CONCEPTUAL DESIGN WORK FOR TEACHING MAINTENANCE OPERATIONS OF A SMALL AIRLINER

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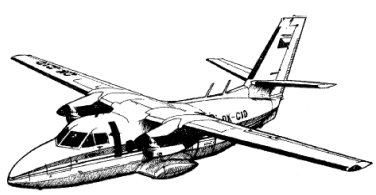
The present article deals with the design of the ideological department to teach carrying out the maintenance of a small transport aircraft L-410 UVP. This article is prepared on the basis of existing aviation legislation and deals mainly center for teaching and maintenance of aircraft and also the necessary equipment. Highlights the importance of taking care of aviation technology. The article also provided the necessary tools and documentation to the implementation of the maintenance and repair of aircraft L-410 UVP.

1 INTRODUCTION

Aviation is nowadays an indispensable part of everyday life. Maintenance and operation of aircraft technology, however, requires the necessary attention to personnel in the maintenance involved. Aircraft L-410 UVP is a small airliner, which nowadays is used in the civil, but also in military aviation. The aim of the present article is to build a conceptual design department with the necessary equipment and security in accordance with current legislation.

2 CURRENT STATUS

Small passenger plane L-410 UVP is a twin-engined all-metal high-wing, which is designed to transport people and cargo, and it can be used for other special purposes. Power an aircraft is realized by two turboprop powerplants in Czechoslovakia Walter M-601B, with a maximum take-off power of 590 kW. Drive units are fitted with two hydraulically adjustable three-bladed propeller Avia V-508 with a diameter of 2.5 meters. The aircraft is equipped with a three-wheel retractable landing gear, which is fitted with hydraulic brakes on the main wheels and hydraulic steering power steering on the front undercarriage leg..



Pict.1 Aicraft L-410 UVP –E

3 Conceptual design work for teaching maintenance operations of a aicraft L-410 UVP

Any organization that is authorized to carry out maintenance of aircraft and their components must be qualified by the competent authority under Regulation Part 145

Regulation Part 145 defines the requirements to be met for the organization to qualify for the issue or maintain the approval for the maintenance of aircraft and related components.

3.1 Tools for maintenance aicraft L-410 UVP

Tools for operation and maintenance of aeronautical equipment is essential department where this performs maintenance.

Basic requirements for the organization of maintenance necessary tools

1. Where the manufacturer specifies a particular tool or equipment, the organization and the equipment and tools to use it unless the competent authority provided for the use of alternative tooling or equipment.
2. Equipment and tools must be permanently available, in addition to tools and equipment that are rarely used, so that its permanent availability is uncertain.
3. An organization that is entitled to base maintenance shall have sufficient service equipment and work platforms and ramps for maintenance and such that the aircraft can be properly inspected.
4. The organization must also ensure that the tools, equipment and test equipment must be checked and calibrated according to respective standards.

Pict.2 Truck for tools and equipment

3.2 Documentation required for maintenace and repair aicraft L-410 UVP

Documentation required for maintenance and repair of aircraft L-410 UVP consists of the following sets of documents:

1. Technical dokumentácia
2. Operational documentation
3. Operational documentation of aircraft equipment and aggregates.

3.3 Workshop for mechanical treatment of metals

Workshop for mechanical machining metal part of the premises for the maintenance of aircraft and aircraft components. Such areas must be certified under Part 145 regulations and are made on them high security requirements. These spaces are equipped with machine tools such as lathe, milling machines and drill press. Every device that is located in the workplace must be regularly checked by technician, who will assess whether the device is capable of further operation.

Pict.3 Protective equipment

To prevent accidents at these facilities, it is necessary to respect strict security guidelines at work and also the use of protective equipment such as (silencers, goggles, shields, etc.).

3.4 Department avionics and radio equipment

Like the previous work and get paid, that area must be approved by the competent authority in accordance with applicable legislation and can work on them only those workers who are on a specialist.

Such work provides space for aircraft avionics equipment, to store various units, appliances and the like.

The main requirement of these areas is comfortable seating for assembly and disassembly, as well as proper lighting with adjustable light. These factors are closely related to the effective implementation of the required work. In this work should also be an AC voltage to 230 V and 400, for connection of power tools, test equipment, and the like.

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Pict.4 Workshop avionics and radio equiment

Work and carry out tasks in this work is also associated with a number of safety regulations and measures which must be observed in all circumstances to prevent damage to facilities and equipment in the workplace and of course to prevent accidents at work and therefore damaging to health. The room must also be equipped with

heating, in order to ensure the desired well-being at work.

3.5 Room for teaching and training of staff

Execution of works and tasks for aviation technology requires proper management and study of relevant documents, which is designed for the type of aircraft and its components. In this study documentation is necessary to ensure maximum ease and comfort you can arrange a special, separate space that is provided for this purpose.

Pict.5 Room for teaching and training of staff

The picture is displayed No.5 room for learning and retraining staff. This room must provide protection against noise, vibration and other factors that could distract. The room is also complete all maintenance records.

In addition to studying the documentation this room provides a second important function and it is retraining staff to perform maintenance. Room for retraining personnel must be equipped with the necessary equipment, which is necessary for this purpose. The room must be provided with the projector for projection of electronic documents and must also be in the computer room as needed.

3.6 Storage areas

The operation of aeronautical products and major components of the aircraft is closely linked with that of the storage units and aircraft accessories. Storing these components and also supplies must meet certain requirements in order to prevent damage or deterioration of these aircraft.

Requirements for storage rooms:

- Storage areas designated for aircraft storage units that are capable of operation, must be clean, well-ventilated, dry, and must be secured by acceptable temperature, to prevent the emergence of condensate.
- storage racks must be strong enough to maintain the individual units as well as to ensure adequate support for large components so as to deform during storage.
- All aircraft units, which are stored on the premises must remain still wrapped in protective packaging to reduce the risk of damage and to prevent corrosion

In addition to aircraft storage units in these areas and consumable stores, ie screws, nuts, washers, pins, bolts and the like. The storage area should also be keeping a register of all the parts and the whole, have there. Evidence is usually recorded in a computer, where everything is properly labeled with the data, where the material is accurately located.

4 OPERATING SECURE WORK FOR MAINTENANCE AICRAFT L-410 UVP

This last chapter includes operational support such as lighting and doors at work and I also described the fire protection plan and traumatology department in case of an accident.

4.1 Lighting of work

Any work done on the air technology requires proper attention and importance. Fundamental to the success of their work are acceptable workplace conditions. One of the most important conditions for work on aeronautical security requirement is necessary and sufficient lighting in the performance of any task associated with repair and maintenance.

Pict.6 Lighting design department

If necessary, another illumination when working in dark areas and the belly of the aircraft requires the use of special portable lighting. Such portable lamps have great use due to the fact that they can be easily replicated, even in hard to reach places. Connected to the mains voltage of 230 V. Use these portable lamps but failure to comply with safety instructions can cause a fire. Therefore, they should be placed where there is no danger.

4.2 Doors workplace

The requirement for efficiency of work requires aircraft during his State of the country could quickly and safely from the workplace to the outer surface for diesel testing and the like. Department for maintenance and repair of aircraft L-410 UVP is equipped with special doors which are semi-automatic. Control button automatically opens and closes well back then. Opening or closing cycle lasts 60 seconds. Doors range up to 8 meters. They are located in the rails where the move.

Dvere sú vybavené patričným počtom okien na zabezpečenie požadovanej viditeľnosti. Taktiež musia dvere zabezpečiť potrebnú tesnosť pred vetrom a pred nepriaznivými vonkajšími vplyvmi počasia.

Pict.6 Lighting design department

4.3 Fire protection department

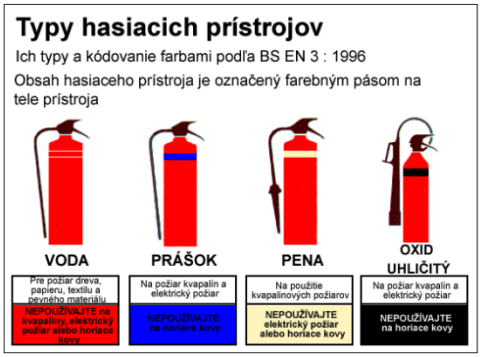
Fire is a risk factor, which is a result of an outbreak of devastating consequences. The basic requirement of any organization of various sectors thus ensuring space for the emergence and spread of the fire. Each organization must be equipped according to the appropriate guidelines in the event of fire..

Portable fire extinguishers:

Hand extinguishing agents are an essential element of fire protection in the workplace. These devices are actually pressure vessels, which are filled with pressurized mixture.

The distribution of fire extinguishers:

- Fire extinguishers of type A, are used to extinguish flammable solid substances (carbon dioxide, halon, can be powder and water),
- Fire extinguishers of type B, are used to extinguish flammable liquids (carbon dioxide, halon, can be powder and foam).
- Fire extinguishers C-type devices of this type are used to extinguish electrical (carbon dioxide, halon, can be pulverized).



Pict.7 Types of fire extinguishers

In the workplace, it is necessary to observe all safety requirements and standards that are used to prevent fires in the workplace. Since it is a workplace where they performed maintenance and repair of aircraft, it is necessary to take into account the increased risk of fire because the workplace is aviation fuel and other combustibles. Acceptance of safety is therefore a priority of protection for the workplace and must be followed strictly prohibited from handling any fire in the workplace and also ban smoking on the premises and in their vicinity. Failure to comply with these provisions may result in serious consequences to human life, property damage and damage to the aicraft.

4.4 Traumatological plan of work

The most important factor in the performance of work on aviation safety and technology is mainly occupational health. The workplace is called. Traumatology plan, which must be part of any similar work. Traumatology plan gives us a well-defined procedure for causing any accidents in the workplace

Pict.8 Traumatological plano f work

Traumatology plan in Figure No.8 accurately describes events that must follow each other in finding employment injury. The plan includes all the necessary numbers of people who are interested in this plan. An important fact is also the seriousness of the situation, it is about how extensive and serious injury is involved. People who are included in the plan must therefore able to correctly assess the situation and the affected resell the workers emergency medical assistance. In the event that it is a small and insignificant accident, the person responsible for the accident is treated in the workplace. This is necessary in order to work there was also wall kit, with the necessary equipment.

5 ZÁVER

Workplace designs for teaching performing maintenance of aircraft L-410 represents a complex that consists of many parts. At work are all necessary products and equipment that are an essential part of the office. Also, the workplace is a necessary tool prescribed documentation.

The present article has been prepared on the initiative of the requirements for obtaining practical and theoretical knowledge aircraft L-410 UVP. The content is clear that the first and essential requirement for aviation safety is so high demands are placed on the maintenance of aeronautical products and components. Workplace is thus equipped with all means necessary to prevent injury and technology.

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