

SYSTEM SUPPORTING PROCEDURAL AIR TRAFFIC CONTROL

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The article examines air traffic control, namely procedural air traffic control. Briefly describes the main parts and controls elements of system, which supports training in air traffic control.

Keywords: Air traffic control, Procedural training, system

1 INTRODUCTION

Currently, high-quality aircraft technical maturity, their modern technical equipment, improvement of harmonized procedures, a single aviation phraseology and overall technical progress in aviation growing complexity of systems as well as the increasing demands not only for pilots, but especially the staff of air traffic management, who are forced to cope with the increasing onslaught of air traffic control in cases when there is a failure of technology. For this purpose was created LProcedural program, which allows relief pseudo-pilots in teaching procedural management in areas of air faculty and the career staff of air traffic management, acquisition of skills and experience in procedural air traffic control. This paper describes the procedural air traffic control and the current state of training of air traffic controllers, describes LProcedural program, and work with him. The work consists of three parts - the theoretical, focused on procedural air traffic control, the description of the software and instructions for the program LProcedural.

2 REQUIREMENTS TO RUN THE PROGRAM

The program was created on a PC with Windows 8 The program requires Microsoft runtime environment. Net Framework 4 and monitor with a resolution of at least 1366x768 pixels. When this size is not shown the entire time course of the flight and must be scrolled using the mouse. The optimal resolution for the display (when within sixty minutes) during flight is 1600x1200 pixels. No other program has special requirements.

3 VIEWING METAR REPORTS

Weather news and weather for overall air traffic is very important and therefore also in the training exercises to simulate various weather conditions. For convenience and relief from the pseudo- pilot having to remember weather conditions during an exercise in the status bar displays the message METAR. The METAR is displayed after the opening exercises.

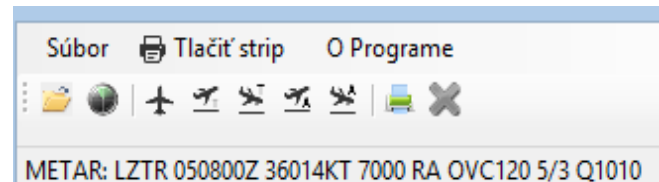


Fig. 1 View of METAR report

4 PRINTING FLIGHT STRIPS

The program also offers printing various kinds of air strips. Specifically offered the choice of five options. The user has the choice of a particular flight strips:

- The flight strip with basic data
- Tower of departure
- Tower arrival
- zoom departure
- zoom arrival

For pushing said first air strip is needed in the main menu in the Print section, click on the trip and the desired option while on the "Tower departure". Then a window will open with a picture of the flight strip form for tower departure.

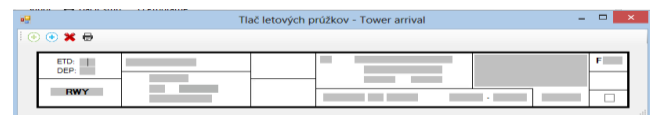


Fig. 2 The Print dialog box flight strip tower departure

The next step is to fill it as required. Since the program is designed for mass printing of flight strips, it combines two types of containers which need to be completed before the flight strip printing paste. Thus, it is necessary to insert flight strip to at least one container.

The program includes a tray-type "GLOBAL" a stack of "locality". The tray flight strip insert using the control panel dialog. The first button is used to add air strip in a local reservoir, the second in the global container. It can simultaneously insert strips in both reservoirs.

Printing from a local reservoir is made directly from an open dialog box to print flight strips. If you no longer stack contains some air strips and press the button recall the last dialog box.



Fig. 3 Toolbar to print flight strips

Printing of global container called up from the main menu of the program LProcedural Print strip penultimate item Print the global stack.

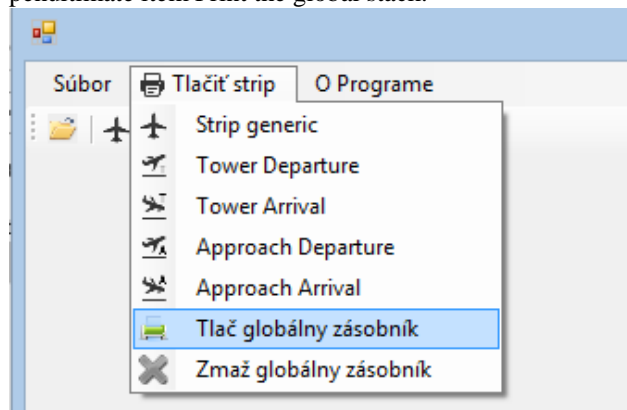


Fig. 4 Print the global stack

To delete a local storage is on a toolbar button placed third. However worth mentioning that the local stack is automatically deleted when you open the dialog box to print any air strip and thus preventing unwanted print flight strips.

To delete a global storage is necessary, click Delete global stack in the main program menu in the Print section strip. Following this will be immediately deleted the contents of the global container.

Said printing process air strip for tower departure is the same with the other print options flight strips. So in the same way we achieve a printing tower air strip for arrival, approach arrival etc. ..

If it is necessary to simultaneously print multiple types of air strips like two flight strips type of approach arrival, flight strips type 2 Tower 3 arrival and departure flight strips and Tower do so easily. In any order, it is necessary to complete the required types of air strips in the number required, and gradually after completing their files to the Global tray. After completing all just cause of global print tray and wait for the result of which will take care of itself printer.

5 FILLING FLIGHT STRIPS IN LPROCEDURAL

Method of filling air strips are very different from the way of filling in paper flight strips but some differences are found. The main difference is that the flight strip is really filling in with stationery such as pencil or pen.

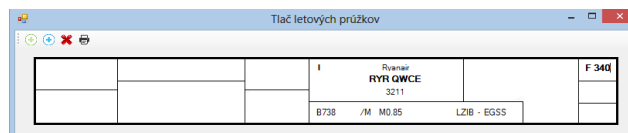


Fig. 5 The completed basic flight strip in the program LProcedural

The picture shows a completed flight strip with basic data about the aircraft and the intended flight. After a very trying, everyone finds that it is very simple.

Before completing each type of flight strip contains gray shaded areas that are designated for filling. If the place does not need to fill it is however necessary to cancel shading insert a space and the shading is changed to white.

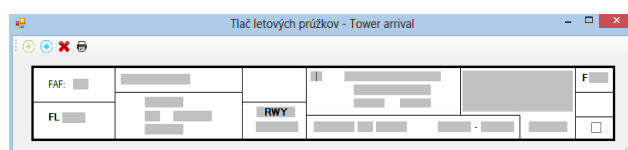


Fig. 6 Unfilled strip for flight departure tower

The flight strip automatically turns lowercase for large and therefore it is not necessary to pay close attention during filling.

The flight strip contains a choice of values for certain text fields for the filling. Double click mouse button on the text box when the text box that contains this option and a dialog box with options. Flight strips have implemented three different dialog boxes. One is used to select the model of the aircraft, the second choice point, standard departure route or a standard arrival route. The third dialog box provides quick selection of a runway.

Selection dialog runway offers users all the configuration options of the runway and the double click the mouse button selects it needs to inscribe air strip. The dialog box closes and then the setpoint will be inscribed into the air strip. Confirmation values can also simply press the Enter key on your keyboard. If the window is triggered unintentionally and to close the dialog box you need to press the ESC key on your keyboard.

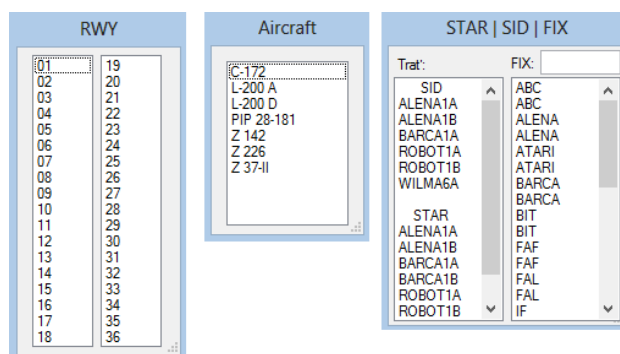


Fig. 7 Dialog box to simplify your flight strips

In a similar manner to proceed even if the dialog box for selecting the type of aircraft. After opening the window displays a list of aircraft types in the database then you need to choose the one intended for admission to the air strip and simply mouse or Enter key to confirm.

A little more functionality supports dialog box To enter points, standard arrival and departure routes. This dialog supports database lookup points Fix. It is divided into two parts. In the left pane displays the standard arrival and departure routes and right appear Fix points.

6 SELECTING EXERCISE

After the program is automatically loaded database with relevant data such as points, distances between points, setting the standard arrival and departure routes and the like. Then it is up to the user to exercise lets you view program. To view the exercise is necessary gradually to click on File and then click Open exercises. The second way is to click on the first icon that displays open to the toolbar in the program.

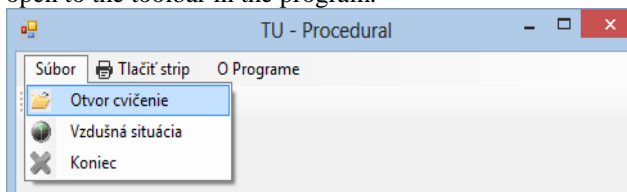


Fig. 8 View exercises

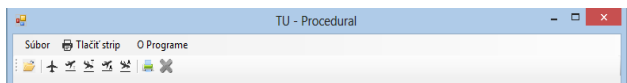


Fig. 9 The main toolbar program LProcedural

Then a window will open where you need from our practice to choose the one that we want to see and confirm with the OK button, which is marked with a green "a pipe", or simply press the "Enter" key on your keyboard. To close the window with that intention not show exercise is to click on the CANCEL button marked with a red "x" or press "ESC" on your keyboard.



Fig. 10 Selecting and confirmation exercises views

6 MANAGING THE FLIGHT

The program offers an easy to manage during the flight. This is different for managing different types of flight. It is different for departure, arrival and passing. For the departure flight manages just select a standard departure route and speed of flight, whether it is a VFR flight, and if so set the number of lines. For flight arrival can be managed by selecting a standard arrival route, enter the waiting period and the number of circuits in holding patterns, missed approach and change speeds. For overflights while managing flight is not available in the program.

Individual courses can trace the program hold the mouse. For this act just to catch the imaging control at the top with the left mouse button and move to the desired location. Also can be freely removed displays controls. Simply click your mouse on the small "x" in the top left of the display control.

To choose standard departure or arrival route is a display control element embedded in the top and bottom of the scroll element which according to flight plans showing options for each flight. Change in flight level or other comments to the flight can be in different times complement simply double click the mouse to the required time which in turn opens a window where this is necessary to change the fill level or add a note to confirm. To display the main window manažovacieho need to click the left mouse button to display the control menu and confirm "Manage flight".

7 CONCLUSION

The introduction of new modern transport aircraft with jet propulsion increases the complexity of air traffic and leads to the introduction of new sophisticated and more complex control systems and supply, thereby increasing the demands on air traffic controllers. This is why the implementation of new training and licensed air traffic controllers. For this purpose we have a program LProcedural. Virtual approach control sectors airport TATRA creates software environment to facilitate work pseudo-pilots during procedural air traffic controller training faculty in the areas of air in order to eliminate errors caused by ignorance of procedural control management, aviation phraseology and the imperfect communication, lack of experience, skills, help cope with the prescribed standards and procedures

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