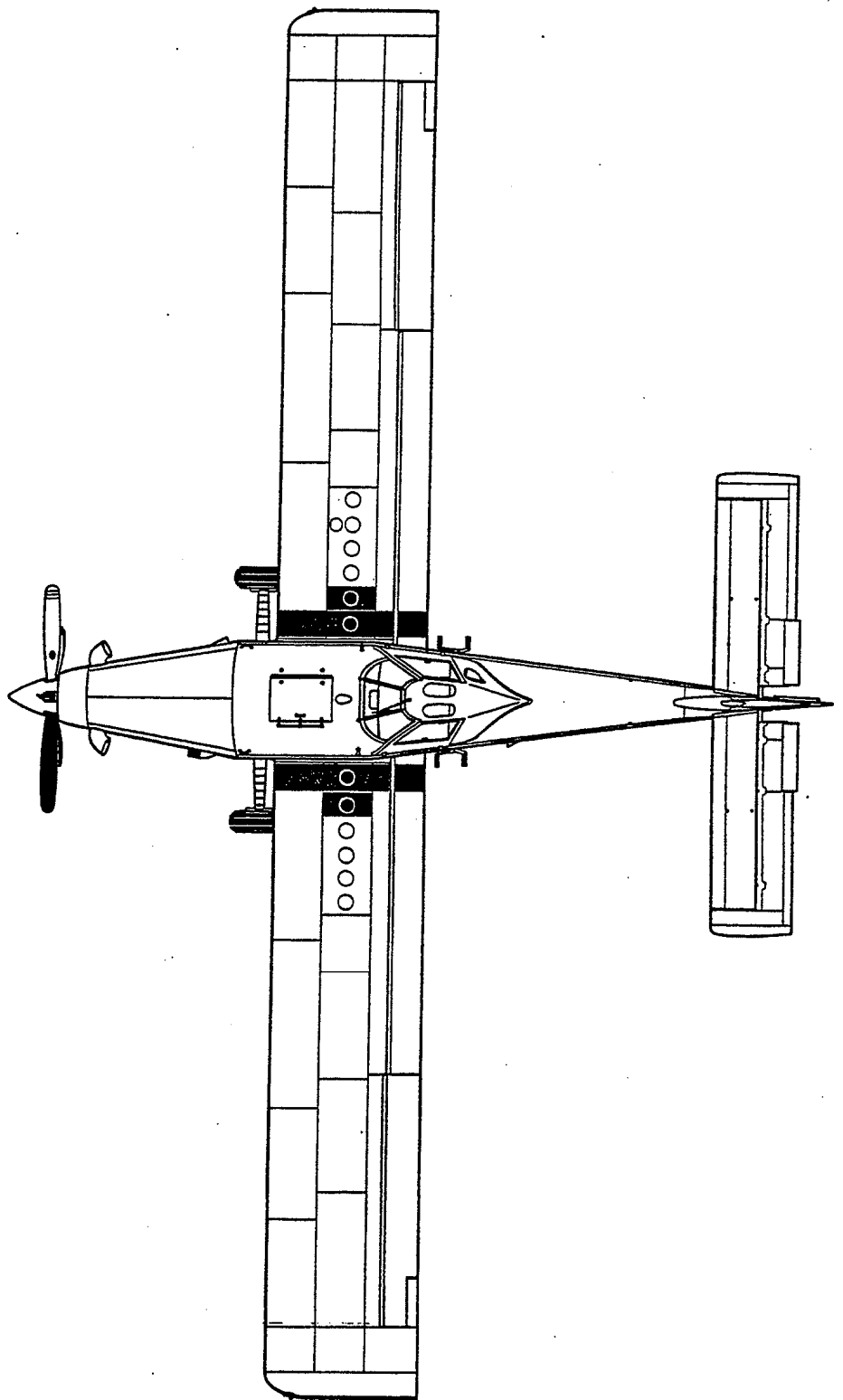
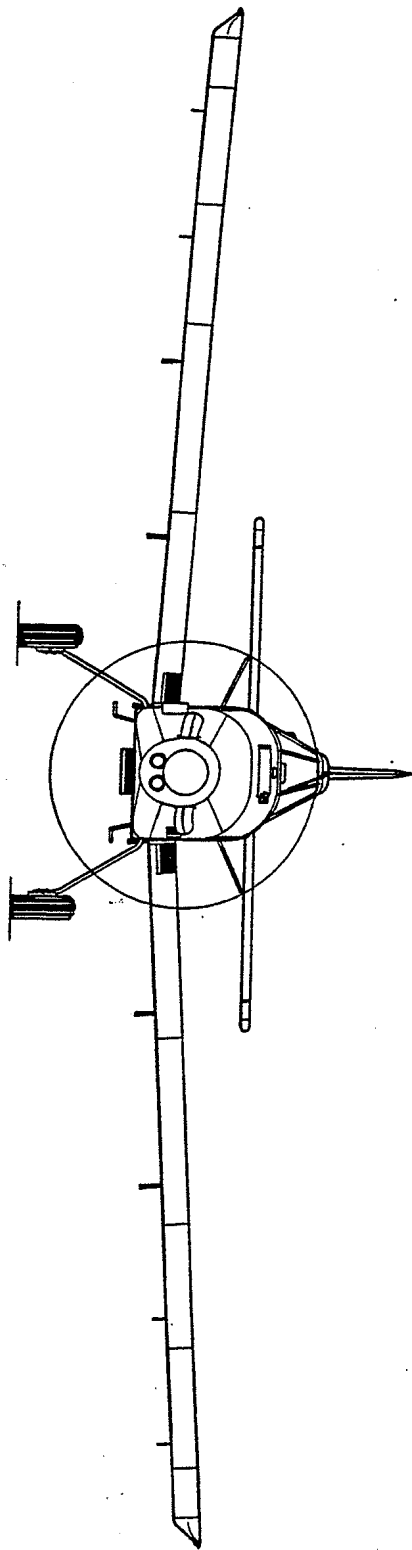


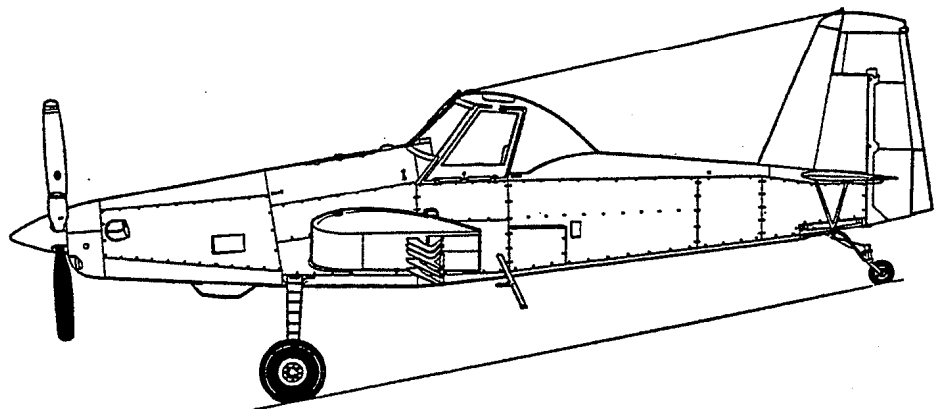
**OWNERS MANUAL
10017-OM**

AIR TRACTOR MODEL AT-602

**AGRICULTURAL AND FIRE-FIGHTING
AIRPLANE**



**AIR TRACTOR
MODEL AT-602**



GENERAL

The Air Tractor AT-602 is an all-metal cantilever low-wing monoplane designed especially for agricultural or fire fighting operations. It is powered by a Pratt & Whitney PT6A turboprop engine which are highly suited for this type of flying. The standard engine is the PT6A-60 AG or PT6A-45R which are rated at 1050 SHP. Alternate engines are from the PT6A-65 series which are flat rated at 1050 SHP.

The propeller is a Hartzell five-blade 111-inch diameter constant speed prop with reversing capabilities. The hopper is made of fiberglass and has a 630 gallon (U.S.) capacity. The horizontal stabilizer is all metal and strut-braced for added rigidity. The vertical fin is cantilevered. The elevators and rudder are of all-metal construction and sealed to prevent chemical entry. The fuselage features removable skin panels for ease of maintenance and cleaning. High-lift flaps are interconnected to the ailerons to provide short take-off and landing distances.

Certification Basis

The AT-602 is structurally certified to meet the requirements of FAR 23. The engine installation along with the systems and equipment meet FAR 23 requirements except in cases where inappropriate for agricultural operations. In these cases placards are installed on the instrument panel which prohibit flying under those special conditions. The AT-602 is certificated by the FAA for a takeoff gross weight of 12,500 pounds and a landing weight of 12,000 pounds.

Certification basis is FAR 23 with certain sections excepted as inappropriate for the special-purpose use of agricultural and forest and wildlife conservation.

Instructions for Continued Airworthiness (ICA's)

Maintain the airplane in accordance with the following manuals and documents:

LIST OF MANUALS AND DOCUMENTS

“Owner’s Manual- Air Tractor Model AT-602 Agricultural and Fire-Fighting Airplane”
Manual 10017-OM

Air Tractor Inc.
Municipal Airport
P.O. Box 485
Olney, Texas 76374 U.S.A.

FUEL SYSTEM

Standard aircraft have two fuel tanks with a capacity of 108 U.S. gallons each. Both tanks gravity feed into a header tank which is located behind the chemical hopper and below the rear spar attach tube. The header tank holds 2 gallons for a total capacity of 218 gallons, of which 212 gallons are usable. The optional fuel capacity is 234 gallons, of which 230 gallons are usable. An additional option is for 290 gallons of fuel capacity.

The fuel valve handle is located within easy reach of the pilot and is marked MAIN and OFF. There can be no tank selection since both tanks are interconnected. The fuel valve is placarded in GALLONS USABLE. This is due to the fact that the fuel tank sender does not allow the last 2 gallons to be gauged. The fuel gauge receiver, which is located on the instrument panel, is marked in fractions of usable fuel.

Finger strainers of coarse wire mesh are located in each fuel tank. Fuel flow from the wing tanks into the header tank. From the header tank, fuel flows to the electric boost pump, through the fuel valve and to the airplane firewall. A fuel line is connected from the firewall to a large fuel filter. A vacuum pressure switch is connected to the outlet side of the fuel filter. If the fuel filter becomes clogged, this switch will close and illuminate the "FUEL FILTER" warning light in the cockpit.

The fuel lines continue from the fire-wall mounted fuel filter to the airframe pump, which is mounted on the engine drive pad. This pump is an Air Tractor p/n 51076-1, set for CCW rotation.

The fuel lines continue from the airframe pump to the fuel heater body. Lines from that point on are furnished with the engine.

There are four quick drains in the fuel system: one in each wing tank, one in the header tank and one in the fuel valve.

Each fuel tank has an overboard vent located near the wing tip. With both tanks completely full, it is possible during flight to vent a small amount of fuel overboard by skidding the aircraft or rolling sharply.

Fuel type is called out in the Flight Manual. Fuel System Icing Inhibitor (FSII) such as Prist should be added to the fuel at a rate to provide .06% to .15% of FSII by volume when operating below 40° F. See Figure 12 for details of the fuel system.

Low Fuel Warning Light System

This aircraft incorporates a low fuel warning system that consists of two float switches, one in each tank, connected to a red warning light. Either float switch can activate the light independent of the other. The floats are positioned so that the light is activated with approximately 22 gallons usable quantity remaining, if the aircraft is in level coordinated flight. Uncoordinated flight or flying all the turns in one direction, such as a racetrack pattern, may result in fewer than 22 gallons usable at the time of a warning light. The fuel gauges are the primary instruments for fuel management, and the pilot should not use the warning light system as a means of determining the quantity of fuel remaining.

Boom Pressure Gauge

The boom-pressure gauge is a Bourdon-tube-driven instrument that indicates actual gauge pressure in the spray booms. The pressure is taken from a tap in the center boom section.

Airspeed Indicator

The airspeed indicator is an aneroid-driven instrument that displays the indicated airspeed of the airplane. The instrument contains two aneroid bellows that are used to compare the total pressure at the pitot tube with the static pressure at the airplane's static ports. The result of this comparison yields the pure dynamic pressure obtained by subtracting the static pressure from total pressure. This dynamic pressure is used to drive the hand on the face of the dial with divisions shown in miles per hour or knots.

Compass

The magnetic compass is a direct-reading instrument that senses the azimuth difference in airplane heading and bearing to magnetic North. This difference is displayed at the compass's lubber line as magnetic heading.

The compass is swung at the factory and a card is attached that shows the compass error at cardinal headings. The compass deviation is measured with radios and lights OFF.

Fuel Gauges

The fuel gauges indicate the fuel quantity in each wing tank. The AT-602 features dual gauges that constantly monitor the fuel quantity in each tank without switching. The gauges do not display total fuel quantity.

The fuel gauge is a micro-Ammeter that displays Amperage signals from potentiometers that are attached to float arms in the fuel tanks. The face of the gauge is calibrated in divisions that show fuel quantity in fractions of the FULL reading.

ITT Gauge

The ITT gauge shows the temperature of engine gases between the gas-producer turbine and the power turbine. The gauge is independently power electrically by a series of thermocouples imbedded in the engine case. The display is calibrated to show temperature in degrees Centigrade.

Gas Generator Tachometer

The gas-generator tachometer shows the rotational speed of the gas-generator (Ng) in terms of percentage of its rated speed. The gauge receives its electrical signal from the gas-generator tachometer generator located on the case of the engine.

Fuel Gauging

The wiring schematic for the fuel gauging system is shown in Figure 18. Dual gauges constantly monitor fuel quantity in each tank.

Each of the fuel tanks has two fuel-quantity sending elements. These two sending elements are connected in series electrically. The inboard sending element is active in sensing fuel level when the fuel level is in the lower third of the tank.

The outboard sending element is active when the fuel level is in the upper third of the tank. Both the elements are active when the fuel level is in the mid-range.

The panel-mounted fuel gauge is a micro-ammeter with a full-scale range of 100 micro-amps. A circuit board known as the receiver is attached to the binding posts of the instrument. Circuitry on this board provides a 4.3-volt power supply for the fuel-gauging system. This board also has a trimmer-potentiometer. This trimmer is used to calibrate the full-scale readings on the micro-ammeter.

The inboard sender is insulated from ground by the ten insulating bushings that are used on both sides of the five holes in its flange. The outboard sender is grounded through its mounting bolts.

Wing Flaps

The wiring schematic for the wing flaps is shown in Figure 18. Power to drive the flaps up and down is provided by two relays, with one relay for each direction of travel. Each of the UP or DOWN relays is actuated by placing the cockpit flap switch in the appropriate location. The wiring from the flap switch to the relays is routed through the micro-switches that serve as limit switches for the full UP and full DOWN positions.

Stall-Warning Horn

The wiring schematic for the stall-warning horn is shown in Figure 18. The horn is connected in series with the lift-detector switch that is located near the leading edge, at mid-span of the left-hand wing. The lift-detector switch is controlled by a tab that projects forward into the prevailing airstream. When at rest, the weight of the tab holds it down, opening the switch. When the airflow around the lift detector shifts to a forward direction, the tab is lifted, closing the switch and causing the horn to sound.

Windshield Washer

The wiring schematic for the windshield washer is shown in Figure 29. When the switch is closed, the pump's motor starts and the solenoid valve is open. The flow of windshield-washing fluid will continue until the switch is released. The purpose of the solenoid is to provide a sharp cut-off of fluid when the switch is released. This prevents the dribbling of fluid onto the windshield.