CTL-22 control unit with remotely mounted VHF-22A COM radio rev.1

Filenames:
COM1: **CollinsComNav!CTL22_JD_1**
COM2: **CollinsComNav!CTL22_JD_2**

Hotspots:

1. Function Switch, and Volume Control
2. Set Frequency MHz
3. Set Frequency kHz, and Channel Select
4. **XFR** Frequency Transfer (flip-flop) Switch
5. **MEM** Memory Switch
6. **STO** Store Button
7. **ACT** Active Tune Button
8. **TEST** Button

Comprehensive simulation of the Collins (Rockwell) CTL22 control unit and VHF22A radio. (In reality the CTL22 controls a remotely mounted Pro Line II VHF22A radio, mounted in the aircraft's electronics bay.)

Operation of this radio has been made as close as possible to the real-life counterpart.
To this end the simulation uses right and left mouse clicks for knobs (right-click for increment, left-click for decrement). This is considered superior to 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 both knobs to increment or decrement values. All standard Flight Simulator shortcut key assignments operate normally. If a previously saved "Flight" is loaded, all relevant frequencies and operating modes are correctly selected.
This radio defaults to the On state, as the majority of aircraft are fitted with an Avionics Master switch, in which case all individual radios are (and should be) normally left On for convenience and consistency. The Function Switch and XFR/MEM Switch are animated.

Function Switch

The OFF position removes power from the radio.

Use a left click to turn the function switch (1) anti-clockwise, right click to turn it clockwise.

Alternatively use the mouse wheel. When turned a quiet click is heard.

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

The ON position powers the unit in operating mode.

The SQ OFF position simulates turning the squelch off, to test the COM radio. A loud static hiss is heard, as long as the relevant COM radio is selected in the Audio Selector unit.

(In the real radio the static hiss (if there is no other radio transmission) indicates that the COM radio is working, and allows a comfortable volume level to be set.)

Set COM Frequency

Select the desired Standby Frequency by clicking the MHz Tune (2) and kHz Tune (3) hotspots.
Use right-click to increment, left-click to decrement (or use the mouse wheel).
Turning the kHz Tune beyond a band edge (118 or 136 MHz) will cause the tuning to wrap around to the opposite band edge.

Active Frequency

Standby Frequency

To exchange frequencies, making the Standby Frequency the Active Frequency and vice-versa, click the XFR switch hotspot (4).
The transceiver is always tuned to the frequency appearing in the Active Frequency display. It is therefore possible to have two different frequencies stored in the Active and Standby displays and to change back and forth between them with a single push of the XFR switch.

Direct Active Tune

Press the ACT button to engage the Active Tune mode. The active frequency can now be directly controlled using the MHz Tune (2) and kHz Tune (3) hotspots. The standby frequency is hidden with dashes, although the XFR switch continues to operate.
(Note that the ACT indicator is a "Compare Indicator". It is not normally illuminated.)

COM Frequency Memory Recall

Six COM Frequencies can be saved and recalled as in the real radio. However in this simulation the method of storing and recalling is <u>not</u> exactly like the real radio.
(Note, for Frequency Save/Recall, an application called Logger must be installed – see Note 2.)
The non-volatile channels are saved in a file, and are restored next time Flight Simulator is run.
Click the MEM hotspot (5). A channel number is displayed in the upper window, and a CH indicator is displayed.
Turn the kHz Tune knob (3) to select the required channel. The channel number is shown in the display, and a pre-programmed channel frequency will appear for each channel selected.
Can either:

1. Do nothing, after 5 seconds the Memory Recall mode will terminate with the Standby Frequency now changed to the Channel Frequency.
2. Press the XFR hotspot to exchange frequencies (making the Active Frequency the Channel Frequency).
3. Press the MEM hotspot within the 5 second period to exit the Memory Recall Mode, keeping the previous Standby frequency.

COM Frequency Memory Program

Press the STO button (6). A channel number is displayed in the upper window, and a PG indicator is displayed. The Channel Number will flash indicating that it can be changed by turning the kHz Tune knob (3) to select the required channel.
To enter the required frequency, click the XFR switch hotspot (4). The Standby Frequency flashes to indicate that now it can be changed, and the Channel Number stops flashing. Click the MHz Tune (2) and kHz Tune (3) knobs to select the required frequency in the normal way.

If the XFR switch hotspot (4) is pressed again the Channel Number flashes to indicate that the channel can now be changed again. In this way the user can program a number of channels by clicking the XFR switch hotspot (4) and using the same procedure.
Click the STO button (6) to exit the Frequency Program Mode and save the channel information.

The COM frequencies are saved in the following files in the flight simulator root directory. (The files are created automatically as soon as a channel is programmed.)

..\DataJD\CTR22_1_chans.ini
..\DataJD\CTR22_2_chans.ini

(Note: these files are text files, and can be opened using Notepad. Frequencies can be modified directly in these files if you don't want to go through the rigmarole of programming channels using the above procedure!)

Test Mode
Press the TEST button (8). In the real radio this initiates a self-test routine. In this simulation while the button is pressed the frequency display changes to all 8s, and all the indicators are displayed.

Jon Dyer, 1 April 2020
jon_dyer@msn.com

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. Logger
In order to save and recall channel files, an application called Logger must be installed.
Logger is a FS9 and FSX module that provides file read and write capability for XML gauges.

Installation
Download the file:Logger Modules v1.1.zip available from:
https://robbiemcelrath.com/fs/logger/about
This is a freeware application from Robbie McElrath. See Credit for Logger below.
Unzip the zip file.

Step 1:
For FS9 copy the file Logger9.dll into the flight simulator Modules sub-folder.
For FSX copy the file LoggerX.dll into the flight simulator Modules sub-folder and
follow the instructions provided on the above website in the Help section.

Step 2:
Create a folder in the flight simulator root folder called DataJD, or copy the folder DataJD
supplied in this package into your Flight Simulator root directory. This folder has a
number of frequencies
pre-programed. (The flight simulator root folder is normally ...\fsx or ...\Flight Simulator 9)

Credit for Logger
Many thanks to Robbie McElrath, for his excellent freeware logger9.dll and loggerX.dll
modules. This is an incredibly useful application – it can do much more than just save and
recall files.
Please read the documentation provided on the website.
Logger is available from Robbie McElrath at https://robbiemcelrath.com/fs/logger/about