

## **NTRD Program Disclaimers**

### **1. Disclaimer of Endorsement:**

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**Texas Commission on Environmental Quality  
New Technology Research & Development (NTRD) Program  
Project Status (Monthly Report)**

Contract Number: 582-5-65591-0010

Grantee: Eaton Corporation

Date Submitted: January 8, 2005

Report for the **Monthly** period:

Starting Date Dec 1, 2004

Ending Date Dec 30, 2004

**Section I. Accomplishments** (Please Provide a bulleted list of project accomplishments as well as a description of their importance to the project.)

1. **Accomplishment:** The transfer case suppliers have determined that a more expensive design than originally expected is required to meet the vehicle packaging requirements. We are working with the customer's vehicle packaging engineers to modify the HLA installation on the truck to accept the less expensive transfer case design. We are also working on other transfer case sourcing options. This issue needs to be resolved before a production transfer case supplier can be selected.  
**Importance:** Very important, critical component.
2. **Accomplishment:** For the accumulator design effort, government regulations are being studied to determine their impact on the accumulator design. Tests were set up for measuring energy storage, efficiency, and fatigue strength. The tests are scheduled to begin in January. Preliminary installation drawings were generated of the prototype samples.  
**Importance:** Important, critical component.
3. **Accomplishment:** Vehicle layout is being reevaluated to accommodate a larger transfer case (as referred to in #1).  
**Importance:** Necessary input for HLA hardware design decisions.
4. **Accomplishment:** The first round of stress analysis on the Pump/Motor housing has been completed. Additional design work to reduce the weight of the part has begun.  
**Importance:** Necessary to decrease weight/cost and properly fit in vehicle.
5. **Accomplishment:** An analysis effort is underway to determine if the number of accumulators can be reduced from 2 to 1. This involves design changes to the end cover and internal parts. Initial results are encouraging.  
**Importance:** This design change has the potential of significantly reducing the weight and size of the HLA system.
6. **Accomplishment:** The cause of the early hardware failure of the HLA system during the on-vehicle durability test has been determined and corrected. The hardware has been repaired and is currently being reinstalled on the truck. The testing will resume in January 2005.  
**Importance:** The results of the durability test will give valuable insight into necessary design modifications for the production intent design.
7. **Accomplishment:** We are waiting to receive the representative refuse drive cycle from the refuse hauler company.

Implementation Grants Section

Texas Commission on Environmental Quality

is about 50% complete. No progress was made on the system specification.

Importance: This document is helpful in product design and used heavily to create a product qualification test plan.

Indicate which part of the Scope of Work, the above accomplishments are related to:

1. SOW 2.1.4.1.2
2. SOW 2.1.4.1.1
3. SOW 2.1.3.1
4. SOW 2.1.4.1
5. SOW 2.1.4.1
6. SOW 2.1.3.1
7. SOW 2.1.1
8. SOW 2.1.3.2

## Section II: Problems/Solutions

<p>Problem(s) Identified</p> <p><i>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</i></p>	<p>The preliminary transfer case designs do not meet both production cost goals and outer dimensional requirements.</p>
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<p><b>Proposed Solution(s)</b></p> <p><i>(Please report any possible solution(s) to the problem(s) that were considered/encountered)</i></p>	<p>We are exploring alternative HLA installations that would allow the use of a less expensive transfer case design.</p> <p>A successful design that eliminates an accumulator would open more possibilities to use the less expensive transfer case. This work is underway.</p>
<p><b>Action(s) Conducted and Results</b></p> <p><i>(Please describe the action(s) taken to resolve the problem(s) and its effect)</i></p>	<p>The accumulator specification was modified to allow the accumulator supplier to deliver an intermediate design in order to meet the project schedule</p>

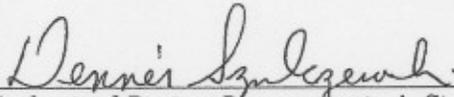
**Section III. Goals and Issues for Succeeding Period:** *(Please provide a brief description of the goal(s) you hope to realize in the coming period and identify any notable challenges that can be foreseen)*

**GOALS:**

- Determine if one accumulator can be eliminated.
- Complete FMEAs for the pump/motor, accumulators, and system.
- Continue vehicle durability test.
- Select transfer case design and supplier

**Section IV. Commercialization Progress:**

Eaton Corporation uses the PROLaunch- Profitable, Reliable, On-time Launch- process to develop and introduce new products to market. This phase-gate process guides the activities of a cross-functional development team. It also provides management with an opportunity to assess the viability of the project during the each stage of product development and decide whether or not work on the project should continue. In December, the HLA for Refuse Project received approval to proceed to Phase 2 of this six-phase process. In response to a strong desire by management to reduce the time to market of the HLA system, the team is currently exploring options to shorten the PROLaunch schedule.

  
\_\_\_\_\_  
Authorized Project Representative's Signature

Date: 1/10/05

**NOTE:** *Please attach any additional information that you feel should be a part of your report or that may be required to meet the deliverables requirement for tasks completed during this reporting period.*