

SEWING MACHINE # _____

VISUAL INSPECTION CONDITION REPORT

Customer : _____

CHECK : **OUT** Date : _____ **IN** Date : _____

STORE LOCATION : _____

Item #	Number of items	Item name	Checked OUT	Checked IN	Remarks
1	1	Sewing Machine			
2	1	Sewing Machine case			
3	1	Documentation (13 pages)			

Remarks :

Dear Customer :

- **On receipt of this equipment, please check all equipment has been received, ensure your site staff read and understand the operating, maintenance and safety information, and use the equipment in a safe manner.**
- **Responsibility for safe operation of the equipment, and safety of your staff is to your care.**
- **At the conclusion of the use of the equipment, please clean the equipment, repack it for transportation and return to Maccaferri.**
- **Please advise if there are any missing parts. All equipment usage to be in accordance with Maccaferri's Hire Agreement. You will be charged for any damaged or missing components.**

SEWING MACHINE

WARNING !

Any alterations to this hire equipment may prove dangerous to the operator and will be in breach of the Equipment Hire Agreement

**Service must be performed only by an authorised Maccaferri service organisation.
Please contact Maccaferri (0800 60 60 20) for return of this equipment or servicing if it is found to be faulty.**

***This documentation is also available on our website
www.maccaferri.co.nz***

SEWING MACHINE



SEWING MACHINE

SAFETY RULES

1. Only properly trained personnel are permitted to operate this machine.
2. Observe the national safety rules adopted in your country.
3. This machine should only be used for the purpose intended.
4. All safety devices must be in position when the machine is ready for work or when in use. Using the machine without safety devices is prohibited.
5. For your personal protection it is recommended that you wear safety glasses.
6. Repairs or alterations are to be carried by a **Maccaferri** approved service person only.
7. Danger points are marked with the triangular warning symbols.
8. The following operations must not be performed until the machine has been disconnected from its power supply by turning-off the main switch or by pulling out the main plug.

8.1 Threading needle(s), looper, spreader etc.

8.2 Replacing sewing tools such as needle, presser foot, throat plate, looper, spreader, feed dog, needle guard, folder, fabric guide etc.

8.3 Leaving the work place unattended.

8.4 Maintenance work

9. Maintenance, repair and conversion works (see item 6) must only be done by trained technicians or qualified personnel, Only genuine spare parts approved by **Maccaferri** should be used for repairs.
10. Any work on the electrical equipment must be done by qualified electricians or under direction and supervision of qualified personnel.
11. Work on parts and equipment under electrical tension is prohibited.

SEWING MACHINE

OPERATING INSTRUCTIONS

OPERATING

Before leaving our store, each machine is carefully inspected, adjusted and given a sewing test. However, upon receipt, the machine should be inspected, and any damage or complaints should be reported to Maccaferri without delay

Unpack the machine. Make sure that no pieces of packing are trapped in the mechanism.

Check by turning the motor handwheel in operating direction (see **Operating Instructions Picture 1**) if the machine works. A slight resistance will be felt as the feed dog rises.

Loosen screw **A** (see **Operating Instructions Picture 2**) and set thread rod **B** so that its lower end is flush with the underside of thread cone support **C**. Retighten screw **A**.

Check the threading of the machine. See **Threading Diagram Picture 3**, and refer to the following Threading instructions :

THREADING

PULL OUT MAINS PLUG BEFORE THREADING !

- Loosen thumb screw(s) **D** (see **Threading Diagram Picture 2**) in the thread cone support, pull out the spool pin(s) **E** and remove the empty thread cone(s).
- Insert the new thread cone(s) with spool pin(s) **E** and retighten thumb screw **D**.

Thread the machine as shown in **Threading Diagram Picture 3**

For threading the needle , turn motor handwheel in operating direction until the needle is in its upmost position above the throat plate.

For threading the looper (double locked stitch machines only) open the hinged cover **A** (see **Threading Diagram Picture 4**) and turn motor handwheel in operating direction until the needle is in its lowest position below the throat plate. Reclose hinged cover **A** after threading.

THREAD TENSION

The tension **L** (see **Threading Diagram Picture 4**) controls the looper thread and the tension **N** controls the needle thread.

Only a slight tension should be applied on the looper thread.

The tension applied on the needle thread depends upon the size of the thread and the thickness of the fabric to be sewn and has to be regulated till the machine sews and chains off perfectly.

CHANGING THE NEEDLE

PULL OUT MAINS PLUG BEFORE THREADING !

Turn motor handwheel in operating direction until the needle is in its upmost position above the throat plate. Unthread the eye of the needle.

Loosen the screw **D** (see **Threading Diagram Picture 4**) for the needle and draw out the needle. Insert the shank of the new needle as far as it will go into the needle seat and with the flat on the shank facing to the front.

Retighten screw **D** for the needle on the flat of the needle shank and thread the needle eye.

OILING

PULL OUT MAINS PLUG BEFORE THREADING !

The machine has to be oiled at least once a day on the oil spots **1 – 11** shown in the **Oiling Diagram Picture 5**.

Oiling spots **1,2** and **3** is especially important.

Recommended oil : Mobil D.T.E, Oil Medium

CLEANING

Clean the machine periodically from lint, dust and sand. For this also open hinged cover **A** (see **Threading Diagram Picture 4**) and the punched cover **B** (see **Oiling Diagram Picture 6**)

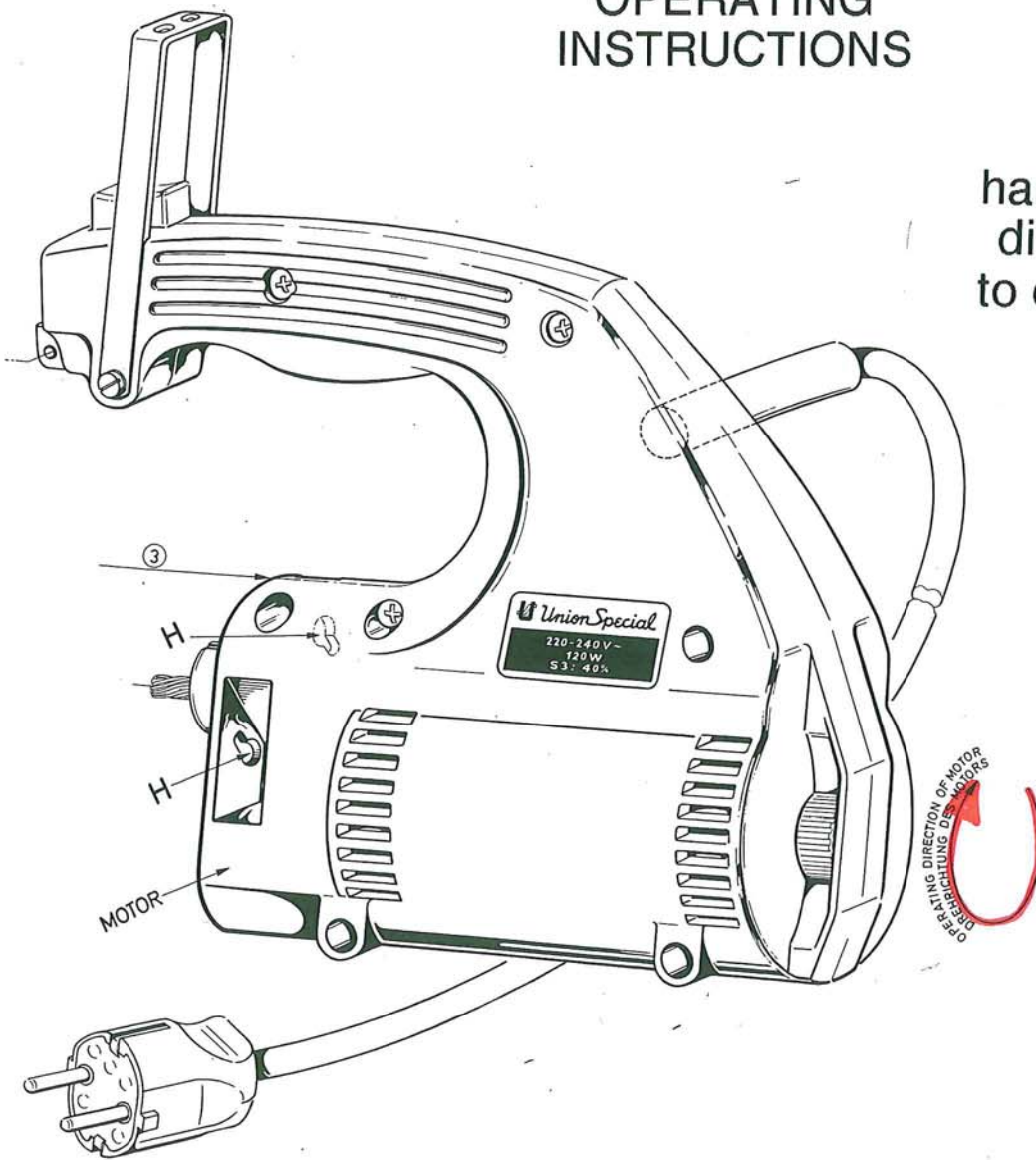
Reclose covers.

Regularly blow out dust and sand particles with an air compressor.

- When working in coastal areas, daily spray the machine with a light lubricant : e.g. **CRC**.

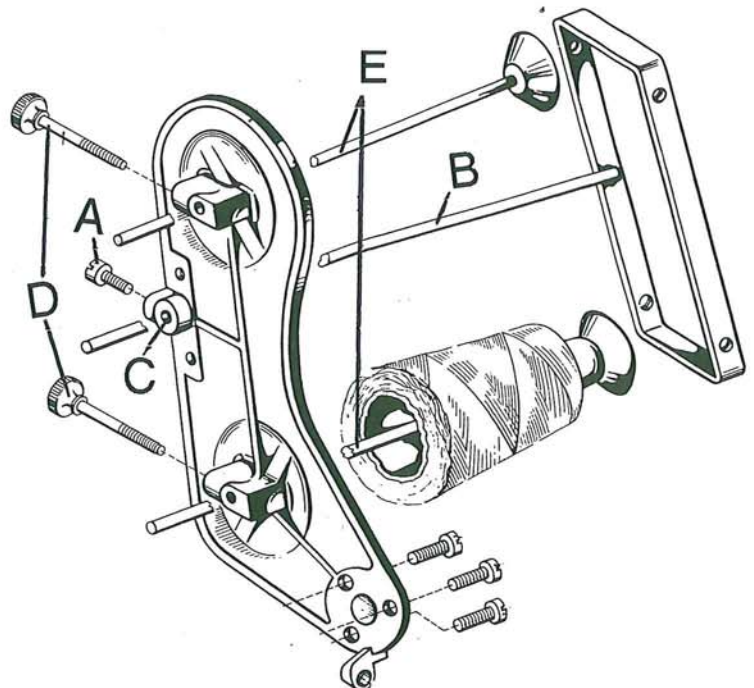
SEWING MACHINE OPERATING INSTRUCTIONS

Turn the motor
handwheel in operating
direction (clockwise)
to check if the machine
works



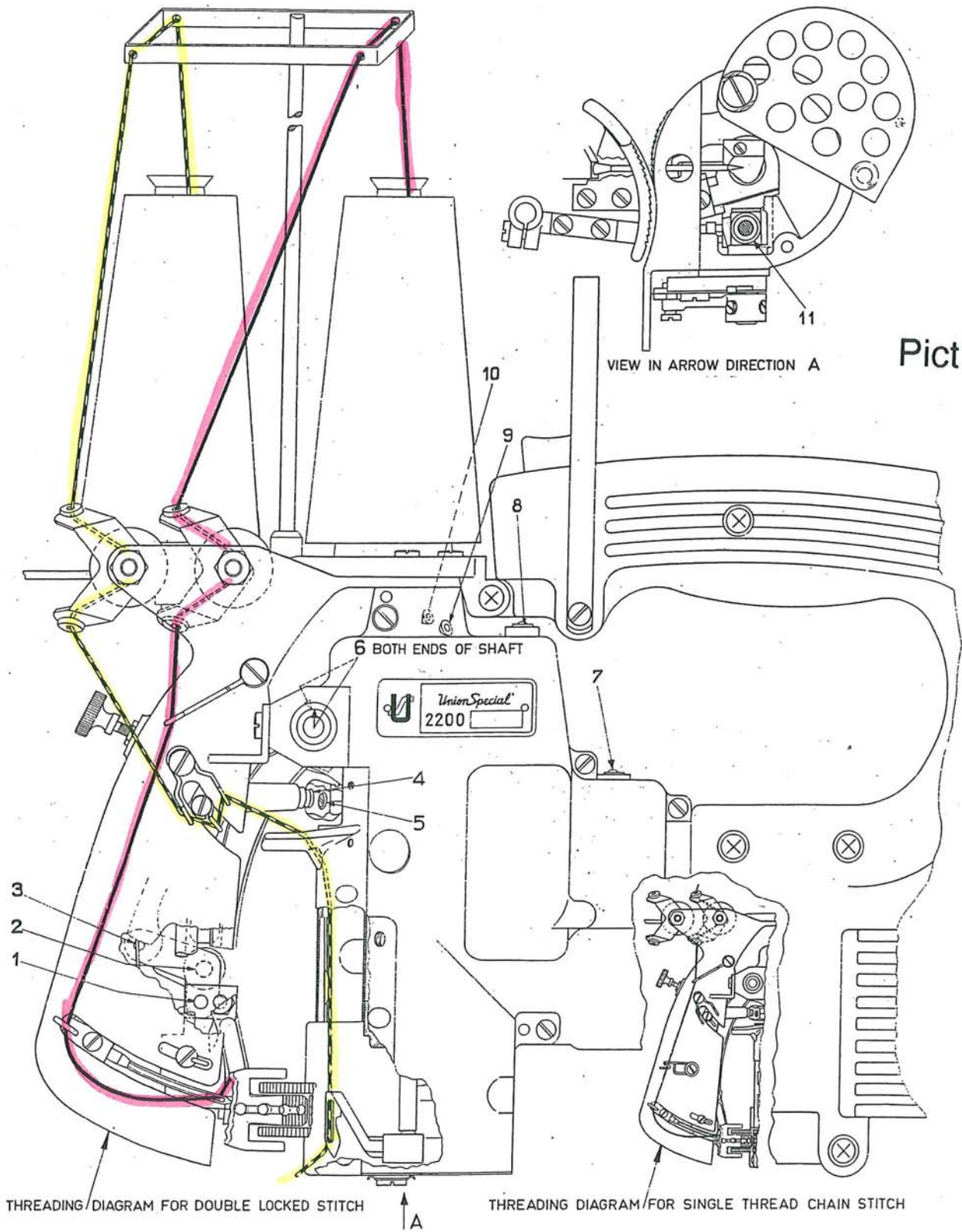
Picture 1

Loosen screw A and
set thread rod B so
that its lower end is
flush with the
underside of thread
cone support C.
Retighten screw A.



Picture 2

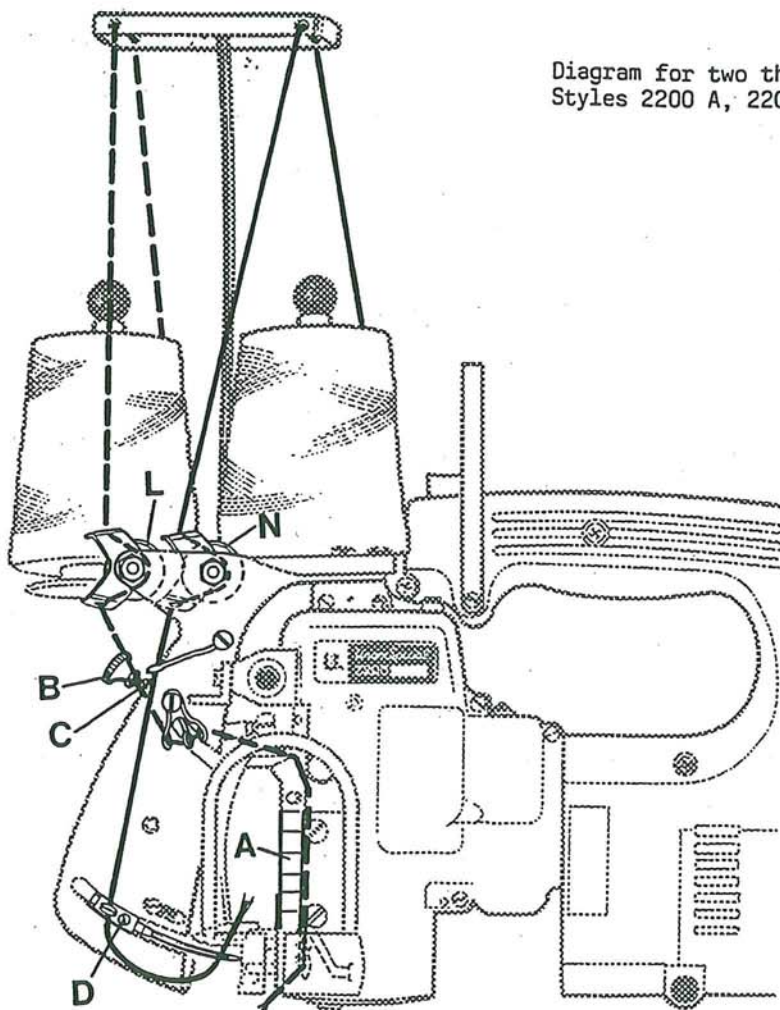
THREADING DIAGRAM FOR SEWING MACHINE



Picture 3

THREADING DIAGRAM FOR SEWING MACHINE

Diagram for two thread double locked stitch, type 401.
Styles 2200 A, 2200 B, 2200 F and 2200 AS.



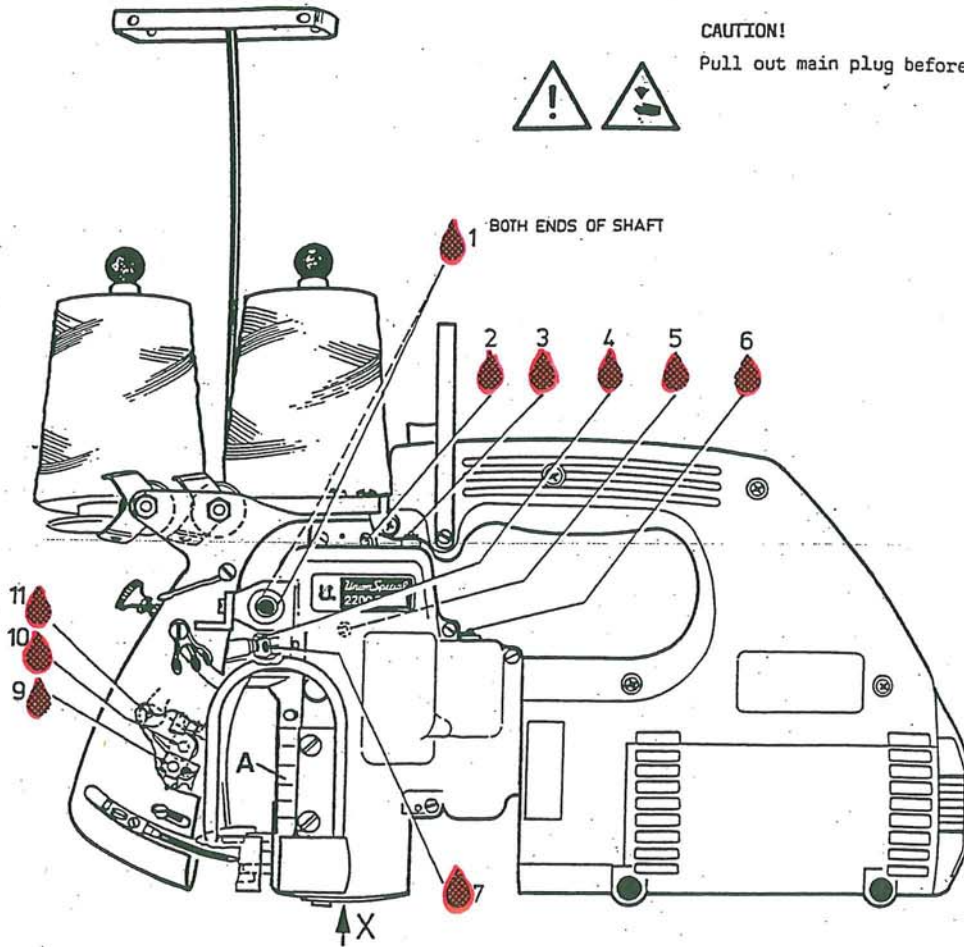
CAUTION!
Pull out mains plug before
threading!

Picture 4

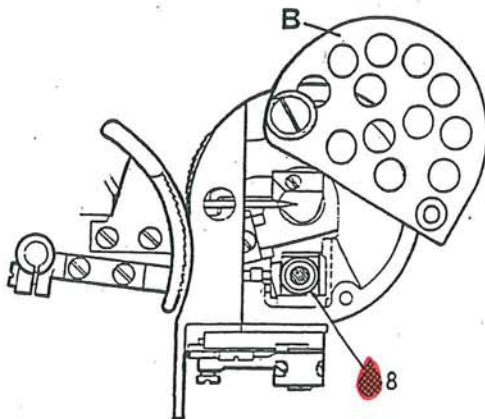
OILING DIAGRAM FOR SEWING MACHINE

CAUTION!

Pull out main plug before oiling!



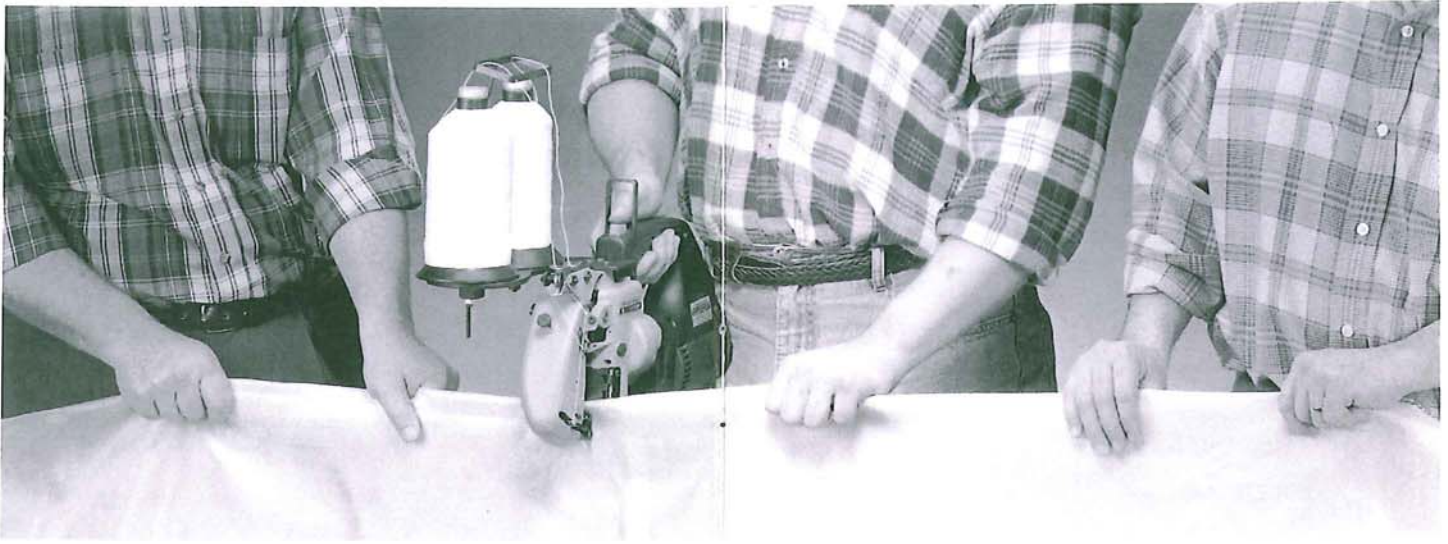
Picture 5



VIEW IN DIRECTION OF ARROW X

Picture 6

!!! CAUTION !!!
OIL SHOULD BE APPLIED DIRECTLY TO
OIL SPOTS 1 - 11 ONCE A DAY.
POINTS 1,2 AND 3 ARE ESPECIALLY
IMPORTANT.
RECOMMENDED OIL : MOBIL D.T.E
OIL MEDIUM



Question: How do I sew geosynthetics?

Answer: It's surprisingly easy. Just follow these simple instructions.

First, take the two pieces of geosynthetic fabric and hold the edges together to make either a prayer seam, "J" seam or butterfly seam (see page 6). Guide the fabric into the machine and depress the orange button to start sewing. The machine will then start stitching the fabric, and pulling the fabric into the machine on its own.

At this point, all the operator does is hold and guide the machine as the machine continues to feed the fabric on its own. The operator doesn't pull the machine along, the machine does that itself. Pulling the machine will cause the needle to bend, and that could result in costly downtime, broken needles, broken loopers, broken throat plates or loss of timing on the machine.

That's it. Pretty simple. Now here are a few helpful hints to increase your productivity.

Sewing tip
#1

Use three people. Three people make the job move faster and reduce the chance of job downtime.

The first person holds and helps support the weight of the two pieces of geosynthetic fabric and aligns the two edges of the fabric.

The second person holds and guides the sewing machine, being careful not to allow the weight of the fabric to put excessive stress on the sewing machine needle, causing the needle to break.

The third person helps support the fabric after it has been sewn and checks the quality of the stitching.

Sewing tip
#2

Two sewing machines at the job site. It is much less expensive to purchase a second sewing machine as a back up than to pay idle workers and idle earth moving equipment should the first sewing machine be down for maintenance.

Sewing tip
#3

Keep the wind from blowing the thread off the cones. On windy days, the thread may have a tendency to ravel off the cones. What you can do is cut the feet out of ladies' nylons, snip off the toe and put them over the thread cones to keep the thread from blowing in the wind.

Sewing tip
#4

There is a short learning curve using a sewing machine, so try to choose the same people to operate the sewing machine throughout the project.

CIVIL ENGINEERING SOLUTIONS; GEOSYNTHETICS, RETAINING, REINFORCED SOILS, PAVEMENTS, DRAINAGE, EROSION CONTROL, LANDSCAPING, WATER MANAGEMENT, CONTAINMENT, DEWATERING, ROCKFALL, COASTAL, BUILDING SOLUTIONS; AGRICULTURE, HORTICULTURE, VITICULTURE, AQUACULTURE; INDUSTRIAL SOLUTIONS

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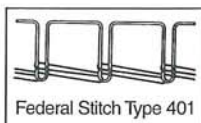
Question: What equipment do I need?

Answer: Determine how and where you are going to use the equipment. Are you going to sew at the job site? Or will assembly be done somewhere else and then the geosynthetic fabric brought to the site? What are the engineering specifications of the project? Is the material light to medium in weight, or heavy weight? Your answers will determine what equipment you will need for the job.

On the job site:



1) Use a hand held machine with 3/8-inch capacity.



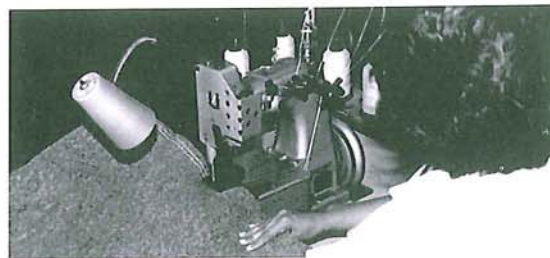
2) Use a sewing machine that sews a two-thread double locked stitch (Federal Stitch Type 401) for security of the stitch and seam strength and quality.

3) Use a machine with an adjustable stitch length. This gives you the versatility to sew different fabrics with the proper seam strength. Adjustments from 3 to 8 stitches per inch is ideal.

4) Use an electric motor for standard use, or an air-operated motor in hazardous conditions, such as sewing in the rain or sewing in or around water.

5) Be sure it can handle the hard knocks of your job site. Rugged, dependable construction is a must.

Extra-heavy fabrics and off-site sewing:



1) Use a machine for heavy-duty fabrics with a 3/4-inch capacity

2) Use a sewing machine that sews two rows of stitching (Federal Stitch Type 401). The second row offers increased seam strength.

3) Use a machine with an adjustable stitch length. This gives you the versatility to sew different fabrics with the proper seam strength.

4) Be sure it allows you the option to sew both in the field or in the factory.

5) Be sure it can handle the hard knocks of your job site. Rugged, dependable construction is a must.



Additional equipment:



1) Large thread stand for portable sewing machine to hold one-pound cones of thread so you can sew longer without stopping to re-thread.

2) MB100 Metal box that holds up to two portable machines, protecting them when they are not in use.

3) Suspension assembly for heavy-duty sewing machine to make it easier to handle on the job site.

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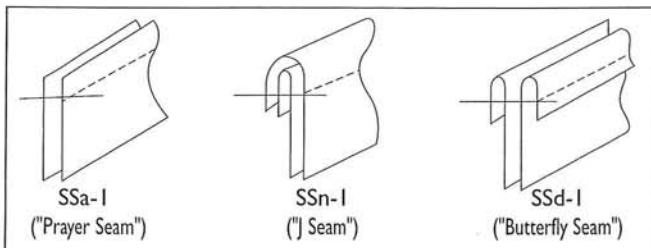
Question: What thread and seams do I use?

Answer: Contributing to the strength of your seam are the type of fabric you are sewing and the thread you are using. Fabric and thread suppliers can assist in determining the proper thread for your specific application.

Variables to consider when choosing the right thread are:

- 1) Does the finished seam need a certain strength?
- 2) Is the thread subjected to wet or dry conditions?
- 3) Is the thread subjected to ultraviolet light (surface use)?
- 4) Is the thread for use underground?

In addition, the number of stitches per inch (SPI) influences seam strength. Your optimum seam strength is dependent upon the fabric type and your SPI. Too few stitches per inch and the sewn seam may not be strong enough. Too many stitches per inch and the needle penetrations may weaken the fabric, resulting in a "Zippering" or "tear along the dotted line" effect.



There are three different seam types used. 1) SSa-1 (prayer seam) 2) SSn-1 (J seam) 3) SSd-1 (butterfly seam)

The project specifications may indicate which type of seam to use for the job.

The number of rows of stitching is often determined by the job specifications. Hand held machines make one row of stitching at a time. Heavy-duty, two-needle machines make two rows at once. A second row of stitching can be accomplished with a hand held machine by sewing the seam twice.

Question: How much thread will I use?

Answer: The amount of thread you need for your project depends on the type of fabric being sewn.

The chart and formula below are helpful guidelines for determining how much thread you need for your project:

Fabric Weight	Amount of thread* (40I Stitch)
Light	4 yards of thread for each yard sewn
Medium	6 yards of thread for each yard sewn
Heavy	9 yards of thread for each yard sewn

*Actual consumption may vary

Thread usage formula for each row of stitching

$$4 + [2 \times (\text{thickness of seam}) \times (\frac{1}{\text{length of 1 stitch}})] = \text{inches of thread use per inch sewn.}$$

Question: How do I care for a sewing machine?

Answer: Let's face it, you are probably too far from the shop to fix it, so proper maintenance is essential.

- 1) Oil the machine at least twice each day.
- 2) Monitor the needle condition daily and change as needed.
- 3) Remove dirt, lint or any foreign material from the machine after each day's use, or more frequently if conditions warrant.
- 4) Keep extra parts on hand at all times, including needles, loopers, upper and lower knives and feed dogs.
- 5) And lastly, whenever possible, get factory training for your mechanic. Union Special Corporation's Technical Training Center offers a course specifically for maintaining and repairing these types of machines. Training will pay big dividends in the future by keeping your machines up and running.

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