



EVO[®] ***Slider Cradle***

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Operator's Manual
M3786

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 EVO[®] Slider Cradle holds conveyor belts in a stable, sag-free position to allow effective sealing. By minimizing belt vibration and sag, the EVO[®] Slider Cradle reduces escaping material and risk of damage to the belt and conveyor accessories. EVO[®] Slider Cradle bars provide a low-friction, self-lubricating surface for conveyor belts to skim over without heat buildup or undue wear on the belt surface or bars (see specifications in Table I). The EVO[®] Slider Cradle is not intended to absorb impact.

EVO[®] Slider Cradles are recommended for moderate- to severe-duty belts from 36- to 60-in. (1000- to 1600-mm) wide. Cradles are not recommended for conveyors operating at speeds over 700 fpm (3.5 m/s) or that are less than 50 ft (15 m) in length. To improve belt support on short conveyors or high-speed belts, contact Martin Engineering.

The EVO[®] Slider Cradle conforms to CEMA Standard No. 502-1980 Bulk Material Conveyor Troughing and Return Specifications (CEMA Class D6).

Table I. EVO[®] Slider Cradle Bar Specifications

Bar construction	UHMW polyethylene
Bar dimensions	2.9-in. (72-mm) high 5.0-in. (127-mm) wide 48-in. (1220-mm) long
Coefficient of friction	0.5
Specific gravity	0.94
Tensile strength	6800 lb at 73°F (23°C)
Hardness	62 (Shore D)
Service temperature	-20 to 140°F (-29 to 60°C)

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 the EVO[®] Slider Cradle.

Materials required

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

Before Installing Slider 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 EVO[®] Slider Cradle from shipping container. Equipment in container should include the following:
 - EVO[®] Slider Cradle Assembly.
 - Two Conveyor Products Warning Labels, P/N 23395.
3. If anything is missing, contact Martin Engineering or 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 cradle's location. Make sure idlers are straight and centered under conveyor belt.
7. Remove any unnecessary idlers.

Installing Slider Cradle

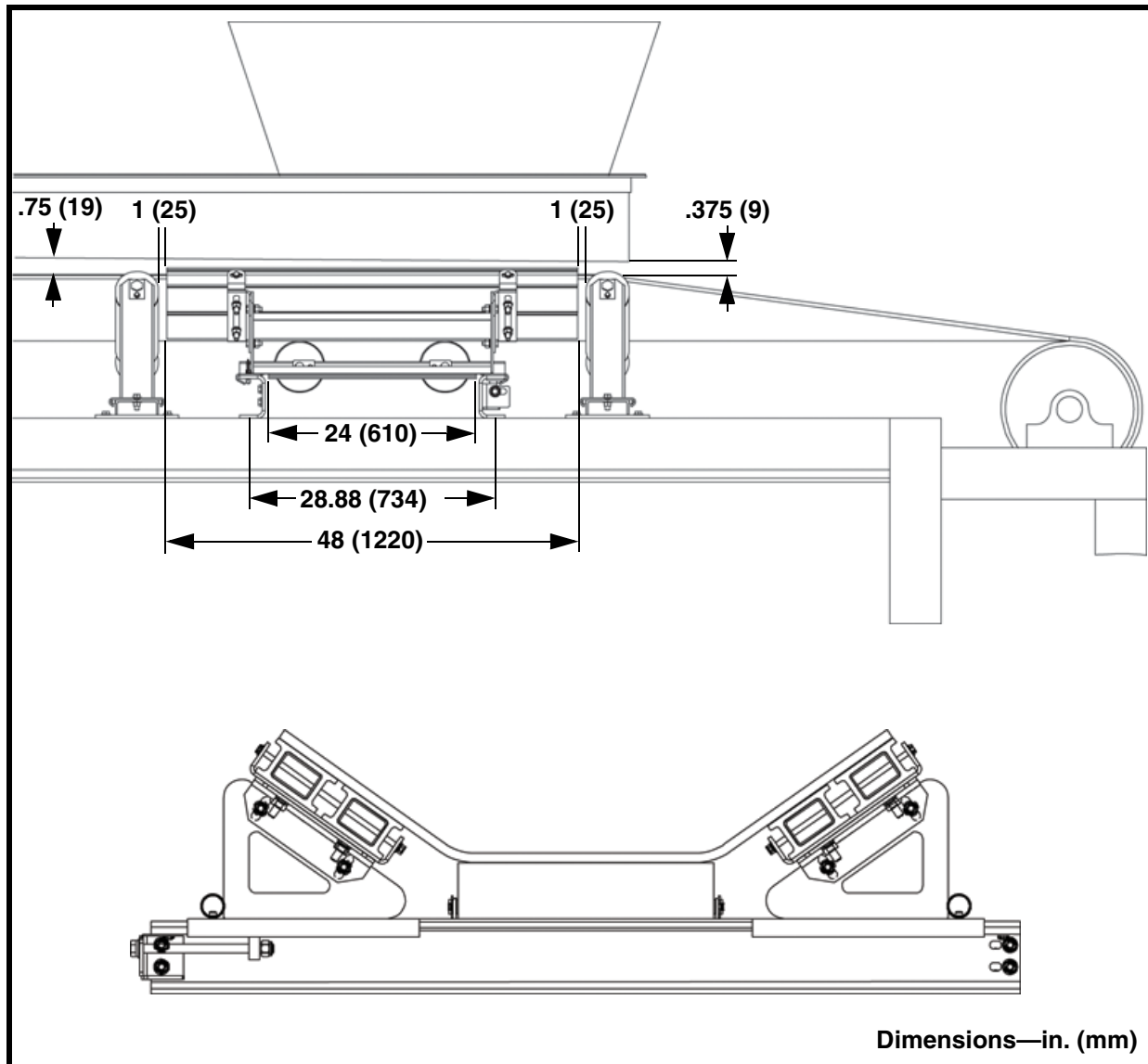
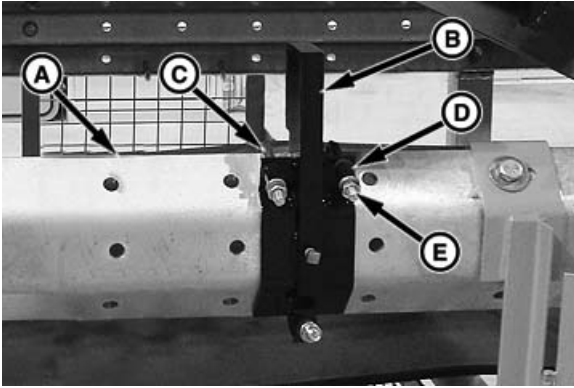


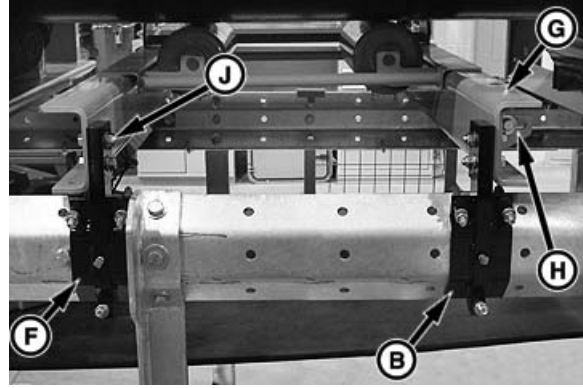
Figure 1. Measuring for Slider Cradle

1. See Figure 1. The distance between top of belt and bottom of wear liners must increase over length of transfer point. If necessary, modify chute walls and/or wear liners.
2. Mark center of loading point on stringer both sides of belt.
3. Install an idler 1 in. (25 mm) before and 1 in. (25 mm) after cradle.

Installation on EVO[®] Stringer



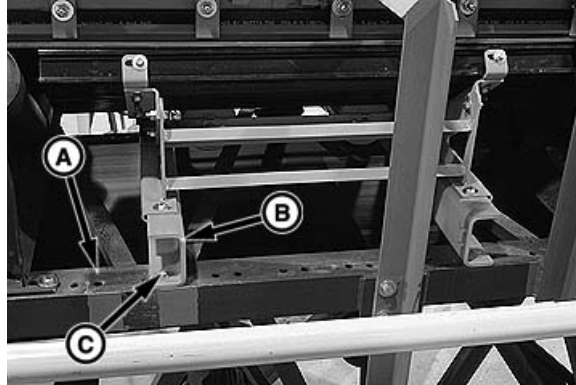
- A. Stringer
- B. Bracket (2 used)
- C. J-bolt (12 used)
- D. Spacer (12 used)
- E. Lock Washer and Nut (12 used)



- F. Bracket (2 used)
- G. Cross Support (2 used)
- H. Lock Mechanism
- J. Cap Screw, Lock Washer, and Nut (8 used)

1. Measure 13 in. from edge of idler roll to center of bracket (B).
2. Install bracket (B) on stringer (A) using J-bolts (C), spacers (D), lock washers, and nuts (E).
3. Measure 24 in. from center of bracket (B) to center of bracket (F).
4. Install bracket (F) on stringer using J-bolts, spacers, lock washers, and nuts.
5. Repeat steps 1–4 for brackets on opposite side of conveyor.
6. Install cross supports (G) onto brackets using cap screws, lock washers, and nuts (J).
7. Make sure cross supports are perpendicular to belt, or bars will wear unevenly and maintenance will be difficult.

Installation on Standard Stringer



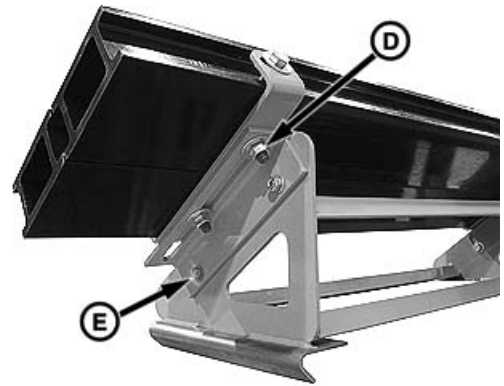
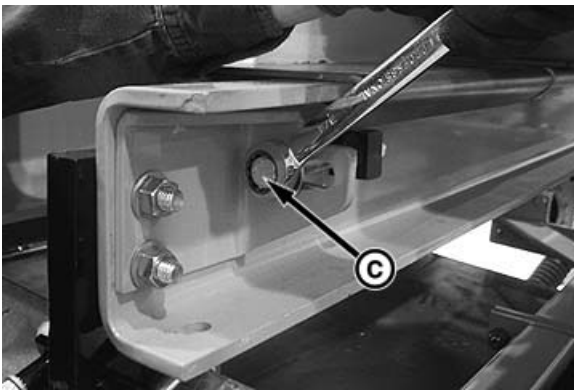
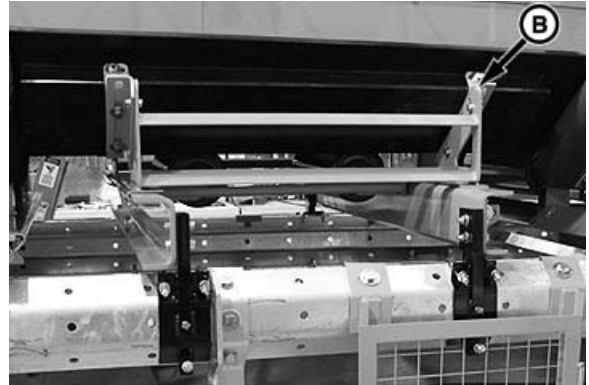
1. Measure 10-9/16 in. (268 mm) from edge of idler roll and mark location as center of first cross support.
2. Measure 28-7/8 in. (734 mm) from first mark and mark location as center of second cross support.
3. Repeat procedure on opposite side of conveyor.
4. Position cross supports on stringer according to locations marked in steps 1 and 2.
5. Make sure cross supports are perpendicular to belt and centered below belt, or bars will wear unevenly and maintenance will be difficult.

NOTE

Martin Engineering recommends bolting rather than welding cross supports to stringers for easier accessibility and maintenance.

6. Bolt or weld cross supports (B) to stringers (A) as follows:
 - a. If bolting, drill or cut 9/16-in. holes in stringers through mounting holes in feet of cross supports. Install cap screw, flat washer, compression washer, and nut (C) in each hole to secure cross supports to stringers.
 - b. If welding, clean stringer of rust and dirt. Then stitch weld cross supports to stringers.

Installing Slider Bars and Rolls



- A. Center Roll Assembly**
- B. Wing Weldment (2 used)**
- C. Cap Screw**

- D. Washer and Nut (8 used)**
- E. Cap Screw, Washers, and Nut (8 used)**

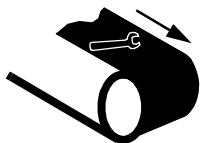
1. Slide center roll assembly (A) onto cross supports. Position assembly under center of belt.
2. Slide wing weldment (B) with bars onto cross supports until weldment contacts center roll assembly. Install wing weldment on opposite side.
3. Center cradle under belt.
4. Tighten cap screw (C) on lock mechanism to lock cradle in place.
5. Make sure there is 1 in. of clearance between end of bar and idler.
6. Loosen nuts (D and E) and position the slider bars so that they are supporting conveyor belt below chute wall and skirting.
7. Tighten all cap screws and nuts.

After Installing Slider Cradle

IMPORTANT

Read entire section before beginning work.

1. Thoroughly wipe outside chute walls clean above Slider 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 for one hour.



WARNING

Before adjusting EVO® Slider Cradle, turn off and lock out/tag out energy source to conveyor belt and conveyor accessories.

4. After one 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 cradle 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.”
8. If necessary, adjust height of slider bars.

Weekly Maintenance



IMPORTANT

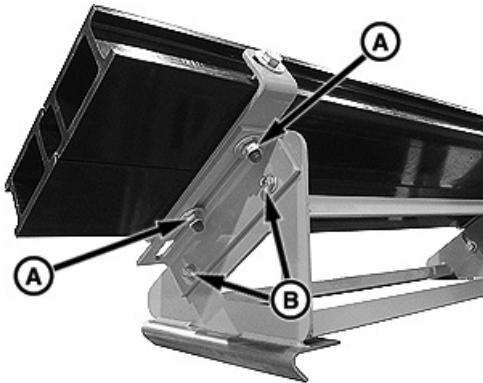
Read entire section before beginning work.

WARNING

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

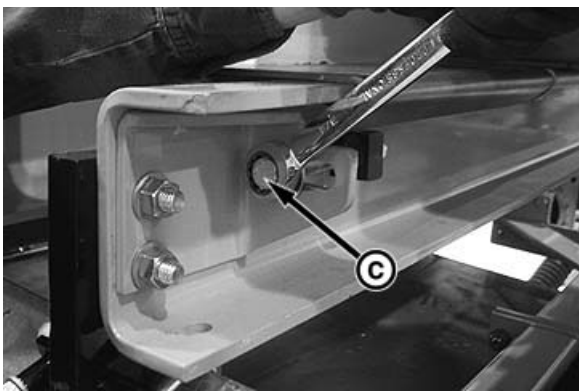
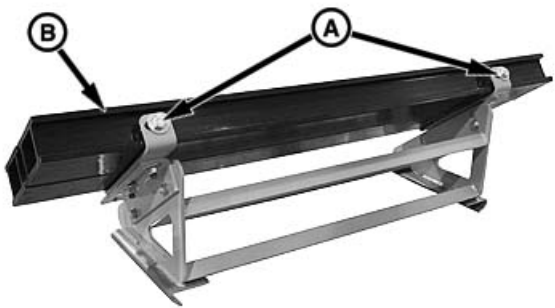
Adjusting for Wear

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.

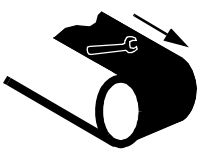


3. Check slider bars for wear. If bar is not contacting belt, but has more than 1/16 in. (2 mm) of material left at slider bar, adjust bar height as follows:
 - a. Loosen nuts (A and B).
 - b. Move bar and attaching components until proper bar-to-belt contact occurs.
 - c. Tighten nuts.

Turning Bars Over



1. Loosen cap screw (C) and remove wing weldments.
2. Remove cap screws and nuts (A) on both wing weldments.
3. Remove bars (B) and turn upside down.
4. Reinstall bars and tighten all bolts.



▲ 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.

5. 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.



6. Start conveyor belt.

Troubleshooting/Installation Checklist

Troubleshooting If you are experiencing problems with EVO[®] Slider Cradle, see below.

Symptom	Corrective Action
High slider bar wear	Bar is above idler height or is not parallel to belt travel. Adjust bar height or position.
Uneven slider bar wear	Bar is not parallel to belt travel or is under impact. Inspect loading area and divert impact or relocate cradle.

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

Installation Checklist
- Two cross supports are positioned according to Figure 1.
- Two support rollers are used for belts 36- through 60-in. (1000- through 1600-mm) wide and are centered under belt.
- Slider bars contact belt and follow contour of belt.
- Ends of slider bars are 1 in. (25 mm) from face of idlers.

Part Numbers

This section provides product names and corresponding part numbers for EVO[®] Slider Cradle and related equipment. Please reference part numbers when ordering.

EVO[®]
Slider Cradle

EVO[®] Slider Cradle: P/N UCGS-XXXXX6PPXX.
See Figures 2 and 3.

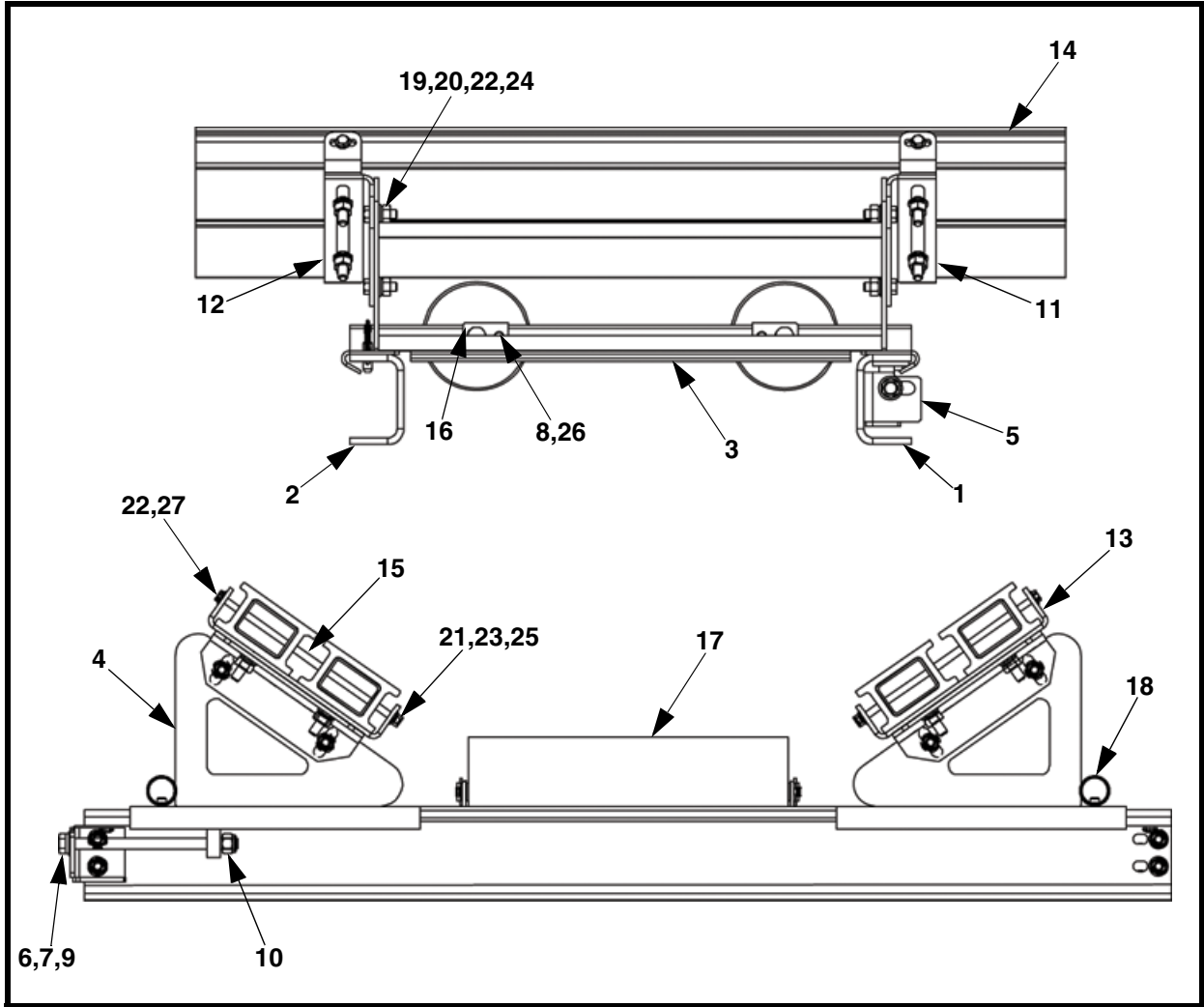


Figure 2. EVO[®] Slider Cradle, P/N UCGS-XXXXX6PPXX

Item	Description	Part No.	Qty
1	Cross Support Assembly	Table II	1
2	Formed "C" Channel	Table II	1
3	Center Roll Weldment	Table II	1
4	Wing Weldment	Table II	2
5	Sleeve Lock Angle Weldment	Table II	1
6	Washer Flat 5/8 Narrow	16814	1
7	Washer Compression 5/8 ZP	11752	1
8	Washer Split Lock 1/4	11894	4
9	Screw HHC 5/8-11NC x 9.5 Gr 5 ZP	UC-001504	1
10	Nut Elastic Lock 5/8-11NC ZP	37870	1
11	Formed Angle	Table II	2
12	Formed Angle	Table II	2
13	Bar Holder Weldment	Table II	4
14	UHMW Bar	UC-002040	Table II
15	Spacer	UC-002043	Table II
16	Tie Tab	UC-002001	4
17	Roll	TMIRD6-XXSP*	2
18	Quick Release Pin	UC-001529	2
19	Screw HHC 1/2-13NC Gr 5 ZP	11763	8
20	Flat Washer 1/2 Narrow ZP	31010	Table II
21	Flat Washer 3/8 Wide ZP	18007	8
22	Washer Compression 1/2 ZP	11750	Table II
23	Washer Split Lock 3/8 ZP	11978	4
24	Nut Hex 1/2-13NC Gr 5 ZP	36739	Table II
25	Nut Hex 3/8-13NC Gr 5 ZP	11770	4
26	Screw HHC 1/4-20NC x 1/2 Gr 5 ZP	11945	4
27	Screw HHC 3/8-16NC	Table II	4
NS	Mounting Kit-EVO®	UC-002070-EVO	1
NS	Mounting Kit-Standard	UC-002070-S	1
NS	Label Kit	34769	1
NS	Operator's Manual	M3786	1

NS = Not Shown

*XX indicates belt width.

Figure 2. EVO® Slider Cradle, P/N UCGS-XXXXX6PPXX

First XX indicates belt width. Third X indicates Standard (S) or Wide (W) base stringer. Next XX indicates trough angle 20, 35, or 45 degrees. Sixth X indicates Fully Assembled (A) or Component Parts (C). Last X indicates EVO® (E) or Standard (S) stringer.

Table II. EVO® Slider Cradle Part Numbers and Quantities

Part No.	P/N Item 1	P/N Item 2	P/N Item 3	P/N Item 4	P/N Item 5
UCGS-36S206PPXX	UC-001500-36	UC-001501-36	UC-002010-36	UC-002020-3620	UC-001527-1
UCGS-36S356PPXX	UC-001500-36	UC-001501-36	UC-002010-36	UC-002020-3635	UC-001527-1
UCGS-36S456PPXX	UC-001500-36	UC-001501-36	UC-002010-36	UC-002020-3645	UC-001527-1
UCGS-42S206PPXX	UC-001500-42	UC-001501-42	UC-002010-42	UC-002020-4220	UC-001527-2
UCGS-42S356PPXX	UC-001500-42	UC-001501-42	UC-002010-42	UC-002020-4235	UC-001527-2
UCGS-42S456PPXX	UC-001500-42	UC-001501-42	UC-002010-42	UC-002020-4245	UC-001527-2
UCGS-48S206PPXX	UC-001500-48	UC-001501-48	UC-002010-48	UC-002020-4820	UC-001527-2
UCGS-48S356PPXX	UC-001500-48	UC-001501-48	UC-002010-48	UC-002020-4835	UC-001527-2
UCGS-48S456PPXX	UC-001500-48	UC-001501-48	UC-002010-48	UC-002020-4845	UC-001527-2
UCGS-54S206PPXX	UC-001500-54	UC-001501-54	UC-002010-54	UC-002020-5420	UC-001527-3
UCGS-54S356PPXX	UC-001500-54	UC-001501-54	UC-002010-54	UC-002020-5435	UC-001527-3
UCGS-54S456PPXX	UC-001500-54	UC-001501-54	UC-002010-54	UC-002020-5445	UC-001527-3
UCGS-60S206PPXX	UC-001500-60	UC-001501-60	UC-002010-60	UC-002020-6020	UC-001527-3
UCGS-60S356PPXX	UC-001500-60	UC-001501-60	UC-002010-60	UC-002020-6035	UC-001527-3
UCGS-60S456PPXX	UC-001500-60	UC-001501-60	UC-002010-60	UC-002020-6045	UC-001527-3

Part No.	P/N Item 11	P/N Item 12	P/N Item 13	P/N Item 27	Qty Item 14	Qty Item 15	Qty Item 20, 22, 24
UCGS-36S206PPXX	UC-002041R-3620	UC-002041L-3620	UC-002050-01	UC-002060-01	2	0	12
UCGS-36S356PPXX	UC-002041R-3635	UC-002041L-3635	UC-002050-01	UC-002060-01	2	0	12
UCGS-36S456PPXX	UC-002041R-3645	UC-002041L-3645	UC-002050-01	UC-002060-01	2	0	12
UCGS-42S206PPXX	UC-002041R-4220	UC-002041L-4220	UC-002050-02	UC-002060-02	4	4	16
UCGS-42S356PPXX	UC-002041R-4235	UC-002041L-4235	UC-002050-02	UC-002060-02	4	4	16
UCGS-42S456PPXX	UC-002041R-4245	UC-002041L-4245	UC-002050-02	UC-002060-02	4	4	16
UCGS-48S206PPXX	UC-002041R-4820	UC-002041L-4820	UC-002050-02	UC-002060-02	4	4	16
UCGS-48S356PPXX	UC-002041R-4835	UC-002041L-4835	UC-002050-02	UC-002060-02	4	4	16
UCGS-48S456PPXX	UC-002041R-4845	UC-002041L-4845	UC-002050-02	UC-002060-02	4	4	16
UCGS-54S206PPXX	UC-002041R-5420	UC-002041L-5420	UC-002050-02	UC-002060-02	4	4	16
UCGS-54S356PPXX	UC-002041R-5435	UC-002041L-5435	UC-002050-02	UC-002060-02	4	4	16
UCGS-54S456PPXX	UC-002041R-5445	UC-002041L-5445	UC-002050-02	UC-002060-02	4	4	16
UCGS-60S206PPXX	UC-002041R-6020	UC-002041L-6020	UC-002050-02	UC-002060-02	4	4	16
UCGS-60S356PPXX	UC-002041R-6035	UC-002041L-6035	UC-002050-02	UC-002060-02	4	4	16
UCGS-60S456PPXX	UC-002041R-6045	UC-002041L-6045	UC-002050-02	UC-002060-02	4	4	16

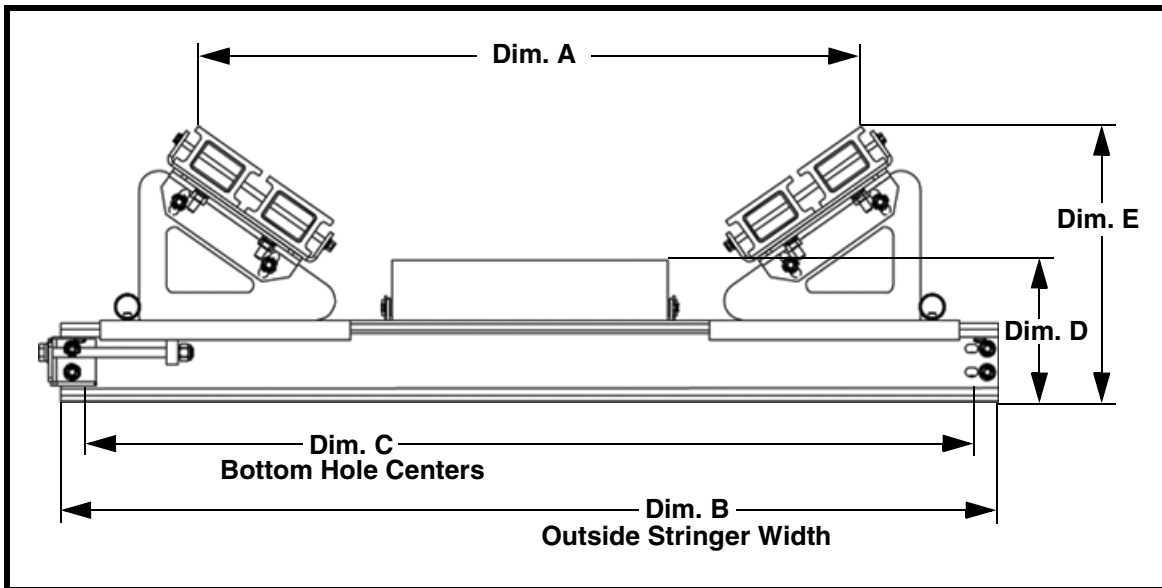


Figure 3. EVO® Slider Cradle Dimensions

Part No.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E
UCGS-36S206PPXX	29.69 (754)	48.00 (1219)	45.00 (1143)	8.50 (216)	11.39 (289)
UCGS-36S356PPXX	27.35 (695)	48.00 (1219)	45.00 (1143)	8.50 (216)	13.34 (339)
UCGS-36S456PPXX	25.03 (636)	48.00 (1219)	45.00 (1143)	8.50 (216)	14.28 (363)
UCGS-42S206PPXX	40.68 (1033)	54.00 (1372)	51.00 (1295)	9.00 (229)	13.49 (343)
UCGS-42S356PPXX	37.15 (944)	54.00 (1372)	51.00 (1295)	9.00 (229)	16.51 (419)
UCGS-42S456PPXX	33.84 (860)	54.00 (1372)	51.00 (1295)	9.00 (229)	18.06 (459)
UCGS-48S206PPXX	46.43 (1179)	60.00 (1524)	57.00 (1448)	9.00 (229)	14.14 (359)
UCGS-48S356PPXX	32.41 (823)	60.00 (1524)	57.00 (1448)	9.00 (229)	17.59 (447)
UCGS-48S456PPXX	38.73 (984)	60.00 (1524)	57.00 (1448)	9.00 (229)	19.38 (492)
UCGS-54S206PPXX	52.19 (1326)	66.00 (1676)	63.00 (1600)	9.25 (235)	15.07 (383)
UCGS-54S356PPXX	47.66 (1211)	66.00 (1676)	63.00 (1600)	9.25 (235)	18.84 (479)
UCGS-54S456PPXX	43.47 (1104)	66.00 (1676)	63.00 (1600)	9.25 (235)	21.14 (537)
UCGS-60S206PPXX	58.05 (1474)	72.00 (1829)	69.00 (1753)	9.25 (235)	15.61 (396)
UCGS-60S356PPXX	53.04 (1347)	72.00 (1829)	69.00 (1753)	9.25 (235)	19.98 (507)
UCGS-60S456PPXX	48.35 (1228)	72.00 (1829)	69.00 (1753)	9.25 (235)	22.47 (571)

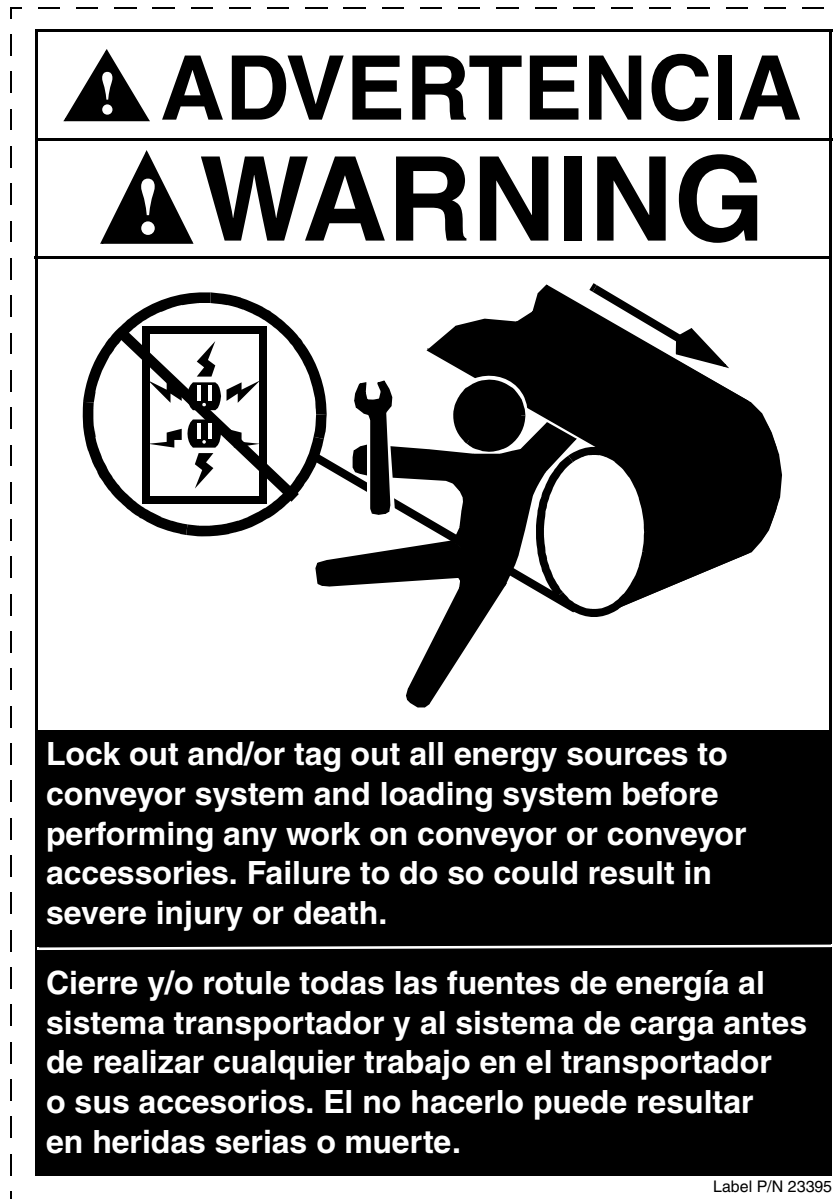
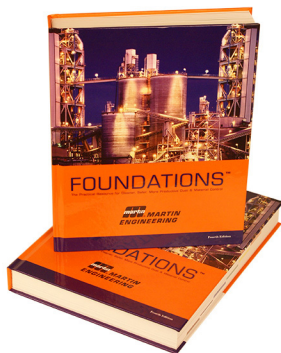


Figure 4. Conveyor Products Warning Label, P/N 23395

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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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