

552nd COMMODITIES MAINTENANCE SQUADRON

MISSION

The 552nd Commodities Maintenance Squadron is distributed throughout seven facilities and is the designated Technology Repair Center (TRC) for fuel accessories. The 552nd Commodities Maintenance Squadron repairs/overhauls more than 12,000 fuel controls and accessory end items annually. Some of the fuel accessories repaired include flight control servos, fuel manifolds, horizontal stabilizer actuators, pumps, valves, exciters, quadrants, filters, and engine gearbox mechanisms.

The 552nd Commodities Maintenance Squadron provides overhaul/repair capabilities for Constant Speed Drive units (CSD) for virtually every Air Force Mission Design Series (MDS). All testing is performed using new computerized test equipment. In 2003 the CSD facility underwent a \$6M transformation resulting in an increase in production and reduction in the average turnaround time. Our aerospace local manufacture capability is extensive. We provide support to all aircraft and engine lines, tool cribs, recurring annual AF requirements, tenant organizations, as well as the Plant Management organization.

The 552nd Commodities Maintenance Squadron produces over 4200 units annually in support of various weapon systems.

The 552nd Commodities Maintenance Squadron also has the capability to repair, inspect and repack life support equipment (man life rafts, evacuation slides, life preserves, cold weather units, and survival kits). Many diverse but critical requirements for Air Force weapon systems, including parachutes, fuel cell bladders, and various textile applications are also supported.

The 552nd Commodities Maintenance Squadron provides expertise in repair of fuel and wing cell bladders, and in manufacturing insulation sound panels for aircraft, engine covers, Kevlar curtains, slings, lifting devices and other unique items is also a specialty.

The 552nd Commodities Maintenance Squadron Local Manufacturing has a tremendous capability in machining capability. We have four huge shops that have a variety of capability as well as capacity.

The General Machine Shop manufactures and repairs a wide variety of aircraft, engine, and accessory parts. Cutting Tools are manufactured and repaired in this shop. This is accomplished through the use of one to four axis conventional and Computerized Numerical Control (CNC) lathes, drills, milling centers as well as conventional and up to 8 axis CNC Grinding Machines. The Grinding Machines are enclosed in a building within the building that is temperature and humidity control for very close tolerance work. CNC machinists program the part (create the computerized tool paths using virtual Gibbs software), make the set up and machine the part. The CNC Shop has a wide variety of 3, 4, and 5 axis Turning and Machining Centers as well as a CNC Laser Cutting Machine and a CNC Machine for part marking. This shop primarily manufactures aircraft structural parts for KC-135 Tanker, E-3/AWACS, B-52 Bomber, B-1 Bomber, and Navy E-6. Due to the complexity of parts manufactured, Design Engineers and Engineering Technicians are employed in this shop to create the modeling and machine tool path programs that are required for the 4 and 5 axis machining centers.

The Tool and Die Shop provides a wide variety of support to all industrial facilities of OC-ALC. This includes machinist provided support on the aircraft, design and manufacture of tooling and fixturing required for engine, accessory and aircraft shops as well as manufacturing and repairing aircraft, engine, accessory, and industrial plant equipment.

The Measurement Shop/Lab is enclosed in a building within the building that is temperature and humidity controlled. It has a variety of conventional and CNC measuring machines that support all of our manufacture and repair shops.

The 552nd Commodities Maintenance Squadron fulfills the weapon systems need for an infinite number of mechanical cable/harnesses, hoses and tubes that must be manufactured from either sample or from prints. The professional personnel of the 552nd Commodities Maintenance Squadron brings skills, talent and experience that are rarely found to support the warfighter by maintaining proper operation of their weapon systems. Support is provided to all Air Craft lines, tool cribs, MISTR, MAD, and engines. Provide manufacture on a monthly basis for about 100 hoses, approximately 300 cables, and approximately 350 tubes.

The 552nd Commodities Maintenance Squadron is functionally involved in the local manufacturing of all hoses, tubes and mechanical cables and harnesses that support B-1, B-52, E-3, E-6 and KC-135 weapon systems. Examples of the types equipment manufactured are:

The 552nd Commodities Maintenance Squadron is functionally involved in the local manufacturing of all electrical cables and harnesses that support B-1, B-52, E-3, E-6 and KC-135 weapon systems. The different electrical cables and harnesses presently manufactured in this facility are:

The 552nd Commodities Maintenance Squadron has been designated as the ONLY Air Force Technology Repair Center (TRC) for fuel accessories. Our facility is 11K square feet of production space and includes two 300K Class clean room and cleaning areas. Our highly trained and skilled technicians produce 200K hours of product yearly. Original Equipment Manufacturers (OEM) supported are GE, Woodward, Bendix, Honeywell, Hamilton Sundstrand, Lucas, Pratt & Whitney and Hamilton Standard.

The 552nd Commodities Maintenance Squadron has been designated as the Air Force Technology Repair Center (TRC) for fuel accessories. The Fuel Control and Accessory (C&A) overhaul, repair and test facility produces approximately 350 units a week. We have mechanics trained to work approximately 400 different components. Most testing is dedicated to the calibration and checkout of overhauled depot items.

The 552nd Commodities Maintenance Squadron supports almost every major weapon system in the US Air Force. This support is accomplished by overhauling and testing 400 various fuel control and accessory components.

Some items we overhaul and test are: flight control servos, fuel manifolds, horizontal stabilizer actuators, fuel boost pumps, main engine fuel pumps, fuel float valves, engine excitors, throttle quadrants, bleed valves, thrust control actuators, fuel filters, oil filters, scavenge pumps, transfer pumps, temperature sensors, cooling fans, generators, stators, shut off valves, oil pumps, sensors, engine actuators, depressurization valves, engine gearbox components. We also overhaul select components in support of the US Army, US Navy, and Foreign Military Sales.

We also have a shop that supports various US Air Force and US Navy aircraft by overhauling and charging their main aircraft batteries.

The constant speed drives (CSD) shop is a unique facility in the Air Force. The 552nd Commodities Maintenance Squadron provides overhaul/repair capability for nearly ever Air Force MDS. The CSD connects to the output shaft on an engine supplying constant power output, regardless of the engine speed, to the aircraft electrical system. Testing is performed for conditional, diagnostics, and acceptance conditions that are critical to flight safety. Numerous weapon systems are supported by this equipment, including the A-10, B-1, B-52, R/KC-135, C-141, C-5, E-3A, F-4, F-14, F-15, and F-16. The readiness of these systems is directly affected by the organization's ability to meet production, test and maintenance schedules in conjunction with customer demands. Current production is 2500 units per year. CSD repair/test utilizes approximately 50,000 square feet out of a 70,000 square foot facility built in 1974. Outdated analog controls and instrumentation were replaced with new computerized controls. The \$1.5M expenditure resulted in better reliability, maintainability, and accuracy during testing. From 2003-2004 the building underwent a \$6.6M transformation. To increase production it was necessary to improve flow, reduce flow time, increase availability of critical skills and upgrade, modify or purchase new equipment to eliminate existing production

constraints. The facility now has three lean CSD cells within the building under one supervisor who has control over the entire process.

The 552nd Commodities Maintenance Squadron Wheel and Tire facility is a unique Air Force facility that provides tenant support for E-3, E-6, B-1, B-52 and KC-135 weapon systems. Annual requirements generated exceed 1,400 units (1,141 main landing wheels and 320 nose landing wheels). Co-located with the wheel and tire repair, the gearbox and transmission repair area produces approximately 600 units per year. Items repaired include gear box assemblies, mechanical transmissions and actuators, electro-mechanical actuators, and torque limiters.

LINEAGE

552nd Commodities Maintenance Squadron

STATIONS

Tinker AFB, OK

ASSIGNMENTS

COMMANDERS

HONORS

Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations

EMBLEM

MOTTO

NICKNAME

OPERATIONS

Air Force Lineage and Honors

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Sources

Air Force Historical Research Agency. U.S. Air Force. Maxwell AFB, AL.