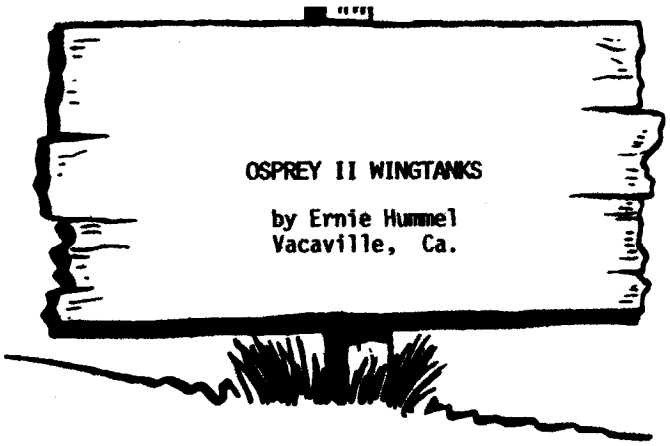

OSPREY II WINGTANKS

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An alternative fuel system for the Osprey II provides for two 13.5 gallon wing tanks in lieu of the single fuselage tank. The tanks and installation were designed by George Pereira. An information sheet may be obtained from Derrick Industries,1565 N. Broadway, #12, Stockton, CA 95205, Tel. 209-462-7381. This company also produces the tanks, complete with fittings and ready for installation. Drawings showing tank installation and connections are shipped with the tanks. The tanks are light, made from a female mold and of high quality.

The wing tanks installation,when made during the wing and fuselage construction, does not require much additional time. However, if the wing and fuselage have been completed except for covering of the wing, the process requires a little more time. If the plywood covering on the center section and wing leading edge have not been glued on, the fuel lines may be routed thru the main spar and to the cockpit on the forward side of the spar.

In the case of N50733,built from plans No. 105, after the fuselage tank was already made and installed, it was decided to convert to the wing tanks in order to save weight and to provide additional baggage space. The fuselage tank was then sawed out, and since the wings were complete except for fabric covering, it was necessary to remove one rib in each wing panel. After the wing tanks were glued into place between the wing spars, new battens and cap strips were glued in the former rib position over the top and bottom of the tanks so that the fabric would be supported in the same rib spacing as before.

Filler necks from Ford fuel tanks were located in an auto dismantling yard. These were cut off and fiberglassed into the tops of the tanks leaving space for caps. A wood collar was glued into position around the filler neck flush with the plywood on the top of the wing. New tank caps were obtained from a Ford dealer. The top plate and handle were removed from the caps and a flat,circular plate with two actuating key holes riveted in place.

The 3/8" Al outflow line from the tank was connected and the tubing routed thru the wheel wells to the cockpit, with a disconnect fitting at the wing attach position. The 1/4" tank vent lines were routed from the high corner of each tank to the respective wing tip. For simplification, sight gauges instead of mechanical or electric indicating systems were installed. The 1/4" indicating gauge lines were routed adjacent to the supply lines, and with disconnect fittings at the wing attach position.

The location in the cockpit for the tank selector valve and sight gauges is of considerable importance. The gauges should be readily visible without much neck craning, also the selector valve should be operable from the normal pilot position in the seat. If twisting in the seat is required to switch tanks in flight, the sensitivity of the Osprey II ailerons and elevators at cruising speed will, in spite of conscious efforts to prevent it, result in ample deviations from straight and level flight. This can be amusing or disconcerting to your formation flight mates depending on how close the formation at the time.

In the event sight gauges are installed for fuel quantity indication, it may be necessary to place restrictor orifices in the lines to damp out surges produced by the aircraft movement when taxiing or during flight thru turbulence.

The fuel selector valve installed on the subject aircraft is a three way type. The positions are labeled LEFT, RIGHT and OFF.

The moment arms of the tanks with fuel can produce wing heaviness if the levels of fuel are not kept within about five gallons of each other, however, the changeover from one tank to the other can be easily made without resort to the fuel boost pump.

After the fuselage tank was removed and the pieces welded it was found that the two wing tanks combined actually weighed 4 lbs. less, not counting the weight of all the sawdust from the cutting operation. If the aluminum lines and fittings are weighed, it is likely that a 3 to 5 lb. weight saving would still be realized.

In addition to the small weight saving and the gain of useful baggage space, there are a couple of other pluses. The landing gear walking beam and attached arms become readily accessible, as do the various connections running between the console and the engine. It can also be argued that safety is enhanced by relocating the fuel tanks out in the wings from the fuselage site.

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