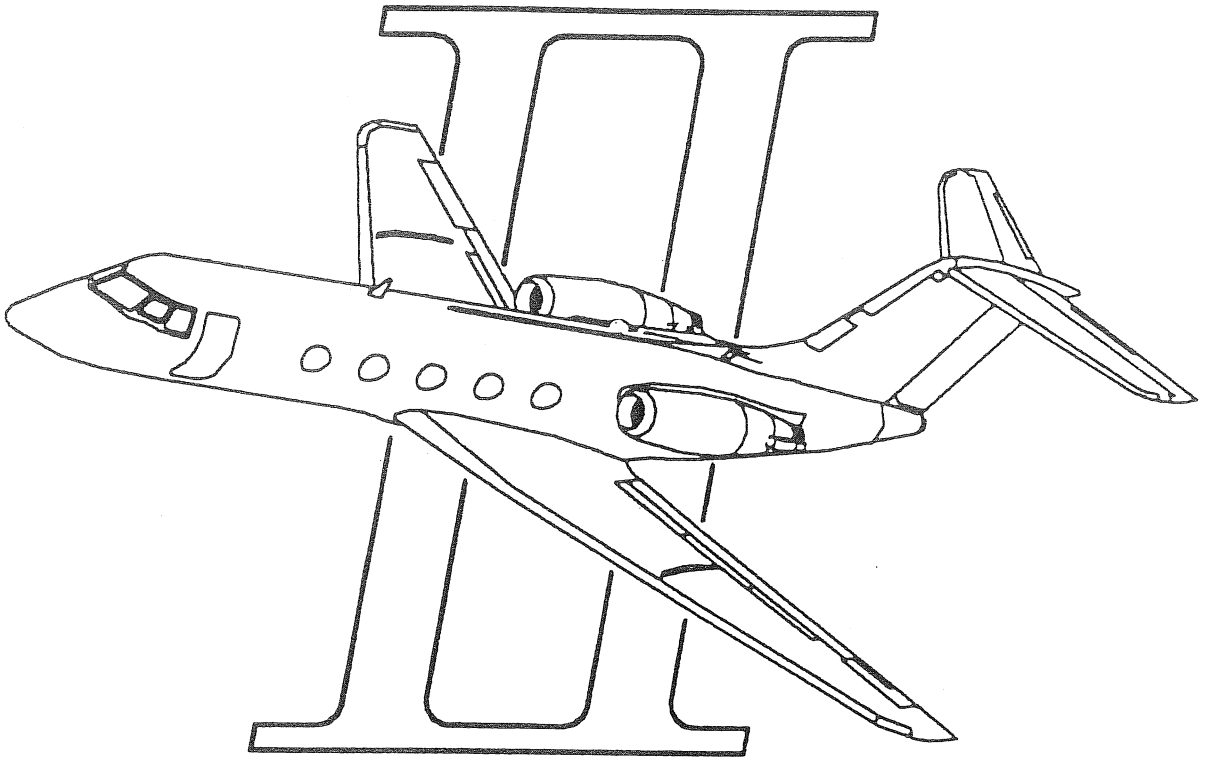
GULFSTREAM II

MAINTENANCE MANUAL

GULFSTREAM



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5. Cleaning of Contaminated Fuel Tanks

NOTE: Past experience with Gulfstream I aircraft indicates that some Gulfstream II aircraft will experience integral fuel tank contamination of microorganism type. This contamination promotes a breakdown of fuel tank protective coating and initiates a corrosive reaction with exposed aluminum in the presence of water, salts and rust. Certain chemicals retained in the fuel after refinement will also contribute to the overall condition.

These contaminants are generally found in a combined state in storage tank bottoms where they can easily be injected into an aircraft fuel cell. Poor fuel farm management, improper handling and inadequate filtering can increase the probability of aircraft contamination.

While microbial contaminants do not create a problem by themselves, they will, thrive and propagate at fuel / water interface. They become firmly rooted to the structure and hold the accompanying contaminants in place. By-products of metabolism with iron rust from the storage tanks establish a galvanic cell and the aluminum acts as the corroding anode.

Effort is being expended towards improved protective coating systems and biocidal additives, the best way of combating this particular problem is to maintain and provide clean, dry fuel.

The protective coating presently in the Gulfstream II fuel cell will prevent corrosion if contamination is introduced into the system. However, unless prompt action is taken to flush the contaminants from system, they will adhere and start the corrosive cycle.

To control microbial contamination in fuel tanks, the following steps should be followed:

1. Fuel only with clean fuel (water and salt-free).
2. Use water drains regularly.
3. Inspect every three months and clean if necessary.
4. Anti-microbial additive Methyl Cellosolve may be used to maintain fuel sterilization if mixed to a concentration of 0.15 percent by volume.

If microbial contamination is detected at a time when it is not convenient to clean the tank, Methyl Cellosolve may be added to a concentration of 0.25 percent by volume to kill the existing growth. This solution must be drained prior to engine operation or it may be diluted to a concentration of 0.15 percent by volume and burned off in the engine. See the Aircraft Flight Manual for detailed instructions.

✳ 5. Biobor JF anti-microbial additive may be used in accordance with the following schedule:
   (a) Initial treatment to kill — 270 PPM maximum (4 ounces per 1000 pounds of fuel).
   (b) Continuous treatment for sterilization maintenance — 135 PPM maximum (2 ounces per 1000 pounds of fuel). It is recommended this concentration be achieved by premixing in storage and not by direct addition to aircraft tanks.

      NOTE: The engine low pressure fuel filter must be changed at time of initial preventive treatment with Biobor JF and again after 50 flight hours with further samples at 300-hour intervals to reestablish filter life. If it becomes necessary to again manually clean the aircraft fuel tanks, filters should be changed immediately, then again after 50 hours to ensure no debris is present.

Every effort should be made to clean and rinse each inch and corner of the tanks as described in this procedure. A conscientious determination to do a thorough job is the only way of ensuring a corrosion-free tank. Bososcopes may be needed to see into hidden area and long-handled brushes are needed to facilitate cleaning:

A. Special Equipment and Material
   (1) Supplementary pump assembly as follows:
      (a) Any suitable pump having an inlet port which can be adapted to receive a 1 inch hose connection.
      (b) One 10 foot length of flexible hose having a MS28740-16 type end fitting at one end and a pump adapter fitting at the other end.
      (c) One 40 foot length of pump discharge hose having one adapter to the selected pump and the other end open for directing the discharge into the wing.