



Whitmore Enterprises, Inc.

## Diversified Systems Development

Specialized Equipment In Support Of NASA Space Program • Specialized Medical Research Devices  
Development Of Alternate Energy Sources: Solar, Wind And Hydro-Electric

January 08, 1990

**FILE COPY**

NASA Johnson Space Center  
Mail Code SD  
Houston, Texas 77058

Attention: Dr. William Thornton

Reference: NAS 9 - 18230 Phase II Specifications for T/M 10,000

Dear Dr. Thornton,

We hereby state the specifications for the Phase II design, development and fabrication of one Flight Demonstration Test Object Treadmill similar to the one specified in the Phase 1 Description of Item 1A of the same contract.

### PHASE II

#### DESCRIPTION

#### FLIGHT DEMONSTRATION TEST OBJECT TREADMILL T/M 10,000

The Contractor shall deliver one flight demonstration test object passive (subject driven) treadmill. The general task consists of the design, fabrication and demonstration and delivery of a Flight DTO treadmill (T/M) and an integral equivalent load system for use on the orbiter. It shall provide for a JSC 1g-test and demonstration of an equipment design for hardware.

#### The Contractor's Task:

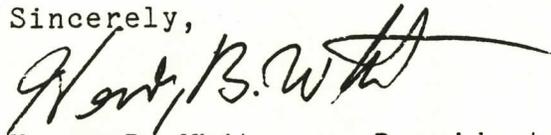
- Tread Size: 12" x 40" + or - 1"
- Tread Type: Low Noise, uniflex design
- Speeds - 7 approximately equal fixed steps from 2 to 6 mph selected through a manual control located on the T/M body. (15° 1g elevated and 200 lbs. subject test conditions, or equivalent).

- Speed shall be indicated by a 5 % accuracy tachometer and analog meter readable to .2 mph with analog voltage available for 10K load. The meter shall be embedded within the body of the T/M.
- Tread shall continuously support subject equivalent weight of 300 lbs. at equivalent grade of 10% and speeds to 5 mph.
- Sound pressure level - goal shall be 70 dBa with a maximum of 80 dBa measured at subject head level of 60" at 5 mph at 15% grade.
- Life - indefinite with maintenance and replacement schedule specified by Contractor - goal for belt life is 500 hours.
- Provision only shall be made for mounting of strain gauges for total force measurement of subject forces normal to belt and for connecting a motor drive to the belt.
- A subject handrail will be located on the wall adjacent to the test location as well as within the orbiter.
- Permanent appropriate markings shall be provided. All corners and angles shall have appropriate radii and non-corrosive finishes.
- Weight - shall not exceed 130 lb. plus additional instrumentation as provided by NASA. Weight will depend on type of instrumentation and recording / readout requirements.
- A Top Assembly Drawing shall be provided per Contractor's Internal Specifications.
- Materials used in the fabrication of the T/M will be flight acceptable except in the uni-flex belt. The belt will be of the same construction as the 1g Prototypes fabricated in Phase 1, but provision will be made to cover the treads with a removable cover plate for fire prevention while not in use aboard the orbiter.
- A materials list will be provided for all componentry.

This constitutes the description of tasks which we understand to represent the scope of the services which we are to perform under Phase II of the current NASA contract NAS 9-18230.

If you have any questions please give me a call.

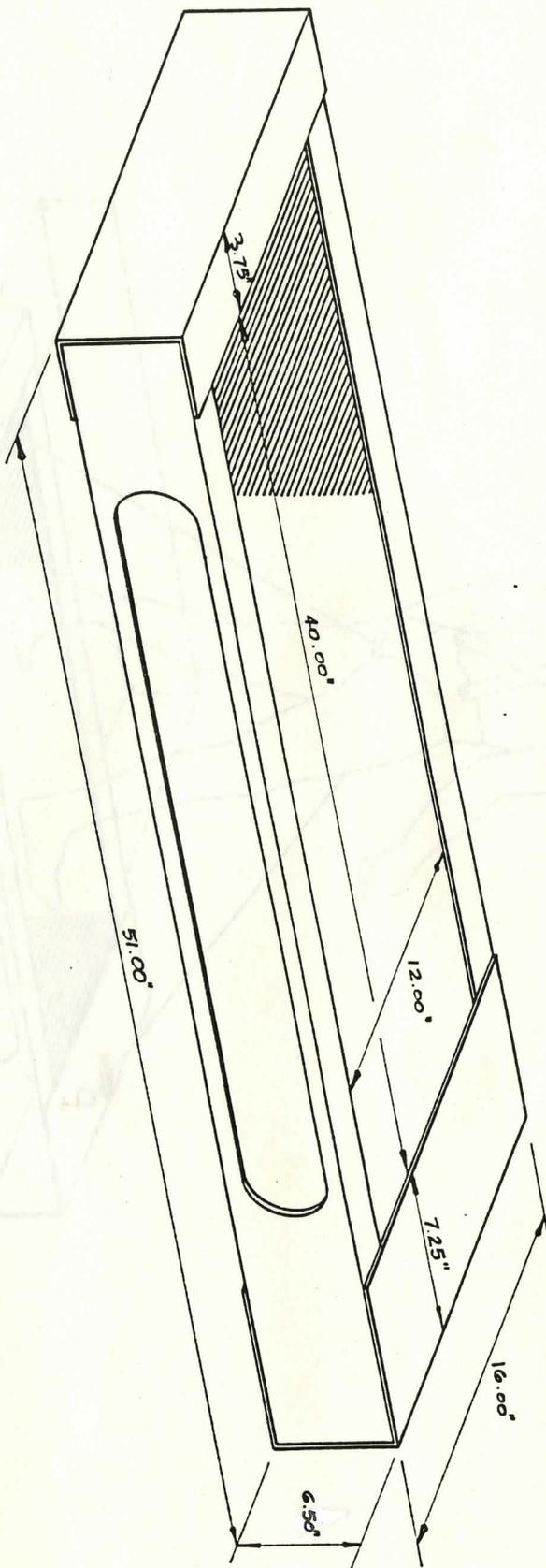
Sincerely,

A handwritten signature in black ink, appearing to read "Henry B. Whitmore". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Henry B. Whitmore, President  
Whitmore Enterprises, Incorporated

HBW/smt

Enclosures: Two (2) 8½x11 Drawings Revised 08 Jan 1990 (Sht 1 of 1; 2 of 3)



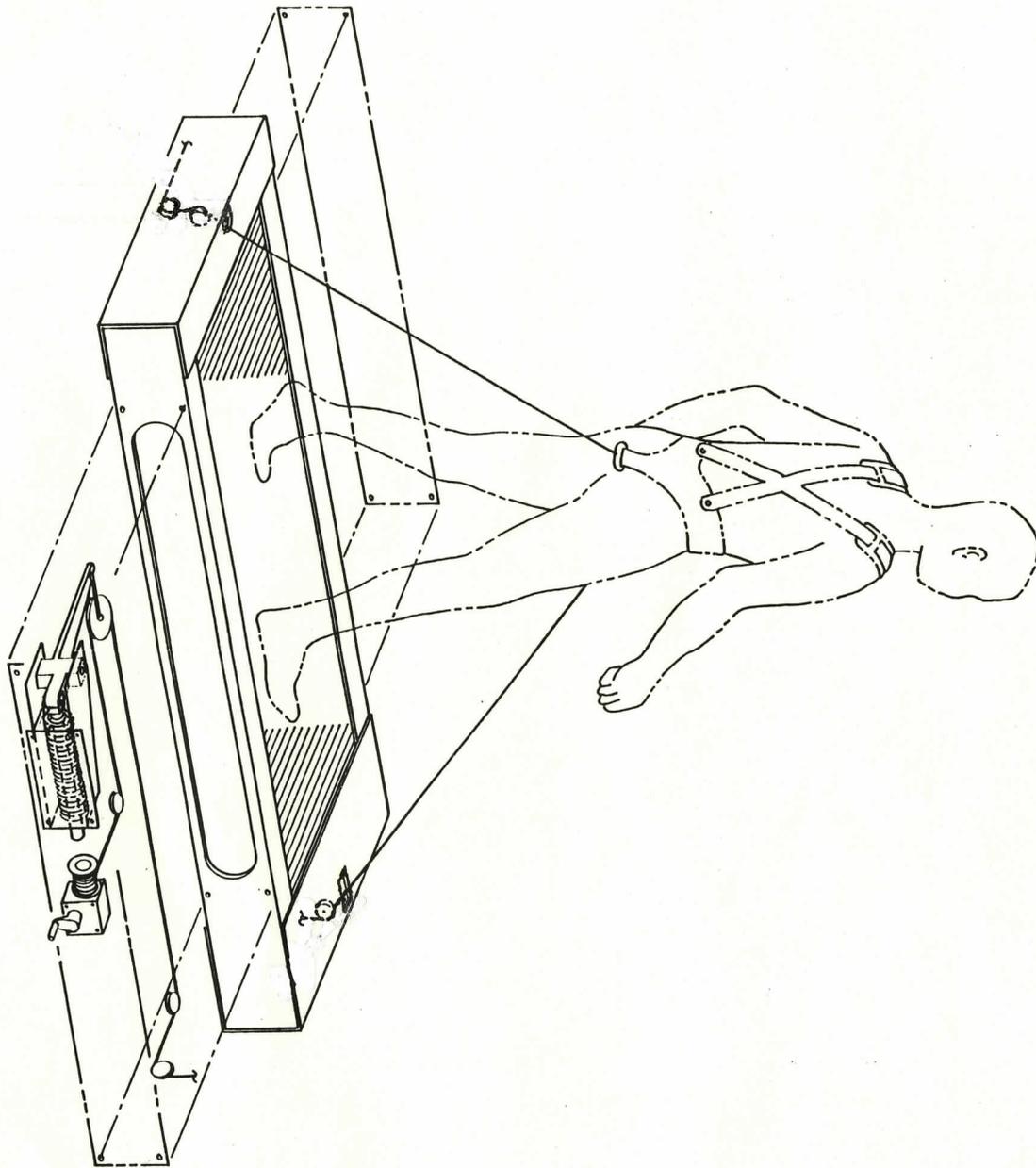
Whitmore Enterprises Inc.  
San Antonio, Tx 624-2121

TITLE: FLIGHT PROTOTYPE T.M.  
DWG No. PHASE II T/M 10000

Drawn By:  
Date: 16 NOV 1989

Sht 2 of 3  
scale: NONE

REV 16 DEC 1989 SMT-DPP  
REV 08 JAN 1990 SMT-G.D. 6.5"



Whitmore Enterprises Inc.  
San Antonio, Tx 624-2121

TITLE: FLIGHT PROTOTYPE T.M.  
DWG No. PHASE II T.M. 19000

Drawn By: R.B.  
Date: 16 DEC 1989

Sht 1 of 1  
scale: None

REV 08 JAN 1990 SMT - REMOVE EXTERNAL PULLEYS, REDUCE 65%

F A X M E S S A G E

DATE: JAN 08 1990  
TO: DR. WILLIAM THORNTON  
COMPANY: NASA JSC  
FAX NUMBER: 1. 713. 483. 6227  
  
FROM: Henry B. WHITMORE  
FAX NUMBER: (512) 624 - 3249  
SUBJECT: NAS 9. 18250 Phase II T/M 10000  
# of pages (including this cover sheet): 2

M E S S A G E:

PLEASE CALL DR. THORNTON @ 483. 2785  
FOR PICKUP, THANK YOU.

(If you do not receive all pages, please call back immediately.)

WHITMORE ENTERPRISES, INC.  
Route 5, Box 369  
San Antonio, Texas 78221  
Phone (512) 624-2121

HENRY B. WHITMORE

MESSAGE CONFIRMATION

DATE: 01/08/90 TIME: 17:09

ID: 512 624 3249

DATE	TIME	TX-TIME	DISTANT STATION ID	MODE	PAGES	RESULT
01/08	17:06	03'40"	17134836227	G3-S	006	OK

F A X M E S S A G E

DATE: FEBRUARY 27, 1990  
TO: DR. WILLIAM THORNTON (Please call Dr. Thornton at  
483-2785 for pick-up)  
COMPANY: NASA/JSC  
FAX NUMBER: 1-713-483-6227

FROM: HENRY WHITMORE  
FAX NUMBER: (512) 624 - 3249  
SUBJECT: PHASE II TREADMILL  
# of pages (including this cover sheet): 8

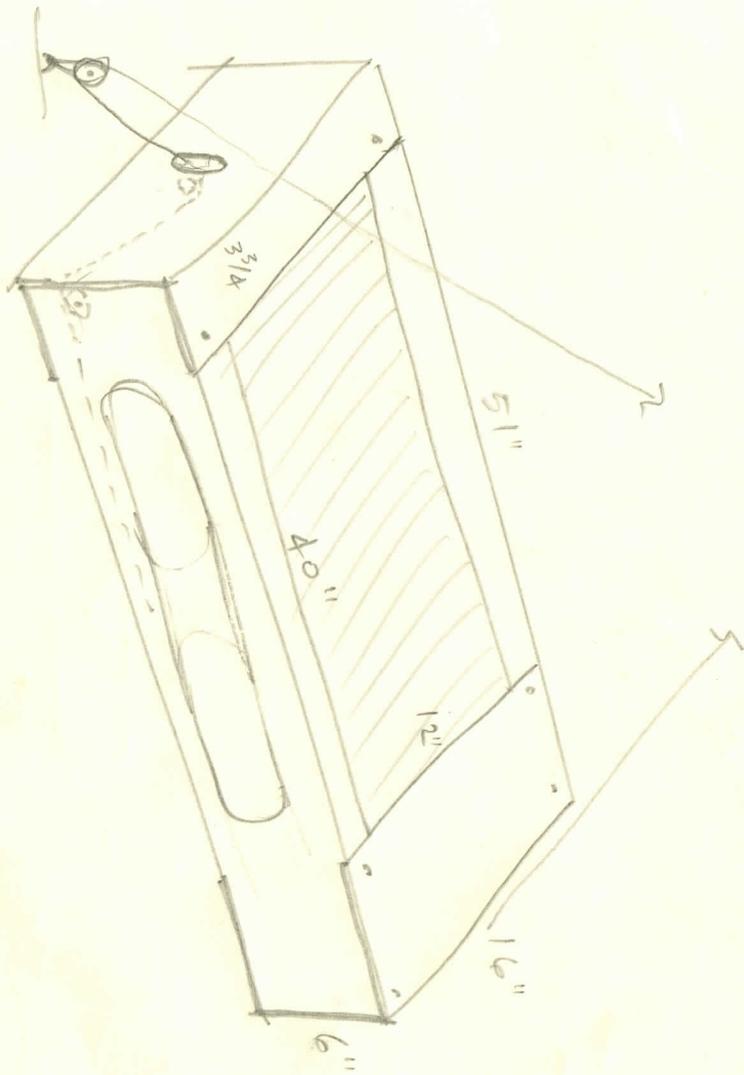
M E S S A G E:

ENCLOSED IS COPY OF INFORMATION PREVIOUSLY SENT ON 01/08/90.  
PHASE II TREADMILL.  
   
   
   
   
   
 

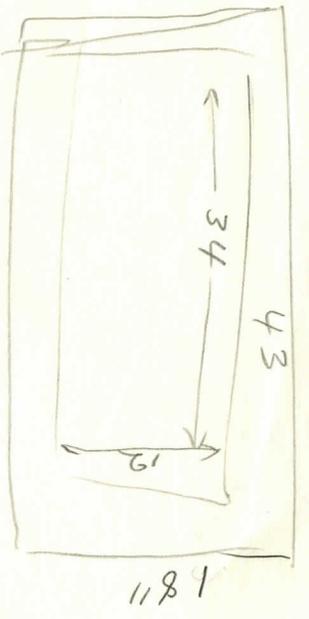
(If you do not receive all pages, please call back immediately.)

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Phone (512) 624-2121

**HENRY B. WHITMORE**

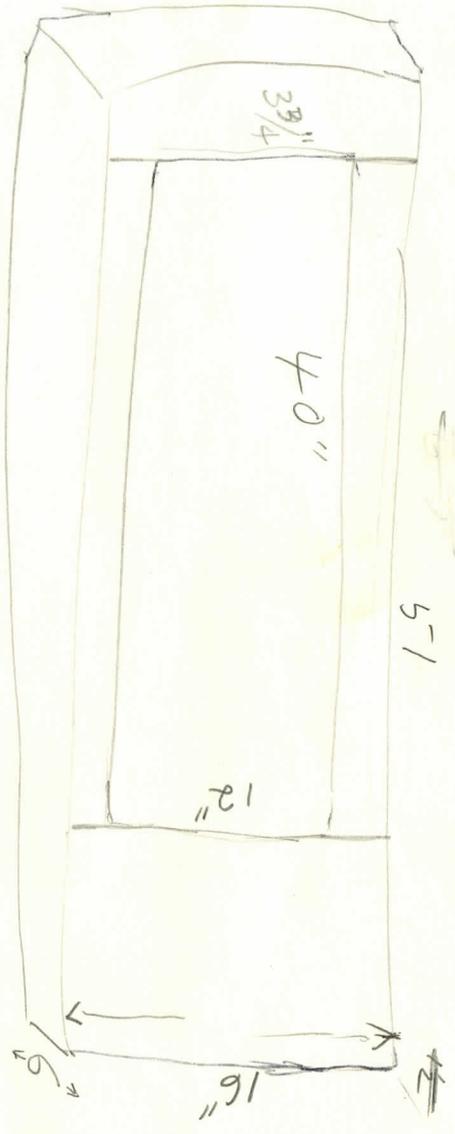


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6 MONTHS  
250K.

~~1300K~~ WITH  
1000K Holddown



DR. THORNTON OCT. 6, 1989  
FLIGHT PROTO TREADMILL

~~Handwritten scribble~~