**LESSON PLAN**

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| **Lesson** | Effects of Controls - 1 | **Instructor** |  | **Class/Group** |  |
| **Location** | Maps & Simulation Room | **Date / Time** | / | **Equipment** | Flight Sim |

**INTRODUCTION**

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| **Interest** | To develop your piloting skills in preparation for a Gliding Scholarship in the Vigilant | |
| **Need** | To learn to select and maintain straight and level flight in the vigilant | |
| **Title** | Effects of Controls – 1 **REF – FTP 124 (P7 – 12)** | |
| **Revision** | * Airmanship - definition and explanation - use of clock code. * Hand over/take-over of control and follow through procedures. * Axes of an aircraft. * Stability. * Definition of attitude. | * Primary effects of controls. * Effects in a banked attitude. * Proportional control response. * Effect of airspeed on control response. * Aileron drag - adverse yaw - co-ordination - balance. |
| **Objectives** | * By the end of this lesson you will be able to:   + Select the datum attitude using co-ordinated controls. | |
| **Scope** | This lesson will last 2 hours | |
| **Handouts** |  | |

**DEVELOPMENT**

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| **Content** | **Notes** |
| Flight Simulator Scenario: The simulator should be launched using the Grob G109B Vigilant in flight above an appropriate airfield. | |
| Each exercise should be followed by the cadet(s) practicing that exercise. | |
| **2. Airmanship - clock code.** | 5 min. Drawing on whiteboard of view from aircraft and practice. Ex. FTP124 Fig.2 |
| **3. Follow through and hand over/take-over of control.** | 5 min. explain process of handing over and taking over control of an aircraft, sit two cadets next to each other to practice. |
| **4. Attitude.** | 10 min. Demonstrate the 4 different attitudes on the flight simulator. Ex FTP124 Fig.3 |
| **5. Axes.** | 5 min. explain the 3 axis of an aircraft. |
| **6. Primary effects of controls.** | 10 min. Using Simulator as an aide, explain the primary effects of controls during level flight. |
| **7. Primary effects in a banked attitude.** | 10 min. Repeat above (section 6) in a banked attitude. |
| **8. Proportional response.** | 5 min. Demonstrate how the aircraft will move about its axis proportional to the amount the controls are moved. |
| **9. Effect of airspeed on control response.** | 15 min. Demonstrate the responsiveness of the controls and 50, 60 (normal) and 70 kts. |
| **10. Adverse yaw and co-ordination.** | 10 min. Demonstrate adverse yaw and how to fix it. |
| **11. Lookout and use of the visual horizon.** | 5 min. Demonstrate with help of a diagram how to keep lookout. Ex. Airmanship Knowledge Lesson 2 |
| **12. Selection of the Datum Attitude.** | 15 min. Learn how to re-select the datum attitude. |

**CONSOLIDATION**

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| **Summary**  The Cadet(s) have now learnt how to use the controls, and appropriate control surfaces, to select and maintain a datum attitude. |
| **Test Learning**  Place the aircraft is different attitudes and airspeeds. The cadet must then bring the aircraft back to the datum attitude. |
| **Restate Objectives**  By the end of this lesson you will be able to:   * Select the datum attitude using co-ordinated controls. |
| **Student Questions** |
| **Review and Look Forward**  Next lesson: Effects of Controls – 2, Engine Start and Taxy  AIMs.   * To start the aircraft and taxy safely. * To select the datum attitude and to fly in balance and in trim. * To operate the airbrakes correctly. |