An important development on the Concorde AFCS which is not yet a standard for other airliners has been the introduction of a safety flight control system (SFCS). This provides continuous protection against the aircraft reaching dangerously high incidences. If such a condition is approached, the danger is averted by an immediate nose-down demand. The SFCS also gives emergency control in the unlikely event of a mechanical jam of the control column.

Miniature solid-state strain gauges are fitted to the hub of the control column to sense the control force applied and to enable control to be maintained, using normal forces, even with the column mechanically locked. Separate system are fitted to both control columns and each can sense the forces applied in both the pitch and roll axes. These signals are fed directly to the aircraft's electrical signalling system via the SFCS.

Although the SFCS is basically for emergency reversion, it has been successfully evaluated during the flight-test programme. An integrated test and maintenance system (ITEM) incorporated half of the AFCS, control monitoring of the complete AFCS, including such important sensors as the radio altimeter. Every electronic line-replaceable unit (LRU) in the system has built-in test equipment circuitry (BITE). ITEM co-ordinates BITE operation for the whole system via a parallel data highway in the aircraft. Two very simple digital computers, one for each segregated half of the AFCS, control the testing, which is operated and displayed from a small push-button control panel on the flight deck.

The AFCS, manufactured by Marconi-Elliott in collaboration with SFENA, has played a major part in the flight development of Concorde. Over 100 fully automatic landings were carried out during the prototype and pre-production programmes and the AFCS has since been sampled by a large number of pilots, all of whom have commented enthusiastically on its operation and performance.