

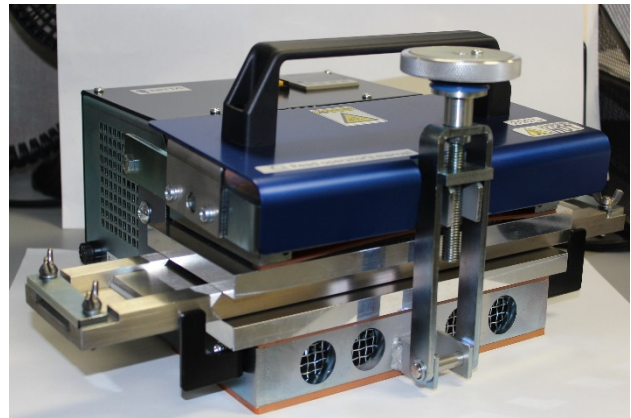
NBC, MHS Conveyor Nitta Belt Welding Instructions



NBC Full Welding Instruction with Nitta Blue Urethane Belt

P/N: 1207439

Date: 09/13/2019



CONTENTS

INTRODUCTION.....	3
PURPOSE	3
SCOPE	3
MHS Conveyor SAFETY INFORMATION	4
WARNINGS AND SAFETY INSTRUCTIONS	4
MHS Conveyor RECOMMENDED STANDARDS FOR CONVEYORS	5
MHS Conveyor SAFETY RECOMMENDATION	6
NBC CONVEYOR PREPARATION.....	7
FINGER PUNCH PROCESS	11
NBC WELD INSTRUCTIONS	15
MHS Conveyor KITS & REPLACEMENT PARTS.....	22
TROUBLESHOOTING – NITTA CORPORATION	24
AIR BUBBLES	24
IMPROPER BELT WELDING	27
WORKS CITED	29
MHS Conveyor INFORMATION.....	30

History – Revision Changes

Revision Date	Description
9/13/2019	Add caution note to use only MHS Conveyor welder equipment
06/27/2019	Changed belt overlap length. NBC-150-AT from 36" to 18" and added 500-AT to be 36".

INTRODUCTION

PURPOSE

This manual contains the instructions to properly weld a Nitta belt for use with MHS Conveyor NBC flat belt conveyor. These instructions use the MHS Conveyor Nitta belt Finger Punch and Weld Press. MHS Conveyor recommends watching the enclosed flash drive video instruction along with all MHS Conveyor or Nitta manuals before repairs.

CAUTION

WARNING:

- **Use Only MHS Conveyor Nitta belt welder and punch equipment for MHS Conveyor Nitta belt splice/welding. **Non-MHS Conveyor** Nitta belt welding or punch equipment is not compatible with the MHS Conveyor Nitta belt!**

SCOPE

The purpose is to obtain strong, consistent belt joints in a safe and efficient manner. To accomplish this, these instructions must be followed closely.

For more MHS Conveyor information:

Visit mhs-conveyor.com for more maintenance videos and MHS Conveyor IOM manuals.

MHS Conveyor SAFETY INFORMATION

WARNINGS AND SAFETY INSTRUCTIONS

Failure to follow the instructions and cautions throughout this manual and warning labels on the conveyor may result in injury to personnel or damage to the equipment.

Your MHS Conveyor is powered by a motor and can be stopped only by turning off electrical power to the motor. As with all powered machinery, the drive-related components – including sprockets, chains, shafts, universal joints, and pneumatic devices – can be dangerous. We have installed or provided guards to prevent accidental contact with these parts, along with warning labels to identify the hazards.

Special attention must be paid to the following areas of this manual:



WARNING



- Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION

- Indicates a situation, which, if not avoided, could result in property damage.

MHS Conveyor RECOMMENDED STANDARDS FOR CONVEYORS

MHS Conveyor Safety Recommendation

For additional safety information:

MHS Conveyor agrees to the following safety instruction or guidelines listed within this manual. This is not to conflict with your state or legal requirements.

MHS Conveyor Recommends for maintenance or repair purposes, to incorporate a lock out or tag procedure. To ensure all starting devices, prime movers, or powered accessories are off before attempting to maintenance or repair.

The procedures below are designed to protect everyone involved with the conveyor against an unexpected restart. To include understanding of potential hazard of stored energy, which can exist after the power source is locked out.

For additional information, refer to the latest issue of ANSI Z244.1, American National Standard for Personnel Protection – Lockout/Tagout of Energy Sources– Minimum Safety Requirements.

<http://www.ansi.org/>

OSHA 29CRF Part 1910.147 “Control of Hazardous Energy Sources (Lockout/Tagout)”, which includes requirements for release of stored energy and OSHA Safety and Health Regulations for Construction 1926.555 Conveyors

<https://www.osha.gov/>

Conveyor Design and Safety Guidelines

A safety risk evaluation is required for all of our standard equipment. The safety risk evaluation considers every potential hazard on the conveyor, weighs the probability and the severity of the potential injury, and addresses methods of mitigation to make the risk of injury either low or negligible. We use the ANSI B11 TR3 standards for all of our risk evaluation. In addition, all of our equipment is designed to comply with the following national and industry standards:

- **ANSI Z535.1** – Safety Color Code
- **ANSI Z244.1** – Lockout/Tagout of Energy Sources
- **ASME B15.1** – Safety standard for Mechanical Power Transmission Apparatus
- **ASME B20.1** – Safety standard for Conveyors and Related Equipment
- **CEMA** – Safety Standards and Labels
- **OSHA 1910.147** – The Control of Hazardous Energy
- **OSHA 1910.212** - General Requirements for all Machines
- **OSHA 1910.95** – Occupational Noise Exposure
- **Definitions:**
- **ANSI** = American National Standard Institute
- **ASME** = American Society of Mechanical Engineers
- **CEMA** = Conveyor Equipment Manufacturers Association
- **OSHA** = Occupational Safety and Health Administration



WARNING



- Safety: Always lock out power source and follow recommended safety procedures.

MHS Conveyor SAFETY RECOMMENDATION



MHS Conveyor agrees to the following safety instruction or guidelines listed within this manual. This is not to conflict with your state legal requirements.

MHS Conveyor Recommends for maintenance or repair purposes, to incorporate a lock out or tag procedure. To ensure all starting devices, prime movers, or powered accessories are off before attempting to maintenance or repair.

The procedures below are designed to protect everyone involved with the conveyor against an unexpected restart. To include understanding of potential hazard of stored energy, which can exist after the power source is locked out.

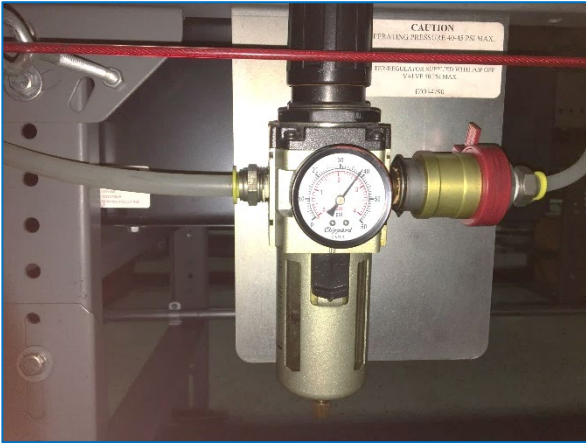
For additional information, refer to the latest issue of ANSI Z244.1, American National Standard for Personnel Protection – Lockout/Tagout of Energy Sources– Minimum Safety Requirements. <http://www.ansi.org/>

OSHA 29CFR Part 1910.147 “Control of Hazardous Energy Sources (Lockout/Tagout)”, which includes requirements for release of stored energy and OSHA Safety and Health Regulations for Construction 1926.555 Conveyors
<https://www.osha.gov/>

 WARNING	
	<ul style="list-style-type: none"> • Pay attention to the safety instructions! • Prior to working at or in the immediate vicinity of the system it is recommended that you make yourself familiar with the safety instructions included in the present document! • MHS Conveyor recommends reading all manuals supplied by MHS Conveyor or Nitta Corporation. https://www.nitta.com/ • MHS Conveyor recommends only trained and maintenance personal for conveyor repairs. • Do not use tools or equipment stated in this manual for other application. • Do not dismantle or remodel equipment or tools under any circumstances.

NBC CONVEYOR PREPARATION

- 1) Make sure the main air regulator is at 40psi.

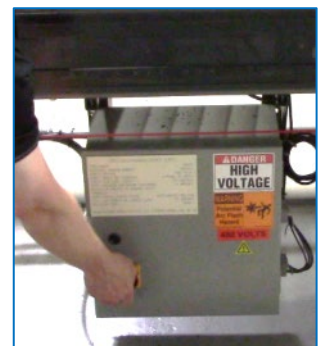


- 2) Before installing the belt, make sure the air is **OFF** to the **belt take-up**. This moves the take-up pulley to the retracted position which allows you to work with the maximum belt slack.



- 3) Turn off the power to the logic modules.

Note: If you can't find the power supply, you can disconnect the main power to the logic modules. This will allow air to flow through to the pressure pans and push the pressure pans down.



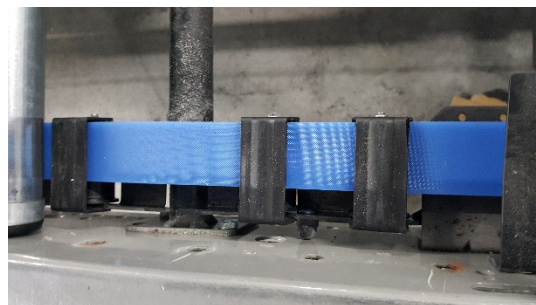
- 4) Remove rollers between two pressure pan supports in a 3' zone. Any zone can be selected, but it is easier to select one near the charge or discharge end of the conveyor.

Note: Pull the axles with pliers to protect the frame.



- 5) Remove any finger guards.

Depending on your work zone area, there may be three (3) different finger guards. Those between the pressure lift assemblies simply snap-in or out. Those over the pressure assemblies are removed by rotating a quarter turn clockwise and pulling out. If the belt splicing work area includes in crossmember, a different shape finger guard is used, which also snaps into place.



WARNING

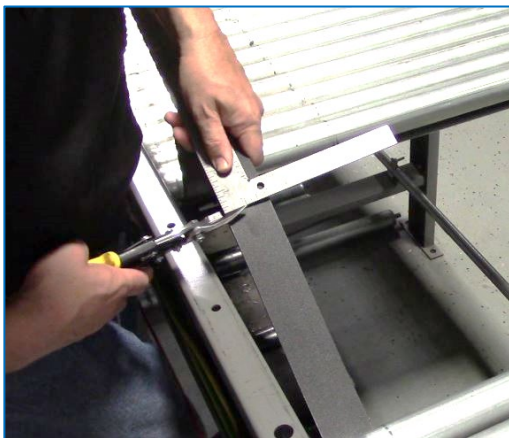


- Pay attention to the safety instructions!
- After maintenance, **REPLACE** guards immediately!

- 6) Un-coil the Nitta belt.

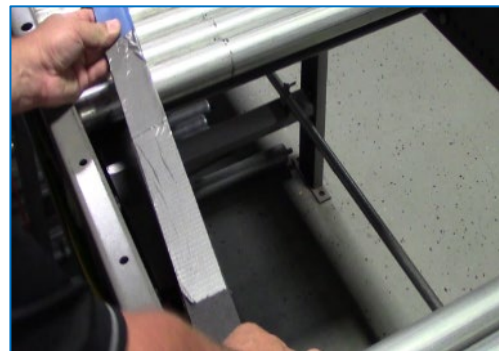


- 7) If replacing an **existing belt**, cut the previous belt straight.



Note: For **new installation** use the NBC **threading tool** (located and attached under each drive from factory). NBC threading instructions are also in MHS Conveyor IOM Manual at mhs-conveyor.com.

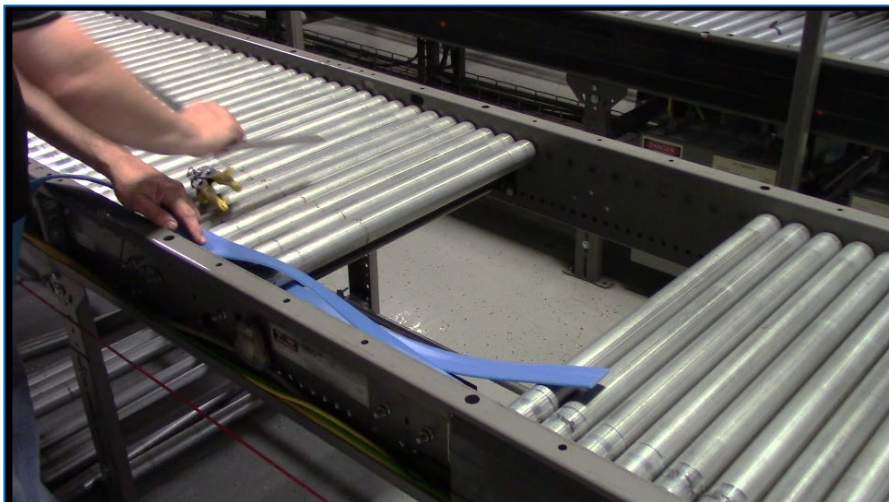
- 8) Duct tape the top and bottom of the old belt end to the new Nitta belt end (thick polyurethane side up) making sure to keep both belts are flat and straight, **do not** overlap the belts.



- 9) Pull the new Nitta belt through the conveyor. Make sure the Nitta belt is routed correctly over all the return pulleys underneath the conveyor. Remove the Duct tape.



- 10) Before cutting the belt to length, make sure there is 18" overlap for NBC 150-AT and for NBC 500-AT 36" overlap. The overlap is to compensate for belt loss in the finger splice process. Both belt ends must be cut straight.



FINGER PUNCH PROCESS

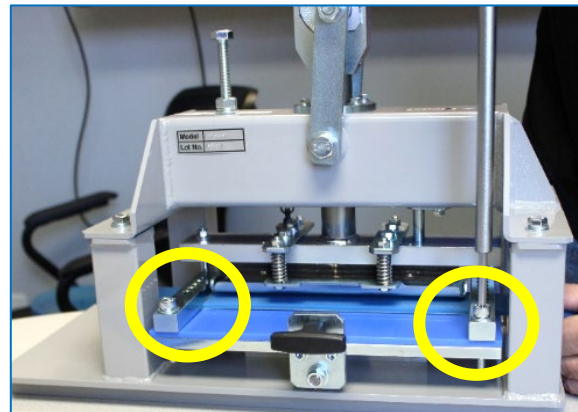
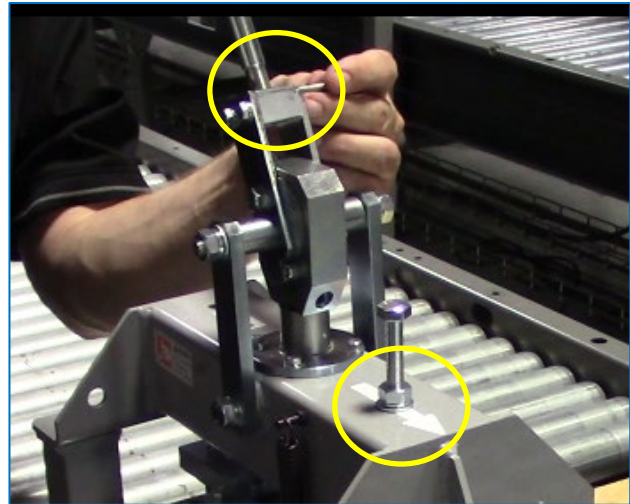
- 1) Using the Nitta Finger Punch Press assemble the handle and place the press with the arrow sticker pointing in the belt flow direction.

CAUTION

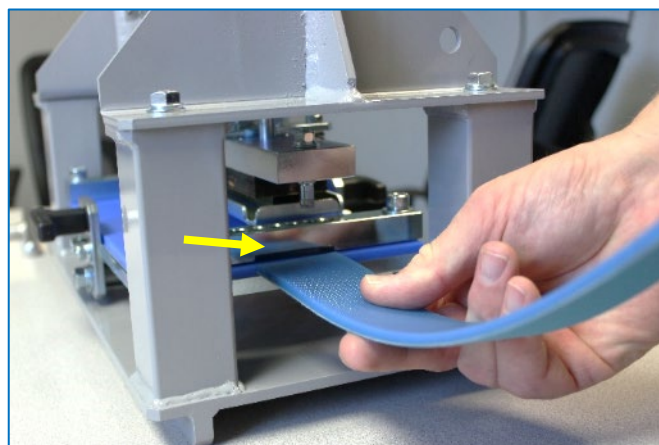
WARNING:

- Use **Only MHS Conveyor Nitta belt** welder and punch equipment for **MHS Conveyor Nitta belt** splice/welding. **Non-MHS Conveyor Nitta belt** welding or punch equipment is not compatible with the MHS Conveyor Nitta belt!

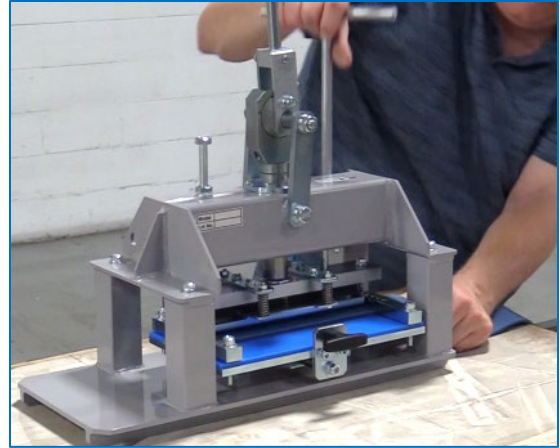
- 2) Loosen the bolts to the hold-down plates.



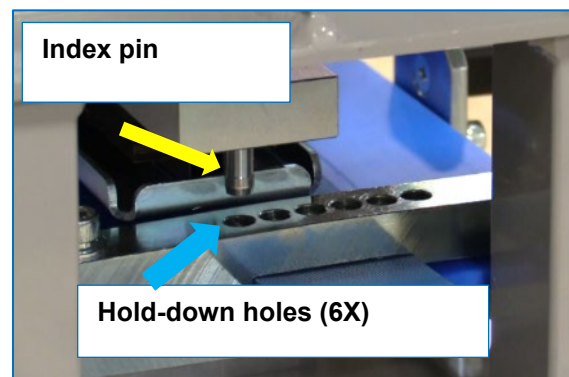
- 3) Insert one end of the belt, polyurethane side up, through the notched guide on the hold-down bar. Slide the belt all the way through to the other end of the press.



- 4) Hold the belt firmly while tightening the hold-down bars bolts in an alternating pattern.

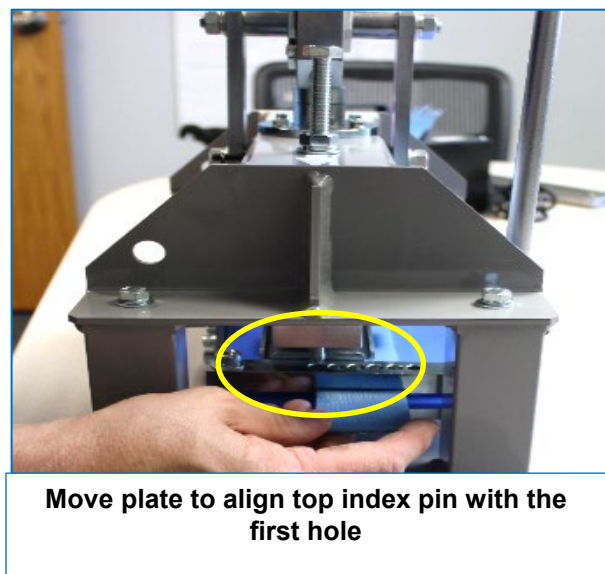


- 5) Position the top index pin with the first outside hole on the hold-down plate.

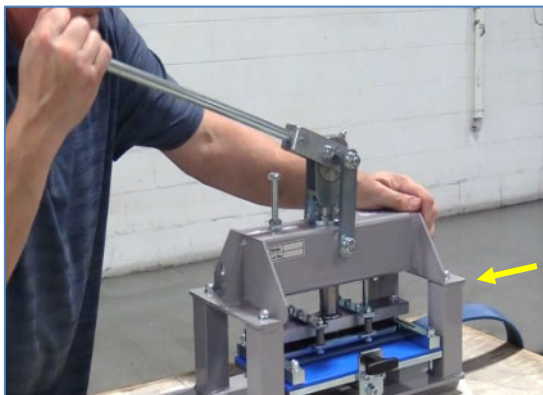


WARNING: Each hole must be punched in PROPER SEQUENCE and in EVERY HOLE (6x). Failure to do so will cut off one of the fingers making the belt unsliceable.

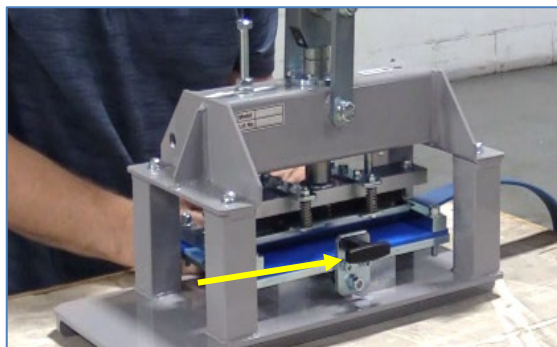
- 6) Starting at one end of the puncher, make sure the top pin is aligned with outside hole. Press the handle all the way down. This is the 1st punch of 6 needed for each belt end.



- 7) Return the handle to original position. Move the support plate to the next hole and repeat the process. When complete, loosen the hold-downs and remove the belt.



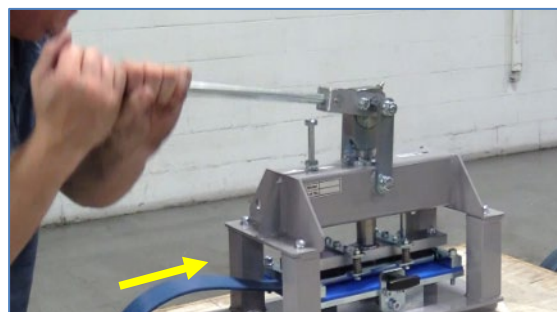
Belt inserted from the left



Handle to slide the support plate

- 8) Repeat process for other belt end. Thread the belt into the puncher from the opposite direction.

WARNING: DO NOT ROTATE THE FINGER PUNCH PRESS! The press must stay in the same orientation for the entire process.



Belt inserted from the right

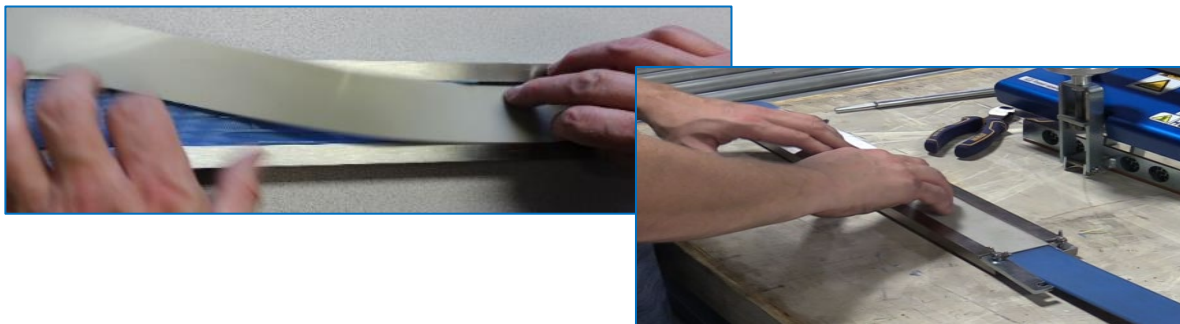
- 9) Trim about 0.25" off each fingertip. This will mate each finger in the pre-setter and to ensure a good splice.



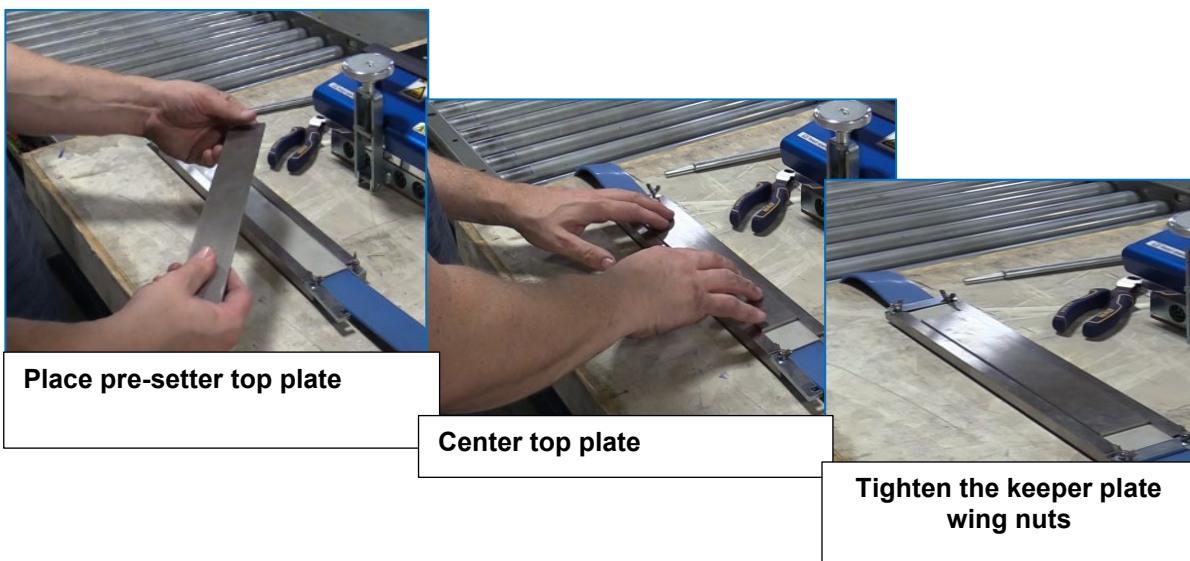
- 10) Install one end of the belt in the Pre-setter mold, making sure the belt fingers are centered in the pre-setter plate. Insert the other end of the belt and slide the fingers together, mating them with no overlaps or large gaps.



- 11) Install the silicone sheet, with textured side facing down on the belt finger spliced section.



- 12) Place the pre-setter top plate center over the finger spliced area. Once the top plate is centered, tighten the keeper plate wing nuts to keep the belt flat and secure.



NBC WELD INSTRUCTIONS

CAUTION

WARNING:

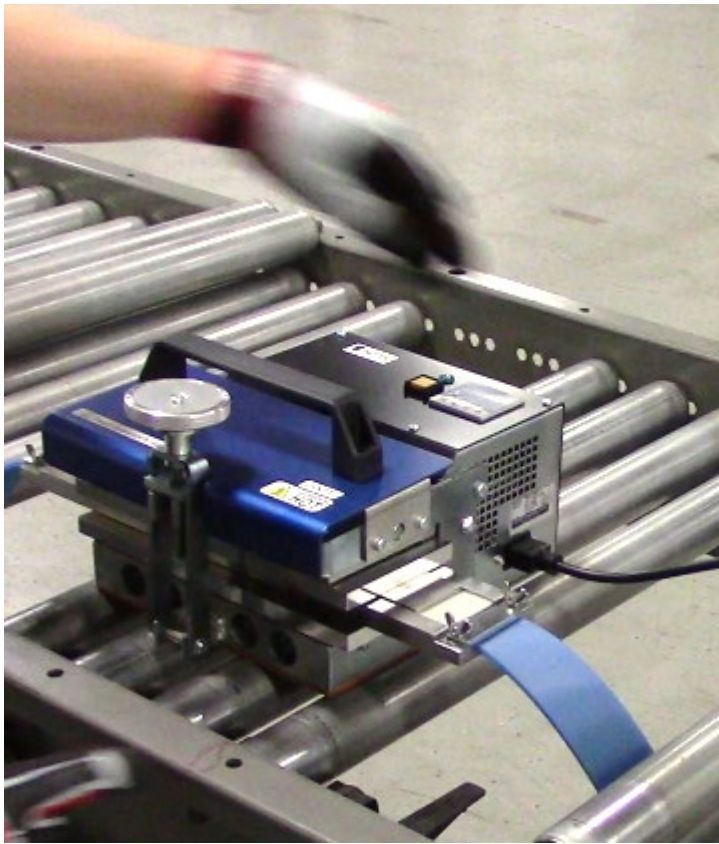
- Use **Only MHS Conveyor Nitta belt** welder and punch equipment for **MHS Conveyor Nitta belt** splice/welding. **Non-MHS Conveyor** Nitta belt welding or punch equipment is not compatible with the MHS Conveyor Nitta belt!

13) Place the MHS Conveyor welder press on the conveyor and set the pre-setter mold **center** in the weld press. Clamp the press closed and turn the knob until it

CAUTION: Be careful not to pull out the belt from the pre-setter as this may cause the finger splice to gap or overlap.



14) Plug in the MHS Conveyor welder cord then push the yellow button to start.



WARNING



WARNING! WELD PRESS IS HOT! MHS Conveyor recommends to wear heat resistant gloves when operating the press.

WELD PRESS IS HOT! Do not leave press unattended while in use. To prevent others people from touching the weld press. Failure to do so may cause others to touch the press and get burned.

Note: The green light is the actual temperature reading. The amber light is the welder press pre-programmed temperature and should be set at 185 Degrees Celsius (185°C).

Note: When starting the MHS Conveyor welder press it will automatically run a diagnostic test for about 6 seconds then starts heating up to the preset temperature. After 10 minutes at full temperature, the press will automatically shut down the heaters and start the cooling fans. (Total weld time is approximately 60 minutes).



**GREEN LIGHT IS THE
ACTUAL TEMPERATURE**

**AMBER LIGHT IS
PRE-SET TEMPERATURE
AT (185°C)**

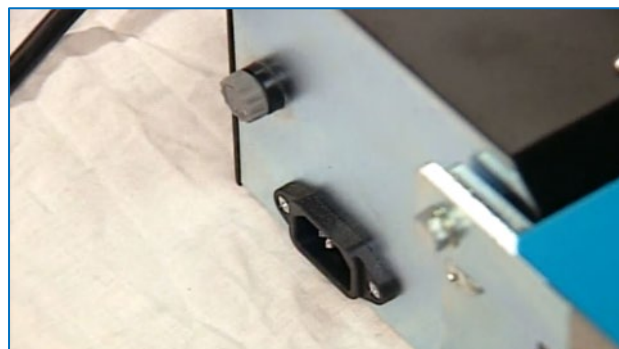
Note: The weld cool down process is done when the actual temperature gage (green light) is 50°C or lower.



WARNING: Before opening the weld press remove the power cord to ensure the power is off.

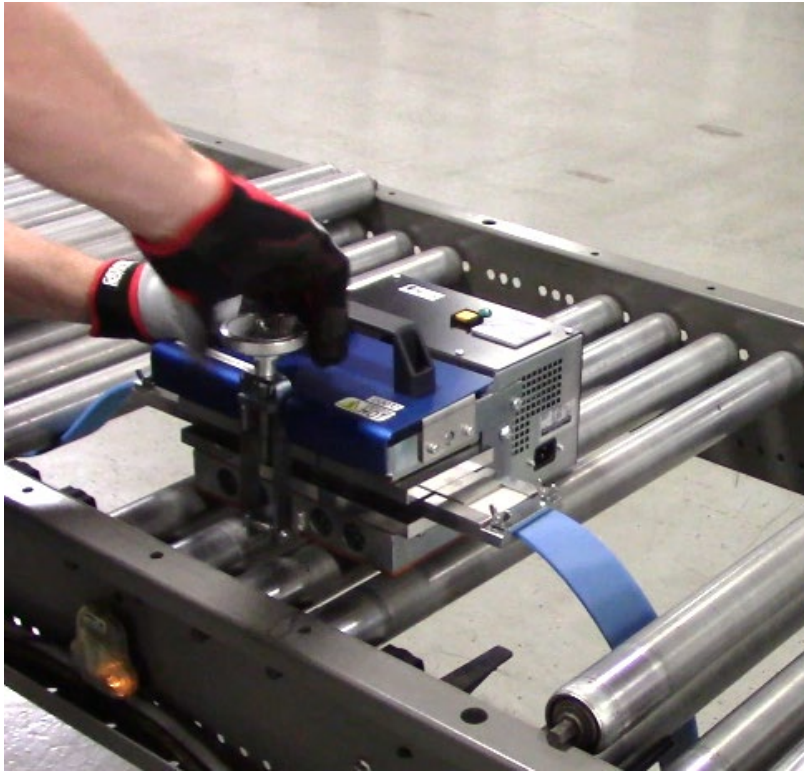


WELDER IS HOT! MHS Conveyor recommends wearing heat resistant gloves!



REMOVE WELDER POWER CORD!

- 15) Only when the actual temperature (green light) is **50°C or lower** and when the welder press **power cord is unplugged** it's safe to open the MHS Conveyor welder press. Loosen the knob and pull the clamp down to open the press.

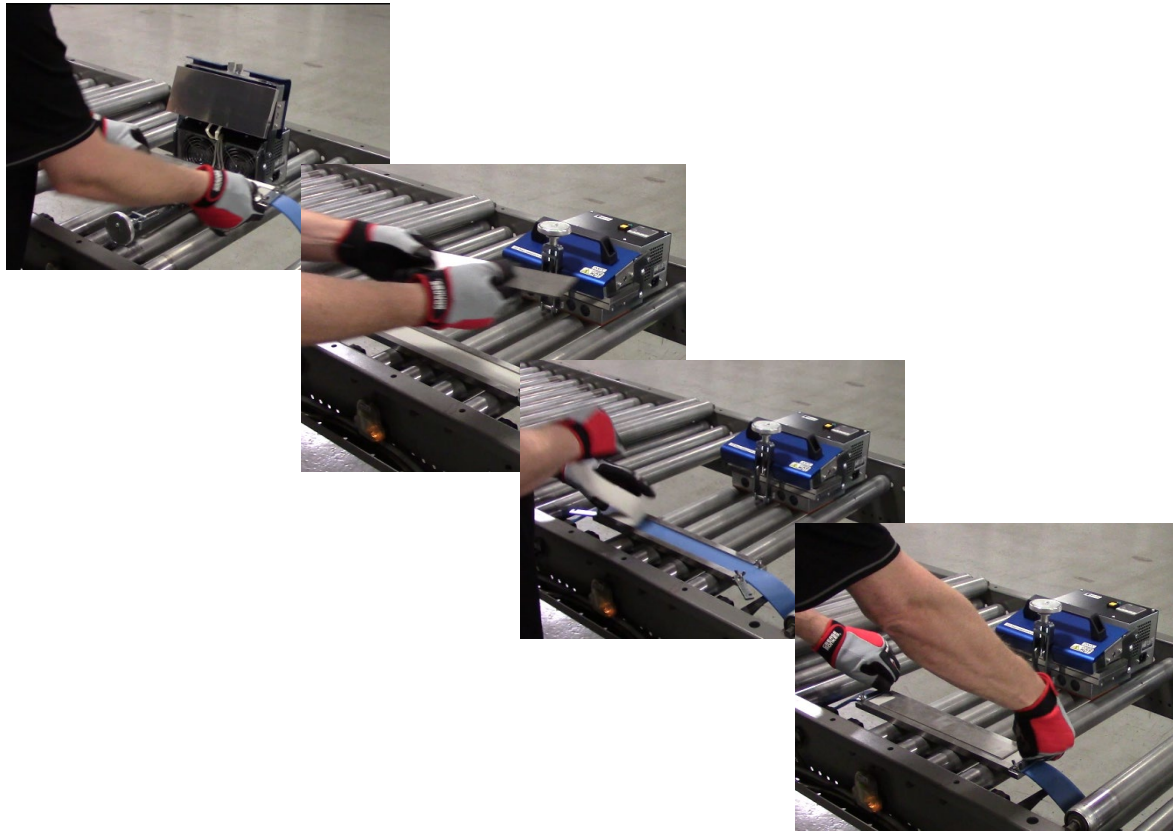


WARNING

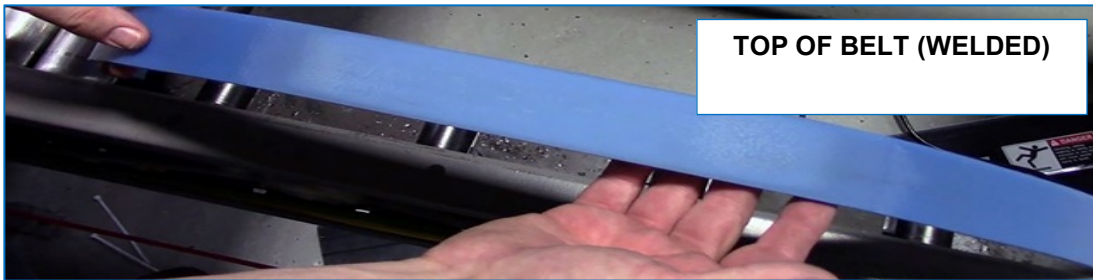


- **WARNING! WELD PRESS IS HOT!** MHS Conveyor recommends to wearing heat resistant gloves when operating the press.
- **WELD PRESS IS HOT!** Do not leave press unattended while in use. Failure to do so may cause others to touch the press and get burned.

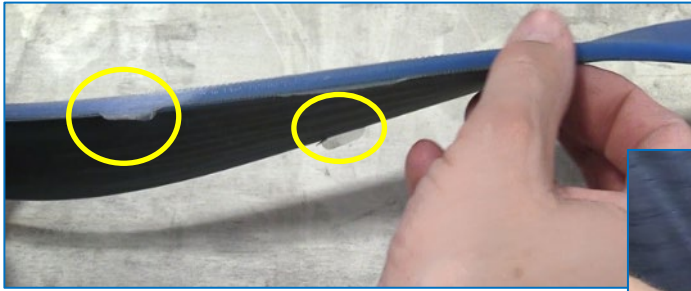
- 16) Remove the pre-setting mold, pre-setter top plate, silicone sheet, and loosen the keeper plate wing nuts to unlock the belt. Remove the belt from the pre-setter mold.



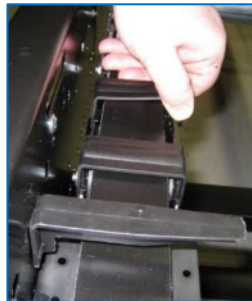
- 17) Inspect the top and bottom of the belt. Make sure the belt splice has smoothly joined even fingers with no bubbles, gaps, or overlaps. (See troubleshooting shooting section for defect details.)



- 18) If excess material is present, carefully trim the excess material off the side edges of the belt. **Note:** Do not cut into the belt.



- 19) Reinstall the finger guards and rollers.



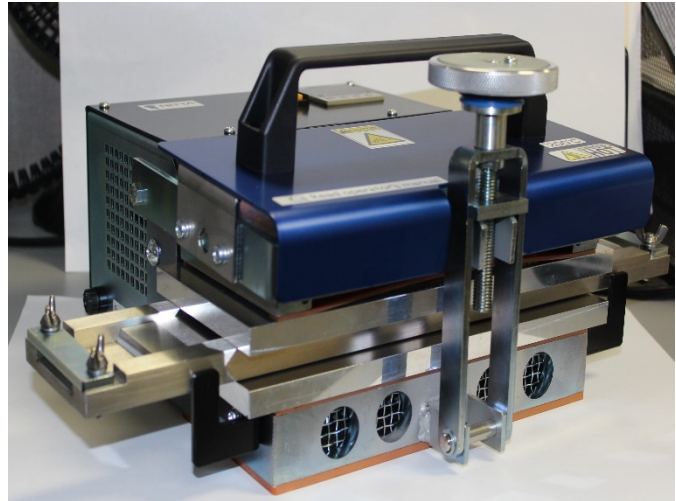
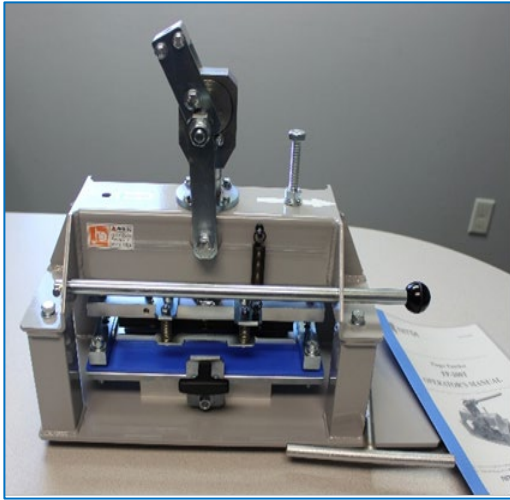
- 20) Turn on the air to the take up unit.



- 21) Restore power.



MHS Conveyor KITS & REPLACEMENT PARTS



To rent or order parts contact MHS Conveyor Lifetime Services at 231-798-4547.

TGW NITTA BELT FULL WELD & PUNCH KITS (RENTAL KITS ONLY!)	
Item #	Description
1207112	TOOL,NBC-NITTA-RENTAL-WELDER KIT-FULL
MHS Conveyor Rental Kit Include: Finger Punch Press, T-wrench, Heated Weld Press, Pre-setter Mold, Silicone Sheet, Instruction Manuals, and Flash Drive with Instruction Video. Each Press Kit Is Stored in a Hard Case.	

NITTA BELT	
Item #	Description
1205548	BELT,NBC-1.75"W-CFTG-BLU-U-WLD
(WELD ONLY!)	
NBC NITTA BELT COMPLETE WELDER KIT (PURCHASE ONLY)	
Item #	Description
1207241	TOOL,NBC-NITTA-PURCHASE-WELDER KIT-FULL
Include: Heated Weld Press and Nitta NPS-2005-1/2 Manual , Finger Punch Press, T-wrench & Nitta FP-200T Manual, & Pre-setter Mold with 1 Silicone Sheet	
WELDING PRESS	
Item #	Description
1204524	TOOL,NBC-NITTA BELT-PRESS-HEATING/COOLING 110V
1204526	TOOL,NBC-NITTA-SILICONE SHEET-USE WITH PRE-SETTER
Include: Heated Weld Press & Nitta NPS-2005-1/2 Manual	
REPLACEMENT PARTS - FOR WELDING PRESS	
Item #	Description
1207117	TOOL,NBC-NITTA BELT-PRE-SETTER-W/SILICONE SHEET-1.75"W
FINGER PUNCH PRESS	
Item #	Description
1204525	TOOL,NBC-NITTA BELT-PUNCHER-FINGER PUNCHER
Include: Finger Punch Press, T-wrench & Nitta FP-200T Manual	
REPLACEMENT PARTS - FOR FINGER PUNCH PRESS	
Item #	Description
1207004	TOOL,CPART-NITTA-BLADE(2)-CUTTERS FOR USE WITH FP-200T
1207118	TOOL,NBC-NITTA-T-WRENCH-USE WITH PUNCH PRESS
1207119	TOOL,NBC-NITTA-CUTTING BOARD-USE WITH PUNCH PRESS



MHS Conveyor P/N 1207117: Silicone Sheet



MHS Conveyor P/N 1207004: Cutting Blade



MHS Conveyor P/N 1207119: Cutting Board



MHS Conveyor P/N 1204526: Pre-setter Mold & Silicone Sheet

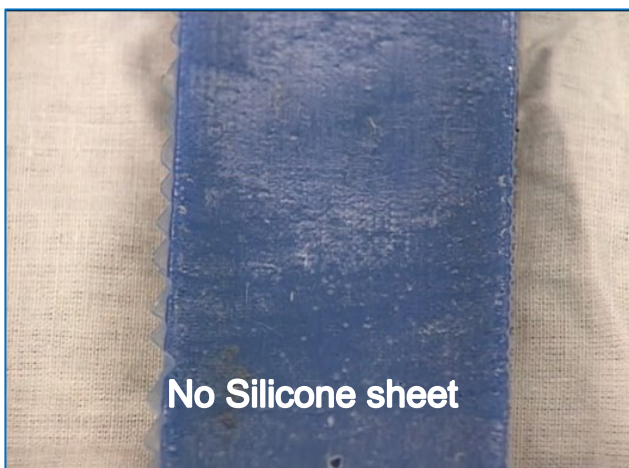
TROUBLESHOOTING – NITTA CORPORATION

AIR BUBBLES

Cold cook which may be caused by low or interrupted voltage to the welder press.



Forgetting to insert the Silicone sheet or sometimes known as the impression cloth.



Cooking the belt with the fingers too far apart.



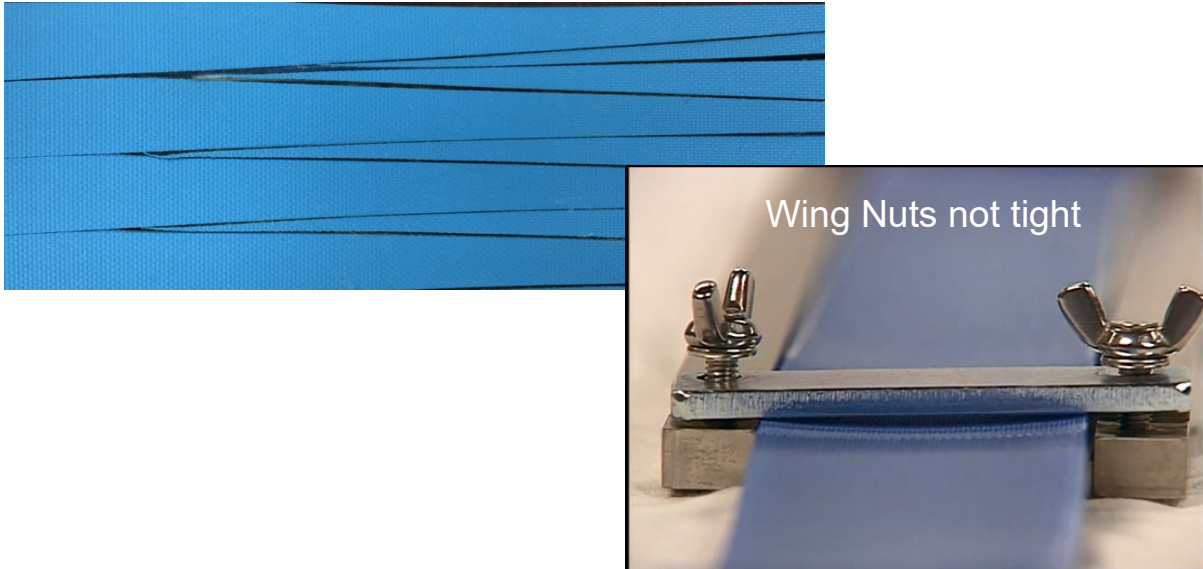
Cutting too much off the finger or not merging the fingers enough causing large gaps.



Belt fingers not trimmed properly, causing material to push under.



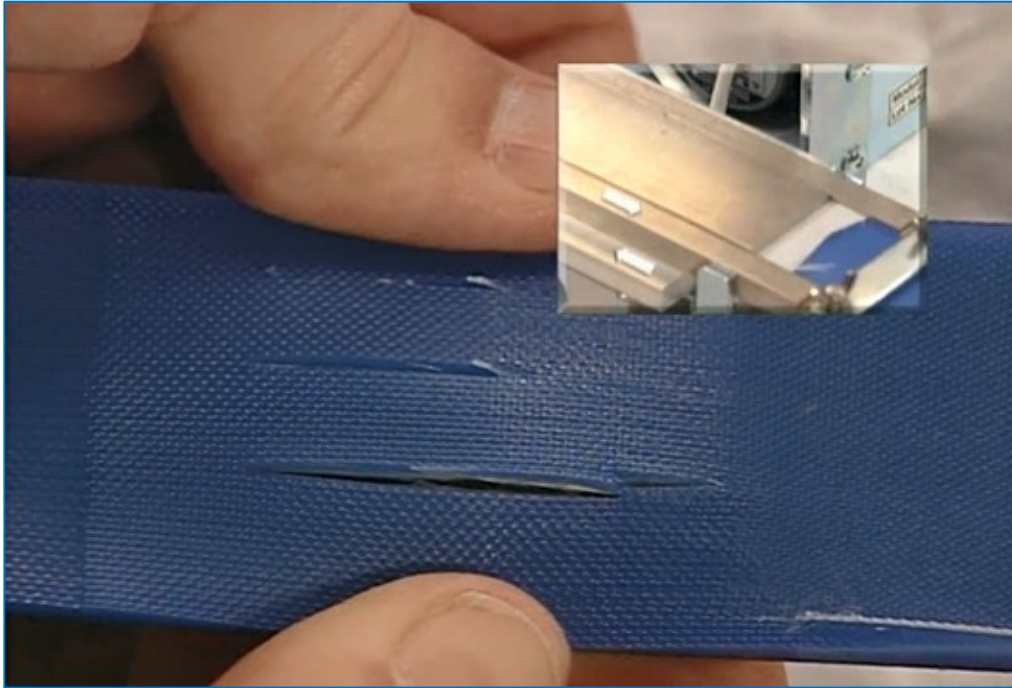
Mismatched or bending of the belt fingers caused by not securing the press-setter hold-downs.



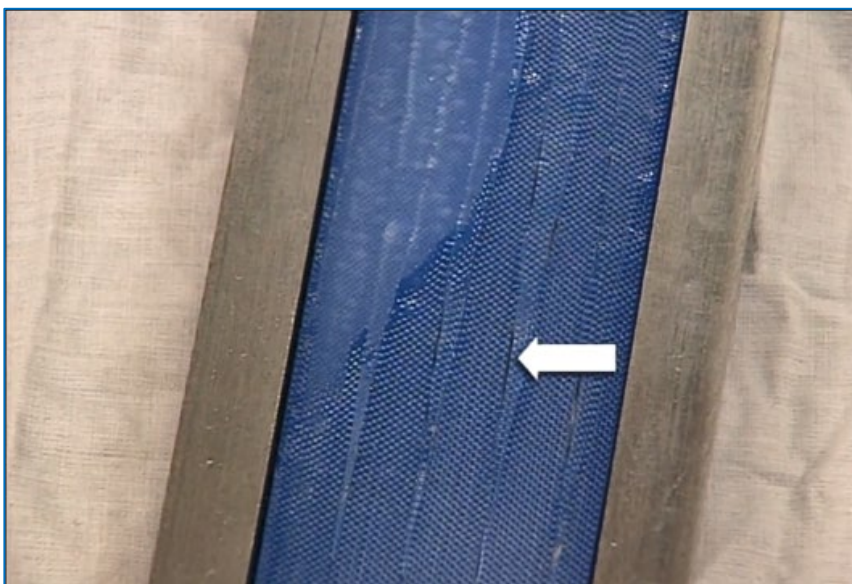
IMPROPER BELT WELDING

Placing the pre-setter mold centered in the heater press is important for the weld operation to keep the heat evenly dispersed over the entire spliced area. Failure to center the mold will cause an improper belt weld.

Pre-setter mold not centered in the weld press.



If the top pre-setter plate is not centered over the finger splice area this will cause one side of the splice not to fuse.



Buildup of urethane caused by the pre-setter mold not being centered in the weld press properly.



WORKS CITED

- AISC. (2015). *American Institute of Steel Construction*. Retrieved 1 14, 2015, from <https://www.aisc.org/>
- ANSI. (2013-2014). *American National Standards Institute*. Retrieved 2014, from ANSI Standards Store: <http://www.ansi.org/>
- CEMA. (2014). *Conveyor Equipment Manufacturers Association*. Retrieved 2014, from Conveyor Equipment Manufacturers Association: <http://www.cemanet.org/>
- Nitta Corporation of America. (2018). *Nitta*. Retrieved from NITTA: <https://www.nitta.com/>
- OSHA. (2014). *Occupational Safety & Health Administration*. Retrieved 2014, from OSHA QuickTakes: <https://www.osha.gov/>

MHS Conveyor General Information

Visit MHS Conveyor website at <https://mhs-conveyor.com/> for maintenance videos and other application information.

MHS Conveyor INFORMATION

Mission

MHS Conveyor, located in Norton Shores, Michigan, is a leading deliverer of “smart” material handling systems, technologies, products, and services, creating solutions for material flow applications. As a global supplier of conveyor systems and equipment since 1964, MHS Conveyor provides sorters, conveyors, and accessories to satisfy a broad spectrum of accumulation, transportation, and sortation applications.



MHS Conveyor
1300 Mt. Garfield
Norton Shores, MI 49441 USA
231.798.4547

Email: us-info@mhs-conveyor.com

Web Site : mhs-conveyor.com



Regional sales offices and authorized Business Partners located throughout the United States and Canada. Licensees and Business Partners in Europe, South America, and Southeast Asia.