# Solid Rocket Booster

# Illustrated Systems Schematics

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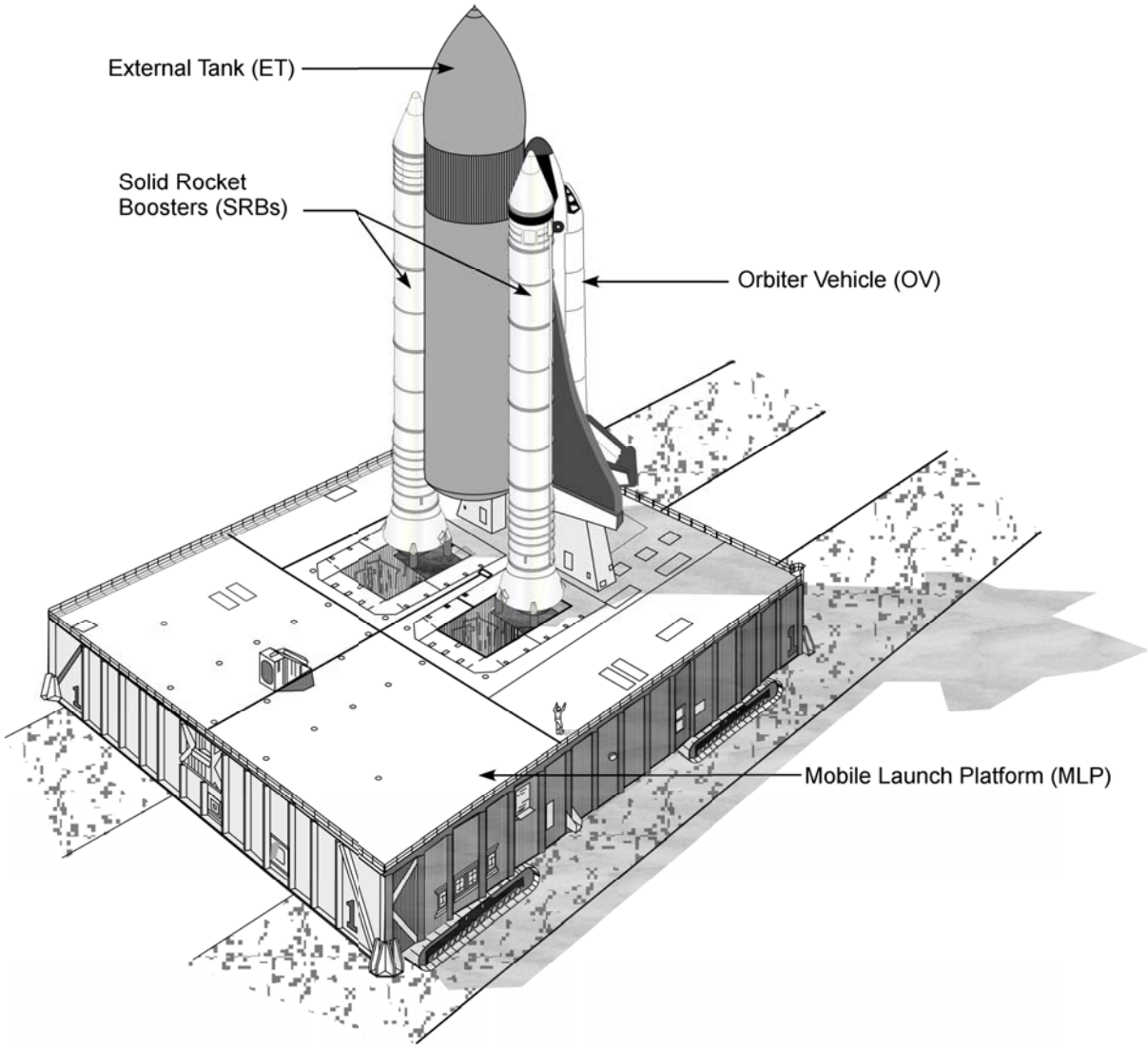
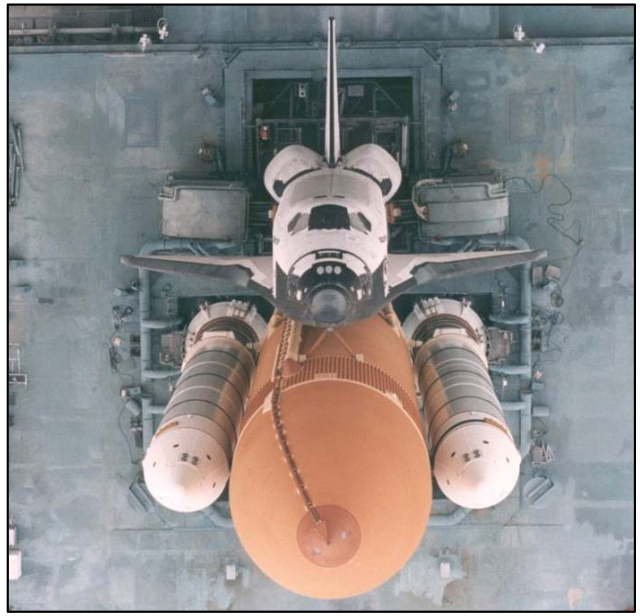
This is a companion document (schematics only) to the "Solid Rocket Booster Illustrated Systems Manual", 10PMC-0001 developed by Charles E. Martin

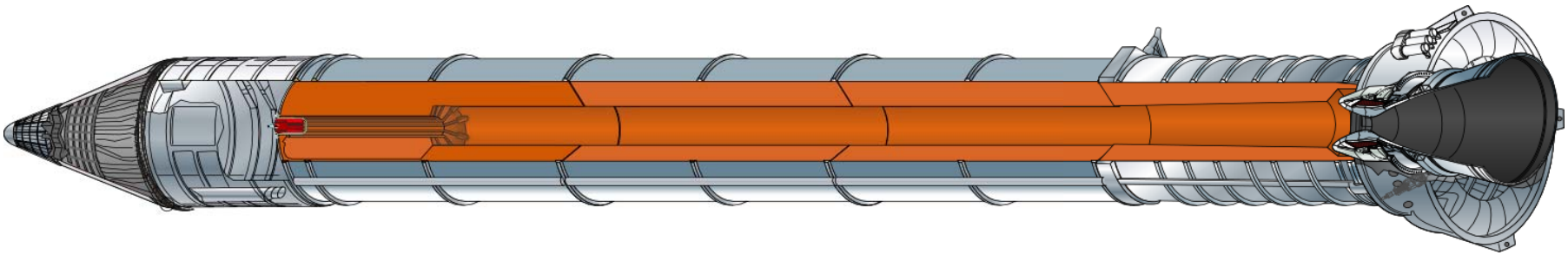
**555 Discovery Drive**
**Huntsville, Alabama 35806**
**Contract NAS9-20000**



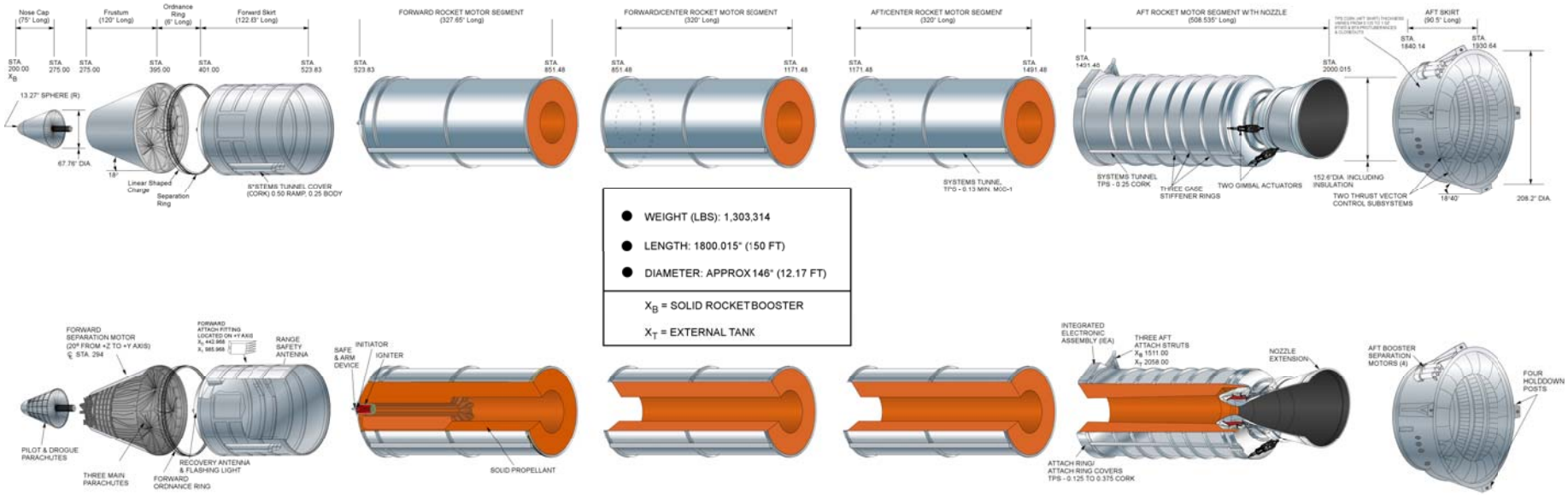

Space Shuttle and Mobile Launch Platform



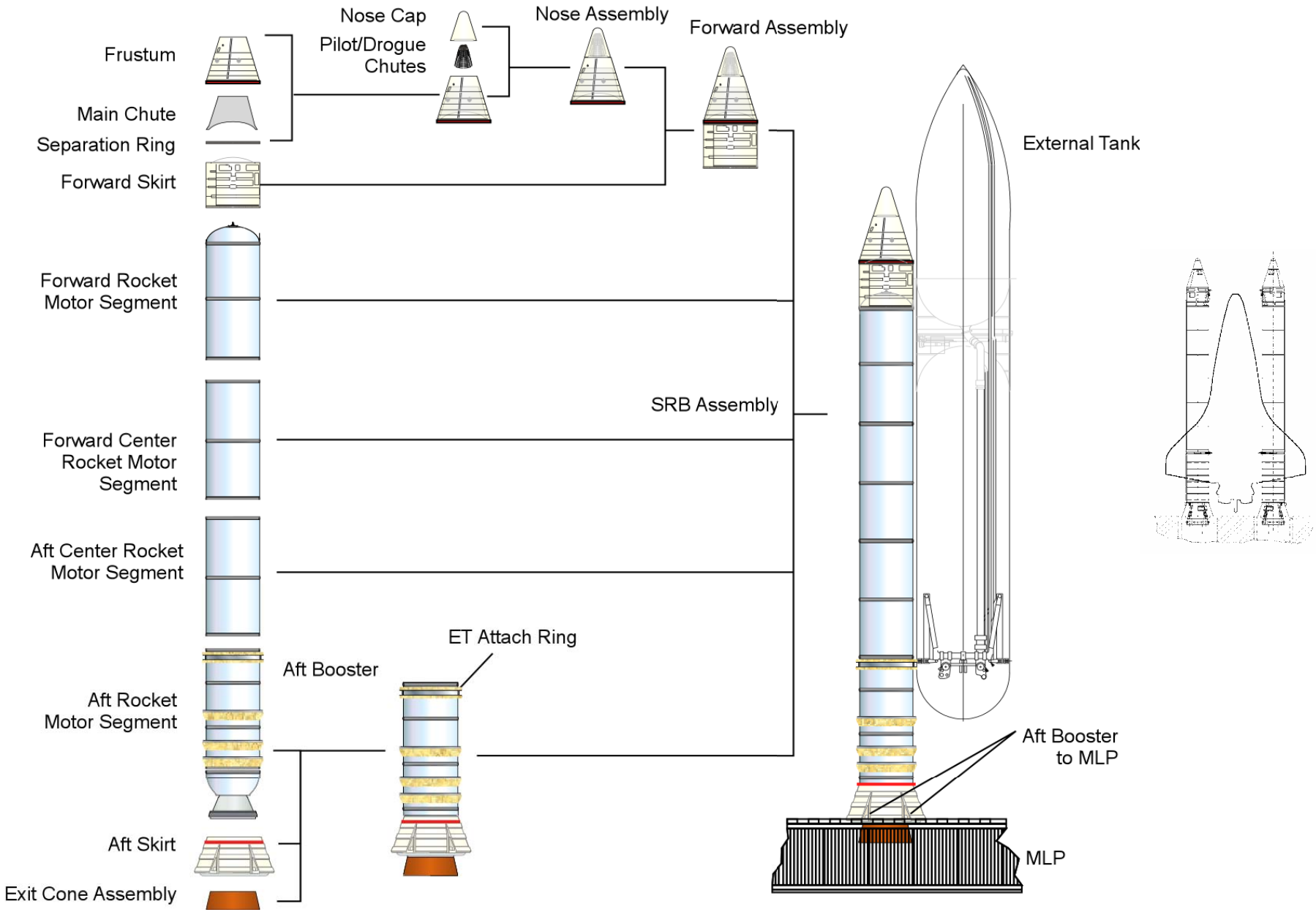
SRBs on MLP



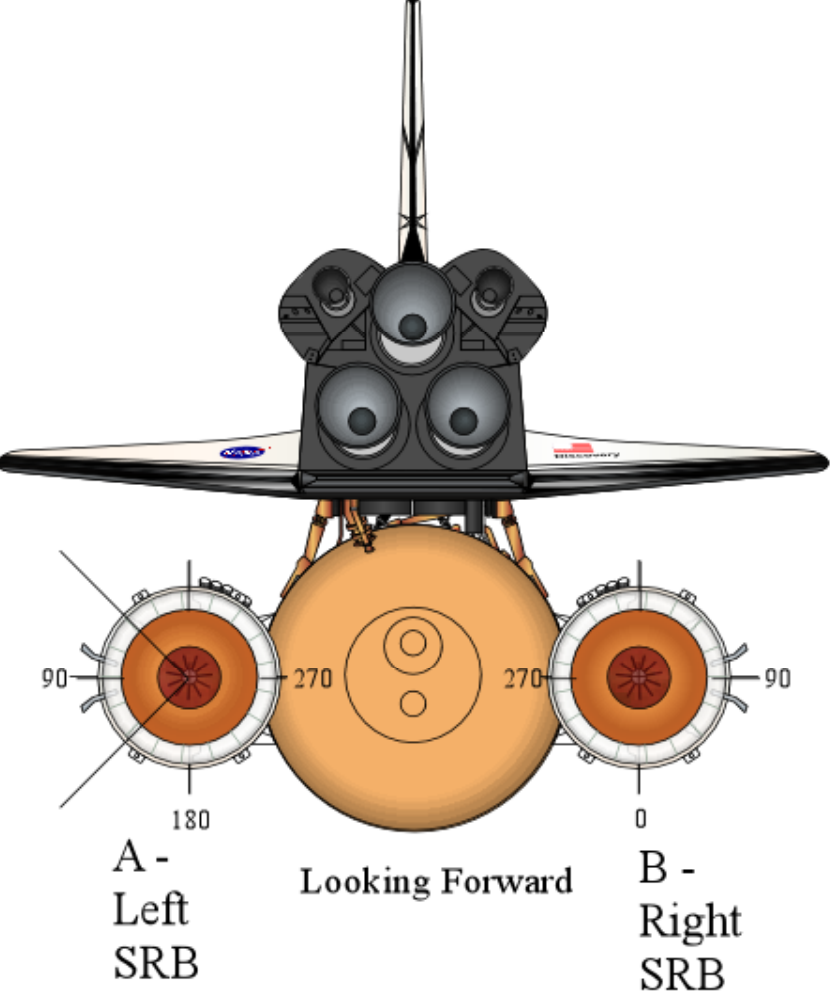
SRB Cutaway

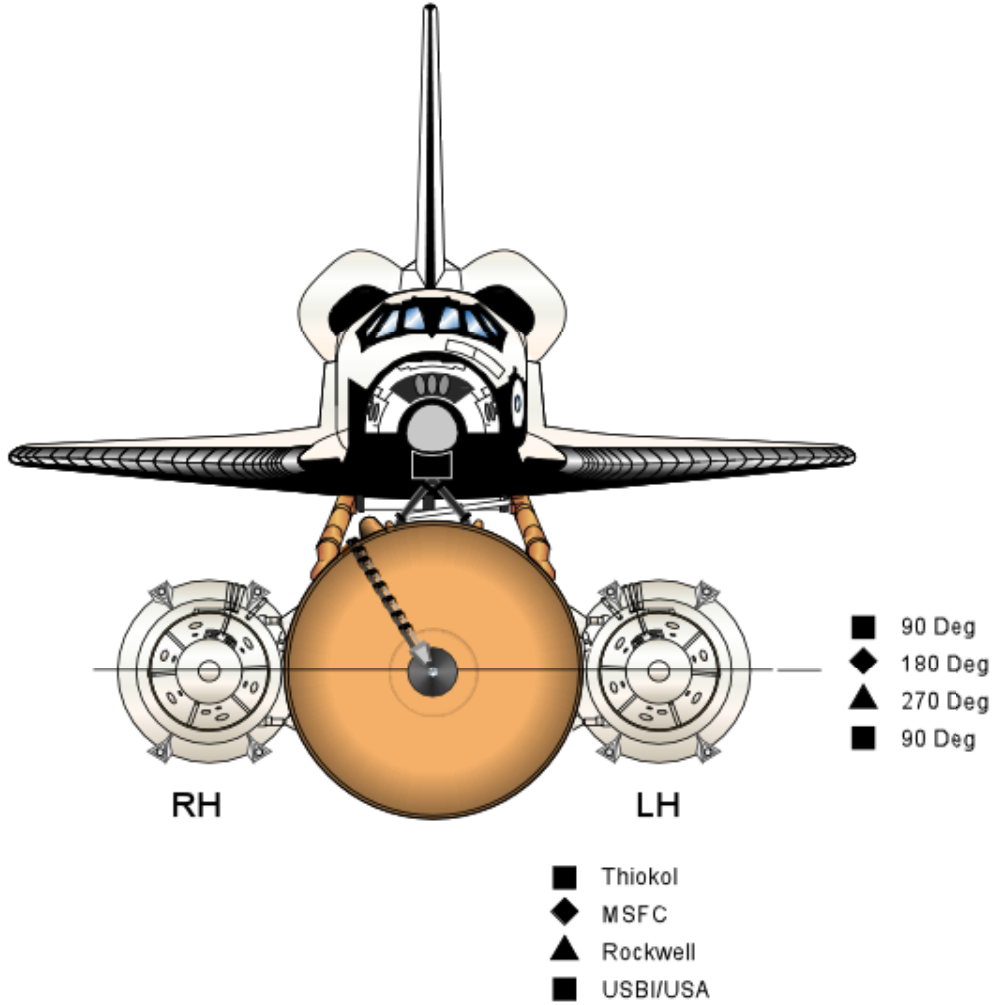



SRB Component Drawing

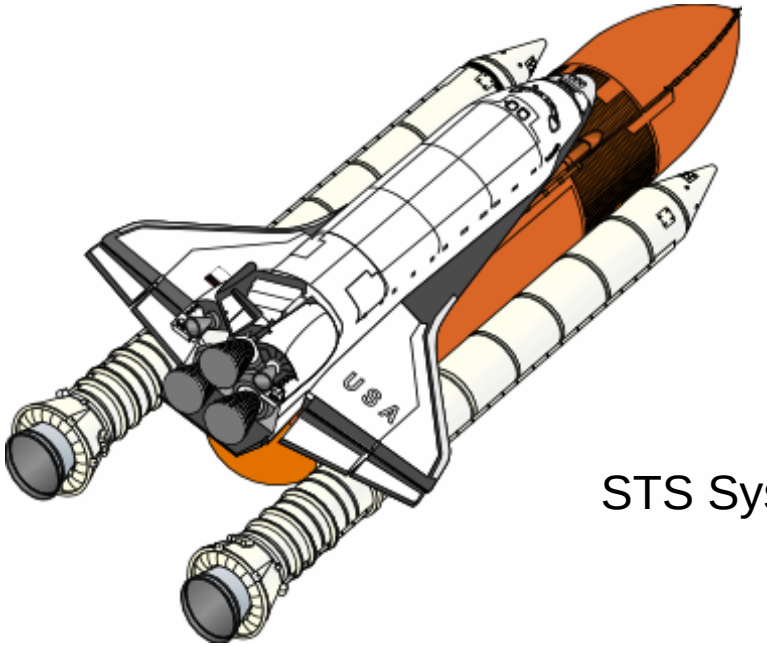



SRB Basic Assembly and Orientation to MLP and ET

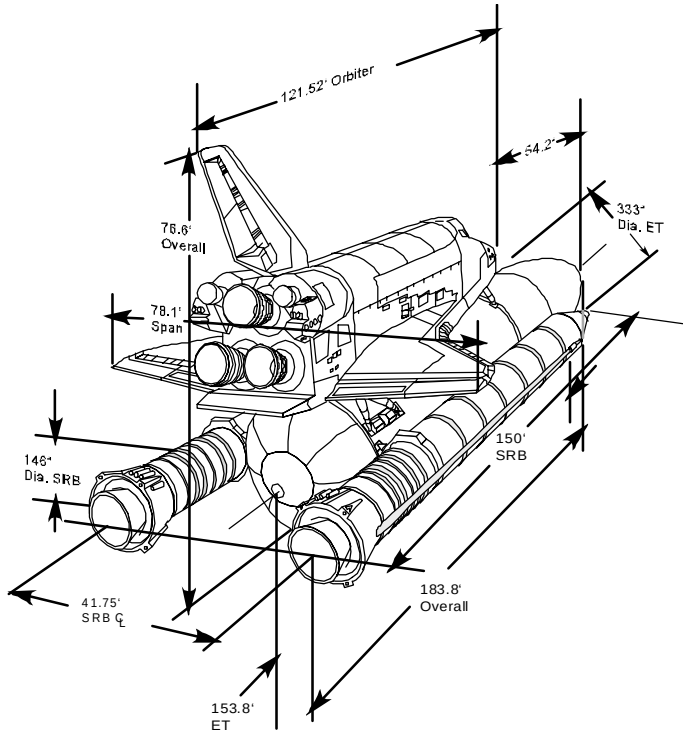


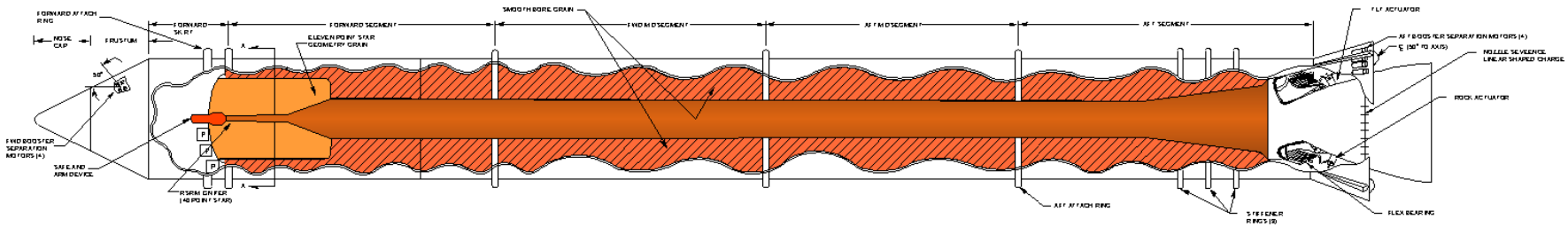

Space Transportation System and SRB Orientation



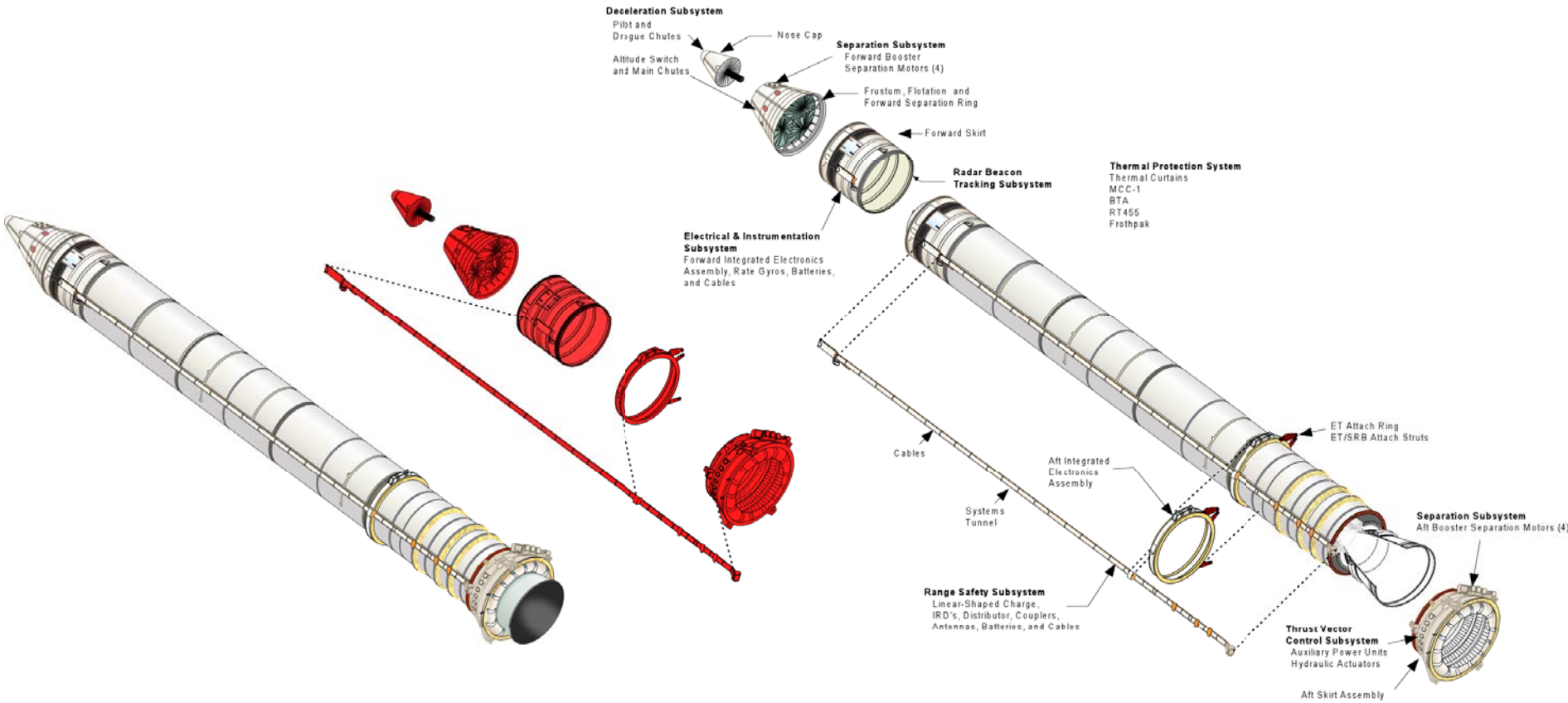

STS System



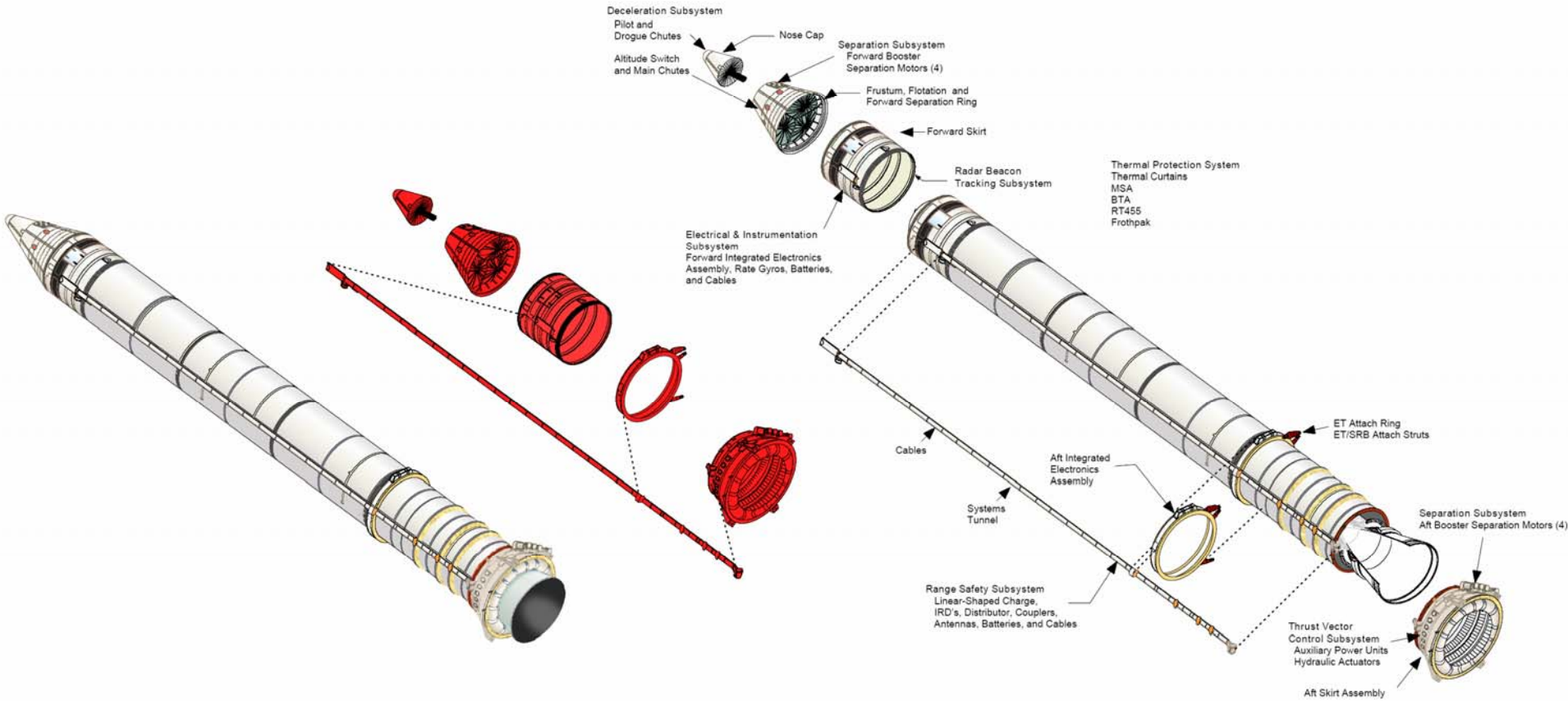

STS System Dimensions



SRB Cutaway Showing Components


Deceleration Subsystem
Pilot and
Drogue Chutes
Altitude Switch
and Main Chutes
Nose Cap
Separation Subsystem
Forward Booster
Separation Motors (4)
Frustum, Flotation and
Forward Separation Ring
Forward Skirt
Radar Beacon
Tracking Subsystem
Thermal Protection System
Thermal Curtains
MCC-1
BTA
RT455
Frothpak
Electrical & Instrumentation
Subsystem
Forward Integrated Electronics
Assembly, Rate Gyros, Batteries,
and Cables
ET Attach Ring
ET/SRB Attach Struts
Cables
Aft Integrated
Electronics
Assembly
Systems
Tunnel
Separation Subsystem
Aft Booster Separation Motors (4)
Range Safety Subsystem
Linear-Shaped Charge,
IRD's, Distributor, Couplers,
Antennas, Batteries, and Cables
Thrust Vector
Control Subsystem
Auxiliary Power Units
Hydraulic Actuators
Aft Skirt Assembly

# SRB Systems


Deceleration Subsystem
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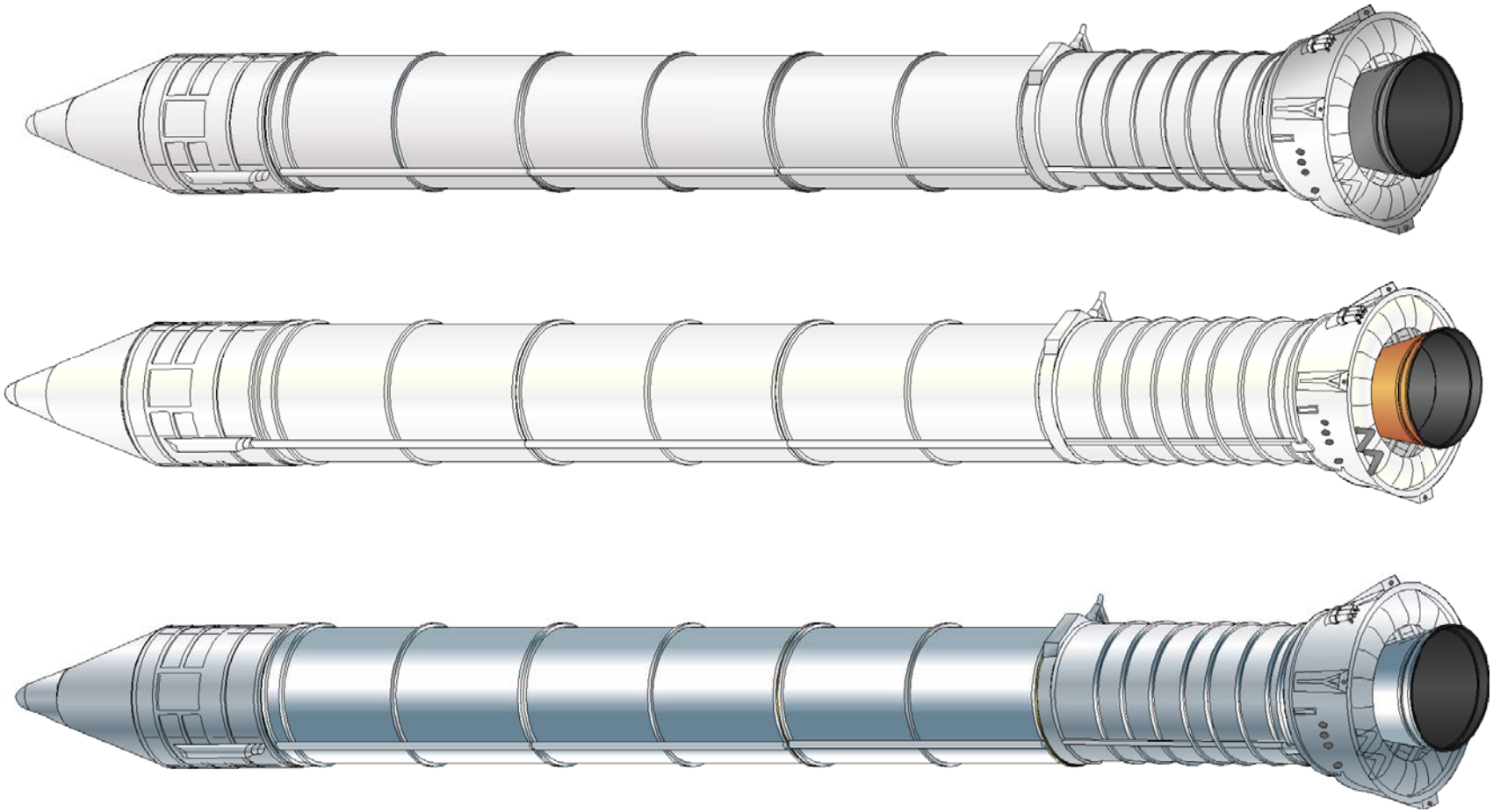
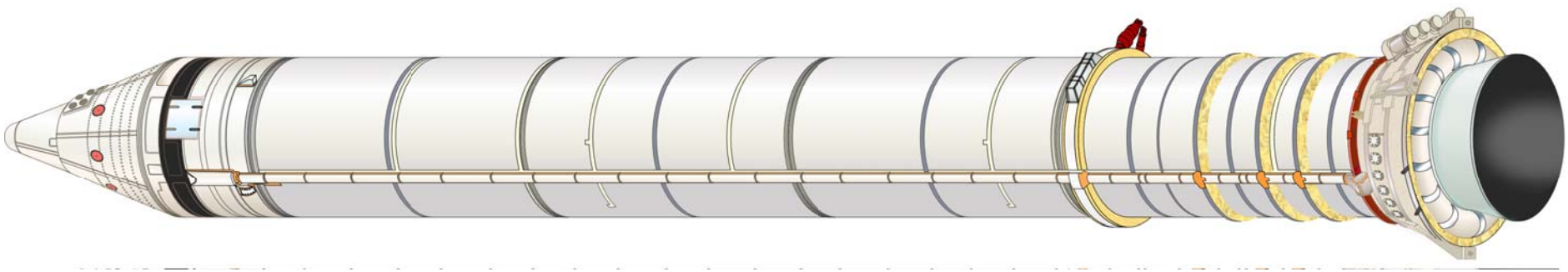
Aft Skirt Assembly

# SRB Systems

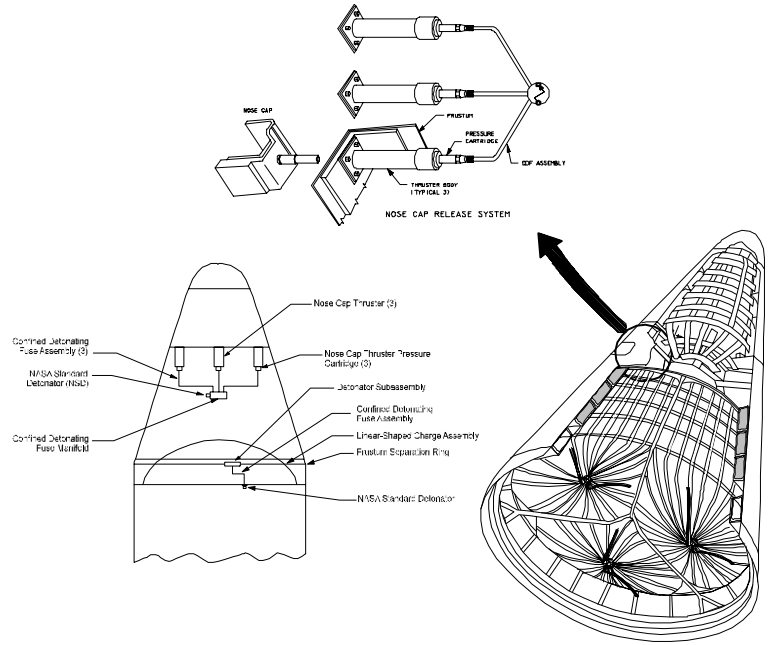


SRB Miscellaneous Views

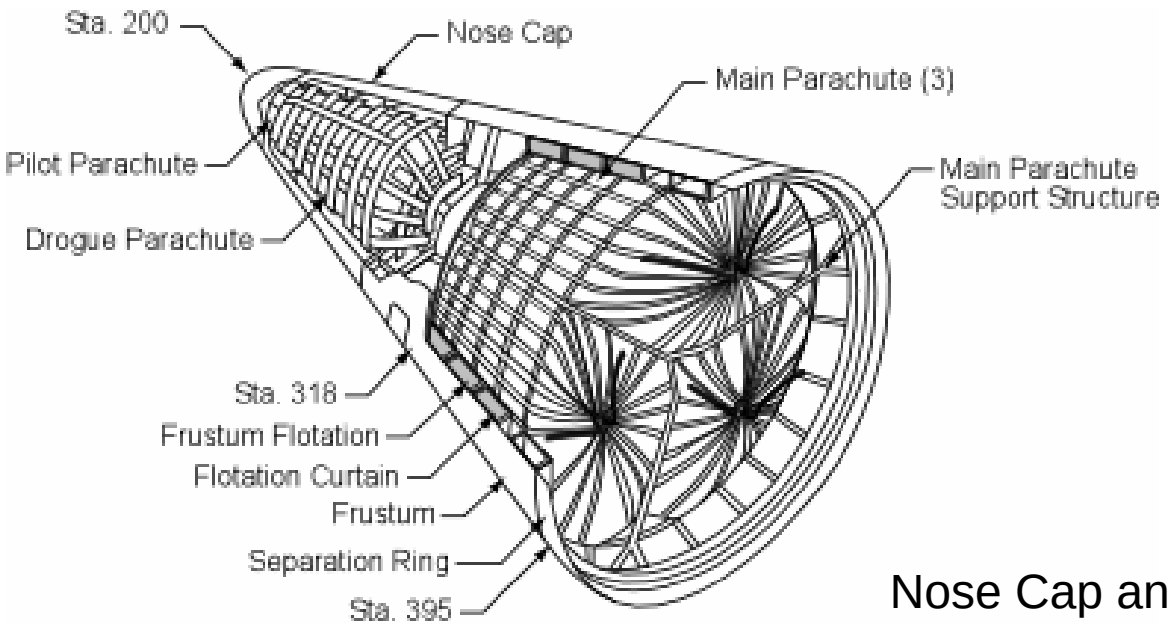


SRB Isometric Detail

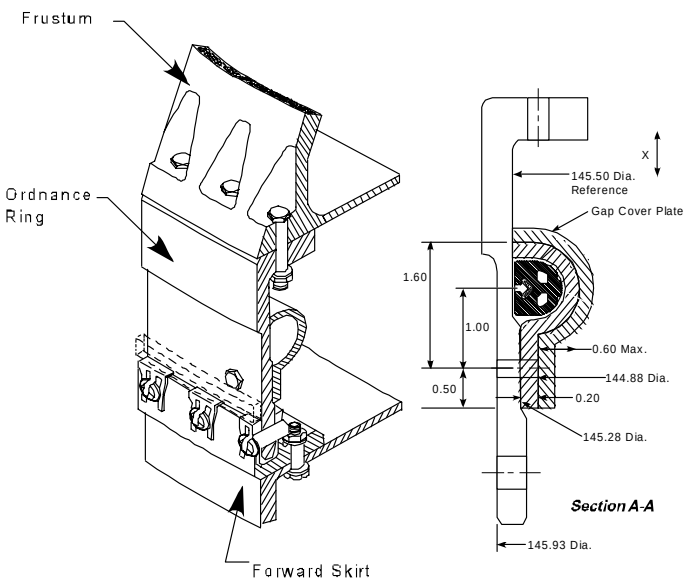
# Structural Subsystem

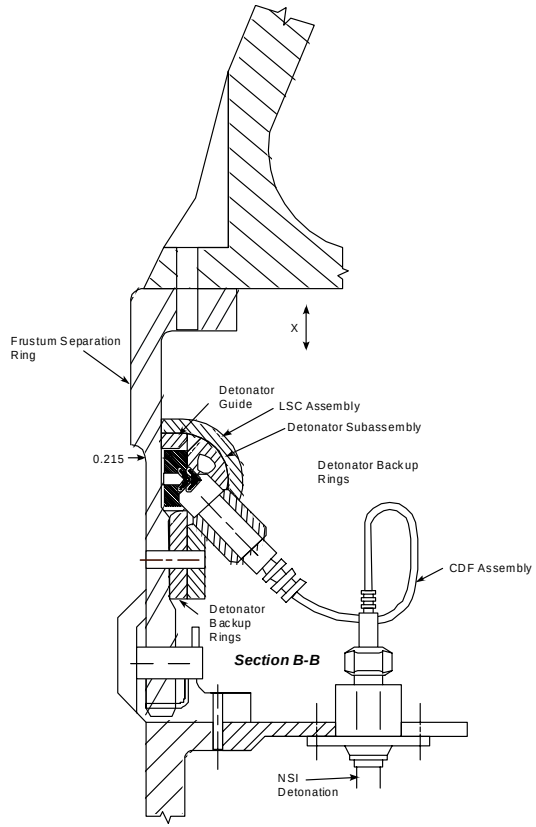


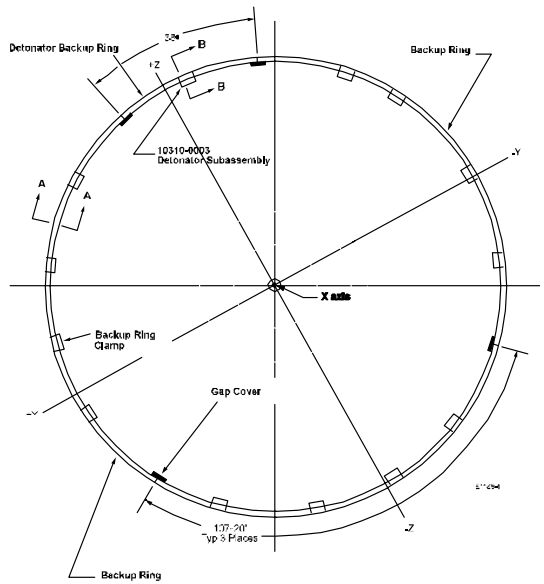

Nose Cap Assembly Exterior and View showing Separation Thrusters



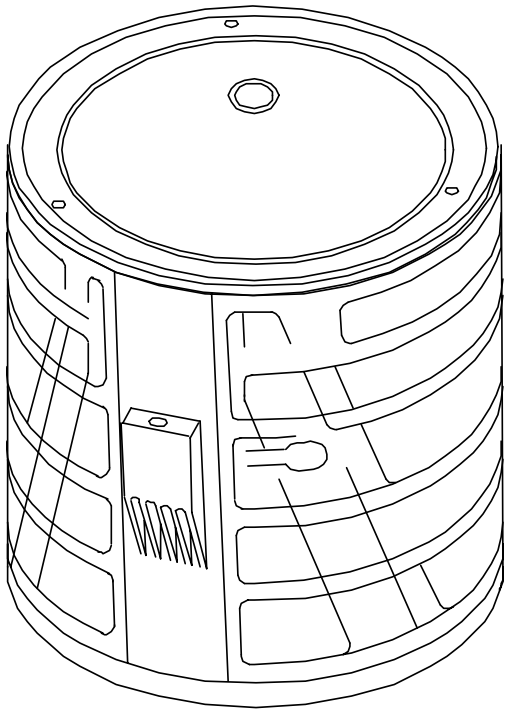

Nose Cap and Frustum Assembly

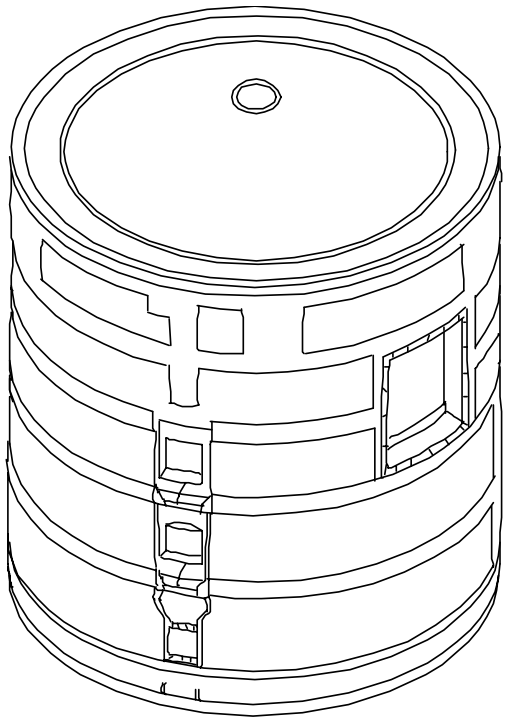


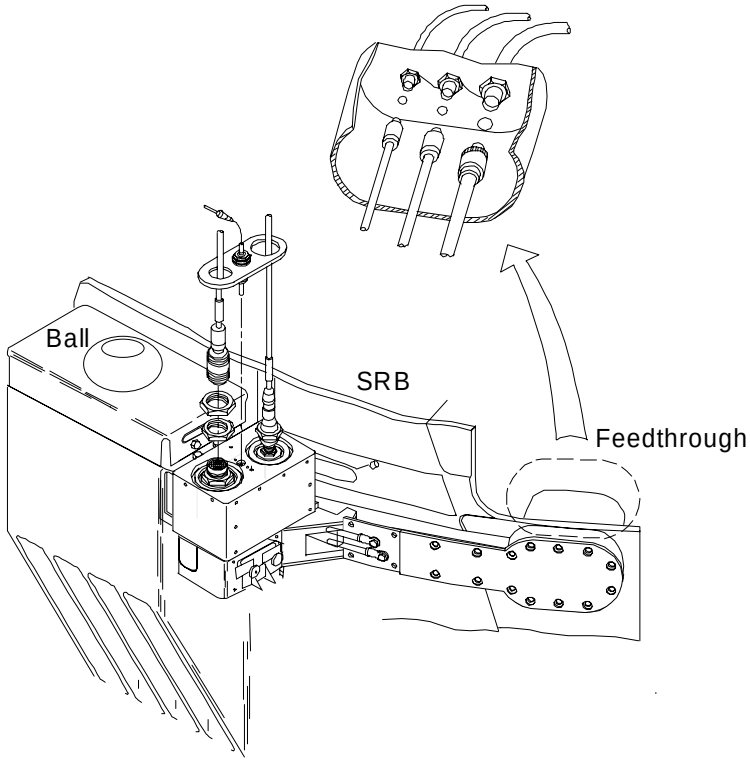

# SRB Forward Separation Ring Cross Section



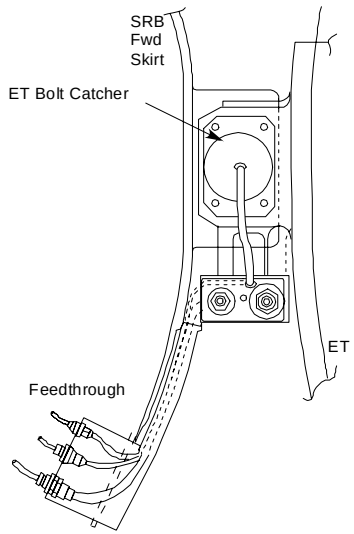


SRB Forward Skirt Showing Details


## Forward Attach and RSS Crossover

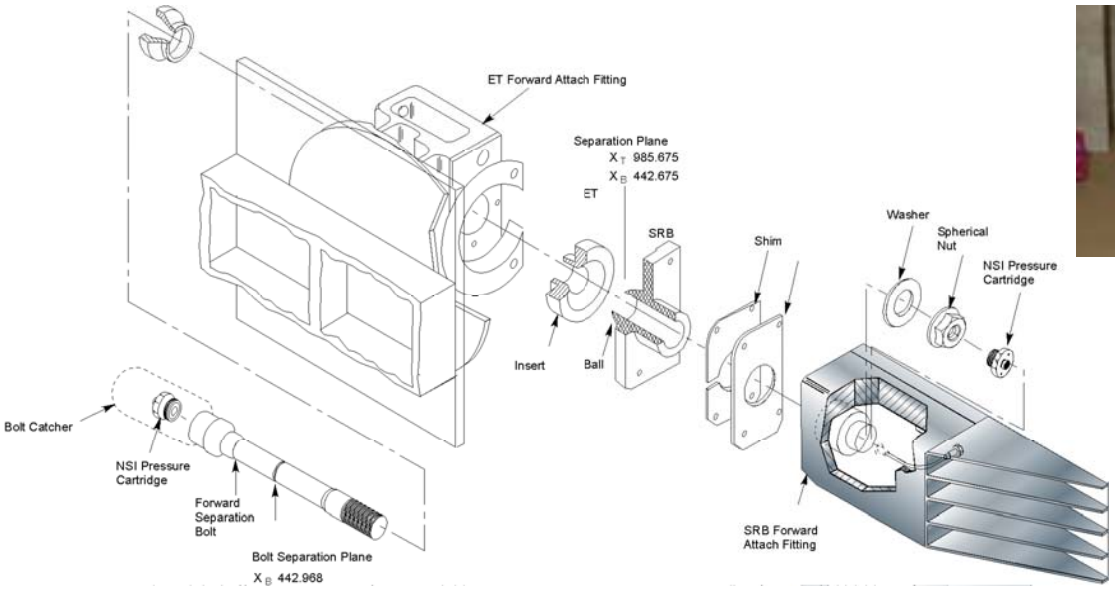



RSS Crossover and Cable Routing

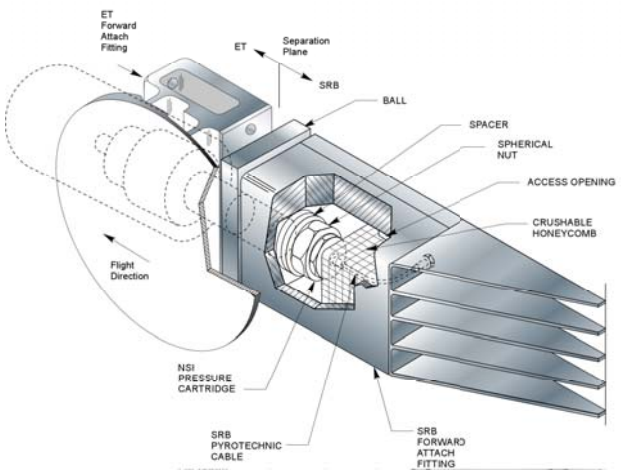


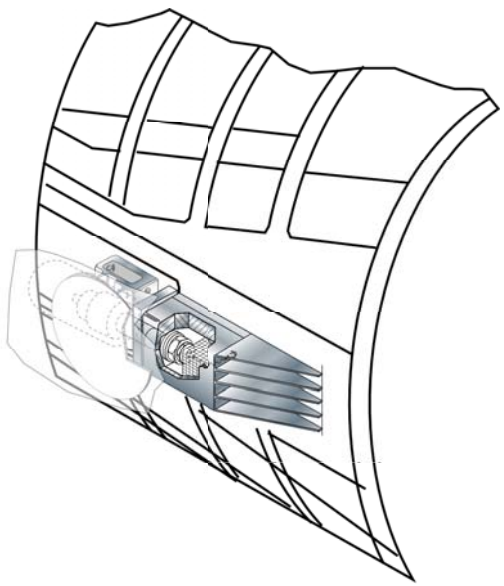

SRB Forward Assembly (Nose Cap, Frustum, Forward Skirt)

Forward Attach & Bolt Catcher

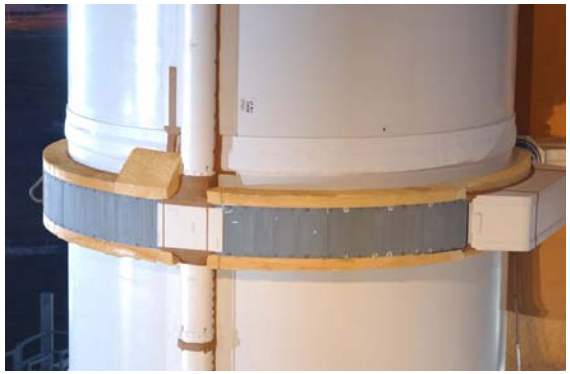


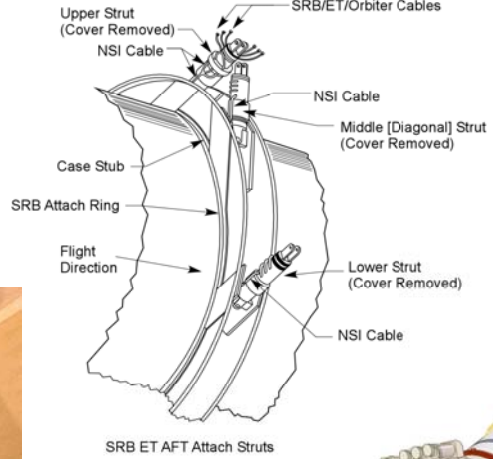

Bolt Catcher (cutaway)

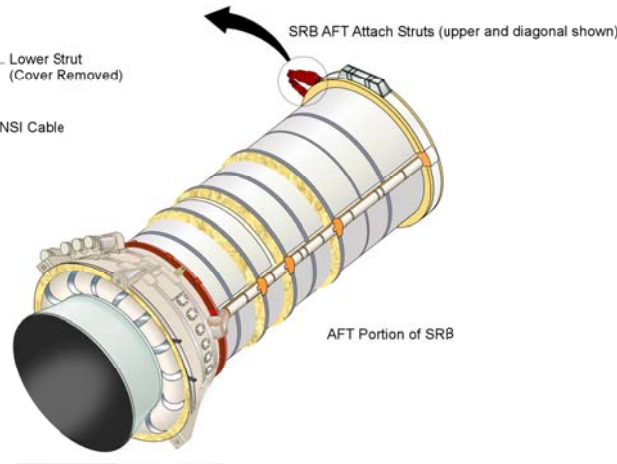


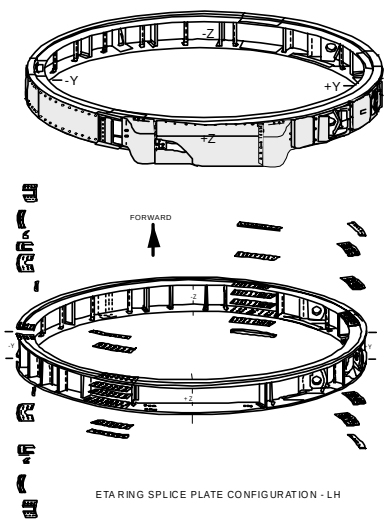
SRB/ET Forward Attach Fitting

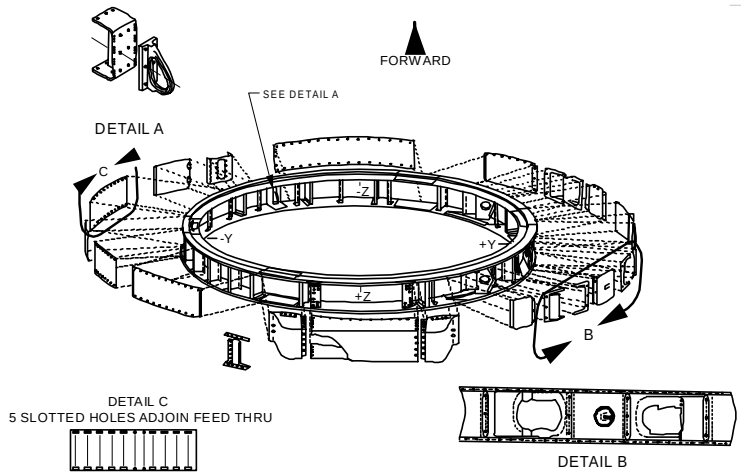


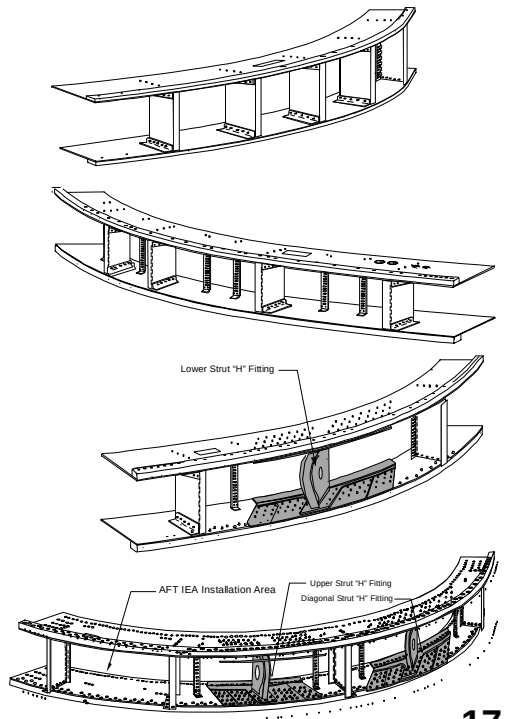


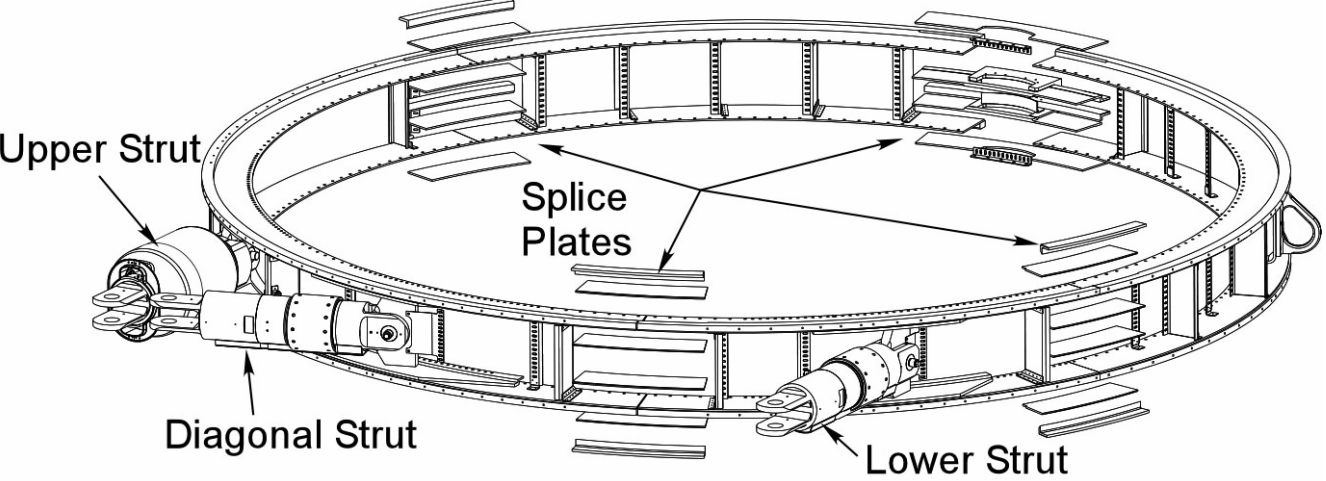

# ETA Ring Strut Connections



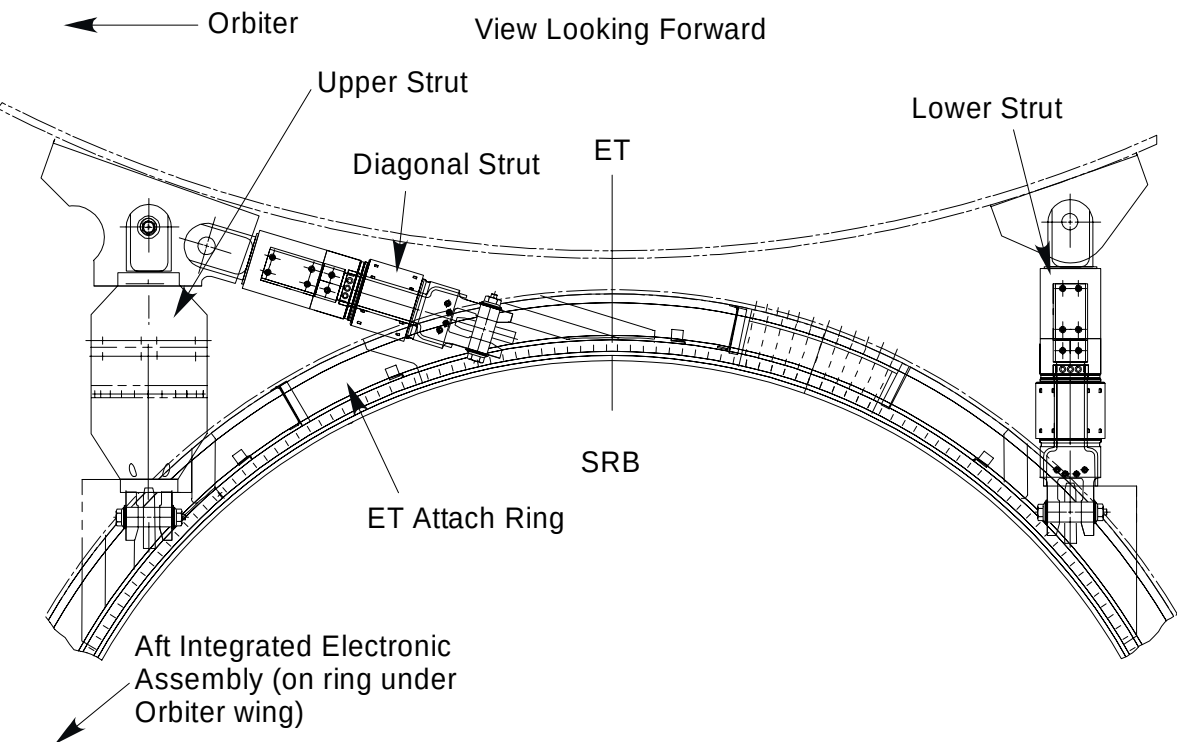



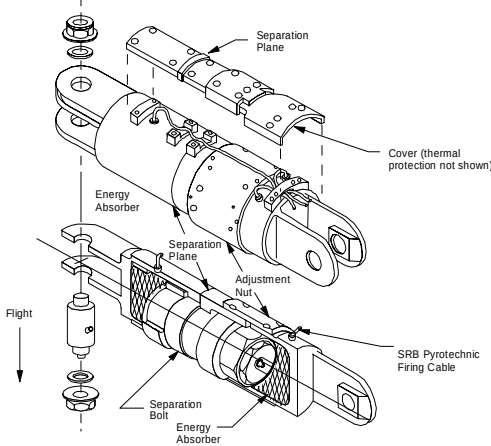




# ETA Ring Structure

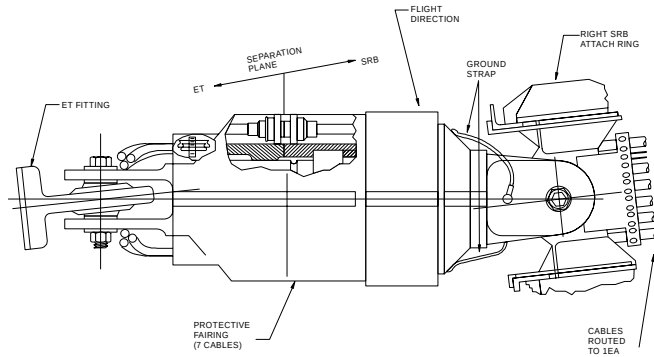



ETA Ring showing Struts and Connection

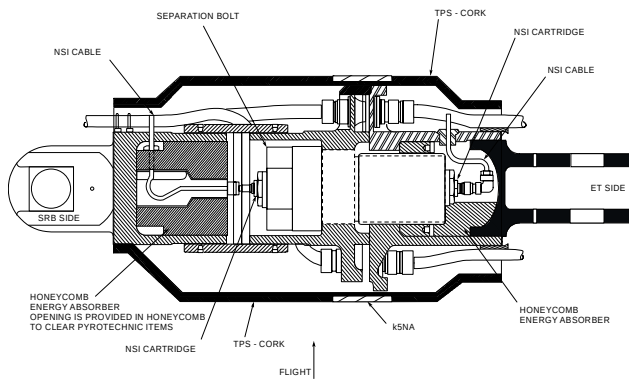


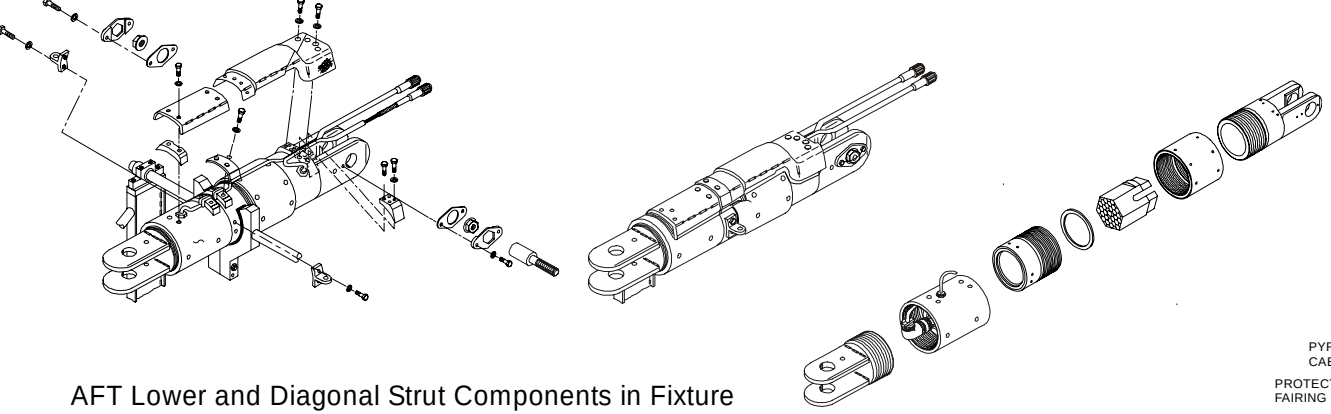

Lower and Diagonal Strut




SRB/ET AFT UPPER STRUT ASSEMBLY (TYPICAL RIGHT HAND)

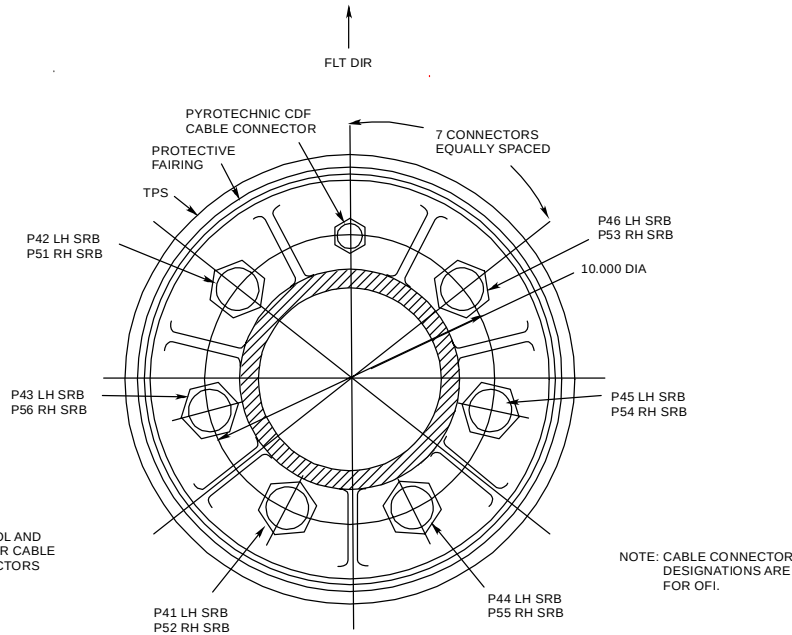


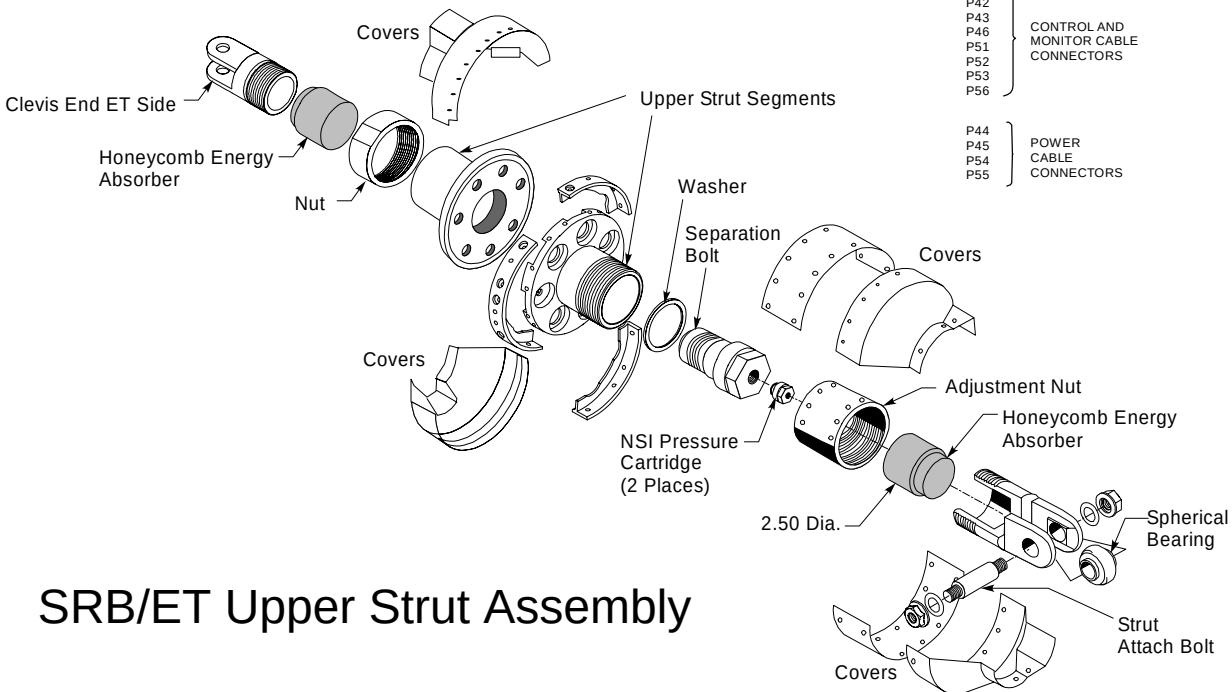

SRB/ET Upper Strut Assembly



AFT Lower and Diagonal Strut Components in Fixture

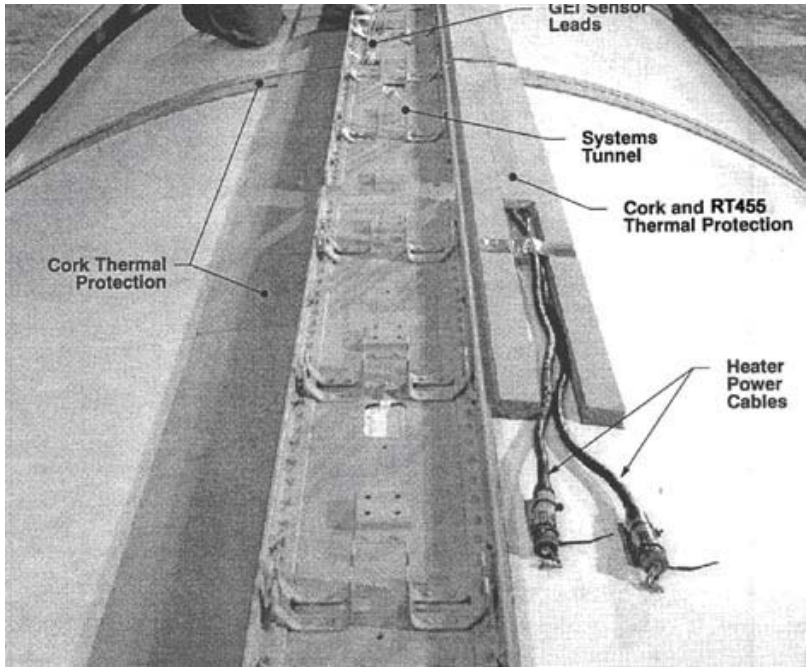
# Lower and Diagonal Strut




# SRB/ET Upper Strut Assembly

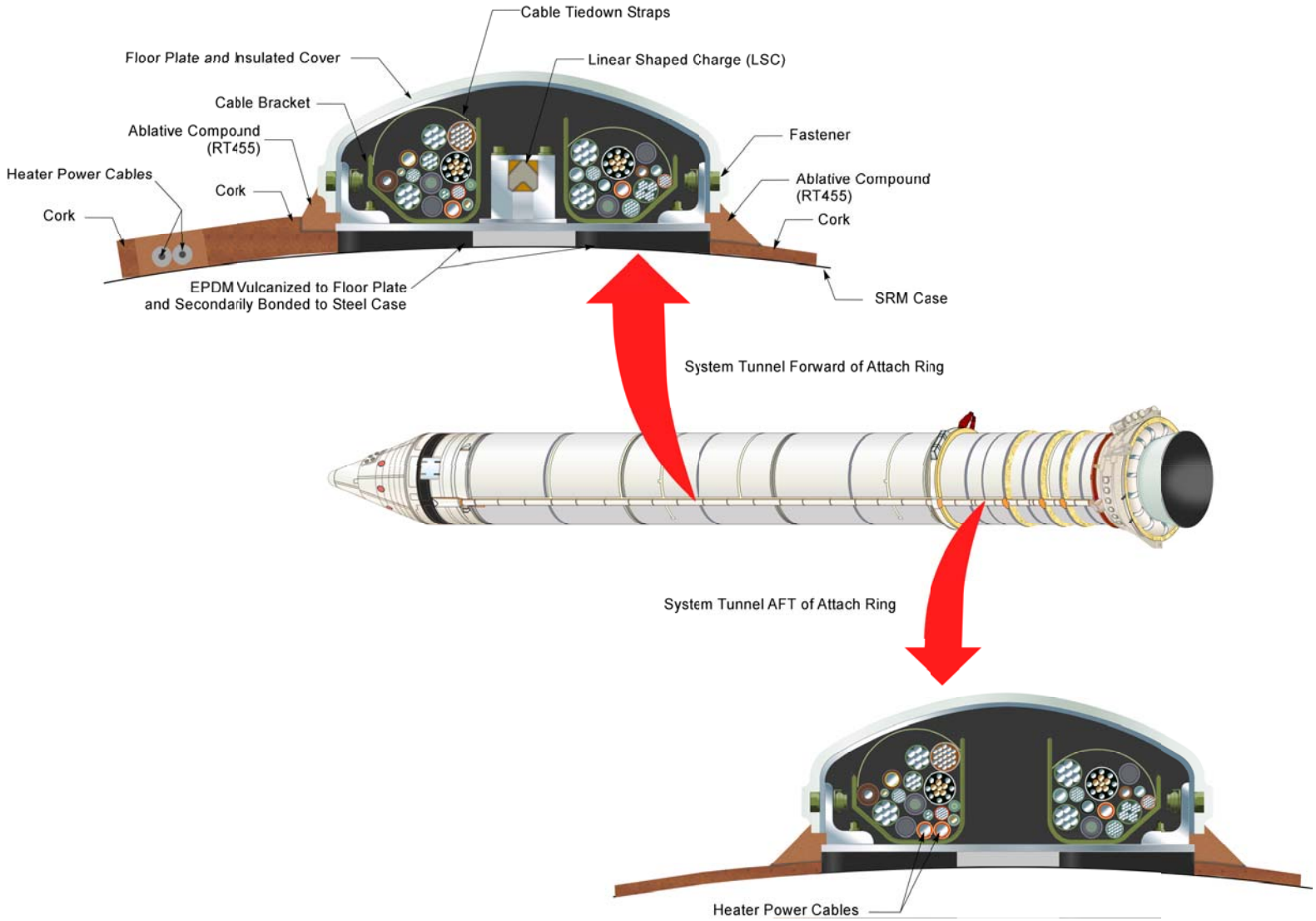
# Upper Strut Cable Passthrough Connections



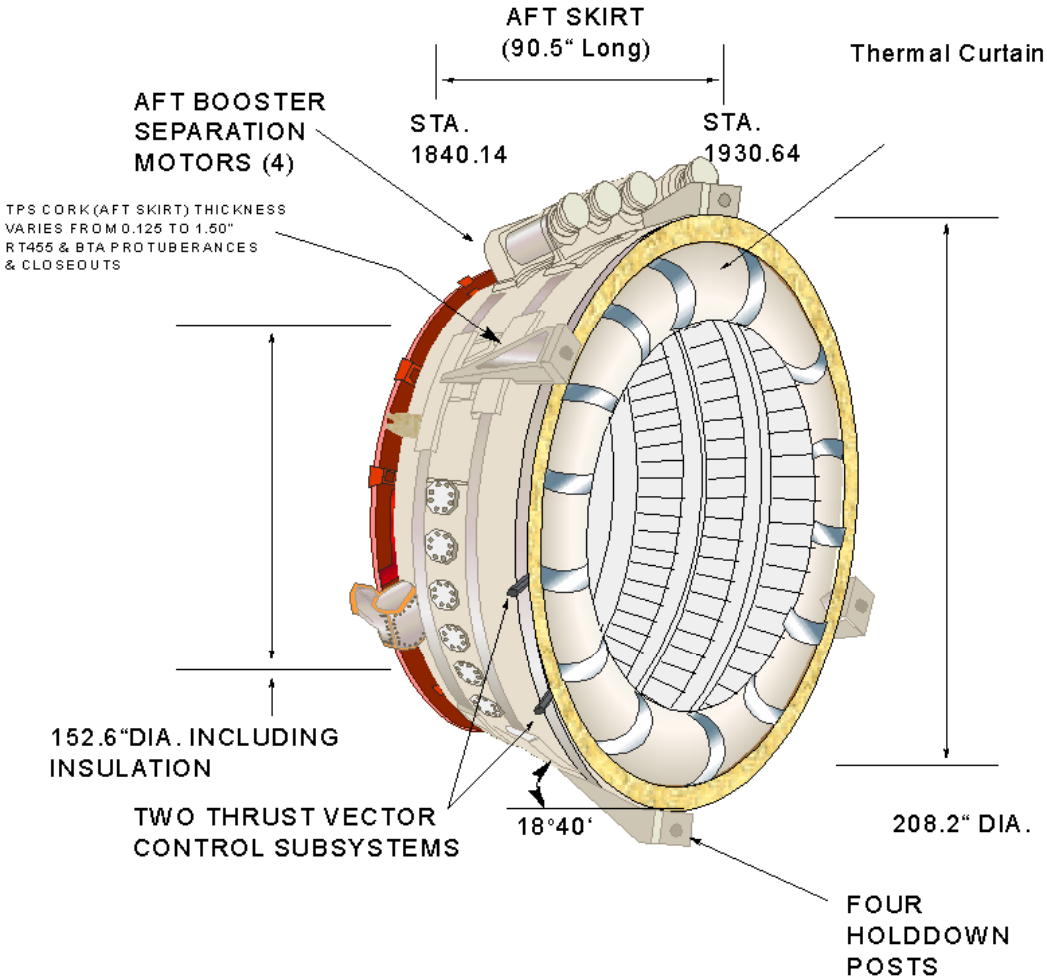

Systems Tunnel Configuration

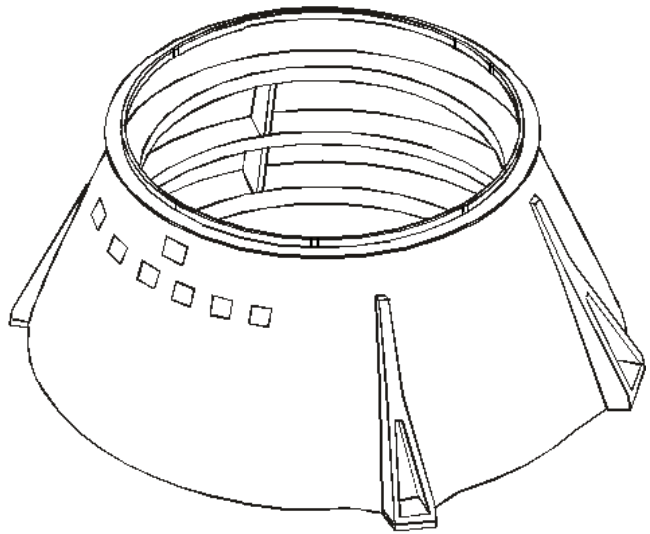
Canoe (Fwd Passthrough)

Rooster Tail (Aft Passthrough)



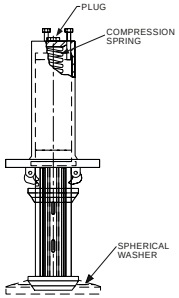

Systems Tunnel Configuration

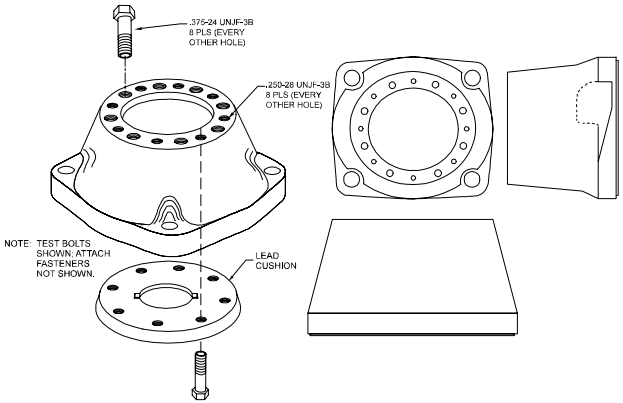


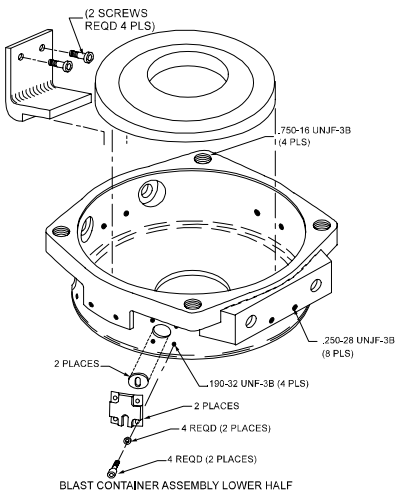
# Aft Skirt Details

# Hold-Down Post Expanded Parts

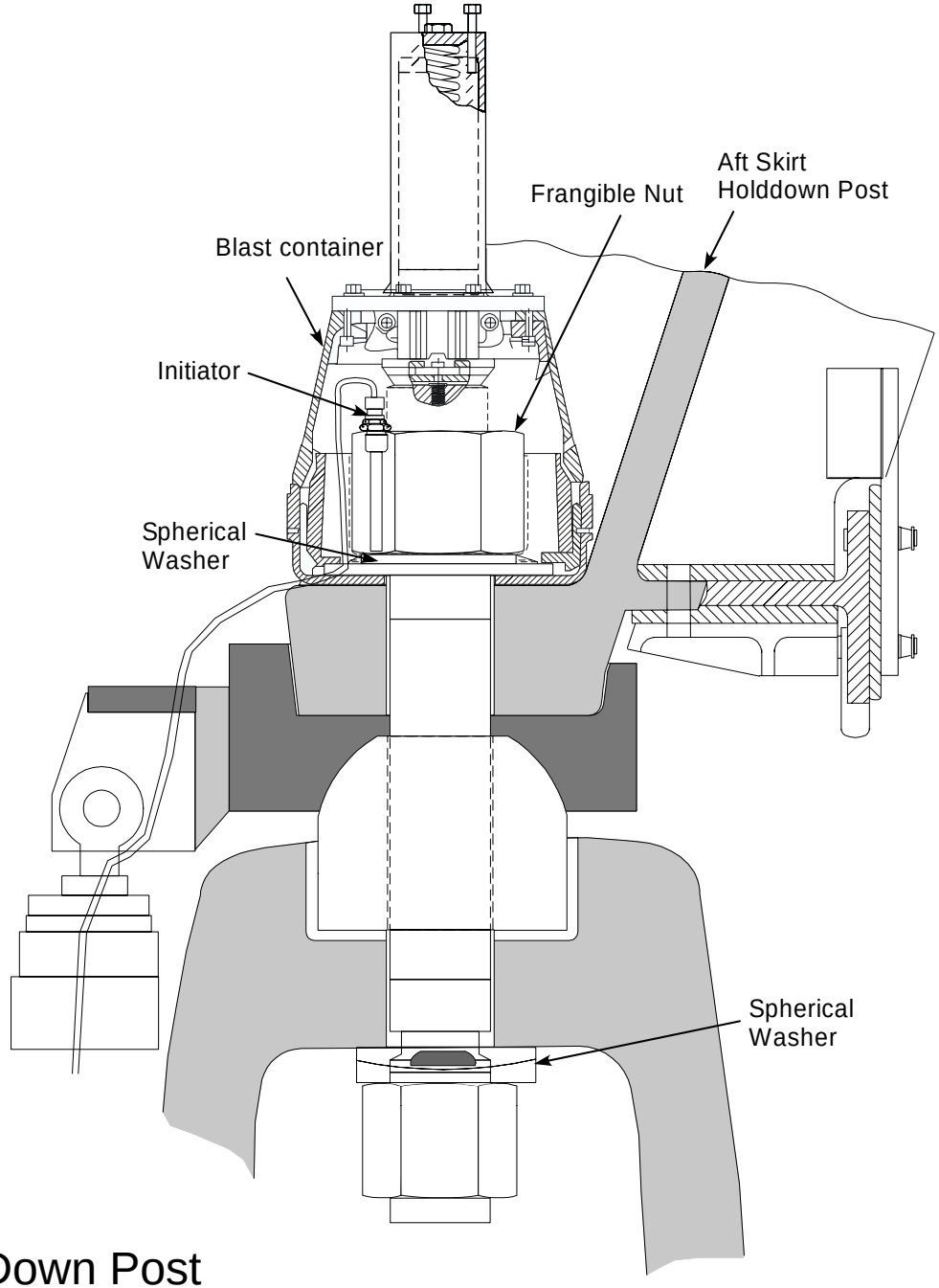


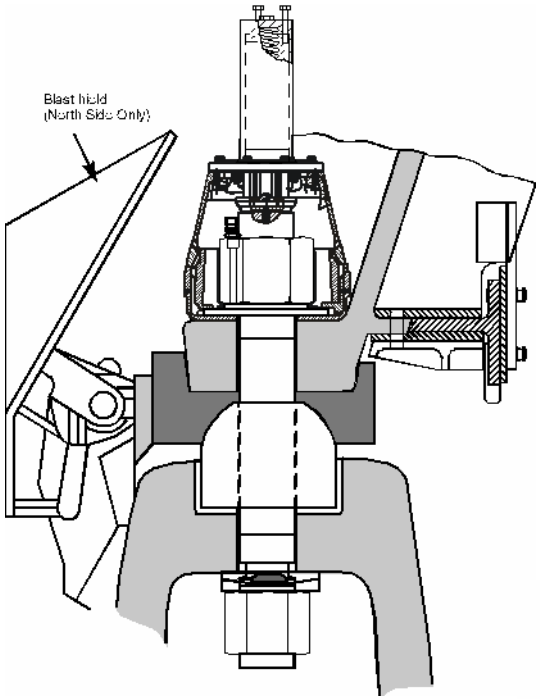

UPPER BLAST CONTAINER DISASSEMBLY

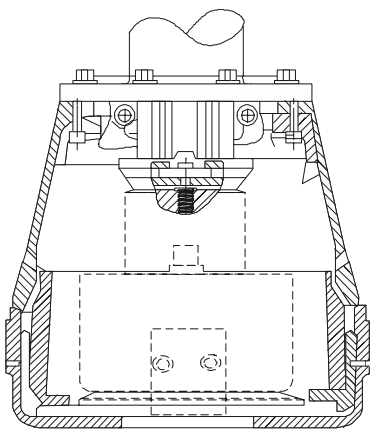



BLAST CONTAINER ASSEMBLY LOWER HALF

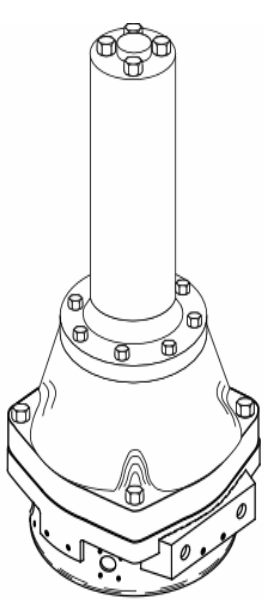


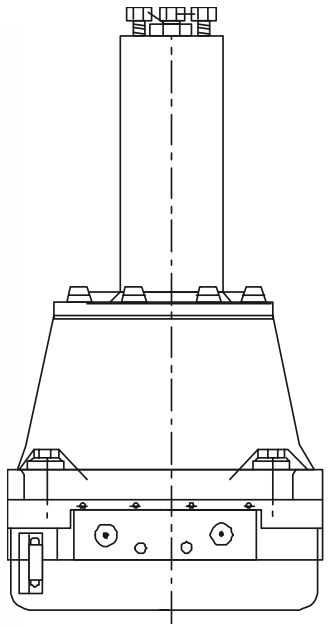

Hold-Down Post



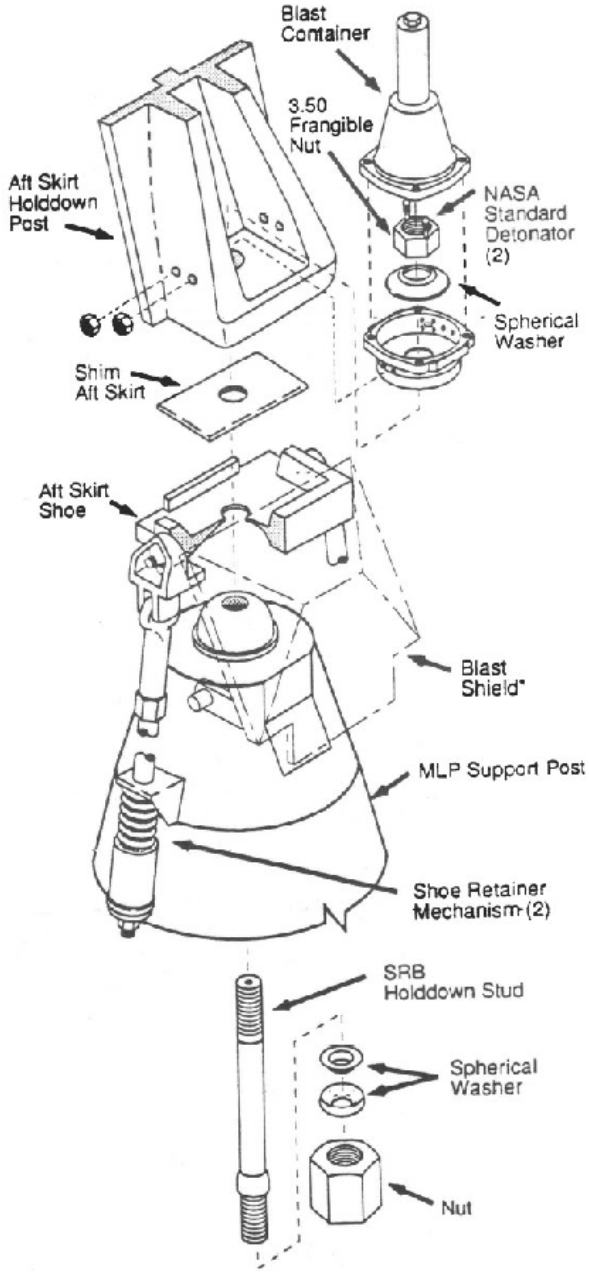



HOLDDOWN BLAST CONTAINER

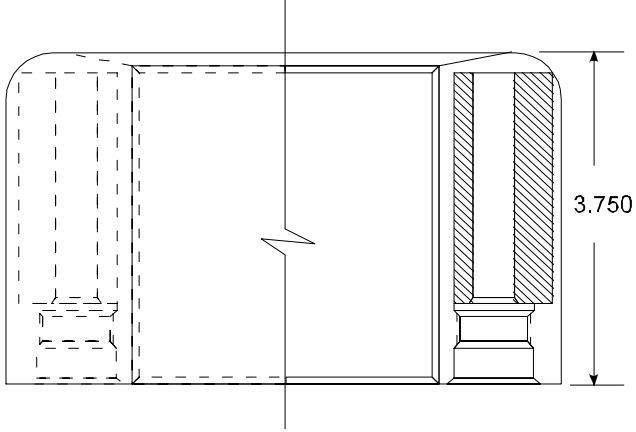




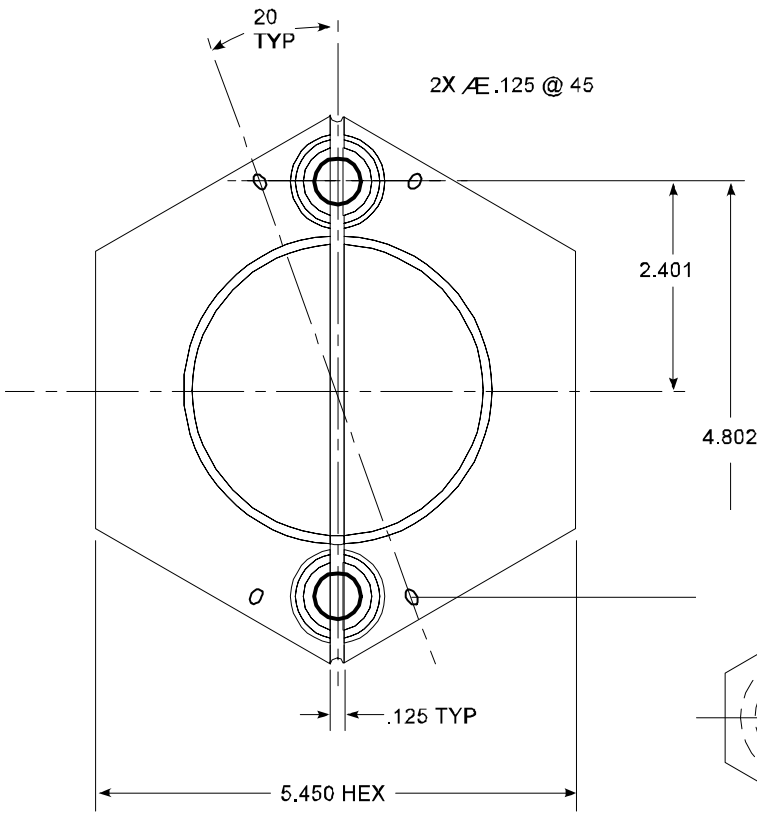
HOLDDOWN BLAST CONTAINER

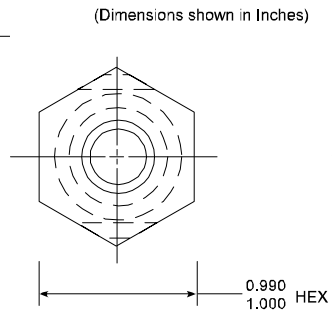



Hold-Down Post Showing MLP details

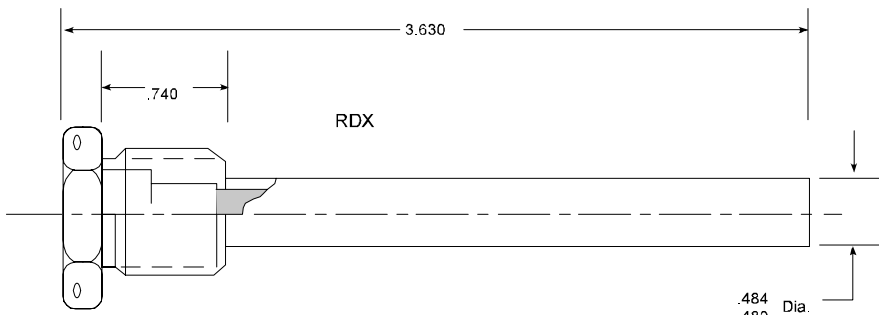



Hold-Down Post Details

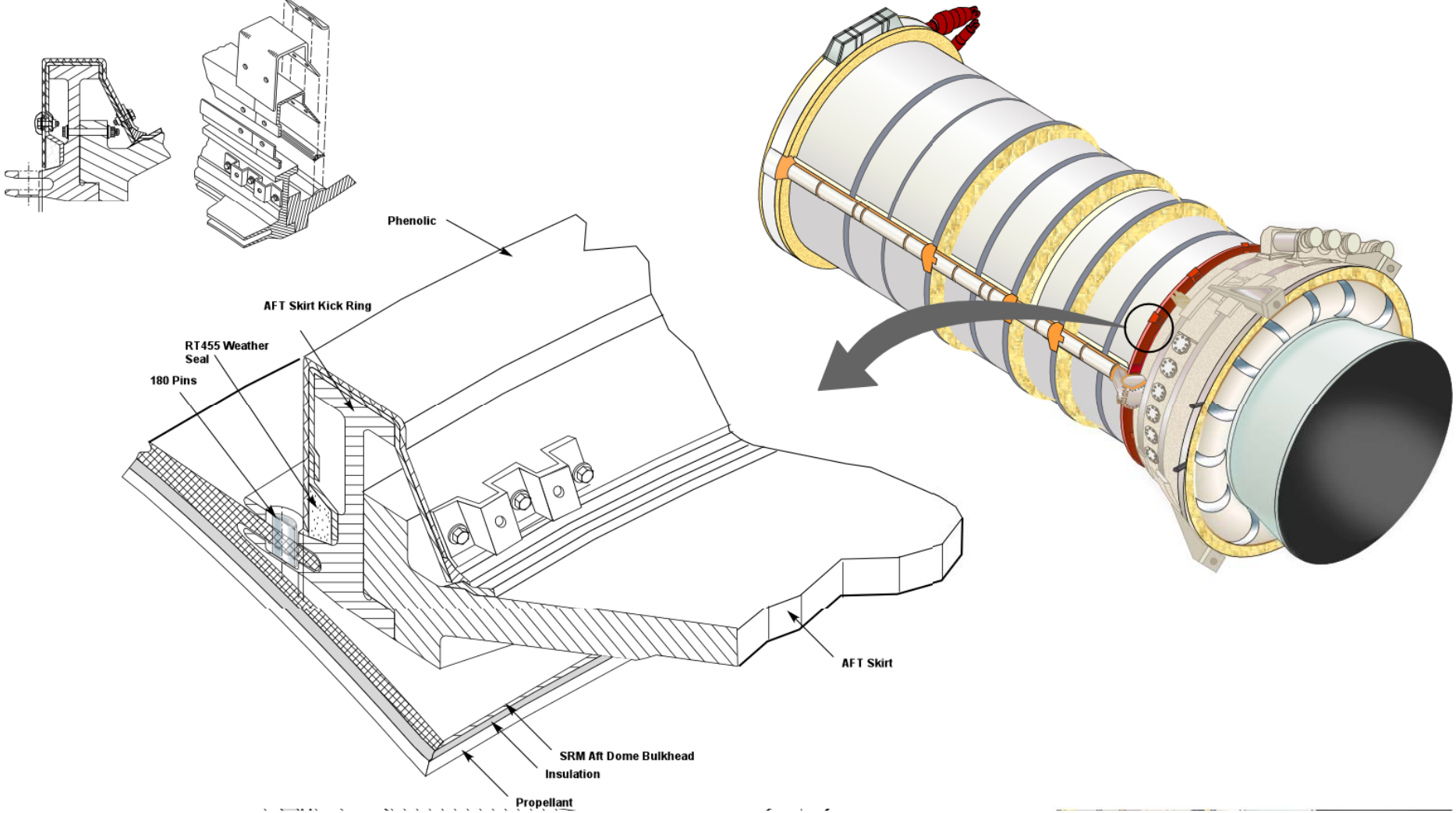


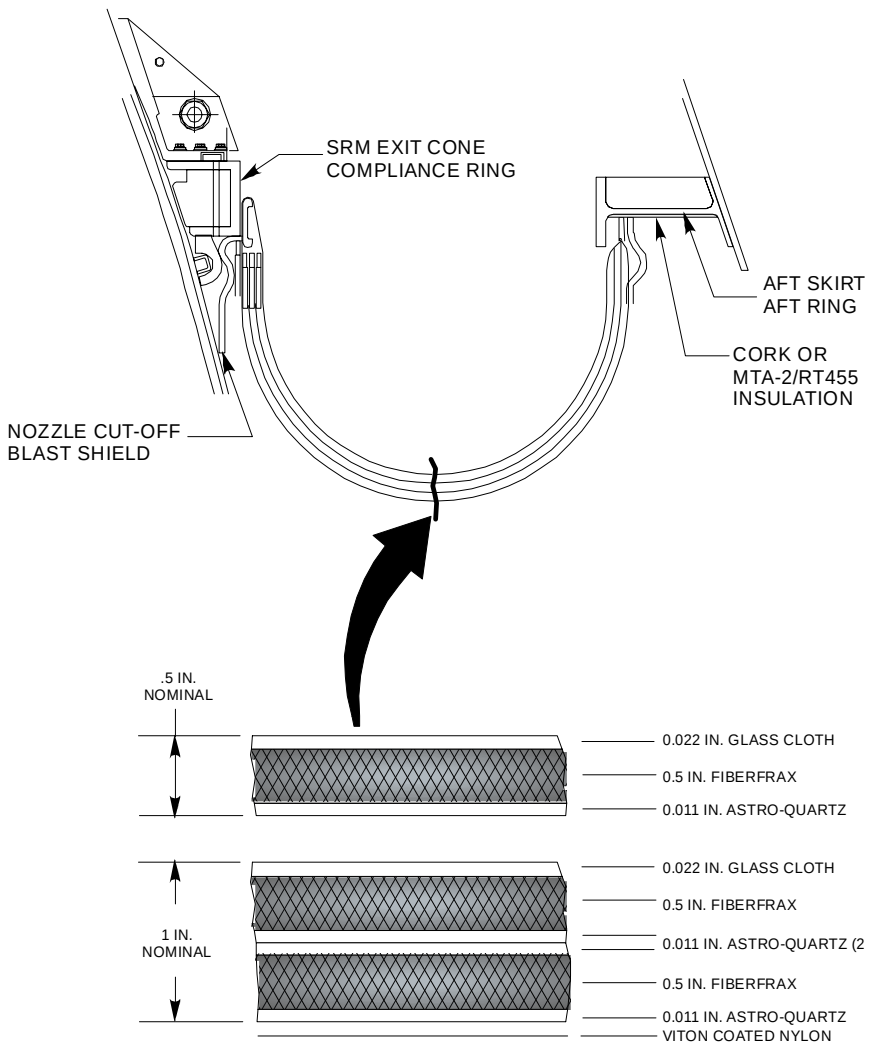

Frangible Nut

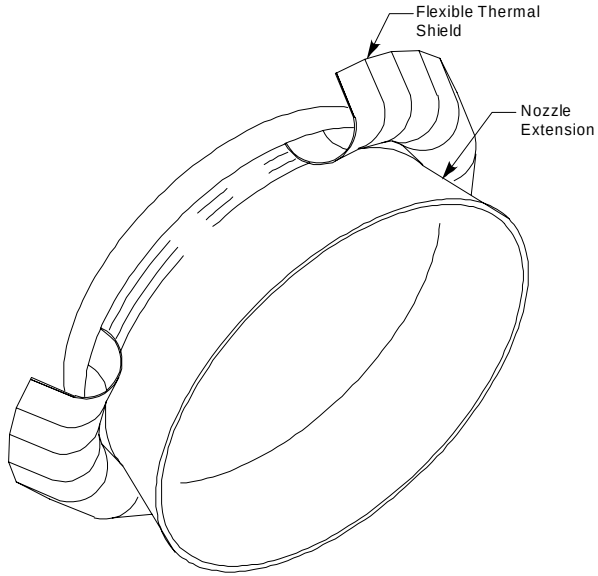


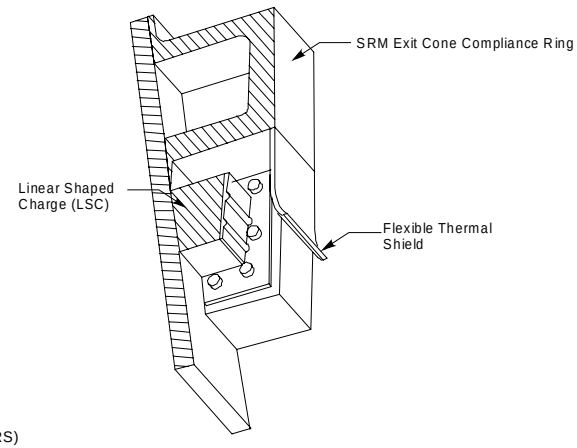

NASA Standard Initiator



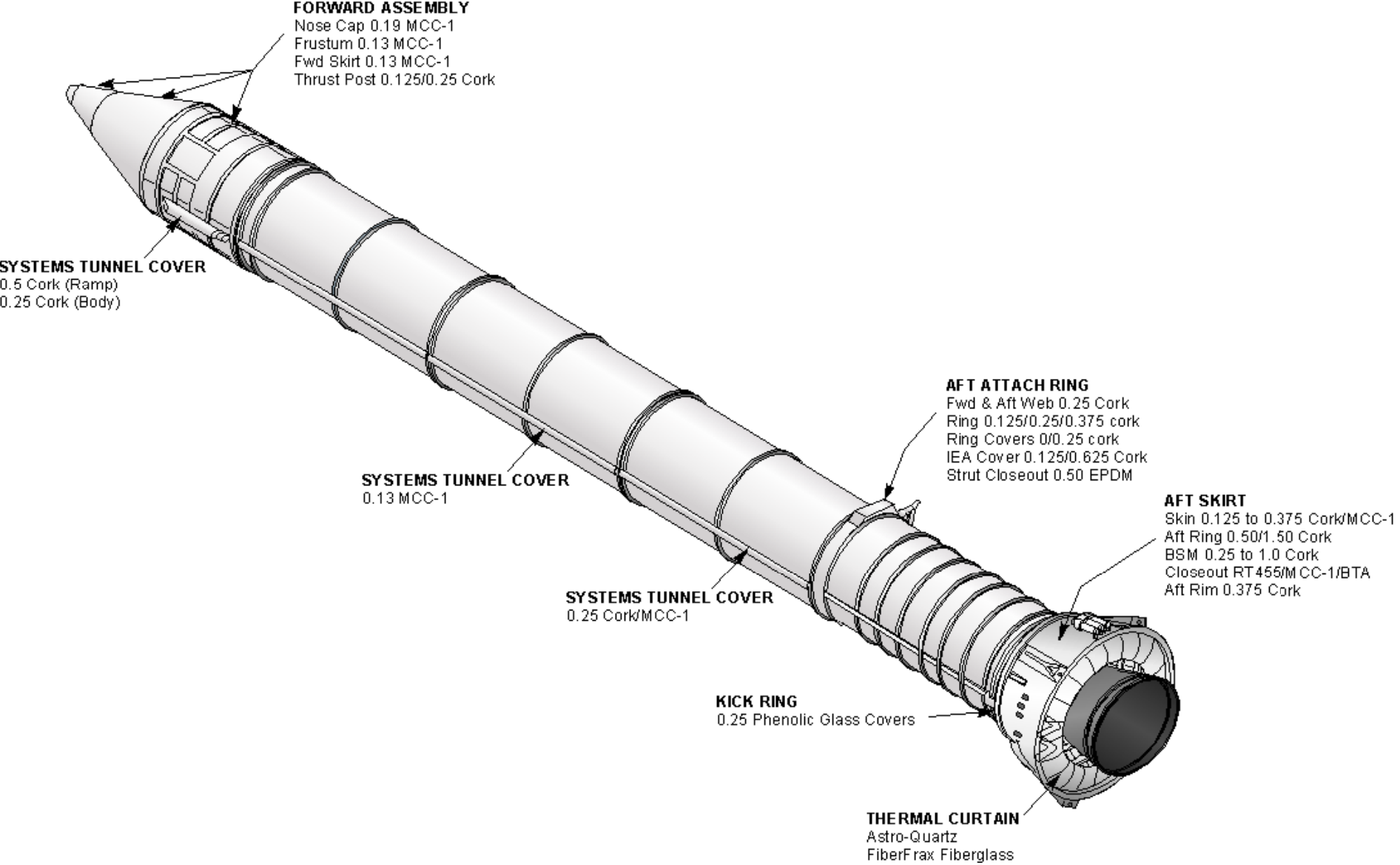

Aft Attach Structure (RSRM to SRB AFT Skirt)



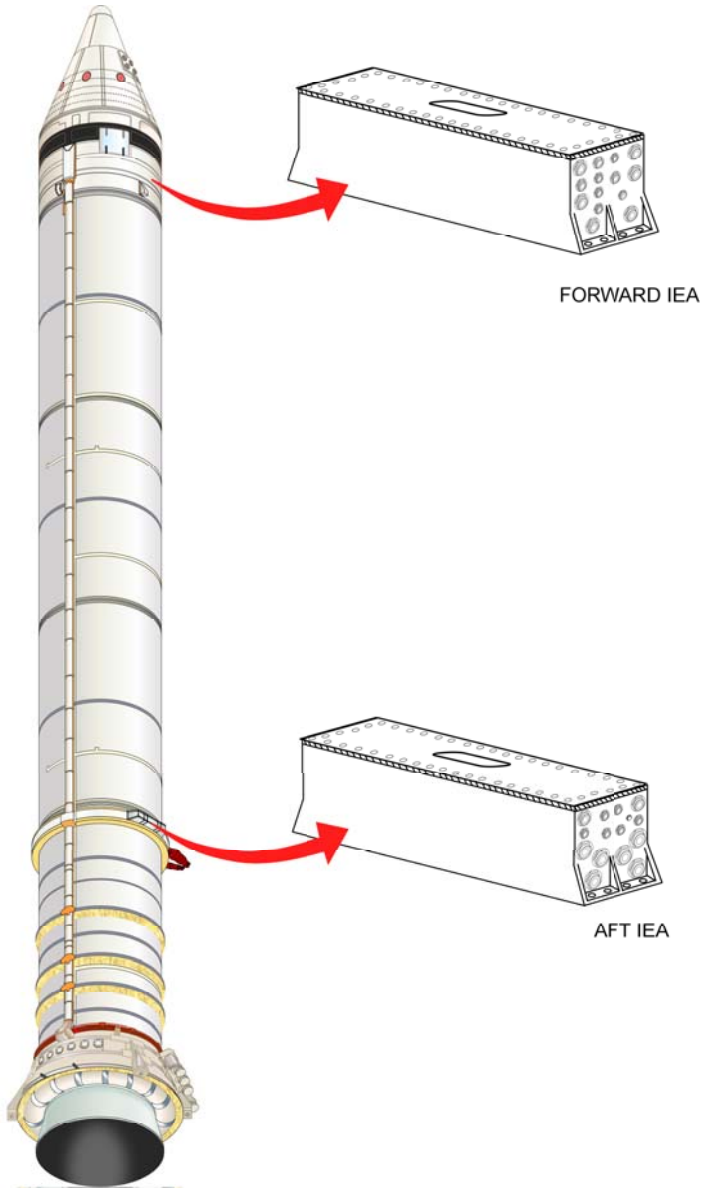



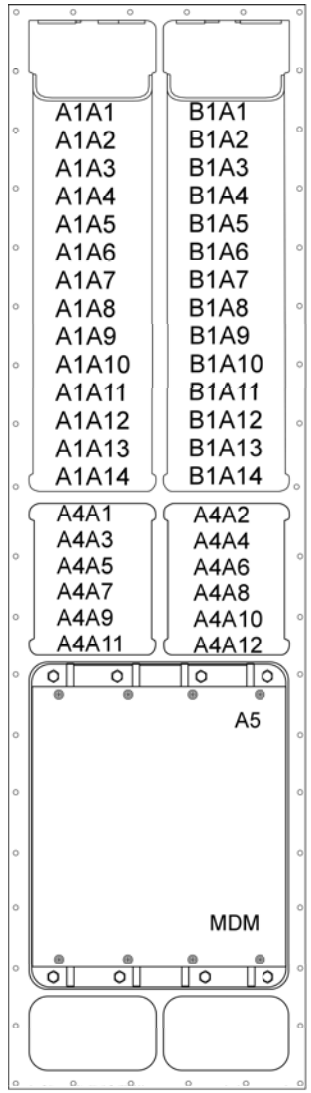

# Aft Skirt Thermal Curtain (Structure to Nozzle)



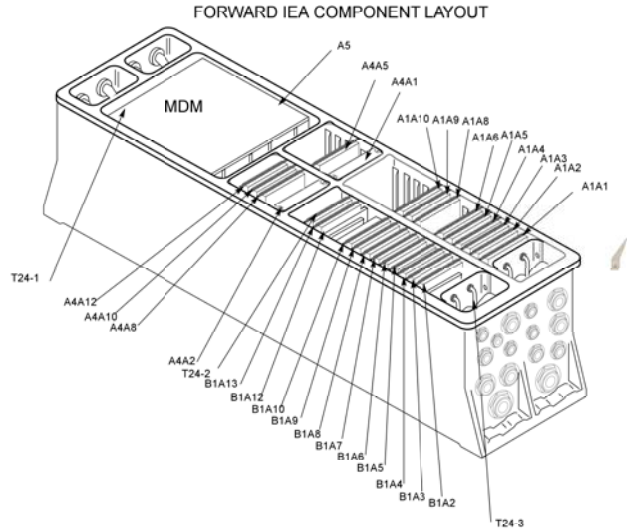

SRB/RSRM Thermal Protection System (TPS) Details

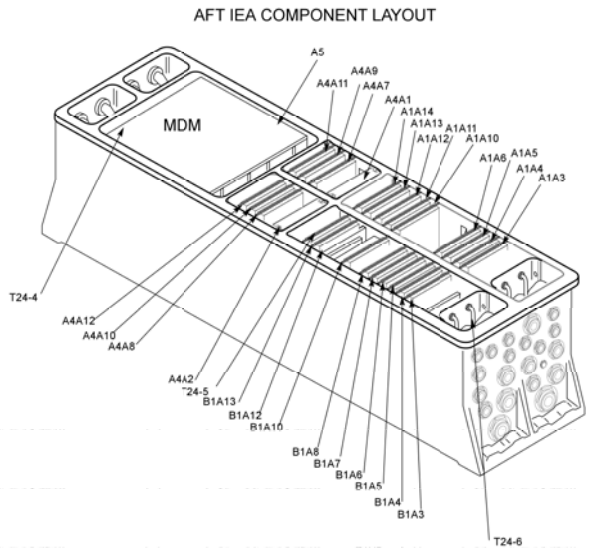
# Electrical & Instrumentation



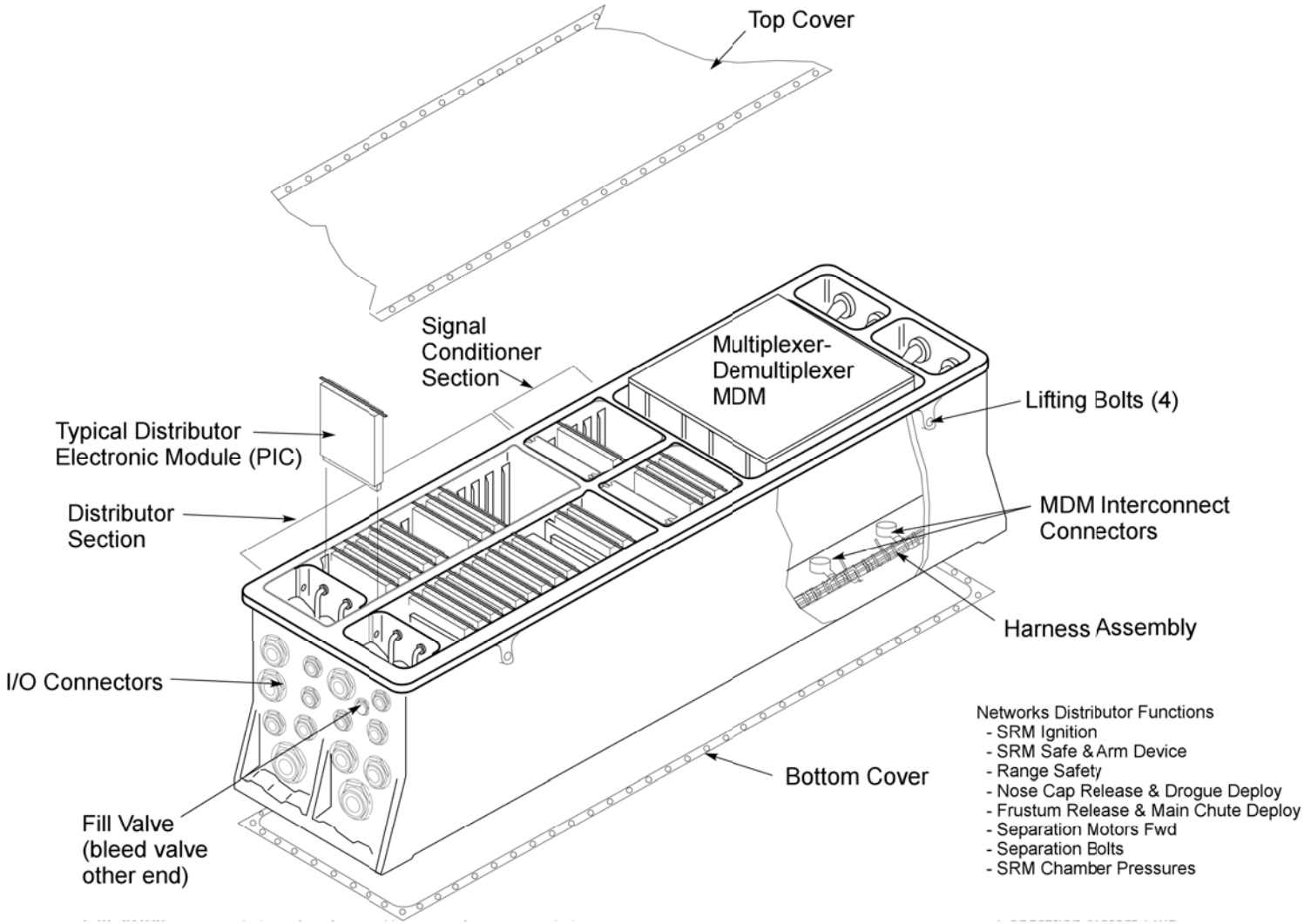




IEA MODULE LOCATIONS

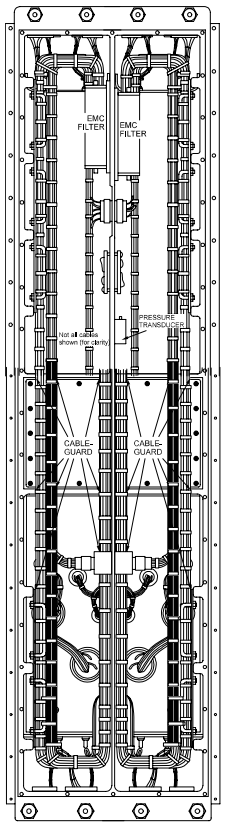


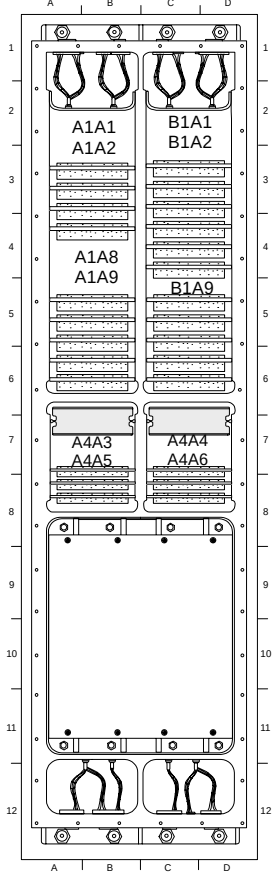

Integrated Electronics Assembly (IEA) Fwd and Aft Unit Details



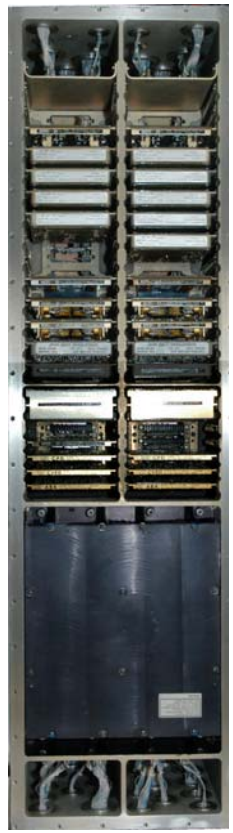

IEA Configuration



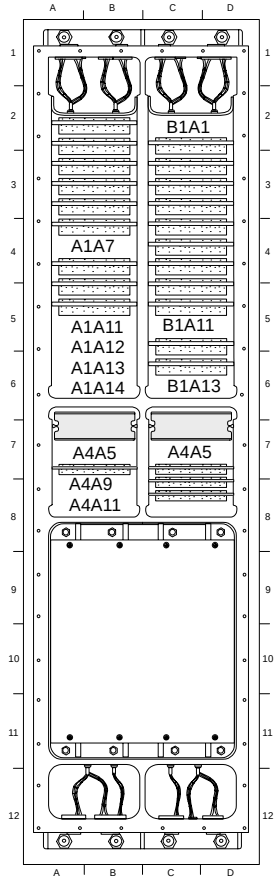

AFT BOTTOM VIEW



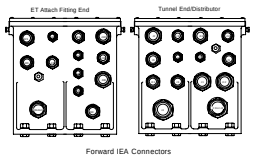

AFT IEA



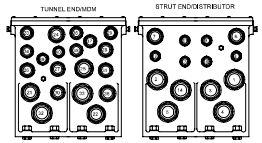
AFT IEA



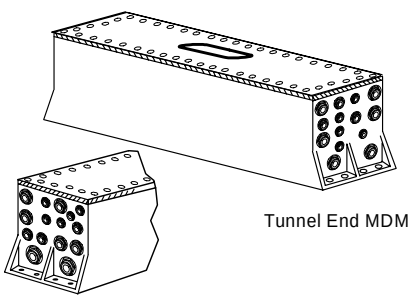

FWD IEA




Forward IEA Connectors



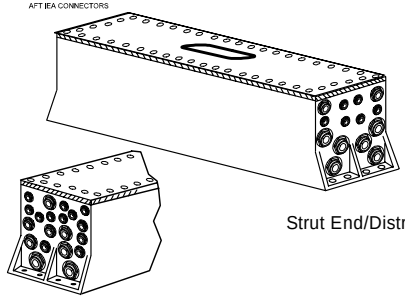

AFT IEA CONNECTORS



Tunnel End MDM

Strut End/Distributor

FORWARD IEA

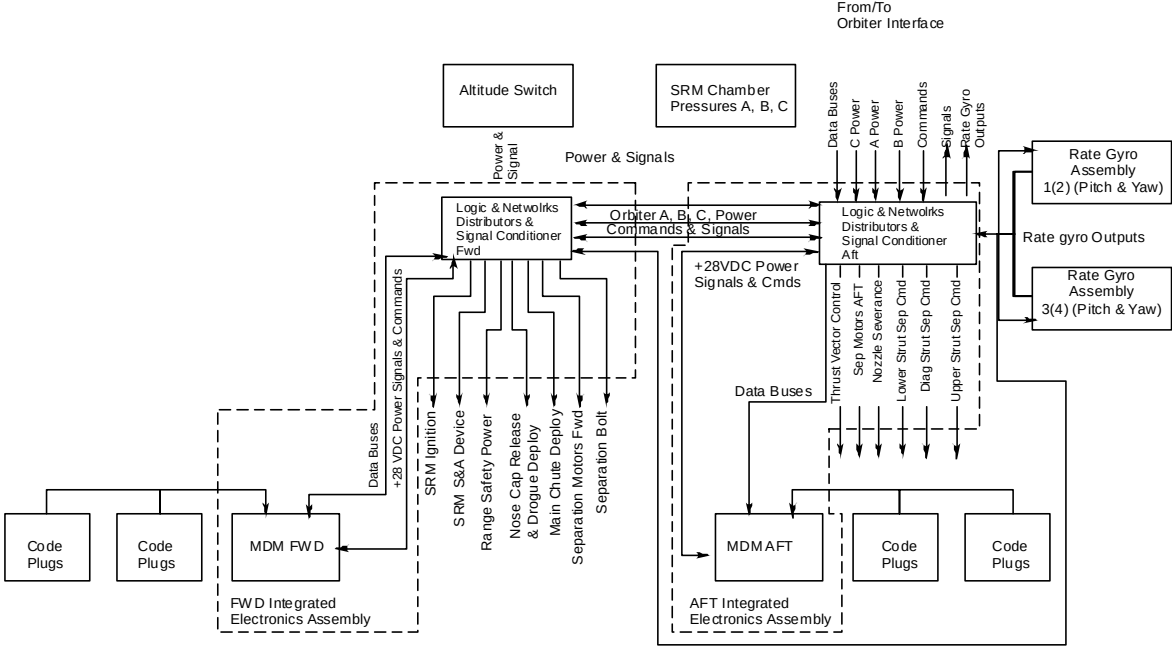


Strut End/Distributor

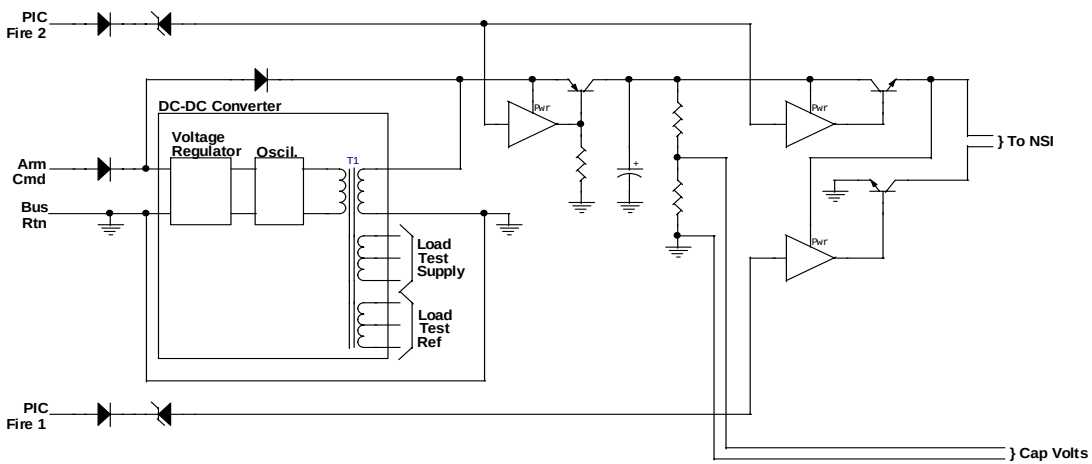
Tunnel End/MDM

AFT IEA

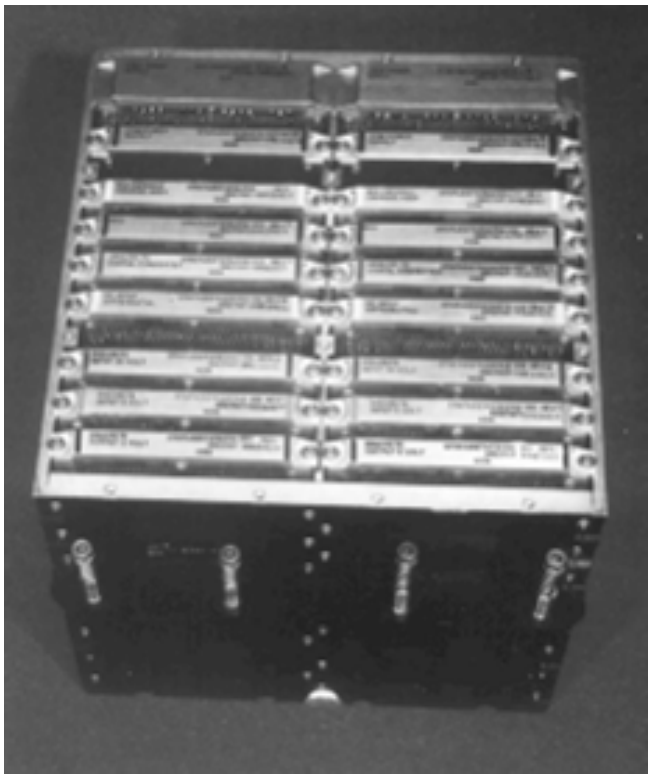
# IEA Fwd and Aft Details

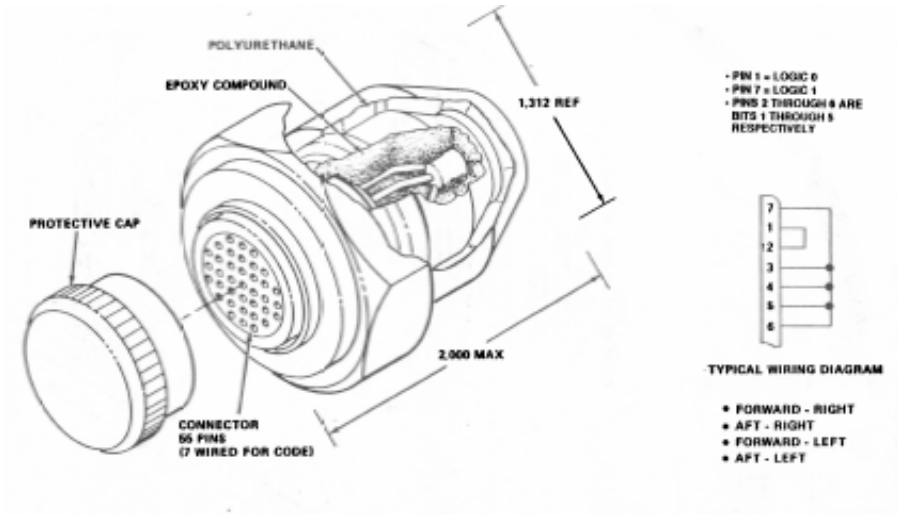



Electrical & Instrumentation (E&I) Functional Diagram



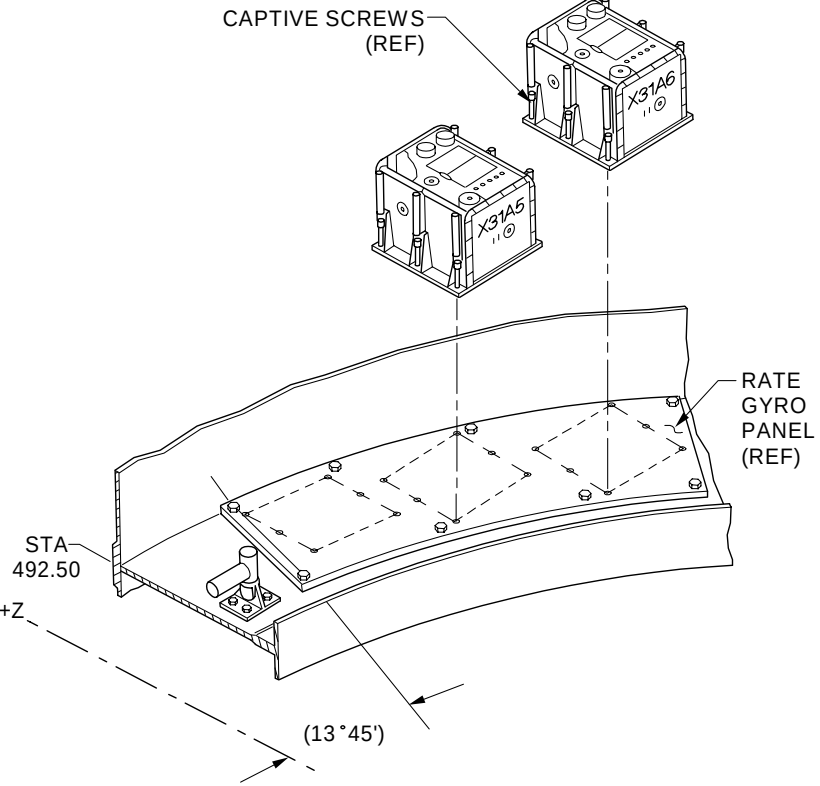

Pyrotechnic Initiator Controller (PIC) Simplified Schematic





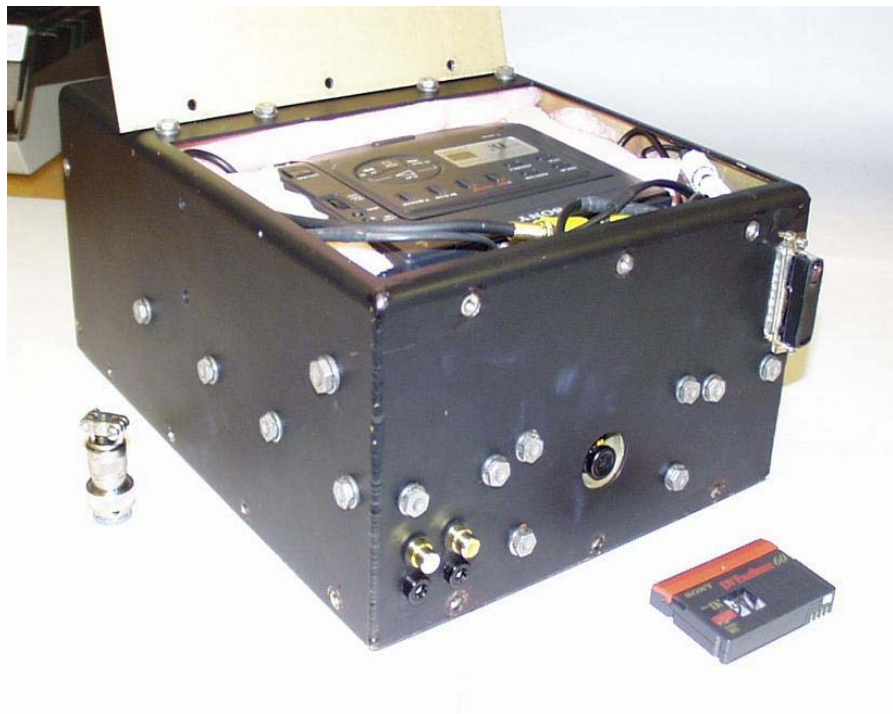

MDM Code Plug

Multiplexer-Demultiplexer (MDM) Detail




RH FORWARD SKIRT - RATE GYRO REMOVAL

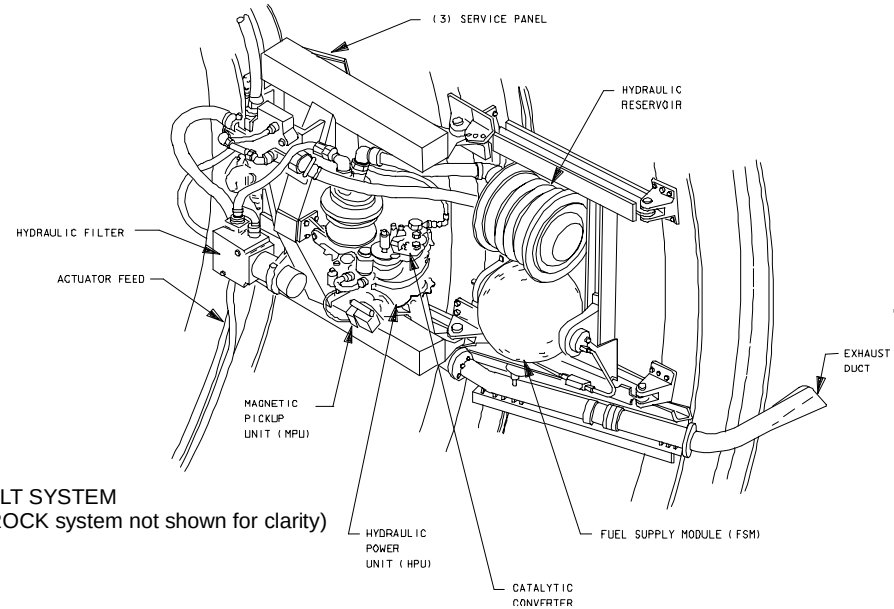
## Rate Gyroscope Installation



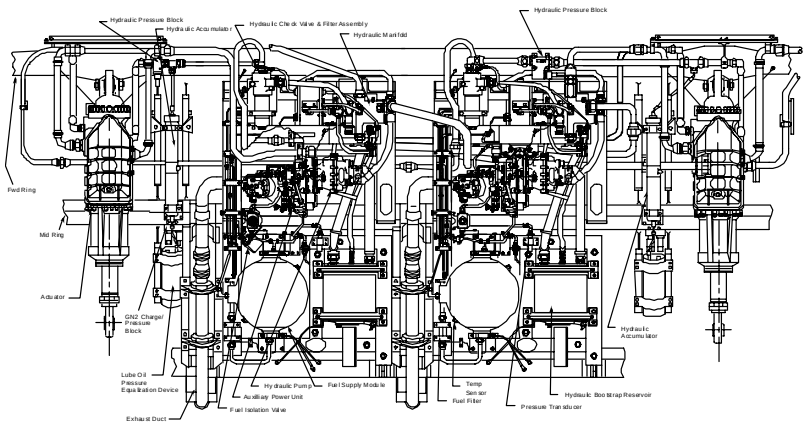
## Data Acquisition System (DAS) Figure

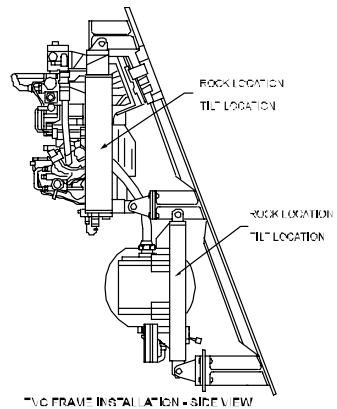
# Thrust Vector Control

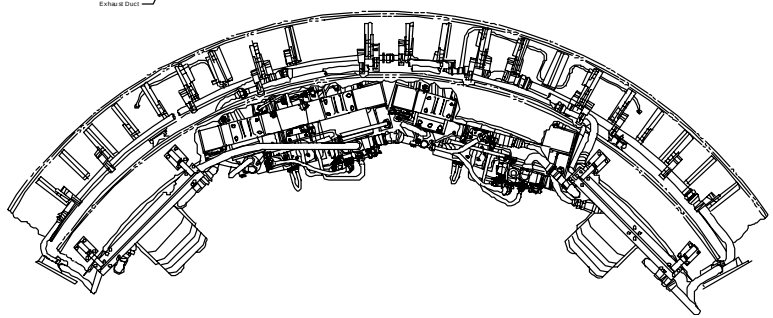
# Thrust Vector Control (TVC) Schematic




TILT SYSTEM
(ROCK system not shown for clarity)

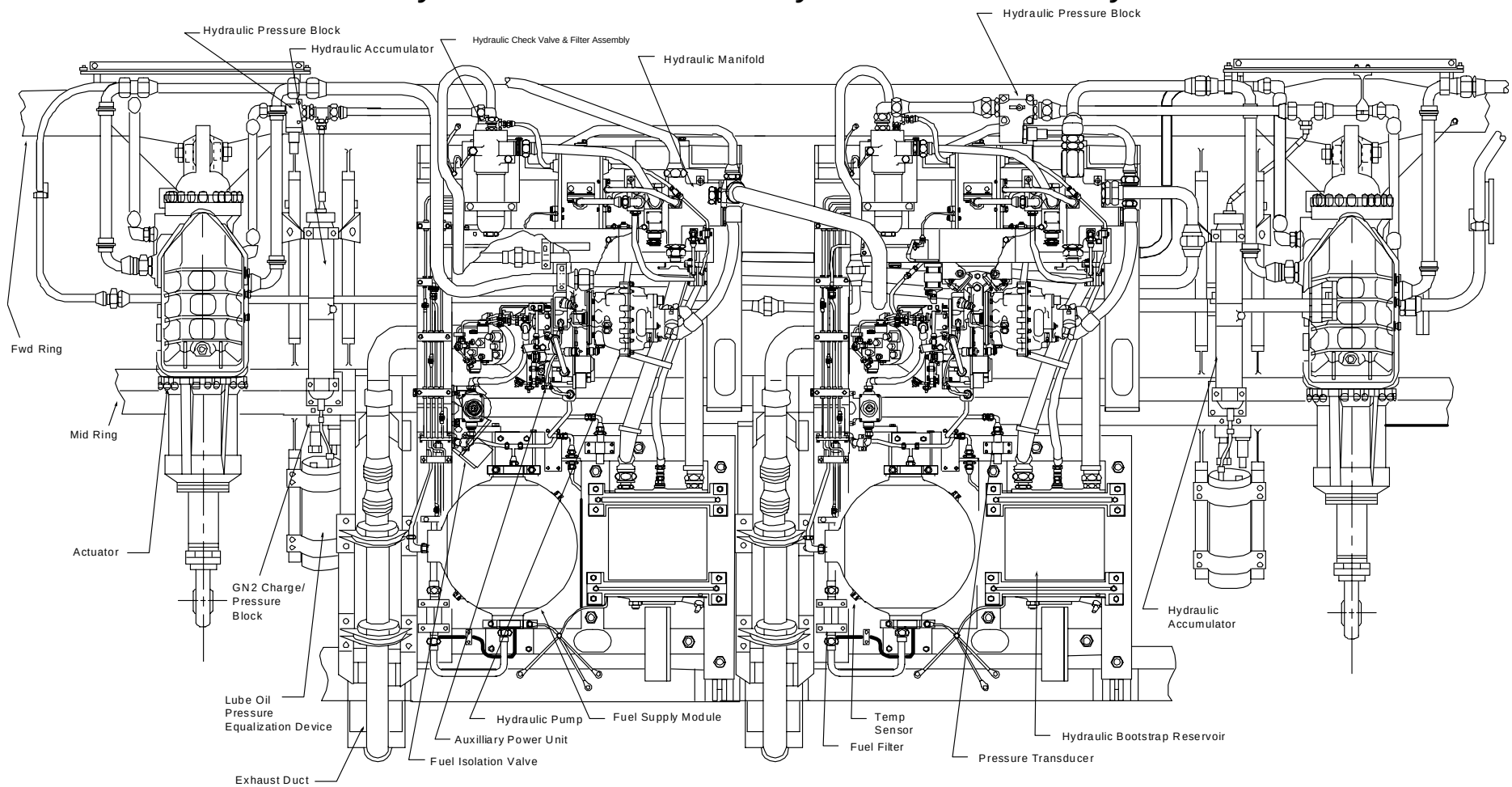


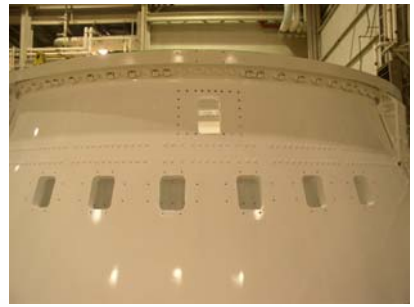
TVC Views

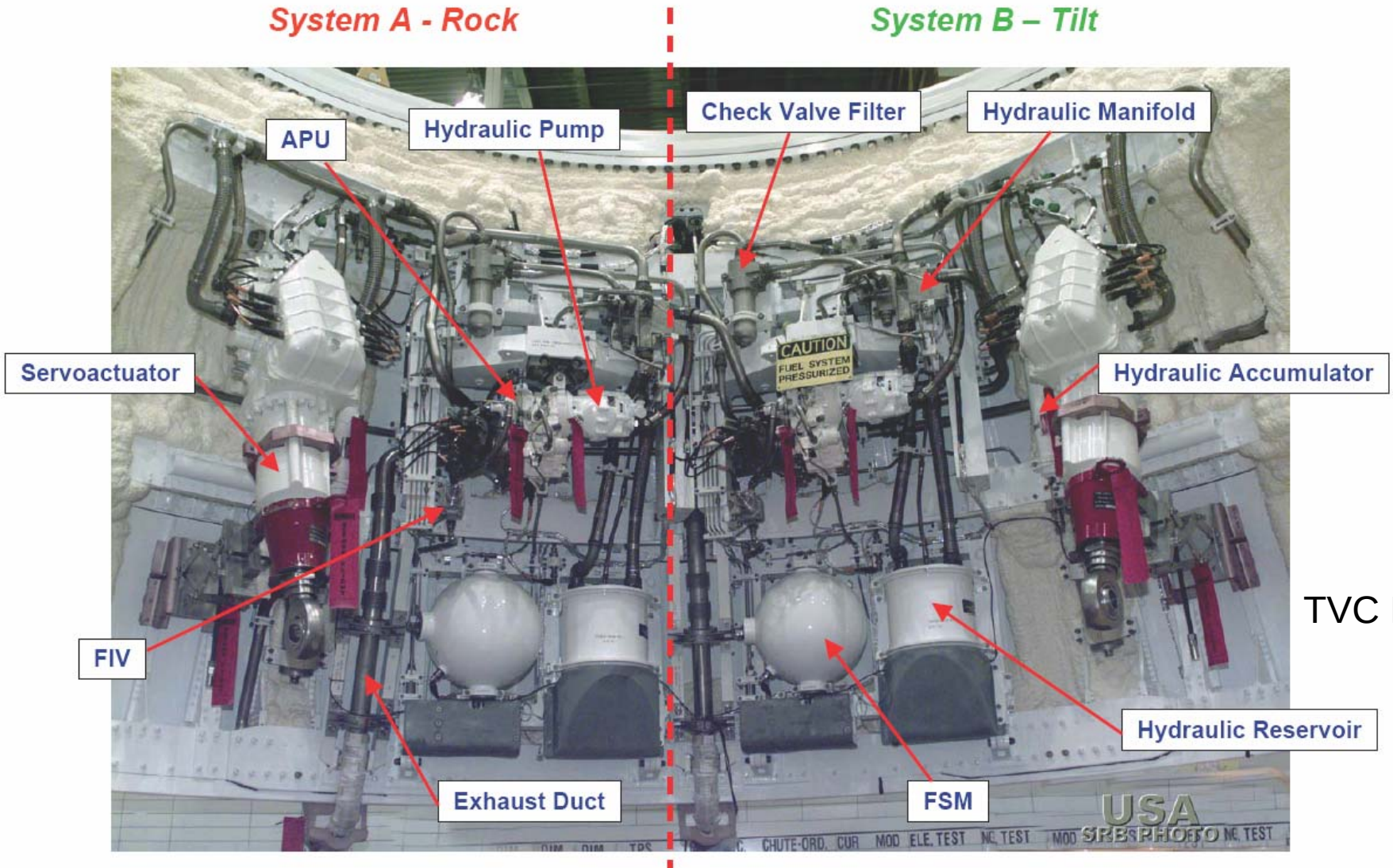
# Thrust Vector Control System: Rock and Tilt Hydraulic Actuator Systems




**Rock** **Tilt**

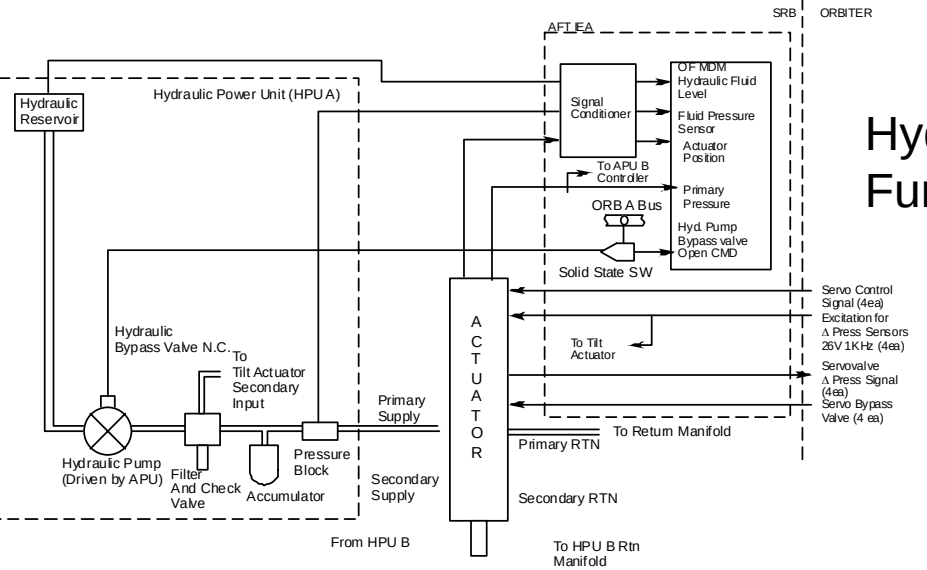
# TVC Access Ports on Aft Skirt

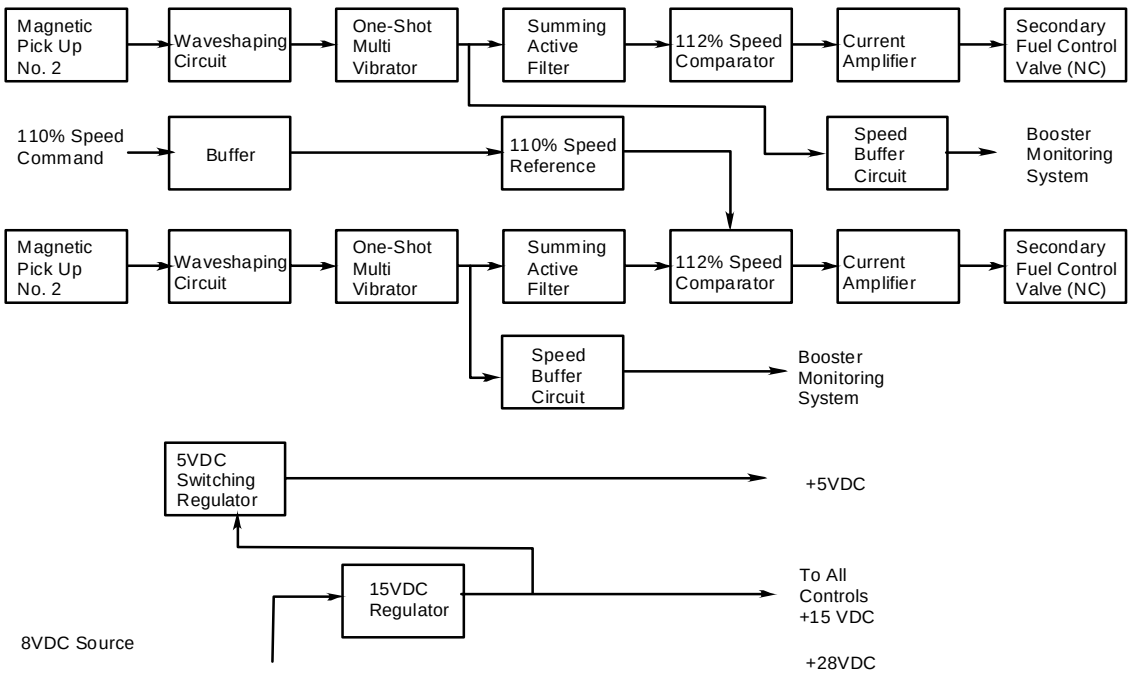




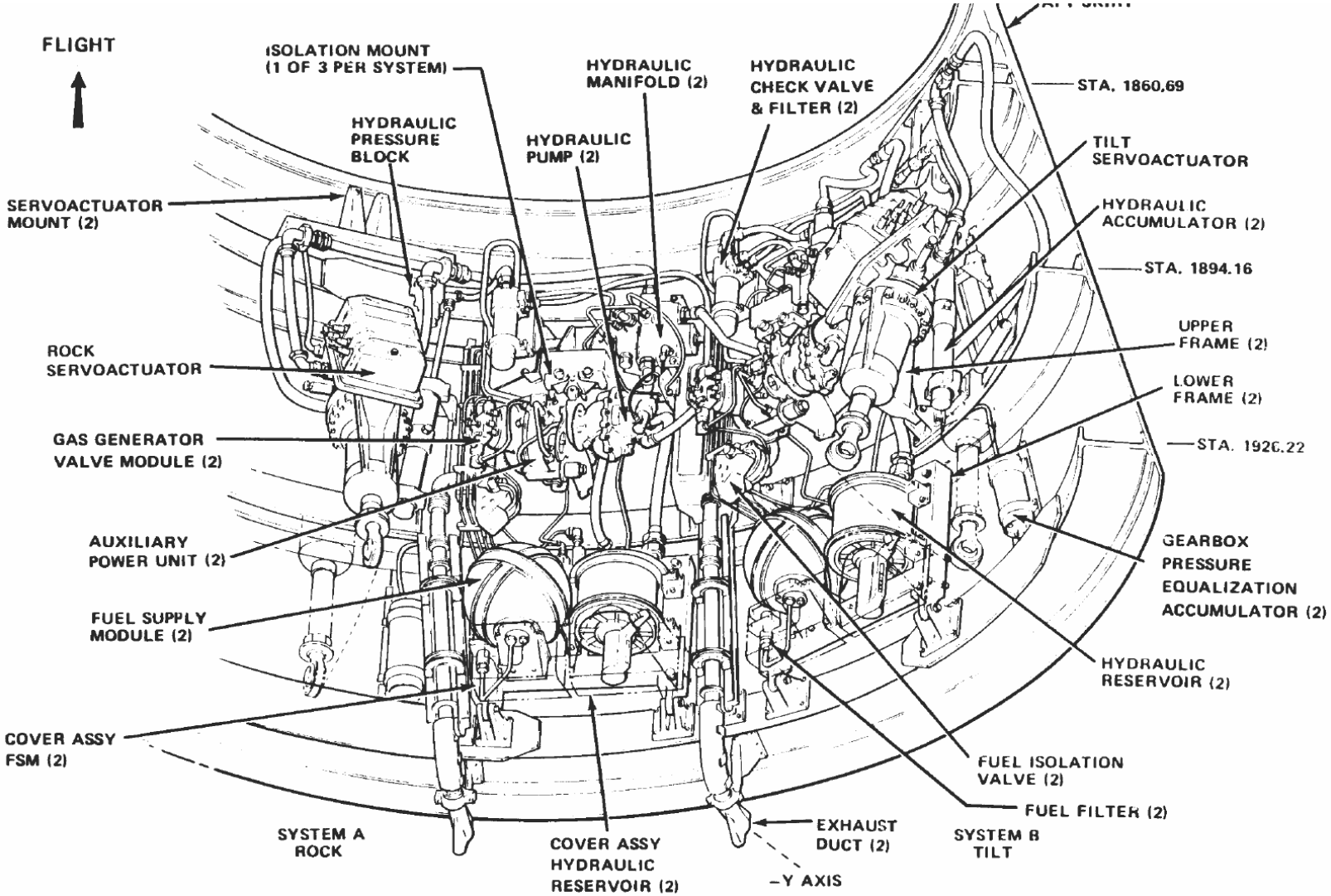

TVC Details

# Hydraulic Power Unit (HPU) Actuator Functional Schematic

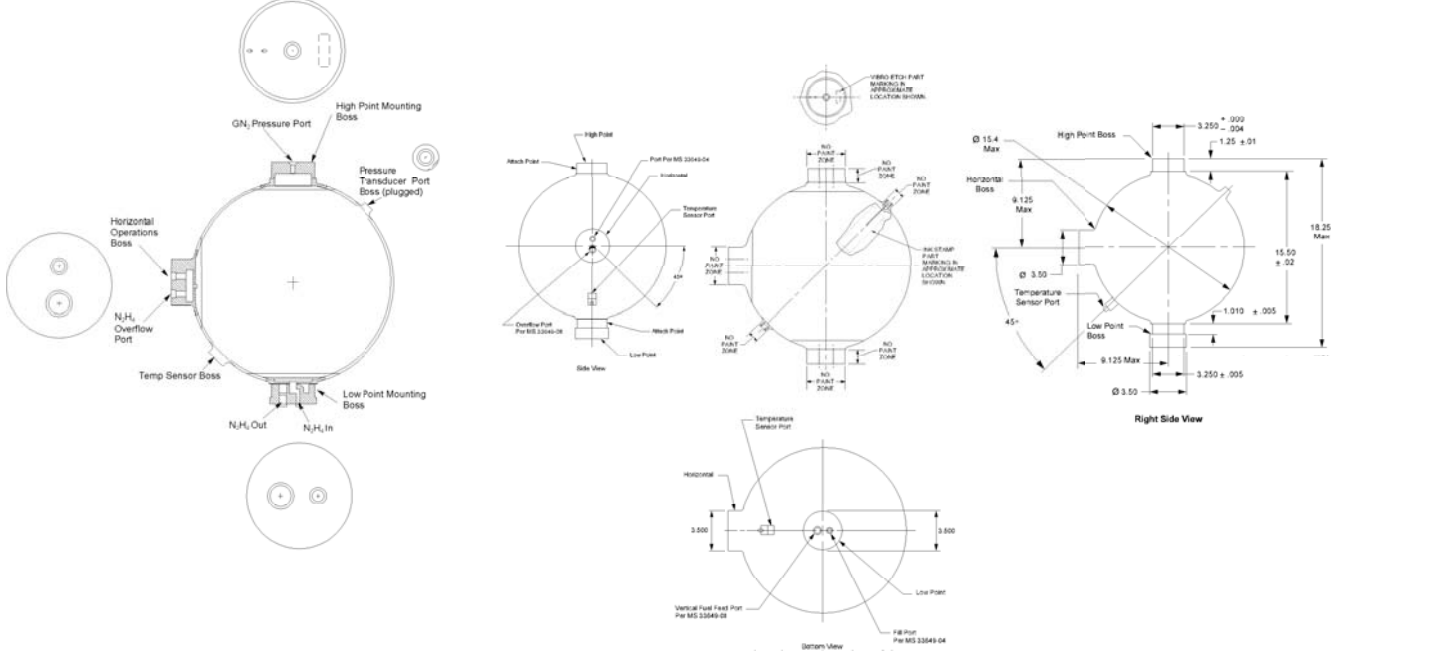


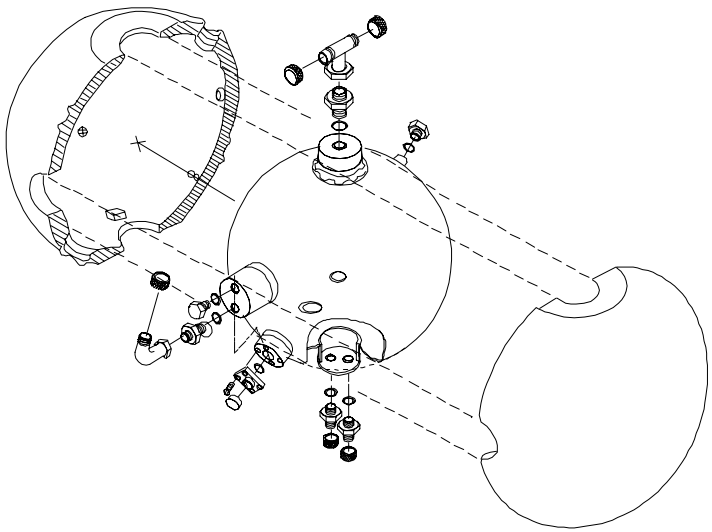



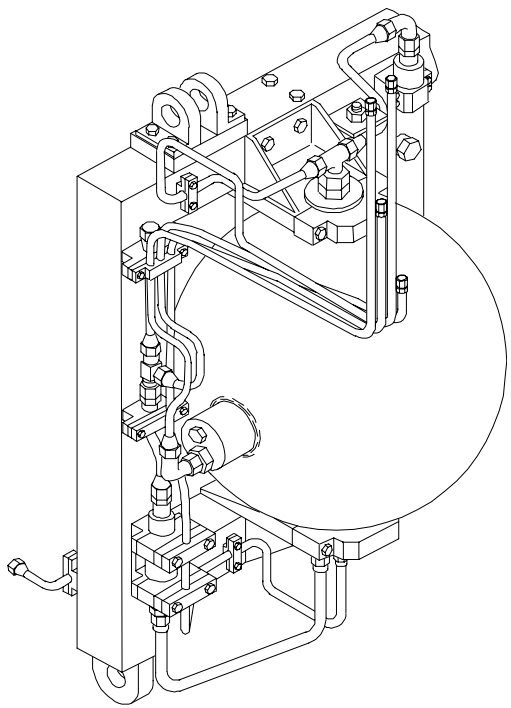

# TVC Auxiliary Power Unit (APU) Operational Schematic


FLIGHT
ISOLATION MOUNT (1 OF 3 PER SYSTEM)
HYDRAULIC MANIFOLD (2)
HYDRAULIC CHECK VALVE & FILTER (2)
STA. 1860.69
HYDRAULIC PRESSURE BLOCK
HYDRAULIC PUMP (2)
TILT SERVOACTUATOR
SERVOACTUATOR MOUNT (2)
HYDRAULIC ACCUMULATOR (2)
STA. 1894.16
UPPER FRAME (2)
ROCK SERVOACTUATOR
LOWER FRAME (2)
GAS GENERATOR VALVE MODULE (2)
STA. 1926.22
AUXILIARY POWER UNIT (2)
GEARBOX PRESSURE EQUALIZATION ACCUMULATOR (2)
FUEL SUPPLY MODULE (2)
HYDRAULIC RESERVOIR (2)
COVER ASSY FSM (2)
FUEL ISOLATION VALVE (2)
FUEL FILTER (2)
SYSTEM A ROCK
COVER ASSY HYDRAULIC RESERVOIR (2)
EXHAUST DUCT (2)
SYSTEM B TILT
-Y AXIS

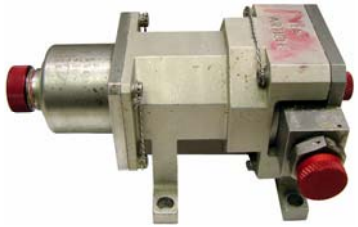
TVC Details

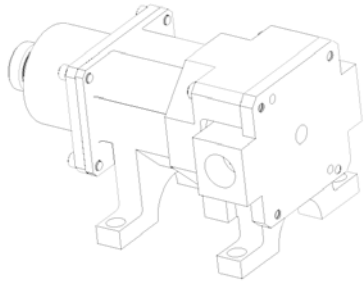


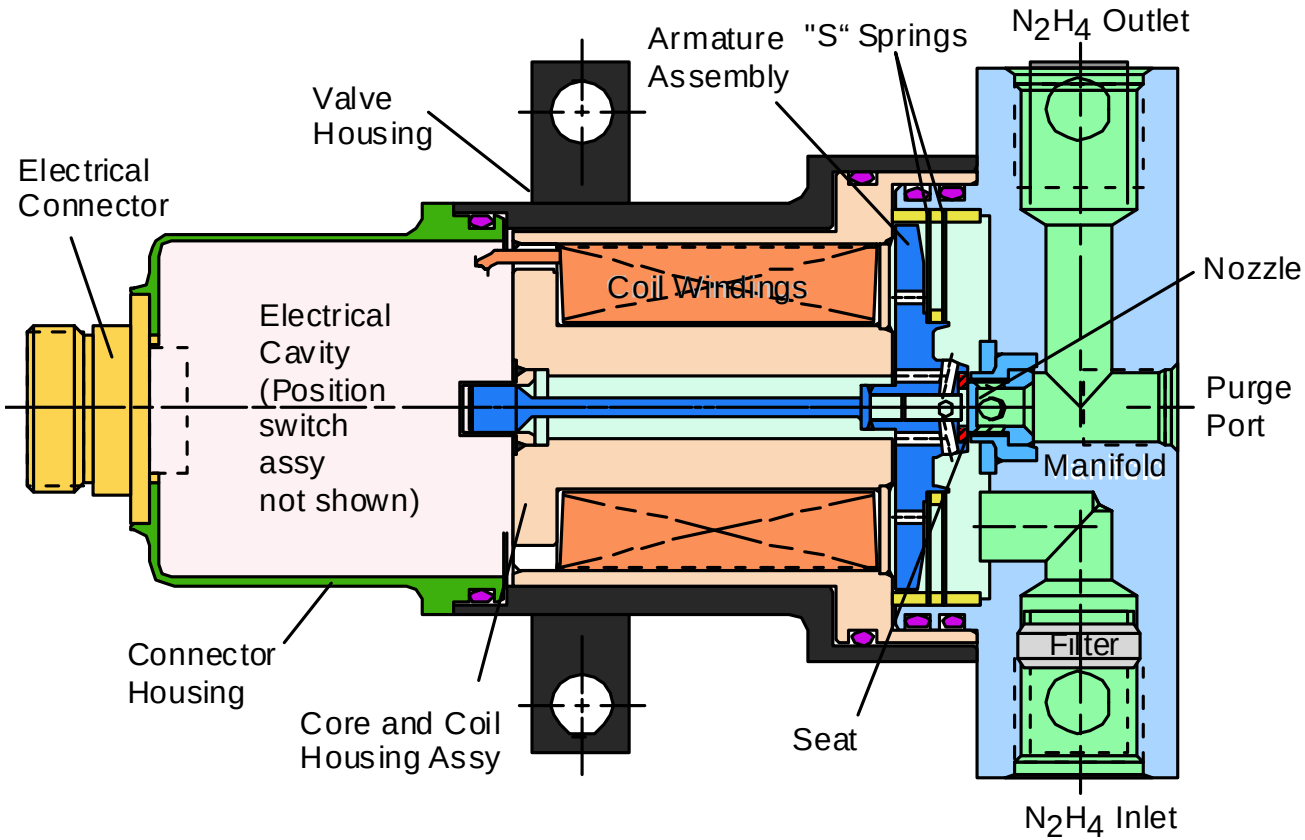





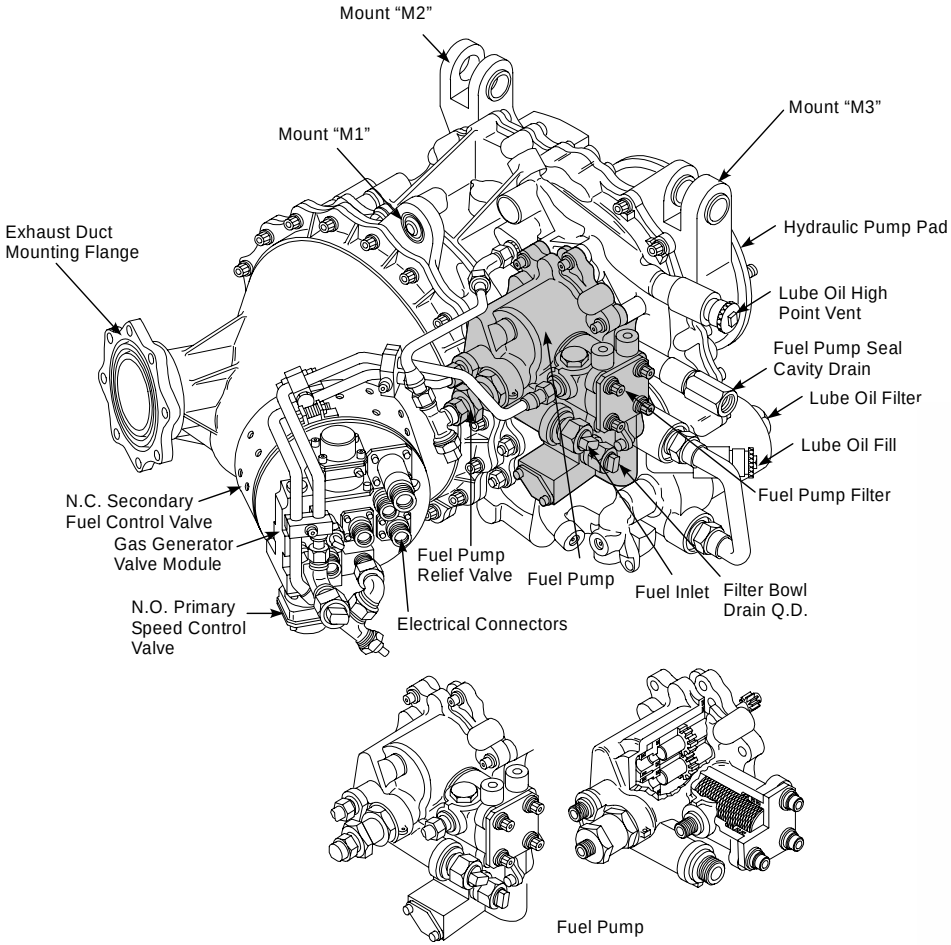
Fuel Supply Module (FSM) Details

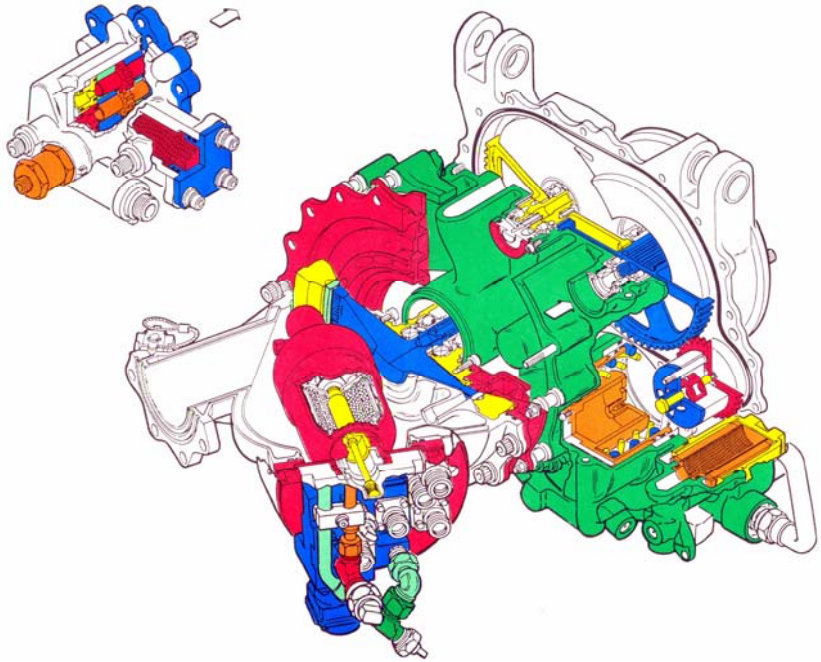




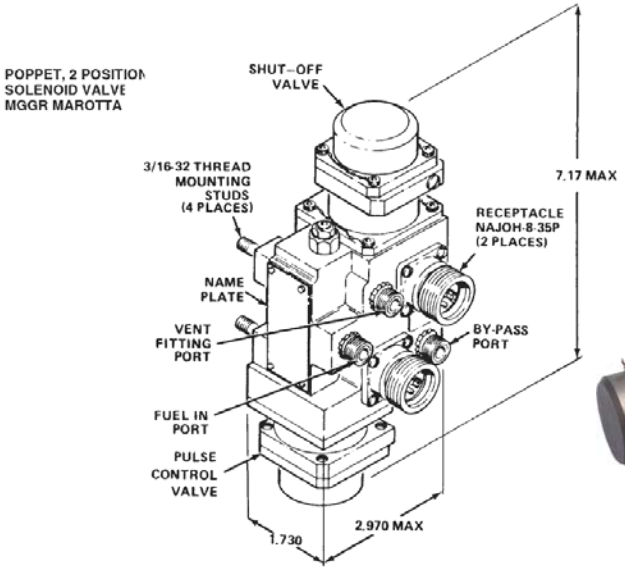


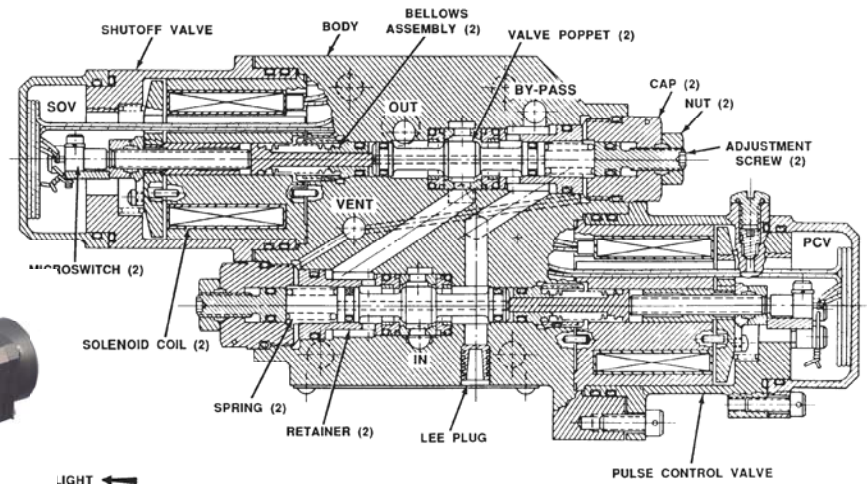

Fuel Isolation Valve (Hydrazine) Isometric, Picture and Cutaway


Mount “M2”
Mount “M3”
Mount “M1”
Exhaust Duct
Mounting Flange
Hydraulic Pump Pad
Lube Oil High
Point Vent
Fuel Pump Seal
Cavity Drain
Lube Oil Filter
Lube Oil Fill
Fuel Pump Filter
N.C. Secondary
Fuel Control Valve
Gas Generator
Valve Module
Fuel Pump
Relief Valve
Fuel Pump
Fuel Inlet
Filter Bowl
Drain Q.D.
N.O. Primary
Speed Control
Valve
Electrical Connectors
Fuel Pump



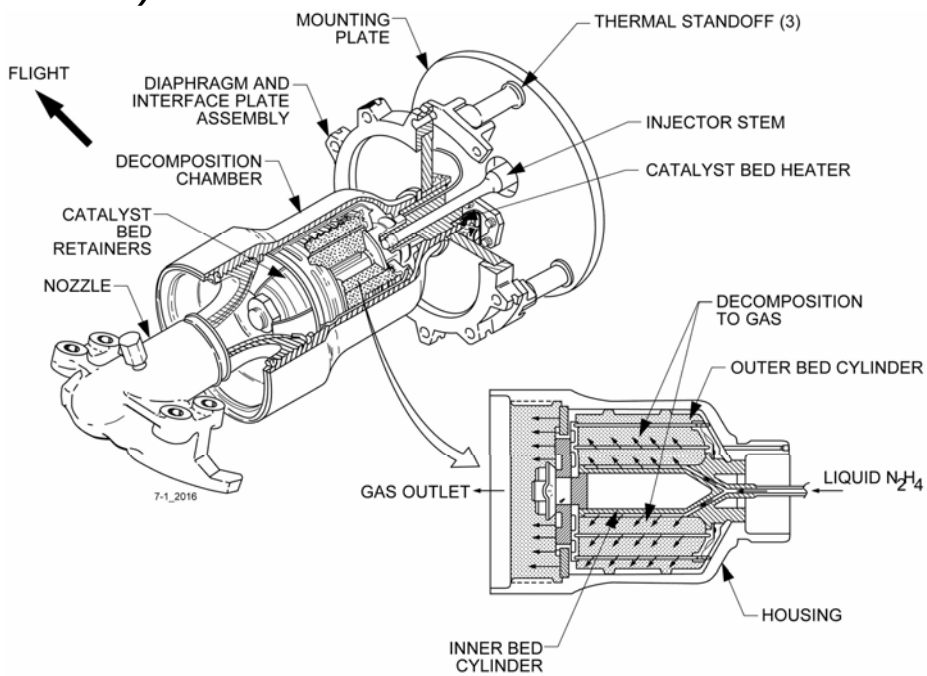
# APU Details

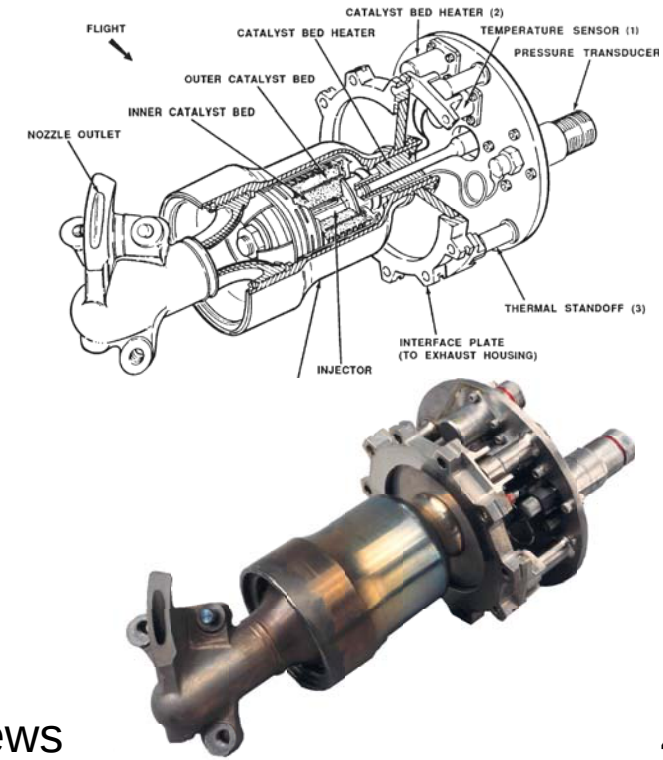


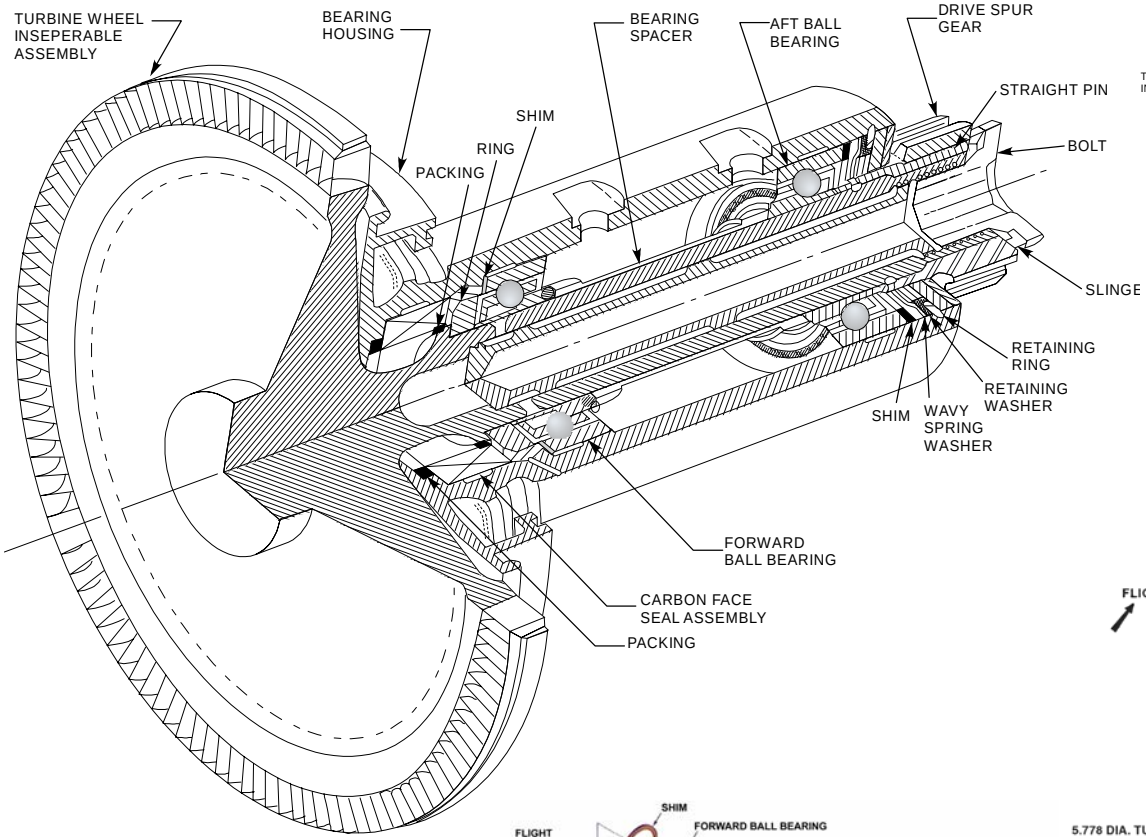

Gas Generator Valve Module (GGVM)

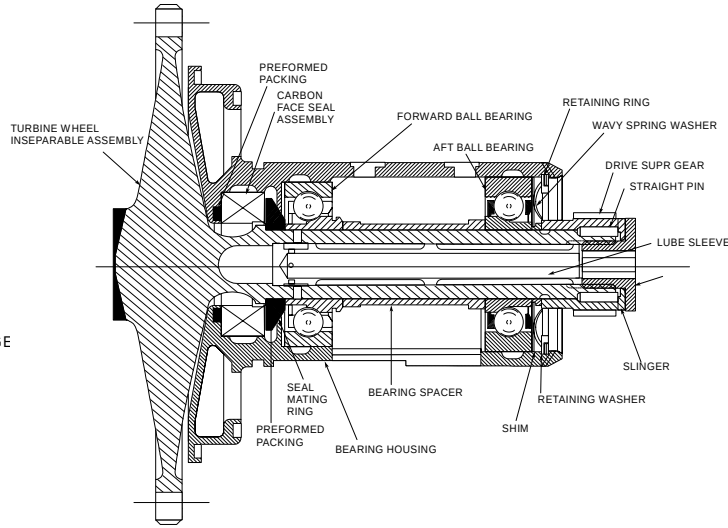
GGVM Cutaway

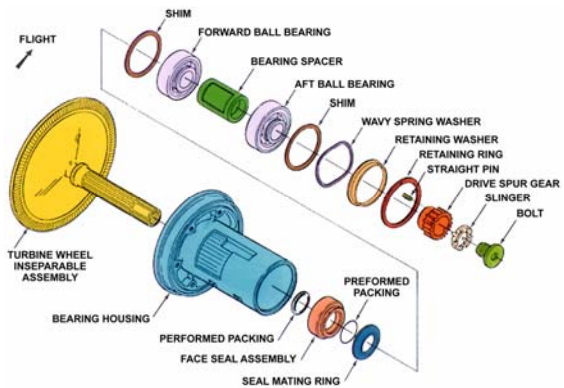


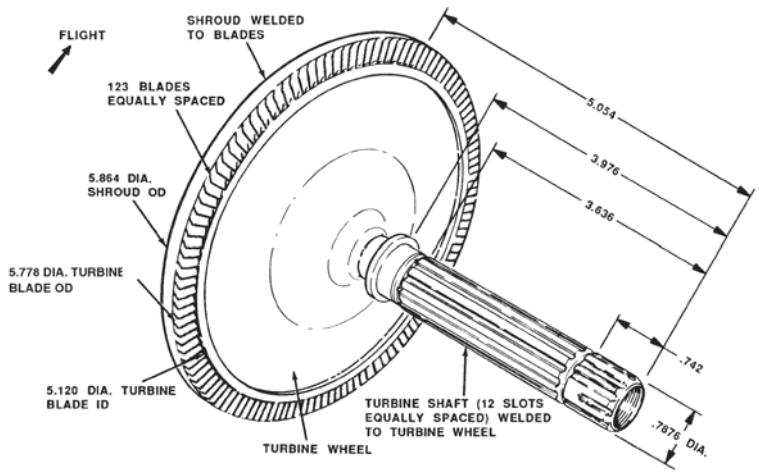




APU Gas Generator Views

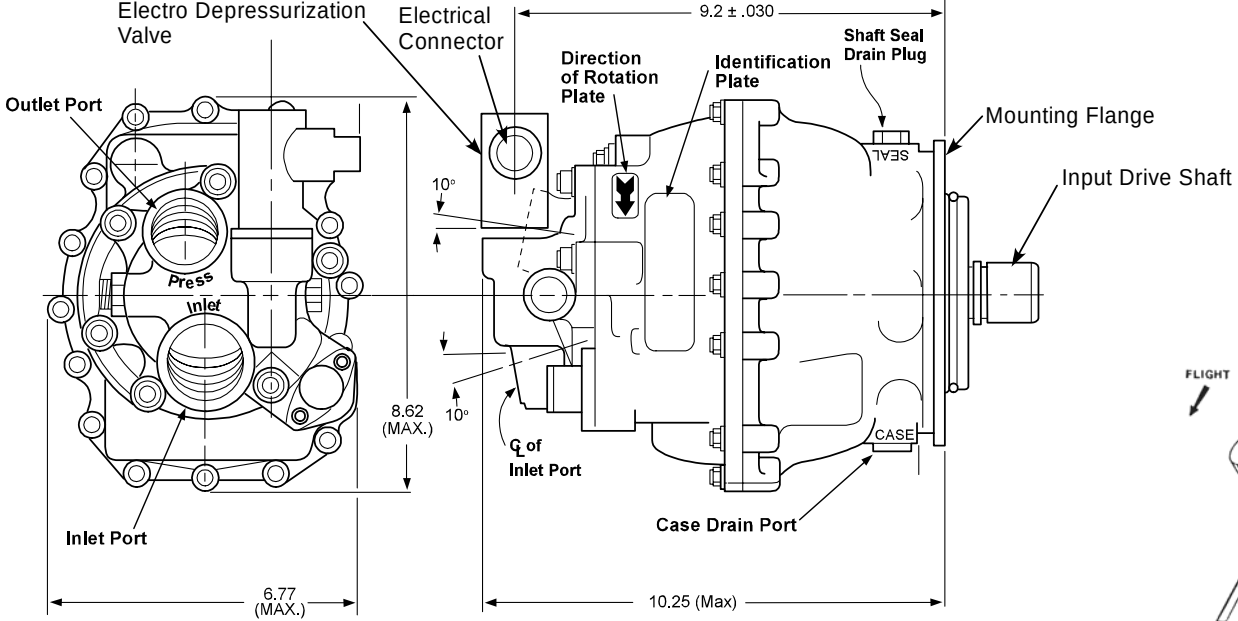


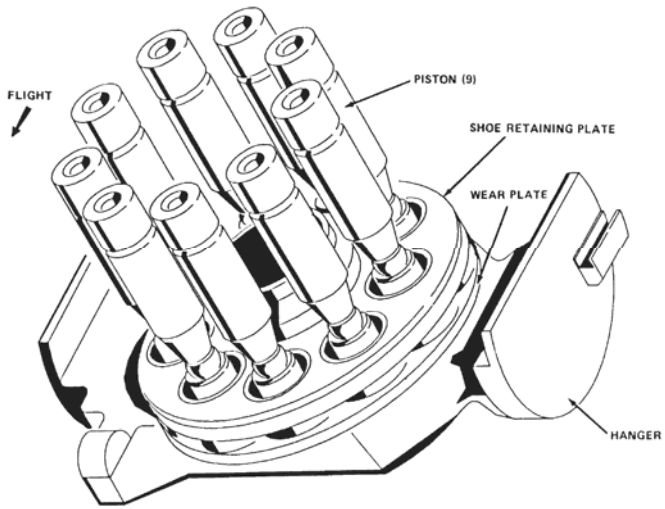



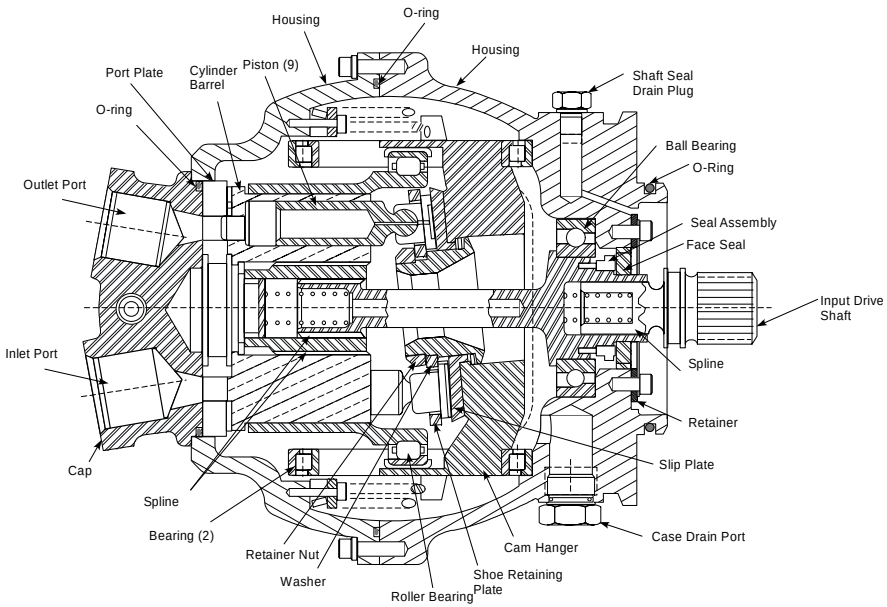

# APU Turbine Wheel Details



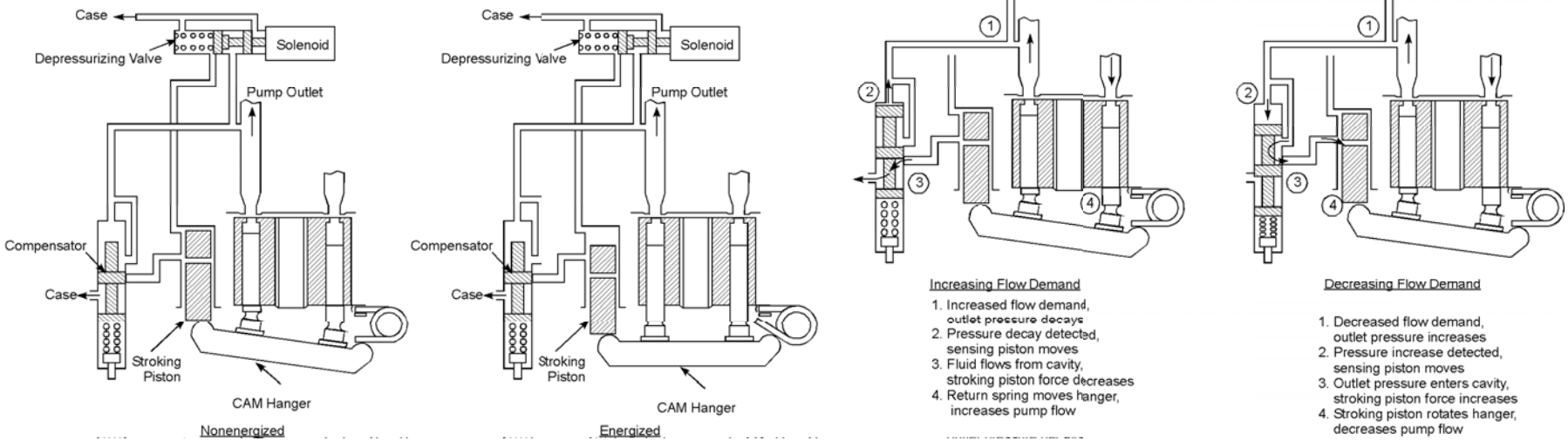

**Hydraulic Pump**



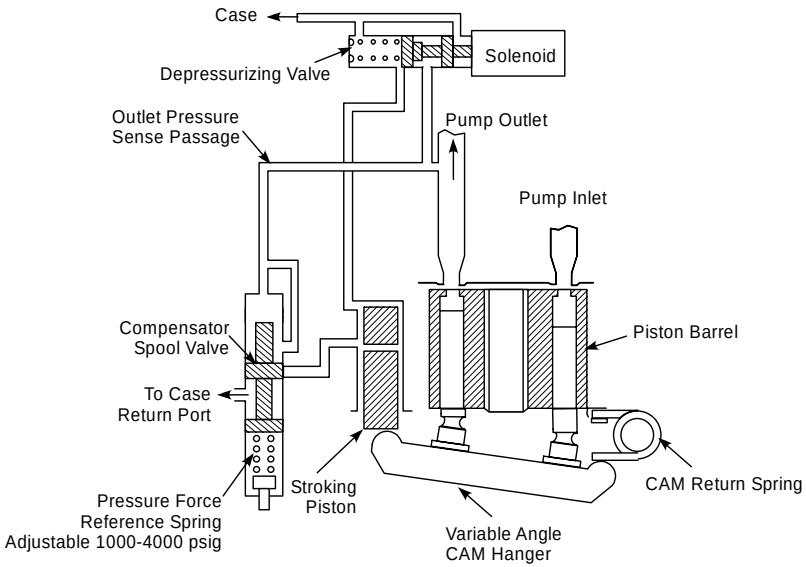

# Hydraulic Pump details



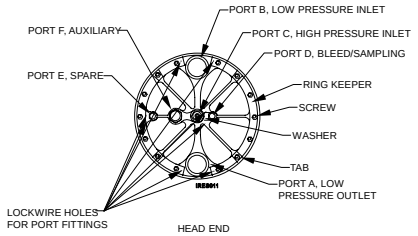

# Hydraulic Pump Piston Barrel

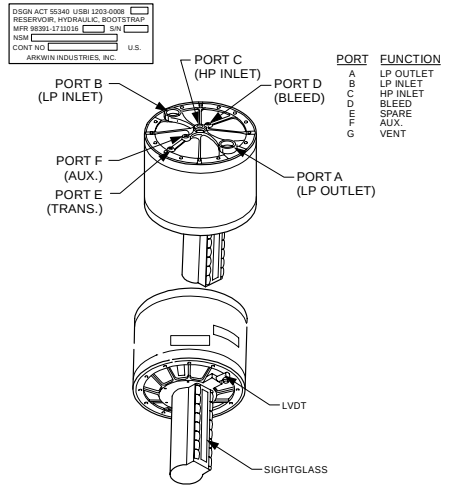


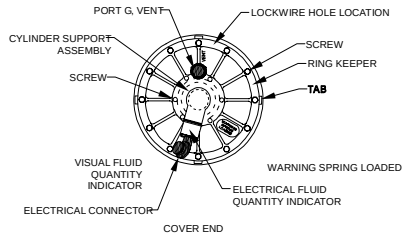

# Hydraulic Pump Depressurizing System and Compensator Operation

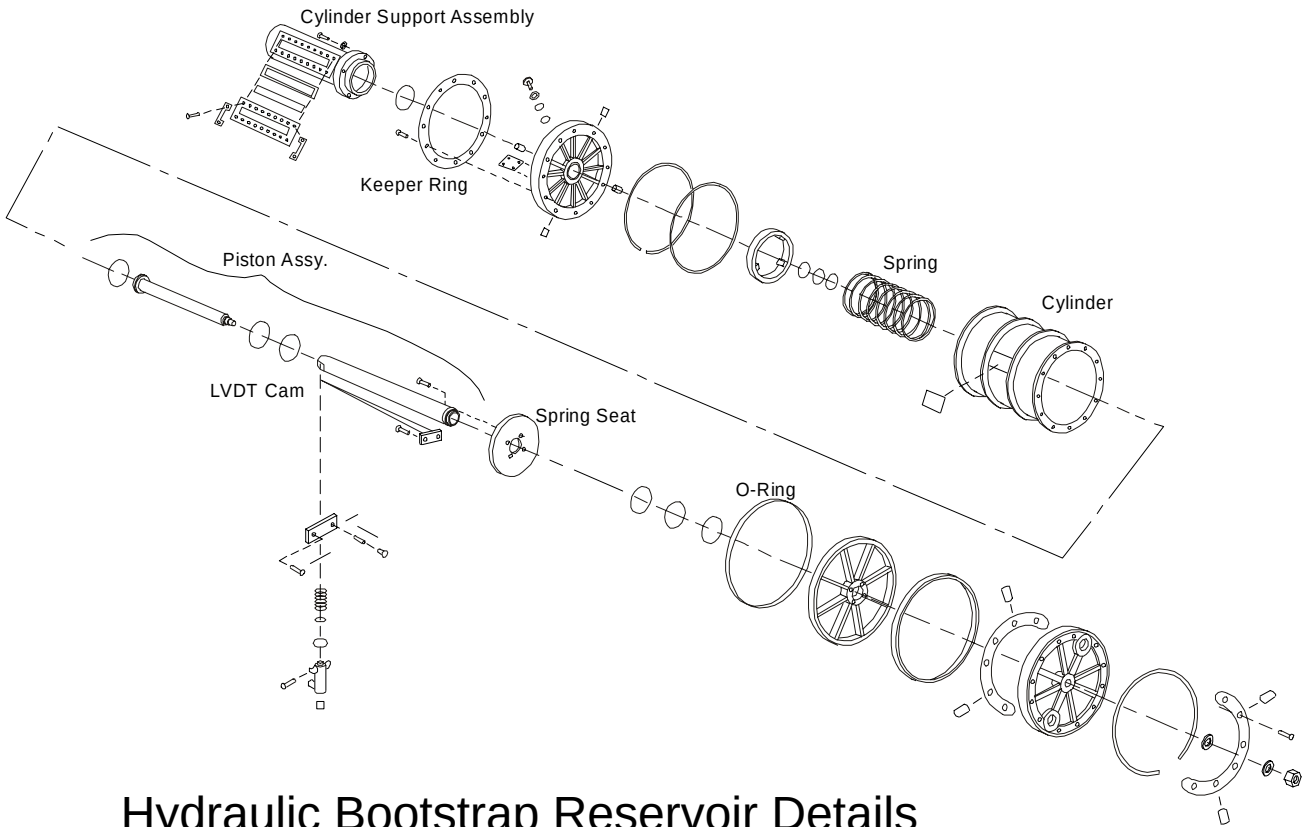


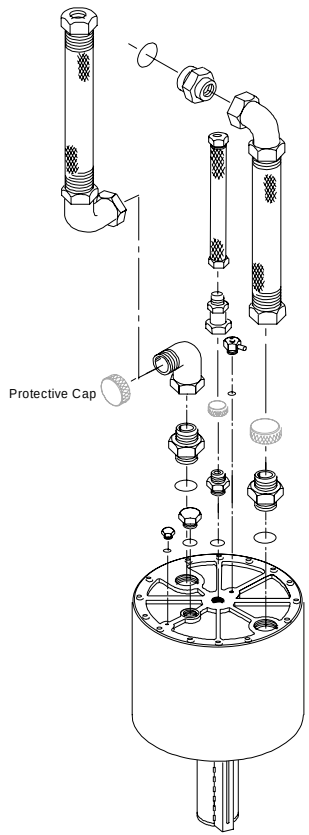

## Compensating Mechanism



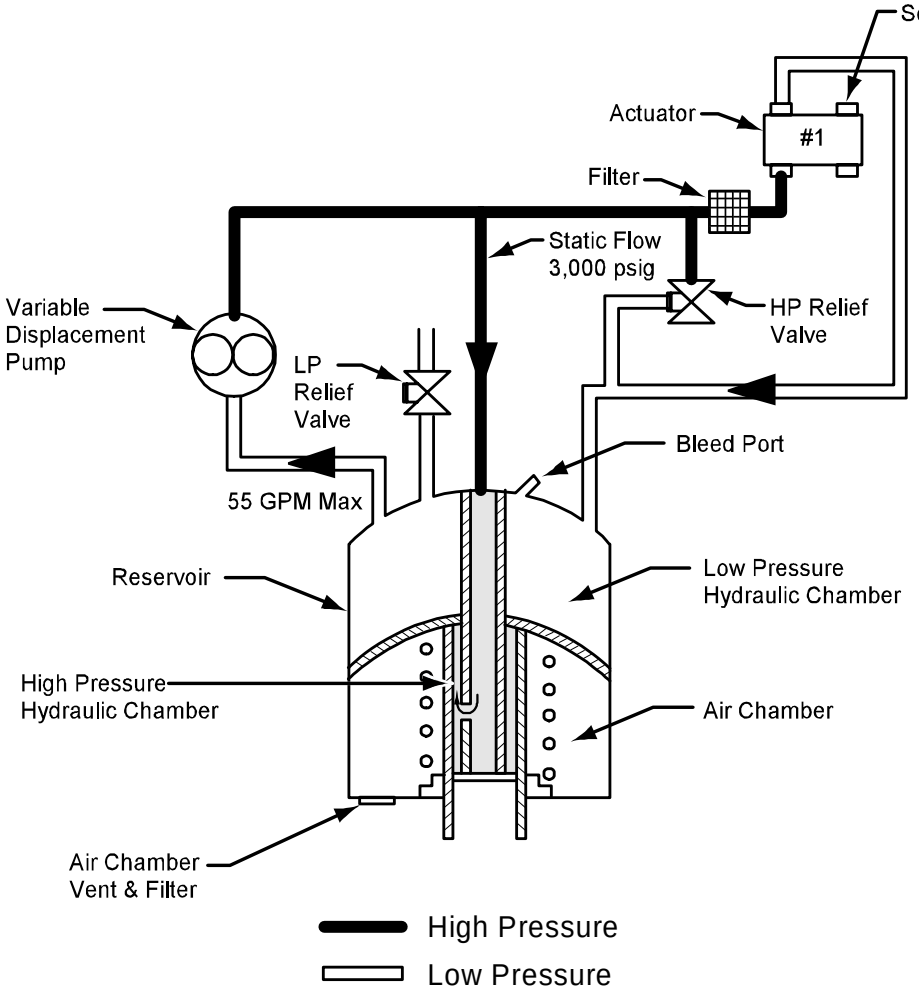




# Hydraulic Bootstrap Reservoir Details

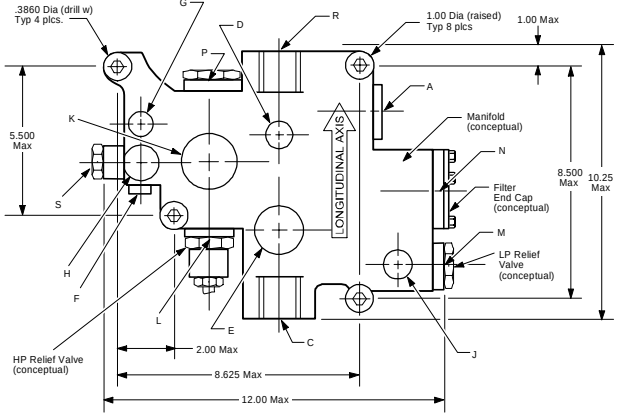


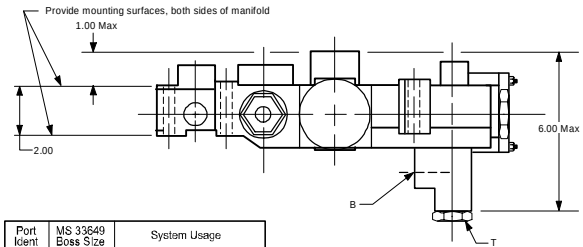

Notes:

1. During normal system operation, actuators #1 and #2 are powered simultaneously by their own independent hydraulic systems. The #2 system is identical to the one shown and powers #2 actuator. System redundancy is provided by valves and plumbing (not shown) which can interconnect both actuators into either of the hydraulic systems. If this occurs, maximum pump output increases from 55 to 70 GPM.
2. Minimum system flow is 2 GPM (leakage through actuator when no actuator movement is called for by vehicle control system).
3. Actuator stroke and direction are controlled by servo valves (not shown).

# TVC Bootstrap Reservoir Operational Schematic

# TVC Hydraulic Fluid Manifold



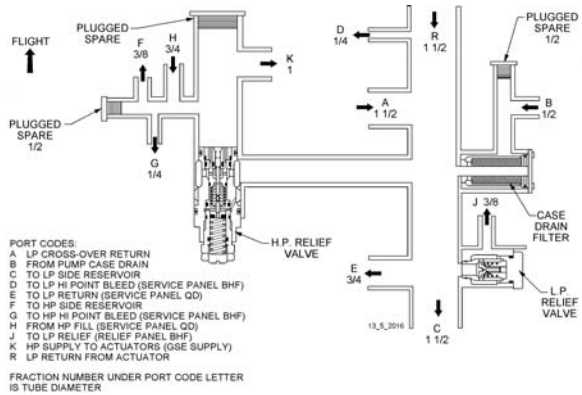

| Port Ident | MS 33649 Boss Size | System Usage |
|---|---|---|
| A | -24 | LP cross-over return |
| B | -8 | From pump case drain |
| C | -24 | To LP side reservoir |
| D | -4 | To LP high point bleed |
| E | -12 | To LP return QD |
| F | -6 | To HP side of reservoir |
| G | -4 | To HP high point bleed |
| H | -12 | From HP fill |
| J | -6 | To LP relief BH fitting |
| K | -16 | HP supply |
| L | – | HP relief valve |
| M | – | LP Relief Valve |
| N | – | Case drain filter |
| P | -16 | Spare |
| R | -24 | LP return from actuator |
| S | -8 | Spare |
| T | -8 | Spare |

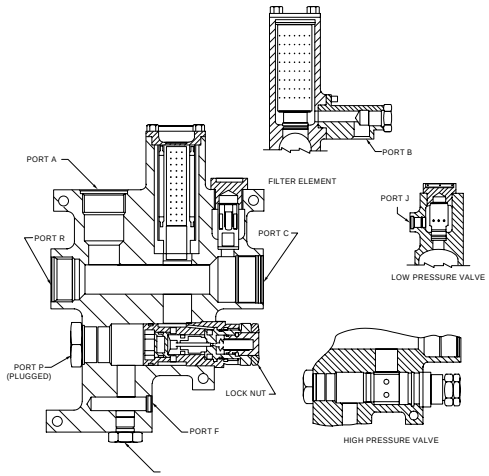
Notes:

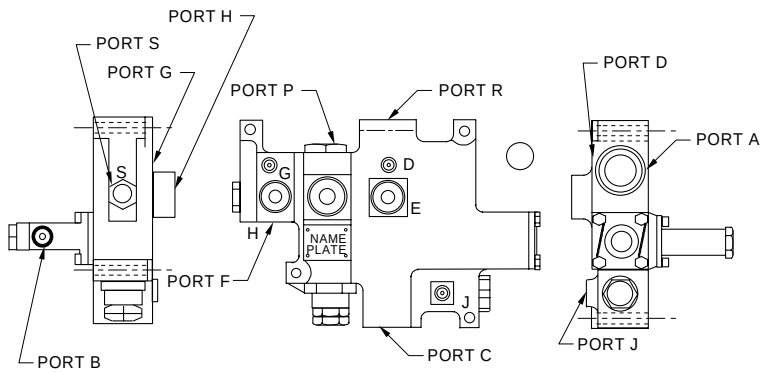
(1) Features & surfaces not dimensioned are the design responsibility of seller.

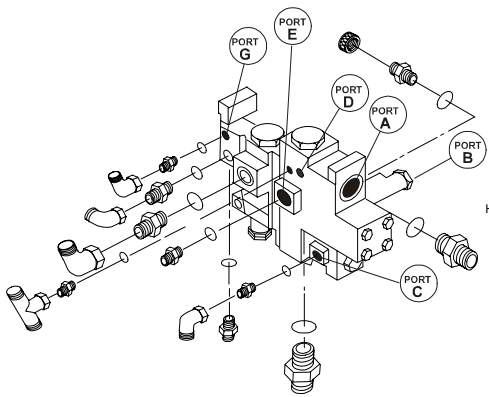
(2) Manifold material: CRES per QQ-S-763, Class 304.

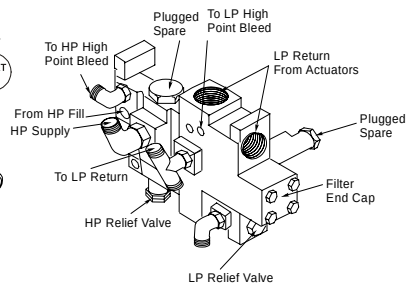
(3) Ports designated "spare" are to be plugged with MS 24391 plug and sealed with an elastomer "O" ring packing which meets the requirements of paragraph 3.3.1.1 of this specification.

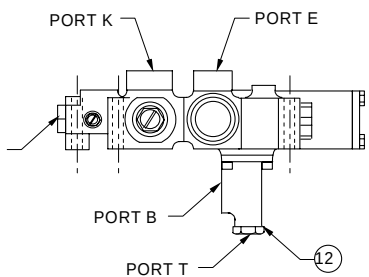


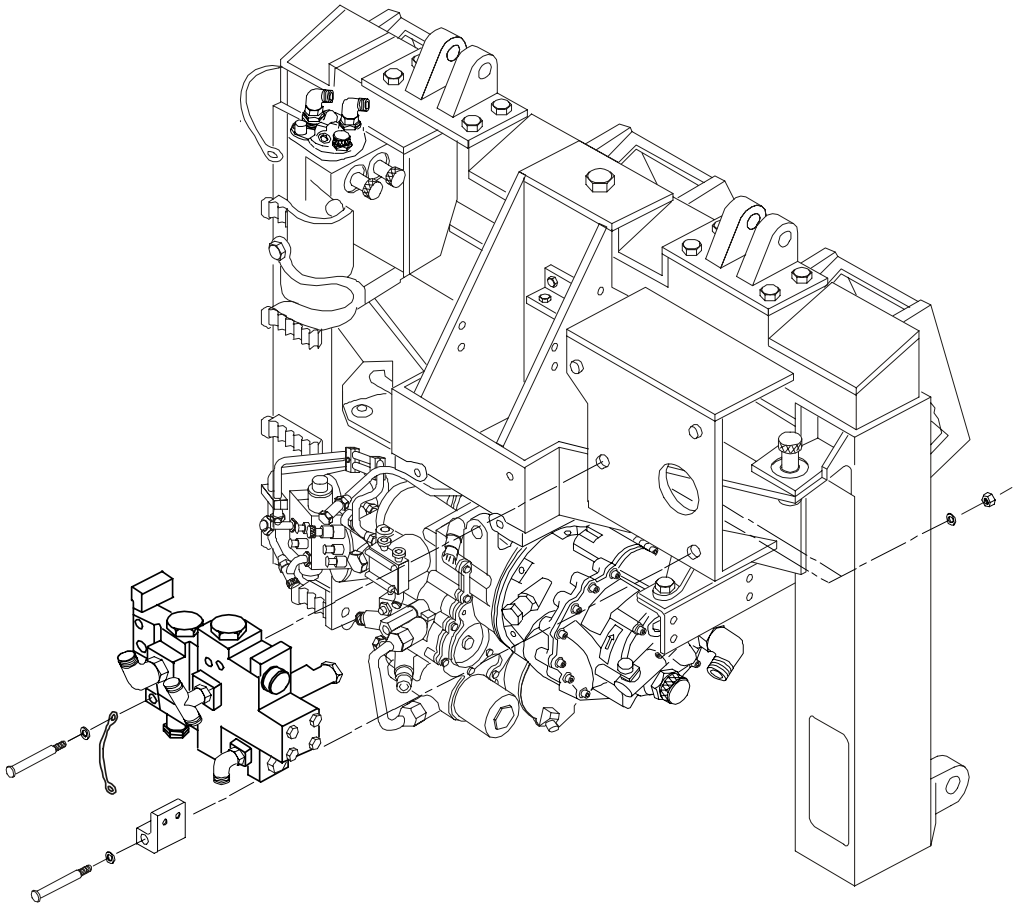



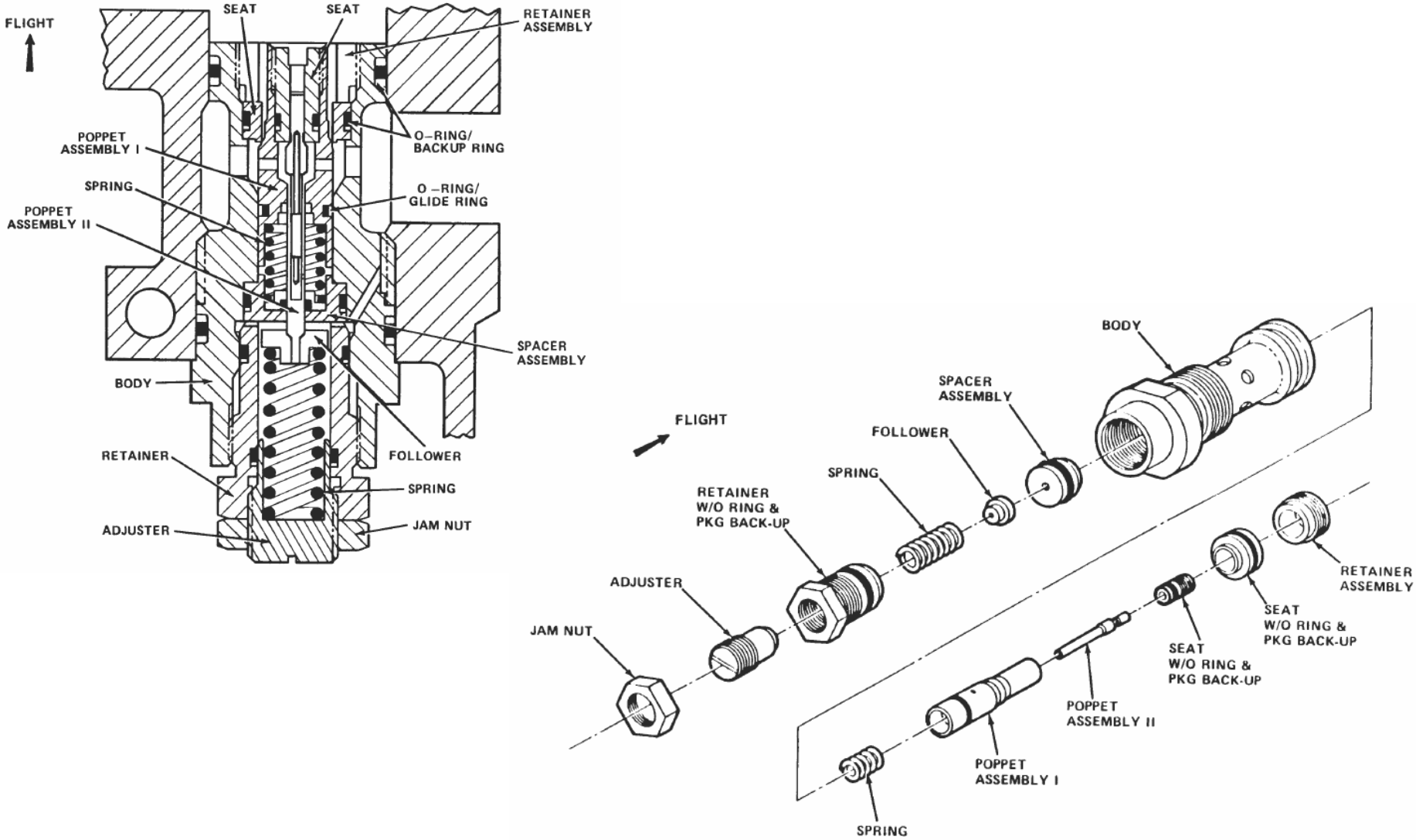



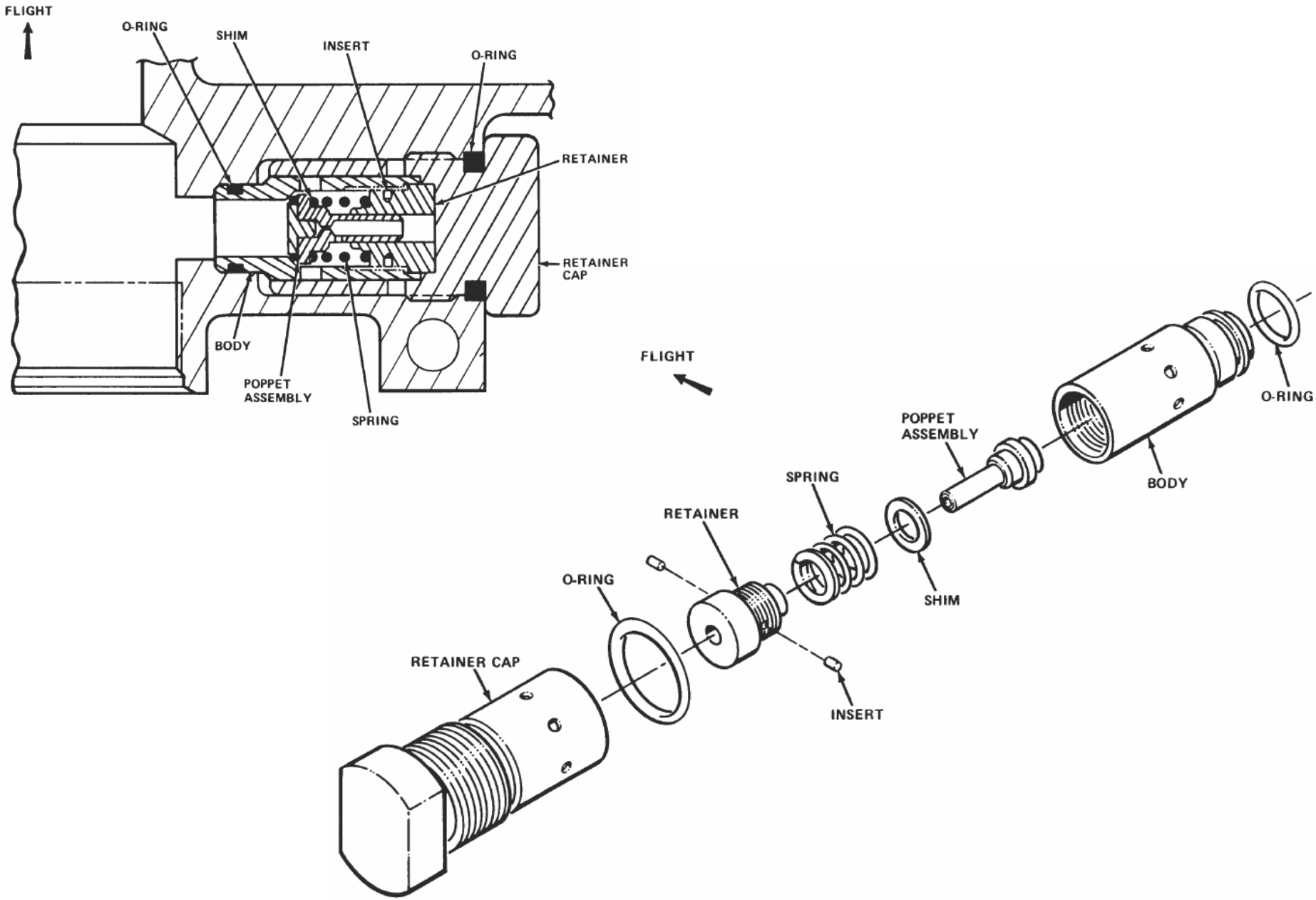





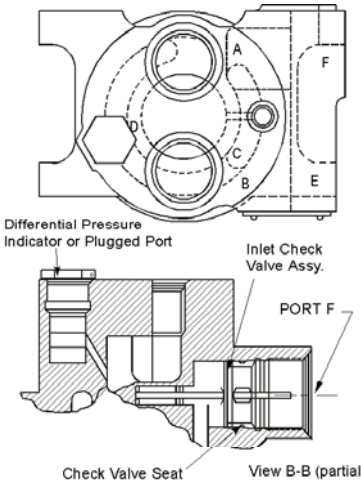
TVC Hydraulic Fluid Manifold Installation

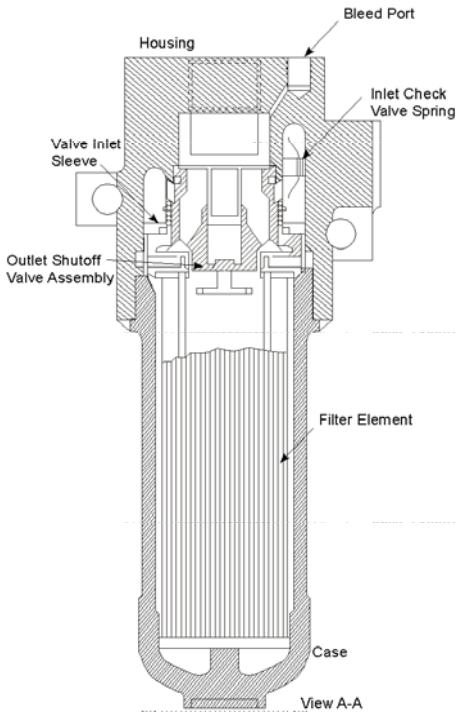


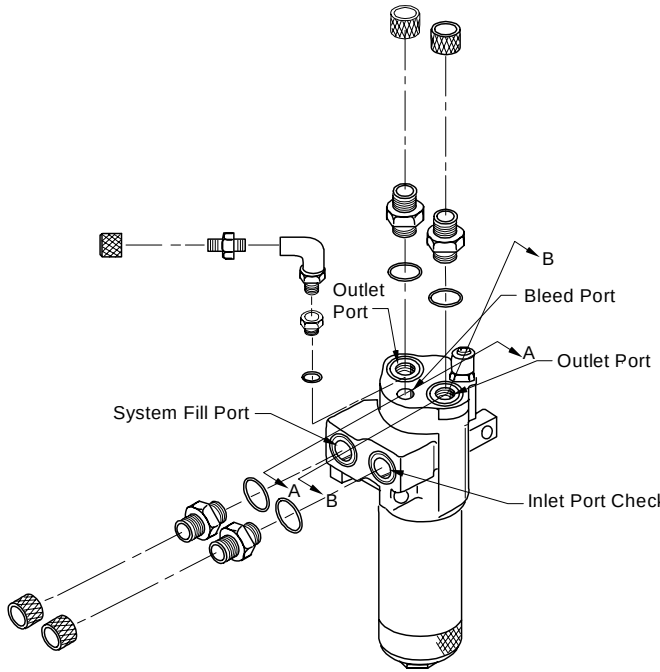

High Pressure Relief Valve

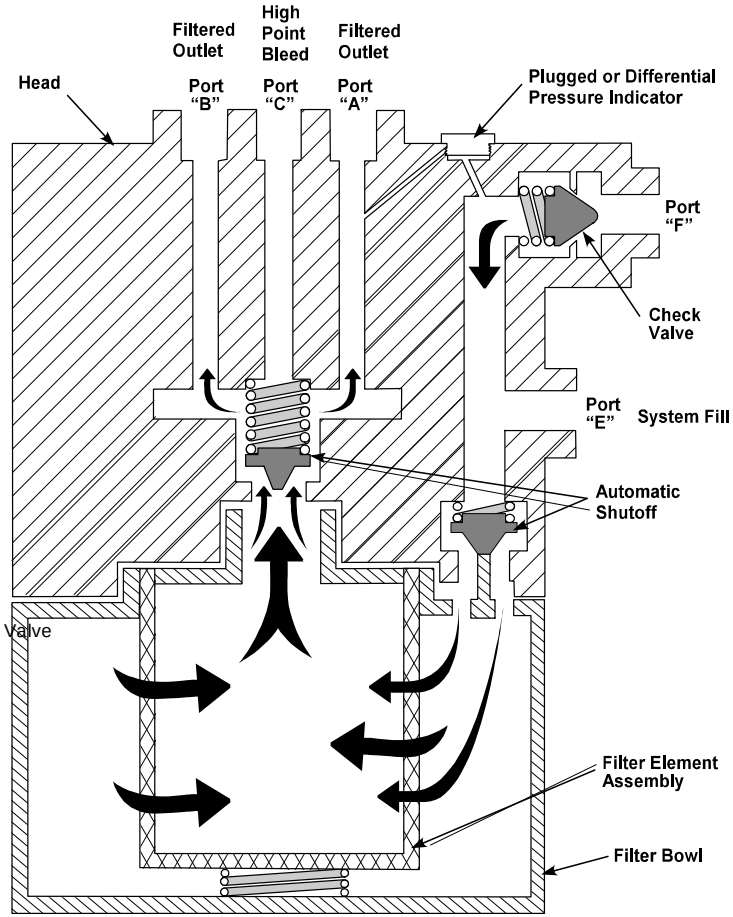



Low Pressure Relief Valve

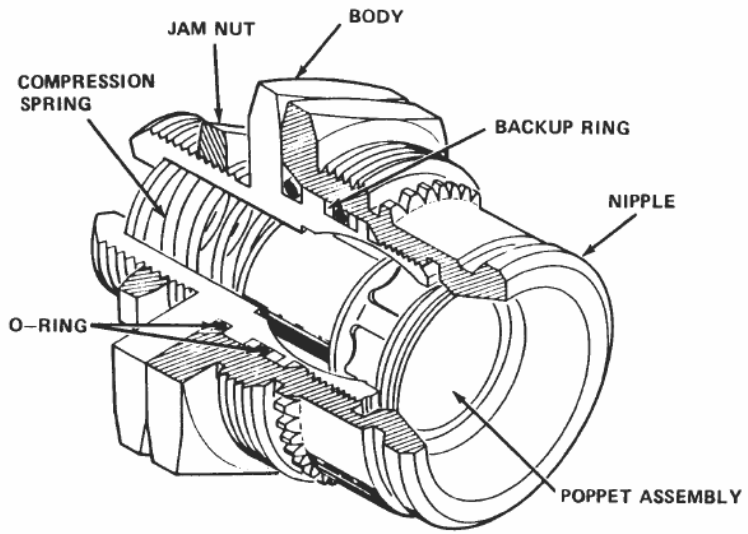


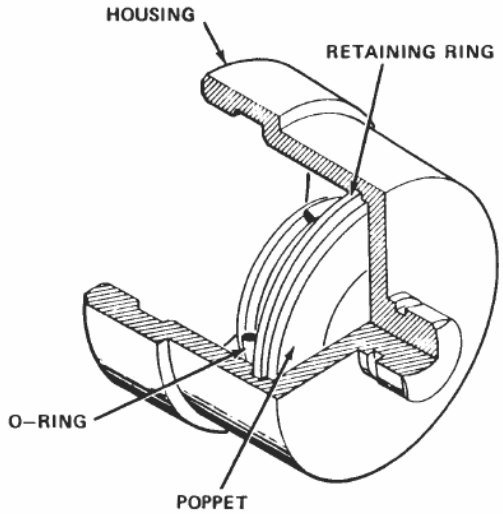




TVC Hydraulic Check Valve and Filter Assembly (CVFA)



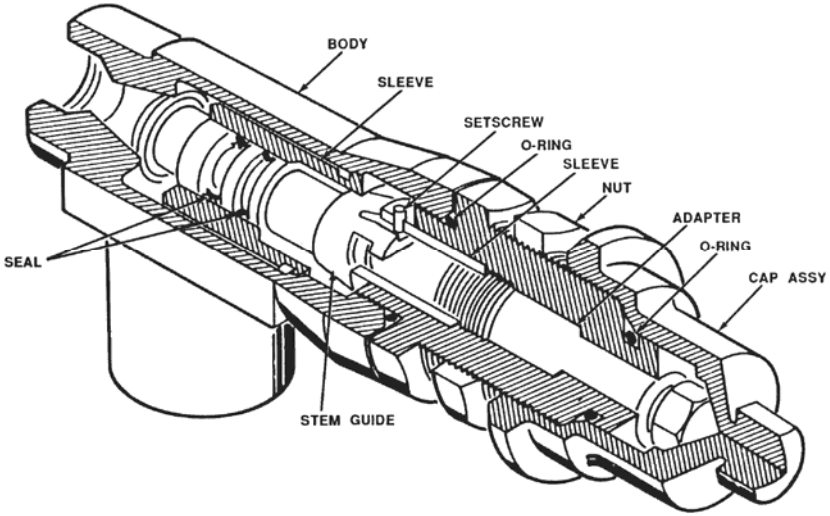

AIRBORNE NIPPLE ASSEMBLY
0.75 INCH SHOWN, 0.25 INCH SIMILIAR
10201-0055; 0.75 INCH
10201-0053; 0.25

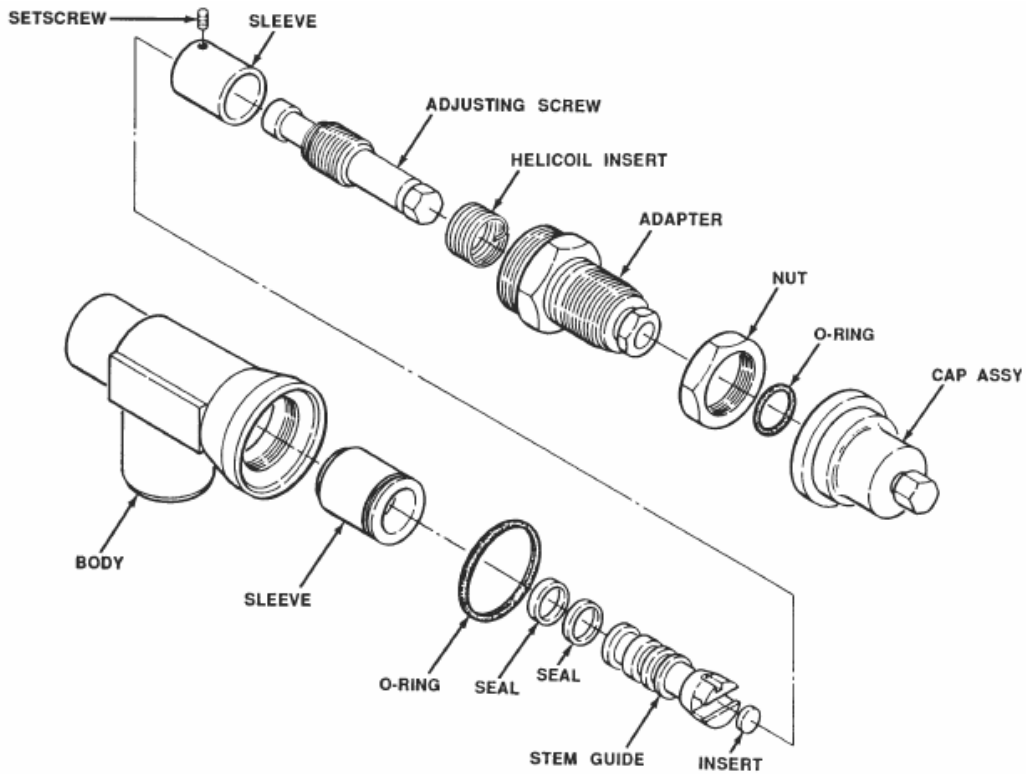


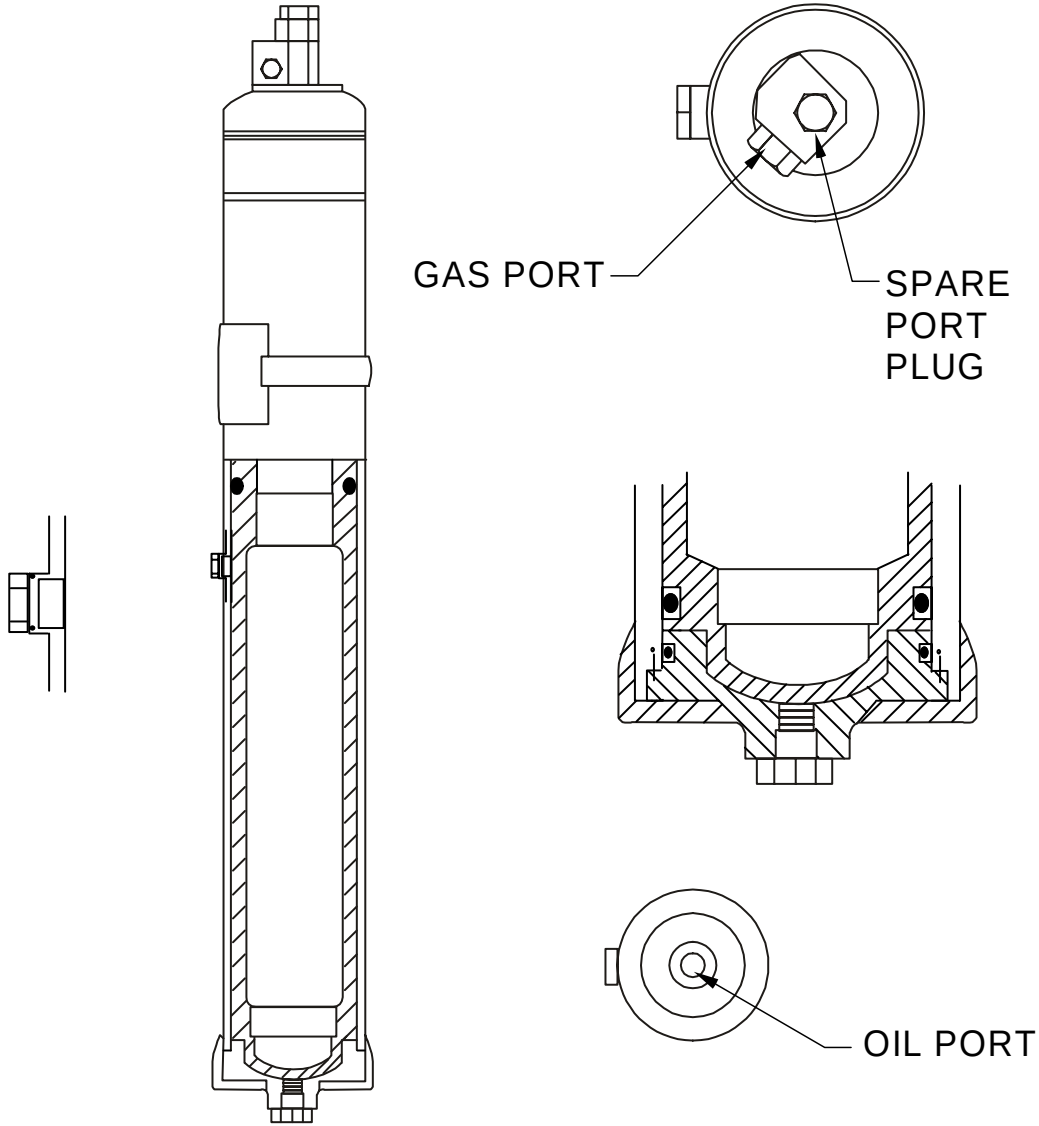

AIRBORNE CAP ASSEMBLY
0.75 INCH SHOWN, 0.25 INCH SIMILIAR
10201-0056; 0.75 INCH
10201-0054; 0.25 INCH

SRB TVC Quick Disconnect

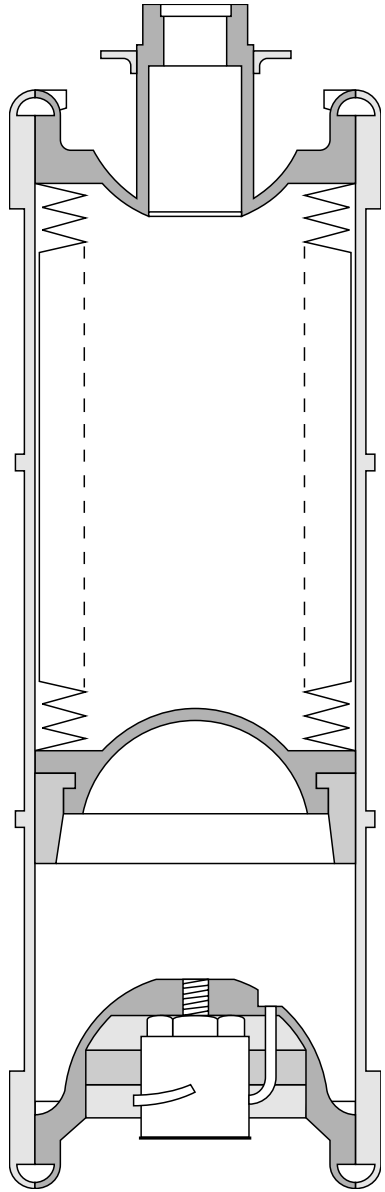
# SRB TVC Manual Shutoff Valve Assembly



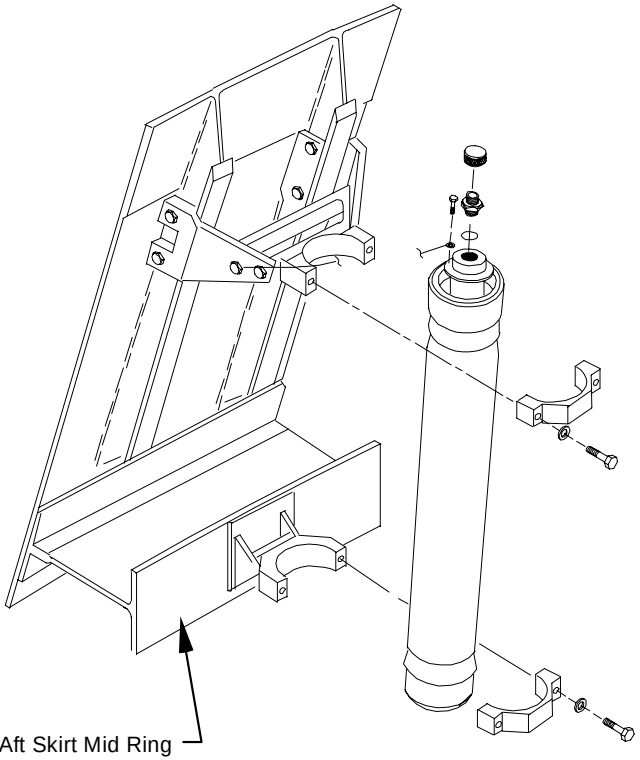





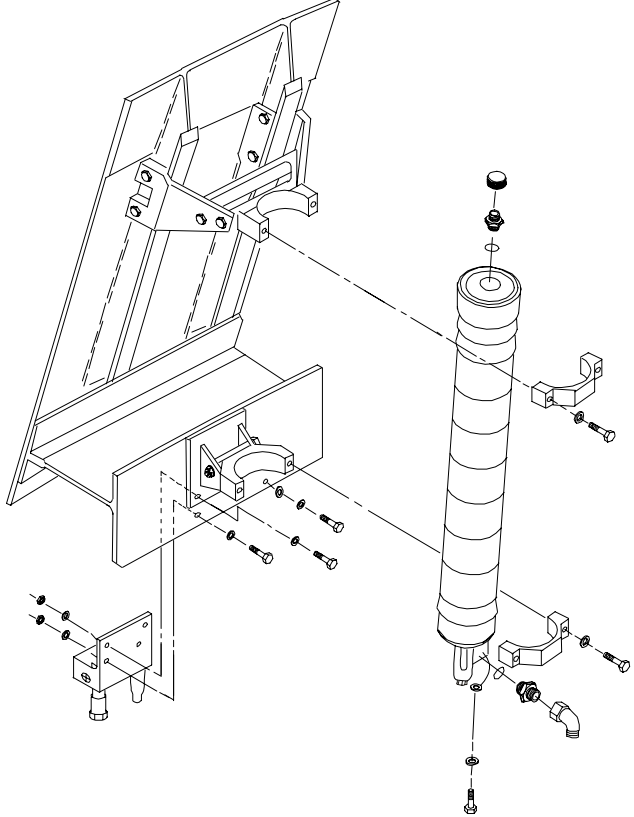

TVC Hydraulic Accumulator- Piston Type



Bellows Type

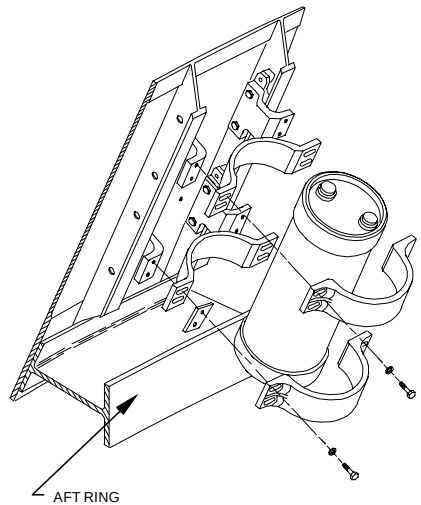



BELLOWS TYPE HYDRAULIC ACCUMULATOR



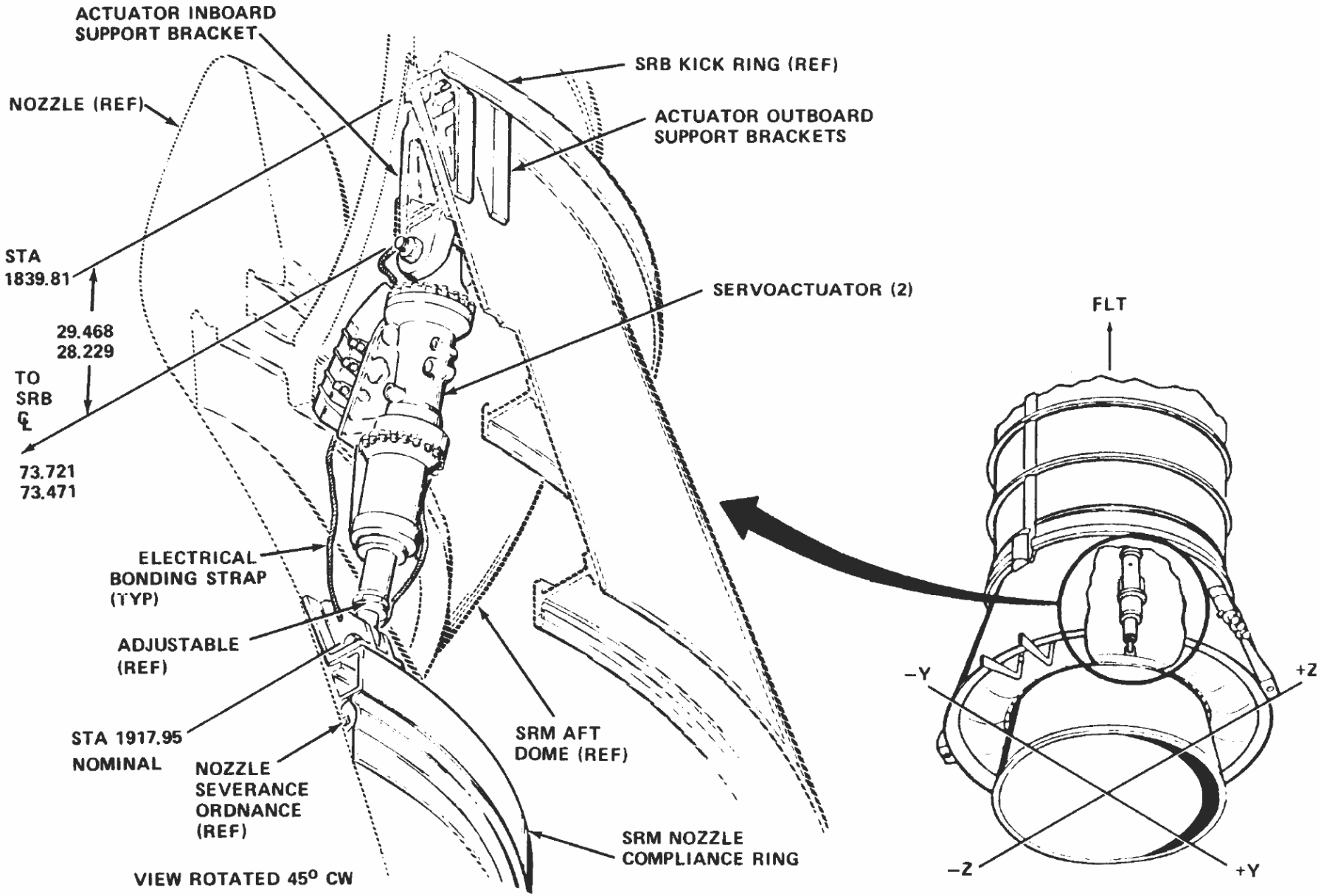
PISTON TYPE HYDRAULIC ACCUMULATOR

# TVC Hydraulic Accumulator-Types Installation

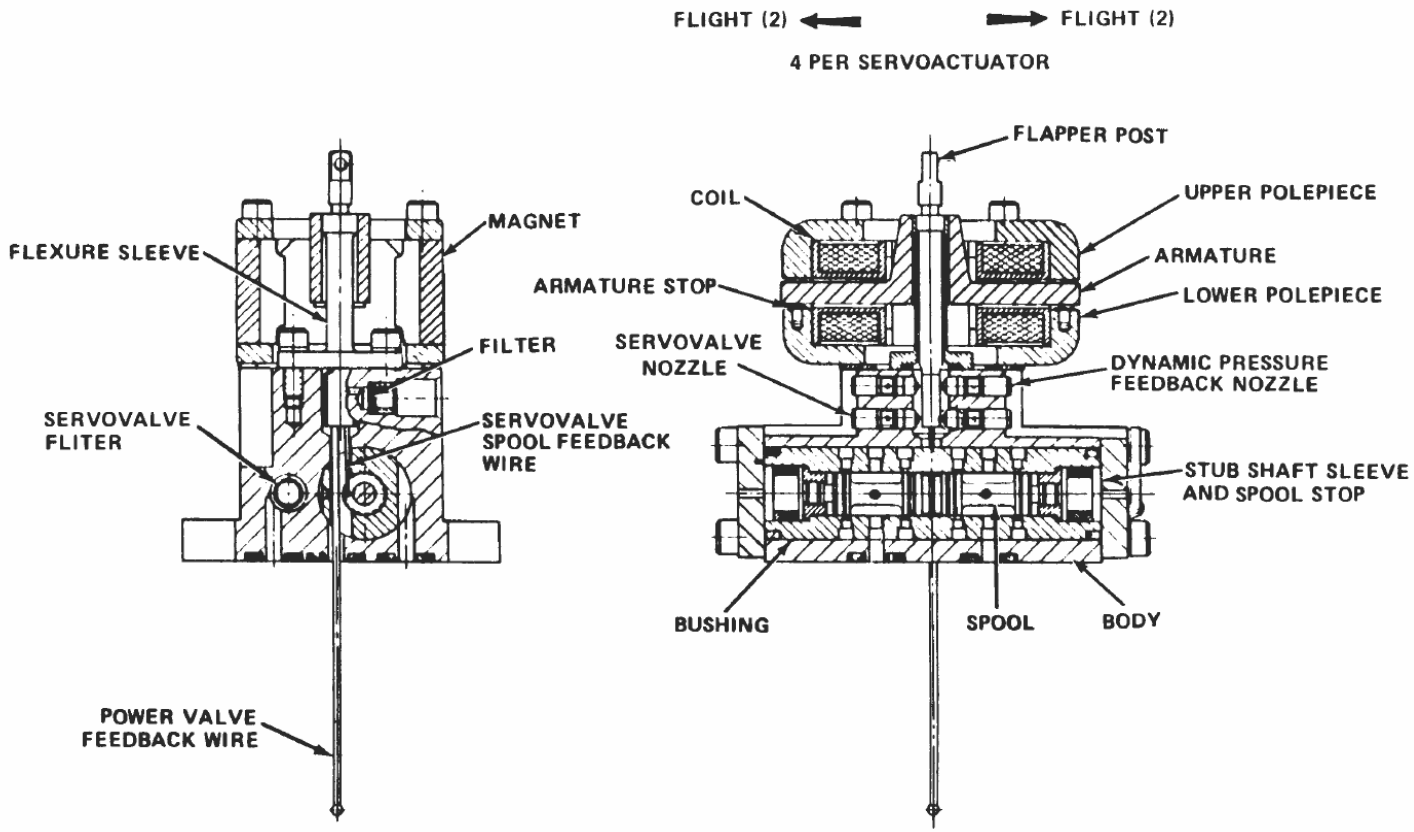



LUBE OIL ACCUMULATOR

# SRB TVC Lube Oil Accumulator (Bellows Type)

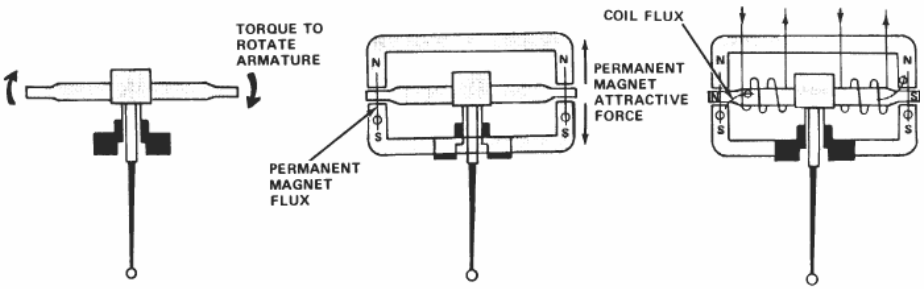



TVC Servoactuator Location

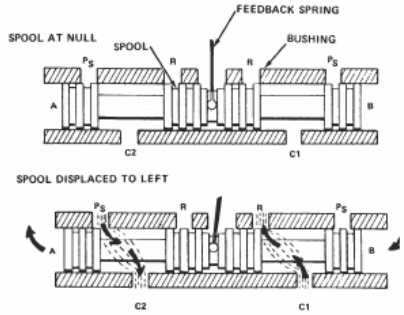



Servovalve Section View

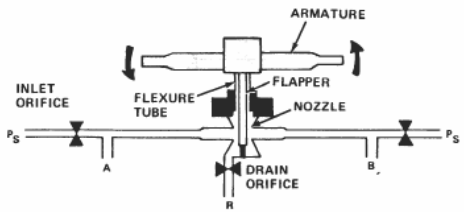
- PERMANENT MAGNETS CHARGED TO POLARIZE POLEPIECES
- DC CURRENT IN COILS CAUSES INCREASED FORCE IN DIAGONALLY OPPOSITE AIR GAPS
- MAGNETIC CHARGE LEVEL SETS MAGNETUDE OF DECENTERING FORCE GRADIENT ON ARMATURE

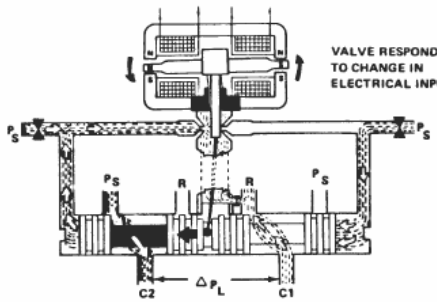



- SPOOL SLIDES DIRECTLY IN A BODY BORE
- BUSHING CONTAINS RECTANGULAR HOLES (SLOTS) THAT OPEN TO SUPPLY PRESSURE $P_S$ AND RETURN R
- AT "NULL" SPOOL LOBES (LANDS) ARE CENTERED BETWEEN SLOTS
- SPOOL LANDS JUST COVER OVER THE SLOTS AT NULL FOR "ZERO LAP"
- SPOOL MOTION TO EITHER SIDE OF NULL ALLOWS FLUID TO FLOW FROM $P_S$ TO ONE CONTROL PORT, AND FROM OTHER CONTROL PORT TO R

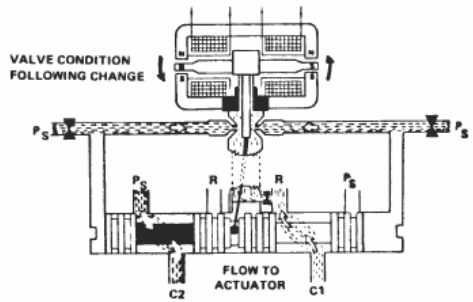



- ARMATURE AND FLAPPER RIGIDLY JOINED AND SUPPORTED BY THIN-WALL FLEXURE TUBE
- FLUID CONTINOUSLY FLOWS FROM PRESSURE $P_S$, THROUGH BOTH INLET ORIFICES, PAST NOZZLES INTO FLAPPER CHAMBER, THROUGH DRAIN ORIFICE TO RETURN R
- ROCKING MOTION OF ARMATURE/ FLAPPER THROTTLES FLOW THROUGH ONE NOZZLE OR THE OTHER
- THIS DIVERTS FLOW TO A OR B ( OR BUILDS UP PRESSURE IF A AND B ARE BLOCKED)



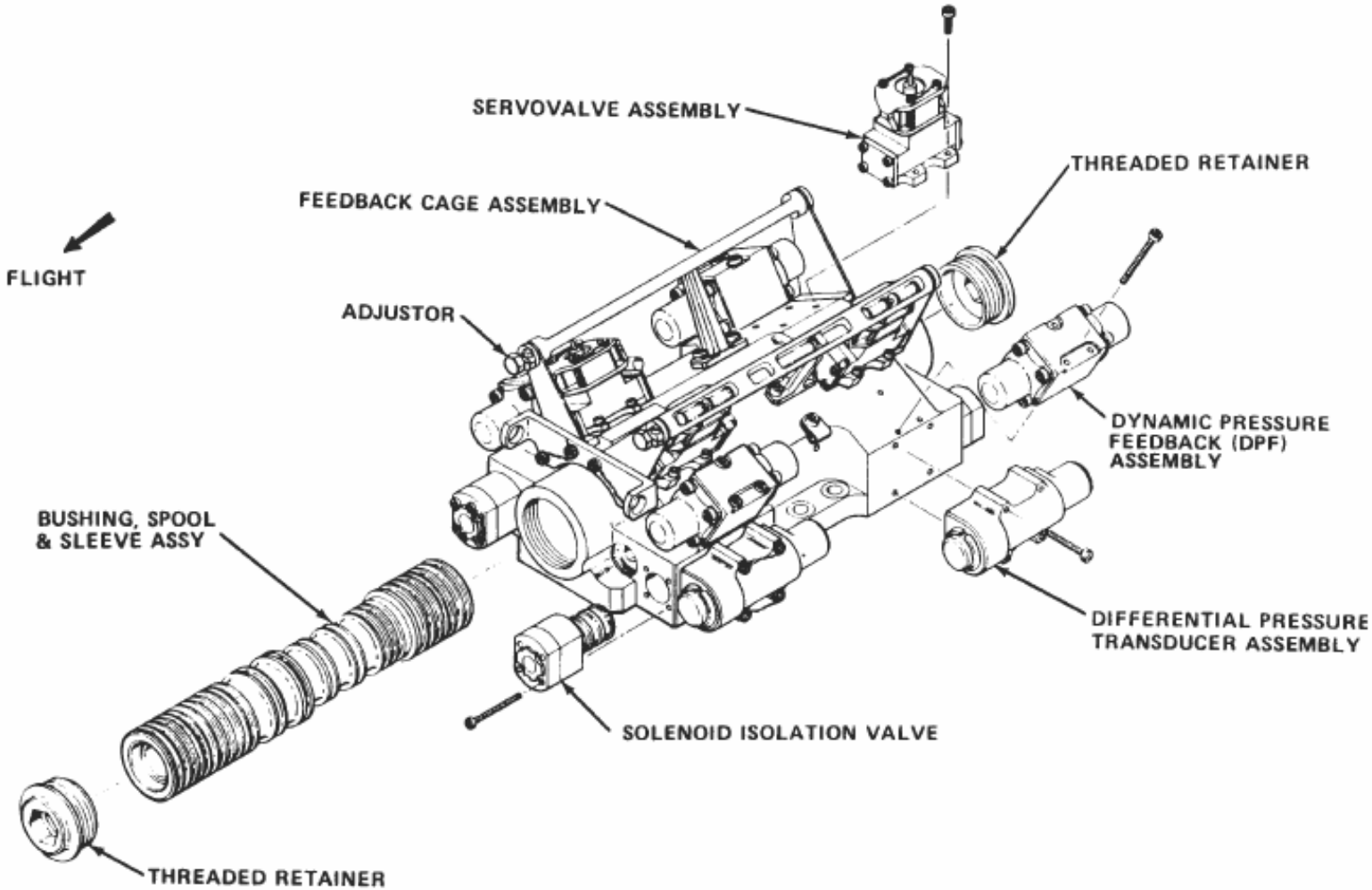




- ELECTRICAL CURRENT IN TORQUE MOTOR COILS CREATES MAGNETIC FORCES ON ENDS OF ARMATURE
- ARMATURE AND FLAPPER ASSEMBLY ROTATES ABOUT FLEXURE TUBE SUPPORT
- FLAPPER CLOSES-OFF ONE NOZZLE AND DIVERTS FLOW TO ONE END OF SPOOL
- SPOOL MOVES AND OPENS $P_S$ TO ONE CONTROL PORT; OPENS OTHER PORT TO R

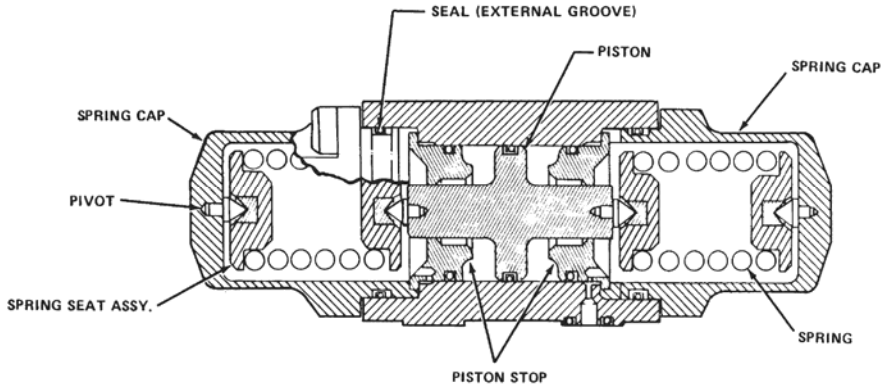



- SPOOL PUSHES BALL END OF FEED-BACK WIRE, CREATING RESTORING TORQUE ON ARMATURE/FLAPPER
- AS FEEDBACK TORQUE BECOMES EQUAL TO TORQUE FROM MAGNETIC FORCES, ARMATURE/FLAPPER MOVES BACK TO CENTERED POSITION
- SPOOL STOPS AT A POSITION WHERE FEEDBACK WIRE TORQUE EQUALS TORQUE DUE TO INPUT CURRENT
- THEREFORE SPOOL POSITION IS PROPORTIONAL TO INPUT CURRENT
- WITH CONSTANT PRESSURES, FLOW TO LOAD IS PROPORTIONAL TO SPOOL POSITION

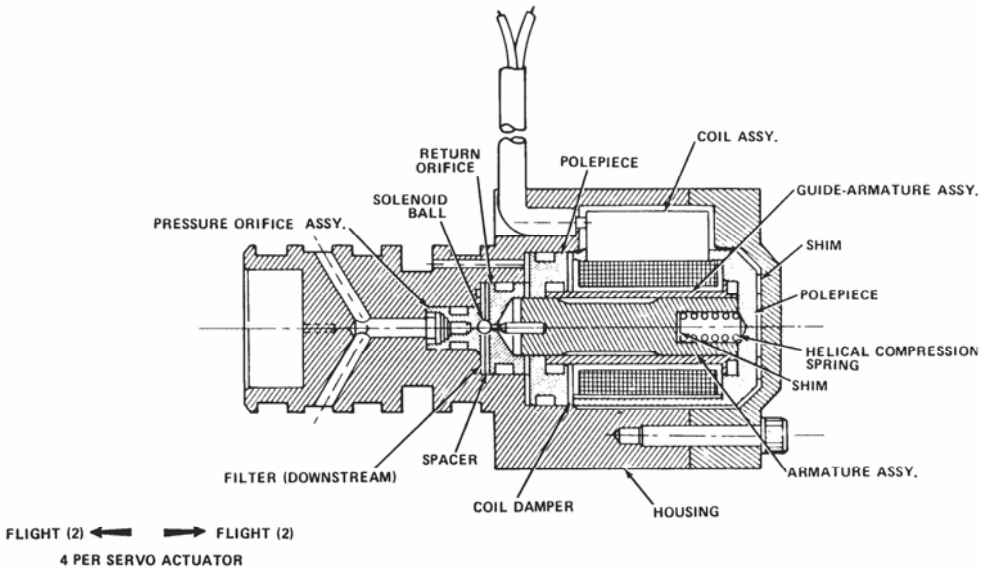
# Servovalve Operation



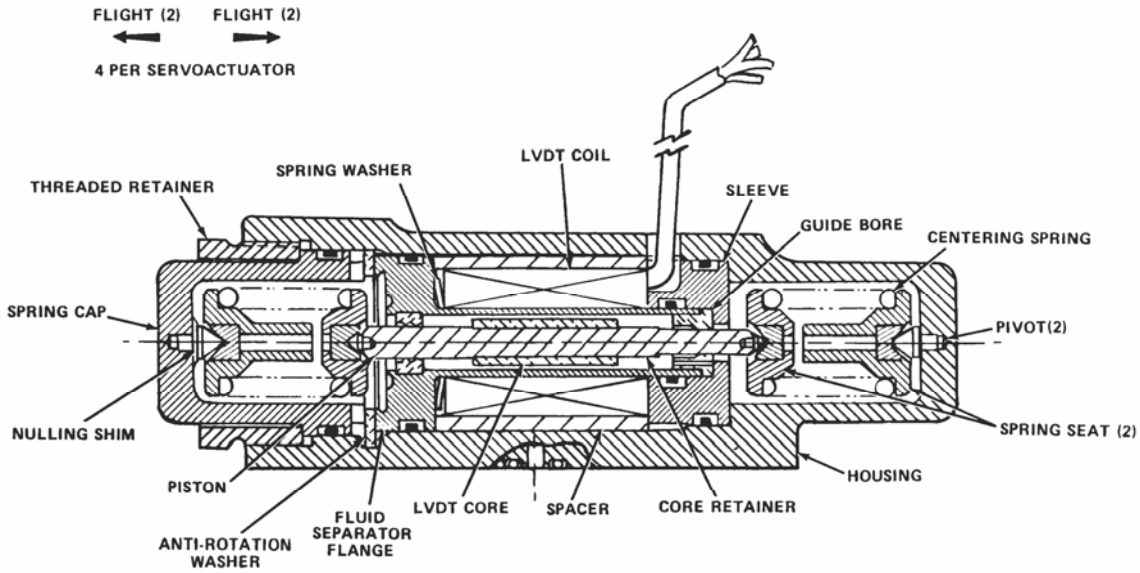

Power Valve assembly



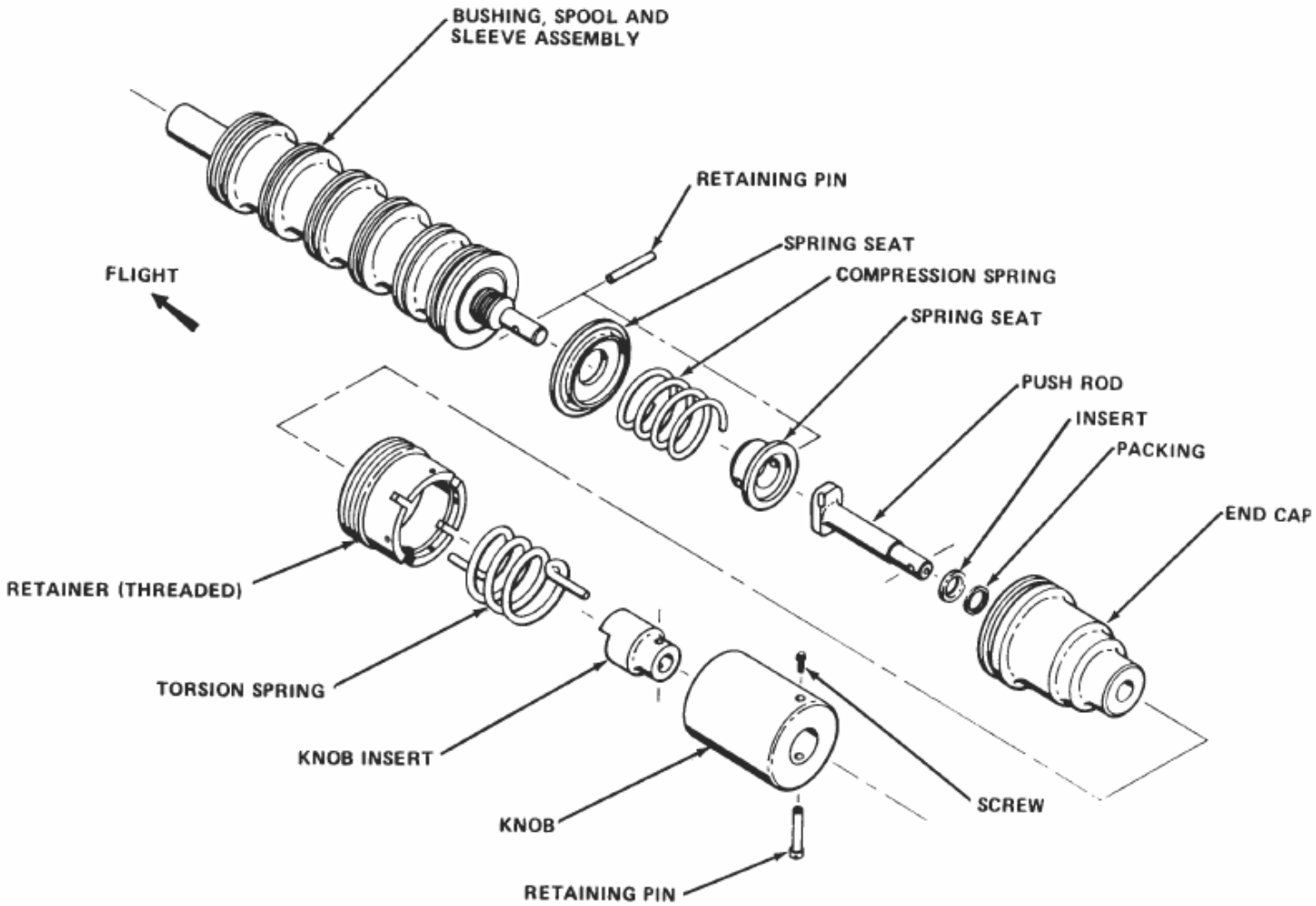

Dynamic Pressure Feedback (DPF) Assembly



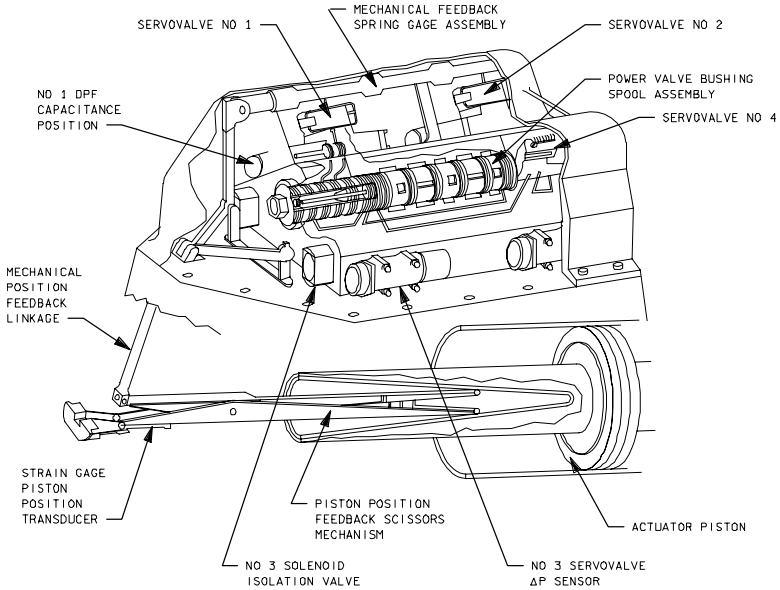

Solenoid Isolation Valve Assembly



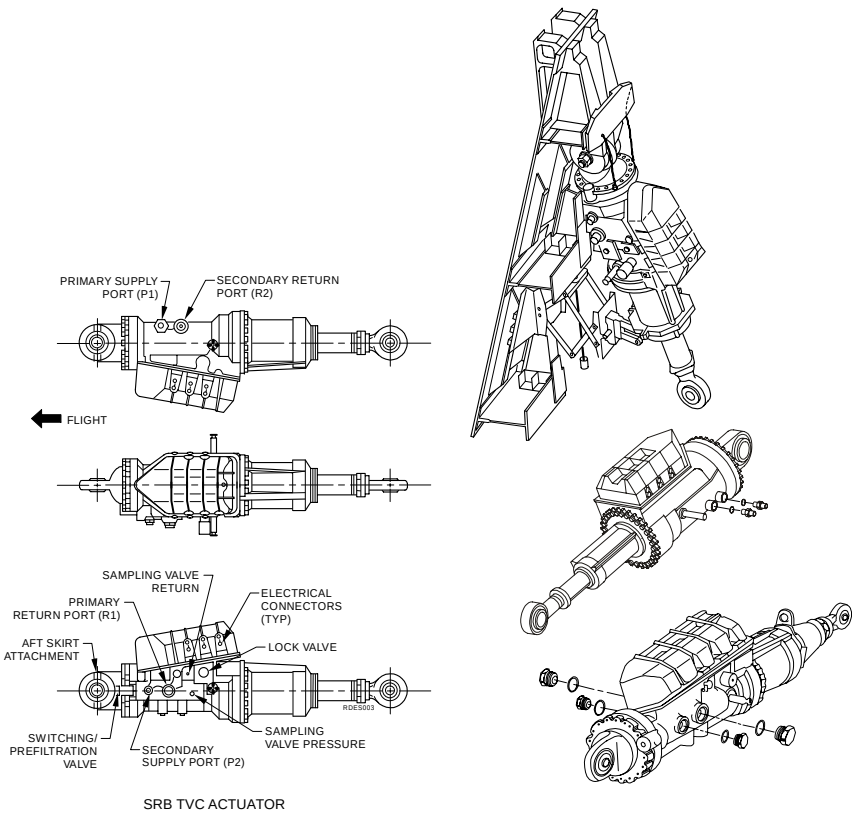

Differential Pressure Transducer




Lock Valve Assembly

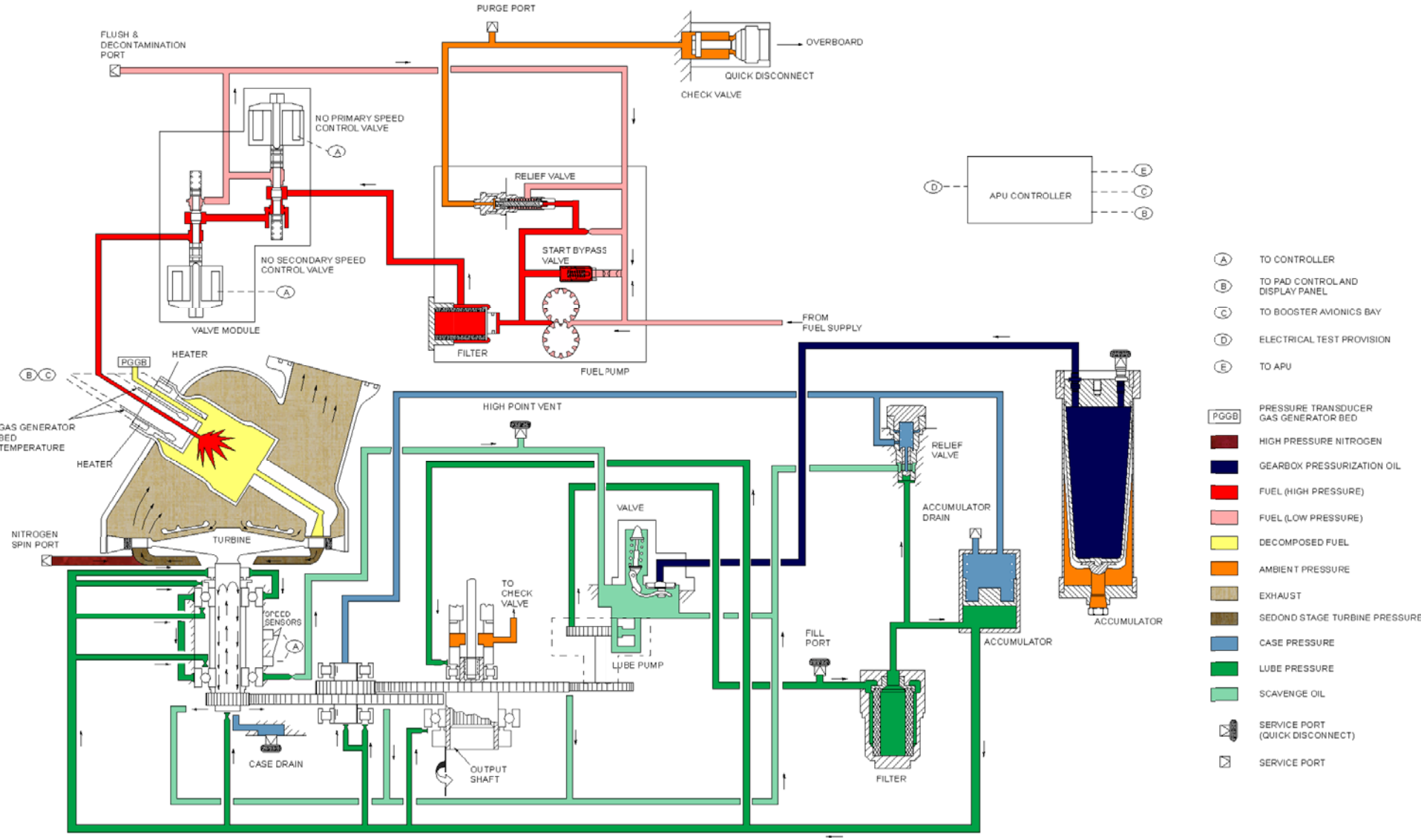



Power Valve And Feedback Configuration

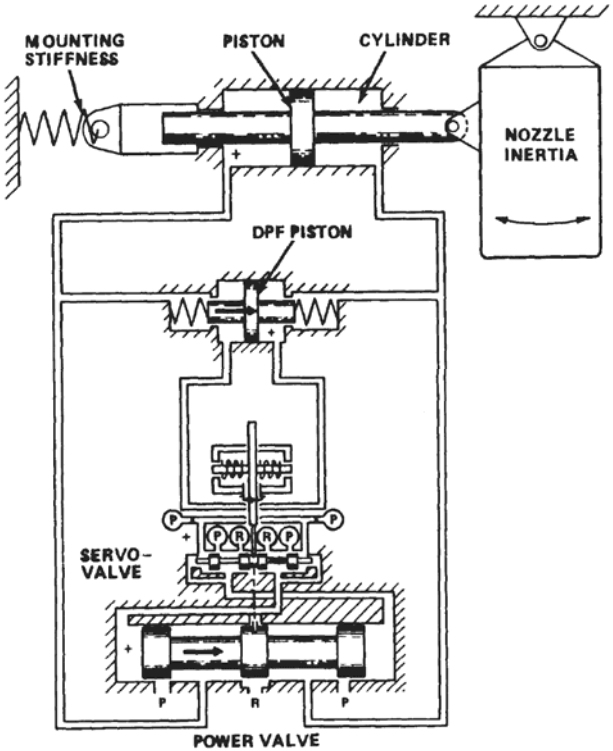


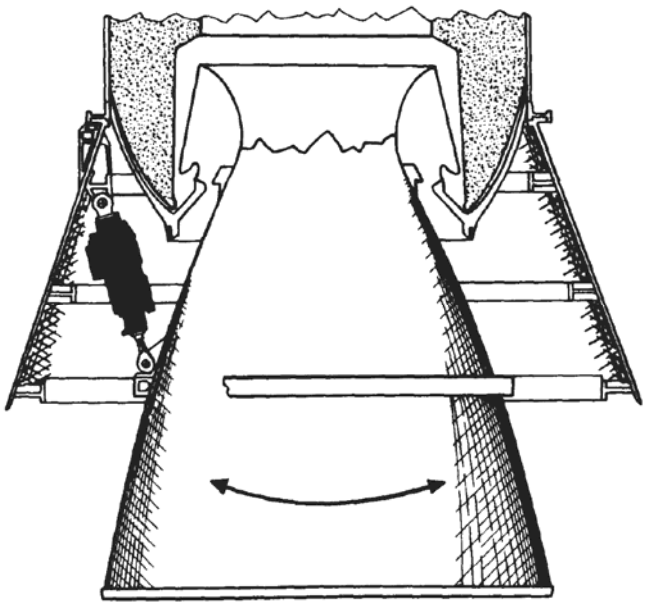

SRB TVC ACTUATOR

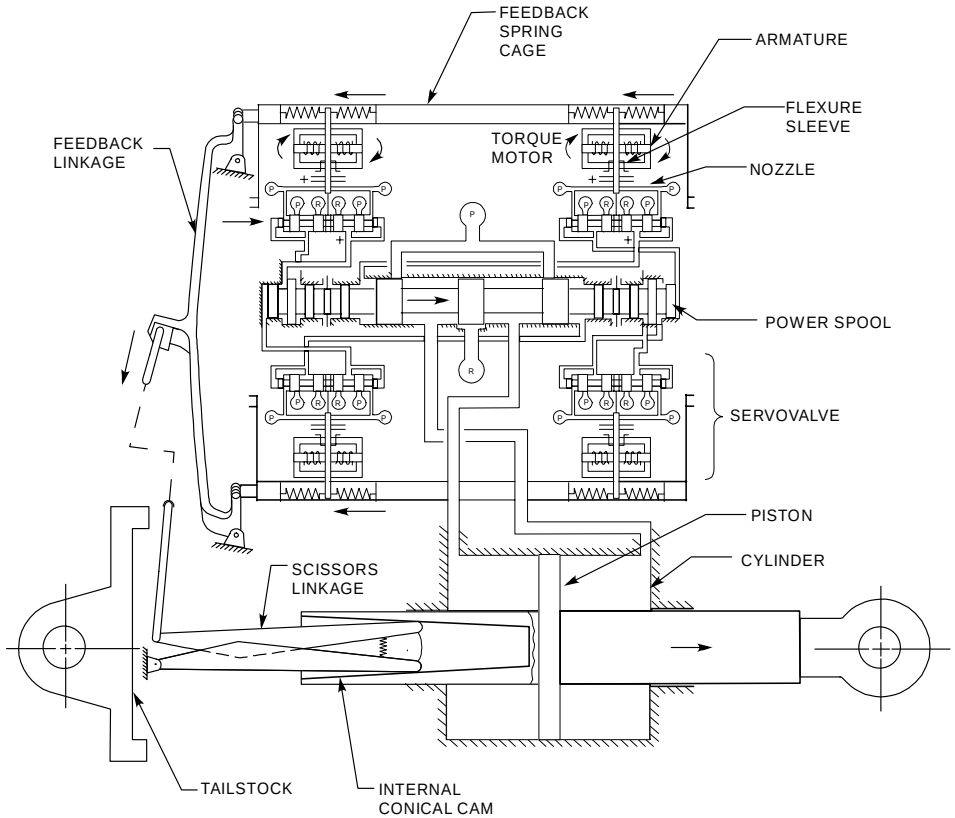
Hydraulic Actuator Views



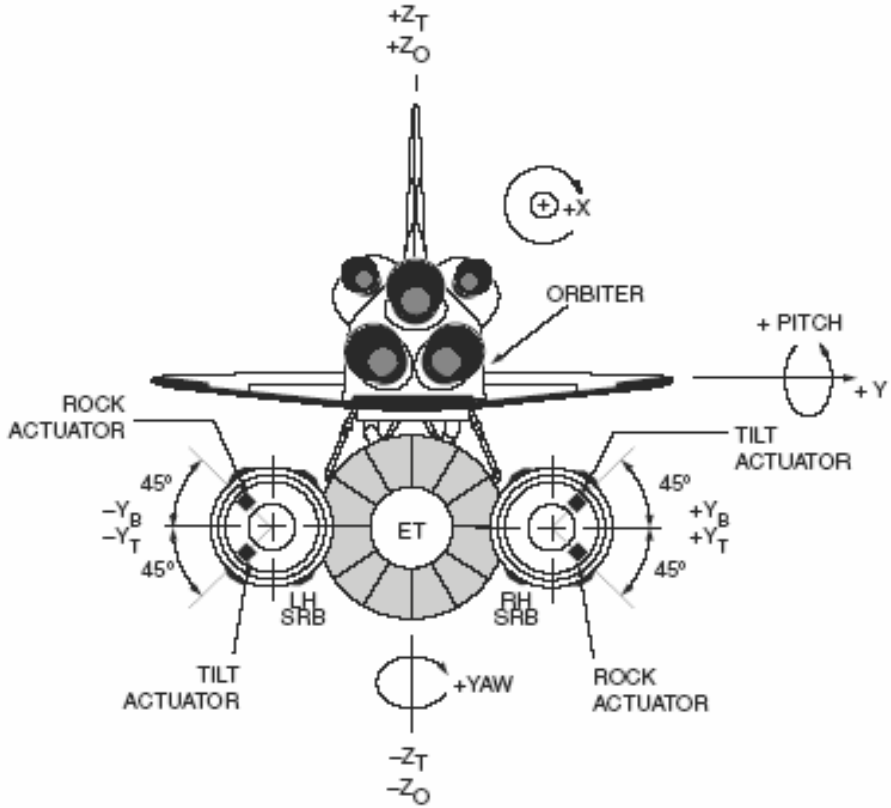

APU Functional Schematic





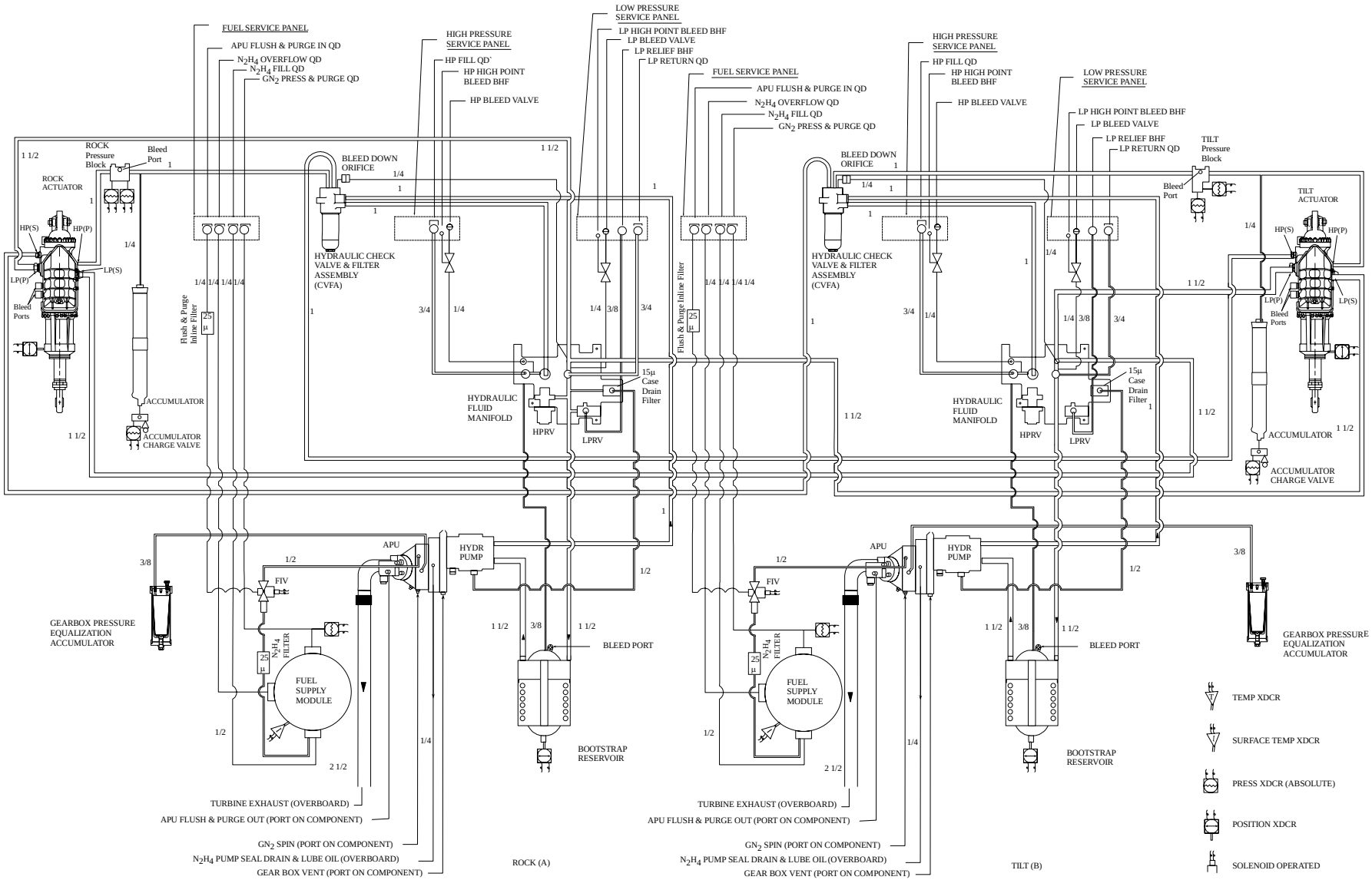

# TVC Servoactuator Details



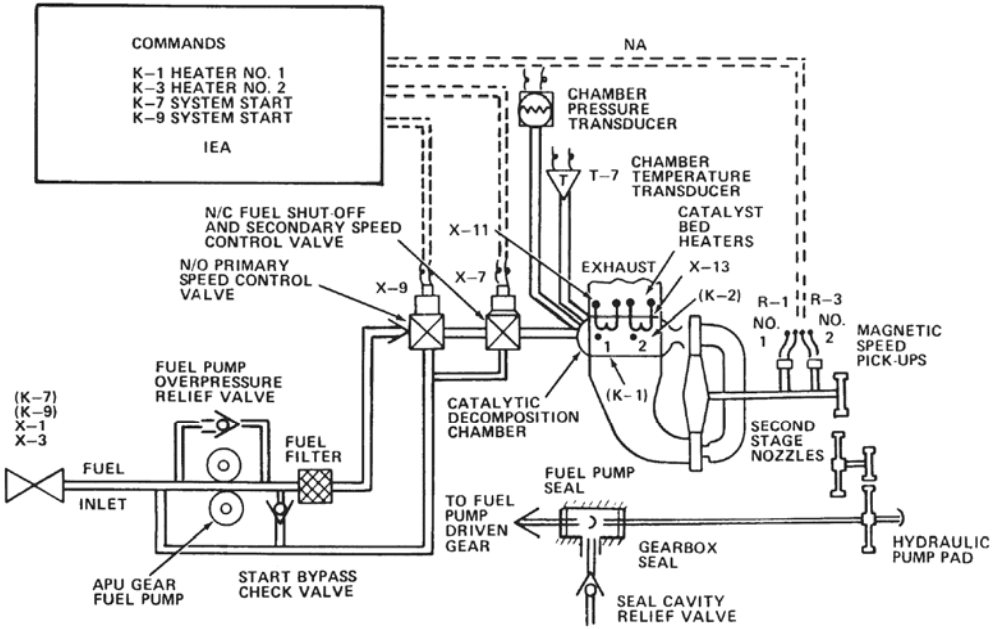

| | | LH SRB | | RH SRB | |
|---|---|---|---|---|---|
| | | ROCK ACTUATOR | TILT ACTUATOR | ROCK ACTUATOR | TILT ACTUATOR |
| SHUTTLE VEHICLE MANEUVER | + PITCH | – | + | + | – |
| | – PITCH | + | – | – | + |
| | + YAW | + | + | – | – |
| | – YAW | – | – | + | + |
| | + ROLL | + | – | + | – |
| | – ROLL | – | + | – | + |

– INDICATES ACTUATOR EXTENSION
+ INDICATES ACTUATOR RETRACTION

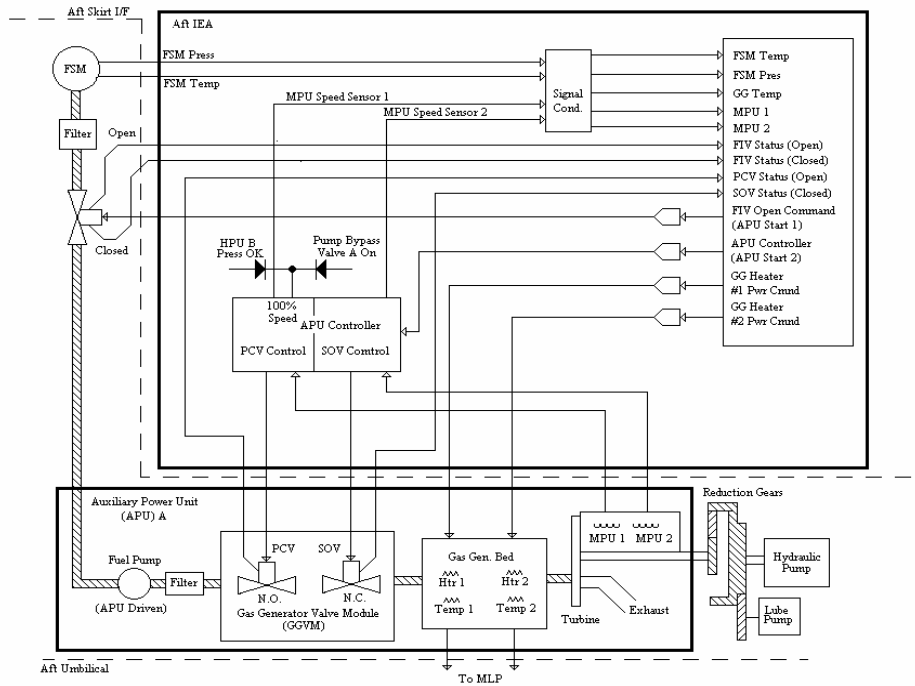
TVC Actuator Polarity



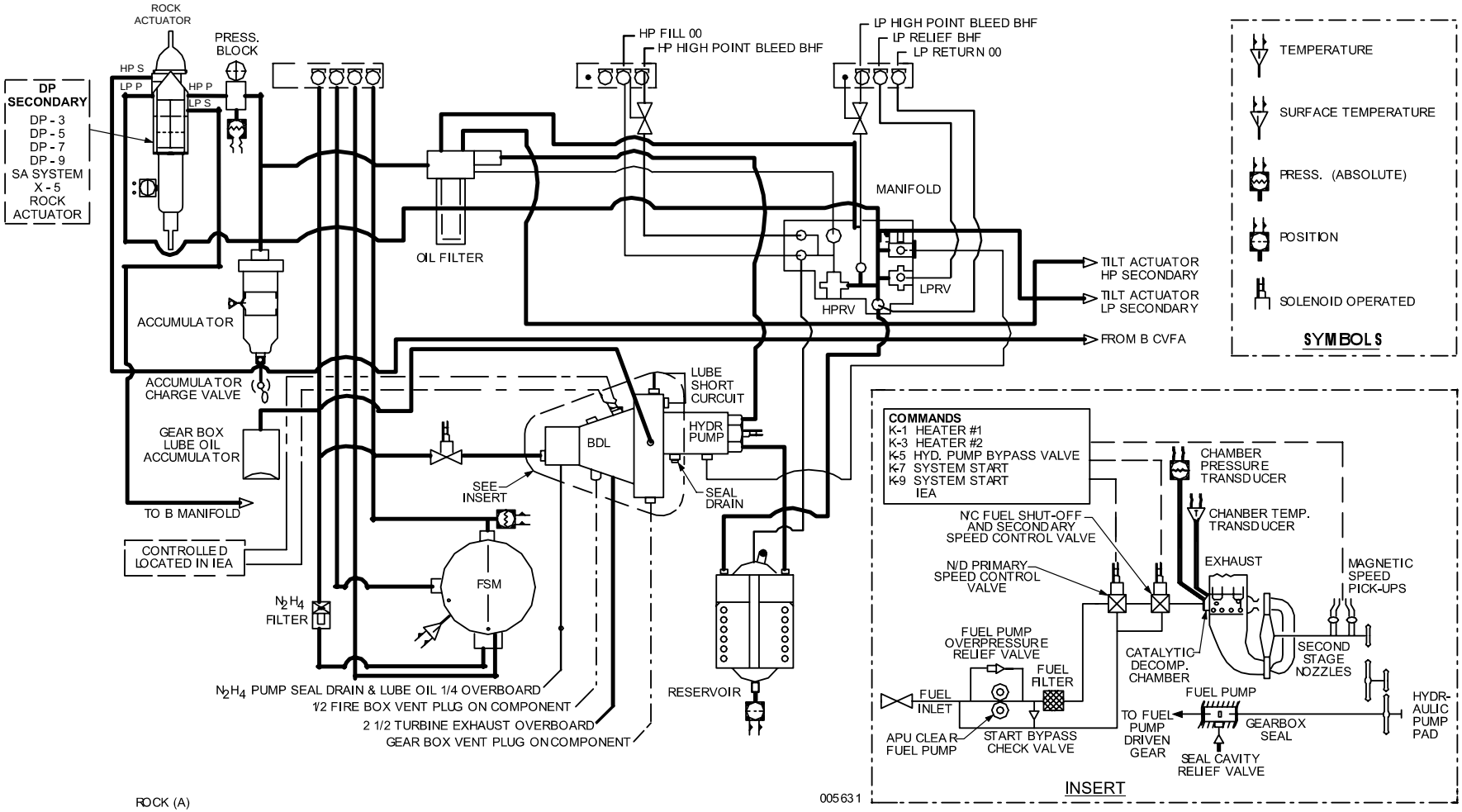

# SRB TVC Subsystem Schematic



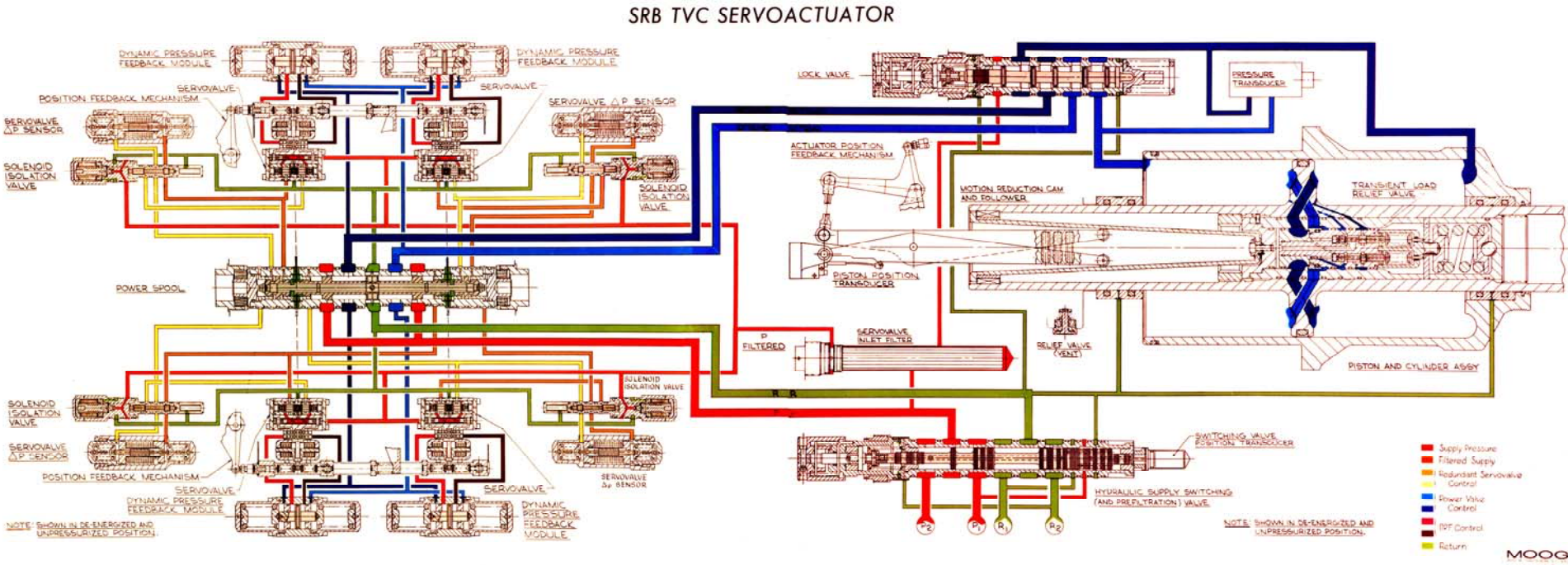

SRB TVC Controls and Measurement




Control Subsystem

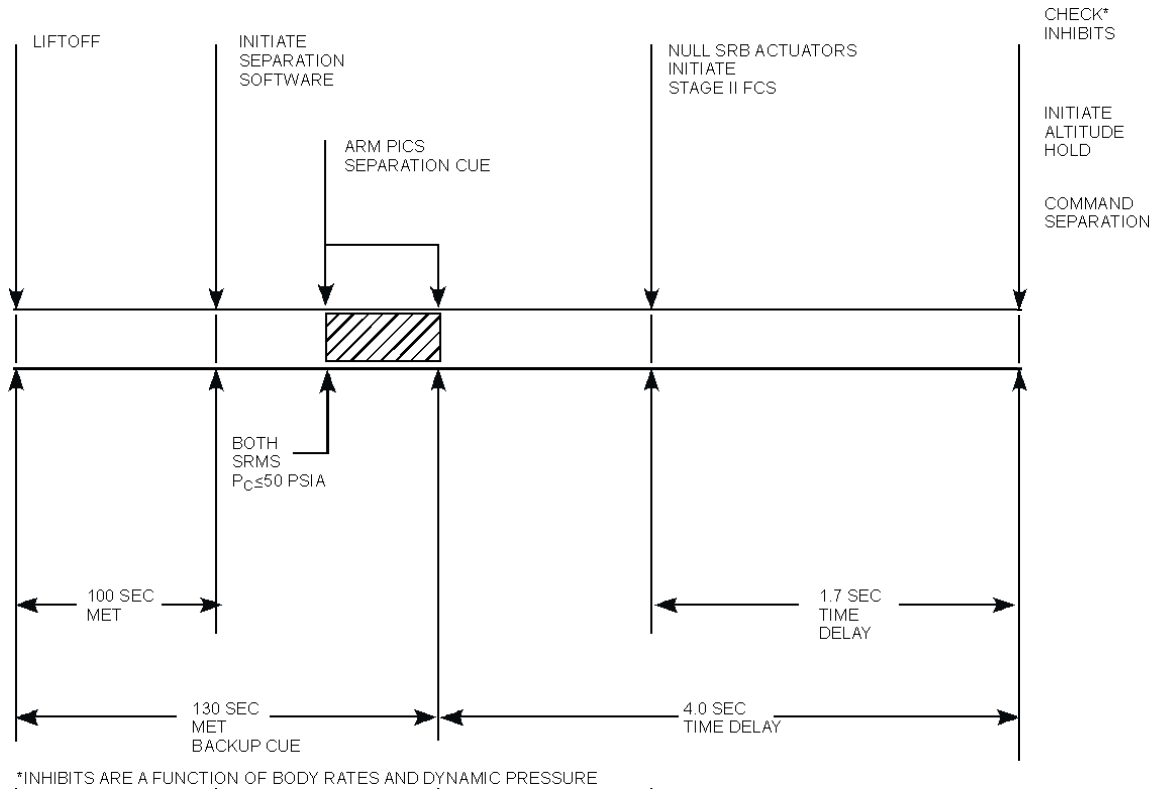



# SRB APU Controls and Measurements (Rock A)

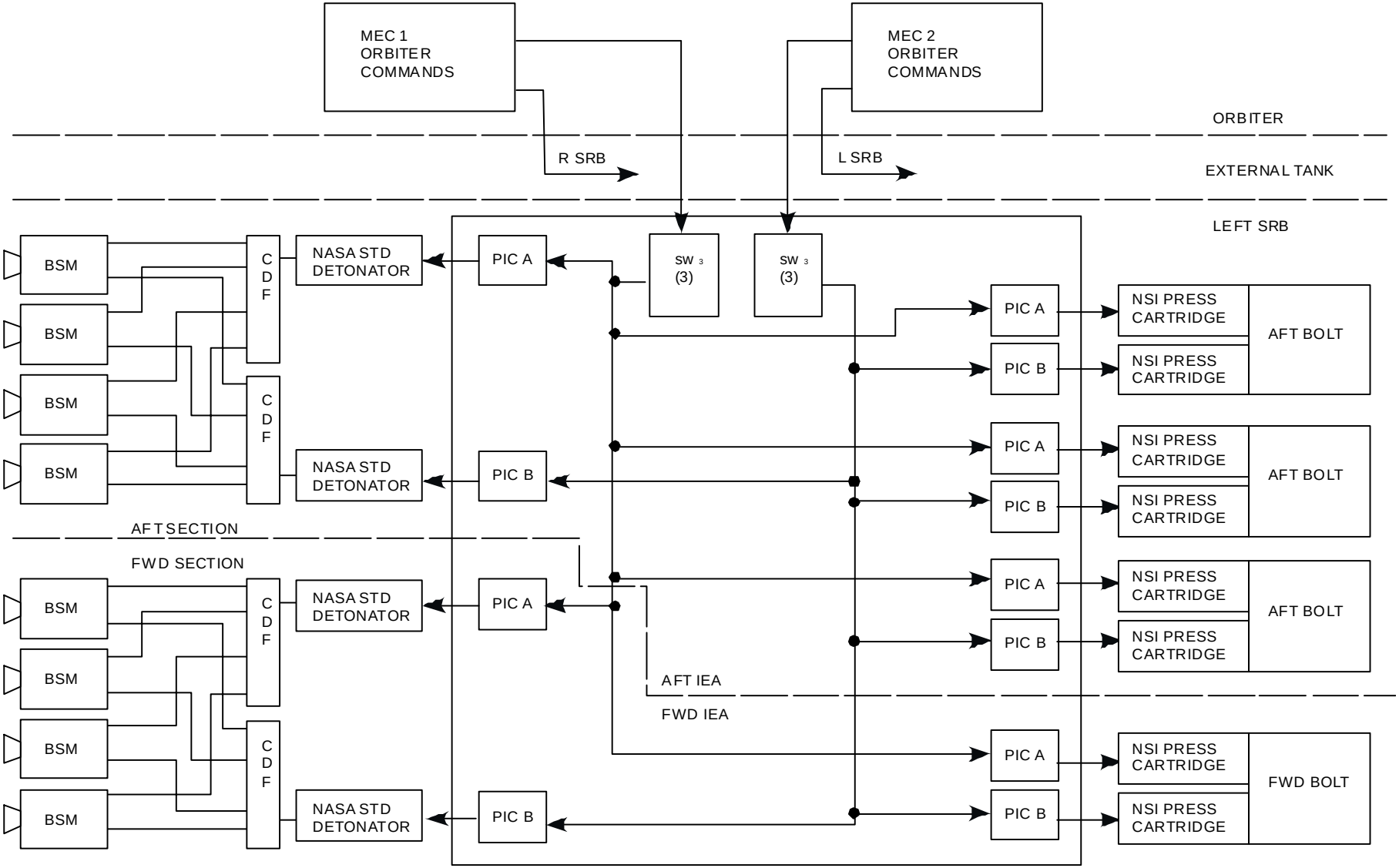



SRB TVC Actuator Schematic and Components

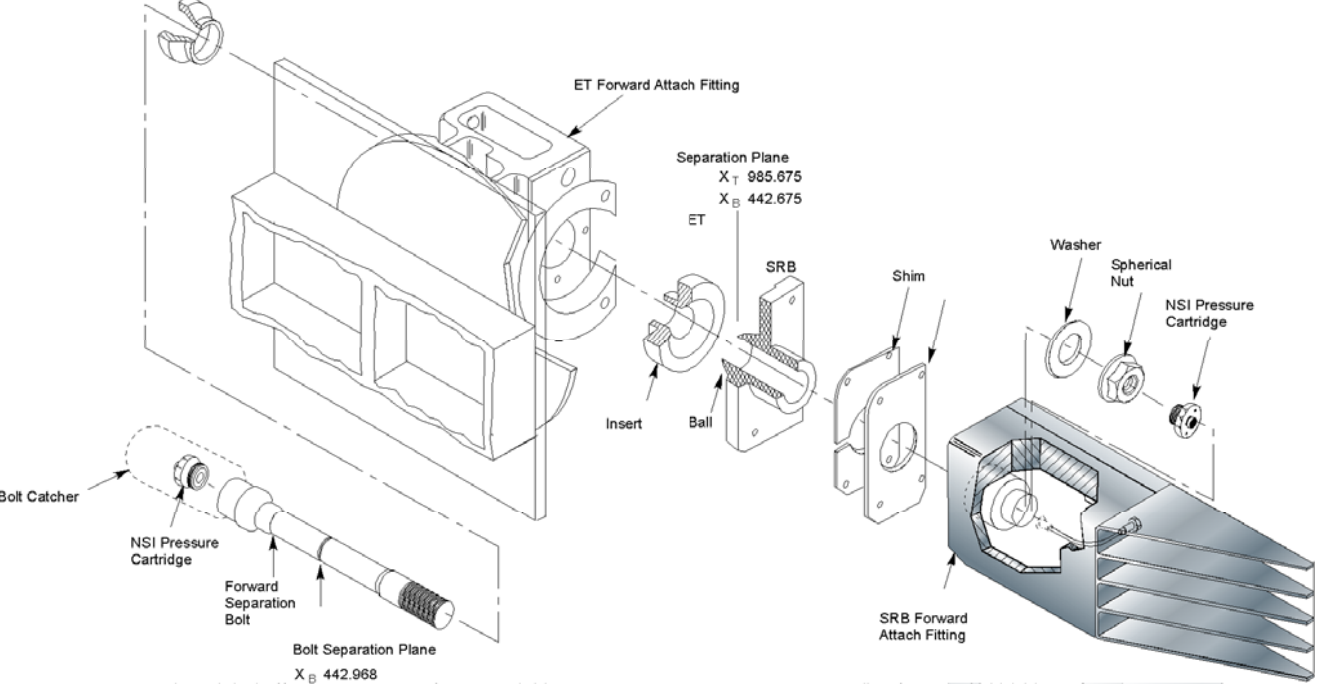
# SRB Separation Subsystem




SRB Separation Sequence

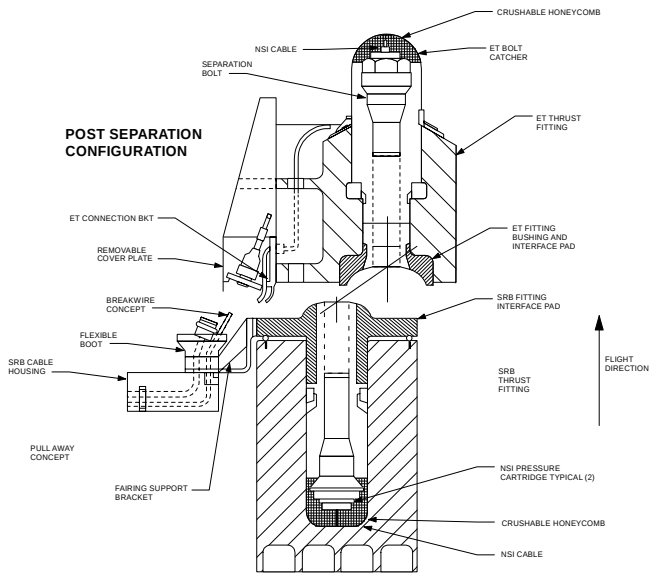



BSM Ignition and SRB Structural Release Subsystem

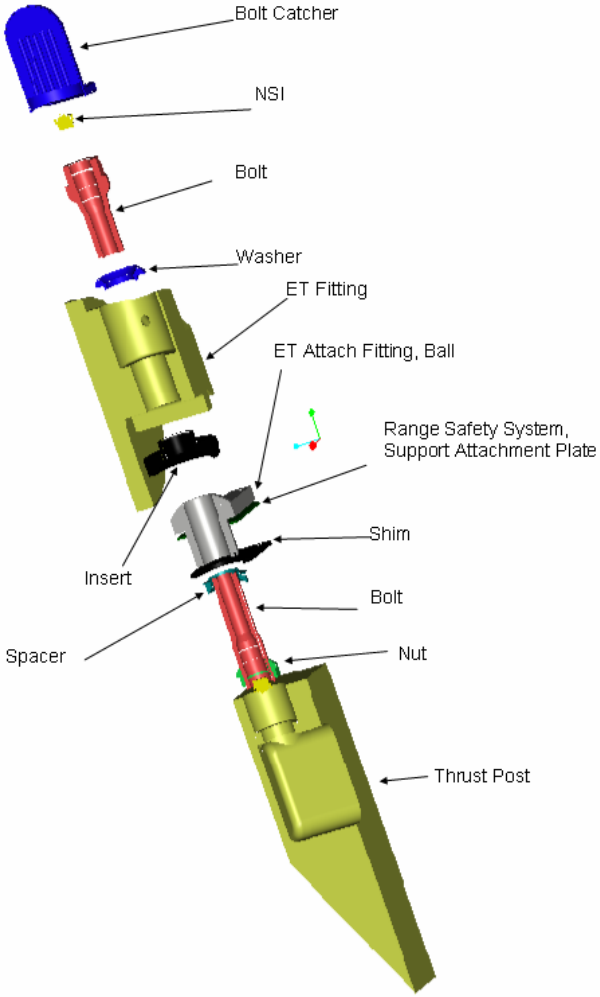


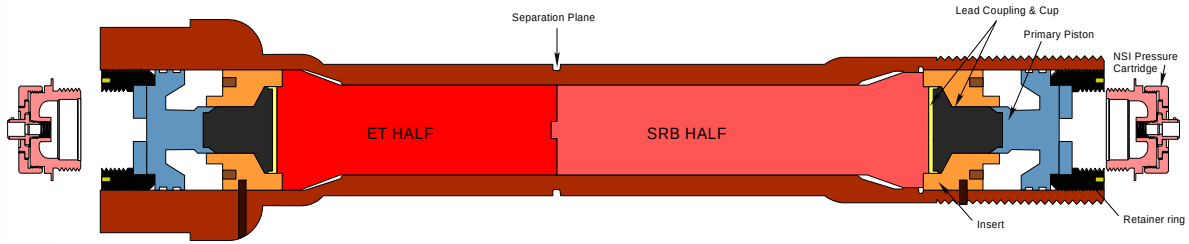

SRB/ET Forward (RH) Attach Fitting Exploded view

SRB/ET Upper Attach Bolt Separation Plane

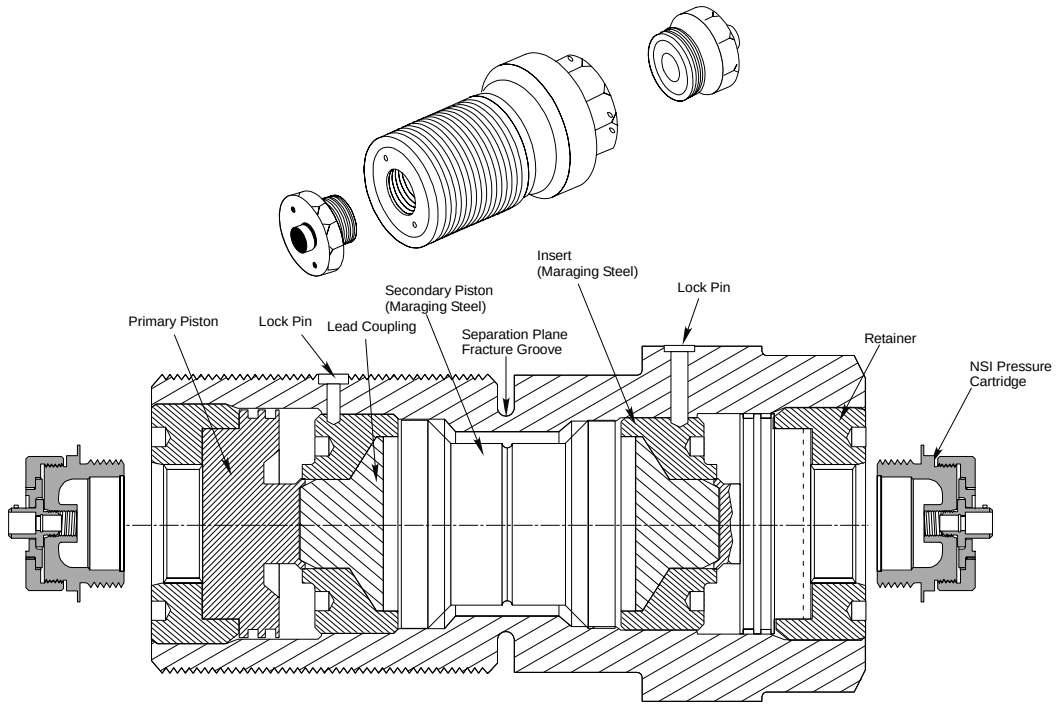



SRB/ET FWD ATTACH AND SEPARATION INTERFACES

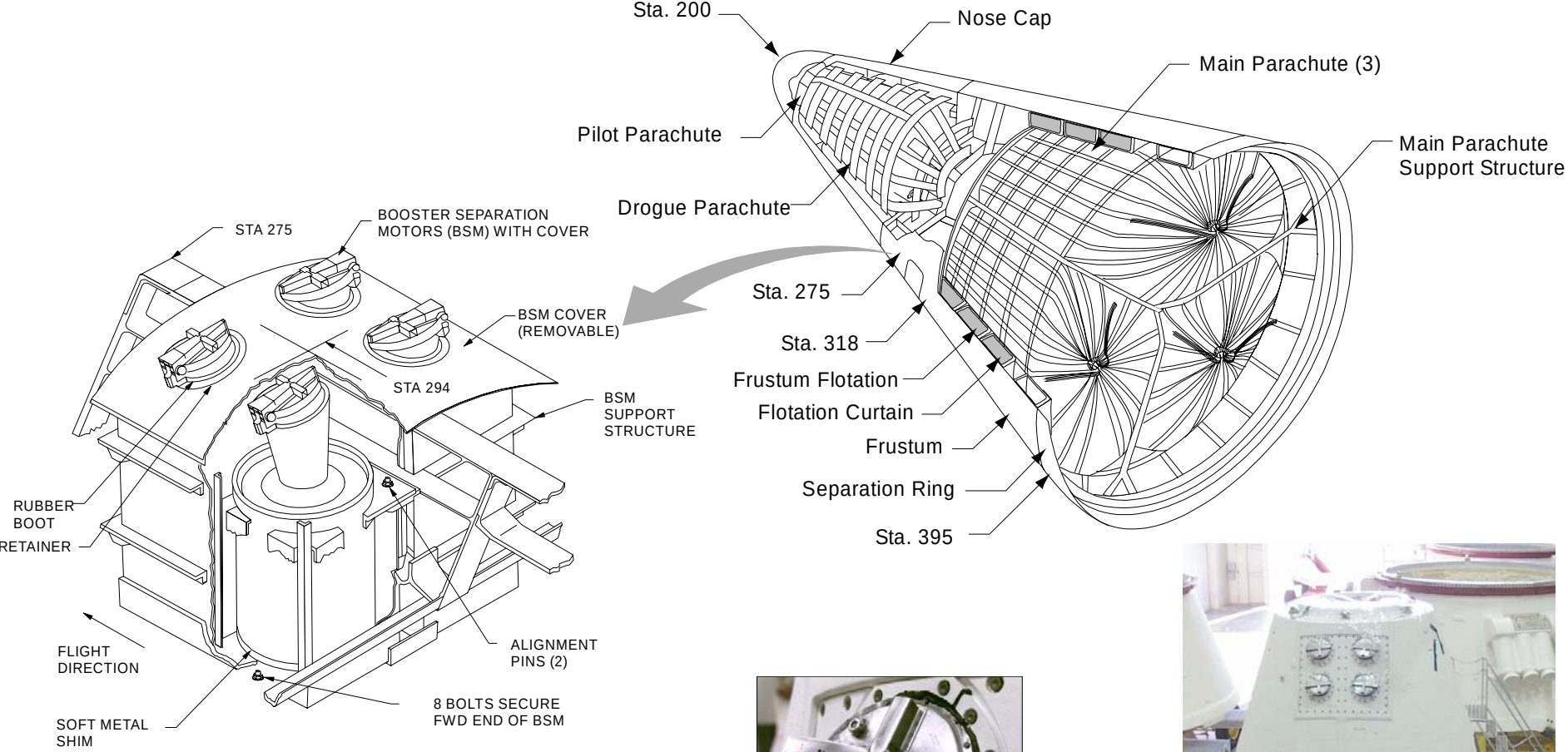


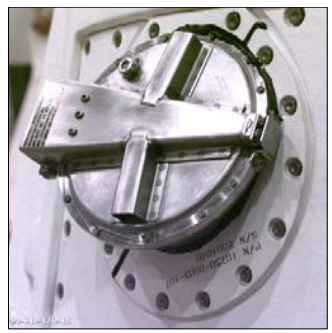

Forward SRB/ET Separation Bolt



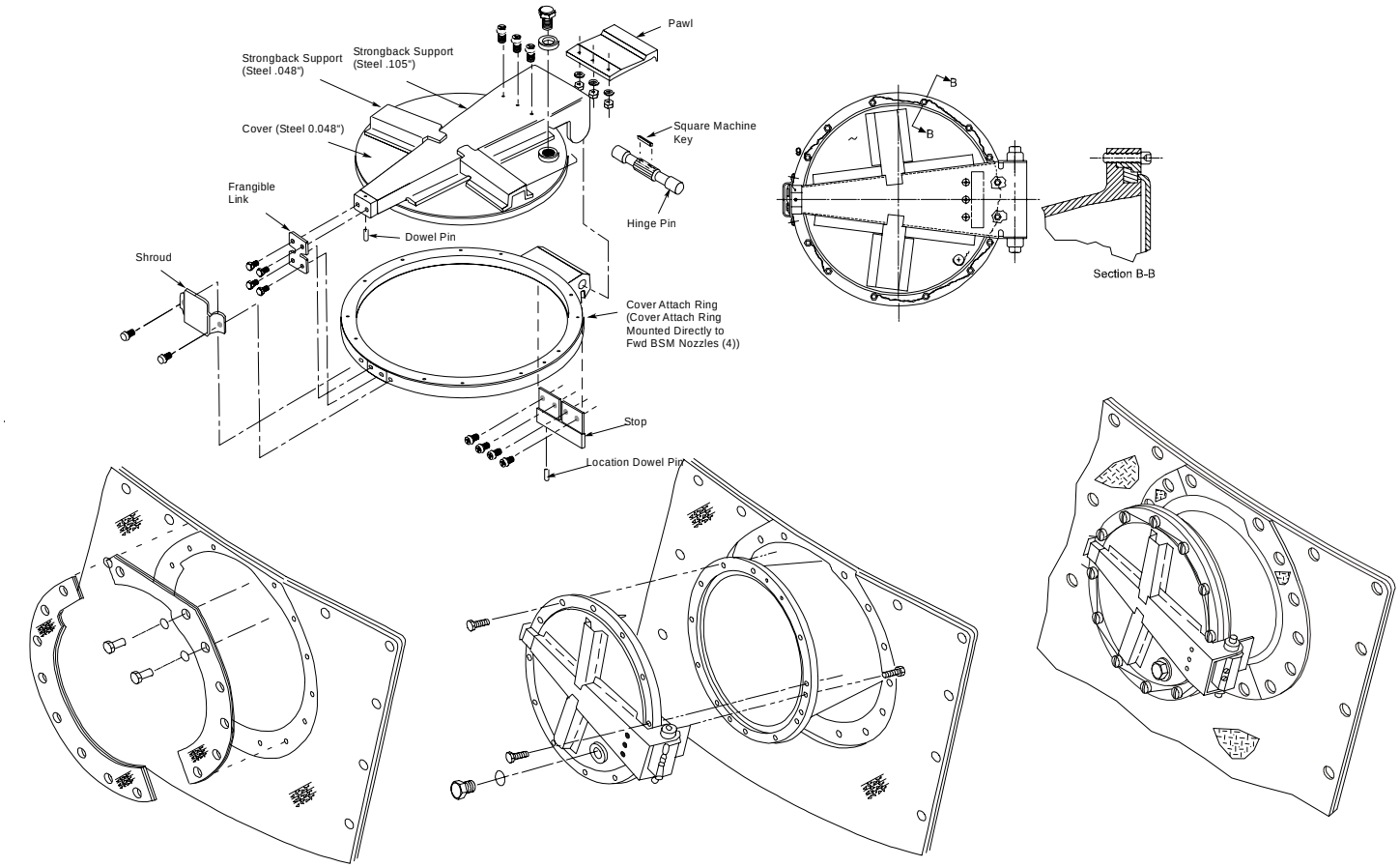

Aft Separation Bolt Assembly



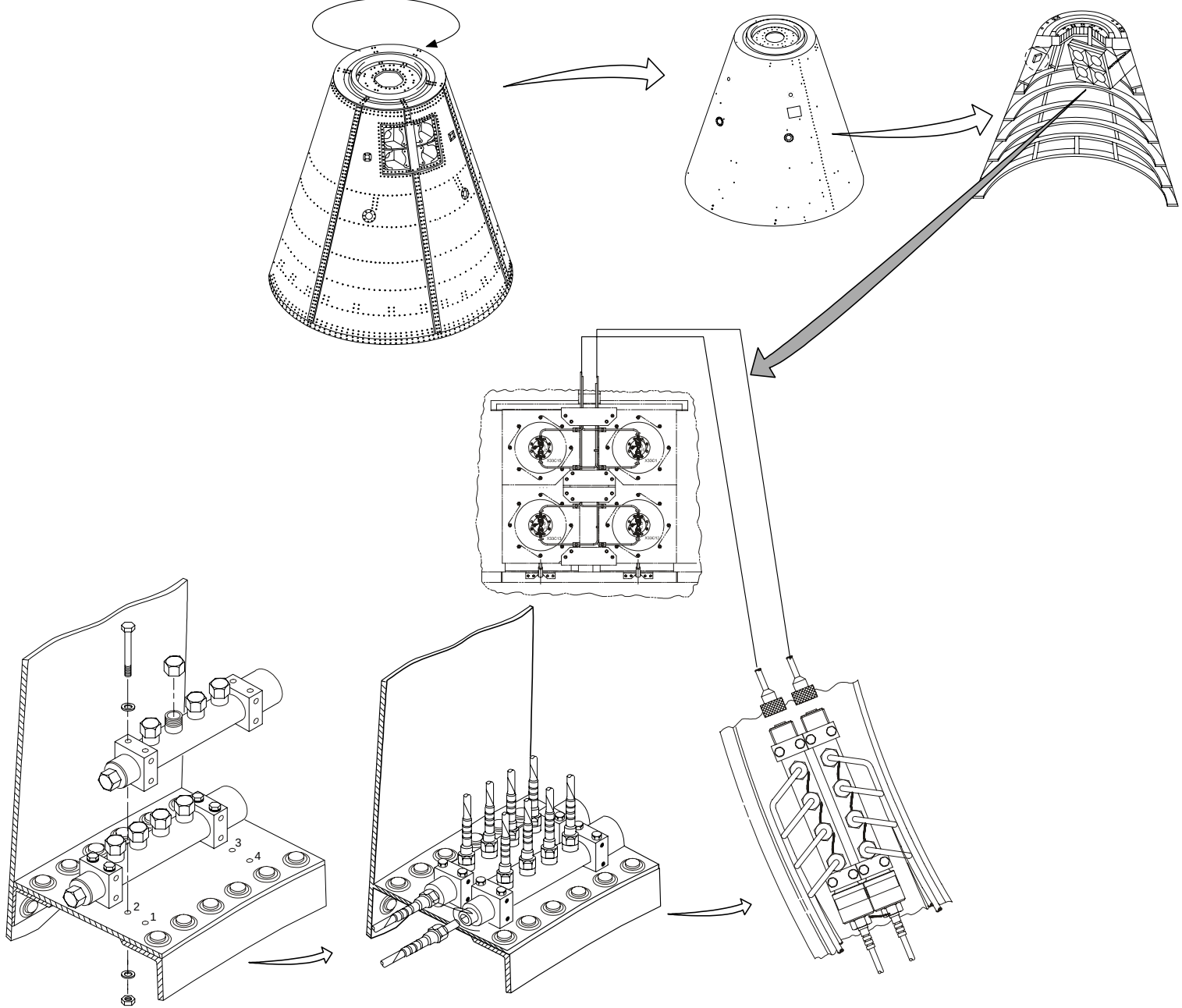

SRB FORWARD BOOSTER SEPARATION MOTORS (4)



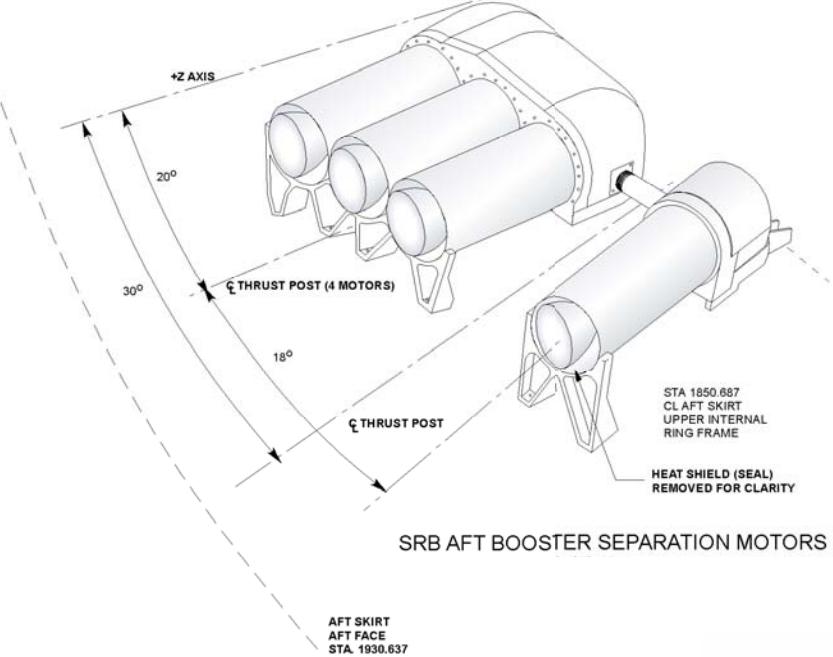
# Forward Booster Separation Motors Schematic



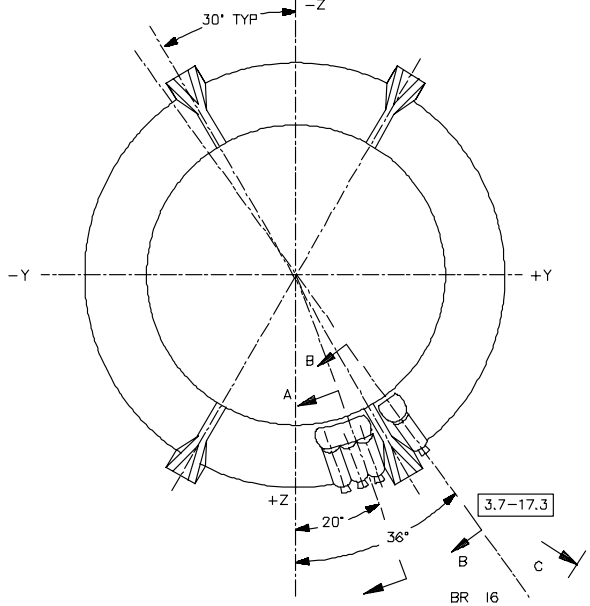

# Forward BSM Aerothermal Cover Details

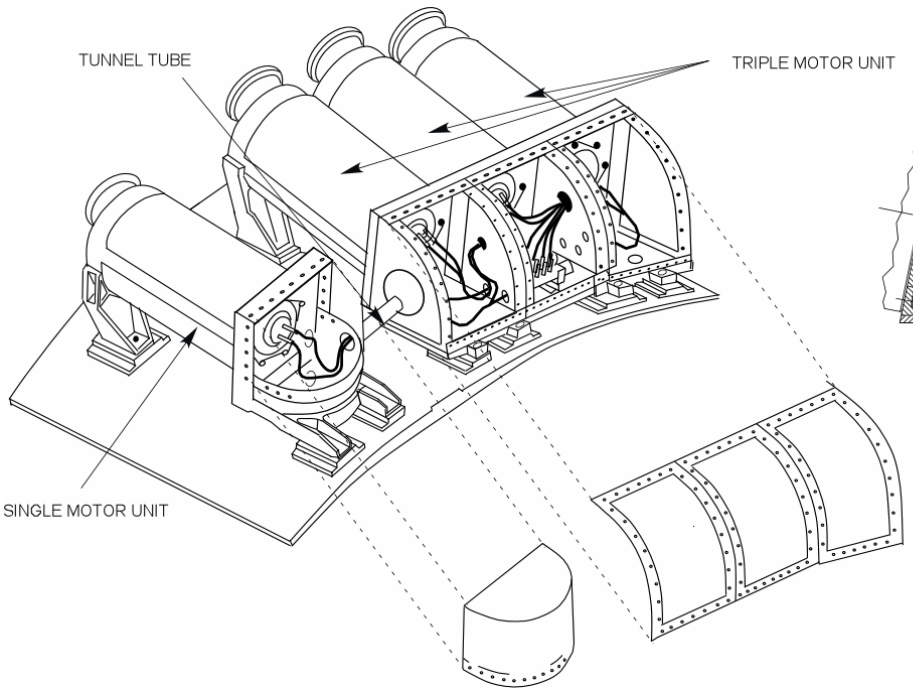



Forward BSM CDF Initiator Configuration




SRB AFT BOOSTER SEPARATION MOTORS (4)

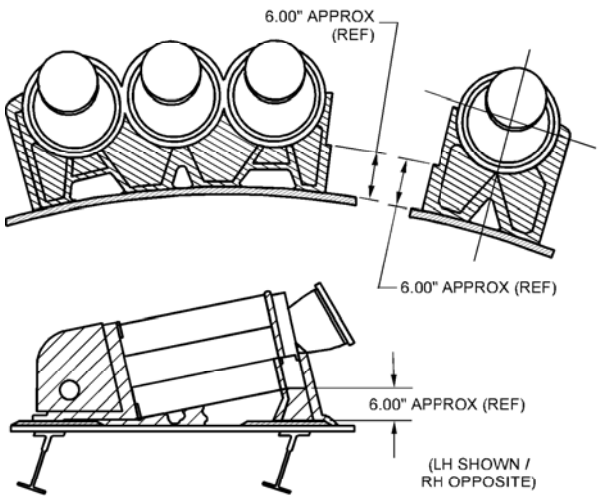


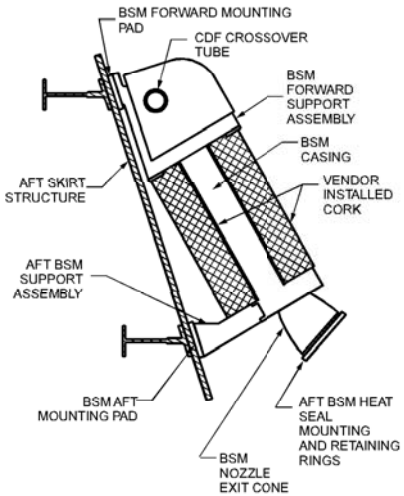

# AFT BSM Details

AFT BSMs with TPS Applied

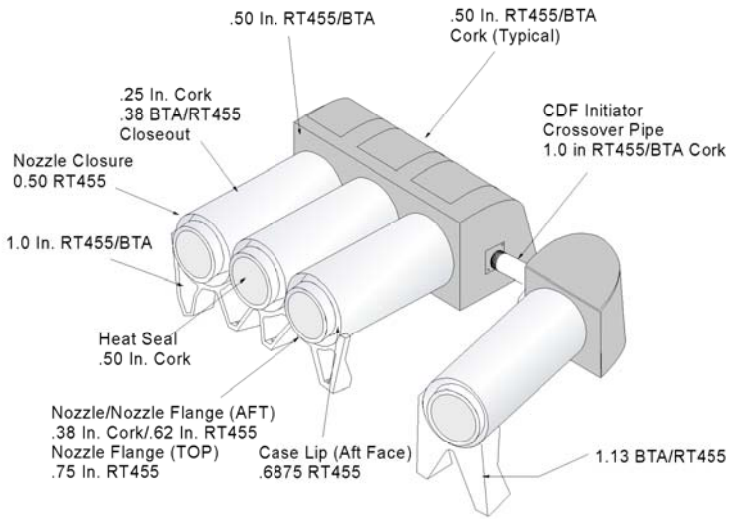
AFT BSMs with No TPS



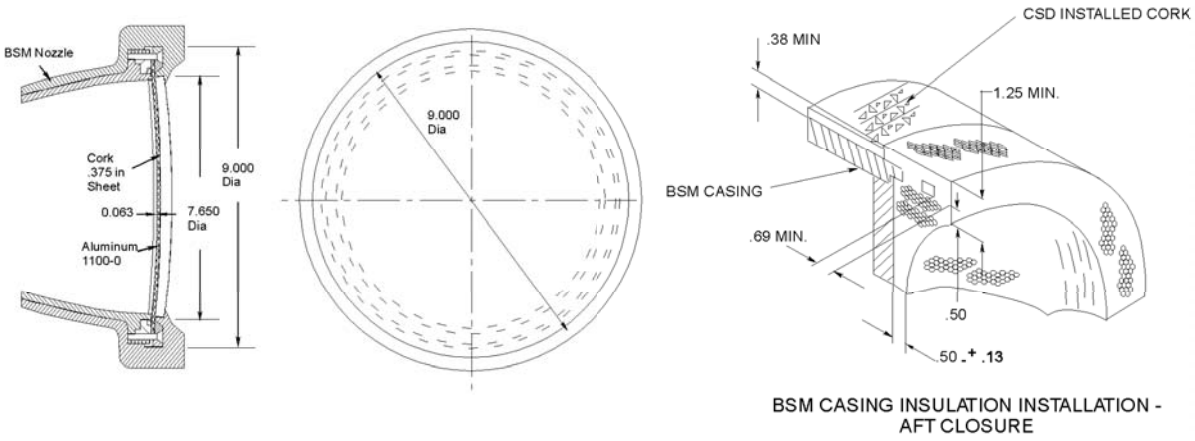

BSM SUPPORTS INSULATION INSTALLATION REFERENCE LOCATIONS



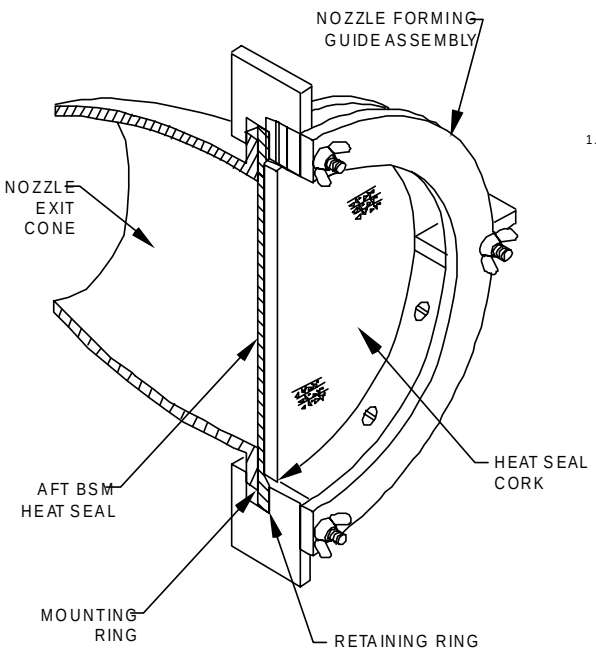

BSM TERMINOLOGY



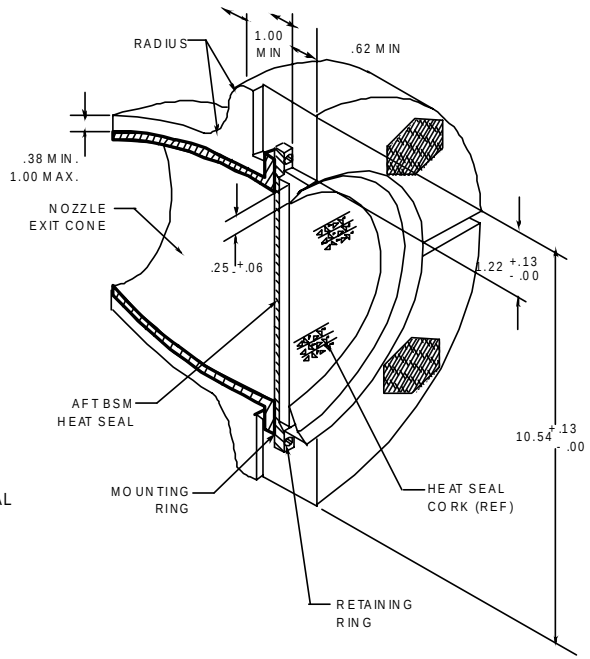

AFT BSM Details




BSM CASING INSULATION INSTALLATION - AFT CLOSURE

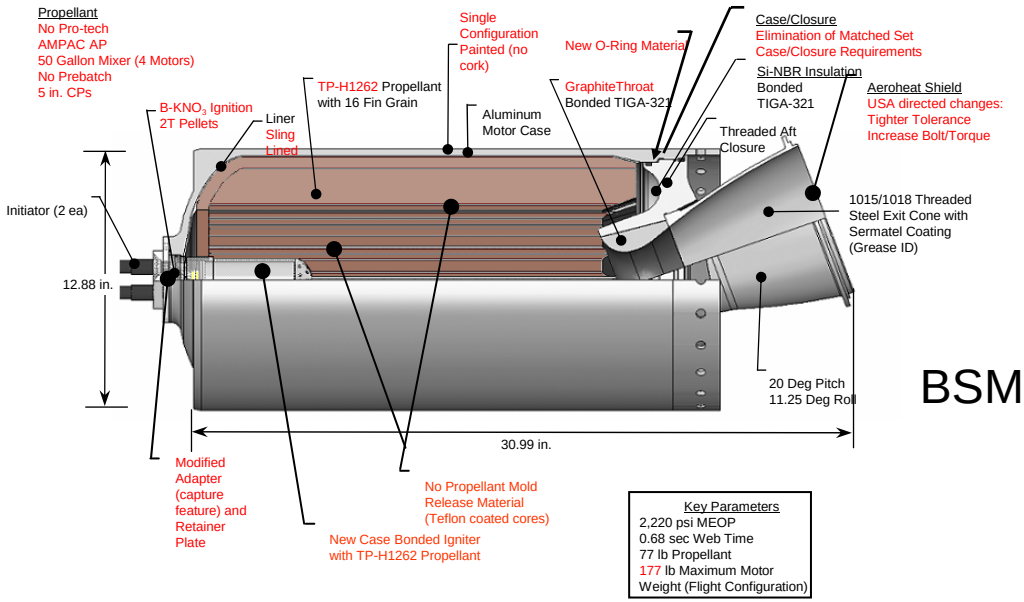



BSM NOZZLE FORMING GUIDE INSTALLATION

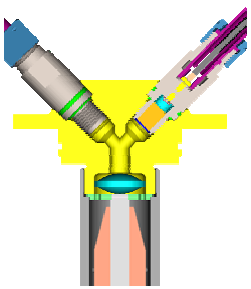



BSM NOZZLE INSULATION INSTALLATION

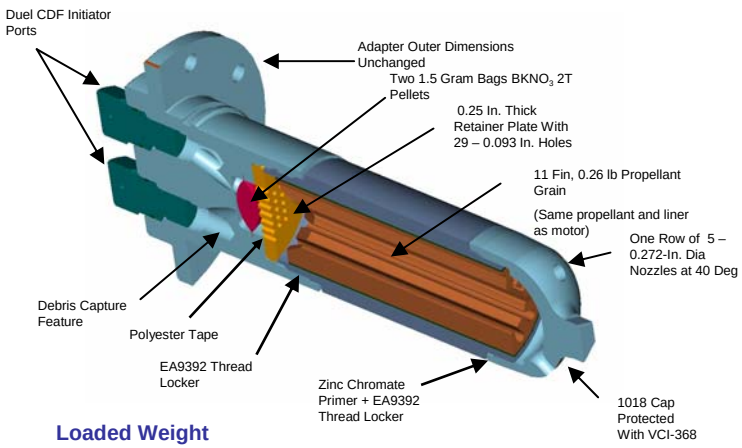
# AFT BSM TPS Details




# BSM Details



**New Igniter Design**



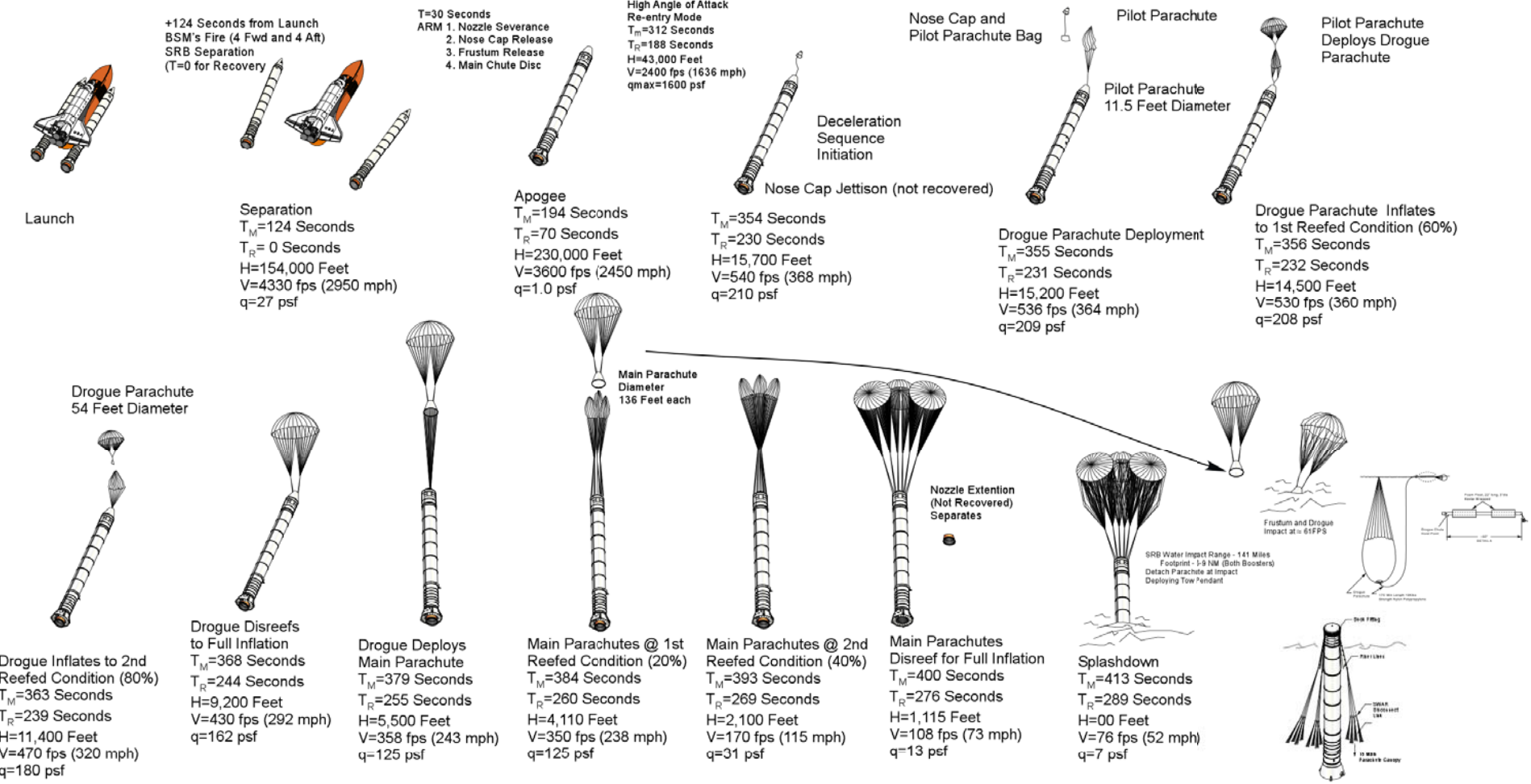

**Loaded Weight Approximately 6.3 lb**

# BSM Igniter

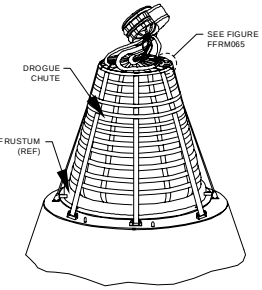
# Nozzle Cutaway

# BSM Igniter Cutaway

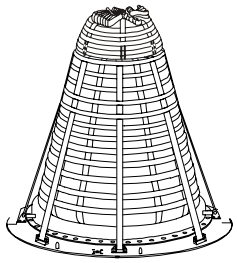
# Retrieval



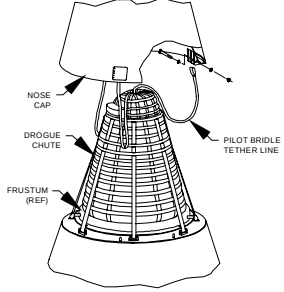

# SRB Flight Timeline/Sequence




PILOT CHUTE/DROGUE CHUTE MATE



DROGUE/PILOT ASSEMBLY

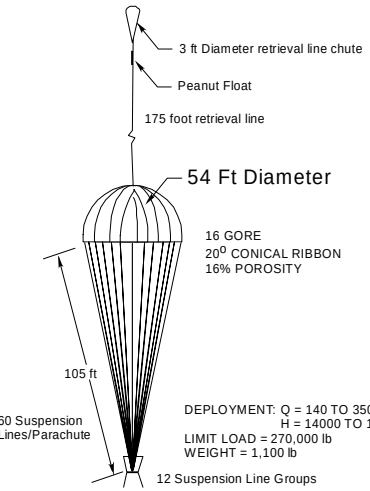



NOSE CAP TO PILOT CHUTE INSTALLATION-SINGLE TETHER

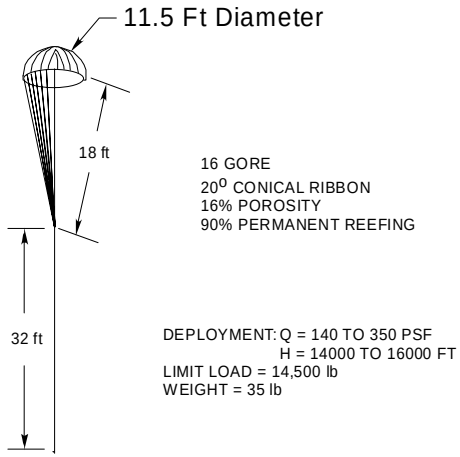
Pilot Chute Assembly

Pilot and Drogue Chute Installation

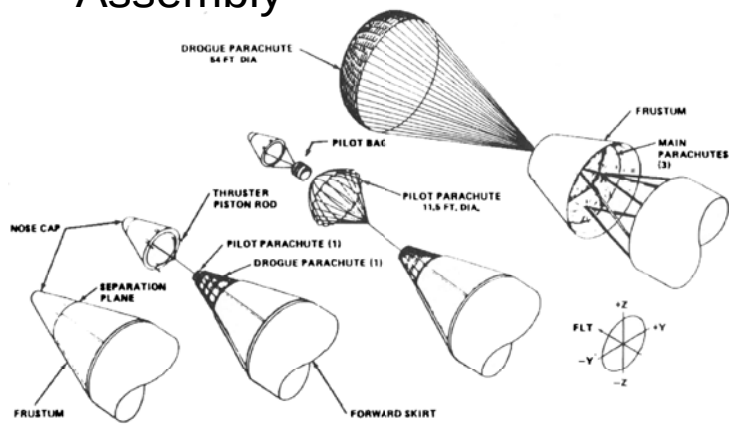
## DROGUE PARACHUTE




## PILOT PARACHUTE

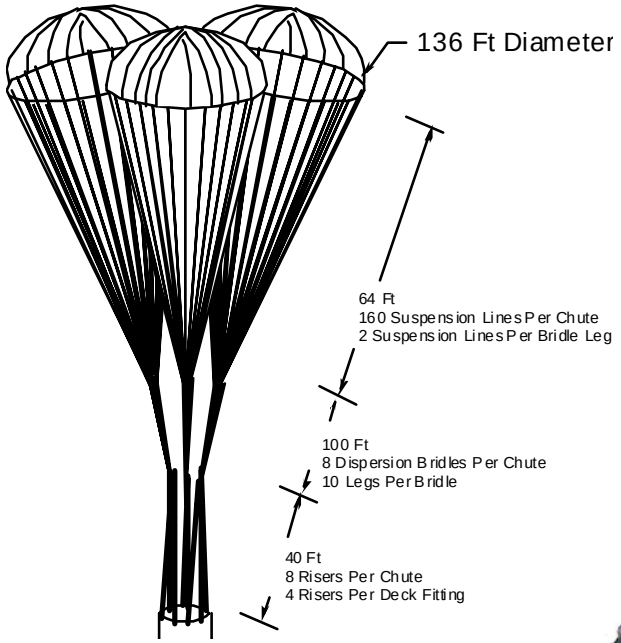


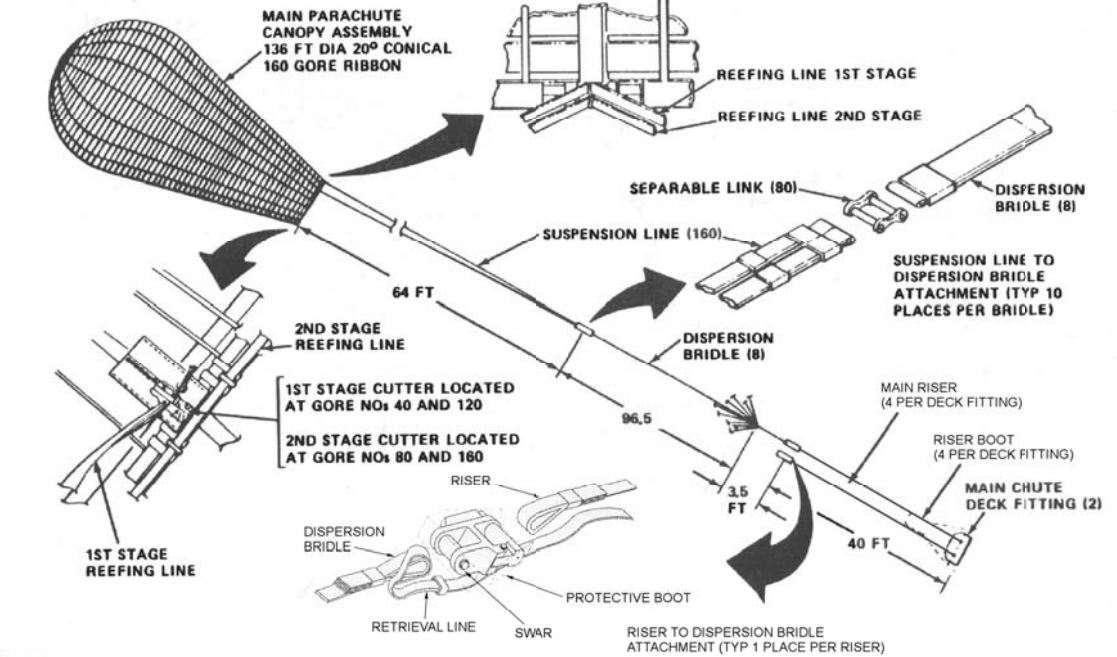

Drogue Chute Assembly




Pilot and Drogue Parachute Details

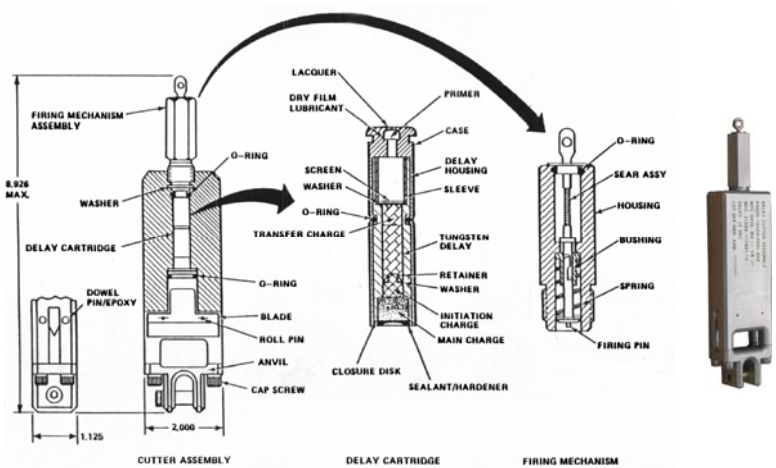
# MAIN PARACHUTE

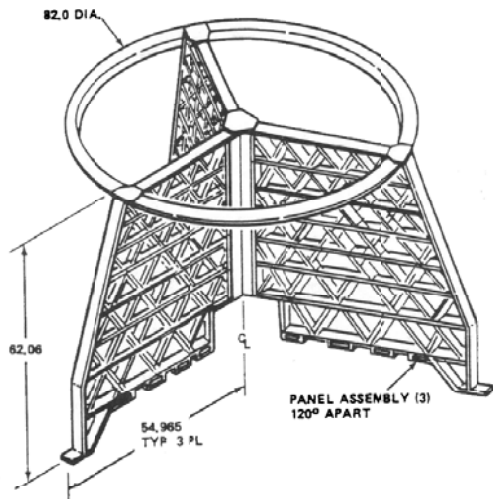


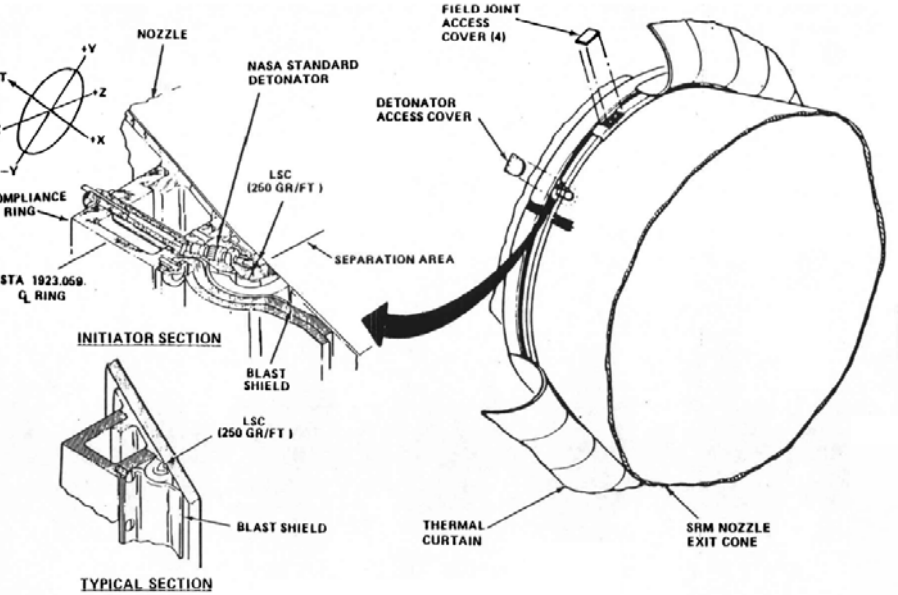





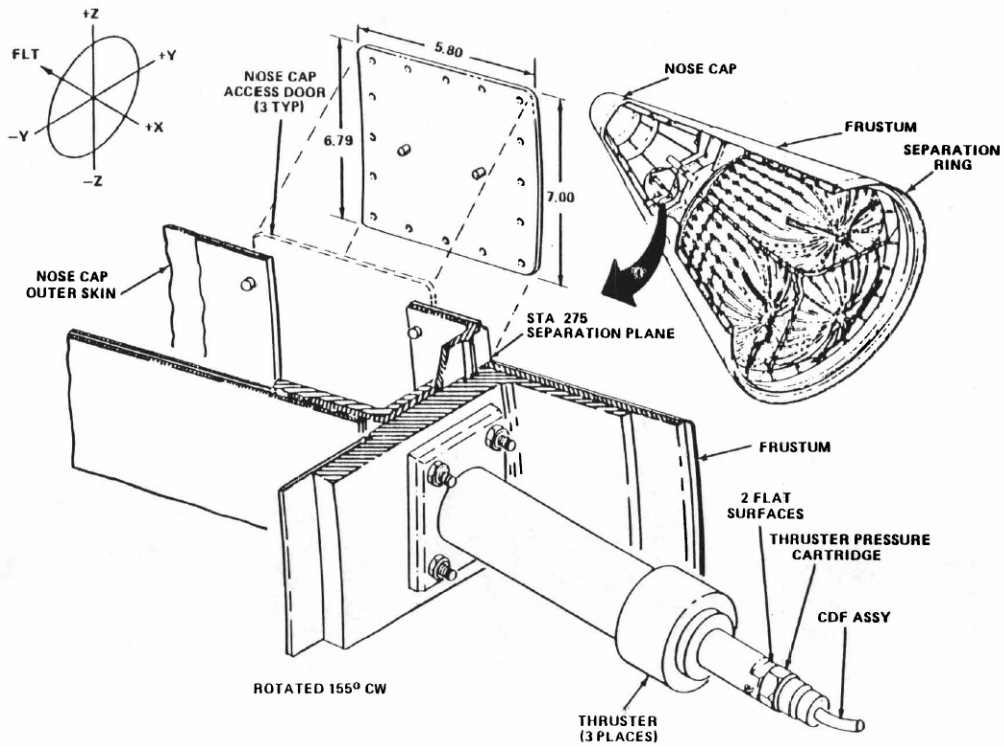
SWAR



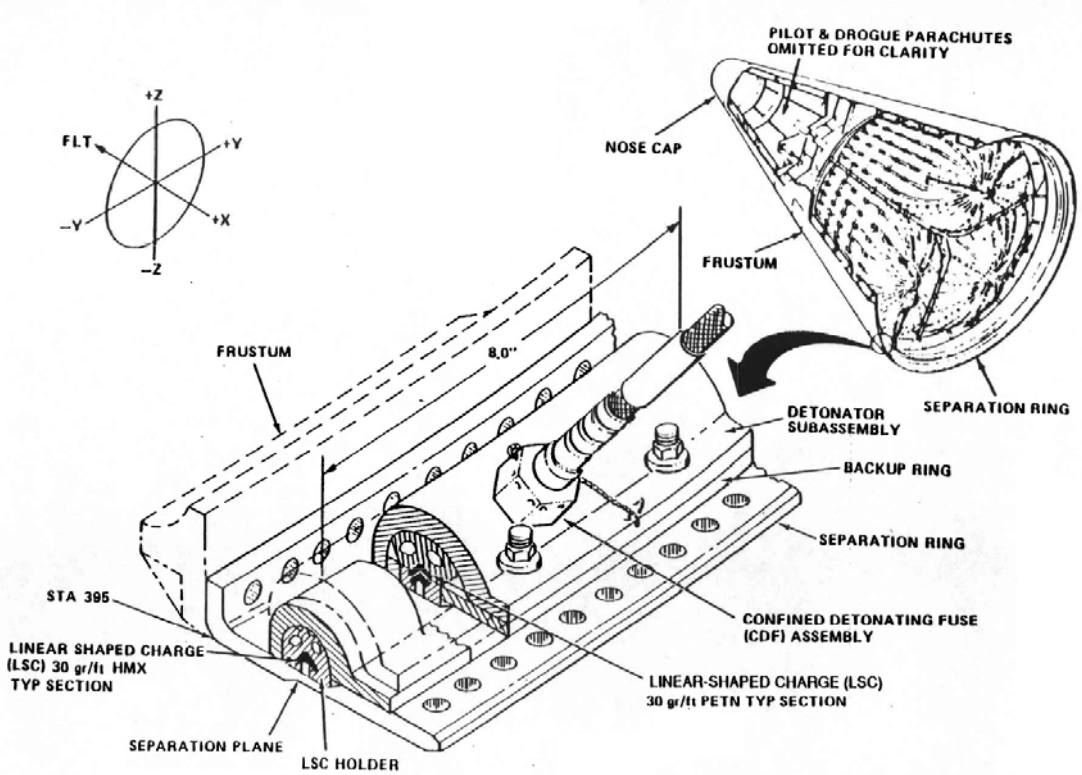





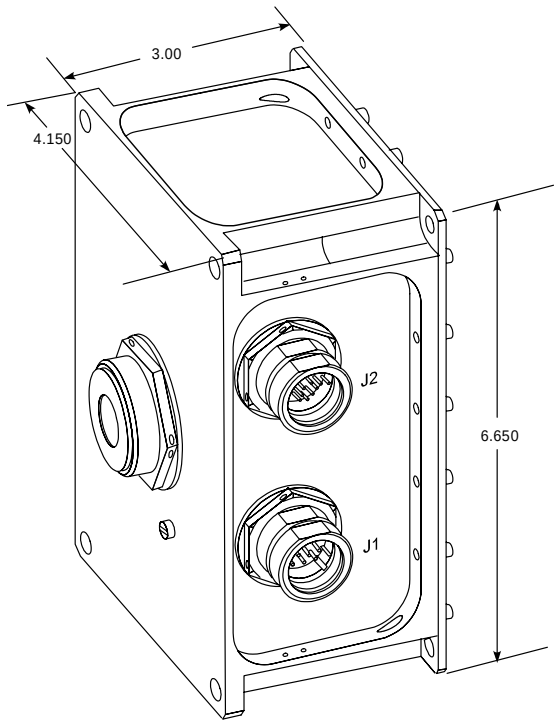

SRM Nozzle Linear Shaped Charge Cutoff Device



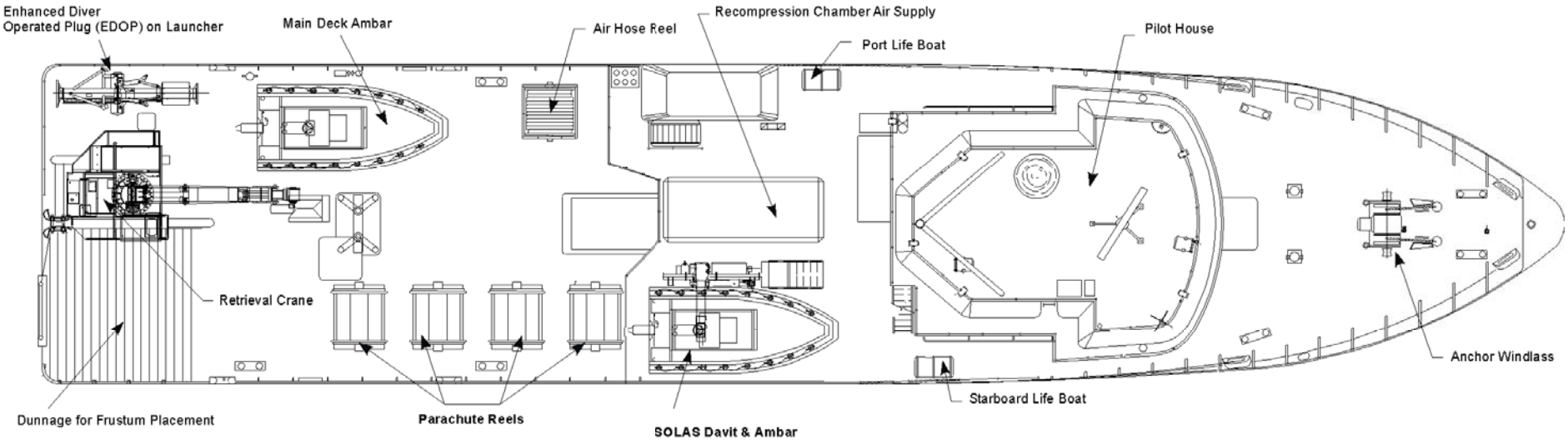

SRB Nose Cap Thruster-Installation




SRB Frustum/Separation Ring Assembly



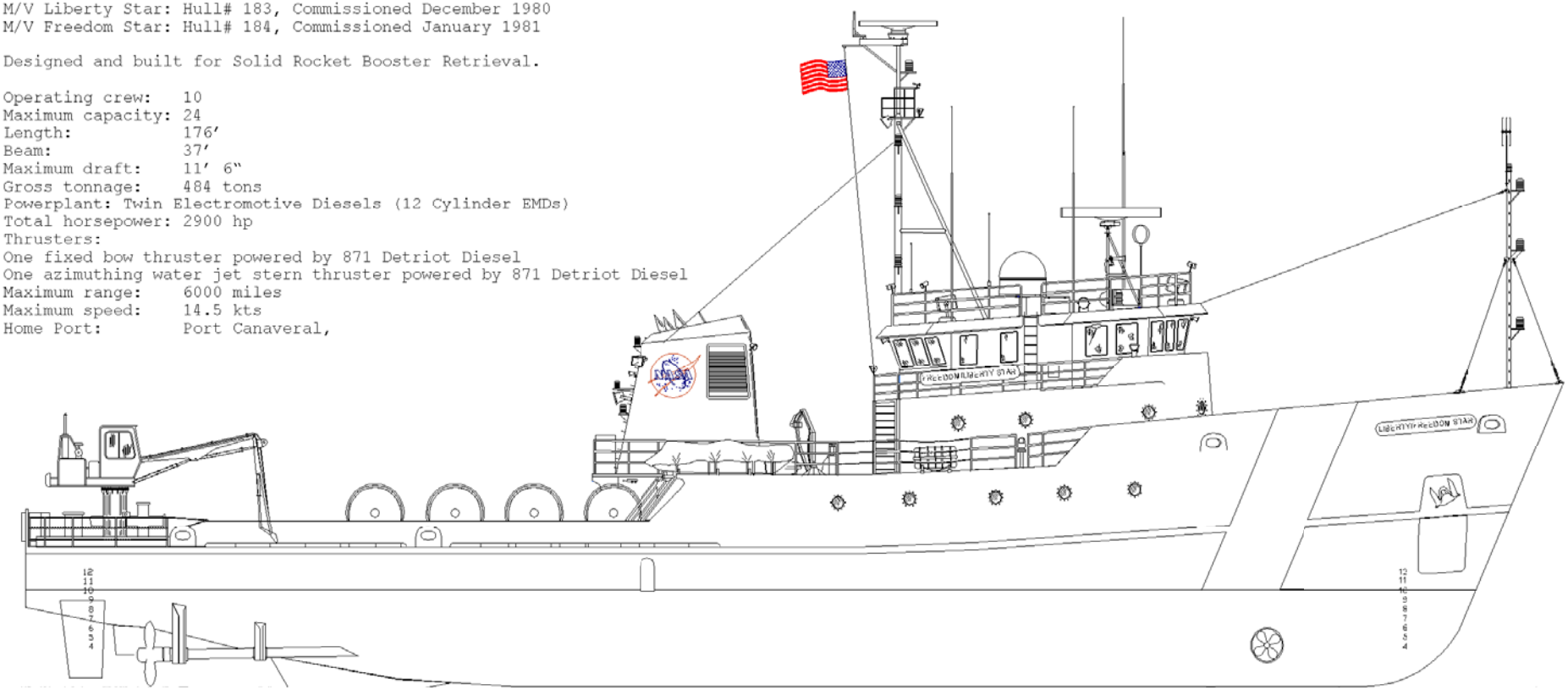

Altitude Switch Assembly

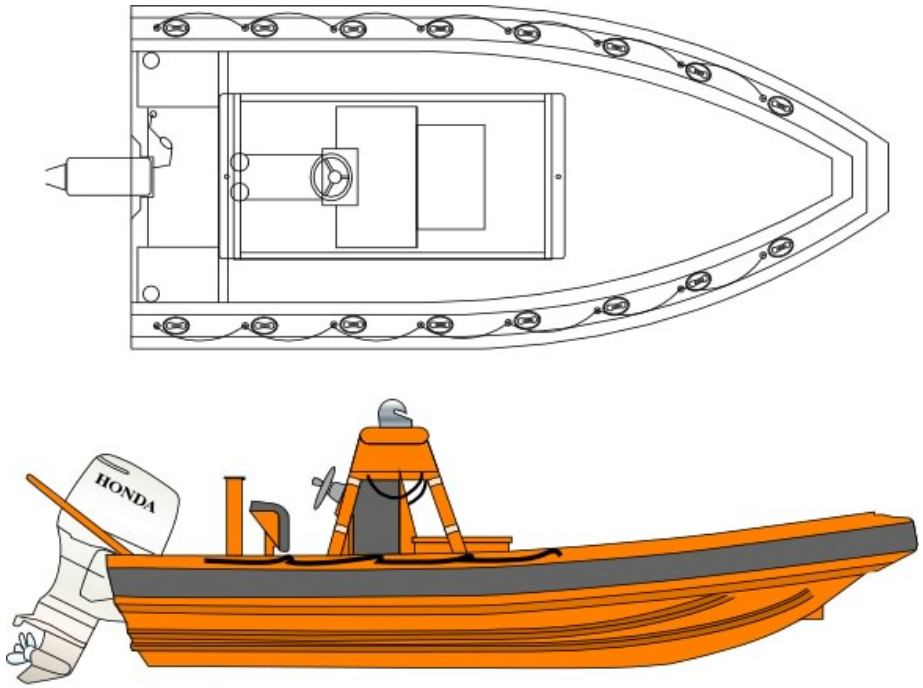



M/V Liberty Star: Hull# 183, Commissioned December 1980
M/V Freedom Star: Hull# 184, Commissioned January 1981

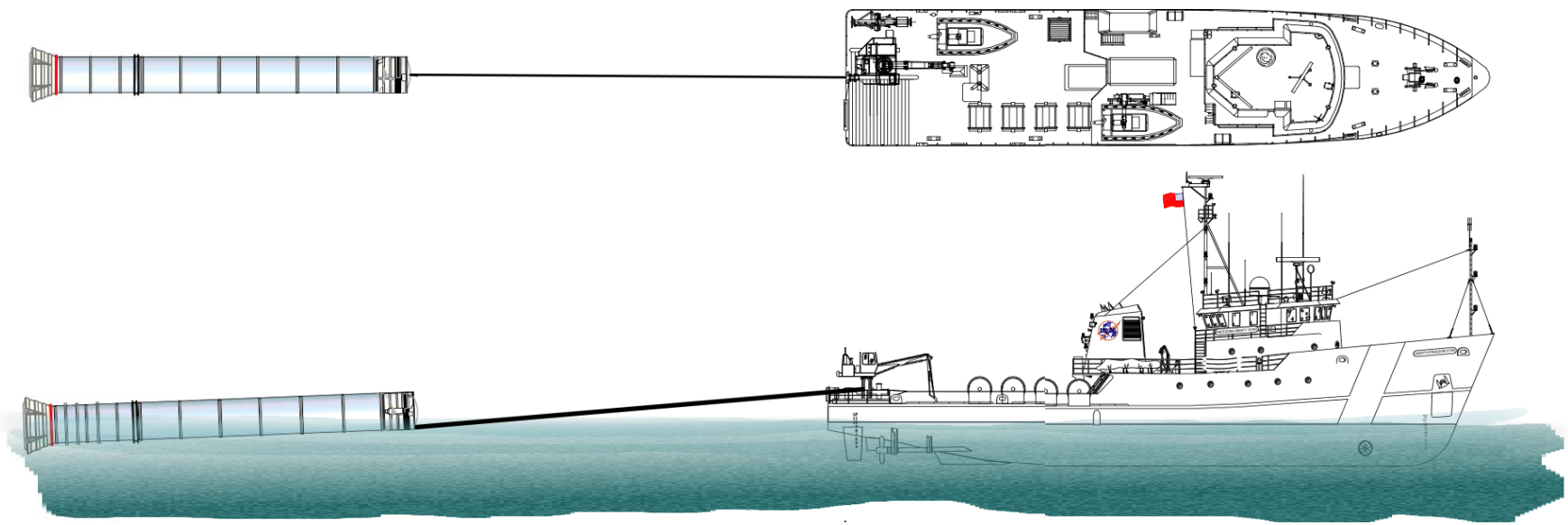
Designed and built for Solid Rocket Booster Retrieval.

Operating crew: 10
Maximum capacity: 24
Length: 176'
Beam: 37'
Maximum draft: 11' 6"
Gross tonnage: 484 tons
Powerplant: Twin Electromotive Diesels (12 Cylinder EMDs)
Total horsepower: 2900 hp
Thrusters:
One fixed bow thruster powered by 871 Detriot Diesel
One azimuthing water jet stern thruster powered by 871 Detriot Diesel
Maximum range: 6000 miles
Maximum speed: 14.5 kts
Home Port: Port Canaveral,

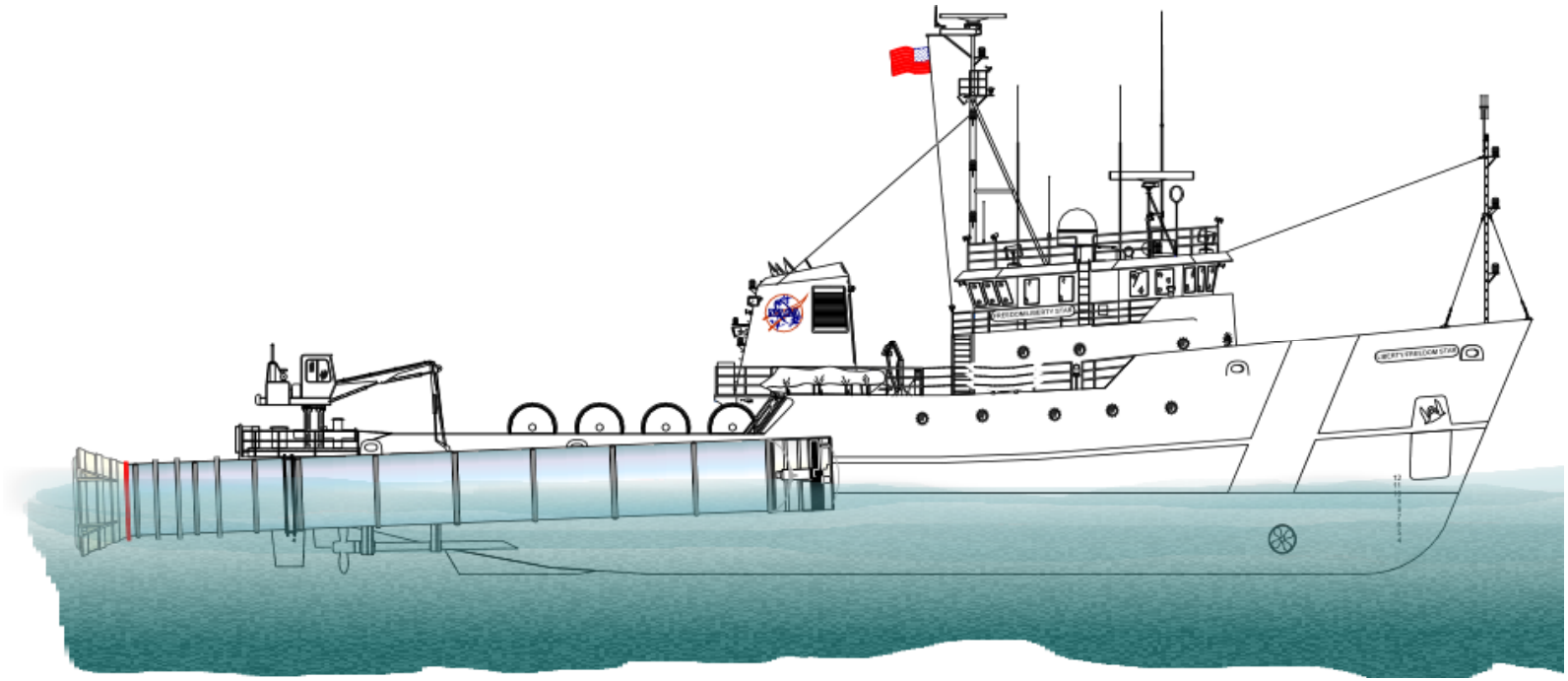


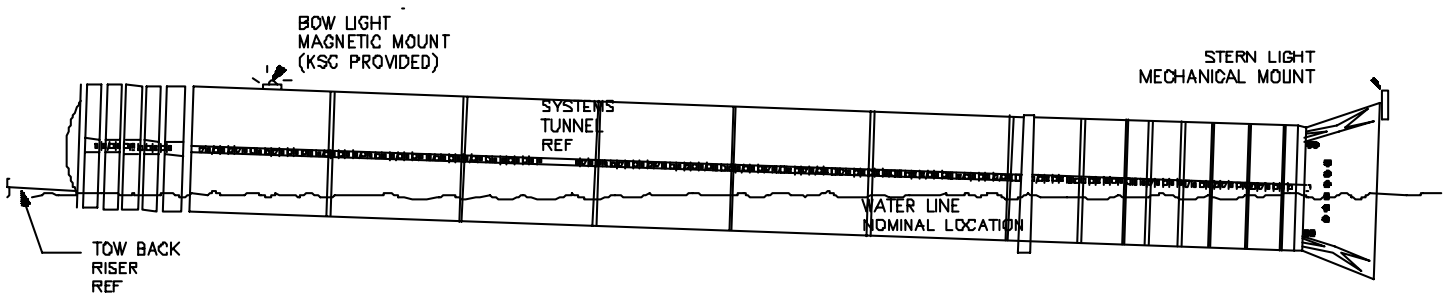



18‘ Ambar Dive boat

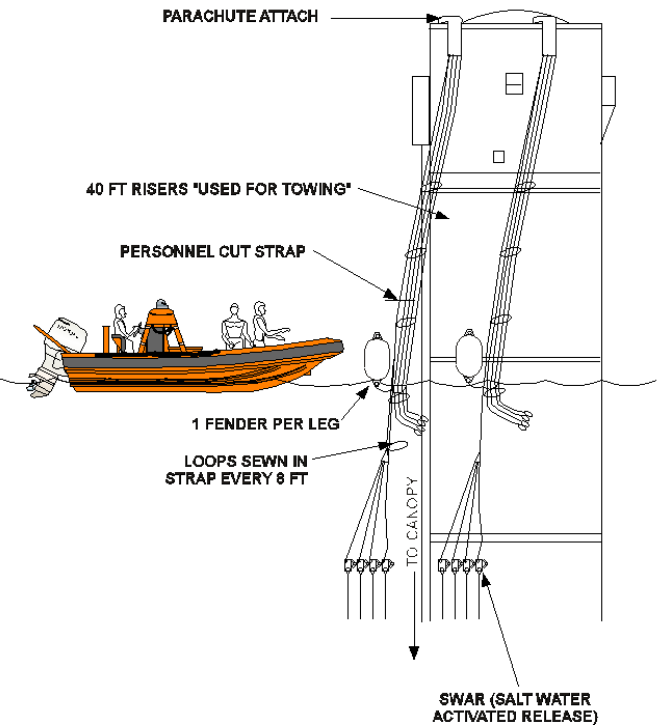


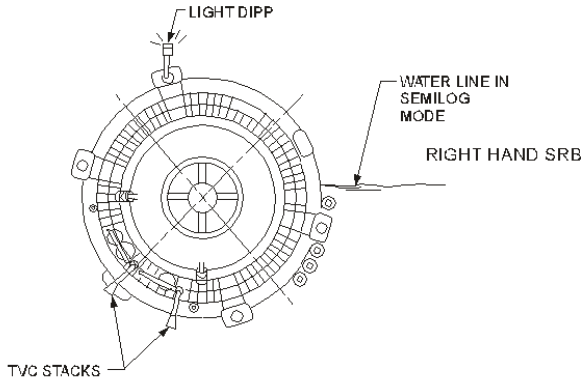
SRB Towback Operations

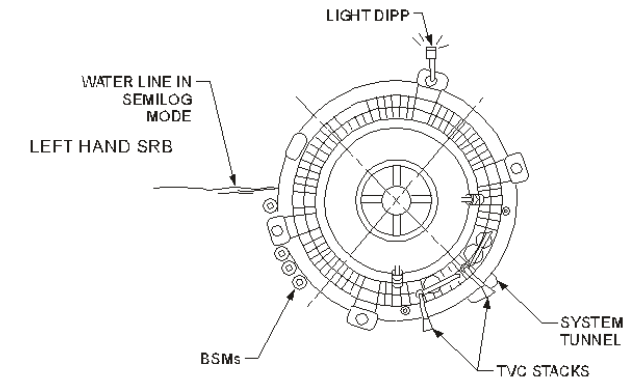


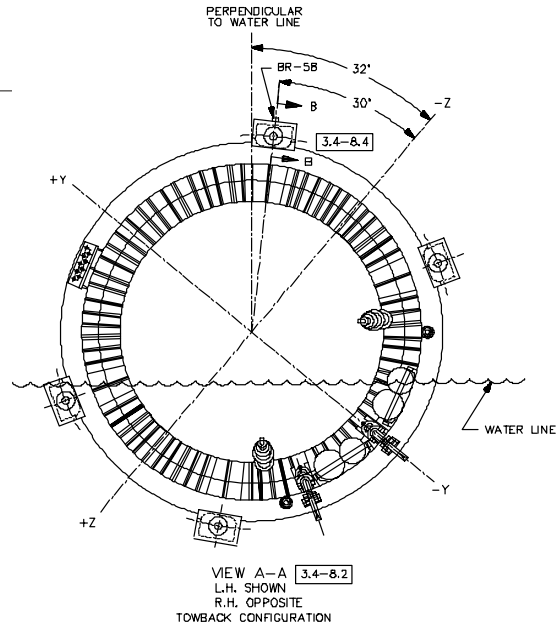



SRB Hip Operations

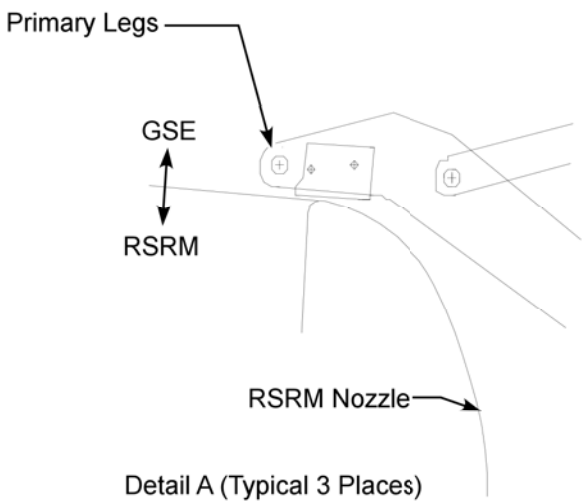


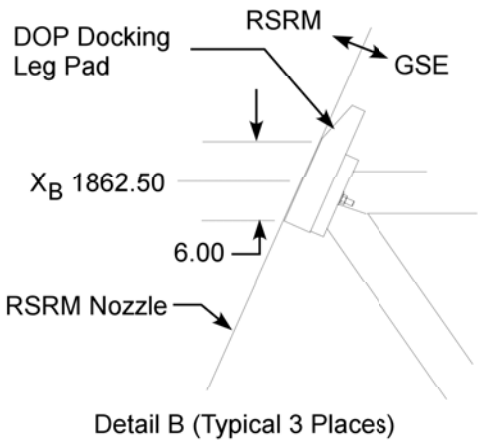



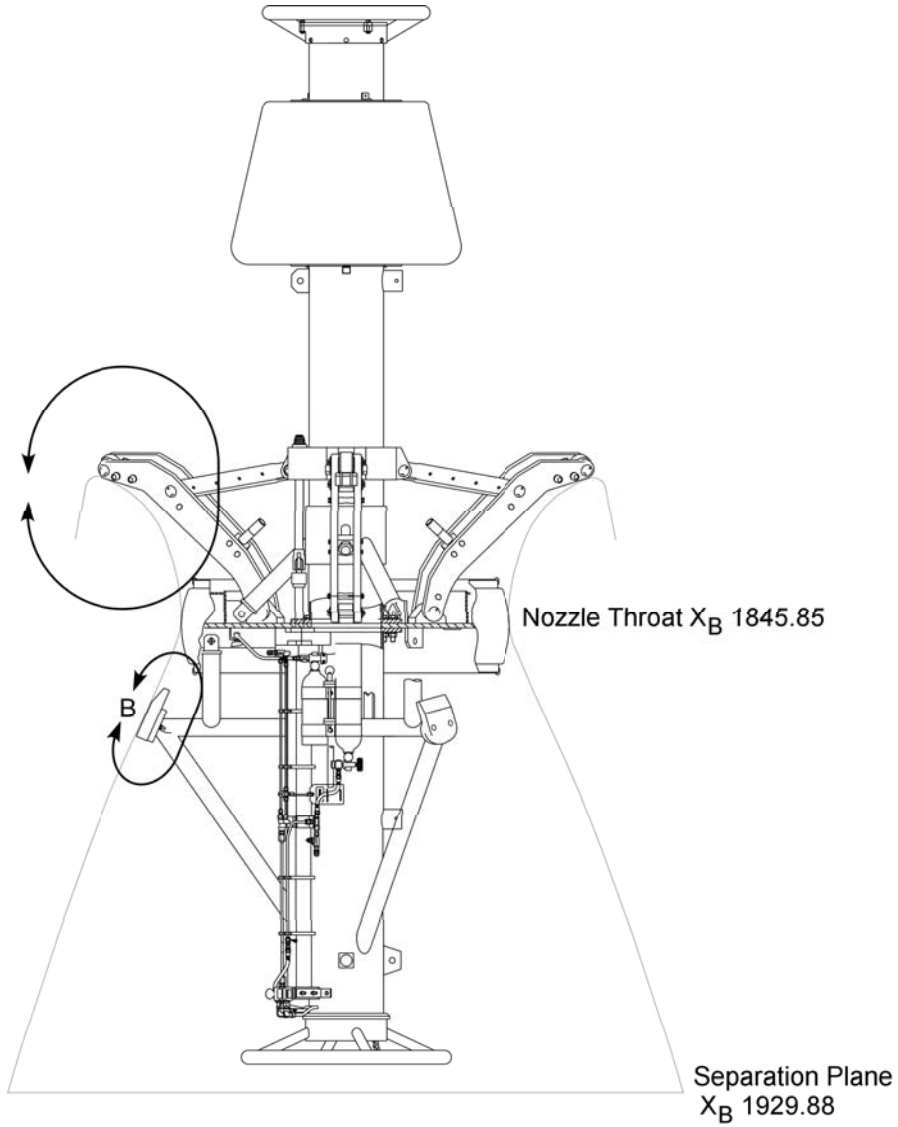



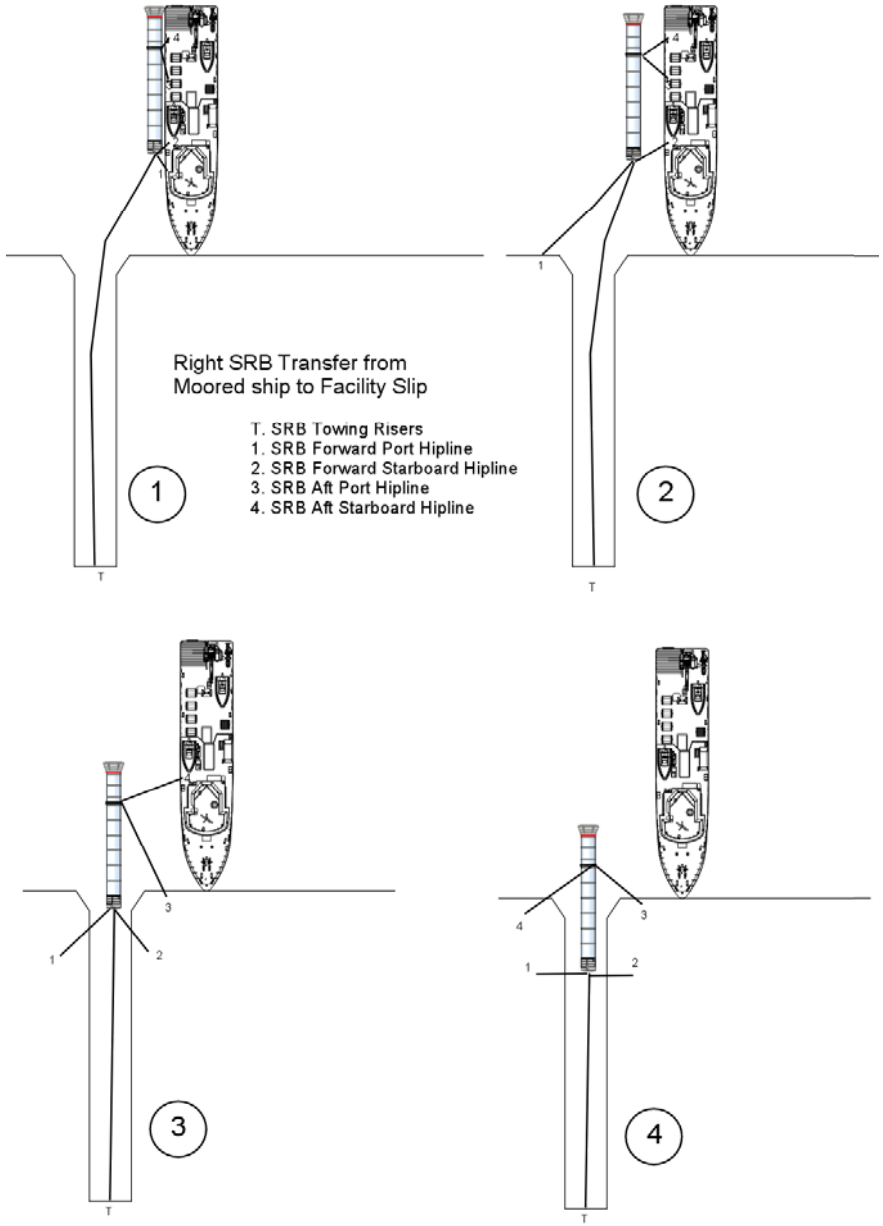

# Recovery Details



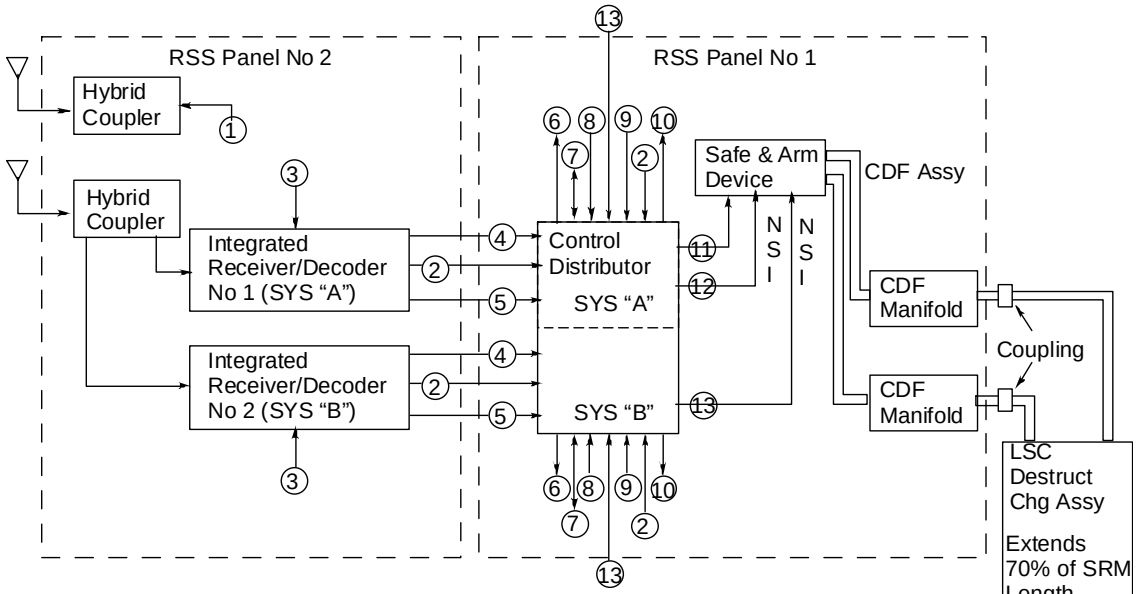




Enhanced Diver Operating Plug



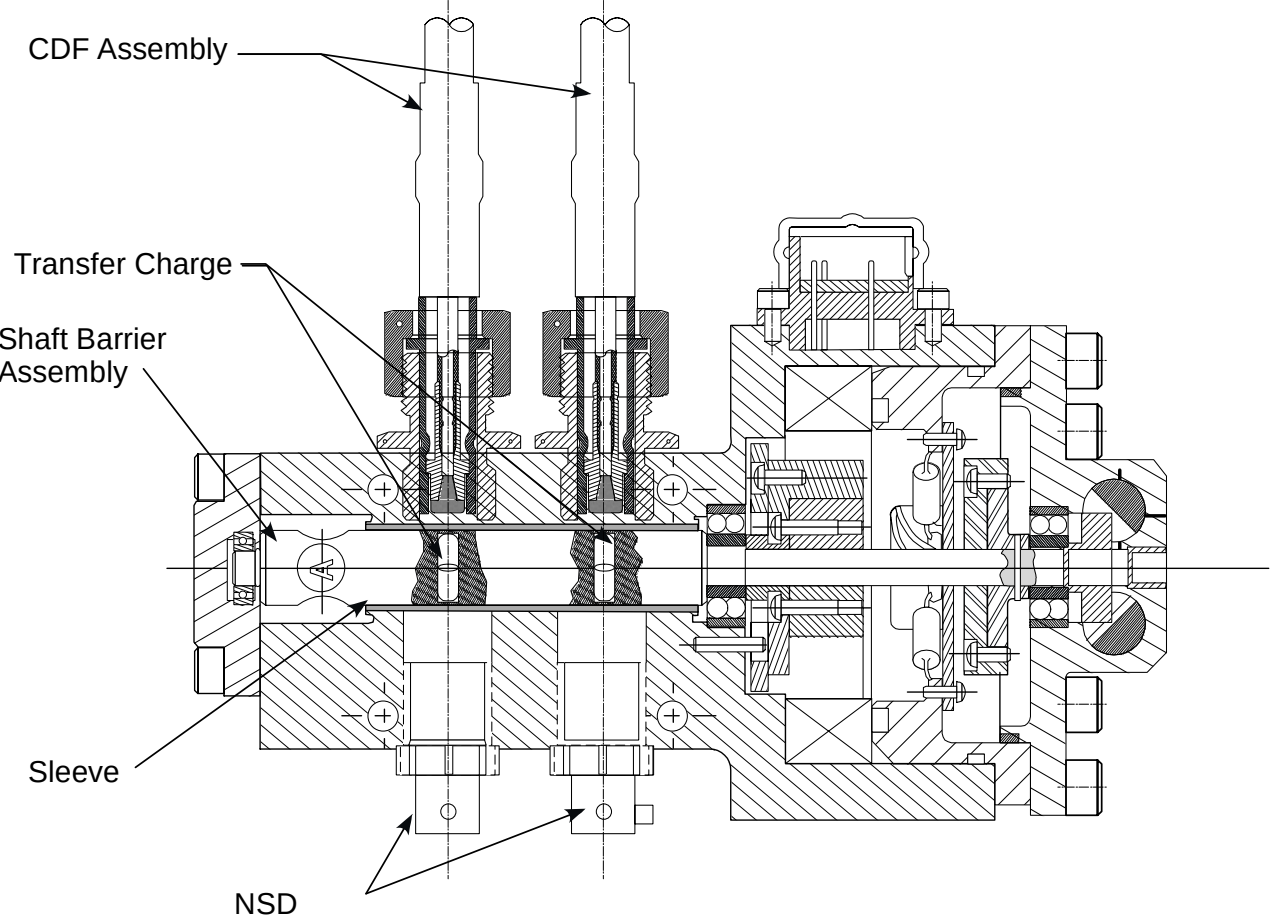

SRB Retrieval Operations at SRB Slip

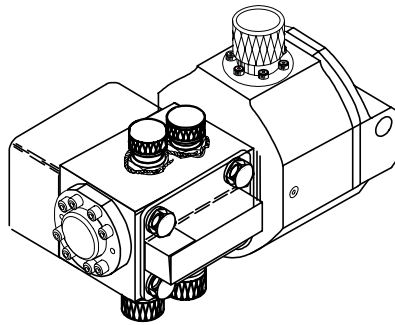
# Range Safety System

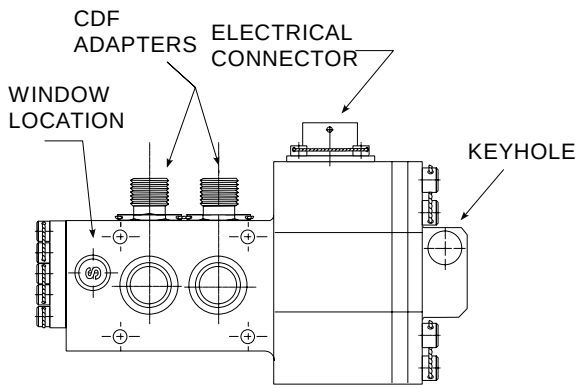



1. GSE RF Input for Closed Loop Checkout
2. Signal Strength Monitor to TM
3. Code Insertion Connection
4. "ARM" Command
5. "FIRE" Command
6. Monitor "Power On","Inhibit","Arm", "Fire","PIC Arm","RIG Fire", & "S&A Arm/Safe" Position
7. Cross Strapping Between SRBs & To ET
8. RS "Power Off","Inhibit", And "S&A Safe" Commands from Orbiter
9. RS "Power Off","Inhibit", And "S&A Safe" Commands from SRB MDM
10. "Abort Light (ARM)" Signal to Orbiter
11. S&A Control & Monitoring Functions
12. Initiation Destruct Signal
13. RSS Battery used for SYS "A" & "B"

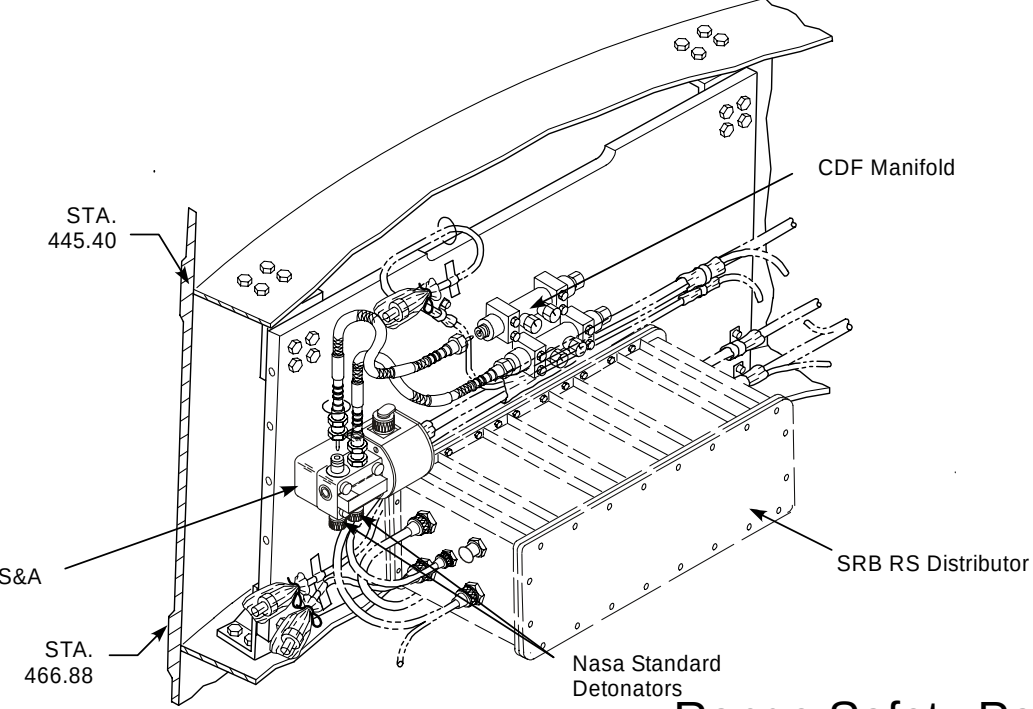
# SRB RSS Functional Diagram



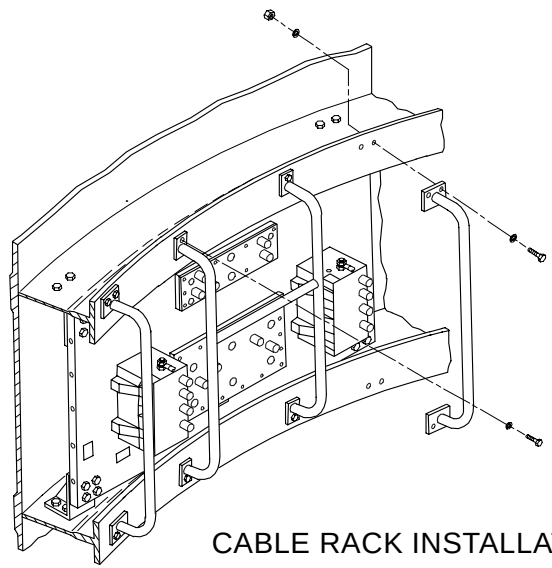



SRB Range Safe and Arm (S&A) Device Section View



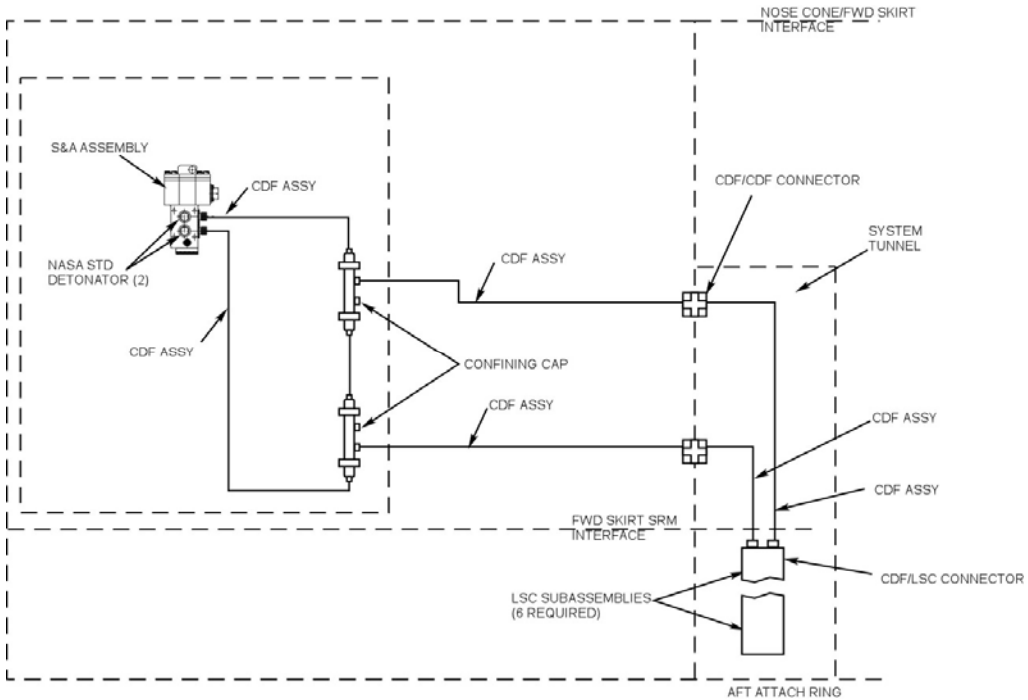

OVERALL VIEW OF RSS PANEL

# Range Safety Panel No. 1

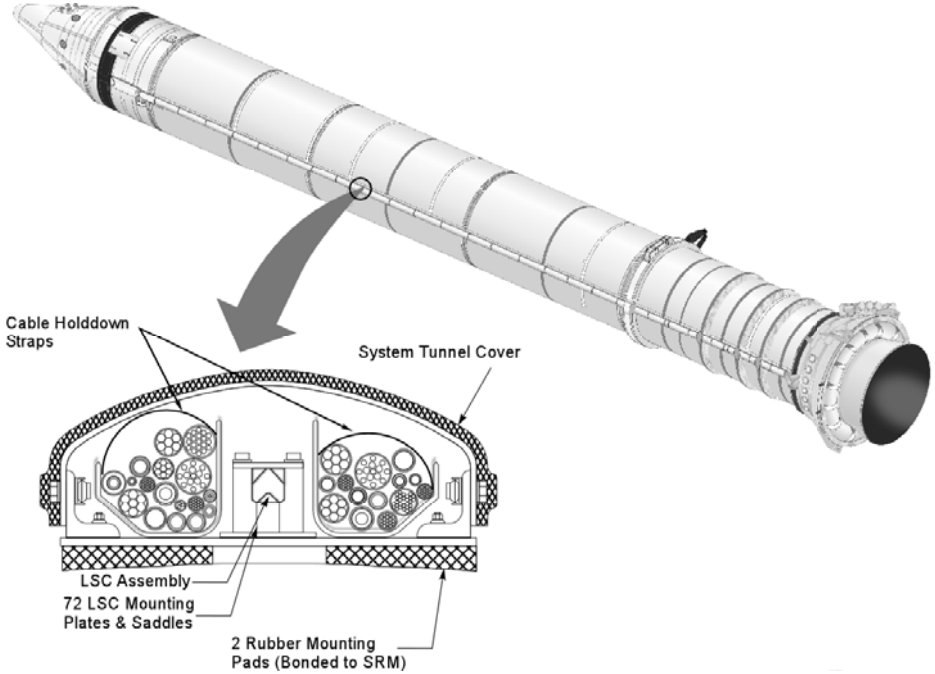


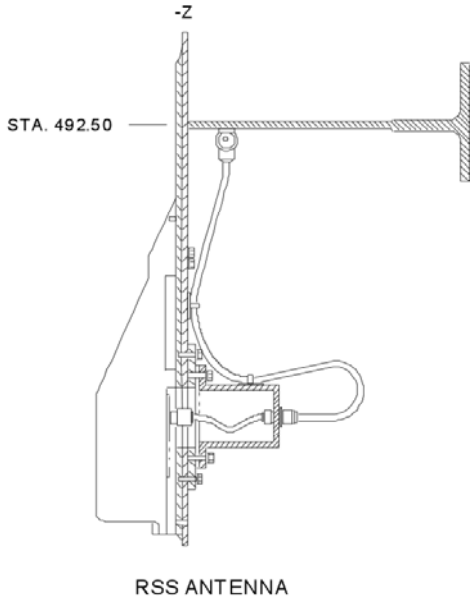
CABLE RACK INSTALLATION

# Range Safety Subsystem Panel No. 2 Forward Skirt

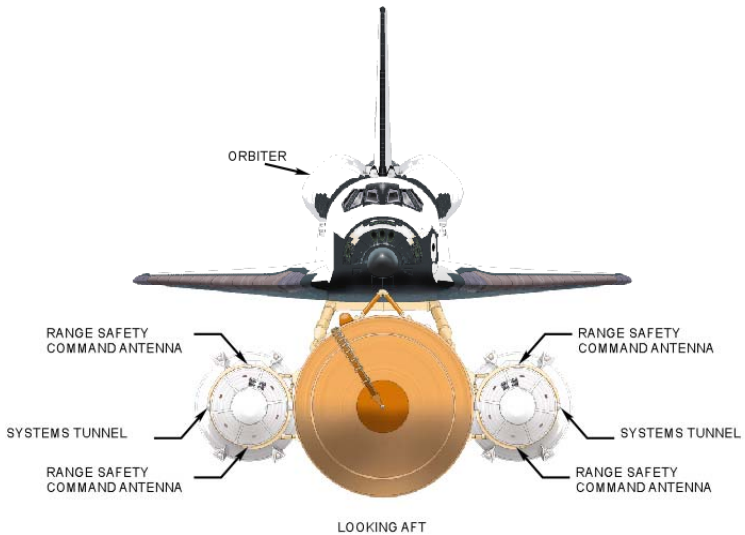


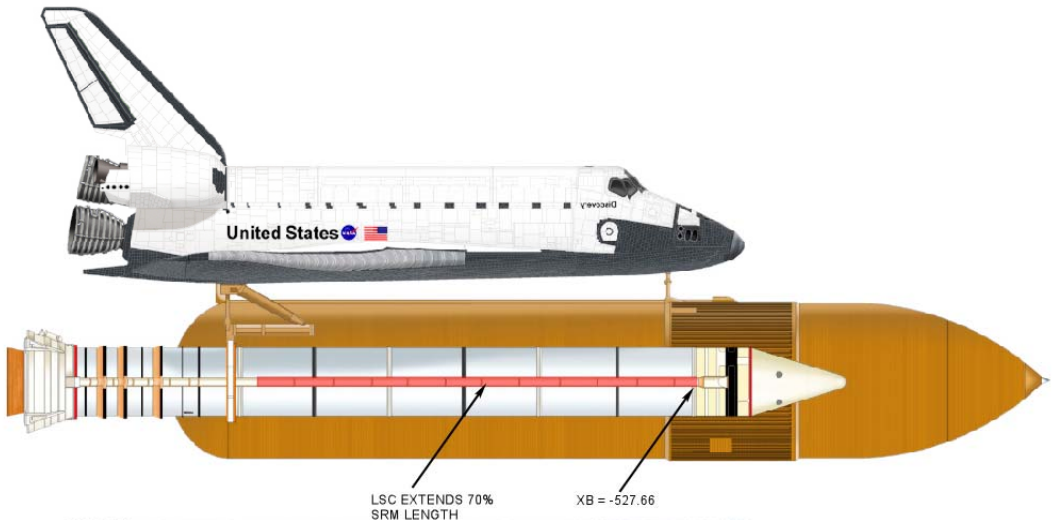

SRB RSS Ordnance Components




SRB Range Safety Command Destruct Subsystem

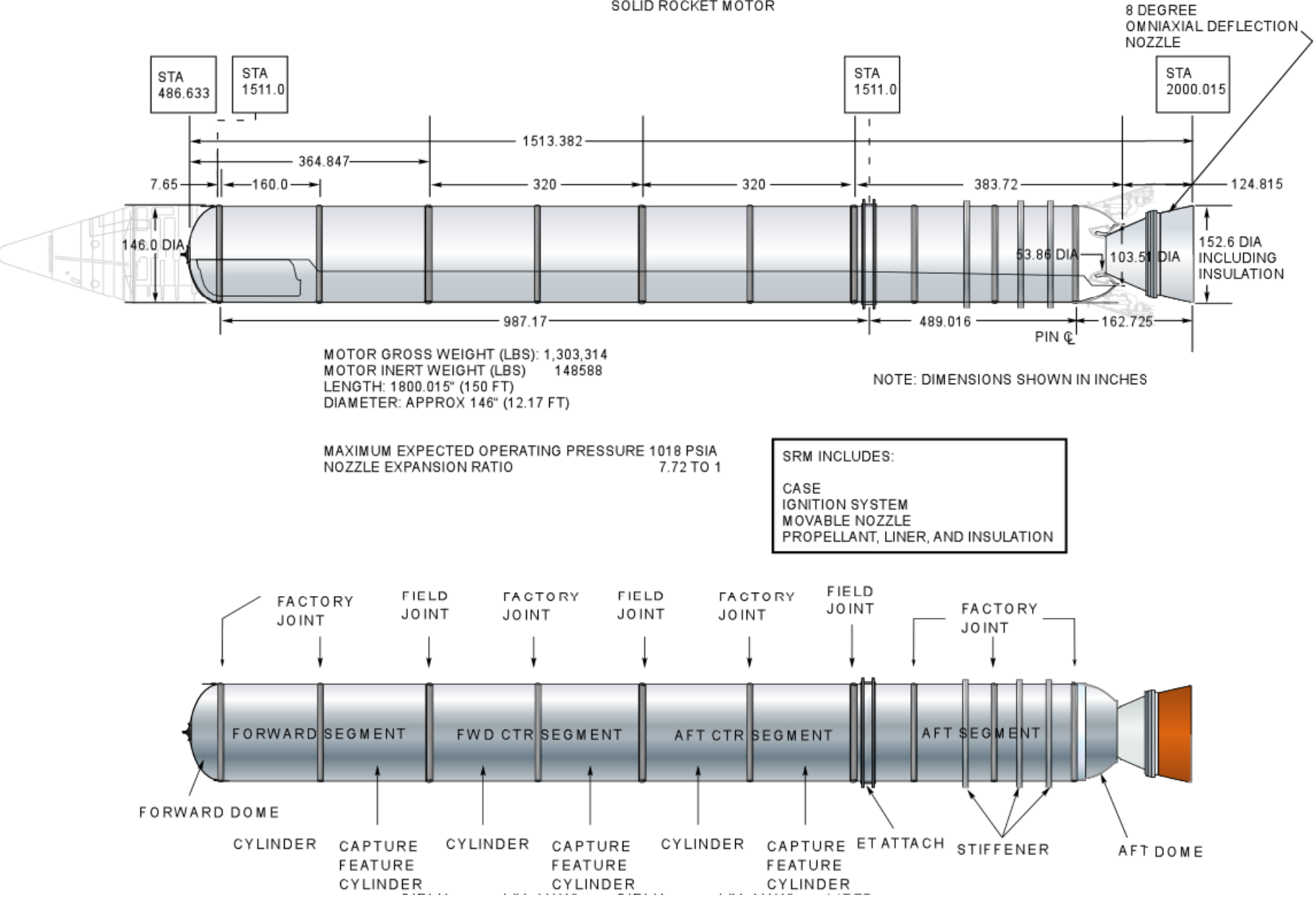


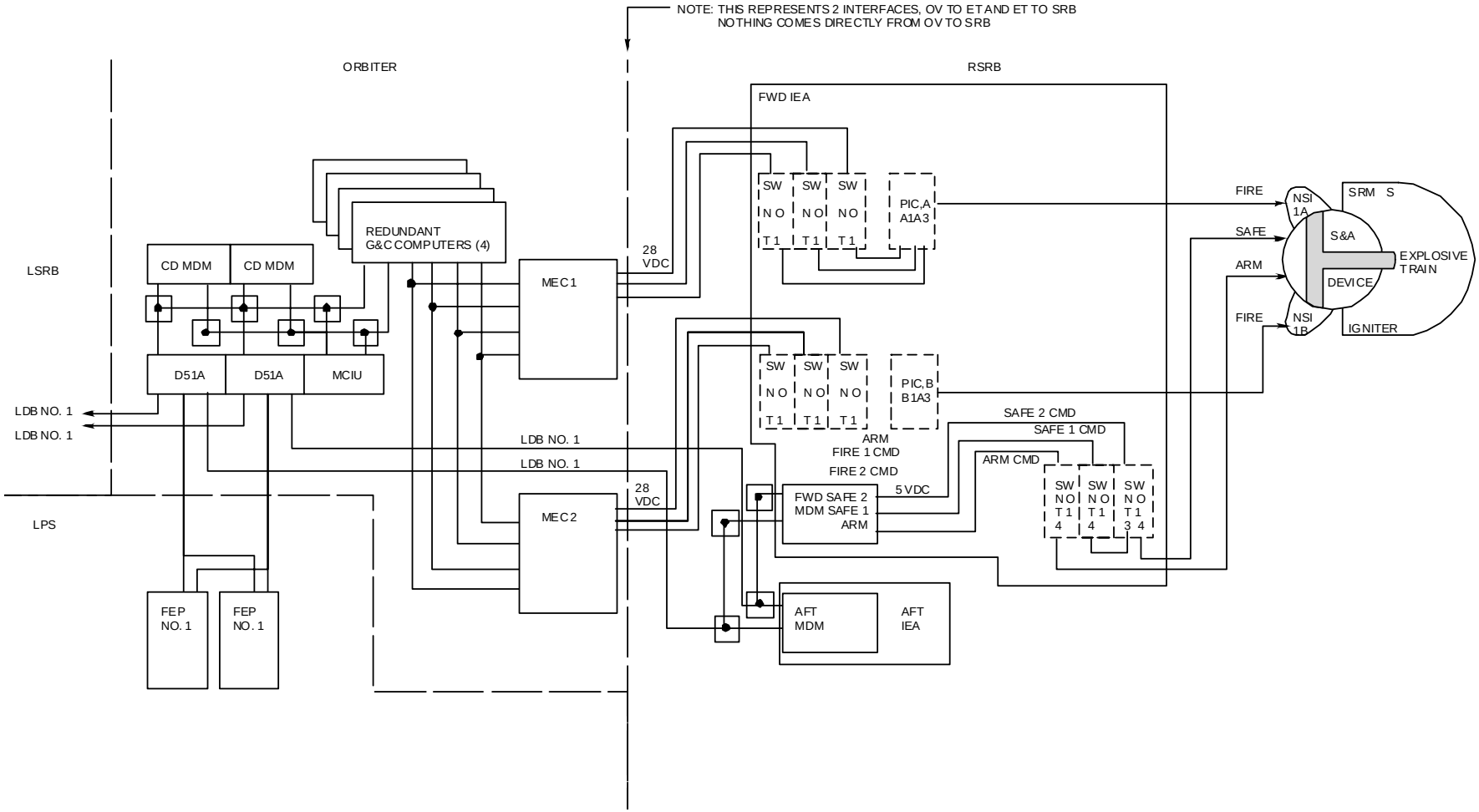

RSS Antenna Locations

# Re-Useable Solid Rocket Motor (RSRM)

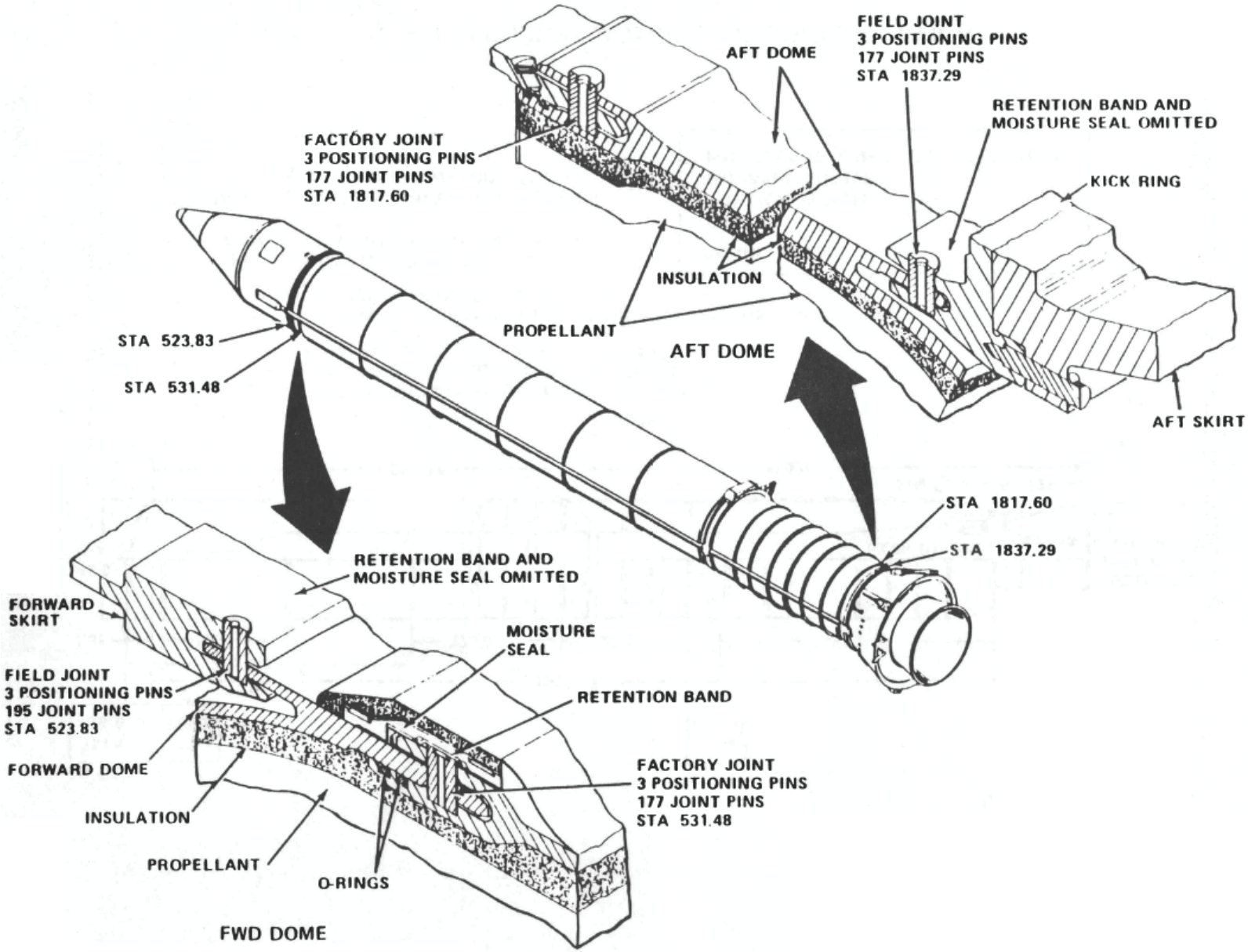
The Reuseable Solid Rocket Motor (RSRM) information is being provided here for reference only and is not part of the SRB Project.




Solid Rocket Motor Configuration

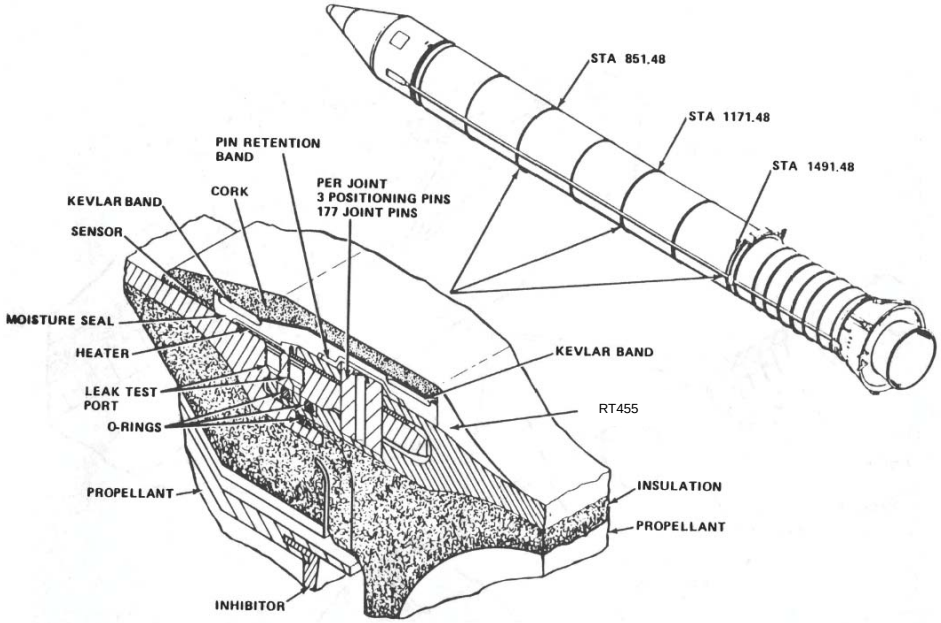



# SRB Ignition Functional Circuits

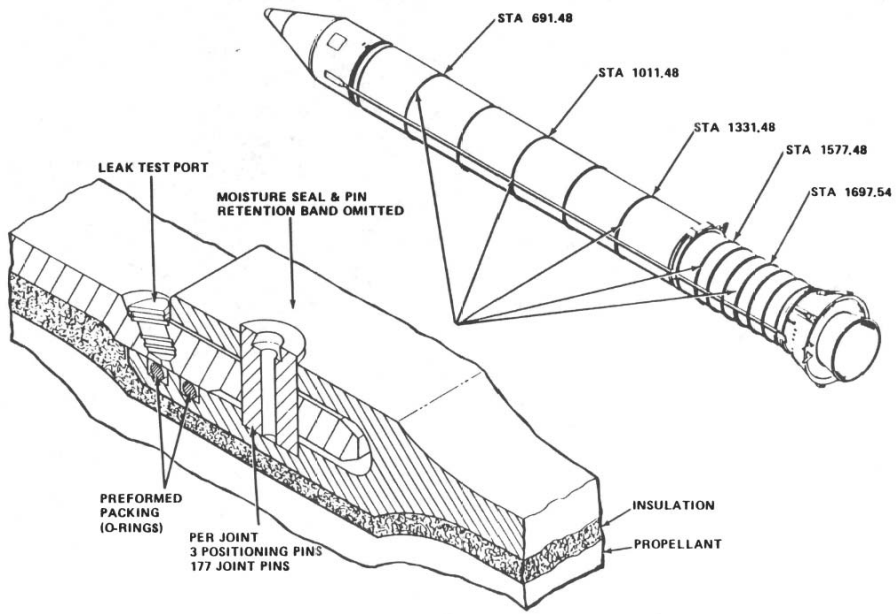



SRB SRM DOME JOINTS

SRB Dome Joints

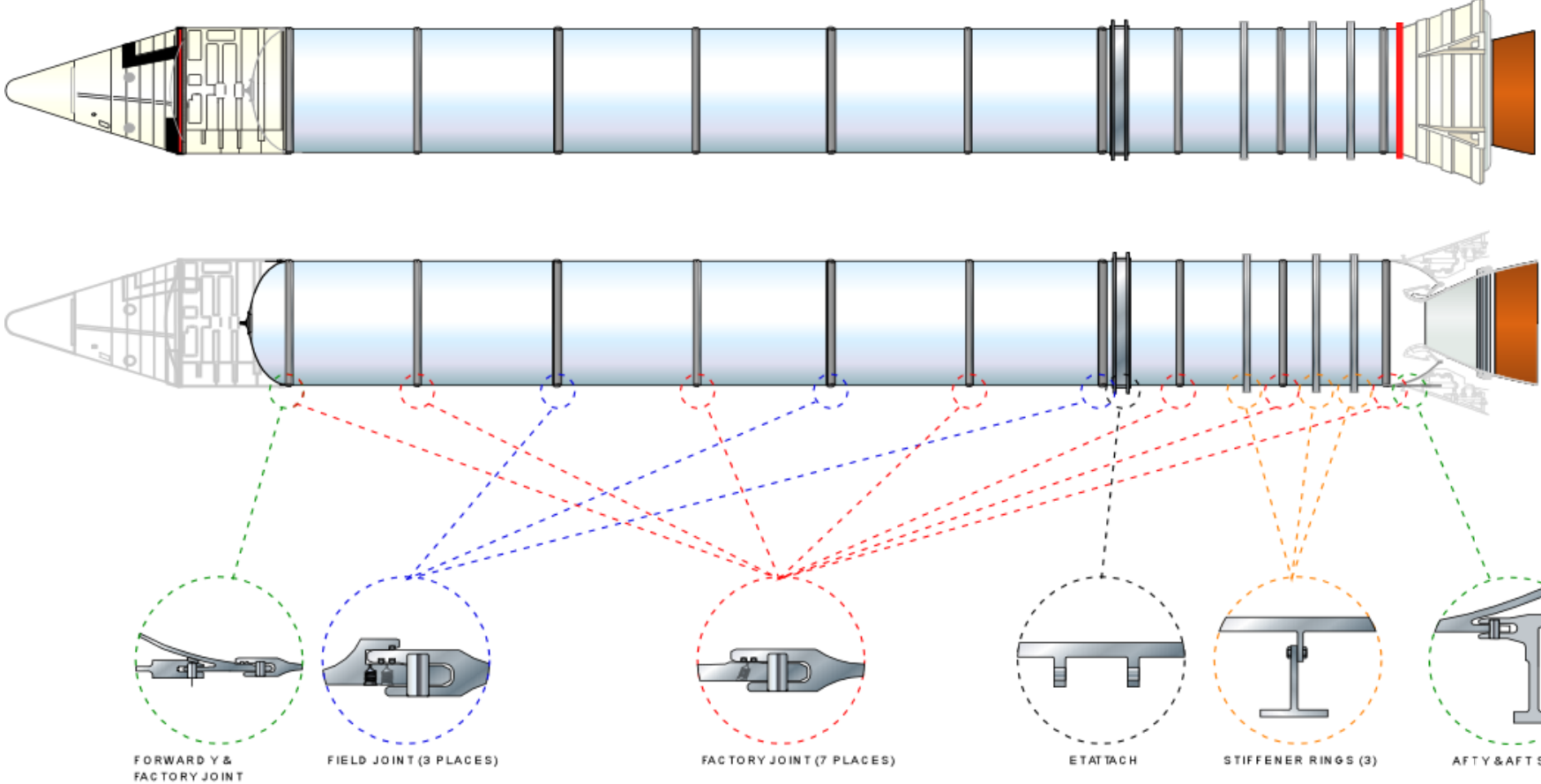


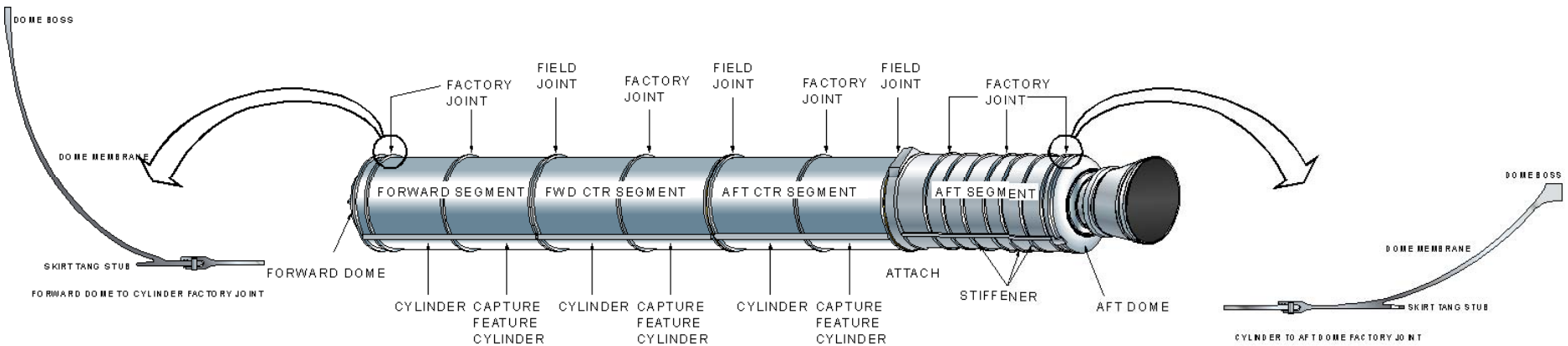

SRB SRM FIELD JOINTS (CYLINDRICAL SEGMENTS)



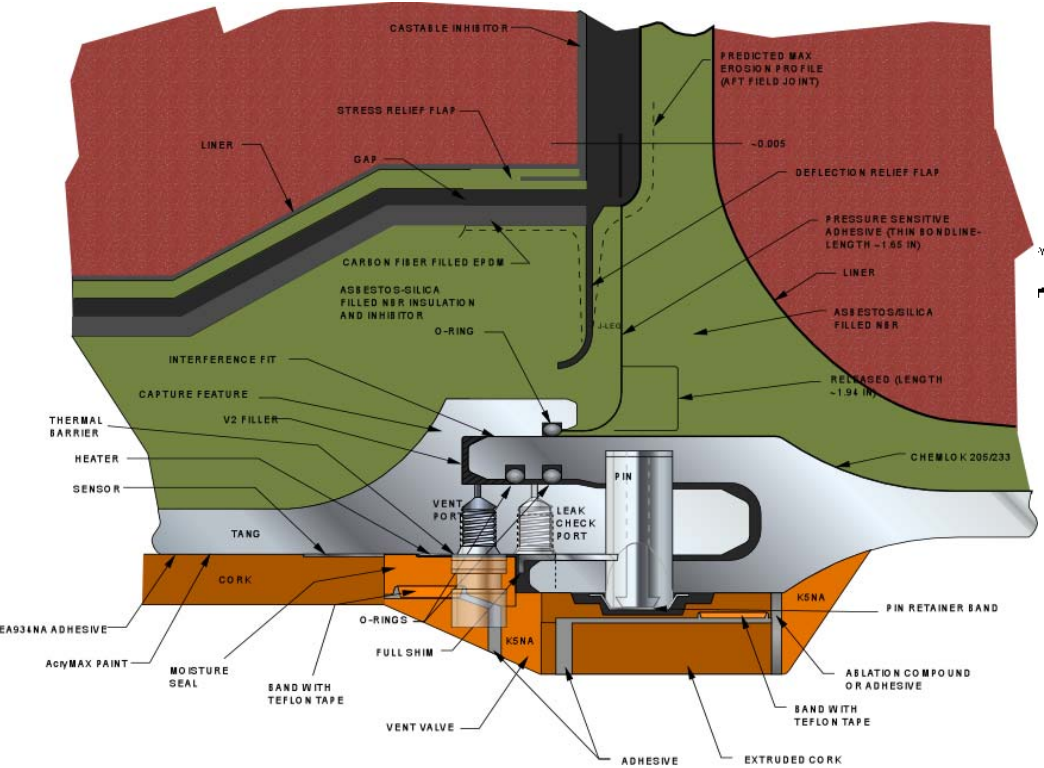

SRB SRM FACTORY JOINTS (CYLINDRICAL SEGMENTS)

# SRB Field and Factory Joints

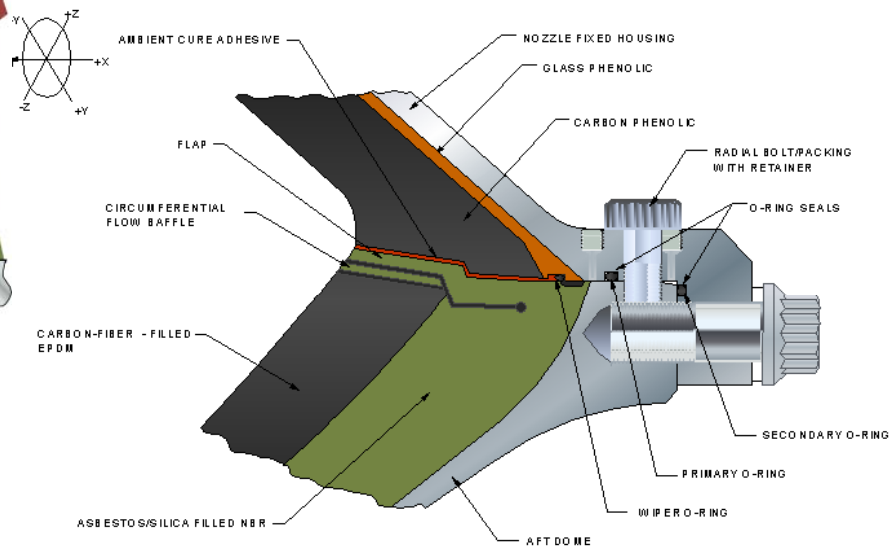


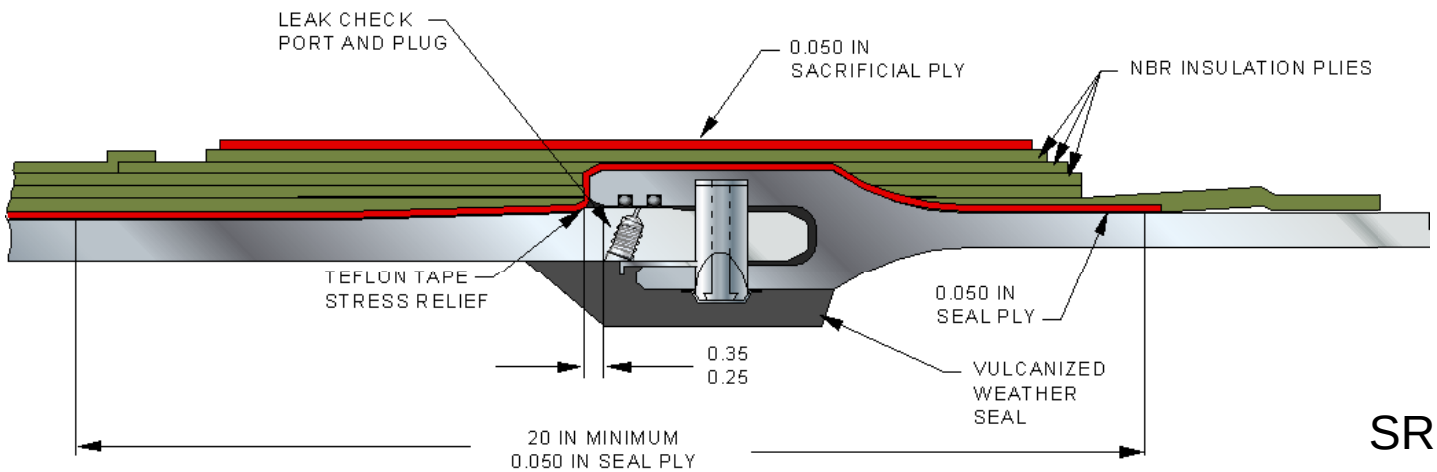

# SRB Joint Locations




FIELD JOINT (3)
AND PROTECTION SYSTEM

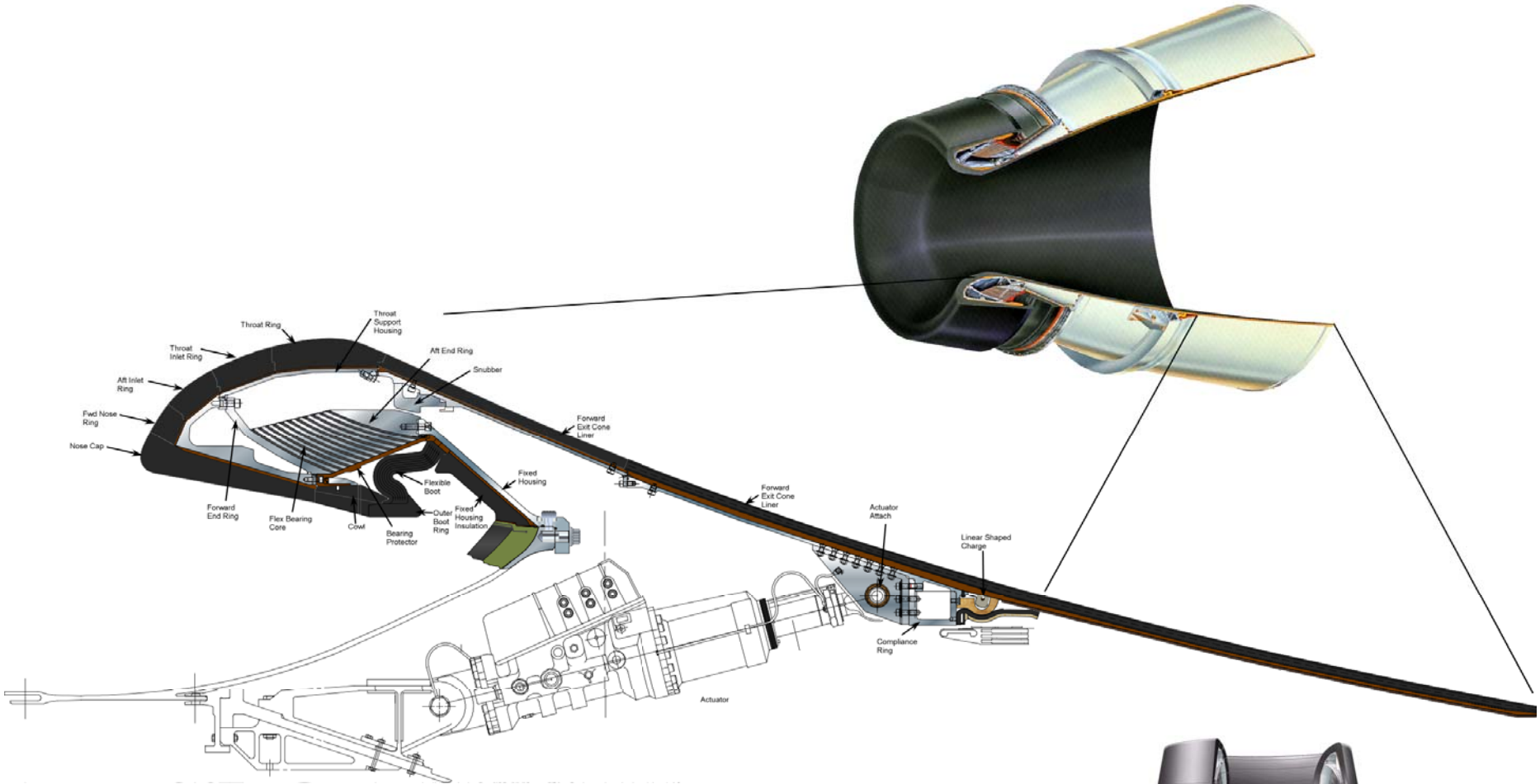


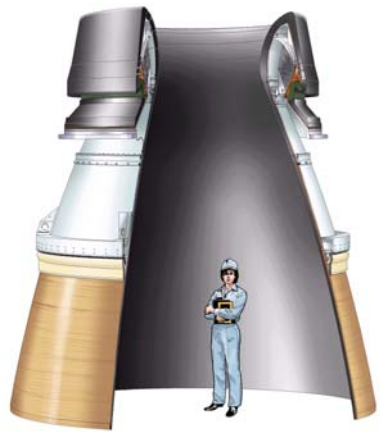

ASSEMBLED RSRM CASE TO NOZZLE JOINT



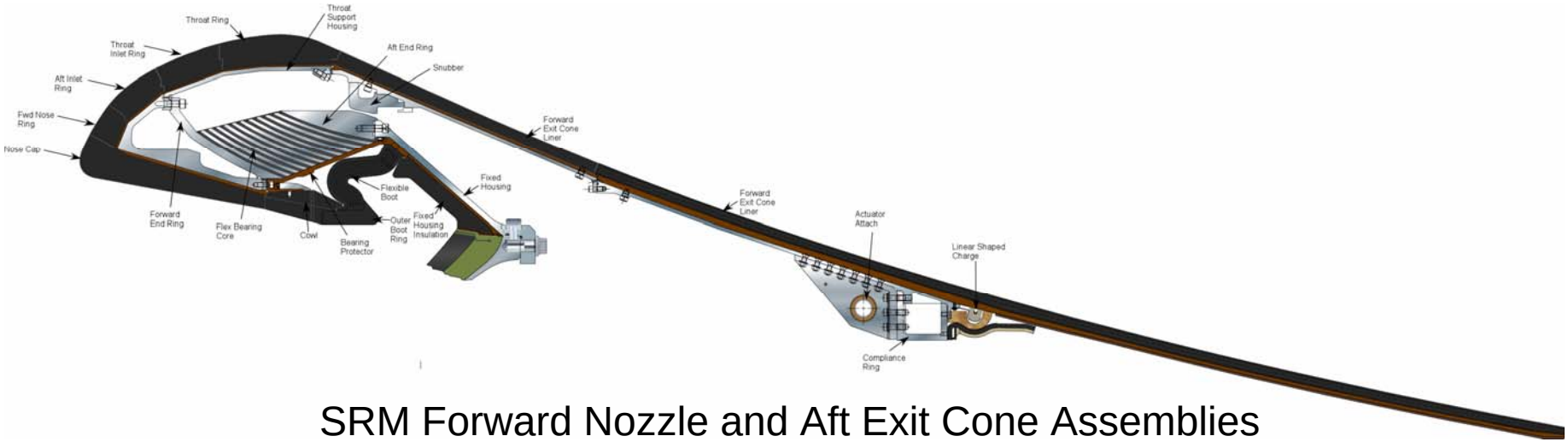

FACTORY JOINT (7)

SRB Joint Details

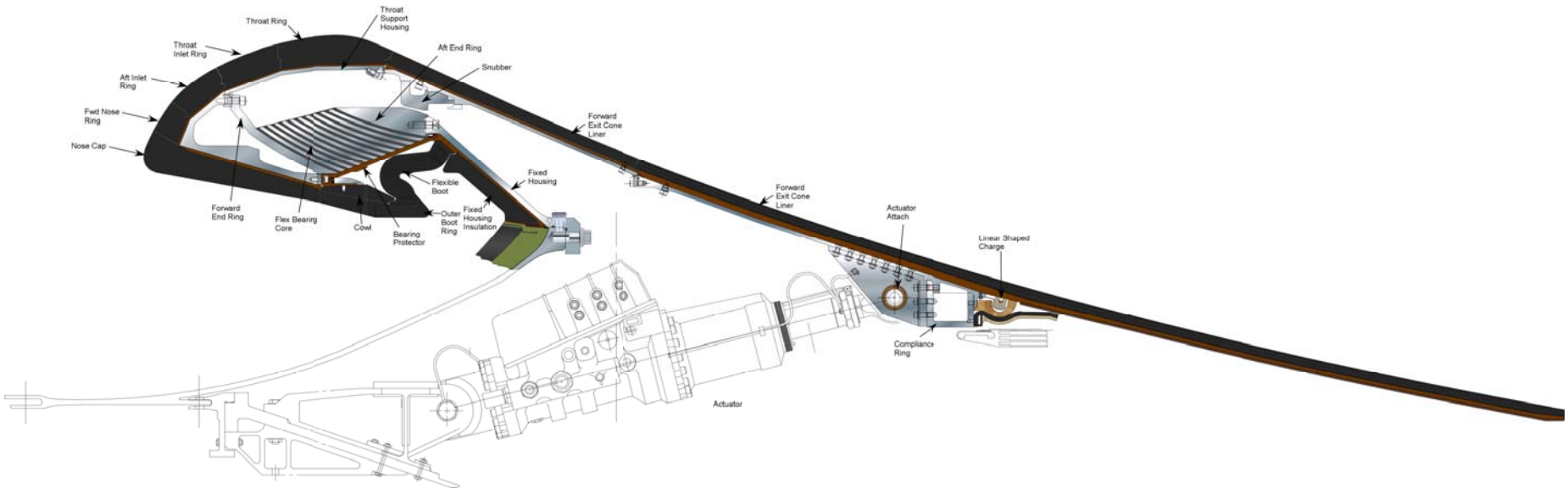


SRM Nozzle Assembly showing cutaway

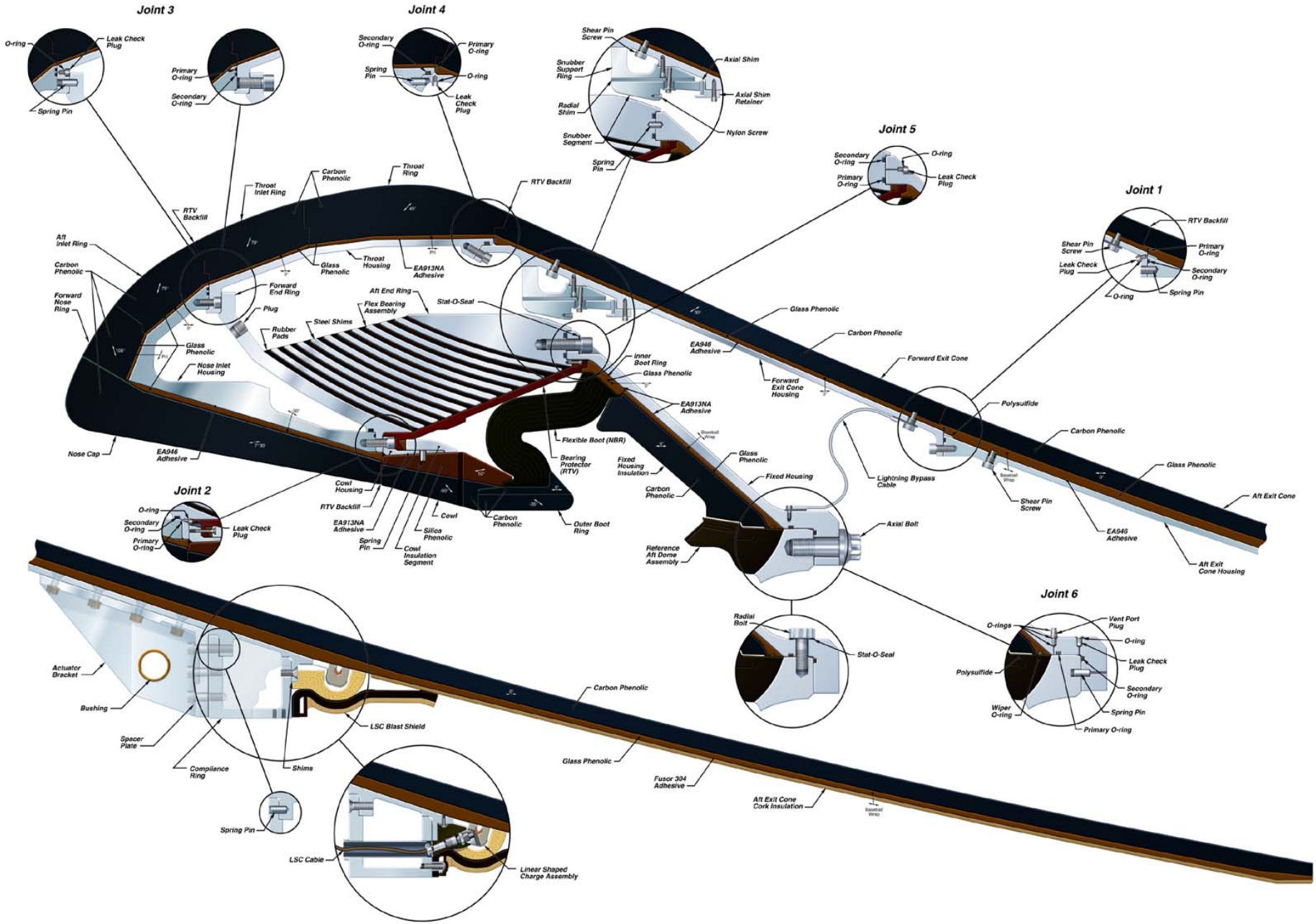



SRM Forward Nozzle and Aft Exit Cone Assemblies

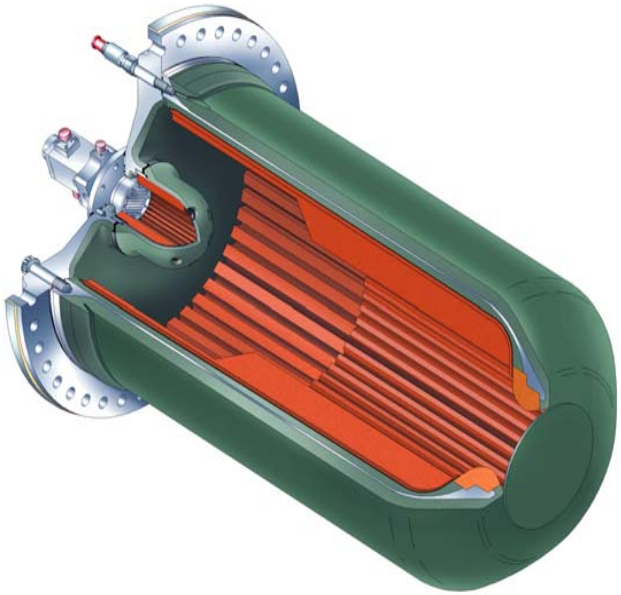


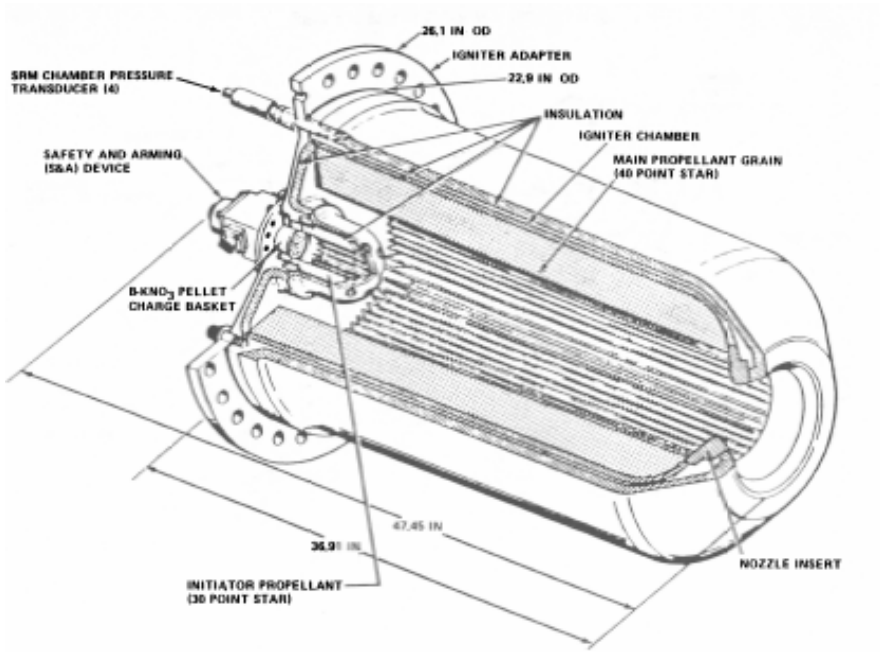

SRM Nozzle Showing Actuator Connection and Aft Dome Joint


SRM Nozzle Showing Five Joints

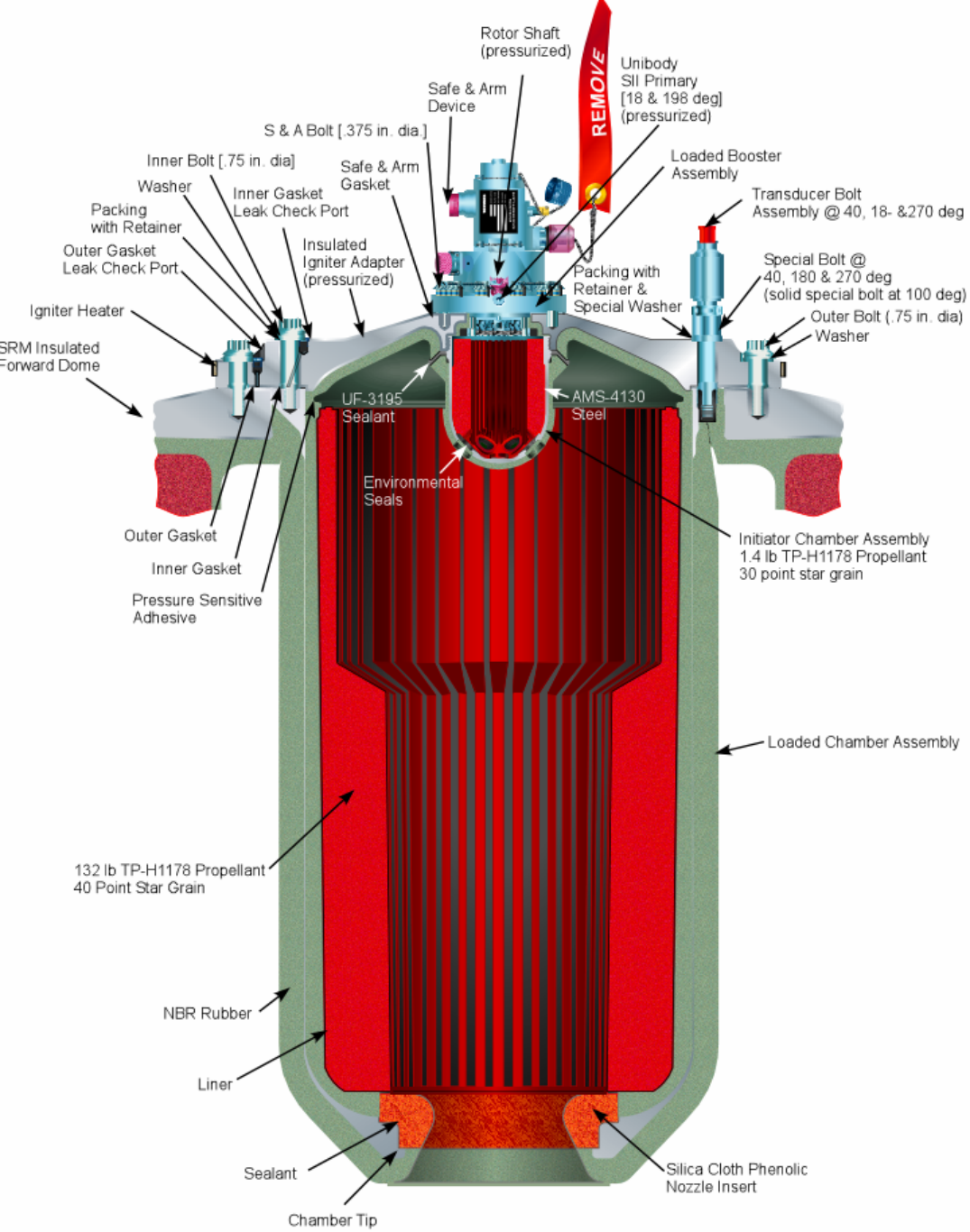


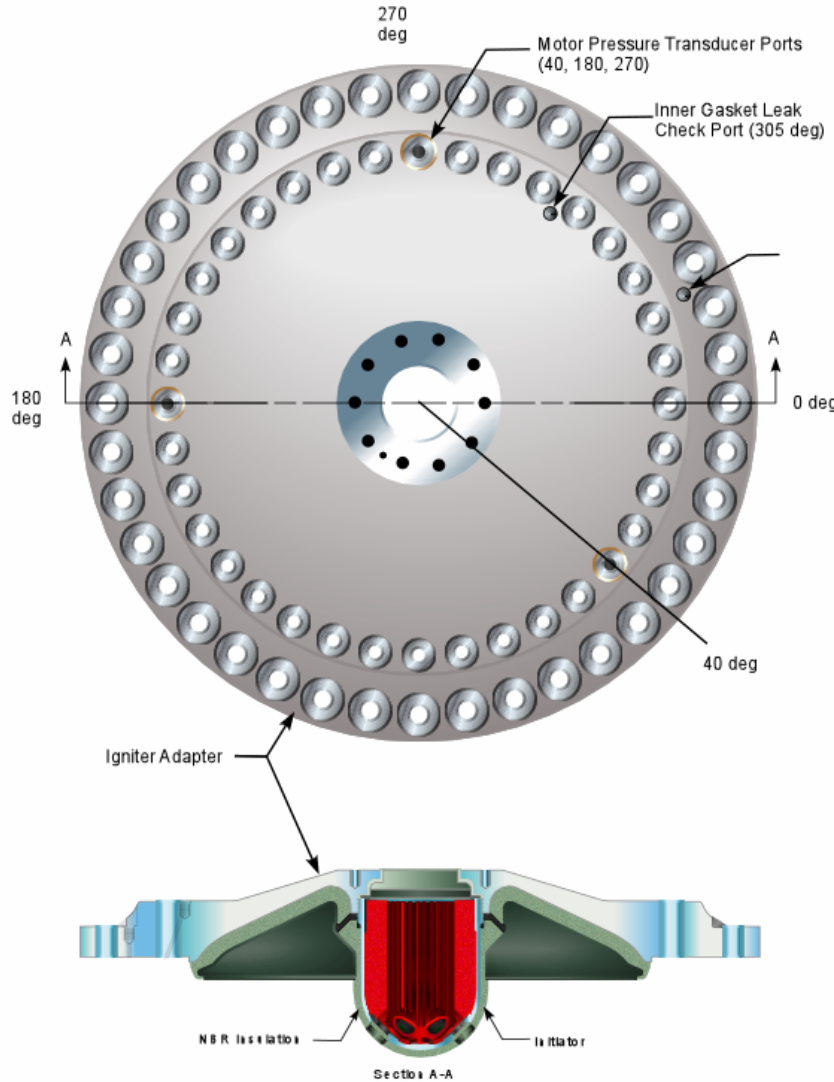

SRM Nozzle Showing Joints and Details



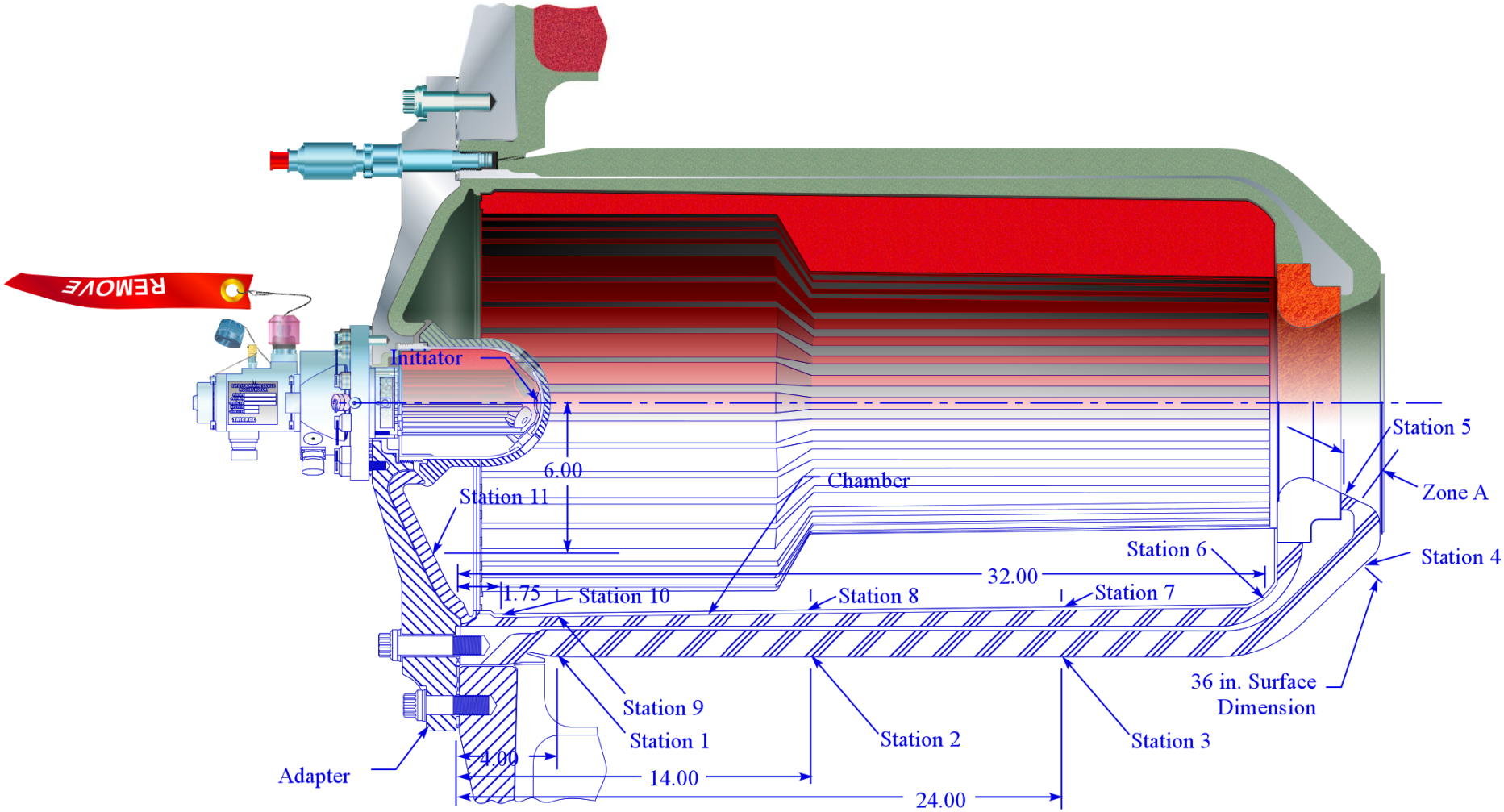



SRM Ignition Subsystem S&A Device Orthogonal View

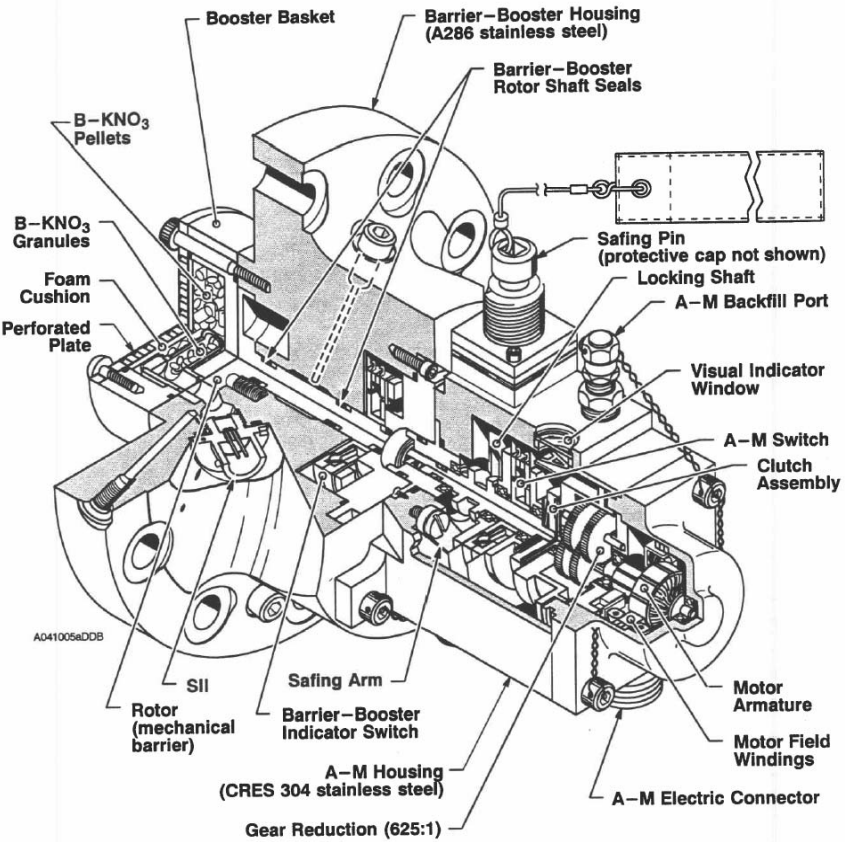


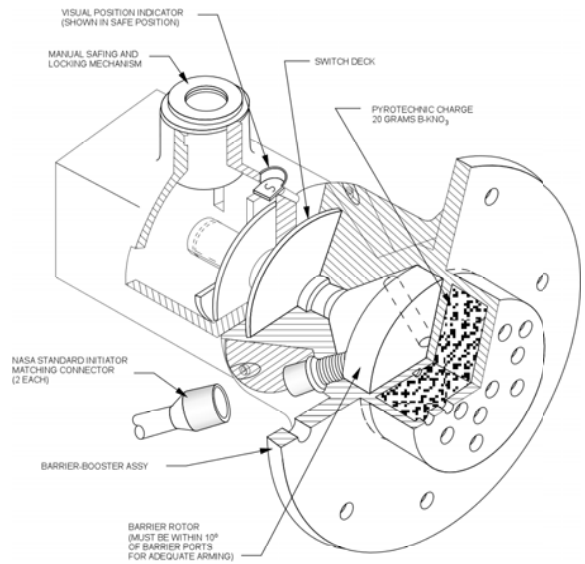




IGNITION SYSTEM COMPONENTS

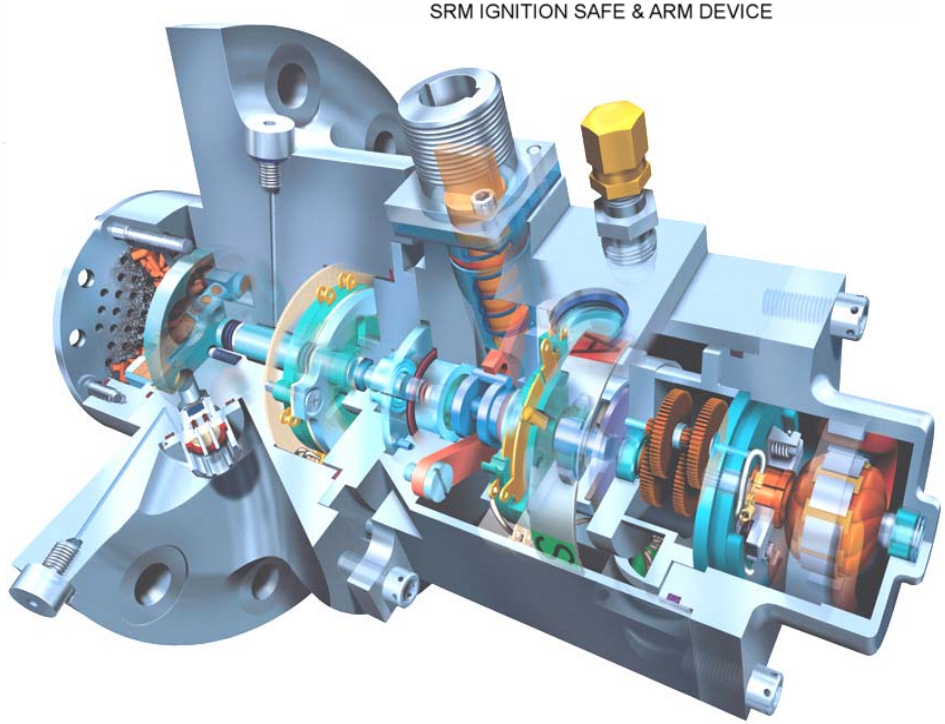

REMOVE
Initiator
6.00
Station 11
Chamber
Station 5
Zone A
Station 4
Station 6
32.00
1.75
Station 10
Station 8
Station 7
Station 9
Station 1
Station 2
Station 3
36 in. Surface
Dimension
Adapter
4.00
14.00
24.00

SRM Igniter

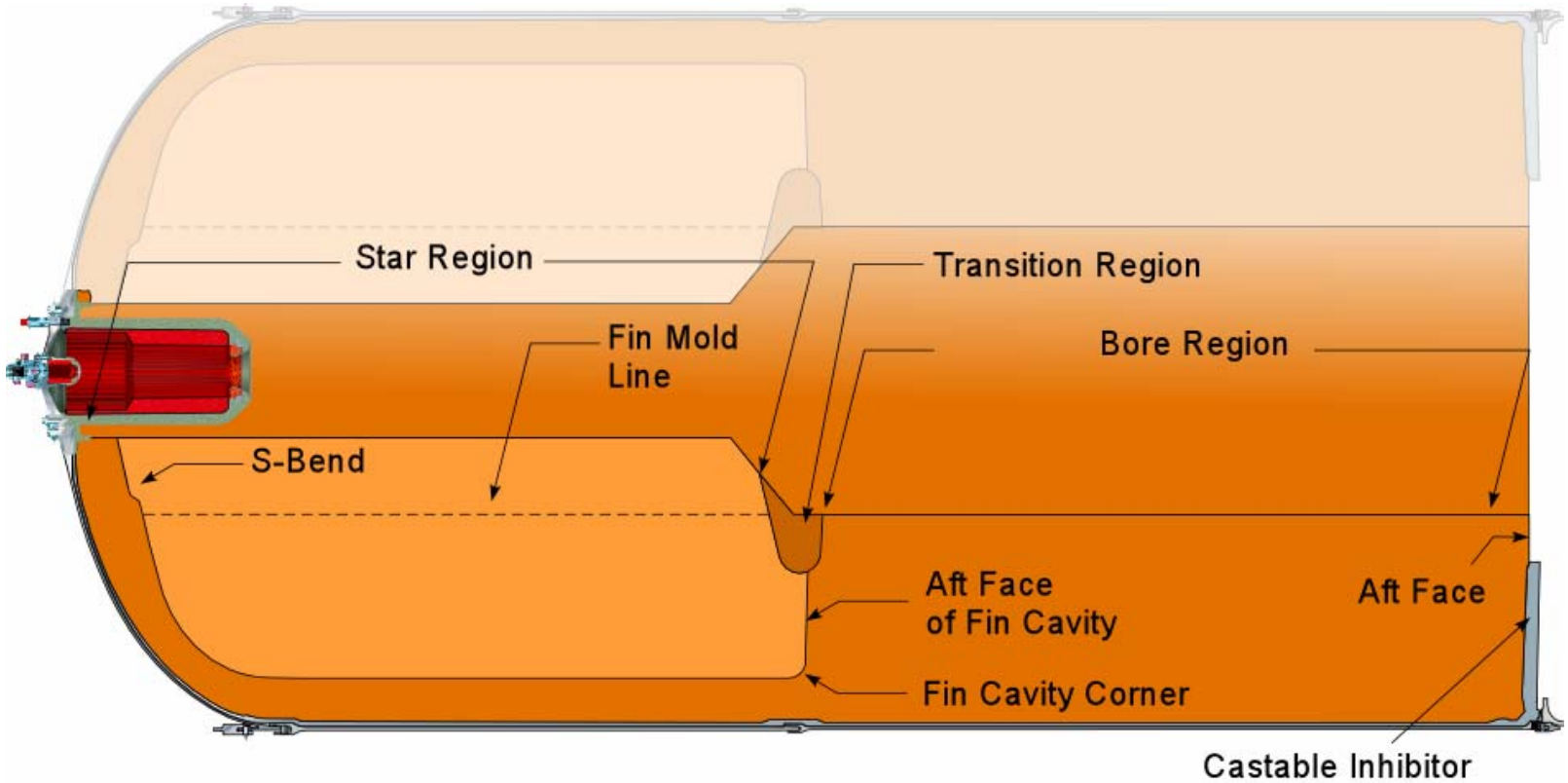



SRM IGNITION SAFE & ARM DEVICE



SRM Ignition S&A Device




SRM Forward Case Cross Section Showing Star Pattern, S&A, And Igniter

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