



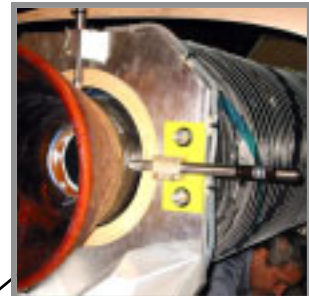
Propulsion Test Trailer



➤ The Test Stand Trailer (TST) is a **mobile thrust test stand** that measures the performance of the flight motor. The mounting of the motor is identical to the installation in SpaceShipOne, using the same center- and aft-fuselage structure as the flight vehicle. Using actual flight components, the structure and systems are tested for the same vibration, temperature, and stress conditions experienced in flight.



➤ **Data acquisition** is accomplished through signal conditioning and a computer mounted in a subterranean box next to the trailer at the test site. The acquisition computer is remotely controlled by another computer in Mission Control.



Nozzle Position Transducers

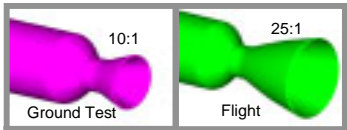


Heating & Cooling



➤ The **oxidizer tank temperature** is controlled by pumping heated or cooled air into the chambers just forward and aft of the tank -- similar to the flight system where the White Knight provides engine bleed air for heating. After filling from the MONODS, just prior to motor start, it is controlled to a specific temperature to maintain tank pressure.

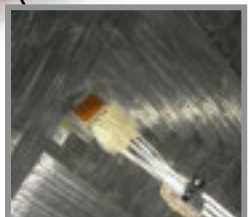
This assembly is supported on the trailer by a series of **load cells**, measuring thrust, side force, and weight.



➤ Note: For accurate thrust determination, ground testing requires a shortened 10 to 1 expansion ratio nozzle. SpaceShipOne will use a 25 to 1 ratio for optimal thrust at altitude.



Pressure Transducers and Fill Valves



Thermal and Strain Sensors

The test stand trailer provides **portability** where all the motor mounting, instrumentation and wiring is accomplished in the hangar, then transported to the test site for the firing.