AN ANALYSIS OF THE MARKETING OF UTILITY AIRPLANES,
WITH EMPHASIS ON MARKETING PRACTICES AND
PROBLEMS OF MANUFACTURERS

DISSERTATION

Presented in Partial Fulfillment of the Requirements
for the Degree Doctor of Philosophy in the
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By

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The Ohio State University
1957

Approved by:

[Signature]
Adviser
Department of Business Organization
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John S. Wagle
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CHAPTER I

INTRODUCTION

Scope and Limitations of the Study

This is a study of the marketing of utility airplanes by manufacturers. The term "utility airplane" refers to aircraft produced and marketed for any civilian use which excludes airline activity. The marketing problems and practices studied are those of the manufacturer. No attempt is made to analyze activities of middlemen except insofar as they are directly related to the manufacturer.

In the structure of aviation activities there are two basic classifications—military and civilian aviation. These are presented in Chart 1. The military group and its subdivisions are not within the scope of this study except in those rare occasions where military airplane data will aid in an understanding of situations that have developed in the utility airplane industry.

Civilian aviation can be subdivided into "airline" and "general." The former term includes both scheduled and nonscheduled air transport activities and is outside the scope of this research. General aviation is concerned with all other civilian aviation
CHART 1

STRUCTURE OF AVIATION IN THE UNITED STATES
BY NATURE OF AIRCRAFT USAGE

U. S. Aviation

Military
  Transport
    Bomber
  Tactical
  Training

Civilian
  Airline
    Scheduled
    Non-Scheduled
  General
    Business
    Instruction
    Agriculture
    Sport
    Air Taxi

Source: Compiled from Aviation Facts and Figures 1955, Aircraft Industries Association of America, p. 41.
activities. This latter term, then, includes aviation for business, agriculture, aerial taxis, instruction, and sport.

While airline aviation makes use of the larger multi-engined aircraft, general aviation utilizes for the most part light twin-engine and single-engine products. These airplanes that are produced and marketed for use in general aviation are referred to as "utility airplanes." This explanation of the term is in conformity with current usage in the trade and is in agreement with the concept of civilian aviation as advanced by the Aircraft Industries of America. More specifically there are four principal types of utility aircraft:

1) One and two-place, having a gross weight of 1,500 pounds or less. Powered with 65 to 125 horsepower engines, they have speeds from 70 to 125 miles an hour. In this group are found the kinds of aircraft most often used for instruction, for light agricultural use, and for sport.

2) Three to four-place, weighing from 2,200 to 2,700 pounds and powered with engines from 125 to 175 horsepower. Good "cross-country" aircraft, able to maintain cruising speeds of 110 to 150 miles per hour, they have three to four hours endurance without refueling. Such aircraft are extensively used in all categories of utility aviation.

3) Four to five-place, having a gross weight of from 2,200 to 4,600 pounds and powered with engines from 175 to 300 horsepower. They can: cruise 140 to 225 miles per hour, are generally referred to as executive aircraft, usually well-equipped with radio and instruments, and capable of cross-country flight under instrument conditions. In this category are found both single and twin-engined aircraft.

4) Five to nine-place, with twin-engines each of 250 to 500 horsepower. Literally small transports, these aircraft have a cross-country speed of from 150 to 225 miles per hour, four to seven hours endurance, and instrumentation and radio enabling the duplication of airline type performance and blind flight in marginal weather. Such aircraft are much in demand for executive and business transportation.

In addition to these aircraft types, all of which are being currently manufactured and delivered, there are a number of multi-engined aircraft, quite comparable or identical to planes used by the airlines that were purchased as war surplus items and converted for civilian use. These are not current production models. In the years before World War II, light airplanes were usually referred to as "personal" or "private," connoting a pleasure or sporting use. This was in truth a good descriptive title at the time when light aircraft were few in number and were used to a very limited degree for business. However, there is an expanding business use of airplanes, and the older terminology causes misconception as to the true potential of the product. Thus, the area of study in this research is the marketing activities of manufacturers of airplanes to be used for purposes stated in preceding paragraph.

In addition to previously mentioned limitations, this research excludes the marketing of balloons, gyroscopes, and helicopters. Data on these numerous products are considered only insofar as they may aid in an analysis of the situation in the utility airplane field.

Importance of the Area of Study

Before World War II, general aviation was considered only a novel and interesting side light to airline operations. Beginning with 1946 there has been a gradual change in the importance attached to the general aviation field. Since the utility airplane is the product developed primarily for uses in this area, the importance of such products and of the manufacturers of such airplanes has also expanded.

While most detailed information is reserved for later chapters, it is well to note briefly some indications of the importance of general aviation in contrast to airline aviation. One of the standards accepted in the trade is that of "hours flown." In 1955, domestic airlines flew an estimated 3,200,000 hours while hours flown in general aviation was estimated at almost three times this figure and amounted to 9,500,000 hours. In this same year there were 60,400 active civil airplanes in the United States. Of this total 1,500 were used by airlines and the remaining 58,900 were flown in general aviation.

A further indication of the growing importance of this area of aviation is that the utility airplane industry has experienced significant increases in sales during recent years. For

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example, sales in 1955 were 44 per cent higher in units and 57 per
cent higher in dollar value than in 1954. Further examples of
this development are found in later chapters.

Still another indication of the importance attached to the
industry and its products is revealed in a quotation from an author-
itative publication.

The executive airplane has had a profound effect on American
business. Before World War II, most United States industries
operated centralized organizations. During the last two decades,
however, there has been a strong trend toward decentralized
operations. This trend has generated a demand for faster
travel. Today's business men cannot spend three or four days
traveling to do one or two days' production work. Through
use of the executive aircraft, he can greatly increase his
productivity.

In addition, general aviation is of extreme importance in
agriculture. It is estimated by authorities in agriculture that
aerial application of insecticides, fungicides, and fertilizers
adds about $3,000,000,000 annually to farm income.

Objectives of the Study

The objectives of this study are to analyze the manner
in which the organizations conduct their business operations,
the reasons for the adoption of their present methods, the prob-
lems which have been faced by the various organizations, and to
evaluate in the light of good business practice the procedures

\footnotesize {\textsuperscript{5}}Ibid.

\footnotesize {\textsuperscript{6}}Ibid., p. 68.

\footnotesize {\textsuperscript{7}}The Airplane at Work for Business and Industry, 1955, p. 4.
This study is of importance to students of marketing who seek a better knowledge of the marketing methods used in the industry and to manufacturers who desire improvement in marketing practices. In addition, it is a source of information for prospective entrepreneurs in their efforts to acquire data about the industry.

Methodology

The orientation phase of this study included examination of trade journals, association publications, manufacturers' advertising material, current periodicals, government publications, books, and other secondary sources. Although there was an abundance of material on topics related to personal flying and military aviation activities, there was a scarcity of published material directly concerned with the industry or manufacturers' activities. This void was so pronounced that it was necessary to conduct a series of thirty-two informal interviews with persons in executive positions in airplane manufacturing companies, dealerships, distributorships, credit companies, insurance companies, airplane industry associations, and the Civil Aeronautics Administration.

As a result of these interviews, a group of marketing problems was delineated. These were problems which the thirty-two executives considered to be of utmost importance. The method used involves presentation of these problems as they are faced by the manufacturers of utility airplanes, analysis and evaluation of the policies adopted to handle the problems, and development
of alternative suggestions when feasible. For concise presentation, the problems have been grouped into categories with each of the categories developed as a chapter.

After the specific problems were selected from the original interviews, the second stage of the project was to determine the practices presently followed by the producers in attacking each problem. This objective was achieved by conducting a second series of interviews with top executives in the seven airplane companies that make up the utility airplane industry. Executives of companies in related activities, as well as executives of aviation associations, were also interviewed on problems related specifically to their type of endeavor.

An additional important phase of the primary research was the examination of unpublished internal records of the various aviation companies and associations. In practice the interviews and research of company records were not separate activities. On a number of occasions a subject was introduced in interview which called for examination of records, or, on other occasions, an internal record needed further development in a later interview.

Because of the nature of the analysis by interview and internal records, each executive was interviewed at least twice. Several were interviewed four times and a few of those most directly concerned were interviewed as many as ten or fifteen times. Early in the study it was found that one or two executives in the sales department of each company could furnish much of the desired information.
The writer was aided greatly in this research and particularly in interviewing and in examination of company records by an arrangement with the Beech Aircraft Corporation whereby he was invited to a six-week observational visit in the company. During this period, he was on the company premises every day and used this time for interviewing and perusal of company records. This period at Beech Aircraft Corporation permitted the detailed planning of the study so that interviewing and research were expedited at the other companies.

\(^8\text{Business Fellowship jointly sponsored by the Foundation for Economic Education, Inc., and Beech Aircraft Corporation.}\)
CHAPTER II

THE INDUSTRY

In order that the problems of the utility airplane industry may be analyzed in their proper perspective, it is necessary to examine briefly historical developments of the product as well as the evolution of the institutions within the industry. Some of the marketing problems of the present-day manufacturers stem from the manner in which early-day selling and promotion activities were conducted and from the fact that many of the people who went through these early-day experiences are now in positions of authority in the companies. For this reason, this chapter is concerned with a history of aviation activities as well as a brief history of the development of the seven utility airplane companies that today make up the industry.

Development of the Industry

In this historical sketch of the airplane industry in the United States, the discussion is divided into six time periods. Table 1 shows the fluctuation and progress in volume of production throughout the first three periods, and Table 2 presents similar information for the three remaining time intervals. Since sales data are not available for the formative years of the airplane
industry, production data are used throughout this chapter.

1784 to 1910

The earliest stage of experimentation in air travel in the United States was concerned with lighter-than-air craft. On June 24, 1784, Edward Warren became the first American to actually leave the ground in a balloon.\(^1\) A great deal of interest in ballooning was developed in the United States prior to the Civil War. Outstanding examples were the flights of Charles F. Durant in 1830; Richard Clayton's long distance flight from Cincinnati, Ohio, to Monroe County, Virginia, in 1835; and various ascents and flights of John Wise, John La Mountain, and John Haddock in 1859.\(^2\)

During the Civil War a number of attempts were made to adapt balloons to war use, but few efforts were successful. After the war other types of aircraft were built and patented, but none achieved any pronounced degree of success.

The development of the glider was an intermediate step between the balloon and the airplane. Experiments with man-carrying gliders were conducted by Octave Chanute in Michigan and by John J. Montgomery in California. The experiences of these men had a decided influence on the work of Samuel P. Langley and of Orville


and Wilbur Wright. Langley built a model airplane that would fly, but when in 1903 he constructed the man-carrying version from his successful model, the airplane crashed.\(^3\) From 1900 to 1903 the Wright brothers carried out numerous experiments with controllable box-kites and gliders. In 1903 they applied for patents on their first airplane and managed on December 17th to get the plane off the ground for twelve seconds.\(^4\) This accomplishment took place at Kitty Hawk, North Carolina.

After the first successful flying experiment with a heavier-than-air craft, numerous additional tests were made with the Wright brothers’ airplane as well as models developed by other early builders. In this formative period, practically all airplanes were built for use of the builder and were not sold. Although there were undoubtedly earlier barters and exchanges, the first recorded sales occurred in 1909.\(^5\)

1910 to 1920

In the very early stage of the aviation industry before World War I, the producers were small and financially insecure. Many of the companies were formed by one or two persons who were interested in experimentation and mechanical endeavor but who had

\(^3\)Ibid.


neither the desire nor ability to run a business. Many of these concerns probably never completed an airplane and soon dropped from the industry. Regardless of the smallness of these institutions, they furnished the experience and made possible the experimentation necessary for the development of the industry. Indeed, many of the men who later became executives in the large airplane companies got their first interest in just such shops.

The airplane industry was slow in developing and by 1915 only 327 airplanes had been manufactured. Of these 83 were military and 244 were civilian airplanes. Actually there was little basic difference in the military plane and the civilian product. The differences were in the use to which the product was put and not in the product itself.

The first years of any large scale production were 1917 and 1918. Thus, the first notable upturn in airplane production resulted from the need for airplanes for World War I. This situation caused a great increase in the business of many of the small companies. As a result, most of the small businesses expanded their plants and became successful companies.

From an examination of Table 1, it is apparent that the industry has been characterized by very abrupt changes such as that shown by production in 1916 of 411 airplanes and an increase to 14,020 in 1918; then a reduction back to 780 the next year.

### TABLE 1

NUMBER OF MILITARY AND CIVILIAN AIRPLANES PRODUCED
BY MANUFACTURERS IN THE UNITED STATES, 1909-1942

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Military</th>
<th>Civil</th>
<th>Year</th>
<th>Total</th>
<th>Military</th>
<th>Civil</th>
</tr>
</thead>
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<tr>
<td>1909</td>
<td>N.A.*</td>
<td>1</td>
<td>N.A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1910</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>1926</td>
<td>1,186</td>
<td>532</td>
<td>654</td>
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<tr>
<td>1911</td>
<td>N.A.</td>
<td>11</td>
<td></td>
<td>1927</td>
<td>1,995</td>
<td>621</td>
<td>1,374</td>
</tr>
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<td>1912</td>
<td>45</td>
<td>16</td>
<td>29</td>
<td>1928</td>
<td>4,346</td>
<td>1,219</td>
<td>3,127</td>
</tr>
<tr>
<td>1913</td>
<td>43</td>
<td>14</td>
<td>29</td>
<td>1929</td>
<td>6,193</td>
<td>677</td>
<td>5,516</td>
</tr>
<tr>
<td>1914</td>
<td>49</td>
<td>15</td>
<td>34</td>
<td>1930</td>
<td>3,437</td>
<td>747</td>
<td>2,690</td>
</tr>
<tr>
<td>1915</td>
<td>178</td>
<td>26</td>
<td>152</td>
<td>1931</td>
<td>2,800</td>
<td>812</td>
<td>1,988</td>
</tr>
<tr>
<td>1916</td>
<td>411</td>
<td>142</td>
<td>269</td>
<td>1932</td>
<td>1,396</td>
<td>593</td>
<td>803</td>
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<tr>
<td>1917</td>
<td>2,148</td>
<td>2,013</td>
<td>135</td>
<td>1933</td>
<td>1,324</td>
<td>466</td>
<td>858</td>
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<tr>
<td>1918</td>
<td>14,020</td>
<td>13,991</td>
<td>29</td>
<td>1934</td>
<td>1,615</td>
<td>437</td>
<td>1,178</td>
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<td>1919</td>
<td>780</td>
<td>682</td>
<td>98</td>
<td>1935</td>
<td>1,710</td>
<td>459</td>
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<tr>
<td>1920</td>
<td>328</td>
<td>256</td>
<td>72</td>
<td>1936</td>
<td>3,010</td>
<td>1,141</td>
<td>1,869</td>
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<tr>
<td>1921</td>
<td>437</td>
<td>389</td>
<td>48</td>
<td>1937</td>
<td>3,773</td>
<td>949</td>
<td>2,824</td>
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<tr>
<td>1922</td>
<td>263</td>
<td>226</td>
<td>37</td>
<td>1938</td>
<td>3,623</td>
<td>1,800</td>
<td>1,823</td>
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<tr>
<td>1923</td>
<td>743</td>
<td>687</td>
<td>56</td>
<td>1939</td>
<td>5,856</td>
<td>2,195</td>
<td>3,661</td>
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<tr>
<td>1924</td>
<td>377</td>
<td>317</td>
<td>60</td>
<td>1940</td>
<td>12,804</td>
<td>6,019</td>
<td>6,785</td>
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<tr>
<td>1925</td>
<td>789</td>
<td>447</td>
<td>342</td>
<td>1941</td>
<td>26,277</td>
<td>19,433</td>
<td>6,844</td>
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</table>

N.A.* - Not available.

Another such change took place in the period 1927 to 1931, although this change was less abrupt. The pattern then repeated itself in the years 1939 through 1943 when the number of airplanes manufactured almost doubled each year.

Two of the fluctuations can be accounted for by wars. Since the airplane is of importance in war, it naturally follows that a war will cause an increase in airplane production. However, the analysis cannot stop at this point, for the production of airplanes for military purposes affects the production of civilian airplanes. During war years it is likely that because of a shortage of labor and materials, civilian airplane production will not be permitted; or, if permitted, production will be at a greatly reduced rate.

From Table 1 it is apparent that civilian airplane production was affected by the war effort. During the war years of 1917 and 1918 there was a decline in civil airplane production while there was a great increase in military airplane production.

An even more important effect of any modern war on the civil airplane industry is the probable postwar development. With the termination of hostilities, it is likely that the armed forces will be oversupplied with airplanes. This is true because there is no longer the airplane replacement need due to the attrition of war. This situation results in a desire on the part of the government to dispose of the surplus military airplanes. At the termination of World War I, for example, many airplanes were sold by the War Assets Administration on the civilian market at greatly
reduced prices. Airplanes originally costing the government $18,000 to $20,000 sold for as little as $800.7

These surplus airplanes thus reduced the market for the new products of the industry at a time when, because of their overexpanded wartime situation, the companies most needed the market. Thus, immediately after World War I the industry went through a tremendous adjustment period in which every producing company either ceased operations or went through a major reorganization.®

The overexpansion for war production and the absorption of the market by sale of government owned surplus airplanes after the war were the direct causes of this adjustment; however, the lack of business ability on the part of many of these producers was also a contributing factor.

1920 to 1930

From inspection of data developed in Table 1, it is apparent that the period from 1919 through 1924 was not a prosperous one for the total aviation industry, but it is even more obvious that civil aircraft production was practically nonexistent for much of this time.

It is to be noted from Table 1 that 1925 marked the first year in which any sizable number of civilian planes were produced.


8Aviation Facts and Figures, 1945, p. 37.
From 1925 until the crisis year of 1929, civilian production made steady gains; and it appeared that the airplane industry was definitely on its way to becoming a vital part of the economy. By 1929 authoritative sources estimated that there were approximately 150 airplane manufacturers each producing both civil and military airplanes. With the break in the upward spiral of business conditions in 1929, airplane production started downward, just as did much other production.

1930 to 1942

The civil airplane industry appears to have followed the pattern of general business rather closely during the 1930's. The downward trend continued until 1932, at which time a revival in airplane production was started. There was a gradual increase through 1936 to 1937. Then, with the recession in 1938, this industry again lost ground and reduced the number of planes produced.

From 1939 to 1942 activity increased again. Production virtually doubled from 1939 to 1940. Most of this increase was caused by the start of the civilian pilot training program, a program designed to increase the knowledge of aviation and to build a reserve of trained pilots for the military. The demand for small trainers, which were almost identical to the civilian airplanes already being built, resulted in the prewar manufacturing

spiral; but in 1942 the wartime conditions caused production of civilian airplanes to be stopped by the government. This action was necessary in order to divert materials to the production of goods for the war effort.

The Civil Pilot Training Program was halted and replaced with a program designed more specifically for wartime needs. This was called the War Training Service. From this program developed the wartime contract training of military aviation personnel.

1943 to 1955

There was no production of utility airplanes in 1943, 1944, or the first part of 1945. However, every model in production at the time of the restriction was continued in production for some war use. Thus, in a number of instances every model referred to as a civil airplane before 1943 (because it was constructed and sold for civilian purposes) became a military airplane when manufactured for military use. In addition, about 2,000 civil airplanes, which might be called the executive fleet, in existence at that time were taken over for military purposes. These were used as trainers, light cargo planes, and personnel transports. The Army subsequently used many thousands of light airplanes for liaison purposes. 10

In 1946 the industry experienced another abrupt gain to

10 Information obtained in an interview with Joseph T. Geuting, Jr., Manager of the Utility Airplane Council of the Aircraft Industries Association of America, August 12, 1956.
production of nearly 35,000 light planes. 1946 marked the highest point in number of civilian airplanes constructed; however, this large volume did not continue. Another significant change was experienced when in 1947 production decreased to 15,617. In the subsequent period, 1948 to 1951, manufacturing of airplanes continued to decline.

There are two reasons for the reduced production of civilian airplanes during the 1947-1949 period. Most of the airplanes constructed were light trainer types unsuited to business use. In addition, the government dumped thousands of war surplus, light military airplanes on the market with attractive low price tags. This was a repetition of the post World War I situation, and the results were identical except that the World War II airplanes were less suited to civilian use. Those who purchased these surplus planes, with few exceptions, soon found them to be unsuited to the uses for which modern light aircraft are designed. These planes did not provide good cross-country transportation, and they were uneconomical to operate and difficult to maintain.11

This surplus disposal of light military airplanes greatly decreased the market available to the industry. At the same time, it gave to thousands of buyers of surplus airplanes a false picture as to the real utility of present-day light airplanes. But from this unsound early postwar boom, a solid business and agricultural market began to emerge. Table 2 presents figures for

11Ibid.
### TABLE 2

**NUMBER OF MILITARY AND CIVILIAN AIRPLANES PRODUCED BY MANUFACTURERS IN THE UNITED STATES, 1943-1955**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Military</th>
<th>Civil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1943</td>
<td>85,898</td>
<td>85,898</td>
<td>0</td>
</tr>
<tr>
<td>1944</td>
<td>96,318</td>
<td>96,318</td>
<td>0</td>
</tr>
<tr>
<td>1945</td>
<td>49,761</td>
<td>47,714</td>
<td>2,047</td>
</tr>
<tr>
<td>1946</td>
<td>36,670</td>
<td>1,669</td>
<td>35,001</td>
</tr>
<tr>
<td>1947</td>
<td>17,717</td>
<td>2,100</td>
<td>15,617</td>
</tr>
<tr>
<td>1948</td>
<td>9,586</td>
<td>2,284</td>
<td>7,302</td>
</tr>
<tr>
<td>1949</td>
<td>6,089</td>
<td>2,544</td>
<td>3,545</td>
</tr>
<tr>
<td>1950</td>
<td>6,520E</td>
<td>3,000E</td>
<td>3,520</td>
</tr>
<tr>
<td>1951</td>
<td>7,877E</td>
<td>5,400E</td>
<td>2,477</td>
</tr>
<tr>
<td>1952</td>
<td>12,509E</td>
<td>9,000E</td>
<td>3,509</td>
</tr>
<tr>
<td>1953</td>
<td>15,134E</td>
<td>11,000E</td>
<td>4,134</td>
</tr>
<tr>
<td>1954</td>
<td>12,989E</td>
<td>9,600E</td>
<td>3,389</td>
</tr>
<tr>
<td>1955</td>
<td>13,153E</td>
<td>8,400E</td>
<td>4,753</td>
</tr>
</tbody>
</table>

*E - Estimate.*

the period from 1943 to 1955. This is the time interval which is studied primarily in this research, with special emphasis on the postwar period and the current situation in the industry.

Table 2 shows that the lowest postwar production figures came in 1950 and 1951. However, executives in the industry are of the opinion that the low figures were not caused by a lack of market, but rather by a shortage of materials caused by controls imposed after the start of the Korean War.

The term "utility airplane" came into usage at the time as previously discussed in Chapter I. Utility airplanes were actually in great demand by business, industry, and agriculture for uses which were defense-supporting to a high degree. After a year in which the industry had to do without priority support, the government began to recognize this fact and allocated materials to the light civil airplane industry. Material allocations were first made in July, 1951, and began to affect the production rate about six months later. The result was that in 1952 about 1,000 more utility airplanes were produced than in 1951.

In the Korean War light planes accomplished numerous utilitarian purposes. Once again the light utility airplane was used, as it was in World War I, for varied types of missions. The airplanes used for these tasks were either identical or almost identical to currently available civil airplanes.

After 1951 the utility airplane industry had steady gains in dollar sales each year. Unit sales did not show as steady a
gain. However, dollar sales are more indicative of the position of the industry, for there was a shift to more expensive twin-engine airplanes. This change would not be discerned in unit data.

The G. I. Training Program is now far past its peak and apparently has no strengthening effect on the market. Thus, the increasing dollar sales appear to be based on a strong demand for the industry to supply products which have real utility for businessmen, industries, and agriculture.

**History of Utility Airplane Manufacturers in Business in 1956**

In the first full year after the end of World War II, there were fourteen manufacturers of utility airplanes. By 1947, the number had increased to sixteen. These figures represent manufacturers who shipped completed airplanes in each of the years. There were probably additional small companies that did not actually complete and sell any finished products. The number of manufacturers gradually decreased until in 1953, there were only seven companies in the industry. These producers are:

- Aero Design and Engineering Company  Bethany, Oklahoma
- Beech Aircraft Corporation  Wichita, Kansas
- Call Aircraft Company  Afton, Wyoming
- Cessna Aircraft Company  Wichita, Kansas
- Mooney Aircraft Incorporated  Kerrville, Texas
- Piper Aircraft Corporation  Lock Haven, Pennsylvania
- Taylorcraft Incorporated  Conway, Pennsylvania
Since 1953 these same seven producers have accounted for all recorded shipments and sales of utility airplanes in the United States. The sharing of the market is a topic discussed in detail in a later section of this chapter. At this point, it is sufficient to note the above facts in order to understand the selection of companies for which historical data are presented.

Throughout this thesis, emphasis is placed primarily on marketing activities of Beech, Cessna and Piper. Emphasis is placed in this manner because of the extreme importance of these three companies as compared to the remaining four smaller concerns. The smaller companies, however, furnish examples of small enterprises with limited funds and limited opportunities attempting to make a place for themselves in an industry dominated by three large concerns.

Travel Air Company

In 1924 at Wichita, Kansas, Clyde Cessna and Walter Beech, along with several other partners, organized a concern known as Travel Air Company. This company is of importance to this research study because it was the forerunner of both the Cessna Aircraft Company and the Beech Aircraft Corporation. During the 1920's and 1930's the approved method of selling airplanes in

12 This information taken from records of the Utility Airplane Council of the Aircraft Industries Association, Washington, D. C.

plane by entering the plane in competition and proving its ability
to outperform its competitors. In addition, the prize money was
often the finances that kept a company going. Thus the ability
to win races was of extreme importance to the success of an air-
plane company.

The products of Travel Air stood these tests well. On
July 14 and 15 the first commercial airplane to fly from California
to Hawaii was a Travel Air. A month later another Travel Air
won the $25,000 Dale prize in a race from Oakland, California,
to Wheeler Field, Honolulu. Eight airplanes were entered in
this race. Only four took off without mishap, and of these, two
finished the race.

Success in contests and in production are reflected in
the fact that in 1928 Travel Air produced 400 out of a total
national production of 3,781 airplanes. In 1929 this was raised
to 527. In 1930 the Travel Air Company produced perhaps its most
famous airplane, the "Mystery S." In the 1931 Year Book of the
Aeronautical Chamber of Commerce of America the industry's his-
torian commented, "No new design introduced during the year 1930
surpassed the performance of the Travel Air Mystery Ship."

Later in 1930 this company was sold to the Curtiss Wright
interests. Walter Beech, the chief designer, left to start his
own company. Clyde Cessna had withdrawn in 1928 to start the
Cessna Airplane Company. Both of these new companies were to a
certain extent offsprings of the Travel Air Company. The tech-
nique of advancing the sale of the product and of financing the
activities of the companies through contests was continued by both new organizations.

Cessna Aircraft Company

Clyde Cessna left the Travel Air Company and established the Cessna Aircraft Company because of his belief that his design of a cantilever monoplane was aerodynamically sound as well as a marketable product. At the time this was an advanced design which had not been proved. The Company was established in Wichita, Kansas, in 1928.

The plane was a success, and Curtiss Flying Service contracted to take all the planes Cessna would build. This necessitated more capital and rapid expansion. In 1929 the Cessna Company was expanding and appeared, as did many other businesses, to be well on the way to success. But, with the crash, Curtiss Flying Service went into bankruptcy and Cessna could collect but a small part of the money due. The Cessna Company struggled along until 1931, when the directors closed the plant. They did not take bankruptcy, however. The directors removed Clyde Cessna from management and leased the plant to Beech Aircraft Corporation. In 1934 a new board of directors recalled Cessna as president and took over the plant under the Cessna name.

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14 A cantilever monoplane is an airplane with one wing which has no struts or wires to anchor the wing to the body of the airplane.


16 Ibid., p. 5.
At this time Cessna brought a nephew into the company. The nephew was an aviation engineer and was soon general manager of the plant. In 1937 the nephew, Dwane L. Wallace, took over the Clyde Cessna stock and has been president of the company since that time.

As previously mentioned, the approved technique of selling airplanes during the 1920's and 1930's appears to have been through successful participation in contests. Dwane Wallace piloted Cessnas through three races in which the planes won top place each time. During this period the title of "The World's Most Efficient Plane" was awarded to Cessna. In the 1930 period an airplane manufacturer worked on a very low volume. The company started in 1934 with ten employees and grew to forty-five employees in 1939. In this year it sold fifty airplanes.\(^1\) As far as Cessna was concerned, the airplane manufacturing business was still in its infancy in 1939.


Thus, it is apparent that the business that made Cessna successful originally was military contracts and not business developed in regular marketing activity. It is also apparent that the ability to build a good airplane, rather than marketing ability, got the company the military contracts which led to

\(^{17}\)Information secured from interviews with Cessna executives, July 10, 1956.
success.

After the war ended Cessna turned to building commercial airplanes along with military planes. The company now also builds hydraulic lifts for farm machinery. In addition, Cessna does work on subcontracts for Boeing Airplane Company, as well as experimental work on helicopters. Of the seven companies in the industry, Cessna manufactures the most complete and varied line of airplanes.

The Cessna Aircraft Company now occupies three plants at Wichita and Hutchinson, Kansas, with a total of 1,008,770 square feet of floor space and 4,357 employees. Total sales for the fiscal year ending September 30, 1955, amounted to $50,001,000 of which $21,647,311, or 43.4%, was utility airplane sales. Total assets in the fiscal year amounted to $24,684,478, and net earnings after taxes amounted to $2,839,083.18

Beech Aircraft Corporation

This company was founded in 1932 at Wichita, Kansas by an airplane designer, Walter Beech. As previously stated, Beech had been very successful as a designer for the Travel Air Company and had left this company shortly after it was sold to Curtiss Wright interests.

By 1934, eighteen airplanes had been built. These planes were more expensive than competitive airplanes of equal horsepower and equal seating capacity; however, they had a higher performance

18Information taken from the internal records of Cessna Aircraft Company.
rating. They were fast enough to better the 230 miles an hour speed of Army standard pursuit planes. Although these were good performance airplanes, there were few prospective buyers who were willing to invest $18,000 in an airplane in 1934. This was an example of excellent production and engineering skill with no attempt to analyze the market to discover what type of airplane could be sold.

In 1935 the company profited from its previous error in judging the market. This year thirty-six less expensive, lower performance airplanes were built, and the market improved.

At this time other examples of advertising and selling the product as a result of winning races were manifested. The most important contest was the Bendix Transcontinental Speed Dash from Bendix, New Jersey, to Los Angeles, California. The Beech entry not only won the race, but did so with a woman pilot. This was accepted as added proof of the safety and ease of handling of the Beech airplane.

In 1938 sales went above $1,000,000 for the first time, and in 1940 Beech began receiving many sizable foreign orders. These foreign orders were greatly prized at the time because the economy minded United States Congress, probably influenced by the illusory stalemate of the European War at the Maginot Line, passed

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20 Information received in interviews with Beech executives, July 19, 1956.
an appropriation bill providing funds for a total of only forty-seven new airplanes for the Armed Forces for 1941. However, events of the war later in 1940 caused President Roosevelt to call for the airplane industry to produce 50,000 airplanes. In July, Beech suspended all commercial production except for priority orders.

During the war years a total of 7,400 Beechcraft planes were produced along with 635 complete sets of wings for Douglas A-26 Invader attack bombers. During the war period Beech won the Navy "E" Production Award five consecutive times.

Two months after the end of the war the first new commercial postwar Beechcraft, an eight-place executive transport, was ready for flight testing; and on December 7, sixteen weeks after V. J. Day, the first CAA Approved Type Certificate to be issued on any postwar commercial airplane was received by Beech. Thus, Beech was off to an early lead in the race for the postwar business.

The Beech Aircraft Company occupies modern factory space of 1,326,451 square feet in Wichita, Herrington, and Liberal, Kansas. In the fiscal year ending September 30, 1955, the company attained total sales amounting to $77,075,541, of which $27,245,940, or 35.4% was sales of utility airplanes. Total assets in this fiscal year amounted to $25,669,209, and the company had net earnings after taxes of $3,586,510.

21Certificate #757 authorizing the D 18 S Beechcraft to be delivered to buyers with the "N. C." designation.

22Information taken from internal records of Beech Airplane Corporation.
Piper Aircraft Corporation

The Piper Aircraft Corporation developed from a bankrupt company known as Taylor Brothers Aircraft Corporation. The Taylor Company first operated on a small scale in Rochester, New York. In 1929, in conformity with a local Chamber of Commerce attempt to get new industries into Bradford, Pennsylvania, the citizens of Bradford agreed to subscribe to $50,000 worth of stock to move the Taylor Company to Bradford.\textsuperscript{23} At this same time W. T. Piper, as a representative of the citizens of Bradford, became a director of the Taylor Brothers Aircraft Corporation. However, C. G. Taylor was the moving force. His interests were primarily in design features and in technical aspects of production.

This company began operations in Bradford by producing a two-seat, side by side, 90-horsepower airplane called the "Chummy." The model was to sell for about $4,000, which was considered a rather high price at that time.\textsuperscript{24}

As a result of the general business decline, the Taylor Company failed in 1931, and W. T. Piper purchased the assets in the bankruptcy sale for $600. One of the assets purchased was a very small airplane which the Company had designed as a possible alternative to the $4,000 "Chummy." This airplane was expected to sell for about $1,500 and was the prototype of the now famous 

\textsuperscript{23}W. T. Piper, \textit{op. cit.} p. 40.

\textsuperscript{24}From an interview with J. W. Miller, Sales Manager, Piper Aircraft Corporation.
Taylor Cub and Piper Cub airplanes.

The new organization was known as Taylor Aircraft Company. C. G. Taylor, as president, furnished the engineering and manufacturing knowledge, while W. T. Piper handled the sales problems.

Mr. Piper stated in an interview that from 1931 to 1936 the Taylor Aircraft Company made no profit. There were 20 airplanes sold in 1931, 22 in 1932, and 16 in 1933. In 1934 there were 70 Cubs sold; and while this number did not amount to a great deal in total sales, it was 10 per cent of the total number of private airplanes sold that year.

In December, 1935, W. T. Piper bought out C. G. Taylor's interest in the company but retained the name of Taylor Aircraft Company until 1937, when the factory burned. As a result of this destruction of the plant, the company was reorganized, moved to Lock Haven, Pennsylvania, and renamed the Piper Aircraft Corporation.

In 1938, 736 Piper Cub Trainers were produced and sold for $1,500 each. These airplanes were primarily used in the civilian pilot training programs. However, shortly after the events of Pearl Harbor, the Cubs were purchased for observation and spotter tasks by the Armed Forces. In this type of military work they earned the now famous title of "grasshopper," because of their ability to fly at very low level and to hop down behind natural concealments.

For the military services, the Piper Company produced 6,000 "Cubs," 100 larger airplanes for the Navy, and 250 three-
place trainer gliders for the Army. In addition, more than 50 percent of the company's earnings in the war years came from production of radar masts.

The airplanes that Piper produced for the war were not especially designed as military airplanes; rather they were simply civilian airplanes with Army or Navy paint and some very slight modifications.

On December 1, 1942, the Piper Aircraft Corporation took over the Stinson Division of the Consolidated Vultee Aircraft Corporation. From this purchase, Piper obtained the Stinson lineage of airplanes which first developed into the Piper-Stinson Station Wagon and later into the Twin-Stinson. This model progressed into the twin-engine Piper Apache of the present. Thus in the postwar period Piper Aircraft Corporation continued the sale of the "Cub" but also expanded its line to include heavier one-engine planes and also twin-engine models.

During the first full year (1946) after World War II, the Piper Company had 2,000 employees engaged entirely in civilian airplane production at a rate of 30 airplanes a day. Facilities were expanded at Lock Haven; and, in addition, an assembly plant was opened at Ponca City, Oklahoma, in 1946 to facilitate completion and delivery of airplanes to distributors west of the Mississippi


River. Due to a market collapse in 1947, this plant was permanently abandoned and the Lock Haven operation was temporarily closed; but on January 5, 1948, the Lock Haven plant was reopened and has functioned at a near capacity rate for most of the period since that time.\textsuperscript{27}

The plant and offices have been expanded to cover 234,000 square feet in Lock Haven, Pennsylvania. In the fiscal year ending September 30, 1955, the company attained total sales amounting to $16,812,804, of which $14,839,400, or 88.3\%, was for utility airplanes. Total assets in this fiscal year amounted to $4,229,565, and the company had net earnings after taxes of $1,400,826.\textsuperscript{28}

At the time interviews were conducted in August, 1956, the plant was producing two twin-engine Apaches, five Tri-Pacers, and three Super Cubs each day with 1,500 employees.

\textbf{Taylorcraft Aviation Corporation}

When Mr. C. G. Taylor, designer and part owner of the Taylor Cub, sold his interest in the Taylor Aircraft Company to W. T. Piper in 1935, he immediately organized his own company at Butler, Pennsylvania.\textsuperscript{29} This company was known as Taylorcraft Aviation Corporation and was soon moved to Alliance, Ohio, where Mr. Taylor proceeded to produce a small "Cub" airplane very similar

\textsuperscript{27}Interview with executives of Piper Airplane Corporation, August 14, 1956.

\textsuperscript{28}Information taken from internal records of Piper Airplane Corporation.

\textsuperscript{29}W. T. Piper, \textit{op. cit.}, p. 47.
to the original "Cub." By 1939 Taylorcraft had produced 480 small planes for the Civilian Pilot Training Program and was thus in direct competition with the Piper Company, which produced 1,806 similar units for this same program. In 1940 Taylorcraft increased its production to 924 airplanes and in 1941 raised it again to 1,000. During the war this same product was in demand for observation work, and Taylorcraft made and sold 1,500 to the government. Again it should be noted that the Taylorcraft airplane was basically a civilian product with a different color of paint. There was nothing about the product to cause difficulty in converting to peacetime production.

In 1949 Taylorcraft went through a reorganization and was finally purchased by a group headed by Mr. Ben Muro. The plant equipment was moved to Conway, Pennsylvania.

In this new location, Mr. Muro has presented an airplane with wings and fuselage constructed of tough, lightweight glass and plastic material. In constructing the airplane, molds are made of the fuselage, wings, and other sections. Fiberglass cloth and resin are placed in the mold and permitted to cure. The sections are then put into place on the tubular steel structure of the fuselage and the aluminum and spruce structure of the wings. In this method the fuselage is made of only two sections joined together. The wings are made of eight molded units.31

30 Information from records of Taylorcraft Corporation.

31 Information from an interview with executives of Taylorcraft Corporation, August 17, 1956.
This is a type of production which has not been in use long enough for a thorough analysis of its value. However, Mr. Muro is of the firm belief that it is a sound construction method and that such innovation is the only way a small manufacturer in the airplane business can grow.\footnote{Interview with Mr. Ben Muro, Taylorcraft Corporation General Manager, August 17, 1956.}

The Taylorcraft Company today occupies a plant of 50,000 square feet of floor space. In the fiscal year ending September 30, 1955, the company had sales amounting to $94,000, all of which was for utility airplanes. At the time of the interview with Mr. Muro on August 17 and 18, 1956, the production rate was seven airplanes a month with 95 people employed.

\textbf{Aero Design and Engineering}

This company manufactures one airplane, "The Aero Commander." This plane is now manufactured in two versions - the Commander 560, with two 270-horsepower engines capable of a maximum speed of 209 miles per hour; and the Commander 680, with two 340-horsepower engines which permit the airplane to reach a speed of 260 miles per hour.

The company was founded in 1950 just outside of Oklahoma City at Bethany, Oklahoma, by Rufus T. Amis, Jr. This was a propitious time for a new competitor to enter the field, for by the time the company was in production and ready to make its first sales in 1952, the industry had passed through its lowest postwar
years and was again in a period of increasing sales.

Mr. Amis received most of his business experience in the construction field, where he had need for a particular type of airplane. In attempting to persuade the airplane companies to make a plane fitted to his needs, he contacted a designer who had plans for an airplane that could be adapted for the contractor's use. From this interest Mr. Amis became convinced that there was a wider need for such a plane than just his own use, and he decided to invest in a company to manufacture and sell such a product.\(^{33}\)

By the end of 1954, 200 Aero Commanders had been manufactured and sold. While 200 would not have resulted in a great amount of dollar sales if the figure had been in terms of some of the very light airplanes, in this case it represented a total dollar volume for the three years of more than $10,000,000, for none of these airplanes sold for less than $40,000. For a new company this is a surprising accomplishment. The soundness of the product is attested to by the fact that the company has gained in sales every year since 1953.

Of the 200 airplanes sold in 1952, 1953, and 1954, fifteen were purchased by the United States Air Force for the use of the President and his staff; and ten were ordered by other branches of the military services.\(^{34}\) The remaining 175 were sold as civilian

\(^{33}\) Interview with Rufus T. Amis, General Manager and President of Aero Design and Engineering Company, January 11, 1956.

\(^{34}\) Rufus T. Amis, "The Commander Is Here to Stay," AVCO, September, 1955, p. 28.
airplanes, with five going to the export market. There are no basic differences between the civilian and military versions of this airplane.

The ability of the executives of this company, as well as the product, appears to be highly respected by competitive companies. Most competitors were surprised that the company had realized the sales attributed to it, but had only praise for the product and its promotion.

One probable reason for the success of the Aero Design and Engineering Company is that the company has never depended on military sales. From the first, the need for good selling methods has been recognized, and a proper emphasis is placed on this aspect of the business.

This recognition of the importance of marketing activities is reflected in a statement made by Mr. Amis in an interview with the writer. Mr. Amis stated:

The Aero Commander, in face of predictions of failure by many, moved into the executive field and established itself. We at Aero were naturally gratified by the public acceptance of our product. We also realized that this acceptance was a vote of confidence in our past work and was brought about by various positive actions on our part. We developed a good product. It was well engineered. We merchandized it by moving into an aggressive sales promotion program.

The Aero Design and Engineering Company occupies a small factory with 200,020 square feet of floor space. Its location is Bethany, Oklahoma, a small town near Oklahoma City. In the fiscal year ending September 30, 1955, the Company attained total sales amounting to $5,170,000, all of which was for utility airplanes.
Mooney Aircraft, Incorporated

This manufacturer is now located at Kerrville, Texas. Its original location was Wichita, Kansas, where several of the organizers were employed by Culver Aircraft Company and Beech Aircraft Corporation. This company was started after World War II in 1949, just before the government restrictions were placed on civilian airplane manufacturers due to the Korean War. However, the company managed to survive this enforced low production and has since its beginning produced and sold a number of airplanes each year. The lowest point of company existence was in 1954, when only fourteen airplanes were sold. However, in 1955 this number was raised to 41 and was increased again in 1956 to 80 airplanes. Total sales for the fiscal year ending September 30, 1955, amounted to $100,000, all of which was for civilian airplanes.

The Call Aircraft Company

Call Aircraft Company was founded in 1941 in Afton, Wyoming, by Robert Call. Experimental development of a light two-place cabin monoplane was started that year but was later curtailed because of wartime restrictions, and the production of the company was turned to subcontract work.

In 1950 the Call organization went into airplane production and produced six light agricultural airplanes. In 1951, production was partially retarded due to the Korean War material restrictions, only three airplanes being produced. In 1952 the restrictions caused a complete elimination of airplane production by this com-
pany. Since the 1952 low, however, Call Aircraft Company gradually increased sales each year until a sales total of twenty airplanes was reached in 1956. Sales in dollars for the fiscal year ending September 30, 1955, were $44,000. The entire amount was for civilian airplanes.

Mooney, Taylor and Call airplane companies are extremely small and account for a very low percentage of the utility airplane business. However, these companies, along with Aero Design and Engineering, are of importance in this study because they present problems of small companies attempting to get a share of the market dominated by three much larger organizations.

Summary

In order that data about marketing practices and problems, presented in subsequent chapters, may be better understood, it is the purpose in the preceding material to trace the historical development of the utility airplane industry. Many of the problems and practices are directly affected by three historical developments.

1. There has been a gradual shift from the use of airplanes for strictly pleasure and sporting purposes to use as business equipment. Many of the problems of the industry stem from the failure to adapt marketing practices to this change in primary use.

2. Most of the manufacturing concerns were founded by individuals primarily interested in building and flying airplanes. The lack of interest in marketing activities is reflected in the
problems faced by the industry.

3. Examination of the historical data shows that there has been abrupt fluctuations in the market for utility airplanes. The desire to curb adverse effects of extreme changes in demand also influence some of the marketing practices adopted by the manufacturers.

These three developments have a definite relationship to the remainder of this study and will be expanded in greater detail in the following chapters.
CHAPTER III

THE PRODUCTS AND THE MARKET IN THE POSTWAR PERIOD 1946 TO 1956

In an approach to an analysis of marketing problems within an industry, it is desirable to consider such problems against the background of the business philosophies predominant throughout the industry, the product characteristics that affect the various company activities, and the underlying marketing conditions. In this chapter business concepts which affect marketing functions are presented. The products are described and compared and certain of the market fluctuations are explained. Additional market characteristics are presented in the subsequent chapter.

The Philosophy in the Industry

The number of utility airplane companies has varied greatly throughout the history of the industry. Undoubtedly in the next few years new concerns will be added and some of the current organizations may cease operations. However, at present the three largest producers give every indication of remaining in the business indefinitely.

Examination of the founding of the seven companies reveals a common origin in one particular respect. All were, in their beginning, one-family organizations, in which the driving force was
a man who liked to fly and experiment. This led to an emphasis on production and to slight consideration for sales and marketing functions. If an airplane was to be sold, the accepted method of selling was simply to produce the best product, enter it in contests with products of other companies, and sales would likely result. The technique was simple, and in the early days of aviation it worked fairly well.

This philosophy prevailed until 1946. Only since World War II has the management of these companies gone into marketing in a realistic manner, and even today the change is difficult to make. The old idea that all that is needed to sell a product is to have the best airplane on the market is still apparent in parts of the industry. This philosophy was expressed verbally by several executives and lower echelon personnel in one of the companies and was alluded to with slightly less emphasis in another of the organizations. It is also expressed in the organization structure of some of the companies in that the marketing activities are not as well developed as might be desirable nor do they always occupy a high place in the formal structure of the organizations.

In examining the reasons for this philosophy, it is well to note first the fact that in all cases the original founders are either still strongly entrenched in management or that their immediate families are in control. Although in two cases there are stock issues outstanding and some distribution of voting rights, family strength is evident in the control. A second reason for this concept is that in the wartime situation during which the
two top companies really developed, the entire emphasis was naturally on production. Since there was no selling problem at the time the concerns were becoming financially strong, they were for the most part controlled in high and middle management positions by production minded people. If this had not been the case, they would probably have never gained their present status. The situation, then, called for such people throughout management.

From the preceding discussion a third reason for the emphasis on production can be derived. Today the two largest manufacturers depend a great deal on military orders (with which marketing techniques are not necessary). For military airplanes, production personnel would be expected to be dominant. However, in the case of those producers where the military sales are relatively unimportant, more stress is placed on marketing. Table 3 shows the extent of dependence on military business of the various manufacturers. The three largest companies appear to be depending less and less on military business. In addition, it is noted that Piper depends much less on sales to military groups than does either Beech or Cessna.

A last factor which makes production out of proportion to marketing is that an airplane by its very nature calls for stress on safety and technical features. This is true to a much higher degree than for many other products. An example may be pointed to in the automobile business, where huge campaigns must be conducted to make drivers aware of the travel risk. In airplanes there is no need for this. Man is far from accustomed to the use
TABLE 3

PERCENT OF COMPANY SALES MADE TO MILITARY SERVICES BY UTILITY AIRPLANE MANUFACTURERS

<table>
<thead>
<tr>
<th>Company</th>
<th>1955</th>
<th>1954</th>
<th>1953</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beech Aircraft Corporation</td>
<td>64.6</td>
<td>73.3</td>
<td>71.1</td>
</tr>
<tr>
<td>Cessna Aircraft Company</td>
<td>51</td>
<td>67.8</td>
<td>63.5</td>
</tr>
<tr>
<td>Piper Aircraft Corporation</td>
<td>11.7</td>
<td>34.2</td>
<td>40</td>
</tr>
<tr>
<td>Aero Design and Engineering Company</td>
<td>8.5</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Taylorcraft Incorporated</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mooney Aircraft Incorporated</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Call Aircraft Company</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Data compiled from internal records of seven utility airplane companies.
of the air for transportation. He has been able to fly for less than half a century. Generations of inherited inhibitions and fears must be overcome when one first takes to the air. This is natural, but it means that in order to overcome a natural inclination on the part of a potential customer not to fly, the producer must do everything possible to make the product safe. This again stresses production and causes it to be emphasized.

The newest of the manufacturers are production minded because of the interest of the individuals who head the organizations, and also because the companies are very small. Furthermore, with limited working capital the concerns must be very careful about expanding marketing activities when production volume is low.

This philosophy of the paramount importance of production is a desirable development only so long as it does not result in the slighting of marketing activities.

The Products

Current Models, 1956

The seven companies producing utility airplanes in 1955 and 1956 manufactured fifteen different models of airplanes. These fifteen models are best discussed in two groups—single engine and twin-engine.

Table 4 presents an analysis of the single-engine utility airplanes manufactured and sold in 1956. The factors used in the analysis are those considered by the executives of the manufacturing companies and the Civil Aeronautics Administration as being indi-
<table>
<thead>
<tr>
<th>Specifications</th>
<th>Mooney Mite</th>
<th>Piper Super Cub</th>
<th>Call Cadet</th>
<th>Piper Tri-Pacer</th>
<th>Cessna 170</th>
<th>Taylor Topper</th>
<th>Taylor Ranch Wagon</th>
<th>Mooney 20</th>
<th>Cessna 180</th>
<th>Beech 35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price (FAF)</td>
<td>$3695</td>
<td>$4195</td>
<td>$6550</td>
<td>$6825</td>
<td>$8295</td>
<td>$9360</td>
<td>$9840</td>
<td>$12500</td>
<td>$12950</td>
<td>$18990</td>
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<tr>
<td>Number of seats</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Speed (maximum) MPH</td>
<td>142</td>
<td>112</td>
<td>120</td>
<td>139</td>
<td>140</td>
<td>115</td>
<td>160</td>
<td>175</td>
<td>165</td>
<td>190</td>
</tr>
<tr>
<td>Speed (cruising) MPH</td>
<td>125</td>
<td>100</td>
<td>109</td>
<td>132</td>
<td>120</td>
<td>100</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>180</td>
</tr>
<tr>
<td>Range (in miles)</td>
<td>420</td>
<td>360</td>
<td>456</td>
<td>528</td>
<td>540</td>
<td>300</td>
<td>750</td>
<td>651</td>
<td>675</td>
<td>775</td>
</tr>
<tr>
<td>Rate of climb (ft. per minute)</td>
<td>1090</td>
<td>710</td>
<td>1000</td>
<td>725</td>
<td>690</td>
<td>1000</td>
<td>1000</td>
<td>950</td>
<td>1150</td>
<td>1100</td>
</tr>
<tr>
<td>Gross weight (lbs.)</td>
<td>850</td>
<td>1500</td>
<td>2150</td>
<td>2000</td>
<td>2200</td>
<td>2750</td>
<td>2750</td>
<td>2450</td>
<td>2550</td>
<td>2750</td>
</tr>
<tr>
<td>Empty weight (lbs.)</td>
<td>565</td>
<td>800</td>
<td>1000</td>
<td>1100</td>
<td>1205</td>
<td>1550</td>
<td>1625</td>
<td>1335</td>
<td>1480</td>
<td>1697</td>
</tr>
<tr>
<td>Useful load (lbs.)</td>
<td>285</td>
<td>700</td>
<td>1150</td>
<td>900</td>
<td>995</td>
<td>1200</td>
<td>1125</td>
<td>1115</td>
<td>1070</td>
<td>1053</td>
</tr>
<tr>
<td>Luggage compartment (lbs.)</td>
<td>75</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>120</td>
<td>150</td>
<td>150</td>
<td>120</td>
<td>220</td>
<td>270</td>
</tr>
<tr>
<td>Fuel capacity (gals.)</td>
<td>14</td>
<td>18</td>
<td>20</td>
<td>36</td>
<td>42</td>
<td>46</td>
<td>67</td>
<td>50</td>
<td>60</td>
<td>39</td>
</tr>
<tr>
<td>Span (feet)</td>
<td>27</td>
<td>35'3&quot;</td>
<td>35'9&quot;</td>
<td>29'3&quot;</td>
<td>36</td>
<td>34'8&quot;</td>
<td>34'8&quot;</td>
<td>35</td>
<td>36</td>
<td>32'10&quot;</td>
</tr>
<tr>
<td>Length (feet)</td>
<td>17'8&quot;</td>
<td>22'4&quot;</td>
<td>23'5&quot;</td>
<td>20'6&quot;</td>
<td>25'</td>
<td>24'4&quot;</td>
<td>24'4&quot;</td>
<td>23'2&quot;</td>
<td>26</td>
<td>25'2&quot;</td>
</tr>
<tr>
<td>Height (feet)</td>
<td>6'3&quot;</td>
<td>6'7&quot;</td>
<td>6'</td>
<td>8'3&quot;</td>
<td>6'7&quot;</td>
<td>7'1&quot;</td>
<td>7'1&quot;</td>
<td>8'3&quot;</td>
<td>7'6&quot;</td>
<td>6'6&quot;</td>
</tr>
<tr>
<td>Wing Loading (lbs. per sq. ft.)</td>
<td>N.A.*</td>
<td>8.4</td>
<td>11.8</td>
<td>13.5</td>
<td>12.6</td>
<td>15.4</td>
<td>15.4</td>
<td>N.A.</td>
<td>14.6</td>
<td>15.5</td>
</tr>
<tr>
<td>Power loading (lbs. per H. P.)</td>
<td>N.A.</td>
<td>16.6</td>
<td>14.3</td>
<td>13.3</td>
<td>15.2</td>
<td>12.2</td>
<td>12.2</td>
<td>N.A.</td>
<td>11.3</td>
<td>13.4</td>
</tr>
<tr>
<td>Engine (horsepower)</td>
<td>65</td>
<td>90</td>
<td>150</td>
<td>150</td>
<td>145</td>
<td>225</td>
<td>225</td>
<td>150</td>
<td>225</td>
<td>205</td>
</tr>
</tbody>
</table>

*N.A.* - Not available.

Source: Compiled from records of seven utility airplane manufacturers.
cative of the description of the airplane and its performance.

The material presented here is not to be construed as an evaluation of the airplanes to determine which is the better buy. There are many factors that should be considered by a prospective purchaser before a decision is made on a particular model. Additional factors which would usually be included in such an analysis are reputation of the manufacturer and the product, interior finish of cabin, safety features, servicing facilities available, appeal of the airplane in its styling, prestige of owning a particular airplane, and many other subjective features. Thus it is apparent that the factors available for objective measurement presented here are only a part of those differentials which would be considered by a rational buyer.

In general terms, it is expected that as price increases factors such as size, range, seating capacity, speed, rate of climb, and useful load would each increase if all other factors remained the same. The difficulty arises in that the other factors do not remain the same, and it is likely that several factors will vary when comparing different models. For example, the Call Cadet is listed at $6,500 with a useful load of 1,150 pounds, while the Piper Tri-Pacer sells at a higher list price but has only a useful load of 900 pounds. The difference is accounted for in the fact that the Call airplane is intended to be used for agricultural purposes and will need to carry heavy loads of equipment and supplies of dusting compound; the Piper is intended to be used as an executive airplane where its superior speed, seating capacity, and range
are of more importance. Thus, while one airplane might be best for one purpose, another might be the choice for a different task.

Table 5 presents information in regard to the twin-engine airplanes in production for the utility industry. Interpretations drawn from this information are limited in the same manner as previously mentioned. In these airplanes there is a great deal of difference in the cabin interiors and in comfort items, as well as a difference in accessories which may be considered standard equipment on some airplanes and extra equipment at an additional cost on other models.

In addition to differences in the products within the two classifications of single-engine and twin-engine, there are differences between these two groups. The twin-engine products offer the safety of two motors. If one ceases to operate, it is likely that the airplane can be flown to the first available air field and landed without difficulty.

Safety as realized from this source was presented in a very effective manner by the Aero Design and Engineering Company when in 1952 the company's Aero Commander was piloted into the air on one engine and flown nonstop from Oklahoma City to Washington, D. C. "It thus became the first airplane of its type to take off from a standstill and make a sustained long distance flight under gross load conditions with one engine completely inoperative."¹ This flight demonstrated that if an emergency occurred where a motor

TABLE 5
FIVE TWIN-ENGINE UTILITY AIRPLANES
PERFORMANCE AND SPECIFICATIONS DATA

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Piper Apache</th>
<th>Cessna 310</th>
<th>Aero 560</th>
<th>Beech C 50</th>
<th>Beech Super 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price (FAF)</td>
<td>$30,000</td>
<td>$49,950</td>
<td>$59,000</td>
<td>$75,000</td>
<td>$98,975</td>
</tr>
<tr>
<td>Number of seats</td>
<td>4 to 5</td>
<td>5</td>
<td>5 to 7</td>
<td>6</td>
<td>5 to 7</td>
</tr>
<tr>
<td>Speed (maximum) MPH</td>
<td>180</td>
<td>220</td>
<td>206</td>
<td>210</td>
<td>234</td>
</tr>
<tr>
<td>Speed (cruising) MPH</td>
<td>170</td>
<td>198</td>
<td>197</td>
<td>200</td>
<td>207</td>
</tr>
<tr>
<td>Range (miles)</td>
<td>840</td>
<td>1,000</td>
<td>1,050</td>
<td>1,100</td>
<td>1,405</td>
</tr>
<tr>
<td>Rate of climb (feet per minute)</td>
<td>1,350</td>
<td>1,700</td>
<td>1,400</td>
<td>1,450</td>
<td>1,490</td>
</tr>
<tr>
<td>Gross weight (lbs.)</td>
<td>3,500</td>
<td>4,600</td>
<td>6,000</td>
<td>6,000</td>
<td>9,300</td>
</tr>
<tr>
<td>Empty Weight (lbs.)</td>
<td>2,180</td>
<td>2,850</td>
<td>3,900</td>
<td>3,928</td>
<td>6,010</td>
</tr>
<tr>
<td>Useful load (lbs.)</td>
<td>1,320</td>
<td>1,750</td>
<td>2,100</td>
<td>2,072</td>
<td>3,290</td>
</tr>
<tr>
<td>Fuel capacity (gals.)</td>
<td>72</td>
<td>100</td>
<td>145</td>
<td>134</td>
<td>N.A.*</td>
</tr>
<tr>
<td>Span (feet)</td>
<td>37'</td>
<td>36'</td>
<td>44'</td>
<td>45'</td>
<td>50'</td>
</tr>
<tr>
<td>Length (feet)</td>
<td>27'1&quot;</td>
<td>27'</td>
<td>34'2&quot;</td>
<td>31'6&quot;</td>
<td>35'2&quot;</td>
</tr>
<tr>
<td>Height (feet)</td>
<td>9'5&quot;</td>
<td>10'5&quot;</td>
<td>14'9&quot;</td>
<td>11'4&quot;</td>
<td>9'6&quot;</td>
</tr>
<tr>
<td>Wing loading (lbs. per sq. ft.)</td>
<td>17.2</td>
<td>26.2</td>
<td>24.7</td>
<td>21.6</td>
<td>N.A.</td>
</tr>
<tr>
<td>Power loading (lbs. per H. P.)</td>
<td>11.6</td>
<td>9.6</td>
<td>11.1</td>
<td>11.3</td>
<td>N.A.</td>
</tr>
<tr>
<td>Engine (horse power)</td>
<td>2-150</td>
<td>2-240</td>
<td>2-270</td>
<td>2-275</td>
<td>2-450</td>
</tr>
</tbody>
</table>

*N.A. - Not available.

Source: Compiled from records of four utility airplane manufacturers.
ceased to function, the remaining engine should be sufficient.

Another facet of the safety features of the twin-engine plane is the fact that it is capable of carrying whatever amount of navigation equipment is necessary. Some of the small single-engine airplanes, when fully loaded with passengers, have very little carrying capacity available for navigation aids.

The twin-engine has an additional advantage over the single-engine in that it can cover a longer distance without landing and can usually fly at higher speeds.

The advantages of single-engine airplanes are to be found in lower original cost and lower operating cost. In addition, since they are usually low speed airplanes, a minimum length runway can be used; and they can be landed on some small airfields that would not be usable by larger airplanes.

**Future Models**

In addition to the fifteen models now being sold by the utility airplane manufacturers, there are three new models that had not been sold at the time of this research but were expected to be on the market in the very near future.

**Beech Jet.**—This model is the Beech Company's Morane-Saulnier 760 Executive. One of these was introduced to the public in demonstrations but no sales had been realized up to December, 1956. The Beech Jet is now actually manufactured by the Morane Saulnier Company of France, but Beech has a franchise to promote and sell the airplane in the United States. Beech also has an option to
manufacture this model when sales volume warrants such action. The Beech Jet is a departure from the other utility airplanes being sold in volume in that it has twin-jet-engines which give it a top speed of 410 miles per hour. This is almost twice the speed of the faster propeller driven utility airplanes. In addition, the craft is constructed with a pressurized cabin. No specific price was available at the time of this study; however, the executives most closely connected with the promotion program estimated that the price will be approximately $200,000.

Commenting on Beech Aircraft's entry into the jet field, the president of the company stated:

One of the most important aspects of Beech Aircraft's agreement with the Morane Saulnier Company is the fact that there is nowhere in the world another airplane of its type available for actual demonstration. Our Beechcraft organization presents an amazingly fast, new four-place airplane that cannot be duplicated by anyone at this time.2

Cessna 620.—Another of the new products is the Cessna 620, which is designed to meet the travel needs of large corporations. This is a seven-passenger, four-engine all-weather airplane that meets airline requirements and is fully pressurized. The product is considered by Cessna executives to be of great potential in that part of the market now filled by large military aircraft that are modified for civilian use.

Specifications and performance data were not available at the time of interviews in 1956. Executives closely connected with

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2 Interview with O. A. Beech, President of Beech Aircraft Corporation, January 9, 1956.
construction of the 620 estimate the probable price to be between $250,000 and $300,000.3

Piper Comanche.—The Piper Aircraft Corporation is in the process of experimentation with a single-engine, four-passenger, all-metal aircraft that will provide a competitive product for the expensive single-engine airplanes marketed by other companies. This aircraft will sell at a price above that of the most expensive Piper single-engine Tri-Pacer and below the price of the twin-engine Apache. This will mean limits of $7,900 to $26,000. It is expected that the price will be slightly lower than the Cessna 180, which sells for $12,950.4

The airplanes presented by the utility airplane manufacturers furnish a wide variety of products, which is of absolute necessity if the industry is to progress. Some of the companies, such as the Aero Design and Engineering Company, have concentrated on a narrow market with one product; other companies, such as Cessna, have taken the approach of offering as complete a line as possible.

Both approaches are correct. One company, Aero Design and Engineering, is new, small, and has limited finances. Under these circumstances a better production and marketing development is possible in a narrow concentrated area. The other organization, Cessna, has the necessary capital and plant capacity, as well as

3Interview with executives of Cessna Aircraft Company, April 9, 1956.

4Interviews with executives of Piper Aircraft Corporation, August 14, 1956.
distribution organization, to sell a wider line of products. Regardless of whether a company specializes in one or two models or manufactures a wide line, as long as the total utility airplane industry places a variety of airplanes on the market to answer the varied needs of the purchasers, the industry will develop to its maximum. The danger of having only one or two basic products, which was apparent in the period immediately after the war, appears to have been overcome.

Trends in Total Utility Airplane Sales

Total sales of the utility airplane manufacturers have fluctuated a great deal in the period since 1946. As previously pointed out, the airplane industry has been characterized throughout its history by abrupt change. This pattern prevailed after World War II as well as before the War. From a peak sale of $88,172,000 in 1946, the sales of the industry rapidly dropped to $14,322,000 in 1949. After 1949 there was a gradual increase until 1956 when the industry attained a sales figure of $103,194,000.

Two distinct sets of data are available for further analysis of sales of this industry. One set of figures is in terms of dollar value of shipments of airplanes, while the second set of data are in terms of the number of completed airplanes shipped to customers.5

Throughout most of this research project, dollar figures are used; however, certain aspects of the study are best examined

5Internal records of the Utility Airplane Council of the Aircraft Industries Association, Washington, D. C.
through unit data. The fact that the fluctuation in dollar shipments and the fluctuation in unit shipments are not perfectly correlated calls for analysis to explain this phenomenon.

From an examination of Chart 2, it is apparent that while both total dollar sales and unit airplane sales have fluctuated a great deal during the postwar period, they have fluctuated in much the same manner. However, the lowest point in dollar sales was reached in 1946 while the lowest point in unit sales was not reached until 1951.

It is noted from examination of Chart 2 that by 1956 dollar sales had recovered and gone above the sales for 1946 base year to account for 117% of the 1946 amount while unit sales in 1956 had risen only to 20% of the 1946 figure. Another way to illustrate the development presented in Chart 2 is in terms of average price of airplanes sold in 1946 ($2,667) as compared to the average price of airplanes sold in 1956 ($15,665). Airplanes are more expensive because of an inflation in price and because of a trend to larger, heavier, and more powerful products.

It is impossible to measure accurately the rise in price due to inflation because of many technical changes that have taken place in the airplane; however, an indication of the degree of inflation that may be expected in airplane prices is furnished by examination of the Wholesale Price Index of metal and metal products compiled by the Bureau of Labor Statistics. From a base of 100 obtained by averaging prices for 1947 to 1949, the
CHART 2
SALES OF UTILITY AIRPLANES IN DOLLARS AND IN UNITS 1946 - 1956

Compiled from records of Aircraft Industries Association
index rose to 150.2 by August, 1956. Lack of perfect correlation shown in Chart 2 is due to inflation and changes in product.

The trend to heavier and more powerful products is apparent from examination of sales figures for the period 1946-1956. For instance, 90% of the units produced in 1946 were one and two-place aircraft, while only 10% were four-place or larger. However, by 1956 these figures were almost reversed. In this year, the latest year for which data are available, only 14% of the airplanes sold were one and two-place, while 86% were four-place or more. The development of the twin-engine executive airplane is another manifestation of the trend to larger and more powerful products. In 1946 the only twin-engine products sold by any of the fourteen utility airplane manufacturers were 196 Republic Seabees, or one-half of 1% of total industry sales. In 1956 the twin-engine airplane had advanced in demand to the point where 1,050, or 16% of total sales, were sold by four of the seven companies in the industry.

The shift to twin-engine airplanes is considered by executives to be a direct result of the development of more uses for utility airplanes and to the effort to improve the safety of the product in order to overcome sales resistance.

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7Compiled from records of Utility Airplane Council of the Aircraft Industries Association, Washington, D. C.
This shift to larger and more powerful airplanes affected sales in that today the airplane is a dependable tool which can be more readily adapted to business use; however, because of the development in size and power, the cost of owning and operating a plane has increased. This increased cost may be offset in business by the expanded use of the product; however, increased cost has caused the new airplane to be less of a "personal" possession. The product has developed into more of a business tool and less of a sports or pleasure item. With this shift to a costlier product there has been a low volume of production in the total industry while the new uses and new potentials are developed. This low volume is in turn a detriment to assembly line technique. As a result the utility airplane is a costly item to manufacture and with the present volume of business there is little possibility for great improvement in the cost factor.

Seasonal Market Behavior

In order to gain a clear conception of market behavior in the utility airplane industry, it is necessary to examine seasonal fluctuation. Chart 3 shows seasonal fluctuation in two separate time periods. One seasonal was computed for the period from 1936 to 1949. (The years 1942-1947 are omitted since no utility airplane sales were made from 1942 to 1945 and 1946-1947 are considered not to be representative years.) This seasonal is shown on

\[\text{Sales in 1946 and 1947 were the result of a back log of orders that accumulated throughout the preceding war years. Any}\]
CHART 3

SEASONAL INDEX OF UNIT SALES OF UTILITY AIRPLANES BY MANUFACTURERS
1936 to 1956 Excluding 1942 to 1947

(Calculated by Ratio-to-moving-average Technique)

Index

150
140
130
120
110
100
90
80
70
60
50

J F M A M J J A S O N D

Months

- - - 1950 to 1956
- - - 1936 to 1941 and
1948 to 1949

Source: Figures based on internal records from the Market Research Department, Cessna Aircraft Company.
Chart 3 as a dotted line. The second seasonal was computed from sales data for the period 1950 to 1956 and is shown in Chart 3 as a solid line. The two periods are divided in this manner because of opinions expressed by executives that the year 1950 marks a change in the products offered for sale as well as a change in the marketing concepts of many of the people in the industry. When the two seasonals are compared, it is apparent that some changes have taken place in the 1950-1956 period.

In the 1950-1956 data the first four months of the year account for a much greater portion of the yearly sales than in the 1936-1949 period. For example; in the data for the earlier period, January accounted for only 57.7% of the monthly average while in the data for the more recent year, January accounted for 99.4% of the monthly average. This situation is true, to a lesser extent, for February, March, and April. Further analysis of this situation is shown in Table 6 which shows the percentage of total yearly sales accounted for in each of the twelve months. In the first four months of the year for the period 1936 to 1949, 27.1% of yearly sales were made. In the 1950-1956 data, 36.9% of yearly sales were made in the first four months. The last three months of the year are low in both time periods, and Table 6 shows that 20.9% of yearly sales were accounted for by these three months in the early data while the 1950 to 1956 data shows 18.6% of yearly sales falling in these three months.

seasonal experienced in 1946-1947 is believed to be more a result of production capacity rather than of the market variation.
## TABLE 6

**MANUFACTURER'S UTILITY AIRPLANE SALES**

PERCENT OF YEARLY TOTAL ACCOUNTED FOR BY MONTHS

<table>
<thead>
<tr>
<th>Month</th>
<th>1936-1949*</th>
<th>1950-1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>4.8</td>
<td>8.3</td>
</tr>
<tr>
<td>February</td>
<td>5.4</td>
<td>8.2</td>
</tr>
<tr>
<td>March</td>
<td>7.7</td>
<td>9.9</td>
</tr>
<tr>
<td>April</td>
<td>9.2</td>
<td>10.5</td>
</tr>
<tr>
<td>May</td>
<td>10.4</td>
<td>10.3</td>
</tr>
<tr>
<td>June</td>
<td>10.2</td>
<td>9.7</td>
</tr>
<tr>
<td>July</td>
<td>11.2</td>
<td>8.8</td>
</tr>
<tr>
<td>August</td>
<td>10.8</td>
<td>7.8</td>
</tr>
<tr>
<td>September</td>
<td>9.5</td>
<td>7.7</td>
</tr>
<tr>
<td>October</td>
<td>8.0</td>
<td>5.5</td>
</tr>
<tr>
<td>November</td>
<td>6.9</td>
<td>6.5</td>
</tr>
<tr>
<td>December</td>
<td>5.8</td>
<td>6.6</td>
</tr>
</tbody>
</table>

| Total    | 100        | 100       |

*Includes only years 1936-1941 and 1948-1949.

Source: Based on internal records from the market research department, Cessna Aircraft Company.
A further difference between the two sets of seasonals is noted when the amplitude of the variations is examined. It appears from Chart 3 that wider fluctuation was experienced in the earlier period and that the 1950-1956 period shows a more stable market throughout the year.

Most utility airplanes sold during both of these periods were single-engine airplanes. Some of these airplanes are restricted in use because they depend on good weather conditions for satisfactory performance. However, twin-engine airplanes make up a larger percentage of total sales during the 1950-1956 period. In addition, the single-engine aircraft produced during this period were more powerful and more capable of operating in poor weather months than were the single-engine airplanes of the 1936-1949 period.

Executives in the aircraft industry expressed the belief that, because of the improvements in airplanes in the 1950-1956 period, weather did not control the use of the airplane as much as in former years. They reason further that a greater proportion of yearly sales were made in the first four months because sales correlate with the use of the product. This analysis undoubtedly explains, in part, the change in seasonal between the two sets of data; however, it is noted that sales in the last three months of the year have not improved in the 1950-1956 data as compared to data for 1936-1949. These three months of October, November, and December are also bad weather months.
Another possible reason for a more stable seasonal in the 1950-1956 period stems from the fact that more airplanes were purchased for business purposes and fewer airplanes were purchased for pleasure use during this period. In the earlier period (1936-1949) many airplanes were bought for pleasure use alone. Therefore, there was an added emphasis on sales during the vacation months. Chart 3 shows data that are in agreement with this concept. The high months of sales during the 1936-1949 period were May through September. These are usually the vacation months in the United States. In the 1950-1956 data these same months are good sales months, but do not represent as great a proportion of yearly sales as in the 1936-1949 period.

Division of the Utility Airplane Sales
among Competitors since 1946

In 1946 total industry sales of $38,172,000 were shared by fourteen companies, while in 1956 there were only seven manufacturers to divide the larger aggregate market. Of the fourteen concerns in business in 1946 only four were producing utility airplanes by 1956. One of these, Taylorcraft, is now under a different ownership and management group. The other three surviving companies have grown and have developed their markets until their combined sales in 1956 accounted for 88% of dollar sales and 95.6% of unit sales of the utility airplane industry.

Chart 4 presents the share of the market taken over by the three largest companies—Beech, Cessna, and Piper—during
CHART 4

PER CENT OF TOTAL UTILITY AIRPLANE INDUSTRY DOLLAR SALES ACCOUNTED FOR BY THREE LARGEST MANUFACTURERS
1946 - 1956

Source: Data compiled from records of utility airplane manufacturers and from records of Aircraft Industries Association of America.
the period from 1946 to 1956. Since 1951 these three companies have consistently accounted for 85 to 92% of the dollar sales of the industry each year. Also, the percentage of total sales accounted for by the three companies has become larger since 1946, when their combined efforts accounted for only 50% of the total sales of the industry. In other words, during the period since World War II, there has been a consistent tendency toward a concentration of the market in the hands of a few companies. Most of this concentration occurred between 1946 and 1951. Since 1951 there has been no significant increase in the degree of concentration. In other words, in the period from 1951 to 1956, Beech, Cessna and Piper combined sales, expressed as a percentage of total industry sales, remained relatively stable varying from 85 to 92% as compared to a variation from 40 to 91% in the 1946 to 1951 period.

Another indication of more stability in recent years is shown in Table 7 where the first four companies are listed in order of rank in dollar sales for each year from 1946 to 1956. Before 1952 there was some change in the first four companies from year to year. Beginning in 1952, four companies—Beech, Cessna, Piper and Aero—took over the top four positions in dollar sales and retained these positions through 1956. However, within the top four groups since 1952, there have been shifts in rank. For example, Beech and Cessna have exchanged first and second place several times. Piper has remained in third place and Aero


# TABLE 7

**RANK IN SALES OF THE FIRST FOUR UTILITY AIRPLANE MANUFACTURERS**  
1946 to 1956

Ranked by Dollar Sales

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>Beech</td>
<td>Beech</td>
<td>Cessna</td>
<td>Cessna</td>
<td>Beech</td>
<td>Beech</td>
<td>Beech</td>
<td>Cessna</td>
<td>Beech</td>
<td>Beech</td>
<td>Cessna</td>
</tr>
<tr>
<td>Second</td>
<td>Aeronca</td>
<td>Piper</td>
<td>Beech</td>
<td>Piper</td>
<td>Cessna</td>
<td>Piper</td>
<td>Cessna</td>
<td>Beech</td>
<td>Cessna</td>
<td>Beech</td>
<td>Cessna</td>
</tr>
<tr>
<td>Third</td>
<td>Piper</td>
<td>Cessna</td>
<td>Ryan</td>
<td>Beech</td>
<td>Piper</td>
<td>Cessna</td>
<td>Piper</td>
<td>Piper</td>
<td>Piper</td>
<td>Piper</td>
<td>Piper</td>
</tr>
<tr>
<td>Fourth</td>
<td>Cessna</td>
<td>Republic</td>
<td>Stinson</td>
<td>Ryan</td>
<td>Ryan</td>
<td>Luscombe</td>
<td>Aero</td>
<td>Aero</td>
<td>Aero</td>
<td>Aero</td>
<td>Aero</td>
</tr>
</tbody>
</table>

Data compiled from internal records of utility airplane companies and from records of Aircraft Industries Association.
in fourth place for each year since 1951.

In 1956 the combined sales of the four larger companies accounted for 98.8% of total industry sales. The combined sales of the three smaller companies—Taylorcraft, Mooney, and Call—were thus only 1.2% of total industry dollar sales. In unit sales the smaller three companies accounted for 2% of the industry total. The slightly lower percentage accounted for by the smaller three companies on a dollar basis than on a unit basis is caused by the fact that they produce smaller and less expensive airplanes than do the larger companies.

Share of the market as indicated by dollar sales is of paramount importance; however, it is well to examine also the share of the market in unit airplane sales. Table 8 shows the rank of the first four companies in unit airplane sales for the period 1946 to 1956. This table when compared to Table 7 reveals differences in rank in unit sales of particular companies as compared to rank in dollar sales. For example, in unit airplane sales, Piper was first for seven of the eleven years shown, whereas in dollar sales, Table 7 shows that Piper was never as high as first place and was second only in three of the eleven years. Beech was in third place in unit sales for the last seven years shown in Table 8, while in dollar sales, Beech was ranked first for five of these same seven years. There are other less notable differences, but a comparison of Table 7 and Table 8 calls for explanation of the reason for differences shown.
TABLE 8

RANK IN SALES OF FIRST FOUR UTILITY AIRPLANE MANUFACTURERS
1946 to 1956

Ranked by Number of Airplanes Sold

<table>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>Piper</td>
<td>Piper</td>
<td>Cessna</td>
<td>Piper</td>
<td>Piper</td>
<td>Piper</td>
<td>Cessna</td>
<td>Piper</td>
<td>Cessna</td>
<td>Piper</td>
<td>Cessna</td>
</tr>
<tr>
<td>Second</td>
<td>Aeronca</td>
<td>Stinson</td>
<td>Piper</td>
<td>Cessna</td>
<td>Cessna</td>
<td>Cessna</td>
<td>Piper</td>
<td>Cessna</td>
<td>Piper</td>
<td>Cessna</td>
<td>Piper</td>
</tr>
<tr>
<td>Third</td>
<td>Engineering &amp; Research</td>
<td>Cessna</td>
<td>Stinson</td>
<td>Aeronca</td>
<td>Beech</td>
<td>Beech</td>
<td>Beech</td>
<td>Beech</td>
<td>Beech</td>
<td>Beech</td>
<td>Beech</td>
</tr>
<tr>
<td>Fourth</td>
<td>Cessna</td>
<td>Luscombe</td>
<td>Luscombe</td>
<td>Beech</td>
<td>Aeronca</td>
<td>Luscombe</td>
<td>Mooney</td>
<td>Aero</td>
<td>Aero</td>
<td>Aero</td>
<td>Aero</td>
</tr>
</tbody>
</table>

Data compiled from internal records of utility airplane companies and from records of Aircraft Industries Association of America.
The differences are caused, for the most part, by product differences which result in price differences. Beech produces the most expensive utility airplanes. Cessna manufactures airplanes which are, on the average, less expensive than planes produced by Beech, but more expensive than planes manufactured by Piper. To state this another way, in 1955 Beech sold only 380 airplanes to account for dollar sales of $24,893,000 while Cessna had to sell 1,746 airplanes to realize dollar sales of $21,880,000. Piper sold more airplanes (1,870) than either Beech or Cessna, but only realized $16,008,000.

Extreme differences in products of the various manufacturers and large price differentials affect the type of market that has developed in the utility airplane industry. Throughout subsequent chapters of this thesis, material is presented as to marketing practices and policies of the various manufacturers. At this point, it is of importance to examine the type of market framework within which these policies and practices are applied.

There are a number of possible classifications of markets used by various authorities in economic analysis. A widely accepted classification is the division of all markets into those of pure competition, monopoly, monopolistic competition, and oligopoly. Within each of these types, it is possible to define degrees of adherence to each particular type and some writers thus divide the classification more minutely. From the material covered in preceding sections of this chapter, it appears that the utility airplane industry is an oligopoly with differentiated products.
Product differentials are perhaps best indicated by price differences and by product specifications. Tables 4 and 5 of this chapter show that in the pricing of single-engine airplanes of the four major companies—Beech, Cessna, Piper and Aero—there is a price differential between the various airplanes of $3,000 or more in every case except between the Piper Tri-pacer and the Cessna 170 where the price difference is $1,470. In the twin-engine airplanes, the closest price competition is between the Cessna 310 and the Aero 560 where there is a difference of $9,050. It appears that the great difference in price is a factor contributing to less direct competition. A potential purchaser might be in the market for a $49,000 Cessna Airplane, but not be interested in a plane that sells for $9,000 more or less than this. In this case, the Cessna 310 is the only new airplane available.

The price differentials result from two factors. First, real differences in quality and design, and second, advertising and sales promotion efforts. Quality and design differences are found in construction materials, labor skill, horsepower, range, speed, seating capacity, and other characteristics presented previously in Tables 4 and 5 in this chapter. The objective of a manufacturer in increasing the quality or varying design is to cause potential customers to prefer his airplane over other airplanes on the market. Quality and design variation may also be used to extend his market to different classes of buyers. Thus, Call Aircraft Company makes an airplane designed primarily for the agricultural market. Taylorcraft, Inc. produces an airplane
with a plastic fuselage to withstand certain adverse weather conditions. Beech manufactures its Super 18 primarily for the exclusive executive market. Innovations in product that add more to total receipts than to total costs will increase profits. In order to maximize profits by changes in the airplane the manufacturer should carry such changes to the point where marginal revenue from the changes is equal to the marginal cost of making the changes.

The second factor having a bearing on the price differentials is that of advertising and sales promotion. This may permit the producer to sell a larger volume at the same price without engaging in a price war. As in the case of design changes, the most profitable outlay for advertising for a particular airplane company is that outlay at which the marginal cost of advertising is equal to the marginal revenue received from it. However, in oligopoly industry this equilibrium is indeterminate because a change by one manufacturer in design, quality, advertising or promotion may bring on other retaliatory changes by other producers.

In the utility airplane industry a philosophy of "live and let live" appears to be prevalent. The products of the different firms are differentiated enough so that prices may be changed slightly without starting price wars and the various sellers assume that price changes are closely related to change in costs. Although the "live and let live" philosophy is predominate there are "pockets" of keener competition which give promise of possible changes in the competitive pattern in the future. The
most intensive competitive situation in the industry is apparent between Piper and Cessna. The fact that Cessna has succeeded in increasing its share of the market in recent years may result in more intensive competition as Beech joins Piper in attempting to regain their former shares. However, this competition is likely to take the form of advertising and sales promotion effort rather than the form of price cutting.

This competitive situation is deduced from the price lines as shown in Tables 4 and 5 from discussions with executives of the two organizations, and from policies adopted in the industry. For example, Piper and Beech have five combination dealers who handle products of both companies. The executives of the two manufacturers stated that they felt this to be a sound arrangement because there was little competition between their products. They also stated that this would not be tolerated if a dealer wanted to also sell Cessna, because the products would be too closely competitive.

It is apparent that Piper and Beech executives feel there is little competition between the two organizations, but it is also apparent that Cessna presents definite competition to both companies. A few years ago, before Cessna and Piper produced twin-engine airplanes, there was much less competition in products. With the development of twin-engine airplanes there has been an increase in product competition. It will be of interest to see what effect the development of new planes will have on the degree of competition present in the industry. Beech
has announced a new twin-engine airplane which will compete more
directly with Piper and Cessna in price, and Piper has announced
a single-engine airplane which will compete more closely with the
Cessna 180. The likely effect of these new developments will be
a higher degree of competition for the same customer.

**Summary**

The philosophy which pervades the industry is to the effect
that production is of paramount importance while marketing is of
relatively slight significance. This idea was more strongly en­trench­ed before 1946 than it is at present. However, it is still
a factor influencing the degree of emphasis placed on various
activities of the producers. The philosophy of emphasis on pro­duction results from the fact that executives in major policy
making positions attained their authority during eras which did
not require scientific marketing for company success. This was
true of the pre-World War II period as well as during the war
years. It is also true of the portion of business accounted for
by military sales in the years since 1946. A factor which tends
to add to the production emphasis is the desire of purchasers for
safety in airplanes. Effects of this philosophy on specific prob­lems in distribution are reserved for examination in Chapter V.

Dollar sales and unit sales have fluctuated greatly during
the 1946-1956 time interval. Fluctuations between the two sets
of data have a high degree of correlation as viewed on the ratio
chart presented in this chapter. Deviations which occur are a
result of inflation and changes in product.

When seasonal data for 1936-1949 are compared to data for 1950-1956, it is noted that the recent period has a more stable seasonal and that the amplitude of variation is less than for the earlier years. This change results from greater business use of airplanes and from improvements in the products which makes possible year round use.

The utility airplane industry is one of oligopoly with differentiated products, in which three companies account for more than 85 per cent of total industry sales each year. There is little tendency to reduce price and a philosophy prevails of "live and let live." Competition takes the form of advertising and sales promotion rather than the form of price cutting.

The lack of a desire for price cutting stems from the experience of the industry immediately after World War II when the U. S. Government disposed of surplus airplanes at greatly reduced prices. The disastrous results in the industry have so impressed management that price cutting is likely to be the last extreme desperate competitive effort before a company goes out of business.
CHAPTER IV

PROBLEM OF DELINEATING THE CHARACTERISTICS
OF THE MARKET

This chapter has a twofold purpose. The primary objective is the presentation of pertinent data on characteristics of the market for utility airplanes. A secondary purpose is to develop the background for material that will be presented and analyzed in subsequent chapters. Thus, this chapter is not complete in itself for material will be briefly presented at this point, but full significance of some data will not be apparent until specific problems are later analyzed.

The problem of defining characteristics of the market for utility airplanes includes an analysis of factors that indicate who and where are the potential customers. The continued profitable operation of the manufacturer's marketing organization depends directly on the degree of success in answering the questions. Correct answers indicate the most profitable areas for expenditure of sales and advertising dollars, while incorrect answers cause a waste of money and effort and result in a less profitable operation. A major tool for such study is that of marketing research.
Marketing Research

Past Practice

In the past much of the sales and promotional effort has been directed to particular parts of the market in a rather hap­hazard manner. It has been the practice to depend on judgment of company executives who have operated with little factual data. In many cases judgment has been good enough to enable profitable operations and has resulted in an inclination on the part of many of the executives throughout the industry to regard the more systematic methods of marketing research as unnecessary to the profitable conduct of their marketing activities.

Attitude toward Marketing Research

In an effort to analyze the philosophy of the executives in regard to marketing research, a question was asked in each interview. "What is the place of marketing research in the utility airplane industry?" Each of the seventy respondents indicated a respect for the results accomplished by marketing research in other industries. However, 60 per cent were of the opinion that it was not a good tool for the utility airplane industry. In an attempt to discover why these respondents held the opinion indicated, further questions were asked. The answers to these questions developed four causes for the unfavorable opinions; viz., (1) of the 40 respondents opposed to use of marketing research, 26 said they had very little experience with the methods and knew little
about its potential results, (2) 8 expressed the idea that marketing research is a good tool only for consumer goods industries, and (3) 6 respondents thought that marketing research would be a profitable tool in an industry with a well-defined market. They expressed the idea that the only profitable use to be made of marketing research is in a study of such information as buying motives of potential customers for use in advertising and personal selling.

Throughout many of the discussions, reference was made by respondents to the completely inaccurate market forecast made by the Civil Aeronautics Administration in 1945.¹ This study predicted a tremendous rise in the market for utility airplanes over the 10-year period, 1946 to 1956. With his remarks based on this study of 1945, Mr. T. P. Wright, administrator of Civil Aeronautics Administration, stated that by 1955 Civil Aircraft would number 400,000, "...personal aircraft will constitute 280,000 of the total; business planes 40,000, and commercial 80,000 by 1955."² Several of the manufacturers had made expansion plans on the basis of this report. The forecast proved incorrect and has influenced much of the adverse thinking in regard to marketing research. This was an unfortunate forecast; however, it is hardly a sound reason for ignoring the success attained in many industries through marketing research.

¹Civil Aviation and the National Economy (Washington: U. S. Department of Commerce, Civil Aeronautics Administration, 1945), p. 75.

²Speech made at Oklahoma City, Oklahoma by W. T. Wright, Administrator of Civil Aeronautics Administration, November 10, 1944.
None of these reasons appear to this writer to be valid arguments for opposing the use of this scientific method. The first reason expressed, i.e., "a lack of knowledge about marketing research" appears to be the basis of most of the opinions against its use. If the second and third reasons are carefully studied, it is apparent that they, too, are a result of a lack of knowledge about the subject. There are many case records available which show the successful use of marketing research by manufacturers of industrial goods.

Regardless of the validity or lack of validity of the reasons for an unfavorable attitude toward such scientific methods, the fact that the attitude was expressed by so many executives appears to be a factor which retards the increase in the use of this tool. The 40 per cent who expressed opinions favorable to the use of marketing research in the industry were adamant in their belief that much could be done to improve their distribution methods and that such techniques, properly used, are a profitable investment.

Several of the executives holding this latter opinion were in extremely high positions in their companies where their opinions could be expected to carry great weight. The president of one of the aircraft companies stated that "In far too many cases our customers have been found by accident rather than by design. If the utility airplane industry is to expand as desired, we must know more definitely who the best prospects are, where
they are located, and what will make them want to buy."

Extent of Marketing Research

From the preceding paragraphs, it would be expected that little marketing research has been carried on throughout the industry. Insofar as the companies are concerned this is true. There was one noteworthy study made for Cessna by a management consulting firm, and the Piper Company has conducted a survey of owners. Both of these studies are attempts to analyze the market of the particular companies involved and are concerned with the problems of the total industry only indirectly.

The Cessna study is of extreme importance and has so impressed the top executives that they have decided to set up a market research department within the company. At the time of this survey in 1956 the department was in the process of being established. This organization development will be discussed more thoroughly in Chapter V. Thus, one company in the industry appears to be increasing the use of research methods in the analysis of its marketing problems. The other manufacturers may in the future also increase the use of such methods; however, at the time of this study, there was no indication that such would be the case.

An unpublished research study by the management consultant firm of Booz, Allen and Hamilton. This study was made for Cessna Aircraft Company in 1955-1956.
Although the companies in the industry have carried out a limited amount of marketing research, there has been a great amount of data compiled by The Civil Aeronautics Administration. Most of this is factual information as to number and uses of aircraft. In addition, several of the associations connected with aviation have conducted surveys in restricted areas in regard to cost of operation and product research.

Characteristics of the Market

This analysis of characteristics of the market for utility airplanes is composed of a study of the relative importance of the various uses for which such airplanes are purchased, a comparison of the market importance of geographical regions, and an examination of the characteristics of purchasers and users of the products.

The data are developed from unpublished marketing research of Cessna and Piper and from published and unpublished reports of The Civil Aeronautics Administration and The National Industrial Conference Board, Inc. In addition, much of this basic information was verified and expanded as a result of discussions with executives of the industry. The Cessna complete research study has not been released to individuals outside the Cessna staff. Through interviews with Cessna executives, parts of the study were made available to this researcher to be used herein.

Uses of Utility Airplanes

Utility airplanes are used for a variety of purposes. In the almost inaccessible regions of Alaska, a minister uses his small
one-engine airplane to carry out service calls that would otherwise be impossible to make; while a large petroleum company maintains a four-engine luxury airplane to transport its top echelon executives from their work in the U.S. to other important tasks in foreign countries. Between these two extremes there are a tremendous variety of utility aircraft activities. To attempt an analysis of such specific uses would but mire the analysis in a bog of insignificant detail and serve no worthwhile purpose.

In order that data may be systematically presented without becoming too detailed, all activities of utility airplanes have been grouped into five classifications as used by the Civil Aeronautic Administration in research work.\footnote{The five categories used by Civil Aeronautics Administration are defined in The Airplane at Work for Business and Industry as follows:}

\begin{enumerate}
  \item Business - "flying by corporation, companies or individuals in carrying out in their own aircraft the operations of their given enterprises or professions. It represents the use of an aircraft as a vehicle of transportation for people and cargo, not for compensation in the manner a company or individual might use its own auto or truck."
  \item Instructional - "includes all dual and solo flying under the supervision of an instructor."
  \item Experimental or testing - "... includes flying of experimental aircraft, ferrying of new aircraft from factory to distributor, movement of used airplanes from seller to buyer, demonstration flights, and testing of new aircraft..."
  \item Pleasure - "covers all pleasure and personal use... covers both local and trip flights for such purposes as sightseeing, local hops, practice flights, vacation trips, air tours, and other cross-country pleasure flights."
  \item Commercial - "includes contract, charter, industrial and commercial agriculture flying." This category in some parts of the Civil Aeronautics studies is subdivided into
\end{enumerate}
of each of the five categories is shown in Table 9. In 1957 when this study was completed, the most recent data available on aviation activities was for the year, 1954. Therefore, the data covers years up to and including 1954 with estimates for other selected years. Table 9 shows data on number of hours flown in general aviation by major classifications of flying. This Table combines a number of variables and is used in this study as a source for Charts 5, 6, and 7, which present specific parts of Table 9 for purposes of clarification.

Total hours flown in general aviation during 1954 amounted to 8,963,000. Using this total as 100 per cent, Chart 5 shows that business transportation was the most important segment of general aviation accounting for 43 per cent of total hours flown. Pleasure flying and instructional flying were also of significance and accounted for 21 per cent and 14 per cent respectively. The commercial classification which accounted for 20 per cent of total hours flown in 1954 is composed of subcategories of aerial application, passenger, and cargo transportation for hire, patrol, and survey. The least significant category in hours flown was that of testing which accounted for less than .5 per cent of the total.

Chart 6 shows number of hours flown in each category for the period 1946 to 1954, while Chart 7 presents this information:

x) aerial application
y) patrol, survey and other industrial activity
z) passenger and cargo transportation for hire.
### Table 9

**HOURS FLOWN BY AIRPLANES IN GENERAL AVIATION BY TYPES OF FLYING - 1946-1954**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Hours</th>
<th>Business</th>
<th>Commercial</th>
<th>Instructional</th>
<th>Pleasure</th>
<th>Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>%</td>
<td>Hours</td>
<td>%</td>
<td>Hours</td>
<td>%</td>
</tr>
<tr>
<td>1946</td>
<td>9,788</td>
<td>1,068</td>
<td>943</td>
<td>5,996</td>
<td>1,686</td>
<td>95</td>
</tr>
<tr>
<td>1947</td>
<td>16,334</td>
<td>1,966</td>
<td>1,279</td>
<td>10,353</td>
<td>2,616</td>
<td>120</td>
</tr>
<tr>
<td>1948</td>
<td>15,130</td>
<td>2,576</td>
<td>1,066</td>
<td>8,701</td>
<td>2,606</td>
<td>181</td>
</tr>
<tr>
<td>1949</td>
<td>11,031</td>
<td>2,615</td>
<td>1,449</td>
<td>4,187</td>
<td>2,732</td>
<td>48</td>
</tr>
<tr>
<td>1950</td>
<td>9,650</td>
<td>2,750</td>
<td>1,500</td>
<td>3,000</td>
<td>2,300</td>
<td>100</td>
</tr>
<tr>
<td>1951</td>
<td>8,451</td>
<td>2,950</td>
<td>1,584</td>
<td>1,902</td>
<td>1,880</td>
<td>135</td>
</tr>
<tr>
<td>1952</td>
<td>8,186</td>
<td>3,124</td>
<td>1,727</td>
<td>1,503</td>
<td>1,629</td>
<td>203</td>
</tr>
<tr>
<td>1953</td>
<td>8,527</td>
<td>3,626</td>
<td>1,649</td>
<td>1,248</td>
<td>1,846</td>
<td>158</td>
</tr>
<tr>
<td>1954</td>
<td>8,963</td>
<td>3,875</td>
<td>1,829</td>
<td>1,292</td>
<td>1,920</td>
<td>47</td>
</tr>
</tbody>
</table>

1. Includes flying for corporate or executive purposes as well as flying by individuals, including farmers and ranchers on personal business.

2. Includes contract, charter, and commercial agricultural flying.

CHART 5

HOURS FLOWN BY AIRPLANES IN GENERAL AVIATION BY MAJOR USES DURING 1954

Chart derived from Table 9
CHART 6
FLUCTUATION IN HOURS FLOWN BY AIRPLANES USED IN GENERAL AVIATION
BY TYPES OF USE
1946 - 1954

Hours

11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000


Business Flying
Commercial Flying
Instructional Flying
Pleasure Flying
Test Flying

Chart derived from Table 9
CHART 7

FLUCTUATION IN PER CENT OF TOTAL HOURS FLOWN IN GENERAL AVIATION ACCOUNTED FOR BY TYPES OF FLYING
1946 - 1954

Chart derived from Table 9
as a per cent of total hours flown in general aviation each year.

In the most important segment, that of business flying, the 1954 total of 3,675,000 hours represents an increase of 249,000 hours or 6.76 per cent over the figure for the preceding year. An increase in business flying has taken place in each of the nine years.

The commercial classification has also experienced an increase in number of hours flown in the 1954 figure as compared to 1953. This increase amounted to 10.91 per cent; however, it is noted that in some years there has been a decrease and that the total number of hours are less than for business flying.

Instructional flying also experienced an increase in 1954 as compared to 1953. This increase amounted to only 3.52 per cent over the 1953 figure. In this category, it is also noted that in certain years there has been a decrease in hours flown as compared to the year immediately preceding.

Of all classifications in general aviation, instructional flying has experienced the greatest decline over the entire period presented in Table 9. Hours flown in this category have declined from a high in 1947 of 10,353 to the 1954 figure of 1,292. Stating this in another way, in 1947 instructional flying accounted for 63 per cent of all hours flown in general aviation. A decline has taken place in this nine year period to where instructional flying accounted for only 15 per cent of total hours in general aviation in 1954.

Pleasure flying increased only slightly in 1954 over 1953.
(4 per cent) while a decline has been experienced in this type of flying in several years throughout the period under discussion.

Test flying experienced a decline in 1954, but in hours flown this has not been a significant part of general aviation activity throughout the 1946-1954 period.

In summation, it is apparent that business flying is of most significance and that commercial, instructional, and pleasure flying are of approximately equal importance; whereas, test flying contributes but slightly to total hours flown. In addition, there is proof that business flying has grown in importance in relation to the other four categories. All classifications except that of instructional flying have experienced an increase in total hours and an increase in percentage of total hours flown in general aviation. The primary use for civilian airplanes immediately after World War II was to be found among customers who used the airplane for instruction purposes, but by 1954 this market diminished and the business-use market expanded.

Types of Airplanes Used

Table 10 shows a detailed analysis of types of airplanes used in general aviation in 1954. The information is presented in relation to major types, i.e., single-engine, multi-engine, helicopters, and gliders. Under the single-engine category, a subclassification by seating capacity is used, and under each of the sub groups, the number of aircraft is shown classified by horsepower. However, all multi-engine airplanes seat four or
### TABLE 10

**NUMBER OF AIRCRAFT ACTIVE IN GENERAL AVIATION CLASSIFIED BY HOURS FLOWN AND MILES FLOWN DURING 1954**

<table>
<thead>
<tr>
<th>Type of Aircraft</th>
<th>Aircraft Flown</th>
<th>Hours Flown</th>
<th>Miles Flown</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number (000)</td>
<td>% of Total</td>
<td>Number (000)</td>
</tr>
<tr>
<td>Single-Engine, Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 and 2-place, Total</td>
<td>58,240</td>
<td>95</td>
<td>7,978</td>
</tr>
<tr>
<td>65 hp. or less</td>
<td>35,520</td>
<td>58</td>
<td>3,921</td>
</tr>
<tr>
<td>66 hp. to 100 hp.</td>
<td>16,120</td>
<td>26</td>
<td>1,611</td>
</tr>
<tr>
<td>over 100 hp.</td>
<td>12,820</td>
<td>21</td>
<td>1,456</td>
</tr>
<tr>
<td>3 or More Places, Total</td>
<td>6,580</td>
<td>11</td>
<td>854</td>
</tr>
<tr>
<td>Helicopters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gliders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total, All Types</td>
<td>61,290</td>
<td>100</td>
<td>8,963</td>
</tr>
</tbody>
</table>


*Less than 0.5 per cent.
more persons. Analysis of marketing of helicopters and gliders is not within the scope of this research study; however, data regarding these types of aircraft are included in Tables 9 and 10 in order that the presentation of general aviation may be complete.

Chart 8 shows the percentage of all general aviation aircraft accounted for by each major type. In 1954, multi-engine aircraft accounted for only 5 per cent of the total. Chart 9 and 10 show that when the general aviation aircraft are analyzed on the basis of hours flown and miles flown multi-engine airplanes make up a larger share of the total than when number of airplanes alone is considered. In addition, Chart 9 and Chart 10 show that the importance of multi-engine airplanes increases when miles flown rather than hours flown are examined. Hours flown do not show a true situation as to the relative importance of single-engine and multi-engine airplanes for the multi-engine aircraft flies further in an hour of flying time. This point is of importance to this research study because the sale of multi-engine airplanes is considered, by most of the executives in the industry, to be an area for expansion of marketing activity in the near future. If only a measure of hours flown or number of airplanes by type is used to measure activity in general aviation, the true importance of the multi-engine airplane is not revealed.

Types and Uses of Airplanes

Table 11 shows that the single-engine airplanes account for considerable more mileage than do the multi-engine airplanes
CHART 8

AIRCRAFT ACTIVE IN GENERAL AVIATION
CLASSIFIED BY PERCENTAGE
IN MAJOR CATEGORIES
1954

Derived from Table 10.
CHART 9

PERCENTAGE OF TOTAL HOURS FLOWN IN GENERAL AVIATION ACCOUNTED FOR BY MAJOR TYPES OF AIRCRAFT

Multi-engine 10%

4 or more place 45%
1 and 2 place 44%

Single-engine 89% of total

Helicopter 1%

Derived from Table 10.
CHART 10

PERCENTAGE OF TOTAL MILES FLOWN IN GENERAL AVIATION ACCOUNTED FOR BY MAJOR TYPES OF AIRCRAFT

- Multi-engine: 15%
- 1 and 2 place: 34%
- 3 or more places: 51%
- Single-engine: 85% of total

Derived from Table 11.
<table>
<thead>
<tr>
<th>Type of Aircraft</th>
<th>Total All Types</th>
<th>Commercial</th>
<th>Instructional</th>
<th>Business</th>
<th>Pleasure</th>
<th>Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Miles 000</td>
<td>Miles 000%</td>
<td>Miles 000%</td>
<td>Miles 000%</td>
<td>Miles 000%</td>
<td>Miles 000%</td>
</tr>
<tr>
<td>Single-Engine, Total</td>
<td>948,770</td>
<td>85</td>
<td>199,235</td>
<td>88</td>
<td>122,990</td>
<td>99</td>
</tr>
<tr>
<td>1 and 2-place, Total</td>
<td>375,700</td>
<td>34</td>
<td>107,240</td>
<td>53</td>
<td>90,345</td>
<td>73</td>
</tr>
<tr>
<td>65 hp. or less</td>
<td>128,880</td>
<td>12</td>
<td>8,160</td>
<td>8</td>
<td>53,680</td>
<td>43</td>
</tr>
<tr>
<td>66 hp. to 100 hp.</td>
<td>152,880</td>
<td>14</td>
<td>37,590</td>
<td>35</td>
<td>33,915</td>
<td>28</td>
</tr>
<tr>
<td>over 100 hp.</td>
<td>93,940</td>
<td>8</td>
<td>61,490</td>
<td>57</td>
<td>2,750</td>
<td>2</td>
</tr>
<tr>
<td>3 or more place, Total</td>
<td>573,070</td>
<td>51</td>
<td>91,995</td>
<td>47</td>
<td>32,645</td>
<td>26</td>
</tr>
<tr>
<td>144 hp. or less</td>
<td>116,840</td>
<td>10</td>
<td>14,145</td>
<td>15</td>
<td>8,160</td>
<td>7</td>
</tr>
<tr>
<td>145 hp. to 200 hp.</td>
<td>169,130</td>
<td>15</td>
<td>27,690</td>
<td>30</td>
<td>10,270</td>
<td>8</td>
</tr>
<tr>
<td>over 200 hp.</td>
<td>287,100</td>
<td>26</td>
<td>50,160</td>
<td>55</td>
<td>3,630</td>
<td>3</td>
</tr>
<tr>
<td>Multi-Engine, Total</td>
<td>166,710</td>
<td>15</td>
<td>24,205</td>
<td>11</td>
<td>1,140</td>
<td>1</td>
</tr>
<tr>
<td>600 hp. or less</td>
<td>30,560</td>
<td>3</td>
<td>4,320</td>
<td>18</td>
<td>3,420</td>
<td>4</td>
</tr>
<tr>
<td>601 hp. to 2000 hp.</td>
<td>66,960</td>
<td>6</td>
<td>3,420</td>
<td>14</td>
<td>180</td>
<td>*</td>
</tr>
<tr>
<td>over 2000 hp.</td>
<td>69,190</td>
<td>6</td>
<td>16,465</td>
<td>68</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Helicopters &amp; Gliders</td>
<td>3,815</td>
<td>*</td>
<td>2,800</td>
<td>1</td>
<td>160</td>
<td>*</td>
</tr>
<tr>
<td>Total, All Types</td>
<td>1,119,295</td>
<td>100</td>
<td>226,240</td>
<td>100</td>
<td>124,290</td>
<td>100</td>
</tr>
</tbody>
</table>


*Less than 0.5 per cent.
in all use categories. However, in business transportation multi-engine airplanes account for their highest share of use by categories (25 per cent of all business miles flown in general aviation). This is the market that several of the manufacturers have entered with twin-engine airplanes. It is also the market that Cessna has aimed for with its new four-engine "620" airplane. Commercial use accounted for the second largest mileage (24,205) for multi-engine airplanes, while in pleasure use multi-engine airplanes accounted for only 1 per cent of total miles flown in pleasure flying.

**Location of Civil Aircraft**

Table 12 shows the location of civil aircraft by states as of January 1, 1955. "While there is about one motor vehicle for every three people in this country, there is only one active airplane for about every 2,700 persons. On a per capita basis airplane ownership is highest west of the Mississippi River."\(^5\)

The preceding data presents a summary of the type of airplanes in general aviation along with the tasks for which these products are used. These are products already sold. The demand for new aircraft may be somewhat different than the demand for aircraft in the past. An example is furnished by the increase in use of twin-engine airplanes and by the increase in horsepower and weight of airplanes in recent years. The airplane purchased for general aviation use today as compared to that purchased several

### TABLE 12

**COMPARISON OF ACTIVE CIVIL AIRCRAFT**

**BY POPULATION AND STATES**

**1954**

<table>
<thead>
<tr>
<th>State</th>
<th>Active Aircraft Registered</th>
<th>Population (000)</th>
<th>Number of Persons Per Airplane</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>58,994</td>
<td>161,183</td>
<td>2,700</td>
</tr>
<tr>
<td>ALABAMA</td>
<td>445</td>
<td>3,001</td>
<td>6,744</td>
</tr>
<tr>
<td>ARIZONA</td>
<td>707</td>
<td>928</td>
<td>1,313</td>
</tr>
<tr>
<td>ARKANSAS</td>
<td>636</td>
<td>1,798</td>
<td>2,827</td>
</tr>
<tr>
<td>CALIFORNIA</td>
<td>6,311</td>
<td>12,500</td>
<td>2,000</td>
</tr>
<tr>
<td>COLORADO</td>
<td>816</td>
<td>1,499</td>
<td>1,981</td>
</tr>
<tr>
<td>CONNECTICUT</td>
<td>428</td>
<td>2,185</td>
<td>5,105</td>
</tr>
<tr>
<td>DELAWARE</td>
<td>135</td>
<td>371</td>
<td>2,748</td>
</tr>
<tr>
<td>DISTRICT OF COLUMBIA</td>
<td>310</td>
<td>849</td>
<td>2,739</td>
</tr>
<tr>
<td>FLORIDA</td>
<td>1,359</td>
<td>3,300</td>
<td>2,428</td>
</tr>
<tr>
<td>GEORGIA</td>
<td>752</td>
<td>3,606</td>
<td>4,795</td>
</tr>
<tr>
<td>IDAHO</td>
<td>624</td>
<td>598</td>
<td>958</td>
</tr>
<tr>
<td>ILLINOIS</td>
<td>3,487</td>
<td>9,193</td>
<td>2,486</td>
</tr>
<tr>
<td>INDIANA</td>
<td>1,843</td>
<td>4,235</td>
<td>2,298</td>
</tr>
<tr>
<td>IOWA</td>
<td>1,634</td>
<td>2,665</td>
<td>1,631</td>
</tr>
<tr>
<td>KANSAS</td>
<td>1,664</td>
<td>2,023</td>
<td>1,216</td>
</tr>
<tr>
<td>KENTUCKY</td>
<td>459</td>
<td>2,978</td>
<td>6,488</td>
</tr>
<tr>
<td>LOUISIANA</td>
<td>821</td>
<td>2,927</td>
<td>3,565</td>
</tr>
<tr>
<td>MAINE</td>
<td>320</td>
<td>890</td>
<td>2,781</td>
</tr>
<tr>
<td>MARYLAND</td>
<td>537</td>
<td>2,601</td>
<td>4,844</td>
</tr>
<tr>
<td>MASSACHUSETTS</td>
<td>866</td>
<td>4,924</td>
<td>5,686</td>
</tr>
<tr>
<td>MICHIGAN</td>
<td>2,452</td>
<td>7,028</td>
<td>2,866</td>
</tr>
<tr>
<td>MINNESOTA</td>
<td>1,568</td>
<td>3,132</td>
<td>1,997</td>
</tr>
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<td>MISSISSIPPI</td>
<td>584</td>
<td>2,126</td>
<td>3,640</td>
</tr>
<tr>
<td>MISSOURI</td>
<td>1,522</td>
<td>4,076</td>
<td>2,678</td>
</tr>
<tr>
<td>MONTANA</td>
<td>888</td>
<td>619</td>
<td>697</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State</th>
<th>Active Aircraft Registered</th>
<th>Population (000)</th>
<th>Number of Persons Per Airplane</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEBRASKA</td>
<td>1,287</td>
<td>1,366</td>
<td>1,061</td>
</tr>
<tr>
<td>NEVADA</td>
<td>288</td>
<td>210</td>
<td>729</td>
</tr>
<tr>
<td>NEW HAMPSHIRE</td>
<td>127</td>
<td>550</td>
<td>4,331</td>
</tr>
<tr>
<td>NEW JERSEY</td>
<td>1,158</td>
<td>5,303</td>
<td>4,579</td>
</tr>
<tr>
<td>NEW MEXICO</td>
<td>551</td>
<td>778</td>
<td>1,412</td>
</tr>
<tr>
<td>NEW YORK</td>
<td>2,926</td>
<td>15,826</td>
<td>5,409</td>
</tr>
<tr>
<td>NORTH CAROLINA</td>
<td>1,032</td>
<td>4,225</td>
<td>4,094</td>
</tr>
<tr>
<td>NORTH DAKOTA</td>
<td>682</td>
<td>635</td>
<td>931</td>
</tr>
<tr>
<td>OHIO</td>
<td>2,836</td>
<td>8,720</td>
<td>3,075</td>
</tr>
<tr>
<td>OKLAHOMA</td>
<td>1,313</td>
<td>2,174</td>
<td>1,700</td>
</tr>
<tr>
<td>OREGON</td>
<td>1,121</td>
<td>1,640</td>
<td>1,463</td>
</tr>
<tr>
<td>PENNSYLVANIA</td>
<td>2,430</td>
<td>10,984</td>
<td>4,520</td>
</tr>
<tr>
<td>RHOE ISLAND</td>
<td>120</td>
<td>837</td>
<td>6,975</td>
</tr>
<tr>
<td>SOUTH CAROLINA</td>
<td>356</td>
<td>2,270</td>
<td>6,376</td>
</tr>
<tr>
<td>SOUTH DAKOTA</td>
<td>807</td>
<td>672</td>
<td>833</td>
</tr>
<tr>
<td>TENNESSEE</td>
<td>600</td>
<td>3,362</td>
<td>5,603</td>
</tr>
<tr>
<td>TEXAS</td>
<td>4,487</td>
<td>8,479</td>
<td>1,890</td>
</tr>
<tr>
<td>UTAH</td>
<td>318</td>
<td>762</td>
<td>1,396</td>
</tr>
<tr>
<td>VERMONT</td>
<td>101</td>
<td>377</td>
<td>3,732</td>
</tr>
<tr>
<td>VIRGINIA</td>
<td>697</td>
<td>3,560</td>
<td>5,108</td>
</tr>
<tr>
<td>WASHINGTON</td>
<td>1,559</td>
<td>2,531</td>
<td>1,623</td>
</tr>
<tr>
<td>WEST VIRGINIA</td>
<td>354</td>
<td>1,990</td>
<td>5,621</td>
</tr>
<tr>
<td>WISCONSIN</td>
<td>1,257</td>
<td>3,628</td>
<td>2,886</td>
</tr>
<tr>
<td>WYOMING</td>
<td>364</td>
<td>298</td>
<td>8,187</td>
</tr>
</tbody>
</table>

*1,055 Active Aircraft Registered in the territories are not included in the above table.

years ago is likely to be more expensive, heavier, safer, more powerful and capable of higher speed, and possess an ability to cover more territory without refueling. Because of these improvements in the product, the uses made of airplanes may vary in the future.

In order that a specific manufacturer may know how his products fit into this general market, the producer should employ marketing research techniques to analyze the general market in terms of the products he produces. The most thorough attempt that has been made by a manufacturer to define his place in the general market, through marketing research techniques, is that of Cessna Aircraft Company through the Booz, Allen, and Hamilton research project. Results of this research study are presented in Chapter VI in a discussion of the development of the Cessna Sales Training Program. Illustration of the importance of defining the company market within the general market is obtained from Cessna executives who state that as a result of this study, they are convinced there is no pleasure market for an airplane selling for more than $7,500. Therefore, Cessna produces no airplane to be sold for pleasure purposes. Insofar as Cessna is concerned, in light of their marketing research, money and time are wasted if used to reach this market. Other companies, that produce less expensive airplanes, may find the pleasure use market a lucrative field for marketing activity.

The Piper organization conducted a study of owners of Piper airplanes in 1956. From this study Piper has attempted to write advertising directed more specifically to its market, analyze
operating costs, analyze distributor service, and make improvements on the product in line with customer desires.

Beech Aircraft Corporation sells a more expensive line of products than do the other utility airplane manufacturers and is likely to find a different market.

Because of the differences in products and in price of products, it is imperative that further marketing research be conducted by each of the companies with the purpose of defining the market for its specific products. In 1956 there was no indication of increase in activity of this nature except in the case of Cessna where a new marketing research department was established.
CHAPTER V

PROBLEMS CONCERNED WITH ORGANIZATION OF THE MANUFACTURERS' MARKETING DIVISIONS

Organization Balance

A major problem in organization of a company is that of "balance." A well-organized company needs organization balance between the various major divisions, such as sales and production. In addition, a balance within each division is desirable so that the various intra-division functions may be properly emphasized.

Balance between Divisions

Forces that determine the development of the marketing division\(^1\) are both external and internal. Outside forces having a part in the progress of the marketing division result from the over-all company organization structure. Balance will be realized when each division is developed in accordance with the relative importance of its contribution to the achievement of the organ-

\(^1\)In this study the term "marketing division" includes the activities of selling, advertising, marketing research, sales training, and credit management. "Marketing personnel" includes all employees with the exception of secretaries and clerks who carry out these activities.
ization's objective. A lack of balance in an organization stems from many causes that are usually recognized only after undesirable conditions become extreme.

In the utility airplane industry lack of balance throughout an entire company is evidenced in two related situations. These are:

1. An overemphasis on production activities as compared with marketing activities,

2. An overemphasis on military sales as related to commercial sales.

The extreme emphasis on production is apparent throughout the industry, while the tendency to emphasize military sales over civilian sales is found in only two of the companies. Lack of balance explains, in part, the fact that the marketing divisions of the airplane companies are not developed to the fullest possible extent. Lack of balance between the divisions with the various companies is a natural result of the philosophies of the controlling executives. These philosophies are discussed in Chapter III.

The most recent data available show that in 1955 Beech obtained 35.4 per cent of total sales from utility airplanes, while Cessna realized 49 per cent of total sales in this manner. In

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3Information obtained from internal records of Beech Aircraft Corporation and Cessna Aircraft Company.
addition, company executives of Cessna and Beech predict that commercial sales will account for an increasing share of their total market in the future. In the face of the predicted growing importance of utility airplane sales to these two large companies, it is desirable that further emphasis be placed on utility airplane marketing divisions. One path to this objective is education of company personnel to the fact that sales can be influenced by factors other than production. Another aid in emphasizing the marketing activities is to place the sales manager's position on a higher level in the structure of the organization.

Lack of organization balance is noticeable in The Beech Aircraft Corporation's organization chart (Chart 11). Beech has a vice-president responsible for military sales, a vice-president coordinator, and a vice-president general manager. The utility sales manager occupies a position subordinate to and responsible to a vice-president. Chart 12 shows the Cessna Aircraft Company organization structure. This formal organization chart does not reveal a lack of balance between military sales and commercial sales. Lack of balance in Cessna is a development of the informal organization and is due to historical factors discussed in Chapter III. However, Chart 12 reveals the commercial sales department as being adversely related to production in that the sales department is in a lower echelon in organization structure.

The relatively minor position of the sales department is true throughout the industry, in both the formal and informal
Source: Compiled from interviews with company executives and from examination of internal company records.
CHART 12
ORGANIZATION CHART OF CESSNA AIRCRAFT COMPANY

President

Vice President Manufacturing

1. Hutchinson Plant Manager
2. Prospect Plant Manager
3. Production Manager
4. Outside Representative
5. Manufacturing Personnel Manager
6. Wichita Plant Manager
7. Controller
8. Commercial Sales Manager

Vice President Finance

7. Controller
8. Commercial Sales Manager
9. Military Sales Contract Representative
10. Chief Engineer Commercial Aircraft
11. Chief Engineer Military Aircraft
12. Administrative Assistant to Vice President
13. Chief Project Engineer
14. Chief Engineering Research
15. Chief Pilot Testing
16. Chief Inspection

Vice President Engineering

Source: Compiled from interviews with company executives and from examination of internal records.
organization structure. However, in companies other than Beech and Cessna military sales are of less importance as related to commercial sales (see Table 3, Chapter III). In addition, the general manager in the small companies usually acts as production manager as well as sales manager and the problem of proper balance between the various functions can be resolved with less difficulty since one man holds the responsibility and authority for a number of activities. However, even in the case of the small companies, the person who controls the various divisions is likely to be oriented more to production than to sales.

**Balance within the Marketing Functions**

While organization balance is an important goal to be achieved in the total structure of the company, balance within the marketing division is also desirable and necessary for an efficiently functioning organization. Proper emphasis must be given to each of the functions.

The marketing divisions of the various companies have been extremely slow to expand and to employ additional personnel so as to specialize by functions. At present there is a growing awareness that expansion and specialization are desirable. A well-known authority in management writing on the subject of the law of functional growth states

> Organizational growth takes place under conditions of free competition when an organization must expand to accommodate itself to a permanent increase in customer demand...the various functions of an organization increase in scope and complexity, as well as in the amount of work and the tech-
technical requirements for their proper performance, as the volume of business grows.4

This quotation describes the position of three larger companies in the utility airplane industry. The awareness of the need for specialization within the marketing activities is fully realized only by one company in the industry; however, top echelon executives in several of the companies are gradually being forced to make adjustments in the organization structure in order to continue good relations with their distributors and customers.

Charts 13 and 14 show utility airplane sales division organization structure for two companies. The sales organization shown in Chart 13 (Beech) has very little specialization insofar as the sales manager's task is concerned. This is a simple line organization with line authority divided, for the most part on a geographical basis. The importance of the job of sales promotion and sales training has forced the hiring of an individual to specialize on these tasks. The coordinator of Model 18 sales is another position in which the importance of the product calls for special emphasis.5 Since deliveries are also an unusual problem in this industry, assistants have been employed to carry out this phase of work.


5This can best be understood from the fact that the product sells for $98,875 and requires special techniques in selling.
CHART 13

ORGANIZATION CHART OF COMMERCIAL SALES DIVISION
OF BEECH AIRCRAFT CORPORATION

Sales Manager

Assistant Sales Manager

NE District Manager
SE District Manager
Central District Manager
Western District Manager
Promotion and Training
Coordinator Model 18 Sales

Coordinator Deliveries
Assistant Coordinator Deliveries
Sales Files
Sales Files

Source: Compiled from interviews with company executives and from examination of internal company records.
ORGANIZATION CHART OF THE COMMERCIAL SALES DIVISION
OF CESSNA AIRCRAFT CORPORATION

1-14 Regional Sales Manager
15 Service Manager
16 Commercial Parts Manager
17 Assistant Service Manager
18 Resident Service Manager
19 Service Representative
20 Technical Representative
21 Export Sales Manager
22 Resident Export Sales Manager

Source: Compiled from interviews with executives and from examination of company internal records.
The Beech organization also has some unusual assignments of duties which are usually considered a part of the marketing task. The manager of commercial airplane sales has no direct authority or responsibility in connection with spare parts sales, nor do these departments answer to the same vice-president. In addition, export sales and domestic sales are each under a different manager; however, both managers are responsible to the same vice-president. Credit activity is performed as a separate function directly responsible to the Secretary-Treasurer of the company.

The title of District Manager is misleading since there are no company personnel responsible to these district managers. The title is used because these individuals, in a sense, manage their territories and are responsible for all activities in those territories whether this be selling, promoting, collecting, or advising distributors as to management of their organizations.

Chart 14 shows a more orthodox organization structure (Cessna) in which a higher degree of both geographical specialization and functional specialization is evident. Sales training and marketing research occupy staff advisory positions in which the managers report directly to the sales manager. These are new positions created during 1956 because of the need for specialization in these tasks. The need resulted from the growing total market, as well as efforts of the company to improve its share of the market.

In the Cessna organization the division of line authority
is geographical except for functions of advertising and sales pro-
motion. At present, there is no product division of line authority
such as that shown in Chart 13 for Beech. However, this company
will have, in the near future, a much larger airplane on the
market, which may make it necessary to establish a line selling
organization for this product alone.

Another basic difference in the two organization structures
is the position of export sales, service and parts sales. In the
Beech Aircraft Company these are not a part of the Commercial
Sales Department. However, in Cessna Aircraft Company these
functions are placed under the assistant sales manager, and are
thus supervised by the sales department. This latter arrangement
enables a greater degree of coordination of the entire job of
distributor relations and customer service.

A greater degree of geographical specialization is also
evident in Chart 14. Cessna has an additional echelon in the
line structure. Two divisional sales managers each have several
regional sales managers responsible to them. This arrangement
provides for the entire United States to be divided into fourteen
territories plus one immediately surrounding the Wichita plant,
which is assigned to the resident sales manager. Beech divides
the entire country into only four regions, with one man for each
region. Here again the practice of referring to these regional
representatives as managers is a questionable one; however, it
is accepted terminology in the industry.
In 1956, the marketing functions of the Piper Aircraft Corporation were conducted by a staff consisting of a sales manager, an assistant sales manager, and five field representatives. The sales manager was directly responsible for distributor and dealer relations, coordination of sales with other departments of the company, advertising, sales promotion, marketing research, training of distributors' salesmen, entertainment of home office customers, publicity, selection of sales personnel and credit.

The sales manager carried out much of the actual details of planning and conducting market research studies, advertising campaigns, and other work which might well be turned over to staff assistants. This same situation was repeated, with slight variation, throughout the industry.

The balance within the marketing divisions is affected by this lack of specialization and lack of personnel because the sales managers do not possess the training to conduct each separate staff function in the detailed manner necessary for efficiency in the industry today. In addition, they do not have the time to carry out these functions in a manner which would give proper emphasis to each phase of the marketing task. This condition results in concentration of effort on those tasks that are considered by the sales manager and his superiors to be most directly productive of sales. Other functions which might also be productive are slighted, and there is little time for experimentation with new methods.
In this study it was found that functions that do not usually receive proper emphasis are marketing research, selection of personnel, training of distributors and dealers, and credit.

While this study was in progress, Cessna executives decided to set up a marketing research department. This department was placed in the sales division, with the marketing research manager directly responsible to the sales manager. At the time interviews were terminated in 1956, the department was still in the formative stage. Another development that took place during the time interval covered by this research was the expansion of credit activities by both Cessna and Beech. The Cessna Company has established a separate organization known as National Aero Finance Company, Inc. This enterprise is entirely owned by Cessna; it has as its sole function the extension of credit to the middlemen who sell Cessna products and to customers who lease airplanes. Beech executives decided to retain the credit activities within the parent corporation. A credit department was established for the purpose of taking the responsibility for credit activities out of the jurisdiction of the sales manager and placing it in the hands of a specialist. Other companies in the industry have not separated the credit function to the extent that Cessna and Beech have found desirable. However, they avail themselves of the use of independent credit companies who operate in the area of airplane financing. The fact that independent credit companies are in existence has retarded the tendency for the smaller manufacturers
to develop their own credit departments. This lack of a credit department placed on the sales manager the burden of coordinating the credit activity between dealers and the finance company. The Cessna developments in marketing research and sales training, and the Beech and Cessna activities in credit are the only actual changes that have taken place in the organization structure of the marketing departments within the various companies since 1950. However, Cessna expects to specialize the marketing activities further by establishing a sales training assistant director and an education director. A sales executive of the Company states that the only thing delaying this development is failure to find the proper persons for the positions. In addition, Cessna has launched a program to hire more traveling representatives. The desire here is to reduce the size of field representatives' territories so that a more intensive type of sales activity can be conducted.\footnote{Interview with Mr. Robert Chatley, Director of Sales Promotion for Cessna Aircraft Company, March 6, 1956.}

Executives in the Beech Airplane Company indicated that they expect no organization changes within the scope of marketing activities except for the possible addition of several field representatives.\footnote{Interview with Sales Manager, Beech Aircraft Corporation, April 5, 1956.}

The Piper Company executives expect an expansion in the marketing field division and J. W. Miller, the sales manager,
expressed a desire to specialize the activities within his division. However, he also stated that he could see no possibility of accomplishing this goal until plant and office expansion plans were completed, which would probably rule out any change for the next five years. In the meantime, his answer to the problem of handling many varied responsibilities is to avail himself of outside companies that specialize in certain of the areas within his jurisdiction. Such companies are available in the field of credit, promotion, advertising, selection, and training.8

The executives of Aero Commander expressed the opinion that the degree of specialization already in existence in their organization is efficient for the size of the company and will remain efficient until the company has grown much larger.9

Executives of the three smaller companies foresee little change in the immediate future, and feel that further specialization would not be economically feasible.10

From the expressed opinions of the executives of the various companies, it is apparent that organizational balance will not be achieved through specialization in most of the companies. Cessna

8Interview with Sales Manager, Piper Aircraft Corporation, August 15, 1956.

9Interview with Sales Manager, Aero Design and Engineering Corporation, April 27, 1956.

10Interviews with General Managers of Mooney Aircraft Company, September 5, 1956; Call Aircraft Company, September 6, 1956; and Taylorcraft Company, August 17, 1956.
appears to be most concerned with the desirability of further specialization in marketing activities and is carrying out changes more rapidly than the other concerns.

**Organization Stability, Flexibility, and Growth**

Stability of an organization refers to the ability to fill important positions quickly and satisfactorily from within the organization. To possess a high degree of stability, the organization should be able to withstand losses of executive personnel without loss of efficiency. This desirable condition can be realized only where an adequate system of executive development is in practice and where an effective promotion system is used.¹¹

Throughout the utility airplane industry, the degree of stability existing in the marketing activities is limited. This limited degree of stability is due to the fact that large-scale marketing in the larger companies has been in existence for a very short time and is non-existent in the smaller concerns. Only since 1946 has the market for utility airplanes been large enough to warrant organized large-scale marketing effort. While growth in the market took place first in 1946, the effect on the marketing divisions was gradual and is still in the process of becoming fully realized. Very few additions in the marketing staffs were made before 1950.

¹¹ Maynard and Davis, *op. cit.*, pp. 21-22.
The two larger companies, Beech and Cessna, have experienced changes in the position of sales manager since the end of World War II. In each case, a man was promoted to this position from within the company. Each of the men promoted had been with his company over ten years and had several years' experience in marketing work in the company. The preceding sales managers were not promoted but rather severed their connections with the companies. In the remainder of the industry, no replacements in personnel have occurred within the marketing departments during the postwar period.

From discussions with executives there was no indication that executive training programs were in effect within the group of personnel conducting marketing activities. Executives expressed the idea that marketing is an area of activity which can be learned only by actual work within the department, and therefore no specific effort is made to train personnel to take over other positions in the future.

Although the airplane companies have experienced little difficulty in replacement of personnel in marketing activities, there have been definite problems in connection with adding to existing staffs.

The two larger companies (Beech and Cessna) expanded their marketing organizations in the period after 1950. This expansion was a result of actual and expected growth. Changes due to growth have taken two forms of specialization. The first form of specialization is geographic where personnel have been added
so that territories assigned to field representatives can be reduced for more intensive cultivation of the market. The second form of change due to growth is the functional specialization, which is now in its early stages. This specialization was previously referred to in the discussion of organization balance.

One company has experienced more change in its marketing organization than any of the other members of the industry. So that the stability and growth factors in these changes could be analyzed, executives were questioned as to the possibility of promoting from within the organization to fill newly created positions in marketing activities. The philosophy expressed in regard to this situation was that because of the stress placed on production, present personnel in other areas of the company are not "sales minded" and do not possess basic qualifications for marketing. The idea expressed by one executive demonstrates this generally held concept.

We believe it to be a much more successful practice for our company to teach a "sales minded" person what he needs to know about airplanes than it is to teach one of our own production people to be a marketing man.12

Flexibility refers to the problem of providing for organization adaptability to changing volume of business without serious loss of effectiveness.13 Executives do not consider the

12Interview with sales executive of a utility aircraft manufacturer, April 17, 1956.

13Maynard and Davis, op. cit., p. 22.
problem of flexibility to be of importance in the airplane industry. The discussions indicated that the work load in the various marketing activities does not fluctuate enough to cause difficulty in adjusting.

From the preceding analysis, it is apparent that organization balance has not been achieved between marketing activities and military sales and production; neither has balance been achieved within the area of marketing functions. Stability and growth have not been developed in the marketing area, and provision for flexibility appears to be of minor importance. There have been improvements in certain instances in regard to all of these desirable organizational principles, but only in a very few cases.

Selection of Personnel for Marketing Positions

As a result of the predicted increase in sales of utility airplanes, executives in all of the companies are interested in the subject of selection of marketing personnel. Cessna, Beech, and Piper are most concerned, since the hiring of desirable individuals will affect their situation drastically. Beech and Piper executives expressed an interest primarily based on the concept that an increase in sales would mean employment of additional field men to take care of their channels of distribution. Cessna executives expressed the idea that they were changing to a more intensive cultivation of the market and would need more personnel than were necessary under the extensive cultivation policies previously practiced. The concept expressed by Cessna executives
was that the intensive development of the market would, in itself, increase sales and support additional employees in the field staff. In addition, the previously discussed change to specialization of staff functions in the Cessna organization creates executive positions for which highly qualified men are needed.

Qualifications

Questions were asked regarding the qualifications necessary for successful applicants in the marketing departments of the various companies. Many of the qualities were similar to those that would be desired in any salesman. However, there were several unusual qualifications.

The one factor that contributes the most to a scarcity of acceptable candidates is the ability to pilot an airplane. This qualification was not always stated as a necessity; however, every executive interviewed indicated it to be highly desirable. It is significant that an examination of the marketing personnel in the various manufacturing concerns revealed that in 1955 every executive and field man was an experienced pilot.

In the field positions, ability to pilot an airplane is especially important, and until 1956, these positions were not available to anyone but experienced pilots. Field men are the contact between manufacturer and distributor. They are required to cover a large territory, which necessitates a rapid means of transportation. They represent the manufacturer in helping the middlemen and the salesmen employed by the middlemen. They are
expected to be able to demonstrate an airplane for customers of the middlemen. In this situation, it is necessary they not only be able to fly but that they be capable of flying each of the company models and of performing the task well. Otherwise, a sale might be lost by a poor demonstration.

In 1956 Cessna, after very slow progress in recruiting pilots, started a program of hiring nonpilots for some of their field positions. The plan includes an intensive pilot training program in the first year of employment. During this period the trainee is trained also for the field job and makes airplane trips with other sales representatives who are accomplished pilots. By the time interviews were terminated, this program had not been in effect long enough to fully evaluate it. However, the combination of qualifications desired in an airplane salesman is so rare that some such on-the-job training is necessary if Cessna is to achieve its goals in increased personnel.

The pilot qualification was also carried over into staff positions when Cessna executives decided to employ directors of marketing research, sales training, and education. The original requirements included the ability to pilot an airplane. Personnel executives explained that the reason for this stipulation was that a part of the work would require these individuals to fly to a dealer's place of business or to various speaking engagements. After difficulty was experienced in securing a marketing research director, this qualification was dropped for this position. However, the requirement remained for the other two positions.
One executive, in explaining the company attitude that marketing people should be able to pilot an airplane, stated that it was not only because of the transportation requirements of the job, but also because a nonpilot possessed an attitude toward flying which made it difficult for him to do an effective job with distributors and dealers, or with the public.

The other manufacturers have not adopted the Cessna policy of employing nonpilots and probably will continue to use only qualified flyers unless it becomes necessary to hire an increasing number of field men. The manufacturers other than Cessna are not using an intensive marketing plan and are not likely to need many new representatives.

A second important qualification desired in a prospective employee in marketing is that of successful business experience. None of the respondents are interested in securing individuals immediately out of college with no business background. The minimum figure as to desired length of experience is five years. Most of the executives indicated that it was an advantage for a representative to have eight or ten years in other business activities, but that five years would be acceptable if other qualifications were unusually good. The desired number of years of experience was increased in the case of staff executives such as the directors of marketing research, sales training, education and credit.

Throughout the interviews the idea was expressed by executives that the marketing activities were in a stage of develop-
ment, and there was a strong realization that they did not at that time have correct answers to many of their problems. For this reason, the stress is placed on bringing individuals from other companies where they have successfully carried on marketing work in relation to other products. The desire is to adopt and adapt successful practices in other industries to the marketing of utility airplanes. It is recognized that the airplane differs greatly from many other products, but the top executives feel that these differences have been overemphasized and that the similarities have not been stressed sufficiently. It is their belief that what is good marketing practice in other industries may also be successful practice in the airplane industry. One of the major reasons for the business experience requirement is the desire to bring successful marketing techniques from other industries into the airplane companies.

It is likely that some types of business experience are of more benefit to the airplane industry than other types. This point was discussed with several of the marketing and personnel executives of the various companies in an effort to define the better sources of potential, new employees.

Marketing executives in the Cessna organization indicated their best source of field men to be individuals who had a number of years of experience as field representatives for automobile manufacturers. Particular companies mentioned as having furnished good prospective candidates for airplane field representative posi-
tions were The Ford Motor Company and the General Motors Corporation. However, there was indication that employees of other automobile manufacturers would also work out successfully with the airplane manufacturers.

In field positions for the automobile companies, a representative acquires experience in personal contact work with distributors. He must aid the dealer in the management of the dealer's business and protect the manufacturer's interest. At times, such a task calls for an astute businessman as well as a persuasive diplomat. The executives at Cessna contend that their field positions are very similar to those in the automobile business in that the work is the same and identical qualities are necessary in the individual performing the task.

In the Cessna Company this source was so strongly emphasized that it appeared to be almost a prerequisite that a new employee have experience with an automobile manufacturer. Beech and Piper agreed with the general concept expressed by the Cessna executives but not to the same degree. The Sales Manager of the Piper Aircraft Corporation stated that Piper would consider anyone with experience in distributor-manufacturer relations regardless of the product, but that an individual with business background in industrial goods would be preferred. In 1956, the Beech Aircraft Corporation adhered to the automotive background concept, when a director was employed for the new credit department. This individual possesses a 15-year experience record with General
Motors Acceptance Corporation and exemplifies the belief that practices that have been successful in other industries can be adapted to marketing of airplanes.

In discussing the field jobs, Mr. Greever, the Sales Manager of Beech, stated:

The airplane today is an industrial goods product. The motives for buying, the financing, the sales promotion, and the advantages are more akin to other high unit value industrial goods than to an automobile which is often purchased as a consumer goods.

The smaller manufacturers have made no particular analysis of the source of desirable candidates. For the most part they do not consider this an immediate problem. Mr. Muro of Taylorcraft stated that he would like to employ one field representative, but that the position is not one which requires immediate action and therefore he has not concerned himself with the details as to qualifications. When questioned as to the desirability of the representative being a pilot, Mr. Muro emphasized that ability to pilot a plane is an absolute requirement.

Since the airplane manufacturers have only a small marketing force and are in a formative stage in marketing policy and practice, the executives indicated a great deal of flexibility in other qualifications deemed desirable for marketing work. Age is not specified, except in field positions the executives prefer to employ men under 40 years of age. A minimum age limit was indicated by the requirements for business experience and desirability of a college degree. Thus, it is unlikely that individuals below the age of 25 will be hired. In the staff executive positions,
no limit on age is specified. The need in these positions is for men with more years of successful experience in executive positions; therefore, older persons are more likely to fill these positions.

Compensation

The difficulty of finding enough individuals to fill field and staff positions is not an extreme problem in most of the industry. Cessna is an exception. The desire of the controlling interest at Cessna to expand their field organization and to specialize in the marketing staff functions has caused an increase in the number of individuals needed. The problem would not be as difficult to overcome if it were not for still another factor, the amount of compensation the company is willing to pay.

In 1955 the income offered a new field employee at Cessna was $400 per month. In 1955 a number of companies in other industries in Wichita, Kansas, were paying beginning salesmen $375 to $400 when employed directly after graduation from college and with no business experience. A study made under the auspices of Northwestern University shows that during 1956 the average monthly starting salary for college graduates accepting sales positions was $370 a month. 14 It is not surprising that Cessna found the $400 figure too low to interest people with the two basic qualifi-

fications of ability to pilot an airplane and a five-year business background in manufacturer-dealer relations. In 1956 Cessna increased the starting salary. Raising the amount to $450 helped; but when account is taken of salaries offered to beginning salesmen without business experience, $450 does not appear to provide enough of a differential for the added abilities required by Cessna. A further complicating factor is present in that the five years experience in manufacturer dealer relations should be successful experience. If the prospective candidate is successful in this work he is probably already being paid more than $450. The Northwestern study previously quoted shows that salesmen who have been with a particular company five years average an income of $700.\textsuperscript{15} It is not probable that an individual who is successful in a position of manufacturer-dealer relations earning a $700 a month income will be greatly interested in accepting similar employment for $450. The qualified candidate who seeks such a job is likely to be one who is not successful and to whom $450 appears as a reasonable income. The one other possible applicant is a candidate who is convinced that his future earning power in the airplane industry is so great that the lower starting salary would be offset by such added opportunity. A less important factor in some cases is the glamour surrounding the occupations in aviation. However, even the executives in the industry discounted this as

\textsuperscript{15} Ibid.
being an important determinant in an applicant's decision to accept a position unless the differential in income in the alternative positions are small.

Beech and Piper are not experiencing difficulty in regard to obtaining qualified men primarily because they were not interested in hiring additional field representatives at the time of interviews in 1955 and 1956. Executives in each of these companies indicated that starting income is a flexible amount and depends on the qualifications of each new employee. However, $450 is considered to be an absolute minimum starting income, and the sales managers indicated that they are convinced this is too low a figure to attract good men.

The problem of securing an adequate supply of qualified marketing field personnel is almost entirely a problem faced by Cessna alone. The smaller companies are not considering immediate expansion of their marketing personnel. The philosophy expressed by one of the executives was that a large increase in sales can be handled by their present personnel. This concept is held by all companies except Cessna.

Much the same situation was evident in regard to staff directors. Cessna is expanding more than any other company and is also experiencing difficulty in filling these positions. Higher salaries than those offered in field positions are available. Therefore, the problem is not one of getting enough qualified applicants, but one of trying to select the best individual out of several who meet the basic requirements. No minimum or maxi-
mum incomes are established for new staff directors' positions; rather each situation is to be filled on a bargaining basis on its own merit.

The three larger companies each have a different maximum amount that can be earned by marketing personnel below the level of sales manager. An income of $11,600 per year is the highest reported by any of the companies. A second reported $10,700 and the third organization maintained $9,600 as its maximum. In all but one company these potential incomes can be earned on a straight-salary basis with no incentive pay.

In one organization, in 1955, the incentive pay accounted for 15 per cent of total income of marketing employees. In this particular company, there is no predetermined amount that may be earned in addition to salary. An executive committee examines the work record of all executives and supervisors and determines varying amounts that are paid as a bonus. These amounts are based on the committee's evaluation of the particular employee's contribution to the objectives of the company. In addition to executives and supervisors, the field representatives are included in this plan. The detailed techniques involved were not available, and respondents were extremely reluctant to explain the plan. The plan entails some of the disadvantages of profit sharing in that if total company profits are curtailed, the amount paid in bonus to employees will be small regardless of how good a record the individual establishes. However, profits that are available for this purpose are distributed with the objective of rewarding
better performance.

In numerous interviews, dissatisfaction was expressed with the secretive manner of evaluation. A future problem in morale might be avoided if the evaluation system could be made public so individuals could have some idea of their status with regard to sharing in the fund.

**Selection and Training Procedures**

Throughout the industry the selection process is informal. Applicants are attracted by advertisements placed in newspapers and trade journals. In rare instances, they are referred to the companies by distributors and dealers or other business contacts. The manufacturers follow a practice of not hiring individuals away from their distributors or dealers, but they will hire employees from distributors of competitive products.

Psychological tests and weighted applications are not used. For the most part, reliance is placed on regular applications, interviews and references. The personnel department of the company conducts the initial interview, secures the completed application and checks the references. The practice of one of the manufacturers is to also secure a Retail Credit Company report which gives an account of the applicant's credit standing, as well as a check on employment reputation.

Information derived from the above mentioned sources is made available to the sales manager, who then interviews the applicant and schedules additional interviews between the appli-
cant and other company executives. The sales managers in all of the companies have the responsibility and authority for making the final selection. When an applicant is employed, he goes through a brief period of training, which is similar in the three larger companies. Two weeks of the training period is spent in the manufacturer's home office, where company records and product specifications are studied. After this initial period, the new employee travels with an experienced field man and absorbs the knowledge of the business which will be needed to carry on field activities after the training program. This period of assistance will vary according to the sales manager's evaluation of the new employee's understanding of his duties.

The manufacturers, with one exception, establish their field men in the territories. Cessna uses a different technique that has obvious advantages. The field men for Cessna are all stationed at the home office in Wichita, Kansas. At regular intervals they fly from Wichita to their territory and make their dealer contacts, then fly back to Wichita. This practice means that they are never away from the home office more than a week at a time. Cessna executives take advantage of this situation to answer questions that arise in the territories and to keep the field men supplied with current information on all phases of the business. In addition, the Cessna executives stated that the practice tends to build morale and gives the field force a closer tie to the company.
The other manufacturers prefer to station their field men in the territories, and as a result do not have frequent contacts with them. In addition, the field men, who are directly responsible to the sales manager, are very loosely supervised and have a great deal of freedom in conducting their activities in the territory.

Cessna supervision is more rigid because the field men are in the factory office at frequent intervals, where they can get assistance if needed and where they can be requested to account for any unusual developments in their territory. This is almost a necessary method of operation for Cessna because they have many new employees who need close supervision.

The various companies appeared to have policies which fit their own particular needs best. However, if the expansion in the market should eventually cause the rest of the manufacturers to employ new field men, it would be advisable to consider closer supervision methods. Best results with new employees would undoubtedly be obtained by more formal supervision. In this respect, the Cessna policy of basing their representatives at the home office appears sound.

The information gained in interviews indicated that these manufacturers had no objective job analysis program developed in the marketing area. The sales managers all had an idea about the requirements for the various positions, but greater dependence was placed on judgment than on scientific method. One company had a job analysis project in process at the time of the study, but had gone ahead with a program of increasing personnel before
the analysis was complete. In some cases, new staff men were employed in new positions without a decision as to where the new position fitted into the organization structure and without an understanding of the duties assigned to the new position. One illustration of this lack of careful planning was furnished when company executives placed advertisements for a marketing research director in newspapers and trade journals. During the interviews with some of the applicants the question arose as to the position of the marketing research department in the structure of the organization, but this had not been decided. An individual was hired to fill the position before a decision had been reached in regard to his duties or the identity of his immediate superior. A statement was made by one executive to the effect that the new director could probably best decide what his job should be.

Summary
This chapter has been concerned with those aspects of organization which cause the manufacturers' difficulties. Most of the problems result from growth in the industry and in the markets. The tendency to think in terms of marketing dates only from about 1950. That is, there have been only six years of active marketing development; and, in this short period, the companies have not completely eliminated the use of small business methods in their marketing activities. However, each company is expected to expand in the future. The danger to the organ-
ization lies in the probability that expansion will come before careful planning. By such planning, it is possible to develop sound organization structure, to establish the lines of responsibility and authority, to develop job analysis and man specifications, and to become more scientific in selection, training, compensation, and supervision of personnel. There are indications of such desire and effort, but there are also indications of a philosophy of waiting until change is absolutely necessary.

From material discussed in this chapter the following points are developed:

1. There is a lack of organization balance between the various divisions of each company.

2. There is also a lack of balance within the marketing division.

3. There is a lack of organization stability and growth.

4. In addition to the usual qualifications for marketing personnel, the executives in the utility airplane industry seek to hire men who can pilot an airplane and who have successful business experience in positions that require dealer contacts.

5. Because of the need for pilots with successful business experience, it appears that the compensation for sales personnel is not enough to attract the best prospects.

6. The small number of people employed in the marketing of utility airplanes makes it impractical to employ some of the usual methods of selection such as psychological tests and weighted
applications. It appears to be more plausible to rely on a job analysis. A thorough description of each specific task, and an analysis of the qualifications necessary for the task is a first step in a sound selection program for these companies.
CHAPTER VI

PROBLEMS CONCERNED WITH MARGINS
AND CHANNELS OF DISTRIBUTION

Margins

The middleman's margin is stated in terms of a discount from list price. The discount for distributors in the smaller companies is established at 25 per cent. Piper uses this 25 per cent for distributors on all models except the twin-engine Apache which carries a 20 per cent rate. Beech and Cessna allow more varied margins because their distributor and dealer organization is more varied. On the single-engine 170 and 180 Models, Cessna grants a distributor discount of 25 per cent while on the 310 Model the rate is either 20 per cent or 10 per cent depending on whether the particular distributor maintains a twin-engine Model 310 demonstrator. If he has the demonstrator, the distributor receives the higher margin to compensate him for this additional expense. If he does not have a demonstrator, Cessna retains the additional 10 per cent as partial reimbursement of maintaining Model 310 demonstrators. Additional reimbursement is derived by Cessna from rental fee paid by distributor for use of a demonstrator.
On the single-engine Bonanza, Beech allows the distributor a regular discount of 20, 22.5, or 23.4 per cent depending on his position in relation to quota at the end of the year. This policy is stated as follows:

A Beechcraft Bonanza with a list price of $21,990 carries a distributor discount of $4,400. In addition, the distributor qualifies for a bonus payment of $500 for each airplane in his quota provided he completes his quota. He also qualifies for a bonus payment of $750 for each airplane in excess of quota. . . .\(^1\)

This arrangement equals the previously stated percentages.

For twin-engine airplanes, Beech uses a policy similar to Cessna in that different discounts are granted according to whether the distributor maintains a demonstrator. On the Super Model 18, which sells for $98,975, the distributor receives a discount of either 19.2 per cent or 12.12 per cent while on the twin Bonanza a distributor receives either 20 per cent or 11.33 per cent.

The majority of the producers do not try to control the activities between the distributors and their dealers and are prone to let the two parties negotiate between themselves as to dealer discounts. However, Cessna and Beech are exceptions to this general rule.

Beech uses no bonus plan for dealers but recommends that a dealer receive a discount of either 15 per cent or 7.5 per cent on a Bonanza, 13.33 per cent or 10 per cent on a twin Bonanza and 10.1 per cent on the Super 18. In the first two situations the

\(^1\)Internal records of Beech Aircraft Corporation.
lower rate is granted where the dealer has no demonstrator. Only
one discount is available for dealers on the Super 18 because
no dealers maintain a demonstrator in this expensive product.
Cessna has a dealer discount system specified in the Dealer's
Sales Policy Manual. These discounts are not a part of the
contract but are closely adhered to by distributors. This sched­
ule provides a 20 per cent discount on Models 170. All dealers
must own a demonstrator in this model to become dealers. There
is a 20 per cent rate also provided on a Model 180 if the dealer
has a demonstrator in this model. If he has no such demonstrator,
he receives only 10 per cent. If the dealer owns a twin-engine
Model 310 demonstrator, he receives a 15 per cent discount on
sales of this model. If he has no demonstrator, he receives
7.5 per cent.2

In summarizing the margin arrangements, it is apparent
that larger percentage discounts are provided on single-engine
airplanes for both distributors and dealers. The twin-engine
models have smaller percentage but larger dollar discounts due
to the higher unit list price of the airplane. In addition, the
margin varies drastically according to whether or not the middle­
man maintains a demonstrator in the particular model sold. In
most cases the discount is approximately twice as much when the
middleman maintains a demonstrator as it is when he uses manufact­
urer owned demonstrators. This variation in discounts coupled with

the rental charge for using producer demonstrators has the effect of encouraging middlemen to maintain their own demonstrators whenever possible. This in turn acts as a stimulus to more demonstrations for a middleman with a demonstrator on hand is likely to put it to use more often than would be the case where a demonstrator had to be scheduled from the factory and a direct rental fee was charged.

**Reasons for Use of Middlemen**

According to executives in the industry, there are two basic reasons for the use of middlemen in the distribution of airplanes.

1. When the airplanes are sold through merchant middlemen less capital is required of the producer than is needed when sales are made direct. The middleman supports a selling force, a service shop, and a sales office. If the transaction is direct by the manufacturer, the investment in selling expense, service equipment, and selling establishment for national distribution is more than producers want to bear.

2. The manufacturer can turn over much of the marketing task to the middlemen and concentrate his own efforts on production. In other words, the middleman can specialize in marketing and the manufacturer can specialize in production.

The distributor is the strong link in the channel of distribution for utility airplanes. However, he may appoint dealers to carry out a part of the task assigned. The dealer is appointed
for the following reasons:

1. To relieve the distributor of a part of the financial burden passed down from the producer.

2. To make feasible more intensive cultivation of the territory.

3. To supply a close personal contact with prospective customers. Executives believe that sale of an airplane is most likely to result when the purchaser knows the seller and feels that he has a dealer close at hand to aid in solving any problems that arise.

4. To reach a horizontal market. Prospective purchasers of airplanes are found in various industries. One executive expressed the idea that a product such as heavy road machinery did not require dealers because prospective customers were in one or a few industries. This executive further stated that finding the customer was more difficult in marketing of airplanes because of the varied sources of customers. Dealers located close to the market are more likely to be able to discover some of these potential buyers than would be the case with distributors covering larger territories.3

Channels of Distribution Used

A channel of distribution is defined as, "The course taken in the transfer of title to a commodity."4 Five distinct

3 Interview with L. Greever, Sales Manager, Beech.
4 Theodore N. Beckman, Harold H. Maynard, and
channels are currently in use in utility airplane industry. These are shown in Chart 15. The distributors and dealers in this industry are merchant middlemen while the agent is a functional middleman.

**Manufacturer to Final Purchaser**

This path provides the most direct sale since no middlemen are involved. When this channel is used, it is necessary for the manufacturer to perform the functions of the middleman. However, this channel accounted for only 1.6 per cent of total airplane unit sales in 1956.\(^{5}\) Direct sale of this type is practiced by the smaller companies because they do not have the production capacity, nor the demand developed to a point that distributors and dealers in all parts of the country will wish to handle their product. These smaller companies all have a few distributors, but must sell direct where no middleman is available. In the words of one of the small company sales managers, "After Beech, Cessna, Piper, and Aero are through attracting strong dealers, there are few qualified middlemen available."\(^{6}\)

The larger companies all make a few direct sales; however, this is not in an effort to compete with established middlemen.

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\(^{5}\)Compiled from internal records of utility airplane manufacturers.

\(^{6}\)Interview with Mr. Benjamin Murro, General Manager, Taylorcraft, Incorporated, August 17, 1956.
CHART 15

CHANNELS OF DISTRIBUTION USED BY MANUFACTURERS OF UTILITY AIRPLANES

Utility Airplane Manufacturer

Distributor

Distributor

Distributor

Dealer

Dealer

Agent

Utility Airplane Final Purchaser

Source: Data from examination of internal records and from interviews with executives of utility airplane producers.
The usual situation in which direct sales develop is when a supplier wishes to use an airplane for experimental purposes. In this instance the manufacturer will make the sale at whatever price is deemed expedient after consideration of the value to be derived from the experiment by the airplane manufacturer. Illustrative of the practice in the larger companies is the policy of Cessna Aircraft Company. The distributors and dealers agree to the reservation by Cessna of the right to sell directly for experimental or developmental work to Cessna suppliers, employees, government agencies and fleet buyers.7

Manufacturer to Dealer to Final Purchaser

A second channel used today is that of sale from the manufacturer to a dealer who in turn sells to the final buyer. The dealer is a merchant middleman who has territorial limits in which he is to develop sales of the product.

The occasions on which sale is made directly from manufacturer to dealer are rare and usually result from a situation where the more customary channel of manufacturer to distributor to dealer no longer functions properly. This happens when a distributor's franchise is discontinued, leaving a territory with authorized dealers in operation but no distributor. In such an instance, the manufacturer assumes the services ordinarily furnished by the distributor and sells products directly to the dealers.

7Internal records of Cessna Aircraft Company.
This channel accounted for 4 per cent of the unit sales of airplanes in 1956.

Manufacturer to Distributor to Dealer to Final Purchaser

Internal company records of the various airplane manufacturers attributed 95.4 per cent of all unit sales to this channel in 1956. However, no data are available as to how many of the final sales were actually made by distributors, dealers, or dealer's agents. The producers maintain thorough records of their sales to distributors, but do not compile information as to dealer and agent activity. Distributors sell both to final purchasers and to dealers for resale and usually maintain a stronger selling organization for final purchase contacts than any of the dealers working with them.

This situation is also true of the use of agents by dealers. Sales that go through agents and dealers are recorded as sales by the distributor who has responsibility for that territory. Thus the 95.4 per cent of total sales actually result from three separate channels of distribution but are recorded as one channel.

The agent is a functional middleman. He is usually an airport operator with a personal knowledge of local people who might be good prospects for an airplane sale. The agent carries no stock of either airplanes or parts. His function is merely to channel a good prospect to the dealer for further sales effort. In addition, he is expected to aid in whatever way appears feasible; however, he does not complete the sale. Most of the dealers and
distributors use this type of agent. There are no data as to the number of sales that result from this source, but these agents are considered to be helpful because of their close contact with prospects. Their primary handicap is the fact that they are not sales minded and are likely to overlook good prospects. If a dealer depends on such an agent for complete coverage of a part of the territory, he is likely to miss too many sales. These agents are compensated only when a sale results; however, since most of their income is derived from operation of an airport, air taxi service, and flying schools, they are not inclined to devote either time or effort to the sale of airplanes, but are willing to gain an additional income from this source if it does not interfere too greatly with other activities which contribute more to their income.

Securing Distributors

Sales managers all indicated three broad areas of qualifications desired in their distributors. These qualifications were in regard to capital strength, business experience, and attitude.

Capital Required

All potential distributors are expected to present a sound financial statement. In addition to the overall soundness of the financial position, the executives indicated a primary interest in the amount of capital available to the distributor. General managers of the three smaller companies indicated that about $50,000 available for equipment and inventory would be necessary. Piper and Aero De-
sign executives considered $100,000 to be a minimum capital. Cessna was less specific, but indicated about $150,000, while Beech suggested a need for $275,000. Mr. Greever, the sales manager at Beech, stated that $200,000 would be necessary for shop equipment, parts inventory, office and miscellaneous equipment. An additional $75,000 would be needed for the purchase of a twin Bonanza demonstrator.

None of the suggested capital amounts include funds for building and land which would vary according to the local situation. Neither do the amounts include funds to be invested temporarily in airplanes that have been delivered by the manufacturer to the distributor, but which have not been accepted by the final purchaser. All of the producers require the purchase price to be paid by the distributor when he takes delivery. If final delivery is delayed for some reason, such as installation of accessories by the distributor, this delay might mean $75,000 to $100,000 temporary capital needed for one airplane. The amount needed would vary with the price of the airplane, but for a Beechcraft distributor, it could easily reach the above amount. The capital needs are reduced if credit facilities are available for inventory and demonstrator financing. This is a rather new development in the airplane business which is thoroughly discussed in Chapter VII.

The variation from $50,000 to $275,000 is explained by the fact that the smaller manufacturers all make the more inexpensive airplanes. These products require less equipment investment by the distributor in order to perform acceptable repair jobs. The parts inventory is less expensive and the amount invested in demonstrators
is less. In addition, these manufacturers need distributors and are more willing to take the distributors who do not measure up to the higher capital standards.

**Business Experience Needed**

One executive expressed this requirement as "a demonstrated ability to run a business successfully." The Piper sales manager stated that he wanted individuals who had been in business for themselves for at least five years. He was particularly desirous of obtaining persons who had owned or managed dealerships, selling automobiles, farm implements, or industrial equipment. These sources were also advanced by executives in other companies. Beech and Piper sales managers stressed the industrial equipment source as being closely akin to the airplane distributorship since both areas are concerned with the sale of products for business use and since the airplane is being sold more and more on the basis of increasing profits to the user.

**Attitude**

In addition to a successful business management background, the executives all desired individuals who knew something about flying and who had a true personal interest in flying. Although this was never stated as an absolute necessity, it was apparent they believed such a person would be more apt to succeed in the business. As one sales manager asked, "If you knew nothing about flying, would you be likely to buy a new $15,000 airplane from a man who didn't use the product himself?" Regardless of the logic
or lack of logic in this question, it reflects the attitude within the industry toward non-pilots selling airplanes.

The qualification of attitude also includes a willingness to accept the producer's policies and methods. This is an intangible element that would be difficult to measure in objective terms. All sales managers desired this in their distributors but with varying degrees of stress placed on this subject. Beech and Cessna illustrate a philosophy of close control over the distributors. The middleman is expected to abide by strict rules. The remainder of the manufacturers appear to be less dogmatic. The Piper sales manager stated that their concept of rules governing the distributors' actions was that "the distributor knows his business better than we do."

When the three areas of qualifications are analyzed, the problem of securing distributors becomes a difficult one. There are undoubtedly many persons interested in aviation who are good pilots, but lack the other qualification of capital and business experience. In addition, there are many successful managers of related types of distributorships such as industrial equipment. Some of these could probably command the desired capital, but they may have no basic interest in aviation, or if they are already successful in a field such as industrial equipment, there is serious doubt as to their desire to venture into a new area. The only dependable development that would attract such individuals into the airplane distributorship would be prospects for a greater return on capital. This has not yet developed. According to
executives in the industry, ways in which higher returns can be realized are through either a higher volume of business, higher distributor margins, or lower costs. There are indications of higher volume in airplane sales but no indications of the remaining two possibilities.8

Distributor Territories

The three larger manufacturers have permitted their organization of distributor territories to develop on a haphazard basis determined by the most expedient solution to specific distributor problems from a short range viewpoint. Certain distributors have been given territories larger than they could conveniently control simply because no other potential distributor was available to take over part of the territory. This has caused an extensive type of marketing whereby only the easiest sales have been made; however, in the last few years these manufacturers have attempted to correct gradually this situation and to analyze the size of territory and boundaries on the basis of some indication of market potential.

Two limits have been set as goals in rearranging territories. First is the objective of assigning each distributor enough territory that a reasonable return can be secured on the capital investment, and second, assigning small enough territories to enable intensive coverage by the distributor and his dealer organization.

In an effort to improve on the past methods of determining territorial areas by bargaining with each distributor, the larger

8Interviews with executives of aircraft companies.
companies have used the Rand McNally trade area map.

Typical of the geographical arrangement of distributor territories, are the two maps shown in Chart 16 and Chart 17. Chart 16 shows the geographical arrangement for one of the larger companies, while Chart 17 is typical of the smaller manufacturers. The larger companies have distributors assigned in all parts of the United States, while the smaller organizations usually find it difficult to contract with enough good distributors for their products and are limited to a few outlets which cover only a part of the United States.

The manufacturers have a varying number of distributors, Piper has 48, Cessna 51, and Beech 36. The smaller manufacturers have four to twelve distributors each. Call and Mooney are well represented in sections of the country in close proximity to their plants while Aero Design and Taylorcraft secure a wider distribution, but are not represented in all areas of the country.

All distributors have the authority and responsibility for appointing dealers to work parts of their territories. For the most part the manufacturers turn this task over to the distributor entirely and attempt to exercise no control over dealers from the factory level. In several of the interviews with smaller manufacturers, the general managers indicated that they did not know how many dealers were selling their products. Their contacts were with distributors only. The Cessna Aircraft Company attempts a closer contact with dealers and has set out certain policies for
CHART 16

TERRITORIES OF PIPER DISTRIBUTORS 1956

Source: Internal Records, Piper Aircraft Corporation.
dealers; however, this is the exception and not the rule in the industry.

Each distributor has a territory in which his efforts are to be concentrated. It is the practice in the industry to protect this territory from other distributors of the same company. If a distributor or one of his dealers sells an airplane in the territory of another distributor, the manufacturer reserves the right to assign the sale and the profits of the sale to the distributor in whose territory the airplane will be based. This policy is in effect by all manufacturers and is stipulated in their contracts with distributors.

Cessna is the only organization that specifies policies in regard to dealers. The other manufacturers prefer to turn this activity over to their distributors. This Cessna contract which is used between distributors and dealers specifies that the distributor and all dealers in the distributor's sales area may sell anywhere within the area. The dealer will have a part of the distributor's territory assigned. This is his primary responsibility; however, he may also sell in other parts of his distributor's sales area without penalty.

From interviews with executives of the various companies, it was determined that all of the manufacturers have developed similar policies and practices in regard to their distributor and dealer activities; however, the rigidity with which the policies are applied appears to vary with the sales volume and competitive strength of the manufacturer. For example, Cessna and
Beech appear to possess the ability to make possible a rigid application of policies, while Piper and Aero Design are more flexible and their middlemen appear to have a stronger bargaining power in regard to interpretation and application of producers policies. In the smaller companies, such as Taylorcraft, Call, and Mooney, the executives stated that each incident was handled on its individual merits in light of flexible policy application.

**Manufacturer's Aids for the Middleman**

After a middleman is selected and established in a territory, the problem of supplying him and his employees with assistance in the selling function becomes of paramount importance. Currently this assistance made available by manufacturers can be placed in the following categories:

1. Sales Training
2. Advertising and Sales Promotion
   a) television and radio advertising
   b) brochures
   c) displays and promotions
   d) telephone directory advertising

Each of the seven companies conduct some activity in one or more of the phases of selling assistance listed above. However, only the three larger companies have what can be termed a well developed program of assistance, and even in these companies the program is not as complete as is desirable.

One of the major problems in regard to developing and
administering a sales training program in the utility airplane industry is the lack of specialized executives in this area. This situation was discussed in detail in a preceding chapter wherein it was stated that at the time of this study only one of the large manufacturers had an executive assigned exclusively to sales training. The other two companies were attempting to employ such executives and respondents stated that this would be a development of the very near future.

The smaller companies each expressed the idea that any sales training which might be undertaken would be an added responsibility of the sales manager and that they were not at present contemplating such activities.

The sales training activities are found only in the distribution systems of the three larger manufacturers. The programs of these three companies are very similar, consisting of a two to three week study period at the manufacturer's plant and a mail follow-up. In addition, the sales training executive for Beechcraft conducts short training lectures at the distributor's place of business. These latter programs are used to present new developments in the product and to acquaint the distributor and his sales force with new sales promotion tools.

The training courses offered by the three manufacturers are made up of the following topics:

1. Indoctrination in company history and philosophy
2. Discussion of market portentials
3. Personality and salesmanship
4. Description and explanation of sales aids available
5. An analysis of the products and selling points that apply to each product

6. Discussion of the market for used airplanes and selling ideas

7. Summary

In addition, Cessna and Beech have developed sales training manuals which are a printed version of the training course. These courses and manuals are similar to those used by companies in other industries. The unique sections pertain to the products and to specific approaches to various types of prospects. In this regard, Cessna has contributed an outstanding example of applying marketing research to place customers into various categories for proper sales approach.

From a market research study, it was concluded that there are three substantial markets for new utility airplanes.

1. The company airplane market

   Business concerns with total executive and employee requirements of at least 100,000 passenger miles per year suited to the use of private airplanes

2. Executive airplane market

   Business executives with personal need for at least 25,000 miles of business travel per year suited to the use of private airplanes

3. Personal airplane market

   9An unpublished market research study conducted for Cessna by the management consulting firm of Booz, Allen & Hamilton, Chicago.
Individuals earning more than $25,000 who are interested in flying for business reasons.

This study also concludes that there is almost no market for an airplane which costs more than $7,500 if it is to be used for pleasure only. Since Cessna sells no airplanes below this price, the conclusion to be drawn from this statement is that new Cessna airplanes will be sold primarily for business use. Almost all owners give their airplane some degree of pleasure use, but rarely will pleasure flying alone warrant an investment in a new airplane.

From the above approach, the Cessna training manual defines all prospects for new utility airplanes as shown in Chart 18. After separating the prospects into these types, it is the objective of the training course to suggest various appeals that will be most likely to influence each type of prospect.

The theme of the training effort is that an airplane user recognizes the desirable features of flying and that the sales presentation should be one of showing how the Cessna airplane is better than competitive airplanes, i.e., an all metal airplane, more luggage space, more speed, more range, shorter landing space required, more fuel capacity and greater carrying capacity.

A further analysis of the "user" prospect should characterize him as an "owner" or "nonowner" and finally place him in the proper subcategories shown in Chart 13, and thus proper appeals can be directed to answer his specific needs. If the prospect is a "nonuser" the task facing the salesman is very similar to
CHART 18
CLASSIFICATION OF POTENTIAL CUSTOMERS
FOR CESSNA AIRPLANES

Customer

User

Owning Customer

Owner

Non-owner

Learning-to-fly Customer

Charter Customer

Air Taxi Customer

Customer has airplane available from outside source

Owns a Cessna

Owns a competitive airplane

Interested

Has read advertising

Has heard friends talk

Has heard from other sources but wants more information

Non-user

Not interested - does not understand what the airplane will do for him

the situation that is solved through pioneering advertising. The prospect has been using other types of transportation and must be convinced that the airplane can perform his transportation task better than his customary means of travel. Less emphasis should be placed on the advantages of one airplane over another, but an interest should be developed on the concept of a new or better method of performing the old task of travel. One of the sales manuals presents 23 appeals to be used by salesmen in expounding the results to be derived from owning a utility airplane without reference to any particular manufacturer's product. These appeals as stated in the Cessna sales manual are as follows:

1. How valuable is a night at home.
2. How valuable is more evenings with the customers.
3. Four people can go for the price of one.
4. Its ability to travel long distances, make several stops and return same day.
5. Show recreational possibilities.
6. Business you can't get any other way.
7. Allows management to spread itself.
8. Time is important every day, but some specific day it may be worth an unreasonable amount.
9. Can bring important people to your plant.
10. Reduces fatigue on train or auto.
11. Eliminates highway hazards.
12. Allows stops not scheduled.
13. Relieves pressure of keeping a schedule—if it takes an extra 15 minutes to get the order, you have it to spend.
15. How many fields it can land in that an airliner can't.
16. Landing in close-in airports.
17. People can be picked-up and dropped off at airport nearest their homes.
18. Eliminates unnecessary stops.
19. Prestige.
20. Advertising value—makes people remember you when you aren't there.
21. See key people more often.
22. Long established pattern of doing business might change.
23. Completely eliminates
a) airline interchange
b) time lost waiting for flight to start
c) airline red tape
d) reservations

Chart 19 shows the path that should be followed in the sale of a new airplane to a "noninterested" "nonuser" who has the need as previously specified in the outline of the three substantial markets. The idea expressed in Chart 19, which is also propounded by the sales training executive in this company, is that a potential customer of this type should first be shown the advantages of private flying and thus moved into the "interested" "nonuser" category. Gradually, through demonstration and discussion he should be moved to the "nonuser" "user" class where he will lease or rent airplanes for business purposes or possibly take flying lessons. From this point, he can become an owner of an airplane and eventually a Cessna product owner.

From the above discussion, the idea is developed that the best prospects for new airplane sales are to be found among owners of airplanes and that in most cases a "noninterested" "nonuser" is not an immediate prospect for a new airplane. He might be a prospect for a used airplane or for rental service. The idea expressed by the training guide is that as one reads from right to left on Chart 19, the likelihood of a sale of a new airplane diminishes.

Although Cessna has developed one of the industry's clearest concepts of sales training, there are a number of questionable factors presented in the training manual. If the idea is accepted that present airplane owners are the best market for new airplanes,
PATH FOLLOWED IN CHANGING A NON-INTERESTED, NON-USER INTO A CUSTOMER FOR A CESSNA AIRPLANE

Characteristics
1. High income
2. Great need for transportation
3. Usually under 45 years of age

Must be told what flying will do for him
Must be told how owning an airplane will help him
Must be told of advantages of Cessna over other airplanes
Must be supplied with good service and made a permanent Cessna booster

it is likely that the utility airplane industry will not grow very rapidly. Although in the past, many sales have been made to people who already own airplanes, this situation is not necessarily true of the future. The idea that a potential customer first becomes interested in aviation in some area where only a small investment is necessary and then gradually sells himself on the successive phases as shown in Chart 19 is an additional concept that most of the executives contend to be untrue as a general rule. Certainly some sales are made in this manner, but with the shift to purchase of the airplane as a business tool many sales today are made without the intermediate steps. The real selling job is to influence people to a new way of travel. The easy job is to sell only experienced air travelers; however, if the industry is to expand as it should, more people must be influenced to become airplane owners. Many of these must be taken from the "nonuser" class. The Piper Aircraft Corporation has developed a program aimed at inducing "nonflyers" to become owners of airplanes in a relatively short period of time. This program is best explained by an advertisement which states:

To actually learn to fly is now a simple process with the Piper 'Learn as you travel' program—made to order for the busy person who has little time to spare. You learn while making business trips in a safe new Piper Tri-Pacer rented from your nearest Piper dealer. A fully qualified government rated instructor flies with you, teaching you as you go.

The Piper executives consider this plan to be one of their best selling approaches, and although the advertisement indicates rental as the basis for the flying lessons, the executives stated
that by the time a prospective customer learns to fly he is usually ready to buy a new airplane.

Another common fault with the sales training programs of the three companies is a lack of specific detail in discussion of the advantages of one plane over its competition. As an example, the Cessna manual lists quality features to be emphasized when selling the company products. One of these features is "all metal construction." This would be a good selling point if the competition was a Piper Tri-Pacer for this airplane has a fiber fuselage; however, the point would be of no significance if the competition was a Beechcraft for this is another all metal airplane. In this situation, price would be a better selling point for the Cessna. A pronounced improvement could be realized if the sales trainee could have available a check list of specific features of the product he sells as those features relate to each of the airplanes of other manufacturers. From such a check list the salesman could readily determine the proper features to stress.

The three larger companies have a great deal to gain by improving their sales training activities. It is apparent that executives of the companies concur in this idea and are in the process of devoting more man hours and thought to this phase of their work. It is doubtful that the smaller companies can contribute a great amount of help to their distributors in sales training. They currently have neither the personnel nor the inclination.
Advertising and Sales Promotion

Each of the seven manufacturers in the industry uses some type of advertising. However, extensive national programs are maintained on a continuous basis only by Beech, Cessna and Piper. Aero Design and Engineering Company uses national advertisements intermittently while the three smaller companies confine their advertising activities to direct mail and local advertisements.

Magazine advertising.—The three larger manufacturers divide their advertisements between "vertical" media which draw their readers from the aircraft industry and other closely related activities and "horizontal" publications that reach prospects in all industries. The "vertical" magazines used most often are Aero Digest, Flying, and Aviation Weekly. For a number of years national advertising in the utility airplane industry was almost completely confined to "vertical" publications. The message presented was usually of a technical nature because the audience was believed to be already interested in aviation and well qualified on the subject of airplanes.

Since 1950 there has been a gradual shift to the use of "horizontal" publications which reach executives in all industries. This development has been in accordance with the change in the market for airplanes from primarily a pleasure or sporting use to the purchase of the product as business equipment. While executives in all three of the larger companies agree with the
logic of the change in the market to more of an industrial goods basis, Cessna and Beech are much more adamant in this concept. Piper executives agree that such a change has taken place, but maintain that the pleasure market is still of extreme importance.

This difference of opinion can be explained by the difference in the products of the three producers and by the difference in price of the various products. In the Cessna market research study previously discussed in this chapter, a conclusion was reached that there was not a market for a new pleasure airplane selling for more than $7,500. Referring to Table 4 in Chapter III, it is noted that neither Beech nor Cessna sell airplanes at this low price; therefore, they would be correct in spending their advertising dollars to reach other prospects. Piper, on the other hand, manufactures three different models that sell for less than $7,500 and which might be purchased for pleasure use only. It is understandable that Piper places a greater emphasis on pleasure in its advertisements, and directs more of its advertisements to vertical publications that are read by aviation enthusiasts.

Pilots and others interested in aviation read horizontal magazines as well as vertical ones. However, if this group is reached through horizontal publications with advertisements written in language which appeals directly to them, this same language may not attract other readers. Since the "other readers" usually make up most of the audience of horizontal magazines, a great deal of waste circulation results. By using vertical
media to reach the aviation group Piper selects an audience with a common interest to which appeals can be directed. Less waste circulation results.

Although the shift of the product to an industrial type item has definitely occurred, this does not mean that pleasure appeals are no longer important. Even in the purchase of a Beech airplane selling for over $100,000, and which is bought primarily as an executive transport, a part of its use may be for customer entertainment and creating of company prestige. Pointing out the dual interest of potential customers, one respondent stated that the best types of media to use is that which has wide circulation in recreational areas, "So that business executives who are there on vacation will be made aware of the advantages of private air travel while they are actually on vacation and while the need for fast and convenient transportation is uppermost in their minds."

The appeals used in the "horizontal" publications emphasize the advantages to be derived by a busy executive when he purchases an airplane. These advantages are comfort, time saved, convenience, and safety. In some of these advertisements a few of the technical improvements and cost of ownership are briefly mentioned, but detail is not used. An example of this approach is furnished by a recent Beechcraft advertisement.

10Interview with Mr. J. W. Miller, Sales Manager of Piper Aircraft Company, August 14, 1956.
Far-away business and pleasure areas become 'just next door' with a beautiful new 190 miles-per-hour Beechcraft Bonanza for $56. You cruise up to 1170 miles nonstop in an airplane that is stronger, faster, quieter, more efficient than any other single-engine business airplane! The fully retractable tricycle landing gear, for example, is the best there is—proved 74 per cent stronger than military specifications. You see all there is to see—above, behind, forward, and below—through the largest windows in the sky. And you can fly it and pay for it for as low as 2½ cents per seat mile! Your own Beechcraft Bonanza can be the best thing that ever happened to you and to your business.

The appeals used in vertical publication advertisements are directed more to performance and specification information as illustrated in the following excerpt from a Taylorcraft advertisement.

The most advanced structural achievement in aircraft manufacturing has been made possible by Taylorcraft through the development of molded fiberglass. Taylorcraft proudly presents fiberglass as the first all new aircraft structural material to be perfected in over thirty years.

Wings, fuselage, cowl, doors, seats, gas tanks and other structures of the new Taylorcraft models are made of molded fiberglass; unmatched for strength, durability, performance and economy.

A bridge-type frame of welded steel tubing together with the fiberglass structure forms a rugged fuselage of unequaled safety. This same regard for safety has been engineered in the wing and tail structures of the all new, all fiberglass Taylorcrafts for 1956.

Another advertisement printed in vertical publications discusses details of "slotted wings," "miracle landing gear," "new tail assembly," and "continental engine."

Messages of the type illustrated in the preceding examples should be confined to such publications as Aviation Week and Air Facts because the readers of these magazines are more likely to

Television and Radio Advertising.—The industry has made little use of other forms of national advertising such as radio and television. Two minor exceptions to this statement occurred in 1956. Piper purchased part of the television time on a contest program called "High Finance." A Piper airplane was offered as a prize, but the contestant decided to retain his previous prizes and not attempt to win the airplane. The Piper executives did not feel that much benefit occurred from this program. Another exception was the use of a Beechcraft airplane on the Bob Cummings weekly half-hour show. This was continued for a five-week period, and the Beech executives indicated that they had received many comments about the promotion but that they were not sure of its value. It is significant that neither company has continued television advertising.

Brochures.—All of the utility airplane manufacturers use this type of advertisement. The brochure is used both for direct mail and as a printed message to be handed to a prospective customer by the salesman. These advertisements may be classified into three groups as follows:

1. Those wherein the message presents a different way of performing an old task. The already recognized need for transportation is solved through the ownership of an executive airplane. The appeals used in this presentation are similar to those used in the national magazine advertisements directed to executives;
i.e., convenience, comfort, safety, economy of time.

2. Brochures that attempt to analyze the cost factors in owning and operating an airplane.

3. Advertisements aimed at a specific product use, such as the advantages of crop dusting or crop spraying by airplane.

The first of the above types was illustrated in the discussion about horizontal magazine advertisements. The second type is illustrated by a brochure, published by Cessna, which shows operating cost of a 1956 Cessna Model 170 airplane and concludes that "you'll find the cost of traveling in a Cessna is little more than the cost of traveling by automobile." Table 13 is developed from this brochure. In this Table, Cessna Aircraft Company presents cost data divided into the most important subdivisions. Examples are shown of the relationship between cost and number of hours flown per year. The brochure states that fuel consumption and maintenance are based on averages and that depreciation is based on Civil Aeronautics Administration data showing average life of airplanes to be 7.4 years. Most companies use a depreciation rate that is more rapid than this and which would result in an increase over the cost per mile shown in the brochure. Chart 20 is a simplified illustration of the reduction in cost per mile as the flying time increases. When an airplane is used for only 100 hours a year, the cost per mile is relatively high. As the number of hours flying time is increased, there is a rapid decrease in cost per mile; however, as the increase in flying time continues the decrease in cost is regressive. The
### TABLE 13
COST OF OWNING AND OPERATING A CESSNA MODEL 170
(Basis of Chart XII)

<table>
<thead>
<tr>
<th>Flight Hours Per Year</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>700</th>
<th>800</th>
<th>900</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuel and Maintenance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasoline</td>
<td>$256</td>
<td>$512</td>
<td>$768</td>
<td>$1,024</td>
<td>$1,280</td>
<td>$1,536</td>
<td>$1,792</td>
<td>$2,048</td>
<td>$2,304</td>
<td>$2,560</td>
</tr>
<tr>
<td>Oil</td>
<td>18</td>
<td>35</td>
<td>53</td>
<td>70</td>
<td>88</td>
<td>105</td>
<td>123</td>
<td>140</td>
<td>158</td>
<td>175</td>
</tr>
<tr>
<td>Maintenance</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>450</td>
<td>500</td>
</tr>
<tr>
<td>Reserve for Engine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhaul</td>
<td>75</td>
<td>150</td>
<td>225</td>
<td>300</td>
<td>375</td>
<td>450</td>
<td>525</td>
<td>600</td>
<td>625</td>
<td>750</td>
</tr>
<tr>
<td><strong>Total Direct Hourly Cost</strong></td>
<td>399</td>
<td>797</td>
<td>1,196</td>
<td>1,594</td>
<td>1,993</td>
<td>2,391</td>
<td>2,790</td>
<td>3,188</td>
<td>3,537</td>
<td>3,985</td>
</tr>
<tr>
<td><strong>Other Expense</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(constant regardless of mileage)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fixed Annual Charges</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
<td>1,420</td>
</tr>
<tr>
<td>Total Annual Insurance</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>703</td>
</tr>
<tr>
<td><strong>TOTAL ALL COST</strong></td>
<td>2,522</td>
<td>2,920</td>
<td>3,319</td>
<td>3,717</td>
<td>4,116</td>
<td>4,514</td>
<td>4,913</td>
<td>5,311</td>
<td>5,660</td>
<td>6,108</td>
</tr>
<tr>
<td><strong>Cost Per Airplane Mile</strong></td>
<td>.210</td>
<td>.122</td>
<td>.092</td>
<td>.077</td>
<td>.069</td>
<td>.063</td>
<td>.058</td>
<td>.055</td>
<td>.0514</td>
<td>.0509</td>
</tr>
</tbody>
</table>

Source: Above table computed on basis of information obtained from advertising brochure "Watch Those Dollars" Cessna Aircraft Company.
CHART 20

RELATIONSHIP OF COST OF OWNING AND OPERATING
A CESSNA MODEL 170 UTILITY AIRPLANE
TO NUMBER OF MILES AND NUMBER OF
HOURS FLOWN PER YEAR

Source: Table 10.
difference between cost per mile for 900 flying hours and 1,000 flying hours is only .0005 cents while in the change from 100 to 200 flying hours there was a decrease in cost of .088 cents.

In addition to such brochures as discussed above, a third type illustrates the advertisement of a product for a specific use. In part the message states:

The agriculture plane has wonderful visibility, both ahead over the nose, and also downward. The airplane's low wing configuration also affords unrestricted visibility in turns. No pilot will ever hit anything in this airplane because he did not see it. With its excellent forward visibility even in three point position on the ground, operation from narrow strips poses no problems. Flying in a field between very high wires on three sides is made easy by a Call Air because the turns are so much shorter than the average agriculture plane. This plane can make turn arounds in 20 seconds fully loaded.

Although this advertisement could be improved in language and sentence structure, it is an attempt on the part of this very small manufacturer to describe his product in terms that will interest a specific type of customer. The language used would be understandable to such a customer and would aid in his decision to purchase.

The cost of brochures creates a problem in the industry which is particularly troublesome for the three smaller companies, but which also causes even the large manufacturers concern. Beech, Cessna, Piper and Aero publish well planned and expensively printed brochures. It is not uncommon for such advertisements to cost as much as $2.00 for each copy. In the words of a Beech executive,
We are selling a $100,000 product and there may be only 300 prospective customers. The charge for printing a proper supply of a particular brochure may be almost prohibitive because of the small number needed. Yet, we must publish well-planned brochures for a person spending $100,000 expects only the best. If we save money on the brochure, we may lose prestige in the customer’s mind which may result in a lost sale.

A ramification of this problem is found in the fact that the aircraft industry is one that has a great public interest. These companies constantly receive requests from children and other nonprospects for advertising literature about their products. To overcome the waste in using brochures that may cost as much as $2.00 each to this unproductive group, the companies have a practice of sending obsolete brochures which are no longer of value as selling tools. Executives stated that no complaints had been received in regard to this practice.

The cost of advertising brochures is an even more difficult problem for the smaller companies. They reduce the cost of these by inexpensive reproduction methods and by not using specialized advertising assistance. Taylorcraft, Call, and Mooney all use a great deal of mimeographed material and their printed brochures are not comparable to those of the larger companies. This is a necessary practice for these smaller companies because the cost of better brochures in small amounts would be prohibitive. Nevertheless, the poorer quality of their printed material is a handicap when they compete with the larger companies.

The printed material previously discussed is placed in the hands of prospective customers either on a personal basis by the distributor’s or dealer’s salesmen or by direct mail campaign.
All manufacturers use direct mail; however, only the four larger companies have an organized continuous campaign. Names for the mailing list are derived from answer to manufacturer's advertisements and from the distributors and dealers. The mailing folders are printed by the manufacturer and sold to the distributors.

Displays.—The use of product displays at various types of public gatherings is one way of presenting the utility airplane to the potential customer. Such a display is of a nature that has public interest and is one that will usually attract a crowd. However, it is questionable as to whether it will be a crowd of prospective customers or just the idle curious. All of the manufacturers use this type of promotion but are not completely in agreement as to the benefits derived. The executives advised that a great amount of care should be exercised in selecting the occasions and the type of show at which a utility airplane would be displayed.

Every executive interviewed expressed an unfavorable attitude in connection with display of their products at the largest aircraft show, i.e., The National Air Show. A number of years ago, utility airplane manufacturers displayed their products at this show consistently; however, September 1, 1956, the National Air Show was held at Oklahoma City where none of the utility airplane manufacturers participated. Even the most powerful of the utility products appears small and frail when displayed so that it may be compared with new United States Air Force airplanes that cost as much as $1,000,000. Such comparison can result only in
an adverse effect on the utility market. It appears that producers are correct in avoiding this particular show, but that other public gatherings may be advantageous.

The manufacturers have turned to industrial shows in their search for promotional opportunities for their airplanes. In these shows a variety of products are displayed and the utility airplanes have a chance to attract favorable attention when compared with industrial equipment and consumer products.

Cost of displaying an airplane at some of the industrial shows has been prohibitive. Executives stated that even when entrance fees are reasonable, the labor of constructing the display may cost excessively. The Piper Aircraft Corporation considered a display at an industrial show in New York City but found that the entrance fee was $10,000 and that because of labor union activities, an additional $10,000 would be needed for "stand-by wages." In this case the cost was considered prohibitive and the display was not used.

There are many opportunities for displays at various types of shows and, as long as the manufacturer will bear the entire cost, it is likely that distributors will constantly harass the manufacturer to participate in as many as possible. Because of this pressure, the larger manufacturers have established a policy in regard to the cost of displays. The Cessna policy is typical of the industry and states,

In the event that such show or display has no sales aspects and yet is a show in which Cessna desires to participate, the cost of such participation will be borne completely by Cessna.
If the show or display has a sales background, that is, if sales opportunities present themselves during the show, Cessna will expect the costs of such displays to be borne by the distributor organization affected as Cessna expects the distributor to cover the cost of sales efforts.\textsuperscript{12}

From the above it is apparent that cost of shows of a general educational nature will be borne by the manufacturer, but the distributor is not likely to be insistent in regard to participation in this type of show. The displays that the distributor is most interested in will be those that directly result in sales.

Telephone Directory Advertising.---Cessna is the only manufacturer who used this type of advertising on a national basis. In all cities with population over 50,000 a standard Cessna listing is purchased by the manufacturer. The uniform heading is "Airplane Dealers"—New.\textsuperscript{11} The cost is divided equally between Cessna and the distributor, and the distributor may divide his share among his dealers if he so desires. Cessna executives feel that a uniform listing is desirable; however, other manufacturers in the industry make no such provision.

From the preceding discussion, it is apparent that there is considerable effort extended by the larger manufacturers in aid to the middlemen. Advertising activities appear to be well developed; however, only one of the companies has a method of testing its magazine advertisements. Beech uses a testing service which is an analysis of the number of respondents who read the advertisement

and the degree of thoroughness with which the message was read.

It is contended by the research company that the service answers the following questions:

1. To what extent is my advertisement seen and read?
2. Are my present advertisements better read than past advertisements?
3. Are my advertisements better read than those of my competitors?
4. Is the reading of my current campaign increasing or decreasing?
5. How can I tell my ad story so that it will be better read?13

The advertising manager at Beech expressed the opinion that the service was of assistance in all of the above five claims, but that it was not conclusive.

Other forms of printed advertising by the larger companies were well-planned, and the appearance of the individual brochures reflected to the advantage of the particular companies.

The advertisements of the smaller companies left much room for improvement; however, limited funds and a lack of specialized personnel caused much of this difficulty. This situation is true of small companies in many industries and is not particularly distinctive of airplane producers.

Summary

Margins are quoted as discounts from list price. Distributors and dealers receive different discounts. There is also a difference in the discount as between middlemen who own demon-

strators and middlemen who rent demonstrators. In addition, dis-
counts vary by products. The more expensive airplanes carry a
smaller percentage discount, but a larger dollar discount than
the less expensive aircraft.

There is only a small amount of direct sale from producer
to final purchaser. Middlemen are preferred because the manu-
facturers reduce their own capital requirements and can concentrate
their activities in manufacturing. At the same time, the middlemen
can specialize on distribution.

The distributor is the strong link in the channel of dis-
tribution. The producer maintains close ties with distributors,
but in most cases does not attempt a close relationship with dealers.
The appointment of the dealer is made to shift a part of the finan-
cial burden of sales and service and to make feasible intensive
cultivation of the territory. In covering the market intensively,
it is desirable that the vendor have close personal contacts with
potential customers. Dealers located close to customers appear
to supply these contacts more successfully than distributors lo-
cated far away from some customers.

In selecting middlemen the qualifications desired are as
follows:

1. Capital.—From $50,000 to $275,000 minimum depending
on which manufacturer is involved. The smaller manufacturers such
as Taylorcraft, Call, and Mooney usually require $50,000, while
Beech requires approximately $275,000. Cessna, Piper, and Aero
have requirements in between these extremes.
2. **Business background.**—At least five years experience as entrepreneur in dealership selling automobiles, farm implements, or industrial equipment.

3. **Attitude.**—Should be interested in flying and be able to demonstrate this interest by piloting airplanes. Must be willing to accept producers policies and procedures.

Manufacturers aid their middlemen through sales training, advertising and sales promotion. Some of the producers have carried on commendable work with these aids; however, it appears that much additional assistance is desirable. Further study is indicated to determine more scientific approaches to sales training and more information is needed as to benefits derived from advertising and sales promotion expenditures.
CHAPTER VII

ADDITIONAL PROBLEMS OF DISTRIBUTION

Two of the most important categories of problems are discussed in the preceding chapter. In order to complete an examination of specific marketing techniques, this chapter includes discussion of those additional practices and problems that are of significance in this research study.

Cash Deposits

An unusual aspect of the industry is the requirement of a cash deposit by the middleman on every airplane ordered. The time at which the deposit must be made varies between the companies, but usually it is 90 to 120 days before delivery of the airplane. On sales of its most expensive airplane, Beech uses two separate deposits. One-fourth of the total deposit is required when the order is placed and the remaining three-fourths must be paid 120 days before delivery. If the latter payment is not made on time, Beech has the contractual right to divert the particular airplane to another distributor who will pay the full deposit.

The manufacturers assign a serial number to an order on the day the deposit is made, and at that time a particular air-
plane on the assembly line is allocated to the specific order for which the deposit was paid. Table 14 shows the price per airplane, the dollar amount of deposit required, the percentage of total price represented by the deposit, and the number of days in advance of delivery required for the deposit.

The reason for such deposits is twofold. Immediately after World War II there was an expectation of tremendous airplane sales. This expectation did not materialize and some manufacturers had a surplus of airplanes on hand that could not be sold at a profit. Several manufacturers ceased production of utility airplanes and turned to more profitable products. The producers that remained in this industry grew cautious and have tried to establish practices that will diminish the possibility of overproduction. The deposit system has in part been a result of this cautious attitude.

Another factor that has contributed to the practice of requiring deposits is the nature of the product. Each airplane is partially a custom-made product constructed for a particular order and to particular requirements. This explanation was advanced by a number of the executives; however, in practice many of the airplanes produced today are almost identical, and it is doubtful if the amount of custom building contained in most airplanes warrants the deposit system.

The deposit arrangement provides that the advance is to be paid by the ultimate purchaser to the dealer. The dealer then passes this on to the distributor with the order. The distributor orders the product from the manufacturer and makes the deposit
<table>
<thead>
<tr>
<th>Airplane Model</th>
<th>List Price</th>
<th>Deposit in Dollars</th>
<th>Deposit as % of List Price</th>
<th>Number of Days Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aero Commander*</td>
<td>$59,000</td>
<td>$3,000</td>
<td>5.01</td>
<td>75</td>
</tr>
<tr>
<td>Beech Bonanza</td>
<td>18,990</td>
<td>1,000</td>
<td>5.31</td>
<td>75 to 105</td>
</tr>
<tr>
<td>Beech Twin Bonanza*</td>
<td>73,000</td>
<td>5,000</td>
<td>6.85</td>
<td>120</td>
</tr>
<tr>
<td>Beech Super 18*</td>
<td>98,975</td>
<td>10,000</td>
<td>10.10</td>
<td>120</td>
</tr>
<tr>
<td>Cessna 170</td>
<td>8,295</td>
<td>500</td>
<td>6.28</td>
<td>60 to 90</td>
</tr>
<tr>
<td>Cessna 180</td>
<td>12,950</td>
<td>750</td>
<td>5.70</td>
<td>60 to 90</td>
</tr>
<tr>
<td>Cessna 310*</td>
<td>49,950</td>
<td>5,000</td>
<td>10.01</td>
<td>120</td>
</tr>
<tr>
<td>Call Cadet</td>
<td>6,550</td>
<td>250</td>
<td>3.82</td>
<td>90</td>
</tr>
<tr>
<td>Mooney Mite</td>
<td>3,695</td>
<td>200</td>
<td>5.41</td>
<td>60</td>
</tr>
<tr>
<td>Mooney Mark 20</td>
<td>12,500</td>
<td>750</td>
<td>6.00</td>
<td>75</td>
</tr>
<tr>
<td>Piper Club</td>
<td>4,195</td>
<td>300</td>
<td>7.15</td>
<td>60</td>
</tr>
<tr>
<td>Piper Tri-pacer</td>
<td>6,825</td>
<td>400</td>
<td>5.86</td>
<td>60</td>
</tr>
<tr>
<td>Piper Apache*</td>
<td>30,000</td>
<td>3,000</td>
<td>10.00</td>
<td>120</td>
</tr>
<tr>
<td>Taylor Topper</td>
<td>9,360</td>
<td>600</td>
<td>6.41</td>
<td>75</td>
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<tr>
<td>Taylor Ranch Wagon</td>
<td>9,840</td>
<td>650</td>
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<td>75</td>
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</tbody>
</table>

*Twin-engine airplanes.

Source: Compiled from interviews with executives of utility, airplane manufacturing companies and from internal company records.
at that time. However, in practice the dealer may make a sale but be unable to collect a deposit. In this case, he may elect to advance the deposit himself. This, of course, defeats a part of the benefits derived from the deposit system since the dealer has no protection in case of a cancelled order. The dealer may also lose the deposit since it is to be forfeited to the manufacturer in case the order is cancelled.

The distributor may also decide to advance the deposit when he cannot collect it from the dealer. In this case the situation described above would occur, but with the distributor standing the loss. In addition, a distributor or dealer buying for inventory must pay a deposit when the order is placed.

Regardless of whether the customer, the distributor, or the dealer pays the deposit, the manufacturer receives such payment before accepting an order. This is a practice adhered to by all producers.

The policy of requiring deposits appears to have definite benefits since it helps to reduce the possibility of overestimating the market. The philosophy of the industry appears to be one of trying to control production to the point of remaining in a sellers' market. This situation, in turn, makes it possible to avoid much of the problem of price cutting and makes more feasible the establishment of price on a cost plus basis. If production is regulated in such a way as to assure that every plane produced is already sold and only the necessary demonstrators and floor display models are manufactured in addition to firm
orders, prices are not likely to be driven downward because of overproduction in relation to demand. Neither will volume of production be likely to grow rapidly to lower the cost per airplane. The deposit system appears to assure production of only those airplanes that can be sold at a high price because of low volume.

Types of Sales to Middlemen

There are two primary types of sales made to middlemen by utility airplane producers. All transactions can be classified as either cash or financed. Under each of these primary classifications several subtypes have developed and are based on the immediate use to be made of the airplane. The airplanes are either

1. purchased by the distributor for inventory and later resale,
2. purchased by the distributor to be used as a demonstrator, or
3. purchased by the distributor to fill an order that has been previously received from a final purchaser.

Cash Sale

The cash sale presents few problems to the manufacturer since he receives the full price of the airplane before releasing it. The difficulties that do arise are discussed in detail in the later section of this chapter under the topic of "delivery arrangements."
Such sales do, however, entail some problems for the middleman since he must be able to command enough capital to supply himself with demonstrators and must also be able, on occasions, to pay for an airplane before he is paid by the final purchaser. An example of difficulties that can arise in the cash transaction developed at Beech while this study was in process. A distributor was notified that an airplane was ready for delivery. The order, accompanied by a deposit, had been previously placed by a good customer. The customer asked the distributor to get the airplane for him and stated that a check would be ready when the distributor delivered the airplane. This procedure meant that the distributor had to have available $60,000 to complete the payment for the airplane before Beech could release it.

At the last minute the customer decided to have the distributor install additional equipment. The installation required an additional two weeks and made it necessary for the distributor to invest an additional $15,000 in the cost of this equipment. Since the customer did not want to pay until the airplane was ready, the entire transaction made necessary the use of $75,000 for the two week period.¹

The customer had an unimpeachable credit standing and the entire transaction was an extremely profitable one to the distributor. In this particular case, the distributor had enough

¹Interview with Sales Manager of Beech Aircraft Corporation, April 10, 1956.
cash available. However, if a similar transaction had developed at this time he could not have handled it without outside help.

**Financed Arrangement**

In a previous chapter the problem of finding qualified distributors with the necessary available capital was discussed at length. Such examples as that cited above adds to the amount of capital needed by a distributor. In other industries commodity loans are considered in an extremely favorable light because they are short term and extremely liquid. Theoretically, there is little risk since the salable commodity serves as collateral for the loan. In the aviation industry there has been very little activity in this facet of commercial banking because an airplane has been considered poor collateral. However, since 1955 there have been some developments in financing of sales to middlemen whereby the airplane is used as collateral for the transaction. This development, while now in its infancy, gives promise of better use of distributors' capital and more use of outside capital for temporary needs. In addition, it is probable that a larger share of the capital needed for permanent use for inventory and demonstrators may be derived from outside sources.

A sale from manufacturer to distributor may be financed by the producer or by an outside credit institution. Only two manufacturers, Beech and Cessna, perform credit functions, but even they confine their activities to supplying the capital in-
vested in airplanes that are in the possession of the middlemen for resale or for use as demonstrators.

"Floor Plan" Financing.—In April, 1955, Beech Aircraft Corporation entered into an arrangement with The National City Bank of New York City by which Beech distributors may finance an amount equal to 80 per cent of the distributor's cost of an airplane on hand for resale. The distributor must arrange for his local bank or The Fourth National Bank of Wichita, Kansas, to participate in the loan to the extent of at least 10 per cent. The note bears a rate of 5 per cent simple interest and is payable in three payments as follows:

10 per cent of principal due 90 days after date of delivery of airplane
10 per cent of principal due 120 days after date of delivery of airplane
balance due 180 days after date of delivery of airplane.²

The Cessna Aircraft Company has arranged for "floor plan" financing through a Cessna owned subsidiary organization. Under this plan a distributor may finance as much as 64 per cent of list price of a twin-engine airplane or 60 per cent of list price of a single-engine model. The principal is to be repaid in two payments. In 90 days after delivery of the airplane, 12 1/2 per cent is due, and the balance must be paid 180 days after delivery. The simple interest rate is 6 per cent and the amount of interest earned at the time a payment falls due is paid with the payment.

²Interviews with Sales Manager of Beech Aircraft Corporation, April 11, 1956.
The above quoted terms are maximum amounts and maximum time. The distributor may finance a smaller amount or, if the airplane is sold during the 6 month period, interest will be charged only for the time the loan is in effect.³

Table 15 shows a comparison of these two plans as they would apply on the purchase of an airplane with a cost price to the distributor of $15,000 and a list price to final purchaser of $20,000.

The two plans are very similar with the major difference being a 6 per cent true rate charged on the Cessna transaction as compared to a 5 per cent true rate in the Beech plan. In addition, Beech permits the distributor to use the "floor plan" airplane to a greater extent than is permitted by Cessna. Cessna allows a maximum loan of 60 per cent of list price. Beech permits 80 per cent of cost price. For purpose of illustration in Table 15, on a list price of $20,000 the discount for both companies is assumed to be approximately 25 per cent. This discount varies with amount and type of accessories and with the distributor's position in regard to whether he has successfully reached his quota.⁴ The 25 per cent discount used in the illustration permits a comparison wherein both companies have a loan of an equal amount. If the two transactions are reduced to a

⁴Discounts are discussed more thoroughly in Chapter VI.
<table>
<thead>
<tr>
<th></th>
<th>Cessna</th>
<th>Beech</th>
</tr>
</thead>
<tbody>
<tr>
<td>List price to final purchaser of</td>
<td>$20,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>airplane and accessories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost to distributor</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Loan value</td>
<td>12,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Down payment by distributor</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Repayment schedule</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plus 90 days</td>
<td>1,500</td>
<td>1,200</td>
</tr>
<tr>
<td>Plus 120 days</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td>Plus 180 days</td>
<td>9,600</td>
<td></td>
</tr>
<tr>
<td>Simple interest rate</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Interest in dollars</td>
<td>$337.50</td>
<td>$320</td>
</tr>
</tbody>
</table>

common denominator for comparison purposes on the basis of number of dollars outstanding and number of days involved, the Cessna plan results in an equivalent of a loan of the $12,000 original balance for 169 days while the Beech plan is equivalent to a loan of $12,000 for 165 days.\(^5\) Thus what little difference is involved indicates Cessna is permitting slightly more dollars to be outstanding through most of the period. This becomes more pronounced if the airplane is a twin-engine product, for Cessna increases the maximum amount loaned to 64 per cent of list price while Beech continues the use of the 80 per cent of cost price on all models. In terms of the above reduction to a common denominator the Cessna plan would then increase to the equivalent of a $12,000 loan for 180 days. The Beech plan allows local bank participation, and thus has a secondary effect of building good will for the distributor on the local level. On the surface, Beech appears to have

\(^5\)Payment schedules reduced to common denominator of number of dollars loaned for one day

<table>
<thead>
<tr>
<th>Cessna single-engine model</th>
<th>Payments</th>
<th>Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 90 days</td>
<td>$1,500</td>
<td>$12,000 for 90 days = $1,080,000 for 1 day</td>
</tr>
<tr>
<td>In 180 days</td>
<td>10,500</td>
<td>10,500 for 90 days = $945,000 for 1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Entire transaction = $2,025,000 for 1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$2,025,000 = 169 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$12,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beech all models</th>
<th>Payments</th>
<th>Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 90 days</td>
<td>$1,200</td>
<td>$12,000 for 90 days = $1,080,000 for 1 day</td>
</tr>
<tr>
<td>In 120 days</td>
<td>1,200</td>
<td>10,800 for 30 days = $324,000 for 1 day</td>
</tr>
<tr>
<td>In 180 days</td>
<td>9,600</td>
<td>9,600 for 60 days = $576,000 for 1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Entire transaction = $1,980,000 for 1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$1,980,000 = 165 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$12,000</td>
</tr>
</tbody>
</table>
less control over the distributors since credit is granted by the banks and in the case of Cessna, the credit is by a producer's subsidiary; however, executives at Beech contend that this is not an accurate interpretation since the Beech credit department handles all of the details and paper work and attempts to oversee the transactions.

The Beech Corporation realizes no additional profit directly from this financing plan, but the executives were of the opinion that promotion of this arrangement allowed the distributors to have more working capital available and that this benefits the producer by making it possible for distributors to perform more efficiently. This should result in more qualified middlemen being attracted to the industry. The Cessna philosophy is to conduct this activity as a basis of profit derived directly from credit transactions as well as indirectly through promoting a better use of working capital of the distributor. In addition, these financing plans are in conformity with the management concepts of both companies to offer complete services to the middlemen.

Demonstrator Financing.—Cessna and Beech provide for financing of the airplanes that must be maintained by a distributor for the purpose of demonstrating the product to prospective customers. It is logical to expect that such plans as this must vary from the previously discussed "floor plan" financing in order to allow for the more rapid reduction in value of the product due to use. To assure that the balance outstanding is always below the market value of the product, a number of payments may be required
throughout the loan period. This is the requirement under the Cessna demonstrator financing plan; however, Beech uses a plan identical to that developed for their "floor plan" financing. Beech has attempted to simplify their financing by using a "middle of the road" plan to answer two separate needs. Thus, the plan has two interim payments which are not needed for "floor plan" but are needed for demonstrator financing. If the Cessna and Beech demonstrator plans are compared in the same manner as the "floor plans," the Beech arrangement is equivalent, as previously shown, to a loan of $12,000 for 165 days, while the Cessna plan is equivalent to such a loan for 247 1/2 days. The extreme difference is due to the fact that Cessna permits such loans to remain in force for a full year while Beech permits only the same length of time as that allowed in "floor plan" financing.

The rates of 6 per cent for Cessna and 5 per cent for Beech are also charged on the financing of demonstrators. Table 16 shows an example of Cessna demonstrator financing which allows for reduction of the outstanding balance throughout the loan period.

A problem faced in automobile "floor plan" and demonstrator financing of "conversion" is also a risk in the airplane industry. "Conversion" develops when the financed airplane is sold but the

<table>
<thead>
<tr>
<th>Amount</th>
<th>For 60 Days</th>
<th>For 1 Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12,000</td>
<td>$720,000</td>
<td>$12,000</td>
</tr>
<tr>
<td>10,500</td>
<td>$630,000</td>
<td>$10,500</td>
</tr>
<tr>
<td>9,000</td>
<td>$540,000</td>
<td>$9,000</td>
</tr>
<tr>
<td>7,500</td>
<td>$450,000</td>
<td>$7,500</td>
</tr>
<tr>
<td>6,000</td>
<td>$360,000</td>
<td>$6,000</td>
</tr>
<tr>
<td>4,500</td>
<td>$270,000</td>
<td>$4,500</td>
</tr>
<tr>
<td>Entire transaction = $2,970,000</td>
<td>$49,500 for 1 day</td>
<td></td>
</tr>
</tbody>
</table>

\[
\frac{\$2,970,000}{\$12,000} = \$247\frac{1}{2} \text{ days}
\]
TABLE 16
ESSENTIALS OF TRANSACTION TO FINANCE
DEMONSTRATOR SINGLE-ENGINE AIRPLANE
FOR CESSNA DISTRIBUTOR

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>List Price</td>
<td>$15,000</td>
</tr>
<tr>
<td>Loan Value (60% of list)</td>
<td>9,000</td>
</tr>
<tr>
<td>Distributor Invoice Cost</td>
<td>11,250</td>
</tr>
<tr>
<td>Minus Loan Value</td>
<td>9,000</td>
</tr>
<tr>
<td>Down Payment</td>
<td>$2,250</td>
</tr>
</tbody>
</table>

Payment Schedule

<table>
<thead>
<tr>
<th>Delivery Day</th>
<th>Reduction in Principal</th>
<th>Interest</th>
<th>Insurance</th>
<th>Total</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plus 60 days</td>
<td>$1,125</td>
<td>$90.00</td>
<td>$74.25</td>
<td>$1,289.25</td>
<td>$9,000</td>
</tr>
<tr>
<td>Plus 120 days</td>
<td>1,125</td>
<td>78.75</td>
<td>74.25</td>
<td>1,278.00</td>
<td>6,750</td>
</tr>
<tr>
<td>Plus 180 days</td>
<td>1,125</td>
<td>67.50</td>
<td>74.25</td>
<td>1,266.75</td>
<td>5,625</td>
</tr>
<tr>
<td>Plus 240 days</td>
<td>1,125</td>
<td>56.25</td>
<td>74.25</td>
<td>1,255.50</td>
<td>4,500</td>
</tr>
<tr>
<td>Plus 300 days</td>
<td>1,125</td>
<td>45.00</td>
<td>74.25</td>
<td>1,244.25</td>
<td>3,375</td>
</tr>
<tr>
<td>Plus one year</td>
<td>3,375</td>
<td>33.75</td>
<td>74.25</td>
<td>3,483.00</td>
<td>0</td>
</tr>
</tbody>
</table>

If airplane is sold after 75 days

<table>
<thead>
<tr>
<th>Delivery Day</th>
<th>Reduction in Principal</th>
<th>Interest</th>
<th>Insurance</th>
<th>Total</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plus 60 days</td>
<td>$1,125</td>
<td>$90.00</td>
<td>$74.25</td>
<td>$1,289.25</td>
<td>$9,000</td>
</tr>
<tr>
<td>Plus 75 days</td>
<td>7,875</td>
<td>39.38</td>
<td>37.13</td>
<td>7,951.51</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Compiled from interviews with executives of National Aero Finance Company, Inc. and from company credit policy manual.
distributor does not pay off the balance due the financing institution. In automobile financing an organization, such as, General Motors Acceptance Corporation, has strict policies requiring notification and payment within a short time "usually 24 hours after the mortgaged property leaves the hands of the vendor." If this policy is not complied with, the distributor may lose his franchise as well as his future use of this financing arrangement. Field men of the airplane producers have as one of their tasks the checking of airplanes in possession of distributors to ascertain whether the collateral is available. The usual policy in the airplane industry is that the outstanding balance on mortgaged airplanes on "floor plan" or demonstrator financing must be paid within three days after sale. Beech and Cessna each guarantee faithful performance by the distributor and agree to pay the outstanding balance in the case of a conversion by a distributor. To Cessna, this would mean only a payment to its subsidiary, but Beech guarantees payment to The National City Bank.

In addition to the financing plans of Beech and Cessna, there are other financing arrangements made by individual distributors for the other five manufacturers. Any distributor has the possibility of securing capital for investment in inventory from local banks and in a few cases from sales financing institutions. When these sources are used by distributors, the terms are varied

7 Interview with Branch Manager, General Motors Acceptance Corporation, Wichita, Kansas, April 10, 1956.
to fit the particular circumstances. However, in such cases the manufacturers take no part in the negotiations. Beech and Cessna are the only producers providing any assistance of this type.

Insurance Requirements for Financing Airplanes for Middlemen.—Under the Cessna plans there is considerable difference in cost of insurance required for "floor plan" airplanes and for demonstrators. The latter is at a minimum for the airplane will be flown only a few times while under this arrangement. The initial flight is the trip from the producer's plant to the distributor's place of business. The distributor agrees in writing that the airplane will not be flown after arrival at his base, except for necessary flight testing of newly installed equipment. On a Cessna Model 180 the finance plan requires $16 for the initial trip plus $1 a month for each $1,000 of distributor's cost. Therefore, an airplane that has a $15,000 cost price to the distributor and is financed for six months requires total insurance premium of $106. The rate is the same per thousand on the twin-engine model, but insurance for the initial trip is increased to $40. These rates provide for $50 deductible on the single-engine models and $100 deductible on twin-engine airplanes.

If the same Model 180 is placed on a demonstrator financing plan, it is expected that it will be available at all times for flight demonstrations. In order to protect the collateral on the loan, it is necessary that "fifty dollar deductible, full hull, all risk, ground and flight" insurance be in effect. On the Model 180 this will cost $3.30 a month for each 1,000 of
distributors cost or a total of $297 for six months. This is almost three times the cost of insurance for "floor plan" financing.

The rate per thousand dollars of distributor cost is reduced to $1.60 on Cessna twin-engine airplanes financed as demonstrators. This is slightly more than a 50 per cent reduction from the single-engine insurance rate and is due primarily to the increase in the safety factor for twin-engine craft.\(^8\)

Beech has only one set of insurance rates which apply to either an airplane financed on "floor plan" or a financed demonstrator. These rates are almost identical to the Cessna rates for demonstrators and there are few restrictions placed on flying a "floor plan" airplane under the Beech arrangement. The reason for the single set of rates is due to the practice of Beech distributors of seldom having planes in inventory. The usual "floor plan" financing of a Beech distributor results from the need for adding equipment at the distributor's place of business. This usually means a short time investment and a need to fly the airplane in order to thoroughly test the added installations.

In comparing the financing and insurance arrangements of the two manufacturers, it is apparent that the plans have been developed with slightly different objectives. Beech uses one plan to provide for two separate needs while Cessna tries to fit separate plans to specific needs. The Cessna plan is more nearly

comparable to automobile "floor plan" financing where it is ex-
pected that new products will not be used. Beech distributors
do not need this particular type of plan for they use the "floor
plan" products in a limited manner. They are required a larger
reduction in the balance throughout the term of credit and dif-
f erent insurance coverage so that the additional risks can be
provided for.

**Types of Transactions with**

**Final Purchaser**

Insofar as the manufacturer is concerned, all sales of
utility airplanes are for cash. The manufacturer will not release
an airplane without receiving cash for it. However, the product
may be sold by a producer to a distributor who resells to a cus-
tomer with a sales finance company making payment for the airplane
and accepting a chattel mortgage or conditional sales contract
from the customer as evidence of an agreement to repay the sales
finance company. The airplane is collateral which serves as se-
curity for such a transaction. In addition, a sale may be made
by the distributor to a leasing company. Such a sale will be
for cash as far as the distributor is concerned except that he
will accept some contingent liability in the form of an agree-
ment to repurchase in case the lease is cancelled.

Thus, the final customer has the three alternatives of
paying cash, securing a sales finance contract, or leasing. In
the first two cases, the customer becomes the owner of the air-
plans at the end of the payment period. In the latter situation, the lessor is the owner when lease payments cease. In all circumstances the airplane manufacturer has disposed of an airplane, through a middleman, for cash. Therefore, the problems as related to the manufacturer have nothing to do with his ability to absorb the financial burden of lease or financing. The manufacturer's interest is concerned more with having various purchase arrangements available in order to stimulate sales. For this explanation to be completely accurate, the qualification should be stated that Cessna owns one of the companies that leases and finances airplanes. However, this financing organization is a separate entity.

Cash Sale

The simplest transaction is the cash purchase. From previous analysis of the market for utility airplanes, it is apparent that many potential customers for this product are financially able to make such purchases. The cash sale presents few problems to the manufacturer. Those that do result are concerned with delivery, check outs, and cash deposits. These are problems that accompany finance and lease arrangements as well as cash sales. Therefore, the problems of cash sales are discussed at other places in this study.

This research is primarily concerned with manufacturers' marketing problems. The decision as to whether a prospective customer should buy for cash, lease, or use sales financing is a problem of that customer and not within the scope of this study.
However, the producers have encouraged financing and leasing arrangements in an effort to appeal to those customers who find such plans advantageous.

**Financed Arrangement**

**Sales Financing.**—There are several companies that specialize in aircraft financing. The largest of these is Aircraft Investment Corporation of Fort Worth, Texas. In addition, banks often advance loans for the purchase of airplanes if the person requesting credit is an extremely high quality credit risk. The rates charged are comparable to those charged in automobile financing. Aircraft Investment Corporation charges 6 per cent on new airplanes and 6, 7, or 8 per cent on used airplanes. The rate varies with the age of the collateral. Banks often charge a slightly lower rate on new airplanes, but the bank usually accepts only the highest type risk. The above charges are nominal annual interest rates.

There are no available statistics that show how many new airplanes are purchased on credit, but executives in the utility airplane industry believe the percentage of total new airplane sales accounted for in this manner is low and that this percentage is declining and will be even lower in the future. The executives contend that the market for new airplanes is with companies and individuals who can pay cash, or if the company can use its capital to greater advantage in some other manner, it will employ the lease arrangement for purchase of an airplane. Thus
the contention is that in the future most of the activities of sales finance companies will be confined to financing used airplanes for customers who can neither pay cash nor make use of the lease plan for a new product.

Leasing.—Numerous companies today find it much better practice to lease certain types of equipment rather than reduce their working capital to buy the items. Working capital may earn more, being used in the business, than the interest charged under some lease plans. Accordingly two large companies, The American Leasing Corporation and International Leasing Corporation, have built a large business in buying industrial locomotives, heavy industrial equipment, and large truck fleets for leasing to financially responsible users. The most recent product to be handled in this manner is the utility airplane. A third company, National Aero Finance Company, Incorporated specializes in leasing and financing of airplanes only.

The American Leasing Corporation will work with any of the airplane producers; however, Beech is the only manufacturer

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9The practice of leasing machinery is common in the following industries:
   a) office machinery and equipment
   b) shoe manufacturing machinery
   c) construction equipment
   d) container machinery
   e) transportation equipment
   f) textile and tobacco machinery
   g) refrigeration equipment
   h) machine tools

who has thus far made definite plans to encourage the use of this particular leasing system. Under the plan of this corporation, the lessor pays the distributor list price for the airplane desired by the potential user. The product is delivered to the customer under the terms of a four year lease on which payments for a $25,000 Bonanza amount to $912.50 a month for the first twenty-four months and $512.50 a month for the second twenty-four months. These payments include interest, public and passenger liability, property damage, full hull coverage, and crash damage. There is no deductible. After four years American Leasing Corporation is obligated to a one year extension of the lease for a payment of $600 plus insurance cost for the year. At the option of American Leasing Corporation, the $600 a year arrangement may be continued indefinitely but the leasing company is not obligated to continue it past the fifth year.

Under terms of this lease, the customer agrees to pay all operating and maintenance costs and to keep the airplane in good condition. The customer is restricted to the extent that he cannot fly the airplane outside the continental limits of the United States, Canada, or Mexico without special permission of The American Leasing Corporation.

Title is vested, at all times, in The American Leasing Corporation, and at the end of the lease period the airplane remains the property of this corporation. However, executives of Beech contend that American Leasing Corporation has no desire
to get into the business of selling airplanes. An agreement is in force with the original distributor to the effect that after the customer's interest in the airplane is terminated, the leasing company will sell the airplane back to the distributor for $50. It is significant that the lessee has no claim of any kind on the airplane after the lease period is ended.

Another example of the lease plan for utility airplanes is that of International Leasing Corporation. The plan is similar to the previously described arrangement of American Leasing Corporation but differs in that equal payments are required through the entire four year lease. The International Leasing Corporation will work with any manufacturer or distributor although most of their business in the airplane industry has been with Piper products.

The other major leasing corporation serving this industry is a Cessna subsidiary, National Aero Finance Company, Incorporated. The leasing plan of the company is similar to that of American Leasing Corporation. However, this organization serves only purchasers of Cessna airplanes while the other two will lease any desired airplane manufacturer's product.

The basic plans of these leasing companies cover a four year period. International Leasing Corporation and National Aero Finance Company, Incorporated also have two year plans and the Cessna subsidiary has what is termed a "pool lease plan" for leasing airplanes for 30, 60, or 90 day periods. In this plan the financing company does not exercise control over the arrange-
ments with the final customer, but leases only to the Cessna middleman who, in turn, leases to the customer. This arrangement is available only for the Model 310 twin-engine Cessna. The charge is $2,890 a month plus $50 an hour for all flying hours over 50 a month.

Manufacturer Owned Demonstrators

The need for demonstrators to be used as a part of the sales presentation is supplied in one of three ways. The middleman may purchase such an airplane by paying cash or he may avail himself of a demonstrator financing plan. A third arrangement has developed in the industry wherein the manufacturer supplies a demonstrator which can be used by the middlemen and for which a rental is paid. The first two alternatives have been previously discussed; however, the third method of fulfilling the demonstration need is of extreme importance and warrants further examination.

Manufacturer owned demonstrators that are maintained for use of middlemen in conducting demonstrations are usually confined to the more expensive twin-engine airplanes. There are certain middlemen who are not expected to sell the larger airplanes as a regular course of business and who could not profitably maintain an investment in these airplanes when the cost of ownership is weighed against potential sales. These middlemen may occasionally contact a potential customer for one of the expensive products. In order that sales of this type not be lost for
lack of availability of a demonstrator, the manufacturer maintains airplanes that can be rented by the middleman.

Beech furnishes a typical example wherein distributors are classified as follows:

A class 'A' distributor is to maintain an active Model Super 18 demonstrator on hand at all times with title in distributor's name. A class 'B' distributor will not be required to maintain a Super 18 demonstrator, but when demonstrations are required by the class 'B' distributor such demonstrations shall be made by the factory at an established rate per hour with an established minimum charge for each demonstrator.10

This manufacturer maintains two Super 18's for demonstrator use. The fee charged to the distributor is $100 an hour flying time which includes time from factory in Wichita, Kansas, to point of demonstration. An additional fee of $50 a day is charged for the pilot. This could be a rather expensive sales practice and the manufacturer recommends that requests be submitted as far in advance of the appointment time as possible so that demonstrations for several distributors in the same part of the United States may be scheduled on the same day. In this way the cost of pilot and travel time from the factory can be divided among the several distributors. Beech has the same arrangement for the twin-engine Model 50, but the cost per hour is $60 which reflects the lower price of the product. Other manufacturers have similar plans available with the cost decreasing as price of the airplane decreases.

Several executives in the producing companies expressed

10Sales Policy Manual of Beech Aircraft Corporation, p. 30:1A.
the idea that they would much rather have the demonstrators owned by the middlemen so the airplane would be quickly available for demonstrations. They were of the opinion that the difficulty of making arrangements and the direct rental cost to the middleman resulted in fewer demonstrations than would be the case if the airplanes were owned by the middlemen and were available at all times. However, these same executives also recognized the problem of capital investment that would result if some of the smaller distributors were required to purchase expensive demonstrators. In some situations this would be an unbearable additional cost that would eliminate certain middlemen.

The plan of factory demonstrators should be encouraged only for the more expensive twin-engine airplanes and only for middlemen who cannot possibly have enough potential market for the particular airplane to warrant middleman ownership of the product. If the plan is used for lower-priced demonstrators which should be owned by middlemen, the result will be less use of demonstration as a sales tool. This, in turn, will probably reduce sales because the final purchase is usually made only after a trial of the product. In addition, many executives stated that initial interest of a potential customer is often developed after a demonstration. These executives expressed the opinion that in many cases the customer would never have become interested except that a demonstrator was available and the middleman demonstrated the product. Many times the small dealer is more interested in repair work, air taxi service, and charter contracts.
Such a dealer is likely to consider a direct cost of demonstrator rental as being prohibitive, particularly when many of the potential customers do not become actual purchasers.

There is no absolute answer to this dilemma. The manufacturer cannot require all middlemen to own a demonstrator in each model produced for many presently profitable middlemen could no longer operate. Under certain circumstances it is necessary to have factory owned demonstrators; however, this practice should be limited and should never be used as a substitute for the requirement of middleman ownership of demonstrators when the market potential would allow for such investment. Thus far the airplane manufacturers do not have market potentials for various products refined to the point that such a figure would be anything more than a broad estimate. The first step in establishing a policy in regard to ownership of demonstrators would be a development of market potentials for each model in each territory. From this information the profitability of demonstrator ownership by middlemen could be more accurately determined and manufacturer policy developed to correspond to this profitability.

**Release and Delivery of Airplanes**

Due to the nature of the product and its high unit value, proper delivery of the completed airplane to the purchaser is of paramount importance. The manufacturers, through trial and error, have established specific policies in an attempt to assure safe and economical delivery. The manufacturer must safeguard the
company and product reputation as well as consider the financial interest of all concerned.

Airplanes are delivered on terms referred to as FAF or "Fly Away Factory." This simply means the airplane is prepared by the manufacturer for flight and is available to the distributor on the producer's airfield. These terms are identical to FOB factory.

When payment is made to the factory, a financial release is prepared and forwarded to the operations department indicating that a satisfactory financial arrangement has been completed and that the airplane is cleared for delivery to the distributor or to his agent. If the distributor wishes to have his agent fly the airplane away, a legal notice to this effect will be required which must be signed by the distributor.

None of the producers maintain regular service for delivery to distributors or to final purchasers. However, it is customary for sales personnel of the manufacturers to deliver airplanes to distributors if such delivery coincides with a planned visit to the distributor. The distributor must pay only the cost of a return airline ticket for the pilot. Such arrangements appear to be on a rather haphazard basis; however, marketing executives in the industry point out that the practice many times works to the advantage of all concerned and aids in developing goodwill between the producer and his middlemen.

If this middleman or final purchaser so desires, the airplane can be delivered to the customer's airfield by companies
that specialize in this service. The best known of these organizations is The Ferry Service Company. If this service is to be used, instructions to this effect must be given to the manufacturer before the airplane will be released to the representative. The Ferry Service Company subcontracts the actual delivery of the airplane to a qualified pilot, thus the manufacturer requires a form in which The Ferry Service Company designates this pilot as its agent for purpose of delivery of the airplane.

On occasion the manufacturer is faced with an embarrassing situation which may give rise to loss of customer goodwill in addition to causing additional expense. This situation may develop when a final purchaser of a new airplane appears at the factory to take delivery himself. Prevalent policies in the industry place responsibility on the middleman to see that the new owner has been properly "checked out" in the new model prior to taking delivery at the factory. If the middleman has failed in this responsibility, the manufacturer will not deliver the airplane until such "check out" has been made. The larger producers all have facilities to perform this "check out"; however, many times delay, expense, and unsatisfactory customer relations result.

Most of the manufacturers handle the "check out" at their own expense with the idea of causing as little dissatisfaction among the various parties as possible. Cessna, however, in an

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11 The "check out" consists of a test to show that the pilot is familiar with the particular model which he will fly. In civilian airplanes this consists of a short flight in the airplane with instructions from a pilot who is experienced with this model.
attempt to encourage the middlemen to carry out this responsibility, has adopted a policy of billing the distributor for cost of the "check out." In addition, the customer is required to accept delivery before the "check out" flights and the flying is then done in the airplane being purchased. Cessna assumes no responsibility for the airplane or its occupants during this flight.

The Cessna procedure is the first genuine attempt to control this activity and appears to be a sound policy which should reduce the factory "check outs" to a minimum while making it possible to handle unusual cases on an equitable and fair basis.

Incentives for Middlemen

There are two primary methods used by manufacturers in the industry to provide incentives for the middlemen. These methods are bonus payments and contests.

Quota as a Basis for Incentives

Quotas are used both as a means of allocating the production potential of each of the larger producers and as a device for encouraging additional selling effort by middlemen.

Quotas are determined by first establishing the number of each model that can be produced. This number is divided among the various distributors on the basis of the share of the previous years' production sold by each of these middlemen. The distributor then divides his quota among his dealers on whatever basis he deems equitable. Thus, the method of arriving at a distributor quota may be highly arbitrary and not conducive to the best distributor-
manufacturer relations. Beech recently departed slightly from this system of establishing quotas for the most expensive product in the industry. The new quota system was stated as follows:

Every Beechcraft distributor will have a Model Super 18 quota, which will be based on his fair and proportionate share of the sale of 150 Super 18 Beechcrafts. Each individual distributor's quota will be determined by the percentage of all post-war Model Super 18 Beechcrafts which are currently registered in that distributor's territory. For example, if 6 per cent of all Model Super 18 Beechcrafts registered in the United States are registered in distributor A's territory, then distributor A's quota will be 6 per cent of 150 airplanes, or 9 Super 18's. 14

The above policy, to be equitable, is based on an assumption that the potential market for this airplane conforms to the number of registrations of previous models in each territory. Although there are situations in which a particular airplane may be registered in a territory other than that in which it was purchased, this method is essentially based on past sales for most of the airplanes are registered in the territory in which they are purchased.

In products with an expanding market such assumptions as those embodied in the quote plans based on past sales and registrations are not particularly sound. The fault lies in the fact that many large companies not previously in the market for airplanes may at any time become interested in such means of travel. Much of the selling effort of these manufacturers is aimed at bringing new customers into the market and finding new uses for

12 Sales Policy Manual of Beech Aircraft Corporation, p. 40:2A.
their product but the sales quota plans currently used are based on past sales. In addition, the basis is previous sales of their own product rather than previous sales of all similar products. The determination of potential purchasers is a problem beyond the scope of this study, but one which may be answered by research of the type conducted for Cessna by Booz, Allen and Hamilton, management consulting firm. A more detailed discussion of this study is contained in Chapter V. The airplane customer is defined in terms of need for transportation, earning capacity, age, and other factors. The number of such companies or persons in a territory should result in a more accurate interpretation of market potential for the establishment of quotas than can be derived from past sales alone.

**Bonus Incentives**

The bonus plan is discussed in Chapter VI in the section on margins. It is sufficient to note that all bonus arrangements are based on attainment of quota. In the example previously quoted, Beech pays a bonus of $500 per airplane sold, if quota is reached. A bonus of $750 is paid for each airplane sold above quota. This applies to a product with a list price of $21,990.

**Contest Incentives**

The smaller companies in the industry use no contests but depend entirely on distributor discounts to supply the proper incentive for sales activity. The three larger companies each use some type of contest.
The purpose of the contest is to add incentive and to increase morale of the distributors and their sales force. The producers do not conduct contests for the dealers but rather prefer this activity be developed by the distributors. It is customary for distributors to establish such a contest as previously described, but on a smaller scale, among their own dealers.

The contests that have been conducted are all based on the idea of a distributor exceeding quota. If the quota is set on a sound basis, this is a good way to assure an equitable contest. However, the method used in the aircraft industry to establish quota is not conducive to such an equitable arrangement. This practice was discussed in the section on quotas in this chapter and needs no further discussion at this point.

Summary

Five categories of problems are discussed in this chapter. Certain specific practices have been adopted in the industry to assure expedient methods of handling each of the problems. These practices are also presented in this chapter with the objective that the combination of problems and practices serves to shed additional light on the study of the distribution of utility airplanes.

The cash deposit is a device which makes it possible for the manufacturer to assure himself that he has a sale for the airplane before the product is finished. Seldom are deposits forfeited. If many were forfeited at one time, it is conceivable that the
producer would be injured. However, he would not be injured to the extent possible without the deposit system. In addition, with this device there is little need to produce more than the market will absorb. There is a minimum amount of pressure to lower price in order to sell a surplus inventory for there is no significant surplus. Some of the risk is taken out of the airplane business, and thus the cash deposit is a welcome arrangement to the manufacturer.

Sales to middlemen for resale or for demonstrator purposes can be classified as either cash sales or credit arrangements. The major problem concerned with cash sales revolves around the difficulty experienced by some middlemen in obtaining enough capital to make cash purchase of the airplanes they need. In order to alleviate this situation the large companies have made "floor plan" and "demonstrator" financing arrangements available at interest rates which approximate those charged in automobile financing. At the time of this study, these financing plans had been in use only a brief time and data were not available to prove or disprove their value. Proof must await several years of experience, but from observation of the limited material available, these financing developments appear to be a step forward in the improvement of distribution functions in the industry.

Transactions by final purchasers may be divided into those of cash sales, financed sales, and lease arrangement. In order to make possible the sale of a maximum number of airplanes, the large producers have encouraged the financing and
leasing plans now in use. Lease plans are of advantage to some customers and the producers are to be commended for their efforts to open this additional market.

The problem of manufacturer owned demonstrators presents a difficult dilemma to the producer. Middlemen who own their demonstrators will probably arrange a great many more demonstrations than those middlemen who use the producers airplane. However, some of the dealers cannot economically maintain their own demonstrator. In this case it is necessary to make one available if a sale is to result. The problem is to furnish manufacturer owned demonstrators to those who cannot maintain their own, but at the same time, encourage other middlemen to buy their demonstrators. The producers meet this problem by first requiring that all dealers and distributors own demonstrators in the inexpensive models. In addition, extra margins are allowed those dealers who own demonstrators in the expensive models. The executives interviewed maintained that there is no good answer which will be without logical criticism, but they believe their present policies to be the most feasible solution.

From this study it appears that incentives for middlemen are not greatly emphasized in this industry. The two incentives that are sparingly used are bonus payments and contests. These are based on attainment of quota. Quotas are determined on the basis of past sales only. A more scientific basis for establishing quotas appears desirable. Most quotas are based only partially on potentials; however, improvement on present methods could be
realized if quotas were based more directly on potentials as derived from correlation of pertinent factors discovered as a result of marketing research studies by the various producers.
CHAPTER VIII

CONCLUSIONS

This research study is summarized to provide a better understanding of the distribution of utility airplanes. It is expected that the organization of the study into one combined analysis will show more clearly the relationships existing between the various problems and the procedures adopted to alleviate those problems.

Examination of characteristics of the utility airplane market reveals that abrupt fluctuations in sales have occurred a number of times in the history of the industry. Downward changes have resulted in the elimination of many manufacturers. Present producers are attempting to guard against overproduction so that a recurrence of abrupt downward shift in demand will not find them with a large inventory produced at high cost which must be disposed of at low prices.

One industry-wide practice to solve this problem is that of requiring a cash deposit with each order. This deposit gives producers reasonable assurance that the sale will be consummated when the airplane is finished. If the transaction is not completed, the deposit is forfeited. The deposit also has the advantage of assuring that the cost of any special features built into the airplane...
for a particular customer will not result in loss to the producer. In addition, the manufacturer is supplied with a part of his working capital while the airplane is being completed. Disadvantage results from the cash deposit system in that sales may be retarded because of hesitancy on the part of customers to pay the deposit three or four months before delivery.

There is another industry-wide practice in use as a result of attempts to diminish the risk of producing more than the market will absorb. This procedure is the requirement of cash before delivery. This policy gives the producer assurance that each airplane delivered is sold without contingent liability to the manufacturer. The practice, however, has its disadvantages in that middlemen need large amounts of cash to handle transactions, and customers need cash for final purchase. As a result of the cash payment policy, distributors with limited funds are sometimes faced with two alternatives; cash can be used for demonstrator and inventory airplanes; or it can be used for investment in equipment, parts inventory and working capital. Neither choice is desirable. If service is not maintained through good equipment and available parts, dissatisfied customers will be the result. On the other hand, if demonstrator and inventory airplanes are not available fewer sales will result. To alleviate this situation the producers encourage the use of "floor plan" and demonstrator-financing arrangements which use capital supplied by banks. The middleman's own capital is thus available for use for other needs of his business.
The requirement of cash before delivery to final purchaser is likely to retard sales because some potential customers cannot supply the necessary capital. In order to counteract this possibility, producers and middlemen encourage the use of sales finance companies and leasing corporations. In this way the manufacturer and the middleman receive cash, but the purchaser does not necessarily buy with his own capital.

In analyzing the abrupt changes that have occurred in this industry, it is found that the greatest injury to producers came at the close of World War I and World War II when the Federal Government disposed of war surplus airplanes at greatly reduced prices. The market for new airplanes was destroyed by these "bargain" planes.

There is nothing in the deposit practice that will stop the Government from usurpation of the market. No solution has been advanced that completely answers the problems growing out of abrupt fluctuation. If the present policy of requiring cash deposits had been in use at the end of World War II, the producers could have obtained a more realistic estimate of demand. Instead, orders were placed without deposits and later cancelled because of the availability of "war surplus" airplanes at reduced prices. The dependence on original orders caused producers to overestimate demand and produce more airplanes than the market could absorb.

Finally, the practice of requiring cash before delivery does not appear to reduce sales because there are enough financing arrangements available to supply prospective customers with necessary funds.
at reasonable interest rates. On the other hand, it does make possible quick realization of cash by the producer as soon as the airplane is completed.

Changes in the use of aircraft likewise present certain marketing problems. The Civil Aeronautics Administration divides general aviation into five classes of use. These are business, instructional, experimental, pleasure and commercial. In 1946 the two classes that accounted for the greatest number of hours and miles flown were instructional and pleasure. By 1954 instructional flying had decreased drastically and pleasure flying had increased only slightly. During this same period, business and commercial flying increased significantly. In 1954, 8,963,000 flying hours were accounted for in general aviation. Of this total, business use accounted for 43 per cent of the flying hours. This is more than twice the number of hours accounted for by any of the other classes of use.

This increase in business and commercial flying means that the market for airplanes has changed from a consumer-goods to an industrial-goods market and that no longer should sport and pleasure appeals alone be relied upon to sell airplanes. The airplane has become a piece of business equipment to be bought and sold on a rational basis. This change has created problems in advertising in that publications must be used that reach the business executive; appeals must be used which explain a better or a more economical method of business transportation, or a more feasible way to perform
business tasks. Most of the manufacturers have adapted part of their advertising to this change in market, but they also continue to allocate a considerable portion of the total advertising program to pleasure advertising. This is done in one company in spite of the fact that market research studies have shown that there is no market for a pleasure airplane in the price ranges of their products. Part of this pleasure-appeal type of advertising is conducted simply because of habit, but is explained partially by the fact that business airplanes are used to some extent for pleasure. Executives state, however, that very few sales of airplanes today are made for a primary pleasure use. The pleasure use is only an added inducement, and the purchase must be first validated on a business basis. A thorough study of the value of different types of advertisements and of different kinds of media is needed.

The successful airplane salesman must understand the manner in which the airplane answers the needs of business. In addition, he must be able to talk with business executives about their transportation problems and convince them that the airplane is a solution to these problems.

It is impossible to determine whether changes in the products of the industry brought about the change in use or if the change in use brought about improvements in airplanes. Regardless of which is the cause and which is the effect, each of these developments is necessary to accomplish maximum benefits from utility airplanes. Airplanes in 1956 as compared to those of 1946 are more powerful,
heavier, larger, and more expensive. In addition, they fly at higher speeds, for longer distances, and with more comfort for the passengers. To be a worth-while form of business transportation, company airplanes should be capable of safe flight under adverse weather conditions. The airplanes of recent years fulfill this need because they can carry several passengers as well as luggage and any desired amount of safety equipment.

While changes in the use of airplanes cause many problems, such changes also partially solve problems resulting from seasonal variation in sales. Extreme seasonal variation causes distribution problems since difficulty is sometimes experienced by middlemen in retaining good sales personnel in off seasons. In addition, more economical production, through better planning and utilization of labor and equipment, can usually be realized when there is but slight seasonal variation in sales. When seasonal data for 1936-1949 are compared to data for 1950-1956, the latter period is found to have a more stable seasonal sales volume. Moreover, the amplitude of variation is less than that experienced in the 1936-1949 era. In the latter period, the months of high sales volume are the vacation months of May through September. In the 1950-1956 period, vacation months accounted for good sales volume but did not represent so great a proportion of yearly sales as they did in the 1936-1949 era. This change to a more stable "seasonal" results from the increase in business use, which requires year-round transportation, and from improvements in products, which make travel possible in all seasons.
The organization structure of the producers was studied in an effort to draw conclusions as to whether or not the companies were organized in a manner promotive of good marketing practices. This examination shows that there is:

1. A lack of organization balance between the various divisions of the companies.

2. A lack of organization balance between the various activities within the marketing divisions.

3. A lack of provision for organization stability and growth.

The first named of these conditions is caused by a philosophy which pervades the industry; namely, that production is of paramount importance while marketing is of relatively slight significance to the success of the enterprise. This philosophy was more strongly entrenched before 1946 than in subsequent years, but it is still an influential factor in activities of the various producers. Reasons for the acceptance of this philosophy are as follows:

1. The three largest companies attained most of their growth as a direct result of World War II. Sales during this era were to the military divisions of the Government, and marketing activities were unnecessary in the successful operation of the companies.

2. Personnel now in major policy-making positions advanced to these jobs through production and engineering attainments and not through marketing success. This path of advance has resulted in almost all of the major positions being filled with capable production men who have little knowledge of marketing.
3. The importance of safety in airplanes is of so much significance that production and engineering activities aimed at constructing safer airplanes add emphasis to production at the expense of distribution.

4. Founders of the manufacturing companies were primarily interested in flying and constructing airplanes. These founders or their families are still in positions of authority in the producing concerns. Their interests now are reflected in the emphasis placed on production.

This production-oriented philosophy is one cause of many of the problems discussed in this study. The first step in solving most of these problems is an upgrading in the importance of distribution. There are indications that such change is in the process of being realized; however, it is a gradual shift and will take place in some companies only after sales are lost to "marketing oriented" producers.

No recommendation is made herein that less emphasis should be placed on production. Rather the objective is to develop a better balance between production and marketing by increasing and improving distribution while maintaining production activities.

The lack of balance between the various activities within the marketing division stems from the minor role played by distribution and from the lack of specialization in specific functions. In this study it is found that functions which usually do not receive proper emphasis are marketing research, selection, training, and financing. In some of the companies these functions are a part of the sales
managers' direct responsibilities. These sales managers do not possess the training or the time to conduct each separate function in the detailed manner necessary to give proper emphasis to each phase of the marketing task. As a result, the sales managers and their limited staffs concentrate their efforts on those tasks that are considered to be most directly productive of sales. Other functions which might also be productive are slighted, and there is little time for experimentation with new methods and techniques.

There are indications that point to a greater degree of specialization in the future. For example, in 1956 Cessna established departments of marketing research and sales training. Executives in other companies express an interest in specializing the marketing functions, but they hesitate to recommend changes to top management because of the prevailing philosophy of the minor importance of marketing. Balance within the marketing division must be achieved if maximum sales are to be obtained.

The lack of provision for organization stability and growth results from the fact that large scale marketing has existed for a very short time. Until about 1950 there were few individuals in the industry capable of training others in marketing work. These few had their time so completely consumed with marketing airplanes that training of others was a neglected area. There was but slight change in this situation by 1956.

When replacements are needed in a marketing task, the alternative choice is between hiring personnel from within the company or going outside the organization. To hire from within usually means
shifting production-trained personnel to marketing positions. Since there is within aircraft manufacturing concerns a scarcity of personnel who are trained in marketing techniques, it is desirable that experienced distribution personnel from other industries be brought into aircraft marketing in order that practices which have proved to be successful may be adopted in the marketing of airplanes.

No attempt should be made to replace distribution personnel from within the organization until the marketing divisions have been expanded and specialized by functions so that replacements can be drawn from the marketing division rather than from production. If provision for organizational stability and growth is to be eventually achieved, it is necessary to establish executive training programs which will aid personnel in preparing for promotion.

Selection, training, and compensation are additional problems closely related to provisions for stability and growth. The recommendations previously made include the proviso for employment of marketing personnel with experience in other industries. In order to select the best possible personnel, a job analysis should be made of each of the marketing positions. This analysis would entail study to determine the various tasks and responsibilities of each position, and it should also specify the qualities desired in the applicant for each position and should indicate sources of applicants.

On-the-job training should be provided with the objective of supplying an experienced marketing man with the necessary information about airplanes to enable him to adapt his knowledge of distribution
to this industry. Producers have many executives with unlimited knowledge of aircraft and ability to impart this knowledge to others. Training in marketing should be limited to specific policies and procedures in use by producers.

One of the usual requirements for marketing work in the airplane industry is the ability to pilot airplanes. The limited supply of applicants for marketing positions, however, suggests the alternative of hiring non-pilots with marketing experience and training them to fly.

Compensation is of importance because qualifications which restrict the available supply of potential personnel may cause a need for high rates of pay. The scarcity of applicants having successful marketing experience and ability to pilot an airplane may mean that compensation must be extremely high. This is another reason for hiring successful marketing personnel and training them to be pilots.

Another major category of marketing problems is directly related to the policies and practices concerned with channels of distribution.

Reasons for the use of middlemen by manufacturers are as follows:

1. The manufacturer can operate with less capital; the middleman is required to furnish the equipment, the inventory, and the supply of labor to perform whatever tasks are necessary in a distributorship or dealership.

2. The distributor pays cash for demonstrator and inventory airplanes as well as for airplanes sold to final purchasers.
This permits the producer to obtain working capital as soon as an airplane is completed and to operate with less risk of change in value of completed aircraft while in inventory.

3. Executives feel that the sale of airplanes often depends on local contact with the customer by the dealer. The customer wants a vendor whom he knows and can rely upon for service, repair and advice. The local dealer fits this requirement.

4. As previously stated, manufacturers are production oriented and feel that they can do a better job in specializing on production and in letting middlemen handle as much of the distribution task as is possible.

A system of margins is used to reimburse these middlemen for the functions performed. These margins are quoted as discounts from list price.

The margins vary first between distributors, dealers, and agents. This variation is to provide reimbursement in relation to the expected amount of capital required and the amount of services demanded from each of the types of middlemen. Distributors are the strong link in the channel of distribution. They furnish more capital than dealers or agents. In addition, they are responsible for dealers and agents in their territories. Thus distributors receive higher margins than other middlemen. Dealers in turn are expected to supply more capital and perform more of the functions than agents. They receive larger margins than agents but smaller discounts than distributors.
The problem of selecting enough qualified middlemen is one that presents a number of obstacles. The manufacturers want distributors and dealers who have at least five years of successful business experience, who can pilot an airplane, and who have sufficient capital available. Under these qualifications, marketing executives in the producing companies are of the opinion that there are not enough qualified people with the desire to undertake such an enterprise. If a prospective distributor has successful business experience, he is likely to have a higher income than would be derived from a distributorship in the aircraft industry.

The shortage of middlemen results in the three major producers obtaining most of the well qualified people available because the franchises of these manufacturers are more profitable than are those of the smaller producers. The shortage is so acute that the small concerns cannot obtain distributors in some parts of the country, and they are forced to sell directly from producer to final purchaser in these territories. This situation usually results in a minimum of orders from these areas, for the producers are not organized to sell in this manner.

There appears to be no immediate solution to the problem of attracting sufficient numbers of qualified middlemen to the industry. Increased earnings will require either larger margins or a greater sales volume. Executives state that neither of these changes is likely to take place rapidly. There is, however, a gradual increase in volume of sales, which will improve the position of the middleman
in future years if rising costs do not consume all of the benefits of such sales expansion.

In conclusion, it is apparent that two primary paths are open to increase sales by particular companies. One path is that of building sales through advertising, sales promotion, selling techniques, intensive market cultivation, credit, and product improvement. The other path is by cutting price.

This industry is one of oligopoly with differentiated products. The attitude of the producers is that price cutting by one manufacturer will bring retaliatory action by the remainder of the industry, which will result in less net income to the producers. Therefore, the type of competition that is developing is in relation to advertising, promotion, selling, service, and product design. Most of the manufacturers, however, are not prepared for this type of competition. It is necessary that the marketing task be emphasized and that organization structure be changed to make possible a much greater active participation in distribution by the producer.

The indications of this study are that the manufacturer who moves first and most forcefully into greater emphasis on distribution functions will undoubtedly realize a gain in his share of the utility airplane market. Those producers who continue to emphasize only the production phases of their business will decline in relative importance.
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