

# IOWA STATE UNIVERSITY

Department of Agricultural and Biosystems Engineering (ABE)

TSM 416 Technology Capstone Project

## Row Unit Test Stand

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**Client:** Service Motor Company, W9614 State Highway 96, Dale, Wisconsin, 54931, [www.servicemotor.com](http://www.servicemotor.com)

- Contact(s): Jorden Kuntz, Precision Farming sales specialist, [Jorden.kuntz@servicemotor.com](mailto:Jorden.kuntz@servicemotor.com), 920-841-2037;

## 1 PROBLEM STATEMENT

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### Problem Statement

- Service Motor Company is an official Case IH dealer based in Dale, Wisconsin, that sells new and used Case IH equipment and specializes in servicing the equipment as well.
- Since Service Motor Company is marketing products to customers, they want an easy and new way to demonstrate the new 2000 series planter row-unit.
- Service Motor wants a show stand to place at dealerships for customers to see how this row-unit works, and to be able to easily roll around the dealership with the row unit on.
- Other dealerships have different types of show stands to show off new products Service Motor wants to expand on this idea by adding row units to this so customers don't have to go outside and look at a whole planter they can see how it works from inside the dealership.

### Business Case Statement

- A. Service Motor's current need is a way to display the 2000 series Case row unit for all customers that come into the dealership can use and learn how this row-unit works.
- B. This project occurred at the Service Motor Company location in Dale, Wisconsin.

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- C. This project could raise the sales for this location and could bring new customers into the stores to test out this row-unit.
- D. Case IH should care about this project because of the new opportunities that this project could bring.

## 2 MAIN OBJECTIVE

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- **Main Objective(s) and Specific Objectives**

Develop a functioning show stand for the Case 2000 series row-unit that successfully displays all parts of this row unit.

**Specific objectives include:**

- Must be show quality.
- All parts of the row unit must be able to move on the show stand.
- Must be mobile to roll around the showroom.
- Must be user-friendly for customers to be able to use it.

- **Rationale**

- The client must be able to show customers how row-unit operates.
- Improve awareness to the customers of this new row unit
- The client must be able to replicate the show stand.

- **Project Scope**

- Must be able to attach the row-unit with the use of U-bolts around a 7 in square tube.
- This project will require cooperation with the sales teams, marketing team, and the technician team from Case. We will also be working with the labs at Iowa State University in order to do the work to the show stand.

## 3 METHODS/APPROACH

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- A. **Methods/Approach**

- Reference Material(s)
  - Manuals are given to the group from Service Motor and Case IH
- **Data collection:**
  - The data that we gathered for this project were calculations for the dimensions for the row-unit itself and the calculations for weights for what size of wheels to put on.
- **Skills:**
  - Welding- TSM 240
  - Basic mechanical skills- TSM 335
  - Basic Cad work- TSM 216, TSM 340
  - Calculating weight- TSM 443
- **Solutions:** Team Meetings
  - Built & purposed in Cad Drawings

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- Material Lists
- Measurements
- **Organization:** Meet twice a week
  - Gantt Charts
  - Weekly meetings with the client
  - Major milestones consisted of getting a final idea, getting all parts to assemble the project, running the unit the first time, and adding final details to show stand.

**B. Condensed Timeline**

- Oct 1 – Receive project
- Oct 18 – Nov 1 – Establish Final Idea
- Nov 1 – Dec 1 – Obtain Parts
- Dec 1 – Feb 21 – Build Stand
- Feb 21 – Mar 6 – Finalize Project

## 4 RESULTS

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**Results/Deliverables**

- Our main deliverable will be the show stand that is made for the Case IH 2000 series row-unit.
- This deliverable is what was agreed upon with our group and our client
- As of this point, we have completed the show stand that was required by the client; we are working on completing the wiring, which we are waiting for our client to complete their side.
- We are delayed due to the parts availability and due to the odd scheduling error that has occurred this year.

**Recommendations**

- For this project, we recommend that you have all of the steps of this project ready to go, so there are no delays that occur as we experienced in our project.
- The next following steps for this project will go like the following.
  - Our client will need to ensure that the row-unit works up to their standards.
  - They will need to bring the show stand to dealerships to see how customers like the new stand.
  - Finally, they will need to need to reproduce the show stand in order to bring these show stands elsewhere.
- Our recommendations to our clients for moving on would be to take what we have done and learn from our mistakes in order to expand our idea.

## 5 BROADER OPPORTUNITY STATEMENT

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This project will be a unique project that is mainly made for people in the agriculture industries for them to understand how this row unit works. I believe that the average person will gain an understanding of how planters operate from this show stand.

This project will help Service Motor show off this row-unit and make anyone who goes to their dealership aware of this row-unit. With more awareness of this row-unit, this will help Service Motor sell this product to a wider range of people. Other dealerships will be able to use this show stand idea and use it in their show floors to sell new products. There is no limit to what a show stand can display, so this can apply to any form of business, not just the agricultural world. Anyone that is selling a product can take what Service Motor is doing and make their own versions of test stands to push a new product.

There are other versions of a show stand for row units, and they all display them very well, but there is a smaller percentage that can operate the show stand.

Once Service presents this new show stand, this can generate interest in this type of row-unit, and this can generate income for the dealerships.

## 6 GRAPHICAL ABSTRACT



## 7 REFERENCES

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Jordan Kuntz- Person communication, assisted throughout the process, guidance.

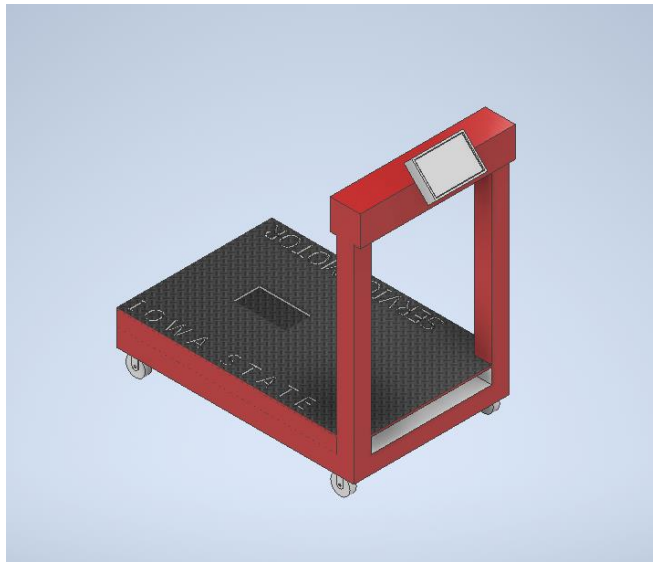
Service Motor & Case IH Manuals

Jeremy Nelson- Person Communication, taught the team how the row unit work, designed wiring harness for pro 700 monitor.

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## 8 APPENDIXES

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Cad Photo of the Test stand.



First Step was welding the Frame with the 2x2





Next was to weld up the 7x7 uprights.



Painting the stand the correct color.



Attach the row unit on the test stand.

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