



FIGURE 14

propulsion aspects of the vehicle on the ground in anything approaching the conditions that would be encountered in space. It is the practical solution of what we can do on the ground to get ready for space flight. This shows up, of course, in the propulsion system itself, but it also shows up in those things which are affected by the propulsion system. We have actually taken instrumented readings of the reaction of the structure, for example, to the energy output of the engine. I think that perhaps I am jumping ahead a little bit, but I will mention that we have one very interesting series of tests where we fired the ascent stage adjacent to the descent stage to simulate the condition at lunar launch.

This has been something that we have been analyzing and running model tests on for a good portion of the program, and has given us an indication of the pressures that exist along the base heat shield of the ascent stage. This is an area where we are still carrying out some work to resolve the interaction of the engine starting pressures and the base heat shield. This is the sort of thing, that as far as I can see, just couldn't be accomplished without this kind of a facility to do it in.

Representative WAGGONER. Is this the only facility of this sort that we have, or does this facility exist in a number of other places other than White Sands?

Mr. GAVIN. I believe at AEDC there is a facility which might possibly do this.

Mr. FREITAG. There is a similar facility at Tullahoma, and there are similar tests going on at Tullahoma for this program.

Representative WAGGONER. Who is conducting those tests?