

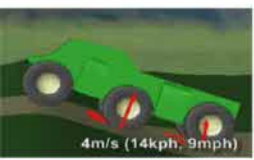
# DARPA XV

## List of Components and Subassemblies

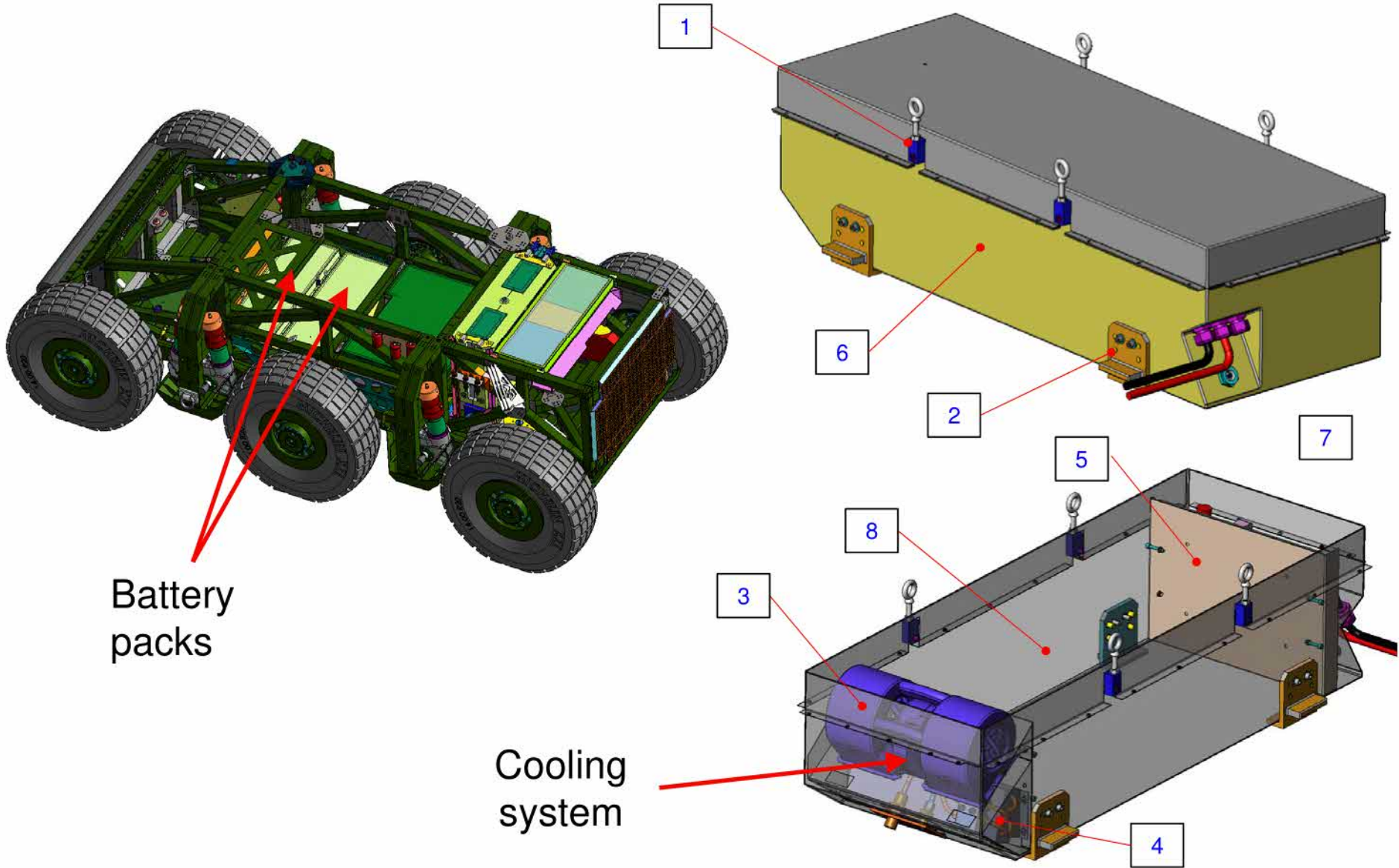
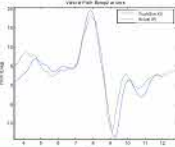
**NREC Team**

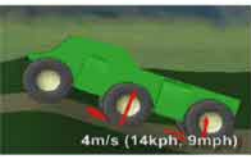
(b)(4); (b)(6)

**Revision 2 – November 30, 2012**

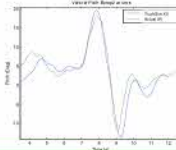


# Battery Frame and Cooling





# Battery Frame and Cooling System

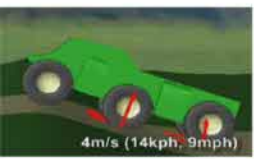


- **Components**

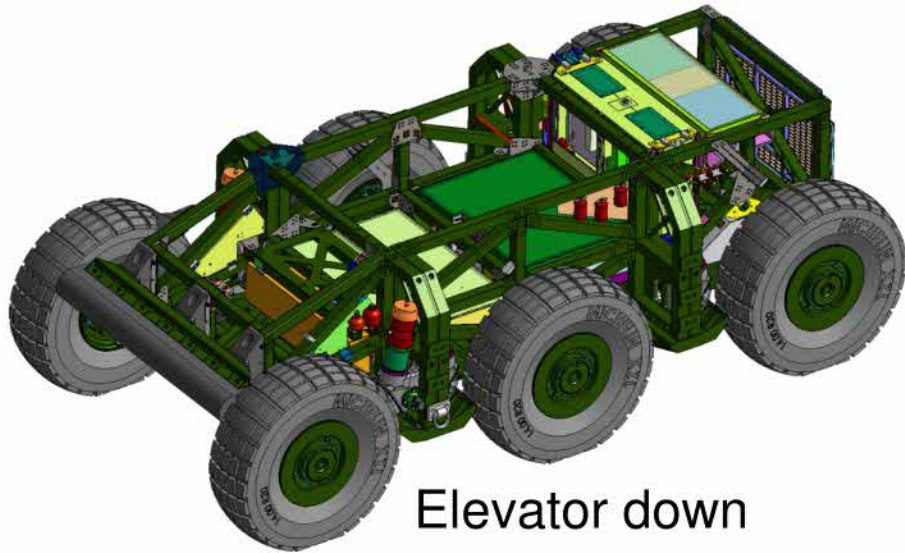
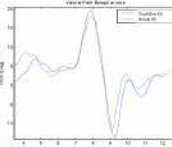
1. 4 integrated hoist points
2. 4 mounting brackets
3. Blower fan
4. Tube and fin heat exchanger
5. Electronics panel
6. Welded aluminum housing
7. Power cabling
8. Internal volume for batteries

- **Description**

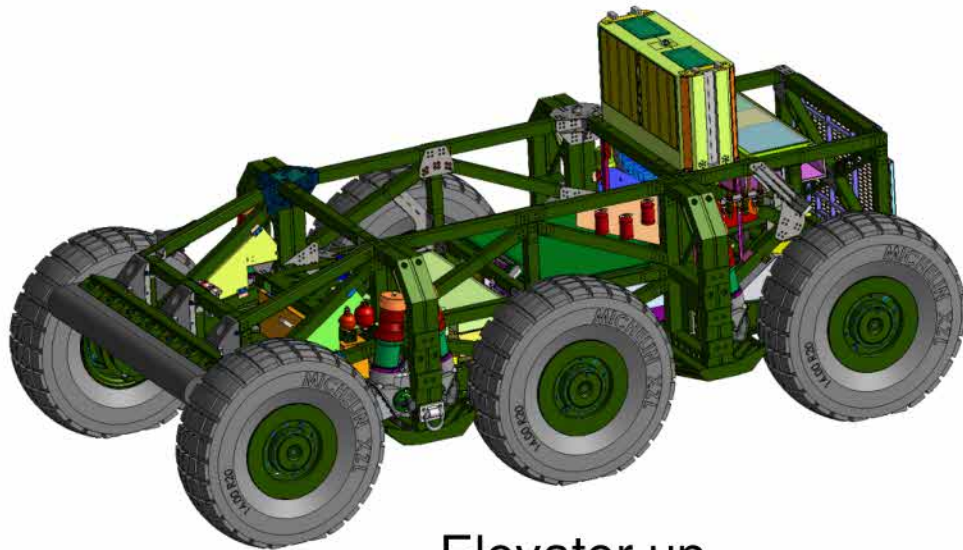
- **Battery pack to power vehicle**
- **2 packs per vehicle**
  - Vehicle is capable of operating on only 1 pack
- **Typical current draw: 200A @ 350VDC**
  - Occasional draws at 400A
- **OEM battery controller mounted with electronics panel**
- **Cooling**
  - Forced convection w/ refrigerant system
  - Air circulated within pack (like refrigerator)
  - Expansion valve and evaporator inside pack
  - Condenser external to pack
  - Removed heat load of 200W



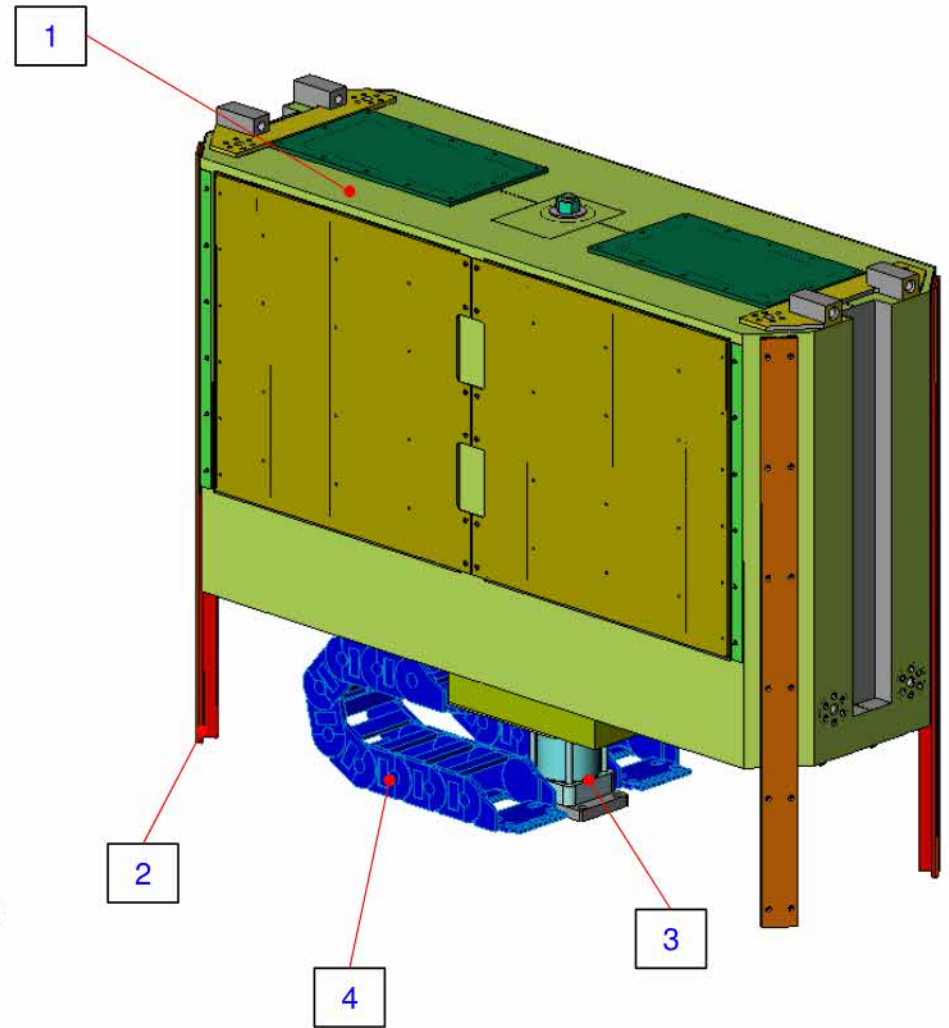
# Elevator Assembly



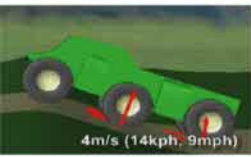
Elevator down



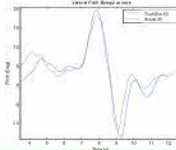
Elevator up



Internal components



# Elevator Assembly

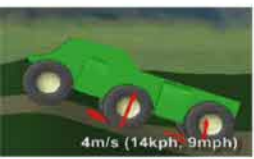


- **Components**

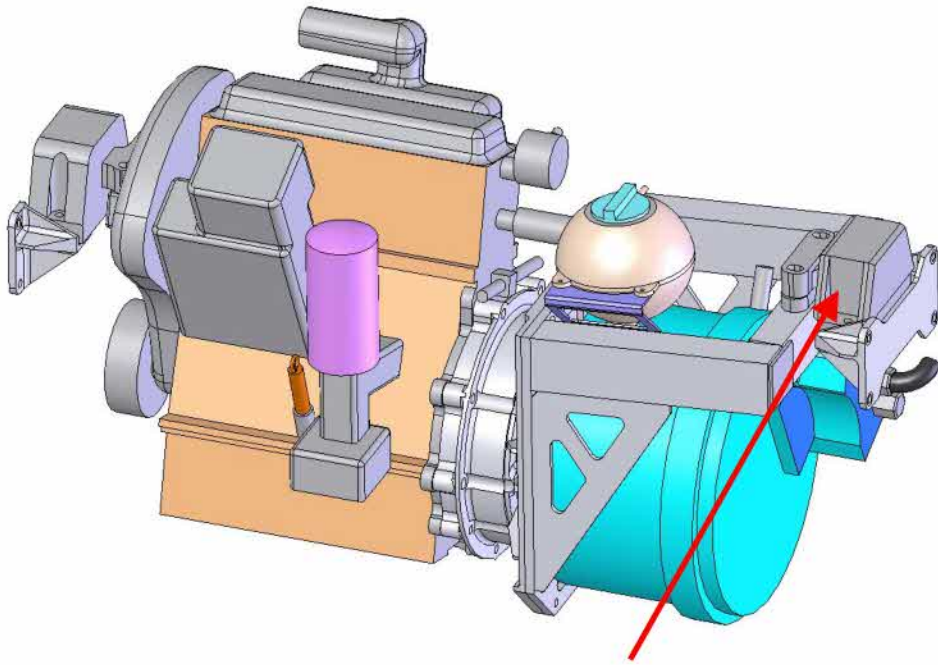
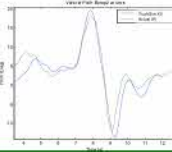
1. Aluminum enclosure
2. Guide rails for linear positioning
3. Pneumatic cylinder
4. Cable management

- **Description**

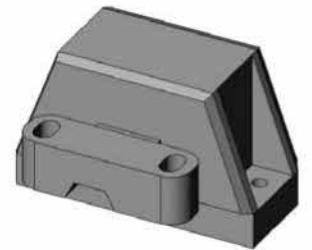
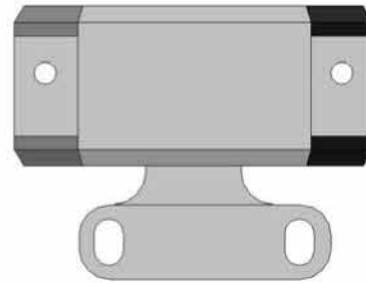
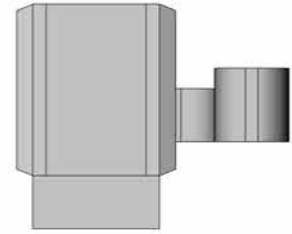
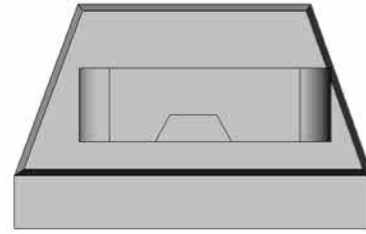
- Contains high & low voltage power and control electronics, rises out of vehicle for accessibility and maintenance

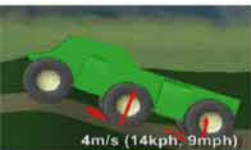


# Power Pack Isolation

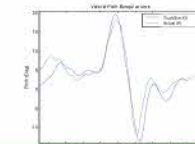


Isolation mount

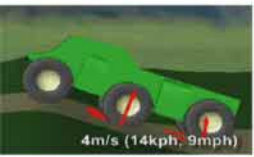




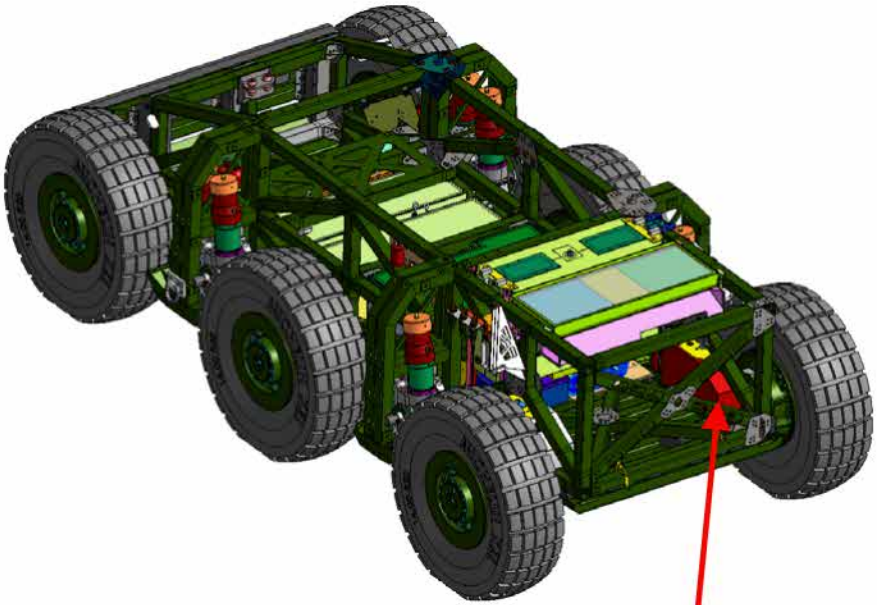
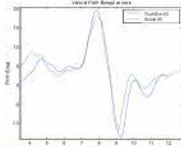
# Power Pack Isolation



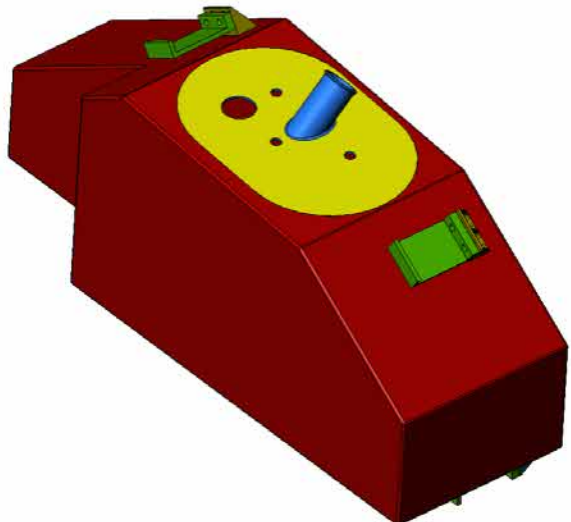
- **Natural rubber and steel construction**
- **Weight 7.5 lb ea**
- **Load range 1300lb per**
- **Attenuation – 12.5-10,000 hz**
- **Transmissibility – 7hz**



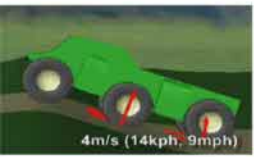
# Fuel tank



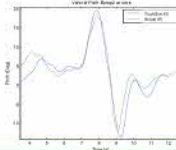
Fuel tank







# Fuel Tank



- See document **DARPA-XV-Crusher-Model2-Nov2012**
- Fuel cell manufactured by **ATL**

