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NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS.

TECHNICAL MEMORANDUM 58

EXTRACTS FROM
THE BELGIAN REGULATIONS FOR
GOVERNMENT ASSISTANCE TO AIR TRANSPORT COMPANIES.
Issued by the Administration of Civil Aeronautics of the
Ministry of National Defense.

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Translated from the French
by
Paris Office, N.A.C.A.

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To be returned to
the files of the Langley
Memorial Aeronautical
Laboratory.

November, 1921.



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SUBSIDIES.

Subsidies are of two kinds:

(1) Subsidies based upon the hours of flight and the distance covered.

(2) Commercial efficiency subsidies proportional to the gross receipts.

The subsidies under (1) comprise:

- (a) An amortization subsidy;
- (b) A course subsidy.

The amortization subsidy is determined by the formula $\frac{P + 1.5 p}{200}$ where P represents the value of the cellule (in francs) and p the value of the engine group (in francs) each increased by 20% to include the costs of upkeep and insurance.

The value of the cellule and engine group is fixed by the Technical Commission of the Administration of Civil Aeronautics at the time of the proposal of the Service.

The course subsidy is determined by the formula .

$\frac{K}{1000} \times V^3 \times 1.5 T$ where V represents the speed, T the useful load and K a variable. The speed V is measured in kilometers per hour at 2000 meters. T is the load in tons after the following have been deducted:

- (a) The weight of the crew (computed at 80 kg. per person).
- (b) The weight of the navigation instruments.
- (c) The weight of the fuel.

The load factor of the airplane must be at least 5.

The practical ceiling (height attained after one hour of flight) must be at least 4000 meters with full load.

The airplane must be able to cover a course of 500 kilometers with a contrary wind of 10 meters per second, admitting that the speed of the airplane is its speed at 2000 meters and that the consumption of the engine is that taken on the ground and at full power.

The value of K is fixed as follows:

Mean length of course :	:	201	:	301	:	401	:	501	:	601	:
(in kilometers) :	:	200	:	300	:	400	:	500	:	600	:
In Belgium - - - - :	:	3	:	4	:	5	:		:		:
International - - - - :	:	4	:	5	:	6	:	7	:	8	:

The number of hours of flight subsidized is calculated by following the itinerary determined at a fixed speed of 130 k.p.h. The course will be measured in a straight line from the point of departure to the point of arrival unless an obligatory itinerary is fixed by international agreements or national rules. In these cases the course will be measured by the broken line which passes

through the center of the airway imposed and which avoids the forbidden zone. Journeys will not be subsidized which are not completed or which exceed the normal duration by 50% (normal duration being the quotient obtained by dividing the distance D by the commercial speed of 130 k.p.h.) However, in the case of special atmospheric conditions properly noted and proved, complete journeys made with several stops may be subsidized when they have been made in a length of time showing a gain of at least 25% over the fastest means of public transport on land or sea.

Except in the case of "force majeure" properly noted by the Chief of the Aerodrome or his delegate and of which mention must be made in the log book, a delay in departure of 1/4 of an hour incurs a reduction of 5% in the time subsidy. The same reduction applies to each 1/4 hour or fraction thereof which follows.

The time subsidies fixed above can be increased or diminished according to the degree of punctuality attained. A coefficient of variation is established monthly as a function of the regularity of service. The regularity is defined by the proportion of the number of journeys subsidized to the number planned (extra authorized trips being excluded). The coefficient of variation will be equal to the above proportion expressed in hundredths, increased for the months of December to March inclusive by 35/100 and for the other months by 25/100. The monthly total of the time subsidies to be paid is then multiplied by this coefficient, thus giving the net sum to be paid.

The amount of the commercial efficiency subsidies is in direct relation to the reduction made in the fares, and varies according to whether it concerns passenger or freight.

(a) Subsidy for passengers.

To benefit by this subsidy the passenger fare must not exceed 1.25 fr. per km. This subsidy is given according to the following method:

For all reductions of less than 10% from the fare of 1.25 fr. per km. a subsidy of 60% on the receipts is given.

For reductions of 10% to 19% inclusive, from 20% to 29%, from 30% to 39% and for 40% or more, subsidies of 90%, 120%, 150% and 180% respectively, are given on the receipts.

(b) Freight subsidy.

To receive this subsidy the charges for freight transport must not exceed 0.02 francs per kilogram per kilometer. The subsidy is calculated as follows:

Every reduction of less than 20% from the cost of 0.02 francs per kilogram per kilometer gives the right to a subsidy of 35% of the receipts.

Reductions of 20% to 29% inclusive, 30% to 39%, 40% to 49% and 50% or more are compensated by subsidies of 60%, 85%, 110% and 135%, respectively, of the receipts.

Conditions Required to Obtain Subsidies.

(a) The Company must be Belgian.

(b) The capital of the Company must be at least equal to

the amount of the annual subsidy which it will receive, supposing that all the journeys proposed are covered and taking into account only the time subsidy.

The capital will be represented either by buildings or material (the value of airplanes being that fixed by the Administration of Civil Aeronautics), or by supplies or hangars (intended only for the proposed lines), or by subscriptions of which the total payment may be required by the State.

The origin of the capital, all necessary information in regard to the shareholders and the names of the directors must be communicated to the Administration of Civil Aeronautics at the time of formation of the Company or on any change in it.

(c) The personnel directing the Company must be of Belgian nationality.

(d) The pilots and mechanics are to be in general of Belgian nationality. The employment of foreign pilots and mechanics will be authorized only in case of lack of Belgian personnel.

(e) The airplanes used must possess their navigation certificates and Belgian licenses.

(f) The pilots must be provided with the Belgian licenses as pilots for airplanes for public transport.

(g) The services which the company proposes to effect must be of public or national interest and offer a great improvement over existing means of transport.

(h) In general no Company will be subsidized which does not maintain a daily service over Belgian territory or to foreign

points if within 350 km. of the Belgian frontier. In the case of more distant points the service must be at least three times per week.

(i) The fares must be agreed to by the State.

(j) In case the Company should use private landing fields they must be acceptable to the Administration of Civil Aeronautics.

Obligations.

The State requires a minimum number of airplanes, pilots and mechanics in the interests of regularity and safety of the services.

The required minima are:

1. For airplanes. Twice the number of airplanes which will be used up during the operation of the service. The number is calculated by taking the life of the airplane as 300 flying hours and the speed as 30 k.p.h. The number of airplanes therefore will be the $\frac{\text{daily course (in kms)} \times \text{number of days of operation}}{200 \times 130}$.

Note: If a fraction is obtained, the number of airplanes required will be increased to the next whole number.

2. For pilots: half of the number of airplanes.

3. For mechanics: one for every 300 HP employed in the total number of airplanes.

The subsidized companies are required to equip their airplanes with all devices and arrangements to assure the public the maximum of safety and comfort and to carry out the orders of the

State which may be made in this respect.

The subsidized companies are required to place their installations, material, and all their resources at the disposition of the State from the first day of mobilization of the Army, according to the plan of mobilization made in agreement with the Director of Aeronautics.

Penalties.

If the regularity of service is not maintained owing to lack of personnel or material, poor organization or any other cause except "force majeure" and in the case of non-compliance with these regulations, the Director of the Administration of Civil Aeronautics may suspend the subsidy of the Company. In case of bad weather, departures may be delayed or suppressed by agreement between the representatives of the Government and the Company. The decision of the Government's representatives is final without, however, incurring the responsibility of the State.

If during three consecutive months the efficiency of the line drops below 25%, that is, if the total of paying passengers and freight carried is less than a quarter of the total available seats and load capacity the commercial efficiency subsidies will be suspended until the efficiency becomes more than 25%.

Non-compliance with the regulations contained herein entails the following penalties:

1. Warning.
2. Suspension of subsidies for one month.

3. Permanent suppression of subsidies.

Control.

The control to which the companies are required to submit are of two kinds:

Technical control (bearing on the personnel and material employed).

Administrative control.

Technical Control.

This control is in the hands of a Technical Commission designated by the Administration of Civil Aeronautics and is made:

On presentation of proposal.

On starting the service.

During the course of the service.

(a) On presentation of proposal.

The companies must send to the Administration of Civil Aeronautics forms giving the state of the material and personnel.

The Technical Commission is to assure itself:

1. That the airplanes to be used by the Company possess their Certificates of Navigation and are in perfect flying condition.

2. That the special modifications do not decrease the worth of the airplanes.

3. That the airplanes can fulfill the conditions (length of flights, load carried, etc.)

4. That the pilots and mechanics possess the proper licenses.

5. That the private landing fields used by the Company are in proper condition.

(b) On starting the service.

The Technical Commission verifies the identity of the conditions at this time with those mentioned in the proposal.

(c) During the course of the service.

The services are required to submit the first of each month forms relating to the condition of the personnel and material.

On variable dates the Technical Commission notes whether the pilots, mechanics and airplanes continue to possess the necessary qualities.

Administrative Control.

This control is made by the proper services of the Administration of Civil Aeronautics.

(a) On presentation of a proposal.

(b) On starting the service.

(c) During the course of the service.

(a) On presentation of proposal.

The control service is to assure itself:

1. That the Company is Belgian.

2. That the persons directing the enterprise are Belgian.

3. That the Company employs pilots and mechanics of for-

eign nationality only if Belgian pilots and mechanics are lacking.

4. That the Company possesses and will place in service the minimum number of pilots, mechanics and airplanes required by the State.

5. That the rates charged will not exceed those fixed by the State.

(b) On starting the service.

The control service verifies:

1. The agreement of the conditions of the starting of the service with those of the proposal.

2. Whether the airplanes have the proper Belgian licenses.

(c) During the course of the service.

The control service is to assure itself of the regularity of the service.

The Companies must send control forms to the Administration of Civil Aeronautics the 1st, 11th and 21st of each month.

In order to assure the execution of the article given above relating to penalties for delay in starting, a register will be kept in each aerodrome. The delays with their causes will be inscribed on a sheet signed by the Chief of Aerodrome and pilot or representative of the Company on the field.

To permit verification of the passengers and freight transported, the Companies must present to the Administration of Civil Aeronautics at the end of each month a resume of the passengers and freight carried during the month with the numbers of the tickets and luggage receipts as well as the prices of each.

At the time of arrival and departure the Companies must fur-

ish to the Chief of Aerodrome all information judged necessary to control the subsidies.

The Companies must supply at the request of the Administration of Civil Aeronautics complete and detailed information as to their expenses and receipts as well as their balance sheets.