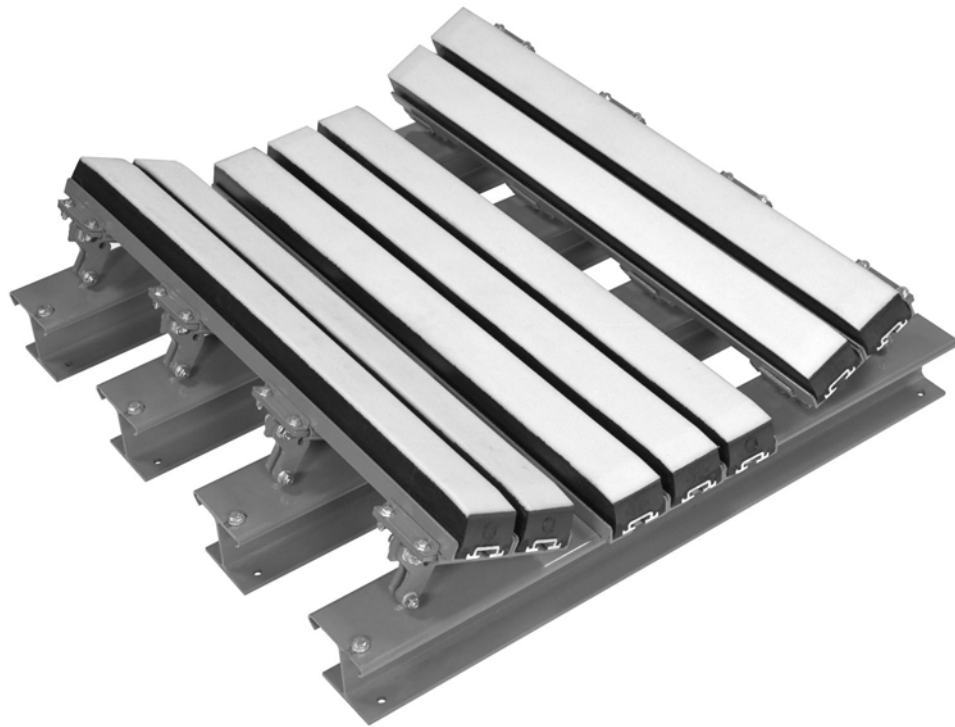




Martin[®]
Trac-Mount[™]
Impact Cradle

[Go to Martin[®] Trac-Mount[™] Impact Cradle web page](#)



Operator's Manual
M3220

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[®] Trac-Mount[™] Impact Cradle is a layered, shock-absorbing conveyor belt transfer point product engineered for use in bulk solids handling industries.

The Martin[®] Slider Cradle can be installed downstream from the Martin[®] Trac-Mount[™] Impact Cradle to provide maximum conveyor belt stability.

Impact Cradle materials

Materials and specifications for the Martin[®] Trac-Mount[™] Impact Cradle are shown in Table I.

Table I. Martin[®] Trac-Mount[™] Impact Cradle Materials and Specifications

Characteristics		Bar With UHMW Top
Coefficient of Friction		0.5
Service Temperature		-20 to 140°F (-29 to 60°C)
Bar Construction	Bearing Layer	UHMW Polyethylene
	Absorption Layer	50-Durometer SBR Rubber
	T-Slot	Aluminum
	Fasteners	0.5-in. dia. T-Bolts

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.

Safety

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

Materials required

A hoist may be required to install and service this equipment. If a hoist is not available, impact cradle must be disassembled for installation.

Before Installing Impact Cradle

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 impact cradle from shipping container. Equipment in container should include the following:
 - Martin® Trac-Mount™ Impact Cradle Assembly.
 - Two Conveyor Products Warning Labels, P/N 23395.
3. If anything is missing, contact Martin Engineering or a representative.



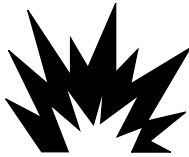
WARNING

Before installing equipment, turn off and lock out/tag out energy source to conveyor and conveyor accessories.

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.
6. If not already present, install an impact idler 1 in. (25 mm) ahead of and 1 in. (25 mm) behind impact cradle location.
7. Remove any unnecessary idlers. (The Martin® Trac-Mount™ Impact Cradle can replace up to four impact idlers.)

Installing Impact Cradle

NOTE

Refer to Appendix for mounting dimensions of Martin® Trac-Mount™ Impact Cradles when used with 5 and 6 inch idlers.

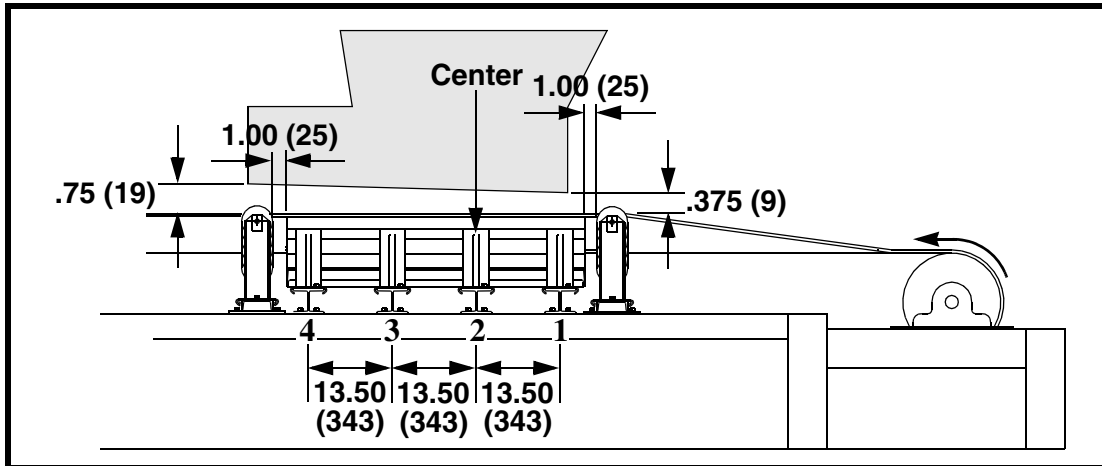


Figure 1. Locating Martin® Trac-Mount™ Impact Cradle

Locating Martin® Trac-Mount™ Impact Cradle

IMPORTANT

If you can install impact cradle in one piece, do not disassemble it. Depending on the application, you may have to lay down one or both wing sections, remove the wing sections, or completely disassemble the impact cradle for installation.

1. Locate impact cradle on belt.
2. If you do not have a hoist and/or you cannot slide impact cradle under belt in one piece, disassemble impact cradle.

⚠ WARNING

Impact cradle is very heavy. When installing in one piece, use a hoist for lifting unit into place.

3. Install impact cradle under belt.
4. See Figure 1. Make sure chute walls and/or wear liners are correct distance above belt as shown. If necessary, modify chute walls and/or wear liners.
5. Locate impact cradle so second I-beam (if space allows) or first I-beam from tail pulley aligns with center of loading point. Mark center of loading point on stringer on both sides of belt.

6. Starting from center of loading point mark (second I-beam), make the following measurements:
 - a. Measure 13-1/2 in. (343 mm) toward tail pulley and mark location on stringer (center of first I-beam).
 - b. Measure 13-1/2 in. (343 mm) away from tail pulley and mark location on stringer (center of third I-beam).
 - c. Measure 27 in. (686 mm) away from tail pulley and mark location on stringer (center of fourth I-beam).
7. Repeat step 6 on other side of belt.
8. Install an idler 1 in. (25 mm) before and 1 in. (25 mm) after impact cradle.

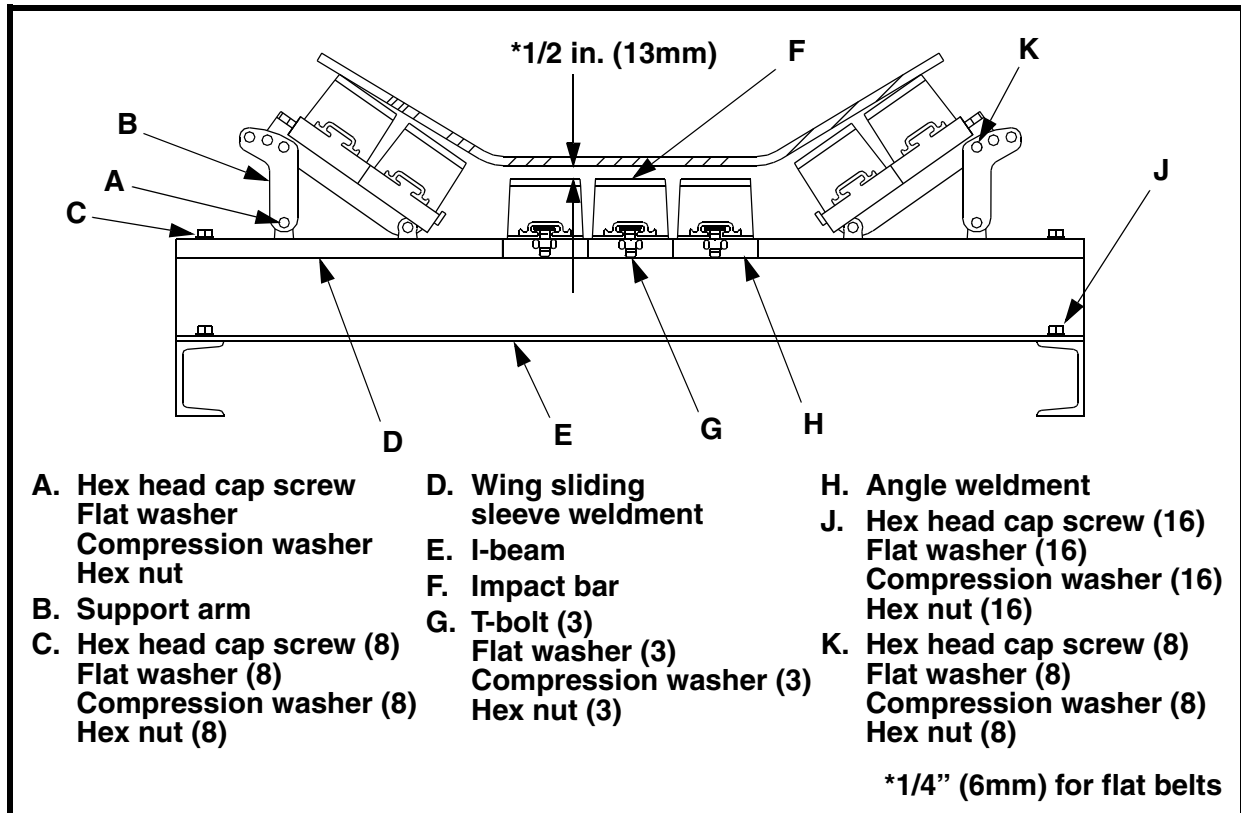


Figure 2. Installing Martin® Trac-Mount™ Impact Cradle (troughed belt shown)

IMPORTANT

If you can install impact cradle in one piece, do not disassemble it. Skip this section.

**Disassembling
Martin®
Trac-Mount™
Impact Cradle**

1. To *lay down* wing section of impact cradle, remove hex head cap screw, flat washer, compression washer, and hex nut (A, Figure 2) from each support arm (B).
2. To *remove* wing section of impact cradle, remove four hex head cap screws, flat washers, compression washers, and hex nuts (C) from each wing sliding sleeve weldment (D). Slide wing section off I-beams (E).
3. To remove center section of impact cradle, remove wing section (see step 2), then slide angle weldments off I-beams.

**Installing
Martin®
Trac-Mount™
Impact Cradle
under belt**

1. Slide impact cradle under belt in pre-determined location, and align with marks for I-beams on both sides of belt.
2. Make sure I-beams are perpendicular to belt, or bars will wear unevenly and maintenance will be difficult. Make sure center bars are centered below belt and are parallel to belt travel.
3. Make sure distance from top of center bar to bottom surface of belt measures 1/2 in. (13 mm) maximum (see Figure 2). If distance is greater than this, add shims under I-beams to raise impact cradle to height of adjacent idlers. If distance is less than this, contact Martin Engineering or a representative.
4. For troughed belts, make sure clearance between belt and wing section is 1/2 in. (13 mm) where wing section meets base, and tapers to no clearance between belt and wing section at outside edge (as shown in Figure 2).

NOTE

Martin Engineering recommends bolting rather than welding I-beams to stringers for easier accessibility and maintenance.

5. Bolt or weld I-beams to stringers as follows:
 - a. If bolting, drill or cut 9/16-in. holes in stringers through mounting holes in feet of each I-beam. Install hex head cap screw, flat washer, compression washer, and hex nut (J, Figure 2) in each hole to secure I-beams to stringers.
 - b. If welding, clean stringer of rust and dirt. Then stitch weld I-beams to stringer.

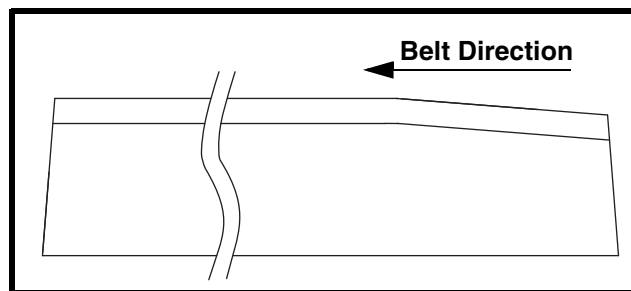
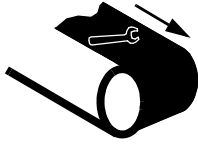


Figure 3. Installing Impact Bars

6. If removed for installation, install impact bars and/or wing section(s). Make sure tapered ends of impact bars are located as shown.
7. To adjust angle of wing section, remove hex head cap screw, flat washer, compression washer, and hex nut (K) from support arm (B). Lower or raise wing section to one of three positions. Secure with hex head cap screw, washers, and hex nut.

After Installing Impact Cradle

1. Thoroughly wipe outside chute walls clean above impact cradle on both sides of chute. Place a Conveyor Products Warning Label (P/N 23395) on each chute wall visible to belt 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.

2. Remove all tools and fire retardant cover from installation area and conveyor 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.



⚠ WARNING

Before adjusting impact cradle, turn off and lock out/tag out energy source to conveyor belt and conveyor accessories.

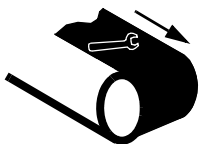
4. After 1 hour of operation, turn off and lock out/tag out energy source according to ANSI standards (see “References”).
5. Make sure all fasteners are tight. Tighten if necessary.
6. Inspect impact bars for wear. (A small amount of “break-in” wear may be found. This will stop once bars wear to conveyor belt contour.)
7. If excessive wear, uneven wear, or some other problem exists, see “Troubleshooting/ Installation Checklist.”



⚠ WARNING

Before servicing impact cradle, turn off and lock out/tag out energy source to conveyor belt and conveyor accessories.

1. Turn off and lock out/tag out energy source according to ANSI standards (see “References”).
2. Make sure all fasteners are tight. Tighten if necessary.
3. Check bars for wear. If light-colored top covering on bars is worn through to black rubber, replace bars as follows:
 - a. Remove eight hex head cap screws, flat washers, compression washers, and hex nuts from wing sliding sleeve weldment.
 - b. Slide wing sliding sleeve weldment away from belt. Slide center angle weldments out from under belt.
 - c. Remove three T-bolts, flat washers, compression washers, and hex nuts (G, Figure 2) from underneath each impact bar (F).
 - d. Lift impact bars off angle weldment (H).
 - e. Install new impact bars, and secure with T-bolts, washers, and hex nuts.
 - f. Slide center angle weldments back under belt. Slide wing sliding sleeve weldment back toward belt, and secure with eight hex head cap screws, flat washers, compression washers, and hex nuts.
4. Remove fines between impact bars with broom or high-pressure air or water.
5. Inspect impact cradle for cracks or fatigue. Weld or strengthen structure as necessary.
6. Remove equipment from service if there is any indication it is not functioning properly. Call Martin Engineering or representative for assistance. Do NOT return equipment to operation until the cause of the problem has been identified and corrected.
7. Wipe warning labels clean. If labels are not readable, contact Martin Engineering or a representative for replacements.



⚠ 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.

8. 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.



9. Start conveyor belt.

Troubleshooting/Installation Checklist

Troubleshooting

If you are experiencing problems with impact cradle, see below:

Symptom	Corrective Action
High-impact bar wear rate.	Impact cradle is installed too close to belt. Make sure impact cradle surface is 1/2 in. (13 mm) below troughed belt and 1/4 in. (6 mm) below flat belt.
Impact bars worn unevenly.	Belt is unevenly loaded, wear liners are improperly installed, and/or impact bars are not parallel to belt travel. Inspect loading area and wear liners, and modify transfer point if necessary.

Installation checklist

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

Installation Checklist
✓ Chute walls and/or wear liners are 3/8 in. above belt at tail, and 3/4 in. above belt at head.
✓ Second or first I-beam of impact cradle aligns with center of loading point.
✓ An idler is installed under belt 1 in. (25 mm) before and after impact cradle.
✓ I-beams are perpendicular to belt.
✓ Center impact bars are centered below belt and are parallel to belt travel.
✓ Wing sections are aligned with idlers.
✓ Distance from top of center impact bars to bottom of belt surface is 1/2 in. (13 mm) max. for troughed belts and 1/4 in. (6 mm) for flat belts.

Part Numbers

This section provides product names and corresponding part numbers for Martin[®] Trac-Mount[™] Impact Cradles. Please reference part numbers when ordering parts.

***Martin[®]
Trac-Mount[™]
Impact Cradle***

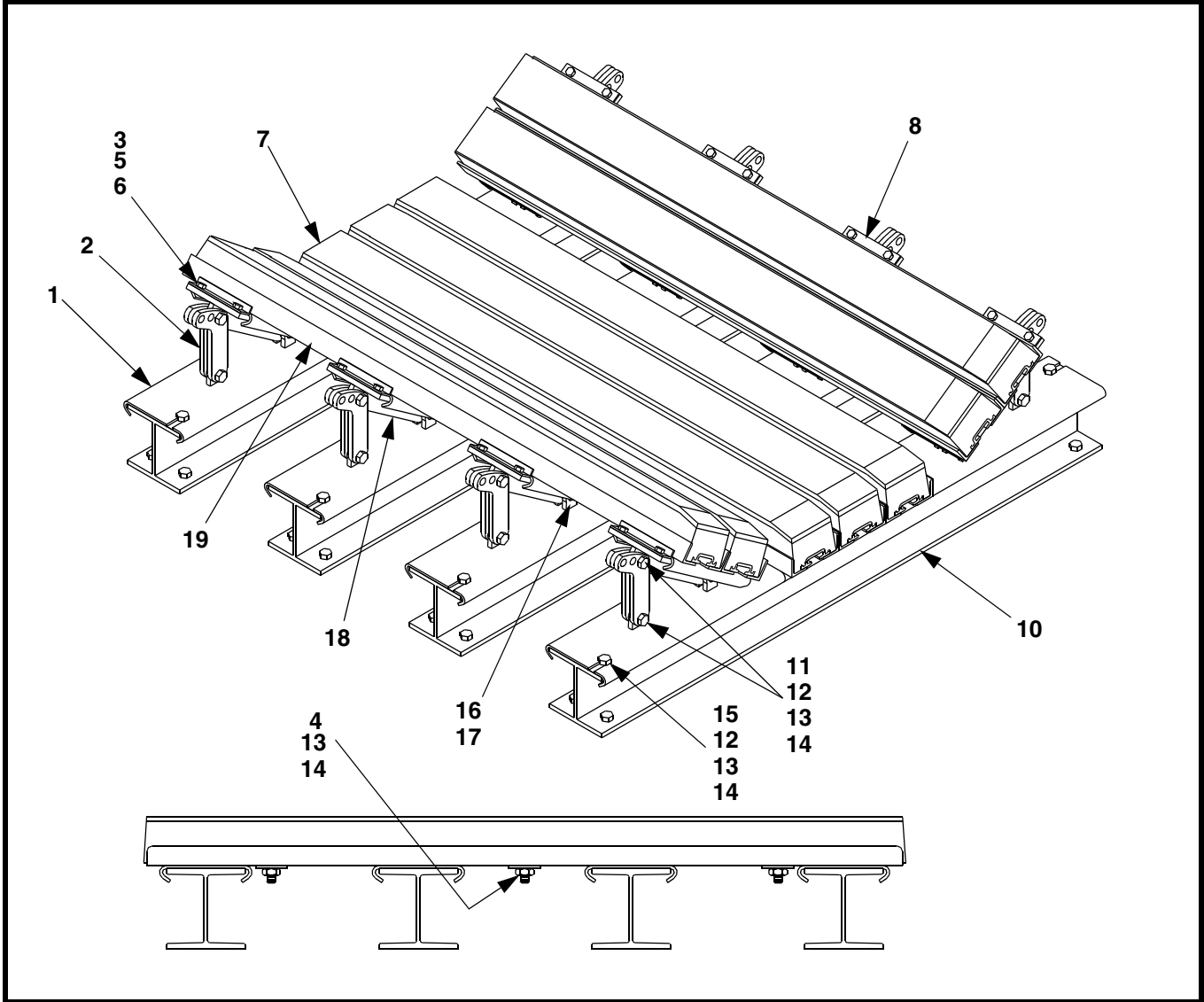
Martin[®] Trac-Mount[™] Impact Cradle (with 48-in. UHMW bar):
P/N 30688-XXXXXX. See Figure 4. First XX indicates belt width in inches; second XX indicates belt's trough angle; last X indicates standard cradle (S) or wide base cradle (W).

***Martin[®]
Impact Bars***

55-in. UHMW Bar: P/N 32219.
60-in. UHMW Bar: P/N 33816.

***Martin[®]
Wear Liners***

P/N WL-XXXXXXXXXXXX. First four Xs indicate height of wear liner in inches; next four Xs indicate length of wear liner in inches; next three Xs indicate thickness of wear liner in inches; last X indicates wear liner material.



**Figure 4. Martin® Trac-Mount™ Impact Cradle Assembly,
P/N 30688-XXXXX* (Sheet 1 of 2)**

*First XX = belt width in inches; second XX = trough angle; fifth X = standard base (S) or wide base (W).

Item	Description	Part No.	Qty
1	Wing Sliding Sleeve Weldment	30675-XXXX**	8
2	Support Arm	Table II	16
3	Hex Head Cap Screw, 3/8"-16NC x 1-1/4" Lg.	12215	16
4	T-Bolt, 1/2"-13NC x 1-1/2" Lg.	31775	Table II
5	Compression Washer, 3/8"	11747	16
6	Hex Nut, 3/8"-16NC	11770	16
7	Impact Bar	31617	Table II
8	Bar Retainer	30683	8
9 (NS)	Mount Hardware	31033	1
10	I-Beam Weldment	30654-XXX***	4
11	Hex Head Cap Screw, 1/2"-13NC x 2" Lg.	14196	16
12	Flat Washer, 1/2"	31010	24
13	Compression Washer, 1/2"	11750	Table II
14	Hex Nut, 1/2"-13NC	11771	Table II
15	Hex Head Cap Screw, 1/2"-13NC x 1-1/2"	11763	8
16	Clevis Pin	30689	8
17	Cotter Pin	30690	8
18	Wing Slide Weldment	Table II	8
19	Angle Weldment	31787	Table II
NS	Label Kit	34042	1
NS	Operator's Manual	M3220	1

**Figure 4. Martin[®] Trac-Mount[™] Impact Cradle Assembly,
P/N 30688-XXXXX (Sheet 2 of 2)***

*First XX = belt width in inches; second XX = trough angle; fifth X = standard base (S) or wide base (W).

**First XX = belt width in inches; second XX = trough angle.

***First XX = trough angle; last X = standard base (S) or wide base (W).

NS = Not Shown

**Table II. Martin® Trac-Mount™ Impact Cradle Assembly
Part Numbers and Quantities**

Belt Width in. (mm)	Assembly Part No.	Item 2 Part No.	Item 18 Part No.	Items 13 & 14 Qty	Items 7 & 19 Qty	Item 4 Qty
24 (500-600)	30688-2420X	30665-2001	30669-24	42	6	18
30 (650-800)	30688-3020X	30665-2001	30669-24	42	6	18
36 (800-1000)	30688-3620X	30665-2001	30669-24	45	7	21
42 (1000-1200)	30688-4220X	30665-2002	30669-42	51	9	27
48 (1200-1400)	30688-4820X	30665-2002	30669-42	54	10	30
54 (1400-1600)	30688-5420X	30665-2002	30669-42	54	10	30
60 (1600-1800)	30688-6020X	30665-2003	30669-60	63	13	39
72 (1800-2000)	30688-7220X	30665-2003	30669-60	63	13	39
24 (500-600)	30688-2435X	30665-3501	30669-24	42	6	18
30 (650-800)	30688-3035X	30665-3501	30669-24	42	6	18
36 (800-1000)	30688-3635X	30665-3501	30669-24	45	7	21
42 (1000-1200)	30688-4235X	30665-3502	30669-42	51	9	27
48 (1200-1400)	30688-4835X	30665-3502	30669-42	54	10	30
54 (1400-1600)	30688-5435X	30665-3502	30669-42	54	10	30
60 (1600-1800)	30688-6035X	30665-3503	30669-60	63	13	39
72 (1800-2000)	30688-7235X	30665-3503	30669-60	63	13	39
24 (500-600)	30688-2445X	30665-4501	30669-24	42	6	18
30 (650-800)	30688-3045X	30665-4501	30669-24	42	6	18
36 (800-1000)	30688-3645X	30665-4501	30669-24	45	7	21
42 (1000-1200)	30688-4245X	30665-4502	30669-42	51	9	27
48 (1200-1400)	30688-4845X	30665-4502	30669-42	54	10	30
54 (1400-1600)	30688-5445X	30665-4502	30669-42	54	10	30
60 (1600-1800)	30688-6045X	30665-4503	30669-60	63	13	39
72 (1800-2000)	30688-7245X	30665-4503	30669-60	63	13	39

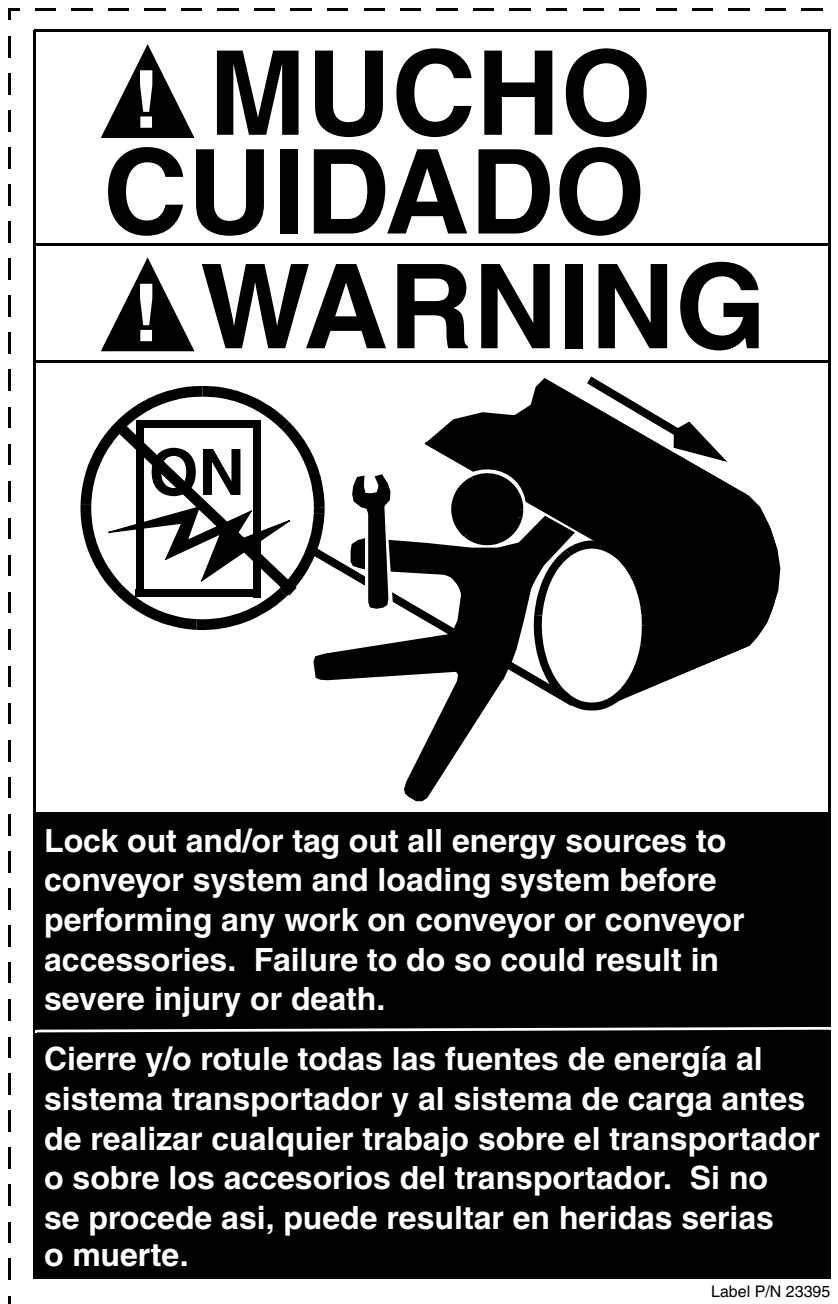
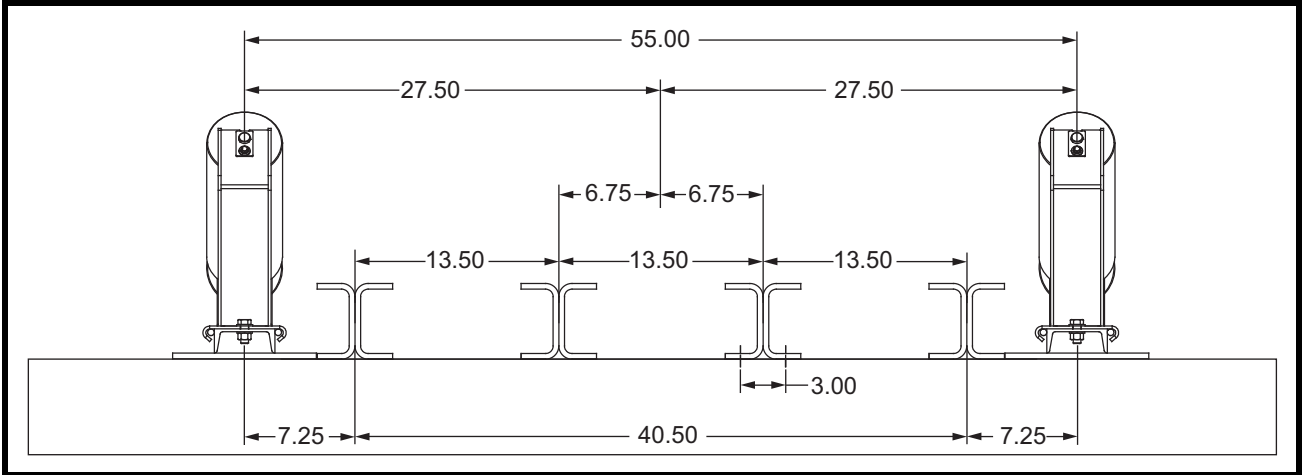
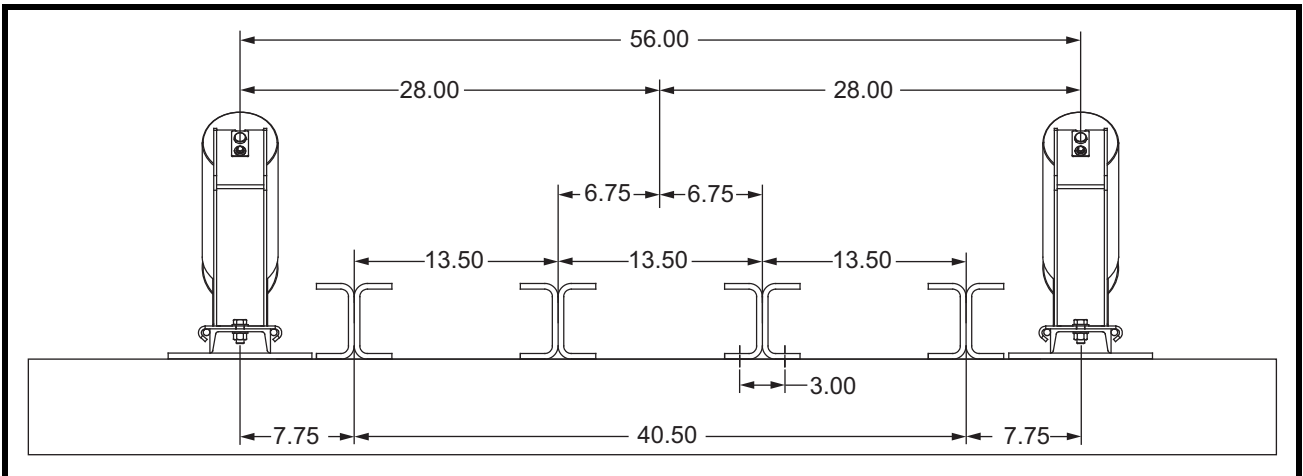


Figure 5. Conveyor Products Warning Label, P/N 23395

Appendix



Martin® Trac-Mount™ Impact Cradle with 5 inch Idlers Mounting Dimensions



Martin® Trac-Mount™ Impact Cradle with 6 inch Idlers Mounting Dimensions

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