

# **Martin<sup>®</sup> SHD Cleaner & Tensioner**

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**Operator's Manual  
M3427**

# Important

MARTIN ENGINEERING HEREBY DISCLAIMS ANY LIABILITY FOR: DAMAGE DUE TO CONTAMINATION OF THE MATERIAL; USER'S FAILURE TO INSPECT, MAINTAIN AND TAKE REASONABLE CARE OF THE EQUIPMENT; INJURIES OR DAMAGE RESULTING FROM USE OR APPLICATION OF THIS PRODUCT CONTRARY TO INSTRUCTIONS AND SPECIFICATIONS CONTAINED HEREIN. MARTIN ENGINEERING'S LIABILITY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF EQUIPMENT SHOWN TO BE DEFECTIVE.

Observe all safety rules given herein along with owner and Government standards and regulations. Know and understand lockout/tagout procedures as defined by American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements* and Occupational Safety and Health Administration (OSHA) Federal Register, Part IV, 29 CFR Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*.

The following symbols may be used in this manual:



**Danger:** Immediate hazards that will result in severe personal injury or death.



**Warning:** Hazards or unsafe practices that could result in personal injury.



**Caution:** Hazards or unsafe practices that could result in product or property damages.



**Important:** Instructions that must be followed to ensure proper installation/operation of equipment.



**Note:** General statements to assist the reader.

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# Introduction

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## ***General***

The Martin® SHD Cleaner provides effective removal of carryback with a long-lasting blade. To introduce product back into the product flow, the Martin® SHD Cleaner is installed on the face of the head pulley. On a dual-cleaner system, the Secondary Cleaner is installed immediately following the Pre-Cleaner to remove stubborn material left on the conveyor belt. If a Pre-Cleaner cannot be used because of space limitations, the Secondary Cleaner is installed alone. If the material-handling process or product could be affected by contamination from the use of these belt cleaners, the user is responsible for taking the necessary steps to prevent contamination. Consult Martin Engineering or a representative for alternate belt cleaners or belt cleaner locations to use where contamination may be an issue.

## ***Installations without chutework***

These procedures were written for equipment that is being installed on enclosed pulley chutework. If the pulley is not enclosed, the equipment should be installed using the best available field resources and methods to ensure that the critical dimensions are followed for proper installation.

## ***Belt cleaner inspection access***

If the belt cleaner is installed on enclosed pulley chutework, a Martin® Inspection Door should be installed. Martin® Inspection Doors are available from Martin Engineering or a representative.

## ***References***

The following documents are referenced in this manual:

- American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements*, American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.
- Federal Register, Volume 54, Number 169, Part IV, 29 CFR Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*, Department of Labor, Occupational Safety and Health Administration (OSHA), 32nd Floor, Room 3244, 230 South Dearborn Street, Chicago, IL 60604.

## ***Materials required***

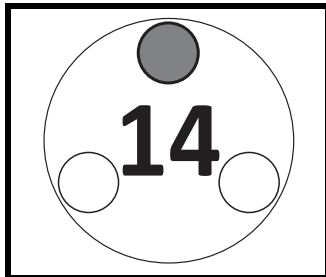
Only standard hand tools are required to install and service this equipment.

Table I. Martin® SHD Cleaner Blade Colors, Materials and Specifications

| URETHANE SELECTION | APPLICATION DESCRIPTION  | TYPICAL MATERIALS                      | CONTINUOUS TEMPERATURE           |
|--------------------|--|--|----------------------------------|
| Orange             | <b>Standard Martin® Urethane</b><br>Suitable for 80% or more of all belt cleaner applications, including abrasive conditions.      | Bauxite, Coke, Coal, Overburden Refuse | -20° to 160°F<br>(-29° to 71°C)  |
| Brown (BR)         | <b>Chemical-Resistant Urethane</b><br>Improves resistance to chemicals; reduced absorption of water in high-moisture environments. | Limestone                              | -40° to 160°F<br>(-40° to 71°C)  |
| Green (GR)         | <b>High-Temperature Urethane</b><br>For exposure to intermittent temperatures up to 350°F (177°C).                                 | Clinker                                | -40° to 300°F<br>(-40° to 149°C) |
| Clear (CL)         | <b>Low-Rigidity Urethane</b><br>For dry products such as sand and gravel.  | Gravel, Dry Sand                       | -20° to 160°F<br>(-29° to 71°C)  |
| Navy Blue (NB)     | <b>Low-Adhesion Urethane</b><br>For sticky or tacky materials.   | Cement, Glass, Wood Chips              | -20° to 160°F<br>(-29° to 71°C)  |

**IMPORTANT***Urethane shelf life*

Urethane put in service after exceeding its shelf life may wear differently and deteriorate quicker than normal urethane.

**NOTE**

Code Date is written near bottom of blade as mm/dd/yy-x. In addition to or in place of this date, you may see an imprinted date medallion similar to the example shown. In this example, “14” stands for the year 2014. The small circles represent the quarter of the year. If three circles are “punched” the blade was produced in the first quarter. If none of the circles are “punched” the blade was produced in the fourth quarter. If code date on your blade(s) is not legible or is missing, contact Martin Engineering or a representative.

Table II. Urethane Shelf Life

| Blade Color | Shelf Life             |
|-------------|------------------------|
| Blue        | 1 Year from Code Date  |
| Brown       | 2 Years from Code Date |
| Clear       | 1 Year from Code Date  |
| Green       | 2 Years from Code Date |
| Orange      | 1 Year from Code Date  |



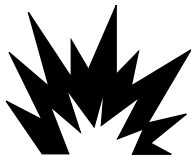
**⚠ DANGER**

Do not touch or go near the conveyor belt or conveyor accessories when the belt is running. Your body or clothing can get caught and you can be pulled into the conveyor, resulting in severe injury or death.



**⚠ DANGER**

Before installing, servicing, or adjusting the belt cleaner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.



**⚠ DANGER**

If this equipment will be installed in an enclosed area, test the gas level or dust content before using a cutting torch or welding. Using a torch or welding in an area with gas or dust may cause an explosion resulting in serious injury or death.



**⚠ WARNING**

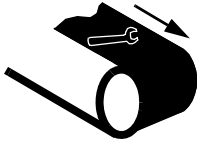
Before using a cutting torch or welding the chute wall, cover the conveyor belt with a fire retardant cover. Failure to do so can allow the belt to catch fire.



**⚠ WARNING**

Mainframe with blades is very heavy and requires a hoist to lift (see weight chart). Attempting to lift the belt cleaner without a hoist could result in serious injury.

| SHD-600     |           | SHD-1200    |           |
|-------------|-----------|-------------|-----------|
| Part Number | kg (lb)   | Part Number | kg (lb)   |
| 35554-48XX  | 137 (301) | 35553-48XX  | 149 (329) |
| 35554-54XX  | 152 (335) | 35553-54XX  | 167 (369) |
| 35554-60XX  | 168 (370) | 35553-60XX  | 186 (409) |
| 35554-72XX  | 192 (423) | 35553-72XX  | 213 (470) |
| 35554-84XX  | 208 (458) | 35553-84XX  | 231 (510) |
| 35554-96XX  | 216 (476) | 35553-96XX  | 241 (531) |
| 35554-108XX | 247 (546) | 35553-108XX | 277 (611) |
| 35554-120XX | 256 (564) | 35553-120XX | 287 (632) |



Remove all tools from the installation area and conveyor belt before turning on the conveyor. Failure to do so can cause serious injury to personnel or damage to the belt and conveyor.

Moving spring can pinch and crush. Keep hands away from spring.

**▲ CAUTION**

Use only Martin® SHD Cleaner Mainframe and Tensioners with Martin® SHD Cleaner Blades. Other mainframes and tensioners may not be strong enough and could break, causing damage to the conveyor belt and conveyor system. (The Martin® SHD Cleaner Mainframe uses IPB-160 [W6 X 15] I-beam.)



# Before Installing Belt Cleaner and Tensioner

## IMPORTANT

The delivery service is responsible for damage occurring in transit. Martin Engineering CANNOT enter claims for damages. Contact your transportation agent for more information.

1. Inspect shipping container for damage. Report damage to delivery service immediately and fill out delivery service's claim form. Keep any damaged goods subject to examination.
2. Remove belt cleaner assembly from shipping container.
3. If anything is missing contact Martin Engineering or a representative.



## WARNING

Before installing equipment, turn off and lock out/ tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

4. Turn off and lock out/tag out energy source according to ANSI standards (see "References").



## WARNING

If equipment will be installed in an enclosed area, gas level or dust content must be tested before using a cutting torch or welding. Using a cutting torch or welding in an area with gas or dust may cause an explosion.

5. If using a cutting torch or welding, test atmosphere for gas level or dust content. Cover conveyor belt with fire retardant cover.

## IMPORTANT

Center the belt cleaner blades to clean an area narrower than the conveyor belt width. This allows for side-to-side movement of the belt and prevents damage to the belt edge.

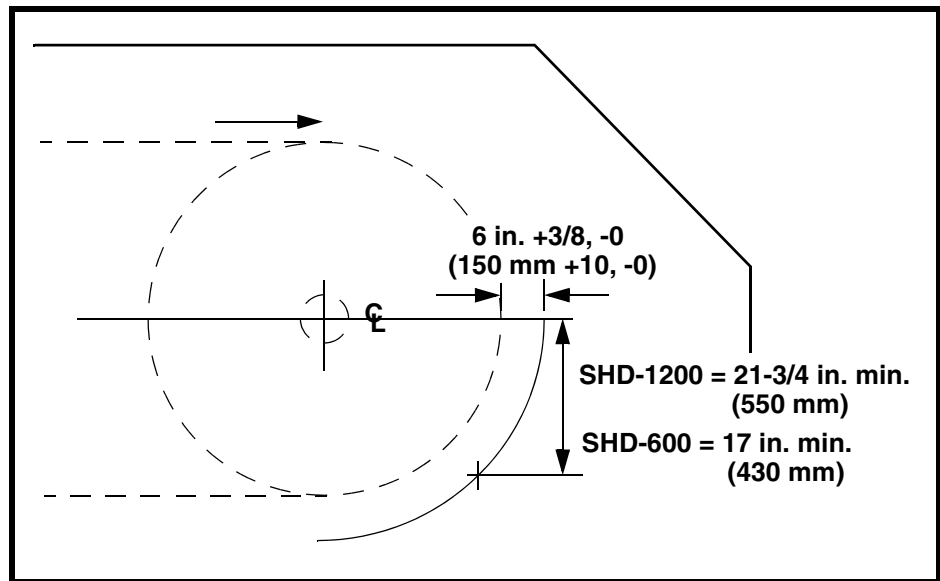
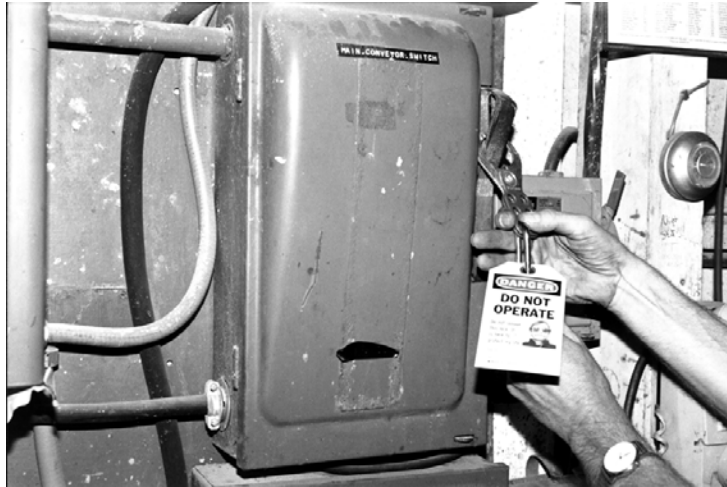
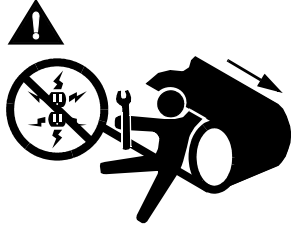
## NOTE

The chute wall that the tensioner will be located on is referred to as the "operator side." The other side of the chute is referred to as the "far side." (If installing dual tensioners, side that is most accessible is "operator side.")

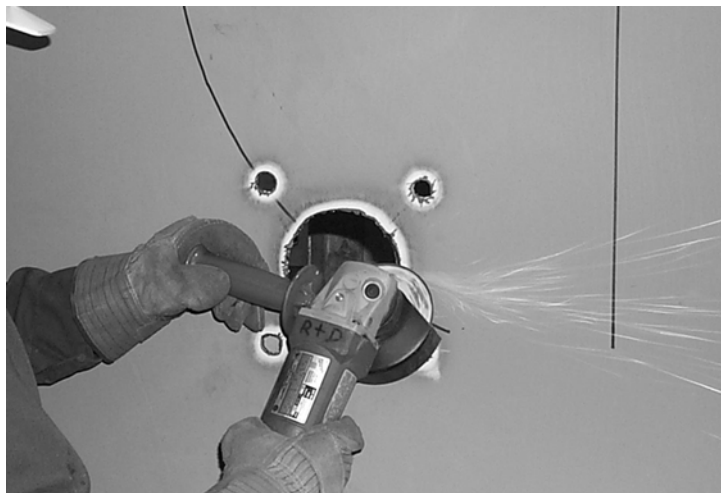
6. Determine which side of chute is easiest to access. Locate the tensioner on the most accessible chute wall.

# Installing Belt Cleaner and Tensioner

## Cutting mounting holes

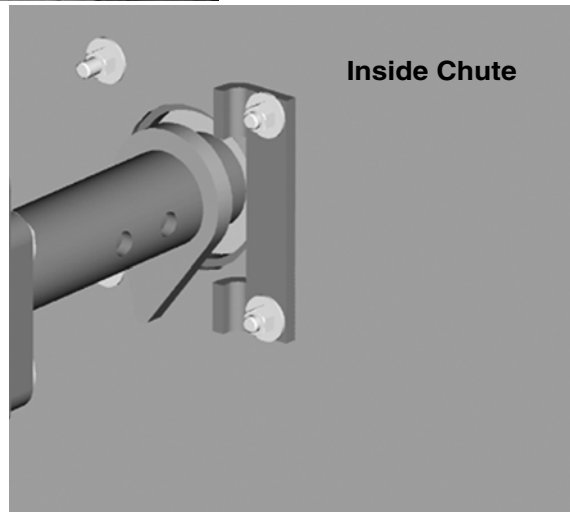
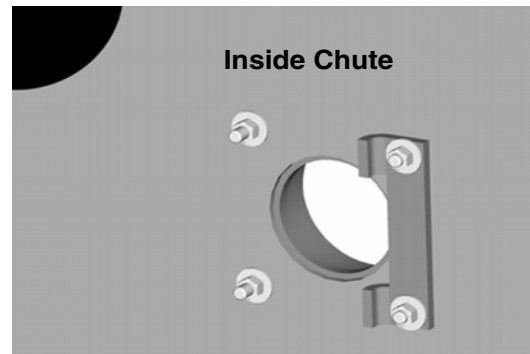


1. On operator side of chute wall, mark vertical and horizontal center line of head pulley and draw an arc as shown.
2. Locate center point of mainframe where the horizontal and vertical line intersects arc on chute wall.
3. Make sure mainframe and blades do not lie in the path of material unloading from conveyor belt. Make sure blade tip is at or below horizontal center line.

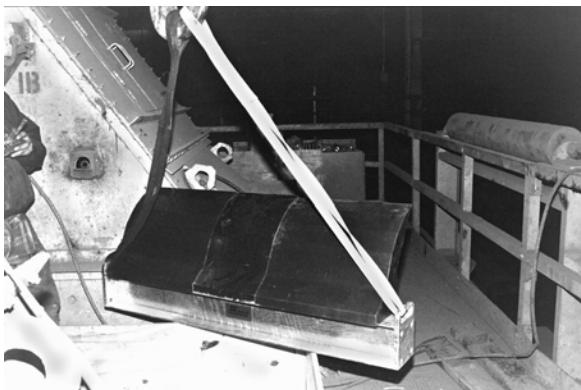


4. Cut and remove burrs and sharp edges.

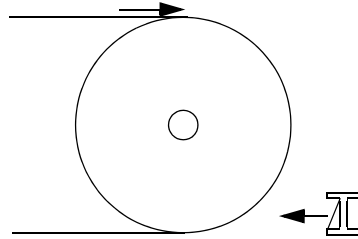
## Installing Belt Cleaner Assembly



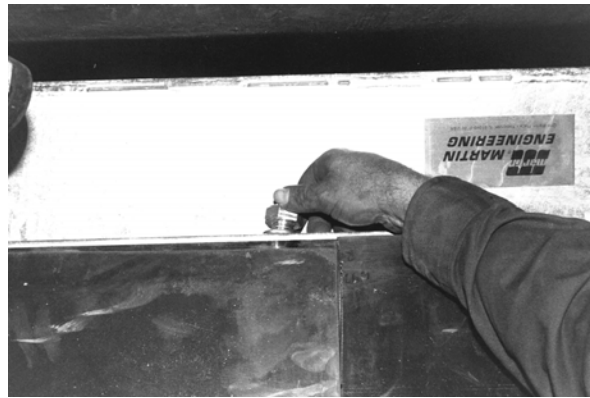
1. Install tensioner mount and stop onto chute wall.
2. Slide tensioner tab onto end weldment and insert end weldment into tensioner mount.
3. Repeat steps 1 and 2 on far side chute wall.



4. If possible, install blades onto mainframe before hoisting into chute. Otherwise, hoist mainframe into chute, then install blades.

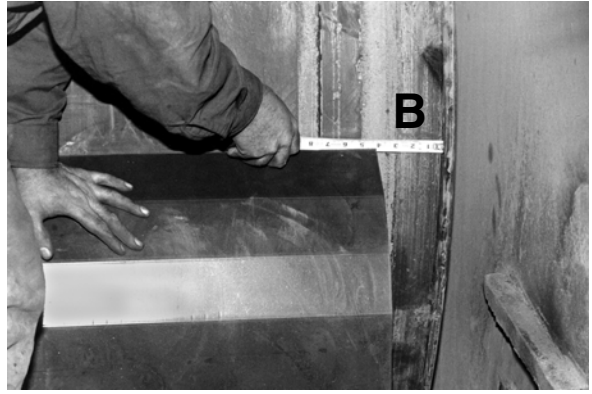


5. Align mainframe with end weldments and install cap screws, washers, and nuts. Tighten nuts to 257 lb-ft (348 N·m). Make sure the side of mainframe with brace is facing head pulley.



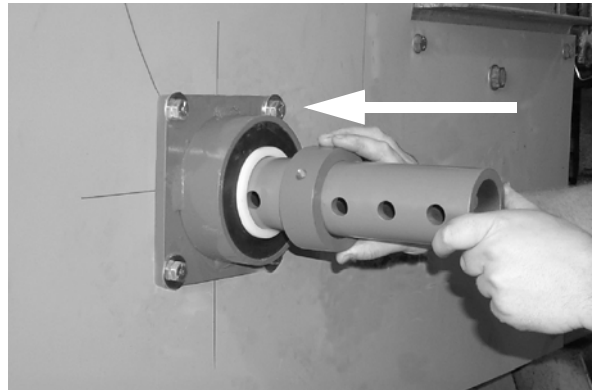
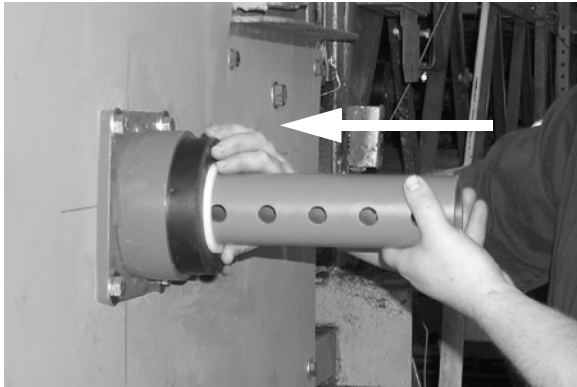
6. Reinstall blades and tighten cap screws to 325 lb-ft (440 N·m).

# Installation

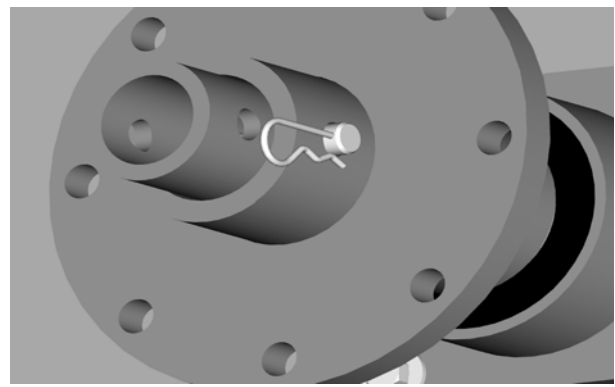
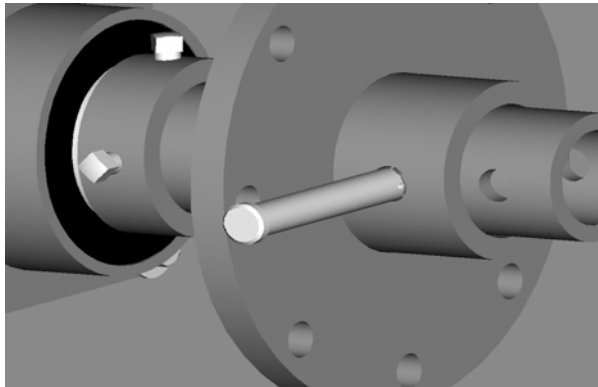
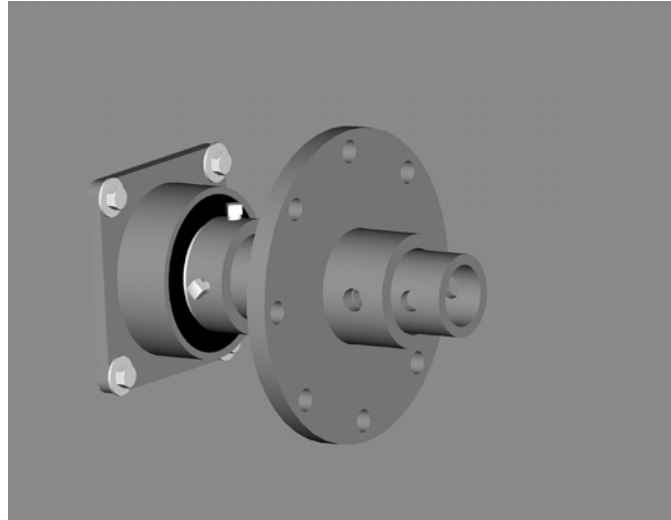


$$A = B$$

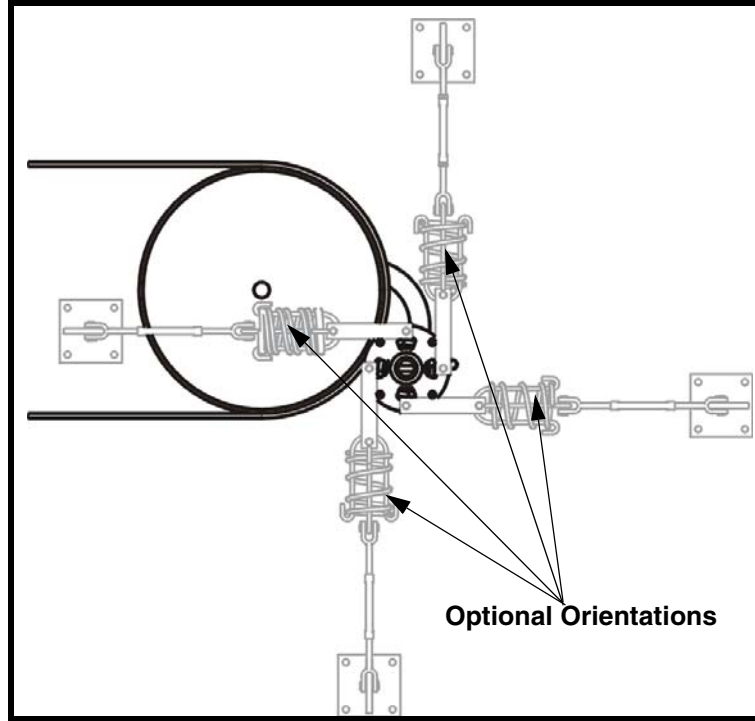
## *Installing Tensioner*



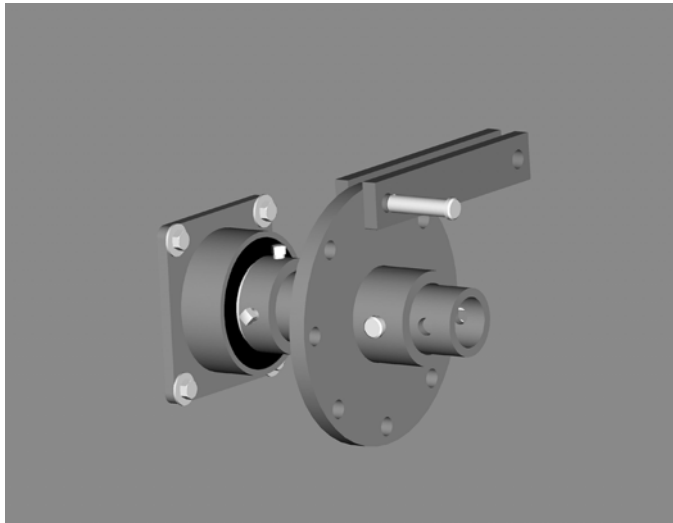
1. Insert rubber bearing and nylon bushing over end weldment and into flange.
2. Slide locking collar over each end weldment and secure with set screws.
3. Repeat steps 1 and 2 on opposite side.



4. Slide wheel weldment into place.
5. Insert clevis pin and secure with hair pin.

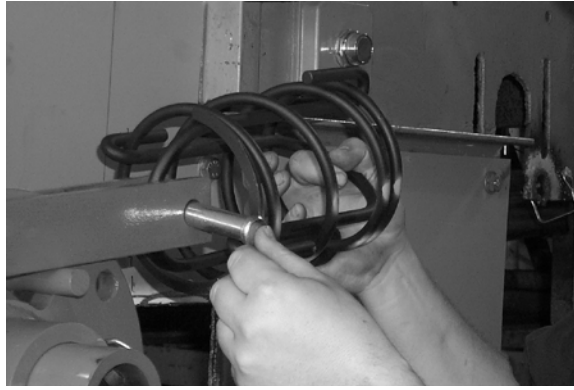


6. Tensioner can be assembled in any direction. Make sure blade is tensioned into the belt.

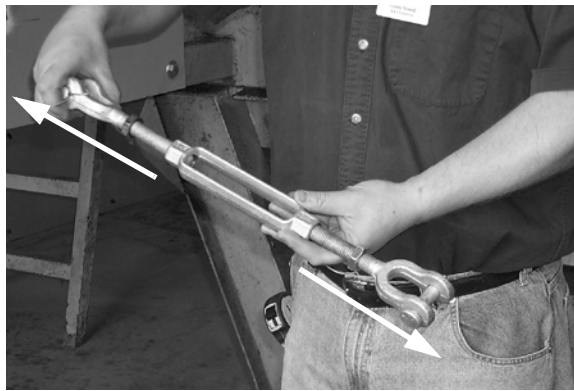


7. Assemble links to wheel weldment with clevis pin and hair pin.

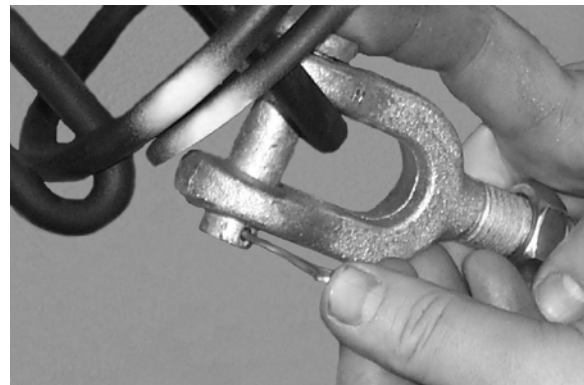
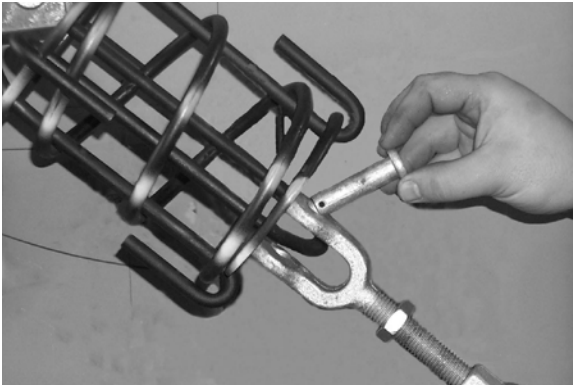




8. Assemble spring to links with clevis pin and hair pin.

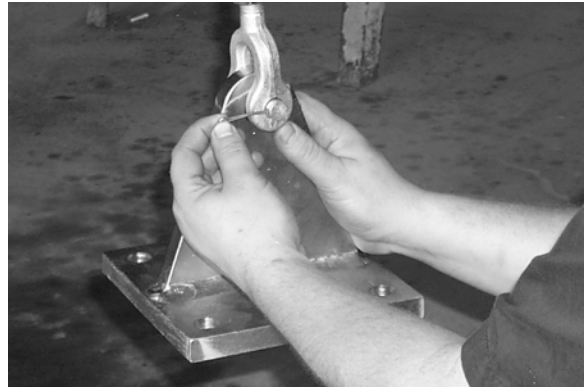


9. Fully extend turnbuckle.

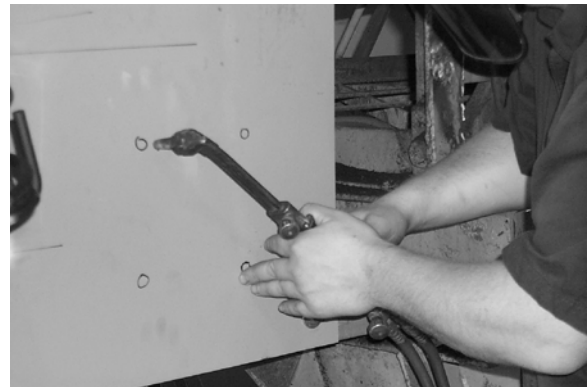
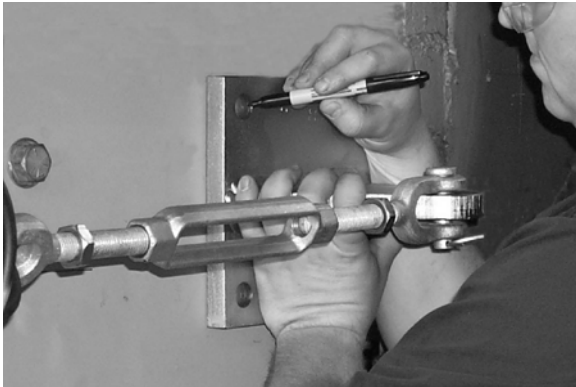


10. Assemble turnbuckle to spring.

# Installation

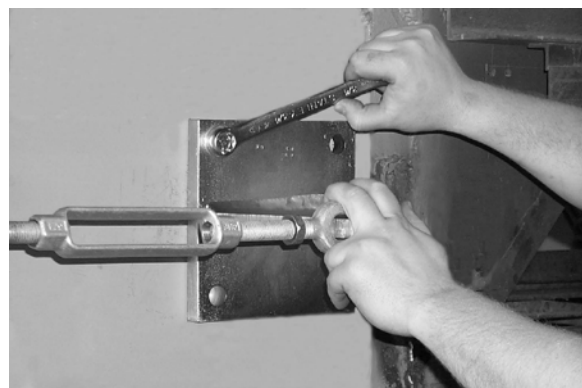


11. Assemble top mount weldment to turnbuckle.



12. Extend spring link assembly to final position and mark holes while pressing blades against belt.

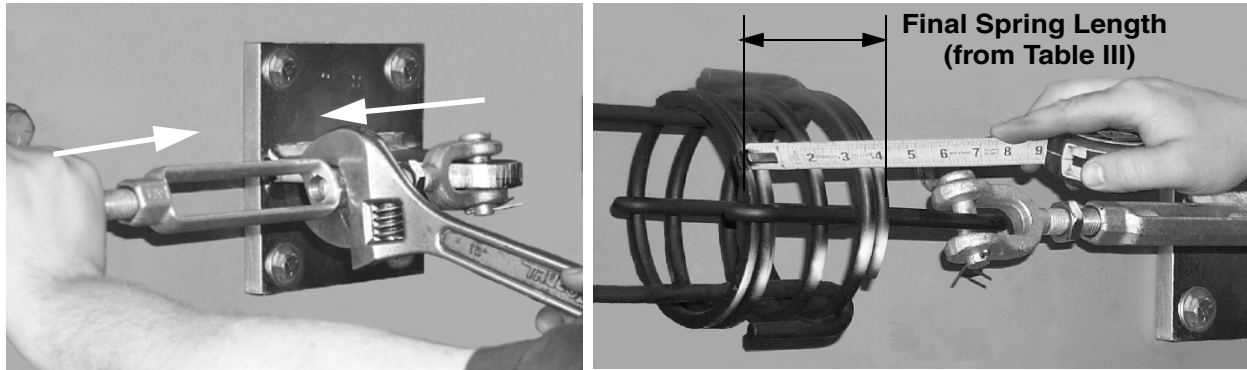
13. Cut holes with cutting torch.



14. Secure top mount weldment to chute wall.

15. For dual tensioners, repeat steps 4–14 on opposite side.

## Tensioning the Belt Cleaner

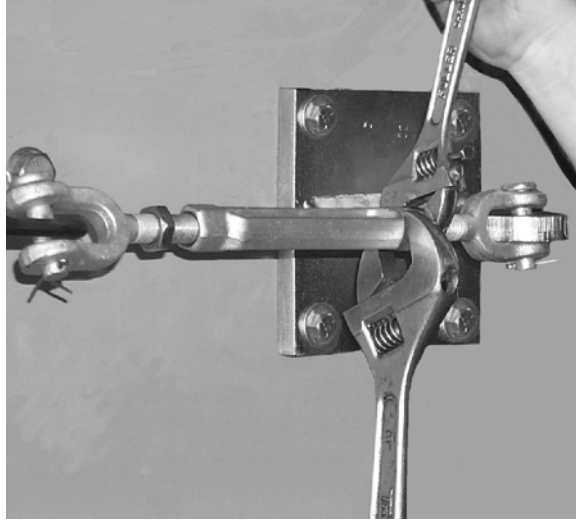


1. Tighten turnbuckle until spring is of the length shown in Table III.

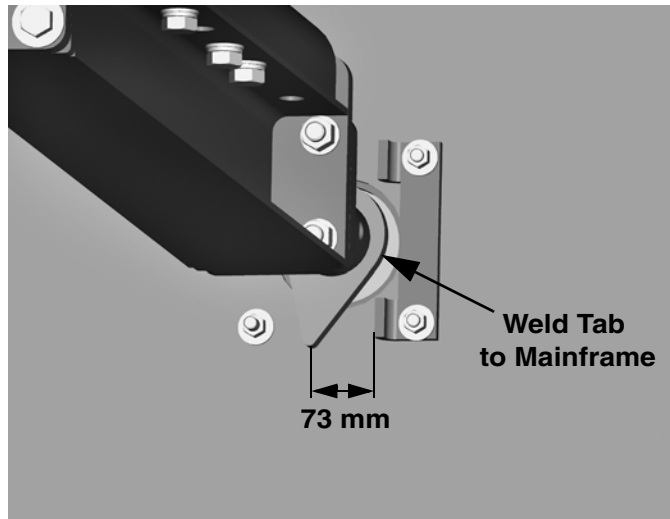
**Table III. Martin® SHD Cleaner Tensioning Chart**

| <b>SHD-600 Assy, P/N SH1X-XXXXX6XXXX</b>  |                                     |
|---|-------------------------------------|
| <b>Belt Width in. (mm)</b>                | <b>Final Spring length in. (mm)</b> |
| 48 (1200-1399)                            | 3.50 (88.90)                        |
| 54 (1400-1599)                            | 3.00 (76.20)                        |
| 60 (1600-1799)                            | 2.75 (69.85)                        |
| 72 (1800-1999)                            | 6.75 (171.45)                       |
| 84 (2000-2199)                            | 6.50 (165.10)                       |
| 96 (2200-2400)                            | 6.25 (158.75)                       |
| 108 (2600-2799)                           | 8.50 (215.90)                       |
| 120 (2000-3000)                           | 8.00 (203.20)                       |
| <b>SHD-1200 Assy, P/N SH1X-XXXXX1XXXX</b> |                                     |
| <b>Belt Width in. (mm)</b>                | <b>Final Spring length in. (mm)</b> |
| 48 (1200-1399)                            | 7.25 (184.15)                       |
| 54 (1400-1599)                            | 7.00 (177.80)                       |
| 60 (1600-1799)                            | 8.75 (222.25)                       |
| 72 (1800-1999)                            | 8.50 (215.90)                       |
| 84 (2000-2199)                            | 8.25 (209.55)                       |
| 96 (2200-2400)                            | 7.25 (184.15)                       |
| 108 (2600-2799)                           | 7.00 (177.80)                       |
| 120 (2000-3000)                           | 7.00 (177.80)                       |

# Installation



2. Secure turnbuckle with jam nut.
3. For dual tensioners, repeat steps 1 and 2 on opposite side.

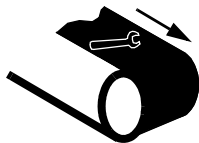


4. Position tab to allow mainframe to rotate into stop when blades wear.
5. Weld tab to mainframe so that tab is 73 mm. from stop.

# After Installing Belt Cleaner and Tensioner



1. Thoroughly wipe chute wall clean above tensioner.
2. Place Conveyor Products Warning Label (P/N 23395) on outside chute wall visible to belt cleaner operator.



## **⚠ WARNING**

Failure to remove tools from installation area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.



## **⚠ DANGER**

Do not touch or go near conveyor belt or conveyor accessories when conveyor belt is running. Body or clothing can get caught and pull body into conveyor belt, causing severe injury or death.

3. Turn on conveyor belt for 1 hour, then turn off.



## **⚠ DANGER**

Before installing, servicing, or adjusting the belt cleaner/tensioner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

4. Make sure all fasteners are tight. Tighten if necessary.
5. Inspect belt cleaner for the following:
  - Wear. (A small amount of “break-in” wear may be found. This will stop once blades wear to conveyor belt contour.)
  - Material buildup. (No material between blades and return side of conveyor belt should be found.)
6. If wear, material buildup, or some other problem exists, see “Troubleshooting.”

## Weekly Maintenance

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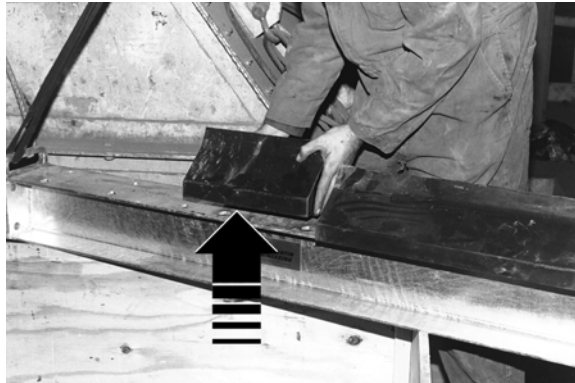
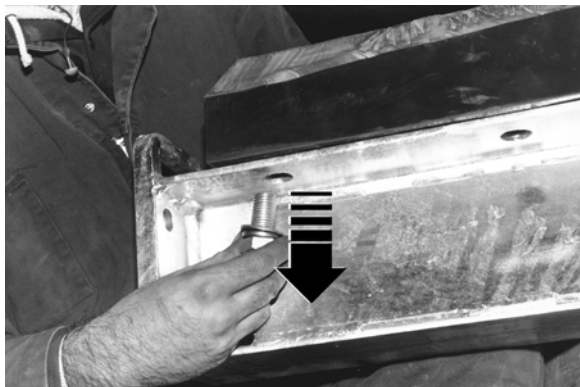
1. Make sure all fasteners are tightened to specified torque.
2. Wipe all labels clean. If labels are not readable, contact Martin Engineering or a representative for replacements.



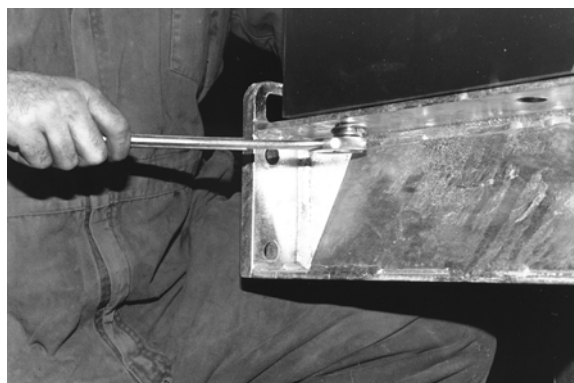
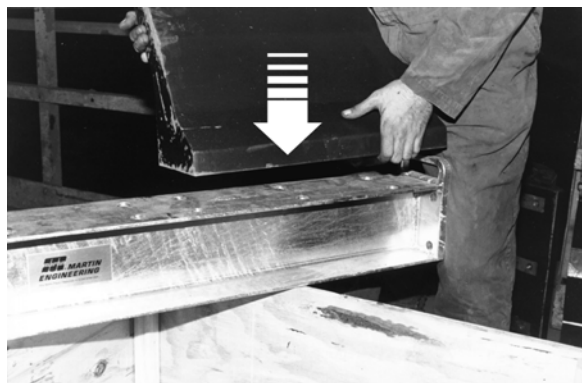
3. Before blades are worn to 100% wear line, replace blades. (You can replace blades without removing mainframe or by removing mainframe from end weldments as shown.)



4. Remove cap screws and nuts from mainframe and end weldments. Hoist mainframe from chute.



5. Remove cap screws and worn blades.



6. Install new blades and tighten cap screws to 325 lb-ft (440 N-m).

# Troubleshooting

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| Symptom  | Corrective Action   |
|--|---|
| Insufficient cleaning and carryback.                                     | <ul style="list-style-type: none"> <li>• Tension of cleaner on belt is set too low or too high. Increase or decrease tensioner setting.</li> <li>• Blades are worn. Check blades and replace if necessary.</li> </ul> |
| Noise or vibration.  | Tension is not sufficient or is set too high. Correct tension as necessary. If this does not correct problem, blade urethane may not match application. Contact Martin Engineering or representative.                 |
| High blade wear rate.  | Tension of cleaner on belt is set too high. Reduce tensioner setting.   |
| Unusual wear or damage to blades.  | Check belt splice(s) and repair as necessary.   |
| Bent or broken mainframe or support frame due to blade slipping through. | If blades are worn to or past the wear line, replace blades. If blades are not worn, check mainframe location.  |
| Corrosion or chemical degradation.                                       | Blade urethane may not match application. Contact Martin Engineering or representative.   |

## NOTE

**Conveyor equipment such as conveyor belt cleaners are subject to a wide variety of bulk materials characteristics and often have to perform under extreme operating or environmental conditions. It is not possible to predict all circumstances that may require troubleshooting. Contact Martin Engineering or a representative if you are experiencing problems other than those listed in the “Troubleshooting” chart above. Do not return the equipment to operation until the problem has been identified and corrected.**



# Part Numbers

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***Martin® SHD  
Cleaner Assembly***

**Martin® SHD Cleaner Assembly:** P/N SH1X-XXXXXXXXXX.  
See Figure 1.

***Martin® Spring  
Link Tensioner***

**Martin® Spring Link Tensioner Assembly:** P/N 35978. See Figure 2.

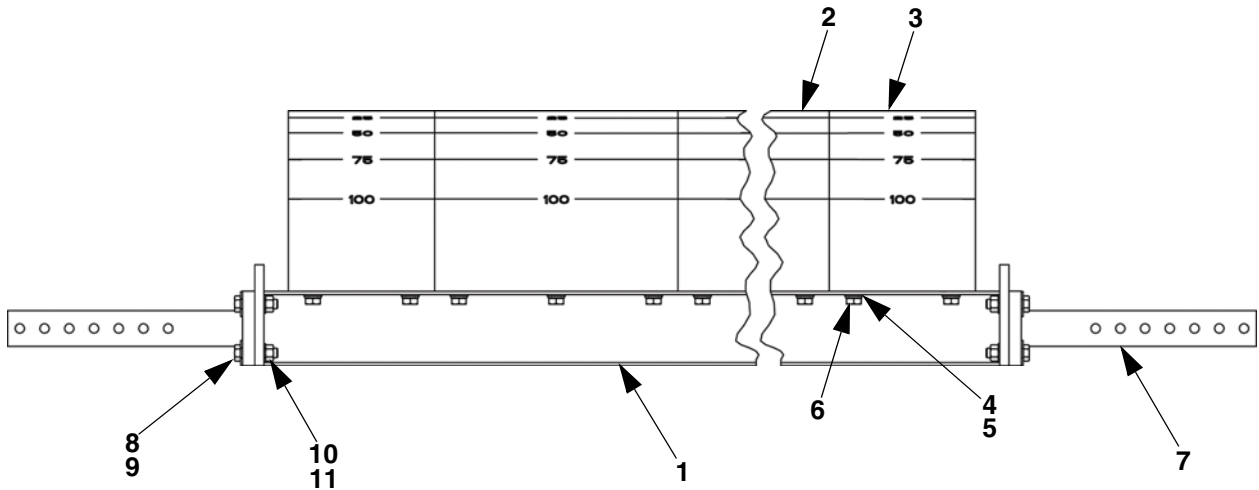
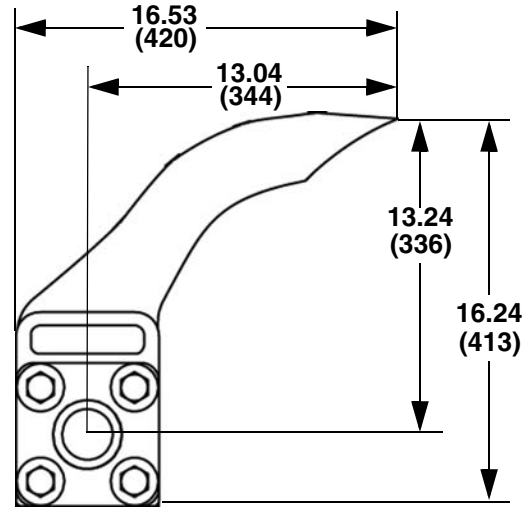
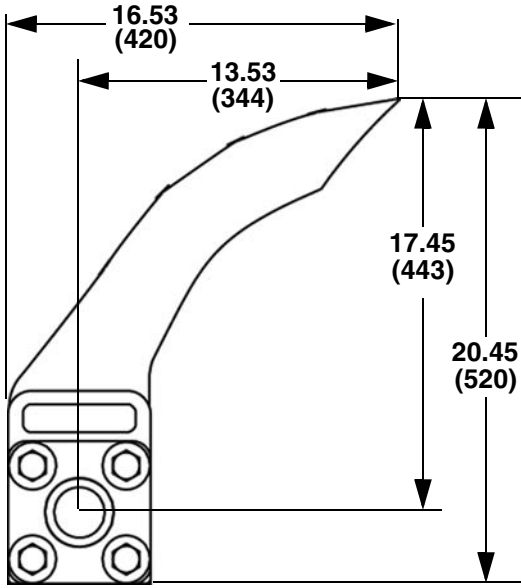


Figure 1. Martin<sup>®</sup> SHD Cleaner Assembly, P/N SH1X-XXXXXXXXXX\*  
(Sheet 1 of 2)

| Item   | Description                       | Part No.   | Qty      |
|--------|-----------------------------------|------------|----------|
| 1      | Mainframe                         | Table IV   | 1        |
| 2      | Blade (12.00 Lg.)                 | 3556X-12XX | Table IV |
| 3      | Blade (20.00 Lg.)                 | 3556X-20XX | Table IV |
| 4      | Washer Flat M20 ZP                | Table IV   | Table IV |
| 5      | Washer Lock Helical Spring M20 ZP | Table IV   | Table IV |
| 6      | Screw HHC M20 x 2.5 x 35 ZP       | Table IV   | Table IV |
| 7      | End Weldment                      | Table IV   | 2        |
| 8      | Washer Flat 3/4 Wide ZP           | Table IV   | 8        |
| 9      | Screw HHC 3/4-10NC x 3 ZP         | Table IV   | 8        |
| 10     | Washer Compression 3/4            | Table IV   | 8        |
| 11     | Nut Hex 3/4-10NC ZP               | Table IV   | 8        |
| Fig. 2 | Spring Link Tensioner Assembly    | Fig. 2     | Fig. 2   |
| NS     | Conveyor Products Warning Label   | 23395      | 2        |
| NS     | Martin® Nameplate 2.50 x 5.30 SS  | 33970      | 2        |
| NS     | Operator's Manual                 | M3427      | 1        |

**Figure 1. Martin® SHD Cleaner Assembly, P/N SH1X-XXXXXXXXXX\*  
(Sheet 2 of 2)**

\*First XX indicates belt width in inches; next X indicates blade type; next X indicates blade width; next X indicates blade profile; next X indicates urethane type; next X indicates mainframe options; next XX indicates end weldment lengths; last X indicates tensioner and accessory options.

NS=Not Shown

**Table IV. Martin® SHD Cleaner Assembly Part Numbers and Quantities**

| <b>Assembly Part No.</b> | <b>Qty Item 2</b> | <b>Qty Item 3</b> | <b>Qty Items 4, 5, 6</b> |
|--------------------------|-------------------|-------------------|--------------------------|
| SH1X-42X39XXXXX          | 0                 | 2                 | 12                       |
| SH1X-48X43XXXXX          | 2                 | 1                 | 14                       |
| SH1X-54X51XXXXX          | 1                 | 2                 | 16                       |
| SH1X-60X59XXXXX          | 0                 | 3                 | 18                       |
| SH1X-72X71XXXXX          | 1                 | 3                 | 22                       |
| SH1X-84X79XXXXX          | 0                 | 4                 | 24                       |
| SH1X-96X83XXXXX          | 2                 | 3                 | 26                       |
| SH1X-A8X98XXXXX          | 0                 | 5                 | 30                       |
| SH1X-C0XA2XXXXX          | 2                 | 4                 | 32                       |

| <b>Assembly Part No.</b> | <b>Part No. Item 1</b> |
|--------------------------|------------------------|
| SH1X-42X39XPXX           | 35549-42               |
| SH1X-48X43XCXX           | 35549-48               |
| SH1X-48X43XPXX           | 35549-48P              |
| SH1X-54X51XCXX           | 35549-54               |
| SH1X-54X51XPXX           | 35549-54P              |
| SH1X-60X59XCXX           | 35549-60               |
| SH1X-60X59XPXX           | 35549-60P              |
| SH1X-72X71XCXX           | 35549-72               |
| SH1X-72X71XPXX           | 35549-72P              |
| SH1X-84X79XCXX           | 35549-84               |
| SH1X-84X79XPXX           | 35549-84P              |
| SH1X-96X83XCXX           | 35549-96               |
| SH1X-96X83XPXX           | 35549-96P              |
| SH1X-A8X98XCXX           | 35549-108              |
| SH1X-A8X98XPXX           | 35549-108P             |
| SH1X-C0XA2XCXX           | 35549-120              |
| SH1X-C0XA2XPXX           | 35549-120P             |

| Assembly Part No. | Part No. Item 2 & 3 | Color          |
|-------------------|---------------------|----------------|
| SH1X-XXUXX6OXXX   | 35568-XX            | Orange         |
| SH1X-XXUXX1OXXX   | 35569-XX            | Orange         |
| SH1X-XXUXX6BXXX   | 35568-XXBR          | Brown          |
| SH1X-XXUXX1BXXX   | 35569-XXBR          | Brown          |
| SH1X-XXUXX6GXXX   | 35568-XXGR          | Green          |
| SH1X-XXUXX1GXXX   | 35569-XXGR          | Green          |
| SH1X-XXUXX6YXXX   | 35568-XXCRY         | Ceramic/Yellow |
| SH1X-XXUXX1YXXX   | 35569-XXCRY         | Ceramic/Yellow |

| Assembly Part No. | Part No. Item 7 | End Weldment Length |
|-------------------|-----------------|---------------------|
| SH1X-XXXXXXXXC2X  | 36634-20        | 20.00 (508)         |
| SH1X-XXXXXXXXP2X  | 36634-20P       | 20.00 (508)         |
| SH1X-XXXXXXXXC3X  | 36634-30        | 30.00 (762)         |
| SH1X-XXXXXXXXP3X  | 36634-30P       | 30.00 (762)         |
| SH1X-XXXXXXXXC4X  | 36634-40        | 40.00 (1016)        |
| SH1X-XXXXXXXXP4X  | 36634-40P       | 40.00 (1016)        |

| Assembly Part No. | Part No. Item 4 | Part No. Item 5 | Part No. Item 6 | Part No. Item 8 |
|-------------------|-----------------|-----------------|-----------------|-----------------|
| SH1X-XXXXXXXXPXX  | 35536           | 35537           | 35970           | 20164           |
| SH1X-XXXXXXXXCXX  | 35536-SS        | 35537-SS        | 35970-SS        | 35536-SS        |

| Assembly Part No. | Part No. Item 9 | Part No. Item 10 | Part No. Item 11 |
|-------------------|-----------------|------------------|------------------|
| SH1X-XXXXXXXXPXX  | 17594           | 11754            | 11773            |
| SH1X-XXXXXXXXCXX  | 35538-SS        | 35537-SS         | 35542-SS         |

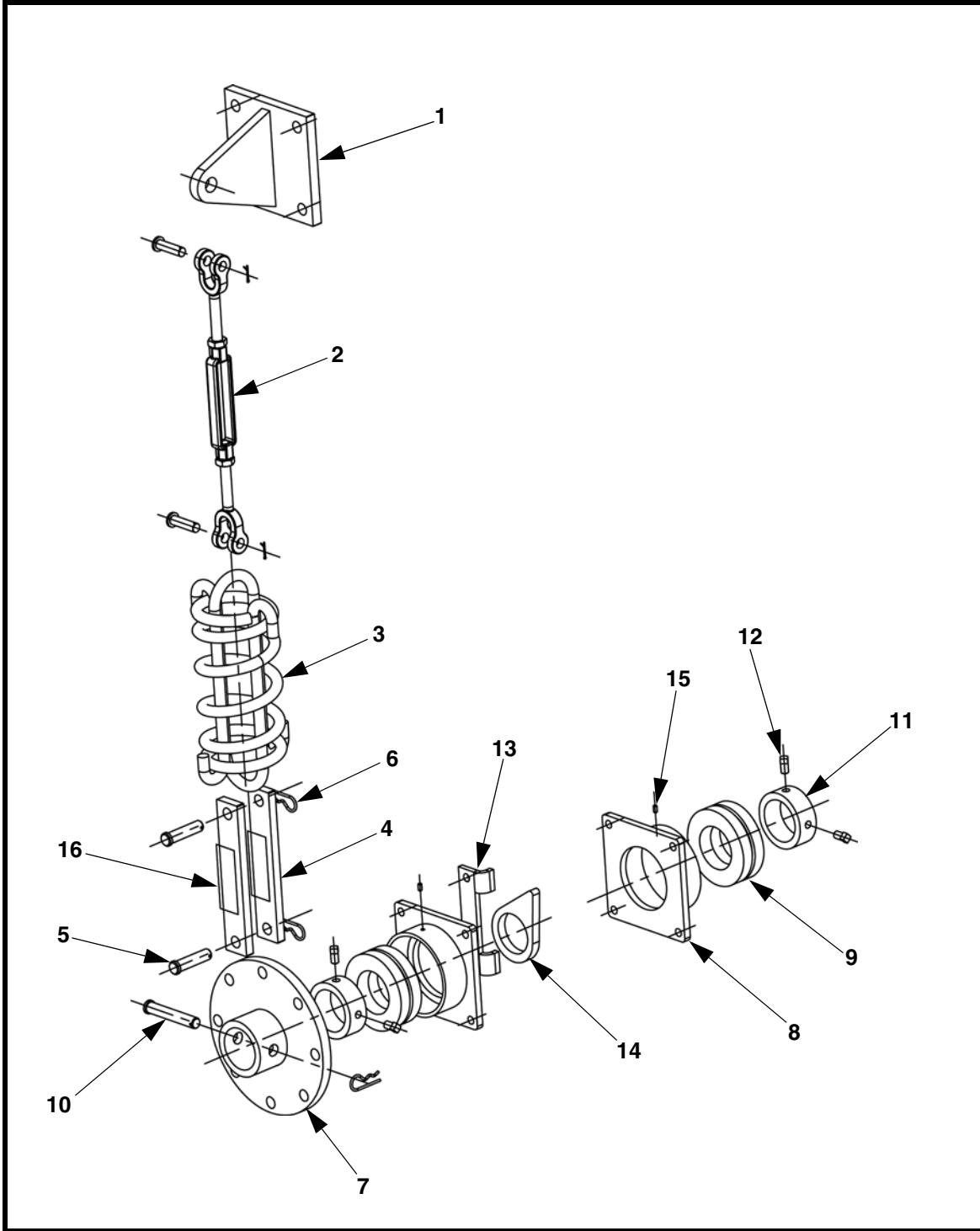


Figure 2. Martin<sup>®</sup> Spring Link Tensioner Assembly, P/N 35978-XXXXMX\* (Sheet 1 of 2)

| Item | Description                      | Part No.      | Qty<br>Single<br>Tensioner | Qty<br>Dual<br>Tensioners |
|------|----------------------------------|---------------|----------------------------|---------------------------|
| 1    | Top Mount Weldment               | 35596         | 1                          | 2                         |
| 2    | Turnbuckle Assembly              | 36022         | 1                          | 2                         |
| 3    | Drawbar Extension Spring         | Table V or VI | 1                          | 2                         |
| 4    | Link                             | 35956-L       | 2                          | 4                         |
| 5    | Pin Clevis 3/4 x 3 ZP            | 32180-01      | 2                          | 4                         |
| 6    | Hairpin Cotter .15 Dia. 2.69 ZP  | 32327         | 3                          | 6                         |
| 7    | Wheel Weldment                   | 35959         | 1                          | 2                         |
| 8    | Mount Weldment with Tapped Hole  | 32342-H       | 2                          | 2                         |
| 9    | Bearing Bronze                   | 36983         | 2                          | 2                         |
| 10   | Pin Clevis 3/4 x 4-1/2 ZP        | 32180-02      | 1                          | 2                         |
| 11   | Locking Collar                   | 32341         | 2                          | 2                         |
| 12   | Screw SHS 1/2-13NC x 3/4 SS      | 22763-08      | 4                          | 4                         |
| 13   | Link Tensioner Stop              | 37453         | 1                          | 1                         |
| 14   | Link Tensioner Tab               | 37454         | 1                          | 1                         |
| 15   | Screw Set HS SL Cup 1/4-20 x 1/2 | 36692         | 2                          | 2                         |
| 16   | Tensioner Key (small 51mm)       | 35597-1       | 2                          | 4                         |

**Figure 2. Martin® Spring Link Tensioner Assembly, P/N 35978-XXXXMX\* (Sheet 2 of 2)**

The first X indicates (S) for single tensioner or (D) for dual tensioners. The next XXX indicates spring rate in lbs/in. The M indicates a heavy-duty bronze metal bearing. The last X indicates cable expander (no cable connection kit (O) or cable connection kit (C).)

**Table V. Martin® Single Spring Link Tensioner Part Numbers**

| Assembly<br>Part No. | Part No.<br>Item 3 | Item 3<br>Color Code |
|----------------------|--------------------|----------------------|
| 35978-S90MX          | 36422-1            | Pink/White           |
| 35978-S150MX         | 36422-2            | Blue/Yellow          |
| 35978-S500MX         | 36422-3            | Green/White          |
| 35978-S750MX         | 36422-4            | Red/Yellow           |

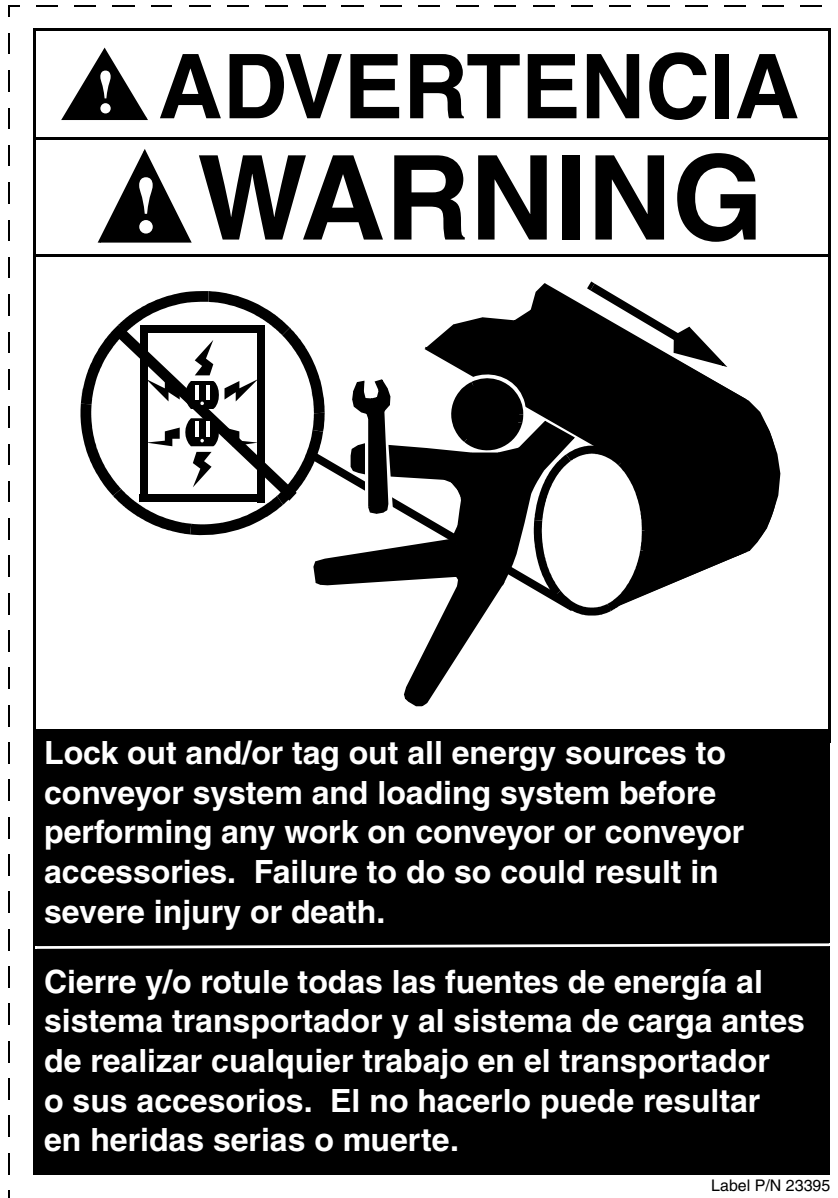
**Table VI. Martin® Dual Spring Link Tensioner Part Numbers**

| Assembly<br>Part No. | Part No.<br>Item 3 | Item 3<br>Color Code |
|----------------------|--------------------|----------------------|
| 35978-C-D090MX       | 36422-1            | Pink/White           |
| 35978-C-D150MX       | 36422-2            | Blue/Yellow          |
| 35978-C-D500MX       | 36422-3            | Green/White          |
| 35978-C-D750MX       | 36422-4            | Red/Yellow           |

## Notes



**Appendix A**  
**Martin® SHD Cleaner and Tensioner Warning Labels**



Conveyor Products Warning Label, P/N 23395



Pinch Point Warning Label, P/N 30528

|   |
|---|
| <b>⚠ ADVERTENCIA</b>  |
| <b>⚠ WARNING</b>  |
|   |
| <b>Exposed spring hazard.<br/>Spring can pinch and crush.<br/>Keep hands away from spring.</b>                                |
| <b>Peligro expuesto del resorte.<br/>El resorte puede pellizcar y triturar.<br/>Mantenga sus manos fuera del<br/>resorte.</b> |
| <small>Tag P/N 35584</small>  |

**Spring Warning/Tensioning Tag, P/N 35584**



**Martin® SHD Cleaner  
Tensioning Chart**

| <b>SHD-600 Assy, P/N 36984-XXXXXXXX</b>  |                                     |
|--|-------------------------------------|
| <b>Belt Width in.(mm)</b>                | <b>Final Spring length in.(mm)</b>  |
| 48 (1200-1399)                           | 3.50 (88.90)                        |
| 54 (1400-1599)                           | 3.00 (76.20)                        |
| 60 (1600-1799)                           | 2.75 (69.85)                        |
| 72 (1800-1999)                           | 6.75 (171.45)                       |
| 84 (2000-2199)                           | 6.50 (165.10)                       |
| 96 (2200-2399)                           | 6.25 (158.75)                       |
| 108 (2600-2799)                          | 8.50 (215.90)                       |
| 120 (2000-3000)                          | 8.00 (203.20)                       |
| <b>SHD-1200 Assy, P/N 36985-XXXXXXXX</b> |                                     |
| <b>Belt Width in.(mm)</b>                | <b>Final Spring length in. (mm)</b> |
| 48 (1200-1399)                           | 7.25 (184.15)                       |
| 54 (1400-1599)                           | 7.00 (177.80)                       |
| 60 (1600-1799)                           | 8.75 (222.25)                       |
| 72 (1800-1999)                           | 8.50 (215.90)                       |
| 84 (2000-2199)                           | 8.25 (209.55)                       |
| 96 (2200-2399)                           | 7.25 (184.15)                       |
| 108 (2600-2799)                          | 7.00 (177.80)                       |
| 120 (2800-3000)                          | 7.00 (177.80)                       |

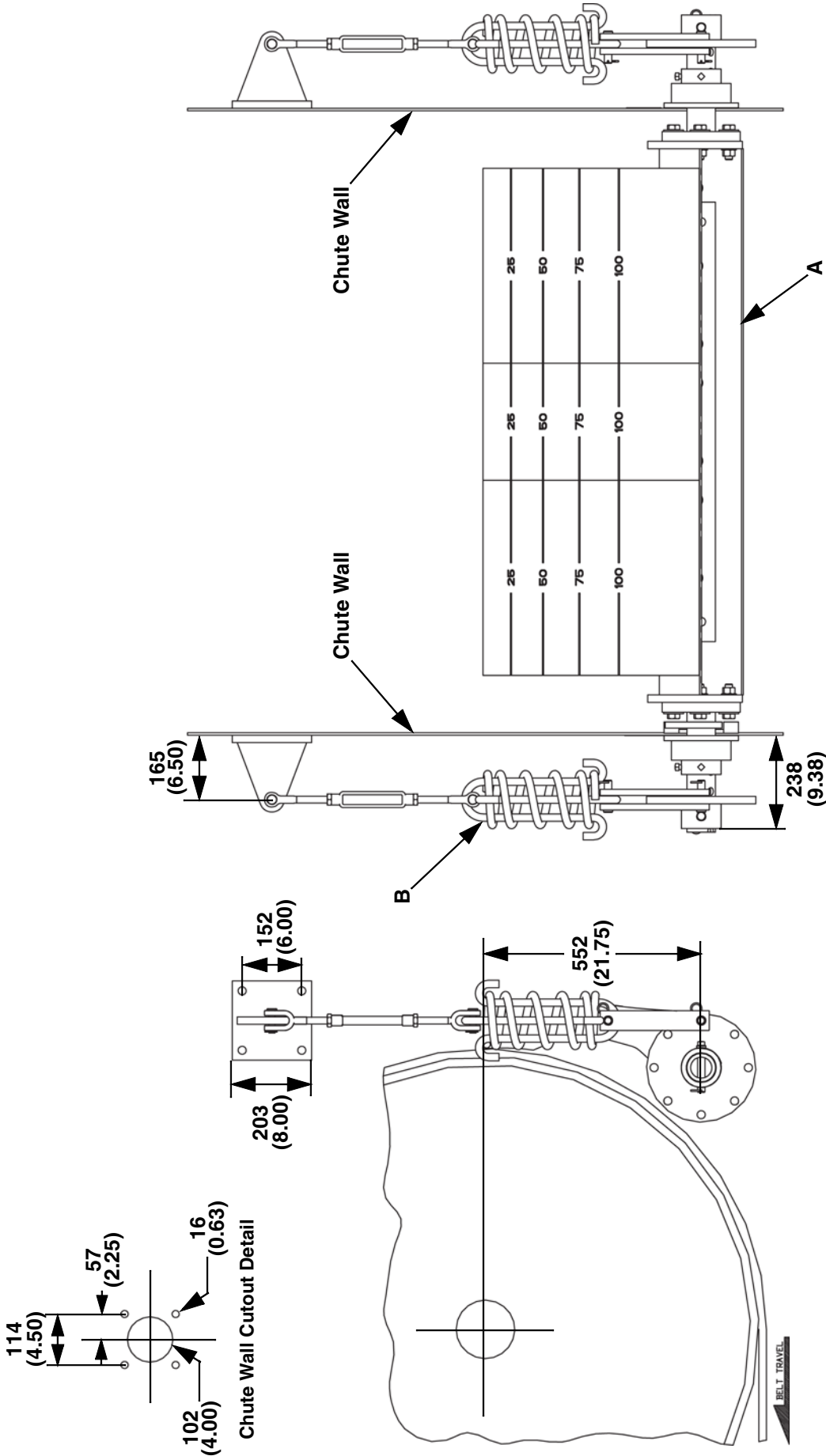
**After installation, start with turnbuckle fully extended, then turn to compress spring to length shown.**

Tag P/N 36986

**Martin® SHD Cleaner Tensioning Label, P/N 36986**

**Appendix B**  
**Martin® SHD Cleaner Typical Installation Dimensions**

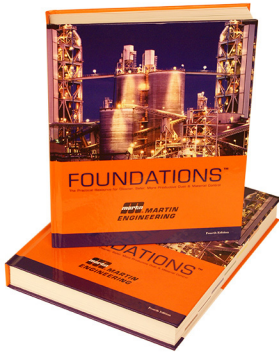
Martin® SHD-1200 Cleaner With Spring Link Tensioner



- A. Spring Link Tensioner, P/N 35978-DXXMX
- B. SHD-1200 Cleaner Assembly, P/N SHIX-54151XXXXX

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