General Information

(taken from the original manual):

Because most people no longer own the original flight simulator and its manual for the C64, here is a summary of the most important information.

Keyboard technology:

1) Self-repeat: If a key is pressed for a long time, rapid, multiple key presses are generated.

2) Simultaneous Key Pressing:

- The C64 polls the keyboard 15 times per second.

- Never press fewer than 15 keys per second.

- Never press two keys simultaneously.

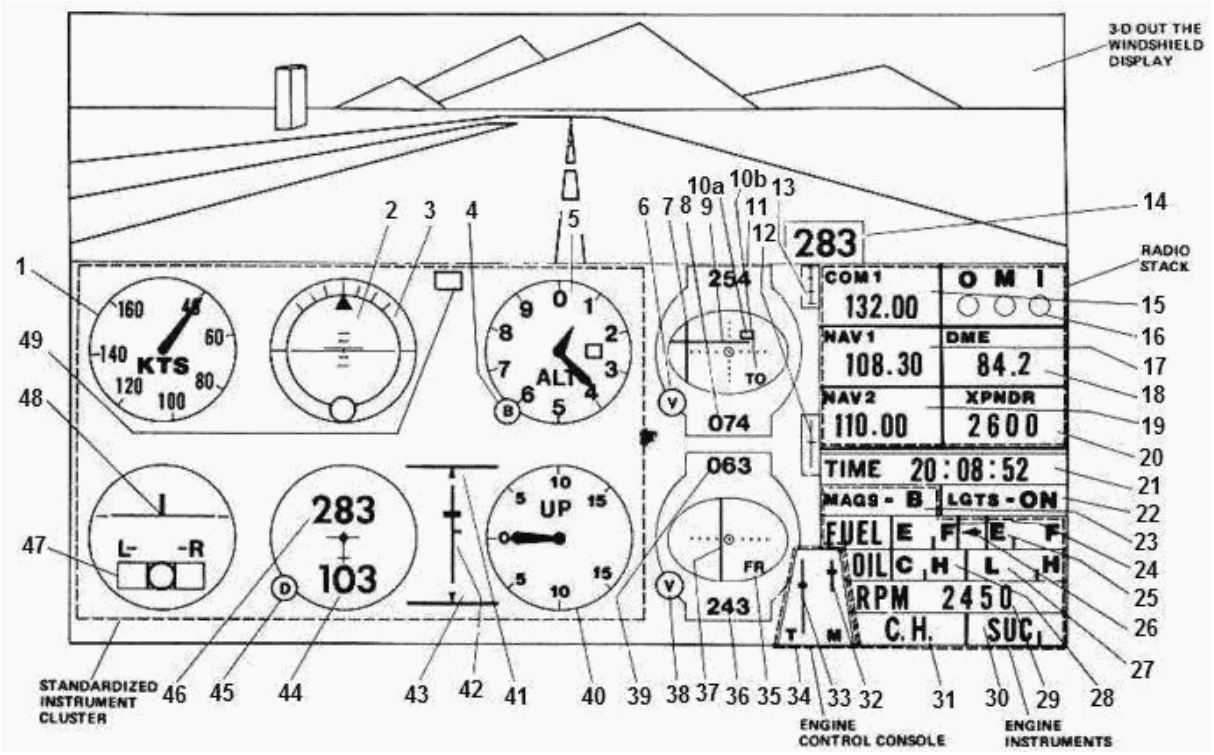
- Joystick and keyboard controls are connected to the same decoding hardware. Simultaneous key presses and joystick movement and/or joystick key presses must be avoided.

This would confuse the keyboard decoder and generate an incorrect signal.

3) The only exception when pressing keys simultaneously is the CTRL key. The CTRL key must remain pressed while another key is pressed.

Display and instruments

(Below is a description of the display and instruments)



1. Airspeed indicator (knots)
2. Artificial horizon
3. Pitch indicator
4. Reference pressure adjustment knob
5. Altimeter
6. Course selector
7. Course needle
8. Reciprocal heading indicator
9. Glide path needle
10. a) Glide path flag
10. b) To-From-Off flag
11. Course setting
12. Elevator trim indicator
13. Flap indicator
14. Magnetic compass
15. COM (Communication) Radio
16. Outer, Middle, Inner Beacons
17. NAV (Navigation) Radio
18. Distance Indicator in Nautical Miles
19. NAV Radio 2
20. Transponder
21. Clock
22. Lights On/Off Indicator
23. Ignition Switch
24. Fuel Gauge (Left)
25. Fuel gauge (right)
26. Fuel selector arrow
27. Oil pressure gauge
28. Oil temperature gauge
29. Digital speedometer
30. Vacuum gauge (not on C64)
31. Carburetor heat indicator
32. Mixture control
33. Throttle lever
34. Engine control console
35. To-From-Off flag 2
36. Reciprocal heading indicator 2
37. Course needle 2
38. Course selector 2
39. Course Setting
40. Variometer
41. Aileron Position Indicator
42. Elevator Position Indicator
43. Rudder Position Indicator
44. Course Reciprocal Indicator
45. Course Indicator Adjustment Knob
46. Course Gyro
47. Spirit Level
48. Turn Coordinator
49. Stall Warning

Engine checks:

1) The carburetor heater is turned on and off using CTRL+I.

The C.H. indicator (at the bottom right of the instrument panel) shows the status:

Off=C.H. | On=HEAT.

Quote from the manual: The carburetor heater is used to melt any ice that may have formed in the carburetor. It is a good idea to turn on the carburetor heater for a few seconds during the final approach to prevent engine failure due to ice buildup.

2) The fuel tank selector is controlled using CTRL+F, followed by < or >. An arrow between the fuel gauges indicates the active tank.

Quote from the manual: The fuel is stored in the wings, and if you draw fuel from only one tank, the wing on that side becomes lighter. This creates an imbalance that must be corrected through control inputs.

3) In Easy Flight mode, the magneto check is automatic; in Reality mode, you must check the magnetos yourself and start the engine.

Press CTRL+M, followed by keys 1 through 5, to perform the following:

CTRL+M, 1 Magneto off

CTRL+M, 2 Right magneto on

CTRL+M, 3 Left magneto on

CTRL+M, 4 Both magnetos on

CTRL+M, 5 Start the engine, then both magnetos on.

4) The mixture control is automatic in Easy Flight mode; in Reality mode, you must adjust the mixture yourself.

Press CTRL+M, followed by < or >, to lean the mixture (<) or enrich it (>).

NOTE: Here, subLOGIC made a mistake in its reasoning, or rather, didn't think the whole thing through, because:

CTRL+M controls not only the mixture but also the magneto ignition.

Quote from the manual: The CTRL+M key is the magnet switch. Pressing CTRL+M initiates a 2-key sequence. Keys 1, 2, 3, 4, or 5 must then be pressed.

That's not really a problem, but CTRL+M requires a number command (1–5) to follow.

If you only want to reduce the mixture—which also requires pressing CTRL+M—the required final number is missing because only < or > was pressed.

- Until one of these numbers is entered, you cannot switch the view from radar (4) to normal view (5). Pressing 5 puts the engine into “start mode,” which is indicated on the instruments as “MAGS-S.” Only pressing “5” again returns the view to normal.

(The engine remains in start mode (MAGS-S), which fortunately isn’t a problem.)

- So if you just want to lean the mixture during climb and then switch the view, nothing happens because views 4 and 5 are controlled by the numbers 4 and 5, which are currently controlling the engine and not the view.

- The fact that nothing happens when switching views as described above is manageable, but what if you press 5,N (for the rear-right view) after adjusting the mixture? It appears that nothing has changed, but in reality, you have set the landing flaps to level 1, which would be suboptimal during cruise flight.

Similarly, 5,R or 5,V (for down/up trim) leads to uncontrolled aircraft movements immediately after adjusting the mixture.

That’s why I’ve gotten into the habit of pressing key 4 right after adjusting the mixture.

4 causes the “engine setup mode” to end and sets the magnetos to “both.”

Control systems:

Elevator:

1) The elevator has 32 steps (from the bottom to the top), but the corresponding display shows only 16 steps. This means you only see a change in the display every other time you press a button.

2a) For maximum control movement, press and hold the corresponding button (T=Down, B=Up); the key repeat function does the rest.

2b) For strong control movement, press the corresponding button briefly and rapidly in succession (faster than half a second), which causes the control to move in 16 steps from the very bottom to the very top.

2c) For fine control, press the corresponding key briefly and slowly in succession (slower than half a second), which results in 32 steps of movement from the very bottom to the very top.

Elevator trim:

1) In light flight mode (in the editor, “Reality Mode=0”), trim is not needed. In realistic flight mode (“Reality Mode=1”), the elevator tends to drift into a natural position.

2) The Up=V and Down=R trim settings are used to compensate for this.

Ailerons and rudders:

1) For maximum, strong, or light control inputs, follow the same procedure as for the elevator.

2) In standard flight mode, the ailerons and rudder are linked, so pressing the F and H keys (ailerons: F=left and H=right) simultaneously moves the rudder (C=left, M=right).

3) In the editor, you can change “Auto Coordinate” from ‘0’ (linked) to “1” (operated individually).

Power:

1) Increasing or decreasing engine power works on the same principle as the elevator.

The corresponding keys are:

Increase power =]

Decrease power = [

You can set the engine to maximum or minimum power directly using this command:

Full throttle = / followed by], i.e.: /,]

Throttle off = / followed by [, i.e.: /,[

3) The keys for increasing and decreasing power may have different symbols in the PC emulator. On a Swiss keyboard, these are:

Increase power = ä

Decrease power = ö

Full throttle = -,ä

Throttle off = -,ö

Radio:

COM and NAV Radio:

1) The COM and NAV radio frequencies are the same.

Note: Do not use the numeric keypad on your computer for entering numbers!

2) Use the corresponding initial letter (C=COM, N=NAV) to select the appropriate radio.

- CTRL+C selects the COM radio

- CTRL+N selects the NAV radio

3) There are 2 NAV radios; select them as follows:

- CTRL+N,1 (press CTRL, then N, release both keys, then press 1 for NAV1)

- CTRL+N,2 for NAV2

- Once NAV1 is set, simply press “2” to set NAV2 (and vice versa).

4) COM and NAV radio frequencies consist of numbers before the decimal point and numbers after the decimal point.

- To set the COM frequency before the decimal point, type: CTRL+C

- To set the COM frequency after the decimal point, type: CTRL+CC (i.e., hold down CTRL and press C twice).

Example: To set the number after the decimal point for NAV2, press:

CTRL+NN,2 (hold down CTRL and press N twice, release CTRL and press the number 2)

5) Use the following keys to adjust the numerical values:

>=increase

<=decrease

6) The keys used to adjust numerical values may have different symbols in the PC emulator. On a Swiss keyboard, these are:

,=increase

.=decrease

7) In this flight simulator, the COM frequency serves only one purpose: to listen to ATIS messages (ATIS = Automatic Terminal Information Service), i.e., the weather conditions at the respective location.

- ATIS messages are retrieved by pressing CTRL+CCC.

- The message speed can be set in the editor under COMMUNICATION (1 slow to 255 fast).

VOR:

1) For the NAV radio frequency to be useful, the corresponding VOR indicator must be set to the correct heading.

2) Press CTRL+N to select the NAV.

3) Selecting between NAV1 and NAV2 works the same way as for COM and VOR:

- CTRL+N,1 for NAV1

- CTRL+N,2 for NAV2

- Use > and < to decrease or increase the value.

View:

1) You can switch between the normal cockpit view and “Radar.” Radar is a view looking straight down from above toward the ground. This view helps when taxiing at the airport; during flight, you can see the surrounding area and nearby airports.

5=Normal cockpit view

4=Radar

2) In the cockpit view, you can look in all directions:

5,T forward (press 5, then T)

5,B backward

5,F left

5,H right

5,R left-forward

5,Y right-forward (Note: On a QWERTZ keyboard, Y is in a different position; 5,Z does nothing.)

5,V to look left-back

5,N to look right-back

5,G to look down

(So you can switch directly from radar to “left-back” by pressing 5,V.)

3) In radar view, you can zoom in or out using > and <.

Editor:

You can access the editor by pressing the “E” key.

In the editor, you can change many settings.

To navigate through the menu, use:

ENTER = Down

- = Up

(On a PC, use the ENTER key and the - key on the numeric keypad.)

A brief explanation of each point:

USER MODE:

Here you can choose between pre-saved flights and flights you've saved yourself.

Mode	Description
0	Easy flight mode
1	Realistic flight mode, good weather
2	Demonstration mode
3	Los Angeles Int.: Flight at dusk
4	Night flight (Meigs Field)
5	Flight in moderately good weather (New York JFK Intl.)
6	Bad weather flight (Boston Logan)
7	World War I Flying Ace - Game
8	Glide indicator (Champaign Willard)
9	(Champaign Willard)
10-19	User modes or modified preset modes
20-24	User modes

SOUND:

1 = on, 0 = off

AUTO-KOORDNATION:

This coordinates the ailerons and rudder.

1 = on, 0 = off

When set to “off,” you must control both separately (ailerons with F and H, rudder with C and M)

In this case, ground control is only possible using the rudder.

SLEW:

0=Normal flight mode, 1=Slew mode

I call it “Slew mode.”

This allows you to move the aircraft to any location, including altitude and flight direction (see the command overview for control commands).

REALITY MODE:

Here you can set whether the simulation should be simple or realistic.

1 = realistic, 0 = simple

Realistic means:

- You have to start the engine yourself (CTRL+M,5).

- Applying too much throttle can damage the engine.

- The elevator will not stay in the selected position until the trim is adjusted accordingly.

- The engine stalls when the fuel tank is empty.

- You can get stuck in mud or a snowdrift if the aircraft rolls off the runway.

- The heading indicator deviates from the actual heading (must be reset from time to time using CTRL+D).

- The altimeter deviates from the actual altitude (must be adjusted to the air pressure from time to time using CTRL+B).

- When transitioning from twilight to night, the instrument lighting must be turned on using CTRL+L.

- Instrument lighting left on during the day can cause bulbs on important instruments to burn out. Repairs are performed at a service station (F) at the airport.

2) Values are entered using the numbers 0-9 on the keyboard (not the 10-key pad).

3) Confirmation of the value is not necessary.

Whether you press “E” (to exit the editor), “-” (for the previous menu item), or ENTER (for the next menu item), the value is applied.

EUROPE 1917:

Press 1 to switch to “World War I Flying Ace Mode”.

COMMUNICATION RATE:

This parameter adjusts the speed of the ATIS (Automatic Terminal Information Service) message from slow (1) to fast (255).

AIRCRAFT POSITION:

The values are divided into north and east coordinates in world coordinates. Each unit represents 256 meters, so each position can only be accurate to within 256 meters.

For this reason, it is practically impossible to position the aircraft exactly on the runway.

ALTITUDE:

This value is measured in feet above sea level.

PITCH, BANK, HEADING:

These values range from 0 to 359 degrees.

AIRSPEED:

Airspeed in knots.

THROTTLE, RUDDER, AILERONS, FLAPS, ELEVATORS:

These controls are designed to let you create situations that you have to get out of as soon as you return to flight mode.

Control	Range	Relationship
Throttle	0 – 32767	closed=0
Rudder	1042 – 64512	centered=32767
Ailerons	1042 – 64512	centered=32767
Landing flaps	0 – 24576	flaps retracted=0
Elevator	12288 – 53248	centered=32767

ENVIRONMENTAL CONTROL:

HOURS: Hours 0–23

MINUTES: Minutes 0–59

SEASON: 4 seasons: 1=Winter, 2=Spring, 3=Summer, 4=Fall

CLOUD LAYERS:

These parameters determine the lower and upper limits of the cloud layers in feet above sea level. You can define two cloud layers. Make sure that the lower limit (BOTTOMS) is lower than the upper limit (TOPS) and that the cloud layers do not overlap. A value of 0 turns off the clouds.

WIND:

You can define surface wind (SURFACE WIND) and wind at three levels (WIND LEVEL 1-3). Set the wind speed (KNOTS) and wind direction (DEGREES) in degrees.

Note: The wind comes from the specified direction. A wind of 0 degrees, for example, blows from north to south.

RELIABILITY FACTOR:

In Realistic Mode, engine or other problems may occur. The value is expressed as a percentage.

100 = Extremely reliable aircraft.

0 = Problems will occur very frequently.

ADF ENABLE:

0 = NAV2 radio and OBI2

1 = ADF radio OBI

Note: Once ADF is set, you must restart the simulator to be able to use VOR2 again.