The Air Coach Experiment and National Air Transport Policy

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INTRODUCTION

IN the year 1930 two young airmen, Eugene Vidal, a graduate of West Point, and Paul F. Collings, a war pilot, had a bright idea. They believed that an airline could make money from passenger service alone — which had invariably been unprofitable up to that time — if operated on a high-density basis and with costs reduced low enough to permit fares which would be competitive with surface travel. All they needed were backers with money, and they found them in Charles and Nicholas Ludington, who were already interested in civil aviation ventures. Ludington Lines inaugurated service in September 1930 between New York and Washington via Philadelphia — then, as now, a route having a heavy flow of traffic. Ludington used tri-motor Stinson monoplanes, high-density equipment for that time, costing about one-half as much as the Ford tri-motor plane then standard equipment on several of the major airlines. Several new economies were introduced. Only one engine was used in taxiing. After taking off on high-test aviation gasoline the Stinsons switched to regular automobile gasoline in flight, saving four cents a gallon on fuel costs. The fares were only a little more than ordinary train fares, and a fraction of the fares of other airlines. An arrangement was made with the Pennsylvania Railroad for selling tickets and picking up passengers. The operation was an immediate, if modest, success, and marked the first time in aviation history that an airline was able to show a profit on commercial traffic alone, without U. S. mail pay.2

1 The opinions expressed in this article are those of the writers and are not to be attributed to the Civil Aeronautics Board.
2 SMITH, AIRWAYS, 217-18 (1942).
Along with other interesting pioneering ventures of the period, however, the operation was soon lost in the much bigger and more important struggle for air mail contracts and grandfather certificates, and by the time the Civil Aeronautics Act was passed passenger service was fairly well settled into a standard pattern, with substantially uniform rates. This pattern included the "frills" or luxury items usually associated with air transportation, such as meals without extra charge, hostesses, luxurious aircraft interiors, and advance reservations, which the airlines thought necessary to attract travelers away from other less hazardous methods of transportation. The Ludington experience demonstrates, however, that the "air coach" idea is not a new one but is, in fact, almost as old as commercial airline service itself.

Some of the certificated domestic airlines, with the approval and under the control of the Civil Aeronautics Board, are presently engaged in a "new" air coach service experiment which is of extraordinary significance, and which may possibly cause a readjustment in our thinking with respect to the prevailing concept of our national policy for civil air transport. This experiment needs to be carefully controlled and limited, if maximum benefits are to be derived in the form of sound conclusions for future action. But perhaps more importantly, there must be general appreciation of the scope of the problems involved and some awareness of the wider implications inherent in their solution.

To appraise the experiment objectively and to analyze the results as they become available, it is important that there should be some common understanding of (a) what air coach service is, (b) what the "experiment" consists of, (c) the nature of some of the problems to which answers are sought, and (d) the relationship of these problems to our present concept of national civil air transport policy. The discussion which follows will proceed under these general topics.

I. THE DEVELOPMENT OF AIR COACH SERVICE

The airplane has never been the most comfortable method of travel. The limitations of the airframe itself have never made it possible to

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3 The term "air coach service" has had various definitions, depending largely upon who was defining it. For example, an executive of an irregular air carrier might describe it as a new type of service originated by non-certificated carriers and designed for the poor man’s purse, lacking various "frills" and contrasting with the "luxury" air service offered by the certificated lines. (See Hearings before the Committee on Interstate and Foreign Commerce on S. Res. 50, 81st Cong. 1st Sess. (1949) 260, et seq.) The executive of a certificated carrier might see it as merely "low-cost service at the lowest rates consistent with sound business principles." (Ibid., 1126) The Analyses Division of the Civil Aeronautics Board some months ago defined it, in considerable detail, as "non-deluxe air transportation offered by certain of the air carriers, at a fare approximating 4 cents per passenger-mile as compared with the average of about 6 cents per passenger-mile for regular services, with departure times from the terminals generally between 10 or 11 o’clock at night and 3 o’clock in the morning, and eliminating the usual reservation procedures and meals featured by standard air service." (C.A.B. Domestic Sky-Coach Survey, April and May, 1949, p. 1.)

Actually, air coach service is hardly susceptible of firm definition in its present fluid state of development. There is no common understanding. For the purposes of this article, the various operations under discussion are self-defining.
offer the roominess of a good Pullman train, or the freedom of ship-
board. At best, it is comparable to a high-class railroad coach in com-
fort. Moreover, it still remains a new and strange method of travel to
to most people.

During the early years of the Civil Aeronautics Act it was generally
agreed by the operators that special personal services such as steward-
esses, free meals, advance reservations, extra-comfortable seats, and
limousine service to and from airports were necessary to help overcome
the reluctance of the general public to fly, and during this period of
general expansion and growth there were no significant pressures for
the development of a more Spartan type of service at lower fares. To-
ward the end of World War II, however, the heavy traffic increases and
large profits of the war period convinced the Civil Aeronautics Board
and some of the carriers that standard passenger fares were unneces-
sarily high, and as a result there was a general reduction to a base fare of
about 4½ cents per mile in 1945. Such a fare level rather effectively
limited any experimentation with promotional tariffs during this
period.

These fares, of course, turned out to be too low, in the light of
rapidly rising operating costs, too-rapid expansion, and the failure of
anticipated traffic increases to materialize. During the next two or
three years the rates were gradually increased again until they reached
their present level of about 6 cents a mile. During this period, how-
ever, most of the airlines were experiencing financial difficulties, and
plagued with the problems of new equipment and new routes. It is
only during the past year or so that some measure of stabilization
developed.

Taking all of these matters into consideration, it appears that up
until 1949 the certificated carriers have never been in a good position
to experiment with promotional passenger fares, and that sound busi-
ness judgment would have soon dictated the present air coach experi-
mentation, even in the absence of outside influences. But it cannot
fairly be doubted that at least the timing of the entry of certain of the
certificated carriers into the air coach field has been greatly influenced
by the operations of “non-scheduled” air carriers in the coast-to-coast
long-haul passenger business, and on certain shorter-haul segments such
as Chicago-New York, New York-Miami, and San Francisco-Los An-
geles.

It has been estimated that during the year 1948 some ten percent
of the passenger traffic between New York and the West Coast via
Chicago or Kansas City was carried by non-certificated carriers. These
carriers operated by virtue of a Civil Aeronautics Board exemption
order which permitted the carriage of passengers on flights operated on
a casual and infrequent basis. Regular and scheduled service was
prohibited, but in view of the large number of carriers engaged in the
business, the prospective traveler has in effect had a regular and con-
sistent transcontinental air coach service available for the past two years. The extent of some of these services is indicated by Exhibit 1.

Exhibit 1.—FLIGHTS BY PRINCIPAL IRREGULAR PASSENGER AIR CARRIERS BETWEEN SELECTED POINTS—YEAR ENDED JUNE 30, 1949

<table>
<thead>
<tr>
<th>Name of Carrier</th>
<th>New York-Los Angeles</th>
<th>New York-Miami</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air America</td>
<td>224</td>
<td></td>
</tr>
<tr>
<td>Airborne Transport</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Airline Transport Carriers</td>
<td></td>
<td>197</td>
</tr>
<tr>
<td>American Air Transport &amp; Flight School</td>
<td></td>
<td>331</td>
</tr>
<tr>
<td>Arrow Airways</td>
<td>215</td>
<td></td>
</tr>
<tr>
<td>Associated Airways</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>Coastal Airlines, N. J.</td>
<td></td>
<td>218</td>
</tr>
<tr>
<td>Miami Airline</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Peninsular Air Transport</td>
<td></td>
<td>145</td>
</tr>
<tr>
<td>Robin Airlines</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Standard Air Lines</td>
<td></td>
<td>606</td>
</tr>
<tr>
<td>Trans-American Airways</td>
<td></td>
<td>92</td>
</tr>
<tr>
<td>Viking Airliners</td>
<td>359</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1722</td>
<td>904</td>
</tr>
</tbody>
</table>

Source: C.A.B. Records.

These non-certificated carriers operated war surplus DC-3, C-46 and DC-4 aircraft with high density seating arrangements, eliminated hot meals in flight, advance reservations, and other luxuries, and offered the transcontinental passenger a saving of some $75.00, or 40 percent, on the cost of his journey. Naturally enough, such a saving proved attractive to a large number of “first time” air travelers, and travelers who for economic reasons might otherwise not fly, or even make the trip at all, and the business grew from the beginning. Under the peculiar conditions obtaining, including the fact that operations were only conducted between high-density traffic centers, with aircraft acquired as surplus equipment at a very low price, and with a minimum of the expense resulting from Civil Aeronautics Board regulations which the certificated carriers are required to bear, substantial profits were possible, and many individual operators entered the field.

In addition to the new business generated, the non-certificated carriers were, of course, taking away some of the passengers from the certificated lines, and this competitive situation soon became the subject of considerable concern to the transcontinental operators. The subject was variously discussed in the industry and with the Civil Aeronautics Board during 1948, and while the Board and the industry were generally agreed that conditions did not warrant any general reduction in the passenger fare level, the Board did encourage the study and consideration of various types of promotional services, including a very limited experiment in air coach service at lower fares.

Subsequently, late in 1948, Capital Airlines filed a tariff proposing the inauguration of coach type service between New York and Chicago.
via Pittsburgh. While the stimulus for the entry of Capital into coach type operations came primarily from Capital's inability to compete effectively in the New York-Chicago market with its certificated competitors on its regular service, rather than from the effect of coach service competition by non-certificated carriers, it was the first filing of a domestic coach tariff by a certificated carrier. Capital's plan deserves careful examination, since it set the standard for subsequent proposals to a considerable degree.

Capital proposed to inaugurate a new low-cost New York-Chicago service at a fare level of about 4 cents per passenger-mile, instead of the standard fare of about 6 cents. To justify this difference in rates, the flights were to be operated with 60-passenger DC-4 aircraft (a “high density” seating arrangement), with departures around midnight from each terminal, and with extra stewardesses and free meals in flight eliminated.

Capital also represented that because of the short-haul characteristics of its route system it had very poor utilization on its DC-4 aircraft, and that by scheduling additional flights at night it could obtain increased utilization which would in turn lower its overall operating expense level. Further, the service would be offered between the two greatest traffic centers in the country and thus would be operated under the most favorable conditions trafficwise.

The Board gave its temporary approval to the proposal, and service was inaugurated on a daily round-trip basis on November 4, 1948. As reflected by the Board’s action, the initial conditions for approval of air coach proposals might be listed as follows:

(a) Operations must be conducted between pairs of cities having a very heavy flow of traffic;
(b) Equipment having high density seating arrangements must be used—that is, the equipment must have more than the average number of seats for that particular type of aircraft;
(c) Flights must be scheduled at off hours; and
(d) The cost of the service must be reduced by all possible small economy items, such as the elimination of meals, extra cabin attendants, advance reservation procedures, etc.

The second domestic air coach proposal which was to receive the Board’s blessing was filed by TWA in December 1948, and its approval involved somewhat of a departure from the standards previously applied. TWA was operating two over-night local schedules between

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4 While this was the first purely domestic coach operation by a certificated carrier, Braniff had inaugurated a combination cargo-tourist flight in C-54 equipment to South America in June, 1948, and Pan American began coach flights between New York and San Juan in September of the same year, using 60-passenger DC-4 aircraft. Subsequently, Pan American added tourist flights to South America, and Northwest inaugurated coach service to Alaska. All of these services continue in operation. Discussion herein, however, will be confined to purely domestic operations.
Kansas City and Los Angeles with DC-3 equipment upon which its load factors were distressingly low. These light loads were attributed primarily to the particularly low level of rail fares in the area, and since the schedules were important from the standpoint of the postal service, the carrier requested authorization to convert them to coach flights in an effort to increase patronage. This would involve a fare reduction of approximately 35 percent below standard fares, and in order to justify this differential, reliance was placed upon those items of passenger inconvenience which had been considered important in the Capital Airlines coach proposal. In the case of TWA, however, these items were of much less significance. The flights to be replaced already were operated at night and during a period when meals would not normally be served, so that there would be no particular change in those aspects, and it was proposed to increase the seating capacity of the standard DC-3 aircraft previously used from 21 to only 24 seats, which could be accomplished with very little crowding. It should also be noted that the proposed operation was to be over a local route, with several intermediate stops, and between pairs of points of much lighter traffic density than the coach operation of Capital.

Since the Board felt that the competitive impact in the particular area would be very limited, it approved the proposal. It reasoned that there was a possibility that the lower fares would attract a large number of "new riders," and that any increase in the net revenues which TWA might be able to realize would benefit, since the flights were already being operated at a considerable loss.

Subsequently, TWA sought to extend its coach operation from Kansas City to Chicago and New York on the East, and from Los Angeles to San Francisco on the West. The Board withheld its permission since the proposal involved the use of DC-3s over a considerable portion of the service, and did not meet the test of high-density equipment previously laid down. However, TWA was permitted to inaugurate a New York-Pittsburgh-Chicago coach service using prewar Boeing 307s with 38 seats to enable it to hold its own with Capital in that market, where Capital's coach service was beginning to show rather impressive results. The conditions attached were the same as those of Capital's operations, with the exception of the aircraft to be used. The Board approved the use of the Boeing equipment even though it did not strictly meet the high-density requirement. TWA's service over this route was inaugurated on May 31, 1949.

Meanwhile, on February 17, 1949, Continental had been permitted to inaugurate an over-night coach schedule at about 4 cents per mile between Kansas City and Denver, upon generally the same considerations which prompted the Board's approval of the TWA Kansas City-

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In March and April 1949, Capital expanded its coach service to include daily round trips between New York and Twin Cities, and between Washington and Chicago.
Los Angeles service. Continental had a lightly patronized over-night DC-3 flight between Kansas City and Denver already in operation which it desired to continue for the carriage of cargo, and it was represented to the Board that considerably lower fares would enable the carrier to attract enough passengers to the particular schedule to increase its net revenues.

Likewise, Mid-Continent was permitted to start a DC-3 coach service on March 1, 1949, over the non-competitive Minneapolis-Omaha-Kansas City route. This service did not prove successful, however, and was later abandoned by the carrier.

On March 24, 1949, Northwest was permitted to inaugurate the first transcontinental coach service by a certificated carrier between New York and Seattle. The service was operated with 55-seat combination DC-4s, which were arranged to permit the removal of seats for cargo as traffic demands required. Otherwise, the conditions of the service conformed generally to the pattern originally laid down for Capital's New York-Chicago operation.

In the meantime various other coach tariff proposals had been filed by other airlines, but were not permitted to become effective, either because (a) the fares were too low, (b) high-density equipment was not proposed to be used, or (c) the operation was not to be conducted between centers of sufficiently high traffic potential. All of such tariffs, however, proposed to reduce the costs of operation by eliminating meals, advance reservations, and other passenger service items.

Although the Board had announced earlier in 1949 that as a matter of policy it would not look with favor upon the reduction of general rate levels until a general downward trend in operating costs was apparent, the filing of a number of these so-called coach service tariffs indicated that certain carriers in reality were seeking a general fare reduction. The Board, seeking to clarify its position with respect to coach fares and other types of promotional tariffs, issued a policy statement on September 7, 1949, which laid down guiding principles for the development of the coach service experiment.

The Board defined coach-type fares as being typically at a level of about 4 cents a mile, covering flights operated generally during off-peak periods and offering a standard of service less luxurious than normally

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6 "We will continue during the coming year to give careful consideration to tariffs filed by the carriers aimed at increasing their gross revenue. Unless, and until, a downward trend in airline operating costs is apparent, we feel that the general rate levels should not be adjusted downward. In this respect we except experimental and developmental service designed to operate at less than normal cost, and rates designed to secure new traffic. Currently, several promotional types of passenger service are the subject of experiment which the Board is following with close interest." CAB Economic Program for 1949, dated February 21, 1949.
provided. It specified the conditions which it considered to be necessary as a guide to the evaluation of coach proposals:

(a) That the operation be conducted over routes having a heavy flow of traffic;
(b) That high-density equipment (equipment having more than the average number of seats) be used;
(c) That the service be scheduled so as to minimize a diversion of traffic from regular flights; and
(d) That all non-essential service to the passengers be eliminated, such as meals, extra stewardesses, full reservation procedures, etc.

The Board also stated that on the basis of reported results to date there was considerable doubt that coach service could be conducted successfully with DC-3 aircraft having only 21 or 24 seats, due to the extremely high load factor necessary to cover operating costs at a 4-cent fare level. In line with this conclusion, the Board's approval was withdrawn from the Continental Kansas City-Denver operation, and the TWA service between Kansas City and Los Angeles. The latter service was permitted to be temporarily continued, however, pending the replacement of the DC-3s with DC-4 equipment, scheduled to take place within a few weeks.

Otherwise, the Board announced its intention to extend its approval of the existing DC-4 coach operations of Capital and Northwest, and the TWA Stratoliner service between Chicago and New York. It also granted approval of pending proposals of Northwest, between Chicago and Portland using 55-seat combination DC-4s, and of Western between San Diego and Seattle with 65-seat DC-4s. Disapproved were proposals of Capital for a New York-New Orleans service with 50-seat aircraft, and of National for a New York-Miami service with 46-seat equipment, both because of the failure to specify high-density equipment. The Board also denied a proposal of Northwest for coach operations between Chicago and Minneapolis for failure to limit the service to off-peak schedules.

This September 7 statement of the Board announced for the first time its general conclusions and policies relative to experimental air coach service, and, in effect, formally inaugurated what we have termed the air coach service “experiment.” Up to that time the various individual operations were approved tentatively and hesitantly for successive periods of only a few weeks each, pending the reaching by the Board of some definite conclusions as to overall policy.

II. THE EXPERIMENT UNDER WAY

In announcing its intention to encourage broader experimentation in the air coach service field, the Board stated that a detailed economic justification for each tariff filing would be required, in order to prevent the indiscriminate extension of coach services and possible general
debasement of existing fare levels. Approvals were to be limited to an expiration date of June 30, 1950.

The Board’s announcement was followed by a flurry of coach tariff filings by various carriers. Proposals which had failed of approval under the standards laid down, such as Capital’s proposed New York-New Orleans service, and that of National between New York and Miami, were revised to fit the indicated requirements and refiled. Other carriers which had held off filing any proposals until crystallization of the Board’s policy now submitted their plans. All of the new proposals were carefully tailored to fit the considerations outlined by the Board, and with one exception, to be discussed below, raised no new problems and were immediately approved. These new services included coach operations by Eastern between New York and Miami, New York and New Orleans, and Chicago and Miami; Delta between Chicago and Miami; National between New York and Miami; and Capital between New York and New Orleans. All of the foregoing operations involved the use of DC-4 aircraft with a seating arrangement of from 55 to 60 seats, and at a fare of about 4 cents per mile.

In one area, however, new service was proposed upon a basis which presented new policy problems to the Board, and which contained implications of considerably more significance than the proposals previously approved. Both American and TWA submitted plans for through coach operations over the principal transcontinental route—New York-Chicago-Los Angeles. TWA’s proposal contemplated the use of 60-seat DC-4 equipment, and was otherwise in accord with the principles established by the Board. American, however, submitted plans which varied in certain important respects from all other coach proposals. Although the Board approved both tariffs, the unique features of American’s contemplated service lent a new and different aspect to the possible effect of coach operations upon the air transport system as a whole.

American proposed the operation of air coach flights between New York, Chicago and Los Angeles, which are of course points of the highest traffic density, eliminating food service and advance reservations. But American opposed any restrictions upon flight departure times on the basis that transcontinental operations extend around-the-clock, and operations only during off-peak periods are impossible. More importantly, it proposed to operate with DC-4 aircraft only until such time as the conversion of three DC-6s with 70 seats each could be completed. The service was to be conducted thereafter with the latter planes, which are among the finest commercial aircraft in existence. And in order to justify the conversion expense, American asked that its tariff be approved until December 31, 1950, rather than to June 30, the date previously fixed by the Board for the termination of all experimental coach tariffs.
American submitted a carefully reasoned economic justification for its proposed service, which will be subjected to more careful scrutiny below. The striking feature about the proposal, however, with respect to its economic basis, is that by constructing the coach fares on a base rate of 4.47 cents per passenger mile, and at the same time increasing the seating arrangement of its DC-6s from 52 to 70 seats, the increase in seating capacity is in exactly the same ratio as the difference between the coach fares and the standard rate basis of 6 cents per mile. This means, assuming the same costs, that American will approximate the same net return at the same load factors from coach flights as from regular flights, thus making the problem of diversion from its own regular services relatively unimportant. In theory, at least, the proposal is economically sound from American's own standpoint.

Thus, only a few months after reaching what were thought to be firm conclusions concerning the limitations under which experimental coach service would be required to be operated, changed conditions dictated important modifications of the experiment in various respects.

The Board seems now to have of necessity (a) abandoned the off-peak scheduling requirement, at least for transcontinental operations; (b) tacitly agreed to an extension of all coach operations until at least December 31, 1950; and (c) most importantly, relaxed the requirement of less comfortable, less speedy, non-luxury equipment. Figures demonstrate that the DC-6 with 70 seats has as much space per passenger as a DC-4 with 52.5 seats, or considerably more than the 55 and 59-seat DC-4s used by the other carriers in coach service. With its higher speed and comparable roominess, a 70-seat DC-6 is certainly at least equal in luxury to standard DC-4 service, and much superior to DC-4 air coach operations.

It will be immediately appreciated that American's proposal, if sound from a cost standpoint, promises far more significant results than the previously-approved coach service designed to offer a supplementary low-cost service at off hours in obsolete equipment, relying upon passenger inconvenience and discomfort to justify the fare differential below standard rates.

So to summarize, the experiment as of January, 1950, consists of the following domestic air coach operations:

Capital  New York-New Orleans, via Pittsburgh;
         New York-Twin Cities, via Pittsburgh, Cleveland, Detroit and Milwaukee with a connection at Pittsburgh for Washington;
         New York-Chicago, via Pittsburgh;
         Washington-Chicago, via Cleveland and Detroit.
Delta  Chicago-Miami, non-stop.
AIR COACH EXPERIMENT

Eastern
- Chicago-Miami, non-stop;
- New York-Miami, non-stop;
- New York-New Orleans, via Washington, Atlanta, Birmingham and Mobile.

National
- New York-Miami, non-stop.

Northwest
- New York-Seattle, via Detroit, Milwaukee, Twin Cities, Billings and Spokane;
- Chicago-Portland, via Twin Cities, Billings and Spokane.

TWA
- New York-Chicago, via Pittsburgh;
- New York-Los Angeles, via Chicago and Kansas City;
- Kansas City-Los Angeles, via Wichita, Amarillo, Albuquerque and Phoenix.

Western
- Los Angeles-Seattle, via San Francisco and Portland.

With the exception of TWA's services, all of the foregoing are single daily round-trip schedules, operated at night, using DC-4 equipment with seating arrangements ranging from 55 to 73 seats. The TWA operation between Kansas City and Los Angeles consists of two over-night round-trip schedules using DC-3 equipment (soon to be replaced with DC-4s), and the New York-Chicago service is a single over-night round-trip using Boeing Stratoliners. The New York-Los Angeles service, also an over-night operation, is flown with DC-4 70-passenger aircraft.

As previously pointed out, American intends to replace its DC-4 equipment with 70-passenger DC-6's as soon as possible, and this move may foreshadow other changes in the situation in the fairly near future. United may decide to enter the field in competition with American, in order to protect its transcontinental position, and TWA may also possibly find it advisable to use Constellations over the route for the same reason.

III. SOME OF THE PROBLEMS

As has been pointed out, some of the certificated carriers have been conducting domestic air coach operations on a limited basis for about a year, and the results from these various operations are already available. The nature of the service has been such, however, that the experiment has not proven very much as yet. The operations have been too limited in scope to provide very significant answers.

Possibly one thing that has been proven is that aircraft of limited size and speed and relatively high cost, such as the DC-3, cannot be successfully operated in coach service. Actually, however, it took no experimental operation to prove this, and the Board only permitted air coach services with DC-3 equipment under certain limited special conditions. Nor did it take any experiment to prove that more people will travel by air if the fares are reduced 40 percent, even though the sacrifice of some degree of comfort is necessary. The extent of the
demand has been impressive, however. The operations of the "non-skeds" and the coach services of the certificated airlines have again demonstrated the correctness of the theory Ludington Lines advanced in 1930—low-enough fares will offset the reluctance to use a novel and somewhat more hazardous form of travel in the minds of a large number of people.

Capital Airlines has demonstrated that operating between two of the best traffic centers in the world, over a medium-haul segment requiring only 4 1/2 to 5 hours for the journey, and with very limited competition from other certificated carriers, it can show a profit. This is certainly true on an out-of-pocket cost basis, and on a fully-allocated expense basis the operation has probably been no worse than marginal. It would appear, based upon fairly arbitrary cost allocations and certain untested assumptions, that on a fully-allocated expense basis, the break-even load on a DC-4 at a 4-cent fare is about 41 passengers, taking into effect the estimated diversion from the carrier's regular services. Capital's loads have held up within a fairly reasonable range of that figure. Similarly, it would seem that on this basis Northwest's New York-Seattle coach operation has likewise been profitable to the carrier.

But because of the comparatively short period and restricted scope of air coach experience, little significance can be given to the results to date. The answers to the vital questions which must be resolved can be derived only from continued carefully-controlled experimentation and study. Nothing could be more damaging to the financial welfare of the industry than indiscriminate extensions of coach operations without regard to their effect on the financial position of the industry.

It has been and will continue to be difficult for the Board to resist the pressures which will inevitably develop for hasty expansion of the services before there has been time to evaluate results from a long-range standpoint. The price appeal of the service is compelling. The public always is enthusiastic about buying something at an unexpectedly low price, be it shoes or a trip to California. But if not carefully controlled, coach operations might lead to a costly price war which could destroy the financial soundness of the entire domestic air transport system.

The Board is also faced with a related problem. It must decide whether the public interest requires the entry of presently uncertificated carriers into the field to provide specialized coach services. This question is the subject of a formal proceeding presently in progress before the Board, and can be answered only after the development of a complete record in the case. In our discussion herein, however, we are concerned only with the problems stemming from presently certificated operations, and will leave aside for the present the question of

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7 Transcontinental Coach Type Service, Docket No. 3397, et al.
which carriers, if any, will ultimately be found to be required to operate the service.

Only preliminary conclusions can be drawn from air coach experience to date, leaving these various major questions almost wholly unanswered:

1. **Size of the potential market?**

Air coach service in its basic aspect represents, or should represent, an effort to accomplish a major expansion of the air travel market by penetrating the lower-income-bracket potential. While it is true that the response to such coach service as has been operated during the past few months indicates a considerable demand, the restricted scale of such operations furnishes little basis for estimating the true size of this potential.

In terms of the 1940 dollar, air transportation is cheaper today than it was before the war, which is in effect an indirect lowering of price. In 1940 the airlines received 5.26 cents of passenger revenue per passenger mile, while in 1948 they received 5.75 cents, or an increase of about 9 percent. In comparison, the wholesale price index rose 109.8 percent during the same period, the retail price index 91.6 percent and *rail fares* 32.5 percent. This indirect lowering of price, however, has not as yet resulted in any general penetration of the mass travel market. Air travel has maintained a fairly reasonable rate of steady growth, but there are signs that a ceiling may have been reached beyond which increases at the present standard fare levels may be very slow. The increase in passenger travel for the year 1948 was very slight, and for 1949 will apparently amount to between 10 and 15 percent, a considerable part of which may be attributable to the various promotional fare plans which the carriers successfully operated during the year.

It thus appears that even though airline fares have been lowered, compared with rail fares and prices generally, the penetration of the mass travel market has not been great and may have reached a ceiling at present standard fare levels. There is, of course, no certainty that a further reduction will so greatly increase the number of air travelers as to supply the heavy loads necessary for high-density coach type operations, and this is one of the questions upon which the present air coach experiment may throw some light.

2. **Effect of competition?**

The size of the market will also shape the pattern of competition in air coach services. It may be expected that if one carrier has been authorized for air coach service over a route it will be difficult to deny similar opportunities to its competitors. And over most of the heavy
traffic routes there are at least two and in some cases four airlines operating in direct duplication of each other. This means that although the coach traffic potential may be great enough to support flights by one carrier between two traffic centers, it may not be sufficient to support coach service by all the competitors operating over the same route. It may result in reducing the load factors of all of the coach flights to below the break-even point for all of the competing carriers.

The coach operation of Capital between Chicago and New York is a good example. Capital started this service in November 1948, and had the field to itself for several months, until TWA began its Stratoliner schedules over the same route. TWA used equipment with about the same appeal as Capital's 59-passenger DC-4s and apparently was able to achieve about the same load factors as Capital had been experiencing. Capital's loads continued to hold up fairly well after the inauguration of TWA's service, and it might be concluded that in this particular situation there was enough air coach business for both carriers. See Exhibit 2.

Very soon, however, the situation will change. Instead of being faced with a TWA operation in 38-seat Boeing 307s, and nothing more, Capital is going to be operating its service in competition with American's 70-passenger DC-6s and TWA's DC-4s, both flying New York-Chicago non-stop as against Capital's one or two-stop service. Competition will probably compel United to establish a competitive service using DC-6 equipment, and TWA will probably switch to Constellation aircraft.

Actually, under present limitations the competition should not be destructive, since both TWA and American are limited to one transcontinental schedule daily, presently departing New York and Chicago at off-hours. These schedules will offer a limited number of local Chicago-New York seats, and in view of the very heavy traffic flow between these cities it seems very likely that there will continue to be enough business for all three carriers. On a permanent basis, however, the situation could be very different. If American were to continue its DC-6 operation, and TWA enter the market with Constellations, and United with DC-6s, all operating Chicago-New York non-stop at various hours of the day, and without limitations on schedules, Capital would find it very difficult to compete, and the coach services and regular services of the other competitors might show diminishing returns on an overall basis.

Likewise, assuming the eventuality of two standards of service, competition may not only compel competing coach services to offer similar type of aircraft and similar speeds and schedules between various pairs of cities, but may also compel competition within the carrier itself. The so-called luxury service would tend to become more
luxurious, and the so-called coach service would tend to become less Spartan. The costs of these promotional efforts might become a very serious danger in an industry where an already thin profit margin may become even thinner.

3. **The area of operation?**

It seems to be an accepted postulate that air coach service may only be operated at a profit over heavy traffic routes between large cities,
and the Board, so far, has generally limited the experiment to such routes.

Cost figures for coach operations are as yet very sketchy, and at best are only assumptions. But some limited analysis has been made, and as stated previously, it would appear that loads of approximately 41 passengers are necessary to provide break-even revenues for a DC-4 coach service on a fare basis of 4 cents per mile. This is on a fully-allocated cost basis. It takes into consideration assumed diversion from regular services of 30.7 percent of the coach passengers, an estimated average derived from the Board’s Sky-Coach Survey (May, 1949). This means that to support one daily round-trip coach schedule, a given pair of stations should, in theory, develop an average of 82 coach passengers per day, which is more passenger traffic than is produced presently by almost three-fourths of our domestic airline cities.8

These figures are, of course, purely theoretical and based upon untested assumptions. But the fact remains that if the economic feasibility of air coach operations depends upon the maintenance of high average passenger loads and load factors, as presently appears to be true, then the area of possible operation of such service is going to be limited to a relatively few airline stations. See Exhibit 3. This situation may give rise to charges of discrimination against the smaller cities which will not have low-fare service available, as well as related problems of readjustments in basic fares and services.

Exhibit 3. — CONCENTRATION OF PASSENGER REVENUE — TOTAL DOMESTIC AND TERRITORIAL TRAFFIC TICKETED TO AND FROM INDIVIDUAL STATIONS — SEPTEMBER 1948

<table>
<thead>
<tr>
<th>Station</th>
<th>Cumulative Percent of Total Stations</th>
<th>Cumulative Percentage Passengers</th>
<th>Cumulative Percentage Passenger-Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York/Newark</td>
<td>0.2</td>
<td>13.7</td>
<td>15.3</td>
</tr>
<tr>
<td>Chicago</td>
<td>0.5</td>
<td>19.9</td>
<td>22.7</td>
</tr>
<tr>
<td>Boston</td>
<td>0.7</td>
<td>24.2</td>
<td>26.6</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>1.0</td>
<td>28.4</td>
<td>33.3</td>
</tr>
<tr>
<td>Washington</td>
<td>1.2</td>
<td>32.4</td>
<td>37.2</td>
</tr>
<tr>
<td>San Francisco/Oakland</td>
<td>1.4</td>
<td>36.0</td>
<td>43.2</td>
</tr>
<tr>
<td>Detroit</td>
<td>1.7</td>
<td>39.0</td>
<td>45.7</td>
</tr>
<tr>
<td>Cleveland</td>
<td>1.9</td>
<td>41.0</td>
<td>47.2</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>2.2</td>
<td>43.0</td>
<td>48.6</td>
</tr>
<tr>
<td>Seattle</td>
<td>2.4</td>
<td>44.7</td>
<td>51.0</td>
</tr>
</tbody>
</table>


For example, John Doe of Peoria, Illinois, must pay $106 for his ticket to Los Angeles. Richard Roe, of Chicago, need only pay $85 for his air coach ticket to the same city. Moreover, John Doe will probably ride in a slow, two-engine airplane, taking 12 hours for the trip, while his fortunate Chicago cousin may ride nonstop in a relatively com-

8 Based upon the Civil Aeronautics Board traffic survey for September, 1948.
fortable DC-6 in approximately 9 hours. Since most of the airlines re-
ceive government financial assistance, taxpayer John Doe of Peoria,
Illinois, will in all probability demand coach-type service as a matter
of right.

How much would it cost to offer coach-type service over all or most
of our air transport system is a matter for conjecture, but even allowing
for a proportionate increase in traffic for the smaller cities, the expense
might well be enormous. For example, one major carrier estimates it
will cost in excess of $250 in direct flying costs alone to serve one in-
termediate stop only 50 miles off its direct nonstop coach route on a single
round-trip schedule. Another carrier estimates that serving 38 of its
smaller cities (out of a total of 68 cities) now costs it approximately
3 to 4 million dollars a year at standard rates.

4. Equipment?

Variations in cost characteristics and flexibility of seating arrange-
ments would appear to be limiting factors in the choice of equipment
for economically sound air coach operations. The aircraft best suited
for such service is obviously one in which a greater number of people
may be carried with a consequent reduction in the cost per seat mile.
Further, since available data indicates that coach traffic is more sensitive
to daily and seasonal variations than regular travel, the aircraft should
not only be large enough to offer the greatest possible margin of pro-
tection against the thin spread between costs and revenues inherent in
low-cost mass travel, but also to provide enough capacity to make it
possible to off-set periods of light movement with high-peak loads.

Air coach proposals have been presented to the Board by certain of
the carriers which contemplated the use of DC-4 equipment with as
few as 44 seats, although none has been permitted to operate with less
than 55 seats. If, as pointed out above, an average load of 41 passengers
is necessary to break-even with DC-4 equipment on coach operations,
it would appear to be impossible to attain satisfactory average loads
with aircraft of less than 55 seats. A number of carriers are using
70-seat DC-4 arrangements, and one operates with 73 seats. The results
of the various operations must be carefully studied to determine the
most effective seating density for economically sound service.

The plans of American Airlines also will raise the problem of the
use of the newer-type planes, such as the DC-6, Constellation, Strato-
cruiser, etc., for air coach operations. The unit costs of such equip-
ment are generally low in comparison with the older models of air-
craft, and if converted to high-density seating arrangements similar to

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9 The operation of 55-seat equipment may also raise competitive problems in
some areas from a diversionary standpoint. For example, Eastern operates DC-4s
in regular service with a 56-seat arrangement, and certainly a 55-seat coach
operation in the same area would be very effective competition for the regular
operation.
the 70-seat interior planned by American, would show particularly low costs on a seat-mile basis. For this reason such equipment would appear to be, from a purely economic point of view, better adapted to coach operations than the DC-4. On the other hand, the DC-6 represents one of the finest aircraft the airlines have to offer, and is the basis for the present standard service of several of the major airlines. The widespread use of such aircraft by American for coach flights might eventually force the use of similar equipment in coach service by all competitive carriers, the elimination of older, slower equipment such as the DC-4, and a sharp curtailment or the discontinuance of present regular-fare operations between major traffic centers. The competing airline which is not financially able to obtain comparable equipment may not only be forced out of the air coach business, but out of the airline business itself.

5. Costs and fare levels?

For the most part, coach fare levels have been stabilized at about four cents per passenger mile. This rate has apparently been the result of several factors, including in addition to cost considerations, the effect of the coach services operated by the non-certificated carriers, and the level of competitive rail fares. Obviously the ability of air coach service to broaden the air travel market depends to a considerable degree upon the relationship of the price to rail coach fares. On the other hand, the amount of diversion from regular fare air service will depend largely upon the fare differential between the two types of air service. It would appear that the four-cent level is probably the lowest point at which air coach fares can be established at this time.

As has been shown, even at this level very high average loads are necessary to support an economically sound operation. It may be that somewhat higher fares will be more desirable. American Airlines has established its transcontinental coach fares on the basis of approximately 4.5 cents per mile, and the results of its operations at that level will be enlightening.

The ultimate airline fare structure must be so designed as to bring in a maximum volume of traffic on a basis which will produce revenues sufficient to yield a reasonable profit to any efficiently operated airline over all its system, and not just a few dense traffic routes. There will be a tendency toward distortion of the costs of air coach service insofar as the present experiment is concerned, because since only a single schedule is being added in most instances, indirect costs will not be measur-

10 Railroad coach fares presently range from 3.4 cents per mile in the East to 2.5 cents per mile in the southern and western states. However, the mileage between stations is often shorter by air. For example, Capital Airlines’ coach fare from New York to Chicago is $29.60, and the Pennsylvania Railroad charges $30.71. But American Airlines charges $85.00 coach fare from Chicago to Los Angeles, while the Santa Fe’s “El Capitan,” a fast coach train, only costs $53.79.

11 A 4-cent fare is equivalent to about a 2.4-cent fare in terms of the 1939 dollar. This is below the lowest rates suggested by low fare advocates in the past.
ably increased. Thus an airline may claim that the added service is relatively inexpensive because it uses aircraft otherwise idle and the indirect costs are absorbed by the other services. This is the "added cost" theory, of course, and should not be allowed to confuse our thinking on a long-range basis. In the long run, air coach service, if successful, will be a major part of airline operations, and future planning will need to take it fully into account on a completely allocated cost basis.

The fare level is also most important from the standpoint of diversion. The primary object of a special low-fare service is to attract additional traffic at the low fare level, without losing the market presently being served. To the extent that air coach operations divert from regular fare services, this effect is lost. The reduction in costs which makes lower fares possible in air coach service is almost entirely the result of increased loads in high-density equipment. The direct savings due to the elimination of meals and other items of reduced service are relatively minor in total. American, for example, estimates that such savings would justify less than a 5 percent reduction in standard fares, and in the case of its coach operation will be entirely offset by the additional direct cost of handling increased passenger loads.

But the drive for high load factors in high-density equipment, particularly in fast modern aircraft such as the DC-6 and Constellation, is almost certain to involve a considerable amount of diversion from regular fare services. If so, it may mean that by diverting a high proportion of the carriers' long-haul business (coach operations must of necessity be conducted over fairly long-haul segments) the more profitable portion of the regular business would be eliminated, without any proportional increase in net revenues. The overall system net revenues might thus be reduced, even though the promotional coach service were successful, since the bulk of the carriers' profitable long-haul low-cost service would be performed at a lowered rate, without a corresponding increase in the standard rates for the high-cost traffic between smaller points, the losses on which are presently offset by a profit from the low-cost heavy traffic between major points.

6. The kind of air transport system which may evolve?

But even assuming that coach service develops to be economically sound in and of itself, broader questions as to the place of air coach transportation in our air transport system and the effect on that system will still remain. For example, as has been pointed out, American's proposed use of DC-6 equipment in itself promises to pose difficult questions of policy. The proposed fare of $110 between New York and Los Angeles represents a saving of $47.85 under the standard rate. For the lower fare the passenger will fly in the same equipment at the same elapsed time, but will be slightly inconvenienced as to seating accommodations and will receive no meals. Such a slight difference in service as compared to the substantial savings involved will probably
create a heavy diversionary effect. Competitive pressures may very well cause United also to inaugurate DC-6 coach service between the same points, and TWA to substitute Constellation aircraft for its present DC-4s. This would result in three daily transcontinental coach flights with the most modern equipment and undoubtedly would attract heavy loads. Such operations could show very impressive results at the end of the experimental period.

The Board will then be faced with deciding whether to authorize the service on a permanent basis with the realization that if it does so more schedules will be added and the net result will probably be the substitution of a 4½-cent air coach operation between New York and Los Angeles for the present 6-cent fare structure. The same problem will exist in other areas of successful air coach experimentation, and upon the Board's decision will depend in large measure the future service pattern of the industry. If a lowered fare structure is to be established between the major cities, then some decision will have to be made as to whether the national interest will require its extension to other and smaller airline stations, with resulting losses to be made up through the mail pay provisions of the Civil Aeronautics Act. Unless we are eventually to destroy the traditional single-level fare structure and relate fares more closely to a cost of service basis, so that the more costly services over the segments of low traffic density will pay higher fares, then consideration must be given to abandoning the hope of future self-sufficiency and accepting the burden of supporting the low-fare service in high-cost areas with Government funds – the thin profit margin produced by fares at a 4 or 4½-cent level will provide little support for coach service on segments which are not self-supporting in themselves.

As has been demonstrated, the air coach service now being tested by the Board and the industry is not merely an experiment in fares. It goes to the very heart of our future national policy for civil aviation and the shape and extent of the air transport system to be developed thereunder.

After many years of almost continual hearings, investigations and reports by official committees and boards, studies by various executive agencies, and decisions of the Civil Aeronautics Board, our civil air transport policy is still unsettled. Within the recent past we have had official expressions of varying concepts of national policy from three sources, and the current industry investigation being carried on by the Senate Interstate and Foreign Commerce Committee under Senator Edwin C. Johnson may well result in still another and different approach. The President's Air Policy Commission concluded that our national interest would be best served by a civil air transport system operated as a public utility under Federal regulation, with continued financial assistance from the Government until self-sufficiency can be
achieved. The Congressional Aviation Policy Board would retain the same form, but with the civil system fitting into a single defense pattern with the military air arms, ideally self-sufficient but subsidized if militarily necessary, to the extent required within the budgetary limits of our economy. And the Secretary of Commerce has recommended that air transport operations be made purely competitive, with Government monetary assistance and restrictions upon entry into the field (certificates of convenience and necessity) entirely eliminated, except where essential for national defense purposes.

It is obvious that the major problems presented by the air coach experiment must be considered in the light of such varying concepts of national policy, and the type of air transport system to be encouraged and developed under the policy finally settled upon. The results of the experiment may have a pronounced effect upon the shaping of that policy.

(To be continued)

12 Survival in the Air Age, January 1, 1948.