

## SEWING MACHINES VISUAL INSPECTION CONDITION REPORT

A copy of this document must be sent with the hire equipment - original to stay at the branch.

<b>VISUAL INSPECTION CONDITION</b> (to be completed by Geofabrics' staff when checking out and checking in)		
Customer		
Dispatch/receipt	Out date:    /    /	In date:    /    /
Branch location		
Expected return date		

Item Number	Number of items	Item name	Checked out	Checked in	Comments
1	1	1st Sewing machine #			
2	1	2nd Sewing machine #			
3	1	Metal carry case #			
4	1	Metal carry case #			
5	1	Large cone thread stand			
6	1	Tweezers			
7	1	Clippers			
8	1	Oil			
9	1	Screw driver			

This equipment has received an in-service inspection and was found to have no obvious defects

**CHECKED OUT BY**

**Name:**

**Signature:**

**Date :** \_\_\_/\_\_\_/\_\_\_

**Comments/inspection results:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**CHECKED IN BY**

**Name:**

**Signature:**

**Date :** \_\_\_/\_\_\_/\_\_\_

## 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.

- You are responsible for the safe operation of the equipment and the safety of your staff.
- At the conclusion of the use of the equipment, please clean the equipment, repack it for transportation and return it to Geofabrics.
- Please advise if there are any missing parts. All equipment usage must be in terms of Geofabrics' Equipment Hire Agreement. You will be charged for any damaged or missing components.

## UNION SPECIAL 2200 SEWING MACHINE OPERATING & SAFETY INSTRUCTIONS

### 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 only be performed by an authorised Geofabrics service organisation or representative.
- Please contact your nearest Geofabrics branch (contact numbers below) for return of this equipment or servicing if it is found to be faulty.
- All hire related documentation, operating & safety instructions are available on the company website ([www.geofabrics.com.au](http://www.geofabrics.com.au)).



# Union Special 2200 Sewing Machine Operator's Manual

The Union Special 2200 Sewing Machine (sewing machine) is a tool intended for joining geosynthetic blankets/sheets together in the field at the point of geosynthetic textile application.

## Pre-operational considerations:

- Before operating the sewing machine, it is important that you read and understand the maintenance and safety precautions outlined below and in the Equipment Hire Agreement (Use and Maintenance).
- Contact your nearest Geofabrics branch (contact numbers below) if you do not understand any of the instructions in this document. To operate the sewing machine, operators must be in good physical and mental condition. Do not operate if on medication or under the influence of alcohol or drugs. Seek medical advice if unsure.

## Safety Precautions and Working Techniques:

- Because the sewing machine is a puncturing device, special safety precautions must be observed to reduce the risk of personal injury.
- Ensure that a safe electrical supply is provided and that the equipment (including generator, extension leads and RCD's) has been electrically tested and tagged within the last twelve months.
- Ensure that electrical leads to the sewing site are not tangled, disorganised or frayed. When in use, all electrical leads should be uncoiled to prevent heat build up.
- Steel capped safety boots must be worn while operating the sewing machine due to the possibility of someone dropping the sewing machine on their feet - the sewing machine weighs 5kg.
- Ensure that task rotation is in place to provide workers with adequate rest periods where sewing is continuous for more than 15 minutes. The 5kg weight of the sewing machine combined with the static posture of the hand and fingers while operating the sewing machine creates a repetitive strain hazard for operators.
- Keep all fingers and other body parts clear of the sewing point at all times.
- Do not use the sewing machine for any application **other** than its intended purpose.
- Do not abuse the sewing machine in any way which may result in personal injury and/or damage to the sewing machine.
- Check the condition of the sewing machine before each use for any damage. If the behaviour of the sewing machine changes, check it immediately and return it to Geofabrics for service if necessary.
- Never modify the sewing machine in any way.

### Site Conditions:

- The sewing machine is designed for fast and efficient operation. Ensure that the route of travel along the sewing edge is clear of obstructions and debris to avoid slips/trips and falls while facing sideways to the direction of travel. Where possible, use the sewing machine on flat, level ground.
- The sewing machine should not be operated in conditions which will endanger the operator or other site personnel (e.g. wet weather, high winds, when lightning is a risk).

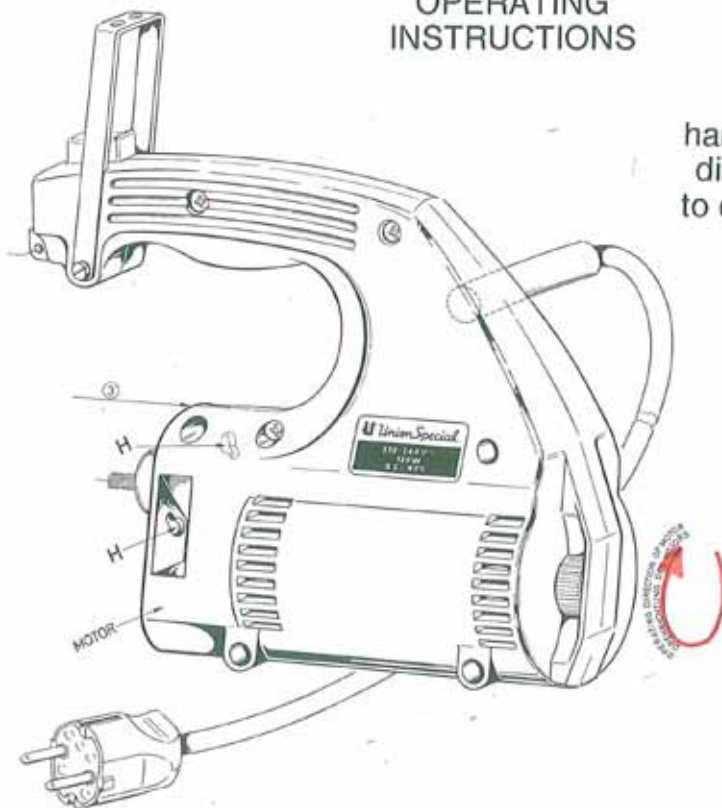
### Features and specifications:

- Built-in thread chain cutter.
- Housing for electric motor and handle made of fibreglass-reinforced break-resistant polyamide.
- Combined upper and lower feed for greater power grips both sides of the bag.
- Standard needle: 9854G200/080.  
Heavy duty version for all bag materials.
- Weight: 11 pounds (5 kg).

### Operation:

#### OPERATING THE UNION SPECIAL 2200 SEWING MACHINE

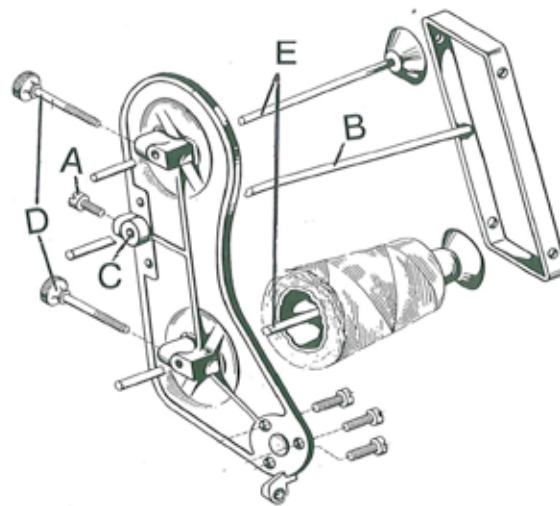
#### SEWING MACHINE OPERATING INSTRUCTIONS



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

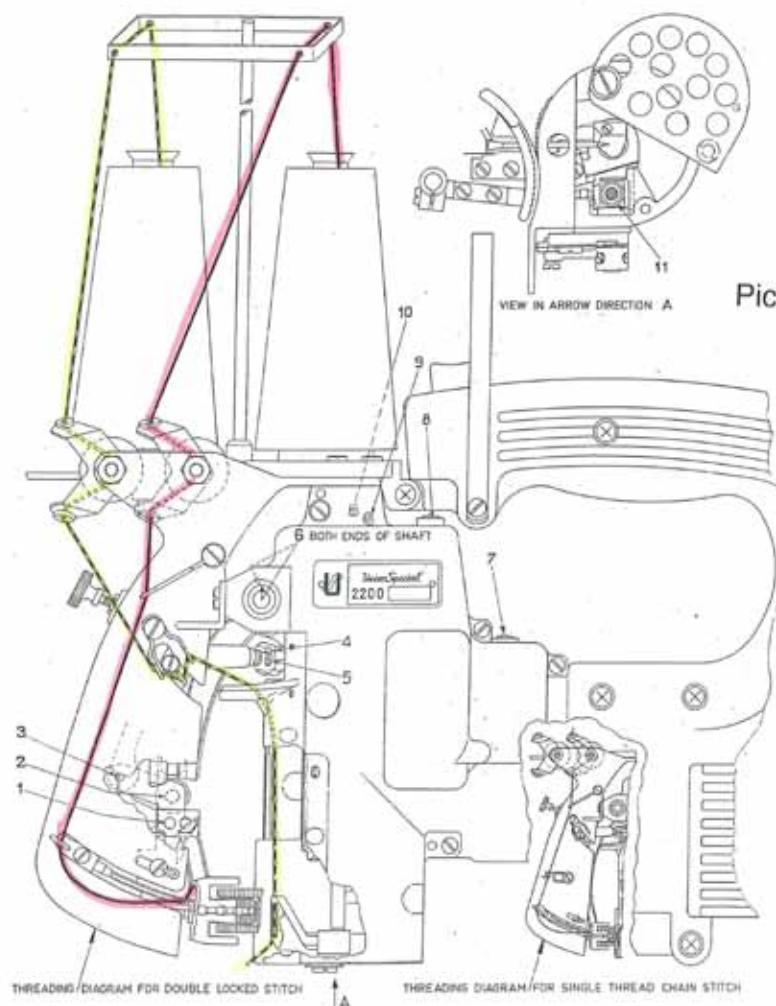
Picture 1

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.



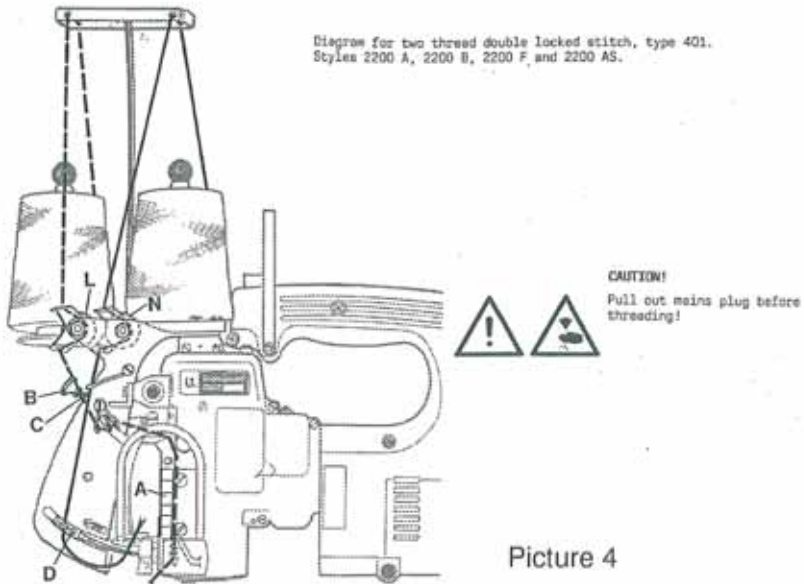
Picture 2

THREADING DIAGRAM FOR SEWING MACHINE

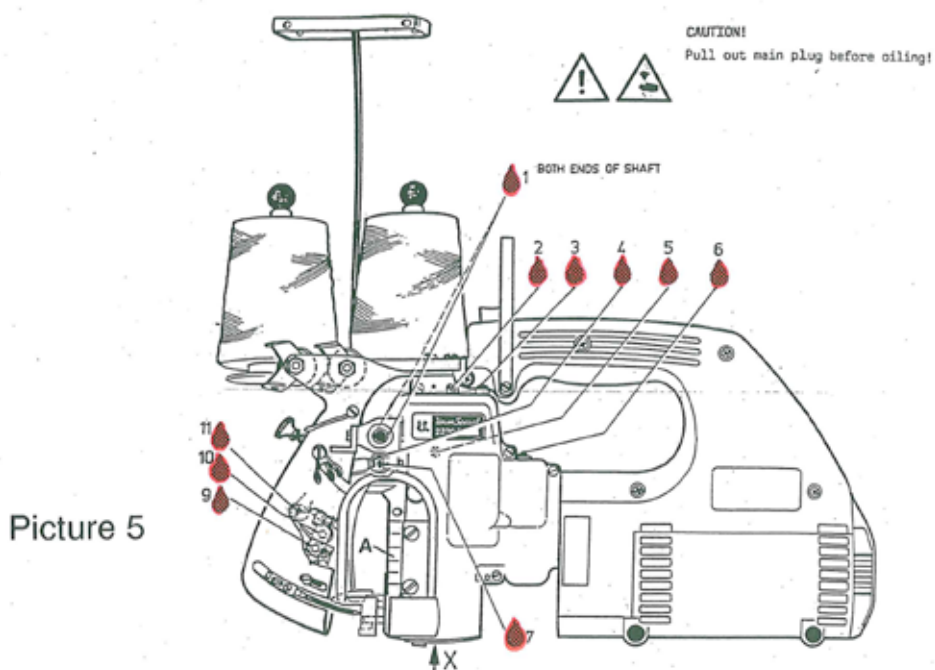


Picture 3

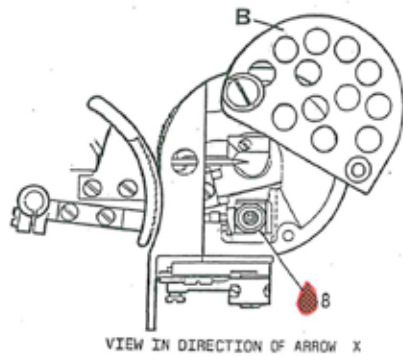
# THREADING DIAGRAM FOR SEWING MACHINE



# OILING DIAGRAM FOR SEWING MACHINE



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

## Answers to some Frequently Asked Questions



### **Q**uestion: 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.

**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.

**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.

**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.

**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.

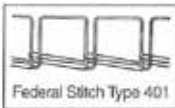
## Question: What equipment do I need?

**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.

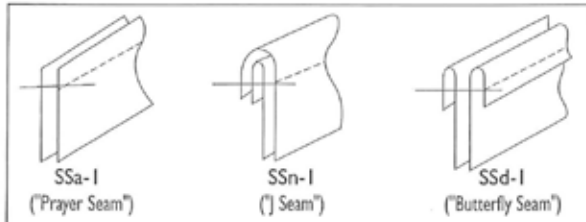
**Question: What thread and seams do I use?**

**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-I (prayer seam) 2) SSn-I (J seam) 3) SSd-I (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* (401 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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