

AIRCRAFT MAINTENANCE – PRE-COMPETITION TEST PROJECT



MANUFACTURE OF THE MAGAZINE FILE ASSEMBLY

A MARKING GUIDE IS SUPPLIED TO ALLOW COMPETITORS AND MENTORS TO ASSESS THE LEVEL OF SKILL AND IDENTIFY AREAS TO IMPROVE.

THE MARKING GUIDE IS INDICATIVE OF THE COMPETITION PAPERWORK

FOR ANY QUERIES REGARDING THE PRE-COMPETITION TEST PROJECT PLEASE CONTACT

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WorldSkills UK Advanced, Aircraft Maintenance: - Pre-Competition - Tester

The Competition

AIRCRAFT MAINTENANCE NATIONAL PRE-FINAL COMPETITION TESTER – COMPETITOR BRIEF

SHEET METAL: LIGHT ALLOY PLATE & RIVETING EXERCISE

OBJECTIVE - To read and interpret the engineering drawings provided and then manufacture the item to the specifications provided.

TASK TIME – Task awareness (reading only) – **15 minutes**
Competition time - **4 hours**

HEALTH & SAFETY

A Health & Safety brief will be conducted immediately prior to the task commencing. It is the individual's responsibility to take reasonable care of themselves and others whilst at work. This includes the correct wearing of appropriate clothing and footwear for the activity being undertaken. Any specialised Personal Protective Equipment required for an activity will be made available by the competition host.

Judges are to provide direction on any actions that are in contravention of the Health & Safety regulations and where appropriate they may deduct marks for such non-compliances. Continual disregard for Health & Safety by a competitor during a task will result in the task being terminated prematurely.

CODE OF CONDUCT

To recreate the competition experience college tutors are not expected to have any dialogue or input during any stage of the competition and are not expected to arrange similar accommodation location to competitors where possible and applicable.

The design and specification of all competition tasks are the property of the competition organisers and unauthorised copy or use is not permitted unless agreed in advance by the competition organising partner

COMPETITOR INSTRUCTIONS

The timing for the task will commence immediately after the Health & Safety brief. Any additional time for familiarisation will be indicated prior to the task bespoke brief starting.

Plan your time carefully to ensure that you can complete the task within the allotted time. (4 hours)

Ensure that you have read and fully understood the task objective, including the time allocated for the task and all supporting resource material provided within the Competitor Task Sheet.

All materials and equipment must be marked out/used in the most economical method.

If you are unsure about any aspect of the task, then you may ask the task judge for guidance. It is important to note that depending on the nature of the question asked the judge may decide that guidance is not appropriate in the interest of the competition.

When you are content with what is required of you, alert the judge and then initiate your work/task.

On completion all tools/equipment to be returned to their correct stowage containers or places of origin, the working bench area must be cleaned and tidied, then presented to the examiner. Marks will be lost for misplaced, damaged or unclean tools and equipment if as a direct resultant of competitor action.

Should you sustain an injury which requires first aid treatment then you are to bring it immediately to the attention of the task judge who will determine the course of action required. Whilst a course of action and subsequent consequential actions are complied with the event, the clock will be stopped. The clock will be restarted upon subsequent event recommencement.

Competitors may leave the area for comfort and non-essential breaks, but the event time will not be stopped.

TASK SPECIFIC COMPETITOR INSTRUCTIONS

For the qualifying, national, and international competitions all riveting is by pneumatic hammer action. You are therefore strongly advised to use this method rather than hand squeezers. The riveting aspect will be carried out entirely by the competitor.

Marks will be deducted for inaccuracies beyond tolerances as follows and the marking schedule

Plate dimensions -	0.5mm
Rivet location	0.5mm

Additional marks are not awarded for excellence once within tolerance ranges

COMPETITORS BRIEF – SHEET METAL; LIGHT ALLOY PLATE & RIVETING EXERCISE

Scenario

This task requires creation of sheet metal assembly. The assembly consists of three panels riveted together to create a magazine file. All panels must be shaped, bent and riveted by the competitor.

In accordance with drawing supplied manufacture the panels and assemble.

You have 4.0 hours to complete this task

Marks will be awarded for the following:

- A Attire and attitude to Safety
- B Damage removal
- C Item manufacture
- D Assembly
- E Tolerance
- F Quality
- G Post-task recovery
- H Workshop Practices

IL LIST

Tooling

Standard Sheet Metal Toolbox containing a varied and suitable selection of;

- Measuring equipment
- Cutting equipment
- Filing equipment
- Marking equipment
- Clamping equipment
- Riveting equipment
- Drilling equipment

Finishing equipment
Illuminating equipment

PPE (Goggles and Safety Boots, Gloves)
Bench surface
Vice (inc. soft jaws)
Bending Machine with a 4mm bend radius

Publications

Drawings- Leonardo Magazine Assembly (4 sheets)

Consumables

Various Wooden Blocks	A/R
2.4mm Drill Bit	A/R
3.2mm Drill Bit	A/R
3.3mm Drill Bit	A/R
180 Grit Paper	A/R
400 Grit Paper	A/R
Masking Tape	A/R
Gloves	A/R
Cleaning Wipes	A/R
Cleaning Roll	A/R

Materials (See note below regarding re-issue of metal)

Aluminium Sheet (1.2mm thick, standard 5251 T6)
Counter Sink Rivet (MS20426AD4-4)

NOTE –

In the event of competitors deciding to re-manufacture any of the items listed as numbers 1 - 3 on supplied drawing which will require the reissuing of metals then 5.0% of total marks per item will be removed. Marks will not be deducted for the action of replacing rivets, only damage induced by replacing any rivets

Maintenance Procedure

PREPARATION

1. Read and fully understand the health and safety guidance, code of conduct and Competitor Induction Declaration
2. Sign and submit the Competitor Induction Declaration.
3. Read and understand drawing
4. Wear and use appropriate PPE
5. Check tools and material

MANUFACTURE

6. Manufacture Left Hand Vertical (Item 1), Right Hand Vertical (Item 2) and Central section (Item 3) in accordance with size and shape indicated on drawing.
7. Mark bend lines on items 1, 2 and 3 in accordance with drawing,

NOTE – Flat pattern development only – NO bending prior to judges stage check at stage

8. Mark rivet positions on items 1 - 2 as indicated on drawing

NOTE – Rivet indication only – NO drilling prior to judges stage check at stage

STAGE CHECK

DRILLING

9. Pilot drill (2.4mm) items 1 and 2
10. De-burr throughout

STAGE CHECK

DRY ASSEMBLY

11. Bend items 1, 2 and 3
12. Assemble using clamps
13. Transfer pilot drill holes from holes 1 and 2 onto 3

STAGE CHECK

14. Drill holes final size.
15. Countersink holes.
16. De-burr throughout

STAGE CHECK

FINAL ASSEMBLY

17. Dry Reassembly components using skin pins
18. Rivet items 1, 2 and 3 with countersunk rivets in a methodical and logical manner
19. Clean magazine rack for final marking.
20. Return tooling to toolboxes.
21. Clean work area

SUBMIT WORK FOR MARKING