Military Vehicle Driving Simulator Uses Synchronized Electro-Hydraulic Controls
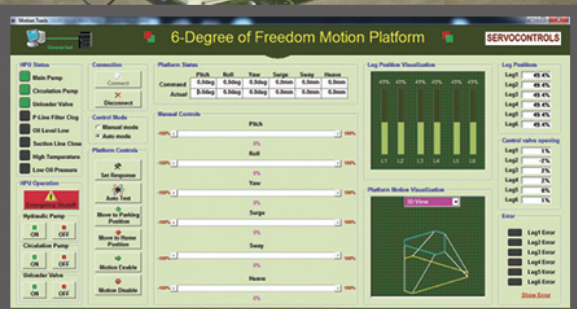
At a Glance

- **Project:** Military Vehicle Driving Simulator Uses Synchronized Electro-Hydraulic Controls
- **Company:** SERVOCONTROLS
- **Location:** India

- **Challenge:** Achieving the desired motion of the top of the platform in any direction and at any attitude
- **Solution:** Delta RMC Multi-Axis Controller
- **Benefits:** Generates smooth motion simulating realistic driving feel

Summary: A standard way of building motion simulators is to start with a Stewart platform. Stewart platforms enable movement with six degrees of freedom (x, y, z axis transitions, plus pitch, yaw and roll rotations).

Challenge: The nature of a Stewart platform architecture is that achieving the desired motion of the top of the platform in any direction and at any attitude requires moving all of the actuators by a certain amount. Computing the amount to move each axis can be a mathematically-intensive function, and the challenge to system designers is to complete the calculations and affect the motion fast enough to support realistic motion of the platform.

Solution: The math and synchronization features of the RMC150 helped to achieve all of the design goals.

In this type of synchronization, all six axes start and stop moving simultaneously, and at any point during the move, each axis has completed the same percentage distance (or ratio) of its move. The axes do not need to start or stop at the same positions. Because the synchronization function is built into the controller, it is much easier to implement multi-axis control strategies with the RMC than it would have been using a PLC.

Benefits: The new motion platform generates smooth motion in synch with the projected video frame, simulating realistic driving feel with all the desired dynamic characteristics.

> "The Delta controller solves our greatest problem, which was synchronizing the axes."
>
> Deepak Dhadoti, Managing Director of SERVOCONTROLS

Motion Control . . . and More.
deltamotion.com