Docket No. SA-522

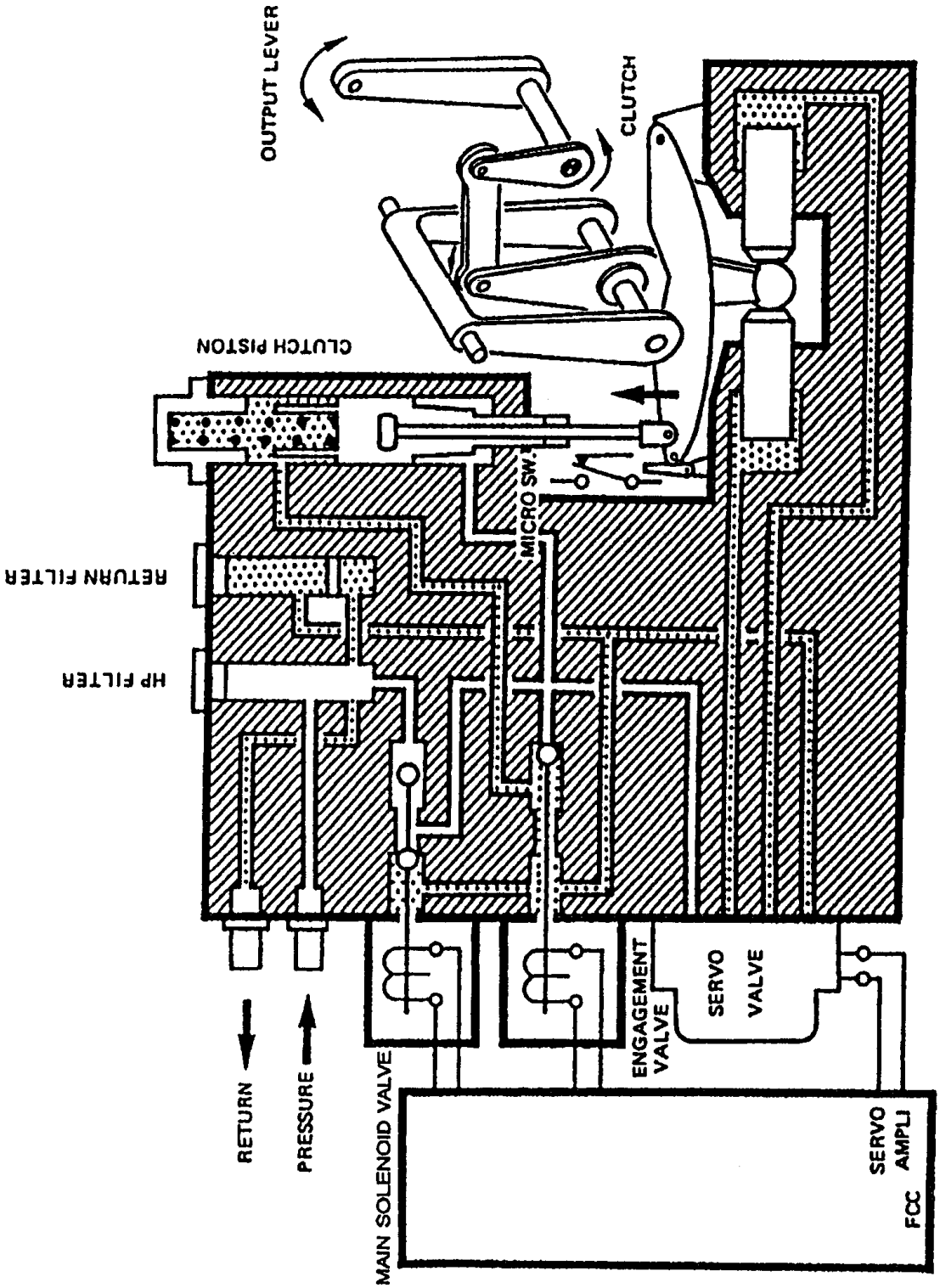
Exhibit No. 9-C

NATIONAL TRANSPORTATION SAFETY BOARD

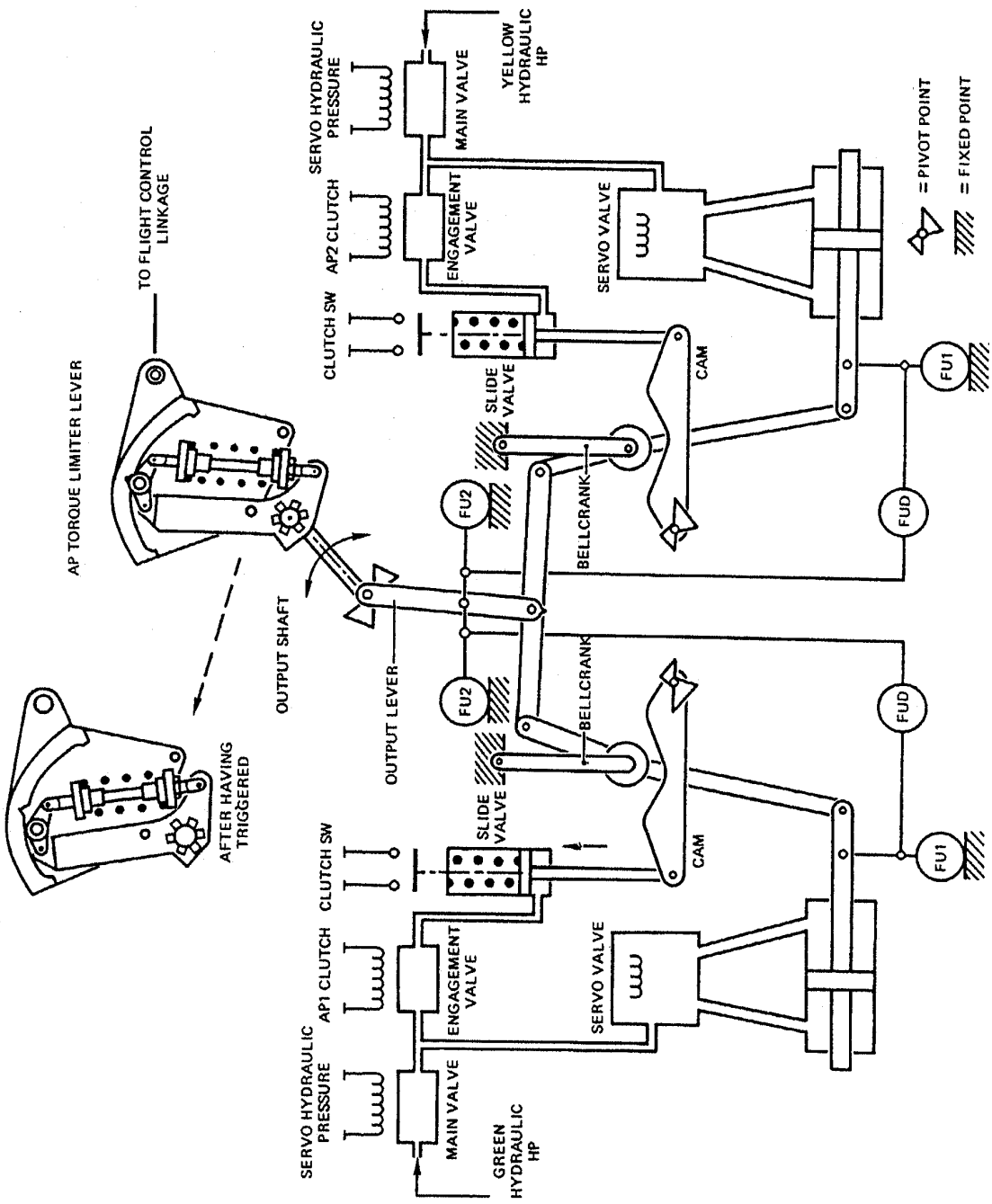
Washington, D.C.

A300-600 Yaw Autopilot System Overview

(6 Pages)



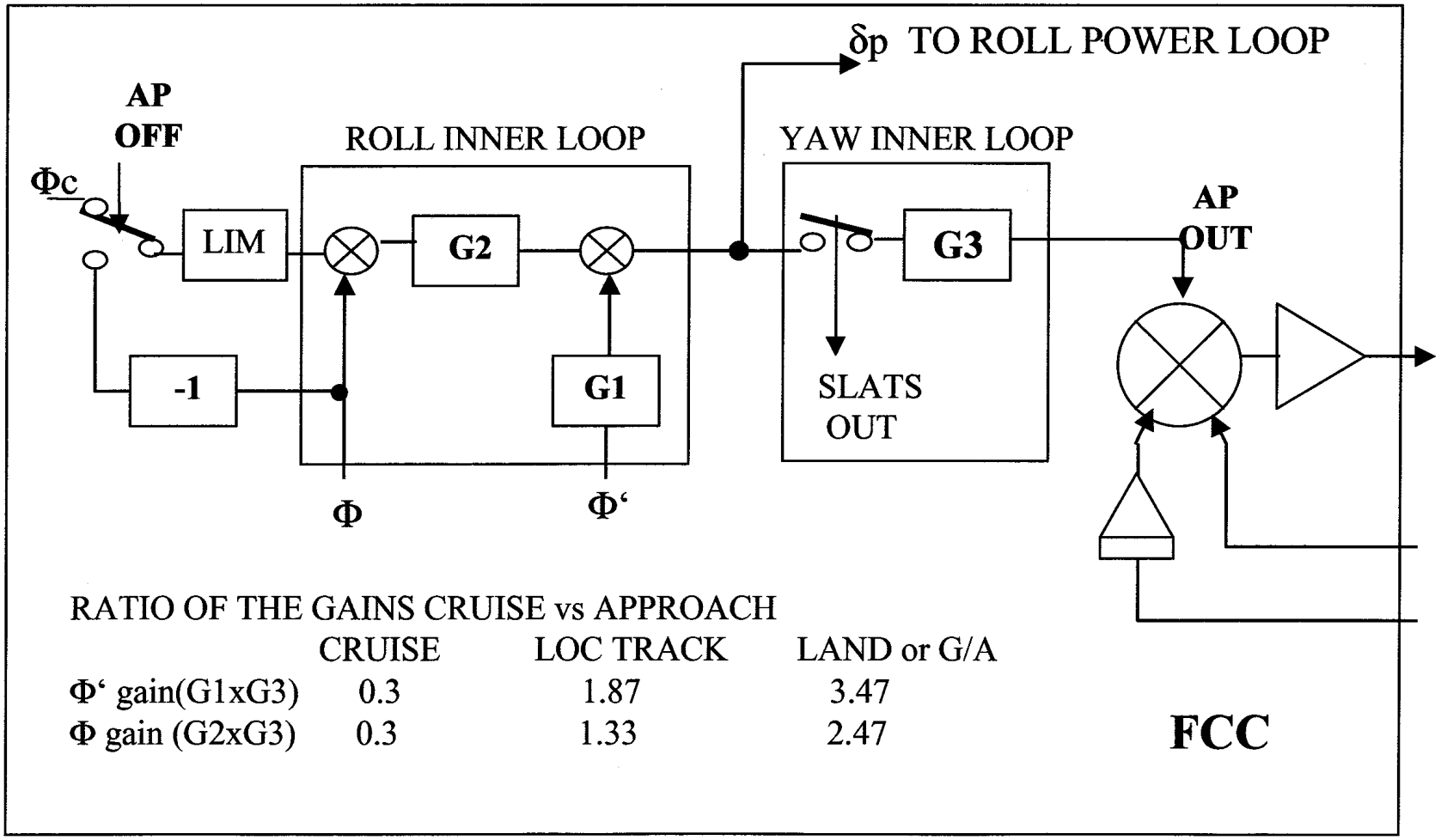
Source: Airbus France Presentation Dec 6, 2001.



Source: AAL A300-600 Airplane Maintenance Manual, Rev 39, 22-13-00, page 3.

Source: Airbus France Presentation May 14, 2002.

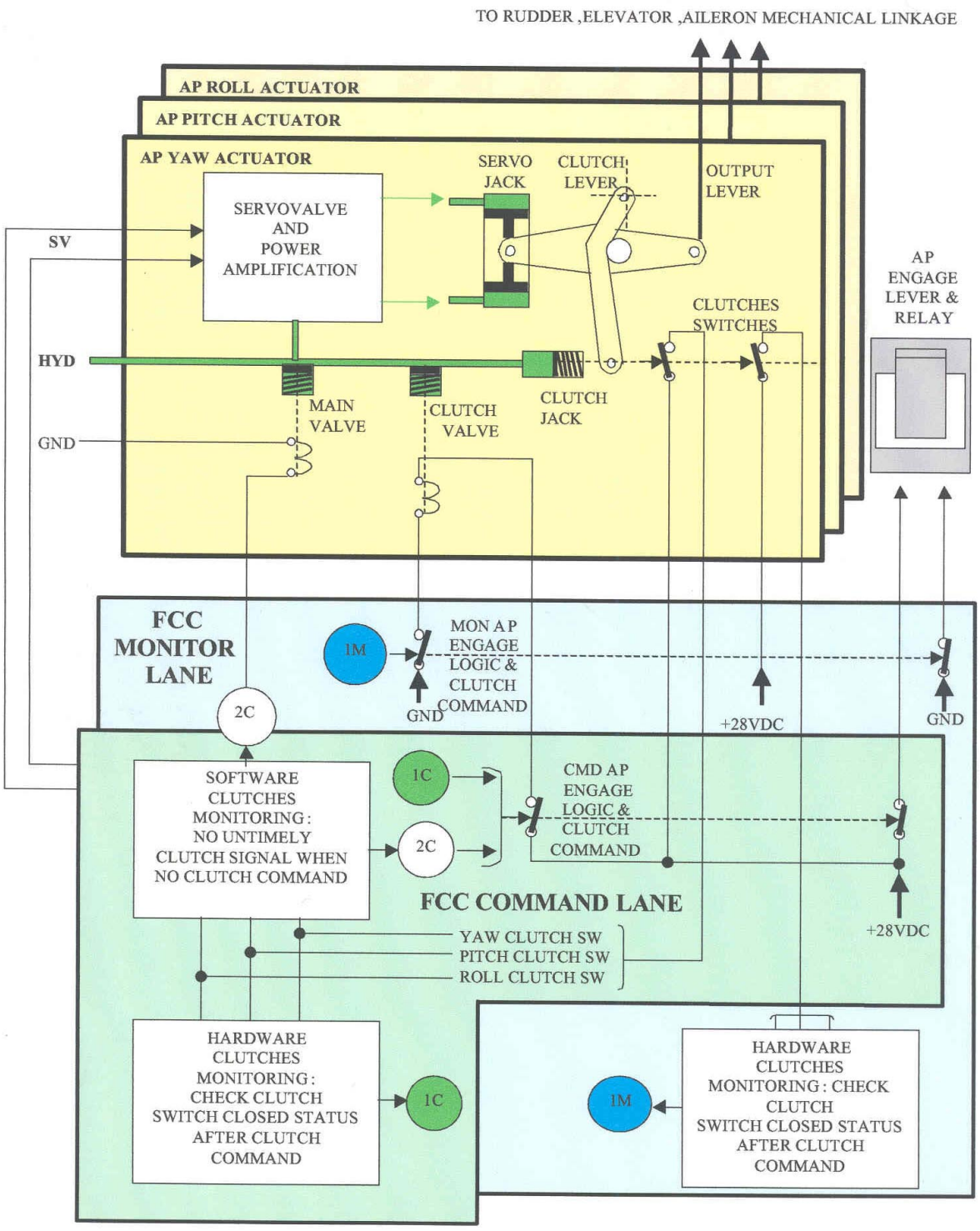
FCC YAW INNER LOOP IN SYNCHRO MODE (SIMPLIFIED)



RATIO OF THE GAINS CRUISE vs APPROACH

	CRUISE	LOC TRACK	LAND or G/A
Φ' gain(G1xG3)	0.3	1.87	3.47
Φ gain (G2xG3)	0.3	1.33	2.47

FCC



Source: Airbus France E-mail October 2, 2002.

Note: All the here after description applies to the three AP actuators in the same manner except for the yaw axis, for which « AP engaged » means AP engaged and slats/flaps lever in position other than clean configuration, « AP not engaged » means AP not engaged or slats/flaps lever in clean position.

- The **main valves** are always normally open (when FCC is energized). They allow pressurization of the **clutch valve** and **servovalve** of the actuators: when AP not engaged for synchronization purpose, when AP engaged to move the flight controls.

- When a **main valve** is closed, the actuator is depressurized, so completely neutralized.

- The **clutch valves** are controlled by both **command and monitor lanes** of the FCC. They are commanded open when AP is engaged (see here above note), and closed when AP is disengaged.

- The **clutch jack** purpose is to maintain the **clutch lever** in order to link the **output lever** of the actuator to the actuator **servo jack**.

- The **clutch switches** reflect the **clutch lever** position. They transmit to the FCC the status of the clutch, for monitoring purpose. One is dedicated to the **command lane**, the other to **the monitor one**.
  - **1C** or **1M** conditions: they are computed twice by hardware **in command and monitor lanes**. They command AP disengagement and closure of the **clutch valve** if one of the **clutch switches** is open while AP is engaged.

  - **2C** condition: it is computed by software only in **command lane**. It commands the closure of the main valve if the **clutch switch** is closed while AP is not engaged.
    When triggered, **2C** condition is latched and AP cannot be engaged neither **main valve** re-opened, until next electrical power up.

Source: Airbus France E-mail October 2, 2002.