3.0 Autopilot Overview

3.1 System 60-2 Programmer/Annunciator

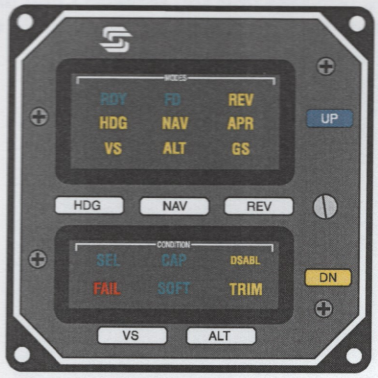


Fig. 3-1. System 60-2 Programmer/Annunciator

The System 60-2 Programmer/Annunciator is a rate based autopilot that controls the roll and pitch axis of the aircraft. The autopilot's main function is to convert pilot commands to logic signals for both the roll and pitch computers. As the pilot enters the desired mode by pressing the mode selector switch, the computer acknowledges the selection by illuminating that annunciator.

The Roll Computer receives signal inputs from the turn coordinator, Directional Gyro or optional Horizontal Situation Indicator (HSI), Very High Frequency Omnidirectional Radio Range (VOR) / Localizer (LOC), Long Range Navigation (LORAN) and the Global Positioning System (GPS) navigation receivers. It then computes roll servo commands for stabilization, turns, radio intercepts, and tracking.

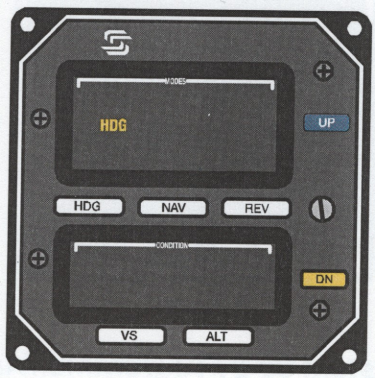
The Pitch Computer receives signal inputs from the altitude pressure transducer, internal accelerometer, glideslope deviation indicator, and off warning flag contained in the glideslope receiver. The pitch system provides vertical speed control and altitude hold, as well as automatic/manual glideslope capture.

Vertical speed reference is provided by the barometric pressure transducer, while automatic and manual pitch trim sensing is provided by the pitch servo. Drive for the elevator trim servo is provided by the pitch computer. All modes use the transducer signal for a VS or ALT reference.

3.2 Roll Modes of Operation

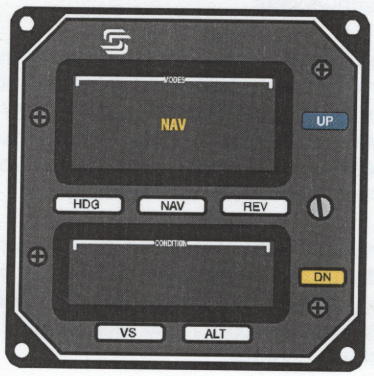
3.2.1 Heading (HDG)

The HDG mode provides heading preselect and turns through the use of the heading bug on the Directional Gyro (DG) or optional Horizontal Situation Indicator (HSI).



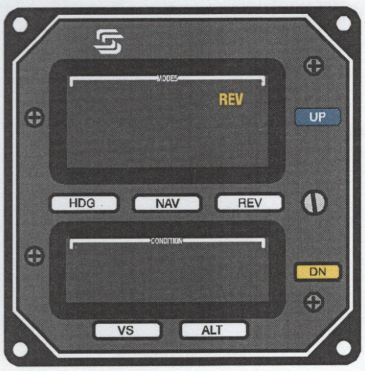
3.2.2 Navigation (NAV)

The NAV mode provides roll commands for automatic intercept and tracking of selected VOR/LOC/RNAV/LORAN/GPS navigational signals.



3.2.3 Reverse (REV)

REV mode provides roll commands for automatic intercept and tracking of the back course localizer inbound or the front course localizer outbound.

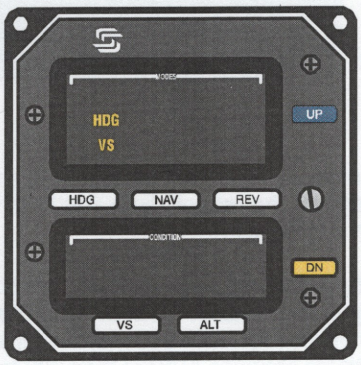


3.3 Pitch Modes of Operation

NOTE: Before engaging a pitch mode of operation, a roll mode must first be engaged.

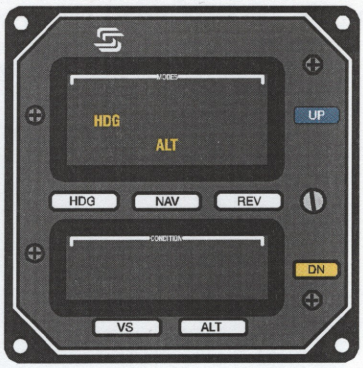
3.3.1 Vertical Speed (VS)

The VS mode provides pitch synchronization of the autopilot to the aircraft vertical speed. To activate, press the VS mode switch. This activates the UP/DN (Down) pitch modifier switches for pilot commanded changes of vertical speed, up to a maximum of +/- 1600 feet per minute (rate of climb/descent).



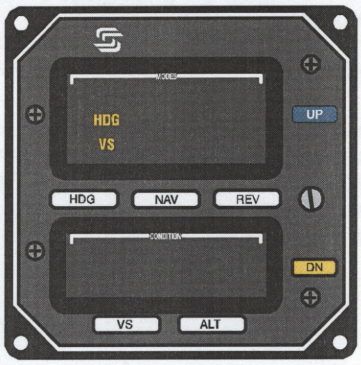
3.3.2 Altitude (ALT)

The ALT mode engages the altitude hold mode, capturing the altitude attained at the time of activation.



3.3.3 UP

When the VS mode is activated, the UP modifier switch will increase the rate-of-climb or decrease the rate-of-descent at 160 FPM for each second of continuous switch depression.

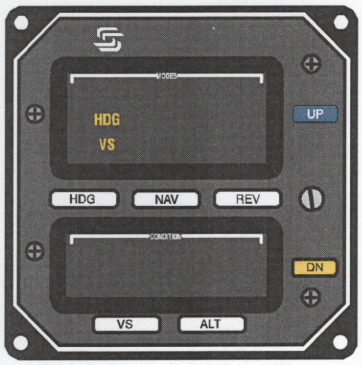


3.3.4 Down (DN)

When the VS mode is activated, the DN switch will increase the rate-of-descent or decrease the rate-of-climb 160 FPM for each second of continuous switch depression.

When the altitude hold mode is engaged, the UP and DN switches may be used to adjust the altitude. The UP and DN switches produce a 20 foot change in altitude for each second of depression, up to a maximum of 200 feet. Altitude changes of more than 200 feet require reactivation of the VS mode.

NOTE: For aircraft without auto trim, or where auto trim is disabled or turned off, the UP/DN switches are used to annunciate out of trim conditions when either the VS or ALT modes are engaged. If up trim is required, the UP switch will illuminate. If down trim is needed, the DN switch will illuminate. In both cases, the TRIM annunciation will also illuminate. The pilot should manually trim the aircraft in the direction indicated, until the light extinguishes. The aircraft will then be trimmed for existing flight conditions.



NOTE: There are four ways to disengage the autopilot (A/P):

1. Press the A/P disconnect/trim interrupt switch (normally mounted on the control wheel).

2. If pitch axis is engaged, operate the trim switch either way. (This will not disconnect the A/P if Autotrim is disabled or not installed).

3. Turn off the Autopilot Master Switch.

4. Locate and pull the autopilot circuit breaker.