

TOUR INTRODUCTION

A. T. Mattson and P. F. Korycinski

Thank you, Bob! Before starting today's inspection, I would like to call your attention to two demonstrations that we have scheduled: The first is a flight demonstration with a research aircraft that is being used to study the low-speed flight capabilities of jet transports equipped with powered-lift systems. (Slide 1) This aircraft is the original Boeing 707 prototype airplane which has been modified with a boundary-layer control powered lift system and is being used in a flight research program here at the Langley Research Center.

You will witness the fly-by demonstration from your bus. The aircraft will fly over the long runway at an approach speed of 95 knots and an altitude of 200 feet. Slide off.

The second is a landing research demonstration of our Lunar Landing Facility, lunar walking apparatus, and the Landing Loads Track. The Lunar Landing Facility and the lunar walking apparatus will be described in some detail at the Space Simulation Stop. However, with regard to our Landing Loads Track, you will witness a test of "tire hydroplaning." Tire hydroplaning occurs when pneumatic tires of aircraft (or of highway vehicles as well) roll over water-covered or flooded pavements, hydrodynamic pressures develop between the tire footprint and the pavement. The pressures grow larger as the ground speed increases. At a critical speed, this hydrodynamic force or lift resulting from the built-up pressure under a tire will equal the weight riding on the tire. Any increase in ground speed above this critical value lifts the tire completely off the pavement, leaving it supported by the fluid alone. The result is called total tire hydroplaning. Included in your handout

this morning is a pamphlet entitled "Hazards of Tire Hydroplaning to Aircraft Operations," which gives some additional information on tire hydroplaning. I might say that this research has also been of extreme interest with regard to highway safety programs. This is a short movie showing an aircraft landing wheel hydroplaning. (Notice complete stopping of the wheel.) After a run of 150 feet in the water, the tire comes to a complete stop - for this test, the load on the tire is 6 tons - 12,000 pounds.

As you have noticed when you registered this morning, you received color badges - the color represents your inspection group.

Before introducing your group leaders, I would like to have the door raised for a group picture.

GROUP PICTURE

INTRODUCE GROUP LEADERS