

Bendix King KAS 297B Pilots Guide

Autopilot Altitude Selector/Alerter and Vertical Speed Selector

Filename: **BendixKingAP29IKAS297B_JD**



The KAS 2897B Autopilot Altitude Selector/Alerter and Vertical Speed Selector adds the versatility and benefits of Altitude Preselection and Vertical Speed Selection to autopilots such as the KFC 200, KAP 150 and KFC150. Altitude Alerting as defined by F.A.R.91.51 is also provided.

The **BendixKingAP29IKAS297B_JD** interfaces with the following autopilots, and autopilot annunciator:

BendixKingAP20IKFC200_JD autopilot

BendixKingAP15IKAP150_JD autopilot

BendixKingAP15IKFC150_JD autopilot

BendixKingAP20IKA285_JD autopilot annunciator

Hotspots:



1. ENG VS (Vertical Speed Mode Engage) button
2. ARM ALT (Altitude Capture Arm) button
3. SET PULL VS – inner knob (Knob in - display/set Altitude; knob out - display/set VS)
(Set Altitude in 100 ft steps, set VS in 100 ft/min steps)
4. SET PULL VS – outer knob (Set Altitude in 1000 ft steps, set VS in 1000 ft/min steps)

A comprehensive simulation of the real Bendix King KAS 297B.

Advanced features found on this autopilot altitude selector/alserter and vertical speed selector have been accurately simulated. The real Bendix King Pilot's Guide (available on the web for download) may be used instead of the description found here.

Operation has been made as close as possible to their real-life counterpart.

To this end these autopilots use right/left mouse clicks for knobs (right for increment, left for decrement) unless otherwise stated. This is considered superior the standard Flight Simulator method of left clicks only, and more closely simulates real-life operation.

Alternatively, the mouse wheel can also be used on all knobs to increment or decrement values.

All standard Flight Simulator shortcut key assignments operate normally unless otherwise stated.

If a previously saved "Flight" is loaded, all relevant operating modes are correctly selected.

SET PULL VS Knobs (3) and (4)

The SET PULL VS inner concentric knob (3) can be pushed in or pulled out – click the middle mouse button to toggle the knob in or out. (The knob is animated – and can be seen to be in or out.)

With the inner concentric knob (3) pushed in, the Capture/Alerting Altitude is displayed. The Capture/Alerting Altitude can be changed in increments of 100 feet by “turning” the inner concentric knob (3), or in increments of 1000 feet by “turning” the outer concentric knob (4), up to an altitude of 35,000 feet. Use right-click to increase, left-click to reduce, or use the mouse wheel.



With the inner concentric knob (3) pulled out, Vertical Speed (VS) is displayed. An up or down arrowhead (^) indicates if the vertical speed is up or down. The Vertical Speed can be changed in increments of 100 ft/min by “turning” the inner concentric knob (3), or in increments of 1000 ft/min by “turning” the outer concentric knob (4), up to a maximum of $\pm 3,000$ ft/min. Use right click to increase, left click to reduce, or use the mouse wheel.



Vertical Speed Mode

Vertical Speed may be engaged in either of two ways:

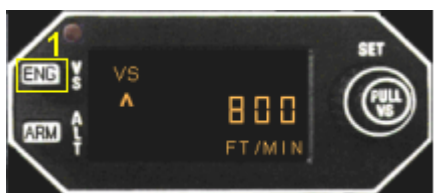
By preselecting a vertical speed on the KAS 297B, known as *Vertical Speed Preselect*, or by engaging vertical speed at its present value and then modifying the rate of climb or descent, known as *Vertical Speed Sync*.

1. Vertical Speed Preselect

Pull the SET/PULL VS inner knob out. The last used vertical speed is displayed. “Turn” the knob to select the required vertical speed. When the vertical speed passes through zero the up/down arrowhead will change direction.



To engage the Vertical Speed mode, press the ENG VS button (1). **VS** will be annunciated. The autopilot Altitude Hold mode, if engaged, will be cancelled.



The vertical speed can be changed as normal by turning the knob on the KAS 297B, or can be incremented/decremented by pressing the rocker switch on the KAP 150, KFC 150 or KFC 200 autopilot.

2. Vertical Speed Sync

Vertical Speed Sync may be used to maintain the aircraft's current vertical speed.

Push the SET/PULL VS inner knob in, to display altitude.

Engage the Vertical Speed mode by pressing the ENG VS button (1). **VS** will be annunciated.

The Vertical Speed mode will be engaged at the aircraft's current vertical speed.

The vertical speed will be displayed for 2 seconds, reverting back to the altitude display.



The knob on the KAS 297B can be pulled out at any time to display and alter the vertical speed. Alternatively, with the knob on the KAS 297B pushed in, the vertical speed can be incremented/decremented by pressing the rocker switch on the KAP 150, KFC 150 or KFC 200 autopilot. In this case the vertical speed will be displayed for 2 seconds, reverting back to the altitude display.

Altitude Capture

To capture an altitude, push the SET/PULL VS inner knob (3) in, and “turn” the knob to select the required altitude. Then press the ARM ALT button (2) to arm altitude capture, **ARM** will be enunciated.

Then use Pitch Hold mode or Vertical Speed mode to make the aircraft climb or descend towards the Capture/Alerting Altitude.



As the aircraft nears the selected altitude, a pitch round out is computed, and capture mode is engaged - the **ARM** indicator will be extinguished and **CAPT** will be annunciated.



At the selected altitude, the Altitude Hold mode will be engaged on the autopilot, and the **CAPT** annunciator will be extinguished. (If the Vertical Speed mode was used to capture the altitude, it will be cancelled.)



Altitude Alerter

Regardless of whether the autopilot is engaged, the KAS 297B provides altitude alerting to indicate arrival at, and deviation from, the selected altitude. When the aircraft reaches 1000 feet from the selected altitude the KAS 297B will annunciate **ALERT** and an aural alert consisting of two short tones will sound.

Note: for custom sounds to be heard, the gauge `dsd_fsx_xml_sound.gau` must be installed – see Note 1.



The **ALERT** annunciation will stay on until 300 feet from the selected 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. In this event the **ALERT** annunciation will illuminate, and three short tones will sound.

Note 1. Sounds

For custom sounds to be heard, the gauge `dsd_fsx_xml_sound.gau` must be installed. This is a freeware gauge from Doug Dawson. See Credit for Sound Gauge below.

Installation

Download the file: `dsd_fsx_xml_sound.zip` available from FlightSim.com.
Unzip the zip file.

Step 1.

Install the file: `dsd_fsx_xml_sound.gau` into the flight simulator **Gauges** sub-folder.
(Normally ...\\fsx\\Gauges or ...\\Flight Simulator 9\\Gauges)

Step 2.

Install the file: `SoundJD.ini` into the flight simulator **Gauges** sub-folder.
(The file `SoundJD.ini`, and the folder: **SoundJD** are included in the KX155A package.)

Step 3.

Install the folder **SoundJD** into the flight simulator **Sound** sub-folder.
(Normally ...\\fsx\\Sound or ...\\Flight Simulator 9\\Sound)

Step 4.

Copy and paste the line:
`gaugenn=dsd_fsx_xml_sound!Sound, 2,2,2,2, ./gauges/SoundJD.ini` into the
[Window00] section in the `Panel.cfg` file for every aircraft that has the KX155A installed.
(Where nn is the next available gauge number). Note the dot before `/gauges` !

Credit for Sound Gauge

Many thanks to Doug Dawson, for his excellent freeware sound gauge.
It is available from various flightsim websites (e.g. Flightsim.Com and Avsim.)
This is a very sophisticated and versatile application - the above installation only used a fraction of the capability available.

Note 2. The Flight Simulator shortcut key assignment for Select Altitude (CTRL+SHIFT+Z) does not work with this altitude selector.