Garmin GTR 225 Pilot's Guide - Version 1.0 March 2002
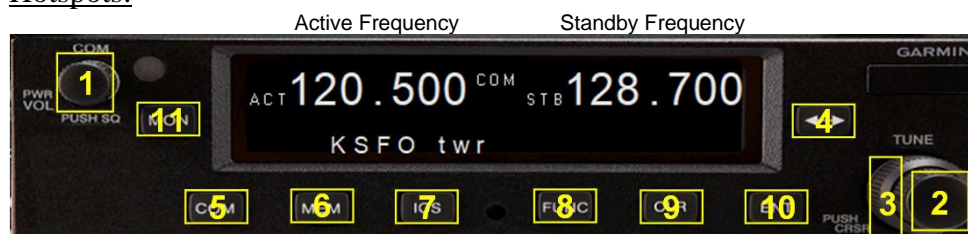
COM Radio
GTR 225 COM1, filename: **GarminCom!GTR225_JD_1**
GTR 225 COM2, filename: **GarminCom!GTR225_JD_2**

Hotspots:

1.   ON/OFF **PWR** switch, **COM** Volume **VOL** and **PUSH SQ** squelch switch.
2.   kHz **TUNE**, set timer seconds, and scroll menu.
3.   MHz **TUNE,** and set timer minutes.
4.   Frequency Transfer (Flip-Flop) ↔ button.
5.   **COM** button. Not functional in this simulation.
6.   **MEM** button. Not functional in this simulation.
7.   **ICS** button. Not functional in this simulation.
8.   Menu function **FUNC** button.
9.   Clear **CLR** button.
10. Enter **ENT** button.
11. Standby Monitor **MON** button.

The real Garmin GTR 225 is a low cost COM only version of the GNC 255 COM/NAV radio.
(This simulation is applicable to the Garmin GTR 225A and GTR 225B radios.)
The simulation is fully functional as a COM radio for FS2004 and FSX, and has many of the complex features of the real GTR 225 radio, including automatic COM ident (ICAO) display, save and recall of 15 COM frequencies, two independent timers, etc.
The real GTR 225 has a number of other "bells and whistles" that are not simulated in this version.
I have decided to offer this version 1 of this simulation "as is" to the flight simulator community.
I may later issue a version 2 with some of these more advanced functions, although some may not be possible due to limitations of flight simulator and this programmer.
The real GTR 225 has a comprehensive menu system. For this version a simplified sub-set of the real GTR 225 menu system is provided.

The Garmin GTR 225 Pilot's Guide is available: http://static.garmin.com/pumac/190-01182-00_B.pdf

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 all knobs to increment or decrement values. Knobs that can be pushed in use middle mouse clicks. 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.

COM Volume and ON/OFF switch

Left-click to switch the unit OFF. A click will be heard and the unit will be "dead". Right-click to turn the unit back on. A non-volatile memory stores the Active and Standby frequencies on power down. When the unit is turned on again they will be restored to the display.

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

Automatic ID Display

The GTR225 has an automatic COM ID (ICAO) display, and facility type display.

I found this rather difficult to implement, and it's not perfect! I had to learn how to access the Flight Simulator (GPS) database, many thanks to Robert McElrath for his GPS Guidebook.

The software finds the 20 nearest COM frequencies and matches them to the COM active frequency selected.

For example, if at San Francisco, with 118.300 MHz as the active frequency, the unit displays KOAK, and displays twr for tower.

Note that other frequencies of the same airport will not be displayed, and that some of the frequencies in the Flight Simulator's database are not correct. To view the 20 nearest airports and their frequencies download my NearestAirports.zip, or use the GPS (9 nearest airports only).

PUSH SQ squelch switch

To test the COM radio, middle-click the COM Volume knob to simulate pushing it in. An SQ indicator is displayed, and a loud static hiss is heard (as long as the relevant COM radio is selected in the Audio Selector unit). (In the real radio PUSH SQ turns the squelch off, and 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 and kHz Tune 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.

The unit can be tuned in steps of 25 kHz or 50 kHz. Push the kHz Tune knob to toggle between 25 kHz (default) and 50 kHz. A quiet click is heard.

To exchange frequencies, making the Standby Frequency the Active Frequency and vice-versa, left-click the Frequency Transfer (Flip-Flop) ↔ button.
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 Transfer button.

COM Frequency Recall Mode
15 COM Frequencies and 15 NAV Frequencies can be saved and recalled as in the real GTR225 radio.
However in this version the method of storing and recalling is not like the real radio.
I may later issue an updated version of this radio which more closely emulates 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 FUNC button to display the main menu (see below). Turn the kHz knob to scroll the highlighted menu item up and down using left and right clicks, or by using the mouse wheel.

To recall a COM frequency, highlight COM Frequency, and press the ENT button.
The COM sub-menu appears:

With Recall COM highlighted, press the ENT button again. **CH** and a channel number are displayed.

Turn the kHz Tune button 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.
If there is no activity for 5 seconds the radio will exit Frequency Recall mode with the Standby Frequency now changed to the Channel Frequency.
Alternatively click the Frequency Transfer (Flip-Flop) button to exchange frequencies (making the Channel Frequency the Active Frequency).
Or click the CLR button within the 5 second period to exit the Frequency Recall Mode, keeping the previous Standby frequency.
Note that if a channel has been saved with dashes (see below), then this channel will be skipped while in Frequency Recall Mode. If no channels have been programmed, dashes (---) appear in the display.

COM Frequency Save Mode

With Save COM highlighted, press the ENT button.

PG (for program) and a channel number are displayed. The Channel Number will flash indicating that it can be changed by turning the kHz Tune button to select the required channel.

To enter the required frequency, click the Frequency Transfer (Flip-Flop) button.
The Standby Frequency flashes to indicate that now it can be changed, and the Channel Number stops flashing. Click the MHz Tune and kHz Tune knobs to select the required frequency in the normal way.
If the Frequency Transfer (Flip-Flop) button 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 Frequency Transfer (Flip-Flop) button and using the same procedure.
Click the ENT button to exit the Frequency Save Mode and save the channel information.
If while saving the Frequency a frequency greater than 135.975 MHz or less than 118.000 MHz is set, dashes (- - -) appear in the display. This will cause this channel to be skipped when in Frequency Recall Mode.

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\GTR225_1_chans.ini
..\DataJD\GTR225_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 like in the real radio!)

Monitor Button

If the MON button is pressed the STB (standby) display changes to MN (monitor) but it doesn't actually do anything, as this functionality is not possible in Flight Simulator.

Timer Modes
Two independent Timers are provided – an Up Timer, and a Down Timer.

Up Timer
To select the Up Timer, click the FUNC button to display the main menu (see below). Turn the kHz knob to scroll the highlighted menu item up and down using left and right clicks, or by using the mouse wheel.

Highlight Count Up , and press the ENT button.

The Count Up Timer appears:

Press the ENT button, and the timer will start counting up.

Press ENT again and the timer will pause, with TIMER STOPPED displayed.

Press ENT and the timer will start counting again.
Press the CLR button to reset the timer to zero.

To hide the timer, right-click the ENT button, or press the FUNC button twice.
The timer will continue to count in the background.

Down Timer
Highlight Count Down, and press the ENT button.

The Count Down Timer appears, with a default starting count-down time of 1:00.

To change the count-down time, turn the MHz Tune knob to set minutes, and the kHz Tune knob to set seconds. The seconds can be set in steps of 10 seconds (default) or 1 second.
Push the kHz Tune knob to toggle between 1 second and 10 second steps (a quiet is heard).
Press the ENT button, and the timer will start counting down towards zero.
Once the count reaches zero the display will briefly flash, an audible alarm will sound, and the counter will then begin to count up.

Press ENT again and the timer will pause.

Press ENT and the timer will start counting again.
Press the CLR button to reset the timer to the starting value.

To hide the timer, right-click the ENT button, or press the FUNC button twice.
The timer will continue to count in the background.

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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 .