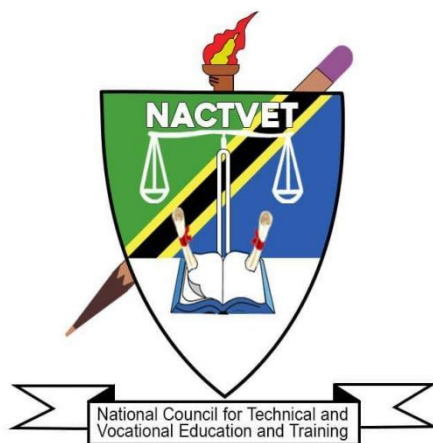


**NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL EDUCATION AND
TRAINING**



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PROPOSED OCCUPATIONAL STANDARDS

OCCUPATION: AVIONICS MAINTENANCE ENGINEER

LEVEL: NTA 8

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ABBREVIATIONS

AC	Alternating Current
ADC	Air Data Computer
ADF	Automatic Direction Finder
AFCS	Automatic Flight Control System
AMM	Aircraft Maintenance Manual
AMO	Approved Maintenance Organisation
AoA	Angle of Attack
APU	Auxiliary Power Unit
ASI	Airspeed Indicator
ATC	Air Traffic Control
ATO	Approved Training Organisation
CBET	Competency Based Education and Training
CSDU	Constant Speed Drive Unit
CVR	Cockpit Voice Recorder
DC	Direct Current
DME	Distance Measuring Equipment
EADI	Electronic Attitude Direction Indicator
ECAM	Electronic Centralized Aircraft Monitor
EEC	Engine Electronic Control
EGT	Exhaust Gas Temperature
EHSI	Electronic Horizontal Situation Indicator

EICAS	Engine Indicating and Crew Alerting System
ELT	Emergency Locator Transmitter
EPR	Engine Pressure Ratio
FDR	Flight Data Recorder
FMC	Flight Management Computer
FMS	Flight Management System
GPS	Global Positioning System
GPU	Ground Power Unit
GPWS	Ground Proximity Warning System
HF	High Frequency
MCDU	Multipurpose Control and Display Unit
NACTVET	National Council for Technical and Vocational Education and Training
NOS	National Occupational Standards
OS	Occupational Standards
PFD	Primary Flight Display
SELCAL	Selective Calling
TAT	Total Air Temperature
TCAA	Tanzania Civil Aviation Authority
TCAS	Traffic Collision Avoidance System
TRU	Transformer Rectifier Unit
TET	Technical Education and Training
TVET	Technical and Vocational Education and Training

VHF	Very High Frequency
VOR	VHF Omni-directional Range

GLOSSARY OF TERMS

Circumstantial Knowledge:	Detailed knowledge, which allows the decision-making in regard to different circumstances and cross cutting issues.
Competence:	The competence to use knowledge, understanding, practical, and thinking skills to perform effectively to the workplace standards required in employment.
Competency:	A description of the ability one possesses when able to perform a given occupational task effectively and efficiently.
Competency-based Education:	An instructional programme that derives its content from validated tasks and bases assessment on the learner's performance.
Curriculum:	A description or composite of statements about "what is to be learned" by the trainee/student in a particular instructional programme; a product that states the "intended learning outcomes".
Educational/Training Programme:	The complete curriculum and instruction (what and how) that is designed to prepare a person for employment in a job or other particular performance situation.
Occupation:	A specific position requiring the performance of specific tasks - essentially the same tasks are performed by all employees having the same title. (Example: baker)
Occupational Analysis:	A process used to identify the tasks that are important to employees in any given occupation.
Occupational Area:	This is a broad grouping of related jobs. (Example: catering service).
Occupational Standards:	Specific requirements of competences for personnel in a particular occupational area, including knowledge and relevant attitudes. They also act as performance tools of assessment of the prescribed outcomes.
Occupational/Job Analysis:	A process used to identify the tasks that are important to employees in any given occupation.
Performance Criteria:	Indicate expected end results or outcomes in the form of evaluative statements.
Skills:	The ability to perform occupational tasks with a high degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.
Standards:	A set of statements, which, if proved true under working conditions,

means that an individual is meeting an expected level and type of performance.

Task Analysis:	The process of analyzing each task to determine the steps, circumstantial knowledge, attitudes, performance criteria, tools and materials needed, as well as safety concerns required for the employees performing it.
Task:	A work activity that has a definite beginning and ending, is observable or measurable, consists of two or more definite steps, and leads to products, service, or decisions.
Underpinning Knowledge:	Crucial knowledge that an individual must acquire in order to demonstrate competences that are associated in performing a given task.
Verification Process:	The process of having experts review and confirm the importance of the task (competency) statements identified through occupational analysis. Other questions, such as the degree of task learning difficulty are also frequently asked. This process is also sometimes referred to as validation.
Occupational Competence:	The application of knowledge and skills that consistently meet the standards required by the working conditions.

1.0. INTRODUCTION

Technical Education and Training (TET) is one of the most important education sub-sectors in Tanzania, responsible for developing a skilled workforce to support the country's industrialization economic agenda. *Tanzania's Development Vision 2025* intends to raise the country's economy to a middle-income status. This requires a skilled workforce that is aligned with the needs of the public and private sectors of the economy. The National Council for Technical Education has begun the job of drafting Occupational Standards that will eventually be adopted as National Occupational Standards for TET in order to ensure that it meets the needs of the labour market and the country's economic agenda.

National Occupational Standards (NOS) are performance criteria that are matched with labour market demands. Each National Occupation Standard describes functions, performance standards, and knowledge/understanding for one important function or task. They combine skills, knowledge, and attitudes to describe best practice. They are useful tools for establishing job roles, personnel recruiting, supervision, and appraisal, as well as TET standards. They're also helpful for benchmarking and harmonizing qualifications on a national and international level. Standards, in general, provide a solid framework for high-quality TET that is labour market-relevant, current, and consistent in delivery across all public and private institutions.

However, it must be noted that, Occupational Standards and Training standards/qualifications standards are different. Occupational standards are defined in terms of activities performed by a person in a selected occupation (e.g., an electrical engineer designs electrical circuits, performs troubleshooting in electrical circuits, etc.) and they are usually defined by employers following procedures agreed upon by all stakeholders. Education and training standards are developed from the activities defined in occupational standards, and they include learning objectives to ensure that the necessary skills and knowledge are developed by a person to enable him or her to function at an agreed level in an occupation. Education and Training standards are used to define curricula in training institutions. It is however critical that there must be a direct link between the occupational standards and the training standards to respond to the demands of the labour market.

In TET delivery, Tanzania adopted the Competence Based Education and Training (CBET) approach. The CBET approach focuses on providing learners with the skills and knowledge

required to meet the occupational standards. Occupational standards are thus the starting point for developing competency-based training (CBET) programmes. TET institutions will be required to benchmark their curricula with relevant occupational standards.

Occupational Standards are developed based on a given occupation's current and future demands. As a result, they serve as a means of bridging the gap between the worlds of employment and technical education and training (TET).

The Avionics Maintenance Engineer Occupation has its own set of occupational standards. The document explains how the occupational standards were developed, as well as the scope, the occupational profile in the form of DACUM charts, and the Occupational Standards.

2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS

The Occupational standard development process began with an examination of major documents that guide Tanzanian skill development. The *10-year National Skills Development Strategy (2016-2026)* was one of the documents reviewed, and it outlined six (6) economic sectors that should be prioritized when developing skills development programmes.

These sectors include: Transport and Logistics, Tourism and Hospitality, Agribusiness, Construction, Energy and ICT. NACTE labour market reports were also used in the literature review to determine the skills demand in the Tanzanian labour market as a whole.

After the literature review, a workshop comprised of expert workers and educators with substantial knowledge and experience in the occupation conducted an occupational analysis utilizing the DACUM approach to produce the occupational profile. The analysis resulted in DACUM Charts, which are attached as **Appendix 1** to this document.

The occupational standards were then developed. Experts in Occupational Analysis and the Development of Occupational Standards facilitated the workshop. Interviews, online surveys, and a stakeholder forum were used to validate the Occupational Standards. Engineers, Supervisory Technicians on the job, and experienced Avionics Maintenance Engineers were key informants in the survey to discover occupational trends. This information was used to gain insight from the workplaces regarding trends and changes in the profession, including how well graduates are prepared for working in the occupation. A total of ... online surveys were completed by experts

from the labour market across the country. Apart from the surveys aiding in defining the scope for the occupational analysis, they also served to engage a wide cross-section of experts in the occupation. Apart from this, the stakeholders' forum was attended by ... participants from different parts of the country representing various companies.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR AVIONICS MAINTENANCE ENGINEERS

These standards cover a broad range of duties and tasks that can be performed by an Avionics Maintenance Engineer. However, the occupational standards are not meant to replace individual job descriptions. Instead, they are to be used for guidance in defining skill levels and knowledge for the technician in specific settings or positions. The Avionics Maintenance Engineer may perform tasks in a number of key areas of the Occupational Standards, but not necessarily in all areas. For example, in large operations, other individuals may be employed or designated to perform specific tasks.

Avionics Maintenance Engineers work within Approved Maintenance Organisation (AMO) to maintain, repair and manage aircraft operating in the aviation transportation industry. The aviation transportation involves cargo and passenger aircraft; collectively referred to as commercial aircraft. Commercial aircraft are operated by well-trained and qualified personnel to transport goods and people between different locations worldwide. There is a wide range of aircraft types, varying in size, model and operating specifications. Avionics Maintenance Engineers play an important role in ensuring compliance with the airworthiness requirements stipulated by the Tanzania Civil Aviation Authority (TCAA). Generally, the Avionics Maintenance Engineer performs the following responsibilities:

- a) Analysis and isolation of faults in aircraft power generation, distribution and conversion systems
- b) Analysis and isolation of faults in aircraft lighting system maintenance
- c) Analysis and isolation of faults in aircraft instrument system maintenance
- d) Analysis and isolation of faults in aircraft radio communication and navigation systems
- e) Analysis and isolation of faults in aircraft electrical control and operating systems

- f) Analysis and isolation of faults in the aircraft radar systems
- g) Analysis and isolation of faults in the aircraft AFCS
- h) Aeronautical maintenance engineering management
- i) Fault diagnosis and system reliability analysis

The Occupational Standards have been clustered into NTA qualification levels i.e. NTA level 7 and 8.

4.0. VALIDITY PERIOD

Due to the rapid development of technology, the validity period of occupational standards is 3-5 years. The review will proceed in the same manner as the one before it, with new occupational standards being developed based on current trends of the labour market.

5.0. OCCUPATIONAL STANDARDS

5.1 OCCUPATIONAL STANDARDS FOR AVIONICS MAINTENANCE ENGINEER - NTA 8

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT RADAR SYSTEMS	DUTY NO.	801
TASK TITLE	AIRCRAFT RADAR SYSTEM MAINTENANCE MANAGEMENT	TASK NO.	8011
PERFORMANCE CRITERIA	The person performing this task must be able to manage relevant personnel, promote work progress, coordinate and communicate with relevant departments and ensure quality control and implementation in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance management offices; 2. Maintenance documents; 3. Tools and equipment; 4. Aviation materials and consumables; 5. Transportation equipment.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select the appropriate tools, equipment and safety devices; 2. Assign suitable responsibilities and duties to relevant personnel; 3. Develop the maintenance plans for aircraft radar systems; 4. Organize the implementation of aircraft radar system maintenance; 5. Communicate with and coordinate interactions between relevant departments; 6. Promote the conduct and		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Develop maintenance plans; 1.2 Organize the implementation of the maintenance plans; 1.3 Implement maintenance management. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Electronic principles and signal processing technologies;	

implementation of work; 7. Supervise the schedule and quality of work; 8. Evaluate results; 9. Hold and organise relevant meetings; 10. Establish an effective incentive mechanism; 11. Control maintenance costs; 12. Enhance team cohesion.	2.2 Preventative maintenance theories. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Effective management skills of radar maintenance teams; 3.2 Maintenance management methods. 4.0 Essential Skills 4.1 Teamwork skills; 4.2 Communication skills; 4.3 Customer service competence; 4.4 Report writing competence; 4.5 Computer application competence.
DESCRIPTION OF THE END PRODUCT / SERVICE	Relevant personnel are managed, work progress is promoted, relevant departments are coordinated and communicated with, and quality control and implementation is ensured in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Project management; 2. Aviation safety; 3. Data analysis and recording; 4. Personnel management and training; 5. Environmental regulations.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT RADAR SYSTEMS	DUTY NO.	801
TASK TITLE	TEST OF THE AIRCRAFT MAIN RADAR SYSTEMS	TASK NO.	8012
PERFORMANCE CRITERIA	The person performing this task must be able to test aircraft main radar systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Meteorological radar test equipment; 3. Multimeters; 4. Oscilloscopes; 5. Radio altimeters; 6. Toolboxes. Materials: 1. Locking wires; 2. Straps and cleaners.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. View task cards and maintenance instructions; 2. Review all applicable airworthiness directives and service bulletins; 3. Execute all applicable airworthiness directives and service bulletin instructions; 4. Select appropriate tools, equipment and safety devices for the task; 5. Implement the following		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Perform the tests of meteorological radar systems; 1.2 Perform the tests of radio altimeter systems; 1.3 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles:	

component-level tests: a. Meteorological radar receivers/transmitters; b. Radar antenna housing; c. Meteorological radar antennae/scanners; d. Meteorological radar indicators/displays; e. Waveguide; f. Doppler transmitters/receivers; g. Doppler antennae; h. Doppler indicators/displays; i. Doppler switches; j. Radio transmitters/receivers; k. Radio transmitting antennae; l. Radio altimeter indicators/displays. 6. Implement the following system-level tests: a. Meteorological radar systems; b. Doppler systems; c. Radio altimeter systems. 7. Perform final tests and sign task cards; 8. Clean the workplace, tools and equipment; 9. Arrange and store the tools and equipment; 10. Submit test reports; 11. Submit task cards to the certification engineer for certification and aircraft delivery for use; 12. Restore aircraft main radar systems to normal.	2.1 Working principles of meteorological radar systems; 2.2 Working principles of the Doppler systems; 2.3 Working principles of radio altimeter systems; 2.4 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 The basic composition of meteorological radar systems; 3.4 The basic composition of the Doppler systems; 3.5 The basic composition of radio altimeter systems. 4.0 Essential Skills 4.1 Data analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Aircraft main radar systems are tested in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design and test results are provided.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Project management; 2. Aviation safety; 3. Data analysis and recording; 4. Personnel management and training; 5. Environmental regulations.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT RADAR SYSTEMS	DUTY NO.	801
TASK TITLE	FAULT ANALYSIS AND ISOLATION OF AIRCRAFT MAIN RADAR SYSTEMS	TASK NO.	8013
PERFORMANCE CRITERIA	The person performing this task must be able to conduct fault analysis and isolation of the aircraft main radar systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Meteorological radar testers; 3. Radio altimeter testers; 4. External power supplies; 5. Computers; 6. Multimeters; 7. Oscilloscopes; 8. Toolboxes. Materials: 1. Contact cleaners; 2. Electrical jointing.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review aircraft status reports; 2. Analyze and isolate faults according to the corresponding test reports and troubleshooting manuals; 3. Select appropriate tools, equipment and safety devices for the task;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Analyze the possible fault causes of meteorological radars; 1.2 Isolate the faults of meteorological radar systems;	

4. Pay attention to health and safety when performing the task;	1.3 Analyze the possible fault causes of radio altimeter systems;
5. Perform component-level fault analysis of the following:	1.4 Isolate faults of radio altimeters;
a. Meteorological radar receivers/transmitters;	1.5 Analyze the possible fault causes of the Doppler systems;
b. Radar antenna housing;	1.6 Isolate faults of the Doppler systems;
c. Meteorological radar antennae/scanners;	1.7 Use AMMs.
d. Meteorological radar indicators/displays;	2.0 Principles
e. Waveguide;	The person performing this task must be able to explain the following principles:
f. Doppler transmitters/receivers;	2.1 Working principles of meteorological radar systems;
g. Doppler antennae;	2.2 Working principles of the Doppler systems;
h. Doppler indicators/displays;	2.3 Working principles of radio altimeter systems;
i. Doppler switches;	2.4 Tanzania civil aviation regulations.
j. Radio transmitters/receivers;	3.0 Theories
k. Radio transmitting antennae;	The person performing this task must be able to explain the following:
l. Radio altimeter indicators/displays.	3.1 Basic methods of aircraft maintenance;
6. Perform system-level fault analysis of the following:	3.2 Human factors in maintenance processes;
a. Meteorological radar systems;	3.3 The basic composition of meteorological radar systems;
b. Doppler systems;	3.4 The basic composition of the Doppler systems;
c. Radio altimeter systems.	3.5 The basic composition of radio altimeter systems;
7. Isolate possible faults in:	3.6 The overhaul methods of the circuits;
a. Meteorological radar receivers/transmitters;	3.7 The methods of disassembling and assembling components.
b. Radar antenna housing;	4.0 Essential Skills
c. Meteorological radar antennae/scanners;	4.1 Fault analysis, prejudgment and prediction competence;
d. Meteorological radar indicators/displays;	4.2 Engineering technical report writing competence;
e. Waveguide;	4.3 Computer skills;
f. Doppler transmitters/receivers;	4.4 Competence of using tools and equipment;
g. Doppler antennae;	4.5 Problem-solving competence;
h. Doppler indicators/displays;	
i. Doppler switches;	
j. Radio transmitters/receivers;	
k. Radio transmitting antennae;	
l. Radio altimeter indicators/displays.	
8. Perform final inspections and sign corresponding task cards;	

9. Clean the workplace, tools and equipment; 10. Arrange and store the tools and equipment; 11. Submit task cards to the certification engineer for certification and aircraft delivery for use; 12. Restore the aircraft to its normal state.	4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft main radar systems are analysed and isolated in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Project management; 2. Aviation safety; 3. Data analysis and recording; 4. Personnel management and training; 5. Environmental regulations.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT RADAR SYSTEMS	DUTY NO.	801
TASK TITLE	TEST OF THE AIRCRAFT SECONDARY RADAR SYSTEMS	TASK NO.	8014
PERFORMANCE CRITERIA	The person performing this task must be able to test aircraft secondary radar systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Computers; 3. Toolkits; 4. Multimeters; 5. Heat guns; 6. Anti-static wrist straps; 7. Welding guns; 8. Crimping tools and connector pick-up and delivery tools; 9. ATC transponder test devices; 10. TCAS test devices; 11. DME test devices. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves; 7. Sealants; 8. Solvent.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	

The person performing this task must be able to do the following: 1. View task cards and maintenance instructions; 2. Review all applicable airworthiness directives and service bulletins; 3. Execute all applicable airworthiness directives and service bulletin instructions; 4. Select appropriate tools, equipment and safety devices for the task; 5. Pay attention to health and safety when performing the task; 6. Perform the following tests of secondary radar systems: a. Interrogators of distance measurement equipment; b. Control panels of distance measurement equipment; c. Indicators of distance measurement equipment; d. Antennae of distance measurement equipment; e. Air traffic control transponders; f. ATC control panels; g. Air traffic control antennae; h. TCAS computers; i. TCAS control panels; j. Displays/Indicators of air traffic warning and collision avoidance systems; k. TCAS antennae; l. Computers with ground proximity warning systems-GPWS; m. GPWS alarm indicators/displays. 7. Implement the following system-level tests: a. DME systems; b. ATC systems; c. TCAS systems; d. GPWS systems. 8. Perform final tests and sign task	Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Perform DME system tests; 1.2 Perform ATC system tests; 1.3 Perform TCAS system tests; 1.4 Perform GPWS system tests; 1.5 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Working principles of DME systems; 2.2 Working principle of ATC systems; 2.3 Working principles of TCAS systems; 2.4 Working principles of GPWS systems; 2.5 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of DME systems; 3.4 Basic composition of ATC systems; 3.5 Basic composition of TCAS systems; 3.6 Basic composition of GPWS systems. 4.0 Essential Skills 4.1 Data analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills;
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cards; 9. Clean the workplace, tools and equipment; 10. Arrange and store the tools and equipment; 11. Submit test reports; 12. Submit task cards to the certification engineer for certification and aircraft delivery for use; 13. Restore the aircraft to its normal state.	4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Aircraft secondary radar systems are tested in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design and test results are provided.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Project management; 2. Aviation safety; 3. Data analysis and recording; 4. Personnel management and training; 5. Environmental regulations.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT RADAR SYSTEMS	DUTY NO.	801
TASK TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT SECONDARY RADAR SYSTEMS	TASK NO.	8015
PERFORMANCE CRITERIA	The person performing this task must be able to conduct fault analysis and isolation of the aircraft secondary radar systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Computers; 3. Toolkits; 4. Multimeters; 5. Oscilloscopes; 6. Heat guns; 7. Anti-static wrist straps; 8. Welding guns; 9. Crimping tools and connector pick-up and delivery tools; 10. ATC transponder test devices; 11. TCAS test devices; 12. DME test devices. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves; 7. Sealants; 8. Solvent.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE
The person performing this task must be able to do the following: 1. Review aircraft status reports; 2. Determine the faults according to the corresponding test reports and troubleshooting manuals; 3. Select appropriate tools, equipment and safety devices for the task; 4. Pay attention to health and safety when performing the task; 5. Perform component-level fault analysis of the following: a. Interrogators of distance measurement equipment; b. Control panels of distance measurement equipment; c. Indicators of distance measurement equipment; d. Antennae of distance measurement equipment; e. Air traffic control transponders; f. ATC control panels; g. Air traffic control antennae; h. TCAS computers; i. TCAS control panels; j. Displays/Indicators of air traffic warning and collision avoidance systems; k. TCAS antennae; l. Computers with ground proximity warning systems-GPWS; m. GPWS alarm indicators/displays. 6. Perform system-level fault analysis of the following: a. DME systems; b. ATC systems; c. TCAS systems; d. GPWS systems. 7. Isolate possible faults in:	Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Analyze the possible fault causes of the DME systems; 1.2 Isolate DME system faults; 1.3 Analyze the possible fault causes of the ATC systems; 1.4 Isolate ATC system faults; 1.5 Analyze the possible fault causes of the TCAS systems; 1.6 Isolated TCAS system faults; 1.7 Analyze the possible fault causes of the GPWS systems; 1.8 Isolate GPWS system faults; 1.9 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Working principles of DME systems; 2.2 Working principle of ATC systems; 2.3 Working principles of TCAS systems; 2.4 Working principles of GPWS systems; 2.5 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of DME systems; 3.4 Basic composition of ATC systems; 3.5 Basic composition of TCAS systems; 3.6 Basic composition of GPWS systems;

a. Interrogators of distance measurement equipment; b. Control panels of distance measurement equipment; c. Indicators of distance measurement equipment; d. Antennae of distance measurement equipment; e. Air traffic control transponders; f. ATC control panels; g. Air traffic control antennae; h. Computers with ground proximity warning systems; i. GPWS alarm indicators/displays; j. TCAS computers; k. TCAS control panels; l. Displays/Indicators of air traffic warning and collision avoidance systems; m. TCAS antennae. 8. Perform final inspections and sign corresponding task cards; 9. Clean the workplace, tools and equipment; 10. Arrange and store the tools and equipment; 11. Submit task cards to the certification engineer for certification and aircraft delivery for use; 12. Restore the aircraft to its normal state.	3.7 The overhaul methods of the circuits; 3.8 The methods of disassembling and assembling components. 4.0 Essential Skills 4.1 Fault analysis, prejudgment and prediction competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft secondary radar systems are analysed and isolated in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Project management; 2. Aviation safety; 3. Data analysis and recording; 4. Personnel management and training; 5. Environmental regulations.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT RADAR SYSTEMS	DUTY NO.	801
TASK TITLE	COMPREHENSIVE FAULT DETECTION AND DIAGNOSIS OF AIRCRAFT RADAR SYSTEMS	TASK NO.	8016
PERFORMANCE CRITERIA	The person performing this task must be able to conduct comprehensive fault detection and diagnosis of aircraft radar systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Computers; 3. Toolkits; 4. Multimeters; 5. Oscilloscopes; 6. Heat guns; 7. Anti-static wrist straps; 8. Welding guns; 9. Crimping tools and connector pick-up and delivery tools; 10. ATC transponder test devices; 11. TCAS test devices; 12. DME test devices. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves; 7. Sealants; 8. Solvent.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE
The person performing this task must be able to do the following: 1. Review aircraft status reports; 2. Determine faults according to test reports, AMMs, etc.; 3. Select appropriate tools, equipment and safety devices for the task; 4. Pay attention to health and safety when performing the task; 5. Detect and diagnose faults in the following system components: a. Meteorological radar systems; b. Doppler systems; c. Radio altimeter systems; d. DME systems; e. ATC systems; f. TCAS systems; g. GPWS systems. 6. Detect and diagnose faults in the following system circuits: a. Meteorological radar systems; b. Doppler systems; c. Radio altimeter systems; d. DME systems; e. ATC systems; f. TCAS systems; g. GPWS systems. 7. Perform final inspections and sign corresponding task cards; 8. Clean the workplace, tools and equipment; 9. Arrange and store the tools and equipment; 10. Submit task cards to the certification engineer for certification and aircraft delivery for use; 11. Restore the aircraft to its normal state.	Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Perform fault detection and diagnosis of aircraft radar system components; 1.2 Perform fault detection and diagnosis of aircraft radar system circuits; 1.3 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Working principles of aircraft radar systems; 2.2 Working principles of the Doppler systems; 2.3 Working principles of radio altimeter systems; 2.4 Working principles of DME systems; 2.5 Working principle of ATC systems; 2.6 Working principles of TCAS systems; 2.7 Working principles of GPWS systems; 2.8 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Analysis methods of fault trees; 3.4 Components of aircraft radar systems; 3.5 The overhaul methods of the circuits; 3.6 The methods of disassembling and assembling components. 4.0 Essential Skills 4.1 Fault analysis, prejudgment and prediction competence; 4.2 Engineering technical report writing

	competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft radar systems are comprehensively detected and diagnosed in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Project management; 2. Aviation safety; 3. Data analysis and recording; 4. Personnel management and training; 5. Environmental regulations.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	MAINTENANCE MANAGEMENT OF THE AIRCRAFT AFCS	TASK NO.	8021
PERFORMANCE CRITERIA	The person performing this task must be able to manage relevant personnel, promote work progress, coordinate and communicate with relevant departments and ensure quality control and implementation in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance documents; 2. Tools and equipment; 3. Aviation materials and consumables; 4. Transportation equipment.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select the appropriate tools, equipment and safety devices; 2. Assign suitable responsibilities and duties to relevant personnel; 3. Develop maintenance plans for aircraft AFCS; 4. Organize the implementation of maintenance of aircraft AFCS; 5. Communicate with and coordinate interactions between relevant departments; 6. Promote the conduct and implementation of work; 7. Supervise the schedule and quality of work; 8. Evaluate results; 9. Hold and organise relevant meetings;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Develop maintenance plans; 1.2 Organize the implementation of the maintenance plans; 1.3 Implement maintenance management. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Principles of preventative maintenance; 2.2 Principles of troubleshooting and repair; 2.3 Principles of technical standards and procedures; 2.4 Principles of data analysis and monitoring; 2.5 Principles of spare parts management.	

10. Establish an effective incentive mechanism; 11. Control maintenance costs; 12. Enhance team cohesion.	3.0 Theories The person performing this task must be able to explain the following: 3.1 Team management theories and communication skills; 3.2 Time management and decision making; 3.3 Human resources management; 3.4 Principle of aeronautical maintenance; 3.5 Maintenance plans and scheduled maintenance; 3.6 Aviation regulations and standards; 3.7 Maintenance technologies and methods. 4.0 Essential Skills 4.1 Teamwork skills; 4.2 Communication skills; 4.3 Customer service competence; 4.4 Report writing competence; 4.5 Computer application competence.
DESCRIPTION OF THE END PRODUCT / SERVICE	Maintenance management of AFCS is conducted in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safe disposal of materials; 2. Safety operation of equipment and tools; 3. Occupational health and safety.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	PERFORMANCE TESTS OF THE AIRCRAFT AUTOMATIC DRIVING/FLIGHT GUIDANCE SYSTEMS	TASK NO.	8022
PERFORMANCE CRITERIA	The person performing this task must be able to perform regular maintenance on the aircraft autopilot guidance computers and controller systems in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Test equipment of flight control computers; 3. Test equipment of flight guidance computers; 4. Multimeters; 5. Oscilloscopes; 6. Heat guns; 7. Anti-static wrist straps; 8. Welding guns; 9. Crimping tools and connector pick-up and delivery tools. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following:		Detailed knowledge about: 1.0 Methods	

1. View task cards and maintenance instructions; 2. Review all applicable airworthiness directives and service bulletins; 3. Execute all applicable airworthiness directives and service bulletin instructions; 4. Select appropriate tools, equipment and safety devices for the task; 5. Pay attention to health and safety when performing the task; 6. Perform inspections on the following: a. Flight guidance computers; b. DFCS mode control panels/indicators; c. Automatic flight status announcers; d. Flight guidance controller/mode selector switches; e. AFCS interface/interlocking devices; f. Components of autopilot connection and disconnection systems; g. Autopilot switches; h. Tilt thumb and roller controllers. 7. Perform tests on the following: a. Flight guidance /AP computers; b. Automatic driving interface systems; c. Flight guidance controllers; d. Advisory displays; e. Autopilot connection and disconnection systems; f. Tests of bus controllers and bus information transmission. 8. Replace the components of the following autopilot flight guidance and controller systems according to airworthiness requirements a. Flight guidance computers; b. DFCS mode control panels/indicators; c. Automatic flight status announcers; d. Flight guidance controller/mode selector switches;	The person performing this task must be able to explain how to: 1.1 Inspect, test and replace the flight guidance computer systems; 1.2 Inspect and replace DFCS mode control panels/indicators; 1.3 Inspect and replace AFCS interface/interlocking devices; 1.4 Inspect, test and replace the components of autopilot connection and disconnection systems; 1.5 Inspect and replace the autopilot switches; 1.6 Inspect and replace the tilt thumb and roller controlling devices; 1.7 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Test flows of autopilot/flight guidance systems; 2.2 Working principles of autopilot/flight guidance systems; 2.3 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of autopilot/flight guidance systems; 3.4 Test methods of autopilot/flight guidance systems. 4.0 Essential Skills 4.1 Data analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills;
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e. AFCS interface/interlocking devices; f. Autopilot connection and disconnection switches and autopilot switches; g. Tilt thumb and roller controllers. 9. Perform final inspections and sign task cards; 10. Clean the workplace, tools and equipment; 11. Arrange and store the tools and equipment; 12. Submit task cards to the certification engineer for certification and aircraft delivery for use; 13. Restore the aircraft to its normal state.	4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Performance tests of aircraft autopilot guidance computers and controller systems are conducted in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design and test results are provided.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	FAULT ANALYSIS AND ISOLATION OF AIRCRAFT AUTOMATIC DRIVING/FLIGHT GUIDANCE SYSTEMS	TASK NO.	8023
PERFORMANCE CRITERIA	The person performing this task must be able to conduct fault analysis and isolation operations of aircraft autopilot guidance computers and controller systems in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Test equipment of flight control computers; 3. Test equipment of flight guidance computers; 4. Voltage-stabilized power supplies; 5. Multimeters; 6. Oscilloscopes; 7. Heat guns; 8. Anti-static wrist straps; 9. Welding guns; 10. Crimping tools and connector pick-up and delivery tools; 11. Torque wrenches. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	

The person performing this task must be able to do the following: 1. Review aircraft status reports; 2. Determine the faults according to the corresponding troubleshooting manuals; 3. Select appropriate tools, equipment and safety devices for the task; 4. Pay attention to health and safety when performing the task; 5. Perform fault analysis of the following: a. Flight guidance /AP computers; b. Automatic driving interface systems; c. Flight guidance controllers; d. Advisory displays; e. Autopilot connection and disconnection systems. 6. Perform the following component inspections: a. Flight guidance computers; b. DFCS mode control panels/indicators; c. Automatic flight status announcers; d. Flight guidance controller/mode selector switches; e. AFCS interface/interlocking devices; f. Autopilot connection and disconnection systems. 7. Perform tests on the following items: a. Flight guidance /AP computers; b. Automatic driving interface systems; c. Flight guidance controllers; d. Advisory displays; e. Autopilot connection and disconnection systems; f. Tests of bus controllers and bus information transmission. 8. Isolate possible component and circuit faults: a. Flight guidance computers; b. DFCS mode control	Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Inspect and test the autopilot/flight guidance systems; 1.2 Analyze possible fault causes of autopilot/flight guidance systems; 1.3 Isolate autopilot/flight guidance system components or circuit faults; 1.4 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Test flows of autopilot/flight guidance systems; 2.2 Working principles of autopilot/flight guidance systems; 2.3 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of autopilot/flight guidance systems; 3.4 Test methods of autopilot/flight guidance systems; 3.5 Analysis methods of fault trees; 3.6 The overhaul methods of the circuits; 3.7 The methods of disassembling and assembling components. 4.0 Essential Skills 4.1 Fault analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills;
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panels/indicators; c. Automatic flight status announcers; d. Flight guidance controller/mode selector switches; e. AFCS interface/interlocking devices; f. Autopilot connection and disconnection systems; g. Autopilot and yaw damper switches; h. Tilt thumb and roller controllers. 9. Perform final inspections and sign corresponding trouble tickets; 10. Clean the workplace, tools and equipment; 11. Arrange and store the tools and equipment; 12. Submit trouble tickets to the certification engineer for certification and aircraft delivery for use; 13. Restore the aircraft to its normal state.	4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft autopilot guidance computers and controller systems are analysed and isolated in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	PERFORMANCE TESTS OF THE AIRCRAFT AUTOTHROTTLE SYSTEMS	TASK NO.	8024
PERFORMANCE CRITERIA	The person performing this task must be able to conduct performance tests of aircraft autothrottle systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Test equipment of autothrottle computers; 3. Multimeters; 4. Oscilloscopes; 5. Heat guns; 6. Anti-static wrist straps; 7. Welding guns; 8. Crimping tools and connector pick-up and delivery tools. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. View task cards and maintenance instructions;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to:	

2. Review all applicable airworthiness directives and service bulletins; 3. Execute all applicable airworthiness directives and service bulletin instructions; 4. Select appropriate tools, equipment and safety devices for the task; 5. Pay attention to health and safety when performing the task; 6. Perform inspections on the following: a. Autothrottle computers; b. Control panels of autothrottle systems; c. Components of autothrottle indicating systems; d. Engine electronic control unit; e. Components of autothrottle connection and disconnection systems; f. Autothrottle servo motors. 7. Perform operational and functional tests on the following items: a. Autothrottle computers; b. Control panels of autothrottle systems; c. Autothrottle indicating systems; d. Engine electronic control unit; e. Autothrottle connection and disconnection systems; f. Tests of bus controllers and bus information transmission. 8. Replace the following autothrottle system components according to airworthiness requirements: a. Autothrottle computers; b. Control panels of autothrottle systems; c. Components of autothrottle indicating systems; d. Engine electronic control unit; e. Components of autothrottle connection and disconnection systems;	1.1 Inspect, test and replace the autothrottle computers; 1.2 Inspect and replace the control panels of autothrottle systems; 1.3 Inspect and replace the autothrottle servo motors; 1.4 Inspect, test and replace the engine electronic control unit; 1.5 Perform tests of bus controllers and bus information transmission; 1.6 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Test flows of autothrottle systems; 2.2 Working principles of autothrottle systems; 2.3 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of autothrottle systems; 3.4 Test methods of autothrottle systems. 4.0 Essential Skills 4.1 Data analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
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f. Autothrottle servo motors. 9. Perform final inspections and sign task cards; 10. Clean the workplace, tools and equipment; 11. Arrange and store the tools and equipment; 12. Submit task cards to the certification engineer for certification and aircraft delivery for use; 13. Restore the aircraft to its normal state.	
DESCRIPTION OF THE END PRODUCT / SERVICE	Performance tests of aircraft autothrottle systems are conducted in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	FAULT ANALYSIS AND ISOLATION OF AIRCRAFT AUTOTHROTTLE SYSTEMS	TASK NO.	8025
PERFORMANCE CRITERIA	The person performing this task must be able to conduct performance tests of aircraft autothrottle systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Test equipment of autothrottle computers; 3. Oscilloscopes; 4. Voltage-stabilized power supplies; 5. Multimeters; 6. Heat guns; 7. Anti-static wrist straps; 8. Welding guns; 9. Crimping tools and connector pick-up and delivery tools. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review aircraft status reports; 2. Determine the faults according to the		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to:	

corresponding troubleshooting manuals; 3. Select appropriate tools, equipment and safety devices for the task; 4. Pay attention to health and safety when performing the task; 5. Perform fault analysis of the following: - Autothrottle computers; - Control panels of autothrottle systems; - Autothrottle indicating systems; - Engine electronic control unit; - Autothrottle connection and disconnection systems. 6. Perform the following component inspections: - Autothrottle computers; - Control panels of autothrottle systems; - Components of autothrottle indicating systems; - Engine electronic control unit; - Components of autothrottle connection and disconnection systems; - Autothrottle servo motors. 7. Perform operational and functional tests on the following items: - Autothrottle computers; - Control panels of autothrottle systems; - Autothrottle indicating systems; - Engine electronic control unit; - Autothrottle connection and disconnection systems; - Tests of bus controllers and bus information transmission. 8. Isolate possible component and circuit faults: - Autothrottle computers; - Control panels of autothrottle systems; - Components of autothrottle indicating systems;	1.1 Inspect and test the autothrottle systems; 1.2 Analyze the possible fault causes of the autothrottle systems; 1.3 Isolate components or circuit faults of autothrottle systems; 1.4 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: - Test flows of autothrottle systems; - Working principles of autothrottle systems; - Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: - Basic methods of aircraft maintenance; - Human factors in maintenance processes; - Basic composition of autothrottle systems; - Test methods of autothrottle systems; - Analysis methods of fault trees; - Methods of measurement and overhaul of circuits; - The methods of disassembling and assembling components. 4.0 Essential Skills - Fault analysis competence; - Engineering technical report writing competence; - Computer skills; - Competence of using tools and equipment; - Problem-solving competence; - Stress management; - Teamwork; - Communication skills; - Safety responsibility consciousness.
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d. Engine electronic control unit; e. Components of autothrottle connection and disconnection systems; h. Autothrottle servo motors. 9. Perform final inspections and sign corresponding trouble tickets; 10. Clean the workplace, tools and equipment; 11. Arrange and store the tools and equipment; 12. Submit appropriate trouble tickets to the certification engineer for certification and aircraft delivery for use; 13. Restore the aircraft to its normal state.	
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft autothrottle systems are analysed and isolated in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	PERFORMANCE TESTS OF THE AIRCRAFT FLIGHT STABILITY AUGMENTATION SYSTEMS	TASK NO.	8026
PERFORMANCE CRITERIA	The person performing this task must be able to conduct performance tests of aircraft stability augmentation systems in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Test equipment of yaw damping computers; 3. Test equipment of flight stability augmentation computers; 4. Multimeters; 5. Heat guns; 6. Anti-static wrist straps; 7. Welding guns; 8. Crimping tools and connector pick-up and delivery tools; 9. Torque wrenches. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves; 7. Air filters.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following:		Detailed knowledge about: 1.0 Methods	

1. View task cards and maintenance instructions; 2. Review all applicable airworthiness directives and service bulletins; 3. Execute all applicable airworthiness directives and service bulletin instructions; 4. Select appropriate tools, equipment and safety devices for the task; 5. Pay attention to health and safety when performing the task; 6. Perform inspections on the following: a. Yaw damping computers/Flight augmentation computers; b. Yaw damping actuators/Rudder trimming actuators; c. Aircraft control panels; d. Yaw damping position sensors; e. Rudder change valves; f. Yaw damping steering gears; g. Rate gyros; h. Yaw damping indicators. 7. Operate and inspect the functions of the following: a. Yaw damping computers/Flight augmentation computers; b. Yaw damping actuators/Rudder trimming actuators; c. Yaw damping position sensors; d. Yaw damping steering gears; e. Rate gyros; f. Tests of bus controllers and bus information transmission. 8. Replace the following flight stability augmentation system components according to airworthiness requirements: a. Yaw damping computers/Flight augmentation computers; b. Yaw damping actuators/Rudder trimming actuators; c. Yaw damping position sensors; d. Rudder change valves; e. Yaw damping steering gears;	The person performing this task must be able to explain how to: 1.1 Inspect, test and replace the yaw damping computers/flight augmentation computers; 1.2 Inspect, test and replace the yaw damping actuators/rudder trimming actuators; 1.3 Inspect and replace the yaw damping position sensors; 1.4 Inspect, test and replace the yaw damping steering gears; 1.5 Inspect, test and replace the rate gyros; 1.6 Perform tests of bus controllers and bus information transmission; 1.7 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Test flows of flight stability augmentation systems; 2.2 Working principles of flight stability augmentation systems; 2.3 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of flight stability augmentation systems; 3.4 Test methods of flight stability augmentation systems. 4.0 Essential Skills 4.1 Data analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment;
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f. Rate gyros; g. Yaw damping indicators. 9. Perform final inspections and sign task cards; 10. Clean the workplace, tools and equipment; 11. Arrange and store the tools and equipment; 12. Submit task cards to the certification engineer for certification and aircraft delivery for use; 13. Restore the aircraft to its normal state.	4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Performance tests of aircraft flight stability augmentation systems are conducted in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	TASK NO.	8027
PERFORMANCE CRITERIA	The person performing this task must be able to conduct analysis and isolation of faults in the aircraft AFCS in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Test equipment of yaw damping computers; 3. Test equipment of flight stability augmentation computers; 4. Voltage-stabilized power supplies; 5. Oscilloscopes; 6. Multimeters; 7. Heat guns; 8. Anti-static wrist straps; 9. Welding guns; 10. Crimping tools and connector pick-up and delivery tools; 11. Torque wrenches. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves; 7. Air filters.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be		Detailed knowledge about:	

able to do the following: 1. Review aircraft status reports; 2. Determine the faults according to the corresponding troubleshooting manuals; 3. Select appropriate tools, equipment and safety devices for the task; 4. Pay attention to health and safety when performing the task; 5. Perform fault analysis of the following: a. Yaw damping computers/Flight augmentation computers; b. Yaw damping actuators/Rudder trimming actuators; c. Aircraft control panels; d. Yaw damping position sensors; e. Rudder change valves; f. Yaw damping steering gears; g. Rate gyros; h. Yaw damping indicators. 6. Perform the following component inspections: a. Yaw damping computers/Flight augmentation computers; b. Yaw damping actuators/Rudder trimming actuators; c. Yaw damping control panels; d. Yaw damping position sensors; e. Yaw damping steering gears; f. Yaw damping indicators. 7. Operate and inspect the functions of the following: a. Yaw damping computers/Flight augmentation computers; b. Yaw damping actuators/Rudder trimming actuators; c. Yaw damping control panels; d. Yaw damping position sensors; e. Yaw damping steering gears; f. Rate gyros; g. Yaw damping indicators; h. Tests of bus controllers and bus information transmission. 8. Isolate possible component and circuit	1.0 Methods The person performing this task must be able to explain how to: 1.1 Inspect and test the aircraft stability augmentation systems; 1.2 Analyze the possible fault causes of aircraft stability augmentation systems; 1.3 Isolate components or circuit faults of aircraft stability augmentation systems; 1.4 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Test flows of flight stability augmentation systems; 2.2 Working principles of aircraft stability augmentation systems; 2.3 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of flight stability augmentation systems; 3.4 Test methods of flight stability augmentation systems; 3.5 Analysis methods of fault trees; 3.6 Methods of measurement and overhaul of circuits; 3.7 The methods of disassembling and assembling components. 4.0 Essential Skills 4.1 Fault analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills;
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faults: a. Yaw damping computers/Flight augmentation computers; b. Yaw damping actuators/Rudder trimming actuators; c. Aircraft control panels; d. Yaw damping position sensors; e. Rudder change valves; f. Yaw damping steering gears; g. Rate gyros; h. Yaw damping indicators. 9. Perform final inspections and sign corresponding trouble tickets; 10. Clean the workplace, tools and equipment; 11. Arrange and store the tools and equipment; 12. Submit trouble tickets to the certification engineer for certification and aircraft delivery for use; 13. Restore the aircraft to its normal state.	4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft stability augmentation systems are analysed and isolated in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	Analysis and isolation of faults in the aircraft AFCS	DUTY NO.	802
TASK TITLE	PERFORMANCE TESTS OF THE AIRCRAFT AUTOMATIC TRIMMING SYSTEMS	TASK NO.	8028
PERFORMANCE CRITERIA	The person performing this task must be able to test the performance of the automatic trimming systems of the aircraft to determine whether the performance of the aircraft meets the operational demands in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Computers; 3. Oscilloscopes; 4. Multimeters; 5. Anti-static wrist straps. Materials: 1. Contact cleaners; 2. Contact enhancers.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. View task cards and maintenance instructions; 2. Review all applicable airworthiness directives and service bulletins; 3. Execute all applicable airworthiness directives and service bulletin instructions; 4. Select appropriate tools, equipment and safety devices for the task; 5. Pay attention to health and safety when		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Inspect the test flight control computers; 1.2 Inspect the control column switch assemblies; 1.3 Inspect the flight control panels; 1.4 Inspect and test the control system components of stabilizer trimming; 1.5 Inspect and test the autopilot and stabilizer limiting switches;	

performing the task; 6. Perform inspections on the following: - Stabilizer trim warning lights; - Control column switch assemblies; - Flight control panels; - Stabilizer limiting switches; - Elevator trimmers; - Electric actuator cylinders for stabilizer trimming; - Actuator cylinders for Mach trim; - Integrated flight system accessories and assemblies; - A/P stabilizer trimming cut-off switches; - Flight control computers. 7. Perform operation tests on the following: - Self-testing of digital flight control systems; - Velocity trimming; - Velocity trimming cut-off electronic switches; - Velocity trimming detectors; - Stabilizer trim detectors; - Assemblies of A/P stabilizer trim cut-off switches; - Electric actuator cylinders for stabilizer trimming; - Mach trim; - Warning signals of Mach trim. 8. Perform final inspections and sign task cards; 9. Clean the workplace, tools and equipment; 10. Arrange and store the tools and equipment; 11. Submit task cards to the certification engineer for certification and aircraft delivery for use; 12. Restore the aircraft to its normal state.	1.6 Inspect and test the control components of elevator trimmers; 1.7 Inspect Integrated flight system accessories and assemblies. 2.0 Principles The person performing this task must be able to explain the following principles: - Principles of aircraft speed trim control; - Principles of aircraft Mach number trim control; - Principles of aircraft angle of attack trim control; - Control principles of the logic and interface of flight control computers; - Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: - Basic methods of aircraft maintenance; - Human factors in maintenance processes; - Basic composition of flight automatic trim systems; - Test methods for flight automatic trim systems. 4.0 Essential Skills - Data analysis competence; - Engineering technical report writing competence; - Computer skills; - Competence of using tools and equipment; - Problem-solving competence; - Stress management; - Teamwork; - Communication skills; - Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Performance tests of aircraft automatic trimming systems are conducted in accordance with the latest

	procedures approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	FAULT ANALYSIS AND ISOLATION OF AIRCRAFT AUTOMATIC TRIMMING SYSTEMS	TASK NO.	8029
PERFORMANCE CRITERIA	The person performing this task must be able to conduct fault analysis and isolation of aircraft automatic trimming systems in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Computers; 3. Oscilloscopes; 4. Multimeters; 5. Heat guns; 6. Anti-static wrist straps; 7. Welding guns; 8. Crimping tools and connector pick-up and delivery tools. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review aircraft status reports;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to	

2. Analyze and isolate faults according to the corresponding test reports and troubleshooting manuals; 3. Select appropriate tools, equipment and safety devices for the task; 4. Pay attention to health and safety when performing the task; 5. Perform tests on the following items: a. Self-testing of digital flight control systems; b. Velocity trimming; c. Velocity trimming cut-off electronic switches; d. Velocity trimming detectors; e. Stabilizer trim detectors; f. Assemblies of A/P stabilizer trim cut-off switches; g. Electric actuator cylinders for stabilizer trimming; h. Mach trim; i. Warning signals of Mach trim. 6. Perform system-level fault analysis of the following: a. Aircraft speed trim systems; b. Aircraft Mach trim systems; c. Aircraft angle of attack trim systems; d. Aircraft automatic driving trim systems. 7. Isolate possible faults in: a. Stabilizer trim warning lights; b. Control column switch assemblies; c. Stabilizer limiting switches; d. Elevator trimmer control switches; e. Electric actuator cylinders for stabilizer trimming; f. Actuator cylinders for Mach trim; g. Integrated flight system accessories and assemblies; h. A/P stabilizer trimming cut-off switches;	explain how to: 1.1 Inspect and test the aircraft automatic trim systems; 1.2 Analyze the possible fault causes of aircraft automatic trim systems; 1.3 Isolate components or circuit faults of aircraft automatic trimming systems; 1.4 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Test flows of aircraft automatic trim systems; 2.2 Working principles of aircraft automatic trim systems; 2.3 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Basic composition of flight automatic trim systems; 3.4 Test methods for flight automatic trim systems; 3.5 Analysis methods of fault trees; 3.6 Methods of measurement and overhaul of circuits; 3.7 The methods of disassembling and assembling components. 4.0 Essential Skills 4.1 Fault analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork;
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i. Flight control computers. 8. Perform final inspections and sign corresponding task cards; 9. Clean the workplace, tools and equipment; 10. Arrange and store the tools and equipment; 11. Submit task cards to the certification engineer for certification and aircraft delivery for use; 12. Restore the aircraft to its normal state.	4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft automatic trimming systems are analysed and isolated in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational health and safety.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	ANALYSIS OF THE LAWS OF AIRCRAFT AUTOMATIC DRIVING	TASK NO.	80210
PERFORMANCE CRITERIA	The person performing this task must be able to analyse the laws of aircraft automatic driving in accordance with the latest procedures approved by the TCAA and/or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Personal protective equipment; 2. Computers.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Analyze the control laws of course selection in rolling channels; 2. Analyze the control laws of attitude keeping in rolling channels; 3. Analyze the control laws of the steering wheel control in rolling channels; 4. Analyze the control laws of course keeping in rolling channels; 5. Analyze the control laws when VOR/LOC intercept mode is in the A/P and F/D rolling channels; 6. Analyze the control laws when the flight guidance instrument is in the lifting speed keeping mode in A/P pitch channels; 7. Analyze the control laws of pitching attitude keeping in pitching channels; 8. Analyze the control laws when the A/P and F/D pitch channels are both in the lifting speed keeping mode;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Analyze the control laws of working modes of rolling channels; 1.2 Analyze the control laws of working modes of pitching channels. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Principles of selecting the working modes of rolling channels; 2.2 Principles of selecting the working modes of pitch channels. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic composition of automatic control systems; 3.2 Selection methods of the patterns of the mode	

9. Analyze the control laws of pitching altitude keeping in pitching channels; 10. Analyze the control laws of the height selection mode of A/P-F/D pitching channels; 11. Analyze the control laws when the A/P-F/D pitch channels indicates the airspeed keeping mode; 12. Analyze the control laws of the Mach number keeping mode in A/P-F/D pitching channels.	control panels; 3.3 Analysis methods of the laws of automatic driving control. 4.0 Essential Skills 4.1 Fault analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Aircraft automatic driving control laws are analysed in accordance with the latest procedures approved by the TCAA and the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational health and safety.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	DESIGN OF THE LAWS OF AIRCRAFT AUTOMATIC DRIVING	TASK NO.	80211
PERFORMANCE CRITERIA	The person performing this task must be able to design the laws of aircraft automatic driving in accordance with the latest procedures approved by the TCAA and/or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Personal protective equipment; 2. Computers.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Design the control laws of course selection in rolling channels; 2. Design the control laws of attitude keeping in rolling channels; 3. Design the control laws of the steering wheel control in rolling channels; 4. Design the control laws of course keeping in rolling channels; 5. Design the control laws when VOR/LOC intercept mode is in the A/P and F/D rolling channels; 6. Design the control laws when the flight guidance instrument is in the lifting speed keeping mode in A/P pitch channels; 7. Design the control laws of pitching attitude keeping in pitching channels; 8. Design the control laws when the A/P and F/D pitch channels are both in the lifting speed keeping mode; 9. Design the control laws of pitching		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Design the control laws of working modes of rolling channels; 1.2 Design the control laws of working modes of pitching channels. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Principles of selecting the working modes of rolling channels; 2.2 Principles of selecting the working modes of pitch channels; 2.3 Working principles of automatic control systems. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic composition of automatic control systems; 3.2 Selection methods of the patterns of the mode	

altitude keeping in pitching channels; Design the control laws of the height selection mode of A/P-F/D pitching channels; 10. Design the control laws when the A/P-F/D pitch channels indicates the airspeed keeping mode; 11. Design the control laws of the Mach number keeping mode in A/P-F/D pitching channels.	control panels; 3.3 Analysis methods of the laws of automatic driving control. 4.0 Essential Skills 4.1 Fault analysis competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills; 4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Aircraft automatic driving control laws are designed in accordance with the latest procedures approved by the TCAA and the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational health and safety.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	ANALYSIS AND ISOLATION OF FAULTS IN THE AIRCRAFT AFCS	DUTY NO.	802
TASK TITLE	INTEGRATED FAULT DETECTION AND DIAGNOSIS OF AIRCRAFT AFCS	TASK NO.	80212
PERFORMANCE CRITERIA	The person performing this task must be able to perform integrated fault detection and diagnosis of aircraft AFCS in accordance with the latest procedures approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Personal protective equipment; 2. Computers; 3. Toolkits; 4. Multimeters; 5. Oscilloscopes; 6. Heat guns; 7. Anti-static wrist straps; 8. Welding guns; 9. Crimping tools and connector pick-up and delivery tools; 10. Test devices of flight control computers; 11. Test devices of autothrottle computers; 12. Test devices of flight augmentation computers. Materials: 1. Contact cleaners; 2. Contact enhancers; 3. Electrical jointing; 4. Wires; 5. Welding materials; 6. Heat shrinkable sleeves; 7. Sealants and solvents.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	

The person performing this task must be able to do the following: 1. Review aircraft status reports; 2. Determine faults according to test reports, AMMs, etc.; 3. Select appropriate tools, equipment and safety devices for the task; 4. Pay attention to health and safety when performing the task; 5. Detect and diagnose faults in the following system components: a. Autopilot/Flight guidance systems; b. Autothrottle systems; c. Flight stability augmentation systems; d. Automatic trim systems. 6. Detect and diagnose faults in the following system circuits: a. Autopilot/Flight guidance systems; b. Autothrottle systems; c. Flight stability augmentation systems; d. Automatic trim systems. 7. Perform final inspections and sign corresponding task cards; 8. Clean the workplace, tools and equipment; 9. Arrange and store the tools and equipment; 10. Submit task cards to the certification engineer for certification and aircraft delivery for use; 11. Restore the aircraft to its normal state.	Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Perform the component fault detection and diagnosis of aircraft AFCS; 1.2 Perform the circuit fault detection and diagnosis of aircraft AFCS; 1.3 Use AMMs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Working principles of aircraft autopilot/flight guidance systems; 2.2 Working principles of autothrottle systems; 2.3 Working principles of flight stability augmentation systems; 2.4 Working principles of automatic trimming systems; 2.5 Tanzania civil aviation regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Basic methods of aircraft maintenance; 3.2 Human factors in maintenance processes; 3.3 Analysis methods of fault trees; 3.4 Components of an aircraft AFCS; 3.5 The overhaul methods of the circuits; 3.6 The methods of disassembling and assembling components. 4.0 Essential Skills 4.1 Fault analysis, prejudgment and prediction competence; 4.2 Engineering technical report writing competence; 4.3 Computer skills;
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	4.4 Competence of using tools and equipment; 4.5 Problem-solving competence; 4.6 Stress management; 4.7 Teamwork; 4.8 Communication skills; 4.9 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft AFCS are comprehensively detected and diagnosed in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational health and safety.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	AERONAUTICAL MAINTENANCE ENGINEERING MANAGEMENT	DUTY NO.	803
TASK TITLE	DEVELOPMENT OF AIRCRAFT MAINTENANCE PLANS AND COMPONENT MAINTENANCE PLANS	TASK NO.	8031
PERFORMANCE CRITERIA	The person performing this task must be able to integrate relevant resources to ensure aircraft airworthiness and effectively implement operational cost control in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Electronic office equipment; 2. Technical document of maintenance.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review airworthiness requirements of maintenance for the latest version of the aircraft; 2. Review the regulations of TCAA; 3. Comply with the regulations of continuous airworthiness maintenance schemes; 4. Plan the maintenance resources; 5. Conduct statistics and monitoring of the usage status of aircraft; 6. Review the airworthiness standards of the aircraft; 7. Review the requirements of airworthiness restriction projects of the aircraft structure; 8. Review relevant maintenance requirements for companies of engines, auxiliary power units and		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Comply with the regulatory requirements of the TCAA; 1.2 Comply with the usage limits of the aircraft; 1.3 Coordinate resources of all parties and control the maintenance costs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Aviation rules and regulations; 2.2 Principles of airworthiness limitation; 2.3 Principles of cost control. 3.0 Theories The person performing this task must be able to	

parts manufacturing; 9. Assign suitable responsibilities and duties to relevant personnel; 10. Communicate with and coordinate interactions between relevant departments to promote the development and implementation of work.	explain the following: 3.1 Workflows of maintenance; 3.2 Types of the airworthiness restriction projects of the aircraft; 3.3 Methods of maintenance cost control; 3.4 Usage methods of maintenance manuals. 4.0 Essential Skills 4.1 Technical document reading competence; 4.2 Computer application competence; 4.3 Report writing competence; 4.4 Teamwork skills; 4.5 Customer communication service skills; 4.6 Competence of using AMMs.
DESCRIPTION OF THE END PRODUCT / SERVICE	Relevant personnel are managed, work progress is promoted, relevant departments are coordinated and communicated with, quality control and implementation are ensured and aircraft maintenance plans and component maintenance plans are developed in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Policies and requirements of developing schemes; 2. Scopes of maintenance responsibility; 3. Occupational safety and health; 4. Scheme management procedures.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	AERONAUTICAL MAINTENANCE ENGINEERING MANAGEMENT	DUTY NO.	803
TASK TITLE	AERONAUTICAL MAINTENANCE PERSONNEL MANAGEMENT AND EVALUATION	TASK NO.	8032
PERFORMANCE CRITERIA	The person performing this task must be able to integrate relevant resources to ensure aircraft airworthiness and effectively implement operational cost control in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance planning offices; 2. Electronic office equipment; 3. Technical document of maintenance.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Comply with airworthiness requirements of maintenance for the latest version of the aircraft; 2. Consult the latest regulations of the TCAA; 3. Comply with the regulations of continuous airworthiness maintenance schemes; 4. Review the airworthiness standards of the aircraft; 5. Review the requirements of airworthiness restriction projects of the aircraft structure; 6. Review relevant maintenance requirements for companies of engines, auxiliary power units and parts manufacturing; 7. Assign suitable responsibilities and		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Comply with the regulatory requirements of the TCAA; 1.2 Comply with the usage limits of the aircraft; 1.3 Coordinate resources of all parties and control the maintenance costs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Aviation rules and regulations; 2.2 Principles of airworthiness limitation; 2.3 Maintenance manuals and procedures. 3.0 Theories The person performing this task must be able to explain	

duties to relevant personnel; 8. Communicate with and coordinate interactions between relevant departments to promote the development and implementation of work.	the following: 3.1 Workflows of maintenance; 3.2 Types of the airworthiness restriction projects of the aircraft; 3.3 Methods of maintenance regulation interpretation; 3.4 Methods of maintenance manual interpretation; 3.5 Knowledge of maintenance procedures and criterion; 3.6 Query methods of maintenance manuals. 4.0 Essential Skills 4.1 Technical document reading competence; 4.2 Computer application competence; 4.3 Report writing competence; 4.4 Teamwork skills; 4.5 Customer communication service skills; 4.6 AMM inquiry skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Relevant personnel are managed, work progress is promoted, relevant departments are coordinated and communicated with, quality control and implementation are ensured and aeronautical maintenance personnel are managed and evaluated in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Policies and requirements of developing schemes; 2. Scopes of maintenance responsibility; 3. Occupational safety and health; 4. Scheme management procedures.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	AERONAUTICAL MAINTENANCE ENGINEERING MANAGEMENT	DUTY NO.	803
TASK TITLE	MANAGE AND EVALUATE PLANT FACILITIES/TOOLS AND DEVICES/EQUIPMENT	TASK NO.	8033
PERFORMANCE CRITERIA	The person performing this task must be able to integrate relevant resources to ensure aircraft airworthiness and effectively implement operational cost control in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance planning offices; 2. Electronic office equipment; 3. Technical document of maintenance; 4. Tools and equipment; 5. Aviation materials and consumables; 6. Transportation equipment.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review the regulations of TCAA; 2. Comply with the regulations of continuous airworthiness maintenance schemes; 3. Review plant facility requirements; 4. Review the maintenance tools and equipment requirements of the aircraft; 5. Review relevant maintenance requirements of aviation equipment; 6. Review the above equipment, tools and other documents; 7. Assign suitable responsibilities and duties to relevant personnel; 8. Communicate with and coordinate		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Comply with the regulatory requirements of the TCAA; 1.2 Comply with the usage limits of the aircraft; 1.3 Coordinate resources of all parties and control the maintenance costs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Aviation rules and regulations; 2.2 Principles of airworthiness limitation.	

interactions between relevant departments to promote the development and implementation of work.	3.0 Theories The person performing this task must be able to explain the following: 3.1 Process flows of maintenance; 3.2 Types of the airworthiness restriction projects of the aircraft; 3.3 Methods of maintenance regulation interpretation; 3.4 Query methods of maintenance manuals. 4.0 Essential Skills 4.1 Technical document reading competence; 4.2 Computer application competence; 4.3 Report writing competence; 4.4 Teamwork skills; 4.5 Customer communication service skills; 4.6 AMM inquiry skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Relevant personnel are managed, work progress is promoted, relevant departments are coordinated and communicated with, quality control and implementation are ensured and plant facilities/tools/equipment are managed and evaluated in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Policies and requirements of developing schemes; 2. Scopes of maintenance responsibility; 3. Occupational safety and health; 4. Scheme management procedures.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	AERONAUTICAL MAINTENANCE ENGINEERING MANAGEMENT	DUTY NO.	803
TASK TITLE	PREPARATION OF MAINTENANCE SCHEMES	TASK NO.	8034
PERFORMANCE CRITERIA	The person performing this task must be able to develop maintenance schemes based on the documents about continuous airworthiness provided by the manufacturers and the aircraft Program Maintenance Requirements (SMR) currently in force for the aircraft, in accordance with the latest procedure and policy requirements of TCAA or the Maintenance Review Committee.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance planning offices; 2. Electronic office equipment; 3. Technical document of maintenance.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Consult the latest version of the maintenance review reports of the aircraft; 2. Review all the applicable airworthiness directives and service announcement of the aircraft; 3. Review the requirements of airworthiness restriction projects of the aircraft structure; 4. Review relevant maintenance requirements for companies of engines, auxiliary power units and parts manufacturing; 5. Review the historical usage status and projected service characteristics of the aircraft; 6. Review the competence of maintenance engineering management of the aircraft		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Review the resources of all parties and develop maintenance schemes. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Aircraft using principles; 2.2 Aircraft initial airworthiness criterion; 2.3 Aviation rules and regulations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Preparation methods of maintenance schemes; 3.2 Approval processes of maintenance schemes;	

operators; 7. Review the policies and requirements of the TCAA on maintenance schemes; 8. Organize the preparation, adjustment and optimization of maintenance schemes.	3.3 Airworthiness management and airworthiness limitation types; 3.4 Using methods of aircraft maintenance documents; 3.5 Human factors in aeronautical maintenance. 4.0 Essential Skills 4.1 Technical document reading competence; 4.2 Computer application competence; 4.3 Report writing competence; 4.4 Teamwork skills; 4.5 Customer communication service skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Maintenance schemes based on the documents about continuous airworthiness provided by the manufacturers and the aircraft Program Maintenance Requirements (SMR) currently in force for the aircraft are developed in accordance with the latest procedure and policy requirements of TCAA or the Maintenance Review Committee.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Policies and requirements of developing schemes; 2. Scopes of maintenance responsibility; 3. Occupational safety and health; 4. Scheme management procedures.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	AERONAUTICAL MAINTENANCE ENGINEERING MANAGEMENT	DUTY NO.	803
TASK TITLE	RELIABILITY MANAGEMENT AND SCHEME DEVELOPMENT	TASK NO.	8035
PERFORMANCE CRITERIA	The person performing this task must be able to establish sound reliability schemes to continuously monitor the conditions of aircraft components and systems to achieve an acceptable level of safety based on strong maintenance management and engineering capabilities in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance planning offices; 2. Electronic office equipment; 3. Technical document of maintenance.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review the relevant policies and requirements of the related authorities; 2. Establish aircraft reliability management mechanisms, including: a. Collect system data; b. Analyze system data; c. Conduct systematic corrective measures; d. Conduct performance standard statistics; e. Display and report data; f. Adjust maintenance interval. 3. Develop and manage reliability schemes.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Analyze and adjust resource data; 1.2 Investigate and review related engineering of aircraft and reliability. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Environmental impact on the aircraft operation; 2.2 Integration of system data; 2.3 Reliability level analysis, investigation and correction. 3.0 Theories The person performing this task must be able to explain the following:	

	3.1 Data acquisition methods; 3.2 Data statistic and analysis methods; 3.3 Engineering investigation methods; 3.4 Airworthiness limitation types. 4.0 Essential Skills 4.1 Technical document reading competence; 4.2 Computer application competence; 4.3 Report writing competence; 4.4 Teamwork skills; 4.5 Customer communication service skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Comprehensive reliability schemes to continuously monitor the safe operations of aircraft components and systems are established in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Policies and requirements of developing schemes; 2. Scopes of maintenance responsibility; 3. Occupational safety and health; 4. Scheme management procedures.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	AERONAUTICAL MAINTENANCE ENGINEERING MANAGEMENT	DUTY NO.	803
TASK TITLE	QUALITY CONTROL AND EVALUATION OF AERONAUTICAL MAINTENANCE	TASK NO.	8036
PERFORMANCE CRITERIA	The person performing this task must be able to communicate with and coordinate the relevant personnel and departments to control and implement the maintenance quality in accordance with the latest procedures and policies and requirements of the TCAA or the International Civil Aviation Convention, to facilitate the smooth progress of the work.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance planning offices; 2. Electronic office equipment; 3. Technical document of maintenance.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review airworthiness requirements of maintenance for the latest version of the aircraft; 2. Review the regulations of TCAA; 3. Review the airworthiness standards of the aircraft; 4. Review maintenance quality; 5. Investigate maintenance quality; 6. Manage maintenance safety; 7. Assign suitable responsibilities and duties to relevant personnel; 8. Develop evaluation schemes of maintenance quality; 9. Organize the supervision and implementation of maintenance quality; 10. Organize relevant meetings to evaluate		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Develop, evaluate, supervise, and review the maintenance quality; 1.2 Manage maintenance teams. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Management of maintenance teams; 2.2 Control of maintenance safety. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Workflows of managers;	

the report results.	3.2 Aircraft airworthiness criterion; 3.3 Procedures and methods of maintenance standards. 4.0 Essential Skills 4.1 Technical document reading competence; 4.2 Computer application competence; 4.3 Report writing competence; 4.4 Teamwork skills; 4.5 Supervisory skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Professional supervision and evaluation of the aircraft maintenance quality are conducted in accordance with the latest procedures and policies and requirements of the TCAA or the International Civil Aviation Convention to ensure that aeronautical maintenance is carried out smoothly in accordance with standard procedures.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Policies and requirements of developing schemes; 2. Scopes of maintenance responsibility; 3. Occupational safety and health; 4. Scheme management procedures.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	AERONAUTICAL MAINTENANCE ENGINEERING MANAGEMENT	DUTY NO.	803
TASK TITLE	AERONAUTICAL MAINTENANCE COST CONTROL	TASK NO.	8037
PERFORMANCE CRITERIA	The person performing this task must be able to integrate relevant resources to ensure aircraft airworthiness and effectively implement operational cost control in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance planning offices; 2. Electronic office equipment; 3. Technical document of maintenance; 4. Tools and equipment; 5. Aviation materials and consumables; 6. Transportation equipment.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review the regulations of TCAA; 2. Comply with the regulations of continuous airworthiness maintenance schemes; 3. Review the planned maintenance resources; 4. Conduct statistics and monitoring of the usage status of aircraft; 5. Review the requirements of airworthiness restriction projects of the aircraft structure; 6. Review relevant maintenance requirements for companies of engines, auxiliary power units and parts manufacturing;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Comply with the regulatory requirements of the TCAA; 1.2 Comply with the usage limits of the aircraft; 1.3 Coordinate resources of all parties and control the maintenance costs. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Aviation rules and regulations; 2.2 Aircraft initial airworthiness criterion; 2.3 Aviation rules and regulations.	

7. Review the status of equipment, devices, tools and documents; 8. Assign suitable responsibilities and duties to relevant personnel; 9. Communicate with and coordinate interactions between relevant departments to promote the development and implementation of work.	3.0 Theories The person performing this task must be able to explain the following: 3.1 Workflows of maintenance; 3.2 Types of the airworthiness restriction projects of the aircraft; 3.3 Methods of maintenance regulation interpretation; 3.4 Methods of maintenance manual interpretation; 3.5 Principles of maintenance cost control. 4.0 Essential Skills 4.1 Technical document reading competence; 4.2 Computer application competence; 4.3 Report writing competence; 4.4 Teamwork skills; 4.5 Customer communication service skills; 4.6 AMM inquiry skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Relevant personnel are managed, work progress is promoted, relevant departments are coordinated and communicated with, quality control and implementation are ensured and maintenance costs are controlled in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Policies and requirements of developing schemes; 2. Scopes of maintenance responsibility; 3. Occupational safety and health; 4. Scheme management procedures.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	FAULT DIAGNOSIS AND SYSTEM RELIABILITY ANALYSIS	DUTY NO.	804
TASK TITLE	FAULT DIAGNOSIS AND MAINTENANCE OF ELECTRONIC COMPONENTS	TASK NO.	8041
PERFORMANCE CRITERIA	The person performing this task must be able to conduct fault diagnosis and maintenance of aircraft electronic components in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: Equipment and tools: 1. Special test benches and test tools of integrated circuit; 2. Personal protective equipment; 3. Computers and toolboxes; 4. Digital multimeters; 5. Oscilloscopes; 6. Heat guns; 7. Anti-static wrist straps; 8. Welding guns; 9. Crimping tools and connector pick-up and delivery tools. Materials: 1. Resistors, capacitors and other electronic components; 2. Contact cleaners; 3. Contact enhancers; 4. Electrical jointing; 5. Wires; 6. Welding materials; 7. Heat shrinkable sleeves; 8. Sealants and solvents.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following:		Detailed knowledge about:	

Perform the following: 1. Observe the preventive measures for health and safety; 2. Select the appropriate tools, equipment and safety devices; 3. Assign suitable responsibilities and duties to relevant personnel; 4. Develop fault diagnosis and maintenance plans for aircraft electronic components; 5. Organize the implementation of fault diagnosis and isolation maintenance of aircraft electronic components; 6. Follow health and safety precautions when performing the task; 7. Organize team members to prepare for production; 8. Promote the conduct and implementation of work; 9. Evaluate results; 10. Establish an effective incentive mechanism; 11. Control maintenance costs; 12. Conduct fault diagnosis and maintenance of the following aircraft electronic components: a. Connectors switch capacitors and other electronic components; b. Integrated circuit modules. 13. Isolate faults according to detected states; 14. Check for normality after fault isolation; 15. Analyze the principles of faults; 16. Query the connection schematic diagrams of aircraft electronic circuits; 17. Analyze aircraft electronic components that may have faults; 18. Replace faulty electronic components or assemblies; 19. Perform relevant functional tests.	1.0 Methods The person performing this task must be able to explain how to: 1.1 Perform fault detection of aircraft electronic components; 1.2 Specify the fault maintenance plans of aircraft electronic components. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Measurement principles of component performance indicators; 2.2 Working principles of control components. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Identification mode of electronic components; 3.2 Measurement methods for electronic components. 4.0 Essential Skills 4.1 Computer skills; 4.2 Critical thinking; 4.3 Problem-solving competence; 4.4 Stress management; 4.5 Teamwork; 4.6 Communication skills; 4.7 Safety responsibility consciousness.
DESCRIPTION OF THE END	Fault diagnosis and maintenance of electronic

PRODUCT / SERVICE	components are conducted in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	FAULT DIAGNOSIS AND SYSTEM RELIABILITY ANALYSIS	DUTY NO.	804
TASK TITLE	INTEGRATED FAULT DETECTION AND DIAGNOSIS OF AIRBORNE ELECTRONIC CIRCUITS	TASK NO.	8042
PERFORMANCE CRITERIA	The person performing this task must be able to conduct integrated fault detection and diagnosis of airborne electronic circuits in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance documents; 2. Tools and equipment; 3. Aviation materials and consumables; 4. Transportation equipment.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Observe the preventive measures for health and safety; 2. Select the appropriate tools, equipment and safety devices; 3. Assign suitable responsibilities and duties to relevant personnel; 4. Develop maintenance plans for integrated faults of aircraft electronic circuits; 5. Organize the implementation of integrated fault analysis and the implementation of isolation maintenance of aircraft electronic circuits; 6. Follow health and safety precautions when performing the task; 7. Organize team members to prepare for production;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Detect the faults of electronic circuits; 1.2 Query the connection schematic diagrams of aircraft electronic circuits; 1.3 Analyze the possible locations of the fault points on the aircraft electronic circuits. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Working principles of aircraft electronic circuits; 2.2 Using principles of manuals. 3.0 Theories	

8. Promote the conduct and implementation of work; 9. Evaluate results; 10. Establish an effective incentive mechanism; 11. Control maintenance costs; 12. Design the fault state classifier methods for fault diagnosis of analog circuits, including but not limited to the following detection methods: a. Dictionary methods of electronic circuit faults; b. Electronic circuits based on neural networks. 13. Isolate faults according to detected states; 14. Check for normality after fault isolation; 15. Analyze the principles of faults; 16. Query the connection schematic diagrams of aircraft electronic circuits; 17. Analyze the possible locations of the fault points on the aircraft electronic circuits; 18. Conduct circuit measurement; 19. Follow safety precautions for circuit construction.	The person performing this task must be able to explain the following: 3.1 The fault diagnosis methods of aircraft electrical circuits; 3.2 The methods of electronic circuit measurement. 4.0 Essential Skills 4.1 Computer skills; 4.2 Critical thinking; 4.3 Problem-solving competence; 4.4 Stress management; 4.5 Teamwork; 4.6 Communication skills; 4.7 Safety responsibility consciousness.
DESCRIPTION OF THE END PRODUCT / SERVICE	Fault diagnosis and maintenance of airborne electronic circuits are conducted in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safety operation of equipment and tools; 2. Occupational safety and health.

OCCUPATION	AVIONICS MAINTENANCE ENGINEER	OCCUPATION CODE	
DUTY TITLE	FAULT DIAGNOSIS AND SYSTEM RELIABILITY ANALYSIS	DUTY NO.	804
TASK TITLE	INTEGRATED FAULT DETECTION AND DIAGNOSIS OF AIRBORNE ELECTRICAL CIRCUITS	TASK NO.	8043
PERFORMANCE CRITERIA	The person performing this task must be able to conduct integrated fault detection and diagnosis of airborne electrical circuits in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design.		
RANGE STATEMENT	The task can be performed in an AMO under the supervision of certified senior aircraft maintenance engineers or release engineers. The equipment and tools to be used include: 1. Maintenance documents; 2. Tools and equipment; 3. Aviation materials and consumables; 4. Transportation equipment.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select the appropriate tools, equipment and safety devices; 2. Assign suitable responsibilities and duties to relevant personnel; 3. Develop maintenance plans for integrated faults of aircraft electrical circuits; 4. Organize the implementation of integrated fault analysis and the implementation of isolation maintenance of aircraft electrical circuits; 5. Follow health and safety precautions when performing the task; 6. Organize team members to prepare for production; 7. Promote the conduct and implementation of work; 8. Evaluate results;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Detect the faults of electrical circuits; 1.2 Query the connection schematic diagrams of the aircraft electrical cable; 1.3 Analyze the possible locations of the fault points on the aircraft electrical circuits. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Connection principles of aircraft electrical circuits; 2.2 Using principles of manuals. 3.0 Theories	

9. Establish an effective incentive mechanism; 10. Control maintenance costs; 11. Conduct comprehensive fault detection of aircraft electrical circuits, including but not limited to the following methods: - Manual inquiry methods; - Backwards methods for aircraft electrical circuit fault detection; - Pulse reflection methods for aircraft cable fault location. 12. Isolate faults according to detected states; 13. Check for normality after fault isolation; 14. Analyze the principles of faults; 15. Query the connection schematic diagrams of the aircraft electrical cable; 16. Analyze the possible locations of the fault points on the aircraft electrical circuits; 17. Conduct circuit measurement; 18. Follow safety precautions for circuit construction.	The person performing this task must be able to explain the following: - The fault diagnosis methods of aircraft electrical circuits; - The methods of electrical circuit measurement; - The layout of aircraft electrical circuits. 4.0 Essential Skills - Teamwork skills; - Communication skills; - Fault analysis and isolation competence; - Report writing competence; - Standard circuit construction competence; - Standard mechanical construction competence; - Effective work execution competence.
DESCRIPTION OF THE END PRODUCT / SERVICE	Faults in aircraft electrical circuits are comprehensively diagnosed and maintained in accordance with the latest procedures and policy requirements approved by the TCAA or the institution responsible for the aircraft model design, to ensure safe delivery for use.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: - Safety operation of equipment and tools; - Circuit inspection and testing; - Troubleshooting and diagnosis; - Data recording and analysis; - Connections and plugging/unplugging; - Maintenance and replacement; - Compliance with standards and procedures; - Occupational safety and health.

TABLE 1: DACUM CHARTS FOR AVIONICS MAINTENANCE ENGINEER - NTA 8

DUTIES	TASKS	ENABLERS
1.0 Analysis and isolation of faults in aircraft radar systems	1.1 Aircraft radar system maintenance management.	General skills and knowledge • Aerophysics • Aviation mathematics • Aerodynamics • Electronic fundamentals • Electrical fundamentals • Digital technologies • Aircraft Maintenance Practices • Standard circuit construction • Use of tools and equipment • Human factors • Civil aviation regulations • Principles of radar • Use of AMMs • Maintenance schemes Tools and equipment • Personal protective equipment • Toolboxes • Computers • External power supplies • Crimping tools • Multimeters • Oscilloscopes • Heat guns • Anti-static wrist straps • Welding guns • Connector pick-up and delivery tools • Meteorological radar testors • Radio altimeter testers • Transponder testers for air traffic control • Test devices of transponder distance measuring instrument • TCAS system tests
	1.2 Test of the aircraft main radar systems.	
	1.3 Fault analysis and isolation of aircraft main radar systems.	
	1.4 Test of the aircraft secondary radar systems.	
	1.5 Analysis and isolation of faults in aircraft radar systems.	
	1.6 Integrated fault detection and diagnosis of aircraft radar systems.	

DUTIES	TASKS	ENABLERS
		Materials • Contact cleaners • Locking wires • Lacing • Contact enhancers • Electrical jointing • Wires • Welding materials • Heat shrinkable sleeves • Solvent • Sealant Requirements for employees • Data analysis competence • Engineering technical report writing competence • Fault analysis and isolation competence • Problem-solving competence • Stress management • Teamwork consciousness • Communication skills • Safety responsibility consciousness
2.0 Analysis and isolation of faults in the aircraft AFCS	2.1 Maintenance management of the aircraft AFCS.	General skills and knowledge • Aerophysics • Aviation mathematics • Electronic fundamentals • Electrical fundamentals • Digital technologies • Aircraft Maintenance Practices • Standard circuit construction • Use of tools and equipment • Human factors • Civil aviation regulations • Aircraft AFCS
	2.2 Performance tests of the aircraft automatic driving/flight guidance systems.	
	2.3 Fault analysis and isolation of aircraft automatic driving/flight guidance systems.	
	2.4 Performance tests of the aircraft autothrottle systems.	

DUTIES	TASKS	ENABLERS
	2.5 Fault analysis and isolation of aircraft autothrottle systems.	• Use of AMMs • Maintenance schemes
	2.6 Performance tests of the aircraft flight stability augmentation systems.	Tools and equipment • Personal protective equipment • Test equipment of aircraft control guidance computers • Test equipment of autothrottle computers • Test equipment of yaw damping computers • Test equipment of aircraft stability augmentation computers
	2.7 Fault analysis and isolation of aircraft flight stability augmentation systems.	
	2.8 Performance tests of the aircraft automatic trimming systems.	
	2.9 Fault analysis and isolation of aircraft automatic trimming systems.	• Voltage-stabilized power supplies • Oscilloscopes • Multimeters • Heat guns
	2.10 Analysis of the laws of aircraft automatic driving.	• Anti-static wrist straps • Welding guns
	2.11 Design of the laws of aircraft automatic driving.	• Crimping tools and connector pick-up and delivery tools • Torque wrenches
	2.12 Integrated fault detection and diagnosis of aircraft AFCS.	Materials • Contact cleaners • Contact enhancers • Electrical jointing • Wires • Welding materials • Heat shrinkable sleeves • Air filters Requirements for employees • Data analysis competence • Engineering technical report writing competence • Fault analysis and isolation competence

DUTIES	TASKS	ENABLERS
		• Problem-solving competence • Stress management • Teamwork consciousness • Communication skills • Safety responsibility consciousness
3.0 Aeronautical Maintenance Engineering Management	3.1 Development of aircraft maintenance plans and component maintenance plans.	General skills and knowledge • Airworthiness standards of aircraft • Human factors • Civil aviation regulations • Aeronautical maintenance engineering management • Data collection, statistics and analysis • Engineering investigation • Use of AMMs • Maintenance schemes Facilities • Maintenance plan office • Electronic office equipment • Technical document of maintenance • Tools, aviation materials and consumables • Transportation equipment Requirements for employees • Technical document reading competence • Computer application competence • Technical reports writing competence • Teamwork consciousness • Communication skills • Safety responsibility consciousness
	3.2 Aeronautical maintenance personnel management and evaluation.	
	3.3 Manage and evaluate plant facilities/tools and devices/equipment.	
	3.4 Preparation of maintenance schemes.	
	3.5 Reliability management and scheme development.	
	3.6 Quality control and evaluation of aeronautical maintenance.	
	3.7 Aeronautical maintenance cost control.	
4.0 Fault diagnosis and system reliability	4.1 Fault diagnosis and maintenance of electronic components.	General skills and knowledge • Aerophysics

DUTIES	TASKS	ENABLERS
analysis	4.2 Integrated fault detection and diagnosis of airborne electronic circuits.	• Electronic fundamentals • Electrical fundamentals • Digital technologies • Fault process modeling and application • Fault isolation and fault diagnosis • Logical diagnosis and application • Use of tools and equipment • Human factors • Civil aviation regulations • Use of AMMs • Aircraft maintenance schemes Tools and equipment • Digital multimeters • Special test benches and test tools of integrated circuit • Gyro test platforms • Heat guns • Anti-static wrist straps • Welding guns • Crimping tools and connector pick-up and delivery tools Materials • Components such as resistors, capacitors, diodes and triodes • Contact enhancers • Electrical jointing • Wires • Welding materials • Heat shrinkable sleeves • Air filters Requirements for employees • Data analysis competence • Engineering technical report writing
	4.3 Integrated fault detection and diagnosis of airborne electrical circuits.	

DUTIES	TASKS	ENABLERS
		competence • Problem-solving competence • Stress management • Teamwork consciousness • Communication skills • Safety responsibility consciousness