KX165A VHF Nav/Com Transceiver

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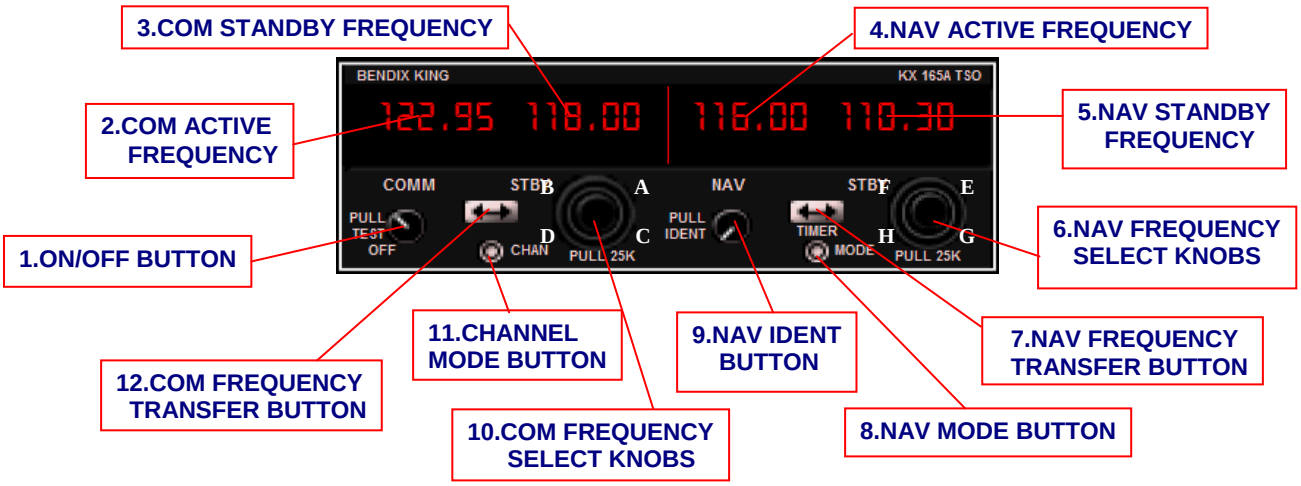
Navigation and Communication Transceiver
For The
MS Flight Simulator 9 (FS2004)

KX165A VHF COMM/NAV TRANSCEIVER



The KX 165A Transceiver is a communication and navigation radio. Two frequencies, active and standby, are available for both communications and navigation. Frequencies are typically entered into the standby frequency, and then exchanged with the active frequency to become active by using the COM or NAV FREQUENCY TRANSFER BUTTONs. There is also a "direct tune" mode which allows the user to change either the Com or Nav active frequencies directly. There is a PAGE mode and a CHANNEL mode for communications that allows the user to store up to 6 Com frequencies which can be exchanged directly with the active frequency at the click of a button. In addition, OBS, bearing-to, radial-from, count-up and count-down timer modes are available for navigation.

All of the controls for the radio are located on the front of the radio. The displays and controls for the communication functions are presented on the left side of the unit, the displays and controls for the navigation functions are on the right side. Communication controls include the COM FREQUENCY TRANSFER BUTTON, the CHANNEL MODE BUTTON, and the COM FREQUENCY SELECT KNOBS. Navigation controls include the NAV

FREQUENCY TRANSFER BUTTON, the NAV MODE BUTTON, and the NAV FREQUENCY TRANSFER BUTTONs. All of the communications functions, excluding the display of the active frequency, are displayed at the location of the COM STANDBY FREQUENCY. Similarly, all navigation functions are displayed at the location of the NAV STANDBY FREQUENCY.

1. **ON/OFF BUTTON:** Powers the unit on and off.

2. **COM ACTIVE FREQUENCY:** Digital display of the active communications frequency.

3. **COM STANDBY FREQUENCY:** Digital display of the standby communications frequency.

4. **NAV ACTIVE FREQUENCY:** Digital display of the active navigation frequency.

5. **NAV STANDBY FREQUENCY:** Digital display of the standby navigation frequency.

6. **NAV FREQUENCY SELECT KNOBS:** An outer and an inner knob. The outer knob increments/decrements the navigation frequency in 1 MHz steps, and the inner button increments/decrements in 50 kHz steps. The outer knob is increased by clicking on the letter E at the upper right side of the knob and decreased by clicking on the letter F at the left. The inner knob is increased by clicking on the letter G at the bottom right, and decreased by clicking on the letter H at the bottom left.

   The NAV FREQUENCY SELECT KNOBs are also used to enter count-down values in the count-down mode. The outer knob increments/decrements the time in 1 minute steps. The inner knob increments/decrements time in 1 second steps. Click spots are the same as above.

   The NAV FREQUENCY SELECT INNER KNOB has 2 positions, an out and an in position. Clicking directly on the button will toggle between these 2 positions. The out position is the default position. Functions requiring the out position include entry into the direct tune mode, active and standby Nav frequencies exchange in the OBS, bearing, and radial modes, resetting the count-up timer, and entering and exiting the count-down timer mode. Functions requiring the in position include active and standby Nav frequencies exchange in the default screen, direct active frequency change in the OBS, bearing and radial modes, and entering data, stopping, and

resetting the count-down timer.

7. **NAV FREQUENCY TRANSFER BUTTON:** This button is used primarily to exchange the active and standby navigation frequencies. In the default screen the NAV FREQUENCY SELECT INNER KNOB must be in the "in" position, and in the "out" position in the OBS, bearing, and radial modes for the exchange to occur. This button is used to enter the direct tune mode, to reset the count-up timer, and to stop and/or reset the count-down timer. It is also used to enter and exit the count-down timer mode.

8. **NAV MODE BUTTON:** Used to sequentially step through the different navigation screens. Clicking the button at the last screen will "wrap around" to open the default screen.

9. **NAV IDENT BUTTON:** Turns on Nav IDENT when toggled to the out position. The corresponding Nav "on" annunciator on the GMA 340 will illuminate.

10. **COM FREQUENCY SELECT KNOBS:** An outer and an inner knob. The outer knob increments/decrements the communications frequency in 1 MHz steps, and the inner button increments/decrements in 25 kHz steps. The outer knob is increased by clicking on the letter A at the upper right side of the knob and decreased by clicking on the letter B at the left. The inner knob is increased by clicking on the letter C at the bottom right, and decreased by clicking on the letter D at the bottom left.

    The COM FREQUENCY SELECT KNOBs are also used to enter frequency values in the direct tune and page modes. The knobs increment/decrement the values as discussed above. The inner, kHz knob, is also used to step through the pages and channels of the page and channel modes, respectively.

11. **CHANNEL MODE BUTTON:** Used to enter and exit the page and channel modes.

12. **COM FREQUENCY TRANSFER BUTTON:** This button is used primarily to exchange the active and standby communications frequencies. No other buttons are required for the exchange. This button is also used to enter the direct tune mode, and to allow the entering of frequencies in the page mode.

INSTRUCTIONS:

1. Power the unit on by clicking the ON/OFF BUTTON.

2. Set Com and Nav frequencies using the COM- and NAV- FREQUENCY SELECT KNOBS, respectively. The active frequencies can be entered in 2 ways: 1) dial the desired number in as the standby frequency and then click on the COM or NAV FREQUENCY EXCHANGE BUTTON to place the entered number into the active frequency, (note: the NAV FREQUENCY SELECT KNOB must be in the "in" position to exchange the Nav frequencies), or 2) hold the COM or NAV FREQUENCY EXCHANGE BUTTON down longer than 2 seconds and enter the value directly into active frequency (direct tune).

   The standby frequency is not displayed in the direct tune mode. Click the exchange button again to exit the direct tune mode. The standby frequencies can be entered directly using the appropriate knobs.

3. Enter Com frequencies into storage for later easy retrieval, up to 6 frequencies can be stored. The frequencies are entered in the PAGE mode. To enter the PAGE mode, hold the CHANNEL MODE BUTTON down for longer than 2 seconds. There is a "PG *" (* denotes page number) annunciation to show you are in the PAGE MODE, and at this time a semitransparent rectangle behind the annunciation. There are now 2 choices:

   1) click on the COM FREQUENCY EXCHANGE BUTTON to enter numbers using the COM FREQUENCY SELECT KNOB. In this data entry state the rectangle behind the PG * annunciation will disappear and a larger rectangle will appear behind the frequency numbers. Click again on the COM FREQUENCY EXCHANGE BUTTON to exit the entry state, the large rectangle will disappear and the smaller rectangle behind the PG * annunciations will reappear.

   2) sequentially step up or down through the different pages in the PAGE mode by clicking on the inner, kHz, knob (letters C and D in the above picture). Click on the CHANNEL MODE BUTTON to exit the PAGE mode.

4. Numbers are entered into the specific pages by going to that page, and then entering them as discussed above. You cannot change pages when in the data entry state. The PG * annunciation and the rectangle behind it indicates that you are in the PAGE mode and that you can step through the pages. The rectangle behind the frequency, and the PG * annunciation, shows you are in the data entry state of the PAGE mode.

   Clicking on the CHANNEL MODE BUTTON while in the PAGE mode data entry state will take you directly to the CHANNEL mode, clicking on the CHANNEL MODE BUTTON again takes you back to the default screen and enters the number into the standby frequency.

5. When desired, the stored frequencies can be retrieved and placed into the active frequency by going into the CHANNEL mode. This is done by clicking on the CHANNEL MODE BUTTON for less than 2 seconds. A "CH *" annunciation will appear with a semitransparent rectangle behind it to show you are in the CHANNEL mode. The number displayed is the CHANNEL mode number and corresponds directly to a specific PAGE mode number.

   Use the inner, kHz, COM FREQUENCY SELECT KNOB (click spots C and D) to step sequentially through the channel pages. You can now enter that number into the standby frequency by clicking again on the CHANNEL MODE BUTTON and then entering it as the active frequency by clicking on the COM FREQUENCY EXCHANGE BUTTON. Clicking on the CHANNEL MODE BUTTON will also take you out of the CHANNEL mode back to the default screen.

6. The different NAV pages can be sequentially viewed using the NAV MODE BUTTON. Each click of the button steps the display to the next page, and the last click recycles the pages back to the first page. The active Nav frequency can be directly changed in the OBS, BEARING, RADIAL, and Timer pages by clicking on the NAV FREQUENCY SELECT KNOB and then using the knob to enter the new value. When entering data there is a rectangle behind the active frequency to indicate you are in the data entry state. The active frequency can be exchanged in these pages by clicking the NAV FREQUENCY EXCHANGE BUTTON.

7. In the default page, click the NAV MODE BUTTON once to get to the OBS page. The OBS page displays a typical CDI with a needle that shifts left or right depending on the relative position of the aircraft to a received signal. Centering the CDI needle using the EFIS CONTROL PANEL will also center the needle in the KX 165A. A TO or FROM annunciation will be displayed in the center of the CDI scale if a DME signal is being tracked.

   Also, the direction to the signal will be displayed in the standby frequency location. A dashed horizontal line and the word FLAG is displayed if no signal is received. If the signal if from a localizer, the direction annunciation is replaced by the letters LOC.

8. Click on the NAV MODE BUTTON once again to get to the BEARING page. This page displays the bearing to or from a received signal station. The value is in degrees magnetic north. When tracking to a station the letters TO will be annunciated.

9. Clicking the NAV MODE BUTTON again brings up the RADIAL page. The radial page displays the radial in degrees magnetic north from the station. The letters FR

will be annunciated to show that tracking is occurring.

10. Click the NAV MODE BUTTON again to get to the timer page. The timer is displayed in a min:sec format. The default page shows the count-up timer. If the timer has not been reset, the time shown will be the time passed from when the unit was powered up. The count-up timer can be reset to 0 by clicking on the NAV FREQUENCY EXCHANGE BUTTON. Depressing the NAV FREQUENCY EXCHANGE BUTTON for longer than 2 seconds when the NAV FREQUENCY SELECT KNOB is in the out position will stop the count-up timer and bring up the count-down timer.

When entering this page, there is a rectangle over the time display showing the readiness to enter a value to count down from. Enter the value desired using the NAV FREQUENCY SELECT KNOB. (note: the NAV FREQUENCY SELECT KNOB must be in the out position to enter data into the count-down timer, else the knob will be used to change the active frequency). Click on the NAV FREQUENCY EXCHANGE BUTTON to start the countdown. When the count-down has started, clicking on the NAV FREQUENCY SELECT KNOB will reset the value back to the value entered. The count-down timer is stopped by clicking on the NAV EXCHANGE BUTTON again. To exit the count-down timer page and return to the count-up timer page, hold down the FREQUENCY EXCHANGE BUTTON for longer than 2 seconds.

11. Clicking the NAV MODE BUTTON again will get you back to the main Nav page.