SEMAE3210

Assembling aircraft armament expendable stores

Overview

This standard identifies the competences needed to assemble armament expendable stores (AES), in accordance with approved procedures. It covers both fixed wing and rotary winged aircraft and includes items such as aircraft gun ammunition, missiles, torpedoes, bombs and components, rockets, chaff and flare, depth charges and other specific expendable stores.

You will be required to select the appropriate tools and equipment to use, based on the operations to be performed and the AES to be assembled. The assembly activities will include assembling, making all necessary checks and adjustments to ensure that the AES are correctly positioned, aligned, and have appropriate working clearances, the cosmetic appearance is acceptable and that they function as per specifications.

Your responsibilities will require you to comply with organisational policy and procedures for the assembly activities undertaken and to report any problems with these activities that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You will be expected to ensure that all tools, equipment and materials used in the assembly are correctly accounted for on completion of the activities and that all necessary job/task documentation is completed, accurately and legibly. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to the assembly of AES in accordance with the relevant procedures. You will have an underpinning knowledge and understanding of AES that you are assembling, allowing you to carry out all activities to the required specification and standard.

You will understand the safety precautions required whilst assembling AES and when using the associated tools and equipment. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and others in the workplace.

Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. follow the relevant instructions, assembly drawings and any other specifications
3. ensure that the specified components are available and that they are in a usable condition
4. use the appropriate methods and techniques to assemble the components in their correct positions
5. secure the components using the specified connectors and securing devices
6. check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
7. deal promptly and effectively with problems within your control and report those that cannot be solved
8. leave the work area and AES assembly in a safe and appropriate condition, free from damage or foreign object debris on completion of the activities
9. complete the relevant documentation, in accordance with organisational requirements

Knowledge and understanding

You need to know and understand:

1. the specific safety practices and procedures that you need to observe when working with AES (including any specific legislation, regulations/codes of practice for the activities, equipment or materials and locations)
2. the health and safety requirements of the work area in which you are carrying out the activities and the responsibility these requirements place on you
3. the hazards associated with assembling AES and with the tools and equipment used and how to minimise them and reduce any risks
4. the requirements and importance of understanding and applying human factors as defined by the regulatory requirements and the potential impact if these are not adhered to
5. the protective equipment that you need to use for both personal protection (PPE) and protection of the AES
6. the precautions to be taken to prevent electrostatic discharge (ESD) damage to circuits and sensitive components (such as use of earthed wrist straps)
7. what constitutes a hazardous voltage and how to recognise victims of electric shock
8. how to reduce the risks of a phase to earth shock (such as insulated tools, rubber matting and isolating transformers)
9. how to interpret drawings, standards, quality control procedures and specifications
10. how to carry out currency/issue checks on the specifications you are working with
11. the AES to be assembled and their function within the particular armament system
12. the importance of using the specified fasteners for the particular assembly and why you must not substitute others
13. why securing devices need to be locked and labelled and the different methods that are used
14. the torque loading requirements of the fasteners and what to do if these loadings are exceeded or not achieved

15. the quality control procedures to be followed during the installation operations
16. procedures for ensuring that you have the correct tools, equipment, armament expendable stores and fasteners for the activities
17. the techniques used to position, align, adjust and secure the AES without damage
18. methods of lifting, handling and supporting the AES during assembly activities
19. why electrical bonding is critical and why it must be both mechanically and electrically secure
20. how to conduct any necessary checks to ensure the system integrity, functionality, accuracy and quality of the assembly
21. how to recognise assembly defects (such as cosmetic appearance, misalignment, ineffective fasteners and safety indicators)
22. the importance of ensuring that the completed assembly is free from dirt, swarf and foreign object damage
23. the tools and equipment used in the assembly activities and their calibration/care and control procedures
24. why tool/equipment control is critical and what to do if a tool or piece of equipment is unaccounted for on completion of the activities
25. the problems that can occur with the operations and how these can be overcome
26. the recording documentation to be completed for the activities undertaken and where appropriate, the importance of marking and identifying specific pieces of work in relation to the documentation
27. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

Scope/range related to performance criteria

1.

Carry out all of the following during the preparation of AES:

1.1 obtain and use the appropriate documentation (such as technical instructions, manuals, specifications)
1.2 adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work
1.3 provide and maintain a safe working environment for the assembly activities and ensure (where appropriate) that safe working distance procedures are setup
1.4 obtain the correct tools and equipment for the activity, and check that they are in a safe, tested and usable condition and within current calibration dates
1.5 obtain clearance to work on AES and observe all relevant isolation and safety procedures
1.6 use safe and approved assembly techniques and procedures at all times
1.7 return all tools and equipment to the correct location on completion of the activities
1.8 dispose of waste materials in accordance with approved procedures

2.

Assemble three of the following items of AES:

2.1 missiles
2.2 torpedoes
2.3 chaff and flare
2.4 aircraft ammunition
2.5 depth charges
2.6 defensive aids
2.7 bombs and components
2.8 rockets
2.9 other specific stores

3.

Carry out all of the following activities, using appropriate tools and techniques:

3.1 positioning and aligning
3.2 setting travel or working clearance
3.3 making electrical connections
3.4 lifting operations (such as manual or automated)
3.5 earth bonding
3.6 torque settings

4.

Use four of the following types of securing/connection devices:

4.1 threaded fasteners
4.2 locking devices

4.3 torque load bolts
4.4 electrical
4.5 screws
4.6 quick-release fasteners
4.7 other specific devices

5.

Carry out all of the following quality and accuracy checks during assembly

5.1 all electrical connections are correctly made
5.2 equipment is mechanically locked
5.3 operating cables are securely attached
5.4 equipment is free from damage
5.5 relevant safety devices are fitted
5.6 installations have the appropriate cosmetic appearance
5.7 all AES components are correctly positioned and aligned

6.

Assemble AES in accordance with one of the following standards:

6.1 Civil Aviation Authority (CAA)/European Aviation Safety Agency (EASA)
6.2 Ministry of Defence (MoD)
6.3 Military Aviation Authority (MAA)
6.4 Aerospace Quality Management Standards (AS)
6.5 customer standards and requirements
6.6 Federal Aviation Authority (FAA)
6.7 company standards and procedures
6.8 BS, ISO and/or BSEN standards and procedures
6.9 specific AES system requirements
6.10 manufacturer standards and procedures

7.

Complete the relevant paperwork, to include one from the following and pass it to the appropriate people:

7.1 build records
7.2 job cards
7.3 computer records
7.4 aircraft service/flight log
7.5 other specific recording method

Behaviours

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment

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