

071605T4MCT

MECHATRONICS TECHNOLOGY LEVEL 5

ENG/OS/MC/CR/05/5/A

Operate Pneumatic and Hydraulic Systems

Nov/Dec 2024



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

PRACTICAL ASSESSMENT

OBSER

KLIST

Candidate's name & Registration No.			
Assessor's name & Reg. 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 Allocated	Marks Obtained	Comments
1. Observed occupational health and safety standards i. Wore Safety boot ii. Wore Overall/dust coat <i>Award a mark for each PPE worn properly</i>	2		
Sub-Total	2		
TASK 1: INSTALLED THE PNEUMAT			
2. Correctly identified the key compon • 5/2 single solenoid valve 1 mark • 5/2 single pneumatic control valve 1 mark • Double acting pneumatic cylinder 1 mark • Time delay valve 1 mark • 3/2 stroke valve 1 mark • Four-way distributor 1 mark • Micro switch module 1 mark	7		
3. Connected the following components;			

- Four-way distributor to the manifold, 5/2 single solenoid valve, 5/2 single pneumatic control valve, and stroke valve. <i>Award 1 mark for each correct connection 4x1</i> - Stroke valve to the time delay valve <i>Award 1 mark for correct connection or 0 1x1</i> - Time delay valve to the 5/2 single pneumatic control valve. <i>Award 1 mark for correct connection or 0 1x1</i> 5/2 single pneumatic control valve and the double acting cylinder B. <i>Award 1 mark for correct connection 1x1</i> - Placed SQ1 at the tip of extending double acting cylinder A. <i>Award 1 mark for correct connection or 0 1x1</i> - Placed SQ2 at the tip of the extending double acting cylinder B. <i>Award 1 mark for correct connection or 0 1x1</i>	4		
	5		
Sub total	16		
TASK 2: INSTALLED THE ELECTRICAL CONTROL CIRCUIT			
4. Connected the electrical circuit - Correctly installed switch button SB1 - Correctly connected SQ2 to the NC on relay module	8		

- Correctly connected YV1 to the relay module - Correctly used red testing leads for live and blue/black for neutral connections. <i>(Award 2 Marks for each correct interpretation or 0)</i>			
SUB-TOTAL	8		
TASK 3: SERVICED AND MAINTAINED THE PNEUMATIC SYSTEM			
5. Powered the system. - Identified that the compressor is not powered - Identified that the 240VAC is disconnected - Identified leakage on air pip <i>(Award 1 Mark for each correct identification or 0)</i>	3		
6. Corrected the identified errors - Re-connected the 240VAC power supply - Tested DC and AC voltage using multimeter - Re-connected power to the compressor - Repaired or replaced the holes on the air pipe <i>(Award 2 Mark for correct action or 0)</i>	8		
SUB-TOTAL	11		
TASK 4: OPERATED THE SYSTEM			
7. Operated the system. Pressed SB1 to start the system			

• Cylinder A extended to reach and actuate SQ1 • Cylinder B extended after a short delay to touch SQ2. • The loop repeats after the first cycle. <i>(Award 2 marks for each correct action)</i>	8		
8. Adjusted the speed of the system. • Adjusted the delay using the time delay valve • Regulated the speed of cylinders in their extension and retraction. <i>(Award 2 Mark for each correct action or 0)</i>	4		
9. Powered OFF the system. • Systematically powered OFF pneumatic and electrical components • Tripped the circuit breaker on AC power module <i>(Award 1 mark for each correct action)</i>			
10. Conducted housekeeping. • Removed all the testing leads • Removed all the components • Placed all the items in appropriate storage areas <i>(Award 1 mark for each correct action)</i>	3		
SUB-TOTAL	17		
GRAND TOTAL $\left(\frac{x}{54} \times 100\right)$	54		

The candidate was found to be: Competent ☐ Not yet competent ☐ <i>(Please tick as appropriate)</i> (The candidate is competent if s/he scores 50% overall)		
Feedback from the candidate:		
Feedback to the candidate:		
Candidate's signature:	Date:	
Assessor's signature:	Date:	

APPENDIX: FOR THE ASSESSOR ONLY

Before the practical, you are expected to;

- i. Using a side cutter, pierce 3 holes in the air pipe from the compressor to the air service unit.
- ii. Disconnect power to the compressor.
- iii. Disconnect the mains power to the 240VAC power supply module.