

# **B-52H Corrosion Prevention Plan**

**2009 Air Force Corrosion Conference**

**Perry, GA**

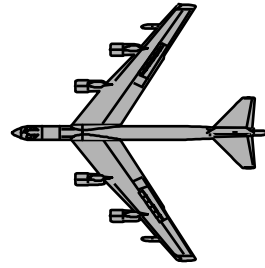
**Travis Whitmer**

**B-52 Fleet Support**

**26 Mar 2009**



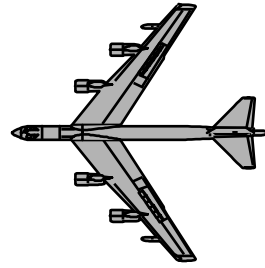
# Agenda



- Current corrosion issues
  - SCC
  - Exfoliation
- Corrosion Control Plan
  - Reviewing and updating PDM SOW
  - Reviewing and updating -23 & -3
  - Updating Drawings for SCC resistant materials
  - Develop Corrosion database
- On going concerns
  - Non-chromate coatings
  - Shop practices
  - Extensions to PDM and Phase intervals



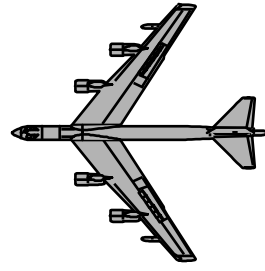
# Current Corrosion Issues



- Stress Corrosion Cracking (SCC) Prone Materials used on the B-52H
  - 7178-T6 Plate
  - 7075-T6 Extrusions, Forgings
  - 7079-T6 Die Forgings
  - 2024-T3 Plate
- SCC requires the following
  - Sustained or residual stresses
  - SCC prone material
  - Environmental exposure

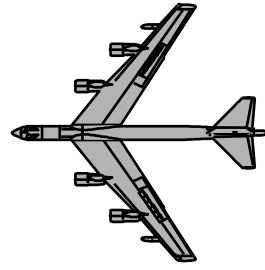


# MLGB

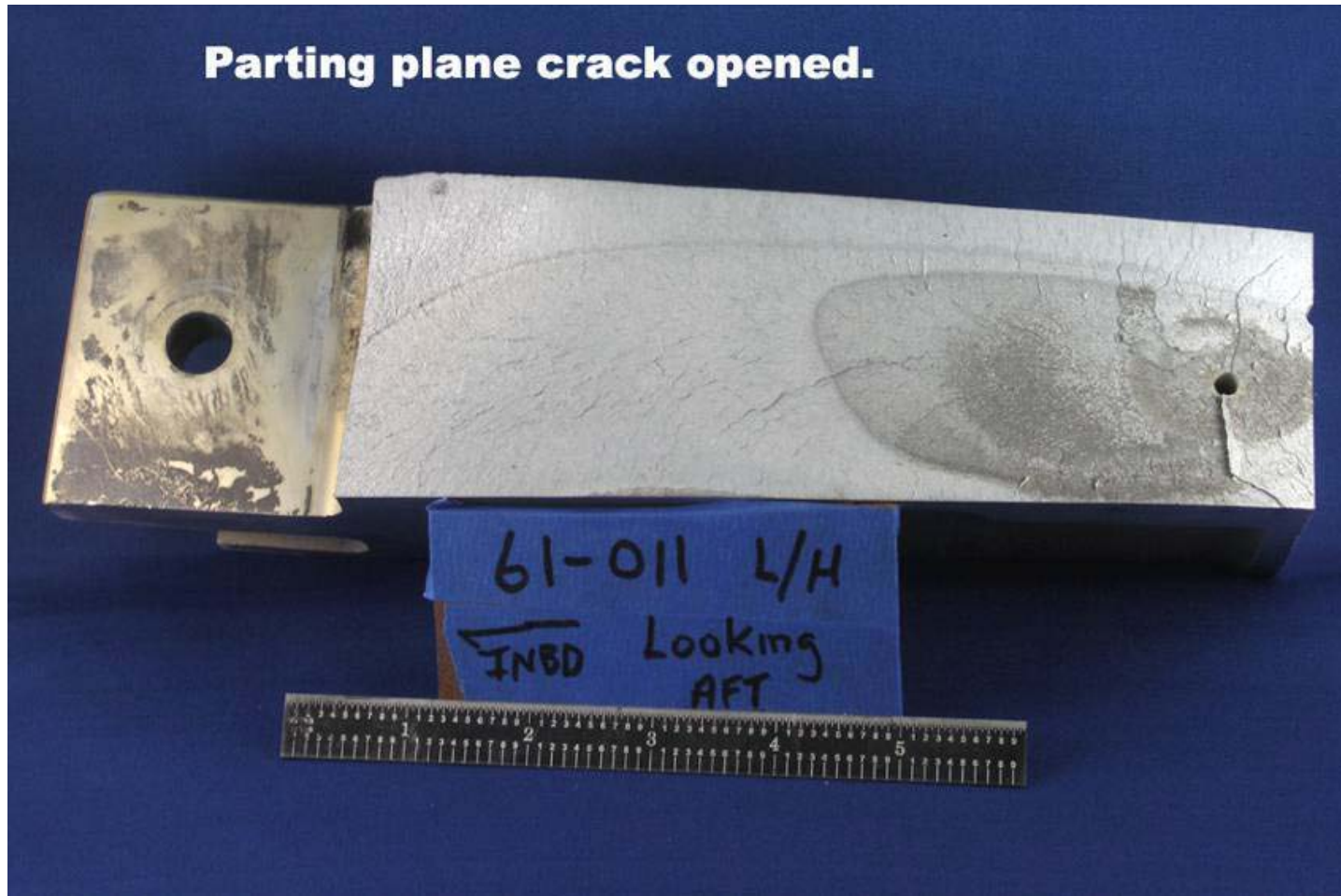


- Parting Plane Crack, B-52G A/C



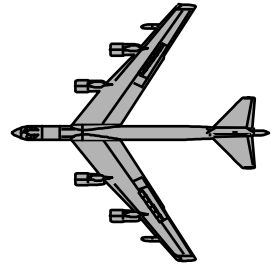


- Parting Plane Crack Opened, B-52H A/C

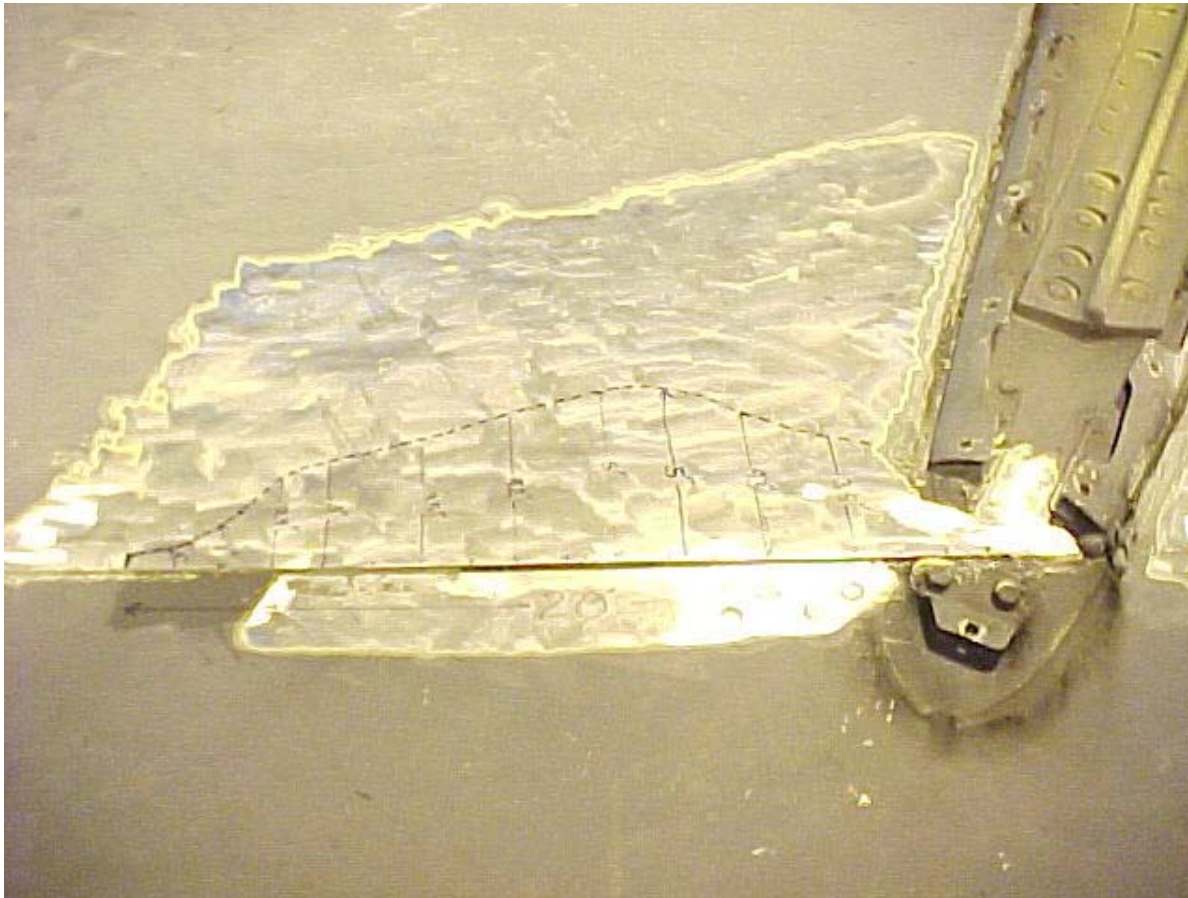




# Upper Wing Skin

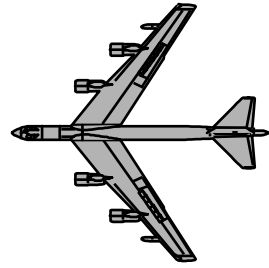


- Laminar SCC, B-52H A/C





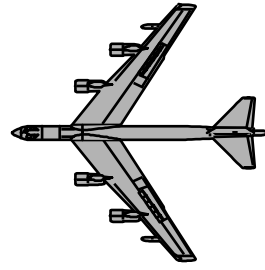
# Corrosion Control Plan – Technical Data



- Program Depot Maintenance SOW
- T.O. 1B-52H-23
- T.O. 1B-52H-3
- Purpose:
  - Review to verify compliance of the corrosion control requirements
  - Make recommendations as required
  - Update material and process specifications



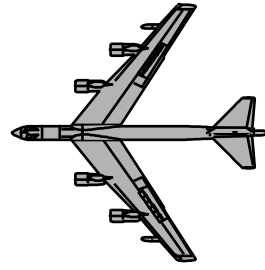
# Corrosion Control Plan – Drawing Updates



- Focus on replaceable spares
- Purpose:
  - SCC resistant materials substitutions
  - Update material and process specifications
  - Ensure procurement ready status
- Provides terminating solution to corrosion issues on these parts



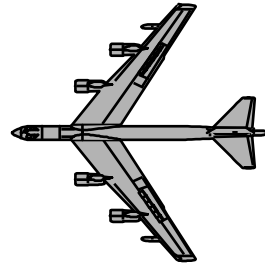
# Corrosion Control Plan – Database



- Documents corrosion damage
  - REMIS
  - PDMSS
  - B-52G Teardown Data
  - IATP
- Allows for trending analysis and projections



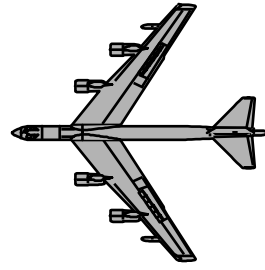
# On going concerns – Non-chromated coatings



- Environmental Regulations trending to the removal of hexavalent chrome
- Air Force / Boeing testing indicates that non-chromated coatings reduce corrosion resistance
- Non-chromated coatings have shown to be more difficult to remove from the metal
- **Use of these materials will lead to an increase to Depot and Field level maintenance costs**



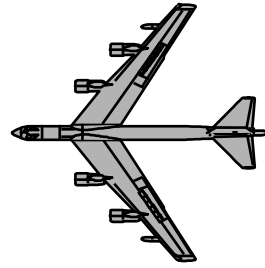
# On going concerns – shop practices



- Use of appropriate tools to remove corrosion, coatings and sealant
- Proper application of conversion coatings, topcoats and CPC's
- Adherence to T.O. procedures for touching up bare surfaces
- Proper adherence to taper lock fastener installation procedures



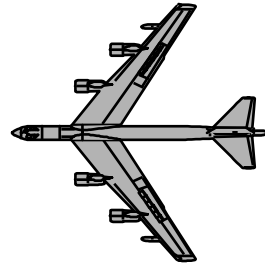
# On going concerns - Extensions to PDM and Phase intervals



- PDM currently on a 48 month interval
- Phase interval recently increased to 450 flight hours from 300
  - SEA
  - 1990's extension testing
- **Increase in maintenance interval may lead to increase in cost to correct corrosion**



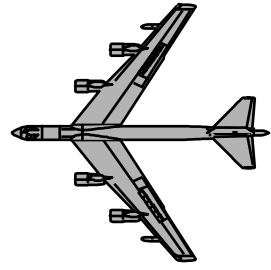
# Summary



- The B-52H is typical of aging aircraft
- There is a corrosion control plan in place to address current and future issues
- Adherence to the plan is paramount to the successful suppression of corrosion issues on the B-52
- Risk Item – reduction in capability if environmental friendly coatings become a requirement

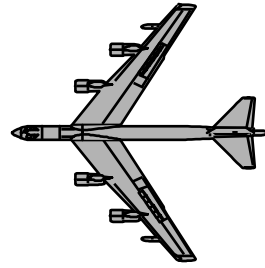


# Questions

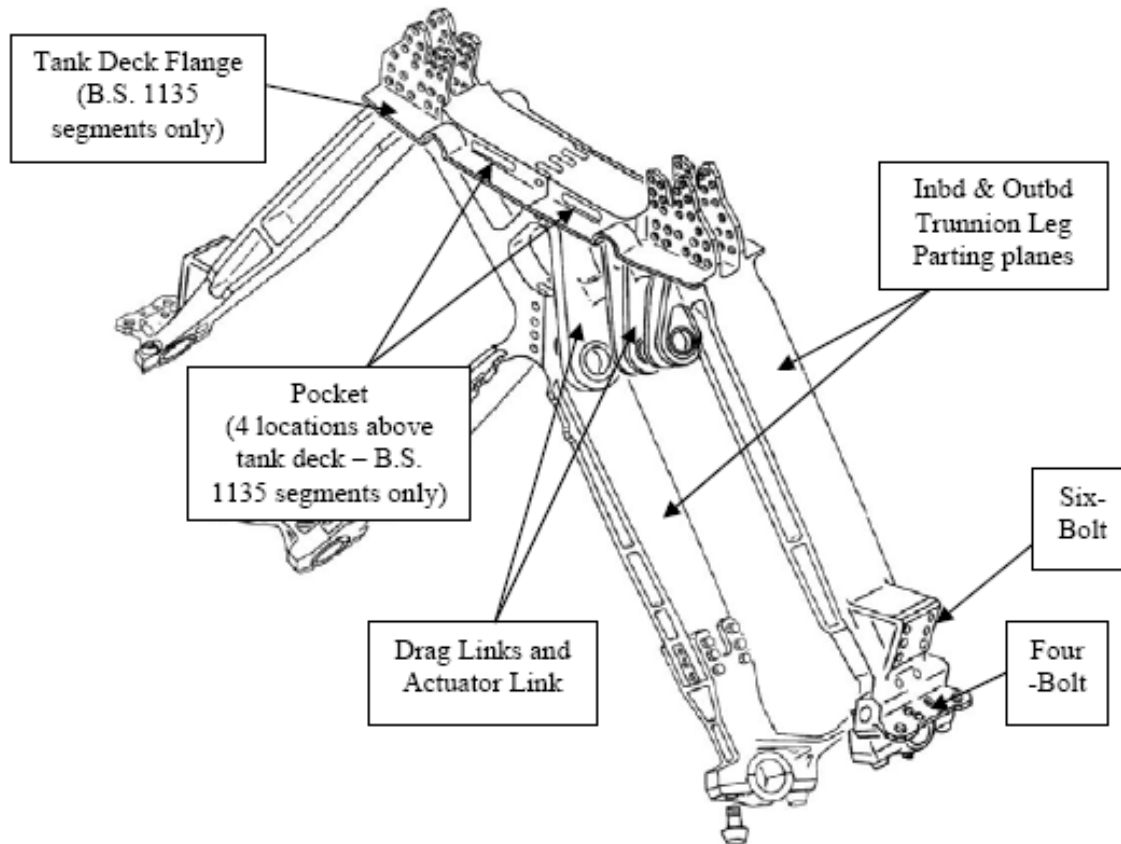




# Backup

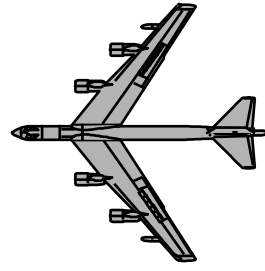


- MLG SCC Cracking

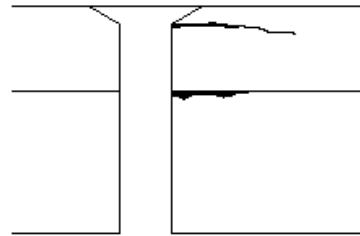
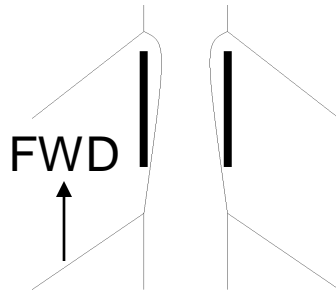
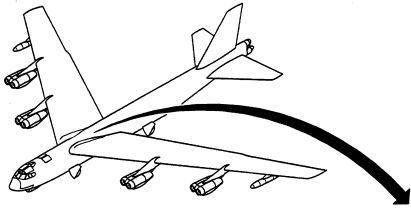




# Upper Body Butt Line 55 Splice

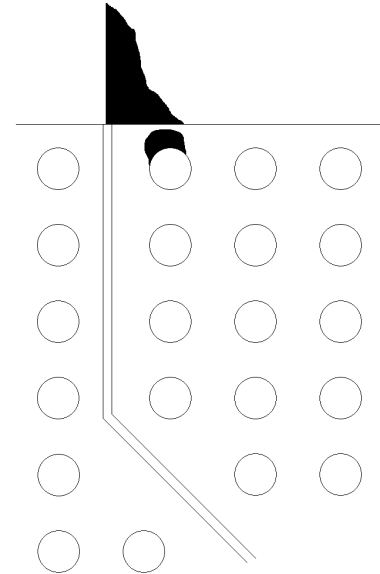


- Upper BBL 55 Splice Corrosion & SCC



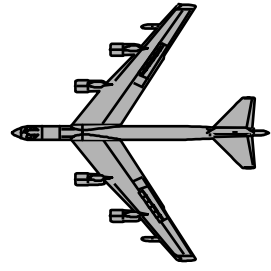
Splice Plate

Wing Skin





# FTTP Repair

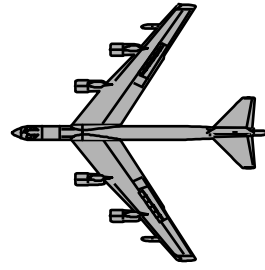


- BBL 55 Rib Web, 7178-T6 Plate

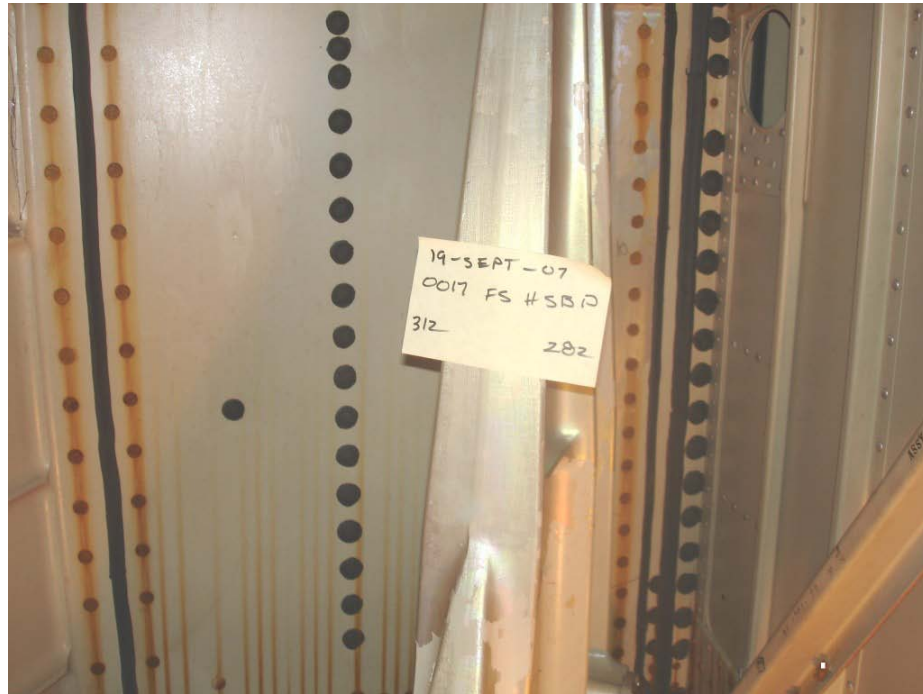




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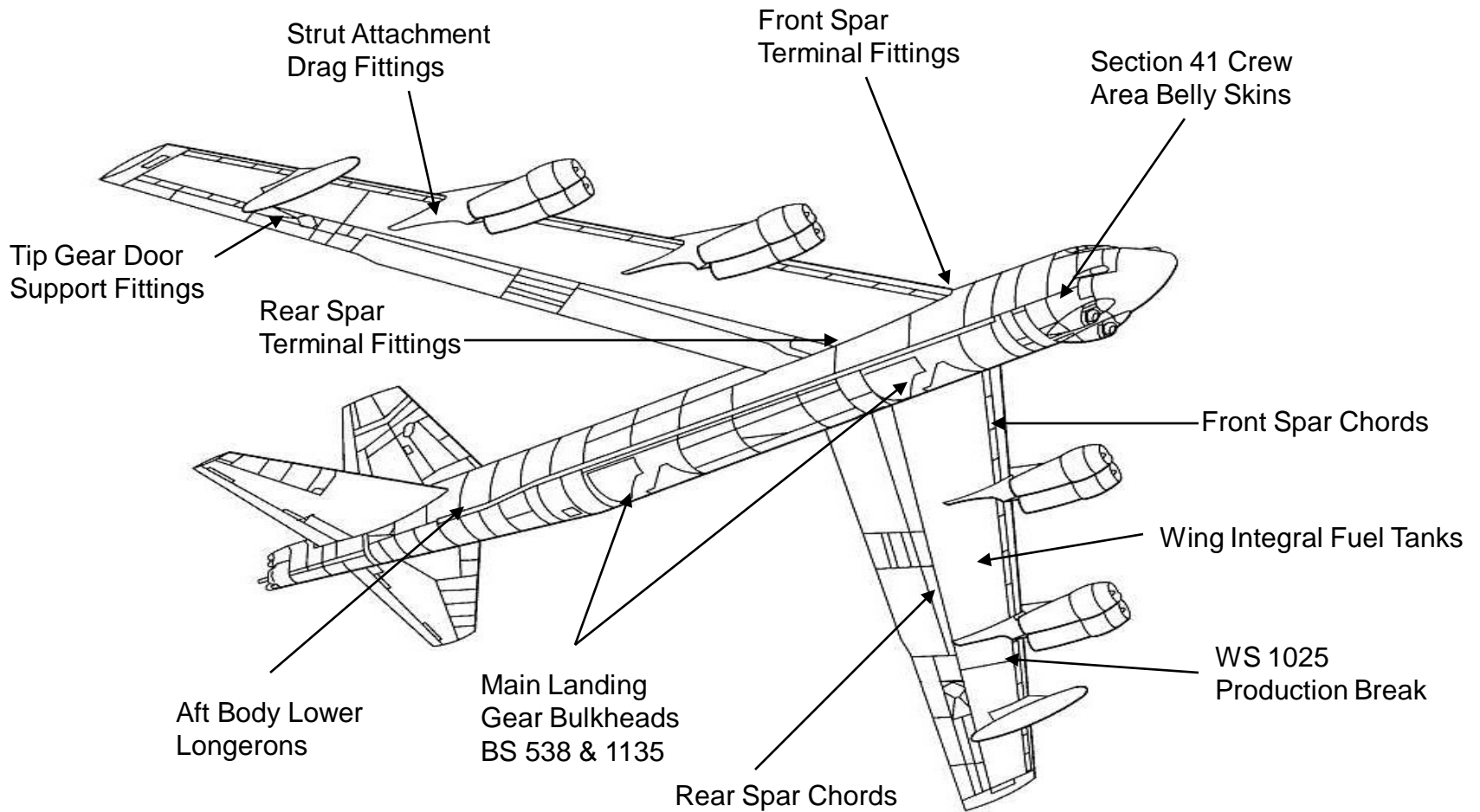
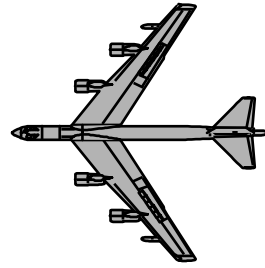


- Heavy Stores Adaptor Beam Attachment Fitting, 7079-T6 DF





# Teardown Evaluations, B-52G aircraft





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