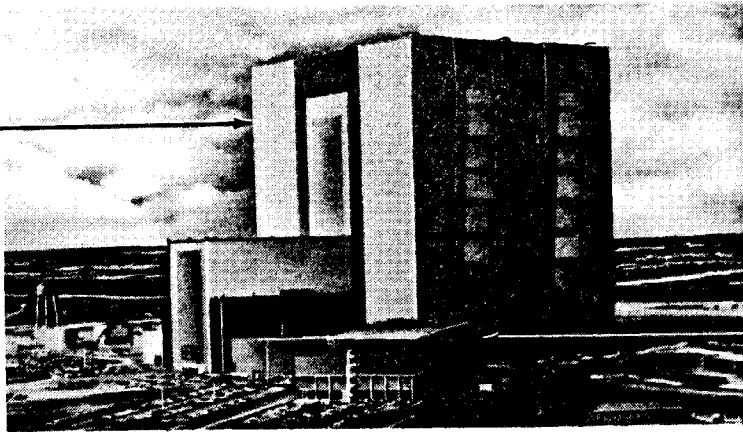


# VEHICLE ASSEMBLY BUILDING

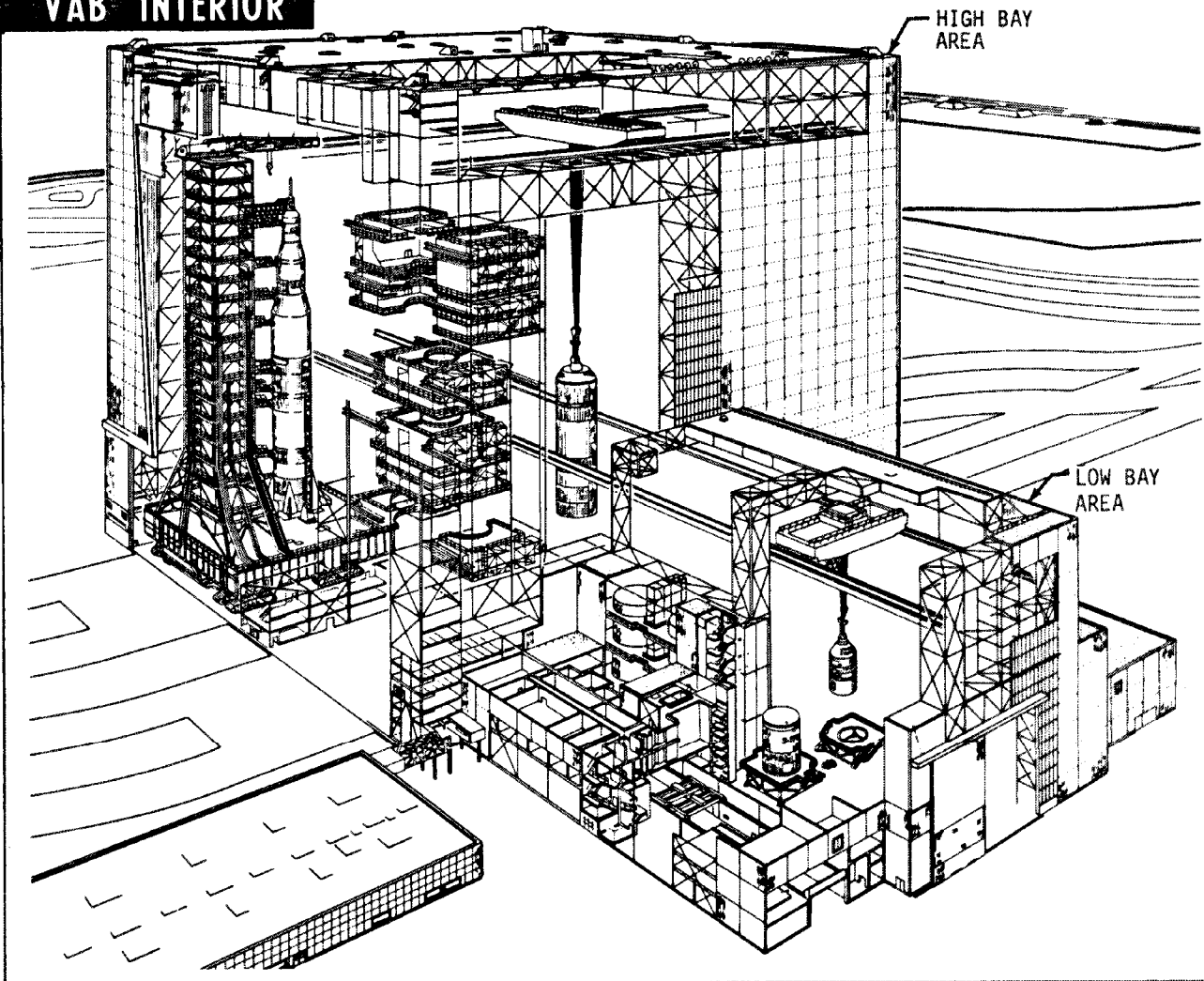
VEHICLE ASSEMBLY BUILDING



LAUNCH CONTROL CENTER

Figure 8-2

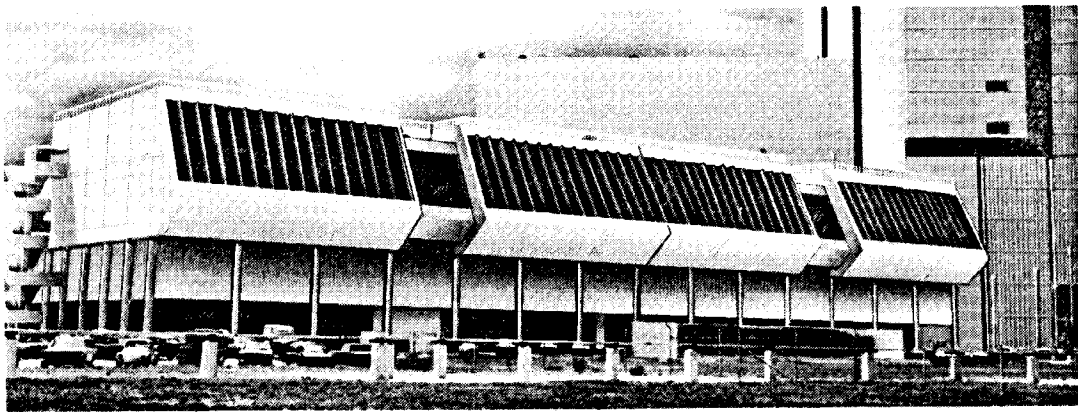
# VAB INTERIOR



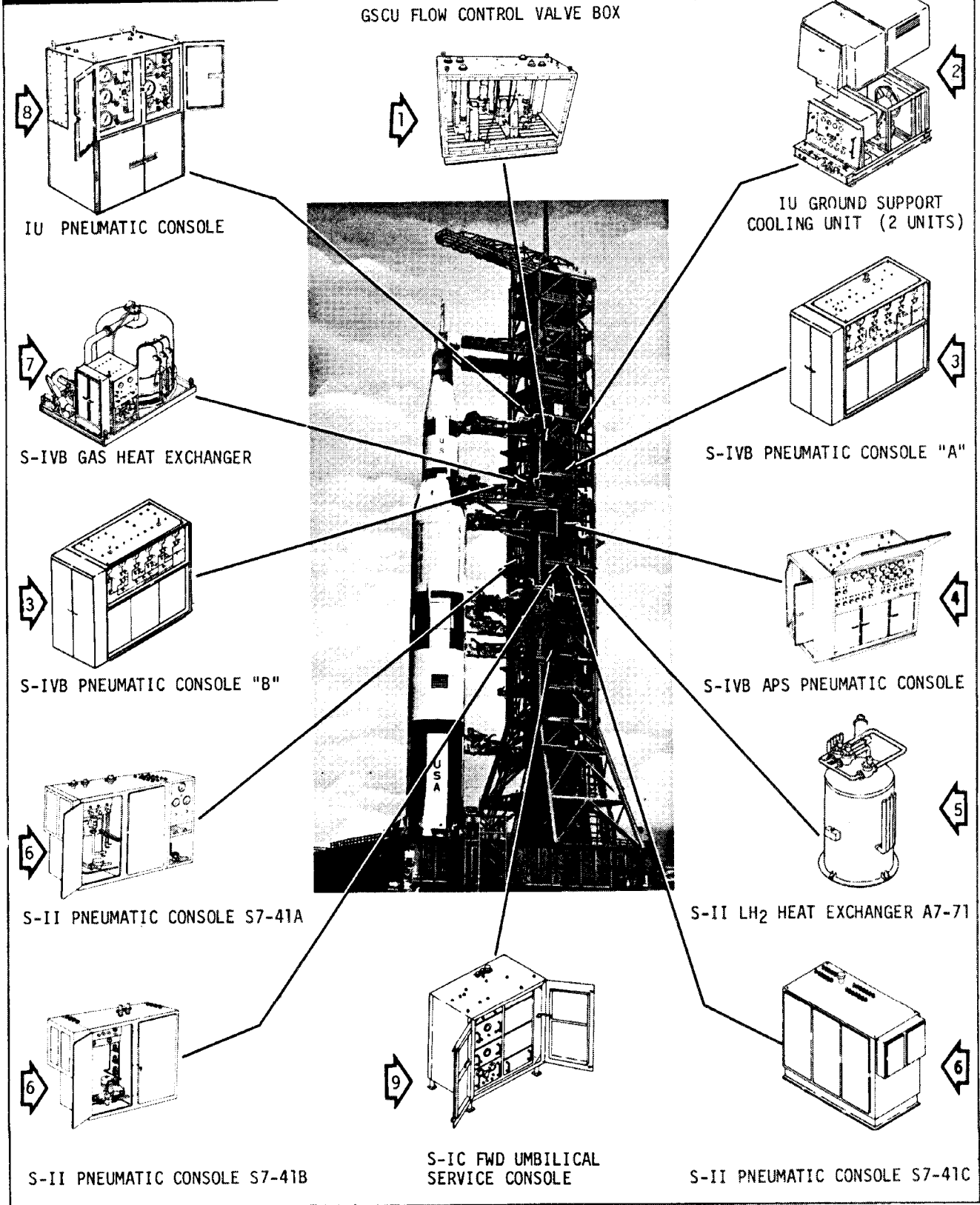
HIGH BAY AREA

LOW BAY AREA

**LCC EXTERIOR**



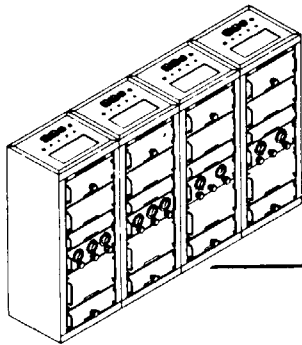
# MOBILE LAUNCHER



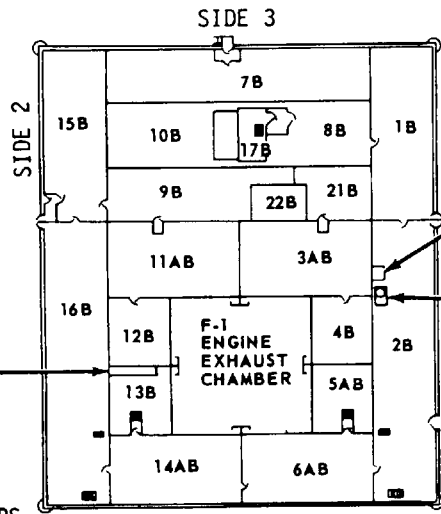
## MOBILE LAUNCHER

- 1 GSCU Flow Control Valve Box  
Selects either GSCU for operation of one unit while the other recirculates.
- 2 Ground Support Cooling Unit  
Supplies water-methanol to the heat exchanger in the IU thermal conditioning system to absorb heat in the IU generated by electronic equipment.
- 3 S-IVB Pneumatic Console A&B  
Regulates and controls helium and nitrogen gases for leak testing, functional checkout, propellant loading, purge, and propellant unloading.
- 4 S-IVB APS Pneumatic Console  
Regulate and distribute helium and nitrogen gases during checkout and propellant loading.
- 5 S-II LH<sub>2</sub> Heat Exchanger A7-71  
Provides gases to the S-IC stage for the following:
  1. Fuel tank pressurization
  2. LOX tank pre-pressurization
  3. Thrust Chamber jacket chilldown
- 6 S-II Pneumatic Consoles S7-41A, B, & C  
Regulate, control, and monitor gases for S-II stage during standby, prelaunch, and launch.
- 7 S-IVB Gas Heat Exchanger  
Supplies cold helium or hydrogen for the following:
  1. Lox and Fuel Tank Pre-Pressurization
  2. Thrust chamber jacket chilldown
  3. Pressurize engine turbine start bottle
- 8 IU Pneumatic Console  
Regulates, monitors, and controls pneumatic pressure to pressurize, checkout, and test the air bearing spheres and related pneumatic and electro-mechanical circuitry.
- 9 S-IC Forward Umbilical Service Console  
Supplies nitrogen from three regulation modules to S-IC stage pneumatic systems through the forward umbilical plate.

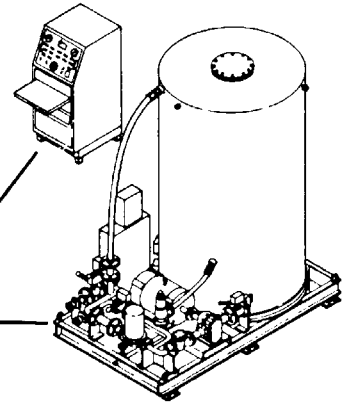
# MOBILE LAUNCHER LEVEL A AND B



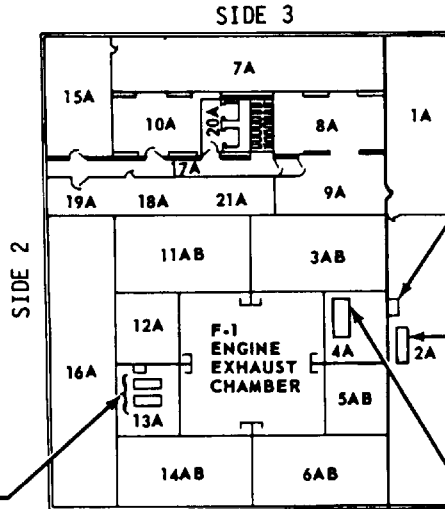
**S-IC PNEUMATIC CHECKOUT RACKS**  
REGULATES CONTROLS, AND MONITORS NITROGEN FOR TEST AND CHECKOUT OF PRESSURE SWITCHES AND VALVES IN STAGE PROPULSION SYSTEM.



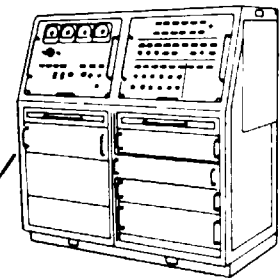
SIDE 1  
LEVEL B (LOWER)



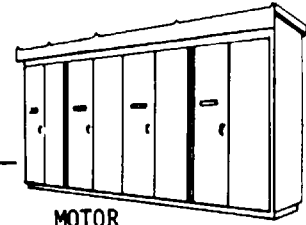
**S-IC INERT PREFILL UNIT**  
SUPPLIES ETHYLENE GLYCOL TO F-1 ENGINE FUEL JACKETS TO ELIMINATE ENTRAPPED AIR.



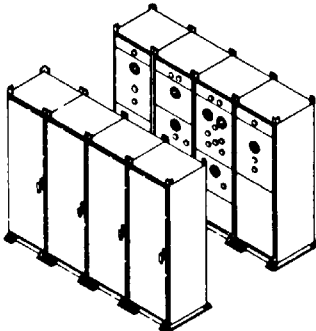
SIDE 1  
LEVEL A (UPPER)



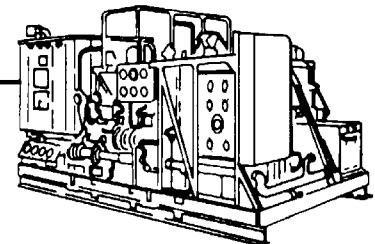
**SYSTEM CHECKOUT CONSOLE**



**MOTOR CONTROL CENTER**



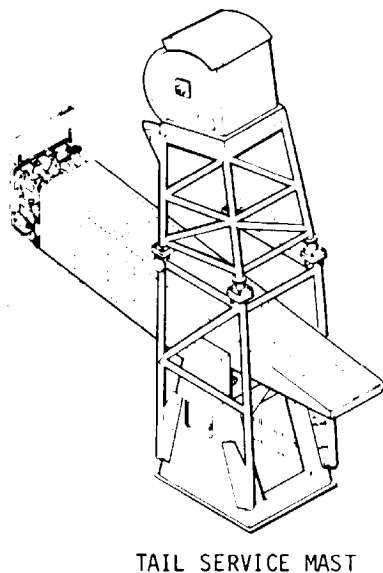
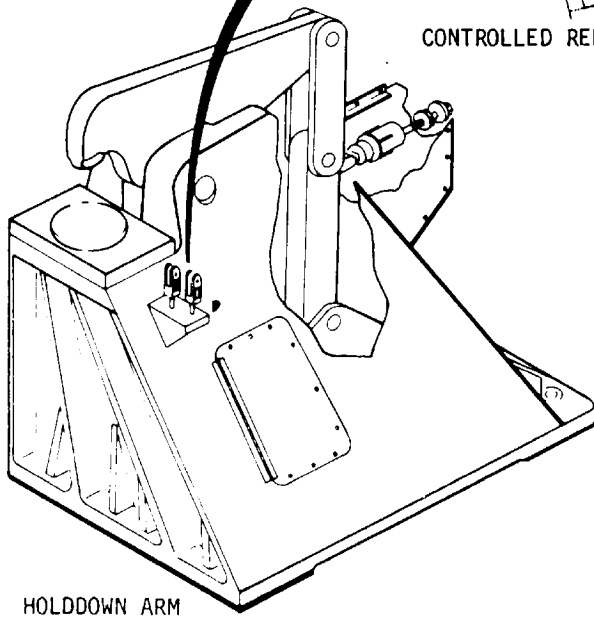
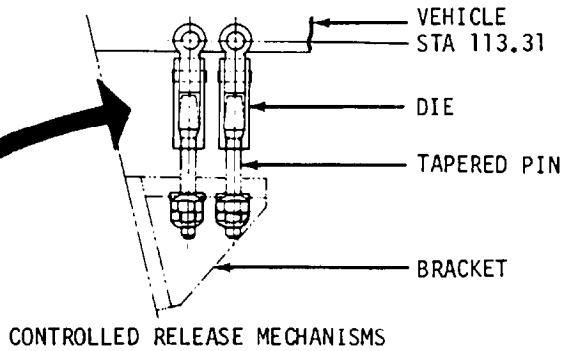
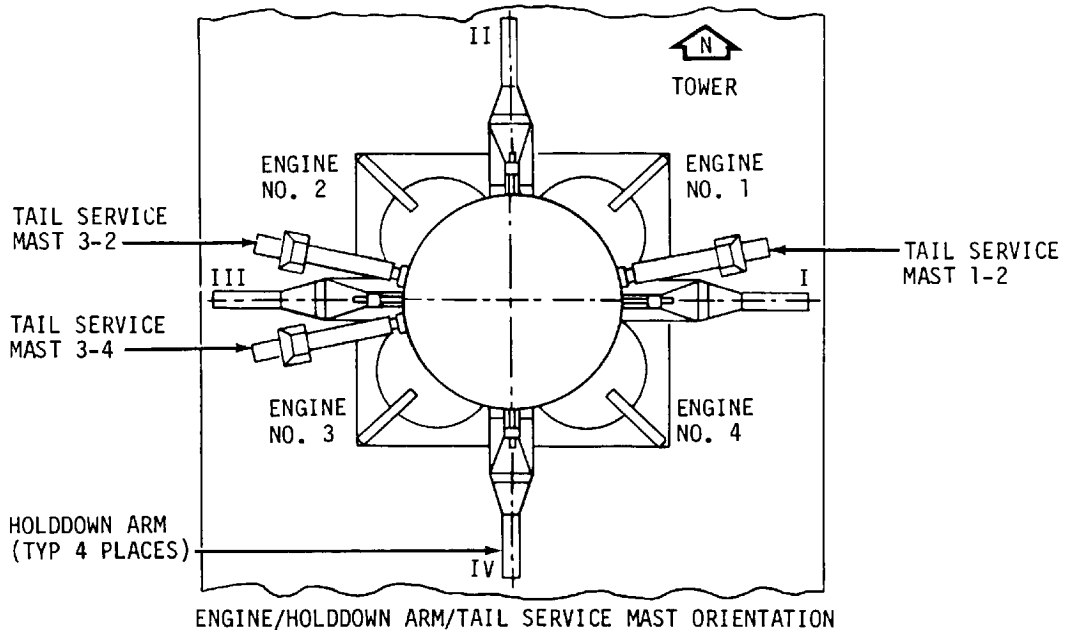
**S-IC PNEUMATIC CONSOLE**  
REGULATES FACILITY GASES  
SUPPLIES OPERATING PRESSURES TO S-IC STAGE  
AND S-IC PNEUMATIC CHECKOUT RACKS



**HYDRAULIC POWER UNIT**

**S-IC HYDRAULIC SUPPLY AND CHECKOUT UNIT**  
GIMBALS FOUR OUTBOARD F-1 ENGINES  
CHECKS OUT "THRUST OK" PRESSURE SWITCHES  
CONTROLS F-1 ENGINE VALVES

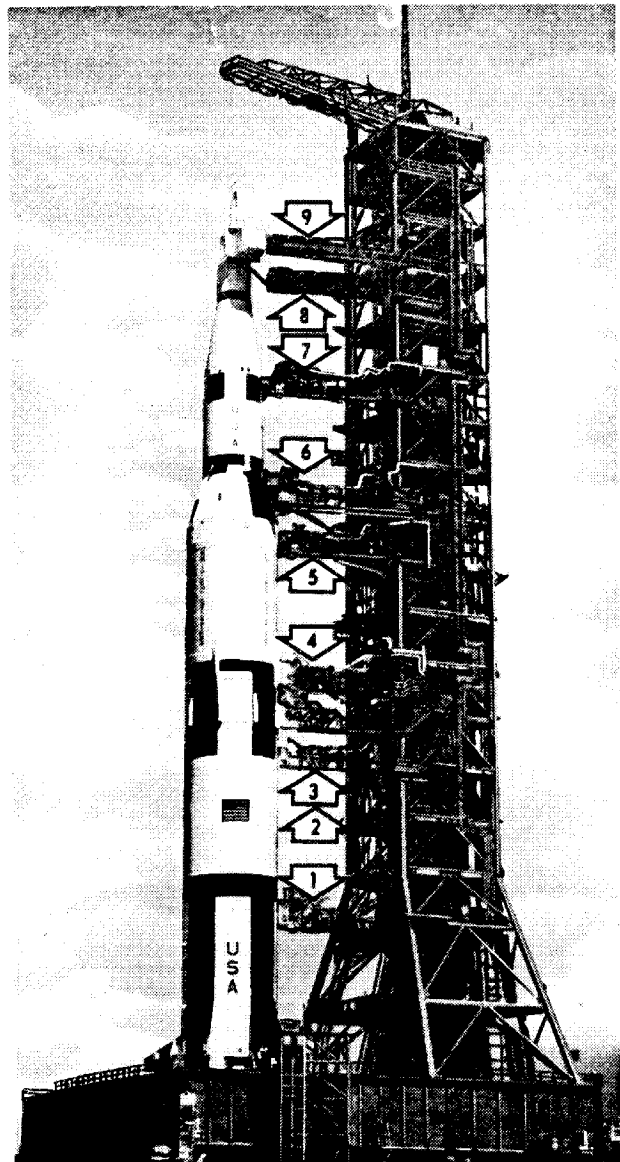
# HOLDDOWN ARMS/TAIL SERVICE MAST



## MOBILE LAUNCHER SERVICE ARMS

- 1 S-IC Intertank (preflight). Provides lox fill and drain interfaces. Umbilical withdrawal by pneumatically driven compound parallel linkage device. Arm may be reconnected to vehicle from LCC. Retract time is 8 seconds. Reconnect time is approximately 5 minutes.
- 2 S-IC Forward (preflight). Provides pneumatic, electrical, and air-conditioning interfaces. Umbilical withdrawal by pneumatically driven block and tackle/lanyard device. Secondary mechanical system. Retracted at T-19 seconds. Retract time is 8 seconds.
- 3 S-II Aft (preflight). Provides access to vehicle. Arm retracted prior to liftoff as required.
- 4 S-II Intermediate (inflight). Provides LH<sub>2</sub> and lox transfer, vent line, pneumatic, instrument cooling, electrical, and air-conditioning interfaces. Umbilical withdrawal systems same as S-IVB Forward with addition of a pneumatic cylinder actuated lanyard system. This system operates if primary withdrawal system fails. Retract time is 6.4 seconds (max).
- 5 S-II Forward (inflight). Provides GH<sub>2</sub> vent, electrical, and pneumatic interfaces. Umbilical withdrawal systems same as S-IVB Forward. Retract time is 7.4 seconds (max).
- 6 S-IVB Aft (inflight). Provides LH<sub>2</sub> and lox transfer, electrical, pneumatic, and air-conditioning interfaces. Umbilical withdrawal systems same as S-IVB Forward. Also equipped with line handling device. Retract time is 7.7 seconds (max).
- 7 S-IVB Forward (inflight). Provides fuel tank vent, electrical, pneumatic, air-conditioning, and preflight conditioning interfaces. Umbilical withdrawal by pneumatic disconnect in conjunction with pneumatic/hydraulic redundant dual cylinder system. Secondary mechanical system. Arm also equipped with line handling device to protect lines during withdrawal. Retract time is 8.4 seconds (max).
- 8 Service Module (inflight). Provides air-conditioning, vent line, coolant, electrical, and pneumatic interfaces. Umbilical withdrawal by pneumatic/mechanical lanyard system with secondary mechanical system. Retract time is 9.0 seconds (max).

- 9 Command Module Access Arm (preflight). Provides access to spacecraft through environmental chamber. Arm may be retracted or extended from LCC. Retracted 12° park position until T-4 minutes. Extend time is 12 seconds from this position.



**LAUNCH PAD A, LC-39**

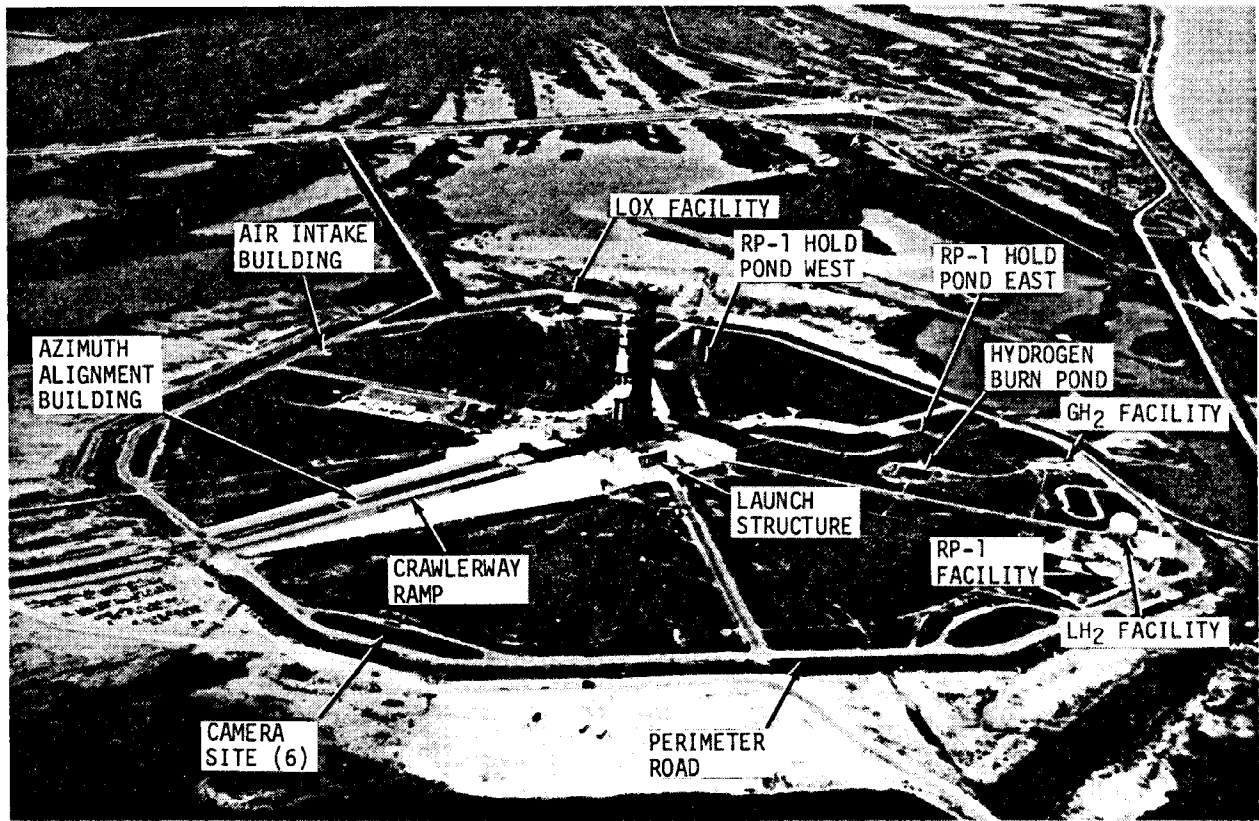
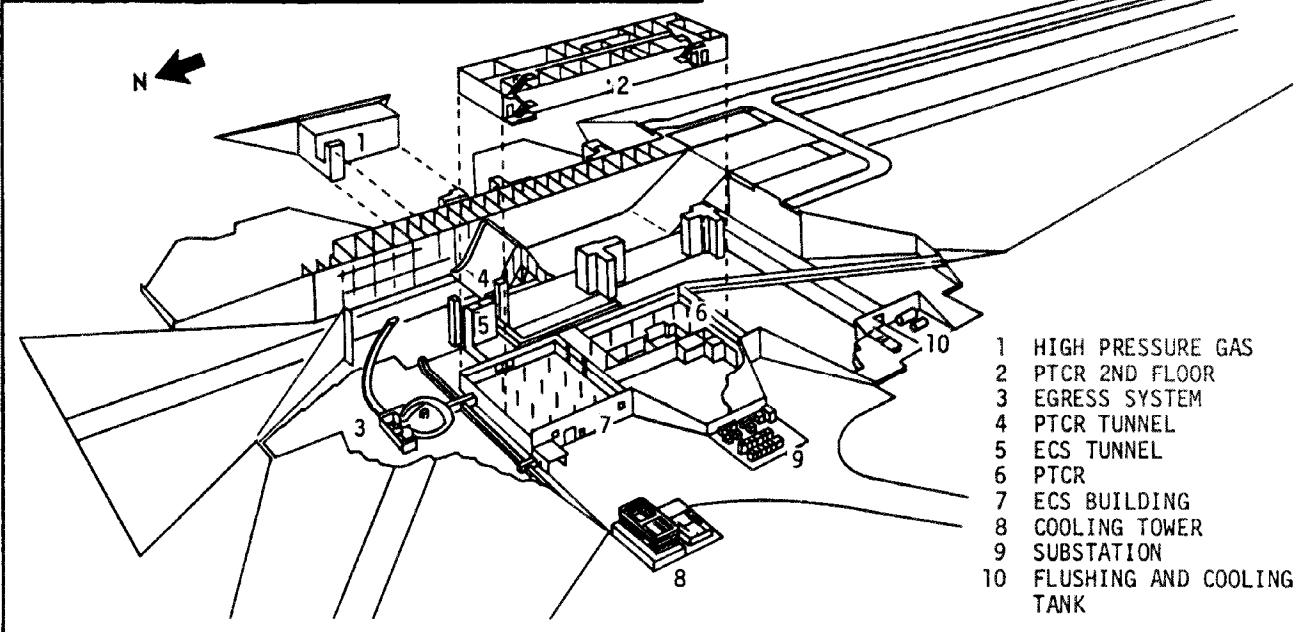


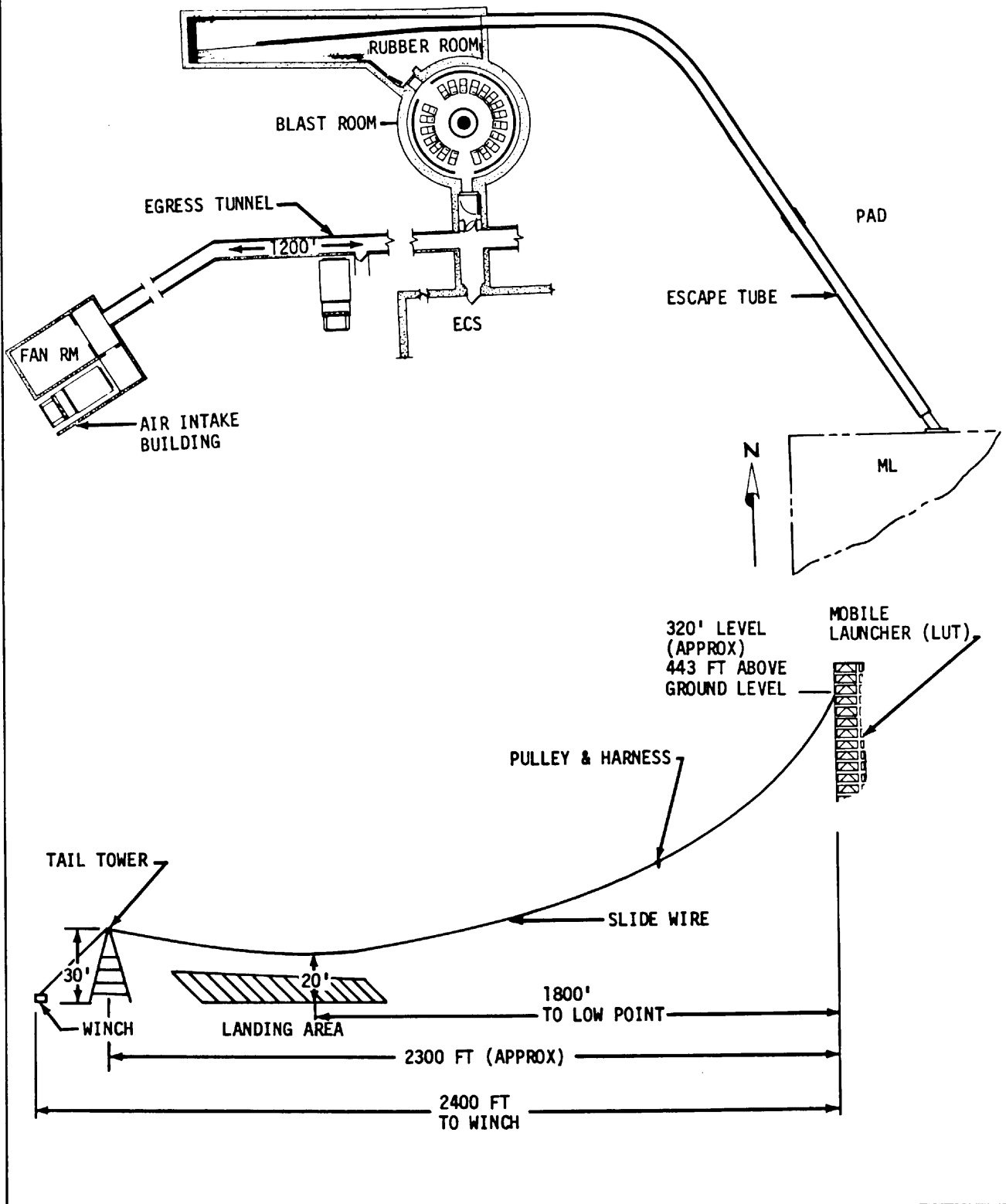
Figure 8-9

**LAUNCH STRUCTURE EXPLODED VIEW**





# EGRESS SYSTEM



**MOBILE SERVICE STRUCTURE**

