

UNIT
3 **TEST**

60 marks

1 Use the words in the box to make two-word or three-word nouns from Unit 3. Use each word once.

10 marks

system production surfaces horizontal construction
plant semi main tests crane

1 power _____

2 control _____

3 single skin _____

4 _____ stabilizer

5 flight _____

6 _____ assembly

7 _____ line

8 weapons _____

9 _____ monocoque

10 bridge _____

2 Complete the table by writing the nouns from Unit 3 which are made from these verbs.

10 marks

Example: attach – *attachment*

	verb	noun
1	install	
2	assemble	
3	modify	
4	navigate	
5	proceed	
6	maintain	
7	produce	
8	descend	
9	compress	
10	automate	

3 Complete these definitions with words from the box.

10 marks

Use each word once only.

torsion compression bending shear tension fuselage power plant propellers
longerons skin

- 1 _____: twisting force that tries to turn something in opposite directions at the same time
- 2 _____: the main body of the plane
- 3 _____: pitched blades on the front of the power plant
- 4 _____: force that is the opposite of compression
- 5 _____: the covering surface of the plane
- 6 _____: force that acts on rivets, bolts and screws
- 7 _____: a combination of outside tension and inside compression
- 8 _____: structures that run the length of the fuselage and provide stiffening
- 9 _____: equipment that moves the plane forward
- 10 _____: the result of two opposing longitudinal forces that push inwards

4 Reorder the words to make passive sentences.

10 marks

- 1 are main the together spliced three assemblies
- 2 fitted the has yet cockpit been?
- 3 can now tested the systems electrical be
- 4 by people robots will replaced be
- 5 painted white the blue and aircraft was

5 Complete the text with the verbs in brackets in the passive or active voice.

10 marks

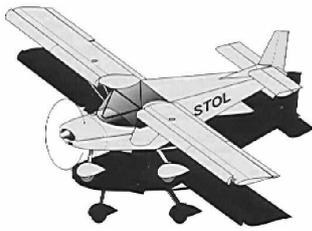
The production line for the German Eurofighter (1) _____ (locate) in the south German town of Manching. Components (2) _____ (deliver) around the factory by fork lift truck.

Engineers and technicians (3) _____ (put together) more than 300 pieces of equipment sub-assemblies and assemblies to produce the finished aircraft. There are about 18,000 employees who (4) _____ (work) in three shifts. Some of these people may (5) _____ (replace) by robots in the future.

Assembly (6) _____ (take place) in four stages. At the first stage, the three main assemblies (7) _____ (splice) together. After that, the control surfaces (8) _____ (attach). Engineers (9) _____ (test) all the electrical systems and then the engines (10) _____ (fit).

6 Read this description of a single engine light plane and answer the questions.

10 marks



The STOL CH 701 aircraft is built of semi-monocoque stressed-skin all-metal construction, just like modern factory-built planes. The airframe sections are designed and built so that the outer surface skin is part of the structure, with internal supports (ribs, bulkheads and longerons) to distribute the loads. The parts are fastened together permanently with rivets.

Sturdy and low-fatigue aluminium alloys make the STOL CH 701 airframe very rugged and corrosion resistant. The modern 6061-T6 aluminium alloy used in the construction is durable, corrosion resistant, and very easy to repair and maintain in the field. The owner of a STOL CH 701 is assured of a long airframe life, with minimum required maintenance, as, unlike fabric and composites, metal is not adversely affected by ultra-violet (UV) light and temperature changes.

The sheet-metal skins, main wing spar, structural ribs, longerons, stiffeners and bulkheads are fastened together with Zenith's proven riveting method using Textron Avex blind rivets, which are as easy to set as 'pop' rivets, requiring only a simple hand rivet puller. The corrosion-resistant Avex rivets provide a permanent structural bond and tight low-profile dome finish, formed by the custom riveter head. The rivet stem becomes locked in after being set to provide a water-tight seal. The 1/8-inch and 5/32-inch Avex rivets used are very sturdy and durable fasteners, and may be used over a wide grip area.

The sturdy main wing spar is a built up I-beam, with cap extrusions buck-riveted to the spar web. In the kit, the spar comes completely pre-assembled and finished (drilled and riveted, with flanged lightening holes). The rib stations on the spar are even pre-drilled – ready for final wing assembly. The structural aluminium wing ribs and fuselage bulkheads are supplied ready-to-install (pre-formed and finished at the factory with flanged lightening holes).

The semi-monocoque rear fuselage requires the same type of simple assembly as the wings. The square rear fuselage is easily assembled by assembling each side on a flat workbench and then simply 'boxing' the four sides together. The forward fuselage (cabin) is made up of factory-riveted lower side frames, and a welded 4130 chromium-molybdenum steel top frame. Fuselage and cabin parts are supplied ready for assembly as standard components of the complete kit.

The horizontal stabilizer tail is built up of two spars and internal ribs, covered with the pre-formed aluminium alloy skin. The elevator is fabricated like the ailerons, and attached to the stabiliser with pins at each end. The pre-formed vertical tail skins cover the internal spar and ribs.

- | | | |
|---|--|------------|
| 1 | The plane is built in a factory. | True/False |
| 2 | The skin is supported by the frame. | True/False |
| 3 | The aircraft doesn't need regular maintenance. | True/False |
| 4 | Composites and fabrics are affected by temperature change. | True/False |
| 5 | The rivets can be removed easily. | True/False |
| 6 | The main wing spar has holes for the lighting cables. | True/False |

- 7 Wing assembly is the last stage of construction. True/False
- 8 The cabin frame is strengthened with steel. True/False
- 9 The horizontal stabilizer tail has three parts. True/False
- 10 The ailerons and elevator are made the same way. True/False