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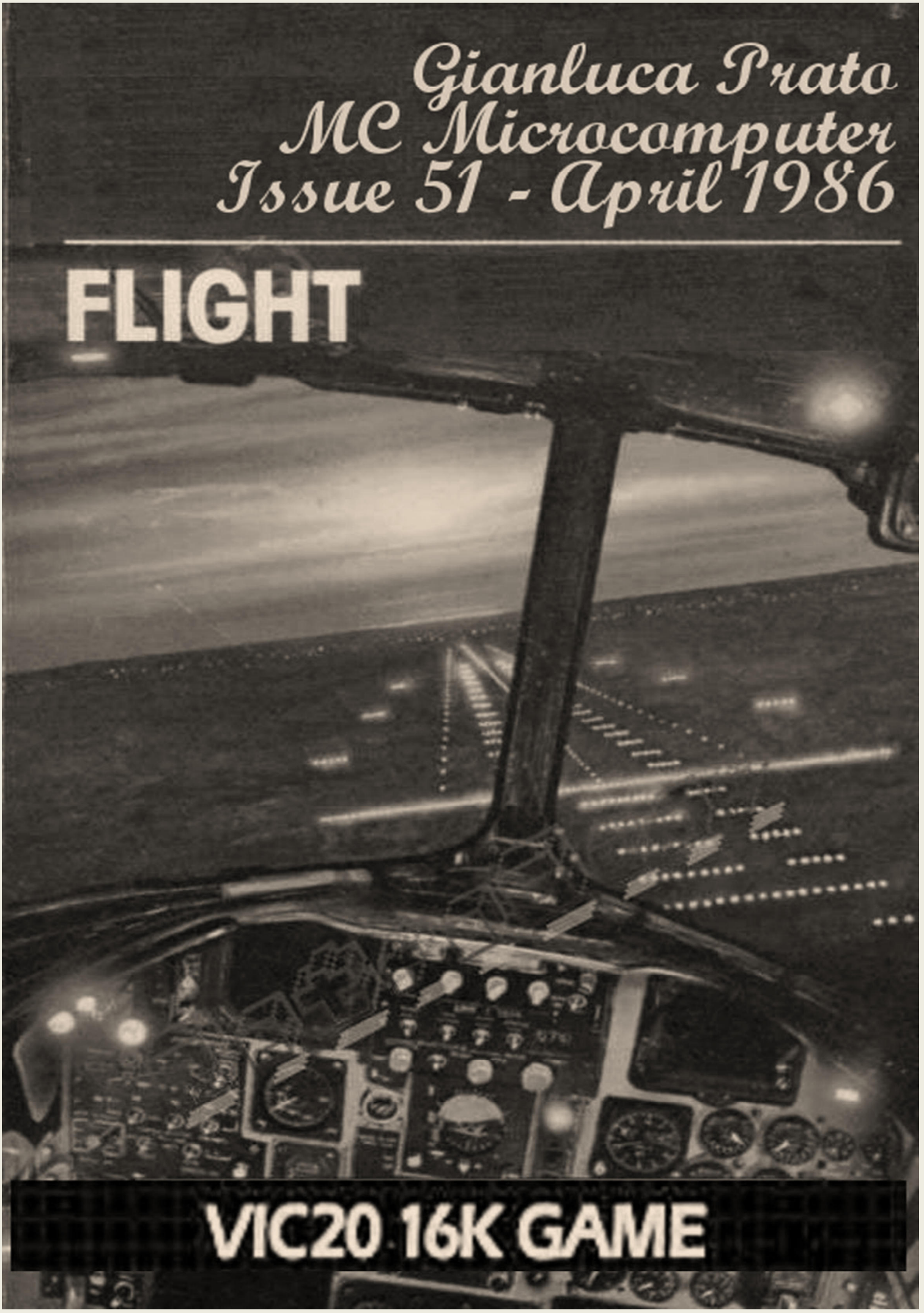
MC Microcomputer

Issue 51 - April 1986



FLIGHT SIMULATOR FOR THE VIC 20 + 16 KB RAM

Introducing a program written to fill the lack of flight simulators for the VIC 20. This is not an aerial war arcade game, but rather an instrumental and graphic simulator that will put the player in control of a postal aircraft flying over an unknown country.

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April, 1986

The disk holds two programs: the first one loads the graphic characters into memory, and automatically calls the second one, which starts with a three options menu:

1) Straight flight

2) Postal flight

3) Final approach

The first scenario opens with the aircraft on the runway, already loaded with fuel; the arrival airport is in a straight line with the departure airport (same X coordinate), so there is no risk of misrouting during the flight.

The second option is the actual mission: the aircraft is parked in the airport with no fuel loaded. The player has €5,000 to buy the desired amount of fuel and goods. Postal parcels have to be transported to an airport randomly chosen by the computer among a list of five.

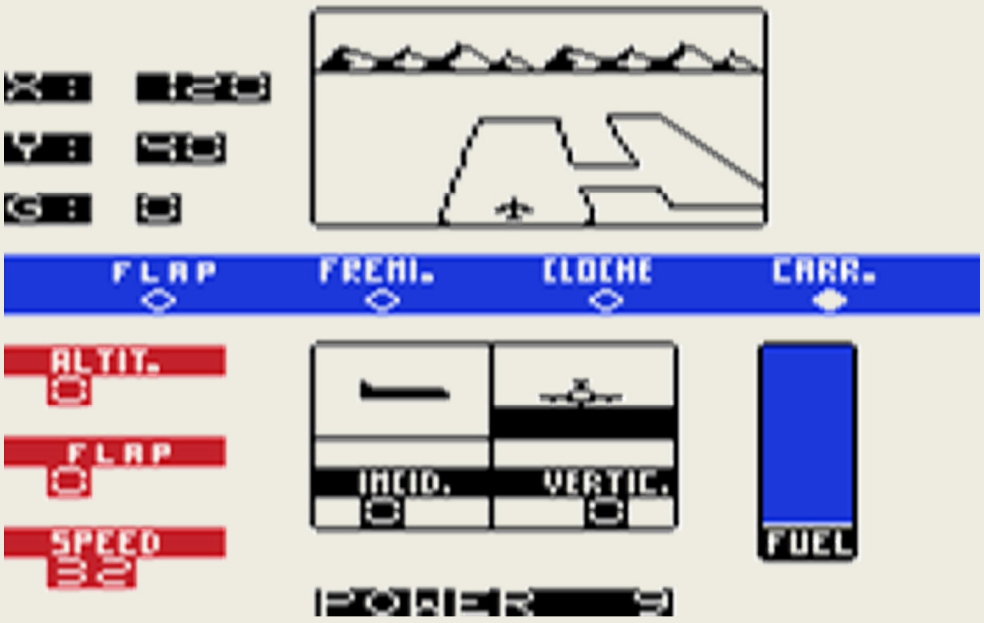
Once at destination, the computer will pay a fee based on the number of packages carried and the kilometers flown.

The third option will have you already set at an high altitude, not far from the airport where you will land. It is a way to familiarize with the final phase of the flight, which requires a lot of practice for a complete success (see chapters “Final approach” and “Landing” in this manual).

Cockpit

The high resolution screen is divided into two parts, horizontally separated by a panel of lights displaying the status of **FLAP**s, brakes (**FRENI**), control stick (**CLOCHE**), and landing gear (**CARR**). When the corresponding light is on, it means that the device is operating.

For example, if the light under the word FLAP is on, it means that the flaps are tilted; otherwise, they are not operational (position 0) and therefore they do not change the wing profile and the plane lift.



The upper part of the screen shows, in the center, a window with the outside world: your aircraft, the runway, and the mountains.

Left of this window, the position of your aircraft is indicated by its coordinates on the Cartesian plane (**X**,**Y**) and the heading is expressed in degrees of inclination with respect to the magnetic north pole (**G**). This part of the screen is also used to display the map if the pilot requests it.

The lower part of the screen is the instrumental panel. There are several gauges here:

Left - Altimeter (**ALTIT**), **FLAP** tilt indicator, and **SPEED** indicator.

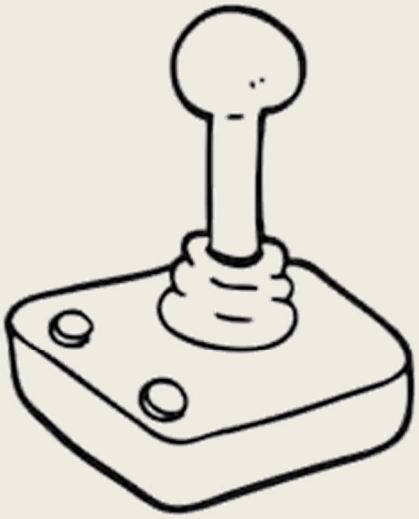
Center - **INCID**ence angle and **VERTIC**al speed indicator. Above these, two screens schematically show the pitch and height above the ground.

Bottom - Engine **POWER** indicator.

Right - Height of the column tells the pilot how much **FUEL** is available.

Keyboard and joystick commands

Keys 0 to 9	Engine power
F1	Flaps to position 1
F3	Flaps to position 2
F5	Flaps to position 0 (off)
U	Landing gear up
D	Landing gear down
B	Brakes on-off
Joystick up	Nose down (dive)
Joystick down	Nose up (climb)
<	Tilt aircraft to the left
>	Tilt aircraft to the right
M	Map (any key to exit)



Flying

Takeoff

To take off, you must first throttle up on POWER (8 or 9); then release the brakes and let the airplane gain speed; tilt the flaps to position 2 (F3), and finally pull the joystick to climb.

When the airplane reaches enough speed to lift off, in a time depending on the fuel weight and mail load, the airplane will take off and the runway will disappear. The aircraft should not be overloaded, or it will not lift before the end of the runway. Immediately after the takeoff, retract the landing gear (U) in order to save fuel, and progressively retract the flaps (F1 then F5).

Now the aircraft can reach the cruise altitude. Do not increase your vertical speed above +6 to avoid reducing speed and stall.

Once you reach about 4,000m altitude, stabilize the aircraft.

Cruising

If you didn't do that before, bring the aircraft onto the correct air route. Keep the aircraft at the altitude reached in the previous phase, and check the course of your flight from time to time with the help of indicators.

It is recommended to lower the engine power to avoid a premature end due to fuel exhaustion.

Final approach

To start the descent towards the airport, decrease the speed and lower the glide ratio using the joystick.

Pay attention to the speed increase due to the descent.

Lower the landing gear (D) and try not to dive too fast, especially when you are below altitude 1,000m. Keep the speed low and continue the descent.

Landing

The most important characteristic of the landing phase is that it must be done at very low speed (below 90); the nose of the aircraft must be kept down and the angle of incidence must be minimal.

The speed, as mentioned above, must be low but not too much, as below a given limit (depending on the load weight) the aircraft will stall and crash to the ground. Furthermore, the vertical speed must not be less than -4, as too rapid a descent will destroy the landing gear and the aircraft itself upon impact with the ground. A perfect landing can be described as follows:

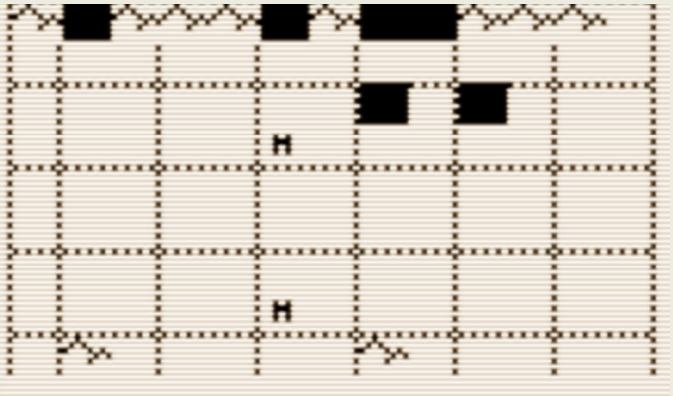
When the aircraft reaches the vertical of the beginning of the runway, it must be below the height of 600 and have a speed <180; the landing gear must be lowered (D) and the flaps progressively inclined (F1 then F3). Also, the vertical speed should be less than -1 and the angle of incidence no more than +2.

Upon reaching the landing runway, lower the power down to 2 and lower your speed to less than 90. Keep the vertical speed between -5 and zero. Wait for the aircraft to reach the ground, then switch off the engine (press 0) and apply the brakes (B).

When you reach the beginning of the runway, in the upper left corner of the screen you will see the runway length (in meters) that you are exceeding.

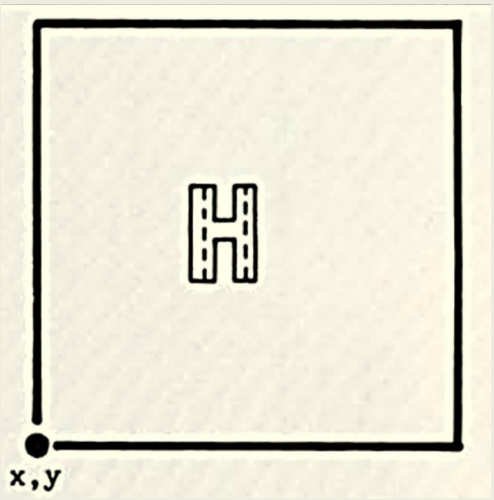
The runway ends when it reaches 5,000 meters. If you already landed and the aircraft is still running, it will crash to the ground. If you didn't touch the ground, the runway will disappear and you will be able to turn the aircraft around and try to land again.

THE MAP



The territory you are flying over has the dimensions of 260 by 190 kilometers, and is depicted on the map with only two airports at once: the departure and arrival airports (**H**). When you leave one side of the map, you immediately appear at the opposite side.

For each airport, two x,y coordinates are given. They are not really the runway coordinates. Let's imagine a square (like the one in this figure) where the black point represents the two given coordinates, while the sides of the square identify an area, with boundaries beyond which you enter the approach phase.



Once the runway has been spotted and is visible in the upper part of the screen, the computer will not allow you to change your course, and will automatically guide the airplane to the airport, regardless of the direction of approach.

When the map is onscreen, only the two airports randomly selected by the computer for your mission (out of five available in the simulation) will be displayed; the map will also show a flashing cursor indicating the position of the airplane at the moment the map is called up.

In this program the five airports are:

Tairi	120, 40
Cari	160, 80
Awar	200, 160
Cear	80, 120
Silo	120, 120

LOADING INSTRUCTIONS

Insert the 16Kb RAM expansion and turn the VIC 20 on. Insert disk.

Load the first program typing LOAD"*",8 (Enter).

Issue RUN (Enter).

An introductory screen will appear, and the second part of the program will be loaded.

"KNOWLEDGE OF AERODYNAMICS AND A REAL FLYING LICENSE ARE NOT REQUIRED"

ENJOY YOUR FLIGHT!