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This document has been edited to be included in the DC-3 Airways Training Division package. You will note that it includes references to flight simulators other than the one Microsoft sells. The primary thrust of the Training Division is aimed at the DC-3 flown in the Microsoft Flight Simulator (FS2004) environment.

NEW FLIGHT SIMULATOR? - LOWER THE LEARNING CURVE

Let's see ... What key was that ... ? Oh, well, off we go ...

The CD for my new flight sim is out of the box and the installation was flawless. The last message on my screen was "Whiz Bang Flight Simulator installation was successfully completed." Now I must choose, because what to my wondering eyes should appear, but ... "Click here to Start." Will I choose "Start" and go flying or will I dutifully pick up the Operations Manual and read?

Unless you have a great deal more discipline than I do, you'll kick the tires, light the fires, and first one off is lead! Now I'm airborne and I don't have the foggiest notion what keys control what. The best I can do is hang onto the joystick and hope I can deduce (guess) the key that ends the flight when I grow tired of flailing about in the wild blue yonder.

When I run out of guesses, I know it's time to get down to the learning process (you know -- when all else fails ...). Here is a method I've used to ease the pain of learning. I build myself a toolkit.

What are toolkits?

They are simply individual sheets I create that help me fly the simulator, and they vary with the complexity of the simulator I am using. I start with a pencil outline of commands (I erase a lot!), and then move to the computer. I use the process of creating a toolkit as a learning experience with my software applications. I look for new ways of presenting the information: insert graphics to spice up the sheets, or use a spreadsheet graph to depict a flight envelope. I like to use the Table feature in my word processor to present data in columns. Once learned, tables are an easy way to control and modify the information.

What do I include in my toolkit?

The first sheet I usually create is the one that describes the function or commands assigned to the various keys. Not too long ago, I thought I could out-guess the designers and bluff my way through the programs. **WRONG!**

Sufficed to say, different manufacturers use different keys for the same process. I had two different fighter Sims capable of carrier landings. One company used “A” for the arresting hook, while the second dingdong opted for “H” for hook.

Once I’ve created my pencil outline, I arrange the items into a logical sequence. I group commands into areas such as, Flight Control, Weapons (selection and firing), Radar (general use and targeting), Navigation, and Communications. Since I use a joystick for aircraft control, I generally omit the keyboard commands for flying the bird. I may include a diagram describing the function of the joystick buttons. Pick the areas that match your simulator then move to your computer. As I mentioned, they will vary greatly from simulator to simulator. For example, you won't find a Weapons section in the sheet I created for Microsoft Flight Simulator. That's how I attack the problem of keyboard commands, but that is just one specific instance.

Okay, what's next?

What other areas do I cover? I look back at the categories I established for the keyboard commands sheet to see which of those might need further amplification. If it's a combat simulator, I may want a sheet that describes the flights and what it takes for a successful mission. If there are communications messages sent to you by the program software, you may want a crib sheet explaining them.

I may want a mission planning outline or a cross-country flight planning form. Aircraft specifications and airspeeds are also convenient. Microsoft Flight Simulator offers several different aircraft to fly, so I combined the information for all the aircraft into a single sheet. In newer versions, where there are more than five or six models, I expanded to more than a single sheet. (see a sample of this Specifications Sheet in the checklist document that is part of the Training Division package).

That expanded sheet provides power settings, takeoff speeds, climb and cruise information, and the maximum airspeed for gear and flaps as well as stall speeds. I can switch from plane to plane and all I need to do is scan a different column of my specifications sheet. As one might surmise, there are a number of blanks in the column for the Schweizer Sailplane. For some reason there are no power settings ... hmmm. Could that be because they forgot to install an engine? The sailplane is fun to fly, but my personal preference, flight simulators or real life, is an aerospace vehicle with some type of self-contained propulsion system.

Finally, in most cases, I want a keyboard template. I've seen packages that include templates, but they generally do not fit over the keyboard. More often, they are just rectangles, albeit colorful, that you prop up next to the monitor. I like one that fits over my keyboard and one that describes, at least, the commands assigned to the Function keys and the Number keys.

Keyboard templates

They're valuable when you're in a hurry for that command you've forgotten, and most packages do not include the keyboard type. I do remember seeing one advertised for the Falcon (F-16) flight simulator. As I recall, they wanted around \$15 (USD) for it. I nearly ordered it, but being the frugal type I created one of my own for pennies.

I use manila file folders, the standard size found at stationery shops (newer keyboards may require the legal size). **Figure 1** shows a typical template. The two-tone appearance of this template is due to the way I scanned two halves for this one. It is too long for my scanner glass, so I cobbled the halves into a single graphic.

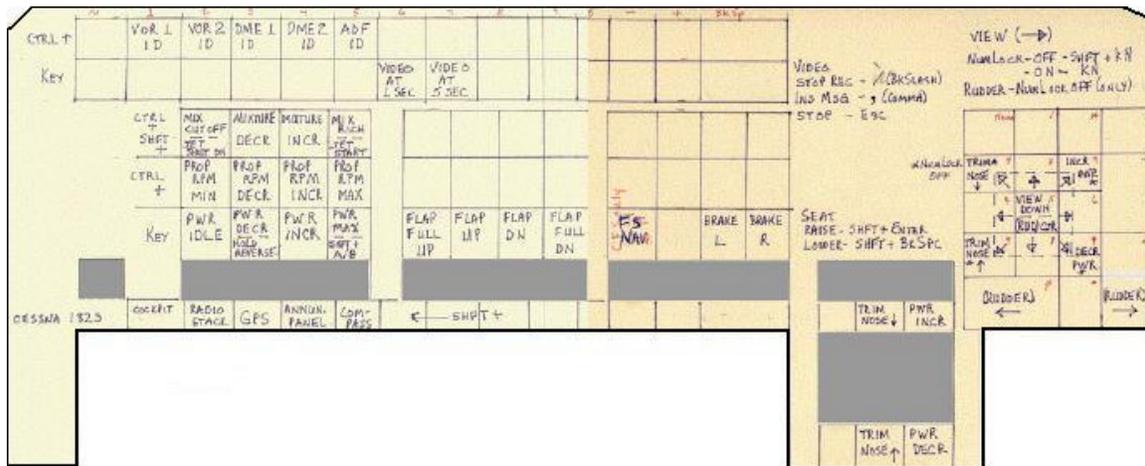


Figure 1

(the dark gray areas are the cutouts that allow the template to fit over your keyboard)

The template shown in **Figure 1** should fit a standard, or near standard 101-key keyboard. If you have one of the newer ergonomic keyboards, you're on your own. Obviously, you will need to make major alterations. The dark gray areas are the cutouts to accommodate the keys.

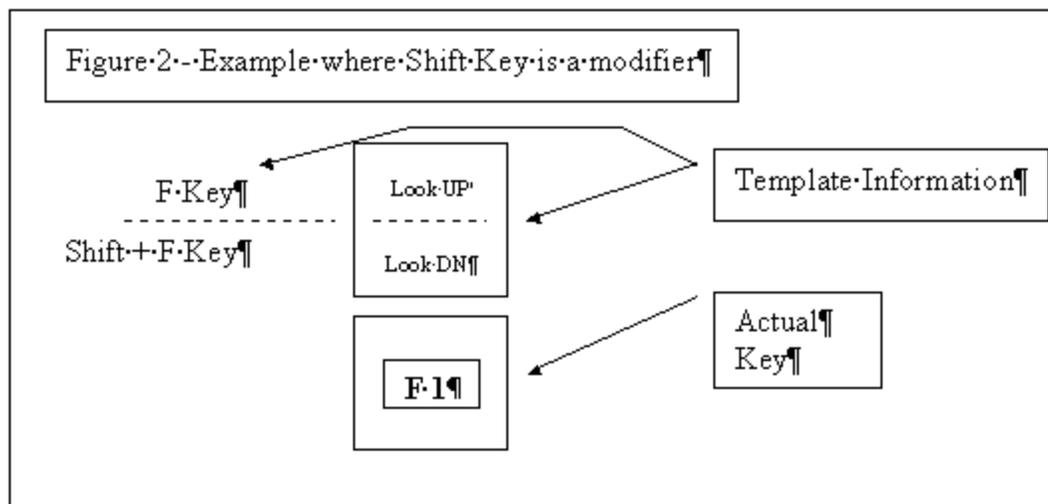
Whatever you use, begin the layout process on paper. When you think it's close to fitting, cut it out and test it on your keyboard. When you are satisfied with the fit, transfer the outline to the file folder. Create one that fits your particular keyboard and save it as a Master. Then use that Master to generate the first and subsequent templates for a flight sim. Even the natural crease (fold) of the folder is convenient. When I switch from one simulator to another, I just fold up my template; put it into a file folder I maintain for that simulator, and get out the next one.

Next you can mark the spaces that represent the F-keys and the Number keys on your template. I recommend that you leave the actual designations of the keys off the template. When you're reaching for a command key, you don't really care about its actual keyboard name. Arrrrgh! Short runway! It makes little difference the key's real name is

"F2." I just want to know that if I'm in Microsoft's LearJet, that key will give me reverse thrust and get the bird stopped before I'm off the end of the runway and into the dirt.

Sometimes Function keys and Number keys perform dual roles. Often, the programmers offer a second keystroke result by adding "SHIFT +" to the key. You may also find the "ALT +" and "CTRL +" **Figure 2** gives you ideas for annotating keys with dual roles. Split the key area, on the template, with a horizontal dashed line.

Enter the "Key only" role in the top half and the "OTHER key +" command in the lower half. You could certainly flip the definitions, i.e., put the "Key only" result on the bottom half; just be consistent from template to template. **Figure 2** shows how the keyboard template can be marked when this occurs.



Hint: Use that old pencil again to enter the keystroke results. I pencil in the commands, then go back later and ink them in after I have rechecked my notes to be sure they are correct.

One final word

While you are still in the learning phase with a new simulator, keep the odds in your favor. Somewhere in the menu system there is options section. Set the "preferences" or "difficulty" to a reasonable level. If it is a combat simulator, there is no sense going up against enemy "aces" while you're still in the early stages of learning the new program.

The toolkit provides me with the knowledge I need to fly the simulator, and the act of building it reinforces all the commands in my mind. I find that by the time I have created my toolkit for a new flight simulator, I have memorized most of what I need to know. Of course I've crashed a number of times by then. I don't care how dedicated I am to creating the toolkit; there is no way I'm going to be able to stay away from the joystick that long. Check the "preferences" settings again. Some simulators even let you deselect the "Crash Enabled" function ... great for flying through solid objects.

When push comes to shove and I can't remember a particular command, the old tool kit is available. And that's what "P" for Pause is for, isn't it. Even if I don't use Pause, I can generally pick out the correct key from my template or one of the toolkit sheets attached to the copyholder on the side of my monitor.

Good luck, good flying and don't forget to - Check your SIX!