L-Università ta' Malta

STANDARD OPERATING PROCEDURE

SOP CODE	SOP TITLE
SCE-002-01	**OPERATION OF FESTO DIDACTIC PNEUMATIC TRAINERS**

PART 1

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PART 2

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PART 3

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PART 4 (To be filled in by OOS, QSU or RSSD)

☐ This procedure has been revised and is no longer valid as from: (Write date)	☐ Date of NEXT REVISION is extended until: (Max. 4 years)	☐ SOP rendered obsolete on: (Write date)

1. Reason for revision

1.1. New SOP

2. Purpose and scope

2.1. To provide instructions for the safe and proper operation of the FESTO Didactic pneumatic trainers.

2.2. These instructions are intended for use and to be followed by all prospective users of the FESTO Didactic pneumatic trainers.

3. Definitions

3.1. SOP – Standard Operating Procedure

3.2. PLC – Programmable Logic Controller

4. Responsibilities

a. It is the responsibility of whoever uses these pneumatic trainers to immediately report any damages and/or air leakages, on any pneumatic or electrical component.

b. It is the responsibility of whoever uses these pneumatic trainers to place all the components in their respective drawers and cabinets, according to the letter codes on each component.

c. It is the responsibility of whoever uses these pneumatic trainers to seek the approval of the setup of a tutor or a technical member of staff before opening the air valve, switching on the compressor and/or switching on the power supply of the system.

5. Health and Safety Requirements

5.1. Wear protective clothing, including safety glasses and safety shoes while operating the pneumatic trainers.

6. Procedure

6.1. Ensure that the compressor, pictured in Figure 1, is switched off and that the FESTO Didactic power supply, pictured in Figure 2 is also switched off.

Figure 1: Air compressor

Figure 2: FESTO Didactic Power Supply

6.2. Connect any sensors, such as the one pictured in Figure 3, which shall be used in the system by connecting the red cables to the 24V power supply on the FESTO Didactic power supply, the black cables to the ground connection on the FESTO Didactic power supply and the blue cables to the digital input pins on the PLC.

Figure 3: Inductive proximity sensor

6.3. Connect any input switches, such as the ones shown in Figure 4, according to whether they should be configured as *Normally Open*, or *Normally Closed*.

Figure 4: Switches, lamps and push-buttons

6.4. Connect any lamps such as the ones shown in Figure 4, by connecting its black cable to the ground connection on the PLC and its other signal cable to the digital output pin on the PLC.

6.5. Connect any valves used in the pneumatic circuit, such as the one shown in Figure 5, according to the configuration of the valve which is shown on the valve itself.

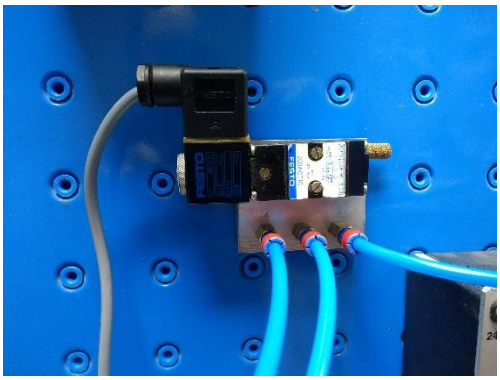
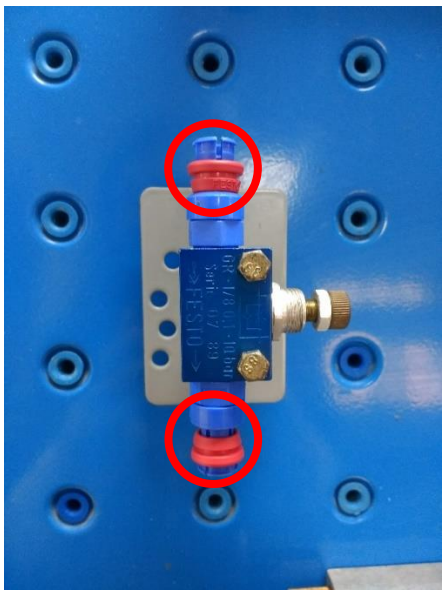
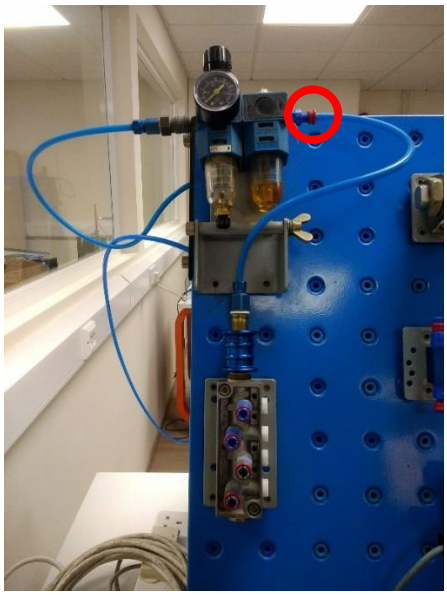


Figure 5: Solenoid valve

6.6. Kindly refer to the respective manuals of the sensors, switches, lamps, valves and pneumatic cylinders being used in your circuit.

6.7. Ensure that the connection of the air tubes to the terminals is secure. These terminals have a red rubber ring placed around them, as shown in Figure 6.





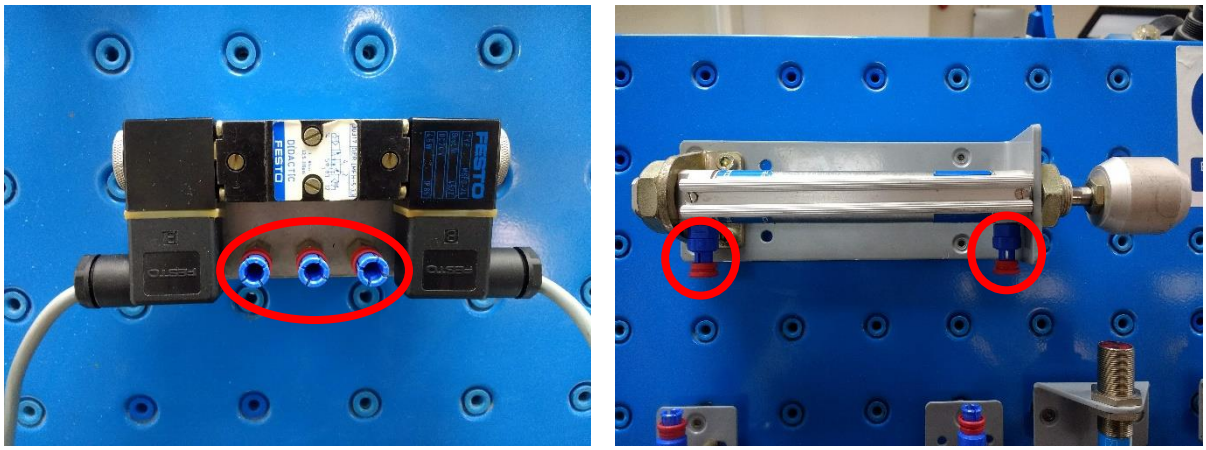


Figure 6: Tube terminals

6.8. Do not open the air valve, shown in Figure 7, until your setup has been verified.

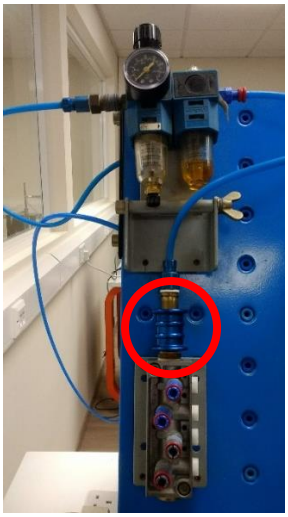


Figure 7: Air valve

6.9. Ensure that the panel of the power supply module, shown in Figure 8, is securely shut. Do not tamper with this panel and always keep this panel closed at all times, especially while operating the PLC.

Figure 8: PLC power panel

6.10. Securely connect the PLC power supply to a switched off power socket.

6.11. Do not power on the air compressor or open the compressed air valve before seeking the approval of your tutor or a technical staff member of the SCE Department.

6.12. Do not switch on the power supply of your setup before this is checked by your tutor or a technical staff member of the SCE Department.

7. References

7.1. Allen-Bradley PLCs 1769 CompactLogix Controllers User Manual.

7.2. Allen-Bradley Input Module 1769-IQ16F Manual.

7.3. Allen-Bradley Output Module 1769-OB16 Manual.

7.4. Any manuals of the respective pneumatic components being used in a setup.

8. List of Appendices/Worksheets

8.1. N/A