

What kind simulator will the motion seat support? Simple! ACME's Dynamic Motion Seat system can work with any simulator that has acceleration signals. Essentially, any simulator that includes a moving vehicle could use and benefit from the motion seat. The Dynamic Motion Seat works with any aircraft, watercraft, land craft, wheeled, tracked, or rail vehicle. That includes planes, helicopters, ships, submarines, hovercraft, trucks, buses, cars, trains, and construction, farming and mining equipment simulators.

The seat doesn't 'know' that it's connected to a specific trainer. The seat converts the different acceleration signals into motion commands. In fact, if you had a simulator that you could switch the acceleration signals from representing a car to a boat, from a helicopter to a submarine, from a locomotive to a tank, the motion seat could switch its motion to respond appropriately.

So, the answer to the question about what simulator will it support? Any and all simulators. ACME's Dynamic Motion Seat Systems do the motion magic behind the scenes to support all of those simulator types.

#### How it Works

ACME's Dynamic Motion Seat systems uses a combination of individual electric motors inside the seat. The motors move seat plates, and in some types, the entire seat assembly. The moving plates apply pressures and motion cues to the crew on the seat.

The seat motors are controlled by the electronics that get their commands from the seat computer.

The seat computer uses velocity and acceleration signals from your simulator. The signals feed over Ethernet into the motion seat computer. The seat computer's algorithms convert the signals into motion commands. The seat computer determines which motor(s) in the seat move and how fast/far. The seat system does all the motion math. No need to be an physicist or write the software commands to drive ACME's seat.

#### **Tuning Gain Set**

The seat system also has a set of tuning gains that adjust the seat baseline performance. The tuning gains. Different maneuvers in different vehicles have different affects and sensations on the crew. The tuning gains enable the seat to have specialized cueing form one simulator to another. So, in the idea in the introduction where one could switch from type to type and get unique motion? It's done with a special tuning gain set for each simulator. ACME helps you set those tuning gains with inputs from your Subject Matter Experts so the seat feels right.



ACME can build a seat system for any vehicle or simulator type

## **Multiple Tuning Gain Sets**

Here's an advantage of this gain setting process: ACME's Motion seat system can use multiple gain sets for a single vehicle simulator.

For example, military aircraft perform differently with varying ordnance or fuel tank loads. A bulldozer might feel different when it's digging deep into clay or pushing a load of lighter soil. A truck drives differently as a 'bob-tail' without the trailer than with a full single, double, or triple trailer load.

With the separate tuning gain sets, ACME's Motion seats provide the different cueing sensations immediately as the simulator vehicle state or performance changes.

## Unique Seat Systems for Any Simulator

ACME can also provide unique, motion seat systems for nearly any simulator type. Often, customers need seats that match the size, shape, textures, colors, and adjustments as in the actual vehicle. ACME meets the fidelity and motion needs with seats tailored to specific vehicle types or even specific vehicles. Helicopter seats are great examples of vehicle types and specific vehicles. Different helicopter seats have similar sizes and shapes, Helicopter seats are often simpler than fighter jet seats but more complex than truck or car seats. Helicopter seats have similar adjustment mechanisms too. So, ACME can make a generic helicopter-type motion seat that would work for many different helicopter simulators.

But, helicopter seats of even one aircraft type can have multiple variations. The H-60 family of military helicopters is a great example. The MH-60R helicopter seat looks different than the MH-60S helicopter seat. And both the MH-60R and MH-60S are used by the Navy. There are also differences between Navy and Army H-60 helicopter seats. ACME makes a high-fidelity seat s that look, feel and function just like a specific vehicle type and model.

# A Motion Seat System for Any Simulator

Talk with ACME about your motion cueing needs. We can help with a seat system that supports several different simulators. We can help with a seat system that supports a vehicle type such as a generic helicopter seat. Or, we can help with high-fidelity motion seat to match your very specific crew seat.