



UNITED STATES NAVY RATING DESCRIPTION

AVIATION MACHINIST'S MATE, Second Class

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Name and Service Number

Aviation Machinist's Mate 2/c (T)
Rating

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FOR THE VETERAN: *This Rating Description is an official document of the United States Navy. It has been issued to you mainly so that you get a job in civilian life which will make the best use of your naval training and experience. Don't hesitate to show it to your employer or prospective employer. Your Rating Description should be one of your most valuable papers. Take care of it.*

AVIATION MACHINIST'S MATE, Second Class

INTRODUCTION

This description is designed to give prospective employers, government service officials, educators and other interested persons an over-all picture of the technical responsibilities assumed, tasks performed, and knowledge and skills acquired by persons in this rating. Representative related civilian occupations are listed as a placement guide.

It is the Navy's policy to issue a Rating Description booklet which most accurately reflects the dischargee's naval experience as

determined by examination of his service record. For this reason, the booklet issued will not always correspond to the rating classification held by the dischargee.

Special skills, training or qualifications other than those described in the following sections may be obtained from the certificate of discharge or other separation records and by personal interview.

Enlisted personnel of the Navy are divided into two groups, rated and non-rated. The rated personnel are petty officers and are divided into four levels of responsibility and skill, ranging from third class, upward through second class and first class, to chief, which is the highest petty officer rating.

II. GENERAL

An aviation machinist's mate is a petty officer who is a member of the non-flying or ground force in the aviation branch of the Navy and usually works as a member of the field crew maintaining aircraft engines in efficient operating condition. He inspects, tests, adjusts, makes repairs, and overhauls naval types of aircraft engines. Occasionally he is assigned as plane captain and is responsible for the materiel and operating condition of the engine and plane, and as such makes periodical checks and inspections. His training includes courses in shop tools and techniques, measurement instruments, shop mathematics, theory of flight, blueprint reading, various technical aspects of engine repair and operation maintenance work.

An AVIATION MACHINIST'S MATE, Second Class, is skilled in repair, maintenance, and overhaul of aircraft engines. In performing his duties, he reads and interprets aircraft installation drawings, and often uses common precision instruments. He

recognize symptoms of improper operation, and, except in more complicated cases, knows how to make the necessary repairs and adjustments. An AVIATION MACHINIST'S MATE, Second Class, works under moderate supervision of the grades of the rating.

DUTIES PERFORMED (Representative duties performed by AVIATION MACHINIST'S MATE, Second Class.)

A. Operational and Supervisory

Starts and runs aircraft engines until proper operating conditions are obtained and the engine is warmed up. (2) Disassembles, moves, secures, and otherwise handles planes in the hangar, on the ground, flight deck, and in the hangar. (3) Acts as mechanic, in charge of material and operating condition of plane and engine; sees that plane is clean. Makes periodic checks (30-, 60-, 90-hour). (4) Makes working sketches of parts to be machined. (5) Maintains logs (records) of aircraft in squadron, compiles data of aircraft and pilots for use in master log.

B. Maintenance and Repair

Makes minor repairs to fabric covered surfaces, such as wing L, X, and T tears by cutting of patches and sewing, and by baseball stitching. (2) Adjusts, repairs, replaces, and services brakes; such as replacing parts found defective in brake assembly, and adjusting brake disc. (3) Inspects, checks, and makes minor emergency repairs to the ignition system; such as adjusting cables and tightening connections. (4) Inspects and services aircraft hydraulic systems; such as repairing and replacing lines and actuating cylinders, checks accumulators, and

changes engine hydraulic pumps. (5) Recognizes and corrects power plant malfunctions, such as fouled plugs, loss of power, and faulty timing. (6) Corrects minor non-structural discrepancies indicated by flight reports, such as bent arresting hook and catapult fittings. (7) Adjusts throttle and mixture control; changes carburetor. (8) Changes engines and installs new ones which are set up on quick change stand. (9) Adjusts, makes repairs to, and tests shock absorber units. (10) Tears down, overhauls, reassembles, and reinstalls aircraft engines, their component parts, and accessories. (11) Removes, replaces, and rigs auxiliary control surfaces such as tabs, flaps, etc. (12) Cleans and washes down plane. (13) Lubricates all parts of the plane. (14) Changes, repairs, inflates, and checks pressure of tires and tubes. (15) Removes and replaces cowling, fairing, wing fillets, and inspection plates. (16) Removes, replaces, and inspects control sticks and torque tube; sees that all bonding wires are attached and bolts and nuts properly safetied. (17) Operates grinders, hand drills, and Do-all saws in making repairs to aircraft parts. (18) Maintains and repairs oxygen transfer equipment by oiling and cleaning operating parts and making minor adjustments such as tightening connections and inspecting for leaks. (19) Locates top dead center of piston travel on aircraft engine by using a timing disc, pointer, and top center indicator to set the engine in firing position. (20) Times magneto to aircraft engines using gages and timing lights. (21) Removes, inspects, replaces, lubricates and checks the track on propellers. (22) Removes, inspects, and installs component parts of aircraft engines such as cam and tappet assembly, cylinders, piston rings, pistons, etc. (23) Checks and reconditions valve seats. (24) Inspects and services fixed and portable fire fighting equipment. (25) Removes, checks, and replaces engine instruments. (26)

Removes, inspects and installs engine accessories such as carburetor, fuel pump, cartridge starter, etc. (27) Locates compression losses by sound, sight, instruments, and compression gages.

IV. BASIC KNOWLEDGE AND SKILLS

1. Has a complete knowledge of construction and operational principles of aircraft engines, component parts, and accessories.
2. Knows the properties of lubricating oils and systems of lubrication, such as gravity, pressure submerged gear casing, and alemite lubrication. Understands lubrication charts and is thoroughly familiar with lubrication points on aircraft.
3. Has a thorough knowledge of the safety precautions to be observed around aircraft.
4. Has a thorough knowledge of all pressure gages, thermometers, and other indicators, and is able to interpret the readings in terms of engine performance.
5. Has a thorough knowledge of logs and other records of aircraft operation.
6. Understands the piping systems throughout aircraft and can identify their color markings.
7. Has a working knowledge of aircraft structures and thoroughly understands aircraft nomenclature.
8. Has a basic understanding of shop mathematics and mechanics such as gear ratios and lever principles.

9. Understands the correct use of precision instruments and gages.
10. Has a working knowledge of aircraft blueprints, instruction manuals, and performance charts.
11. Has a general knowledge of Army and Navy (A-N) standard material codes.
12. Has ability to determine proper length, wrapping tension of safety wire.
13. Has ability to disassemble and reassemble mechanical parts of aircraft such as engine and landing gear.
14. Has ability to locate mechanical malfunctions by sound and instruments.
15. Has ability to recondition and adjust valves.
16. Has ability to remove, inspect and rig control surfaces of aircraft.
17. Understands engine performance charts such as "How-goesit" charts.

V. RELATED CIVILIAN OCCUPATIONS

An AVIATION MACHINIST'S MATE, Second Class, with the experience described above is qualified for various civilian occupations. Below are listed related fields of work with specific examples of suitable OCCUPATIONS.

An AVIATION MACHINIST'S MATE, Second Class, can utilize his knowledge and skill most effectively if employed in the air transportation industry. He is qualified without additional

training for many semi-skilled and specialized jobs in this industry, such as AIRCRAFT MECHANIC, AIRCRAFT-ENGINE MECHANIC, FUEL SYSTEM MAINTENANCE MAN and RECLAMATION MAN. With some additional experience, he can qualify for AIRCRAFT ENGINE MECHANIC or AIRCRAFT ENGINE INSTALLER.

If no opportunities for employment in the air transportation field are available, his skills and training can be utilized, to a lesser degree, in industries concerned with the fabrication, assembly, inspection, and maintenance of transportation vehicles and power plants, particularly those using internal combustion engines. With only a short period of orientation he can qualify for ASSEMBLYMAN or AIRCRAFT PLUMBER in the aircraft industry; for GENERAL ASSEMBLER, SUBASSEMBLER, MOTOR ADJUSTER, CARBURETOR INSPECTOR, TRANSMISSION TESTER, BRAKE ADJUSTER, SPEEDOMETER REPAIRMAN, FUEL PUMP REPAIRMAN, and AUTOMOBILE MECHANIC in the automobile industry; for TRACTOR MECHANIC in the construction industry; and for MARINE-GAS-ENGINE REPAIRMAN in the ship and boat building industry.

The knowledge and skills of an AVIATION MACHINIST'S MATE, Second Class, are basic to jobs in a great variety of more distantly related industries. With additional training he can learn the work of a MILLWRIGHT, REFRIGERATOR REPAIRMAN, GRINDER OPERATOR, MACHINE TOOL OPERATOR, MACHINE TOOL INSPECTOR, MAINTENANCE MECHANIC and INSTRUMENT REPAIRMAN. He can also be considered for sales jobs in mechanical industries.