



Martin[®] **V-Plow XHD**

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Operator's Manual
M3757

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® V-Plow XHD floats on the inside surface of a conveyor belt to effectively remove stray material in moderate-duty to heavy-duty applications. The self-adjusting design provides effective cleaning in all states of blade wear.

The Martin® V-Plow XHD fits belts from 42 to 120 in. (1000 to 3000 mm) wide. Specifications are shown in Table I.

Table I. Martin® V-Plow XHD Specifications

Cleaning Edge Material	90-Durometer Urethane
Blade Dimensions	1.25 x 6 in. (32 x 152 mm)
Operating Temperature	-20 to 160°F (-29 to 71°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 Martin® V-Plow XHD.



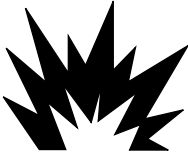
⚠ DANGER

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 v-plow, 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.



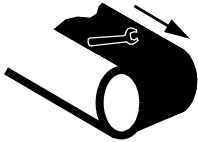
⚠ DANGER

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.

Materials required Only standard hand tools are needed to install this equipment.

Before Installing V-Plow

IMPORTANT

Read entire section before beginning work.

1. Inspect the shipping container for damage. Report damage to the delivery service. Fill out the damage report and return it to Martin Engineering.
2. Remove the Martin® V-Plow XHD from the shipping container. Equipment in the container should include the following:
 - Martin® V-Plow XHD Assembly.
 - Conveyor Products Warning Label, P/N 23395.
 - Warranty card.
 - Damage report.
3. If anything is missing or damaged, contact Martin Engineering or representative. Fill out the warranty card and return it to Martin Engineering.



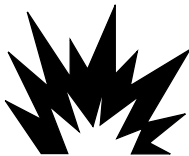
WARNING

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, test gas level or dust content 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 the atmosphere for gas level or dust content. Cover the conveyor belt with a fire-retardant cover.

Installing V-Plow

IMPORTANT

Read entire section before beginning work.

CAUTION

Position v-plow blade according to Figure 2. Minimum distance is to ensure safety cables will keep v-plow from damaging tail pulley or conveyor belt if mount brackets fail.

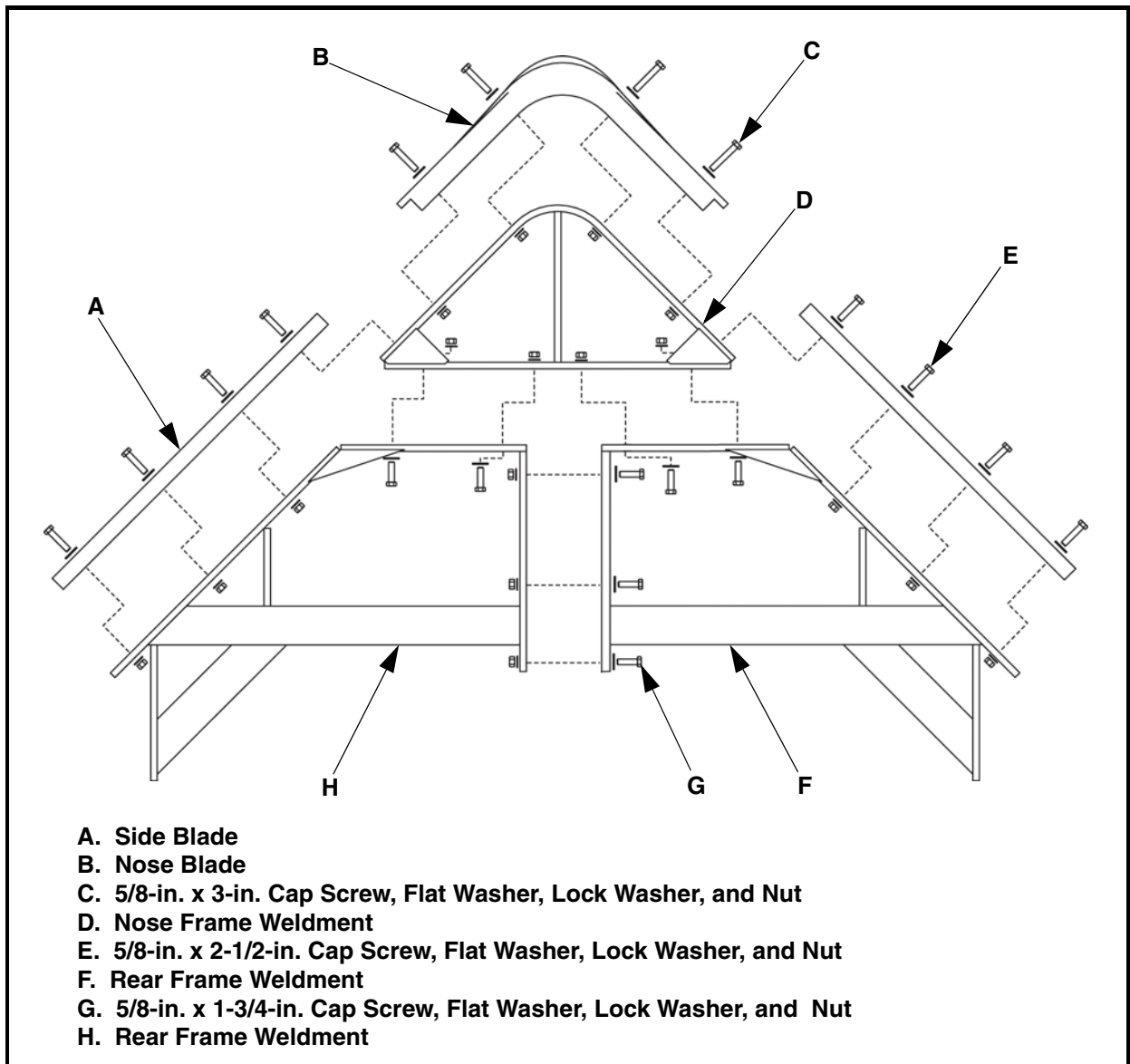


Figure 1. Assembling V-Plow

NOTE

Refer to Figure 6 for a complete description of parts and part quantities.

1. Fasten nose frame weldment (D) and rear frame weldments (F and H) together using cap screws, washers, and nuts (G).
2. Attach side blades (A) to v-plow using cap screws, washers, and nuts (E).
3. Attach nose blade (B) to v-plow using cap screws, washers, and nuts (C).

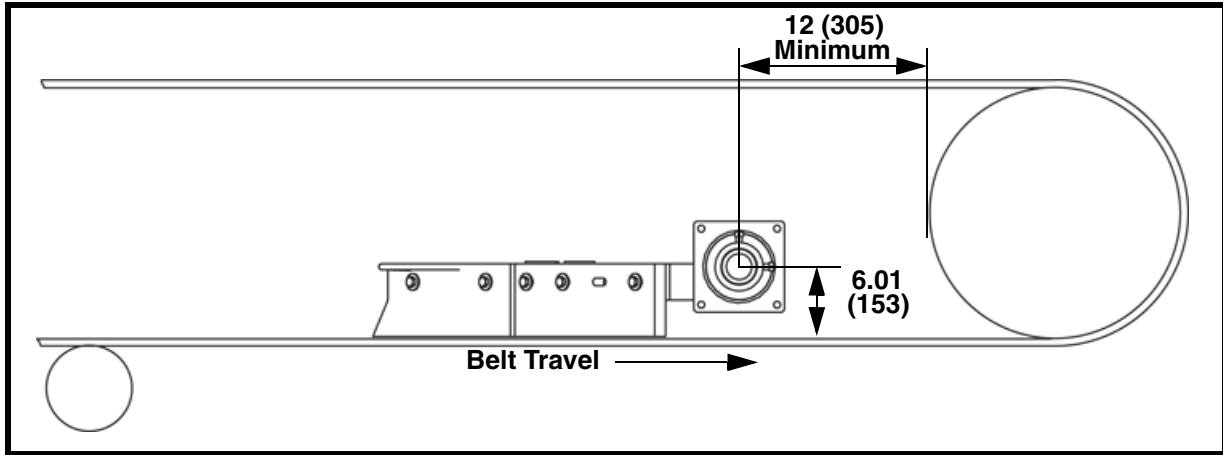


Figure 2. Locating V-Plow on Belt

4. Place the v-plow on the return side of the belt before the tail pulley with the “V” pointing away from the tail pulley.

NOTE

Do not place a return idler directly under the plow. The idler may change the belt line and cause a portion of the blade to not contact the belt.

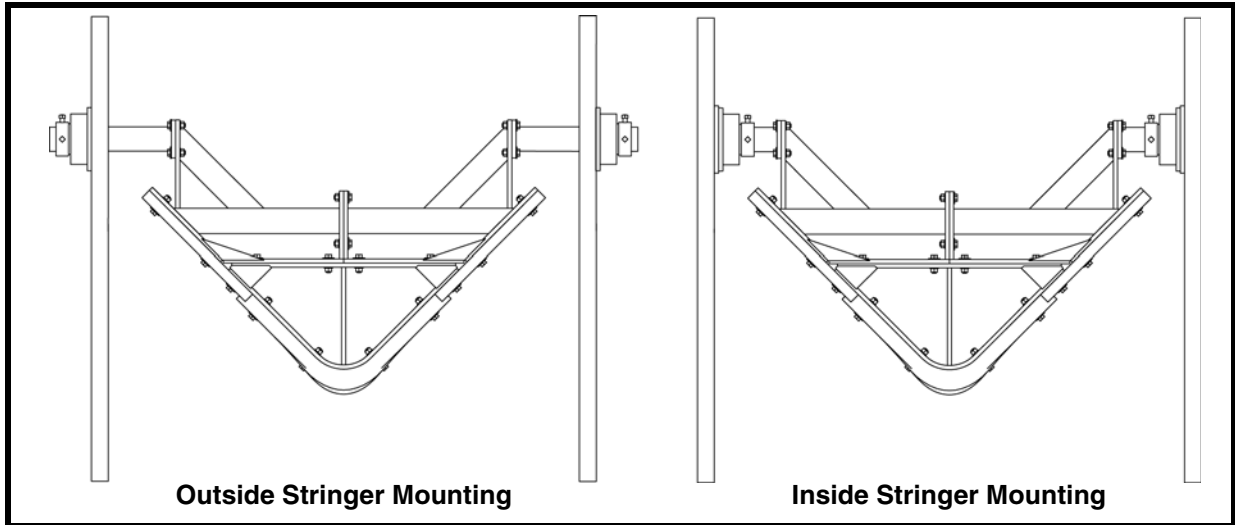


Figure 3. Mounting V-Plow on Belt

5. Determine how to mount farside mount weldments:
 - a. If the stringers are too low to accommodate the hanger bars in the proper position, bolt or weld 1/2-in. (13-mm) thick steel plates to the top of the stringers.
 - b. If the stringers are high enough to accommodate the hanger bars in the proper position, mount the mounting flanges for hanger bars directly onto the stringers.
6. Use a mounting flange as a template to mark the location of mounting holes on the stringers or steel plates on both sides of the belt.

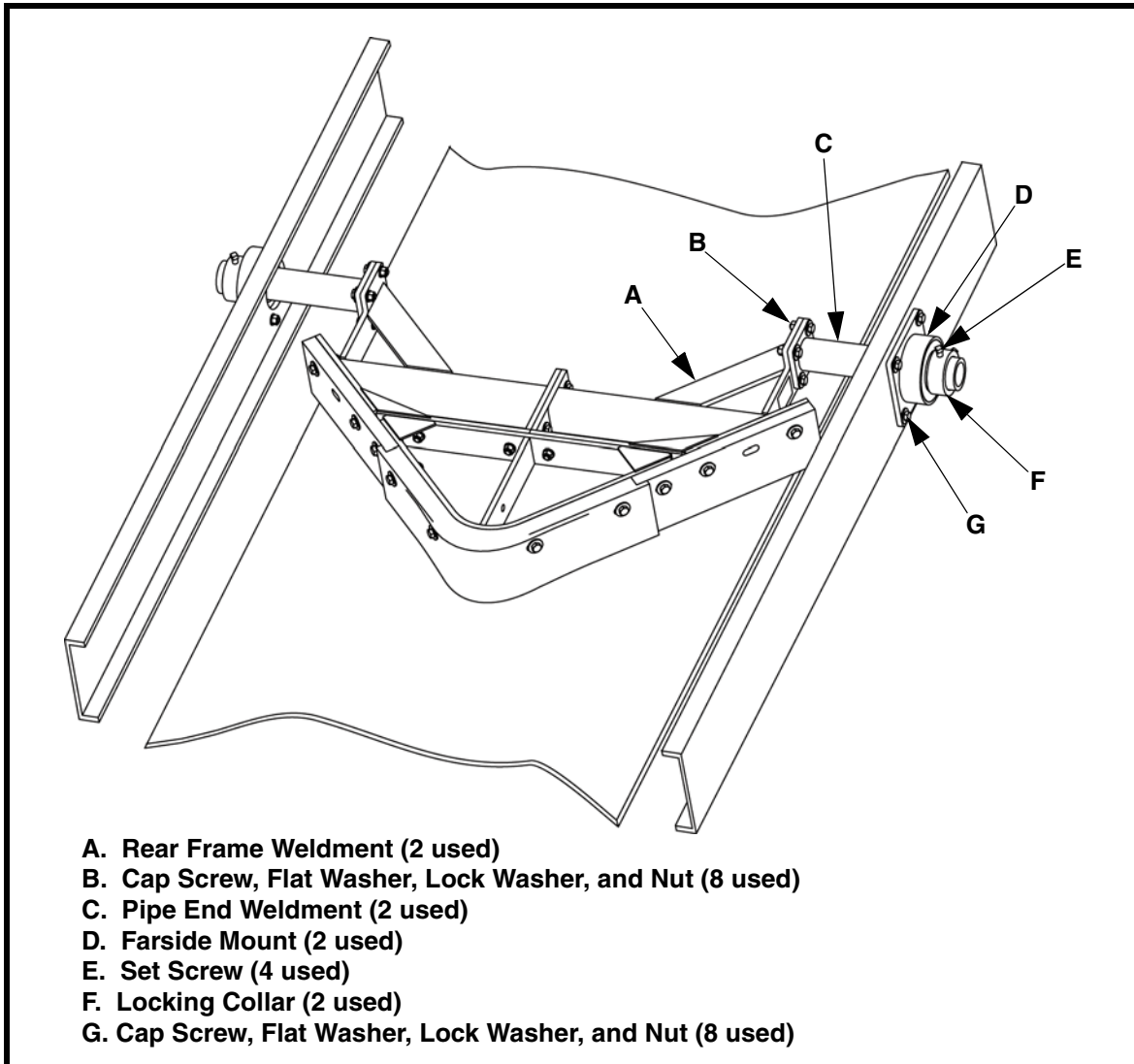


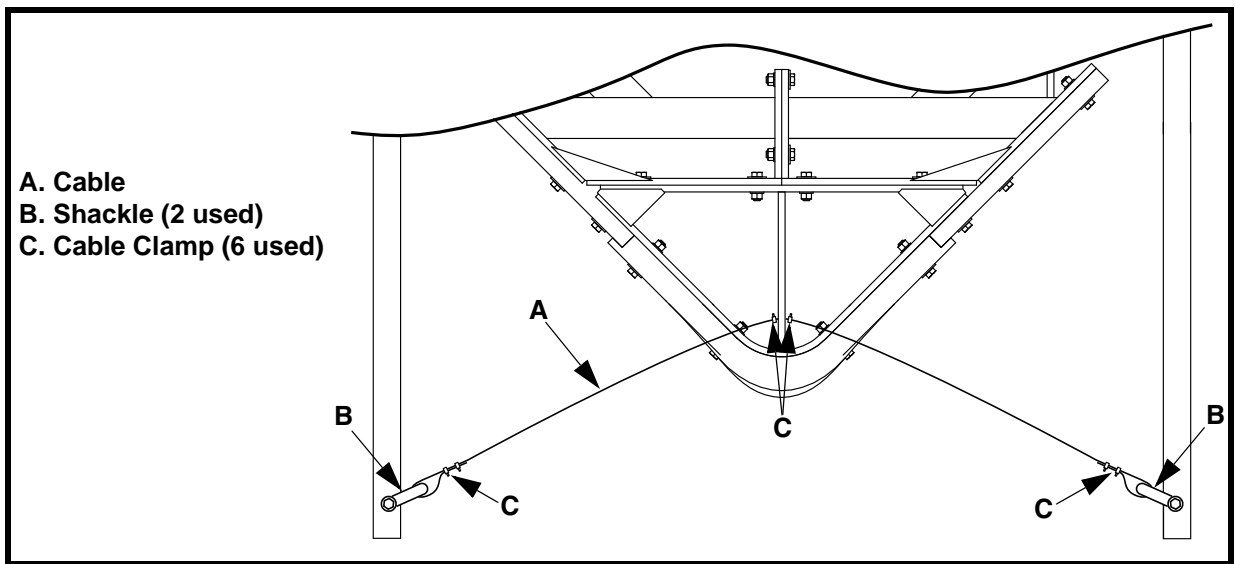
Figure 4. Installing V-Plow

NOTE

For easier maintenance, Martin Engineering recommends bolting rather than welding farside mounts to stringers or steel plates.

7. Bolt or weld the farside mounts to the stringers or steel plates as follows:
 - a. If bolting farside mounts to stringers or steel plates, do the following:
 - (1) Drill or cut two 3-in. (76-mm) holes for the two pipe end weldments (C).
 - (2) Drill or cut four 9/16-in. (14-mm) holes for the mounting screws for each farside mount (D).
 - (3) Remove burrs and sharp edges.
 - (4) Install each farside mount (D) onto the stringer or steel plate with cap screws, washers, and nuts (G).

- b. If welding the farside mounts to stringers or steel plates, do the following:
 - (1) Drill or cut two 3-in. (76-mm) holes for the two pipe end weldments (C).
 - (2) Position each farside mount onto the stringer or steel plate.
 - (3) Weld each farside mount onto the stringer or steel plate. Make a continuous weld around the entire mounting flange.
8. Insert each pipe end weldment (C) through the mounting holes and into farside mount.
9. Fasten pipe end weldment to rear frame weldment (A) with cap screws, washers, and nuts (B).
10. Center the blade on the belt. Slide a lock collar (F) onto each pipe end weldment and against the farside mount. Tighten the two set screws (E) on each lock collar.



CAUTION

Restraining cables must be installed to prevent the plow from being carried into the pulley if the mount brackets should fail. Failure to install restraining cables could severely damage the plow, pulley, and belt. Do not install restraining cables on stringers that are between the plow and tail pulley.

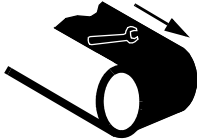
11. Attach shackles (B) to stringers on both sides of conveyor structure.
12. Route cable (A) through v-plow frame to each shackle. Make a 3-in. (76-mm) loop onto each shackle.
13. Clamp cable with one cable clamp (C) as close to each loop as possible. Place another cable clamp 1-3/4 in. (44 mm) from first clamp.
14. Leave at least 1 in. (25 mm) of cable on dead end.
15. Clamp cable on each side of v-plow frame.
16. Leave no more than 2 in. (51 mm) of slack in cable.
17. Gradually tighten all cable clamp nuts alternately and evenly to 15 ft-lbs.

After Installing V-Plow

IMPORTANT

Read entire section before beginning work.

1. Thoroughly wipe the outside chute wall clean above the v-plow on the operator side of the chute. Place a Conveyor Products Warning Label (P/N 23395) on the chute wall visible to the 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 the fire-retardant cover from the 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 the conveyor belt for 1 hour.



WARNING

Before adjusting v-plow, 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 the v-plow for wear. (A small amount of “break-in” wear may be found. This will stop once the blade wears to the conveyor belt contour.)
7. Make sure the plow is pushing material off the edge of the belt efficiently, leaving minimal material on the belt.
8. Repeat step 2.

Monthly Maintenance

IMPORTANT

Read entire section before beginning work.



WARNING

Before servicing v-plow, 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.

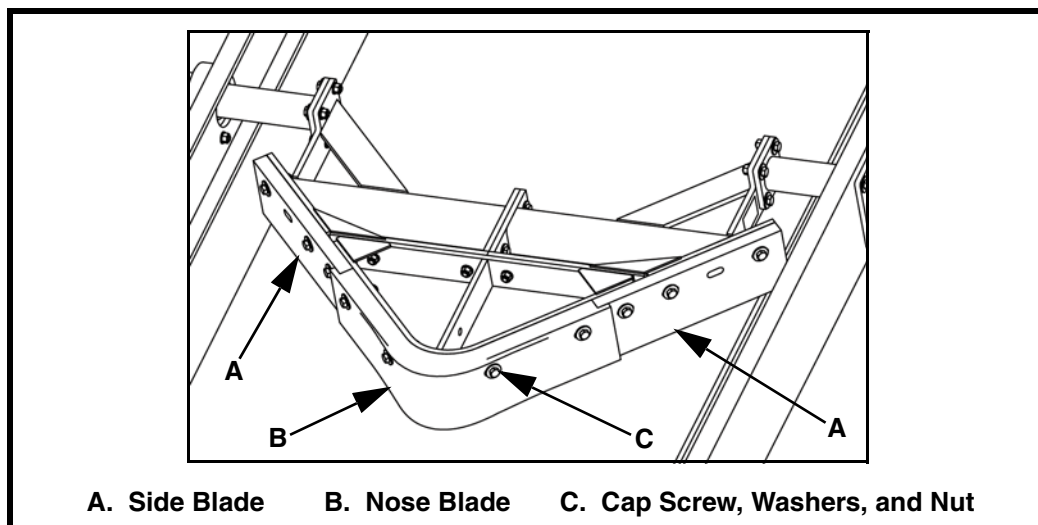
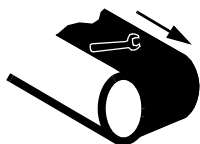


Figure 5. Blade Replacement

3. Check the cleaning edge for wear. If it is worn almost to the frame weldment, replace as follows:
 - a. Remove cap screws, washers, and nuts (C) holding blades (A and B) against the frame weldment.
 - b. Remove old blades.
 - c. Install new blades with cap screws, washers, and nuts.
4. Check the restraining cable for wear. Make sure the cable is securely attached to the stringers.
5. Wipe all labels clean. If the labels are not readable, contact Martin Engineering or your representative for replacements.

**⚠ 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.

6. Remove all tools from the 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.

7. Start the conveyor belt.



Part Numbers

This section provides product names and corresponding part numbers for the Martin® V-Plow XHD and related equipment. Please reference the part numbers when ordering parts.

***Martin® V-Plow
XHD Assembly***

P/N PLWVH-XXXXXX. See Figure 6.

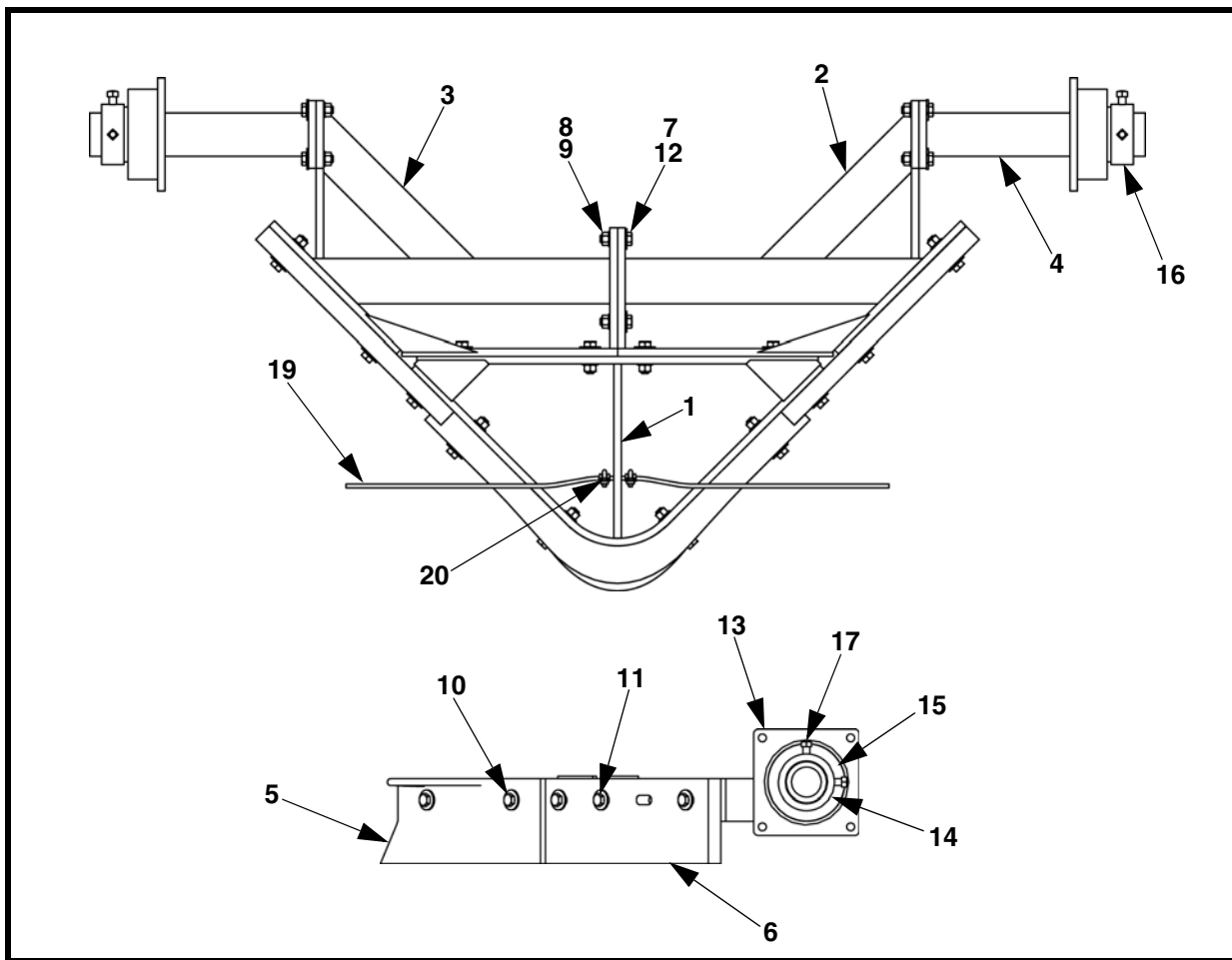


Figure 6a. Martin® V-Plow XHD Assembly, P/N PLWVH-XXXXX

Item	Description	Part No.	Qty
1	Nose Frame Weldment	38193	1
2	Rear Frame Weldment	Table III	1
3	Rear Frame Weldment	Table III	1
4	Pipe End Weldment	38194	2
5	Nose Blade	Table IV	1
6	Side Blade	Table IV	2
7	Flat Washer 5/8 Narrow ZP	16814	Table III
8	Compression Washer 5/8	11752	Table III
9	Nut Hex 5/8-13NC ZP	11772	Table III
10	Screw HHC 5/8-13NC x 3 ZP	35318	4
11	Screw HHC 5/8-13NC x 2-1/2 ZP	23532	Table III
12	Screw HHC 5/8-13NC x 1-3/4 ZP	18831	Table III

Item	Description	Part No.	Qty
13	Farside Mount Weldment	32342	2
14	Shock Ring	32322	2
15	Nylon Bushing	34306	2
16	Locking Collar	32341	2
17	Screw SHS 1/2-13NC x 1 SS	22763-03	4
NS	Shackle 1/2	32856	2
19	Wire Rope 1/4	100258	Table III
20	Cable Clip 1/4	32264	6
NS	Mounting Hardware Kit	34498	1
NS	Label Martin Products	38048	2
Fig. 7	Label Conveyor Products Warning	23395	2
NS	Operator's Manual	M3757	1

Figure 6b. Martin® V-Plow XHD Assembly, P/N PLWVH-XXXXX*

*The first XX indicates belt width, the next XX indicates blade color/material, the last X indicates frame construction/tensioner option (P-Painted, S-Stainless Steel, T-Painted Steel Spring Tensioner).

NS = Not Shown

Table II. Martin® V-Plow XHD Item Quantities and Part Numbers

Assembly Part No.	Item 1 Part No.	Item 2 Part No.	Item 3 Part No.	Item 7,8,9 Qty	Item 11 Qty	Item 12 Qty	Item 19 Qty
PLWVH-42XXX	38198-42L	38198-42R	38197-42XX	24	6	14	6.5
PLWVH-48XXX	38198-48L	38198-48R	38197-48XX	24	6	14	7.0
PLWVH-54XXX	38198-54L	38198-54R	38197-54XX	27	8	15	7.5
PLWVH-60XXX	38198-60L	38198-60R	38197-60XX	27	8	15	8.0
PLWVH-72XXX	38198-72L	38198-72R	38197-72XX	29	10	15	9.0
PLWVH-84XXX	38198-84L	38198-84R	38197-84XX	32	12	16	10.0
PLWVH-96XXX	38198-96L	38198-96R	38197-96XX	35	14	17	11.0
PLWVH-120XXX	38198-120L	38198-120R	38197-120XX	40	18	18	13.0

Table III. Martin® V-Plow XHD Blade Materials and Part Numbers

Assembly Part No.	Blade Color	Item 5 Part No.	Item 6 Part No.
PLWVH-XXORP	Orange	38196-OR	38197-XXOR
PLWVH-XXBRP	Brown	38196-BR	38197-XXBR
PLWVH-XXGRP	Green	38196-GR	38197-XXGR

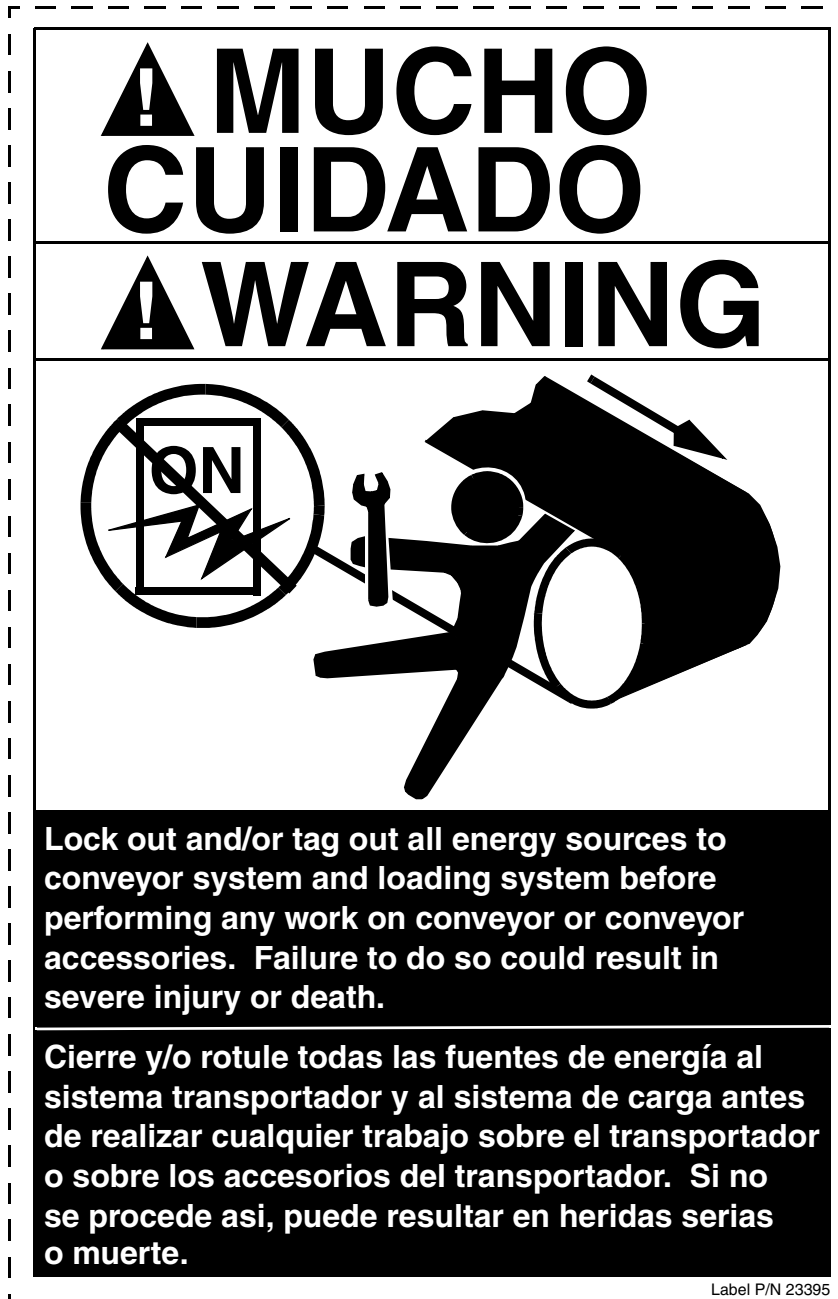
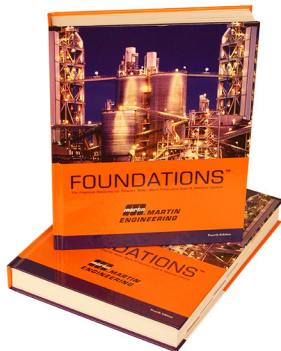


Figure 7. Conveyor Products Warning Label, P/N 23395

Notes

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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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