
26. Wing lift/drag pins & flap drive pin installation

The wing lift pins, which locate in sockets mounted to the fuselage sides, can now be installed. There are two pins in each wing to transfer lift to the fuselage; one at the leading edge and one, which doubles to take drag loads, is at the trailing edge. To drive the flaps a similar pin is installed in each flap's root.

The holes for the wing pins are already drilled and tapped but the flaps need this operation doing.

Flap pins

To enable correct alignment of the flap pin FL22 the flap should be attached to the wing and held in the retracted position.

Mark the centre for the flap pin in the flap's root close-out rib according to figure 1.

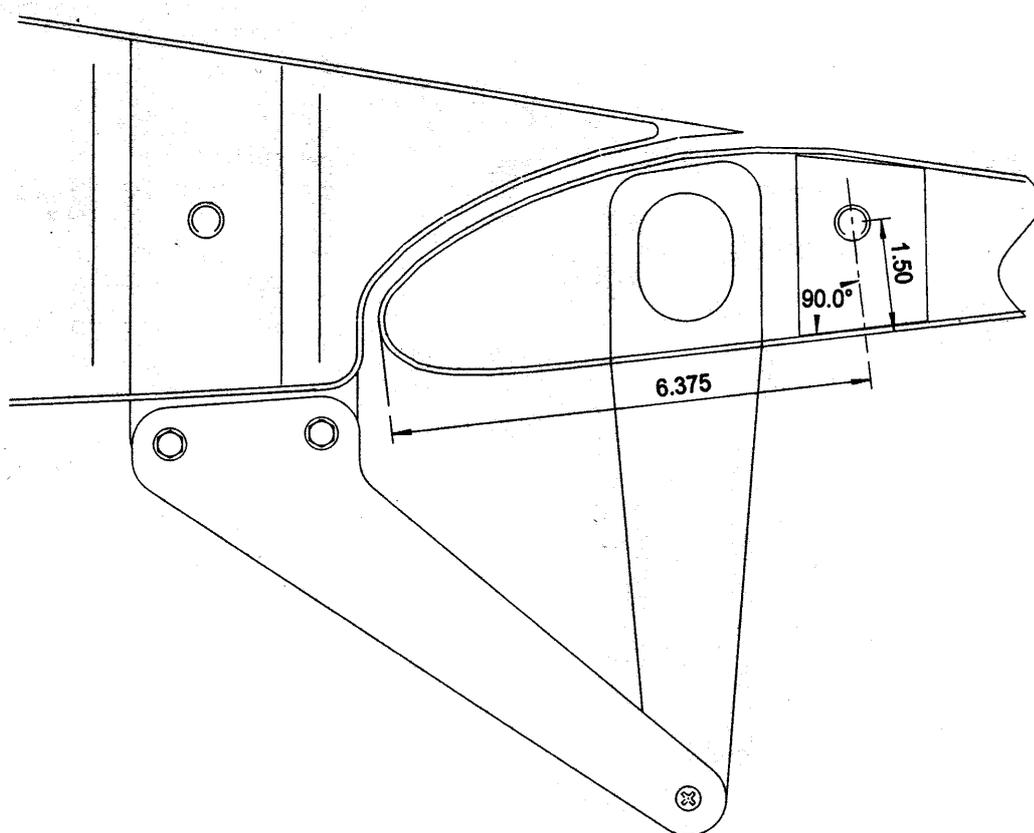


Fig 1. Hole centre for flap drive pin.



Take your time and be sure to double check your hole positions. The position of the drive pin is important, but even more important is that both flaps are drilled the same.

Note: The flap pin is not in the centre of its plates (see figure 1).

Before you drill, though, some guidance is required to help you maintain the correct alignment during the drilling process. It is important that the pins emerge from the flap root horizontal to the aircraft and parallel to the spar otherwise rigging/de-rigging will be impossible, or at the very least difficult and cause unnecessary wear.

Referring to figure 2, mark a line between the centres of the two bushes in rear face of the spar. This will provide reference to maintain alignment in the vertical plane.

Now mark a line on the flap upper surface parallel to the spar and using tape, fix in place a straight edge aligned with it.

The straight edge should overhang the root so that it provides a good reference to maintain alignment in the horizontal plane.

The drill operator will be able to look down to maintain horizontal alignment but it would be useful to have an observer positioned level with the spar, sighting the drill bit against the line on the spar and giving “up” or “down” commands to the person on the drill. Don’t sight against the drill casing as it may not be parallel with the drill bit.

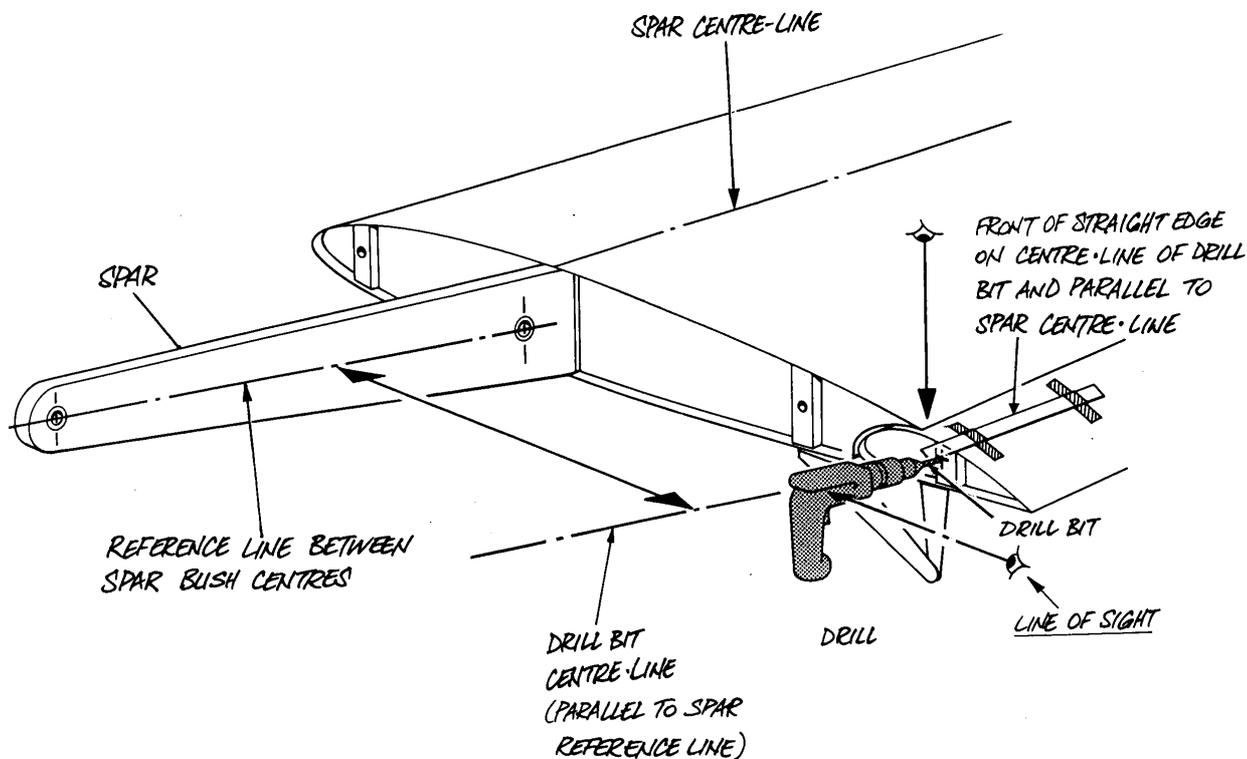


Fig 2. Drill alignment reference method.



Drill and tap the plates on the marked centre, maintaining vertical and horizontal alignment, as described below.

Drilling and tapping

The final drill size for tapping is 10.2 mm, however, it's not practical to drill this size in one go. Initially use a drill of no more than 6 mm (1/4") then drill again with the tapping drill.

Drill right through the plates into the foam core but **don't** use a cutting fluid or oil as the pins are to be bonded in.

Avoid building up too much heat otherwise softening of the resin will occur. Alternate between flaps allowing time for each hole to cool before recommencing drilling. Using a sharp drill will keep the amount of heat build up to a minimum. Keeping the drilling speed down will also help.

Having drilled the holes, tap them with a 12 mm x 1.75 coarse thread tap.

Using taps

Tap sets are normally supplied with three taps, sometimes only two. Each tap is slightly different to enable the thread to be cut in stages. The first tap to be used will be markedly tapered to ease starting and will only partially cut the thread. The last, or finishing tap will only have a short lead-in taper and will cut the fully formed thread.

With the tap held in a tap wrench, which is located on the square end of the tap and enables the tap to be turned easily, hold the tap in the hole with a moderate force. Maintaining the force, rotate the tap in a clockwise direction by hand, keeping it as square as possible to the hole. It may take a few turns, keeping the force against the hole all the time, to start the thread. When you feel the tap 'biting' you can relax the force on it as it will pull itself in as you continue to turn. After the tap is able to pull itself into the hole, every half turn or so rotate the tap anti-clockwise to break the swarf (the metal that has been cut) and so reduce the likelihood of the tap jamming. Having screwed the tap in fully, remove it and screw in the next taps to finish.

Pin installation

The pins may now be permanently installed at this point. The leading edge and flap pins (W25 & FL22) are straight forward in that they are simply screwed in as far as their threads allow, but the trailing edge pins (W24) must be aligned so that the pip pin holes are vertical.

Ensuring that everything is clean, apply a small quantity of Araldite 420 on both the thread of the pin and that of the hole then screw the pins in until they reach the end of their threads. Unscrew the wing trailing edge pins the minimum amount so that the pip pin holes are vertical and the pip pin is able to enter both W24 pin and W26 socket assembly (See chapter 27), then allow to cure undisturbed.



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