

BOEING 737-800
Structural Repair ManualGENERAL - Structural Classification

1. Applicability

A. This subject is applicable to the primary and secondary structure of the airplane.

2. General

- A. This section gives the Principal Structural Elements (PSEs) and Secondary Structure of the airplane. This can be used to find the classification of major and minor repairs.
- B. Refer to Structural Classification Diagram, Figure 1/GENERAL for the classification of structures.
- C. Refer to Primary and Secondary Structures of the Airplane, Figure 2/GENERAL for the identification of the primary and secondary structures of the airplane.
- (a) Refer to the and tables that follow for the specified primary structures PSE and non-PSE components, and secondary structures:
- (1) Paragraph 5./GENERAL and Table 1/GENERAL - Doors
 - (2) Paragraph 6./GENERAL and Table 2/GENERAL - Fuselage
 - (3) Paragraph 7./GENERAL and Table 3/GENERAL - Nacelles and Pylons
 - (4) Paragraph 8./GENERAL and Table 4/GENERAL - Stabilizers
 - (5) Paragraph 9./GENERAL and Table 5/GENERAL - Wings
- D. The Principal Structural Elements (PSE's) given in this subject agree with the Maintenance Review Board Report (MRBR), Boeing Document M-7360-D541.

NOTE: If the data between this SRM and the MRB Report is different, refer to the MRB Report over the SRM.

E. Repairs to PSEs in the wing, nacelle and pylon structures as given in Table 3/GENERAL and Table 5/GENERAL are required to be evaluated for damage tolerance capability.

3. References

Reference	Title
MRBR D6254001	737-600/-700/700IGW/800/900 MRB Report

4. Definitions

A. The definitions of primary and secondary structures are as follows:

WARNING: THE FAILURE OF PSE'S COULD RESULT IN THE CATASTROPHIC FAILURE OF THE AIRPLANE.

- (1) Primary Structure: Structure which carries flight, ground, or pressure loads. Primary structure is classified into two categories: Principal Structural Elements (PSE) and Other Structure. Most of the primary structures on the

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airplane are Principal Structural Elements (PSE). PSEs are also known as Structural Significant Items (SSI).

(a) Principal Structural Elements (PSE): Primary structure which contribute significantly to carrying flight, ground, and pressurization loads, and whose failure could result in the catastrophic failure of the airplane.

(b) Other Structure: Primary structure that is not a Principal Structural Element (PSE).

(2) Secondary Structure: Structure which carries only air or inertial loads generated on or within the secondary structure. Most secondary structures are important to the aerodynamic performance of the airplane.

5. The primary and secondary structures for the doors are given in Table 1.

A. Primary structure include the skin, structure, stop fittings and pins of these doors:

(1) Entry, Galley, Cargo, Emergency Exit, Automatic overwing exit door, Airstair, Equipment Access, and Forward Access.

B. Secondary structure includes the skin and structure of doors that are not primary structure.

Table 1.

DOOR STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
52-10-01	Forward Galley Door Skin	X		
52-10-01	Aft Entry Door Skin	X		
52-10-01	Aft Galley Door Skin	X		
52-01-01	Forward Entry Door Skin	X		
52-10-02	Forward Galley Door Structure	X		
52-10-02	Aft Entry Door Structure	X		
52-10-02	Aft Galley Door Structure	X		
52-10-02	Forward Entry Door Structure	X		
52-10-01	Emergency Exit Door Skin (Automatic Overwing Exit Door Skin)	X		
52-10-02	Emergency Exit Door Structure (Automatic Overwing Exit Door Structure)	X		
52-30-01	Cargo Door Skin	X		
52-30-01	Forward Cargo Door Skin	X		

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DOOR STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
52-30-02	Cargo Door Structure	X		
52-30-02	Forward Cargo Door Structure	X		
52-40-01	Access and Blowout Door Skin			X
52-40-01	APU Access Door Skin			X
52-40-01	External Power Receptacle Access Door Skin			X
52-40-01	Lavatory Service Door Skin			X
52-40-01	Water Service Door Skin			X
52-40-01	Tailcone Access Door Skin			X
52-40-01	Tailcone System Door Skin			X
52-40-02	APU Access Door Structure			X
52-40-02	Access and Blowout Door Structure			X
52-40-90	Service Door Fittings			X
52-41-01	Equipment Access Door Skin	X		
52-41-01	Forward Access Door Skin	X		
52-41-02	Forward Access Door Structure	X		
52-41-02	Equipment Access Door Structure	X		
52-60-01	Forward Airstair Door Skin	X		
52-60-02	Forward Airstair Door Structure	X		
52-80-01	Nose and Main Landing Gear Door Skins			X
52-80-02	Nose and Main Landing Gear Door Structures			X
52-80-90	Nose Landing Gear Door Fittings			X
52-80-90	Main Landing Gear Door Fittings			X

6. The primary and secondary structures for the fuselage are given in Table 2.

A. Fuselage primary PSE structure include:

- (1) Fuselage skin panels, skin splices, door surround cutouts, and window belts
- (2) Frames, stringers, stiffeners, and intercostals
- (3) Bulkhead structures
- (4) Beam and keel beam structures
- (5) Landing gear support structure

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(6) Wing-to-body drag angles.

B. Fuselage primary other structure include:

- (1) Floor panels and beam assemblies
- (2) Cargo compartment structure and floor panels
- (3) Seat tracks.

C. Fuselage secondary structure include:

- (1) Nose radome
- (2) Wing-to-body fairings (except the drag angles)
- (3) Fuselage section 48 fairings and seals
- (4) Tailcone and tailskid.

Table 2.

FUSELAGE STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
53-10-01	Fuselage Skin - Section 41 (BS 178 to BS 259.5)	X		
53-10-01	Fuselage Skin - Section 41 (BS 259.5 to BS 360)	X		
53-10-03	Stringers - Section 41	X		
53-10-04	Intercostals - 41	X		
53-10-07	Frames - Section 41	X		
53-10-08	Bulkhead (BS 294.5)	X		
53-10-08	Bulkhead (BS 178)	X		
53-10-08	Canted Bulkhead (BS 224.8 to 227.8)	X		
53-10-08	Bulkhead (BS 259.5)	X		
53-10-08	Bulkhead (BS 294.5)	X		
53-10-14	Nose Landing Gear Structure	X		
53-10-15	Door Surround Structure	X		
53-10-50	Main Deck Floor Panels - Section 41		X	
53-10-51	Crew Area Floor Structure		X	
53-10-51	Floor Structure - Section 41		X	
53-10-52	Seat Tracks - Section 41		X	
53-10-54	Forward Equipment Bay Floor Structure		X	

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FUSELAGE STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
53-10-54	Forward Equipment Bay Floor Support		X	
53-10-72	Nose Radome			X
53-10-90	Nose Landing Gear Support Fittings	X		
53-30-01	Fuselage Skin - Section 43 (BS 360 to BS 540)	X		
53-30-03	Fuselage Stringers - Section 43	X		
53-30-04	Intercostals - Section 43	X		
53-30-07	Frames Section 43	X		
53-30-12	Keel Beam Extrusion - Section 43	X		
53-30-13	Beams - Section 43	X		
53-30-15	Door Surround Structure - Section 43	X		
53-30-30	Auxiliary Structure			X
53-30-50	Main Deck Floor Panels - Section 43		X	
53-30-51	Floor Structure - Section 43		X	
53-30-52	Seat Tracks - Section 43		X	
53-30-53	Forward Cargo Compartment Floor Panels		X	
53-30-53	Forward Cargo Compartment Floor Structure		X	
53-30-70	Wing-to-Body Fairing Skins - Section 43			X
53-30-70	Wing-to-Body Fairing Structure (Except Drag Angles)			X
53-30-71	Wing-to-Body Fairing Structure (Drag Angles Only)	X		
53-40-01	Fuselage Skin - Section 44 (BS 540 to BS 727)	X		
53-40-03	Fuselage Stringers - Section 44	X		
53-40-04	Fuselage Intercostals - Section 44	X		
53-40-07	Frames - Section 44	X		
53-40-08	Bulkhead (BS 727)	X		
53-40-08	Bulkhead (BS 540)	X		
53-40-08	Bulkhead (BS 663)	X		

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FUSELAGE STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
53-40-12	Keel Beam - Section 44	X		
53-40-13	Crease Beam - Section 44	X		
53-40-14	Main Landing Gear Structure	X		
53-40-15	Door Surround Structure - Section 44	X		
53-40-50	Main Deck Floor Panels - Section 44	X		
53-40-51	Floor Structure - Section 44	X		
53-40-52	Seat Tracks - Section 44		X	
53-40-70	Wing-to Body Fairing Skins - Section 44			X
53-40-71	Wing-to Body Fairing Structure - Section 44			X
53-60-01	Fuselage Skin - Section 46 (BS 727 to BS 888)	X		
53-60-03	Fuselage Stringers - Section 46	X		
53-60-04	Fuselage Intercostals - Section 46	X		
53-60-07	Frames - Section 46	X		
53-60-12	Keel Beam Extension - Section 46	X		
53-60-13	Beams - Section 46	X		
53-60-15	Door Surround Structure - Section 46	X		
53-60-50	Main Deck Floor Panels - Section 46		X	
53-60-51	Floor Structure - Section 46		X	
53-60-52	Seat Tracks - Section 46		X	
53-60-53	Aft Cargo Compartment Floor Panels		X	
53-60-53	Aft Cargo Compartment Floor Structure		X	
53-60-70	Wing-to-Body Fairing Skin - Section 46			X
53-60-71	Wing-to-Body Fairing Structure - Section 46			X
53-70-01	Fuselage Skin - Section 47 (BS 888 to BS 1016)	X		
53-70-03	Fuselage Stringers - Section 47	X		
53-70-04	Fuselage Intercostals - Section 47	X		
53-70-07	Frames - Section 47	X		

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FUSELAGE STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
53-70-15	Door Surround Structure - Section 47	X		
53-70-50	Passenger Compartment Floor Panels - Section 47		X	
53-70-51	Floor Structure		X	
53-70-52	Seat Tracks - Section 47		X	
53-70-53	Aft Cargo Compartment Floor Structure - Section 47		X	
53-70-53	Aft Cargo Compartment Floor Panels - Section 47		X	
53-80-01	Fuselage Skin - Section 48 (BS 1016 to BS 1156)	X		
53-80-03	Fuselage Stringers - Section 48	X		
53-80-04	Fuselage Intercostals - Section 48	X		
53-80-07	Frames - Section 48	X		
53-80-08	Bulkhead (BS 1156)	X		
53-80-08	Bulkhead (BS 1016)	X		
53-80-08	Bulkhead (BS 1088)	X		
53-80-13	Horizontal Beams - Section 48	X		
53-80-13	Torque Box Beams	X		
53-80-15	Door Surround Structure - Section 48	X		
53-80-30	APU Air Inlet Liner Assembly		X	
53-80-70	Tailcone			X
53-80-70	Stabilizer-to-Body Fairing Seal			X
53-80-70	Tailskid Fairing Skin			X
53-80-70	Body-to-Rudder Seal Retainer - Section 48		X	
53-80-71	Fairing Structure - Section 48			X
53-80-71	Stabilizer-to-Body Fairing Sliding Seal Structure		X	
53-80-71	Body-to-Rudder Seal Retainer		X	

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FUSELAGE STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
53-80-90	Attachment Fittings - Section 48	X		
56-10-02	Flight Compartment Window Structure	X		
56-20-02	Cabin Window Structure	X		
56-30-02	Emergency Exit Door Window Structure	X		
56-30-02	Forward Entry/Galley Door Window Structure	X		
56-30-02	Aft Entry/Galley Door Window Structure	X		

7. The primary and secondary structures for the nacelles and pylons are given in Table 3.

A. Engine primary structure include:

- (1) Strut skins, bulkheads, spars, fittings, and pins
- (2) Strut-to-wing attachments, links, brace, and pins.

Table 3.

NACELLES AND PYLONS STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
54-10-01	Inlet Cowl Skin			X
54-10-02	Inlet Cowl Structure			X
54-10-90	Inlet Cowl Fittings			X
54-20-01	Fan Cowl Skin			X
54-20-02	Fan Cowl Structure			X
54-20-90	Fan Cowl Fittings			X
54-30-01	Fan Duct/Thrust Reverser Aft Cowl			X
54-30-01	Fan Duct/Thrust Reverser Cowl			X
54-30-02	Thrust Reverser Inner Duct Wall			X
54-30-02	Thrust Reverser Torque Box Structure			X
54-30-70	Fan Duct/Thrust Reverser Fairing Skin			X
54-30-90	Fan Duct/Thrust Reverser Cowl Fittings			X
54-40-20	Turbine Exhaust Structure			X
54-50-01	Strut Side Skins	X		

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NACELLES AND PYLONS STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
54-50-02	Strut Upper Spar	X		
54-50-02	Strut Lower Spar	X		
54-50-70	Strut Forward Fairing Skin			X
54-50-70	Strut-to-Wing Junction Fairing			X
54-50-70	Strut Aft Fairing Skin			X
54-50-71	Strut Forward Fairing Structure			X
54-50-71	Strut Aft Fairing Structure			X
54-50-71	Thrust Reverser/Strut Fairing Structure			X
54-50-90	Strut/Torque Box Frame		X	
54-50-90	Strut/Torque Box Bulkhead	X		
54-50-90	Strut Fittings	X		
54-50-90	Strut-to-Wing Fittings	X		

8. The primary and secondary structures for the stabilizers are given in Table 4.

A. Stabilizer primary structure include:

- (1) Inspar skins
- (2) Elevator skin, spars, ribs, and fittings
- (3) Vertical Stabilizer lower close rib
- (4) Front and rear spar chords, webs, and lugs
- (5) Terminal, pivot, and jackscrew fittings
- (6) Horizontal Stabilizer center section primary and thrust beams.
- (7) Rudder skin and structure.

Table 4.

STABILIZER STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
55-10-01	Horizontal Stabilizer Skin	X		
55-10-01	Horizontal Stabilizer Leading Edge Skins			X
55-10-01	Horizontal Stabilizer Trailing Edge Skins			X
55-01-04	Horizontal Stabilizer Upper Lower Intercostals		X	

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STABILIZER STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
55-10-04	Horizontal Stabilizer Upper Inspar Intercostals		X	
55-10-09	Horizontal Stabilizer Forward Box Ribs		X	
55-10-09	Horizontal Stabilizer Torque Box Ribs		X	
55-10-09	Horizontal Stabilizer Trailing Edge Ribs		X	
55-10-10	Horizontal Stabilizer Front Spar	X		
55-10-10	Horizontal Stabilizer Rear Spar	X		
55-10-10	Horizontal Stabilizer Center Section Spar	X		
55-10-13	Horizontal Stabilizer Beams	X		
55-10-30	Horizontal Stabilizer Tip			X
55-10-30	Horizontal Stabilizer Cove			X
55-10-90	Horizontal Stabilizer Fittings - Pivot, Jackscrew, and Terminal	X		
55-10-90	Horizontal Stabilizer Fittings	X		
55-20-01	Elevator Skins	X		
55-20-01	Elevator Tab Skins	X		
55-20-02	Elevator Leading Edge Structure	X		
55-20-02	Elevator Ribs	X		
55-20-02	Elevator Rear Spar	X		
55-20-02	Elevator Tab Structure	X		
55-20-90	Elevator Fittings	X		
55-20-90	Elevator Tab Fittings	X		
55-30-01	Vertical Stabilizer Inspar Skins	X		
55-30-01	Vertical Stabilizer Leading Edge Skins			X
55-30-01	Vertical Stabilizer Dorsal Fin Skin			X
55-30-04	Vertical Stabilizer Intercostals		X	
55-30-05	Vertical Stabilizer Beams		X	
55-30-09	Vertical Stabilizer Leading Edge Ribs			X

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STABILIZER STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
55-30-09	Vertical Stabilizer Inspar Ribs		X	
55-30-09	Vertical Stabilizer Trailing Edge Ribs			X
55-30-09	Vertical Stabilizer Dorsal Fin Ribs			X
55-30-10	Vertical Stabilizer Front Spar (Chords and Webs)	X		
55-30-10	Vertical Stabilizer Rear Spar (Chords and Webs)	X		
55-30-13	Vertical Stabilizer Beams	X		
55-30-30	Vertical Stabilizer Tip			X
55-30-30	Vertical Stabilizer Cove			X
55-30-90	Vertical Stabilizer Front Spar Terminal Fittings	X		
55-30-90	Vertical Stabilizer Rear Spar Terminal Fittings	X		
55-30-90	Vertical Stabilizer Fittings (Except the Terminal Fittings)		X	
55-40-01	Rudder Skin	X		
55-40-02	Rudder Ribs	X		
55-40-02	Rudder Spar Ribs	X		
55-40-02	Balance Arm Structure	X		
55-40-03	Rudder Tip			X
55-40-90	Rudder Fittings	X		

9. The primary and secondary structures for the wings are given in Table 5.

A. Wing box skins are primary structure and include segments and attachments to other structures as follows:

- (1) Stringers
- (2) Spar chords
- (3) Keel beam
- (4) Floor beam
- (5) Fuselage drag angle
- (6) Lower beam at BL 41.0

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- (7) Fittings
- (8) Rib shear ties
- (9) Flap tracks.
- B. Other wing box primary structures include:
 - (1) Front and rear spar chords, stiffeners, rib posts, webs, and terminal fittings
 - (2) Keel beam stiffeners at the rear spars.
- C. Wing center section primary structures include:
 - (1) Skins, including segments and attachments to stringers, spar chords, keel beam, fuselage drag angle, and lower beam at BL 41.0
 - (2) Spanwise beams
 - (3) Floor beams
 - (4) Lower beam at BL 41.0
 - (5) Side of body splices, rib webs, and stiffeners
 - (6) Spars.
- D. Wing trailing edges primary structure include:
 - (1) Main landing gear beams
 - (2) Trunnion housings, fittings and pins
 - (3) Gear beam support fittings, pins, and fuse pins
 - (4) Stabilizer links, fuse pins, and fittings
 - (5) Inboard and outboard main flaps which include:
 - (a) Support track assemblies
 - (b) Support fitting assemblies
 - (c) Support links and pins
 - (d) Main flap inspar skins, spars, ribs, fittings, links, torque tube, and carriage assemblies.
 - (e) Aft flap track support assemblies
- E. Spoiler primary structure include inboard actuator fittings.

Table 5.

WING STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
57-10-01	Wing Center Section Upper Skin	X		
57-10-01	Wing Center Section Lower Skin	X		
57-10-03	Wing Center Section Stiffeners	X		
57-10-10	Wing Center Section Rear Spar - Not Including the Lower Left Web And Lower Right Web (GFRP)	X		
57-10-10	Wing Center Section Rear Spar - Lower Left And Right Web (GFRP)		X	

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WING STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
57-10-10	Wing Center Section Front Spar	X		
57-10-13	Wing Center Section Support Beams	X		
57-10-13	Wing Center Section Span Wise Beams	X		
57-20-01	Outer Wing Lower Skin	X		
57-20-01	Outer Wing Upper Skin	X		
57-20-03	Outer Wing Lower Stringers	X		
57-20-03	Outer Wing Upper Stringers	X		
57-20-09	Outer Wing Ribs	X		
57-20-10	Outer Wing Front Spar	X		
57-20-10	Outer Wing Rear Spar	X		
57-20-90	Outer Wing Front Fittings	X		
57-30-01	Wing Tip Skin			X
57-30-02	Wing Tip Structure			X
57-41-01	Wing Inboard Fixed Leading Edge Skin			X
57-41-01	Wing Outboard Fixed Leading Edge Skin			X
57-41-02	Wing Inboard Fixed Leading Edge Structure			X
57-41-02	Wing Outboard Fixed Leading Edge Structure			X
57-42-01	Wing Slat Leading Edge Skin			X
57-42-02	Wing Slat Leading Edge Structure			X
57-43-02	Wing Leading Edge Flap Structure			X
57-43-90	Wing Leading Edge Flap Fittings			X
57-51-01	Wing Fixed Trailing Edge Skin			X
57-51-02	Wing Fixed Trailing Edge Structure			X
57-51-14	Main Landing Gear Beam	X		
57-53-01	Inboard/Outboard Trailing Edge Flap Skin (Structures Adjacent to and Between Supports on the Main Flap)			X

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WING STRUCTURE				
ATA NUMBER	DESCRIPTION	PRIMARY		SECONDARY
		PSE	OTHER	
57-53-02	Inboard/Outboard Trailing Edge Flap Structure (Structures Adjacent to and Between Supports on the Main Flap)	X		
57-53-02	Inboard/Outboard Trailing Edge Flap Structure (Aft Flaps and Cantilevered Part of the Main Flaps)			X
57-53-70	Wing Trailing Edge Flap Track Fairing Skin			X
57-53-71	Wing Trailing Edge Flap Track Fairing Structure			X
57-60-01	Aileron Skin			X
57-60-01	Aileron Tab Skin			X
57-60-02	Aileron Structure			X
57-60-02	Aileron Tab Structure			X
57-60-90	Aileron Tab Fittings			X
57-60-90	Aileron Fittings			X
57-70-01	Spoiler Tab Skin			X
57-70-01	Spoiler Inboard Skin			X
57-70-02	Spoiler Outboard Skin			X
57-70-02	Spoiler Inboard Structure			X
57-70-02	Spoiler Outboard Structure			X
57-70-90	Spoiler Actuator Fittings	X		

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