

# **BRITTAIN INDUSTRIES, INC.**

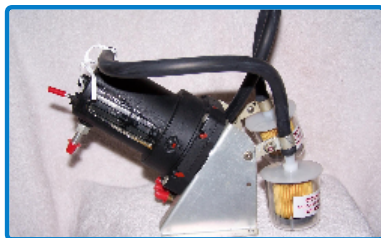
## **FLIGHT CONTROL SYSTEMS FOR GENERAL AVIATION**

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Model LSA-1 Gyro Sense Element

### **MOONEY "PC" POSITIVE CONTROL SYSTEM**

Throughout the 1960's and 1970's Brittain had the distinct honor of supplying our autopilot systems to the complete line of Mooney M20 aircraft. The heart of these autopilot systems is known as the Mooney PC or Positive Control System.

This PC system is a pneumatically operated two axis (roll and yaw) automatic control device deriving its source of power from the aircraft engine driven vacuum pump. From 1965 to 1967, the PC system consist basically of a Gyro Sense Element (LSA-x stab gyro pictured left) which meters vacuum pressure to a cylinder piston servo assembly, providing for a dual control system.

The system disconnect push-button located in the control wheel, operates a pneumatic relay which provides vacuum to the rate gyro valve. When the push button is depressed, the servo vacuum supply is relieved and the system is immediately inoperative. However, normal maneuvers may be readily accomplished without depressing the disconnect button.



Roll-Trim Valve

These systems allow for a roll trim pilot function also. Roll trim may be used to compensate for asymmetrical fuel and passenger loading and to optimize system performance in climb, cruise and descent.



Cut-Off Valve (Yoke Valve)



Pilot Valve (pneumatic relay)

The PC system was upgraded in 1967 to utilize the Brittain TC100EVS autopilot turn coordinator gyro. The TC100EVS provides visual indication of wing leveling in addition to operating as the gyro sense element for the PC system. Roll trim capabilities exist on the gyro unit but all other facets of the install remain the same. The TC100EVS turn coordinator gyro operates from vacuum or electric power sources, either or both, for an added measure of safety.

Like most Brittain system, the PC system is modular in design allowing for upgrades to the basic wing leveling functions which included Navigational coupling, heading command and pitch stabilization with altitude hold capabilities. You will find more information about these systems on our products page ([products-services.html](#)).

Other popular factory installations include the Brittain Model Nav 2B or Model B6 Flight Control Systems. The Brittain Nav 2B system is a Nav-Coupler/Heading Lock System, offering directional control of the aircraft by means of an electro-pneumatic shunt valve, while magnetic heading information is obtained by means of a Heading Sensor resolving the earth's magnetic flux.



Brittain Model BI-601 Controller - this controller was used with both the B6 system and the Nav 2B system with the pitch indicator blanked out.

The Brittain B6 system is a complete three axis system with all the same attributes as the model Nav 2B and incorporates pitch stabilization with altitude hold functions. Pitch axis stabilization is obtained with use of the Brittain's Dynertial™ Pitch Control and Altitude Hold System. This system is designed to control the aircraft about its pitch axis by sensing dynamic forces from forward and vertical motion, inertial forces from "G" loads and changes in the attitude of the aircraft. Pilot command features include a master valve for engaging the altitude hold function and a visual reference of pitch trim.

If we can be of assistance with your Mooney PC system please contact us by email or telephone.

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Positive Control System

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