FLAP SYSTEM - DESCRIPTION AND OPERATION

1. General

A. The flap system consists of mechanical and electrical components. The flap control lever on the control pedestal provides input to the flap switch actuator, which controls the primary flap motor. The flap actuator assembly drives a bell crank in the root of the right wing. The flaps are connected to the right inboard forward bell crank through a series of pushrods, connecting rods, interconnecting rods, and bell cranks. The standby system consists of an independent switch and motor.

2. Description and Operation

A. The flap control lever controls the flap switch actuator which allows the pilot to select any flap position between 0 and 30 degrees, with detents at UP, 10, 20, and FULL down settings. Any difference between the selected and actual flap position closes one of two micro switches located on the flap switch actuator. The closed micro switch actuates a relay which applies power to turn the primary motor in the proper direction. The motor turns the actuator drive screw, moving the stop nut attached to a tube connected to the right inboard forward bell crank. As the tube moves, it rotates the right inboard forward bell crank. The left inboard forward bell crank is rotated by the right inboard forward bell crank through the wing-to-wing interconnect rod. The inboard forward bell cranks rotate corresponding inboard aft bell cranks through interconnect rods. Connecting rods from the inboard aft bell cranks rotate the outboard bell cranks. Pushrods connect the flaps to the inboard and outboard bell cranks near the inboard and center flap tracks, respectively. Outboard flap travel is assisted by a cable attached to the inboard aft bell crank. When the flap position matches the selected position, the micro switch in the flap switch actuator is opened, opening the corresponding relay, stopping motor and flap movement. A follow up cable provides flap position indication through a pointer at the control pedestal. The flap system is equipped with a standby motor which may be utilized in the event of primary system failure.

B. The standby system is controlled by two toggle switches mounted in the overhead console. Before you can use the standby UP/DOWN switch, you must put the STBY FLAP MOTOR switch in the STBY position.

(1) For Airplane 208B2197 and Airplanes 208B5000 and ON, when the STBY FLAP MOTOR switch (SF008) is in the NORM position the primary flap motor is connected and can operate and the standby flap motor is disconnected and can not operate. When the STBY FLAP MOTOR switch is in the STBY position standby the flap motor is connected and can operate and the primary flap motor is disconnected and cannot operate.

(2) For Airplanes 20800001 and On and Airplanes 208B0001 thru 208B2196 and 208B2198 thru 208B4999, the standby motor is always connected and can be operated. If the standby UP/DOWN switch is used to operate the flaps with the STBY FLAP MOTOR switch in the NORMAL position, the primary and standby motors will run in opposition to each other. Also, the standby system bypasses the limit function of the flap switch actuator, so extreme care must be exercised to prevent running the flaps past their up and down stops.