TEST PROJECT AIRCRAFT MAINTENANCE

WSC2017_TP14_M7_sheet_metal_actual

Submitted by:

Name: Caucal

Member country or region: France

Objective	To test the Competitor's ability to interpret drawings, bend sheet metal with a high degree of accuracy, layout fastener and install solid rivets in accordance with the supplied drawings.
Time allotted	4 hours
Process:	
1	Each contestant will receive the following: a) Sheet Metal Tool Kit b) Drawing (see page 5) c) Three 10 x 10" pieces of 2024-T3, 0.040" aluminium and a selection of MS20470AD4 rivets of various lengths.
2	Calculate the dimensions for flat layout.
3	Form two side panels and a centre channel to make the assembly shown in the drawing in accordance with Standard Practices.
4	Layout the fasteners locations as per the drawing and drill. After drilling, hand the drilled pieces to expert for checking.
5	Determine required rivet length.
6	Install fasteners.

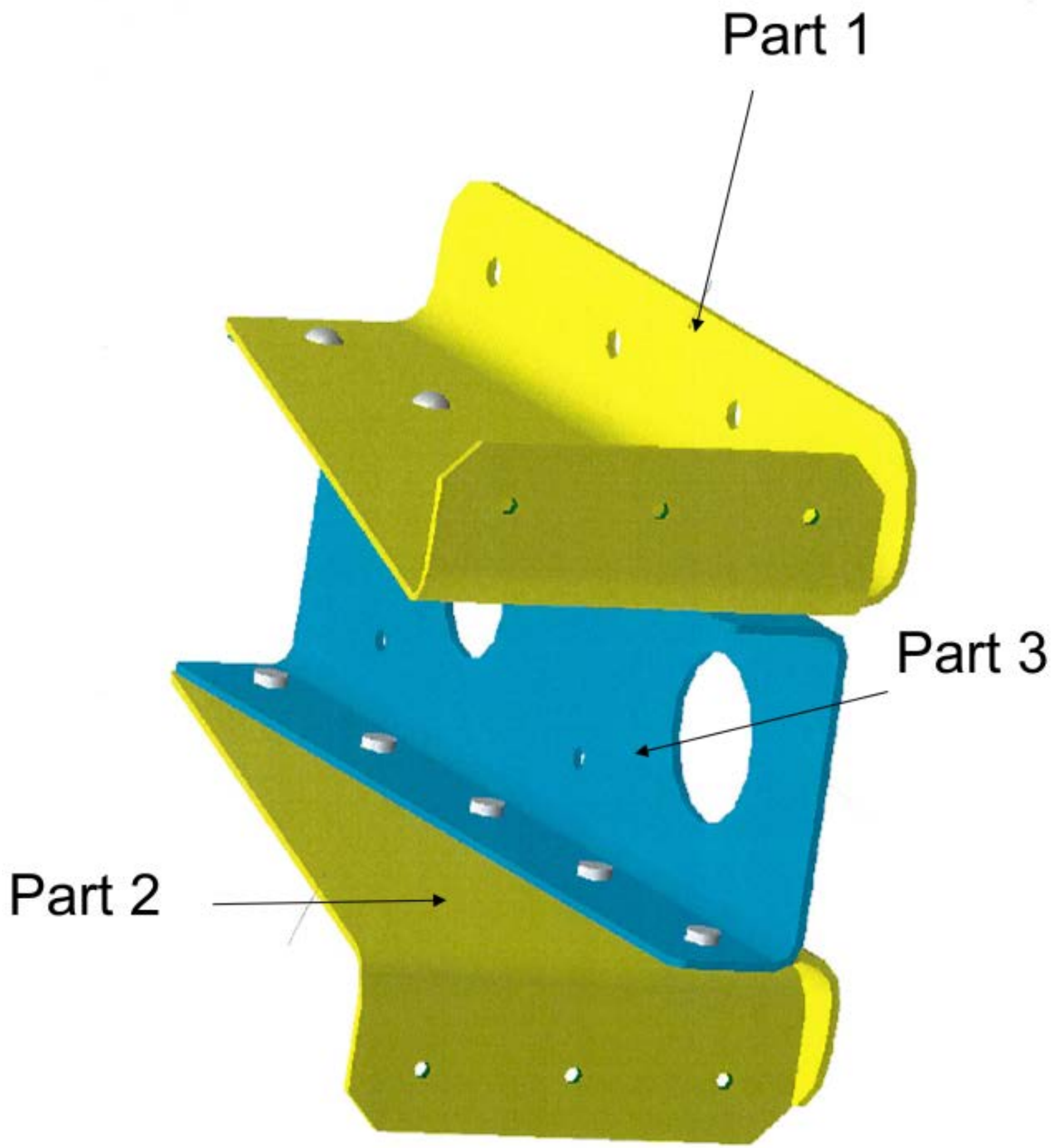
Marking Scheme	
PPE	0.50
Completion Time	0.50
Area clean up (see note 8)	0.50
Side Panel dimensions- Part 1 and 2 (± 0,02") (see note 2)	4.40
Channel dimensions- Part 3 (± 0,02") (see note 3)	1.40
Grain direction/Material Selection	1.00
Bend radius (see note 4)	0.50
All edges smooth and nick free (see note 5)	1.00
All corner radius to be rounded to ±0,25" of dimension stated on the drawing (see note 5)	1.20
Fastener/hole positions (see note 6)	2.00
Rivet row alignment	1.00
Fastener selection (see note 6)	0.50
Shop heads (see note 7)	2.00

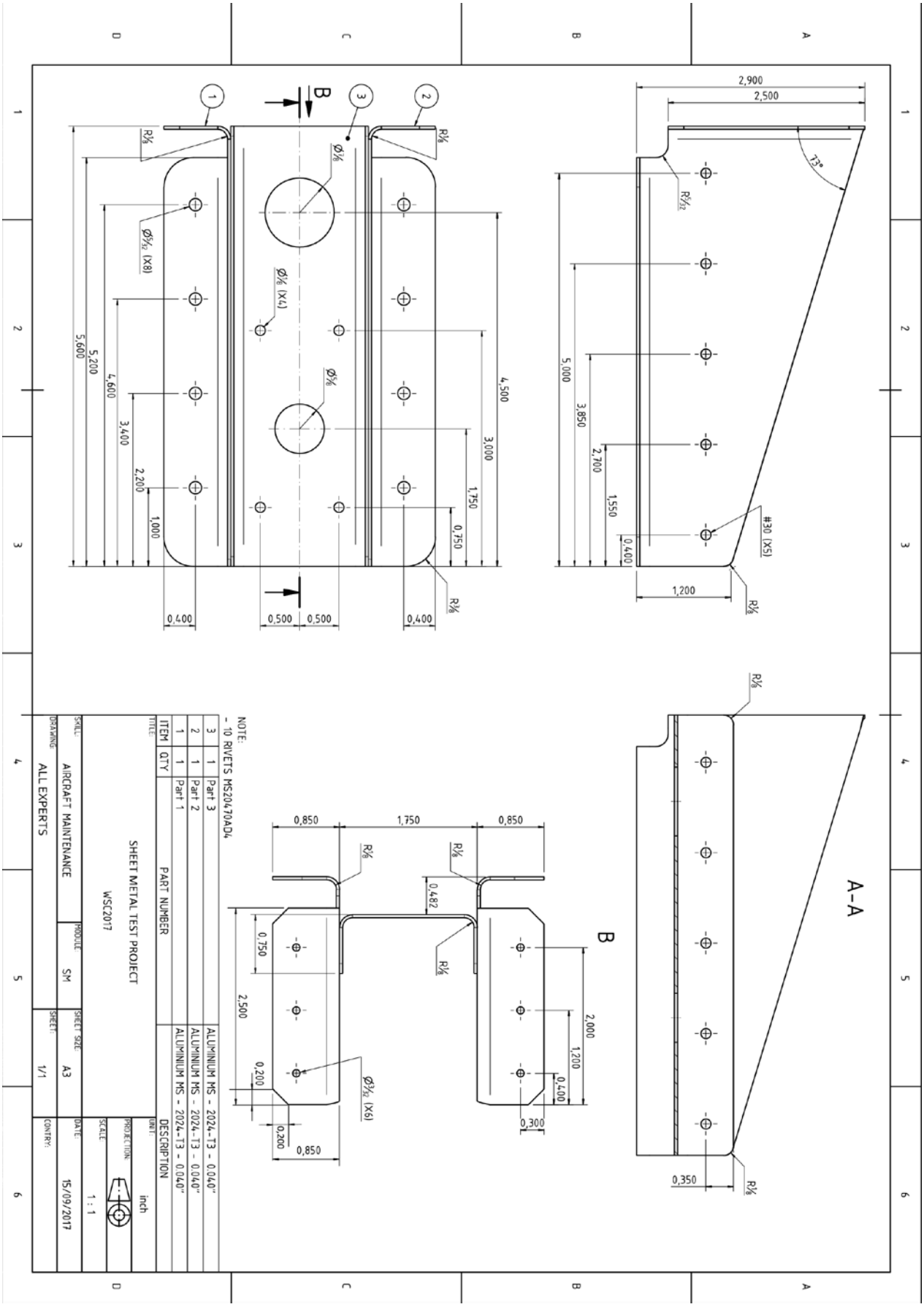
Manufactured heads (see note 7)	1.00
Calculations	2.00
Surface finish/tooling damage (see note 9)	0.50
T**OTAL**	**20.00**

Notes:

1. Make all parts from 2024-T3, 0.040”
2. Side panel dimensions (Parts 1 and 2)- Tolerance of ± 0.02” is allowed
   (For every dimension outside of the tolerance 0.5 points deducted).
3. Channel dimensions (Part 3)- Tolerance of ± 0.02” is allowed
   (For every dimension outside of the tolerance 0.5 points deducted).
4. All bend radius to be 1/8” (0.125”)
   Tolerance of ± 0.02” is allowed
   (For every dimension outside of the tolerance 0.20 points deducted per bend).
5. All edges to be smooth & nick free, round all corners to the dimension as stated on the drawing
   Tolerance of ± 0.025” is allowed
   (over the tolerance 0.10 points deducted per radius)
   (0.10 points deducted per rough edge or improper rounding off).
6. All fasteners to be MS20470AD4 rivets
   Rivets to be spaced as per drawing specification
   Tolerance ± 0.02” of stated dimension
   (For every dimension outside of the tolerance 0.1 points deducted).
7. For every incorrect manufactured of shop head 0.2 point deducted.
8. If area is not cleaned up 0.50 point will be deducted.
9. All surface damage will be documented by two judges minimum prior to the beginning of the task. Any deviation from original surface finish of completed project, 0.25 marks removed per occurrence with a maximum of 0.5 mark removed.

PROJECT DRAWING




NOTE:
- 10 RIVETS MS20470AD4
ITEM QTY PART NUMBER DESCRIPTION
3 1 Part 3 ALUMINIUM MS - 2024-T3 - 0.040"
2 1 Part 2 ALUMINIUM MS - 2024-T3 - 0.040"
1 1 Part 1 ALUMINIUM MS - 2024-T3 - 0.040"
TITLE: SHEET METAL TEST PROJECT
WSC2017
DRAWING: ALL EXPERTS
SKILL: AIRCRAFT MAINTENANCE
MODULE: SM
SHEET: 1/1
SHEET SIZE: A3
DATE: 15/09/2017
CONTRY:
SCALE: 1 : 1
PROJECTION:
UNIT: inch
A-A
B
B

EMPIRICAL FORMULA (PART 1 AND PART 2)

Name: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Country: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Bend Allowance (BA) = (0.01743 x BR) + (0.0078 x MT) x Degree of Bend (90°)

BR = Bend Radius

MT = Metal Thickness

Bend Allowance Calculation: (Part 1 and Part 2) Correct to three decimal places

FLAT LAYOUT CALCULATIONS PART 1 AND PART 2

Name: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Country: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Flat Layout Calculation: (Part 1 and Part 2) Correct to three decimal places

EMPIRICAL FORMULA (PART 3)

Name: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Country: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Bend Allowance (BA) = (0.01743 x BR) + (0.0078 x MT) x Degree of Bend (90°)

BR = Bend Radius

MT = Metal Thickness

Bend Allowance Calculation: (Part 3) Correct to three decimal places

FLAT LAYOUT CALCULATIONS PART 3

Name: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Country: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Flat Layout Calculation: (Part 3) Correct to three decimal places