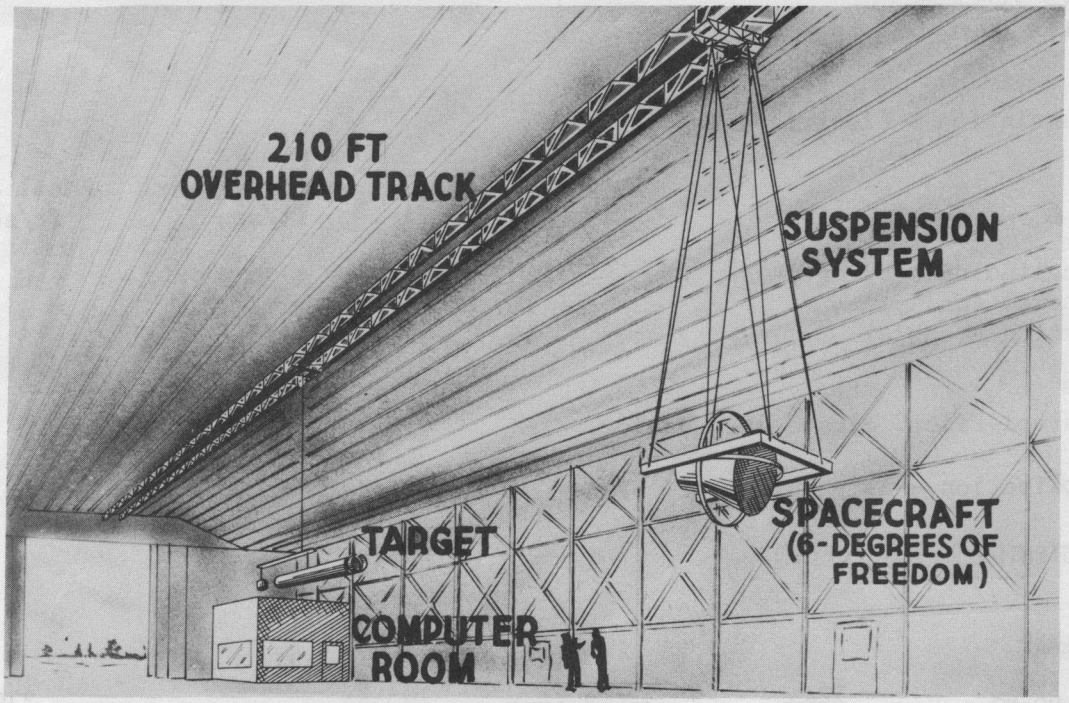
TECHNICAL FACILITIES RESUME

DATE OF RESUME: July 1, 1966
FACILITY NO: 04-00-18-00

1. **REPORTING INSTALLATION:** Langley Research Center
Hampton, Virginia

2. **FACILITY NAME:** Rendezvous Docking Simulator

3. **LOCATION** *(if other than in 1. above):* Same as 1.



4. **FUNCTIONAL NAME:** Rendezvous Docking Simulator

5. **TECHNOLOGICAL AREAS SUPPORTED:** Rendezvous docking studies, Apollo project docking studies, separation techniques; aircraft visual landing approaches.

6. **NARRATIVE DESCRIPTION OF FACILITY CAPABILITIES & FUNCTIONS:**
The Rendezvous Docking Simulator is made up of a three-axis gimbal frame suspended by eight cables from an overhead carriage/dolly system travelling on tracks in the top of the Langley flight hangar. This system is linked electronically to an analog computer and an amplidyne control center in a closed-loop manner such that the pilot inside the gimbal experiences all six degrees of freedom. The eight cables, which provide an essentially weightless link between the 5000 pound attitude gimbal and the overhead-carriage dolly unit, are angled so as to prevent sway and are hydraulically counterbalanced to provide smooth vertical travel with minimum control power.

The dynamic facility is used both for space and aeronautical vehicle studies. Gemini and Apollo docking studies are made in support of space flights, and

6. NARRATIVE DESCRIPTION

aircraft landing problems are studied through the use of scaled runways and closed-circuit TV.

Gimbal-Hydraulic drive

	Rate Radians/sec	Accel Radians/sec.^{2}
Pitch	1	1
Yaw	1	1
Roll	2	2

Translation - Electric drive

	Length of travel ft.	Velocity (max) ft/sec.	Accel (max) ft/sec.^{2}
Longitudinal (bridge)	210	20	8
Lateral (dolly)	16	4	4
Vertical (cable)	45	10	8

Control-Pilot, closed loop analog.

Application - Aeronautics and Space Category - Guidance and Controls Simulators

7. POTENTIAL:

8. PLANS:

9. BLDG. NO. 1244 10. YR. BUILT: 1963** 11. FAC. CAT. CODE: 310-40

12. INITIAL COST: $ 320** K 13. NASA B.O.D. 1963 14. STATUS CODE: Active

15. ACCUM. COST: $ 320** K 16. LIFE EXPECT. Indef. 17. OWNER CODE: NASA

18. OPER. CODE: NASA 19. CONTRACTOR NAME *(if contr. oper.)*:

** This apparatus only.

20. OTHER SOURCES OF INFO: "Orbital Docking Simulators" Redstone Scientific Information Center RSIC-453, July 1965.
"Rendezvous Docking Simulator" NASA TM X-890, 1963, pp 187-192.

21. COGNIZANT ORGANIZATIONAL COMPONENT: Space Mechanics Division

22. LOCAL OFFICE TO CONTACT FOR FURTHER INFO:
Chief, Research Models and Facilities Division (Code 56.000)
Phone: (Area Code 703) 722-7961, extension 4745