

INCH-POUND

A-A-59959

06 OCT 2014

COMMERCIAL ITEM DESCRIPTION

MOUNTER AND DEMOUNTER, PNEUMATIC TIRE, COMPUTER CONTROLLED TORQUEING SYSTEM

The General Services Administration has authorized the use of this Commercial Item Description (CID) for all federal agencies.

1. SCOPE

1.1 Scope. This Commercial Item Description (CID) covers the general requirements for a stationary, hydraulic motor driven Mounter and Demounter, Pneumatic Tire with Computer Controlled Torqueing System for tube or tubeless tires used on aircraft.

2. CLASSIFICATION

2.1 General. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System covered by this CID should be commercially available equipment that has factory installed options and/or may be modified to the extent necessary to comply with the inspection and test requirements set forth herein to satisfy a government requisite.

3. SALIENT CHARACTERISTICS

3.1 First Article. When specified (see 7.2), one sample of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be subjected to first inspection in accordance with 5.2.

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data which may improve this document should be sent to: WR-ALC [AFMC 404 SCMS/GUEEA], 235 Byron Street, Suite 19A, Robins AFB GA 31098-1813. Since contact information can change, you may want to verify the currency of this address information using the ASSIST database at <https://assist.dla.mil>.

AMSC N/A

FSC 4910

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3.2 Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System description. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall provide a simple, safe and reliable means of assembling/disassembling aircraft main and nose wheels. It shall be designed for efficient operation, with or without the aid of an overhead hoist, to eliminate heavy lifting by the operator. It shall be designed to provide a stable horizontal position for wheel bolt torqueing operations. All mechanical operations of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall incorporate emergency stops, for safe operation. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be equipped with a computer controlled twin spindle nut runner. The nut runner shall be capable of accommodating both odd and even number wheel bolt patterns. The torqueing system shall have easy to follow instructions to provide the appropriate torque data for the specific aircraft wheel to be entered. Spindle space settings shall be near automatic, and not labor intense and time consuming. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be equipped with an operator interface system which uses a touch screen monitor and an integral Windows operating system. The monitor shall be mounted to the nut runner positioning fixture and shall be located directly in front of the operator at a convenient working height when using the torqueing system. The operator interface system shall identify the specific nut runner spindle spacing for a particular wheel, as well as other necessary information for assembly and disassembly. The actual final torque values for each tightening sequence shall be displayed on the operator interface monitor, indicating the pass and fail criteria. The interface system shall be capable of storing individual wheel torque data for future reference and report generation. The interface system shall provide menu-driven software procedures to add or delete wheel data and torque values. Data system must be capable of password protection.

3.3 Design and construction. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be an electro-hydraulic type. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be designed to be used at depots and tire shops by personnel of average mechanical skill. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall comply with the following requirements in Table I:

Table I. Design & construction requirements.

Design	Construction
Maximum Overall dimensions (Excluding trolley)	220"W x 140"D x 180"H
Torque value	80ft-lbs. minimum 370ft-lbs. maximum
Position accessibility around wheel	360 degree
Accommodates aircraft wheels	7" minimum 26" maximum
Bolt tightening accuracy	1% full-scale
Wheel configuration storage capacity	100 minimum

A-A-59959**3.3.1 Materials, protective coatings and finish.**

3.3.1.1 Protective coatings. Materials that deteriorate when exposed to sunlight, weather, or operational conditions normally encountered during the service life of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall not be used or shall have means of protection against such deterioration that does not prevent compliance with the performance requirements specified herein. Protective coatings that chip, crack, or scale with age or extremes of climatic conditions or when exposed to heat shall not be used. Exposed surfaces of fasteners, handles, and fittings shall also be primed and painted.

3.3.1.2 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, shall not be in contact with each other. Metal plating or metal spraying of dissimilar base metals to provide electromotively compatible abutting surfaces is acceptable. The use of dissimilar metals when separated by suitable insulating material is permitted, except in systems where bridging of insulation materials by an electrically conductive fluid can occur. Sealants or gel type gasket materials shall be used between faying surfaces and butt joints.

3.3.1.3 Finish. The exterior finish color of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be finished to the manufacturers' best commercial practice of FED-STD-595.

3.3.2 Markings. All external devices which require an operational or maintenance interface shall be marked in accordance with MIL-STD-130. Markings shall be applied with decals and shall be 1-inch high block letters unless prohibited by the available space. In such cases, the markings shall be the largest size possible. Markings, Information/Caution shall be Lusterless Black, Color Number 37038 of FED-STD-595, and Markings, Warning/Danger shall be Lusterless Red, Color Number 31136 of FED-STD-595. The center of gravity of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be stenciled on the unit within 1.0 inch of the calculated center of gravity.

3.3.3 Identification and information plates.

3.3.3.1 Identification plate. An identification plate in accordance with MIL-STD-130 shall be securely attached to the Mounter and Demounter, Pneumatic Tire in a readily accessible location. The identification plate shall contain the following information: nomenclature, part number, serial number, date of manufacture, manufacturer's name, Commercial and Government Entity (CAGE) code, date of warranty expiration, and National Stock Number (NSN). The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System and any of its components for which the Government's unit cost is more than \$5,000, is serially managed, or the procuring agency determines is mission essential, shall have Unique Identification (UID) (also known as Item Unique Identification (IUID)) information permanently affixed on or near the respective identification plate(s), marked in accordance with MIL-STD-130. UID information shall be included as both a bar code and human readable markings. The "CE" marking shall be affixed in accordance with EU requirements on or adjacent to the identification plate.

A-A-59959**3.3.4 Environment, Safety and Occupational Health (ESOH).**

3.3.4.1 System safety. The design of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall not contain any system safety mishap risk categories greater than medium as defined in Table III of MIL-STD-882.

3.3.4.2 Hazardous material. The design shall minimize and control hazards associated with the inclusion or use of hazardous or toxic materials and the generation of toxic or noxious gases. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall not generate or use Class I or Class II Ozone Depleting Substances (ODS) during operation, maintenance, or disposal. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall not contain or use hexavalent chromium. For the purposes of this requirement, the Class I ODS and controlled substances identified in Chapter 4 of AFI 32-7086 shall not be used in any system, component, or process.

3.3.4.3 Component protection. All space in which work is performed during operation, service, and maintenance shall be free of hazardous protrusions, sharp edges, or other features which may cause injury to personnel. All rotating and reciprocating parts and all parts subject to high operational temperatures or subject to being electrically energized, that are of such nature or so located as to be hazardous to personnel, shall be guarded or insulated to eliminate the hazard. All wires, cables, tubes, and hoses shall be supported and protected to minimize chafing and abrasion and shall be located so as to provide adequate clearance from moving parts and high operational temperatures. Grommets shall be provided wherever wires, cables, tubes, or hoses pass through bulkheads, partitions, or structural members.

3.3.4.4 Foreign object damage (FOD). All loose metal parts, such as pins or connector covers, shall be securely attached to the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System with wire ropes or chains. "Dog tag" style beaded chains shall not be provided. Removable panels, if provided, shall be attached with captive fasteners. Tire valve stem caps shall be made of plastic.

3.3.4.5 Noise. The design shall ensure that noise created by the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall not to exceed 84dBa measured not more than four feet from the perimeter of the unit.

3.3.4.6 Electrostatic (ESD) discharge. The design of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall preclude equipment damage due to ESD, protect personnel from electrical shock due to static charging, and prevent ignition of explosive atmospheres due to sparking.

3.3.5 Human systems integration. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be designed in accordance with MIL-STD-1472 for ease of operation, inspection, and maintenance, including the use of arctic mittens and Mission-Oriented Protective Posture (MOPP) Level 4 Chemical Warfare Gear.

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3.3.6 Fastening devices. All screws, bolts, nuts, pins, and other fastening devices shall be properly designed, manufactured, and installed with adequate means of preventing loss of torque or adjustment. Cotter pins, lock washers, or nylon patches shall not be used for this purpose, except for the attachment of trim items or as provided in commercial components. Tapped threads shall have a minimum thread engagement in accordance with Table II.

TABLE II. Minimum thread engagement.

Material	Minimum Thread Engagement
Steel	1.0 times the nominal fastener diameter
Cast iron, brass, or bronze	1.5 times the nominal fastener diameter
Aluminum, zinc, or plastic	2.0 times the nominal fastener diameter

3.3.7 Service life. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be designed for a minimum service life of 15 years.

3.4 Maintainability. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be designed for maintainability in accordance with 5.9 through 5.9.18 of MIL-STD-1472; forces shall not exceed those specified for both males and females.

3.4.1 Special tools. The design of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall minimize the requirement for special tools. All special tools shall be provided with, and stored on, the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System.

3.4.2 Diagnostic software. A copy of any diagnostic software required or recommended for maintaining the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be provided with each Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System on CD-ROM or DVD-ROM.

3.5 Electrical system. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall have a 230 volt, negative ground electrical system in accordance with 3.13.1.2 of SAE ARP1247, except as specified herein, single phase, 50/60Hz frequency, 10/20 Amp. If the nut runner/interface has separate circuits, the electrical requirements shall be compatible with the electrical requirements of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System.

3.6 Hydraulic system. If a hydraulic system is utilized, it shall be in accordance with 3.13.1.3 of SAE ARP1247 except as otherwise specified herein. O-ring face seal hydraulic fittings may be used in lieu of flared fittings (see 3.13.1.3.12 of SAE ARP1247). Hydraulic fluid shall be in accordance with MIL-PRF-83282. All hydraulic system components, including the hydraulic tank, shall comply with all corrosion resistance requirements specified herein. Minimum

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hydraulic fluid capacity shall be 1.5USG.

3.7 Pneumatic system. Any required air source shall be 70-130PSI.

3.8 Workmanship. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System including all parts and accessories, shall be constructed and finished in a thoroughly workmanlike manner. Workmanship objectives shall include freedom from blemishes, defects, burrs and sharp corners and edges; accuracy of dimensions, surface finish, and radii of fillets; thoroughness of welding, painting, and riveting; marking of parts and assemblies; and proper alignment of parts and tightness of assembly fasteners.

3.8.1 Bolted connections. Bolt holes shall be accurately punched or drilled and shall be deburred. Threaded fasteners shall be tight and shall not work loose during testing or service usage.

3.8.2 Gear and lever assemblies. Gear and lever assemblies shall be properly aligned and meshed and shall be operable without interference, tight spots, loose spots, or other irregularities. Where required for accurate adjustment, gear assemblies shall be free of excessive backlash.

3.8.3 Cleaning. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be thoroughly cleaned. Loose, spattered, or excess solder; welding slag; stray bolts, nuts, and washers; rust; metal particles; pipe compound; and other foreign matter shall be removed during and after final assembly.

4. REGULATORY REQUIREMENTS

4.1 Recycled, recovered, environmentally preferable, or bio-based materials. Recycled, recovered, or environmentally preferable, or bio-based materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR). However, used, rebuilt, or remanufactured components, pieces, and parts shall not be incorporated in the forklift.

4.2 Green Procurement Program. Green Procurement Program (GPP) is a mandatory federal acquisition program that focuses on the purchase and use of environmentally preferable products and services. GPP requirements apply to all acquisitions using appropriated funds, including services and new requirements. FAR 23.404(b) applies and states the GPP requires 100% of EPA designated product purchase that are included in the Comprehensive Procurement Guidelines list that contains recovered materials, unless the item cannot be acquired: a) competitively within a reasonable timeframe; b) meet appropriate performance standards, or c) at a reasonable price. The prime contractor is responsible for ensuring that all subcontractors comply with this requirement.

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5. PRODUCT CONFORMANCE PROVISIONS

5.1 Product Conformance. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same unit offered for sale in the commercial market. The government reserves the right to require proof of such conformance by requesting contractor data that meets the requirements of this CID.

5.1.1 Classification of inspection. The inspection requirements specified herein and in Table III are classified as follows:

- a. First Article (see 5.2)
- b. Conformance inspection (see 5.3)

Table III. Requirement verification matrix.

Section 3 Requirement	Verification Method	Section 4 Verification
3.1 First Article.	Test Analysis Demonstration	
3.2 Mounter and Demounter, Pneumatic Tire description.	N/A	
3.3 <u>Design and construction</u> .	Examination	5.5.1 <u>Examination of product</u> .
3.3.1 <u>Materials, protective coatings, and finish</u> .	N/A	
3.3.1.1 <u>Protective coatings</u> .	Examination	5.5.1 <u>Examination of product</u> .
3.3.1.2 <u>Dissimilar metals</u> .	Examination	5.5.1 <u>Examination of product</u> .
3.3.1.3 <u>Finish</u> .	Examination	5.5.1 <u>Examination of product</u> .
3.3.2 <u>Markings</u> .	Examination	5.5.1 <u>Examination of product</u> .
3.3.3 <u>Identification and information plates</u> .	N/A	
3.3.3.1 <u>Identification plate</u> .	Examination	5.5.1 <u>Examination of product</u> .
3.3.4. <u>Environment, Safety, and Occupational Health (ESOH)</u> .	N/A	
3.3.4.1 <u>System safety</u> .	Analysis	5.5.2 System safety hazard <u>analysis</u> .

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Table III. Requirement verification matrix - Continued.

Section 3 Requirement	Verification Method	Section 4 Verification
3.3.4.2 <u>Hazardous material.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.3.4.3 <u>Component protection.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.3.4.4 <u>Foreign object damage (FOD).</u>	Examination	5.5.1 <u>Examination of product.</u>
3.3.4.5 <u>Noise.</u>	Test	5.5.3 <u>Noise test.</u>
3.3.4.6 <u>Electrostatic discharge (ESD).</u>	Analysis	5.5.4 <u>Electrostatic discharge analysis.</u>
3.3.5 <u>Human systems integration.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.3.6 <u>Fastening devices.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.3.7 <u>Service life.</u>	Analysis	5.5.5 <u>Service life analysis.</u>
3.4 <u>Maintainability.</u>	Demonstration	5.6.1 <u>Preventive maintenance demonstration.</u>
3.4.1 <u>Special tools.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.4.2 <u>Diagnostic software.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.5 <u>Electrical system.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.6 <u>Hydraulic system.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.7 <u>Pneumatic system.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.8 <u>Workmanship.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.8.1 <u>Bolted connections.</u>	Examination	5.5.1 <u>Examination of product.</u>
3.8.2 <u>Gear and lever assemblies</u>	Examination	5.5.1 <u>Examination of product.</u>
3.8.3 <u>Cleaning</u>	Examination	5.5.1 <u>Examination of product.</u>

5.2 First article inspection. The First Article Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be subjected to the analyses, demonstrations, examinations, and tests described in 5.5.1 through 4.6.1.

5.3 Conformance inspection. Each production the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be subjected to the examination described in 5.5.1.

5.4 Inspection requirements.

5.4.1 General inspection requirements. Apparatus used in conjunction with the inspections specified herein shall be laboratory precision type, calibrated at proper intervals to ensure laboratory accuracy.

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5.4.2 Data. During all testing specified herein, at least the following data, unless not applicable, shall be recorded at intervals not to exceed 30 minutes. Additional data or shorter intervals shall be provided as appropriate for any specific test.

- a. Date.
- b. Time started.
- c. Time finished.
- d. Ambient temperature.
- e. Ambient humidity.

5.4.3 Test rejection criteria. Throughout all tests specified herein, the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be closely observed for the following conditions, which shall be cause for rejection.

- a. Failure to conform to design or performance requirements specified herein.
- b. Any spillage or leakage of any liquid, including fuel, coolant, lubricant, or hydraulic fluid, under any condition, except as allowed herein.
- c. Structural failure of any component, including permanent deformation, or evidence of impending failure.
- d. Evidence of excessive wear. If excessive wear is suspected, the original equipment manufacturers (OEM's) specifications or tolerances shall be utilized for making a determination.
- e. Evidence of corrosion or deterioration.
- f. Misalignment of components.
- g. Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.

5.5 Test methods.

5.5.1 Examination of product. Each the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be examined to verify compliance with the requirements herein prior to accomplishing any other demonstrations or tests listed in 5.5. A contractor-generated, Government-approved checklist (part of the test procedure) shall be used to identify each requirement not verified by an analysis, certification, demonstration, or test, and shall be used to document the examination results. Particular attention shall be given to materials, workmanship, dimensions, surface finishes, protective coatings and sealants and their application, welding, fastening, and markings. Proper operation of each the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System function shall be verified. Certifications and analyses shall be provided in accordance with Table IV. Each production of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be inspected to a Government-approved reduced version of the checklist.

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Table IV. Certification and analyses.

Paragraph	Required Certifications and Analyses
3.3 <u>Design and construction.</u>	Contractor documentation that the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System is in accordance with all applicable EU requirements in order to have the “CE” marking affixed.
3.3.4.1 <u>System safety.</u>	Contractor system safety hazard analysis (see 5.5.2).
3.3.4.6 <u>Electrostatic discharge.</u>	Contractor analysis of the electrostatic discharge requirement (see 5.5.4).
3.3.7 <u>Service life.</u>	Contractor analysis of the service life requirement (see 5.5.5).

5.5.2 System safety hazard analysis. A system safety hazard analysis of the Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be conducted in accordance with 4.3.1 through 4.3.8 of MIL-STD-882 to demonstrate compliance with the mishap risk requirement of 3.3.4.1.

5.5.3 Noise test. The Mounter and Demounter, Pneumatic Tire, Computer Controlled Torqueing System shall be tested to demonstrate that the noise level of the operating unit meets the noise limit of 3.3.4.5.

5.5.4 Electrostatic discharge analysis. An engineering analysis shall be performed to demonstrate compliance with the electrostatic discharge requirement of 3.3.4.6.

5.5.5 Service life analysis. An engineering analysis shall be performed to demonstrate compliance with the service life requirement of 3.3.7.

5.6 Maintainability analysis and demonstration.

5.6.1 Preventive maintenance demonstration. All recommended preventive maintenance tasks shall be performed and the task times shall be recorded. It shall be demonstrated that the forces required do not exceed those allowed in MIL-STD-1472.

A-A-59959**6. PACKAGING**

6.1 Preservation, Packaging, Labeling and Marking. Preservation, packing, and marking shall be as specified in the contract. Unless otherwise specified in the contract (see 7.2), the preservation, packaging, and packing shall be to a degree of protection to preclude damage to containers and/or contents thereof under normal shipping conditions and handling. This involves shipment from the supply source to the receiving activity and reshipment from the receiving activity. The preservation, packaging, and packing shall conform to applicable carrier's rules and regulations. Shipping containers shall be properly marked and in compliance with both national and uniform motor freight classifications. Intermediate and exterior package quantities, labeling and marking shall be as specified in the contract and/or order.

7. NOTES**7.1 Source of documents.**

7.1.1 Government documents. Copies of Military Specification/Standards and Federal Standards documents referenced herein may be obtained online at <http://quicksearch.dla.mil/> or from the Standardization Document Order Desk, Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

7.1.2 SAE Standards. Copies of SAE standards may be obtained online at <http://www.sae.org/> or from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.

7.1.3 Air Force (AF) Instruction. Copies of AF instructions may be obtained online at <http://www.e-publishing.af.mil/> or from the Air Force Departmental Publishing Office (AFDPO) customer service phone at (202) 404-2438.

7.2 Ordering data. Procurement documents should specify the following:

- a. Title, number and date of this CID
- b. If first article inspection, if required (see 3.1)

7.3 Keywords.

Hydraulic motor driven
Stationary pneumatic tire
Tube tire
Tubeless tire

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MILITARY INTEREST:

Custodians:

Army – AR
Navy - SH
Air Force - 84

Preparing Activity:

Air Force - 84

Reviewer:

Army – AS, AV
Navy – CG, YD
Air Force - 99
DLA - CC

Agent:

Air Force - 99
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