

No-tool Baler Guard



Case New Holland

Adam Fox

Kyle Draper

John Michel

Kevin Cool

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Objective

Design and fabricate a round baler pick-up assembly that allows the guards to be removed without the use of tools for easy access to the tines.

Deliverables

Develop a no-tool guard prototype
Design upper and lower combs
Test Removal Times

Why No-tools?:

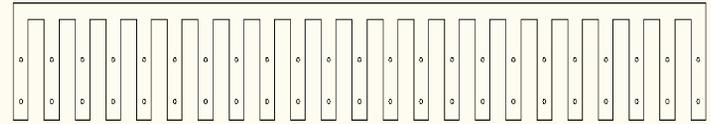
- It takes too long to remove the guards to access the tines. CNH wants to ease guard removal and make it faster to change the tines.
- The production design uses four bolts on each guard to secure it to the pick-up assembly.
- It currently takes a little less than 2 minutes to remove or install ONE guard. With 23 guards, it takes approximately 45 minutes to remove all the guards.
- The new guard assembly takes ~40 seconds to access all tines.



Use of AutoCAD:

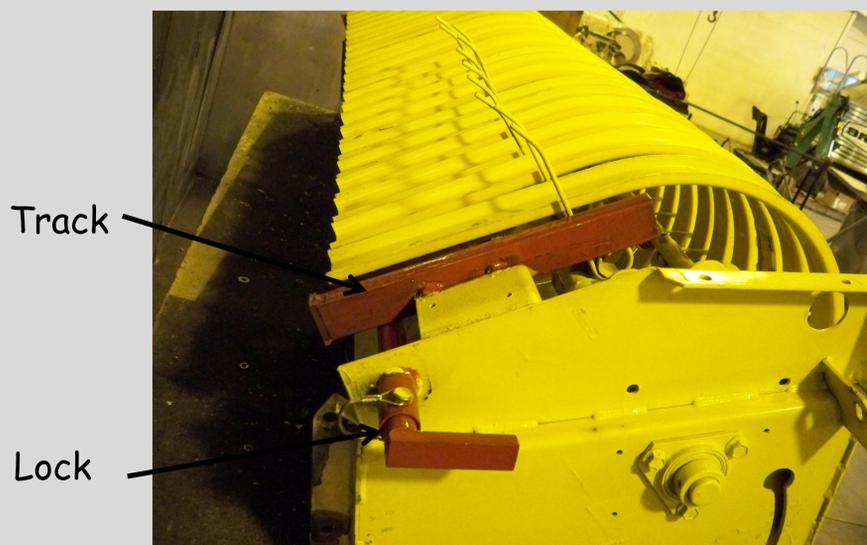
- Design Upper Comb Unit
- Design Lower Comb Unit
- AutoCAD drawings were sent to Purdue's Sheet Metal Shop
- Each unit was cut as one piece for strength, durability, and accuracy.
- Once sent off, approximately two days were required to receive the part back.

AutoCAD Drawing - Top Comb



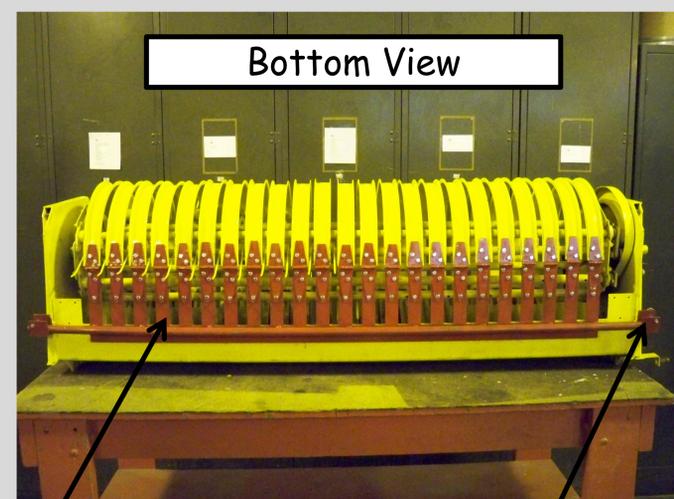
Why Track Design?

- All guards are removed as one piece
- Allows one person to quickly access tines
- Allows for easy alignment
- No tools are required to get to the tines
- Easier to secure to baler
- Smoother Removal
- Pivots up for easy access



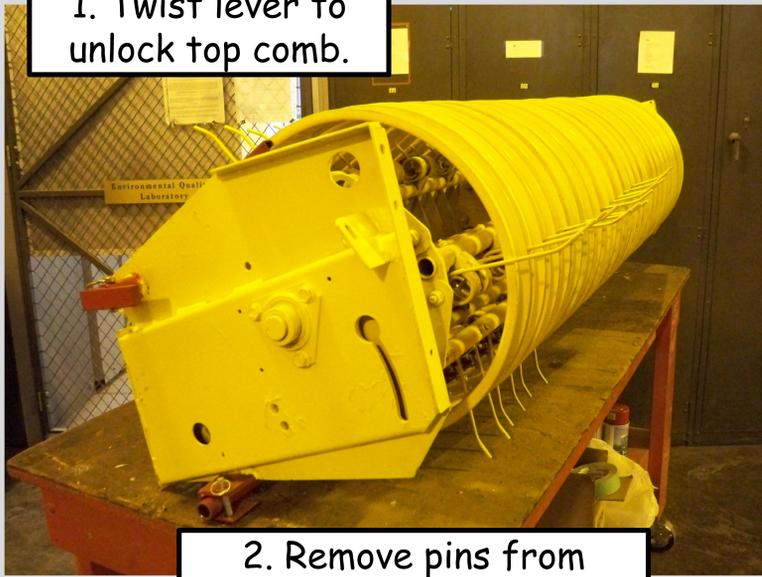
Bottom Comb:

- Hinges for easier tine clearance
- Comb secures guards to lower part of weld assembly
- Brackets keep alignment easy
- Pins secure it in place
- Easy removal from assembly



Steps to use:

1. Twist lever to unlock top comb.

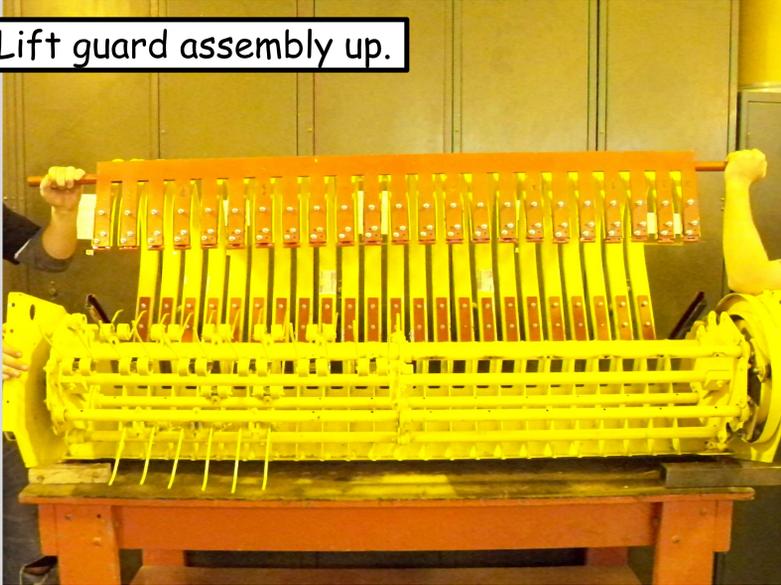


2. Remove pins from brackets.



3. Fold bottom comb down and slide guards out.

4. Lift guard assembly up.



Full access to all tines

Special Thanks

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