taken from the rear crankshaft gear to the smaller gear wheel located with the phosphor-bronze clutch pads which in turn are housed in the fan driving gear. The smaller gear wheel is free on a sleeve which is supported on a spindle by ball and roller bearings. The action of centrifugal force causes the pads to press tightly against their seating and transmit the drive to the fan driving gear.

The Auxiliary Drives.—The auxiliary drive case incorporates gears for driving the gear (at the rear), the gas starter (at the top), the circulation pump which supplies the gears with lubricant (on the port side), the tachometer drive (which can be fitted either on the port or starboard side), an auxiliary oil pump for supplying oil to the supercharger rear bearing (on supercharged models only) (on the port side), and a petrol pump (on the starboard side). In some cases the petrol pump is replaced by the tachometer drive and the supercharger pump drive by the tachometer, while in other cases the gears not required are blanked off with aluminium plates.

The magnetos are held by studs and nuts to flanges incorporated with the rear cover, their shafts being driven by bevel gears through the medium of spring drives. The housing of each spring drive is located by a set screw and shims are provided to ensure the correct backlash in the drive.

The Oil Pumps.—The oil pressure and scavenge pumps fit on to the front cover, and are composed of three aluminium castings which form the housing for the pump gears and the oil filter. Steel distance plates, which support the gears and gear shafts, are located on either side of the central casting.

The driving shaft is carried on a phosphor-bronze bush pressed into that part of the pump which is attached to the front cover. Keyed to it are three aluminium gear wheels. This part of the case also accommodates one of the three driven gears, and one end of the driven shaft on which the three driven gears run free.

A steel distance plate separates the pressure pump from one of the scavenge pumps which is housed in the centre portion, the driving and driven shafts each carrying an aluminium gear wheel, the former keyed, the latter free on the shafts. This scavenge pump's housing is completed by a steel distance piece.

The third portion of the pump housing contains a second scavenge pump, the arrangement of gear wheels and shafts being similar to that already described. Bolts and studs in this portion of the pump pass through the centre and top parts, and their nuts lock the three pieces together.

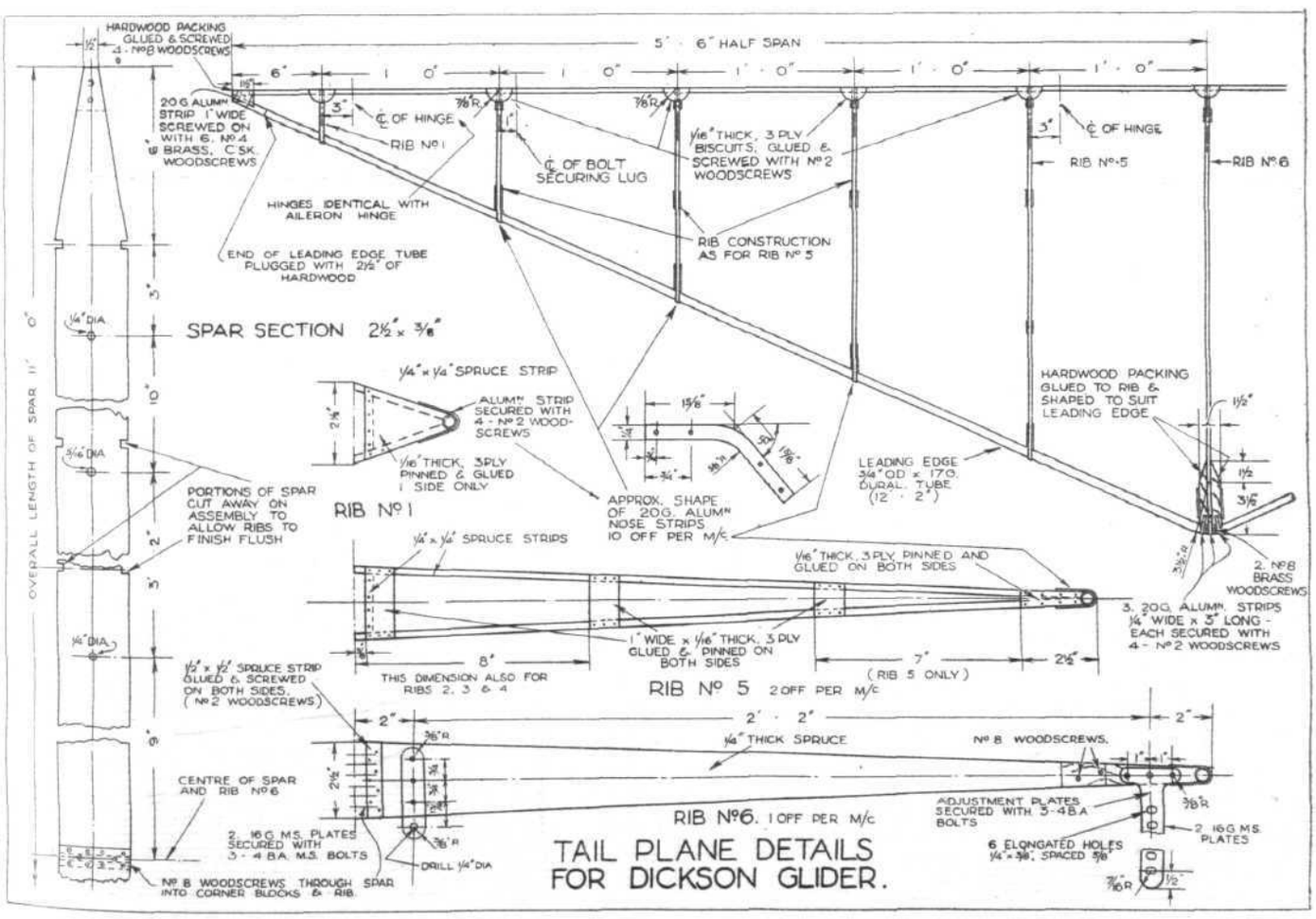
At the side of the three pump gear housings is found the filter chamber, the lower end of which is sealed by a cap secured by a locking plate and ring. The filter consists of the filter tube which is located between the cap and top portion of the pump casing. The filter tube is made with an external spiral groove, and is drilled transversely at frequent intervals. Twelve filter gauze discs are dropped on to the tube and located by a spring in the top casting. Should the pressure be excessive owing to the choking of the gauzes, the tube will lift against this spring, unseal the hole in the cap and allow the oil to pass direct up the centre of the tube.

The Oil-pressure Relief Valves.—The pressure relief valve screws into the base of the pump. The pressure is increased by inserting shims in the valve body under the spring, and thus increasing its tension. The other end of the spring bears up against a cup which, when depressed by the pressure of oil, uncovers a port which enables the oil to pass back into the pump. Between the filter chamber and relief valve is a cap which covers the end of the driving spindle. The latter has a screwdriver slot, which is used for testing the backlash in the gears when mounted on the engine.

How the Oil Circulates.—The passage of oil through the pump is as follows. From the tank the oil passes to the pressure pump, thence to the filter, and then into the crankshaft. The middle pump draws oil from the reduction gear and delivers it back to the tank.

The bottom pump takes oil through a sump on the crankcase, and delivers it back to the carburettor jacket, and thence to the tank.

The Filter.—The oil passes through the filter gauzes through the small holes in the centre ring of the gauzes, into the tube, through the top casting into the main driving shaft, and thence through a plain bearing into the crankshaft.



A further set of details of the Dickson Glider.