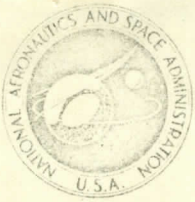


*Shurten*



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
MANNED SPACECRAFT CENTER  
HOUSTON, TEXAS 77058

REPLY TO  
ATTN OF: CB

MEMORANDUM

TO: CB/Joe Kerwin

FROM: CB/Alan Bean

SUBJECT: Use of the Triangle Shoes on the Bicycle Ergometer

On the sixth, Owen Garriott, Bill Lenoir, Rusty Schweickart, Bill Thornton, and I tried out those triangle shoes with the bicycle ergometer over in Building 7A. As a result of the test, my personal opinion is that we are going to have to modify the triangle shoes or the plate on the bicycle that accepts the triangle shoes so that each person can put the pressure point on his foot where he wants it. Below is a summary of more pertinent comments:

1. On the bike now, the shoes are towed in excessively about 15 degrees, and it tires your legs and feet to try to pedal in this manner. The angle of the feet when engaged on the bike has to be moved outward to a comfortable position.

2. The shoes as they exist now do not appear sturdy enough to last the 28-day mission. The loads put on them as you bike causes them to deform unacceptably at least at 1-G, and my guess is we are going to have to get those high-top tennis shoes to make it work.

3. When we talked about riding the bike several days ago, you indicated we were mainly to determine whether the triangle should be on the balls or the toes of the shoes. Here are the results:

Owen Garriott - Balls of the shoes

Bill Lenoir - Toes of the shoes

Rusty Schweickart - Balls of the shoes

Alan Bean - Arch of the shoes

Bill Thornton - Even though he couldn't get into the shoes, he did not feel they would work, and that we are going to have to put some sort of straps on the pedal similar to those found on a racing bike to withstand the 20 minutes of hard pedaling.

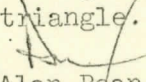
There is a general feeling that we are not going to be able to tell exactly what's best over here in Building 7A because the loads on the feet are considerably different under zero-G conditions. I understand that Story Musgrave is to take part in a test in a zero-G airplane. We can use this to a good advantage if we do the following. Hardware that we need for the test should be bought from a store somewhere and not affect MSFC flight design at all till we figure out what we need.

a. Attach triangles on the bottom of the regular tennis shoes of sizes suitable at several locations. Realizing, of course, that the flight article cannot be made of this material because it is not fireproof; but it should give us a test of the principle.

b. Take the present low cut triangle shoes, also.

c. There should be at least two other guys along with Story because it looks like the results are going to weigh heavily on personal preference. In addition, I think it would be best to use you and Pete Conrad.

Jake Smith came to me today worried because we are the ones that changed to the triangle shoes on the pedal and was afraid we were going to try to change back. I told him that we were only trying to get something that works. He also said that the tow-in of the triangle shoes on the bike would be corrected with the MSFC design triangle.

  
Alan Bean

cc:

CB/A. Shepard

All Skylab Astronauts

CB:ALBean:ss:10/7/71