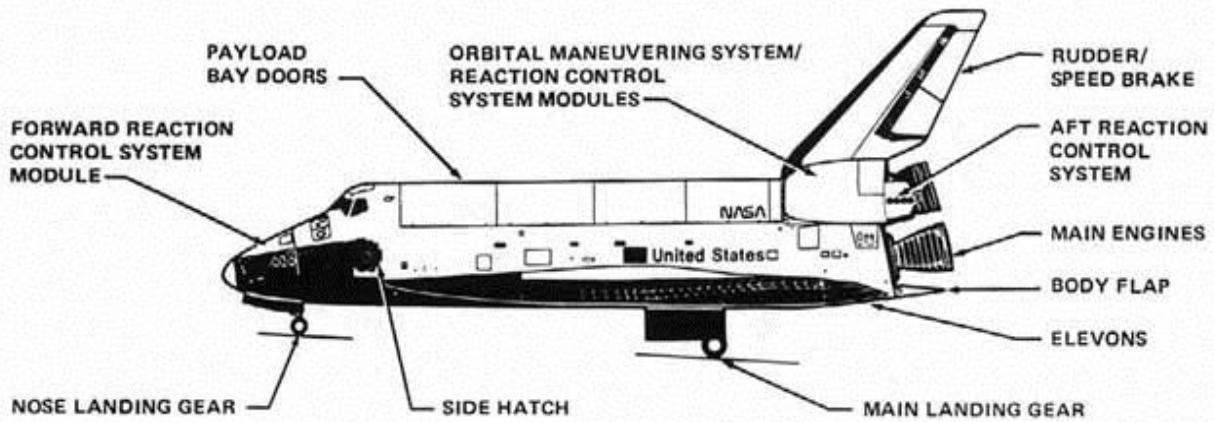
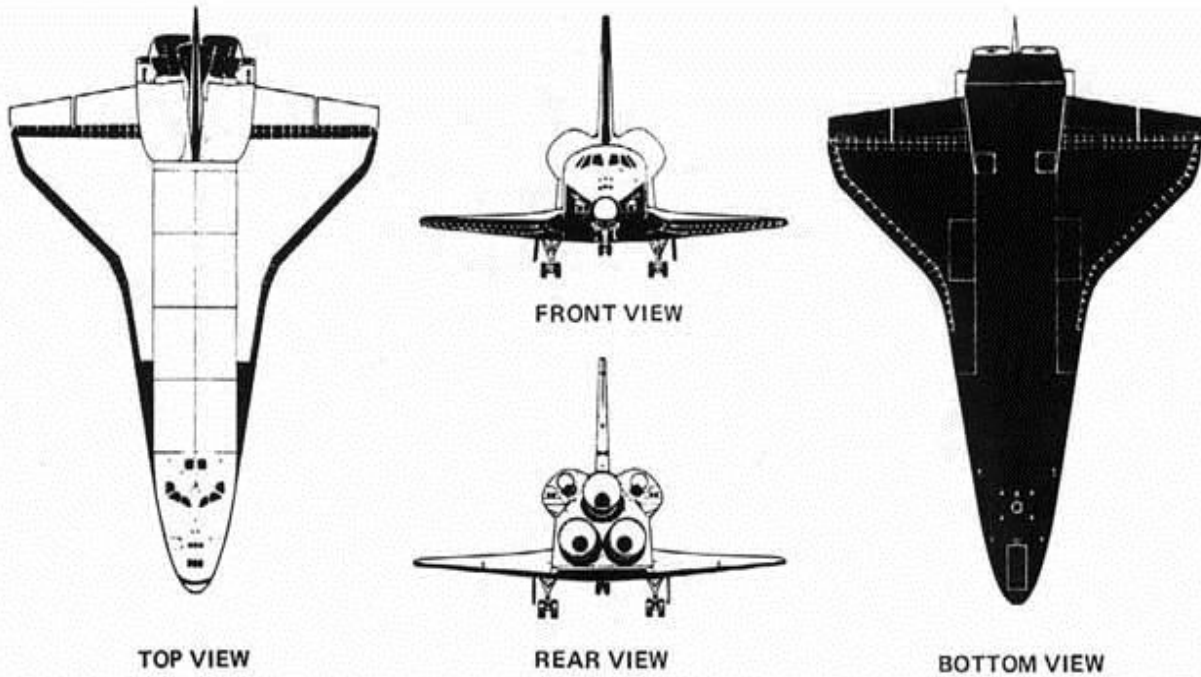


## Space Shuttle System Schematics



### DIMENSIONS AND WEIGHT

WING SPAN .....	23.79 m	(78.06 FT)
LENGTH .....	37.24 m	(122.17 FT)
HEIGHT .....	17.25 m	(56.58 FT)
TREAD WIDTH .....	6.91 m	(22.67 FT)
GROSS TAKEOFF WEIGHT .....		VARIABLE
GROSS LANDING WEIGHT .....		VARIABLE
INERT WEIGHT (APPROX) .....	74 844 kg	(165 000 LB)

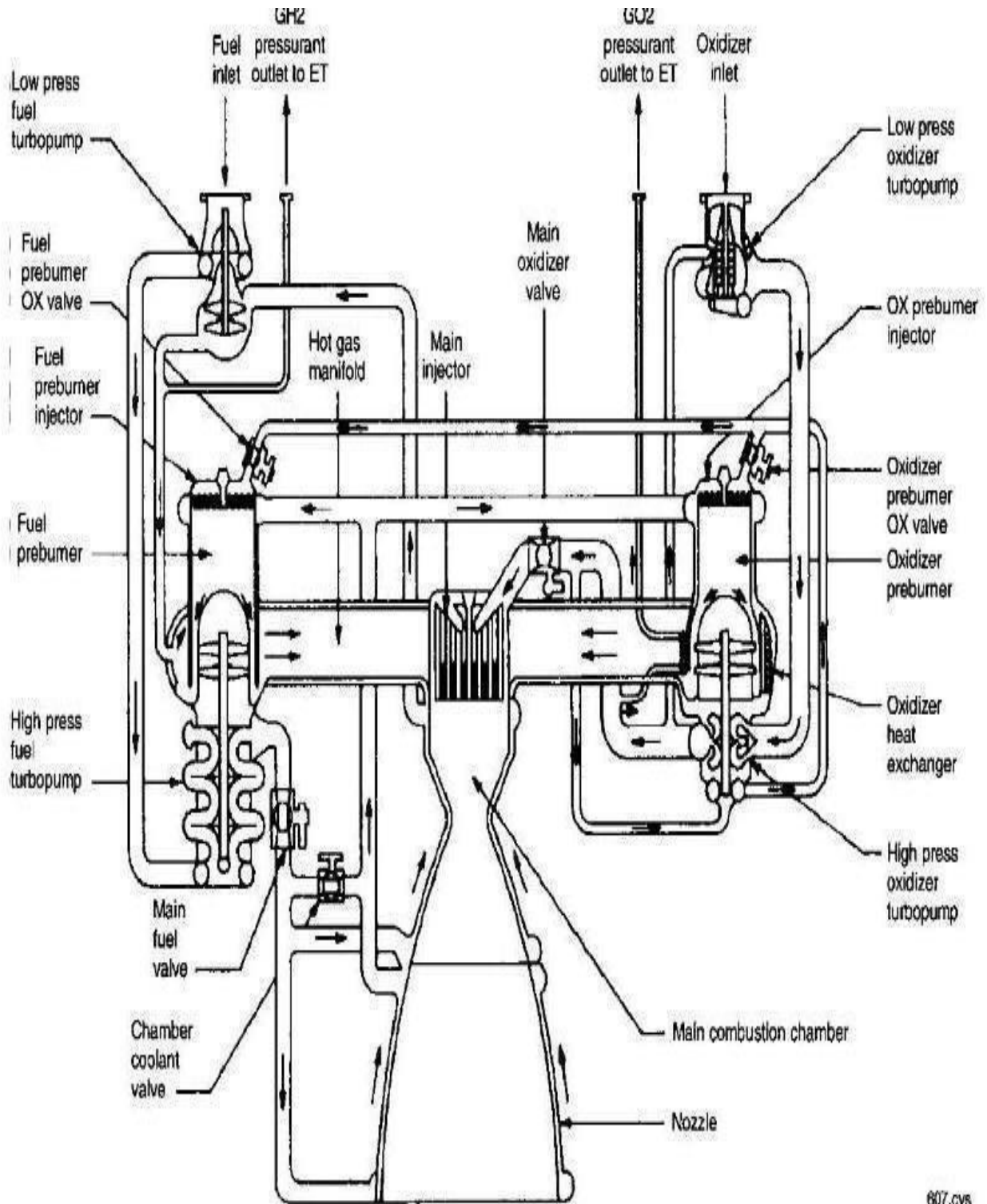
### MINIMUM GROUND CLEARANCES

BODY FLAP (AFT END) .....	3.88 m	(12.07 FT)
MAIN GEAR (DOOR) .....	0.87 m	(2.85 FT)
NOSE GEAR (DOOR) .....	0.90 m	(2.95 FT)
WINGTIP .....	3.63 m	(11.92 FT)

## System Schematic Directory

<b>Main Engine Schematic</b>	<b>page 3</b>
<b>Orbital Maneuvering System Schematic</b>	<b>page 4</b>
<ul style="list-style-type: none"> <li>• Oxidation Vapor Isolation Valves 1 and 2</li> <li>• Oxidation Tank Isolation Valves A and B</li> <li>• Oxidizer Cross-feed Valves A and B</li> <li>• Fuel Tank Isolation Valves A and B</li> <li>• Fuel Cross-feed Valves A and B</li> <li>• Control Valves 1 and 2</li> </ul>	
<b>Reaction Control System External View Schematic</b>	<b>page 5</b>
<b>Reaction Control System Schematic</b>	<b>page 6</b>
<ul style="list-style-type: none"> <li>• Primary Regulator A and B</li> <li>• Secondary Regulator A and B</li> <li>• Leg Lines to Thrusters 1-5</li> <li>• Oxygen Output Terminal Controller</li> <li>• RCS Manifolds 1-5</li> </ul>	
<b>Electrical Power System Overview Schematic</b>	<b>page 7</b>
<b>Cryogenic Power Distribution System Schematic for Fuel Cells 1-3</b>	<b>page 8</b>
<ul style="list-style-type: none"> <li>• Cryogenic Oxygen System - Reaction Valves 1-3</li> <li>• Cryogenic Hydrogen System - Reaction Valves 1-3</li> </ul>	
<b>Direct Power Distribution Schematics for Fuel Cells 1-3</b>	<b>page 9</b>
<ul style="list-style-type: none"> <li>• AC Power <ul style="list-style-type: none"> <li>○ Power Distribution Assemblies 1-3</li> <li>○ Power Control Assemblies 1-3</li> <li>○ Electrical AC Bus System 1-3</li> </ul> </li> <li>• DC Power <ul style="list-style-type: none"> <li>○ Power Distribution Assemblies 1-3</li> <li>○ Power Control Assemblies 1-3</li> <li>○ Electrical DC Bus System 1-3</li> </ul> </li> </ul>	
<b>General Purpose Computer 1-5 Data BUS Network</b>	<b>page 10</b>
<b>General Purpose Computer Functional Block Diagram</b>	<b>page 11</b>
<b>Annunciator Panel Warning Directory</b>	<b>page 12</b>
<b>Flight Engineers Panel</b>	<b>page 15</b>

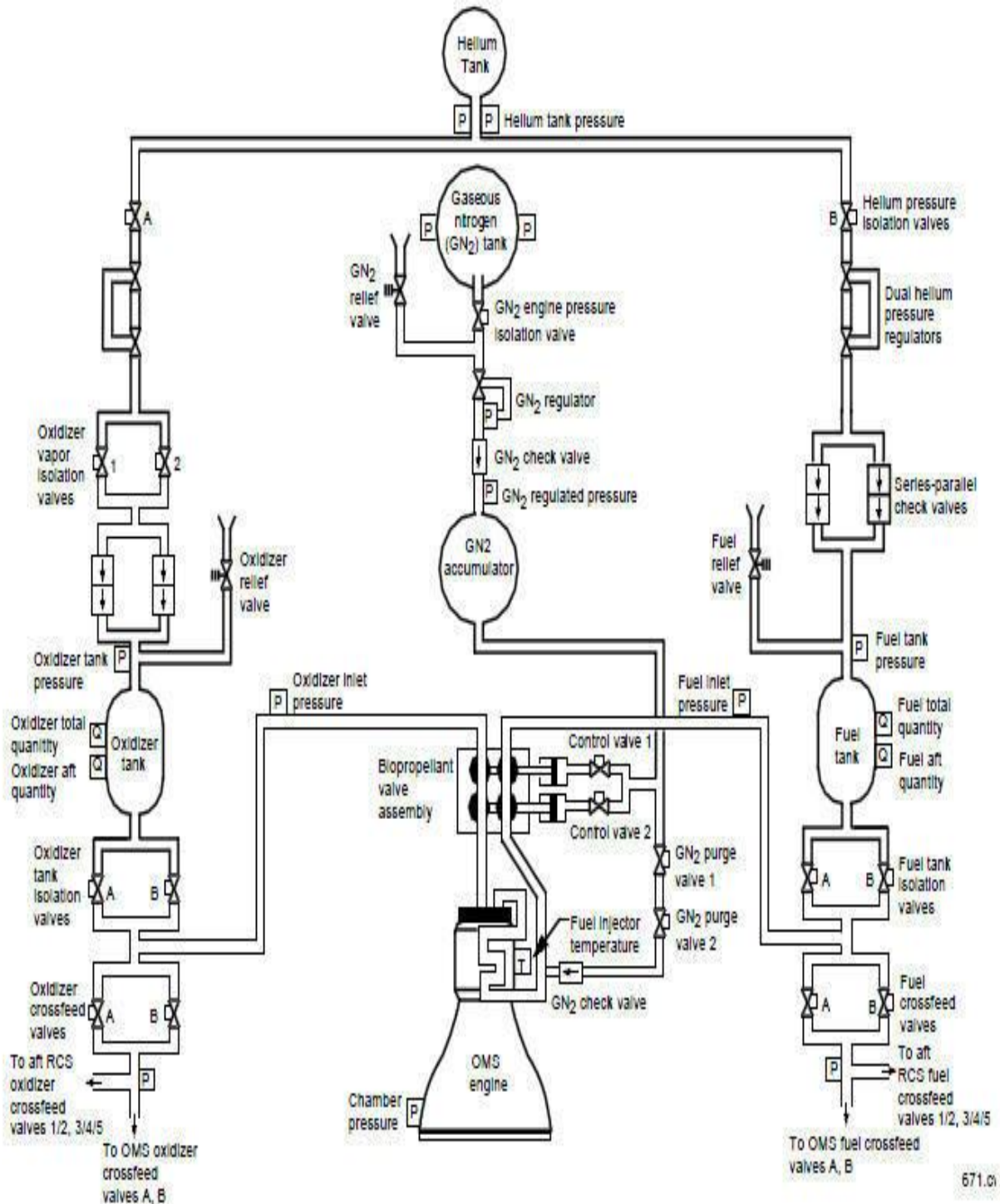
# Main Engines



607.cvs

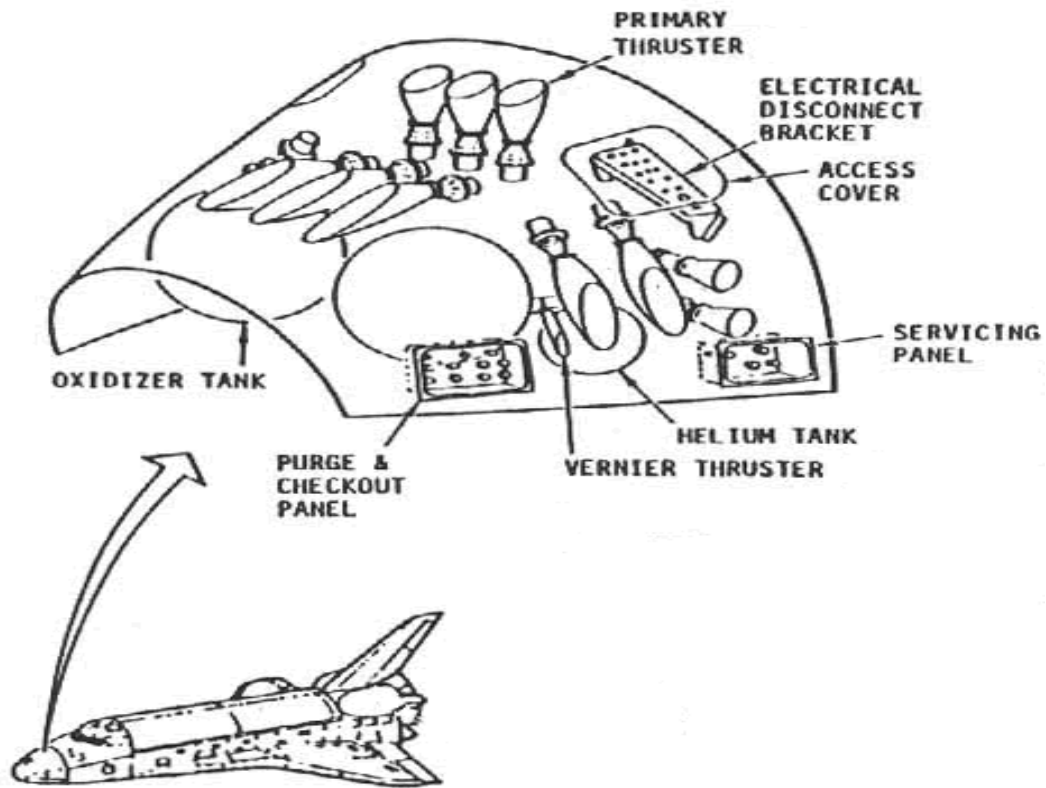
Main Engine Schematic

# Orbital Maneuvering System

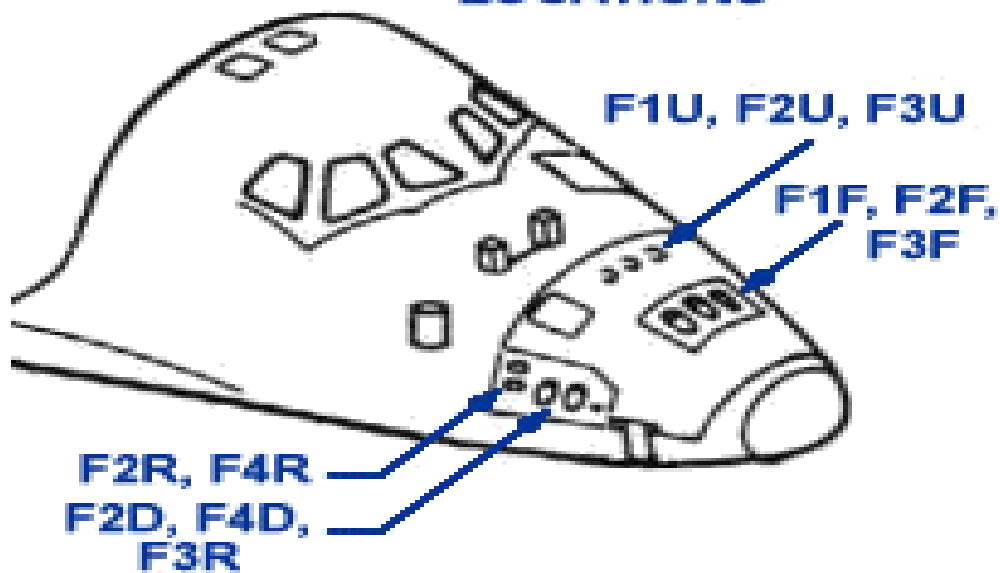


Orbital Maneuvering System Pressurization and Propellant Feed System  
for One Engine (other Engine Identical)

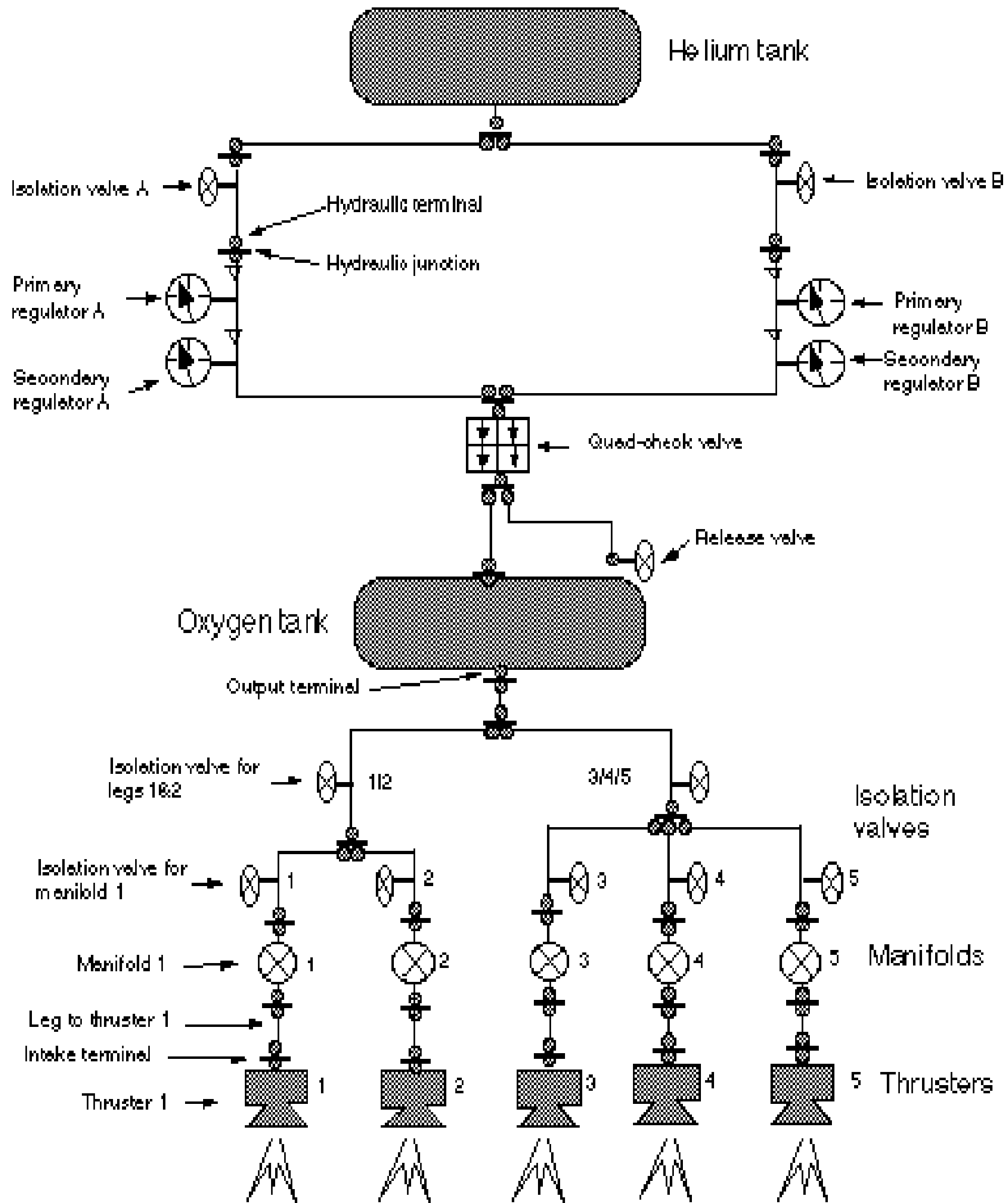
## Reaction Control System External View Schematic



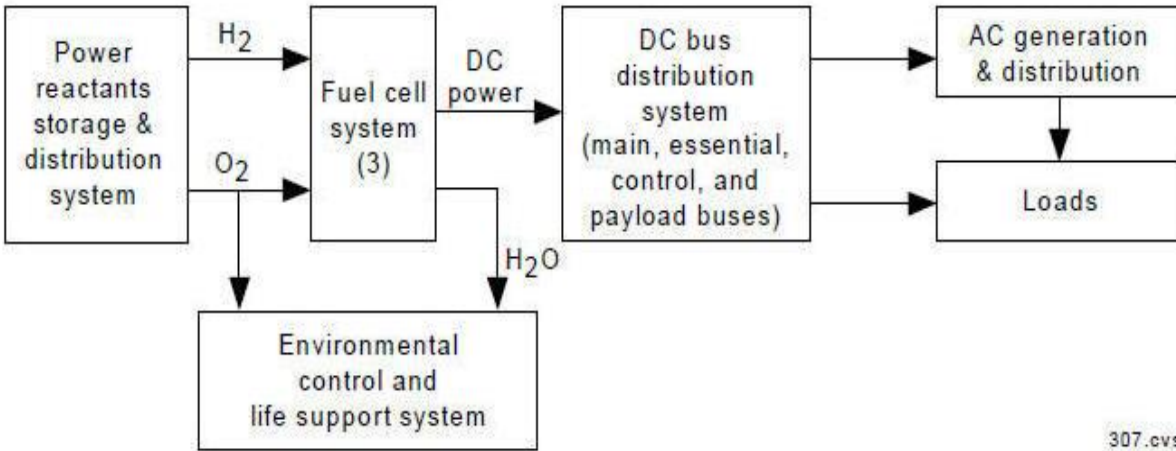
### FORWARD RCS THRUSTER LOCATIONS



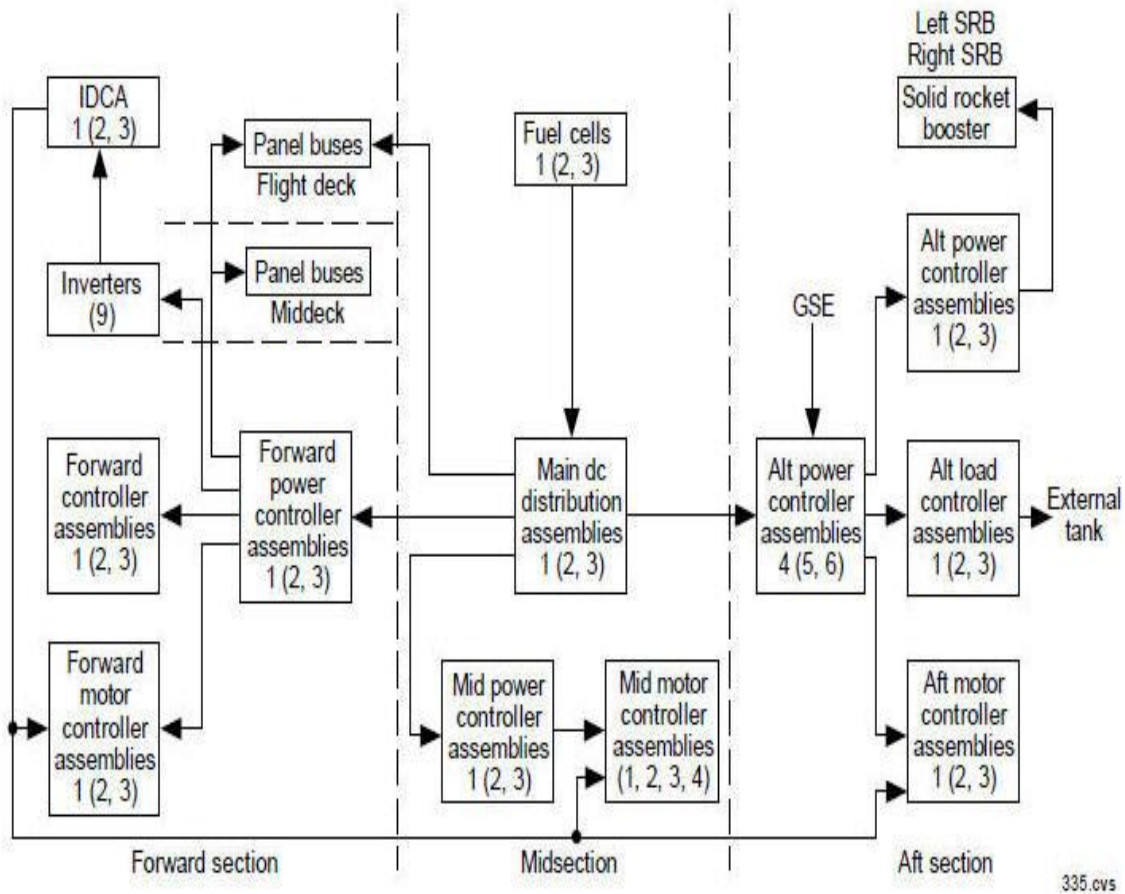
## Reaction Control System Schematic



## Electrical and Power Systems Overview

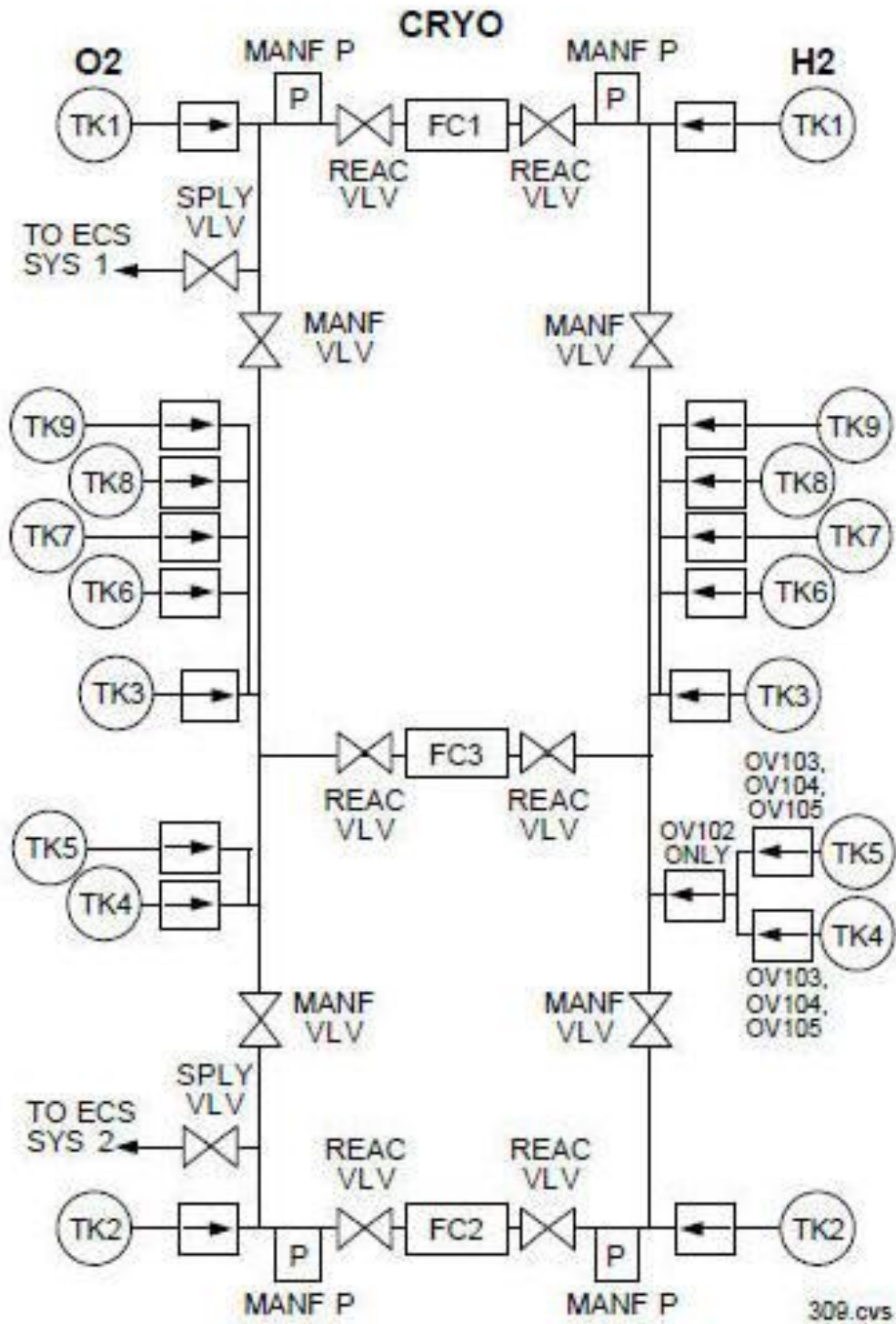


### The Electrical Power System



Electrical Power Distribution Block Diagram

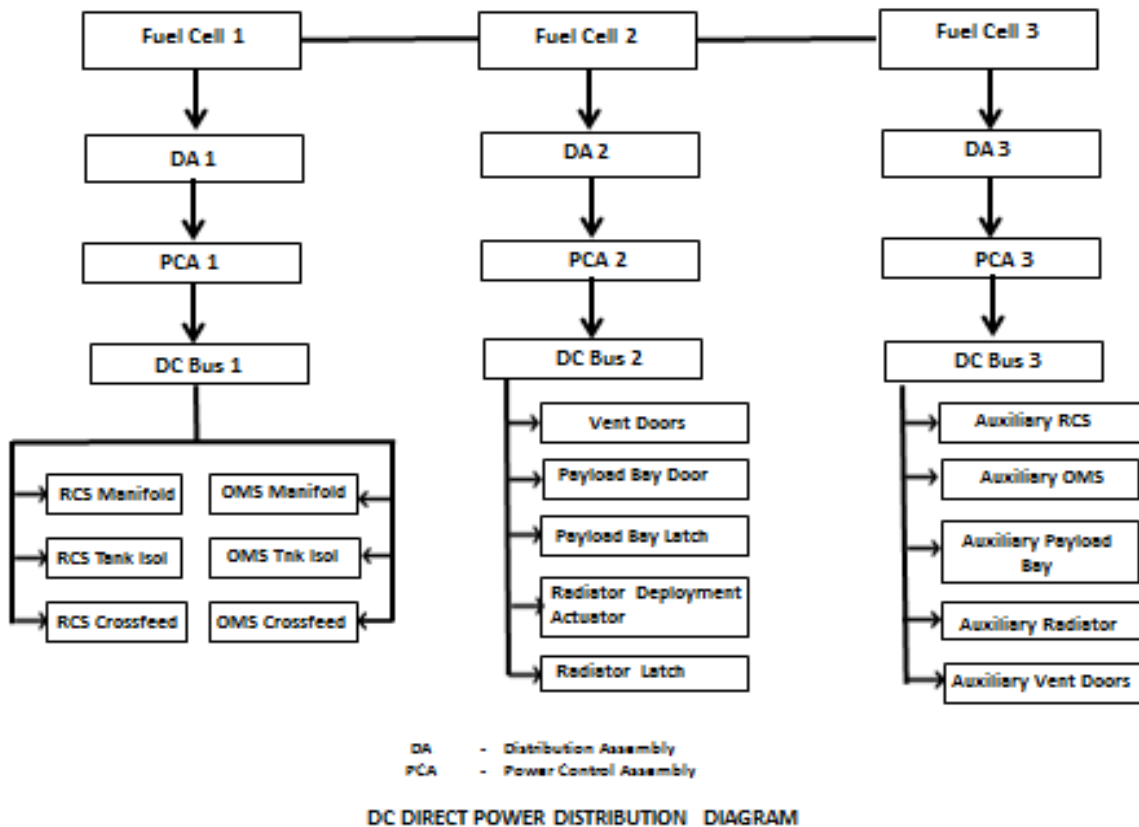
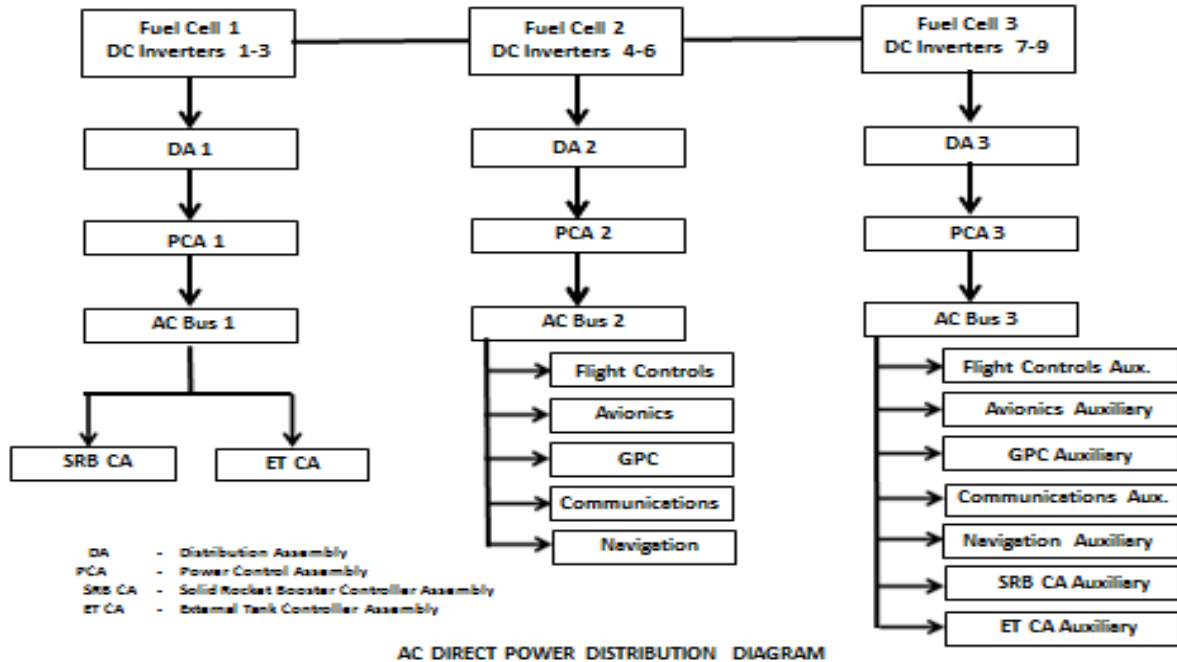
# Cryogenic Power Distribution System Schematic



The PDRS System

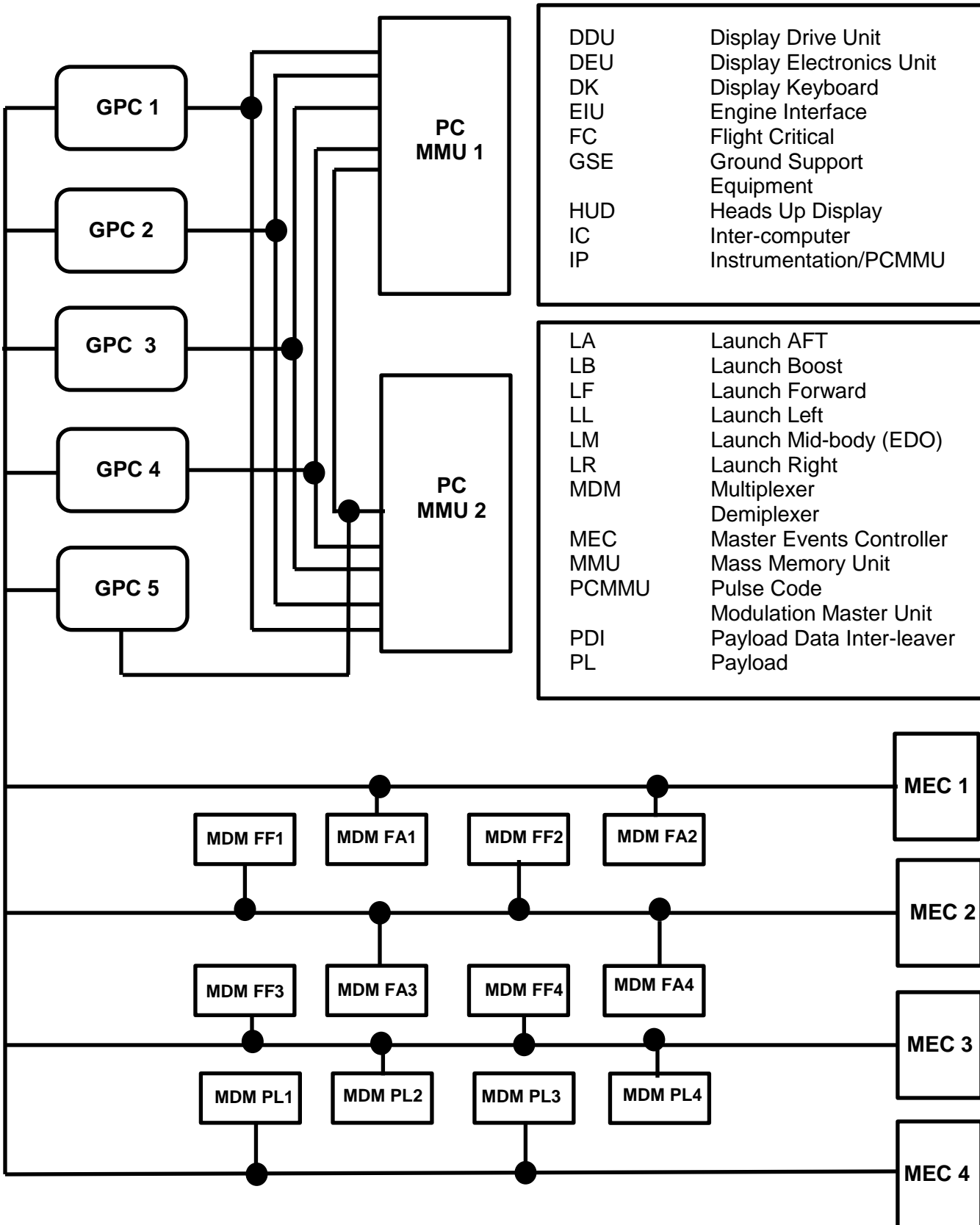


## Direct Power Distribution Schematics

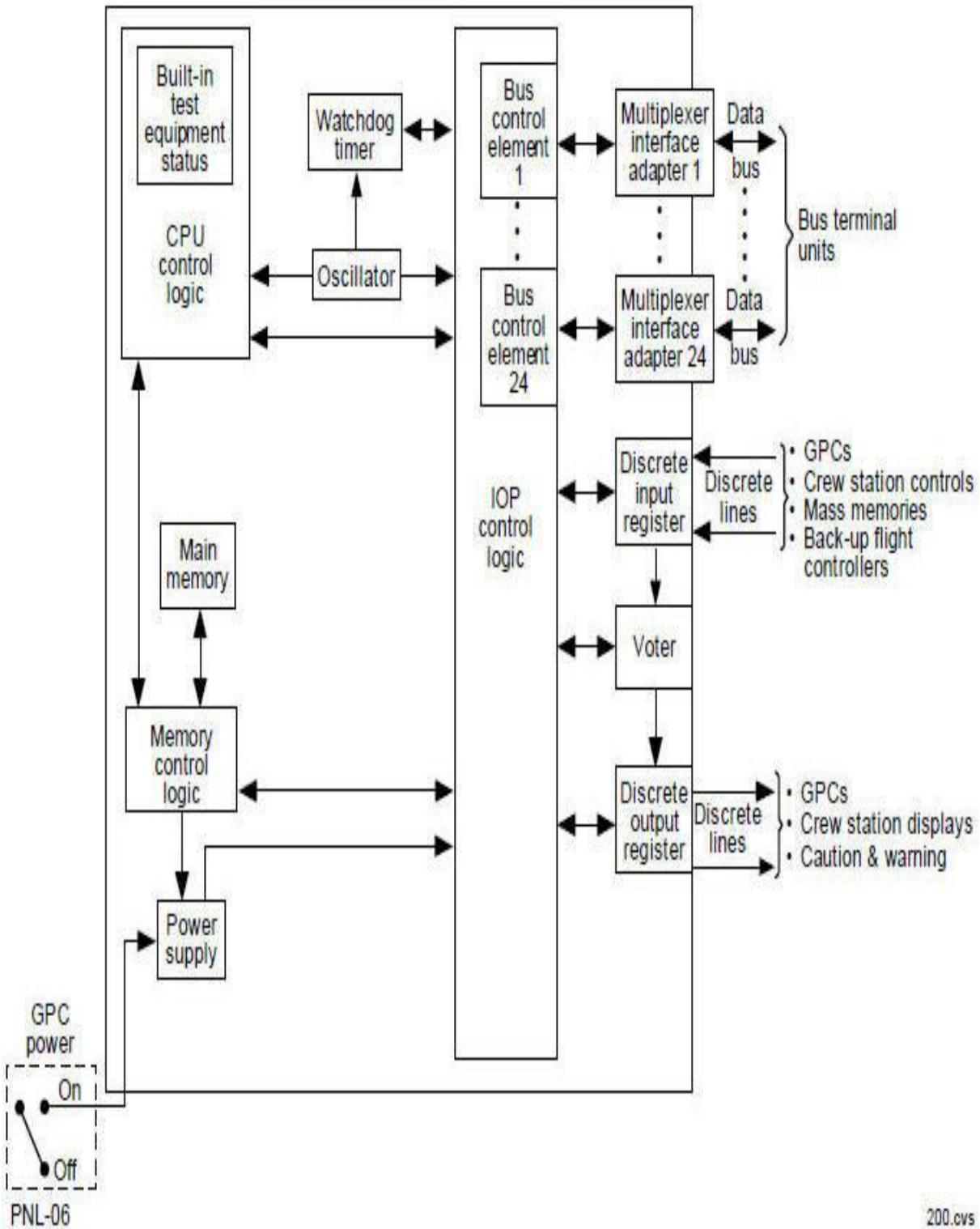


# DATA BUS NETWORK

Version 2.15



### General Purpose Computer Functional Block Diagram



General Purpose Computer Functional Block Diagram

## Annunciator Panel Warning Directory

O<sub>2</sub> PRESS: Indicates an O<sub>2</sub> tank 1, 2, 3, or 4 pressure or the O<sub>2</sub> kit (Tank 5) pressure out of limits.

H<sub>2</sub> PRESS : Indicates either an H<sub>2</sub> Tank 1, 2, 3, or 4 pressure or the H<sub>2</sub> kit (Tank 5) pressure out of limits

FIRE CABIN: Smoke and/or fire detector in the cabin has activated

FIRE PAYLD BAY: Smoke and/or fire detector in the payload bay has activated

FUEL CELL TEMP : Indicates a Fuel Cell 1, 2, or 3 stack temperature out of limits.

CABIN ATM: Indicates cabin pressure, PPO<sub>2</sub>, O<sub>2</sub> flow rate, or N<sub>2</sub> flow rate out of limits.

O<sub>2</sub> HEATER TEMP: Indicates an O<sub>2</sub> Tank 1, 2, 3, or 4 heater temp or O<sub>2</sub> kit (Tank 5) heater temp out of limits.

MAIN BUS UNDERVOLT: Indicates main bus A, B, or C voltage low.

AC VOLTAGE: Indicates AC bus 1, 2, or 3 phase A, B, or C out of limits.

AC OVERLOAD: Indicates an inverter 1, 2, or 3 phase A, B, or C output of 225 percent overload for 20 sec or 300 percent for 4 to 6 sec.

FREON LOOP: Indicates a low Freon loop 1 or 2 flow rate or a temperature out of limits.

AV BAY/CABIN AIR: Indicates out of limits condition on cabin fan DP, AV Bay 1, 2, or 3 air out temp, or cabin heat exchanger air temp.

IMU: Indicates detection of an inertial measurement unit (IMU) failure or dilemma.

FWD RCS: Indicates detection of an out of limits condition on a forward RCS oxidizer tank ullage pressure, fuel tank ullage pressure, or forward oxidizer or fuel leak.

RCS JET: Indicates detection of an RCS jet failed on, failed off, or leaking.

H<sub>2</sub>O LOOP: Indicates an out of limits condition on H<sub>2</sub>O loop 1 or 2 pump out pressure.

SRB LEFT: Indicates detection of a left Solid Rocket Booster engine abnormal status (fail to ignite, or early shutdown) condition

MAIN ENGINE LEFT: Indicates detection of a left main engine pod fuel tank ullage pressure out of limits, or an engine abnormal (main engine fail to ignite, or early shutdown) condition.

LEFT RCS: Indicates detection of a left RCS oxidizer, fuel tank ullage pressure out of limits, or left oxidizer or fuel leak.

RIGHT RCS: Indicates detection of a right RCS oxidizer, fuel tank ullage pressure out of limits, or right oxidizer or fuel tank leak.

PAYLOAD WARNING: Indicates detection of up to five payload parameter inputs out of limits.

SRB RIGHT: Indicates detection of a right Solid Rocket Booster engine abnormal status (fail to ignite, or early shutdown) condition

MAIN ENGINE CENTER: Indicates detection of a left main engine pod fuel tank ullage pressure out of limits, or an engine abnormal (main engine fail to ignite, or early shutdown) condition.

LEFT OMS: Indicates detection of a left OMS pod oxidizer, fuel tank ullage pressure out of limits, or an engine abnormal (OMS engine fail to cutoff, fail to ignite, or early shutdown) condition.

RIGHT OMS: Indicates detection of a right OMS pod fuel tank ullage pressure out of limits, or an engine abnormal (OMS engine fail to ignite, or early shutdown) condition.

PAYLOAD CAUTION: Indicates detection of a payload parameter input out of limits.

GPC: Indicates General Purpose Computer 1, 2, 3, 4, or 5 has determined itself failed and issued a self-fail discrete.

MAIN ENGINE RIGHT: Indicates detection of a right main engine pod fuel tank ullage pressure out of limits, or an engine abnormal (main engine fail to ignite, or early shutdown) condition.

OMS KIT: Indicates detection of an OMS kit oxidizer or fuel tank ullage pressure out of limits.

OMS TVC: Indicates detection of an OMS pitch or yaw gimbal failure. An OMS TVC failure may indicate a failure in the GPC. OMS TVC failure may precipitate a LEFT or RIGHT OMS failure.

APU TEMP: Indicates an APU 1, 2, or 3 exhaust gas temp or lube oil temp out of limits.

APU OVERSPEED: Indicates an APU 1, 2, or 3 speed greater than a specified percentage of the designed speed.

APU UNDERSPEED: Indicates an APU 1, 2, or 3 speeds less than a specified percentage of the designed speed.

HYD PRESS: Indicates a hydraulics system 1, 2, or 3 supply pressures out of limits.

## FLIGHT ENGINEERS PANEL

REACTION CONTROL SYTEM ISOLATION VALVES						V 2.14
Primary A	Secondary A	Primary B	Secondary B	Leg 1/2	Leg 3/4/5	
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	
CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	
O2 Out Term	Manifold 1	Manifold 2	Manifold 3	Manifold 4	Manifold 5	
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	
CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	
ORBITAL MANEUVERING SYSTEM						
OVIV 1	OVIV 2	OTIV A	OTIV B	OCV A	OCV B	
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	
CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	
FTIV A	FTIV B	FCV A	FCV B	CV 1	CV 2	
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	
CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	

