

Title (en)
FUSELAGE CELL STRUCTURE FOR AN AIRCRAFT IN HYBRID DESIGN

Title (de)
RUMPFZELLENSTRUKTUR FÜR EIN FLUGZEUG IN HYBRIDBAUWEISE

Title (fr)
STRUCTURE CELLULAIRE DE FUSELAGE DE CONSTRUCTION HYBRIDE POUR UN AVION

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Abstract (en)
[origin: CA2755840A1] The invention relates to a fuselage cell structure in hybrid design for an aircraft, wherein the fuselage cell structure is formed having a plurality of skin fields (2, 3, 30-32, 42, 43, 70, 71), longitudinal struts (53, 88, 89) and cross struts, in particular ribs (18, 59), creating a plurality of longitudinal and/or cross seams (1, 29, 41, 77, 83). At least one skin field (2, 31, 32, 71) is double-shelled and at least one skin field (3, 30, 43, 70) is designed monolithically. According to the invention, there is at least one longitudinal bracket (10, 81, 82) having a first and a second longitudinal flange (11, 12) in the region of the at least one longitudinal seam (1, 83) between a monolithic and a double-shelled skin field (2, 3, 70, 71), wherein the longitudinal flanges (11, 12) are connected to each other offset by means of an inclined bridge (13). In the region of the at least one cross seam (29, 41, 77), between a monolithic and a double-shelled skin field (30, 31, 42, 43, 70, 71), there is at least one load transition (34, 56, 90, 91) for linking at least one longitudinal strut (53, 88, 89) located on the monolithic skin field (43, 70) to the at least one double-shelled skin field (42, 71). A load flow compatible connection is created between a monolithic and a double-shelled skin field (2, 3, 70, 71) by the longitudinal brackets, wherein at the same time the core structure (4, 74) of the double-shelled skin field (2, 71) is laterally sealed. The load transitions (29, 41, 90, 91) in the region of the cross seams (29, 41, 77) ensure an effective load distribution of the loads originating from the longitudinal struts (53, 88, 89) to the double-shelled skin fields (31, 32, 42, 71), wherein an additional stiffening and sealing of the otherwise open core structure (44, 74) can be simultaneously achieved by means of an optional cross bracket (37, 49, 84).

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• WO 8200974 A1 19820401 - BOEING CO [US]
• EP 0935235 A2 19990811 - EUROCOPTER DEUTSCHLAND [DE]
• DE 102007003275 A1 20080724 - AIRBUS GMBH [DE]
• DE 102007029500 A1 20090102 - AIRBUS GMBH [DE]

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