

071605T4MCT

MECHATRONICS TECHNOLOGY LEVEL 5

ENG/OS/MC/CR/05/5

Operate Pneumatic and Hydraulic Systems

July/August 2025



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

PRACTICAL ASSESSMENT

INSTRUCTIONS TO ASSESSOR

1. Assess the candidate as the practical progresses observing the critical areas.
2. You are required to mark the practical as the candidate perform the tasks.
3. You are required to take video clips at critical points.
4. Ensure the candidate has a name tag and registration code at the back and front.

OBSERVATION CHECKLIST

Candidate's Name & Registration Code			
Assessors Name & Registration Code			
Venue of Assessment			
Date of Assessment			
Items to be Evaluated: <i>Please award marks as appropriate. Give a brief comment on your observation.</i>	Marks Available	Marks Obtained	Comments
1. Wore appropriate personal Protective Equipment as per OSHA 2007: i. Overall/dust coat ii. Safety boots <i>(Award one mark for each PPE worn t maximum of 2 and 0 if none)</i>	2		
TASK 1: Installed a multi-cylinder electro-pneumatic combine delay control loop			
2. Correctly interpreted the symbols provided on the schematic diagrams by labelling them. <i>(Award 2 marks for correct interpretation of symbols for pneumatic components and 2 marks for electrical components)</i>	4		
3. Firmly and correctly mounted the pneumatic components as per the standard operation procedure: i. 5/2 single solenoid valve ii. Stroke valve iii. Time delay valve iv. Double acting cylinders	6		

v. 5/2 single pneumatic control valve vi. Micro switch module (Left) <i>(Award 1 mark each)</i>			
4. Correctly connected the air pipes as per the pneumatic schematic diagram provided: i. 5/2 single solenoid valve ii. Stroke valve iii. Time delay valve iv. 5/2 single pneumatic control valve v. Double acting cylinder A vi. Double acting cylinder B <i>(Award 2 marks for each correct connection of air pipes to the component above)</i>	12		
5. Correctly connected the testing leads as per the electrical schematic diagram provided: i. Start push button (SB1) ii. Stop push button (SB1) iii. Micro switch (left) iv. Relay module v. Button module vi. 24V power module vii. 5/2 single solenoid valve <i>(Award 1 mark each for correct wiring connection of leads to the component above)</i>	7		
6. Observed color code as per the IEEE standards. <i>(Award 2 marks if the candidate observed IEEE color codes on electrical wiring)</i>	2		
Sub-Total 1	31		

TASK 2: Operated the multi-cylinder electro-pneumatic combine delay control loop			
7. Cylinder A extended to actuate the stroke valve (SQ1). <i>(Award 3 marks if cylinder A extended)</i>	3		
8. Cylinder B extended after delay time elapsed to a deactivate the microswitch SQ2. <i>(Award 3 marks if cylinder B extended after delay)</i>	3		
9. Cylinder A and cylinder B both retracted at the same time. <i>(Award 3 marks if cylinder A and cylinder B both retracted at the same time)</i>	3		
10. The sequence in sub-task a, b and c is repeated. <i>(Award 3 marks if sequence in sub-task and c is repeated automatically)</i>	3		
11. Both cylinders stopped when button SB2 is pressed. <i>(Award 3 marks if both cylinders returned to home position and stopped when button SB2 is pressed)</i>	3		
12. Powered off the system, disassembled the set up and unmounted the components. <i>(Award 2 marks for the above housekeeping operation)</i>	2		
Sub-Total 2	17		
GRAND TOTAL	50		

ASSESSMENT OUTCOME	
The candidate was found to be: Competent <input style="width: 50px; height: 25px; border: 1px solid black;" type="checkbox"/> Not yet Competent <input style="width: 50px; height: 25px; border: 1px solid black;" type="checkbox"/> <i>(Please tick as appropriate)</i> <i>(The candidate is competent if the candidate obtains at least 50%)</i>	
Feedback from the Candidate: 	
Feedback to the Candidate: 	
Candidate Signature 	Date:
Assessor's Signature 	Date