higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

AIRCRAFT MAINTENANCE THEORY N3

(11041113)

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
AIRCRAFT MAINTENANCE THEORY N3
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Only use a black or blue pen.
5. Write neatly and legibly.

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QUESTION 1

1.1 Discuss the inspection of a turnbuckle during a minor inspection of an aircraft. (5)

1.2 After a reported heavy landing, the aircraft structure and systems should be checked for possible damage caused during the heavy landing.

Name the defects that one would look for on the empennage area of an aircraft during this inspection. (4)

1.3 What would one look for on the traditional (older) type of instrument faces to check its condition during routine maintenance? (3)

1.4 Elaborate on what terminals and terminal blocks would be inspected for during routine maintenance of the electrical system. (3)

1.5 Describe the inspection that would be done to check the condition of the outer cover of the tyres during turn around inspection. (4)

1.6 Summarise what the hydraulic system pipelines and hoses inside the wheel bay of an aircraft's landing gear would be inspected for, during routine maintenance. (4)

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QUESTION 2

2.1 What should be checked on a piston engine after it has been overhauled but before it is installed on the airframe? (5)

2.2 Describe a propeller check during an engine ground-run test. (Any engine, piston or turbo-propeller, but name the type described.) (6)

2.3 Name the materials that are used to apply preservation treatment before an engine is placed in storage. (2)

2.4 State FOUR defects that may cause an engine to experience excessive oil consumption. (Any engine, piston or gas turbine, but name the type described.) (4)

2.5 List FOUR components of an engine fuel system that will be inspected during a minor inspection of an engine. (4)

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QUESTION 3

3.1 Describe the operational test of a magneto impulse coupling as it is done during a minor inspection of a piston engine. (4)

3.2 Describe the inspection of the needle valve and seat of a piston engine float-type carburettor. (2)

3.3 Name FOUR factors that need to be taken into consideration when a damaged structural component needs to be repaired. (4)

3.4 An aircraft metal component has been welded to restore it to working order.

What would the welding joint be inspected for after the welding process is completed to ensure that the component would be safe to use? (5)

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QUESTION 4

4.1 A minor inspection is done on a transport aircraft and following the inspection, rigging checks need to be completed.

Explain how the aircraft structure is checked for alignment and symmetry during the rigging checks. (5)

4.2 Analyse the inspection of the elevator control and elevator trim tabs after overhaul and reassembly on the aircraft. (4)

4.3 Name the equipment required to carry out check calibrations of the flying instruments connected to the pitot-static system during routine maintenance. (2)

4.4 What does the term, empty weight centre of gravity, mean and when will it be necessary to determine it? (4)

4.5 Write down possible defects that should be checked for on the pistons of a piston engine during routine maintenance. (4)

4.6 Indicate why it is so important to only use approved replacement components and parts during engine overhaul. (4)

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QUESTION 5

5.1 An engine has been installed on the airframe and all the controls have been connected.

State the checks to be done on the engine control system after complete installation to ensure safety and correct functioning. (4)

5.2 In the test cell, an engine is tested for correct functioning and fuel and oil consumption is also determined during the test period.

How is the oil consumption checked during this engine test? Only explain ONE method. (4)

5.3 A variable-pitch propeller has been overhauled, re-assembled and re-installed on the aircraft.

Describe how the correct functioning of the propeller can be verified before a ground run is done. (6)

5.4 Explain the inspection of a supercharger boost control system of a piston engine. (4)

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TOTAL: 100

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