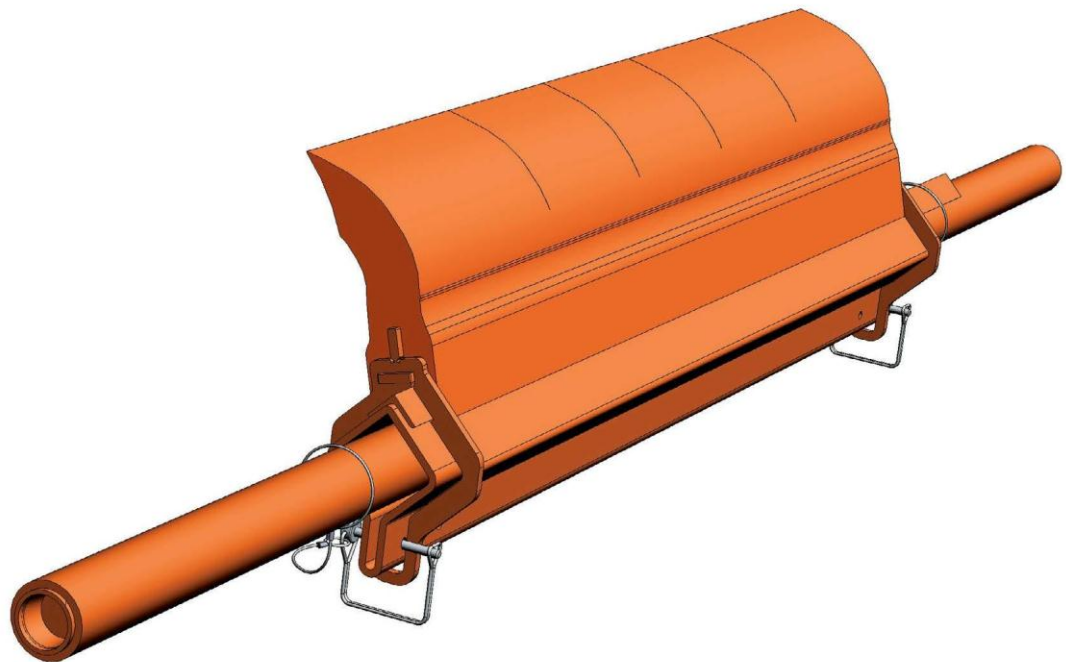




***Martin[®] QB1
Cleaner HD***



Operator's Manual

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.

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[®] QB1 Cleaner HD combines effective removal of carry back with a long-lasting, one-piece blade. To introduce product back into the product flow, the Martin[®] QB1 Cleaner HD 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 chute work. 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.

Belt cleaner blades

Martin[®] QB1 Cleaner HD Blades are available in three different materials (see Table I for specifications).

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 Labour, 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® QB1 Cleaner HD Blade Colours, Materials and Specifications

URETHANE SELECTION	APPLICATION DESCRIPTION	TYPICAL MATERIALS	CONTINUOUS TEMPERATURE
Orange	Standard Martin® Urethane Suitable for 80% or more of all belt cleaner applications, including abrasive conditions.	Bauxite, Coke, Coal, Overburden Refuse	-20° to 160°F (-29° to 71°C)
Brown (BR)	Chemical-Resistant Urethane Improves resistance to chemicals; reduced absorption of water in high-moisture environments.	Limestone	-40° to 160°F (-40° to 71°C)
Green (GR)	High-Temperature Urethane For exposure to intermittent temperatures up to 350°F (177°C).	Clinker	-40° to 300°F (-40° to 149°C)

IMPORTANT

Urethane shelf life

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

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.



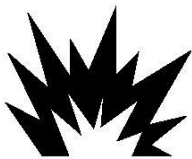
DANGER

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.



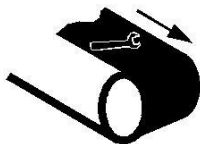
DANGER

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.

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.

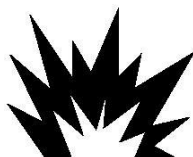
1. Inspect shipping container for damage. Report damage to delivery service immediately and fill out delivery service's claim form. Keep any damaged goods subject to examination.
2. Remove belt cleaner assembly from shipping container.
3. If anything is missing contact Martin Engineering or a representative.



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 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

Centre 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. If using a cutting torch or welding, test atmosphere for gas level or dust content.

Installation



1. On operator side of chute, find pulley centre point (A).
2. Measure radius of head pulley including lagging and belt thickness (B). To this dimension, add 3.50 in. (89 mm).
3. Starting from centre point (A), measure the total distance calculated in step 2 (B + 3.50in (89mm)) and draw an arc on chute wall.
4. Measure down from pulley's horizontal centreline the distance shown in Figure 1 and draw a horizontal line parallel to it. Locate centre point of belt cleaner mainframe (C) where this line intersects the arc on the chute wall.
5. Make sure mainframe and blade do not lie in path of material unloading from conveyor belt. Make sure blade tip of Martin® QB1
6. Cleaner HD is at or below pulley's horizontal centreline.
7. Repeat steps 1 through 5 for far side chute wall.
8. Drill or cut holes for tensioner mounting plates on chute walls as follows:
 - a. If bolting tensioner mounting plates to chute walls, do the following:
 - (1) Drill or cut one 4-in (102mm). hole for mainframe and four 5/8-in. (16mm) holes for screws in both operator side and far side chute walls. Remove burrs and sharp edges.
 - b. If welding tensioner mounting plates to chute walls, do the following:
 - (1) Drill or cut one 4-in (102mm) hole for mainframe in both operator side and far side chute walls. Remove burrs and sharp edges.

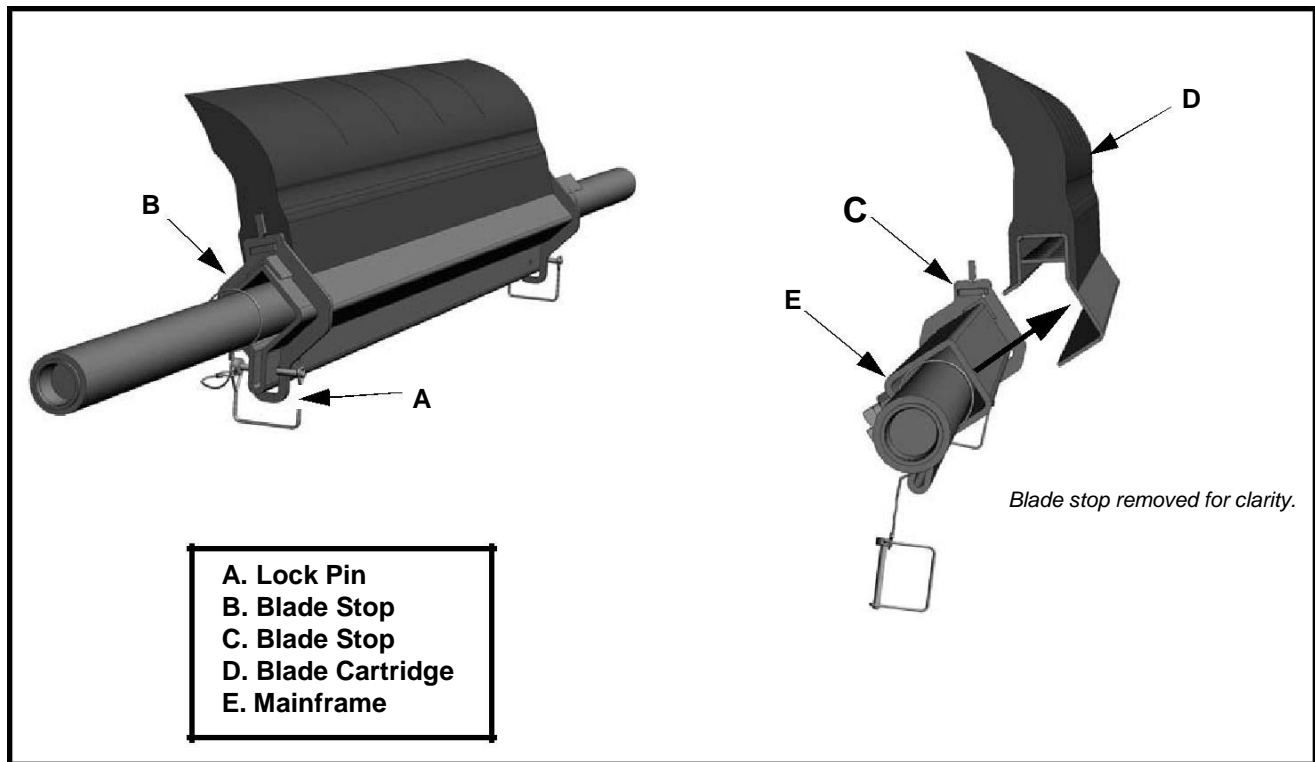


Figure 2. Removing and Installing Blade

Removing blade

NOTE

Lock pins and blade stops should remain attached to mainframe assembly during blade removal and installation.

1. Remove lock pin (A) from operator side of mainframe.
2. Remove blade stop (B) from operator side of mainframe.
3. Pull blade cartridge (D) away from blade stop (C) and remove from mainframe (E).

Installing tensioner

1. Install tensioner according to applicable tensioner's manual.
2. If using Martin[®] Inspection Door, install according to *Martin[®] Inspection Door Operator's Manual*.

Installing blade

1. Position blade on mainframe with blade curve facing conveyor belt. Push far side end of blade into blade stop (C) until it locks.
2. Push blade cartridge (D) onto mainframe (E) until it is fully seated.
3. Install blade stop (B).
4. Insert lock pin (A) in mainframe (E).
5. Make sure blades are centered on belt and mainframe is parallel to belt.
6. Tension belt cleaner according to applicable tensioner's manual.

After Installing Belt Cleaner



1. Thoroughly wipe chute wall clean above tensioner.
2. Place Conveyor Products Warning Label 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 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 build-up. (No material between blades and return side of conveyor belt should be found.)
6. If wear, material build-up, 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

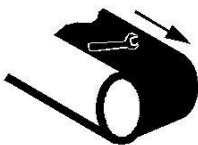
Failure to remove tools from maintenance area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.

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 a 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 problem, check for following:

Installation Checklist
✓ Pre-Cleaner mainframe is proper distance from belt surface on both ends of mainframe.
✓ Pre-Cleaner blade tip is at or below horizontal centre line of pulley and does not lie in path of material flow.
✓ Blades are cantered on belt.

Part Numbers

This section provides product names and corresponding part numbers for Martin® QB1 Cleaner HD and related equipment. Please reference part numbers when ordering parts:

Martin- QB1 Cleaner HD

Martin® QB1 Cleaner HD Assembly:
P/N QB1-XXXX1XXXXXXXXSX See Figure 3.

Recommended Tensioners

Belts 18 to 48 in. wide:

Martin® Spring Tensioner. P/N 38180I

Belts 54 to 96 in. wide:

Martin® Dual Spring Tensioners: P/N 38180-2I

Operator's Manuals

Martin® Spring and Air Tensioners Operator's Manual.

Martin® Twist Tensioner Operator's Manual.

Martin® Inspection Door Operator's Manual.

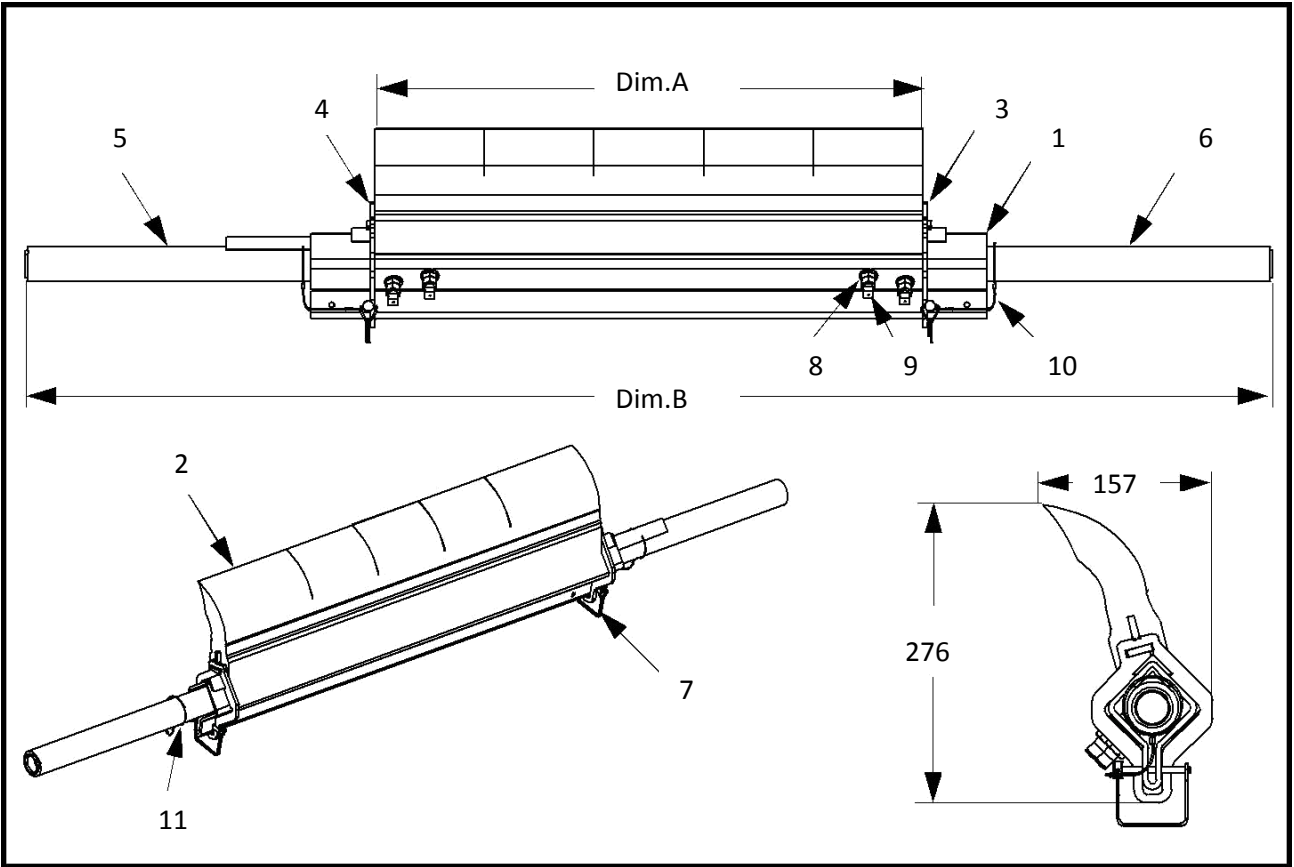


Figure 3. Martin[®] QB1™ Cleaner HD Assembly, P/N QB1-XXXX1XXXXXXXXSX

Item	Description	Qty.
1	Mainframe	1
2	Blade with Formed Insert	1
3	Blade Stop - Right	1
4	Blade Stop - Left	1
5	Pipe End Weldment	Table II
6	Pipe End Weldment	Table II
7	Pin Wire Lock	2
8	Nut Hex M12	4
9	Screw M12	4
10	Clip Cable Oval for Wire	4
11	Cable Aircraft	4
12 (NS)	Martin [®] Spring Tensioner Assembly	1

NS = Not Shown

Notes: All dimensions are given in inches (mm). All dimensions are for reference only. First four XXXX indicates belt width, next X indicates a blade with (0) or without (1) segments. The next XXXX indicates blade coverage. The next XX indicates blade colour. The next X indicates Martin[®] Spring Tensioner (S) or leave blank for no Spring Tensioner, next X indicates (H) with Hanger Bracket or leave blank for no Hanger Bracket.

Table II. Part Numbers and Dimensions for Martin[®] QB1™ Cleaner HD Assembly

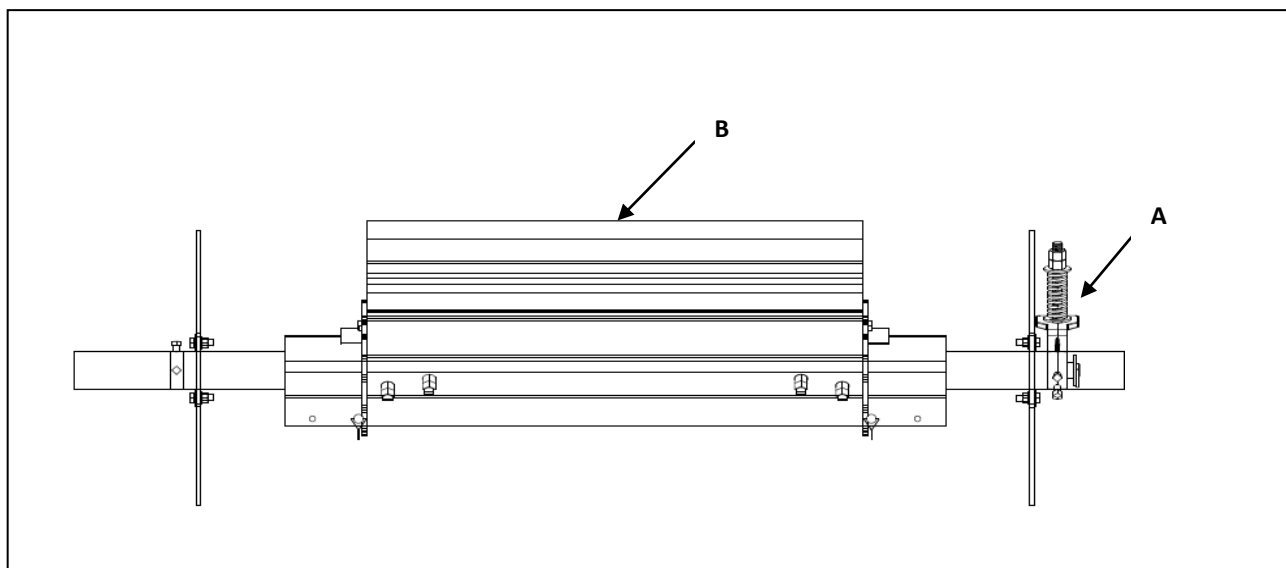
Standard Assy. Part No.	Item No. 2	Item No. 5	Item No. 6
QB1-4501X400XXSX	QB1 BLD-4001X400XXSX	30354-03	30354-03
QB1-6001X550XXSX	QB1 BLD-6001X550XXSX	30354-03	30354-03
QB1-7501X700XXSX	QB1 BLD-7501X700XXSX	30354-03	30354-03
QB1-8001X750XXSX	QB1 BLD-8001X750XXSX	30354-03	30354-03
QB1-10001X900XXSX	QB1 BLD-10001X900XXSX	30354-03	30354-03
QB1-12001X1050XXSX	QB1 BLD-12001X1050XXSX	30354-03	30354-03
QB1-14001X1250XXSX	QB1 BLD-14001X1250XXSX	30354-03	30354-03
QB1-16001X1450XXSX	QB1 BLD-16001X1450XXSX	30354-03	30354-03
QB1-18001X1650XXSX	QB1 BLD-18001X1650XXSX	30354-03	30354-03
QB1-20001X1850XXSX	QB1 BLD-20001X1850XXSX	30354-03	30354-03
QB1-22001X2050XXSX	QB1 BLD-22001X2050XXSX	30354-04	..
QB1-24001X2300XXSX	QB1 BLD-24001X2300XXSX	30354-05	..

**Table III. Belt Width, Blade Coverage & Mainframe Length Dimensions for
Martin[®] QB1™ Cleaner HD Assembly**

BELT WIDTH (mm)	BLADE COVERAGE DIM "A"(mm)	MAINFRAME LENGTH DIM "B" (mm)(MAX)
450	400	1580
600	550	1730
750	700	1880
800	750	1930
1000	900	2130
1200	1050	2330
1400	1250	2530
1600	1450	2730
1800	1650	2930
2000	1850	3130
2200	2050	3500
2400	2300	3650

Appendix

**Martin® QB1 Cleaner HD Assembly
with Martin® Spring Tensioner Assembly**



- A. Martin® Spring Tensioner Assembly, P/N 38180**
B. Martin® QB1 Cleaner Assembly, P/N QB1-XXXX1XXXXXSXX

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