

SECTION 9**Supplement AVE1****Bendix King NAV / COM KX125**

When a Bendix King NAV/COM Transceiver KX 125 is installed in the AQUILA AT01, this Supplement is applicable and must be inserted in the Supplements Section (Section 9) of the Pilot's Operating Handbook. Information in this supplement either adds to, supersedes, or deletes information of the basic AQUILA AT01 Pilot's Operating Handbook.

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1. KX 125 Front View



2. Description

The KX 125 NAV/COM consists of a communications receiver-transmitter and a navigation receiver for signals of VOR radio beacons. A CDI is integrated into the middle display. The self-contained KX 125 utilizes a backlighted liquid crystal display (LCD). The COMM frequency range of 118.000 MHz to 136.975 MHz contains 760 channels in 25 kHz steps. The NAV frequency range of 108.000 MHz to 117.95 MHz contains 200 VOR/LOC Channels 50 kHz steps.

The KX 125 is mounted in the center of the instrument panel, the COM antenna is integral of the horizontal stabilizer, and the NAV antenna is mounted on the bottom of fuselage just behind the baggage compartment bulkhead.

Both, the COMM frequency window and the NAV frequency window indicate two frequencies. The above shown is the active frequency. To exchange the two frequencies, push the appropriate frequency transfer button on the window side. The adjusted frequencies are stored during shutdown of the device so that they are available while powering on.

3. Circuit Protection

A panel-mounted circuit breaker (NAV/COM) is provided to stop the power supply in the event of an electrical overload (an internal short circuit, etc.).

4. Operation

The KX 125 can be powered on if the ALT/BAT switch, and the AVIONICS main switch in ON position. Refer to above shown figure for locations of keys and knobs mentioned below.

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4.1. Power Up

The device is powered on by rotating the COMM VOLUME/PULL TEST control knob clockwise from the detented OFF position to the ON position. By this knob is also the COMM volume adjusted. The unit is immediately ready for operation and the last-used frequencies will be indicated.

4.2. Frequency Selection

4.2.1. Standard Operation

By rotating the concentric frequency selector knobs, the desired operating frequency can be entered into the SBY window, on either the COMM or NAV. The larger knob provides changes of 1 MHz and the smaller knob provides changes of 50 kHz when pushed in, on the COMM side additional 25 kHz when pulled out (0.005 MHz increments are not indicated, i.e. if a reading of e.g. 136.97 MHz, the adjusted frequency is 136.975 MHz).

By pressing the transfer button, the newly entered frequency flip-flops with the frequency in the active window (appears in the active COMM frequency window), and the previous active frequency becomes the STBY frequency.

4.2.2. Direct Frequency Selection

Commonly by rotating the frequency selector knob the standby frequency is changed that must be then transferred in the active frequency window. This can be bypassed by the operating mode "Direct Frequency Selection". This mode is entered by pressing and holding the frequency transfer button (COMM or NAV) for more than two seconds. The frequency in the SBY window will blank, and the frequency displayed in the active window may then be changed directly with the frequency selector knobs.

The receiver is tuned to the frequency displayed in the active window at all times (also while adjusting frequency).

Momentarily pressing the transfer button will return the unit to the active/standby standard operation.

The SBY frequency displayed prior to entering the Direct Frequency Selection mode remains unchanged.

The Direct Frequency Selection mode for COMM and NAV are independent of each other, that means both sides may also be in either mode simultaneously.

4.2.3. Default Mode

This operating mode can be used in the event of a display failure.

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Turning the unit on while holding either the COMM or NAV transfer button will bring both the NAV and COMM up in the Active Frequency Selection mod, loading 120.00 MHz in the active COMM display and 110.00 MHz in the active NAV display.

The standby frequencies will also be 120.00 MHz and 110.00 MHz.

To accurately tune the active frequency on either the COMM or NAV, count up 1 MHz for each clockwise click of the larger knob, and down 1 MHz for each counterclockwise click of the knob. The procedure with the smaller knob is similar (50 kHz per click, and/or 25 kHz with pulled knob on the COMM side).

This allows the pilot to blind-tune the radio in the event of a display failure.

4.3. Radio Operation

4.3.1. COMM Volume and Squelch

The COMM volume is adjusted rotating the ON/OFF knob. To override the automatic noise suppressor (Squelch), pull the ON/OFF knob out and rotate it to the desired listening level. To activate the automatic squelch, simply push the volume knob back in.

4.3.2. Transmitting

The transmitter is activated by pressing the push-to-talk button on the control stick, or when the microphone is keyed. While transmitting "TX" will appear in the frequency window.

4.3.3. Transmit/Stuck Microphone Protection

As long as the microphone is keyed, to the right of active COMM frequency "TX" appears. If the transmitter is activated continuously for more than 35 seconds, the unit will revert to the receive mode automatically. Additional, the COMM active and standby frequency displays will flash to inform the user of the stuck-microphone condition.

4.4. Navigation

4.4.1. NAV Volume, Ident Knob

The VOR-stations transmit an identifier that consists of three alphabetic characters in the Morse code. Additional, the broadcast of VOLMET (voice modulation) is possible. The NAV Ident knob is activated by pulling it outward. Both voice and ident can be heard. When the knob is pushed in, only the VOLMET information (if available) can be heard. Volume can be adjusted by rotating this knob.

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4.4.2. Operating Modes

NAV Mode Button

With a VOR frequency in the active NAV display the NAV Mode button is used to select from among the three NAV modes available for the NAV Information Window.

- Course Deviation Indicator (CDI)
- Bearing Mode (BRG)
- Radial Mode (RAD)

Upon power up, the KX 125 awakens in the CDI mode. Momentarily pressing the Mode button changes to the Bearing Mode (BRG), and pressing again to the Radial Mode (RAD).

Changing the active frequency will not change the selected NAV mode. The unit changes automatically into the CDI mode only a Localizer frequency is selected as active.

CDI Mode

In the CDI mode, a course deviation scale appears in the NAV Information Window. If a valid navigation signal is received, deviation bars are displayed to the left or right along this scale, showing a course deviation. Each dot along this scale represents 2 degrees of deviation. If a single bar in the center is displayed, there is no deviation.

OBS is annunciated beneath the CDI, along with a three-digit OBS setting. The OBS entry mode is activated when the inner NAV frequency selection knob ("Pull OBS" knob) is pulled out while a VOR frequency is displayed on the NAV active window. The OBS annunciator will flash to indicate you are in the OBS Select mode (OBS knob pulled out). Rotating the inner NAV frequency selection knob changes the OBS setting. Turning the knob quickly results in large changes to the OBS setting, while turning the knob slowly changes the OBS setting one degree at a time.

While in the OBS mode, the appropriate TO or FR (To/From) annunciation is also displayed.

If a valid NAV signal is not being received, the unit indicates a flagged condition by displaying all the deviation bars on the CDI, along with a "FLAG" annunciation. In addition, the "TO" and "FR" annunciations are removed from the display.

BRG Mode

The BRG mode displays "bearing TO" information. It is selected by pressing the NAV Mode button to cycle to the BRG Mode. In the BRG mode, the deviation scale, deviation bars and OBS annunciator are not displayed. When a valid navigation signal is being received, a three-digit "bearing to the station" is displayed in the OBS setting window, and the "TO" annunciation is displayed.

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If a valid navigation signal is not being received, dashes (- - -) are displayed in the OBS setting window.

NAV Radial Mode

The RAD mode displays the "radial FROM information", and is selected by pressing the Mode button to cycle to the RAD Mode. In the RAD mode, the deviation scale, deviation bars and OBS annunciator are not displayed. When a valid navigation signal is being received, a three-digit "radial from the station" is displayed in the OBS setting window and the "FR" annunciator is displayed. If a valid navigation signal is not being received, dashes(- - -) are displayed in the OBS setting window.

Auto-TO Feature

Regardless of the active mode, pressing and holding the Mode button for more than 2 seconds will activate the "Auto-TO" mode - bringing up the CDI mode with a centered deviation bar, a "TO" indication and an OBS setting indicating the direct course to the station.

Once this is done, the indicator will then operate in the normal CDI mode, showing the appropriate left-right course deviation.

Localizer Function

When a localizer frequency is selected in the active frequency window, the CDI mode is the only one displayed. The "OBS", "TO" and "FR" annunciators are not displayed, and the OBS setting window displays "LOC".

When a valid navigation signal is being received, deviation bars are displayed left and right along the deviation scale, indicating course deviation. If a valid NAV signal is not being received, the unit indicates a flagged condition by displaying all deviation bars and the "FLAG" annunciator.

5. General Notes

In order to increase the service life of KX 125 it should not be on during engine start and engine shut-down since electrical surges may cause damage to the unit.

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