to check
Sewing Machine won't sew	Is the oil insufficient?
Needle thread breaks while sewing	Is there thread waste in the hook?
Needle breakage	Is the thread tension too tight?
Noise of the sewing machine suddenly increases	Is the position of the presser foot correct



## **Knowledge Challenge 2.15**

When cleaning and maintaining your machine there is a standard process to follow. Put the process in the right order from 1 to 13.

- Check the amount of oil and remove thread waste, rubbish, or dust
- Tilt the machine backward and clean the inner workings and the periphery of the hook with the brush
- Insert the new needle
- Test sew and adjust the thread tension if required
- Check the needle entry point and the presser foot, adjust if necessary
- Remove the needle from the needle bar
- Turn the machine off
- Remove the throat plate and clean off dust clogged in the groove of the feed dog and the back of the throat plate with a brush
- Remove thread waste clogged around the motor, belt, and balance wheel
- Clean and tidy the floor and surfaces around the workstation
- Remove the presser foot
- Wipe the sewing machine and machine table
- Return the machine to the home position and replace the throat plate and presser foot



**GROUNDWORK:** Completing this groundwork is an option, it will help you to gain better knowledge of the processes and machines used to make a product. For those undertaking an apprenticeship these activities will help you gather information relevant to the End Point Assessment.

**Note:** For those learners, who are independent and not yet working as an employed production sewing machinist, alternative recommendations are included.

## Machine Maintenance Costs

The maintenance of the machines is crucial to ensure production is continuous, any downtime due to machine problems will cost your company money, in addition a mechanic may have to be called out incurring further costs.

To complete this groundwork, check out if your company has a procedure in place which you need to follow. This may include machine maintenance, reporting problems and mechanic call out. If there is something in place (or if you are an independent learner) create a schedule for your machine maintenance, list what you would need to do and timetable it into your working week, make a copy and place it into your file.

**Now we know about how to thread, and maintain an industrial lockstitch machine, the next lesson is about look the industrial overlocker.**