



**SAWYER MFG. COMPANY**

*Manufacturers of Pipeline Equipment*

## Sawyer Band Type Beveling Machine Operating Manual





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The Sawyer Band Type Beveling Machine (aka Crawler) is adaptable to any beveling requirement. The Beveling Crawler mounts on stainless steel beveling bands designed to fit any pipe 6-inches (152.4mm) or larger. Bands are available to fit pipe in 2-inch increments. Sizes larger than 60-inches are available by special order.

A manual or motor-driven crawler holds the cutting torch and rotates around the pipe on the bands executing a precision cut or bevel even on out-of-round pipe.

A variety of beveling accessories are available to accommodate virtually any field cutting or beveling need. Manual crawlers may be retrofitted via a Motorizing Kit.

### **Setup and Operation**

Beveling crawlers may travel in either direction—clockwise or counter-clockwise. However, motorized versions must be stopped prior to changing directions.

### **Installing the Band**

Sawyer Beveling Bands are sized to fit the specific OD size of the pipe. Sawyer bands have the size labeled on the tag near the band latch.

- 1) Open the Band by pulling up on the Latch Handle and lifting the mechanism clear of its Anchor.
- 2) Grasp the Band Handles and pull upward to spread the band, allowing it to be placed around the pipe.
- 3) Once positioned on the pipe, pull the Band Handles back together inserting the Band Tab into the Band Slot and reinserting the Latch Handle mechanism into its Anchor. Do not close the latch assembly until the band is properly positioned.
- 4) Position the band at the desired distance from the cutline determined by the distance between the torch nozzle tip and the front transmission wheels riding on the band.
- 5) Close the Latch Handle to secure the band in place.

**Note:** In the open position the handle may be loosened by turning it clockwise or tightened by turning it counter-clockwise.

- 6) Visually check to see that all band contact points are touching the pipe. Non-contact may indicate that the band is not square with the face of the pipe. Reposition as necessary.



### **Mounting the Crawler on a Band**

- 1) Using a 7/16 wrench, turn the Cap Screws (No. 14) counter-clockwise until the front and rear Ball Legs rotate.
- 2) Move the Ball Legs in or out until the groove in the wheels fits the band edges.
- 3) Retighten the hex head Cap Screws (turning clockwise) until snug. Do not over tighten. This can damage the machine.
- 4) Lift the latch handles (No. 9g) of the two (2) Ball Leg assemblies to unlock them and tilt the legs outward to a slightly open position.
- 5) Position the Crawler on the band so that the Drive Wheel Grooves engage the edges of the band and it moves freely back and forth.
- 6) When the wheels are properly engaged, tilt the Ball Legs closed and depress the latch handles locking the legs into position. The legs should fit securely against the band edge but not so tight as to cause the wheels to bind. Ball Leg tension can be adjusted with the hex nuts located a top on the latch springs (No. 9e)

### **Installation of the Torch in the Crawler**

- 1) Turn the Set Screw on the end (opposite the cable) of the Crawler (Part No. 8) counterclockwise until the Torch Holder (No. 10) rotates.
- 2) Rotate the Torch Holder until the hole for the torch is at the required height.
- 3) Position the torch in the Torch Holder. Installation will require an Angle Head Adaptor for the torch tip. Adjust as necessary to achieve the desired bevel angle.
- 4) Adjust the torch horizontally for the proper tip alignment with the cutline. Rotate the Torch Holder to set the torch tip stand-off to the pipe. Tighten the Set Screw (clockwise) to lock the torch and Torch Holder in place.  
**NOTE:** A short barrel Machine Torch should never be used with the Crawler as it may cause the bearings of the Drive Wheels to seize.
- 5) Check setup by rotating the crawler one full turn around the pipe to assure that the Drive Wheels roll smoothly without binding and that the Torch Tip clears full circle.

Check the groove of the Drive Wheel assemblies for grooving by the band edge. If noticeable grooving occurs, read instructions for tension adjustment of the front and rear Ball Leg assemblies. Likewise check for slippage of the Crawler Ball Leg assemblies on the band and tighten the tension as needed.

**Note: Torch, Tip, and Angle Heads are available as options from Sawyer, but are not included with the Beveling Crawler.**



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### **Installation or Replacement of the Flexible Drive Cable**

The Sawyer Band Type Beveling Machine is shipped with the Drive Cable installed. Replacement procedures are as follows:

- 1) The Flexible Shaft inside the Drive Cable assembly extends beyond the Swivel Nut and is inserted into the transmission through the Connector (No. 6).
- 2) The Flexible Shaft must be turned so that the keyway (groove) on the exposed end aligns with the key on the Worm Shaft (No. 12) located inside the Connector.
- 3) When the key and the keyway groove are aligned the Swivel Nut may be screwed onto the Connector.
- 4) Hand tighten the Drive Cable until it stops, then tighten snugly with a wrench. Do not over tighten.

### **Motorizing Kit Installation**

The procedure for replacing the Manual Drive Shaft with the Motorizing Kit is as follows:

- 1) Remove the Manual Drive Shaft from the Connector by turning the coupling.
- 2) Remove the Connector from the transmission.
- 3) Rotate the Motorizing Kit shaft with mount until the keyway (groove) on the exposed shaft aligns with the key on the Worm Shaft
- 4) Thread the Connector into the threaded hole of the transmission body and tighten.



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### **Maintenance**

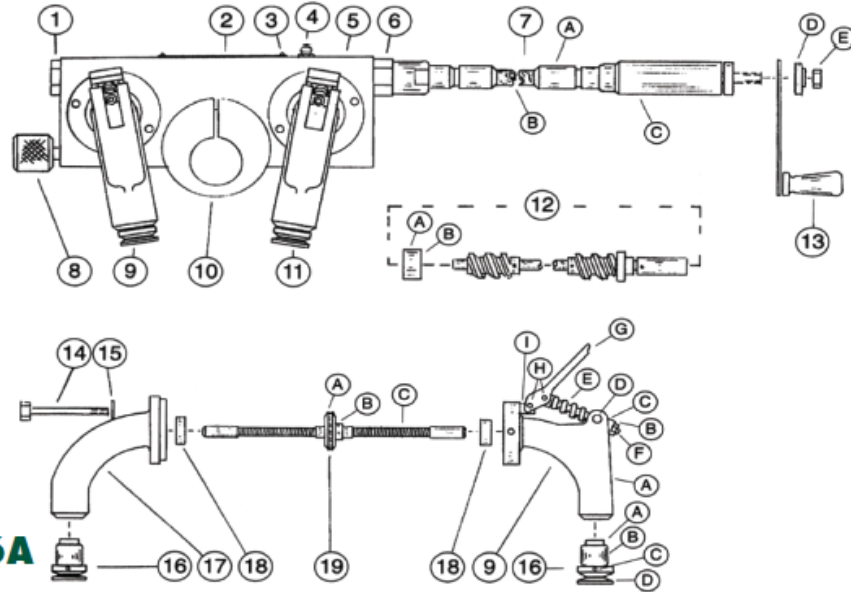
Sawyer Band-Type Beveling Machines are field-ready equipment designed to perform precision tasks under rigorous conditions. To maintain performance, common sense and reasonable care is required.

- 1) Ball Legs, Flanged Legs, Drive Wheels and Torch Holder should be kept free of slag and other abrasives such as sand and dirt. Use a soft rag and non-flammable solvent to clean. Do not use air when cleaning.
- 2) When not in use and during transportation, Beveling Band Machines should be stored in a protective container such as the Carrying Case or original shipping container.
- 3) The Flexible Drive Shafts and electrical cords and connectors on the Motorized machines should be kept clean and protected from kinking or damage by sharp objects.
- 4) The Beveling Bands should be stored on their sides when not in use and kept clean of slag, sand, dirt or other abrasives. Latch assemblies, handles and tabs should likewise be kept clear of abrasives.

Note: The Crawler should not require additional grease with use as it is a closed system. The grease zerk on top of the crawler body should be greased only when the unit has been disassembled and reassembled. The unit comes pre-greased when shipped and if grease is noticed coming from the unit it may be in need of repair.



## Beveling Transmissions Reference Number and Parts List



### Model 206A Parts List

| No. | Description/Name              | Part No. | Amount | No. | Description/Name               | Part No. | Amount |
|-----|-------------------------------|----------|--------|-----|--------------------------------|----------|--------|
| 1   | End Plug                      | 32G-1    | 1      | 9i  | Latch Pin- Short               | 38C-1    | 1      |
| 2   | Name Plate                    | 55G      | 1      | 9j  | Hex Jam (Not Shown)            | 517-32   | 1      |
| 3   | Drive Screw                   | 515-3    | 2      | 10  | Torch Holder                   | 94A-1    | 1      |
| 4   | Grease Fitting                | 518-1    | 1      | 11  | Ball Leg Assy-Front            | 4DD-2    | 1      |
| 5   | Body                          | 11K      | 1      | 12  | Worm Shaft Assy.               | 4DA      | 2      |
| 6   | Connector                     | 93B-1    | 1      | 12a | Bearing Housing- Rear          | 56N      | 1      |
| 7   | Main Flex Drive Shaft Assy.   | 29CA     | 1      | 12b | Bearing                        | 505-21   | 1      |
| 7a  | Outer Housing Assy.           | 29CA-1   | 1      | 13  | Crank Handle Assy.             | 4DE      | 1      |
| 7b  | Inner Core Assy.              | 29CA-2   | 1      | 14  | Cap Screw                      | 519-13   | 4      |
| 7c  | Hand Piece                    | 29CA-3   | 1      | 15  | Washer                         | 502-29   | 4      |
| 7d  | Washer                        | 29CA-6   | 1      | 16  | Drive Wheel Assy.              | 4DB      | 4      |
| 7e  | Nut                           | 29CA-7   | 1      | 16a | Bearing Race                   | 79C-1    | 1      |
| 8   | Set Screw Assy.               | 4DF      | 1      | 16b | Bearing                        | 505-19   | 1      |
| 9   | Rear Leg Assy. Complete       | 4DD-1    | 1      | 16c | Pin                            | 522-6    | 1      |
| 9a  | Ball Leg Assy-Rear            | 4FL-R    | 1      | 16d | Wheel                          | 64N-1    | 1      |
|     | Latch Sub Assy (Incl 9b - 9j) | 4FH      | 1      | 17  | Flanged Leg- Rear              | 96A-2    | 1      |
| 9b  | Nut                           | 517-6    | 1      | 18  | Worm Gear Shaft Bearing        | 505-20   | 4      |
| 9c  | Spacer                        | 30R-1    | 1      | 19  | Worm Gear Shaft Assy.          | 4DC      | 2      |
| 9d  | Pivot Pin                     | 35AG     | 1      | 19a | Worm Gear                      | 37-AF    | 1      |
| 9e  | Spring                        | 51A0     | 1      | 19b | Set Screw                      | 515-4    | 2      |
| 9f  | Latch Pin- Long               | 38D-1    | 1      | 19c | Flex Shaft                     | 29CK     | 1      |
| 9g  | Latch Handle                  | 33H-1    | 1      | 20  | Flanged Leg- Front (not shown) | 96A-1    | 1      |
| 9h  | Rivet                         | 523-2    | 2      | 21  | Lubricant (not shown)          | 521-1    | 8oz    |



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### **Sawyer Band Type Beveling Machines and Accessories**

Sawyer Model 206A-9 and Model 206A-14 standard Crawlers are available with 9-ft. or 14-ft. flexible manual transmission drive shafts (2.7m or 4.3m).

Sawyer Model 206B-110, Model 206B-220 and Model 206B-90DC Motorized Beveling Crawlers are available with A.C. or D.C. motorized transmissions. Manual Drive Shaft Transmissions may be field-retrofitted with the Model 206F Motorizing Kit.

Sawyer Model 206B-RA standard Beveling Crawler with a Right Angle Drive and a 9-ft. (2.7m) drive shaft incorporates a special swivel feature. The swivel facilitates work in tight areas and enables the machine to be operated from the right or left side or from above or below.

Sawyer Model 283D Double Cut Torch Holder fits any Sawyer Beveling Crawler and allows the machine to bevel on both sides of a cut.

Sawyer Model 284D Adjustable Torch Holder fits any Sawyer Beveling Crawler.

Sawyer galvanized steel Carrying Case is made for Sawyer Bands and Crawlers.