

PROPOSAL FOR VERTICAL TREADMILL,
HORIZONTAL SUBJECT TEST SYSTEM

DESIGNED BY:

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WHITMORE ENTERPRISES, INC.

Designing and Manufacturing

Specialized Equipment in Support of NASA Space Program

Hypobaric & Hyperbaric Chamber Controls Research Treadmills, Ergometers

Human Body Volumeters

Specialized Medical & Aerospace Research Devices

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The information and concept disclosed in this and all of our proposals is to be treated as confidential and proprietary information for our use and to be used in a contract or purchase order with Whitmore Enterprises, Inc. only. This materials is to convey our thoughts and approach to specific problems and not be used by NASA and/or other contractors.

We propose to design and manufacture a treadmill test stand and support system. This apparatus will have the capability to mount a treadmill in a vertical plane at the correct elevation to accommodate a test subject to simulate running and walking in a zero gravity environment.

This system will provide six (6) anchor points on the vertical support frames that will accommodate load cells that will be used to monitor forces encountered during testing. We will provide for two supports that will accommodate load cells on the horizontal supports that will be used to monitor vertical force and force changes during testing.

The subject will be suspended in a fabric sling that will provide a very flexible support with independent cord attachment point at eight (8) points. At each pair of these attach points we will accommodate an equalizing system that will allow the head, shoulder and hips to rotate with a very minimum force. Each of the pairs will have an independent force cord system. Each wrist, arm, ankle and thigh will incorporate an independent force cord system that includes a compound tension element.

Each compound tension element will have its own scale that shows the pound force and these force systems will incorporate individual force adjustment cranks.

These force cord systems will be of the same type used on the new concept we proposed for subject force cord system we recommended for the Second Generation Treadmill and the Space Shuttle Treadmill.

These systems will vary in size and ratio to match the displacement and force required for the particular requirements. An example: the wrist would require a much lighter support but a much larger travel than the unit used to support the thigh.

The frame support will be free-standing but would require fastening to one wall for added stability.

This frame support will be constructed of rectangular steel tubing and consist of welding and bolting type of structure that can be dis-assembled and assembled in other locations. All components will be sized to accommodate entry through a standard door of three feet wide and six feet eight inches high.

Provisions will be made to attach load cells, but we will not furnish the load cells or any of the electronics to monitor this system.

This system will require approximately four months to construct. The cost of this until will be \$85,000.00 with half payable upon issuance of purchase order (or contract) and the remainder payable thirty days after completion.

The unit will be accepted at our location then shipped to desired location.

This price is F.O.B. our location.

WHITMORE ENTERPRISES

VERTICAL TREADMILL ZERO-G SIMULATOR

