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### **F-16 VIRTUAL COCKPIT – PROJECT OF COMPUTER-AIDED LEARNING APPLICATION – WEAPON SYSTEM POWER ON PROCEDURE**

*Author, in this article, describes project of computer-aided learning F-16 aircraft maintenance application. This project consists of technical manuals and computer application. First part of the article contains general brief about purpose of the project. Second part is about operation of the computer application. Conclusions end the publication. This publication is integral part of author's scientific research about F-16 virtual cockpit project.*

### **WIRTUALNY KOKPIT SAMOLOTU F-16 – PROJEKT KOMPUTEROWEGO WSPOMAGANIA PROCESU KSZTAŁCENIA PERSONELU LOTNICZEGO NA SAMOLOT F-16 – PROCEDURA URUCHAMIANIA SYSTEMU UZBROJENIA**

*W publikacji została przedstawiona część projektu wirtualnego kokpitu samolotu F-16 wykorzystywanego podczas komputerowego wspomaganie procesu kształcenia personelu lotniczego. Projekt składa się z dokumentacji eksploatacyjnej i aplikacji komputerowej. W pierwszej części przedstawiono ogólne informacje o projekcie i jego przeznaczeniu. Druga część to zasada działania aplikacji komputerowej. Publikacja podsumowana jest wnioskami końcowymi. Artykuł stanowi integralną część prac badawczych autora.*

#### **1. INTRODUCTION**

„Weapon System Power on Procedure” is main part (next to „General Maintenance Procedures” described in second publication) of the advanced ground pilot/ground personnel training simulation and computer – aided learning application. Aircraft technical development certainly increases requirements for young flying adepts. There is no advanced systems on board in this plane so basic theoretical and practical knowledge about up-to-date on board aircraft systems for military pilots’ students needs to be provided. In the near future some of them will fly/prepare to fly F-16 and this knowledge will help them faster and easier improve their flying and technical skills.

Pictures describe operational ideas of the application work.

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## 2. OPERATION OF THE PROJECT

Application is created in Macromedia Flash MX 2004 software (fig. 2.1). This part concerns all general maintenance procedures.

All information included in application comes from original F-16 Lockheed Martin pilots' and technical' manuals and it is in English language only. The manuals consist of „step by step” maintenance procedures performed during avionic and armament system preparation. The application not only consists of preparation and checkout procedures but also describes all control panels and information displays used during maintenance. Students have opportunity to get information about the F-16 cockpit and improve technical English language skills.

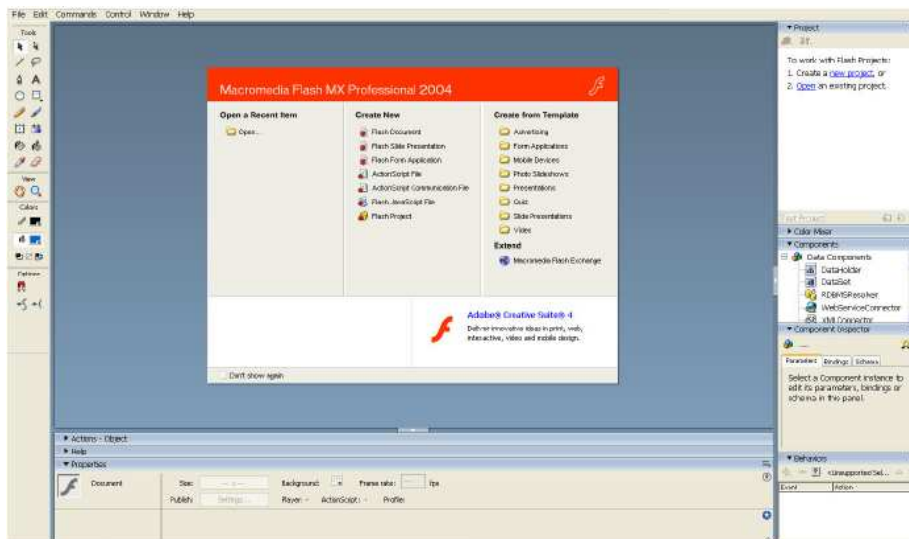


Fig.2.1. Macromedia Flash MX 2004 main window

Application is in \*.exe” format and it can be open in any computer without additional drivers installed. Application start window is presented on fig. 2.2.

To go thru the procedure we need to click on „Start” box (fig. 2.2) and the application main menu window will be displayed (fig. 2.3). Next step is click on appropriate procedure. After that all important information and steps of the procedure will be displayed (fig. 2.4÷2.9).

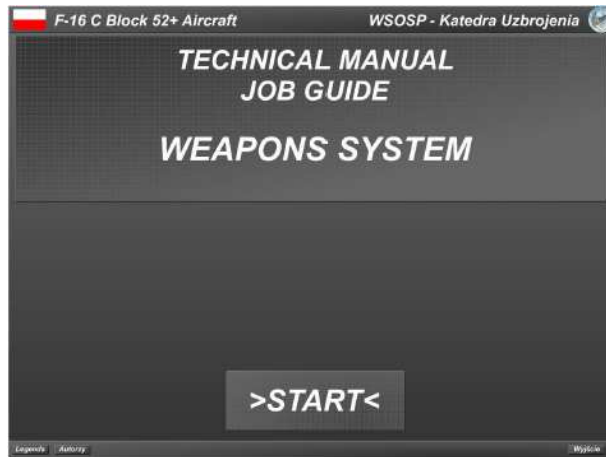
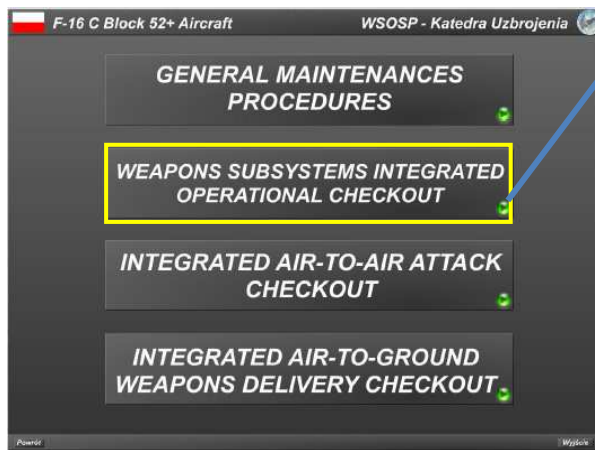


Fig.2.2. Application start window [3]



To start application – click on green arrow.

Fig.2.3. Application main menu window (function in yellow box is under consideration) [3]

To start application – click on green arrow.

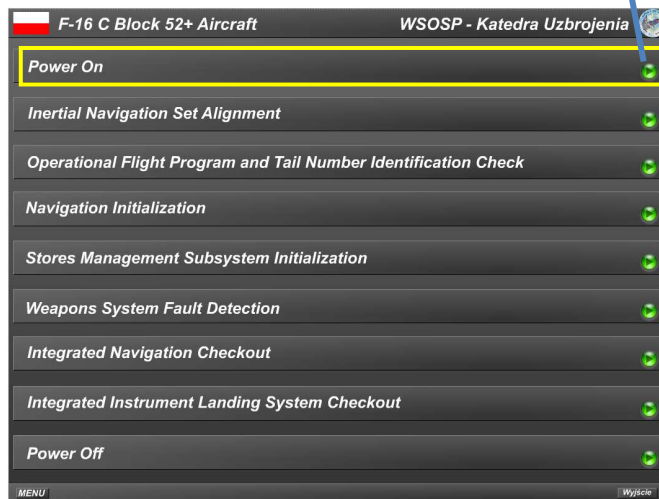


Fig.2.4. Application sub menu window (function in yellow box is under consideration) [3]

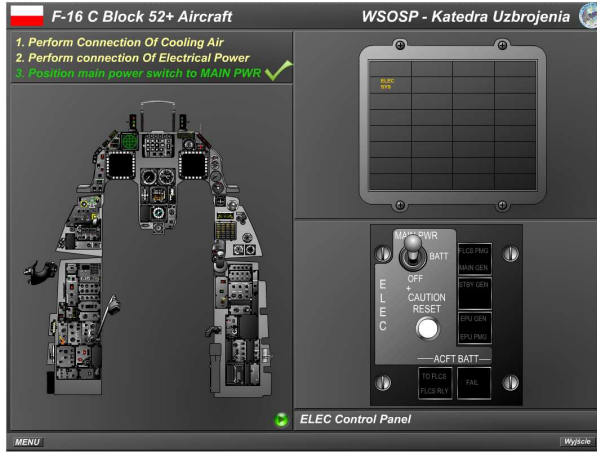


Fig.2.5. First step of the Power on Procedure [3]

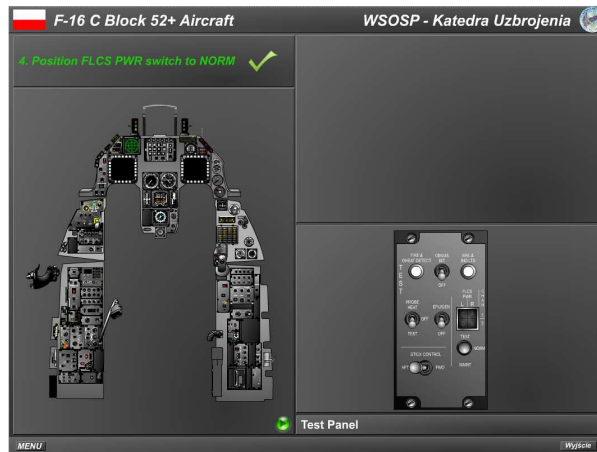


Fig.2.6. Next step of the Power on Procedures [3]

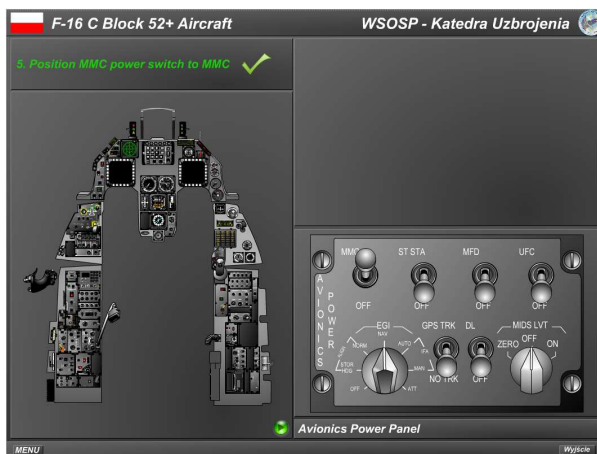


Fig.2.7. Next step of the Power on Procedures [3]

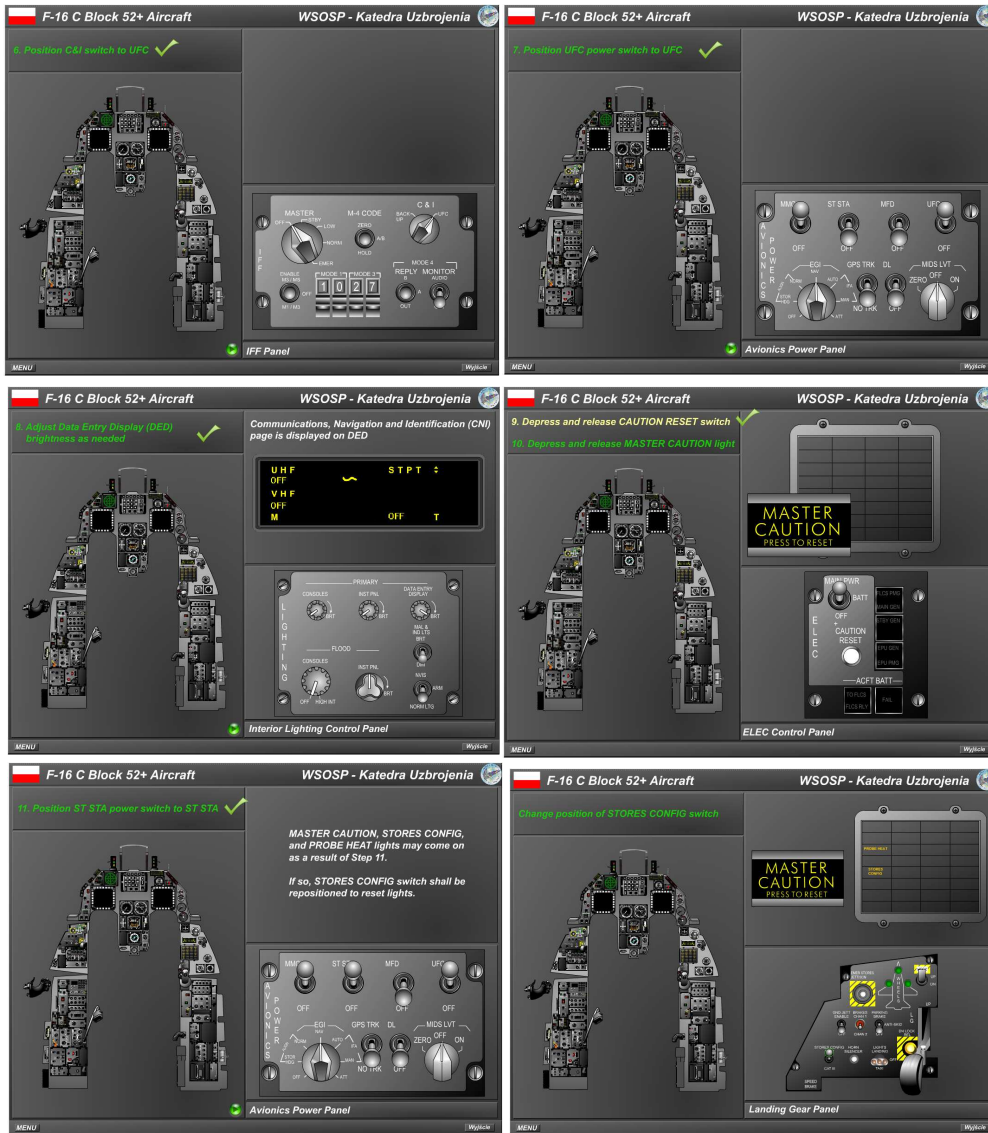


Fig.2.8. Few next steps of the Power on Procedure [3]

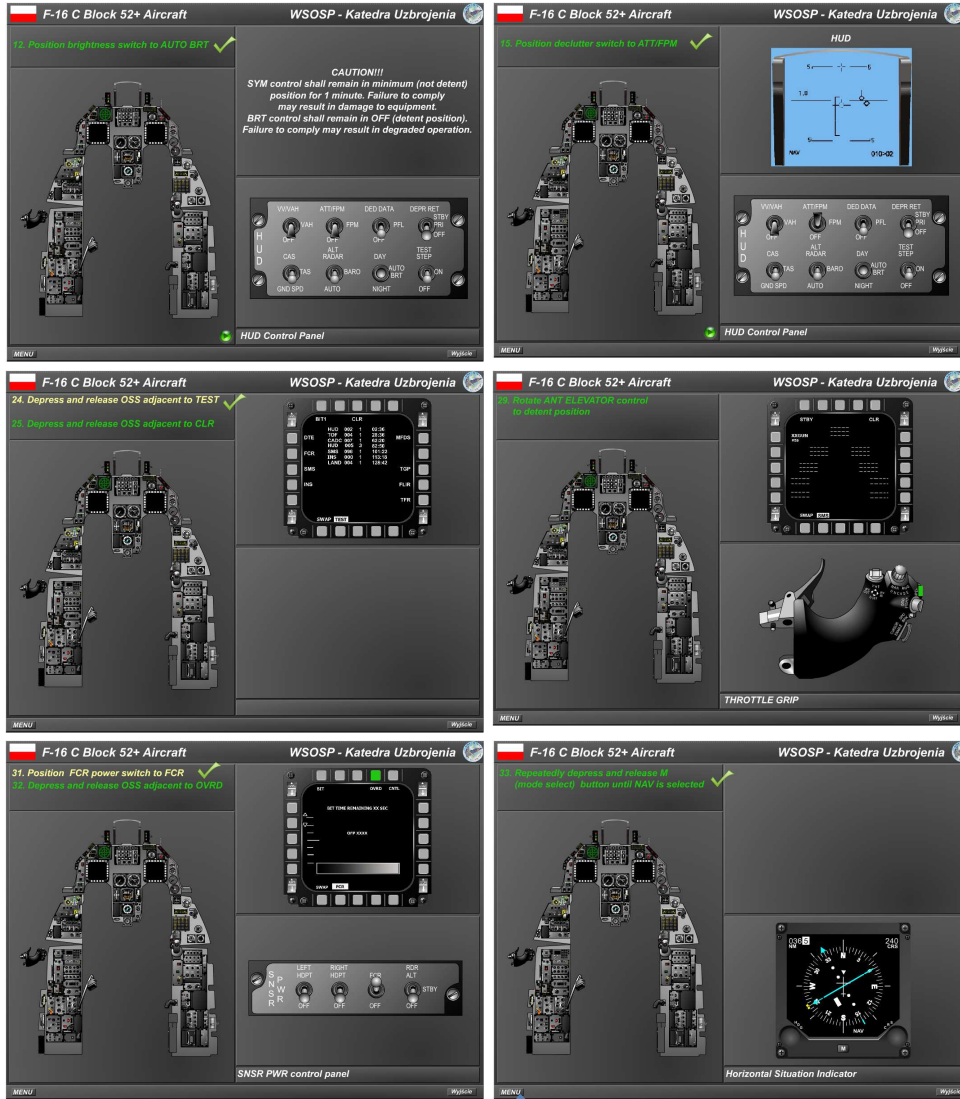


Fig.2.9. Another few steps of the Power on Procedure[3]

Clicking on „MENU” button ends the procedure and displays application submenu window (fig.2.4).

### 3. CONCLUSIONS

As I mentioned in the article about General Maintenance Procedures of F-16 aircraft the crucial factors in aviation safety are well-trained pilots and ground staff personnel. Created application is used in training program for engineers, technicians and mechanics. In addition young military and civilian pilot students have opportunity to improve their knowledge about operating F-16 aircraft on board avionics and armament systems.

Next upcoming improvement of the application will be A-A and A-G weapons checkout during combat mission (in both aircraft version – F-16C and F-16D). After that all maintenance procedures in avionics and armament system of the F-16 C/D Block 52+ will be complete. Moreover all cockpit panels and displays drawing will be replaced by photographs of the original alternate mission equipment.

### 4. REFERENCES

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