

Marking Schedule Form 1 Ob.

Competitor No	<input type="text"/>	Competitor Name	<input type="text"/>	Date	27 May 2015
Competition	UK Heats Mechatronics Advanced – Pneumatic Sequence	Venue	Tottenham UTC		

Aspect ID	Aspect of Criterion – Description	Max Mark	Requirement or Nominal Size	Result or Actual Value	Mark Awarded
A1	Switch air supply on and observe both cylinders in retracted position.	1.0 (0.5 per cylinder)	Cylinders retracted.		
A2	Supply pressure correctly set to 5.0 bar.	0.5	5.0 bar		
A3	Used two N/C 3/2 way valves with dual pressure valve to form AND logic for starting the cycle.	1.5	Starts when both buttons are pressed.		
A4	Monitor cylinder A pressure - gauge fitted to the back of cylinder	0.5	Pressure gauge fitted		
A5	Fit flow restrictor to starve Cylinder A.	1.0	Flow restrictor fitted correctly		
A6	A sensor from each cylinder is used to ensure both cylinders are retracted before cycle can start.	2.0	Sensors are part of the starting sequence.		
A7	Cylinder A controlled by 5/2 way pilot actuated and spring return DCV	1.0	5/2 way spring return		
A8	Cylinder B is to have a pilot actuated and pilot return 5/2 way DCV.	1.0	5/2 way pilot actuated and pilot return.		
A9	Observe specified sequence shown below: $\left[B+, 2s, \left(\begin{matrix} A+ \\ 4.0bar \end{matrix} \right), \left(\begin{matrix} A- \\ B- \end{matrix} \right) \right]$	12.0	Remove 2 mark for each incorrect step upto a max of 12.0 marks.		
A10	Cycle runs once and comes to rest.	1.0	Cycle does not self-repeat.		
A11	Starve Cylinder A in forward direction.	0.5	Flow valve used on Cylinder A		
A12	Speed control element for Cylinder B fitted correctly.	0.5	Max force behind piston.		
	Cylinder B full forward stroke time.	0.5	3.0 ± 0.5s		
A13	Use quick exhaust valve on Cylinder B	0.5	Cylinder B returns fast.		
A15	Pressure sequence valve set correctly.	0.5	4.0bar		

2015 UK Heats
Mechatronics ADVANCED
Competition

A16	Time evaluation: If task completed within given time AND sequence in A9 is correct then calculate bonus points for speed of completion the task. Points for time = (max. time – actual time) x max. points / (max. time – min. time) = (60.0 -) x 3 Points / (60.0 -)	3.0			
		27.0			

Judge 1	Initials

Judge 2	Initials

Judge 3	Initials

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Date

Awarded Mark is the Max Mark minus any specified deductions for difference between 'requirement and result'



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**Marking Schedule
Form 1 Sub.**

Judge number (please circle)

1	2	3	4	5
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Competition	UK Heats Mechatronics Advanced – Pneumatic Sequence	Heat/venue	Tottenham UTC
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Aspect ID	Aspect of Criterion – Description	Max Mark	Judges' Score	Mark Awarded
A17	Professional practice: Circuit tidiness of the tubing and layout of the order of elements and the hierarchy of the circuit devised.	3.0		
		3.0		

Judge	Initials
<input type="text"/>	<input type="text"/>

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WorldSkills UK Moderator	<input type="text"/>
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Date	<input type="text"/>
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Marking Schedule Form 1 Ob.

Competitor No	<input type="text"/>	Competitor Name	<input type="text"/>	Date	27 May 2015
Competition	UK Heats Mechatronics Advanced – Electro-pneumatics	Venue	Tottenham UTC		

Aspect ID	Aspect of Criterion – Description	Max Mark	Requirement or Nominal Size	Result or Actual Value	Mark Awarded
B1	Supply pressure set to 5.5 bars.	1.0	5.5 bar		
B2	A single acting and a double acting cylinders used.	1.0	Single and double acting cylinders.		
B3	Use proximity sensors for ensuring both cylinders are retracted before the sequence starts.	2.0	Both retracted position sensors are wired in.		
B4	Cylinder A is controlled by a solenoid actuated spring return solenoid 3/2 way DCV.	1.0	Used a 3/2 way spring return solenoid valve.		
B5	Cylinder B is controlled by a double solenoid 5/2 way DCV.	1.0	Used a 5/2 way double solenoid valve.		
B6	Cylinder B solenoids are wired in indirectly through relay contacts.	2.0	Indirect wiring,		
B7	Cylinder A is fitted with roller lever limit switches.	1.0	Roller limit switches fitted.		
B8	Cylinder B is fitted with magnetic pickup proximity sensors are mounted onto the cylinder body.	2.0	Reed switches fitted		
B9	Magnetic pickup sensors are passed through relay contacts.	2.0	Sensors are passed through relays.		
B10	Quick exhaust valve fitted to Cylinder B	1.5	Cylinder B returns fast		
B11	Observe specified sequence [B+, A+, B-, A-]	8.0	Remove 2 marks for each incorrect step (max of 8).		
B12	Cycle starts with a N/O momentary switch.	1.0	Used momentary switch.		
B13	Cycle stops with a N/O momentary switch.	1.0	Used momentary switch.		
B14	A latching relay is used for start and stop circuit.	1.0	Used a relay.		

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Competition

B15	The sequence repeats itself until interrupted by the stop button.	1.5	Self-repeating circuit.		
B16	Time evaluation: If task completed within given time AND sequence in B11 is correct then calculate bonus points for speed of completion the task. Points for time = (max. time – actual time) x max. points / (max. time – min. time) = (60.0 -) x 3 Points / (60.0 -)	3.0			
		30.0			

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Competitor No	<input type="text"/>	Competitor Name	<input type="text"/>	Date	27 May 2015
Competition	UK Heats Mechatronics Advanced – PLC programming	Venue	Tottenham UTC		

Aspect ID	Aspect of Criterion – Description	Max Mark	Requirement or Nominal Size	Result or Actual Value	Mark Awarded
C1	Set pressure to 6.0 bars.	1.0	6.0 bars.		
C2	Both cylinders have two proximity sensors fitted to detect end of travel.	2.0	4 proximity sensors fitted.		
C3	Cylinder A is controlled by a 5/2 way solenoid actuated and spring return valve.	2.0	Y/N		
C4	Cylinder B is controlled by a 5/2 way solenoid actuated and solenoid return valve.	2.0	Y/N		
C5	Cylinder B solenoids are indirectly driven.	2.0	Solenoids are connected to relay contacts.		
C6	Programme the following sequence using a PLC: $\left[\left(\begin{matrix} A+ \\ B+ \end{matrix} \right), 2s, A-, 2s, B-, 2s, (B+, B-)^2 \right]$	21.0	Deduct 3 points per step (steps are separated by commas) (max of 21)		
C7	Cycle starts by pressing a N/O momentary switch.	2.0	Y/N		
C8	The sequence repeats only once, whenever the start button is pressed, without resetting or reloading the PLC programme.	3.0	No self-repeat.		

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Mechatronics ADVANCED
Competition

C9	Time evaluation: If task completed within given time AND sequence in C6 is correct then calculate bonus points for speed of completion the task. Points for time = (max. time – actual time) x max. points / (max. time – min. time) = (60.0 -) x 5 Points / (60.0 -)	5.0			
		40.0			

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Competitor Feedback Form 2

Judge number (please circle)

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Competitor No	<input type="text"/>	Competitor Name	<input type="text"/>	Date	27 May 2015
Competition	UK Heats Mechatronics ADVANCED	Heat/venue	Tottenham UTC		

Average score for competition %

Criterion ID	Criterion Description	Max Marks	Total averaged mark awarded
A	TASK 1: Pneumatic sequence	30	
B	TASK 2: Electro-pneumatic (Hard-wired system)	30	
C	TASK 3: PLC programming	40	
Total Marks		100	

Comments

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