At this time, Mr. Wilkinson, who is in charge of our Michoud operations, will tell you briefly about the S–IC program.

Mr. WILKINSON. First of all, let's take a quick look at what the S–IC does for the Saturn V (fig. 6).

The S–IC must lift 6 million pounds off the pad and accelerate 1½ million pounds (which is the weight of the upper stages plus payload) to 6,000 miles per hour at a 40-mile altitude in 2½ minutes. An additional ground rule was that the liftoff thrust must exceed the weight by 25 percent. So we use five, 1½-million-pound-thrust F–1 engines to give us a total of 7½ million pounds of thrust, which exceeds the weight by the required amount. That's what we call a simplified design requirement for the S–IC stage.

During your tour in the factory, you saw the S–IC–4 in the vertical assembly tower.

Figure 7 is a cutaway of the S–IC stage and, as you can see, the five engines mounted at the bottom are arranged with four outer engines, which are movable, and a center engine, which is fixed. The swiveling capability of the outer engines provides steering control during powered phases of the flight. The bottom tank contains the fuel, which is a high-grade kerosene (RP–1). The fuel tank contains 200,000 gallons of this fuel. The fuel is delivered by two 10-inch lines for each of the five engines. The liquid-oxygen tank, which is the uppermost tank of the S–IC, holds 327,000 gallons of liquid oxygen—this is the oxidizer. The liquid oxygen is delivered through five 20-inch lines that run through tunnels in the fuel tank. The

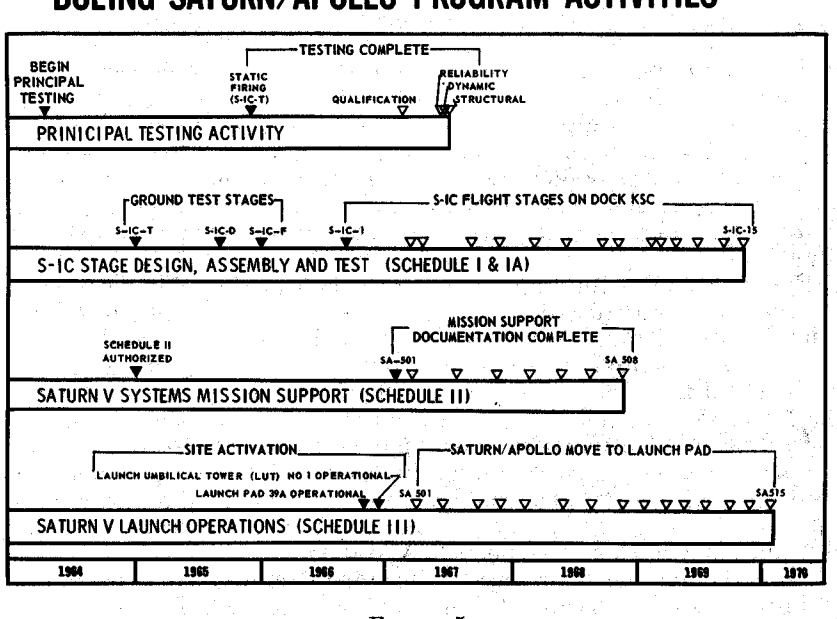

FIGURE 5