User’s Guide

MSFS 2004 add-on

BENDIX/KING KY196/197 TSO

http://www.sibwings.com

This software is intended for MS Flight Simulator 2004 only. It is a part and an example of quality of the coming soon SAAB 91 Safir add-on payware by SibWings.

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Contacts: For any additional information: info@sibwings.com
Website: www.sibwings.com

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If you have any questions, comments or suggestions, please, feel free to contact us on any of the above links or post on our SW-lab forum www.sibwings.com/forum/.

Credits: We would like to thank real pilots Håkan Halén and Johan Björck for beta-testing and their great input in our work on SAAB 91 Safir!

This manual will be useful for those who have never operated such a gauge in reality and want to learn how to "fly" properly using this software within MS Flight Simulator. By reading this manual you will get all the necessary information about the product and its operation.

Thank you for choosing SibWings product!

Have fun!

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INSTALLATION

NOTE: The package you are about to install consists of two versions of radio (KY 196 and KY 197). The following installation manual is meant for KY 197 version. If you wish to install a simpler KY 196 version, just replace in "panel.cfg" "KY197" by "KY196".

1. Copy "King.cab" file into folder "FS2004 main dir\gauges\".

2. Edit "panel.cfg" of the desired aircraft from the following directory: 'FS2004 main dir\Aircraft\your aircraft\panel\'. For example, panel.cfg of the default Cessna 172 for FS2004 could be found in the following way: 'FS2004 main dir\Aircraft\c172\panel\panel.cfg'. Before any modifications, please, make a backup of the "panel.cfg" original file. To edit "panel.cfg" you can use any text editor like the notepad.

2.1. If you want to use the gauge in the main window:

In [Window00] section find last gauge definition and add
gauge XX=King!KY197,X,Y,W,H

Where:
"XX" - next free gauge number
"X" - indicates the horizontal position of the gauge, in millimeters, relative to the panel background.
"Y" - indicates the vertical position of the gauge, in millimeters, relative to the panel background.
"W" - indicates the width of the gauge in millimeters, relative to the panel background.
"H" - indicates the height of the gauge in millimeters, relative to the panel background.

NOTE: A 100% size King KY197 gauge is at W = 800 and H = 167, with the panel background resolution 1600x1200.

Example (the default Cessna 172 for FS2004):

Opening "panel.cfg" we find:

// Panel Configuration file
// Cessna 172sp
// Copyright (c) 2001-2003 Microsoft Corporation. All rights reserved.

[Window Titles]
Window00=Main Panel
...
In section [Window00] find the last definition of the gaugeXX and add green-marked line.

[Window00]
…
gauge00=Cessna!ADF,545,86
…
gauge41=SimIcons!Map Icon, 354, 280
gauge42=SimIcons!Avionics Icon, 399, 280
gauge43=King!KY197, 0,0,300,63

2.2. If you want to use the gauge in a separate window:

In the [Window Titles] section of “panel.cfg” add the following line:

WindowXX=King KY197

Where ‘XX’ is the next free window number.

Then after the last [Window**] section of “panel.cfg” add these lines:

[WindowXX]
size_mm=W,H
position=2
visible=0
gauge00=King!KY197, 0,0,W,H

size_mm - specifies the size of the panel window, in millimeters.
position - specifies the relative position of the panel window to the main window.
visible - specifies the initial visible state of the panel window.

“XX“ is the number used in WindowXX=King KY197.
“W“ – indicates the width of the gauge in millimeters, relative to the panel background.
“H“ – indicates the height of the gauge in millimeters, relative to the panel background.

Normal resolution for King KY197 gauge is 800x167 in pixels.

A separate window can be:

1. Opened/Closed through the menu: View – Instrument Panel – King KY197.
2. Opened/Closed from the keyboard by Shift+N (N is the number of the separate window. For the example below it is Shift+6).
3. Moved by the mouse.
4. Resized. To change the size right-click on the gauge and choose "Undock Window", then change to the desired size, and right-click again on the gauge to un-tick "Undock Window".

Any additional information about file configuration you can find in the Panel SDK on the official Microsoft Website:
http://www.microsoft.com/games/flightsimulator/fs2004_downloads_sdk.asp

Example (the default Cessna 172 for FS2004):

```
// Panel Configuration file
// Cessna 172sp
// Copyright (c) 2001-2003 Microsoft Corporation.  All rights reserved.

[Window Titles]
Window00=Main Panel
Window01=Radio Stack
Window02=GPS
Window03=Annunciator
Window04=Compass
Window05=Mini Panel
Window06=King KY197

[Window05]
position=7
…
gauge04=Cessna!Altimeter,          417, 0
gauge05=Cessna!Vertical_Speed,      531, 0

[WindowXX]
size_mm=300,63
position=2
visible=0
gauge00=King!KY197, 0,0,300,63
```

3. To delete KING KY197 please restore the original "panel.cfg" from backup. And delete the "King.cab" file from the gauge directory.

OVERVIEW (FEATURES)

The Bendix/King KY 196 and 197 Communications Transceivers offer the best combination of pilot-friendly features and transmitter power of any available panel-mounted COMMs.

The King KY-196 and KY-197 are one of the most popular reconditioned radios, designed for aircrafts with 28 volt electrical systems. The KY 196 delivers 16 watts minimum transmit output power, supporting a frequency range from 118.00MHz to 136.975MH, and is capable of tuning 720 COMM channels. Its 14-volt counterpart, the 10-watt KY 197 covers the same range to provide 760 COMM channels.

They use the bright orange gas discharge displays. Also there are simultaneous digital displays of both active and standby frequencies; this allows you to preselect the standby frequency while you continue to use the active frequency.

In other words, the Bendix/King KY 196 and 197 COMMs transceivers are designed to help simplifying the demands you face in the air.

SPECIFICATIONS

Size: 6.25"Wx1.3"Hx10.50"L
TSO Compliance (Transmitter): TSOC37b (DO-157, Class3)
Power Output: 16 Watts min.
Temperature Range: -20 to +55C
Modulation: 85% modulation with 90% limiting. Less than 15% distortion at 85% modulation
Frequency Stability: 0.0015% to meet DO-156 Class C and D
Harmonic Content: Greater than 60dB down from carrier
Receiver Selectivity (KY-196): 6dB at -k8KHz minimum DO-156 Class C & D 40dB at -M7KHz maximum, 60dB at -K22KH2 maximum
Squelch: Automatic with manual disable and carrier squelch override
TSO Compliance (Receiver): TSO C38b (DO-156, Class C & D (KY-196 models); TSO C38b (DO-156, Class A & B (KY-196E models); DO-160 Env. Cat./A1D1/A/KPS/) 00000(ZBAAA)
Duty Cycle: 1 minute on, 4 minutes off
Frequency Range: 118.00 to 135.975MHz in 25 KHz increments
Receiver Sensitivity: 2uV (hard) or less for 6dB S+N/N with 1 KHz tone modulated 30%
Sidetone Output: Adjustable up to 100rnW into 500 ohm headphones
Receiver Output: 100mW into 500 ohms minimum
Receiver Selectivity (KY-196E): 6dB at -M5KHz minimum DO-156 Class A & B, 60dB at +43KHz maximum
Spurious Responses: At least 80dB down

CONTROLS AND INDICATORS

Controls:

1. Frequency transfer button
Mouse operation: ‘left click’ to shift frequency between ‘USE’ and ‘STANDBY’ windows, or to change operating mode.

2. ON/OFF/Volume Control Knob
Mouse operation: ‘left click’ for audio test; ‘mouse wheel’ to ON/OFF and volume regulation.
Keyboard shortcuts: ‘Shift-C’ for ON/OFF device.

3. Inner frequency selector knob
Mouse operation: ‘left click’ to switch between ‘In’ and ‘Out’ states; ‘mouse wheel’ for frequency/channel change.

4. Outer frequency selector knob
Mouse operation: ‘left click’ for frequency decrement; ‘mouse wheel’ for frequency decrement/increment.

5. Outer frequency selector knob
Mouse operation: ‘left click’ for frequency increment; ‘mouse wheel’ for frequency decrement/increment.

Indicators:

6. “Use” window indicator: indicates an active frequency or a number of active channels.

7. “Standby” window indicator: indicates a standby frequency.

8. “Transmit” indicator: is lighted when the mike is keyed.

OPERATION

TURN-ON

Rotate the ON/OFF/Volume Control Knob clockwise from the detente "off" position. Power will be activated and the unit will be ready to operate. The mode of operation and frequencies displayed will be those last used. No warm-up time is required. To override the automatic squelch for audio test, pull the volume control knob "out" and rotate to the desired listening level. Push the knob back "in" to activate the automatic squelch.

TRANSMIT INDICATOR

A lighted "T" will appear between the "use" and "standby" displays to indicate that the mic has been keyed.

THE FREQUENCY MODE

To enter the Frequency mode:

1. Enter the Program Mode first by pushing the frequency transfer button and holding it for approximately 3 seconds until a flashing channel number appears in the "use" window.

NOTE: The flashing channel number indicates the unit is in the Program Mode. The unit will drop out of the Program Mode in approximately 20 seconds unless one of the frequency selector knobs is rotated within this period.

2. Pull the smaller frequency selector knob "out" and turn until a flashing zero is displayed in the "use" window. The "standby" window will display either "uuu" or "- - -"

3. If the "standby" window is displaying "uuu" push the smaller concentric frequency selector knob "in" and rotate it one step in either direction until "- - -" is displayed in the "standby" window.

4. Push the frequency transfer button momentarily. A frequency will appear in both displays. The unit is now in the Frequency Mode

of operation and will remain in this mode through power shutdowns or until the pilot manually selects another mode.

To Operate In The Frequency Mode:

1. Select a new frequency. Rotate the frequency selector knobs to enter the desired frequency into the standby window. Clockwise rotation increases the frequency, counterclockwise decreases it. The outer, larger knob changes the MHz portion of the frequency, while the smaller inner knob changes the kHz portion. The smaller knob causes changes of 50 kHz when pushed "in" and 25 kHz when pulled "out." When reaching the outside of the band (either 135 MHz or 118 MHz), further knob movement will cause the display to wrap around to the other end of the band. (That is 135 MHz advances to 118 MHz).

2. Press the transfer button to activate the new frequency. By pressing the transfer button, the newly entered frequency in the "standby" window flip-flops with the frequency in the "use" window and this new frequency then tunes the radio for operation. It's easy to tune two frequencies and switch back and forth in this manner.

THE PROGRAM MODE

The Program Mode is used to set memory locations, or use in the channel mode of operation.

To enter the Program Mode:

1. Press the transfer button and hold it in until a flashing channel number appears in the "use" window.

2. Pull the smaller frequency selector knob out and turn it until a flashing zero appears in the "use" window. The "standby" window will display either or "---".

3. If the "standby" window is displaying "---" push the smaller frequency selector knob "in" and turn it one step in either direction. "uuu" will then be displayed in the "standby" window.

If in the zero channel "uuu" is not set, and “---” is left unchanged, you will not enter the Program Mode and the frequency selection will be blocked in the other channels.

4. Pull the small frequency selector knob out and rotate it to select the desired channel to be programmed which will appear in the "use" window.

To Program A Preset Channel:

Push the small frequency selector knob "in" and select the frequency by rotating the larger selector knob to change the MHz portion of the frequency, and the smaller knob to change the kHz portion in 25 kHz steps.

To program additional channels repeat steps 4 and 5.

NOTE: If you wish to program less than 9 channels and have certain channel numbers skipped over when operating in the Channel Mode, proceed as follows. Rotate the MHz frequency knob left or right beyond 135 or 118 MHz. Dashes '"---" will appear in the "standby" window. This indicates that the affected channel number will be skipped when operating in the Channel Mode.

All non-programmed channels will be skipped, if no channel is programmed, you will be switched to the Program Mode automatically.

To Exit The Program Mode:

Press the frequency transfer button or wait 20 seconds with no switch activity and the KY 196/197 will return to the Channel Mode automatically.

THE CHANNEL MODE

The Channel Mode is used to recall preset channels stored in memory for use in operating the KY 196/197.

To Enter the Channel Mode:

1. Push the frequency transfer button and hold it for 3 seconds until a channel number appears flashing in the "use" window.

NOTE: The flashing channel number indicates the KY 196/197 is in the Program Mode. The unit will drop out of the Program Mode in approximately 20 seconds unless a frequency knob is rotated during this time.

2. Pull the smaller frequency selector knob "out" and rotate until a flashing zero appears in the "use" window. If the "standby" window is displaying a "---" push the smaller selector knob "in" and rotate it one step in either direction until "uuu" is displayed.

3. Push the frequency transfer button momentarily (or simply wait 20 seconds as described in the note above). A frequency will appear in both displays. The unit is now in the Channel Mode of operation and will remain in this mode through power shutdowns until the pilot manually selects another mode.

To Operate In The Channel Mode:

1. Pull the smaller frequency selector knob out and rotate it in either direction to select the desired channel number in the "use" window. The frequency programmed for this preset channel appears in the "standby" window. (The active frequency remains the same although it is temporarily not displayed.)

After about 2 seconds, the channel number will disappear and the active frequency will again appear in the "use" window. The programmed frequency associated with the selected channel will remain in the "standby" window.

2. Push the frequency transfer button to flip-flop the frequencies. Now the frequency associated with the pilot programmable channel becomes the frequency in use.

NOTE: With the smaller frequency selector knob pushed "in" the kHz portion of the frequency operation is identical to that of the Frequency Mode with one difference: rotating the smaller selector knob now changes the "standby" frequency in 25 kHz steps rather than 50 kHz steps.

THE DIRECT TUNE MODE

The Direct Tune Mode is a backup mode which allows frequency changes to be made directly into the "use" window.

To enter the Direct Tune Mode:

1. Turn the COMM Volume Control counterclockwise to the "off" position.

2. Hold the frequency transfer button in while turning the COMM Volume Control Knob to the "on" position.

To turn on volume form the keyboard press Shift+C.

Release the frequency transfer button. The "use" and "preset" window will both display 120.00 MHz. The frequency selector knobs can now be used to directly tune the active frequency.

NOTE: The 120.00 MHz frequency always appears initially when entering the Direct Tune Mode. This serves as a benchmark so the pilot can tune the radio to the frequency he wants by counting detents if the radio malfunctions and the display goes blank. The larger frequency selector knob will change the numbers to the left of the decimal 1 MHz per detent. The smaller knob changes the number to the right of the decimal 50 kHz per detent when pushed "in" and 25 kHz per detent when pulled "out"

3. If you wish to access the 121.5 emergency frequency, turn the larger frequency selector knob one detent clockwise and the smaller knob (pushed "in") ten detents either clockwise or counterclockwise.

To Exit The Direct Tune Mode:

Push the frequency transfer button and you will exit the Direct Tune Mode.
This Pilot Guide provides easy reference on the operation of the KY 196/197.

NOTE: KY 196/197s which allow the four modes of operation may be easily identified by noting that "Pull 25K/MEM" is on the smaller frequency knob on the radio. If this knob has nothing written on it or only "Pull 25K", the unit will only operate in Frequency Mode.

COMING SOON

A more extended version of Bendix/King KY 196/197 you will find in our coming soon MSFS 2004 add-on SAAB 91 Safir.
For more details please visit our website: www.sibwings.com

SAAB 91 Safir MSFS 2004 add-on coming soon...

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