

Hybrid Transmission

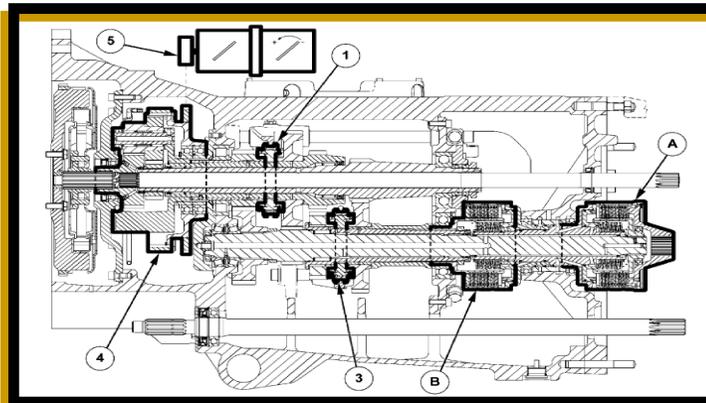
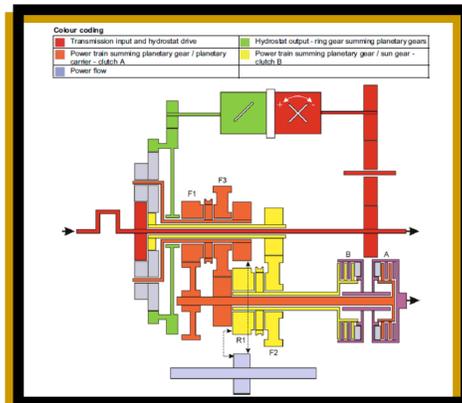
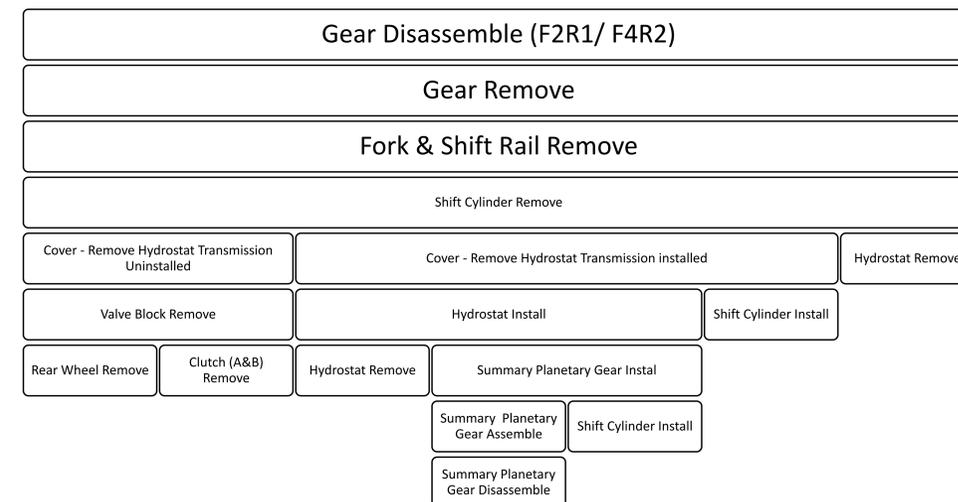
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Background & Project Overview

The goal of this project is to outline a detailed process to disassemble a tractor unit. A Case IH Puma 180 was donated to the university along with a servicing manual. The components from the deconstructed vehicle will be used to make demonstration units for the department in future years. Instructions for dismantling should include safety concerns, equipment needed, and other notes. This project is a continuation of a 2015 Senior Capstone Project (Continuously Variable Transmission). The main component to be secured from the destruction of the unit is the **Continuously Variable Transmission (CVT)**. Other components include the **engine, front and rear axles, operator platform, and the hydraulic system.**



Typical Prior Operational Requirements



Impact & Sustainability

This project will help improve quality of instruction in the ABE department by allowing more hands on learning with real world applications. This will help ensure that the Purdue University Agricultural and Biological Engineering Department remain in high regard around the nation and world, and continue to provide top level instruction.

Timeline & Budget

This project was developed in the Spring Semester of 2016. Work began mid February. Below is the project timeline that was followed. Project work needed to be completed by the end of the semester (May 2016).

A budget was not needed for the project. All materials were donated.

	Week of																
	11-Jan-16	18-Jan-16	25-Jan-16	1-Feb-16	8-Feb-16	15-Feb-16	22-Feb-16	29-Feb-16	7-Mar-16	14-Mar-16	21-Mar-16	28-Mar-16	4-Apr-16	11-Apr-16	18-Apr-16	25-Apr-16	2-May-16
Define Problem																	
Review Service Manual																	
Mid-Term Presentation																	
Implement Suggestions from Mid-Term																	
Finalize Details from Manual																	
Higher Level Instructions																	
Wrap-Up Project Work																	
Poster and Presentation																	
Final Report																	

Final Design: High Level Instruction Portion

- Safety First
- Obtain Suitable Equipment
- Create Equipment as Needed
- Disconnect Battery
- Remove Minor Components
- Drain All Fluids
- Remove Operator Platform
- Remove Engine
- Remove Front & Rear Axle
- Remove Hydraulic Components

Final Recommendations

Although the disassembly manual and instructions have been reviewed for concerns, the full appendix will be needed before starting work. Concerns on safety that have not been addressed should always be brought to Scott Brand before proceeding any further. The next step is the execution of these project instructions. Scott Brand will be of great assistance when physically starting the deconstruction process. Remain organized and clearly label parts as they are removed from the tractor, this is essential for the next step in the project. Demonstration units will be designed for the components that were removed. Finally, lesson plans should be developed around the demonstration pieces.

Sponsor:
Dr. Robert Stwalley
Claire Haselhorst, ABE MS Student

Technical Advisor:
Dr. Gary Krutz

Instructors:
Dr. Robert Stwalley
Dr. Bernard Engel

Acknowledgements:
John Wint (CASE IH) –
Service Manual donation