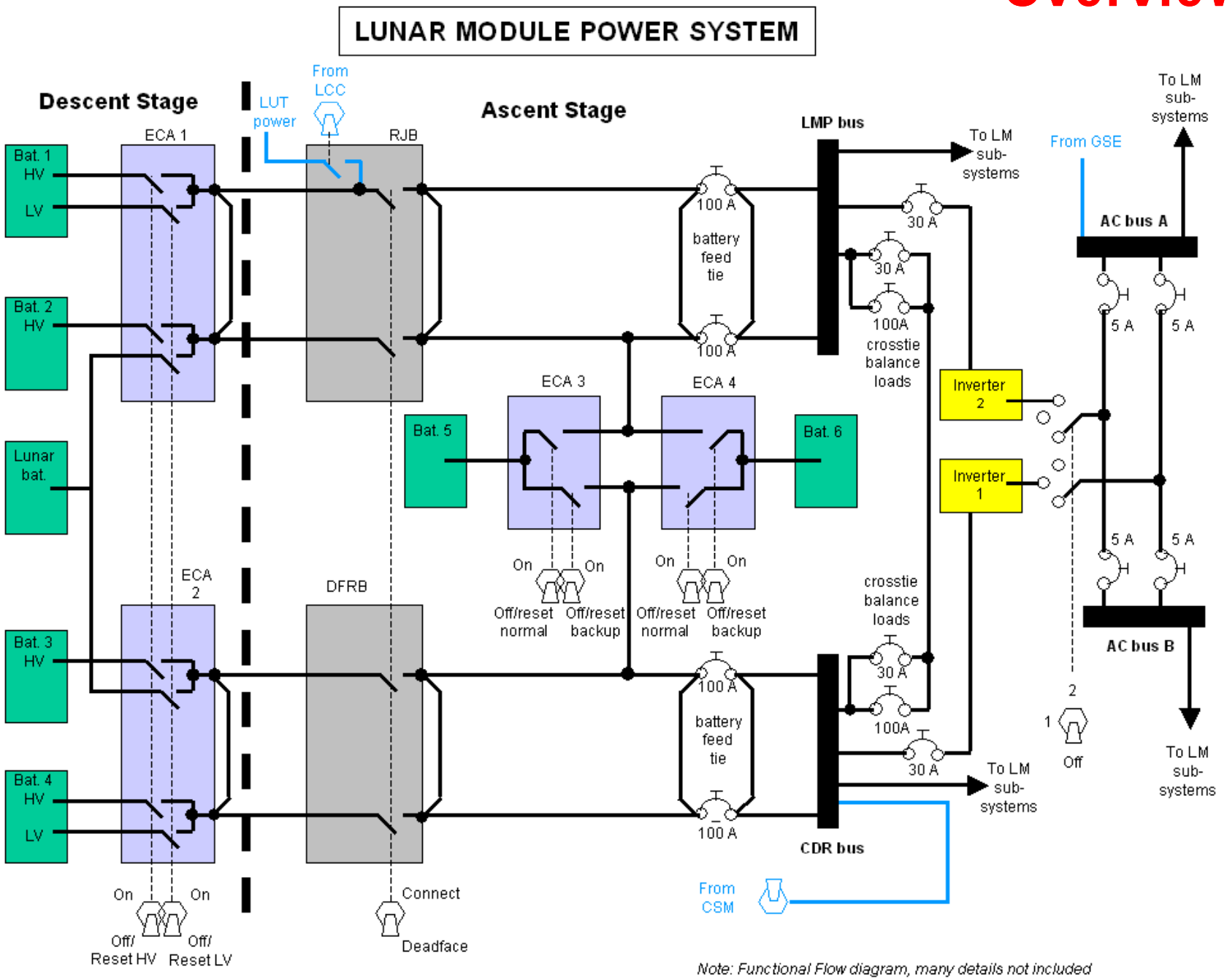
Lunar Module
Electrical Power System
Design Considerations
and Failure Modes

Objectives

- **Explain the redesign considerations**
- **Describe the in-flight failures**
- **Describe the lessons learned**

For detail - view slides under references

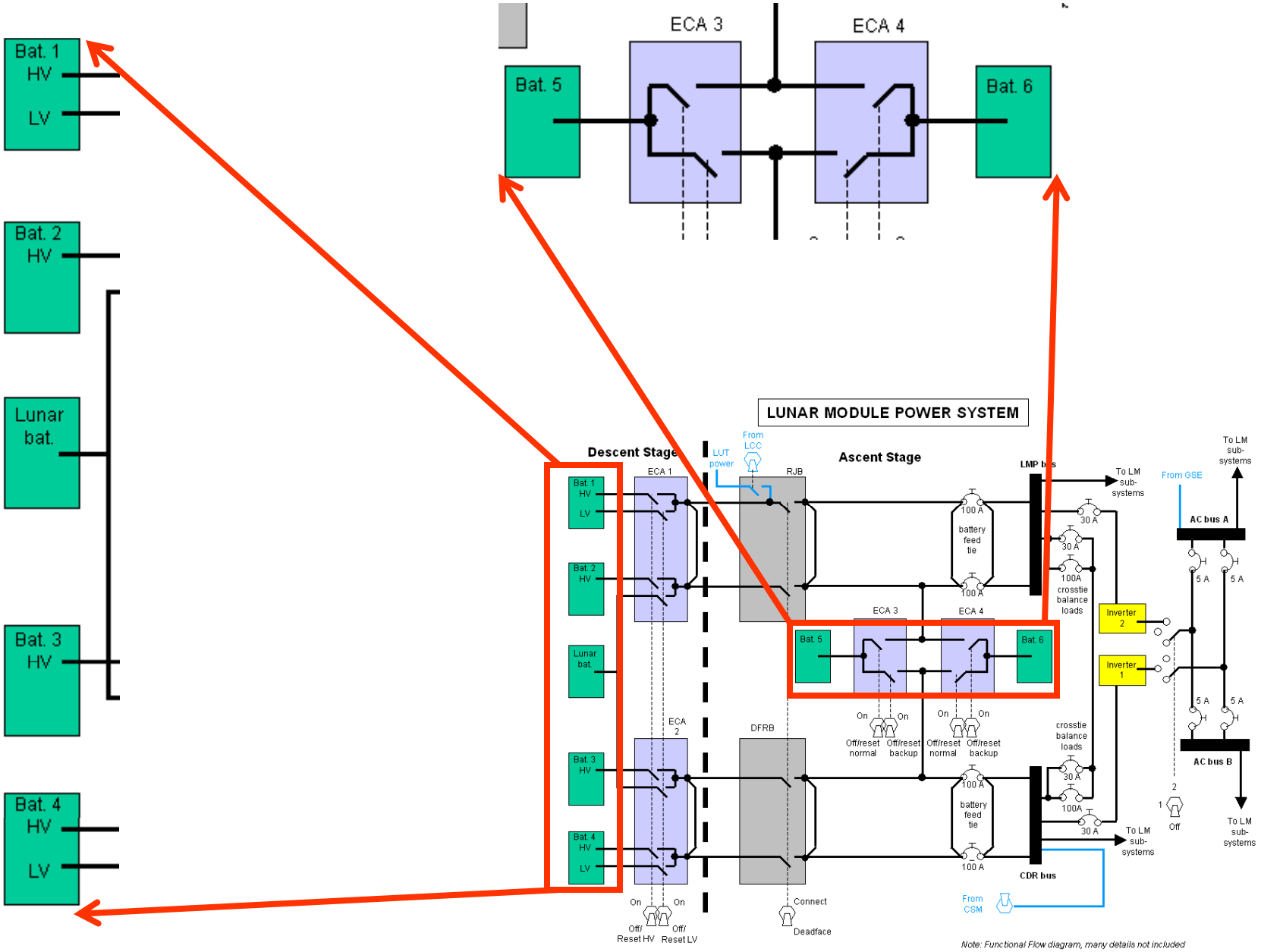
Overview



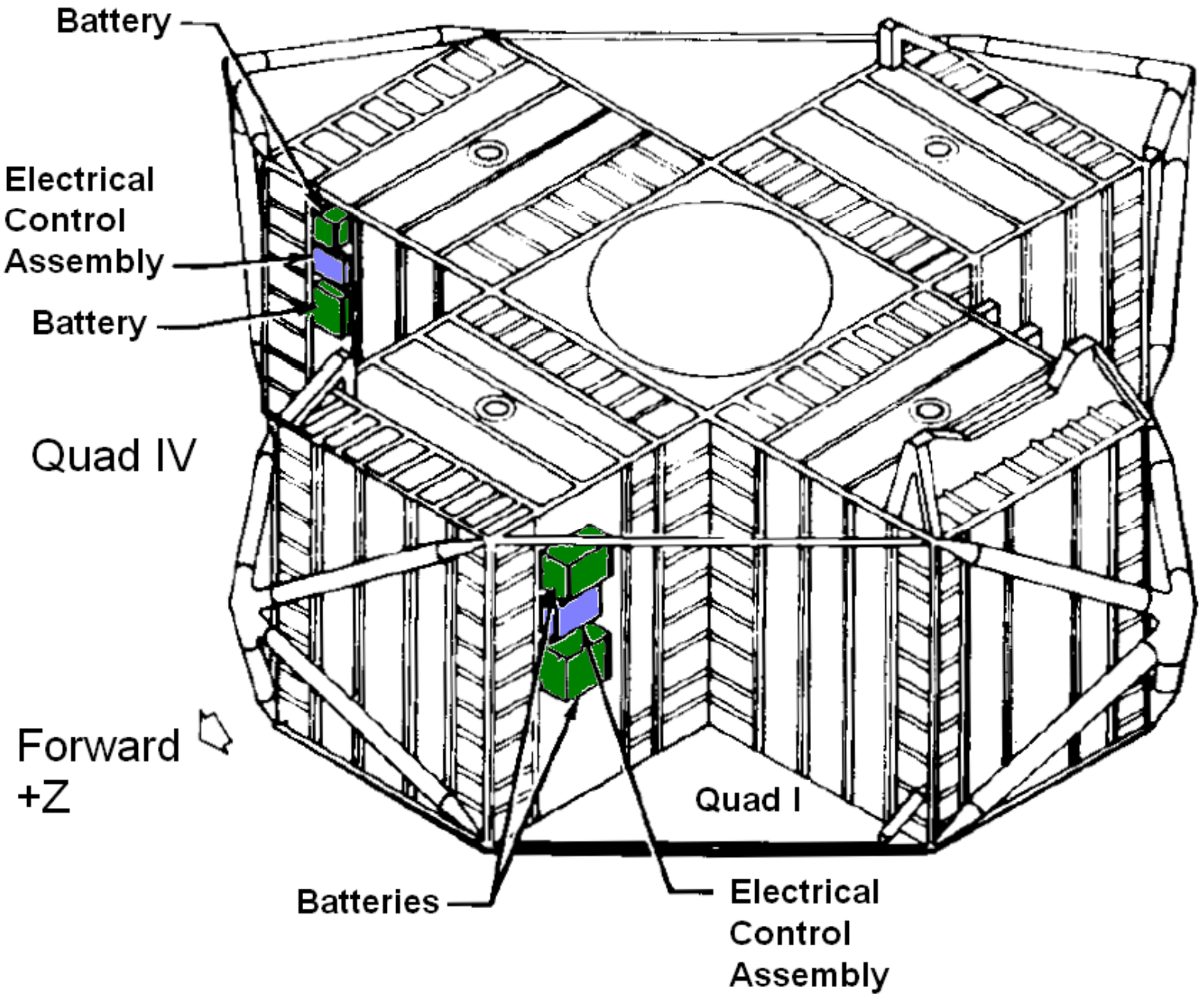
Note: Functional Flow diagram, many details not included

For detail - view slides under references

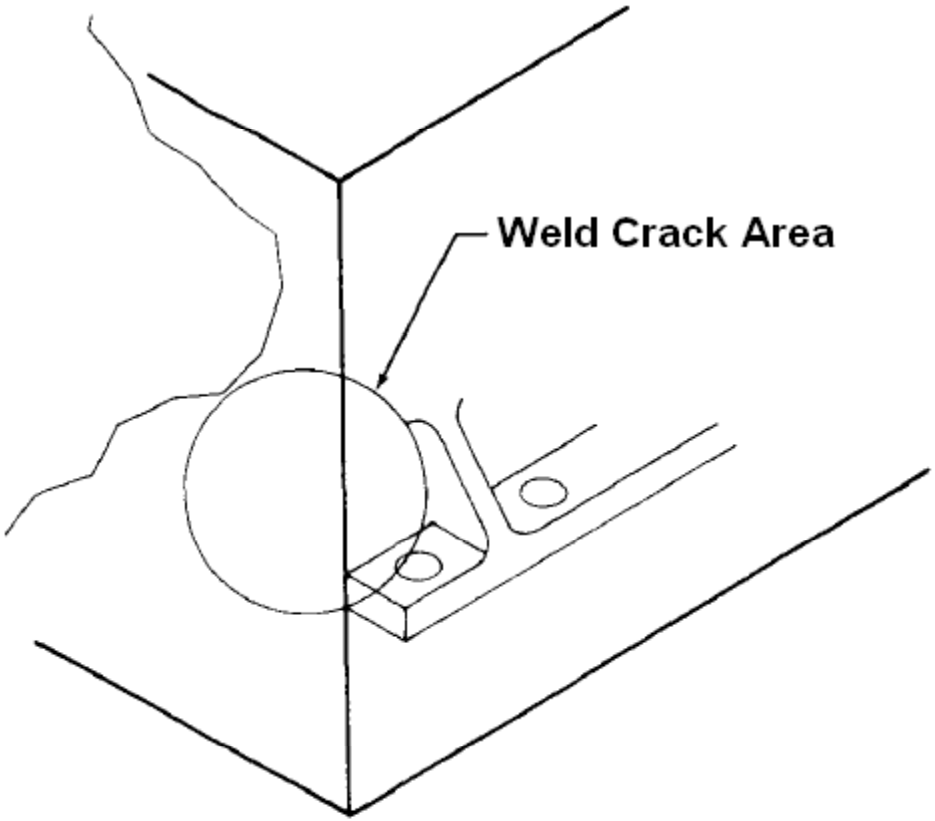
Batteries



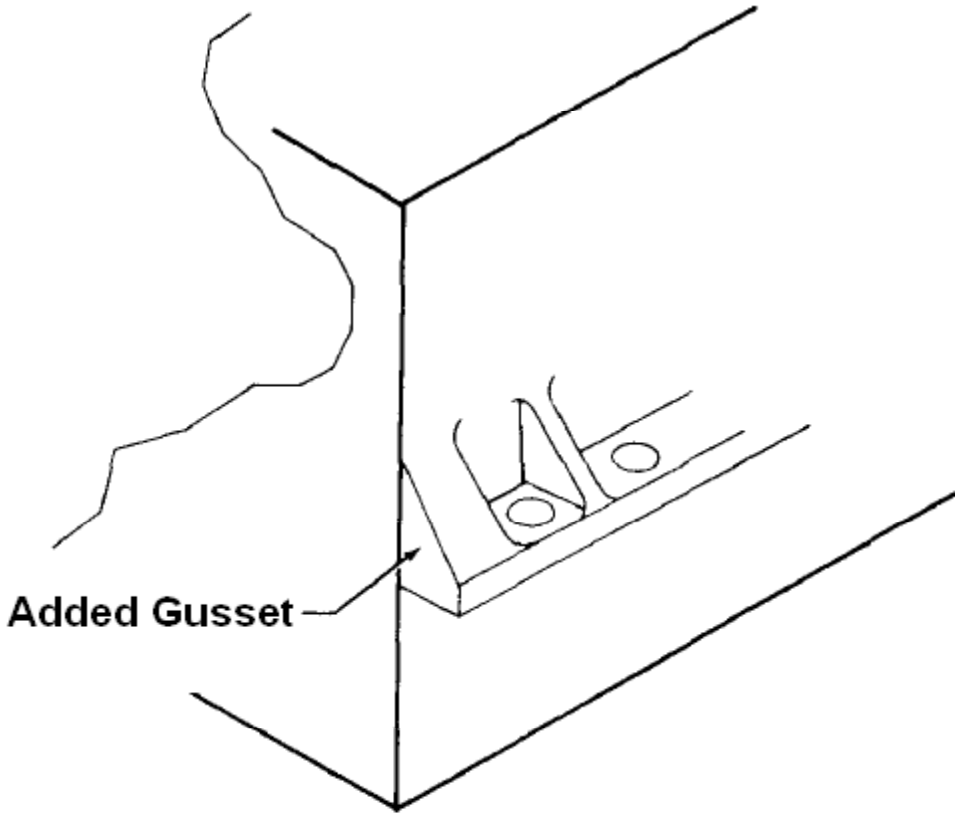
Descent Battery Testing Failures



Weld Cracks

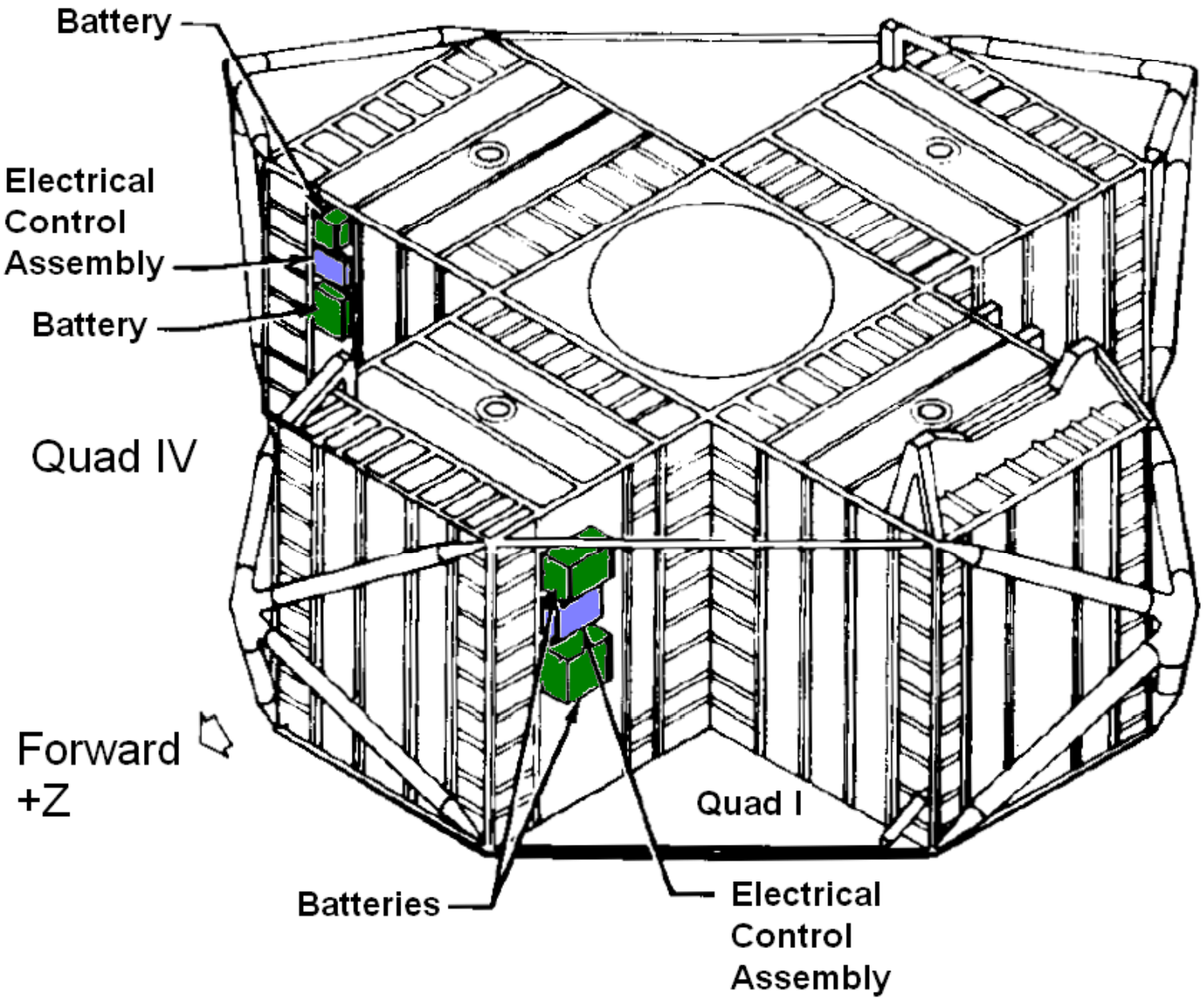


Failure Configuration

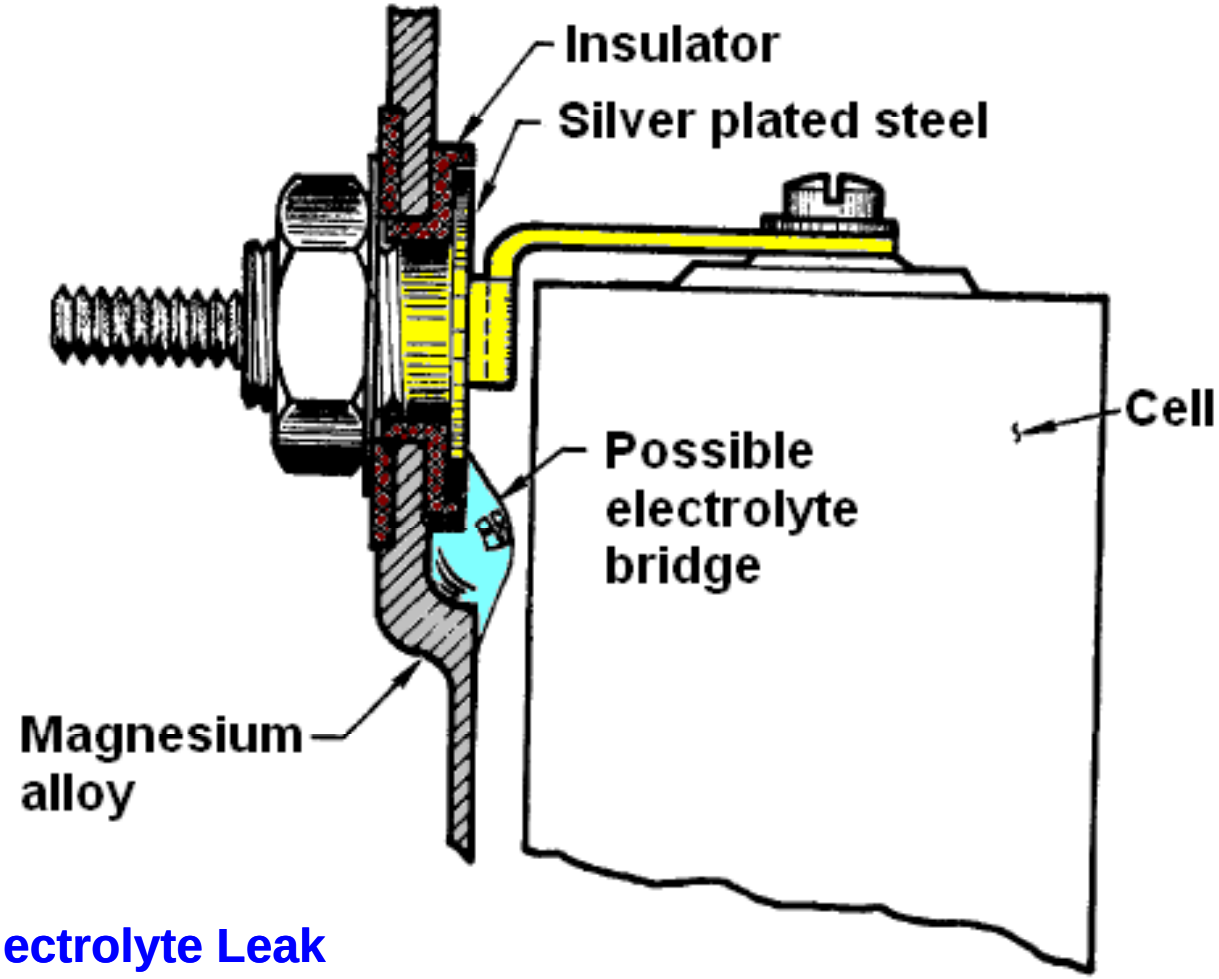


Corrected Configuration

Descent Battery Testing Failures -- Continued

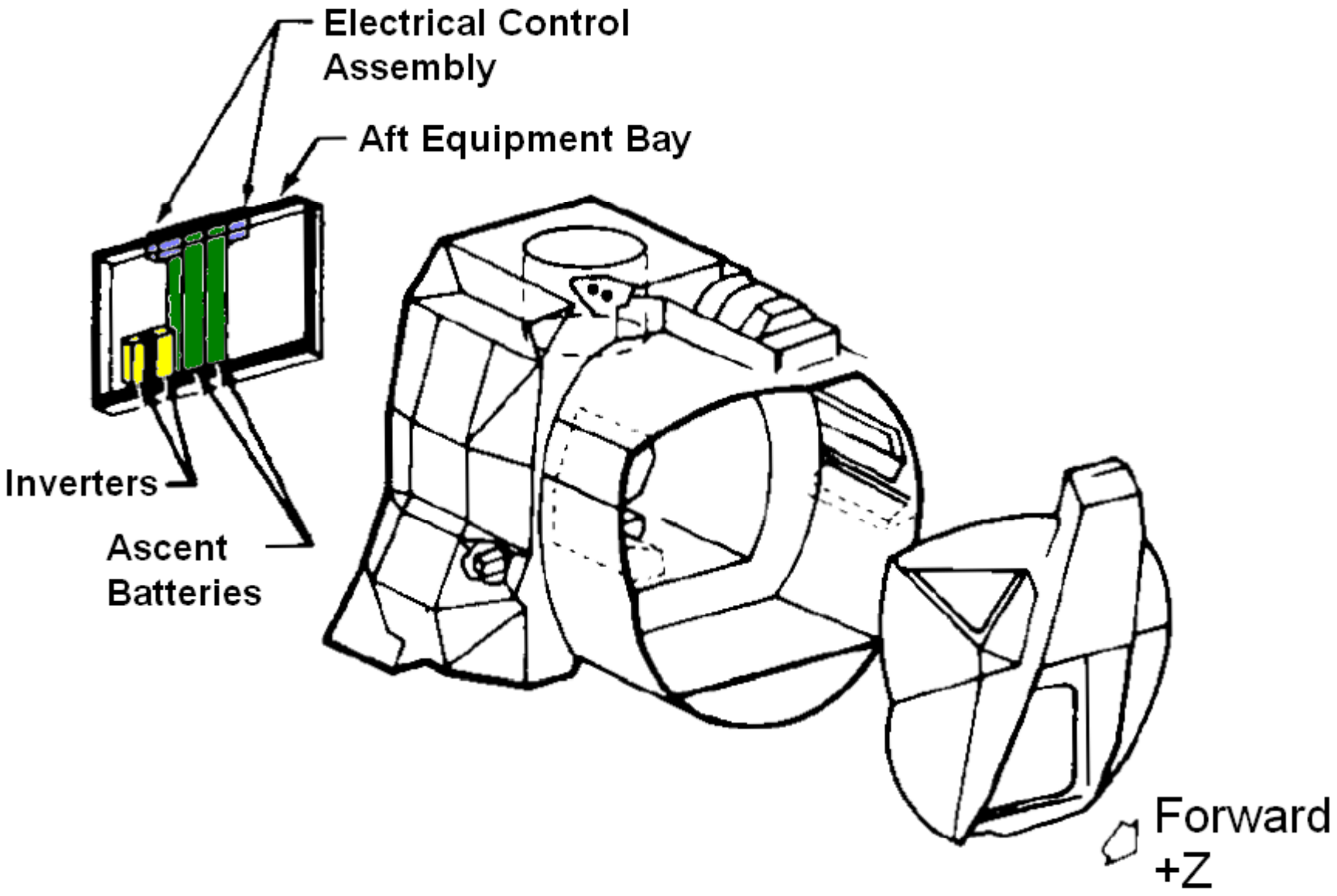


Descent Batteries In-Flight Failures

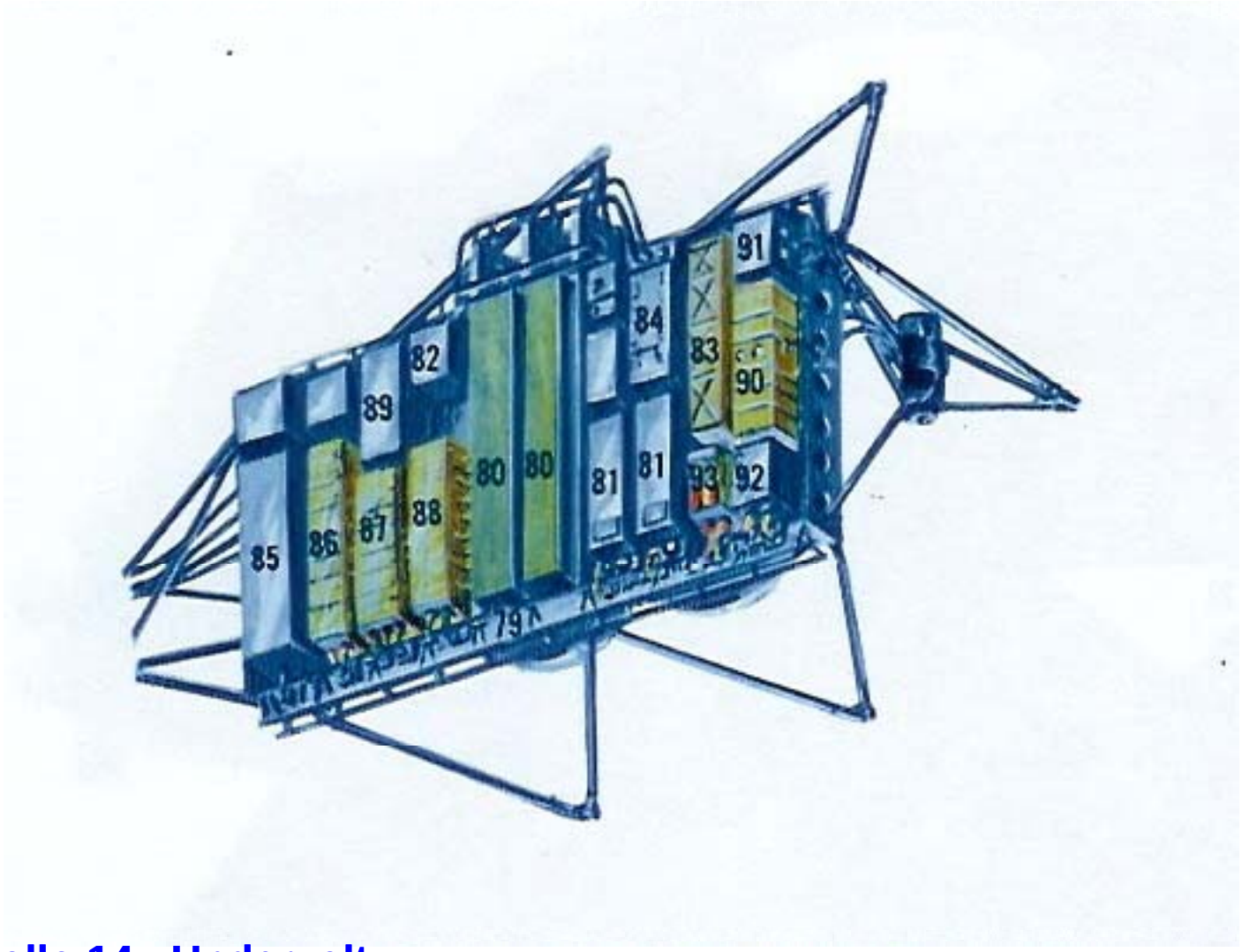


- **Apollo 13: Electrolyte Leak**
- **Apollo 17: Transducer**

Ascent Battery Testing Failures

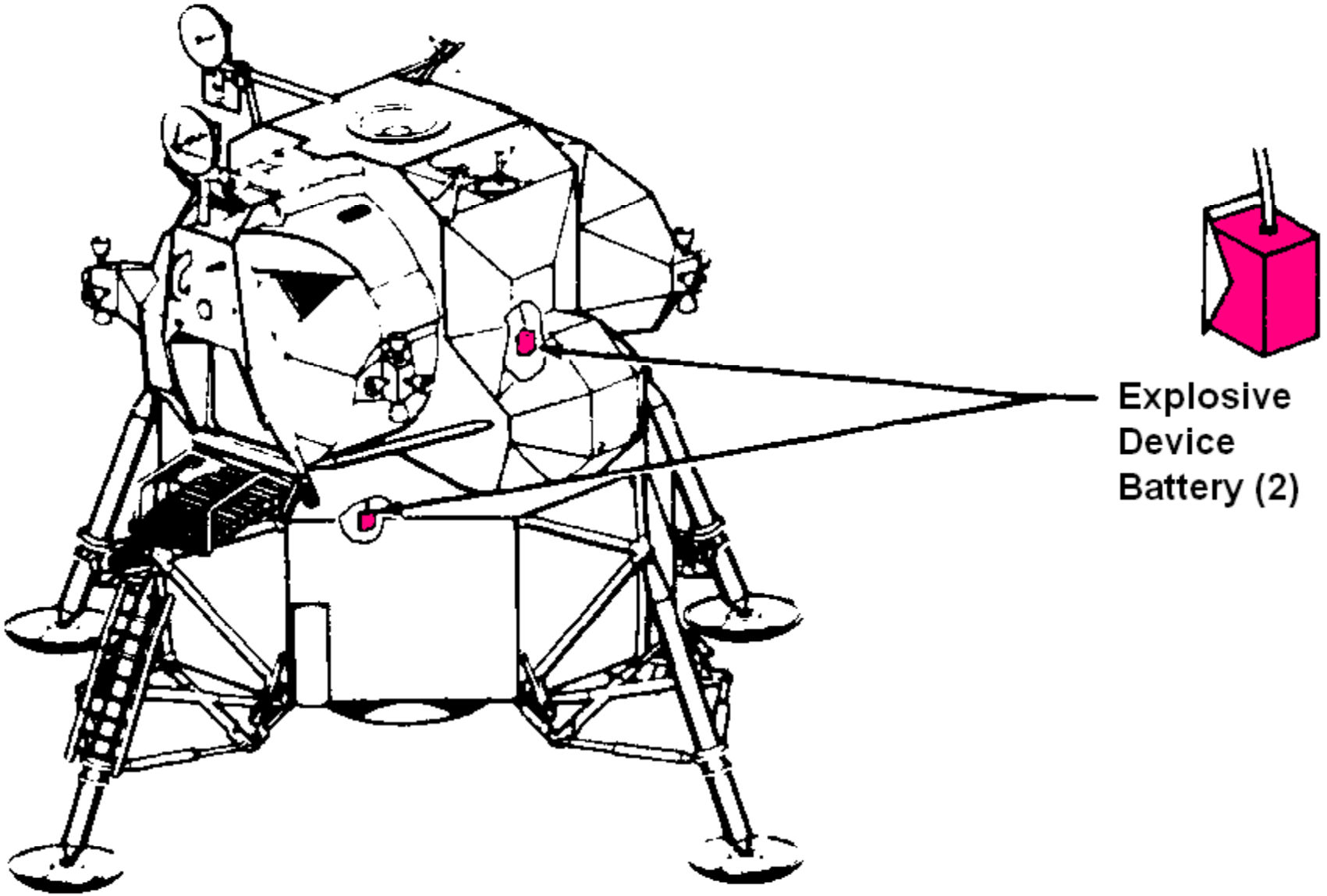


Ascent Battery In-Flight Failures

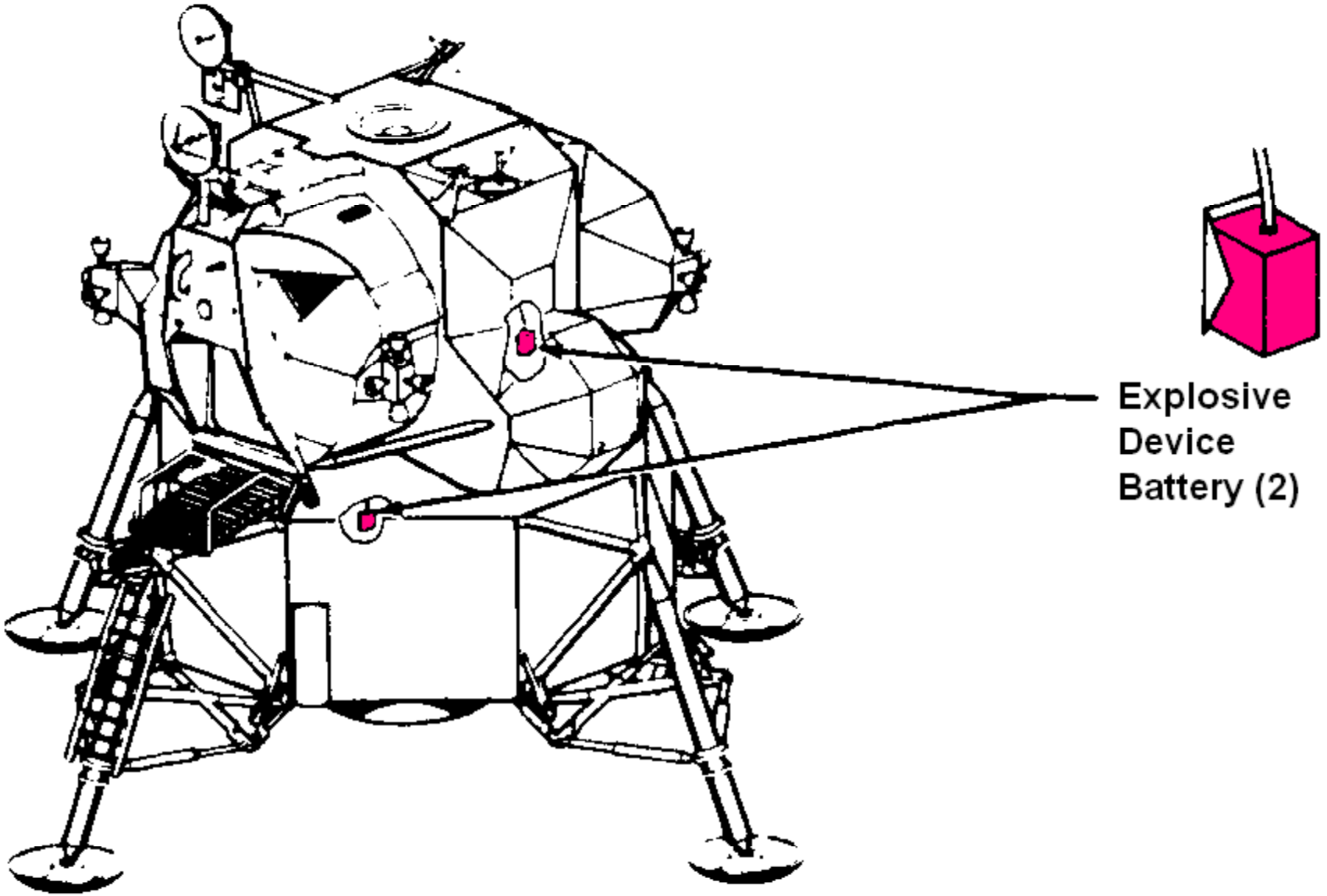


- **Apollo 14: Undervolt**

Explosive Device Battery Testing Failures

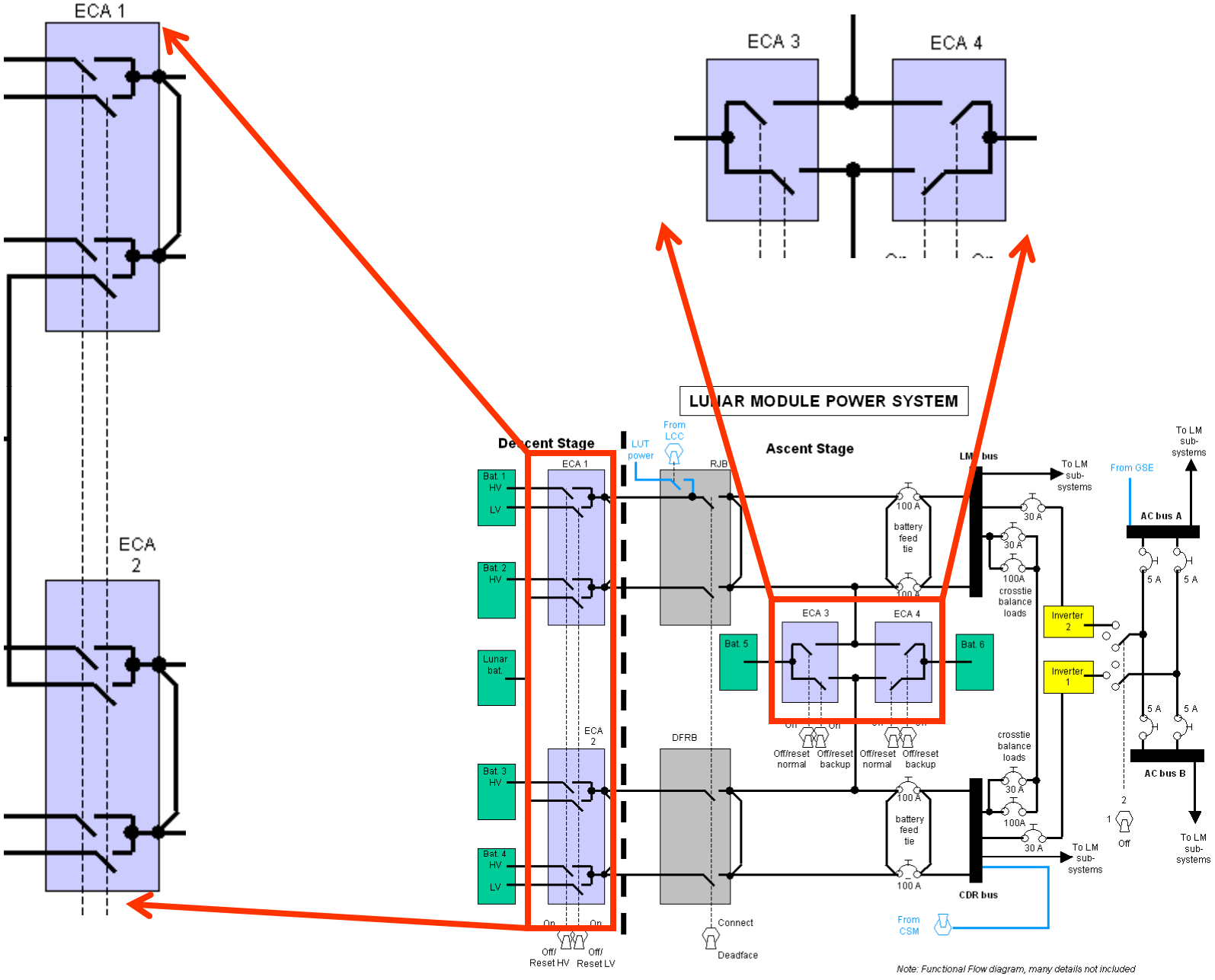


Explosive Device Battery In-Flight Failures

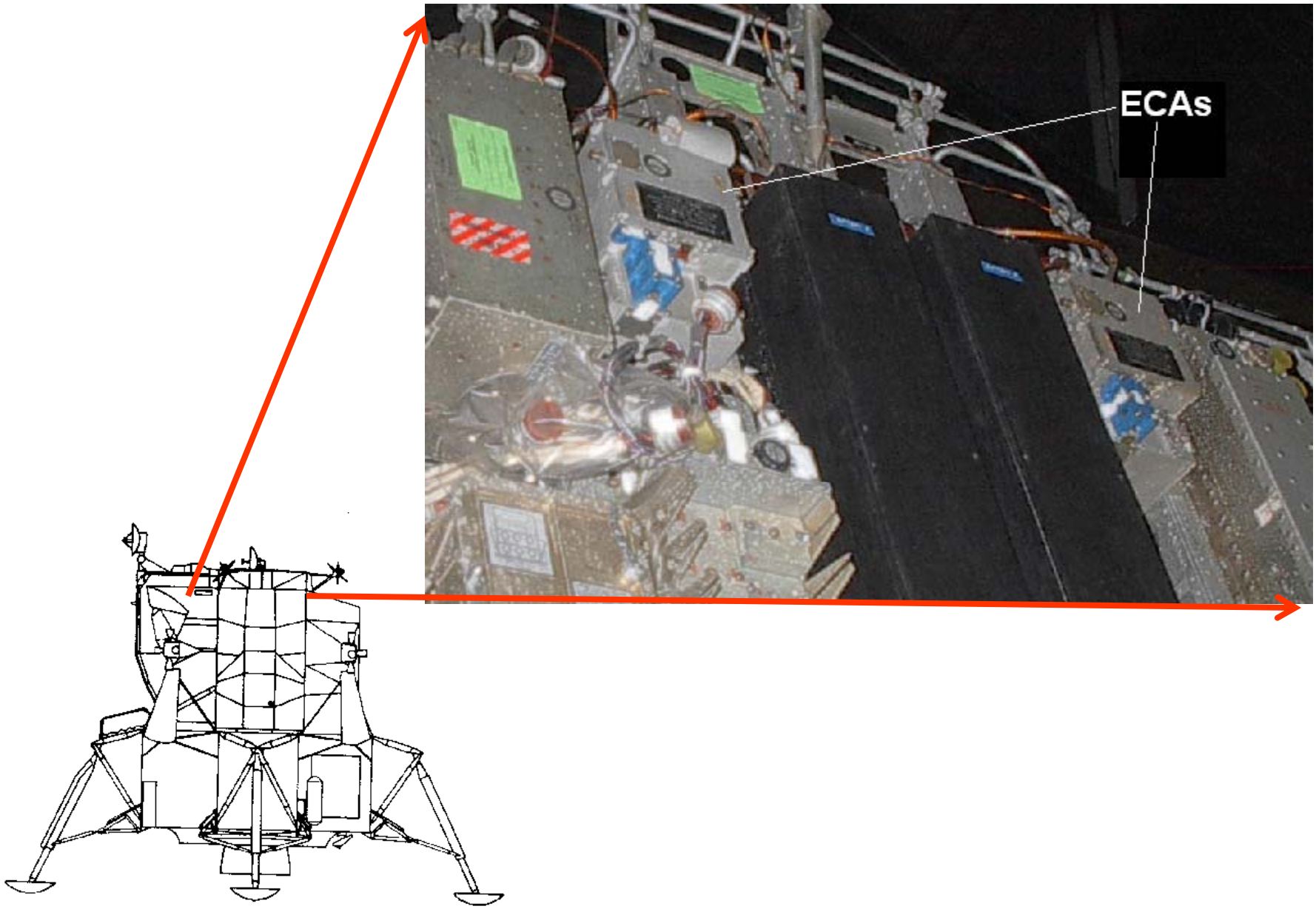


- No In-Flight Failures

Electrical Control Assemblies

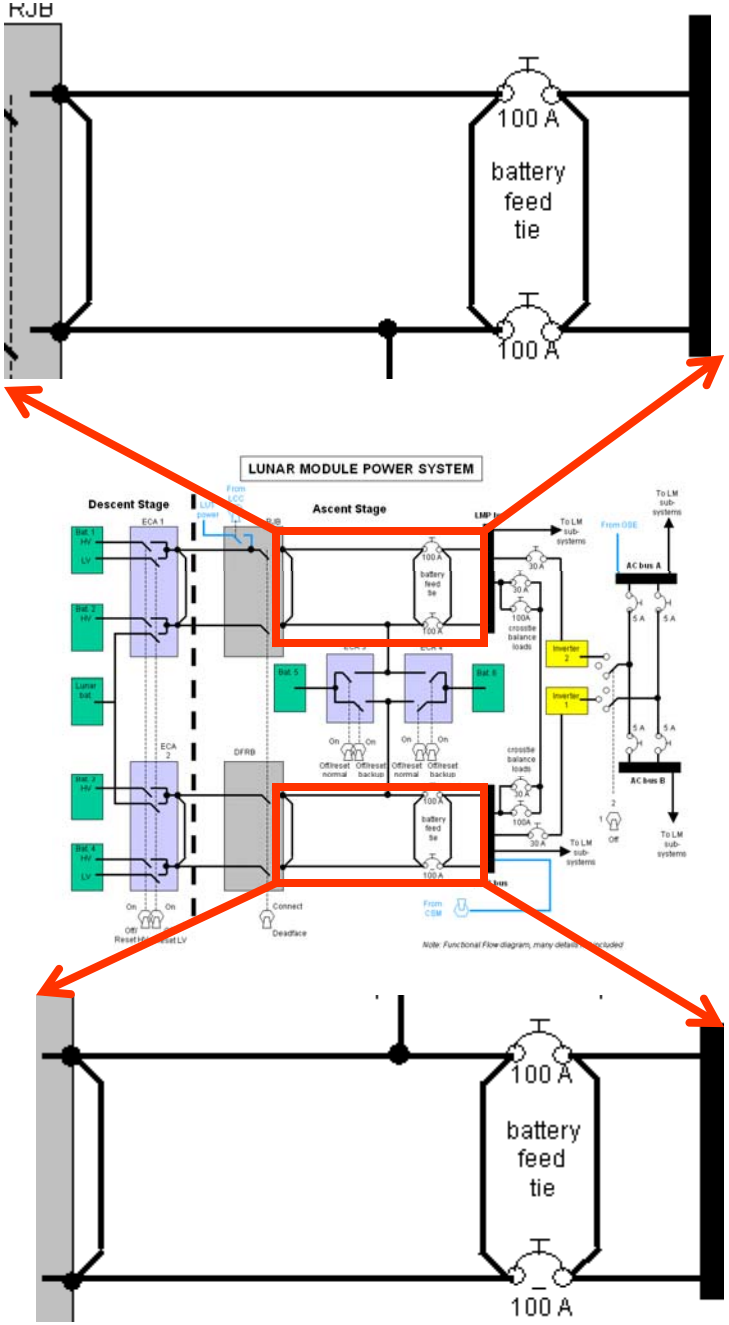


Ascent Electrical Control Assembly Locations



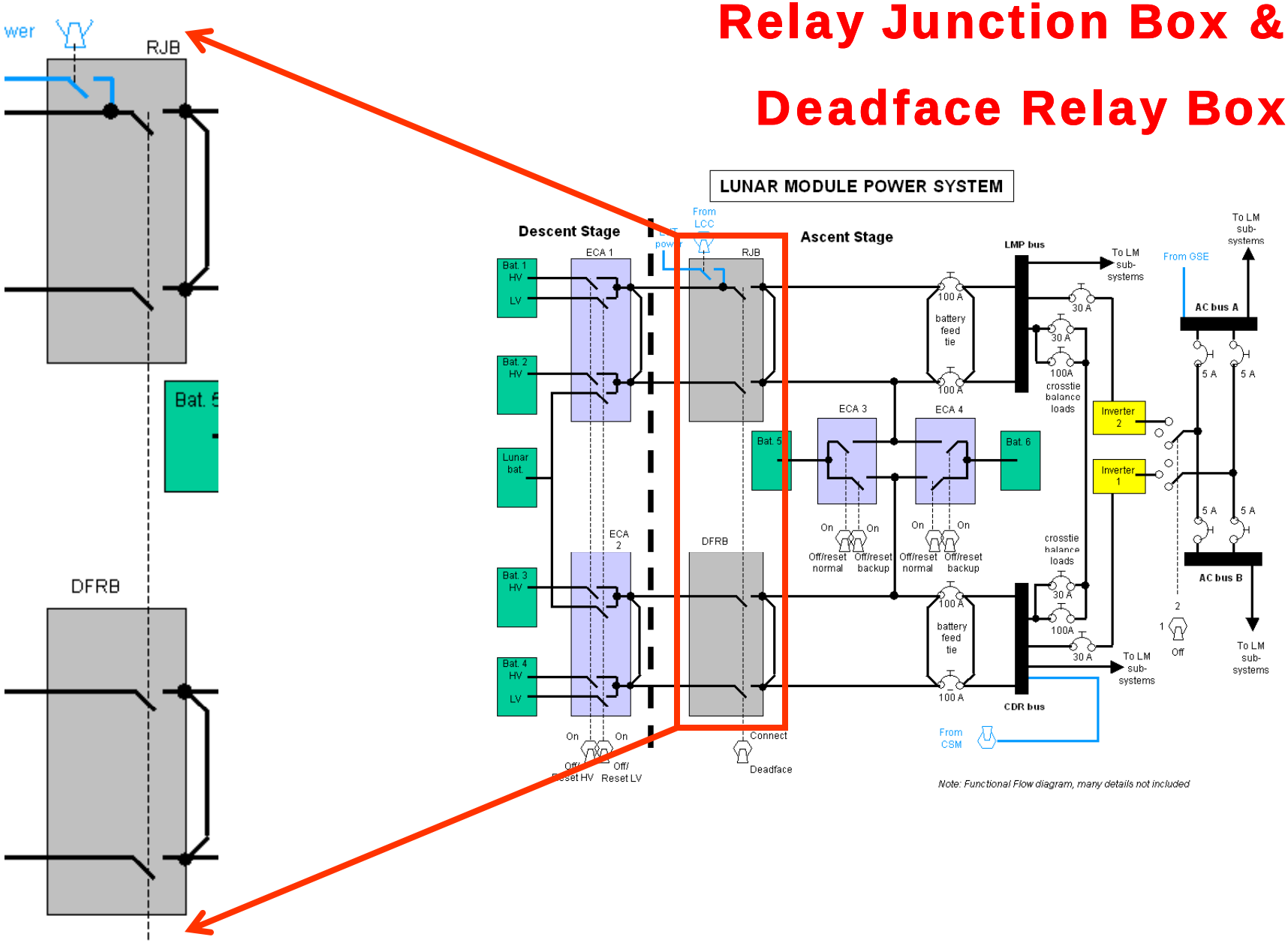
For detail - view slides under references

Feeder System



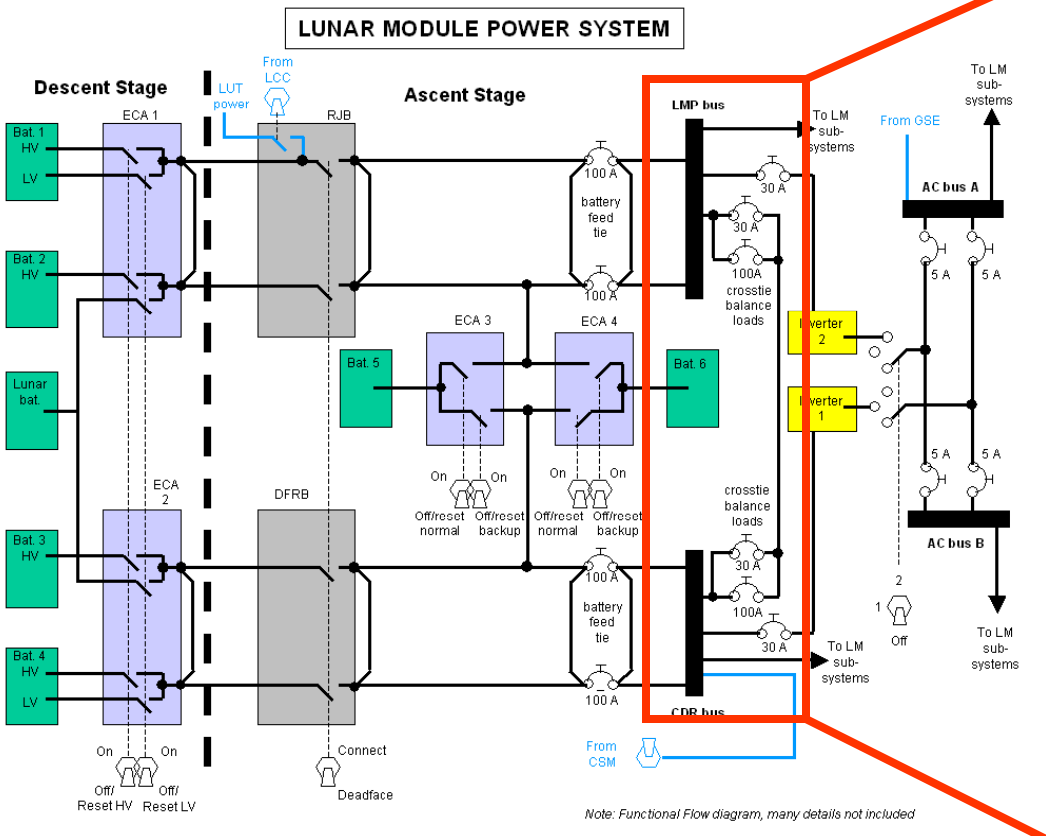
For detail - view slides under references

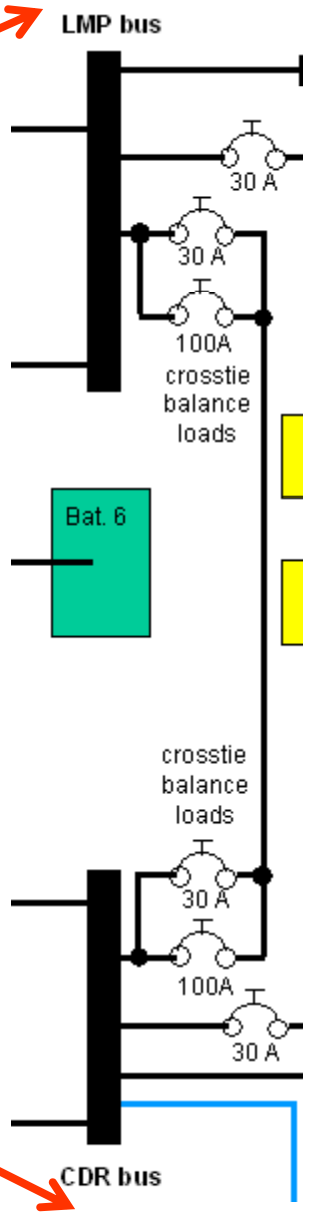
Relay Junction Box &
Deadface Relay Box



For detail - view slides under references

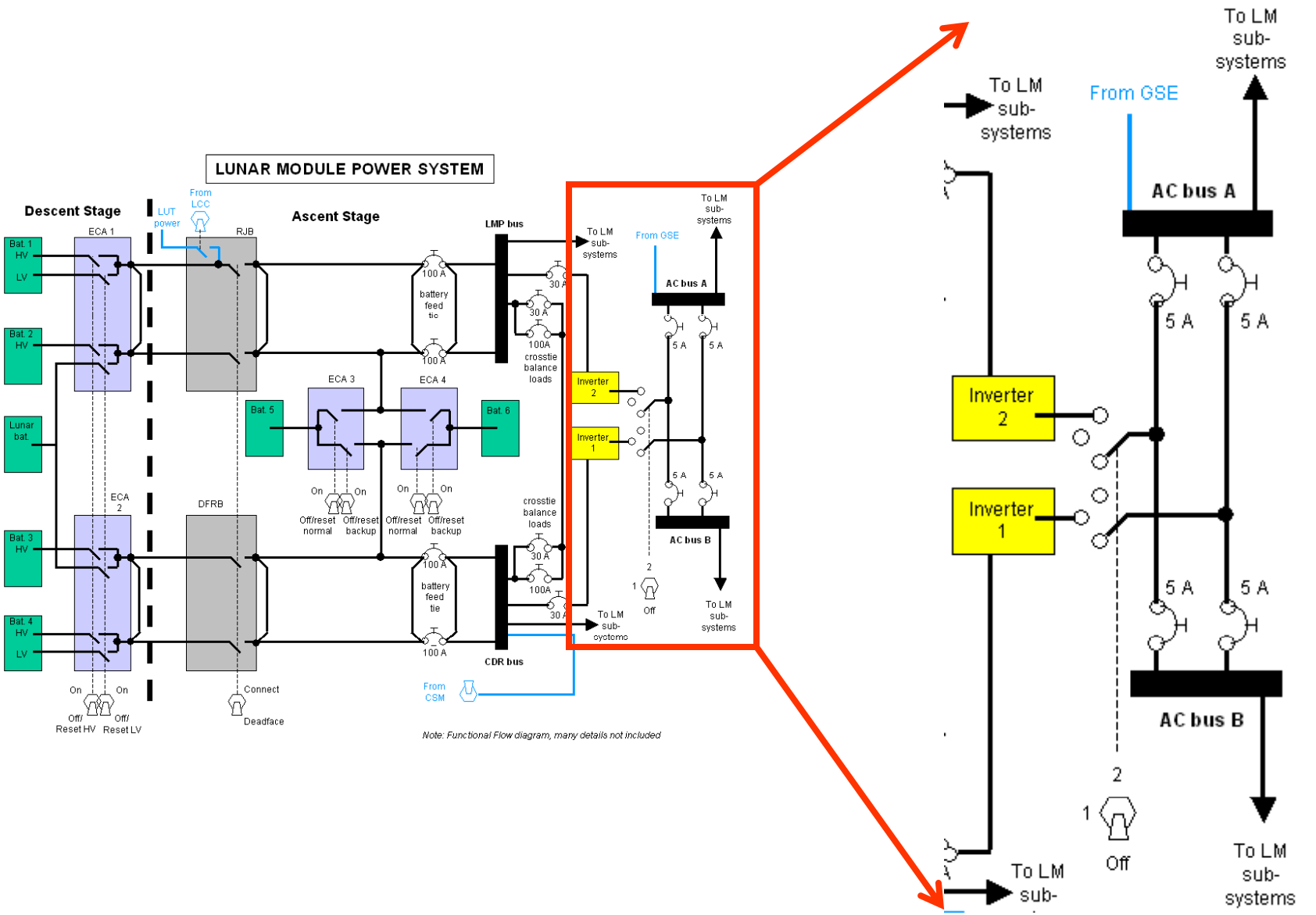
DC Busses





For detail - view slides under references

AC System



Review

- **Explain the redesign considerations**
- **Describe the in-flight failures**
- **Describe the lessons learned**

References

Apollo Experience Report – Battery Subsystem

Apollo Experience Report – Electrical Wiring Subsystem

Apollo 13 Mission Report

Apollo 14 Mission Report

Apollo 17 Mission Report