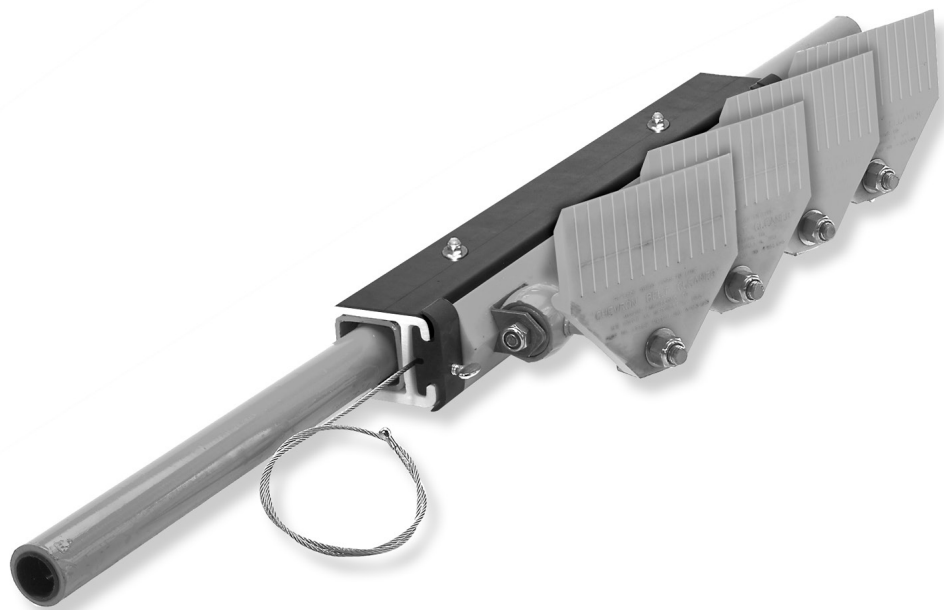


martin®

Martin® ***Chevron***
Cleaner



Operator's Manual
M3266

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

General

The Martin[®] Chevron Cleaner was designed to control carryback and material buildup for chevron ribbed or cleated conveyor belts. The Martin[®] Chevron Cleaner consists of special torsion arms on a Martin[®] DT2 Track with 90-durometer urethane blades. Each blade has several independent fingers that flex with the chevron belt and maintain an effective scraping contact.

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.

The Martin[®] Hanger Mount Assembly can be used for installations without chutework. See "Part Numbers" for a list of mounts and part numbers.

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, Illinois 60604.
- *Martin[®] Inspection Door Operator's Manual*, P/N M3891.
- Tensioners' operator's manuals (see "Part Numbers" in this manual for a complete list).

Materials required

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

Safety

All safety rules defined in the above documents and all owner/employer safety rules must be strictly followed when working on the belt cleaner.



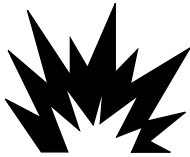
⚠ DANGER

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.



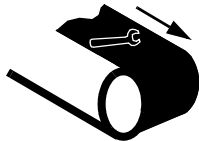
⚠ DANGER

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.



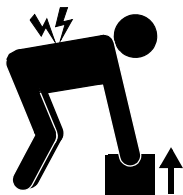
⚠ WARNING

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

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.



⚠ WARNING

Mainframe with blade can be heavy and may require two people to lift. Attempting to lift the belt cleaner without assistance could result in injury.

Urethane shelf life

IMPORTANT

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.

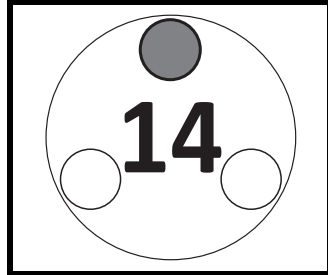


Table I. Urethane Shelf Life

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

Before Installing Belt Cleaner

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

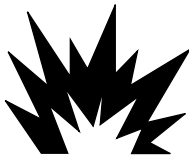
Before installing equipment, turn off and lock out/ tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

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

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.

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

IMPORTANT

Read entire section before beginning work.

To install the belt cleaner, follow the procedures corresponding to the following steps:

1. Find center point of belt cleaner mainframe.
2. Install tensioner according to the applicable tensioner's operator's manual. (See "Part Numbers" in this manual for tensioner manual part numbers.)

Locating Martin® Torsion Arm Chevron cleaner mainframe

1. See Figure 1. On operator side chute wall, draw horizontal and vertical center lines of pulley to find pulley center point (A). Make sure vertical center line is perpendicular to belt line.
2. Measure 1 in. (25 mm) past point where belt leaves pulley (B), and mark vertical line on chute wall perpendicular to belt line.

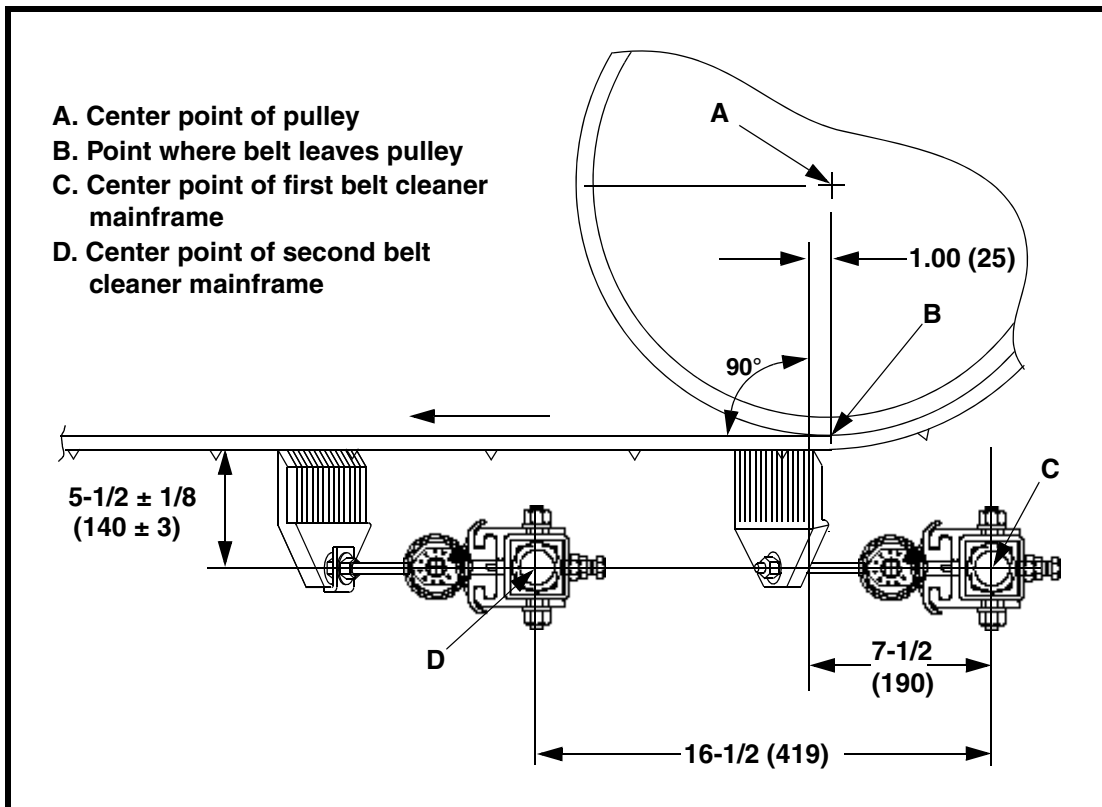


Figure 1. Martin® Torsion Arm Chevron Cleaner Mainframe Location

3. Locate cleaner blades where this line crosses bottom (return side) of conveyor belt. If you cannot install cleaner at this point, install it as close to it as possible. If belt is not adequately supported where blade contacts belt, a belt support must be installed.

4. Measure vertically and horizontally as shown in Figure 1 and mark mainframe center point (C).
5. Repeat steps 1 through 4 for far side chute wall.

NOTE

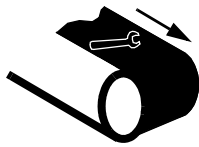
For maximum cleaning, Martin Engineering recommends installing Martin® Chevron Cleaners in pairs (right and left) with torsion arm angles set in alternating directions.

6. To install second belt cleaner:
 - a. On chute wall, measure 16-1/2 in. (419 mm) from center of first mainframe (C, Figure 1) in direction of belt travel.
 - b. Locate center of second cleaner mainframe (D) at this point. If you cannot install cleaner at this point, install it as close to it as possible. If belt is not adequately supported where blade contacts belt, a belt support must be installed.
7. If using Martin® Inspection Door, install according to *Martin® Inspection Door Operator's Manual*, P/N M3891.

After Installing Belt Cleaner



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. Make sure cleaner is not changing belt line. If it is, install belt support ahead of blade-to-belt contact point.
6. 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.)
7. If wear, material buildup, or some other problem exists, see “Troubleshooting.”

Weekly Maintenance

IMPORTANT

Read entire section before beginning work.

NOTE

Maintenance inspection should be performed no less than weekly. Some applications may require more frequent maintenance inspections.



⚠ DANGER

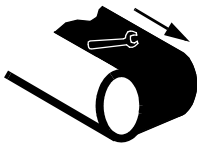
Before installing, servicing, or adjusting the belt cleaner/tensioner, turn off and lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

1. Remove any material from belt cleaner.
2. Make sure all fasteners are tight. Tighten if necessary.
3. Check tension on cleaner. Re-tension if necessary.
4. Wipe all labels clean. If labels are not readable, contact Martin Engineering or a representative for replacements.
5. Check blades for excessive wear. Replace if necessary.
6. Remove equipment from service if there is any indication it is not functioning properly. Call Martin Engineering or a representative for assistance. Do NOT return equipment to operation until the cause of the problem has been identified and corrected.

⚠ WARNING

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

7. Remove all tools from maintenance area.



⚠ 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.

8. Start conveyor belt.



Troubleshooting

Symptom	Corrective Action
Insufficient cleaning and carryback.	<ul style="list-style-type: none"> • Tension of cleaner on belt is set too low or too high. Increase or decrease tensioner setting. • Blades are worn. Check blades and replace if necessary.
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.

Installation checklist

If after taking the corrective actions suggested under “Troubleshooting” you are still experiencing problems, check for the following:

Installation Checklist
✓ Secondary Cleaner blade tip is 1 in. (25 mm) past vertical center line of pulley.
✓ Secondary Cleaner is not changing belt line.
✓ Blades are centered on belt.

Part Numbers

This section provides product names and corresponding part numbers for Martin® Chevron Cleaners and related equipment. Please reference part numbers when ordering parts:

Martin® Chevron Cleaner

Martin® Torsion Arm Chevron Cleaner Assembly:
P/N 36881-XXXXXX. See Figure 2.

Recommended tensioners

Martin® Torsion Arm Chevron Cleaner:

Belts 18 to 48 in. (400 to 1400 mm) wide:

Martin® Twist Tensioner: P/N 38850.

Adjustable "L" Bracket Twist Tensioner: P/N 38850-L.

Shock (Ring) Mount Spring Tensioner: P/N 38180.

Adjustable "L" Bracket Air Tensioner: P/N 31291.

Adjustable "L" Bracket Spring Tensioner: P/N 31291-SM.

Shock (Ring) Mount Air Tensioner: P/N 32745.

Belts 54 to 96 in. (1400 to 2400 mm) wide:

Martin® Twist Dual Tensioner: P/N 38850-2.

Dual Adjustable "L" Bracket Twist Tensioner: P/N 38850-2L.

Dual Shock (Ring) Mount Spring Tensioner: P/N 38180-2.

Dual Shock (Ring) Mount Air Tensioner: P/N 32745-2R.

Operator's manuals

Martin® Inspection Door Operator's Manual: P/N M3891.

Martin® Spring and Air Tensioners Operator's Manual: P/N M3263.

Martin® Twist Tensioner Operator's Manual: P/N M3837.

Miscellaneous

Hanger Mount Assembly: P/N 27382. Use with Martin® Torsion Arm Chevron Cleaners to mount Martin® Twist Tensioner or Shock (Ring) Mount Tensioner onto stringer instead of onto chute wall.

Reversing "Z" Bracket: P/N 31158. For use with Martin® Inspection Door.

Mandrel Belt Cleaner Mount: P/N 34280-30 or 34280-48. Replaces far side belt cleaner mount and allows you to service belt cleaner from tensioner side.

Flange Mounting Bracket: P/N 30537. Use to mount Spring or Air Tensioner onto chute wall with 12 x 18-in. (305 x 457-mm) Martin® Inspection Door.

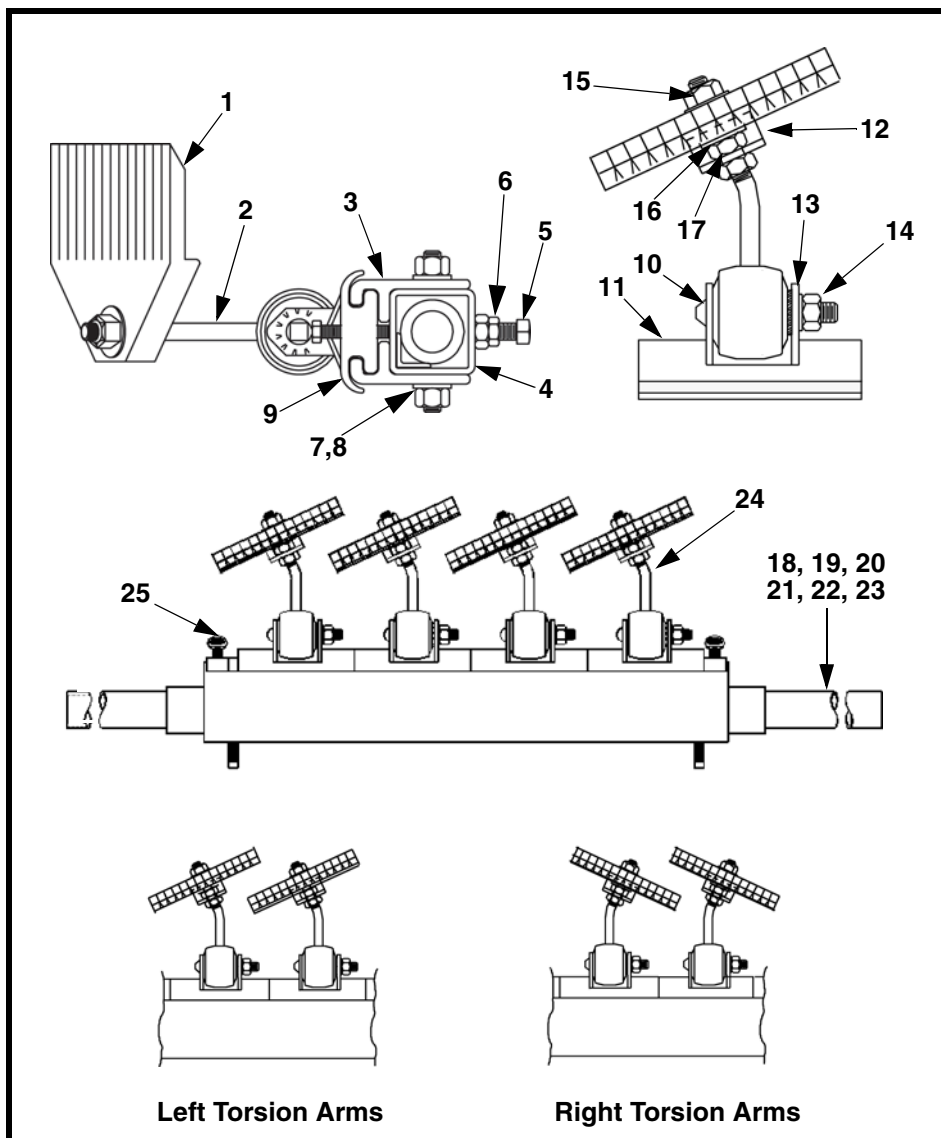


Figure 2. Martin® Torsion Arm Chevron Cleaner Assembly, P/N 36881-XXXXXX**

Item	Description	Part No.	Qty
1	Blade	Table III	Table II
2	Torsion Arm Weldment	32268	Table II
3	Split Frame	34423-XX*	2
4	Mainframe	34424-XX*	1
5	Screw SHS 1/2-13 x 1-1/2 SS	33190	4
6	Nut Hex 1/2-13NC	11771	4
7	Nut Elastic Lock 1/2-13NC ZP	18577	Table II
8	Washer Flat 1/2	17328	Table II
9	End Stop	30386	2
10	Bolt Carriage 1/2-13NC x 1.00	21239	Table II

Item	Description	Part No.	Qty
11	Torsion Base	31032-01	Table II
12	L-Clip	32269	Table II
13	Washer Ext./Int. Tooth Lock 1/2	21569	Table II
14	Nut Stop 1/2-13NC	24307	Table II
15	Nut Stop 5/8-11NC	24242	Table II
16	Washer Flat 5/8	17154	Table II
17	Nut Jam 5/8-11NC	21652	Table II
18	Pipe End Weldment (18.00 Lg)	30354-01	Table II
19	Pipe End Weldment (22.00 Lg)	30354-02	Table II
20	Pipe End Weldment (34.00 Lg)	30354-03	Table II
21	Mainframe Weldment (123.00 Lg)	30354-04	Table II
22	Mainframe Weldment (135.00 Lg)	30354-05	Table II
23	Mainframe Weldment (117.00 Lg)	30354-06	Table II
24	Torsion Arm Assembly [†]	Table III	Table II
25	Screw 3/8-16NC x 1-1/2	15673	2
NS	Lanyard Cable	Table II	1
Fig. 5	Label Conveyor Products Warning	23395	2

Figure 2. Martin® Torsion Arm Chevron Cleaner Assembly, P/N 36881-XXXXXX**

*XX indicates belt width in inches.

**XX indicates belt width. Third X indicates left (L) or right (R) torsion arm.

Fourth X indicates blade material (urethane [U] or rubber [R]). Fifth and sixth X indicate base color (brown [BR] or green [GR]).

[†]Torsion Arm Assembly consists of base, arm weldment, blade, and hardware (assembled).

Table II. Part Numbers & Quantities for Martin® Torsion Arm Chevron Cleaner

Belt Width in. (mm)	Blade Coverage in. (mm)	Quantity Items 1, 2, 10, 11, 12 13, 14, 15, 24	Quantity Items 7 and 8	Quantity Items 16 and 17	Weldment Quantity Items						Lanyard Cable P/Ns
					18	19	20	21	22	23	
18 (400-500)	12.5 (318)	2	4	4	1	1					100349-47
24 (500-650)	18.5 (470)	3	4	6		2					100349-53
30 (650-800)	24.5 (622)	4	4	8		1	1				100349-59
36 (800-1000)	30.5 (775)	5	6	10		1	1				100349-65
42 (1000-1200)	36.5 (927)	6	6	12		1	1				100349-71
48 (1200-1400)	42.5 (1080)	7	8	14		1	1				100349-77
54 (1400-1600)	48.5 (1232)	8	8	16		1	1				100349-83
60 (1600-1800)	54.5 (1384)	9	10	18			2				100349-89
72 (1800-2000)	66.5 (1689)	11	10	22			2				100349-101
78 (1800-2000)	72.5 (1842)	12	12	24						1	100349-107
84 (2000-2200)	78.5 (1994)	13	12	26				1			100349-113
96 (2200-2400)	90.5 (2299)	15	14	30					1		100349-125

Table III. Martin® Chevron Blade/Assembly Materials and Part Numbers

Belt Cleaner Assembly Part Number*	Blade Material	Blade Part Number	Urethane Torsion Base Color	Torsion Arm Assembly** Part Numbers†
36881-XXXU	Urethane	32262	Orange	32270-XU
36881-XXXUBR	Urethane	32262	Brown	32270-XUBR
36881-XXXUGR	Urethane	32262	Green	32270-XUGR
36881-XXXR	Rubber	32757	Orange	32270-XR
36881-XXXRBR	Rubber	32757	Brown	32270-XUBR
36881-XXXRGR	Rubber	32757	Green	32270-XUGR

*XX indicates belt width. A third X indicates left (L) or right (R) torsion arm.

**Torsion arm assembly consists of base, arm weldment, blade, and hardware (assembled).

†X indicates left (L) or right (R) torsion arm.

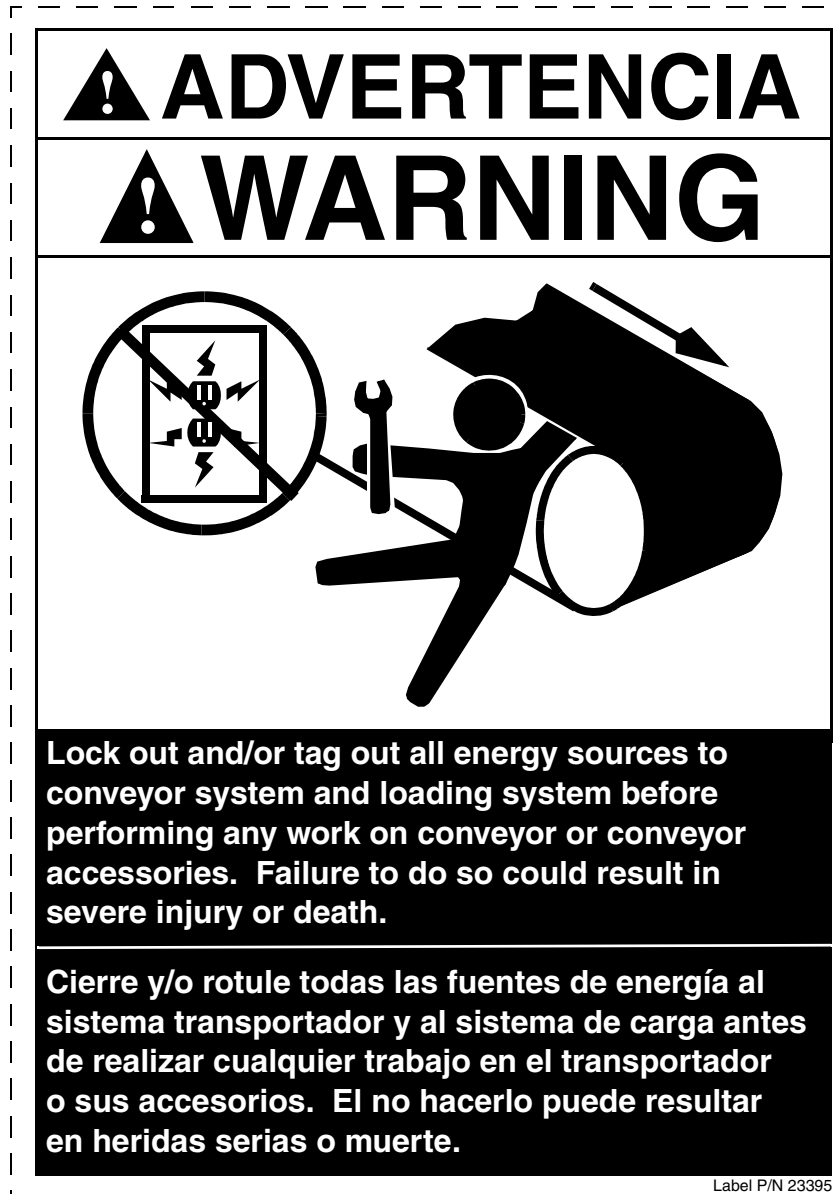
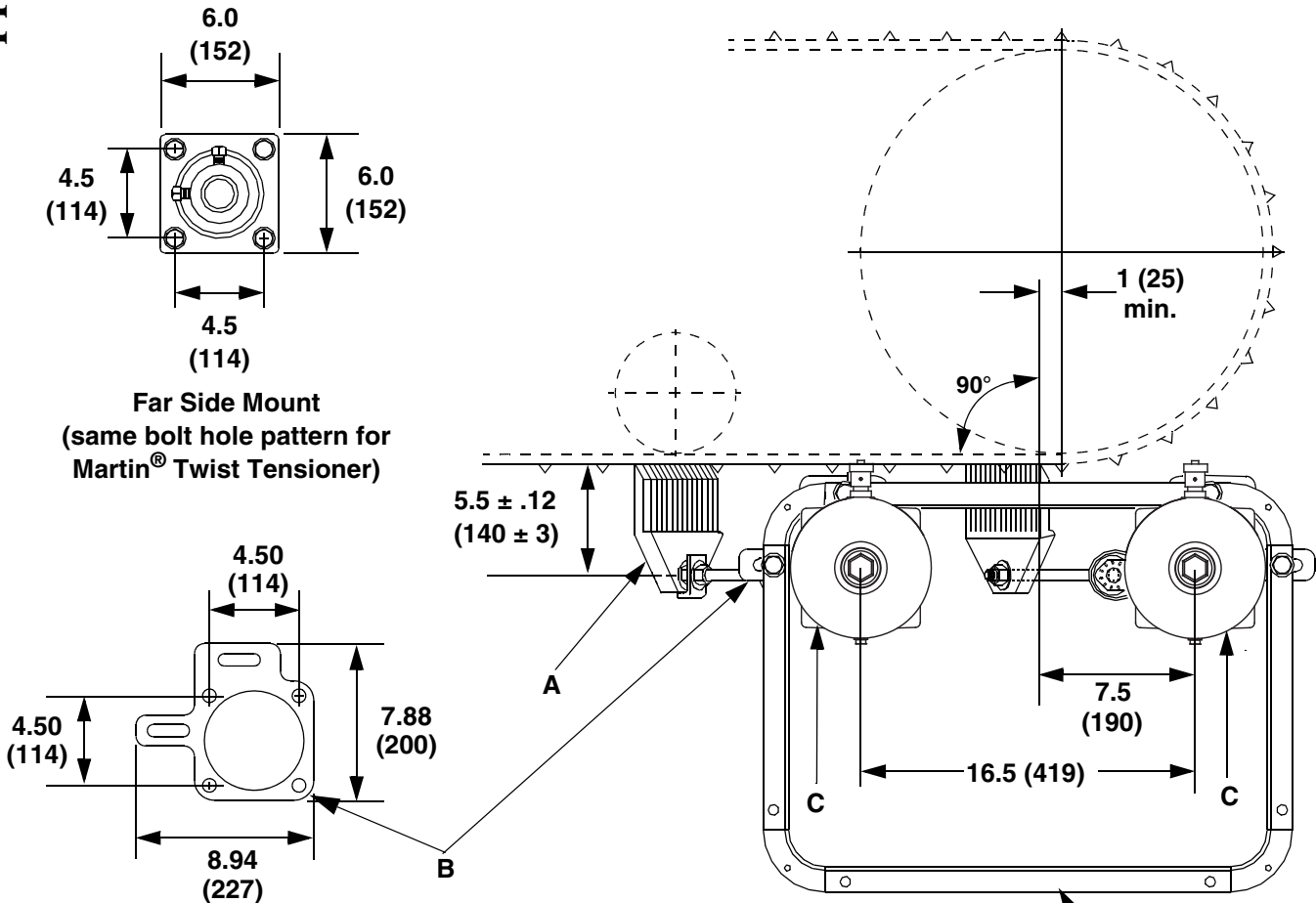


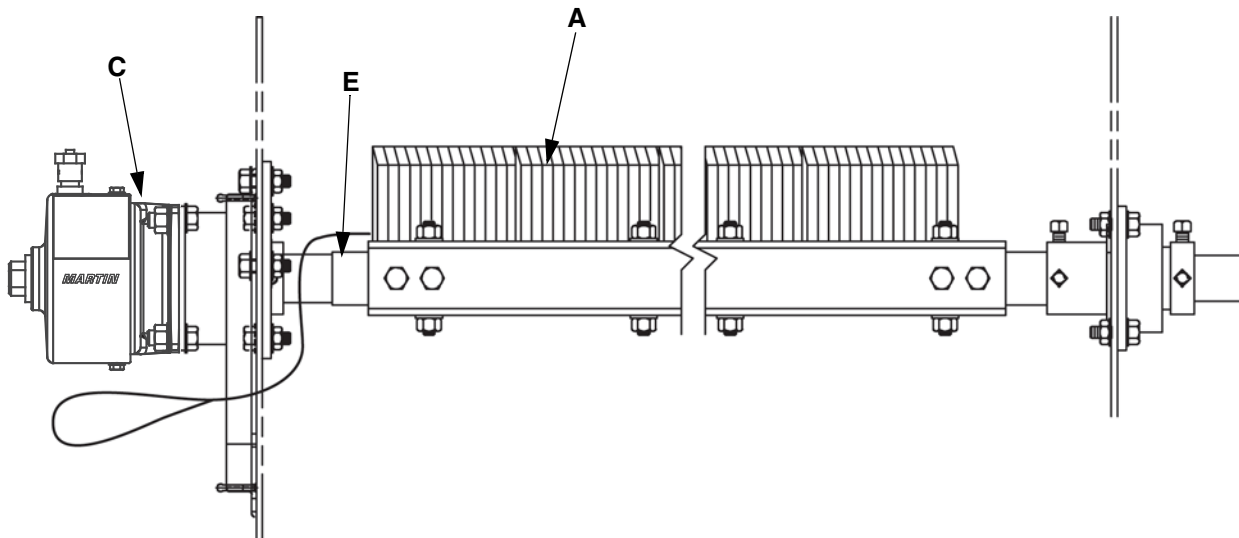
Figure 3. Conveyor Products Warning Label, P/N 23395

Appendix A
Typical Martin[®] Chevron Cleaner Installations

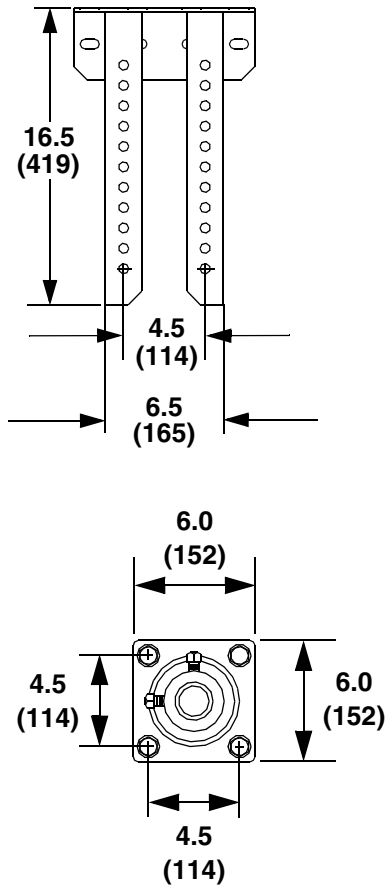
Martin[®] Torsion Arm Chevron Cleaner with Martin[®] Twist Tensioner Mounted on L-Bracket with Martin[®] Inspection Door



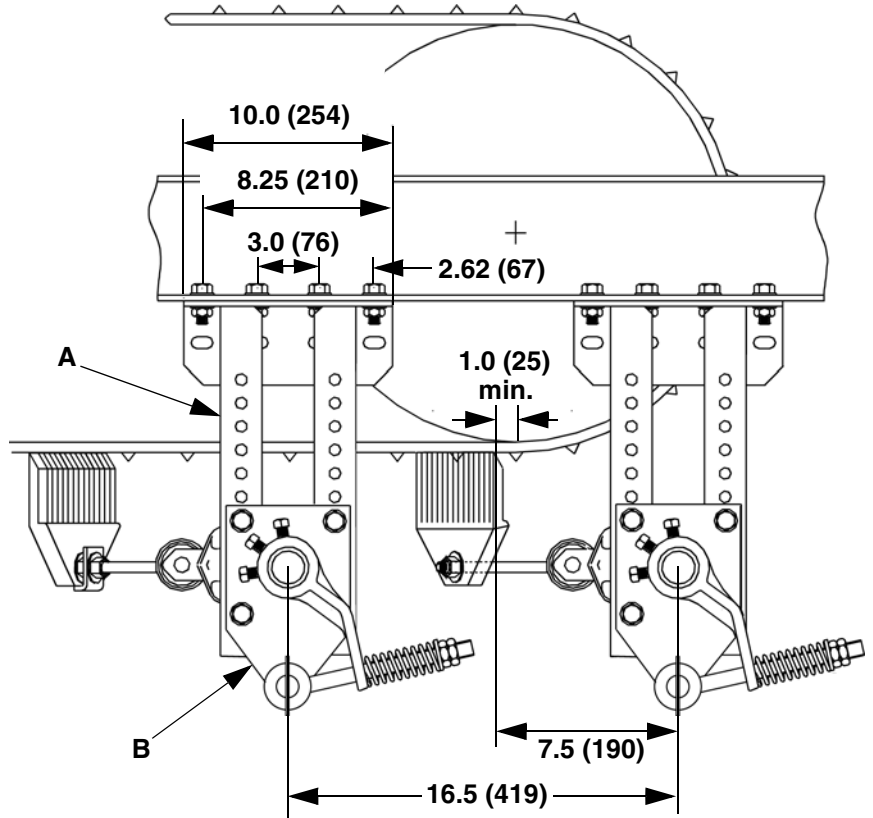
- A. Chevron Blade, P/N 32262 (Urethane) or 32757 (Rubber)
- B. L-Bracket, P/N 33706
- C. Martin[®] Twist Tensioner Assembly with Adjustable L-Bracket, P/N 38850-L
- D. 18 x 24-in. Martin[®] Inspection Door, P/N CYAR-1824
- E. Martin[®] Chevron Cleaner Assembly, P/N 36881-XXXXXX



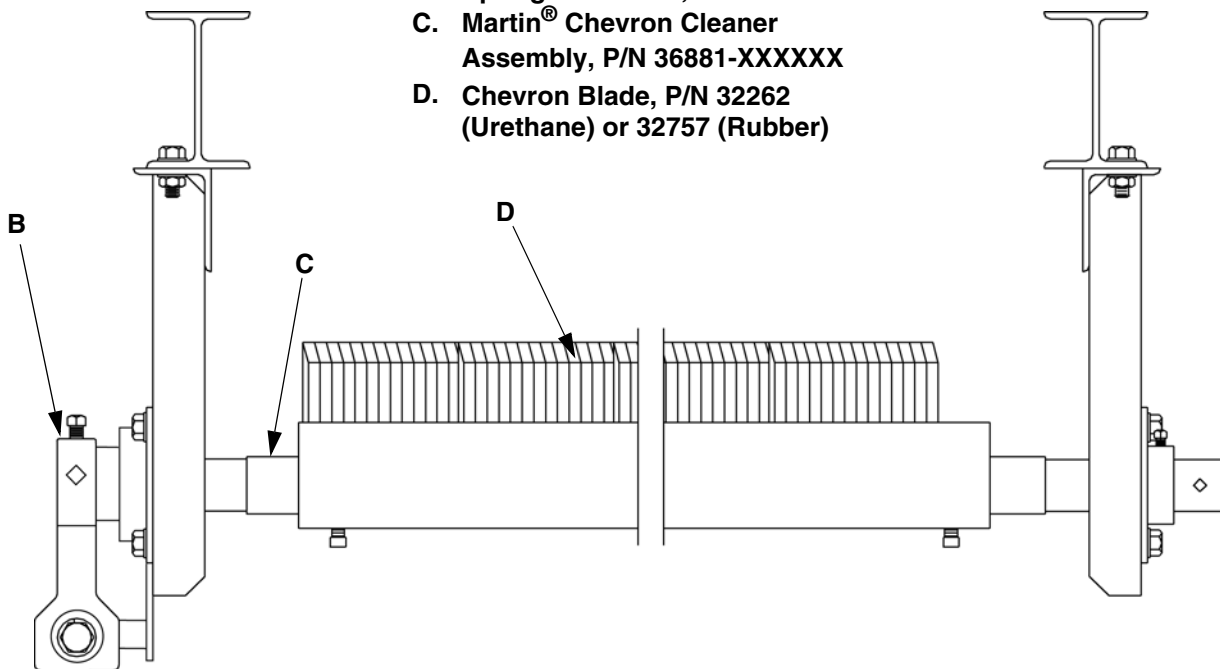
Martin® Torsion Arm Chevron Cleaner with Spring Tensioner and Hanger Mount



Far Side Mount
(same bolt hole pattern for Martin® Twist Tensioner)

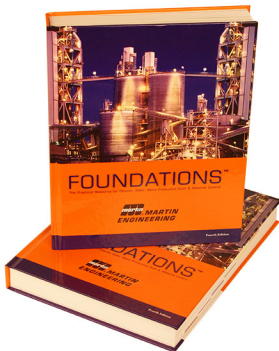


- A. Hanger Mount Assembly, P/N 27382
- B. Spring Tensioner, P/N 38180
- C. Martin® Chevron Cleaner Assembly, P/N 36881-XXXXXX
- D. Chevron Blade, P/N 32262 (Urethane) or 32757 (Rubber)



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For nearly 20 years, Martin Engineering's Foundations™ Books have taught industry personnel to operate and maintain clean and safe belt conveyors. The Foundations™ Book, fourth edition, focuses on improving belt conveyors by controlling fugitive material. "The Practical Resource for Total Dust and Material Control," is a 576-page hard cover volume that provides information of value to industries where the efficient handling of bulk materials is a key to productivity and profitability.

Expanding upon the book, our Foundations™ Training Program addresses the design and development of more productive belt conveyors, and is offered in three customizable seminars. Attendees gain a better understanding of conveyor safety and performance, helping to justify upgrade investments and increase profitability.



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