

# CARGO GLIDER

## VERSUS

### Cargo Plane and Helicopter

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THE commercial cargo glider is a distinctly different proposition from any glider that has heretofore been constructed. Up to the present time gliders have been for two purposes: sport and war. The commercial cargo glider has but one justification for its existence: commerce, as its name implies. Its sole reason for existence is to further business. It must justify itself on a business basis: in dollars and cents, or there is no place for it. It makes not one iota of difference how many glider enthusiasts are behind the cargo glider. If the businessman cannot be gotten behind it, it will fail.

Perhaps these statements sound like platitudes, but they bear repeating again and again. Many noble experiments in aviation have been made by people who were more conscious of stresses and wing-loadings than of shippers and schedules. These experiments have often been utterly absurd on the face of them from a business point of view, and would have been condemned on business standards long before they got started.

Fortunately there is taking place a gradual infiltration of businessmen and business principles into aviation. Business principles must underlie the development of the commercial cargo glider or else it will be in for hard knocks and possibly complete failure.

This paper will attempt to cast some light on the question of the commercial cargo glider: does it appear to be justified on business principles, and if so, where can it profitably be operated.

The most logical starting point in any exploration into shipping opportunities which may exist for the cargo glider is a forecast of operating costs. These are most easily expressed on a ton-mile base, that is, how much it costs to transport one ton one mile. Cost estimation will, I hope, be gone into more authoritatively by the other participants in this evening's meeting. As I could not very well tell in advance of the meeting whether they were going to present cost estimates and, if so, what they would be, it was necessary for me to include the estimates which we have worked up in All American. For a cargo glider train of ten tons payload capacity the lowest possible operating costs appear to be about \$1.00 a mile, or \$.10 a ton-mile. If we try to allow for errors in the calculations and over-optimism, we come out with a figure of \$1.50 a mile, or \$.15 a ton-mile. This figure should be reached after a short test period.

The larger the glider train, the lower will the ton-mile cost be; and vice versa, the smaller the train, the higher will the ton-mile costs be. This is a principle of aircraft operation which holds equally true for gliders. If loads of no greater than 1,000 lbs. can be secured, the cost of operating equipment suited to these

small loads runs as high as, or higher than, air express rates of \$.70 a ton-mile.

Let me be sure to emphasize that ton-mile costs can only be estimated for a cargo glider train in terms of a given capacity. These costs cannot be estimated in the abstract. They must be estimated for particular loads.

The next step in the analysis of the freight which can be secured for the cargo glider is to find out what shippers pay the various types of surface carriers which at present haul their freight, since glider freight must come, for the most part, from the surface carriers.

Surface carrier freight is roughly divided into that which goes by rail express, that which goes by truck, rail freight which goes in less than rail carload lots, and rail freight which is shipped in large enough volumes to fill a railroad car. This arrangement of types of freight is in descending order from the highest rate to the lowest. Rail express is rail freight that gets service which is so fast as to be equivalent to passenger service. It moves at an average rate of 9.2c per ton-mile. Truck freight averages 5.5c per ton-mile. Rail freight which moves in loads which are not large enough to fill a car pays 3.8c per ton-mile, while that which moves in carload lots pays less than 1c per ton-mile. Obviously rail express and truck freight are the most vulnerable to competition by cargo gliders since they pay the highest rates. Conversely, carload rail freight moves so cheaply that it is difficult to forecast any cargo glider business from this source.

This determination of surface carrier rates is a starting point, but it is no more than a starting point. Too often the analyses of the potential of air cargo transportation have stopped here.

The second step in determining what items of freight presently carried by surface carriers the cargo glider can secure is to determine which of these items have characteristics which make them particularly benefited by the fast transportation which the cargo glider can make possible. The category of freight which comes to mind early as being suited to the cargo glider is urgently needed items, such as medical supplies and parts for broken-down machinery; but this freight moves in very small quantities from a large number of points to a large number of points; and it moves sporadically. It is not well suited to cargo glider transportation, although it has been subject to considerable study by air freight analysts.

A more likely type of freight which the cargo glider can benefit is perishables which will undergo less deterioration because of the quicker service of the cargo glider, or which can be picked from the tree or vine later with less fear of spoiling in transit. Perishables offer the greatest potential for the cargo glider of any categories of freight.