Detailed Design Document



## **Company E (AGCO)**

Oliver Fridorf – 201907235

Tobias Andersen – 201905423

Lasse Bjørnskov – 201907292

Michael Nørbo – 202202966

Anisa Mohamed – 201806371

Julia walczynska – 202202970

Claes Jensen – 201907300

Henrik Buhl – 201905590

Dilan Celebi – 202202967

Johansen, Alexander Stæhr – 201905865

Kuang, Liulihan – 201906612

Rammohan, Shivaram - 202202968

Document revision history

|  |  |  |  |
| --- | --- | --- | --- |
| Rev. | Date | Change description | Creator |
| 1.0 | 2023-03-29 | Created the document | Claes |
|  |  |  |  |

Document review version

|  |  |  |
| --- | --- | --- |
| Rev. | Date | Review group |
| 1.0 | 2023-xx-xx |  |
|  |  |  |

Contributions

|  |  |  |
| --- | --- | --- |
| **Date** | **Contribution** | **Contributor** |
| 2023-03-29 | Initial Commit | Oliver, Claes, Lasse, Tobias |
|  |  |  |
|  |  |  |
|  |  |  |

# **Scope**

## **Identification**

The system which this document describes the design off, is an add on to the powerflow header form AGCO, with reported inadequate height control. The system consist of hydraulic controlled wheel, which rides on the ground to provide stability to the header. The hydraulics are controlled by feedback sensors on each wheel, which feedback to a controller that regulates the hydraulics

## **System** **overview**

The system described in this document aims to alleviate the problems reported by farmers concerning the powerflow headers from AGCO. The header is subject to instability when operating in uneven terrain, do great dissatisfaction to the user. The system is designed as an add-on to the existing powerflow headers that will act as a stabilizer, limiting the problems reported by users.

## **Document** **Overview**

This document will contain how the system and subsystem will be structured to satisfy the system requirements. It is the primary reference for subsequent implementation, and it will contain all the information needed by developers to construct the system.

This document is intended for internal use only and should not be distributed. External holders of the document should delete the document once the purpose for their access has been completed.

# **Referenced documents**

This document references System Requirements Document version 1.1, hereafter referred to as the SRS.   
This document references Preliminary Design Description version 1.1, hereafter referred to as PDD.  
This document references Interface Control Document version 1.1, hereafter referred to as ICD.

# **System-wide design decisions**

This section will describe the system in detail and describe the design decision being made accordingly.

## **Design decisions regarding inputs the system will accept and outputs it will produce.**

|  |  |
| --- | --- |
| **Inputs** | **Outputs** |
| Combine is in harvest mode. AHHC enable button is pressed by operator. | AHHC system is engaged, and the header will level automatically to reduce stubble wobble when driving on uneven ground. |
| Combine is in harvest mode. Manual level control enable button is pressed by operator. | Lever for level control is unlocked and operator can adjust height of the header. |
| Transport mode button is pressed by operator. | The wheels of the AHHC system are retracted and placed in the appropriate mode for transportation of the header. |
| Over-pressure sensor is triggered indicating a load of more than 500 kg on the structure. | Pressure release valve is opened and pressure is drained from actuators reliving the load on the wheel and structure. |

## **Design decisions on system behaviour in response to each input or condition, including actions the system will perform, response times and other performance characteristics.**

Response to each state: explain the functionality!

## **Design decisions on how system databases/data files will appear to the user.**

## **Selected approach to meet safety, security, and privacy requirements.**

## **Design and construction choices for hardware or hardware-software systems, such as physical size, color, shape, weight, materials, and markings.**

## **Other system-wide design decisions made in response to requirements, such as selected approach to providing required flexibility, availability, and maintainability**

# **System architectural design**

## **System components.**

## **Concept of execution.**

## **Interface design.**

## **Interface identification and diagrams. Project-unique identifier shall be assigned to each interface.**

# **Requirements traceability**

# **Other**

Page2

Page 3