

071605T4MCT

MECHATRONICS TECHNOLOGY LEVEL 5

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

Operate Pneumatic and Hydraulic Systems

March/April 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. Observed occupational health and safety i. Safety boot ii. Overall/dust coat <i>(Award 1 mark for each PPE donned)</i>	2		
Sub-Total 1	2		
TASK 1: INSTALLED PNEUMATIC			
2. Identified the following components i. Double air control 5/2 valve ii. Double acting pneumatic cylinder iii. Time delay valve iv. Stroke valve and button valve <i>(Award 1 mark for each or 0)</i>	4		
3. Interpreted the pneumatic circuit. <i>(Award 2 Marks or 0)</i>	2		
4. Installed the pneumatic circuit by connecting; i. Power and service unit ii. Timer valve iii. 4/2 control valve iv. Double acting pneumatic cylinder v. Button valve <i>(Award 2 marks for each or 0)</i>	10		

5. Tested pneumatic pipes for tight connections. (Award 2 marks for each or 0)	2		
6. Powered the Pneumatic system and long pressed the manually operated valve and recorded observations (Award 2 marks for any two)	4		
7. Adjusted the timer delay valve and operated the manual valve again (Award 2 marks)	2		
8. Recorded the following observations. i. Cylinder extended after timer delay ii. Cylinder retracted after button valve was released (Award 2 marks for each)	4		
9. Disassembled the circuit after assess (Award 1 mark for disconnection and 1 returning components to the stora)	2		
Sub-Total 2	30		
TASK 2: INSTALLED HYDRAULIC SYSTEM			
10. Identified the following hydraulic components; i. Double air control 5/2 valve ii. Double acting hydraulic cylinder iii. 3/2-way single solenoid valve iv. Hydraulic cylinder v. Relay module (Award 1 mark for each or 0)	5		
11. Interpreted the hydraulic system. (Award 2 Marks or 0)	2		
12. Installed the hydraulic circuit by connecting; i. Power	6		

ii. 4/2 single solenoid valve iii. Double acting hydraulic cylinder <i>(Award 2 marks for each or 0)</i>			
13. Installed the electrical control circuit by connecting; i. Power ii. Relay iii. Control buttons iv. Solenoid valve <i>(Award 2 Marks for each or 0)</i>	8		
14. Tested hydraulic pipes for tight connections. <i>(Award 2 marks for each or 0)</i>	2		
15. Powered the Hydraulic system using buttons and recorded the following observations: i. The cylinder extends when stop button is pressed ii. The cylinder retracts when stop push button is pressed <i>(Award 2 marks for each or 0)</i>	4		
16. Disassembled components after assessment. <i>(Award 1 mark for disconnection and 1 mark for returning components to the storage)</i>	2		
17. Performed housekeeping. i. Arranged valves ii. Arranged pipes iii. Cleaned working area <i>(Award 1 mark for each or 0)</i>	3		
Sub-Total 3	32		

GRAND TOTAL	64		
ASSESSMENT OUTCOME			
The candidate was found to be: Competent ☐ Not yet Competent ☐ <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	
_____		_____	