pressure. Even that caused quite a few flaws to occur in this insulation.

Mr. GURNEY. What was the matter then, was it poor workmanship?

Mr. GREER. Yes, it just wasn't glued on well. A piece would rip off, a piece of this laminate, and underneath you would find some little piece of debris or something.

Mr. WINN. Do you think these constant repair systems or jobs that you have done are going to make an acceptable unit before you are done?

Mr. GREER. Yes, as I say, once you get all the bad spots repaired. The way you repair it depends on what the defect was. We would either cut out a whole piece like this and put a new piece in, or we would pull back the laminate and very carefully prepare the surface and then we would glue back on another piece of laminate. By the time we had done all the repairs, and there were quite a few of them on the S–II–1, it was okay.

Mr. WINN. Pretty expensive, though?

Mr. GREER. It was very expensive in time.

Mr. GURNEY. One other question: You said you had to commit yourself to three stages before you could cut it off. Why was that? Is it because it had come in before you really found out what was the matter?

Mr. GREER. That's correct. It was in the pipeline in various stages of being put on quarter panels and in our warehouse. We had about three stages worth when we found out we were in trouble. If we stopped right there, and decided to make it in-house and junk all that, I'd say we'd have lost several months. We decided we would live with it and repair it, and that's what we are doing.

Mr. GURNEY. I see. Thank you.

Mr. GREER. I have already given part of this, I believe. This is what we are doing to stop this schedule slippage type of problem I have just been talking about (slide 16). As I say, we have now brought all the insulation in-house, and not only in this laminate 1.6-inch foam insulation made by North American, and it's good stuff, but we have progressed from that to this foam-on insulation, which is a much simpler process and will save us a lot of time in manufacturing. We are going to pick that up on about the seventh stage. And that should eliminate once and for all the repair-type problem we have been having with insulation.

One of our problems in this material review world, that I mentioned earlier, was an actual shortage of X-ray equipment, because, after every weld, we X-ray that weld; and this is a long weld, and there are lots of X-ray pictures, and it's a lot of developing. Then people have to look at the welds. So we actually have moved the X-ray processing equipment; we have gotten more of it and moved it right to the manufacturing station, so that we can speed up this inspection of the weld after we have made it. It used to be quite a period of time from the time we made a weld until we had gotten all the X-rays. You have to clear all the people away because this is a very powerful X-ray machine. We would take the film and develop it over in another building; people would read it, and it would be a day later before we got the word back on whether we had porosity and oxide in the weld and where and how to repair it. So we shortened the