AVIATION CASUALTY INSURANCE

BY

W. P. COMSTOCK

Judged by the amount of premiums written, aviation insurance comprises a very small portion of the total volume of casualty insurance. However, many of us can remember when the aggregate automobile premiums written by stock companies were small and relatively inconsequential. Automobile insurance grew in volume and importance concurrently with the enormous growth of the automobile industry. It is not unreasonable to expect that when and if the number of aircraft increases there will be a corresponding increase in the volume of aviation insurance written. If there is an increase in air transportation, there will be an increase in the need for insurance protection which will very likely be provided by aviation insurance writing companies. The aircraft industry has now reached adolescence and has proved itself to be very robust during a period when many industries have been waging a bitter fight for existence. Air travel furnishes the most rapid transportation known to man and speed in transportation will always be favored by busy people. According to a survey made by one of the large trans-continental airlines, 80 per cent. of its passengers are business executives, buyers, salesmen and engineers who fly because they wish to save time. Safety in air transportation is rapidly approaching equality with safety by automobile travel. Increased safety is still to be desired in both modes of transportation. Casualty companies can exert considerable influence in this direction if they are alive to their opportunities.

COVERAGES

Complete aviation coverage is written jointly by casualty and fire companies. Casualty companies provide the following three coverages:

(a) Public Liability Excluding Passengers.
(b) Passenger Liability, and
(c) Property Damage.

Public Liability Excluding Passengers is the primary casualty coverage and is written singly or concurrently with either or both of the other two coverages. Passenger Liability and Property

Damage are never written singly but either or both must be written with concurrent Public Liability Excluding Passengers.

Fire (and Marine) companies provide the following six coverages:—

(a) Fire
(b) Crash
(c) Wind Damage
(d) Theft
(e) Land Damage
(f) Mooring Damage.

Fire is the primary coverage and is written singly or concurrently with one or more of the other coverages. The other coverages, however, are written only with concurrent fire insurance. Fire coverage is sold on two bases (1) fire under all circumstances, excluding fire after crash, and (2) fire except in flight. Crash is descriptive but is sometimes referred to as Accidental Damage and other times as Perils of the Air. Wind Damage includes coverage against tornadoes, cyclones and windstorms. Theft includes robbery and pilferage. Land Damage applies to land aircraft and Mooring Damage applies to seaplanes; both of these coverages are analogous to collision insurance for automobiles.

The coverages listed below are usually written on the deductible basis shown opposite the coverage:

Coverage	*Amount Deductible*
Crash	10%
Windstorm	5%
Theft	$25
Land Damage	2½%
Mooring Damage	5%

In addition to the coverages heretofore mentioned, casualty companies provide workmen's compensation insurance for employers of pilots and mechanics, and personal accident coverage for pilots and passengers. As these latter coverages present no new problems for casualty companies, there is little need for discussing them in this paper.

Casualty companies also provide airport public liability and property damage insurance which is a specialized form of Owners', Landlords' and Tenants' coverage. This coverage will be given further consideration later.

Carriers

At the present time most of the business is being written by three groups:

(1) Aero Insurance Underwriters
(2) Associated Aviation Underwriters
(3) United States Aircraft Insurance Group

Experience to date indicates that successful underwriting and adequate reinsurance are best effected by large groups of companies. The Aero Insurance Underwriters Group is composed of six casualty companies and twenty-seven fire companies; the Associated Aviation Underwriters Group is composed of five casualty companies and thirty-two fire companies and the United States Aircraft Group is composed of seven casualty companies and twenty-seven fire companies.

Growth of Flying

In this country the first scheduled air line began business in 1919 with ships flying from San Pedro to Catalina Island. The line was operated by the Chaplin Brothers, Sidney and Charles, the motion picture actors. There is no record of the amount of business done, but passengers were few and the line was abandoned after a trial of some 18 months. Since that time air travel has become a common mode of transportation.

During 1932 American air lines flew approximately 48 million miles, which was an increase of 14 per cent. over the 42 million miles flown in 1931. During 1932, American air lines carried 534 thousand passengers which was an increase of 14 per cent. over the 469 thousand carried during the previous year. During 1932 passenger traffic on American air lines totalled 145 million passenger miles. This was an increase of 21 per cent. over the previous year and indicates that individual trips by air were, on the average, longer in 1932 than in 1931. Air mail poundage increased each year from 1927 to 1931 inclusive, but the increase was arrested temporarily during 1932 due to the increase in postal rates in July 1932. For the first six months of 1932 air mail poundage showed an increase over the corresponding figures for 1931. The total for the year 1932, however, showed a decrease of 7 per cent. from the comparable total for 1931. Slightly more than 7 million pounds of air mail were carried in 1932. Last year 1,324,000 pounds of express matter were transported by airplane. This figure is triple the amount for 1930 and an increase of 68 per cent. over the amount for 1931 when 788 thousand pounds were carried. The increasing trends are continuing in 1933.

Aviation also shows favorable trends when compared with other forms of transportation. Using 1929 as a base we find during the four year period from 1929 to 1932 inclusive that traffic by bus

measured in passenger miles remained practically constant, by railroad it decreased 46 per cent., while traffic by air enjoyed an increase of 210 per cent.

While you are digesting statistics perhaps you will be interested in a comparison of aviation in the United States with the leading air-minded countries of Europe. Judged by appropriations, our army and navy planes make a sorry showing when compared to those of Great Britain and France. Using the fiscal year 1928-1929 as a base, Great Britain has made an appropriation available for its army and navy during the fiscal year 1932-1933 which is only slightly less, France's appropriation calls for an increased expenditure of 68 per cent., while the United States has curtailed its expenditures by 37.5 per cent. Furthermore, due to the very rapid improvement in design, approximately 80 per cent. of our war planes are now obsolete.

Our peace time transport planes present an altogether different picture. As stated above, United States transport planes flew 48 million miles in 1932. Transport planes of the combined countries of Great Britain, France, Germany, Russia, Italy and The Netherlands flew approximately two-thirds of that distance last year. Our planes averaged 87 thousand miles each while the greatest average for European countries was flown by the planes of Great Britain and The Netherlands which averaged slightly less than 50 thousand miles each.

Russia is making rapid strides in aviation. Russia has shown a greater percentage of increase during the last three years than any other country in the world. Some misinformed persons are of the opinion that Russia has already outdistanced the United States in civil aviation. Last year Russian planes carried slightly more than 27 thousand passengers, United States planes carried 534 thousand; Russian transport planes flew 3 million miles, United States planes flew 48 million miles; Russian planes carried 430 tons of mail, United States planes carried 3,500 tons.

Flying is becoming a recognized mode of transportation. There is nothing local about it. It is a world-wide phenomenon. The use of the airplane increased during 1932 and will probably continue to increase. There will be need for insurance coverage on more planes and passengers in the years to come. Aviation insurance is designed to meet this growing need of the flying public.

The Flying Hazard

Proponents of flying sometimes recall that in the early days of automobiling many people regarded the automobile with disfavor and would have none of the new fangled contraption. They state that many people now hold a similar antipathy toward the airplane but that in time the airplane will become as common a means of transportation and as safe as the automobile. Possibly the airplane will become the common vehicle for everyday people, but at present there is a fundamental difference in the hazard of travel by these two means. An automobile travels in two dimensions only, whereas an airplane navigates in three. If an automobile motor fails out on the road, the result is usually only an inconvenience to the passengers, but when an airplane motor or the plane itself fails during flight there is always a mortality hazard with human life in peril. Whether or not this difference in hazard can be eliminated or drastically minimized remains a question for the future.

A large proportion of the total number of accidents occurs while planes are preparing to take off or land. In the case of forced landings, accidents are due largely to rough ground. Accidents occurring while planes are landing or taking off at regular airports are due to loss of stability after planes have slowed to rates below their stalling speeds. The autogyro eliminates most of this hazard.

Each year additional safety factors are being built into orthodox planes. Pilots are being educated to recognize that safety is as much dependent upon careful flying as upon structural design. The landing hazard under adverse conditions is being reduced by the use of radio directional rays.

According to the records of the Department of Commerce there were 6 fatalities in 26,264,000 passenger miles of scheduled flying during the last 6 months of 1932. This makes one fatal accident for each 4,377,000 passenger miles flown. During the last six months of 1931 there was one fatal accident for each 3,022,000 passenger miles flown. However, during 1930 there was one fatality for each 4,300,000 miles flown. Hence we may conclude that at present expressed in round numbers there is one fatality for each 4 million passenger miles flown.

Messrs. H. R. Bassford, E. W. Marshall and J. E. Hoskins, who

compose the Committee on Aviation of the Actuarial Society of America have made a comprehensive study of pilot mortality. Their findings are published under the title of "Aviation Statistics" in the *Transactions* for May, 1931. On page 221 they make the following statement. "There seems to be a tendency for pilots, except those of very low flying time, to approach a common mortality rate of about 25 per thousand". This total includes the four classes of civilian pilots—private, industrial, limited commercial and transport—with total annual flying rates of 50 hours or more. In other words, of 1,000 pilots insured at the beginning of any given year, we may reasonably expect that approximately 25 will be killed during the year.

In spite of all the statistics and statements in regard to the increased safety in flying, there are some very definite hazards involved. There is a hazard due to possible failure of the motor, there is a hazard due to the possible failure of the plane itself; and there is a hazard due to the possible sudden approach of storms. Again, there is the hazard of bad judgment on the part of the pilot, who, incidentally, has already taken too much of the blame for accidents.

To an interested observer, it is a cause of regret that operators of air lines have steadfastly refused to equip their planes with the greatest potential safety appliance known. I refer to the parachute. It would seem that parachutes are as necessary to passengers in a transport plane as are lifeboats to passengers on an ocean liner. Parachutes would give passengers a chance for life which they do not now possess.

United States Army and Navy pilots have been prohibited since 1923 from going up in a plane or taking up a passenger not equipped with a parachute.

Using our hindsight on the Akron disaster, with a view to preventing or minimizing loss of life in future dirigible accidents, we suggest that dirigibles should be equipped with parachutes. Parachutes would have saved many of the lives lost in the Shenandoah disaster, which occurred over land. In addition to parachutes, the crew of the new dirigible Macon, for instance, should be equipped with kapok vests which will keep them afloat in water.

When the Akron crash was inevitable the ship was 800 feet

above the water. The order was given, "Stand by for crash." Had the men been equipped with parachutes and kapok vests, an order could have been given to this effect, "Don parachutes and kapok vests and abandon ship." Or, better still, the kapok vests and parachutes could have been donned when the ship felt the first effects of the storm and the final command would then have been merely, "Abandon ship."

Is there anyone who does not think that more than three lives would have been saved, if these safety precautions had been taken?

There are several objections to the use of parachutes in commercial transport planes. One is the cost. Another is that the weight of parachutes would decrease the number of passengers who could be carried. A third is that their use would scare off passengers, and a fourth is that passengers could not get out of the plane quickly enough and would not know how to use parachutes if they did.

The cost spread over a number of years would not be great. It would be partially offset in time by reduced insurance costs. In most cases planes are not filled to capacity, hence the decrease in pay load due to the weight of parachutes would be small. The use of parachutes might scare away some timid prospective passengers, but I think it likely that the number of courageous people who could be found would be greater than the timid persons scared away. To enable passengers to get out more quickly, planes should be redesigned with a sufficient number of exits. There is nothing sacred about the present design. None of these objections should take preference over human life.

There is still the objection that passengers would not know how to use parachutes if they were provided. Just how anyone has found out that passengers could not use parachutes is an unsolved mystery to the layman. Certain it is that this alleged fact has not been discovered by experiment. On March 31, 1931, with the plane at 4,000 feet, if passengers had been equipped with parachutes and if the plane had been provided with emergency exits, I think that Knute Rockne could have saved himself. Exactly two years later under similar conditions I do not think it would have been necessary for six of the members of a Canadian basketball team to die. Some of them might have saved themselves. At

least they should have been given the chance to try. If planes were equipped with parachutes, flying tactics would be different in many instances. Instead of nosing gingerly toward the ground at 90 miles an hour in some emergencies a plane could climb and passengers could be released one at a time.

Casualty companies may be able to accomplish something if they use their combined influence toward having transport planes equipped with parachutes. If they do not accept the challenge, it is hoped that legislation will eventually force the issue. Casualty companies should point the way to safety in aviation and when necessary should establish their own safety standards.

Insuring Clauses

Stripped of technicalities, which admittedly are necessary in every policy of insurance, the protection furnished by casualty companies is essentially as follows:—

Public Liability Excluding Passengers protects the named assured against his legal liability to persons other than passengers for accidental bodily injuries resulting from the ownership, maintenance or use of the described aircraft. Limits under this clause range from $10,000 and $20,000 to $25,000 and $50,000 in most cases.

Passenger Liability protects the named assured against his legal liability to passengers suffering accidental bodily injuries while in, on, entering or leaving the described aircraft. The carrier's liability is limited to a specified amount for any one person injured and for the total number of persons injured in any one accident. The limit for one person injured is generally set at from $10,000 to $20,000 and the upper limit is usually arrived at by multiplying the number of passenger seats by the lower limit. Thus, a plane with seats for eight passengers carrying $20,000 per seat would ordinarily carry a total of $160,000 total passenger liability insurance for any one accident.

Under the two foregoing coverages bodily injury is defined to include loss of services.

Property Damage protects the named assured against his legal liability for damage of property belonging to persons other than

the assured. Loss of use is included under this coverage, but coverage does not extend to property in the custody of the assured, property belonging to assured's employees or pupils or in their control. Further, no coverage is granted for damage to property carried by the insured aircraft nor for property which is leased or rented and for which the assured is legally responsible. The customary limits are $5,000 or $10,000.

The foregoing coverages may be studied in more detail by reference to the policy form included at the end of this article.

Airport Liability and Property Damage. In addition to the three coverages provided by the standard aviation policy, casualty companies have extended their regular Owners', Landlords' and Tenants' form to include public liability and property damage insurance for owners and lessees of airports. The liability coverage protects the named assured against his legal liability for accidental bodily injuries suffered by persons while on the airport grounds. Employees of the assured are, of course, excluded. There is apparently double coverage in some cases. The owner of a plane and the owner of an airport may be sued jointly. If it can be established that the airport was operated in a negligent manner, recovery may be had under the airport policy. Or, if it can be established that there was negligence in the operation of the plane, judgment may be secured against the insured named in the aviation policy. Both the aviation and airport policies contain subrogation clauses and in cases where these policies are sold by different carriers a claim may be settled by one carrier and then an adjustment made with the other on the basis of the facts established.

The property damage coverage protects the named assured against his liability for damage to property of third parties, including loss of use, when such damage occurs on the grounds of the described airport.

Airmeet Liability and Property Damage. This coverage is similar to that granted under the airport policy except that it applies to a specific airmeet. If the meet is held on an airport already insured for public liability and property damage, the airport policy is endorsed to cover the additional hazard of the airmeet and an additional premium is charged. In all other cases a special policy is issued.

Premium Bases and Rates

Single planes are insured in consideration of a flat annual premium charge. The exposure is one plane insured for one year similar to the exposure for a private passenger automobile which is one car year. Planes of this type may be insured for approximately one-half of the amount charged by stock companies for a private passenger automobile in the Metropolitan New York area.

Insurance of the planes of scheduled air lines presents a problem similar to the insurance of automobile fleets where premiums are made proportional to exposure. The unit of exposure for public liability excluding passengers and for property damage is the airplane mile. The unit of exposure for passenger liability is the passenger mile. Thus, in the case of a plane making a flight of 200 miles with 8 passengers, the total exposure for public liability and property damage would be 200 airplane miles while for passenger liability the exposure would be 1,600 passenger miles. These exposures cannot be determined in advance and must necessarily be reported later. As stated elsewhere in this article a very substantial deposit premium is charged and adjustments are made later. Basic rates are charged for 5/10,000 limits and increased by percentages for higher limits similar to the application of the excess limits tables for automobile insurance.

The Underwriter

To underwrite aviation insurance intelligently the underwriter should have a comprehensive knowledge of the various types of aircraft. Before offering to insure a plane he should know whether or not the plane in question is correctly designed for the work it is intended to do. He should be able to determine in advance the probable effect of the use of new designs and devices and whether additional hazards or increased safety will result from their adoption. In short, he should be thoroughly versed in the science of aeronautics.

It would be advantageous if he were an experienced flyer. Again, he should be familiar with the records of a great many pilots. Further, he should be a practical insurance man, familiar with casualty and fire insurance practices. And last, but very important, he should be something of a salesman.

From this sketchy outline of the qualifications of an aviation

insurance underwriter it will probably be conceded that such a man is indeed rare. This is precisely the condition which exists. There are very few qualified aviation insurance underwriters and this fact explains, in part at least, why substantially all of the business is being written by three offices.

Board of Aviation Underwriters

In June 1932, at the request of the New York Insurance Department the aviation underwriting groups formed an organization known as the Board of Aviation Underwriters. By September of the same year the Board had begun to function in a constructive manner.

This Board was formed for the purpose of stabilizing rates and standardizing practices in the aviation insurance business. Prior to the organization of the Board, brokers were wont to shop around with their risks in the attempt to get one pool to undercut a rate previously quoted by some other pool. Being only human, particularly in regard to renewals, the underwriters of each pool attempted to protect their renewals, with the result that destructive competition developed.

One of the accomplishments of the Board has been the development of a minimum rate on each risk below which no member will quote. Rates are based upon the combined experience of all the members of the Board. The organization is in reality a gentlemen's agreement which is being carried out in spirit as well as in letter. It has jurisdiction over the aviation writings, irrespective of location, of all its members. Its Rating Committee meets each morning and rates each risk individually. The formation of the Board should have a very wholesome effect upon the aviation insurance business.

Underwriting

The majority of underwriters do not look with favor upon dirigibles as good insurance risks. With the memory of the fate of the Akron fresh in mind this is not surprising. Commercial dirigibles have been used chiefly for advertising and sightseeing purposes. Theoretically it might be thought that a self-sustaining ship would be a better risk than aircraft of the heavier-than-air type. Practically this is not the case. Dirigibles present too big

a target for the wind. Ships of this type are safe in mild winds but winds are very changeable. Weather conditions may be ideal at the time a dirigible takes off, but the wind may become stronger while the ship is aloft and make landing extremely hazardous at the time it is desired to land again.

One example that comes to mind is the case of the Columbia. This ship at one time was obliged to remain aloft for thirty hours because it could not be safely landed in a ground wind which was reported to be blowing at the rate of thirty miles an hour. In February 1932, the Columbia crashed while attempting to land in a wind with a velocity of between 30 and 45 miles an hour. The ship was a total loss, one life was lost and substantial property damage caused. Commercial dirigibles of this type cost in the neighborhood of $75,000 each.

A 45-mile wind in itself presents no serious obstacle to the ordinary plane of the heavier-than-air type. If a plane of this type has a landing speed of 60 miles per hour in still air, it can land against a 45-mile wind with a ground speed of only 15 miles per hour.

Due to their unwieldiness dirigibles are subject also to minor accidents which prove costly. The most costly single item in minor bumps is the loss of helium. In ordinary flight the supports holding the gondola rub against the gas bag causing wear. Helium is lost and the result is a decrease in buoyancy.

Underwriters who favor the acceptance of insurance on commercial dirigibles hold the view that the operation of this type of ship does not involve hazards which are greater than normal to ordinary aircraft. These underwriters require that insured dirigibles be commanded by experienced officers and manned by well trained crews.

Airplane manufacturers sell their planes at an F.O.B. price, but will deliver them to the purchaser at the latter's risk. These planes are flown by experienced pilots in the employ of the manufacturer. The planes are new and have been thoroughly tested by factory pilots after having been tuned up by factory mechanics. Risks of this type are called "flyaways" and are regarded as good risks by aviation underwriters.

Sales demonstration flights are also considered good risks.

Passenger transport planes flying regular schedules are looked upon with favor by underwriters. These risks are the largest

single source of premium at the present time. The potential hazard is of course very great. Passenger transport planes flying regular schedules are hangared in airports with every known facility for servicing. All planes are carefully inspected and tested before each flight. They fly well defined air lanes. Their pilots are experienced, carefully chosen and must keep in excellent physical condition. Many planes carry relief pilots. Before flight, weather conditions are carefully studied and if there is a reasonable doubt about safe weather conditions ahead the flight is not undertaken. Considerably more than due care and diligence are exercised in the interest of safety. In spite of the number of flights cancelled, at least 95 per cent. of the scheduled flights are being completed.

Most passenger transport planes flying regular schedules carry some mail, but about 40 per cent. of the mail is flown at night. Night mail planes are considered good risks.

Aviation underwriters are confidently expecting the day to come when the majority of planes insured will be of the privately owned type. When conditions improve, as they are sure to do, private owners and individuals will probably use more aircraft for sports, pleasure, commuting and business. Industrial corporations, in the ordinary conduct of their business, will probably use more airplanes for the fast and convenient transportation of their officers, employees and guests. There will be an increase in the number of chartered flights, both for transportation and sightseeing purposes. When and if this condition is reached, there will be a better spread of the flying hazard and the loss of a single plane will not assume catastrophic proportions.

Endurance flights, refueling flights and non-stop long distance flights, as well as any other flights of a spectacular nature undertaken for personal glory by publicity seekers, are uninsurable.

Statistics are used to some extent in underwriting, but underwriters must rely largely upon their practical knowledge of aviation.

Underwriting Results

The New York Insurance Department requires each group and company transacting aviation insurance in New York to file its experience each year. The tables shown below are a summary of these filings, the figures represent premiums written and losses

paid for the calendar years indicated. These figures include most, but not all, of the aviation business written in the United States during the period under review.

TABLE I

TOTAL EXPERIENCE—ALL COVERAGES COMBINED

Calendar Year	Premiums Written	Losses Paid	%
1926	$29,826.	$	—
1927	118,035.	18,062.	15.3
1928	498,029.	144,855.	29.1
1929	4,017,619.	1,398,383.	34.8
1930	2,952,965.	2,398,046.	81.2
1931	2,296,652.	1,702,406.	74.1
Total	$9,913,126.	$5,661,752.	57.1

TABLE II

TOTAL EXPERIENCE—EACH COVERAGE SEPARATELY

CALENDAR YEAR 1929

Coverage	Premiums Written	Losses Paid	%
Casualty			
Public and Passenger Liability	$901,925.	$112,647.	12.5
Property Damage	175,006.	22,266.	12.7
Total Casualty	$1,076,931.	$134,913.	12.5
Hull			
Fire	$1,106,837.	$439,140.	39.7
Theft	83,707.	1,742.	2.1
Crash	1,750,144.	822,588.	47.0
Windstorm	—	—	—
Total Hull	$2,940,688.	$1,263,470.	43.0
Grand Total	$4,017,619.	$1,398,383.	34.8

CALENDAR YEAR 1930

Coverage			
Casualty			
Public and Passenger Liability	$674,598.	$191,552.	28.4
Property Damage	225,799.	107,956.	47.8
Total Casualty	$900,397.	$299,508.	33.3
Hull			
Fire	$831,539.	$848,353.	102.0
Theft	28,578.	517.	1.8
Crash	1,159,693.	1,220,508.	105.2
Windstorm	32,758.	29,160.	89.0
Total Hull	$2,052,568.	$2,098,538.	102.2
Grand Total	$2,952,965.	$2,398,046.	81.2

TABLE II (Continued)
TOTAL EXPERIENCE—EACH COVERAGE SEPARATELY
CALENDAR YEAR 1931

Coverage	Premiums Written	Losses Paid	%
Casualty			
Public and Passenger Liability	$633,104.	$114,493.	18.1
Property Damage	144,909.	44,231.	30.5
Total Casualty	$778,013.	$158,724.	20.4
Hull			
Fire	$614,275.	$361,122.	58.8
Theft	33,626.	34,906.	103.8
Crash	799,844.	1,062,048.	132.8
Windstorm	—	—	—
Total Hull	$1,447,745.	$1,458,076.	100.7
Unallocated	70,894.	85,606.	
Grand Total	$2,296,652.	$1,702,406.	74.1

From Table I may be obtained a good idea of the relative volumes of business written during the period from 1926 to 1931 inclusive. Figures for 1932 will not become available until after July 1, 1933. Calendar year 1929, which was the year of greatest production for the manufacturers, was likewise the year of the greatest premium volume for the insurance carriers. Percentages are shown for convenience in making comparisons, but of course they should not be considered as loss ratios. Probably the percentages for the hull coverages in Table II are closer to true loss ratios than are the percentages shown for the casualty coverages. Public Liability premiums written and losses paid have very little significance without the corresponding loss reserves. Experienced casualty underwriters know from bitter experience that unsettled suits have a tendency to grow and that an apparent early profit is very often wiped out after suits are finally liquidated. However, it appears that in the aggregate casualty companies have fared better than their fire running mates. There can be no question that fire companies have lost money on aviation insurance. As has been expected the most costly hazard is crash.

After the Board of Aviation Underwriters has been functioning for one complete year, we shall probably see their work reflected in the experience figures. In other words the experience for 1932 should show a slight improvement and the experience for 1933 a very marked improvement.

Reinsurance

Aviation insurance is in reality catastrophe insurance. There is a very great potential hazard in carrying passenger liability on a plane with a carrying capacity of 8 to 30 passengers. Minor mishaps may and do occur, but carriers must be prepared for major accidents. An accident serious enough to kill one passenger is very likely to be severe enough to kill every passenger. It is necessary to spread this hazard among enough companies so that a loss will not seriously impair the resources of any of them. Experience has shown that large groups of companies can handle aviation insurance risks better even than the strongest single company.

Reinsurance is handled in a manner similar to that employed by fire companies on large risks. Direct writing companies and reinsurance companies may both participate. Amounts up to an agreed primary limit are usually apportioned among all the direct writing and reinsurance companies on an equal share or fixed percentage basis. Excess amounts or amounts over the primary limits are generally apportioned so that direct writing companies carry a small proportion of the excess on an equal share basis, leaving the reinsurance companies to share equally on the remaining portion. The reinsurance companies may in turn retrocede portions of their participation to one or more outside reinsurers.

Collections

In their handling of collections, aviation underwriters have profited from the experience of casualty underwriters. On many aircraft risks the agent collects a substantial percentage (usually 20 per cent.) of the premium at the time the assured gives him the order for the policy. The balance of the premium is payable upon delivery. There is no such thing as a "not taken" policy. All policies and binders issued are subject to an earned premium charge which is collected. On account of the impossibility of determining the full annual premium on business written on a reporting basis, such as air line policies, a substantial minimum deposit premium is collected. And, to date, no difficulty has been experienced in collecting additional premiums as they become due.

POLICY FORM

AVIATION CASUALTY INSURANCE COMPANY
(A STOCK COMPANY herein called the Company)

IN CONSIDERATION OF

A the Premiums specified in, and the Declarations forming a part hereof, and warranted by the Insured to be true, the Company does hereby agree with the Insured named herein, that if, during the term of this Policy, the aircraft described herein, by reason of its ownership, maintenance or use shall cause by accident

BODILY INJURIES

whether resulting fatally or otherwise, to any person or persons, as are provided for in the Schedule of Coverage, and/or

DAMAGE TO PROPERTY

other than property belonging to, or property in the custody of, the Insured, or property belonging to or in the control of the Insured's employes and/or pupils, or property which is rented or leased and for which the Insured is legally responsible, or property carried in or upon the aircraft covered hereby, and further, provided specific premium charges are made and inserted in the Schedule of Coverage therefor:

Then the Company will insure the Insured against loss arising out of such liability up to the amounts set forth in the Schedule of Coverage,

And will in addition, in the name and on behalf of the Insured

(1) **Defend** all claims or suits for damages for such injuries and/or property damage, and for which damages the Insured is, or is alleged to be, liable;

(2) **Pay all costs and expenses** incurred with the written consent of the Company;

(3) **Pay all court costs** taxed against the Insured in any suit, including the premiums on attachments and/or appeal bonds required in any such proceedings;

(4) **Pay all interest** accruing upon any judgment in any suit up to the date of the payment or tender to the judgment creditor, or his attorney of record, of the amount for which the Company is liable;

(5) **Repay to the Insured** the expenses incurred in providing such **immediate surgical relief** as is imperative at the time of the accident;

B NAME OF INSURED.....

ADDRESS OF INSURED.....

C TERM OF POLICY: From.....19..... noon

To.....19..... noon,

Standard Time at place policy is issued.

D This insurance applies to only such and so many of the Coverages named in the Schedule below as are indicated by specific premium in writing set opposite thereto. The limit of this Company's liability under each coverage shall be as stated in the General Conditions of this policy, not exceeding, however, the amounts set forth in said Schedule.

Section	SCHEDULE OF COVERAGE	Premium Charge
1	**Public Liability Excluding Passengers**—Bodily Injuries, whether resulting fatally or otherwise (including loss of services) to persons other than passengers in the aircraft herein described. The Company's liability for damages in respect of any one accident or disaster arising out of Bodily Injuries, including loss of services, shall not exceed $_____ subject to a limit of $_____ as to all loss or damage arising out of Bodily Injuries sustained by any one person.	$_____
2	**Passenger Liability**—Bodily Injuries, whether resulting fatally or otherwise (including loss of services) to passengers while in, or entering, or leaving the aircraft herein described. The Company's liability for damages in respect of any one accident or disaster arising out of Bodily Injuries, including loss of services, shall not exceed $_____ subject to a limit of $_____ as to all loss or damage arising out of Bodily Injuries sustained by any one person.	$_____
3	**Damage to Property of Others**—The Company's liability for damages in respect of any one accident or disaster involving damage to or destruction of property, shall be limited to the actual value of the property damaged or the actual cost of its suitable repair, including loss of use thereof, but shall not in any event exceed $_____	$_____

TOTAL PREMIUM $_____

E The following is the description of the aircraft covered by this policy:

Landplane Seaplane Flying Boat Amphibian	Make and Type	D. of C. License No.	When Constructed Month Year	Hours Flown	Seating Capacity Excluding Crew	ENGINE				
						H. P. and Make	Type	Identification No. or Marks	When Constructed Month Year	Hours Run

F **This Insurance is and shall be subject to the Conditions hereinafter set forth and to the memoranda, if any, endorsed hereon in like manner as if the same were respectively repeated and incorporated herein, and compliance with such Conditions and memoranda, and each of them, shall be a condition precedent to the right of recovery hereunder.**

GENERAL CONDITIONS

G Limits

1. If more than one person and/or corporation is covered by this Policy, that fact shall not increase the Company's total liability hereunder, but such total liability as to all shall not exceed, in any event, the specified limits.

Exclusions

2. This Policy does not cover any liability: (a) Imposed upon or assumed by the Insured under any Workmen's Compensation Act, Plan or Law, or under any agreement, oral or written; (b) In respect of injuries sustained by employes or pupils of the Insured while carried upon or operating or caring for aircraft herein described, or while engaged in the usual course of the trade, business, profession or occupation of the Insured.

Unless otherwise provided by agreement in writing added hereto this Policy does not cover any liability in respect of injuries and/or damage caused in whole or in part by the ownership, maintenance or use of any aircraft insured hereunder during or in consequence of:

(i) Invasion, insurrection, riot, civil war or commotion, military, naval or usurped power, or by order of any civil authority; or

(ii) Running the engine(s) of the aircraft in the hangar or place of housing; or

(iii) The first flight (comprising a complete circuit in the air and alighting successfully made without accident) of an aircraft after construction or reconstruction (reconstruction meaning any material change or alteration in the construction or material of the aircraft or parts thereof or in the type of engines used therein) but this shall not be construed as prohibiting the substitution of engines of like make, power and airworthiness; or

(iv) Any Municipal, State or Government Regulation for Civil Aviation not being complied with or while the aircraft is being used for any unlawful purpose; or

(v) The use of the aircraft for purposes other than those specified in the Schedule of Declarations or while the aircraft is being flown or driven by any person other than the pilot(s) named or described in said Schedule or a pilot specifically approved by the Company by endorsement attached to this Policy; or while the license of named pilot(s) has been revoked, suspended, changed, or has expired and not been renewed at the time of loss; or

(vi) Water-alighting aircraft flying in shore beyond safe gliding distance of water suitable for a landing, or land-alighting aircraft flying off shore beyond safe gliding distance of land; or

(vii) The aircraft described herein being rented or leased.

(viii) The aircraft described herein being operated in any race or speed contest, or pacemaking, or in an attempt at record breaking, or during or in consequence of aerial acrobatics; or

(ix) The aircraft described herein being in flight between one hour after sunset and one hour before sunrise,

except in the event the pilot shall have started during daylight for a destination that he may reasonably have been expected to reach before one hour after sunset, but on account of adverse winds, errors in navigation and/or other conditions beyond his control, and safe intermediate landing being impracticable, shall reach his destination later than one hour after sunset, the coverage under this policy shall not be invalidated; or

(x) The starting up of engine(s) of the aircraft without the use of chocks or other safeguard against forward movement of the aircraft.

Prompt Notice of Claims

3. Upon the occurrence of any accident covered by this Policy, the Insured shall give immediate written notice thereof to the Company at its Home Office, and forward to the Company forthwith after receipt thereof every process, pleading and paper of any kind relating to any and all claims, suits and proceedings. Notice given by or on behalf of the Insured to any authorized Agent of the Company, with particulars sufficient to identify the Insured, shall be deemed to be notice to the Company. Failure to give notice as required to be given within the time specified in this policy shall not invalidate any claim made by the Insured if it shall be shown not to have been reasonably possible to give such notice within the prescribed time and that notice was given as soon as was reasonably possible.

Settlement of Claims

4. The Insured shall not make any admission of liability, either before or after an accident, nor shall he, except at his own cost, incur any expense, make any payment, or settle any claim, nor shall he interfere in any negotiations for settlement or in any legal proceeding in respect of any injury for which the Company may be liable under this Policy, without, in each case, the written authority of the Company; except only that the Insured may provide at the time of the accident (and at the cost of the Company) such immediate surgical relief to the injured person or persons as is imperative. The Company shall have the right to settle any claim or suit at its own cost at any time.

Insured to Assist with Evidence

5. Whenever required by the Company, the Insured shall aid in securing information and evidence and the attendance of witnesses, and shall co-operate with the Company (except in a pecuniary way) in all matters which the Company may deem necessary in the defense of any claim or suit or in the prosecution of any appeal.

Subrogation of Rights

6. The Company shall be subrogated to all rights which the Insured may have against any person or other entity, in respect to any claim or payment made under this Policy, and the Insured shall upon request of the Company execute all papers necessary or convenient to secure the Company such rights.

Action Against Company

7. No action shall lie against the Company to recover upon any claim or for any loss sustained by the Insured, until the amount of such claim or loss shall have been fixed and rendered certain either by judgment against the Insured after trial of the issue or by agreement between the parties with the written consent of the Company nor unless brought within two years thereafter. This condition shall not prejudice any defense to any action to which the Company may be entitled.

Other Insurance

8. If the Insured carries other Insurance against loss covered by this Policy, the Company shall not be liable for a larger proportion of the entire loss than the amount hereby insured bears to the total amount of the Insured's valid and collectible Insurance.

Assignment of Interest

9. Any assignment or change of interest hereunder, whether voluntary or involuntary, shall render the Policy void unless consented to by endorsement hereon, signed by some official thereunto authorized by the Company.

Inspection

10. The Company shall be permitted at all reasonable times during the policy period to inspect any of the aircraft covered hereby, and all log-books appertaining thereto.

Cancellation of Insurance

11. This Policy or any one or more of the coverages provided in the Schedule of Coverage or by endorsement hereto shall be cancelled at any time at request of the Insured, in which case the Company shall refund the excess of paid premium above the customary short rate premium for the expired term, subject to the prior surrender of this Policy by the Insured if all the coverages provided have been cancelled. This Policy or any one or more of the coverages provided herein or by endorsement hereto may be cancelled at any time by this Company by giving to the Insured a five (5) days' written notice of cancellation with or without tender of the excess of paid premium above the pro rata premium for the expired term, which excess if not tendered shall be refunded on demand. Notice of cancellation shall state that said excess premium (if not tendered) will be refunded on demand. Notice of cancellation mailed to the address of the Insured stated in the Policy shall be a sufficient notice. Where a special provision for cancellation and notice of such cancellation is required by statutory enactment, the requirements of the provision required by such statute shall be substituted in lieu of the foregoing provision.

Insolvency

12. The insolvency or bankruptcy of the Insured shall not release the Company from any payment otherwise due hereunder, and if, because of such insolvency or bankruptcy, an execution on a judgment against the Insured is returned unsatisfied, the judgment creditor shall have a right of action against the Company to recover the amount of said judgment to the same extent that the Insured would have had to recover against the Company had the Insured paid the judgment.

Definitions

13. The term "disaster," wherever it appears in this Policy, or in any endorsement attached thereto, shall be held to mean a series of accidents arising from one and the same cause. The term "Passenger" wherever it appears in this policy or in any endorsement attached hereto, shall be held to mean only a person or persons carried in any aircraft herein described, other than the pilot(s), co-pilot(s), pupil(s) and/or employe(s) of the Insured.

Alterations in Policy

14. No alterations in the terms of this Policy or its conditions shall be valid unless the same be signed by some official thereunto authorized by the Company.

Conflicting Statutory Provisions

15. If any condition of this Policy is at variance with any specific statutory provision relating to Insurance Policies, which is in operation prior to the issue of this Policy, and which would otherwise inure to the benefit of the Insured, such specific statutory provision shall be substituted for such condition.

SCHEDULE OF DECLARATIONS

1. Insured's occupation or business is _____
2. Insured is employed by _____ of _____
3. The uses to which the aircraft will be put are in detail as follows: (state whether tests, delivery of aircraft, passenger or cargo carrying, pleasure, racing, sales demonstrations, photography, forest survey, trick flying, public exhibitions, advertising, etc., specifying precise nature. Do not use general terms such as "commercial" or "business.") _____
4. The Insured estimates that the aircraft will be flown _____ hours during the term of insurance.
5. The aircraft will not be used to carry passengers, except as follows: _____
   (State whether for hire or reward)
6. The aircraft described will usually be kept in _____ hangar, (State construction)
   located at _____
   (State precise location)
7. The aircraft will be used only within the geographical limits of _____
   (The narrower the limits the lower the premium)
8. The aircraft does not contain any novel, experimental or untried features of design or material, except as follows: _____
9. The last complete overhaul of the aircraft was _____ (State date)
   and of engine _____ (State date)
10. PILOT(S)

NAME	Age	License			Solo Hours	
		No.	Date	Classification	Total	Last 90 Days

11. No claims have ever been made by the Insured in connection with an aircraft or otherwise, except as follows: _____
12. No company or underwriter has at any time
    (a) Ever declined an application for insurance on behalf of Insured, or
    (b) Cancelled or refused to renew insurance, or
    (c) Ever declined an application in respect of the pilot, except as follows: _____
13. The Insured agrees that in the event of a claim or claims arising and being paid under this Policy and endorsements thereon, in an amount in excess of the stipulated premiums, then the entire premiums specified in the said Policy and endorsements shall be considered as earned and no return premiums shall be made.