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, this takes approximately 45 minutes to remove all the guards.
• The new guard assembly takes ~40 seconds to access all tines.
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

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.

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.

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