

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

TABLE OF CONTENTS

| | <u>Page</u> |
|---|--------------------|
| Corporate Statement | 2 |
| 1. Introduction | 3 |
| 1.1 System Description | 3 |
| 1.2 Warnings | 4 |
| 1.3 Characteristics | 5 |
| 2. Installation | 7 |
| 2.1 Unpacking Procedures | 7 |
| 2.2 Drive motor recommendations..... | 7 |
| 2.3 Mounting the Sewing Head | 8 |
| 2.4 Lubrication | 10 |
| 2.5 Maintenance | 11 |
| 2.6 Start up recommendations | 13 |
| 2.7 Consumables | 13 |
| 3. Machine Adjustments | 13 |
| 3.1 Threading the sewing head | 13 |
| 3.1.1. Needle and Looper Thread | 13 |
| 3.1.2. Filler Cord (Optional) | 15 |
| 3.2 Thread tension adjustment | 16 |
| 3.3 Stitch length adjustment | 18 |
| 3.4 Cork seal replacement | 19 |
| 3.5 Needle replacement | 20 |
| 3.6 Feed dog replacement | 20 |
| 3.7 Throat plate replacement | 21 |
| 3.8 Presser foot pressure adjustment | 21 |
| 3.9 Fine tuning of the sewing machine | 22 |
| 3.10 Tape/Thread Clipper Adjust (model 101 & 201)..... | 28 |
| 3.12 Mounting & Adjusting the Rotary Air Knife (model 100 only) ... | 30 |
| 3.13 Using the Gauge | 33 |
| 3.14 Sewing speed adjustment | 34 |
| 4. Speed tables | 39 |
| 4.1 English System | 39 |
| 4.2 Metric System | 40 |
| 5. Opening a sewn bag | 41 |
| 6. Troubleshooting | 42 |
| 7. Spare Parts List | 46 |
| 8. Drawings and Parts Lists | 47 |
| 9. Machine Set Up Parts Lists | 77 |
| 9.1 Model 100 | 77 |
| 9.2 Model 101 | 78 |
| 10. Safely Disposing of a Sewing Head | 78 |

READ

**READ THIS MANUAL BEFORE INSTALLING, OPERATING OR
PERFORMING MAINTENANCE ON THE MODEL 100 OR 101
EMPRESS™ SEWING HEAD.**

CORPORATE STATEMENT

The Fischbein Company is a premier packaging company that specializes in bag closing systems. The original one-man business, founded and established by Dave Fischbein in Minneapolis, Minnesota in 1910, has now grown to an international firm recognized as the global leader in bag closing technology which manufactures a variety of state-of-the-art bag closing and handling machines for diverse packaging applications. Fischbein's first portable sewing machine for bag closing was developed over 50 years ago and is still widely used throughout the world for a variety of bag closing applications. Through our bag sewing, closing and sealing technologies, Fischbein offers automated solutions for nearly every powder and bulk material packaging requirement.

The product line has greatly expanded from those early days, and the company continues to lead the industry in helping customers increase productivity through improved product performance with efficient, up-to-date automated packaging solutions.

A worldwide network of distributors assists our customers in meeting their technological requirements and their business objectives. Orders, questions and comments can be addressed to Fischbein through the worldwide web at www.fischbein.com or by writing or calling our North American or European offices:

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Nothing contained in this document is intended to extend any promise, warranty or representation, expressed or implied, regarding the FISCHBEIN products described herein. Any such warranties or other terms and conditions of products shall be in accordance with the standard terms and conditions of sale for such products, which are available upon request. FISCHBEIN reserves the right to make changes and improvements to products without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.

1. INTRODUCTION

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD

OPERATOR'S MANUAL

The contents of this manual are considered to be proprietary and confidential to FISCHBEIN AND SHOULD NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM FISCHBEIN.

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FISCHBEIN reserves the right to make changes and improvements to products without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.

The use of repair parts other than those included within the FISCHBEIN approved parts list may create hazardous conditions over which FISCHBEIN has no control. Therefore, FISCHBEIN cannot be held responsible for equipment in which non-approved repair parts are installed.

1.1 SYSTEM DESCRIPTION

The Fischbein 100 and 101 sewing heads are heavy duty, commercial sewing machines. These heads sew bags of different materials, such as plastic, woven polypropylene, multi-wall paper bags, composite bags, jute bags and so forth.

For proper operation, these heads are normally mounted on Fischbein double pedestal stands and conveyor systems. These enable adjustment of the system for bag height and bag speed through the system. A variety of infeeds and other special attachments (such as a rotary knife and a needle cooler) are available to enhance and support the operation of the head.

Model 100

This model is intended for standard sewing, two-thread applications. Uses the standard knives; no rotary air knife.

Model 100HV

Standard 100 head with rotary air knife at 115 VAC.

Model 100DC

Standard 100 head with rotary air knife at 24 VDC.

Model 101

This model is intended for two or single-thread applications, using tape or pull tape attachments.

1.2 REVISIONS

The newest changes to this manual include a “Where Used” column in the recommended spare parts table on pages 46-47. This column is provided to assist users in locating where on the sewing system the part is used and also includes the page number of the assembly to visually direct them to the location.

1.3 WARNINGS

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD **OPERATOR'S MANUAL**

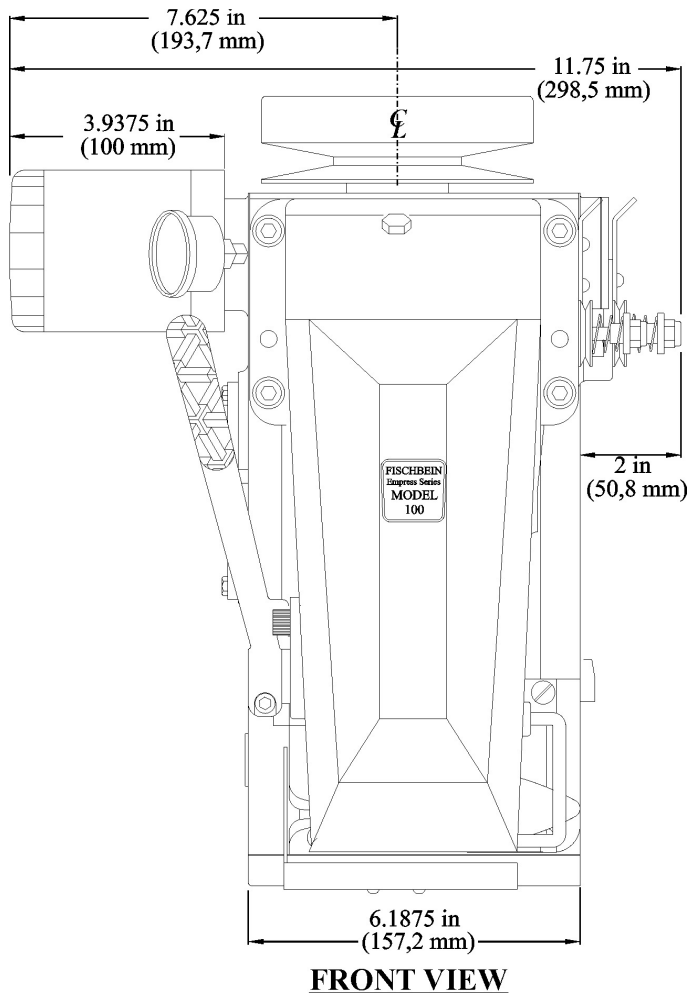
- The model 100 and 101 sewing heads are driven by strong motors, contain moving parts and have pinch points and sharp edges. Therefore, a certain amount of technical knowledge and familiarity with this type of equipment are required to operate and maintain the system. Proper eye, hand and foot protection must be worn while working with the 100 and 101 sewing heads.
- The sewing head is not a stand-alone machine; therefore, care must be taken to provide the correct drive system and proper protection from the drive components. You should follow the recommendations in the manual about the drive system.
- Replacement of the Connecting Needle Drive Rod (pages 52-55; Item 20: part#31020) must be performed by an authorised Fischbein representative, equipped with the special tools necessary.
- Read the manual carefully before making any changes to the sewing head.
- **Always use genuine Fischbein spare parts (including Fischbein Lubricating Oil and Fischbein Oil Filters). Our parts are specifically designed for Fischbein equipment to provide optimum performance and safety. Use of non-Fischbein parts can void the product warranty.**
- Turn off and lock out air and power sources when performing maintenance.
- Let the machine do the work. Do not pull the bag or the materials through it.
- Consult Fischbein concerning your specific application and sewing need.
- The sewing head is not suitable to operate in an area where explosive materials are present (explosive gas, vapors, powders or liquids).
- When used in a dusty environment, NEMA 12 (IP54) electrical equipment must be used.
- Frequently clean the machine to prevent accumulation of dust. Do this to prevent accumulation of material that may cause a fire or malfunction.
- When cleaning the optical controls that may come with the sewing head, consult the accompanying manuals from the optical manufacturer. These additional manuals can be found in the electrical control box with the electrical schematics.
- Any sources of leaks of the machine's lubricating oil must be repaired immediately to prevent possible contamination of the product being packed and safety hazards around the system.
- When cleaning the sewing head, use only recommended Fischbein cleaning solvent 5-101.
- Do not use aggressive cleaning products as they may damage the rubber seals.
- When in doubt about operation, troubleshooting and maintenance of the sewing head, consult your dealer or local Fischbein representative.
- Other specific warnings appear throughout this manual.

1.4 CHARACTERISTICS

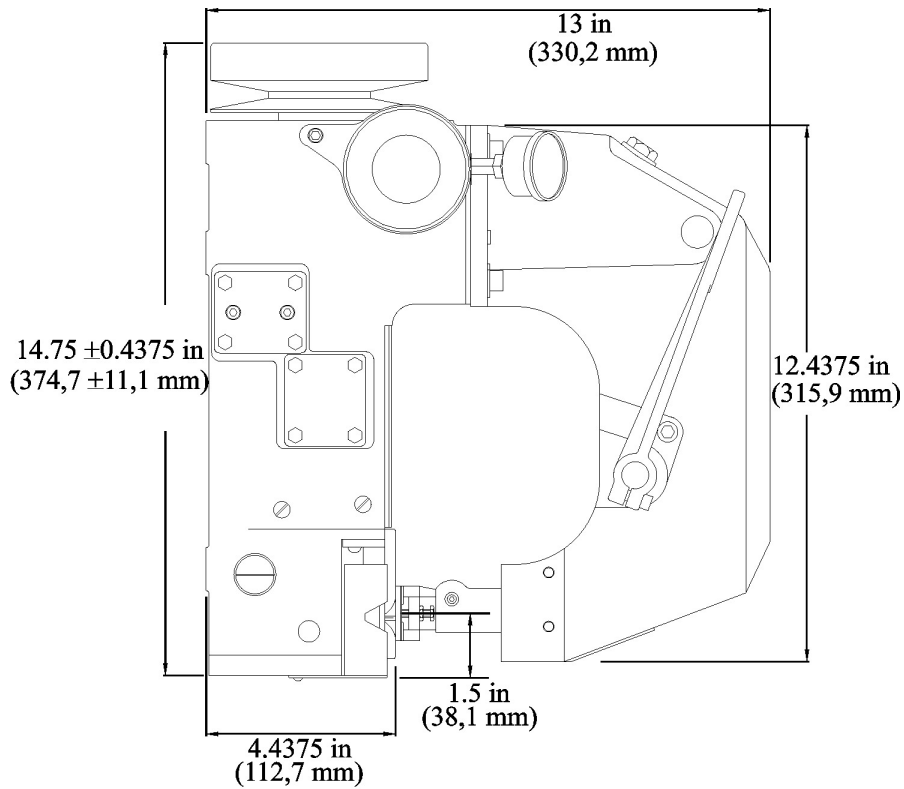
FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

| | |
|------------------|--|
| Maximum speed: | 1800 RPM |
| Stitch length: | 2 – 4 stitches per inch |
| Machine Weight: | Model 100: 58 lbs. (26,4 kg) (with rotary air knife) Model 101: 64 lbs. (29,1 kg) (with Tape Clipper) |
| Shipping Weight: | Model 100: 61 lbs. (27,7 kg) (with rotary air knife) Model 101: 67 lbs. (30,5 kg) (with Tape Clipper) |
| Oil: | 1 qt (0.95 litres) Rykon #68 Oil (#10200) or Food Grade Oil (#31047) |

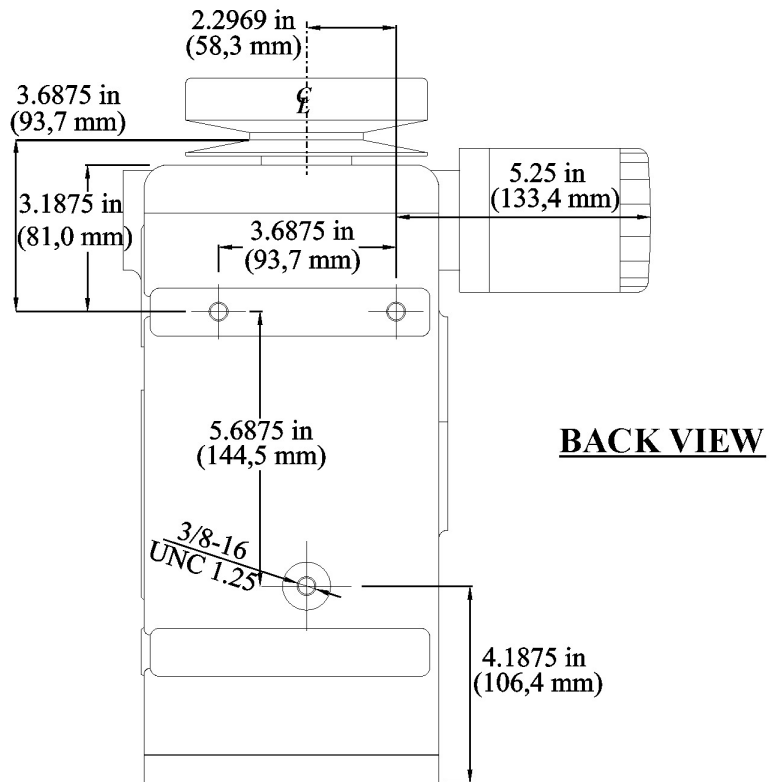
Maximum speed with a stitch length of 3.5 stitches per inch is 1800 RPM.
(Refer to **Speed Tables, page 39**)



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**



LEFT VIEW



BACK VIEW

2. INSTALLATION

2.1 UNPACKING PROCEDURES

Every Fischbein sewing head is packaged to protect the unit during normal shipping, storage and handling. Each sewing head is packed in a corrugated box with cardboard padding surrounding it. It is then taped shut. Before the unit is unpacked, inspect the box for any signs of damage incurred during shipping. After the unit is unpacked, inspect the sewing head itself for damage. Report any damages in writing to the shipper and to your authorized Fischbein representative. Be sure to locate your sewing head's serial number and model number and record these numbers for future reference. Reading from left to right, the first six numbers that are stamped on the housing represent the serial number. The next three numbers represent the model number. The model number and serial number are also printed on the plate attached to the side of the housing.

The sewing head is very heavy and can be awkward to handle alone. For safety of the installers and the sewing head, a dolly platform should be used to transport the sewing head.

2.2 DRIVE MOTOR RECOMMENDATIONS

A 1 HP or 746 W motor is recommended.

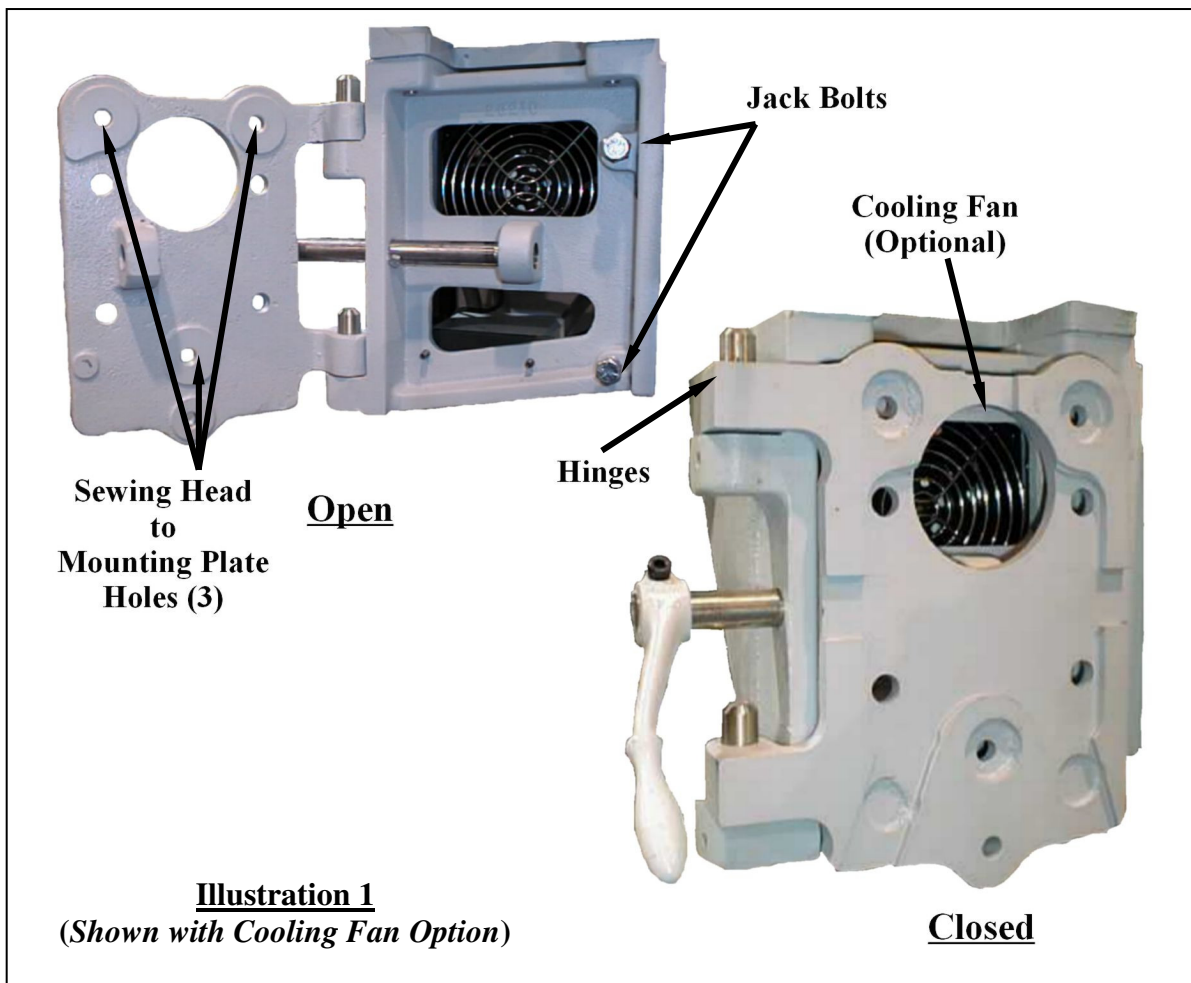
**WARNING: MAXIMUM RPM FOR THE SEWING HEAD IS
1800 RPM AND MUST NOT BE EXCEEDED.**

2.3 MOUNTING THE SEWING HEAD

Due to the size and weight of the sewing head, a cart should be used to transport it. It is best to have a couple of installers handling the sewing head. Be sure to hold it by the main housing.

The sewing head is attached to the overarm assembly by a mounting plate, which mounts to the back of the housing with three hex head bolts (**Illustration 2**). It is extremely important that these bolts be securely tightened to the sewing head.

Refer to **Illustrations 1 and 2**. The mounting plate attaches to the overarm assembly with two hinges. The hinges allow for easy access to various areas of the sewing head as well as the cooling fan (optional). When the sewing head is rotated into the closed position, the outer swinging edge of the mounting plate will come to rest on two jack bolts. The jack bolts are used to provide the needed support during use and enable the latch pin to firmly hold the plate. The mounting plate is locked into the closed position with a latch pin, which is pushed in and rotated to secure the mounting plate. (**Illustration 3**) The locking rod passes through a hole in the sewing frame and then through one in the mounting plate, when in the closed position.



FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

If the jack bolts are not properly adjusted, the sewing head can vibrate possibly causing damage or other parts to come loose. The jack bolts must be raised or lowered so that they come into firm contact with the mounting plate. Both bolts come with a lock nut to keep them in position.

The jack bolts are pre-set at the factory for the mounting plate that accompanies the sewing system. The jack bolts will only have to be adjusted if they become loose or if replacing the plate. To adjust the jacks, loosen the lock nuts and turn the jack bolts clockwise for about five turns. Rotate the plate into the closed position until it comes into contact with the jacks and then use the latch pin to secure the plate. The pin will probably rotate with ease and not actually tighten when turned. Gradually keep trying the latch pin, while turning the lower jack in increments, counterclockwise. The ideal setting for the lower jack is when the latch pin tightens firmly before it has rotated the full 90°. **(Illustration 3)** Use the lower lock nut to hold it in position.

Gradually turn the top jack counterclockwise until it comes into contact with the plate, when it is in the closed position, but not locked with the pin. Unscrew the top jack one additional rotation. Lock the top jack into position using the lock nut. When the plate is in the closed position and secured into place, the latch pin will tighten completely before rotating the entire 90° and press firmly on the jack bolts.

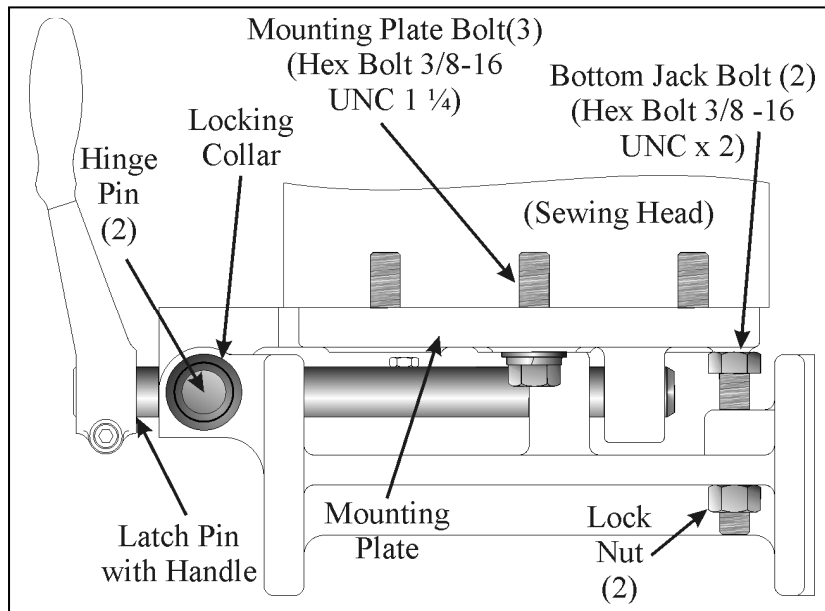


Illustration 2 (Bottom View; sewing head in closed position)

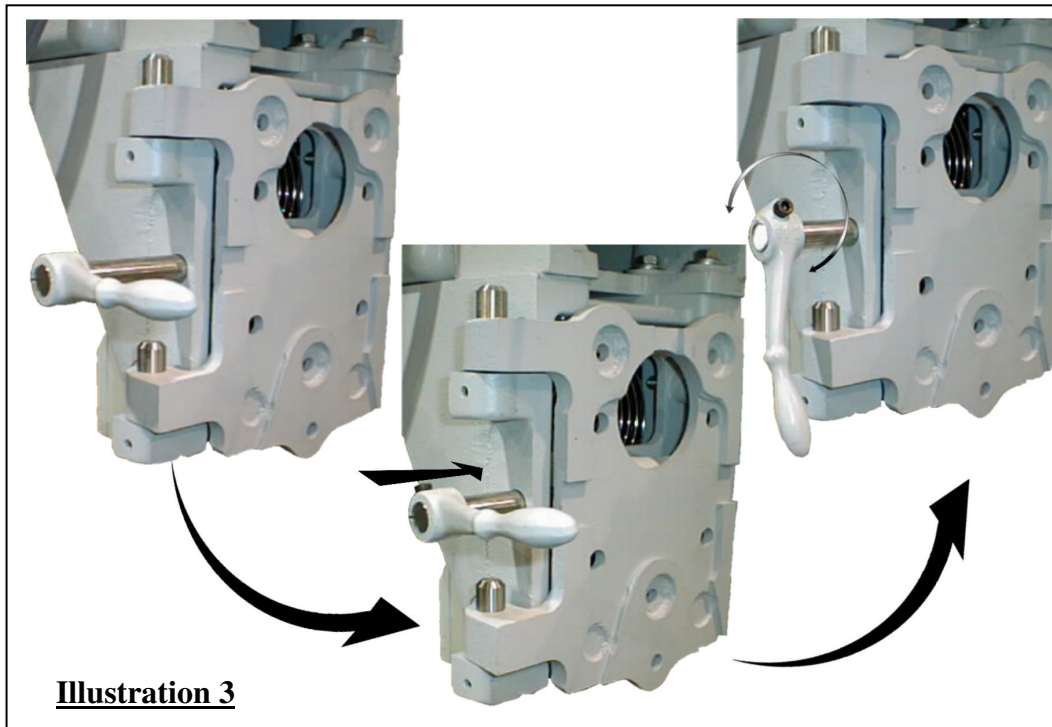


Illustration 3

2.4 LUBRICATION (WARNING)

Refer to **Illustration 5**. The sewing head is delivered with a screw in the breather plug. **Remove this screw before starting up the head.** Failure to remove this will result in build up of internal pressure and consequent damage to seals and other components with possible injuries to the operator.

The sewing head is filled at the factory with oil (1 qts. or 0,95 litres). Rykon #68 (#10200)
An alternative 31047 (1 qts or 0.95 litres) food grade oil is also available.

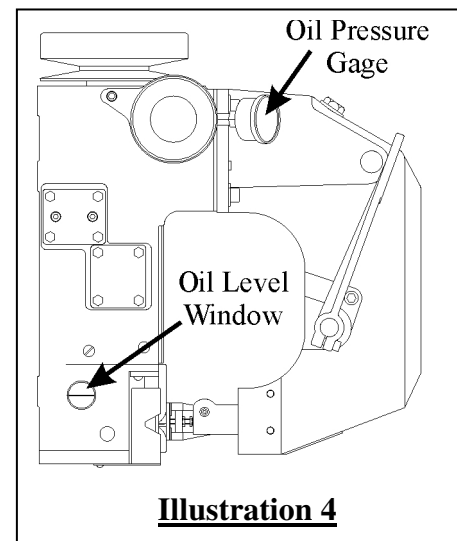


Illustration 4

NOTE: *No substitution oils are accepted. Use of any other oil will void the product warranty.*

Pre-start up checks:

- Check oil level (indicated on the oil window on the left side of the machine). (**Illustration 4**)
- Check for evidence of oil leaks. If any is found, perform the appropriate repair.
- After a few seconds, the oil pressure gauge should indicate a pressure between 15 PSI (1 bar) and 40 PSI (2,8 bar).

WARNING: Do not run the machine with oil pressure below 15 PSI (1 bar) or above 40 PSI (2,8bar).

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD

OPERATOR'S MANUAL

- Replace the oil filter every **500 working hours** (see **Section 2.5**).
- Replace the oil every **500 working hours** (see **Section 2.5**).
- Approximately 1 qt or 0.95 litres will adequately fill the machine. Rykon #68 oil (ref. 10200) must be used.
- Check the oil level when the machine is operating and the pressure is in the specified range 15-40 PSI (1-2.8 bar). **NOTE:** The pressure must be checked after the machine has fully warmed up (1.5-2.0 hours of operation).
- In the event the oil level falls below the marker line, add oil until level is met.

2.5 MAINTENANCE:

NOTE: A certain amount of technical knowledge and training is required to perform any maintenance on Fischbein sewing heads.

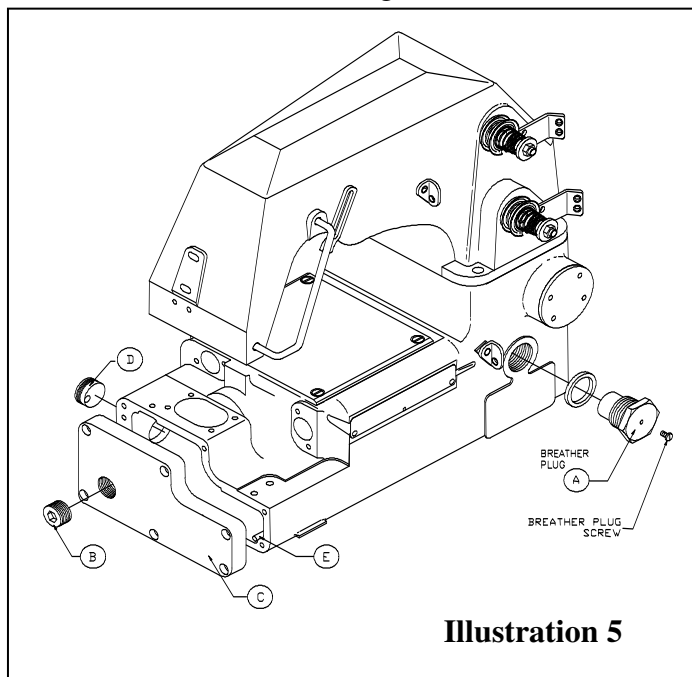
DAILY

1. Keep the machine free of dust.
2. Clean with compressed air, using an OSHA approved air nozzle or with a vacuum cleaner.
3. Check all seals for indications of oil leaks before start up.
4. Lubricate knife blades and presser foot hinges manually with standard lubricating oil. Wipe all excess oil from parts.
5. Keep optical sensors clean according to their individual manual instructions.
6. Thoroughly, check for loose fasteners and tighten them back into position. If the loose fastener holds a specific component in place that has a critical setting, refer to the appropriate section in this manual to establish the correct setting.

PERIODIC - OIL CHANGE

Oil changes are part of periodic maintenance performed after **500 hours** of operation. (**Illustration 5**)

1. Lock out compressed air and electrical power so the machine cannot run.
2. Remove breather plug (**A**).
3. Unscrew the drain plug (**B**) in the bottom cover (**C**).
4. Drain the used oil into a tray.



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

5. The drain plug (B) is magnetic. Remove metal particles and dirt sticking to it.
6. Wrap new Teflon® tape around the drain plug (B).
7. Screw the plug (B) into the bottom cover (C).
8. Fill the machine with one quart (0,95 litres) of oil through the breather plug hole (A). A funnel and flexible tube are provided with the tool kit.

NOTE:

***No substitution oils are accepted.
Use of any other oil will void the product warranty.***

9. Re-install the breather plug (A).
10. Follow the recommendations for daily operation in **Section 2.6**.

PERIODIC - OIL FILTER REPLACEMENT

Oil filters are part of periodic maintenance performed after **500 hours** of operation. (**Illustration 5**)

1. Lock out compressed air and electrical power so the machine cannot run.
2. Fill the replaced filter with oil.
3. Use a *genuine* Fischbein oil filter, ref. 15054.
4. Coat the seal on the new oil filter with a thin film of oil.
5. Remove the old oil filter.
6. Install the new filter (hand tightening is sufficient).
7. Run the sewing head in short, 2 to 3 second cycles until the filter is filled and the pressure falls in the normal 15 to 40 PSI (1-2,8 bar) range.

Teflon is the registered trademark of DuPont U.S.A.

2.6 START UP RECOMMENDATIONS

2.6.1 *Daily use.* Initially, start the machine in short, 2 to 3 seconds cycles until the correct oil pressure is reached.

2.6.2 *Running after prolonged shut down (two months and over):* Replace the oil and filter and follow procedure 2.5.

2.7 CONSUMABLES

The Fischbein Company recommends using Fischbein cleaning solvent (ref. 5-101), Rykon #68 oil (ref. 10200), Fischbein oil filter (ref. 15054) and Fischbein sewing thread. Sewing heads Model 101 use crepe sewing tape, available in a variety of basic colors and widths. Seals, gaskets, knife blades, belts and any other part subject to normal wear should be replaced with genuine Fischbein spare parts. If in doubt, contact your Fischbein representative.

3. MACHINE ADJUSTMENTS

3.1 THREADING THE SEWING HEAD

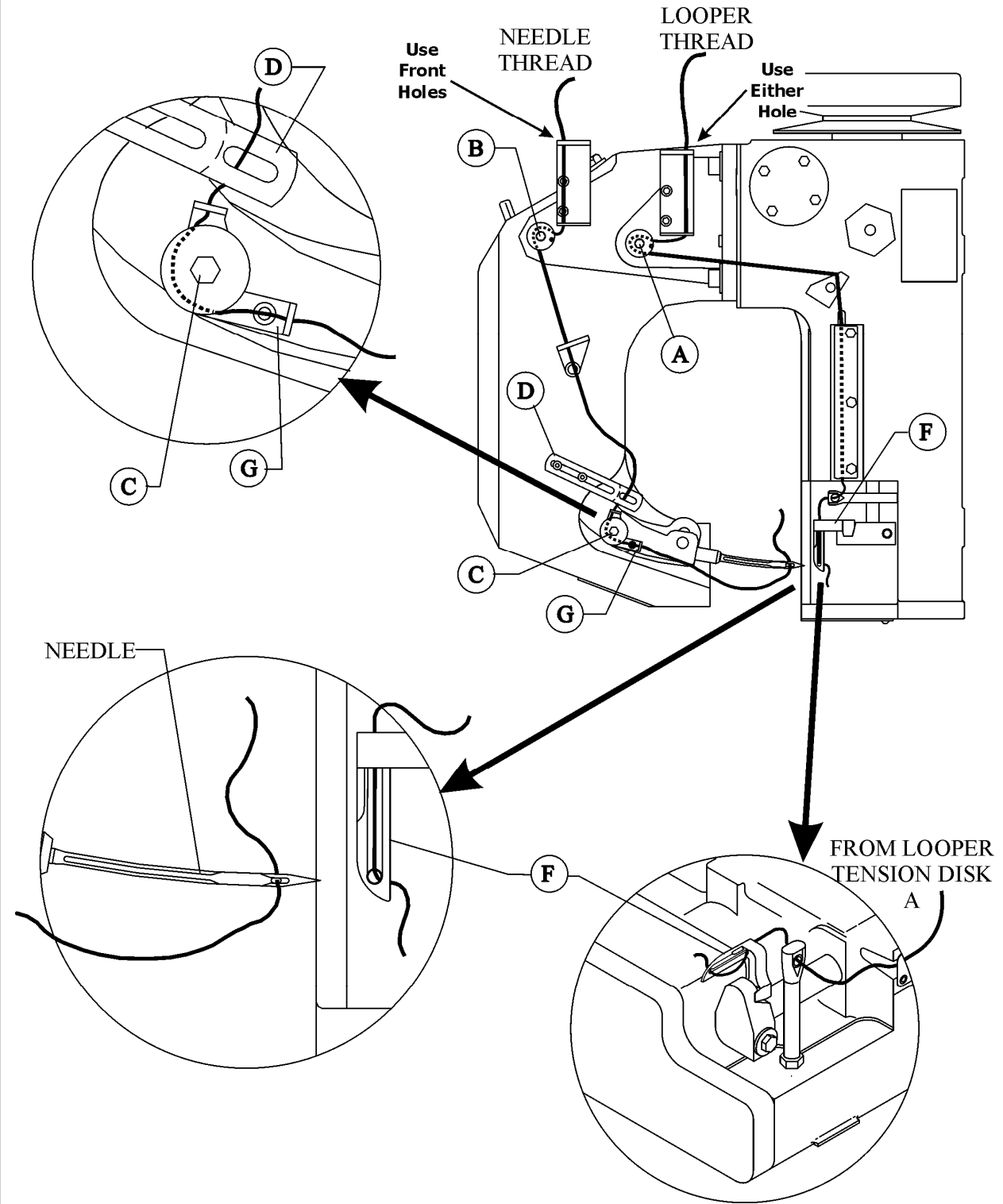
3.1.1 LOOPER AND NEEDLE THREAD

1. Lock out compressed air and electrical power so the machine cannot run.
2. Refer to **Illustration 6, page 14**. Thread the needle as shown. A pair of needle nose pliers may help in threading small areas.
3. The thread at the needle is laced through from machine's infeed side towards the needle. Let the thread stick out 4" (102mm) on the other side of the needle.
4. Ensure that the thread runs properly through the thread-tensioning discs **B & C**.
5. Thread the looper (**F**) as shown.
6. The thread at the looper (**F**) must first go through the top hole and then through the bottom hole. About 4" (102mm) should be left sticking out of the looper. (**Illustration 6**).
7. To complete a chain off, a piece of bag material should be placed between the presser foot and the throat plate before running the machine. Loosen the sewing head drive belt tension by unlocking the drive motor. (**System Illustration, page 6, #7**) Turn the pulley by hand in a clockwise direction so the sewn bag proceeds forward through at least three complete cycles. This will start the chaining process. Run the system to clear out the test bag material, before attempting to run a bag through the system. ***If this procedure is not followed, it will not start a chain and the machine might break the needle.***
8. A Model 101 tape sewing head must have tape between the presser foot and feed dog to operate. Check the looper to ensure no thread has accumulated around it.

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

Illustration 6

**WARNING: ALWAYS LOCK OUT THE
ELECTRICAL AND PNEUMATIC SYSTEMS
BEFORE WORKING ON THE SEWING HEAD!**



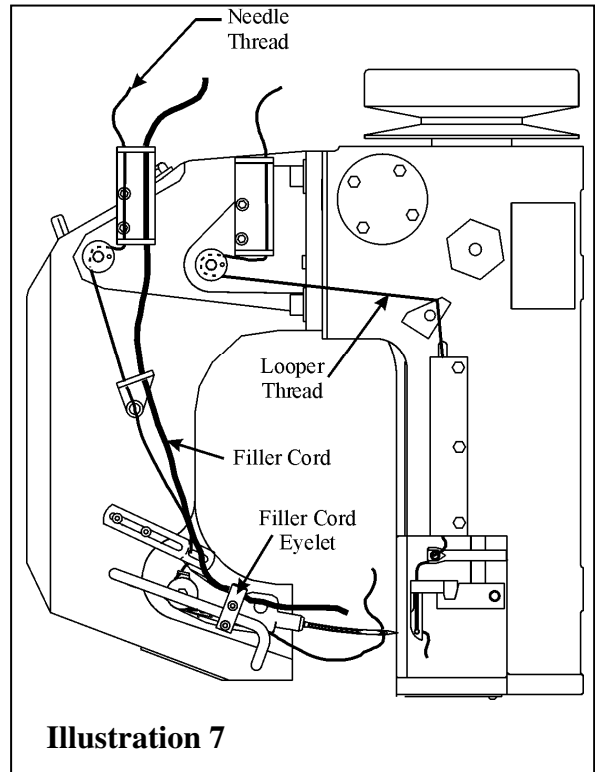
3.1.2 FILLER CORD (OPTIONAL)

1. Lock out electrical and pneumatic systems before attempting to thread the filler cord.
2. Follow **Illustrations 6, 7 and 8** to thread the filler cord with the looper and needle thread. *Note that the filler cord does NOT get threaded through the thread pull off.*

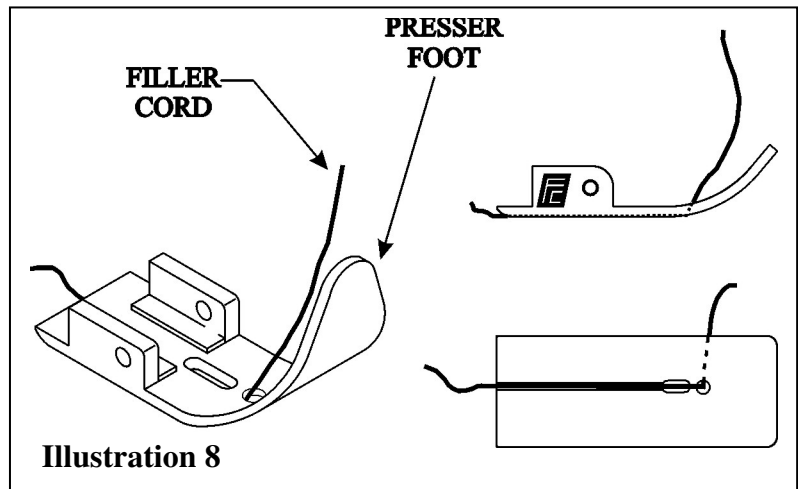
3. Once the thread has been threaded through the Filler Cord Eyelet (**Illustration 7**), it will be threaded through the presser foot as shown in **Illustration 8**.

4. The bottom of the presser foot is designed with a channel, which runs from the filler cord hole to the back of the presser foot.

5. To complete a chain off, a piece of bag material should be placed between the presser foot and the throat plate before running the machine. Turn the pulley by hand in a clockwise direction so the sewn bag proceeds forward through at least three complete cycles. Run the system to clear out the test bag material, before attempting to run a bag through the system. *If this procedure is not followed, it will NOT start a chain and the machine might break the needle.*



6. The needle thread should actually be sewn through the filler cord. Be sure to leave about 4 inches (102 mm) of filler cord (chaining) out past the back of the presser foot before running the first bag through the system.

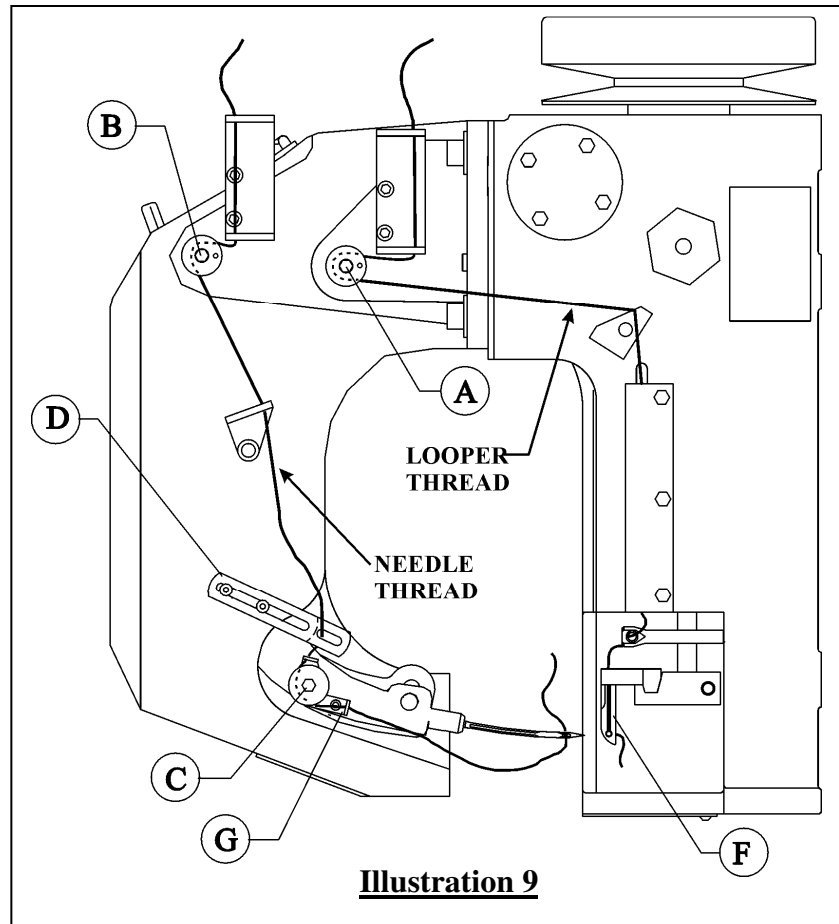


7. It is very important to keep the needle thread and the filler cord separated and not to let them accidentally twist together while threading or running the sewing system.

3.2 THREAD TENSION ADJUSTMENT

1. Looper thread tension (A):

The tension on the looper thread must be light and even as the thread is pulled with a steady, even motion. If the tension is not even, or a large force is required to pull the thread, the source of the problem must be found and corrected before running the machine.



2. Needle thread tension (B):

Illustration 9. The needle thread tension is adjusted with the thread tensioner (B). The needle thread tension should put a noticeable drag on the thread. Tension also varies with stitch length and thickness of material to be sewn.

This adjustment can be combined with thread pull off positioning (D). On the needle arm, thread tensioner (C) prevents thread pulled by the thread pull off from sagging too close to the needle. Tension is very slight and the adjustment is fixed. Factory settings of tension are made for a 4-ply paper bag with a stitch length of 2.5 stitches per inch (10 mm per stitch) using Fischbein synthetic thread 12/5, unless otherwise specified when ordered, which is valid in most cases.

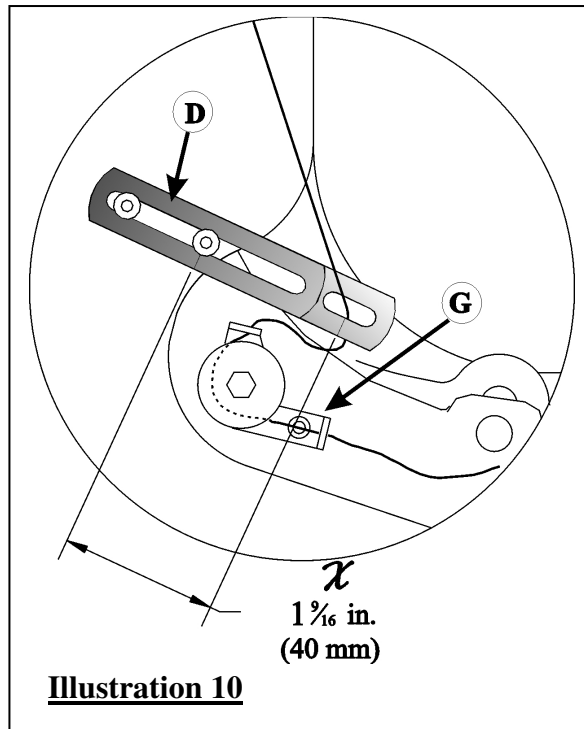
3. Thread pull off adjustment

Illustration 10 shows the factory setting. This is suitable in many cases.

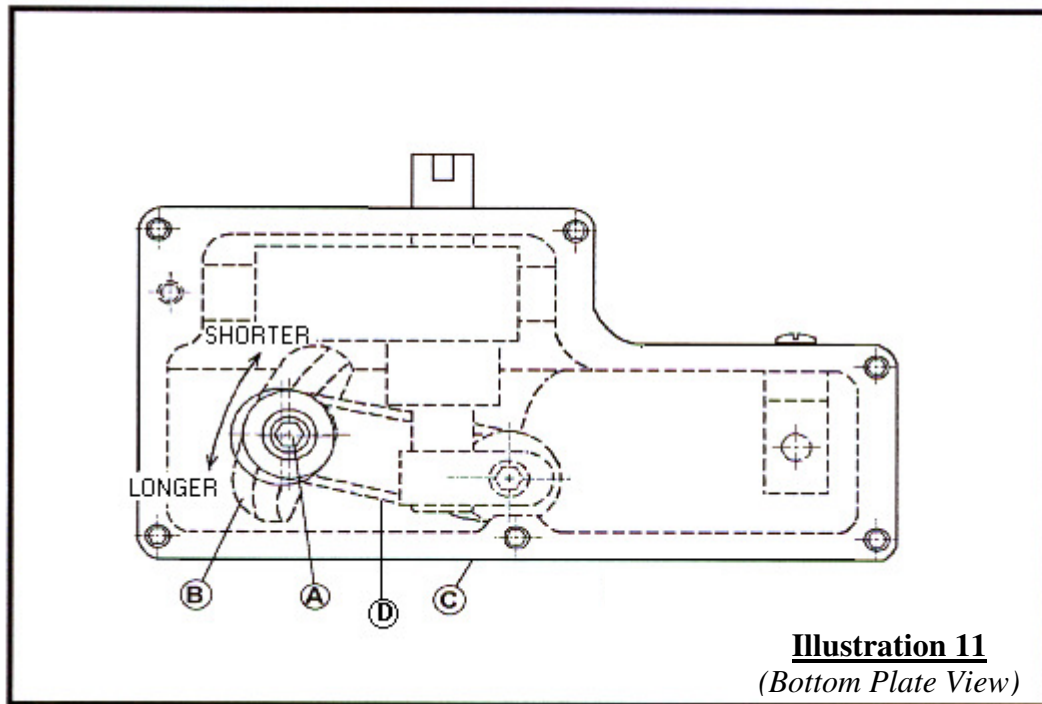
For thin materials, distance χ must be *shorter*.

For thick materials, distance χ must be *larger*.

If the stitch is too loose, try first to adjust with the needle thread tension before shortening the distance χ of the thread pull off.



3.3 STITCH LENGTH ADJUSTMENT

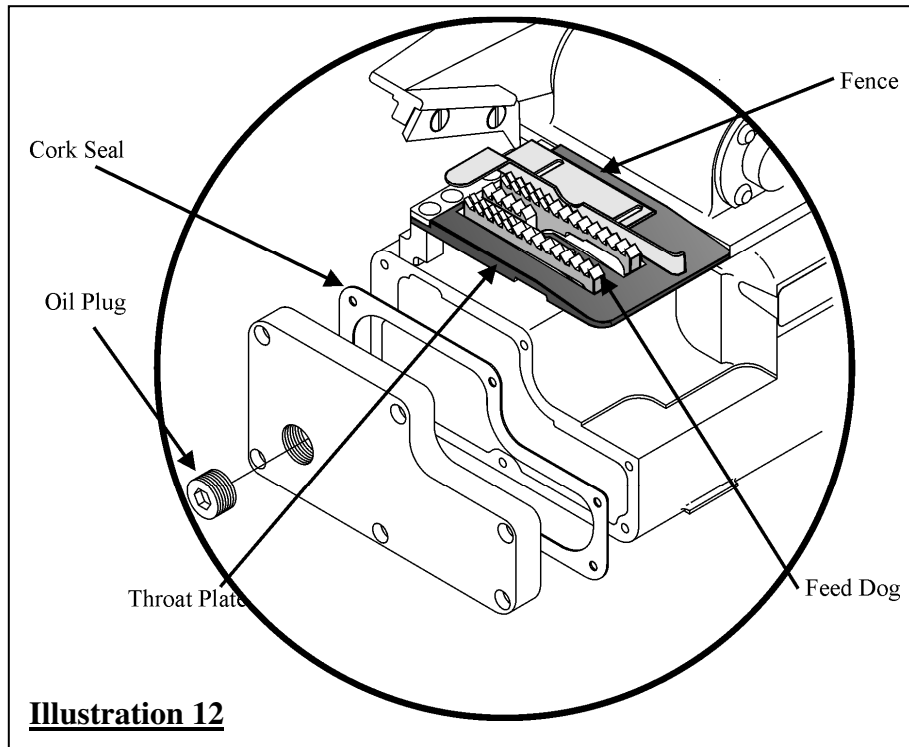


The standard factory setting of the stitch length is 3/8" (10 mm per stitch). Other stitch lengths can be set according to customer requirements. If a change is needed, please follow the procedure below:

1. Be sure the feed dog is down below the surface of the throat plate, by rotating the drive pulley clockwise. (**Illustration 12**)
2. Stand the sewing head on its drive pulley so that no oil can flow out when removing the bottom cover (**C, Illustration 5 and 11**). Block the head to prevent it from rotating on its pulley.
3. Remove the oil drain plug (**Illustration 5 & 11**) from the bottom cover (**C**). The drain hole will provide access to the socket cap screw (**A**), used in adjusting the stitch length.
4. With a 3/16" allen wrench, loosen (**but do not remove**) the socket cap screw (**A**). (**Illustration 11**) The screw may fall into the housing if it is removed.
5. The stitch length is changed by moving link (**D**) (**Illustration 11**) along the slot in link (**B**). *Moving link (**D**) toward the throat plate shortens the stitch. Moving it away from the throat plate lengthens it.*
6. Tighten the socket cap screw (**A**), but not fully yet.

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

7. To check the stitch length, tilt the sewing head enough to rotate the drive pulley, without allowing the oil to leak out of the drain hole. Put a sample piece of bag under the presser foot. Rotate the drive pulley clockwise through ten cycles and remove the bag sample. Calculate the stitch length and make necessary adjustment to the socket cap screw (A). (**Section 3.14.3, pages 37-38, #5**)



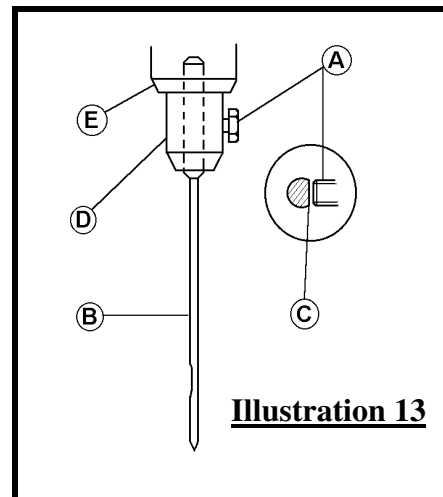
8. Tighten socket cap screw (A) after obtaining a correct setting. Wrap new Teflon® tape around the drain plug, and install it back into place.
9. Stitch length can vary between 2 to 4 stitches per inch (6,4 mm to 12,7 mm per stitch).
10. Changing the stitch length also involves re-synchronising the sewing head to the conveyor and the infeed (see **Section 3.14, page 34**).

3.4 CORK SEAL REPLACEMENT

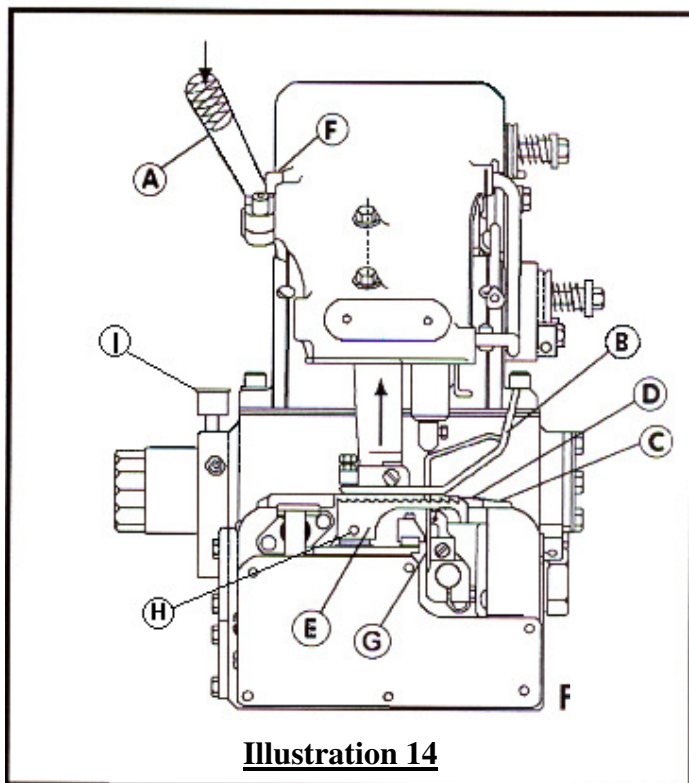
1. Referring to **Illustration 11 and 12**, check the cork seal located between plate (C) and housing (D), whenever plate (C) is removed.
2. Replace the seal (part number 10093) if it is damaged. Grease can be applied.

3.5 NEEDLE REPLACEMENT

1. Refer to **Illustration 13**. Loosen hex head screw (A) and remove the needle (B).
2. Install the new needle with the flat side (C) toward the hex head screw (A).
3. Be sure the new needle is inserted into the needle chuck (D) as far as it will go.
4. Tighten the hex head screw (A).
5. Follow **Sections 3.9.1-5 and 8, page 22** to properly set the needle in place.



3.6 FEED DOG REPLACEMENT



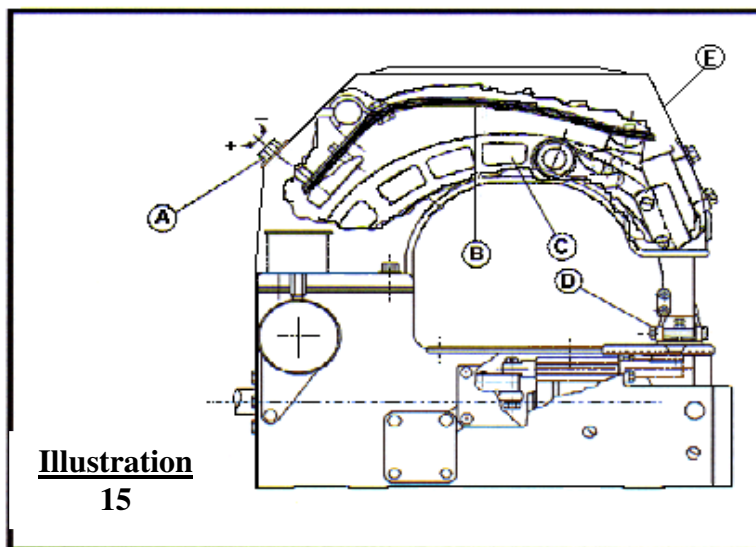
1. Lock out compressed air and electrical power so the machine cannot run. (**Illustration 14**)
2. Press lever (A) toward the oil pressure gauge (I). This will move the presser foot (B) upward and away from the throat plate (D).
3. Put a 1/4" (6mm) spacer (not provided) between lever (A) and screw (F).
4. Follow the instructions in **Section 3.5 NEEDLE REPLACEMENT** and remove the needle.
5. Remove the throat plate (D) by removing screws (C).
6. Loosen screw (H) and remove the feed dog (E).
7. Install the new feed dog (E). Be sure the feed dog is seated all the way down on the shaft then tighten screw (H). Refer to **sections 3.9.6 and 7, page 25** for the adjustment sequence.
8. Re-assemble in reverse sequence.
9. Remove the 1/4" (6mm) spacer from between lever (A) and screw (F).

3.7 THROAT PLATE REPLACEMENT

1. Refer to **Illustration 14**. Lock out compressed air and electrical power so the machine cannot run.
2. Press lever (A) toward the oil pressure gauge. This will move the presser foot (B) upward and away from the throat plate (D).
3. Put a ¼" (6mm) spacer between lever (A) and screw (F).
4. Follow the instructions in section **3.5 NEEDLE REPLACEMENT, page 20** and remove the needle.
5. Remove the throat plate (D) by removing screws (C).
6. Re-assemble the machine in the reverse sequence.
7. Check for proper alignment between the throat plate and the feed dog. (**Section 3.9.7, page 26**)
8. Remove the ¼" (6mm) spacer between lever (A) and screw (F).

3.8 PRESSER FOOT PRESSURE ADJUSTMENT

1. Refer to **Illustration 15**. Turn hex head screw (A) clockwise until it is tight.
2. Loosen the hex head screw (A), five turns and check the performance of the sewing head. **DO NOT REMOVE SCREW (A). DOING SO WILL RESULT IN THE SPRING ASSEMBLY (B) INSIDE THE HOOD (E) TO COME APART.**



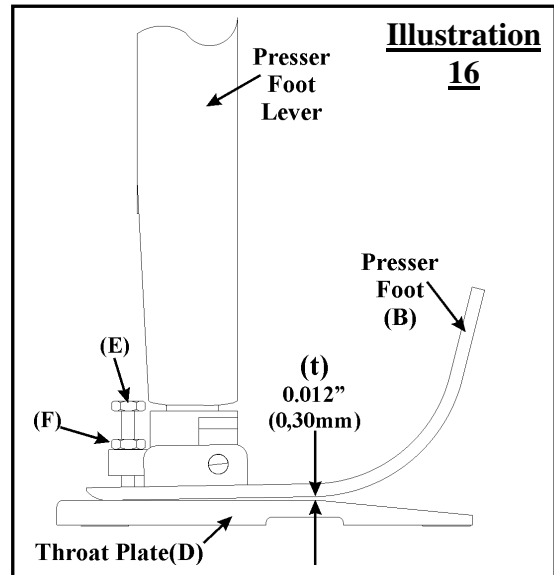
3. Further adjustment may be needed. Tighten screw (A) to increase the force exerted by spring (B) on lever (C) and, therefore, on presser foot (D). Loosening screw (A) will decrease the force exerted by spring.

3.9 FINE TUNING OF THE SEWING MACHINE

1. Presser foot adjustment:

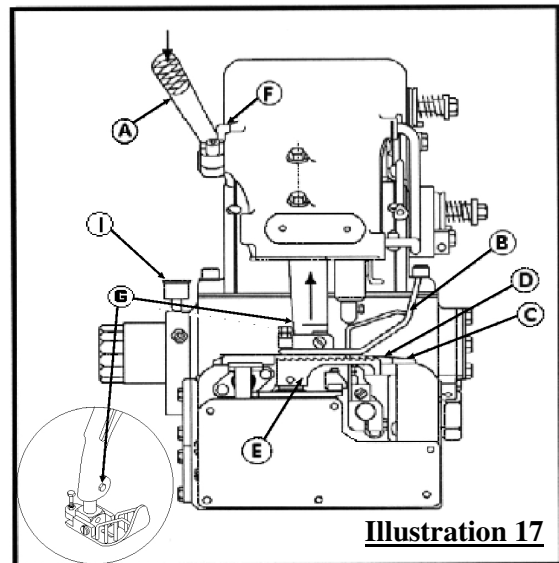
NOTE: This adjustment is to be done without bag or tape in the sewing head.

1. Refer to **Illustration 16**. The presser foot (**B**) should not be parallel with the throat plate (**D**). There must be a small gap (**t**) at the infeed end of the presser foot.
2. Gap (**t**) is adjusted by turning hex head screw (**E**), after unlocking the screw with nut (**F**). Gap (**t**) should be 0.012" (0,3mm). Gap (**t**) is increased by turning screw (**E**) clockwise, and decreased by turning screw (**E**) counterclock- wise.



2. Needle and needle guide adjustment:

1. Refer to **Illustration 17**.
2. Press lever (**A**) toward the oil pressure gauge (**I**). This will move the presser foot (**B**) upward and away from the throat plate (**D**).
3. Remove presser foot (**B**) by loosening screw (**G**).
4. Remove throat plate (**D**).
5. Remove feed dog (**E**).
6. The machine then appears as in **Illustration 17**.
7. Adjust the distance between needle guide (**I**) and needle (**D**)
See **Illustration 19**.



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

Always use a new needle before starting to adjust the machine.

8. Refer to **Illustration 19**. Loosen cap screw (**J**). Move the needle guide to achieve a gap of 0.008" (0,2mm) between the needle (**D**) and needle guide (**I**).
9. Tighten cap screw (**J**) after the gap adjustment is completed.

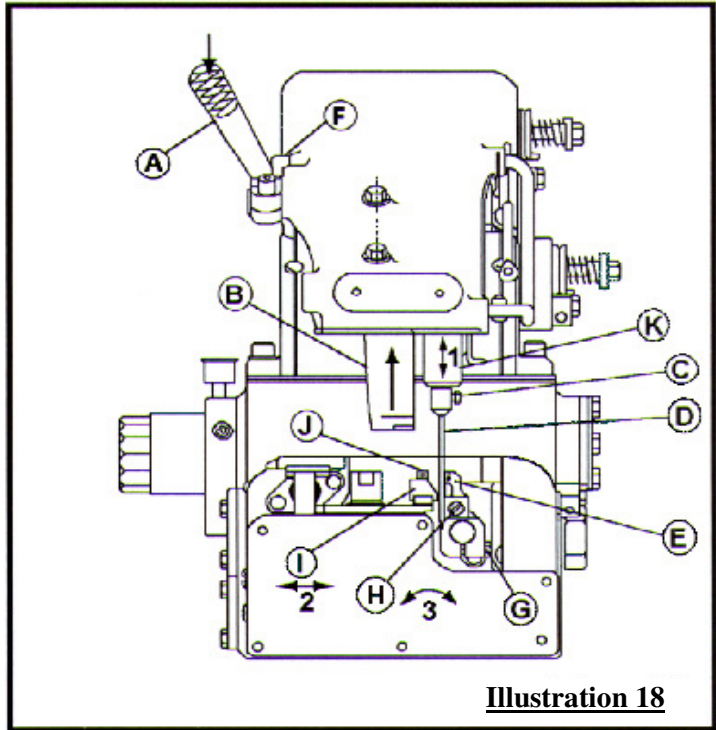
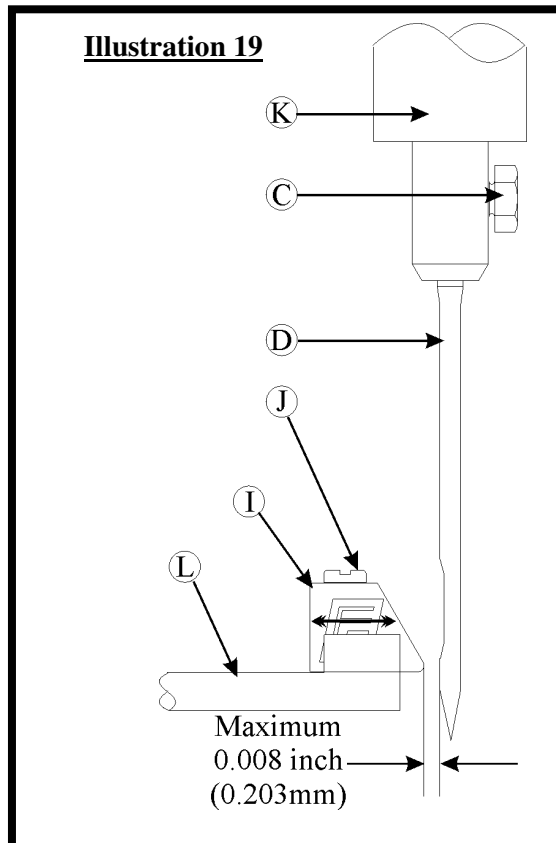


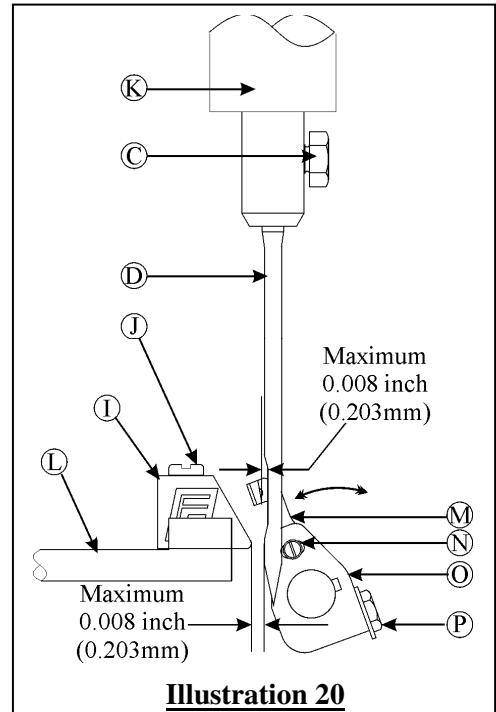
Illustration 18

WARNING: ALWAYS USE RECOMMENDED TOOLS.



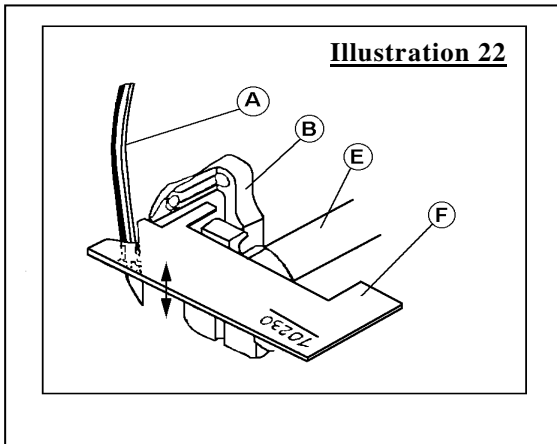
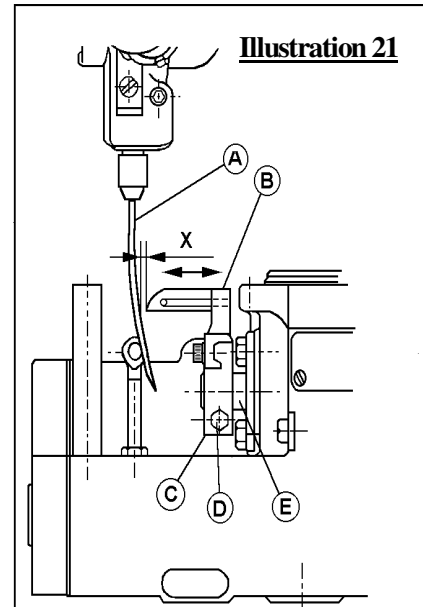
3. Needle and Loper Clearance

1. Refer to **Illustration 20**. It is very important that the needle (**D**) and the looper (**M**) do not touch during the forward movement of the looper (**M**).
2. With the looper (**M**) at the full forward position, adjust the looper (**M**) for a maximum 0.008" (0,2mm) gap between the needle (**D**) and looper (**M**). Loosen screw (**N**) and move the looper (**M**) to provide the gap.
3. Tighten screw (**N**) and re-check the gap.



4. Approximate setting of the distance between needle and looper

1. Refer to **Illustration 21**. Turn the machine and look from the feed side.
2. For adjustment of the distance **X**, we use the adjusting Gauge (part #10230) (**F** in **Illustration 22**) adjust the distance **X**. See **Section 3.13** for more about the Gauge.
3. This distance is set as the looper (**B**) has reached the end of its backward travel. If this distance is not correct (see **Illustration 22 and 23**), loosen the screw (**D**). The looper holder (**C**) can be moved along its shaft (**E**) in a longitudinal direction.

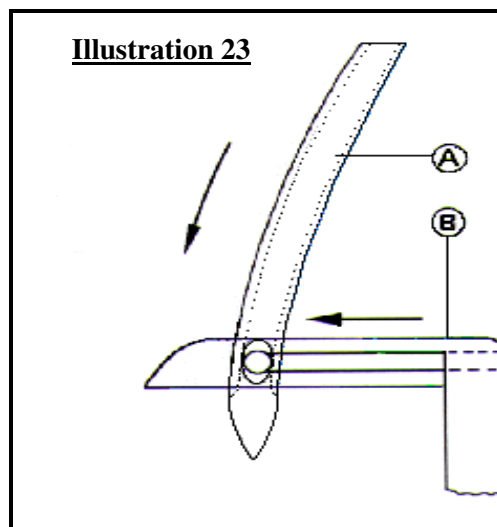


4. Once the correct distance for **X** is achieved, tighten screw (**D**).

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

5. Fine tuning the distance between the needle and the looper

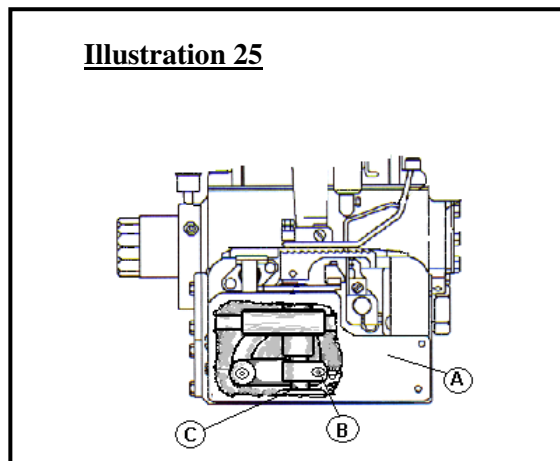
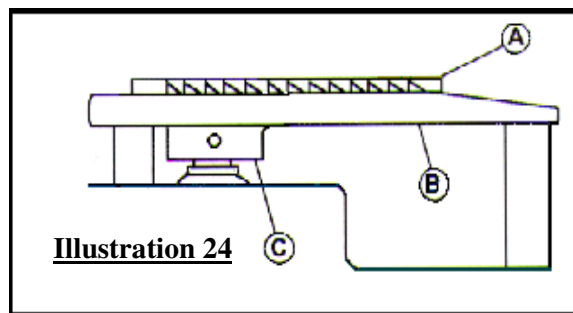
1. Refer to **Illustration 23**. Check to see if the hole in the looper (**B**) lines up with the slot in the needle (**A**) by rotating the drive pulley (not shown). This should be checked with the needle (**A**) in front of the looper (**B**) as well as behind it.
2. If the hole and slot do not line up, perform the adjustments described in **section 3.13** while referring to **Illustrations 34 and 36**.
3. After the adjustments are made, re-check to see if the slot and hole line up.



6. Feed dog height adjustment

Perform this adjustment inside the machine at the feed dog clamp. To adjust the height, move shaft up or down.

1. Refer to **Illustration 24**. Rotate the drive pulley (not shown) until the feed dog (**C**) is in the uppermost position. The feed dog (**C**) must protrude above the throat plate (**B**) the thickness of gauge (**A** – part number 10230).
2. If the feed dog (**C**) is not properly adjusted, refer to **Illustration 25**. Remove the housing cover (**A**), after setting the sewing head on the drive pulley to prevent the oil from leaking
3. Loosen cap screw (**B**), and move the feed dog shaft (**C**) up or down until the feed dog (**C** in **Illustration 24**) is the thickness of the gauge (**A** in **Illustration 24**) above the throat plate (**B** in **Illustration 24**).
4. Check the feed dog and throat plate alignment. (**Section 3.9.7, page 26**)
5. Tighten cap screw (**B**), and replace the housing cover (**A**).

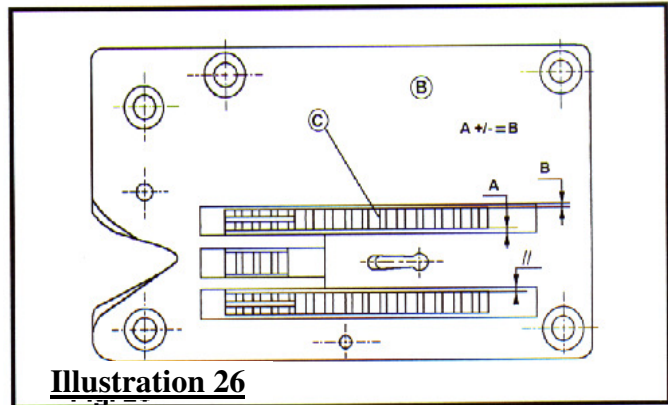


7. Feed dog parallel to the throat plate adjustment

1. Refer to **Illustration 26**. Look at feed dog (C) from the top. The sides of the feed dog (C) must be parallel to the sides of the slots in throat plate (B).

2. If the sides of the feed dog are not parallel to the throat plate, refer to **Illustration 25**. Remove the housing cover (A), after setting the sewing head on the drive pulley (up side down) to prevent oil from leaking.

3. Loosen cap screw (B), and rotate the feed dog shaft (C) until the sides of the feed dog (C in **Illustration 26**) are parallel to the slots in the throat plate (B in **Illustration 26**).



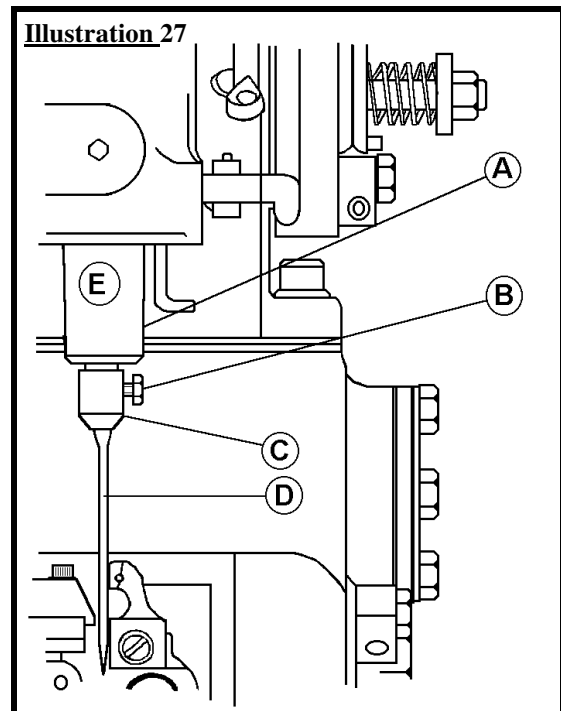
4. Check the feed dog height. (**Section 3.9.6, page 25**)
5. Tighten cap screw (B), and replace the housing cover (A). (**Illustration 25**)

8. Needle holder adjustment

The correct setting is fixed at the factory. Do not remove the needle holder (C, **Illustration 27**) from the needle lever (E) if this is not necessary.

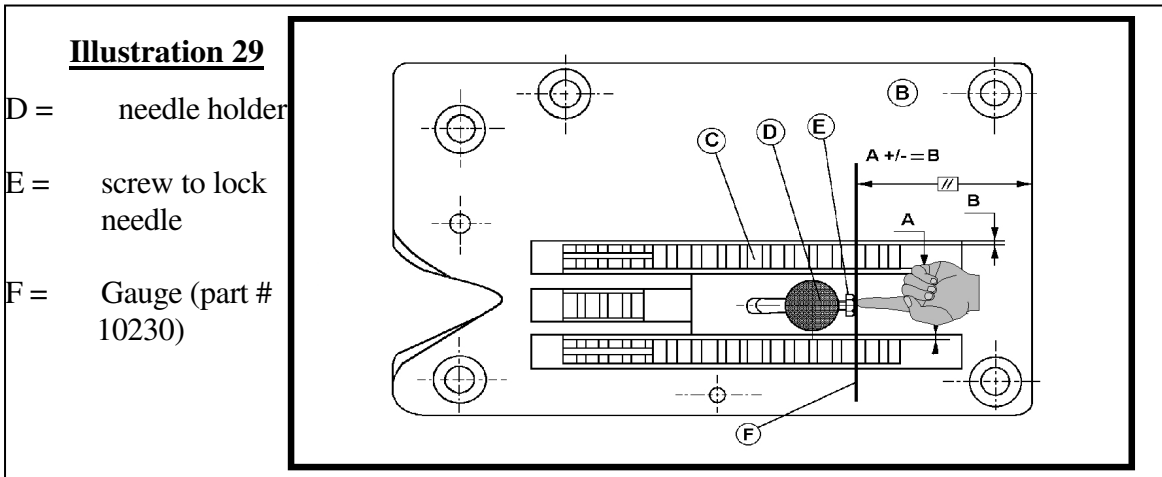
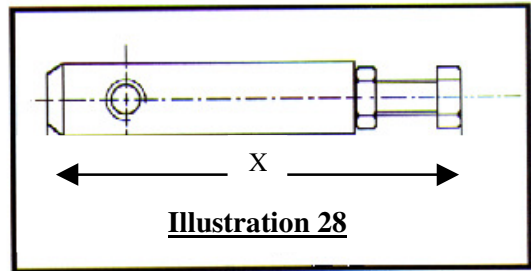
If it is necessary to replace the needle holder (C), follow these steps:

1. Refer to **Illustration 27**. Remove the needle (D) from the needle holder (C) by loosening hex head screw (B).
2. Remove needle holder (C) from the needle lever (E) by loosening hex head screw (A).
3. Measure the length X of the needle holder as shown in **Illustration 28**.
4. Set the new needle holder to the same length X and lock into position with the lock nut.
5. Place the new needle holder (C) in the needle lever (E).



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

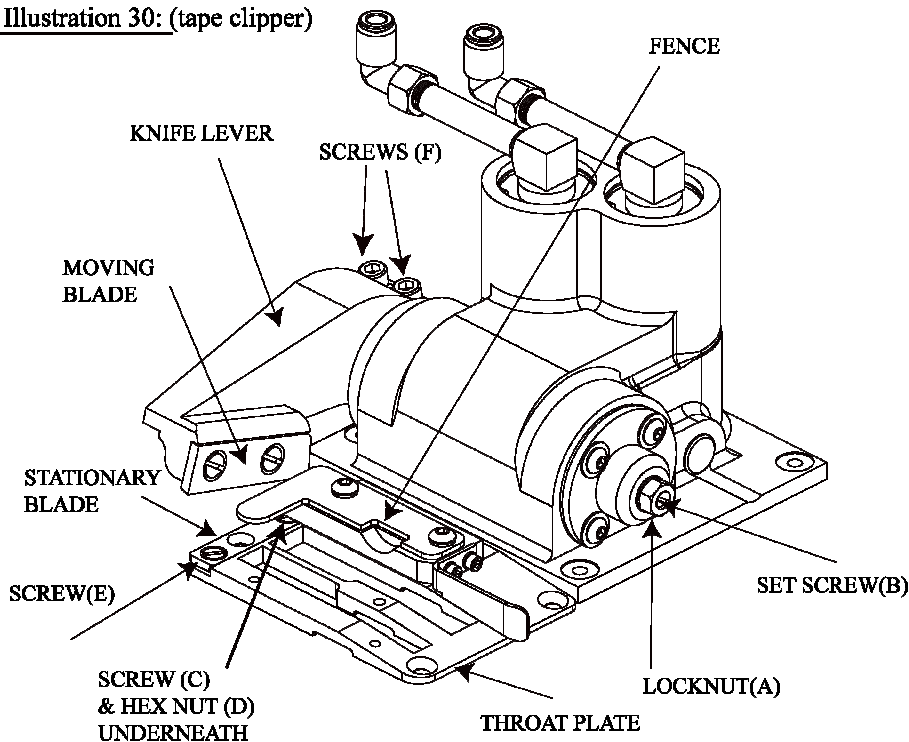
6. Refer to **Illustration 29**. Check the parallelism of the new needle holder (**D**) using the gauge (**F**) (part # 10230) where it is parallel to the front edge of the throat plate. Press the gauge flat against the screw (**E**).
7. If the needle holder (**D**) is not parallel, loosen screw (**A**) in **Illustration 27**, and rotate the needle holder (**C**) until it is parallel.
8. Tighten screw (**A**).



3.10 TAPE/THREAD CLIPPER AND BLADE REPLACEMENT AND ADJUSTMENTS (Model 101 & 201 only)

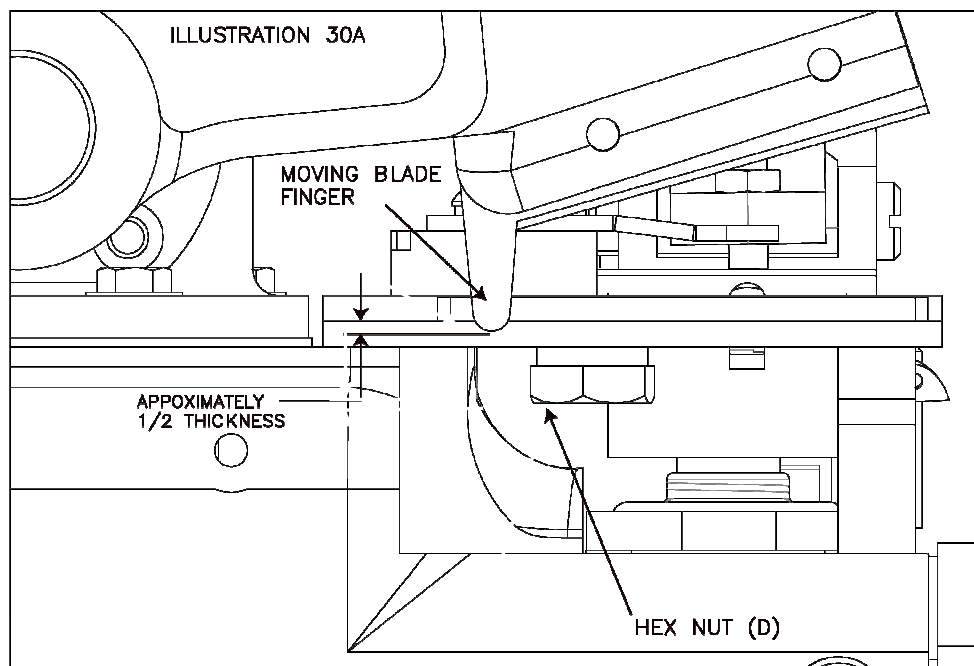
NOTE: Exercise care while working with the blades and wear proper eye, foot and hand protection. For efficient replacement, please remove the sew head and perform these steps on a work bench.

Illustration 30: (tape clipper)



1. To replace the moving and stationary blades, loosen nut (A) and rotate set screw (B) clockwise until the knives separate.
2. Loosen screws (F) and remove the knife lever. Remove the fence on top of the throat plate.
3. Replace the moving knife, part number, 10443, and tighten the two F103212 screws. Do not over-tighten or use loc-tite on the screws. Do not install the knife lever at this time.
4. Replace the stationary knife, part number, 10446, Screws (C) and (E) and hex nut (D). These screws must be kept slightly loose, so that the stationary can be properly aligned.
5. Loosen set screw (B) counterclockwise until it is not contacting the end of the internal knife shaft. The screw will feel loose or free in the threads.
6. Connect tape clipper air source kit (p/n 16468) to the clipper unit. Be sure both ¼" hoses are seated properly in the air fitting to avoid coming out when the air is turned on. Set the regulator to 90 psi (6,2 Bar), and turn on the air supply. Turn the set screw (B) clockwise until it touches the end of the internal knife shaft. A slight resistance will be felt.
7. After the screw (B) touches the internal knife shaft, turn one additional clockwise turn.
8. Install the knife lever onto the shaft as illustrated in 30A. Apply slight pressure against the movable knife lever and tighten screws (F). Caution: Never over-tighten the knife lever screws, because the knife lever could break.

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**



9. Disconnect air source to the clipper. Push knife lever downwards to its closed position. The leading edge of the movable knife will pass slightly below the stationary knife and stop.
10. Back off set screw (B) by one and a half turns (counter clockwise rotation) and lock nut (A). This will now spring load the moving blade to the fixed blade.
11. Slightly tighten screw (E) and keep it snug (Do not fully tighten) by eliminating all clearances. Align the rear end of the stationary knife by using a flat tip screw driver in the empty hole in the rear of the stationary knife and make the stationary knife parallel to the moving knife. The blade will automatically align and become parallel if the moving knife lever is slightly tapped with a rubber mallet towards the fixed blade. Tighten screw (C) and hex nut (D) after achieving good parallelism between the moving blade and the fixed blade. Tighten screw (E). The moving knife must be in the downward position for the entire blade alignment process.
12. Re-connect tape clipper air source kit (p/n 16468) to the clipper unit. Be sure both 1/4" hoses are seated properly in the air fitting. Set the regulator to 90 psi (6,2 Bar), and turn on the air supply. The moving knife arm will open and go to its home position.
13. Using the air valve in the kit, cycle the knife several times making sure the moving knife moves up and down without any possible interference with the fixed blade.
14. Using extreme caution, insert a piece of sewn crepe tape between both knives (KEEP FINGERS AWAY FROM THE KNIFE !), then activate the valve and make sure the tape is cleanly cut.
15. Disconnect air source kit from the clipper.
16. Replace the fence. Slide a business card between the fence and the side of the presser foot. Tighten both screws and then remove the business card.
17. A small amount of oil on the moving blade is recommended to provide smooth operation with minimal wear. The oil must be applied on the inside face of the moving knife finger where it makes contact with the fixed blade.
18. The sewing head can be now installed back onto the system. The tape clipper works best with a minimum 90 PSI (6,2 bar). The maximum pressure must not exceed 100 psi

**3.12 MOUNTING & ADJUSTING THE ROTARY AIR KNIFE
(Model 100 only)**

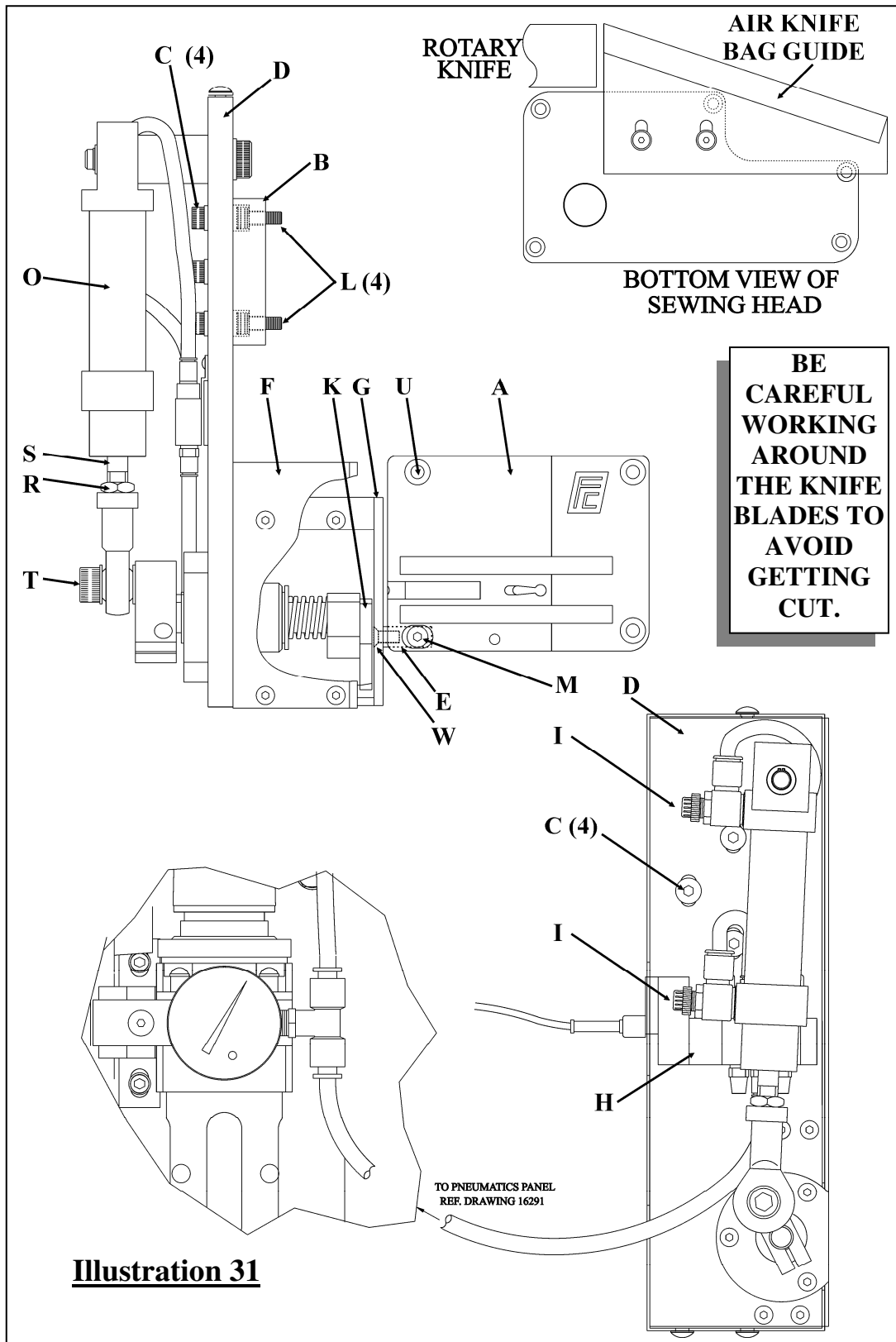


Illustration 31

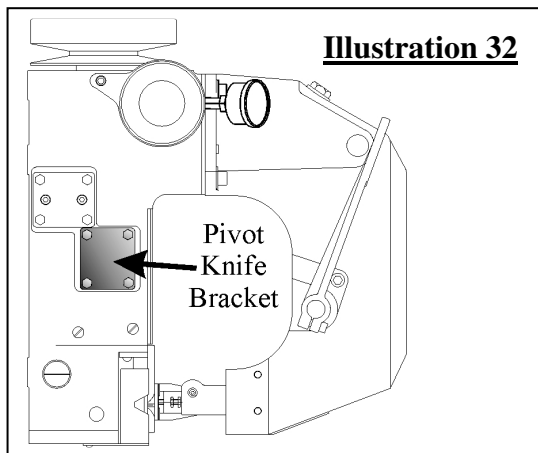
Mounting the Air Knife

1. Refer to **Illustration 31**. Mount the modified throat plate (**A**) to the sewing head using the original three flat head screws through three of the holes (**U**).
2. The mounting block (**B**, **Illustration 31**) is mounted to the outside face of the pivot knife bracket (**Illustration 32**) on the side of the housing. The four original screws are removed and replaced with four 10-32 x 7/8" cap screws (**L**, **Illustration 31**).
3. The knife assembly is mounted to the block (**B**) with four M6 metric cap screws (**C**) through the slotted holes in the support plate (**D**). **NOTE: *The air cylinder (O) will have to be rotated to gain access to all four screws (C). The cylinder (O) can be moved by removing cap screw (T). The slots provide for vertical adjustment for the assembly. These screws only need to be finger tight initially.***
4. Move the throat plate mounting block (**E**, **Illustrations 31 and 33**) until it touches the back of the throat plate. Move the assembly up and down until the tapped hole in the mounting block (**E**) lines up with the countersunk slot in the throat plate (**A**). Secure with an M4 metric flat head screw (**M**).
5. Tighten the four M6 socket head cap screws (**C**) and replace the air cylinder (**O**), with cap screw (**T**).
6. Remove the side cover (**F**) and tighten the M4 metric flat head screw (**W**) that secures the mounting block (**E**) to the fixed knife blade (**G**). (**Illustrations 31 and 33**)
7. Replace the cover (**F**).
8. Mount the outer cover on the rotary air knife assembly.

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

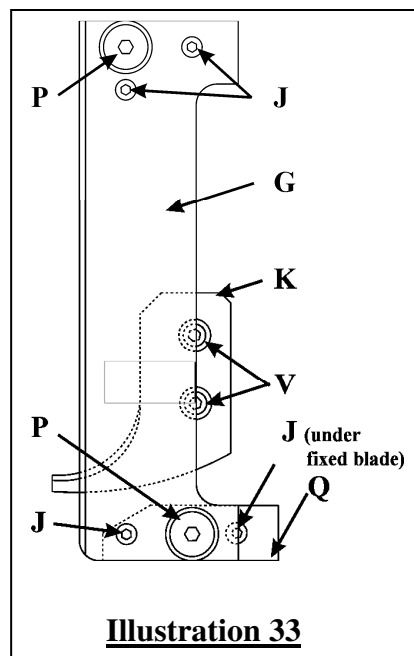
Adjustments and Maintenance

1. A regulator/filter assembly is required and is offered as an option. The air pressure to the air knife must be 90-PSI (6,2 bar) minimum.
2. If the thread is not cut off cleanly, it is usually the result of a dull knife set or a maladjusted fixed knife blade (**G**). (**Illustration 33**)
3. Adjust the flow control valves (**I**) on the air cylinder (**O**) to provide a smooth operation of the air knife. (**Illustration 31**) Turning out (counterclockwise) the adjustment screw on the valve will increase the speed of the air knife. The valves (**I**) are adjusted at the factory for maximum airflow and the fastest cut.



4. To replace the blades, first remove the side cover (**F**), (**Illustration 31**). Remove screws **P** and **W** to remove the fixed blade. Remove screws **V** to remove the movable blade (**K**). Replace the old blades with new. (#31112 and #31113)

5. The cutting edges of the fixed blade (**G**) and movable blade (**K**) must contact each other. If they do not, the cut edges of the thread will be frayed, or the thread will not be cut completely through. The four M4 set screws (**J**) provide this adjustment. (**Illustration 33**) Three are in the fixed blade (**G**), and one is in the lower fixed blade bracket (**Q**). Adjust the screws (**J**) until there is contact between the cutting edges. There may be a small gap along the back edges of the two knife blades as a result.

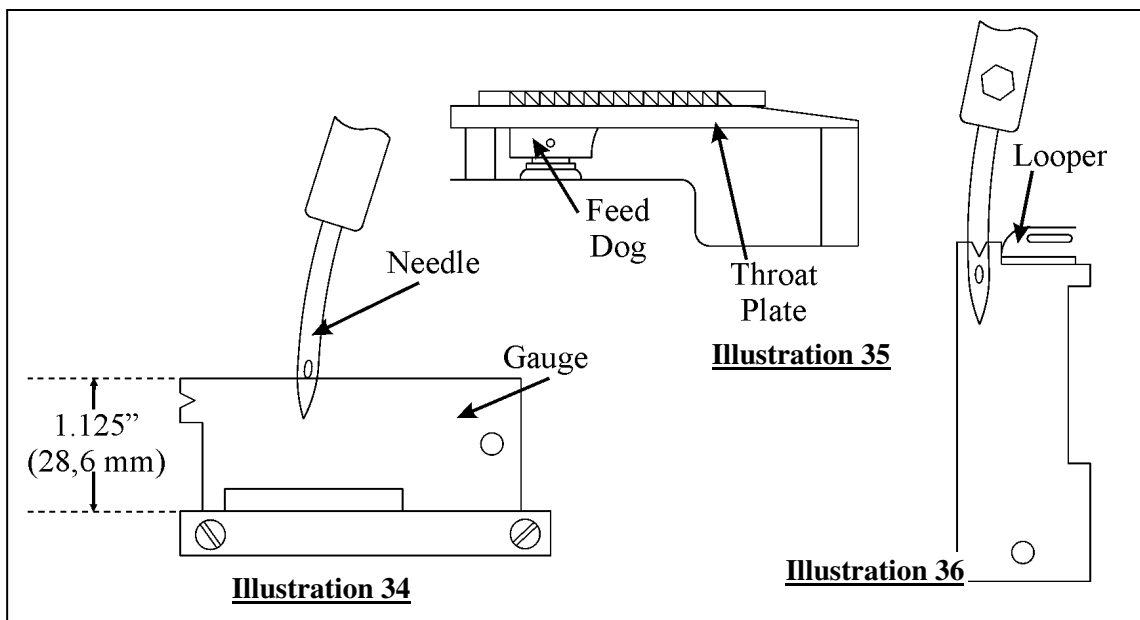


6. The contact between the two knives should periodically be coated with a light layer of grease. Wheel bearing grease is used at the factory.

7. The tip of the movable knife blade (**K**) must not extend beyond the cutting edge of the fixed knife blade (**G**). If it does, loosen nut (**R**) on the air cylinder (**O**). The air cylinder (**O**) must be in the retracted position as shown in **Illustration 31**. Screw the shaft (**S**) of air cylinder (**O**) in or out until the tip of the movable knife is retracted beyond the cutting edge of the fixed blade (**G**).

8. Further assistance is available from your Fischbein representative or by calling the Technical Service Department at the Fischbein Company. (**page 2**)

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**



3.13 USING THE GAUGE

The gauge is a necessary tool for adjusting Models 100 and 101. The following should be used as a reference for your machine. The gauge (part # **10230**) has three important dimensions for three separate measurement functions.

1. The thickness of the gauge is 1/16" (1,6mm). It is used to check the height of the feed dog above the throat plate at the top of the stroke (see **Illustrations 35**). The measurement is made with the presser foot on the machine and no thread or tape between the foot and the feed dog. After rotating the drive pulley to raise the feed dog to the maximum height above the throat plate, the gauge should just fit between the throat plate and presser foot.. If it does not fit, the feed dog should be checked for wear and replaced if needed. If the feed dog is not worn then adjust to the 1/16" (1,6mm) height.
2. Standing the gauge on edge, check the height of the needle at the top of its travel. The needle height should be 1-1/8" (28,6mm). Refer to **Illustration 34**. The throat plate must be on the machine for this check because the measurement is made from the throat plate to the bottom of the eye of the needle. This dimension is very critical. Follow the adjustments in section **3.9.8 NEEDLE HOLDER ADJUSTMENT (page 26)**, if this dimension is not correct. Be sure the needle is in the chuck all the way. The cut away portion, 1/4" x 1-3/8" (6mm x 35mm), allows this check to be made when the feed dog is on the machine. The needle and feed dog will be at the top of the stroke at this point.
3. The third use of the gauge is to check the stroke or timing of the looper relative to the needle. Refer to **Illustration 36**. With the looper to the right of the needle as far as it will travel or with the looper retracted into the machine as far as it will go, measure from the center of the needle to the tip of the looper. The small "V" in the gauge is now placed on the needle. The looper can be adjusted so the gauge clears the looper and that the looper is right up to the gauge. Follow the adjustments in section **3.9.5 FINE TUNING THE DISTANCE BETWEEN THE NEEDLE AND THE LOOPER (page 25)**, if this dimension is not correct.

Other uses for the Gauge:

The gauge is exactly 3” long at the longest point. This can be used as a gauge to measure stitch length.

The gauge is also a good straight edge to check the rotation of the needle chuck. It should be parallel with the machine. To check, place it on the needle clamping screw. When held firmly on the screw, it should seek a straight line parallel with the machine. (Section 3.9.8, page 26 & 27)

3.14 SEWING HEAD SPEED ADJUSTMENT AND SYNCHRONIZATION WITH THE SYSTEM

3.14.1 CALCULATING CONVEYOR SPEEDS

When calculating speeds for production rates, keep the following in mind:

- One revolution of the sewing head equals one stitch.
- The speed of the sewing head needs to be 2% faster than the conveyor that carries the product to it. This is desired because the sewing head needs to pull the bag taut through the infeed. **NOTE:** The maximum RPM of the Model 100 and 101 sewing heads is 1800 RPM.
- The speed of the infeed should match the speed of the conveyor.
- Key information to be gathered:
 - 1) Process speed (number of bags/min)
 - 2) Speed of the conveyor designated to carry bags to the sewing system
 - 3) Desired or required space between bags (often dictated by other equipment such as weighing and filling)
 - 4) The number of stitches required on the closure

NOTE: Generally, it has been observed that a slight change in the density of the contents, does not necessarily affect the production rate.

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

Example 1: (English)

A conveyor working at 52 FPM, with a bag closure of 2.5 stitches/inch, will require the following RPM:

2% increase: 52 ft/min x 1.02 = **53.04 ft/min** (sewing head linear rate)
Conversion: 2.5 stitches/inch x (12inches/ft) = 30 stitches/ft = **30 rev/ft**
Sewing Head RPM: (53.04 ft/min) x (30 rev/ft) = 1591.2 rev/min = **1591 RPM**

Example 2: (Metric)

A conveyor working at 14 m/min, with a stitch length of 10 mm/stitch, will require the following RPM:

2% increase: 14 m/min x 1,02 = **14,28 m/min** (sewing head linear rate)
Conversions: ⇒ 14,28 m/min x (1000 mm/m) = **14 280 mm/min**
⇒ 10 mm/stitch = **10 mm/rev**
Sewing head RPM: (14 280mm/min) / (10 mm/rev) = 1428 rev/min =
1428 RPM

Example 3: (Using the English Speed Charts)

A conveyor working at 40 FPM, with a bag closure of 2.5 stitches/inch, requires the following RPM:

Looking at the English speed charts (**Page 39**) under 2.5 stitches/inch and across from 40 FPM, yields 1200 RPM. Allowing for the 2% additional RPM sewing head speed provides the final speed of (1200 RPM x 1.02) = **1224 RPM**.

Example 4: (Using the Metric Speed Charts)

A conveyor working at 15 m/min, with a stitch length of 10,0 mm/stitch, requires the following RPM:

Looking at the Metric speed charts (**Page 40**) under the 10,0 mm/stitch and across from the 15 m/min, yields 1500 RPM. Allowing for the 2% additional sewing head speed provides the final speed of (1500 RPM x 1,02) = **1530 RPM**.

3.14.2 BAG HANDLING CAPACITY

The bag speed in *English* units of any Fischbein system can be determined by multiplying stitches per inch by 12 to determine stitches per foot, and then dividing the maximum sewing rate by that figure. For example:

1800 RPM (sewing rate) / (2.5 stitches per inch x 12 inches/ft) =
60.0 linear feet per minute

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD **OPERATOR'S MANUAL**

The bag speed in *Metric* units can be determined by dividing the stitch length by 1000 and then multiplying this quantity by the sewing rate. For example:

$$1800 \text{ RPM (sewing rate)} \times (10 \text{ mm/stitch} / 1000 \text{ mm/m}) =$$

18 linear meters per minute

It is possible to calculate the actual production rate in bags per minute by establishing the width of each bag and the between-bag spacing on the conveyor. A minimum of 6 to 8 inches (64 mm) between bags is recommended for plain sewing. Therefore, for an 18 inch (457,2 mm) wide plain sewn bag with 2.5 inches (64 mm) spacing, each bag accounts for 20.5 inches (520,7 mm) of linear space. Referring back to the above two examples:

$$\text{English: } (60.0 \text{ ft/min}) / \{(20.5 \text{ inches/bag}) / (12 \text{ inches/ft})\} = \mathbf{35.12 \text{ bags / min}}$$

$$\text{Metric: } (18 \text{ m/min}) / \{(520,7 \text{ mm/bag}) / (1000 \text{ mm/m})\} = \mathbf{34,57 \text{ bags / min}}$$

An additional **10%** loss should be allowed for interruptions such as inspections or maintenance issues with the production line, which would still allow closure of:

$$\text{English: } 35.12 \text{ bags/min} - 3.512 \text{ bags/min} = \mathbf{31.6 \text{ bags per minute}}$$

$$\text{Metric: } 34,57 \text{ bags/min} - 3,457 \text{ bags/min} = \mathbf{31,1 \text{ bags per minute}}$$

3.14.3 SYNCHRONIZING THE SEWING SYSTEM

In order to produce good bag closures, a sewing system must be properly synchronized with the production line in which it operates. The synchronization is achieved by properly timing three different elements: (1) the bag transport conveyor, (2) the sewing system infeed and (3) the sewing head.

The conveyor and the infeed will be synchronized to travel at the same speed. This will prevent bags from skewing forward or backward as they travel into the sewing system.

The sewing head requires that it be set up to run a speed slightly faster than the infeed and the conveyor, typically about **2%** faster. The sewing process requires that the bag be pulled taut to produce a stitching pattern that is smooth and flat.

The sewing head, the infeed and the bag transport conveyor can be adjusted to produce the proper set up for a variety of applications. Please consult your Fischbein distributor for the proper set up or call Fischbein directly.

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

1. The speed of the bag transport belt is measured in feet per minute (meters per minute).
2. The sewing head is equipped with a variable pitch pulley. The two sections of the pulley can be rotated relative to each other in ¼ turn increments. (**Illustration 37**)
3. First loosen the two set screws “B” with an 1/8 inch allen wrench. **The quarter turns are indicated by the notches “A” in the top of the pulley and change the speed of the sewing head by approximately 20 RPM.** By turning the top part of the pulley counterclockwise, the speed of the sewing head is increased (smaller pitch on pulley). If the pulley is turned clockwise, the speed is reduced. Once the adjustment has been made, be sure to tighten the set screws, but be careful to only tighten the screws down across from the notch locations. These notch locations not only mark quarter turns, but also indicate where flat sections exist in the threading of the pulley. If a screw is locked down in an area other than the flat areas, the threading on the pulley will be damaged and the pulley may not stay locked at this pitch.
4. The speed of the sewing head is measured in revolutions per minute (RPM) using a tachometer with a surface speed wheel tip to determine feet per minute (see **Speed Tables, page 39**).

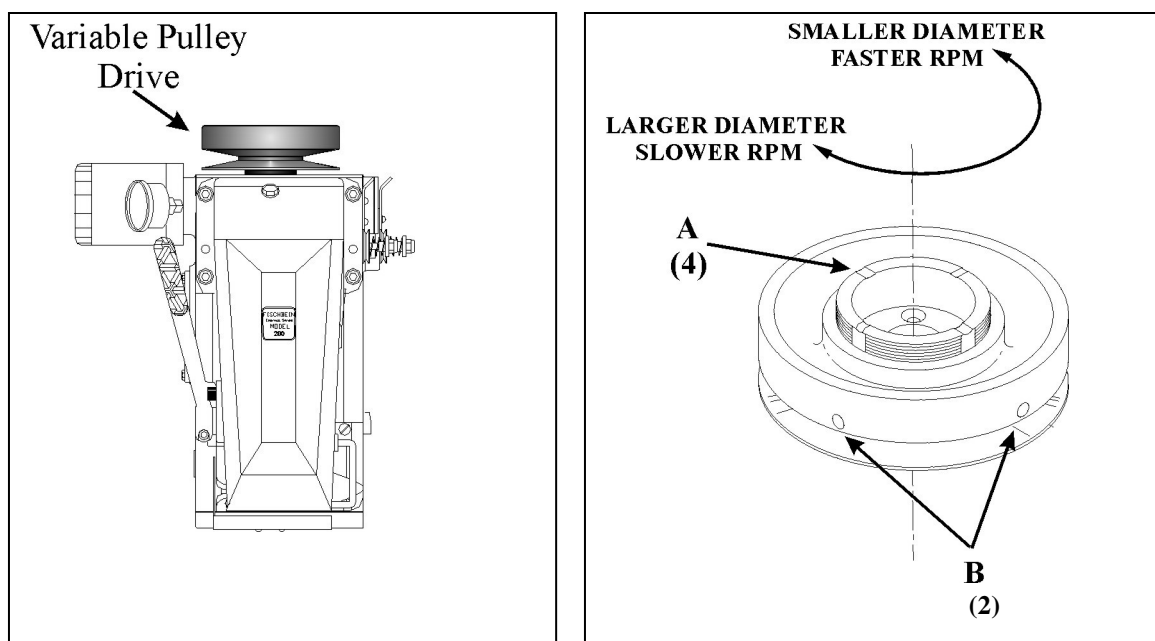


Illustration 37

5. In order to find out the stitch length, take a bag that has been stitched on the sewing head, with the individual thread facing forward. Measure the length of 10 stitches. In the **Illustration 38**, this length is 4" (101,6 mm).

English: This calculates to be (10 stitches / 4 inches) = 2.5 stitches per inch.

Metric: This calculates to be (101,6mm / 10 stitches) = 10,16 mm per stitch.

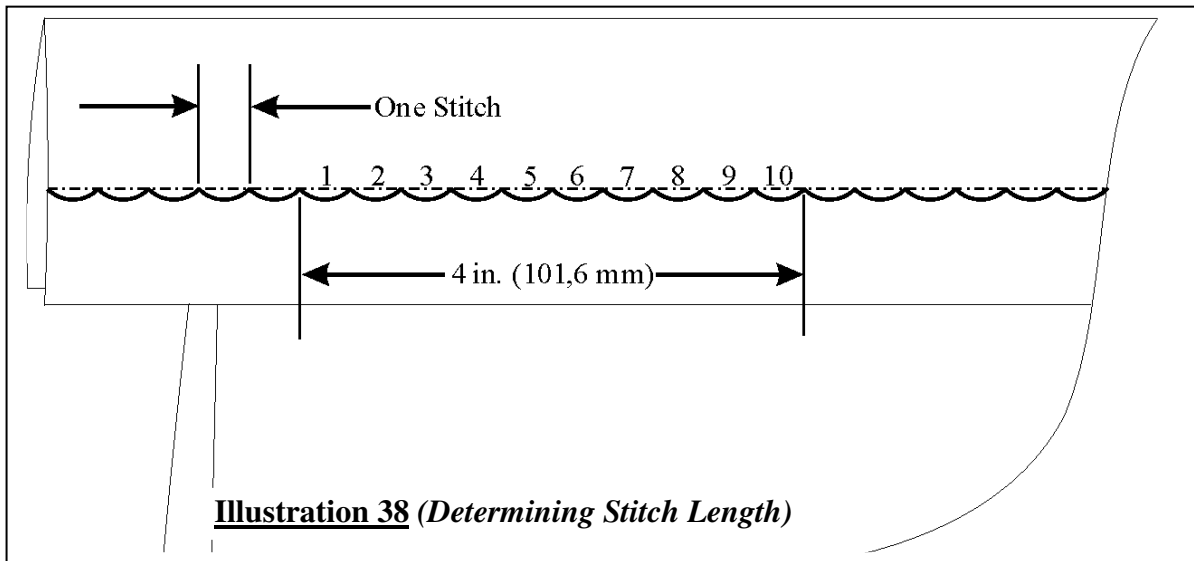
6. Adjust the speed of the sewing head so that it is 2% faster than the bag transport belt {e.g. transport belt 45 FPM (13,72 MPM) then the sewing head is to run at (45 FPM x 1.02) = 45.9 FPM (14 MPM)}.

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

7. If an infeed system is used, belts of the infeed must run at the same speed as the bag transport belt.

NOTES: Refer to **Illustration 37**. When adjusting the sewing head drive pulley, care should be taken so that the set screws are tightened against the flats of the pulley. Tightening the set screws against the threads can cause irreparable damage to the pulley.

The speed of a new or cold machine will be slower than one that is warm or has been operating in production for some time.



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

4. SPEED TABLES

4.1 ENGLISH SYSTEM

| FISCHBEIN EMPRESS™ 100 SEWING HEAD | | | | | | | |
|---|-----------|--|------------|-------------|----------|-------------|------------|
| SPEED CHART (RPM) - ENGLISH SYSTEM | | | | | | | |
| | | STITCH LENGTH (STITCHES PER INCH) | | | | | |
| | | 2 | 2.5 | 2.75 | 3 | 3.25 | 3.5 |
| CONVEYOR SPEED (FPM) | 30 | 720 | 900 | 990 | 1080 | 1188 | 1260 |
| | 35 | 840 | 1050 | 1155 | 1260 | 1386 | 1470 |
| | 40 | 960 | 1200 | 1320 | 1440 | 1584 | 1680 |
| | 45 | 1080 | 1350 | 1485 | 1620 | 1782 | |
| | 50 | 1200 | 1500 | 1650 | 1800 | | |
| | 55 | 1320 | 1650 | | | | |
| | 60 | 1440 | 1800 | | | | |
| | 65 | 1560 | | | | | |
| | 70 | 1680 | | | | | |
| | 75 | 1800 | | | | | |

**MAXIMUM RPM:
1800**

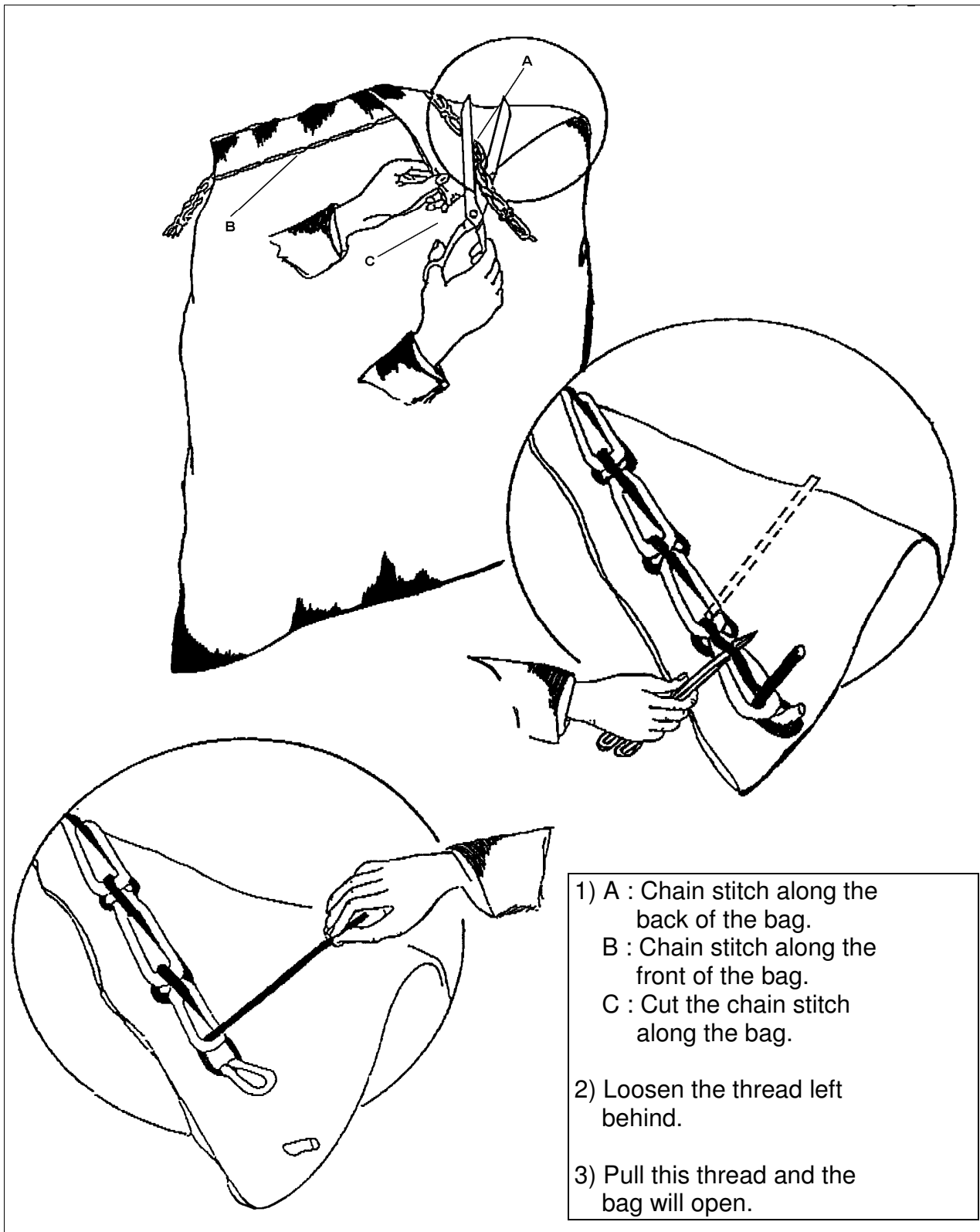
**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

4.2 METRIC SYSTEM

| FISCHBEIN EMPRESS™ 100 SEWING HEAD | | | | | | | | | | | | |
|---|-----------|--------------------------------------|-------------|-------------|-------------|-------------|-------------|------------|------------|------------|------------|------------|
| SPEED CHART (RPM) - METRIC SYSTEM | | | | | | | | | | | | |
| | | STITCH LENGTH (mm PER STITCH) | | | | | | | | | | |
| | | 12,5 | 12,0 | 11,5 | 11,0 | 10,5 | 10,0 | 9,5 | 9,0 | 8,5 | 8,0 | 7,5 |
| CONVEYOR SPEED (MPM) | 9 | 720 | 750 | 783 | 818 | 857 | 900 | 947 | 1000 | 1059 | 1125 | 1200 |
| | 10 | 800 | 833 | 870 | 909 | 952 | 1000 | 1053 | 1111 | 1176 | 1250 | 1333 |
| | 11 | 88 | 917 | 957 | 1000 | 1048 | 1100 | 1158 | 1222 | 1294 | 1375 | 1467 |
| | 12 | 960 | 1000 | 1043 | 1091 | 1143 | 1200 | 1263 | 1333 | 1412 | 1500 | 1600 |
| | 13 | 1040 | 1083 | 1130 | 1182 | 1238 | 1300 | 1368 | 1444 | 1529 | 1625 | 1733 |
| | 14 | 1120 | 1167 | 1217 | 1273 | 1333 | 1400 | 1474 | 1556 | 1647 | 1750 | |
| | 15 | 1200 | 1250 | 1304 | 1364 | 1429 | 1500 | 1579 | 1667 | 1765 | | |
| | 16 | 1280 | 1333 | 1391 | 1455 | 1524 | 1600 | 1684 | 1778 | | | |
| | 17 | 1360 | 1417 | 1478 | 1545 | 1619 | 1700 | 1789 | | | | |
| | 18 | 1440 | 1500 | 1565 | 1636 | 1714 | 1800 | | | | | |
| | 19 | 1520 | 1583 | 1652 | 1727 | | | | | | | |
| | 20 | 1600 | 1667 | 1739 | | | | | | | | |
| 21 | 1680 | 1750 | | | | | | | | | | |
| 22 | 1760 | | | | | | | | | | | |

**MAXIMUM RPM:
1800**

5. OPENING A SEWN BAG



6. TROUBLESHOOTING

| FAULT | CAUSE | SOLUTION |
|----------------------------------|---|--|
| 1. Machine runs but does not sew | <ol style="list-style-type: none"> 1. No thread. 2. Broken thread. 3. Broken needle. 4. Loose drive belt | <ol style="list-style-type: none"> 1. Fit a new cone. 2. Re-thread sewing head. 3. Replace needle. 4. Tighten drive motor belt. |
| 2. Poor quality chain stitch | <ol style="list-style-type: none"> 1. Thread is wrapped around guides or other object. 2. Poor thread tension. 3. Looper misaligned. 4. Needle maladjustment. 5. Looper to needle maladjustment. 6. Needle guide misaligned. 7. Worn Parts | <ol style="list-style-type: none"> 1. Remove the thread around the object, and re-thread the sewing head. 2. Re-adjust thread tension. 3. Re-adjust looper. 4. Re-adjust needle. 5. Re-adjust the relationship between the looper and needle. 6. Re-adjust needle guide. 7. Replace worn parts. |
| 3. No chain stitch | <ol style="list-style-type: none"> 1. Bent needle. 2. Dull needle. 3. Poor thread tension. 4. Feed dog worn out. 5. Presser foot worn out. | <ol style="list-style-type: none"> 1. Replace needle. 2. Replace needle. 3. Check thread tension. 4. Replace feed dog. 5. Replace presser foot. |
| 4. Poor stitch | <ol style="list-style-type: none"> 1. Throat plate damaged. 2. Presser foot pressure incorrect. 3. Feed dog worn. 4. Thread tension poorly adjusted. | <ol style="list-style-type: none"> 1. Replace throat plate. 2. Adjust pressure. 3. Replace Feed dog. 4. Adjust thread tension. |
| 5. Thread constantly breaks | <ol style="list-style-type: none"> 1. Thread stuck or blocked around thread tensioners. 2. Thread tensioners maladjusted. 3. Needle worn or bent. 4. Looper worn or bent. 5. Throat plate worn or damaged. 6. Needle overheating. 7 Too much thread tension. 8. Poor quality thread. 9. Worn Thread eyelets. | <ol style="list-style-type: none"> 1. Check thread guide or adjustment. 2. Readjust thread tensioners. 3. Replace needle. 4. Replace looper. 5. Replace throat plate. 6. Use another type of bag, a needle cooler or lubricated thread. 7. Less tension. 8. Use higher quality thread.(Fischbein lubricated thread) 9. Change all thread eyelets in all locations where thread passes through an eyelet |

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| FAULT | CAUSE | SOLUTION |
|-----------------------------------|--|---|
| 6. Needle breaks | <ol style="list-style-type: none"> 1. Sewing too close to the bag contents. 2. Looper setting is off. 3. Needle is askew in the sewing lever. 4. Poor synchronization with the system. 5. Operator pulling or holding the bag. 6. Needle guide worn or misaligned. 7. Presser foot is misaligned. | <ol style="list-style-type: none"> 1. Adjust the machine a little higher. 2. Reset looper distances. 3. Check needle adjustment. 4. Examine synchronization. 5. Let go of the bag. 6. Replace or reset needle guard. 7. Reset the presser foot. |
| 7. Bag gets stuck in the machine. | <ol style="list-style-type: none"> 1. Sewing head starts too late. 2. Synchronization with system is not correct. 3. Drive belt between the motor and sewing head pulley too loose. 4. Bag too full. 5. Feed dog worn. 6. Throat plate worn or damaged. 7. Faulty feed into the machine. 8. Pressure on the presser foot base too high or too low. | <ol style="list-style-type: none"> 1. Check photoeye alignment. 2. Synchronize again. 3. Replace or tension the belt. 4. Reduce contents. 5. Replace feed dog. 6. Replace throat plate. 7. Check system before feed into sewing head. 8. Readjust presser foot spring pressure. |
| 8. Bag tears | <ol style="list-style-type: none"> 1. Throat plate damaged. 2. Too much pressure on presser foot. 3. Damaged presser foot. 4. Stitches too close. | <ol style="list-style-type: none"> 1. Replace throat plate. 2. Reduce pressure. 3. Replace presser foot. 4. Reset and check stitch length. |
| 9. Bag tears on sewing line | <ol style="list-style-type: none"> 1. Too much thread tension. 2. Bag too thin. 3. Stitch too short. | <ol style="list-style-type: none"> 1. Reduce tension. 2. Change bag type. 3. Increase size of stitch. |
| 10. Skipped stitches | <ol style="list-style-type: none"> 1. Poor thread tension. 2. Thread pull off badly adjusted. 3. Poor thread quality. | <ol style="list-style-type: none"> 1. Adjust thread tension. 2. Adjust thread pull off. 3. Use higher quality thread. (Fischbein lubricated thread) |

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| FAULT | CAUSE | SOLUTION |
|--|---|--|
| 11. Chain is poorly cut | <ol style="list-style-type: none"> 1. Knives worn. 2. Knife springs worn. 3. Excessive material around the knife. | <ol style="list-style-type: none"> 1. Replace Knives. See manual. 2. Replace the knife springs. 3. Blast with clean compressed air. |
| 12. Sew line not straight | <ol style="list-style-type: none"> 1. Faulty feed. 2. Poor synchronization. | <ol style="list-style-type: none"> 1. Check presser foot pressure. 2. Check & adjust synchronization. |
| 13. Noise and excessive vibration | <ol style="list-style-type: none"> 1. Internal components loose or worn. 2. Sewing head loose. 3. Drive belt pulley loose. | <ol style="list-style-type: none"> 1. Fischbein technician. 2. Check and tighten screws. 3. Tighten. |
| 14. Sewing head will not turn | Internal parts broken. | Call Fischbein technician |
| 15. Low oil pressure | <ol style="list-style-type: none"> 1. Not enough oil. 2. Faulty lubrication pump. 3. Faulty pressure gauge. 4. Internal oil line plugged. 5. Filter blocked. | <ol style="list-style-type: none"> 1. Top off oil. 2. Call Fischbein technician. 3. Change gauge. 4. Call Fischbein technician. 5. Replace filter. |
| 16. Oil level too low, no oil, or oil on floor | <ol style="list-style-type: none"> 1. Drain plug loose. 2. Looper seal leaking oil. 3. Feed dog seal leaking oil. 4. Bottom plate of sewing head is loose. 5. Bottom plate cork seal broken. 6. Oil gauge broken. 7. Sewing lever and presser foot lever seal leaking oil. | <ol style="list-style-type: none"> 1. Tighten plug. 2. Replace seal. 3. Replace seal. 4. Tighten. 5. Replace seal. 6. Replace oil gauge. 7. Replace seal. |

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| FAULT | CAUSE | SOLUTION |
|---|---|---|
| 17. Tape scuffing (model 101 only) | <ol style="list-style-type: none"> 1. Tape reel drag too tight. 2. Tape width too wide for folder. 3. Alignment. 4. Dull feed dog. 5. Synchronization. 6. Too much drag through the tape folder. 7. Bent or damaged folder. 8. Feed dog and presser foot not properly adjusted. 9. Rough or sticky presser foot. | <ol style="list-style-type: none"> 1. Readjust tape reel collar. 2. Check and change tape if necessary. 3. Check alignment between folder and sewing head and between tape reel and folder. 4. Check and replace if needed. 5. Check synchronization of sewing head, power infeed and conveyor. 6. Check paraffin wax applicator. 7. Replace or repair folder. 8. Adjust. 9. Clean or replace. |
| 18. Tape binding (model 101 only) | Tape not correctly on tape reel holder. | Readjust tape reel collar and check folder. |
| 19. Uneven taping on bag (model 101 only) | <ol style="list-style-type: none"> 1. Tape loaded incorrectly in the folder. 2. Tape too narrow for folder. 3. Folder guides out of adjustment. 4. Tape reel and /or folder misaligned with head. 5. Folder blades out of adjustment. | <ol style="list-style-type: none"> 1. Adjust. 2. Check and replace with proper folder. 3. Readjust. 4. Readjust alignment. 5. Readjust. |
| 20. Tape wrinkling (model 101 only) | <ol style="list-style-type: none"> 1. Folder and sewing head out of alignment. 2. Rough or sticky build-up on presser foot. 3. Tape fence guide too far from presser foot. 4. Sewing head speed is lower compared to infeed and bag conveyor speeds. | <ol style="list-style-type: none"> 1. Readjust. 2. Clean or replace presser foot. 3. Readjust. 4. Synchronize speeds between head, infeed and conveyor. |

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

7. SPARE PARTS LIST

| PARTS | Where Used / page(s) | Part No. | Qty. |
|---|---|-----------------|-------------|
| Gasket, Top Cover | Plate cover or Tape clipper / 48, 50 | 10092 | 1 |
| Lubricating Oil (1 quart) * | (not shown) | 10200 | 3-qts |
| Food Grade Lubricating oil (1 quart) * | (Not shown) | 31047 | 3-qts |
| Screw, soc flat #10-32 x 1/2 | Needle Guard Holder / 60, 62 | F103212 | 6 |
| Oil Filter | Oil filter system / 48, 50 | 15054 | 2 |
| Gasket, Bottom Cover | Main housing / 48, 50 | 10093 | 2 |
| Knife Spring | Thread chain knife (100 only) / 64 | 10089 | 4 |
| Knife, Moving | Thread chain knife (100 only) / 64 | 31029 | 4 |
| Knife, Stationary | Thread chain knife (100 only) / 64 | 31032 | 4 |
| Knife, Bed - Wide | Tape clipper (101 only) / 50 | 10446 | 4 |
| Knife, Moving - Wide (101 only) | Tape Clipper (101 only) / 68 | 10443 | 4 |
| Guide, Rotary Knife - Bag | (100 only) / (not shown) | 31134 | 1 |
| Gasket, Manifold Cover | Oil filter system / 48, 50 | 10095 | 1 |
| Plate, Throat Wide and Medium Tape | Throat Plate (101 only) / 50 | 10485 | 1 |
| Plate, Throat Narrow Tape | Throat Plate (101 only) | 10495 | 1 |
| Gauge, Oil Pressure (60 PSI) | Oil filter system / 48, 50 | 15053 | 1 |
| Seal, Lever Arms | Lever arm assembly / 52, 54 | 31014 | 1 |
| Needles, Square (package of 10) | Needle arm assembly / 52, 54 | C100-S | 4 |
| Chuck, Needle | Needle arm assembly / 52, 54 | 10031 | 1 |
| Screw, Needle Clamp | Needle arm assembly / 52, 54 | 10011 | 2 |
| Screw, soc cap #6 - 32 x 3/4 | Lever arm assembly / 52, 54 | SC63234 | 2 |
| Plug, Drilled Clamp | Presser Foot / 52, 54 | 10213 | 1 |
| Plug, Tapped Clamp | Presser Foot / 52, 54 | 10214 | 1 |
| Plug, Tapped Clamp | Needle Lever / 52, 54 | 10212 | 1 |
| Plug, Drilled Clamp | Needle Lever / 52, 54 | 10211 | 1 |
| Pad, Spring - Presser Foot | Presser Foot / 52, 54 | 10190 | 1 |
| Seal, Feed Dog | Feed dog assembly / 60, 62 | 10077 | 2 |
| Screw, Pan HD #5 - 40 x 9/16 SS | Needle Guard / 60, 62 | P540916 | 2 |
| O-Ring, Feed Slide Rod | Feed dog assembly / 60, 62 | 10075 | 2 |
| Feed Dog (100 only) - Standard | Feed dog assembly (100 only) / 60 | 10078 | 1 |
| Feed Dog Wide Tape Standard MV | Feed dog assembly (101 only) / 62 | 10486 | 2 |
| Feed Dog Narrow Tape 1 1/4 Standard | Feed dog assembly (101 only) | 10496 | 2 |
| Feed Dog Medium Pull Tape | Feed dog assembly (101 only) | 10565 | 2 |
| Seal, Looper & Knife Shaft Seal | Looper assy / 66 Thd. knife (100 only) / 64 | 15104 | 2 |
| Gasket, Looper & Knife Shaft | Looper assy / 66 Thd. knife (100 only) / 64 | 15105 | 2 |
| Looper, Two Thread | Looper assembly / 66 | 10060 | 4 |
| Screw, flat head #8 - 32 x 1/2 | Fixed Blade Tape Clipper / 50 | F83212 | 4 |
| Screw, flat head #10 - 32 x 3/8 | Throat plate & Levers seal / 48, 50, 52, 54 | F103238 | 12 |
| Presser Foot, Curved | Presser foot assembly (100 only) / 52 | 10185 | 1 |
| Presser Foot 2-2.5" Wide Tape | Presser foot assembly (101 only) / 54 | 10484 | 1 |
| 1 7/8" Medium Tape | Presser foot assembly (101 only) | 10562 | 1 |
| 1 1/4" - 1 1/2" Narrow Tape | Presser foot assembly (101 only) | 10494 | 1 |
| Narrow "Pull Tape" (Tear Tape) | Presser foot assembly (101 only) | 10553 | 1 |
| Wide "Pull Tape" | Presser foot assembly (101 only) | 10558 | 1 |

* **NOTE:** *No substitution oils are accepted. Use of any other oil will void the product warranty.*

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

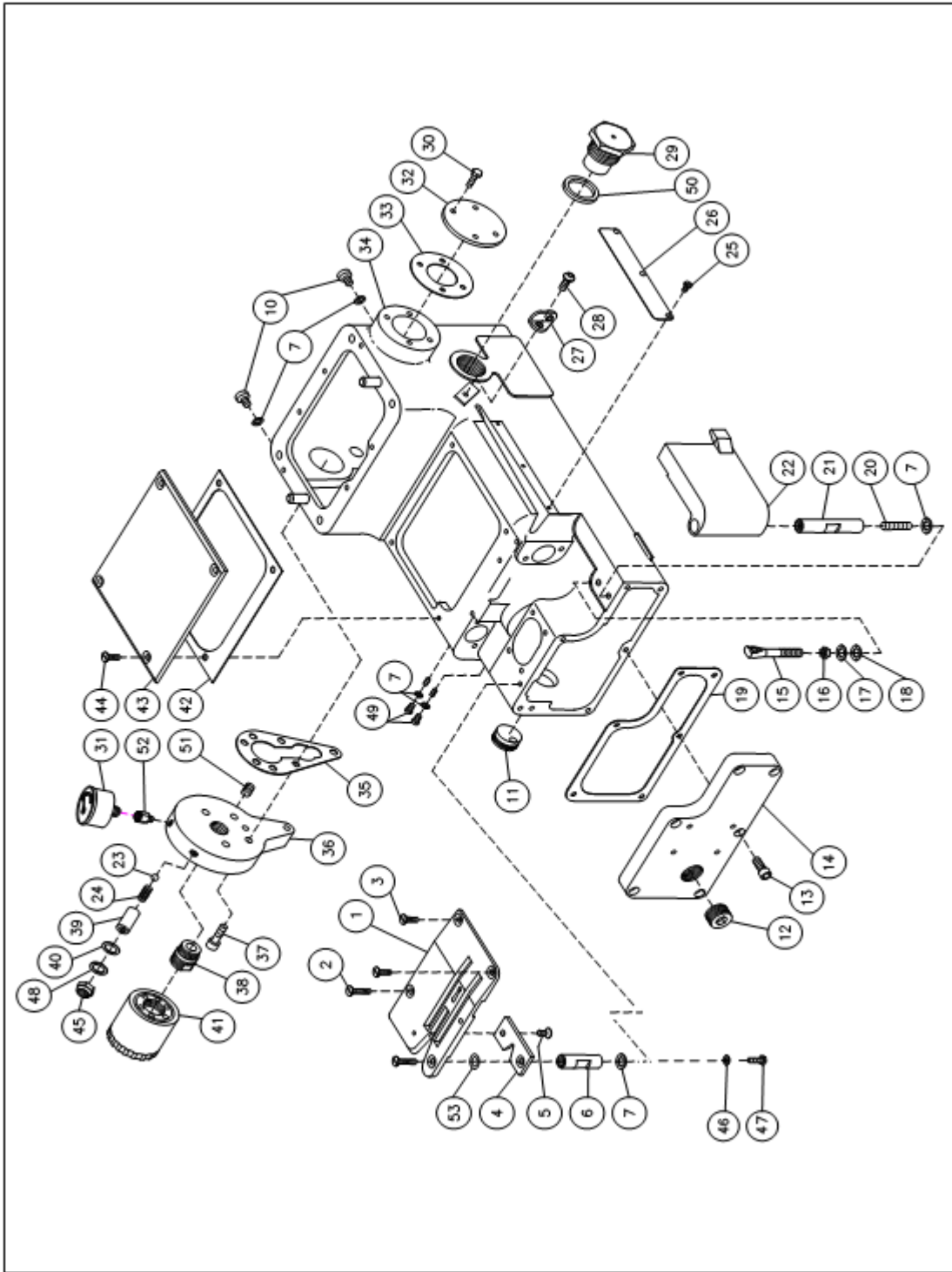
| PARTS | Where Used / page(s) | Part No. | Qty. |
|-------------------------------------|--|-----------------|-------------|
| SCREW, FLAT HD #10-32 X 5/8 | Throat Plate / 48, 50 | F103258 | 2 |
| SCREW, SOC BTTN #10-32 X 1/2 | Looper assy. / 66 Thd. knife (100 only) / 64 | SB103212 | 2 |
| WASHER, COMPRESSION | Tape clipper assembly / 68 | 10438 | 4 |
| SCREW, SOC FLAT M4 X 12MM | Rotary Air knife / 70, 74 | SFM412 | 2 |
| SCREW, SOC SET M4 X 6MM | Rotary Air knife / 70, 74 | SSM46 | 4 |
| SCREW, SOC FLAT M4 X 16MM | Rotary Air knife / 70, 74 | SFM416 | 4 |
| Kit, Three Piece Fence, Sewing Head | Main Housing/ 50 | 15180 | 1 |

8. DRAWINGS AND PARTS LISTS

| PART No. | DESCRIPTION | PAGE |
|-----------------|---|--------------|
| 8.1 | MODEL 100 HOUSING | 48-49 |
| 8.1.1 | MODEL 101 HOUSING | 50-51 |
| 8.2 | MODEL 100 NEEDLE & PRESSER FOOT ASSEMBLIES | 52-53 |
| 8.2.1 | MODEL 101 NEEDLE & PRESSER FOOT ASSEMBLIES | 54-55 |
| 8.3 | MODEL 100 LEVER-HOUSING | 56-57 |
| 8.3.1 | MODEL 101 LEVER-HOUSING | 58-59 |
| 8.4 | MODEL 100 FEED ASSEMBLY | 60-61 |
| 8.4.1 | MODEL 101 FEED ASSEMBLY | 62-63 |
| 8.5 | MAINSHAFT ASSEMBLY | 64-65 |
| 8.6 | LOOPER ASSEMBLY | 66 |
| 8.7 | OIL PUMP ASSEMBLY | 67 |
| 8.8 | TAPE CLIPPER | 68-69 |
| 8.9 | ROTARY AIR KNIFE (110 VAC) | 70-72 |
| 8.10 | ROTARY AIR KNIFE (24 VDC) | 74-76 |

8.1

MODEL 100 HOUSING



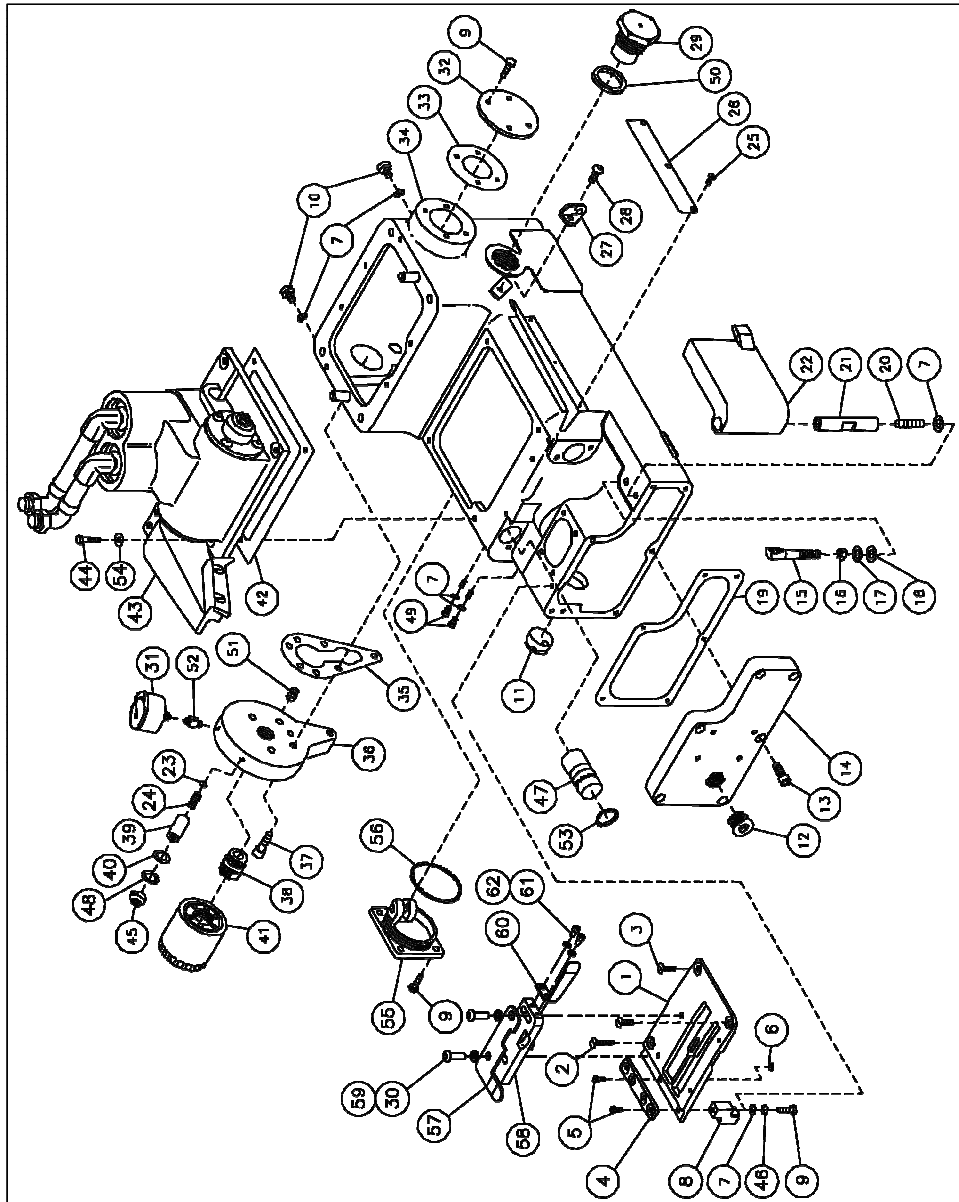
| Item No. | Quantity | Part No. | Description: |
|----------|----------|----------|-------------------------|
| 1 | 1 | 10017 | Throat plate |
| 2 | 2 | F103258 | Screw, Flat 10-32 x 5/8 |
| 3 | 2 | F103238 | Screw, Flat 10-32 x 3/8 |
| 4 | 1 | 31032 | Stationary knife |

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|----------|--|
| 5 | 1 | F83214 | Screw, Flat 8-32 x 1/4 |
| 6 | 1 | 10015 | Post, short-throat plate |
| 7 | 6 | WN 10 | Washer, Nylon |
| 8 | | | |
| 9 | | | |
| 10 | 2 | B103214 | Screw, Binding HD 10-32 x 1/4 |
| 11 | 1 | 10112 | Window, oil level |
| 12 | 1 | 10111 | Plug, drain – magnetic |
| 13 | 6 | SC103258 | Screw, Soc. Cap 10-32 x 5/8 |
| 14 | 1 | 15072 | Cover, bottom |
| 15 | 1 | 10170 | Pull off looper thread |
| 16 | 1 | NH1420 | Nut, Hex 1/4-20 |
| 17 | 1 | WF14 | Washer, Flat ¼ |
| 18 | 1 | 10052 | Washer, Nylon |
| 19 | 1 | 10093 | Gasket, cover – bottom |
| 20 | 1 | SS10321 | Screw, Soc. Set 10-32 x 1 |
| 21 | 1 | 10016 | Post, long – throat plate |
| 22 | 1 | 10005 | Door , looper |
| 23 | 1 | 15069 | Ball , chrome (part of Item 36 (15056) assy) |
| 24 | 1 | 15078 | Spring, pressure (part of Item 36 (15056) assy) |
| 25 | 3 | B632316 | Screw, Binding HD 6-32 x 3/16 |
| 26 | 1 | 10098 | Cover, groove – thread |
| 27 | 1 | 10164 | Eyelet, thread – short |
| 28 | 1 | SB103212 | Screw, Soc. BTTN 10-32 x 1/2 |
| 29 | 1 | 10116 | Assy, plug – breather |
| 30 | 4 | H103212 | Screw, Hex HD 10-32 x 1/2 |
| 31 | 1 | 15053 | Gauge, oil pressure 60 PSI |
| 32 | 1 | 15079 | Plate, cover – side |
| 33 | 1 | 10094 | Gasket, mainshaft seal |
| 34 | 1 | 31002 | Housing, main |
| 35 | 1 | 10095 | Gasket, cover – manifold |
| 36 | 1 | 15056 | Manifold, filter-oil assy (includes items 23,24,39,40,45,48) |
| 37 | 5 | SC103234 | Screw, Soc. Cap 10-32 x 3/4 |
| 38 | 1 | 15062 | Nipple , filter oil |
| 39 | 1 | 15064 | Plug, adjusting – manifold (part of Item 36 (15056) assy) |
| 40 | 1 | 15074 | Seal, Pressure Control–Manifold (part of Item 36 (15056) assy) |
| 41 | 1 | 15054 | Cartridge, oil – filter |
| 42 | 1 | 10092 | Gasket, cover –top |
| 43 | 1 | 10014 | Plate, cover – top |
| 44 | 4 | F103238 | Screw, Flat HD 10-32 x 3/8 |
| 45 | 1 | 11268 | Nut, lock (part of Item 36 (15056) assy) |
| 46 | 1 | 18820 | Washer, Flat #10, .44OD |
| 47 | 1 | H103212 | Screw, Hex HD #10-32 X 1/2 |
| 48 | 1 | A3934 | Washer, Thrust (part of Item 36 (15056) assy) |
| 49 | 2 | B103238 | Screw, BTTN 10-32 x 3/8 |
| 50 | 1 | 10338 | O-ring, 7/8 ID |
| 51 | 1 | 10125 | Plug 1/8 NPT |
| 52 | 1 | 16034 | Fitting, Adapter 1/8 M x 1/8 F 45 Deg |
| 53 | .5 | 15024 | Spacer, Shim |

8.1.1

MODEL 101 HOUSING

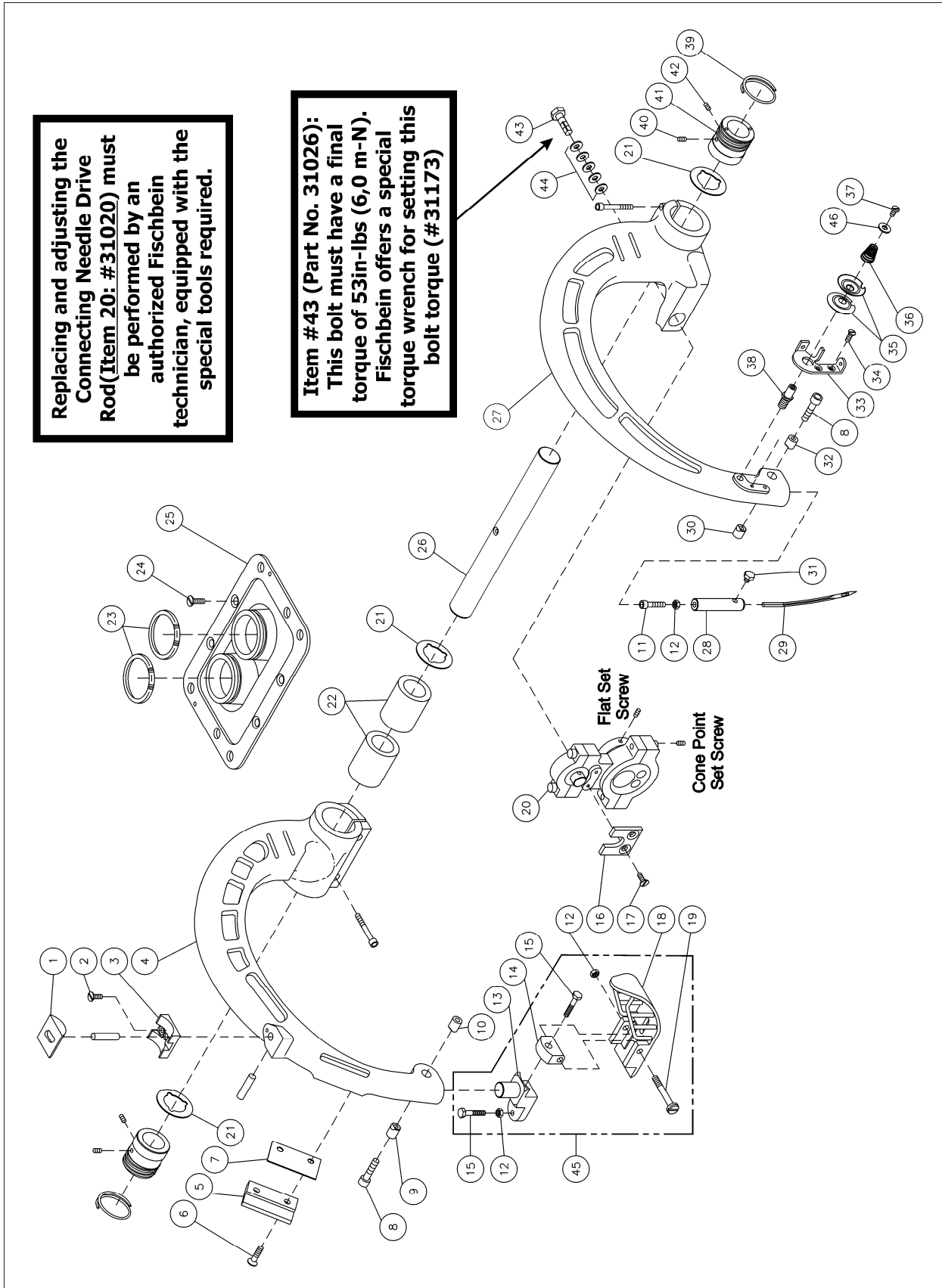


| Item No. | Quantity | Part No. | Description: |
|----------|----------|----------|-------------------------------|
| 1 | 1 | 10485 | Throat plate, Wide Tape (STD) |
| 2 | 1 | F103258 | Screw, Flat 10-32 x 5/8 |
| 3 | 2 | F103238 | Screw, Flat 10-32 x 3/8 |
| 4 | 1 | 10446 | Knife, Blade-Bed (wide) |
| 5 | 2 | F83212 | Screw, Flat 8-32 x 1/2 |
| 6 | 1 | NH832 | Nut, Hex #8-32 |
| 7 | 6 | WN10 | Washer, Nylon |
| 8 | 1 | 10434 | Post-Offset |
| 9 | 5 | H103212 | Screw, Hex HD 10-32 x 1/2 |
| 10 | 2 | B103214 | Screw, Binding HD 10-32 x 1/4 |

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|----------|--|
| 11 | 1 | 10112 | Window, oil level |
| 12 | 1 | 10111 | Plug, drain – magnetic |
| 13 | 6 | SC103258 | Screw, Soc. Cap 10-32 x 5/8 |
| 14 | 1 | 15072 | Cover, bottom |
| 15 | 1 | 10170 | Pull off looper thread |
| 16 | 1 | NH1420 | Nut, Hex 1/4-20 |
| 17 | 1 | WF14 | Washer, Flat ¼ |
| 18 | 1 | 10052 | Washer, Nylon |
| 19 | 1 | 10093 | Gasket, cover – bottom |
| 20 | 1 | SS10321 | Screw, Soc. Set 10-32 x 1 |
| 21 | 1 | 10016 | Post, long – throat plate |
| 22 | 1 | 10005 | Door , looper |
| 23 | 1 | 15069 | Ball , chrome (part of Item 36 (15056) assy) |
| 24 | 1 | 15078 | Spring, pressure (part of Item 36 (15056) assy) |
| 25 | 3 | B632316 | Screw, Binding HD 6-32 x 3/16 |
| 26 | 1 | 10098 | Cover, groove – thread |
| 27 | 1 | 10164 | Eyelet, thread – short |
| 28 | 1 | SB103212 | Screw, Soc. BTTN 10-32 x 1/2 |
| 29 | 1 | 10116 | Assy, plug – breather |
| 30 | 2 | SB103258 | Screw, Soc. BTTN #10-32 X 5/8 |
| 31 | 1 | 15053 | Gauge, oil pressure 60 PSI |
| 32 | 1 | 15079 | Plate, cover – side |
| 33 | 1 | 10094 | Gasket, mainshaft seal |
| 34 | 1 | 31002 | Housing, main |
| 35 | 1 | 10095 | Gasket, cover – manifold |
| 36 | 1 | 15056 | Manifold, filter Assy. (includes items 23,24,39,40,45,48) |
| 37 | 5 | SC103234 | Screw, Soc. Cap 10-32 x 3/4 |
| 38 | 1 | 15062 | Nipple , filter oil |
| 39 | 1 | 15064 | Plug, adjusting – manifold (part of Item 36 (15056) assy) |
| 40 | 1 | 15074 | Seal, Pressure Control-Manifold (part of Item 36 (15056) assy) |
| 41 | 1 | 15054 | Cartridge, oil – filter |
| 42 | 1 | 10092 | Gasket, cover –top |
| 43 | 1 | 31035 | Assy, Clipper |
| 44 | 4 | H103258 | Screw, Hex HD 10-32 x 5/8 |
| 45 | 1 | 11268 | Nut, lock (part of Item 36 (15056) assy) |
| 46 | 1 | 18820 | Washer, Flat #10, .44OD |
| 47 | 1 | 10442 | Plug |
| 48 | 1 | A3934 | Washer, Thrust (part of Item 36 (15056) assy) |
| 49 | 2 | B103238 | Screw, BTTN 10-32 x 3/8 |
| 50 | 1 | 10338 | O-ring, 7/8 ID |
| 51 | 1 | 10125 | Plug 1/8 NPT |
| 52 | 1 | 16034 | Fitting, Adapter 1/8 M x 1/8 F 45 Deg |
| 53 | 1 | 10441 | O-ring, 5/8 ID |
| 54 | 4 | 10438 | Washer, Compression |
| 55 | 1 | 10085 | Bracket, Pivot Knife |
| 56 | 1 | 10084 | O-ring, Pump Body & Knife Plug |
| 57 | 1 | 15195 | Stripper 2, Bag Top |
| 58 | 1 | 15177 | Base Plate, Fence Assembly |
| 59 | 2 | WL10 | Washer, Lock #10 |
| 60 | 1 | 15179 | Bag Guide, Fence Assembly |
| 61 | 2 | SC54014 | Screw, Soc. Cap #5-40 X 1/4 BO |
| 62 | 2 | WL5 | Washer, Lock #5 |

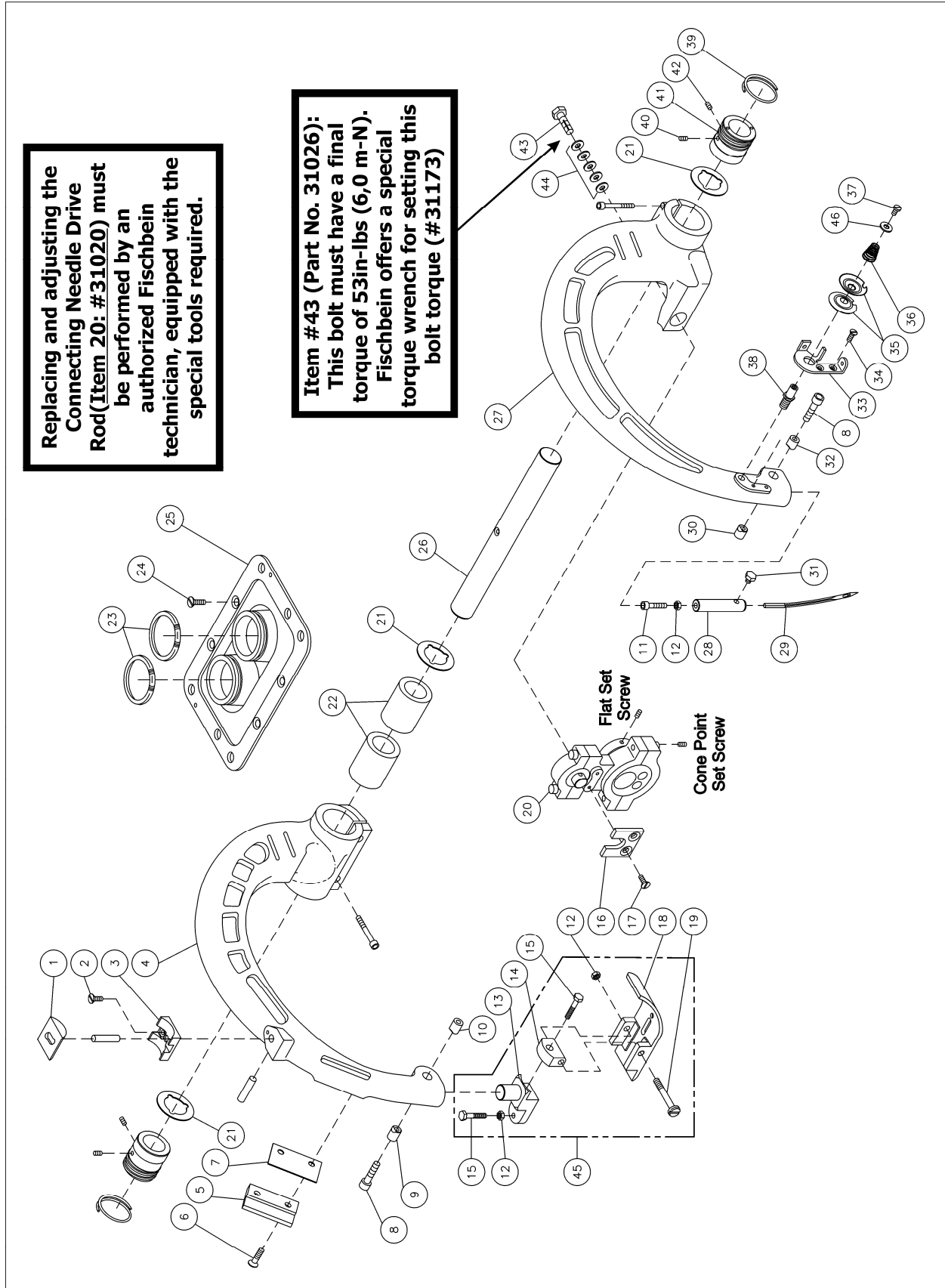
8.2 MODEL 100 NEEDLE & PRESSER FOOT ASSEMBLY



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|-----------|---|
| 1 | 1 | 10190 | Pad, spring presser foot |
| 2 | 1 | F63214 | Screw, Flat 6-32 x ¼ |
| 3 | 1 | 10189 | Cradle, pad presser foot |
| 4 | 1 | 10004 | Lever, presser foot |
| | 2 | SC14201 | Screw, Soc. Cap 1/4-20 x 1 |
| | 2 | PS14112 | Pin, Spring |
| 5 | 1 | 10163 | Clamp, bearing sheet |
| 6 | 2 | SF103258 | Screw, Soc. Flat 10-32 x 5/8 |
| 7 | 1 | 10162 | Sheet, bearing presser foot |
| 8 | 2 | SC63234 | Screw, Soc. Cap 6-32 x ¾ |
| 9 | 1 | 10213 | Plug, clamp drilled (presser foot) |
| 10 | 1 | 10214 | Plug, clamp tapped (presser foot) |
| 11 | 1 | SC103234 | Screw, Soc. Cap 10-32 x ¾ |
| 12 | 3 | 11309 | Nut, Hex – Special CZ |
| 13 | 1 | 10155 | Shank, presser foot |
| 14 | 1 | 10156 | Block, hinging presser foot |
| 15 | 2 | H103258 | Screw, Hex 10-32 x 5/8 |
| 16 | 1 | 10048 | Retainer, rod connecting |
| 17 | 2 | SF103238 | Screw, Soc. Flat 10-32 x 3/8 |
| 18 | 1 | 10185 | Presser foot |
| 19 | 1 | 10182 | Bolt, hinging presser foot |
| 20 | 1 | 31020 | Rod, connecting needle drive |
| | 1 | 15109 | Screw, Soc. Set Cone Point 1/4-20 x 3/8 |
| | 1 | SS142014 | Screw, Soc. Set 1/4-20 x 1/4 |
| 21 | 3 | 31042 | Washer, Thrust (special) |
| 22 | 2 | 10029 | Bushing, lever presser foot |
| 23 | 2 | 10128 | Spring, garter lever seal |
| 24 | 4 | F103238 | Screw, Flat 10-32 x 3/8 |
| 25 | 1 | 31014 | Seal, levers |
| 26 | 1 | 10026 | Shaft, lever |
| 27 | 1 | 31024 | Lever, needle |
| | 2 | SC1420114 | Screw, Soc. Cap 1/4-20 x 1 ¼ |
| 28 | 1 | 10031 | Chuck needle |
| 29 | 1 | C100-S | Needle |
| 30 | 1 | 10212 | Plug, clamp tapped |
| 31 | 1 | 10011 | Screw, clamp needle |
| 32 | 1 | 10211 | Plug, clam drilled |
| 33 | 1 | 10166 | Guide, thread (needle lever) |
| 34 | 2 | F54038 | Screw, Flat 5-40 x 3/8 |
| 35 | 2 | 10119 | Disc, tension (needle lever) |
| 36 | 1 | 10009 | Spring, tension (needle lever) |
| 37 | 1 | B103214 | Screw, binding HD 10-32 x ¼ |
| 38 | 1 | 10113 | Stud, tension (needle lever) |
| 39 | 2 | 10023 | Insert, thread – lever shaft bushing |
| 40 | 2 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 41 | 2 | 10025 | Bushing, shaft levers |
| 42 | 2 | SS1032316 | Screw, Soc. Set 10-32 x 3/16 |
| 43 | 1 | 31026 | Screw, Hex 1/4-28 X 1/2 GR8 LG LOK |
| 44 | 5 | 15076 | Washer, Spring ¼ |
| 45 | | 10157 | Assembly, presser foot |
| 46 | 1 | WF8 | Washer, Flat # 8 |

8.2.1 MODEL 101 NEEDLE & PRESSER FOOT ASSEMBLY

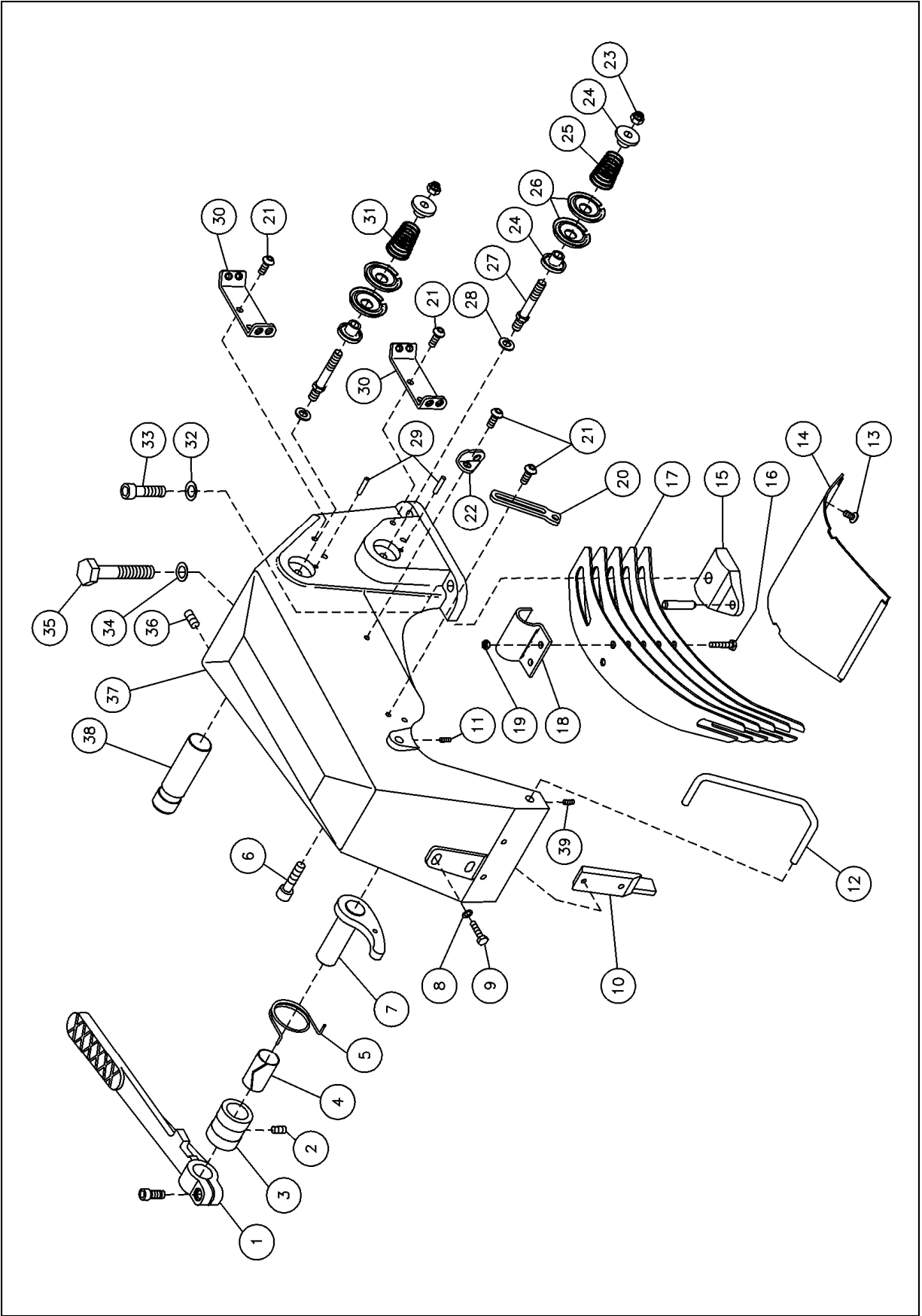


**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|-----------|---------------------------------------|
| 1 | 1 | 10190 | Pad, spring presser foot |
| 2 | 1 | F63214 | Screw, Flat 6-32 x ¼ |
| 3 | 1 | 10189 | Cradle, pad presser foot |
| 4 | 1 | 10004 | Lever, presser foot |
| | 2 | SC14201 | Screw, Soc. Cap 1/4-20 x 1 |
| | 2 | PS14112 | Pin, Spring |
| 5 | 1 | 10163 | Clamp, bearing sheet |
| 6 | 2 | SF103258 | Screw, Soc. Flat 10-32 x 5/8 |
| 7 | 1 | 10162 | Sheet, bearing presser foot |
| 8 | 2 | SC63234 | Screw, Soc. Cap 6-32 x ¾ |
| 9 | 1 | 10213 | Plug, clamp drilled (presser foot) |
| 10 | 1 | 10214 | Plug, clamp tapped (presser foot) |
| 11 | 1 | SC103234 | Screw, Soc. Cap 10-32 x ¾ |
| 12 | 3 | 11309 | Nut, Hex 10-32 |
| 13 | 1 | 10155 | Shank, presser foot |
| 14 | 1 | 10156 | Block, hinged presser foot |
| 15 | 2 | H103258 | Screw, Hex 10-32 x 5/8 |
| 16 | 1 | 10048 | Retainer, rod connecting |
| 17 | 2 | SF103238 | Screw, Soc. Flat 10-32 x 3/8 |
| 18 | 1 | 10484 | Presser foot, Tape (wide) |
| 19 | 1 | 10182 | Bolt, hinging presser foot |
| 20 | 1 | 31020 | Rod, connecting needle drive |
| | 1 | 15109 | Screw, Soc. Set Cone Point ¼-20 x 3/8 |
| | 1 | SS142014 | Screw, Soc. Set ¼-20 x ¼ |
| 21 | 3 | 31042 | Washer, Thrust (special) |
| 22 | 2 | 10029 | Bushing, lever presser foot |
| 23 | 2 | 10128 | Spring, garter lever seal |
| 24 | 4 | F103238 | Screw, Flat 10-32 x 3/8 |
| 25 | 1 | 31014 | Seal, levers |
| 26 | 1 | 10026 | Shaft, lever |
| 27 | 1 | 31024 | Lever, needle |
| | 2 | SC1420114 | Screw, Soc. Cap 1/4-20 x 1 ¼ |
| 28 | 1 | 10031 | Chuck needle |
| 29 | 1 | C100-S | Needle |
| 30 | 1 | 10212 | Plug, clamp tapped |
| 31 | 1 | 10011 | Screw, clamp needle |
| 32 | 1 | 10211 | Plug, clam drilled |
| 33 | 1 | 10166 | Guide, thread (needle lever) |
| 34 | 2 | SF54038 | Screw, Flat 5-40 x 3/8 |
| 35 | 2 | 10119 | Disc, tension (needle lever) |
| 36 | 1 | 10009 | Spring, tension (needle lever) |
| 37 | 1 | B103214 | Screw, binding HD 10-32 x ¼ |
| 38 | 1 | 10113 | Stud, tension (needle lever) |
| 39 | 2 | 10023 | Insert, thread – lever shaft bushing |
| 40 | 2 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 41 | 2 | 10025 | Bushing, shaft levers |
| 42 | 2 | SS1032316 | Screw, Soc. Set 10-32 x 3/16 |
| 43 | 1 | 31026 | Screw, Hex 1/4-28 X 1/2 GR8 LG LOK |
| 44 | 5 | 15076 | Washer, Spring ¼ |
| 45 | | 10481 | Assembly, Presser Foot, Tape (wide) |
| 46 | 1 | WF8 | Washer, Flat # 8 |

8.3

MODEL 100 LEVER - HOUSING

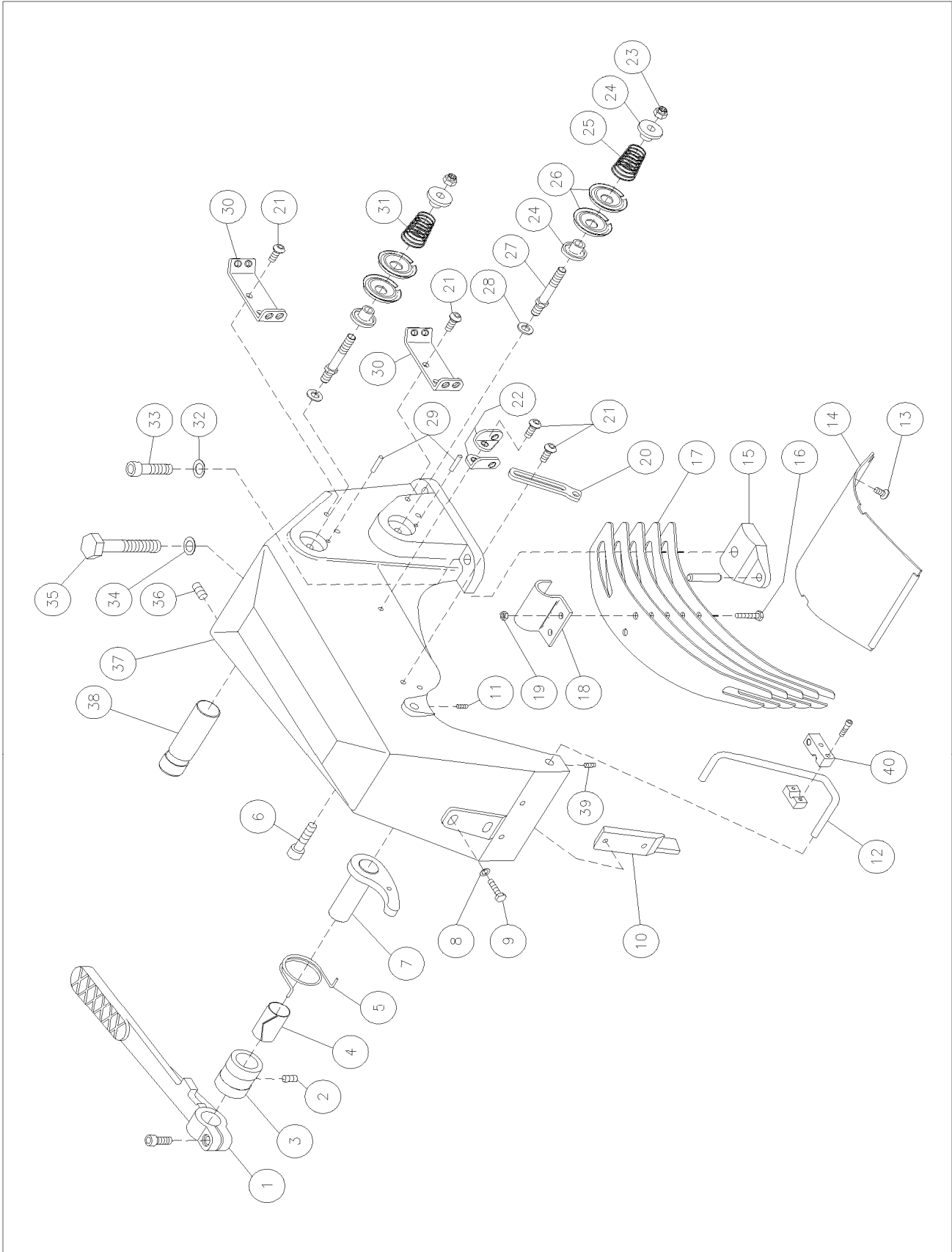


**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|-----------|------------------------------------|
| 1 | 1 | 31034 | Lever, lifter presser foot |
| | 1 | SC142034 | Screw, Soc. Cap 1/4-20 x 3/4 |
| 2 | 1 | SS142014 | Screw, Soc. Set 1/4-20 x 1/4 |
| 3 | 1 | 10139 | Bushing, lifter presser foot |
| 4 | 1 | 10186 | Liner, bushing lifter presser foot |
| 5 | 1 | 10187 | Spring, lifter lever |
| 6 | 1 | SC5161858 | Screw, Soc. Cap 5/16-18 x 5/8 |
| 7 | 1 | 10142 | Cam, lifter presser foot |
| 8 | 2 | WS10 | Washer, Spring 10 |
| 9 | 2 | H103278 | Screw, Hex HD 10-32 x 7/8 |
| 10 | 1 | 10161 | Guide, lever presser foot |
| 11 | 1 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 12 | 1 | 10188 | Guard, tension needle |
| 13 | 2 | B103238 | Screw, Binding HD 10-32 x 3/8 |
| 14 | 1 | 31031 | Cover, guard lever |
| 15 | 1 | 10146 | Plate, presser foot |
| | 1 | PS 141 | Pin, Spring |
| 16 | 2 | H103234 | Screw, Hex HD 10-32 x 3/4 |
| 17 | 5 | 10145 | Spring, presser foot |
| 18 | 1 | 10144 | Clamp, spring presser foot |
| 19 | 2 | 1-178 | Nut, lock |
| 20 | 1 | 10171 | Pull off, needle thread |
| 21 | 7 | SB103212 | Screw, Soc. BTTN 10-32 x 1/2 |
| 22 | 1 | 10164 | Eyelet, thread short |
| 23 | 2 | NH1428L | Nut 1/4-28 locking |
| 24 | 4 | 10114 | Sleeve, tension |
| 25 | 1 | 10008 | Spring, tension looper thread |
| 26 | 4 | 10120 | Disc, tension large |
| 27 | 2 | 10115 | Stud, tension |
| 28 | 2 | 11120 | Washer, Lock |
| 29 | 2 | PS18114 | Pin, Spring retaining tension disc |
| 30 | 2 | 10165 | Eyelet, thread long (Guide) |
| 31 | 1 | 10007 | Spring, tension needle thread |
| 32 | 4 | 10234 | Washer, Spring |
| 33 | 4 | SC516181 | Screw, Soc. Cap 5/16-18 x 1 |
| 34 | 1 | WF38 | Washer, Flat 3/8 |
| 35 | 1 | H3824134 | Screw, Adj. 3/8-24 x 1 3/4 |
| 36 | 1 | SS142038 | Screw, Soc. Set 1/4-20 x 3/8 |
| 37 | 1 | 31033 | Housing, levers (LT Blue) |
| 38 | 1 | 10143 | Shaft, spring presser foot |
| 39 | 1 | SS1032316 | Screw, Soc. Set 10-32 x 3/16 |

8.3.1

MODEL 101 LEVER - HOUSING

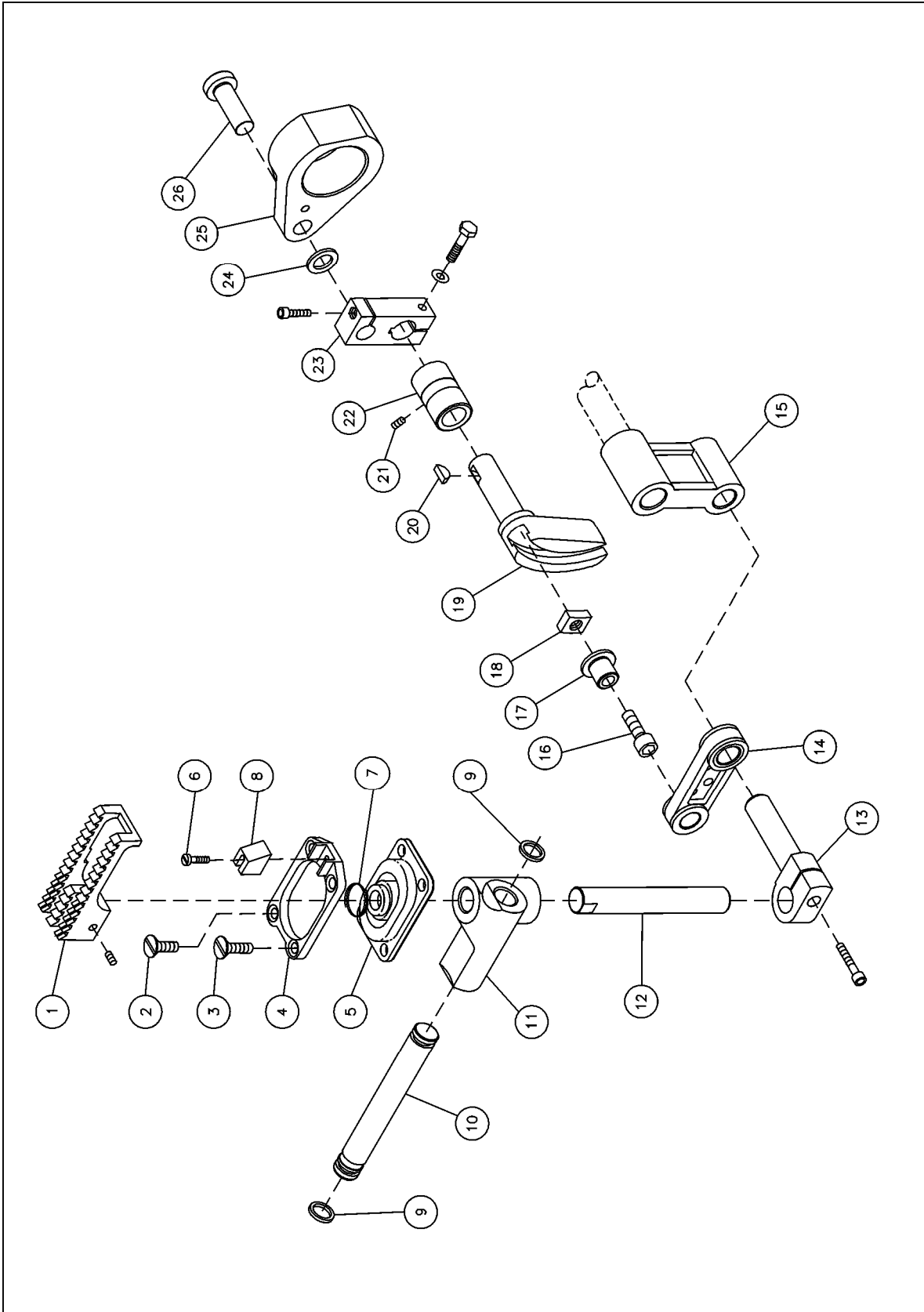


**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|-----------|-------------------------------------|
| 1 | 1 | 31034 | Lever, lifter presser foot |
| | 1 | SC142034 | Screw, Soc. Cap 1/4-20 x 3/4 |
| 2 | 1 | SS142014 | Screw, Soc. Set 1/4-20 x 1/4 |
| 3 | 1 | 10139 | Bushing, lifter presser foot |
| 4 | 1 | 10186 | Liner, bushing lifter presser foot |
| 5 | 1 | 10187 | Spring, lifter lever |
| 6 | 1 | SC5161858 | Screw, Soc. Cap 5/16-18 x 5/8 |
| 7 | 1 | 10142 | Cam, lifter presser foot |
| 8 | 2 | WS 10 | Washer, Spring 10 |
| 9 | 2 | H103278 | Screw, Hex HD 10-32 x 7/8 |
| 10 | 1 | 10161 | Guide, lever presser foot |
| 11 | 1 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 12 | 1 | 10188 | Guard, tension needle |
| 13 | 2 | B103238 | Screw, Binding HD 10-32 x 3/8 |
| 14 | 1 | 31031 | Cover, guard lever |
| 15 | 1 | 10146 | Plate, presser foot |
| | 1 | PS141 | Pin, Spring |
| 16 | 2 | H 103234 | Screw, Hex HD 10-32 x 3/4 |
| 17 | 5 | 10145 | Spring, presser foot |
| 18 | 1 | 10144 | Clamp, spring presser foot |
| 19 | 2 | 1-178 | Nut, lock |
| 20 | 1 | 10171 | Pull off, needle thread |
| 21 | 7 | SB103212 | Screw, Soc. BTTN 10-32 x 1/2 |
| 22 | 2 | 10164 | Eyelet, thread short |
| 23 | 2 | NH1428L | Nut 1/4-28 locking |
| 24 | 4 | 10114 | Sleeve, tension |
| 25 | 1 | 10008 | Spring, tension looper thread |
| 26 | 4 | 10120 | Disc, tension large |
| 27 | 2 | 10115 | Stud, tension |
| 28 | 2 | 11120 | Washer, Lock |
| 29 | 2 | PS18114 | Pin, Spring retaining tension disc |
| 30 | 2 | 10165 | Eyelet, thread long (Guide) |
| 31 | 1 | 10721 | Spring, tension-light needle thread |
| 32 | 4 | 10234 | Washer, Spring |
| 33 | 4 | SC516181 | Screw, Soc. Cap 5/16-18 x 1 |
| 34 | 1 | WF38 | Washer, Flat 3/8 |
| 35 | 1 | H3824134 | Screw, Adj. 3/8-24 x 1 3/4 |
| 36 | 1 | SS142038 | Screw, Soc. Set 1/4-20 x 3/8 |
| 37 | 1 | 31033 | Housing, levers (LT Blue) |
| 38 | 1 | 10143 | Shaft, Spring Presser Foot |
| 39 | 1 | SS1032316 | Screw, Soc. Set 10-32 x 3/16 |
| 40 | 1 | 10216 | Eyelet, Rip Cord |

8.4

MODEL 100 FEED ASSEMBLY

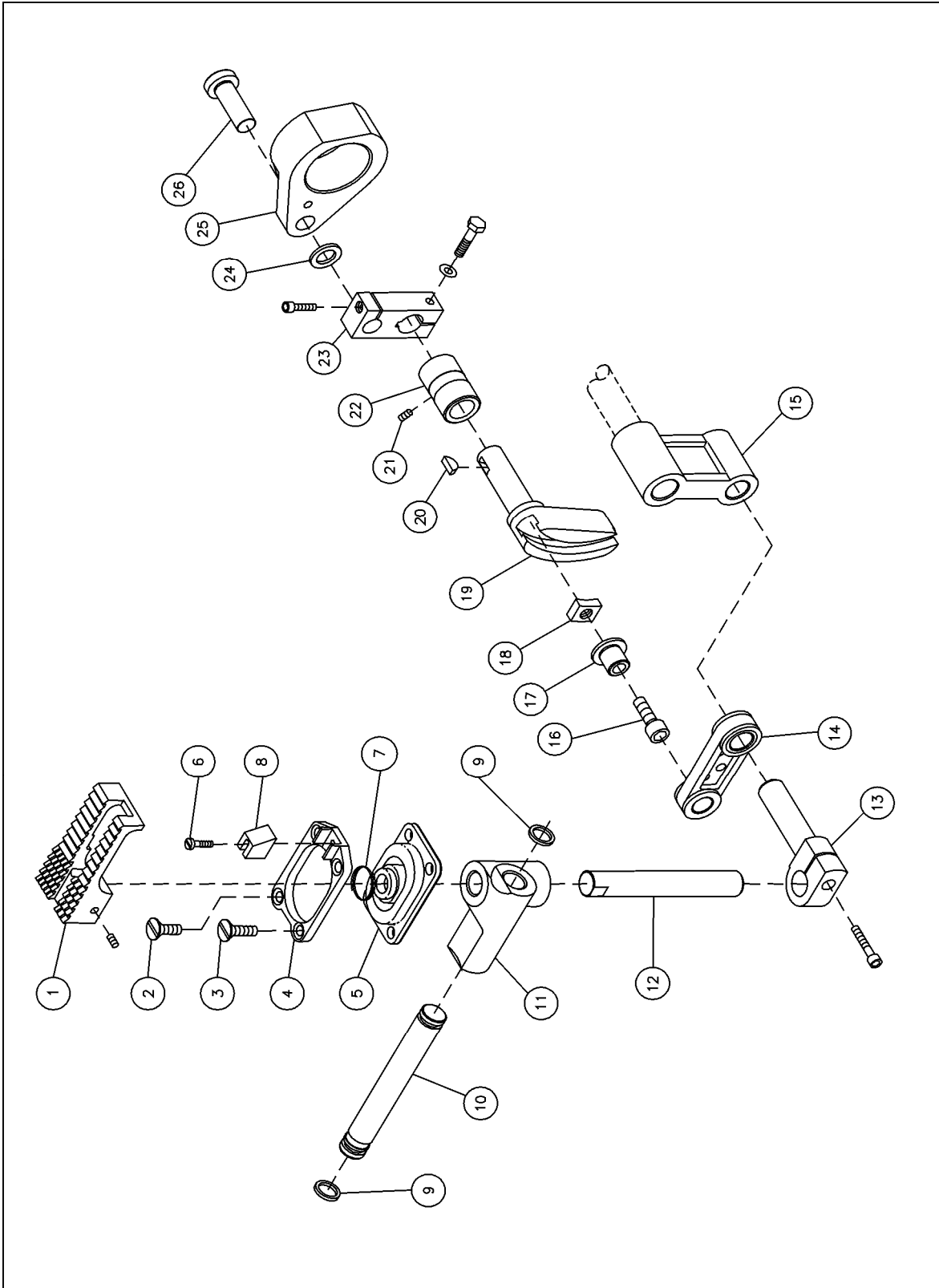


**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|-----------|-----------------------------------|
| 1 | 1 | 10078 | Dog feed |
| | 1 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 2 | 1 | F103238 | Screw, Flat 10-32 x 3/8 |
| 3 | 3 | F103212 | Screw, Flat 10-32 x 1/2 |
| 4 | 1 | 10177 | Holder, guard needle |
| 5 | 1 | 10077 | Seal, dog feed |
| 6 | 1 | P540916 | Screw, Pan HD 5-40 x 9/16 |
| 7 | 1 | 10124 | Ring, Garter-Seal (Feed Dog) |
| 8 | 1 | 10174 | Guard, needle |
| 9 | 2 | 10075 | O-ring |
| 10 | 1 | 31012 | Rod, slide feed |
| 11 | 1 | 10073 | Slide feed |
| 12 | 1 | 31011 | Rod, carrier feed dog |
| 13 | 1 | 31008 | Clamp, rod feed dog carrier |
| | 1 | SC142078 | Screw, Soc. Cap 1/4-20 x 7/8 |
| 14 | 1 | 31010 | Link, stroke feed |
| 15 | 1 | 31009 | Link, lift feed |
| 16 | 1 | SC142878 | Screw, Soc. Cap 1/4-28 x 7/8 |
| 17 | 1 | 10068 | Pivot, adjusting feed stroke |
| 18 | 1 | 10067 | Nut, pivot feed stroke |
| 19 | 1 | 31007 | Lever, slotted feed rocker |
| 20 | 1 | T3192 | Key |
| 21 | 1 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 22 | 1 | 10109 | Bushing, shaft feed rocker |
| 23 | 1 | 31005 | Lever, pin feed rocker |
| | 1 | SC54012 | Screw, Soc. Cap 5-40 x 1/2 |
| | 1 | H103234 | Screw, Hex 10-32 x 3/4 |
| | 1 | WF10 | Washer, Flat #10 |
| 24 | 1 | 10215 | Washer, Thrust |
| 25 | 1 | 31023 | Rod, connecting prim. Feed stroke |
| 26 | 1 | 31006 | Pin, rod feed stroke connect. |

8.4.1

MODEL 101 FEED ASSEMBLY

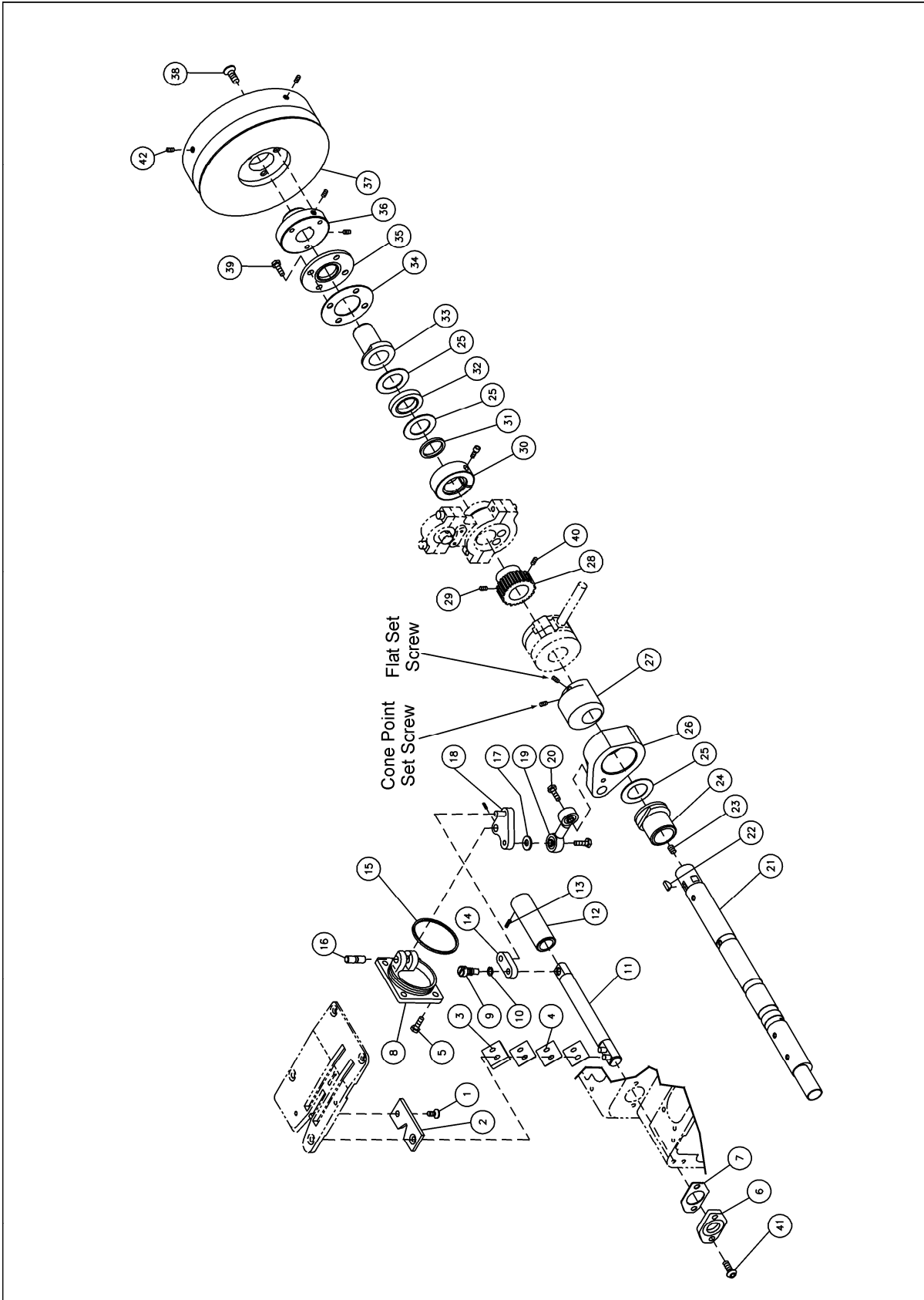


**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|-----------|-----------------------------------|
| 1 | 1 | 10486 | Dog, feed, Tape (STD) |
| | 1 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 2 | 1 | F103238 | Screw, Flat 10-32 x 3/8 |
| 3 | 3 | F103212 | Screw, Flat 10-32 x 1/2 |
| 4 | 1 | 10177 | Holder, guard needle |
| 5 | 1 | 10077 | Seal, dog feed |
| 6 | 1 | P540916 | Screw, Pan HD 5-40 x 9/16 |
| 7 | 1 | 10124 | Ring, Garter-Seal (Feed Dog) |
| 8 | 1 | 10174 | Guard, needle |
| 9 | 2 | 10075 | O-ring |
| 10 | 1 | 31012 | Rod, slide feed |
| 11 | 1 | 10073 | Slide feed |
| 12 | 1 | 31011 | Rod, carrier feed dog |
| 13 | 1 | 31008 | Clamp, rod feed dog carrier |
| | 1 | SC142078 | Screw, Soc. Cap 1/4-20 x 7/8 |
| 14 | 1 | 31010 | Link, stroke feed |
| 15 | 1 | 31009 | Link, lift feed |
| 16 | 1 | SC142878 | Screw, Soc. Cap 1/4-28 x 7/8 |
| 17 | 1 | 10068 | Pivot, adjusting feed stroke |
| 18 | 1 | 10067 | Nut, pivot feed stroke |
| 19 | 1 | 31007 | Lever, slotted feed rocker |
| 20 | 1 | T3192 | Key |
| 21 | 1 | SS1032516 | Screw, Soc. Set 10-32 x 5/16 |
| 22 | 1 | 10109 | Bushing, shaft feed rocker |
| 23 | 1 | 31005 | Lever, pin feed rocker |
| | 1 | SC54012 | Screw, Soc. Cap 5-40 x 1/2 |
| | 1 | H103234 | Screw, Hex 10-32 x 3/4 |
| | 1 | WF10 | Washer, Flat #10 |
| 24 | 1 | 10215 | Washer, Thrust |
| 25 | 1 | 31023 | Rod, connecting prim. Feed stroke |
| 26 | 1 | 31006 | Pin, rod feed stroke connect. |

8.5

MAIN SHAFT ASSEMBLY

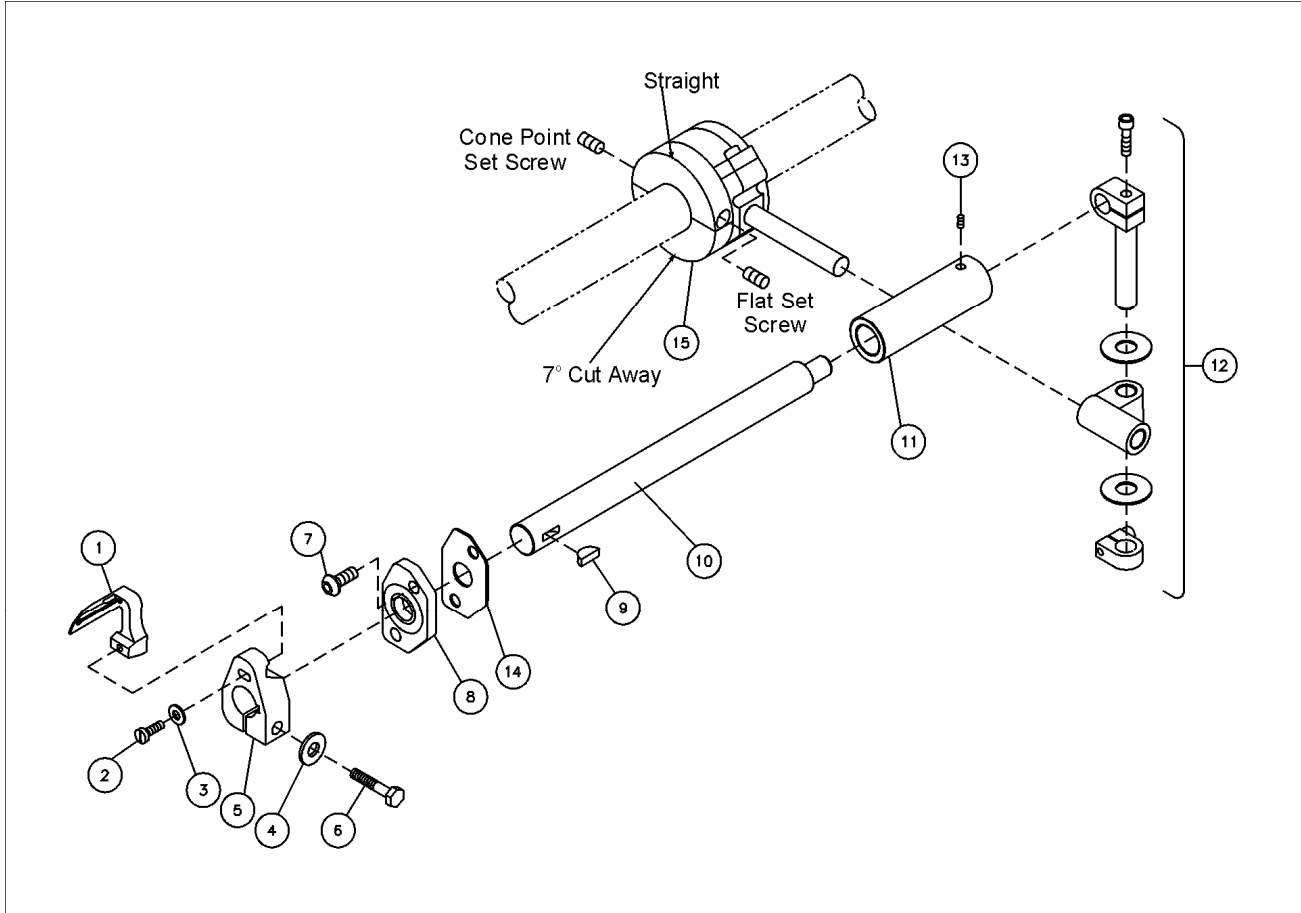


**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|----------|----------|------------|--|
| 1 | 1 | F83214 | Screw, Flat #8-32 x ¼ |
| 2 | 1 | 31032 | Stationary knife |
| 3 | 1 | 31029 | Moving knife |
| 4 | 3 | 10089 | Spring knife |
| 5 | 4 | H103212 | Screw, Hex HD #10-32 x ½ |
| 6 | 1 | 15104 | Assy, looper shaft seal |
| 7 | 1 | 15105 | Gasket, looper shaft seal |
| 8 | 1 | 10085 | Bracket, pivot knife |
| 9 | 1 | 10087 | Screw, pivot knife |
| 10 | 1 | 11120 | Washer, Lock |
| 11 | 1 | 31016 | Shaft, knife |
| 12 | 1 | 10056 | Bushing, shaft knife |
| 13 | 1 | SS103214CP | Screw, Soc. Set #10-32 x ¼ cone point |
| 14 | 1 | 10086 | Link, knife |
| 15 | 1 | 10084 | O-ring, Pump Body & Knife Plug |
| 16 | 1 | 10083 | Shaft, bell crank knife |
| 17 | 1 | WF10 | Washer, Flat #10 |
| 18 | 1 | 10082 | Crank, bell knife |
| | 1 | SS540316 | Screw, Soc. Set #5-40 x 3/16 |
| 19 | 1 | 10080 | Assembly, connecting rod knife |
| 20 | 2 | H103258 | Screw, Hex HD #10-32 x 5/8 |
| 21 | 1 | 31015 | Shaft, main |
| 22 | 1 | T3192 | Key |
| 23 | 1 | 10125 | Plug, pipe mainshaft |
| 24 | 1 | 31022 | Bushing, mainshaft needle end |
| 25 | 3 | T3129 | Washer, Thrust |
| 26 | 1 | 31023 | Rod, connecting prim. Feed stroke |
| 27 | 1 | 31004 | Eccentric, stroke feed |
| | 1 | 15108 | Screw, Soc. Set ¼-20 x 3/8 |
| | 1 | 15109 | Screw, Soc. Set Cone Point ¼-20 x 3/8 |
| 28 | 1 | 31028 | Gear, drive pump |
| 29 | 1 | SS832316CP | Screw, Soc. Set 8-32 x 3/16 cone point |
| 30 | 1 | 15043 | Collar, lock mainshaft |
| | REF | | Screw, Soc. Cap HD 1/4-28 x 5/8 |
| 31 | 1 | 15032 | O-ring, ¾ ID x 15/16 OD |
| 32 | 1 | P4024 | Bearing, thrust |
| 33 | 1 | 31021 | Bushing, mainshaft drive end |
| 34 | 1 | 10094 | Gasket, mainshaft seal |
| 35 | 1 | 10035 | Assembly, seal mainshaft |
| 36 | 1 | 10038 | Hub, pulley |
| | 2 | 15108 | Screw, Soc. Set ¼-20 x 3/8 |
| 37 | 1 | 10199 | Pulley, adjustable assembly |
| | 2 | SS142038 | Screw, Soc. Set ¼-20 x 3/8 |
| 38 | 3 | SF103258 | Screw, Soc. Flat #10-32 x 5/8 |
| 39 | 4 | SC103212 | Screw, Soc. Cap #10-32 x ½ |
| 40 | 1 | SS832316 | Screw, Soc. Set #8-32 x 3/16 |
| 41 | 2 | SB103212 | Screw, Soc. BTTN #10-32 x ½ |
| 42 | 2 | 15108 | Screw, Soc. Set ¼ - 20 x 3/8 |

8.6

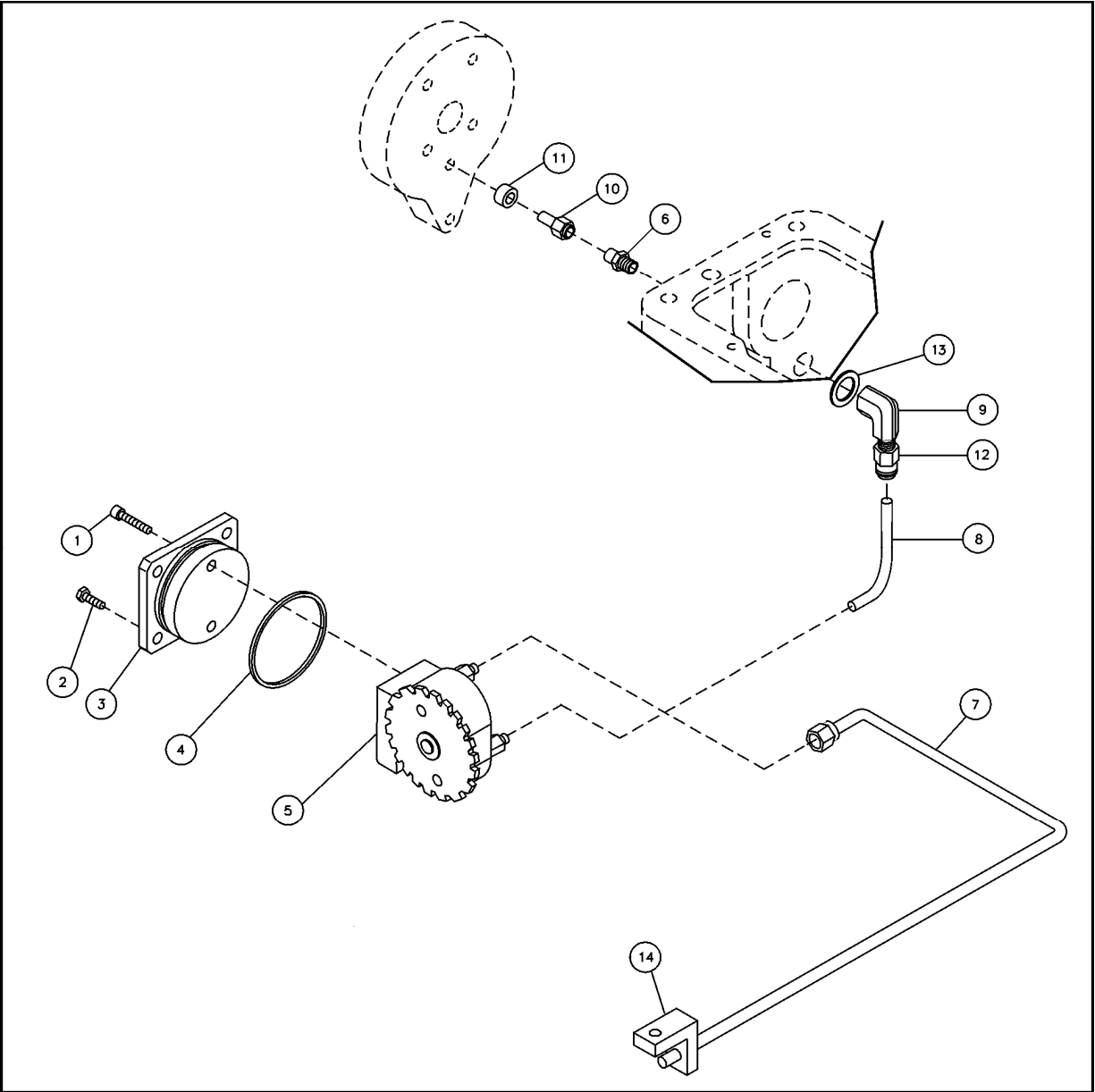
LOOPER ASSEMBLY



| Item No. | Quantity | Part No. | Description: |
|----------|----------|------------|--|
| 1 | 1 | 10060 | Looper |
| 2 | 1 | SC54012 | Screw, Soc Cap 5-40 x 1/2 UNC |
| 3 | 1 | WF5 | Washer, Flat 5 |
| 4 | 1 | WF10 | Washer, Flat 10 |
| 5 | 1 | 10059 | Holder, Looper |
| 6 | 1 | H103234 | Screw, Hex 10-32 x 3/4 |
| 7 | 2 | SB103212 | Screw, Soc. BTTN 10-32 x 1/2 |
| 8 | 1 | 15104 | Assembly, Seal, Knife Shaft |
| 9 | 1 | T3192 | Key |
| 10 | 1 | 31013 | Shaft, Looper |
| 11 | 1 | 10056 | Bushing, Shaft Looper |
| 12 | 1 | 10173 | Assembly, Pivot Looper |
| | 2 | 15066 | Washer, Thrust |
| | 1 | 15065 | Clamp |
| | 1 | 15039 | Pin, Pivot Looper |
| | 1 | 10153 | Knuckle, Pivot Looper |
| | 1 | SC103258 | Screw, Soc. Cap 10-32 x 5/8 |
| 13 | 1 | SS103214CP | Screw, Soc. Set 10-32 x 1/4 cone point |
| 14 | 1 | 15105 | Gasket, Looper Shaft Seal |
| 15 | 1 | 31018 | Assembly Cam, Looper |
| | 1 | SS103258CP | Screw, Soc. Set Cone Point 10-32 x 5/8 |
| | 1 | SS103212 | Screw, Soc. Set 10-32 x 1/2 |

8.7

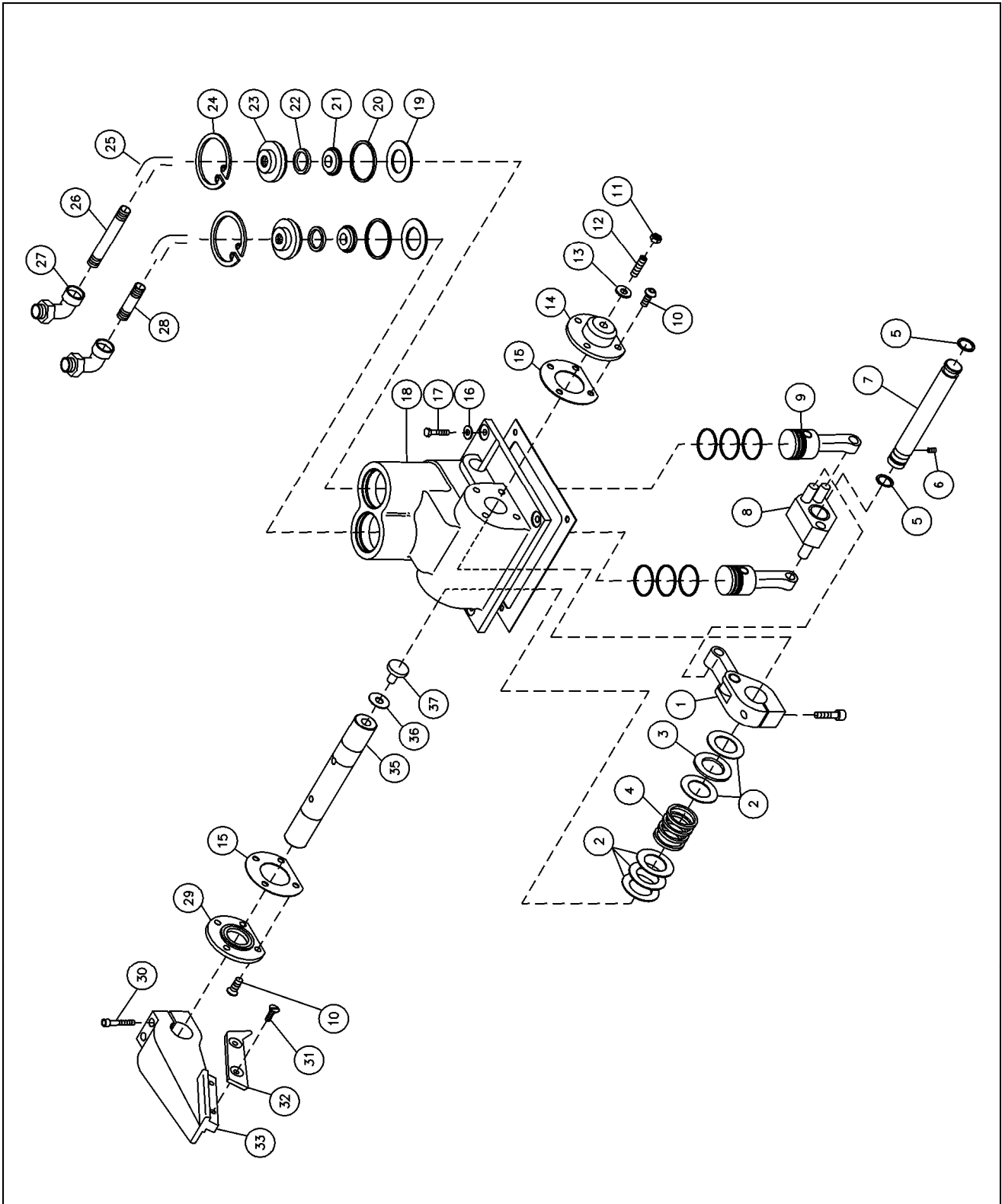
OIL PUMP ASSEMBLY



| Item No. | Quantity | Part No. | Description: |
|----------|---------------|----------|--|
| 1 | 2 | SC103278 | Screw, Soc. Cap 10-32 x 7/8 |
| 2 | 4 | H103212 | Screw, Hex HD 10-32 x 1/2 |
| 3 | 1 | 15015 | Mount Pump |
| 4 | 1 | 10084 | O-ring |
| 5 | 1 | 31096 | Assembly, Gear Pump (modified) |
| 6 | REF | 15059 | Fitting, Male Conn 1/8 M X 1/4 T (Part of 15088) |
| 7 | 1 | 15050 | Assy, Oil Line - Intake |
| 8 | 3.5 in (89mm) | 67735 | Tubing, Hydraulic 1/4 OD X .170 ID |
| 9 | 1 | 66085 | Fitting, Elbow 1/8 F X 1/8 F |
| 10 | 1 | 15088 | Tubing, copper (includes item #6) |
| 11 | 1 | A1882 | Bushing, Neoprene |
| 12 | 1 | 67733 | Fitting, Conn. 1/8 MNPT X 1/4 T(SP) |
| 13 | 1 | 15077 | Washer, Nylon Special |
| 14 | 1 | 31043 | Bracket, Oil Line |

8.8

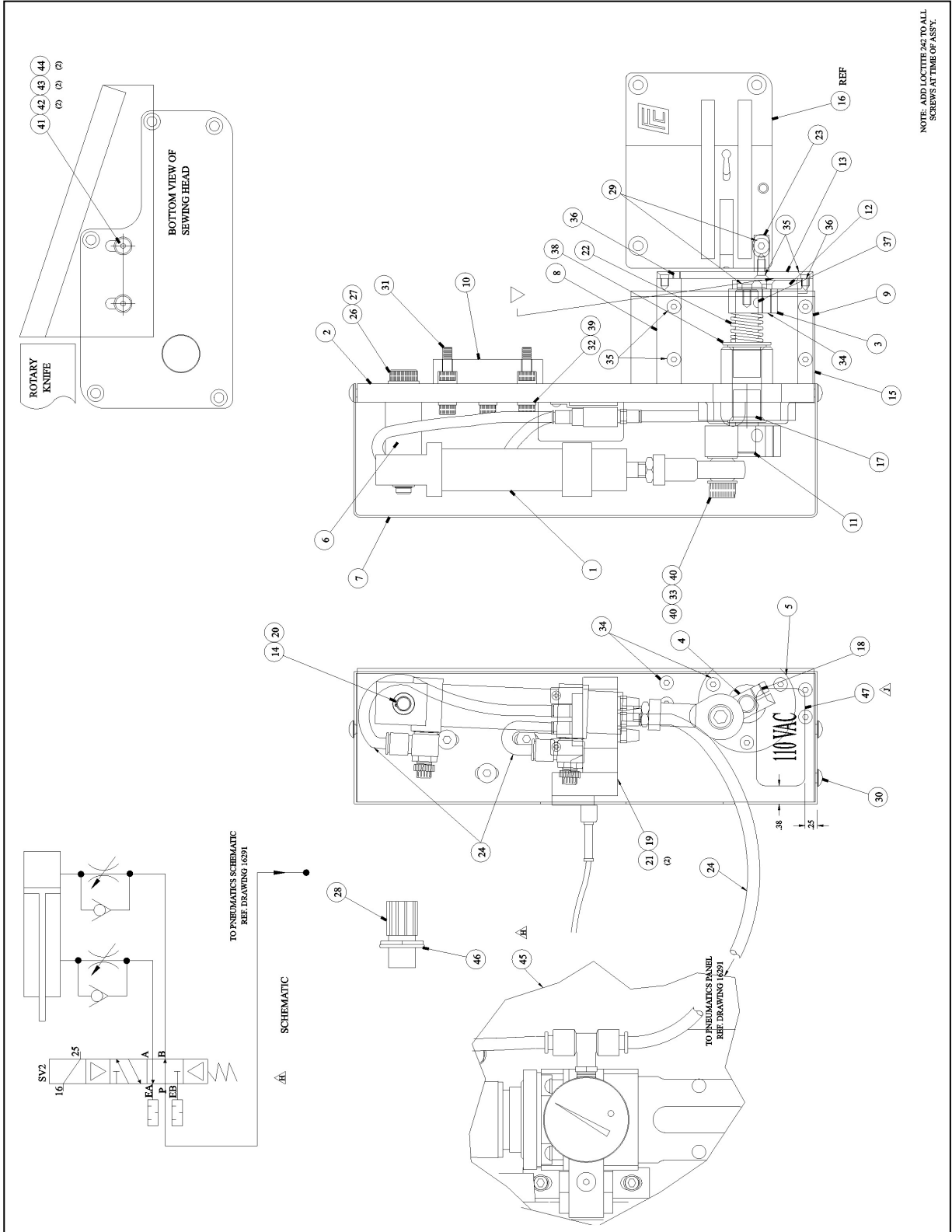
TAPE CLIPPER (31035)



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description: |
|-----------------|-----------------|-----------------|------------------------------------|
| 1 | 1 | 10447 | Assembly, Lever Cutter |
| | 1 | SC14201 | Screw, Soc. Cap 1/4-20 x 1 Locking |
| 2 | 5 | T3129 | Washer, Thrust |
| 3 | 1 | P4024 | Bearing, Thrust |
| 4 | 1 | 10424 | Spring, Compression |
| 5 | 2 | 10420 | O-ring-Crankshaft |
| 6 | 1 | SS1032316 | Screw, Soc. Set 10-32 x 3/16 |
| 7 | 1 | 10419 | Crankshaft |
| 8 | 1 | 10404 | Assembly, Crank |
| 9 | 2 | 10458 | Assembly, Piston-Tape Clipper |
| | 4 | 10398 | Ring, Backup |
| | 2 | 10399 | U-Cup |
| 10 | 4 | SB103214 | Screw, BTTN 10-32 x 1/4 |
| 11 | 1 | NH1428 | Nut, Hex 1/4-28 |
| 12 | 1 | 10440 | Screw, Adjusting |
| 13 | 1 | 10052 | Washer, Nylon |
| 14 | 1 | 10430 | Plate, Cover |
| 15 | 2 | 10429 | Gasket |
| REF | 1 | 10092 | Gasket, Cover-Top |
| 16 | 4 | 10438 | Washer, Compression |
| 17 | 4 | H103258 | Screw, Hex 10-32 x 5/8 |
| 18 | 1 | 31036 | Housing, Cutter |
| 19 | 2 | 10406 | Washer, Head Cylinder |
| 20 | 2 | 10409 | O-ring, Cylinder Head |
| 21 | 2 | 10407 | Plate, Bumper |
| 22 | 2 | 10408 | Ring, Bumper |
| 23 | 2 | 10410 | Head, Cylinder |
| 24 | 2 | 10411 | Ring, Snap |
| 25 | 2 | P4957 | Fitting, Elbow Street |
| 26 | 1 | P4944 | Fitting, Nipple Long |
| 27 | 2 | P4962 | Fitting, Elbow Female |
| 28 | 1 | P4943 | Fitting, Nipple Short |
| 29 | 1 | 10403 | Assembly, Seal-Shaft |
| 30 | 2 | SC1420114 | Screw, Soc. Cap 1/4-20 x 1 1/4 |
| 31 | 2 | F103212 | Screw, Flat 10-32 x 1/2 |
| 32 | 1 | 10443 | Knife, Moving |
| 33 | 1 | 10432 | Lever, Knife |
| 34 | | | |
| 35 | 1 | 10426 | Shaft, Knife |
| 36 | 1 | 10428 | Washer, Thrust |
| 37 | 1 | 10427 | Shaft, Thrust |

8.9 ROTARY AIR KNIFE (31130) (110 VAC)



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description |
|-----------------|-----------------|-----------------|----------------------------------|
| 1 | 1 | 31101 | KIT, AIR CYLINDER ASSY |
| 2 | 1 | 31131 | PLATE, SUPPORT |
| 3 | 1 | 31103 | HUB, MOVABLE KNIFE MOUNTING |
| 4 | 1 | 31104 | LEVER, AIR CYLINDER DRIVE |
| 5 | 1 | 31138 | HUB, DRIVESHAFT SUPPORT |
| 6 | 1 | 31106 | PIN, AIR CYLINDER PIVOT |
| 7 | 1 | 31132 | COVER |
| 8 | 1 | 31108 | BRACKET, UPPER FIXED BLADE |
| 9 | 1 | 31109 | BRACKET, LOWER FIXED BLADE |
| 10 | 1 | 31110 | BLOCK, MOUNTING |
| 11 | 1 | 31111 | SHAFT, MOVABLE KNIFE |
| 12 | 1 | 31112 | BLADE, MOVABLE KNIFE |
| 13 | 1 | 31113 | BLADE, FIXED KNIFE |
| 14 | 1 | 15066 | WASHER, THRUST-.312 ID X .750 |
| 15 | 1 | 31115 | COVER, SIDE |
| | | | |
| | | | |
| 16 | REF | 31037 | PLATE, THROAT (STD) |
| 16 | REF | 31038 | PLATE, THROAT (LONG STITCH) |
| 17 | 2 | 31139 | BEARING, MTRC FLANGED |
| 18 | 1 | SFM510 | SCREW, SOC FLAT M5 X 10mm |
| 19 | 1 | 31128 | KIT, SOLENIOD |
| 20 | 1 | 31120 | E-RING, CIRCLIP D8 |
| 21 | 2 | PHM258 | SCREW, PAN HD M2.5 X 8mm |
| 22 | 1 | 31122 | SPRING, COMPRESSION |
| 23 | 1 | 31123 | BLOCK, MOUNTING THROAT PLATE |
| 24 | 6.0 FT | 31129 | TUBING, POLYURETHENE, GREEN, 6mm |
| 25 | | | |
| 26 | 1 | WFM10 | WASHER, FLAT M10 |
| 27 | 1 | SCM1022 | SCREW, HEX M10 X 22mm |
| 28 | 1 | 16035 | CORDGRIP, 1/2NPT |
| 29 | 2 | SFM412 | SCREW, SOC FLAT M4 X 12mm |
| 30 | 3 | SBM510 | SCREW, SOC BUTTON M5 X 10mm |
| 31 | 4 | SC103278 | SCREW, SOC CAP #10-32 UNF X 7/8 |
| 32 | 4 | SCM618 | SCREW, SOC CAP M6 X 18mm |
| 33 | 1 | SCM825 | SCREW, SOC CAP M8 X 25mm |
| 34 | 8 | SFM416 | SCREW, SOC FLAT M4 X 16mm |
| 35 | 7 | SFM48 | SCREW, SOC FLAT M4 X 8mm |
| 36 | 4 | SSM46 | SCREW, SOC SET M4 X 6mm |
| 37 | 2 | T3192 | KEY, WOODDRUFF |

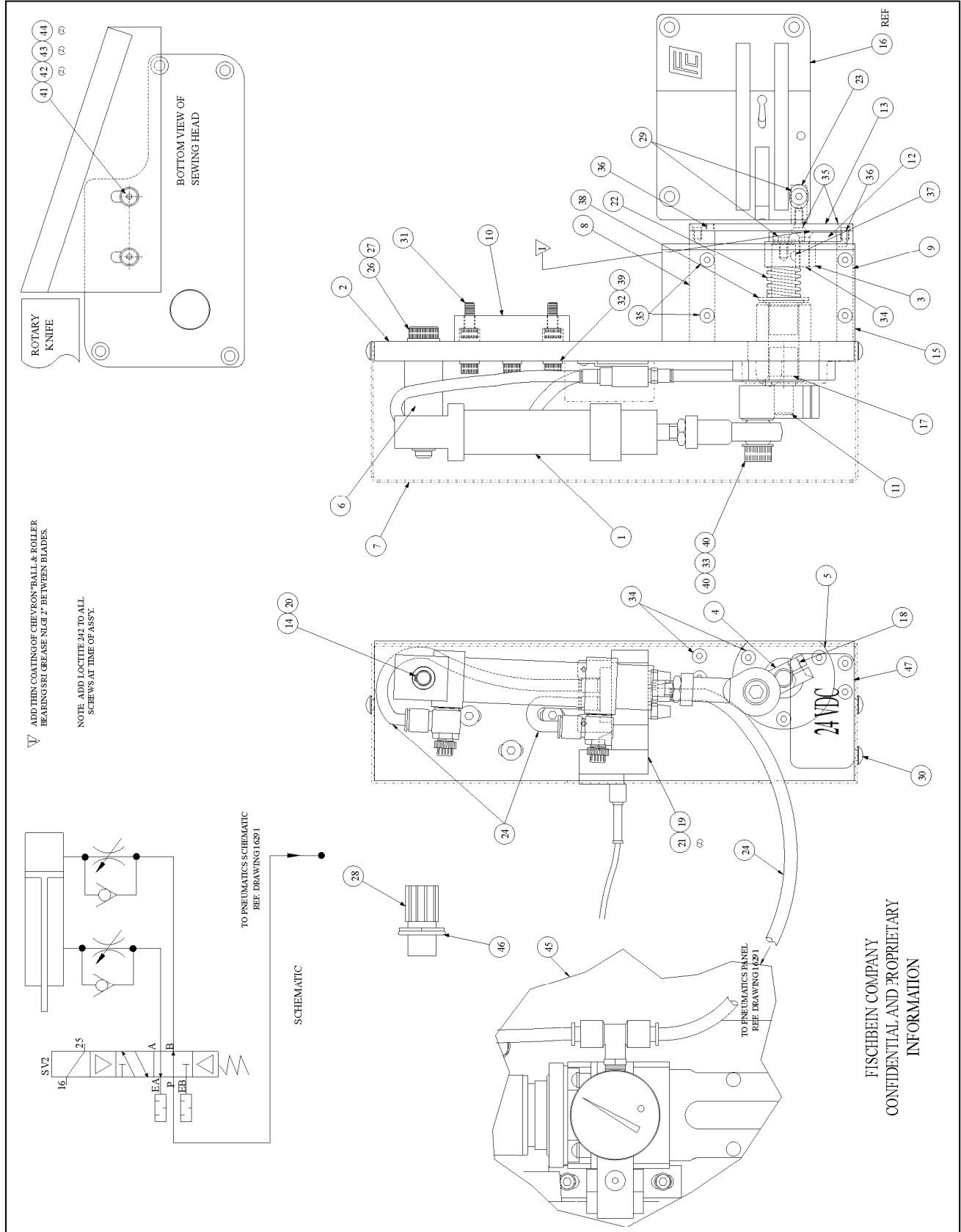
FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

| Item No. | Quantity | Part No. | Description |
|-----------------|-----------------|-----------------|-----------------------------------|
| 38 | 1 | WFM12 | WASHER, FLAT M12 |
| 39 | 4 | WFM6 | WASHER, FLAT M6 |
| 40 | 2 | WFM8 | WASHER, FLAT M8 |
| 41 | 1 | 31156 | GUIDE, AIR KNIFE BAG |
| 42 | 2 | SC103238 | SCREW, SOC CAP #10-32 UNF X 3/8 |
| 43 | 2 | WF10 | WASHER, FLAT #10 |
| 44 | 2 | WL10 | WASHER, LOCK #10 |
| 45 | REF | 16291 | DWG, PNEU SCHEM STD NEEDLE COOLER |
| 46 | 1 | P4139 | SEAL, MOISTURE (1/2") |
| 47 | 1 | 31158 | LABEL, VOLTAGE (110 V) |

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

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8.10 ROTARY AIR KNIFE (31165) (24 VDC)



**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

| Item No. | Quantity | Part No. | Description |
|----------|----------------|----------|-----------------------------------|
| 1 | 1 | 31101 | KIT, AIR CYLINDER ASSY |
| 2 | 1 | 31131 | PLATE, SUPPORT |
| 3 | 1 | 31103 | HUB, MOVABLE KNIFE MOUNTING |
| 4 | 1 | 31104 | LEVER, AIR CYLINDER DRIVE |
| 5 | 1 | 31138 | HUB, DRIVESHAFT SUPPORT |
| 6 | 1 | 31106 | PIN, AIR CYLINDER PIVOT |
| 7 | 1 | 31132 | COVER |
| 8 | 1 | 31108 | BRACKET, UPPER FIXED BLADE |
| 9 | 1 | 31109 | BRACKET, LOWER FIXED BLADE |
| 10 | 1 | 31110 | BLOCK, MOUNTING |
| 11 | 1 | 31111 | SHAFT, MOVABLE KNIFE |
| 12 | 1 | 31112 | BLADE, MOVABLE KNIFE |
| 13 | 1 | 31113 | BLADE, FIXED KNIFE |
| 14 | 1 | 15066 | WASHER, THRUST-.312 ID X .750 |
| 15 | 1 | 31115 | COVER, SIDE |
| | | | |
| 16 | REF | 31037 | PLATE, THROAT (STD) LO-SP |
| 16 | REF | 31038 | PLATE, THROAT (LONG STITCH) LO-SP |
| 17 | 2 | 31139 | BEARING, MTRC FLANGED |
| 18 | 1 | SFM510 | SCREW, SOC FLAT M5 X 10mm |
| 19 | 1 | 31162 | KIT, SOLENIOD, 24VDC |
| 20 | 1 | 31120 | E-RING, CIRCLIP D8 |
| 21 | 2 | PHM258 | SCREW, PAN HD M2.5 X 8mm |
| 22 | 1 | 31122 | SPRING, COMPRESSION |
| 23 | 1 | 31123 | BLOCK, MOUNTING THROAT PLATE |
| 24 | 6.0 ft (1,83M) | 31129 | TUBING, POLYURETHENE, GREEN, 6mm |
| 25 | | | |
| 26 | 1 | WFM10 | WASHER, FLAT M10 |
| 27 | 1 | SCM1022 | SCREW, HEX M10 X 22mm |
| 28 | 1 | 16035 | CORDGRIP, 1/2NPT |
| 29 | 2 | SFM412 | SCREW, SOC FLAT M4 X 12mm |
| 30 | 3 | SBM510 | SCREW, SOC BUTTON M5 X 10mm |
| 31 | 4 | SC103278 | SCREW, SOC CAP #10-32 UNF X 7/8 |
| 32 | 4 | SCM618 | SCREW, SOC CAP M6 X 18mm |
| 33 | 1 | SCM825 | SCREW, SOC CAP M8 X 25mm |

FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL

| Item No. | Quantity | Part No. | Description |
|-----------------|-----------------|-----------------|-----------------------------------|
| 34 | 8 | SFM416 | SCREW, SOC FLAT M4 X 16mm |
| 35 | 7 | SFM48 | SCREW, SOC FLAT M4 X 8mm |
| 36 | 4 | SSM46 | SCREW, SOC SET M4 X 6mm |
| 37 | 2 | T3192 | KEY, WOODDRUFF |
| 38 | 1 | WFM12 | WASHER, FLAT M12 |
| 39 | 4 | WFM6 | WASHER, FLAT M6 |
| 40 | 2 | WFM8 | WASHER, FLAT M8 |
| 41 | 1 | 31156 | GUIDE, AIR KNIFE BAG |
| 42 | 2 | SC103238 | SCREW, SOC CAP #10-32 UNF X 3/8 |
| 43 | 2 | WF10 | WASHER, FLAT #10 |
| 44 | 2 | WL10 | WASHER, LOCK #10 |
| 45 | REF | 16291 | DWG, PNEU SCHEM STD NEEDLE COOLER |
| 46 | 1 | P4139 | SEAL, MOISTURE (1/2") |
| 47 | 1 | 31148 | LABEL, VOLTAGE (24 VDC) |

9. MACHINE SET UP PARTS LISTS

9.1 MODEL 100

| <u>PRESSER FOOT</u> | | <u>THROAT PLATE</u> | <u>FEED DOG</u> |
|----------------------------|---------|--|-------------------------|
| Std. Curved (Replacement) | 10185 | 10017 | 10078 (4 Ctr. Teeth) |
| Std. Curved Assembly | 10157 | 10017 | 10078 |
| Includes Presser Foot | 10185 | | |
| Shank | 10155 | | |
| Block | 10156 | | |
| Bolt | 10182 | | |
| Nut | 11309 | | |
| 2" Stitch | | 10018 | 10079 (3 Ctr. Teeth) |
| Filler Cord (R/C) | 10285 | 10017 | 10078 |
| 2" Stitch | 10285 | 10018 | 10079 |
| Moving Knife Blade (Std.) | 31029 | | |
| Stationary Knife (Std.) | 31032 | | |
| Two Thread Looper | 10060 | | |
| Needles | C100-S | Square Point for Paper | |
| | C100-RP | Round Point used for woven poly, burlap. | |
| | C80-S | 0.08" Diameter Square Point | |

**FISCHBEIN® MODELS 100 & 101 EMPRESS™ SERIES SEWING HEAD
OPERATOR'S MANUAL**

9.2 MODEL 101

| <u>PRESSER FOOT</u> | <u>THROAT PLATE</u> | <u>FEED DOG</u> |
|-------------------------------|----------------------------|------------------------------------|
| Std. Wide Tape (2" – 2 1/2") | 10485 | 10486 |
| Std. Wide Tape Assy. | 10481 | 10486 |
| Includes Presser Foot | 10484 | |
| Shank | 10155 | |
| Block | 10156 | |
| Bolt | 10182 | |
| Nut | 11309 | |
| Narrow Tape (1 1/4" – 1 1/2") | 10494 | 10496 |
| Narrow Tape Assy. | 10490 | 10496 |
| Includes Presser Foot | 10494 | |
| Shank | 10498 | |
| Block | 10497 | |
| Bolt | 10499 | |
| Nut | 11309 | |
| Medium Tape (1 7/8") | 10562 | 10565 |
| (Pull Tape Same Parts) | | |
| Wide Pull Tape | 10558 | 10486 |
| (Base Only) | | |
| Narrow Pull Tape | 10553 | 10496 |
| (Base Only) | | |
| Tape or Chain | 10479 | 10491 |
| (Brussels Only) | | |
| Two Thread Looper | 10060 | |
| Needles | C100-S | Square Point for paper (.100") |
| | C100-RP | Round Point for woven poly, burlap |
| | C80-S | 0.08" Diameter Square Point |
| Throat Fence | 15180 | |
| Moving Knife | 10443 | |
| Bed Knife | 10446 | |

10. SAFELY DISPOSING OF A SEWING HEAD

If a Fischbein sewing head becomes damaged beyond repair or simply worn to a nonfunctional state after years of service, it should be taken out of service only after it is safe to dispose of it. First, drain all the oil out of the machine as described in section 2.4 of this manual. Dispose of the oil according to your appropriate local environmental regulations. After the oil has been drained and disposed of, bring the sewing head to a recycling center or metal scrap facility.