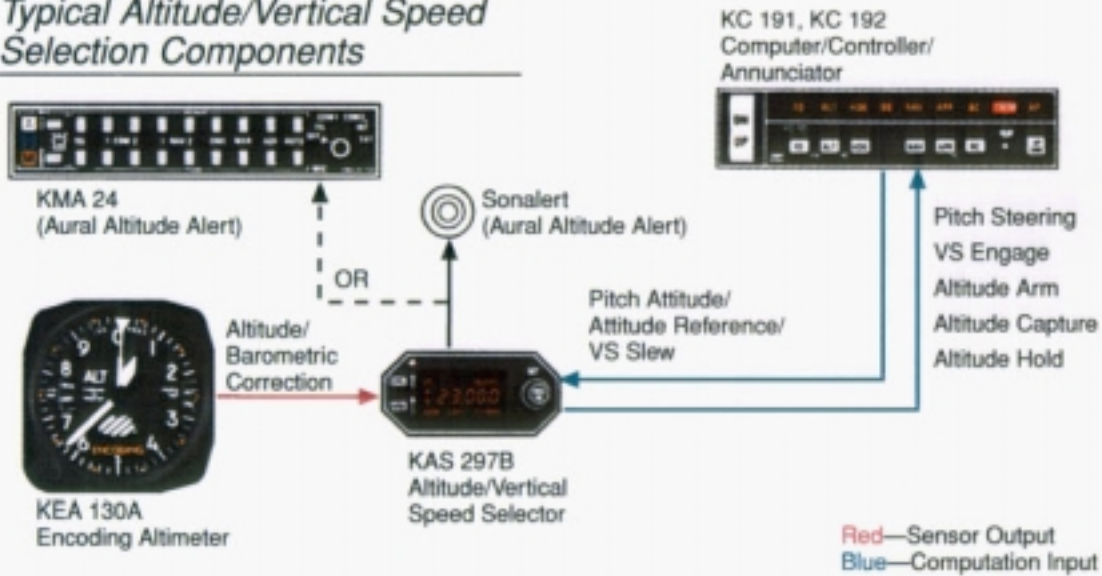


OPTIONAL KAS 297B ALTITUDE AND VERTICAL SPEED SELECTOR

The KAS 297B adds the versatility and benefits of Altitude Preselect and Vertical Speed Select to the KAP 150 and KFC 150 Flight Control systems. Altitude Alerting as defined by F.A.R. 91.51 is also provided.

The diagram below shows the normal system components including the KEA 130A which provides altitude and barometric correction information to the KAS 297B.

Typical Altitude/Vertical Speed Selection Components





Altitude Preselect Operation

To select a new altitude, the KAS 297B must be displaying feet (FT). If it is displaying feet per minute (FT/MIN), push the inner concentric knob to the "in" position.

Rotating the outer concentric knob will select altitude in 1000 ft. increments up to a maximum of 35,000 feet. The inner concentric knob controls altitude in 100 ft. increments.

Once the correct altitude has been entered, push the ARM button to arm the altitude capture mode. Use pitch attitude hold or select a vertical speed to guide the aircraft to the new altitude.

As the aircraft nears the selected altitude, a pitch round out is computed by the KAS 297B based on the aircraft's vertical speed. When the KAS 297B determines the round out should begin, the display will change from arm (ARM) to capture (CAPT) and Vertical Speed mode will be disengaged if it was in use. At the selected altitude, Altitude Hold is engaged and CAPT mode is disengaged.



Altitude Alerting

Regardless of whether the flight control system is engaged, the KAS 297B provides altitude alerting to alert arrival at and deviation from the selected altitude.

When the aircraft reaches 1,000 feet from the selected altitude, the KAS 297B will annunciate ALERT and a 2 second aural tone will sound. The ALERT will stay

on until 300 feet* from selected altitude. When the aircraft reaches the selected altitude, a 2 second ALERT annunciation and aural tone alerts the pilot to the aircraft's altitude.

Until a new altitude is selected, the system will provide alerting any time the aircraft's altitude varies more than 300 feet* from the selected altitude.

*The inner alerting altitude can be set at time of installation to be either selected altitude ± 500 or ± 300 feet. Particular STC's may require the use of one of these settings. Consult your aircraft Flight Manual Supplement for details.



Vertical Speed Select Operation

Vertical speed may be engaged in either of two ways: by preselecting a vertical speed on the KAS 297B or by engaging vertical speed at its present value and then modifying a rate of climb or descent using the vertical trim rocker switch on the KC 191/192, the CWS button or rotating the select knob on the KAS 297B with the inner knob pulled to the out position.

NOTE: The pointer of a mechanical Vertical Speed Indicator has a typical accuracy of ± 5 to $\pm 15\%$ depending on rate and altitude. Therefore, the aircraft may actually be holding the selected vertical speed even if the mechanical VSI disagrees. Timing altitude changes (e.g. 500 ft/min for 3 minutes should yield a 1,500 ft change in altitude) is the most accurate method of determining which is correct.

Also VSI's have a substantial lag in indication inherent in their design (Instantaneous, or IVSI indicators, reduce this lag considerably). Comparisons made prior to the stabilization of vertical speed will not be valid.

Vertical Speed Preselect

To preselect a vertical speed, pull the inner concentric knob out. The last used vertical speed, an up or down arrow, and FT/MIN will be annunciated. Rotating the inner knob adjusts vertical speed in 100 feet per minute increments while the outer knob controls the 1,000 feet per minute digit up to a maximum of $\pm 3,000$ feet/min. When the selected vertical speed passes through zero the up/down arrow will change directions. To engage this selected rate, push the engage (ENG) button (while vertical speed is displayed). Altitude Hold, if engaged, will be canceled and the system will capture the commanded vertical speed.

If a change in vertical speed is desired, the vertical trim rocker switch may be used to slew the rate up or down at 100 feet per minute for every second the rocker switch is held down. Vertical speed can also be modified by holding down the CWS button and changing pitch attitude until the desired vertical speed command is displayed on the KAS 297B. If the KAS 297B is displaying altitude at the time, vertical speed will be displayed until after the CWS switch is released.

The inner knob on the KAS 297B can be pulled out at any time to display the vertical speed command. Rotating the knob while it is "out" will vary the vertical speed command.

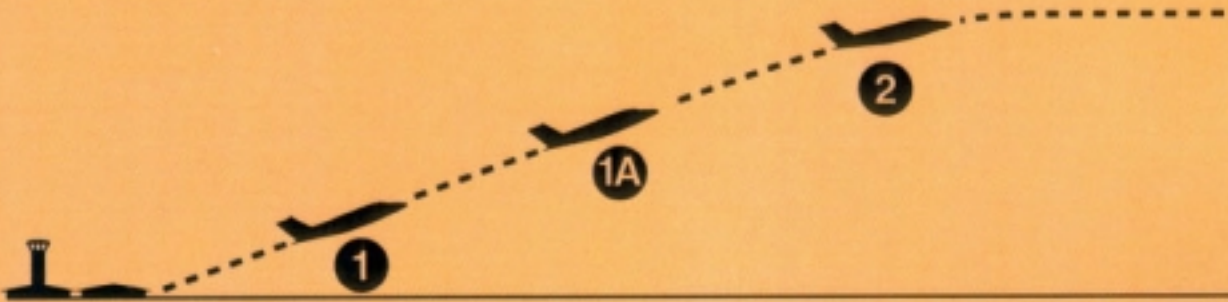
Vertical Speed Synch

Vertical Speed synch may be used to maintain the aircraft's current vertical speed by pushing the engage (ENG) button while the KAS 297B is displaying altitude. Immediately upon engaging VS synch, the KAS 297B will display for 2 seconds the vertical speed which the KAP/KFC 150 system will hold. Vertical Speed can be varied up or down just as described in Vertical Speed Preselect.

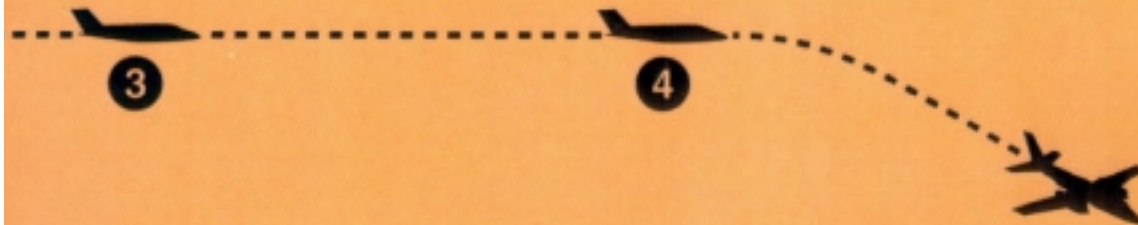
Test Mode

When the preflight test button on the KC 191/192 is pushed, all legends and digits are displayed on the KAS 297B to confirm the display's integrity.

Altitude Profile



1. You have lifted off having previously set the assigned altitude of 11,000 feet. When a safe altitude is reached, the autopilot is engaged, altitude is ARMed, and the aircraft is climbing to the assigned altitude in pitch attitude hold. Once a stable rate of climb is established, the engage (ENG) button is pushed while the selected altitude is showing; engaging VS at its present value. The KAS 297B will automatically display this vertical speed for 2 seconds after pushing VS ENGage.
- 1A. The vertical trim rocker switch on the KC 191/192 is being used to slew the VS command, and the selected altitude display is replaced by vertical speed until 2 seconds after the rocker switch is released.
CWS or the VS select knob may also be used to vary the VS command.
2. As the aircraft reaches assigned altitude, alerting is provided and a pitch round out is computed. At the appropriate altitude, the autopilot has disengaged VS mode and annunciated the change to altitude capture (CAPT) mode.



3. You have now reached the assigned altitude of 11,000 feet and the autopilot has automatically engaged altitude hold.



4. In preparation for the descent, the new altitude is preset in the KAS 297B. When the descent is to be started, the new altitude is ARMed, the inner concentric knob is pulled out, the desired vertical speed is entered and the ENG button is pushed with vertical speed displayed.



Operation of the autopilot in descent is identical to operation in climb with a pitch round out allowing a smooth capture of the assigned altitude.