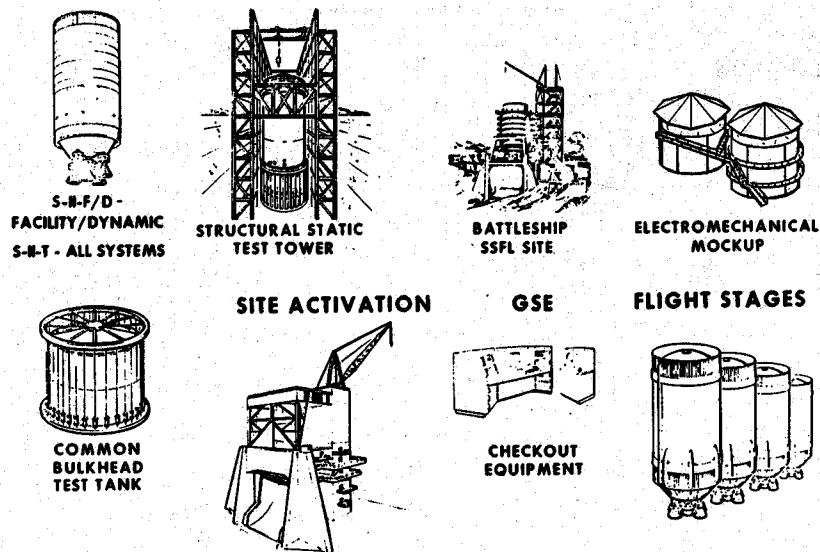




SLIDE 5. S-II PROGRAM SCOPE—TEST HARDWARE

We didn't have to build an 80-foot-tall tower. The two segments are hooked together electrically and mechanically. We did set up the basic GSE by which we check out, count down, and launch the stage. We did check out all this equipment and gained early information on whether the design of all the gear was satisfactory.

The common bulkhead test tank is also at Santa Susana, near the Battleship. The purpose of this tank was to verify the structural integrity of the bulkhead between the liquid hydrogen and the liquid oxygen tanks. This is a very sophisticated, lightweight bulkhead, and we felt it needed special test attention.

We have two stands at Mississippi where we can static-fire the S-II. One of them is activated and has been used; the other will be activated within a month. There is quite a bit of ground support equipment all through the test system. We have a set at Seal Beach; we have a partial set that we use to fire the Battleship engines; there are two sets at the Mississippi test facility that go with each of the stands there; and there are some partial sets at Kennedy Space Center.

Finally, we have 15 flight stages coming along. Ten are on firm contract, and we have proposed the followup on five. We are currently in negotiations on those five stages. This chart is meant to give you a quick picture of our test program (slide 6). All the black triangles are things that have been accomplished. We did have the high-force test program, which is to test stage response to acoustics and vibration. This test was performed at Huntsville. You take the stage and you subject it to the noise and vibration that it undergoes in its actual flight profile. The stage is highly instrumented and you analyze that test data and you find out if everything is going to hold