

Title (en)

Control actuation system including staged direct drive valve with fault control.

Title (de)

Kontrollbetätigungssystem mit direkt angetriebenem Stufenventil und Fehlerkontrolle.

Title (fr)

Dispositif d'activation d'une commande comprenant une valve étagée d'entraînement direct avec commande en cas de panne.

Publication

**EP 0115925 A1 19840815 (EN)**

Application

**EP 84300329 A 19840119**

Priority

US 46363183 A 19830203

Abstract (en)

A control actuation system (70) for an aircraft including an electro-mechanically controlled, hydraulically powered actuator (72) for driving a main control valve (26) of a dual hydraulic servo-actuator control system (10). The actuator includes a tandem piston (74) connected to the main control valve (26) which is controllably positioned by a staged valve (125) of relatively short stroke whereby a force motor (218) of minimum size and energy requirements may be used to directly drive the valve. The staged valve (125) includes a linearly movable valve plunger (184) for simultaneously controlling the differential application of fluid pressure from respective hydraulic system on opposed pressure surfaces (94, 96 and 98, 100) of respective piston sections (90, 92) to cause movement of the piston (74) in response to relatively short axial movement of the valve plunger as long as at least one hydraulic system remains operative. Also, the staged valve (125) includes a fault control valve sleeve (130) concentric with the valve plunger (184) which, upon shut-down or failure of both hydraulic systems, moves linearly to render the valve plunger inoperative and release fluid pressure from opposed, corresponding pressure surfaces (94, 96 and 98, 100) of the tandem piston to respective returns therefor through respective centering rate control orifices (118, 120, 250, 252) in the fault control valve sleeve (130) as the piston is moved to a neutral position by a centering spring device (254) acting on the main control valve.

IPC 1-7

**F15B 18/00**

IPC 8 full level

**F15B 9/09** (2006.01); **B64C 13/42** (2006.01); **F15B 18/00** (2006.01)

CPC (source: EP)

**F15B 18/00** (2013.01)

Citation (search report)

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Designated contracting state (EPC)

BE DE FR GB IT SE

DOCDB simple family (publication)

**EP 0115925 A1 19840815**; CA 1203145 A 19860415; IL 70970 A0 19840531; JP S59175603 A 19841004

DOCDB simple family (application)

**EP 84300329 A 19840119**; CA 445533 A 19840118; IL 7097084 A 19840215; JP 1617584 A 19840202