

Mr. PETRONE. When you get to the pad, you have, in effect, severed the electrical connections when you left the building.

Mr. WINN. Oh, I see.

Mr. PETRONE. Then you have the launcher which has now lost the electronic connections to the test equipment.

Mr. WINN. Yes.

Mr. PETRONE. When you get to the pad, you now restore those connections, and since we are using this digital data technique, it is quite simple to reinstall these connections to get your configuration. The main thing you have not done is break the connection between the vehicle and the launcher, because there are many as compared to the relatively few connections between the launcher and the ground.

Mr. WINN. I see. Thank you.

Chairman TEAGUE. Thank you, Rocco.

Dr. DEBUS. I will now ask Mr. Siepert to talk about management.

Representative WAGGONER. That is the best overall presentation of the process from start to finish that we have ever had.

Dr. DEBUS. Mr. Siepert.

Mr. SIEPERT. I will discuss with you certain points concerning our basic management; that is, how we are organized, what our growth in staffing has been in recent years, and certain characteristics and concepts of the Government/contractor team. I will close with a progress report on some current procurements that are underway for the recompetition of certain of our major support service contracts.

This, figure C-1, is a condensed version of the basic functions which Dr. Debus showed on an earlier chart. A second chart, figure C-2, of the Center shows our primary organizational structure and also shows an allocation of the manpower to these several blocks. Under each box you will notice figures on the left showing the civil service resources; on the right are the contractor resources which directly serve in that function.

Our first function is, of course, to prepare, checkout, and launch NASA space vehicles. That is our only reason for being here. The operating component which does that is the launch operations directorate, the one that Mr. Petrone heads. You will notice it is divided functionally among launch vehicle, spacecraft, and unmanned launch operations. You will have a chance to see something of all three of these operations this afternoon.

A second function is to assure that the designer back in the development center retains responsibility at all times for the precise configuration of the flight hardware in the final flight. This is achieved by the launch operations group working with the development center to figure out what the engineering changes need to be. However, all changes are coordinated between centers and if it is Apollo flight hardware, are approved and cleared by the manager of the Apollo program office, in each Center which is affected.

The third function is to develop new launching concepts and implement them. This is a responsibility which emerges from the collective experience of the launch operations group, the technical support people, and the design engineering organization. Mr. G. Merritt Preston has just taken charge of design engineering. Once the concepts have been cleared, the Design Engineering Directorate has re-