

Let me go through in this order. One of the three things that we are presently participating in is the passivation system. The first thing the astronauts have to do, before they climb into this spent-stage tank, is to make sure it is safe and that involves venting down, and so forth. The passivation system (fig. 26) now is conceived as an automatic operation. It will be programed into the sequencer in the instrument unit and then automatically the tanks will be vented down. The command destruct system will be deactivated. All of the gas bottles will be depressurized, as well as the gas supplies in the auxiliary propulsion system, to make the tank safe for the astronauts to enter.

If this thing is to stay in orbit a year, most people feel that some type of meteoroid protection will be needed around the spent stage (fig. 27). We are doing a study and will make a proposal to Marshall. The scheme we like best is the very thin micrometeroid bumper which wraps around the stage with straps during boost. The straps are disposed of by explosive bolts, after it's out of the atmosphere; the bumper springs out to the optimum distance of 5 inches after you get the thing in orbit, and will provide micrometeroid protection. It is not completely clear whether or not this is going to be required. We are just looking at various means to do it.

The second thing is a hatch. The Gemini experience has indicated that you don't want to have astronauts undoing 150 half-inch bolts. As we conceive it opening the door is a power-assisted operation (fig. 28). Figure 29 is an artist's likeness of an astronaut opening the hatch. The astronaut would be in the body of the airlock. His only

ORBITAL WORKSHOP TASKS

- PASSIVATION SYSTEMS
- METEOROID PROTECTION
- QUICK OPENING DOOR (HATCH)
- FIRE RETARDANT LINER
- STRUCTURAL INSTALLATIONS

FIGURE 25