Tracability Matrix



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| Rev. | Date | Change description | Creator |
| 1.0 | 2023-03-22 | Added the inital table contents for the tracability Matrix | Dilan, julia |

Document review version

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| Rev. | Date | Review group |
| 1.0 |  |  |
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| --- | --- | --- | --- |
| Project Name | Active Support Wheels for Combine Headers | Business Area | Agriculture |
| Project Manager | AGCO | Business Analyst lead | - |
| QA lead | - | Target Implementation Data | - |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Req ID | Category or Functional Activity | Requirement. Description | Use Case Reference | Design Document ref. | Code or module references | Test case ref. | User Acceptance Validation | Comments |
| 1 | Required states and modes | There are two modes that the system should operate in: the harvesting mode and the transportation mode |  |  |  |  |  |  |
| 2 | Required states and modes | In harvesting mode, the system should stabilize the header on an uneven field. |  |  |  |  |  |  |
| 3 | Required states and modes | In transportation mode, the system should be compact enough not to interfere with the loading onto the header trailer and fit within the width limits set by the EU for transporting trailers. |  |  |  |  |  |  |
| 4 | System capability | The wheels and structure should be able to **handle a load of 500 kg**. |  |  |  |  |  |  |
| 5 | System capability | System shall be of at least **IP66 protection rating**. |  |  |  |  |  |  |
| 6 | System capability | Operator shall be able to **enable and disable wheels** from cabin. |  |  |  |  |  |  |
| 7 | System capability | The system should have sensors that allow it to maintain a constant cylinder pressure and control the wheel position. |  |  |  |  |  |  |
| 8 | System capability | Wheel actuators shall be able to move wheels such that **header is kept level when passing a height increase of 150 mm** at the right side of the header **driving 8 km/h**. |  |  |  |  |  |  |
| 9 | System capability | Tires may **maximum sink 30 mm** into soil. |  |  |  |  |  |  |
| 10 | System capability | Maximum stress on the soil in the contact area from the tires **should not increase 75 KPa** to avoid soil compaction |  |  |  |  |  |  |
| 11 | System external interface | The actuator drivers that move the wheels should have a **fixed supply pressure**.  To minimize the delay time, the pressure should always be available. |  |  |  |  |  |  |
| 12 | System external interface | The hardware system should be able to be **controlled by the AHHC** based on its sensor input and control signals. |  |  |  |  |  |  |
| 13 | System external interface | “Standalone” kit that only requires a minimum of header modification. |  |  |  |  |  |  |
| 14 | System external interface | **One kit should fit all header sizes and the** external mounting method should be universal. |  |  |  |  |  |  |
| 15 | System external interface | Integration on Powerflow headers **without changes to combine hardware or software.** |  |  |  |  |  |  |
| 16 | System internal interface | **IO connection** between wheels to allow for position sharing |  |  |  |  |  |  |
| 17 | System internal data | The system should be **error resilient** for IO signals. |  |  |  |  |  |  |
| 18 | Safety | The wheels and structure should be **overload protected** in case the load excess 500 kg. |  |  |  |  |  |  |
| 19 | System environment | The system is design to be operated in **moist soil condition across soil texture JB1 to JB7**. |  |  |  |  |  |  |
| 20 | Computer resource | The control system software for controlling the wheel position and cylinder pressure should be able to run on the hardware that is already present in the harvester. |  |  |  |  |  |  |
| 21 | System quality factors | It should live up the standards for reliability, maintainability, availability, flexibility, reusability, testability, usability set by AGCO. |  |  |  |  |  |  |
| 22 | Design and    construction | During series production the **maximum price per unit should be 5.000 USD**. |  |  |  |  |  |  |
| 23 | Personnel-related | The system should be able to be mounted and serviced by a **qualified AGCO technician**. |  |  |  |  |  |  |
| 24 | Training-related | The system should require **minimal training** to be operated by the end user (not more than a two-hour course. |  |  |  |  |  |  |
| 25 | Logistics-    related | A transport mode shall be available such that wheels **do not exceed width limit during road transport** on trailer in Europe (This might be 2.55 m) |  |  |  |  |  |  |
| 26 | Other | Cost target for production of 5 **prototypes maximum 10.000 USD** per unit |  |  |  |  |  |  |

Contributions:

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| --- | --- | --- |
| **Date** | **Contribution** | **Contributor** |
| 2023-03-22 | Tracability Matrix table | Dilan, Julia |