



Growing wings : (1) the Hampden main spar in a horizontal drilling jig ; (2) the spar in the assembly jig, where it forms the basis of the whole centre-section ; (3) an outer wing having covering finished and ailerons attached ; (4) assembling centre and outer wing portions before dismantling them for transport to Radlett ; (5) installing leads and engine controls on front wall of spar box ; (6) assembling trailing-edge portions in their jigs ; (7) the engine installation jigs also have provision for assembling the undercarriage fully extended.

The middle portion of the fuselage is, as already mentioned, built in two halves, a port and a starboard. In the front part of this fuselage section the longerons are channel sections with a flat covering strip on the inside. In the rear part, however, the longerons are plain open channels, with the open side facing downwards. The main frames are of built-up box-section of light gauge, while the intermediate frames are of Z-section. The wing fairings of the centre-section are built integral with the centre portion of the fuselage. The skeleton of each half is assembled on trestles horizontally, and the riveting is done on very simple wooden jigs. When removed from the jigs these frameworks are, of course, very flexible, but when they are in place on the metal jigs in which the skin covering is applied they are held rigid and prevented from distorting. These large jigs each hold two fuselage halves, one port and one starboard.

#### Installing Equipment

Probably due largely to the fact that the wing root fairings are built integral with the fuselage halves, these are fairly stiff when they leave the jigs in which the "skinning" is done. Consequently, they deform but little when being removed from the main jig to be transferred to the light wooden jigs on which they rest while such items as wiring, piping and equipment are being installed.

It is here that, in following the process through at the Cricklewood works, one first begins to appreciate the cleverness of the type of production adopted for the Hampden. While a very few jigs serve for keeping pace with the skinning operation, many more may be needed for the installation of equipment. These simple wooden jigs, actually little more than slightly elaborated trestles, can readily be duplicated at very low cost, so that the installation of equipment can never form the "bottleneck" which it is likely to form with more orthodox methods of production.

Naturally, not all of the equipment can be installed while the central fuselage portion is in two halves. A certain amount, and such items as floors, etc., must necessarily be carried on transverse structure members. However, the percentage of equipment which has to wait until the two fuselage halves are joined together is relatively small.