

oil for five hours, is fairly generous, and there is more than one British engine in existence today which should be able to score considerably on the weight allowance. If we take the weight per b.h.p. as about 2.25 lbs. and the fuel and oil consumption as .65 lbs./h.p./hour, the total weight works out at 5.5 lb. per h.p., leaving a margin of $1\frac{3}{4}$ lbs./h.p. As the weight of the cooling water is not, apparently, taken into account, except such as remains in the water jackets, water pump and piping after the five hours' run of the acceptance test, the figure of 7.26 lbs./h.p. should not be difficult of attainment.

The actual endurance tests, 30 periods of 8 hours each, not extending over more than 100 days, are stiff, but not unduly so, and it will be possible to run the engine for one period of 8 hours and then give it one or two days' rest, and still be within the limit of 100 days. This is, apparently, the procedure which is aimed at, as there does not appear to be any marks awarded for completing the endurance tests in less than the 100 days.

The system of penalties appears, generally speaking, to be good. The renewal of such parts as plugs and valves is not heavily penalised, and is not subject to cumulative penalising, as are certain other parts. In other words, parts which are known to require attention, renewal or repair in any engine are treated rather lightly, while certain accessories and important engine parts are severely penalised, especially if breakage occurs repeatedly. On the whole the penalties given suggest that it has been the object of those framing the rules to attempt to ensure that an otherwise good engine is not condemned on account of a mishap to some minor part—which may be due to faulty material—but that, on the other hand, an engine in which important parts or units keep giving trouble, and which, therefore, suffers from defective design or workmanship, is heavily penalised.

It would not be easy to improve upon the regulations, and we congratulate those responsible for the fair-mindedness and evident endeavour to draft really useful rules upon the manner in which they have carried out their difficult task.

The Safety Fuel Tank Competition

The Air Ministry Competition for safety fuel tanks, which was held at Farnborough, is now ended, and the official report on the competition and on the result has been issued. Extracts from it are published elsewhere in this issue, from which it will be seen that the winner of the First Prize of £1,400 is the India-Rubber Gutta-Percha and Telegraph Works Co., Ltd., of Silvertown. Second Prize (£400) has been awarded to Imber Anti-Fire Tanks, Ltd., and Third Prize (£200) to Commander Boothby, R.N. It will be noticed that in the preliminary tests, the order of merit of the three tanks was exactly the reverse of the order in the final award.

But little has been disclosed in the Air Ministry report relating to the actual design of the different tanks, except such data as capacity, weight and

shape. We should have liked to see detail drawings of the tanks, so as to form an opinion of the design. In the absence of these it is scarcely possible to form an opinion of the progress represented, and one is but little the wiser, except for the Air Ministry statement that the competition "has produced a type of safety fuel tank which is available for immediate introduction on Service and civil aircraft, and which, for a slight increase in weight, gives almost complete immunity from fire, either in a crash or in action with enemy machines."

So far this appears to be satisfactory, and it is to be hoped that some of these tanks, or later developments of them, may soon be found on all commercial aircraft. The danger from fire is a very real one, and anything which tends to eliminate, or at any rate reduce, this risk is to be welcomed. At the same time, if the fitting of these tanks is to be made compulsory, it should be kept in mind that the conditions of the tests were so severe (we are now referring particularly to the crashing tests) that to ensure the tanks standing up against them they had to be made heavier than is probably necessary for commercial work. This should be borne in mind if there is any intention of making their fitting compulsory, and a slight reduction in weight should be allowed. This should not seriously interfere with the resistance to fire due to crashing. With regard to Service aircraft, questions of danger from fire, due to enemy action, may render it advisable to retain the tanks at the competition strength and weight.

Heavy Loading or Light Loading

In this issue of FLIGHT we publish a description of the Vickers "Vulcan" commercial biplane, with Rolls-Royce "Eagle" engine. This machine is of more than usual interest, inasmuch as it represents the first modern attempt to produce a lightly loaded machine for commercial use. At present there may be said to be two schools of thought on the subject of commercial machines. One maintains that the heavily-loaded machine which lands very fast is just as safe in case of accident, while its high loading gives it an advantage at top speed, and certain structural advantages arising out of its smaller size. The other considers low landing speed necessary for safety and economy, maintaining that the high landing speeds reached during the war were only brought about and tolerated on account of the demand for high performance at almost any cost. Hitherto the "high-loading'ites" have been most prominent as regards actual machines in use, and it remained for Mr. Pierson of Vickers to produce a lightly-loaded machine in which modern features were incorporated. The performance of the "Vulcan" on actual service will therefore be watched with very considerable interest, and if, as seems probable, this machine is able to give a good account of itself, it may mean a return to landing speeds more of the order of those obtaining before the war, with, probably, corresponding increase in the useful load.

Russo-German Air Mail.

FROM Berlin it is reported that next month will see the inauguration of the air mail over portions of the route between Berlin and Moscow. Mails will be sent from Berlin to Königsberg by the night train, and the mail aeroplane will leave Königsberg in the early morning. The first stage of the flight is to be to Vitbesk, a distance of approximately 400 miles. Here the mails will be transferred to another machine, which will cover the remaining 350 miles to Moscow. In the

opposite direction the mail plane will leave Moscow in the early morning, arriving at Königsberg in time for the mails to catch the night train for Berlin. On the Russian side, it is stated, the service will be run by the Soviet Government, while on the German side it will be operated by the Aero Union Company. This company has a capital of 5 million marks, and such well known firms as the Hamburg Amerika Line, the Zeppelin Co., and the Allgemeine Electricitätsgesellschaft are stated to be interested in it.