

CHALK RIVER GRAPHICS

# CrgSim EICAS

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## Installation and User's Guide

Chalk River Graphics

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## Installation

The engine-indicating and crew-alerting system (EICAS) is used in modern aircraft to provide the crew with engine instrumentation and messages to the crew from the flight computers.

Copy the EICAS folder from the CrgSim distribution to its destination and start crgeicas1.exe from within the folder. Once connected to the ComMgr and with yhour Sim and CrgSim.exe running (see below) try moving the throttle on the FSX aircraft and make sure the EICAS instruments change as you do so. Then move the flaps up and down on the simulator main panel, the flaps indicator on the EICAS should follow the changes.

If the EICAS is not connected to the simulator a message will appear in the upper right part of the screen. This message indicates why the EICAS is not yet connected to the SIM.

- “NO COM“ indicates that the EICAS is running OK but not yet connected to the Communications Manager.
- “NO SIM” means that the EICAS is connected to the Communications Manager and that the Communications Manager is not yet connected to the Simulator Interface program (crgfsim.exe).
- Once the PFD, the Communications Manager, and the Simulator Interface are communicating with each other the space above the artificial horizon reverts to prototypical use and the error message disappears.



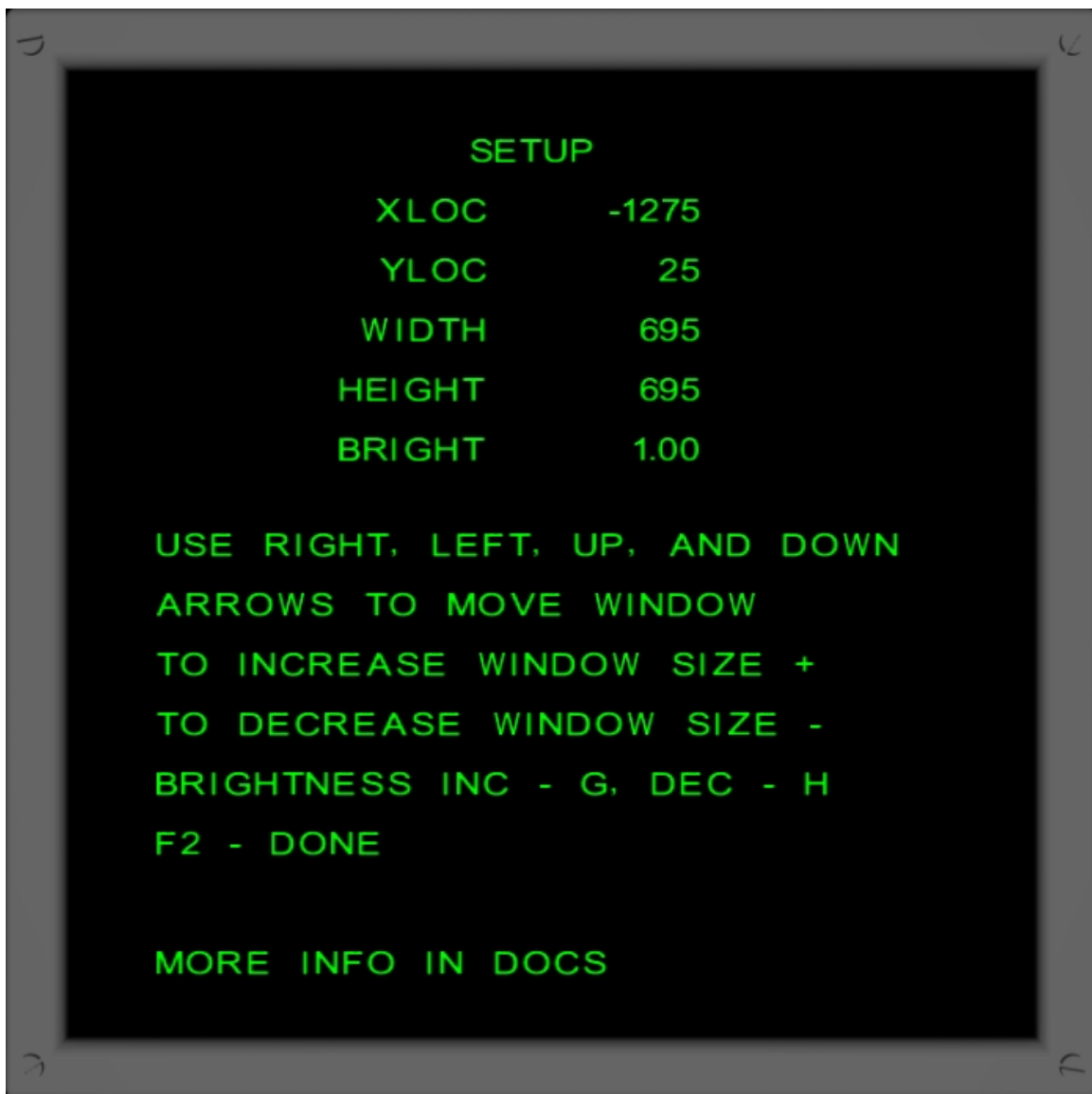
## Setup

To move and resize the EICAS select the instrument screen (click on the EICAS) and press the F2 key. The display below will appear. Now you move the screen with left, right, up, and down arrow keys. To change the size of the display use the plus or minus keys or if your mouse has a center wheel that can be used as well.

Over all instrument brightness can be changed by pressing the 'G' and 'H' key.

The number of pixels that the window is moved or re-sized with one keystroke can be changed by pressing a number key 1 through 9. For example: to move the window one pixel at a time press 1 before using the direction keys. Then each press of a direction key will move the instrument one pixel. To move the window 9 pixels at a time press 9 before using the direction keys. Each press of a direction key will then move the window 9 pixels.

When finished with setup be sure to press the F3 key if you wish to save the EICAS display configuration.



The instruments were tested within a range of sizes centered around 700 pixels. You should be able to vary this size with the configuration file from 550 pixels to 950 pixels and still have a nice look and feel. Fonts on sizes below 550 pixels will not look as nice. This size range should provide a prototypical physical size when used with many (if not most) displays.

The instruments are expected to be relatively square when viewed on screen. Circles will appear out of round on a display that is not square. This is especially noticeable with the Nav Display. Minor adjustments to the window height and width parameters in the configuration file should allow for deviations of pixel width to pixel height for your specific display.

## Configuration

On startup **each instrument** reads a configuration file to determine size and location of the display as well as other optional parameters. Parameters are listed in the display configuration file (crgpfdl.cfg, crgpfdr.cfg) as parameter name/parameter value pairs. The parameter names are case insensitive.

CrgSim will first look in the configuration directory (CrgSimConfigs) for all configuration files. If not found there it will look in the same directory that CrgEicas1.exe is located.

Common parameters are:

- **Winx** - the X location of the left side of the window. For multiple screen sims this value may need to be negative.
- **Winy** - the Y location of the top of the instrument window. For multiple screen sims this value may need to be negative.
- **Width** - the width of the instrument window
- **Height** - the height of the instrument window.
- **Bezel** - Include or exclude the bezel around the instrument (yes or no). If you integrate the instruments into your forward instrument panel behind your own physical bezel you may want to exclude the displayed bezel to give you more flexibility in integrating the instruments into your panel.
- **Rot** - This parameter rotates the display by 90 degrees and 180 degrees. Useful if you have a display mounted in portrait mode.
- **Ip** - override IP address (see communications)
- **Mask** - override IP mask (see communications)
- **Brightness** - optional parameter, used to decrease brightness of a display that is too bright for the cockpit. Most pilots use the default and do not include this parameter.
- **Bezel** is an optional parameter, the default is to display the bezel. To exclude the bezel add the line in the sample configuration file below.



For example an instrument 10 pixels from the left on your screen, 10 pixels from the top of the screen with a height and width of 740 and 747 respectively would have the following parameters in the configuration file:

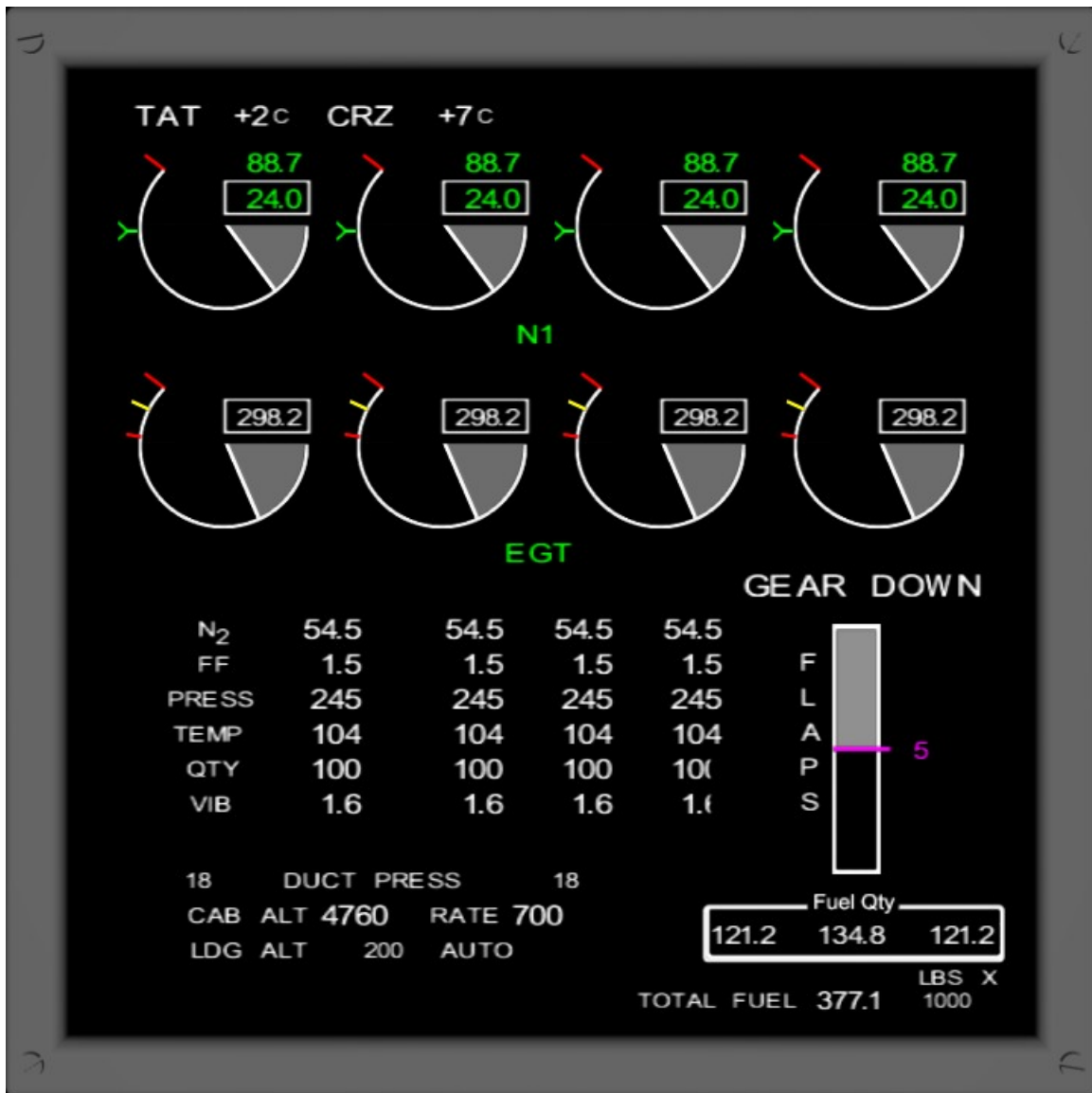
```
winx      10
winy      10
width     740
height    747
rot       90
bezel     no
```

Comment lines may be used in the configuration file, they are started with the characters `//` **followed by a space** before the comment:

```
// This is a comment.
```

The lab computer with the instrument displays has two small 15 inch LCD screen connected to the computer with a VGA cables. The screen background is set to BLACK using the windows Control Panel, personalization function. The EICAS occupies the left side of the one screen, the right side of the screen is occupied by the ND display. The location parameters in the configuration file for our PFD look like:

```
winx 1610
winy 13
width 740
height 740
bezel no
```



The EICAS display with a 4 engine turbine aircraft.



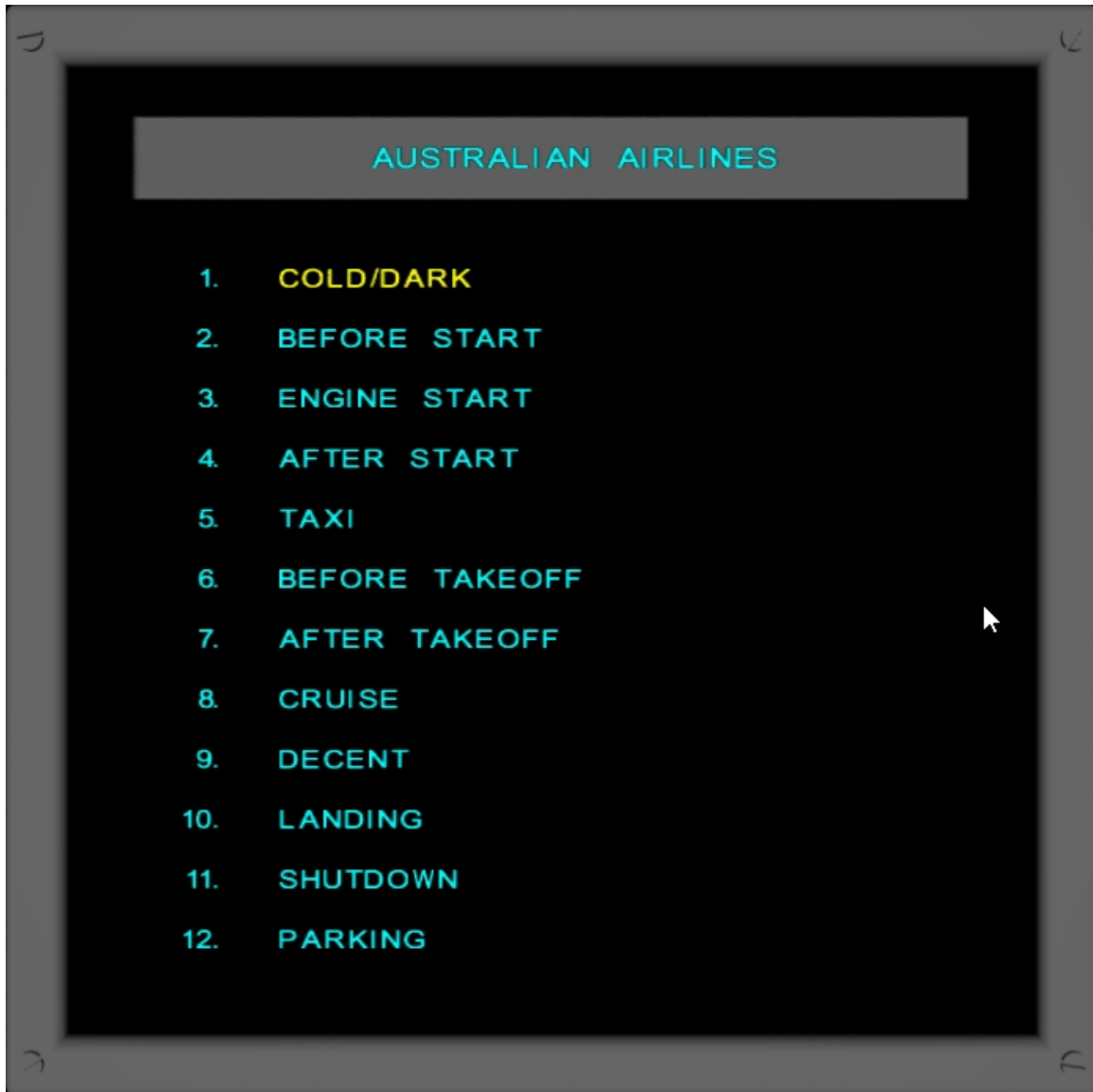
If you fly the default 737 the EICAS shown above will be used. All other aircraft (with this release) will use the 777 style EICAS. The yellow outer ticks on the center fuel tank indicate a low fuel condition in that tank.

## EICAS Checklist

The EICAS checklist feature provides basic non-interactive functionality. The checklist has the ability to display 12 categories (for example: TAXI, TAKEOFF, LANDING, ...) and each category may have up to 12 checklist items. The content of each page depends entirely on how you have configured the checklist feature by using the file "Checklist.txt"

There is sample checklist files included with the distribution which was a contribution by an Australian simmer. Any lower case text is automatically translated into upper case. The character set includes A-Z, 0-9, and the characters ". - = / + , < >" as well as the degree symbol. This is a very limited character set and does not include any of the characters with diacritical marks that are part of many language character sets.

The sample checklist included with the distribution is displayed below:



By navigating down the list to “BEFORE TAKEOFF” and pressing the right arrow key the following checklist page below is displayed:



## **Checklist File**

The checklist is specified by the CheckList.txt file:

## **Checklist Title**

The checklist title is specified by a line beginning with the number '1' followed by the checklist title:

1 Australian Airlines

## **Checklist Category**

Each of the checklist categories is specified by a line beginning with the number '2' followed by the name of that category. There may be up to 12 categories.

## **Checklist Item**

The category name is followed by the checklist items in that category. Each checklist item is specified by a line beginning with the number '3' followed by the text of the checklist item. There may be up to 12 checklist items per category.

The checklist item has two columns, The start of the second column is indicated by two forward slash characters (//) followed by the second column text.

## **Checklist Navigation**

The checklists may be used by selecting the EICAS instrument with the mouse and then navigating to the category page with the left-arrow and right-arrow key.

Use the up and down arrow key to select the checklist category. Then to view the category items press the right arrow key. The checklist items may be highlighted by using the up/down arrow keys.

To return to the EICAS screen press the left arrow key.

### **CDU Checklist Navigation**

The CDU may also be used to navigate through the checklist pages (see image below) . Select MENU→CRGSIM→EICAS and then select the desired checklist page from the CDU by pressing a selector button.

Individual checklist items may be highlighted by using the UP/DOWN selectors in the CDU screen.

To navigate back to the EICAS screen press the “RETURN” selector button on the CDU.

**To include this feature in your CDU it is necessary to include a copy of the checklist in the CDU directory.**





## EICAS notes:

- The display will discover how many engines your current FSX aircraft contains and configure accordingly.
- Since up to 4 engines may be accommodated the area to the right of the instrument gauges will be blank for two turbine aircraft but will be filled if your airplane has 4 engines.
- If you start at a high altitude airport such as Denver or Colorado Springs it will take a few minutes for the cabin pressure to catch up to the airfield altitude. The value displayed on the CrgSim EICAS has no effect on the simulation and may be ignored if you don't want to wait for the pressure to equalize. While you are flying it will stop increasing cabin altitude at 7,500 feet.
- Fuel supply is listed in pounds of fuel X 1000.
- Duct pressure is static at 18
- The aircraft profile (loaded by Utilities) will provide EICAS with flap position details.

## EICAS on Add-Ons

CrgSim looks for an **atc\_model** of **B738** as a signal to display the 737 EICAS screen.

## Contact

You can contact us at [sim30@crgsim.com](mailto:sim30@crgsim.com). We are especially interested in your comments, any problems you might have with the programs, and things that you like (or don't like) about them.

After spending a large amount of time removing non-flight sim posts (drugs, counterfeit boots, ... for sale) we reluctantly had to convert the web site to read only.